ANEJO Nº 6. ESTRUCTURAS

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FASE 1

PRETENSADO (8 tendones 19 ϕ 0.6")

ección	Fase 1		
	Npret	Vhiper	Visos
1	2535.72	0.00	289.33
2	2558.59	0.00	247.07
3	2589.16	0.00	174.31
4	2617.88	0.00	99.64
5	2644.62	0.00	23.23
6	2673.01	0.00	-83.95
7	2700.77	0.00	-220.55
8	2726.14	0.00	-325.38
9	2742.19	0.00	-465.06
10	2839.06	0.00	-178.44
11	2880.32	0.00	0.00
11	2880.32	0.00	0.00
12	2846.87	0.00	189.16
13	2763.91	0.00	405.75
14	2734.28	0.00	453.61

VIADUCTO PARA EL AVE

FASE 2

PRETENSADO (8 tendones 19 ϕ 0.6")

Sección	Fase 2			Fase 1+2		
	Npret	Vhiper	Visos	Npret	Vhiper	Visos
1	0.00	-31.17	0.00	2535.72	-31.17	289.33
2	0.00	-31.17	0.00	2558.59	-31.17	247.07
3	0.00	-31.17	0.00	2589.16	-31.17	174.31
4	0.00	-31.17	0.00	2617.88	-31.17	99.64
5	0.00	-31.17	0.00	2644.62	-31.17	23.23
6	0.00	-31.17	0.00	2673.01	-31.17	-83.95
7	0.00	-31.17	0.00	2700.77	-31.17	-220.55
8	0.00	-31.17	0.00	2726.14	-31.17	-325.38
9	0.00	-31.17	0.00	2742.19	-31.17	-465.06
10	0.00	-31.17	0.00	2839.06	-31.17	-178.44
11	0.00	-31.17	0.00	2880.32	-31.17	0.00
11	0.00	24.85	0.00	2880.32	24.85	0.00
12	0.00	24.85	0.00	2846.87	24.85	189.16
13	0.00	24.85	0.00	2763.91	24.85	405.75
14	0.00	24.85	0.00	2734.28	24.85	453.61
14	2456.72	24.85	406.59	2456.72	24.85	406.59
15	2477.75	24.85	375.85	2477.75	24.85	375.85
16	2527.09	24.85	248.13	2527.09	24.85	248.13
17	2605.08	24.85	0.00	2605.08	24.85	0.00
18	2644.94	24.85	-187.37	2644.94	24.85	-187.37
19	2675.63	24.85	-358.03	2675.63	24.85	-358.03
20	2696.04	24.85	-530.52	2696.04	24.85	-530.52
21	2834.07	24.85	-207.19	2834.07	24.85	-207.19
22	2884.73	24.85	0.00	2884.73	24.85	0.00
22	2884.73	0.00	0.00	2884.73	0.00	0.00
23	2851.03	0.00	189.12	2851.03	0.00	189.12
24	2768.05	0.00	406.06	2768.05	0.00	406.06
25	2738.38	0.00	454.29	2738.38	0.00	454.29

FASE 3

PRETENSADO (8 tendones 19 ϕ 0.6")

Sección	Fase 3			Fase 1+2+3		
	Npret	Vhiper	Visos	Npret	Vhiper	Visos
1	0.00	8.60	-0.00	2535.72	-22.57	289.33
2	0.00	8.60	0.00	2558.59	-22.57	247.07
3	0.00	8.60	0.00	2589.16	-22.57	174.31
4	0.00	8.60	0.00	2617.88	-22.57	99.64
5	0.00	8.60	0.00	2644.62	-22.57	23.23
6	0.00	8.60	0.00	2673.01	-22.57	-83.95
7	0.00	8.60	0.00	2700.77	-22.57	-220.55
8	0.00	8.60	0.00	2726.14	-22.57	-325.38
9	0.00	8.60	0.00	2742.19	-22.57	-465.06
10	0.00	8.60	0.00	2839.06	-22.57	-178.44
11	0.00	8.60	0.00	2880.32	-22.57	0.00
11	0.00	-31.02	0.00	2880.32	-6.17	0.00
12	0.00	-31.02	0.00	2846.87	-6.17	189.16
13	0.00	-31.02	0.00	2763.91	-6.17	405.75
14	0.00	-31.02	0.00	2734.28	-6.17	453.61
14	0.00	-31.02	0.00	2456.72	-6.17	406.59
15	0.00	-31.02	0.00	2477.75	-6.17	375.85
16	0.00	-31.02	0.00	2527.09	-6.17	248.13
17	0.00	-31.02	0.00	2605.08	-6.17	0.00
18	0.00	-31.02	0.00	2644.94	-6.17	-187.37
19	0.00	-31.02	0.00	2675.63	-6.17	-358.03
20	0.00	-31.02	0.00	2696.04	-6.17	-530.52
21	0.00	-31.02	0.00	2834.07	-6.17	-207.19
22	0.00	-31.02	0.00	2884.73	-6.17	0.00
22	0.00	24.05	0.00	2884.73	24.05	0.00
23	0.00	24.05	0.00	2851.03	24.05	189.12
24	0.00	24.05	0.00	2768.05	24.05	406.06
25	0.00	24.05	0.00	2738.38	24.05	454.29
25	2456.72	24.05	406.60	2456.72	24.05	406.60
26	2477.75	24.05	375.84	2477.75	24.05	375.84
27	2527.09	24.05	248.13	2527.09	24.05	248.13
28	2605.08	24.05	0.00	2605.08	24.05	0.00
29	2644.94	24.05	-187.37	2644.94	24.05	-187.37
30	2675.63	24.05	-358.03	2675.63	24.05	-358.03
31	2696.04	24.05	-530.52	2696.04	24.05	-530.52
32	2834.07	24.05	-207.19	2834.07	24.05	-207.19
33	2884.73	24.05	0.00	2884.73	24.05	0.00
33	2884.73	0.00	0.00	2884.73	0.00	0.00
34	2851.03	0.00	189.12	2851.03	0.00	189.12
35	2768.05	0.00	406.06	2768.05	0.00	406.06
36	2738.38	0.00	454.28	2738.38	0.00	454.28

FASE 4

PRETENSADO (8 tendones 19 ϕ 0.6")

Sección	Fase 4			Fase 1+2+3+4		
	Npret	Vhiper	Visos	Npret	Vhiper	Visos
1	0.00	-2.58	0.00	2535.72	-25.15	289.33
2	0.00	-2.58	0.00	2558.59	-25.15	247.07
3	0.00	-2.58	0.00	2589.16	-25.15	174.31
4	0.00	-2.58	0.00	2617.88	-25.15	99.64
5	0.00	-2.58	0.00	2644.62	-25.15	23.23
6	0.00	-2.58	0.00	2673.01	-25.15	-83.95
7	0.00	-2.58	0.00	2700.77	-25.15	-220.55
8	0.00	-2.58	0.00	2726.14	-25.15	-325.38
9	0.00	-2.58	0.00	2742.19	-25.15	-465.06
10	0.00	-2.58	0.00	2839.06	-25.15	-178.44
11	0.00	-2.58	0.00	2880.32	-25.15	0.00
11	0.00	8.73	0.00	2880.32	2.56	0.00
12	0.00	8.73	0.00	2846.87	2.56	189.16
13	0.00	8.73	0.00	2763.91	2.56	405.75
14	0.00	8.73	0.00	2734.28	2.56	453.61
14	0.00	8.73	0.00	2456.72	2.56	406.59
15	0.00	8.73	0.00	2477.75	2.56	375.85
16	0.00	8.73	0.00	2527.09	2.56	248.13
17	0.00	8.73	0.00	2605.08	2.56	0.00
18	0.00	8.73	0.00	2644.94	2.56	-187.37
19	0.00	8.73	0.00	2675.63	2.56	-358.03
20	0.00	8.73	0.00	2696.04	2.56	-530.52
21	0.00	8.73	0.00	2834.07	2.56	-207.19
22	0.00	8.73	0.00	2884.73	2.56	0.00
22	0.00	-30.75	0.00	2884.73	-6.70	0.00
23	0.00	-30.75	0.00	2851.03	-6.70	189.12
24	0.00	-30.75	0.00	2768.05	-6.70	406.06
25	0.00	-30.75	0.00	2738.38	-6.70	454.29
25	0.00	-30.75	0.00	2456.72	-6.70	406.60
26	0.00	-30.75	0.00	2477.75	-6.70	375.84
27	0.00	-30.75	0.00	2527.09	-6.70	248.13
28	0.00	-30.75	0.00	2605.08	-6.70	0.00
29	0.00	-30.75	0.00	2644.94	-6.70	-187.37
30	0.00	-30.75	0.00	2675.63	-6.70	-358.03
31	0.00	-30.75	0.00	2696.04	-6.70	-530.52
32	0.00	-30.75	0.00	2834.07	-6.70	-207.19
33	0.00	-30.75	0.00	2884.73	-6.70	0.00
33	0.00	24.00	0.00	2884.73	24.00	0.00
34	0.00	24.00	0.00	2851.03	24.00	189.12
35	0.00	24.00	0.00	2768.05	24.00	406.06
36	0.00	24.00	0.00	2738.38	24.00	454.28
36	2456.72	24.00	406.60	2456.72	24.00	406.60
37	2477.75	24.00	375.82	2477.75	24.00	375.82
38	2527.09	24.00	248.12	2527.09	24.00	248.12
39	2605.08	24.00	0.00	2605.08	24.00	0.00
40	2644.94	24.00	-187.37	2644.94	24.00	-187.37
41	2675.63	24.00	-358.03	2675.63	24.00	-358.03
42	2696.04	24.00	-530.52	2696.04	24.00	-530.52
43	2834.07	24.00	-207.19	2834.07	24.00	-207.19
44	2884.73	24.00	0.00	2884.73	24.00	0.00
44	2884.73	0.00	0.00	2884.73	0.00	0.00
45	2851.03	0.00	189.12	2851.03	0.00	189.12
46	2768.05	0.00	406.06	2768.05	0.00	406.06

FASE 4

PRETENSADO (8 tendones 19 ϕ 0.6")

Sección	Fase 4			Fase 1+2+3+4		
	Npret	Vhiper	Visos	Npret	Vhiper	Visos
47	2738.38	0.00	454.28	2738.38	0.00	454.28

FASE 5

PRETENSADO (8 tendones 19 ϕ 0.6")

Sección	Fase 5			Fase 1+2+3+4+5		
	Npret	Vhiper	Visos	Npret	Vhiper	Visos
1	0.00	0.56	0.00	2535.72	-24.59	289.33
2	0.00	0.56	0.00	2558.59	-24.59	247.07
3	0.00	0.56	0.00	2589.16	-24.59	174.31
4	0.00	0.56	0.00	2617.88	-24.59	99.64
5	0.00	0.56	0.00	2644.62	-24.59	23.23
6	0.00	0.56	0.00	2673.01	-24.59	-83.95
7	0.00	0.56	0.00	2700.77	-24.59	-220.55
8	0.00	0.56	0.00	2726.14	-24.59	-325.38
9	0.00	0.56	0.00	2742.19	-24.59	-465.06
10	0.00	0.56	0.00	2839.06	-24.59	-178.44
11	0.00	0.56	0.00	2880.32	-24.59	0.00
11	0.00	-2.41	0.00	2880.32	0.15	0.00
12	0.00	-2.41	0.00	2846.87	0.15	189.16
13	0.00	-2.41	0.00	2763.91	0.15	405.75
14	0.00	-2.41	0.00	2734.28	0.15	453.61
14	0.00	-2.41	0.00	2456.72	0.15	406.59
15	0.00	-2.41	0.00	2477.75	0.15	375.85
16	0.00	-2.41	0.00	2527.09	0.15	248.13
17	0.00	-2.41	0.00	2605.08	0.15	0.00
18	0.00	-2.41	0.00	2644.94	0.15	-187.37
19	0.00	-2.41	0.00	2675.63	0.15	-358.03
20	0.00	-2.41	0.00	2696.04	0.15	-530.52
21	0.00	-2.41	0.00	2834.07	0.15	-207.19
22	0.00	-2.41	0.00	2884.73	0.15	0.00
22	0.00	8.61	0.00	2884.73	1.91	0.00
23	0.00	8.61	0.00	2851.03	1.91	189.12
24	0.00	8.61	0.00	2768.05	1.91	406.06
25	0.00	8.61	0.00	2738.38	1.91	454.29
25	0.00	8.61	0.00	2456.72	1.91	406.60
26	0.00	8.61	0.00	2477.75	1.91	375.84
27	0.00	8.61	0.00	2527.09	1.91	248.13
28	0.00	8.61	0.00	2605.08	1.91	0.00
29	0.00	8.61	0.00	2644.94	1.91	-187.37
30	0.00	8.61	0.00	2675.63	1.91	-358.03
31	0.00	8.61	0.00	2696.04	1.91	-530.52
32	0.00	8.61	0.00	2834.07	1.91	-207.19
33	0.00	8.61	0.00	2884.73	1.91	0.00
33	0.00	-30.72	0.00	2884.73	-6.72	0.00
34	0.00	-30.72	0.00	2851.03	-6.72	189.12
35	0.00	-30.72	0.00	2768.05	-6.72	406.06
36	0.00	-30.72	0.00	2738.38	-6.72	454.28
36	0.00	-30.72	0.00	2456.72	-6.72	406.60
37	0.00	-30.72	0.00	2477.75	-6.72	375.82
38	0.00	-30.72	0.00	2527.09	-6.72	248.12
39	0.00	-30.72	0.00	2605.08	-6.72	0.00
40	0.00	-30.72	0.00	2644.94	-6.72	-187.37
41	0.00	-30.72	0.00	2675.63	-6.72	-358.03
42	0.00	-30.72	0.00	2696.04	-6.72	-530.52
43	0.00	-30.72	0.00	2834.07	-6.72	-207.19
44	0.00	-30.72	0.00	2884.73	-6.72	0.00
44	0.00	23.99	0.00	2884.73	23.99	0.00
45	0.00	23.99	0.00	2851.03	23.99	189.12
46	0.00	23.99	0.00	2768.05	23.99	406.06

FASE 5

PRETENSADO (8 tendones 19 ϕ 0.6")

Sección	Fase 5			Fase 1+2+3+4+5		
	Npret	Vhiper	Visos	Npret	Vhiper	Visos
47	0.00	23.99	0.00	2738.38	23.99	454.28
47	2456.72	23.99	406.60	2456.72	23.99	406.60
48	2477.75	23.99	375.88	2477.75	23.99	375.88
49	2527.09	23.99	248.14	2527.09	23.99	248.14
50	2605.08	23.99	0.00	2605.08	23.99	0.00
51	2644.94	23.99	-187.37	2644.94	23.99	-187.37
52	2675.63	23.99	-358.03	2675.63	23.99	-358.03
53	2696.04	23.99	-530.52	2696.04	23.99	-530.52
54	2834.07	23.99	-207.19	2834.07	23.99	-207.19
55	2884.73	23.99	0.00	2884.73	23.99	0.00
55	2884.73	0.00	0.00	2884.73	0.00	0.00
56	2851.03	0.00	189.12	2851.03	0.00	189.12
57	2768.05	0.00	406.07	2768.05	0.00	406.07
58	2738.38	0.00	454.29	2738.38	0.00	454.29

FASE 6

PRETENSADO (8 tendones 19 ϕ 0.6")

Sección	Fase 6			Fase 1+2+3+4+5+6		
	Npret	Vhiper	Visos	Npret	Vhiper	Visos
1	0.00	-0.32	0.00	2535.72	-24.91	289.33
2	0.00	-0.32	0.00	2558.59	-24.91	247.07
3	0.00	-0.32	0.00	2589.16	-24.91	174.31
4	0.00	-0.32	0.00	2617.88	-24.91	99.64
5	0.00	-0.32	0.00	2644.62	-24.91	23.23
6	0.00	-0.32	0.00	2673.01	-24.91	-83.95
7	0.00	-0.32	0.00	2700.77	-24.91	-220.55
8	0.00	-0.32	0.00	2726.14	-24.91	-325.38
9	0.00	-0.32	0.00	2742.19	-24.91	-465.06
10	0.00	-0.32	0.00	2839.06	-24.91	-178.44
11	0.00	-0.32	0.00	2880.32	-24.91	0.00
11	0.00	0.71	0.00	2880.32	0.86	0.00
12	0.00	0.71	0.00	2846.87	0.86	189.16
13	0.00	0.71	0.00	2763.91	0.86	405.75
14	0.00	0.71	0.00	2734.28	0.86	453.61
14	0.00	0.71	0.00	2456.72	0.86	406.59
15	0.00	0.71	0.00	2477.75	0.86	375.85
16	0.00	0.71	0.00	2527.09	0.86	248.13
17	0.00	0.71	0.00	2605.08	0.86	0.00
18	0.00	0.71	0.00	2644.94	0.86	-187.37
19	0.00	0.71	0.00	2675.63	0.86	-358.03
20	0.00	0.71	0.00	2696.04	0.86	-530.52
21	0.00	0.71	0.00	2834.07	0.86	-207.19
22	0.00	0.71	0.00	2884.73	0.86	0.00
22	0.00	-2.42	0.00	2884.73	-0.51	0.00
23	0.00	-2.42	0.00	2851.03	-0.51	189.12
24	0.00	-2.42	0.00	2768.05	-0.51	406.06
25	0.00	-2.42	0.00	2738.38	-0.51	454.29
25	0.00	-2.42	0.00	2456.72	-0.51	406.60
26	0.00	-2.42	0.00	2477.75	-0.51	375.84
27	0.00	-2.42	0.00	2527.09	-0.51	248.13
28	0.00	-2.42	0.00	2605.08	-0.51	0.00
29	0.00	-2.42	0.00	2644.94	-0.51	-187.37
30	0.00	-2.42	0.00	2675.63	-0.51	-358.03
31	0.00	-2.42	0.00	2696.04	-0.51	-530.52
32	0.00	-2.42	0.00	2834.07	-0.51	-207.19
33	0.00	-2.42	0.00	2884.73	-0.51	0.00
33	0.00	8.62	0.00	2884.73	1.90	0.00
34	0.00	8.62	0.00	2851.03	1.90	189.12
35	0.00	8.62	0.00	2768.05	1.90	406.06
36	0.00	8.62	0.00	2738.38	1.90	454.28
36	0.00	8.62	0.00	2456.72	1.90	406.60
37	0.00	8.62	0.00	2477.75	1.90	375.82
38	0.00	8.62	0.00	2527.09	1.90	248.12
39	0.00	8.62	0.00	2605.08	1.90	0.00
40	0.00	8.62	0.00	2644.94	1.90	-187.37
41	0.00	8.62	0.00	2675.63	1.90	-358.03
42	0.00	8.62	0.00	2696.04	1.90	-530.52
43	0.00	8.62	0.00	2834.07	1.90	-207.19
44	0.00	8.62	0.00	2884.73	1.90	0.00
44	0.00	-30.72	0.00	2884.73	-6.73	0.00
45	0.00	-30.72	0.00	2851.03	-6.73	189.12
46	0.00	-30.72	0.00	2768.05	-6.73	406.06

FASE 6

PRETENSADO (8 tendones 19 ϕ 0.6")

Sección	Fase 6			Fase 1+2+3+4+5+6		
	Npret	Vhiper	Visos	Npret	Vhiper	Visos
47	0.00	-30.72	0.00	2738.38	-6.73	454.28
47	0.00	-30.72	0.00	2456.72	-6.73	406.60
48	0.00	-30.72	0.00	2477.75	-6.73	375.88
49	0.00	-30.72	0.00	2527.09	-6.73	248.14
50	0.00	-30.72	0.00	2605.08	-6.73	0.00
51	0.00	-30.72	0.00	2644.94	-6.73	-187.37
52	0.00	-30.72	0.00	2675.63	-6.73	-358.03
53	0.00	-30.72	0.00	2696.04	-6.73	-530.52
54	0.00	-30.72	0.00	2834.07	-6.73	-207.19
55	0.00	-30.72	0.00	2884.73	-6.73	0.00
55	0.00	23.99	0.00	2884.73	23.99	0.00
56	0.00	23.99	0.00	2851.03	23.99	189.12
57	0.00	23.99	0.00	2768.05	23.99	406.07
58	0.00	23.99	0.00	2738.38	23.99	454.29
58	2456.72	23.99	406.59	2456.72	23.99	406.59
59	2477.75	23.99	375.81	2477.75	23.99	375.81
60	2527.09	23.99	248.04	2527.09	23.99	248.04
61	2605.08	23.99	0.00	2605.08	23.99	0.00
62	2644.94	23.99	-187.37	2644.94	23.99	-187.37
63	2675.63	23.99	-358.03	2675.63	23.99	-358.03
64	2696.04	23.99	-530.52	2696.04	23.99	-530.52
65	2834.07	23.99	-207.19	2834.07	23.99	-207.19
66	2884.73	23.99	0.00	2884.73	23.99	0.00
66	2884.73	0.00	0.00	2884.73	0.00	0.00
67	2850.97	0.00	189.11	2850.97	0.00	189.11
68	2763.64	0.00	411.56	2763.64	0.00	411.56
69	2738.38	0.00	454.27	2738.38	0.00	454.27

FASE 7

PRETENSADO (8 tendones 19 ϕ 0.6")

Sección	Fase 7			Fase 1+2+3+4+5+6+7		
	Npret	Vhiper	Visos	Npret	Vhiper	Visos
1	0.00	0.03	0.00	2535.72	-24.88	289.33
2	0.00	0.03	0.00	2558.59	-24.88	247.07
3	0.00	0.03	0.00	2589.16	-24.88	174.31
4	0.00	0.03	0.00	2617.88	-24.88	99.64
5	0.00	0.03	0.00	2644.62	-24.88	23.23
6	0.00	0.03	0.00	2673.01	-24.88	-83.95
7	0.00	0.03	0.00	2700.77	-24.88	-220.55
8	0.00	0.03	0.00	2726.14	-24.88	-325.38
9	0.00	0.03	0.00	2742.19	-24.88	-465.06
10	0.00	0.03	0.00	2839.06	-24.88	-178.44
11	0.00	0.03	0.00	2880.32	-24.88	0.00
11	0.00	-0.12	0.00	2880.32	0.74	0.00
12	0.00	-0.12	0.00	2846.87	0.74	189.16
13	0.00	-0.12	0.00	2763.91	0.74	405.75
14	0.00	-0.12	0.00	2734.28	0.74	453.61
14	0.00	-0.12	0.00	2456.72	0.74	406.59
15	0.00	-0.12	0.00	2477.75	0.74	375.85
16	0.00	-0.12	0.00	2527.09	0.74	248.13
17	0.00	-0.12	0.00	2605.08	0.74	0.00
18	0.00	-0.12	0.00	2644.94	0.74	-187.37
19	0.00	-0.12	0.00	2675.63	0.74	-358.03
20	0.00	-0.12	0.00	2696.04	0.74	-530.52
21	0.00	-0.12	0.00	2834.07	0.74	-207.19
22	0.00	-0.12	0.00	2884.73	0.74	0.00
22	0.00	0.42	0.00	2884.73	-0.09	0.00
23	0.00	0.42	0.00	2851.03	-0.09	189.12
24	0.00	0.42	0.00	2768.05	-0.09	406.06
25	0.00	0.42	0.00	2738.38	-0.09	454.29
25	0.00	0.42	0.00	2456.72	-0.09	406.60
26	0.00	0.42	0.00	2477.75	-0.09	375.84
27	0.00	0.42	0.00	2527.09	-0.09	248.13
28	0.00	0.42	0.00	2605.08	-0.09	0.00
29	0.00	0.42	0.00	2644.94	-0.09	-187.37
30	0.00	0.42	0.00	2675.63	-0.09	-358.03
31	0.00	0.42	0.00	2696.04	-0.09	-530.52
32	0.00	0.42	0.00	2834.07	-0.09	-207.19
33	0.00	0.42	0.00	2884.73	-0.09	0.00
33	0.00	-1.51	0.00	2884.73	0.39	0.00
34	0.00	-1.51	0.00	2851.03	0.39	189.12
35	0.00	-1.51	0.00	2768.05	0.39	406.06
36	0.00	-1.51	0.00	2738.38	0.39	454.28
36	0.00	-1.51	0.00	2456.72	0.39	406.60
37	0.00	-1.51	0.00	2477.75	0.39	375.82
38	0.00	-1.51	0.00	2527.09	0.39	248.12
39	0.00	-1.51	0.00	2605.08	0.39	0.00
40	0.00	-1.51	0.00	2644.94	0.39	-187.37
41	0.00	-1.51	0.00	2675.63	0.39	-358.03
42	0.00	-1.51	0.00	2696.04	0.39	-530.52
43	0.00	-1.51	0.00	2834.07	0.39	-207.19
44	0.00	-1.51	0.00	2884.73	0.39	0.00
44	0.00	5.40	0.00	2884.73	-1.33	0.00
45	0.00	5.40	0.00	2851.03	-1.33	189.12
46	0.00	5.40	0.00	2768.05	-1.33	406.06

FASE 7

PRETENSADO (8 tendones 19 ϕ 0.6")

Sección	Fase 7			Fase 1+2+3+4+5+6+7		
	Npret	Vhiper	Visos	Npret	Vhiper	Visos
47	0.00	5.40	0.00	2738.38	-1.33	454.28
47	0.00	5.40	0.00	2456.72	-1.33	406.60
48	0.00	5.40	0.00	2477.75	-1.33	375.88
49	0.00	5.40	0.00	2527.09	-1.33	248.14
50	0.00	5.40	0.00	2605.08	-1.33	0.00
51	0.00	5.40	0.00	2644.94	-1.33	-187.37
52	0.00	5.40	0.00	2675.63	-1.33	-358.03
53	0.00	5.40	0.00	2696.04	-1.33	-530.52
54	0.00	5.40	0.00	2834.07	-1.33	-207.19
55	0.00	5.40	0.00	2884.73	-1.33	0.00
55	0.00	-19.24	0.00	2884.73	4.75	0.00
56	0.00	-19.24	0.00	2851.03	4.75	189.12
57	0.00	-19.24	0.00	2768.05	4.75	406.07
58	0.00	-19.24	0.00	2738.38	4.75	454.29
58	0.00	-19.24	0.00	2456.72	4.75	406.59
59	0.00	-19.24	0.00	2477.75	4.75	375.81
60	0.00	-19.24	0.00	2527.09	4.75	248.04
61	0.00	-19.24	0.00	2605.08	4.75	[illegible]
62	0.00	-19.24	0.00	2644.94	4.75	-187.37
63	0.00	-19.24	0.00	2675.63	4.75	-358.03
64	0.00	-19.24	0.00	2696.04	4.75	-530.52
65	0.00	-19.24	0.00	2834.07	4.75	-207.19
66	0.00	-19.24	0.00	2884.73	4.75	0.00
66	0.00	18.79	0.00	2884.73	18.79	0.00
67	0.00	18.79	0.00	2850.97	18.79	189.11
68	0.00	18.79	0.00	2763.64	18.79	411.56
69	0.00	18.79	0.00	2738.38	18.79	454.27
69	2748.28	18.79	455.41	2748.28	18.79	455.41
70	2830.64	18.79	247.72	2830.64	18.79	247.72
71	2892.96	18.79	42.87	2892.96	18.79	42.87
72	2919.76	18.79	-27.09	2919.76	18.79	-27.09
73	2903.63	18.79	-116.79	2903.63	18.79	-116.79
74	2869.72	18.79	-204.20	2869.72	18.79	-204.20
75	2832.99	18.79	-289.19	2832.99	18.79	-289.19
76	2801.65	18.79	-337.95	2801.65	18.79	-337.95

FASE 8 Y ESTRUCTURA FINAL

PRETENSADO (7 x 8 tendones 19 ϕ 0.6")

$S = So + (Sc - So) \times \varphi / (1 + \varphi . \chi)$

Sección	Npret	Vhiper			Visos
		Σ Fases (So)	Fase 8 (Sc)	Finales (S)	
1	2535.72	-24.88	-6.69	-9.73	289.33
2	2558.59	-24.88	-6.69	-9.73	247.07
3	2589.16	-24.88	-6.69	-9.73	174.31
4	2617.88	-24.88	-6.69	-9.73	99.64
5	2644.62	-24.88	-6.69	-9.73	23.23
6	2673.01	-24.88	-6.69	-9.73	-83.95
7	2700.77	-24.88	-6.69	-9.73	-220.55
8	2726.14	-24.88	-6.69	-9.73	-325.38
9	2742.19	-24.88	-6.69	-9.73	-465.06
10	2839.06	-24.88	-6.69	-9.73	-178.44
11	2880.32	-24.88	-6.69	-9.73	0.00
11	2880.32	0.74	-12.62	-10.39	0.00
12	2846.87	0.74	-12.62	-10.39	189.16
13	2763.91	0.74	-12.62	-10.39	405.75
14	2734.28	0.74	-12.62	-10.39	453.61
14	2456.72	0.74	-12.62	-10.39	406.59
15	2477.75	0.74	-12.62	-10.39	375.85
16	2527.09	0.74	-12.62	-10.39	248.13
17	2605.08	0.74	-12.62	-10.39	0.00
18	2644.94	0.74	-12.62	-10.39	-187.37
19	2675.63	0.74	-12.62	-10.39	-358.03
20	2696.04	0.74	-12.62	-10.39	-530.52
21	2834.07	0.74	-12.62	-10.39	-207.19
22	2884.73	0.74	-12.62	-10.39	0.00
22	2884.73	-0.09	3.42	2.83	0.00
23	2851.03	-0.09	3.42	2.83	189.12
24	2768.05	-0.09	3.42	2.83	406.06
25	2738.38	-0.09	3.42	2.83	454.29
25	2456.72	-0.09	3.42	2.83	406.60
26	2477.75	-0.09	3.42	2.83	375.84
27	2527.09	-0.09	3.42	2.83	248.13
28	2605.08	-0.09	3.42	2.83	0.00
29	2644.94	-0.09	3.42	2.83	-187.37
30	2675.63	-0.09	3.42	2.83	-358.03
31	2696.04	-0.09	3.42	2.83	-530.52
32	2834.07	-0.09	3.42	2.83	-207.19
33	2884.73	-0.09	3.42	2.83	0.00
33	2884.73	0.39	-0.50	-0.35	0.00
34	2851.03	0.39	-0.50	-0.35	189.12
35	2768.05	0.39	-0.50	-0.35	406.06
36	2738.38	0.39	-0.50	-0.35	454.28
36	2456.72	0.39	-0.50	-0.35	406.60
37	2477.75	0.39	-0.50	-0.35	375.82
38	2527.09	0.39	-0.50	-0.35	248.12
39	2605.08	0.39	-0.50	-0.35	0.00
40	2644.94	0.39	-0.50	-0.35	-187.37
41	2675.63	0.39	-0.50	-0.35	-358.03
42	2696.04	0.39	-0.50	-0.35	-530.52
43	2834.07	0.39	-0.50	-0.35	-207.19
44	2884.73	0.39	-0.50	-0.35	0.00
44	2884.73	-1.33	-1.50	-1.47	0.00

FASE 8 Y ESTRUCTURA FINAL

PRETENSADO (7 x 8 tendones 19 ϕ 0.6")

$S = So + (Sc - So) \times \varphi / (1 + \varphi . \chi)$

Sección	Npret	Vhiper			Visos
		Σ Fases (So)	Fase 8 (Sc)	Finales (S)	
45	2851.03	-1.33	-1.50	-1.47	189.12
46	2768.05	-1.33	-1.50	-1.47	406.06
47	2738.38	-1.33	-1.50	-1.47	454.28
47	2456.72	-1.33	-1.50	-1.47	406.60
48	2477.75	-1.33	-1.50	-1.47	375.88
49	2527.09	-1.33	-1.50	-1.47	248.14
50	2605.08	-1.33	-1.50	-1.47	0.00
51	2644.94	-1.33	-1.50	-1.47	-187.37
52	2675.63	-1.33	-1.50	-1.47	-358.03
53	2696.04	-1.33	-1.50	-1.47	-530.52
54	2834.07	-1.33	-1.50	-1.47	-207.19
55	2884.73	-1.33	-1.50	-1.47	0.00
55	2884.73	4.75	6.25	6.00	0.00
56	2851.03	4.75	6.25	6.00	189.12
57	2768.05	4.75	6.25	6.00	406.07
58	2738.38	4.75	6.25	6.00	454.29
58	2456.72	4.75	6.25	6.00	406.59
59	2477.75	4.75	6.25	6.00	375.81
60	2527.09	4.75	6.25	6.00	248.04
61	2605.08	4.75	6.25	6.00	0.00
62	2644.94	4.75	6.25	6.00	-187.37
63	2675.63	4.75	6.25	6.00	-358.03
64	2696.04	4.75	6.25	6.00	-530.52
65	2834.07	4.75	6.25	6.00	-207.19
66	2884.73	4.75	6.25	6.00	0.00
66	2884.73	18.79	12.88	13.87	0.00
67	2850.97	18.79	12.88	13.87	189.11
68	2763.64	18.79	12.88	13.87	411.56
69	2738.38	18.79	12.88	13.87	454.27
69	2748.28	18.79	12.88	13.87	455.41
70	2830.64	18.79	12.88	13.87	247.72
71	2892.96	18.79	12.88	13.87	42.87
72	2919.76	18.79	12.88	13.87	-27.09
73	2903.63	18.79	12.88	13.87	-116.79
74	2869.72	18.79	12.88	13.87	-204.20
75	2832.99	18.79	12.88	13.87	-289.19
76	2801.65	18.79	12.88	13.87	-337.95

FASE FINAL

PRETENSADO (3 x 6 tendones 19 ϕ 0.6")

Sección	Npret	Vhiper	Visos
1	2137.12	-73.89	99.48
2	2150.71	-73.89	84.75
3	2165.54	-73.89	59.51
4	2179.94	-73.89	33.88
5	2193.90	-73.89	7.87
6	2191.79	-73.89	-75.81
7	2153.63	-73.89	-193.66
8	2113.96	-73.89	-277.83
9	2068.35	-73.89	-386.28
10	2042.00	-73.89	-141.25
11	2706.70	-73.89	0.00
11	2706.70	11.59	0.00
12	1997.70	11.59	230.46
13	1961.27	11.59	350.94
14	1962.50	11.59	345.93
14	1962.50	11.59	345.93
15	1977.84	11.59	231.14
16	1979.81	11.59	50.26
17	1972.66	11.59	0.00
18	1957.28	11.59	-136.13
19	1936.41	11.59	-254.56
20	1909.97	11.59	-369.47
21	1927.54	11.59	-138.76
22	2609.37	11.59	0.00
22	2609.37	-0.11	0.00
23	1925.69	-0.11	233.99
24	1928.35	-0.11	349.22
25	1928.93	-0.11	343.64
25	1928.93	-0.11	343.64
26	1939.68	-0.11	228.32
27	1945.41	-0.11	48.18
28	1934.81	-0.11	0.00
29	1925.73	-0.11	-135.20
30	1924.12	-0.11	-255.13
31	1916.04	-0.11	-373.55
32	1942.43	-0.11	-140.51
33	2620.24	-0.11	0.00
33	2620.24	-3.10	0.00
34	1938.62	-3.10	237.07
35	1930.28	-3.10	348.86
36	1928.69	-3.10	342.62
36	1928.69	-3.10	342.62
37	1929.10	-3.10	226.66
38	1920.09	-3.10	50.57
39	1920.64	-3.10	0.00
40	1916.50	-3.10	-133.47
41	1914.22	-3.10	-251.59
42	1905.76	-3.10	-368.04
43	1923.05	-3.10	-137.92
44	2611.11	-3.10	0.00
44	2611.11	4.39	0.00
45	1918.60	4.39	220.76
46	1907.72	4.39	339.57

FASE FINAL

PRETENSADO (3 x 6 tendones 19 ϕ 0.6")

Sección	Npret	Vhiper	Visos
47	1911.05	4.39	335.23
47	1911.05	4.39	335.23
48	1926.79	4.39	224.66
49	1929.75	4.39	50.06
50	1922.93	4.39	0.00
51	1914.63	4.39	-132.96
52	1914.76	4.39	-251.53
53	1908.36	4.39	-369.14
54	1927.53	4.39	-138.76
55	2609.37	4.39	0.00
55	2609.37	-13.66	0.00
56	1925.69	-13.66	233.99
57	1928.34	-13.66	349.22
58	1928.93	-13.66	343.66
58	1928.93	-13.66	343.66
59	1940.81	-13.66	228.44
60	1965.45	-13.66	49.15
61	1973.11	-13.66	0.00
62	1977.10	-13.66	-138.33
63	1976.08	-13.66	-261.12
64	1968.43	-13.66	-382.43
65	2022.60	-13.66	-145.82
66	2698.84	-13.66	0.00
66	2698.84	75.01	0.00
67	2050.36	75.01	249.48
68	2069.49	75.01	373.43
69	2077.42	75.01	367.27
69	2077.42	75.01	367.27
70	2170.59	75.01	112.23
71	2199.18	75.01	0.00
72	2197.84	75.01	-9.77
73	2182.51	75.01	-42.00
74	2166.05	75.01	-73.69
75	2149.75	75.01	-104.78
76	2134.68	75.01	-122.85

SUMA DE FASES 1 A 7 + FASE FINAL

PRETENSADO (7 x 8 tendones 19 ϕ 0.6" + 3 x 6 tendones 19 ϕ 0.6")

Sección	Npret	Vhiper		Visos
		Inicial	Final	
1	4672.84	-98.77	-83.62	388.81
2	4709.30	-98.77	-83.62	331.82
3	4754.70	-98.77	-83.62	233.82
4	4797.82	-98.77	-83.62	133.52
5	4838.52	-98.77	-83.62	31.10
6	4864.80	-98.77	-83.62	-159.76
7	4854.40	-98.77	-83.62	-414.21
8	4840.10	-98.77	-83.62	-603.21
9	4810.54	-98.77	-83.62	-851.34
10	4881.06	-98.77	-83.62	-319.69
11	5587.02	-98.77	-83.62	0.00
11	5587.02	12.33	1.20	0.00
12	4844.57	12.33	1.20	419.62
13	4725.18	12.33	1.20	756.69
14	4696.78	12.33	1.20	799.54
14	4419.22	12.33	1.20	752.52
15	4455.59	12.33	1.20	606.99
16	4506.90	12.33	1.20	298.39
17	4577.74	12.33	1.20	0.00
18	4602.22	12.33	1.20	-323.50
19	4612.04	12.33	1.20	-612.59
20	4606.01	12.33	1.20	-899.99
21	4761.61	12.33	1.20	-345.95
22	5494.10	12.33	1.20	0.00
22	5494.10	-0.20	2.72	0.00
23	4776.72	-0.20	2.72	423.11
24	4696.40	-0.20	2.72	755.28
25	4667.31	-0.20	2.72	797.93
25	4385.65	-0.20	2.72	750.24
26	4417.43	-0.20	2.72	604.16
27	4472.50	-0.20	2.72	296.31
28	4539.89	-0.20	2.72	0.00
29	4570.67	-0.20	2.72	-322.57
30	4599.75	-0.20	2.72	-613.16
31	4612.08	-0.20	2.72	-904.07
32	4776.50	-0.20	2.72	-347.70
33	5504.97	-0.20	2.72	0.00
33	5504.97	-2.71	-3.45	0.00
34	4789.65	-2.71	-3.45	426.19
35	4698.33	-2.71	-3.45	754.92
36	4667.07	-2.71	-3.45	796.90
36	4385.41	-2.71	-3.45	749.22
37	4406.85	-2.71	-3.45	602.48
38	4447.18	-2.71	-3.45	298.69
39	4525.72	-2.71	-3.45	0.00
40	4561.44	-2.71	-3.45	-320.84
41	4589.85	-2.71	-3.45	-609.62
42	4601.80	-2.71	-3.45	-898.56
43	4757.12	-2.71	-3.45	-345.11
44	5495.84	-2.71	-3.45	0.00
44	5495.84	3.06	2.92	0.00
45	4769.63	3.06	2.92	409.88
46	4675.77	3.06	2.92	745.63

SUMA DE FASES 1 A 7 + FASE FINAL

PRETENSADO (7 x 8 tendones 19 ϕ 0.6" + 3 x 6 tendones 19 ϕ 0.6")

Sección	Npret	Vhiper		Visos
		Inicial	Final	
47	4649.43	3.06	2.92	789.51
47	4367.77	3.06	2.92	741.83
48	4404.54	3.06	2.92	600.54
49	4456.84	3.06	2.92	298.20
50	4528.01	3.06	2.92	0.00
51	4559.57	3.06	2.92	-320.33
52	4590.39	3.06	2.92	-609.56
53	4604.40	3.06	2.92	-899.66
54	4761.60	3.06	2.92	-345.95
55	5494.10	3.06	2.92	0.00
55	5494.10	-8.91	-7.66	0.00
56	4776.72	-8.91	-7.66	423.11
57	4696.39	-8.91	-7.66	755.29
58	4667.31	-8.91	-7.66	797.95
58	4385.65	-8.91	-7.66	750.25
59	4418.56	-8.91	-7.66	604.25
60	4492.54	-8.91	-7.66	297.19
61	4578.19	-8.91	-7.66	0.00
62	4622.04	-8.91	-7.66	-325.70
63	4651.71	-8.91	-7.66	-619.15
64	4664.47	-8.91	-7.66	-912.95
65	4856.67	-8.91	-7.66	-353.01
66	5583.57	-8.91	-7.66	0.00
66	5583.57	93.80	88.88	0.00
67	4901.33	93.80	88.88	438.59
68	4833.13	93.80	88.88	784.99
69	4815.80	93.80	88.88	821.54
69	4825.70	93.80	88.88	822.68
70	5001.23	93.80	88.88	359.95
71	5092.14	93.80	88.88	42.87
72	5117.60	93.80	88.88	-36.86
73	5086.14	93.80	88.88	-158.79
74	5035.77	93.80	88.88	-277.89
75	4982.74	93.80	88.88	-393.97
76	4936.33	93.80	88.88	-460.80

FASE 1

ESFUERZOS CORTANTES

Sección	Peso Propio	Cimbra		Gradiente
		Retirada	Cuelgue	Temp. 10° C
1	-413.13	0.00	120.00	0.00
2	-278.99	0.00	120.00	0.00
3	-200.81	0.00	120.00	0.00
4	-122.63	0.00	120.00	0.00
5	-44.46	0.00	120.00	0.00
6	33.72	0.00	120.00	0.00
7	111.89	0.00	120.00	0.00
8	190.07	0.00	120.00	0.00
9	268.25	0.00	120.00	0.00
10	363.52	0.00	120.00	0.00
11	468.32	0.00	120.00	0.00
11	-263.60	0.00	-480.00	0.00
12	-158.80	0.00	-480.00	0.00
13	-73.29	0.00	-480.00	0.00
14	0.00	0.00	0.00	0.00

VIADUCTO PARA EL AVE

FASE 2

ESFUERZOS CORTANTES

Sección	Peso Propio	Cimbra		Gradiente
		Retirada	Cuelgue	Temp. 10° C
1	65.61	-50.03	-34.83	-79.79
2	65.61	-50.03	-34.83	-79.79
3	65.61	-50.03	-34.83	-79.79
4	65.61	-50.03	-34.83	-79.79
5	65.61	-50.03	-34.83	-79.79
6	65.61	-50.03	-34.83	-79.79
7	65.61	-50.03	-34.83	-79.79
8	65.61	-50.03	-34.83	-79.79
9	65.61	-50.03	-34.83	-79.79
10	65.61	-50.03	-34.83	-79.79
11	65.61	-50.03	-34.83	-79.79
11	-321.22	424.03	123.86	63.83
12	-321.22	424.03	123.86	63.83
13	-321.22	424.03	123.86	63.83
14	-321.22	-55.97	123.86	63.83
15	-247.93	-55.97	123.86	63.83
16	-150.21	-55.97	123.86	63.83
17	-52.49	-55.97	123.86	63.83
18	45.23	-55.97	123.86	63.83
19	142.95	-55.97	123.86	63.83
20	240.67	-55.97	123.86	63.83
21	375.03	-55.97	123.86	63.83
22	479.83	-55.97	123.86	63.83
22	-263.60	0.00	-480.00	0.00
23	-158.80	0.00	-480.00	0.00
24	-73.29	0.00	-480.00	0.00
25	0.00	0.00	0.00	0.00

VIADUCTO PARA EL AVE

FASE 1 + 2

ESFUERZOS CORTANTES

Sección	Peso Propio + Retidada Cimbra	Cimbra Cuelgue	Gradiente Temp. 10° C
1	-277.55	-34.83	-79.79
2	-143.41	-34.83	-79.79
3	-65.23	-34.83	-79.79
4	12.95	-34.83	-79.79
5	91.12	-34.83	-79.79
6	169.30	-34.83	-79.79
7	247.47	-34.83	-79.79
8	325.65	-34.83	-79.79
9	403.83	-34.83	-79.79
10	499.10	-34.83	-79.79
11	603.90	-34.83	-79.79
11	-640.79	123.86	63.83
12	-535.99	123.86	63.83
13	-450.48	123.86	63.83
14	-377.19	123.86	63.83
15	-303.90	123.86	63.83
16	-206.18	123.86	63.83
17	-108.46	123.86	63.83
18	-10.74	123.86	63.83
19	86.98	123.86	63.83
20	184.70	123.86	63.83
21	319.06	123.86	63.83
22	423.86	123.86	63.83
22	-263.60	-480.00	0.00
23	-158.80	-480.00	0.00
24	-73.29	-480.00	0.00
25	0.00	0.00	0.00

FASE 3

ESFUERZOS CORTANTES

Sección	Peso Propio	Cimbra		Gradiente
		Retirada	Cuelgue	Temp. 10° C
1	-18.45	14.07	9.79	-61.38
2	-18.45	14.07	9.79	-61.38
3	-18.45	14.07	9.79	-61.38
4	-18.45	14.07	9.79	-61.38
5	-18.45	14.07	9.79	-61.38
6	-18.45	14.07	9.79	-61.38
7	-18.45	14.07	9.79	-61.38
8	-18.45	14.07	9.79	-61.38
9	-18.45	14.07	9.79	-61.38
10	-18.45	14.07	9.79	-61.38
11	-18.45	14.07	9.79	-61.38
11	65.61	-50.03	-34.82	-1.67
12	65.61	-50.03	-34.82	-1.67
13	65.61	-50.03	-34.82	-1.67
14	65.61	-50.03	-34.82	-1.67
15	65.61	-50.03	-34.82	-1.67
16	65.61	-50.03	-34.82	-1.67
17	65.61	-50.03	-34.82	-1.67
18	65.61	-50.03	-34.82	-1.67
19	65.61	-50.03	-34.82	-1.67
20	65.61	-50.03	-34.82	-1.67
21	65.61	-50.03	-34.82	-1.67
22	65.61	-50.03	-34.82	-1.67
22	-319.58	422.78	122.99	50.77
23	-319.58	422.78	122.99	50.77
24	-319.58	422.78	122.99	50.77
25	-319.58	-57.22	122.99	50.77
26	-246.29	-57.22	122.99	50.77
27	-148.57	-57.22	122.99	50.77
28	-50.85	-57.22	122.99	50.77
29	46.87	-57.22	122.99	50.77
30	144.59	-57.22	122.99	50.77
31	242.31	-57.22	122.99	50.77
32	376.67	-57.22	122.99	50.77
33	481.47	-57.22	122.99	50.77
33	-263.60	0.00	-480.00	0.00
34	-158.80	0.00	-480.00	0.00
35	-73.29	0.00	-480.00	0.00
36	0.00	0.00	0.00	0.00

FASE 1 + 2 + 3

ESFUERZOS CORTANTES

Sección	Peso Propio + Retidada Cimbra	Cimbra Cuelgue	Gradiente Temp. 10° C
1	-316.76	9.79	-61.3
2	-182.62	9.79	-61.3
3	-104.44	9.79	-61.3
4	-26.26	9.79	-61.3
5	51.91	9.79	-61.3
6	130.09	9.79	-61.3
7	208.26	9.79	-61.3
8	286.44	9.79	-61.3
9	364.62	9.79	-61.3
10	459.89	9.79	-61.3
11	564.69	9.79	-61.3
11	-501.35	-34.82	-1.6
12	-396.55	-34.82	-1.6
13	-311.04	-34.82	-1.6
14	-237.75	-34.82	-1.6
15	-164.46	-34.82	-1.6
16	-66.74	-34.82	-1.6
17	30.98	-34.82	-1.67
18	128.70	-34.82	-1.67
19	226.42	-34.82	-1.67
20	324.14	-34.82	-1.67
21	458.50	-34.82	-1.67
22	563.30	-34.82	-1.67
22	-640.40	122.99	50.77
23	-535.60	122.99	50.77
24	-450.09	122.99	50.77
25	-376.80	122.99	50.77
26	-303.51	122.99	50.77
27	-205.79	122.99	50.77
28	-108.07	122.99	50.77
29	-10.35	122.99	50.77
30	87.37	122.99	50.77
31	185.09	122.99	50.77
32	319.45	122.99	50.77
33	424.25	122.99	50.77
33	-263.60	-480.00	0.00
34	-158.80	-480.00	0.00
35	-73.29	-480.00	0.00
36	0.00	0.00	0.00

FASE 4

ESFUERZOS CORTANTES

ción	Peso Propio	Cimbra		Gradiente
		Retirada	Cuelgue	Temp. 10° C
1	5.17	-3.95	-2.75	-66.91
2	5.17	-3.95	-2.75	-66.91
3	5.17	-3.95	-2.75	-66.91
4	5.17	-3.95	-2.75	-66.91
5	5.17	-3.95	-2.75	-66.91
6	5.17	-3.95	-2.75	-66.91
7	5.17	-3.95	-2.75	-66.91
8	5.17	-3.95	-2.75	-66.91
9	5.17	-3.95	-2.75	-66.91
10	5.17	-3.95	-2.75	-66.91
11	5.17	-3.95	-2.75	-66.91
11	-18.40	14.03	9.77	18.03
12	-18.40	14.03	9.77	18.03
13	-18.40	14.03	9.77	18.03
14	-18.40	14.03	9.77	18.03
15	-18.40	14.03	9.77	18.03
16	-18.40	14.03	9.77	18.03
17	-18.40	14.03	9.77	18.03
18	-18.40	14.03	9.77	18.03
19	-18.40	14.03	9.77	18.03
20	-18.40	14.03	9.77	18.03
21	-18.40	14.03	9.77	18.03
22	-18.40	14.03	9.77	18.03
22	64.99	-49.56	-34.49	-18.80
23	64.99	-49.56	-34.49	-18.80
24	64.99	-49.56	-34.49	-18.80
25	64.99	-49.56	-34.49	-18.80
26	64.99	-49.56	-34.49	-18.80
27	64.99	-49.56	-34.49	-18.80
28	64.99	-49.56	-34.49	-18.80
29	64.99	-49.56	-34.49	-18.80
30	64.99	-49.56	-34.49	-18.80
31	64.99	-49.56	-34.49	-18.80
32	64.99	-49.56	-34.49	-18.80
33	64.99	-49.56	-34.49	-18.80
33	-319.45	422.68	122.92	54.30
34	-319.45	422.68	122.92	54.30
35	-319.45	422.68	122.92	54.30
36	-319.45	-57.32	122.92	54.30
37	-246.16	-57.32	122.92	54.30
38	-148.44	-57.32	122.92	54.30
39	-50.72	-57.32	122.92	54.30
40	47.00	-57.32	122.92	54.30
41	144.72	-57.32	122.92	54.30
42	242.44	-57.32	122.92	54.30
43	376.80	-57.32	122.92	54.30
44	481.60	-57.32	122.92	54.30
44	-263.60	0.00	-480.00	0.00
45	-158.80	0.00	-480.00	0.00
46	-73.29	0.00	-480.00	0.00
47	0.00	0.00	0.00	0.00

FASE 1 + 2 + 3 + 4

ESFUERZOS CORTANTES

Sección	Peso Propio + Retidada Cimbra	Cimbra Cuelgue	Gradiente Temp. 10° C
1	-305.75	-2.75	-66.91
2	-171.61	-2.75	-66.91
3	-93.43	-2.75	-66.91
4	-15.25	-2.75	-66.91
5	62.92	-2.75	-66.91
6	141.10	-2.75	-66.91
7	219.27	-2.75	-66.91
8	297.45	-2.75	-66.91
9	375.63	-2.75	-66.91
10	470.90	-2.75	-66.91
11	575.70	-2.75	-66.91
11	-540.54	9.77	18.03
12	-435.74	9.77	18.03
13	-350.23	9.77	18.03
14	-276.94	9.77	18.03
15	-203.65	9.77	18.03
16	-105.93	9.77	18.03
17	-8.21	9.77	18.03
18	89.51	9.77	18.03
19	187.23	9.77	18.03
20	284.95	9.77	18.03
21	419.31	9.77	18.03
22	524.11	9.77	18.03
22	-501.98	-34.49	-18.80
23	-397.18	-34.49	-18.80
24	-311.67	-34.49	-18.80
25	-238.38	-34.49	-18.80
26	-165.09	-34.49	-18.80
27	-67.37	-34.49	-18.80
28	30.35	-34.49	-18.80
29	128.07	-34.49	-18.80
30	225.79	-34.49	-18.80
31	323.51	-34.49	-18.80
32	457.87	-34.49	-18.80
33	562.67	-34.49	-18.80
33	-640.37	122.92	54.30
34	-535.57	122.92	54.30
35	-450.06	122.92	54.30
36	-376.77	122.92	54.30
37	-303.48	122.92	54.30
38	-205.76	122.92	54.30
39	-108.04	122.92	54.30
40	-10.32	122.92	54.30
41	87.40	122.92	54.30
42	185.12	122.92	54.30
43	319.48	122.92	54.30
44	424.28	122.92	54.30
44	-263.60	-480.00	0.00
45	-158.80	-480.00	0.00
46	-73.29	-480.00	0.00
47	0.00	0.00	0.00

FASE 5

ESFUERZOS CORTANTES

Sección	Peso Propio	Cimbra		Gradiente
		Retirada	Cuelgue	Temp. 10° C
1	-1.45	1.11	0.77	65.39
2	-1.45	1.11	0.77	65.39
3	-1.45	1.11	0.77	65.39
4	-1.45	1.11	0.77	65.39
5	-1.45	1.11	0.77	65.39
6	-1.45	1.11	0.77	65.39
7	-1.45	1.11	0.77	65.39
8	-1.45	1.11	0.77	65.39
9	-1.45	1.11	0.77	65.39
10	-1.45	1.11	0.77	65.39
11	-1.45	1.11	0.77	65.39
11	5.16	-3.93	-2.74	12.61
12	5.16	-3.93	-2.74	12.61
13	5.16	-3.93	-2.74	12.61
14	5.16	-3.93	-2.74	12.61
15	5.16	-3.93	-2.74	12.61
16	5.16	-3.93	-2.74	12.61
17	5.16	-3.93	-2.74	12.61
18	5.16	-3.93	-2.74	12.61
19	5.16	-3.93	-2.74	12.61
20	5.16	-3.93	-2.74	12.61
21	5.16	-3.93	-2.74	12.61
22	5.16	-3.93	-2.74	12.61
22	-18.22	13.90	9.67	0.35
23	-18.22	13.90	9.67	0.35
24	-18.22	13.90	9.67	0.35
25	-18.22	13.90	9.67	0.35
26	-18.22	13.90	9.67	0.35
27	-18.22	13.90	9.67	0.35
28	-18.22	13.90	9.67	0.35
29	-18.22	13.90	9.67	0.35
30	-18.22	13.90	9.67	0.35
31	-18.22	13.90	9.67	0.35
32	-18.22	13.90	9.67	0.35
33	-18.22	13.90	9.67	0.35
33	64.94	-49.52	-34.47	-13.95
34	64.94	-49.52	-34.47	-13.95
35	64.94	-49.52	-34.47	-13.95
36	64.94	-49.52	-34.47	-13.95
37	64.94	-49.52	-34.47	-13.95
38	64.94	-49.52	-34.47	-13.95
39	64.94	-49.52	-34.47	-13.95
40	64.94	-49.52	-34.47	-13.95
41	64.94	-49.52	-34.47	-13.95
42	64.94	-49.52	-34.47	-13.95
43	64.94	-49.52	-34.47	-13.95
44	64.94	-49.52	-34.47	-13.95
44	-319.44	422.67	122.92	53.30
45	-319.44	422.67	122.92	53.30
46	-319.44	422.67	122.92	53.30
47	-319.44	-57.33	122.92	53.30
48	-246.15	-57.33	122.92	53.30
49	-148.43	-57.33	122.92	53.30

FASE 1 + 2 + 3 + 4 + 5

ESFUERZOS CORTANTES

Sección	Peso Propio + Retidada Cimbra	Cimbra Cuelgue	Gradien Temp. 10
1	-308.84	0.77	65
2	-174.70	0.77	65
3	-96.52	0.77	65
4	-18.34	0.77	65
5	59.83	0.77	65
6	138.01	0.77	65
7	216.18	0.77	65
8	294.36	0.77	65
9	372.54	0.77	65
10	467.81	0.77	65
11	572.61	0.77	65
11	-529.54	-2.74	12
12	-424.74	-2.74	12
13	-339.23	-2.74	12
14	-265.94	-2.74	12
15	-192.65	-2.74	12
16	-94.93	-2.74	12
17	2.79	-2.74	12
18	100.51	-2.74	12
19	198.23	-2.74	12
20	295.95	-2.74	12
21	430.31	-2.74	12
22	535.11	-2.74	12
22	-540.79	9.67	0
23	-435.99	9.67	0
24	-350.48	9.67	0
25	-277.19	9.67	0
26	-203.90	9.67	0
27	-106.18	9.67	0
28	-8.46	9.67	0
29	89.26	9.67	0
30	186.98	9.67	0
31	284.70	9.67	0
32	419.06	9.67	0
33	523.86	9.67	0
33	-502.03	-34.47	-13
34	-397.23	-34.47	-13
35	-311.72	-34.47	-13
36	-238.43	-34.47	-13
37	-165.14	-34.47	-13
38	-67.42	-34.47	-13
39	30.30	-34.47	-13
40	128.02	-34.47	-13
41	225.74	-34.47	-13
42	323.46	-34.47	-13
43	457.82	-34.47	-13
44	562.62	-34.47	-13
44	-640.37	122.92	53
45	-535.57	122.92	53
46	-450.06	122.92	53
47	-376.77	122.92	53
48	-303.48	122.92	53
49	-205.76	122.92	53

FASE 5

ESFUERZOS CORTANTES

Sección	Peso Propio	Cimbra		Gradiente
		Retirada	Cuelgue	Temp. 10° C
50	-50.71	-57.33	122.92	53.30
51	47.01	-57.33	122.92	53.30
52	144.73	-57.33	122.92	53.30
53	242.45	-57.33	122.92	53.30
54	376.81	-57.33	122.92	53.30
55	481.61	-57.33	122.92	53.30
55	-263.60	0.00	-480.00	0.00
56	-158.80	0.00	-480.00	0.00
57	-73.29	0.00	-480.00	0.00
58	0.00	0.00	0.00	0.00

FASE 1 + 2 + 3 + 4 + 5

ESFUERZOS CORTANTES

Sección	Peso Propio + Retidada Cimbra	Cimbra Cuelgue	Gradient Temp. 10°
50	-108.04	122.92	53.
51	-10.32	122.92	53.
52	87.40	122.92	53.
53	185.12	122.92	53.
54	319.48	122.92	53.
55	424.28	122.92	53.
55	-263.60	-480.00	0.
56	-158.80	-480.00	0.
57	-73.29	-480.00	0.
58	0.00	0.00	0.

FASE 6

ESFUERZOS CORTANTES

ción	Peso Propio	Cimbra		Gradiente
		Retirada	Cuelgue	Temp. 10° C
1	0.41	-0.31	-0.17	-65.82
2	0.41	-0.31	-0.17	-65.82
3	0.41	-0.31	-0.17	-65.82
4	0.41	-0.31	-0.17	-65.82
5	0.41	-0.31	-0.17	-65.82
6	0.41	-0.31	-0.17	-65.82
7	0.41	-0.31	-0.17	-65.82
8	0.41	-0.31	-0.17	-65.82
9	0.41	-0.31	-0.17	-65.82
10	0.41	-0.31	-0.17	-65.82
11	0.41	-0.31	-0.17	-65.82
11	-1.45	1.10	0.62	14.14
12	-1.45	1.10	0.62	14.14
13	-1.45	1.10	0.62	14.14
14	-1.45	1.10	0.62	14.14
15	-1.45	1.10	0.62	14.14
16	-1.45	1.10	0.62	14.14
17	-1.45	1.10	0.62	14.14
18	-1.45	1.10	0.62	14.14
19	-1.45	1.10	0.62	14.14
20	-1.45	1.10	0.62	14.14
21	-1.45	1.10	0.62	14.14
22	-1.45	1.10	0.62	14.14
22	5.11	-3.90	-2.18	-5.05
23	5.11	-3.90	-2.18	-5.05
24	5.11	-3.90	-2.18	-5.05
25	5.11	-3.90	-2.18	-5.05
26	5.11	-3.90	-2.18	-5.05
27	5.11	-3.90	-2.18	-5.05
28	5.11	-3.90	-2.18	-5.05
29	5.11	-3.90	-2.18	-5.05
30	5.11	-3.90	-2.18	-5.05
31	5.11	-3.90	-2.18	-5.05
32	5.11	-3.90	-2.18	-5.05
33	5.11	-3.90	-2.18	-5.05
33	-18.21	13.88	7.78	5.29
34	-18.21	13.88	7.78	5.29
35	-18.21	13.88	7.78	5.29
36	-18.21	13.88	7.78	5.29
37	-18.21	13.88	7.78	5.29
38	-18.21	13.88	7.78	5.29
39	-18.21	13.88	7.78	5.29
40	-18.21	13.88	7.78	5.29
41	-18.21	13.88	7.78	5.29
42	-18.21	13.88	7.78	5.29
43	-18.21	13.88	7.78	5.29
44	-18.21	13.88	7.78	5.29
44	64.93	-49.52	-27.74	-15.30
45	64.93	-49.52	-27.74	-15.30
46	64.93	-49.52	-27.74	-15.30
47	64.93	-49.52	-27.74	-15.30
48	64.93	-49.52	-27.74	-15.30
49	64.93	-49.52	-27.74	-15.30

FASE 1 + 2 + 3 + 4 + 5 + 6

ESFUERZOS CORTANTES

Sección	Peso Propio + Retidada Cimbra	Cimbra Cuelgue	Gradiente Temp. 10° C
1	-307.97	-0 17	-65.82
2	-173.83	-0.17	-65.82
3	-95.65	-0.17	-65.82
4	-17.47	-0.17	-65.82
5	60.70	-0.17	-65.82
6	138.88	-0.17	-65.82
7	217.05	-0.17	-65.82
8	295.23	-0.17	-65.82
9	373.41	-0.17	-65.82
10	468.68	-0.17	-65.82
11	573.48	-0.17	-65.82
11	-532.63	0.62	14.14
12	-427.83	0.62	14.14
13	-342.32	0.62	14.14
14	-269.03	0.62	14.14
15	-195.74	0.62	14.14
16	-98.02	0.62	14.14
17	-0.30	0.62	14.14
18	97.42	0.62	14.14
19	195.14	0.62	14.14
20	292.86	0.62	14.14
21	427.22	0.62	14.14
22	532.02	0.62	14.14
22	-529.91	-2.18	-5.05
23	-425.11	-2.18	-5.05
24	-339.60	-2.18	-5.05
25	-266.31	-2.18	-5.05
26	-193.02	-2.18	-5.05
27	-95.30	-2.18	-5.05
28	2.42	-2.18	-5.05
29	100.14	-2.18	-5.05
30	197.86	-2.18	-5.05
31	295.58	-2.18	-5.05
32	429.94	-2.18	-5.05
33	534.74	-2.18	-5.05
33	-540.83	7.78	5.29
34	-436.03	7.78	5.29
35	-350.52	7.78	5.29
36	-277.23	7.78	5.29
37	-203.94	7.78	5.29
38	-106.22	7.78	5.29
39	-8.50	7.78	5.29
40	89.22	7.78	5.29
41	186.94	7.78	5.29
42	284.66	7.78	5.29
43	419.02	7.78	5.29
44	523.82	7.78	5.29
44	-502.04	-27.74	-15.30
45	-397.24	-27.74	-15.30
46	-311.73	-27.74	-15.30
47	-238.44	-27.74	-15.30
48	-165.15	-27.74	-15.30
49	-67.43	-27.74	-15.30

FASE 6

ESFUERZOS CORTANTES

Sección	Peso Propio	Cimbra		Gradiente
		Retirada	Cuelgue	Temp. 10° C
50	64.93	-49.52	-27.74	-15.30
51	64.93	-49.52	-27.74	-15.30
52	64.93	-49.52	-27.74	-15.30
53	64.93	-49.52	-27.74	-15.30
54	64.93	-49.52	-27.74	-15.30
55	64.93	-49.52	-27.74	-15.30
55	-319.44	422.67	98.95	53.58
56	-319.44	422.67	98.95	53.58
57	-319.44	422.67	98.95	53.58
58	-319.44	-57.33	98.95	53.58
59	-246.15	-57.33	98.95	53.58
60	-148.43	-57.33	98.95	53.58
61	-50.71	-57.33	98.95	53.58
62	47.01	-57.33	98.95	53.58
63	144.73	-57.33	98.95	53.58
64	242.45	-57.33	98.95	53.58
65	376.81	-57.33	98.95	53.58
66	481.61	-57.33	98.95	53.58
66	-263.60	0.00	-368.00	0.00
67	-158.80	0.00	-368.00	0.00
68	-63.52	0.00	-368.00	0.00
69	0.00	0.00	0.00	0.00

FASE 1 + 2 + 3 + 4 + 5 + 6

ESFUERZOS CORTANTES

Sección	Peso Propio + Retidada Cimbra	Cimbra Cuelgue	Gradiente Temp. 10°
50	30.29	-27.74	-15.3
51	128.01	-27.74	-15.3
52	225.73	-27.74	-15.3
53	323.45	-27.74	-15.3
54	457.81	-27.74	-15.3
55	562.61	-27.74	-15.3
55	-640.37	98.95	53.5
56	-535.57	98.95	53.5
57	-450.06	98.95	53.5
58	-376.77	98.95	53.5
59	-303.48	98.95	53.5
60	-205.76	98.95	53.5
61	-108.04	98.95	53.5
62	-10.32	98.95	53.5
63	87.40	98.95	53.5
64	185.12	98.95	53.5
65	319.48	98.95	53.5
66	424.28	98.95	53.5
66	-263.60	-368.00	0.0
67	-158.80	-368.00	0.0
68	-63.52	-368.00	0.0
69	0.00	0.00	0.0

FASE 7

ESFUERZOS CORTANTES

Sección	Peso Propio	Cimbra		Gradiente
		Retirada	Cuelgue	Temp. 10° C
1	-0.07	0.06	0.00	-65.70
2	-0.07	0.06	0.00	-65.70
3	-0.07	0.06	0.00	-65.70
4	-0.07	0.06	0.00	-65.70
5	-0.07	0.06	0.00	-65.70
6	-0.07	0.06	0.00	-65.70
7	-0.07	0.06	0.00	-65.70
8	-0.07	0.06	0.00	-65.70
9	-0.07	0.06	0.00	-65.70
10	-0.07	0.06	0.00	-65.70
11	-0.07	0.06	0.00	-65.70
11	0.25	-0.20	0.00	13.72
12	0.25	-0.20	0.00	13.72
13	0.25	-0.20	0.00	13.72
14	0.25	-0.20	0.00	13.72
15	0.25	-0.20	0.00	13.72
16	0.25	-0.20	0.00	13.72
17	0.25	-0.20	0.00	13.72
18	0.25	-0.20	0.00	13.72
19	0.25	-0.20	0.00	13.72
20	0.25	-0.20	0.00	13.72
21	0.25	-0.20	0.00	13.72
22	0.25	-0.20	0.00	13.72
22	-0.87	0.70	0.00	-3.57
23	-0.87	0.70	0.00	-3.57
24	-0.87	0.70	0.00	-3.57
25	-0.87	0.70	0.00	-3.57
26	-0.87	0.70	0.00	-3.57
27	-0.87	0.70	0.00	-3.57
28	-0.87	0.70	0.00	-3.57
29	-0.87	0.70	0.00	-3.57
30	-0.87	0.70	0.00	-3.57
31	-0.87	0.70	0.00	-3.57
32	-0.87	0.70	0.00	-3.57
33	-0.87	0.70	0.00	-3.57
33	3.10	-2.51	0.00	0.00
34	3.10	-2.51	0.00	0.00
35	3.10	-2.51	0.00	0.00
36	3.10	-2.51	0.00	0.00
37	3.10	-2.51	0.00	0.00
38	3.10	-2.51	0.00	0.00
39	3.10	-2.51	0.00	0.00
40	3.10	-2.51	0.00	0.00
41	3.10	-2.51	0.00	0.00
42	3.10	-2.51	0.00	0.00
43	3.10	-2.51	0.00	0.00
44	3.10	-2.51	0.00	0.00
44	-11.06	8.95	0.00	3.57
45	-11.06	8.95	0.00	3.57
46	-11.06	8.95	0.00	3.57
47	-11.06	8.95	0.00	3.57
48	-11.06	8.95	0.00	3.57
49	-11.06	8.95	0.00	3.57

FASE 1 + 2 + 3 + 4 + 5 + 6 + 7

ESFUERZOS CORTANTES

Sección	Peso Propio + Retidada Cimbra	Cimbra Cuelgue	Gradiente Temp. 10° C
1	-308.15	0.00	-65.70
2	-174.01	0.00	-65.70
3	-95.83	0.00	-65.70
4	-17.65	0.00	-65.70
5	60.52	0.00	-65.70
6	138.70	0.00	-65.70
7	216.87	0.00	-65.70
8	295.05	0.00	-65.70
9	373.23	0.00	-65.70
10	468.50	0.00	-65.70
11	573.30	0.00	-65.70
11	-531.96	0.00	13.72
12	-427.16	0.00	13.72
13	-341.65	0.00	13.72
14	-268.36	0.00	13.72
15	-195.07	0.00	13.72
16	-97.35	0.00	13.72
17	0.37	0.00	13.72
18	98.09	0.00	13.72
19	195.81	0.00	13.72
20	293.53	0.00	13.72
21	427.89	0.00	13.72
22	532.69	0.00	13.72
22	-532.26	0.00	-3.57
23	-427.46	0.00	-3.57
24	-341.95	0.00	-3.57
25	-268.66	0.00	-3.57
26	-195.37	0.00	-3.57
27	-97.65	0.00	-3.57
28	0.07	0.00	-3.57
29	97.79	0.00	-3.57
30	195.51	0.00	-3.57
31	293.23	0.00	-3.57
32	427.59	0.00	-3.57
33	532.39	0.00	-3.57
33	-532.46	0.00	0.00
34	-427.66	0.00	0.00
35	-342.15	0.00	0.00
36	-268.86	0.00	0.00
37	-195.57	0.00	0.00
38	-97.85	0.00	0.00
39	-0.13	0.00	0.00
40	97.59	0.00	0.00
41	195.31	0.00	0.00
42	293.03	0.00	0.00
43	427.39	0.00	0.00
44	532.19	0.00	0.00
44	-531.89	0.00	3.57
45	-427.09	0.00	3.57
46	-341.58	0.00	3.57
47	-268.29	0.00	3.57
48	-195.00	0.00	3.57
49	-97.28	0.00	3.57

FASE 7

ESFUERZOS CORTANTES

Sección	Peso Propio	Cimbra		Gradiente
		Retirada	Cuelgue	Temp. 10° C
50	-11.06	8.95	0.00	3.57
51	-11.06	8.95	0.00	3.57
52	-11.06	8.95	0.00	3.57
53	-11.06	8.95	0.00	3.57
54	-11.06	8.95	0.00	3.57
55	-11.06	8.95	0.00	3.57
55	39.44	-31.91	0.00	-13.72
56	39.44	-31.91	0.00	-13.72
57	39.44	-31.91	0.00	-13.72
58	39.44	-31.91	0.00	-13.72
59	39.44	-31.91	0.00	-13.72
60	39.44	-31.91	0.00	-13.72
61	39.44	-31.91	0.00	-13.72
62	39.44	-31.91	0.00	-13.72
63	39.44	-31.91	0.00	-13.72
64	39.44	-31.91	0.00	-13.72
65	39.44	-31.91	0.00	-13.72
66	39.44	-31.91	0.00	-13.72
66	-243.23	302.55	0.00	65.70
67	-243.23	302.55	0.00	65.70
68	-243.23	302.55	0.00	65.70
69	-243.23	-65.45	0.00	65.70
70	-150.40	-65.45	0.00	65.70
71	-72.22	-65.45	0.00	65.70
72	5.96	-65.45	0.00	65.70
73	84.13	-65.45	0.00	65.70
74	162.31	-65.45	0.00	65.70
75	240.48	-65.45	0.00	65.70
76	374.63	-65.45	0.00	65.70

FASE 1 + 2 + 3 + 4 + 5 + 6 + 7

ESFUERZOS CORTANTES

Sección	Peso Propio + Retidada Cimbra	Cimbra Cuelgue	Gradiente Temp. 10°
50	0.44	0.00	3.
51	98.16	0.00	3.
52	195.88	0.00	3.
53	293.60	0.00	3.
54	427.96	0.00	3.
55	532.76	0.00	3.
55	-533.89	0.00	-13.
56	-429.09	0.00	-13.
57	-343.58	0.00	-13.
58	-270.29	0.00	-13.
59	-197.00	0.00	-13.
60	-99.28	0.00	-13.
61	-1.56	0.00	-13.
62	96.16	0.00	-13.
63	193.88	0.00	-13.
64	291.60	0.00	-13.
65	425.96	0.00	-13.
66	530.76	0.00	-13.
66	-572.28	0.00	65.
67	-467.48	0.00	65.
68	-372.20	0.00	65.
69	-308.68	0.00	65.
70	-215.85	0.00	65.
71	-137.67	0.00	65.
72	-59.49	0.00	65.
73	18.68	0.00	65.
74	96.86	0.00	65.
75	175.03	0.00	65.
76	309.18	0.00	65.

FASE 8 Y ESTRUCTURA FINAL

ESFUERZOS CORTANTES

$S = So + (Sc - So) \times \varphi / (1 + \varphi . \chi)$

Sección	Peso Propio		
	Suma de Fases (So)	Fase 8 (Sc)	Esfuerzos Finales (S)
1	-308.15	-339.99	-334.67
2	-174.01	-205.84	-200.52
3	-95.83	-127.67	-122.35
4	-17.65	-49.49	-44.17
5	60.52	28.69	34.01
6	138.70	106.86	112.18
7	216.87	185.04	190.36
8	295.05	263.21	268.53
9	373.23	341.39	346.71
10	468.50	436.67	441.99
11	573.30	541.47	546.79
11	-531.96	-531.98	-531.98
12	-427.16	-427.18	-427.18
13	-341.65	-341.67	-341.67
14	-268.36	-268.38	-268.38
15	-195.07	-195.09	-195.09
16	-97.35	-97.37	-97.37
17	0.37	0.35	0.35
18	98.09	98.07	98.07
19	195.81	195.79	195.79
20	293.53	293.51	293.51
21	427.89	427.87	427.87
22	532.69	532.67	532.67
22	-532.26	-532.41	-532.38
23	-427.46	-427.61	-427.58
24	-341.95	-342.11	-342.08
25	-268.66	-268.82	-268.79
26	-195.37	-195.53	-195.50
27	-97.65	-97.81	-97.78
28	0.07	-0.09	-0.06
29	97.79	97.63	97.66
30	195.51	195.35	195.38
31	293.23	293.07	293.10
32	427.59	427.44	427.47
33	532.39	532.24	532.27
33	-532.46	-532.32	-532.34
34	-427.66	-427.53	-427.55
35	-342.15	-342.02	-342.04
36	-268.86	-268.73	-268.75
37	-195.57	-195.44	-195.46
38	-97.85	-97.72	-97.74
39	-0.13	0.00	-0.02
40	97.59	97.72	97.70
41	195.31	195.44	195.42
42	293.03	293.16	293.14
43	427.39	427.53	427.51
44	532.19	532.33	532.31
44	-531.89	-532.24	-532.18
45	-427.09	-427.44	-427.38
46	-341.58	-341.93	-341.87
47	-268.29	-268.64	-268.58

FASE 8 Y ESTRUCTURA FINAL

ESFUERZOS CORTANTES

$S = So + (Sc - So) \times \varphi / (1 + \varphi . \chi)$

Sección	Peso Propio		
	Suma de Fases (So)	Fase 8 (Sc)	Esfuerzos Finales (S)
48	-195.00	-195.35	-195.29
49	-97.28	-97.63	-97.57
50	0.44	0.09	0.15
51	98.16	97.81	97.87
52	195.88	195.53	195.59
53	293.60	293.25	293.31
54	427.96	427.61	427.67
55	532.76	532.41	532.47
55	-533.89	-532.67	-532.87
56	-429.09	-427.87	-428.07
57	-343.58	-342.37	-342.57
58	-270.29	-269.08	-269.28
59	-197.00	-195.79	-195.99
60	-99.28	-98.07	-98.27
61	-1.56	-0.35	-0.55
62	96.16	97.37	97.17
63	193.88	195.09	194.89
64	291.60	292.81	292.61
65	425.96	427.18	426.98
66	530.76	531.98	531.78
66	-572.28	-541.47	-546.62
67	-467.48	-436.67	-441.82
68	-372.20	-341.39	-346.54
69	-308.68	-277.87	-283.02
70	-215.85	-185.04	-190.19
71	-137.67	-106.86	-112.01
72	-59.49	-28.69	-33.83
73	18.68	49.49	44.34
74	96.86	127.67	122.52
75	175.03	205.84	200.69
76	309.18	339.99	334.84

FASE FINAL

ESFUERZOS CORTANTES

Sección	Peso Propio		Carga	Gradiente	Sobrecarga Tren IAPF-75	
	Inicial	Final	Permanente	Temp. 7° C	V-	V+
1	-308.15	-334.67	-141.19	-45.99	-437.03	53.12
2	-174.01	-200.52	-102.79	-45.99	-343.45	65.09
3	-95.83	-122.35	-64.39	-45.99	-264.44	86.11
4	-17.65	-44.17	-25.99	-45.99	-195.40	116.03
5	60.52	34.01	12.41	-45.99	-136.26	154.56
6	138.70	112.18	50.81	-45.99	-86.60	201.34
7	216.87	190.36	89.21	-45.99	-45.27	271.65
8	295.05	268.53	127.61	-45.99	-18.92	347.38
9	373.23	346.71	166.01	-45.99	0.97	429.36
10	468.50	441.99	212.81	-45.99	15.20	517.21
11	573.30	546.79	242.81	-45.99	24.69	609.07
11	-531.96	-531.98	-239.49	9.60	-658.79	33.71
12	-427.16	-427.18	-209.49	9.60	-605.51	39.10
13	-341.65	-341.67	-167.49	9.60	-496.35	54.98
14	-268.36	-268.38	-131.49	9.60	-420.01	72.46
15	-195.07	-195.09	-95.49	9.60	-348.50	94.55
16	-97.35	-97.37	-47.49	9.60	-263.14	133.18
17	0.37	0.35	0.51	9.60	-189.82	188.68
18	98.09	98.07	48.51	9.60	-129.16	260.62
19	195.81	195.79	96.51	9.60	-88.59	344.85
20	293.53	293.51	144.51	9.60	-59.42	440.25
21	427.89	427.87	210.51	9.60	-32.19	600.64
22	532.69	532.67	240.51	9.60	-26.76	657.65
22	-532.26	-532.38	-240.13	-2.50	-672.16	44.95
23	-427.46	-427.58	-210.13	-2.50	-618.90	50.36
24	-341.95	-342.08	-168.13	-2.50	-509.91	66.40
25	-268.66	-268.79	-132.13	-2.50	-433.79	84.08
26	-195.37	-195.50	-96.13	-2.50	-362.56	106.41
27	-97.65	-97.78	-48.13	-2.50	-277.62	145.37
28	0.07	-0.06	-0.13	-2.50	-204.70	201.41
29	97.79	97.66	47.87	-2.50	-145.69	273.83
30	195.51	195.38	95.87	-2.50	-106.68	358.39
31	293.23	293.10	143.87	-2.50	-77.68	453.98
32	427.59	427.47	209.87	-2.50	-50.56	614.46
33	532.39	532.27	239.87	-2.50	-45.15	671.44
33	-532.46	-532.34	-240.00	0.00	-674.81	48.10
34	-427.66	-427.55	-210.00	0.00	-621.55	53.51
35	-342.15	-342.04	-168.00	0.00	-512.57	69.57
36	-268.86	-268.75	-132.00	0.00	-436.48	87.27
37	-195.57	-195.46	-96	0.00	-365.26	109.61
38	-97.85	-97.74	-48	0.00	-280.35	148.60
39	-0.13	-0.02	0	0.00	-207.47	204.69
40	97.59	97.70	48	0.00	-148.60	277.14
41	195.31	195.42	96	0.00	-109.61	361.73
42	293.03	293.14	144	0.00	-80.62	457.34
43	427.39	427.51	210	0.00	-53.51	617.83
44	532.19	532.31	240	0.00	-48.10	674.81
44	-531.89	-532.18	-239.87	2.50	-671.44	45.15
45	-427.09	-427.38	-209.87	2.50	-618.18	50.56
46	-341.58	-341.87	-167.87	2.50	-509.21	66.62
47	-268.29	-268.58	-131.87	2.50	-433.12	84.33
48	-195.00	-195.29	-95.87	2.50	-361.92	106.68
49	-97.28	-97.57	-47.87	2.50	-277.03	145.69

FASE FINAL

ESFUERZOS CORTANTES

Sección	Peso Propio		Carga	Gradiente	Sobrecarga Tren IAPF-75	
	Inicial	Final	Permanente	Temp. 7° C	V-	V+
50	0.44	0.15	0.13	2.50	-204.19	201.92
51	98.16	97.87	48.13	2.50	-145.37	274.41
52	195.88	195.59	96.13	2.50	-106.41	359.02
53	293.60	293.31	144.13	2.50	-77.44	454.67
54	427.96	427.67	210.13	2.50	-50.36	615.18
55	532.76	532.47	240.13	2.50	-44.95	672.16
55	-533.89	-532.87	-240.51	-9.60	-657.65	26.76
56	-429.09	-428.07	-210.51	-9.60	-604.38	32.19
57	-343.58	-342.57	-168.51	-9.60	-495.42	48.31
58	-270.29	-269.28	-132.51	-9.60	-419.42	66.11
59	-197.00	-195.99	-96.51	-9.60	-348.37	88.59
60	-99.28	-98.27	-48.51	-9.60	-263.82	127.84
61	-1.56	-0.55	-0.51	-9.60	-191.43	187.01
62	96.16	97.17	47.49	-9.60	-133.18	259.91
63	193.88	194.89	95.49	-9.60	-94.55	344.95
64	291.60	292.61	143.49	-9.60	-65.89	440.96
65	425.96	426.98	209.49	-9.60	-39.10	601.79
66	530.76	531.78	239.49	-9.60	-33.71	658.79
66	-572.28	-546.62	-242.81	45.99	-609.07	-24.69
67	-467.48	-441.82	-212.81	45.99	-517.21	-15.20
68	-372.20	-346.54	-166.01	45.99	-430.76	-0.97
69	-308.68	-283.02	-134.81	45.99	-371.28	13.56
70	-215.85	-190.19	-89.21	45.99	-278.56	45.27
71	-137.67	-112.01	-50.81	45.99	-214.58	84.15
72	-59.49	-33.83	-12.41	45.99	-157.44	136.26
73	18.68	44.34	25.99	45.99	-116.03	195.40
74	96.86	122.52	64.39	45.99	-86.11	264.44
75	175.03	200.69	102.79	45.99	-65.09	343.45
76	309.18	334.84	141.19	45.99	-53.12	432.51

ESFUERZOS DEBIDOS AL PRETENSADO INFERIOR

	Pretensado Inferior		
Seccion	Npret	Vhiper	Nueva Sección
1	454.36	-34.44	109
2	456.19	-34.44	108
3	459.84	-34.44	107
4	463.47	-34.44	106
5	466.10	-34.44	105
6	462.15	-34.44	104
7	460.76	-34.44	103
7	460.76	8.49	103
8	459.38	8.49	102
9	454.18	8.49	101
10	449.84	8.49	100
11	445.54	8.49	99
12	440.49	8.49	98
13	439.17	8.49	97
13	439.17	-2.20	97
14	437.85	-2.20	96
15	432.89	-2.20	95
16	428.75	-2.20	94
17	424.66	-2.20	93
18	419.85	-2.20	92
19	418.59	-2.20	91
19	418.59	5.69	91
20	417.33	5.69	90
21	412.60	5.69	89
22	408.66	5.69	88
23	404.76	5.69	87
24	400.17	5.69	86
25	398.97	5.69	85
25	398.97	-14.37	85
26	397.78	-14.37	84
27	393.27	-14.37	83
28	389.51	-14.37	82
29	385.79	-14.37	81
30	381.41	-14.37	80
31	814.95	-14.37	79
31	814.95	-11.85	79
32	827.46	-11.85	78
33	828.37	-11.85	77
34	821.41	-11.85	76
35	813.56	-11.85	75
36	804.34	-11.85	74
37	801.93	-11.85	73
37	801.93	9.58	73
38	799.53	9.58	72
39	790.47	9.58	71
40	782.91	9.58	70
41	775.43	9.58	69
42	766.72	9.58	68
43	765.46	9.58	67
43	765.46	-16.36	67
44	764.21	-16.36	66
45	763.37	-16.36	65
46	762.80	-16.36	64

VIADUCTO PARA EL AVE

ESFUERZOS DEBIDOS AL PRETENSADO INFERIOR

	Pretensado Inferior		
Seccion	Npret	Vhiper	Nueva Sección
47	762.31	-16.36	63
48	761.82	-16.36	62
49	1197.78	-16.36	61
49	1197.78	-11.08	61
50	1211.33	-11.08	60
51	1215.75	-11.08	59
52	1211.19	-11.08	58
53	1206.75	-11.08	57
54	1201.62	-11.08	56
55	1200.29	-11.08	55
55	1200.29	4.96	55
56	1196.70	4.96	54
57	1183.13	4.96	53
58	1171.83	4.96	52
59	1160.63	4.96	51
60	1147.48	4.96	50
61	1144.04	4.96	49
61	1144.04	5.80	49
62	1140.61	5.80	48
63	1127.68	5.80	47
64	1116.91	5.80	46
65	1106.24	5.80	45
66	1093.78	5.80	44
67	1091.83	5.80	43
67	1091.83	-15.68	43
68	1091.38	-15.68	42
69	1094.49	-15.68	41
70	1097.49	-15.68	40
71	1100.60	-15.68	39
72	1104.41	-15.68	38
73	1541.52	-15.68	37
73	1541.52	-13.50	37
74	1556.21	-13.50	36
75	1565.01	-13.50	35
76	1564.26	-13.50	34
77	1570.36	-13.50	33
78	1578.20	-13.50	32
79	1580.29	-13.50	31
79	1580.29	2.48	31
80	1582.41	2.48	30
81	1590.56	2.48	29
82	1597.58	2.48	28
83	1604.76	2.48	27
84	1613.47	2.48	26
85	1615.79	2.48	25
85	1615.79	-5.97	25
86	1618.13	-5.97	24
87	1627.16	-5.97	23
88	1634.93	-5.97	22
89	1650.41	-5.97	21
90	1669.33	-5.97	20
91	1674.35	-5.97	19
91	1674.35	4.17	19

ESFUERZOS DEBIDOS AL PRETENSADO INFERIOR

	Pretensado Inferior		
Seccion	Npret	Vhiper	Nueva Sección
92	1679.38	4.17	18
93	1698.63	4.17	17
94	1715.02	4.17	16
95	1731.56	4.17	15
96	1751.42	4.17	14
97	1756.68	4.17	13
97	1756.68	-32.72	13
98	1761.95	-32.72	12
99	1782.16	-32.72	11
100	1799.35	-32.72	10
101	1816.70	-32.72	9
102	1837.53	-32.72	8
103	1843.05	-32.72	7
103	1843.05	137.47	7
104	1848.59	137.47	6
105	1863.07	137.47	5
106	1859.15	137.47	4
107	1844.67	137.47	3
108	1830.07	137.47	2
109	1822.73	137.47	1

ESFUERZOS DEBIDOS A ROZAMIENTO DE TEFLONES, FRENADO Y ASIENTOS DIFERENCIALES

Seccion	Roz. Apoyos (0.05)		Roz. Apoyos + Frenado		Asientos Diferenciales		Nueva Sección
	N	V	N	V	V+	V-	
1	-44.40	6.93	-16.27	-2.97	17.33	-11.23	109
2	-44.40	6.93	-25.39	-2.97	17.33	-11.23	108
3	-44.40	6.93	-43.63	-2.97	17.33	-11.23	107
4	-44.40	6.93	-61.87	-2.97	17.33	-11.23	106
5	-44.40	6.93	-80.11	-2.97	17.33	-11.23	105
6	-44.40	6.93	-100.35	-2.97	17.33	-11.23	104
7	-44.40	6.93	-106.29	-2.97	17.33	-11.23	103
7	-168.97	6.45	-152.63	-2.18	22.59	-22.62	103
8	-168.97	6.45	-158.57	-2.18	22.59	-22.62	102
9	-168.97	6.45	-181.13	-2.18	22.59	-22.62	101
10	-168.97	6.45	-200.13	-2.18	22.59	-22.62	100
11	-168.97	6.45	-219.13	-2.18	22.59	-22.62	99
12	-168.97	6.45	-241.69	-2.18	22.59	-22.62	98
13	-168.97	6.45	-247.63	-2.18	22.59	-22.62	97
13	-290.20	6.28	-293.97	-2.24	22.21	-22.29	97
14	-290.20	6.28	-299.91	-2.24	22.21	-22.29	96
15	-290.20	6.28	-322.47	-2.24	22.21	-22.29	95
16	-290.20	6.28	-341.47	-2.24	22.21	-22.29	94
17	-290.20	6.28	-360.47	-2.24	22.21	-22.29	93
18	-290.20	6.28	-383.03	-2.24	22.21	-22.29	92
19	-290.20	6.28	-388.97	-2.24	22.17	-22.18	91
19	-411.43	6.33	-435.31	-2.22	22.17	-22.18	91
20	-411.43	6.33	-441.25	-2.22	22.17	-22.18	90
21	-411.43	6.33	-463.81	-2.22	22.17	-22.18	89
22	-411.43	6.33	-482.81	-2.22	22.17	-22.18	88
23	-411.43	6.33	-501.81	-2.22	22.17	-22.18	87
24	-411.43	6.33	-524.37	-2.22	22.17	-22.18	86
25	-411.43	6.33	-530.31	-2.22	22.17	-22.18	85
25	-532.66	6.32	-576.65	-2.25	22.17	-22.18	85
26	-532.66	6.32	-582.59	-2.25	22.17	-22.18	84
27	-532.66	6.32	-605.15	-2.25	22.17	-22.18	83
28	-532.66	6.32	-624.15	-2.25	22.17	-22.18	82
29	-532.66	6.32	-643.15	-2.25	22.17	-22.18	81
30	-532.66	6.32	-665.71	-2.25	22.17	-22.18	80
31	-532.66	6.32	-671.65	-2.25	22.17	-22.18	79
31	-653.89	6.32	-717.99	-2.14	22.17	-22.18	79
32	-653.89	6.32	-723.93	-2.14	22.17	-22.18	78
33	-653.89	6.32	-746.49	-2.14	22.17	-22.18	77
34	-653.89	6.32	-765.49	-2.14	22.17	-22.18	76
35	-653.89	6.32	-784.49	-2.14	22.17	-22.18	75
36	-653.89	6.32	-807.05	-2.14	22.17	-22.18	74
37	-653.89	6.32	-812.99	-2.14	22.17	-22.18	73
37	-775.12	6.32	-859.33	-2.54	22.17	-22.18	73
38	-775.12	6.32	-865.27	-2.54	22.17	-22.18	72
39	-775.12	6.32	-887.83	-2.54	22.17	-22.18	71
40	-775.12	6.32	-906.83	-2.54	22.17	-22.18	70
41	-775.12	6.32	-925.83	-2.54	22.17	-22.18	69
42	-775.12	6.32	-948.39	-2.54	22.17	-22.18	68
43	-775.12	6.32	-954.33	-2.54	22.17	-22.18	67
43	-896.35	6.32	-1000.67	-0.99	22.17	-22.18	67
44	-896.35	6.32	-1006.61	-0.99	22.17	-22.18	66
45	-896.35	6.32	-1029.17	-0.99	22.17	-22.18	65
46	-896.35	6.32	-1048.17	-0.99	22.17	-22.18	64

ESFUERZOS DEBIDOS A ROZAMIENTO DE TEFLONES, FRENADO Y ASIENTOS DIFERENCIALES

Seccion	Roz. Apoyos (0.05)		Roz. Apoyos + Frenado		Asientos Diferenciales		Nueva Sección
	N	V	N	V	V+	V-	
47	-896.35	6.32	-1067.17	-0.99	22.17	-22.18	6
48	-896.35	6.32	-1067.17	-0.99	22.17	-22.18	6
49	-896.35	6.32	-1067.17	-0.99	22.17	-22.18	6
49	-1017.58	6.32	-1113.51	2.94	22.17	-22.18	6
50	-1017.58	6.32	-1113.51	2.94	22.17	-22.18	6
51	-1017.58	6.32	-1113.51	2.94	22.17	-22.18	5
52	-1017.58	6.32	-1113.51	2.94	22.17	-22.18	5
53	-1017.58	6.32	-1113.51	2.94	22.17	-22.18	5
54	-1017.58	6.32	-1113.51	2.94	22.17	-22.18	5
55	-1017.58	6.32	-1113.51	2.94	22.17	-22.18	5
55	-1138.81	6.31	-1159.85	2.27	22.17	-22.18	5
56	-1138.81	6.31	-1159.85	2.27	22.17	-22.18	5
57	-1138.81	6.31	-1159.85	2.27	22.17	-22.18	5
58	-1138.81	6.31	-1159.85	2.27	22.17	-22.18	5
59	-1138.81	6.31	-1159.85	2.27	22.17	-22.18	5
60	-1138.81	6.31	-1159.85	2.27	22.17	-22.18	5
61	-1138.81	6.31	-1159.85	2.27	22.17	-22.18	4
61	-1260.04	6.34	-1206.19	2.47	22.17	-22.18	4
62	-1260.04	6.34	-1206.19	2.47	22.17	-22.18	4
63	-1260.04	6.34	-1206.19	2.47	22.17	-22.18	4
64	-1260.04	6.34	-1206.19	2.47	22.17	-22.18	4
65	-1260.04	6.34	-1206.19	2.47	22.17	-22.18	4
66	-1260.04	6.34	-1206.19	2.47	22.17	-22.18	4
67	-1260.04	6.34	-1206.19	2.47	22.17	-22.18	4
67	-1381.27	6.26	-1252.53	2.36	22.17	-22.18	4
68	-1381.27	6.26	-1252.53	2.36	22.17	-22.18	4
69	-1381.27	6.26	-1252.53	2.36	22.17	-22.18	4
70	-1381.27	6.26	-1252.53	2.36	22.17	-22.18	4
71	-1381.27	6.26	-1252.53	2.36	22.17	-22.18	3
72	-1381.27	6.26	-1252.53	2.36	22.17	-22.18	3
73	-1381.27	6.26	-1252.53	2.36	22.17	-22.18	3
73	-1502.50	6.52	-1298.87	2.57	22.17	-22.18	3
74	-1502.50	6.52	-1298.87	2.57	22.17	-22.18	3
75	-1502.50	6.52	-1298.87	2.57	22.17	-22.18	3
76	-1502.50	6.52	-1298.87	2.57	22.17	-22.18	3
77	-1502.50	6.52	-1298.87	2.57	22.17	-22.18	3
78	-1502.50	6.52	-1298.87	2.57	22.17	-22.18	3
79	-1502.50	6.52	-1298.87	2.57	22.17	-22.18	3
79	-1623.73	5.59	-1345.21	1.89	22.17	-22.18	3
80	-1623.73	5.59	-1345.21	1.89	22.17	-22.18	3
81	-1623.73	5.59	-1345.21	1.89	22.17	-22.18	2
82	-1623.73	5.59	-1345.21	1.89	22.17	-22.18	2
83	-1623.73	5.59	-1345.21	1.89	22.17	-22.18	2
84	-1623.73	5.59	-1345.21	1.89	22.17	-22.18	2
85	-1623.73	5.59	-1345.21	1.89	22.17	-22.18	2
85	-1744.96	8.93	-1391.55	4.29	22.17	-22.18	2
86	-1744.96	8.93	-1391.55	4.29	22.17	-22.18	2
87	-1744.96	8.93	-1391.55	4.29	22.17	-22.18	2
88	-1744.96	8.93	-1391.55	4.29	22.17	-22.18	2
89	-1744.96	8.93	-1391.55	4.29	22.17	-22.18	2
90	-1744.96	8.93	-1391.55	4.29	22.17	-22.18	2
91	-1744.96	8.93	-1391.55	4.29	22.17	-22.18	1
91	-1866.19	-2.98	-1437.89	-4.26	22.21	-22.29	1

ESFUERZOS DEBIDOS A ROZAMIENTO DE TEFLONES, FRENADO Y ASIENTOS DIFERENCIALES

Seccion	Roz. Apoyos (0.05)		Roz. Apoyos + Frenado		Asientos Diferenciales		Nueva
	N	V	N	V	V+	V-	Sección
92	-1866.19	-2.98	-1437.89	-4.26	22.21	-22.29	18
93	-1866.19	-2.98	-1437.89	-4.26	22.21	-22.29	17
94	-1866.19	-2.98	-1437.89	-4.26	22.21	-22.29	16
95	-1866.19	-2.98	-1437.89	-4.26	22.21	-22.29	15
96	-1866.19	-2.98	-1437.89	-4.26	22.21	-22.29	14
97	-1866.19	-2.98	-1437.89	-4.26	22.21	-22.29	13
97	-1987.42	39.48	-1484.23	26.23	22.59	-22.62	13
98	-1987.42	39.48	-1484.23	26.23	22.59	-22.62	12
99	-1987.42	39.48	-1484.23	26.23	22.59	-22.62	11
100	-1987.42	39.48	-1484.23	26.23	22.59	-22.62	10
101	-1987.42	39.48	-1484.23	26.23	22.59	-22.62	9
102	-1987.42	39.48	-1484.23	26.23	22.59	-22.62	8
103	-1987.42	39.48	-1484.23	26.23	22.59	-22.62	7
103	-2108.65	-154.29	-1530.57	-113.11	17.33	-21.40	7
104	-2108.65	-154.29	-1530.57	-113.11	17.33	-21.40	6
105	-2108.65	-154.29	-1530.57	-113.11	17.33	-21.40	5
106	-2108.65	-154.29	-1530.57	-113.11	17.33	-21.40	4
107	-2108.65	-154.29	-1530.57	-113.11	17.33	-21.40	3
108	-2108.65	-154.29	-1530.57	-113.11	17.33	-21.40	2
109	-2108.65	-154.29	-1530.57	-113.11	17.33	-21.40	1

SUMA DE FASES 1 A 7 + FASE FINAL CON PERDIDAS ($PRET_{final}$ = $PRET_{inicial}$ x 0.85)

PRETENSADO (7 x 8 tendones 19 ϕ 0.6" + 3 x 6 tendones 19 ϕ 0.6")

Sección	Npret	Vhiper Final	Visos	Vtotal
1	3971.91	-71.08	330.49	259.41
2	4002.91	-71.08	282.05	210.97
3	4041.50	-71.08	198.75	127.67
4	4078.15	-71.08	113.49	42.42
5	4112.74	-71.08	26.44	-44.64
6	4135.08	-71.08	-135.80	-206.87
7	4126.24	-71.08	-352.08	-423.15
8	4114.09	-71.08	-512.73	-583.80
9	4088.96	-71.08	-723.64	-794.71
10	4148.90	-71.08	-271.74	-342.81
11	4748.97	-71.08	0.00	-71.08
11	4748.97	1.02	0.00	1.02
12	4117.88	1.02	356.68	357.70
13	4016.40	1.02	643.19	644.21
14	3992.26	1.02	679.61	680.63
14	3756.34	1.02	639.64	640.66
15	3787.25	1.02	515.94	516.96
16	3830.87	1.02	253.63	254.65
17	3891.08	1.02	0.00	1.02
18	3911.89	1.02	-274.98	-273.95
19	3920.23	1.02	-520.70	-519.68
20	3915.11	1.02	-764.99	-763.97
21	4047.37	1.02	-294.06	-293.04
22	4669.99	1.02	0.00	1.02
22	4669.99	2.32	0.00	2.32
23	4060.21	2.32	359.64	361.96
24	3991.94	2.32	641.99	644.30
25	3967.21	2.32	678.24	680.56
25	3727.80	2.32	637.70	640.02
26	3754.82	2.32	513.54	515.85
27	3801.63	2.32	251.86	254.18
28	3858.91	2.32	0.00	2.32
29	3885.07	2.32	-274.18	-271.87
30	3909.79	2.32	-521.19	-518.87
31	3920.27	2.32	-768.46	-766.14
32	4060.03	2.32	-295.55	-293.23
33	4679.22	2.32	0.00	2.32
33	4679.22	-2.93	0.00	-2.93
34	4071.20	-2.93	362.26	359.33
35	3993.58	-2.93	641.68	638.75
36	3967.01	-2.93	677.37	674.43
36	3727.60	-2.93	636.84	633.90
37	3745.82	-2.93	512.11	509.17
38	3780.10	-2.93	253.89	250.95
39	3846.86	-2.93	0.00	-2.93
40	3877.22	-2.93	-272.71	-275.65
41	3901.37	-2.93	-518.18	-521.11
42	3911.53	-2.93	-763.78	-766.71
43	4043.55	-2.93	-293.34	-296.28
44	4671.46	-2.93	0.00	-2.93
44	4671.46	2.48	0.00	2.48
45	4054.19	2.48	348.40	350.88
46	3974.40	2.48	633.79	636.27

SUMA DE FASES 1 A 7 + FASE FINAL CON PERDIDAS ($PRET_{final}$ = $PRET_{inicial}$ x 0.85)

PRETENSADO (7 x 8 tendones 19 ϕ 0.6" + 3 x 6 tendones 19 ϕ 0.6")

Sección	Npret	Vhiper Final	Visos	Vtotal
47	3952.02	2.48	671.08	673.56
47	3712.60	2.48	630.56	633.04
48	3743.86	2.48	510.46	512.94
49	3788.31	2.48	253.47	255.95
50	3848.81	2.48	0.00	2.48
51	3875.63	2.48	-272.28	-269.80
52	3901.83	2.48	-518.13	-515.65
53	3913.74	2.48	-764.71	-762.23
54	4047.36	2.48	-294.06	-291.58
55	4669.99	2.48	0.00	2.48
55	4669.99	-6.51	0.00	-6.51
56	4060.21	-6.51	359.64	353.13
57	3991.93	-6.51	642.00	635.49
58	3967.21	-6.51	678.26	671.75
58	3727.80	-6.51	637.71	631.20
59	3755.78	-6.51	513.61	[illegible]10
60	3818.66	-6.51	252.61	246.10
61	3891.46	-6.51	0.00	-6.51
62	3928.73	-6.51	-276.85	-283.36
63	3953.95	-6.51	-526.28	-532.79
64	3964.80	-6.51	-776.01	-782.52
65	4128.17	-6.51	-300.06	-306.57
66	4746.03	-6.51	0.00	-6.51
66	4746.03	75.55	0.00	75.55
67	4166.13	75.55	372.80	448.35
68	4108.16	75.55	667.24	742.79
69	4093.43	75.55	698.31	773.85
69	4101.85	75.55	699.28	774.82
70	4251.05	75.55	305.96	381.50
71	4328.32	75.55	36.44	111.98
72	4349.96	75.55	-31.33	44.21
73	4323.22	75.55	-134.97	-59.43
74	4280.40	75.55	-236.21	-160.66
75	4235.33	75.55	-334.87	-259.33
76	4195.88	75.55	-391.68	-316.13

FASE FINAL

ESFUERZOS CORTANTES PONDERADOS

ión	Peso Propio	C. Perm.	Grad. Temp. 7°C		Sobrecarga Tren IAPF-75	Cortante Total Ponder.
	Vdmax	Vd	Vd+	Vd-	Vdmax	Vd total
1	-502.01	-211.79	0.00	-68.99	-655.55	-1438.32
2	-300.79	-154.19	0.00	-68.99	-515.18	-1039.13
3	-183.53	-96.59	0.00	-68.99	-396.66	-745.76
4	-66.26	-38.99	0.00	-68.99	-293.10	-467.33
5	90.78	18.62	0.00	-68.99	231.84	341.24
6	208.05	76.22	0.00	-68.99	302.01	586.28
7	325.31	133.82	0.00	-68.99	407.48	866.60
8	442.58	191.42	0.00	-68.99	521.07	1155.06
9	559.85	249.02	0.00	-68.99	644.04	1452.90
10	702.75	319.22	0.00	-68.99	775.82	1797.78
11	859.95	364.22	0.00	-68.99	913.61	2137.77
11	-797.96	-359.24	14.41	0.00	-988.19	-2145.38
12	-640.76	-314.24	14.41	0.00	-908.27	-1863.26
13	-512.50	-251.24	14.41	0.00	-744.53	-1508.26
14	-402.56	-197.24	14.41	0.00	-630.02	-1229.81
15	-292.63	-143.24	14.41	0.00	-522.75	-958.61
16	-146.05	-71.24	14.41	0.00	-394.71	-611.99
17	0.55	0.77	14.41	0.00	283.02	298.75
18	147.14	72.77	14.41	0.00	390.93	625.24
19	293.72	144.77	14.41	0.00	517.28	970.16
20	440.30	216.77	14.41	0.00	660.38	1331.84
21	641.84	315.77	14.41	0.00	900.96	1872.97
22	799.04	360.77	14.41	0.00	986.48	2160.68
22	-798.58	-360.20	0.00	-3.75	-1008.24	-2170.76
23	-641.38	-315.20	0.00	-3.75	-928.35	-1888.67
24	-513.12	-252.20	0.00	-3.75	-764.87	-1533.93
25	-403.19	-198.20	0.00	-3.75	-650.69	-1255.82
26	-293.25	-144.20	0.00	-3.75	-543.84	-985.04
27	-146.67	-72.20	0.00	-3.75	-416.43	-639.05
28	0.10	-0.20	0.00	-3.75	302.12	302.03
29	146.69	71.81	0.00	-3.75	410.75	629.24
30	293.27	143.81	0.00	-3.75	537.59	974.66
31	439.85	215.81	0.00	-3.75	680.97	1336.62
32	641.39	314.81	0.00	-3.75	921.69	1877.88
33	798.59	359.81	0.00	-3.75	1007.16	2165.55
33	-798.69	-360.00	0.00	0.00	-1012.22	-2170.91
34	-641.49	-315.00	0.00	0.00	-932.33	-1888.82
35	-513.23	-252.00	0.00	0.00	-768.86	-1534.08
36	-403.29	-198.00	0.00	0.00	-654.72	-1256.01
37	-293.36	-144.00	0.00	0.00	-547.89	-985.25
38	-146.78	-72.00	0.00	0.00	-420.53	-639.30
39	-0.19	0.00	0.00	0.00	-311.21	-311.40
40	146.55	72.00	0.00	0.00	415.71	634.26
41	293.13	144.00	0.00	0.00	542.60	979.72
42	439.71	216.00	0.00	0.00	686.01	1341.72
43	641.26	315.00	0.00	0.00	926.75	1883.00
44	798.46	360.00	0.00	0.00	1012.22	2170.67
44	-798.27	-359.81	3.75	0.00	-1007.16	-2165.24
45	-641.07	-314.81	3.75	0.00	-927.27	-1883.15
46	-512.81	-251.81	3.75	0.00	-763.82	-1528.43
47	-402.87	-197.81	3.75	0.00	-649.68	-1250.36
48	-292.94	-143.81	3.75	0.00	-542.88	-979.62
49	-146.36	-71.81	3.75	0.00	-415.55	-633.71

FASE FINAL

ESFUERZOS CORTANTES PONDERADOS

Sección	Peso Propio	C. Perm.	Grad. Temp. 7°C		Sobrecarga Tren IAPF-75	Cortante Total Ponde
	Vdmax	Vd	Vd+	Vd-	Vdmax	Vd total
50	0.66	0.20	3.75	0.00	302.88	307.48
51	147.24	72.20	3.75	0.00	411.62	634.80
52	293.82	144.20	3.75	0.00	538.53	980.29
53	440.40	216.20	3.75	0.00	682.01	1342.35
54	641.94	315.20	3.75	0.00	922.77	1883.65
55	799.14	360.20	3.75	0.00	1008.24	2171.32
55	-800.84	-360.77	0.00	-14.41	-986.48	-2162.48
56	-643.64	-315.77	0.00	-14.41	-906.57	-1880.38
57	-515.37	-252.77	0.00	-14.41	-743.13	-1525.67
58	-405.44	-198.77	0.00	-14.41	-629.13	-1247.74
59	-295.50	-144.77	0.00	-14.41	-522.56	-977.23
60	-148.92	-72.77	0.00	-14.41	-395.73	-631.82
61	-2.34	-0.77	0.00	-14.41	-287.15	-304.66
62	145.75	71.24	0.00	-14.41	389.87	606.85
63	292.33	143.24	0.00	-14.41	517.43	952.99
64	438.91	215.24	0.00	-14.41	661.44	1315.59
65	640.46	314.24	0.00	-14.41	902.69	1857.38
66	797.66	359.24	0.00	-14.41	988.19	2145.08
66	-858.42	-364.22	68.99	0.00	-913.61	-2136.24
67	-701.22	-319.22	68.99	0.00	-775.82	-1796.25
68	-558.30	-249.02	68.99	0.00	-646.14	-1453.46
69	-463.02	-202.22	68.99	0.00	-556.92	-1222.16
70	-323.78	-133.82	68.99	0.00	-417.84	-875.43
71	-206.51	-76.22	68.99	0.00	-321.87	-604.59
72	-89.24	-18.62	68.99	0.00	-236.16	-344.01
73	66.52	38.99	68.99	0.00	293.10	467.59
74	183.79	96.59	68.99	0.00	396.66	746.02
75	301.04	154.19	68.99	0.00	515.18	1039.39
76	502.27	211.79	68.99	0.00	648.77	1431.80

ESFUERZOS DEBIDOS AL PRETENSADO INFERIOR FINAL CON PERDIDAS

$PRET_{final} = PRET_{inicial} \times 0.85$

Seccion	Npret	Vhiper	Nueva Sección
1	386.21	-29.27	109
2	387.76	-29.27	108
3	390.86	-29.27	107
4	393.95	-29.27	106
5	396.19	-29.27	105
6	392.83	-29.27	104
7	391.65	-29.27	103
7	391.65	7.22	103
8	390.47	7.22	102
9	386.05	7.22	101
10	382.36	7.22	100
11	378.71	7.22	99
12	374.42	7.22	98
13	373.29	7.22	97
13	373.29	-1.87	97
14	372.17	-1.87	96
15	367.96	-1.87	95
16	364.44	-1.87	94
17	360.96	-1.87	93
18	356.87	-1.87	92
19	355.80	-1.87	91
19	355.80	4.84	91
20	354.73	4.84	90
21	350.71	4.84	89
22	347.36	4.84	88
23	344.05	4.84	87
24	340.14	4.84	86
25	339.12	4.84	85
25	339.12	-12.21	85
26	338.11	-12.21	84
27	334.28	-12.21	83
28	331.08	-12.21	82
29	327.92	-12.21	81
30	324.20	-12.21	80
31	692.71	-12.21	79
31	692.71	-10.07	79
32	703.34	-10.07	78
33	704.11	-10.07	77
34	698.20	-10.07	76
35	691.53	-10.07	75
36	683.69	-10.07	74
37	681.64	-10.07	73
37	681.64	8.14	73
38	679.60	8.14	72
39	671.90	8.14	71
40	665.47	8.14	70
41	659.12	8.14	69
42	651.71	8.14	68
43	650.64	8.14	67
43	650.64	-13.91	67
44	649.58	-13.91	66
45	648.86	-13.91	65

ESFUERZOS DEBIDOS AL PRETENSADO INFERIOR FINAL CON PERDIDAS

$PRET_{final} = PRET_{inicial} \times 0.85$

Seccion	Npret	Vhiper	Nueva Sección
46	648.38	-13.91	64
47	647.96	-13.91	63
48	647.55	-13.91	62
49	1018.11	-13.91	61
49	1018.11	-9.42	61
50	1029.63	-9.42	60
51	1033.39	-9.42	59
52	1029.51	-9.42	58
53	1025.74	-9.42	57
54	1021.38	-9.42	56
55	1020.25	-9.42	55
55	1020.25	4.22	55
56	1017.20	4.22	54
57	1005.66	4.22	53
58	996.06	4.22	52
59	986.54	4.22	51
60	975.36	4.22	50
61	972.43	4.22	49
61	972.43	4.93	49
62	969.52	4.93	48
63	958.53	4.93	47
64	949.37	4.93	46
65	940.30	4.93	45
66	929.71	4.93	44
67	928.06	4.93	43
67	928.06	-13.33	43
68	927.67	-13.33	42
69	930.32	-13.33	41
70	932.87	-13.33	40
71	935.51	-13.33	39
72	938.75	-13.33	38
73	1310.29	-13.33	37
73	1310.29	-11.48	37
74	1322.78	-11.48	36
75	1330.26	-11.48	35
76	1329.62	-11.48	34
77	1334.81	-11.48	33
78	1341.47	-11.48	32
79	1343.25	-11.48	31
79	1343.25	2.11	31
80	1345.05	2.11	30
81	1351.98	2.11	29
82	1357.94	2.11	28
83	1364.05	2.11	27
84	1371.45	2.11	26
85	1373.42	2.11	25
85	1373.42	-5.07	25
86	1375.41	-5.07	24
87	1383.09	-5.07	23
88	1389.69	-5.07	22
89	1402.85	-5.07	21
90	1418.93	-5.07	20

ESFUERZOS DEBIDOS AL PRETENSADO INFERIOR FINAL CON PERDIDAS

$PRET_{final} = PRET_{inicial} \times 0.85$

Seccion	Npret	Vhiper	Nueva Sección
91	1423.20	-5.07	19
91	1423.20	3.54	19
92	1427.47	3.54	18
93	1443.84	3.54	17
94	1457.77	3.54	16
95	1471.83	3.54	15
96	1488.71	3.54	14
97	1493.18	3.54	13
97	1493.18	-27.81	13
98	1497.66	-27.81	12
99	1514.84	-27.81	11
100	1529.45	-27.81	10
101	1544.20	-27.81	9
102	1561.90	-27.81	8
103	1566.59	-27.81	7
103	1566.59	116.85	7
104	1571.30	116.85	6
105	1583.61	116.85	5
106	1580.28	116.85	4
107	1567.97	116.85	3
108	1555.56	116.85	2
109	1549.32	116.85	1

VIADUCTO PARA EL AVE

ESFUERZOS PESIMOS PONDERADOS DEBIDOS A ROZAMIENTO DE TEFLONES, FRENADO Y ASIENTOS DIFERENCIALES

Seccion	Roz. Apoyos y Frenado		Asientos Diferenciales	Nueva Sección
	Nd	Vd	Vd	
1	-66.60	10.40	17.33	109
2	-66.60	10.40	17.33	108
3	-66.60	10.40	17.33	107
4	-92.81	-4.46	17.33	106
5	-120.17	-4.46	17.33	105
6	-150.53	-4.46	17.33	104
7	-159.44	-4.46	17.33	103
7	-253.46	9.68	22.62	103
8	-253.46	9.68	22.62	102
9	-271.70	-3.27	22.62	101
10	-300.20	-3.27	22.62	100
11	-328.70	-3.27	22.62	99
12	-362.54	-3.27	22.62	98
13	-371.45	-3.27	22.62	97
13	-440.96	-3.36	22.29	97
14	-449.87	-3.36	22.29	96
15	-483.71	-3.36	22.29	95
16	-512.21	-3.36	22.29	94
17	-540.71	-3.36	22.29	93
18	-574.55	-3.36	22.29	92
19	-583.46	-3.36	22.18	91
19	-652.97	-3.33	22.18	91
20	-661.88	-3.33	22.18	90
21	-695.72	-3.33	22.18	89
22	-724.22	-3.33	22.18	88
23	-752.72	-3.33	22.18	87
24	-786.56	-3.33	22.18	86
25	-795.47	-3.33	22.18	85
25	-864.98	-3.38	22.18	85
26	-873.89	-3.38	22.18	84
27	-907.73	-3.38	22.18	83
28	-936.23	-3.38	22.18	82
29	-964.73	-3.38	22.18	81
30	-998.57	-3.38	22.18	80
31	-1007.48	-3.38	22.18	79
31	-1076.99	-3.21	22.18	79
32	-1085.90	-3.21	22.18	78
33	-1119.74	-3.21	22.18	77
34	-1148.24	-3.21	22.18	76
35	-1176.74	-3.21	22.18	75
36	-1210.58	-3.21	22.18	74
37	-1219.49	-3.21	22.18	73
37	-1289.00	-3.81	22.18	73
38	-1297.91	-3.81	22.18	72
39	-1331.75	-3.81	22.18	71
40	-1360.25	-3.81	22.18	70
41	-1388.75	-3.81	22.18	69
42	-1422.59	-3.81	22.18	68
43	-1431.50	-3.81	22.18	67
43	-1501.01	-1.49	22.18	67
44	-1509.92	-1.49	22.18	66
45	-1543.76	-1.49	22.18	65

VIADUCTO PARA EL AVE

ESFUERZOS PESIMOS PONDERADOS DEBIDOS A ROZAMIENTO DE TEFLONES, FRENADO Y ASIENTOS DIFERENCIALES

Seccion	Roz. Apoyos y Frenado		Asientos Diferenciales	Nueva Sección
	Nd	Vd	Vd	
46	-1572.26	-1.49	22.18	64
47	-1600.76	-1.49	22.18	63
48	-1600.76	-1.49	22.18	62
49	-1600.76	-1.49	22.18	61
49	-1670.27	4.41	22.18	61
50	-1670.27	4.41	22.18	60
51	-1670.27	4.41	22.18	59
52	-1670.27	4.41	22.18	58
53	-1670.27	4.41	22.18	57
54	-1670.27	4.41	22.18	56
55	-1670.27	4.41	22.18	55
55	-1739.78	3.41	22.18	55
56	-1739.78	3.41	22.18	54
57	-1739.78	3.41	22.18	53
58	-1739.78	3.41	22.18	52
59	-1739.78	3.41	22.18	51
60	-1739.78	3.41	22.18	50
61	-1739.78	3.41	22.18	49
61	-1890.06	9.51	22.18	49
62	-1890.06	9.51	22.18	48
63	-1890.06	9.51	22.18	47
64	-1890.06	9.51	22.18	46
65	-1890.06	9.51	22.18	45
66	-1890.06	9.51	22.18	44
67	-1890.06	9.51	22.18	43
67	-2071.91	9.39	22.18	43
68	-2071.91	9.39	22.18	42
69	-2071.91	9.39	22.18	41
70	-2071.91	9.39	22.18	40
71	-2071.91	9.39	22.18	39
72	-2071.91	9.39	22.18	38
73	-2071.91	9.39	22.18	37
73	-2253.75	9.78	22.18	37
74	-2253.75	9.78	22.18	36
75	-2253.75	9.78	22.18	35
76	-2253.75	9.78	22.18	34
77	-2253.75	9.78	22.18	33
78	-2253.75	9.78	22.18	32
79	-2253.75	9.78	22.18	31
79	-2435.60	8.39	22.18	31
80	-2435.60	8.39	22.18	30
81	-2435.60	8.39	22.18	29
82	-2435.60	8.39	22.18	28
83	-2435.60	8.39	22.18	27
84	-2435.60	8.39	22.18	26
85	-2435.60	8.39	22.18	25
85	-2617.44	13.40	22.18	25
86	-2617.44	13.40	22.18	24
87	-2617.44	13.40	22.18	23
88	-2617.44	13.40	22.18	22
89	-2617.44	13.40	22.18	21
90	-2617.44	13.40	22.18	20

VIADUCTO PARA EL AVE

ESFUERZOS PESIMOS PONDERADOS DEBIDOS A ROZAMIENTO DE TEFLONES, FRENADO Y ASIENTOS DIFERENCIALES

Seccion	Roz. Apoyos y Frenado		Asientos Diferenciales	Nueva Sección
	Nd	Vd	Vd	
91	-2617.44	13.40	22.18	19
91	-2799.29	-4.47	22.29	19
92	-2799.29	-4.47	22.29	18
93	-2799.29	-4.47	22.29	17
94	-2799.29	-4.47	22.29	16
95	-2799.29	-4.47	22.29	15
96	-2799.29	-4.47	22.29	14
97	-2799.29	-4.47	22.29	13
97	-2981.13	59.22	22.62	13
98	-2981.13	59.22	22.62	12
99	-2981.13	59.22	22.62	11
100	-2981.13	59.22	22.62	10
101	-2981.13	59.22	22.62	9
102	-2981.13	59.22	22.62	8
103	-2981.13	59.22	22.62	7
103	-3162.98	-231.44	21.40	7
104	-3162.98	-231.44	21.40	6
105	-3162.98	-231.44	21.40	5
106	-3162.98	-231.44	21.40	4
107	-3162.98	-231.44	21.40	3
108	-3162.98	-231.44	21.40	2
109	-3162.98	-231.44	21.40	1

VIADUCTO PARA EL AVE

CORTANTES FINALES PONDERADOS EN MODELO DE 7 VANOS

PRETENSADO + CARGAS EXTERIORES (P. Propio, C. Permanentes, Sobr. de Uso y Gradiente de T.)

Sección	Cortante Total Pret. Visos + Vhiper	Cortante Total Ponder. Vd total	Npret	Cortante Final Ponderado Vd
1	259.41	-1438.32	3971.91	-1178.91
2	210.97	-1039.13	4002.91	-828.16
3	127.67	-745.76	4041.50	-618.09
4	42.42	-467.33	4078.15	-424.91
5	-44.64	341.24	4112.74	296.59
6	-206.87	586.28	4135.08	379.40
7	-423.15	866.60	4126.24	443.44
8	-583.80	1155.06	4114.09	571.26
9	-794.71	1452.90	4088.96	658.19
10	-342.81	1797.78	4148.90	1454.97
11	-71.08	2137.77	4748.97	2066.69
11	1.02	-2145.38	4748.97	-2144.36
12	357.70	-1863.26	4117.88	-1505.57
13	644.21	-1508.26	4016.40	-864.05
14	640.66	-1229.81	3756.34	-589.15
15	516.96	-958.61	3787.25	-441.65
16	254.65	-611.99	3830.87	-357.34
17	1.02	298.75	3891.08	299.77
18	-273.95	625.24	3911.89	351.28
19	-519.68	970.16	3920.23	450.48
20	-763.97	1331.84	3915.11	567.87
21	-293.04	1872.97	4047.37	1579.93
22	1.02	2160.68	4669.99	2161.70
22	2.32	-2170.76	4669.99	-2168.45
23	361.96	-1888.67	4060.21	-1526.71
24	644.30	-1533.93	3991.94	-889.63
25	640.02	-1255.82	3727.80	-615.80
26	515.85	-985.04	3754.82	-469.19
27	254.18	-639.05	3801.63	-384.87
28	2.32	302.03	3858.91	304.34
29	-271.87	629.24	3885.07	357.37
30	-518.87	974.66	3909.79	455.78
31	-766.14	1336.62	3920.27	570.48
32	-293.23	1877.88	4060.03	1584.65
33	2.32	2165.55	4679.22	2167.87
33	-2.93	-2170.91	4679.22	-2173.84
34	359.33	-1888.82	4071.20	-1529.49
35	638.75	-1534.08	3993.58	-895.33
36	633.90	-1256.01	3727.60	-622.11
37	509.17	-985.25	3745.82	-476.07
38	250.95	-639.30	3780.10	-388.35
39	-2.93	-311.40	3846.86	-314.33
40	-275.65	634.26	3877.22	358.61
41	-521.11	979.72	3901.37	458.61
42	-766.71	1341.72	3911.53	575.01
43	-296.28	1883.00	4043.55	1586.73
44	-2.93	2170.67	4671.46	2167.74
44	2.48	-2165.24	4671.46	-2162.76
45	350.88	-1883.15	4054.19	-1532.27
46	636.27	-1528.43	3974.40	-892.16
47	633.04	-1250.36	3712.60	-617.32
48	512.94	-979.62	3743.86	-466.68

VIADUCTO PARA EL AVE

CORTANTES FINALES PONDERADOS EN MODELO DE 7 VANOS

PRETENSADO + CARGAS EXTERIORES (P. Propio, C. Permanentes, Sobr. de Uso y Gradiente de T.)

Sección	Cortante Total Pret. Visos + Vhiper	Cortante Total Ponder. Vd total	Npret	Cortante Final Ponderado Vd
49	255.95	-633.71	3788.31	-377.76
50	2.48	307.48	3848.81	309.96
51	-269.80	634.80	3875.63	365.00
52	-515.65	980.29	3901.83	464.65
53	-762.23	1342.35	3913.74	580.12
54	-291.58	1883.65	4047.36	1592.08
55	2.48	2171.32	4669.99	2173.80
55	-6.51	-2162.48	4669.99	-2168.99
56	353.13	-1880.38	4060.21	-1527.24
57	635.49	-1525.67	3991.93	-890.19
58	631.20	-1247.74	3727.80	-616.53
59	507.10	-977.23	3755.78	-470.12
60	246.10	-631.82	3818.66	-385.72
61	-6.51	-304.66	3891.46	-311.17
62	-283.36	606.85	3928.73	323.50
63	-532.79	952.99	3953.95	420.20
64	-782.52	1315.59	3964.80	533.07
65	-306.57	1857.38	4128.17	1550.81
66	-6.51	2145.08	4746.03	2138.57
66	75.55	-2136.24	4746.03	-2060.69
67	448.35	-1796.25	4166.13	-1347.90
68	742.79	-1453.46	4108.16	-710.67
69	774.82	-1222.16	4101.85	-447.33
70	381.50	-875.43	4251.05	-493.93
71	111.98	-604.59	4328.32	-492.61
72	44.21	-344.01	4349.96	-299.80
73	-59.43	467.59	4323.22	408.16
74	-160.66	746.02	4280.40	585.36
75	-259.33	1039.39	4235.33	780.06
76	-316.13	1431.80	4195.88	1115.67

VIADUCTO PARA EL AVE

CORTANTES FINALES PONDERADOS EN MODELO DE 18 VANOS

PRETENSADO INFERIOR + CARGAS EXTERIORES (Rozamiento de Apoyos, Frenado y Asientos diferenciales)

(Rozamiento de apoyos y frenado produciendo tracciones sobre el tablero)

Seccion	Npret	Cortante Total Pret.	Roz. Apoyos, Frenado y Asientos		Nd total	Vd total	Nueva Sección
			Nd	Vd			
1	386.21	-29.27	-66.60	27.73	319.61	-1.55	109
2	387.76	-29.27	-66.60	27.73	321.16	-1.55	108
3	390.86	-29.27	-66.60	27.73	324.26	-1.55	107
4	393.95	-29.27	-92.81	-21.79	301.14	-51.06	106
5	396.19	-29.27	-120.17	-21.79	276.02	-51.06	105
6	392.83	-29.27	-150.53	-21.79	242.30	-51.06	104
7	391.65	-29.27	-159.44	-21.79	232.21	-51.06	103
7	391.65	7.22	-253.46	32.29	138.19	39.51	103
8	390.47	7.22	-253.46	32.29	137.02	39.51	102
9	386.05	7.22	-271.70	-25.89	114.36	-18.67	101
10	382.36	7.22	-300.20	-25.89	82.17	-18.67	100
11	378.71	7.22	-328.70	-25.89	50.01	-18.67	99
12	374.42	7.22	-362.54	-25.89	11.88	-18.67	98
13	373.29	7.22	-371.45	-25.89	1.85	-18.67	97
13	373.29	-1.87	-440.96	-25.65	-67.66	-27.52	97
14	372.17	-1.87	-449.87	-25.65	-77.69	-27.52	96
15	367.96	-1.87	-483.71	-25.65	-115.75	-27.52	95
16	364.44	-1.87	-512.21	-25.65	-147.77	-27.52	94
17	360.96	-1.87	-540.71	-25.65	-179.74	-27.52	93
18	356.87	-1.87	-574.55	-25.65	-217.67	-27.52	92
19	355.80	-1.87	-583.46	-25.54	-227.65	-27.41	91
19	355.80	4.84	-652.97	-25.51	-297.16	-20.67	91
20	354.73	4.84	-661.88	-25.51	-307.14	-20.67	90
21	350.71	4.84	-695.72	-25.51	-345.01	-20.67	89
22	347.36	4.84	-724.22	-25.51	-376.85	-20.67	88
23	344.05	4.84	-752.72	-25.51	-408.67	-20.67	87
24	340.14	4.84	-786.56	-25.51	-446.41	-20.67	86
25	339.12	4.84	-795.47	-25.51	-456.34	-20.67	85
25	339.12	-12.21	-864.98	-25.55	-525.85	-37.77	85
26	338.11	-12.21	-873.89	-25.55	-535.77	-37.77	84
27	334.28	-12.21	-907.73	-25.55	-573.45	-37.77	83
28	331.08	-12.21	-936.23	-25.55	-605.14	-37.77	82
29	327.92	-12.21	-964.73	-25.55	-636.80	-37.77	81
30	324.20	-12.21	-998.57	-25.55	-674.37	-37.77	80
31	692.71	-12.21	-1007.48	-25.55	-314.77	-37.77	79
31	692.71	-10.07	-1076.99	-25.39	-384.28	-35.46	79
32	703.34	-10.07	-1085.90	-25.39	-382.55	-35.46	78
33	704.11	-10.07	-1119.74	-25.39	-415.62	-35.46	77
34	698.20	-10.07	-1148.24	-25.39	-450.04	-35.46	76
35	691.53	-10.07	-1176.74	-25.39	-485.21	-35.46	75
36	683.69	-10.07	-1210.58	-25.39	-526.89	-35.46	74
37	681.64	-10.07	-1219.49	-25.39	-537.84	-35.46	73
37	681.64	8.14	-1289.00	-25.99	-607.35	-17.85	73
38	679.60	8.14	-1297.91	-25.99	-618.30	-17.85	72
39	671.90	8.14	-1331.75	-25.99	-659.85	-17.85	71
40	665.47	8.14	-1360.25	-25.99	-694.77	-17.85	70
41	659.12	8.14	-1388.75	-25.99	-729.63	-17.85	69
42	651.71	8.14	-1422.59	-25.99	-770.87	-17.85	68
43	650.64	8.14	-1431.50	-25.99	-780.85	-17.85	67
43	650.64	-13.91	-1501.01	-23.66	-850.36	-37.57	67
44	649.58	-13.91	-1509.92	-23.66	-860.34	-37.57	66
45	648.86	-13.91	-1543.76	-23.66	-894.89	-37.57	65

VIADUCTO PARA EL AVE

CORTANTES FINALES PONDERADOS EN MODELO DE 18 VANOS

PRETENSADO INFERIOR + CARGAS EXTERIORES (Rozamiento de Apoyos, Frenado y Asientos diferenciales)

(Rozamiento de apoyos y frenado produciendo tracciones sobre el tablero)

Seccion	Npret	Cortante Total Pret.	Roz. Apoyos, Frenado y Asientos		Nd total	Vd total	Nueva Sección
			Nd	Vd			
46	648.38	-13.91	-1572.26	-23.66	-923.88	-37.57	6
47	647.96	-13.91	-1600.76	-23.66	-952.79	-37.57	6
48	647.55	-13.91	-1600.76	-23.66	-953.21	-37.57	6
49	1018.11	-13.91	-1600.76	-23.66	-582.64	-37.57	6
49	1018.11	-9.42	-1670.27	26.59	-652.15	17.17	6
50	1029.63	-9.42	-1670.27	26.59	-640.63	17.17	6
51	1033.39	-9.42	-1670.27	26.59	-636.88	17.17	5
52	1029.51	-9.42	-1670.27	26.59	-640.75	17.17	5
53	1025.74	-9.42	-1670.27	26.59	-644.53	17.17	5
54	1021.38	-9.42	-1670.27	26.59	-648.89	17.17	5
55	1020.25	-9.42	-1670.27	26.59	-650.02	17.17	5
55	1020.25	4.22	-1739.78	25.58	-719.53	29.80	5
56	1017.20	4.22	-1739.78	25.58	-722.58	29.80	5
57	1005.66	4.22	-1739.78	25.58	-734.11	29.80	5
58	996.06	4.22	-1739.78	25.58	-743.72	29.80	5
59	986.54	4.22	-1739.78	25.58	-753.24	29.80	5
60	975.36	4.22	-1739.78	25.58	-764.42	29.80	5
61	972.43	4.22	-1739.78	25.58	-767.34	29.80	4
61	972.43	4.93	-1890.06	31.69	-917.63	36.62	4
62	969.52	4.93	-1890.06	31.69	-920.54	36.62	4
63	958.53	4.93	-1890.06	31.69	-931.53	36.62	4
64	949.37	4.93	-1890.06	31.69	-940.69	36.62	4
65	940.30	4.93	-1890.06	31.69	-949.76	36.62	4
66	929.71	4.93	-1890.06	31.69	-960.35	36.62	4
67	928.06	4.93	-1890.06	31.69	-962.00	36.62	4
67	928.06	-13.33	-2071.91	31.57	-1143.85	18.24	4
68	927.67	-13.33	-2071.91	31.57	-1144.23	18.24	4
69	930.32	-13.33	-2071.91	31.57	-1141.59	18.24	4
70	932.87	-13.33	-2071.91	31.57	-1139.04	18.24	4
71	935.51	-13.33	-2071.91	31.57	-1136.40	18.24	3
72	938.75	-13.33	-2071.91	31.57	-1133.16	18.24	3
73	1310.29	-13.33	-2071.91	31.57	-761.61	18.24	3
73	1310.29	-11.48	-2253.75	31.96	-943.46	20.48	3
74	1322.78	-11.48	-2253.75	31.96	-930.97	20.48	3
75	1330.26	-11.48	-2253.75	31.96	-923.49	20.48	3
76	1329.62	-11.48	-2253.75	31.96	-924.13	20.48	3
77	1334.81	-11.48	-2253.75	31.96	-918.94	20.48	3
78	1341.47	-11.48	-2253.75	31.96	-912.28	20.48	3
79	1343.25	-11.48	-2253.75	31.96	-910.50	20.48	3
79	1343.25	2.11	-2435.60	30.56	-1092.35	32.67	3
80	1345.05	2.11	-2435.60	30.56	-1090.55	32.67	3
81	1351.98	2.11	-2435.60	30.56	-1083.62	32.67	2
82	1357.94	2.11	-2435.60	30.56	-1077.65	32.67	2
83	1364.05	2.11	-2435.60	30.56	-1071.55	32.67	2
84	1371.45	2.11	-2435.60	30.56	-1064.15	32.67	2
85	1373.42	2.11	-2435.60	30.56	-1062.17	32.67	2
85	1373.42	-5.07	-2617.44	35.57	-1244.02	30.50	2
86	1375.41	-5.07	-2617.44	35.57	-1242.03	30.50	2
87	1383.09	-5.07	-2617.44	35.57	-1234.35	30.50	2
88	1389.69	-5.07	-2617.44	35.57	-1227.75	30.50	2
89	1402.85	-5.07	-2617.44	35.57	-1214.59	30.50	2
90	1418.93	-5.07	-2617.44	35.57	-1198.51	30.50	2

VIADUCTO PARA EL AVE

CORTANTES FINALES PONDERADOS EN MODELO DE 18 VANOS

PRETENSADO INFERIOR + CARGAS EXTERIORES (Rozamiento de Apoyos, Frenado y Asientos diferenciales)

(Rozamiento de apoyos y frenado produciendo tracciones sobre el tablero)

Seccion	Npret	Cortante Total Pret.	Roz. Apoyos, Frenado y Asientos		Nd total	Vd total	Nueva Sección
			Nd	Vd			
91	1423.20	-5.07	-2617.44	35.57	-1194.24	30.50	
91	1423.20	3.54	-2799.29	-26.76	-1376.09	-23.22	
92	1427.47	3.54	-2799.29	-26.76	-1371.81	-23.22	
93	1443.84	3.54	-2799.29	-26.76	-1355.45	-23.22	
94	1457.77	3.54	-2799.29	-26.76	-1341.52	-23.22	
95	1471.83	3.54	-2799.29	-26.76	-1327.46	-23.22	
96	1488.71	3.54	-2799.29	-26.76	-1310.58	-23.22	
97	1493.18	3.54	-2799.29	-26.76	-1306.11	-23.22	
97	1493.18	-27.81	-2981.13	81.84	-1487.95	54.02	
98	1497.66	-27.81	-2981.13	81.84	-1483.47	54.02	
99	1514.84	-27.81	-2981.13	81.84	-1466.29	54.02	
100	1529.45	-27.81	-2981.13	81.84	-1451.68	54.02	
101	1544.20	-27.81	-2981.13	81.84	-1436.94	54.02	
102	1561.90	-27.81	-2981.13	81.84	-1419.23	54.02	
103	1566.59	-27.81	-2981.13	81.84	-1414.54	54.02	
103	1566.59	116.85	-3162.98	-252.84	-1596.38	-135.99	
104	1571.30	116.85	-3162.98	-252.84	-1591.67	-135.99	
105	1583.61	116.85	-3162.98	-252.84	-1579.37	-135.99	
106	1580.28	116.85	-3162.98	-252.84	-1582.70	-135.99	
107	1567.97	116.85	-3162.98	-252.84	-1595.01	-135.99	
108	1555.56	116.85	-3162.98	-252.84	-1607.42	-135.99	
109	1549.32	116.85	-3162.98	-252.84	-1613.65	-135.99	

VIADUCTO PARA EL AVE

CORTANTES FINALES PONDERADOS EN MODELO DE 18 VANOS

PRETENSADO INFERIOR + CARGAS EXTERIORES (Rozamiento de Apoyos, Frenado y Asientos diferenciales)

(Rozamiento de apoyos y frenado produciendo compresiones sobre el tablero)

Seccion	Npret	Cortante Total Pret.	Roz. Apoyos, Frenado y Asientos		Nd total	Vd total	Nueva Seccion
			Nd	Vd			
1	386.21	-29.27	66.60	-27.73	452.81	-57.00	109
2	387.76	-29.27	66.60	-27.73	454.36	-57.00	108
3	390.86	-29.27	66.60	-27.73	457.46	-57.00	107
4	393.95	-29.27	92.81	21.79	486.75	-7.49	106
5	396.19	-29.27	120.17	21.79	516.35	-7.49	105
6	392.83	-29.27	150.53	21.79	543.35	-7.49	104
7	391.65	-29.27	159.44	21.79	551.08	-7.49	103
7	391.65	7.22	253.46	-32.29	645.10	-25.08	103
8	390.47	7.22	253.46	-32.29	643.93	-25.08	102
9	386.05	7.22	271.70	25.89	657.75	33.10	101
10	382.36	7.22	300.20	25.89	682.56	33.10	100
11	378.71	7.22	328.70	25.89	707.40	33.10	99
12	374.42	7.22	362.54	25.89	736.95	33.10	98
13	373.29	7.22	371.45	25.89	744.74	33.10	97
13	373.29	-1.87	440.96	25.65	814.25	23.78	97
14	372.17	-1.87	449.87	25.65	822.04	23.78	96
15	367.96	-1.87	483.71	25.65	851.66	23.78	95
16	364.44	-1.87	512.21	25.65	876.64	23.78	94
17	360.96	-1.87	540.71	25.65	901.67	23.78	93
18	356.87	-1.87	574.55	25.65	931.42	23.78	92
19	355.80	-1.87	583.46	25.54	939.26	23.67	91
19	355.80	4.84	652.97	25.51	1008.77	30.34	91
20	354.73	4.84	661.88	25.51	1016.61	30.34	90
21	350.71	4.84	695.72	25.51	1046.43	30.34	89
22	347.36	4.84	724.22	25.51	1071.58	30.34	88
23	344.05	4.84	752.72	25.51	1096.76	30.34	87
24	340.14	4.84	786.56	25.51	1126.70	30.34	86
25	339.12	4.84	795.47	25.51	1134.59	30.34	85
25	339.12	-12.21	864.98	25.55	1204.10	13.34	85
26	338.11	-12.21	873.89	25.55	1212.00	13.34	84
27	334.28	-12.21	907.73	25.55	1242.00	13.34	83
28	331.08	-12.21	936.23	25.55	1267.31	13.34	82
29	327.92	-12.21	964.73	25.55	1292.65	13.34	81
30	324.20	-12.21	998.57	25.55	1322.76	13.34	80
31	692.71	-12.21	1007.48	25.55	1700.18	13.34	79
31	692.71	-10.07	1076.99	25.39	1769.69	15.32	79
32	703.34	-10.07	1085.90	25.39	1789.24	15.32	78
33	704.11	-10.07	1119.74	25.39	1823.85	15.32	77
34	698.20	-10.07	1148.24	25.39	1846.43	15.32	76
35	691.53	-10.07	1176.74	25.39	1868.26	15.32	75
36	683.69	-10.07	1210.58	25.39	1894.26	15.32	74
37	681.64	-10.07	1219.49	25.39	1901.13	15.32	73
37	681.64	8.14	1289.00	25.99	1970.64	34.13	73
38	679.60	8.14	1297.91	25.99	1977.51	34.13	72
39	671.90	8.14	1331.75	25.99	2003.64	34.13	71
40	665.47	8.14	1360.25	25.99	2025.72	34.13	70
41	659.12	8.14	1388.75	25.99	2047.86	34.13	69
42	651.71	8.14	1422.59	25.99	2074.30	34.13	68
43	650.64	8.14	1431.50	25.99	2082.14	34.13	67
43	650.64	-13.91	1501.01	23.66	2151.65	9.76	67
44	649.58	-13.91	1509.92	23.66	2159.49	9.76	66
45	648.86	-13.91	1543.76	23.66	2192.62	9.76	65

VIADUCTO PARA EL AVE

CORTANTES FINALES PONDERADOS EN MODELO DE 18 VANOS

PRETENSADO INFERIOR + CARGAS EXTERIORES (Rozamiento de Apoyos, Frenado y Asientos diferenciales)

(Rozamiento de apoyos y frenado produciendo compresiones sobre el tablero)

Seccion	Npret	Cortante Total Pret.	Roz. Apoyos, Frenado y Asientos		Nd total	Vd total	Nueva Seccion
			Nd	Vd			
46	6~8.38	-13.91	1572.26	23.66	2220.64	9.76	6
47	647.96	-13.91	1600.76	23.66	2248.72	9.76	6
48	647.55	-13.91	1600.76	23.66	2248.30	9.76	6
49	1018.11	-13.91	1600.76	23.66	2618.87	9.76	6
49	1018.11	-9.42	1670.27	-26.59	2688.38	-36.01	6
50	1029.63	-9.42	1670.27	-26.59	2699.90	-36.01	6
51	1033.39	-9.42	1670.27	-26.59	2703.65	-36.01	5
52	1029.51	-9.42	1670.27	-26.59	2699.78	-36.01	5
53	1025.74	-9.42	1670.27	-26.59	2696.00	-36.01	5
54	1021.38	-9.42	1670.27	-26.59	2691.64	-36.01	5
55	1020.25	-9.42	1670.27	-26.59	2690.51	-36.01	5
55	1020.25	4.22	1739.78	-25.58	2760.02	-21.37	5
56	1017.20	4.22	1739.78	-25.58	2756.97	-21.37	5
57	1005.66	4.22	1739.78	-25.58	2745.44	-21.37	5
58	996.06	4.22	1739.78	-25.58	2735.83	-21.37	5
59	986.54	4.22	1739.78	-25.58	2726.31	-21.37	5
60	975.36	4.22	1739.78	-25.58	2715.13	-21.37	5
61	972.43	4.22	1739.78	-25.58	2712.21	-21.37	4
61	972.43	4.93	1890.06	-31.69	2862.49	-26.76	4
62	969.52	4.93	1890.06	-31.69	2859.58	-26.76	4
63	958.53	4.93	1890.06	-31.69	2848.59	-26.76	4
64	949.37	4.93	1890.06	-31.69	2839.43	-26.76	4
65	940.30	4.93	1890.06	-31.69	2830.36	-26.76	4
66	929.71	4.93	1890.06	-31.69	2819.77	-26.76	4
67	928.06	4.93	1890.06	-31.69	2818.12	-26.76	4
67	928.06	-13.33	2071.91	-31.57	2999.96	-44.90	4
68	927.67	-13.33	2071.91	-31.57	2999.58	-44.90	4
69	930.32	-13.33	2071.91	-31.57	3002.22	-44.90	4
70	932.87	-13.33	2071.91	-31.57	3004.77	-44.90	4
71	935.51	-13.33	2071.91	-31.57	3007.42	-44.90	3
72	938.75	-13.33	2071.91	-31.57	3010.65	-44.90	3
73	1310.29	-13.33	2071.91	-31.57	3382.20	-44.90	3
73	1310.29	-11.48	2253.75	-31.96	3564.04	-43.43	3
74	1322.78	-11.48	2253.75	-31.96	3576.53	-43.43	3
75	1330.26	-11.48	2253.75	-31.96	3584.01	-43.43	3
76	1329.62	-11.48	2253.75	-31.96	3583.37	-43.43	3
77	1334.81	-11.48	2253.75	-31.96	3588.56	-43.43	3
78	1341.47	-11.48	2253.75	-31.96	3595.22	-43.43	3
79	1343.25	-11.48	2253.75	-31.96	3597.00	-43.43	3
79	1343.25	2.11	2435.60	-30.56	3778.84	-28.46	3
80	1345.05	2.11	2435.60	-30.56	3780.64	-28.46	3
81	1351.98	2.11	2435.60	-30.56	3787.57	-28.46	2
82	1357.94	2.11	2435.60	-30.56	3793.54	-28.46	2
83	1364.05	2.11	2435.60	-30.56	3799.64	-28.46	2
84	1371.45	2.11	2435.60	-30.56	3807.04	-28.46	2
85	1373.42	2.11	2435.60	-30.56	3809.02	-28.46	2
85	1373.42	-5.07	2617.44	-35.57	3990.86	-40.65	2
86	1375.41	-5.07	2617.44	-35.57	3992.85	-40.65	2
87	1383.09	-5.07	2617.44	-35.57	4000.53	-40.65	2
88	1389.69	-5.07	2617.44	-35.57	4007.13	-40.65	2
89	1402.85	-5.07	2617.44	-35.57	4020.29	-40.65	2
90	1418.93	-5.07	2617.44	-35.57	4036.37	-40.65	2

VIADUCTO PARA EL AVE

CORTANTES FINALES PONDERADOS EN MODELO DE 18 VANOS

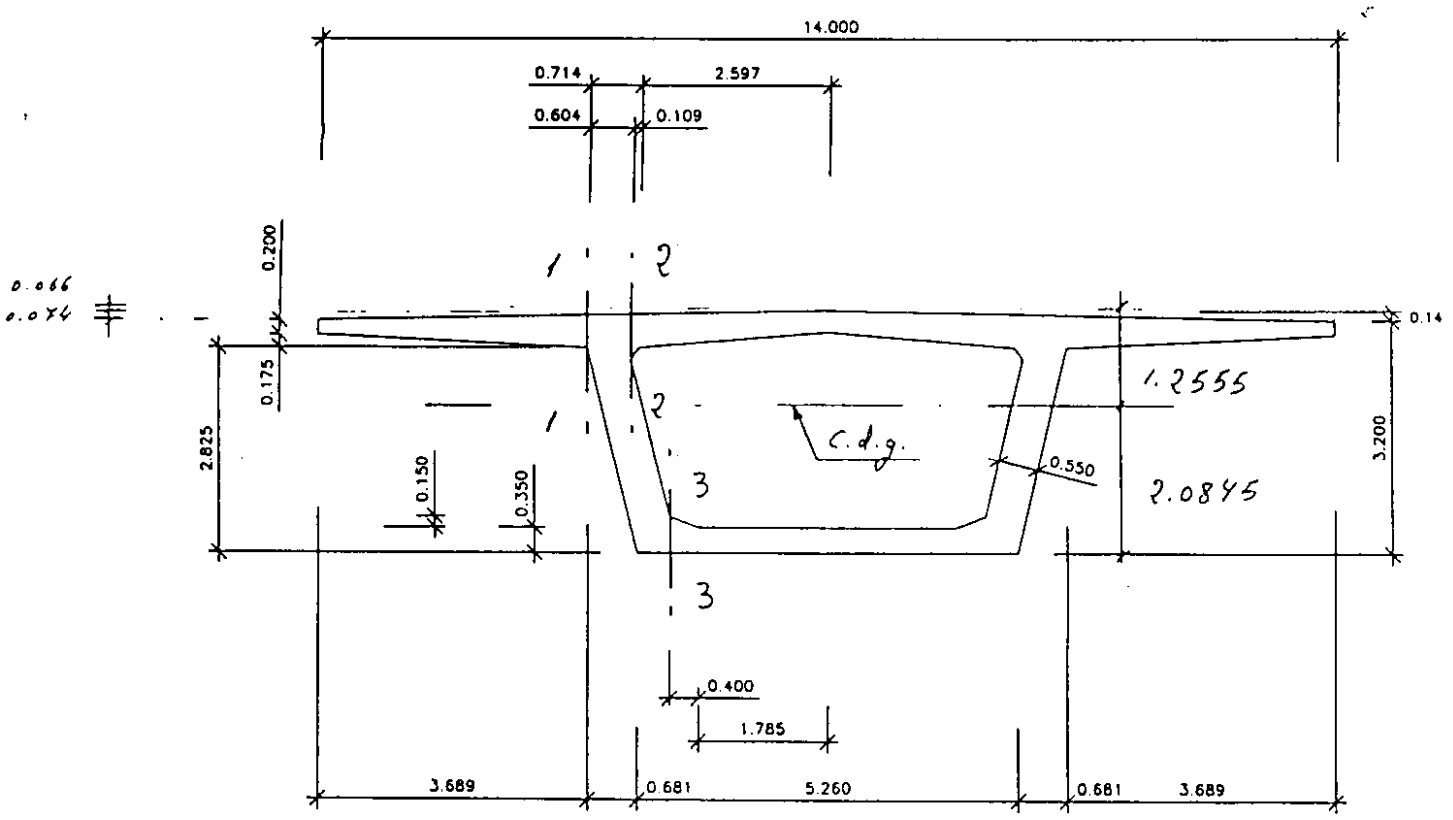
PRETENSADO INFERIOR + CARGAS EXTERIORES (Rozamiento de Apoyos, Frenado y Asientos diferenciales)

(Rozamiento de apoyos y frenado produciendo compresiones sobre el tablero)

Seccion	Npret	Cortante Total Pret.	Roz. Apoyos, Frenado y Asientos		Nd total	Vd total	Nueva Sección
			Nd	Vd			
91	1423.20	-5.07	2617.44	-35.57	4040.64	-40.65	
91	1423.20	3.54	2799.29	26.76	4222.48	30.30	
92	1427.47	3.54	2799.29	26.76	4226.76	30.30	
93	1443.84	3.54	2799.29	26.76	4243.12	30.30	
94	1457.77	3.54	2799.29	26.76	4257.05	30.30	
95	1471.83	3.54	2799.29	26.76	4271.11	30.30	
96	1488.71	3.54	2799.29	26.76	4287.99	30.30	
97	1493.18	3.54	2799.29	26.76	4292.46	30.30	
97	1493.18	-27.81	2981.13	-81.84	4474.31	-109.65	
98	1497.66	-27.81	2981.13	-81.84	4478.79	-109.65	
99	1514.84	-27.81	2981.13	-81.84	4495.97	-109.65	
100	1529.45	-27.81	2981.13	-81.84	4510.58	-109.65	
101	1544.20	-27.81	2981.13	-81.84	4525.33	-109.65	
102	1561.90	-27.81	2981.13	-81.84	4543.03	-109.65	
103	1566.59	-27.81	2981.13	-81.84	4547.72	-109.65	
103	1566.59	116.85	3162.98	252.84	4729.57	369.69	
104	1571.30	116.85	3162.98	252.84	4734.28	369.69	
105	1583.61	116.85	3162.98	252.84	4746.58	369.69	
106	1580.28	116.85	3162.98	252.84	4743.25	369.69	
107	1567.97	116.85	3162.98	252.84	4730.94	369.69	
108	1555.56	116.85	3162.98	252.84	4718.53	369.69	
109	1549.32	116.85	3162.98	252.84	4712.30	369.69	

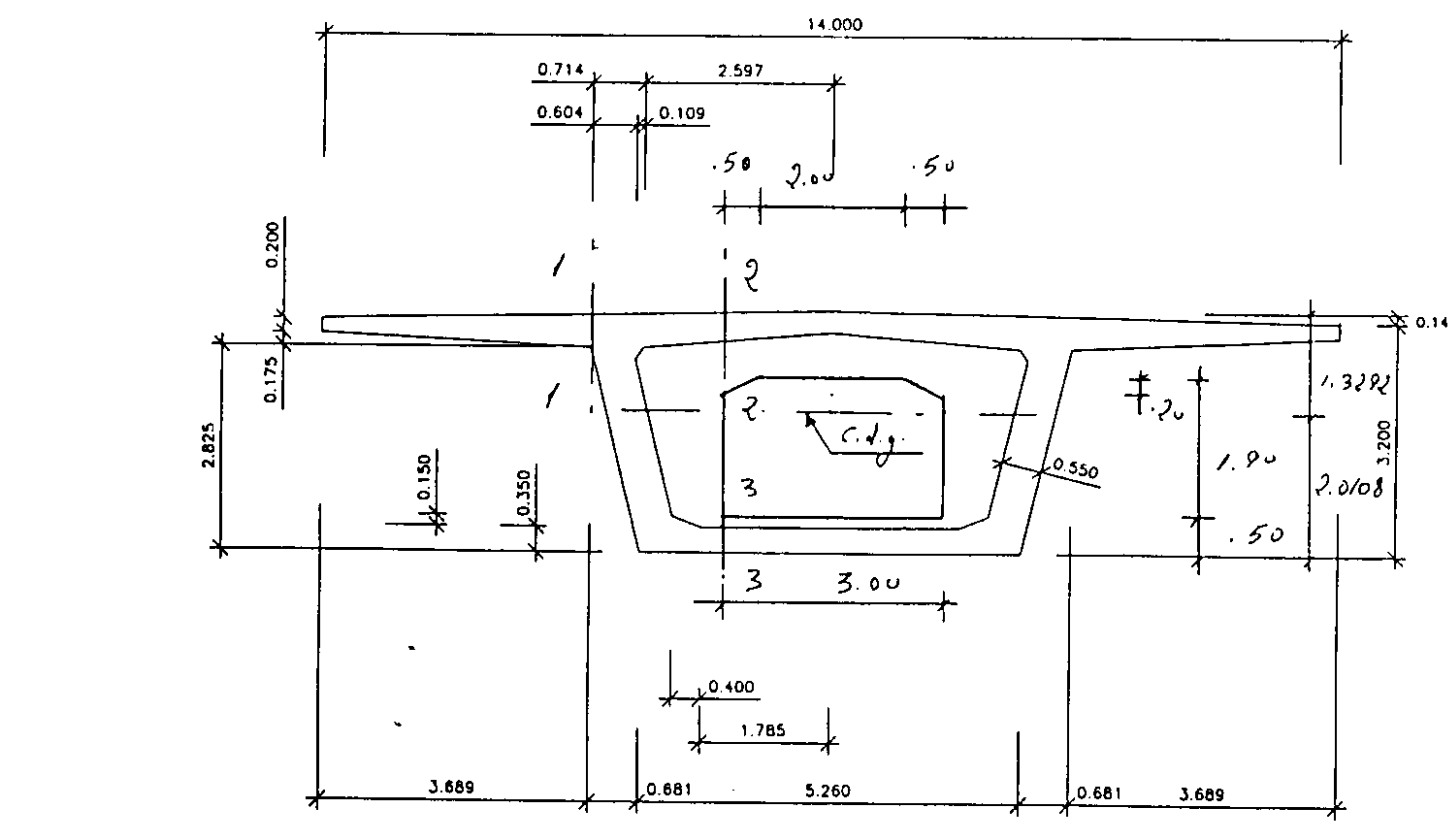
Armado a Rasante

Seccion normal



Armado a Rasante

Seccion sobre pilas



— Armado : Adjunto

Determinación de los momentos estáticos de los siguientes secciones:

- Sección normal:

  - Sección 1-1:

$$M_e = \frac{1}{2} \cdot 3689.00x4 \cdot (12555 - 01153) + 3689.020 \cdot (12555 - 024)$$

$$+ \frac{1}{2} \cdot 3689.01x5 \cdot (12555 - 03983) = 11816$$

  - Sección 2-2:

$$M_e = \frac{1}{2} \cdot 2x06.0054 \cdot (12555 - 0036) + 2x06.0246 \cdot (12555 - 01xx) +$$

$$+ \frac{1}{2} \cdot 2x06.0915 \cdot (12555 - 03x2) = 10640$$

  - Sección 3-3:

$$M_e = 2185.035 \cdot (20845 - 01x5) + \frac{1}{2} \cdot 040.015 \cdot (20845 - 04o) =$$

$$= 15108$$

— Sección sobre pilas

  - Sección 1-1:

$$M_e = \frac{1}{2} \cdot 3689.00x4 \cdot (13292 - 01153) + 3689.020 \cdot (13292 - 024)$$

$$+ \frac{1}{2} \cdot 3689.01x5 \cdot (13292 - 03983) = 12698$$

  - Sección 2-2:

$$M_e = \frac{1}{2} \cdot 15.003 \cdot (13292 - 002) + 150.091 \cdot (13292 - 0465) +$$

$$+ \frac{1}{2} \cdot 050.020 \cdot (13292 - 10062) = 11942$$

  - Sección 3-3:

$$M_e = 150.050 \cdot (20165 - 025) - 13206$$

LAV. VIADUCTO Nº 1

COMPROBACION A CORTANTE I

AGOTAMIENTO POR COMPRESION OBLICUA EN EL ALMA $V_{rd} < V_{u1}$

f_{ck} = 40.00 N/mm² cotg ϑ = 1.50

f_{cd} = 26.67 N/mm²

f_{1cd} = 16.00 N/mm²

$f_{ct,m}$ = 3.51 N/mm³

(Rozamiento de apoyos y frenado produciendo tracciones sobre el tablero)

SECCION	N_{d1} (t)	V_{rd1} (t)	A_c (m²)	σ'_{cd} (N/mm²)	cotg ϑ	K	b_0 (mm)	d (mm)	V_{u1} (t)
1	2358.26	-1042.92	16.768	-1.41	1.50	1.00	2280	3100	5219.45
2	2395.49	-692.17	9.771	-2.45	1.50	1.00	900	3100	2060.31
3	2434.08	-482.10	9.771	-2.49	1.50	1.00	900	3100	2060.31
4	2483.14	-288.92	9.771	-2.54	1.50	1.00	900	3100	2060.31
5	2517.74	432.58	9.771	-2.58	1.50	1.00	900	3100	2060.31
6	2552.38	515.39	9.771	-2.61	1.50	1.00	900	3100	2060.31
7	2543.54	579.43	9.771	-2.60	1.50	1.00	900	3100	2060.31
8	2534.72	707.24	9.771	-2.59	1.50	1.00	900	3100	2060.31
9	2509.59	794.17	9.771	-2.57	1.50	1.00	900	3100	2060.31
10	2557.23	1590.96	9.771	-2.62	1.50	1.00	900	3100	2060.31
10'	2557.23	1590.96	16.768	-1.53	1.50	1.00	2280	3100	5219.45
11	3152.58	2202.68	16.768	-1.88	1.50	1.00	2280	3100	5219.45
11'	3334.43	-2198.39	16.768	-1.99	1.50	1.00	2280	3100	5219.45
12	2698.66	-1559.59	16.768	-1.61	1.50	1.00	2280	3100	5219.45
12'	2698.66	-1559.59	9.771	-2.76	1.50	1.00	900	3100	2060.31
13	2597.17	-918.08	9.771	-2.66	1.50	1.00	900	3100	2060.31
14	2337.11	-643.18	9.771	-2.39	1.50	1.00	900	3100	2060.31
15	2350.32	-495.68	9.771	-2.41	1.50	1.00	900	3100	2060.31
16	2393.93	-411.37	9.771	-2.45	1.50	1.00	900	3100	2060.31
17	2439.40	245.74	9.771	-2.50	1.50	1.00	900	3100	2060.31
18	2460.20	297.26	9.771	-2.52	1.50	1.00	900	3100	2060.31
19	2453.94	396.46	9.771	-2.51	1.50	1.00	900	3100	2060.31
20	2448.81	513.85	9.771	-2.51	1.50	1.00	900	3100	2060.31
21	2563.90	1525.90	9.771	-2.62	1.50	1.00	900	3100	2060.31
21'	2563.90	1525.90	16.768	-1.53	1.50	1.00	2280	3100	5219.45
22	3182.03	2107.68	16.768	-1.90	1.50	1.00	2280	3100	5219.45
22'	3363.88	-2145.23	16.768	-2.01	1.50	1.00	2280	3100	5219.45
23	2749.63	-1503.50	16.768	-1.64	1.50	1.00	2280	3100	5219.45
23'	2749.63	-1503.50	9.771	-2.81	1.50	1.00	900	3100	2060.31
24	2681.36	-866.41	9.771	-2.74	1.50	1.00	900	3100	2060.31
25	2417.22	-592.58	9.771	-2.47	1.50	1.00	900	3100	2060.31
26	2427.36	-445.97	9.771	-2.48	1.50	1.00	900	3100	2060.31
27	2474.17	-361.65	9.771	-2.53	1.50	1.00	900	3100	2060.31
28	2517.39	327.56	9.771	-2.58	1.50	1.00	900	3100	2060.31
29	2543.55	380.58	9.771	-2.60	1.50	1.00	900	3100	2060.31
30	2554.34	479.00	9.771	-2.61	1.50	1.00	900	3100	2060.31
31	2564.82	593.69	9.771	-2.62	1.50	1.00	900	3100	2060.31
32	2688.21	1607.87	9.771	-2.75	1.50	1.00	900	3100	2060.31
32'	2688.21	1607.87	16.768	-1.60	1.50	1.00	2280	3100	5219.45
33	3303.14	2191.08	16.768	-1.97	1.50	1.00	2280	3100	5219.45
33'	3484.98	-2204.34	16.768	-2.08	1.50	1.00	2280	3100	5219.45
34	2872.69	-1559.99	16.768	-1.71	1.50	1.00	2280	3100	5219.45
34'	2872.69	-1559.99	9.771	-2.94	1.50	1.00	900	3100	2060.31
35	2795.07	-925.83	9.771	-2.86	1.50	1.00	900	3100	2060.31

LAV. VIADUCTO Nº 1

COMPROBACION A CORTANTE I

AGOTAMIENTO POR COMPRESION OBLICUA EN EL ALMA $V_{rd} < V_{u1}$

f_{ck} = 40.00 N/mm² cotg ϑ = 1.50

f_{cd} = 26.67 N/mm²

f_{1cd} = 16.00 N/mm²

$f_{ct,m}$ = 3.51 N/mm³

(Rozamiento de apoyos y frenado produciendo tracciones sobre el tablero)

SECCION	N_{d1} (t)	V_{rd1} (t)	A_c (m²)	σ'_{cd} (N/mm²)	cotg ϑ	K	b_0 (mm)	d (mm)	V_{u1} (t)
36	2529.09	-652.61	9.771	-2.59	1.50	1.00	900	3100	2060.31
37	2531.23	-506.57	9.771	-2.59	1.50	1.00	900	3100	2060.31
38	2565.51	-418.85	9.771	-2.63	1.50	1.00	900	3100	2060.31
39	2619.11	-344.83	9.771	-2.68	1.50	1.00	900	3100	2060.31
40	2649.47	328.11	9.771	-2.71	1.50	1.00	900	3100	2060.31
41	2667.02	428.11	9.771	-2.73	1.50	1.00	900	3100	2060.31
42	2677.18	544.51	9.771	-2.74	1.50	1.00	900	3100	2060.31
43	2801.52	1556.23	9.771	-2.87	1.50	1.00	900	3100	2060.31
43'	2801.52	1556.23	16.768	-1.67	1.50	1.00	2280	3100	5219.45
44	3427.45	2137.24	16.768	-2.04	1.50	1.00	2280	3100	5219.45
44'	3609.29	-2195.43	16.768	-2.15	1.50	1.00	2280	3100	5219.45
55	4602.32	2201.32	16.768	-2.74	1.50	1.00	2280	3100	5219.45
55'	4671.83	-2150.32	16.768	-2.79	1.50	1.00	2280	3100	5219.45
56	4072.09	-1508.57	16.768	-2.43	1.50	1.00	2280	3100	5219.45
56'	4072.09	-1508.57	9.771	-4.17	1.50	1.00	900	3100	2060.31
57	4003.81	-871.52	9.771	-4.10	1.50	1.00	900	3100	2060.31
58	3739.68	-597.86	9.771	-3.83	1.50	1.00	900	3100	2060.31
59	3805.79	-451.45	9.771	-3.89	1.50	1.00	900	3100	2060.31
60	3868.67	-367.05	9.771	-3.96	1.50	1.00	900	3100	2060.31
61	3973.63	-292.50	9.771	-4.07	1.50	1.00	900	3100	2060.31
62	4010.90	342.17	9.771	-4.10	1.50	1.00	900	3100	2060.31
63	4068.31	438.87	9.771	-4.16	1.50	1.00	900	3100	2060.31
64	4079.16	551.74	9.771	-4.17	1.50	1.00	900	3100	2060.31
65	4265.19	1511.31	9.771	-4.37	1.50	1.00	900	3100	2060.31
65'	4265.19	1511.31	16.768	-2.54	1.50	1.00	2280	3100	5219.45
66	4884.23	2099.06	16.768	-2.91	1.50	1.00	2280	3100	5219.45
66'	4978.25	-2009.63	16.768	-2.97	1.50	1.00	2280	3100	5219.45
67	4408.43	-1296.84	16.768	-2.63	1.50	1.00	2280	3100	5219.45
67'	4408.43	-1296.84	9.771	-4.51	1.50	1.00	900	3100	2060.31
68	4350.46	-659.61	9.771	-4.45	1.50	1.00	900	3100	2060.31
69	4377.87	-396.27	9.771	-4.48	1.50	1.00	900	3100	2060.31
70	4527.07	-442.86	9.771	-4.63	1.50	1.00	900	3100	2060.31
71	4629.46	-441.54	9.771	-4.74	1.50	1.00	900	3100	2060.31
72	4651.10	-248.73	9.771	-4.76	1.50	1.00	900	3100	2060.31
73	4647.48	409.71	9.771	-4.76	1.50	1.00	900	3100	2060.31
74	4604.67	586.90	9.771	-4.71	1.50	1.00	900	3100	2060.31
75	4556.49	781.60	9.771	-4.66	1.50	1.00	900	3100	2060.31
76	4515.49	1117.21	16.768	-2.69	1.50	1.00	2280	3100	5219.45

LAV. VIADUCTO Nº 1

COMPROBACION A CORTANTE I

AGOTAMIENTO POR COMPRESION OBLICUA EN EL ALMA $V_{rd} < V_{u1}$

f_{ck} = 40.00 N/mm² cotg ϑ = 1.50

f_{cd} = 26.67 N/mm²

f_{1cd} = 16.00 N/mm²

$f_{ct,m}$ = 3.51 N/mm³

(Rozamiento de apoyos y frenado produciendo compresiones sobre el tablero)

SECCION	N_{d2} (t)	V_{rd2} (t)	A_c (m²)	σ'_{cd} (N/mm²)	cotg ϑ	K	b_0 (mm)	d (mm)	V_{u1} (t)
1	8684.21	-1548.60	16.768	-5.18	1.50	1.00	2280	3100	5219.45
2	8721.44	-1197.85	9.771	-8.93	1.50	1.00	900	3100	2060.31
3	8760.03	-987.77	9.771	-8.97	1.50	1.00	900	3100	2060.31
4	8809.09	-794.60	9.771	-9.02	1.50	1.00	900	3100	2060.31
5	8843.69	-73.09	9.771	-9.05	1.50	1.00	900	3100	2060.31
6	8878.33	9.72	9.771	-9.09	1.50	1.00	900	3100	2060.31
7	8869.49	73.75	9.771	-9.08	1.50	1.00	900	3100	2060.31
8	8860.67	201.57	9.771	-9.07	1.50	1.00	900	3100	2060.31
9	8835.54	288.50	9.771	-9.04	1.50	1.00	900	3100	2060.31
10	8883.18	1085.28	9.771	-9.09	1.50	1.00	900	3100	2060.31
10'	8883.18	1085.28	16.768	-5.30	1.50	1.00	2280	3100	5219.45
11	9478.53	1697.01	16.768	-5.65	1.50	1.00	2280	3100	5219.45
11'	9296.69	-2034.72	16.768	-5.54	1.50	1.00	2280	3100	5219.45
12	8660.92	-1395.92	16.768	-5.17	1.50	1.00	2280	3100	5219.45
12'	8660.92	-1395.92	9.771	-8.86	1.50	1.00	900	3100	2060.31
13	8559.43	-754.40	9.771	-8.76	1.50	1.00	900	3100	2060.31
14	8299.37	-479.50	9.771	-8.49	1.50	1.00	900	3100	2060.31
15	8312.58	-332.00	9.771	-8.51	1.50	1.00	900	3100	2060.31
16	8356.19	-247.69	9.771	-8.55	1.50	1.00	900	3100	2060.31
17	8401.66	409.42	9.771	-8.60	1.50	1.00	900	3100	2060.31
18	8422.46	460.93	9.771	-8.62	1.50	1.00	900	3100	2060.31
19	8416.20	560.13	9.771	-8.61	1.50	1.00	900	3100	2060.31
20	8411.07	677.52	9.771	-8.61	1.50	1.00	900	3100	2060.31
21	8526.16	1689.58	9.771	-8.73	1.50	1.00	900	3100	2060.31
21'	8526.16	1689.58	16.768	-5.08	1.50	1.00	2280	3100	5219.45
22	9144.29	2271.35	16.768	-5.45	1.50	1.00	2280	3100	5219.45
22'	8962.45	-2198.75	16.768	-5.34	1.50	1.00	2280	3100	5219.45
23	8348.20	-1557.02	16.768	-4.98	1.50	1.00	2280	3100	5219.45
23'	8348.20	-1557.02	9.771	-8.54	1.50	1.00	900	3100	2060.31
24	8279.93	-919.94	9.771	-8.47	1.50	1.00	900	3100	2060.31
25	8015.79	-646.10	9.771	-8.20	1.50	1.00	900	3100	2060.31
26	8025.93	-499.49	9.771	-8.21	1.50	1.00	900	3100	2060.31
27	8072.74	-415.17	9.771	-8.26	1.50	1.00	900	3100	2060.31
28	8115.96	274.04	9.771	-8.31	1.50	1.00	900	3100	2060.31
29	8142.12	327.06	9.771	-8.33	1.50	1.00	900	3100	2060.31
30	8152.91	425.48	9.771	-8.34	1.50	1.00	900	3100	2060.31
31	8163.39	540.17	9.771	-8.35	1.50	1.00	900	3100	2060.31
32	8286.78	1554.35	9.771	-8.48	1.50	1.00	900	3100	2060.31
32'	8286.78	1554.35	16.768	-4.94	1.50	1.00	2280	3100	5219.45
33	8901.71	2137.56	16.768	-5.31	1.50	1.00	2280	3100	5219.45
33'	8719.86	-2133.19	16.768	-5.20	1.50	1.00	2280	3100	5219.45
34	8107.57	-1488.84	16.768	-4.84	1.50	1.00	2280	3100	5219.45
34'	8107.57	-1488.84	9.771	-8.30	1.50	1.00	900	3100	2060.31
35	8029.95	-854.68	9.771	-8.22	1.50	1.00	900	3100	2060.31

LAV. VIADUCTO Nº 1

COMPROBACION A CORTANTE I

AGOTAMIENTO POR COMPRESION OBLICUA EN EL ALMA $V_{rd} < V_{u1}$

f_{ck} = 40.00 N/mm² cotg ϑ = 1.50

f_{cd} = 26.67 N/mm²

f_{1cd} = 16.00 N/mm²

$f_{ct,m}$ = 3.51 N/mm³

(Rozamiento de apoyos y frenado produciendo compresiones sobre el tablero)

SECCION	N_{d2} (t)	V_{rd2} (t)	A_c (m²)	σ'_{cd} (N/mm²)	cotg ϑ	K	b_0 (mm)	d (mm)	V_{u1} (t)
36	7763.97	-581.46	9.771	-7.95	1.50	1.00	900	3100	2060.31
37	7766.11	-435.42	9.771	-7.95	1.50	1.00	900	3100	2060.31
38	7800.39	-347.70	9.771	-7.98	1.50	1.00	900	3100	2060.31
39	7853.99	-273.69	9.771	-8.04	1.50	1.00	900	3100	2060.31
40	7884.35	399.26	9.771	-8.07	1.50	1.00	900	3100	2060.31
41	7901.90	499.26	9.771	-8.09	1.50	1.00	900	3100	2060.31
42	7912.06	615.66	9.771	-8.10	1.50	1.00	900	3100	2060.31
43	8036.40	1627.38	9.771	-8.22	1.50	1.00	900	3100	2060.31
43'	8036.40	1627.38	16.768	-4.79	1.50	1.00	2280	3100	5219.45
44	8662.33	2208.39	16.768	-5.17	1.50	1.00	2280	3100	5219.45
44'	8480.48	-2134.30	16.768	-5.06	1.50	1.00	2280	3100	5219.45
55	5484.23	2150.02	16.768	-3.27	1.50	1.00	2280	3100	5219.45
55'	5414.72	-2202.10	16.768	-3.23	1.50	1.00	2280	3100	5219.45
56	4797.16	-1560.35	16.768	-2.86	1.50	1.00	2280	3100	5219.45
56'	4797.16	-1560.35	9.771	-4.91	1.50	1.00	900	3100	2060.31
57	4728.88	-923.29	9.771	-4.84	1.50	1.00	900	3100	2060.31
58	4464.75	-649.64	9.771	-4.57	1.50	1.00	900	3100	2060.31
59	4463.18	-503.23	9.771	-4.57	1.50	1.00	900	3100	2060.31
60	4526.06	-418.82	9.771	-4.63	1.50	1.00	900	3100	2060.31
61	4574.02	-344.27	9.771	-4.68	1.50	1.00	900	3100	2060.31
62	4611.29	290.39	9.771	-4.72	1.50	1.00	900	3100	2060.31
63	4611.70	387.10	9.771	-4.72	1.50	1.00	900	3100	2060.31
64	4622.55	499.96	9.771	-4.73	1.50	1.00	900	3100	2060.31
65	4772.10	1575.89	9.771	-4.88	1.50	1.00	900	3100	2060.31
65'	4772.10	1575.89	16.768	-2.85	1.50	1.00	2280	3100	5219.45
66	5391.14	2163.65	16.768	-3.22	1.50	1.00	2280	3100	5219.45
66'	5297.12	-2053.21	16.768	-3.16	1.50	1.00	2280	3100	5219.45
67	4709.48	-1340.42	16.768	-2.81	1.50	1.00	2280	3100	5219.45
67'	4709.48	-1340.42	9.771	-4.82	1.50	1.00	900	3100	2060.31
68	4651.51	-703.18	9.771	-4.76	1.50	1.00	900	3100	2060.31
69	4618.20	-439.85	9.771	-4.73	1.50	1.00	900	3100	2060.31
70	4767.40	-486.44	9.771	-4.88	1.50	1.00	900	3100	2060.31
71	4815.07	-485.12	9.771	-4.93	1.50	1.00	900	3100	2060.31
72	4836.71	-292.31	9.771	-4.95	1.50	1.00	900	3100	2060.31
73	4780.68	465.16	9.771	-4.89	1.50	1.00	900	3100	2060.31
74	4737.87	642.36	9.771	-4.85	1.50	1.00	900	3100	2060.31
75	4689.69	837.06	9.771	-4.80	1.50	1.00	900	3100	2060.31
76	4648.69	1172.67	16.768	-2.77	1.50	1.00	2280	3100	5219.45

LAV. VIADUCTO Nº 1

COMPROBACION A CORTANTE II

AGOTAMIENTO POR TRACCION EN EL ALMA $V_{rd} < V_{u2}$

f_{ck} = 40.00 N/mm^2 cotg ϑ = 1.50

f_{cd} = 26.67 N/mm^2

f_{1cd} = 16.00 N/mm^2

$f_{ct,m}$ = 3.51 N/mm^3

(Rozamiento de apoyos y frenado produciendo tracciones sobre el tablero)

SECCION	σ_{xd}	cotg ϑ_e	cotg ϑ	β	ξ	ρ_1	V_{cu} (t)	V_{su} (t)	A_α (cm^2/m)	$A_{\alpha min}$ (cm^2/m)
1	-1.41	1.184	1.50	0.61	1.254	0.0200	325.18	717.74	43	30.40
2	-2.45	1.303	1.50	0.72	1.254	0.0200	181.84	510.33	30	12.00
3	-2.49	1.308	1.50	0.72	1.254	0.0200	184.16	297.94	18	12.00
4	-2.54	1.313	1.50	0.73	1.254	0.0200	187.16	101.77	6	12.00
5	-2.58	1.317	1.50	0.73	1.254	0.0200	189.29	243.29	15	12.00
6	-2.61	1.321	1.50	0.74	1.254	0.0200	191.45	323.94	19	12.00
7	-2.60	1.320	1.50	0.74	1.254	0.0200	190.90	388.53	23	12.00
8	-2.59	1.319	1.50	0.73	1.254	0.0200	190.35	516.89	31	12.00
9	-2.57	1.316	1.50	0.73	1.254	0.0200	188.79	605.39	36	12.00
10	-2.62	1.321	1.50	0.74	1.254	0.0200	191.76	1399.20	84	12.00
10'	-1.53	1.198	1.50	0.62	1.254	0.0200	338.78	1252.17	75	30.40
11	-1.88	1.239	1.50	0.66	1.254	0.0200	382.02	1820.66	109	30.40
11'	-1.99	1.252	1.50	0.67	1.254	0.0200	396.04	1802.35	108	30.40
12	-1.61	1.208	1.50	0.63	1.254	0.0200	348.70	1210.89	72	30.40
12'	-2.76	1.337	1.50	0.75	1.254	0.0200	200.81	1358.78	81	12.00
13	-2.66	1.326	1.50	0.74	1.254	0.0200	194.28	723.80	43	12.00
14	-2.39	1.297	1.50	0.71	1.254	0.0200	178.36	464.81	28	12.00
15	-2.41	1.298	1.50	0.71	1.254	0.0200	179.15	316.53	19	12.00
16	-2.45	1.303	1.50	0.72	1.254	0.0200	181.74	229.62	14	12.00
17	-2.50	1.308	1.50	0.72	1.254	0.0200	184.49	61.26	4	12.00
18	-2.52	1.311	1.50	0.73	1.254	0.0200	185.75	111.50	7	12.00
19	-2.51	1.310	1.50	0.72	1.254	0.0200	185.37	211.09	13	12.00
20	-2.51	1.309	1.50	0.72	1.254	0.0200	185.06	328.79	20	12.00
21	-2.62	1.322	1.50	0.74	1.254	0.0200	192.18	1333.73	80	12.00
21'	-1.53	1.198	1.50	0.62	1.254	0.0200	339.25	1186.66	71	30.40
22	-1.90	1.241	1.50	0.66	1.254	0.0200	384.27	1723.41	103	30.40
22'	-2.01	1.254	1.50	0.67	1.254	0.0200	398.35	1746.88	104	30.40
23	-1.64	1.211	1.50	0.63	1.254	0.0200	352.33	1151.17	69	30.40
23'	-2.81	1.342	1.50	0.76	1.254	0.0200	204.17	1299.33	78	12.00
24	-2.74	1.335	1.50	0.75	1.254	0.0200	199.69	666.73	40	12.00
25	-2.47	1.306	1.50	0.72	1.254	0.0200	183.14	409.44	24	12.00
26	-2.48	1.307	1.50	0.72	1.254	0.0200	183.76	262.22	16	12.00
27	-2.53	1.312	1.50	0.73	1.254	0.0200	186.61	175.05	10	12.00
28	-2.58	1.317	1.50	0.73	1.254	0.0200	189.27	138.28	8	12.00
29	-2.60	1.320	1.50	0.74	1.254	0.0200	190.90	189.68	11	12.00
30	-2.61	1.321	1.50	0.74	1.254	0.0200	191.58	287.42	17	12.00
31	-2.62	1.322	1.50	0.74	1.254	0.0200	192.23	401.46	24	12.00
32	-2.75	1.336	1.50	0.75	1.254	0.0200	200.13	1407.73	84	12.00
32'	-1.60	1.207	1.50	0.63	1.254	0.0200	347.96	1259.90	75	30.40
33	-1.97	1.250	1.50	0.67	1.254	0.0200	393.60	1797.48	107	30.40
33'	-2.08	1.262	1.50	0.68	1.254	0.0200	407.95	1796.38	107	30.40
34	-1.71	1.220	1.50	0.64	1.254	0.0200	361.20	1198.78	72	30.40
34'	-2.94	1.356	1.50	0.78	1.254	0.0200	212.48	1347.51	80	12.00
35	-2.86	1.347	1.50	0.77	1.254	0.0200	207.20	718.63	43	12.00
36	-2.59	1.318	1.50	0.73	1.254	0.0200	190.00	462.61	28	12.00

LAV. VIADUCTO Nº 1

COMPROBACION A CORTANTE II

AGOTAMIENTO POR TRACCION EN EL ALMA $V_{rd} < V_{u2}$

f_{ck} = 40.00 N/mm^2 cotg ϑ = 1.50

f_{cd} = 26.67 N/mm^2

f_{1cd} = 16.00 N/mm^2

$f_{ct,m}$ = 3.51 N/mm^3

(Rozamiento de apoyos y frenado produciendo tracciones sobre el tablero)

SECCION	σ_{xd}	cotg ϑ_e	cotg ϑ	β	ξ	ρ_1	V_{cu} (t)	V_{su} (t)	A_α (cm^2/m)	$A_{\alpha min}$ (cm^2/m
37	-2.59	1.319	1.50	0.73	1.254	0.0200	190.13	316.44	19	12.00
38	-2.63	1.322	1.50	0.74	1.254	0.0200	192.28	226.57	14	12.00
39	-2.68	1.328	1.50	0.74	1.254	0.0200	195.68	149.16	9	12.00
40	-2.71	1.332	1.50	0.75	1.254	0.0200	197.62	130.49	8	12.00
41	-2.73	1.333	1.50	0.75	1.254	0.0200	198.76	229.36	14	12.00
42	-2.74	1.335	1.50	0.75	1.254	0.0200	199.42	345.09	21	12.00
43	-2.87	1.348	1.50	0.77	1.254	0.0200	207.64	1348.59	81	12.00
43'	-1.67	1.215	1.50	0.64	1.254	0.0200	356.05	1200.18	72	30.40
44	-2.04	1.258	1.50	0.67	1.254	0.0200	403.37	1733.87	104	30.40
44'	-2.15	1.270	1.50	0.69	1.254	0.0200	418.01	1777.42	106	30.40
55	-2.74	1.335	1.50	0.75	1.254	0.0200	505.95	1695.37	101	30.40
55'	-2.79	1.339	1.50	0.76	1.254	0.0200	512.67	1637.66	98	30.40
56	-2.43	1.301	1.50	0.72	1.254	0.0200	457.23	1051.34	63	30.40
56'	-4.17	1.479	1.50	0.96	1.254	0.0200	312.15	1196.42	71	12.00
57	-4.10	1.472	1.50	0.95	1.254	0.0200	305.39	566.13	34	12.00
58	-3.83	1.446	1.50	0.90	1.254	0.0200	280.62	317.24	19	12.00
59	-3.89	1.453	1.50	0.91	1.254	0.0200	286.62	164.83	10	12.00
60	-3.96	1.459	1.50	0.92	1.254	0.0200	292.45	74.60	4	12.00
61	-4.07	1.469	1.50	0.94	1.254	0.0200	302.45	-9.95	-1	12.00
62	-4.10	1.473	1.50	0.95	1.254	0.0200	306.08	36.08	2	12.00
63	-4.16	1.479	1.50	0.96	1.254	0.0200	311.78	127.10	8	12.00
64	-4.17	1.480	1.50	0.96	1.254	0.0200	312.86	238.88	14	12.00
65	-4.37	1.498	1.50	1.00	1.254	0.0200	332.16	1179.14	70	12.00
65'	-2.54	1.313	1.50	0.73	1.254	0.0200	474.48	1036.82	62	30.40
66	-2.91	1.353	1.50	0.77	1.254	0.0200	533.67	1565.40	94	30.40
66'	-2.97	1.359	1.50	0.78	1.254	0.0200	543.21	1466.42	88	30.40
67	-2.63	1.323	1.50	0.74	1.254	0.0200	487.64	809.20	48	30.40
67'	-4.51	1.512	1.50	0.99	1.254	0.0200	335.52	961.32	57	12.00
68	-4.45	1.506	1.50	0.99	1.254	0.0200	334.92	324.68	19	12.00
69	-4.48	1.509	1.50	0.99	1.254	0.0200	335.20	61.06	4	12.00
70	-4.63	1.523	1.50	0.98	1.254	0.0200	336.75	106.12	6	12.00
71	-4.74	1.533	1.50	0.97	1.254	0.0200	337.81	103.74	6	12.00
72	-4.76	1.535	1.50	0.97	1.254	0.0200	338.03	-89.30	-5	12.00
73	-4.76	1.535	1.50	0.97	1.254	0.0200	337.99	71.71	4	12.00
74	-4.71	1.531	1.50	0.97	1.254	0.0200	337.55	249.35	15	12.00
75	-4.66	1.526	1.50	0.97	1.254	0.0200	337.05	444.55	27	12.00
76	-2.69	1.330	1.50	0.75	1.254	0.0200	497.68	619.53	37	30.40

LAV. VIADUCTO Nº 1

COMPROBACION A CORTANTE II

AGOTAMIENTO POR TRACCION EN EL ALMA $V_{rd} < V_{u2}$

f_{ck} = 40.00 N/mm² cotg ϑ = 1.50

f_{cd} = 26.67 N/mm²

f_{1cd} = 16.00 N/mm²

$f_{ct,m}$ = 3.51 N/mm³

(Rozamiento de apoyos y frenado produciendo compresiones sobre el tablero)

SECCION	σ_{xd}	cotg ϑ_e	cotg ϑ	β	ξ	ρ_1	V_{cu} (t)	V_{su} (t)	A_a (cm²/m)	$A_{a,min}$ (cm²/m)
1	-5.18	1.574	1.50	0.93	1.254	0.0200	867.07	681.52	41	30.40
2	-8.93	1.883	1.50	0.72	1.254	0.0200	379.18	818.67	49	12.00
3	-8.97	1.886	1.50	0.72	1.254	0.0200	379.55	608.22	36	12.00
4	-9.02	1.889	1.50	0.72	1.254	0.0200	380.03	414.57	25	12.00
5	-9.05	1.892	1.50	0.72	1.254	0.0200	380.36	-307.27	-18	12.00
6	-9.09	1.895	1.50	0.72	1.254	0.0200	380.70	-370.98	-22	12.00
7	-9.08	1.894	1.50	0.72	1.254	0.0200	380.61	-306.86	-18	12.00
8	-9.07	1.893	1.50	0.72	1.254	0.0200	380.53	-178.96	-11	12.00
9	-9.04	1.891	1.50	0.72	1.254	0.0200	380.29	-91.79	-5	12.00
10	-9.09	1.895	1.50	0.72	1.254	0.0200	380.75	704.53	42	12.00
10'	-5.30	1.584	1.50	0.92	1.254	0.0200	870.11	215.17	13	30.40
11	-5.65	1.616	1.50	0.90	1.254	0.0200	879.18	817.82	49	30.40
11'	-5.54	1.606	1.50	0.90	1.254	0.0200	876.42	1158.30	69	30.40
12	-5.17	1.572	1.50	0.93	1.254	0.0200	866.72	529.20	32	30.40
12'	-8.86	1.878	1.50	0.73	1.254	0.0200	378.59	1017.33	61	12.00
13	-8.76	1.870	1.50	0.73	1.254	0.0200	377.60	376.81	23	12.00
14	-8.49	1.850	1.50	0.74	1.254	0.0200	375.05	104.45	6	12.00
15	-8.51	1.851	1.50	0.74	1.254	0.0200	375.18	-43.18	-3	12.00
16	-8.55	1.854	1.50	0.74	1.254	0.0200	375.61	-127.92	-8	12.00
17	-8.60	1.858	1.50	0.74	1.254	0.0200	376.05	33.36	2	12.00
18	-8.62	1.859	1.50	0.74	1.254	0.0200	376.26	84.67	5	12.00
19	-8.61	1.859	1.50	0.74	1.254	0.0200	376.20	183.93	11	12.00
20	-8.61	1.858	1.50	0.74	1.254	0.0200	376.15	301.37	18	12.00
21	-8.73	1.867	1.50	0.73	1.254	0.0200	377.27	1312.31	78	12.00
21'	-5.08	1.565	1.50	0.94	1.254	0.0200	864.66	824.92	49	30.40
22	-5.45	1.598	1.50	0.91	1.254	0.0200	874.09	1397.26	83	30.40
22'	-5.34	1.589	1.50	0.92	1.254	0.0200	871.32	1327.43	79	30.40
23	-4.98	1.555	1.50	0.95	1.254	0.0200	861.94	695.07	42	30.40
23'	-8.54	1.854	1.50	0.74	1.254	0.0200	375.53	1181.49	71	12.00
24	-8.47	1.848	1.50	0.74	1.254	0.0200	374.86	545.07	33	12.00
25	-8.20	1.827	1.50	0.75	1.254	0.0200	372.26	273.85	16	12.00
26	-8.21	1.828	1.50	0.75	1.254	0.0200	372.36	127.13	8	12.00
27	-8.26	1.832	1.50	0.75	1.254	0.0200	372.82	42.35	3	12.00
28	-8.31	1.835	1.50	0.75	1.254	0.0200	373.25	-99.21	-6	12.00
29	-8.33	1.837	1.50	0.75	1.254	0.0200	373.50	-46.44	-3	12.00
30	-8.34	1.838	1.50	0.75	1.254	0.0200	373.61	51.87	3	12.00
31	-8.35	1.839	1.50	0.75	1.254	0.0200	373.71	166.46	10	12.00
32	-8.48	1.849	1.50	0.74	1.254	0.0200	374.93	1179.42	70	12.00
32'	-4.94	1.552	1.50	0.95	1.254	0.0200	861.00	693.34	41	30.40
33	-5.31	1.585	1.50	0.92	1.254	0.0200	870.39	1267.17	76	30.40
33'	-5.20	1.576	1.50	0.93	1.254	0.0200	867.62	1265.57	76	30.40
34	-4.84	1.542	1.50	0.96	1.254	0.0200	858.27	630.57	38	30.40
34'	-8.30	1.834	1.50	0.75	1.254	0.0200	373.16	1115.68	67	12.00
35	-8.22	1.828	1.50	0.75	1.254	0.0200	372.40	482.29	29	12.00
36	-7.95	1.807	1.50	0.77	1.254	0.0200	369.76	211.69	13	12.00

LAV. VIADUCTO Nº 1

COMPROBACION A CORTANTE II

AGOTAMIENTO POR TRACCION EN EL ALMA $V_{rd} < V_{u2}$

f_{ck} = 40.00 N/mm² cotg ϑ = 1.50

f_{cd} = 26.67 N/mm²

f_{1cd} = 16.00 N/mm²

$f_{ct,m}$ = 3.51 N/mm³

(Rozamiento de apoyos y frenado produciendo compresiones sobre el tablero)

SECCION	σ_{xd}	cotg ϑ_e	cotg ϑ	β	ξ	ρ_1	V_{cu} (t)	V_{su} (t)	A_a (cm²/m)	$A_{a,min}$ (cm²/m
37	-7.95	1.807	1.50	0.77	1.254	0.0200	369.79	65.64	4	12.0
38	-7.98	1.810	1.50	0.76	1.254	0.0200	370.13	-22.43	-1	12.0
39	-8.04	1.814	1.50	0.76	1.254	0.0200	370.66	-96.97	-6	12.0
40	-8.07	1.817	1.50	0.76	1.254	0.0200	370.96	28.30	2	12.0
41	-8.09	1.818	1.50	0.76	1.254	0.0200	371.13	128.13	8	12.0
42	-8.10	1.819	1.50	0.76	1.254	0.0200	371.23	244.42	15	12.0
43	-8.22	1.829	1.50	0.75	1.254	0.0200	372.46	1254.91	75	12.0
43'	-4.79	1.538	1.50	0.96	1.254	0.0200	857.18	770.20	46	30.4
44	-5.17	1.572	1.50	0.93	1.254	0.0200	866.74	1341.65	80	30.4
44'	-5.06	1.563	1.50	0.94	1.254	0.0200	863.96	1270.34	76	30.4
55	-3.27	1.390	1.50	0.82	1.254	0.0200	597.31	1552.72	93	30.4
55'	-3.23	1.386	1.50	0.81	1.254	0.0200	589.59	1612.51	96	30.4
56	-2.86	1.347	1.50	0.77	1.254	0.0200	524.97	1035.38	62	30.4
56'	-4.91	1.549	1.50	0.95	1.254	0.0200	339.54	1220.80	73	12.0
57	-4.84	1.543	1.50	0.96	1.254	0.0200	338.84	584.45	35	12.0
58	-4.57	1.517	1.50	0.98	1.254	0.0200	336.10	313.54	19	12.0
59	-4.57	1.517	1.50	0.98	1.254	0.0200	336.09	167.14	10	12.0
60	-4.63	1.523	1.50	0.98	1.254	0.0200	336.74	82.09	5	12.0
61	-4.68	1.528	1.50	0.97	1.254	0.0200	337.23	7.04	0	12.0
62	-4.72	1.531	1.50	0.97	1.254	0.0200	337.62	-47.23	-3	12.0
63	-4.72	1.531	1.50	0.97	1.254	0.0200	337.62	49.48	3	12.0
64	-4.73	1.533	1.50	0.97	1.254	0.0200	337.74	162.23	10	12.0
65	-4.88	1.547	1.50	0.96	1.254	0.0200	339.28	1236.61	74	12.0
55'	-2.85	1.346	1.50	0.76	1.254	0.0200	522.49	1053.40	63	30.4
66	-3.22	1.384	1.50	0.81	1.254	0.0200	586.99	1576.66	94	30.4
66'	-3.16	1.379	1.50	0.80	1.254	0.0200	576.74	1476.47	88	30.4
67	-2.81	1.342	1.50	0.76	1.254	0.0200	516.33	824.08	49	30.4
67'	-4.82	1.541	1.50	0.96	1.254	0.0200	338.63	1001.78	60	12.0
68	-4.76	1.535	1.50	0.97	1.254	0.0200	338.04	365.15	22	12.0
69	-4.73	1.532	1.50	0.97	1.254	0.0200	337.69	102.16	6	12.0
70	-4.88	1.546	1.50	0.96	1.254	0.0200	339.23	147.21	9	12.0
71	-4.93	1.551	1.50	0.95	1.254	0.0200	339.73	145.39	9	12.0
72	-4.95	1.553	1.50	0.95	1.254	0.0200	339.95	-47.64	-3	12.0
73	-4.89	1.547	1.50	0.95	1.254	0.0200	339.37	125.79	8	12.0
74	-4.85	1.543	1.50	0.96	1.254	0.0200	338.93	303.43	18	12.0
75	-4.80	1.539	1.50	0.96	1.254	0.0200	338.43	498.63	30	12.0
76	-2.77	1.338	1.50	0.76	1.254	0.0200	510.42	662.25	40	30.4

LAV. VIADUCTO Nº 1

COMPROBACION A RASANTE DEL ALA . SECCION 1 - 1

f_{ck} = 40.00 N/mm²

f_{cd} = 26.67 N/mm²

h_0 = 449 mm

(Rozamiento de apoyos y frenado produciendo tracciones sobre el tablero)

SECCION	V_{rd} (t)	Mfconc	INERCIA	C.d.g. / F.sup.	M. ESTATICO	Sd = τ.b (t/m)	f_{1cd} (N/mm2)	S_{U1} (t/m)	Ap (cm²/m)
1	-1042.92	1.00	18.9236	1.3292	1.2698	69.98	16.00	359	17.50
2	-692.17	1.00	14.2411	1.2555	1.1816	57.43	16.00	359	14.36
3	-482.10	1.00	14.2411	1.2555	1.1816	40.00	16.00	359	10.00
4	-288.92	1.00	14.2411	1.2555	1.1816	23.97	16.00	359	5.99
5	432.58	1.00	14.2411	1.2555	1.1816	35.89	16.00	359	8.97
6	515.39	1.00	14.2411	1.2555	1.1816	42.76	16.00	359	10.69
7	579.43	1.00	14.2411	1.2555	1.1816	48.08	16.00	359	12.02
8	707.24	1.00	14.2411	1.2555	1.1816	58.68	16.00	359	14.67
9	794.17	-1.00	14.2411	1.2555	1.1816	65.89	10.67	239	16.47
10	1590.96	-1.00	14.2411	1.2555	1.1816	132.00	10.67	239	33.00
10'	1590.96	-1.00	18.9236	1.3292	1.2698	106.76	10.67	239	26.69
11	2202.68	-1.00	18.9236	1.3292	1.2698	147.80	10.67	239	36.95
11'	-2198.39	-1.00	18.9236	1.3292	1.2698	147.51	10.67	239	36.88
12	-1559.59	-1.00	18.9236	1.3292	1.2698	104.65	10.67	239	26.16
12'	-1559.59	-1.00	14.2411	1.2555	1.1816	129.40	10.67	239	32.35
13	-918.08	-1.00	14.2411	1.2555	1.1816	76.17	10.67	239	19.04
14	-643.18	1.00	14.2411	1.2555	1.1816	53.37	16.00	359	13.34
15	-495.68	1.00	14.2411	1.2555	1.1816	41.13	16.00	359	10.28
16	-411.37	1.00	14.2411	1.2555	1.1816	34.13	16.00	359	8.53
17	245.74	1.00	14.2411	1.2555	1.1816	20.39	16.00	359	5.10
18	297.26	1.00	14.2411	1.2555	1.1816	24.66	16.00	359	6.17
19	396.46	1.00	14.2411	1.2555	1.1816	32.89	16.00	359	8.22
20	513.85	-1.00	14.2411	1.2555	1.1816	42.63	10.67	239	10.66
21	1525.90	-1.00	14.2411	1.2555	1.1816	126.61	10.67	239	31.65
21'	1525.90	-1.00	18.9236	1.3292	1.2698	102.39	10.67	239	25.60
22	2107.68	-1.00	18.9236	1.3292	1.2698	141.43	10.67	239	35.36
22'	-2145.23	-1.00	18.9236	1.3292	1.2698	143.95	10.67	239	35.99
23	-1503.50	-1.00	18.9236	1.3292	1.2698	100.89	10.67	239	25.22
23'	-1503.50	-1.00	14.2411	1.2555	1.1816	124.75	10.67	239	31.19
24	-866.41	-1.00	14.2411	1.2555	1.1816	71.89	10.67	239	17.97
25	-592.58	1.00	14.2411	1.2555	1.1816	49.17	16.00	359	12.29
26	-445.97	1.00	14.2411	1.2555	1.1816	37.00	16.00	359	9.25
27	-361.65	1.00	14.2411	1.2555	1.1816	30.01	16.00	359	7.50
28	327.56	1.00	14.2411	1.2555	1.1816	27.18	16.00	359	6.79
29	380.58	1.00	14.2411	1.2555	1.1816	31.58	16.00	359	7.89
30	479.00	1.00	14.2411	1.2555	1.1816	39.74	16.00	359	9.94
31	593.69	-1.00	14.2411	1.2555	1.1816	49.26	10.67	239	12.31
32	1607.87	-1.00	14.2411	1.2555	1.1816	133.41	10.67	239	33.35
32'	1607.87	-1.00	18.9236	1.3292	1.2698	107.89	10.67	239	26.97
33	2191.08	-1.00	18.9236	1.3292	1.2698	147.02	10.67	239	36.76
33'	-2204.34	-1.00	18.9236	1.3292	1.2698	147.91	10.67	239	36.98
34	-1559.99	-1.00	18.9236	1.3292	1.2698	104.68	10.67	239	26.17
34'	-1559.99	-1.00	14.2411	1.2555	1.1816	129.43	10.67	239	32.36
35	-925.83	-1.00	14.2411	1.2555	1.1816	76.82	10.67	239	19.20
36	-652.61	1.00	14.2411	1.2555	1.1816	54.15	16.00	359	13.54
37	-506.57	1.00	14.2411	1.2555	1.1816	42.03	16.00	359	10.51
38	-418.85	1.00	14.2411	1.2555	1.1816	34.75	16.00	359	8.69
39	-344.83	1.00	14.2411	1.2555	1.1816	28.61	16.00	359	7.15
40	328.11	1.00	14.2411	1.2555	1.1816	27.22	16.00	359	6.81
41	428.11	1.00	14.2411	1.2555	1.1816	35.52	16.00	359	8.88

LAV. VIADUCTO Nº 1

COMPROBACION A RASANTE DEL ALA . SECCION 1 - 1

f_{ck} = 40.00 N/mm²

f_{cd} = 26.67 N/mm²

h_0 = 449 mm

(Rozamiento de apoyos y frenado produciendo tracciones sobre el tablero)

SECCION	V_{rd} (t)	Mfconc	INERCIA	C.d.g. / F.sup.	M. ESTATICO	Sd = τ.b (t/m)	f_{1cd} (N/mm2)	S_{U1} (t/m)	Ap (cm²/m
42	544.51	-1.00	14.2411	1.2555	1.1816	45.18	10.67	239	11.2
43	1556.23	-1.00	14.2411	1.2555	1.1816	129.12	10.67	239	32.2
43'	1556.23	-1.00	18.9236	1.3292	1.2698	104.43	10.67	239	26.1
44	2137.24	-1.00	18.9236	1.3292	1.2698	143.41	10.67	239	35.8
44'	-2195.43	-1.00	18.9236	1.3292	1.2698	147.32	10.67	239	36.8
55	2201.32	-1.00	18.9236	1.3292	1.2698	147.71	10.67	239	36.9
55'	-2150.32	-1.00	18.9236	1.3292	1.2698	144.29	10.67	239	36.0
56	-1508.57	-1.00	18.9236	1.3292	1.2698	101.23	10.67	239	25.3
56'	-1508.57	-1.00	14.2411	1.2555	1.1816	125.17	10.67	239	31.2
57	-871.52	-1.00	14.2411	1.2555	1.1816	72.31	10.67	239	18.0
58	-597.86	1.00	14.2411	1.2555	1.1816	49.61	16.00	359	12.4
59	-451.45	1.00	14.2411	1.2555	1.1816	37.46	16.00	359	9.3
60	-367.05	1.00	14.2411	1.2555	1.1816	30.45	16.00	359	7.6
61	-292.50	1.00	14.2411	1.2555	1.1816	24.27	16.00	359	6.0
62	342.17	1.00	14.2411	1.2555	1.1816	28.39	16.00	359	7.1
63	438.87	1.00	14.2411	1.2555	1.1816	36.41	16.00	359	9.1
64	551.74	-1.00	14.2411	1.2555	1.1816	45.78	10.67	239	11.4
65	1511.31	-1.00	14.2411	1.2555	1.1816	125.39	10.67	239	31.3
65'	1511.31	-1.00	18.9236	1.3292	1.2698	101.41	10.67	239	25.3
66	2099.06	-1.00	18.9236	1.3292	1.2698	140.85	10.67	239	35.2
66'	-2009.63	-1.00	18.9236	1.3292	1.2698	134.85	10.67	239	33.7
67	-1296.84	-1.00	18.9236	1.3292	1.2698	87.02	10.67	239	21.7
67'	-1296.84	-1.00	14.2411	1.2555	1.1816	107.60	10.67	239	26.9
68	-659.61	-1.00	14.2411	1.2555	1.1816	54.73	10.67	239	13.6
69	-396.27	1.00	14.2411	1.2555	1.1816	32.88	16.00	359	8.2
70	-442.86	1.00	14.2411	1.2555	1.1816	36.74	16.00	359	9.1
71	-441.54	1.00	14.2411	1.2555	1.1816	36.64	16.00	359	9.1
72	-248.73	1.00	14.2411	1.2555	1.1816	20.64	16.00	359	5.1
73	409.71	1.00	14.2411	1.2555	1.1816	33.99	16.00	359	8.5
74	586.90	1.00	14.2411	1.2555	1.1816	48.70	16.00	359	12.1
75	781.60	1.00	14.2411	1.2555	1.1816	64.85	16.00	359	16.2
76	1117.21	1.00	18.9236	1.3292	1.2698	74.97	16.00	359	18.7

LAV. VIADUCTO Nº 1

COMPROBACION A RASANTE DEL ALA . SECCION 1 - 1

f_{ck} = 40.00 N/mm²

f_{cd} = 26.67 N/mm²

h_0 = 449 mm

(Rozamiento de apoyos y frenado produciendo compresiones sobre el tablero)

SECCION	V_{rd} (t)	Mfconc	INERCIA	C.d.g. / F.sup.	M. ESTATICO	Sd = τ.b (t/m)	f_{1cd} (N/mm2)	S_{U1} (t/m)	Ap (cm²/m)
1	-1548.60	1.00	18.9236	1.3292	1.2698	103.91	16.00	359	25.98
2	-1197.85	1.00	14.2411	1.2555	1.1816	99.39	16.00	359	24.85
3	-987.77	1.00	14.2411	1.2555	1.1816	81.96	16.00	359	20.49
4	-794.60	1.00	14.2411	1.2555	1.1816	65.93	16.00	359	16.48
5	-73.09	1.00	14.2411	1.2555	1.1816	6.06	16.00	359	1.52
6	9.72	1.00	14.2411	1.2555	1.1816	0.81	16.00	359	0.20
7	73.75	1.00	14.2411	1.2555	1.1816	6.12	16.00	359	1.53
8	201.57	1.00	14.2411	1.2555	1.1816	16.72	16.00	359	4.18
9	288.50	-1.00	14.2411	1.2555	1.1816	23.94	10.67	239	5.98
10	1085.28	-1.00	14.2411	1.2555	1.1816	90.05	10.67	239	22.51
10'	1085.28	-1.00	18.9236	1.3292	1.2698	72.82	10.67	239	18.21
11	1697.01	-1.00	18.9236	1.3292	1.2698	113.87	10.67	239	28.47
11'	-2034.72	-1.00	18.9236	1.3292	1.2698	136.53	10.67	239	34.13
12	-1395.92	-1.00	18.9236	1.3292	1.2698	93.67	10.67	239	23.42
12'	-1395.92	-1.00	14.2411	1.2555	1.1816	115.82	10.67	239	28.96
13	-754.40	-1.00	14.2411	1.2555	1.1816	62.59	10.67	239	15.65
14	-479.50	1.00	14.2411	1.2555	1.1816	39.78	16.00	359	9.95
15	-332.00	1.00	14.2411	1.2555	1.1816	27.55	16.00	359	6.89
16	-247.69	1.00	14.2411	1.2555	1.1816	20.55	16.00	359	5.14
17	409.42	1.00	14.2411	1.2555	1.1816	33.97	16.00	359	8.49
18	460.93	1.00	14.2411	1.2555	1.1816	38.24	16.00	359	9.56
19	560.13	1.00	14.2411	1.2555	1.1816	46.47	16.00	359	11.62
20	677.52	-1.00	14.2411	1.2555	1.1816	56.21	10.67	239	14.05
21	1689.58	-1.00	14.2411	1.2555	1.1816	140.19	10.67	239	35.05
21'	1689.58	-1.00	18.9236	1.3292	1.2698	113.37	10.67	239	28.34
22	2271.35	-1.00	18.9236	1.3292	1.2698	152.41	10.67	239	38.10
22'	-2198.75	-1.00	18.9236	1.3292	1.2698	147.54	10.67	239	36.88
23	-1557.02	-1.00	18.9236	1.3292	1.2698	104.48	10.67	239	26.12
23'	-1557.02	-1.00	14.2411	1.2555	1.1816	129.19	10.67	239	32.30
24	-919.94	-1.00	14.2411	1.2555	1.1816	76.33	10.67	239	19.08
25	-646.10	1.00	14.2411	1.2555	1.1816	53.61	16.00	359	13.40
26	-499.49	1.00	14.2411	1.2555	1.1816	41.44	16.00	359	10.36
27	-415.17	1.00	14.2411	1.2555	1.1816	34.45	16.00	359	8.61
28	274.04	1.00	14.2411	1.2555	1.1816	22.74	16.00	359	5.68
29	327.06	1.00	14.2411	1.2555	1.1816	27.14	16.00	359	6.78
30	425.48	1.00	14.2411	1.2555	1.1816	35.30	16.00	359	8.83
31	540.17	-1.00	14.2411	1.2555	1.1816	44.82	10.67	239	11.20
32	1554.35	-1.00	14.2411	1.2555	1.1816	128.97	10.67	239	32.24
32'	1554.35	-1.00	18.9236	1.3292	1.2698	104.30	10.67	239	26.07
33	2137.56	-1.00	18.9236	1.3292	1.2698	143.43	10.67	239	35.86
33'	-2133.19	-1.00	18.9236	1.3292	1.2698	143.14	10.67	239	35.79
34	-1488.84	-1.00	18.9236	1.3292	1.2698	99.90	10.67	239	24.98
34'	-1488.84	-1.00	14.2411	1.2555	1.1816	123.53	10.67	239	30.88
35	-854.68	-1.00	14.2411	1.2555	1.1816	70.91	10.67	239	17.73
36	-581.46	1.00	14.2411	1.2555	1.1816	48.24	16.00	359	12.06
37	-435.42	1.00	14.2411	1.2555	1.1816	36.13	16.00	359	9.03
38	-347.70	1.00	14.2411	1.2555	1.1816	28.85	16.00	359	7.21
39	-273.69	1.00	14.2411	1.2555	1.1816	22.71	16.00	359	5.68
40	399.26	1.00	14.2411	1.2555	1.1816	33.13	16.00	359	8.28
41	499.26	1.00	14.2411	1.2555	1.1816	41.42	16.00	359	10.36

LAV. VIADUCTO Nº 1

COMPROBACION A RASANTE DEL ALA . SECCION 1 - 1

f_{ck} = 40.00 N/mm²

f_{cd} = 26.67 N/mm²

h_0 = 449 mm

(Rozamiento de apoyos y frenado produciendo compresiones sobre el tablero)

SECCION	V_{rd} (t)	Mfconc	INERCIA	C.d.g. / F.sup.	M. ESTATICO	Sd = τ.b (t/m)	f_{1cd} (N/mm2)	S_{U1} (t/m)	Ap (cm²/m)
42	615.66	-1.00	14.2411	1.2555	1.1816	51.08	10.67	239	12.77
43	1627.38	-1.00	14.2411	1.2555	1.1816	135.03	10.67	239	33.76
43'	1627.38	-1.00	18.9236	1.3292	1.2698	109.20	10.67	239	27.30
44	2208.39	-1.00	18.9236	1.3292	1.2698	148.19	10.67	239	37.05
44'	-2134.30	-1.00	18.9236	1.3292	1.2698	143.21	10.67	239	35.80
55	2150.02	-1.00	18.9236	1.3292	1.2698	144.27	10.67	239	36.07
55'	-2202.10	-1.00	18.9236	1.3292	1.2698	147.76	10.67	239	36.94
56	-1560.35	-1.00	18.9236	1.3292	1.2698	104.70	10.67	239	26.18
56'	-1560.35	-1.00	14.2411	1.2555	1.1816	129.46	10.67	239	32.37
57	-923.29	-1.00	14.2411	1.2555	1.1816	76.61	10.67	239	19.15
58	-649.64	1.00	14.2411	1.2555	1.1816	53.90	16.00	359	13.48
59	-503.23	1.00	14.2411	1.2555	1.1816	41.75	16.00	359	10.44
60	-418.82	1.00	14.2411	1.2555	1.1816	34.75	16.00	359	8.69
61	-344.27	1.00	14.2411	1.2555	1.1816	28.56	16.00	359	7.14
62	290.39	1.00	14.2411	1.2555	1.1816	24.09	16.00	359	6.02
63	387.10	1.00	14.2411	1.2555	1.1816	32.12	16.00	359	8.03
64	499.96	-1.00	14.2411	1.2555	1.1816	41.48	10.67	239	10.37
65	1575.89	-1.00	14.2411	1.2555	1.1816	130.75	10.67	239	32.69
65'	1575.89	-1.00	18.9236	1.3292	1.2698	105.74	10.67	239	26.44
66	2163.65	-1.00	18.9236	1.3292	1.2698	145.18	10.67	239	36.30
66'	-2053.21	-1.00	18.9236	1.3292	1.2698	137.77	10.67	239	34.44
67	-1340.42	-1.00	18.9236	1.3292	1.2698	89.94	10.67	239	22.49
67'	-1340.42	-1.00	14.2411	1.2555	1.1816	111.22	10.67	239	27.80
68	-703.18	-1.00	14.2411	1.2555	1.1816	58.34	10.67	239	14.59
69	-439.85	1.00	14.2411	1.2555	1.1816	36.49	16.00	359	9.12
70	-486.44	1.00	14.2411	1.2555	1.1816	40.36	16.00	359	10.09
71	-485.12	1.00	14.2411	1.2555	1.1816	40.25	16.00	359	10.06
72	-292.31	1.00	14.2411	1.2555	1.1816	24.25	16.00	359	6.06
73	465.16	1.00	14.2411	1.2555	1.1816	38.60	16.00	359	9.65
74	642.36	1.00	14.2411	1.2555	1.1816	53.30	16.00	359	13.32
75	837.06	1.00	14.2411	1.2555	1.1816	69.45	16.00	359	17.36
76	1172.67	1.00	18.9236	1.3292	1.2698	78.69	16.00	359	19.67

LAV. VIADUCTO Nº 1

COMPROBACION A RASANTE DE LA PARTE CENTRAL DE LA LOSA SUPERIOR. SECCION 2 - 2

f_{ck} = 40.00 N/mm²

f_{cd} = 26.67 N/mm²

h_0 = 515 mm

(Rozamiento de apoyos y frenado produciendo tracciones sobre el tablero)

SECCION	V_{rd} (t)	Mfconc	INERCIA	C.d.g. / F.sup.	M. ESTATICO	Sd = τ.b (t/m)	f_{1cd} (N/mm2)	S_{U1} (t/m)	Ap (cm²/m)
1	-1042.92	1.00	18.9236	1.3292	1.1979	66.02	16.00	412	16.50
2	-692.17	1.00	14.2411	1.2555	1.0640	51.71	16.00	412	12.93
3	-482.10	1.00	14.2411	1.2555	1.0640	36.02	16.00	412	9.00
4	-288.92	1.00	14.2411	1.2555	1.0640	21.59	16.00	412	5.40
5	432.58	-1.00	14.2411	1.2555	1.0640	32.32	16.00	412	8.08
6	515.39	1.00	14.2411	1.2555	1.0640	38.51	16.00	412	9.63
7	579.43	1.00	14.2411	1.2555	1.0640	43.29	16.00	412	10.82
8	707.24	1.00	14.2411	1.2555	1.0640	52.84	16.00	412	13.21
9	794.17	-1.00	14.2411	1.2555	1.0640	59.34	10.67	275	14.83
10	1590.96	-1.00	14.2411	1.2555	1.0640	118.87	10.67	275	29.72
10'	1590.96	-1.00	18.9236	1.3292	1.1979	100.71	10.67	275	25.18
11	2202.68	-1.00	18.9236	1.3292	1.1979	139.43	10.67	275	34.86
11'	-2198.39	-1.00	18.9236	1.3292	1.1979	139.16	10.67	275	34.79
12	-1559.59	-1.00	18.9236	1.3292	1.1979	98.73	10.67	275	24.68
12'	-1559.59	-1.00	14.2411	1.2555	1.0640	116.52	10.67	275	29.13
13	-918.08	-1.00	14.2411	1.2555	1.0640	68.59	10.67	275	17.15
14	-643.18	1.00	14.2411	1.2555	1.0640	48.05	16.00	412	12.01
15	-495.68	1.00	14.2411	1.2555	1.0640	37.03	16.00	412	9.26
16	-411.37	1.00	14.2411	1.2555	1.0640	30.73	16.00	412	7.68
17	245.74	1.00	14.2411	1.2555	1.0640	18.36	16.00	412	4.59
18	297.26	1.00	14.2411	1.2555	1.0640	22.21	16.00	412	5.55
19	396.46	1.00	14.2411	1.2555	1.0640	29.62	16.00	412	7.41
20	513.85	-1.00	14.2411	1.2555	1.0640	38.39	10.67	275	9.60
21	1525.90	-1.00	14.2411	1.2555	1.0640	114.01	10.67	275	28.50
21'	1525.90	-1.00	18.9236	1.3292	1.1979	96.59	10.67	275	24.15
22	2107.68	-1.00	18.9236	1.3292	1.1979	133.42	10.67	275	33.35
22'	-2145.23	-1.00	18.9236	1.3292	1.1979	135.80	10.67	275	33.95
23	-1503.50	-1.00	18.9236	1.3292	1.1979	95.17	10.67	275	23.79
23'	-1503.50	-1.00	14.2411	1.2555	1.0640	112.33	10.67	275	28.08
24	-866.41	-1.00	14.2411	1.2555	1.0640	64.73	10.67	275	16.18
25	-592.58	1.00	14.2411	1.2555	1.0640	44.27	16.00	412	11.07
26	-445.97	1.00	14.2411	1.2555	1.0640	33.32	16.00	412	8.33
27	-361.65	1.00	14.2411	1.2555	1.0640	27.02	16.00	412	6.76
28	327.56	1.00	14.2411	1.2555	1.0640	24.47	16.00	412	6.12
29	380.58	1.00	14.2411	1.2555	1.0640	28.43	16.00	412	7.11
30	479.00	1.00	14.2411	1.2555	1.0640	35.79	16.00	412	8.95
31	593.69	-1.00	14.2411	1.2555	1.0640	44.36	10.67	275	11.09
32	1607.87	-1.00	14.2411	1.2555	1.0640	120.13	10.67	275	30.03
32'	1607.87	-1.00	18.9236	1.3292	1.1979	101.78	10.67	275	25.45
33	2191.08	-1.00	18.9236	1.3292	1.1979	138.70	10.67	275	34.67
33'	-2204.34	-1.00	18.9236	1.3292	1.1979	139.54	10.67	275	34.88
34	-1559.99	-1.00	18.9236	1.3292	1.1979	98.75	10.67	275	24.69
34'	-1559.99	-1.00	14.2411	1.2555	1.0640	116.55	10.67	275	29.14
35	-925.83	-1.00	14.2411	1.2555	1.0640	69.17	10.67	275	17.29
36	-652.61	1.00	14.2411	1.2555	1.0640	48.76	16.00	412	12.19
37	-506.57	1.00	14.2411	1.2555	1.0640	37.85	16.00	412	9.46
38	-418.85	1.00	14.2411	1.2555	1.0640	31.29	16.00	412	7.82
39	-344.83	1.00	14.2411	1.2555	1.0640	25.76	16.00	412	6.44
40	328.11	1.00	14.2411	1.2555	1.0640	24.51	16.00	412	6.13
41	428.11	1.00	14.2411	1.2555	1.0640	31.99	16.00	412	8.00

LAV. VIADUCTO Nº 1

COMPROBACION A RASANTE DE LA PARTE CENTRAL DE LA LOSA SUPERIOR. SECCION 2 -

f_{ck} = 40.00 N/mm²

f_{cd} = 26.67 N/mm²

h_0 = 515 mm

(Rozamiento de apoyos y frenado produciendo tracciones sobre el tablero)

SECCION	V_{rd} (t)	Mfconc	INERCIA	C.d.g. / F.sup.	M. ESTATICO	Sd = τ.b (t/m)	f_{1cd} (N/mm2)	S_{U1} (t/m)	Ap (cm²/m
42	544.51	-1.00	14.2411	1.2555	1.0640	40.68	10.67	275	10.
43	1556.23	-1.00	14.2411	1.2555	1.0640	116.27	10.67	275	29.(
43'	1556.23	-1.00	18.9236	1.3292	1.1979	98.51	10.67	275	24.(
44	2137.24	-1.00	18.9236	1.3292	1.1979	135.29	10.67	275	33.8
44'	-2195.43	-1.00	18.9236	1.3292	1.1979	138.97	10.67	275	34.7
55	2201.32	-1.00	18.9236	1.3292	1.1979	139.35	10.67	275	34.8
55'	-2150.32	-1.00	18.9236	1.3292	1.1979	136.12	10.67	275	34.(
56	-1508.57	-1.00	18.9236	1.3292	1.1979	95.50	10.67	275	23.8
56'	-1508.57	-1.00	14.2411	1.2555	1.0640	112.71	10.67	275	28.
57	-871.52	-1.00	14.2411	1.2555	1.0640	65.11	10.67	275	16.2
58	-597.86	1.00	14.2411	1.2555	1.0640	44.67	16.00	412	11.
59	-451.45	1.00	14.2411	1.2555	1.0640	33.73	16.00	412	8.4
60	-367.05	1.00	14.2411	1.2555	1.0640	27.42	16.00	412	6.8
61	-292.50	1.00	14.2411	1.2555	1.0640	21.85	16.00	412	5.4
62	342.17	1.00	14.2411	1.2555	1.0640	25.56	16.00	412	6.3
63	438.87	1.00	14.2411	1.2555	1.0640	32.79	16.00	412	8.2
64	551.74	-1.00	14.2411	1.2555	1.0640	41.22	10.67	275	10.3
65	1511.31	-1.00	14.2411	1.2555	1.0640	112.91	10.67	275	28.2
65'	1511.31	-1.00	18.9236	1.3292	1.1979	95.67	10.67	275	23.9
66	2099.06	-1.00	18.9236	1.3292	1.1979	132.87	10.67	275	33.2
66'	-2009.63	-1.00	18.9236	1.3292	1.1979	127.21	10.67	275	31.8
67	-1296.84	-1.00	18.9236	1.3292	1.1979	82.09	10.67	275	20.5
67'	-1296.84	-1.00	14.2411	1.2555	1.0640	96.89	10.67	275	24.2
68	-659.61	-1.00	14.2411	1.2555	1.0640	49.28	10.67	275	12.3
69	-396.27	1.00	14.2411	1.2555	1.0640	29.61	16.00	412	7.4
70	-442.86	1.00	14.2411	1.2555	1.0640	33.09	16.00	412	8.2
71	-441.54	1.00	14.2411	1.2555	1.0640	32.99	16.00	412	8.2
72	-248.73	1.00	14.2411	1.2555	1.0640	18.58	16.00	412	4.6
73	409.71	1.00	14.2411	1.2555	1.0640	30.61	16.00	412	7.6
74	586.90	1.00	14.2411	1.2555	1.0640	43.85	16.00	412	10.9
75	781.60	1.00	14.2411	1.2555	1.0640	58.40	16.00	412	14.6
76	1117.21	1.00	18.9236	1.3292	1.1979	70.72	16.00	412	17.6

COMPROBACION A RASANTE DE LA PARTE CENTRAL DE LA LOSA SUPERIOR. SECCION 2 - 2

f_{ck} = 40.00 N/mm²

f_{cd} = 26.67 N/mm²

h_0 = 515 mm

(Rozamiento de apoyos y frenado produciendo compresiones sobre el tablero)

SECCION	V_{rd} (t)	Mfconc	INERCIA	C.d.g. / F.sup.	M. ESTATICO	Sd = τ.b (t/m)	f_{1cd} (N/mm2)	S_{U1} (t/m)	Ap (cm²/m)
1	-1548.60	1.00	18.9236	1.3292	1.1979	98.03	16.00	412	24.51
2	-1197.85	1.00	14.2411	1.2555	1.0640	89.50	16.00	412	22.37
3	-987.77	1.00	14.2411	1.2555	1.0640	73.80	16.00	412	18.45
4	-794.60	1.00	14.2411	1.2555	1.0640	59.37	16.00	412	14.84
5	-73.09	1.00	14.2411	1.2555	1.0640	5.46	16.00	412	1.37
6	9.72	1.00	14.2411	1.2555	1.0640	0.73	16.00	412	0.18
7	73.75	1.00	14.2411	1.2555	1.0640	5.51	16.00	412	1.38
8	201.57	1.00	14.2411	1.2555	1.0640	15.06	16.00	412	3.76
9	288.50	-1.00	14.2411	1.2555	1.0640	21.55	10.67	275	5.39
10	1085.28	-1.00	14.2411	1.2555	1.0640	81.08	10.67	275	20.27
10'	1085.28	-1.00	18.9236	1.3292	1.1979	68.70	10.67	275	17.18
11	1697.01	-1.00	18.9236	1.3292	1.1979	107.42	10.67	275	26.86
11'	-2034.72	-1.00	18.9236	1.3292	1.1979	128.80	10.67	275	32.20
12	-1395.92	-1.00	18.9236	1.3292	1.1979	88.36	10.67	275	22.09
12'	-1395.92	-1.00	14.2411	1.2555	1.0640	104.29	10.67	275	26.07
13	-754.40	-1.00	14.2411	1.2555	1.0640	56.36	10.67	275	14.09
14	-479.50	1.00	14.2411	1.2555	1.0640	35.83	16.00	412	8.96
15	-332.00	1.00	14.2411	1.2555	1.0640	24.81	16.00	412	6.20
16	-247.69	1.00	14.2411	1.2555	1.0640	18.51	16.00	412	4.63
17	409.42	1.00	14.2411	1.2555	1.0640	30.59	16.00	412	7.65
18	460.93	1.00	14.2411	1.2555	1.0640	34.44	16.00	412	8.61
19	560.13	1.00	14.2411	1.2555	1.0640	41.85	16.00	412	10.46
20	677.52	-1.00	14.2411	1.2555	1.0640	50.62	10.67	275	12.65
21	1689.58	-1.00	14.2411	1.2555	1.0640	126.23	10.67	275	31.56
21'	1689.58	-1.00	18.9236	1.3292	1.1979	106.95	10.67	275	26.74
22	2271.35	-1.00	18.9236	1.3292	1.1979	143.78	10.67	275	35.95
22'	-2198.75	-1.00	18.9236	1.3292	1.1979	139.19	10.67	275	34.80
23	-1557.02	-1.00	18.9236	1.3292	1.1979	98.56	10.67	275	24.64
23'	-1557.02	-1.00	14.2411	1.2555	1.0640	116.33	10.67	275	29.08
24	-919.94	-1.00	14.2411	1.2555	1.0640	68.73	10.67	275	17.18
25	-646.10	1.00	14.2411	1.2555	1.0640	48.27	16.00	412	12.07
26	-499.49	1.00	14.2411	1.2555	1.0640	37.32	16.00	412	9.33
27	-415.17	1.00	14.2411	1.2555	1.0640	31.02	16.00	412	7.75
28	274.04	1.00	14.2411	1.2555	1.0640	20.47	16.00	412	5.12
29	327.06	1.00	14.2411	1.2555	1.0640	24.44	16.00	412	6.11
30	425.48	1.00	14.2411	1.2555	1.0640	31.79	16.00	412	7.95
31	540.17	-1.00	14.2411	1.2555	1.0640	40.36	10.67	275	10.09
32	1554.35	-1.00	14.2411	1.2555	1.0640	116.13	10.67	275	29.03
32'	1554.35	-1.00	18.9236	1.3292	1.1979	98.39	10.67	275	24.60
33	2137.56	-1.00	18.9236	1.3292	1.1979	135.31	10.67	275	33.83
33'	-2133.19	-1.00	18.9236	1.3292	1.1979	135.04	10.67	275	33.76
34	-1488.84	-1.00	18.9236	1.3292	1.1979	94.25	10.67	275	23.56
34'	-1488.84	-1.00	14.2411	1.2555	1.0640	111.24	10.67	275	27.81
35	-854.68	-1.00	14.2411	1.2555	1.0640	63.86	10.67	275	15.96
36	-581.46	1.00	14.2411	1.2555	1.0640	43.44	16.00	412	10.86
37	-435.42	1.00	14.2411	1.2555	1.0640	32.53	16.00	412	8.13
38	-347.70	1.00	14.2411	1.2555	1.0640	25.98	16.00	412	6.49
39	-273.69	1.00	14.2411	1.2555	1.0640	20.45	16.00	412	5.11
40	399.26	1.00	14.2411	1.2555	1.0640	29.83	16.00	412	7.46
41	499.26	1.00	14.2411	1.2555	1.0640	37.30	16.00	412	9.33

LAV. VIADUCTO N° 1

COMPROBACION A RASANTE DE LA PARTE CENTRAL DE LA LOSA SUPERIOR. SECCION 2

f_{ck} = 40.00 N/mm²

f_{cd} = 26.67 N/mm²

h_0 = 515 mm

(Rozamiento de apoyos y frenado produciendo compresiones sobre el tablero)

SECCION	V_{rd} (t)	Mfconc	INERCIA	C.d.g. / F.sup.	M. ESTATICO	Sd = τ.b (t/m)	f_{1cd} (N/mm2)	S_{U1} (t/m)	Ap (cm
42	615.66	-1.00	14.2411	1.2555	1.0640	46.00	10.67	275	1
43	1627.38	-1.00	14.2411	1.2555	1.0640	121.59	10.67	275	3
43'	1627.38	-1.00	18.9236	1.3292	1.1979	103.02	10.67	275	2
44	2208.39	-1.00	18.9236	1.3292	1.1979	139.80	10.67	275	3
44'	-2134.30	-1.00	18.9236	1.3292	1.1979	135.11	10.67	275	3
55	2150.02	-1.00	18.9236	1.3292	1.1979	136.10	10.67	275	3
55'	-2202.10	-1.00	18.9236	1.3292	1.1979	139.40	10.67	275	3
56	-1560.35	-1.00	18.9236	1.3292	1.1979	98.77	10.67	275	2
56'	-1560.35	-1.00	14.2411	1.2555	1.0640	116.58	10.67	275	2
57	-923.29	-1.00	14.2411	1.2555	1.0640	68.98	10.67	275	1
58	-649.64	1.00	14.2411	1.2555	1.0640	48.54	16.00	412	1
59	-503.23	1.00	14.2411	1.2555	1.0640	37.60	16.00	412	
60	-418.82	1.00	14.2411	1.2555	1.0640	31.29	16.00	412	
61	-344.27	1.00	14.2411	1.2555	1.0640	25.72	16.00	412	
62	290.39	1.00	14.2411	1.2555	1.0640	21.70	16.00	412	
63	387.10	1.00	14.2411	1.2555	1.0640	28.92	16.00	412	
64	499.96	-1.00	14.2411	1.2555	1.0640	37.35	10.67	275	
65	1575.89	-1.00	14.2411	1.2555	1.0640	117.74	10.67	275	2
65'	1575.89	-1.00	18.9236	1.3292	1.1979	99.76	10.67	275	2
66	2163.65	-1.00	18.9236	1.3292	1.1979	136.96	10.67	275	3
66'	-2053.21	-1.00	18.9236	1.3292	1.1979	129.97	10.67	275	3
67	-1340.42	-1.00	18.9236	1.3292	1.1979	84.85	10.67	275	2
67'	-1340.42	-1.00	14.2411	1.2555	1.0640	100.15	10.67	275	2
68	-703.18	-1.00	14.2411	1.2555	1.0640	52.54	10.67	275	1
69	-439.85	1.00	14.2411	1.2555	1.0640	32.86	16.00	412	
70	-486.44	1.00	14.2411	1.2555	1.0640	36.34	16.00	412	
71	-485.12	1.00	14.2411	1.2555	1.0640	36.24	16.00	412	
72	-292.31	1.00	14.2411	1.2555	1.0640	21.84	16.00	412	
73	465.16	1.00	14.2411	1.2555	1.0640	34.75	16.00	412	
74	642.36	1.00	14.2411	1.2555	1.0640	47.99	16.00	412	1
75	837.06	1.00	14.2411	1.2555	1.0640	62.54	16.00	412	1
76	1172.67	1.00	18.9236	1.3292	1.1979	74.23	16.00	412	1

COMPROBACION A RASANTE DE LA LOSA INFERIOR. SECCION 3 - 3

f_{ck} = 40.00 N/mm²

f_{cd} = 26.67 N/mm²

h_0 = 440 mm

(Rozamiento de apoyos y frenado produciendo tracciones sobre el tablero)

SECCION	V_{rd} (t)	Mfconc	INERCIA	C.d.g. / F.sup.	M. ESTATICO	Sd = τ.b (t/m)	f_{1cd} (N/mm2)	S_{U1} (t/m)	Ap (cm²/m)
1	-1042.92	-1.00	18.9236	1.3292	1.3206	72.78	10.67	235	18.20
2	-692.17	-1.00	14.2411	1.2555	1.5108	73.43	10.67	235	18.36
3	-482.10	-1.00	14.2411	1.2555	1.5108	51.14	10.67	235	12.79
4	-288.92	-1.00	14.2411	1.2555	1.5108	30.65	10.67	235	7.66
5	432.58	-1.00	14.2411	1.2555	1.5108	45.89	10.67	235	11.47
6	515.39	-1.00	14.2411	1.2555	1.5108	54.68	10.67	235	13.67
7	579.43	-1.00	14.2411	1.2555	1.5108	61.47	10.67	235	15.37
8	707.24	-1.00	14.2411	1.2555	1.5108	75.03	10.67	235	18.76
9	794.17	-1.00	14.2411	1.2555	1.5108	84.25	10.67	235	21.06
10	1590.96	1.00	14.2411	1.2555	1.5108	168.78	16.00	352	42.20
10'	1590.96	1.00	18.9236	1.3292	1.3206	111.03	16.00	352	27.76
11	2202.68	1.00	18.9236	1.3292	1.3206	153.72	16.00	352	38.43
11'	-2198.39	1.00	18.9236	1.3292	1.3206	153.42	16.00	352	38.35
12	-1559.59	1.00	18.9236	1.3292	1.3206	108.84	16.00	352	27.21
12'	-1559.59	1.00	14.2411	1.2555	1.5108	165.45	16.00	352	41.36
13	-918.08	-1.00	14.2411	1.2555	1.5108	97.40	10.67	235	24.35
14	-643.18	-1.00	14.2411	1.2555	1.5108	68.23	10.67	235	17.06
15	-495.68	-1.00	14.2411	1.2555	1.5108	52.59	10.67	235	13.15
16	-411.37	-1.00	14.2411	1.2555	1.5108	43.64	10.67	235	10.91
17	245.74	-1.00	14.2411	1.2555	1.5108	26.07	10.67	235	6.52
18	297.26	-1.00	14.2411	1.2555	1.5108	31.54	10.67	235	7.88
19	396.46	-1.00	14.2411	1.2555	1.5108	42.06	10.67	235	10.51
20	513.85	-1.00	14.2411	1.2555	1.5108	54.51	10.67	235	13.63
21	1525.90	1.00	14.2411	1.2555	1.5108	161.88	16.00	352	40.47
21'	1525.90	1.00	18.9236	1.3292	1.3206	106.49	16.00	352	26.62
22	2107.68	1.00	18.9236	1.3292	1.3206	147.09	16.00	352	36.77
22'	-2145.23	1.00	18.9236	1.3292	1.3206	149.71	16.00	352	37.43
23	-1503.50	1.00	18.9236	1.3292	1.3206	104.92	16.00	352	26.23
23'	-1503.50	1.00	14.2411	1.2555	1.5108	159.50	16.00	352	39.88
24	-866.41	-1.00	14.2411	1.2555	1.5108	91.92	10.67	235	22.98
25	-592.58	-1.00	14.2411	1.2555	1.5108	62.87	10.67	235	15.72
26	-445.97	-1.00	14.2411	1.2555	1.5108	47.31	10.67	235	11.83
27	-361.65	-1.00	14.2411	1.2555	1.5108	38.37	10.67	235	9.59
28	327.56	-1.00	14.2411	1.2555	1.5108	34.75	10.67	235	8.69
29	380.58	-1.00	14.2411	1.2555	1.5108	40.37	10.67	235	10.09
30	479.00	-1.00	14.2411	1.2555	1.5108	50.82	10.67	235	12.70
31	593.69	-1.00	14.2411	1.2555	1.5108	62.98	10.67	235	15.75
32	1607.87	1.00	14.2411	1.2555	1.5108	170.57	16.00	352	42.64
32'	1607.87	1.00	18.9236	1.3292	1.3206	112.21	16.00	352	28.05
33	2191.08	1.00	18.9236	1.3292	1.3206	152.91	16.00	352	38.23
33'	-2204.34	1.00	18.9236	1.3292	1.3206	153.83	16.00	352	38.46
34	-1559.99	1.00	18.9236	1.3292	1.3206	108.86	16.00	352	27.22
34'	-1559.99	1.00	14.2411	1.2555	1.5108	165.49	16.00	352	41.37
35	-925.83	-1.00	14.2411	1.2555	1.5108	98.22	10.67	235	24.55
36	-652.61	-1.00	14.2411	1.2555	1.5108	69.23	10.67	235	17.31
37	-506.57	-1.00	14.2411	1.2555	1.5108	53.74	10.67	235	13.44
38	-418.85	-1.00	14.2411	1.2555	1.5108	44.43	10.67	235	11.11
39	-344.83	-1.00	14.2411	1.2555	1.5108	36.58	10.67	235	9.15
40	328.11	-1.00	14.2411	1.2555	1.5108	34.81	10.67	235	8.70
41	428.11	-1.00	14.2411	1.2555	1.5108	45.42	10.67	235	11.35

LAV. VIADUCTO N° 1

COMPROBACION A RASANTE DE LA LOSA INFERIOR. SECCION 3 - 3

f_{ck} = 40.00 N/mm²

f_{cd} = 26.67 N/mm²

h_0 = 440 mm

(Rozamiento de apoyos y frenado produciendo tracciones sobre el tablero)

SECCION	V_{rd} (t)	Mfconc	INERCIA	C.d.g. / F.sup.	M. ESTATICO	Sd = τ.b (t/m)	f_{1cd} (N/mm2)	S_{U1} (t/m)	Ap (cm²
42	544.51	-1.00	14.2411	1.2555	1.5108	57.77	10.67	235	1
43	1556.23	1.00	14.2411	1.2555	1.5108	165.10	16.00	352	4
43'	1556.23	1.00	18.9236	1.3292	1.3206	108.60	16.00	352	2
44	2137.24	1.00	18.9236	1.3292	1.3206	149.15	16.00	352	3
44'	-2195.43	1.00	18.9236	1.3292	1.3206	153.21	16.00	352	3
55	2201.32	1.00	18.9236	1.3292	1.3206	153.62	16.00	352	3
55'	-2150.32	1.00	18.9236	1.3292	1.3206	150.06	16.00	352	3
56	-1508.57	1.00	18.9236	1.3292	1.3206	105.28	16.00	352	2
56'	-1508.57	1.00	14.2411	1.2555	1.3206	139.89	16.00	352	3
57	-871.52	-1.00	14.2411	1.2555	1.5108	92.46	10.67	235	2
58	-597.86	-1.00	14.2411	1.2555	1.5108	63.43	10.67	235	1
59	-451.45	-1.00	14.2411	1.2555	1.5108	47.89	10.67	235	1
60	-367.05	-1.00	14.2411	1.2555	1.5108	38.94	10.67	235	9
61	-292.50	-1.00	14.2411	1.2555	1.5108	31.03	10.67	235	7
62	342.17	-1.00	14.2411	1.2555	1.5108	36.30	10.67	235	9
63	438.87	-1.00	14.2411	1.2555	1.5108	46.56	10.67	235	1
64	551.74	-1.00	14.2411	1.2555	1.5108	58.53	10.67	235	1
65	1511.31	1.00	14.2411	1.2555	1.5108	160.33	16.00	352	4
65'	1511.31	1.00	18.9236	1.3292	1.3206	105.47	16.00	352	2
66	2099.06	1.00	18.9236	1.3292	1.3206	146.49	16.00	352	3
66'	-2009.63	1.00	18.9236	1.3292	1.3206	140.24	16.00	352	3
67	-1296.84	1.00	18.9236	1.3292	1.3206	90.50	16.00	352	2
67'	-1296.84	1.00	14.2411	1.2555	1.5108	137.58	16.00	352	3
68	-659.61	-1.00	14.2411	1.2555	1.5108	69.98	10.67	235	1
69	-396.27	-1.00	14.2411	1.2555	1.5108	42.04	10.67	235	1
70	-442.86	-1.00	14.2411	1.2555	1.5108	46.98	10.67	235	1
71	-441.54	-1.00	14.2411	1.2555	1.5108	46.84	10.67	235	1
72	-248.73	-1.00	14.2411	1.2555	1.5108	26.39	10.67	235	6
73	409.71	-1.00	14.2411	1.2555	1.5108	43.46	10.67	235	1
74	586.90	-1.00	14.2411	1.2555	1.5108	62.26	10.67	235	1
75	781.60	-1.00	14.2411	1.2555	1.5108	82.92	10.67	235	2
76	1117.21	-1.00	18.9236	1.3292	1.3206	77.97	10.67	235	1

COMPROBACION A RASANTE DE LA LOSA INFERIOR. SECCION 3 - 3

f_{ck} = 40.00 N/mm²

f_{cd} = 26.67 N/mm²

h_0 = 440 mm

(Rozamiento de apoyos y frenado produciendo compresiones sobre el tablero)

SECCION	V_{rd} (t)	Mfconc	INERCIA	C.d.g. / F.sup.	M. ESTATICO	Sd = τ.b (t/m)	f_{1cd} (N/mm2)	S_{U1} (t/m)	Ap (cm²/m)
1	-1548.60	-1.00	18.9236	1.3292	1.3206	108.07	10.67	235	27.02
2	-1197.85	-1.00	14.2411	1.2555	1.5108	127.08	10.67	235	31.77
3	-987.77	-1.00	14.2411	1.2555	1.5108	104.79	10.67	235	26.20
4	-794.60	-1.00	14.2411	1.2555	1.5108	84.30	10.67	235	21.07
5	-73.09	-1.00	14.2411	1.2555	1.5108	7.75	10.67	235	1.94
6	9.72	-1.00	14.2411	1.2555	1.5108	1.03	10.67	235	0.26
7	73.75	-1.00	14.2411	1.2555	1.5108	7.82	10.67	235	1.96
8	201.57	-1.00	14.2411	1.2555	1.5108	21.38	10.67	235	5.35
9	288.50	-1.00	14.2411	1.2555	1.5108	30.61	10.67	235	7.65
10	1085.28	1.00	14.2411	1.2555	1.5108	115.13	16.00	352	28.78
10'	1085.28	1.00	18.9236	1.3292	1.3206	75.74	16.00	352	18.93
11	1697.01	1.00	18.9236	1.3292	1.3206	118.43	16.00	352	29.61
11'	-2034.72	1.00	18.9236	1.3292	1.3206	141.99	16.00	352	35.50
12	-1395.92	1.00	18.9236	1.3292	1.3206	97.42	16.00	352	24.35
12'	-1395.92	1.00	14.2411	1.2555	1.5108	148.09	16.00	352	37.02
13	-754.40	-1.00	14.2411	1.2555	1.5108	80.03	10.67	235	20.01
14	-479.50	-1.00	14.2411	1.2555	1.5108	50.87	10.67	235	12.72
15	-332.00	-1.00	14.2411	1.2555	1.5108	35.22	10.67	235	8.81
16	-247.69	-1.00	14.2411	1.2555	1.5108	26.28	10.67	235	6.57
17	409.42	-1.00	14.2411	1.2555	1.5108	43.43	10.67	235	10.86
18	460.93	-1.00	14.2411	1.2555	1.5108	48.90	10.67	235	12.22
19	560.13	-1.00	14.2411	1.2555	1.5108	59.42	10.67	235	14.86
20	677.52	-1.00	14.2411	1.2555	1.5108	71.88	10.67	235	17.97
21	1689.58	1.00	14.2411	1.2555	1.5108	179.24	16.00	352	44.81
21'	1689.58	1.00	18.9236	1.3292	1.3206	117.91	16.00	352	29.48
22	2271.35	1.00	18.9236	1.3292	1.3206	158.51	16.00	352	39.63
22'	-2198.75	1.00	18.9236	1.3292	1.3206	153.44	16.00	352	38.36
23	-1557.02	1.00	18.9236	1.3292	1.3206	108.66	16.00	352	27.16
23'	-1557.02	1.00	14.2411	1.2555	1.5108	165.18	16.00	352	41.29
24	-919.94	-1.00	14.2411	1.2555	1.5108	97.59	10.67	235	24.40
25	-646.10	-1.00	14.2411	1.2555	1.5108	68.54	10.67	235	17.14
26	-499.49	-1.00	14.2411	1.2555	1.5108	52.99	10.67	235	13.25
27	-415.17	-1.00	14.2411	1.2555	1.5108	44.04	10.67	235	11.01
28	274.04	-1.00	14.2411	1.2555	1.5108	29.07	10.67	235	7.27
29	327.06	-1.00	14.2411	1.2555	1.5108	34.70	10.67	235	8.67
30	425.48	-1.00	14.2411	1.2555	1.5108	45.14	10.67	235	11.28
31	540.17	-1.00	14.2411	1.2555	1.5108	57.31	10.67	235	14.33
32	1554.35	1.00	14.2411	1.2555	1.5108	164.90	16.00	352	41.22
32'	1554.35	1.00	18.9236	1.3292	1.3206	108.47	16.00	352	27.12
33	2137.56	1.00	18.9236	1.3292	1.3206	149.17	16.00	352	37.29
33'	-2133.19	1.00	18.9236	1.3292	1.3206	148.87	16.00	352	37.22
34	-1488.84	1.00	18.9236	1.3292	1.3206	103.90	16.00	352	25.97
34'	-1488.84	1.00	14.2411	1.2555	1.5108	157.95	16.00	352	39.49
35	-854.68	-1.00	14.2411	1.2555	1.5108	90.67	10.67	235	22.67
36	-581.46	-1.00	14.2411	1.2555	1.5108	61.69	10.67	235	15.42
37	-435.42	-1.00	14.2411	1.2555	1.5108	46.19	10.67	235	11.55
38	-347.70	-1.00	14.2411	1.2555	1.5108	36.89	10.67	235	9.22
39	-273.69	-1.00	14.2411	1.2555	1.5108	29.03	10.67	235	7.26
40	399.26	-1.00	14.2411	1.2555	1.5108	42.36	10.67	235	10.59
41	499.26	-1.00	14.2411	1.2555	1.5108	52.97	10.67	235	13.24

LAV. VIADUCTO N° 1

COMPROBACION A RASANTE DE LA LOSA INFERIOR. SECCION 3 - 3

f_{ck} = 40.00 N/mm²

f_{cd} = 26.67 N/mm²

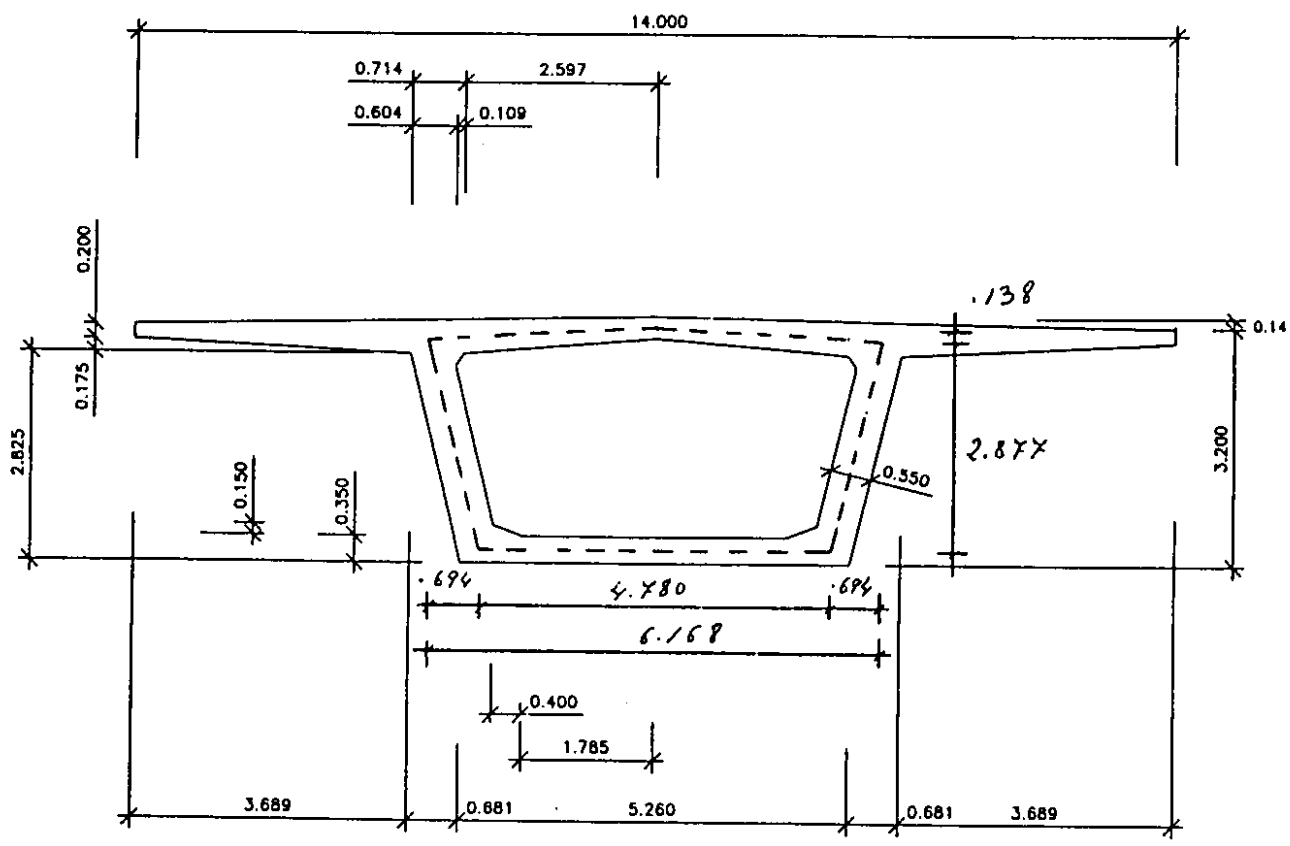
h_0 = 440 mm

(Rozamiento de apoyos y frenado produciendo compresiones sobre el tablero)

SECCION	V_{rd} (t)	Mfconc	INERCIA	C.d.g. / F.sup.	M. ESTATICO	Sd = τ.b (t/m)	f_{1cd} (N/mm2)	S_{U1} (t/m)	Ap (cm
42	615.66	-1.00	14.2411	1.2555	1.5108	65.31	10.67	235	1
43	1627.38	1.00	14.2411	1.2555	1.5108	172.64	16.00	352	4
43'	1627.38	1.00	18.9236	1.3292	1.3206	113.57	16.00	352	2
44	2208.39	1.00	18.9236	1.3292	1.3206	154.11	16.00	352	3
44'	-2134.30	1.00	18.9236	1.3292	1.3206	148.94	16.00	352	3
55	2150.02	1.00	18.9236	1.3292	1.3206	150.04	16.00	352	3
55'	-2202.10	1.00	18.9236	1.3292	1.3206	153.68	16.00	352	3
56	-1560.35	1.00	18.9236	1.3292	1.3206	108.89	16.00	352	2
56'	-1560.35	1.00	14.2411	1.2555	1.3206	144.69	16.00	352	3
57	-923.29	-1.00	14.2411	1.2555	1.5108	97.95	10.67	235	2
58	-649.64	-1.00	14.2411	1.2555	1.5108	68.92	10.67	235	1
59	-503.23	-1.00	14.2411	1.2555	1.5108	53.39	10.67	235	1
60	-418.82	-1.00	14.2411	1.2555	1.5108	44.43	10.67	235	1
61	-344.27	-1.00	14.2411	1.2555	1.5108	36.52	10.67	235	
62	290.39	-1.00	14.2411	1.2555	1.5108	30.81	10.67	235	
63	387.10	-1.00	14.2411	1.2555	1.5108	41.07	10.67	235	1
64	499.96	-1.00	14.2411	1.2555	1.5108	53.04	10.67	235	1
65	1575.89	1.00	14.2411	1.2555	1.5108	167.18	16.00	352	4
65'	1575.89	1.00	18.9236	1.3292	1.3206	109.97	16.00	352	2
66	2163.65	1.00	18.9236	1.3292	1.3206	150.99	16.00	352	3
66'	-2053.21	1.00	18.9236	1.3292	1.3206	143.28	16.00	352	3
67	-1340.42	1.00	18.9236	1.3292	1.3206	93.54	16.00	352	2
67'	-1340.42	1.00	14.2411	1.2555	1.5108	142.20	16.00	352	3
68	-703.18	-1.00	14.2411	1.2555	1.5108	74.60	10.67	235	1
69	-439.85	-1.00	14.2411	1.2555	1.5108	46.66	10.67	235	1
70	-486.44	-1.00	14.2411	1.2555	1.5108	51.61	10.67	235	1
71	-485.12	-1.00	14.2411	1.2555	1.5108	51.46	10.67	235	1
72	-292.31	-1.00	14.2411	1.2555	1.5108	31.01	10.67	235	
73	465.16	-1.00	14.2411	1.2555	1.5108	49.35	10.67	235	1
74	642.36	-1.00	14.2411	1.2555	1.5108	68.15	10.67	235	1
75	837.06	-1.00	14.2411	1.2555	1.5108	88.80	10.67	235	2
76	1172.67	-1.00	18.9236	1.3292	1.3206	81.84	10.67	235	2

1.1.6.2- ARMADO A TORSIÓN

Armado - Torsión



LAV. VIA UCTO Nº 1

ESTUDIO DE LA TORSION

De acuerdo con el proyecto original, para tener en cuenta la flexibilidad transversal de las pilas, consideramos una luz a torsión de 50.00 m.

Poniendonos del lado de la seguridad consideramos la sobrecarga del tren tipo B como 12 t/m en los 50.00 m.

Momentos Unitarios :

.-Sobrecargas tren tipo B:

p = 12.00 x 1.16 =	13.92 t/m
exc = 2.35 + 0.30 =	2.65 m
mt = 13.92 x 2.65 =	36.89 m.t/m

.-Sobrecargas en paseos :

p = 1.75 x 0.40 + 0.30 =	1.00 t/m
exc =	6.00 m
mt = 1.00 x 6.00 =	6.00 m.t/m

.- Viento :

f = 0.20x(3.34+0.75+3.50) =	1.52 t/m
exc = 3.795 - 2.085 =	1.71 m
mt = 1.52 x 1.71 =	2.60 m.t/m

.- Fuerza centrífuga :

$f = 12.00 \times 350^2/(127 \times 7250)$ =	1.60 t/m
exc =3.34+0.75+1.80-2.085 =	3.80 m
mt = 1.60 x 3.80 =	6.08 m.t/m

Longitud del vano = 50.00 m

	Momentos Torsores					
X	Sobrecarga tren Tipo	Sobrecarga en paseos	Viento	Fuerza centrífuga	Momento Total	Momento Total Ponderado
0.00	922.20	150.00	64.89	152.00	1289.09	1933.64
2.50	832.29	135.38	58.57	137.18	1163.41	1745.11
6.00	714.15	116.16	50.25	117.71	998.27	1497.41
9.00	620.09	100.86	43.64	102.20	866.79	1300.18
12.00	532.66	86.64	37.48	87.80	744.58	1116.87
16.00	426.43	69.36	30.01	70.28	596.08	894.12

ARMAD A TORSION

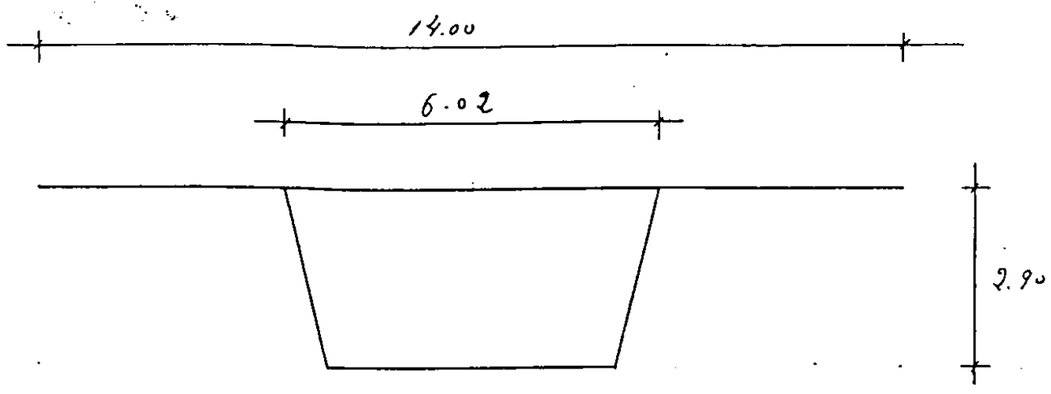
A = (6.622 + 5.26) x 2.825 / 2 + 6.622 x 0.449 + 6.622 x 0.066 / 2 =	19.975
u = 5.26 + 2 x 2.906 + 2 x 0.449 + 2 x 3.311 =	18.592
he = A / u = 1.07 > 0.30	
he (Losa superior) =	0.300
he (Losa inferior) =	0.350
he (Hastiales) =	0.550
Ae = (4.78 + 6.168) x 2.877 / 2 + 6.168 x 0.138 / 2 =	16.174
ue = 4.78 + 2 x 2.960 + 2 x 3.087 =	16.874

f_{ck} =	40.00	N/mm^2	cotg 9 =	1.50
f_{cd} =	26.67	N/mm^2		
f_{1cd} =	16.00	N/mm^2		
$f_{ct,m}$ =	3.51	N/mm^3		

X	Td	α	cotg 9	T_{u1} (t)			Al (cm^2/m)	At (cm^2/m)
				Losa sup.	Losa sup.	Hastiales		
0.00	1933.64	1.50	1.50	5374.84	6270.65	9853.88	22.42	9.96
2.50	1745.11	1.50	1.50	5374.84	6270.65	9853.88	20.23	8.99
6.00	1497.41	1.50	1.50	5374.84	6270.65	9853.88	17.36	7.71
9.00	1300.18	1.50	1.50	5374.84	6270.65	9853.88	15.07	6.70
12.00	1116.87	1.50	1.50	5374.84	6270.65	9853.88	12.95	5.75
16.00	894.12	1.50	1.50	5374.84	6270.65	9853.88	10.37	4.61
20.00	696.11	1.50	1.50	5374.84	6270.65	9853.88	8.07	3.59

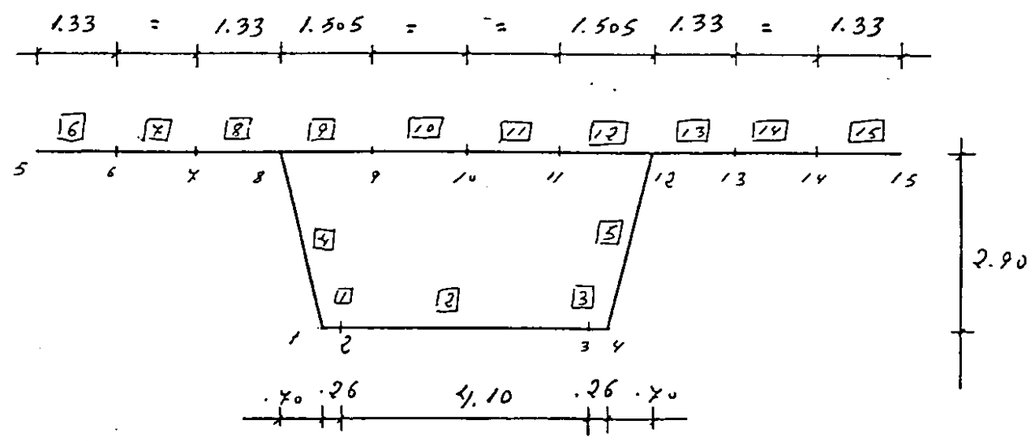
1.1.6.3- ARMADO A FLEXIÓN TRANSVERSAL Y DISTORSIÓN

Estudio Flexión Transversal y Distorsión



Estudiamos una rebanada de 1 m. de anchura.

AVE 1.FT



$E = 3'8 \cdot 10^5\ T/m^2$

Sección tip. 1: Bancs 1 y 3

Cant. = 0'45

Sección tip. 2: Banc 2

Cant. = 0'35

Sección tip. 3: Bancs 4 y 5:

Cant. = 0'55

Sección Tip. 4: Bancs 6 y 15

Cant. = 0'245

Sección tip. 5: Bancs 7 y 14

Cant. = 0'334

Seccion Tip. 6 : Banco 8 x 13

Cant. = 0'424

Seccion Tip. 7 : Banco 9 x 12

Cant. = 0'440

Seccion Tip. 8 : Banco 10 x 11

Cant. = 0'347

Cargas

- Hipotesis 1 : Peso propio

Banco 1 x 3 : $p = 0'50 \cdot 2'5 = 1'25$ t/m.

Banco 2 : $p = 0'35 \cdot 2'5 = 0'88$ "

Banco 4 : $p = 0'55 \cdot 2'5 \cdot 2'98/0'70 = 5'85$ t/m.

$\alpha = 0$

Banco 5 : $p = 0'55 \cdot 2'5 \cdot 2'98/0'70 = 5'85$ "

$\alpha = 0$ rad

Banco 6 x 15 : $p_1 = 0'20 \cdot 2'5 = 0'50$ t/m.

$p_2 = 0'289 \cdot 2'5 = 0'72$ "

Banco 7 x 14 : $p_1 = 0'289 \cdot 2'5 = 0'72$ "

$p_2 = 0'378 \cdot 2'5 = 0'95$ "

Banco 8 x 13 : $p_1 = 0'378 \cdot 2'5 = 0'95$ "

$p_2 = 0'466 \cdot 2'5 = 1'17$ "

Banco 9 x 12 : $p_1 = 0'266 \cdot 2'5 = 1'17$ "

$p_2 = 0'394 \cdot 2'5 = 0'99$ "

Barras 10 y 11: $p_1 = 0'384 \cdot 2'5 = 0'99$ t/m.

$p_2 = 0'30 \cdot 2'5 = 0'75$ "

- Hipótesis 2: Carga Permanente.

Barras 6 y 15: $p = 0'100$

$c = 0$

Barras 7 y 14. $p = 0'20 \cdot 0'50 \cdot 2'5 = 0'25$ t.

$a = 0'52$

$p = 0'03 \cdot 2'4 + 0'5 \cdot 1'6 = 0'98$ t/m

$a = 0'96$: $b = 0'37$

Barras 8 a 13: $p = 0'03 \cdot 2'4 + 0'5 \cdot 1'6 = 0'98$ t/m.

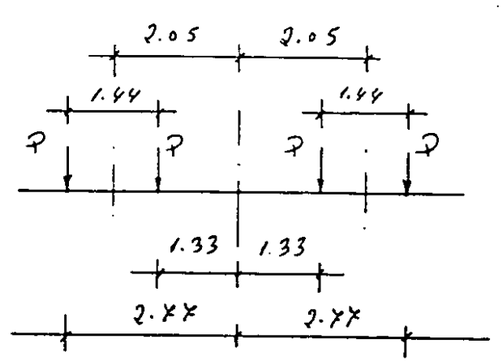
La carga sobre las barras 8 a 13 la ponderamos por 1'2: $p = 1'20 \cdot 0'98 = 1'18$ t/m.

- Hipótesis 3: Sobrecarga centrada.

Tomamos el tren tipo A de la IAPF-75 de tres ejes de 30 t c/ 1'5 m. entre sí.

$P = \frac{1}{1'5} \cdot \frac{30}{2} \cdot 1'6 = 11'60$ t/rail.

Suponemos, primeramente, que el lado de la izquierda que los 2 ejes se sitúen 0'30 m hacia el centro



$P = 11'60$ t

Barra 9: $a = 0'24$

" 10: $a = 0'175$

" 11: $a = 1'33$

" 12: $a = 1'265$

- Hipótesis 4 : Desbalast. parcial

Bancs 6 y 15 : $p = 0'100$

$a = 0$

Bancs 7 y 14 : $p = 0'70 \cdot 0'50 \cdot 2'5 = 0'25\ t$

$a = 0'52 \quad (0'81)$

Banc 14 : $p = 0'3 \cdot 2'4 + 0'5 \cdot 1'6 = 0'98\ t/m$

$a = 0 \quad ; \quad b = 0'37$

Ponderamos la carg. p por 1'2 :

$p = 0'98 \cdot 1'2 = 1'18\ t/m.$

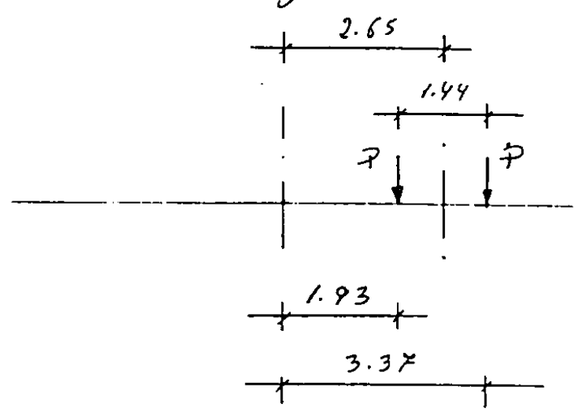
Bancs 11 a 13 : $p = 0'3 \cdot 2'4 + 0'5 \cdot 1'6 = 0'98\ t/m.$

Ponderamos la carg. por 1'2.

$p = 0'98 \cdot 1'2 = 1'18\ t/m.$

- Hipótesis 5 : Sobrecarga excentrica.

Suponemos que la vía cargada se sitúa 0'30 m hacia fuera.



$P = 11'60\ t.$

Banc 12 : $a = 0'425$

Banc 13 : $a = 0'36$

Sobrecarga en pasos dcch. :

Banc 14 : $p = 0'40$

$a = 0'91 \quad ; \quad b = 0'42$

Banc 15 : $p = 0'40$

- Hipótesis 6 · Cubierta

Barra 15 : $P = 0'30$

$a = 0'43$

Se estudian dos combinaciones de hipótesis para carga centrada y descentrada

Comb 1 = Hip. 1 + Hip. 2 + Hip 3

Comb 2 : Hip. 1 + Hip. 4 + Hip. 5 + Hip. 6

AGROMAN Empresa Constructora Direcci¢n T,cnica

ESTRU2 (Ver. 10.0) CALCULO DE PORTICOS PLANOS

T¡tulo : FLEXION TRANSVERSAL TABLERO

Autor :

Area/Dpto. :

Fecha : 26-10-1999 Hora : 17:55:45

DATOS DE ENTRADA ** EN METROS Y TONELADAS

** GEOMETRIA DE BARRAS **

BARRAS PRI	BARRAS ULT	BARRAS INC	NUDO INI INI	NUDO INI INC	NUDO FIN FIN	NUDO FIN INC	PUN INT	SEC TIP	PROY. X (m)	PROY. Y (m)	TIP	ARM
1			1		2		0	1	0.260	0.000	1	0
2			2		3		3	2	4.100	0.000	1	0
3			3		4		0	1	0.260	0.000	1	0
4			1		8		3	3	-0.700	2.900	1	0
5			4		12		3	3	0.700	2.900	1	0
6	15	9	5	9	6	9	0	4	1.330	0.000	1	0
7	14	7	6	7	7	7	0	5	1.330	0.000	1	0
8	13	5	7	5	8	5	0	6	1.330	0.000	1	0
9	12	3	8	3	9	3	1	7	1.505	0.000	1	0
10	11	1	9	1	10	1	1	8	1.505	0.000	1	0

** DATOS DE SECCIONES TIPO **

SECCION	TIPO	ANCHO-DIAMETRO DIAMETRO EXT. AREA (m-m2)	CANTO DIAMETRO INT. INERCIA (m-m4)	AREA EQUIVALENTE A CORTANTE(m^2)	RS	RI
1	1	1.00000000	0.44999999	0.00000000	0.03	0.03
2	1	1.00000000	0.34999999	0.00000000	0.03	0.03
3	1	1.00000000	0.55000001	0.00000000	0.03	0.03
4	1	1.00000000	0.24500000	0.00000000	0.03	0.03
5	1	1.00000000	0.33399999	0.00000000	0.03	0.03
6	1	1.00000000	0.42399999	0.00000000	0.03	0.03
7	1	1.00000000	0.44000000	0.00000000	0.03	0.03
8	1	1.00000000	0.34700000	0.00000000	0.03	0.03

** MATERIALES **

MODULO DE ELASTICIDAD . . . . . : 3800000 t/m^2
COEFICIENTE DE DILATACION TERMICA : .00001
COEFICIENTE DE POISSON . . . . . : .2

** DATOS DE NUDOS Y TIPOS DE VINCULACIONES **

NUDOS INI	NUDOS FIN	NUDOS INC	TIPO VINC	COOR. X (m)	COOR. Y (m)	ANGULO (grados)	MUELLE-1 (tn/m)	MUELLE-2 (tn/m)	DX	DY	WZ
1			2	0.000	0.000	0.000	0.00	0.00	0	0	0
4			3	0.000	0.000	0.000	0.00	0.00	0	0	0

** DATOS DE CARGAS EN BARRAS O EN NUDOS **

CAR NUM	BARRA - NUDO INI	FIN	INC	HIPO TIPO	A (m)	B (m)	VALOR 1	VALOR 2	VALOR 3

1 1 3 2 1 0 0.000 0.000 1.250 1.250 0.000

** DATOS DE CARGAS EN BARRAS O EN NUDOS **

CAR NUM	BARRA - NUDO INI	FIN	INC	HIPO	TIPO	A (m)	B (m)	VALOR 1	VALOR 2	VALOR 3
2	2			1	0	0.000	0.000	0.880	0.880	0.000
3	5			1	5	0.000	0.000	5.850	5.850	0.000
4	6			1	0	0.000	0.000	0.500	0.720	0.000
5	15			1	0	0.000	0.000	0.720	0.500	0.000
6	7			1	0	0.000	0.000	0.720	0.950	0.000
7	14			1	0	0.000	0.000	0.950	0.720	0.000
8	8			1	0	0.000	0.000	0.950	1.170	0.000
9	13			1	0	0.000	0.000	1.170	0.950	0.000
10	9			1	0	0.000	0.000	1.170	0.990	0.000
11	12			1	0	0.000	0.000	0.990	1.170	0.000
12	10			1	0	0.000	0.000	0.990	0.750	0.000
13	11			1	0	0.000	0.000	0.750	0.990	0.000
14	6			2	1	0.000	0.000	0.000	-0.100	0.000
15	15			2	1	1.330	0.000	0.000	-0.100	0.000
16	7			2	1	0.520	0.000	0.000	-0.250	0.000
17	14			2	1	0.810	0.000	0.000	-0.250	0.000
18	7			2	2	0.960	0.370	0.980	0.980	0.000
19	14			2	2	0.000	0.370	0.980	0.980	0.000
20	8	13	1	2	0	0.000	0.000	1.180	1.180	0.000
21	9			3	1	0.240	0.000	0.000	-11.600	0.000
22	10			3	1	0.175	0.000	0.000	-11.600	0.000
23	11			3	1	1.330	0.000	0.000	-11.600	0.000
24	12			3	1	1.265	0.000	0.000	-11.600	0.000
25	6			4	1	0.000	0.000	0.000	-0.100	0.000
26	15			4	1	1.330	0.000	0.000	-0.100	0.000
27	7			4	1	0.520	0.000	0.000	-0.250	0.000
28	14			4	1	0.810	0.000	0.000	-0.250	0.000
29	14			4	2	0.000	0.370	1.180	1.180	0.000
30	11	13	1	4	0	0.000	0.000	1.180	1.180	0.000
31	12			5	1	0.425	0.000	0.000	-11.600	0.000
32	13			5	1	0.360	0.000	0.000	-11.600	0.000
33	14			5	2	0.910	0.420	0.400	0.400	0.000
34	15			5	0	0.000	0.000	0.400	0.400	0.000
35	15			6	1	0.430	0.000	0.000	-0.300	0.000
36	4			1	5	0.000	0.000	-5.850	-5.850	180.000

** DATOS DE COMBINACIONES **

NUM.	Hip-1	Hip-2	Hip-3	Hip-4	Hip-5	Hip-6	Hip-7	Hip-8	Hip-9	Hip-10
1	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00

HIPOTESIS SIMPLES			
HIPOTESIS	MOV.NUDOS	ESF.BARRAS	REAC.NUDOS
1	1	1	1
2	1	1	1
3	1	1	1
4	1	1	1
5	1	1	1
6	1	1	1

COMBINACIONES DE HIPOTESIS			
COMBINACION	MOV.NUDOS	ESF.BARRAS	REAC.NUDOS
1	1	1	1
2	1	1	1

* MOVIMIENTOS EN LOS NUDOS (HIPOTESIS DE CARGA) *

Nudo No.	Hip. No.	Desp.-X (cm.)	Desp.-Y (cm.)	Giro (mRad)
1	1	0.0000D+00	0.0000D+00	-.3786D-01
	2	0.0000D+00	0.0000D+00	0.1312D-01
	3	0.0000D+00	0.0000D+00	0.1433D+00
	4	0.0000D+00	0.0000D+00	-.4155D-01
	5	0.0000D+00	0.0000D+00	-.1907D+00
	6	0.0000D+00	0.0000D+00	-.1558D-01
2	1	-.3511D-04	-.1130D-02	-.4832D-01
	2	-.1386D-04	0.3315D-03	0.1238D-01
	3	0.7493D-05	0.3622D-02	0.1353D+00
	4	-.1029D-04	-.9774D-03	-.3379D-01
	5	-.3193D-04	-.4471D-02	-.1540D+00
	6	-.2843D-05	-.3735D-03	-.1320D-01
3	1	-.7469D-03	-.1130D-02	0.4832D-01
	2	-.2949D-03	0.3315D-03	-.1238D-01
	3	0.1594D-03	0.3622D-02	-.1353D+00
	4	-.2190D-03	0.1123D-02	-.3921D-01
	5	-.6792D-03	0.5570D-02	-.1950D+00
	6	-.6048D-04	0.2076D-03	-.7003D-02
4	1	-.7820D-03	0.0000D+00	0.3786D-01
	2	-.3088D-03	0.0000D+00	-.1312D-01
	3	0.1669D-03	0.0000D+00	-.1433D+00
	4	-.2293D-03	0.0000D+00	-.4730D-01
	5	-.7112D-03	0.0000D+00	-.2342D+00
	6	-.6332D-04	0.0000D+00	-.9011D-02
5	1	-.8625D-03	-.1316D+00	0.4576D+00
	2	-.3405D-03	-.2603D-01	0.1009D+00
	3	0.1841D-03	0.1189D+00	-.3062D+00
	4	0.1555D-01	0.3077D-02	0.3550D-01
	5	0.7343D-01	0.1198D+00	-.2558D+00
	6	0.5058D-02	0.6550D-02	-.1332D-01
6	1	-.8625D-03	-.7224D-01	0.4108D+00
	2	-.3405D-03	-.1345D-01	0.8193D-01
	3	0.1841D-03	0.7819D-01	-.3062D+00
	4	0.1555D-01	0.6956D-02	0.1651D-01
	5	0.7343D-01	0.8575D-01	-.2558D+00
	6	0.5058D-02	0.4778D-02	-.1332D-01
7	1	-.8625D-03	-.2494D-01	0.2670D+00
	2	-.3405D-03	-.4077D-02	0.5179D-01
	3	0.1841D-03	0.3747D-01	-.3062D+00
	4	0.1555D-01	0.7635D-02	-.1293D-01
	5	0.7343D-01	0.5173D-01	-.2558D+00
	6	0.5058D-02	0.3006D-02	-.1332D-01
8	1	-.8625D-03	-.1474D-02	0.5407D-01

* MOVIMIENTOS EN LOS NUDOS (HIPOTESIS DE CARGA) *

Nudo No.	Hip. No.	Desp.-X (cm.)	Desp.-Y (cm.)	Giro (mRad)
	2	-.3405D-03	-.9463D-03	-.2300D-01
	3	0.1841D-03	-.3250D-02	-.3062D+00
	4	0.1555D-01	0.3630D-02	-.5157D-01
	5	0.7343D-01	0.1770D-01	-.2558D+00
	6	0.5058D-02	0.1234D-02	-.1332D-01
9	1	-.6546D-03	-.2545D-02	-.3897D-01
	2	-.2584D-03	-.1417D-01	-.1155D+00
	3	0.1397D-03	-.8540D-01	-.6120D+00
	4	0.1561D-01	-.4966D-02	-.5777D-01
	5	0.7361D-01	-.1308D-01	-.1582D+00
	6	0.5075D-02	0.4482D-03	0.1003D-02
10	1	-.3911D-03	-.6805D-02	-.2646D-07
	2	-.1544D-03	-.2477D-01	-.3609D-08
	3	0.8344D-04	-.1324D+00	0.1403D-07
	4	0.1569D-01	-.1086D-01	-.1061D-01
	5	0.7385D-01	-.2572D-01	-.2003D-01
	6	0.5096D-02	0.1353D-02	0.7190D-02
11	1	-.1275D-03	-.2545D-02	0.3897D-01
	2	-.5033D-04	-.1417D-01	0.1155D+00
	3	0.2720D-04	-.8540D-01	0.6120D+00
	4	0.1576D-01	-.7066D-02	0.4567D-01
	5	0.7409D-01	-.2217D-01	0.5707D-01
	6	0.5118D-02	0.1458D-02	-.9643D-02
12	1	0.8032D-04	-.1474D-02	-.5407D-01
	2	0.3173D-04	-.9463D-03	0.2300D-01
	3	-.1716D-04	-.3250D-02	0.3062D+00
	4	0.1582D-01	-.4692D-02	-.4651D-01
	5	0.7428D-01	-.2164D-01	-.1858D+00
	6	0.5135D-02	-.1323D-02	-.2919D-01
13	1	0.8032D-04	-.2494D-01	-.2670D+00
	2	0.3173D-04	-.4077D-02	-.5179D-01
	3	-.1716D-04	0.3747D-01	0.3062D+00
	4	0.1582D-01	-.1736D-01	-.1248D+00
	5	0.7428D-01	-.5697D-01	-.3115D+00
	6	0.5135D-02	-.8115D-02	-.6928D-01
14	1	0.8032D-04	-.7224D-01	-.4108D+00
	2	0.3173D-04	-.1345D-01	-.8193D-01
	3	-.1716D-04	0.7819D-01	0.3062D+00
	4	0.1582D-01	-.3645D-01	-.1551D+00
	5	0.7428D-01	-.1054D+00	-.4003D+00
	6	0.5135D-02	-.2029D-01	-.1063D+00
15	1	0.8032D-04	-.1316D+00	-.4576D+00
	2	0.3173D-04	-.2603D-01	-.1009D+00

* MOVIMIENTOS EN LOS NUDOS (HIPOTESIS DE CARGA) *

Nudo No.	Hip. No.	Desp.-X (cm.)	Desp.-Y (cm.)	Giro (mRad)
	3	-.1716D-04	0.1189D+00	0.3062D+00
	4	0.1582D-01	-.5876D-01	-.1740D+00
	5	0.7428D-01	-.1620D+00	-.4339D+00
	6	0.5135D-02	-.3514D-01	-.1123D+00

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
1	1	0.000	1	-2.31	-2.13	-1.42
			2	-0.91	-0.00	-0.08
			3	0.49	-0.00	-0.90
			4	-0.68	0.40	0.91
			5	-2.10	1.93	4.32
			6	-0.19	0.11	0.28
	2	0.260	1	-2.31	-1.80	-0.91
			2	-0.91	-0.00	-0.08
			3	0.49	-0.00	-0.90
			4	-0.68	0.40	0.81
			5	-2.10	1.93	3.82
			6	-0.19	0.11	0.25
2	1	0.000	1	-2.31	-1.80	-0.91
			2	-0.91	-0.00	-0.08
			3	0.49	-0.00	-0.90
			4	-0.68	0.40	0.81
			5	-2.10	1.93	3.82
			6	-0.19	0.11	0.25
	2	1.025	1	-2.31	-0.90	0.47
			2	-0.91	-0.00	-0.08
			3	0.49	-0.00	-0.90
			4	-0.68	0.40	0.40
			5	-2.10	1.93	1.84
			6	-0.19	0.11	0.13
	3	2.050	1	-2.31	-0.00	0.94
			2	-0.91	-0.00	-0.08
			3	0.49	-0.00	-0.90
			4	-0.68	0.40	-0.02
			5	-2.10	1.93	-0.14
			6	-0.19	0.11	0.02
	4	3.075	1	-2.31	0.90	0.47
			2	-0.91	-0.00	-0.08
			3	0.49	-0.00	-0.90
			4	-0.68	0.40	-0.43
			5	-2.10	1.93	-2.11
			6	-0.19	0.11	-0.09
	5	4.100	1	-2.31	1.80	-0.91
			2	-0.91	-0.00	-0.08
			3	0.49	-0.00	-0.90
			4	-0.68	0.40	-0.84
			5	-2.10	1.93	-4.09
			6	-0.19	0.11	-0.21
3	1	0.000	1	-2.31	1.80	-0.91
			2	-0.91	-0.00	-0.08
			3	0.49	-0.00	-0.90
			4	-0.68	0.40	-0.84
			5	-2.10	1.93	-4.09

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
3	1	0.000	6	-0.19	0.11	-0.21
	2	0.260	1	-2.31	2.13	-1.42
			2	-0.91	-0.00	-0.08
			3	0.49	-0.00	-0.90
			4	-0.68	0.40	-0.95
			5	-2.10	1.93	-4.59
			6	-0.19	0.11	-0.24
4	1	0.000	1	-10.61	0.19	1.42
			2	-5.88	0.48	0.08
			3	-22.44	5.92	0.90
			4	-0.84	-0.49	-0.91
			5	-0.15	-2.12	-4.32
			6	0.09	-0.21	-0.28
	2	0.746	1	-9.62	-0.05	1.37
			2	-5.88	0.48	-0.28
			3	-22.44	5.92	-3.52
			4	-0.84	-0.49	-0.55
			5	-0.15	-2.12	-2.74
			6	0.09	-0.21	-0.12
	3	1.492	1	-8.62	-0.29	1.50
			2	-5.88	0.48	-0.64
			3	-22.44	5.92	-7.94
			4	-0.84	-0.49	-0.18
			5	-0.15	-2.12	-1.15
			6	0.09	-0.21	0.04
	4	2.237	1	-7.63	-0.53	1.81
			2	-5.88	0.48	-1.00
			3	-22.44	5.92	-12.36
			4	-0.84	-0.49	0.19
			5	-0.15	-2.12	0.43
			6	0.09	-0.21	0.20
	5	2.983	1	-6.63	-0.77	2.30
			2	-5.88	0.48	-1.36
			3	-22.44	5.92	-16.77
			4	-0.84	-0.49	0.56
			5	-0.15	-2.12	2.02
			6	0.09	-0.21	0.36
5	1	0.000	1	-10.61	-0.19	-1.42
			2	-5.88	-0.48	-0.08
			3	-22.44	-5.92	-0.90
			4	-5.56	-0.65	-0.95
			5	-24.07	-3.65	-4.59
			6	-0.47	0.08	-0.24
	2	0.746	1	-9.62	0.05	-1.37
			2	-5.88	-0.48	0.28
			3	-22.44	-5.92	3.52
			4	-5.56	-0.65	-0.47

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
5	2	0.746	5	-24.07	-3.65	-1.87
			6	-0.47	0.08	-0.30
	3	1.492	1	-8.62	0.29	-1.50
			2	-5.88	-0.48	0.64
			3	-22.44	-5.92	7.94
			4	-5.56	-0.65	0.01
			5	-24.07	-3.65	0.85
			6	-0.47	0.08	-0.36
	4	2.237	1	-7.63	0.53	-1.81
			2	-5.88	-0.48	1.00
			3	-22.44	-5.92	12.36
			4	-5.56	-0.65	0.50
			5	-24.07	-3.65	3.58
			6	-0.47	0.08	-0.42
	5	2.983	1	-6.63	0.77	-2.30
			2	-5.88	-0.48	1.36
			3	-22.44	-5.92	16.77
			4	-5.56	-0.65	0.98
			5	-24.07	-3.65	6.30
			6	-0.47	0.08	-0.48
6	1	0.000	1	0.00	-0.00	0.00
			2	0.00	0.10	0.00
			3	0.00	0.00	-0.00
			4	0.00	0.10	-0.00
			5	0.00	0.00	0.00
			6	0.00	0.00	0.00
	2	1.330	1	0.00	0.81	-0.51
			2	0.00	0.10	-0.13
			3	0.00	0.00	-0.00
			4	0.00	0.10	-0.13
			5	0.00	0.00	0.00
			6	0.00	0.00	0.00
7	1	0.000	1	0.00	0.81	-0.51
			2	0.00	0.10	-0.13
			3	0.00	0.00	0.00
			4	0.00	0.10	-0.13
			5	0.00	0.00	0.00
			6	0.00	0.00	0.00
	2	1.330	1	0.00	1.92	-2.29
			2	0.00	0.71	-0.54
			3	0.00	0.00	0.00
			4	0.00	0.35	-0.47
			5	0.00	0.00	0.00
			6	0.00	0.00	0.00
8	1	0.000	1	0.00	1.92	-2.29
			2	0.00	0.71	-0.54

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
8	1	0.000	3	0.00	0.00	0.00
			4	0.00	0.35	-0.47
			5	0.00	-0.00	-0.00
			6	0.00	0.00	0.00
	2	1.330	1	0.00	3.33	-5.75
			2	0.00	2.28	-2.53
			3	0.00	0.00	0.00
			4	0.00	0.35	-0.93
			5	0.00	-0.00	0.00
			6	0.00	0.00	0.00
9	1	0.000	1	2.31	-2.93	-3.45
			2	0.91	-3.55	-3.88
			3	-0.49	-23.20	-16.77
			4	0.68	-0.35	-0.37
			5	2.10	0.36	2.02
			6	0.19	0.13	0.36
	2	0.752	1	2.31	-2.09	-1.57
			2	0.91	-2.66	-1.55
			3	-0.49	-11.60	-5.26
			4	0.68	-0.35	-0.11
			5	2.10	0.36	1.75
			6	0.19	0.13	0.26
	3	1.505	1	2.31	-1.31	-0.29
			2	0.91	-1.78	0.12
			3	-0.49	-11.60	3.47
			4	0.68	-0.35	0.15
			5	2.10	0.36	1.48
			6	0.19	0.13	0.16
10	1	0.000	1	2.31	-1.31	-0.29
			2	0.91	-1.78	0.12
			3	-0.49	-11.60	3.47
			4	0.68	-0.35	0.15
			5	2.10	0.36	1.48
			6	0.19	0.13	0.16
	2	0.752	1	2.31	-0.61	0.42
			2	0.91	-0.89	1.13
			3	-0.49	0.00	5.50
			4	0.68	-0.35	0.41
			5	2.10	0.36	1.21
			6	0.19	0.13	0.05
	3	1.505	1	2.31	-0.00	0.65
			2	0.91	0.00	1.46
			3	-0.49	0.00	5.50
			4	0.68	-0.35	0.68
			5	2.10	0.36	0.95
			6	0.19	0.13	-0.05
11	1	0.000	1	2.31	-0.00	0.65

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
11	1	0.000	2	0.91	0.00	1.46
			3	-0.49	0.00	5.50
			4	0.68	-0.35	0.68
			5	2.10	0.36	0.95
			6	0.19	0.13	-0.05
	2	0.753	1	2.31	0.61	0.42
			2	0.91	0.89	1.13
			3	-0.49	0.00	5.50
			4	0.68	0.54	0.61
			5	2.10	0.36	0.68
			6	0.19	0.13	-0.15
	3	1.505	1	2.31	1.31	-0.29
			2	0.91	1.78	0.12
			3	-0.49	11.60	3.47
			4	0.68	1.43	-0.13
			5	2.10	0.36	0.41
			6	0.19	0.13	-0.25
12	1	0.000	1	2.31	1.31	-0.29
			2	0.91	1.78	0.12
			3	-0.49	11.60	3.47
			4	0.68	1.43	-0.13
			5	2.10	0.36	0.41
			6	0.19	0.13	-0.25
	2	0.752	1	2.31	2.09	-1.57
			2	0.91	2.66	-1.55
			3	-0.49	11.60	-5.26
			4	0.68	2.31	-1.54
			5	2.10	11.96	-3.66
			6	0.19	0.13	-0.35
	3	1.505	1	2.31	2.93	-3.45
			2	0.91	3.55	-3.88
			3	-0.49	23.20	-16.77
			4	0.68	3.20	-3.62
			5	2.10	11.96	-12.65
			6	0.19	0.13	-0.45
13	1	0.000	1	0.00	-3.33	-5.75
			2	0.00	-2.28	-2.53
			3	-0.00	-0.00	-0.00
			4	0.00	-2.36	-2.64
			5	0.00	-12.30	-6.36
			6	0.00	-0.30	-0.93
	2	1.330	1	0.00	-1.92	-2.29
			2	0.00	-0.71	-0.54
			3	-0.00	-0.00	0.00
			4	0.00	-0.79	-0.55
			5	0.00	-0.70	-1.25
			6	0.00	-0.30	-0.53

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
14	1	0.000	1	-0.00	-1.92	-2.29
			2	-0.00	-0.71	-0.54
			3	-0.00	0.00	-0.00
			4	0.00	-0.79	-0.55
			5	0.00	-0.70	-1.25
			6	0.00	-0.30	-0.53
	2	1.330	1	-0.00	-0.81	-0.51
			2	-0.00	-0.10	-0.13
			3	-0.00	0.00	-0.00
			4	0.00	-0.10	-0.13
			5	0.00	-0.53	-0.35
			6	0.00	-0.30	-0.13
15	1	0.000	1	-0.00	-0.81	-0.51
			2	0.00	-0.10	-0.13
			3	-0.00	0.00	0.00
			4	0.00	-0.10	-0.13
			5	0.00	-0.53	-0.35
			6	0.00	-0.30	-0.13
	2	1.330	1	-0.00	0.00	-0.00
			2	0.00	-0.10	-0.00
			3	-0.00	0.00	0.00
			4	0.00	-0.10	-0.00
			5	0.00	0.00	-0.00
			6	0.00	0.00	-0.00

* REACCIONES EN APOYOS (HIPOTESIS DE CARGA) *

Nudo No.	Hip. No.	F-X (Ton)	F-Y (Ton)	Momento (m*T)
1	1	0.2872D-05	0.1249D+02	0.0000D+00
	2	0.0000D+00	0.5834D+01	0.0000D+00
	3	0.0000D+00	0.2320D+02	0.0000D+00
	4	0.0000D+00	0.2959D+00	0.0000D+00
	5	0.0000D+00	-.2285D+01	0.0000D+00
	6	0.0000D+00	-.2461D+00	0.0000D+00
4	1	0.0000D+00	0.1249D+02	0.0000D+00
	2	0.0000D+00	0.5834D+01	0.0000D+00
	3	0.0000D+00	0.2320D+02	0.0000D+00
	4	0.0000D+00	0.5962D+01	0.0000D+00
	5	0.0000D+00	0.2619D+02	0.0000D+00
	6	0.0000D+00	0.5461D+00	0.0000D+00

* MOVIMIENTOS EN LOS NUDOS (COMBINACIONES) *

Nudo No.	Comb. No.	Desp.-X (cm.)	Desp.-Y (cm.)	Giro (mRad)
1	1	0.0000D+00	0.0000D+00	0.1186D+00
	2	0.0000D+00	0.0000D+00	-.2857D+00
2	1	-.4148D-04	0.2823D-02	0.9933D-01
	2	-.8017D-04	-.6953D-02	-.2493D+00
3	1	-.8824D-03	0.2823D-02	-.9933D-01
	2	-.1706D-02	0.5770D-02	-.1929D+00
4	1	-.9239D-03	0.0000D+00	-.1186D+00
	2	-.1786D-02	0.0000D+00	-.2526D+00
5	1	-.1019D-02	-.3869D-01	0.2523D+00
	2	0.9317D-01	-.2165D-02	0.2239D+00
6	1	-.1019D-02	-.7492D-02	0.1866D+00
	2	0.9317D-01	0.2525D-01	0.1582D+00
7	1	-.1019D-02	0.8458D-02	0.1264D-01
	2	0.9317D-01	0.3743D-01	-.1506D-01
8	1	-.1019D-02	-.5671D-02	-.2751D+00
	2	0.9317D-01	0.2109D-01	-.2667D+00
9	1	-.7734D-03	-.1021D+00	-.7665D+00
	2	0.9364D-01	-.2014D-01	-.2539D+00
10	1	-.4620D-03	-.1640D+00	-.1604D-07
	2	0.9425D-01	-.4203D-01	-.2345D-01
11	1	-.1507D-03	-.1021D+00	0.7665D+00
	2	0.9485D-01	-.3032D-01	0.1321D+00
12	1	0.9488D-04	-.5671D-02	0.2751D+00
	2	0.9532D-01	-.2913D-01	-.3156D+00
13	1	0.9488D-04	0.8458D-02	-.1264D-01
	2	0.9532D-01	-.1074D+00	-.7725D+00
14	1	0.9488D-04	-.7492D-02	-.1866D+00
	2	0.9532D-01	-.2344D+00	-.1072D+01
15	1	0.9488D-04	-.3869D-01	-.2523D+00
	2	0.9532D-01	-.3875D+00	-.1178D+01

* ESFUERZOS EN LAS BARRAS (COMBINACIONES) *

Barra No.	Punto No.	Abcisa (m.)	Comb. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
1	1	0.000	1	-2.73	-2.13	-2.40
			2	-5.27	0.31	4.09
	2	0.260	1	-2.73	-1.80	-1.89
			2	-5.27	0.64	3.96
2	1	0.000	1	-2.73	-1.80	-1.89
			2	-5.27	0.64	3.96
	2	1.025	1	-2.73	-0.90	-0.50
			2	-5.27	1.54	2.85
	3	2.050	1	-2.73	-0.00	-0.04
			2	-5.27	2.44	0.80
	4	3.075	1	-2.73	0.90	-0.50
			2	-5.27	3.35	-2.16
	5	4.100	1	-2.73	1.80	-1.89
			2	-5.27	4.25	-6.06
3	1	0.000	1	-2.73	1.80	-1.89
			2	-5.27	4.25	-6.06
	2	0.260	1	-2.73	2.13	-2.40
			2	-5.27	4.57	-7.20
4	1	0.000	1	-38.94	6.59	2.40
			2	-11.51	-2.65	-4.09
	2	0.746	1	-37.94	6.35	-2.42
			2	-10.52	-2.89	-2.03
	3	1.492	1	-36.95	6.11	-7.07
			2	-9.52	-3.13	0.22
	4	2.237	1	-35.95	5.87	-11.54
			2	-8.53	-3.37	2.64
	5	2.983	1	-34.95	5.63	-15.83
			2	-7.53	-3.61	5.24
5	1	0.000	1	-38.94	-6.59	-2.40
			2	-40.71	-4.40	-7.20
	2	0.746	1	-37.94	-6.35	2.42
			2	-39.72	-4.16	-4.01
	3	1.492	1	-36.95	-6.11	7.07
			2	-38.72	-3.92	-0.99
	4	2.237	1	-35.95	-5.87	11.54
			2	-37.73	-3.68	1.84
	5	2.983	1	-34.95	-5.63	15.83
			2	-36.73	-3.44	4.50
6	1	0.000	1	0.00	0.10	-0.00
			2	0.00	0.10	-0.00
	2	1.330	1	0.00	0.91	-0.64
			2	0.00	0.91	-0.64
7	1	0.000	1	0.00	0.91	-0.64

* ESFUERZOS EN LAS BARRAS (COMBINACIONES) *

Barra No.	Punto No.	Abcisa (m.)	Comb. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
7	1	0.000	2	0.00	0.91	-0.64
	2	1.330	1	0.00	2.63	-2.83
			2	0.00	2.27	-2.76
8	1	0.000	1	0.00	2.63	-2.83
			2	0.00	2.27	-2.76
	2	1.330	1	0.00	5.61	-8.28
			2	0.00	3.68	-6.69
9	1	0.000	1	2.73	-29.69	-24.11
			2	5.27	-2.79	-1.45
	2	0.752	1	2.73	-16.35	-8.37
			2	5.27	-1.95	0.33
	3	1.505	1	2.73	-14.69	3.30
			2	5.27	-1.17	1.50
10	1	0.000	1	2.73	-14.69	3.30
			2	5.27	-1.17	1.50
	2	0.752	1	2.73	-1.50	7.05
			2	5.27	-0.47	2.11
	3	1.505	1	2.73	0.00	7.61
			2	5.27	0.14	2.23
11	1	0.000	1	2.73	0.00	7.61
			2	5.27	0.14	2.23
	2	0.753	1	2.73	1.50	7.05
			2	5.27	1.64	1.56
	3	1.505	1	2.73	14.69	3.30
			2	5.27	3.23	-0.26
12	1	0.000	1	2.73	14.69	3.30
			2	5.27	3.23	-0.26
	2	0.752	1	2.73	16.35	-8.37
			2	5.27	16.49	-7.11
	3	1.505	1	2.73	29.69	-24.11
			2	5.27	18.23	-20.17
13	1	0.000	1	0.00	-5.61	-8.28
			2	0.00	-18.29	-15.67
	2	1.330	1	0.00	-2.63	-2.83
			2	0.00	-3.71	-4.62
14	1	0.000	1	-0.00	-2.63	-2.83
			2	0.00	-3.71	-4.62
	2	1.330	1	-0.00	-0.91	-0.64
			2	0.00	-1.74	-1.12
15	1	0.000	1	-0.00	-0.91	-0.64
			2	0.00	-1.74	-1.12

* ESFUERZOS EN LAS BARRAS (COMBINACIONES) *

Barra No.	Punto No.	Abcisa (m.)	Comb. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
15	2	1.330	1	-0.00	-0.10	-0.00
			2	0.00	-0.10	-0.00

* REACCIONES EN APOYOS (COMBINACIONES) *

Nudo No.	Hip. No.	F-X (Ton)	F-Y (Ton)	Momento (m*T)
1	1	0.2872D-05	0.4152D+02	0.0000D+00
	2	0.2872D-05	0.1025D+02	0.0000D+00
4	1	0.0000D+00	0.4152D+02	0.0000D+00
	2	0.0000D+00	0.4518D+02	0.0000D+00

Resultados del cálculo: Reacciones

Combinación 1:

$R_1 = R_4 = 41'52$ t.

Combinación 2:

$R_1 = 10'25$ t.

$R_4 = 45'18$ t.

A continuación aplicamos sobre las almas el cortante que equilibra las fuerzas verticales y sobre todo el perímetro el momento torsor que equilibra la excentricidad de las cargas exteriores. De este forma se obtiene un sistema de fuerzas autoequilibrado que nos resuelve el problema en su conjunto.

Combinación 1:

Fuerza sobre las bancadas 4 y 5:

$F = 41'52 / 2'90 = 14'31$ t/m.l. de banc.

Combinación 2:

Descomponemos en dos sistemas, uno de cortante y otro de torsor:

- Cortante:

$R_1 = R_4 = (45'18 + 10'25)/2 = 27'715$

Fuerza sobre bancadas 4 y 5:

$F = 27'715 / 2'90 = 9'557$ t/m l. de banc.

- Torsor:

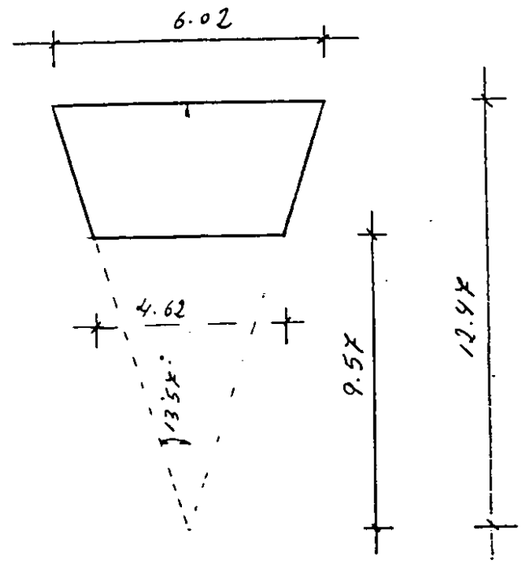
$R_1 = (10'25 - 45'18)/2 = -17'465$

$R_4 = (45'18 - 10'25)/2 = +17'465$

Momento torsor $= 17'465 \cdot 4'62 = 80'688$

Fuerze sobre las barras 1, 2, 3, 4, 5, 9.

10, 11 y 12 :



$F \cdot (6{,}02 \cdot 12{,}9x - 4{,}62 \cdot 9{,}5x) = 80{,}688$

$F = 2{,}615 \quad t/m.l.$ de barra

AGROMAN Empresa Constructora Direcci¢n T,cnica
ESTRU2 (Ver. 10.0) CALCULO DE PORTICOS PLANOS
T¡tulo : FLEXION TRANSVERSAL Y DISTORSION
Autor :
Area/Dpto. :
Fecha : 26-10-1999 Hora : 19:08:34

DATOS DE ENTRADA ** EN METROS Y TONELADAS

** GEOMETRIA DE BARRAS **

BARRAS PRI	ULT	INC	NUDO INI INI	INC	NUDO FIN FIN	INC	PUN INT	SEC TIP	PROY. X (m)	PROY. Y (m)	TIP	ARM
1			1		2		0	1	0.260	0.000	1	0
2			2		3		3	2	4.100	0.000	1	0
3			3		4		0	1	0.260	0.000	1	0
4			1		8		3	3	-0.700	2.900	1	0
5			4		12		3	3	0.700	2.900	1	0
6	15	9	5	9	6	9	0	4	1.330	0.000	1	0
7	14	7	6	7	7	7	0	5	1.330	0.000	1	0
8	13	5	7	5	8	5	0	6	1.330	0.000	1	0
9	12	3	8	3	9	3	1	7	1.505	0.000	1	0
10	11	1	9	1	10	1	1	8	1.505	0.000	1	0

** DATOS DE SECCIONES TIPO **

SECCION	TIPO	ANCHO-DIAMETRO DIAMETRO EXT. AREA (m-m2)	CANTO DIAMETRO INT. INERCIA (m-m4)	AREA EQUIVALENTE A CORTANTE(m^2)	RS	RI
1	1	1.00000000	0.44999999	0.00000000	0.03	0.03
2	1	1.00000000	0.34999999	0.00000000	0.03	0.03
3	1	1.00000000	0.55000001	0.00000000	0.03	0.03
4	1	1.00000000	0.24500000	0.00000000	0.03	0.03
5	1	1.00000000	0.33399999	0.00000000	0.03	0.03
6	1	1.00000000	0.42399999	0.00000000	0.03	0.03
7	1	1.00000000	0.44000000	0.00000000	0.03	0.03
8	1	1.00000000	0.34700000	0.00000000	0.03	0.03

** MATERIALES **

MODULO DE ELASTICIDAD . . . . . : 3800000 t/m^2
COEFICIENTE DE DILATACION TERMICA : .00001
COEFICIENTE DE POISSON . . . . . : .2

** DATOS DE NUDOS Y TIPOS DE VINCULACIONES **

NUDOS INI	FIN	INC	TIPO VINC	COOR. X (m)	COOR. Y (m)	ANGULO (grados)	MUELLE-1 (tn/m)	MUELLE-2 (tn/m)	DX	DY	WZ
1			2	0.000	0.000	0.000	0.00	0.00	0	0	0
4			3	0.000	0.000	0.000	0.00	0.00	0	0	0

** DATOS DE CARGAS EN BARRAS O EN NUDOS **

CAR NUM	BARRA - NUDO INI	FIN	INC	HIPO	TIPO	A (m)	B (m)	VALOR 1	VALOR 2	VALOR 3
1	1	3	2	1	0	0.000	0.000	1.250	1.250	0.000

** DATOS DE CARGAS EN BARRAS O EN NUDOS **

CAR NUM	BARRA - NUDO INI	FIN	HIPO INC	TIPO	A (m)	B (m)	VALOR 1	VALOR 2	VALOR 3
2	2		1	0	0.000	0.000	0.880	0.880	0.000
3	5		1	5	0.000	0.000	5.850	5.850	0.000
4	6		1	0	0.000	0.000	0.500	0.720	0.000
5	15		1	0	0.000	0.000	0.720	0.500	0.000
6	7		1	0	0.000	0.000	0.720	0.950	0.000
7	14		1	0	0.000	0.000	0.950	0.720	0.000
8	8		1	0	0.000	0.000	0.950	1.170	0.000
9	13		1	0	0.000	0.000	1.170	0.950	0.000
10	9		1	0	0.000	0.000	1.170	0.990	0.000
11	12		1	0	0.000	0.000	0.990	1.170	0.000
12	10		1	0	0.000	0.000	0.990	0.750	0.000
13	11		1	0	0.000	0.000	0.750	0.990	0.000
14	6		2	1	0.000	0.000	0.000	-0.100	0.000
15	15		2	1	1.330	0.000	0.000	-0.100	0.000
16	7		2	1	0.520	0.000	0.000	-0.250	0.000
17	14		2	1	0.810	0.000	0.000	-0.250	0.000
18	7		2	2	0.960	0.370	0.980	0.980	0.000
19	14		2	2	0.000	0.370	0.980	0.980	0.000
20	8	13 1	2	0	0.000	0.000	1.180	1.180	0.000
21	9		3	1	0.240	0.000	0.000	-11.600	0.000
22	10		3	1	0.175	0.000	0.000	-11.600	0.000
23	11		3	1	1.330	0.000	0.000	-11.600	0.000
24	12		3	1	1.265	0.000	0.000	-11.600	0.000
25	6		4	1	0.000	0.000	0.000	-0.100	0.000
26	15		4	1	1.330	0.000	0.000	-0.100	0.000
27	7		4	1	0.520	0.000	0.000	-0.250	0.000
28	14		4	1	0.810	0.000	0.000	-0.250	0.000
29	14		4	2	0.000	0.370	1.180	1.180	0.000
30	11	13 1	4	0	0.000	0.000	1.180	1.180	0.000
31	12		5	1	0.425	0.000	0.000	-11.600	0.000
32	13		5	1	0.360	0.000	0.000	-11.600	0.000
33	14		5	2	0.910	0.420	0.400	0.400	0.000
34	15		5	0	0.000	0.000	0.400	0.400	0.000
35	15		6	1	0.430	0.000	0.000	-0.300	0.000
36	4		1	5	0.000	0.000	-5.850	-5.850	180.000
37	4	5 1	7	1	0.250	0.000	7.158	0.000	0.000
38	4	5 1	7	1	0.750	0.000	7.158	0.000	0.000
39	4	5 1	7	1	1.250	0.000	7.158	0.000	0.000
40	4	5 1	7	1	1.750	0.000	7.158	0.000	0.000
41	4	5 1	7	1	2.250	0.000	7.158	0.000	0.000
42	4	5 1	7	1	2.750	0.000	6.922	0.000	0.000
43	4	5 1	8	1	0.250	0.000	4.778	0.000	0.000
44	4	5 1	8	1	0.750	0.000	4.778	0.000	0.000
45	4	5 1	8	1	1.250	0.000	4.778	0.000	0.000
46	4	5 1	8	1	1.750	0.000	4.778	0.000	0.000
47	4	5 1	8	1	2.250	0.000	4.778	0.000	0.000
48	4	5 1	8	1	2.750	0.000	4.621	0.000	0.000
49	5		8	1	0.250	0.000	1.307	0.000	0.000
50	5		8	1	0.750	0.000	1.307	0.000	0.000
51	5		8	1	1.250	0.000	1.307	0.000	0.000
52	5		8	1	1.750	0.000	1.307	0.000	0.000
53	5		8	1	2.250	0.000	1.307	0.000	0.000
54	5		8	1	2.750	0.000	1.266	0.000	0.000
55	12		8	1	1.250	0.000	-1.312	0.000	0.000
56	12		8	1	0.750	0.000	-1.312	0.000	0.000
57	12		8	1	0.250	0.000	-1.312	0.000	0.000
58	11		8	1	1.250	0.000	-1.312	0.000	0.000
59	11		8	1	0.750	0.000	-1.312	0.000	0.000

** DATOS DE CARGAS EN BARRAS O EN NUDOS **

CAR NUM	BARRA - NUDO INI	FIN	INC	HIPO	TIPO	A (m)	B (m)	VALOR 1	VALOR 2	VALOR 3
60	11		8	1		0.250	0.000	-1.312	0.000	0.000
61	10		8	1		1.250	0.000	-1.312	0.000	0.000
62	10		8	1		0.750	0.000	-1.312	0.000	0.000
63	10		8	1		0.250	0.000	-1.312	0.000	0.000
64	9		8	1		1.250	0.000	-1.312	0.000	0.000
65	9		8	1		0.750	0.000	-1.312	0.000	0.000
66	9		8	1		0.250	0.000	-1.312	0.000	0.000
67	4		8	1		2.750	0.000	-1.266	0.000	0.000
68	4		8	1		2.250	0.000	-1.307	0.000	0.000
69	4		8	1		1.750	0.000	-1.307	0.000	0.000
70	4		8	1		1.250	0.000	-1.307	0.000	0.000
71	4		8	1		0.750	0.000	-1.307	0.000	0.000
72	4		8	1		0.250	0.000	-1.307	0.000	0.000
73	2		8	1		0.000	0.000	1.342	0.000	0.000
74	2		8	1		0.512	0.000	1.342	0.000	0.000
75	2		8	1		1.025	0.000	1.342	0.000	0.000
76	2		8	1		1.538	0.000	1.342	0.000	0.000
77	2		8	1		2.050	0.000	1.342	0.000	0.000
78	2		8	1		2.563	0.000	1.342	0.000	0.000
79	2		8	1		3.075	0.000	1.342	0.000	0.000
80	2		8	1		3.588	0.000	1.342	0.000	0.000
81	2		8	1		4.100	0.000	1.342	0.000	0.000

** DATOS DE COMBINACIONES **

NUM	Hip-1	Hip-2	Hip-3	Hip-4	Hip-5	Hip-6	Hip-7	Hip-8	Hip-9	Hip-10
1	1.50	1.50	1.50	0.00	0.00	0.00	1.50	0.00	0.00	0.00
2	1.50	0.00	0.00	1.50	1.50	1.50	0.00	1.50	0.00	0.00

HIPOTESIS SIMPLES			
HIPOTESIS	MOV.NUDOS	ESF.BARRAS	REAC.NUDOS
1	1	1	1
2	1	1	1
3	1	1	1
4	1	1	1
5	1	1	1
6	1	1	1
7	1	1	1
8	1	1	1

COMBINACIONES DE HIPOTESIS			
COMBINACION	MOV.NUDOS	ESF.BARRAS	REAC.NUDOS

COMBINACIONES DE HIPOTESIS			
COMBINACION	MOV.NUDOS	ESF.BARRAS	REAC.NUDOS
1	1	1	1
2	1	1	1

* MOVIMIENTOS EN LOS NUDOS (HIPOTESIS DE CARGA) *

Nudo No.	Hip. No.	Desp.-X (cm.)	Desp.-Y (cm.)	Giro (mRad)
1	1	0.0000D+00	0.0000D+00	-.3786D-01
	2	0.0000D+00	0.0000D+00	0.1312D-01
	3	0.0000D+00	0.0000D+00	0.1433D+00
	4	0.0000D+00	0.0000D+00	-.4155D-01
	5	0.0000D+00	0.0000D+00	-.1907D+00
	6	0.0000D+00	0.0000D+00	-.1558D-01
	7	0.0000D+00	0.0000D+00	-.1010D-01
	8	0.0000D+00	0.0000D+00	0.6383D+00
2	1	-.3511D-04	-.1130D-02	-.4832D-01
	2	-.1386D-04	0.3315D-03	0.1238D-01
	3	0.7493D-05	0.3622D-02	0.1353D+00
	4	-.1029D-04	-.9774D-03	-.3379D-01
	5	-.3193D-04	-.4471D-02	-.1540D+00
	6	-.2843D-05	-.3735D-03	-.1320D-01
	7	0.1517D-03	-.2553D-03	-.9535D-02
	8	0.1928D-03	0.1507D-01	0.5232D+00
3	1	-.7469D-03	-.1130D-02	0.4832D-01
	2	-.2949D-03	0.3315D-03	-.1238D-01
	3	0.1594D-03	0.3622D-02	-.1353D+00
	4	-.2190D-03	0.1123D-02	-.3921D-01
	5	-.6792D-03	0.5570D-02	-.1950D+00
	6	-.6048D-04	0.2076D-03	-.7003D-02
	7	0.3228D-02	-.2553D-03	0.9535D-02
	8	0.3689D-02	-.1559D-01	0.5428D+00
4	1	-.7820D-03	0.0000D+00	0.3786D-01
	2	-.3088D-03	0.0000D+00	-.1312D-01
	3	0.1669D-03	0.0000D+00	-.1433D+00
	4	-.2293D-03	0.0000D+00	-.4730D-01
	5	-.7112D-03	0.0000D+00	-.2342D+00
	6	-.6332D-04	0.0000D+00	-.9011D-02
	7	0.3380D-02	0.0000D+00	0.1010D-01
	8	0.3698D-02	0.0000D+00	0.6591D+00
5	1	-.8625D-03	-.1316D+00	0.4576D+00
	2	-.3405D-03	-.2603D-01	0.1009D+00
	3	0.1841D-03	0.1189D+00	-.3062D+00
	4	0.1555D-01	0.3077D-02	0.3550D-01
	5	0.7343D-01	0.1198D+00	-.2558D+00
	6	0.5058D-02	0.6550D-02	-.1332D-01
	7	0.1681D-02	0.1074D-01	-.1019D-01
	8	-.2271D+00	-.3247D+00	0.6833D+00
6	1	-.8625D-03	-.7224D-01	0.4108D+00
	2	-.3405D-03	-.1345D-01	0.8193D-01
	3	0.1841D-03	0.7819D-01	-.3062D+00
	4	0.1555D-01	0.6956D-02	0.1651D-01

* MOVIMIENTOS EN LOS NUDOS (HIPOTESIS DE CARGA) *

Nudo No.	Hip. No.	Desp.-X (cm.)	Desp.-Y (cm.)	Giro (mRad)
	5	0.7343D-01	0.8575D-01	-.2558D+00
	6	0.5058D-02	0.4778D-02	-.1332D-01
	7	0.1681D-02	0.9387D-02	-.1019D-01
	8	-.2271D+00	-.2338D+00	0.6833D+00
7	1	-.8625D-03	-.2494D-01	0.2670D+00
	2	-.3405D-03	-.4077D-02	0.5179D-01
	3	0.1841D-03	0.3747D-01	-.3062D+00
	4	0.1555D-01	0.7635D-02	-.1293D-01
	5	0.7343D-01	0.5173D-01	-.2558D+00
	6	0.5058D-02	0.3006D-02	-.1332D-01
	7	0.1681D-02	0.8032D-02	-.1019D-01
	8	-.2271D+00	-.1430D+00	0.6833D+00
8	1	-.8625D-03	-.1474D-02	0.5407D-01
	2	-.3405D-03	-.9463D-03	-.2300D-01
	3	0.1841D-03	-.3250D-02	-.3062D+00
	4	0.1555D-01	0.3630D-02	-.5157D-01
	5	0.7343D-01	0.1770D-01	-.2558D+00
	6	0.5058D-02	0.1234D-02	-.1332D-01
	7	0.1681D-02	0.6676D-02	-.1019D-01
	8	-.2271D+00	-.5209D-01	0.6833D+00
9	1	-.6546D-03	-.2545D-02	-.3897D-01
	2	-.2584D-03	-.1417D-01	-.1155D+00
	3	0.1397D-03	-.8540D-01	-.6120D+00
	4	0.1561D-01	-.4966D-02	-.5777D-01
	5	0.7361D-01	-.1308D-01	-.1582D+00
	6	0.5075D-02	0.4482D-03	0.1003D-02
	7	0.1685D-02	0.5395D-02	-.6837D-02
	8	-.2278D+00	0.8962D-02	0.1839D+00
10	1	-.3911D-03	-.6805D-02	-.2646D-07
	2	-.1544D-03	-.2477D-01	-.3609D-08
	3	0.8344D-04	-.1324D+00	0.1403D-07
	4	0.1569D-01	-.1086D-01	-.1061D-01
	5	0.7385D-01	-.2572D-01	-.2003D-01
	6	0.5096D-02	0.1353D-02	0.7190D-02
	7	0.1690D-02	0.4880D-02	-.4160D-09
	8	-.2283D+00	0.2881D-02	-.1508D+00
11	1	-.1275D-03	-.2545D-02	0.3897D-01
	2	-.5033D-04	-.1417D-01	0.1155D+00
	3	0.2720D-04	-.8540D-01	0.6120D+00
	4	0.1576D-01	-.7066D-02	0.4567D-01
	5	0.7409D-01	-.2217D-01	0.5707D-01
	6	0.5118D-02	0.1458D-02	-.9643D-02
	7	0.1695D-02	0.5395D-02	0.6837D-02
	8	-.2283D+00	-.2142D-02	0.1979D+00
12	1	0.8032D-04	-.1474D-02	-.5407D-01

* MOVIMIENTOS EN LOS NUDOS (HIPOTESIS DE CARGA) *

Nudo No.	Hip. No.	Desp.-X (cm.)	Desp.-Y (cm.)	Giro (mRad)
	2	0.3173D-04	-.9463D-03	0.2300D-01
	3	-.1716D-04	-.3250D-02	0.3062D+00
	4	0.1582D-01	-.4692D-02	-.4651D-01
	5	0.7428D-01	-.2164D-01	-.1858D+00
	6	0.5135D-02	-.1323D-02	-.2919D-01
	7	0.1699D-02	0.6676D-02	0.1019D-01
	8	-.2279D+00	0.6154D-01	0.7042D+00
13	1	0.8032D-04	-.2494D-01	-.2670D+00
	2	0.3173D-04	-.4077D-02	-.5179D-01
	3	-.1716D-04	0.3747D-01	0.3062D+00
	4	0.1582D-01	-.1736D-01	-.1248D+00
	5	0.7428D-01	-.5697D-01	-.3115D+00
	6	0.5135D-02	-.8115D-02	-.6928D-01
	7	0.1699D-02	0.8032D-02	0.1019D-01
	8	-.2279D+00	0.1552D+00	0.7042D+00
14	1	0.8032D-04	-.7224D-01	-.4108D+00
	2	0.3173D-04	-.1345D-01	-.8193D-01
	3	-.1716D-04	0.7819D-01	0.3062D+00
	4	0.1582D-01	-.3645D-01	-.1551D+00
	5	0.7428D-01	-.1054D+00	-.4003D+00
	6	0.5135D-02	-.2029D-01	-.1063D+00
	7	0.1699D-02	0.9387D-02	0.1019D-01
	8	-.2279D+00	0.2489D+00	0.7042D+00
15	1	0.8032D-04	-.1316D+00	-.4576D+00
	2	0.3173D-04	-.2603D-01	-.1009D+00
	3	-.1716D-04	0.1189D+00	0.3062D+00
	4	0.1582D-01	-.5876D-01	-.1740D+00
	5	0.7428D-01	-.1620D+00	-.4339D+00
	6	0.5135D-02	-.3514D-01	-.1123D+00
	7	0.1699D-02	0.1074D-01	0.1019D-01
	8	-.2279D+00	0.3425D+00	0.7042D+00

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
1	1	0.000	1	-2.31	-2.13	-1.42
			2	-0.91	-0.00	-0.08
			3	0.49	-0.00	-0.90
			4	-0.68	0.40	0.91
			5	-2.10	1.93	4.32
			6	-0.19	0.11	0.28
			7	9.98	-0.00	0.06
			8	12.68	-5.89	-13.54
	2	0.260	1	-2.31	-1.80	-0.91
			2	-0.91	-0.00	-0.08
			3	0.49	-0.00	-0.90
			4	-0.68	0.40	0.81
			5	-2.10	1.93	3.82
			6	-0.19	0.11	0.25
			7	9.98	-0.00	0.06
			8	12.68	-5.89	-12.01
2	1	0.000	1	-2.31	-1.80	-0.91
			2	-0.91	-0.00	-0.08
			3	0.49	-0.00	-0.90
			4	-0.68	0.40	0.81
			5	-2.10	1.93	3.82
			6	-0.19	0.11	0.25
			7	9.98	-0.00	0.06
			8	11.34	-5.89	-12.01
	2	1.025	1	-2.31	-0.90	0.47
			2	-0.91	-0.00	-0.08
			3	0.49	-0.00	-0.90
			4	-0.68	0.40	0.40
			5	-2.10	1.93	1.84
			6	-0.19	0.11	0.13
			7	9.98	-0.00	0.06
			8	10.00	-5.89	-5.97
	3	2.050	1	-2.31	-0.00	0.94
			2	-0.91	-0.00	-0.08
			3	0.49	-0.00	-0.90
			4	-0.68	0.40	-0.02
			5	-2.10	1.93	-0.14
			6	-0.19	0.11	0.02
			7	9.98	-0.00	0.06
			8	7.31	-5.89	0.06
	4	3.075	1	-2.31	0.90	0.47
			2	-0.91	-0.00	-0.08
			3	0.49	-0.00	-0.90
			4	-0.68	0.40	-0.43
			5	-2.10	1.93	-2.11
			6	-0.19	0.11	-0.09
			7	9.98	-0.00	0.06
			8	4.63	-5.89	6.10

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
2	5	4.100	1	-2.31	1.80	-0.91
			2	-0.91	-0.00	-0.08
			3	0.49	-0.00	-0.90
			4	-0.68	0.40	-0.84
			5	-2.10	1.93	-4.09
			6	-0.19	0.11	-0.21
			7	9.98	-0.00	0.06
			8	1.95	-5.89	12.14
3	1	0.000	1	-2.31	1.80	-0.91
			2	-0.91	-0.00	-0.08
			3	0.49	-0.00	-0.90
			4	-0.68	0.40	-0.84
			5	-2.10	1.93	-4.09
			6	-0.19	0.11	-0.21
			7	9.98	-0.00	0.06
			8	0.60	-5.89	12.14
	2	0.260	1	-2.31	2.13	-1.42
			2	-0.91	-0.00	-0.08
			3	0.49	-0.00	-0.90
			4	-0.68	0.40	-0.95
			5	-2.10	1.93	-4.59
			6	-0.19	0.11	-0.24
			7	9.98	-0.00	0.06
			8	0.60	-5.89	13.67
4	1	0.000	1	-10.61	0.19	1.42
			2	-5.88	0.48	0.08
			3	-22.44	5.92	0.90
			4	-0.84	-0.49	-0.91
			5	-0.15	-2.12	-4.32
			6	0.09	-0.21	-0.28
			7	42.70	-0.04	-0.06
			8	18.67	8.55	13.54
	2	0.746	1	-9.62	-0.05	1.37
			2	-5.88	0.48	-0.28
			3	-22.44	5.92	-3.52
			4	-0.84	-0.49	-0.55
			5	-0.15	-2.12	-2.74
			6	0.09	-0.21	-0.12
			7	35.54	-0.04	-0.03
			8	15.20	8.55	7.17
	3	1.492	1	-8.62	-0.29	1.50
			2	-5.88	0.48	-0.64
			3	-22.44	5.92	-7.94
			4	-0.84	-0.49	-0.18
			5	-0.15	-2.12	-1.15
			6	0.09	-0.21	0.04
			7	21.23	-0.04	-0.00

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
4	3	1.492	8	8.25	8.55	0.79
	4	2.237	1	-7.63	-0.53	1.81
			2	-5.88	0.48	-1.00
			3	-22.44	5.92	-12.36
			4	-0.84	-0.49	0.19
			5	-0.15	-2.12	0.43
			6	0.09	-0.21	0.20
			7	14.07	-0.04	0.03
			8	4.78	8.55	-5.58
	5	2.983	1	-6.63	-0.77	2.30
			2	-5.88	0.48	-1.36
			3	-22.44	5.92	-16.77
			4	-0.84	-0.49	0.56
			5	-0.15	-2.12	2.02
			6	0.09	-0.21	0.36
			7	-0.01	-0.04	0.06
			8	-2.04	8.55	-11.95
5	1	0.000	1	-10.61	-0.19	-1.42
			2	-5.88	-0.48	-0.08
			3	-22.44	-5.92	-0.90
			4	-5.56	-0.65	-0.95
			5	-24.07	-3.65	-4.59
			6	-0.47	0.08	-0.24
			7	42.70	0.04	0.06
			8	38.34	8.63	13.67
	2	0.746	1	-9.62	0.05	-1.37
			2	-5.88	-0.48	0.28
			3	-22.44	-5.92	3.52
			4	-5.56	-0.65	-0.47
			5	-24.07	-3.65	-1.87
			6	-0.47	0.08	-0.30
			7	35.54	0.04	0.03
			8	32.25	8.63	7.23
	3	1.492	1	-8.62	0.29	-1.50
			2	-5.88	-0.48	0.64
			3	-22.44	-5.92	7.94
			4	-5.56	-0.65	0.01
			5	-24.07	-3.65	0.85
			6	-0.47	0.08	-0.36
			7	21.23	0.04	0.00
			8	20.08	8.63	0.80
	4	2.237	1	-7.63	0.53	-1.81
			2	-5.88	-0.48	1.00
			3	-22.44	-5.92	12.36
			4	-5.56	-0.65	0.50
			5	-24.07	-3.65	3.58
			6	-0.47	0.08	-0.42
			7	14.07	0.04	-0.03

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
5	4	2.237	8	14.00	8.63	-5.64
	5	2.983	1	-6.63	0.77	-2.30
			2	-5.88	-0.48	1.36
			3	-22.44	-5.92	16.77
			4	-5.56	-0.65	0.98
			5	-24.07	-3.65	6.30
			6	-0.47	0.08	-0.48
			7	-0.01	0.04	-0.06
			8	2.02	8.63	-12.08
6	1	0.000	1	0.00	-0.00	0.00
			2	0.00	0.10	0.00
			3	0.00	0.00	-0.00
			4	0.00	0.10	-0.00
			5	0.00	0.00	0.00
			6	0.00	0.00	0.00
			7	0.00	0.00	0.00
			8	0.00	0.00	0.00
	2	1.330	1	0.00	0.81	-0.51
			2	0.00	0.10	-0.13
			3	0.00	0.00	-0.00
			4	0.00	0.10	-0.13
			5	0.00	0.00	0.00
			6	0.00	0.00	0.00
			7	0.00	0.00	0.00
			8	0.00	0.00	0.00
7	1	0.000	1	0.00	0.81	-0.51
			2	0.00	0.10	-0.13
			3	0.00	0.00	0.00
			4	0.00	0.10	-0.13
			5	0.00	0.00	0.00
			6	0.00	0.00	0.00
			7	0.00	0.00	0.00
			8	0.00	0.00	0.00
	2	1.330	1	0.00	1.92	-2.29
			2	0.00	0.71	-0.54
			3	0.00	0.00	0.00
			4	0.00	0.35	-0.47
			5	0.00	0.00	0.00
			6	0.00	0.00	0.00
			7	0.00	0.00	-0.00
			8	0.00	0.00	0.00
8	1	0.000	1	0.00	1.92	-2.29
			2	0.00	0.71	-0.54
			3	0.00	0.00	0.00
			4	0.00	0.35	-0.47
			5	0.00	-0.00	-0.00

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
8	1	0.000	6	0.00	0.00	0.00
			7	0.00	0.00	-0.00
			8	0.00	0.00	0.00
	2	1.330	1	0.00	3.33	-5.75
			2	0.00	2.28	-2.53
			3	0.00	0.00	0.00
			4	0.00	0.35	-0.93
			5	0.00	-0.00	0.00
			6	0.00	0.00	0.00
			7	0.00	0.00	-0.00
			8	0.00	0.00	-0.00
9	1	0.000	1	2.31	-2.93	-3.45
			2	0.91	-3.55	-3.88
			3	-0.49	-23.20	-16.77
			4	0.68	-0.35	-0.37
			5	2.10	0.36	2.02
			6	0.19	0.13	0.36
			7	0.04	0.00	0.06
			8	-7.83	-3.99	-11.95
	2	0.752	1	2.31	-2.09	-1.57
			2	0.91	-2.66	-1.55
			3	-0.49	-11.60	-5.26
			4	0.68	-0.35	-0.11
			5	2.10	0.36	1.75
			6	0.19	0.13	0.26
			7	0.04	0.00	0.06
			8	-5.20	-3.99	-8.95
	3	1.505	1	2.31	-1.31	-0.29
			2	0.91	-1.78	0.12
			3	-0.49	-11.60	3.47
			4	0.68	-0.35	0.15
			5	2.10	0.36	1.48
			6	0.19	0.13	0.16
			7	0.04	0.00	0.06
			8	-3.89	-3.99	-5.95
10	1	0.000	1	2.31	-1.31	-0.29
			2	0.91	-1.78	0.12
			3	-0.49	-11.60	3.47
			4	0.68	-0.35	0.15
			5	2.10	0.36	1.48
			6	0.19	0.13	0.16
			7	0.04	0.00	0.06
			8	-3.89	-3.99	-5.95
	2	0.752	1	2.31	-0.61	0.42
			2	0.91	-0.89	1.13
			3	-0.49	0.00	5.50
			4	0.68	-0.35	0.41

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
10	2	0.752	5	2.10	0.36	1.21
			6	0.19	0.13	0.05
			7	0.04	0.00	0.06
			8	-1.27	-3.99	-2.94
	3	1.505	1	2.31	-0.00	0.65
			2	0.91	0.00	1.46
			3	-0.49	0.00	5.50
			4	0.68	-0.35	0.68
			5	2.10	0.36	0.95
			6	0.19	0.13	-0.05
			7	0.04	0.00	0.06
			8	0.04	-3.99	0.06
11	1	0.000	1	2.31	-0.00	0.65
			2	0.91	0.00	1.46
			3	-0.49	0.00	5.50
			4	0.68	-0.35	0.68
			5	2.10	0.36	0.95
			6	0.19	0.13	-0.05
			7	0.04	0.00	0.06
			8	0.04	-3.99	0.06
	2	0.753	1	2.31	0.61	0.42
			2	0.91	0.89	1.13
			3	-0.49	0.00	5.50
			4	0.68	0.54	0.61
			5	2.10	0.36	0.68
			6	0.19	0.13	-0.15
			7	0.04	0.00	0.06
			8	2.67	-3.99	3.07
	3	1.505	1	2.31	1.31	-0.29
			2	0.91	1.78	0.12
			3	-0.49	11.60	3.47
			4	0.68	1.43	-0.13
			5	2.10	0.36	0.41
			6	0.19	0.13	-0.25
			7	0.04	0.00	0.06
			8	3.98	-3.99	6.07
12	1	0.000	1	2.31	1.31	-0.29
			2	0.91	1.78	0.12
			3	-0.49	11.60	3.47
			4	0.68	1.43	-0.13
			5	2.10	0.36	0.41
			6	0.19	0.13	-0.25
			7	0.04	0.00	0.06
			8	3.98	-3.99	6.07
	2	0.752	1	2.31	2.09	-1.57
			2	0.91	2.66	-1.55
			3	-0.49	11.60	-5.26

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
12	2	0.752	4	0.68	2.31	-1.54
			5	2.10	11.96	-3.66
			6	0.19	0.13	-0.35
			7	0.04	0.00	0.06
			8	6.60	-3.99	9.07
	3	1.505	1	2.31	2.93	-3.45
			2	0.91	3.55	-3.88
			3	-0.49	23.20	-16.77
			4	0.68	3.20	-3.62
			5	2.10	11.96	-12.65
			6	0.19	0.13	-0.45
			7	0.04	0.00	0.06
			8	7.92	-3.99	12.08
13	1	0.000	1	0.00	-3.33	-5.75
			2	0.00	-2.28	-2.53
			3	-0.00	-0.00	-0.00
			4	0.00	-2.36	-2.64
			5	0.00	-12.30	-6.36
			6	0.00	-0.30	-0.93
			7	0.00	-0.00	-0.00
			8	0.00	-0.00	-0.00
	2	1.330	1	0.00	-1.92	-2.29
			2	0.00	-0.71	-0.54
			3	-0.00	-0.00	0.00
			4	0.00	-0.79	-0.55
			5	0.00	-0.70	-1.25
			6	0.00	-0.30	-0.53
			7	0.00	-0.00	0.00
			8	0.00	-0.00	0.00
14	1	0.000	1	-0.00	-1.92	-2.29
			2	-0.00	-0.71	-0.54
			3	-0.00	0.00	-0.00
			4	0.00	-0.79	-0.55
			5	0.00	-0.70	-1.25
			6	0.00	-0.30	-0.53
			7	0.00	0.00	0.00
			8	0.00	0.00	0.00
	2	1.330	1	-0.00	-0.81	-0.51
			2	-0.00	-0.10	-0.13
			3	-0.00	0.00	-0.00
			4	0.00	-0.10	-0.13
			5	0.00	-0.53	-0.35
			6	0.00	-0.30	-0.13
			7	0.00	0.00	-0.00
			8	0.00	0.00	-0.00
15	1	0.000	1	-0.00	-0.81	-0.51

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
15	1	0.000	2	0.00	-0.10	-0.13
			3	-0.00	0.00	0.00
			4	0.00	-0.10	-0.13
			5	0.00	-0.53	-0.35
			6	0.00	-0.30	-0.13
			7	0.00	0.00	0.00
			8	0.00	-0.00	0.00
	2	1.330	1	-0.00	0.00	-0.00
			2	0.00	-0.10	-0.00
			3	-0.00	0.00	0.00
			4	0.00	-0.10	-0.00
			5	0.00	0.00	-0.00
			6	0.00	0.00	-0.00
			7	0.00	0.00	0.00
			8	0.00	-0.00	0.00

* REACCIONES EN APOYOS (HIPOTESIS DE CARGA) *

Nudo No.	Hip. No.	F-X (Ton)	F-Y (Ton)	Momento (m*T)
1	1	0.2872D-05	0.1249D+02	0.0000D+00
	2	0.0000D+00	0.5834D+01	0.0000D+00
	3	0.0000D+00	0.2320D+02	0.0000D+00
	4	0.0000D+00	0.2959D+00	0.0000D+00
	5	0.0000D+00	-.2285D+01	0.0000D+00
	6	0.0000D+00	-.2461D+00	0.0000D+00
	7	0.2546D-05	-.4152D+02	0.0000D+00
	8	0.5141D-02	-.1025D+02	0.0000D+00
4	1	0.0000D+00	0.1249D+02	0.0000D+00
	2	0.0000D+00	0.5834D+01	0.0000D+00
	3	0.0000D+00	0.2320D+02	0.0000D+00
	4	0.0000D+00	0.5962D+01	0.0000D+00
	5	0.0000D+00	0.2619D+02	0.0000D+00
	6	0.0000D+00	0.5461D+00	0.0000D+00
	7	0.0000D+00	-.4152D+02	0.0000D+00
	8	0.0000D+00	-.4518D+02	0.0000D+00

* MOVIMIENTOS EN LOS NUDOS (COMBINACIONES) *

Nudo No.	Comb. No.	Desp.-X (cm.)	Desp.-Y (cm.)	Giro (mRad)
1	1	0.0000D+00	0.0000D+00	0.1628D+00
	2	0.0000D+00	0.0000D+00	0.5289D+00
2	1	0.1654D-03	0.3852D-02	0.1347D+00
	2	0.1690D-03	0.1218D-01	0.4108D+00
3	1	0.3519D-02	0.3852D-02	-.1347D+00
	2	0.2975D-02	-.1474D-01	0.5248D+00
4	1	0.3684D-02	0.0000D+00	-.1628D+00
	2	0.2868D-02	0.0000D+00	0.6097D+00
5	1	0.9935D-03	-.4191D-01	0.3632D+00
	2	-.2010D+00	-.4903D+00	0.1361D+01
6	1	0.9935D-03	0.2842D-02	0.2646D+00
	2	-.2010D+00	-.3129D+00	0.1262D+01
7	1	0.9935D-03	0.2473D-01	0.3675D-02
	2	-.2010D+00	-.1583D+00	0.1002D+01
8	1	0.9935D-03	0.1508D-02	-.4280D+00
	2	-.2010D+00	-.4649D-01	0.6249D+00
9	1	0.1368D-02	-.1451D+00	-.1160D+01
	2	-.2013D+00	-.1676D-01	-.1050D+00
10	1	0.1842D-02	-.2386D+00	-.2468D-07
	2	-.2011D+00	-.5873D-01	-.2614D+00
11	1	0.2316D-02	-.1451D+00	0.1160D+01
	2	-.2002D+00	-.4869D-01	0.4950D+00
12	1	0.2690D-02	0.1508D-02	0.4280D+00
	2	-.1989D+00	0.4862D-01	0.5829D+00
13	1	0.2690D-02	0.2473D-01	-.3674D-02
	2	-.1989D+00	0.7172D-01	-.1025D+00
14	1	0.2690D-02	0.2842D-02	-.2646D+00
	2	-.1989D+00	0.2164D-01	-.5524D+00
15	1	0.2690D-02	-.4191D-01	-.3632D+00
	2	-.1989D+00	-.6749D-01	-.7104D+00

* ESFUERZOS EN LAS BARRAS (COMBINACIONES) *

Barra No.	Punto No.	Abcisa (m.)	Comb. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
1	1	0.000	1	10.88	-3.19	-3.51
			2	11.11	-8.36	-14.18
	2	0.260	1	10.88	-2.71	-2.74
			2	11.11	-7.88	-12.07
2	1	0.000	1	10.88	-2.71	-2.74
			2	9.10	-7.88	-12.07
	2	1.025	1	10.88	-1.35	-0.66
			2	7.09	-6.52	-4.69
	3	2.050	1	10.88	-0.00	0.03
			2	3.06	-5.17	1.30
	4	3.075	1	10.88	1.35	-0.66
			2	-0.96	-3.82	5.91
	5	4.100	1	10.88	2.71	-2.74
			2	-4.99	-2.46	9.13
3	1	0.000	1	10.88	2.71	-2.74
			2	-7.00	-2.46	9.13
	2	0.260	1	10.88	3.19	-3.51
			2	-7.00	-1.98	9.70
4	1	0.000	1	5.65	9.83	3.51
			2	10.73	8.85	14.18
	2	0.746	1	-3.59	9.47	-3.69
			2	7.02	8.49	7.71
	3	1.492	1	-23.58	9.11	-10.61
			2	-1.90	8.13	1.52
	4	2.237	1	-32.82	8.74	-17.27
			2	-5.62	7.77	-4.41
	5	2.983	1	-52.45	8.38	-23.66
			2	-14.36	7.41	-10.08
5	1	0.000	1	5.65	-9.83	-3.51
			2	-3.57	6.34	9.70
	2	0.746	1	-3.59	-9.47	3.69
			2	-11.20	6.70	4.84
	3	1.492	1	-23.58	-9.11	10.61
			2	-27.97	7.06	-0.29
	4	2.237	1	-32.82	-8.74	17.27
			2	-35.60	7.42	-5.70
	5	2.983	1	-52.45	-8.38	23.66
			2	-52.07	7.78	-11.37
6	1	0.000	1	0.00	0.15	-0.00
			2	0.00	0.15	0.00
	2	1.330	1	0.00	1.37	-0.96
			2	0.00	1.37	-0.96
7	1	0.000	1	0.00	1.37	-0.96

* ESFUERZOS EN LAS BARRAS (COMBINACIONES) *

Barra No.	Punto No.	Abcisa (m.)	Comb. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
7	1	0.000	2	0.00	1.37	-0.96
	2	1.330	1	0.00	3.95	-4.24
			2	0.00	3.41	-4.14
8	1	0.000	1	0.00	3.95	-4.24
			2	0.00	3.41	-4.14
	2	1.330	1	0.00	8.42	-12.42
			2	0.00	5.52	-10.03
9	1	0.000	1	4.16	-44.53	-36.07
			2	-3.83	-10.18	-20.10
	2	0.752	1	4.16	-24.53	-12.47
			2	0.10	-8.91	-12.93
	3	1.505	1	4.16	-22.03	5.04
			2	2.07	-7.74	-6.67
10	1	0.000	1	4.16	-22.03	5.04
			2	2.07	-7.74	-6.67
	2	0.752	1	4.16	-2.25	10.67
			2	6.01	-6.69	-1.25
	3	1.505	1	4.16	0.00	11.50
			2	7.97	-5.78	3.43
11	1	0.000	1	4.16	0.00	11.50
			2	7.97	-5.78	3.43
	2	0.753	1	4.16	2.25	10.67
			2	11.91	-3.53	6.94
	3	1.505	1	4.16	22.03	5.04
			2	13.88	-1.15	8.71
12	1	0.000	1	4.16	22.03	5.04
			2	13.88	-1.15	8.71
	2	0.752	1	4.16	24.53	-12.47
			2	17.81	18.75	2.94
	3	1.505	1	4.16	44.53	-36.07
			2	19.78	21.35	-12.14
13	1	0.000	1	0.00	-8.42	-12.42
			2	0.00	-27.43	-23.51
	2	1.330	1	0.00	-3.95	-4.24
			2	0.00	-5.56	-6.93
14	1	0.000	1	0.00	-3.95	-4.24
			2	0.00	-5.56	-6.93
	2	1.330	1	0.00	-1.37	-0.96
			2	0.00	-2.61	-1.68
15	1	0.000	1	-0.00	-1.37	-0.96
			2	0.00	-2.61	-1.68

* ESFUERZOS EN LAS BARRAS (COMBINACIONES) *

Barra No.	Punto No.	Abcisa (m.)	Comb. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
15	2	1.330	1	-0.00	-0.15	-0.00
			2	0.00	-0.15	-0.00

* REACCIONES EN APOYOS (COMBINACIONES) *

Nudo No.	Hip. No.	F-X (Ton)	F-Y (Ton)	Momento (m*T)
1	1	0.8126D-05	0.6957D-02	0.0000D+00
	2	0.7716D-02	0.8344D-02	0.0000D+00
4	1	0.0000D+00	0.6933D-02	0.0000D+00
	2	0.0000D+00	0.4465D-02	0.0000D+00

LAV. VIADUCTO Nº 1

FLEXION TRANSVERSAL Y DISTORSION

		Carga Centrda		Carga Descentrada	
Barra	Punto	Md	Nd	Md	Nd
1	1	-3.51	10.88	-14.18	11.11
2	2	-2.74	10.88	-12.07	9.10
	2'	0.03	10.88	1.30	3.06
	3	-2.74	10.88	9.13	-4.99
3	4	-3.51	10.88	9.70	-7.00
4	1	3.51	5.65	14.18	10.73
	4'	-10.61	-23.58	1.52	-1.90
	8	-23.66	-52.45	-10.08	-14.36
5	4	-3.51	5.65	9.70	-3.57
	5'	10.61	-23.58	-0.29	-27.97
	12	23.66	-52.45	-11.37	-52.07
7	6	0.96	0.00	-0.96	0.00
8	7	-4.24	0.00	-4.14	0.00
	8	-12.42	0.00	-10.03	0.00
9	8	-36.07	4.16	-20.10	-3.83
10	9	5.04	4.16	-6.67	2.07
11	10	11.50	4.16	3.43	7.97
12	11	5.04	4.16	8.71	13.88
	12	-36.07	4.16	-12.14	19.78
13	12	-12.42	0.00	-23.51	0.00
14	13	-4.24	0.00	-6.93	0.00
15	14	-0.96	0.00	-1.68	0.00

LAV. VIADUCTO Nº 1

FLEXION TRANSVERSAL Y DISTORSION

fcd = 4000/1.5 = 2667

Uc = b.d.fcd

Usmin = (Nd.e-0.35.Uc.d)/(d-d')

		Carga Centrada								
Barra	Punto	Md	Nd	d	d'	e	Uc	Us2	Nd-Us2	Us1
1	1	-3.51	-10.88	0.46	0.04	-0.323	1227	0.00	-10.88	18.53
2	2	-2.74	-10.88	0.31	0.04	-0.252	827	0.00	-10.88	19.77
	2'	0.03	-10.88	0.31	0.04	-0.003	827	0.00	-10.88	10.98
	3	-2.74	-10.88	0.31	0.04	-0.252	827	0.00	-10.88	19.77
3	4	-3.51	-10.88	0.46	0.04	-0.323	1227	0.00	-10.88	18.53
4	1	3.51	-5.65	0.51	0.04	-0.621	1360	0.00	-5.65	12.55
	4'	-10.61	23.58	0.51	0.04	0.450	1360	1.18	22.40	-2.54
	8	-23.66	52.45	0.51	0.04	0.451	1360	2.62	49.83	-5.12
5	4	-3.51	-5.65	0.51	0.04	-0.621	1360	0.00	-5.65	12.55
	5'	10.61	23.58	0.51	0.04	0.450	1360	1.18	22.40	-2.54
	12	23.66	52.45	0.51	0.04	0.451	1360	2.62	49.83	-5.12
7	6	0.96	0.00	0.25	0.04	0.000	667	0.00	0.00	3.85
8	7	-4.24	0.00	0.34	0.04	0.000	907	0.00	0.00	12.56
	8	-12.42	0.00	0.41	0.04	0.000	1093	0.00	0.00	30.72
9	8	-36.07	-4.16	0.42	0.04	-8.671	1120	0.00	-4.16	93.61
10	9	5.04	-4.16	0.35	0.04	-1.212	933	0.00	-4.16	18.67
11	10	11.50	-4.16	0.26	0.04	-2.764	693	0.00	-4.16	49.90
12	11	5.04	-4.16	0.35	0.04	-1.212	933	0.00	-4.16	18.67
	12	-36.07	-4.16	0.42	0.04	-8.671	1120	0.00	-4.16	93.61
13	12	-12.42	0.00	0.41	0.04	0.000	1093	0.00	0.00	30.72
14	13	-4.24	0.00	0.34	0.04	0.000	907	0.00	0.00	12.56
15	14	-0.96	0.00	0.25	0.04	0.000	667	0.00	0.00	3.85

LAV. VIADUCTO Nº 1

FLEXION TRANSVERSAL Y DISTORSION

fcd = 4000/1.5 = 2667
Uc = b.d.fcd
Usmin = (Nd.e-0.35.Uc.d)/(d-d')

		Carga Descentrada								
Barra	Punto	Md	Nd	d	d'	e	Uc	Us2	Nd-Us2	Us1
1	1	-14.18	-11.11	0.46	0.04	-1.276	1227	0.00	-11.11	42.33
2	2	-12.07	-9.10	0.31	0.04	-1.326	827	0.00	-9.10	49.00
	2'	1.30	-3.06	0.31	0.04	-0.425	827	0.00	-3.06	7.26
	3	9.13	4.99	0.31	0.04	1.830	827	0.25	4.74	25.03
3	4	9.70	7.00	0.46	0.04	1.386	1227	0.35	6.65	14.30
4	1	14.18	-10.73	0.51	0.04	-1.322	1360	0.00	-10.73	38.82
	4'	1.52	1.90	0.51	0.04	0.800	1360	0.10	1.81	1.09
	8	-10.08	14.36	0.51	0.04	0.702	1360	0.72	13.64	5.60
5	4	9.70	3.57	0.51	0.04	2.717	1360	0.18	3.39	15.60
	5'	-0.29	27.97	0.51	0.04	0.010	1360	1.40	26.57	-27.29
	12	-11.37	52.07	0.51	0.04	0.218	1360	2.60	49.47	-29.42
7	6	-0.96	0.00	0.25	0.04	0.000	667	0.00	0.00	3.85
8	7	-4.14	0.00	0.34	0.04	0.000	907	0.00	0.00	12.26
	8	-10.03	0.00	0.41	0.04	0.000	1093	0.00	0.00	24.74
9	8	-20.10	3.83	0.42	0.04	5.248	1120	0.19	3.64	45.11
10	9	-6.67	-2.07	0.35	0.04	-3.222	933	0.00	-2.07	21.33
11	10	3.43	-7.97	0.26	0.04	-0.430	693	0.00	-7.97	21.29
12	11	8.71	-13.88	0.35	0.04	-0.628	933	0.00	-13.88	39.11
	12	-12.14	-19.78	0.42	0.04	-0.614	1120	0.00	-19.78	49.07
13	12	-23.51	0.00	0.41	0.04	0.000	1093	0.00	0.00	58.93
14	13	-6.93	0.00	0.34	0.04	0.000	907	0.00	0.00	20.62
15	14	-1.68	0.00	0.25	0.04	0.000	667	0.00	0.00	6.75

LAV. VIADUCTO Nº 1

FLEXION TRANSVERSAL Y DISTORSION

fcd = 4000/1.5 = 2667
Uc = b.d.fcd
Usmin = (Nd.e-0.35.Uc.d)/(d-d')

		Carga Centrada			Carga Descentrada			Resumen de Armaduras			
Barra	Punto	Us1	As1	Posición	Us1	As1	Posición	As1	Posición	As1	Posición
1	1	18.53	4.18	Superior	42.33	9.55	Superior	9.55	Superior	-	-
2	2	19.77	4.46	Superior	49.00	11.05	Superior	11.05	Superior	-	-
	2'	10.98	2.48	Inferior	7.26	1.64	Inferior	2.48	Inferior	-	-
	3	19.77	4.46	Superior	25.03	5.64	Inferior	4.46	Superior	5.64	Inferior
3	4	18.53	4.18	Superior	14.30	3.22	Inferior	4.18	Superior	3.22	Inferior
4	1	12.55	2.83	Interior	38.82	8.76	Interior	8.76	Interior	-	-
	4'	0.00	0.00	Exterior	1.09	0.25	Interior	0.00	Exterior	0.25	Interior
	8	0.00	0.00	Exterior	5.60	1.26	Exterior	1.26	Exterior	-	-
5	4	12.55	2.83	Interior	15.60	3.52	Exterior	2.83	Interior	3.52	Exterior
	5'	0.00	0.00	Exterior	0.00	0.00	Interior	0.00	Exterior	0.00	Interior
	12	0.00	0.00	Exterior	0.00	0.00	Interior	0.00	Exterior	0.00	Interior
7	6	3.85	0.87	Inferior	3.85	0.87	Superior	0.87	Inferior	0.87	Superior
8	7	12.56	2.83	Superior	12.26	2.76	Superior	2.83	Superior	-	-
	8	30.72	6.93	Superior	24.74	5.58	Superior	6.93	Superior	-	-
9	8	93.61	21.11	Superior	45.11	10.17	Superior	21.11	Superior	-	-
10	9	18.67	4.21	Inferior	21.33	4.81	Superior	4.21	Inferior	4.81	Superior
11	10	49.90	11.25	Inferior	21.29	4.80	Inferior	11.25	Inferior	-	-
12	11	18.67	4.21	Inferior	39.11	8.82	Inferior	8.82	Inferior	-	-
	12	93.61	21.11	Superior	49.07	11.07	Superior	21.11	Superior	-	-
13	12	30.72	6.93	Superior	58.93	13.29	Superior	13.29	Superior	-	-
14	13	12.56	2.83	Superior	20.62	4.65	Superior	4.65	Superior	-	-
15	14	3.85	0.87	Superior	6.75	1.52	Superior	1.52	Superior	-	-

Tracciones en la base inferior debidas al esfuerzo cortante

Por simplicidad del cálculo suponemos que las cargas que actúan son simétricas respecto al eje del puente. Tenemos entonces que la tracción que aparece en el centro de la base inferior vale:

$$T_{max} = \frac{P \cdot v' \cdot e \cdot b^2}{8 \cdot I}$$

Siendo:

v' = Distancia del eje de la base inferior al c.d.g. de la sección.

e = Espesor de la base inferior

b = Anch. de la base inferior

I = Inercia de la sección completa

P = Carga por unidad de longitud

$$P = 24'43 + 12'00 + 29'84 = 66'27 \ t/m$$

$$v' = 2'085 - 0'175 = 1'91$$

$$e = 0'35$$

$$b = 5'26$$

$$I = 1'2411$$

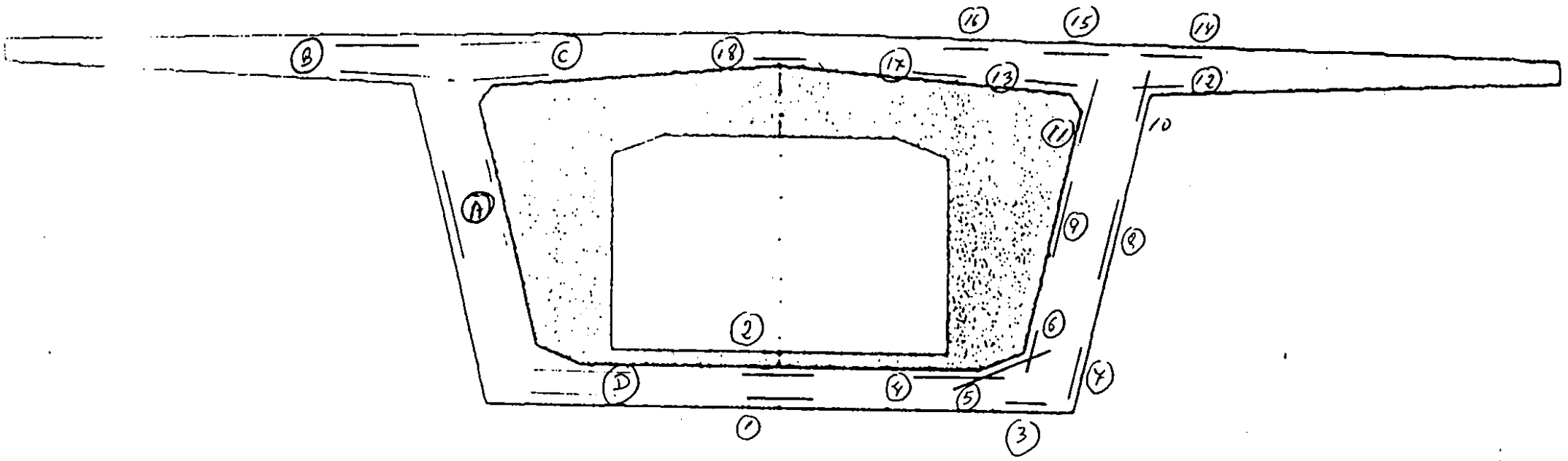
$$T_{max} = 66'27 \cdot \frac{1'91 \cdot 0'35 \cdot 5'26^2}{8 \cdot 1'2411} = 10'76 \ t$$

$$T_d = 1'5 \cdot 10'76 = 16'14 \ t = 3'64 \ cm^2$$

1.1.6.4- ARMADURAS TOTALES

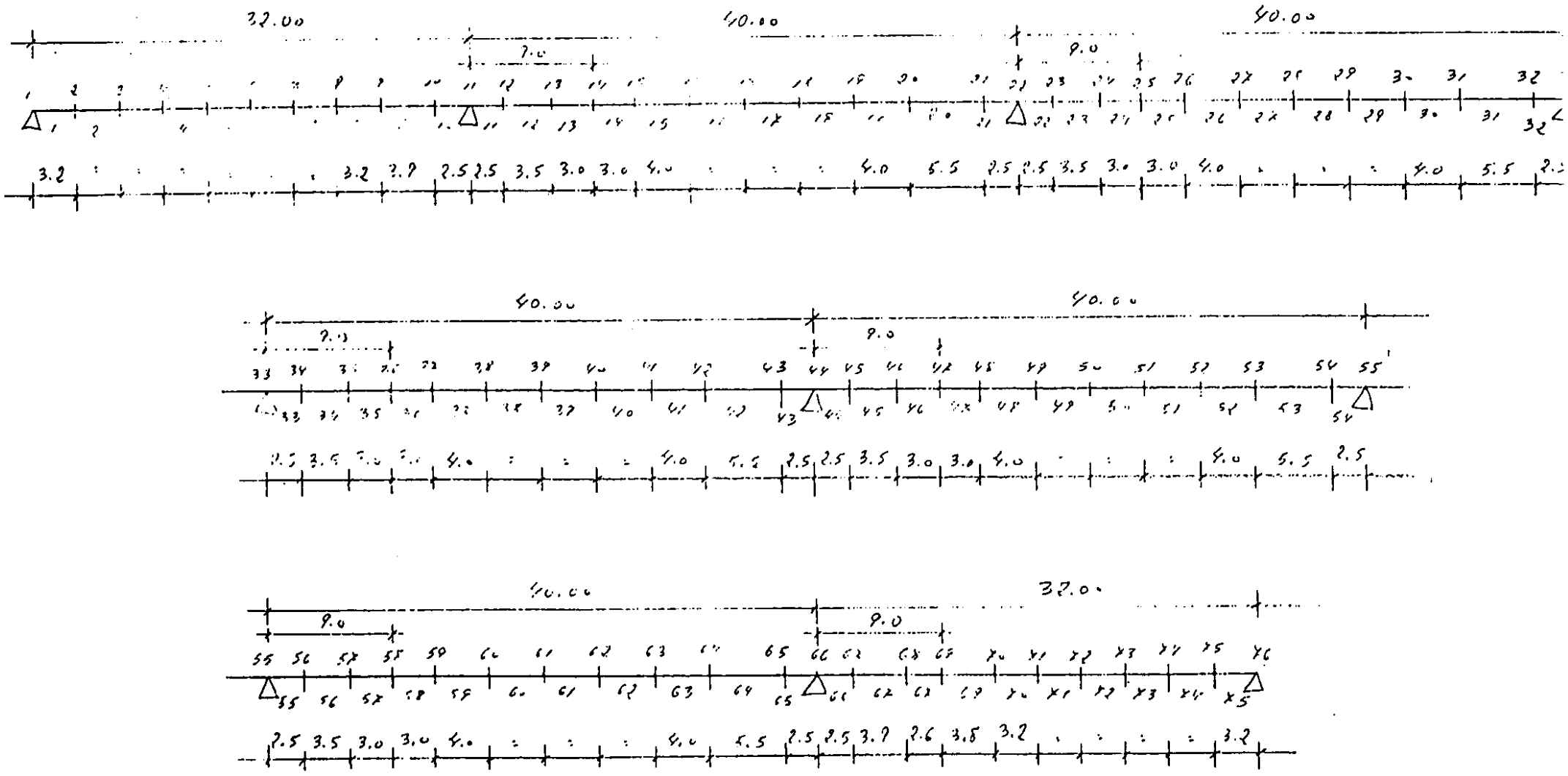
Las cimentaciones (A) incluye los 2 cajeros de un hastial

" " (B). (C) - (D) incluyen los dos cajeros de la losa



VIA CIC PARA EL AVE

Esquema longitudinal



LAV. VIADUCTO Nº 1

RESUMEN DE ARMADO

	ARMADO A FLEXION TRANSVERSAL Y DISTORSION																	
	PUNTO																	
SECCION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Todas	2.48	0.00	5.64	11.05	9.55	8.76	3.52	0.00	0.25	1.26	0.00	0.00	0.00	13.29	21.11	4.81	8.82	11.25

LAV. VIADUCTO Nº 1

RESUMEN DE ARMADO

ARMADO A TORSION				
SECCION	A	B	C	D
66'	7.97	0.00	7.97	7.97
67	7.00	0.00	7.00	7.00
67'	7.00	0.00	7.00	7.00
68	5.76	0.00	5.76	5.76
69	4.79	0.00	4.79	4.79
70	3.91	0.00	3.91	3.91
71	2.87	0.00	2.87	2.87
72	3.91	0.00	3.91	3.91
73	4.79	0.00	4.79	4.79
74	5.76	0.00	5.76	5.76
75	7.00	0.00	7.00	7.00
76	7.97	0.00	7.97	7.97

ARMADO A CORTANTE Y RASANTE				
SECCION	A	B	C	D
66'	44.10	34.44	32.49	35.82
67	24.61	22.49	21.21	23.39
67'	29.92	27.80	25.04	35.55
68	10.91	14.59	13.13	18.65
69	3.05	9.12	8.22	11.67
70	4.40	10.09	9.09	12.90
71	4.34	10.06	9.06	12.87
72	-1.42	6.06	5.46	7.75
73	3.76	9.65	8.69	12.34
74	9.06	13.32	12.00	17.04
75	14.89	17.36	15.63	22.20
76	19.78	19.67	18.56	20.46

ARMADO A TORSOR, CORTANTE Y RASANTE				
SECCION	A	B	C	D
66'	52.07	34.44	40.46	43.79
67	31.61	22.49	28.21	30.39
67'	36.92	27.80	32.04	42.55
68	16.67	14.59	18.89	24.41
69	7.84	9.12	13.01	16.46
70	8.31	10.09	13.00	16.81
71	7.21	10.06	11.93	15.74
72	2.49	6.06	9.37	11.66
73	8.55	9.65	13.48	17.13
74	14.82	13.32	17.76	22.80
75	21.89	17.36	22.63	29.20
76	27.75	19.67	26.53	28.43

LAV. VIADUCTO Nº 1

RESUMEN DE ARMADO

ARMADO A TORSION				
SECCION	A	B	C	D
1	7.97	0.00	7.97	7.97
2	7.00	0.00	7.00	7.00
3	5.76	0.00	5.76	5.76
4	4.79	0.00	4.79	4.79
5	3.91	0.00	3.91	3.91
6	2.87	0.00	2.87	2.87
7	3.91	0.00	3.91	3.91
8	4.79	0.00	4.79	4.79
9	5.76	0.00	5.76	5.76
10	7.00	0.00	7.00	7.00
10'	7.00	0.00	7.00	7.00
11	7.97	0.00	7.97	7.97
11'	9.96	0.00	9.96	9.96
12	8.99	0.00	8.99	8.99
12'	8.99	0.00	8.99	8.99
13	7.71	0.00	7.71	7.71
14	6.70	0.00	6.70	6.70
15	5.75	0.00	5.75	5.75
16	4.61	0.00	4.61	4.61
17	3.59	0.00	3.59	3.59
18	4.61	0.00	4.61	4.61
19	5.75	0.00	5.75	5.75
20	6.70	0.00	6.70	6.70
21	8.99	0.00	8.99	8.99
21'	8.99	0.00	8.99	8.99
22	9.96	0.00	9.96	9.96
22'	9.96	0.00	9.96	9.96
23	8.99	0.00	8.99	8.99
23'	8.99	0.00	8.99	8.99
24	7.71	0.00	7.71	7.71
25	6.70	0.00	6.70	6.70
26	5.75	0.00	5.75	5.75
27	4.61	0.00	4.61	4.61
28	3.59	0.00	3.59	3.59
29	4.61	0.00	4.61	4.61

ARMADO A CORTANTE Y RASANTE				
SECCION	A	B	C	D
1	21.44	25.98	24.51	27.02
2	24.45	24.85	22.37	31.77
3	18.17	20.49	18.45	26.20
4	12.38	16.48	14.84	21.07
5	7.27	8.97	8.08	11.47
6	9.68	10.69	9.63	13.67
7	11.60	12.02	10.82	15.37
8	15.44	14.67	13.21	18.76
9	18.08	16.47	14.83	21.06
10	41.79	33.00	29.72	42.20
10'	37.40	26.69	25.18	27.76
11	54.38	36.95	34.86	38.43
11'	53.83	36.88	34.79	38.35
12	36.17	26.16	24.68	27.21
12'	40.58	32.35	29.13	41.36
13	21.62	19.04	17.15	24.35
14	13.88	13.34	12.01	17.06
15	9.45	10.28	9.26	13.15
16	6.86	8.53	7.68	10.91
17	1.83	8.49	7.65	10.86
18	3.33	9.56	8.61	12.22
19	6.30	11.62	10.46	14.86
20	9.82	14.05	12.65	17.97
21	39.84	35.05	31.56	44.81
21'	35.44	28.34	26.74	29.48
22	51.48	38.10	35.95	39.63
22'	52.18	36.88	34.80	38.36
23	34.38	26.12	24.64	27.16
23'	38.81	32.30	29.08	41.29
24	19.91	19.08	17.18	24.40
25	12.23	13.40	12.07	17.14
26	7.83	10.36	9.33	13.25
27	5.23	8.61	7.75	11.01
28	4.13	6.79	6.12	8.69
29	5.67	7.89	7.11	10.09

ARMADO A TORSOR, CORTANTE Y RASANTE				
SECCION	A	B	C	D
1	29.41	25.98	32.48	34.99
2	31.45	24.85	29.37	38.77
3	23.93	20.49	24.21	31.96
4	17.17	16.48	19.63	25.86
5	11.18	8.97	11.99	15.38
6	12.55	10.69	12.50	16.54
7	15.51	12.02	14.73	19.28
8	20.23	14.67	18.00	23.55
9	23.84	16.47	20.59	26.82
10	48.79	33.00	36.72	49.20
10'	44.40	26.69	32.18	34.76
11	62.35	36.95	42.83	46.40
11'	63.80	36.88	44.75	48.32
12	45.16	26.16	33.67	36.20
12'	49.58	32.35	38.12	50.35
13	29.33	19.04	24.86	32.06
14	20.58	13.34	18.71	23.76
15	15.21	10.28	15.01	18.90
16	11.47	8.53	12.29	15.52
17	5.42	8.49	11.23	14.44
18	7.94	9.56	13.22	16.83
19	12.06	11.62	16.22	20.61
20	16.52	14.05	19.35	24.67
21	48.83	35.05	40.55	53.80
21'	44.43	28.34	35.73	38.47
22	61.44	38.10	45.91	49.59
22'	62.14	36.88	44.76	48.32
23	43.37	26.12	33.63	36.16
23'	47.80	32.30	38.07	50.29
24	27.63	19.08	24.90	32.11
25	18.93	13.40	18.77	23.83
26	13.59	10.36	15.08	19.00
27	9.84	8.61	12.36	15.62
28	7.72	6.79	9.70	12.27
29	10.27	7.89	11.72	14.70

LAV. VIADUCTO Nº 1

RESUMEN DE ARMADO

ARMADO A TORSION				
SECCION	A	B	C	D
30	5.75	0.00	5.75	5.75
31	6.70	0.00	6.70	6.70
32	8.99	0.00	8.99	8.99
32'	8.99	0.00	8.99	8.99
33	9.96	0.00	9.96	9.96
33'	9.96	0.00	9.96	9.96
34	8.99	0.00	8.99	8.99
34'	8.99	0.00	8.99	8.99
35	7.71	0.00	7.71	7.71
36	6.70	0.00	6.70	6.70
37	5.75	0.00	5.75	5.75
38	4.61	0.00	4.61	4.61
39	3.59	0.00	3.59	3.59
40	4.61	0.00	4.61	4.61
41	5.75	0.00	5.75	5.75
42	6.70	0.00	6.70	6.70
43	8.99	0.00	8.99	8.99
43'	8.99	0.00	8.99	8.99
44	9.96	0.00	9.96	9.96
44'	9.96	0.00	9.96	9.96
55	9.96	0.00	9.96	9.96
55'	9.96	0.00	9.96	9.96
56	8.99	0.00	8.99	8.99
56'	8.99	0.00	8.99	8.99
57	7.71	0.00	7.71	7.71
58	6.70	0.00	6.70	6.70
59	5.75	0.00	5.75	5.75
60	4.61	0.00	4.61	4.61
61	3.59	0.00	3.59	3.59
62	4.61	0.00	4.61	4.61
63	5.75	0.00	5.75	5.75
64	6.70	0.00	6.70	6.70
65	8.99	0.00	8.99	8.99
65'	8.99	0.00	8.99	8.99

ARMADO A CORTANTE Y RASANTE				
SECCION	A	B	C	D
30	8.58	9.94	8.95	12.70
31	11.99	12.31	11.09	15.75
32	42.05	33.35	30.03	42.64
32'	37.63	26.97	25.45	28.05
33	53.69	36.76	34.67	38.23
33'	53.66	36.98	34.88	38.46
34	35.81	26.17	24.69	27.22
34'	40.25	32.36	29.14	41.37
35	21.46	19.20	17.29	24.55
36	13.82	13.54	12.19	17.31
37	9.45	10.51	9.46	13.44
38	6.77	8.69	7.82	11.11
39	4.46	7.15	6.44	9.15
40	3.90	8.28	7.46	10.59
41	6.85	10.36	9.33	13.24
42	10.31	12.77	11.50	16.33
43	40.28	33.76	30.40	43.16
43'	35.85	27.30	25.75	28.39
44	51.79	37.05	34.95	38.53
44'	53.09	36.83	34.74	38.30
55	50.64	36.93	34.84	38.41
55'	48.91	36.94	34.85	38.42
56	31.40	26.18	24.69	27.22
56'	36.46	32.37	29.14	36.17
57	17.46	19.15	17.25	24.49
58	9.48	13.48	12.13	17.23
59	4.99	10.44	9.40	13.35
60	2.45	8.69	7.82	11.11
61	0.21	7.14	6.43	9.13
62	1.08	7.10	6.39	9.07
63	3.80	9.10	8.20	11.64
64	7.13	11.44	10.31	14.63
65	36.94	32.69	29.43	41.80
65'	31.46	26.44	24.94	27.49

ARMADO A TORSOR, CORTANTE Y RASANTE				
SECCION	A	B	C	D
30	14.34	9.94	14.70	18.46
31	18.69	12.31	17.79	22.44
32	51.04	33.35	39.02	51.63
32'	46.62	26.97	34.44	37.04
33	63.65	36.76	44.64	48.19
33'	63.62	36.98	44.85	48.42
34	44.80	26.17	33.68	36.21
34'	49.24	32.36	38.13	50.36
35	29.18	19.20	25.01	32.27
36	20.52	13.54	18.89	24.01
37	15.21	10.51	15.22	19.19
38	11.37	8.69	12.43	15.72
39	8.04	7.15	10.03	12.73
40	8.50	8.28	12.06	15.20
41	12.60	10.36	15.08	19.00
42	17.01	12.77	18.20	23.03
43	49.27	33.76	39.39	52.15
43'	44.84	27.30	34.75	37.38
44	61.75	37.05	44.91	48.49
44'	63.05	36.83	44.71	48.26
55	60.60	36.93	44.80	48.37
55'	58.88	36.94	44.81	48.38
56	40.39	26.18	33.68	36.21
56'	45.45	32.37	38.14	45.16
57	25.17	19.15	24.96	32.20
58	16.17	13.48	18.83	23.93
59	10.75	10.44	15.15	19.10
60	7.06	8.69	12.43	15.71
61	3.80	7.14	10.02	12.72
62	5.68	7.10	11.00	13.68
63	9.55	9.10	13.95	17.39
64	13.83	11.44	17.00	21.33
65	45.93	32.69	38.43	50.79
65'	40.45	26.44	33.93	36.48

LAV. VIADUCTO Nº 1

RESUMEN DE ARMADO

	ARMADO A TORSION, CORTANTE, RASANTE, FLEXION TRANSVERSAL Y DISTORSION																	
	PUNTO																	
SECCION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	2.48	0.00	17.49	17.49	17.49	23.46	18.22	14.70	14.95	15.97	14.70	12.99	16.24	13.29	25.10	10.11	12.80	11.25
2	2.48	0.00	19.38	19.38	19.38	24.48	19.24	15.73	15.97	16.99	15.73	12.42	14.69	13.29	24.61	9.09	12.32	11.25
3	2.48	0.00	15.98	15.98	15.98	20.72	15.48	11.96	12.21	13.23	11.96	10.24	12.10	13.29	23.99	7.69	11.70	11.25
4	2.48	0.00	12.93	13.45	12.93	17.34	12.10	8.59	8.83	9.85	8.59	8.24	9.82	13.29	23.51	7.20	11.21	11.25
5	2.48	0.00	7.69	13.01	11.50	14.34	9.11	5.59	5.83	6.85	5.59	4.49	5.99	13.29	23.07	6.76	10.77	11.25
6	2.48	0.00	8.27	12.49	10.98	15.03	9.79	6.27	6.52	7.54	6.27	5.35	6.25	13.29	22.55	6.24	10.25	11.25
7	2.48	0.00	9.64	13.01	11.50	16.51	11.27	7.76	8.00	9.02	7.76	6.01	7.37	13.29	23.07	6.76	10.77	11.25
8	2.48	0.00	11.77	13.45	11.94	18.87	13.63	10.11	10.36	11.38	10.11	7.34	9.00	13.29	23.51	7.20	11.21	11.25
9	2.48	0.00	13.41	13.93	13.41	20.68	15.44	11.92	12.17	13.18	11.92	8.24	10.30	13.29	23.99	7.69	11.70	11.25
10	2.48	0.00	24.60	24.60	24.60	33.15	27.91	24.40	24.64	25.66	24.40	16.50	18.36	16.50	24.61	10.93	12.32	11.25
10'	2.48	0.00	17.38	17.38	17.38	30.96	25.72	22.20	22.45	23.46	22.20	13.34	16.09	13.34	24.61	9.79	12.32	11.25
11	2.48	0.00	23.20	23.20	23.20	39.93	34.69	31.18	31.42	32.44	31.18	18.48	21.41	18.48	25.10	12.70	12.80	11.25
11'	2.48	0.00	24.16	24.16	24.16	40.65	35.42	31.90	32.14	33.16	31.90	18.44	22.38	18.44	26.09	13.68	13.80	11.25
12	2.48	0.00	18.10	18.10	18.10	31.34	26.10	22.58	22.83	23.84	22.58	13.08	16.84	13.29	25.61	10.67	13.32	11.25
12'	2.48	0.00	25.18	25.18	25.18	33.54	28.31	24.79	25.03	26.05	24.79	16.18	19.06	16.18	25.61	11.78	13.32	11.25
13	2.48	0.00	16.03	16.03	16.03	23.42	18.18	14.67	14.91	15.93	14.67	9.52	12.43	13.29	24.97	8.67	12.68	11.25
14	2.48	0.00	11.88	14.40	12.90	19.05	13.81	10.29	10.54	11.55	10.29	6.67	9.36	13.29	24.46	8.16	12.17	11.25
15	2.48	0.00	9.45	13.93	12.42	16.36	11.12	7.60	7.85	8.87	7.60	5.14	7.51	13.29	23.99	7.69	11.70	11.25
16	2.48	0.00	7.95	13.35	11.85	14.49	9.25	5.73	5.98	6.99	5.73	4.27	6.15	13.29	23.42	7.11	11.12	11.25
17	2.48	0.00	7.44	12.84	11.34	11.46	6.23	2.71	2.95	3.97	2.71	4.25	5.62	13.29	22.91	6.60	10.61	11.25
18	2.48	0.00	8.42	13.35	11.85	12.72	7.49	3.97	4.21	5.23	3.97	4.78	6.61	13.29	23.42	7.11	11.12	11.25
19	2.48	0.00	10.31	13.93	12.42	14.79	9.55	6.03	6.28	7.29	6.03	5.81	8.11	13.29	23.99	7.69	11.70	11.25
20	2.48	0.00	12.33	14.40	12.90	17.02	11.78	8.26	8.51	9.52	8.26	7.03	9.68	13.29	24.46	8.16	12.17	11.25
21	2.48	0.00	26.90	26.90	26.90	33.17	27.93	24.41	24.66	25.68	24.41	17.52	20.27	17.52	25.61	12.39	13.32	11.25
21'	2.48	0.00	19.23	19.23	19.23	30.97	25.73	22.22	22.46	23.48	22.22	14.17	17.86	14.17	25.61	11.18	13.32	11.25
22	2.48	0.00	24.79	24.79	24.79	39.48	34.24	30.72	30.97	31.98	30.72	19.05	22.95	19.05	26.09	13.97	13.97	11.25
22'	2.48	0.00	24.16	24.16	24.16	39.83	34.59	31.07	31.32	32.33	31.07	18.44	22.38	18.44	26.09	13.68	13.80	11.25
23	2.48	0.00	18.08	18.08	18.08	30.44	25.20	21.69	21.93	22.95	21.69	13.06	16.82	13.29	25.61	10.66	13.32	11.25
23'	2.48	0.00	25.14	25.14	25.14	32.66	27.42	23.90	24.15	25.16	23.90	16.15	19.04	16.15	25.61	11.77	13.32	11.25
24	2.48	0.00	16.06	16.06	16.06	22.57	17.33	13.81	14.06	15.08	13.81	9.54	12.45	13.29	24.97	8.67	12.68	11.25
25	2.48	0.00	11.92	14.40	12.90	18.22	12.98	9.46	9.71	10.73	9.46	6.70	9.38	13.29	24.46	8.16	12.17	11.25
26	2.48	0.00	9.50	13.93	12.42	15.55	10.31	6.79	7.04	8.06	6.79	5.18	7.54	13.29	23.99	7.69	11.70	11.25
27	2.48	0.00	7.95	13.35	11.85	13.67	8.43	4.92	5.16	6.18	4.92	4.31	6.18	13.29	23.42	7.11	11.12	11.25
28	2.48	0.00	7.44	12.84	11.34	12.61	7.38	3.86	4.10	5.12	3.86	3.40	4.85	13.29	22.91	6.60	10.61	11.25

LAV. VIADUCTO Nº 1

RESUMEN DE ARMADO

	ARMADO A TORSION, CORTANTE, RASANTE, FLEXION TRANSVERSAL Y DISTORSION																	
	PUNTO																	
SECCION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
29	2.48	0.00	7.95	13.35	11.85	13.89	8.65	5.14	5.38	6.40	5.14	3.95	5.86	13.29	23.42	7.11	11.12	11.25
30	2.48	0.00	9.23	13.93	12.42	15.93	10.69	7.17	7.42	8.43	7.17	4.97	7.35	13.29	23.99	7.69	11.70	11.25
31	2.48	0.00	11.22	14.40	12.90	18.10	12.86	9.34	9.59	10.61	9.34	6.16	8.89	13.29	24.46	8.16	12.17	11.25
32	2.48	0.00	25.82	25.82	25.82	34.26	29.04	25.52	25.77	26.78	25.52	16.68	19.51	16.68	25.61	12.00	13.32	11.25
32'	2.48	0.00	18.52	18.52	18.52	32.07	26.83	23.31	23.56	24.57	23.31	13.49	17.22	13.49	25.61	10.86	13.32	11.25
33	2.48	0.00	24.09	24.09	24.09	40.58	35.34	31.83	32.07	33.09	31.83	18.38	22.32	18.38	26.09	13.65	13.80	11.25
33'	2.48	0.00	24.21	24.21	24.21	40.56	35.33	31.81	32.05	33.07	31.81	18.49	22.42	18.49	26.09	13.70	13.80	11.25
34	2.48	0.00	18.10	18.10	18.10	31.15	25.92	22.40	22.64	23.66	22.40	13.08	16.84	13.29	25.61	10.67	13.32	11.25
34'	2.48	0.00	25.18	25.18	25.18	33.38	28.14	24.62	24.87	25.88	24.62	16.18	19.06	16.18	25.61	11.78	13.32	11.25
35	2.48	0.00	16.13	16.13	16.13	23.35	18.11	14.59	14.84	15.85	14.59	9.60	12.50	13.29	24.97	8.67	12.68	11.25
36	2.48	0.00	12.00	14.40	12.90	19.01	13.78	10.26	10.50	11.52	10.26	6.77	9.44	13.29	24.46	8.16	12.17	11.25
37	2.48	0.00	9.59	13.93	12.42	16.36	11.12	7.60	7.85	8.87	7.60	5.25	7.61	13.29	23.99	7.69	11.70	11.25
38	2.48	0.00	7.95	13.35	11.85	14.44	9.20	5.69	5.93	6.95	5.69	4.34	6.22	13.29	23.42	7.11	11.12	11.25
39	2.48	0.00	7.44	12.84	11.34	12.78	7.54	4.02	4.27	5.28	4.02	3.58	5.01	13.29	22.91	6.60	10.61	11.25
40	2.48	0.00	7.95	13.35	11.85	13.01	7.77	4.25	4.50	5.51	4.25	4.14	6.03	13.29	23.42	7.11	11.12	11.25
41	2.48	0.00	9.50	13.93	12.42	15.06	9.82	6.30	6.55	7.56	6.30	5.18	7.54	13.29	23.99	7.69	11.70	11.25
42	2.48	0.00	11.51	14.40	12.90	17.26	12.02	8.50	8.75	9.77	8.50	6.39	9.10	13.29	24.46	8.16	12.17	11.25
43	2.48	0.00	26.08	26.08	26.08	33.39	28.15	24.64	24.88	25.90	24.64	16.88	19.69	16.88	25.61	12.09	13.32	11.25
43'	2.48	0.00	18.69	18.69	18.69	31.18	25.94	22.42	22.67	23.68	22.42	13.65	17.37	13.65	25.61	10.93	13.32	11.25
44	2.48	0.00	24.25	24.25	24.25	39.63	34.39	30.88	31.12	32.14	30.88	18.52	22.46	18.52	26.09	13.72	13.80	11.25
44'	2.48	0.00	24.13	24.13	24.13	40.28	35.04	31.53	31.77	32.79	31.53	18.41	22.35	18.41	26.09	13.67	13.80	11.25
55	2.48	0.00	24.18	24.18	24.18	39.06	33.82	30.30	30.55	31.56	30.30	18.46	22.40	18.46	26.09	13.69	13.80	11.25
55'	2.48	0.00	24.19	24.19	24.19	38.19	32.96	29.44	29.68	30.70	29.44	18.47	22.41	18.47	26.09	13.69	13.80	11.25
56	2.48	0.00	18.11	18.11	18.11	28.95	23.71	20.20	20.44	21.46	20.20	13.09	16.84	13.29	25.61	10.67	13.32	11.25
56'	2.48	0.00	22.58	22.58	22.58	31.48	26.24	22.73	22.97	23.99	22.73	16.18	19.07	16.18	25.61	11.78	13.32	11.25
57	2.48	0.00	16.10	16.10	16.10	21.34	16.10	12.59	12.83	13.85	12.59	9.58	12.48	13.29	24.97	8.67	12.68	11.25
58	2.48	0.00	11.96	14.40	12.90	16.84	11.60	8.09	8.33	9.35	8.09	6.74	9.42	13.29	24.46	8.16	12.17	11.25
59	2.48	0.00	9.55	13.93	12.42	14.13	8.89	5.37	5.62	6.64	5.37	5.22	7.58	13.29	23.99	7.69	11.70	11.25
60	2.48	0.00	7.95	13.35	11.85	12.29	7.05	3.53	3.78	4.79	3.53	4.34	6.21	13.29	23.42	7.11	11.12	11.25
61	2.48	0.00	7.44	12.84	11.34	10.65	5.42	1.90	2.14	3.16	1.90	3.57	5.01	13.29	22.91	6.60	10.61	11.25
62	2.48	0.00	7.95	13.35	11.85	11.60	6.36	2.84	3.09	4.10	2.84	3.55	5.50	13.29	23.42	7.11	11.12	11.25
63	2.48	0.00	8.70	13.93	12.42	13.53	8.29	4.78	5.02	6.04	4.78	4.55	6.98	13.29	23.99	7.69	11.70	11.25
64	2.48	0.00	10.67	14.40	12.90	15.67	10.43	6.92	7.16	8.18	6.92	5.72	8.50	13.29	24.46	8.16	12.17	11.25

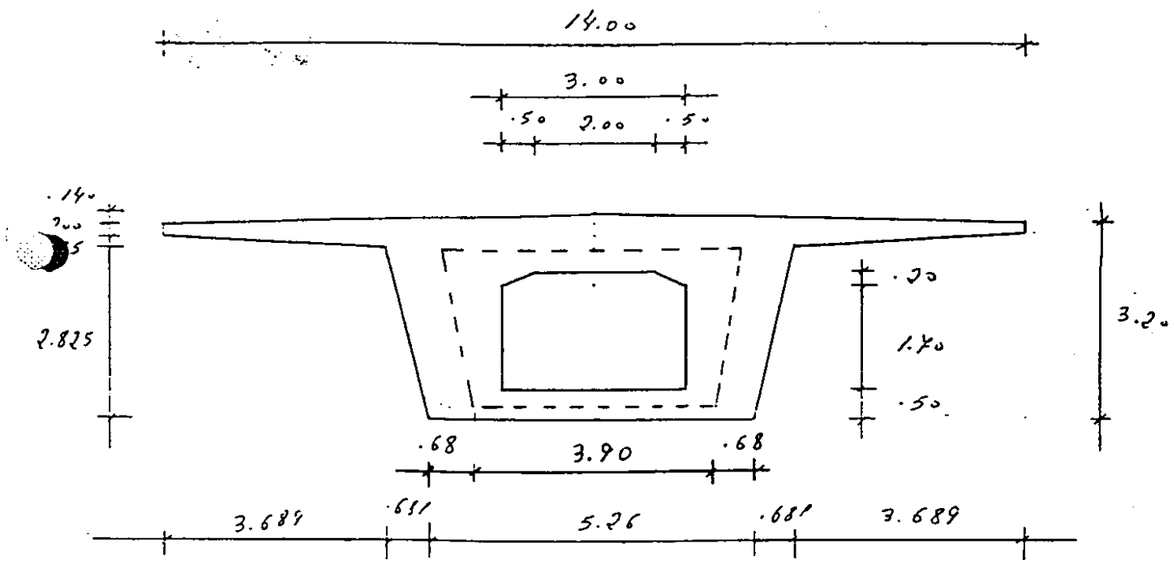
LAV. VIADUCTO Nº 1

RESUMEN DE ARMADO

	ARMADO A TORSION, CORTANTE, RASANTE, FLEXION TRANSVERSAL Y DISTORSION																	
	PUNTO																	
SECCION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
65'	2.48	0.00	18.24	18.24	18.24	28.98	23.74	20.23	20.47	21.49	20.23	13.22	16.97	13.29	25.61	10.73	13.32	11.25
66	2.48	0.00	23.86	23.86	23.86	37.28	32.04	28.53	28.77	29.79	28.53	18.15	22.10	18.15	26.09	13.54	13.80	11.25
66'	2.48	0.00	21.90	21.90	21.90	34.79	29.55	26.03	26.28	27.30	26.03	17.22	20.23	17.22	25.10	12.11	12.80	11.25
67	2.48	0.00	15.19	15.19	15.19	24.56	19.32	15.81	16.05	17.07	15.81	11.24	14.11	13.29	24.61	8.80	12.32	11.25
67'	2.48	0.00	21.28	21.28	21.28	27.22	21.98	18.46	18.71	19.72	18.46	13.90	16.02	13.90	24.61	9.76	12.32	11.25
68	2.48	0.00	12.20	13.93	12.43	17.09	11.85	8.33	8.58	9.60	8.33	7.29	9.45	13.29	23.99	7.69	11.70	11.25
69	2.48	0.00	8.23	13.45	11.94	12.68	7.44	3.92	4.17	5.18	3.92	4.56	6.50	13.29	23.51	7.20	11.21	11.25
70	2.48	0.00	8.41	13.01	11.50	12.91	7.67	4.15	4.40	5.42	4.15	5.05	6.50	13.29	23.07	6.76	10.77	11.25
71	2.48	0.00	7.87	12.49	10.98	12.36	7.12	3.61	3.85	4.87	3.61	5.03	5.97	13.29	22.55	6.24	10.25	11.25
72	2.48	0.00	7.60	13.01	11.50	10.00	4.76	1.24	1.49	2.51	1.24	3.03	4.68	13.29	23.07	6.76	10.77	11.25
73	2.48	0.00	8.56	13.45	11.94	13.03	7.79	4.27	4.52	5.54	4.27	4.82	6.74	13.29	23.51	7.20	11.21	11.25
74	2.48	0.00	11.40	13.93	12.43	16.17	10.93	7.41	7.66	8.67	7.41	6.66	8.88	13.29	23.99	7.69	11.70	11.25
75	2.48	0.00	14.60	14.60	14.60	19.70	14.46	10.95	11.19	12.21	10.95	8.68	11.32	13.29	24.61	8.31	12.32	11.25
76	2.48	0.00	14.21	15.04	14.21	22.63	17.39	13.88	14.12	15.14	13.88	9.84	13.26	13.29	25.10	8.79	12.80	11.25

1.1.7.- ARMADO DE LAS RIOSTRAS SOBRE PILAS Y ESTRIBOS Y ANCLAJES DE TENDONES DE PRETENSADO

Armado de la viga sobre la pila



Reacciones en apoyos:

$R_{pers.propio} = 10461\ t$

$R_{c.perm} = 479'87\ t$

$R_{grad.temp} = 0$

$R_{hiper.post} = 0$

$R_{s.bre} = 1261'69\ t$

$R_{tot.apoyos\ y\ estrib.} = 7586\ t$

Estudiamos la hipótesis que produce el máximo momento torsor. con una sobrecarga de 1 tipo de hacia el exterior 0'3 m.

Hipótesis de sobrecarga:

$$R_{s.bre} = \frac{1261'69}{2} = 630'85$$

del estudio de la torsión sacamos que los momentos unitarios de torsión son:

S. barraje de 12 t/m : $mt = 36'89$ m.t/m

" en pasees : $mt = 6'0$ "

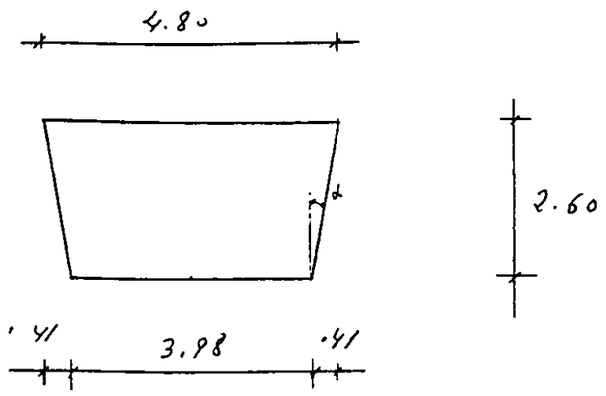
Viento . $mt = 2'60$ "

fuerza centrífuga . $mt = 6'08$ "

con lo que sobre la pila tendremos un momento total de:

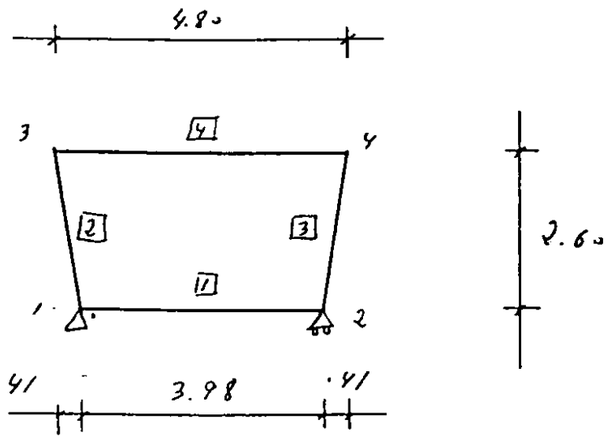
$$Mt = 40'00 \cdot (36'89 + 6'00 + 2'60 + 6'08) = 2062'80$$

Este momento torsor se introduce como unas fuerzas en t.d. el contorno.



$$F.\left(4{,}80.\frac{2{,}40}{tg\,\alpha} - 3{,}98.\frac{1{,}99}{tg\,\alpha}\right) = 90{,}28$$

F: 90'36 t/m.l. de barra, en t.d. el contorno.



Al efecto de la torsión hay que sumarle la reacción debida a las cargas actuantes, como cargas contrarias, que en este caso son:

$$\text{Reacción por q.p.y.} = \frac{1{,}64{,}61 + 4{,}98 + 63{,}85 + 4{,}586}{2}$$

$$= 1125{,}60\ t/\text{q.p.y.}$$

suponiendo que esta carga se dirige al q.p.y. desde el c.d.g. de los cables, tenemos que lo mismo equivale a una carga y un momento aplicados en los nudos 3 y 4 de valor:

$$P = 1125{,}60$$

$$M = 1125{,}60 \cdot \left(\frac{5{,}76}{2} + 0{,}68 - \frac{0{,}56}{2} - 2{,}40\right) = 409{,}13$$

Estudiamos asimismo la hipótesis de máxima carga centrada.

Reacción por apoyo = $\frac{106'61 + 479'8.1 + 126'69 + 7'586}{2}$ =

= 144'01 t.

Esto equivale a una carga y un momento aplicados en los nudos 3 y 4 de valor:

P = 144'01 t.

M = 144'01 · 0'63 = 90'64 m.t.

Cargas P aplicadas en los nudos 3 y 4.

CASO A

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+-----------------------------------------------------------+
|                                                           |
|  AGROMAN Empresa Constructora     Direcci¢n T,cnica       |
|                                                           |
+-----------------------------------------------------------+
|                                                           |
|  ESTRU2 (Ver. 10.0)      CALCULO DE PORTICOS PLANOS       |
|                                                           |
+-----------------------------------------------------------+
|                                                           |
|     T¡tulo : TABLERO. RIOSTRA SOBRE PILAS                 |
|                                                           |
|      Autor :                                              |
|                                                           |
|  Area/Dpto. :                                             |
|                                                           |
|    Fecha : 10-11-1999           Hora : 11:05:22           |
|                                                           |
+-----------------------------------------------------------+
```

DATOS DE ENTRADA ** EN METROS Y TONELADAS

** GEOMETRIA DE BARRAS **

BARRAS PRI	BARRAS ULT	BARRAS INC	NUDO INI INI	NUDO INI INC	NUDO FIN FIN	NUDO FIN INC	PUN INT	SEC TIP	PROY. X (m)	PROY. Y (m)	TIP	ARM
1			1		2		3	1	3.980	0.000	1	0
2			1		3		3	2	-0.410	2.600	1	0
3			2		4		3	2	0.410	2.600	1	0
4			3		4		5	3	4.800	0.000	1	0

** DATOS DE SECCIONES TIPO **

SECCION	TIPO	ANCHO-DIAMETRO DIAMETRO EXT. AREA (m-m2)	CANTO DIAMETRO INT. INERCIA (m-m4)	AREA EQUIVALENTE A CORTANTE(m^2)	RS	RI
1	1	5.00000000	0.50000000	0.00000000	0.03	0.03
2	1	5.00000000	1.50000000	0.00000000	0.03	0.03
3	1	5.00000000	0.89999998	0.00000000	0.03	0.03

** MATERIALES **

MODULO DE ELASTICIDAD . . . . . : 3800000 t/m^2
COEFICIENTE DE DILATACION TERMICA : .00001
COEFICIENTE DE POISSON . . . . . : .2

** DATOS DE NUDOS Y TIPOS DE VINCULACIONES **

NUDOS INI	NUDOS FIN	NUDOS INC	TIPO VINC	COOR. X (m)	COOR. Y (m)	ANGULO (grados)	MUELLE-1 (tn/m)	MUELLE-2 (tn/m)	DX	DY	WZ
1			2	0.000	0.000	0.000	0.00	0.00	0	0	0
2			3	0.000	0.000	0.000	0.00	0.00	0	0	0

** DATOS DE CARGAS EN BARRAS O EN NUDOS **

CAR NUM	BARRA - NUDO INI	FIN	INC	HIPO	TIPO	A (m)	B (m)	VALOR 1	VALOR 2	VALOR 3
1	1		1	1		0.497	0.000	-89.908	0.000	0.000
2	1		1	1		1.492	0.000	-89.908	0.000	0.000
3	1		1	1		2.487	0.000	-89.908	0.000	0.000
4	1		1	1		3.482	0.000	-89.482	0.000	0.000
5	2		1	1		0.440	0.000	79.517	0.000	0.000
6	2		1	1		1.320	0.000	79.517	0.000	0.000
7	2		1	1		2.200	0.000	79.517	0.000	0.000
8	4		1	1		0.480	0.000	86.746	0.000	0.000
9	4		1	1		1.440	0.000	86.746	0.000	0.000
10	4		1	1		2.400	0.000	86.746	0.000	0.000
11	4		1	1		3.360	0.000	86.746	0.000	0.000
12	4		1	1		4.320	0.000	86.746	0.000	0.000

** DATOS DE CARGAS EN BARRAS O EN NUDOS **

CAR NUM	BARRA - NUDO INI	FIN	HIPO INC	TIPO	A (m)	B (m)	VALOR 1	VALOR 2	VALOR 3
13	3		1	1	2.200	0.000	-79.517	0.000	0.000
14	3		1	1	1.320	0.000	-79.517	0.000	0.000
15	3		1	1	0.440	0.000	-79.517	0.000	0.000
16	3		2	6	0.000	0.000	0.000	%-1125.600	709.130
17	4		2	6	0.000	0.000	0.000	%-1125.600	-709.130
18	3		3	6	0.000	0.000	0.000	%-1441.010	907.840
19	4		3	6	0.000	0.000	0.000	%-1441.010	-907.840

** DATOS DE COMBINACIONES **

NUM	Hip-1	Hip-2	Hip-3	Hip-4	Hip-5	Hip-6	Hip-7	Hip-8	Hip-9	Hip-10
1	1.50	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00

HIPOTESIS SIMPLES			
HIPOTESIS	MOV.NUDOS	ESF.BARRAS	REAC.NUDOS
1	1	1	1
2	1	1	1
3	1	1	1
COMBINACIONES DE HIPOTESIS			
COMBINACION	MOV.NUDOS	ESF.BARRAS	REAC.NUDOS
1	1	1	1
2	1	1	1

* MOVIMIENTOS EN LOS NUDOS (HIPOTESIS DE CARGA) *

Nudo No.	Hip. No.	Desp.-X (cm.)	Desp.-Y (cm.)	Giro (mRad)
1	1	0.0000D+00	0.0000D+00	-.4994D+00
	2	0.0000D+00	0.0000D+00	0.1107D-01
	3	0.0000D+00	0.0000D+00	0.1417D-01
2	1	-.7294D-02	0.0000D+00	-.5513D+00
	2	-.1756D-01	0.0000D+00	-.1107D-01
	3	-.2248D-01	0.0000D+00	-.1417D-01
3	1	0.1256D+00	0.2362D-01	-.4192D+00
	2	-.1466D-01	-.1332D-01	0.1663D+00
	3	-.1877D-01	-.1705D-01	0.2129D+00
4	1	0.1315D+00	-.2569D-01	-.4668D+00
	2	-.2897D-02	-.1332D-01	-.1663D+00
	3	-.3708D-02	-.1705D-01	-.2129D+00

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
1	1	0.000	1	-174.11	78.76	154.16
			2	-419.06	-0.00	-1.10
			3	-536.49	-0.00	-1.41
	2	0.995	1	-84.20	78.76	75.79
			2	-419.06	-0.00	-1.10
			3	-536.49	-0.00	-1.41
	3	1.990	1	5.71	78.76	-2.58
			2	-419.06	-0.00	-1.10
			3	-536.49	-0.00	-1.41
	4	2.985	1	95.61	78.76	-80.95
			2	-419.06	-0.00	-1.10
			3	-536.49	-0.00	-1.41
	5	3.980	1	185.10	78.76	-159.32
			2	-419.06	-0.00	-1.10
			3	-536.49	-0.00	-1.41
2	1	0.000	1	407.69	-240.76	-154.16
			2	-1177.14	-238.61	1.10
			3	-1506.99	-305.47	1.41
	2	0.658	1	328.17	-240.76	4.27
			2	-1177.14	-238.61	158.11
			3	-1506.99	-305.47	202.42
	3	1.316	1	328.17	-240.76	162.69
			2	-1177.14	-238.61	315.13
			3	-1506.99	-305.47	403.43
	4	1.974	1	248.66	-240.76	321.12
			2	-1177.14	-238.61	472.14
			3	-1506.99	-305.47	604.44
	5	2.632	1	169.14	-240.76	479.55
			2	-1177.14	-238.61	629.16
			3	-1506.99	-305.47	805.46
3	1	0.000	1	-406.01	-251.41	-159.32
			2	-1177.14	238.61	-1.10
			3	-1506.99	305.47	-1.41
	2	0.658	1	-326.49	-251.41	6.11
			2	-1177.14	238.61	-158.11
			3	-1506.99	305.47	-202.42
	3	1.316	1	-326.49	-251.41	171.55
			2	-1177.14	238.61	-315.13
			3	-1506.99	305.47	-403.43
	4	1.974	1	-246.98	-251.41	336.98
			2	-1177.14	238.61	-472.14
			3	-1506.99	305.47	-604.44
	5	2.632	1	-167.46	-251.41	502.42
			2	-1177.14	238.61	-629.16
			3	-1506.99	305.47	-805.46
4	1	0.000	1	211.47	204.58	479.55

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
4	1	0.000	2	419.06	-0.00	-79.97
			3	536.49	-0.00	-102.38
	2	0.800	1	124.73	204.58	315.89
			2	419.06	-0.00	-79.97
			3	536.49	-0.00	-102.38
	3	1.600	1	37.98	204.58	152.23
			2	419.06	-0.00	-79.97
			3	536.49	-0.00	-102.38
	4	2.400	1	37.98	204.58	-11.43
			2	419.06	-0.00	-79.97
			3	536.49	-0.00	-102.38
	5	3.200	1	-48.76	204.58	-175.09
			2	419.06	-0.00	-79.97
			3	536.49	-0.00	-102.38
	6	4.000	1	-135.51	204.58	-338.76
			2	419.06	-0.00	-79.97
			3	536.49	-0.00	-102.38
	7	4.800	1	-222.26	204.58	-502.42
			2	419.06	-0.00	-79.97
			3	536.49	-0.00	-102.38

* REACCIONES EN APOYOS (HIPOTESIS DE CARGA) *

Nudo No.	Hip. No.	F-X (Ton)	F-Y (Ton)	Momento (m*T)
1	1	-.2071D+00	-.5190D+03	0.0000D+00
	2	0.0000D+00	0.1126D+04	0.0000D+00
	3	0.0000D+00	0.1441D+04	0.0000D+00
2	1	0.0000D+00	0.5190D+03	0.0000D+00
	2	0.0000D+00	0.1126D+04	0.0000D+00
	3	0.0000D+00	0.1441D+04	0.0000D+00

* MOVIMIENTOS EN LOS NUDOS (COMBINACIONES) *

Nudo No.	Comb. No.	Desp.-X (cm.)	Desp.-Y (cm.)	Giro (mRad)
1	1	0.0000D+00	0.0000D+00	-.7325D+00
	2	0.0000D+00	0.0000D+00	0.2125D-01
2	1	-.3728D-01	0.0000D+00	-.8435D+00
	2	-.3371D-01	0.0000D+00	-.2125D-01
3	1	0.1664D+00	0.1545D-01	-.3794D+00
	2	-.2815D-01	-.2557D-01	0.3193D+00
4	1	0.1930D+00	-.5851D-01	-.9496D+00
	2	-.5563D-02	-.2557D-01	-.3193D+00

* ESFUERZOS EN LAS BARRAS (COMBINACIONES) *

Barra No.	Punto No.	Abcisa (m.)	Comb. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
1	1	0.000	1	-889.75	118.15	229.59
			2	-804.73	-0.00	-2.11
	2	0.995	1	-754.89	118.15	112.03
			2	-804.73	-0.00	-2.11
	3	1.990	1	-620.03	118.15	-5.52
			2	-804.73	-0.00	-2.11
	4	2.985	1	-485.17	118.15	-123.08
			2	-804.73	-0.00	-2.11
	5	3.980	1	-350.94	118.15	-240.64
			2	-804.73	-0.00	-2.11
2	1	0.000	1	-1154.17	-719.06	-229.59
			2	-2260.48	-458.21	2.11
	2	0.658	1	-1273.45	-719.06	243.57
			2	-2260.48	-458.21	303.63
	3	1.316	1	-1273.45	-719.06	716.73
			2	-2260.48	-458.21	605.15
	4	1.974	1	-1392.72	-719.06	1189.90
			2	-2260.48	-458.21	906.67
	5	2.632	1	-1512.00	-719.06	1663.06
			2	-2260.48	-458.21	1208.18
3	1	0.000	1	-2374.72	-19.20	-240.64
			2	-2260.48	458.21	-2.11
	2	0.658	1	-2255.44	-19.20	-228.00
			2	-2260.48	458.21	-303.63
	3	1.316	1	-2255.44	-19.20	-215.37
			2	-2260.48	458.21	-605.15
	4	1.974	1	-2136.17	-19.20	-202.74
			2	-2260.48	458.21	-906.67
	5	2.632	1	-2016.89	-19.20	-190.11
			2	-2260.48	458.21	-1208.19
4	1	0.000	1	945.80	306.86	599.36
			2	804.73	-0.00	-153.58
	2	0.800	1	815.68	306.86	353.87
			2	804.73	-0.00	-153.58
	3	1.600	1	685.56	306.86	108.38
			2	804.73	-0.00	-153.57
	4	2.400	1	685.56	306.86	-137.11
			2	804.73	-0.00	-153.57
	5	3.200	1	555.44	306.86	-382.60
			2	804.73	-0.00	-153.57
	6	4.000	1	425.32	306.86	-628.09
			2	804.73	-0.00	-153.57
	7	4.800	1	295.20	306.86	-873.58
			2	804.73	-0.00	-153.57

* REACCIONES EN APOYOS (COMBINACIONES) *

Nudo No.	Hip. No.	F-X (Ton)	F-Y (Ton)	Momento (m*T)
1	1	-.3106D+00	0.9099D+03	0.0000D+00
	2	0.0000D+00	0.2162D+04	0.0000D+00
2	1	0.0000D+00	0.2467D+04	0.0000D+00
	2	0.0000D+00	0.2162D+04	0.0000D+00

Hacemos un nuevo cálculo en el que las cargas P y los momentos M que aplicamos en los nudos 3 y 4, los introducimos repartidos a lo largo de los barras 2 y 3

CASO B

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+-------------------------------------------------------------+
|  AGROMAN Empresa Constructora     Direcci¢n T,cnica         |
+-------------------------------------------------------------+
|  ESTRU2 (Ver. 10.0)       CALCULO DE PORTICOS PLANOS        |
|                                                             |
|     T¡tulo : TABLERO. RIOSTRA SOBRE PILAS                   |
|      Autor :                                                |
|  Area/Dpto. :                                               |
|    Fecha : 11-11-1999              Hora : 08:29:06          |
+-------------------------------------------------------------+
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DATOS DE ENTRADA ** EN METROS Y TONELADAS

** GEOMETRIA DE BARRAS **

BARRAS PRI	BARRAS ULT	BARRAS INC	NUDO INI INI	NUDO INI INC	NUDO FIN FIN	NUDO FIN INC	PUN INT	SEC TIP	PROY. X (m)	PROY. Y (m)	TIP	ARM
1			1		2		3	1	3.980	0.000	1	0
2			1		3		3	2	-0.410	2.600	1	0
3			2		4		3	2	0.410	2.600	1	0
4			3		4		5	3	4.800	0.000	1	0

** DATOS DE SECCIONES TIPO **

SECCION	TIPO	ANCHO-DIAMETRO DIAMETRO EXT. AREA (m-m2)	CANTO DIAMETRO INT. INERCIA (m-m4)	AREA EQUIVALENTE A CORTANTE(m^2)	RS	RI
1	1	5.00000000	0.50000000	0.00000000	0.03	0.03
2	1	5.00000000	1.50000000	0.00000000	0.03	0.03
3	1	5.00000000	0.89999998	0.00000000	0.03	0.03

** MATERIALES **

MODULO DE ELASTICIDAD . . . . . : 3800000 t/m^2
COEFICIENTE DE DILATACION TERMICA : .00001
COEFICIENTE DE POISSON . . . . . : .2

** DATOS DE NUDOS Y TIPOS DE VINCULACIONES **

NUDOS INI	NUDOS FIN	NUDOS INC	TIPO VINC	COOR. X (m)	COOR. Y (m)	ANGULO (grados)	MUELLE-1 (tn/m)	MUELLE-2 (tn/m)	DX	DY	WZ
1			2	0.000	0.000	0.000	0.00	0.00	0	0	0
2			3	0.000	0.000	0.000	0.00	0.00	0	0	0

** DATOS DE CARGAS EN BARRAS O EN NUDOS **

CAR NUM	BARRA - NUDO INI	FIN	INC	HIPO	TIPO	A (m)	B (m)	VALOR 1	VALOR 2	VALOR 3
1	1		1	1		0.497	0.000	-89.908	0.000	0.000
2	1		1	1		1.492	0.000	-89.908	0.000	0.000
3	1		1	1		2.487	0.000	-89.908	0.000	0.000
4	1		1	1		3.482	0.000	-89.482	0.000	0.000
5	2		1	1		0.440	0.000	79.517	0.000	0.000
6	2		1	1		1.320	0.000	79.517	0.000	0.000
7	2		1	1		2.200	0.000	79.517	0.000	0.000
8	4		1	1		0.480	0.000	86.746	0.000	0.000
9	4		1	1		1.440	0.000	86.746	0.000	0.000
10	4		1	-1		2.400	0.000	86.746	0.000	0.000
11	4		1	1		3.360	0.000	86.746	0.000	0.000
12	4		1	1		4.320	0.000	86.746	0.000	0.000

** DATOS DE CARGAS EN BARRAS O EN NUDOS **

CAR NUM	BARRA - NUDO INI	FIN	HIPO INC	TIPO	A (m)	B (m)	VALOR 1	VALOR 2	VALOR 3
13	3		1	1	2.200	0.000	-79.517	0.000	0.000
14	3		1	1	1.320	0.000	-79.517	0.000	0.000
15	3		1	1	0.440	0.000	-79.517	0.000	0.000
16	2		2	1	0.440	0.000	-379.840	0.000	172.827
17	2		2	1	1.320	0.000	-379.840	0.000	199.416
18	2		2	1	2.200	0.000	-379.840	0.000	226.005
19	3		2	1	0.440	0.000	-379.840	0.000	-172.827
20	3		2	1	1.320	0.000	-379.840	0.000	-199.416
21	3		2	1	2.200	0.000	-379.840	0.000	-226.005
22	2		3	1	0.440	0.000	-486.270	0.000	221.253
23	2		3	1	1.320	0.000	-486.270	0.000	255.292
24	2		3	1	2.200	0.000	-486.270	0.000	289.331
25	3		3	1	0.440	0.000	-486.270	0.000	-221.253
26	3		3	1	1.320	0.000	-486.270	0.000	-255.292
27	3		3	1	2.200	0.000	-486.270	0.000	-289.331

** DATOS DE COMBINACIONES **

NUM	Hip-1	Hip-2	Hip-3	Hip-4	Hip-5	Hip-6	Hip-7	Hip-8	Hip-9	Hip-10
1	1.50	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00

HIPOTESIS SIMPLES			
HIPOTESIS	MOV.NUDOS	ESF.BARRAS	REAC.NUDOS
1	1	1	1
2	1	1	1
3	1	1	1
COMBINACIONES DE HIPOTESIS			
COMBINACION	MOV.NUDOS	ESF.BARRAS	REAC.NUDOS
1	1	1	1
2	1	1	1

* MOVIMIENTOS EN LOS NUDOS (HIPOTESIS DE CARGA) *

Nudo No.	Hip. No.	Desp.-X (cm.)	Desp.-Y (cm.)	Giro (mRad)
1	1	0.0000D+00	0.0000D+00	-.4994D+00
	2	0.0000D+00	0.0000D+00	0.4562D-01
	3	0.0000D+00	0.0000D+00	0.5840D-01
2	1	-.7294D-02	0.0000D+00	-.5513D+00
	2	-.1662D-01	0.0000D+00	-.4562D-01
	3	-.2127D-01	0.0000D+00	-.5840D-01
3	1	0.1256D+00	0.2362D-01	-.4192D+00
	2	-.1138D-01	-.1277D-01	0.5001D-01
	3	-.1457D-01	-.1635D-01	0.6402D-01
4	1	0.1315D+00	-.2569D-01	-.4668D+00
	2	-.5233D-02	-.1277D-01	-.5001D-01
	3	-.6699D-02	-.1635D-01	-.6402D-01

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
1	1	0.000	1	-174.11	78.76	154.16
			2	-396.60	-0.00	-4.54
			3	-507.73	-0.00	-5.81
	2	0.995	1	-84.20	78.76	75.79
			2	-396.60	-0.00	-4.54
			3	-507.73	-0.00	-5.81
	3	1.990	1	5.71	78.76	-2.58
			2	-396.60	-0.00	-4.54
			3	-507.73	-0.00	-5.81
	4	2.985	1	95.61	78.76	-80.95
			2	-396.60	-0.00	-4.54
			3	-507.73	-0.00	-5.81
	5	3.980	1	185.10	78.76	-159.32
			2	-396.60	-0.00	-4.54
			3	-507.73	-0.00	-5.81
2	1	0.000	1	407.69	-240.76	-154.16
			2	-1173.65	-216.43	4.54
			3	-1502.50	-277.07	5.81
	2	0.658	1	328.17	-240.76	4.27
			2	-793.81	-216.43	-25.88
			3	-1016.23	-277.07	-33.13
	3	1.316	1	328.17	-240.76	162.69
			2	-793.81	-216.43	116.54
			3	-1016.23	-277.07	149.19
	4	1.974	1	248.66	-240.76	321.12
			2	-413.97	-216.43	59.54
			3	-529.96	-277.07	76.22
	5	2.632	1	169.14	-240.76	479.55
			2	-34.13	-216.43	-24.05
			3	-43.69	-277.07	-30.79
3	1	0.000	1	-406.01	-251.41	-159.32
			2	-1173.65	216.43	-4.54
			3	-1502.50	277.07	-5.81
	2	0.658	1	-326.49	-251.41	6.11
			2	-793.81	216.43	25.88
			3	-1016.23	277.07	33.13
	3	1.316	1	-326.49	-251.41	171.55
			2	-793.81	216.43	-116.54
			3	-1016.23	277.07	-149.19
	4	1.974	1	-246.98	-251.41	336.98
			2	-413.97	216.43	-59.54
			3	-529.96	277.07	-76.22
	5	2.632	1	-167.46	-251.41	502.42
			2	-34.13	216.43	24.05
			3	-43.69	277.07	30.79
4	1	0.000	1	211.47	204.58	479.55

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
4	1	0.000	2	219.10	-0.00	-24.05
			3	280.49	-0.00	-30.79
	2	0.800	1	124.73	204.58	315.89
			2	219.10	-0.00	-24.05
			3	280.49	-0.00	-30.79
	3	1.600	1	37.98	204.58	152.23
			2	219.10	-0.00	-24.05
			3	280.49	-0.00	-30.79
	4	2.400	1	37.98	204.58	-11.43
			2	219.10	-0.00	-24.05
			3	280.49	-0.00	-30.79
	5	3.200	1	-48.76	204.58	-175.09
			2	219.10	-0.00	-24.05
			3	280.49	-0.00	-30.79
	6	4.000	1	-135.51	204.58	-338.76
			2	219.10	-0.00	-24.05
			3	280.49	-0.00	-30.79
	7	4.800	1	-222.26	204.58	-502.42
			2	219.10	-0.00	-24.05
			3	280.49	-0.00	-30.79

* REACCIONES EN APOYOS (HIPOTESIS DE CARGA) *

Nudo No.	Hip. No.	F-X (Ton)	F-Y (Ton)	Momento (m*T)
1	1	-.2071D+00	-.5190D+03	0.0000D+00
	2	-.7164D-04	0.1126D+04	0.0000D+00
	3	-.8051D-04	0.1441D+04	0.0000D+00
2	1	0.0000D+00	0.5190D+03	0.0000D+00
	2	0.3715D-05	0.1126D+04	0.0000D+00
	3	-.6440D-05	0.1441D+04	0.0000D+00

* MOVIMIENTOS EN LOS NUDOS (COMBINACIONES) *

Nudo No.	Comb. No.	Desp.-X (cm.)	Desp.-Y (cm.)	Giro (mRad)
1	1	0.0000D+00	0.0000D+00	-.6806D+00
	2	0.0000D+00	0.0000D+00	0.8760D-01
2	1	-.3586D-01	0.0000D+00	-.8954D+00
	2	-.3191D-01	0.0000D+00	-.8760D-01
3	1	0.1713D+00	0.1627D-01	-.5538D+00
	2	-.2186D-01	-.2452D-01	0.9604D-01
4	1	0.1895D+00	-.5768D-01	-.7752D+00
	2	-.1005D-01	-.2452D-01	-.9604D-01

* ESFUERZOS EN LAS BARRAS (COMBINACIONES) *

Barra No.	Punto No.	Abcisa (m.)	Comb. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
1	1	0.000	1	-856.06	118.15	224.44
			2	-761.59	-0.00	-8.71
	2	0.995	1	-721.20	118.15	106.88
			2	-761.59	-0.00	-8.71
	3	1.990	1	-586.34	118.15	-10.68
			2	-761.59	-0.00	-8.71
	4	2.985	1	-451.48	118.15	-128.23
			2	-761.59	-0.00	-8.71
	5	3.980	1	-317.25	118.15	-245.79
			2	-761.59	-0.00	-8.71
2	1	0.000	1	-1148.94	-685.78	-224.44
			2	-2253.75	-415.60	8.71
	2	0.658	1	-698.45	-685.78	-32.41
			2	-1524.35	-415.60	-49.69
	3	1.316	1	-698.45	-685.78	418.85
			2	-1524.35	-415.60	223.79
	4	1.974	1	-247.97	-685.78	570.99
			2	-794.94	-415.60	114.33
	5	2.632	1	202.51	-685.78	683.25
			2	-65.54	-415.60	-46.19
3	1	0.000	1	-2369.49	-52.48	-245.79
			2	-2253.75	415.60	-8.71
	2	0.658	1	-1680.45	-52.48	47.98
			2	-1524.35	415.60	49.69
	3	1.316	1	-1680.45	-52.48	82.51
			2	-1524.35	415.60	-223.79
	4	1.974	1	-991.42	-52.48	416.17
			2	-794.94	415.60	-114.33
	5	2.632	1	-302.38	-52.48	789.70
			2	-65.54	415.60	46.19
4	1	0.000	1	645.86	306.86	683.25
			2	420.74	-0.00	-46.19
	2	0.800	1	515.74	306.86	437.76
			2	420.74	-0.00	-46.19
	3	1.600	1	385.62	306.86	192.26
			2	420.74	-0.00	-46.19
	4	2.400	1	385.62	306.86	-53.23
			2	420.74	-0.00	-46.19
	5	3.200	1	255.50	306.86	-298.72
			2	420.74	-0.00	-46.19
	6	4.000	1	125.39	306.86	-544.21
			2	420.74	-0.00	-46.19
	7	4.800	1	-4.73	306.86	-789.70
			2	420.74	-0.00	-46.19

* REACCIONES EN APOYOS (COMBINACIONES) *

Nudo No.	Hip. No.	F-X (Ton)	F-Y (Ton)	Momento (m*T)
1	1	-.3107D+00	0.9099D+03	0.0000D+00
	2	-.1208D-03	0.2162D+04	0.0000D+00
2	1	0.5572D-05	0.2467D+04	0.0000D+00
	2	-.9659D-05	0.2162D+04	0.0000D+00

ARMADO RIOSTRA SOBRE PILAS

Calculo Caso "A"

Barra	Punto	Carga Centrada Md	Carga Centrada Nd	Carga Descentrada Md	Carga Descentrada Nd
1	1	-2.11	-804.73	229.59	-889.75
	Centro	-2.11	-804.73	-5.52	-620.03
	2	-2.11	-804.73	-240.64	-350.94
2	1	2.11	-2260.48	-229.59	-1154.17
	Centro	605.15	-2260.48	716.73	-1273.45
	3	1208.18	-2260.48	1663.06	-1512.00
3	2	-2.11	-2260.48	-240.64	-2374.72
	Centro	-605.15	-2260.48	-215.37	-2255.44
	4	-1208.19	-2260.48	-190.11	-2016.89
4	3	-153.58	804.73	599.36	945.80
	Centro	-153.57	804.73	-137.11	685.56
	4	-153.57	804.73	-873.58	295.20

LAV. VIADUCTO Nº 1

ARMADO RIOSTRA SOBRE PILAS

Calculo Caso "A"

fcd = 4000/1.5 = 2667
Uo = 0,85.b.d.fcd

Barra	Punto	Carga Centrada Md	Nd	d	d'	Uo	Us1 = Us2
1	1	-2.11	804.73	0.450	0.050	5100	-426.26
	Centro	-2.11	804.73	0.450	0.050	5100	-426.26
	2	-2.11	804.73	0.450	0.050	5100	-426.26
2	1	2.11	2260.48	1.100	0.150	12467	-1247.64
	Centro	605.15	2260.48	1.350	0.150	15300	-720.65
	3	1208.18	2260.48	1.600	0.150	18133	-375.39
3	2	-2.11	2260.48	1.100	0.150	12467	-1247.64
	Centro	-605.15	2260.48	1.350	0.150	15300	-720.65
	4	-1208.19	2260.48	1.600	0.150	18133	-375.38
4	3	-153.58	-804.73	0.870	0.050	9860	589.66
	Centro	-153.57	-804.73	0.870	0.050	9860	589.65
	4	-153.57	-804.73	0.870	0.050	9860	589.65

LAV. VIADUCTO N° 1

ARMADO RIOSTRA SOBRE PILAS

Calculo Caso "A"

fcd = 4000/1.5 = 2667
Uo = 0,85.b.d.fcd

Barra	Punto	Carga Descentrada Md	Nd	d	d'	Uo	Us1 = Us2
1	1	229.59	889.75	0.450	0.050	5100	105.20
	Centro	-5.52	620.03	0.450	0.050	6000	-337.68
	2	-240.64	350.94	0.450	0.050	6000	393.81
2	1	-229.59	1154.17	1.100	0.150	14667	-465.07
	Centro	716.73	1273.45	1.350	0.150	18000	-147.95
	3	1663.06	1512.00	1.600	0.150	21333	293.65
3	2	-240.64	2374.72	1.100	0.150	14667	-1086.41
	Centro	-215.37	2255.44	1.350	0.150	18000	-1071.21
	4	-190.11	2016.89	1.600	0.150	21333	-980.78
4	3	599.36	-945.80	0.870	0.050	11600	1203.83
	Centro	-137.11	-685.56	0.870	0.050	11600	509.99
	4	-873.58	-295.20	0.870	0.050	11600	1212.94

LAV. VIADUCTO Nº 1

ARMADO RIOSTRA SOBRE PILAS

Calculo Caso "A"

Barra	Punto	Carga Centrada Us1 = Us2	Carga Centrada As1 = As2	Carga Descentrada Us1 = Us2	Carga Descentrada As1 = As2	Resumen Armaduras Us1 = Us2	Resumen Armaduras As1 = As2
1	1	-426.26	0.00	105.20	23.72	105.20	23.72
	Centro	-426.26	0.00	-337.68	0.00	-337.68	0.00
	2	-426.26	0.00	393.81	88.82	393.81	88.82
2	1	-1247.64	0.00	-465.07	0.00	-465.07	0.00
	Centro	-720.65	0.00	-147.95	0.00	-147.95	0.00
	3	-375.39	0.00	293.65	66.23	293.65	66.23
3	2	-1247.64	0.00	-1086.41	0.00	-1086.41	0.00
	Centro	-720.65	0.00	-1071.21	0.00	-720.65	0.00
	4	-375.38	0.00	-980.78	0.00	-375.38	0.00
4	3	589.66	132.99	1203.83	271.50	1203.83	271.50
	Centro	589.65	132.98	509.99	115.02	589.65	132.98
	4	589.65	132.98	1212.94	273.55	1212.94	273.55

LAV. VIADUCTO Nº 1

ARMADO RIOSTRA SOBRE PILAS

Calculo Caso "B"

Barra	Punto	Carga Centrada		Carga Descentrada	
		Md	Nd	Md	Nd
1	1	-8.71	-761.59	224.44	-856.06
	Centro	-8.71	-761.59	-10.68	-586.34
	2	-8.71	-761.59	-245.79	-317.25
2	1	8.71	-2253.75	-224.44	-1148.94
	Centro	223.79	-1524.35	418.85	-698.45
	3	-46.19	-65.54	683.25	202.51
3	2	-8.71	-2253.75	-245.79	-2369.49
	Centro	-223.79	-1524.35	82.51	-1680.45
	4	46.19	-65.54	789.70	-302.38
4	3	-46.19	420.74	683.25	645.86
	Centro	-46.19	420.74	-53.23	385.62
	4	-46.19	420.74	-789.70	-4.73

LAV. VIADUCTO Nº 1

ARMADO RIOSTRA SOBRE PILAS

Calculo Caso "B"

fcd = 4000/1.5 = 2667

Uo = 0,85.b.d.fcd

Barra	Punto	Carga Centrada					
		Md	Nd	d	d'	Uo	Us1 = Us2
1	1	-8.71	761.59	0.450	0.050	5100	-390.25
	Centro	-8.71	761.59	0.450	0.050	5100	-390.25
	2	-8.71	761.59	0.450	0.050	5100	-390.25
2	1	8.71	2253.75	1.100	0.150	12467	-1237.68
	Centro	223.79	1524.35	1.350	0.150	15300	-680.80
	3	-46.19	65.54	1.600	0.150	18133	-7.56
3	2	-8.71	2253.75	1.100	0.150	12467	-1237.68
	Centro	-223.79	1524.35	1.350	0.150	15300	-680.80
	4	46.19	65.54	1.600	0.150	18133	-7.56
4	3	-46.19	-420.74	0.870	0.050	9860	266.70
	Centro	-46.19	-420.74	0.870	0.050	9860	266.70
	4	-46.19	-420.74	0.870	0.050	9860	266.70

ARMADO RIOSTRA SOBRE PILAS

Calculo Caso "B"

fcd = 4000/1.5 = 2667

Uo = 0,85.b.d.fcd

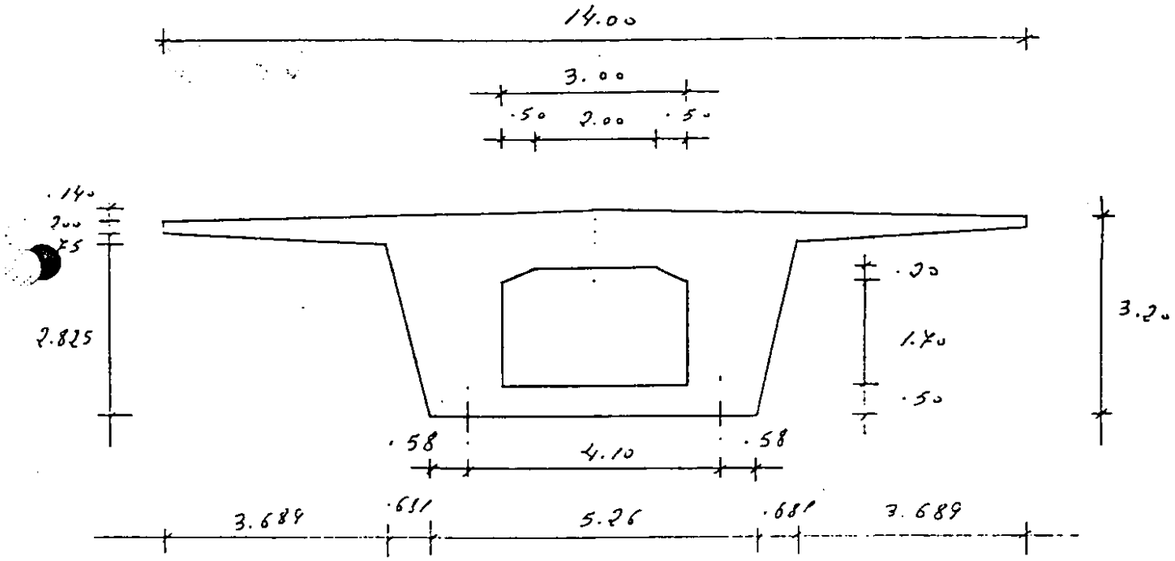
Barra	Punto	Carga Descentrada					
		Md	Nd	d	d'	Uo	Us1 = Us2
1	1	224.44	856.06	0.450	0.050	5100	106.89
	Centro	-10.68	586.34	0.450	0.050	6000	-307.53
	2	-245.79	317.25	0.450	0.050	6000	425.63
2	1	-224.44	1148.94	1.100	0.150	14667	-467.52
	Centro	418.85	698.45	1.350	0.150	18000	-72.24
	3	683.25	-202.51	1.600	0.150	21333	572.46
3	2	-245.79	2369.49	1.100	0.150	14667	-1078.52
	Centro	82.51	1680.45	1.350	0.150	18000	-893.28
	4	789.70	302.38	1.600	0.150	21333	364.51
4	3	683.25	-645.86	0.870	0.050	11600	1156.16
	Centro	-53.23	-385.62	0.870	0.050	11600	257.72
	4	-789.70	4.73	0.870	0.050	11600	960.40

ARMADO RIOSTRA SOBRE PILAS

Calculo Caso "B"

Barra	Punto	Carga Centrada		Carga Descentrada		Resumen Armaduras	
		Us1 = Us2	As1 = As2	Us1 = Us2	As1 = As2	Us1 = Us2	As1 = As2
1	1	-390.25	0.00	106.89	24.11	106.89	24.11
	Centro	-390.25	0.00	-307.53	0.00	-307.53	0.00
	2	-390.25	0.00	425.63	95.99	425.63	95.99
2	1	-1237.68	0.00	-467.52	0.00	-467.52	0.00
	Centro	-680.80	0.00	-72.24	0.00	-72.24	0.00
	3	-7.56	0.00	572.46	129.11	572.46	129.11
3	2	-1237.68	0.00	-1078.52	0.00	-1078.52	0.00
	Centro	-680.80	0.00	-893.28	0.00	-680.80	0.00
	4	-7.56	0.00	364.51	82.21	364.51	82.21
4	3	266.70	60.15	1156.16	260.75	1156.16	260.75
	Centro	266.70	60.15	257.72	58.12	266.70	60.15
	4	266.70	60.15	960.40	216.60	960.40	216.60

Armado de la riostra sobre el estribo



Reacciones en apoyos:

R pos. propia = 334'67 + 0'75 · 4192 = 3661'1

R c. perm. = 141'99

R grad. temp = 45'99

R hipot. post = 18'93

R sobrec. = 43'03

R t. apoyos y estrib. = 1745'69 t

Al igual que en la riostra sobre la pila, estudiamos la hipótesis que produce el máximo momento positivo, una vía cargada y rijada hacia el exterior 0'30 m

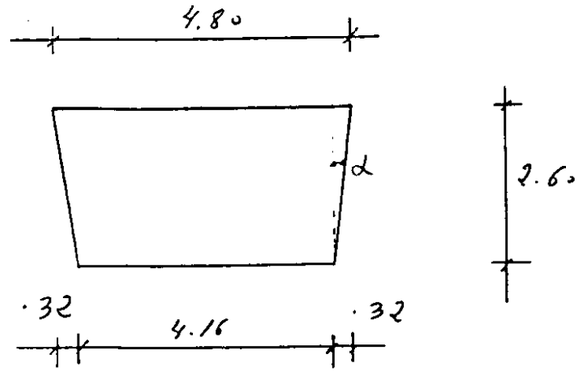
Hipótesis de sobrecarga

$$R_{sobrec} = \frac{43'03}{2} = 218'52\ t.$$

Siendo los momentos unitarios de positivos los que figuran en el cálculo del armado de la riostra sobre pilas, el momento total en el estrib. será (suponemos una hipótesis fibrada positiva en el vano extremo de 40'00 m):

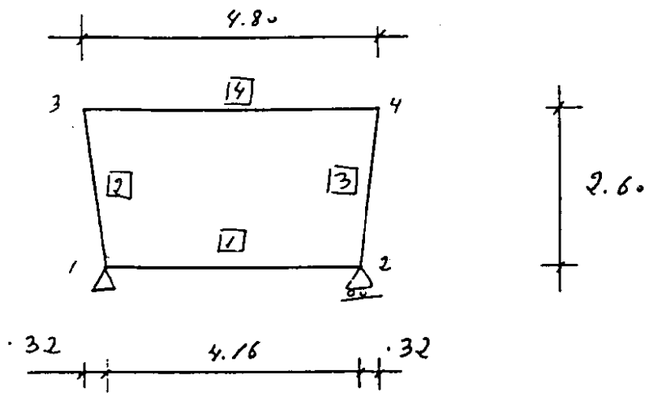
$$M_T = 20'00 \cdot (36'89 + 6'00 + 2'60 + 6'08) = 1031'40$$

Este momento torsor se introduce como cargas puntuales en los nudos del contorno:



$$F \cdot \left(4{,}80 \cdot \frac{2{,}40}{tg\,\alpha} - 4{,}16 \cdot \frac{2{,}08}{tg\,\alpha}\right) = 10{,}31 \text{ t·m}$$

$F = 44{,}27$ t/m.l de barra en los nudos del contorno



Al efecto de la torsión hay que sumarle la reacción debida a las cargas actuantes, como cargas centradas, que en este caso son:

$$\text{Reacción por ap.y.} = \frac{36{,}11 + 14{,}78 + 45{,}99 + 18{,}93 + 21{,}85 + 17{,}5}{2}$$

$$= 56{,}02 \text{ t/ap.y.}$$

Suponiendo que esta carga se dirige al ap.y. desde el c.d.g. de las vigas, tenemos que la misma equivale a una carga y un momento aplicados en los nud. 3 y 4 de viga:

$$P = 56{,}02 \text{ t}$$

$$M = 56{,}02 \cdot \left(\frac{5{,}26}{2} + 0{,}68 - \frac{0{,}56}{2} - 2{,}40\right) = 35{,}85 \text{ m·t}$$

Estudiamos también la hipótesis de máxima carga centrada.

Reacción por apoyo: $\frac{3661{,}1 + 1417{,}9 + 4529 + 1879{,}3 + 4370{,}3 + 1756{,}9}{2} =$

$= 6772{,}2$ t.

está equivale a una carga y un momento aplicados en los nudos 3 y 4 de valor:

$P = 6772{,}2$

$M = 6772{,}2 \cdot 0{,}063 = 426{,}68$

Cargas P aplicadas en los nudos 3 y 4

CASO A

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+-------------------------------------------------------------+
|  AGROMAN Empresa Constructora     Direcci¢n T,cnica         |
+-------------------------------------------------------------+
|  ESTRU2 (Ver. 10.0)      CALCULO DE PORTICOS PLANOS         |
+-------------------------------------------------------------+
|                                                             |
|     T¡tulo : TABLERO. RIOSTRA SOBRE ESTRIBOS                |
|      Autor :                                                |
|  Area/Dpto. :                                               |
|    Fecha : 10-11-1999          Hora : 18:42:49              |
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DATOS DE ENTRADA ** EN METROS Y TONELADAS

** GEOMETRIA DE BARRAS **

BARRAS PRI	BARRAS ULT	BARRAS INC	NUDO INI INI	NUDO INI INC	NUDO FIN FIN	NUDO FIN INC	PUN INT	SEC TIP	PROY. X (m)	PROY. Y (m)	TIP	ARM
1			1		2		3	1	4.160	0.000	1	0
2			1		3		3	2	-0.320	2.600	1	0
3			2		4		3	2	0.320	2.600	1	0
4			3		4		5	3	4.800	0.000	1	0

** DATOS DE SECCIONES TIPO **

SECCION	TIPO	ANCHO-DIAMETRO DIAMETRO EXT. AREA (m-m2)	CANTO DIAMETRO INT. INERCIA (m-m4)	AREA EQUIVALENTE A CORTANTE(m^2)	RS	RI
1	1	2.75000000	0.50000000	0.00000000	0.03	0.03
2	1	2.75000000	1.50000000	0.00000000	0.03	0.03
3	1	2.75000000	0.89999998	0.00000000	0.03	0.03

** MATERIALES **

MODULO DE ELASTICIDAD . . . . . : 3800000 t/m^2
COEFICIENTE DE DILATACION TERMICA : .00001
COEFICIENTE DE POISSON . . . . . : .2

** DATOS DE NUDOS Y TIPOS DE VINCULACIONES **

NUDOS INI	NUDOS FIN	NUDOS INC	TIPO VINC	COOR. X (m)	COOR. Y (m)	ANGULO (grados)	MUELLE-1 (tn/m)	MUELLE-2 (tn/m)	DX	DY	WZ
1			2	0.000	0.000	0.000	0.00	0.00	0	0	0
2			3	0.000	0.000	0.000	0.00	0.00	0	0	0

** DATOS DE CARGAS EN BARRAS O EN NUDOS **

CAR NUM	BARRA - NUDO INI	FIN	INC	HIPO	TIPO	A (m)	B (m)	VALOR 1	VALOR 2	VALOR 3
1	1	1	1			0.520	0.000	-46.040	0.000	0.000
2	1	1	1			1.560	0.000	-46.040	0.000	0.000
3	1	1	1			2.600	0.000	-46.040	0.000	0.000
4	1	1	1			3.640	0.000	-46.040	0.000	0.000
5	2	1	1			0.435	0.000	38.510	0.000	0.000
6	2	1	1			1.305	0.000	38.510	0.000	0.000
7	2	1	1			2.175	0.000	38.510	0.000	0.000
8	4	1	1			0.480	0.000	42.500	0.000	0.000
9	4	1	1			1.440	0.000	42.500	0.000	0.000
10	4	1	1			2.400	0.000	42.500	0.000	0.000
11	4	1	1			3.360	0.000	42.500	0.000	0.000
12	4	1	1			4.320	0.000	42.500	0.000	0.000

** DATOS DE CARGAS EN BARRAS O EN NUDOS **

CAR NUM	BARRA - NUDO INI	FIN	HIPO INC	TIPO	A (m)	B (m)	VALOR 1	VALOR 2	VALOR 3
13	3		1	1	2.175	0.000	-38.510	0.000	0.000
14	3		1	1	1.305	0.000	-38.510	0.000	0.000
15	3		1	1	0.435	0.000	-38.510	0.000	0.000
16	3		2	6	0.000	0.000	0.000	-568.020	357.850
17	4		2	6	0.000	0.000	0.000	-568.020	-357.850
18	3		3	6	0.000	0.000	0.000	-677.270	426.680
19	4		3	6	0.000	0.000	0.000	-677.270	-426.680

** DATOS DE COMBINACIONES **

NUM	Hip-1	Hip-2	Hip-3	Hip-4	Hip-5	Hip-6	Hip-7	Hip-8	Hip-9	Hip-10
1	1.50	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00

HIPOTESIS SIMPLES			
HIPOTESIS	MOV.NUDOS	ESF.BARRAS	REAC.NUDOS
1	1	1	1
2	1	1	1
3	1	1	1

COMBINACIONES DE HIPOTESIS			
COMBINACION	MOV.NUDOS	ESF.BARRAS	REAC.NUDOS
1	1	1	1
2	1	1	1

* MOVIMIENTOS EN LOS NUDOS (HIPOTESIS DE CARGA) *

Nudo No.	Hip. No.	Desp.-X (cm.)	Desp.-Y (cm.)	Giro (mRad)
1	1	0.0000D+00	0.0000D+00	-.4218D+00
	2	0.0000D+00	0.0000D+00	0.5514D-02
	3	0.0000D+00	0.0000D+00	0.6574D-02
2	1	-.7107D-02	0.0000D+00	-.4704D+00
	2	-.1532D-01	0.0000D+00	-.5514D-02
	3	-.1827D-01	0.0000D+00	-.6574D-02
3	1	0.1056D+00	0.1639D-01	-.3490D+00
	2	-.1257D-01	-.1144D-01	0.1477D+00
	3	-.1499D-01	-.1364D-01	0.1761D+00
4	1	0.1109D+00	-.1790D-01	-.3935D+00
	2	-.2750D-02	-.1144D-01	-.1477D+00
	3	-.3278D-02	-.1364D-01	-.1761D+00

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
1	1	0.000	1	-89.27	33.67	68.76
			2	-192.41	0.00	-0.29
			3	-229.41	0.00	-0.34
	2	1.040	1	-43.23	33.67	33.75
			2	-192.41	0.00	-0.29
			3	-229.41	0.00	-0.34
	3	2.080	1	2.81	33.67	-1.27
			2	-192.41	0.00	-0.29
			3	-229.41	0.00	-0.34
	4	3.120	1	48.85	33.67	-36.29
			2	-192.41	0.00	-0.29
			3	-229.41	0.00	-0.34
	5	4.160	1	94.89	33.67	-71.31
			2	-192.41	0.00	-0.29
			3	-229.41	0.00	-0.34
2	1	0.000	1	201.29	-114.83	-68.76
			2	-587.27	-121.58	0.29
			3	-700.22	-144.96	0.34
	2	0.655	1	162.78	-114.83	6.44
			2	-587.27	-121.58	79.91
			3	-700.22	-144.96	95.28
	3	1.310	1	124.27	-114.83	81.64
			2	-587.27	-121.58	159.53
			3	-700.22	-144.96	190.22
	4	1.965	1	124.27	-114.83	156.85
			2	-587.27	-121.58	239.16
			3	-700.22	-144.96	285.16
	5	2.620	1	85.76	-114.83	232.05
			2	-587.27	-121.58	318.78
			3	-700.22	-144.96	380.09
3	1	0.000	1	-200.61	-120.30	-71.31
			2	-587.27	121.58	-0.29
			3	-700.22	144.96	-0.34
	2	0.655	1	-162.10	-120.30	7.47
			2	-587.27	121.58	-79.91
			3	-700.22	144.96	-95.28
	3	1.310	1	-123.59	-120.30	86.26
			2	-587.27	121.58	-159.53
			3	-700.22	144.96	-190.22
	4	1.965	1	-123.59	-120.30	165.04
			2	-587.27	121.58	-239.16
			3	-700.22	144.96	-285.16
	5	2.620	1	-85.08	-120.30	243.83
			2	-587.27	121.58	-318.78
			3	-700.22	144.96	-380.09
4	1	0.000	1	103.50	99.14	232.05

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
4	1	0.000	2	192.41	0.00	-39.07
			3	229.41	0.00	-46.59
	2	0.800	1	61.00	99.14	152.74
			2	192.41	0.00	-39.07
			3	229.41	0.00	-46.59
	3	1.600	1	18.50	99.14	73.42
			2	192.41	0.00	-39.07
			3	229.41	0.00	-46.59
	4	2.400	1	-24.00	99.14	-5.89
			2	192.41	0.00	-39.07
			3	229.41	0.00	-46.59
	5	3.200	1	-24.00	99.14	-85.20
			2	192.41	0.00	-39.07
			3	229.41	0.00	-46.59
	6	4.000	1	-66.50	99.14	-164.51
			2	192.41	0.00	-39.07
			3	229.41	0.00	-46.59
	7	4.800	1	-109.00	99.14	-243.83
			2	192.41	0.00	-39.07
			3	229.41	0.00	-46.59

* REACCIONES EN APOYOS (HIPOTESIS DE CARGA) *

Nudo No.	Hip. No.	F-X (Ton)	F-Y (Ton)	Momento (m*T)
1	1	-.1148D+00	-.2475D+03	0.0000D+00
	2	0.0000D+00	0.5680D+03	0.0000D+00
	3	0.0000D+00	0.6773D+03	0.0000D+00
2	1	0.0000D+00	0.2475D+03	0.0000D+00
	2	0.0000D+00	0.5680D+03	0.0000D+00
	3	0.0000D+00	0.6773D+03	0.0000D+00

* MOVIMIENTOS EN LOS NUDOS (COMBINACIONES) *

Nudo No.	Comb. No.	Desp.-X (cm.)	Desp.-Y (cm.)	Giro (mRad)
1	1	0.0000D+00	0.0000D+00	-.6244D+00
	2	0.0000D+00	0.0000D+00	0.9861D-02
2	1	-.3364D-01	0.0000D+00	-.7139D+00
	2	-.2740D-01	0.0000D+00	-.9861D-02
3	1	0.1395D+00	0.7426D-02	-.3019D+00
	2	-.2248D-01	-.2045D-01	0.2642D+00
4	1	0.1622D+00	-.4400D-01	-.8119D+00
	2	-.4918D-02	-.2045D-01	-.2642D+00

* ESFUERZOS EN LAS BARRAS (COMBINACIONES) *

Barra No.	Punto No.	Abcisa (m.)	Comb. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
1	1	0.000	1	-422.51	50.51	102.71
			2	-344.12	0.00	-0.52
	2	1.040	1	-353.45	50.51	50.19
			2	-344.12	0.00	-0.52
	3	2.080	1	-284.39	50.51	-2.34
			2	-344.12	0.00	-0.52
	4	3.120	1	-215.33	50.51	-54.87
			2	-344.12	0.00	-0.52
	5	4.160	1	-146.27	50.51	-107.40
			2	-344.12	0.00	-0.52
2	1	0.000	1	-578.98	-354.61	-102.71
			2	-1050.33	-217.45	0.52
	2	0.655	1	-636.74	-354.61	129.52
			2	-1050.33	-217.45	142.92
	3	1.310	1	-694.51	-354.61	361.76
			2	-1050.33	-217.45	285.33
	4	1.965	1	-694.51	-354.61	594.00
			2	-1050.33	-217.45	427.73
	5	2.620	1	-752.27	-354.61	826.24
			2	-1050.33	-217.45	570.14
3	1	0.000	1	-1181.82	1.92	-107.40
			2	-1050.33	217.45	-0.52
	2	0.655	1	-1124.06	1.92	-108.66
			2	-1050.33	217.45	-142.92
	3	1.310	1	-1066.29	1.92	-109.91
			2	-1050.33	217.45	-285.33
	4	1.965	1	-1066.29	1.92	-111.17
			2	-1050.33	217.45	-427.73
	5	2.620	1	-1008.53	1.92	-112.43
			2	-1050.33	217.45	-570.14
4	1	0.000	1	443.85	148.71	289.47
			2	344.12	0.00	-69.88
	2	0.800	1	380.10	148.71	170.50
			2	344.12	0.00	-69.88
	3	1.600	1	316.35	148.71	51.53
			2	344.12	0.00	-69.88
	4	2.400	1	252.60	148.71	-67.44
			2	344.12	0.00	-69.88
	5	3.200	1	252.60	148.71	-186.41
			2	344.12	0.00	-69.88
	6	4.000	1	188.85	148.71	-305.38
			2	344.12	0.00	-69.88
	7	4.800	1	125.10	148.71	-424.35
			2	344.12	0.00	-69.88

* REACCIONES EN APOYOS (COMBINACIONES) *

Nudo No.	Hip. No.	F-X (Ton)	F-Y (Ton)	Momento (m*T)
1	1	-.1722D+00	0.4808D+03	0.0000D+00
	2	0.0000D+00	0.1016D+04	0.0000D+00
2	1	0.0000D+00	0.1223D+04	0.0000D+00
	2	0.0000D+00	0.1016D+04	0.0000D+00

Hacemos un nuevo cálculo en el que las cargas P y los momentos M que aplicabamos en los nudos 3 y 4, los introducimos repartidos a lo largo de las barras 2 y 3.

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|  AGROMAN Empresa Constructora     Direcci¢n T,cnica       |
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|  ESTRU2 (Ver. 10.0)      CALCULO DE PORTICOS PLANOS       |
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|                                                           |
|      T¡tulo : TABLERO. RIOSTRA SOBRE ESTRIBOS             |
|                                                           |
|       Autor :                                             |
|                                                           |
|   Area/Dpto. :                                           |
|                                                           |
|     Fecha : 11-11-1999            Hora : 08:42:10         |
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DATOS DE ENTRADA ** EN METROS Y TONELADAS

** GEOMETRIA DE BARRAS **

BARRAS PRI	BARRAS ULT	BARRAS INC	NUDO INI INI	NUDO INI INC	NUDO FIN FIN	NUDO FIN INC	PUN INT	SEC TIP	PROY. X (m)	PROY. Y (m)	TIP	ARM
1			1		2		3	1	4.160	0.000	1	0
2			1		3		3	2	-0.320	2.600	1	0
3			2		4		3	2	0.320	2.600	1	0
4			3		4		5	3	4.800	0.000	1	0

** DATOS DE SECCIONES TIPO **

SECCION	TIPO	ANCHO-DIAMETRO DIAMETRO EXT. AREA (m-m2)	CANTO DIAMETRO INT. INERCIA (m-m4)	AREA EQUIVALENTE A CORTANTE(m^2)	RS	RI
1	1	2.75000000	0.50000000	0.00000000	0.03	0.03
2	1	2.75000000	1.50000000	0.00000000	0.03	0.03
3	1	2.75000000	0.89999998	0.00000000	0.03	0.03

** MATERIALES **

MODULO DE ELASTICIDAD . . . . . : 3800000 t/m^2
COEFICIENTE DE DILATACION TERMICA : .00001
COEFICIENTE DE POISSON . . . . . : .2

** DATOS DE NUDOS Y TIPOS DE VINCULACIONES **

NUDOS INI	NUDOS FIN	NUDOS INC	TIPO VINC	COOR. X (m)	COOR. Y (m)	ANGULO (grados)	MUELLE-1 (tn/m)	MUELLE-2	DX	DY	WZ
1			2	0.000	0.000	0.000	0.00	0.00	0	0	0
2			3	0.000	0.000	0.000	0.00	0.00	0	0	0

** DATOS DE CARGAS EN BARRAS O EN NUDOS **

CAR NUM	BARRA - NUDO INI	FIN	INC	HIPO	TIPO	A (m)	B (m)	VALOR 1	VALOR 2	VALOR 3
1	1			1	1	0.520	0.000	-46.040	0.000	0.000
2	1			1	1	1.560	0.000	-46.040	0.000	0.000
3	1			1	1	2.600	0.000	-46.040	0.000	0.000
4	1			1	1	3.640	0.000	-46.040	0.000	0.000
5	2			1	1	0.435	0.000	38.510	0.000	0.000
6	2			1	1	1.305	0.000	38.510	0.000	0.000
7	2			1	1	2.175	0.000	38.510	0.000	0.000
8	4			1	1	0.480	0.000	42.500	0.000	0.000
9	4			1	1	1.440	0.000	42.500	0.000	0.000
10	4			1	1	2.400	0.000	42.500	0.000	0.000
11	4			1	1	3.360	0.000	42.500	0.000	0.000
12	4			1	1	4.320	0.000	42.500	0.000	0.000

** DATOS DE CARGAS EN BARRAS O EN NUDOS **

CAR NUM	BARRA - NUDO INI	FIN	INC	HIPO	TIPO	A (m)	B (m)	VALOR 1	VALOR 2	VALOR 3
13	3		1	1		2.175	0.000	-38.510	0.000	0.000
14	3		1	1		1.305	0.000	-38.510	0.000	0.000
15	3		1	1		0.435	0.000	-38.510	0.000	0.000
16	2		2	1		0.435	0.000	-190.770	0.000	72.493
17	2		2	1		1.305	0.000	-190.770	0.000	91.570
18	2		2	1		2.175	0.000	-190.770	0.000	110.647
19	3		2	1		0.435	0.000	-190.770	0.000	-72.493
20	3		2	1		1.305	0.000	-190.770	0.000	-91.570
21	3		2	1		2.175	0.000	-190.770	0.000	-110.647
22	2		3	1		0.435	0.000	-227.460	0.000	86.435
23	2		3	1		1.305	0.000	-227.460	0.000	109.181
24	2		3	1		2.175	0.000	-227.460	0.000	131.927
25	3		3	1		0.435	0.000	-227.460	0.000	-86.435
26	3		3	1		1.305	0.000	-227.460	0.000	-109.181
27	3		3	1		2.175	0.000	-227.460	0.000	-131.927

** DATOS DE COMBINACIONES **

NUM	Hip-1	Hip-2	Hip-3	Hip-4	Hip-5	Hip-6	Hip-7	Hip-8	Hip-9	Hip-10
1	1.50	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00

HIPOTESIS SIMPLES			
HIPOTESIS	MOV.NUDOS	ESF.BARRAS	REAC.NUDOS
1	1	1	1
2	1	1	1
3	1	1	1
COMBINACIONES DE HIPOTESIS			
COMBINACION	MOV.NUDOS	ESF.BARRAS	REAC.NUDOS
1	1	1	1
2	1	1	1

* MOVIMIENTOS EN LOS NUDOS (HIPOTESIS DE CARGA) *

Nudo No.	Hip. No.	Desp.-X (cm.)	Desp.-Y (cm.)	Giro (mRad)
1	1	0.0000D+00	0.0000D+00	-.4218D+00
	2	0.0000D+00	0.0000D+00	0.3505D-01
	3	0.0000D+00	0.0000D+00	0.4179D-01
2	1	-.7107D-02	0.0000D+00	-.4704D+00
	2	-.1358D-01	0.0000D+00	-.3505D-01
	3	-.1620D-01	0.0000D+00	-.4179D-01
3	1	0.1056D+00	0.1639D-01	-.3490D+00
	2	-.9362D-02	-.1100D-01	0.4179D-01
	3	-.1116D-01	-.1311D-01	0.4982D-01
4	1	0.1109D+00	-.1790D-01	-.3935D+00
	2	-.4222D-02	-.1100D-01	-.4179D-01
	3	-.5034D-02	-.1311D-01	-.4982D-01

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
1	1	0.000	1	-89.27	33.67	68.76
			2	-170.61	0.00	-1.83
			3	-203.42	0.00	-2.19
	2	1.040	1	-43.23	33.67	33.75
			2	-170.61	0.00	-1.83
			3	-203.42	0.00	-2.19
	3	2.080	1	2.81	33.67	-1.27
			2	-170.61	0.00	-1.83
			3	-203.42	0.00	-2.19
	4	3.120	1	48.85	33.67	-36.29
			2	-170.61	0.00	-1.83
			3	-203.42	0.00	-2.19
	5	4.160	1	94.89	33.67	-71.31
			2	-170.61	0.00	-1.83
			3	-203.42	0.00	-2.19
2	1	0.000	1	201.29	-114.83	-68.76
			2	-584.61	-99.95	1.83
			3	-697.05	-119.17	2.19
	2	0.655	1	162.78	-114.83	6.44
			2	-393.84	-99.95	-5.20
			3	-469.59	-119.17	-6.20
	3	1.310	1	124.27	-114.83	81.64
			2	-203.07	-99.95	-31.32
			3	-242.13	-119.17	-37.34
	4	1.965	1	124.27	-114.83	156.85
			2	-203.07	-99.95	34.14
			3	-242.13	-119.17	40.70
	5	2.620	1	85.76	-114.83	232.05
			2	-12.30	-99.95	-11.05
			3	-14.67	-119.17	-13.18
3	1	0.000	1	-200.61	-120.30	-71.31
			2	-584.61	99.95	-1.83
			3	-697.05	119.17	-2.19
	2	0.655	1	-162.10	-120.30	7.47
			2	-393.84	99.95	5.20
			3	-469.59	119.17	6.20
	3	1.310	1	-123.59	-120.30	86.26
			2	-203.07	99.95	31.32
			3	-242.13	119.17	37.34
	4	1.965	1	-123.59	-120.30	165.04
			2	-203.07	99.95	-34.14
			3	-242.13	119.17	-40.70
	5	2.620	1	-85.08	-120.30	243.83
			2	-12.30	99.95	11.05
			3	-14.67	119.17	13.18
4	1	0.000	1	103.50	99.14	232.05

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
4	1	0.000	2	100.70	0.00	-11.05
			3	120.07	0.00	-13.18
	2	0.800	1	61.00	99.14	152.74
			2	100.70	0.00	-11.05
			3	120.07	0.00	-13.18
	3	1.600	1	18.50	99.14	73.42
			2	100.70	0.00	-11.05
			3	120.07	0.00	-13.18
	4	2.400	1	-24.00	99.14	-5.89
			2	100.70	0.00	-11.05
			3	120.07	0.00	-13.18
	5	3.200	1	-24.00	99.14	-85.20
			2	100.70	0.00	-11.05
			3	120.07	0.00	-13.18
	6	4.000	1	-66.50	99.14	-164.51
			2	100.70	0.00	-11.05
			3	120.07	0.00	-13.18
	7	4.800	1	-109.00	99.14	-243.83
			2	100.70	0.00	-11.05
			3	120.07	0.00	-13.18

* REACCIONES EN APOYOS (HIPOTESIS DE CARGA) *

Nudo No.	Hip. No.	F-X (Ton)	F-Y (Ton)	Momento (m*T)
1	1	-.1148D+00	-.2475D+03	0.0000D+00
	2	0.3450D-04	0.5680D+03	0.0000D+00
	3	0.4930D-04	0.6773D+03	0.0000D+00
2	1	0.0000D+00	0.2475D+03	0.0000D+00
	2	0.3875D-05	0.5680D+03	0.0000D+00
	3	-.3546D-05	0.6773D+03	0.0000D+00

* MOVIMIENTOS EN LOS NUDOS (COMBINACIONES) *

Nudo No.	Comb. No.	Desp.-X (cm.)	Desp.-Y (cm.)	Giro (mRad)
1	1	0.0000D+00	0.0000D+00	-.5801D+00
	2	0.0000D+00	0.0000D+00	0.6269D-01
2	1	-.3104D-01	0.0000D+00	-.7582D+00
	2	-.2429D-01	0.0000D+00	-.6269D-01
3	1	0.1444D+00	0.8085D-02	-.4608D+00
	2	-.1674D-01	-.1967D-01	0.7473D-01
4	1	0.1600D+00	-.4334D-01	-.6530D+00
	2	-.7551D-02	-.1967D-01	-.7473D-01

* ESFUERZOS EN LAS BARRAS (COMBINACIONES) *

Barra No.	Punto No.	Abcisa (m.)	Comb. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
1	1	0.000	1	-389.82	50.51	100.40
			2	-305.14	0.00	-3.28
	2	1.040	1	-320.76	50.51	47.87
			2	-305.14	0.00	-3.28
	3	2.080	1	-251.70	50.51	-4.66
			2	-305.14	0.00	-3.28
	4	3.120	1	-182.64	50.51	-57.19
			2	-305.14	0.00	-3.28
	5	4.160	1	-113.58	50.51	-109.72
			2	-305.14	0.00	-3.28
2	1	0.000	1	-574.99	-322.17	-100.40
			2	-1045.57	-178.75	3.28
	2	0.655	1	-346.60	-322.17	1.85
			2	-704.38	-178.75	-9.31
	3	1.310	1	-118.21	-322.17	75.49
			2	-363.19	-178.75	-56.01
	4	1.965	1	-118.21	-322.17	286.48
			2	-363.19	-178.75	61.06
	5	2.620	1	110.18	-322.17	331.49
			2	-22.00	-178.75	-19.77
3	1	0.000	1	-1177.84	-30.53	-109.72
			2	-1045.57	178.75	-3.28
	2	0.655	1	-833.92	-30.53	19.02
			2	-704.38	178.75	9.31
	3	1.310	1	-490.00	-30.53	176.36
			2	-363.19	178.75	56.01
	4	1.965	1	-490.00	-30.53	196.36
			2	-363.19	178.75	-61.06
	5	2.620	1	-146.08	-30.53	382.32
			2	-22.00	178.75	19.77
4	1	0.000	1	306.29	148.71	331.49
			2	180.10	0.00	-19.77
	2	0.800	1	242.54	148.71	212.52
			2	180.10	0.00	-19.77
	3	1.600	1	178.79	148.71	93.56
			2	180.10	0.00	-19.77
	4	2.400	1	115.04	148.71	-25.41
			2	180.10	0.00	-19.77
	5	3.200	1	115.04	148.71	-144.38
			2	180.10	0.00	-19.77
	6	4.000	1	51.29	148.71	-263.35
			2	180.10	0.00	-19.77
	7	4.800	1	-12.46	148.71	-382.32
			2	180.10	0.00	-19.77

* REACCIONES EN APOYOS (COMBINACIONES) *

Nudo No.	Hip. No.	F-X (Ton)	F-Y (Ton)	Momento (m*T)
1	1	-.1721D+00	0.4808D+03	0.0000D+00
	2	0.7396D-04	0.1016D+04	0.0000D+00
2	1	0.5813D-05	0.1223D+04	0.0000D+00
	2	-.5320D-05	0.1016D+04	0.0000D+00

LAV. VIADUCTO Nº 1

ARMADO RIOSTRA SOBRE ESTRIBOS

Calculo Caso "A"

Barra	Punto	Carga Centrada Md	Carga Centrada Nd	Carga Descentrada Md	Carga Descentrada Nd
1	1	-0.52	-344.12	102.71	-422.71
	Centro	-0.52	-344.12	-2.34	-284.39
	2	-0.52	-344.12	-107.40	-146.27
2	1	0.52	-1050.33	-102.71	-578.98
	Centro	285.33	-1050.33	361.76	-694.51
	3	570.14	-1050.33	826.24	-752.27
3	2	-0.52	-1050.33	-107.40	-1181.82
	Centro	-285.33	-1050.33	-109.91	-1066.29
	4	-570.14	-1050.33	-112.43	-1008.53
4	3	-69.88	344.12	289.47	443.85
	Centro	-69.88	344.12	-67.44	252.60
	4	-69.88	344.12	-424.35	125.10

LAV. VIADUCTO Nº 1

ARMADO RIOSTRA SOBRE ESTRIBOS

Calculo Caso "A"

fcd = 4000/1.5 = 2667

Uo = 0,85.b.d.fcd

Barra	Punto	Carga Centrada Md	Nd	d	d'	Uo	Us1 = Us2
1	1	-0.52	344.12	0.450	0.050	2805	-190.03
	Centro	-0.52	344.12	0.450	0.050	2805	-190.03
	2	-0.52	344.12	0.450	0.050	2805	-190.03
2	1	0.52	1050.33	1.100	0.150	6857	-597.31
	Centro	285.33	1050.33	1.350	0.150	8415	-344.94
	3	570.14	1050.33	1.600	0.150	9973	-179.59
3	2	-0.52	1050.33	1.100	0.150	6857	-597.31
	Centro	-285.33	1050.33	1.350	0.150	8415	-344.94
	4	-570.14	1050.33	1.600	0.150	9973	-179.59
4	3	-69.88	-344.12	0.870	0.050	5423	257.28
	Centro	-69.88	-344.12	0.870	0.050	5423	257.28
	4	-69.88	-344.12	0.870	0.050	5423	257.28

LAV. VIADUCTO Nº 1

ARMADO RIOSTRA SOBRE ESTRIBOS

Calculo Caso "A"

fcd = 4000/1.5 = 2667

Uo = 0,85.b.d.fcd

Barra	Punto	Carga Descentrada Md	Nd	d	d'	Uo	Us1 = Us2
1	1	102.71	422.71	0.450	0.050	2805	28.41
	Centro	-2.34	284.39	0.450	0.050	2805	-155.67
	2	-107.40	146.27	0.450	0.050	2805	181.37
2	1	-102.71	578.98	1.100	0.150	6857	-244.49
	Centro	361.76	694.51	1.350	0.150	8415	-100.36
	3	826.24	752.27	1.600	0.150	9973	147.17
3	2	-107.40	1181.82	1.100	0.150	6857	-546.53
	Centro	-109.91	1066.29	1.350	0.150	8415	-498.84
	4	-112.43	1008.53	1.600	0.150	9973	-474.79
4	3	289.47	-443.85	0.870	0.050	5423	574.94
	Centro	-67.44	-252.60	0.870	0.050	5423	208.54
	4	-424.35	-125.10	0.870	0.050	5423	580.05

LAV. VIADUCTO Nº 1

ARMADO RIOSTRA SOBRE ESTRIBOS

Calculo Caso "A"

Barra	Punto	Carga Centrada Us1 = Us2	Carga Centrada As1 = As2	Carga Descentrada Us1 = Us2	Carga Descentrada As1 = As2	Resumen Armaduras Us1 = Us2	Resumen Armaduras As1 = As2
1	1	-190.03	0.00	28.41	6.41	28.41	6.41
	Centro	-190.03	0.00	-155.67	0.00	-155.67	0.00
	2	-190.03	0.00	181.37	40.90	181.37	40.90
2	1	-597.31	0.00	-244.49	0.00	-244.49	0.00
	Centro	-344.94	0.00	-100.36	0.00	-100.36	0.00
	3	-179.59	0.00	147.17	33.19	147.17	33.19
3	2	-597.31	0.00	-546.53	0.00	-546.53	0.00
	Centro	-344.94	0.00	-498.84	0.00	-344.94	0.00
	4	-179.59	0.00	-474.79	0.00	-179.59	0.00
4	3	257.28	58.02	574.94	129.67	574.94	129.67
	Centro	257.28	58.02	208.54	47.03	257.28	58.02
	4	257.28	58.02	580.05	130.82	580.05	130.82

LAV. VIADUCTO Nº 1

ARMADO RIOSTRA SOBRE ESTRIBOS

Calculo Caso "B"

Barra	Punto	Carga Centrada Md	Carga Centrada Nd	Carga Descentrada Md	Carga Descentrada Nd
1	1	-3.28	-305.14	100.40	-389.82
	Centro	-3.28	-305.14	-4.66	-251.70
	2	-3.28	-305.14	-109.72	-113.58
2	1	3.28	-1045.57	-100.40	-574.99
	Centro	-56.01	-363.19	75.49	-118.21
	3	-19.77	-22.00	331.49	110.18
3	2	-3.28	-1045.57	-109.72	-1177.84
	Centro	56.01	-363.19	176.36	-490.00
	4	19.77	-22.00	382.32	-146.08
4	3	-19.77	180.10	331.49	306.29
	Centro	-19.77	180.10	-25.41	115.04
	4	-19.77	180.10	-382.32	-12.46

LAV. VIADUCTO Nº 1

ARMADO RIOSTRA SOBRE ESTRIBOS

Calculo Caso "B"

fcd = 4000/1.5 = 2667

Uo = 0,85.b.d.fcd

Barra	Punto	Carga Centrada Md	Nd	d	d'	Uo	Us1 = Us2
1	1	-3.28	305.14	0.450	0.050	2805	-163.84
	Centro	-3.28	305.14	0.450	0.050	2805	-163.84
	2	-3.28	305.14	0.450	0.050	2805	-163.84
2	1	3.28	1045.57	1.100	0.150	6857	-592.12
	Centro	-56.01	363.19	1.350	0.150	8415	-171.50
	3	-19.77	22.00	1.600	0.150	9973	0.39
3	2	-3.28	1045.57	1.100	0.150	6857	-592.12
	Centro	56.01	363.19	1.350	0.150	8415	-171.50
	4	19.77	22.00	1.600	0.150	9973	0.39
4	3	-19.77	-180.10	0.870	0.050	5423	114.16
	Centro	-19.77	-180.10	0.870	0.050	5423	114.16
	4	-19.77	-180.10	0.870	0.050	5423	114.16

ARMADO RIOSTRA SOBRE ESTRIBOS

Calculo Caso "B"

fcd = 4000/1.5 = 2667

Uo = 0,85.b.d.fcd

Barra	Punto	Carga Descentrada Md	Nd	d	d'	Uo	Us1 = Us2
1	1	100.40	389.82	0.450	0.050	2805	37.84
	Centro	-4.66	251.70	0.450	0.050	2805	-132.96
	2	-109.72	113.58	0.450	0.050	2805	205.90
2	1	-100.40	574.99	1.100	0.150	6857	-244.68
	Centro	75.49	118.21	1.350	0.150	8415	-10.04
	3	331.49	-110.18	1.600	0.150	9973	283.70
3	2	-109.72	1177.84	1.100	0.150	6857	-542.26
	Centro	176.36	490.00	1.350	0.150	8415	-143.23
	4	382.32	146.08	1.600	0.150	9973	176.70
4	3	331.49	-306.29	0.870	0.050	5423	557.40
	Centro	-25.41	-115.04	0.870	0.050	5423	88.51
	4	-382.32	12.46	0.870	0.050	5423	459.27

LAV. VIADUCTO Nº 1

ARMADO RIOSTRA SOBRE ESTRIBOS

Calculo Caso "B"

Barra	Punto	Carga Centrada Us1 = Us2	Carga Centrada As1 = As2	Carga Descentrada Us1 = Us2	Carga Descentrada As1 = As2	Resumen Armaduras Us1 = Us2	Resumen Armaduras As1 = As2
1	1	-163.84	0.00	37.84	8.53	37.84	8.53
	Centro	-163.84	0.00	-132.96	0.00	-132.96	0.00
	2	-163.84	0.00	205.90	46.44	205.90	46.44
2	1	-592.12	0.00	-244.68	0.00	-244.68	0.00
	Centro	-171.50	0.00	-10.04	0.00	-10.04	0.00
	3	0.39	0.09	283.70	63.98	283.70	63.98
3	2	-592.12	0.00	-542.26	0.00	-542.26	0.00
	Centro	-171.50	0.00	-143.23	0.00	-143.23	0.00
	4	0.39	0.09	176.70	39.85	176.70	39.85
4	3	114.16	25.75	557.40	125.71	557.40	125.71
	Centro	114.16	25.75	88.51	19.96	114.16	25.75
	4	114.16	25.75	459.27	103.58	459.27	103.58

LAV. VIADUCTO N° 7

RESUMEN DE ARMADO

ARMADO A CORTANTE Y RASANTE				
SECCION	A	B	C	D
1	21.44	25.98	24.51	27.02
2	24.45	24.85	22.37	31.77
3	18.17	20.49	18.45	26.20
4	12.38	16.48	14.84	21.07
5	7.27	8.97	8.08	11.47
6	9.68	10.69	9.63	13.67
7	11.60	12.02	10.82	15.37
8	15.44	14.67	13.21	18.76
9	18.08	16.47	14.83	21.06
10	41.79	33.00	29.72	42.20
10'	37.40	26.69	25.18	27.76
11	54.38	36.95	34.86	38.43
11'	53.83	36.88	34.79	38.35
12	36.17	26.16	24.68	27.21
12'	40.58	32.35	29.13	41.36
13	21.62	19.04	17.15	24.35
14	13.88	13.34	12.01	17.06
15	9.45	10.28	9.26	13.15
16	6.86	8.53	7.68	10.91
17	1.83	8.49	7.65	10.86
18	3.33	9.56	8.61	12.22
19	6.30	11.62	10.46	14.86
20	9.82	14.05	12.65	17.97
21	39.84	35.05	31.56	44.81
21'	35.44	28.34	26.74	29.48
22	51.48	38.10	35.95	39.63
22'	52.18	36.88	34.80	38.36
23	34.38	26.12	24.64	27.16
23'	38.81	32.30	29.08	41.29
24	19.91	19.08	17.18	24.40
25	12.23	13.40	12.07	17.14
26	7.83	10.36	9.33	13.25
27	5.23	8.61	7.75	11.01
28	4.13	6.79	6.12	8.69
29	5.67	7.89	7.11	10.09
30	8.58	9.94	8.95	12.70
31	11.99	12.31	11.09	15.75
32	42.05	33.35	30.03	42.64
32'	37.63	26.97	25.45	28.05
33	53.69	36.78	34.67	38.23
33'	53.66	36.98	34.88	38.46
34	35.81	26.17	24.69	27.22
34'	40.25	32.36	29.14	41.37
35	21.46	19.20	17.29	24.55
36	13.82	13.54	12.19	17.31
37	9.45	10.51	9.46	13.44
38	6.77	8.69	7.82	11.11
39	4.46	7.15	6.44	9.15
40	3.90	8.28	7.46	10.59
41	6.85	10.36	9.33	13.24
42	10.31	12.77	11.50	16.33
43	40.28	33.76	30.40	43.16
43'	35.85	27.30	25.75	26.39
44	51.79	37.05	34.95	38.53
44'	53.09	36.83	34.74	38.30
55	50.64	36.93	34.84	38.41

LAV. VIADUCTO N° 7

RESUMEN DE ARMADO

ARMADO A CORTANTE Y RASANTE				
SECCION	A	B	C	D
55'	48.91	36.94	34.85	38.42
56	31.40	26.18	24.69	27.22
56'	36.46	32.37	29.14	36.17
57	17.46	19.15	17.25	24.49
58	9.48	13.48	12.13	17.23
59	4.99	10.44	9.40	13.35
60	2.45	8.69	7.82	11.11
61	0.21	7.14	6.43	9.13
62	1.08	7.10	6.39	9.07
63	3.80	9.10	8.20	11.64
64	7.13	11.44	10.31	14.63
65	36.94	32.69	29.43	41.80
65'	31.48	26.44	24.94	27.49
66	47.09	36.30	34.24	37.75
66'	44.10	34.44	32.49	35.82
67	24.61	22.49	21.21	23.39
67'	29.92	27.80	25.04	35.55
68	10.91	14.59	13.13	18.65
69	3.05	9.12	8.22	11.67
70	4.40	10.09	9.09	12.90
71	4.34	10.06	9.06	12.87
72	-1.42	6.06	5.46	7.75
73	3.76	9.65	8.69	12.34
74	9.06	13.32	12.00	17.04
75	14.89	17.36	15.63	22.20
76	19.78	19.67	18.56	20.46

Resumen de armad.

Riostra sobre estribos

Arm. horiz. superior :

$A_s = 2 \cdot 13'82 = 26'64 \text{ cm}^2$

2 filas de 17 ø 32 (= c 0'16) sup. e inf. y

una central de 17 ø 20

Arm. horiz. inferior :

$A_s = 2 \cdot 46'44 = 92'88 \text{ cm}^2$

2 filas de 17 ø 25 (= c 0'19)

Armadura vertical en las paredes laterales :

$A_s = 2 \cdot 63'98 = 127'96$

17 cercos ø 25 + 5 · 2 cercos ø 20

Armado tra. anclajes

- Zona extremos y de cuerdas:

Tendones 19 ϕ 0'6"

$N_{pref} = 0'75 \cdot 190 \cdot 2660 \cdot 10^{-3} = 379'05$

Total:

$V = 0'25 \cdot \frac{3'20 - 0'35}{3'20} \cdot 379'05 = 84'40\ t$

Para evitar la fisuración limitamos la tensión de trabajo del acero a 2000 kg/cm²

$A_s = \frac{84'40 \cdot 10^3}{2000} = 42'20\ cm^2$

4 capas de 4 ϕ 20 a 0'25 0'50. 0'75 x 100 m.

Horizontal:

$V = 0'25 \cdot \frac{0'60 - 0'35}{0'60} \cdot 379'05 = 39'48\ t.$

$A_s = \frac{39'48}{2} = 19'74$

4 capas de 2 ϕ 20 - (4 c. ϕ 20) a 0'25. 0'50. 0'75 x 100 m

- Zonas de anclaje en nervios subiendo de tendones que se cruzan

Tendones: 19 ϕ 0'6"

N_{pref}: 379'05

Vertical:

$V = 0'25 \cdot \frac{2'80 - 0'35}{2'80} \cdot 379'05 = 82'92\ t$

$A_s = \frac{82'92}{2} = 41'46\ cm^2$

4 capas de 4 ϕ 20 a 0'25. 0'50. 0'75 x 100

Cercos de resist. horizontales.

α: arc. tg 0'15 = 8'53°

$V = 379'05 \cdot \operatorname{sen} \alpha = 56'23\ t$

$A_s = \frac{56'23}{2} = 28'11\ cm^2$

5 cercos ϕ 20

Armadura longitudinal de resist. en la zona

anterior al anclaje.

$V = 0'35 \cdot 3 \times 9'05 = 132'66\ t.$

$A_s = \frac{132'66}{2} = 66'33\ cm^2$

Descontando la mitad de la armadura existente $\phi 16 c/2$.

$A_s = 66'33 - 0'5 \cdot 2 \cdot 5 \cdot 2'01 = 56'28\ cm^2$ $\quad 12\ \phi 25$

— Zunchos de anclaje en riostras sobre pilas

de tendones inferiores.

Tendones : $12\ \phi\ 0'6''$

$N_{prof} = 239'4$

Vertical:

$V = 0'25 \cdot \frac{1'40 - 0'25}{1'40} \cdot 239'4 = 49'16\ t.$

$A_s = \frac{49'16}{2} = 24'58\ cm^2$

$4 \cdot 2\ \phi 2 \cdot (4\ c. \phi 2.)$ $\quad c\ 0'20 . 0'40 . 0'6 y 0'8$

Cercos de resist. verticales:

$\alpha = arc.\ tg\ 0'15 \cdot 8'53$

$V = 239'40 \cdot \operatorname{sen} \alpha = 35'51\ t.$

$A_s = \frac{35'51}{2} = 17'76\ cm^2$

3 cercos $\phi 20$

Armadura longitudinal de resist. en la zona

anterior al anclaje

$V = 0'35 \cdot 239'4 = 83'79\ t.$

$A_s = \frac{83'79}{2} = 41'90\ cm^2$

$8\ \phi\ 25$

1.1.8. APARATOS DE APOYO

APARATOS DE APOYO

Los aparatos de apoyo corresponden a aparatos de neopreno-teflón guiados o libres, por lo que sólo deben comprobarse las tensiones verticales transmitidas a los mismos.

A continuación se incluye esta comprobación.

En el apartado "RESULTADO DE LOS CÁLCULOS" se presentan, además, listados de desplazamientos longitudinales, esfuerzos de servicio y cargas verticales en apoyos.

Para transformar esfuerzos en pilas en cargas verticales en cada apoyo, se ha seguido un criterio de reparto rígido.

```
;
Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
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L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

COMPROBACION NEOPRENOS


LEYENDA      !: reacción negativa
             +: tensión en el apoyo superior a 150 kg/cm2
             *: tensión en el apoyo inferior a 50 kg/cm2
            **: (solo neop) desplazamiento no admisible (ϕ/h>0.7)
```

apoyo	nº neop	σmax [kp/cm2]	σmin [kp/cm2]	ϕ/h_neta
E-1	1	-33.79 *	-114.02	-----
	2	-29.28 *	-118.52	
P-1	1	-64.45	-133.19	-----
	2	-64.97	-129.88	
P-2	1	-74.63	-141.15	-----
	2	-73.98	-144.55	
P-3	1	-71.31	-142.90	-----
	2	-70.71	-139.67	
P-4	1	-72.59	-144.29	-----
	2	-71.66	-145.07	
P-5	1	-72.19	-144.06	-----
	2	-71.32	-144.63	
P-6	1	-72.31	-144.20	-----
	2	-71.35	-144.67	
P-7	1	-72.41	-144.14	-----
	2	-71.22	-144.88	
P-8	1	-72.47	-144.33	-----
	2	-71.26	-144.83	
P-9	1	-72.54	-144.22	-----
	2	-71.07	-144.69	
P-10	1	-72.67	-144.37	-----
	2	-71.11	-143.83	
P-11	1	-72.54	-144.38	-----
	2	-71.06	-144.57	
P-12	1	-72.80	-144.49	-----
	2	-70.98	-143.98	
P-13	1	-72.58	-144.59	----
	2	-70.92	-143.98	
P-14	1	-72.94	-144.74	----
	2	-70.97	-143.73	
P-15	1	-72.26	-144.48	-----
	2	-70.62	-143.13	

P-16	1	-74.70	-145.89	-----
	2	-72.57	-144.60	
P-17	1	-73.98	-144.03	-----
	2	-71.75	-143.13	
P-18	1	-61.54	-131.13	-----
	2	-59.35	-129.46	
E-2	1	-37.21 *	-119.03	-----
	2	-43.35 *	-110.08	

29	0	2.18E-05	0.261529	-2.728	-9.169	-1.405	-7.938
29	2.000	2.18E-05	0.261529	-2.728	-9.169	-6.862	-7.415
29	4.001	2.18E-05	0.261529	-2.728	-9.169	-12.318	-6.892
30	0	-0.075616	0.261521	-2.727	-8.976	-12.317	-7.144
30	2.001	-0.075616	0.261521	-2.727	-8.976	-17.772	-6.621
30	4.001	-0.075616	0.261521	-2.727	-8.976	-23.227	-6.097

Aparatos de apoyo

Línea de Alta Velocidad Madrid-Zaragoza. Tramo IV.

Dimensionamiento de chapas de teflón en apoyos

Def. reológic 740
Temperatura 195

Apoyo	dist al punto f	Apoyo	WS	L1	L2
E-1	744	PU-800	824	593	1282
P-1	712	PU-1400	1090	719	1377
P-2	672	PU-1400	1090	709	1330
P-3	632	PU-1400	1090	699	1284
P-4	592	PU-1400	1090	689	1237
P-5	552	PU-1400	1090	680	1190
P-6	512	PU-1400	1090	670	1143
P-7	472	PU-1400	1090	660	1097
P-8	432	PU-1400	1090	650	1050
P-9	392	PU-1400	1090	641	1003
P-10	352	PU-1400	1090	631	956
P-11	312	PU-1400	1090	621	910
P-12	272	PU-1400	1090	611	863
P-13	232	PU-1400	1090	602	816
P-14	192	PU-1400	1090	592	769
P-15	152	PU-1400	1090	582	723
P-16	112	PU-1400	1090	572	676
P-17	72	PU-1400	1090	563	629
P-18	32	PU-1400	1090	553	582
E-2	0	PU-800	824	412	412

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
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L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

ESFUERZOS STATIK2 ESTADO LIMITE DE SERVICIO

apoyo	sec	env	Nk [t]	Myk [mt]	Mzk [mt]
1	1	Mz min	-764.19	0.00	-926.37
	1	Mz max	-812.25	0.00	926.29
1	1	N min	-1007.06	0.00	-87.99
	1	N max	-536.30	0.00	22.77
2	1	Mz min	-1768.02	0.00	-925.67
	1	Mz max	-1943.68	0.00	924.09
2	1	N min	-2454.77	0.00	-60.16
	1	N max	-1207.66	0.00	9.51
3	1	Mz min	-2011.48	0.00	-1159.74
	1	Mz max	-2090.06	0.00	1157.71
3	1	N min	-2665.90	0.00	61.82
	1	N max	-1386.73	0.00	-11.84
4	1	Mz min	-2044.16	0.00	-1212.25
	1	Mz max	-1966.64	0.00	1215.47
4	1	N min	-2636.78	0.00	-58.70
	1	N max	-1325.21	0.00	-10.99
5	1	Mz min	-1981.66	0.00	-1242.99
	1	Mz max	-2073.67	0.00	1235.73
5	1	N min	-2660.59	0.00	-62.68
	1	N max	-1345.98	0.00	-16.87
6	1	Mz min	-1974.85	0.00	-1236.72
	1	Mz max	-2068.98	0.00	1228.84
6	1	N min	-2655.94	0.00	-63.47
	1	N max	-1339.17	0.00	-15.74
7	1	Mz min	-1976.15	0.00	-1242.72
	1	Mz max	-2069.68	0.00	1228.84
7	1	N min	-2656.64	0.00	-67.39
	1	N max	-1340.51	0.00	-17.55
8	1	Mz min	-1975.88	0.00	-1252.64
	1	Mz max	-2069.58	0.00	1236.96
8	1	N min	-2656.52	0.00	-65.25
	1	N max	-1340.26	0.00	-21.63
9	1	Mz min	-1976.80	0.00	-1255.31
	1	Mz max	-2070.48	0.00	1233.39
9	1	N min	-2657.41	0.00	-70.42
	1	N max	-1341.20	0.00	-22.15
10	1	Mz min	-1975.26	0.00	-1257.77
	1	Mz max	-2068.90	0.00	1231.26
10	1	N min	-2655.44	0.00	-70.48
	1	N max	-1340.08	0.00	-26.62
11	1	Mz min	-1984.72	0.00	-1243.46
	1	Mz max	-2062.58	0.00	1212.29
11	1	N min	-2657.00	0.00	-72.73
	1	N max	-1341.67	0.00	-28.41
12	1	Mz min	-1975.18	0.00	-1259.69
	1	Mz max	-2068.80	0.00	1226.96
12	1	N min	-2655.35	0.00	-76.54
	1	N max	-1339.99	0.00	-26.79
13	1	Mz min	-1985.12	0.00	-1255.31
	1	Mz max	-2062.98	0.00	1216.79
13	1	N min	-2657.80	0.00	-75.51
	1	N max	-1341.64	0.00	-33.21
14	1	Mz min	-1982.59	0.00	-1265.48
	1	Mz max	-2060.48	0.00	1221.85
14	1	N min	-2655.33	0.00	-83.97
	1	N max	-1339.09	0.00	-30.24
15	1	Mz min	-1986.51	0.00	-1253.37
	1	Mz max	-2064.09	0.00	1205.76
15	1	N min	-2659.07	0.00	-82.11
	1	N max	-1342.84	0.00	-35.79
16	1	Mz min	-1976.45	0.00	-1251.52
	1	Mz max	-2055.27	0.00	1200.94

16	1	N min	-2649.80	0.00	-90.91
	1	N max	-1333.21	0.00	-29.92
17	1	Mz min	-2014.11	0.00	-1245.56
	1	Mz max	-2087.60	0.00	1191.57
17	1	N min	-2678.80	0.00	-85.60
	1	N max	-1374.19	0.00	-38.83
18	1	Mz min	-1985.04	0.00	-1243.98
	1	Mz max	-2063.53	0.00	1184.99
18	1	N min	-2640.71	0.00	-92.13
	1	N max	-1359.82	0.00	-40.55
19	1	Mz min	-1685.11	0.00	-1055.52
	1	Mz max	-1899.43	0.00	1007.50
19	1	N min	-2411.43	0.00	-69.68
	1	N max	-1128.00	0.00	-39.88
20	1	Mz min	-865.92	0.05	-827.26
	1	Mz max	-785.42	-0.05	796.56
20	1	N min	-1057.72	0.05	52.14
	1	N max	-561.15	-0.05	-12.65

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
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CARGAS EN NEOPRENOS

apoyo	env	n° neop	Nk [t]
E-1	Mz min	1	-608.04
	Mz min	2	-156.15
	Mz max	1	-180.20
	Mz max	2	-632.05
E-1	N min	1	-524.99
	N min	2	-482.07
	N max	1	-262.60
	N max	2	-273.71
P-1	Mz min	1	-1121.36
	Mz min	2	-646.66
	Mz max	1	-734.89
	Mz max	2	-1208.79
P-1	N min	1	-1242.81
	N min	2	-1211.96
	N max	1	-601.39
	N max	2	-606.27
P-2	Mz min	1	-1303.11
	Mz min	2	-708.37
	Mz max	1	-748.18
	Mz max	2	-1341.88
P-2	N min	1	-1317.10
	N min	2	-1348.80
	N max	1	-696.40
	N max	2	-690.33
P-3	Mz min	1	-1332.91
	Mz min	2	-711.24
	Mz max	1	-671.66
	Mz max	2	-1294.98
P-3	N min	1	-1333.44
	N min	2	-1303.34
	N max	1	-665.42
	N max	2	-659.79
P-4	Mz min	1	-1309.54
	Mz min	2	-672.12
	Mz max	1	-719.98
	Mz max	2	-1353.69
P-4	N min	1	-1346.37
	N min	2	-1314.22
	N max	1	-677.32
	N max	2	-668.66
P-5	Mz min	1	-1304.53
	Mz min	2	-670.31
	Mz max	1	-719.40
	Mz max	2	-1349.58
P-5	N min	1	-1344.24
	N min	2	-1311.70
	N max	1	-673.62
	N max	2	-665.55
P-6	Mz min	1	-1306.72
	Mz min	2	-669.43
	Mz max	1	-719.75
	Mz max	2	-1349.93
P-6	N min	1	-1345.60
	N min	2	-1311.04
	N max	1	-674.76
	N max	2	-665.76
P-7	Mz min	1	-1309.13
	Mz min	2	-666.75
	Mz max	1	-717.62
	Mz max	2	-1351.96
P-7	N min	1	-1344.99

	N min	2	-1311.53
	N max	1	-675.67
	N max	2	-664.58
P-8	Mz min	1	-1310.27
	Mz min	2	-666.52
	Mz max	1	-718.99
	Mz max	2	-1351.49
P-8	N min	1	-1346.76
	N min	2	-1310.65
	N max	1	-676.28
	N max	2	-664.92
P-9	Mz min	1	-1310.13
	Mz min	2	-665.13
	Mz max	1	-718.74
	Mz max	2	-1350.16
P-9	N min	1	-1345.79
	N min	2	-1309.65
	N max	1	-676.87
	N max	2	-663.21
P-10	Mz min	1	-1311.20
	Mz min	2	-673.52
	Mz max	1	-720.45
	Mz max	2	-1342.14
P-10	N min	1	-1347.15
	N min	2	-1309.85
	N max	1	-678.12
	N max	2	-663.55
P-11	Mz min	1	-1310.59
	Mz min	2	-664.59
	Mz max	1	-719.79
	Mz max	2	-1349.01
P-11	N min	1	-1347.30
	N min	2	-1308.05
	N max	1	-676.87
	N max	2	-663.13
P-12	Mz min	1	-1314.44
	Mz min	2	-670.68
	Mz max	1	-719.49
	Mz max	2	-1343.49
P-12	N min	1	-1348.26
	N min	2	-1309.54
	N max	1	-679.34
	N max	2	-662.30
P-13	Mz min	1	-1315.78
	Mz min	2	-666.81
	Mz max	1	-716.95
	Mz max	2	-1343.54
P-13	N min	1	-1349.19
	N min	2	-1306.13
	N max	1	-677.30
	N max	2	-661.79
P-14	Mz min	1	-1314.63
	Mz min	2	-671.88
	Mz max	1	-722.87
	Mz max	2	-1341.21
P-14	N min	1	-1350.59
	N min	2	-1308.48
	N max	1	-680.59
	N max	2	-662.24
P-15	Mz min	1	-1309.13
	Mz min	2	-667.32
	Mz max	1	-719.70
	Mz max	2	-1335.57
P-15	N min	1	-1348.21
	N min	2	-1301.59
	N max	1	-674.28
	N max	2	-658.93
P-16	Mz min	1	-1326.43
	Mz min	2	-687.68
	Mz max	1	-738.27
	Mz max	2	-1349.33
P-16	N min	1	-1361.35
	N min	2	-1317.45
	N max	1	-697.05
	N max	2	-677.14
P-17	Mz min	1	-1311.49
	Mz min	2	-673.55
	Mz max	1	-727.92
	Mz max	2	-1335.61
P-17	N min	1	-1343.98
	N min	2	-1296.73
	N max	1	-690.31
	N max	2	-669.51
P-18	Mz min	1	-1113.20
	Mz min	2	-571.91
	Mz max	1	-691.38
	Mz max	2	-1208.05
P-18	N min	1	-1223.58
	N min	2	-1187.85
	N max	1	-574.22
	N max	2	-553.77
E-2	Mz min	1	-634.73
	Mz min	2	-231.19
	Mz max	1	-198.43

	Mz max	2	-586.99
E-2	N min	1	-516.14
	N min	2	-541.57
	N max	1	-283.66
	N max	2	-277.49

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

DESPLAZAMIENTOS HORIZONTALES

apoyo	dir	pret. [cm]	reol. [cm]	temp. [cm]	frenado [cm]	total [cm]
E-1	long	14.561	55.056	-11.160	0.675	81.453
	trans	0.002	0.008	-0.002	0.000	0.012
P-1	long	14.006	52.688	-10.680	0.674	78.048
	trans	0.002	0.008	-0.002	0.000	0.011
P-2	long	13.265	49.728	-10.080	0.669	73.742
	trans	-0.000	-0.001	0.000	-0.000	0.002
P-3	long	12.493	46.768	-9.480	0.660	69.400
	trans	-0.001	-0.002	0.000	-0.000	0.003
P-4	long	11.722	43.808	-8.880	0.647	65.057
	trans	-0.000	0.001	-0.000	-0.000	0.001
P-5	long	10.951	40.848	-8.280	0.630	60.709
	trans	-0.002	-0.002	0.000	-0.000	0.004
P-6	long	10.181	37.888	-7.680	0.610	56.358
	trans	-0.003	-0.004	0.001	-0.001	0.009
P-7	long	9.410	34.928	-7.080	0.585	52.003
	trans	-0.002	0.003	-0.001	-0.001	0.007
P-8	long	8.639	31.968	-6.480	0.556	47.643
	trans	-0.002	0.007	-0.001	-0.002	0.012
P-9	long	7.868	29.008	-5.880	0.524	43.280
	trans	-0.003	0.006	-0.001	-0.003	0.013
P-10	long	7.097	26.048	-5.280	0.488	38.913
	trans	-0.004	0.007	-0.001	-0.004	0.016
P-11	long	6.320	23.088	-4.680	0.448	34.536
	trans	-0.003	0.014	-0.003	-0.004	0.024
P-12	long	5.513	20.128	-4.080	0.404	30.124
	trans	-0.005	0.009	-0.002	-0.005	0.020
P-13	long	4.706	17.168	-3.480	0.356	25.710
	trans	-0.006	0.006	-0.001	-0.006	0.019
P-14	long	3.899	14.208	-2.880	0.304	21.291
	trans	-0.006	0.007	-0.002	-0.006	0.020
P-15	long	3.092	11.248	-2.280	0.248	16.868
	trans	-0.005	0.007	-0.001	-0.005	0.018
P-16	long	2.285	8.288	-1.680	0.188	12.442
	trans	-0.004	0.003	-0.001	-0.003	0.012
P-17	long	1.472	5.328	-1.080	0.125	8.004
	trans	-0.002	0.004	-0.001	-0.002	0.008
P-18	long	0.633	2.368	-0.480	0.058	3.538
	trans	-0.001	0.001	-0.000	-0.000	0.002
E-2	long	-0.000	0.000	-0.000	0.001	0.001
	trans	-0.000	0.000	-0.000	-0.000	0.000

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

COMPROBACION NEOPRENOS

LEYENDA
- !: reacción negativa
- +: tensión en el apoyo superior a 150 kg/cm2
- *: tensión en el apoyo inferior a 50 kg/cm2
- **: (solo neop) desplazamiento no admisible (ϕ/h>0.7)

apoyo	nº neop	σmax [kp/cm2]	σmin [kp/cm2]	ϕ/h_neta
E-1	1	-33.79 *	-114.02	-----
	2	-29.28 *	-118.52	
P-1	1	-64.45	-133.19	-----
	2	-64.97	-129.88	
P-2	1	-74.63	-141.15	-----
	2	-73.98	-144.55	
P-3	1	-71.31	-142.90	-----
	2	-70.71	-139.67	
P-4	1	-72.59	-144.29	-----
	2	-71.66	-145.07	
P-5	1	-72.19	-144.06	-----
	2	-71.32	-144.63	
P-6	1	-72.31	-144.20	-----
	2	-71.35	-144.67	
P-7	1	-72.41	-144.14	-----
	2	-71.22	-144.88	
P-8	1	-72.47	-144.33	-----
	2	-71.26	-144.83	
P-9	1	-72.54	-144.22	-----
	2	-71.07	-144.69	
P-10	1	-72.67	-144.37	-----
	2	-71.11	-143.83	
P-11	1	-72.54	-144.38	-----
	2	-71.06	-144.57	
P-12	1	-72.80	-144.49	-----
	2	-70.98	-143.98	

11.3 CIMENTACION DE PILAS

CIMENTACION DE PILAS

A continuación se incluye la comprobación de la cimentación. Esta comprobación se lleva a cabo con el programa LSTC, desarrollado por Fhecor Ingenieros Consultores.

Para la comprobación de la cimentación se tienen en cuenta los efectos de segundo orden mediante el método de la excentricidad adicional propuesto por la Instrucción EH-91.

En el caso de esta estructura, las pilas se cimentan pilotes.

La longitud del pilote se calcula en cada apoyo para que la tensión de trabajo global sea de 40 kg/cm^2, sin tener en cuenta el efecto de grupo. La cimentación resultante es un conjunto de 9 pilotes de 1.50 metros de diámetro separados 4.50 metros entre sí (3.00 veces el diámetro).

Para esta disposición de pilotes, el efecto grupo es de 0.80, por lo que la capacidad de los pilotes es de 565 toneladas.

Para el dimensionamiento de la armadura de los encepados, se ha aplicado el método de bielas y tirantes, puesto que se trata de elementos rígidos.

Para dimensionar la armadura de los pilotes se elaboró un modelo de barras que representa al pilote empotrado en cabeza, apoyado verticalmente en la punta y horizontalmente en muelles correspondientes al coeficiente de balasto horizontal. Para el coeficiente de balasto horizontal se ha tomado, de lado de la seguridad, un valor constante con la profundidad igual a *555 t/m^3* correspondiente al peor suelo (E$_s$=200 kg/cm^2). Estos parámetros dan lugar a una luz equivalente (suponiendo el pilote en ménsula) de 5.10 metros.

El detalle de este cálculo se incluye en el apartado "RESULTADOS DEL CÁLCULO".

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Programa LSTC - Cálculo de Cimentaciones
                (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.. E-1.

COMPROBACION DE CARGAS VERTICALES EN PILOTES

LEYENDA: npy = n° de pilotes en la dirección y
         npz = n° de pilotes en la dirección z (-1=> 3 pilotes)
         dpy = separación de los pilotes en la dirección y
         dpz = separación de los pilotes en la dirección z
         ϕ= diámetro de los pilotes
         lp 0 longitud de los pilotes
         Pmax = carga soportada por el pilote más cargado
         Pmin = carga soportada por el pilote menos cargado
         Pu = carga admisible del pilote
         Pua= carga admisible del pilote a tracción
         * = Pmax > Pu
         ! = Pmin < Pua
-------------------------------------------------------------------------------
Pila  hip    N        Vy       Vz       My       Mz       ϕ        lp
             [t]      [t]      [t]      [mt]     [mt]     [m]      [m]
             Pmax     Pmin     Pu
             [t]      [t]      [t]
-------------------------------------------------------------------------------

Distribución de los pilotes:
npy =   3   npz =  3   dpy [m] = 4.50   dpz [m] = 4.50

 1      1 -2565.25      0.01    -82.80   -762.76    -31.79     1.50    17.00
          314.46    255.60    565.49     -0.00
        2 -2565.25      0.01     82.80   -762.76    -31.79     1.50    17.00
          314.46    255.60    565.49     -0.00
        3 -2823.23    -22.22    -93.09   -872.47  -1066.91     1.50    17.00
          385.52    241.86    565.49     -0.00
        4 -2993.63     22.25    101.88   -955.93  -1065.71     1.50    17.00
          407.50    257.75    565.49     -0.00
        5 -3551.79      0.50   -122.74  -1166.02    -56.96     1.50    17.00
          439.94    349.35    565.49     -0.00
        6 -2304.68      1.69    -60.38   -573.63    -30.79     1.50    17.00
          278.46    233.69    565.49     -0.00

Distribución de los pilotes:
npy =   3   npz =  3   dpy [m] = 4.50   dpz [m] = 4.50

 2      1 -2751.27      0.01    -93.23  -1114.72    -35.52     1.50    18.00
          348.30    263.10    565.49     -0.00
        2 -2751.27      0.01     93.23  -1114.72    -35.52     1.50    18.00
          348.30    263.10    565.49     -0.00
        3 -3100.57    -13.24   -106.85  -1310.26  -1211.51     1.50    18.00
          437.91    251.11    565.49     -0.00
        4 -3180.34     13.24    110.77  -1359.35  -1209.49     1.50    18.00
          448.51    258.23    565.49     -0.00
        5 -3803.42     -1.35   -133.30  -1666.20    -59.91     1.50    18.00
          486.53    358.67    565.49     -0.00
        6 -2524.25     -1.28     69.34   -866.72    -34.15     1.50    18.00
          313.84    247.11    565.49     -0.00

Distribución de los pilotes:
npy =   3   npz =  3   dpy [m] = 4.50   dpz [m] = 4.50

 3      1 -2731.46     -0.26    -92.62  -1188.63    -35.75     1.50    18.00
          348.84    258.15    565.49     -0.00
        2 -2731.46     -0.26     92.62  -1188.63    -35.75     1.50    18.00
```

		348.84	258.15	565.49	-0.00			
	3	-3059.71	-22.74	109.00	-1440.71	-1410.57	1.50	18.00
		445.57	234.37	565.49	-0.00			
	4	-3159.25	21.78	-105.13	-1388.39	-1398.94	1.50	18.00
		454.26	247.79	565.49	-0.00			
	5	-3787.80	0.44	-131.84	-1779.83	-57.32	1.50	18.00
		488.91	352.82	565.49	-0.00			
	6	-2476.23	-1.41	-66.26	-894.52	-33.52	1.50	18.00
		309.51	240.77	565.49	-0.00			

Distribución de los pilotes:
npy = 3 npz = 3 dpy [m] = 4.50 dpz [m] = 4.50

4	1	-2763.03	0.26	-94.57	-1297.50	-36.38	1.50	20.00
		356.41	257.60	565.49	-0.00			
	2	-2763.03	0.26	94.57	-1297.50	-36.38	1.50	20.00
		356.41	257.60	565.49	-0.00			
	3	-3183.94	-20.60	106.41	-1506.01	-1423.97	1.50	20.00
		462.29	245.25	565.49	-0.00			
	4	-3106.09	21.62	-111.01	-1572.71	-1433.51	1.50	20.00
		456.46	233.78	565.49	-0.00			
	5	-3825.10	1.37	-133.03	-1928.93	-60.39	1.50	20.00
		498.69	351.33	565.49	-0.00			
	6	-2510.50	-0.31	-67.30	-975.84	-31.45	1.50	20.00
		316.25	241.64	565.49	-0.00			

Distribución de los pilotes:
npy = 3 npz = 3 dpy [m] = 4.50 dpz [m] = 4.50

5	1	-2771.89	0.02	-95.39	-1391.63	-35.96	1.50	19.00
		360.86	255.11	565.49	-0.00			
	2	-2771.89	0.02	95.39	-1391.63	-35.96	1.50	19.00
		360.86	255.11	565.49	-0.00			
	3	-3105.77	-21.73	106.59	-1608.70	-1455.19	1.50	19.00
		458.56	231.61	565.49	-0.00			
	4	-3199.88	21.82	-111.30	-1681.65	-1449.04	1.50	19.00
		471.49	239.59	565.49	-0.00			
	5	-3833.95	1.88	-132.80	-2058.36	-61.85	1.50	19.00
		504.52	347.47	565.49	-0.00			
	6	-2517.19	-1.72	-66.96	-1037.86	-45.76	1.50	19.00
		319.82	239.55	565.49	-0.00			

Distribución de los pilotes:
npy = 3 npz = 3 dpy [m] = 4.50 dpz [m] = 4.50

6	1	-2786.22	0.05	-96.49	-1490.88	-36.32	1.50	21.00
		366.14	253.02	565.49	-0.00			
	2	-2786.22	0.05	96.49	-1490.88	-36.32	1.50	21.00
		366.14	253.02	565.49	-0.00			
	3	-3120.56	-18.14	107.18	-1717.93	-1411.45	1.50	21.00
		462.63	230.83	565.49	-0.00			
	4	-3214.09	18.31	-111.86	-1795.10	-1400.83	1.50	21.00
		475.49	238.75	565.49	-0.00			
	5	-3848.15	2.38	-132.83	-2191.73	-63.38	1.50	21.00
		511.09	344.05	565.49	-0.00			
	6	-2532.02	-1.86	-67.03	-1105.94	-51.79	1.50	21.00
		324.21	238.46	565.49	-0.00			

Distribución de los pilotes:
npy = 3 npz = 3 dpy [m] = 4.50 dpz [m] = 4.50

7	1	-2786.07	0.09	-96.48	-1490.75	-36.41	1.50	19.00
		366.13	253.00	565.49	-0.00			
	2	-2786.07	0.09	96.48	-1490.75	-36.41	1.50	19.00
		366.13	253.00	565.49	-0.00			
	3	-3120.29	-22.85	107.17	-1717.71	-1503.87	1.50	19.00
		466.02	227.38	565.49	-0.00			
	4	-3213.99	22.46	-111.85	-1795.02	-1481.33	1.50	19.00
		478.46	235.76	565.49	-0.00			
	5	-3848.04	2.54	-132.83	-2191.64	-63.78	1.50	19.00
		511.09	344.03	565.49	-0.00			
	6	-2531.77	-2.67	-67.01	-1105.71	-70.76	1.50	19.00
		324.88	237.74	565.49	-0.00			

Distribución de los pilotes:
npy = 3 npz = 3 dpy [m] = 4.50 dpz [m] = 4.50

8	1	-2786.81	0.00	-96.52	-1491.37	-36.20	1.50	23.00
		366.22	253.07	565.49	-0.00			
	2	-2786.81	0.00	96.52	-1491.37	-36.20	1.50	23.00
		366.22	253.07	565.49	-0.00			
	3	-3121.19	-27.49	107.21	-1718.46	-1591.95	1.50	23.00
		469.41	224.19	565.49	-0.00			
	4	-3214.87	27.57	-111.90	-1795.77	-1571.71	1.50	23.00
		481.93	232.49	565.49	-0.00			
	5	-3848.92	3.60	-132.87	-2192.36	-66.45	1.50	23.00
		511.32	344.00	565.49	-0.00			
	6	-2532.72	-3.51	-67.06	-1106.49	-86.80	1.50	23.00
		325.61	237.22	565.49	-0.00			

Distribución de los pilotes:
npy = 3 npz = 3 dpy [m] = 4.50 dpz [m] = 4.50

9	1	-2799.04	0.04	-97.50	-1589.91	-36.55	1.50	24.00
		371.24	250.77	565.49	-0.00			
	2	-2799.04	0.04	97.50	-1589.91	-36.55	1.50	24.00
		371.24	250.77	565.49	-0.00			
	3	-3118.54	-21.65	-107.66	-1825.91	-1488.03	1.50	24.00
		469.24	223.77	565.49	-0.00			
	4	-3212.18	21.77	112.35	-1907.87	-1464.25	1.50	24.00
		481.80	232.02	565.49	-0.00			
	5	-3860.45	4.59	-132.77	-2323.50	-69.16	1.50	24.00
		517.56	340.32	565.49	-0.00			
	6	-2545.09	-4.09	-67.00	-1172.56	-106.14	1.50	24.00
		330.15	235.43	565.49	-0.00			

Distribución de los pilotes:
npy = 3 npz = 3 dpy [m] = 4.50 dpz [m] = 4.50

10	1	-2800.35	0.03	-97.57	-1591.06	-36.55	1.50	24.00
		371.43	250.87	565.49	-0.00			
	2	-2800.35	0.03	97.57	-1591.06	-36.55	1.50	24.00
		371.43	250.87	565.49	-0.00			
	3	-3120.08	-27.43	-108.14	-1834.21	-1582.33	1.50	24.00
		473.21	220.14	565.49	-0.00			
	4	-3213.76	27.51	112.03	-1902.32	-1553.28	1.50	24.00
		485.07	229.10	565.49	-0.00			
	5	-3862.01	5.63	-132.85	-2324.88	-71.79	1.50	24.00
		517.88	340.35	565.49	-0.00			
	6	-2546.69	-5.29	-67.08	-1173.96	-131.06	1.50	24.00
		331.30	234.63	565.49	-0.00			

Distribución de los pilotes:
npy = 3 npz = 3 dpy [m] = 4.50 dpz [m] = 4.50

11	1	-2798.98	-0.04	-97.50	-1589.86	-36.55	1.50	25.00
		371.24	250.76	565.49	-0.00			
	2	-2798.98	-0.04	97.50	-1589.86	-36.55	1.50	25.00
		371.24	250.76	565.49	-0.00			
	3	-3118.49	-24.18	107.66	-1825.85	-1538.41	1.50	25.00
		471.10	221.90	565.49	-0.00			
	4	-3212.12	23.99	-112.34	-1907.77	-1502.34	1.50	25.00
		483.20	230.60	565.49	-0.00			
	5	-3860.36	6.39	-132.77	-2323.43	-73.66	1.50	25.00
		517.71	340.15	565.49	-0.00			
	6	-2545.01	-6.10	-67.00	-1172.50	-145.22	1.50	25.00
		331.58	233.97	565.49	0.00			

Distribución de los pilotes:
npy = 3 npz = 3 dpy [m] = 4.50 dpz [m] = 4.50

12	1	-2787.18	-0.03	-96.53	-1491.65	-36.29	1.50	24.00
		366.28	253.10	565.49	-0.00			
	2	-2787.18	-0.03	96.53	-1491.65	-36.29	1.50	24.00
		366.28	253.10	565.49	-0.00			
	3	-3106.97	-33.69	-107.63	-1725.33	-1688.39	1.50	24.00
		471.65	218.78	565.49	-0.00			
	4	-3200.67	33.65	111.52	-1789.57	-1649.59	1.50	24.00
		483.01	228.25	565.49	-0.00			
	5	-3849.31	8.17	-132.89	-2192.69	-77.89	1.50	24.00
		511.80	343.61	565.49	-0.00			
	6	-2533.15	-8.09	-67.08	-1106.85	-182.30	1.50	24.00
		329.21	233.72	565.49	-0.00			

Distribución de los pilotes:
npy = 3 npz = 3 dpy [m] = 4.50 dpz [m] = 4.50

13	1	-2785.03	0.06	-96.43	-1489.89	-36.32	1.50	23.00
		365.97	252.92	565.49	-0.00			
	2	-2785.03	0.06	96.43	-1489.89	-36.32	1.50	23.00
		365.97	252.92	565.49	-0.00			
	3	-3104.51	-25.91	107.50	-1723.24	-1560.42	1.50	23.00
		466.56	223.33	565.49	-0.00			
	4	-3198.17	26.08	-111.40	-1787.52	-1520.51	1.50	23.00
		477.87	232.83	565.49	-0.00			
	5	-3846.84	9.34	-132.77	-2190.66	-88.15	1.50	23.00
		511.83	343.03	565.49	-0.00			
	6	-2530.60	-8.71	-66.95	-1104.73	-190.75	1.50	23.00
		329.16	233.20	565.49	-0.00			

Distribución de los pilotes:
npy = 3 npz = 3 dpy [m] = 4.50 dpz [m] = 4.50

14	1	-2774.95	0.00	-95.55	-1394.02	-35.97	1.50	22.00
		361.29	255.37	565.49	-0.00			
	2	-2774.95	0.00	95.55	-1394.02	-35.97	1.50	22.00
		361.29	255.37	565.49	-0.00			
	3	-3094.81	-33.05	-107.17	-1617.73	-1644.04	1.50	22.00
		464.67	223.06	565.49	-0.00			
	4	-3188.38	33.11	111.05	-1677.85	-1598.09	1.50	22.00
		475.60	232.93	565.49	-0.00			
	5	-3837.09	11.12	-132.95	-2060.77	-111.63	1.50	22.00
		506.80	345.88	565.49	-0.00			
	6	-2520.85	-10.76	-67.14	-1040.69	-223.25	1.50	22.00
		326.91	233.28	565.49	-0.00			

Distribución de los pilotes:
npy = 3 npz = 3 dpy [m] = 4.50 dpz [m] = 4.50

15	1	-2752.46	-0.04	-94.04	-1289.83	-35.62	1.50	22.00
		354.92	256.74	565.49	-0.00			
	2	-2752.46	-0.04	94.04	-1289.83	-35.62	1.50	22.00
		354.92	256.74	565.49	-0.00			
	3	-3071.62	-30.45	106.15	-1502.22	-1570.91	1.50	22.00
		455.11	227.47	565.49	-0.00			
	4	-3165.59	30.23	-110.09	-1559.37	-1517.26	1.50	22.00
		465.68	237.78	565.49	-0.00			
	5	-3814.31	12.14	-132.49	-1921.11	-108.51	1.50	22.00
		498.98	348.64	565.49	-0.00			
	6	-2497.72	-11.84	-66.66	-966.58	-224.39	1.50	22.00
		321.63	233.41	565.49	-0.00			

Distribución de los pilotes:
npy = 3 npz = 3 dpy [m] = 4.50 dpz [m] = 4.50

16	1	-2759.00	0.03	-93.62	-1119.56	-35.73	1.50	21.00
		349.34	263.77	565.49	-0.00			
	2	-2759.00	0.03	93.62	-1119.56	-35.73	1.50	21.00
		349.34	263.77	565.49	-0.00			
	3	-3080.99	-31.11	-106.98	-1311.89	-1526.74	1.50	21.00
		447.47	237.20	565.49	-0.00			
	4	-3172.75	31.22	110.65	-1357.81	-1475.00	1.50	21.00
		457.45	247.61	565.49	-0.00			
	5	-3816.31	13.46	-133.94	-1674.25	-108.53	1.50	21.00
		490.06	358.01	565.49	-0.00			
	6	-2511.70	-12.58	-68.71	-858.87	-220.30	1.50	21.00
		319.05	239.11	565.49	-0.00			

Distribución de los pilotes:
npy = 3 npz = 3 dpy [m] = 4.50 dpz [m] = 4.50

17	1	-2687.12	-0.01	-88.89	-820.64	-34.24	1.50	21.00
		330.23	266.91	565.49	-0.00			
	2	-2687.12	-0.01	88.89	-820.64	-34.24	1.50	21.00
		330.23	266.91	565.49	-0.00			
	3	-3033.63	-33.14	-103.94	-975.55	-1494.06	1.50	21.00
		428.54	245.60	565.49	-0.00			
	4	-3113.35	33.14	107.87	-1012.84	-1435.69	1.50	21.00
		436.61	255.24	565.49	-0.00			
	5	-3737.73	14.46	-132.04	-1254.35	-91.37	1.50	21.00
		465.15	365.46	565.49	-0.00			
	6	-2456.84	-13.93	-67.99	-645.92	-199.64	1.50	21.00
		304.30	241.67	565.49	-0.00			

Distribución de los pilotes:
npy = 3 npz = 3 dpy [m] = 4.50 dpz [m] = 4.50

18	1	-2470.67	-0.31	-76.94	-493.63	-30.65	1.50	18.00
		293.94	255.10	565.49	-0.00			
	2	-2470.67	-0.31	76.94	-493.63	-30.65	1.50	18.00
		293.94	255.10	565.49	-0.00			
	3	-2688.76	-35.98	87.37	-564.67	-1248.36	1.50	18.00
		365.90	231.60	565.49	-0.00			
	4	-2897.44	34.77	-98.09	-634.33	-1190.75	1.50	18.00
		389.53	254.34	565.49	-0.00			
	5	-3467.95	13.52	-120.57	-783.71	-83.63	1.50	18.00
		417.45	353.20	565.49	-0.00			
	6	-2184.51	-14.43	-56.40	-366.60	-161.40	1.50	18.00
		262.28	223.17	565.49	-0.00			

Programa LSTC - Cálculo de Cimentaciones
(V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.. E-1.

COMPROBACION CANTO DE LA ZAPATA

LEYENDA: A,B = dimensiones de la zapata en planta
Tipo de zapata -> 0=hexagonal, 1= rectangular
H = canto de la zapata
a_pila = dimensión del fuste en la dir perpend al eje pte
b_pila = dimensión del fuste en la dir paralela al eje pte
tipo_p -> tipo de superficie de punzonamiento
γmax = tensión tangencial máxima en el perímetro de punz
γadm = tensión tangencial admisible
! = γmax > γadm

Pila	hip	fuste	N [t]	My [mt]	Mz [mt]	A [m]	B [m]	H [m]
			a_pila [m]	b_pila [m]	tipo_p	γmax [kp/cm2]	γadm [kp/cm2]	
Tipo de zapata: 1								
1	1	1	-2302.43	-46.05	805.43	12.50	12.50	2.50
			5.26	2.70	1	3.90	14.33	

	2	1	-2302.43	-46.05	805.43	12.50	12.50	2.50
			5.26	2.70	1	3.90	14.33	
	3	1	-2618.29	-1493.04	987.92	12.50	12.50	2.50
			5.26	2.70	1	4.88	14.33	
	4	1	-1819.79	-1491.61	704.10	12.50	12.50	2.50
			5.26	2.70	1	3.53	14.33	
	5	1	-3782.24	-83.47	1260.54	12.50	12.50	2.50
			5.26	2.70	1	6.39	14.33	
	6	1	-983.44	-246.88	338.32	12.50	12.50	2.50
			5.26	2.70	1	1.73	14.33	

Tipo de zapata: 1

2	1	1	-2527.14	-50.54	1255.01	12.50	12.50	2.50
			5.26	2.70	1	4.38	14.33	
	2	1	-2527.14	-50.54	1255.01	12.50	12.50	2.50
			5.26	2.70	1	4.38	14.33	
	3	1	-2927.55	-1736.14	1553.56	12.50	12.50	2.50
			5.26	2.70	1	5.61	14.33	
	4	1	-2012.47	-1733.76	1096.81	12.50	12.50	2.50
			5.26	2.70	1	4.02	14.33	
	5	1	-4105.36	-82.11	1931.96	12.50	12.50	2.50
			5.26	2.70	1	7.09	14.33	
	6	1	-1180.48	-313.75	575.52	12.50	12.50	2.50
			5.26	2.70	1	2.13	14.33	

Tipo de zapata: 1

3	1	1	-2509.02	-50.18	1367.80	12.50	12.50	2.50
			5.26	2.70	1	4.39	14.33	
	2	1	-2509.02	-50.18	1367.80	12.50	12.50	2.50
			5.26	2.70	1	4.39	14.33	
	3	1	-1977.05	-1991.91	1180.17	12.50	12.50	2.50
			5.26	2.70	1	4.07	14.33	
	4	1	-2894.69	-1980.84	1687.14	12.50	12.50	2.50
			5.26	2.70	1	5.66	14.33	
	5	1	-4093.53	-81.87	2107.52	12.50	12.50	2.50
			5.26	2.70	1	7.12	14.33	
	6	1	-1126.21	-365.13	600.99	12.50	12.50	2.50
			5.26	2.70	1	2.07	14.33	

Tipo de zapata: 1

4	1	1	-2549.62	-50.99	1513.55	12.50	12.50	2.50
			5.26	2.70	1	4.49	14.33	
	2	1	-2549.62	-50.99	1513.55	12.50	12.50	2.50
			5.26	2.70	1	4.49	14.33	
	3	1	-2013.64	-2018.88	1307.46	12.50	12.50	2.50
			5.26	2.70	1	4.17	14.33	
	4	1	-2933.48	-2028.04	1857.08	12.50	12.50	2.50
			5.26	2.70	1	5.79	14.33	
	5	1	-4142.73	-82.85	2316.48	12.50	12.50	2.50
			5.26	2.70	1	7.26	14.33	
	6	1	-1155.47	-381.29	670.76	12.50	12.50	2.50
			5.26	2.70	1	2.14	14.33	

Tipo de zapata: 1

5	1	1	2564.71	-51.29	1646.35	12.50	12.50	2.50
			5.26	2.70	1	4.55	14.33	
	2	1	2564.71	51.29	1646.35	12.50	12.50	2.50
			5.26	2.70	1	4.55	14.33	
	3	1	2941.56	2052.75	2005.00	12.50	12.50	2.50
			5.26	2.70	1	5.85	14.33	
	4	1	2022.81	2046.35	1424.40	12.50	12.50	2.50
			5.26	2.70	1	4.23	14.33	
	5	1	4157.81	83.16	2506.16	12.50	12.50	2.50
			5.26	2.70	1	7.34	14.33	
	6	1	1159.71	-331.34	726.81	12.50	12.50	2.50
			5.26	2.70	1	2.15	14.33	

Tipo de zapata: 1

6	1	1	-2585.75	-51.71	1784.36	12.50	12.50	2.50
			5.26	2.70	1	4.63	14.33	
	2	1	-2585.75	-51.71	1784.36	12.50	12.50	2.50
			5.26	2.70	1	4.63	14.33	
	3	1	-2960.87	-1994.67	2164.84	12.50	12.50	2.50
			5.26	2.70	1	5.91	14.33	
	4	1	-2034.63	-1983.22	1539.42	12.50	12.50	2.50
			5.26	2.70	1	4.26	14.33	
	5	1	-4178.65	-83.57	2699.36	12.50	12.50	2.50
			5.26	2.70	1	7.42	14.33	
	6	1	-1171.99	-447.60	788.53	12.50	12.50	2.50
			5.26	2.70	1	2.22	14.33	

Tipo de zapata: 1

7	1	1	-2585.65	-51.71	1784.29	12.50	12.50	2.50
			5.26	2.70	1	4.63	14.33	
	2	1	-2585.65	-51.71	1784.29	12.50	12.50	2.50
			5.26	2.70	1	4.63	14.33	
	3	1	-2029.83	-2105.74	1531.00	12.50	12.50	2.50
			5.26	2.70	1	4.28	14.33	
	4	1	-2965.33	-2082.26	2173.05	12.50	12.50	2.50
			5.26	2.70	1	5.95	14.33	
	5	1	-4178.60	-83.57	2699.32	12.50	12.50	2.50
			5.26	2.70	1	7.42	14.33	
	6	1	-1171.74	-482.95	788.35	12.50	12.50	2.50
			5.26	2.70	1	2.23	14.33	

Tipo de zapata: 1

8	1	1	-2586.67	-51.73	1785.01	12.50	12.50	2.50
			5.26	2.70	1	4.63	14.33	
	2	1	-2586.67	-51.73	1785.01	12.50	12.50	2.50
			5.26	2.70	1	4.63	14.33	
	3	1	-2030.69	-2210.63	1531.66	12.50	12.50	2.50
			5.26	2.70	1	4.32	14.33	
	4	1	-2966.48	-2189.48	2173.93	12.50	12.50	2.50
			5.26	2.70	1	5.98	14.33	
	5	1	-4179.84	-83.60	2700.19	12.50	12.50	2.50
			5.26	2.70	1	7.43	14.33	
	6	1	-1172.63	-342.95	788.98	12.50	12.50	2.50
			5.26	2.70	1	2.19	14.33	

Tipo de zapata: 1

9	1	1	-2605.13	-52.10	1922.79	12.50	12.50	2.50
			5.26	2.70	1	4.70	14.33	
	2	1	-2605.13	-52.10	1922.79	12.50	12.50	2.50
			5.26	2.70	1	4.70	14.33	
	3	1	-2018.22	-2069.56	1645.11	12.50	12.50	2.50
			5.26	2.70	1	4.29	14.33	
	4	1	-2960.69	-2044.40	2332.74	12.50	12.50	2.50
			5.26	2.70	1	5.97	14.33	
	5	1	-4197.23	-83.94	2890.92	12.50	12.50	2.50
			5.26	2.70	1	7.51	14.33	
	6	1	-1182.70	-524.79	849.92	12.50	12.50	2.50
			5.26	2.70	1	2.28	14.33	

Tipo de zapata: 1

10	1	1	-2606.98	52.14	1924.18	12.50	12.50	2.50
			5.26	2.70	1	4.70	14.33	
	2	1	2606.98	52.14	1924.18	12.50	12.50	2.50
			5.26	2.70	1	4.70	14.33	
	3	1	-2019.69	-2176.00	1655.19	12.50	12.50	2.50
			5.26	2.70	1	4.33	14.33	
	4	1	-2962.79	-2145.40	2325.56	12.50	12.50	2.50

			5.26	2.70	1	6.00	14.33	
	5	1	-4199.48	-83.99	2892.60	12.50	12.50	2.50
			5.26	2.70	1	7.51	14.33	
	6	1	-1184.18	-311.52	851.03	12.50	12.50	2.50
			5.26	2.70	1	2.21	14.33	

Tipo de zapata: 1

11	1	1	-2605.04	-52.10	1922.72	12.50	12.50	2.50
			5.26	2.70	1	4.70	14.33	
	2	1	-2605.04	-52.10	1922.72	12.50	12.50	2.50
			5.26	2.70	1	4.70	14.33	
	3	1	-2018.20	-2114.66	1645.05	12.50	12.50	2.50
			5.26	2.70	1	4.30	14.33	
	4	1	-2960.63	-2076.82	2332.64	12.50	12.50	2.50
			5.26	2.70	1	5.98	14.33	
	5	1	-4197.11	-83.94	2890.82	12.50	12.50	2.50
			5.26	2.70	1	7.51	14.33	
	6	1	-1182.62	-353.53	849.86	12.50	12.50	2.50
			5.26	2.70	1	2.22	14.33	

Tipo de zapata: 1

12	1	1	-2587.17	-51.74	1785.36	12.50	12.50	2.50
			5.26	2.70	1	4.63	14.33	
	2	1	-2587.17	-51.74	1785.36	12.50	12.50	2.50
			5.26	2.70	1	4.63	14.33	
	3	1	-2009.12	-2289.25	1540.24	12.50	12.50	2.50
			5.26	2.70	1	4.31	14.33	
	4	1	-2945.08	-2248.89	2166.01	12.50	12.50	2.50
			5.26	2.70	1	5.96	14.33	
	5	1	-4180.37	-88.21	2700.56	12.50	12.50	2.50
			5.26	2.70	1	7.43	14.33	
	6	1	-1173.03	-260.06	789.26	12.50	12.50	2.50
			5.26	2.70	1	2.16	14.33	

Tipo de zapata: 1

13	1	1	-2584.30	-51.69	1783.34	12.50	12.50	2.50
			5.26	2.70	1	4.62	14.33	
	2	1	-2584.30	-51.69	1783.34	12.50	12.50	2.50
			5.26	2.70	1	4.62	14.33	
	3	1	-2006.86	-2123.07	1538.51	12.50	12.50	2.50
			5.26	2.70	1	4.26	14.33	
	4	1	-2941.91	-2080.89	2163.64	12.50	12.50	2.50
			5.26	2.70	1	5.91	14.33	
	5	1	-4177.01	-103.84	2698.21	12.50	12.50	2.50
			5.26	2.70	1	7.43	14.33	
	6	1	-1170.68	-470.05	787.62	12.50	12.50	2.50
			5.26	2.70	1	2.22	14.33	

Tipo de zapata: 1

14	1	1	-2568.19	-51.36	1648.61	12.50	12.50	2.50
			5.26	2.70	1	4.56	14.33	
	2	1	-2568.19	-51.36	1648.61	12.50	12.50	2.50
			5.26	2.70	1	4.56	14.33	
	3	1	-1999.27	-2210.36	1426.42	12.50	12.50	2.50
			5.26	2.70	1	4.24	14.33	
	4	1	-2928.08	-2162.22	2007.45	12.50	12.50	2.50
			5.26	2.70	1	5.86	14.33	
	5	1	-4161.40	-133.29	2508.50	12.50	12.50	2.50
			5.26	2.70	1	7.36	14.33	
	6	1	-1163.03	-182.35	728.97	12.50	12.50	2.50
			5.26	2.70	1	2.11	14.33	

Tipo de zapata: 1

15	1	1	-2537.84	-50.76	1506.49	12.50	12.50	2.50
			5.26	2.70	1	4.47	14.33	
	2	1	-2537.84	-50.76	1506.49	12.50	12.50	2.50
			5.26	2.70	1	4.47	14.33	
	3	1	-1980.15	-2110.86	1307.34	12.50	12.50	2.50
			5.26	2.70	1	4.14	14.33	
	4	1	-2899.48	-2054.41	1842.96	12.50	12.50	2.50
			5.26	2.70	1	5.74	14.33	
	5	1	-4130.62	-125.50	2309.21	12.50	12.50	2.50
			5.26	2.70	1	7.25	14.33	
	6	1	-1143.70	-260.12	663.70	12.50	12.50	2.50
			5.26	2.70	1	2.08	14.33	

Tipo de zapata: 1

16	1	1	-2534.25	-50.69	1258.57	12.50	12.50	2.50
			5.26	2.70	1	4.40	14.33	
	2	1	-2534.25	-50.69	1258.57	12.50	12.50	2.50
			5.26	2.70	1	4.40	14.33	
	3	1	-1988.97	-2051.64	1098.62	12.50	12.50	2.50
			5.26	2.70	1	4.08	14.33	
	4	1	-2900.57	-1997.07	1546.47	12.50	12.50	2.50
			5.26	2.70	1	5.64	14.33	
	5	1	-4120.22	-120.61	1939.40	12.50	12.50	2.50
			5.26	2.70	1	7.13	14.33	
	6	1	-1159.52	-102.85	565.04	12.50	12.50	2.50
			5.26	2.70	1	2.03	14.33	

Tipo de zapata: 1

17	1	1	-2440.18	-48.80	853.64	12.50	12.50	2.50
			5.26	2.70	1	4.13	14.33	
	2	1	-2440.18	-48.80	853.64	12.50	12.50	2.50
			5.26	2.70	1	4.13	14.33	
	3	1	-2184.53	-2028.09	726.64	12.50	12.50	2.50
			5.26	2.70	1	4.28	14.33	
	4	1	-3150.32	-1966.08	1039.37	12.50	12.50	2.50
			5.26	2.70	1	5.88	14.33	
	5	1	-4016.08	-80.32	1342.39	12.50	12.50	2.50
			5.26	2.70	1	6.78	14.33	
	6	1	-1121.17	-302.51	386.53	12.50	12.50	2.50
			5.26	2.70	1	1.98	14.33	

Tipo de zapata: 1

18	1	1	-2181.58	-43.63	440.01	12.50	12.50	2.50
			5.26	2.70	1	3.60	14.33	
	2	1	-2181.58	-43.63	440.01	12.50	12.50	2.50
			5.26	2.70	1	3.60	14.33	
	3	1	-1805.26	-1716.77	350.52	12.50	12.50	2.50
			5.26	2.70	1	3.48	14.33	
	4	1	-2890.20	-1657.74	557.91	12.50	12.50	2.50
			5.26	2.70	1	5.24	14.33	
	5	1	-3677.51	-73.55	711.51	12.50	12.50	2.50
			5.26	2.70	1	6.06	14.33	
	6	1	-877.63	-272.20	175.03	12.50	12.50	2.50
			5.26	2.70	1	1.52	14.33	

			5.26	2.70	1	6.00	14.33	
	5	1	-4199.48	-83.99	2892.60	12.50	12.50	2.50
			5.26	2.70	1	7.51	14.33	
	6	1	-1184.18	-311.52	851.03	12.50	12.50	2.50
			5.26	2.70	1	2.21	14.33	

Tipo de zapata: 1

11	1	1	-2605.04	-52.10	1922.72	12.50	12.50	2.50
			5.26	2.70	1	4.70	14.33	
	2	1	-2605.04	-52.10	1922.72	12.50	12.50	2.50
			5.26	2.70	1	4.70	14.33	
	3	1	-2018.20	-2114.66	1645.05	12.50	12.50	2.50
			5.26	2.70	1	4.30	14.33	
	4	1	-2960.63	-2076.82	2332.64	12.50	12.50	2.50
			5.26	2.70	1	5.98	14.33	
	5	1	-4197.11	-83.94	2890.82	12.50	12.50	2.50
			5.26	2.70	1	7.51	14.33	
	6	1	-1182.62	-353.53	849.86	12.50	12.50	2.50
			5.26	2.70	1	2.22	14.33	

Tipo de zapata: 1

12	1	1	-2587.17	-51.74	1785.36	12.50	12.50	2.50
			5.26	2.70	1	4.63	14.33	
	2	1	-2587.17	-51.74	1785.36	12.50	12.50	2.50
			5.26	2.70	1	4.63	14.33	
	3	1	-2009.12	-2289.25	1540.24	12.50	12.50	2.50
			5.26	2.70	1	4.31	14.33	
	4	1	-2945.08	-2248.89	2166.01	12.50	12.50	2.50
			5.26	2.70	1	5.96	14.33	
	5	1	-4180.37	-88.21	2700.56	12.50	12.50	2.50
			5.26	2.70	1	7.43	14.33	
	6	1	-1173.03	-260.06	789.26	12.50	12.50	2.50
			5.26	2.70	1	2.16	14.33	

Tipo de zapata: 1

13	1	1	-2584.30	-51.69	1783.34	12.50	12.50	2.50
			5.26	2.70	1	4.62	14.33	
	2	1	-2584.30	-51.69	1783.34	12.50	12.50	2.50
			5.26	2.70	1	4.62	14.33	
	3	1	-2006.86	-2123.07	1538.51	12.50	12.50	2.50
			5.26	2.70	1	4.26	14.33	
	4	1	-2941.91	-2080.89	2163.64	12.50	12.50	2.50
			5.26	2.70	1	5.91	14.33	
	5	1	-4177.01	-103.84	2698.21	12.50	12.50	2.50
			5.26	2.70	1	7.43	14.33	
	6	1	-1170.68	-470.05	787.62	12.50	12.50	2.50
			5.26	2.70	1	2.22	14.33	

Tipo de zapata: 1

14	1	1	-2568.19	-51.36	1648.61	12.50	12.50	2.50
			5.26	2.70	1	4.56	14.33	
	2	1	-2568.19	-51.36	1648.61	12.50	12.50	2.50
			5.26	2.70	1	4.56	14.33	
	3	1	-1999.27	-2210.36	1426.42	12.50	12.50	2.50
			5.26	2.70	1	4.24	14.33	
	4	1	2928.08	-3162.22	2007.45	12.50	12.50	2.50
			5.26	2.70	1	5.86	14.33	
	5	1	4161.40	-133.29	2508.50	12.50	12.50	2.50
			5.26	2.70	1	7.36	14.33	
	6	1	1163.03	-182.35	728.97	12.50	12.50	2.50
			5.26	2.70	1	2.11	14.33	

Tipo de zapata: 1

15	1	1	-2537.84	-50.76	1506.49	12.50	12.50	2.50
			5.26	2.70	1	4.47	14.33	
	2	1	-2537.84	-50.76	1506.49	12.50	12.50	2.50
			5.26	2.70	1	4.47	14.33	
	3	1	-1980.15	-2110.86	1307.34	12.50	12.50	2.50
			5.26	2.70	1	4.14	14.33	
	4	1	-2899.48	-2054.41	1842.96	12.50	12.50	2.50
			5.26	2.70	1	5.74	14.33	
	5	1	-4130.62	-125.50	2309.21	12.50	12.50	2.50
			5.26	2.70	1	7.25	14.33	
	6	1	-1143.70	-260.12	663.70	12.50	12.50	2.50
			5.26	2.70	1	2.08	14.33	

Tipo de zapata: 1

16	1	1	-2534.25	-50.69	1258.57	12.50	12.50	2.50
			5.26	2.70	1	4.40	14.33	
	2	1	-2534.25	-50.69	1258.57	12.50	12.50	2.50
			5.26	2.70	1	4.40	14.33	
	3	1	-1988.97	-2051.64	1098.62	12.50	12.50	2.50
			5.26	2.70	1	4.08	14.33	
	4	1	-2900.57	-1997.07	1546.47	12.50	12.50	2.50
			5.26	2.70	1	5.64	14.33	
	5	1	-4120.22	-120.61	1939.40	12.50	12.50	2.50
			5.26	2.70	1	7.13	14.33	
	6	1	-1159.52	-102.85	565.04	12.50	12.50	2.50
			5.26	2.70	1	2.03	14.33	

Tipo de zapata: 1

17	1	1	-2440.18	-48.80	853.64	12.50	12.50	2.50
			5.26	2.70	1	4.13	14.33	
	2	1	-2440.18	-48.80	853.64	12.50	12.50	2.50
			5.26	2.70	1	4.13	14.33	
	3	1	-2184.53	-2028.09	726.64	12.50	12.50	2.50
			5.26	2.70	1	4.28	14.33	
	4	1	-3150.32	-1966.08	1039.37	12.50	12.50	2.50
			5.26	2.70	1	5.88	14.33	
	5	1	-4016.08	-80.32	1342.39	12.50	12.50	2.50
			5.26	2.70	1	6.78	14.33	
	6	1	-1121.17	-302.51	386.53	12.50	12.50	2.50
			5.26	2.70	1	1.98	14.33	

Tipo de zapata: 1

18	1	1	-2181.58	-43.63	440.01	12.50	12.50	2.50
			5.26	2.70	1	3.60	14.33	
	2	1	-2181.58	-43.63	440.01	12.50	12.50	2.50
			5.26	2.70	1	3.60	14.33	
	3	1	-1805.26	-1716.77	350.52	12.50	12.50	2.50
			5.26	2.70	1	3.48	14.33	
	4	1	-2890.20	-1657.74	557.91	12.50	12.50	2.50
			5.26	2.70	1	5.24	14.33	
	5	1	-3677.51	-73.55	711.51	12.50	12.50	2.50
			5.26	2.70	1	6.06	14.33	
	6	1	-877.63	-272.20	175.03	12.50	12.50	2.50
			5.26	2.70	1	1.52	14.33	

PILAS VIADUCTO 1

Pilas

P-13	1	-72.58	-144.59	-----
	2	-70.92	-143.98	
P-14	1	-72.94	-144.74	-----
	2	-70.97	-143.73	
P-15	1	-72.26	-144.48	-----
	2	-70.62	-143.13	
P-16	1	-74.70	-145.89	-----
	2	-72.57	-144.60	
P-17	1	-73.98	-144.03	-----
	2	-71.75	-143.13	
P-18	1	-61.54	-131.13	-----
	2	-59.35	-129.46	
E-2	1	-37.21 *	-119.03	-----
	2	-43.35 *	-110.08	

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

ESFUERZOS STATIK2 ESTADO LIMITE ULTIMO: 1. TENSIONES NORMALES

LEYENDA *: el teflón no desliza

pila	sec	env	Nd [t]	Myd [mt]	Mzd [mt]	Myd_tef [mt]	Mzd_tef [mt]
1	1	My min	-2098.48	-0.00	-0.71	0.00	0.00
	1	My max	-2098.48	0.00	-0.71	0.00	0.00
	2	My min	-2188.82	-15.71	-0.69	367.23	0.00
	2	My max	-2188.82	15.71	-0.69	367.23	0.00
	3	My min	-2279.16	-62.82	-0.68	734.47	0.00
	3	My max	-2279.16	62.82	-0.68	734.47	0.00
1	1	Mz min	-2708.62	0.00	-1470.05	0.00	0.00
	1	Mz max	-1875.76	0.00	1468.22	0.00	0.00
	2	Mz min	-2798.96	0.00	-1488.13	474.01	0.00
	2	Mz max	-1929.97	0.00	1486.47	328.26	0.00
	3	Mz min	-2573.94	28.27	-1568.79	948.02	0.00
	3	Mz max	-1755.86	-28.27	1567.44	656.52	0.00
1	1	N min	-3613.91	0.00	-90.15	0.00	0.00
	1	N max	-780.82	0.00	0.90	0.00	0.00
	2	N min	-3704.25	0.00	-86.79	632.43	0.00
	2	N max	-829.60	7.07	120.29	136.64	0.00
	3	N min	-3794.60	0.00	-83.43	1264.87	0.00
	3	N max	-878.39	28.27	246.92	273.29	0.00
2	1	My min	-2455.36	-0.00	-1.04	0.00	0.00
	1	My max	-2455.36	0.00	-1.04	0.00	0.00
	2	My min	-2576.08	-28.04	-0.93	613.84	0.00
	2	My max	-2576.08	28.04	-0.93	613.84	0.00
	3	My min	-2696.79	-112.16	-0.82	1227.68	0.00
	3	My max	-2696.79	112.16	-0.82	1227.68	0.00
2	1	Mz min	-3197.61	0.00	-1843.04	0.00	0.00
	1	Mz max	-2230.47	0.00	1840.39	0.00	0.00
	2	Mz min	-3318.33	0.00	-1780.80	799.40	0.00
	2	Mz max	-2302.90	0.00	1778.04	557.62	0.00
	3	Mz min	-3104.78	-50.47	-1824.35	1598.81	0.00
	3	Mz max	-2141.41	50.47	1821.53	1115.23	0.00
2	1	N min	-4076.75	0.00	92.82	0.00	0.00
	1	N max	-1159.80	0.00	-9.97	0.00	0.00
	2	N min	-4197.46	0.00	80.82	1019.19	0.00
	2	N max	-1224.98	12.62	-155.62	289.95	0.00
	3	N min	-4318.18	0.00	68.82	2038.37	0.00
	3	N max	-1290.17	50.47	-314.21	579.90	0.00
3	1	My min	-2365.58	-0.00	0.98	0.00	0.00
	1	My max	-2365.58	0.00	0.98	0.00	0.00
	2	My min	-2496.42	-32.94	-1.15	650.54	0.00
	2	My max	-2496.42	32.94	-1.15	650.54	0.00
	3	My min	-2627.26	-131.76	-3.29	1301.07	0.00
	3	My max	-2627.26	131.76	-3.29	1301.07	0.00
3	1	Mz min	-2122.90	0.00	-1927.79	0.00	0.00
	1	Mz max	-3094.17	0.00	1932.36	0.00	0.00
	2	Mz min	-2201.47	0.00	-1942.21	583.80	0.00
	2	Mz max	-3224.94	0.00	1937.52	850.90	0.00
	3	Mz min	-2053.33	59.29	-2095.04	1167.59	0.00
	3	Mz max	-3015.50	-59.29	2081.10	1701.79	0.00
3	1	N min	-3988.28	0.00	-87.28	0.00	0.00
	1	N max	-1041.38	0.00	-14.25	0.00	0.00
	2	N min	-4119.12	0.00	-84.45	1096.78	0.00
	2	N max	-1112.04	14.82	-182.02	286.38	0.00
	3	N min	-4249.96	0.00	-81.62	2193.56	0.00
	3	N max	-1182.69	59.29	-365.00	572.76	0.00
4	1	My min	-2388.14	-0.00	-3.20	0.00	0.00
	1	My max	-2388.14	0.00	-3.20	0.00	0.00
	2	My min	-2529.10	-38.24	-0.92	716.44	0.00
	2	My max	-2529.10	38.24	-0.92	716.44	0.00
	3	My min	-2670.07	-152.94	1.36	1432.88	0.00
	3	My max	-2670.07	152.94	1.36	1432.88	0.00
4	1	Mz min	-2153.45	0.00	-1975.55	0.00	0.00
	1	Mz max	-3117.08	0.00	1965.14	0.00	0.00
	2	Mz min	-2238.05	0.00	-1965.30	646.04	0.00
	2	Mz max	-3258.02	0.00	1965.59	935.12	0.00
	3	Mz min	-2093.84	68.82	-2120.79	1292.07	0.00
	3	Mz max	-3056.51	-68.82	2131.85	1870.25	0.00
4	1	N min	-4020.03	0.00	-93.54	0.00	0.00
	1	N max	-1063.10	0.00	-23.95	0.00	0.00
	2	N min	-4160.99	0.00	-80.42	1206.01	0.00
	2	N max	-1139.22	17.21	-192.21	318.93	0.00
	3	N min	-4301.96	0.00	-67.30	2412.02	0.00
	3	N max	-1215.34	68.82	-378.13	637.86	0.00

5	1	My min	-2382.41	-0.00	-4.51	0.00	0.00
	1	My max	-2382.41	0.00	-4.51	0.00	0.00
	2	My min	-2533.50	-43.93	-4.31	774.28	0.00
	2	My max	-2533.50	43.93	-4.31	774.28	0.00
	3	My min	-2684.59	-175.70	-4.11	1548.57	0.00
	3	My max	-2684.59	175.70	-4.11	1548.57	0.00
5	1	Mz min	-3098.94	0.00	-1964.67	0.00	0.00
	1	Mz max	-2157.81	0.00	1954.13	0.00	0.00
	2	Mz min	-3250.03	0.00	-1967.05	1007.16	0.00
	2	Mz max	-2248.46	0.00	1957.57	701.29	0.00
	3	Mz min	-3063.91	-79.06	-2154.93	2014.31	0.00
	3	Mz max	-2102.06	79.06	2146.75	1402.58	0.00
5	1	N min	-4013.90	0.00	-94.74	0.00	0.00
	1	N max	-1055.71	0.00	-21.83	0.00	0.00
	2	N min	-4164.99	0.00	-73.47	1304.52	0.00
	2	N max	-1137.30	19.77	143.85	343.11	0.00
	3	N min	-4316.08	0.00	-52.20	2609.04	0.00
	3	N max	-1218.88	79.06	329.82	686.21	0.00
6	1	My min	-2383.43	-0.00	-7.67	0.00	0.00
	1	My max	-2383.43	0.00	-7.67	0.00	0.00
	2	My min	-2544.64	-50.01	-7.10	834.20	0.00
	2	My max	-2544.64	50.01	-7.10	834.20	0.00
	3	My min	-2705.85	-200.04	-6.54	1668.40	0.00
	3	My max	-2705.85	200.04	-6.54	1668.40	0.00
6	1	Mz min	-3100.36	0.00	-1973.47	0.00	0.00
	1	Mz max	-2158.88	0.00	1954.58	0.00	0.00
	2	Mz min	-3261.58	0.00	-1932.01	1085.13	0.00
	2	Mz max	-2255.61	0.00	1915.12	755.61	0.00
	3	Mz min	-3083.58	90.02	-2092.97	2170.25	0.00
	3	Mz max	-2114.12	-90.02	2078.41	1511.22	0.00
6	1	N min	-4014.75	0.00	-101.31	0.00	0.00
	1	N max	-1057.40	-0.00	-21.50	0.00	0.00
	2	N min	-4175.97	0.00	-73.02	1405.16	0.00
	2	N max	-1144.45	-22.51	-223.49	370.09	0.00
	3	N min	-4337.18	0.00	-44.72	2810.33	0.00
	3	N max	-1231.51	-90.02	-448.59	740.18	0.00
7	1	My min	-2382.93	-0.00	-9.14	0.00	0.00
	1	My max	-2382.93	0.00	-9.14	0.00	0.00
	2	My min	-2544.15	-50.01	-10.13	834.03	0.00
	2	My max	-2544.15	50.01	-10.13	834.03	0.00
	3	My min	-2705.36	-200.04	-11.11	1668.05	0.00
	3	My max	-2705.36	200.04	-11.11	1668.05	0.00
7	1	Mz min	-2146.45	0.00	-1988.82	0.00	0.00
	1	Mz max	-3111.67	0.00	1967.98	0.00	0.00
	2	Mz min	-2243.18	0.00	-1995.73	751.26	0.00
	2	Mz max	-3272.89	0.00	1970.18	1089.09	0.00
	3	Mz min	-2108.91	-90.02	-2211.02	1502.52	0.00
	3	Mz max	-3087.62	90.02	2181.14	2178.17	0.00
7	1	N min	-4014.28	0.00	-96.73	0.00	0.00
	1	N max	-1056.73	-0.00	-30.15	0.00	0.00
	2	N min	-4175.49	0.00	-67.20	1405.00	0.00
	2	N max	-1143.79	-22.51	-246.37	369.86	0.00
	3	N min	-4336.71	0.00	-37.67	2810.00	0.00
	3	N max	-1230.84	-90.02	-485.70	739.71	0.00
8	1	My min	-2385.38	-0.00	-12.03	0.00	0.00
	1	My max	-2385.38	0.00	-12.03	0.00	0.00
	2	My min	-2546.59	-50.01	-12.04	834.88	0.00
	2	My max	-2546.59	50.01	-12.04	834.88	0.00
	3	My min	-2707.81	-200.04	-12.04	1669.76	0.00
	3	My max	-2707.81	200.04	-12.04	1669.76	0.00
8	1	Mz min	-2148.82	0.00	-1992.43	0.00	0.00
	1	Mz max	-3114.36	0.00	1962.27	0.00	0.00
	2	Mz min	-2245.54	0.00	-2051.24	752.09	0.00
	2	Mz max	-3275.58	0.00	2022.30	1090.03	0.00
	3	Mz min	-2111.18	-90.02	-2319.95	1504.17	0.00
	3	Mz max	-3090.19	90.02	2292.70	2180.05	0.00
8	1	N min	-4016.95	0.00	-106.05	0.00	0.00
	1	N max	-1059.04	-0.00	-26.67	0.00	0.00
	2	N min	-4178.16	0.00	-63.31	1405.93	0.00
	2	N max	-1146.10	-22.51	145.55	370.67	0.00
	3	N min	-4339.37	0.00	-20.58	2811.86	0.00
	3	N max	-1233.15	-90.02	340.89	741.33	0.00
9	1	My min	-2378.28	-0.00	-14.87	0.00	0.00
	1	My max	-2378.28	0.00	-14.87	0.00	0.00
	2	My min	-2549.61	-56.49	-14.37	891.85	0.00
	2	My max	-2549.61	56.49	-14.37	891.85	0.00
	3	My min	-2720.95	-225.95	-13.87	1783.71	0.00
	3	My max	-2720.95	225.95	-13.87	1783.71	0.00
9	1	Mz min	-2141.95	0.00	-1995.24	0.00	0.00
	1	Mz max	-3106.77	0.00	1959.13	0.00	0.00
	2	Mz min	-2244.75	0.00	-1977.35	803.23	0.00
	2	Mz max	-3278.11	0.00	1942.75	1165.04	0.00
	3	Mz min	-2093.45	101.68	-2170.52	1606.46	0.00
	3	Mz max	-3079.10	-101.68	2137.93	2330.08	0.00

9	1	N min	-4008.76	0.00	-104.93	0.00	0.00
	1	N max	-1052.91	0.00	-35.99	0.00	0.00
	2	N min	-4180.10	0.00	-46.27	1503.29	0.00
	2	N max	-1145.43	25.42	-269.89	394.84	0.00
	3	N min	-4351.44	0.00	12.39	3006.57	0.00
	3	N max	-1237.96	101.68	-529.89	789.68	0.00
10	1	My min	-2401.38	-0.00	-17.54	0.00	0.00
	1	My max	-2401.38	0.00	-17.54	0.00	0.00
	2	My min	-2572.72	-56.49	-17.36	900.52	0.00
	2	My max	-2572.72	56.49	-17.36	900.52	0.00
	3	My min	-2744.06	-225.95	-17.18	1801.04	0.00
	3	My max	-2744.06	225.95	-17.18	1801.04	0.00
10	1	Mz min	-2176.62	0.00	-1972.04	0.00	0.00
	1	Mz max	-3118.46	0.00	1929.22	0.00	0.00
	2	Mz min	-2267.56	0.00	-2021.02	816.23	0.00
	2	Mz max	-3301.66	0.00	1979.12	1169.42	0.00
	3	Mz min	-2116.13	101.68	-2282.43	1632.47	0.00
	3	Mz max	-3102.45	-101.68	2241.95	2338.85	0.00
10	1	N min	-4032.27	0.00	-108.17	0.00	0.00
	1	N max	-1075.62	0.00	-41.91	0.00	0.00
	2	N min	-4203.60	0.00	-36.92	1512.10	0.00
	2	N max	-1168.14	25.42	118.96	403.36	0.00
	3	N min	-4374.94	0.00	34.34	3024.20	0.00
	3	N max	-1260.66	101.68	305.92	806.71	0.00
11	1	My min	-2372.37	-0.00	-19.77	0.00	0.00
	1	My max	-2372.37	0.00	-19.77	0.00	0.00
	2	My min	-2543.71	-56.49	-20.14	889.64	0.00
	2	My max	-2543.71	56.49	-20.14	889.64	0.00
	3	My min	-2715.05	-225.95	-20.52	1779.28	0.00
	3	My max	-2715.05	225.95	-20.52	1779.28	0.00
11	1	Mz min	-2136.05	0.00	-1998.78	0.00	0.00
	1	Mz max	-3100.82	0.00	1951.90	0.00	0.00
	2	Mz min	-2238.85	0.00	-2010.96	801.02	0.00
	2	Mz max	-3272.16	0.00	1961.72	1162.81	0.00
	3	Mz min	-2087.61	101.68	-2219.29	1602.04	0.00
	3	Mz max	-3073.21	-101.68	2168.19	2325.61	0.00
11	1	N min	-4002.82	0.00	-116.57	0.00	0.00
	1	N max	-1047.01	-0.00	-33.47	0.00	0.00
	2	N min	-4174.16	0.00	-35.88	1501.06	0.00
	2	N max	-1139.54	-25.42	144.39	392.63	0.00
	3	N min	-4345.49	0.00	44.81	3002.11	0.00
	3	N max	-1232.06	-101.68	348.35	785.26	0.00
12	1	My min	-2379.87	-0.00	-23.39	0.00	0.00
	1	My max	-2379.87	0.00	-23.39	0.00	0.00
	2	My min	-2541.09	-50.01	-23.78	832.95	0.00
	2	My max	-2541.09	50.01	-23.78	832.95	0.00
	3	My min	-2702.30	-200.04	-24.18	1665.91	0.00
	3	My max	-2702.30	200.04	-24.18	1665.91	0.00
12	1	Mz min	-2155.05	0.00	-1991.78	0.00	0.00
	1	Mz max	-3097.05	0.00	1935.06	0.00	0.00
	2	Mz min	-2239.90	0.00	-2111.56	754.27	0.00
	2	Mz max	-3270.13	0.00	2054.63	1083.97	0.00
	3	Mz min	-2083.60	-90.02	-2403.87	1508.53	0.00
	3	Mz max	-3062.79	90.02	2347.36	2167.93	0.00
12	1	N min	-4011.47	0.00	-113.85	0.00	0.00
	1	N max	-1053.42	0.00	-47.70	0.00	0.00
	2	N min	-4172.68	0.00	-16.42	1404.01	0.00
	2	N max	-1140.48	22.51	90.16	368.70	0.00
	3	N min	-4333.90	0.00	81.00	2808.03	0.00
	3	N max	-1227.53	90.02	251.13	737.39	0.00
13	1	My min	-2383.60	-0.00	-26.75	0.00	0.00
	1	My max	-2383.60	0.00	-26.75	0.00	0.00
	2	My min	-2544.81	-50.01	-26.03	834.26	0.00
	2	My max	-2544.81	50.01	-26.03	834.26	0.00
	3	My min	-2706.02	-200.04	-25.31	1668.52	0.00
	3	My max	-2706.02	200.04	-25.31	1668.52	0.00
13	1	Mz min	-2159.25	0.00	-2007.13	0.00	0.00
	1	Mz max	-3100.24	0.00	1943.09	0.00	0.00
	2	Mz min	-2244.16	0.00	-2044.99	755.74	0.00
	2	Mz max	-3273.27	0.00	1982.89	1085.09	0.00
	3	Mz min	-2088.01	-90.02	-2229.41	1511.47	0.00
	3	Mz max	-3066.21	90.02	2169.93	2170.17	0.00
13	1	N min	-4014.73	0.00	-129.33	0.00	0.00
	1	N max	-1057.72	-0.00	-41.12	0.00	0.00
	2	N min	-4175.95	0.00	-17.74	1405.16	0.00
	2	N max	-1144.78	-22.51	-247.83	370.20	0.00
	3	N min	-4337.16	0.00	93.85	2810.31	0.00
	3	N max	-1231.83	-90.02	-477.65	740.40	0.00
14	1	My min	-2384.05	-0.00	-29.07	0.00	0.00
	1	My max	-2384.05	0.00	-29.07	0.00	0.00
	2	My min	-2535.14	-43.93	-29.12	774.82	0.00
	2	My max	-2535.14	43.93	-29.12	774.82	0.00
	3	My min	-2686.23	-175.70	-29.17	1549.63	0.00
	3	My max	-2686.23	175.70	-29.17	1549.63	0.00

14	1	Mz min	-2158.96	0.00	-1987.53	0.00	0.00
	1	Mz max	-3100.98	0.00	1917.22	0.00	0.00
	2	Mz min	-2237.61	0.00	-2092.49	701.66	0.00
	2	Mz max	-3264.08	0.00	2023.09	1007.82	0.00
	3	Mz min	-2076.57	79.06	-2322.53	1403.33	0.00
	3	Mz max	-3048.69	-79.06	2254.96	2015.64	0.00
14	1	N min	-4015.66	0.00	-124.08	0.00	0.00
	1	N max	-1057.18	0.00	-54.08	0.00	0.00
	2	N min	-4166.75	0.00	0.21	1305.09	0.00
	2	N max	-1138.77	19.77	48.66	343.58	0.00
	3	N min	-4317.84	0.00	124.51	2610.18	0.00
	3	N max	-1220.35	79.06	171.69	687.17	0.00
15	1	My min	-2382.08	-0.00	-31.24	0.00	0.00
	1	My max	-2382.08	0.00	-31.24	0.00	0.00
	2	My min	-2523.04	-38.24	-31.56	714.62	0.00
	2	My max	-2523.04	38.24	-31.56	714.62	0.00
	3	My min	-2664.01	-152.94	-31.88	1429.25	0.00
	3	My max	-2664.01	152.94	-31.88	1429.25	0.00
15	1	Mz min	-2158.99	0.00	-1983.57	0.00	0.00
	1	Mz max	-3099.27	0.00	1909.95	0.00	0.00
	2	Mz min	-2232.28	0.00	-2056.13	647.70	0.00
	2	Mz max	-3251.52	0.00	1979.87	929.78	0.00
	3	Mz min	-2066.07	-68.82	-2220.14	1295.39	0.00
	3	Mz max	-3028.23	68.82	2142.26	1859.56	0.00
15	1	N min	-4013.64	0.00	-139.77	0.00	0.00
	1	N max	-1057.06	0.00	-45.28	0.00	0.00
	2	N min	-4154.61	0.00	-13.65	1204.09	0.00
	2	N max	-1133.18	17.21	94.24	317.12	0.00
	3	N min	-4295.57	0.00	112.46	2408.19	0.00
	3	N max	-1209.30	68.82	251.42	634.23	0.00
16	1	My min	-2388.98	-0.00	-32.60	0.00	0.00
	1	My max	-2388.98	0.00	-32.60	0.00	0.00
	2	My min	-2509.69	-28.04	-32.28	597.24	0.00
	2	My max	-2509.69	28.04	-32.28	597.24	0.00
	3	My min	-2630.41	-112.16	-31.96	1194.49	0.00
	3	My max	-2630.41	112.16	-31.96	1194.49	0.00
16	1	Mz min	-2159.13	0.00	-1973.42	0.00	0.00
	1	Mz max	-3104.34	0.00	1895.22	0.00	0.00
	2	Mz min	-2217.61	0.00	-2045.95	539.78	0.00
	2	Mz max	-3239.00	0.00	1969.03	776.08	0.00
	3	Mz min	-2043.15	-50.47	-2159.37	1079.56	0.00
	3	Mz max	-2999.30	50.47	2084.82	1552.17	0.00
16	1	N min	-4013.14	0.00	-128.92	0.00	0.00
	1	N max	-1063.52	0.00	-54.32	0.00	0.00
	2	N min	-4133.86	0.00	-8.55	1003.29	0.00
	2	N max	-1128.70	12.62	12.20	265.88	0.00
	3	N min	-4254.57	0.00	111.82	2006.57	0.00
	3	N max	-1193.89	50.47	91.66	531.76	0.00
17	1	My min	-2415.44	-0.00	-33.96	0.00	0.00
	1	My max	-2415.44	0.00	-33.96	0.00	0.00
	2	My min	-2505.78	-15.71	-33.97	422.70	0.00
	2	My max	-2505.78	15.71	-33.97	422.70	0.00
	3	My min	-2596.13	-62.82	-33.99	845.40	0.00
	3	My max	-2596.13	62.82	-33.99	845.40	0.00
17	1	Mz min	-2205.83	0.00	-1967.74	0.00	0.00
	1	Mz max	-3141.82	0.00	1886.93	0.00	0.00
	2	Mz min	-2260.03	0.00	-2057.82	386.02	0.00
	2	Mz max	-3232.16	0.00	1977.16	549.82	0.00
	3	Mz min	-2314.24	0.00	-2148.22	772.04	0.00
	3	Mz max	-3322.50	0.00	2067.70	1099.64	0.00
17	1	N min	-4034.60	0.00	-139.68	0.00	0.00
	1	N max	-1119.59	0.00	-53.85	0.00	0.00
	2	N min	-4124.94	0.00	-42.91	706.05	0.00
	2	N max	-1168.38	7.07	-178.41	195.93	0.00
	3	N min	-4215.28	0.00	53.85	1412.11	0.00
	3	N max	-1217.16	28.27	-310.22	391.86	0.00
18	1	My min	-2108.90	-0.00	-27.71	0.00	0.00
	1	My max	-2108.90	0.00	-27.71	0.00	0.00
	2	My min	-2168.87	-6.92	-29.11	210.89	0.00
	2	My max	-2168.87	6.92	-29.11	210.89	0.00
	3	My min	-2228.84	-27.68	-30.52	421.78	0.00
	3	My max	-2228.84	27.68	-30.52	421.78	0.00
18	1	Mz min	-1741.65	0.00	-1670.02	0.00	0.00
	1	Mz max	-2853.06	0.00	1604.74	0.00	0.00
	2	Mz min	-1758.30	0.00	-1740.96	174.16	0.00
	2	Mz max	-2893.72	0.00	1669.97	285.31	0.00
	3	Mz min	-1794.29	0.00	-1821.08	348.33	0.00
	3	Mz max	-2953.69	0.00	1744.27	570.61	0.00
18	1	N min	-3640.43	0.00	-102.92	0.00	0.00
	1	N max	-778.25	-0.00	-55.64	0.00	0.00
	2	N min	-3700.40	0.00	-43.92	364.04	0.00
	2	N max	-810.63	-3.11	-166.70	77.83	0.00
	3	N min	-3760.37	0.00	15.08	728.09	0.00
	3	N max	-843.02	-12.46	-280.96	155.65	0.00

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

ESFUERZOS EN FUSTES

pila	sec	fuste	env	Nd [t]	Myd [mt]	Mzd [mt]
1	1	1	My min	-2098.48	-0.00	-0.71
	1	1	My max	-2098.48	0.00	-0.71
	2	1	My min	-2188.82	-382.94	-0.69
	2	1	My max	-2188.82	382.94	-0.69
	3	1	My min	-2279.16	-797.28	-0.68
	3	1	My max	-2279.16	797.28	-0.68
1	1	1	Mz min	-2708.62	0.00	-1470.05
	1	1	Mz max	-1875.76	0.00	1468.22
	2	1	Mz min	-2798.96	-474.01	-1488.13
	2	1	Mz max	-1929.97	-328.26	1486.47
	3	1	Mz min	-2573.94	976.29	-1568.79
	3	1	Mz max	-1755.86	-684.79	1567.44
1	1	1	N min	-3613.91	0.00	-90.15
	1	1	N max	-780.82	0.00	0.90
	2	1	N min	-3704.25	-632.43	-86.79
	2	1	N max	-829.60	143.71	120.29
	3	1	N min	-3794.60	-1264.87	-83.43
	3	1	N max	-878.39	301.55	246.92
2	1	1	My min	-2455.36	-0.00	-1.04
	1	1	My max	-2455.36	0.00	-1.04
	2	1	My min	-2576.08	-641.88	-0.93
	2	1	My max	-2576.08	641.88	-0.93
	3	1	My min	-2696.79	-1339.84	-0.82
	3	1	My max	-2696.79	1339.84	-0.82
2	1	1	Mz min	-3197.61	0.00	-1843.04
	1	1	Mz max	-2230.47	0.00	1840.39
	2	1	Mz min	-3318.33	-799.40	-1780.80
	2	1	Mz max	-2302.90	-557.62	1778.04
	3	1	Mz min	-3104.78	-1649.28	-1824.35
	3	1	Mz max	-2141.41	1165.70	1821.53
2	1	1	N min	-4076.75	0.00	92.82
	1	1	N max	-1159.80	0.00	-9.97
	2	1	N min	-4197.46	-1019.19	80.82
	2	1	N max	-1224.98	302.57	-155.62
	3	1	N min	-4318.18	-2038.37	68.82
	3	1	N max	-1290.17	630.37	-314.21
3	1	1	My min	-2365.58	-0.00	0.98
	1	1	My max	-2365.58	0.00	0.98
	2	1	My min	-2496.42	-683.48	-1.15
	2	1	My max	-2496.42	683.48	-1.15
	3	1	My min	-2627.26	-1432.83	-3.29
	3	1	My max	-2627.26	1432.83	-3.29
3	1	1	Mz min	-2122.90	0.00	-1927.79
	1	1	Mz max	-3094.17	0.00	1932.36
	2	1	Mz min	-2201.47	-583.80	-1942.21
	2	1	Mz max	-3224.94	-850.90	1937.52
	3	1	Mz min	-2053.33	1226.89	-2095.04
	3	1	Mz max	-3015.50	-1761.08	2081.10
3	1	1	N min	-3988.28	0.00	-87.28
	1	1	N max	-1041.38	0.00	-14.25
	2	1	N min	-4119.12	-1096.78	-84.45
	2	1	N max	-1112.04	301.20	-182.02
	3	1	N min	-4249.96	-2193.56	-81.62
	3	1	N max	-1182.69	632.05	-365.00
4	1	1	My min	-2388.14	-0.00	-3.20
	1	1	My max	-2388.14	0.00	-3.20
	2	1	My min	-2529.10	-754.68	-0.92
	2	1	My max	-2529.10	754.68	-0.92
	3	1	My min	-2670.07	-1585.82	1.36
	3	1	My max	-2670.07	1585.82	1.36
4	1	1	Mz min	-2153.45	0.00	-1975.55
	1	1	Mz max	-3117.08	0.00	1965.14
	2	1	Mz min	-2238.05	-646.94	-1965.30
	2	1	Mz max	-3258.02	-935.12	1965.59
	3	1	Mz min	-2093.84	1360.89	-2120.79
	3	1	Mz max	-3056.51	-1939.07	2131.85
4	1	1	N min	-4020.03	0.00	-93.54
	1	1	N max	-1063.10	0.00	-23.95
	2	1	N min	-4160.99	-1206.01	-80.42
	2	1	N max	-1139.22	336.14	-192.21
	3	1	N min	-4301.96	-2412.02	-67.30
	3	1	N max	-1215.34	706.69	-378.13
5	1	1	My min	-2382.41	-0.00	-4.51
	1	1	My max	-2382.41	0.00	-4.51
	2	1	My min	-2533.50	-818.21	-4.31
	2	1	My max	-2533.50	818.21	-4.31
	3	1	My min	-2684.59	-1724.27	-4.11

	3	1	My max	-2684.59	1724.27	-4.11
5	1	1	Mz min	-3098.94	0.00	-1964.67
	1	1	Mz max	-2157.81	0.00	1954.13
	2	1	Mz min	-3250.03	-1007.16	-1967.05
	2	1	Mz max	-2248.46	-701.29	1957.57
	3	1	Mz min	-3063.91	-2093.38	-2154.93
	3	1	Mz max	-2102.06	1481.64	2146.75
5	1	1	N min	-4013.90	0.00	-94.74
	1	1	N max	-1055.71	0.00	-21.83
	2	1	N min	-4164.99	-1304.52	-73.47
	2	1	N max	-1137.30	362.87	143.85
	3	1	N min	-4316.08	-2609.04	-52.20
	3	1	N max	-1218.88	765.28	329.82
6	1	1	My min	-2383.43	-0.00	-7.67
	1	1	My max	-2383.43	0.00	-7.67
	2	1	My min	-2544.64	-884.21	-7.10
	2	1	My max	-2544.64	884.21	-7.10
	3	1	My min	-2705.85	-1868.43	-6.54
	3	1	My max	-2705.85	1868.43	-6.54
6	1	1	Mz min	-3100.36	0.00	-1973.47
	1	1	Mz max	-2158.88	0.00	1954.58
	2	1	Mz min	-3261.58	-1085.13	-1932.01
	2	1	Mz max	-2255.61	-755.61	1915.12
	3	1	Mz min	-3083.58	2260.27	-2092.97
	3	1	Mz max	-2114.12	-1601.23	2078.41
6	1	1	N min	-4014.75	0.00	-101.31
	1	1	N max	-1057.40	-0.00	-21.50
	2	1	N min	-4175.97	-1405.16	-73.02
	2	1	N max	-1144.45	-392.59	-223.49
	3	1	N min	-4337.18	-2810.33	-44.72
	3	1	N max	-1231.51	-830.19	-448.59
7	1	1	My min	-2382.93	-0.00	-9.14
	1	1	My max	-2382.93	0.00	-9.14
	2	1	My min	-2544.15	-884.04	-10.13
	2	1	My max	-2544.15	884.04	-10.13
	3	1	My min	-2705.36	-1868.09	-11.11
	3	1	My max	-2705.36	1868.09	-11.11
7	1	1	Mz min	-2146.45	0.00	-1988.82
	1	1	Mz max	-3111.67	0.00	1967.98
	2	1	Mz min	-2243.18	-751.26	-1995.73
	2	1	Mz max	-3272.89	-1089.09	1970.18
	3	1	Mz min	-2108.91	-1592.53	-2211.02

	3	1	Mz max	-3087.62	2268.19	2181.14
7	1	1	N min	-4014.28	0.00	-96.73
	1	1	N max	-1056.73	-0.00	-30.15
	2	1	N min	-4175.49	-1405.00	-67.20
	2	1	N max	-1143.79	-392.36	-246.37
	3	1	N min	-4336.71	-2810.00	-37.67
	3	1	N max	-1230.84	-829.73	-485.70
8	1	1	My min	-2385.38	-0.00	-12.03
	1	1	My max	-2385.38	0.00	-12.03
	2	1	My min	-2546.59	-884.89	-12.04
	2	1	My max	-2546.59	884.89	-12.04
	3	1	My min	-2707.81	-1869.80	-12.04
	3	1	My max	-2707.81	1869.80	-12.04
8	1	1	Mz min	-2148.82	0.00	-1992.43
	1	1	Mz max	-3114.36	0.00	1962.27
	2	1	Mz min	-2245.54	-752.09	-2051.24
	2	1	Mz max	-3275.58	-1090.03	2022.30
	3	1	Mz min	-2111.18	-1594.19	-2319.95
	3	1	Mz max	-3090.19	2270.07	2292.70
8	1	1	N min	-4016.95	0.00	-106.05
	1	1	N max	-1059.04	-0.00	-26.67
	2	1	N min	-4178.16	-1405.93	-63.31
	2	1	N max	-1146.10	-393.17	145.55
	3	1	N min	-4339.37	-2811.86	-20.58
	3	1	N max	-1233.15	-831.35	340.89
9	1	1	My min	-2378.28	-0.00	-14.87
	1	1	My max	-2378.28	0.00	-14.87
	2	1	My min	-2549.61	-948.34	-14.37
	2	1	My max	-2549.61	948.34	-14.37
	3	1	My min	-2720.95	-2009.66	-13.87
	3	1	My max	-2720.95	2009.66	-13.87
9	1	1	Mz min	-2141.95	0.00	-1995.24
	1	1	Mz max	-3106.77	0.00	1959.13
	2	1	Mz min	-2244.75	-803.23	-1977.35
	2	1	Mz max	-3278.11	-1165.04	1942.75
	3	1	Mz min	-2093.45	1708.14	-2170.52
	3	1	Mz max	-3079.10	-2431.76	2137.93
9	1	1	N min	-4008.76	0.00	-104.93
	1	1	N max	-1052.91	0.00	-35.99
	2	1	N min	-4180.10	-1503.29	-46.27
	2	1	N max	-1145.43	420.26	-269.89
	3	1	N min	-4351.44	-3006.57	12.39

	3	1	N max	-1237.96	891.36	-529.89
10	1	1	My min	-2401.38	-0.00	-17.54
	1	1	My max	-2401.38	0.00	-17.54
	2	1	My min	-2572.72	-957.01	-17.36
	2	1	My max	-2572.72	957.01	-17.36
	3	1	My min	-2744.06	-2026.99	-17.18
	3	1	My max	-2744.06	2026.99	-17.18
10	1	1	Mz min	-2176.62	0.00	-1972.04
	1	1	Mz max	-3118.46	0.00	1929.22
	2	1	Mz min	-2267.56	-816.23	-2021.02
	2	1	Mz max	-3301.66	-1169.42	1979.12
	3	1	Mz min	-2116.13	1734.14	-2282.43
	3	1	Mz max	-3102.45	-2440.52	2241.95
10	1	1	N min	-4032.27	0.00	-108.17
	1	1	N max	-1075.62	0.00	-41.91
	2	1	N min	-4203.60	-1512.10	-36.92
	2	1	N max	-1168.14	428.78	118.96
	3	1	N min	-4374.94	-3024.20	34.34
	3	1	N max	-1260.66	908.39	305.92
11	1	1	My min	-2372.37	-0.00	-19.77
	1	1	My max	-2372.37	0.00	-19.77
	2	1	My min	-2543.71	-946.13	-20.14
	2	1	My max	-2543.71	946.13	-20.14
	3	1	My min	-2715.05	-2005.23	-20.52
	3	1	My max	-2715.05	2005.23	-20.52
11	1	1	Mz min	-2136.05	0.00	-1998.78
	1	1	Mz max	-3100.82	0.00	1951.90
	2	1	Mz min	-2238.85	-801.02	-2010.96
	2	1	Mz max	-3272.16	-1162.81	1961.72
	3	1	Mz min	-2087.61	1703.71	-2219.29
	3	1	Mz max	-3073.21	-2427.29	2168.19
11	1	1	N min	-4002.82	0.00	-116.57
	1	1	N max	-1047.01	-0.00	-33.47
	2	1	N min	-4174.16	-1501.06	-35.88
	2	1	N max	-1139.54	-418.05	144.39
	3	1	N min	-4345.49	-3002.11	44.81
	3	1	N max	-1232.06	-886.94	348.35
12	1	1	My min	-2379.87	-0.00	-23.39
	1	1	My max	-2379.87	0.00	-23.39
	2	1	My min	-2541.09	-882.97	-23.78
	2	1	My max	-2541.09	882.97	-23.78
	3	1	My min	-2702.30	-1865.95	-24.18
	3	1	My max	-2702.30	1865.95	-24.18
12	1	1	Mz min	-2155.05	0.00	-1991.78
	1	1	Mz max	-3097.05	0.00	1935.06
	2	1	Mz min	-2239.90	-754.27	-2111.56
	2	1	Mz max	-3270.13	-1083.97	2054.63
	3	1	Mz min	-2083.60	-1598.55	-2403.87
	3	1	Mz max	-3062.79	2257.95	2347.36
12	1	1	N min	-4011.47	0.00	-113.85
	1	1	N max	-1053.42	0.00	-47.70
	2	1	N min	-4172.68	-1404.01	-16.42
	2	1	N max	-1140.48	391.20	90.16
	3	1	N min	-4333.90	-2808.03	81.00
	3	1	N max	-1227.53	827.41	251.13
13	1	1	My min	-2383.60	-0.00	-26.75
	1	1	My max	-2383.60	0.00	-26.75
	2	1	My min	-2544.81	-884.27	-26.03
	2	1	My max	-2544.81	884.27	-26.03
	3	1	My min	-2706.02	-1868.55	-25.31
	3	1	My max	-2706.02	1868.55	-25.31
13	1	1	Mz min	-2159.25	0.00	-2007.13
	1	1	Mz max	-3100.24	0.00	1943.09
	2	1	Mz min	-2244.16	-755.74	-2044.99
	2	1	Mz max	-3273.27	-1085.09	1982.89
	3	1	Mz min	-2088.01	-1601.49	-2229.41
	3	1	Mz max	-3066.21	2260.19	2169.93
13	1	1	N min	-4014.73	0.00	-129.33
	1	1	N max	-1057.72	-0.00	-41.12
	2	1	N min	-4175.95	-1405.16	-17.74
	2	1	N max	-1144.78	-392.71	-247.83
	3	1	N min	-4337.16	-2810.31	93.85
	3	1	N max	-1231.83	-830.42	-477.65
14	1	1	My min	-2384.05	-0.00	-29.07
	1	1	My max	-2384.05	0.00	-29.07
	2	1	My min	-2535.14	-818.74	-29.12
	2	1	My max	-2535.14	818.74	-29.12
	3	1	My min	-2686.23	-1725.33	-29.17
	3	1	My max	-2686.23	1725.33	-29.17
14	1	1	Mz min	-2158.96	0.00	-1987.53
	1	1	Mz max	-3100.98	0.00	1917.22
	2	1	Mz min	-2237.61	-701.66	-2092.49
	2	1	Mz max	-3264.08	-1007.82	2023.09
	3	1	Mz min	-2076.57	1482.39	-2322.53

	3	1	Mz max	-3048.69	-2094.70	2254.96
14	1	1	N min	-4015.66	0.00	-124.08
	1	1	N max	-1057.18	0.00	-54.08
	2	1	N min	-4166.75	-1305.09	0.21
	2	1	N max	-1138.77	363.35	48.66
	3	1	N min	-4317.84	-2610.18	124.51
	3	1	N max	-1220.35	766.23	171.69
15	1	1	My min	-2382.08	-0.00	-31.24
	1	1	My max	-2382.08	0.00	-31.24
	2	1	My min	-2523.04	-752.86	-31.56
	2	1	My max	-2523.04	752.86	-31.56
	3	1	My min	-2664.01	-1582.19	-31.88
	3	1	My max	-2664.01	1582.19	-31.88
15	1	1	Mz min	-2158.99	0.00	-1983.57
	1	1	Mz max	-3099.27	0.00	1909.95
	2	1	Mz min	-2232.28	-647.70	-2056.13
	2	1	Mz max	-3251.52	-929.78	1979.87
	3	1	Mz min	-2066.07	-1364.22	-2220.14
	3	1	Mz max	-3028.23	1928.39	2142.26
15	1	1	N min	-4013.64	0.00	-139.77
	1	1	N max	-1057.06	0.00	-45.28
	2	1	N min	-4154.61	-1204.09	-13.65
	2	1	N max	-1133.18	334.32	94.24
	3	1	N min	-4295.57	-2408.19	112.46
	3	1	N max	-1209.30	703.06	251.42
16	1	1	My min	-2388.98	-0.00	-32.60
	1	1	My max	-2388.98	0.00	-32.60
	2	1	My min	-2509.69	-625.29	-32.28
	2	1	My max	-2509.69	625.29	-32.28
	3	1	My min	-2630.41	-1306.65	-31.96
	3	1	My max	-2630.41	1306.65	-31.96
16	1	1	Mz min	-2159.13	0.00	-1973.42
	1	1	Mz max	-3104.34	0.00	1895.22
	2	1	Mz min	-2217.61	-539.78	-2045.95
	2	1	Mz max	-3239.00	-776.08	1969.03
	3	1	Mz min	-2043.15	-1130.03	-2159.37
	3	1	Mz max	-2999.30	1602.64	2084.82
16	1	1	N min	-4013.14	0.00	-128.92
	1	1	N max	-1063.52	0.00	-54.32
	2	1	N min	-4133.86	-1003.29	-8.55
	2	1	N max	-1128.70	278.50	12.29
	3	1	N min	-4254.57	-2006.57	111.82
	3	1	N max	-1193.89	582.23	91.66
17	1	1	My min	-2415.44	-0.00	-33.96
	1	1	My max	-2415.44	0.00	-33.96
	2	1	My min	-2505.78	-438.41	-33.97
	2	1	My max	-2505.78	438.41	-33.97
	3	1	My min	-2596.13	-908.22	-33.99
	3	1	My max	-2596.13	908.22	-33.99
17	1	1	Mz min	-2205.83	0.00	-1967.74
	1	1	Mz max	-3141.82	0.00	1886.93
	2	1	Mz min	-2260.03	-386.02	-2057.82
	2	1	Mz max	-3232.16	-549.82	1977.16
	3	1	Mz min	-2314.24	-772.04	-2148.22
	3	1	Mz max	-3322.50	-1099.64	2067.70
17	1	1	N min	-4034.60	0.00	-139.68
	1	1	N max	-1119.59	0.00	-53.85
	2	1	N min	-4124.94	-706.05	-42.91
	2	1	N max	-1168.38	203.00	-178.41
	3	1	N min	-4215.28	-1412.11	53.85
	3	1	N max	-1217.16	420.13	-310.22
18	1	1	My min	-2108.90	-0.00	-27.71
	1	1	My max	-2108.90	0.00	-27.71
	2	1	My min	-2168.87	-217.81	-29.11
	2	1	My max	-2168.87	217.81	-29.11
	3	1	My min	-2228.84	-449.46	-30.52
	3	1	My max	-2228.84	449.46	-30.52
18	1	1	Mz min	-1741.65	0.00	-1670.02
	1	1	Mz max	-2853.06	0.00	1604.74
	2	1	Mz min	-1758.30	-174.16	-1740.96
	2	1	Mz max	-2893.72	-285.31	1669.97
	3	1	Mz min	-1794.29	-348.33	-1821.08
	3	1	Mz max	-2953.69	-570.61	1744.27
18	1	1	N min	-3640.43	0.00	-102.92
	1	1	N max	-778.25	-0.00	-55.64
	2	1	N min	-3700.40	-364.04	-43.92
	2	1	N max	-810.63	-80.94	-166.70
	3	1	N min	-3760.37	-728.09	15.08
	3	1	N max	-843.02	-168.11	-280.96

Programa LST3 - Posprocesador para el calculo de pilas de viaductos
con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

DIMENSIONAMIENTO FUSTES

LEYENDA m: armadura mínima (As$$fyd=0.1$$Ac$$fcd)
xxxx: Anec$$fyd > Ac$$fcd

pila	sec	fuste	env	Nd [t]	Myd_eq [mt]	Mzd_eq [mt]	fi_nom [mm]	A_tot [cm2]
1	2	1	My min	-2188.82	-382.94	-575.66	16.45	242.15 m
	2	1	My max	-2188.82	-382.94	-575.66	16.45	242.15 m
1	3	1	My min	-2279.16	-797.28	-599.42	16.45	242.15 m
	3	1	My max	-2279.16	-797.28	-599.42	16.45	242.15 m
1	2	1	Mz min	-2798.96	-474.01	-1488.13	16.45	242.15 m
	2	1	Mz max	-1929.97	-328.26	-1486.47	16.45	242.15 m
1	3	1	Mz min	-2573.94	-976.29	-1568.79	16.45	242.15 m
	3	1	Mz max	-1755.86	-684.79	-1567.44	16.45	242.15 m
1	2	1	N min	-3704.25	-632.43	-974.22	16.45	242.15 m
	2	1	N max	-829.60	-143.71	-218.19	16.45	242.15 m
1	3	1	N min	-3794.60	-1264.87	-997.98	16.45	242.15 m
	3	1	N max	-878.39	-301.55	-246.92	16.45	242.15 m
2	2	1	My min	-2576.08	-641.88	-677.51	16.45	242.15 m
	2	1	My max	-2576.08	-641.88	-677.51	16.45	242.15 m
2	3	1	My min	-2696.79	-1339.84	-709.26	16.45	242.15 m
	3	1	My max	-2696.79	-1339.84	-709.26	16.45	242.15 m
2	2	1	Mz min	-3318.33	-799.40	-1780.80	16.45	242.15 m
	2	1	Mz max	-2302.90	-557.62	-1778.04	16.45	242.15 m
2	3	1	Mz min	-3104.78	-1649.28	-1824.35	16.45	242.15 m
	3	1	Mz max	-2141.41	-1165.70	-1821.53	16.45	242.15 m
2	2	1	N min	-4197.46	-1019.19	-1103.93	16.45	242.15 m
	2	1	N max	-1224.98	-302.57	-322.17	16.45	242.15 m
2	3	1	N min	-4318.18	-2038.37	-1135.68	16.45	242.15 m
	3	1	N max	-1290.17	-630.37	-339.31	16.45	242.15 m
3	2	1	My min	-2496.42	-683.48	-656.56	16.45	242.15 m
	2	1	My max	-2496.42	-683.48	-656.56	16.45	242.15 m
3	3	1	My min	-2627.26	-1432.83	-690.97	16.45	242.15 m
	3	1	My max	-2627.26	-1432.83	-690.97	16.45	242.15 m
3	2	1	Mz min	-2201.47	-583.80	-1942.21	16.45	242.15 m
	2	1	Mz max	-3224.94	-850.90	-1937.52	16.45	242.15 m
3	3	1	Mz min	-2053.33	-1226.89	-2095.04	16.45	242.15 m
	3	1	Mz max	-3015.50	-1761.08	-2081.10	16.45	242.15 m
3	2	1	N min	-4119.12	-1096.78	-1083.33	16.45	242.15 m
	2	1	N max	-1112.04	-301.20	-292.47	16.45	242.15 m
3	3	1	N min	-4249.96	-2193.56	-1117.74	16.45	242.15 m
	3	1	N max	-1182.69	-632.05	-365.00	16.45	242.15 m
4	2	1	My min	-2529.10	-754.68	-665.15	16.45	242.15 m
	2	1	My max	-2529.10	-754.68	-665.15	16.45	242.15 m
4	3	1	My min	-2670.07	-1585.82	-702.23	16.45	242.15 m
	3	1	My max	-2670.07	-1585.82	-702.23	16.45	242.15 m
4	2	1	Mz min	-2238.05	-646.04	-1965.30	16.45	242.15 m
	2	1	Mz max	-3258.02	-935.12	-1965.59	16.45	242.15 m
4	3	1	Mz min	-2093.84	-1360.89	-2120.79	16.45	242.15 m
	3	1	Mz max	-3056.51	-1939.07	-2131.85	16.45	242.15 m
4	2	1	N min	-4160.99	-1206.01	-1094.34	16.45	242.15 m
	2	1	N max	-1139.22	-336.14	-299.62	16.45	242.15 m
4	3	1	N min	-4301.96	-2412.02	-1131.41	16.45	242.15 m
	3	1	N max	-1215.34	-706.69	-378.13	16.45	242.15 m
5	2	1	My min	-2533.50	-818.21	-666.31	16.45	242.15 m
	2	1	My max	-2533.50	-818.21	-666.31	16.45	242.15 m
5	3	1	My min	-2684.59	-1724.27	-706.05	16.45	242.15 m
	3	1	My max	-2684.59	-1724.27	-706.05	16.45	242.15 m
5	2	1	Mz min	-3250.03	-1007.16	-1967.05	16.45	242.15 m
	2	1	Mz max	-2248.46	-701.29	-1957.57	16.45	242.15 m
5	3	1	Mz min	-3063.91	-2093.38	-2154.93	16.45	242.15 m
	3	1	Mz max	-2102.06	-1481.64	-2146.75	16.45	242.15 m
5	2	1	N min	-4164.99	-1304.52	-1095.39	16.45	242.15 m
	2	1	N max	-1137.30	-362.87	-299.11	16.45	242.15 m
5	3	1	N min	-4316.08	-2609.04	-1135.13	16.45	242.15 m
	3	1	N max	-1218.88	-765.28	-329.82	16.45	242.15 m
6	2	1	My min	-2544.64	-884.21	-669.24	16.45	242.15 m
	2	1	My max	-2544.64	-884.21	-669.24	16.45	242.15 m
6	3	1	My min	-2705.85	-1868.43	-711.64	16.45	242.15 m
	3	1	My max	-2705.85	-1868.43	-711.64	16.45	242.15 m
6	2	1	Mz min	-3261.58	-1085.13	-1932.01	16.45	242.15 m

	2	1	Mz max	-2255.61	-755.61	-1915.12	16.45	242.15 m
6	3	1	Mz min	-3083.58	-2260.27	-2092.97	16.45	242.15 m
	3	1	Mz max	-2114.12	-1601.23	-2078.41	16.45	242.15 m
6	2	1	N min	-4175.97	-1405.16	-1098.28	16.45	242.15 m
	2	1	N max	-1144.45	-392.59	-300.99	16.45	242.15 m
6	3	1	N min	-4337.18	-2810.33	-1140.68	16.45	242.15 m
	3	1	N max	-1231.51	-830.19	-448.59	16.45	242.15 m
7	2	1	My min	-2544.15	-884.04	-669.11	16.45	242.15 m
	2	1	My max	-2544.15	-884.04	-669.11	16.45	242.15 m
7	3	1	My min	-2705.36	-1868.09	-711.51	16.45	242.15 m
	3	1	My max	-2705.36	-1868.09	-711.51	16.45	242.15 m
7	2	1	Mz min	-2243.18	-751.26	-1995.73	16.45	242.15 m
	2	1	Mz max	-3272.89	-1089.09	-1970.18	16.45	242.15 m
7	3	1	Mz min	-2108.91	-1592.53	-2211.02	16.45	242.15 m
	3	1	Mz max	-3087.62	-2268.19	-2181.14	16.45	242.15 m
7	2	1	N min	-4175.49	-1405.00	-1098.15	16.45	242.15 m
	2	1	N max	-1143.79	-392.36	-300.82	16.45	242.15 m
7	3	1	N min	-4336.71	-2810.00	-1140.55	16.45	242.15 m
	3	1	N max	-1230.84	-829.73	-485.70	16.45	242.15 m
8	2	1	My min	-2546.59	-884.89	-669.75	16.45	242.15 m
	2	1	My max	-2546.59	-884.89	-669.75	16.45	242.15 m
8	3	1	My min	-2707.81	-1869.80	-712.15	16.45	242.15 m
	3	1	My max	-2707.81	-1869.80	-712.15	16.45	242.15 m
8	2	1	Mz min	-2245.54	-752.09	-2051.24	16.45	242.15 m
	2	1	Mz max	-3275.58	-1090.03	-2022.30	16.45	242.15 m
8	3	1	Mz min	-2111.18	-1594.19	-2319.95	16.45	242.15 m
	3	1	Mz max	-3090.19	-2270.07	-2292.70	16.45	242.15 m
8	2	1	N min	-4178.16	-1405.93	-1098.86	16.45	242.15 m
	2	1	N max	-1146.10	-393.17	-301.42	16.45	242.15 m
8	3	1	N min	-4339.37	-2811.86	-1141.26	16.45	242.15 m
	3	1	N max	-1233.15	-831.35	-340.89	16.45	242.15 m
9	2	1	My min	-2549.61	-948.34	-670.55	16.45	242.15 m
	2	1	My max	-2549.61	-948.34	-670.55	16.45	242.15 m
9	3	1	My min	-2720.95	-2009.66	-715.61	16.45	242.15 m
	3	1	My max	-2720.95	-2009.66	-715.61	16.45	242.15 m
9	2	1	Mz min	-2244.75	-803.23	-1977.35	16.45	242.15 m
	2	1	Mz max	-3278.11	-1165.04	-1942.75	16.45	242.15 m
9	3	1	Mz min	-2093.45	-1708.14	-2170.52	16.45	242.15 m
	3	1	Mz max	-3079.10	-2431.76	-2137.93	16.45	242 15 m
9	2	1	N min	-4180.10	-1503.29	-1099.37	16.45	242.15 m
	2	1	N max	-1145.43	-420.26	-301.25	16.45	242.15 m
9	3	1	N min	-4351.44	-3006.57	-1144.43	16.45	242.15 m
	3	1	N max	-1237.96	-891.36	-529.89	16.45	242.15 m
10	2	1	My min	-2572.72	-957.01	-676.63	16.45	242.15 m
	2	1	My max	-2572.72	-957.01	-676.63	16.45	242.15 m
10	3	1	My min	-2744.06	-2026.99	-721.69	16.45	242.15 m
	3	1	My max	-2744.06	-2026.99	-721.69	16.45	242.15 m
10	2	1	Mz min	-2267.56	-816.23	-2021.02	16.45	242.15 m
	2	1	Mz max	-3301.66	-1169.42	-1979.12	16.45	242.15 m
10	3	1	Mz min	-2116.13	-1734.14	-2282.43	16.45	242.15 m
	3	1	Mz max	-3102.45	-2440.52	-2241.95	16.45	242.15 m
10	2	1	N min	-4203.60	-1512.10	-1105.55	16.45	242.15 m
	2	1	N max	-1168.14	-428.78	-307.22	16.45	242.15 m
10	3	1	N min	-4374.94	-3024.20	-1150.61	16.45	242.15 m
	3	1	N max	-1260.66	-908.39	-331.55	16.45	242.15 m
11	2	1	My min	-2543.71	-946.13	-669.00	16.45	242.15 m
	2	1	My max	-2543.71	-946.13	-669.00	16.45	242.15 m
11	3	1	My min	-2715.05	-2005.23	-714.06	16.45	242.15 m
	3	1	My max	-2715.05	-2005.23	-714.06	16.45	242.15 m
11	2	1	Mz min	-2238.85	-801.02	-2010.96	16.45	242.15 m
	2	1	Mz max	-3272.16	-1162.81	-1961.72	16.45	242.15 m
11	3	1	Mz min	-2087.61	-1703.71	-2219.29	16.45	242.15 m
	3	1	Mz max	-3073.21	-2427.29	-2168.19	16.45	242.15 m
11	2	1	N min	-4174.16	-1501.06	-1097.80	16.45	242.15 m
	2	1	N max	-1139.54	-418.05	-299.70	16.45	242.15 m
11	3	1	N min	-4345.49	-3002.11	-1142.87	16.45	242.15 m
	3	1	N max	-1232.06	-886.94	-348.35	16.45	242.15 m
12	2	1	My min	-2541.09	-882.97	-668.31	16.45	242.15 m
	2	1	My max	-2541.09	-882.97	-668.31	16.45	242.15 m
12	3	1	My min	-2702.30	-1865.95	-710.70	16.45	242.15 m

	3	1	My max	-2702.30	-1865.95	-710.70	16.45	242.15 m
12	2	1	Mz min	-2239.90	-754.27	-2111.56	16.45	242.15 m
	2	1	Mz max	-3270.13	-1083.97	-2054.63	16.45	242.15 m
12	3	1	Mz min	-2083.60	-1598.55	-2403.87	16.45	242.15 m
	3	1	Mz max	-3062.79	-2257.95	-2347.36	16.45	242.15 m
12	2	1	N min	-4172.68	-1404.01	-1097.42	16.45	242.15 m
	2	1	N max	-1140.48	-391.20	-299.95	16.45	242.15 m
12	3	1	N min	-4333.90	-2808.03	-1139.82	16.45	242.15 m
	3	1	N max	-1227.53	-827.41	-322.84	16.45	242.15 m
13	2	1	My min	-2544.81	-884.27	-669.29	16.45	242.15 m
	2	1	My max	-2544.81	-884.27	-669.29	16.45	242.15 m
13	3	1	My min	-2706.02	-1868.55	-711.68	16.45	242.15 m
	3	1	My max	-2706.02	-1868.55	-711.68	16.45	242.15 m
13	2	1	Mz min	-2244.16	-755.74	-2044.99	16.45	242.15 m
	2	1	Mz max	-3273.27	-1085.09	-1982.89	16.45	242.15 m
13	3	1	Mz min	-2088.01	-1601.49	-2229.41	16.45	242.15 m
	3	1	Mz max	-3066.21	-2260.19	-2169.93	16.45	242.15 m
13	2	1	N min	-4175.95	-1405.16	-1098.27	16.45	242.15 m
	2	1	N max	-1144.78	-392.71	-301.08	16.45	242.15 m
13	3	1	N min	-4337.16	-2810.31	-1140.67	16.45	242.15 m
	3	1	N max	-1231.83	-830.42	-477.65	16.45	242.15 m
14	2	1	My min	-2535.14	-818.74	-666.74	16.45	242.15 m
	2	1	My max	-2535.14	-818.74	-666.74	16.45	242.15 m
14	3	1	My min	-2686.23	-1725.33	-706.48	16.45	242.15 m
	3	1	My max	-2686.23	-1725.33	-706.48	16.45	242.15 m
14	2	1	Mz min	-2237.61	-701.66	-2092.49	16.45	242.15 m
	2	1	Mz max	-3264.08	-1007.82	-2023.09	16.45	242.15 m
14	3	1	Mz min	-2076.57	-1482.39	-2322.53	16.45	242.15 m
	3	1	Mz max	-3048.69	-2094.70	-2254.96	16.45	242.15 m
14	2	1	N min	-4166.75	-1305.09	-1095.85	16.45	242.15 m
	2	1	N max	-1138.77	-363.35	-299.50	16.45	242.15 m
14	3	1	N min	-4317.84	-2610.18	-1135.59	16.45	242.15 m
	3	1	N max	-1220.35	-766.23	-320.95	16.45	242.15 m
15	2	1	My min	-2523.04	-752.86	-663.56	16.45	242.15 m
	2	1	My max	-2523.04	-752.86	-663.56	16.45	242.15 m
15	3	1	My min	-2664.01	-1582.19	-700.63	16.45	242.15 m
	3	1	My max	-2664.01	-1582.19	-700.63	16.45	242.15 m
15	2	1	Mz min	-2232.28	-647.70	-2056.13	16.45	242.15 m
	2	1	Mz max	-3251.52	-929.78	-1979.87	16.45	242.15 m
15	3	1	Mz min	-2066.07	-1364.22	-2220.14	16.45	242.15 m
	3	1	Mz max	-3028.23	-1928.39	-2142.26	16.45	242.15 m
15	2	1	N min	-4154.61	-1204.09	-1092.66	16.45	242.15 m
	2	1	N max	-1133.18	-334.32	-298.03	16.45	242.15 m
15	3	1	N min	-4295.57	-2408.19	-1129.74	16.45	242.15 m
	3	1	N max	-1209.30	-703.06	-318.05	16.45	242.15 m
16	2	1	My min	-2509.69	-625.29	-660.05	16.45	242.15 m
	2	1	My max	-2509.69	-625.29	-660.05	16.45	242.15 m
16	3	1	My min	-2630.41	-1306.65	-691.80	16.45	242.15 m
	3	1	My max	-2630.41	-1306.65	-691.80	16.45	242.15 m
16	2	1	Mz min	-2217.61	-538.78	-2045.95	16.45	242.15 m
	2	1	Mz max	-3239.00	-776.08	-1969.03	16.45	242.15 m
16	3	1	Mz min	-2043.15	-1130.03	-2159.37	16.45	242.15 m
	3	1	Mz max	-2999.30	-1602.64	-2084.82	16.45	242.15 m
16	2	1	N min	-4133.86	-1003.29	-1087.20	16.45	242.15 m
	2	1	N max	-1128.70	-278.50	-296.85	16.45	242.15 m
16	3	1	N min	-4254.57	-2006.57	-1118.95	16.45	242.15 m
	3	1	N max	-1193.89	-582.23	-313.99	16.45	242.15 m
17	2	1	My min	-2505.78	-438.41	-659.02	16.45	242.15 m
	2	1	My max	-2505.78	-438.41	-659.02	16.45	242.15 m
17	3	1	My min	-2596.13	-908.22	-682.78	16.45	242.15 m
	3	1	My max	-2596.13	-908.22	-682.78	16.45	242.15 m
17	2	1	Mz min	-2260.03	-386.02	-2057.82	16.45	242.15 m
	2	1	Mz max	-3232.16	-549.82	-1977.16	16.45	242.15 m
17	3	1	Mz min	-2314.24	-772.04	-2148.22	16.45	242.15 m
	3	1	Mz max	-3322.50	-1099.64	-2067.70	16.45	242.15 m
17	2	1	N min	-4124.94	-706.05	-1084.86	16.45	242.15 m
	2	1	N max	-1168.38	-203.00	-307.28	16.45	242.15 m
17	3	1	N min	-4215.28	-1412.11	-1108.62	16.45	242.15 m
	3	1	N max	-1217.16	-420.13	-320.11	16.45	242.15 m
18	2	1	My min	-2168.87	-292.80	-570.41	16.45	242.15 m

	2	1	My max	-2168.87	-292.80	-570.41	16.45	242.15 m
18	3	1	My min	-2228.84	-449.46	-586.18	16.45	242.15 m
	3	1	My max	-2228.84	-449.46	-586.18	16.45	242.15 m
18	2	1	Mz min	-1758.30	-237.37	-1740.96	16.45	242.15 m
	2	1	Mz max	-2893.72	-390.65	-1669.97	16.45	242.15 m
18	3	1	Mz min	-1794.29	-348.33	-1821.08	16.45	242.15 m
	3	1	Mz max	-2953.69	-570.61	-1744.27	16.45	242.15 m
18	2	1	N min	-3700.40	-499.55	-973.20	16.45	242.15 m
	2	1	N max	-810.63	-109.44	-213.20	16.45	242.15 m
18	3	1	N min	-3760.37	-728.09	-988.98	16.45	242.15 m
	3	1	N max	-843.02	-168.11	-280.96	16.45	242.15 m

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

DIMENSIONAMIENTO VALORES PESIMOS

LEYENDA m: armadura mínima (As$$fyd=0.1$$Ac$$fcd)
xxxx: Anec$$fyd > Ac$$fcd

pila	sec	fi_nom (max) [mm]	A_tot (máx) [cm2]
1	2	16.45	242.15
	3	16.45	242.15
2	2	16.45	242.15
	3	16.45	242.15
3	2	16.45	242.15
	3	16.45	242.15
4	2	16.45	242.15
	3	16.45	242.15
5	2	16.45	242.15
	3	16.45	242.15
6	2	16.45	242.15
	3	16.45	242.15
7	2	16.45	242.15
	3	16.45	242.15
8	2	16.45	242.15
	3	16.45	242.15
9	2	16.45	242.15
	3	16.45	242.15
10	2	16.45	242.15
	3	16.45	242.15
11	2	16.45	242.15
	3	16.45	242.15
12	2	16.45	242.15
	3	16.45	242.15
13	2	16.45	242.15
	3	16.45	242.15
14	2	16.45	242.15
	3	16.45	242.15
15	2	16.45	242.15
	3	16.45	242.15
16	2	16.45	242.15
	3	16.45	242.15
17	2	16.45	242.15
	3	16.45	242.15
18	2	16.45	242.15
	3	16.45	242.15

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

ESFUERZOS STATIK2 ESTADO LIMITE ULTIMO: 2.CORTANTE

pila	sec	env	Vyd [t]	Vzd [t]
1	1	Vy min	-60.60	-0.00
	1	Vy max	60.64	0.00
	1	Vz min	0.00	-0.00
	1	Vz max	0.00	0.00
	2	Vy min	-62.23	-3.17
	2	Vy max	62.27	3.17
	2	Vz min	0.00	-7.04
	2	Vz max	0.00	7.04
	3	Vy min	-63.85	-6.34
	3	Vy max	63.89	6.34
	3	Vz min	0.00	-14.08
	3	Vz max	0.00	14.08
2	1	Vy min	-68.81	-0.00
	1	Vy max	68.79	0.00
	1	Vz min	0.02	-0.00
	1	Vz max	0.02	0.00
	2	Vy min	-70.99	-4.23
	2	Vy max	70.96	4.23
	2	Vz min	0.02	-9.41
	2	Vz max	0.02	9.41

	3	Vy min	-73.16	-8.47
	3	Vy max	73.13	8.47
	3	Vz min	0.02	-18.81
	3	Vz max	0.02	18.81
3	1	Vy min	-70.05	0.00
	1	Vy max	68.62	-0.00
	1	Vz min	-0.33	-0.00
	1	Vz max	-0.33	0.00
	2	Vy min	-72.40	4.59
	2	Vy max	70.97	-4.59
	2	Vz min	-0.33	-10.20
	2	Vz max	-0.33	10.20
	3	Vy min	-74.76	9.18
	3	Vy max	73.33	-9.18
	3	Vz min	-0.33	-20.39
	3	Vz max	-0.33	20.39
4	1	Vy min	-69.55	0.00
	1	Vy max	71.09	-0.00
	1	Vz min	0.33	-0.00
	1	Vz max	0.33	0.00
	2	Vy min	-72.09	4.94
	2	Vy max	73.63	-4.94
	2	Vz min	0.33	-10.99
	2	Vz max	0.33	10.99
	3	Vy min	-74.63	9.89
	3	Vy max	76.17	-9.89
	3	Vz min	0.33	-21.97
	3	Vz max	0.33	21.97
5	1	Vy min	-70.23	0.00
	1	Vy max	70.37	-0.00
	1	Vz min	0.03	-0.00
	1	Vz max	0.03	0.00
	2	Vy min	-72.95	5.30
	2	Vy max	73.09	-5.30
	2	Vz min	0.03	-11.77
	2	Vz max	0.03	11.77
	3	Vy min	-75.67	10.60
	3	Vy max	75.81	-10.60
	3	Vz min	0.03	-23.55
	3	Vz max	0.03	23.55
6	1	Vy min	-71.21	0.00
	1	Vy max	71.46	-0.00
	1	Vz min	0.07	-0.00
	1	Vz max	0.07	0.00
	2	Vy min	-74.11	5.65
	2	Vy max	74.36	-5.65
	2	Vz min	0.07	-12.56
	2	Vz max	0.07	12.56
	3	Vy min	-77.02	11.31
	3	Vy max	77.26	-11.31
	3	Vz min	0.07	-25.13
	3	Vz max	0.07	25.13
7	1	Vy min	-72.12	-0.00
	1	Vy max	71.53	0.00
	1	Vz min	-0.12	-0.00
	1	Vz max	-0.12	0.00
	2	Vy min	-75.02	-5.65
	2	Vy max	74.43	5.65
	2	Vz min	-0.12	-12.56
	2	Vz max	-0.12	12.56
	3	Vy min	-77.92	-11.31
	3	Vy max	77.33	11.31
	3	Vz min	-0.12	-25.13
	3	Vz max	-0.12	25.13
8	1	Vy min	-72.70	-0.00
	1	Vy max	72.86	0.00
	1	Vz min	-0.00	-0.00
	1	Vz max	-0.00	0.00
	2	Vy min	-75.60	-5.65
	2	Vy max	75.76	5.65
	2	Vz min	-0.00	-12.56
	2	Vz max	-0.00	12.56
	3	Vy min	-78.50	-11.31
	3	Vy max	78.66	11.31
	3	Vz min	-0.00	-25.13
	3	Vz max	-0.00	25.13
9	1	Vy min	-73.35	-0.00
	1	Vy max	73.52	0.00
	1	Vz min	0.06	-0.00
	1	Vz max	0.06	0.00
	2	Vy min	-76.43	-6.01
	2	Vy max	76.60	6.01
	2	Vz min	0.06	-13.35
	2	Vz max	0.06	13.35
	3	Vy min	-79.51	-12.02
	3	Vy max	79.69	12.02
	3	Vz min	0.06	-26.70
	3	Vz max	0.06	26.70

10	1	Vy min	-74.57	0.00
	1	Vy max	74.68	-0.00
	1	Vz min	0.02	-0.00
	1	Vz max	0.02	0.00
	2	Vy min	-77.66	6.01
	2	Vy max	77.76	-6.01
	2	Vz min	0.02	-13.35
	2	Vz max	0.02	13.35
	3	Vy min	-80.74	12.02
	3	Vy max	80.85	-12.02
	3	Vz min	0.02	-26.70
	3	Vz max	0.02	26.70
11	1	Vy min	-75.60	0.00
	1	Vy max	75.33	-0.00
	1	Vz min	-0.04	-0.00
	1	Vz max	-0.04	0.00
	2	Vy min	-78.69	6.01
	2	Vy max	78.41	-6.01
	2	Vz min	-0.04	-13.35
	2	Vz max	-0.04	13.35
	3	Vy min	-81.77	12.02
	3	Vy max	81.49	-12.02
	3	Vz min	-0.04	-26.70
	3	Vz max	-0.04	26.70
12	1	Vy min	-76.99	0.00
	1	Vy max	76.96	-0.00
	1	Vz min	-0.05	-0.00
	1	Vz max	-0.05	0.00
	2	Vy min	-79.89	5.65
	2	Vy max	79.87	-5.65
	2	Vz min	-0.05	-12.56
	2	Vz max	-0.05	12.56
	3	Vy min	-82.79	11.31
	3	Vy max	82.77	-11.31
	3	Vz min	-0.05	-25.13
	3	Vz max	-0.05	25.13
13	1	Vy min	-77.84	0.00
	1	Vy max	78.07	-0.00
	1	Vz min	0.09	-0.00
	1	Vz max	0.09	0.00
	2	Vy min	-80.74	5.65
	2	Vy max	80.98	-5.65
	2	Vz min	0.09	-12.56
	2	Vz max	0.09	12.56
	3	Vy min	-83.64	11.31
	3	Vy max	83.88	-11.31
	3	Vz min	0.09	-25.13
	3	Vz max	0.09	25.13
14	1	Vy min	-79.17	-0.00
	1	Vy max	79.30	0.00
	1	Vz min	-0.01	-0.00
	1	Vz max	-0.01	0.00
	2	Vy min	-81.89	-5.30
	2	Vy max	82.01	5.30
	2	Vz min	-0.01	-11.77
	2	Vz max	-0.01	11.77
	3	Vy min	-84.61	-10.60
	3	Vy max	84.73	10.60
	3	Vz min	-0.01	-23.55
	3	Vz max	-0.01	23.55
15	1	Vy min	-81.32	-0.00
	1	Vy max	80.94	0.00
	1	Vz min	-0.05	-0.00
	1	Vz max	-0.05	0.00
	2	Vy min	-83.86	-4.94
	2	Vy max	83.47	4.94
	2	Vz min	-0.05	-10.99
	2	Vz max	-0.05	10.99
	3	Vy min	-86.40	-9.89
	3	Vy max	86.01	9.89
	3	Vz min	-0.05	-21.97
	3	Vz max	-0.05	21.97
16	1	Vy min	-81.16	-0.00
	1	Vy max	81.38	0.00
	1	Vz min	0.05	-0.00
	1	Vz max	0.05	0.00
	2	Vy min	-83.33	-4.23
	2	Vy max	83.55	4.23
	2	Vz min	0.05	-9.41
	2	Vz max	0.05	9.41
	3	Vy min	-85.51	-8.47
	3	Vy max	85.72	8.47
	3	Vz min	0.05	-18.81
	3	Vz max	0.05	18.81
17	1	Vy min	-75.09	0.00
	1	Vy max	75.13	-0.00
	1	Vz min	-0.00	-0.00
	1	Vz max	-0.00	0.00
	2	Vy min	-76.72	3.17

	2	Vy max	76.76	-3.17
	2	Vz min	-0.00	-7.04
	2	Vz max	-0.00	7.04
	3	Vy min	-78.34	6.34
	3	Vy max	78.38	-6.34
	3	Vz min	-0.00	-14.08
	3	Vz max	-0.00	14.08
18	1	Vy min	-70.78	0.00
	1	Vy max	68.81	-0.00
	1	Vz min	-0.47	-0.00
	1	Vz max	-0.47	0.00
	2	Vy min	-71.85	2.10
	2	Vy max	69.89	-2.10
	2	Vz min	-0.47	-4.67
	2	Vz max	-0.47	4.67
	3	Vy min	-72.93	4.21
	3	Vy max	70.97	-4.21
	3	Vz min	-0.47	-9.35
	3	Vz max	-0.47	9.35

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

DIMENSIONAMIENTO A CORTANTE (ARMADURA POR FUSTE)

LEYENDA !: Vd>Vu1
m: armadura mínima

pila	sec	env	Vyd [t]	Vzd [t]	Vu1 [t]	Vcu [t]	As [cm2/m]
1	1	Vy min	60.60	122.24	2500.80	294.72	7.62 m
	1	Vy max	60.64	74.59	2500.80	294.72	7.62 m
	1	Vz min	0.00	104.92	1272.00	149.91	7.62 m
	1	Vz max	0.00	104.92	1272.00	149.91	7.62 m
	3	Vy min	63.85	136.70	2500.80	294.72	7.62 m
	3	Vy max	63.89	85.81	2500.80	294.72	7.62 m
	3	Vz min	0.00	128.04	1272.00	149.91	7.62 m
	3	Vz max	0.00	128.04	1272.00	149.91	7.62 m
2	1	Vy min	68.81	101.37	2500.80	294.72	7.62 m
	1	Vy max	68.79	143.55	2500.80	294.72	7.62 m
	1	Vz min	0.02	122.77	1272.00	149.91	7.62 m
	1	Vz max	0.02	122.77	1272.00	149.91	7.62 m
	3	Vy min	73.16	116.36	2500.80	294.72	7.62 m
	3	Vy max	73.13	162.89	2500.80	294.72	7.62 m
	3	Vz min	0.02	153.65	1272.00	149.91	7.62 m
	3	Vz max	0.02	153.65	1272.00	149.91	7.62 m
3	1	Vy min	70.05	135.48	2500.80	294.72	7.62 m
	1	Vy max	68.62	92.54	2500.80	294.72	7.62 m
	1	Vz min	0.33	118.28	1272.00	149.91	7.62 m
	1	Vz max	0.33	118.28	1272.00	149.91	7.62 m
	3	Vy min	74.76	156.43	2500.80	294.72	7.62 m
	3	Vy max	73.33	108.78	2500.80	294.72	7.62 m
	3	Vz min	0.33	151.76	1272.00	149.91	7.62 m
	3	Vz max	0.33	151.76	1272.00	149.91	7.62 m
4	1	Vy min	69.55	97.08	2500.80	294.72	7.62 m
	1	Vy max	71.09	140.14	2500.80	294.72	7.62 m
	1	Vz min	0.33	119.41	1272.00	149.91	7.62 m
	1	Vz max	0.33	119.41	1272.00	149.91	7.62 m
	3	Vy min	74.63	114.58	2500.80	294.72	7.62 m
	3	Vy max	76.17	162.71	2500.80	294.72	7.62 m
	3	Vz min	0.33	155.47	1272.00	149.91	7.62 m
	3	Vz max	0.33	155.47	1272.00	149.91	7.62 m
5	1	Vy min	70.23	139.60	2500.80	294.72	7.62 m
	1	Vy max	70.37	96.95	2500.80	294.72	7.62 m
	1	Vz min	0.03	119.12	1272.00	149.91	7.62 m
	1	Vz max	0.03	119.12	1272.00	149.91	7.62 m
	3	Vy min	75.67	163.79	2500.80	294.72	7.62 m
	3	Vy max	75.81	115.70	2500.80	294.72	7.62 m
	3	Vz min	0.03	157.78	1272.00	149.91	7.62 m
	3	Vz max	0.03	157.78	1272.00	149.91	7.62 m
6	1	Vy min	71.21	96.77	2500.80	294.72	7.62 m
	1	Vy max	71.46	139.90	2500.80	294.72	7.62 m
	1	Vz min	0.07	119.17	1272.00	149.91	7.62 m
	1	Vz max	0.07	119.17	1272.00	149.91	7.62 m
	3	Vy min	77.02	116.78	2500.80	294.72	7.62 m
	3	Vy max	77.26	165.72	2500.80	294.72	7.62 m
	3	Vz min	0.07	160.42	1272.00	149.91	7.62 m
	3	Vz max	0.07	160.42	1272.00	149.91	7.62 m
7	1	Vy min	72.12	139.64	2500.80	294.72	7.62 m
	1	Vy max	71.53	96.98	2500.80	294.72	7.62 m
	1	Vz min	0.12	119.15	1272.00	149.91	7.62 m
	1	Vz max	0.12	119.15	1272.00	149.91	7.62 m
	3	Vy min	77.92	165.45	2500.80	294.72	7.62 m
	3	Vy max	77.33	116.99	2500.80	294.72	7.62 m
	3	Vz min	0.12	160.39	1272.00	149.91	7.62 m
	3	Vz max	0.12	160.39	1272.00	149.91	7.62 m

8	1	Vy min	72.70	139.76	2500.80	294.72	7.62 m
	1	Vy max	72.86	97.09	2500.80	294.72	7.62 m
	1	Vz min	0.00	119.27	1272.00	149.91	7.62 m
	1	Vz max	0.00	119.27	1272.00	149.91	7.62 m
	3	Vy min	78.50	165.58	2500.80	294.72	7.62 m
	3	Vy max	78.66	117.10	2500.80	294.72	7.62 m
	3	Vz min	0.00	160.52	1272.00	149.91	7.62 m
	3	Vz max	0.00	160.52	1272.00	149.91	7.62 m
9	1	Vy min	73.35	96.51	2500.80	294.72	7.62 m
	1	Vy max	73.52	139.64	2500.80	294.72	7.62 m
	1	Vz min	0.06	118.91	1272.00	149.91	7.62 m
	1	Vz max	0.06	118.91	1272.00	149.91	7.62 m
	3	Vy min	79.51	117.78	2500.80	294.72	7.62 m
	3	Vy max	79.69	167.08	2500.80	294.72	7.62 m
	3	Vz min	0.06	162.75	1272.00	149.91	7.62 m
	3	Vz max	0.06	162.75	1272.00	149.91	7.62 m
10	1	Vy min	74.57	97.64	2500.80	294.72	7.62 m
	1	Vy max	74.68	140.81	2500.80	294.72	7.62 m
	1	Vz min	0.02	120.07	1272.00	149.91	7.62 m
	1	Vz max	0.02	120.07	1272.00	149.91	7.62 m
	3	Vy min	80.74	118.91	2500.80	294.72	7.62 m
	3	Vy max	80.85	168.24	2500.80	294.72	7.62 m
	3	Vz min	0.02	163.91	1272.00	149.91	7.62 m
	3	Vz max	0.02	163.91	1272.00	149.91	7.62 m
11	1	Vy min	75.60	139.10	2500.80	294.72	7.62 m
	1	Vy max	75.33	96.46	2500.80	294.72	7.62 m
	1	Vz min	0.04	118.62	1272.00	149.91	7.62 m
	1	Vz max	0.04	118.62	1272.00	149.91	7.62 m
	3	Vy min	81.77	166.53	2500.80	294.72	7.62 m
	3	Vy max	81.49	117.73	2500.80	294.72	7.62 m
	3	Vz min	0.04	162.46	1272.00	149.91	7.62 m
	3	Vz max	0.04	162.46	1272.00	149.91	7.62 m
12	1	Vy min	76.99	139.48	2500.80	294.72	7.62 m
	1	Vy max	76.96	96.81	2500.80	294.72	7.62 m
	1	Vz min	0.05	118.99	1272.00	149.91	7.62 m
	1	Vz max	0.05	118.99	1272.00	149.91	7.62 m
	3	Vy min	82.79	165.30	2500.80	294.72	7.62 m
	3	Vy max	82.77	116.83	2500.80	294.72	7.62 m
	3	Vz min	0.05	160.24	1272.00	149.91	7.62 m
	3	Vz max	0.05	160.24	1272.00	149.91	7.62 m
13	1	Vy min	77.84	96.77	2500.80	294.72	7.62 m
	1	Vy max	78.07	139.92	2500.80	294.72	7.62 m
	1	Vz min	0.09	119.18	1272.00	149.91	7.62 m
	1	Vz max	0.09	119.18	1272.00	149.91	7.62 m
	3	Vy min	83.64	116.79	2500.80	294.72	7.62 m
	3	Vy max	83.88	165.73	2500.80	294.72	7.62 m
	3	Vz min	0.09	160.43	1272.00	149.91	7.62 m
	3	Vz max	0.09	160.43	1272.00	149.91	7.62 m
14	1	Vy min	79.17	139.66	2500.80	294.72	7.62 m
	1	Vy max	79.30	97.03	2500.80	294.72	7.62 m
	1	Vz min	0.01	119.20	1272.00	149.91	7.62 m
	1	Vz max	0.01	119.20	1272.00	149.91	7.62 m
	3	Vy min	84.61	163.86	2500.80	294.72	7.62 m
	3	Vy max	84.73	115.79	2500.80	294.72	7.62 m
	3	Vz min	0.01	157.86	1272.00	149.91	7.62 m
	3	Vz max	0.01	157.86	1272.00	149.91	7.62 m
15	1	Vy min	81.32	96.69	2500.80	294.72	7.62 m
	1	Vy max	80.94	139.91	2500.80	294.72	7.62 m
	1	Vz min	0.05	119.10	1272.00	149.91	7.62 m
	1	Vz max	0.05	119.10	1272.00	149.91	7.62 m
	3	Vy min	86.40	114.19	2500.80	294.72	7.62 m
	3	Vy max	86.01	162.49	2500.80	294.72	7.62 m
	3	Vz min	0.05	155.17	1272.00	149.91	7.62 m
	3	Vz max	0.05	155.17	1272.00	149.91	7.62 m
16	1	Vy min	81.16	139.88	2500.80	294.72	7.62 m
	1	Vy max	81.38	97.05	2500.80	294.72	7.62 m
	1	Vz min	0.05	119.45	1272.00	149.91	7.62 m
	1	Vz max	0.05	119.45	1272.00	149.91	7.62 m
	3	Vy min	85.51	159.21	2500.80	294.72	7.62 m
	3	Vy max	85.72	112.03	2500.80	294.72	7.62 m
	3	Vz min	0.05	150.33	1272.00	149.91	7.62 m
	3	Vz max	0.05	150.33	1272.00	149.91	7.62 m
17	1	Vy min	75.09	142.49	2500.80	294.72	7.62 m
	1	Vy max	75.13	98.42	2500.80	294.72	7.62 m
	1	Vz min	0.00	120.77	1272.00	149.91	7.62 m
	1	Vz max	0.00	120.77	1272.00	149.91	7.62 m
	3	Vy min	78.34	156.96	2500.80	294.72	7.62 m
	3	Vy max	78.38	109.63	2500.80	294.72	7.62 m
	3	Vz min	0.00	143.89	1272.00	149.91	7.62 m
	3	Vz max	0.00	143.89	1272.00	149.91	7.62 m
18	1	Vy min	70.78	76.51	2500.80	294.72	7.62 m
	1	Vy max	68.81	125.80	2500.80	294.72	7.62 m
	1	Vz min	0.47	105.45	1272.00	149.91	7.62 m
	1	Vz max	0.47	105.45	1272.00	149.91	7.62 m
	3	Vy min	72.93	83.96	2500.80	294.72	7.62 m
	3	Vy max	70.97	135.40	2500.80	294.72	7.62 m
	3	Vz min	0.47	120.79	1272.00	149.91	7.62 m

3	Vz max	0.47	120.79	1272.00	149.91	7.62 m

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

ESFUERZOS DE PRIMER ORDEN EN LA CIMENTACION. ELS

pila	sec	env	Nk [t]	Vyk [t]	Vzk [t]	Myk [mt]	Mzk [mt]		
1	3	My min	-1588.69	0.01	-9.39	-41.88	-0.53	513.88	0.00
	3	My max	-1588.69	0.01	9.39	41.88	-0.53	513.88	0.00
	3	Mz min	-1846.67	-22.22	-4.69	-20.94	-1011.36	618.81	0.00
	3	Mz max	-2017.07	22.25	4.69	20.94	1010.08	680.29	0.00
	3	N min	-2575.23	0.50	0.00	0.00	-55.71	859.17	0.00
	3	N max	-1328.12	1.69	0.00	0.00	24.61	422.68	0.00
2	3	My min	-1774.71	0.01	-12.54	-74.77	-0.61	806.88	0.00
	3	My max	-1774.71	0.01	12.54	74.77	-0.61	806.88	0.00
	3	Mz min	-2124.01	-13.24	-6.27	-37.39	-1178.41	1005.74	0.00
	3	Mz max	-2203.78	13.24	6.27	37.39	1176.39	1045.03	0.00
	3	N min	-2826.86	-1.35	0.00	0.00	45.73	1332.95	0.00
	3	N max	-1547.69	-1.28	0.00	0.00	-27.09	693.37	0.00
3	3	My min	-1754.90	-0.26	-13.60	-87.84	-2.48	869.24	0.00
	3	My max	-1754.90	-0.26	13.60	87.84	-2.48	869.24	0.00
	3	Mz min	-2083.15	-22.74	6.80	43.92	-1353.72	1124.29	0.00
	3	Mz max	-2182.69	21.78	-6.80	-43.92	1344.49	1081.65	0.00
	3	N min	-2811.24	0.44	0.00	0.00	-53.02	1450.23	0.00
	3	N max	-1499.67	-1.41	0.00	0.00	-29.21	728.87	0.00
4	3	My min	-1786.47	0.26	-14.65	-101.96	1.22	959.11	0.00
	3	My max	-1786.47	0.26	14.65	101.96	1.22	959.11	0.00
	3	Mz min	-2207.38	-20.60	7.32	50.98	-1372.47	1189.00	0.00
	3	Mz max	-2129.53	21.62	-7.32	-50.98	1379.46	1244.20	0.00
	3	N min	-2848.54	1.37	0.00	0.00	-43.65	1596.36	0.00
	3	N max	-1533.94	-0.31	0.00	0.00	-21.12	807.59	0.00
5	3	My min	-1795.33	0.02	-15.70	-117.13	-2.87	1036.02	0.00
	3	My max	-1795.33	0.02	15.70	117.13	-2.87	1036.02	0.00
	3	Mz min	-2129.21	-21.73	7.85	58.57	-1400.87	1283.65	0.00
	3	Mz max	-2223.32	21.82	-7.85	-58.57	1394.49	1344.84	0.00
	3	N min	-2857.39	1.88	0.00	0.00	-35.36	1726.36	0.00
	3	N max	-1540.63	-1.72	0.00	0.00	-41.46	870.46	0.00
6	3	My min	-1809.66	0.05	-16.75	-133.36	-4.62	1116.29	0.00
	3	My max	-1809.66	0.05	16.75	133.36	-4.62	1116.29	0.00
	3	Mz min	-2144.00	-18.14	8.38	66.68	-1366.10	1383.31	0.00
	3	Mz max	-2237.53	18.31	-8.38	-66.68	1355.05	1448.77	0.00
	3	N min	-2871.59	2.38	0.00	0.00	-29.53	1859.65	0.00
	3	N max	-1555.46	-1.86	0.00	0.00	-47.14	938.36	0.00
7	3	My min	-1809.51	-0.09	-16.75	-133.36	-7.96	1116.19	0.00
	3	My max	-1809.51	-0.09	16.75	133.36	-7.96	1116.19	0.00
	3	Mz min	-2143.73	-22.85	8.38	66.68	-1446.74	1383.11	0.00
	3	Mz max	-2237.43	22.46	-8.38	-66.68	1425.18	1448.71	0.00
	3	N min	-2871.48	2.54	0.00	0.00	-24.73	1859.57	0.00
	3	N max	-1555.21	-2.67	0.00	0.00	-64.08	938.18	0.00
8	3	My min	-1810.25	0.00	-16.75	-133.36	-8.50	1116.71	0.00
	3	My max	-1810.25	0.00	16.75	133.36	-8.50	1116.71	0.00
	3	Mz min	-2144.63	-27.49	8.38	66.68	-1523.22	1383.76	0.00
	3	Mz max	-2238.31	27.57	-8.38	-66.68	1502.79	1449.34	0.00
	3	N min	-2872.36	3.60	0.00	0.00	-13.18	1860.18	0.00
	3	N max	-1556.16	-3.51	0.00	0.00	-78.02	938.84	0.00
9	3	My min	-1822.48	0.04	-17.80	-150.63	-9.77	1195.52	0.00
	3	My max	-1822.48	0.04	17.80	150.63	-9.77	1195.52	0.00
	3	Mz min	-2141.98	-21.65	-8.90	-75.32	-1433.90	1481.44	0.00
	3	Mz max	-2235.62	21.77	8.90	75.32	1409.82	1551.67	0.00
	3	N min	-2883.89	4.59	0.00	0.00	7.19	1991.58	0.00
	3	N max	-1568.53	-4.09	0.00	0.00	-95.91	1005.06	0.00
10	3	My min	-1823.79	0.03	-17.80	-150.63	-11.84	1196.50	0.00
	3	My max	-1823.79	0.03	17.80	150.63	-11.84	1196.50	0.00
	3	Mz min	-2143.52	-27.43	-8.90	-75.32	-1513.76	1488.54	0.00
	3	Mz max	-2237.20	27.51	8.90	75.32	1484.50	1546.94	0.00
	3	N min	-2885.45	5.63	0.00	0.00	22.55	1992.75	0.00
	3	N max	-1570.13	-5.29	0.00	0.00	-117.84	1006.26	0.00
11	3	My min	-1822.42	-0.04	-17.80	-150.63	-13.82	1195.47	0.00
	3	My max	-1822.42	-0.04	17.80	150.63	-13.82	1195.47	0.00
	3	Mz min	-2141.93	-24.18	8.90	75.32	-1477.96	1481.38	0.00
	3	Mz max	-2235.56	23.99	-8.90	-75.32	1442.37	1551.60	0.00
	3	N min	-2883.80	6.39	0.00	0.00	31.65	1991.51	0.00
	3	N max	-1568.45	-6.10	0.00	0.00	-129.97	1005.00	0.00
12	3	My min	-1810.62	-0.03	-16.75	-133.36	-15.69	1116.97	0.00
	3	My max	-1810.62	-0.03	16.75	133.36	-15.69	1116.97	0.00
	3	Mz min	-2130.41	-33.69	-8.38	-66.68	-1604.17	1389.58	0.00
	3	Mz max	-2224.11	33.65	8.38	66.68	1565.46	1444.09	0.00
	3	N min	-2872.75	8.17	0.00	0.00	54.51	1860.46	0.00
	3	N max	-1556.59	-8.09	0.00	0.00	-162.07	939.15	0.00
13	3	My min	-1808.47	0.06	-16.75	-133.36	-16.24	1115.46	0.00
	3	My max	-1808.47	0.06	16.75	133.36	-16.24	1115.46	0.00
	3	Mz min	-2127.95	-25.91	8.38	66.68	-1495.64	1387.81	0.00

	3	Mz max	-2221.61	26.08	-8.38	-66.68	1455.31	1442.34	0.00
	3	N min	-2870.28	9.34	0.00	0.00	64.80	1858.73	0.00
	3	N max	-1554.04	-8.71	0.00	0.00	-168.98	937.36	0.00
14	3	My min	-1798.39	-0.00	-15.70	-117.13	-18.73	1038.01	0.00
	3	My max	-1798.39	-0.00	15.70	117.13	-18.73	1038.01	0.00
	3	Mz min	-2118.25	-33.05	-7.85	-58.57	-1561.41	1291.23	0.00
	3	Mz max	-2211.82	33.11	7.85	58.57	1515.31	1341.66	0.00
	3	N min	-2860.53	11.12	0.00	0.00	83.83	1728.40	0.00
	3	N max	-1544.29	-10.76	0.00	0.00	-196.35	872.84	0.00
15	3	My min	-1775.90	-0.04	-14.65	-101.96	-20.74	952.77	0.00
	3	My max	-1775.90	-0.04	14.65	101.96	-20.74	952.77	0.00
	3	Mz min	-2095.06	-30.45	7.32	50.98	-1494.79	1185.87	0.00
	3	Mz max	-2189.03	30.23	-7.32	-50.98	1441.69	1233.16	0.00
	3	N min	-2837.75	12.14	0.00	0.00	78.16	1589.88	0.00
	3	N max	-1521.16	-11.84	0.00	0.00	-194.79	799.93	0.00
16	3	My min	-1782.44	0.03	-12.54	-74.77	-21.02	810.74	0.00
	3	My max	-1782.44	0.03	12.54	74.77	-21.02	810.74	0.00
	3	Mz min	-2104.43	-31.11	-6.27	-37.39	-1448.96	1007.06	0.00
	3	Mz max	-2196.19	31.22	6.27	37.39	1396.95	1043.80	0.00
	3	N min	-2839.75	13.46	0.00	0.00	74.88	1339.40	0.00
	3	N max	-1535.14	-12.58	0.00	0.00	-188.85	687.09	0.00
17	3	My min	-1710.56	-0.01	-9.39	-41.88	-23.70	556.54	0.00
	3	My max	-1710.56	-0.01	9.39	41.88	-23.70	556.54	0.00
	3	Mz min	-2057.07	-33.14	-4.69	-20.94	-1411.21	694.76	0.00
	3	Mz max	-2136.79	33.14	4.69	20.94	1352.84	722.24	0.00
	3	N min	2761.17	14.46	0.00	0.00	36.89	924.25	0.00
	3	N max	-1480.28	-13.93	0.00	0.00	-164.81	475.94	0.00
18	3	My min	-1494.11	-0.31	-6.23	-18.45	-21.21	282.83	0.00
	3	My max	-1494.11	-0.31	6.23	18.45	-21.21	282.83	0.00
	3	Mz min	-1712.20	-35.98	3.12	9.23	-1158.41	337.02	0.00
	3	Mz max	-1920.88	34.77	-3.12	-9.23	1103.82	379.89	0.00
	3	N min	-2491.39	13.52	0.00	0.00	10.40	482.29	0.00
	3	N max	-1207.95	-14.43	0.00	0.00	-125.32	225.60	0.00

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

ESFUERZOS DE PRIMER ORDEN EN CIMENTACION. REPARTO ENTRE FUSTES. ELS

pila	sec	fus	env	Nk [t]	Vyk [t]	Vzk [t]	Myk [mt]	Mzk [mt]
1	3	1	My min	-1588.69	0.01	-9.39	-555.76	-0.53
	3	1	My max	-1588.69	0.01	9.39	555.76	-0.53
	3	1	Mz min	-1846.67	-22.22	-4.69	-639.75	-1011.36
	3	1	Mz max	-2017.07	22.25	4.69	701.23	1010.08
	3	1	N min	-2575.23	0.50	0.00	-859.17	-55.71
	3	1	N max	-1328.12	1.69	0.00	-422.68	24.61
2	3	1	My min	-1774.71	0.01	-12.54	-881.65	-0.61
	3	1	My max	-1774.71	0.01	12.54	881.65	-0.61
	3	1	Mz min	-2124.01	-13.24	-6.27	-1043.13	-1178.41
	3	1	Mz max	-2203.78	13.24	6.27	1082.42	1176.39
	3	1	N min	-2826.86	-1.35	0.00	-1332.95	45.73
	3	1	N max	-1547.69	-1.28	0.00	-693.37	-27.09
3	3	1	My min	-1754.90	-0.26	-13.60	-957.08	-2.48
	3	1	My max	-1754.90	-0.26	13.60	957.08	-2.48
	3	1	Mz min	-2083.15	-22.74	6.80	1168.21	-1353.72
	3	1	Mz max	-2182.69	21.78	-6.80	-1125.57	1344.49
	3	1	N min	-2811.24	0.44	0.00	-1450.23	-53.02
	3	1	N max	-1499.67	-1.41	0.00	-728.87	-29.21
4	3	1	My min	-1786.47	0.26	-14.65	-1061.07	1.22
	3	1	My max	-1786.47	0.26	14.65	1061.07	1.22
	3	1	Mz min	-2207.38	-20.60	7.32	1239.98	-1372.47
	3	1	Mz max	-2129.53	21.62	-7.32	-1295.18	1379.46
	3	1	N min	-2849.54	1.37	0.00	-1596.36	-43.65
	3	1	N max	-1533.94	-0.31	0.00	-807.59	-21.12
5	3	1	My min	-1795.33	0.02	-15.70	-1153.15	-2.87
	3	1	My max	-1795.33	0.02	15.70	1153.15	-2.87
	3	1	Mz min	-2129.21	-21.73	7.85	1342.22	-1400.87
	3	1	Mz max	-2223.32	21.82	-7.85	-1403.40	1394.49
	3	1	N min	-2857.39	1.88	0.00	-1726.36	-35.36
	3	1	N max	-1540.63	-1.72	0.00	-870.46	-41.46
6	3	1	My min	-1809.66	0.05	-16.75	-1249.65	-4.62
	3	1	My max	-1809.66	0.05	16.75	1249.65	-4.62
	3	1	Mz min	-2144.00	-18.14	8.38	1449.98	-1366.10
	3	1	Mz max	-2237.53	18.31	-8.38	-1515.45	1355.05
	3	1	N min	-2871.59	2.38	0.00	-1859.65	-29.53
	3	1	N max	-1555.46	-1.86	0.00	-938.36	-47.14
7	3	1	My min	-1809.51	-0.09	-16.75	-1249.55	-7.96
	3	1	My max	-1809.51	-0.09	16.75	1249.55	-7.96
	3	1	Mz min	-2143.73	-22.85	8.38	1449.79	-1446.74
	3	1	Mz max	-2237.43	22.46	-8.38	-1515.39	1425.18
	3	1	N min	-2871.48	2.54	0.00	-1859.57	-24.73
	3	1	N max	-1555.21	-2.67	0.00	-938.18	-64.08
8	3	1	My min	-1810.25	0.00	-16.75	-1250.07	-8.50

	3	1	My max	-1810.25	0.00	16.75	1250.07	-8.50
	3	1	Mz min	-2144.63	-27.49	8.38	1450.44	-1523.22
	3	1	Mz max	-2238.31	27.57	-8.38	-1516.02	1502.79
	3	1	N min	-2872.36	3.60	0.00	-1860.18	-13.18
	3	1	N max	-1556.16	-3.51	0.00	-938.84	-78.02
9	3	1	My min	-1822.48	0.04	-17.80	-1346.16	-9.77
	3	1	My max	-1822.48	0.04	17.80	1346.16	-9.77
	3	1	Mz min	-2141.98	-21.65	-8.90	-1556.76	-1433.90
	3	1	Mz max	-2235.62	21.77	8.90	1626.99	1409.82
	3	1	N min	-2883.89	4.59	0.00	-1991.58	7.19
	3	1	N max	-1568.53	-4.09	0.00	-1005.06	-95.91
10	3	1	My min	-1823.79	0.03	-17.80	-1347.13	-11.84
	3	1	My max	-1823.79	0.03	17.80	1347.13	-11.84
	3	1	Mz min	-2143.52	-27.43	-8.90	-1563.86	-1513.76
	3	1	Mz max	-2237.20	27.51	8.90	1622.25	1484.50
	3	1	N min	-2885.45	5.63	0.00	-1992.75	22.55
	3	1	N max	-1570.13	-5.29	0.00	-1006.26	-117.84
11	3	1	My min	-1822.42	-0.04	-17.80	-1346.11	-13.82
	3	1	My max	-1822.42	-0.04	17.80	1346.11	-13.82
	3	1	Mz min	-2141.93	-24.18	8.90	1556.70	-1477.96
	3	1	Mz max	-2235.56	23.99	-8.90	-1626.92	1442.37
	3	1	N min	-2883.80	6.39	0.00	-1991.51	31.65
	3	1	N max	-1568.45	-6.10	0.00	-1005.00	-129.97
12	3	1	My min	-1810.62	-0.03	-16.75	-1250.33	-15.69
	3	1	My max	-1810.62	-0.03	16.75	1250.33	-15.69
	3	1	Mz min	-2130.41	-33.69	-8.38	-1456 26	-1604.17
	3	1	Mz max	-2224.11	33.65	8.38	1510.77	1565.46
	3	1	N min	-2872.75	8.17	0.00	-1860.46	54.51
	3	1	N max	-1556.59	-8.09	0.00	-939.15	-162.07
13	3	1	My min	-1808.47	0.06	-16.75	-1248.82	-16.24
	3	1	My max	-1808.47	0.06	16.75	1248.82	-16.24
	3	1	Mz min	-2127.95	-25.91	8.38	1454.49	-1495.64
	3	1	Mz max	-2221.61	26.08	-8.38	-1509.02	1455.31
	3	1	N min	-2870.28	9.34	0.00	-1858.73	64.80
	3	1	N max	-1554.04	-8.71	0.00	-937.36	-168.98
14	3	1	My min	-1798.39	-0.00	-15.70	-1155.14	-18.73
	3	1	My max	-1798.39	-0.00	15.70	1155.14	-18.73
	3	1	Mz min	-2118.25	-33.05	-7.85	-1349.80	-1561.41
	3	1	Mz max	-2211.82	33.11	7.85	1400.22	1515.31
	3	1	N min	-2860.53	11.12	0.00	-1728.40	83.83
	3	1	N max	-1544.29	-10.76	0.00	-872.84	-196.35
15	3	1	My min	-1775.90	-0.04	-14.65	-1054.73	-20.74
	3	1	My max	-1775.90	-0.04	14.65	1054.73	-20.74
	3	1	Mz min	-2095.06	-30.45	7.32	1236.85	-1494.79
	3	1	Mz max	-2189.03	30.23	-7.32	-1284.14	1441.69
	3	1	N min	-2837.75	12.14	0.00	-1589.88	78.16
	3	1	N max	-1521.16	-11.84	0.00	-799.93	-194.79
16	3	1	My min	-1782.44	0.03	-12.54	-885.51	-21.02
	3	1	My max	-1782.44	0.03	12.54	885.51	-21.02
	3	1	Mz min	-2104.43	-31.11	-6.27	-1044.44	-1448.96
	3	1	Mz max	-2196.19	31.22	6.27	1081.19	1396.95
	3	1	N min	-2839.75	13.46	0.00	-1339.40	74.88
	3	1	N max	-1535.14	-12.58	0.00	-687.09	-188.85
17	3	1	My min	-1710.56	-0.01	-9.39	-598.42	-23.70
	3	1	My max	-1710.56	-0.01	9.39	598.42	-23.70
	3	1	Mz min	-2057.07	-33.14	-4.69	-715.70	-1411.21
	3	1	Mz max	-2136.79	33.14	4.69	743.17	1352.84
	3	1	N min	-2761.17	14.46	0.00	-924.25	36.89
	3	1	N max	-1480.28	-13.93	0.00	-475.94	-164.81
18	3	1	My min	-1494.11	-0.31	-6.23	-301.28	-21.21
	3	1	My max	-1494.11	-0.31	6.23	301.28	-21.21
	3	1	Mz min	-1712.20	-35.98	3.12	346.25	-1158.41
	3	1	Mz max	-1920.88	34.77	-3.12	-389.11	1103.82
	3	1	N min	-2491.39	13.52	0.00	-482.29	10.40
	3	1	N max	-1207.95	-14.43	0.00	-225.60	-125.32

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

ESFUERZOS DE SEGUNDO ORDEN EN CIMENTACION. ELS

pila	sec	fus	env	Nk [t]	Vyk [t]	Vzk [t]	Myk [mt]	Mzk [mt]
1	3	1	My min	-1588.69	0.01	-82.80	-555.76	-31.77
	3	1	My max	-1588.69	0.01	82.80	-555.76	-31.77
	3	1	Mz min	-1846.67	-22.22	-93.09	-639.75	-1011.36
	3	1	Mz max	-2017.07	22.25	101.88	-701.23	-1010.08
	3	1	N min	-2575.23	0.50	-122.74	-859.17	-55.71
	3	1	N max	-1328.12	1.69	-60.38	-422.68	-26.56
2	3	1	My min	-1774.71	0.01	-93.23	-881.65	-35.49
	3	1	My max	-1774.71	0.01	93.23	-881.65	-35.49
	3	1	Mz min	-2124.01	-13.24	-106.85	-1043.13	-1178.41
	3	1	Mz max	-2203.78	13.24	110.77	-1082.42	-1176.39
	3	1	N min	-2826.86	-1.35	-133.30	-1332.95	-56.54
	3	1	N max	-1547.69	-1.28	-69.34	-693.37	-30.95

3	3	1	My min	-1754.90	-0.26	-92.62	-957.08	-35.10
	3	1	My max	-1754.90	-0.26	92.62	-957.08	-35.10
	3	1	Mz min	-2083.15	-22.74	109.00	-1168.21	-1353.72
	3	1	Mz max	-2182.69	21.78	-105.13	-1125.57	-1344.49
	3	1	N min	-2811.24	0.44	-131.84	-1450.23	-56.22
	3	1	N max	-1499.67	-1.41	-66.26	-728.87	-29.99
4	3	1	My min	-1786.47	0.26	-94.57	-1061.07	-35.73
	3	1	My max	-1786.47	0.26	94.57	-1061.07	-35.73
	3	1	Mz min	-2207.38	-20.60	106.41	-1239.98	-1372.47
	3	1	Mz max	-2129.53	21.62	-111.01	-1295.18	-1379.46
	3	1	N min	-2848.54	1.37	-133.03	-1596.36	-56.97
	3	1	N max	-1533.94	-0.31	-67.30	-807.59	-30.68
5	3	1	My min	-1795.33	0.02	-95.39	-1153.15	-35.91
	3	1	My max	-1795.33	0.02	95.39	-1153.15	-35.91
	3	1	Mz min	-2129.21	-21.73	106.59	-1342.22	-1400.87
	3	1	Mz max	-2223.32	21.82	-111.30	-1403.40	-1394.49
	3	1	N min	-2857.39	1.88	-132.80	-1726.36	-57.15
	3	1	N max	-1510.63	-1.72	-66.96	-870.46	-41.46
6	3	1	My min	-1809.66	0.05	-96.49	-1249.65	-36.19
	3	1	My max	-1809.66	0.05	96.49	-1249.65	-36.19
	3	1	Mz min	-2144.00	-18.14	107.18	-1449.98	-1366.10
	3	1	Mz max	-2237.53	18.31	-111.86	-1515.45	-1355.05
	3	1	N min	-2871.59	2.38	-132.83	-1859.65	-57.43
	3	1	N max	-1555.46	-1.86	-67.03	-938.36	-47.14
7	3	1	My min	-1809.51	-0.09	-96.48	-1249.55	-36.19
	3	1	My max	-1809.51	-0.09	96.48	-1249.55	-36.19
	3	1	Mz min	-2143.73	-22.85	107.17	-1449.79	-1446.74
	3	1	Mz max	-2237.43	22.46	-111.85	-1515.39	-1425.18
	3	1	N min	-2871.48	2.54	-132.83	-1859.57	-57.43
	3	1	N max	-1555.21	-2.67	-67.01	-938.18	-64.08
8	3	1	My min	-1810.25	0.00	-96.52	-1250.07	-36.20
	3	1	My max	-1810.25	0.00	96.52	-1250.07	-36.20
	3	1	Mz min	-2144.63	-27.49	107.21	-1450.44	-1523.22
	3	1	Mz max	-2238.31	27.57	-111.90	-1516.02	-1502.79
	3	1	N min	-2872.36	3.60	-132.87	-1860.18	-57.45
	3	1	N max	-1556.16	-3.51	-67.06	-938.84	-78.02
9	3	1	My min	-1822.48	0.04	-97.50	-1346.16	-36.45
	3	1	My max	-1822.48	0.04	97.50	-1346.16	-36.45
	3	1	Mz min	-2141.98	-21.65	-107.66	-1556.76	-1433.90
	3	1	Mz max	-2235.62	21.77	112.35	-1626.99	-1409.82
	3	1	N min	-2883.89	4.59	-132.77	-1991.58	-57.68
	3	1	N max	-1568.53	-4.09	-67.00	-1005.06	-95.91
10	3	1	My min	-1823.79	0.03	-97.57	-1347.13	-36.48
	3	1	My max	-1823.79	0.03	97.57	-1347.13	-36.48
	3	1	Mz min	-2143.52	-27.43	-108.14	-1563.86	-1513.76
	3	1	Mz max	-2237.20	27.51	112.03	-1622.25	-1484.50
	3	1	N min	-2885.45	5.63	-132.85	-1992.75	-57.71
	3	1	N max	-1570.13	-5.29	-67.08	-1006.26	-117.84
11	3	1	My min	-1822.42	-0.04	-97.50	-1346.11	-36.45
	3	1	My max	-1822.42	-0.04	97.50	-1346.11	-36.45
	3	1	Mz min	-2141.93	-24.18	107.66	-1556.70	-1477.96
	3	1	Mz max	-2235.56	23.99	-112.34	-1626.92	-1442.37
	3	1	N min	-2883.80	6.39	-132.77	-1991.51	-57.68
	3	1	N max	-1568.45	-6.10	-67.00	-1005.00	-129.97
12	3	1	My min	-1810.62	-0.03	-96.53	-1250.33	-36.21
	3	1	My max	-1810.62	-0.03	96.53	-1250.33	-36.21
	3	1	Mz min	-2130.41	-33.69	-107.63	-1456.26	-1604.17
	3	1	Mz max	-2224.11	33.65	111.52	-1510.77	-1565.46
	3	1	N min	-2872.75	8.17	-132.89	-1860.46	-57.46
	3	1	N max	-1556.59	-8.09	-67.08	-939.15	-162.07
13	3	1	My min	-1808.47	0.06	-96.43	-1248.82	-36.17
	3	1	My max	-1808.47	0.06	96.43	-1248.82	-36.17
	3	1	Mz min	-2127.95	-25.91	107.50	-1454.49	-1495.64
	3	1	Mz max	-2221.61	26.08	-111.40	-1509.02	-1455.31
	3	1	N min	-2870.28	9.34	-132.77	-1858.73	-64.80
	3	1	N max	-1554.04	-8.71	-66.95	-937.36	-168.98
14	3	1	My min	-1798.39	-0.00	-95.55	-1155.14	-35.97
	3	1	My max	-1798.39	-0.00	95.55	-1155.14	-35.97
	3	1	Mz min	-2118.25	-33.05	-107.17	-1349.80	-1561.41
	3	1	Mz max	-2211.82	33.11	111.05	-1400.22	-1515.31
	3	1	N min	-2860.53	11.12	-132.95	-1728.40	-83.83
	3	1	N max	-1544.29	-10.76	-67.14	-872.84	-196.35
15	3	1	My min	-1775.90	-0.04	-94.04	-1054.73	-35.52
	3	1	My max	-1775.90	-0.04	94.04	-1054.73	-35.52
	3	1	Mz min	-2095.06	-30.45	106.15	-1236.85	-1494.79
	3	1	Mz max	-2189.03	30.23	-110.09	-1284.14	-1441.69
	3	1	N min	-2837.75	12.14	-132.49	-1589.88	-78.16
	3	1	N max	-1521.16	-11.84	-66.66	-799.93	-194.79
16	3	1	My min	-1782.44	0.03	-93.62	-885.51	-35.65
	3	1	My max	-1782.44	0.03	93.62	-885.51	-35.65
	3	1	Mz min	-2104.43	-31.11	-106.98	-1044.44	-1448.96
	3	1	Mz max	-2196.19	31.22	110.65	-1081.19	-1396.95
	3	1	N min	-2839.75	13.46	-133.94	-1339.40	-74.88
	3	1	N max	-1535.14	-12.58	-68.71	-687.09	-188.85

17	3	1	My min	-1710.56	-0.01	-88.89	-598.42	-34.21
	3	1	My max	-1710.56	-0.01	88.89	-598.42	-34.21
	3	1	Mz min	-2057.07	-33.14	-103.94	-715.70	-1411.21
	3	1	Mz max	-2136.79	33.14	107.87	-743.17	-1352.84
	3	1	N min	-2761.17	14.46	-132.04	-924.25	-55.22
	3	1	N max	-1480.28	-13.93	-67.99	-475.94	-164.81
18	3	1	My min	-1494.11	-0.31	-76.94	-301.28	-29.88
	3	1	My max	-1494.11	-0.31	76.94	-301.28	-29.88
	3	1	Mz min	-1712.20	-35.98	87.37	-346.25	-1158.41
	3	1	Mz max	-1920.88	34.77	-98.09	-389.11	-1103.82
	3	1	N min	-2491.39	13.52	-120.57	-482.29	-49.83
	3	1	N max	-1207.95	-14.43	-56.40	-225.60	-125.32

Programa LSTC - Cálculo de Cimentaciones
(V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.. E-1.

COMPROBACION CANTO DE LA ZAPATA

LEYENDA: A,B = dimensiones de la zapata en planta
Tipo de zapata -> 0=hexagonal, 1= rectangular
H = canto de la zapata
a_pila = dimensión del fuste en la dir perpend al eje pte
b_pila = dimensión del fuste en la dir paraleia al eje pte
tipo_p -> tipo de superficie de punzonamiento
γmax = tensión tangencial máxima en el perímetro de punz
γadm = tensión tangencial admisible
! = γmax > γadm

Pila	hip	fuste	N [t]	My [mt]	Mz [mt]	A [m]	B [m]	H [m]
			a_pila [m]	b_pila [m]	tipo_p	γmax [kp/cm2]	γadm [kp/cm2]	

Tipo de zapata: 1

1	1	1	-2302.43	-46.05	805.43	12.50	12.50	2.50
			5.26	2.70	1	3.90	14.33	
	2	1	-2302.43	-46.05	805.43	12.50	12.50	2.50
			5.26	2.70	1	3.90	14.33	
	3	1	-2618.29	-1493.04	987.92	12.50	12.50	2.50
			5.26	2.70	1	4.88	14.33	
	4	1	-1819.79	-1491.63	704.10	12.50	12.50	2.50
			5.26	2.70	1	3.53	14.33	
	5	1	-3782.24	-83.47	1260.54	12.50	12.50	2.50
			5.26	2.70	1	6.39	14.33	
	6	1	-983.44	-246.88	338.32	12.50	12.50	2.50
			5.26	2.70	1	1.73	14.33	

Tipo de zapata: 1

2	1	1	-2527.14	-50.54	1255.01	12.50	12.50	2.50
			5.26	2.70	1	4.38	14.33	
	2	1	-2527.14	-50.54	1255.01	12.50	12.50	2.50
			5.26	2.70	1	4.38	14.33	
	3	1	-2927.55	-1736.14	1553.56	12.50	12.50	2.50
			5.26	2.70	1	5.61	14.33	
	4	1	-2012.47	-1733.76	1096.81	12.50	12.50	2.50
			5.26	2.70	1	4.02	14.33	
	5	1	-4105.36	-82.11	1931.96	12.50	12.50	2.50
			5.26	2.70	1	7.09	14.33	
	6	1	-1180.48	-313.75	575.52	12.50	12.50	2.50
			5.26	2.70	1	2.13	14.33	

Tipo de zapata: 1

3	1	1	-2509.02	-50.18	1367.80	12.50	12.50	2.50
			5.26	2.70	1	4.39	14.33	
	2	1	-2509.02	-50.18	1367.80	12.50	12.50	2.50
			5.26	2.70	1	4.39	14.33	
	3	1	-1977.05	-1991.91	1180.17	12.50	12.50	2.50
			5.26	2.70	1	4.07	14.33	
	4	1	-2894.69	-1980.84	1687.14	12.50	12.50	2.50
			5.26	2.70	1	5.66	14.33	
	5	1	-4093.53	-81.87	2107.52	12.50	12.50	2.50
			5.26	2.70	1	7.12	14.33	
	6	1	-1126.21	-365.13	600.99	12.50	12.50	2.50
			5.26	2.70	1	2.07	14.33	

Tipo de zapata: 1

4	1	1	-2549.62	-50.99	1513.55	12.50	12.50	2.50
			5.26	2.70	1	4.49	14.33	
	2	1	-2549.62	-50.99	1513.55	12.50	12.50	2.50
			5.26	2.70	1	4.49	14.33	
	3	1	-2013.64	-2018.88	1307.46	12.50	12.50	2.50
			5.26	2.70	1	4.17	14.33	
	4	1	-2933.48	-2028.04	1857.08	12.50	12.50	2.50
			5.26	2.70	1	5.79	14.33	
	5	1	-4142.73	-82.85	2316.48	12.50	12.50	2.50
			5.26	2.70	1	7.26	14.33	
	6	1	-1155.47	-381.29	670.76	12.50	12.50	2.50
			5.26	2.70	1	2.14	14.33	

Tipo de zapata: 1

5	1	1	-2564.71	-51.29	1646.35	12.50	12.50	2.50
			5.26	2.70	1	4.55	14.33	
	2	1	-2564.71	-51.29	1646.35	12.50	12.50	2.50
			5.26	2.70	1	4.55	14.33	
	3	1	-2941.56	-2052.75	2005.00	12.50	12.50	2.50
			5.26	2.70	1	5.85	14.33	
	4	1	-2022.81	-2046.35	1424.40	12.50	12.50	2.50
			5.26	2.70	1	4.23	14.33	
	5	1	-4157.81	-83.16	2506.16	12.50	12.50	2.50
			5.26	2.70	1	7.34	14.33	
	6	1	-1159.71	-331.34	726.81	12.50	12.50	2.50
			5.26	2.70	1	2.15	14.33	

Tipo de zapata: 1

6	1	1	-2585.75	-51.71	1784.36	12.50	12.50	2.50
			5.26	2.70	1	4.63	14.33	
	2	1	-2585.75	-51.71	1784.36	12.50	12.50	2.50
			5.26	2.70	1	4.63	14.33	
	3	1	-2960.87	-1994.67	2164.84	12.50	12.50	2.50
			5.26	2.70	1	5.91	14.33	
	4	1	-2034.63	-1983.22	1539.42	12.50	12.50	2.50
			5.26	2.70	1	4.26	14.33	
	5	1	-4178.65	-83.57	2699.36	12.50	12.50	2.50
			5.26	2.70	1	7.42	14.33	
	6	1	-1171.99	-447.60	788.53	12.50	12.50	2.50
			5.26	2.70	1	2.22	14.33	

Tipo de zapata: 1

7	1	1	-2585.65	-51.71	1784.29	12.50	12.50	2.50
			5.26	2.70	1	4.63	14.33	
	2	1	-2585.65	-51.71	1784.29	12.50	12.50	2.50
			5.26	2.70	1	4.63	14.33	
	3	1	-2029.83	-2105.74	1531.00	12.50	12.50	2.50
			5.26	2.70	1	4.28	14.33	
	4	1	-2965.33	-2082.26	2173.05	12.50	12.50	2.50
			5.26	2.70	1	5.95	14.33	
	5	1	-4178.60	-83.57	2699.32	12.50	12.50	2.50
			5.26	2.70	1	7.42	14.33	
	6	1	-1171.74	-482.95	788.35	12.50	12.50	2.50
			5.26	2.70	1	2.23	14.33	

Tipo de zapata: 1

8	1	1	-2586.67	-51.73	1785.01	12.50	12.50	2.50
			5.26	2.70	1	4.63	14.33	
	2	1	-2586.67	-51.73	1785.01	12.50	12.50	2.50
			5.26	2.70	1	4.63	14.33	
	3	1	-2030.69	-2210.63	1531.66	12.50	12.50	2.50
			5.26	2.70	1	4.32	14.33	
	4	1	-2966.48	-2189.48	2173.93	12.50	12.50	2.50
			5.26	2.70	1	5.98	14.33	
	5	1	-4179.84	-83.60	2700.19	12.50	12.50	2.50
			5.26	2.70	1	7.43	14.33	
	6	1	-1172.63	-342.95	788.98	12.50	12.50	2.50
			5.26	2.70	1	2.19	14.33	

Tipo de zapata: 1

9	1	1	-2605.13	-52.10	1922.79	12.50	12.50	2.50
			5.26	2.70	1	4.70	14.33	
	2	1	-2605.13	-52.10	1922.79	12.50	12.50	2.50
			5.26	2.70	1	4.70	14.33	
	3	1	-2018.22	-2069.56	1645.11	12.50	12.50	2.50
			5.26	2.70	1	4.29	14.33	
	4	1	-2960.69	-2044.40	2332.74	12.50	12.50	2.50
			5.26	2.70	1	5.97	14.33	
	5	1	-4197.23	-83.94	2890.92	12.50	12.50	2.50
			5.26	2.70	1	7.51	14.33	
	6	1	-1182.70	-524.79	849.92	12.50	12.50	2.50
			5.26	2.70	1	2.28	14.33	

Tipo de zapata: 1

10	1	1	-2606.98	-52.14	1924.18	12.50	12.50	2.50
			5.26	2.70	1	4.70	14.33	
	2	1	-2606.98	-52.14	1924.18	12.50	12.50	2.50
			5.26	2.70	1	4.70	14.33	
	3	1	-2019.69	-2176.00	1655.19	12.50	12.50	2.50
			5.26	2.70	1	4.33	14.33	
	4	1	-2962.79	-2145.40	2325.56	12.50	12.50	2.50
			5.26	2.70	1	6.00	14.33	
	5	1	-4199.48	-83.99	2892.60	12.50	12.50	2.50
			5.26	2.70	1	7.51	14.33	
	6	1	-1184.18	-311.52	851.03	12.50	12.50	2.50
			5.26	2.70	1	2.21	14.33	

Tipo de zapata: 1

11	1	1	-2605.04	-52.10	1922.72	12.50	12.50	2.50
			5.26	2.70	1	4.70	14.33	
	2	1	-2605.04	-52.10	1922.72	12.50	12.50	2.50
			5.26	2.70	1	4.70	14.33	
	3	1	-2018.20	-2114.66	1645.05	12.50	12.50	2.50
			5.26	2.70	1	4.30	14.33	
	4	1	-2960.63	-2076.82	2332.64	12.50	12.50	2.50
			5.26	2.70	1	5.98	14.33	
	5	1	-4197.11	-83.94	2890.82	12.50	12.50	2.50
			5.26	2.70	1	7.51	14.33	
	6	1	-1182.62	-353.53	849.86	12.50	12.50	2.50
			5.26	2.70	1	2.22	14.33	

Tipo de zapata: 1

12	1	1	-2587.17	-51.74	1785.36	12.50	12.50	2.50
			5.26	2.70	1	4.63	14.33	
	2	1	-2587.17	-51.74	1785.36	12.50	12.50	2.50
			5.26	2.70	1	4.63	14.33	
	3	1	-2009.12	-2289.25	1540.24	12.50	12.50	2.50
			5.26	2.70	1	4.31	14.33	
	4	1	-2945.08	-2248.89	2166.01	12.50	12.50	2.50
			5.26	2.70	1	5.96	14.33	
	5	1	-4180.37	-88.21	2700.56	12.50	12.50	2.50
			5.26	2.70	1	7.43	14.33	
	6	1	-1173.03	-260.06	789.26	12.50	12.50	2.50
			5.26	2.70	1	2.16	14.33	

Tipo de zapata: 1

13	1	1	-2584.30	-51.69	1783.34	12.50	12.50	2.50
			5.26	2.70	1	4.62	14.33	
	2	1	-2584.30	-51.69	1783.34	12.50	12.50	2.50
			5.26	2.70	1	4.62	14.33	
	3	1	-2006.86	-2123.07	1538.51	12.50	12.50	2.50
			5.26	2.70	1	4.26	14.33	
	4	1	-2941.91	-2080.89	2163.64	12.50	12.50	2.50
			5.26	2.70	1	5.91	14.33	
	5	1	-4177.01	-103.84	2698.21	12.50	12.50	2.50
			5.26	2.70	1	7.43	14.33	
	6	1	-1170.68	-470.05	787.62	12.50	12.50	2.50
			5.26	2.70	1	2.22	14.33	

Tipo de zapata: 1

14	1	1	-2568.19	-51.36	1648.61	12.50	12.50	2.50
			5.26	2.70	1	4.56	14.33	
	2	1	-2568.19	-51.36	1648.61	12.50	12.50	2.50
			5.26	2.70	1	4.56	14.33	
	3	1	-1999.27	-2210.36	1426.42	12.50	12.50	2.50
			5.26	2.70	1	4.24	14.33	
	4	1	-2928.08	-2162.22	2007.45	12.50	12.50	2.50
			5.26	2.70	1	5.86	14.33	
	5	1	-4161.40	-133.29	2508.50	12.50	12.50	2.50
			5.26	2.70	1	7.36	14.33	
	6	1	-1163.03	-182.35	728.97	12.50	12.50	2.50
			5.26	2.70	1	2.11	14.33	

Tipo de zapata: 1

15	1	1	-2537.84	-50.76	1506.49	12.50	12.50	2.50
			5.26	2.70	1	4.47	14.33	
	2	1	-2537.84	-50.76	1506.49	12.50	12.50	2.50
			5.26	2.70	1	4.47	14.33	
	3	1	-1980.15	-2110.86	1307.34	12.50	12.50	2.50
			5.26	2.70	1	4.14	14.33	
	4	1	-2899.48	-2054.41	1842.96	12.50	12.50	2.50
			5.26	2.70	1	5.74	14.33	
	5	1	-4130.62	-125.50	2309.21	12.50	12.50	2.50
			5.26	2.70	1	7.25	14.33	
	6	1	-1143.70	-260.12	663.70	12.50	12.50	2.50
			5.26	2.70	1	2.08	14.33	

Tipo de zapata: 1

16	1	1	-2534.25	-50.69	1258.57	12.50	12.50	2.50
			5.26	2.70	1	4.40	14.33	
	2	1	-2534.25	-50.69	1258.57	12.50	12.50	2.50
			5.26	2.70	1	4.40	14.33	
	3	1	-1988.97	-2051.64	1098.62	12.50	12.50	2.50

			5.26	2.70	1	4.08	14.33	
	4	1	-2900.57	-1997.07	1546.47	12.50	12.50	2.50
			5.26	2.70	1	5.64	14.33	
	5	1	-4120.22	-120.61	1939.40	12.50	12.50	2.50
			5.26	2.70	1	7.13	14.33	
	6	1	-1159.52	-102.85	565.04	12.50	12.50	2.50
			5.26	2.70	1	2.03	14.33	

Tipo de zapata: 1

17	1	1	-2440.18	-48.80	853.64	12.50	12.50	2.50
			5.26	2.70	1	4.13	14.33	
	2	1	-2440.18	-48.80	853.64	12.50	12.50	2.50
			5.26	2.70	1	4.13	14.33	
	3	1	-2284.53	-2028.09	726.64	12.50	12.50	2.50
			5.26	2.70	1	4.28	14.33	
	4	1	-3150.32	-1966.08	1039.37	12.50	12.50	2.50
			5.26	2.70	1	5.88	14.33	
	5	1	-4016.08	-80.32	1342.39	12.50	12.50	2.50
			5.26	2.70	1	6.78	14.33	
	6	1	-1121.17	-302.51	386.53	12.50	12.50	2.50
			5.26	2.70	1	1.98	14.33	

Tipo de zapata: 1

18	1	1	-2281.58	-43.63	440.01	12.50	12.50	2.50
			5.26	2.70	1	3.60	14.33	
	2	1	-2281.58	-43.63	440.01	12.50	12.50	2.50
			5.26	2.70	1	3.60	14.33	
	3	1	-1805.26	-1716.77	350.52	12.50	12.50	2.50
			5.26	2.70	1	3.48	14.33	
	4	1	-2890.20	-1657.74	557.91	12.50	12.50	2.50
			5.26	2.70	1	5.24	14.33	
	5	1	-3877.51	-73.55	711.51	12.50	12.50	2.50
			5.26	2.70	1	6.06	14.33	
	6	1	-877.63	-272.20	175.03	12.50	12.50	2.50
			5.26	2.70	1	1.52	14.33	

Programa LSTC2 - Cálculo de Cimentaciones. Posprocesador
(V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.. E-1.

DIMENSIONAMIENTO PILOTES

LEYENDA: Pmax = pilote más cargado
Pmin = pilote más descargado
Nd = axil más desfavorable en el pilote para la hip considerada
Vd = cortante aplicado en cabeza del pilote
Md = momento máximo en el pilote x 1.2 (coef incertidumbre nh)
Leq = luz de la ménsula equivalente
ϕp = diámetro del pilote
m = condiciona la armadura mínima
xxx = la armadura necesaria es mayor que la máxima permitida

Pila	hip	Descripción de la hipótesis	Nd [t]	Vd [t]	Md [mt]	Leq [m]	ϕp [m]	As [cm²]
1	1	Envolvente My min Pmax	-580.53	13.35	68.12	5.10	1.50	66.41 m
	2	Envolvente My min Pmin	-375.52	13.35	68.12	5.10	1.50	66.41 m
	3	Envolvente My max Pmax	-580.53	13.35	68.12	5.10	1.50	66.41 m
	4	Envolvente My max Pmin	-375.92	13.35	68.12	5.10	1.50	66.41 m
	5	Envolvente Mz min Pmax	-680.94	16.29	83.13	5.10	1.50	66.41 m
	6	Envolvente Mz min Pmin	-345.70	16.29	83.13	5.10	1.50	66.41 m
	7	Envolvente Mz max Pmax	-577.90	11.92	60.80	5.10	1.50	66.41 m
	8	Envolvente Mz max Pmin	-271.30	11.92	60.80	5.10	1.50	66.41 m
	9	Envolvente N min Pmax	-768.81	20.01	102.10	5.10	1.50	66.41 m
	10	Envolvente N min Pmin	-516.49	20.01	102.10	5.10	1.50	66.41 m
	11	Envolvente N max Pmax	-420.38	6.50	33.14	5.10	1.50	66.41 m
	12	Envolvente N max Pmin	-242.97	6.50	33.14	5.10	1.50	66.41 m
2	1	Envolvente My min Pmax	-623.51	14.79	75.46	5.10	1.50	66.41 m
	2	Envolvente My min Pmin	-382.87	14.79	75.46	5.10	1.50	66.41 m
	3	Envolvente My max Pmax	-623.51	14.79	75.46	5.10	1.50	66.41 m
	4	Envolvente My max Pmin	-382.87	14.79	75.46	5.10	1.50	66.41 m
	5	Envolvente Mz min Pmax	-745.44	17.74	90.51	5.10	1.50	66.41 m
	6	Envolvente Mz min Pmin	-349.93	17.74	90.51	5.10	1.50	66.41 m
	7	Envolvente Mz max Pmax	-622.53	12.71	64.85	5.10	1.50	66.41 m
	8	Envolvente Mz max Pmin	-269.49	12.71	64.85	5.10	1.50	66.41 m
	9	Envolvente N min Pmax	-830.86	21.47	109.55	5.10	1.50	66.41 m
	10	Envolvente N min Pmin	-526.24	21.47	109.55	5.10	1.50	66.41 m
	11	Envolvente N max Pmax	-454.35	7.43	37.93	5.10	1.50	66.41 m
	12	Envolvente N max Pmin	-252.78	7.43	37.93	5.10	1.50	66.41 m
3	1	Envolvente My min Pmax	-625.66	14.75	75.26	5.10	1.50	66.41 m
	2	Envolvente My min Pmin	-376.70	14.75	75.26	5.10	1.50	66.41 m

	3	Envolvente My max Pmax					
		-625.66	14.75	75.26	5.10	1.50	66.41 m
	4	Envolvente My max Pmin					
		-376.70	14.75	75.26	5.10	1.50	66.41 m
	5	Envolvente Mz min Pmax					
		-632.34	12.81	65.34	5.10	1.50	66.41 m
	6	Envolvente Mz min Pmin					
		-251.81	12.81	65.34	5.10	1.50	66.41 m
	7	Envolvente Mz max Pmax					
		-756.82	17.77	90.65	5.10	1.50	66.41 m
	8	Envolvente Mz max Pmin					
		-331.24	17.77	90.65	5.10	1.50	66.41 m
	9	Envolvente N min Pmax					
		-835.77	21.29	108.63	5.10	1.50	66.41 m
	10	Envolvente N min Pmin					
		-518.70	21.29	108.63	5.10	1.50	66.41 m
	11	Envolvente N max Pmax					
		-451.10	7.27	37.10	5.10	1.50	66.41 m
	12	Envolvente N max Pmin					
		-243.97	7.27	37.10	5.10	1.50	66.41 m
4	1	Envolvente My min Pmax					
		-642.47	15.04	75.92	5.05	1.50	66.41 m
	2	Envolvente My min Pmin					
		-375.55	15.04	75.92	5.05	1.50	66.41 m
	3	Envolvente My max Pmax					
		-642.47	15.04	75.92	5.05	1.50	66.41 m
	4	Envolvente My max Pmin					
		-375.55	15.04	75.92	5.05	1.50	66.41 m
	5	Envolvente Mz min Pmax					
		-648.66	12.95	65.35	5.05	1.50	66.41 m
	6	Envolvente Mz min Pmin					
		-250.25	12.95	65.35	5.05	1.50	66.41 m
	7	Envolvente Mz max Pmax					
		-775.92	17.96	90.63	5.05	1.50	66.41 m
	8	Envolvente Mz max Pmin					
		-327.40	17.96	90.63	5.05	1.50	66.41 m
	9	Envolvente N min Pmax					
		-855.89	21.45	108.28	5.05	1.50	66.41 m
	10	Envolvente N min Pmin					
		-516.15	21.45	108.28	5.05	1.50	66.41 m
	11	Envolvente N max Pmax					
		-464.20	7.38	37.23	5.05	1.50	66.41 m
	12	Envolvente N max Pmin					
		-244.00	7.38	37.23	5.05	1.50	66.41 m
5	1	Envolvente My min Pmax					
		-649.17	15.19	76.68	5.05	1.50	66.41 m
	2	Envolvente My min Pmin					
		-372.20	15.19	76.68	5.05	1.50	66.41 m
	3	Envolvente My max Pmax					
		-649.17	15.19	76.68	5.05	1.50	66.41 m
	4	Envolvente My max Pmin					
		-372.20	15.19	76.68	5.05	1.50	66.41 m
	5	Envolvente Mz min Pmax					
		-783.20	17.94	90.53	5.05	1.50	66.41 m
	6	Envolvente Mz min Pmin					
		-321.91	17.94	90.53	5.05	1.50	66.41 m
	7	Envolvente Mz max Pmax					
		-655.25	13.09	66.09	5.05	1.50	66.41 m
	8	Envolvente Mz max Pmin					
		-245.69	13.09	66.09	5.05	1.50	66.41 m
	9	Envolvente N min Pmax					
		-864.66	21.42	108.13	5.05	1.50	66.41 m
	10	Envolvente N min Pmin					
		-510.73	21.42	108.13	5.05	1.50	66.41 m
	11	Envolvente N max Pmax					
		-464.75	7.32	36.94	5.05	1.50	66.41 m
	12	Envolvente N max Pmin					
		-244.40	7.32	36.94	5.05	1.50	66.41 m
6	1	Envolvente My min Pmax					
		-670.04	15.37	76.48	4.98	1.50	66.41 m
	2	Envolvente My min Pmin					
		-369.25	15.37	76.48	4.98	1.50	66.41 m
	3	Envolvente My max Pmax					
		-670.04	15.37	76.48	4.98	1.50	66.41 m
	4	Envolvente My max Pmin					
		-369.25	15.37	76.48	4.98	1.50	66.41 m
	5	Envolvente Mz min Pmax					
		-801.93	17.92	89.15	4.98	1.50	66.41 m
	6	Envolvente Mz min Pmin					
		-320.72	17.92	89.15	4.98	1.50	66.41 m
	7	Envolvente Mz max Pmax					
		-671.31	13.03	64.86	4.98	1.50	66.41 m
	8	Envolvente Mz max Pmin					
		-245.51	13.03	64.86	4.98	1.50	66.41 m
	9	Envolvente N min Pmax					
		-887.47	21.42	106.60	4.98	1.50	66.41 m
	10	Envolvente N min Pmin					
		-505.80	21.42	106.60	4.98	1.50	66.41 m
	11	Envolvente N max Pmax					
		-486.35	7.56	37.63	4.98	1.50	66.41 m
	12	Envolvente N max Pmin					
		-238.78	7.56	37.63	4.98	1.50	66.41 m
7	1	Envolvente My min Pmax					
		-656.78	15.37	77.58	5.05	1.50	66.41 m

	2	Envolvente My min Pmin					
		-369.24	15.37	77.58	5.05	1.50	66.41 m
	3	Envolvente My max Pmax					
		-656.78	15.37	77.58	5.05	1.50	66.41 m
	4	Envolvente My max Pmin					
		-369.24	15.37	77.58	5.05	1.50	66.41 m
	5	Envolvente Mz min Pmax					
		-662.28	13.13	66.26	5.05	1.50	66.41 m
	6	Envolvente Mz min Pmin					
		-240.23	13.13	66.26	5.05	1.50	66.41 m
	7	Envolvente Mz max Pmax					
		-793.34	18.10	91.34	5.05	1.50	66.41 m
	8	Envolvente Mz max Pmin					
		-317.06	18.10	91.34	5.05	1.50	66.41 m
	9	Envolvente N min Pmax					
		-874.24	21.42	108.14	5.05	1.50	66.41 m
	10	Envolvente N min Pmin					
		-505.77	21.42	108.14	5.05	1.50	66.41 m
	11	Envolvente N max Pmax					
		-474.53	7.65	38.60	5.05	1.50	66.41 m
	12	Envolvente N max Pmin					
		-237.28	7.65	38.60	5.05	1.50	66.41 m
8	1	Envolvente My min Pmax					
		-676.80	15.37	76.17	4.96	1.50	66.41 m
	2	Envolvente My min Pmin					
		-369.33	15.37	76.17	4.96	1.50	66.41 m
	3	Envolvente My max Pmax					
		-676.80	15.37	76.17	4.96	1.50	66.41 m
	4	Envolvente My max Pmin					
		-369.33	15.37	76.17	4.96	1.50	66.41 m
	5	Envolvente Mz min Pmax					
		-686.75	13.34	66.11	4.96	1.50	66.41 m
	6	Envolvente Mz min Pmin					
		-235.81	13.34	66.11	4.96	1.50	66.41 m
	7	Envolvente Mz max Pmax					
		-818.00	18.26	90.51	4.96	1.50	66.41 m
	8	Envolvente Mz max Pmin					
		-312.52	18.26	90.51	4.96	1.50	66.41 m
	9	Envolvente N min Pmax					
		-894.44	21.44	106.25	4.96	1.50	66.41 m
	10	Envolvente N min Pmin					
		-505.73	21.44	106.25	4.96	1.50	66.41 m
	11	Envolvente N max Pmax					
		-488.84	7.38	36.60	4.96	1.50	66.41 m
	12	Envolvente N max Pmin					
		-243.06	7.38	36.60	4.96	1.50	66.41 m
9	1	Envolvente My min Pmax					
		-697.36	15.54	76.73	4.94	1.50	66.41 m
	2	Envolvente My min Pmin					
		-366.12	15.54	76.73	4.94	1.50	66.41 m
	3	Envolvente My max Pmax					
		-697.36	15.54	76.73	4.94	1.50	66.41 m
	4	Envolvente My max Pmin					
		-366.12	15.54	76.73	4.94	1.50	66.41 m
	5	Envolvente Mz min Pmax					
		-696.84	13.14	64.87	4.94	1.50	66.41 m
	6	Envolvente Mz min Pmin					
		-236.21	13.14	64.87	4.94	1.50	66.41 m
	7	Envolvente Mz max Pmax					
		-830.35	18.13	89.51	4.94	1.50	66.41 m
	8	Envolvente Mz max Pmin					
		-312.14	18.13	89.51	4.94	1.50	66.41 m
	9	Envolvente N min Pmax					
		-916.82	21.43	105.78	4.94	1.50	66.41 m
	10	Envolvente N min Pmin					
		-500.46	21.43	105.78	4.94	1.50	66.41 m
	11	Envolvente N max Pmax					
		-512.84	7.75	38.29	4.94	1.50	66.41 m
	12	Envolvente N max Pmin					
		-234.54	7.75	38.29	4.94	1.50	66.41 m
10	1	Envolvente My min Pmax					
		-704.25	15.55	76.74	4.94	1.50	66.41 m
	2	Envolvente My min Pmin					
		-366.27	15.55	76.74	4.94	1.50	66.41 m
	3	Envolvente My max Pmax					
		-704.25	15.55	76.74	4.94	1.50	66.41 m
	4	Envolvente My max Pmin					
		-366.27	15.55	76.74	4.94	1.50	66.41 m
	5	Envolvente Mz min Pmax					
		-708.74	13.44	66.33	4.93	1.50	66.41 m
	6	Envolvente Mz min Pmin					
		-231.27	13.44	66.33	4.93	1.50	66.41 m
	7	Envolvente Mz max Pmax					
		-841.38	18.25	90.06	4.94	1.50	66.41 m
	8	Envolvente Mz max Pmin					
		-308.21	18.25	90.06	4.94	1.50	66.41 m
	9	Envolvente N min Pmax					
		-923.92	21.45	105.86	4.94	1.50	66.41 m
	10	Envolvente N min Pmin					
		-500.49	21.45	105.86	4.94	1.50	66.41 m
	11	Envolvente N max Pmax					
		-510.99	7.37	36.40	4.94	1.50	66.41 m
	12	Envolvente N max Pmin					

		-243.35	7.37	36.40	4.94	1.50	66.41 m
11	1	Envolvente My min Pmax					
		-703.96	15.54	76.69	4.93	1.50	66.41 m
	2	Envolvente My min Pmin					
		-366.12	15.54	76.69	4.93	1.50	66.41 m
	3	Envolvente My max Pmax					
		-703.96	15.54	76.69	4.93	1.50	66.41 m
	4	Envolvente My max Pmin					
		-366.12	15.54	76.69	4.93	1.50	66.41 m
	5	Envolvente Mz min Pmax					
		-705.38	13.21	65.20	4.94	1.50	66.41 m
	6	Envolvente Mz min Pmin					
		-234.30	13.21	65.20	4.94	1.50	66.41 m
	7	Envolvente Mz max Pmax					
		-838.38	18.17	89.69	4.94	1.50	66.41 m
	8	Envolvente Mz max Pmin					
		-310.72	18.17	89.69	4.94	1.50	66.41 m
	9	Envolvente N min Pmax					
		-923.68	21.44	105.79	4.94	1.50	66.41 m
	10	Envolvente N min Pmin					
		-500.20	21.44	105.79	4.94	1.50	66.41 m
	11	Envolvente N max Pmax					
		-512.50	7.45	36.75	4.94	1.50	66.41 m
	12	Envolvente N max Pmin					
		-241.49	7.45	36.75	4.94	1.50	66.41 m
12	1	Envolvente My min Pmax					
		-696.75	15.37	75.85	4.94	1.50	66.41 m
	2	Envolvente My min Pmin					
		-369.37	15.37	75.85	4.94	1.50	66.41 m
	3	Envolvente My max Pmax					
		-696.75	15.37	75.85	4.94	1.50	66.41 m
	4	Envolvente My max Pmin					
		-369.37	15.37	75.85	4.94	1.50	66.41 m
	5	Envolvente Mz min Pmax					
		-708.17	13.66	67.40	4.94	1.50	66.41 m
	6	Envolvente Mz min Pmin					
		-229.49	13.66	67.40	4.94	1.50	66.41 m
	7	Envolvente Mz max Pmax					
		-837.97	18.38	90.69	4.94	1.50	66.41 m
	8	Envolvente Mz max Pmin					
		-307.67	18.38	90.69	4.94	1.50	66.41 m
	9	Envolvente N min Pmax					
		-915.20	21.47	105.97	4.94	1.50	66.41 m
	10	Envolvente N min Pmin					
		-504.96	21.47	105.97	4.94	1.50	66.41 m
	11	Envolvente N max Pmax					
		505.31	7.22	35.65	4.94	1.50	66.41 m
	12	Envolvente N max Pmin					
		-246.56	7.22	35.65	4.94	1.50	66.41 m
13	1	Envolvente My min Pmax					
		-676.46	15.36	76.12	4.96	1.50	66.41 m
	2	Envolvente My min Pmin					
		-369.14	15.36	76.12	4.96	1.50	66.41 m
	3	Envolvente My max Pmax					
		-676.46	15.36	76.12	4.96	1.50	66.41 m
	4	Envolvente My max Pmin					
		-369.14	15.36	76.12	4.96	1.50	66.41 m
	5	Envolvente Mz min Pmax					
		-680.72	13.23	65.56	4.96	1.50	66.41 m
	6	Envolvente Mz min Pmin					
		-236.56	13.23	65.56	4.96	1.50	66.41 m
	7	Envolvente Mz max Pmax					
		-810.35	18.06	89.52	4.96	1.50	66.41 m
	8	Envolvente Mz max Pmin					
		-314.71	18.06	89.52	4.96	1.50	66.41 m
	9	Envolvente N min Pmax					
		-895.58	21.47	106.38	4.96	1.50	66.41 m
	10	Envolvente N min Pmin					
		-503.95	21.47	106.38	4.96	1.50	66.41 m
	11	Envolvente N max Pmax					
		-493.68	7.58	37.57	4.96	1.50	66.41 m
	12	Envolvente N max Pmin					
		-237.79	7.58	37.57	4.96	1.50	66.41 m
14	1	Envolvente My min Pmax					
		-669.54	15.21	75.38	4.96	1.50	66.41 m
	2	Envolvente My min Pmin					
		-372.48	15.21	75.38	4.96	1.50	66.41 m
	3	Envolvente My max Pmax					
		-669.54	15.21	75.38	4.96	1.50	66.41 m
	4	Envolvente My max Pmin					
		-372.48	15.21	75.38	4.96	1.50	66.41 m
	5	Envolvente Mz min Pmax					
		-679.78	13.49	66.86	4.96	1.50	66.41 m
	6	Envolvente Mz min Pmin					
		-235.81	13.49	66.86	4.96	1.50	66.41 m
	7	Envolvente Mz max Pmax					
		-806.87	18.25	90.43	4.96	1.50	66.41 m
	8	Envolvente Mz max Pmin					
		-315.13	18.25	90.43	4.96	1.50	66.41 m
	9	Envolvente N min Pmax					
		-888.18	21.52	106.65	4.96	1.50	66.41 m
	10	Envolvente N min Pmin					
		-507.88	21.52	106.65	4.96	1.50	66.41 m

	11	Envolvente N max Pmax					
		-476.79	7.02	34.77	4.96	1.50	66.41 m
	12	Envolvente N max Pmin					
		-250.98	7.02	34.77	4.96	1.50	66.41 m
15	1	Envolvente My min Pmax					
		-654.06	14.97	74.49	4.98	1.50	66.41 m
	2	Envolvente My min Pmin					
		-374.58	14.97	74.49	4.98	1.50	66.41 m
	3	Envolvente My max Pmax					
		-654.06	14.97	74.49	4.98	1.50	66.41 m
	4	Envolvente My max Pmin					
		-374.58	14.97	74.49	4.98	1.50	66.41 m
	5	Envolvente Mz min Pmax					
		-662.42	13.22	65.79	4.98	1.50	66.41 m
	6	Envolvente Mz min Pmin					
		-242.29	13.22	65.79	4.98	1.50	66.41 m
	7	Envolvente Mz max Pmax					
		-786.42	17.99	89.54	4.98	1.50	66.41 m
	8	Envolvente Mz max Pmin					
		-322.59	17.99	89.54	4.98	1.50	66.41 m
	9	Envolvente N min Pmax					
		-870.56	21.48	106.86	4.98	1.50	66.41 m
	10	Envolvente N min Pmin					
		-512.14	21.48	106.86	4.98	1.50	66.41 m
	11	Envolvente N max Pmax					
		-470.83	7.12	35.44	4.98	1.50	66.41 m
	12	Envolvente N max Pmin					
		-247.91	7.12	35.44	4.98	1.50	66.41 m
16	1	Envolvente My min Pmax					
		-644.36	14.83	73.79	4.98	1.50	66.41 m
	2	Envolvente My min Pmin					
		-383.49	14.83	73.79	4.98	1.50	66.41 m
	3	Envolvente My max Pmax					
		-644.36	14.83	73.79	4.98	1.50	66.41 m
	4	Envolvente My max Pmin					
		-383.49	14.83	73.79	4.98	1.50	66.41 m
	5	Envolvente Mz min Pmax					
		-653.54	13.26	65.96	4.98	1.50	66.41 m
	6	Envolvente Mz min Pmin					
		-253.13	13.26	65.96	4.98	1.50	66.41 m
	7	Envolvente Mz max Pmax					
		-773.56	18.05	89.81	4.98	1.50	66.41 m
	8	Envolvente Mz max Pmin					
		-335.69	18.05	89.81	4.98	1.50	66.41 m
	9	Envolvente N min Pmax					
		-855.85	21.66	107.81	4.98	1.50	66.41 m
	10	Envolvente N min Pmin					
		-524.44	21.66	107.81	4.98	1.50	66.41 m
	11	Envolvente N max Pmax					
		-462.37	6.85	34.08	4.98	1.50	66.41 m
	12	Envolvente N max Pmin					
		-259.98	6.85	34.08	4.98	1.50	66.41 m
17	1	Envolvente My min Pmax					
		-604.99	14.12	71.27	5.05	1.50	66.41 m
	2	Envolvente My min Pmin					
		-388.70	14.12	71.27	5.05	1.50	66.41 m
	3	Envolvente My max Pmax					
		-604.99	14.12	71.27	5.05	1.50	66.41 m
	4	Envolvente My max Pmin					
		-388.70	14.12	71.27	5.05	1.50	66.41 m
	5	Envolvente Mz min Pmax					
		-644.90	11.75	59.29	5.05	1.50	66.41 m
	6	Envolvente Mz min Pmin					
		-291.98	11.75	59.29	5.05	1.50	66.41 m
	7	Envolvente Mz max Pmax					
		-765.63	16.65	84.05	5.05	1.50	66.41 m
	8	Envolvente Mz max Pmin					
		-385.87	16.65	84.05	5.05	1.50	66.41 m
	9	Envolvente N min Pmax					
		-807.36	21.45	108.25	5.05	1.50	66.41 m
	10	Envolvente N min Pmin					
		-536.53	21.45	108.25	5.05	1.50	66.41 m
	11	Envolvente N max Pmax					
		-446.90	7.23	36.49	5.05	1.50	66.41 m
	12	Envolvente N max Pmin					
		-253.68	7.23	36.49	5.05	1.50	66.41 m
18	1	Envolvente My min Pmax					
		-559.42	12.49	63.05	5.05	1.50	66.41 m
	2	Envolvente My min Pmin					
		-376.80	12.49	63.05	5.05	1.50	66.41 m
	3	Envolvente My max Pmax					
		-559.42	12.49	63.05	5.05	1.50	66.41 m
	4	Envolvente My max Pmin					
		-376.80	12.49	63.05	5.05	1.50	66.41 m
	5	Envolvente Mz min Pmax					
		-576.38	10.17	51.34	5.05	1.50	66.41 m
	6	Envolvente Mz min Pmin					
		-276.22	10.17	51.34	5.05	1.50	66.41 m
	7	Envolvente Mz max Pmax					
		-707.09	15.75	79.48	5.05	1.50	66.41 m
	8	Envolvente Mz max Pmin					
		-386.61	15.75	79.48	5.05	1.50	66.41 m
	9	Envolvente N min Pmax					
		-744.72	19.89	100.40	5.05	1.50	66.41 m

11.4 ESTRIBOS

11.4 ESTRIBOS

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4. ESTRIBO 1 VIADUCTO 1

ESTRIBOS

Para el cálculo de los estribos se han considerado las siguientes acciones:

- Cargas transmitidas por el tablero, incluyendo el frenado y fuerzas horizontales transmitidas por los teflones. Para combinar la fuerza de frenado con las fuerzas horizontales transmitidas por los teflones al tablero se ha seguido el siguiente criterio:

a) Concomitante con el frenado, se ha considerado una fuerza de rozamiento obtenida multiplicando el axil debido a la carga permanente en las pilas y en el estribo no anclado por un coeficiente de rozamiento del 3%.

b) Alternativamente, cuando no actúa el frenado, se ha considerado una fuerza horizontal en el estribo obtenida multiplicando el axil debido a la carga total por un coeficiente de rozamiento del 5%.

- Empuje de tierras. Para el estribo anclado, se ha considerado el empuje al reposo, mientras que para el estribo no anclado se ha considerado el empuje activo. Como parámentros del relleno, se ha considerado un ángulo de rozamiento interno de 30º y una densidad de 2.0 t/m^3. Por otra parte, con objeto de minimizar el empuje de tierras en el estribo anclado, se prescribe la ejecución del relleno de suelo-cemento por tongadas de 1.00 metro de espesor, con lo cual, el empuje de tierras en dicho estribo queda reducido a una serie de triángulos de 1.00 metro de altura, cuyo empuje se simplifica, del lado de la seguridad al de un rectángulo.

- Empuje debido a una sobrecarga aplicada en el terraplén de 3 t/m^2, que afecta sólamente al estribo no anclado.

Respecto de las cargas transmitidas por el tablero se han considerado envolentes de esfuerzo axil, My, Mz, Vy y Vz, es decir 10 envolventes en total, teniendo en cuenta esfuerzos máximos y mínimos.

La tensión admisible considerada para el cálculo de la cimentación de los estribos es de 3.0 kg/cm^2 en el estribo anclado.

El estribo 1 se cimenta mediante pilotes de 22.00 metros de profundidad. En el cálculo se tiene en cuenta un posible rozamiento negativo que incrementa el axil del pilote en 59 toneladas. Repecto de los empujes, se siguen las recomendaciones del informe geotécnico, adoptando un empuje triangular en 6.00 metros de longitud con un valor máximo a los 3.00 metros de 15.1 t/m. El pilote se supone empotrado en el encepado y a una profundidad de 10.00 metros.

Para el dimensionamiento de la armadura de la puntera se ha utilizado el método de bielas y tirantes considerando la ley de tensiones transmitidas al suelo en cada hipótesis.

Para el dimensionamiento del talón, se ha considerado el peso de las tierras y la reacción correspondiente a las tensiones transmitidas al terreno. El dimensionamiento de esta armadura se ha hecho en flexión simple al tratarse de unas proporciones para las que se puede admitir la hipótesis de Navier.

Con objeto de garantizar una seguridad adecuada frente al deslizamiento, en el estribo anclado, es necesario disponer un tacón que permita movilizar el empuje pasivo en caso de que el estribo intente deslizar. A efectos del cálculo de este empuje, se ha considerado un coeficiente de minoración de 0.6. Igualmente, no se ha tenido en cuenta el empuje pasivo sobre la cara frontal de la zapata y se ha despreciado el peso de las tierras que se colocan encima de la misma.

A continuación se incluye la comprobación de tensiones, vuelco y deslizamiento. Para el deslizamiento se ha admitido un coeficiente de seguridad de 1.35 cuando se aplica la fuerza de frenado (estribo anclado).

En el apartado "RESULTADO DE LOS CÁLULOS" se incluye el resto de los resultados (dimensionamiento, cálculo de pesos).

Programa CIM EST - Esfuerzos de Cimentación en Estribos

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

COMPROBACION DE CARGAS VERTICALES EN PILOTES. ESTRIBOS.

LEYENDA: n_f = nº de filas de pilotes
npil = nº de pilotes en una fila
dfil = distancia de la fila al borde de la puntera (dir z)
sepf = separación de los pilotes en la fila (dir y)
ϕ= diámetro de los pilotes
lp = longitud de los pilotes
Pmax = carga soportada por el pilote más cargado
Pmin = carga soportada por el pilote menos cargado
Pu = carga admisible del pilote
* = Pmax > Pu
! = Pmin < 0

Est.	nf / npil1 / dfil1 [m] / sepf1 [m]	npil2 / dfil2 [m] / sepf2 [m]	npil3 / dfil3 [m] / sepf3 [m]	npil4 / dfil4 [m] / sepf4 [m]			
	2 / 3 / 1.80 / 6.00	3 / 7.30 / 6.00					
hip	N [t] / Pmax [t]	Vy [t] / Pmin [t]	Vz [t] / Pu [t]	My [mt]	Mz [mt]	ϕ [m]	lp [m]
1	-3069.52	-0.58	-486.61	1855.83	-89.15	1.80	22.00
	627.78	395.40	780.20				
2	-2598.76	0.42	-458.37	561.24	23.61	1.80	22.00
	468.12	398.13	780.20				
3	-2830.38	-15.81	-472.26	1198.19	-689.85	1.80	22.00
	573.09	370.37	780.20				
4	-2787.09	15.82	-469.67	1079.15	689.80	1.80	22.00
	558.66	370.37	780.20				
5	-2671.85	0.00	-462.75	762.24	-0.01	1.80	22.00
	491.50	399.11	780.20				
6	-2671.85	0.00	-462.75	762.24	-0.01	1.80	22.00
	491.50	399.11	780.20				
7	-2671.85	0.00	-462.75	762.24	-0.01	1.80	22.00
	491.50	399.11	780.20				
8	-2671.85	0.00	-462.75	762.24	-0.01	1.80	22.00
	491.50	399.11	780.20				
9	-2826.65	-0.34	-472.04	1187.94	-927.05	1.80	22.00
	581.73	360.49	780.20				
10	-2874.71	0.34	-474.92	1320.10	926.97	1.80	22.00
	597.75	360.49	780.20				

Programa CIM EST - Esfuerzos de Cimentación en Estribos

COMPROBACION DE TENSIONES EN ZAPATAS DE ESTRIBOS

LEYENDA: A,B = dimensiones de la zapata
Tipo de zapata -> 0=hexagonal, 1= rectangular
σmax = tensión máxima en el terreno (punta)
σmin = tensión mínima en el terreno
σmed = tensión media
β= ángulo que forma el eje neutro con el eje Y de la zapata
ymax = distancia del cdg de la zapata a la fibra más comprimida
ymin = distancia del cdg de la zapata a la fibra más traccionada
f.n. = distancia de la fibra neutra a la fibra más comprimida
σadm = tensión admisible del terreno
γd = coeficiente de seguridad frente al deslizamiento
γv = coeficiente de seguridad frente al vuelco
* = tensión de punta > 1.25* σadm
! = tensión media > σadm
= coef. de seguridad frente al deslizamiento < 1.5
@ = coef. de seguridad frente al vuelco < 1.5

Estr	hip	N [t] / β [°] / σadm [kp/cm2]	Vy [t] / ymax [m] / γd	Vz [t] / ymin [m] / γv	My [mt] / f.n. [m]	Mz [mt] / σmax [kp/cm2]	A [m] / σmin [kp/cm2]	B [m] / σmed [kp/cm2]
2	1	-7175.13	-3.49	2667.88	15217.18	59.12	16.00	25.05
		180.57	12.60	-12.60	37.26	2.71	0.87	1.79
		3.00	1.57	5.91				
	2	-6678.56	5.17	-2420.11	-11788.33	-22.99	16.00	25.05
		180.29	12.56	-12.56	42.19	2.37	0.96	1.67
		3.00	1.63	7.10				
	3	-6906.32	-15.16	2667.88	18032.96	-488.21	16.00	25.05
		183.66	13.01	-13.01	32.55	2.85	0.60	1.72
		3.00	1.52	4.80				
	4	-6937.51	16.24	-2420.11	-14500.83	460.14	16.00	25.05
		184.45	13.11	-13.11	38.06	2.64	0.82	1.73
		3.00	1.68	5.99				
	5	-6915.41	5.45	-2420.12	-14269.40	582.71	16.00	25.05
		185.85	13.28	-13.28	38.50	2.63	0.82	1.73
		3.00	1.68	6.06				
	6	-6884.04	-4.38	2667.89	18266.41	-610.35	16.00	25.05
		184.73	13.14	-13.14	32.78	2.87	0.57	1.72
		3.00	1.52	4.72				
	7	-6915.41	5.45	-2420.12	-14269.40	582.71	16.00	25.05
		185.85	13.28	-13.28	38.50	2.63	0.82	1.73
		3.00	1.68	6.06				
	8	-6884.04	-4.38	2667.89	18266.41	-610.35	16.00	25.05
		184.73	13.14	-13.14	32.78	2.87	0.57	1.72
		3.00	1.52	4.72				
	9	-6983.33	-1.54	2667.87	17226.22	-830.34	16.00	25.05
		186.63	13.36	-13.36	34.43	2.85	0.64	1.74
		3.00	1.54	5.07				
	10	-6902.83	2.61	-2420.11	-14137.56	801.78	16.00	25.05
		187.82	13.50	-13.50	38.78	2.64	0.80	1.72
		3.00	1.68	6.11				

RESULTADOS DEL CÁLCULO

RESULTADOS DEL CÁLCULO

Replanteo. Datos del Trazado

Programa LST0 - Replanteo de viaductos hormigón pretensado y mixtos (V 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

LISTADO DE PUNTOS SINGULARES EJES EN PLANTA

Pk	Long.	x1 x2 xc	y1 y2 yc	Az1 Az2	R	A_ant A_post
[m]	[m]	[m]	[m]	[g]	[m]	[m]
Eje sup no. 1: LAV. TRAMO: MADRID-ZARAGOZA; Subtramo IV						
399212.035	0.000	475746.688	4479748.841	74.4487	0.00	
400378.541	1166.506	476820.493	4480204.559	74.4487		
400838.542	460.001	477241.995	4480388.726	72.4291	-7250.00	1826.20
404863.023	4024.481	480253.333	4482980.375	37.0903		1826.20
		474199.380	4486969.379			

Programa LST0 - Replanteo de viaductos hormigón pretensado y mixtos (V 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

LISTADO DE PUNTOS SINGULARES EJES EN ALZADO

N°	Pk Cota	TE TS	Cota TE Cota TS	pE[%] pS[%]	Long Flecha	Kv Theta[%]
Eje sup no. 1: LAV. TRAMO: MADRID-ZARAGOZA; Subtramo IV						
1	400000.000 734.589	400000.000	734.589	2.4860		
2	402293.647 791.610	402116.782 402470.512	787.213 794.617	2.4860 1.7000	353.731 0.348	-45000.000 -0.7861
3	403365.429 809.830	403207.921 403522.937	807.152 813.610	1.7000 2.4000	315.017 -0.276	45000.000 0.7000
4	406560.000 886.500	406131.193 406988.807	876.209 888.619	2.4000 0.4942	857.614 2.043	-45000.000 -1.9058
5	407905.000 893.147	407805.716 408004.284	892.656 893.941	0.4942 0.7997	198.569 -0.076	65000.000 0.3055
6	408006.039 893.955	408006.039	893.955	0.7997		

Peraltes:

Peralte Izq Tramo	Pk	Per[%]	Perlate Der Tramo	Pk	Per[%]
1	400000.000	0.000	1	400000.000	0.000
2	410000.000	0.000	2	410000.000	0.000

Programa LST0 - Replanteo de viaductos hormigón pretensado y mixtos (V 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

LISTADO DE PUNTOS A INTERVALO CONSTANTE

LEYENDA: * -> no está definido el peralte en este P.K
pdte -> pendiente del eje
per_i-> peralte izquierdo asociado al eje
per_d-> peralte derecho asociado al eje

N°	Pk [m]	Cota [m]	pdte [%]	per_i [%]	per_d [%]
Eje no. 1: LAV. TRAMO: MADRID-ZARAGOZA; Subtramo IV					
1	400000.000	734.589	2.486	0.000	0.000
2	400005.000	734.713	2.486	0.000	0.000
3	400010.000	734.838	2.486	0.000	0.000
4	400015.000	734.962	2.486	0.000	0.000
5	400020.000	735.086	2.486	0.000	0.000
6	400025.000	735.211	2.486	0.000	0.000
7	400030.000	735.335	2.486	0.000	0.000
8	400035.000	735.459	2.486	0.000	0.000
9	400040.000	735.583	2.486	0.000	0.000
10	400045.000	735.708	2.486	0.000	0.000
11	400050.000	735.832	2.486	0.000	0.000
12	400055.000	735.956	2.486	0.000	0.000
13	400060.000	736.081	2.486	0.000	0.000
14	400065.000	736.205	2.486	0.000	0.000
15	400070.000	736.329	2.486	0.000	0.000
16	400075.000	736.454	2.486	0.000	0.000
17	400080.000	736.578	2.486	0.000	0.000
18	400085.000	736.702	2.486	0.000	0.000
19	400090.000	736.826	2.486	0.000	0.000
20	400095.000	736.951	2.486	0.000	0.000
21	400100.000	737.075	2.486	0.000	0.000
22	400105.000	737.199	2.486	0.000	0.000
23	400110.000	737.324	2.486	0.000	0.000
24	400115.000	737.448	2.486	0.000	0.000
25	400120.000	737.572	2.486	0.000	0.000
26	400125.000	737.697	2.486	0.000	0.000
27	400130.000	737.821	2.486	0.000	0.000
28	400135.000	737.945	2.486	0.000	0.000
29	400140.000	738.069	2.486	0.000	0.000
30	400145.000	738.194	2.486	0.000	0.000
31	400150.000	738.318	2.486	0.000	0.000
32	400155.000	738.442	2.486	0.000	0.000
33	400160.000	738.567	2.486	0.000	0.000
34	400165.000	738.691	2.486	0.000	0.000
35	400170.000	738.815	2.486	0.000	0.000
36	400175.000	738.940	2.486	0.000	0.000
37	400180.000	739.064	2.486	0.000	0.000
38	400185.000	739.188	2.486	0.000	0.000
39	400190.000	739.312	2.486	0.000	0.000
40	400195.000	739.437	2.486	0.000	0.000
41	400200.000	739.561	2.486	0.000	0.000
42	400205.000	739.685	2.486	0.000	0.000
43	400210.000	739.810	2.486	0.000	0.000
44	400215.000	739.934	2.486	0.000	0.000
45	400220.000	740.058	2.486	0.000	0.000
46	400225.000	740.183	2.486	0.000	0.000
47	400230.000	740.307	2.486	0.000	0.000
48	400235.000	740.431	2.486	0.000	0.000
49	400240.000	740.555	2.486	0.000	0.000
50	400245.000	740.680	2.486	0.000	0.000
51	400250.000	740.804	2.486	0.000	0.000
52	400255.000	740.928	2.486	0.000	0.000
53	400260.000	741.053	2.486	0.000	0.000
54	400265.000	741.177	2.486	0.000	0.000
55	400270.000	741.301	2.486	0.000	0.000
56	400275.000	741.426	2.486	0.000	0.000
57	400280.000	741.550	2.486	0.000	0.000
58	400285.000	741.674	2.486	0.000	0.000
59	400290.000	741.799	2.486	0.000	0.000
60	400295.000	741.923	2.486	0.000	0.000
61	400300.000	742.047	2.486	0.000	0.000
62	400305.000	742.171	2.486	0.000	0.000
63	400310.000	742.296	2.486	0.000	0.000
64	400315.000	742.420	2.486	0.000	0.000
65	400320.000	742.544	2.486	0.000	0.000
66	400325.000	742.669	2.486	0.000	0.000
67	400330.000	742.793	2.486	0.000	0.000
68	400335.000	742.917	2.486	0.000	0.000
69	400340.000	743.042	2.486	0.000	0.000
70	400345.000	743.166	2.486	0.000	0.000
71	400350.000	743.290	2.486	0.000	0.000
72	400355.000	743.414	2.486	0.000	0.000
73	400360.000	743.539	2.486	0.000	0.000
74	400365.000	743.663	2.486	0.000	0.000
75	400370.000	743.787	2.486	0.000	0.000
76	400375.000	743.912	2.486	0.000	0.000
77	400380.000	744.036	2.486	0.000	0.000
78	400385.000	744.160	2.486	0.000	0.000
79	400390.000	744.285	2.486	0.000	0.000
80	400395.000	744.409	2.486	0.000	0.000
81	400400.000	744.533	2.486	0.000	0.000
82	400405.000	744.657	2.486	0.000	0.000
83	400410.000	744.782	2.486	0.000	0.000
84	400415.000	744.906	2.486	0.000	0.000
85	400420.000	745.030	2.486	0.000	0.000
86	400425.000	745.155	2.486	0.000	0.000
87	400430.000	745.279	2.486	0.000	0.000
88	400435.000	745.403	2.486	0.000	0.000
89	400440.000	745.528	2.486	0.000	0.000
90	400445.000	745.652	2.486	0.000	0.000
91	400450.000	745.776	2.486	0.000	0.000
92	400455.000	745.900	2.486	0.000	0.000
93	400460.000	746.025	2.486	0.000	0.000
94	400465.000	746.149	2.486	0.000	0.000
95	400470.000	746.273	2.486	0.000	0.000
96	400475.000	746.398	2.486	0.000	0.000
97	400480.000	746.522	2.486	0.000	0.000
98	400485.000	746.646	2.486	0.000	0.000
99	400490.000	746.771	2.486	0.000	0.000
100	400495.000	746.895	2.486	0.000	0.000
101	400500.000	747.019	2.486	0.000	0.000
102	400505.000	747.144	2.486	0.000	0.000
103	400510.000	747.268	2.486	0.000	0.000
104	400515.000	747.392	2.486	0.000	0.000
105	400520.000	747.516	2.486	0.000	0.000
106	400525.000	747.641	2.486	0.000	0.000
107	400530.000	747.765	2.486	0.000	0.000
108	400535.000	747.889	2.486	0.000	0.000
109	400540.000	748.014	2.486	0.000	0.000
110	400545.000	748.138	2.486	0.000	0.000
111	400550.000	748.262	2.486	0.000	0.000
112	400555.000	748.387	2.486	0.000	0.000
113	400560.000	748.511	2.486	0.000	0.000
114	400565.000	748.635	2.486	0.000	0.000
115	400570.000	748.759	2.486	0.000	0.000
116	400575.000	748.884	2.486	0.000	0.000
117	400580.000	749.008	2.486	0.000	0.000
118	400585.000	749.132	2.486	0.000	0.000

119	400590.000	749.257	2.486	0.000	0.000
120	400595.000	749.381	2.486	0.000	0.000
121	400600.000	749.505	2.486	0.000	0.000
122	400605.000	749.630	2.486	0.000	0.000
123	400610.000	749.754	2.486	0.000	0.000
124	400615.000	749.878	2.486	0.000	0.000
125	400620.000	750.002	2.486	0.000	0.000
126	400625.000	750.127	2.486	0.000	0.000
127	400630.000	750.251	2.486	0.000	0.000
128	400635.000	750.375	2.486	0.000	0.000
129	400640.000	750.500	2.486	0.000	0.000
130	400645.000	750.624	2.486	0.000	0.000
131	400650.000	750.748	2.486	0.000	0.000
132	400655.000	750.873	2.486	0.000	0.000
133	400660.000	750.997	2.486	0.000	0.000
134	400665.000	751.121	2.486	0.000	0.000
135	400670.000	751.245	2.486	0.000	0.000
136	400675.000	751.370	2.486	0.000	0.000
137	400680.000	751.494	2.486	0.000	0.000
138	400685.000	751.618	2.486	0.000	0.000
139	400690.000	751.743	2.486	0.000	0.000
140	400695.000	751.867	2.486	0.000	0.000
141	400700.000	751.991	2.486	0.000	0.000
142	400705.000	752.116	2.486	0.000	0.000
143	400710.000	752.240	2.486	0.000	0.000
144	400715.000	752.364	2.486	0.000	0.000
145	400720.000	752.488	2.486	0.000	0.000
146	400725.000	752.613	2.486	0.000	0.000
147	400730.000	752.737	2.486	0.000	0.000
148	400735.000	752.861	2.486	0.000	0.000
149	400740.000	752.986	2.486	0.000	0.000
150	400745.000	753.110	2.486	0.000	0.000
151	400750.000	753.234	2.486	0.000	0.000
152	400755.000	753.359	2.486	0.000	0.000
153	400760.000	753.483	2.486	0.000	0.000
154	400765.000	753.607	2.486	0.000	0.000
155	400770.000	753.732	2.486	0.000	0.000
156	400775.000	753.856	2.486	0.000	0.000
157	400780.000	753.980	2.486	0.000	0.000
158	400785.000	754.104	2.486	0.000	0.000
159	400790.000	754.229	2.486	0.000	0.000
160	400795.000	754.353	2.486	0.000	0.000
161	400800.000	754.477	2.486	0.000	0.000
162	400805.000	754.602	2.486	0.000	0.000
163	400810.000	754.726	2.486	0.000	0.000
164	400815.000	754.850	2.486	0.000	0.000
165	400820.000	754.975	2.486	0.000	0.000
166	400825.000	755.099	2.486	0.000	0.000
167	400830.000	755.223	2.486	0.000	0.000
168	400835.000	755.347	2.486	0.000	0.000
169	400840.000	755.472	2.486	0.000	0.000
170	400845.000	755.596	2.486	0.000	0.000
171	400850.000	755.720	2.486	0.000	0.000
172	400855.000	755.845	2.486	0.000	0.000
173	400860.000	755.969	2.486	0.000	0.000
174	400865.000	756.093	2.486	0.000	0.000
175	400870.000	756.218	2.486	0.000	0.000
176	400875.000	756.342	2.486	0.000	0.000
177	400880.000	756.466	2.486	0.000	0.000
178	400885.000	756.590	2.486	0.000	0.000
179	400890.000	756.715	2.486	0.000	0.000
180	400895.000	756.839	2.486	0.000	0.000
181	400900.000	756.963	2.486	0.000	0.000
182	400905.000	757.088	2.486	0.000	0.000
183	400910.000	757.212	2.486	0.000	0.000
184	400915.000	757.336	2.486	0.000	0.000
185	400920.000	757.461	2.486	0.000	0.000
186	400925.000	757.585	2.486	0.000	0.000
187	400930.000	757.709	2.486	0.000	0.000
188	400935.000	757.833	2.486	0.000	0.000
189	400940.000	757.958	2.486	0.000	0.000
190	400945.000	758.082	2.486	0.000	0.000
191	400950.000	758.206	2.486	0.000	0.000
192	400955.000	758.331	2.486	0.000	0.000
193	400960.000	758.455	2.486	0.000	0.000
194	400965.000	758.579	2.486	0.000	0.000
195	400970.000	758.704	2.486	0.000	0.000
196	400975.000	758.828	2.486	0.000	0.000
197	400980.000	758.952	2.486	0.000	0.000
198	400985.000	759.077	2.486	0.000	0.000
199	400990.000	759.201	2.486	0.000	0.000
200	400995.000	759.325	2.486	0.000	0.000
201	401000.000	759.449	2.486	0.000	0.000
202	401005.000	759.574	2.486	0.000	0.000
203	401010.000	759.698	2.486	0.000	0.000
204	401015.000	759.822	2.486	0.000	0.000
205	401020.000	759.947	2.486	0.000	0.000
206	401025.000	760.071	2.486	0.000	0.000
207	401030.000	760.195	2.486	0.000	0.000
208	401035.000	760.320	2.486	0.000	0.000
209	401040.000	760.444	2.486	0.000	0.000
210	401045.000	760.568	2.486	0.000	0.000
211	401050.000	760.692	2.486	0.000	0.000
212	401055.000	760.817	2.486	0.000	0.000
213	401060.000	760.941	2.486	0.000	0.000
214	401065.000	761.065	2.486	0.000	0.000
215	401070.000	761.190	2.486	0.000	0.000
216	401075.000	761.314	2.486	0.000	0.000
217	401080.000	761.438	2.486	0.000	0.000
218	401085.000	761.563	2.486	0.000	0.000
219	401090.000	761.687	2.486	0.000	0.000
220	401095.000	761.811	2.486	0.000	0.000
221	401100.000	761.935	2.486	0.000	0.000
222	401105.000	762.060	2.486	0.000	0.000
223	401110.000	762.184	2.486	0.000	0.000
224	401115.000	762.308	2.486	0.000	0.000
225	401120.000	762.433	2.486	0.000	0.000
226	401125.000	762.557	2.486	0.000	0.000
227	401130.000	762.681	2.486	0.000	0.000
228	401135.000	762.806	2.486	0.000	0.000
229	401140.000	762.930	2.486	0.000	0.000
230	401145.000	763.054	2.486	0.000	0.000
231	401150.000	763.178	2.486	0.000	0.000
232	401155.000	763.303	2.486	0.000	0.000
233	401160.000	763.427	2.486	0.000	0.000
234	401165.000	763.551	2.486	0.000	0.000
235	401170.000	763.676	2.486	0.000	0.000
236	401175.000	763.800	2.486	0.000	0.000
237	401180.000	763.924	2.486	0.000	0.000
238	401185.000	764.049	2.486	0.000	0.000
239	401190.000	764.173	2.486	0.000	0.000
240	401195.000	764.297	2.486	0.000	0.000
241	401200.000	764.421	2.486	0.000	0.000
242	401205.000	764.546	2.486	0.000	0.000
243	401210.000	764.670	2.486	0.000	0.000
244	401215.000	764.794	2.486	0.000	0.000
245	401220.000	764.919	2.486	0.000	0.000
246	401225.000	765.043	2.486	0.000	0.000
247	401230.000	765.167	2.486	0.000	0.000
248	401235.000	765.292	2.486	0.000	0.000
249	401240.000	765.416	2.486	0.000	0.000
250	401245.000	765.540	2.486	0.000	0.000
251	401250.000	765.665	2.486	0.000	0.000
252	401255.000	765.789	2.486	0.000	0.000
253	401260.000	765.913	2.486	0.000	0.000
254	401265.000	766.037	2.486	0.000	0.000
255	401270.000	766.162	2.486	0.000	0.000
256	401275.000	766.286	2.486	0.000	0.000
257	401280.000	766.410	2.486	0.000	0.000
258	401285.000	766.535	2.486	0.000	0.000

259	401290.000	766.659	2.486	0.000	0.000
260	401295.000	766.783	2.486	0.000	0.000
261	401300.000	766.908	2.486	0.000	0.000
262	401305.000	767.032	2.486	0.000	0.000
263	401310.000	767.156	2.486	0.000	0.000
264	401315.000	767.280	2.486	0.000	0.000
265	401320.000	767.405	2.486	0.000	0.000
266	401325.000	767.529	2.486	0.000	0.000
267	401330.000	767.653	2.486	0.000	0.000
268	401335.000	767.778	2.486	0.000	0.000
269	401340.000	767.902	2.486	0.000	0.000
270	401345.000	768.026	2.486	0.000	0.000
271	401350.000	768.151	2.486	0.000	0.000
272	401355.000	768.275	2.486	0.000	0.000
273	401360.000	768.399	2.486	0.000	0.000
274	401365.000	768.523	2.486	0.000	0.000
275	401370.000	768.648	2.486	0.000	0.000
276	401375.000	768.772	2.486	0.000	0.000
277	401380.000	768.896	2.486	0.000	0.000
278	401385.000	769.021	2.486	0.000	0.000
279	401390.000	769.145	2.486	0.000	0.000
280	401395.000	769.269	2.486	0.000	0.000
281	401400.000	769.394	2.486	0.000	0.000
282	401405.000	769.518	2.486	0.000	0.000
283	401410.000	769.642	2.486	0.000	0.000
284	401415.000	769.766	2.486	0.000	0.000
285	401420.000	769.891	2.486	0.000	0.000
286	401425.000	770.015	2.486	0.000	0.000
287	401430.000	770.139	2.486	0.000	0.000
288	401435.000	770.264	2.486	0.000	0.000
289	401440.000	770.388	2.486	0.000	0.000
290	401445.000	770.512	2.486	0.000	0.000
291	401450.000	770.637	2.486	0.000	0.000
292	401455.000	770.761	2.486	0.000	0.000
293	401460.000	770.885	2.486	0.000	0.000
294	401465.000	771.009	2.486	0.000	0.000
295	401470.000	771.134	2.486	0.000	0.000
296	401475.000	771.258	2.486	0.000	0.000
297	401480.000	771.382	2.486	0.000	0.000
298	401485.000	771.507	2.486	0.000	0.000
299	401490.000	771.631	2.486	0.000	0.000
300	401495.000	771.755	2.486	0.000	0.000
301	401500.000	771.880	2.486	0.000	0.000
302	401505.000	772.004	2.486	0.000	0.000
303	401510.000	772.128	2.486	0.000	0.000
304	401515.000	772.253	2.486	0.000	0.000
305	401520.000	772.377	2.486	0.000	0.000
306	401525.000	772.501	2.486	0.000	0.000
307	401530.000	772.625	2.486	0.000	0.000
308	401535.000	772.750	2.486	0.000	0.000
309	401540.000	772.874	2.486	0.000	0.000
310	401545.000	772.998	2.486	0.000	0.000
311	401550.000	773.123	2.486	0.000	0.000
312	401555.000	773.247	2.486	0.000	0.000
313	401560.000	773.371	2.486	0.000	0.000
314	401565.000	773.496	2.486	0.000	0.000
315	401570.000	773.620	2.486	0.000	0.000
316	401575.000	773.744	2.486	0.000	0.000
317	401580.000	773.868	2.486	0.000	0.000
318	401585.000	773.993	2.486	0.000	0.000
319	401590.000	774.117	2.486	0.000	0.000
320	401595.000	774.241	2.486	0.000	0.000
321	401600.000	774.366	2.486	0.000	0.000
322	401605.000	774.490	2.486	0.000	0.000
323	401610.000	774.614	2.486	0.000	0.000
324	401615.000	774.739	2.486	0.000	0.000
325	401620.000	774.863	2.486	0.000	0.000
326	401625.000	774.987	2.486	0.000	0.000
327	401630.000	775.111	2.486	0.000	0.000
328	401635.000	775.236	2.486	0.000	0.000
329	401640.000	775.360	2.486	0.000	0.000
330	401645.000	775.484	2.486	0.000	0.000
331	401650.000	775.609	2.486	0.000	0.000
332	401655.000	775.733	2.486	0.000	0.000
333	401660.000	775.857	2.486	0.000	0.000
334	401665.000	775.982	2.486	0.000	0.000
335	401670.000	776.106	2.486	0.000	0.000
336	401675.000	776.230	2.486	0.000	0.000
337	401680.000	776.354	2.486	0.000	0.000
338	401685.000	776.479	2.486	0.000	0.000
339	401690.000	776.603	2.486	0.000	0.000
340	401695.000	776.727	2.486	0.000	0.000
341	401700.000	776.852	2.486	0.000	0.000
342	401705.000	776.976	2.486	0.000	0.000
343	401710.000	777.100	2.486	0.000	0.000
344	401715.000	777.225	2.486	0.000	0.000
345	401720.000	777.349	2.486	0.000	0.000
346	401725.000	777.473	2.486	0.000	0.000
347	401730.000	777.598	2.486	0.000	0.000
348	401735.000	777.722	2.486	0.000	0.000
349	401740.000	777.846	2.486	0.000	0.000
350	401745.000	777.970	2.486	0.000	0.000
351	401750.000	778.095	2.486	0.000	0.000
352	401755.000	778.219	2.486	0.000	0.000
353	401760.000	778.343	2.486	0.000	0.000
354	401765.000	778.468	2.486	0.000	0.000
355	401770.000	778.592	2.486	0.000	0.000
356	401775.000	778.716	2.486	0.000	0.000
357	401780.000	778.841	2.486	0.000	0.000
358	401785.000	778.965	2.486	0.000	0.000
359	401790.000	779.089	2.486	0.000	0.000
360	401795.000	779.213	2.486	0.000	0.000
361	401800.000	779.338	2.486	0.000	0.000
362	401805.000	779.462	2.486	0.000	0.000
363	401810.000	779.586	2.486	0.000	0.000
364	401815.000	779.711	2.486	0.000	0.000
365	401820.000	779.835	2.486	0.000	0.000
366	401825.000	779.959	2.486	0.000	0.000
367	401830.000	780.084	2.486	0.000	0.000
368	401835.000	780.208	2.486	0.000	0.000
369	401840.000	780.332	2.486	0.000	0.000
370	401845.000	780.456	2.486	0.000	0.000
371	401850.000	780.581	2.486	0.000	0.000
372	401855.000	780.705	2.486	0.000	0.000
373	401860.000	780.829	2.486	0.000	0.000
374	401865.000	780.954	2.486	0.000	0.000
375	401870.000	781.078	2.486	0.000	0.000
376	401875.000	781.202	2.486	0.000	0.000
377	401880.000	781.327	2.486	0.000	0.000
378	401885.000	781.451	2.486	0.000	0.000
379	401890.000	781.575	2.486	0.000	0.000
380	401895.000	781.699	2.486	0.000	0.000
381	401900.000	781.824	2.486	0.000	0.000
382	401905.000	781.948	2.486	0.000	0.000
383	401910.000	782.072	2.486	0.000	0.000
384	401915.000	782.197	2.486	0.000	0.000
385	401920.000	782.321	2.486	0.000	0.000
386	401925.000	782.445	2.486	0.000	0.000
387	401930.000	782.570	2.486	0.000	0.000
388	401935.000	782.694	2.486	0.000	0.000
389	401940.000	782.818	2.486	0.000	0.000
390	401945.000	782.942	2.486	0.000	0.000
391	401950.000	783.067	2.486	0.000	0.000
392	401955.000	783.191	2.486	0.000	0.000
393	401960.000	783.315	2.486	0.000	0.000
394	401965.000	783.440	2.486	0.000	0.000
395	401970.000	783.564	2.486	0.000	0.000
396	401975.000	783.688	2.486	0.000	0.000
397	401980.000	783.813	2.486	0.000	0.000
398	401985.000	783.937	2.486	0.000	0.000

399	401990.000	784.061	2.486	0.000	0.000
400	401995.000	784.186	2.486	0.000	0.000
401	402000.000	784.310	2.486	0.000	0.000
402	402005.000	784.434	2.486	0.000	0.000
403	402010.000	784.558	2.486	0.000	0.000
404	402015.000	784.683	2.486	0.000	0.000
405	402020.000	784.807	2.486	0.000	0.000
406	402025.000	784.931	2.486	0.000	0.000
407	402030.000	785.056	2.486	0.000	0.000
408	402035.000	785.180	2.486	0.000	0.000
409	402040.000	785.304	2.486	0.000	0.000
410	402045.000	785.429	2.486	0.000	0.000
411	402050.000	785.553	2.486	0.000	0.000
412	402055.000	785.677	2.486	0.000	0.000
413	402060.000	785.801	2.486	0.000	0.000
414	402065.000	785.926	2.486	0.000	0.000
415	402070.000	786.050	2.486	0.000	0.000
416	402075.000	786.174	2.486	0.000	0.000
417	402080.000	786.299	2.486	0.000	0.000
418	402085.000	786.423	2.486	0.000	0.000
419	402090.000	786.547	2.486	0.000	0.000
420	402095.000	786.672	2.486	0.000	0.000
421	402100.000	786.796	2.486	0.000	0.000
422	402105.000	786.920	2.486	0.000	0.000
423	402110.000	787.044	2.486	0.000	0.000
424	402115.000	787.169	2.486	0.000	0.000
425	402120.000	787.293	2.479	0.000	0.000
426	402125.000	787.417	2.468	0.000	0.000
427	402130.000	787.540	2.457	0.000	0.000
428	402135.000	787.662	2.446	0.000	0.000
429	402140.000	787.784	2.434	0.000	0.000
430	402145.000	787.906	2.423	0.000	0.000
431	402150.000	788.027	2.412	0.000	0.000
432	402155.000	788.147	2.401	0.000	0.000
433	402160.000	788.267	2.390	0.000	0.000
434	402165.000	788.386	2.379	0.000	0.000
435	402170.000	788.505	2.368	0.000	0.000
436	402175.000	788.623	2.357	0.000	0.000
437	402180.000	788.740	2.346	0.000	0.000
438	402185.000	788.857	2.334	0.000	0.000
439	402190.000	788.974	2.323	0.000	0.000
440	402195.000	789.090	2.312	0.000	0.000
441	402200.000	789.205	2.301	0.000	0.000
442	402205.000	789.320	2.290	0.000	0.000
443	402210.000	789.434	2.279	0.000	0.000
444	402215.000	789.548	2.268	0.000	0.000
445	402220.000	789.661	2.257	0.000	0.000
446	402225.000	789.773	2.246	0.000	0.000
447	402230.000	789.885	2.234	0.000	0.000
448	402235.000	789.997	2.223	0.000	0.000
449	402240.000	790.108	2.212	0.000	0.000
450	402245.000	790.218	2.201	0.000	0.000
451	402250.000	790.328	2.190	0.000	0.000
452	402255.000	790.437	2.179	0.000	0.000
453	402260.000	790.546	2.168	0.000	0.000
454	402265.000	790.654	2.157	0.000	0.000
455	402270.000	790.761	2.146	0.000	0.000
456	402275.000	790.868	2.134	0.000	0.000
457	402280.000	790.975	2.123	0.000	0.000
458	402285.000	791.081	2.112	0.000	0.000
459	402290.000	791.186	2.101	0.000	0.000
460	402295.000	791.291	2.090	0.000	0.000
461	402300.000	791.395	2.079	0.000	0.000
462	402305.000	791.499	2.068	0.000	0.000
463	402310.000	791.602	2.057	0.000	0.000
464	402315.000	791.704	2.046	0.000	0.000
465	402320.000	791.806	2.034	0.000	0.000
466	402325.000	791.908	2.023	0.000	0.000
467	402330.000	792.009	2.012	0.000	0.000
468	402335.000	792.109	2.001	0.000	0.000
469	402340.000	792.209	1.990	0.000	0.000
470	402345.000	792.308	1.979	0.000	0.000
471	402350.000	792.407	1.968	0.000	0.000
472	402355.000	792.505	1.957	0.000	0.000
473	402360.000	792.602	1.946	0.000	0.000
474	402365.000	792.699	1.934	0.000	0.000
475	402370.000	792.796	1.923	0.000	0.000
476	402375.000	792.892	1.912	0.000	0.000
477	402380.000	792.987	1.901	0.000	0.000
478	402385.000	793.082	1.890	0.000	0.000
479	402390.000	793.176	1.879	0.000	0.000
480	402395.000	793.270	1.868	0.000	0.000
481	402400.000	793.363	1.857	0.000	0.000
482	402405.000	793.455	1.846	0.000	0.000
483	402410.000	793.547	1.834	0.000	0.000
484	402415.000	793.639	1.823	0.000	0.000
485	402420.000	793.730	1.812	0.000	0.000
486	402425.000	793.820	1.801	0.000	0.000
487	402430.000	793.910	1.790	0.000	0.000
488	402435.000	793.999	1.779	0.000	0.000
489	402440.000	794.088	1.768	0.000	0.000
490	402445.000	794.176	1.757	0.000	0.000
491	402450.000	794.263	1.746	0.000	0.000
492	402455.000	794.350	1.734	0.000	0.000
493	402460.000	794.437	1.723	0.000	0.000
494	402465.000	794.523	1.712	0.000	0.000
495	402470.000	794.608	1.701	0.000	0.000
496	402475.000	794.693	1.700	0.000	0.000
497	402480.000	794.778	1.700	0.000	0.000
498	402485.000	794.863	1.700	0.000	0.000
499	402490.000	794.948	1.700	0.000	0.000
500	402495.000	795.033	1.700	0.000	0.000
501	402500.000	795.118	1.700	0.000	0.000
502	402505.000	795.203	1.700	0.000	0.000
503	402510.000	795.288	1.700	0.000	0.000
504	402515.000	795.373	1.700	0.000	0.000
505	402520.000	795.458	1.700	0.000	0.000
506	402525.000	795.543	1.700	0.000	0.000
507	402530.000	795.628	1.700	0.000	0.000
508	402535.000	795.713	1.700	0.000	0.000
509	402540.000	795.798	1.700	0.000	0.000
510	402545.000	795.883	1.700	0.000	0.000
511	402550.000	795.968	1.700	0.000	0.000
512	402555.000	796.053	1.700	0.000	0.000
513	402560.000	796.138	1.700	0.000	0.000
514	402565.000	796.223	1.700	0.000	0.000
515	402570.000	796.308	1.700	0.000	0.000
516	402575.000	796.393	1.700	0.000	0.000
517	402580.000	796.478	1.700	0.000	0.000
518	402585.000	796.563	1.700	0.000	0.000
519	402590.000	796.648	1.700	0.000	0.000
520	402595.000	796.733	1.700	0.000	0.000
521	402600.000	796.818	1.700	0.000	0.000
522	402605.000	796.903	1.700	0.000	0.000
523	402610.000	796.988	1.700	0.000	0.000
524	402615.000	797.073	1.700	0.000	0.000
525	402620.000	797.158	1.700	0.000	0.000
526	402625.000	797.243	1.700	0.000	0.000
527	402630.000	797.328	1.700	0.000	0.000
528	402635.000	797.413	1.700	0.000	0.000
529	402640.000	797.498	1.700	0.000	0.000
530	402645.000	797.583	1.700	0.000	0.000
531	402650.000	797.668	1.700	0.000	0.000
532	402655.000	797.753	1.700	0.000	0.000
533	402660.000	797.838	1.700	0.000	0.000
534	402665.000	797.923	1.700	0.000	0.000
535	402670.000	798.008	1.700	0.000	0.000
536	402675.000	798.093	1.700	0.000	0.000
537	402680.000	798.178	1.700	0.000	0.000
538	402685.000	798.263	1.700	0.000	0.000

539	402690.000	798.348	1.700	0.000	0.000
540	402695.000	798.433	1.700	0.000	0.000
541	402700.000	798.518	1.700	0.000	0.000
542	402705.000	798.603	1.700	0.000	0.000
543	402710.000	798.688	1.700	0.000	0.000
544	402715.000	798.773	1.700	0.000	0.000
545	402720.000	798.858	1.700	0.000	0.000
546	402725.000	798.943	1.700	0.000	0.000
547	402730.000	799.028	1.700	0.000	0.000
548	402735.000	799.113	1.700	0.000	0.000
549	402740.000	799.198	1.700	0.000	0.000
550	402745.000	799.283	1.700	0.000	0.000
551	402750.000	799.368	1.700	0.000	0.000
552	402755.000	799.453	1.700	0.000	0.000
553	402760.000	799.538	1.700	0.000	0.000
554	402765.000	799.623	1.700	0.000	0.000
555	402770.000	799.708	1.700	0.000	0.000
556	402775.000	799.793	1.700	0.000	0.000
557	402780.000	799.878	1.700	0.000	0.000
558	402785.000	799.963	1.700	0.000	0.000
559	402790.000	800.048	1.700	0.000	0.000
560	402795.000	800.133	1.700	0.000	0.000
561	402800.000	800.218	1.700	0.000	0.000
562	402805.000	800.303	1.700	0.000	0.000
563	402810.000	800.388	1.700	0.000	0.000
564	402815.000	800.473	1.700	0.000	0.000
565	402820.000	800.558	1.700	0.000	0.000
566	402825.000	800.643	1.700	0.000	0.000
567	402830.000	800.728	1.700	0.000	0.000
568	402835.000	800.813	1.700	0.000	0.000
569	402840.000	800.898	1.700	0.000	0.000
570	402845.000	800.983	1.700	0.000	0.000
571	402850.000	801.068	1.700	0.000	0.000
572	402855.000	801.153	1.700	0.000	0.000
573	402860.000	801.238	1.700	0.000	0.000
574	402865.000	801.323	1.700	0.000	0.000
575	402870.000	801.408	1.700	0.000	0.000
576	402875.000	801.493	1.700	0.000	0.000
577	402880.000	801.578	1.700	0.000	0.000
578	402885.000	801.663	1.700	0.000	0.000
579	402890.000	801.748	1.700	0.000	0.000
580	402895.000	801.833	1.700	0.000	0.000
581	402900.000	801.918	1.700	0.000	0.000
582	402905.000	802.003	1.700	0.000	0.000
583	402910.000	802.088	1.700	0.000	0.000
584	402915.000	802.173	1.700	0.000	0.000
585	402920.000	802.258	1.700	0.000	0.000
586	402925.000	802.343	1.700	0.000	0.000
587	402930.000	802.428	1.700	0.000	0.000
588	402935.000	802.513	1.700	0.000	0.000
589	402940.000	802.598	1.700	0.000	0.000
590	402945.000	802.683	1.700	0.000	0.000
591	402950.000	802.768	1.700	0.000	0.000
592	402955.000	802.853	1.700	0.000	0.000
593	402960.000	802.938	1.700	0.000	0.000
594	402965.000	803.023	1.700	0.000	0.000
595	402970.000	803.108	1.700	0.000	0.000
596	402975.000	803.193	1.700	0.000	0.000
597	402980.000	803.278	1.700	0.000	0.000
598	402985.000	803.363	1.700	0.000	0.000
599	402990.000	803.448	1.700	0.000	0.000
600	402995.000	803.533	1.700	0.000	0.000
601	403000.000	803.618	1.700	0.000	0.000
602	403005.000	803.703	1.700	0.000	0.000
603	403010.000	803.788	1.700	0.000	0.000
604	403015.000	803.873	1.700	0.000	0.000
605	403020.000	803.958	1.700	0.000	0.000
606	403025.000	804.043	1.700	0.000	0.000
607	403030.000	804.128	1.700	0.000	0.000
608	403035.000	804.213	1.700	0.000	0.000
609	403040.000	804.298	1.700	0.000	0.000
610	403045.000	804.383	1.700	0.000	0.000
611	403050.000	804.468	1.700	0.000	0.000
612	403055.000	804.553	1.700	0.000	0.000
613	403060.000	804.638	1.700	0.000	0.000
614	403065.000	804.723	1.700	0.000	0.000
615	403070.000	804.808	1.700	0.000	0.000
616	403075.000	804.893	1.700	0.000	0.000
617	403080.000	804.978	1.700	0.000	0.000
618	403085.000	805.063	1.700	0.000	0.000
619	403090.000	805.148	1.700	0.000	0.000
620	403095.000	805.233	1.700	0.000	0.000
621	403100.000	805.318	1.700	0.000	0.000
622	403105.000	805.403	1.700	0.000	0.000
623	403110.000	805.488	1.700	0.000	0.000
624	403115.000	805.573	1.700	0.000	0.000
625	403120.000	805.658	1.700	0.000	0.000
626	403125.000	805.743	1.700	0.000	0.000
627	403130.000	805.828	1.700	0.000	0.000
628	403135.000	805.913	1.700	0.000	0.000
629	403140.000	805.998	1.700	0.000	0.000
630	403145.000	806.083	1.700	0.000	0.000
631	403150.000	806.168	1.700	0.000	0.000
632	403155.000	806.253	1.700	0.000	0.000
633	403160.000	806.338	1.700	0.000	0.000
634	403165.000	806.423	1.700	0.000	0.000
635	403170.000	806.508	1.700	0.000	0.000
636	403175.000	806.593	1.700	0.000	0.000
637	403180.000	806.678	1.700	0.000	0.000
638	403185.000	806.763	1.700	0.000	0.000
639	403190.000	806.848	1.700	0.000	0.000
640	403195.000	806.933	1.700	0.000	0.000
641	403200.000	807.018	1.700	0.000	0.000
642	403205.000	807.103	1.700	0.000	0.000
643	403210.000	807.188	1.705	0.000	0.000
644	403215.000	807.273	1.716	0.000	0.000
645	403220.000	807.359	1.727	0.000	0.000
646	403225.000	807.446	1.738	0.000	0.000
647	403230.000	807.533	1.749	0.000	0.000
648	403235.000	807.621	1.760	0.000	0.000
649	403240.000	807.709	1.771	0.000	0.000
650	403245.000	807.798	1.782	0.000	0.000
651	403250.000	807.887	1.793	0.000	0.000
652	403255.000	807.977	1.805	0.000	0.000
653	403260.000	808.068	1.816	0.000	0.000
654	403265.000	808.159	1.827	0.000	0.000
655	403270.000	808.251	1.838	0.000	0.000
656	403275.000	808.343	1.849	0.000	0.000
657	403280.000	808.435	1.860	0.000	0.000
658	403285.000	808.529	1.871	0.000	0.000
659	403290.000	808.623	1.882	0.000	0.000
660	403295.000	808.717	1.893	0.000	0.000
661	403300.000	808.812	1.905	0.000	0.000
662	403305.000	808.907	1.916	0.000	0.000
663	403310.000	809.004	1.927	0.000	0.000
664	403315.000	809.100	1.938	0.000	0.000
665	403320.000	809.197	1.949	0.000	0.000
666	403325.000	809.295	1.960	0.000	0.000
667	403330.000	809.393	1.971	0.000	0.000
668	403335.000	809.492	1.982	0.000	0.000
669	403340.000	809.592	1.993	0.000	0.000
670	403345.000	809.691	2.005	0.000	0.000
671	403350.000	809.792	2.016	0.000	0.000
672	403355.000	809.893	2.027	0.000	0.000
673	403360.000	809.995	2.038	0.000	0.000
674	403365.000	810.097	2.049	0.000	0.000
675	403370.000	810.200	2.060	0.000	0.000
676	403375.000	810.303	2.071	0.000	0.000
677	403380.000	810.407	2.082	0.000	0.000
678	403385.000	810.511	2.093	0.000	0.000

679	403390.000	810.616	2.105	0.000	0.000
680	403395.000	810.722	2.116	0.000	0.000
681	403400.000	810.828	2.127	0.000	0.000
682	403405.000	810.934	2.138	0.000	0.000
683	403410.000	811.041	2.149	0.000	0.000
684	403415.000	811.149	2.160	0.000	0.000
685	403420.000	811.257	2.171	0.000	0.000
686	403425.000	811.366	2.182	0.000	0.000
687	403430.000	811.476	2.193	0.000	0.000
688	403435.000	811.586	2.205	0.000	0.000
689	403440.000	811.696	2.216	0.000	0.000
690	403445.000	811.807	2.227	0.000	0.000
691	403450.000	811.919	2.238	0.000	0.000
692	403455.000	812.031	2.249	0.000	0.000
693	403460.000	812.144	2.260	0.000	0.000
694	403465.000	812.257	2.271	0.000	0.000
695	403470.000	812.371	2.282	0.000	0.000
696	403475.000	812.485	2.293	0.000	0.000
697	403480.000	812.600	2.305	0.000	0.000
698	403485.000	812.716	2.316	0.000	0.000
699	403490.000	812.832	2.327	0.000	0.000
700	403495.000	812.948	2.338	0.000	0.000
701	403500.000	813.066	2.349	0.000	0.000
702	403505.000	813.183	2.360	0.000	0.000
703	403510.000	813.302	2.371	0.000	0.000
704	403515.000	813.420	2.382	0.000	0.000
705	403520.000	813.540	2.393	0.000	0.000
706	403525.000	813.660	2.400	0.000	0.000
707	403530.000	813.780	2.400	0.000	0.000
708	403535.000	813.900	2.400	0.000	0.000
709	403540.000	814.020	2.400	0.000	0.000
710	403545.000	814.140	2.400	0.000	0.000
711	403550.000	814.260	2.400	0.000	0.000
712	403555.000	814.380	2.400	0.000	0.000
713	403560.000	814.500	2.400	0.000	0.000
714	403565.000	814.620	2.400	0.000	0.000
715	403570.000	814.740	2.400	0.000	0.000
716	403575.000	814.860	2.400	0.000	0.000
717	403580.000	814.980	2.400	0.000	0.000
718	403585.000	815.100	2.400	0.000	0.000
719	403590.000	815.220	2.400	0.000	0.000
720	403595.000	815.340	2.400	0.000	0.000
721	403600.000	815.460	2.400	0.000	0.000
722	403605.000	815.580	2.400	0.000	0.000
723	403610.000	815.700	2.400	0.000	0.000
724	403615.000	815.820	2.400	0.000	0.000
725	403620.000	815.940	2.400	0.000	0.000
726	403625.000	816.060	2.400	0.000	0.000
727	403630.000	816.180	2.400	0.000	0.000
728	403635.000	816.300	2.400	0.000	0.000
729	403640.000	816.420	2.400	0.000	0.000
730	403645.000	816.540	2.400	0.000	0.000
731	403650.000	816.660	2.400	0.000	0.000
732	403655.000	816.780	2.400	0.000	0.000
733	403660.000	816.900	2.400	0.000	0.000
734	403665.000	817.020	2.400	0.000	0.000
735	403670.000	817.140	2.400	0.000	0.000
736	403675.000	817.260	2.400	0.000	0.000
737	403680.000	817.380	2.400	0.000	0.000
738	403685.000	817.500	2.400	0.000	0.000
739	403690.000	817.620	2.400	0.000	0.000
740	403695.000	817.740	2.400	0.000	0.000
741	403700.000	817.860	2.400	0.000	0.000
742	403705.000	817.980	2.400	0.000	0.000
743	403710.000	818.100	2.400	0.000	0.000
744	403715.000	818.220	2.400	0.000	0.000
745	403720.000	818.340	2.400	0.000	0.000
746	403725.000	818.460	2.400	0.000	0.000
747	403730.000	818.580	2.400	0.000	0.000
748	403735.000	818.700	2.400	0.000	0.000
749	403740.000	818.820	2.400	0.000	0.000
750	403745.000	818.940	2.400	0.000	0.000
751	403750.000	819.060	2.400	0.000	0.000
752	403755.000	819.180	2.400	0.000	0.000
753	403760.000	819.300	2.400	0.000	0.000
754	403765.000	819.420	2.400	0.000	0.000
755	403770.000	819.540	2.400	0.000	0.000
756	403775.000	819.660	2.400	0.000	0.000
757	403780.000	819.780	2.400	0.000	0.000
758	403785.000	819.900	2.400	0.000	0.000
759	403790.000	820.020	2.400	0.000	0.000
760	403795.000	820.140	2.400	0.000	0.000
761	403800.000	820.260	2.400	0.000	0.000
762	403805.000	820.380	2.400	0.000	0.000
763	403810.000	820.500	2.400	0.000	0.000
764	403815.000	820.620	2.400	0.000	0.000
765	403820.000	820.740	2.400	0.000	0.000
766	403825.000	820.860	2.400	0.000	0.000
767	403830.000	820.980	2.400	0.000	0.000
768	403835.000	821.100	2.400	0.000	0.000
769	403840.000	821.220	2.400	0.000	0.000
770	403845.000	821.340	2.400	0.000	0.000
771	403850.000	821.460	2.400	0.000	0.000
772	403855.000	821.580	2.400	0.000	0.000
773	403860.000	821.700	2.400	0.000	0.000
774	403865.000	821.820	2.400	0.000	0.000
775	403870.000	821.940	2.400	0.000	0.000
776	403875.000	822.060	2.400	0.000	0.000
777	403880.000	822.180	2.400	0.000	0.000
778	403885.000	822.300	2.400	0.000	0.000
779	403890.000	822.420	2.400	0.000	0.000
780	403895.000	822.540	2.400	0.000	0.000
781	403900.000	822.660	2.400	0.000	0.000
782	403905.000	822.780	2.400	0.000	0.000
783	403910.000	822.900	2.400	0.000	0.000
784	403915.000	823.020	2.400	0.000	0.000
785	403920.000	823.140	2.400	0.000	0.000
786	403925.000	823.260	2.400	0.000	0.000
787	403930.000	823.380	2.400	0.000	0.000
788	403935.000	823.500	2.400	0.000	0.000
789	403940.000	823.620	2.400	0.000	0.000
790	403945.000	823.740	2.400	0.000	0.000
791	403950.000	823.860	2.400	0.000	0.000
792	403955.000	823.980	2.400	0.000	0.000
793	403960.000	824.100	2.400	0.000	0.000
794	403965.000	824.220	2.400	0.000	0.000
795	403970.000	824.340	2.400	0.000	0.000
796	403975.000	824.460	2.400	0.000	0.000
797	403980.000	824.580	2.400	0.000	0.000
798	403985.000	824.700	2.400	0.000	0.000
799	403990.000	824.820	2.400	0.000	0.000
800	403995.000	824.940	2.400	0.000	0.000
801	404000.000	825.060	2.400	0.000	0.000
802	404005.000	825.180	2.400	0.000	0.000
803	404010.000	825.300	2.400	0.000	0.000
804	404015.000	825.420	2.400	0.000	0.000
805	404020.000	825.540	2.400	0.000	0.000
806	404025.000	825.660	2.400	0.000	0.000
807	404030.000	825.780	2.400	0.000	0.000
808	404035.000	825.900	2.400	0.000	0.000
809	404040.000	826.020	2.400	0.000	0.000
810	404045.000	826.140	2.400	0.000	0.000
811	404050.000	826.260	2.400	0.000	0.000
812	404055.000	826.380	2.400	0.000	0.000
813	404060.000	826.500	2.400	0.000	0.000
814	404065.000	826.620	2.400	0.000	0.000
815	404070.000	826.740	2.400	0.000	0.000
816	404075.000	826.860	2.400	0.000	0.000
817	404080.000	826.980	2.400	0.000	0.000
818	404085.000	827.100	2.400	0.000	0.000

819	404090.000	827.220	2.400	0.000	0.000
820	404095.000	827.340	2.400	0.000	0.000
821	404100.000	827.460	2.400	0.000	0.000
822	404105.000	827.580	2.400	0.000	0.000
823	404110.000	827.700	2.400	0.000	0.000
824	404115.000	827.820	2.400	0.000	0.000
825	404120.000	827.940	2.400	0.000	0.000
826	404125.000	828.060	2.400	0.000	0.000
827	404130.000	828.180	2.400	0.000	0.000
828	404135.000	828.300	2.400	0.000	0.000
829	404140.000	828.420	2.400	0.000	0.000
830	404145.000	828.540	2.400	0.000	0.000
831	404150.000	828.660	2.400	0.000	0.000
832	404155.000	828.780	2.400	0.000	0.000
833	404160.000	828.900	2.400	0.000	0.000
834	404165.000	829.020	2.400	0.000	0.000
835	404170.000	829.140	2.400	0.000	0.000
836	404175.000	829.260	2.400	0.000	0.000
837	404180.000	829.380	2.400	0.000	0.000
838	404185.000	829.500	2.400	0.000	0.000
839	404190.000	829.620	2.400	0.000	0.000
840	404195.000	829.740	2.400	0.000	0.000
841	404200.000	829.860	2.400	0.000	0.000
842	404205.000	829.980	2.400	0.000	0.000
843	404210.000	830.100	2.400	0.000	0.000
844	404215.000	830.220	2.400	0.000	0.000
845	404220.000	830.340	2.400	0.000	0.000
846	404225.000	830.460	2.400	0.000	0.000
847	404230.000	830.580	2.400	0.000	0.000
848	404235.000	830.700	2.400	0.000	0.000
849	404240.000	830.820	2.400	0.000	0.000
850	404245.000	830.940	2.400	0.000	0.000
851	404250.000	831.060	2.400	0.000	0.000
852	404255.000	831.180	2.400	0.000	0.000
853	404260.000	831.300	2.400	0.000	0.000
854	404265.000	831.420	2.400	0.000	0.000
855	404270.000	831.540	2.400	0.000	0.000
856	404275.000	831.660	2.400	0.000	0.000
857	404280.000	831.780	2.400	0.000	0.000
858	404285.000	831.900	2.400	0.000	0.000
859	404290.000	832.020	2.400	0.000	0.000
860	404295.000	832.140	2.400	0.000	0.000
861	404300.000	832.260	2.400	0.000	0.000
862	404305.000	832.380	2.400	0.000	0.000
863	404310.000	832.500	2.400	0.000	0.000
864	404315.000	832.620	2.400	0.000	0.000
865	404320.000	832.740	2.400	0.000	0.000
866	404325.000	832.860	2.400	0.000	0.000
867	404330.000	832.980	2.400	0.000	0.000
868	404335.000	833.100	2.400	0.000	0.000
869	404340.000	833.220	2.400	0.000	0.000
870	404345.000	833.340	2.400	0.000	0.000
871	404350.000	833.460	2.400	0.000	0.000
872	404355.000	833.580	2.400	0.000	0.000
873	404360.000	833.700	2.400	0.000	0.000
874	404365.000	833.820	2.400	0.000	0.000
875	404370.000	833.940	2.400	0.000	0.000
876	404375.000	834.060	2.400	0.000	0.000
877	404380.000	834.180	2.400	0.000	0.000
878	404385.000	834.300	2.400	0.000	0.000
879	404390.000	834.420	2.400	0.000	0.000
880	404395.000	834.540	2.400	0.000	0.000
881	404400.000	834.660	2.400	0.000	0.000
882	404405.000	834.780	2.400	0.000	0.000
883	404410.000	834.900	2.400	0.000	0.000
884	404415.000	835.020	2.400	0.000	0.000
885	404420.000	835.140	2.400	0.000	0.000
886	404425.000	835.260	2.400	0.000	0.000
887	404430.000	835.380	2.400	0.000	0.000
888	404435.000	835.500	2.400	0.000	0.000
889	404440.000	835.620	2.400	0.000	0.000
890	404445.000	835.740	2.400	0.000	0.000
891	404450.000	835.860	2.400	0.000	0.000
892	404455.000	835.980	2.400	0.000	0.000
893	404460.000	836.100	2.400	0.000	0.000
894	404465.000	836.220	2.400	0.000	0.000
895	404470.000	836.340	2.400	0.000	0.000
896	404475.000	836.460	2.400	0.000	0.000
897	404480.000	836.580	2.400	0.000	0.000
898	404485.000	836.700	2.400	0.000	0.000
899	404490.000	836.820	2.400	0.000	0.000
900	404495.000	836.940	2.400	0.000	0.000
901	404500.000	837.060	2.400	0.000	0.000
902	404505.000	837.180	2.400	0.000	0.000
903	404510.000	837.300	2.400	0.000	0.000
904	404515.000	837.420	2.400	0.000	0.000
905	404520.000	837.540	2.400	0.000	0.000
906	404525.000	837.660	2.400	0.000	0.000
907	404530.000	837.780	2.400	0.000	0.000
908	404535.000	837.900	2.400	0.000	0.000
909	404540.000	838.020	2.400	0.000	0.000
910	404545.000	838.140	2.400	0.000	0.000
911	404550.000	838.260	2.400	0.000	0.000
912	404555.000	838.380	2.400	0.000	0.000
913	404560.000	838.500	2.400	0.000	0.000
914	404565.000	838.620	2.400	0.000	0.000
915	404570.000	838.740	2.400	0.000	0.000
916	404575.000	838.860	2.400	0.000	0.000
917	404580.000	838.980	2.400	0.000	0.000
918	404585.000	839.100	2.400	0.000	0.000
919	404590.000	839.220	2.400	0.000	0.000
920	404595.000	839.340	2.400	0.000	0.000
921	404600.000	839.460	2.400	0.000	0.000
922	404605.000	839.580	2.400	0.000	0.000
923	404610.000	839.700	2.400	0.000	0.000
924	404615.000	839.820	2.400	0.000	0.000
925	404620.000	839.940	2.400	0.000	0.000
926	404625.000	840.060	2.400	0.000	0.000
927	404630.000	840.180	2.400	0.000	0.000
928	404635.000	840.300	2.400	0.000	0.000
929	404640.000	840.420	2.400	0.000	0.000
930	404645.000	840.540	2.400	0.000	0.000
931	404650.000	840.660	2.400	0.000	0.000
932	404655.000	840.780	2.400	0.000	0.000
933	404660.000	840.900	2.400	0.000	0.000
934	404665.000	841.020	2.400	0.000	0.000
935	404670.000	841.140	2.400	0.000	0.000
936	404675.000	841.260	2.400	0.000	0.000
937	404680.000	841.380	2.400	0.000	0.000
938	404685.000	841.500	2.400	0.000	0.000
939	404690.000	841.620	2.400	0.000	0.000
940	404695.000	841.740	2.400	0.000	0.000
941	404700.000	841.860	2.400	0.000	0.000
942	404705.000	841.980	2.400	0.000	0.000
943	404710.000	842.100	2.400	0.000	0.000
944	404715.000	842.220	2.400	0.000	0.000
945	404720.000	842.340	2.400	0.000	0.000
946	404725.000	842.460	2.400	0.000	0.000
947	404730.000	842.580	2.400	0.000	0.000
948	404735.000	842.700	2.400	0.000	0.000
949	404740.000	842.820	2.400	0.000	0.000
950	404745.000	842.940	2.400	0.000	0.000
951	404750.000	843.060	2.400	0.000	0.000
952	404755.000	843.180	2.400	0.000	0.000
953	404760.000	843.300	2.400	0.000	0.000
954	404765.000	843.420	2.400	0.000	0.000
955	404770.000	843.540	2.400	0.000	0.000
956	404775.000	843.660	2.400	0.000	0.000
957	404780.000	843.780	2.400	0.000	0.000
958	404785.000	843.900	2.400	0.000	0.000

959	404790.000	844.020	2.400	0.000	0.000
960	404795.000	844.140	2.400	0.000	0.000
961	404800.000	844.260	2.400	0.000	0.000
962	404805.000	844.380	2.400	0.000	0.000
963	404810.000	844.500	2.400	0.000	0.000
964	404815.000	844.620	2.400	0.000	0.000
965	404820.000	844.740	2.400	0.000	0.000
966	404825.000	844.860	2.400	0.000	0.000
967	404830.000	844.980	2.400	0.000	0.000
968	404835.000	845.100	2.400	0.000	0.000
969	404840.000	845.220	2.400	0.000	0.000
970	404845.000	845.340	2.400	0.000	0.000
971	404850.000	845.460	2.400	0.000	0.000
972	404855.000	845.580	2.400	0.000	0.000
973	404860.000	845.700	2.400	0.000	0.000
974	404865.000	845.820	2.400	0.000	0.000
975	404870.000	845.940	2.400	0.000	0.000
976	404875.000	846.060	2.400	0.000	0.000
977	404880.000	846.180	2.400	0.000	0.000
978	404885.000	846.300	2.400	0.000	0.000
979	404890.000	846.420	2.400	0.000	0.000
980	404895.000	846.540	2.400	0.000	0.000
981	404900.000	846.660	2.400	0.000	0.000
982	404905.000	846.780	2.400	0.000	0.000
983	404910.000	846.900	2.400	0.000	0.000
984	404915.000	847.020	2.400	0.000	0.000
985	404920.000	847.140	2.400	0.000	0.000
986	404925.000	847.260	2.400	0.000	0.000
987	404930.000	847.380	2.400	0.000	0.000
988	404935.000	847.500	2.400	0.000	0.000
989	404940.000	847.620	2.400	0.000	0.000
990	404945.000	847.740	2.400	0.000	0.000
991	404950.000	847.860	2.400	0.000	0.000
992	404955.000	847.980	2.400	0.000	0.000
993	404960.000	848.100	2.400	0.000	0.000
994	404965.000	848.220	2.400	0.000	0.000
995	404970.000	848.340	2.400	0.000	0.000
996	404975.000	848.460	2.400	0.000	0.000
997	404980.000	848.580	2.400	0.000	0.000
998	404985.000	848.700	2.400	0.000	0.000
999	404990.000	848.820	2.400	0.000	0.000
1000	404995.000	848.940	2.400	0.000	0.000
1001	405000.000	849.060	2.400	0.000	0.000
1002	405005.000	849.180	2.400	0.000	0.000
1003	405010.000	849.300	2.400	0.000	0.000
1004	405015.000	849.420	2.400	0.000	0.000
1005	405020.000	849.540	2.400	0.000	0.000
1006	405025.000	849.660	2.400	0.000	0.000
1007	405030.000	849.780	2.400	0.000	0.000
1008	405035.000	849.900	2.400	0.000	0.000
1009	405040.000	850.020	2.400	0.000	0.000
1010	405045.000	850.140	2.400	0.000	0.000
1011	405050.000	850.260	2.400	0.000	0.000
1012	405055.000	850.380	2.400	0.000	0.000
1013	405060.000	850.500	2.400	0.000	0.000
1014	405065.000	850.620	2.400	0.000	0.000
1015	405070.000	850.740	2.400	0.000	0.000
1016	405075.000	850.860	2.400	0.000	0.000
1017	405080.000	850.980	2.400	0.000	0.000
1018	405085.000	851.100	2.400	0.000	0.000
1019	405090.000	851.220	2.400	0.000	0.000
1020	405095.000	851.340	2.400	0.000	0.000
1021	405100.000	851.460	2.400	0.000	0.000
1022	405105.000	851.580	2.400	0.000	0.000
1023	405110.000	851.700	2.400	0.000	0.000
1024	405115.000	851.820	2.400	0.000	0.000
1025	405120.000	851.940	2.400	0.000	0.000
1026	405125.000	852.060	2.400	0.000	0.000
1027	405130.000	852.180	2.400	0.000	0.000
1028	405135.000	852.300	2.400	0.000	0.000
1029	405140.000	852.420	2.400	0.000	0.000
1030	405145.000	852.540	2.400	0.000	0.000
1031	405150.000	852.660	2.400	0.000	0.000
1032	405155.000	852.780	2.400	0.000	0.000
1033	405160.000	852.900	2.400	0.000	0.000
1034	405165.000	853.020	2.400	0.000	0.000
1035	405170.000	853.140	2.400	0.000	0.000
1036	405175.000	853.260	2.400	0.000	0.000
1037	405180.000	853.380	2.400	0.000	0.000
1038	405185.000	853.500	2.400	0.000	0.000
1039	405190.000	853.620	2.400	0.000	0.000
1040	405195.000	853.740	2.400	0.000	0.000
1041	405200.000	853.860	2.400	0.000	0.000
1042	405205.000	853.980	2.400	0.000	0.000
1043	405210.000	854.100	2.400	0.000	0.000
1044	405215.000	854.220	2.400	0.000	0.000
1045	405220.000	854.340	2.400	0.000	0.000
1046	405225.000	854.460	2.400	0.000	0.000
1047	405230.000	854.580	2.400	0.000	0.000
1048	405235.000	854.700	2.400	0.000	0.000
1049	405240.000	854.820	2.400	0.000	0.000
1050	405245.000	854.940	2.400	0.000	0.000
1051	405250.000	855.060	2.400	0.000	0.000
1052	405255.000	855.180	2.400	0.000	0.000
1053	405260.000	855.300	2.400	0.000	0.000
1054	405265.000	855.420	2.400	0.000	0.000
1055	405270.000	855.540	2.400	0.000	0.000
1056	405275.000	855.660	2.400	0.000	0.000
1057	405280.000	855.780	2.400	0.000	0.000
1058	405285.000	855.900	2.400	0.000	0.000
1059	405290.000	856.020	2.400	0.000	0.000
1060	405295.000	856.140	2.400	0.000	0.000
1061	405300.000	856.260	2.400	0.000	0.000
1062	405305.000	856.380	2.400	0.000	0.000
1063	405310.000	856.500	2.400	0.000	0.000
1064	405315.000	856.620	2.400	0.000	0.000
1065	405320.000	856.740	2.400	0.000	0.000
1066	405325.000	856.860	2.400	0.000	0.000
1067	405330.000	856.980	2.400	0.000	0.000
1068	405335.000	857.100	2.400	0.000	0.000
1069	405340.000	857.220	2.400	0.000	0.000
1070	405345.000	857.340	2.400	0.000	0.000
1071	405350.000	857.460	2.400	0.000	0.000
1072	405355.000	857.580	2.400	0.000	0.000
1073	405360.000	857.700	2.400	0.000	0.000
1074	405365.000	857.820	2.400	0.000	0.000
1075	405370.000	857.940	2.400	0.000	0.000
1076	405375.000	858.060	2.400	0.000	0.000
1077	405380.000	858.180	2.400	0.000	0.000
1078	405385.000	858.300	2.400	0.000	0.000
1079	405390.000	858.420	2.400	0.000	0.000
1080	405395.000	858.540	2.400	0.000	0.000
1081	405400.000	858.660	2.400	0.000	0.000
1082	405405.000	858.780	2.400	0.000	0.000
1083	405410.000	858.900	2.400	0.000	0.000
1084	405415.000	859.020	2.400	0.000	0.000
1085	405420.000	859.140	2.400	0.000	0.000
1086	405425.000	859.260	2.400	0.000	0.000
1087	405430.000	859.380	2.400	0.000	0.000
1088	405435.000	859.500	2.400	0.000	0.000
1089	405440.000	859.620	2.400	0.000	0.000
1090	405445.000	859.740	2.400	0.000	0.000
1091	405450.000	859.860	2.400	0.000	0.000
1092	405455.000	859.980	2.400	0.000	0.000
1093	405460.000	860.100	2.400	0.000	0.000
1094	405465.000	860.220	2.400	0.000	0.000
1095	405470.000	860.340	2.400	0.000	0.000
1096	405475.000	860.460	2.400	0.000	0.000
1097	405480.000	860.580	2.400	0.000	0.000
1098	405485.000	860.700	2.400	0.000	0.000

1099	405490.000	860.820	2.400	0.000	0.000
1100	405495.000	860.940	2.400	0.000	0.000
1101	405500.000	861.060	2.400	0.000	0.000
1102	405505.000	861.180	2.400	0.000	0.000
1103	405510.000	861.300	2.400	0.000	0.000
1104	405515.000	861.420	2.400	0.000	0.000
1105	405520.000	861.540	2.400	0.000	0.000
1106	405525.000	861.660	2.400	0.000	0.000
1107	405530.000	861.780	2.400	0.000	0.000
1108	405535.000	861.900	2.400	0.000	0.000
1109	405540.000	862.020	2.400	0.000	0.000
1110	405545.000	862.140	2.400	0.000	0.000
1111	405550.000	862.260	2.400	0.000	0.000
1112	405555.000	862.380	2.400	0.000	0.000
1113	405560.000	862.500	2.400	0.000	0.000
1114	405565.000	862.620	2.400	0.000	0.000
1115	405570.000	862.740	2.400	0.000	0.000
1116	405575.000	862.860	2.400	0.000	0.000
1117	405580.000	862.980	2.400	0.000	0.000
1118	405585.000	863.100	2.400	0.000	0.000
1119	405590.000	863.220	2.400	0.000	0.000
1120	405595.000	863.340	2.400	0.000	0.000
1121	405600.000	863.460	2.400	0.000	0.000
1122	405605.000	863.580	2.400	0.000	0.000
1123	405610.000	863.700	2.400	0.000	0.000
1124	405615.000	863.820	2.400	0.000	0.000
1125	405620.000	863.940	2.400	0.000	0.000
1126	405625.000	864.060	2.400	0.000	0.000
1127	405630.000	864.180	2.400	0.000	0.000
1128	405635.000	864.300	2.400	0.000	0.000
1129	405640.000	864.420	2.400	0.000	0.000
1130	405645.000	864.540	2.400	0.000	0.000
1131	405650.000	864.660	2.400	0.000	0.000
1132	405655.000	864.780	2.400	0.000	0.000
1133	405660.000	864.900	2.400	0.000	0.000
1134	405665.000	865.020	2.400	0.000	0.000
1135	405670.000	865.140	2.400	0.000	0.000
1136	405675.000	865.260	2.400	0.000	0.000
1137	405680.000	865.380	2.400	0.000	0.000
1138	405685.000	865.500	2.400	0.000	0.000
1139	405690.000	865.620	2.400	0.000	0.000
1140	405695.000	865.740	2.400	0.000	0.000
1141	405700.000	865.860	2.400	0.000	0.000
1142	405705.000	865.980	2.400	0.000	0.000
1143	405710.000	866.100	2.400	0.000	0.000
1144	405715.000	866.220	2.400	0.000	0.000
1145	405720.000	866.340	2.400	0.000	0.000
1146	405725.000	866.460	2.400	0.000	0.000
1147	405730.000	866.580	2.400	0.000	0.000
1148	405735.000	866.700	2.400	0.000	0.000
1149	405740.000	866.820	2.400	0.000	0.000
1150	405745.000	866.940	2.400	0.000	0.000
1151	405750.000	867.060	2.400	0.000	0.000
1152	405755.000	867.180	2.400	0.000	0.000
1153	405760.000	867.300	2.400	0.000	0.000
1154	405765.000	867.420	2.400	0.000	0.000
1155	405770.000	867.540	2.400	0.000	0.000
1156	405775.000	867.660	2.400	0.000	0.000
1157	405780.000	867.780	2.400	0.000	0.000
1158	405785.000	867.900	2.400	0.000	0.000
1159	405790.000	868.020	2.400	0.000	0.000
1160	405795.000	868.140	2.400	0.000	0.000
1161	405800.000	868.260	2.400	0.000	0.000
1162	405805.000	868.380	2.400	0.000	0.000
1163	405810.000	868.500	2.400	0.000	0.000
1164	405815.000	868.620	2.400	0.000	0.000
1165	405820.000	868.740	2.400	0.000	0.000
1166	405825.000	868.860	2.400	0.000	0.000
1167	405830.000	868.980	2.400	0.000	0.000
1168	405835.000	869.100	2.400	0.000	0.000
1169	405840.000	869.220	2.400	0.000	0.000
1170	405845.000	869.340	2.400	0.000	0.000
1171	405850.000	869.460	2.400	0.000	0.000
1172	405855.000	869.580	2.400	0.000	0.000
1173	405860.000	869.700	2.400	0.000	0.000
1174	405865.000	869.820	2.400	0.000	0.000
1175	405870.000	869.940	2.400	0.000	0.000
1176	405875.000	870.060	2.400	0.000	0.000
1177	405880.000	870.180	2.400	0.000	0.000
1178	405885.000	870.300	2.400	0.000	0.000
1179	405890.000	870.420	2.400	0.000	0.000
1180	405895.000	870.540	2.400	0.000	0.000
1181	405900.000	870.660	2.400	0.000	0.000
1182	405905.000	870.780	2.400	0.000	0.000
1183	405910.000	870.900	2.400	0.000	0.000
1184	405915.000	871.020	2.400	0.000	0.000
1185	405920.000	871.140	2.400	0.000	0.000
1186	405925.000	871.260	2.400	0.000	0.000
1187	405930.000	871.380	2.400	0.000	0.000
1188	405935.000	871.500	2.400	0.000	0.000
1189	405940.000	871.620	2.400	0.000	0.000
1190	405945.000	871.740	2.400	0.000	0.000
1191	405950.000	871.860	2.400	0.000	0.000
1192	405955.000	871.980	2.400	0.000	0.000
1193	405960.000	872.100	2.400	0.000	0.000
1194	405965.000	872.220	2.400	0.000	0.000
1195	405970.000	872.340	2.400	0.000	0.000
1196	405975.000	872.460	2.400	0.000	0.000
1197	405980.000	872.580	2.400	0.000	0.000
1198	405985.000	872.700	2.400	0.000	0.000
1199	405990.000	872.820	2.400	0.000	0.000
1200	405995.000	872.940	2.400	0.000	0.000
1201	406000.000	873.060	2.400	0.000	0.000
1202	406005.000	873.180	2.400	0.000	0.000
1203	406010.000	873.300	2.400	0.000	0.000
1204	406015.000	873.420	2.400	0.000	0.000
1205	406020.000	873.540	2.400	0.000	0.000
1206	406025.000	873.660	2.400	0.000	0.000
1207	406030.000	873.780	2.400	0.000	0.000
1208	406035.000	873.900	2.400	0.000	0.000
1209	406040.000	874.020	2.400	0.000	0.000
1210	406045.000	874.140	2.400	0.000	0.000
1211	406050.000	874.260	2.400	0.000	0.000
1212	406055.000	874.380	2.400	0.000	0.000
1213	406060.000	874.500	2.400	0.000	0.000
1214	406065.000	874.620	2.400	0.000	0.000
1215	406070.000	874.740	2.400	0.000	0.000
1216	406075.000	874.860	2.400	0.000	0.000
1217	406080.000	874.980	2.400	0.000	0.000
1218	406085.000	875.100	2.400	0.000	0.000
1219	406090.000	875.220	2.400	0.000	0.000
1220	406095.000	875.340	2.400	0.000	0.000
1221	406100.000	875.460	2.400	0.000	0.000
1222	406105.000	875.580	2.400	0.000	0.000
1223	406110.000	875.700	2.400	0.000	0.000
1224	406115.000	875.820	2.400	0.000	0.000
1225	406120.000	875.940	2.400	0.000	0.000
1226	406125.000	876.060	2.400	0.000	0.000
1227	406130.000	876.180	2.400	0.000	0.000
1228	406135.000	876.300	2.392	0.000	0.000
1229	406140.000	876.419	2.380	0.000	0.000
1230	406145.000	876.538	2.369	0.000	0.000
1231	406150.000	876.656	2.358	0.000	0.000
1232	406155.000	876.774	2.347	0.000	0.000
1233	406160.000	876.891	2.336	0.000	0.000
1234	406165.000	877.007	2.325	0.000	0.000
1235	406170.000	877.123	2.314	0.000	0.000
1236	406175.000	877.239	2.303	0.000	0.000
1237	406180.000	877.353	2.292	0.000	0.000
1238	406185.000	877.468	2.280	0.000	0.000

1239	406190.000	877.582	2.269	0.000	0.000
1240	406195.000	877.695	2.258	0.000	0.000
1241	406200.000	877.807	2.247	0.000	0.000
1242	406205.000	877.919	2.236	0.000	0.000
1243	406210.000	878.031	2.225	0.000	0.000
1244	406215.000	878.142	2.214	0.000	0.000
1245	406220.000	878.252	2.203	0.000	0.000
1246	406225.000	878.362	2.192	0.000	0.000
1247	406230.000	878.471	2.180	0.000	0.000
1248	406235.000	878.580	2.169	0.000	0.000
1249	406240.000	878.688	2.158	0.000	0.000
1250	406245.000	878.796	2.147	0.000	0.000
1251	406250.000	878.903	2.136	0.000	0.000
1252	406255.000	879.010	2.125	0.000	0.000
1253	406260.000	879.116	2.114	0.000	0.000
1254	406265.000	879.221	2.103	0.000	0.000
1255	406270.000	879.326	2.092	0.000	0.000
1256	406275.000	879.430	2.080	0.000	0.000
1257	406280.000	879.534	2.069	0.000	0.000
1258	406285.000	879.637	2.058	0.000	0.000
1259	406290.000	879.740	2.047	0.000	0.000
1260	406295.000	879.842	2.036	0.000	0.000
1261	406300.000	879.943	2.025	0.000	0.000
1262	406305.000	880.044	2.014	0.000	0.000
1263	406310.000	880.145	2.003	0.000	0.000
1264	406315.000	880.245	1.992	0.000	0.000
1265	406320.000	880.344	1.980	0.000	0.000
1266	406325.000	880.443	1.969	0.000	0.000
1267	406330.000	880.541	1.958	0.000	0.000
1268	406335.000	880.638	1.947	0.000	0.000
1269	406340.000	880.736	1.936	0.000	0.000
1270	406345.000	880.832	1.925	0.000	0.000
1271	406350.000	880.928	1.914	0.000	0.000
1272	406355.000	881.023	1.903	0.000	0.000
1273	406360.000	881.118	1.892	0.000	0.000
1274	406365.000	881.213	1.880	0.000	0.000
1275	406370.000	881.306	1.869	0.000	0.000
1276	406375.000	881.400	1.858	0.000	0.000
1277	406380.000	881.492	1.847	0.000	0.000
1278	406385.000	881.584	1.836	0.000	0.000
1279	406390.000	881.676	1.825	0.000	0.000
1280	406395.000	881.767	1.814	0.000	0.000
1281	406400.000	881.857	1.803	0.000	0.000
1282	406405.000	881.947	1.792	0.000	0.000
1283	406410.000	882.036	1.780	0.000	0.000
1284	406415.000	882.125	1.769	0.000	0.000
1285	406420.000	882.213	1.758	0.000	0.000
1286	406425.000	882.301	1.747	0.000	0.000
1287	406430.000	882.388	1.736	0.000	0.000
1288	406435.000	882.474	1.725	0.000	0.000
1289	406440.000	882.560	1.714	0.000	0.000
1290	406445.000	882.646	1.703	0.000	0.000
1291	406450.000	882.731	1.692	0.000	0.000
1292	406455.000	882.815	1.680	0.000	0.000
1293	406460.000	882.899	1.669	0.000	0.000
1294	406465.000	882.982	1.658	0.000	0.000
1295	406470.000	883.065	1.647	0.000	0.000
1296	406475.000	883.147	1.636	0.000	0.000
1297	406480.000	883.228	1.625	0.000	0.000
1298	406485.000	883.309	1.614	0.000	0.000
1299	406490.000	883.390	1.603	0.000	0.000
1300	406495.000	883.469	1.592	0.000	0.000
1301	406500.000	883.549	1.580	0.000	0.000
1302	406505.000	883.627	1.569	0.000	0.000
1303	406510.000	883.706	1.558	0.000	0.000
1304	406515.000	883.783	1.547	0.000	0.000
1305	406520.000	883.860	1.536	0.000	0.000
1306	406525.000	883.937	1.525	0.000	0.000
1307	406530.000	884.013	1.514	0.000	0.000
1308	406535.000	884.088	1.503	0.000	0.000
1309	406540.000	884.163	1.492	0.000	0.000
1310	406545.000	884.237	1.480	0.000	0.000
1311	406550.000	884.311	1.469	0.000	0.000
1312	406555.000	884.384	1.458	0.000	0.000
1313	406560.000	884.457	1.447	0.000	0.000
1314	406565.000	884.529	1.436	0.000	0.000
1315	406570.000	884.601	1.425	0.000	0.000
1316	406575.000	884.672	1.414	0.000	0.000
1317	406580.000	884.742	1.403	0.000	0.000
1318	406585.000	884.812	1.392	0.000	0.000
1319	406590.000	884.881	1.380	0.000	0.000
1320	406595.000	884.950	1.369	0.000	0.000
1321	406600.000	885.018	1.358	0.000	0.000
1322	406605.000	885.086	1.347	0.000	0.000
1323	406610.000	885.153	1.336	0.000	0.000
1324	406615.000	885.219	1.325	0.000	0.000
1325	406620.000	885.285	1.314	0.000	0.000
1326	406625.000	885.351	1.303	0.000	0.000
1327	406630.000	885.415	1.292	0.000	0.000
1328	406635.000	885.480	1.280	0.000	0.000
1329	406640.000	885.544	1.269	0.000	0.000
1330	406645.000	885.607	1.258	0.000	0.000
1331	406650.000	885.669	1.247	0.000	0.000
1332	406655.000	885.731	1.236	0.000	0.000
1333	406660.000	885.793	1.225	0.000	0.000
1334	406665.000	885.854	1.214	0.000	0.000
1335	406670.000	885.914	1.203	0.000	0.000
1336	406675.000	885.974	1.192	0.000	0.000
1337	406680.000	886.033	1.180	0.000	0.000
1338	406685.000	886.092	1.169	0.000	0.000
1339	406690.000	886.150	1.158	0.000	0.000
1340	406695.000	886.208	1.147	0.000	0.000
1341	406700.000	886.265	1.136	0.000	0.000
1342	406705.000	886.322	1.125	0.000	0.000
1343	406710.000	886.378	1.114	0.000	0.000
1344	406715.000	886.433	1.103	0.000	0.000
1345	406720.000	886.488	1.092	0.000	0.000
1346	406725.000	886.542	1.080	0.000	0.000
1347	406730.000	886.596	1.069	0.000	0.000
1348	406735.000	886.649	1.058	0.000	0.000
1349	406740.000	886.702	1.047	0.000	0.000
1350	406745.000	886.754	1.036	0.000	0.000
1351	406750.000	886.805	1.025	0.000	0.000
1352	406755.000	886.856	1.014	0.000	0.000
1353	406760.000	886.907	1.003	0.000	0.000
1354	406765.000	886.957	0.992	0.000	0.000
1355	406770.000	887.006	0.980	0.000	0.000
1356	406775.000	887.055	0.969	0.000	0.000
1357	406780.000	887.103	0.958	0.000	0.000
1358	406785.000	887.150	0.947	0.000	0.000
1359	406790.000	887.198	0.936	0.000	0.000
1360	406795.000	887.244	0.925	0.000	0.000
1361	406800.000	887.290	0.914	0.000	0.000
1362	406805.000	887.335	0.903	0.000	0.000
1363	406810.000	887.380	0.892	0.000	0.000
1364	406815.000	887.425	0.880	0.000	0.000
1365	406820.000	887.468	0.869	0.000	0.000
1366	406825.000	887.511	0.858	0.000	0.000
1367	406830.000	887.554	0.847	0.000	0.000
1368	406835.000	887.596	0.836	0.000	0.000
1369	406840.000	887.638	0.825	0.000	0.000
1370	406845.000	887.679	0.814	0.000	0.000
1371	406850.000	887.719	0.803	0.000	0.000
1372	406855.000	887.759	0.792	0.000	0.000
1373	406860.000	887.798	0.780	0.000	0.000
1374	406865.000	887.837	0.769	0.000	0.000
1375	406870.000	887.875	0.758	0.000	0.000
1376	406875.000	887.913	0.747	0.000	0.000
1377	406880.000	887.950	0.736	0.000	0.000
1378	406885.000	887.986	0.725	0.000	0.000

1379	406890.000	888.022	0.714	0.000	0.000
1380	406895.000	888.058	0.703	0.000	0.000
1381	406900.000	888.093	0.692	0.000	0.000
1382	406905.000	888.127	0.680	0.000	0.000
1383	406910.000	888.161	0.669	0.000	0.000
1384	406915.000	888.194	0.658	0.000	0.000
1385	406920.000	888.227	0.647	0.000	0.000
1386	406925.000	888.259	0.636	0.000	0.000
1387	406930.000	888.290	0.625	0.000	0.000
1388	406935.000	888.321	0.614	0.000	0.000
1389	406940.000	888.351	0.603	0.000	0.000
1390	406945.000	888.381	0.592	0.000	0.000
1391	406950.000	888.411	0.580	0.000	0.000
1392	406955.000	888.439	0.569	0.000	0.000
1393	406960.000	888.468	0.558	0.000	0.000
1394	406965.000	888.495	0.547	0.000	0.000
1395	406970.000	888.522	0.536	0.000	0.000
1396	406975.000	888.549	0.525	0.000	0.000
1397	406980.000	888.575	0.514	0.000	0.000
1398	406985.000	888.600	0.503	0.000	0.000
1399	406990.000	888.625	0.494	0.000	0.000
1400	406995.000	888.650	0.494	0.000	0.000
1401	407000.000	888.674	0.494	0.000	0.000
1402	407005.000	888.699	0.494	0.000	0.000
1403	407010.000	888.724	0.494	0.000	0.000
1404	407015.000	888.749	0.494	0.000	0.000
1405	407020.000	888.773	0.494	0.000	0.000
1406	407025.000	888.798	0.494	0.000	0.000
1407	407030.000	888.823	0.494	0.000	0.000
1408	407035.000	888.847	0.494	0.000	0.000
1409	407040.000	888.872	0.494	0.000	0.000
1410	407045.000	888.897	0.494	0.000	0.000
1411	407050.000	888.922	0.494	0.000	0.000
1412	407055.000	888.946	0.494	0.000	0.000
1413	407060.000	888.971	0.494	0.000	0.000
1414	407065.000	888.996	0.494	0.000	0.000
1415	407070.000	889.020	0.494	0.000	0.000
1416	407075.000	889.045	0.494	0.000	0.000
1417	407080.000	889.070	0.494	0.000	0.000
1418	407085.000	889.095	0.494	0.000	0.000
1419	407090.000	889.119	0.494	0.000	0.000
1420	407095.000	889.144	0.494	0.000	0.000
1421	407100.000	889.169	0.494	0.000	0.000
1422	407105.000	889.193	0.494	0.000	0.000
1423	407110.000	889.218	0.494	0.000	0.000
1424	407115.000	889.243	0.494	0.000	0.000
1425	407120.000	889.268	0.494	0.000	0.000
1426	407125.000	889.292	0.494	0.000	0.000
1427	407130.000	889.317	0.494	0.000	0.000
1428	407135.000	889.342	0.494	0.000	0.000
1429	407140.000	889.366	0.494	0.000	0.000
1430	407145.000	889.391	0.494	0.000	0.000
1431	407150.000	889.416	0.494	0.000	0.000
1432	407155.000	889.440	0.494	0.000	0.000
1433	407160.000	889.465	0.494	0.000	0.000
1434	407165.000	889.490	0.494	0.000	0.000
1435	407170.000	889.515	0.494	0.000	0.000
1436	407175.000	889.539	0.494	0.000	0.000
1437	407180.000	889.564	0.494	0.000	0.000
1438	407185.000	889.589	0.494	0.000	0.000
1439	407190.000	889.613	0.494	0.000	0.000
1440	407195.000	889.638	0.494	0.000	0.000
1441	407200.000	889.663	0.494	0.000	0.000
1442	407205.000	889.688	0.494	0.000	0.000
1443	407210.000	889.712	0.494	0.000	0.000
1444	407215.000	889.737	0.494	0.000	0.000
1445	407220.000	889.762	0.494	0.000	0.000
1446	407225.000	889.786	0.494	0.000	0.000
1447	407230.000	889.811	0.494	0.000	0.000
1448	407235.000	889.836	0.494	0.000	0.000
1449	407240.000	889.861	0.494	0.000	0.000
1450	407245.000	889.885	0.494	0.000	0.000
1451	407250.000	889.910	0.494	0.000	0.000
1452	407255.000	889.935	0.494	0.000	0.000
1453	407260.000	889.959	0.494	0.000	0.000
1454	407265.000	889.984	0.494	0.000	0.000
1455	407270.000	890.009	0.494	0.000	0.000
1456	407275.000	890.034	0.494	0.000	0.000
1457	407280.000	890.058	0.494	0.000	0.000
1458	407285.000	890.083	0.494	0.000	0.000
1459	407290.000	890.108	0.494	0.000	0.000
1460	407295.000	890.132	0.494	0.000	0.000
1461	407300.000	890.157	0.494	0.000	0.000
1462	407305.000	890.182	0.494	0.000	0.000
1463	407310.000	890.207	0.494	0.000	0.000
1464	407315.000	890.231	0.494	0.000	0.000
1465	407320.000	890.256	0.494	0.000	0.000
1466	407325.000	890.281	0.494	0.000	0.000
1467	407330.000	890.305	0.494	0.000	0.000
1468	407335.000	890.330	0.494	0.000	0.000
1469	407340.000	890.355	0.494	0.000	0.000
1470	407345.000	890.379	0.494	0.000	0.000
1471	407350.000	890.404	0.494	0.000	0.000
1472	407355.000	890.429	0.494	0.000	0.000
1473	407360.000	890.454	0.494	0.000	0.000
1474	407365.000	890.478	0.494	0.000	0.000
1475	407370.000	890.503	0.494	0.000	0.000
1476	407375.000	890.528	0.494	0.000	0.000
1477	407380.000	890.552	0.494	0.000	0.000
1478	407385.000	890.577	0.494	0.000	0.000
1479	407390.000	890.602	0.494	0.000	0.000
1480	407395.000	890.627	0.494	0.000	0.000
1481	407400.000	690.651	0.494	0.000	0.000
1482	407405.000	890.676	0.494	0.000	0.000
1483	407410.000	890.701	0.494	0.000	0.000
1484	407415.000	890.725	0.494	0.000	0.000
1485	407420.000	890.750	0.494	0.000	0.000
1486	407425.000	890.775	0.494	0.000	0.000
1487	407430.000	890.800	0.494	0.000	0.000
1488	407435.000	890.824	0.494	0.000	0.000
1489	407440.000	890.849	0.494	0.000	0.000
1490	407445.000	890.874	0.494	0.000	0.000
1491	407450.000	890.898	0.494	0.000	0.000
1492	407455.000	890.923	0.494	0.000	0.000
1493	407460.000	890.948	0.494	0.000	0.000
1494	407465.000	890.973	0.494	0.000	0.000
1495	407470.000	890.997	0.494	0.000	0.000
1496	407475.000	891.022	0.494	0.000	0.000
1497	407480.000	891.047	0.494	0.000	0.000
1498	407485.000	891.071	0.494	0.000	0.000
1499	407490.000	891.096	0.494	0.000	0.000
1500	407495.000	891.121	0.494	0.000	0.000
1501	407500.000	891.145	0.494	0.000	0.000
1502	407505.000	891.170	0.494	0.000	0.000
1503	407510.000	891.195	0.494	0.000	0.000
1504	407515.000	891.220	0.494	0.000	0.000
1505	407520.000	891.244	0.494	0.000	0.000
1506	407525.000	891.269	0.494	0.000	0.000
1507	407530.000	891.294	0.494	0.000	0.000
1508	407535.000	891.318	0.494	0.000	0.000
1509	407540.000	891.343	0.494	0.000	0.000
1510	407545.000	891.368	0.494	0.000	0.000
1511	407550.000	891.393	0.494	0.000	0.000
1512	407555.000	891.417	0.494	0.000	0.000
1513	407560.000	891.442	0.494	0.000	0.000
1514	407565.000	891.467	0.494	0.000	0.000
1515	407570.000	891.491	0.494	0.000	0.000
1516	407575.000	891.516	0.494	0.000	0.000
1517	407580.000	891.541	0.494	0.000	0.000
1518	407585.000	891.566	0.494	0.000	0.000

1519	407590.000	891.590	0.494	0.000	0.000
1520	407595.000	891.615	0.494	0.000	0.000
1521	407600.000	891.640	0.494	0.000	0.000
1522	407605.000	891.664	0.494	0.000	0.000
1523	407610.000	891.689	0.494	0.000	0.000
1524	407615.000	891.714	0.494	0.000	0.000
1525	407620.000	891.739	0.494	0.000	0.000
1526	407625.000	891.763	0.494	0.000	0.000
1527	407630.000	891.788	0.494	0.000	0.000
1528	407635.000	891.813	0.494	0.000	0.000
1529	407640.000	891.837	0.494	0.000	0.000
1530	407645.000	891.862	0.494	0.000	0.000
1531	407650.000	891.887	0.494	0.000	0.000
1532	407655.000	891.911	0.494	0.000	0.000
1533	407660.000	891.936	0.494	0.000	0.000
1534	407665.000	891.961	0.494	0.000	0.000
1535	407670.000	891.986	0.494	0.000	0.000
1536	407675.000	892.010	0.494	0.000	0.000
1537	407680.000	892.035	0.494	0.000	0.000
1538	407685.000	892.060	0.494	0.000	0.000
1539	407690.000	892.084	0.494	0.000	0.000
1540	407695.000	892.109	0.494	0.000	0.000
1541	407700.000	892.134	0.494	0.000	0.000
1542	407705.000	892.159	0.494	0.000	0.000
1543	407710.000	892.183	0.494	0.000	0.000
1544	407715.000	892.208	0.494	0.000	0.000
1545	407720.000	892.233	0.494	0.000	0.000
1546	407725.000	892.257	0.494	0.000	0.000
1547	407730.000	892.282	0.494	0.000	0.000
1548	407735.000	892.307	0.494	0.000	0.000
1549	407740.000	892.332	0.494	0.000	0.000
1550	407745.000	892.356	0.494	0.000	0.000
1551	407750.000	892.381	0.494	0.000	0.000
1552	407755.000	892.406	0.494	0.000	0.000
1553	407760.000	892.430	0.494	0.000	0.000
1554	407765.000	892.455	0.494	0.000	0.000
1555	407770.000	892.480	0.494	0.000	0.000
1556	407775.000	892.505	0.494	0.000	0.000
1557	407780.000	892.529	0.494	0.000	0.000
1558	407785.000	892.554	0.494	0.000	0.000
1559	407790.000	892.579	0.494	0.000	0.000
1560	407795.000	892.603	0.494	0.000	0.000
1561	407800.000	892.628	0.494	0.000	0.000
1562	407805.000	892.653	0.494	0.000	0.000
1563	407810.000	892.678	0.501	0.000	0.000
1564	407815.000	892.703	0.508	0.000	0.000
1565	407820.000	892.728	0.516	0.000	0.000
1566	407825.000	892.755	0.524	0.000	0.000
1567	407830.000	892.781	0.532	0.000	0.000
1568	407835.000	892.808	0.539	0.000	0.000
1569	407840.000	892.835	0.547	0.000	0.000
1570	407845.000	892.862	0.555	0.000	0.000
1571	407850.000	892.890	0.562	0.000	0.000
1572	407855.000	892.919	0.570	0.000	0.000
1573	407860.000	892.947	0.578	0.000	0.000
1574	407865.000	892.976	0.585	0.000	0.000
1575	407870.000	893.006	0.593	0.000	0.000
1576	407875.000	893.036	0.601	0.000	0.000
1577	407880.000	893.066	0.608	0.000	0.000
1578	407885.000	893.097	0.616	0.000	0.000
1579	407890.000	893.128	0.624	0.000	0.000
1580	407895.000	893.159	0.632	0.000	0.000
1581	407900.000	893.191	0.639	0.000	0.000
1582	407905.000	893.223	0.647	0.000	0.000
1583	407910.000	893.255	0.655	0.000	0.000
1584	407915.000	893.288	0.662	0.000	0.000
1585	407920.000	893.322	0.670	0.000	0.000
1586	407925.000	893.355	0.678	0.000	0.000
1587	407930.000	893.389	0.685	0.000	0.000
1588	407935.000	893.424	0.693	0.000	0.000
1589	407940.000	893.459	0.701	0.000	0.000
1590	407945.000	893.494	0.708	0.000	0.000
1591	407950.000	893.530	0.716	0.000	0.000
1592	407955.000	893.566	0.724	0.000	0.000
1593	407960.000	893.602	0.732	0.000	0.000
1594	407965.000	893.639	0.739	0.000	0.000
1595	407970.000	893.676	0.747	0.000	0.000
1596	407975.000	893.713	0.755	0.000	0.000
1597	407980.000	893.751	0.762	0.000	0.000
1598	407985.000	893.790	0.770	0.000	0.000
1599	407990.000	893.828	0.778	0.000	0.000
1600	407995.000	893.867	0.785	0.000	0.000
1601	408000.000	893.907	0.793	0.000	0.000
1602	408005.000	893.947	0.800	0.000	0.000

Replanteo de la Estructura

Programa LST0 - Replanteo de viaductos hormigón pretensado y mixtos (V 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

REPLANTEO EN PLANTA DEL EJE DEL PUENTE

LEYENDA: Pk -> Pk, respecto del eje de referencia, de la intersección de la sección correspondiente con dicho eje
Az -> Azimut del eje del puente (no coincide necesariamente con el Azimut del eje de referencia
Or -> Orientación = Azimut de la sección
Ancho_esv -> Ancho esviado del puente según la dirección definida por Or

Eje de referencia: LAV. TRAMO: MADRID-ZARAGOZA; Subtramo IV

Sec	Pk [m]	x [m]	y [m]	Az [g]	Or [g]	Ancho_esv [m]
**REPLANTEO_EN_PLANTA						
1	400252.000	476704.008	4480155.123	74.4487	-25.5513	14.000
2	400255.200	476706.954	4480156.373	74.4487	-25.5513	14.000
3	400258.400	476709.900	4480157.624	74.4487	-25.5513	14.000
4	400261.600	476712.845	4480158.874	74.4487	-25.5513	14.000
5	400264.800	476715.791	4480160.124	74.4487	-25.5513	14.000
6	400268.000	476718.737	4480161.374	74.4487	-25.5513	14.000
7	400271.200	476721.682	4480162.624	74.4487	-25.5513	14.000
8	400274.400	476724.628	4480163.874	74.4487	-25.5513	14.000
9	400277.600	476727.574	4480165.124	74.4487	-25.5513	14.000
10	400280.800	476730.519	4480166.375	74.4487	-25.5513	14.000
11	400284.000	476733.465	4480167.625	74.4487	-25.5513	14.000
12	400288.000	476737.147	4480169.187	74.4487	-25.5513	14.000
13	400292.000	476740.829	4480170.750	74.4487	-25.5513	14.000
14	400296.000	476744.512	4480172.313	74.4487	-25.5513	14.000
15	400300.000	476748.194	4480173.875	74.4487	-25.5513	14.000
16	400304.000	476751.876	4480175.438	74.4487	-25.5513	14.000
17	400308.000	476755.558	4480177.001	74.4487	-25.5513	14.000
18	400312.000	476759.240	4480178.564	74.4487	-25.5513	14.000
19	400316.000	476762.922	4480180.126	74.4487	-25.5513	14.000
20	400320.000	476766.604	4480181.689	74.4487	-25.5513	14.000
21	400324.000	476770.286	4480183.252	74.4487	-25.5513	14.000
22	400328.000	476773.969	4480184.814	74.4487	-25.5513	14.000
23	400332.000	476777.651	4480186.377	74.4487	-25.5513	14.000
24	400336.000	476781.333	4480187.940	74.4487	-25.5513	14.000
25	400340.000	476785.015	4480189.502	74.4487	-25.5513	14.000
26	400344.000	476788.697	4480191.065	74.4487	-25.5513	14.000
27	400348.000	476792.379	4480192.628	74.4487	-25.5513	14.000
28	400352.000	476796.061	4480194.190	74.4487	-25.5513	14.000
29	400356.000	476799.743	4480195.753	74.4487	-25.5513	14.000
30	400360.000	476803.426	4480197.316	74.4487	-25.5513	14.000
31	400364.000	476807.108	4480198.878	74.4487	-25.5513	14.000
32	400368.000	476810.790	4480200.441	74.4487	-25.5513	14.000
33	400372.000	476814.472	4480202.004	74.4487	-25.5513	14.000
34	400376.000	476818.154	4480203.566	74.4487	-25.5513	14.000
35	400380.000	476821.836	4480205.129	74.4487	-25.5513	14.000
36	400384.000	476825.518	4480206.692	74.4484	-25.5516	14.000
37	400388.000	476829.200	4480208.254	74.4479	-25.5521	14.000
38	400392.000	476832.882	4480209.817	74.4470	-25.5530	14.000
39	400396.000	476836.565	4480211.380	74.4458	-25.5542	14.000
40	400400.000	476840.247	4480212.943	74.4443	-25.5557	14.000
41	400404.000	476843.929	4480214.506	74.4425	-25.5575	14.000
42	400408.000	476847.610	4480216.069	74.4404	-25.5596	14.000
43	400412.000	476851.292	4480217.632	74.4380	-25.5620	14.000
44	400416.000	476854.974	4480219.196	74.4353	-25.5647	14.000

45	400420.000	476858.656	4480220.759	74.4323	-25.5677	14.000
46	400424.000	476862.338	4480222.323	74.4290	-25.5710	14.000
47	400428.000	476866.019	4480223.887	74.4254	-25.5746	14.000
48	400432.000	476869.701	4480225.451	74.4214	-25.5786	14.000
49	400436.000	476873.382	4480227.015	74.4172	-25.5828	14.000
50	400440.000	476877.063	4480228.580	74.4127	-25.5873	14.000
51	400444.000	476880.745	4480230.145	74.4078	-25.5922	14.000
52	400448.000	476884.426	4480231.710	74.4027	-25.5973	14.000
53	400452.000	476888.107	4480233.275	74.3972	-25.6028	14.000
54	400456.000	476891.787	4480234.841	74.3915	-25.6085	14.000
55	400460.000	476895.468	4480236.407	74.3854	-25.6146	14.000
56	400464.000	476899.149	4480237.974	74.3790	-25.6210	14.000
57	400468.000	476902.829	4480239.541	74.3723	-25.6277	14.000
58	400472.000	476906.509	4480241.108	74.3654	-25.6346	14.000
59	400476.000	476910.189	4480242.676	74.3581	-25.6419	14.000
60	400480.000	476913.869	4480244.244	74.3505	-25.6495	14.000
61	400484.000	476917.548	4480245.813	74.3426	-25.6574	14.000
62	400488.000	476921.228	4480247.382	74.3344	-25.6656	14.000
63	400492.000	476924.907	4480248.951	74.3259	-25.6741	14.000
64	400496.000	476928.586	4480250.521	74.3170	-25.6830	14.000
65	400500.000	476932.265	4480252.092	74.3079	-25.6921	14.000
66	400504.000	476935.943	4480253.663	74.2985	-25.7015	14.000
67	400508.000	476939.622	4480255.234	74.2888	-25.7112	14.000
68	400512.000	476943.300	4480256.807	74.2787	-25.7213	14.000
69	400516.000	476946.978	4480258.379	74.2684	-25.7316	14.000
70	400520.000	476950.655	4480259.953	74.2577	-25.7423	14.000
71	400524.000	476954.332	4480261.527	74.2468	-25.7532	14.000
72	400528.000	476958.009	4480263.102	74.2355	-25.7645	14.000
73	400532.000	476961.686	4480264.677	74.2240	-25.7760	14.000
74	400536.000	476965.363	4480266.253	74.2121	-25.7879	14.000
75	400540.000	476969.039	4480267.830	74.1999	-25.8001	14.000
76	400544.000	476972.715	4480269.407	74.1874	-25.8126	14.000
77	400548.000	476976.390	4480270.985	74.1746	-25.8254	14.000
78	400552.000	476980.065	4480272.564	74.1615	-25.8385	14.000
79	400556.000	476983.740	4480274.144	74.1482	-25.8518	14.000
80	400560.000	476987.415	4480275.724	74.1344	-25.8656	14.000
81	400564.000	476991.089	4480277.305	74.1204	-25.8796	14.000
82	400568.000	476994.763	4480278.887	74.1061	-25.8939	14.000
83	400572.000	476998.436	4480280.470	74.0915	-25.9085	14.000
84	400576.000	477002.109	4480282.054	74.0766	-25.9234	14.000
85	400580.000	477005.782	4480283.639	74.0614	-25.9386	14.000
86	400584.000	477009.454	4480285.224	74.0458	-25.9542	14.000
87	400588.000	477013.126	4480286.811	74.0300	-25.9700	14.000
88	400592.000	477016.798	4480288.398	74.0138	-25.9862	14.000
89	400596.000	477020.469	4480289.986	73.9974	-26.0026	14.000
90	400600.000	477024.140	4480291.575	73.9806	-26.0194	14.000
91	400604.000	477027.810	4480293.166	73.9636	-26.0364	14.000
92	400608.000	477031.480	4480294.757	73.9462	-26.0538	14.000
93	400612.000	477035.149	4480296.349	73.9285	-26.0715	14.000
94	400616.000	477038.818	4480297.942	73.9105	-26.0895	14.000
95	400620.000	477042.487	4480299.537	73.8923	-26.1077	14.000
96	400624.000	477046.155	4480301.132	73.8737	-26.1263	14.000
97	400628.000	477049.823	4480302.728	73.8548	-26.1452	14.000
98	400632.000	477053.490	4480304.326	73.8356	-26.1644	14.000
99	400636.000	477057.157	4480305.924	73.8161	-26.1839	14.000
100	400640.000	477060.823	4480307.524	73.7963	-26.2037	14.000
101	400644.000	477064.488	4480309.125	73.7761	-26.2239	14.000
102	400648.000	477068.154	4480310.727	73.7557	-26.2443	14.000
103	400652.000	477071.818	4480312.330	73.7350	-26.2650	14.000
104	400656.000	477075.482	4480313.935	73.7140	-26.2860	14.000
105	400660.000	477079.146	4480315.541	73.6926	-26.3074	14.000
106	400664.000	477082.809	4480317.147	73.6710	-26.3290	14.000
107	400668.000	477086.471	4480318.756	73.6490	-26.3510	14.000
108	400672.000	477090.133	4480320.365	73.6268	-26.3732	14.000
109	400676.000	477093.795	4480321.976	73.6042	-26.3958	14.000
110	400680.000	477097.455	4480323.588	73.5813	-26.4187	14.000
111	400684.000	477101.116	4480325.201	73.5582	-26.4418	14.000
112	400688.000	477104.775	4480326.816	73.5347	-26.4653	14.000
113	400692.000	477108.434	4480328.432	73.5109	-26.4891	14.000
114	400696.000	477112.093	4480330.049	73.4868	-26.5132	14.000
115	400700.000	477115.750	4480331.668	73.4624	-26.5376	14.000
116	400704.000	477119.408	4480333.289	73.4377	-26.5623	14.000
117	400708.000	477123.064	4480334.910	73.4127	-26.5873	14.000
118	400712.000	477126.720	4480336.533	73.3874	-26.6126	14.000
119	400716.000	477130.375	4480338.158	73.3618	-26.6382	14.000
120	400720.000	477134.030	4480339.784	73.3359	-26.6641	14.000
121	400724.000	477137.684	4480341.411	73.3097	-26.6903	14.000
122	400728.000	477141.337	4480343.041	73.2831	-26.7169	14.000
123	400732.000	477144.990	4480344.671	73.2563	-26.7437	14.000
124	400736.000	477148.641	4480346.303	73.2292	-26.7708	14.000
125	400740.000	477152.293	4480347.937	73.2017	-26.7983	14.000
126	400744.000	477155.943	4480349.572	73.1740	-26.8260	14.000
127	400748.000	477159.593	4480351.209	73.1459	-26.8541	14.000
128	400752.000	477163.242	4480352.848	73.1175	-26.8825	14.000
129	400756.000	477166.890	4480354.488	73.0889	-26.9111	14.000
130	400760.000	477170.538	4480356.130	73.0599	-26.9401	14.000
131	400764.000	477174.184	4480357.773	73.0306	-26.9694	14.000
132	400768.000	477177.830	4480359.418	73.0010	-26.9990	14.000
133	400772.000	477181.476	4480361.065	72.9711	-27.0289	14.000
134	400776.000	477185.120	4480362.714	72.9409	-27.0591	14.000
135	400780.000	477188.764	4480364.364	72.9104	-27.0896	14.000
136	400784.000	477192.407	4480366.016	72.8796	-27.1204	14.000
137	400788.000	477196.049	4480367.670	72.8485	-27.1515	14.000
138	400792.000	477199.690	4480369.326	72.8171	-27.1829	14.000
139	400796.000	477203.331	4480370.983	72.7854	-27.2146	14.000
140	400800.000	477206.970	4480372.642	72.7534	-27.2466	14.000
141	400804.000	477210.609	4480374.303	72.7210	-27.2790	14.000
142	400808.000	477214.247	4480375.966	72.6884	-27.3116	14.000
143	400812.000	477217.884	4480377.631	72.6554	-27.3446	14.000
144	400816.000	477221.520	4480379.298	72.6222	-27.3778	14.000
145	400820.000	477225.156	4480380.966	72.5886	-27.4114	14.000
146	400824.000	477228.790	4480382.637	72.5548	-27.4452	14.000
147	400828.000	477232.424	4480384.309	72.5206	-27.4794	14.000
148	400832.000	477236.056	4480385.984	72.4861	-27.5139	14.000
149	400836.000	477239.688	4480387.660	72.4514	-27.5486	14.000
150	400840.000	477243.319	4480389.338	72.4163	-27.5837	14.000
151	400844.000	477246.948	4480391.019	72.3812	-27.6188	14.000
152	400848.000	477250.577	4480392.701	72.3460	-27.6540	14.000
153	400852.000	477254.205	4480394.385	72.3109	-27.6891	14.000
154	400856.000	477257.833	4480396.072	72.2758	-27.7242	14.000
155	400860.000	477261.459	4480397.760	72.2407	-27.7593	14.000
156	400864.000	477265.084	4480399.451	72.2055	-27.7945	14.000
157	400868.000	477268.708	4480401.143	72.1704	-27.8296	14.000
158	400872.000	477272.332	4480402.837	72.1353	-27.8647	14.000
159	400876.000	477275.954	4480404.534	72.1002	-27.8998	14.000
160	400880.000	477279.576	4480406.232	72.0650	-27.9350	14.000
161	400884.000	477283.196	4480407.933	72.0299	-27.9701	14.000
162	400888.000	477286.816	4480409.635	71.9948	-28.0052	14.000
163	400892.000	477290.435	4480411.340	71.9597	-28.0403	14.000
164	400896.000	477294.052	4480413.046	71.9246	-28.0754	14.000
165	400900.000	477297.669	4480414.754	71.8894	-28.1106	14.000
166	400904.000	477301.285	4480416.465	71.8543	-28.1457	14.000
167	400908.000	477304.900	4480418.177	71.8192	-28.1808	14.000
168	400912.000	477308.514	4480419.892	71.7841	-28.2159	14.000
169	400916.000	477312.127	4480421.608	71.7489	-28.2511	14.000
170	400920.000	477315.739	4480423.326	71.7138	-28.2862	14.000
171	400924.000	477319.350	4480425.047	71.6787	-28.3213	14.000
172	400928.000	477322.960	4480426.769	71.6436	-28.3564	14.000
173	400932.000	477326.570	4480428.493	71.6084	-28.3916	14.000
174	400936.000	477330.178	4480430.220	71.5733	-28.4267	14.000
175	400940.000	477333.785	4480431.948	71.5382	-28.4618	14.000
176	400944.000	477337.392	4480433.678	71.5031	-28.4969	14.000
177	400948.000	477340.997	4480435.411	71.4679	-28.5321	14.000
178	400952.000	477344.602	4480437.145	71.4328	-28.5672	14.000
179	400956.000	477348.205	4480438.881	71.3977	-28.6023	14.000
180	400960.000	477351.808	4480440.620	71.3626	-28.6374	14.000
181	400964.000	477355.409	4480442.360	71.3274	-28.6726	14.000
182	400967.200	477358.290	4480443.753	71.2993	-28.7007	14.000
183	400970.400	477361.170	4480445.148	71.2712	-28.7288	14.000
184	400973.600	477364.049	4480446.545	71.2431	-28.7569	14.000

185	400976.800	477366.928	4480447.942	71.2150	-28.7650	14.000
186	400980.000	477369.806	4480449.341	71.1869	-28.8131	14.000
187	400983.200	477372.683	4480450.741	71.1589	-28.8411	14.000
188	400986.400	477375.560	4480452.142	71.1308	-28.8692	14.000
189	400989.600	477378.437	4480453.545	71.1027	-28.8973	14.000
190	400992.800	477381.312	4480454.948	71.0746	-28.9254	14.000
191	400996.000	477384.187	4480456.353	71.0465	-28.9535	14.000

Programa LST0 - Replanteo de viaductos hormigón pretensado y mixtos (V 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

REPLANTEO DEL TABLERO RESPECTO DEL EJE DEL PUENTE

P.	Pk [m]	x [m]	y [m]	Az [grad]	z0 [m]	z1 [m]	z2 [m]
1	400252.000	476704.008	4480155.123	74.449	740.034	740.034	740.034
2	400255.200	476706.954	4480156.373	74.449	740.113	740.113	740.113
3	400258.400	476709.900	4480157.624	74.449	740.193	740.193	740.193
4	400261.600	476712.845	4480158.874	74.449	740.273	740.273	740.273
5	400264.800	476715.791	4480160.124	74.449	740.352	740.352	740.352
6	400268.000	476718.737	4480161.374	74.449	740.432	740.432	740.432
7	400271.200	476721.682	4480162.624	74.449	740.511	740.511	740.511
8	400274.400	476724.628	4480163.874	74.449	740.591	740.591	740.591
9	400277.600	476727.574	4480165.124	74.449	740.670	740.670	740.670
10	400280.800	476730.519	4480166.375	74.449	740.750	740.750	740.750
11	400284.000	476733.465	4480167.625	74.449	740.829	740.829	740.829
12	400288.000	476737.147	4480169.187	74.449	740.929	740.929	740.929
13	400292.000	476740.829	4480170.750	74.449	741.028	741.028	741.028
14	400296.000	476744.512	4480172.313	74.449	741.128	741.128	741.128
15	400300.000	476748.194	4480173.875	74.449	741.227	741.227	741.227
16	400304.000	476751.876	4480175.438	74.449	741.327	741.327	741.327
17	400308.000	476755.558	4480177.001	74.449	741.426	741.426	741.426
18	400312.000	476759.240	4480178.564	74.449	741.525	741.525	741.525
19	400316.000	476762.922	4480180.126	74.449	741.625	741.625	741.625
20	400320.000	476766.604	4480181.689	74.449	741.724	741.724	741.724
21	400324.000	476770.286	4480183.252	74.449	741.824	741.824	741.824
22	400328.000	476773.969	4480184.814	74.449	741.923	741.923	741.923
23	400332.000	476777.651	4480186.377	74.449	742.023	742.023	742.023
24	400336.000	476781.333	4480187.940	74.449	742.122	742.122	742.122
25	400340.000	476785.015	4480189.502	74.449	742.222	742.222	742.222
26	400344.000	476788.697	4480191.065	74.449	742.321	742.321	742.321
27	400348.000	476792.379	4480192.628	74.449	742.420	742.420	742.420
28	400352.000	476796.061	4480194.190	74.449	742.520	742.520	742.520
29	400356.000	476799.743	4480195.753	74.449	742.619	742.619	742.619
30	400360.000	476803.426	4480197.316	74.449	742.719	742.719	742.719
31	400364.000	476807.108	4480198.878	74.449	742.818	742.818	742.818
32	400368.000	476810.790	4480200.441	74.449	742.918	742.918	742.918
33	400372.000	476814.472	4480202.004	74.449	743.017	743.017	743.017
34	400376.000	476818.154	4480203.566	74.449	743.116	743.116	743.116
35	400380.000	476821.836	4480205.129	74.449	743.216	743.216	743.216
36	400384.000	476825.518	4480206.692	74.448	743.315	743.315	743.315
37	400388.000	476829.200	4480208.254	74.448	743.415	743.415	743.415
38	400392.000	476832.882	4480209.817	74.447	743.514	743.514	743.514
39	400396.000	476836.565	4480211.380	74.446	743.614	743.614	743.614
40	400400.000	476840.247	4480212.943	74.444	743.713	743.713	743.713
41	400404.000	476843.929	4480214.506	74.443	743.813	743.813	743.813
42	400408.000	476847.610	4480216.069	74.440	743.912	743.912	743.912
43	400412.000	476851.292	4480217.632	74.438	744.011	744.011	744.011
44	400416.000	476854.974	4480219.196	74.435	744.111	744.111	744.111
45	400420.000	476858.656	4480220.759	74.432	744.210	744.210	744.210
46	400424.000	476862.338	4480222.323	74.429	744.310	744.310	744.310
47	400428.000	476866.019	4480223.887	74.425	744.409	744.409	744.409
48	400432.000	476869.701	4480225.451	74.421	744.509	744.509	744.509
49	400436.000	476873.382	4480227.015	74.417	744.608	744.608	744.608
50	400440.000	476877.063	4480228.580	74.413	744.708	744.708	744.708
51	400444.000	476880.745	4480230.145	74.408	744.807	744.807	744.807
52	400448.000	476884.426	4480231.710	74.403	744.906	744.906	744.906
53	400452.000	476888.107	4480233.275	74.397	745.006	745.006	745.006
54	400456.000	476891.787	4480234.841	74.392	745.105	745.105	745.105
55	400460.000	476895.468	4480236.407	74.385	745.205	745.205	745.205
56	400464.000	476899.149	4480237.974	74.379	745.304	745.304	745.304
57	400468.000	476902.829	4480239.541	74.372	745.404	745.404	745.404
58	400472.000	476906.509	4480241.108	74.365	745.503	745.503	745.503
59	400476.000	476910.189	4480242.676	74.358	745.603	745.603	745.603
60	400480.000	476913.869	4480244.244	74.350	745.702	745.702	745.702
61	400484.000	476917.548	4480245.813	74.343	745.801	745.801	745.801
62	400488.000	476921.228	4480247.382	74.334	745.901	745.901	745.901
63	400492.000	476924.907	4480248.951	74.326	746.000	746.000	746.000
64	400496.000	476928.586	4480250.521	74.317	746.100	746.100	746.100
65	400500.000	476932.265	4480252.092	74.308	746.199	746.199	746.199
66	400504.000	476935.943	4480253.663	74.299	746.299	746.299	746.299
67	400508.000	476939.622	4480255.234	74.289	746.398	746.398	746.398
68	400512.000	476943.300	4480256.807	74.279	746.498	746.498	746.498
69	400516.000	476946.978	4480258.379	74.268	746.597	746.597	746.597
70	400520.000	476950.655	4480259.953	74.258	746.696	746.696	746.696
71	400524.000	476954.332	4480261.527	74.247	746.796	746.796	746.796
72	400528.000	476958.009	4480263.102	74.235	746.895	746.895	746.895
73	400532.000	476961.686	4480264.677	74.224	746.995	746.995	746.995
74	400536.000	476965.363	4480266.253	74.212	747.094	747.094	747.094
75	400540.000	476969.039	4480267.830	74.200	747.194	747.194	747.194
76	400544.000	476972.715	4480269.407	74.187	747.293	747.293	747.293
77	400548.000	476976.390	4480270.985	74.175	747.392	747.392	747.392
78	400552.000	476980.065	4480272.564	74.162	747.492	747.492	747.492
79	400556.000	476983.740	4480274.144	74.148	747.591	747.591	747.591
80	400560.000	476987.415	4480275.724	74.134	747.691	747.691	747.691
81	400564.000	476991.089	4480277.305	74.120	747.790	747.790	747.790
82	400568.000	476994.763	4480278.887	74.106	747.890	747.890	747.890
83	400572.000	476998.436	4480280.470	74.091	747.989	747.989	747.989
84	400576.000	477002.109	4480282.054	74.077	748.089	748.089	748.089
85	400580.000	477005.782	4480283.639	74.061	748.188	748.188	748.188
86	400584.000	477009.454	4480285.224	74.046	748.287	748.287	748.287
87	400588.000	477013.126	4480286.811	74.030	748.387	748.387	748.387
88	400592.000	477016.798	4480288.398	74.014	748.486	748.486	748.486
89	400596.000	477020.469	4480289.986	73.997	748.586	748.586	748.586
90	400600.000	477024.140	4480291.575	73.981	748.685	748.685	748.685
91	400604.000	477027.810	4480293.166	73.964	748.785	748.785	748.785
92	400608.000	477031.480	4480294.757	73.946	748.884	748.884	748.884
93	400612.000	477035.149	4480296.349	73.929	748.984	748.984	748.984
94	400616.000	477038.818	4480297.942	73.910	749.083	749.083	749.083
95	400620.000	477042.487	4480299.537	73.892	749.182	749.182	749.182
96	400624.000	477046.155	4480301.132	73.874	749.282	749.282	749.282
97	400628.000	477049.823	4480302.728	73.855	749.381	749.381	749.381
98	400632.000	477053.490	4480304.326	73.836	749.481	749.481	749.481
99	400636.000	477057.157	4480305.924	73.816	749.580	749.580	749.580
100	400640.000	477060.823	4480307.524	73.796	749.680	749.680	749.680
101	400644.000	477064.488	4480309.125	73.776	749.779	749.779	749.779
102	400648.000	477068.154	4480310.727	73.756	749.879	749.879	749.879
103	400652.000	477071.818	4480312.330	73.735	749.978	749.978	749.978
104	400656.000	477075.482	4480313.935	73.714	750.077	750.077	750.077
105	400660.000	477079.146	4480315.541	73.693	750.177	750.177	750.177
106	400664.000	477082.809	4480317.147	73.671	750.276	750.276	750.276
107	400668.000	477086.471	4480318.756	73.649	750.376	750.376	750.376
108	400672.000	477090.133	4480320.365	73.627	750.475	750.475	750.475
109	400676.000	477093.795	4480321.976	73.604	750.575	750.575	750.575
110	400680.000	477097.455	4480323.588	73.581	750.674	750.674	750.674
111	400684.000	477101.116	4480325.201	73.558	750.774	750.774	750.774
112	400688.000	477104.775	4480326.816	73.535	750.873	750.873	750.873
113	400692.000	477108.434	4480328.432	73.511	750.972	750.972	750.972
114	400696.000	477112.093	4480330.049	73.487	751.072	751.072	751.072
115	400700.000	477115.750	4480331.668	73.462	751.171	751.171	751.171
116	400704.000	477119.408	4480333.289	73.438	751.271	751.271	751.271
117	400708.000	477123.064	4480334.910	73.413	751.370	751.370	751.370
118	400712.000	477126.720	4480336.533	73.387	751.470	751.470	751.470
119	400716.000	477130.375	4480338.158	73.362	751.569	751.569	751.569
120	400720.000	477134.030	4480339.784	73.336	751.669	751.669	751.669

121	400724.000	477137.684	4480341.411	73.310	751.768	751.768	751.768
122	400728.000	477141.337	4480343.041	73.283	751.867	751.867	751.867
123	400732.000	477144.990	4480344.671	73.256	751.967	751.967	751.967
124	400736.000	477148.641	4480346.303	73.229	752.066	752.066	752.066
125	400740.000	477152.293	4480347.937	73.202	752.166	752.166	752.166
126	400744.000	477155.943	4480349.572	73.174	752.265	752.265	752.265
127	400748.000	477159.593	4480351.209	73.146	752.365	752.365	752.365
128	400752.000	477163.242	4480352.848	73.118	752.464	752.464	752.464
129	400756.000	477166.890	4480354.488	73.089	752.563	752.563	752.563
130	400760.000	477170.538	4480356.130	73.060	752.663	752.663	752.663
131	400764.000	477174.184	4480357.773	73.031	752.762	752.762	752.762
132	400768.000	477177.830	4480359.418	73.001	752.862	752.862	752.862
133	400772.000	477181.476	4480361.065	72.971	752.961	752.961	752.961
134	400776.000	477185.120	4480362.714	72.941	753.061	753.061	753.061
135	400780.000	477188.764	4480364.364	72.910	753.160	753.160	753.160
136	400784.000	477192.407	4480366.016	72.880	753.260	753.260	753.260
137	400788.000	477196.049	4480367.670	72.848	753.359	753.359	753.359
138	400792.000	477199.690	4480369.326	72.817	753.458	753.458	753.458
139	400796.000	477203.331	4480370.983	72.785	753.558	753.558	753.558
140	400800.000	477206.970	4480372.642	72.753	753.657	753.657	753.657
141	400804.000	477210.609	4480374.303	72.721	753.757	753.757	753.757
142	400808.000	477214.247	4480375.966	72.688	753.856	753.856	753.856
143	400812.000	477217.884	4480377.631	72.655	753.956	753.956	753.956
144	400816.000	477221.520	4480379.298	72.622	754.055	754.055	754.055
145	400820.000	477225.156	4480380.966	72.589	754.155	754.155	754.155
146	400824.000	477228.790	4480382.637	72.555	754.254	754.254	754.254
147	400828.000	477232.424	4480384.309	72.521	754.353	754.353	754.353
148	400832.000	477236.056	4480385.984	72.486	754.453	754.453	754.453
149	400836.000	477239.688	4480387.660	72.451	754.552	754.552	754.552
150	400840.000	477243.319	4480389.338	72.416	754.652	754.652	754.652
151	400844.000	477246.948	4480391.019	72.381	754.751	754.751	754.751
152	400848.000	477250.577	4480392.701	72.346	754.851	754.851	754.851
153	400852.000	477254.205	4480394.385	72.311	754.950	754.950	754.950
154	400856.000	477257.833	4480396.072	72.276	755.050	755.050	755.050
155	400860.000	477261.459	4480397.760	72.241	755.149	755.149	755.149
156	400864.000	477265.084	4480399.451	72.206	755.248	755.248	755.248
157	400868.000	477268.708	4480401.143	72.170	755.348	755.348	755.348
158	400872.000	477272.332	4480402.837	72.135	755.447	755.447	755.447
159	400876.000	477275.954	4480404.534	72.100	755.547	755.547	755.547
160	400880.000	477279.576	4480406.232	72.065	755.646	755.646	755.646
161	400884.000	477283.196	4480407.933	72.030	755.746	755.746	755.746
162	400888.000	477286.816	4480409.635	71.995	755.845	755.845	755.845
163	400892.000	477290.435	4480411.340	71.960	755.944	755.944	755.944
164	400896.000	477294.052	4480413.046	71.925	756.044	756.044	756.044
165	400900.000	477297.669	4480414.754	71.889	756.143	756.143	756.143
166	400904.000	477301.285	4480416.465	71.854	756.243	756.243	756.243
167	400908.000	477304.900	4480418.177	71.819	756.342	756.342	756.342
168	400912.000	477308.514	4480419.892	71.784	756.442	756.442	756.442
169	400916.000	477312.127	4480421.608	71.749	756.541	756.541	756.541
170	400920.000	477315.739	4480423.326	71.714	756.641	756.641	756.641
171	400924.000	477319.350	4480425.047	71.679	756.740	756.740	756.740
172	400928.000	477322.960	4480426.769	71.644	756.840	756.840	756.840
173	400932.000	477326.570	4480428.493	71.608	756.939	756.939	756.939
174	400936.000	477330.178	4480430.220	71.573	757.038	757.038	757.038
175	400940.000	477333.785	4480431.948	71.538	757.138	757.138	757.138
176	400944.000	477337.392	4480433.678	71.503	757.237	757.237	757.237
177	400948.000	477340.997	4480435.411	71.468	757.337	757.337	757.337
178	400952.000	477344.602	4480437.145	71.433	757.436	757.436	757.436
179	400956.000	477348.205	4480438.881	71.398	757.536	757.536	757.536
180	400960.000	477351.808	4480440.620	71.363	757.635	757.635	757.635
181	400964.000	477355.409	4480442.360	71.327	757.734	757.734	757.734
182	400967.200	477358.290	4480443.753	71.299	757.814	757.814	757.814
183	400970.400	477361.170	4480445.148	71.271	757.894	757.894	757.894
184	400973.600	477364.049	4480446.545	71.243	757.973	757.973	757.973
185	400976.800	477366.928	4480447.942	71.215	758.053	758.053	758.053
186	400980.000	477369.806	4480449.341	71.187	758.132	758.132	758.132
187	400983.200	477372.683	4480450.741	71.159	758.212	758.212	758.212
188	400986.400	477375.560	4480452.142	71.131	758.291	758.291	758.291
189	400989.600	477378.437	4480453.545	71.103	758.371	758.371	758.371
190	400992.800	477381.312	4480454.948	71.075	758.450	758.450	758.450
191	400996.000	477384.187	4480456.353	71.047	758.530	758.530	758.530

Programa LST0 - Replanteo de viaductos hormigón pretensado y mixtos (V 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

DEFINICION DE LAS SECCIONES

Punto	Pk [m]	D1 [m]	D2 [m]	D3 [m]	D4 [m]	C [m]
1	400252.000	2.631	2.631	3.300	7.000	3.200
2	400255.200	2.631	2.631	3.300	7.000	3.200
3	400258.400	2.631	2.631	3.300	7.000	3.200
4	400261.600	2.631	2.631	3.300	7.000	3.200
5	400264.800	2.631	2.631	3.300	7.000	3.200
6	400268.000	2.631	2.631	3.300	7.000	3.200
7	400271.200	2.631	2.631	3.300	7.000	3.200
8	400274.400	2.631	2.631	3.300	7.000	3.200
9	400277.600	2.631	2.631	3.300	7.000	3.200
10	400280.800	2.631	2.631	3.300	7.000	3.200
11	400284.000	2.631	2.631	3.300	7.000	3.200
12	400288.000	2.631	2.631	3.300	7.000	3.200
13	400292.000	2.631	2.631	3.300	7.000	3.200
14	400296.000	2.631	2.631	3.300	7.000	3.200
15	400300.000	2.631	2.631	3.300	7.000	3.200
16	400304.000	2.631	2.631	3.300	7.000	3.200
17	400308.000	2.631	2.631	3.300	7.000	3.200
18	400312.000	2.631	2.631	3.300	7.000	3.200
19	400316.000	2.631	2.631	3.300	7.000	3.200
20	400320.000	2.631	2.631	3.300	7.000	3.200
21	400324.000	2.631	2.631	3.300	7.000	3.200
22	400328.000	2.631	2.631	3.300	7.000	3.200
23	400332.000	2.631	2.631	3.300	7.000	3.200
24	400336.000	2.631	2.631	3.300	7.000	3.200
25	400340.000	2.631	2.631	3.300	7.000	3.200
26	400344.000	2.631	2.631	3.300	7.000	3.200
27	400348.000	2.631	2.631	3.300	7.000	3.200
28	400352.000	2.631	2.631	3.300	7.000	3.200
29	400356.000	2.631	2.631	3.300	7.000	3.200
30	400360.000	2.631	2.631	3.300	7.000	3.200
31	400364.000	2.631	2.631	3.300	7.000	3.200
32	400368.000	2.631	2.631	3.300	7.000	3.200
33	400372.000	2.631	2.631	3.300	7.000	3.200
34	400376.000	2.631	2.631	3.300	7.000	3.200
35	400380.000	2.631	2.631	3.300	7.000	3.200
36	400384.000	2.631	2.631	3.300	7.000	3.200
37	400388.000	2.631	2.631	3.300	7.000	3.200
38	400392.000	2.631	2.631	3.300	7.000	3.200
39	400396.000	2.631	2.631	3.300	7.000	3.200
40	400400.000	2.631	2.631	3.300	7.000	3.200
41	400404.000	2.631	2.631	3.300	7.000	3.200
42	400408.000	2.631	2.631	3.300	7.000	3.200
43	400412.000	2.631	2.631	3.300	7.000	3.200
44	400416.000	2.631	2.631	3.300	7.000	3.200
45	400420.000	2.631	2.631	3.300	7.000	3.200
46	400424.000	2.631	2.631	3.300	7.000	3.200
47	400428.000	2.631	2.631	3.300	7.000	3.200
48	400432.000	2.631	2.631	3.300	7.000	3.200
49	400436.000	2.631	2.631	3.300	7.000	3.200
50	400440.000	2.631	2.631	3.300	7.000	3.200
51	400444.000	2.631	2.631	3.300	7.000	3.200
52	400448.000	2.631	2.631	3.300	7.000	3.200
53	400452.000	2.631	2.631	3.300	7.000	3.200
54	400456.000	2.631	2.631	3.300	7.000	3.200
55	400460.000	2.631	2.631	3.300	7.000	3.200
56	400464.000	2.631	2.631	3.300	7.000	3.200

57	400468.000	2.631	2.631	3.300	7.000	3.200
58	400472.000	2.631	2.631	3.300	7.000	3.200
59	400476.000	2.631	2.631	3.300	7.000	3.200
60	400480.000	2.631	2.631	3.300	7.000	3.200
61	400484.000	2.631	2.631	3.300	7.000	3.200
62	400488.000	2.631	2.631	3.300	7.000	3.200
63	400492.000	2.631	2.631	3.300	7.000	3.200
64	400496.000	2.631	2.631	3.300	7.000	3.200
65	400500.000	2.631	2.631	3.300	7.000	3.200
66	400504.000	2.631	2.631	3.300	7.000	3.200
67	400508.000	2.631	2.631	3.300	7.000	3.200
68	400512.000	2.631	2.631	3.300	7.000	3.200
69	400516.000	2.631	2.631	3.300	7.000	3.200
70	400520.000	2.631	2.631	3.300	7.000	3.200
71	400524.000	2.631	2.631	3.300	7.000	3.200
72	400528.000	2.631	2.631	3.300	7.000	3.200
73	400532.000	2.631	2.631	3.300	7.000	3.200
74	400536.000	2.631	2.631	3.300	7.000	3.200
75	400540.000	2.631	2.631	3.300	7.000	3.200
76	400544.000	2.631	2.631	3.300	7.000	3.200
77	400548.000	2.631	2.631	3.300	7.000	3.200
78	400552.000	2.631	2.631	3.300	7.000	3.200
79	400556.000	2.631	2.631	3.300	7.000	3.200
80	400560.000	2.631	2.631	3.300	7.000	3.200
81	400564.000	2.631	2.631	3.300	7.000	3.200
82	400568.000	2.631	2.631	3.300	7.000	3.200
83	400572.000	2.631	2.631	3.300	7.000	3.200
84	400576.000	2.631	2.631	3.300	7.000	3.200
85	400580.000	2.631	2.631	3.300	7.000	3.200
86	400584.000	2.631	2.631	3.300	7.000	3.200
87	400588.000	2.631	2.631	3.300	7.000	3.200
88	400592.000	2.631	2.631	3.300	7.000	3.200
89	400596.000	2.631	2.631	3.300	7.000	3.200
90	400600.000	2.631	2.631	3.300	7.000	3.200
91	400604.000	2.631	2.631	3.300	7.000	3.200
92	400608.000	2.631	2.631	3.300	7.000	3.200
93	400612.000	2.631	2.631	3.300	7.000	3.200
94	400616.000	2.631	2.631	3.300	7.000	3.200
95	400620.000	2.631	2.631	3.300	7.000	3.200
96	400624.000	2.631	2.631	3.300	7.000	3.200
97	400628.000	2.631	2.631	3.300	7.000	3.200
98	400632.000	2.631	2.631	3.300	7.000	3.200
99	400636.000	2.631	2.631	3.300	7.000	3.200
100	400640.000	2.631	2.631	3.300	7.000	3.200
101	400644.000	2.631	2.631	3.300	7.000	3.200
102	400648.000	2.631	2.631	3.300	7.000	3.200
103	400652.000	2.631	2.631	3.300	7.000	3.200
104	400656.000	2.631	2.631	3.300	7.000	3.200
105	400660.000	2.631	2.631	3.300	7.000	3.200
106	400664.000	2.631	2.631	3.300	7.000	3.200
107	400668.000	2.631	2.631	3.300	7.000	3.200
108	400672.000	2.631	2.631	3.300	7.000	3.200
109	400676.000	2.631	2.631	3.300	7.000	3.200
110	400680.000	2.631	2.631	3.300	7.000	3.200
111	400684.000	2.631	2.631	3.300	7.000	3.200
112	400688.000	2.631	2.631	3.300	7.000	3.200
113	400692.000	2.631	2.631	3.300	7.000	3.200
114	400696.000	2.631	2.631	3.300	7.000	3.200
115	400700.000	2.631	2.631	3.300	7.000	3.200
116	400704.000	2.631	2.631	3.300	7.000	3.200
117	400708.000	2.631	2.631	3.300	7.000	3.200
118	400712.000	2.631	2.631	3.300	7.000	3.200
119	400716.000	2.631	2.631	3.300	7.000	3.200
120	400720.000	2.631	2.631	3.300	7.000	3.200
121	400724.000	2.631	2.631	3.300	7.000	3.200
122	400728.000	2.631	2.631	3.300	7.000	3.200
123	400732.000	2.631	2.631	3.300	7.000	3.200
124	400736.000	2.631	2.631	3.300	7.000	3.200
125	400740.000	2.631	2.631	3.300	7.000	3.200
126	400744.000	2.631	2.631	3.300	7.000	3.200
127	400748.000	2.631	2.631	3.300	7.000	3.200
128	400752.000	2.631	2.631	3.300	7.000	3.200
129	400756.000	2.631	2.631	3.300	7.000	3.200
130	400760.000	2.631	2.631	3.300	7.000	3.200
131	400764.000	2.631	2.631	3.300	7.000	3.200
132	400768.000	2.631	2.631	3.300	7.000	3.200
133	400772.000	2.631	2.631	3.300	7.000	3.200
134	400776.000	2.631	2.631	3.300	7.000	3.200
135	400780.000	2.631	2.631	3.300	7.000	3.200
136	400784.000	2.631	2.631	3.300	7.000	3.200
137	400788.000	2.631	2.631	3.300	7.000	3.200
138	400792.000	2.631	2.631	3.300	7.000	3.200
139	400796.000	2.631	2.631	3.300	7.000	3.200
140	400800.000	2.631	2.631	3.300	7.000	3.200
141	400804.000	2.631	2.631	3.300	7.000	3.200
142	400808.000	2.631	2.631	3.300	7.000	3.200
143	400812.000	2.631	2.631	3.300	7.000	3.200
144	400816.000	2.631	2.631	3.300	7.000	3.200
145	400820.000	2.631	2.631	3.300	7.000	3.200
146	400824.000	2.631	2.631	3.300	7.000	3.200
147	400828.000	2.631	2.631	3.300	7.000	3.200
148	400832.000	2.631	2.631	3.300	7.000	3.200
149	400836.000	2.631	2.631	3.300	7.000	3.200
150	400840.000	2.631	2.631	3.300	7.000	3.200
151	400844.000	2.631	2.631	3.300	7.000	3.200
152	400848.000	2.631	2.631	3.300	7.000	3.200
153	400852.000	2.631	2.631	3.300	7.000	3.200
154	400856.000	2.631	2.631	3.300	7.000	3.200
155	400860.000	2.631	2.631	3.300	7.000	3.200
156	400864.000	2.631	2.631	3.300	7.000	3.200
157	400868.000	2.631	2.631	3.300	7.000	3.200
158	400872.000	2.631	2.631	3.300	7.000	3.200
159	400876.000	2.631	2.631	3.300	7.000	3.200
160	400880.000	2.631	2.631	3.300	7.000	3.200
161	400884.000	2.631	2.631	3.300	7.000	3.200
162	400888.000	2.631	2.631	3.300	7.000	3.200
163	400892.000	2.631	2.631	3.300	7.000	3.200
164	400896.000	2.631	2.631	3.300	7.000	3.200
165	400900.000	2.631	2.631	3.300	7.000	3.200
166	400904.000	2.631	2.631	3.300	7.000	3.200
167	400908.000	2.631	2.631	3.300	7.000	3.200
168	400912.000	2.631	2.631	3.300	7.000	3.200
169	400916.000	2.631	2.631	3.300	7.000	3.200
170	400920.000	2.631	2.631	3.300	7.000	3.200
171	400924.000	2.631	2.631	3.300	7.000	3.200
172	400928.000	2.631	2.631	3.300	7.000	3.200
173	400932.000	2.631	2.631	3.300	7.000	3.200
174	400936.000	2.631	2.631	3.300	7.000	3.200
175	400940.000	2.631	2.631	3.300	7.000	3.200
176	400944.000	2.631	2.631	3.300	7.000	3.200
177	400948.000	2.631	2.631	3.300	7.000	3.200
178	400952.000	2.631	2.631	3.300	7.000	3.200
179	400956.000	2.631	2.631	3.300	7.000	3.200
180	400960.000	2.631	2.631	3.300	7.000	3.200
181	400964.000	2.631	2.631	3.300	7.000	3.200
182	400967.200	2.631	2.631	3.300	7.000	3.200
183	400970.400	2.631	2.631	3.300	7.000	3.200
184	400973.600	2.631	2.631	3.300	7.000	3.200
185	400976.800	2.631	2.631	3.300	7.000	3.200
186	400980.000	2.631	2.631	3.300	7.000	3.200
187	400983.200	2.631	2.631	3.300	7.000	3.200
188	400986.400	2.631	2.631	3.300	7.000	3.200
189	400989.600	2.631	2.631	3.300	7.000	3.200
190	400992.800	2.631	2.631	3.300	7.000	3.200
191	400996.000	2.631	2.631	3.300	7.000	3.200

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

REPLANTEO DE LOS APOYOS

Pk [m]	Apoyo	#Neop	ZNeopS [m]	ZNMB [m]	ZAP [m]
400252.000	1	1	736.834	736.794	736.580
		2	736.834	736.794	736.580
400284.000	2	1	737.629	737.581	737.287
		2	737.629	737.581	737.287
400324.000	3	1	738.624	738.576	738.282
		2	738.624	738.576	738.282
400364.000	4	1	739.618	739.571	739.276
		2	739.618	739.571	739.276
400404.000	5	1	740.613	740.566	740.271
		2	740.613	740.566	740.271
400444.000	6	1	741.607	741.560	741.266
		2	741.607	741.560	741.266
400484.000	7	1	742.601	742.554	742.260
		2	742.601	742.554	742.260
400524.000	8	1	743.596	743.550	743.255
		2	743.596	743.550	743.255
400564.000	9	1	744.590	744.544	744.249
		2	744.590	744.544	744.249
400604.000	10	1	745.585	745.539	745.244
		2	745.585	745.539	745.244
400644.000	11	1	746.579	746.533	746.239
		2	746.579	746.533	746.239
400684.000	12	1	747.574	747.529	747.234
		2	747.574	747.529	747.234
400724.000	13	1	748.568	748.523	748.228
		2	748.568	748.523	748.228
400764.000	14	1	749.562	749.517	749.222
		2	749.562	749.517	749.222
400804.000	15	1	750.557	750.512	750.218
		2	750.557	750.512	750.218
400844.000	16	1	751.551	751.507	751.212
		2	751.551	751.507	751.212
400884.000	17	1	752.546	752.502	752.207
		2	752.546	752.502	752.207
400924.000	18	1	753.540	753.496	753.201
		2	753.540	753.496	753.201
400964.000	19	1	754.534	754.490	754.196
		2	754.534	754.490	754.196
400996.000	20	1	755.330	755.290	755.056
		2	755.330	755.290	755.056

Programa LST0 - Replanteo de viaductos hormigón pretensado y mixtos (V 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

REPLANTEO EJE DE PILAS Y ESTRIBOS

Apoyo	Pk. [m]	sobreespesor [m]	x [m]	y [m]	Az [grad]
E-1	400252.000	0.000	476704.008	4480155.123	-25.5513
P-1	400284.000	0.000	476733.465	4480167.625	-25.5513
P-2	400324.000	0.000	476770.286	4480183.252	-25.5513
P-3	400364.000	0.000	476807.108	4480198.878	-25.5513
P-4	400404.000	0.000	476843.929	4480214.506	-25.5575
P-5	400444.000	0.000	476880.745	4480230.145	-25.5922
P-6	400484.000	0.000	476917.548	4480245.813	-25.6574
P-7	400524.000	0.000	476954.332	4480261.527	-25.7532
P-8	400564.000	0.000	476991.089	4480277.305	-25.8796
P-9	400604.000	0.000	477027.810	4480293.166	-26.0364
P-10	400644.000	0.000	477064.488	4480309.125	-26.2239
P-11	400684.000	0.000	477101.116	4480325.201	-26.4418
P-12	400724.000	0.000	477137.684	4480341.411	-26.6903
P-13	400764.000	0.000	477174.184	4480357.773	-26.9694
P-14	400804.000	0.000	477210.609	4480374.303	-27.2790
P-15	400844.000	0.000	477246.948	4480391.019	-27.6188
P-16	400884.000	0.000	477283.196	4480407.933	-27.9701
P-17	400924.000	0.000	477319.350	4480425.047	-28.3213
P-18	400964.000	0.000	477355.409	4480442.360	-28.6726
E-2	400996.000	0.000	477384.187	4480456.353	-28.9535

14.3 Modelos de cálculo. Análisis Global del Tablero

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.SK 5
.TP 15

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*     DATOS - ESTRUCTURA    *
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Titulo proy.:  L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

Unidades     :   M , T
.SK 3
.TP 12
D A T O S  D E  N U D O S:( 211 Nudo )          Apoyo          Especial
.TK 3
                  X            Y            Z         V     R
 Nudo          [ M]         [ M]         [ M]       XYZ   XYZ
-------------------------------------------------------------------------
    1        0.0000       0.0000      98.6310                    rotado
    2        2.9460       1.2500      98.8340
    3        5.8920       2.5010      98.8340
    4        8.8370       3.7510      98.8340
    5       11.7830       5.0010      98.8340
    6       14.7290       6.2510      98.8340
    7       17.6740       7.5010      98.8340
    8       20.6200       8.7510      98.8340
    9       23.5660      10.0010      98.8340
   10       26.5110      11.2520      98.8340
   11       29.4570      12.5020      98.7230                    rotado
   12       33.1390      14.0640      98.8340
   13       36.8210      15.6270      98.8340
   14       40.5040      17.1900      98.8340
   15       44.1860      18.7520      98.8340
   16       47.8680      20.3150      98.8340
   17       51.5500      21.8780      98.8340
   18       55.2320      23.4410      98.8340
   19       58.9140      25.0030      98.8340
   20       62.5960      26.5660      98.8340
   21       66.2780      28.1290      98.7230                    rotado
   22       69.9610      29.6910      98.8340
   23       73.6430      31.2540      98.8340
   24       77.3250      32.8170      98.8340
   25       81.0070      34.3790      98.8340
   26       84.6890      35.9420      98.8340
   27       88.3710      37.5050      98.8340
   28       92.0530      39.0670      98.8340
   29       95.7350      40.6300      98.8340
   30       99.4180      42.1930      98.8340
   31      103.1000      43.7550      98.7230                    rotado
   32      106.7820      45.3180      98.8340
   33      110.4640      46.8810      98.8340
   34      114.1460      48.4430      98.8340
   35      117.8280      50.0060      98.8340
   36      121.5100      51.5690      98.8340
   37      125.1920      53.1310      98.8340
   38      128.8740      54.6940      98.8340
   39      132.5570      56.2570      98.8340
   40      136.2390      57.8200      98.8340
   41      139.9210      59.3830      98.7230                    rotado
   42      143.6020      60.9460      98.8340
   43      147.2840      62.5090      98.8340
   44      150.9660      64.0730      98.8340
   45      154.6480      65.6360      98.8340
   46      158.3300      67.2000      98.8340
   47      162.0110      68.7640      98.8340
   48      165.6930      70.3280      98.8340
   49      169.3740      71.8920      98.8340
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50	173.0550	73.4570	98.8340	
51	176.7370	75.0220	98.7230	rotado
52	180.4180	76.5870	98.8340	
53	184.0990	78.1520	98.8340	
54	187.7790	79.7180	98.8340	
55	191.4600	81.2840	98.8340	
56	195.1410	82.8510	98.8340	
57	198.8210	84.4180	98.8340	
58	202.5010	85.9850	98.8340	
59	206.1810	87.5530	98.8340	
60	209.8610	89.1210	98.8340	
61	213.5400	90.6900	98.7230	rotado
62	217.2200	92.2590	98.8340	
63	220.8990	93.8280	98.8340	
64	224.5780	95.3980	98.8340	
65	228.2570	96.9690	98.8340	
66	231.9350	98.5400	98.8340	
67	235.6140	100.1110	98.8340	
68	239.2920	101.6840	98.8340	
69	242.9700	103.2560	98.8340	
70	246.6470	104.8300	98.8340	
71	250.3240	106.4040	98.7230	rotado
72	254.0010	107.9790	98.8340	
73	257.6780	109.5540	98.8340	
74	261.3550	111.1300	98.8340	
75	265.0310	112.7070	98.8340	
76	268.7070	114.2840	98.8340	
77	272.3820	115.8620	98.8340	
78	276.0570	117.4410	98.8340	
79	279.7320	119.0210	98.8340	
80	283.4070	120.6010	98.8340	
81	287.0810	122.1820	98.7230	rotado
82	290.7550	123.7640	98.8340	
83	294.4280	125.3470	98.8340	
84	298.1010	126.9310	98.8340	
85	301.7740	128.5160	98.8340	
86	305.4460	130.1010	98.8340	
87	309.1180	131.6880	98.8340	
88	312.7900	133.2750	98.8340	
89	316.4610	134.8630	98.8340	
90	320.1320	136.4520	98.8340	
91	323.8020	138.0430	98.7230	rotado
92	327.4720	139.6340	98.8340	
93	331.1410	141.2260	98.8340	
94	334.8100	142.8190	98.8340	
95	338.4790	144.4140	98.8340	
96	342.1470	146.0090	98.8340	
97	345.8150	147.6050	98.8340	
98	349.4820	149.2030	98.8340	
99	353.1490	150.8010	98.8340	
100	356.8150	152.4010	98.8340	
101	360.4800	154.0020	98.7230	rotado
102	364.1460	155.6040	98.8340	
103	367.8100	157.2070	98.8340	
104	371.4740	158.8120	98.8340	
105	375.1380	160.4180	98.8340	
106	378.8010	162.0240	98.8340	
107	382.4630	163.6330	98.8340	
108	386.1250	165.2420	98.8340	
109	389.7870	166.8530	98.8340	
110	393.4470	168.4650	98.8340	
111	397.1080	170.0780	98.7230	rotado
112	400.7670	171.6930	98.8340	
113	404.4260	173.3090	98.8340	
114	408.0850	174.9260	98.8340	
115	411.7420	176.5450	98.8340	
116	415.4000	178.1660	98.8340	
117	419.0560	179.7870	98.8340	
118	422.7120	181.4100	98.8340	
119	426.3670	183.0350	98.8340	
120	430.0220	184.6610	98.8340	
121	433.6760	186.2880	98.7230	rotado
122	437.3290	187.9160	98.8340	
123	440.9820	189.5480	98.8340	
124	444.6330	191.1800	98.8340	
125	448.2850	192.8140	98.8340	
126	451.9350	194.4490	98.8340	
127	455.5850	196.0860	98.8340	
128	459.2340	197.7250	98.8340	
129	462.8820	199.3650	98.8340	
130	466.5300	201.0070	98.8340	
131	470.1760	202.6500	98.7230	rotado
132	473.8220	204.2950	98.8340	
133	477.4680	205.9420	98.8340	
134	481.1120	207.5910	98.8340	
135	484.7560	209.2410	98.8340	
136	488.3990	210.8930	98.8340	
137	492.0410	212.5470	98.8340	
138	495.6820	214.2030	98.8340	
139	499.3230	215.8600	98.8340	
140	502.9620	217.5190	98.8340	
141	506.6010	219.1800	98.7230	rotado
142	510.2390	220.8430	98.8340	
143	513.8760	222.5080	98.8340	
144	517.5120	224.1750	98.8340	
145	521.1480	225.8430	98.8340	
146	524.7820	227.5140	98.8340	
147	528.4160	229.1860	98.8340	
148	532.0480	230.8610	98.8340	
149	535.6800	232.5370	98.8340	
150	539.3110	234.2150	98.8340	
151	542.9400	235.8960	98.7230	rotado
152	546.5690	237.5780	98.8340	
153	550.1970	239.2620	98.8340	
154	553.8250	240.9490	98.8340	
155	557.4510	242.6370	98.8340	
156	561.0760	244.3280	98.8340	
157	564.7000	246.0200	98.8340	
158	568.3240	247.7140	98.8340	
159	571.9460	249.4110	98.8340	
160	575.5680	251.1090	98.8340	
161	579.1880	252.8100	98.7230	rotado
162	582.8080	254.5120	98.8340	
163	586.4270	256.2170	98.8340	
164	590.0440	257.9230	98.8340	
165	593.6610	259.6310	98.8340	
166	597.2770	261.3420	98.8340	
167	600.8920	263.0540	98.8340	
168	604.5060	264.7690	98.8340	
169	608.1190	266.4850	98.8340	
170	611.7310	268.2030	98.8340	
171	615.3420	269.9240	98.7230	rotado
172	618.9520	271.6460	98.8340	
173	622.5620	273.3700	98.8340	
174	626.1700	275.0970	98.8340	
175	629.7770	276.8250	98.8340	
176	633.3840	278.5550	98.8340	
177	636.9890	280.2880	98.8340	
178	640.5940	282.0220	98.8340	
179	644.1970	283.7580	98.8340	
180	647.8000	285.4970	98.8340	
181	651.4010	287.2370	98.7230	rotado
182	654.2820	288.6300	98.8340	
183	657.1620	290.0250	98.8340	
184	660.0410	291.4220	98.8340	
185	662.9200	292.8190	98.8340	
186	665.7980	294.2180	98.8340	
187	668.6750	295.6180	98.8340	
188	671.5520	297.0190	98.8340	
189	674.4290	298.4220	98.8340	

190	677.3040	299.8250	98.8340			
191	680.1790	301.2300	98.7230			rotado
1002	29.4570	12.5020	89.8000	BBB	BBB	
1003	66.2780	28.1290	86.8000	BBB	BBB	
1004	103.1000	43.7550	85.8000	BBB	BBB	
1005	139.9210	59.3830	84.8000	BBB	BBB	
1006	176.7370	75.0220	83.8000	BBB	BBB	
1007	213.5400	90.6900	82.8000	BBB	BBB	
1008	250.3240	106.4040	82.8000	BBB	BBB	
1009	287.0810	122.1820	82.8000	BBB	BBB	
1010	323.8020	138.0430	81.8000	BBB	BBB	
1011	360.4800	154.0020	81.8000	BBB	BBB	
1012	397.1080	170.0780	81.8000	BBB	BBB	
1013	433.6760	186.2880	82.8000	BBB	BBB	
1014	470.1760	202.6500	82.8000	BBB	BBB	
1015	506.6010	219.1800	83.8000	BBB	BBB	
1016	542.9400	235.8960	84.8000	BBB	BBB	
1017	579.1880	252.8100	86.8000	BBB	BBB	
1018	615.3420	269.9240	89.8000	BBB	BBB	
1019	651.4010	287.2370	92.8000	BBB	BBB	
2001	0.0000	0.0000	97.6310	BBB	BBB	
2002	680.1790	301.2300	97.7230	BBB	BBB	

.TK 0
.SK 3
.TP 12

NUDOS CON SISTEMA DE COORDENADAS ROTADAS:

.TK 3

Nudo	K1 X1	K2 Y1	K3 Z1	X2	Y2	Z2
1	2.95E+00	1.25E+00	0.00E+00	2.95E+00	2.50E+00	0.00E+00
11	2.95E+00	1.25E+00	0.00E+00	2.95E+00	2.50E+00	0.00E+00
21	3.68E+00	1.56E+00	0.00E+00	3.68E+00	3.13E+00	0.00E+00
31	3.68E+00	1.56E+00	0.00E+00	3.68E+00	3.13E+00	0.00E+00
41	3.68E+00	1.56E+00	0.00E+00	3.68E+00	3.13E+00	0.00E+00
51	3.68E+00	1.57E+00	0.00E+00	3.68E+00	3.13E+00	0.00E+00
61	3.68E+00	1.57E+00	0.00E+00	3.68E+00	3.14E+00	0.00E+00
71	3.68E+00	1.57E+00	0.00E+00	3.68E+00	3.15E+00	0.00E+00
81	3.67E+00	1.58E+00	0.00E+00	3.67E+00	3.16E+00	0.00E+00
91	3.67E+00	1.59E+00	0.00E+00	3.67E+00	3.18E+00	0.00E+00
101	3.66E+00	1.60E+00	0.00E+00	3.66E+00	3.20E+00	0.00E+00
111	3.66E+00	1.61E+00	0.00E+00	3.66E+00	3.22E+00	0.00E+00
121	3.65E+00	1.63E+00	0.00E+00	3.65E+00	3.25E+00	0.00E+00
131	3.65E+00	1.64E+00	0.00E+00	3.65E+00	3.29E+00	0.00E+00
141	3.64E+00	1.66E+00	0.00E+00	3.64E+00	3.32E+00	0.00E+00
151	3.63E+00	1.68E+00	0.00E+00	3.63E+00	3.36E+00	0.00E+00
161	3.62E+00	1.70E+00	0.00E+00	3.62E+00	3.40E+00	0.00E+00
171	3.61E+00	1.72E+00	0.00E+00	3.61E+00	3.44E+00	0.00E+00
181	3.60E+00	1.74E+00	0.00E+00	3.60E+00	3.48E+00	0.00E+00
191	2.88E+00	1.40E+00	0.00E+00	2.88E+00	2.81E+00	0.00E+00

.TK 0
.SK 4
.TP 8

D A T O S B A R R A S : (210 Barras)

.TK 3

Barra	Incidencias Inicio	Fin	Long.Barras [M]	Nombre-sec. (Cant.var)	Articulaciones Especial Inicio	Fin
1	1	2	3.2067	Canto variable		
2	2	3	3.2006	Canto variable		
3	3	4	3.1993	Canto variable		
4	4	5	3.2002	Canto variable		
5	5	6	3.2002	Canto variable		
6	6	7	3.1993	Canto variable		
7	7	8	3.2002	Canto variable		
8	8	9	3.2002	Canto variable		
9	9	10	3.1997	Canto variable		
10	10	11	3.2021	Canto variable		
11	11	12	4.0012	Canto variable		
12	12	13	4.0000	Canto variable		
13	13	14	4.0009	Canto variable		
14	14	15	3.9996	Canto variable		
15	15	16	4.0000	Canto variable		
16	16	17	4.0000	Canto variable		
17	17	18	4.0000	Canto variable		
18	18	19	3.9996	Canto variable		
19	19	20	4.0000	Canto variable		
20	20	21	4.0016	Canto variable		
21	21	22	4.0021	Canto variable		
22	22	23	4.0000	Canto variable		
23	23	24	4.0000	Canto variable		
24	24	25	3.9996	Canto variable		
25	25	26	4.0000	Canto variable		
26	26	27	4.0000	Canto variable		
27	27	28	3.9996	Canto variable		
28	28	29	4.0000	Canto variable		
29	29	30	4.0009	Canto variable		
30	30	31	4.0012	Canto variable		
31	31	32	4.0016	Canto variable		
32	32	33	4.0000	Canto variable		
33	33	34	3.9996	Canto variable		
34	34	35	4.0000	Canto variable		
35	35	36	4.0000	Canto variable		
36	36	37	3.9996	Canto variable		
37	37	38	4.0000	Canto variable		
38	38	39	4.0009	Canto variable		
39	39	40	4.0000	Canto variable		
40	40	41	4.0016	Canto variable		
41	41	42	4.0006	Canto variable		
42	42	43	4.0000	Canto variable		
43	43	44	4.0004	Canto variable		
44	44	45	4.0000	Canto variable		
45	45	46	4.0004	Canto variable		
46	46	47	3.9995	Canto variable		
47	47	48	4.0004	Canto variable		
48	48	49	3.9995	Canto variable		
49	49	50	3.9999	Canto variable		
50	50	51	4.0023	Canto variable		
51	51	52	4.0014	Canto variable		
52	52	53	3.9999	Canto variable		
53	53	54	3.9994	Canto variable		
54	54	55	4.0003	Canto variable		
55	55	56	4.0007	Canto variable		
56	56	57	3.9997	Canto variable		
57	57	58	3.9997	Canto variable		
58	58	59	4.0001	Canto variable		
59	59	60	4.0001	Canto variable		
60	60	61	4.0011	Canto variable		
61	61	62	4.0021	Canto variable		
62	62	63	3.9996	Canto variable		
63	63	64	4.0000	Canto variable		
64	64	65	4.0004	Canto variable		
65	65	66	3.9995	Canto variable		
66	66	67	4.0004	Canto variable		
67	67	68	4.0003	Canto variable		
68	68	69	3.9999	Canto variable		
69	69	70	3.9997	Canto variable		
70	70	71	4.0013	Canto variable		
71	71	72	4.0017	Canto variable		
72	72	73	4.0001	Canto variable		
73	73	74	4.0005	Canto variable		
74	74	75	4.0000	Canto variable		
75	75	76	4.0000	Canto variable		
76	76	77	3.9995	Canto variable		
77	77	78	3.9999	Canto variable		
78	78	79	4.0002	Canto variable		
79	79	80	4.0003	Canto variable		
80	80	81	4.0013	Canto variable		
81	81	82	4.0017	Canto variable		
82	82	83	3.9996	Canto variable		

83	83	84	4.0000	Canto variable
84	84	85	4.0004	Canto variable
85	85	86	3.9995	Canto variable
86	86	87	4.0003	Canto variable
87	87	88	4.0003	Canto variable
88	88	89	3.9997	Canto variable
89	89	90	4.0001	Canto variable
90	90	91	4.0016	Canto variable
91	91	92	4.0015	Canto variable
92	92	93	3.9995	Canto variable
93	93	94	3.9999	Canto variable
94	94	95	4.0007	Canto variable
95	95	96	3.9998	Canto variable
96	96	97	4.0002	Canto variable
97	97	98	4.0001	Canto variable
98	98	99	4.0001	Canto variable
99	99	100	4.0000	Canto variable
100	100	101	4.0010	Canto variable
101	101	102	4.0023	Canto variable
102	102	103	3.9993	Canto variable
103	103	104	4.0001	Canto variable
104	104	105	4.0005	Canto variable
105	105	106	3.9996	Canto variable
106	106	107	3.9999	Canto variable
107	107	108	3.9999	Canto variable
108	108	109	4.0007	Canto variable
109	109	110	3.9993	Canto variable
110	110	111	4.0021	Canto variable
111	111	112	4.0011	Canto variable
112	112	113	4.0000	Canto variable
113	113	114	4.0004	Canto variable
114	114	115	3.9994	Canto variable
115	115	116	4.0011	Canto variable
116	116	117	3.9993	Canto variable
117	117	118	4.0001	Canto variable
118	118	119	4.0000	Canto variable
119	119	120	4.0004	Canto variable
120	120	121	4.0014	Canto variable
121	121	122	4.0017	Canto variable
122	122	123	4.0002	Canto variable
123	123	124	3.9991	Canto variable
124	124	125	4.0009	Canto variable
125	125	126	3.9995	Canto variable
126	126	127	4.0003	Canto variable
127	127	128	4.0002	Canto variable
128	128	129	3.9997	Canto variable
129	129	130	4.0005	Canto variable
130	130	131	4.0006	Canto variable
131	131	132	4.0015	Canto variable
132	132	133	4.0007	Canto variable
133	133	134	3.9998	Canto variable
134	134	135	4.0002	Canto variable
135	135	136	4.0000	Canto variable
136	136	137	4.0000	Canto variable
137	137	138	3.9999	Canto variable
138	138	139	4.0003	Canto variable
139	139	140	3.9993	Canto variable
140	140	141	4.0017	Canto variable
141	141	142	4.0016	Canto variable
142	142	143	4.0000	Canto variable
143	143	144	4.0000	Canto variable
144	144	145	4.0003	Canto variable
145	145	146	3.9998	Canto variable
146	146	147	4.0002	Canto variable
147	147	148	3.9996	Canto variable
148	148	149	4.0001	Canto variable
149	149	150	4.0000	Canto variable
150	150	151	4.0010	Canto variable
151	151	152	4.0014	Canto variable
152	152	153	3.9998	Canto variable
153	153	154	4.0010	Canto variable
154	154	155	3.9996	Canto variable
155	155	156	4.0000	Canto variable
156	156	157	3.9996	Canto variable
157	157	158	4.0003	Canto variable
158	158	159	3.9998	Canto variable
159	159	160	4.0003	Canto variable
160	160	161	4.0013	Canto variable
161	161	162	4.0017	Canto variable
162	162	163	4.0005	Canto variable
163	163	164	3.9991	Canto variable
164	164	165	4.0000	Canto variable
165	165	166	4.0003	Canto variable
166	166	167	3.9999	Canto variable
167	167	168	4.0002	Canto variable
168	168	169	3.9998	Canto variable
169	169	170	3.9998	Canto variable
170	170	171	4.0017	Canto variable
171	171	172	4.0012	Canto variable
172	172	173	4.0005	Canto variable
173	173	174	4.0000	Canto variable
174	174	175	3.9996	Canto variable
175	175	176	4.0004	Canto variable
176	176	177	4.0000	Canto variable
177	177	178	4.0003	Canto variable
178	178	179	3.9994	Canto variable
179	179	180	4.0007	Canto variable
180	180	181	4.0009	Canto variable
181	181	182	3.2020	Canto variable
182	182	183	3.2001	Canto variable
183	183	184	3.2001	Canto variable
184	184	185	3.2000	Canto variable
185	185	186	3.2000	Canto variable
186	186	187	3.1996	Canto variable
187	187	188	3.2000	Canto variable
188	188	189	3.2009	Canto variable
189	189	190	3.1991	Canto variable
190	190	191	3.2019	Canto variable
1002*	11	1002	8.9230	Canto variable --***- ------ Ori
1003*	21	1003	11.9230	Canto variable --***- ------ Ori
1004*	31	1004	12.9230	Canto variable --***- ------ Ori
1005*	41	1005	13.9230	Canto variable --***- ------ Ori
1006*	51	1006	14.9230	Canto variable --***- ------ Ori
1007*	61	1007	15.9230	Canto variable --***- ------ Ori
1008*	71	1008	15.9230	Canto variable --***- ------ Ori
1009*	81	1009	15.9230	Canto variable --***- ------ Ori
1010*	91	1010	16.9230	Canto variable --***- ------ Ori
1011*	101	1011	16.9230	Canto variable --***- ------ Ori
1012*	111	1012	16.9230	Canto variable --***- ------ Ori
1013*	121	1013	15.9230	Canto variable --***- ------ Ori
1014*	131	1014	15.9230	Canto variable --***- ------ Ori
1015*	141	1015	14.9230	Canto variable --***- ------ Ori
1016*	151	1016	13.9230	Canto variable --***- ------ Ori
1017*	161	1017	11.9230	Canto variable --***- ------ Ori
1018*	171	1018	8.9230	Canto variable --***- ------ Ori
1019*	181	1019	5.9230	Canto variable --***- ------ Ori
2001*	1	2001	1.0000	%Q0417 --***- ------ Ori
2002*	191	2002	1.0000	%Q0418 ---**- ------ Ori

.TK 0

Las barras marcadas con "*" son verticales. Sus ejes locales son
tales que la dirección 'y' resulta coincidente con la global siempre
y cuando no se haya rotado con la instruction 'O_ORIENTACION'.

Secciones marcadas con "*" (p.ej.*HEB200) están rotadas
por 90 grados (contra reloj)
.SK 3
.TP 8
ORIENTANCION BARRAS Y CANT.VAR:
.TK 3

Barra	Cantos variables Inicio-sec	Fin-sec	Orientación barras x/n1/Angulo	y/n2	z
1	%Q0001	%Q0002			
2	%Q0003	%Q0004			
3	%Q0005	%Q0006			
4	%Q0007	%Q0008			
5	%Q0009	%Q0010			
6	%Q0011	%Q0012			
7	%Q0013	%Q0014			
8	%Q0015	%Q0016			
9	%Q0017	%Q0018			
10	%Q0019	%Q0020			
11	%Q0021	%Q0022			
12	%Q0023	%Q0024			
13	%Q0025	%Q0026			
14	%Q0027	%Q0028			
15	%Q0029	%Q0030			
16	%Q0031	%Q0032			
17	%Q0033	%Q0034			
18	%Q0035	%Q0036			
19	%Q0037	%Q0038			
20	%Q0039	%Q0040			
21	%Q0041	%Q0042			
22	%Q0043	%Q0044			
23	%Q0045	%Q0046			
24	%Q0047	%Q0048			
25	%Q0049	%Q0050			
26	%Q0051	%Q0052			
27	%Q0053	%Q0054			
28	%Q0055	%Q0056			
29	%Q0057	%Q0058			
30	%Q0059	%Q0060			
31	%Q0061	%Q0062			
32	%Q0063	%Q0064			
33	%Q0065	%Q0066			
34	%Q0067	%Q0068			
35	%Q0069	%Q0070			
36	%Q0071	%Q0072			
37	%Q0073	%Q0074			
38	%Q0075	%Q0076			
39	%Q0077	%Q0078			
40	%Q0079	%Q0080			
41	%Q0081	%Q0082			
42	%Q0083	%Q0084			
43	%Q0085	%Q0086			
44	%Q0087	%Q0088			
45	%Q0089	%Q0090			
46	%Q0091	%Q0092			
47	%Q0093	%Q0094			
48	%Q0095	%Q0096			
49	%Q0097	%Q0098			
50	%Q0099	%Q0100			
51	%Q0101	%Q0102			
52	%Q0103	%Q0104			
53	%Q0105	%Q0106			
54	%Q0107	%Q0108			
55	%Q0109	%Q0110			
56	%Q0111	%Q0112			
57	%Q0113	%Q0114			
58	%Q0115	%Q0116			
59	%Q0117	%Q0118			
60	%Q0119	%Q0120			
61	%Q0121	%Q0122			
62	%Q0123	%Q0124			
63	%Q0125	%Q0126			
64	%Q0127	%Q0128			
65	%Q0129	%Q0130			
66	%Q0131	%Q0132			
67	%Q0133	%Q0134			
68	%Q0135	%Q0136			
69	%Q0137	%Q0138			
70	%Q0139	%Q0140			
71	%Q0141	%Q0142			
72	%Q0143	%Q0144			
73	%Q0145	%Q0146			
74	%Q0147	%Q0148			
75	%Q0149	%Q0150			
76	%Q0151	%Q0152			
77	%Q0153	%Q0154			
78	%Q0155	%Q0156			
79	%Q0157	%Q0158			
80	%Q0159	%Q0160			
81	%Q0161	%Q0162			
82	%Q0163	%Q0164			
83	%Q0165	%Q0166			
84	%Q0167	%Q0168			
85	%Q0169	%Q0170			
86	%Q0171	%Q0172			
87	%Q0173	%Q0174			
88	%Q0175	%Q0176			
89	%Q0177	%Q0178			
90	%Q0179	%Q0180			
91	%Q0181	%Q0182			
92	%Q0183	%Q0184			
93	%Q0185	%Q0186			
94	%Q0187	%Q0188			
95	%Q0189	%Q0190			
96	%Q0191	%Q0192			
97	%Q0193	%Q0194			
98	%Q0195	%Q0196			
99	%Q0197	%Q0198			
100	%Q0199	%Q0200			
101	%Q0201	%Q0202			
102	%Q0203	%Q0204			
103	%Q0205	%Q0206			
104	%Q0207	%Q0208			
105	%Q0209	%Q0210			
106	%Q0211	%Q0212			
107	%Q0213	%Q0214			
108	%Q0215	%Q0216			
109	%Q0217	%Q0218			
110	%Q0219	%Q0220			
111	%Q0221	%Q0222			
112	%Q0223	%Q0224			
113	%Q0225	%Q0226			
114	%Q0227	%Q0228			
115	%Q0229	%Q0230			
116	%Q0231	%Q0232			
117	%Q0233	%Q0234			
118	%Q0235	%Q0236			
119	%Q0237	%Q0238			
120	%Q0239	%Q0240			
121	%Q0241	%Q0242			
122	%Q0243	%Q0244			
123	%Q0245	%Q0246			
124	%Q0247	%Q0248			
125	%Q0249	%Q0250			
126	%Q0251	%Q0252			
127	%Q0253	%Q0254			
128	%Q0255	%Q0256			
129	%Q0257	%Q0258			
130	%Q0259	%Q0260			
131	%Q0261	%Q0262			
132	%Q0263	%Q0264			
133	%Q0265	%Q0266			
134	%Q0267	%Q0268			
135	%Q0269	%Q0270			
136	%Q0271	%Q0272			
137	%Q0273	%Q0274			

138	%Q0275	%Q0276	
139	%Q0277	%Q0278	
140	%Q0279	%Q0280	
141	%Q0281	%Q0282	
142	%Q0283	%Q0284	
143	%Q0285	%Q0286	
144	%Q0287	%Q0288	
145	%Q0289	%Q0290	
146	%Q0291	%Q0292	
147	%Q0293	%Q0294	
148	%Q0295	%Q0296	
149	%Q0297	%Q0298	
150	%Q0299	%Q0300	
151	%Q0301	%Q0302	
152	%Q0303	%Q0304	
153	%Q0305	%Q0306	
154	%Q0307	%Q0308	
155	%Q0309	%Q0310	
156	%Q0311	%Q0312	
157	%Q0313	%Q0314	
158	%Q0315	%Q0316	
159	%Q0317	%Q0318	
160	%Q0319	%Q0320	
161	%Q0321	%Q0322	
162	%Q0323	%Q0324	
163	%Q0325	%Q0326	
164	%Q0327	%Q0328	
165	%Q0329	%Q0330	
166	%Q0331	%Q0332	
167	%Q0333	%Q0334	
168	%Q0335	%Q0336	
169	%Q0337	%Q0338	
170	%Q0339	%Q0340	
171	%Q0341	%Q0342	
172	%Q0343	%Q0344	
173	%Q0345	%Q0346	
174	%Q0347	%Q0348	
175	%Q0349	%Q0350	
176	%Q0351	%Q0352	
177	%Q0353	%Q0354	
178	%Q0355	%Q0356	
179	%Q0357	%Q0358	
180	%Q0359	%Q0360	
181	%Q0361	%Q0362	
182	%Q0363	%Q0364	
183	%Q0365	%Q0366	
184	%Q0367	%Q0368	
185	%Q0369	%Q0370	
186	%Q0371	%Q0372	
187	%Q0373	%Q0374	
188	%Q0375	%Q0376	
189	%Q0377	%Q0378	
190	%Q0379	%Q0380	
1002	%Q0381	%Q0382	-23.0000
1003	%Q0383	%Q0384	-23.0000
1004	%Q0385	%Q0386	-23.0000
1005	%Q0387	%Q0388	-23.0000
1006	%Q0389	%Q0390	-23.0300
1007	%Q0391	%Q0392	-23.0900
1008	%Q0393	%Q0394	-23.1800
1009	%Q0395	%Q0396	-23.2900
1010	%Q0397	%Q0398	-23.4300
1011	%Q0399	%Q0400	-23.6000
1012	%Q0401	%Q0402	-23.8000
1013	%Q0403	%Q0404	-24.0200
1014	%Q0405	%Q0406	-24.2700
1015	%Q0407	%Q0408	-24.5500
1016	%Q0409	%Q0410	-24.8600
1017	%Q0411	%Q0412	-25.1700
1018	%Q0413	%Q0414	-25.4900

[illegible]	%Q0415	%Q0416	-25.8100
2001			-23.0000
2002			-26.0600

.TK 0
.SK 3
.TP 8
.TA 3

CARACTERISTICAS DE SEC.	Ax [M2]	Iy [M4]	Iz [M4]	Phi[grados]
	Ix [M4]	Fy [M2]	Fz [M2]	
Nombre Sec.	zi [M1]	zs [M1]	yi [M1]	yd [M1]
.TP 4				
.TP 4				
%Q0001	2.1000E+01	2.0000E+01	1.1000E+02	0.00
	5.8000E+01	Undef	Undef	
	-1.8310	1.3690	-7.0000	7.0000
.TP 4				
%Q0002	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0003	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0004	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0005	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0006	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0007	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0008	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0009	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0010	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0011	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP				
%Q0012	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	

```
                -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0013      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0014      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0015      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0016      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0017      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0018      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0019      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0020      1.8000E+01    1.8000E+01    1.1000E+02          0.00
            2.5000E+01         Undef         Undef
               -1.9230        1.2770        -7.0000         7.0000
.TP 4
%Q0021      1.8000E+01    1.8000E+01    1.1000E+02          0.00
            2.5000E+01         Undef         Undef
               -1.9230        1.2770        -7.0000         7.0000
.TP 4
%Q0022      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0023      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0024      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0025      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0026      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
```

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                -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0027      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0028      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0029      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0030      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0031      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0032      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0033      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0034      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0035      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0036      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0037      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0038      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0039      1.0000E+01    1.3000E+01    9.7000E+01          0.00
            4.9000E+01         Undef         Undef
               -2.0340        1.1660        -7.0000         7.0000
.TP 4
%Q0040      1.8000E+01    1.8000E+01    1.1000E+02          0.00
            2.5000E+01         Undef         Undef
```

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                -1.9230      1.2770     -7.0000      7.0000
.TP 4
%Q0041      1.8000E+01   1.8000E+01   1.1000E+02      0.00
            2.5000E+01        Undef        Undef
                -1.9230      1.2770     -7.0000      7.0000
.TP 4
%Q0042      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0043      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0044      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0045      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0046      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0047      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0048      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0049      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0050      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0051      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0052      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0053      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0054      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
```

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                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0055      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0056      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0057      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0058      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0059      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0060      1.8000E+01   1.8000E+01   1.1000E+02      0.00
            2.5000E+01        Undef        Undef
                -1.9230      1.2770     -7.0000      7.0000
.TP 4
%Q0061      1.8000E+01   1.8000E+01   1.1000E+02      0.00
            2.5000E+01        Undef        Undef
                -1.9230      1.2770     -7.0000      7.0000
.TP 4
%Q0062      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0063      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0064      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0065      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0066      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0067      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
                -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0068      1.0000E+01   1.3000E+01   9.7000E+01      0.00
            4.9000E+01        Undef        Undef
```

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                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0069      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0070      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0071      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0072      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0073      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0074      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0075      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0076      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0077      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0078      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0079      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0080      1.8000E+01  1.8000E+01  1.1000E+02       0.00
            2.5000E+01       Undef       Undef
                -1.9230      1.2770      -7.0000      7.0000

.TP 4
%Q0081      1.8000E+01  1.8000E+01  1.1000E+02       0.00
            2.5000E+01       Undef       Undef
                -1.9230      1.2770      -7.0000      7.0000

.TP 4
%Q0082      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
```

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                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0083      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0084      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0085      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0086      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0087      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0088      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0089      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0090      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0091      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0092      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0093      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0094      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0095      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0096      1.0000E+01  1.3000E+01  9.7000E+01       0.00
            4.9000E+01       Undef       Undef
```

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                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0097          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0098          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0099          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0100          1.8000E+01  1.8000E+01  1.1000E+02        0.00
                2.5000E+01       Undef       Undef
                    -1.9230      1.2770      -7.0000      7.0000
.TP 4
%Q0101          1.8000E+01  1.8000E+01  1.1000E+02        0.00
                2.5000E+01       Undef       Undef
                    -1.9230      1.2770      -7.0000      7.0000
.TP 4
%Q0102          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0103          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0104          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0105          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0106          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0107          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0108          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0109          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0110          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
```

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                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0111          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0112          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0113          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0114          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0115          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0116          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0117          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0118          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0119          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0120          1.8000E+01  1.8000E+01  1.1000E+02        0.00
                2.5000E+01       Undef       Undef
                    -1.9230      1.2770      -7.0000      7.0000
.TP 4
%Q0121          1.8000E+01  1.8000E+01  1.1000E+02        0.00
                2.5000E+01       Undef       Undef
                    -1.9230      1.2770      -7.0000      7.0000
.TP 4
%Q0122          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0123          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
                    -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0124          1.0000E+01  1.3000E+01  9.7000E+01        0.00
                4.9000E+01       Undef       Undef
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                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0125
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0126
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0127
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0128
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0129
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0130
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0131
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0132
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0133
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0134
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0135
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0136
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0137
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0138
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0139
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0140
                1.8000E+01   1.8000E+01   1.1000E+02      0.00
                2.5000E+01       Undef        Undef
                -1.9230      1.2770      -7.0000      7.0000

.TP 4
%Q0141
                1.8000E+01   1.8000E+01   1.1000E+02      0.00
                2.5000E+01       Undef        Undef
                -1.9230      1.2770      -7.0000      7.0000

.TP 4
%Q0142
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0143
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0144
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0145
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0146
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0147
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0148
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0149
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0150
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0151
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0152
                1.0000E+01   1.3000E+01   9.7000E+01      0.00
                4.9000E+01       Undef        Undef
```

```
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0153      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0154      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0155      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0156      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0157      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0158      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0159      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0160      1.8000E+01  1.8000E+01  1.1000E+02        0.00
            2.5000E+01       Undef       Undef
                -1.9230      1.2770      -7.0000      7.0000

.TP 4
%Q0161      1.8000E+01  1.8000E+01  1.1000E+02        0.00
            2.5000E+01       Undef       Undef
                -1.9230      1.2770      -7.0000      7.0000

.TP 4
%Q0162      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0163      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0164      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0165      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0166      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0167      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0168      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0169      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0170      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0171      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0172      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0173      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0174      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0175      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0176      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0177      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0178      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0179      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0180      1.8000E+01  1.8000E+01  1.1000E+02        0.00
            2.5000E+01       Undef       Undef
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                -1.9230      1.2770      -7.0000      7.0000

.TP 4
%Q0181    1.8000E+01  1.8000E+01  1.1000E+02      0.00
          2.5000E+01       Undef       Undef
             -1.9230      1.2770      -7.0000      7.0000

.TP 4
%Q0182    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0183    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0184    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0185    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0186    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0187    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0188    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0189    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0190    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0191    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0192    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0193    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0194    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0195    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0196    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0197    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0198    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0199    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0200    1.8000E+01  1.8000E+01  1.1000E+02      0.00
          2.5000E+01       Undef       Undef
             -1.9230      1.2770      -7.0000      7.0000

.TP 4
%Q0201    1.8000E+01  1.8000E+01  1.1000E+02      0.00
          2.5000E+01       Undef       Undef
             -1.9230      1.2770      -7.0000      7.0000

.TP 4
%Q0202    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0203    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0204    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0205    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0206    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0207    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
             -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0208    1.0000E+01  1.3000E+01  9.7000E+01      0.00
          4.9000E+01       Undef       Undef
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                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0209      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0210      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0211      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0212      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0213      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0214      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0215      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0216      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0217      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0218      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0219      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0220      1.8000E+01     1.8000E+01     1.1000E+02          0.00
            2.5000E+01          Undef          Undef
                -1.9230         1.2770         -7.0000         7.0000

.TP 4
%Q0221      1.8000E+01     1.8000E+01     1.1000E+02          0.00
            2.5000E+01          Undef          Undef
                -1.9230         1.2770         -7.0000         7.0000

.TP 4
%Q0222      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
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                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0223      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0224      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0225      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0226      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0227      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0228      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0229      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0230      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0231      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0232      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0233      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0234      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0235      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
                -2.0340         1.1660         -7.0000         7.0000

.TP 4
%Q0236      1.0000E+01     1.3000E+01     9.7000E+01          0.00
            4.9000E+01          Undef          Undef
```

```
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0237      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0238      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0239      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0240      1.8000E+01  1.8000E+01  1.1000E+02        0.00
            2.5000E+01       Undef       Undef
                -1.9230      1.2770      -7.0000      7.0000

.TP 4
%Q0241      1.8000E+01  1.8000E+01  1.1000E+02        0.00
            2.5000E+01       Undef       Undef
                -1.9230      1.2770      -7.0000      7.0000

.TP 4
%Q0242      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0243      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0244      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0245      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0246      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0247      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0248      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0249      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0250      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
```

```
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0251      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0252      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0253      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0254      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0255      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0256      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0257      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0258      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0259      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0260      1.8000E+01  1.8000E+01  1.1000E+02        0.00
            2.5000E+01       Undef       Undef
                -1.9230      1.2770      -7.0000      7.0000

.TP 4
%Q0261      1.8000E+01  1.8000E+01  1.1000E+02        0.00
            2.5000E+01       Undef       Undef
                -1.9230      1.2770      -7.0000      7.0000

.TP 4
%Q0262      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0263      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000

.TP 4
%Q0264      1.0000E+01  1.3000E+01  9.7000E+01        0.00
            4.9000E+01       Undef       Undef
```

```
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0265
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0266
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0267
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0268
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0269
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0270
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0271
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0272
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0273
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0274
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0275
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0276
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0277
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0278
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0279
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0280
                1.8000E+01    1.8000E+01    1.1000E+02        0.00
                2.5000E+01         Undef         Undef
                -1.9230        1.2770        -7.0000        7.0000

.TP 4
%Q0281
                1.8000E+01    1.8000E+01    1.1000E+02        0.00
                2.5000E+01         Undef         Undef
                -1.9230        1.2770        -7.0000        7.0000

.TP 4
%Q0282
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0283
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0284
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0285
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0286
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0287
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0288
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0289
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0290
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0291
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
                -2.0340        1.1660        -7.0000        7.0000

.TP 4
%Q0292
                1.0000E+01    1.3000E+01    9.7000E+01        0.00
                4.9000E+01         Undef         Undef
```

```
                -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0293    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0294    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0295    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0296    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0297    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0298    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0299    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0300    1.8000E+01    1.8000E+01    1.1000E+02          0.00
          2.5000E+01         Undef         Undef
            -1.9230        1.2770        -7.0000        7.0000
.TP 4
%Q0301    1.8000E+01    1.8000E+01    1.1000E+02          0.00
          2.5000E+01         Undef         Undef
            -1.9230        1.2770        -7.0000        7.0000
.TP 4
%Q0302    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0303    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0304    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0305    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0306    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
```

```
                -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0307    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0308    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0309    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0310    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0311    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0312    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0313    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0314    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0315    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0316    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0317    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0318    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0319    1.0000E+01    1.3000E+01    9.7000E+01          0.00
          4.9000E+01         Undef         Undef
            -2.0340        1.1660        -7.0000        7.0000
.TP 4
%Q0320    1.8000E+01    1.8000E+01    1.1000E+02          0.00
          2.5000E+01         Undef         Undef
```

```
                -1.9230      1.2770      -7.0000      7.0000
.TP 4
%Q0321
                1.8000E+01  1.8000E+01  1.1000E+02      0.00
                2.5000E+01       Undef       Undef
                -1.9230      1.2770      -7.0000      7.0000
.TP 4
%Q0322
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0323
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0324
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0325
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0326
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0327
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0328
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0329
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0330
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0331
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0332
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0333
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0334
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0335
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0336
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0337
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0338
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0339
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0340
                1.8000E+01  1.8000E+01  1.1000E+02      0.00
                2.5000E+01       Undef       Undef
                -1.9230      1.2770      -7.0000      7.0000
.TP 4
%Q0341
                1.8000E+01  1.8000E+01  1.1000E+02      0.00
                2.5000E+01       Undef       Undef
                -1.9230      1.2770      -7.0000      7.0000
.TP 4
%Q0342
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0343
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0344
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0345
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0346
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0347
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
                -2.0340      1.1660      -7.0000      7.0000
.TP 4
%Q0348
                1.0000E+01  1.3000E+01  9.7000E+01      0.00
                4.9000E+01       Undef       Undef
```

	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0349	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0350	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0351	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0352	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0353	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0354	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0355	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0356	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0357	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0358	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0359	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0360	1.8000E+01	1.8000E+01	1.1000E+02	0.00
	2.5000E+01	Undef	Undef	
	-1.9230	1.2770	-7.0000	7.0000
.TP 4				
%Q0361	1.8000E+01	1.8000E+01	1.1000E+02	0.00
	2.5000E+01	Undef	Undef	
	-1.9230	1.2770	-7.0000	7.0000
.TP 4				
%Q0362	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	

	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0363	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0364	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0365	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0366	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0367	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0368	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0369	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0370	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0371	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0372	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0373	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0374	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0375	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0376	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	

	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0377	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0378	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0379	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0380	1.8000E+01	1.8000E+01	1.1000E+02	0.00
	2.5000E+01	Undef	Undef	
	-1.9230	1.2770	-7.0000	7.0000
.TP 4				
%Q0381	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0382	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0383	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0384	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0385	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0386	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0387	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0388	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0389	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0390	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0391	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0392	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0393	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0394	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0395	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0396	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0397	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0398	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0399	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0400	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0401	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0402	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0403	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	
	Undef	Undef	Undef	Undef
.TP 4				
%Q0404	5.4000E+00	5.5000E+00	1.6000E+01	0.00
	1.3000E+01	Undef	Undef	

```
                    Undef       Undef       Undef       Undef
.TP 4
%Q0405          5.4000E+00  5.5000E+00  1.6000E+01        0.00
                1.3000E+01       Undef       Undef
                     Undef       Undef       Undef       Undef
.TP 4
%Q0406          5.4000E+00  5.5000E+00  1.6000E+01        0.00
                1.3000E+01       Undef       Undef
                     Undef       Undef       Undef       Undef
.TP 4
%Q0407          5.4000E+00  5.5000E+00  1.6000E+01        0.00
                1.3000E+01       Undef       Undef
                     Undef       Undef       Undef       Undef
.TP 4
%Q0408          5.4000E+00  5.5000E+00  1.6000E+01        0.00
                1.3000E+01       Undef       Undef
                     Undef       Undef       Undef       Undef
.TP 4
%Q0409          5.4000E+00  5.5000E+00  1.6000E+01        0.00
                1.3000E+01       Undef       Undef
                     Undef       Undef       Undef       Undef
.TP 4
%Q0410          5.4000E+00  5.5000E+00  1.6000E+01        0.00
                1.3000E+01       Undef       Undef
                     Undef       Undef       Undef       Undef
.TP 4
%Q0411          5.4000E+00  5.5000E+00  1.6000E+01        0.00
                1.3000E+01       Undef       Undef
                     Undef       Undef       Undef       Undef
.TP 4
%Q0412          5.4000E+00  5.5000E+00  1.6000E+01        0.00
                1.3000E+01       Undef       Undef
                     Undef       Undef       Undef       Undef
.TP 4
%Q0413          5.4000E+00  5.5000E+00  1.6000E+01        0.00
                1.3000E+01       Undef       Undef
                     Undef       Undef       Undef       Undef
.TP 4
%Q0414          5.4000E+00  5.5000E+00  1.6000E+01        0.00
                1.3000E+01       Undef       Undef
                     Undef       Undef       Undef       Undef
.TP 4
%Q0415          5.4000E+00  5.5000E+00  1.6000E+01        0.00
                1.3000E+01       Undef       Undef
                     Undef       Undef       Undef       Undef
.TP 4
%Q0416          5.4000E+00  5.5000E+00  1.6000E+01        0.00
                1.3000E+01       Undef       Undef
                     Undef       Undef       Undef       Undef
.TP 4
%Q0417          1.0000E+01  1.0000E+01  1.0000E+02        0.00
                1.0000E+01       Undef       Undef
                     Undef       Undef       Undef       Undef
.TP 4
%Q0418          1.0000E+01  1.0000E+01  1.0000E+02        0.00
                1.0000E+01       Undef       Undef
```

```
                    Undef       Undef       Undef       Undef
.TK 0
.SK 3
.TP 8
MATERIALES:
.TK 3
                                 E-Módulo      G-Módulo
 Barra (hasta barra)          [ T/ M2]      [ T/ M2]
-------------------------------------------------------------------------------
    1 ..  190          3.8000E+06    1.5833E+06
 1002 .. 1019          3.2909E+06    1.3712E+06
 2001 .. 2002          3.8000E+06    1.5833E+06
.TK 0


STS-cálculo ok
Max free mem:105kB


L.A.V. Madrid-Zaragoza. IV. Viaducto 1.
**CARACT_GENERALES
        19        191         10
CARACTERISTICAS MECANICAS DE LAS SECCIONES DEL TABLERO

-------------------------------------------------------------------------------
Sec.   x    h       A       zg       Iy      Wys      Wyi       Ix       Iz
       [m]  [m]     [m2]    [m]      [m4]    [m3]     [m3]      [m4]     [m4]
-------------------------------------------------------------------------------

**CARACT_GEOM
  1   -0.00 3.20  21.213  -1.3687 19.9425 14.5702 10.8899  58.3060 116.0006
  2    3.20 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
  3    6.40 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
  4    9.60 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
  5   12.80 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
  6   16.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
  7   19.20 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
  8   22.40 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
  9   25.60 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 10   28.80 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 11   32.00 3.20  17.854  -1.2767 18.1849 14.2435  9.4551  25.4842 114 9334
 12   36.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 13   40.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 14   44.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 15   48.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 16   52.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 17   56.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 18   60.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 19   64.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 20   68.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 21   72.00 3.20  17.854  -1.2767 18.1849 14.2435  9.4551  25.4842 114.9334
 22   76.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 23   80.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 24   84.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 25   88.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 26   92.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 27   96.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 28  100.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 29  104.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 30  108.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 31  112.00 3.20  17.854  -1.2767 18.1849 14.2435  9.4551  25.4842 114.9334
 32  116.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 33  120.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 34  124.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 35  128.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 36  132.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
 37  136.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
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38	140.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
39	144.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
40	148.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
41	152.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
42	156.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
43	160.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
44	164.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
45	168.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
46	172.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
47	176.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
48	180.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
49	184.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
50	188.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
51	192.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
52	196.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
53	200.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
54	204.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
55	208.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
56	212.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
57	216.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
58	220.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
59	224.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
60	228.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
61	232.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
62	236.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
63	240.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
64	244.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
65	248.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
66	252.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
67	256.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
68	260.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
69	264.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
70	268.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
71	272.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
72	276.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
73	280.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
74	284.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
75	288.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
76	292.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
77	296.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
78	300.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
79	304.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
80	308.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
81	312.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
82	316.00	3 20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
83	320.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
84	324.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
85	328.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
86	332.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
87	336.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
88	340.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
89	344.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
90	348.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
91	352.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
92	356.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
93	360.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
94	364.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
95	368.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
96	372.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
97	376.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
98	380.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
99	384.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
100	388.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
101	392.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
102	396.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
103	400.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
104	404.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
105	408.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
106	412.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
107	416.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
108	420.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
109	424.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
110	428.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
111	432.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
112	436.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
113	440.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
114	444.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
115	448.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
116	452.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
117	456.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
118	460.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
119	464.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
120	468.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
121	472.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
122	476.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
123	480.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
124	484.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
125	488.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
126	492.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
127	496.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
128	500.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
129	504.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
130	508.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
131	512.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
132	516.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
133	520.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
134	524.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
135	528.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
136	532.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
137	536.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
138	540.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
139	544.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
140	548.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
141	552.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
142	556.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
143	560.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
144	564.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
145	568.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
146	572.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
147	576.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
148	580.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
149	584.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
150	588.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
151	592.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
152	596.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
153	600.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
154	604.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
155	608.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
156	612.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
157	616.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
158	620.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
159	624.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
160	628.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
161	632.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
162	636.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
163	640.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
164	644.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
165	648.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
166	652.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
167	656.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
168	660.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
169	664.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
170	668.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
171	672.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
172	676.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
173	680.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
174	684.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
175	688.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
176	692.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
177	696.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524

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178 700.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
179 704.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
180 708.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
181 712.00 3.20  17.854  -1.2767 18.1849 14.2435  9.4551  25.4842 114.9334
182 715.20 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
183 718.40 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
184 721.60 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
185 724.80 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
186 728.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
187 731.20 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
188 734.40 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
189 737.60 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
190 740.80 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
191 744.00 3.20  17.854  -1.2767 18.1849 14.2435  9.4551  25.4842 114.9334
CARACTERISTICAS MECANICAS DE LAS SECCIONES TIPO DE LAS PILAS

-------------------------------------------------------------------------
tipo    A       Iy        Iz        Ix
        [m2]    [m4]      [m4]      [m4]
-------------------------------------------------------------------------

**CARACT_GEOM_PILAS
  1    5.37   5.4772   16.3060 13.4300
```

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

DATOS GENERALES

No. Vanos: 19

Vano	Luz [m]	vanos_sin_sc
1	32.00	
2	40.00	
3	40.00	
4	40.00	
5	40.00	
6	40.00	x
7	40.00	x
8	40.00	x
9	40.00	x
10	40.00	x
11	40.00	x
12	40.00	x
13	40.00	x
14	40.00	x
15	40.00	x
16	40.00	x
17	40.00	
18	40.00	
19	32.00	

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

DATOS PROCESO CONSTRUCTIVO

No. Fases: 19

Fase	fecha horm. [días]	barras nuevas
1	0.00	179..190 1001..1001 1019..1019 2002..2002
2	15.00	169..178 1018..1018
3	45.00	159..168 1017..1017
4	60.00	149..158 1016..1016
5	75.00	139..148 1015..1015
6	90.00	129..138 1014..1014
7	105.00	119..128 1013..1013
8	120.00	109..118 1012..1012
9	135.00	99..108 1011..1011
10	150.00	89..98 1010..1010
11	165.00	79..88 1009..1009
12	180.00	69..78 1008..1008
13	195.00	59..68 1007..1007
14	210.00	49..58 1006..1006
15	225.00	39..48 1005..1005
16	240.00	29..38 1004..1004
17	240.00	19..28 1003..1003

18	255.00	9..18 1002..1002
19	270.00	1..8 2001..2001

Fase	fecha tesado [días]	familia tesada (%Ft)
1	15.00	55 (100%)
		56 (100%)
		57 (100%)
		75 (100%)
		94 (100%)
2	30.00	52 (100%)
		53 (100%)
		54 (100%)
		74 (100%)
		93 (100%)
		95 (100%)
3	60.00	49 (100%)
		50 (100%)
		51 (100%)
		73 (100%)
		92 (100%)
4	75.00	46 (100%)
		47 (100%)
		48 (100%)
		72 (100%)
		91 (100%)
5	90.00	43 (100%)
		44 (100%)
		45 (100%)
		71 (100%)
		90 (100%)
6	105.00	40 (100%)
		41 (100%)
		42 (100%)
		70 (100%)
		89 (100%)
7	120.00	37 (100%)
		38 (100%)
		69 (100%)
		88 (100%)
8	135.00	34 (100%)
		35 (100%)
		36 (100%)
		39 (100%)
		68 (100%)
		87 (100%)
9	150.00	31 (100%)
		32 (100%)
		33 (100%)
		67 (100%)
		86 (100%)
10	165.00	28 (100%)
		29 (100%)
		30 (100%)
		66 (100%)
		85 (100%)
11	180.00	25 (100%)
		26 (100%)
		27 (100%)
		65 (100%)
		84 (100%)
12	195.00	22 (100%)
		23 (100%)
		24 (100%)
		64 (100%)
		83 (100%)
13	210.00	19 (100%)
		20 (100%)
		21 (100%)
		63 (100%)
		82 (100%)
14	225.00	16 (100%)
		17 (100%)
		18 (100%)
		62 (100%)
		81 (100%)
15	240.00	13 (100%)
		14 (100%)
		15 (100%)
		61 (100%)
		80 (100%)
16	255.00	10 (100%)
		11 (100%)
		12 (100%)
		60 (100%)
		79 (100%)
17	255.00	7 (100%)
		8 (100%)
		9 (100%)
		59 (100%)
		78 (100%)
18	270.00	4 (100%)
		5 (100%)
		6 (100%)
		58 (100%)
		77 (100%)
19	285.00	1 (100%)
		2 (100%)
		3 (100%)
		76 (100%)

Fase	barras act	Edad al tesar (j) [días]	fckj/fck28
1	179.. 190	15.00	0.84
	1001..1001	15.00	0.84
	1019..1019	15.00	0.84
	2002..2002	15.00	0.84
2	179.. 190	30.00	1.02
	1001..1001	30.00	1.02
	1019..1019	30.00	1.02
	2002..2002	30.00	1.02
	169.. 178	15.00	0.84
	1018..1018	15.00	0.84
3	179.. 190	60.00	1.16
	1001..1001	60.00	1.16
	1019..1019	60.00	1.16
	2002..2002	60.00	1.16
	169.. 178	45.00	1.10
	1018..1018	45.00	1.10
	159.. 168	15.00	0.84
	1017..1017	15.00	0.84
4	179.. 190	75.00	1.19
	1001..1001	75.00	1.19
	1019..1019	75.00	1.19
	2002..2002	75.00	1.19
	169.. 178	60.00	1.16
	1018..1018	60.00	1.16
	159.. 168	30.00	1.02

	1017..1017	30.00	1.02
	149.. 158	15.00	0.84
	1016..1016	15.00	0.84
5	179.. 190	90.00	1.22
	1001..1001	90.00	1.22
	1019..1019	90.00	1.22
	2002..2002	90.00	1.22
	169.. 178	75.00	1.19
	1018..1018	75.00	1.19
	159.. 168	45.00	1.10
	1017..1017	45.00	1.10
	149.. 158	30.00	1.02
	1016..1016	30.00	1.02
	139.. 148	15.00	0.84
	1015..1015	15.00	0.84
6	179.. 190	105.00	1.24
	1001..1001	105.00	1.24
	1019..1019	105.00	1.24
	2002..2002	105.00	1.24
	169.. 178	90.00	1.22
	1018..1018	90.00	1.22
	159.. 168	60.00	1.16
	1017..1017	60.00	1.16
	149.. 158	45.00	1.10
	1016..1016	45.00	1.10
	139.. 148	30.00	1.02
	1015..1015	30.00	1.02
	129.. 138	15.00	0.84
	1014..1014	15.00	0.84
7	179.. 190	120.00	1.26
	1001..1001	120.00	1.26
	1019..1019	120.00	1.26
	2002..2002	120.00	1.26
	169.. 178	105.00	1.24
	1018..1018	105.00	1.24
	159.. 168	75.00	1.19
	1017..1017	75.00	1.19
	149.. 158	60.00	1.16
	1016..1016	60.00	1.16
	139.. 148	45.00	1.10
	1015..1015	45.00	1.10
	129.. 138	30.00	1.02
	1014..1014	30.00	1.02
	119.. 128	15.00	0.84
	1013..1013	15.00	0.84
8	179.. 190	135.00	1.27
	1001..1001	135.00	1.27
	1019..1019	135.00	1.27
	2002..2002	135.00	1.27
	169.. 178	120.00	1.26
	1018..1018	120.00	1.26
	159.. 168	90.00	1.22
	1017..1017	90.00	1.22
	149.. 158	75.00	1.19
	1016..1016	75.00	1.19
	139.. 148	60.00	1.16
	1015..1015	60.00	1.16
	129.. 138	45.00	1.10
	1014..1014	45.00	1.10
	119.. 128	30.00	1.02
	1013..1013	30.00	1.02
	109.. 118	15.00	0.84
	1012..1012	15.00	0.84
9	179.. 190	150.00	1.29
	1001..1001	150.00	1.29
	1019..1019	150.00	1.29
	2002..2002	150.00	1.29
	169.. 178	135.00	1.27
	1018..1018	135.00	1.27
	159.. 168	105.00	1.24
	1017..1017	105.00	1.24
	149.. 158	90.00	1.22
	1016..1016	90.00	1.22
	139.. 148	75.00	1.19
	1015..1015	75.00	1.19
	129.. 138	60.00	1.16
	1014..1014	60.00	1.16
	119.. 128	45.00	1.10
	1013..1013	45.00	1.10
	109.. 118	30.00	1.02
	1012..1012	30.00	1.02
	99.. 108	15.00	0.84
	1011..1011	15.00	0.84
10	179.. 190	165.00	1.30
	1001..1001	165.00	1.30
	1019..1019	165.00	1.30
	2002..2002	165.00	1.30
	169.. 178	150.00	1.29
	1018..1018	150.00	1.29
	159.. 168	120.00	1.26
	1017..1017	120.00	1.26
	149.. 158	105.00	1.24
	1016..1016	105.00	1.24
	139.. 148	90.00	1.22
	1015..1015	90.00	1.22
	129.. 138	75.00	1.19
	1014..1014	75.00	1.19
	119.. 128	60.00	1.16
	1013..1013	60.00	1.16
	109.. 118	45.00	1.10
	1012..1012	45.00	1.10
	99.. 108	30.00	1.02
	1011..1011	30.00	1.02
	89.. 98	15.00	0.84
	1010..1010	15.00	0.84
11	179.. 190	180.00	1.31
	1001..1001	180.00	1.31
	1019..1019	180.00	1.31
	2002..2002	180.00	1.31
	169.. 178	165.00	1.30
	1018..1018	165.00	1.30
	159.. 168	135.00	1.27
	1017..1017	135.00	1.27
	149.. 158	120.00	1.26
	1016..1016	120.00	1.26
	139.. 148	105.00	1.24
	1015..1015	105.00	1.24
	129.. 138	90.00	1.22
	1014..1014	90.00	1.22
	119.. 128	75.00	1.19
	1013..1013	75.00	1.19
	109.. 118	60.00	1.16
	1012..1012	60.00	1.16
	99.. 108	45.00	1.10
	1011..1011	45.00	1.10
	89.. 98	30.00	1.02
	1010..1010	30.00	1.02
	79.. 86	15.00	0.84
	1009..1009	15.00	0.84
12	179.. 190	195.00	1.31
	1001..1001	195.00	1.31
	1019..1019	195.00	1.31

	2002..2002	195.00	1.31
	169.. 178	180.00	1.31
	1018..1018	180.00	1.31
	159.. 168	150.00	1.29
	1017..1017	150.00	1.29
	149.. 158	135.00	1.27
	1016..1016	135.00	1.27
	139.. 148	120.00	1.26
	1015..1015	120.00	1.26
	129.. 138	105.00	1.24
	1014..1014	105.00	1.24
	119.. 128	90.00	1.22
	1013..1013	90.00	1.22
	109.. 118	75.00	1.19
	1012..1012	75.00	1.19
	99.. 108	60.00	1.16
	1011..1011	60.00	1.16
	89.. 98	45.00	1.10
	1010..1010	45.00	1.10
	79.. 88	30.00	1.02
	1009..1009	30.00	1.02
	69.. 78	15.00	0.84
	1008..1008	15.00	0.84
13	179.. 190	210.00	1.32
	1001..1001	210.00	1.32
	1019..1019	210.00	1.32
	2002..2002	210.00	1.32
	169.. 178	195.00	1.31
	1018..1018	195.00	1.31
	159.. 168	165.00	1.30
	1017..1017	165.00	1.30
	149.. 158	150.00	1.29
	1016..1016	150.00	1.29
	139.. 148	135.00	1.27
	1015..1015	135.00	1.27
	129.. 138	120.00	1.26
	1014..1014	120.00	1.26
	119.. 128	105.00	1.24
	1013..1013	105.00	1.24
	109.. 118	90.00	1.22
	1012..1012	90.00	1.22
	99.. 108	75.00	1.19
	1011..1011	75.00	1.19
	89.. 98	60.00	1.16
	1010..1010	60.00	1.16
	79.. 88	45.00	1.10
	1009..1009	45.00	1.10
	69.. 78	30.00	1.02
	1008..1008	30.00	1.02
	59.. 68	15.00	0.84
	1007..1007	15.00	0.84
14	179.. 190	225.00	1.33
	1001..1001	225.00	1.33
	1019..1019	225.00	1.33
	2002..2002	225.00	1.33
	169.. 178	210.00	1.32
	1018..1018	210.00	1.32
	159.. 168	180.00	1.31
	1017..1017	180.00	1.31
	149.. 158	165.00	1.30
	1016..1016	165.00	1.30
	139.. 148	150.00	1.29
	1015..1015	150.00	1.29
	129.. 138	135.00	1.27
	1014..1014	135.00	1.27
	119.. 128	120.00	1.26
	1013..1013	120.00	1.26
	109.. 118	105.00	1.24
	1012..1012	105.00	1.24
	99.. 108	90.00	1.22
	1011..1011	90.00	1.22
	89.. 98	75.00	1.19
	1010..1010	75.00	1.19
	79.. 88	60.00	1.16
	1009..1009	60.00	1.16
	69.. 78	45.00	1.10
	1008..1008	45.00	1.10
	59.. 68	30.00	1.02
	1007..1007	30.00	1.02
	49.. 58	15.00	0.84
	1006..1006	15.00	0.84
15	179.. 190	240.00	1.33
	1001..1001	240.00	1.33
	1019..1019	240.00	1.33
	2002..2002	240.00	1.33
	169.. 178	225.00	1.33
	1018..1018	225.00	1.33
	159.. 168	195.00	1.31
	1017..1017	195.00	1.31
	149.. 158	180.00	1.31
	1016..1016	180.00	1.31
	139.. 148	165.00	1.30
	1015..1015	165.00	1.30
	129.. 138	150.00	1.29
	1014..1014	150.00	1.29
	119.. 128	135.00	1.27
	1013..1013	135.00	1.27
	109.. 118	120.00	1.26
	1012..1012	120.00	1.26
	99.. 108	105.00	1.24
	1011..1011	105.00	1.24
	89.. 98	90.00	1.22
	1010..1010	90.00	1.22
	79.. 88	75.00	1.19
	1009..1009	75.00	1.19
	69.. 78	60.00	1.16
	1008..1008	60.00	1.16
	59.. 68	45.00	1.10
	1007..1007	45.00	1.10
	49.. 58	30.00	1.02
	1006..1006	30.00	1.02
	39.. 48	15.00	0.84
	1005..1005	15.00	0.84
16	179.. 190	255.00	1.34
	1001..1001	255.00	1.34
	1019..1019	255.00	1.34
	2002..2002	255.00	1.34
	169.. 178	240.00	1.33
	1018..1018	240.00	1.33
	159.. 168	210.00	1.32
	1017..1017	210.00	1.32
	149.. 158	195.00	1.31
	1016..1016	195.00	1.31
	139.. 148	180.00	1.31
	1015..1015	180.00	1.31
	129.. 138	165.00	1.30
	1014..1014	165.00	1.30
	119.. 128	150.00	1.29
	1013..1013	150.00	1.29
	109.. 118	135.00	1.27
	1012..1012	135.00	1.27
	99.. 108	120.00	1.26
	1011..1011	120.00	1.26
	89.. 98	105.00	1.24
	1010..1010	105.00	1.24
	79.. 88	90.00	1.22

	1009..1009	90.00	1.22
	69.. 78	75.00	1.19
	1008..1008	75.00	1.19
	59.. 68	60.00	1.16
	1007..1007	60.00	1.16
	49.. 58	45.00	1.10
	1006..1006	45.00	1.10
	39.. 48	30.00	1.02
	1005..1005	30.00	1.02
	29.. 38	15.00	0.84
	1004..1004	15.00	0.84
17	179.. 190	255.00	1.34
	1001..1001	255.00	1.34
	1019..1019	255.00	1.34
	2002..2002	255.00	1.34
	169.. 178	240.00	1.33
	1018..1018	240.00	1.33
	159.. 168	210.00	1.32
	1017..1017	210.00	1.32
	149.. 158	195.00	1.31
	1016..1016	195.00	1.31
	139.. 148	180.00	1.31
	1015..1015	180.00	1.31
	129.. 138	165.00	1.30
	1014..1014	165.00	1.30
	119.. 128	150.00	1.29
	1013..1013	150.00	1.29
	109.. 118	135.00	1.27
	1012..1012	135.00	1.27
	99.. 108	120.00	1.26
	1011..1011	120.00	1.26
	89.. 98	105.00	1.24
	1010..1010	105.00	1.24
	79.. 88	90.00	1.22
	1009..1009	90.00	1.22
	69.. 78	75.00	1.19
	1008..1008	75.00	1.19
	59.. 68	60.00	1.16
	1007..1007	60.00	1.16
	49.. 58	45.00	1.10
	1006..1006	45.00	1.10
	39.. 48	30.00	1.02
	1005..1005	30.00	1.02
	29.. 38	15.00	0.84
	1004..1004	15.00	0.84
	19.. 28	15.00	0.84
	1003..1003	15.00	0.84
18	179.. 190	270.00	1.34
	1001..1001	270.00	1.34
	1019..1019	270.00	1.34
	2002..2002	270.00	1.34
	169.. 178	255.00	1.34
	1018..1018	255.00	1.34
	159.. 168	225.00	1.33
	1017..1017	225.00	1.33
	149.. 158	210.00	1.32
	1016..1016	210.00	1.32
	139.. 148	195.00	1.31
	1015..1015	195.00	1.31
	129.. 138	180.00	1.31
	1014..1014	180.00	1.31
	119.. 128	165.00	1.30
	1013..1013	165.00	1.30
	109.. 118	150.00	1.29
	1012..1012	150.00	1.29
	99.. 108	135.00	1.27
	1011..1011	135.00	1.27
	89.. 98	120.00	1.26
	1010..1010	120.00	1.26
	79.. 88	105.00	1.24
	1009..1009	105.00	1.24
	69.. 78	90.00	1.22
	1008..1008	90.00	1.22
	59.. 68	75.00	1.19
	1007..1007	75.00	1.19
	49.. 58	60.00	1.16
	1006..1006	60.00	1.16
	39.. 48	45.00	1.10
	1005..1005	45.00	1.10
	29.. 38	30.00	1.02
	1004..1004	30.00	1.02
	19.. 28	30.00	1.02
	1003..1003	30.00	1.02
	9.. 18	15.00	0.84
	1002..1002	15.00	0.84
19	179.. 190	285.00	1.35
	1001..1001	285.00	1.35
	1019..1019	285.00	1.35
	2002..2002	285.00	1.35
	169.. 178	270.00	1.34
	1018..1018	270.00	1.34
	159.. 168	240.00	1.33
	1017..1017	240.00	1.33
	149.. 158	225.00	1.33
	1016..1016	225.00	1.33
	139.. 148	210.00	1.32
	1015..1015	210.00	1.32
	129.. 138	195.00	1.31
	1014..1014	195.00	1.31
	119.. 128	180.00	1.31
	1013..1013	180.00	1.31
	109.. 118	165.00	1.30
	1012..1012	165.00	1.30
	99.. 108	150.00	1.29
	1011..1011	150.00	1.29
	89.. 98	135.00	1.27
	1010..1010	135.00	1.27
	79.. 88	120.00	1.26
	1009..1009	120.00	1.26
	69.. 78	105.00	1.24
	1008..1008	105.00	1.24
	59.. 68	90.00	1.22
	1007..1007	90.00	1.22
	49.. 58	75.00	1.19
	1006..1006	75.00	1.19
	39.. 48	60.00	1.16
	1005..1005	60.00	1.16
	29.. 38	45.00	1.10
	1004..1004	45.00	1.10
	19.. 28	45.00	1.10
	1003..1003	45.00	1.10
	9.. 18	30.00	1.02
	1002..1002	30.00	1.02
	1.. 8	15.00	0.84
	2001..2001	15.00	0.84

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

DATOS SECCIONES TIPO TABLERO:

Tipo	2 [m]	3 [m]	4 [m]	5 [m]	6 [m]	7 [m]	8 [m]
1	6.60	5.26	5.26	0.20	0.25	2.04	0.71

SITUACION DE SECCIONES TIPO DEL TABLERO:

No. de Situaciones de Secciones Tipo: 1

Cota [m]	Sección Tipo:
0.00	1

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

DATOS SECCIONES TIPO PILAS:

Tipo	geom.	rect / circ / poli	b / ϕ / xe [m]	h / ye [m]	b0 / ϕ / xi [m]	h0 / yi [m]	n_fustes	sep_fustes [m]
2	poli.		2.63	0.85	2.23	0.68	1	0.00
			2.13	1.35	1.96	0.95		
			-2.13	1.35	-1.96	0.95		
			-2.63	0.85	-2.23	0.68		
			-2.63	-0.85	-2.23	-0.68		
			-2.13	-1.35	-1.96	-0.95		
			2.13	-1.35	1.96	-0.95		
			2.63	-0.85	2.23	-0.68		

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

DATOS ARMADURAS SECCIONES TIPO PILAS:

Tipo	geom.	rect / circ / poli	nb_h_ext / nb_tot_ext / nb_lad_ext	nb_b_ext	nb_h_int / nb_tot_int / nb_lad_int	nb_b_int
2	poli.		4		3	
			19		16	
			4		3	
			9		7	
			4		3	
			19		16	
			4		3	
			9		7	

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

DATOS PILAS:

apoyo	altura [m]	abscisa [m]	tipo sec
E- 1	0.00		
P- 1	7.00	0.00	1
		7.00	1
P- 2	10.00	0.00	1
		10.00	1
P- 3	11.00	0.00	1
		11.00	1
P- 4	12.00	0.00	1
		12.00	1
P- 5	13.00	0.00	1
		13.00	1
P- 6	14.00	0.00	1
		14.00	1
P- 7	14.00	0.00	1
		14.00	1
P- 8	14.00	0.00	1
		14.00	1
P- 9	15.00	0.00	1
		15.00	1
P-10	15.00	0.00	1
		15.00	1
P-11	15.00	0.00	1
		15.00	1
P-12	14.00	0.00	1
		14.00	1
P-13	14.00	0.00	1
		14.00	1
P-14	13.00	0.00	1
		13.00	1
P-15	12.00	0.00	1
		12.00	1
P-16	10.00	0.00	1
		10.00	1
P-17	7.00	0.00	1
		7.00	1
P-18	4.00	0.00	1
		4.00	1
E- 2	0.00		

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

DATOS ALIGERAMIENTOS TIPO:

No. de Aligeramientos Tipo: 3

Aligeramiento Tipo 1 No. de Huecos: 3

Hueco Tipo	x [m]	y [m]	L o R [m]	l [m]	h [m]
4	0.00	-0.30	0.00	4.84	0.15
4	0.00	-0.45	4.84	5.17	0.25
4	0.00	-0.70	5.17	3.77	2.15

Aligeramiento Tipo 2 No. de Huecos: 3

Hueco Tipo	x [m]	y [m]	L o R [m]	l [m]	h [m]
4	0.00	-0.30	0.00	4.19	0.13
4	0.00	-0.43	4.19	4.39	0.14
4	0.00	-0.57	4.39	2.00	2.13

Aligeramiento Tipo 3 No. de Huecos: 3

Hueco Tipo	x [m]	y [m]	L o R [m]	l [m]	h [m]
4	0.00	-0.95	1.00	2.00	0.28
4	0.00	-1.23	2.00	2.00	0.00
4	0.00	-1.23	2.00	2.00	1.47

DATOS TRAMOS ALIGERADOS

Tramo	Cota Inicial [m]	Cota final [m]	Tipo Alig. Inicial	Tipo Alig. final
1	0.00	0.75	3	3
2	0.75	2.50	2	1
3	2.50	29.50	1	1
4	29.50	31.25	1	2
5	31.25	32.75	3	3
6	32.75	34.25	2	1
7	34.25	69.50	1	1
8	69.50	71.25	1	2
9	71.25	72.75	3	3
10	72.75	74.50	2	1
11	74.50	109.50	1	1
12	109.50	111.25	1	2
13	111.25	112.75	3	3
14	112.75	114.50	2	1
15	114.50	149.50	1	1
16	149.50	151.25	1	2
17	151.25	152.75	3	3
18	152.75	154.50	2	1
19	154.50	189.50	1	1
20	189.50	191.25	1	2
21	191.25	192.75	3	3
22	192.75	194.50	2	1
23	194.50	229.50	1	1
24	229.50	230.25	1	2
25	230.25	232.75	3	3
26	232.75	234.50	2	1
27	234.50	269.50	1	1
28	269.50	271.25	1	2
29	271.25	272.75	3	3
30	272.75	274.50	2	1
31	274.50	309.50	1	1
32	309.50	311.25	1	2
33	311.28	312.75	3	3
34	312.75	314.50	2	1
35	314.50	349.50	1	1
36	349.50	351.25	1	2
37	351.25	352.75	3	3
38	352.75	354.50	2	1
39	354.50	389.51	1	1
40	389.51	391.25	1	2
41	391.25	392.75	3	3
42	392.75	394.50	2	1
43	394.50	429.51	1	1
44	429.51	431.25	1	2
45	431.25	432.75	3	3
46	432.75	434.50	2	1
47	434.50	469.50	1	1
48	469.50	471.25	1	2
49	471.25	472.75	3	3
50	472.75	474.50	2	1
51	474.50	509.51	1	1
52	509.51	511.25	1	2
53	511.25	512.75	3	3
54	512.75	514.50	2	1
55	514.50	549.51	1	1
56	549.51	551.25	1	2
57	551.25	552.75	3	3
58	552.75	554.50	2	1
59	554.50	589.51	1	1
60	589.51	591.25	1	2
61	591.25	592.75	3	3
62	592.75	594.50	2	1
63	594.50	629.51	1	1
64	629.51	631.25	1	2
65	631.25	632.75	3	3
66	632.75	634.50	2	1
67	634.50	669.51	1	1
68	669.51	671.25	1	2
69	671.25	672.75	3	3
70	672.75	674.50	2	1
71	674.50	709.51	1	1
72	709.51	711.25	1	2
73	711.25	712.75	3	3
74	712.75	714.50	2	1
75	714.50	741.51	1	1
76	741.51	743.25	1	2
77	743.25	744.01	3	3

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

PRETENSADO EN ALZADO

LEYENDA: RP = recta-parabola
PP = parabola-parabola
PRP = parabola-recta-parabola
PC = parabola-cúbica
PR = parabola-recta

Fam / Tramo	x0 [m] / tipo	y0 [m] / L1 [m]	y0' / L2 [m]	A [cm²] / LT [m]	P1 [t] / yf [m]	P2 [t] / yf'
1	0.00	-0.69	0.00	106.40	1516	0
1	RP	3.00		12.00	-2.30	0.00
2	PR	10.60		13.60	-0.95	
2	0.00	-1.14	0.00	106.40	1516	0
1	RP	3.00		12.00	-2.66	0.00
2	PR	10.60		13.60	-1.31	
3	0.00	-1.59	0.00	106.40	1516	0
1	RP	3.00		12.00	-3.02	0.00
2	PR	10.60		13.60	-1.67	
4	25.60	-0.95	0.00	106.40	1516	0
1	RP	3.00		6.40	-0.18	0.00
2	PRP	5.00	6.00	20.00	-2.30	0.00
3	PR	9.00		12.00	-1.08	
5	25.60	-1.31	0.00	106.40	1516	0
1	RP	3.00		6.40	-0.54	0.00
2	PRP	5.00	6.00	20.00	-2.66	0.00
3	PR	9.00		12.00	-1.44	
6	25.60	-1.67	0.00	106.40	1516	0
1	RP	3.00		6.40	-0.90	0.00
2	PRP	5.00	6.00	20.00	-3.02	0.00
3	PR	9.00		12.00	-1.80	
7	64.00	-1.08	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.18	0.00
2	PRP	5.00	6.00	20.00	-2.30	0.00
3	PR	9.00		12.00	-1.08	
8	64.00	-1.44	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.54	0.00
2	PRP	5.00	6.00	20.00	-2.66	0.00
3	PR	9.00		12.00	-1.44	
9	64.00	-1.80	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.90	0.00
2	PRP	5.00	6.00	20.00	-3.02	0.00
3	PR	9.00		12.00	-1.80	
10	104.00	-1.08	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.18	0.00
2	PRP	5.00	6.00	20.00	-2.30	0.00
3	PR	9.00		12.00	-1.08	
11	104.00	-1.44	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.54	0.00
2	PRP	5.00	6.00	20.00	-2.66	0.00
3	PR	9.00		12.00	-1.44	
12	104.00	-1.80	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.90	0.00
2	PRP	5.00	6.00	20.00	-3.02	0.00
3	PR	9.00		12.00	-1.80	
13	144.00	-1.08	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.18	0.00
2	PRP	5.00	6.00	20.00	-2.30	0.00
3	PR	9.00		12.00	-1.08	
14	144.00	-1.44	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.54	0.00
2	PRP	5.00	6.00	20.00	-2.66	0.00
3	PR	9.00		12.00	-1.44	
15	144.00	-1.80	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.90	0.00
2	PRP	5.00	6.00	20.00	-3.02	0.00
3	PR	9.00		12.00	-1.80	
16	184.00	-1.08	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.18	0.00
2	PRP	5.00	6.00	20.00	-2.30	0.00
3	PR	9.00		12.00	-1.08	
17	184.00	-1.44	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.54	0.00
2	PRP	5.00	6.00	20.00	-2.66	0.00
3	PR	9.00		12.00	-1.44	
18	184.00	-1.80	0.00	106.40	1516	0

1	RP	3.00		8.00	-0.90	0.00
2	PRP	5.00	6.00	20.00	-3.02	0.00
3	PR	9.00		12.00	-1.80	
19	224.00	-1.08	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.18	0.00
2	PRP	5.00	6.00	20.00	-2.30	0.00
3	PR	9.00		12.00	-1.08	
20	224.00	-1.44	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.54	0.00
2	PRP	5.00	6.00	20.00	-2.66	0.00
3	PR	9.00		12.00	-1.44	
21	224.00	-1.80	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.90	0.00
2	PRP	5.00	6.00	20.00	-3.02	0.00
3	PR	9.00		12.00	-1.80	
22	264.00	-1.08	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.18	0.00
2	PRP	5.00	6.00	20.00	-2.30	0.00
3	PR	9.00		12.00	-1.08	
23	264.00	-1.44	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.54	0.00
2	PRP	5.00	6.00	20.00	-2.66	0.00
3	PR	9.00		12.00	-1.44	
24	264.00	-1.80	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.90	0.00
2	PRP	5.00	6.00	20.00	-3.02	0.00
3	PR	9.00		12.00	-1.80	
25	304.00	-1.08	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.18	0.00
2	PRP	5.00	6.00	20.00	-2.30	0.00
3	PR	9.00		12.00	-1.08	
26	304.00	-1.44	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.54	0.00
2	PRP	5.00	6.00	20.00	-2.66	0.00
3	PR	9.00		12.00	-1.44	
27	304.00	-1.80	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.90	0.00
2	PRP	5.00	6.00	20.00	-3.02	0.00
3	PR	9.00		12.00	-1.80	
28	344.00	-1.08	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.18	0.00
2	PRP	5.00	6.00	20.00	-2.30	0.00
3	PR	9.00		12.00	-1.08	
29	344.00	-1.44	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.54	0.00
2	PRP	5.00	6.00	20.00	-2.66	0.00
3	PR	9.00		12.00	-1.44	
30	344.00	-1.80	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.90	0.00
2	PRP	5.00	6.00	20.00	-3.02	0.00
3	PR	9.00		12.00	-1.80	
31	384.00	-1.08	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.18	0.00
2	PRP	5.00	6.00	20.00	-2.30	0.00
3	PR	9.00		12.00	-1.08	
32	384.00	-1.44	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.54	0.00
2	PRP	5.00	6.00	20.00	-2.66	0.00
3	PR	9.00		12.00	-1.44	
33	384.00	-1.80	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.90	0.00
2	PRP	5.00	6.00	20.00	-3.02	0.00
3	PR	9.00		12.00	-1.80	
34	424.00	-1.08	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.18	0.00
2	PRP	5.00	6.00	20.00	-2.30	0.00
3	PR	9.00		12.00	-1.08	
35	424.00	-1.44	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.54	0.00
2	PRP	5.00	6.00	20.00	-2.66	0.00
3	PR	9.00		12.00	-1.44	
36	424.00	-1.80	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.90	0.00
2	PRP	5.00	6.00	20.00	-3.02	0.00
3	PR	9.00		12.00	-1.80	
37	464.00	-1.08	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.18	0.00
2	PRP	5.00	6.00	20.00	-2.30	0.00
3	PR	9.00		12.00	-1.08	
38	464.00	-1.44	0.00	106.40	1516	0

1	RP	3.00		8.00	-0.54	0.00
2	PRP	5.00	6.00	20.00	-2.66	0.00
3	PR	9.00		12.00	-1.44	
39	464.00	-1.80	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.90	0.00
2	PRP	5.00	6.00	20.00	-3.02	0.00
3	PR	9.00		12.00	-1.80	
40	504.00	-1.08	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.18	0.00
2	PRP	5.00	6.00	20.00	-2.30	0.00
3	PR	9.00		12.00	-1.08	
41	504.00	-1.44	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.54	0.00
2	PRP	5.00	6.00	20.00	-2.66	0.00
3	PR	9.00		12.00	-1.44	
42	504.00	-1.80	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.90	0.00
2	PRP	5.00	6.00	20.00	-3.02	0.00
3	PR	9.00		12.00	-1.80	
43	544.00	-1.08	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.18	0.00
2	PRP	5.00	6.00	20.00	-2.30	0.00
3	PR	9.00		12.00	-1.08	
44	544.00	-1.44	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.54	0.00
2	PRP	5.00	6.00	20.00	-2.66	0.00
3	PR	9.00		12.00	-1.44	
45	544.00	-1.80	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.90	0.00
2	PRP	5.00	6.00	20.00	-3.02	0.00
3	PR	9.00		12.00	-1.80	
46	584.00	-1.08	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.18	0.00
2	PRP	5.00	6.00	20.00	-2.30	0.00
3	PR	9.00		12.00	-1.08	
47	584.00	-1.44	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.54	0.00
2	PRP	5.00	6.00	20.00	-2.66	0.00
3	PR	9.00		12.00	-1.44	
48	584.00	-1.80	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.90	0.00
2	PRP	5.00	6.00	20.00	-3.02	0.00
3	PR	9.00		12.00	-1.80	
49	624.00	-1.08	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.18	0.00
2	PRP	5.00	6.00	20.00	-2.30	0.00
3	PR	9.00		12.00	-1.08	
50	624.00	-1.44	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.54	0.00
2	PRP	5.00	6.00	20.00	-2.66	0.00
3	PR	9.00		12.00	-1.44	
51	624.00	-1.80	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.90	0.00
2	PRP	5.00	6.00	20.00	-3.02	0.00
3	PR	9.00		12.00	-1.80	
52	664.00	-1.08	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.18	0.00
2	PRP	5.00	6.00	20.00	-2.30	0.00
3	PR	9.00		12.00	-1.08	
53	664.00	-1.44	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.54	0.00
2	PRP	5.00	6.00	20.00	-2.66	0.00
3	PR	9.00		12.00	-1.44	
54	664.00	-1.80	0.00	106.40	1516	0
1	RP	3.00		8.00	-0.90	0.00
2	PRP	5.00	6.00	20.00	-3.02	0.00
3	PR	9.00		12.00	-1.80	
55	704.00	-1.08	0.00	106.40	1516	1516
1	RP	3.00		8.00	-0.18	0.00
2	PRP	5.00	6.00	20.00	-2.30	0.00
3	PR	9.00		12.00	-0.69	
56	704.00	-1.44	0.00	106.40	1516	1516
1	RP	3.00		8.00	-0.42	0.00
2	PRP	5.00	6.00	20.00	-2.66	0.00
3	PR	9.00		12.00	-1.14	
57	704.00	-1.80	0.00	106.40	1516	1516
1	RP	3.00		8.00	-0.66	0.00
2	PRP	5.00	6.00	20.00	-3.02	0.00
3	PR	9.00		12.00	-1.59	
58	25.60	-0.18	0.00	53.20	758	0

1	RP	6.40		6.40	-0.18	0.00
2	PR	0.00		8.00	-0.16	
59	64.00	-0.18	0.00	159.60	2274	0
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
60	104.00	-0.18	0.00	159.60	2274	0
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
61	144.00	-0.18	0.00	159.60	2274	0
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
62	184.00	-0.18	0.00	159.60	2274	0
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
63	224.00	-0.18	0.00	159.60	2274	0
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
64	264.00	-0.18	0.00	159.60	2274	0
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
65	304.00	-0.18	0.00	159.60	2274	0
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
66	344.00	-0.18	0.00	159.60	2274	0
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
67	384.00	-0.18	0.00	159.60	2274	0
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
68	424.00	-0.18	0.00	159.60	2274	0
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
69	464.00	-0.18	0.00	159.60	2274	0
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
70	504.00	-0.18	0.00	159.60	2274	0
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
71	544.00	-0.18	0.00	159.60	2274	0
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
72	584.00	-0.18	0.00	159.60	2274	0
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
73	624.00	-0.18	0.00	159.60	2274	0
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
74	664.00	-0.18	0.00	159.60	2274	0
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
75	704.00	-0.18	0.00	159.60	2274	0
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		6.40	-0.18	
76	0.00	-3.02	0.00	159.60	2274	0
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	21.60	21.60	-3.02	0.00
3	PR	1.00		2.00	-3.02	
77	25.60	-3.02	0.00	212.80	3032	0
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	34.40	34.40	-3.02	0.00
3	PR	1.00		2.00	-3.02	
78	64.00	-3.02	0.00	212.80	3032	0
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
79	104.00	-3.02	0.00	212.80	3032	0
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
80	144.00	-3.02	0.00	212.80	3032	0
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	

81	184.00	-3.02	0.00	212.80	3032	0
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
82	224.00	-3.02	0.00	212.80	3032	0
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
83	264.00	-3.02	0.00	212.80	3032	0
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
84	304.00	-3.02	0.00	212.80	3032	0
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
85	344.00	-3.02	0.00	212.80	3032	0
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
86	384.00	-3.02	0.00	212.80	3032	0
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
87	424.00	-3.02	0.00	239.40	3411	0
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
88	464.00	-3.02	0.00	239.40	3411	0
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
89	504.00	-3.02	0.00	239.40	3411	0
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
90	544.00	-3.02	0.00	239.40	3411	0
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
91	584.00	-3.02	0.00	239.40	3411	0
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
92	624.00	-3.02	0.00	239.40	3411	0
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
93	664.00	-3.02	0.00	212.80	3032	0
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
94	704.00	-3.02	0.00	212.80	3032	3032
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
95	664.00	-3.02	0.00	53.20	756	0
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	50.40	50.40	-3.02	0.00
3	PR	1.00		2.00	-3.02	

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

GEOMETRIA APOYOS

Apoyo	Esv. [g]	NNeop Neop#	Hapoy [mm] XNeop [m]	Aapoy [mm]	Bapoy [mm]	tipo_ap	hneta [mm]
E- 1	100.000	2	193.00	824.00	0.00	4	
		1	4.95				
		2	9.05				
P- 1	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P- 2	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P- 3	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P- 4	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P- 5	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P- 6	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P- 7	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P- 8	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P- 9	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P-10	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P-11	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P-12	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P-13	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P-14	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P-15	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P-16	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P-17	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P-18	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
E- 2	100.000	2	174.00	824.00	0.00	3	
		1	4.95				
		2	9.05				

ANCHO RIOSTRAS

Ancho Riostra Estribos [m]	Ancho Riostra Pilas [m]
1.0	2.0

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

GEOMETRIA APOYOS PROVISIONALES PARA SUSTITUCION DE NEOPRENOS

Apoyo	NNeop Neop#	tipo XNeop [m]
E-1	2	4
	1	5.00
	2	9.00
P- 2	2	4
	1	5.05
	2	8.95
P- 3	2	4
	1	5.05
	2	8.95
P- 4	2	4
	1	5.05
	2	8.95
P- 5	2	4
	1	5.05
	2	8.95
P- 6	2	4
	1	5.05
	2	8.95
P- 7	2	4
	1	5.05
	2	8.95
P- 8	2	4
	1	5.05
	2	8.95
P- 9	2	4
	1	5.05
	2	8.95
P-10	2	4
	1	5.05
	2	8.95
P-11	2	4
	1	5.05
	2	8.95
P-12	2	4
	1	5.05
	2	8.95
P-13	2	4
	1	5.05
	2	8.95
P-14	2	4
	1	5.05
	2	8.95
P-15	2	4
	1	5.05
	2	8.95
P-16	2	4
	1	5.05
	2	8.95
P-17	2	4
	1	5.05
	2	8.95
P-18	2	4
	1	5.05
	2	8.95
P-19	2	4
	1	5.05
	2	8.95
E-2	2	3
	1	5.00
	2	9.00

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

PARAMETROS DEL COMPORTAMIENTO DIFERIDO

Def. reológicas {1E+6}
740

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

CARACTERISTICAS DE LOS MATERIALES Y COEFICIENTES DE PONDERACION

gammaf_tab fck28_tab fyk fpk [kg/cm2]	gammaf_pilas fck28_pilas Es Ep [kg/cm2]	fck28_cim GammaS GammaP	GammaC
1.50	1.50		
400.00	300.00	250.00	1.50
5100.00	2100000.00	1.15	
17100.00	1950000.00	1.10	

Recubrimiento [cm]: 5.0

;
Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

CARGAS CONSIDERADAS

sc [t/m2]	Carro [t]
1.92	60.00

Vano	ECMax [m] cmr [t/m2]	ECMin [m] cml1 [t/m]	exc1 [m]	cml2 [t/m]	exc2 [m]	cml3 [t/m]	exc3 [m]
1	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
2	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
3	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
4	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
5	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
6	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
7	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
8	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
9	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
10	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
11	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
12	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
13	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
14	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
15	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
16	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
17	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
18	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
19	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80

Cargas Térmicas

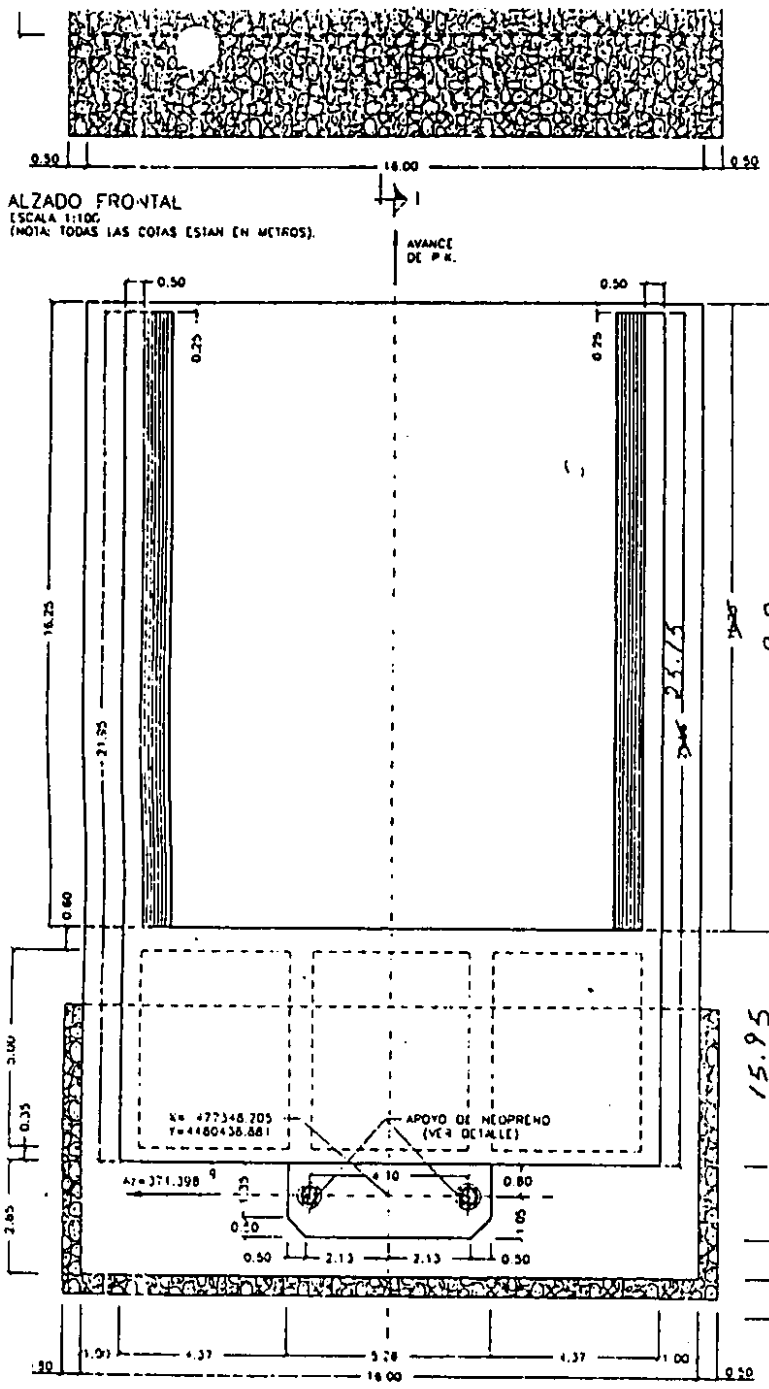
Inc(t) unif [grad cent]	Grad(t) [grad cent]
15.10	10.00

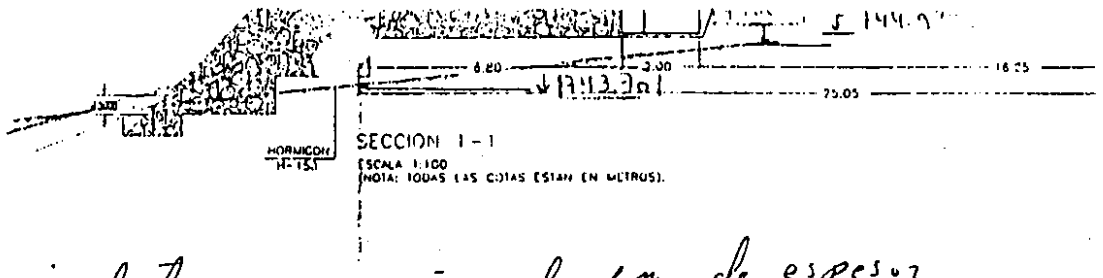
Cargas de Viento

w s/ tablero [kp/m2]	w s/pilas [kp/m2]	h peto 1 [m]	h peto 2 [m]
200.00	200.00	0.50	0.50

Asiento Diferencial Considerado [cm]: 0.0

২. ESTRIBO 2 VIADUCTO 1



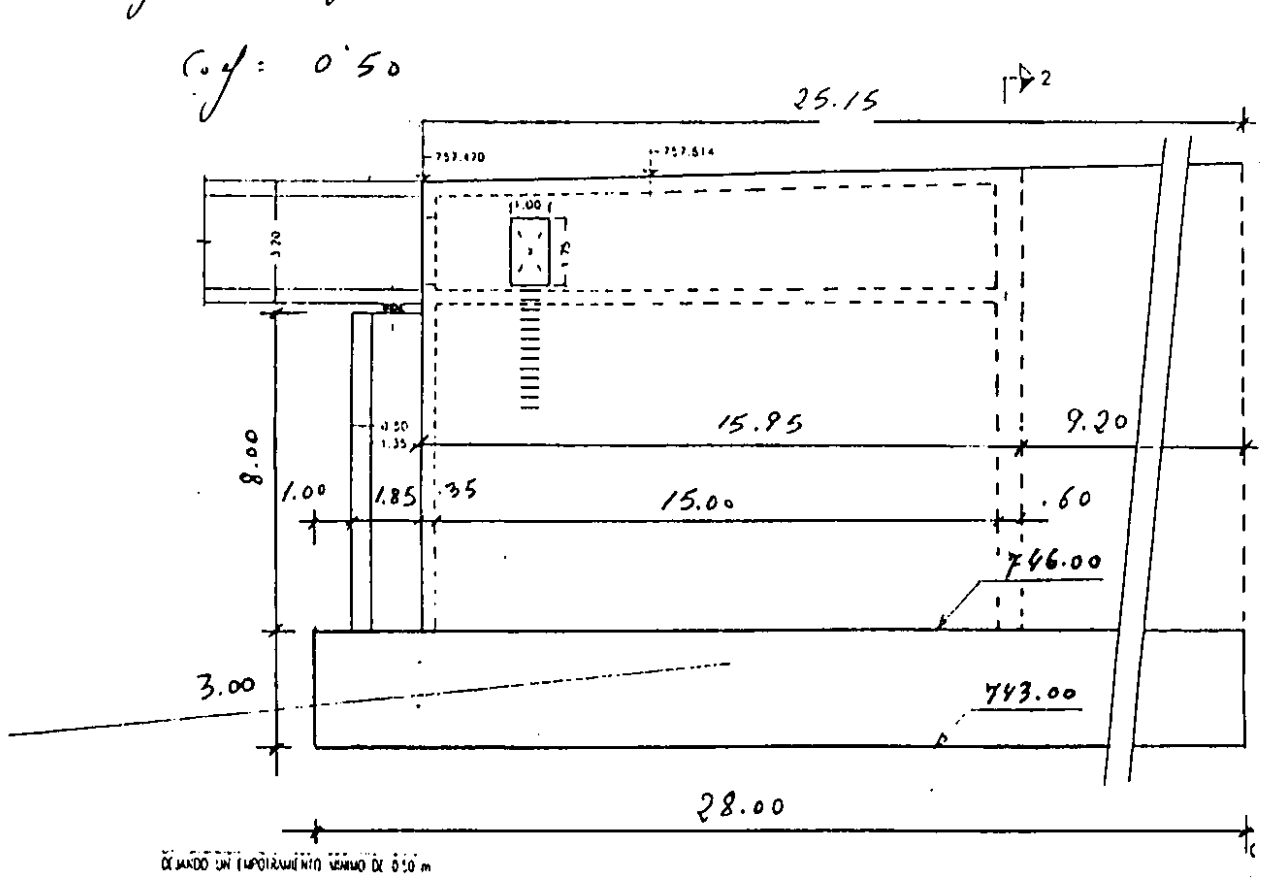


Empuje de tierras (con cuñas de 1m de espesor)

NOTA: CON OBJETIVO DE MINIMIZAR EL EMPUJE DE TIERRAS SOBRE EL ESTRIBO ANCLADO, EL RELLENO DE SUELO-CEMENTO SE EJECUTARA POR TONGADAS DE 1.00 METRO DE ESPESOR.

Coef. de empuje al reposo

Coef: 0'50



DEJANDO UN EMPOTRAMIENTO MINIMO DE 0.50 m

	TITULO: PROYECTO CONSTRUCTIVO "L.A.V. MADRID-BARCELONA-FRONTERA FRANCESA"	AUTOR: TORCAZ U.T.E.	ESCALA NORMAL	FECHA

ESTRIBO 2 - VIADUCTO 1

Fuerz. del Pobre. sobre el estribo

Longitud de la zapata = 28.00
Longitud de la puntera = 1.00
Longitud hueca = 15.00

σ_{max}	=	33.62
σ_{min}	=	12.76
Csd	=	1.85

							H	N	M
CARGAS TRANSMITIDAS POR EL TABLERO									
.- Peso Propio									
N1	=	2.75 x	41.92 =					115.28	1377.60
N2	=	10.00 x	24.43 =					244.30	2919.39
				Nt	=			**359.58**	**4296.98**
.- Cargas Muertas									
N1	=	12.75 x	12.00 =					153.00	1828.35
				Nt	=			**153.00**	**1828.35**
.- Rozamiento de teflones , frenado y asientos diferenciales									
Reacción para abajo									
N1	=	175.69	=					175.69	2099.50
				Nt	=			**175.69**	**2099.50**
Reacción para arriba									
N1	=	-175.69	=					-175.69	-2099.50
				Nt	=			**-175.69**	**-2099.50**
.- Pretensado inicial +Pretensado de Continuidad (Tendones que se cruzan) + Pretensado inferior									
N1	=	221.10 x	0.85 =					187.94	2245.82
				Nt	=			**187.94**	**2245.82**
.- Sobrecargas									
[illegible]x	=							408.72	4884.20
				Nt	=			**408.72**	**4884.20**
Nmin	=							-77.96	-931.62
				Nt	=			**-77.96**	**-931.62**
.- Rozamiento de Neoprenos									
H	=						2108.65		24133.50
				Ht	=		**2108.65**		**24133.50**

PESO PROPIO DEL ESTRIBO

N1	=	1 x	28.00 x	16.00 x	3.00 x	2.50 =	3360.00	0.00
N2	=	1 x	1.85 x	5.26 x	8.00 x	2.50 =	194.62	2350.04
N3	=	1 x	0.35 x	14.00 x	11.47 x	2.50 =	140.51	1542.07
[illegible]	=	1 x	0.60 x	14.00 x	11.61 x	2.50 =	243.81	-1097.15
[illegible]	=	2 x	15.00 x	0.50 x	11.14 x	2.50 =	417.75	1378.58
N6	=	2 x	15.00 x	0.60 x	11.14 x	2.50 =	501.30	1654.29
N7	=	1 x	15.00 x	14.00 x	0.40 x	2.50 =	210.00	693.00

VIADUCTO PARA EL AVE

ESTRIBO 2 - VIADUCTO 1

Longitud de la zapata = 28.00
Longitud de la puntera = 1.00
Longitud hueca = 15.00

σ_{max}	=	33.62
σ_{min}	=	12.76
Csd	=	1.85

								H	N	M
N8	=	1 x	15.00 x	4.06 x	0.35 x	2.50 =			53.29	175.85
					Nt	=			**5121.28**	**6696.68**

RELLENO DE SUELO CEMENTO

N1	=	1 x	9.20 x	14.00 x	11.61 x	2.00 =		2990.74	-28112.92
N2	=	0.5 x	9.20 x	14.00 x	0.40 x	2.00 =		51.52	-563.29
					Nt	=		**3042.26**	**-28676.20**

RELLENO DE TIERRAS EN LOS VUELOS DE LA ZAPATA

N1	2 x	25.15 x	1.00 x	5.00 x	1.60 =		402.40	-573.42
N2	1 x	2.85 x	16.00 x	5.00 x	1.60 =		364.80	4587.36
N3	-1 x	1.85 x	5.26 x	5.00 x	1.60 =		-77.85	-940.01
				Nt	=		**689.35**	**3073.93**

CARGA MUERTA DE LA VIA SOBRE EL ESTRIBO

N1	=	1 x	25.15 x	10.00 x	1.00 x	1.00 =		251.50	-358.39
					Nt	=		**251.50**	**-358.39**

EMPUJE DEL TERRENO (Coeficiente de empuje al reposo)

H1	=	1.00 x	2.00 x	0.50 x	12.00 x	14.00 =		168.00	1512.00
H2	=	1.00 x	2.00 x	0.50 x	3.00 x	16.00 =		48.00	72.00
	=	0.00 x	3.00 x	0.50 x	12.00 x	14.00 =		0.00	0.00
H4	=	0.00 x	3.00 x	0.50 x	3.00 x	16.00 =		0.00	0.00
H5	=	0.00 x	3.00 x	0.50 x	3.00 x	16.00 =		0.00	0.00
						Ht	=	**216.00**	**1584.00**

COMPROBACION DEL DESLIZAMIENTO

Nt = 9551.25
Ht = 2324.65

Csd = 9551.25 x 0.45 / 2324.65 = 1.85

COMPROBACION DE TENSIONES

Nt = 10389.31
Mt = 21808.36

ESTRIBO 2 - VIADUCTO 1

Longitud de la zapata = 28.00
Longitud de la puntera = 1.00
Longitud hueca = 15.00

σ_{max}	=	33.62
σ_{min}	=	12.76
Csd	=	1.85

						H	N	M
σ_{max}	=	10389.31	/	448	+	6 x 21808.36 / 12544.00 =		**33.62**
σ_{min}	=	10389.31	/	448	-	6 x 21808.36 / 12544.00 =		**12.76**

VIADUCTO PARA EL AVE

Fuerza del tablero contra el estribo.

ESTRIBO 2 - VIADUCTO 1

Longitud de la zapata = 28.00
Longitud de la puntera = 1.00
Longitud hueca = 15.00

σ_{max}	=	10.53
σ_{min}	=	35.85
Csd	=	-2.27

CARGAS TRANSMITIDAS POR EL TABLERO

					H	N	M
.- Peso Propio							
N1	=	2.75 x	41.92 =			115.28	1377.60
N2	=	10.00 x	24.43 =			244.30	2919.39
				Nt	**=**	**359.58**	**4296.98**
.- Cargas Muertas							
N1	=	12.75 x	12.00 =			153.00	1828.35
				Nt	**=**	**153.00**	**1828.35**
.- Rozamiento de teflones , frenado y asientos diferenciales							
Reacción para abajo							
N1	=	175.69	=			175.69	2099.50
				Nt	**=**	**175.69**	**2099.50**
Reacción para arriba							
N1	=	-175.69	=			-175.69	-2099.50
				Nt	**=**	**-175.69**	**-2099.50**
.- Pretensado inicial +Pretensado de Continuidad (Tendones que se cruzan) + Pretensado inferior							
N1	=	221.10 x	0.85 =			187.94	2245.82
				Nt	**=**	**187.94**	**2245.82**
.- Sobrecargas							
Nmax	=					408.72	4884.20
				Nt	**=**	**408.72**	**4884.20**
Nmin	=					-77.96	-931.62
				Nt	**=**	**-77.96**	**-931.62**
.- Rozamiento de Neoprenos							
H	=					-2108.65	-24133.50
				Ht	**=**	**-2108.65**	**-24133.50**

PESO PROPIO DEL ESTRIBO

N1	=	1 x	28.00 x	16.00 x	3.00 x	2.50 =		3360.00	0.00
N2	=	1 x	1.85 x	5.26 x	8.00 x	2.50 =		194.62	2350.04
N3	=	1 x	0.35 x	14.00 x	11.47 x	2.50 =		140.51	1542.07
I	=	1 x	0.60 x	14.00 x	11.61 x	2.50 =		243.81	-1097.15
N5	=	2 x	15.00 x	0.50 x	11.14 x	2.50 =		417.75	1378.58
N6	=	2 x	15.00 x	0.60 x	11.14 x	2.50 =		501.30	1654.29
N7	=	1 x	15.00 x	14.00 x	0.40 x	2.50 =		210.00	693.00

ESTRIBO 2 - VIADUCTO 1

Longitud de la zapata =	28.00						σ_{max}	=	10.53
Longitud de la puntera =	1.00						σ_{min}	=	35.85
Longitud hueca =	15.00						Csd	=	-2.27

								H	N	M
N8	=	1 x	15.00 x	4.06 x	0.35 x		2.50 =		53.29	175.85
						Nt	=		**5121.28**	**6696.68**

RELLENO DE SUELO CEMENTO

N1	=	1 x	9.20 x	14.00 x	11.61 x		2.00 =		2990.74	-28112.92
N2	=	0.5 x	9.20 x	14.00 x	0.40 x		2.00 =		51.52	-563.29
						Nt	=		**3042.26**	**-28676.20**

RELLENO DE TIERRAS EN LOS VUELOS DE LA ZAPATA

		2 x	25.15 x	1.00 x	5.00 x		1.60 =		402.40	-573.42
N2		1 x	2.85 x	16.00 x	5.00 x		1.60 =		364.80	4587.36
N3		-1 x	1.85 x	5.26 x	5.00 x		1.60 =		-77.85	-940.01
						Nt	=		**689.35**	**3073.93**

CARGA MUERTA DE LA VIA SOBRE EL ESTRIBO

N1	=	1 x	25.15 x	10.00 x	1.00 x		1.00 =		251.50	-358.39
						Nt	=		**251.50**	**-358.39**

EMPUJE DEL TERRENO (Coeficiente de empuje al reposo)

H1	=	1.00 x	2.00 x	0.50 x	12.00 x		14.00 =	168.00		1512.00
H2	=	1.00 x	2.00 x	0.50 x	3.00 x		16.00 =	48.00		72.00
	=	0.00 x	3.00 x	0.50 x	12.00 x		14.00 =	0.00		0.00
	=	0.00 x	3.00 x	0.50 x	3.00 x		16.00 =	0.00		0.00
H5	=	0.00 x	3.00 x	0.50 x	3.00 x		16.00 =	0.00		0.00
						Ht	=	**216.00**		**1584.00**

COMPROBACION DEL DESLIZAMIENTO

Nt = 9551.25
Ht = -1892.65

Csd = 9551.25 x 0.45 / -1892.65 = -2.27

COMPROBACION DE TENSIONES

= 10389.31
Mt = -26458.64

VIADUCTO PARA EL AVE

ESTRIBO 2 - VIADUCTO 1

Longitud de la zapata = 28.00
Longitud de la puntera = 1.00
Longitud hueca = 15.00

σ_{max} = 10.53
σ_{min} = 35.85
Csd = -2.27

									H	N	M
σ_{max}	=	10389.31	/	448	+	6 x	-26458.64	/ 12544.00 =			**10.53**
σ_{min}	=	10389.31	/	448	-	6 x	-26458.64	/ 12544.00 =			**35.85**

ESTUDIO DE ASIENTOS

RECTANGULO RIGIDO SOBRE SEMIESPACIO ELASTICO

Dimensiones
L (m) = 28
B (m) = 16

Terreno de apoyo
E (T/m2) = 8500
nu = 0,30
E/(1-nu2) = 9.341

Capa rígida a 15 m de profundidad
h/L=0.54 L/B=1.75 Sovinc (1961)
beta=0.3

Carga vertical centrada
P (T) = 10389,3

Asiento
s (cm) = 1,47
(Whitman y Richart, 1970)

sigma (T/m2) = 23,2
beta = 1,07

PUNTO	ASIENTO (cm)
CENTRO	1,47
1	1,73
2	1,21
3	1,21
4	1,73

Momento en la dirección de B
M (mT) = 0

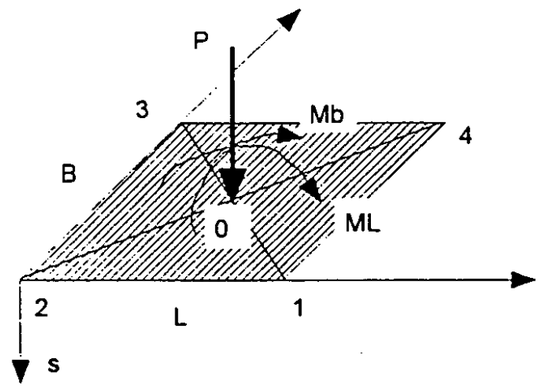
Giro
Fi = 0,0000
(Lee, 1963; Whitman y Richart, 1967)

I = 4,25

Momento en la dirección de L
M (mT) = 21808

Giro
Fi = 0,0006

I = 3,36



Losa de unión de estribo y tablero

Giros que se producen en el tablero una vez hormigonada la losa

Pretensado = $(0'223 + 0'540 + 0'557) \cdot 10^{-3} = 1'320 \cdot 10^{-3}$ rad

Pes. propio = $-0'299 \cdot 10^{-3}$

Grad. Temp. +-C = $0'190 \cdot 10^{-3}$

C. Permanente = $-0'140 \cdot 10^{-3}$

Asiento diferencial del estrib. de 2'5 cm = $0'98 \cdot 10^{-3}$

Sobrecargas = $0'26 \cdot 10^{-3}$

Giro del estrib. = $0'638 \cdot 10^{-3}$

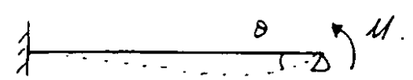
El efecto de los giros debidos a asientos y giro del estrib. se reducen por la fluencia

Giro total = $10^{-3} \cdot (0'85 \cdot 1'320 - 0'299 + 0'190 - 0'140 + 0'260) +$

$+ 0'34 \cdot 10^{-3} \cdot (0'980 + 0'638) = 1'683 \cdot 10^{-3}$

Efecto del giro:

Consideramos, poniéndonos del lado de la seguridad, que la losa actúa como empotramiento-articulada.



$$\theta = \frac{M \cdot l}{4 E I}$$

$E = 38 \cdot 10^6$ T/m²

$I = \frac{1}{12} \cdot 5'26 \cdot 0'35^3 = 0'0188$ m⁴

$l = 3'00$ m

$M = \frac{4 \cdot E \cdot I \cdot \theta}{l} = 160'31$ m·T/en 5'26 m de ancho

Acciones ponderadas

$G_{in.f.f.l} = 0'85 . 1320 . 10^{-3} - 10^{-3} . (0'299 + 0'140) +$

$+ 1'5 . 10^{-3} . (0'190 + 0'760) + 1'5 . 0'34 . 10^{-3} . (0'980 + 0'638) =$

$= 2'183 . 10^{-3}$ rad

$Md = \frac{4 . E . I . \theta_d}{l} = 20'94$ m. T.

$Nd = \pm 2108'00 . 1'50 = \pm 3162'00$ t

Pretensado:

2 tendones 19 ϕ 0'6" y 8 tendones 12 ϕ 0'6"

$Npret = 2490'28$ t

$A_s = 2 . 2660 + 8 . 1680 = 18'60$ cm²

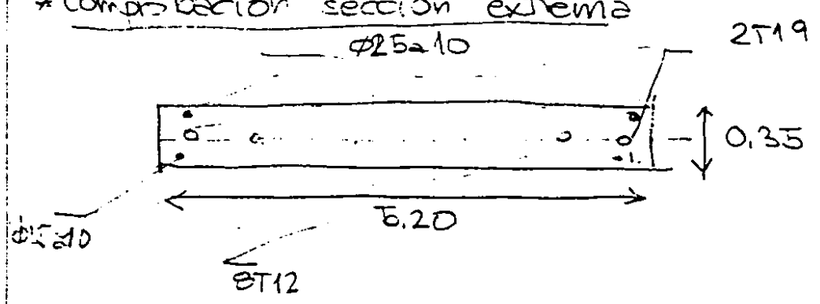
D.f. impuesta:

$\varepsilon = \frac{\sigma}{E} = \frac{2490'28 . 10^3 / 18'60}{2 . 10^6} = 0'00663$

Oficina Técnica	PROYECTO:
	ASUNTO:

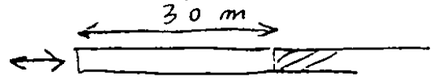
ESCRITO POR:	FECHA:	REVISADO POR:	FECHA:	HOJA	DE

* Comprobación sección extrema

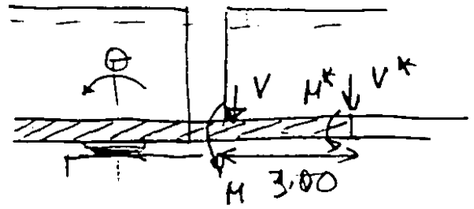


· Esfuerzos axiles al tablero:

1) Tiro / compresión



2) Giro tablero



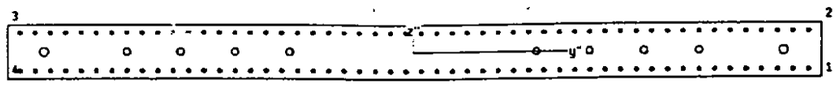
a) $Nd = -3162'00\ t$

$Md = 20'94\ m.t$

b) $Nd = 3162'00\ t$

$Md = 20'94\ m.t$

Mstb. 1 : 40.0



SecciÂn :"LOSA" Armadura :"B1"
Tipo : tipo viga/ Rect ngulo Unidades :[m]
Material :"H450"

Ancho = 5.26 m Canto = 0.35 m

CaracterÀsticas mec nicas de la secciÂn:
Area : Ax= 1.841 [m2]
Momentos de inercia : Iy= 0.018794 [m4] Iz= 4.245 [m4]
Inercia a torsiÂn : Ix= 0.072023 [m4]

PosiciÂn del centro de gravedad: ys= 0.000 [m] zs= 0.175000 [m]

	I:	R=dist.borde [m]	W=I/R [m3]	W/Ax [m]
izq.	Iz	-2.630	-1.614	0.877
dch.	Iz	2.630	1.614	-0.877
abajo	Iy	-0.175	-0.107392	0.058
arriba	Iy	0.175	0.107392	-0.058

Armadura: "B1"

NÏ	Nom.mat	Cod.dim.	Area [cm2]	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]
1	A1900	(0)	26.60	-239.00	17.50		
2	A1900	(0)	16.80	-185.00	17.50		
3	A1900	(0)	16.80	-150.00	17.50		
4	A1900	(0)	16.80	-115.00	17.50		
5	A1900	(0)	16.80	-80.00	17.50		
6	A1900	(0)	16.80	80.00	17.50		
7	A1900	(0)	16.80	115.00	17.50		
8	A1900	(0)	16.80	150.00	17.50		
9	A1900	(0)	16.80	185.00	17.50		
10	A1900	(0)	26.60	239.00	17.50		
11	AEH500	(0)	255.25	-255.00	5.00	255.00	5.00
12	AEH500	(0)	255.25	-255.00	30.00	255.00	30.00
	Total:		698.11	CuantÀa de armadura: 3.792 [o/o]			

CÂd. dimensionamiento: (0) = As constante
CÂd. dimensionamiento: (1) = Aumentar As en zonas comprimida y traccionada
CÂd. dimensionamiento: (2) = Aumentar As solo en zona traccionada

Armaduras pretensadas :

NÏ	Def.Impuesta	NÏ	Def.Impuesta	NÏ	Def.Impuesta
1	6.637E-0003	2	6.637E-0003	3	6.637E-0003
4	6.637E-0003	5	6.637E-0003	6	6.637E-0003
7	6.637E-0003	8	6.637E-0003	9	6.637E-0003
10	6.637E-0003				

Dimens. a cortante (valores por defecto): (Acero"AEH500"/HormigÂn"H450")

Cortante	Area mÀn.cercos	Ancho alma ideal	Canto Ètil	Incl.bielas
Vz	0.00 [cm2/m]	526.00 [cm]	31.00 [cm]	0.00
Vy	0.00 [cm2/m]	35.00 [cm]	522.00 [cm]	0.00

CaracterÀsticas del material:

Nom.Mat.	MÂdulo E [t/m2]	0.85*fcd,fyd [t/m2]	eps-fc [o/oo]	fct [t/m2]	fcv [t/m2]	fcw,mÀn [t/m2]
"H450"	4.00E+06	-2550.000	-2.000	0.0	86.600	4500.000
"AEH500"	2.10E+07	44347.0				
"A1900"	2.00E+07	155400.0				

Leyenda:
fcd,fyd resistencia de c lculo del hormigÂn,acero
eps-fc deformaciÂn al final de la par bola (fig.2.3, cap.2.2)
fct resistencia de c lculo a traccciÂn del hormigÂn
fcv resistencia virtual de c lculo del hormigÂn a esfuerzo cortante

C lculo Resistencia Ultima: Viga "LOSA"/"B1"

SolicitaciÂn Unidades : [tm]

N	Vy	Vz	Mx	My	Mz
-3162.000				207.940	

Coeficiente de seguridad 1.042

Dimensionamiento : Viga "LOSA"/"B1"

Esfuerzos (Rotura) Unidades : [tm]

N	Vy	Vz	Mx	My	Mz	Alpha
-3162.000				207.940		45.0

La armadura mÀnima entrada es suficiente !
Armadura mÀnima definida con las reas entradas ..
Factor actual de minoraciÂn de la resistencia de la secciÂn 1.0
Factor necesario de minoraciÂn de la resistencia de la secciÂn .. 1.0

Armadura Longitudinal:	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]	dado (As-min)	dimens. [cm2]	As-nuevo [cm2]
1 "A1900"	-239.0	17.5			26.60	-	26.60
2 "A1900"	-185.0	17.5			16.80	-	16.80
3 "A1900"	-150.0	17.5			16.80	-	16.80
4 "A1900"	-115.0	17.5			16.80	-	16.80
5 "A1900"	-80.0	17.5			16.80	-	16.80
6 "A1900"	80.0	17.5			16.80	-	16.80
7 "A1900"	115.0	17.5			16.80	-	16.80
8 "A1900"	150.0	17.5			16.80	-	16.80
9 "A1900"	185.0	17.5			16.80	-	16.80
10 "A1900"	239.0	17.5			26.60	-	26.60
11 "AEH500"	-255.0	5.0	255.0	5.0	255.25	-	255.25
12 "AEH500"	-255.0	30.0	255.0	30.0	255.25	-	255.25
				CuantÀa arm. 3.79 [o/o]		Suma	698.11

Deformaciones y tensiones extremas (Rotura):

1	Coordenadas y [m]	z [m]	Eps [o/oo]	Estado-II [t/m2]	
HormigÂn-Min	2.630	0.350	-3.116	-2550.000	"H450"
Armadura-Min	2.550	0.300	-2.682	-44347.0	"AEH500"
HormigÂn-Max	-2.630	0.000	-0.077	-193.063	"H450"
Armadura-Max	-2.550	0.050	-0.511	-10739.0	"AEH500"

Comprobaci n de las tensiones en el estado II: Viga "LOSA"/"B1"

Esfuerzos (E.L.S.) Unidades : [tm]

N	Vy	Vz	Mx	My	Mz
-3162.000				207.940	

Deformaciones y tensiones extremas:

3	Coordenadas y [m]	z [m]	Eps [o/oo]	Estado-II [t/m2]	Estado-I [t/m2]	
Hormig n-Min	-2.630	0.350	-3.190	-2550.000	-5006.459	"H450"
Armadura-Min	-2.550	0.300	-2.800	-44347.0		"AEH500"
Hormig n-Max	2.630	0.000	-0.460	-496.837	-1133.902	"H450"
Armadura-Max	2.550	0.050	-0.850	-17842.6		"AEH500"

Esfuerzos	: Rigideces secantes:		Deformaciones:	
N = -3162.000 [t]	EAx=	--1-- [t]	-1.824835E-03	
My= 207.940 [tm]	EIy=	--1-- [tm2]	7.801494E-03	[1/m]
Mz= 0.000 [tm]	*EIz=	--1-- [tm2]	-3.740483E-14	[1/m]

Aviso: --1-- Secci n pretensada !

Deformaciones y tensiones en vertices de la secci n:

Coordenadas y [m]	z [m]	Eps [o/oo]	Est. I [t/m2]	Est. II [t/m2]	Dist.Fuerz.Compr. [t]	[m]
2.630	0.000	-0.460	-1133.9	-496.8	-3380.031	0.037
2.630	0.350	-3.190	-5006.5	-2550.0		
-2.630	0.350	-3.190	-5006.5	-2550.0		
-2.630	0.000	-0.460	-1133.9	-496.8		

Deformaciones y tensiones de la armadura pasiva (Estado II):

Nº	Coordenadas y [m]	z [m]	Eps [o/oo]	Sigma-s [t/m2]
11	-2.550	0.050	-0.850	-17842.620
	2.550	0.050	-0.850	-17842.620
12	-2.550	0.300	-2.800	-44347.000
	2.550	0.300	-2.800	-44347.000

Suma fuerzas de pretensado iniciales (usado en c lculo estado I)
Np= -2490.202 [t] Myp= 0.000 [tm] Mzp= 4.83124E-15 [tm]

Deformaciones y tensiones de armadura de pretensado:

Nº	Coordenadas y [m]	z [m]	Eps-0 [o/oo]	D-Eps [o/oo]	Eps-tot [o/oo]	D-Sigma-p [t/m2]	Sigma-p [t/m2]
1	-2.390	0.175	6.637	-1.825	4.812	-36496.7	96243.3
2	-1.850	0.175	6.637	-1.825	4.812	-36496.7	96243.3
3	-1.500	0.175	6.637	-1.825	4.812	-36496.7	96243.3
4	-1.150	0.175	6.637	-1.825	4.812	-36496.7	96243.3

5	-0.800	0.175	6.637	-1.825	4.812	-36496.7	96243.3
6	0.800	0.175	6.637	-1.825	4.812	-36496.7	96243.3
7	1.150	0.175	6.637	-1.825	4.812	-36496.7	96243.3
8	1.500	0.175	6.637	-1.825	4.812	-36496.7	96243.3
9	1.850	0.175	6.637	-1.825	4.812	-36496.7	96243.3
10	2.390	0.175	6.637	-1.825	4.812	-36496.7	96243.3

Par metros globales de c lculo :

Norma	EH-1991	
Inclinaci n est ndar bielas comprimidas hormig n	45.00	[Grados]
Coeficiente de fluencia phi	2.70	
Factor minoraci n de la resistencia de la secci n	1.00	
Def. m xima en compresi n centrada del hormig n	-2.00	[o/oo]
Deformaci n m xima en flexi n en vigas	-3.50	[o/oo]
Def. m xima en tracci n del acero en vigas	10.00	[o/oo]
Modo de an lisis / Inclinaci n del eje neutro	flexi n esviada	
Cuant a m nima de armadura long. para pilas	0.40	[o/o]
Cuant a m xima de armadura long.	8.00	[o/o]
Modo de pretensado	adherente	

NO se usaron coef. de homogeneizaci n para calcular las caract. mec nica

Modelo para dimensionamiento a cortante:

Usar un canto til constante en los c lculos a cortante
C lculo separado para la arm. longitudinal adicional debida a cortante

C lculo Resistencia Ultima: Viga "LOSA"/"B1"

SolicitaciÂn Unidades : [tm]

N	Vy	Vz	Mx	My	Mz
3162.000				207.940	

Coeficiente de seguridad 1.098

Dimensionamiento : Viga "LOSA"/"B1"

Esfuerzos (Rotura) Unidades : [tm]

N	Vy	Vz	Mx	My	Mz	Alpha
3162.000				207.940		45.0

La armadura mÀnima entrada es suficiente !
Armadura mÀnima definida con las reas entradas ..
Factor actual de minoraciÂn de la resistencia de la secciÂn 1.1
Factor necesario de minoraciÂn de la resistencia de la secciÂn .. 1.0

Armadura Longitudinal:	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]	dado (As-min)	dimens. [cm2]	As-nuevo [cm2]
1 "A1900"	-239.0	17.5			26.60	-	26.60
2 "A1900"	-185.0	17.5			16.80	-	16.80
3 "A1900"	-150.0	17.5			16.80	-	16.80
4 "A1900"	-115.0	17.5			16.80	-	16.80
5 "A1900"	-80.0	17.5			16.80	-	16.80
6 "A1900"	80.0	17.5			16.80	-	16.80
7 "A1900"	115.0	17.5			16.80	-	16.80
8 "A1900"	150.0	17.5			16.80	-	16.80
9 "A1900"	185.0	17.5			16.80	-	16.80
10 "A1900"	239.0	17.5			26.60	-	26.60
11 "AEH500"	-255.0	5.0	255.0	5.0	255.25	-	255.25
12 "AEH500"	-255.0	30.0	255.0	30.0	255.25	-	255.25
				CuantÀa arm. 3.79 [o/o]		Suma	698.11

Deformaciones y tensiones extremas (Rotura):

1	Coordenadas y [m]	Coordenadas z [m]	Eps [o/oo]	Estado-II [t/m2]	
HormigÂn-Min	2.630	0.350	-2.174	-2550.000	"H450"
Armadura-Min	2.550	0.300	-0.145	-3047.759	"AEH500"
HormigÂn-Max	-2.630	0.000	12.029	0.000	"H450"
Armadura-Max	-2.550	0.050	10.000	44347.0	"AEH500"

Fibra neutra zn 0.296 m yn 0.000 m Angulo 0.0
Ancho zona comprim. 0.054 m Zona comprimida/Canto Ètil 0.26

Comprobaci n de las tensiones en el estado II: Viga "LOSA"/"B1"

Esfuerzos (E.L.S.) Unidades : [tm]

N	Vy	Vz	Mx	My	Mz
3162.000				207.940	

Deformaciones y tensiones extremas:

3	Coordenadas y [m]	z [m]	Eps [o/oo]	Estado-II [t/m2]	Estado-I [t/m2]	
Hormig n-Min	-2.630	0.350	-1.037	-1121.540	-1571.370	"H450"
Armadura-Min	-2.550	0.300	-0.547	-11483.9		"AEH500"
Hormig n-Max	2.630	0.000	2.397	0.000	2301.188	"H450"
Armadura-Max	2.550	0.050	1.906	40026.4		"AEH500"

Fibra neutra zn 0.244 m yn -0.000 m Angulo 0.0
Ancho zona comprim. 0.106 m Zona comprimida/Canto til 0.51

Esfuerzos		Rigideces secantes:		Deformaciones:	
N =	3162.000 [t]	EAx=	--1-- [t]	6.795853E-04	
My=	207.940 [tm]	EIy=	--1-- [tm2]	9.811482E-03	[1/m]
Mz=	0.000 [tm]	*EIz=	--1-- [tm2]	-3.968897E-14	[1/m]

Aviso: --1-- Secci n pretensada !

Deformaciones y tensiones en vertices de la secci n:

Coordenadas y [m]	z [m]	Eps [o/oo]	Est. I [t/m2]	Est. II [t/m2]	Dist.Fuerz.Compr. [t]	[m]
2.630	0.000	2.397	2301.2	0.0	-311.883	0.140
2.630	0.350	-1.037	-1571.4	-1121.5		
-2.630	0.350	-1.037	-1571.4	-1121.5		
-2.630	0.000	2.397	2301.2	0.0		

Deformaciones y tensiones de la armadura pasiva (Estado II):

Nº	Coordenadas y [m]	z [m]	Eps [o/oo]	Sigma-s [t/m2]
11	-2.550	0.050	1.906	40026.432
	2.550	0.050	1.906	40026.432
12	-2.550	0.300	-0.547	-11483.851
	2.550	0.300	-0.547	-11483.851

Suma fuerzas de pretensado iniciales (usado en c lculo estado I)
Np= -2490.202 [t] Myp= 0.000 [tm] Mzp= 4.83124E-15 [tm]

Deformaciones y tensiones de armadura de pretensado:

Nº	Coordenadas y [m]	z [m]	Eps-0 [o/oo]	D-Eps [o/oo]	Eps-tot [o/oo]	D-Sigma-p [t/m2]	Sigma-p [t/m2]
1	-2.390	0.175	6.637	0.680	7.317	13591.7	146331.7
2	-1.850	0.175	6.637	0.680	7.317	13591.7	146331.7
3	-1.500	0.175	6.637	0.680	7.317	13591.7	146331.7
4	-1.150	0.175	6.637	0.680	7.317	13591.7	146331.7
5	-0.800	0.175	6.637	0.680	7.317	13591.7	146331.7
6	0.800	0.175	6.637	0.680	7.317	13591.7	146331.7
7	1.150	0.175	6.637	0.680	7.317	13591.7	146331.7
8	1.500	0.175	6.637	0.680	7.317	13591.7	146331.7
9	1.850	0.175	6.637	0.680	7.317	13591.7	146331.7
10	2.390	0.175	6.637	0.680	7.317	13591.7	146331.7

Par metros globales de c lculo :

Norma	EH-1991
Inclinaci n est ndar bielas comprimidas hormig n	45.00 [Grados]
Coeficiente de fluencia phi	2.70
Factor minoraci n de la resistencia de la secci n	1.00
Def. m xima en compresi n centrada del hormig n	-2.00 [o/oo]
Deformaci n m xima en flexi n en vigas	-3.50 [o/oo]
Def. m xima en tracci n del acero en vigas	10.00 [o/oo]
Modo de an lisis / Inclinaci n del eje neutro	flexi n esviada
Cuant a m nima de armadura long. para pilas	0.40 [o/o]
Cuant a m xima de armadura long.	8.00 [o/o]
Modo de pretensado	adherente

NO se usaron coef. de homogeneizaci n para calcular las caract. mec nica

Modelo para dimensionamiento a cortante:

Usar un canto til constante en los c lculos a cortante
C lculo separado para la arm. longitudinal adicional debida a cortante

Al establecer la unión entre la base intermedia y el tablero debido al inicio de la construcción de este comprobamos dicha base en las distintas fases de ejecución del tablero.

El tiro que ejerce el tablero sobre la base se debe al peso propio de este en cada fase ejecutada del resp. de retroceso de 0'05.

Poniendonos del lado de la seguridad, suponemos que el giro que se produce en la base en su unión con el tablero en cada paso de comprobación es igual al giro máximo calculado anteriormente, por lo que calculamos la fase, en todos los casos, para un momento producido de 20'94 m.t

Reacción en cada pila debido al peso propio del tablero:

R = 3500 · 2'43 + 500 × 4'192 = 1064'65 t.

F = 1064'65 · 0'05 = 53'23 t.

- Comprobación en Fase 5.

Fd = 5 · 53'23 · 1'5 = 399'24 t.

Sin pretensado.

- Comprobación en Fase 10

Fd = 10 · 53'23 · 1'5 = 798'49 t

Pretensado: 2 tendones 19 ϕ 0'6" tesado = 110 Kg/mm²

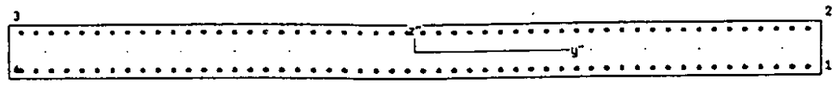
- Comprobación en Fase 18 (último)

Fd = 175 · 53'23 · 1'5 = 1397'35.

Pretensado: 2 tendones 19 ϕ 0'6" y 2 de 12 ϕ 0'6"

tesado = 110 Kg/mm²

Mstb. 1 : 40.0



SecciÂn :"LOSA" Armadura :"B1"
Tipo : tipo viga/ Rect ngulo Unidades :[m]
Material :"H450"

Ancho = 5.26 m Canto = 0.35 m

CaracterÀsticas mec nicas de la secciÂn:
Area : Ax= 1.841 [m2]
Momentos de inercia : Iy= 0.018794 [m4] Iz= 4.245 [m4]
Inercia a torsiÂn : Ix= 0.072023 [m4]

PosiciÂn del centro de gravedad: ys= 0.000 [m] zs= 0.175000 [m]

	I:	R=dist.borde [m]	W=I/R [m3]	W/Ax [m]
izq.	Iz	-2.630	-1.614	0.877
dch.	Iz	2.630	1.614	-0.877
abajo	Iy	-0.175	-0.107392	0.058
arriba	Iy	0.175	0.107392	-0.058

Armadura: "B1"

NÏ	Nom.mat	Cod.dim.	Area [cm2]	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]
1	A1900	(0)	0.01	-239.00	17.50		
2	A1900	(0)	0.01	-185.00	17.50		
3	A1900	(0)	0.01	-150.00	17.50		
4	A1900	(0)	0.01	-115.00	17.50		
5	A1900	(0)	0.01	-80.00	17.50		
6	A1900	(0)	0.01	80.00	17.50		
7	A1900	(0)	0.01	115.00	17.50		
8	A1900	(0)	0.01	150.00	17.50		
9	A1900	(0)	0.01	185.00	17.50		
10	A1900	(0)	0.01	239.00	17.50		
11	AEH500	(0)	255.25	-255.00	5.00	255.00	5.00
12	AEH500	(0)	255.25	-255.00	30.00	255.00	30.00
	Total:		510.61	CuantÀa de armadura: 2.774 [o/o]			

CÂd. dimensionamiento: (0) = As constante
CÂd. dimensionamiento: (1) = Aumentar As en zonas comprimida y traccionada
CÂd. dimensionamiento: (2) = Aumentar As solo en zona traccionada

Armaduras pretensadas :

NÏ	Def.Impuesta	NÏ	Def.Impuesta	NÏ	Def.Impuesta
1	1.000E-0006	2	1.000E-0006	3	1.000E-0006
4	1.000E-0006	5	1.000E-0006	6	1.000E-0006
7	1.000E-0006	8	1.000E-0006	9	1.000E-0006
10	1.000E-0006				

Dimens. a cortante (valores por defecto): (Acero"AEH500"/HormigÂn"H450")

Cortante	Area mÀn.cercos	Ancho alma ideal	Canto Ètil	Incl.bielas
Vz	0.00 [cm2/m]	526.00 [cm]	31.00 [cm]	0.00
Vy	0.00 [cm2/m]	35.00 [cm]	522.00 [cm]	0.00

CaracterÀsticas del material:

Nom.Mat.	MÂdulo E [t/m2]	0.85*fcd,fyd [t/m2]	eps-fc [o/oo]	fct [t/m2]	fcv [t/m2]	fcw,mÀn [t/m2]
"H450"	4.00E+06	-2550.000	-2.000	0.0	86.600	4500.000
"AEH500"	2.10E+07	44347.0				
"A1900"	2.00E+07	155400.0				

Leyenda:
fcd,fyd resistencia de c lculo del hormigÂn,acero
eps-fc deformaciÂn al final de la par bola (fig.2.3, cap.2.2)
fct resistencia de c lculo a traccciÂn del hormigÂn
fcv resistencia virtual de c lculo del hormigÂn a esfuerzo cortante

C lculo Resistencia Ultima: Viga "LOSA"/"B1"

SolicitaciÂn Unidades : [tm]

N	Vy	Vz	Mx	My	Mz
399.240				207.940	

Coeficiente de seguridad 1.157

Dimensionamiento : Viga "LOSA"/"B1"

Esfuerzos (Rotura) Unidades : [tm]

N	Vy	Vz	Mx	My	Mz	Alpha
399.240				207.940		45.0

La armadura mÀnima entrada es suficiente !
Armadura mÀnima definida con las reas entradas ..
Factor actual de minoraciÂn de la resistencia de la secciÂn 1.16
Factor necesario de minoraciÂn de la resistencia de la secciÂn .. 1.00

Armadura Longitudinal:		y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]	dado (As-min)	dimens. [cm2]	As-nuevo [cm2]
1	"A1900"	-239.0	17.5			0.01	-	0.01
2	"A1900"	-185.0	17.5			0.01	-	0.01
3	"A1900"	-150.0	17.5			0.01	-	0.01
4	"A1900"	-115.0	17.5			0.01	-	0.01
5	"A1900"	-80.0	17.5			0.01	-	0.01
6	"A1900"	80.0	17.5			0.01	-	0.01
7	"A1900"	115.0	17.5			0.01	-	0.01
8	"A1900"	150.0	17.5			0.01	-	0.01
9	"A1900"	185.0	17.5			0.01	-	0.01
10	"A1900"	239.0	17.5			0.01	-	0.01
11	"AEH500"	-255.0	5.0	255.0	5.0	255.25	-	255.25
12	"AEH500"	-255.0	30.0	255.0	30.0	255.25	-	255.25

CuantÀa arm. 2.77 [o/o] Suma 510.61

Deformaciones y tensiones extremas (Rotura):

1	Coordenadas y [m]	z [m]	Eps [o/oo]	Estado-II [t/m2]	
HormigÂn-Min	-2.630	0.350	-2.304	-2550.000	"H450"
Armadura-Min	-2.550	0.300	-0.253	-5322.317	"AEH500"
HormigÂn-Max	2.630	0.000	12.051	0.000	"H450"
Armadura-Max	2.550	0.050	10.000	44347.0	"AEH500"

Fibra neutra zn 0.294 m yn -0.000 m Angulo 0.0
Ancho zona comprim. 0.056 m Zona comprimida/Canto Ètil 0.19

Comprobaci n de las tensiones en el estado II: Viga "LOSA"/"B1"

Esfuerzos (E.L.S.) Unidades : [tm]

N	Vy	Vz	Mx	My	Mz
399.240				207.940	

Deformaciones y tensiones extremas:

3	Coordenadas y [m]	z [m]	Eps [o/oo]	Estado-II [t/m2]	Estado-I [t/m2]	
Hormig n-Min	-2.630	0.350	-1.044	-1128.130	-1719.418	"H450"
Armadura-Min	-2.550	0.300	-0.555	-11647.0		"AEH500"
Hormig n-Max	2.630	0.000	2.379	0.000	2153.139	"H450"
Armadura-Max	2.550	0.050	1.890	39687.5		"AEH500"

Fibra neutra zn 0.243 m yn -0.000 m Angulo 0.0
Ancho zona comprim. 0.107 m Zona comprimida/Canto til 0.36

Esfuerzos :		Rigideces secantes:		Deformaciones:	
N =	399.240 [t]	EAx=	--1-- [t]	6.676309E-04	
My=	207.940 [tm]	EIy=	--1-- [tm2]	9.778008E-03	[1/m]
Mz=	0.000 [tm]	*EIz=	--1-- [tm2]	-1.109254E-14	[1/m]

Aviso: --1-- Secci n pretensada !

Deformaciones y tensiones en vertices de la secci n:

Coordenadas y [m]	z [m]	Eps [o/oo]	Est. I [t/m2]	Est. II [t/m2]	Dist.Fuerz.Compr. [t]	[m]
2.630	0.000	2.379	2153.1	0.0	-316.640	0.139
2.630	0.350	-1.044	-1719.4	-1128.1		
-2.630	0.350	-1.044	-1719.4	-1128.1		
-2.630	0.000	2.379	2153.1	0.0		

Deformaciones y tensiones de la armadura pasiva (Estado II):

Nº	Coordenadas y [m]	z [m]	Eps [o/oo]	Sigma-s [t/m2]
11	-2.550	0.050	1.890	39687.519
	2.550	0.050	1.890	39687.519
12	-2.550	0.300	-0.555	-11647.021
	2.550	0.300	-0.555	-11647.021

Suma fuerzas de pretensado iniciales (usado en c lculo estado I)
Np= -0.000200 [t] Myp= 0.000 [tm] Mzp= 1.25143E-20 [tm]

Deformaciones y tensiones de armadura de pretensado:

Nº	Coordenadas y [m]	z [m]	Eps-0 [o/oo]	D-Eps [o/oo]	Eps-tot [o/oo]	D-Sigma-p [t/m2]	Sigma-p [t/m2]
1	-2.390	0.175	0.001	0.668	0.669	13352.6	13372.6
2	-1.850	0.175	0.001	0.668	0.669	13352.6	13372.6
3	-1.500	0.175	0.001	0.668	0.669	13352.6	13372.6
4	-1.150	0.175	0.001	0.668	0.669	13352.6	13372.6
5	-0.800	0.175	0.001	0.668	0.669	13352.6	13372.6
6	0.800	0.175	0.001	0.668	0.669	13352.6	13372.6
7	1.150	0.175	0.001	0.668	0.669	13352.6	13372.6
8	1.500	0.175	0.001	0.668	0.669	13352.6	13372.6
9	1.850	0.175	0.001	0.668	0.669	13352.6	13372.6
10	2.390	0.175	0.001	0.668	0.669	13352.6	13372.6

Par metros globales de c lculo :

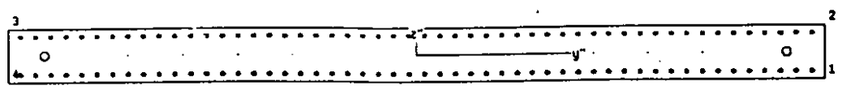
Norma	EH-1991	
Inclinaci n est ndar bielas comprimidas hormig n	45.00	[Grados]
Coeficiente de fluencia phi	2.70	
Factor minoraci n de la resistencia de la secci n	1.00	
Def. m xima en compresi n centrada del hormig n	-2.00	[o/oo]
Deformaci n m xima en flexi n en vigas	-3.50	[o/oo]
Def. m xima en tracci n del acero en vigas	10.00	[o/oo]
Modo de an lisis / Inclinaci n del eje neutro	flexi n esviada	
Cuant a m nima de armadura long. para pilas	0.40	[o/o]
Cuant a m xima de armadura long.	8.00	[o/o]
Modo de pretensado	adherente	

NO se usaron coef. de homogeneizaci n para calcular las caract. mec nica

Modelo para dimensionamiento a cortante:

Usar un canto til constante en los c lculos a cortante
C lculo separado para la arm. longitudinal adicional debida a cortante

Mstb. 1 : 40.0



SecciÂn :"LOSA" Armadura :"B1"
Tipo : tipo viga/ Rect ngulo Unidades :[m]
Material :"H450"

Ancho = 5.26 m Canto = 0.35 m

CaracterÀsticas mec nicas de la secciÂn:
Area : Ax= 1.841 [m2]
Momentos de inercia : Iy= 0.018794 [m4] Iz= 4.245 [m4]
Inercia a torsiÂn : Ix= 0.072023 [m4]

PosiciÂn del centro de gravedad: ys= 0.000 [m] zs= 0.175000 [m]

	I:	R=dist.borde [m]	W=I/R [m3]	W/Ax [m]
izq.	Iz	-2.630	-1.614	0.877
dch.	Iz	2.630	1.614	-0.877
abajo	Iy	-0.175	-0.107392	0.058
arriba	Iy	0.175	0.107392	-0.058

Armadura: "B1"

NÏ	Nom.mat	Cod.dim.	Area [cm2]	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]
1	A1900	(0)	26.60	-239.00	17.50		
2	A1900	(0)	0.01	-185.00	17.50		
3	A1900	(0)	0.01	-150.00	17.50		
4	A1900	(0)	0.01	-115.00	17.50		
5	A1900	(0)	0.01	-80.00	17.50		
6	A1900	(0)	0.01	80.00	17.50		
7	A1900	(0)	0.01	115.00	17.50		
8	A1900	(0)	0.01	150.00	17.50		
9	A1900	(0)	0.01	185.00	17.50		
10	A1900	(0)	26.60	239.00	17.50		
11	AEH500	(0)	255.25	-255.00	5.00	255.00	5.00
12	AEH500	(0)	255.25	-255.00	30.00	255.00	30.00
	Total:		563.79	CuantÀa de armadura: 3.062 [o/o]			

CÂd. dimensionamiento: (0) = As constante
CÂd. dimensionamiento: (1) = Aumentar As en zonas comprimida y traccionada
CÂd. dimensionamiento: (2) = Aumentar As solo en zona traccionada

Armaduras pretensadas :

NÏ	Def.Impuesta	NÏ	Def.Impuesta	NÏ	Def.Impuesta
1	5.123E-0003	2	1.000E-0006	3	1.000E-0006
4	1.000E-0006	5	1.000E-0006	6	1.000E-0006
7	1.000E-0006	8	1.000E-0006	9	1.000E-0006
10	5.123E-0003				

Dimens. a cortante (valores por defecto): (Acero"AEH500"/HormigÂn"H450")

Cortante	Area mÀn.cercos	Ancho alma ideal	Canto Ètil	Incl.bielas
Vz	0.00 [cm2/m]	526.00 [cm]	31.00 [cm]	0.00
Vy	0.00 [cm2/m]	35.00 [cm]	522.00 [cm]	0.00

CaracterÀsticas del material:

Nom.Mat.	MÂdulo E [t/m2]	0.85*fcd,fyd [t/m2]	eps-fc [o/oo]	fct [t/m2]	fcv [t/m2]	fcw,mÀn [t/m2]
"H450"	4.00E+06	-2550.000	-2.000	0.0	86.600	4500.000
"AEH500"	2.10E+07	44347.0				
"A1900"	2.00E+07	155400.0				

Leyenda:
fcd,fyd resistencia de c lculo del hormigÂn,acero
eps-fc deformaciÂn al final de la par bola (fig.2.3, cap.2.2)
fct resistencia de c lculo a traccciÂn del hormigÂn
fcv resistencia virtual de c lculo del hormigÂn a esfuerzo cortante

C lculo Resistencia Ultima: Viga "LOSA"/"B1"

SolicitaciÂn Unidades : [tm]

N	Vy	Vz	Mx	My	Mz
798.490				207.940	

Coeficiente de seguridad 1.307

Dimensionamiento : Viga "LOSA"/"B1"

Esfuerzos (Rotura) Unidades : [tm]

N	Vy	Vz	Mx	My	Mz	Alpha
798.490				207.940		45.0

La armadura mÀnima entrada es suficiente !
Armadura mÀnima definida con las reas entradas ..
Factor actual de minoraciÂn de la resistencia de la secciÂn 1.3
Factor necesario de minoraciÂn de la resistencia de la secciÂn .. 1.0

Armadura Longitudinal:		y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]	dado (As-min)	dimens. [cm2]	As-nuevo [cm2]
1	"A1900"	-239.0	17.5			26.60	-	26.60
2	"A1900"	-185.0	17.5			0.01	-	0.01
3	"A1900"	-150.0	17.5			0.01	-	0.01
4	"A1900"	-115.0	17.5			0.01	-	0.01
5	"A1900"	-80.0	17.5			0.01	-	0.01
6	"A1900"	80.0	17.5			0.01	-	0.01
7	"A1900"	115.0	17.5			0.01	-	0.01
8	"A1900"	150.0	17.5			0.01	-	0.01
9	"A1900"	185.0	17.5			0.01	-	0.01
10	"A1900"	239.0	17.5			26.60	-	26.60
11	"AEH500"	-255.0	5.0	255.0	5.0	255.25	-	255.25
12	"AEH500"	-255.0	30.0	255.0	30.0	255.25	-	255.25

CuantÀa arm. 3.06 [o/o] Suma 563.79

Deformaciones y tensiones extremas (Rotura):

1	Coordenadas y [m]	z [m]	Eps [o/oo]	Estado-II [t/m2]	
HormigÂn-Min	-2.630	0.350	-2.642	-2550.000	"H450"
Armadura-Min	-2.550	0.300	-0.535	-11242.5	"AEH500"
HormigÂn-Max	2.630	0.000	12.107	0.000	"H450"
Armadura-Max	2.550	0.050	10.000	44347.0	"AEH500"

Fibra neutra zn 0.287 m yn -0.000 m Angulo 0.0
Ancho zona comprim. 0.063 m Zona comprimida/Canto Ètil 0.25

Comprobaci n de las tensiones en el estado II: Viga "LOSA"/"B1"

Esfuerzos (E.L.S.) Unidades : [tm]

N	Vy	Vz	Mx	My	Mz
798.490				207.940	

Deformaciones y tensiones extremas:

3	Coordenadas y [m]	z [m]	Eps [o/oo]	Estado-II [t/m2]	Estado-I [t/m2]	
Hormig n-Min	-2.630	0.350	-1.111	-1201.034	-1798.635	"H450"
Armadura-Min	-2.550	0.300	-0.642	-13471.8		"AEH500"
Hormig n-Max	2.630	0.000	2.175	0.000	2073.923	"H450"
Armadura-Max	2.550	0.050	1.706	35819.8		"AEH500"

Fibra neutra zn 0.232 m yn -0.000 m Angulo 0.0
Ancho zona comprim. 0.118 m Zona comprimida/Canto til 0.47

Esfuerzos		Rigideces secantes:		Deformaciones:	
N =	798.490 [t]	EAx=	--1-- [t]	5.320969E-04	
My=	207.940 [tm]	EIy=	--1-- [tm2]	9.388878E-03	[1/m]
Mz=	0.000 [tm]	*EIz=	--1-- [tm2]	-4.400444E-14	[1/m]

Aviso: --1-- Secci n pretensada !

Deformaciones y tensiones en vertices de la secci n:

Coordenadas y [m]	z [m]	Eps [o/oo]	Est. I [t/m2]	Est. II [t/m2]	Dist.Fuerz.Compr. [t]	[m]
2.630	0.000	2.175	2073.9	0.0	-373.762	0.136
2.630	0.350	-1.111	-1798.6	-1201.0		
-2.630	0.350	-1.111	-1798.6	-1201.0		
-2.630	0.000	2.175	2073.9	0.0		

Deformaciones y tensiones de la armadura pasiva (Estado II):

Nº	Coordenadas y [m]	z [m]	Eps [o/oo]	Sigma-s [t/m2]
11	-2.550	0.050	1.706	35819.838
	2.550	0.050	1.706	35819.838
12	-2.550	0.300	-0.642	-13471.770
	2.550	0.300	-0.642	-13471.770

Suma fuerzas de pretensado iniciales (usado en c lculo estado I)
Np= -545.087 [t] Myp= 0.000 [tm] Mzp= 4.83706E-14 [tm]

Deformaciones y tensiones de armadura de pretensado:

Nº	Coordenadas y [m]	z [m]	Eps-0 [o/oo]	D-Eps [o/oo]	Eps-tot [o/oo]	D-Sigma-p [t/m2]	Sigma-p [t/m2]
1	-2.390	0.175	5.123	0.532	5.655	10641.9	113101.9
2	-1.850	0.175	0.001	0.532	0.533	10641.9	10661.9
3	-1.500	0.175	0.001	0.532	0.533	10641.9	10661.9
4	-1.150	0.175	0.001	0.532	0.533	10641.9	10661.9
5	-0.800	0.175	0.001	0.532	0.533	10641.9	10661.9
6	0.800	0.175	0.001	0.532	0.533	10641.9	10661.9
7	1.150	0.175	0.001	0.532	0.533	10641.9	10661.9
8	1.500	0.175	0.001	0.532	0.533	10641.9	10661.9
9	1.850	0.175	0.001	0.532	0.533	10641.9	10661.9
10	2.390	0.175	5.123	0.532	5.655	10641.9	113101.9

Par metros globales de c lculo :

Norma	EH-1991
Inclinaci n est ndar bielas comprimidas hormig n	45.00 [Grados]
Coeficiente de fluencia phi	2.70
Factor minoraci n de la resistencia de la secci n	1.00
Def. m xima en compresi n centrada del hormig n	-2.00 [o/oo]
Deformaci n m xima en flexi n en vigas	-3.50 [o/oo]
Def. m xima en tracci n del acero en vigas	10.00 [o/oo]
Modo de an lisis / Inclinaci n del eje neutro	flexi n esviada
Cuant a m nima de armadura long. para pilas	0.40 [o/o]
Cuant a m xima de armadura long.	8.00 [o/o]
Modo de pretensado	adherente

NO se usaron coef. de homogeneizaci n para calcular las caract. mec nicas

Modelo para dimensionamiento a cortante:

Usar un canto til constante en los c lculos a cortante
C lculo separado para la arm. longitudinal adicional debida a cortante

Mstb. 1 : 40.0



SecciÂn :"LOSA" Armadura :"B1"
Tipo : tipo viga/ Rect ngulo Unidades :[m]
Material :"H450"

Ancho = 5.26 m Canto = 0.35 m

CaracterÀsticas mec nicas de la secciÂn:
Area : Ax= 1.841 [m2]
Momentos de inercia : Iy= 0.018794 [m4] Iz= 4.245 [m4]
Inercia a torsiÂn : Ix= 0.072023 [m4]

PosiciÂn del centro de gravedad: ys= 0.000 [m] zs= 0.175000 [m]

	I:	R=dist.borde [m]	W=I/R [m3]	W/Ax [m]
izq.	Iz	-2.630	-1.614	0.877
dch.	Iz	2.630	1.614	-0.877
abajo	Iy	-0.175	-0.107392	0.058
arriba	Iy	0.175	0.107392	-0.058

Armadura: "B1"

NÏ	Nom.mat	Cod.dim.	Area [cm2]	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]
1	A1900	(0)	26.60	-239.00	17.50		
2	A1900	(0)	16.80	-185.00	17.50		
3	A1900	(0)	0.01	-150.00	17.50		
4	A1900	(0)	0.01	-115.00	17.50		
5	A1900	(0)	0.01	-80.00	17.50		
6	A1900	(0)	0.01	80.00	17.50		
7	A1900	(0)	0.01	115.00	17.50		
8	A1900	(0)	0.01	150.00	17.50		
9	A1900	(0)	16.80	185.00	17.50		
10	A1900	(0)	26.60	239.00	17.50		
11	AEH500	(0)	255.25	-255.00	5.00	255.00	5.00
12	AEH500	(0)	255.25	-255.00	30.00	255.00	30.00
	Total:		597.37	CuantÀa de armadura: 3.245 [o/o]			

CÂd. dimensionamiento: (0) = As constante
CÂd. dimensionamiento: (1) = Aumentar As en zonas comprimida y traccionada
CÂd. dimensionamiento: (2) = Aumentar As solo en zona traccionada

Armaduras pretensadas :

NÏ	Def.Impuesta	NÏ	Def.Impuesta	NÏ	Def.Impuesta
1	5.123E-0003	2	5.123E-0003	3	1.000E-0006
4	1.000E-0006	5	1.000E-0006	6	1.000E-0006
7	1.000E-0006	8	1.000E-0006	9	5.123E-0003
10	5.123E-0003				

Dimens. a cortante (valores por defecto): (Acero"AEH500"/HormigÂn"H450")

Cortante	Area mÀn.cercos	Ancho alma ideal	Canto Ètil	Incl.bielas
Vz	0.00 [cm2/m]	526.00 [cm]	31.00 [cm]	0.00
Vy	0.00 [cm2/m]	35.00 [cm]	522.00 [cm]	0.00

CaracterÀsticas del material:

Nom.Mat.	MÂdulo E [t/m2]	0.85*fcd,fyd [t/m2]	eps-fc [o/oo]	fct [t/m2]	fcv [t/m2]	fcw,mÀn [t/m2]
"H450"	4.00E+06	-2550.000	-2.000	0.0	86.600	4500.000
"AEH500"	2.10E+07	44347.0				
"A1900"	2.00E+07	155400.0				

Leyenda:
fcd,fyd resistencia de c lculo del hormigÂn,acero
eps-fc deformaciÂn al final de la par bola (fig.2.3, cap.2.2)
fct resistencia de c lculo a traccciÂn del hormigÂn
fcv resistencia virtual de c lculo del hormigÂn a esfuerzo cortante

C lculo Resistencia Ultima: Viga "LOSA"/"B1"

SolicitaciÂn Unidades : [tm]

N	Vy	Vz	Mx	My	Mz
1397.350				207.940	

Coeficiente de seguridad 1.221

Dimensionamiento : Viga "LOSA"/"B1"

Esfuerzos (Rotura) Unidades : [tm]

N	Vy	Vz	Mx	My	Mz	Alpha
1397.350				207.940		45.0

La armadura mÀnima entrada es suficiente !
Armadura mÀnima definida con las reas entradas ..
Factor actual de minoraciÂn de la resistencia de la secciÂn 1.21
Factor necesario de minoraciÂn de la resistencia de la secciÂn .. 1.00

Armadura Longitudinal:	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]	dado (As-min)	dimens. [cm2]	As-nuevo [cm2]
1 "A1900"	-239.0	17.5			26.60	-	26.60
2 "A1900"	-185.0	17.5			16.80	-	16.80
3 "A1900"	-150.0	17.5			0.01	-	0.01
4 "A1900"	-115.0	17.5			0.01	-	0.01
5 "A1900"	-80.0	17.5			0.01	-	0.01
6 "A1900"	80.0	17.5			0.01	-	0.01
7 "A1900"	115.0	17.5			0.01	-	0.01
8 "A1900"	150.0	17.5			0.01	-	0.01
9 "A1900"	185.0	17.5			16.80	-	16.80
10 "A1900"	239.0	17.5			26.60	-	26.60
11 "AEH500"	-255.0	5.0	255.0	5.0	255.25	-	255.25
12 "AEH500"	-255.0	30.0	255.0	30.0	255.25	-	255.25

CuantÀa arm. 3.24 [o/o] Suma 597.37

Deformaciones y tensiones extremas (Rotura):

1	Coordenadas y [m]	Coordenadas z [m]	Eps [o/oo]	Estado-II [t/m2]	
HormigÂn-Min	-2.630	0.350	-2.447	-2550.000	"H450"
Armadura-Min	-2.550	0.300	-0.373	-7828.411	"AEH500"
HormigÂn-Max	2.630	0.000	12.075	0.000	"H450"
Armadura-Max	2.550	0.050	10.000	44347.0	"AEH500"

Fibra neutra zn 0.291 m yn -0.000 m Angulo 0.0
Ancho zona comprim. 0.059 m Zona comprimida/Canto Útil 0.25

Comprobaci Ân de las tensiones en el estado II: Viga "LOSA"/"B1"

Esfuerzos (E.L.S.) Unidades : [tm]

N	Vy	Vz	Mx	My	Mz
1397.350				207.940	

Deformaciones y tensiones extremas:

3	Coordenadas y [m]	z [m]	Eps [o/oo]	Estado-II [t/m2]	Estado-I [t/m2]	
Hormig Ân-Min	-2.630	0.350	-1.046	-1130.530	-1660.343	"H450"
Armadura-Min	-2.550	0.300	-0.557	-11706.5		"AEH500"
Hormig Ân-Max	2.630	0.000	2.372	0.000	2212.214	"H450"
Armadura-Max	2.550	0.050	1.884	39563.7		"AEH500"

Fibra neutra zn 0.243 m yn -0.000 m Angulo 0.0
Ancho zona comprim. 0.107 m Zona comprimida/Canto Ètil 0.45

Esfuerzos		Rigideces secantes:		Deformaciones:	
N =	1397.350 [t]	EAx=	--1-- [t]	6.632654E-04	
My=	207.940 [tm]	EIy=	--1-- [tm2]	9.765748E-03	[1/m]
Mz=	0.000 [tm]	*EIz=	--1-- [tm2]	-8.705116E-14	[1/m]

Aviso: --1-- Secci Ân pretensada !

Deformaciones y tensiones en vertices de la secci Ân:

Coordenadas y [m]	z [m]	Eps [o/oo]	Est. I [t/m2]	Est. II [t/m2]	Dist.Fuerz.Compr. [t]	[m]
2.630	0.000	2.372	2212.2	0.0	-318.388	0.139
2.630	0.350	-1.046	-1660.3	-1130.5		
-2.630	0.350	-1.046	-1660.3	-1130.5		
-2.630	0.000	2.372	2212.2	0.0		

Deformaciones y tensiones de la armadura pasiva (Estado II):

Nº	Coordenadas y [m]	z [m]	Eps [o/oo]	Sigma-s [t/m2]
11	-2.550	0.050	1.884	39563.663
	2.550	0.050	1.884	39563.663
12	-2.550	0.300	-0.557	-11706.515
	2.550	0.300	-0.557	-11706.515

Suma fuerzas de pretensado iniciales (usado en c lculo estado I)
Np= -889.353 [t] Myp= 0.000 [tm] Mzp= 4.83706E-14 [tm]

Deformaciones y tensiones de armadura de pretensado:

Nº	Coordenadas y [m]	z [m]	Eps-0 [o/oo]	D-Eps [o/oo]	Eps-tot [o/oo]	D-Sigma-p [t/m2]	Sigma-p [t/m2]
1	-2.390	0.175	5.123	0.663	5.786	13265.3	115725.3
2	-1.850	0.175	5.123	0.663	5.786	13265.3	115725.3
3	-1.500	0.175	0.001	0.663	0.664	13265.3	13285.3
4	-1.150	0.175	0.001	0.663	0.664	13265.3	13285.3
5	-0.800	0.175	0.001	0.663	0.664	13265.3	13285.3
6	0.800	0.175	0.001	0.663	0.664	13265.3	13285.3
7	1.150	0.175	0.001	0.663	0.664	13265.3	13285.3
8	1.500	0.175	0.001	0.663	0.664	13265.3	13285.3
9	1.850	0.175	5.123	0.663	5.786	13265.3	115725.3
10	2.390	0.175	5.123	0.663	5.786	13265.3	115725.3

Par metros globales de c lculo :

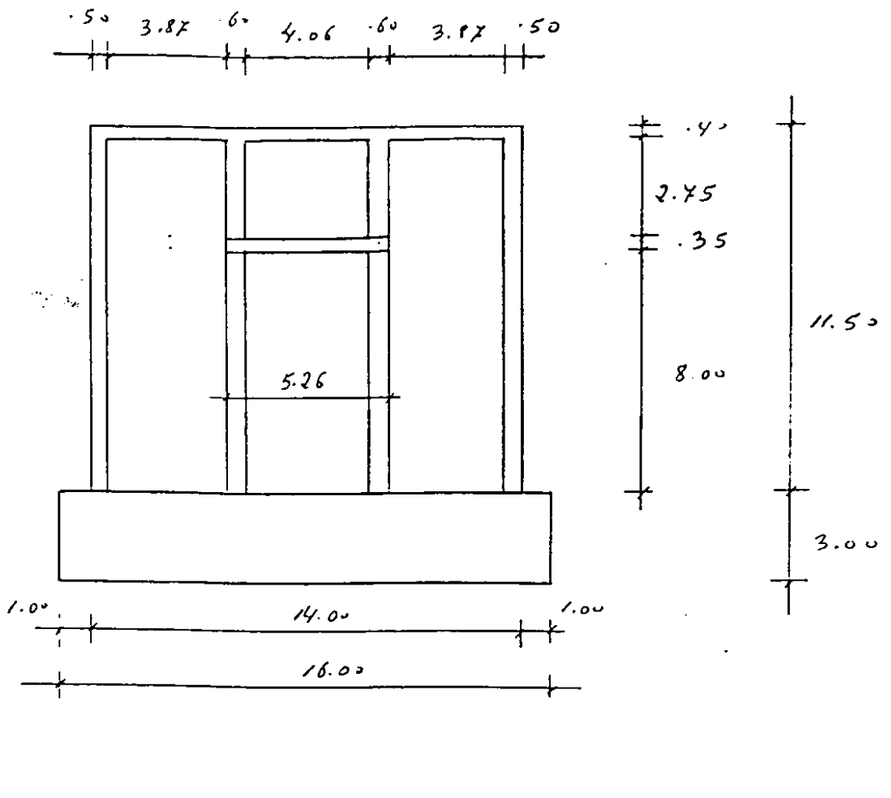
Norma	EH-1991	
Inclinaci Ân est ndar bielas comprimidas hormig Ân	45.00	[Grados]
Coeficiente de fluencia phi	2.70	
Factor minoraci Ân de la resistencia de la secci Ân	1.00	
Def. m xima en compresi Ân centrada del hormig Ân	-2.00	[o/oo]
Deformaci Ân m xima en flexi Ân en vigas	-3.50	[o/oo]
Def. m xima en tracci Ân del acero en vigas	10.00	[o/oo]
Modo de an lisis / Inclinaci Ân del eje neutro	flexi Ân esviada	
Cuant Èa m Ânima de armadura long. para pilas	0.40	[o/o]
Cuant Èa m xima de armadura long.	8.00	[o/o]
Modo de pretensado	adherente	

NO se usaron coef. de homogeneizaci Ân para calcular las caract. mec nicas

Modelo para dimensionamiento a cortante:

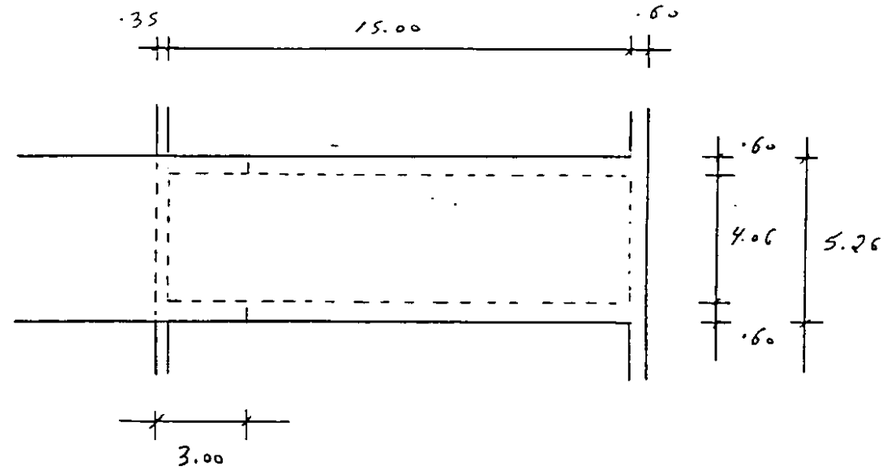
Usar un canto Ètil constante en los c lculos a cortante
C lculo separado para la arm. longitudinal adicional debida a cortante

Estudio del alzado de la zona hueca



Fuerza ejercida por el tablero sobre la losa intermedia. $F = 2108'00\ t$.

$F.S.: 1'50 \cdot 2108'00 = 3162\ t$



La losa intermedia se encuentra dispuesta de las paredes laterales en los 3 primeros metros para permitir el giro que la transmite el tablero.

Para el estudio del resguardo entre la losa intermedia y los muros superiores, poniendo del lado de la seguridad, que toda la fuerza ejercida por el tablero se transmite a los muros.

Dividimos longitudinalmente la losa en dos partes, a partir de la sección de unión de los muros laterales, de 4 m. la primera y de 8 m. la segunda. La primera parte supondremos que absorbe 2/3 de la fuerza total y la segunda el mismo.

1ª Parte:

$$Td = \frac{1}{2} \cdot \frac{2}{3} \cdot 3162 \cdot \frac{1}{4} = 263{,}50 \text{ t/m.}$$

$$A_s = \frac{263{,}5}{2 \cdot 4} = 32{,}94 \text{ cm}^2/\text{m. en red. cas.}$$

ϕ 25 c 15.

2ª Parte:

$$Td = \frac{1}{2} \cdot \frac{2}{3} \cdot 3162 \cdot \frac{1}{8} = 131{,}75 \text{ t/m.}$$

$$A_s = \frac{131{,}75}{2 \cdot 4} = 16{,}47 \text{ cm}^2/\text{m. en red. cas.}$$

ϕ 20 c 15

Para el armado de los muros laterales dispondremos una armadura vertical igual a la armadura de resente dispuesta en la losa superior y una armadura horizontal igual a la fuerza transmitida por la losa superior.

Armadura vertical:

En los 4 primeros metros: ϕ 25 c 15

En el resto: ϕ 20 c 15

Armadura horizontal:

Haremos una distribución similar a la de la losa superior: 2/3 de la fuerza en los 3 primeros metros y 2/3 en el resto

De la fuerza total descontamos la colaboración del tendón 19ϕ 0,6" que discurre por la unión del muro con la losa.

Colocación del tendón 1ºº 0'6":

$F = 2660 \cdot 15.000 \cdot 10^{-3} = 39900\ t.$

$Td = \frac{3162}{2} - 39900 = 1182\ t.$

3 m. superiores:

$Td = \frac{2}{3} \cdot 1182 \cdot \frac{1}{3} = 262'67\ t/m.$

$A_s = \frac{262'67}{2 \cdot 4} = 32'83\ cm^2/m.$ en cada cara

$\phi 25 : 15$

5 m. restantes:

$Td = \frac{2}{3} \cdot 1182 \cdot \frac{1}{5} = 157'60\ t/m$

$A_s = \frac{157'60}{2 \cdot 4} = 19'7 \cdot cm^2/m.$ en cada cara.

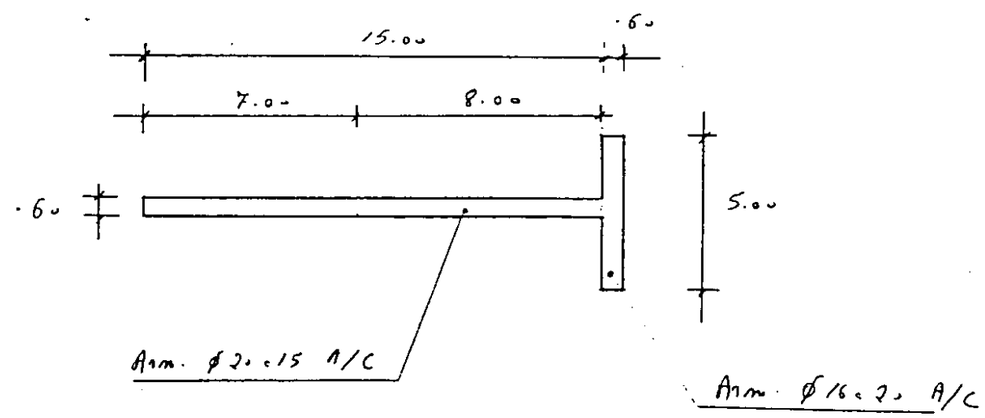
$\phi 20 : 15$

Comprobación del muro contrafuerte por la acción del tirante ejercida por el tablero.

$F = 2108'00$

$Fd = 1'5 \cdot \frac{2108'00}{2} = 1581'00\ t$

$Md = 1581'00 \cdot 8'40 = 13280'40$



1 COMPROBACION DE SECCIONES DE
HORMIGON ARMADO SOMETIDAS
A ESFUERZOS ESVIADOS0

CALCULO REALIZADO EN UN MICROORDENADOR
UTILIZANDO EL PROGRAMA 'CELAGOR' DESARROLLADO
EN LA SUBD. DE ESTUDIOS DE AGROMAN,E.C.,S.A.

AGROMAN-ESTUDIOS 05/11/99

LAV. ESTRIBO 2. MURO-CONTRAFUERTE
****

1

DATOS MECANICOS0

NUMERO DE GRUPOS DE CELDAS DE ACERO
QUE SE VAN A UTILIZAR EN LA SECCION.....= 1

MODULO DE ELASTICIDAD DEL ACERO DEL GRUPO 1(T/M2)= 21000000

RESISTENCIA MINORADA DEL HORMIGON(FCD)(T/M2).....= 1500

ACERO DEL GRUPO 1

RESISTENCIA MINORADA DEL ACERO(FYD)(T/M2).....= 40000
ACERO DE DUREZA NATURAL

DEFORMACION LIMITE DEL HORMIGON (0/00)(EC).....= 3

ESFUERZOS PARA COMPROBACION EN AGOTAMIENTO (PONDERADOS):

CARGA NORMAL, N (T).....= 10
MOMENTO ALREDEDOR DEL EJE X-X, M(X)(M.T.)...= 0
MOMENTO ALREDEDOR DEL EJE Y-Y, M(Y)(M.T.)...=-13280.4

LAV. ESTRIBO 2. MURO-CONTRAFUERTE
****

1
DATOS GEOMETRICOS DE LOS CIRCUITOS0

NUMERO DE CIRCUITOS 2

CIRCUITO	VERTICE	X	Y
1	1	0.00000	0.30000
1	2	15.00000	0.30000
1	3	15.00000	-0.30000
1	4	0.00000	-0.30000
2	1	15.00000	2.50000
2	2	15.60000	2.50000
2	3	15.60000	-2.50000
2	4	15.00000	-2.50000

AGROMAN-ESTUDIOS 05/11/99

LAV. ESTRIBO 2. MURO-CONTRAFUERTE
****

1
DATOS GEOMETRICOS DE LAS CELDAS DE ACERO0

NUMERO DE GRUPOS DE CELDAS DE ACERO 1

GRUPO	CELDA	X	Y	S
1	1	15.30000	1.25000	0.00482400
1	2	15.30000	-1.25000	0.00482400
1	3	14.00000	0.00000	0.00816400
1	4	12.00000	0.00000	0.00816400
1	5	10.00000	0.00000	0.00816400
1	6	8.00000	0.00000	0.00816400

LAV. ESTRIBO 2. MURO-CONTRAFUERTE
****

1 RESULTADOS CORRESPONDIENTES A LA
COMPROBACION DE LA SECCION EN
EN AGOTAMIENTO

1 VALORES COMPLEMENTARIOS
OBTENIDOS DEL CALCULOO

(TODOS REFERIDOS A LOS EJES INICIALES)

* ESFUERZOS DE CALCULO PARA EL PROGRAMA:

N= 10.00TN.; M(X)= 0.00MT.; M(Y)=-13280.40MT.

* AREA DE LA SECCION BRUTA DE HORMIGON (M.2).... = 12

* COORDENADAS DEL CENTRO PLASTICO DE COMPRESIONES DE LA SECCION:

X= 9.69476 ; Y= 0.00000

* CANTO TOTAL DE LA SECCION, H, EN LA DIRECCION
PERPENDICULAR A LA FIBRA NEUTRA OBTENIDA = 15.6

* CANTO UTIL, D, CORRESPONDIENTE A LA FIBRA
NEUTRA OBTENIDA..... = 15.3

LAV. ESTRIBO 2. MURO-CONTRAFUERTE
****

(CONTINUACION)

* PARAMETROS QUE DEFINEN LA FIBRA NEUTRA OBTENIDA:

ALFA= .200319
BETA= 180

ACLARACION:

'ALFA' ES UN PARAMETRO QUE DETERMINA LA PROFUNDIDAD DE LA
FIBRA NEUTRA DE ACUERDO CON LOS SIGUIENTES CRITERIOS:
1.- SIEMPRE SE VERIFICA: -1 <= 'ALFA' <= 2
2.- SI 'ALFA' = -1 LA SECCION ESTA UNIFORMEMENTE TRACCIONADA.
3.- SI -1 < 'ALFA' <= 0 LA SECCION ESTA TOTALMENTE TRACCIONADA,
AUNQUE NO DE FORMA UNIFORME.
4.- SI 0 < 'ALFA' < 1 LA SECCION ESTA COMPRIMIDA SOLO
PARCIALMENTE.
EN ESTE CASO, 'ALFA' COINCIDE CON LA PROFUNDIDAD RELATIVA
DE LA FIBRA NEUTRA (X/H).
5.- SI 1 <= 'ALFA' < 2 LA SECCION ESTA TOTALMENTE COMPRIMIDA,
AUNQUE NO DE FORMA UNIFORME.
6.- SI 'ALFA' = 2 LA SECCION ESTA UNIFORMEMENTE COMPRIMIDA.

'BETA' ES EL ANGULO QUE FORMA, CON EL SENTIDO POSITIVO DEL
EJE X-X, LA SEMINORMAL A LA FIBRA NEUTRA QUE APUNTA
A LA ZONA COMPRIMIDA

* TRANSFORMACIONES QUE HA REALIZADO EL PROGRAMA DURANTE EL CALCULO:

TRASLACION DEL ORIGEN AL PUNTO DE COORDENADAS X= 9.69476 ; Y= 0.00000
SIMETRIA RESPECTO AL EJE Y-Y

LAV. ESTRIBO 2. MURO-CONTRAFUERTE
****

1 RESULTADOS FINALES0

(TODOS REFERIDOS A LOS EJES INICIALES)

* ESFUERZOS DE AGOTAMIENTO DE LA SECCION:

NU=	MU(X)=	MU(Y)=
13.73TN.	0.00MT.	-18230.32MT.

* ECUACION DE LA FIBRA NEUTRA CORRESPONDIENTE A LOS ESFUERZOS DE AGOTAMIENTO (NU,MU(X),MU(Y)):

X= 3.124977E+00

* COEFICIENTE DE PROPORCIONALIDAD ENTRE LOS ESFUERZOS DE AGOTAMIENTO Y LOS DE CALCULO (PONDERADOS):

NU/N=MU(X)/M(X)=MU(Y)/M(Y)= 1.3726807

AGROMAN-ESTUDIOS 05/11/99

LAV. ESTRIBO 2. MURO-CONTRAFUERTE
****

* DEFORMACIONES UNITARIAS MAXIMAS Y MINIMAS EN LA SECCION AGOTADA

(+ ACORTAMIENTOS ; - ALARGAMIENTOS)

MATERIAL	FIBRA	DISTANCIA A LA FIBRA NEUTRA (M.)	DEFORMACION UNITARIA (EN 0/00)
HORMIGON	MAS ACORTADA O MENOS ALARGADA	3.12498	2.56671
	MAS ALARGADA O MENOS ACORTADA	-12.47502	-10.24641
ACERO	MAS ACORTADA O MENOS ALARGADA	-4.87502	-4.00412
	MAS ALARGADA O MENOS ACORTADA	-12.17502	-10.00000

LAV. ESTRIBO 2. MURO-CONTRAFUERTE
****

* TENSIONES, CON LA SECCION AGOTADA, EN LOS VERTICES QUE SE ENCUENTRAN EN LA FIBRA MAS ACORTADA O MENOS ALARGADA DE LA SECCION DE HORMIGON

(+ COMP. ; - TRACC.)

VERTICE		COORDENADAS		TENSION
NO. DE CIRCUITO	NO. DE ORDEN	ABSCISA (M.)	ORDENADA (M.)	(T/M2)
1	1	0.0000	0.3000	1275.00
1	4	0.0000	-0.3000	1275.00

* TENSIONES, CON LA SECCION AGOTADA, EN LOS VERTICES QUE SE ENCUENTRAN EN LA FIBRA MAS ALARGADA O MENOS ACORTADA DE LA SECCION DE HORMIGON

(+ COMP. ; - TRACC.)

VERTICE		COORDENADAS		TENSION
NO. DE CIRCUITO	NO. DE ORDEN	ABSCISA (M.)	ORDENADA (M.)	(T/M2)
2	2	15.6000	2.5000	(H.FISURADO)
2	3	15.6000	-2.5000	(H.FISURADO)

LAV. ESTRIBO 2. MURO-CONTRAFUERTE
****

* TENSIONES, CON LA SECCION AGOTADA, EN LAS CELDAS DE ACERO MAS ACORTADAS O MENOS ALARGADAS

(+ COMP. ; - TRACC.)

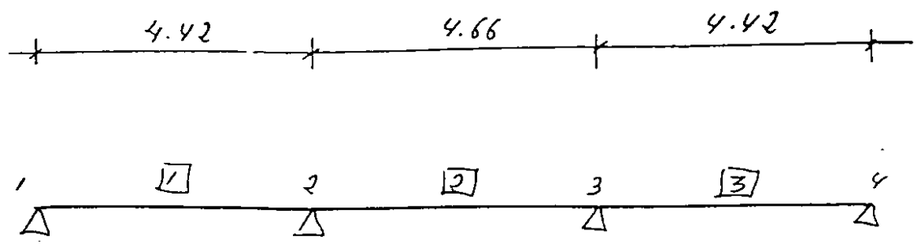
CELDA		COORDENADAS		TENSION
NO. DE GRUPO	NO. DE ORDEN	ABSCISA (M.)	ORDENADA (M.)	(T/M2)
1	6	8.0000	0.0000	-40000.00

* TENSIONES, CON LA SECCION AGOTADA, EN LAS CELDAS DE ACERO MAS ALARGADAS O MENOS ACORTADAS

(+ COMP. ; - TRACC.)

CELDA		COORDENADAS		TENSION
NO. DE GRUPO	NO. DE ORDEN	ABSCISA (M.)	ORDENADA (M.)	(T/M2)
1	1	15.3000	1.2500	-40000.00
1	2	15.3000	-1.2500	-40000.00

Estudio de la losa superior



Estudiamos una rebanada de 1 m

Canto de la losa = 0.40 m.

Utilizamos para el estudio los mismos ejes empleados en el estudio a flexión transversal del tablero.

- Hipótesis 1. Peso propio

Barras 1 a 3:

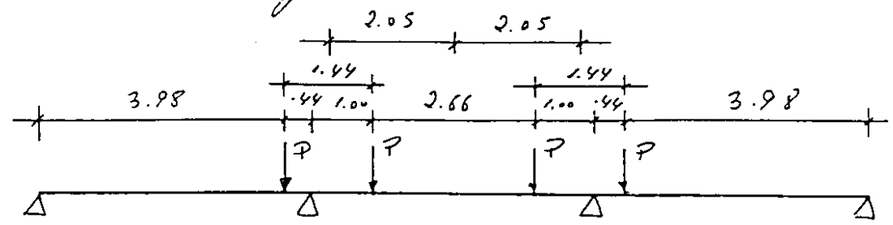
$p = 0{,}4 \cdot 2{,}5 = 1{,}00$ t/m.

- Hipótesis 2: Carga permanente

$p = 1{,}00$ t/m extendida en la barra 2

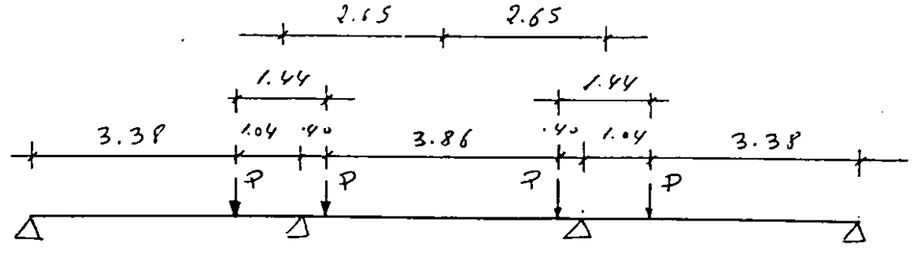
y en la mitad interior de las barras 1 y 3.

- Hipótesis 3: Sobrecarga del tren tipo II de 3 ejes de 30 t separados 1'5 m. con los ejes rígidos 0'30 m. hacia el interior



$P = \frac{1}{1{,}5} \cdot \frac{30}{2} \cdot 1{,}16 = 11{,}60$ t.

- Hipótesis 4: Sobrecarga del tren tipo A con los ejes rígidos 0'3 m hacia el exterior



P = 11'60

AGROMAN Empresa Constructora Direcci¢n T,cnica

ESTRU2 (Ver. 10.0) CALCULO DE PORTICOS PLANOS

T¡tulo : ESTRIBO. LOSA SUPERIOR

Autor :

Area/Dpto. :

Fecha : 02-11-1999 Hora : 13:11:52

DATOS DE ENTRADA ** EN METROS Y TONELADAS

** GEOMETRIA DE BARRAS **

BARRAS PRI	BARRAS ULT	BARRAS INC	NUDO INI INI	NUDO INI INC	NUDO FIN FIN	NUDO FIN INC	PUN INT	SEC TIP	PROY. X (m)	PROY. Y (m)	TIP	ARM
1	3	2	1	2	2	2	1	1	4.420	0.000	1	0
2			2		3		1	1	4.660	0.000	1	0

** DATOS DE SECCIONES TIPO **

SECCION	TIPO	ANCHO-DIAMETRO DIAMETRO EXT. AREA (m-m2)	CANTO DIAMETRO INT. INERCIA (m-m4)	AREA EQUIVALENTE A CORTANTE(m^2)	RS	RI
1	1	1.00000000	0.40000001	0.00000000	0.03	0.03

** MATERIALES **

MODULO DE ELASTICIDAD . . . . . : 3000000 t/m^2
COEFICIENTE DE DILATACION TERMICA : .00001
COEFICIENTE DE POISSON . . . . . : .2

** DATOS DE NUDOS Y TIPOS DE VINCULACIONES **

NUDOS INI	NUDOS FIN	NUDOS INC	TIPO VINC	COOR. X (m)	COOR. Y (m)	ANGULO (grados)	MUELLE-1 (tn/m)	MUELLE-2 (tn/m)	DX	DY	WZ
1			2	0.000	0.000	0.000	0.00	0.00	0	0	0
2	4	1	3	0.000	0.000	0.000	0.00	0.00	0	0	0

** DATOS DE CARGAS EN BARRAS O EN NUDOS **

CAR NUM	BARRA - NUDO INI	FIN	INC	HIPO	TIPO	A (m)	B (m)	VALOR 1	VALOR 2	VALOR 3
1	1	3	1	1	0	0.000	0.000	1.000	1.000	0.000
2	1			3	1	3.980	0.000	0.000	-11.600	0.000
3	2			3	1	1.000	0.000	0.000	-11.600	0.000
4	2			3	1	3.660	0.000	0.000	-11.600	0.000
5	3			3	1	0.440	0.000	0.000	-11.600	0.000
6	1			4	1	3.380	0.000	0.000	-11.600	0.000
7	2			4	1	0.400	0.000	0.000	-11.600	0.000
8	2			4	1	4.260	0.000	0.000	-11.600	0.000
9	3			4	1	1.040	0.000	0.000	-11.600	0.000
10	1			2	2	2.210	2.210	1.000	1.000	0.000
11	2			2	0	0.000	0.000	1.000	1.000	0.000
12	3			2	2	0.000	2.210	1.000	1.000	0.000

** DATOS DE COMBINACIONES **

NUM	Hip-1	Hip-2	Hip-3	Hip-4	Hip-5	Hip-6	Hip-7	Hip-8	Hip-9	Hip-10
1	1.50	1.50	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1.50	1.50	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00

HIPOTESIS SIMPLES			
HIPOTESIS	MOV.NUDOS	ESF.BARRAS	REAC.NUDOS
1	1	1	1
2	1	1	1
3	1	1	1
4	1	1	1
COMBINACIONES DE HIPOTESIS			
COMBINACION	MOV.NUDOS	ESF.BARRAS	REAC.NUDOS
1	1	1	1
2	1	1	1

* MOVIMIENTOS EN LOS NUDOS (HIPOTESIS DE CARGA) *

Nudo No.	Hip. No.	Desp.-X (cm.)	Desp.-Y (cm.)	Giro (mRad)
1	1	0.0000D+00	0.0000D+00	-.1303D+00
	2	0.0000D+00	0.0000D+00	-.2284D-01
	3	0.0000D+00	0.0000D+00	0.1022D+00
	4	0.0000D+00	0.0000D+00	-.2599D+00
2	1	0.0000D+00	0.0000D+00	0.3568D-01
	2	0.0000D+00	0.0000D+00	-.2459D-01
	3	0.0000D+00	0.0000D+00	-.2676D+00
	4	0.0000D+00	0.0000D+00	0.2199D+00
3	1	0.0000D+00	0.0000D+00	-.3568D-01
	2	0.0000D+00	0.0000D+00	0.2459D-01
	3	0.0000D+00	0.0000D+00	0.2676D+00
	4	0.0000D+00	0.0000D+00	-.2199D+00
4	1	0.0000D+00	0.0000D+00	0.1303D+00
	2	0.0000D+00	0.0000D+00	0.2284D-01
	3	0.0000D+00	0.0000D+00	-.1022D+00
	4	0.0000D+00	0.0000D+00	0.2599D+00

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
1	1	0.000	1	0.00	-1.75	0.00
			2	0.00	-0.18	0.00
			3	0.00	0.49	0.00
			4	0.00	-1.43	0.00
	2	2.210	1	0.00	0.46	1.41
			2	0.00	-0.18	0.40
			3	0.00	0.49	-1.08
			4	0.00	-1.43	3.16
	3	4.420	1	0.00	2.67	-2.05
			2	0.00	2.03	-1.64
			3	0.00	12.09	-7.27
			4	0.00	10.17	-5.75
2	1	0.000	1	0.00	-2.33	-2.05
			2	0.00	-2.33	-1.64
			3	0.00	-11.60	-7.27
			4	0.00	-11.60	-5.75
	2	2.330	1	0.00	-0.00	0.66
			2	0.00	-0.00	1.07
			3	0.00	0.00	4.33
			4	0.00	0.00	-1.11
	3	4.660	1	0.00	2.33	-2.05
			2	0.00	2.33	-1.64
			3	0.00	11.60	-7.27
			4	0.00	11.60	-5.75
3	1	0.000	1	0.00	-2.67	-2.05
			2	0.00	-2.03	-1.64
			3	0.00	-12.09	-7.27
			4	0.00	-10.17	-5.75
	2	2.210	1	0.00	-0.46	1.41
			2	0.00	0.18	0.40
			3	0.00	-0.49	-1.08
			4	0.00	1.43	3.16
	3	4.420	1	0.00	1.75	-0.00
			2	0.00	0.18	-0.00
			3	0.00	-0.49	0.00
			4	0.00	1.43	-0.00

* REACCIONES EN APOYOS (HIPOTESIS DE CARGA) *

Nudo No.	Hip. No.	F-X (Ton)	F-Y (Ton)	Momento (m*T)
1	1	0.0000D+00	0.1745D+01	0.0000D+00
	2	0.0000D+00	0.1813D+00	0.0000D+00
	3	0.0000D+00	-.4908D+00	0.0000D+00
	4	0.0000D+00	0.1428D+01	0.0000D+00
2	1	0.0000D+00	0.5005D+01	0.0000D+00
	2	0.0000D+00	0.4359D+01	0.0000D+00
	3	0.0000D+00	0.2369D+02	0.0000D+00
	4	0.0000D+00	0.2177D+02	0.0000D+00
3	1	0.0000D+00	0.5005D+01	0.0000D+00
	2	0.0000D+00	0.4359D+01	0.0000D+00
	3	0.0000D+00	0.2369D+02	0.0000D+00
	4	0.0000D+00	0.2177D+02	0.0000D+00
4	1	0.0000D+00	0.1745D+01	0.0000D+00
	2	0.0000D+00	0.1813D+00	0.0000D+00
	3	0.0000D+00	-.4908D+00	0.0000D+00
	4	0.0000D+00	0.1428D+01	0.0000D+00

* MOVIMIENTOS EN LOS NUDOS (COMBINACIONES) *

Nudo No.	Comb. No.	Desp.-X (cm.)	Desp.-Y (cm.)	Giro (mRad)
1	1	0.0000D+00	0.0000D+00	-.7637D-01
	2	0.0000D+00	0.0000D+00	-.6195D+00
2	1	0.0000D+00	0.0000D+00	-.3848D+00
	2	0.0000D+00	0.0000D+00	0.3465D+00
3	1	0.0000D+00	0.0000D+00	0.3848D+00
	2	0.0000D+00	0.0000D+00	-.3465D+00
4	1	0.0000D+00	0.0000D+00	0.7637D-01
	2	0.0000D+00	0.0000D+00	0.6195D+00

* ESFUERZOS EN LAS BARRAS (COMBINACIONES) *

Barra No.	Punto No.	Abcisa (m.)	Comb. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
1	1	0.000	1	0.00	-2.15	0.00
			2	0.00	-5.03	0.00
	2	2.210	1	0.00	1.16	1.10
			2	0.00	-1.72	7.46
	3	4.420	1	0.00	25.19	-16.45
			2	0.00	22.31	-14.17
2	1	0.000	1	0.00	-24.39	-16.45
			2	0.00	-24.39	-14.17
	2	2.330	1	0.00	0.00	9.09
			2	0.00	0.00	0.93
	3	4.660	1	0.00	24.39	-16.45
			2	0.00	24.39	-14.17
3	1	0.000	1	0.00	-25.19	-16.45
			2	0.00	-22.31	-14.17
	2	2.210	1	0.00	-1.16	1.10
			2	0.00	1.72	7.46
	3	4.420	1	0.00	2.15	0.00
			2	0.00	5.03	-0.00

* REACCIONES EN APOYOS (COMBINACIONES) *

Nudo No.	Hip. No.	F-X (Ton)	F-Y (Ton)	Momento (m*T)
1	1	0.0000D+00	0.2154D+01	0.0000D+00
	2	0.0000D+00	0.5032D+01	0.0000D+00
2	1	0.0000D+00	0.4958D+02	0.0000D+00
	2	0.0000D+00	0.4670D+02	0.0000D+00
3	1	0.0000D+00	0.4958D+02	0.0000D+00
	2	0.0000D+00	0.4670D+02	0.0000D+00
4	1	0.0000D+00	0.2154D+01	0.0000D+00
	2	0.0000D+00	0.5032D+01	0.0000D+00

Armado de la losa superior:

Punto 2 - Superior:

$Md = 16'45$

$V = 100 \cdot 36 \cdot \frac{250}{1'5} \cdot 10^{-3} = 600 \quad ; \quad \frac{Md}{V \cdot d} = 0'08$

$U = 0'9Z \cdot \frac{16'45}{0'36} \cdot 108 = 4Z'88 \; t \equiv 10'80 \; cm^2$

Barra 2 - Punto central - inferior.

$Md = 9'09$

$V = 600 \quad ; \quad \frac{Md}{V \cdot d} = 0'04$

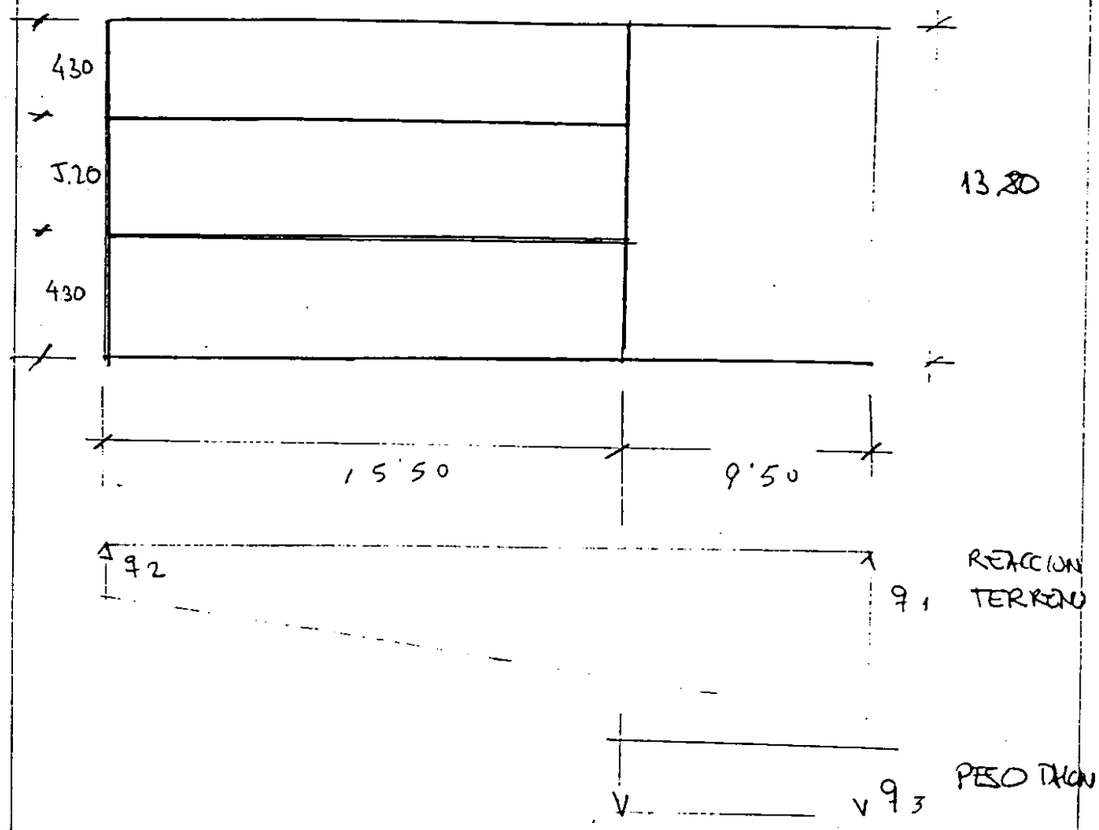
$U = 25'4Z \; t \quad \equiv \quad 5'Z4 \; cm^2$

MURO CONTINUO (SIN JUNTA)

Oficina Técnica	PROYECTO:
	ASUNTO:

ESCRITO POR: FECHA: | REVISADO POR: FECHA: | HOJA DE

ZAPATA:



a)

$q_1 = 12{,}76$

$q_2 = 31{,}38$

b)

$q_1 = 35'85$

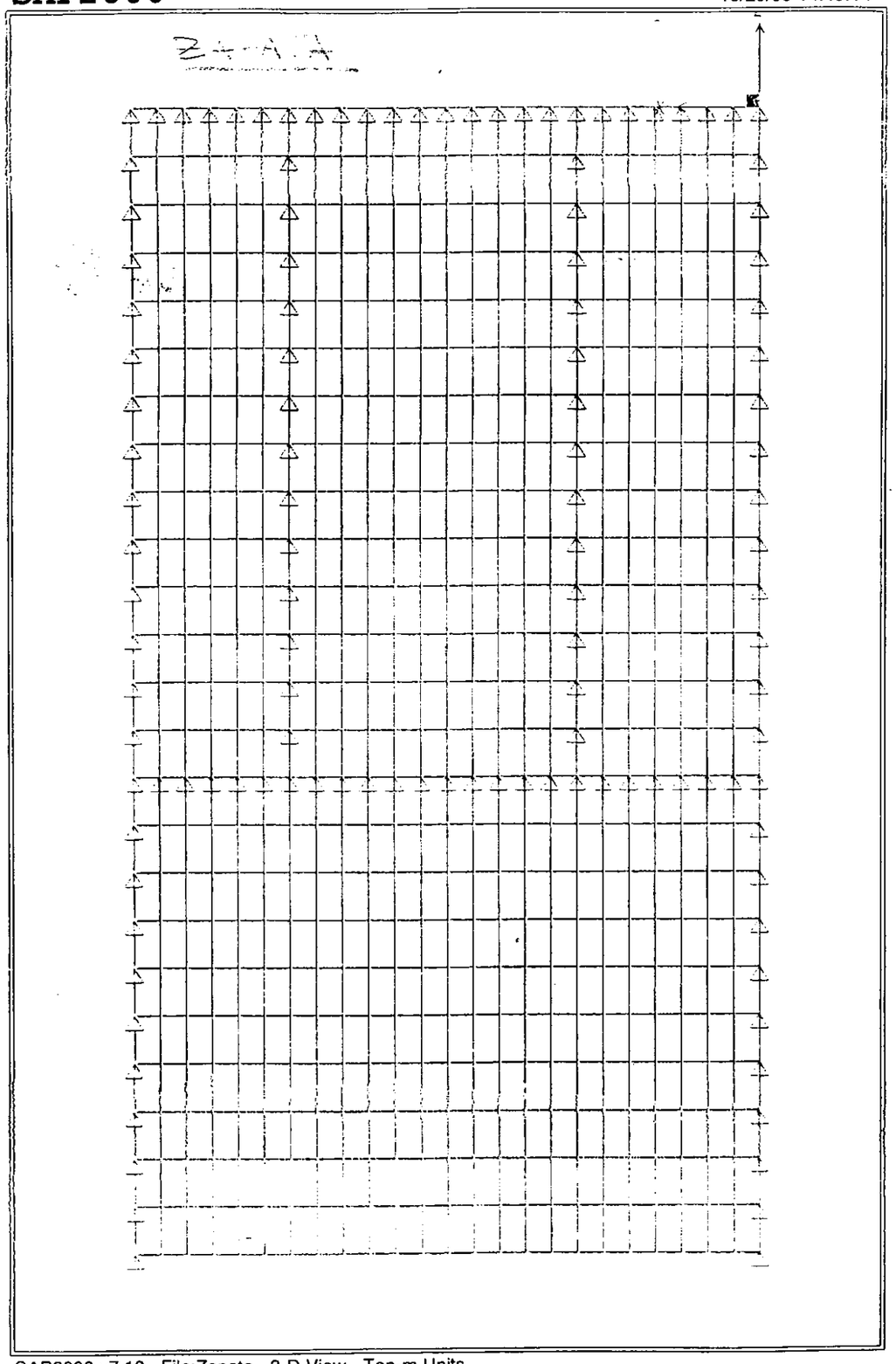
$q_2 = 13'24$

Peso de las tierras:

$q_3 = 100 + 1200 \cdot 2'00 + 300 \cdot 2'5 = 32'50$

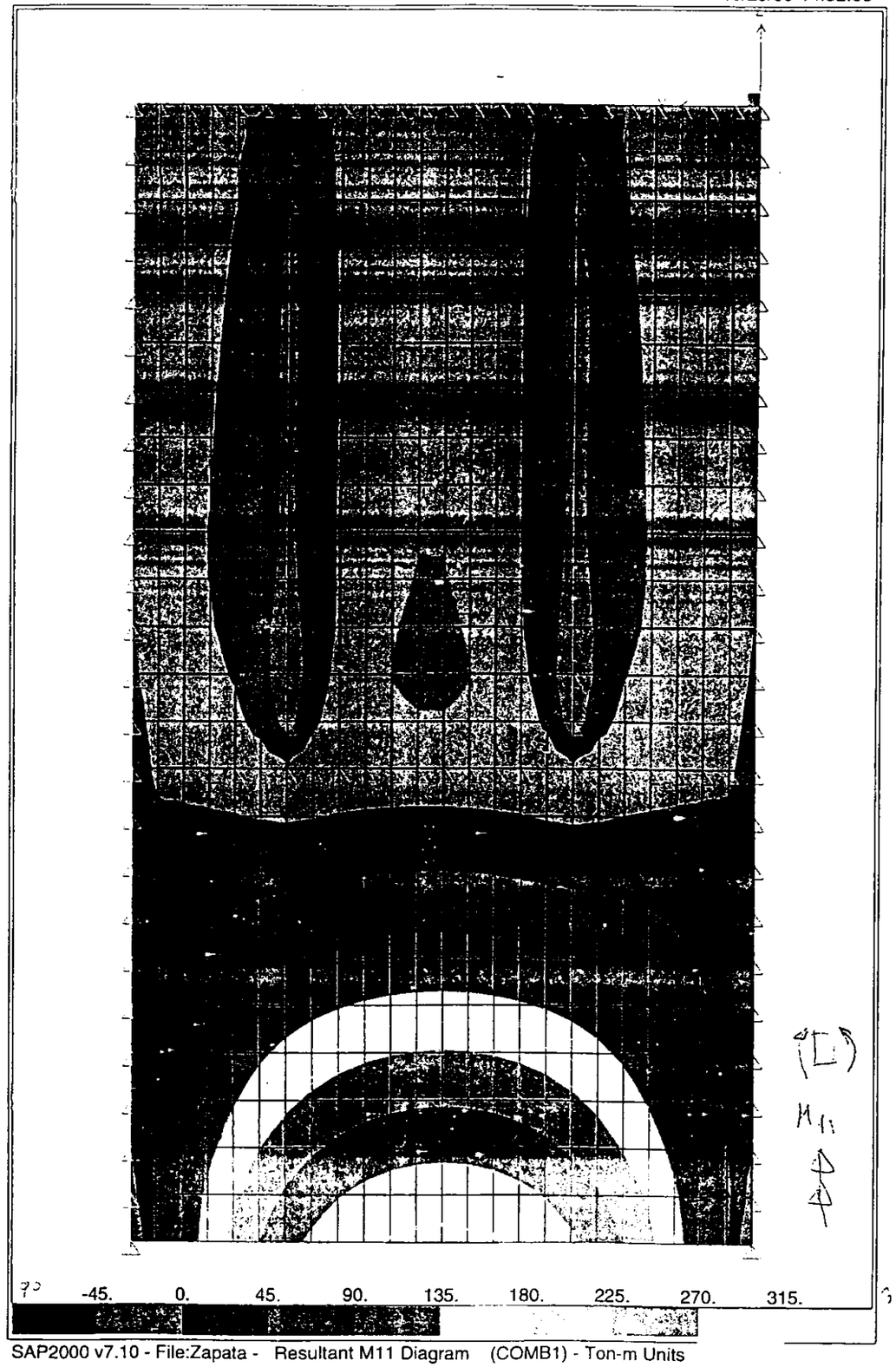
Se estudia la hipótesis a).

SAP2000 10/29/99 14.49.14



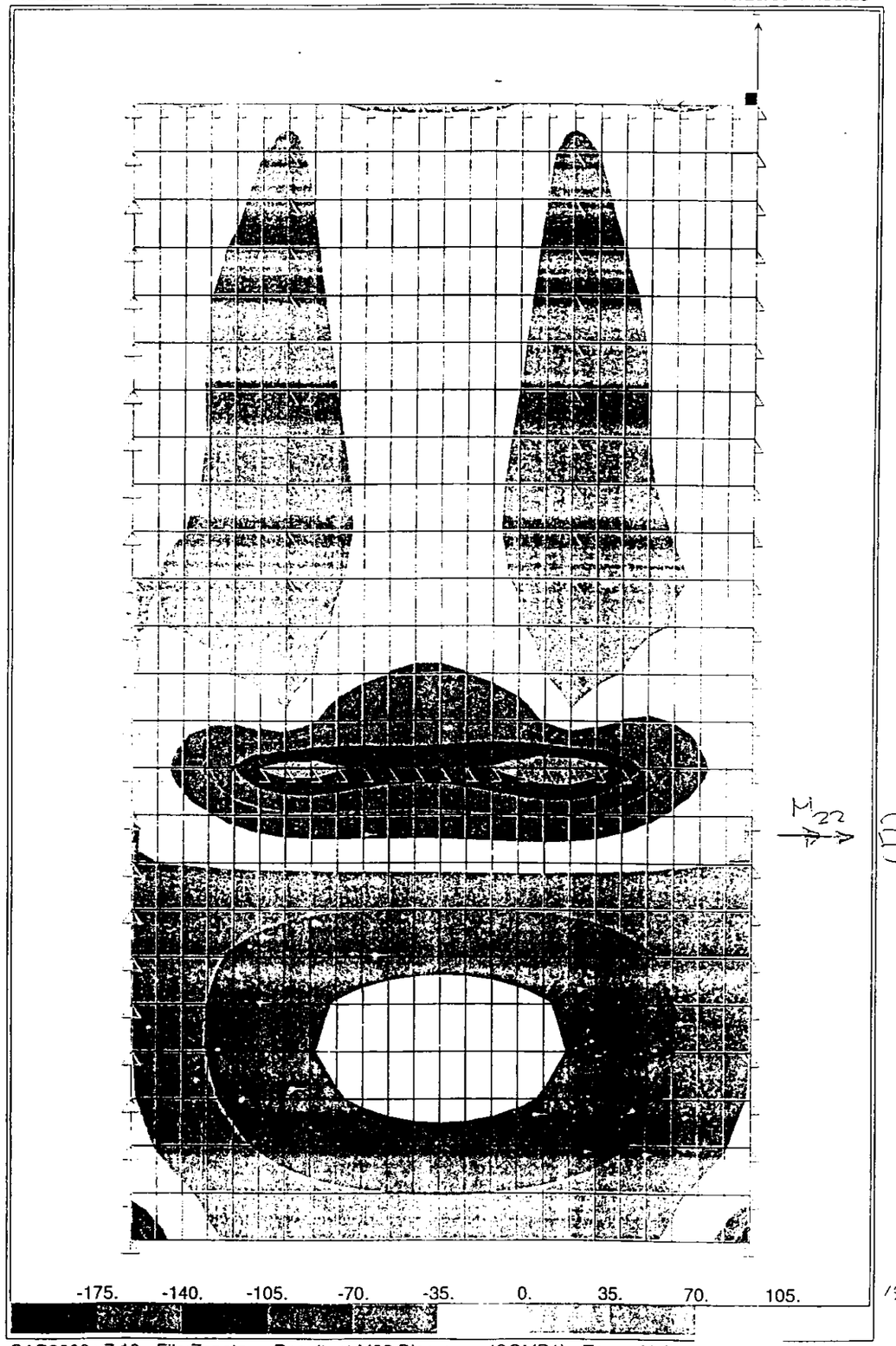
SAP2000 v7.10 - File:Zapata - 3-D View - Ton-m Units

SAP2000 10/29/99 14.52.38



SAP2000 v7.10 - File:Zapata - Resultant M11 Diagram (COMB1) - Ton-m Units

SAP2000 10/29/99 14.53.28



SAP2000 v7.10 - File:Zapata - Resultant M22 Diagram (COMB1) - Ton-m Units

Armadura de tipeta

- Longitudinal

Superior:

$M_d = 1'5 \cdot 160 = 24000$ m.t.

$V = 100 \cdot 285 \cdot \frac{250}{1'5} \cdot 10^{-3} = 4750$; $\frac{M_d}{V \cdot d} = 0'02$

$U = 0'7 x \cdot \frac{2400}{285} \cdot 102 = 8332$

$\alpha = 128$; $\alpha \cdot U = 10665\ t = 2405\ cm^2$

$\phi 25 : 20$

Inferior:

$M_d = 1'5 \cdot 105 = 15750$

$V = 4750$; $\frac{M_d}{V \cdot d} = 0'01$

$U = 5414$

$\alpha = 136$; $\alpha \cdot U = 7363\ t = 1650\ cm^2$

- Transversal

Superior:

$M_d = 1'5 \cdot 9000 = 13500$

Armadura mínima:

Inferior:

Zona buena:

$M_d = 1'5 \cdot 9000 = 13500$

Armadura mínima:

Zona de muros pantalla - 4 metros extremos

$M_d = 1'5 \cdot 270 = 7050$

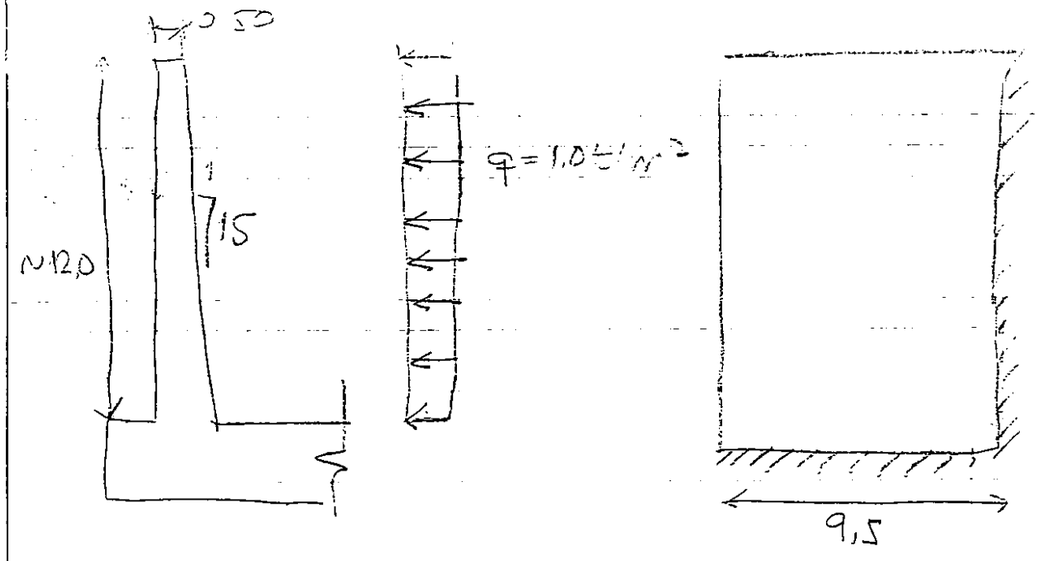
$V = 4750$; $\frac{M_d}{V \cdot d} = 0'03$

$U = 14193\ t.$

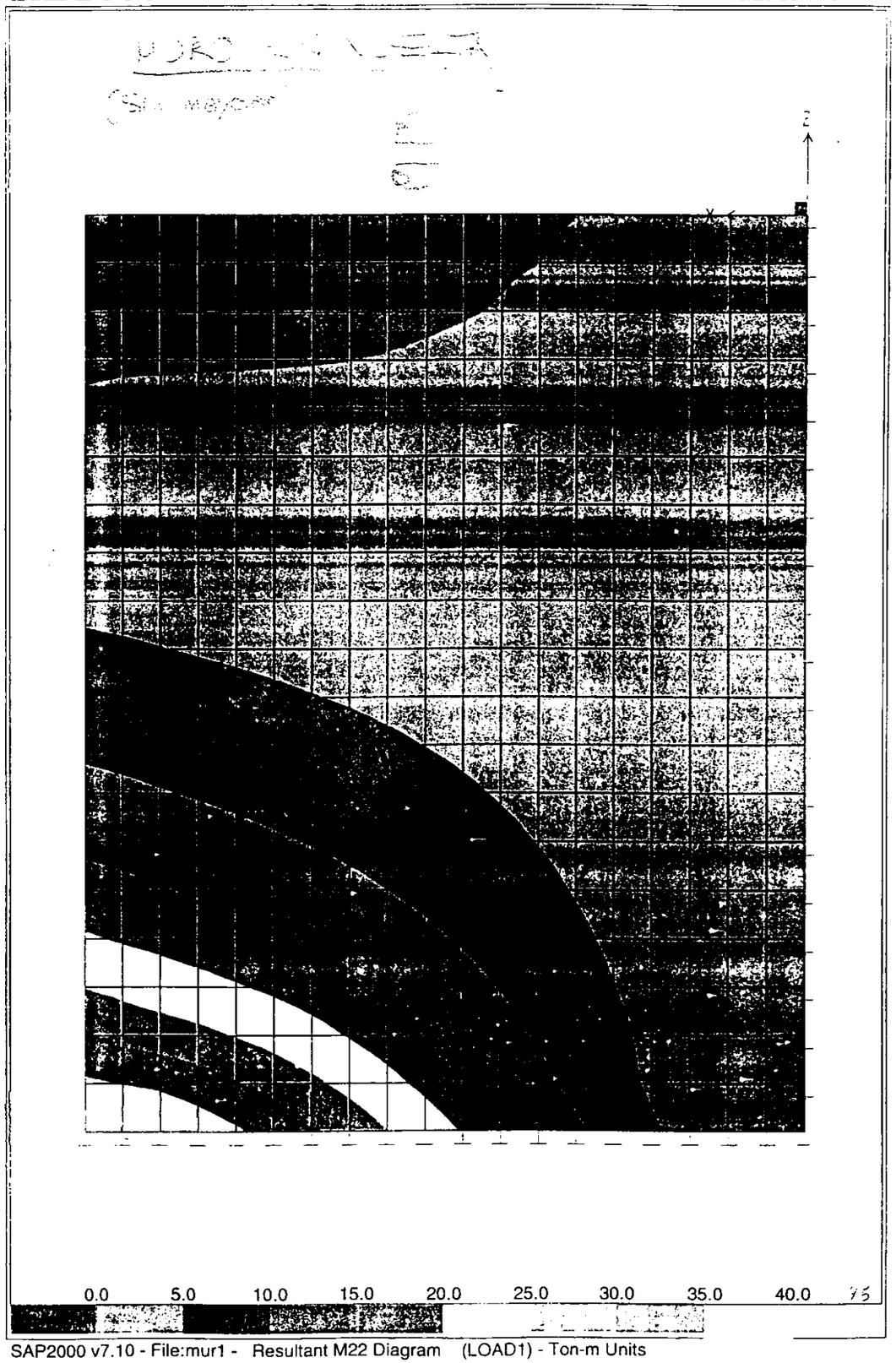
$\alpha = 113$; $\alpha \cdot U = 15044\ t = 3613$

$\phi 25 : 12'5$

Oficina Técnica	PROYECTO:	
	ASUNTO:	
ESCRITO POR: FECHA:	REVISADO POR: FECHA:	HOJA DE



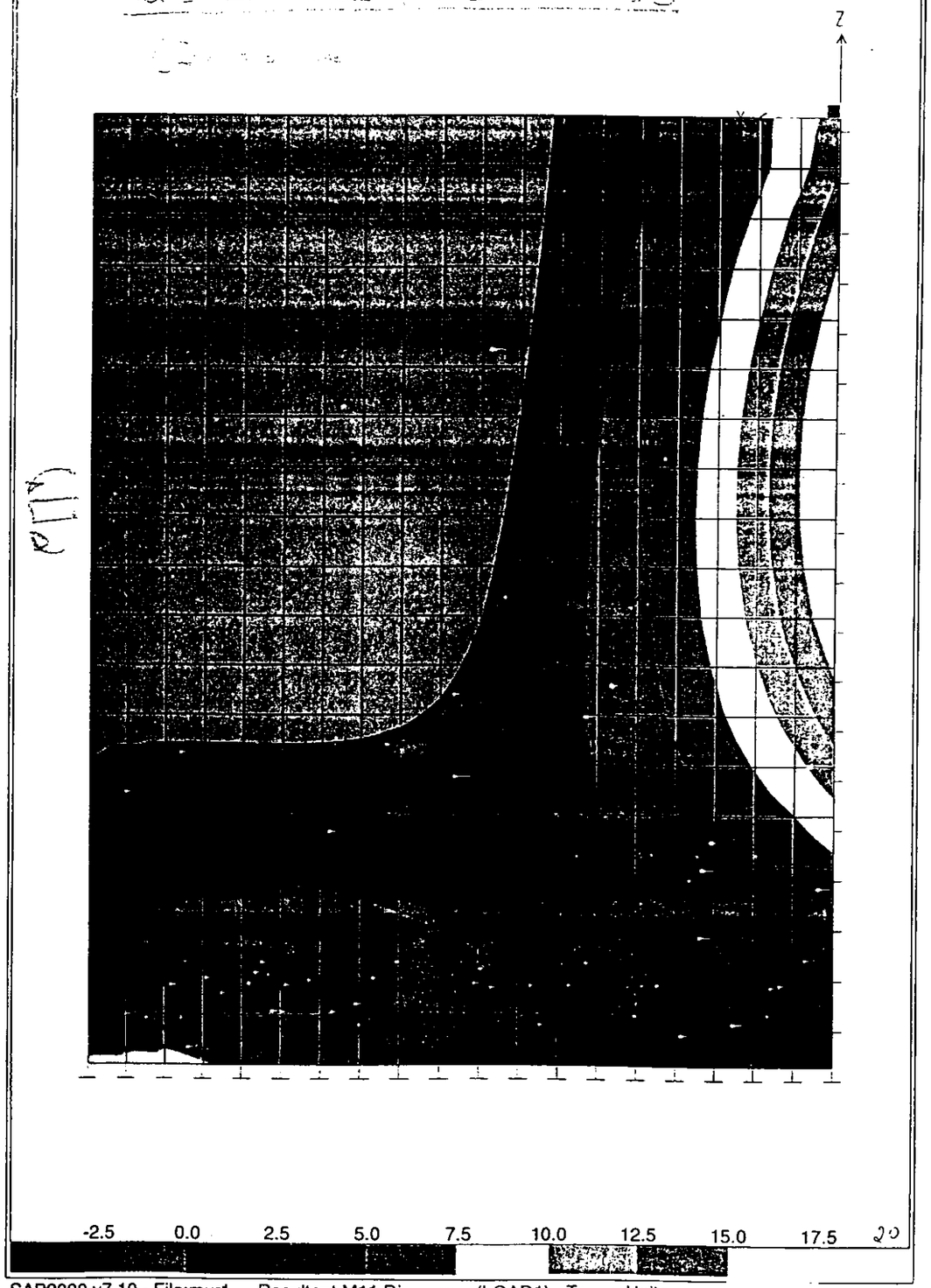
SAP2000 10/29/99 14.3



SAP2000 v7.10 - File:mur1 - Resultant M22 Diagram (LOAD1) - Ton-m Units

SAP2000

10/29/99 14.33.57



SAP2000 v7.10 - File:mur1 - Resultant M11 Diagram (LOAD1) - Ton-m Units

Armad. del muro

Vertical: $h = 1'30$

$Md = 1'5 \cdot 4500 = 6750$

$V = 100 \cdot 123 - \frac{25}{1'5} \cdot 10^{-3} = 2050$; $\frac{Md}{V \cdot d} = 0'3$

$U = 0'9 \cdot \frac{6750}{123} \cdot 103 = 5483$

$\alpha = 11\%$; $\alpha \cdot U = 6415\ t = 14'4\%$

$\phi 16 \cdot 12'5$

Horizontal: $h = 0'80$

$Md = 1'5 \cdot 2000 = 3000$

$V = 100 \cdot 75 - \frac{25}{1'5} \cdot 10^{-3} = 1250$; $\frac{Md}{V \cdot d} = 0'3$

$U = 39'96\ t$

$\alpha = 110$; $\alpha \cdot U = 43'96\ t = 9'91\ cm^2/m.$

$\phi 16 \cdot 20$

Cuantías geométricas mínimas de armaduras:

Vertical:

Cara trasdosada: $\rho = 0'0009$

$A_s = 0'0009 \cdot 130 \cdot 100 = 11'70\ cm^2/m.$

Cara comprimida:

$A_s = \frac{1}{3} \cdot 11'70 = 3'90\ cm^2/m.$

Horizontal:

$\rho = 0'0032$ entre las dos caras.

4 m. inferiores. $h = 1'20$

$A_s = 0'0032 \cdot 120 \cdot 100 = 38'40\ cm^2 (\phi 25 \cdot 2'0 + \phi 12 \cdot 2$

4 m. intermedios: $h = 0'90$

$A_s = 0'0032 \cdot 90 \cdot 100 = 28'80\ cm^2 (\phi 20 \cdot 2'0 + \phi 20$

4 m. superiores. $h = 0'65$

$A_s = 0'0032 \cdot 65 \cdot 100 = 20'80\ cm^2 (\phi 16 \cdot 2'0 + \phi 16 \cdot 2'0)$

Armado base apoyos

$R_{max} = 785\ t$

$R_d = 1{,}5 \cdot 785{,}0 = 1177{,}50$

Sentido longitudinal al puente.

$T_d = 0{,}25 \cdot 1177{,}50 \cdot \left(\frac{1{,}85 - 0{,}56}{1{,}85}\right) = 205{,}27\ t$

$A_s = \frac{205{,}27}{4} = 51{,}31\ cm^2$ $\quad 2 \times \phi 16$

Sentido transversal al puente.

$T_d = 0{,}4 \cdot 1177{,}50 = 471{,}00\ t$

$A_s = \frac{471{,}00}{4} = 117{,}75\ cm^2$ $\quad 24 \phi 25$

Cuantía geométrica mínima del fuste del estribo

$\rho = 0{,}004$

$A_s = 0{,}004 \cdot (526 \cdot 185 - 50 \cdot 50) = 379{,}24\ cm^2$

$A_{s\,por\,m} = \frac{379{,}24}{526 + 426 + 2 \cdot 135 + 2 \cdot 0{,}70} = 28{,}84\ cm^2/m.$

$\phi 25 \cdot 25 + \phi 16 \cdot 25$

Armado vertical del muro exterior de la zona hueca debido al empuje de las tierras de relleno

$H_{tierras} = 5'50$ m.

$e_h = 5'5 \cdot 18 \cdot 0'5 = 49'5$ t/m

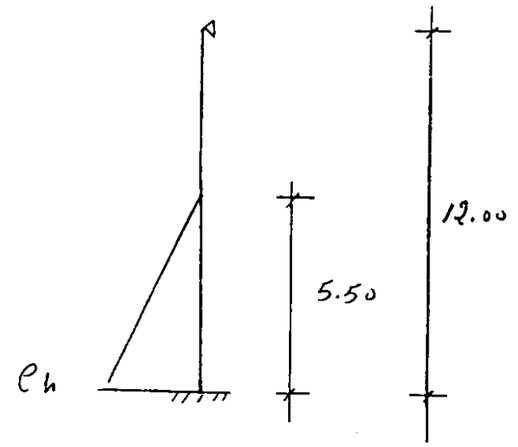
AGROMAN Empresa Constructora	Dirección Técnica
ESTRU2 (Ver. 10.0)	CALCULO DE PORTICOS PLANOS

Título : ESTRIBO. MURO VERTICAL EXTERIOR

Autor :

Area/Dpto. :

Fecha : 02-11-1999 Hora : 17:35:32



DATOS DE ENTRADA ** EN METROS Y TONELADAS

** GEOMETRIA DE BARRAS **

BARRAS PRI	BARRAS ULT	BARRAS INC	NUDO INI INI	NUDO INI INC	NUDO FIN FIN	NUDO FIN INC	PUN INT	SEC TIP	PROY. X (m)	PROY. Y (m)	TIP	ARM
1			1		2		7	1	0.000	12.000	1	0

** DATOS DE SECCIONES TIPO **

SECCION	TIPO	ANCHO-DIAMETRO DIAMETRO EXT. AREA (m-m2)	CANTO DIAMETRO INT. INERCIA (m-m4)	AREA EQUIVALENTE A CORTANTE(m^2)	RS	RI
1	1	1.00000000	0.50000000	0.00000000	0.03	0.03

** MATERIALES **

MODULO DE ELASTICIDAD . . . . . : 3000000 t/m^2
COEFICIENTE DE DILATACION TERMICA : .00001
COEFICIENTE DE POISSON . . . . . : .2

** DATOS DE NUDOS Y TIPOS DE VINCULACIONES **

NUDOS INI	NUDOS FIN	NUDOS INC	TIPO VINC	COOR. X (m)	COOR. Y (m)	ANGULO (grados)	MUELLE-1 (tn/m)	MUELLE-2	DX	DY	WZ
1			1	0.000	0.000	0.000	0.00	0.00	0	0	0
2			2	0.000	0.000	0.000	0.00	0.00	0	0	0

** DATOS DE CARGAS EN BARRAS O EN NUDOS **

CAR NUM	BARRA - NUDO INI	FIN	INC	HIPO	TIPO	A (m)	B (m)	VALOR 1	VALOR 2	VALOR 3
1	1			1	2	0.000	5.500	4.950	0.000	0.000

HIPOTESIS SIMPLES			
HIPOTESIS	MOV.NUDOS	ESF.BARRAS	REAC.NUDOS
1	1	1	1

COMBINACIONES DE HIPOTESIS			
COMBINACION	MOV.NUDOS	ESF.BARRAS	REAC.NUDOS

* MOVIMIENTOS EN LOS NUDOS (HIPOTESIS DE CARGA) *

Nudo No.	Hip. No.	Desp.-X (cm.)	Desp.-Y (cm.)	Giro (mRad)
1	1	0.0000D+00	0.0000D+00	0.0000D+00
2	1	0.0000D+00	0.0000D+00	0.3981D+00

* ESFUERZOS EN LAS BARRAS (HIPOTESIS DE CARGA) *

Barra No.	Punto No.	Abcisa (m.)	Hip. No.	Axil (Ton)	Cortante (Ton)	Momento (m*T)
1	1	0.000	1	0.00	-12.96	-17.16
	2	1.500	1	0.00	-6.55	-2.78
	3	3.000	1	0.00	-2.16	3.50
	4	4.500	1	0.00	0.20	4.72
	5	6.000	1	0.00	0.65	3.89
	6	7.500	1	0.00	0.65	2.92
	7	9.000	1	0.00	0.65	1.95
	8	10.500	1	0.00	0.65	0.97
	9	12.000	1	0.00	0.65	-0.00

* REACCIONES EN APOYOS (HIPOTESIS DE CARGA) *

Nudo No.	Hip. No.	F-X (Ton)	F-Y (Ton)	Momento (m*T)
1	1	-.1296D+02	0.0000D+00	0.1716D+02
2	1	-.6494D+00	0.0000D+00	0.0000D+00

Armado:

Inferior - exterior.

$Md = 15.1 \times 16 = 25 \times 4$

$V = 100.46 - \frac{250}{15} \cdot 10^{-3} = \times 66 \quad ; \quad \frac{Md}{V.d} = 0'0\times$

$U = 0'9\times \cdot \frac{25\times 4}{0'46} \cdot 10\times = 58'08 \quad t = 13'0\ cm^2$

Sección a 1'5 m. de la parte inferior - exterior

$Md = 15.2\times 8 = 4\times$

$V = \times 66 \quad ; \quad \frac{Md}{V.d} = 0'01$

$U = 8'88$

$\alpha = 1'36 \quad ; \quad \alpha.U = 12'08 \quad t = 2'\times 2$

Sección a 4'5 m de la parte inferior - interior

$Md = 15.4\times 2 = \times 08$

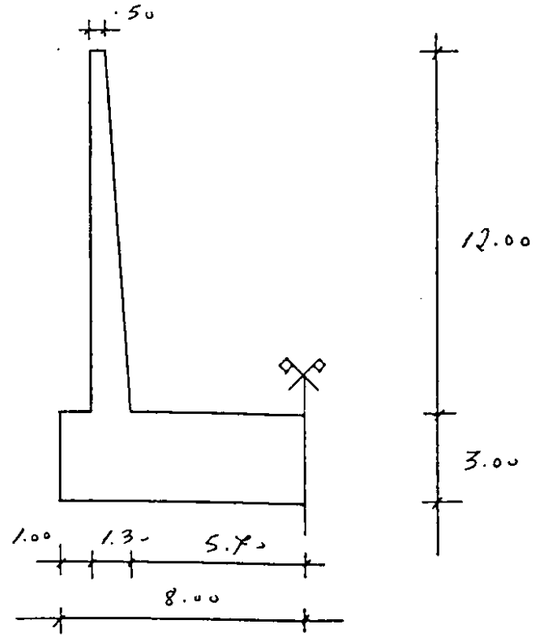
$V = \times 66 \quad ; \quad \frac{Md}{V.d} = 0'02$

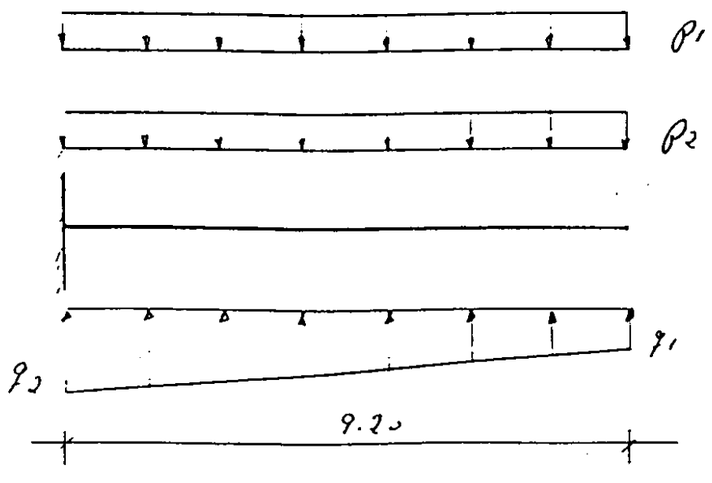
$U = 15'23$

$\alpha = 1'25 \quad ; \quad \alpha.U = 19'04 \quad t = 4'29\ cm^2$

Estudio de la sección completa en la unión entre la zona hueca y la de muros en vuelta

Estudiamos media sección.





$p_1 = 100 + 1200 \cdot 2 + 3 \cdot 2{,}5 = 32{,}50 \ t/m^2$

$p_2 = 500 \cdot 1{,}60 + 300 \cdot 2{,}5 = 15{,}50 \ t/m^2$

$q_1 = 12{,}76 \ t/m^2$

$q_2 = 19{,}61 \ "$

$$M = 10 \cdot 32{,}50 \cdot \frac{9{,}2^2}{2} + 10 \cdot 15{,}50 \cdot \frac{9{,}2^2}{2} - 80 \cdot 12{,}76 \cdot \frac{9{,}2^2}{2} - 80 \cdot 6{,}85 \cdot \frac{9{,}2^2}{6} = 5190{,}68$$

$M_d = 1{,}5 \cdot 5190{,}68 = 7786{,}03 \ m\,t$

Comprobamos la sección con una armadura de ϕ 16 c/ 2 en las paredes del muro, ϕ 25 c/ 2 en los paramentos horizontales de la zapata y ϕ 20 c/ 25 en las paredes verticales de la zapata.

LAV. ESTRIBO 2. ZAPATA Y MUROS LATERALES
****

1 COMPROBACION DE SECCIONES DE
HORMIGON ARMADO SOMETIDAS
A ESFUERZOS ESVIADOS0

CALCULO REALIZADO EN UN MICROORDENADOR
UTILIZANDO EL PROGRAMA 'CELAGOR' DESARROLLADO
EN LA SUBD. DE ESTUDIOS DE AGROMAN,E.C.,S.A.

LAV. ESTRIBO 2. ZAPATA Y MUROS LATERALES
****

1

DATOS MECANICOS0

NUMERO DE GRUPOS DE CELDAS DE ACERO
QUE SE VAN A UTILIZAR EN LA SECCION.....= 1

MODULO DE ELASTICIDAD DEL ACERO DEL GRUPO 1(T/M2)= 21000000

RESISTENCIA MINORADA DEL HORMIGON(FCD)(T/M2).....= 1500

ACERO DEL GRUPO 1

RESISTENCIA MINORADA DEL ACERO(FYD)(T/M2).....= 44340
ACERO DE DUREZA NATURAL

DEFORMACION LIMITE DEL HORMIGON (0/00)(EC).....= 3

ESFUERZOS PARA COMPROBACION EN AGOTAMIENTO (PONDERADOS):

CARGA NORMAL, N (T).....= 1
MOMENTO ALREDEDOR DEL EJE X-X, M(X)(M.T.)...=-7786.03
MOMENTO ALREDEDOR DEL EJE Y-Y, M(Y)(M.T.)...= 0

AGROMAN-ESTUDIOS 02/11/99

LAV. ESTRIBO 2. ZAPATA Y MUROS LATERALES
****

1

DATOS GEOMETRICOS DE LOS CIRCUITOS0

NUMERO DE CIRCUITOS 2

CIRCUITO	VERTICE	X	Y
1	1	1.00000	15.00000
1	2	1.50000	15.00000
1	3	2.30000	3.00000
1	4	1.00000	3.00000
2	1	0.00000	3.00000
2	2	8.00000	3.00000
2	3	8.00000	0.00000
2	4	0.00000	0.00000

LAV. ESTRIBO 2. ZAPATA Y MUROS LATERALES
****

1
DATOS GEOMETRICOS DE LAS CELDAS DE ACERO0

NUMERO DE GRUPOS DE CELDAS DE ACERO 1

GRUPO	CELDA	X	Y	S
1	1	1.05000	14.25000	0.00150700
1	2	1.05000	12.75000	0.00150700
1	3	1.05000	11.25000	0.00150700
1	4	1.05000	9.75000	0.00150700
1	5	1.05000	8.25000	0.00150700
1	6	1.05000	6.75000	0.00150700
1	7	1.05000	5.25000	0.00150700
1	8	1.05000	3.75000	0.00150700
1	9	1.50000	14.25000	0.00150700
1	10	1.60000	12.75000	0.00150700
1	11	1.70000	11.25000	0.00150700
1	12	1.80000	9.75000	0.00150700
1	13	1.90000	8.25000	0.00150700
1	14	2.00000	6.75000	0.00150700
1	15	2.10000	5.25000	0.00150700
1	16	2.20000	3.75000	0.00150700
1	17	2.00000	2.90000	0.00982000
1	18	6.00000	2.90000	0.00982000
1	19	0.10000	1.50000	0.00345400
1	20	7.90000	1.50000	0.00345400

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LAV. ESTRIBO 2. ZAPATA Y MUROS LATERALES
****

1 RESULTADOS CORRESPONDIENTES A LA
COMPROBACION DE LA SECCION EN
EN AGOTAMIENTO

1 VALORES COMPLEMENTARIOS
OBTENIDOS DEL CALCULO0

(TODOS REFERIDOS A LOS EJES INICIALES)

* ESFUERZOS DE CALCULO PARA EL PROGRAMA:

N= 1.00TN.; M(X)= -7786.03MT.; M(Y)= 0.00MT.

* AREA DE LA SECCION BRUTA DE HORMIGON (M.2).... = 34.8

* COORDENADAS DEL CENTRO PLASTICO DE COMPRESIONES DE LA SECCION:

X= 3.19864 ; Y= 3.64329

* CANTO TOTAL DE LA SECCION, H, EN LA DIRECCION
PERPENDICULAR A LA FIBRA NEUTRA OBTENIDA = 15.07405

* CANTO UTIL, D, CORRESPONDIENTE A LA FIBRA
NEUTRA OBTENIDA..... = 14.32856

LAV. ESTRIBO 2. ZAPATA Y MUROS LATERALES
****

(CONTINUACION)
---

* PARAMETROS QUE DEFINEN LA FIBRA NEUTRA OBTENIDA:

ALFA= 7.823067E-02
BETA=-96.28902

ACLARACION:

'ALFA' ES UN PARAMETRO QUE DETERMINA LA PROFUNDIDAD DE LA FIBRA NEUTRA DE ACUERDO CON LOS SIGUIENTES CRITERIOS:
1.- SIEMPRE SE VERIFICA: -1 <= 'ALFA' <= 2
2.- SI 'ALFA' = -1 LA SECCION ESTA UNIFORMEMENTE TRACCIONADA.
3.- SI -1 < 'ALFA' <= 0 LA SECCION ESTA TOTALMENTE TRACCIONADA, AUNQUE NO DE FORMA UNIFORME.
4.- SI 0 < 'ALFA' < 1 LA SECCION ESTA COMPRIMIDA SOLO PARCIALMENTE.
EN ESTE CASO, 'ALFA' COINCIDE CON LA PROFUNDIDAD RELATIVA DE LA FIBRA NEUTRA (X/H).
5.- SI 1 <= 'ALFA' < 2 LA SECCION ESTA TOTALMENTE COMPRIMIDA, AUNQUE NO DE FORMA UNIFORME.
6.- SI 'ALFA' = 2 LA SECCION ESTA UNIFORMEMENTE COMPRIMIDA.

'BETA' ES EL ANGULO QUE FORMA, CON EL SENTIDO POSITIVO DEL EJE X-X, LA SEMINORMAL A LA FIBRA NEUTRA QUE APUNTA A LA ZONA COMPRIMIDA

* TRANSFORMACIONES QUE HA REALIZADO EL PROGRAMA DURANTE EL CALCULO:

TRASLACION DEL ORIGEN AL PUNTO DE COORDENADAS X= 3.19864 ; Y= 3.64329
SIMETRIAS RESPECTO AL EJE X-X Y RESPECTO AL EJE Y-Y

LAV. ESTRIBO 2. ZAPATA Y MUROS LATERALES
****

1 RESULTADOS FINALES0

(TODOS REFERIDOS A LOS EJES INICIALES)

* ESFUERZOS DE AGOTAMIENTO DE LA SECCION:

NU= 1.43TN.	MU(X)=-11140.44MT.	MU(Y)= -3.30MT.

* ECUACION DE LA FIBRA NEUTRA CORRESPONDIENTE A LOS ESFUERZOS DE AGOTAMIENTO (NU,MU(X),MU(Y)):

X/ 1.076514E+01 + Y/ 1.186392E+00=1

* COEFICIENTE DE PROPORCIONALIDAD ENTRE LOS ESFUERZOS DE AGOTAMIENTO Y LOS DE CALCULO (PONDERADOS):

NU/N=MU(X)/M(X)=MU(Y)/M(Y)= 1.4318848

LAV. ESTRIBO 2. ZAPATA Y MUROS LATERALES
****

* DEFORMACIONES UNITARIAS MAXIMAS Y MINIMAS
EN LA SECCION AGOTADA

(+ ACORTAMIENTOS ; - ALARGAMIENTOS)

MATERIAL	FIBRA	DISTANCIA A LA FIBRA NEUTRA (M.)	DEFORMACION UNITARIA (EN 0/00)
HORMIGON	MAS ACORTADA O MENOS ALARGADA	1.17925	0.89682
	MAS ALARGADA O MENOS ACORTADA	-13.89479	-10.56694
ACERO	MAS ACORTADA O MENOS ALARGADA	-0.32267	-0.24539
	MAS ALARGADA O MENOS ACORTADA	-13.14931	-10.00000

AGROMAN-ESTUDIOS 02/11/99

LAV. ESTRIBO 2. ZAPATA Y MUROS LATERALES
****

* TENSIONES, CON LA SECCION AGOTADA, EN LOS VERTICES QUE SE ENCUENTRA
EN LA FIBRA MAS ACORTADA O MENOS ALARGADA DE LA SECCION DE HORMIGON

(+ COMP. ; - TRACC.)

VERTICE		COORDENADAS		TENSION
NO. DE CIRCUITO	NO. DE ORDEN	ABSCISA (M.)	ORDENADA (M.)	(T/M2)
2	4	0.0000	0.0000	887.08

* TENSIONES, CON LA SECCION AGOTADA, EN LOS VERTICES QUE SE ENCUENTRA
EN LA FIBRA MAS ALARGADA O MENOS ACORTADA DE LA SECCION DE HORMIGON

(+ COMP. ; - TRACC.)

VERTICE		COORDENADAS		TENSION
NO. DE CIRCUITO	NO. DE ORDEN	ABSCISA (M.)	ORDENADA (M.)	(T/M2)
1	2	1.5000	15.0000	(H.FISURADO)

LAV. ESTRIBO 2. ZAPATA Y MUROS LATERALES

* TENSIONES, CON LA SECCION AGOTADA, EN LAS CELDAS DE ACERO MAS ACORTADAS O MENOS ALARGADAS

(+ COMP. ; - TRACC.)

CELDA		COORDENADAS		TENSION
NO. DE GRUPO	NO. DE ORDEN	ABSCISA (M.)	ORDENADA (M.)	(T/M2)
1	19	0.1000	1.5000	-5153.25

* TENSIONES, CON LA SECCION AGOTADA, EN LAS CELDAS DE ACERO MAS ALARGADAS O MENOS ACORTADAS

(+ COMP. ; - TRACC.)

CELDA		COORDENADAS		TENSION
NO. DE GRUPO	NO. DE ORDEN	ABSCISA (M.)	ORDENADA (M.)	(T/M2)
1	9	1.5000	14.2500	-44340.00

3. CIMENTACIÓN ESTRIBOS VIADUCTO 1

10	Envolvente N min Pmin					
	-523.94	19.89	100.40	5.05	1.50	66.41 m
11	Envolvente N max Pmax					
	-410.52	6.61	33.34	5.05	1.50	66.41 m
12	Envolvente N max Pmin					
	-235.94	6.61	33.34	5.05	1.50	66.41 m

Proyecto: MAZUCO 1 ESTRIBO 1

COMPROBACIÓN ZAPATA 1

$Q_{tr} = 1{,}76 \cdot \left(\frac{30 \cdot 1{,}9 \cdot 22 + 200}{3} \right) + 1{,}5 \cdot \left(\frac{13 \cdot 4 + 3 \cdot 2 + 3 \cdot 6{,}3 + 3 \cdot 3}{2} \right)$

$Q_{tr} = 467{,}66 + 246 = 713\ t$

$\gamma = 1 - \frac{18{,}4}{180} \cdot \frac{3(3-1) + 2(3-1) + \sqrt{2}\,(3-1)}{2(3+1)} = 0{,}828$

$Q_{tr} = 713 \cdot 0{,}83 = 592\ t$

Fecha: ..... Referencia: ..... Hoja Nº: ..... De: .....

Programa CIM EST - Esfuerzos de Cimentación en Estribos

L.A.V. Madrid-Zaragoza. IV. Viaducto 1.

ESFUERZOS EN CIMENTACION DE ESTRIBOS

LEYENDA: N -> axil, incluyendo peso de tierras y zapata
Vy -> cortante perpendicular al eje del pte
Vz -> cortante paralelo al eje de la estr.
My -> momento según eje perp. referido a la puntera zap
Mz -> momento según eje paralelo ref al eje de la estr
exc_z_N -> excentricidad apoyo pte resp. puntera zap.
Pt -> peso de las tierras
exc_z_Pt -> exectricidad carga de tierras
Pzp -> peso de la zapata
exc_z_Pzp -> exectricidad peso zapata

Estr		exc_z_N [m]	Pt [t]	exc_z_Pt [m]	Pzp [t]	exc_z_Pzp [m]
Estr			P_propio [t]	exc_P_propio [m]		
Estr	hip	N [t]	Vy [t]	Vz [t]	My [mt]	Mz [mt]
1		1.800	-976.000	6.680	-960.000	6.000
			-322.460	4.650		
	1	-3265.520	-0.580	-486.611	-14222.386	-89.150
	2	-2794.760	0.420	-458.365	-13375.018	23.610
	3	-3026.380	-15.810	-472.262	-13791.934	-689.850
	4	-2983.090	15.820	-469.665	-13714.012	689.800
	5	-2867.850	0.000	-462.751	-13506.580	-0.010
	6	-2867.850	0.000	-462.751	-13506.580	-0.010
	7	-2867.850	0.000	-462.751	-13506.580	-0.010
	8	-2867.850	0.000	-462.751	-13506.580	-0.010
	9	-3022.650	-0.340	-472.039	-13785.220	-927.050
	10	-3070.710	0.340	-474.922	-13871.728	926.970
2		2.050	-3179.730	16.925	-2004.000	12.525
			-933.680	9.090		
	1	-7175.130	-3.490	2667.880	105085.678	59.120
	2	-6678.560	5.170	-2420.110	71860.633	-22.990
	3	-6906.320	-15.160	2667.880	104534.618	-488.210
	4	-6937.510	16.240	-2420.110	72391.481	460.140
	5	-6915.410	5.450	-2420.120	72346.112	582.710
	6	-6884.040	-4.380	2667.890	104489.007	-610.350
	7	-6915.410	5.450	-2420.120	72346.112	582.710
	8	-6884.040	-4.380	2667.890	104489.007	-610.350
	9	-6983.330	-1.540	2667.870	104692.425	-830.340
	10	-6902.830	2.610	-2420.110	72320.387	801.780

Programa CIM EST - Esfuerzos de Cimentación en Estribos

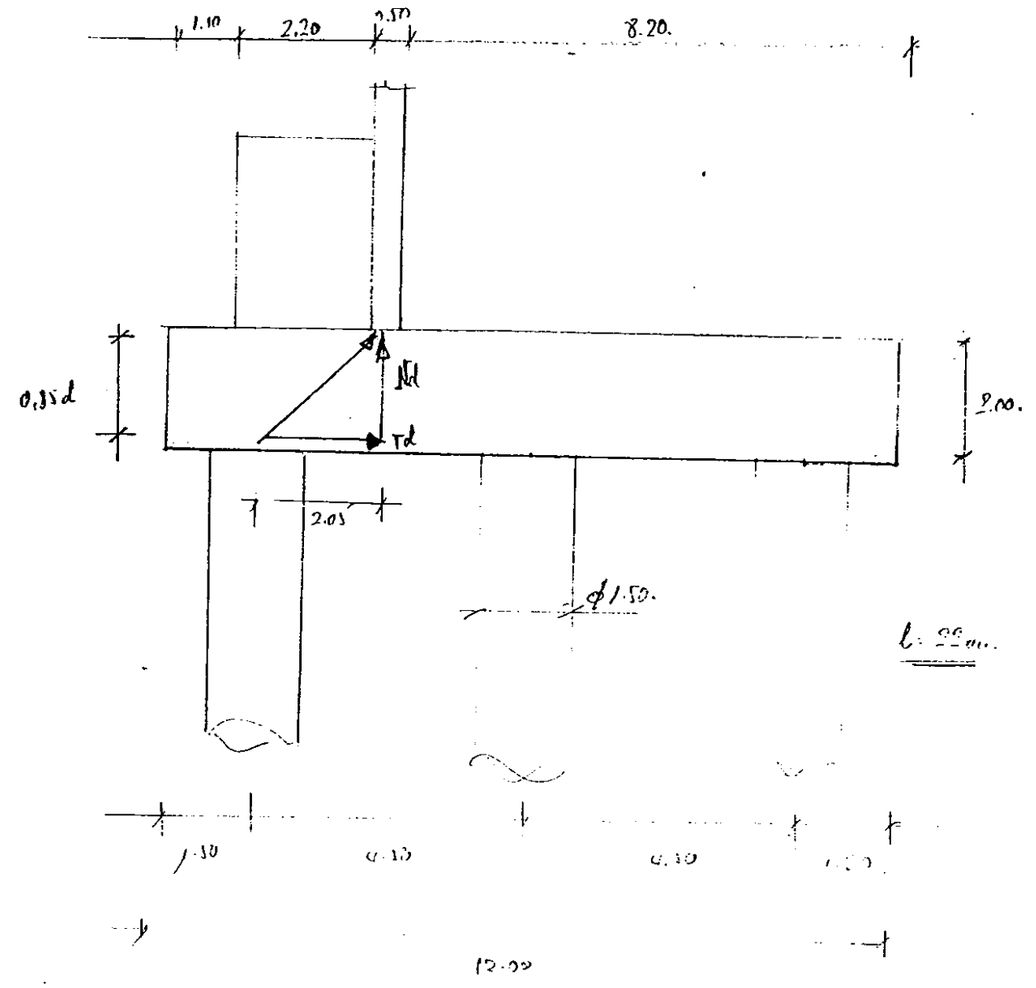
).A.V. Madrid-Zaragoza. IV. Viaducto 1.

COMPROBACION DE CARGAS VERTICALES EN PILOTES. ESTRIBOS.

LEYENDA: n_f = nº de filas de pilotes
npil = nº de pilotes en una fila
dfil = distancia de la fila al borde de la puntera (dir z)
sepf = separación de los pilotes en la fila (dir y)
ϕ = diámetro de los pilotes
lp = longitud de los pilotes
Pmax = carga soportada por el pilote más cargado
Pmin = carga soportada por el pilote menos cargado
Pu = carga admisible del pilote
* = Pmax > Pu
! = Pmin < 0

Est.	nf						
	npil1	npil2	npil3	npil4			
	dfil1	dfil2	dfil3	dfil4			
	[m]	[m]	[m]	[m]			
	sepf1	sepf2	sepf3	sepf4			
	[m]	[m]	[m]	[m]			
hip	N	Vy	Vz	My	Mz	ϕ	lp
	[t]	[t]	[t]	[mt]	[mt]	[m]	[m]
	Pmax	Pmin	Pu				
	[t]	[t]	[t]				
1	3						
	3	3	3				
	1.50	6.00	10.50				
	6.00	6.00	6.00				
1	-3265.52	-0.58	-486.61	5370.73	-89.15	1.50	22.01
	564.23	161.44	564.96				
2	-2794.76	0.42	-458.37	3393.54	23.61	1.50	22.01
	436.87	184.19	564.96				
3	-3026.38	-15.81	-472.26	4366.35	-689.85	1.50	22.01
	517.14	155.39	564.96				
4	-2983.09	15.82	-469.67	4184.53	689.80	1.50	22.01
	505.60	157.31	564.96				
5	-2867.85	0.00	-462.75	3700.52	-0.01	1.50	22.01
	455.71	181.59	564.96				
6	-2867.85	0.00	-462.75	3700.52	-0.01	1.50	22.01
	455.71	181.59	564.96				
7	-2867.85	0.00	-462.75	3700.52	-0.01	1.50	22.01
	455.71	181.59	564.96				
8	-2867.85	0.00	-462.75	3700.52	-0.01	1.50	22.01
	455.71	181.59	564.96				
9	-3022.65	-0.34	-472.04	4350.68	-927.05	1.50	22.01
	522.74	148.96	564.96				
10	-3070.71	0.34	-474.92	4552.53	926.97	1.50	22.01
	535.55	146.83	564.96				

Proyecto: VIADUCTO 1. TORAZO



$\frac{Nd}{Td} = \frac{0.85 \times 1.90}{2.05} = \frac{1.61}{2.05} = P \quad Td = \frac{2.05}{1.61} \cdot Nd = \frac{2.05}{1.61} \cdot 565 \times 1.50 = 1045\,t$

$As = 243\,cm^2 \rightarrow 30\Phi 32$

Fecha: Referencia: Hoja Nº: De:

DATOS CONTORNO: (ID=A)

COORDENADAS: (Optimizado Nº de nudos)

Nudo	X-Coord [m]	Y-Coord [m]	Nudo	X-Coord [m]	Y-Coord [m]	Nudo	X-Coord [m]	Y-Coord [m]
Puntos contorno								
1	0.000	0.000	18	0.000	8.500	433	12.000	0.000
450	12.000	8.500						

CANTOS Y MATERIALES:

- d : Canto losa
- Emod : Módulo de elasticidad
- Nue : Poisson
- Adir : Dirección x para salida de resultados
- Mdir : Dirección principales para materiales
- d11.. : Coeficientes de ortotropia
- h : Canto nervio
- dPlt : Canto de la losa al lado del nervio (0 = adoptar)
- dÜbr : Canto del espesor superior

[1: Isótropo d = 2.000 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

APOYOS PUNTUALES/linealES

Id	tipo	vz [kN/m2]	rx [kNm/m]	ry [kNm/m]	Angulo [Grados]

Apoyo lineal:

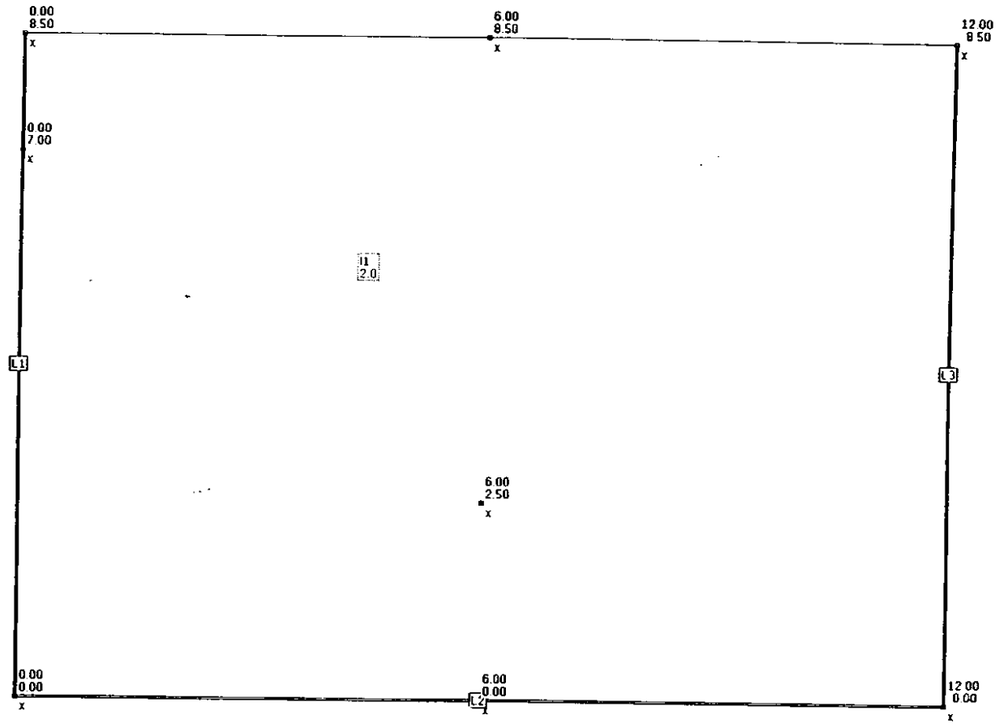
L1: apoyado bloqueado libre bloqueado -90.000
Nu: L11 = 18 L12 = 17 L13 = 16 L14 = 15
L15 = 14 L16 = 13 L17 = 12 L18 = 11
L19 = 10 L110 = 9 L111 = 8 L112 = 7
L113 = 6 L114 = 5 L115 = 4 L116 = 3
L117 = 2 L118 = 1

L2: apoyado bloqueado libre bloqueado 0.000
Nu: L21 = 1 L22 = 19 L23 = 37 L24 = 55
L25 = 73 L26 = 91 L27 = 109 L28 = 127
L29 = 145 L210 = 163 L211 = 181 L212 = 199
L213 = 217 L214 = 235 L215 = 253 L216 = 271
L217 = 289 L218 = 307 L219 = 325 L220 = 343
L221 = 361 L222 = 379 L223 = 397 L224 = 415
L225 = 433

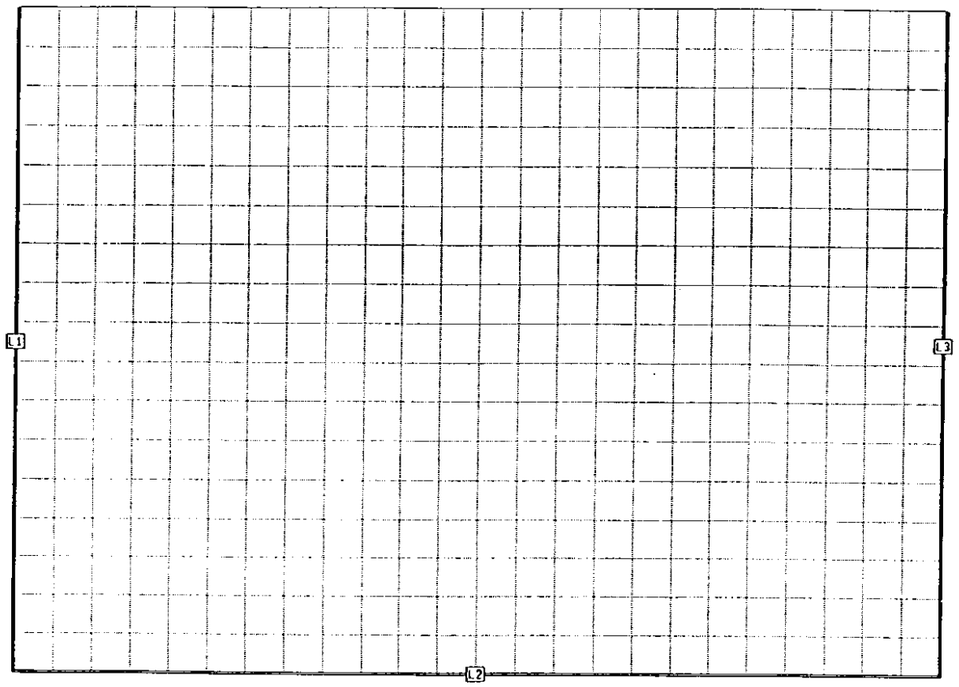
L3: apoyado bloqueado libre bloqueado 90.000
Nu: L31 = 433 L32 = 434 L33 = 435 L34 = 436
L35 = 437 L36 = 438 L37 = 439 L38 = 440
L39 = 441 L310 = 442 L311 = 443 L312 = 444
L313 = 445 L314 = 446 L315 = 447 L316 = 448
L317 = 449 L318 = 450

Id	tipo	vz [kN/m2]	rx [kNm/m]	ry [kNm/m]	Angulo [Grados]

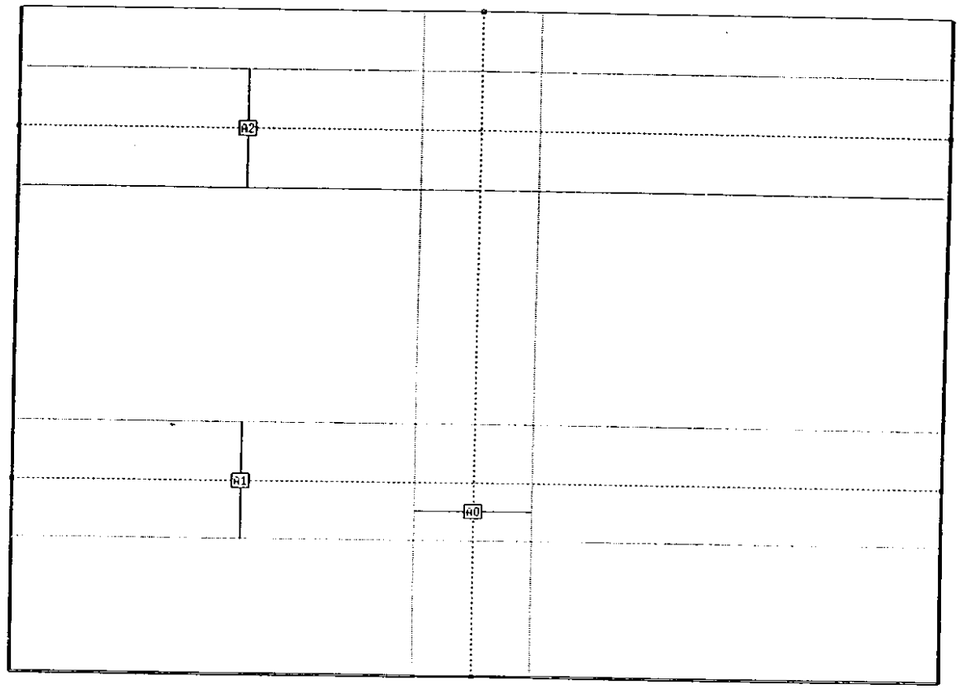
Escala 1 : 78.2
Geometrie (ID=A)
- Apoyo puntual o lineal
- Puntos aux.
- ID zona material y canto [m]
- Coord. de puntos auxiliares [m]



Escala 1 : 78.2
Malla (ID=A)



Escala 1 : 78.2
Secciones
- Apoyo puntual o lineal
- Secciones para esfuerzos/Arm. en dir. del eje
  Integrado sobre el ancho



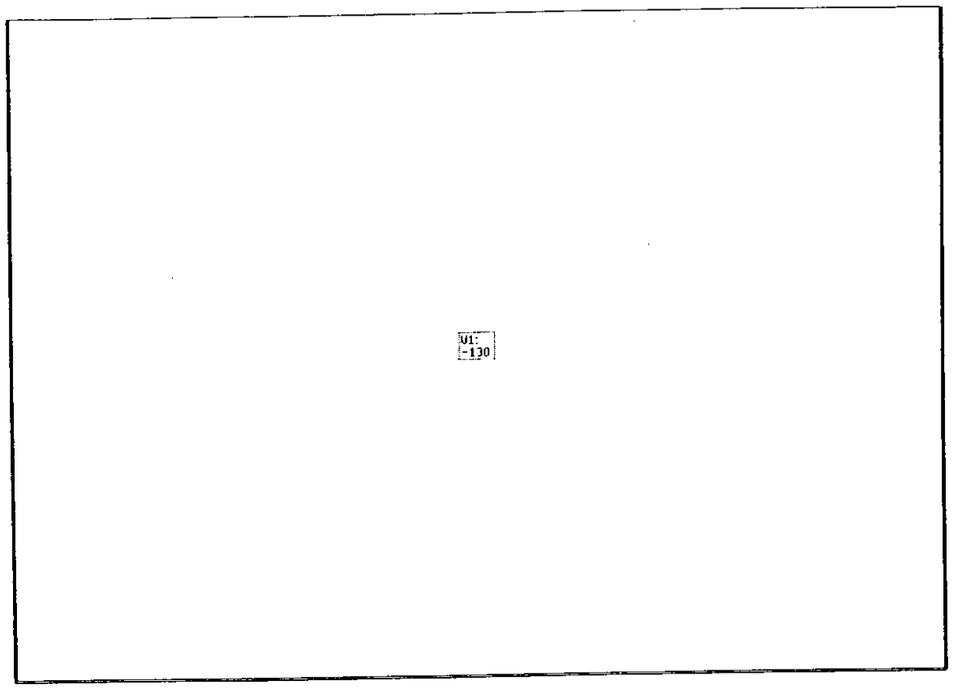
HIPOTESIS 1: "Carga tierras"
==========

CARGAS DISTRIB:

ID	Tipo	Dim.	Valor	Nº Ptos.	Lsuma [kN]
V1	dist.	kN/m2	-130.00	4	-13260.0
				Suma	-13260.0

Suma carg [kN] Hipótesis 1: -13260.0

Escala 1 : 78.2
Hipótesis 001: "Carga tierras" (Suma cargas= -13260.0 kN) (Suma cargas= -13260.0 kN)
- Valores cargas dist.: E=Peso propio [kN/m3]
  V=Carga distribuida [kN/m2], K=Curvatura [m-1]
- Apoyo puntual o lineal



HIPOTESIS 2: "Carga pilote"

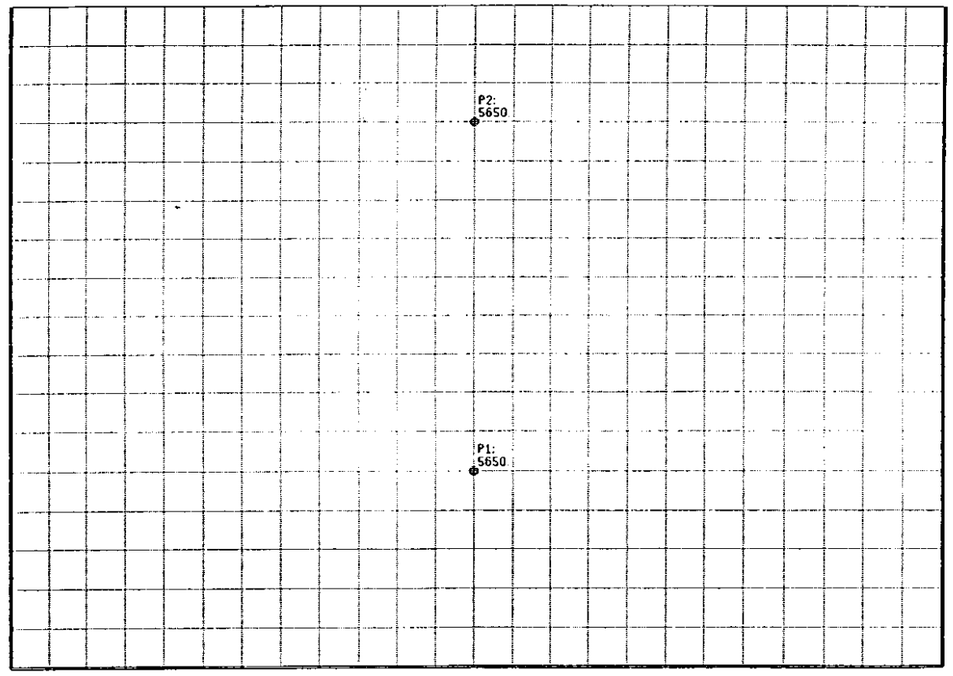
CARGA PUNTUAL:

ID	KZ [kN]	RX [kNm]	RY [kNm]	X [m]	Y [m]	Lsuma [kN]
P1 :	5650.000	0.0	0.0	6.000	2.500	5650.000
P2 :	5650.000	0.0	0.0	6.000	7.000	5650.000

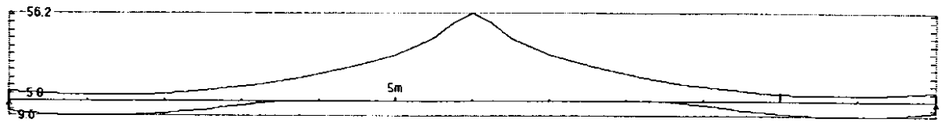
ID	KZ [kN]	RX [kNm]	RY [kNm]	X [m]	Y [m]	Lsuma [kN]
					Suma	11300.0

Suma carg [kN] Hipótesis 2: 11300.0

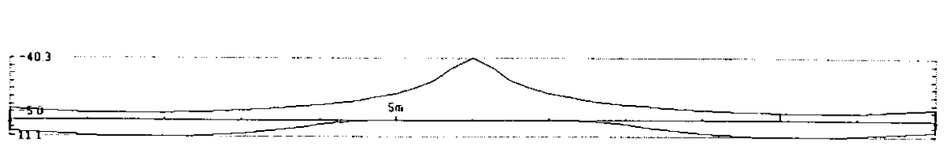
Escala 1 : 78.2
Hipótesis 002: "Carga pilote" (Suma cargas= 11300.0 kN) (Suma cargas= 11300.0 kN)
- Apoyo puntual o lineal
- cargas puntuales
  valores: PZ [kN]



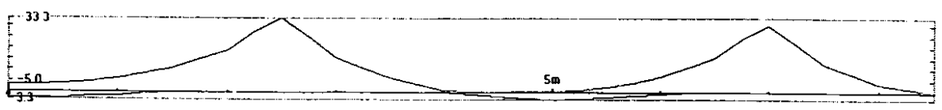
Escala 1 : 78.7
Sec. long. "A2" B= 1.50m : 0.00 7.00.. 12.00 7.00
ARMADURAS: [cm2] (B03)
Carga: S1 1.5 U2 1.5
EH: H250, AEH500
Fac. de amp.: 0.02000



Escala 1 : 78.6
Sec. long. "A1" B= 1.50m : 0.00 2.50.. 12.00 2.50
ARMADURAS: [cm2] (B03)
Carga: S1 1.5 U2 1.5
EH: H250, AEH500
Fac. de amp.: 0.02000



Escala 1 : 55.5
Sec. long. "A0" B= 1.50m : 6.00 0.00.. 6.00 8.50
ARMADURAS: [cm2] (B03)
Carga: S1 1.5 U2 1.5
EH: H250, AEH500
Fac. de amp.: 0.02000



PRONTUARIO INFORMATICO DEL HORMIGON. PROGRAMA II3

Obra : GIF. P2
Fecha: 30/6/1998
Hora : 11:55

CALCULO A PUNZONAMIENTO

1. Datos

- Materiales:

fck [kp/cm²] = 250
fyk [kp/cm²] = 5100
GammaC = 1.50
GammaS = 1.15

- Tipo de Pilar:

pilar circular centrado

- Sección

ϕ [cm] = 150.0
h [cm] = 200.0
r [cm] = 5.0

2. Resultados tensiones

Vpd [Mp] = 847.50
Md1 [m·Mp] = 0.00
Md2 [m·Mp] = 0.00

σadm [kp/cm²] = 14.33
σmax [kp/cm²] = 4.01 no cumple armadura de punzonamiento

Cálculo de portico plano (2-D)

****
* DATOS - ESTRUCTURA *
****

Titulo proy.: L.A.V. Viaducto 1. E-1. Modelo de pilote

Unidades : M , T

D A T O S D E N U D O S:(11 Nudo)

Nudo	X [M]	Y [M]	Z [M]	Apoyo V XYZ	Apoyo R XYZ	Especial
1	0.00000	0.00000	0.00000	B B	B	
2	0.00000	0.00000	1.00000	S F	F	
3	0.00000	0.00000	2.00000	S F	F	
4	0.00000	0.00000	3.00000	S F	F	
5	0.00000	0.00000	4.00000	S F	F	
6	0.00000	0.00000	5.00000			
7	0.00000	0.00000	6.00000			
8	0.00000	0.00000	7.00000			
9	0.00000	0.00000	8.00000			
10	0.00000	0.00000	9.00000			
11	0.00000	0.00000	10.00000	F B	B	

NUDOS CON APOYO ELASTICO: ("B"=Bloqueado "f"=Libre)

Nudo	D-X [T/M]	D-Y [T/M]	D-Z [T/M]	R-X [TM/ARC]	R-Y [TM/ARC]	R-Z [TM/ARC]
2	5.400E+03		F		F	
3	5.400E+03		F		F	
4	5.400E+03		F		F	
5	2.700E+03		F		F	

D A T O S B A R R A S : (10 Barras)

Barra	Incidencias Inicio	Fin	Long.Barras [M]	Nombre-sec. (Cant.var)	Articulaciones Inicio	Fin	Especial
1*	1	2	1.00000	150			
2*	2	3	1.00000	150			
3*	3	4	1.00000	150			
4*	4	5	1.00000	150			
5*	5	6	1.00000	150			
6*	6	7	1.00000	150			
7*	7	8	1.00000	150			
8*	8	9	1.00000	150			
9*	9	10	1.00000	150			
10*	10	11	1.00000	150			

Las barras marcadas con "*" son verticales. Sus ejes locales son tales que la dirección 'y' resulta coincidente con la global siempre y cuando no se haya rotado con la instruction 'O_ORIENTACION'.

CARACTERISTICAS DE SEC.

Nombre Sec.	Ax [M2] / zi [M1]	Iy [M4] / zs [M1]	Fz [M2]
150	1.7470E+00 / -0.7500	2.4289E-01 / 0.7500	Undef

MATERIALES:

Barra (hasta barra)	E-Módulo [T/ M2]	G-Módulo [T/ M2]
1 .. 10	2.1000E+06	9.0000E+05

STS-cálculo ok
Max free mem:129kB

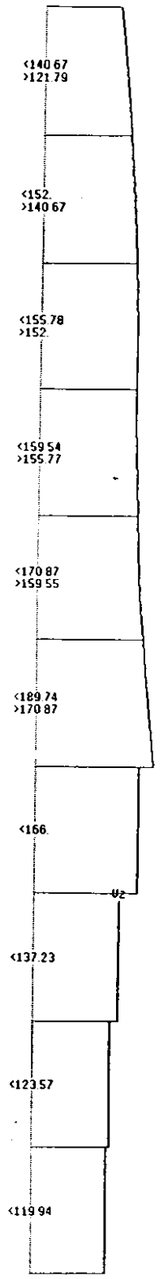
==========
Hipótesis 1: Empuje horizontal terreno blan
==========

Tipo de carga	Valor(a)	Distancia Valor(b)	Números nudos/barras	
Fuerza X gl lineal	0	5.033	Barra	8
uerza X gl lineal	5.033	10.067	Barra	9
Fuerza X gl lineal	10.067	15.100	Barra	10
Fuerza X gl lineal	15.100	10.067	Barra	5
Fuerza X gl lineal	10.067	5.033	Barra	6
Fuerza X gl lineal	5.033	0	Barra	7

==========
Hipótesis 2: Tiro estribo
==========

Tipo de carga	Distancia Valor(a)	Valor(b)	Números nudos/barras	
Fuerza X	81.200		Nudo	11

Escala 1 : 48.2
Esfuerzos, Comb.Hip. AD, Vista "STANDARD"
- Esfuerzo cortante Vz , Ampliación 5.00E-03
  min: 1.20E+02 max: 1.90E+02 [t]
- Rótulo Esfuerzo cortante Vz [t]



$V_{cu} = 5\sqrt{f_{cd}} \cdot b_d$

$b_d = \frac{\pi d^2}{4} \times 0.8 = \frac{\pi \times 1.5^2}{4} \times 0.8 = 1.41\ m^2$

$V_{cu} = 5\sqrt{\frac{250}{1.5}} \cdot 1.41 = 91\ t$

$V_{su} = 189 - 91 = 98\ t \rightarrow A_\alpha = \frac{98}{4.2 \cdot 0.9 \cdot 1.4} = 18.1\ cm^2$

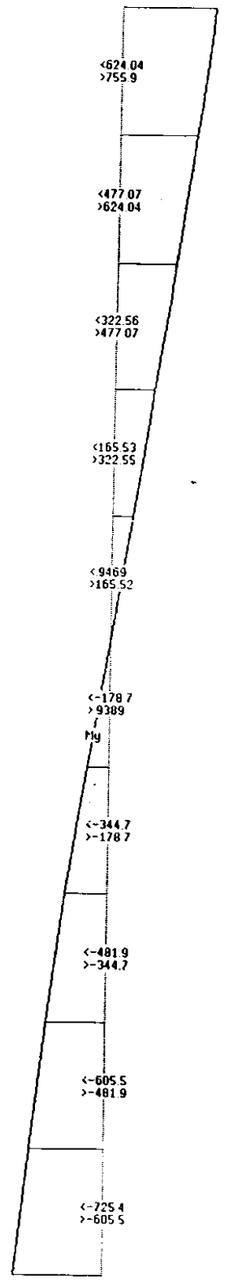
↓

C ϕ16 c/c.20

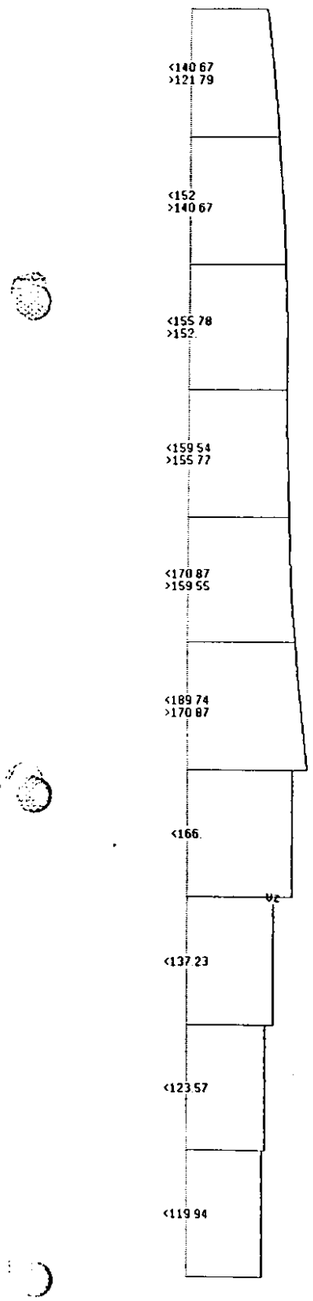
ESPECIFICACION CARGASAD '' Ejec. "0007"

Hipótesis	Factor	Etapa	Título
1	1.5000		Empuje horizontal terreno blan
2	1.5000		Tiro estribo

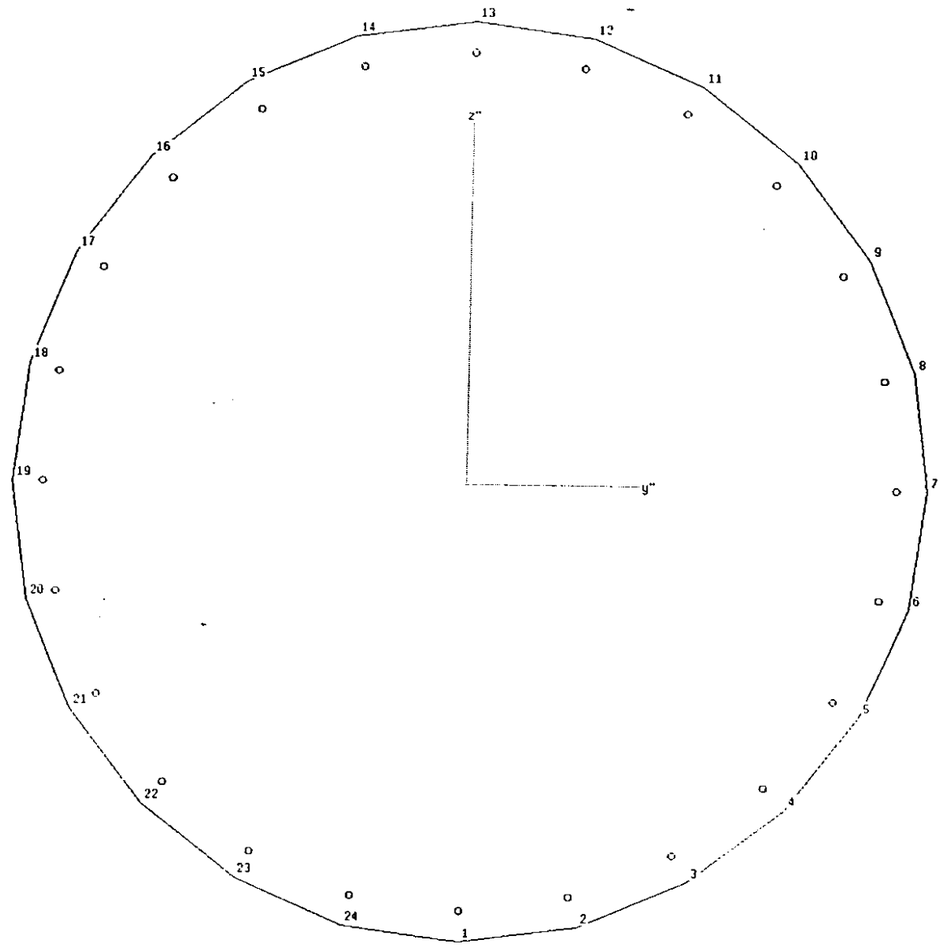
Escala 1 : 48.2
Esfuerzos, Comb.Hip. AD, Vista "STANDARD"
- Momento flector My , Ampliación 1.00E-03
  min: -7.25E+02 max: 7.56E+02 [tm]
- Rótulo Momento flector My [tm]



Escala 1 : 48.2
Esfuerzos, Comb.Hip. AD, Vista "STANDARD"
- Esfuerzo cortante Vz , Ampliación 5.00E-03
  min: 1.20E+02 max: 1.90E+02 [t]
- Rótulo Esfuerzo cortante Vz [t]



Mstb. 1 : 10.0



Sección :"150" Armadura :"B1"
Tipo : tipo viga/ Círculo/tubo Unidades :[cm]
Material :"H250"

Diámetro exterior = 150.000 cm

Características mecánicas de la sección:
Area : Ax= 1.747 [m2]
Momentos de inercia : Iy= 0.242889 [m4] Iz= 0.242889 [m4]
Inercia a torsión : Ix= 0.497010 [m4]

Posición del centro de gravedad: ys= 0.000 [m] zs= 0.750000 [m]

	I:	R=dist.borde [m]	W=I/R [m3]	W/Ax [m]
izq.	Iz	-0.750	-0.323852	0.185
dch.	Iz	0.750	0.323852	-0.185
abajo	Iy	-0.750	-0.323852	0.185

...riba Iy 0.750 0.323852 -0.185

Armadura: "B1"

Nº	Nom.mat	Cod.dim.	Area [cm2]	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]
1	AEH500	(2)	1.00	0.00	5.00		
2	AEH500	(2)	1.00	18.12	7.39		
3	AEH500	(2)	1.00	35.00	14.38		
4	AEH500	(2)	1.00	49.50	25.50		
5	AEH500	(2)	1.00	60.62	40.00		
6	AEH500	(2)	1.00	67.61	56.88		
7	AEH500	(2)	1.00	70.00	75.00		
8	AEH500	(2)	1.00	67.61	93.12		
9	AEH500	(2)	1.00	60.62	110.00		
10	AEH500	(2)	1.00	49.50	124.50		
11	AEH500	(2)	1.00	35.00	135.62		
12	AEH500	(2)	1.00	18.12	142.61		
13	AEH500	(2)	1.00	0.00	145.00		
14	AEH500	(2)	1.00	-18.12	142.61		
15	AEH500	(2)	1.00	-35.00	135.62		
16	AEH500	(2)	1.00	-49.50	124.50		
17	AEH500	(2)	1.00	-60.62	110.00		
18	AEH500	(2)	1.00	-67.61	93.12		
19	AEH500	(2)	1.00	-70.00	75.00		
20	AEH500	(2)	1.00	-67.61	56.88		
21	AEH500	(2)	1.00	-60.62	40.00		
22	AEH500	(2)	1.00	-49.50	25.50		
23	AEH500	(2)	1.00	-35.00	14.38		
24	AEH500	(2)	1.00	-18.12	7.39		
	Total:		24.00	Cuantía de armadura: 0.137 [o/o]			

Cód. dimensionamiento: (0) = As constante
Cód. dimensionamiento: (1) = Aumentar As en zonas comprimida y traccionada
Cód. dimensionamiento: (2) = Aumentar As solo en zona traccionada

¡No se han definido valores para el cálculo a cortante!

...acterísticas del material:

Nom.Mat.	Módulo E [N/mm2]	0.85*fcd,fyd [N/mm2]	eps-fc [o/oo]	fct [N/mm2]	fcv [N/mm2]	fcw,mín [N/mm2]
"H250"	30000.0	-14.160	-2.000	0.0	0.646000	25.000
"AEH500"	210000.0	443.470				

Leyenda:
fcd,fyd resistencia de cálculo del hormigón,acero
eps-fc deformación al final de la parábola (fig.2.3, cap.2.2)
fct resistencia de cálculo a tracción del hormigón
fcv resistencia virtual de cálculo del hormigón a esfuerzo cortante

Dimensionamiento : Viga "150"/"B1"

Esfuerzos (Rotura) Unidades : [kNm]

N	Vy	Vz	Mx	My	Mz	Alpha
-3600.000				7559.000		45.0

Armadura Longitudinal:	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]	dado [cm2]	dimens. [cm2]	As-nuevo [cm2]
1 "AEH500"	0.0	5.0			1.00	17.42	17.42
2 "AEH500"	18.1	7.4			1.00	17.42	17.42
3 "AEH500"	35.0	14.4			1.00	17.42	17.42
4 "AEH500"	49.5	25.5			1.00	17.42	17.42
5 "AEH500"	60.6	40.0			1.00	17.42	17.42
6 "AEH500"	67.6	56.9			1.00	17.42	17.42
7 "AEH500"	70.0	75.0			1.00	-	1.00
8 "AEH500"	67.6	93.1			1.00	-	1.00
9 "AEH500"	60.6	110.0			1.00	-	1.00
10 "AEH500"	49.5	124.5			1.00	-	1.00
11 "AEH500"	35.0	135.6			1.00	-	1.00
12 "AEH500"	18.1	142.6			1.00	-	1.00
13 "AEH500"	0.0	145.0			1.00	-	1.00
14 "AEH500"	-18.1	142.6			1.00	-	1.00
15 "AEH500"	-35.0	135.6			1.00	-	1.00
16 "AEH500"	-49.5	124.5			1.00	-	1.00
17 "AEH500"	-60.6	110.0			1.00	-	1.00
18 "AEH500"	-67.6	93.1			1.00	-	1.00
19 "AEH500"	-70.0	75.0			1.00	-	1.00
20 "AEH500"	-67.6	56.9			1.00	17.42	17.42
21 "AEH500"	-60.6	40.0			1.00	17.42	17.42
22 "AEH500"	-49.5	25.5			1.00	17.42	17.42
23 "AEH500"	-35.0	14.4			1.00	17.42	17.42
24 "AEH500"	-18.1	7.4			1.00	17.42	17.42

Cuantía arm. 1.17 [o/o] Suma 204.63
=========

Deformaciones y tensiones extremas (Rotura):

1	Coordenadas y [cm]	z [cm]	Eps [o/oo]	Estado-II [N/mm2]	
Hormigón-Min	0.00	150.00	-3.500	-14.160	"H250"
Armadura-Min	-0.00	145.00	-3.278	-443.470	"AEH500"
Hormigón-Max	0.00	0.00	3.153	0.000	"H250"
Armadura-Max	-0.00	5.00	2.931	443.470	"AEH500"

Fibra neutra zn 71.09 cm yn 0.00 cm Angulo 0.0
Ancho zona comprim. 78.91 cm Zona comprimida/Canto útil 0.61

L.A.V. Madrid-Barcelona-Frontera Francesa
Viaducto 1. Estribo 1. Muros

DATOS CONTORNO: (ID=A)
==========

COORDENADAS: (Optimizado Nº de nudos)

Nudo	X-Coord [m]	Y-Coord [m]	Nudo	X-Coord [m]	Y-Coord [m]	Nudo	X-Coord [m]	Y-Coord [m]
Puntos contorno								
1	0.000	0.000	21	0.000	6.500	316	5.500	0.000
327	5.500	3.670	405	9.000	6.000	407	9.000	6.500

CANTOS Y MATERIALES:

---

d : Canto losa
Emod : Módulo de elasticidad
Nue : Poisson
Adir : Dirección x para salida de resultados
Mdir : Dirección principales para materiales
d11.. : Coeficientes de ortotropia
h : Canto nervio
dPlt : Canto de la losa al lado del nervio (0 = adoptar)
dÜbr : Canto del espesor superior
Dir : Dirección del eje del nervio

I1: Isótropo d = 0.525 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I2: Isótropo d = 0.600 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I3: Isótropo d = 0.700 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I4: Isótropo d = 0.800 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I5: Isótropo d = 0.900 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I6: Isótropo d = 1.000 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

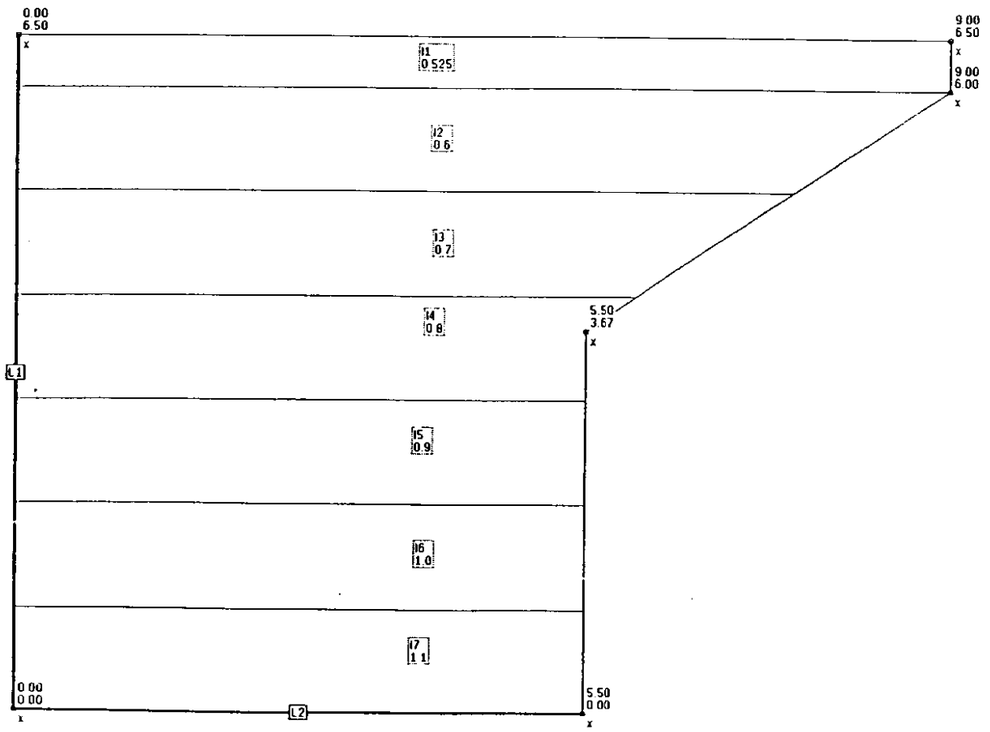
I7: Isótropo d = 1.100 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

APOYOS PUNTUALES/líneales

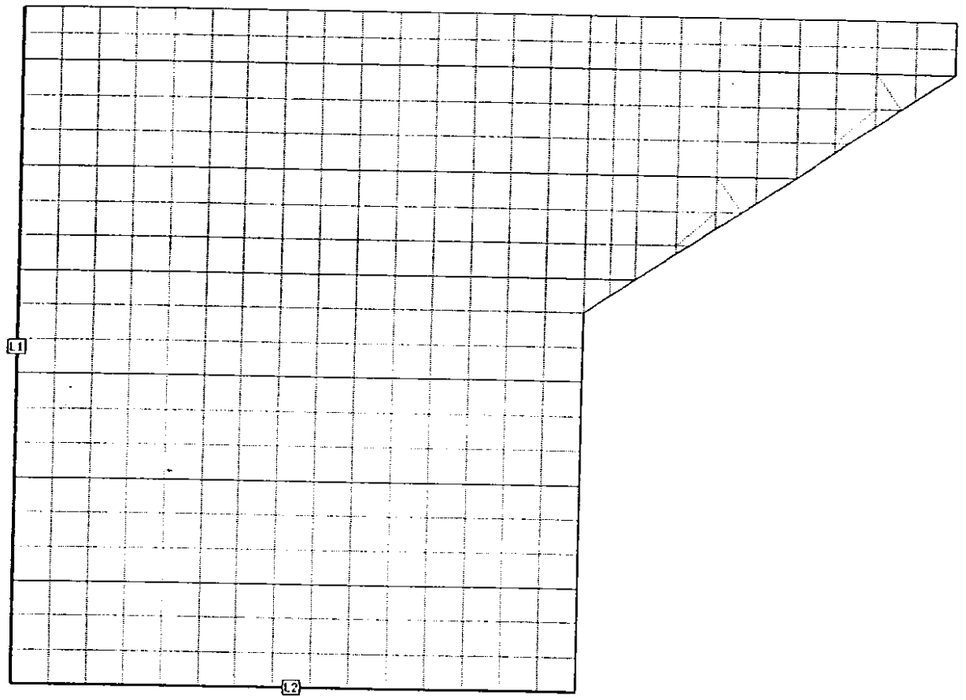
Id	tipo	vz [kN/m2]	rx [kNm/m]	ry [kNm/m]	Angulo [Grados]
Apoyo lineal:					
L1:	empotrado	bloqueado	bloqueado	bloqueado	-90.000
	Nu:	L11 = 21	L12 = 20	L13 = 19	L14 = 18
		L15 = 17	L16 = 16	L17 = 15	L18 = 14
		L19 = 13	L110 = 12	L111 = 11	L112 = 10
		L113 = 9	L114 = 8	L115 = 7	L116 = 6

Id	tipo	vz [kN/m2]	rx [kNm/m]	ry [kNm/m]	Angulo [Grados]
		L117 = 5	L118 = 4	L119 = 3	L120 = 2
		L121 = 1			
L2:	empotrado	bloqueado	bloqueado	bloqueado	0.000
	Nu:	L21 = 1	L22 = 22	L23 = 43	L24 = 64
		L25 = 85	L26 = 106	L27 = 127	L28 = 148
		L29 = 169	L210 = 190	L211 = 211	L212 = 232
		L213 = 253	L214 = 274	L215 = 295	L216 = 316

Escala 1 : 58.7
Geometrie (ID=A)
- Zonas de materiales
- Apoyo puntual o lineal
- Puntos aux.
- ID zona material y canto [m]
- Coord. de puntos auxiliares [m]



Escala 1 : 58.7
Malla (ID=A)



HIPOTESIS 1: "Empuje tierras"
==========

CARGA lineal:

ID	Sitio	carga [kN/m]	Mom [kNm/m]	X [m]	Y [m]	Lsuma [kN]
L1	: Inicio	0.0	-	0.000	6.500	-25.81
	Fin	-7.94	-	0.000	0.000	
L2	: Inicio	0.0	-	0.367	6.500	-51.58
	Fin	-15.87	-	0.367	0.000	
L3	: Inicio	0.0	-	0.733	6.500	-51.58
	Fin	-15.87	-	0.733	0.000	
L4	: Inicio	0.0	-	1.100	6.500	-51.58
	Fin	-15.87	-	1.100	0.000	

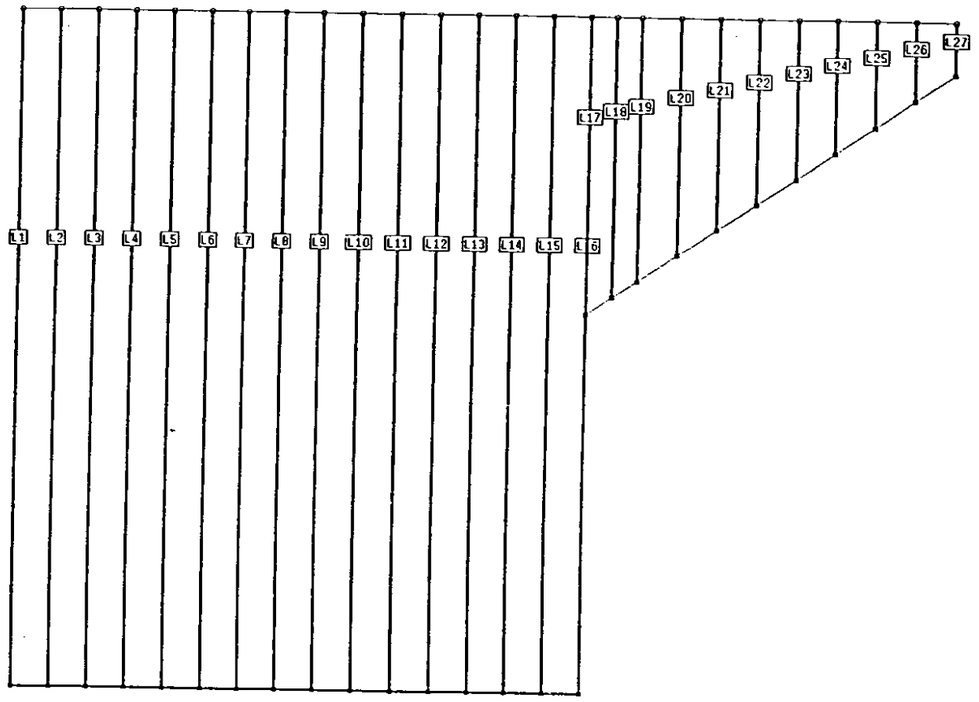
L.A.V. Madrid-Barcelona-Frontera Francesa
Viaducto 1. Estribo 1. Muros

ID	Sitio	carga [kN/m]	Mom [kNm/m]	X [m]	Y [m]	Lsuma [kN]
L5	: Inicio	0.0	-	1.467	6.500	-51.58
	Fin	-15.87	-	1.467	0.000	
L6	: Inicio	0.0	-	1.833	6.500	-51.58
	Fin	-15.87	-	1.833	0.000	
L7	: Inicio	0.0	-	2.200	6.500	-51.58
	Fin	-15.87	-	2.200	0.000	
L8	: Inicio	0.0	-	2.567	6.500	-51.58
	Fin	-15.87	-	2.567	0.000	
L9	: Inicio	0.0	-	2.933	6.500	-51.58
	Fin	-15.87	-	2.933	0.000	
L10	: Inicio	0.0	-	3.300	6.500	-51.58
	Fin	-15.87	-	3.300	0.000	
L11	: Inicio	0.0	-	3.667	6.500	-51.58
	Fin	-15.87	-	3.667	0.000	
L12	: Inicio	0.0	-	4.033	6.500	-51.58
	Fin	-15.87	-	4.033	0.000	
L13	: Inicio	0.0	-	4.400	6.500	-51.58
	Fin	-15.87	-	4.400	0.000	
L14	: Inicio	0.0	-	4.767	6.500	-51.58
	Fin	-15.87	-	4.767	0.000	
L15	: Inicio	0.0	-	5.133	6.500	-51.58
	Fin	-15.87	-	5.133	0.000	
L16	: Inicio	0.0	-	5.500	6.500	-25.81
	Fin	-7.94	-	5.500	0.000	
L17	: Inicio	0.0	-	5.500	6.500	-3.17
	Fin	-2.24	-	5.500	3.670	
L18	: Inicio	0.0	-	5.748	6.500	-5.62
	Fin	-4.22	-	5.748	3.835	
L19	: Inicio	0.0	-	5.996	6.500	-10.10
	Fin	-8.08	-	5.996	4.000	
L20	: Inicio	0.0	-	6.371	6.500	-6.18
	Fin	-5.49	-	6.371	4.250	
L21	: Inicio	0.0	-	6.747	6.500	-4.88
	Fin	-4.88	-	6.747	4.500	
L22	: Inicio	0.0	-	7.122	6.500	-3.74
	Fin	-4.27	-	7.122	4.750	
L23	: Inicio	0.0	-	7.498	6.500	-2.74
	Fin	-3.66	-	7.498	5.000	
L24	: Inicio	0.0	-	7.873	6.500	-1.91
	Fin	-3.05	-	7.873	5.250	
L25	: Inicio	0.0	-	8.249	6.500	-1.22
	Fin	-2.44	-	8.249	5.500	
L26	: Inicio	0.0	-	8.624	6.500	-0.68663
	Fin	-1.83	-	8.624	5.750	
L27	: Inicio	0.0	-	9.000	6.500	-0.15250
	Fin	-0.61000	-	9.000	6.000	
					Suma	-814.09

Suma carg [kN] Hipótesis 1: -814.09

L.A.V. Madrid-Barcelona-Frontera Francesa
Viaducto 1. Estribo 1. Muros

Escala 1 : 58.7
Hipótesis 001: "Empuje tierras" (Suma cargas= -814.09 kN)
- Apoyo puntual o lineal
- Cargas linealse
  Valores p: distr.linealmente [kN/m]



HIPOTESIS 2: "Sobrecarga"

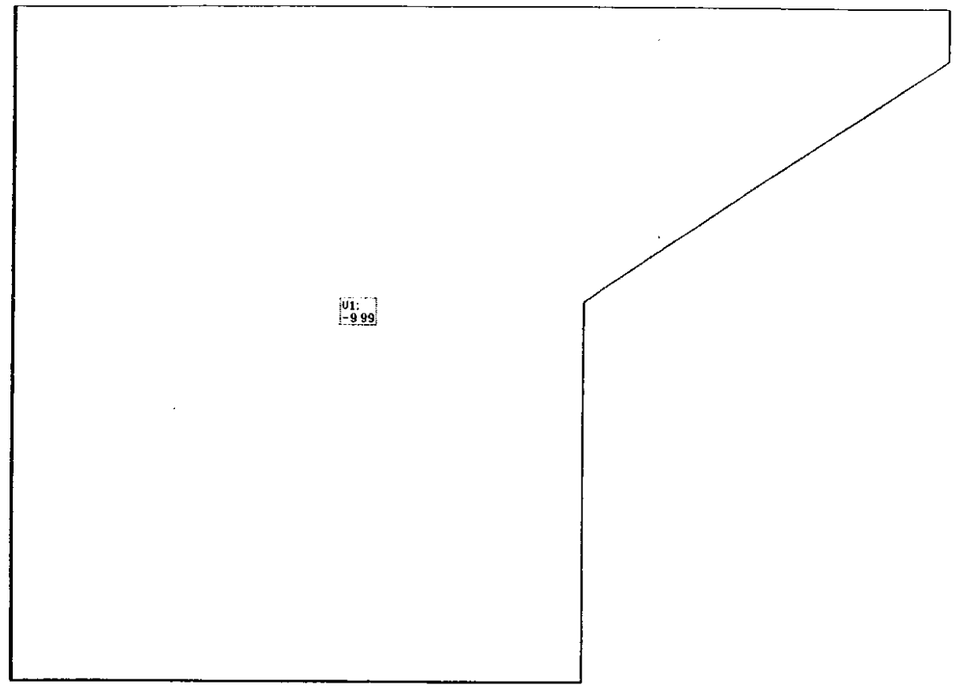
CARGAS DISTRIB:

ID	Tipo	Dim.	Valor	Nº Ptos.	Lsuma [kN]
V1	dist.	kN/m2	-9.99	6	-415.36
				Suma	-415.36

Suma carg [kN] Hipótesis 2: -415.36

L.A.V. Madrid-Barcelona-Frontera Francesa
Viaducto 1. Estribo 1. Muros

Escala 1 : 58.7
Hipótesis 002: "Sobrecarga" (Suma cargas= -415.36 kN)
- Valores cargas dist.: E=Peso propio [kN/m3]
  V=Carga distribuida [kN/m2], K=Curvatura [m-1]
- Apoyo puntual o lineal

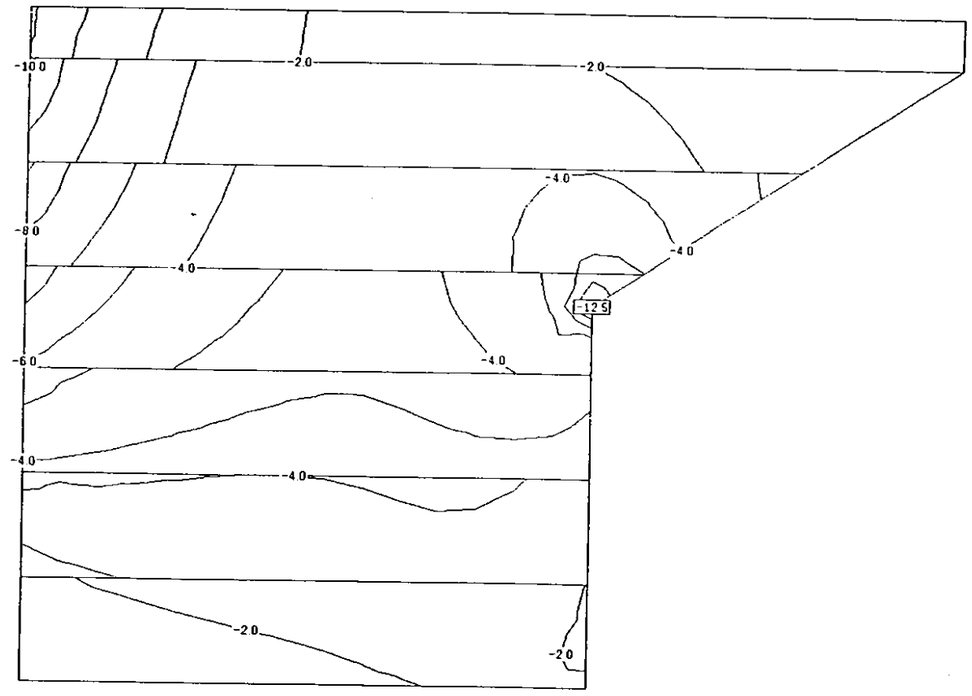


L.A.V. Madrid-Barcelona-Frontera Francesa
Viaducto 1. Estribo 1. Muros

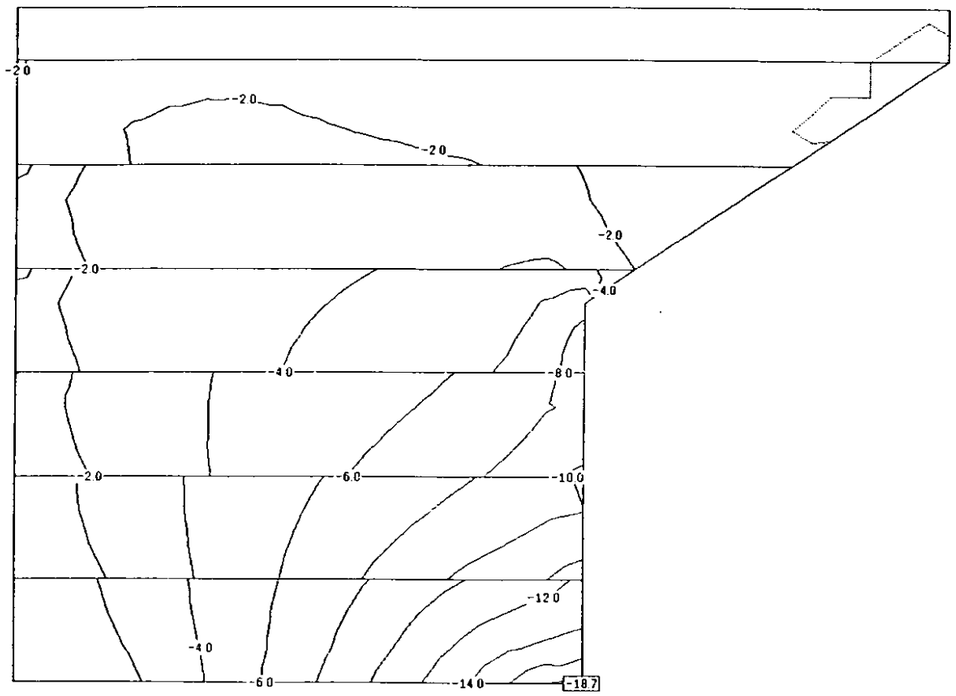
ENVOLVENTES: (A01)

Espec.	Nº Hip.	Factor	Título
PERM	1	1.500	Empuje tierras
Y	2	1.500	Sobrecarga

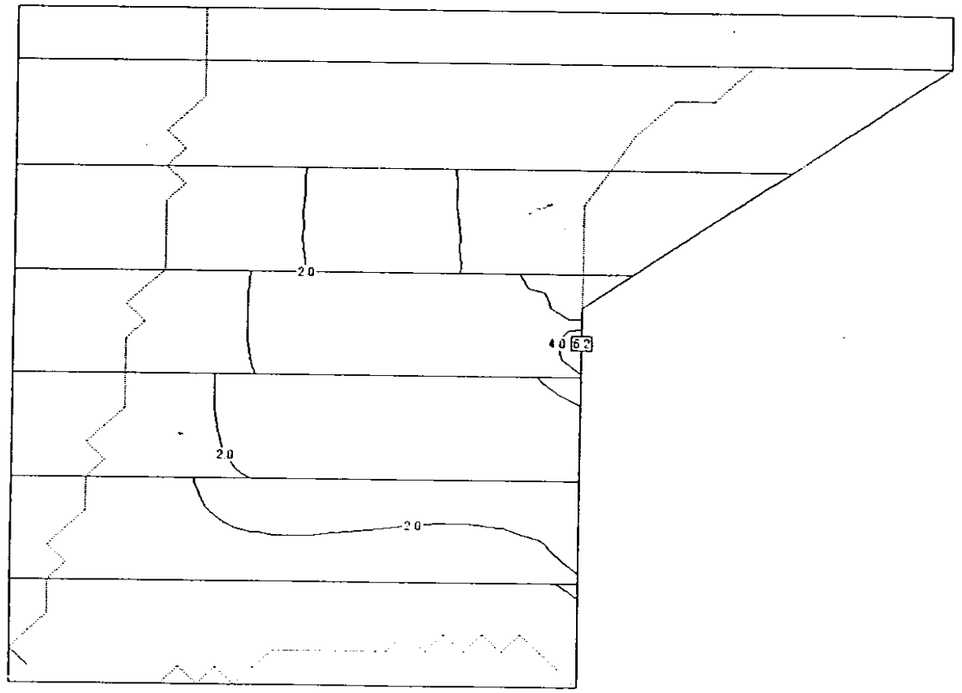
Escala 1 : 58.7
Armaduras [cm2/m] (A01)
Carga: S1 1.5 U2 1.5
EH-Dimensionamento: Horm.=H250, Acero=AEH500
- Armaduras AsX- [cm2/m], Recub.= 5.00 cm, Dir-X= 0.00 Grados



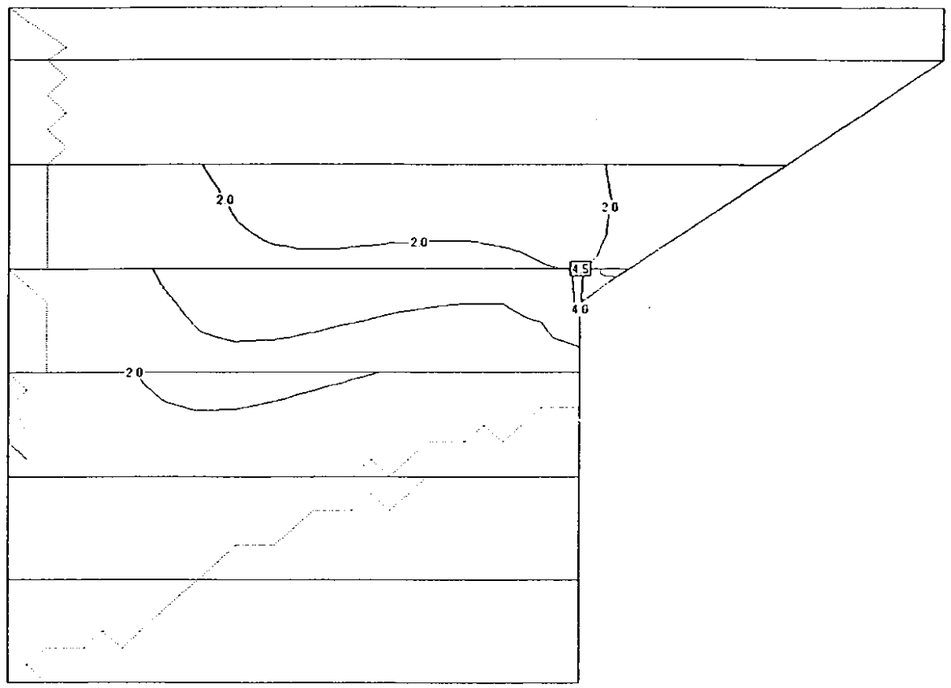
Escala 1 : 58.7
Armaduras [cm2/m] (A01)
Carga: S1 1.5 U2 1.5
EH-Dimensionamento: Horm.=H250, Acero=AEH500
- Armaduras AsY- [cm2/m], Recub.= 5.00 cm, Dir-X= 0.00 Grados



Escala 1 : 58.7
Armaduras [cm2/m] (A01)
Carga: S1 1.5 U2 1.5
EH-Dimensionamento: Horm.=H250, Acero=AEH500
- Armaduras AsX+ [cm2/m], Recub.= 5.00 cm, Dir-X= 0.00 Grados

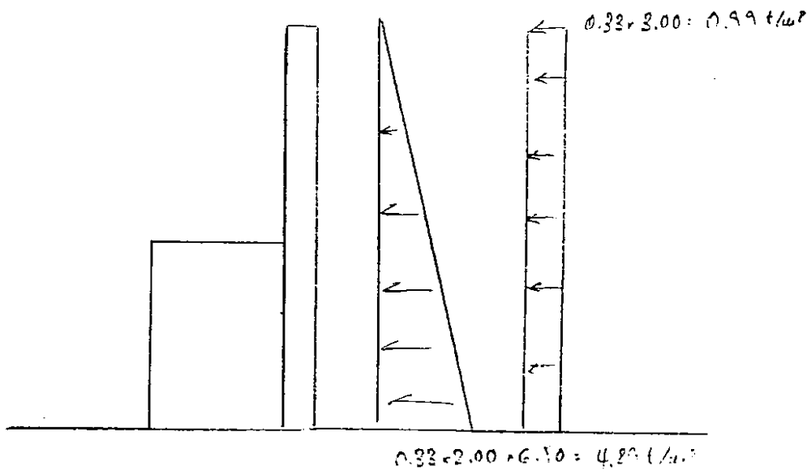


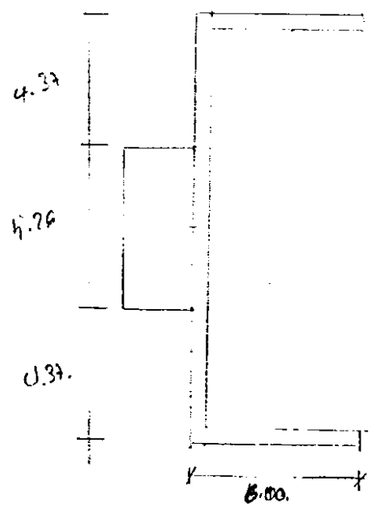
Escala 1 : 58.7
Armaduras [cm2/m] (A01)
Carga: S1 1.5 U2 1.5
EH-Dimensionamento: Norm.=H250, Acero=AEH500
- Armaduras AsY+ [cm2/m], Recub.= 5.00 cm, Dir-X= 0.00 Grados



Proyecto ■ VIADUCTO 1. ESTRIBO 1

ARMADURA PRINCIPAL DE MURO





$$\mu d = 1.50 \times \left(4.29 \times \frac{6.5^2}{6} + 0.99 \times \frac{6.5^2}{2} \right) = 76.68 \text{ mt/m}$$

Fecha ■ Referencia ■ Hoja N° ■ De ■

Proyecto: VIADUCTO 1 ESTADO 1

Sección en L de 0.37m

$M_d = 76.68 \cdot \frac{0.37}{2} = 168$ mt

$A_s = 8.12 cm^2 \rightarrow 3\phi 20$

Viga transversal principal

$M_d = 76.68 \times (5.86 + 4.73) = 767$ mt

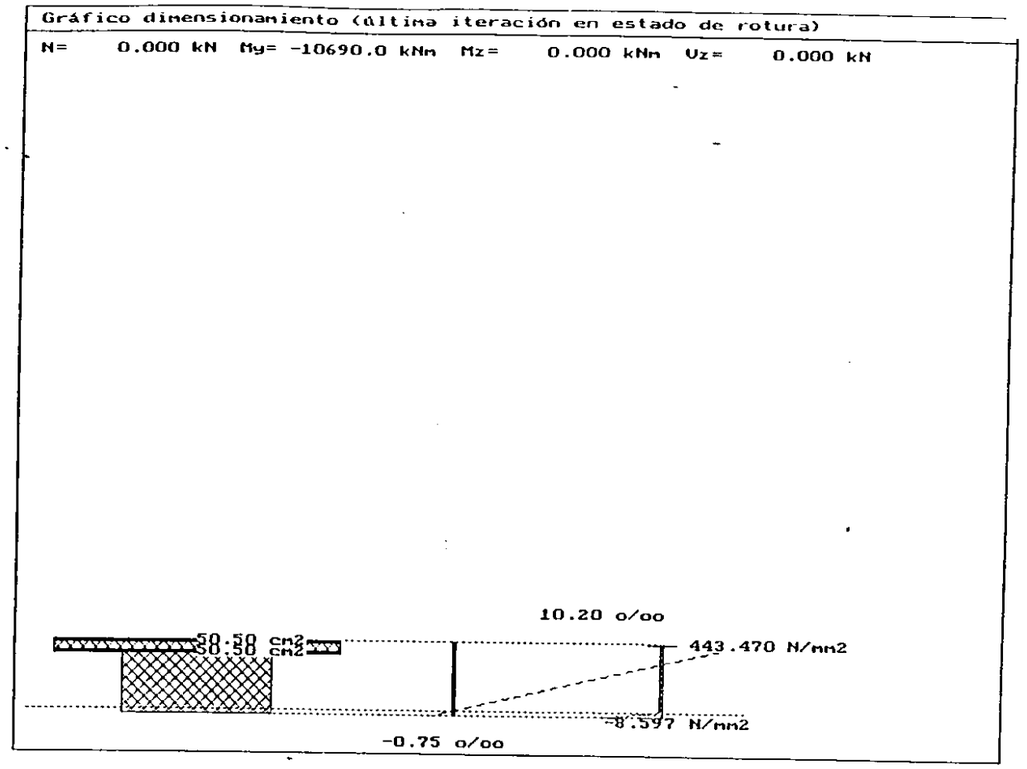
Tiro de tablones

$M_d = 1.5 \times 1007 = 1510$ t

$M_d = 1510 \times 3.33m \times 0.06 = 302$ mt

$M_{d\,TOTAL} = 767 + 302 = 1069$ mt

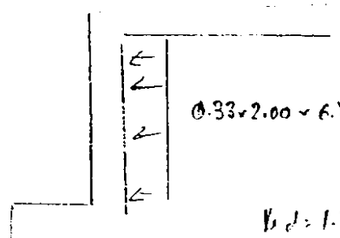
$A_s = 90.5 cm^2/capa \rightarrow A_s = 5. cm^2/m/capa \rightarrow$ Zuncho $\phi 20$ c/ 20 cm en todo el tablero



Fecha: Referencia: Hoja Nº: De:

Proyecto: VIADUCTO 1. ESTRIBO 1.

- Armadura vertical de muretes → ϕ16 c 0.20. (interior)
- Armadura transversal superior ϕ20 c 0.10. (exterior) Superior
  ϕ20 c 0.20 (interior) (exterior)
- Armadura transversal inferior



$0.33 \times 2.00 \times 6.10 + 0.99 = 5.28 \text{ t/m}^2$

$M_d = 1.5 \times 5.28 \times \frac{4.37^2}{12} = 12.60 \text{ mt/m}$

↓

$A_s = 7.00 \text{ cm}^2/\text{m}$

Se dispondrá ϕ20 c 0.20.

4.2 Viaducto 2 (Arroyo Valderechas)

4.2 VIADUCTO 2 (VALDERECHAS)

ÍNDICE

1. DESCRIPCIÓN GENERAL
2. PROCESO CONSTRUCTIVO
3. MATERIALES
4. REPLANTEO
5. RESULTADOS DE CÁLCULO
6. TABLERO
7. APARATOS DE APOYO
8. PILAS
9. ESTRIBOS

VIADUCTO 2

1. DESCRIPCIÓN GENERAL.

El viaducto 2, sobre el arroyo de Valderechas, se encuentra situado entre los pk: 403+596.5 y 404+140.5 con una longitud total de 544 m. Los ejes de apoyo de la estructura son perpendiculares al trazado del ferrocarril, correspondientes al trazado de una circunferencia de –7250 m de radio. El alzado de la estructura se encuentra en una rampa ascendente de 2.400 % de pendiente.

La longitud de la estructura se distribuye en 14 vanos de 40 m los intermedios y 32 m los extremos.

La tipología escogida para el tablero de la estructura es una sección transversal en cajón de hormigón pretensado.

El espesor de la losa superior es variable entre 20 cm, en el extremos del voladizo, 45 en el empotramiento del voladizo y 30 cm en el eje del puente. Las almas de 60 cm de espesor en la zona central de los vanos, aumentando esta dimensión a 71 cm a un quinto de la luz con objeto de acoplar los acopladores del pretensado de las almas. La losa inferior tiene 35 cm en la zona central de los vanos, aumentando el espesor a 50 cm en la zona de las riostras de los apoyos.

Las pilas están formadas por un único fuste de geometría rectangular de 5.26 m de ancho por 2.70 de canto con chaflanes de 50 cm de lado en cada una de las cuatro esquinas. Interiormente las pilas se aligeran quedando unos espesores de pared de 40 cm.

La estructura se ancla en el estribo 1 por lo que esta especialmente diseñado para aguantar el tiro debido a la fuerza de frenado. La estructura resistente del estribo consiste en una sección cajón cerrada en la que el muro frontal, que sirve de apoyo a la estructura y el murete que se sitúa directamente detrás del mismo funcionan como cabeza de compresión cuando el frenado va dirigido hacia el estribo no anclado y como cabeza de tracción cuando el frenado se dirige hacia el estribo anclado. La cabeza de la viga cajón esta formada por un muro situado a 5m del parámetro interior del muro frontal y de 60 cm de espesor. Este muro sirve además para contener las tierras y permite crear un recinto cerrado entre muro frontal y muro trasero por donde se puede acceder para la inspección

Ambas cabeza de viga cajón llevan la armadura de cosido necesaria para asegurar una adecuada difusión de las fuerzas de compresión y tracción en la alas.

Las almas de esta viga cajón están formadas por los muros en vuelta y dos contrafuertes de 60 cm de espesor que se sitúan a 2.40 m del eje longitudinal del puente.

El anclaje de la estructura al estribo se hace dando continuidad a la losa inferior del cajón del tablero y disponiendo un pretensado que se ancla al muro trasero por una parte, mediante un anclaje pasivo, y a la losa inferior del cajón por otra, mediante un anclaje activo.

La losa que continua la losa inferior del tablero se apoya, mediante un empotramiento en los contrafuertes interiores y en el muro trasero.

El estribo 2 es un estribo cerrado convencional con muros en vuelta y aletas, necesarios para la contención de las tierras.

En ambos estribos, el puente se apoya en aparatos de neopreno-teflón de 800 toneladas de capacidad.

2. PROCESO CONSTRUCTIVO

Para la realización del viaducto 2, se ha realizado el siguiente proceso constructivo:

- ejecucion de las cimentaciones.
- Ejecución de alzados de pilas y estribos.
- Ejecución del tablero, en 18 fases. Cada fase consiste en el hormigonado y tesado de un vano mas un quinto del vano siguiente. Una vez hormigonado y tesado el vano adyacente al estribo anclado se procederá a tesar el pretensado de unión del tablero al estribo.

Previamente al tesado del tablero, éste deberá de haber alcanzado una resistencia característica de 300 kg/cm2.

3. MATERIALES

3. MATERIALES

3.1 Tablero

Los materiales utilizados en el cálculo del tablero corresponden a las siguientes características y coeficientes de minoración:

- Hormigón H-400 con un coeficiente de minoración de la resistencia de 1.50. Al ser el hormigón de resistencia mayor de 250 kg/cm^2, el control del mismo debe ser intenso.

- Acero pasivo AEH-500 con un coeficiente de minoración de la resistencia de 1.15 (Control Normal).

- Acero activo de baja relajación, de 17100 kg/cm^2 de límite elástico y 19000 kg/cm^2 de tensión de rotura. El coeficiente de minoración aplicado a la resistencia del acero activo es de 1.10 (Control Intenso).

3.2 Alzados de Pilas

Los materiales utilizados en el cálculo de las pilas corresponden a las siguientes características y coeficientes de minoración:

- Hormigón H-300 con un coeficiente de minoración de la resistencia de 1.50. Al ser el hormigón de resistencia mayor de 250 kg/cm^2, el control del mismo debe ser intenso.

- Acero pasivo AEH-500 con un coeficiente de minoración de la resistencia de 1.15 (Control Normal).

3.3 Cimentaciones y Estribos

Los materiales utilizados en el cálculo de los estribos y de las cimentaciones corresponden a las siguientes características y coeficientes de minoración:

- Hormigón H-250 con un coeficiente de minoración de la resistencia de 1.50 (Control Normal).

- Acero pasivo AEH-500 con un coeficiente de minoración de la resistencia de 1.15 (Control Normal).

4. REPLANTEO

REPLANTEO

El replanteo de la estructura, se hace a partir del trazado del ferrocarril en planta y en alzado. El cálculo del replanteo en alzado parte de considerar un espesor mínimo de balasto de 30 cm, por lo que la cota del tablero deberá estar situada 70 cm por debajo de la cota del carril más bajo. A esta magnitud hay que sumar un sobreespesor debido al sistema de drenaje que supone que el tablero debe tener una pendiente del 2% hacia el exterior del puente. Igualmente, se preve un sobreespesor de 5 cm de hormigón para poder formar una pequeña cuneta que recoja las aguas de lluvia. Teniendo en cuenta este aspecto, el hormigón del tablero se encuentra situado a 82 cm por debajo de la cota del carril más bajo.

Los datos de partida, así como el cálculo detallado del replanteo se incluyen en el anejo "RESULTADOS DEL CALCULO". A continuación se incluye la posición de los ejes de pilas y estribos de esta estructura.

```
Programa LST0 - Replanteo de viaductos hormigón pretensado y mixtos (V 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

REPLANTEO EJE DE PILAS Y ESTRIBOS
-------------------------------------------------------------------------
Apoyo       Pk.      sobreespesor        x           y           Az
             [m]        [m]             [m]         [m]         [grad]
-------------------------------------------------------------------------
E-1     403596.500     0.000       479467.881  4481988.877   -51.7884
P-1     403628.500     0.000       479489.813  4482012.180   -52.0694
P-2     403668.500     0.000       479517.082  4482041.444   -52.4207
P-3     403708.500     0.000       479544.189  4482070.858   -52.7719
P-4     403748.500     0.000       479571.134  4482100.421   -53.1232
P-5     403788.500     0.000       479597.916  4482130.132   -53.4744
P-6     403828.500     0.000       479624.533  4482159.990   -53.8256
P-7     403868.500     0.000       479650.984  4482189.995   -54.1769
P-8     403908.500     0.000       479677.270  4482220.146   -54.5281
P-9     403948.500     0.000       479703.390  4482250.441   -54.8793
P-10     403988.500     0.000       479729.341  4482280.879   -55.2306
P-11     404028.500     0.000       479755.124  4482311.461   -55.5818
P-12     404068.500     0.000       479780.739  4482342.184   -55.9331
P-13     404108.500     0.000       479806.183  4482373.048   -56.2843
E-2     404140.500     0.000       479826.415  4482397.840   -56.5653
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5. RESULTADOS DEL CÁLCULO

5. RESULTADOS DEL CÁLCULO

Replanteo. Datos del Trazado

Programa LST0 - Replanteo de viaductos hormigón pretensado y mixtos (V 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

LISTADO DE PUNTOS SINGULARES EJES EN PLANTA

Pk	Long.	x1 x2 xc	y1 y2 yc	Az1 Az2	R	A_ant A_post
[m]	[m]	[m]	[m]	[g]	[m]	[m]
Eje sup no. 1: LAV. TRAMO: MADRID-ZARAGOZA; Subtramo IV						
400838.541	0.000	477241.995	4480388.726	72.4291	-7250.00	1826.20
404863.022	4024.481	480253.333 474199.380	4482980.375 4486969.379	37.0903		1826.20
405323.023	460.001	480498.237	4483369.737	35.0706	0.00	
405935.541	612.518	480818.856	4483891.639	35.0706		

Programa LST0 - Replanteo de viaductos hormigón pretensado y mixtos (V 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

LISTADO DE PUNTOS A INTERVALO CONSTANTE

LEYENDA: * -> no está definido el peralte en este P.K
pdte -> pendiente del eje
per_i-> peralte izquierdo asociado al eje
per_d-> peralte derecho asociado al eje

Nº	Pk [m]	Cota [m]	pdte [%]	per_i [%]	per_d [%]
Eje no. 1: LAV. TRAMO: MADRID-ZARAGOZA; Subtramo IV					
1	400000.000	734.589	2.486	0.000	0.000
2	400005.000	734.713	2.486	0.000	0.000
3	400010.000	734.838	2.486	0.000	0.000
4	400015.000	734.962	2.486	0.000	0.000
5	400020.000	735.086	2.486	0.000	0.000
6	400025.000	735.211	2.486	0.000	0.000
7	400030.000	735.335	2.486	0.000	0.000
8	400035.000	735.459	2.486	0.000	0.000
9	400040.000	735.583	2.486	0.000	0.000
10	400045.000	735.708	2.486	0.000	0.000
11	400050.000	735.832	2.486	0.000	0.000
12	400055.000	735.956	2.486	0.000	0.000
13	400060.000	736.081	2.486	0.000	0.000
14	400065.000	736.205	2.486	0.000	0.000
15	400070.000	736.329	2.486	0.000	0.000
16	400075.000	736.454	2.486	0.000	0.000
17	400080.000	736.578	2.486	0.000	0.000
18	400085.000	736.702	2.486	0.000	0.000
19	400090.000	736.826	2.486	0.000	0.000
20	400095.000	736.951	2.486	0.000	0.000
21	400100.000	737.075	2.486	0.000	0.000
22	400105.000	737.199	2.486	0.000	0.000
23	400110.000	737.324	2.486	0.000	0.000

24	400115.000	737.448	2.486	0.000	0.000
25	400120.000	737.572	2.486	0.000	0.000
26	400125.000	737.697	2.486	0.000	0.000
27	400130.000	737.821	2.486	0.000	0.000
28	400135.000	737.945	2.486	0.000	0.000
29	400140.000	738.069	2.486	0.000	0.000
30	400145.000	738.194	2.486	0.000	0.000
31	400150.000	738.318	2.486	0.000	0.000
32	400155.000	738.442	2.486	0.000	0.000
33	400160.000	738.567	2.486	0.000	0.000
34	400165.000	738.691	2.486	0.000	0.000
35	400170.000	738.815	2.486	0.000	0.000
36	400175.000	738.940	2.486	0.000	0.000
37	400180.000	739.064	2.486	0.000	0.000
38	400185.000	739.188	2.486	0.000	0.000
39	400190.000	739.312	2.486	0.000	0.000
40	400195.000	739.437	2.486	0.000	0.000
41	400200.000	739.561	2.486	0.000	0.000
42	400205.000	739.685	2.486	0.000	0.000
43	400210.000	739.810	2.486	0.000	0.000
44	400215.000	739.934	2.486	0.000	0.000
45	400220.000	740.058	2.486	0.000	0.000
46	400225.000	740.183	2.486	0.000	0.000
47	400230.000	740.307	2.486	0.000	0.000
48	400235.000	740.431	2.486	0.000	0.000
49	400240.000	740.555	2.486	0.000	0.000
50	400245.000	740.680	2.486	0.000	0.000
51	400250.000	740.804	2.486	0.000	0.000
52	400255.000	740.928	2.486	0.000	0.000
53	400260.000	741.053	2.486	0.000	0.000
54	400265.000	741.177	2.486	0.000	0.000
55	400270.000	741.301	2.486	0.000	0.000
56	400275.000	741.426	2.486	0.000	0.000
57	400280.000	741.550	2.486	0.000	0.000
58	400285.000	741.674	2.486	0.000	0.000
59	400290.000	741.799	2.486	0.000	0.000
60	400295.000	741.923	2.486	0.000	0.000
61	400300.000	742.047	2.486	0.000	0.000
62	400305.000	742.171	2.486	0.000	0.000
63	400310.000	742.296	2.486	0.000	0.000
64	400315.000	742.420	2.486	0.000	0.000
65	400320.000	742.544	2.486	0.000	0.000
66	400325.000	742.669	2.486	0.000	0.000
67	400330.000	742.793	2.486	0.000	0.000
68	400335.000	742.917	2.486	0.000	0.000
69	400340.000	743.042	2.486	0.000	0.000
70	400345.000	743.166	2.486	0.000	0.000
71	400350.000	743.290	2.486	0.000	0.000
72	400355.000	743.414	2.486	0.000	0.000
73	400360.000	743.539	2.486	0.000	0.000
74	400365.000	743.663	2.486	0.000	0.000
75	400370.000	743.787	2.486	0.000	0.000
76	400375.000	743.912	2.486	0.000	0.000
77	400380.000	744.036	2.486	0.000	0.000
78	400385.000	744.160	2.486	0.000	0.000
79	400390.000	744.285	2.486	0.000	0.000
80	400395.000	744.409	2.486	0.000	0.000
81	400400.000	744.533	2.486	0.000	0.000
82	400405.000	744.657	2.486	0.000	0.000
83	400410.000	744.782	2.486	0.000	0.000
84	400415.000	744.906	2.486	0.000	0.000
85	400420.000	745.030	2.486	0.000	0.000
86	400425.000	745.155	2.486	0.000	0.000
87	400430.000	745.279	2.486	0.000	0.000
88	400435.000	745.403	2.486	0.000	0.000
89	400440.000	745.528	2.486	0.000	0.000
90	400445.000	745.652	2.486	0.000	0.000
91	400450.000	745.776	2.486	0.000	0.000
92	400455.000	745.900	2.486	0.000	0.000
93	400460.000	746.025	2.486	0.000	0.000
94	400465.000	746.149	2.486	0.000	0.000
95	400470.000	746.273	2.486	0.000	0.000
96	400475.000	746.398	2.486	0.000	0.000
97	400480.000	746.522	2.486	0.000	0.000
98	400485.000	746.646	2.486	0.000	0.000
99	400490.000	746.771	2.486	0.000	0.000
100	400495.000	746.895	2.486	0.000	0.000
101	400500.000	747.019	2.486	0.000	0.000
102	400505.000	747.144	2.486	0.000	0.000
103	400510.000	747.268	2.486	0.000	0.000
104	400515.000	747.392	2.486	0.000	0.000
105	400520.000	747.516	2.486	0.000	0.000
106	400525.000	747.641	2.486	0.000	0.000
107	400530.000	747.765	2.486	0.000	0.000
108	400535.000	747.889	2.486	0.000	0.000
109	400540.000	748.014	2.486	0.000	0.000
110	400545.000	748.138	2.486	0.000	0.000
111	400550.000	748.262	2.486	0.000	0.000
112	400555.000	748.387	2.486	0.000	0.000
113	400560.000	748.511	2.486	0.000	0.000
114	400565.000	748.635	2.486	0.000	0.000
115	400570.000	748.759	2.486	0.000	0.000
116	400575.000	748.884	2.486	0.000	0.000
117	400580.000	749.008	2.486	0.000	0.000
118	400585.000	749.132	2.486	0.000	0.000
119	400590.000	749.257	2.486	0.000	0.000
120	400595.000	749.381	2.486	0.000	0.000
121	400600.000	749.505	2.486	0.000	0.000
122	400605.000	749.630	2.486	0.000	0.000
123	400610.000	749.754	2.486	0.000	0.000
124	400615.000	749.878	2.486	0.000	0.000
125	400620.000	750.002	2.486	0.000	0.000
126	400625.000	750.127	2.486	0.000	0.000
127	400630.000	750.251	2.486	0.000	0.000
128	400635.000	750.375	2.486	0.000	0.000
129	400640.000	750.500	2.486	0.000	0.000
130	400645.000	750.624	2.486	0.000	0.000
131	400650.000	750.748	2.486	0.000	0.000
132	400655.000	750.873	2.486	0.000	0.000
133	400660.000	750.997	2.486	0.000	0.000
134	400665.000	751.121	2.486	0.000	0.000
135	400670.000	751.245	2.486	0.000	0.000
136	400675.000	751.370	2.486	0.000	0.000
137	400680.000	751.494	2.486	0.000	0.000
138	400685.000	751.618	2.486	0.000	0.000
139	400690.000	751.743	2.486	0.000	0.000
140	400695.000	751.867	2.486	0.000	0.000
141	400700.000	751.991	2.486	0.000	0.000
142	400705.000	752.116	2.486	0.000	0.000
143	400710.000	752.240	2.486	0.000	0.000
144	400715.000	752.364	2.486	0.000	0.000
145	400720.000	752.488	2.486	0.000	0.000
146	400725.000	752.613	2.486	0.000	0.000
147	400730.000	752.737	2.486	0.000	0.000
148	400735.000	752.861	2.486	0.000	0.000
149	400740.000	752.986	2.486	0.000	0.000
150	400745.000	753.110	2.486	0.000	0.000
151	400750.000	753.234	2.486	0.000	0.000
152	400755.000	753.359	2.486	0.000	0.000
153	400760.000	753.483	2.486	0.000	0.000
154	400765.000	753.607	2.486	0.000	0.000
155	400770.000	753.732	2.486	0.000	0.000
156	400775.000	753.856	2.486	0.000	0.000
157	400780.000	753.980	2.486	0.000	0.000
158	400785.000	754.104	2.486	0.000	0.000
159	400790.000	754.229	2.486	0.000	0.000
160	400795.000	754.353	2.486	0.000	0.000
161	400800.000	754.477	2.486	0.000	0.000
162	400805.000	754.602	2.486	0.000	0.000
163	400810.000	754.726	2.486	0.000	0.000
164	400815.000	754.850	2.486	0.000	0.000
165	400820.000	754.975	2.486	0.000	0.000
166	400825.000	755.099	2.486	0.000	0.000
167	400830.000	755.223	2.486	0.000	0.000

168	400835.000	755.347	2.486	0.000	0.000	240	401195.000	764.297	2.486	0.000	0.000
169	400840.000	755.472	2.486	0.000	0.000	241	401200.000	764.421	2.486	0.000	0.000
170	400845.000	755.596	2.486	0.000	0.000	242	401205.000	764.546	2.486	0.000	0.000
171	400850.000	755.720	2.486	0.000	0.000	243	401210.000	764.670	2.486	0.000	0.000
172	400855.000	755.845	2.486	0.000	0.000	244	401215.000	764.794	2.486	0.000	0.000
173	400860.000	755.969	2.486	0.000	0.000	245	401220.000	764.919	2.486	0.000	0.000
174	400865.000	756.093	2.486	0.000	0.000	246	401225.000	765.043	2.486	0.000	0.000
175	400870.000	756.218	2.486	0.000	0.000	247	401230.000	765.167	2.486	0.000	0.000
176	400875.000	756.342	2.486	0.000	0.000	248	401235.000	765.292	2.486	0.000	0.000
177	400880.000	756.466	2.486	0.000	0.000	249	401240.000	765.416	2.486	0.000	0.000
178	400885.000	756.590	2.486	0.000	0.000	250	401245.000	765.540	2.486	0.000	0.000
179	400890.000	756.715	2.486	0.000	0.000	251	401250.000	765.665	2.486	0.000	0.000
180	400895.000	756.839	2.486	0.000	0.000	252	401255.000	765.789	2.486	0.000	0.000
181	400900.000	756.963	2.486	0.000	0.000	253	401260.000	765.913	2.486	0.000	0.000
182	400905.000	757.088	2.486	0.000	0.000	254	401265.000	766.037	2.486	0.000	0.000
183	400910.000	757.212	2.486	0.000	0.000	255	401270.000	766.162	2.486	0.000	0.000
184	400915.000	757.336	2.486	0.000	0.000	256	401275.000	766.286	2.486	0.000	0.000
185	400920.000	757.461	2.486	0.000	0.000	257	401280.000	766.410	2.486	0.000	0.000
186	400925.000	757.585	2.486	0.000	0.000	258	401285.000	766.535	2.486	0.000	0.000
187	400930.000	757.709	2.486	0.000	0.000	259	401290.000	766.659	2.486	0.000	0.000
188	400935.000	757.833	2.486	0.000	0.000	260	401295.000	766.783	2.486	0.000	0.000
189	400940.000	757.958	2.486	0.000	0.000	261	401300.000	766.908	2.486	0.000	0.000
190	400945.000	758.082	2.486	0.000	0.000	262	401305.000	767.032	2.486	0.000	0.000
191	400950.000	758.206	2.486	0.000	0.000	263	401310.000	767.156	2.486	0.000	0.000
192	400955.000	758.331	2.486	0.000	0.000	264	401315.000	767.280	2.486	0.000	0.000
193	400960.000	758.455	2.486	0.000	0.000	265	401320.000	767.405	2.486	0.000	0.000
194	400965.000	758.579	2.486	0.000	0.000	266	401325.000	767.529	2.486	0.000	0.000
195	400970.000	758.704	2.486	0.000	0.000	267	401330.000	767.653	2.486	0.000	0.000
196	400975.000	758.828	2.486	0.000	0.000	268	401335.000	767.778	2.486	0.000	0.000
197	400980.000	758.952	2.486	0.000	0.000	269	401340.000	767.902	2.486	0.000	0.000
198	400985.000	759.077	2.486	0.000	0.000	270	401345.000	768.026	2.486	0.000	0.000
199	400990.000	759.201	2.486	0.000	0.000	271	401350.000	768.151	2.486	0.000	0.000
200	400995.000	759.325	2.486	0.000	0.000	272	401355.000	768.275	2.486	0.000	0.000
201	401000.000	759.449	2.486	0.000	0.000	273	401360.000	768.399	2.486	0.000	0.000
202	401005.000	759.574	2.486	0.000	0.000	274	401365.000	768.523	2.486	0.000	0.000
203	401010.000	759.698	2.486	0.000	0.000	275	401370.000	768.648	2.486	0.000	0.000
204	401015.000	759.822	2.486	0.000	0.000	276	401375.000	768.772	2.486	0.000	0.000
205	401020.000	759.947	2.486	0.000	0.000	277	401380.000	768.896	2.486	0.000	0.000
206	401025.000	760.071	2.486	0.000	0.000	278	401385.000	769.021	2.486	0.000	0.000
207	401030.000	760.195	2.486	0.000	0.000	279	401390.000	769.145	2.486	0.000	0.000
208	401035.000	760.320	2.486	0.000	0.000	280	401395.000	769.269	2.486	0.000	0.000
209	401040.000	760.444	2.486	0.000	0.000	281	401400.000	769.394	2.486	0.000	0.000
210	401045.000	760.568	2.486	0.000	0.000	282	401405.000	769.518	2.486	0.000	0.000
211	401050.000	760.692	2.486	0.000	0.000	283	401410.000	769.642	2.486	0.000	0.000
212	401055.000	760.817	2.486	0.000	0.000	284	401415.000	769.766	2.486	0.000	0.000
213	401060.000	760.941	2.486	0.000	0.000	285	401420.000	769.891	2.486	0.000	0.000
214	401065.000	761.065	2.486	0.000	0.000	286	401425.000	770.015	2.486	0.000	0.000
215	401070.000	761.190	2.486	0.000	0.000	287	401430.000	770.139	2.486	0.000	0.000
216	401075.000	761.314	2.486	0.000	0.000	288	401435.000	770.264	2.486	0.000	0.000
217	401080.000	761.438	2.486	0.000	0.000	289	401440.000	770.388	2.486	0.000	0.000
218	401085.000	761.563	2.486	0.000	0.000	290	401445.000	770.512	2.486	0.000	0.000
219	401090.000	761.687	2.486	0.000	0.000	291	401450.000	770.637	2.486	0.000	0.000
220	401095.000	761.811	2.486	0.000	0.000	292	401455.000	770.761	2.486	0.000	0.000
221	401100.000	761.935	2.486	0.000	0.000	293	401460.000	770.885	2.486	0.000	0.000
222	401105.000	762.060	2.486	0.000	0.000	294	401465.000	771.009	2.486	0.000	0.000
223	401110.000	762.184	2.486	0.000	0.000	295	401470.000	771.134	2.486	0.000	0.000
224	401115.000	762.308	2.486	0.000	0.000	296	401475.000	771.258	2.486	0.000	0.000
225	401120.000	762.433	2.486	0.000	0.000	297	401480.000	771.382	2.486	0.000	0.000
226	401125.000	762.557	2.486	0.000	0.000	298	401485.000	771.507	2.486	0.000	0.000
227	401130.000	762.681	2.486	0.000	0.000	299	401490.000	771.631	2.486	0.000	0.000
228	401135.000	762.806	2.486	0.000	0.000	300	401495.000	771.755	2.486	0.000	0.000
229	401140.000	762.930	2.486	0.000	0.000	301	401500.000	771.880	2.486	0.000	0.000
230	401145.000	763.054	2.486	0.000	0.000	302	401505.000	772.004	2.486	0.000	0.000
231	401150.000	763.178	2.486	0.000	0.000	303	401510.000	772.128	2.486	0.000	0.000
232	401155.000	763.303	2.486	0.000	0.000	304	401515.000	772.253	2.486	0.000	0.000
233	401160.000	763.427	2.486	0.000	0.000	305	401520.000	772.377	2.486	0.000	0.000
234	401165.000	763.551	2.486	0.000	0.000	306	401525.000	772.501	2.486	0.000	0.000
235	401170.000	763.676	2.486	0.000	0.000	307	401530.000	772.625	2.486	0.000	0.000
236	401175.000	763.800	2.486	0.000	0.000	308	401535.000	772.750	2.486	0.000	0.000
237	401180.000	763.924	2.486	0.000	0.000	309	401540.000	772.874	2.486	0.000	0.000
238	401185.000	764.049	2.486	0.000	0.000	310	401545.000	772.998	2.486	0.000	0.000
239	401190.000	764.173	2.486	0.000	0.000	311	401550.000	773.123	2.486	0.000	0.000

312	401555.000	773.247	2.486	0.000	0.000
313	401560.000	773.371	2.486	0.000	0.000
314	401565.000	773.496	2.486	0.000	0.000
315	401570.000	773.620	2.486	0.000	0.000
316	401575.000	773.744	2.486	0.000	0.000
317	401580.000	773.868	2.486	0.000	0.000
318	401585.000	773.993	2.486	0.000	0.000
319	401590.000	774.117	2.486	0.000	0.000
320	401595.000	774.241	2.486	0.000	0.000
321	401600.000	774.366	2.486	0.000	0.000
322	401605.000	774.490	2.486	0.000	0.000
323	401610.000	774.614	2.486	0.000	0.000
324	401615.000	774.739	2.486	0.000	0.000
325	401620.000	774.863	2.486	0.000	0.000
326	401625.000	774.987	2.486	0.000	0.000
327	401630.000	775.111	2.486	0.000	0.000
328	401635.000	775.236	2.486	0.000	0.000
329	401640.000	775.360	2.486	0.000	0.000
330	401645.000	775.484	2.486	0.000	0.000
331	401650.000	775.609	2.486	0.000	0.000
332	401655.000	775.733	2.486	0.000	0.000
333	401660.000	775.857	2.486	0.000	0.000
334	401665.000	775.982	2.486	0.000	0.000
335	401670.000	776.106	2.486	0.000	0.000
336	401675.000	776.230	2.486	0.000	0.000
337	401680.000	776.354	2.486	0.000	0.000
338	401685.000	776.479	2.486	0.000	0.000
339	401690.000	776.603	2.486	0.000	0.000
340	401695.000	776.727	2.486	0.000	0.000
341	401700.000	776.852	2.486	0.000	0.000
342	401705.000	776.976	2.486	0.000	0.000
343	401710.000	777.100	2.486	0.000	0.000
344	401715.000	777.225	2.486	0.000	0.000
345	401720.000	777.349	2.486	0.000	0.000
346	401725.000	777.473	2.486	0.000	0.000
347	401730.000	777.598	2.486	0.000	0.000
348	401735.000	777.722	2.486	0.000	0.000
349	401740.000	777.846	2.486	0.000	0.000
350	401745.000	777.970	2.486	0.000	0.000
351	401750.000	778.095	2.486	0.000	0.000
352	401755.000	778.219	2.486	0.000	0.000
353	401760.000	778.343	2.486	0.000	0.000
354	401765.000	778.468	2.486	0.000	0.000
355	401770.000	778.592	2.486	0.000	0.000
356	401775.000	778.716	2.486	0.000	0.000
357	401780.000	778.841	2.486	0.000	0.000
358	401785.000	778.965	2.486	0.000	0.000
359	401790.000	779.089	2.486	0.000	0.000
360	401795.000	779.213	2.486	0.000	0.000
361	401800.000	779.338	2.486	0.000	0.000
362	401805.000	779.462	2.486	0.000	0.000
363	401810.000	779.586	2.486	0.000	0.000
364	401815.000	779.711	2.486	0.000	0.000
365	401820.000	779.835	2.486	0.000	0.000
366	401825.000	779.959	2.486	0.000	0.000
367	401830.000	780.084	2.486	0.000	0.000
368	401835.000	780.208	2.486	0.000	0.000
369	401840.000	780.332	2.486	0.000	0.000
370	401845.000	780.456	2.486	0.000	0.000
371	401850.000	780.581	2.486	0.000	0.000
372	401855.000	780.705	2.486	0.000	0.000
373	401860.000	780.829	2.486	0.000	0.000
374	401865.000	780.954	2.486	0.000	0.000
375	401870.000	781.078	2.486	0.000	0.000
376	401875.000	781.202	2.486	0.000	0.000
377	401880.000	781.327	2.486	0.000	0.000
378	401885.000	781.451	2.486	0.000	0.000
379	401890.000	781.575	2.486	0.000	0.000
380	401895.000	781.699	2.486	0.000	0.000
381	401900.000	781.824	2.486	0.000	0.000
382	401905.000	781.948	2.486	0.000	0.000
383	401910.000	782.072	2.486	0.000	0.000
384	401915.000	782.197	2.486	0.000	0.000
385	401920.000	782.321	2.486	0.000	0.000
386	401925.000	782.445	2.486	0.000	0.000
387	401930.000	782.570	2.486	0.000	0.000
388	401935.000	782.694	2.486	0.000	0.000
389	401940.000	782.818	2.486	0.000	0.000
390	401945.000	782.942	2.486	0.000	0.000
391	401950.000	783.067	2.486	0.000	0.000
392	401955.000	783.191	2.486	0.000	0.000
393	401960.000	783.315	2.486	0.000	0.000
394	401965.000	783.440	2.486	0.000	0.000
395	401970.000	783.564	2.486	0.000	0.000
396	401975.000	783.688	2.486	0.000	0.000
397	401980.000	783.813	2.486	0.000	0.000
398	401985.000	783.937	2.486	0.000	0.000
399	401990.000	784.061	2.486	0.000	0.000
400	401995.000	784.186	2.486	0.000	0.000
401	402000.000	784.310	2.486	0.000	0.000
402	402005.000	784.434	2.486	0.000	0.000
403	402010.000	784.558	2.486	0.000	0.000
404	402015.000	784.683	2.486	0.000	0.000
405	402020.000	784.807	2.486	0.000	0.000
406	402025.000	784.931	2.486	0.000	0.000
407	402030.000	785.056	2.486	0.000	0.000
408	402035.000	785.180	2.486	0.000	0.000
409	402040.000	785.304	2.486	0.000	0.000
410	402045.000	785.429	2.486	0.000	0.000
411	402050.000	785.553	2.486	0.000	0.000
412	402055.000	785.677	2.486	0.000	0.000
413	402060.000	785.801	2.486	0.000	0.000
414	402065.000	785.926	2.486	0.000	0.000
415	402070.000	786.050	2.486	0.000	0.000
416	402075.000	786.174	2.486	0.000	0.000
417	402080.000	786.299	2.486	0.000	0.000
418	402085.000	786.423	2.486	0.000	0.000
419	402090.000	786.547	2.486	0.000	0.000
420	402095.000	786.672	2.486	0.000	0.000
421	402100.000	786.796	2.486	0.000	0.000
422	402105.000	786.920	2.486	0.000	0.000
423	402110.000	787.044	2.486	0.000	0.000
424	402115.000	787.169	2.486	0.000	0.000
425	402120.000	787.293	2.479	0.000	0.000
426	402125.000	787.417	2.468	0.000	0.000
427	402130.000	787.540	2.457	0.000	0.000
428	402135.000	787.662	2.446	0.000	0.000
429	402140.000	787.784	2.434	0.000	0.000
430	402145.000	787.906	2.423	0.000	0.000
431	402150.000	788.027	2.412	0.000	0.000
432	402155.000	788.147	2.401	0.000	0.000
433	402160.000	788.267	2.390	0.000	0.000
434	402165.000	788.386	2.379	0.000	0.000
435	402170.000	788.505	2.368	0.000	0.000
436	402175.000	788.623	2.357	0.000	0.000
437	402180.000	788.740	2.346	0.000	0.000
438	402185.000	788.857	2.334	0.000	0.000
439	402190.000	788.974	2.323	0.000	0.000
440	402195.000	789.090	2.312	0.000	0.000
441	402200.000	789.205	2.301	0.000	0.000
442	402205.000	789.320	2.290	0.000	0.000
443	402210.000	789.434	2.279	0.000	0.000
444	402215.000	789.548	2.268	0.000	0.000
445	402220.000	789.661	2.257	0.000	0.000
446	402225.000	789.773	2.246	0.000	0.000
447	402230.000	789.885	2.234	0.000	0.000
448	402235.000	789.997	2.223	0.000	0.000
449	402240.000	790.108	2.212	0.000	0.000
450	402245.000	790.218	2.201	0.000	0.000
451	402250.000	790.328	2.190	0.000	0.000
452	402255.000	790.437	2.179	0.000	0.000
453	402260.000	790.546	2.168	0.000	0.000
454	402265.000	790.654	2.157	0.000	0.000
455	402270.000	790.761	2.146	0.000	0.000

456	402275.000	790.868	2.134	0.000	0.000
457	402280.000	790.975	2.123	0.000	0.000
458	402285.000	791.081	2.112	0.000	0.000
459	402290.000	791.186	2.101	0.000	0.000
460	402295.000	791.291	2.090	0.000	0.000
461	402300.000	791.395	2.079	0.000	0.000
462	402305.000	791.499	2.068	0.000	0.000
463	402310.000	791.602	2.057	0.000	0.000
464	402315.000	791.704	2.046	0.000	0.000
465	402320.000	791.806	2.034	0.000	0.000
466	402325.000	791.908	2.023	0.000	0.000
467	402330.000	792.009	2.012	0.000	0.000
468	402335.000	792.109	2.001	0.000	0.000
469	402340.000	792.209	1.990	0.000	0.000
470	402345.000	792.308	1.979	0.000	0.000
471	402350.000	792.407	1.968	0.000	0.000
472	402355.000	792.505	1.957	0.000	0.000
473	402360.000	792.602	1.946	0.000	0.000
474	402365.000	792.699	1.934	0.000	0.000
475	402370.000	792.796	1.923	0.000	0.000
476	402375.000	792.892	1.912	0.000	0.000
477	402380.000	792.987	1.901	0.000	0.000
478	402385.000	793.082	1.890	0.000	0.000
479	402390.000	793.176	1.879	0.000	0.000
480	402395.000	793.270	1.868	0.000	0.000
481	402400.000	793.363	1.857	0.000	0.000
482	402405.000	793.455	1.846	0.000	0.000
483	402410.000	793.547	1.834	0.000	0.000
484	402415.000	793.639	1.823	0.000	0.000
485	402420.000	793.730	1.812	0.000	0.000
486	402425.000	793.820	1.801	0.000	0.000
487	402430.000	793.910	1.790	0.000	0.000
488	402435.000	793.999	1.779	0.000	0.000
489	402440.000	794.088	1.768	0.000	0.000
490	402445.000	794.176	1.757	0.000	0.000
491	402450.000	794.263	1.746	0.000	0.000
492	402455.000	794.350	1.734	0.000	0.000
493	402460.000	794.437	1.723	0.000	0.000
494	402465.000	794.523	1.712	0.000	0.000
495	402470.000	794.608	1.701	0.000	0.000
496	402475.000	794.693	1.700	0.000	0.000
497	402480.000	794.778	1.700	0.000	0.000
498	402485.000	794.863	1.700	0.000	0.000
499	402490.000	794.948	1.700	0.000	0.000
500	402495.000	795.033	1.700	0.000	0.000
501	402500.000	795.118	1.700	0.000	0.000
502	402505.000	795.203	1.700	0.000	0.000
503	402510.000	795.288	1.700	0.000	0.000
504	402515.000	795.373	1.700	0.000	0.000
505	402520.000	795.458	1.700	0.000	0.000
506	402525.000	795.543	1.700	0.000	0.000
507	402530.000	795.628	1.700	0.000	0.000
508	402535.000	795.713	1.700	0.000	0.000
509	402540.000	795.798	1.700	0.000	0.000
510	402545.000	795.883	1.700	0.000	0.000
511	402550.000	795.968	1.700	0.000	0.000
512	402555.000	796.053	1.700	0.000	0.000
513	402560.000	796.138	1.700	0.000	0.000
514	402565.000	796.223	1.700	0.000	0.000
515	402570.000	796.308	1.700	0.000	0.000
516	402575.000	796.393	1.700	0.000	0.000
517	402580.000	796.478	1.700	0.000	0.000
518	402585.000	796.563	1.700	0.000	0.000
519	402590.000	796.648	1.700	0.000	0.000
520	402595.000	796.733	1.700	0.000	0.000
521	402600.000	796.818	1.700	0.000	0.000
522	402605.000	796.903	1.700	0.000	0.000
523	402610.000	796.988	1.700	0.000	0.000
524	402615.000	797.073	1.700	0.000	0.000
525	402620.000	797.158	1.700	0.000	0.000
526	402625.000	797.243	1.700	0.000	0.000
527	402630.000	797.328	1.700	0.000	0.000
528	402635.000	797.413	1.700	0.000	0.000
529	402640.000	797.498	1.700	0.000	0.000
530	402645.000	797.583	1.700	0.000	0.000
531	402650.000	797.668	1.700	0.000	0.000
532	402655.000	797.753	1.700	0.000	0.000
533	402660.000	797.838	1.700	0.000	0.000
534	402665.000	797.923	1.700	0.000	0.000
535	402670.000	798.008	1.700	0.000	0.000
536	402675.000	798.093	1.700	0.000	0.000
537	402680.000	798.178	1.700	0.000	0.000
538	402685.000	798.263	1.700	0.000	0.000
539	402690.000	798.348	1.700	0.000	0.000
540	402695.000	798.433	1.700	0.000	0.000
541	402700.000	798.518	1.700	0.000	0.000
542	402705.000	798.603	1.700	0.000	0.000
543	402710.000	798.688	1.700	0.000	0.000
544	402715.000	798.773	1.700	0.000	0.000
545	402720.000	798.858	1.700	0.000	0.000
546	402725.000	798.943	1.700	0.000	0.000
547	402730.000	799.028	1.700	0.000	0.000
548	402735.000	799.113	1.700	0.000	0.000
549	402740.000	799.198	1.700	0.000	0.000
550	402745.000	799.283	1.700	0.000	0.000
551	402750.000	799.368	1.700	0.000	0.000
552	402755.000	799.453	1.700	0.000	0.000
553	402760.000	799.538	1.700	0.000	0.000
554	402765.000	799.623	1.700	0.000	0.000
555	402770.000	799.708	1.700	0.000	0.000
556	402775.000	799.793	1.700	0.000	0.000
557	402780.000	799.878	1.700	0.000	0.000
558	402785.000	799.963	1.700	0.000	0.000
559	402790.000	800.048	1.700	0.000	0.000
560	402795.000	800.133	1.700	0.000	0.000
561	402800.000	800.218	1.700	0.000	0.000
562	402805.000	800.303	1.700	0.000	0.000
563	402810.000	800.388	1.700	0.000	0.000
564	402815.000	800.473	1.700	0.000	0.000
565	402820.000	800.558	1.700	0.000	0.000
566	402825.000	800.643	1.700	0.000	0.000
567	402830.000	800.728	1.700	0.000	0.000
568	402835.000	800.813	1.700	0.000	0.000
569	402840.000	800.898	1.700	0.000	0.000
570	402845.000	800.983	1.700	0.000	0.000
571	402850.000	801.068	1.700	0.000	0.000
572	402855.000	801.153	1.700	0.000	0.000
573	402860.000	801.238	1.700	0.000	0.000
574	402865.000	801.323	1.700	0.000	0.000
575	402870.000	801.408	1.700	0.000	0.000
576	402875.000	801.493	1.700	0.000	0.000
577	402880.000	801.578	1.700	0.000	0.000
578	402885.000	801.663	1.700	0.000	0.000
579	402890.000	801.748	1.700	0.000	0.000
580	402895.000	801.833	1.700	0.000	0.000
581	402900.000	801.918	1.700	0.000	0.000
582	402905.000	802.003	1.700	0.000	0.000
583	402910.000	802.088	1.700	0.000	0.000
584	402915.000	802.173	1.700	0.000	0.000
585	402920.000	802.258	1.700	0.000	0.000
586	402925.000	802.343	1.700	0.000	0.000
587	402930.000	802.428	1.700	0.000	0.000
588	402935.000	802.513	1.700	0.000	0.000
589	402940.000	802.598	1.700	0.000	0.000
590	402945.000	802.683	1.700	0.000	0.000
591	402950.000	802.768	1.700	0.000	0.000
592	402955.000	802.853	1.700	0.000	0.000
593	402960.000	802.938	1.700	0.000	0.000
594	402965.000	803.023	1.700	0.000	0.000
595	402970.000	803.108	1.700	0.000	0.000
596	402975.000	803.193	1.700	0.000	0.000
597	402980.000	803.278	1.700	0.000	0.000
598	402985.000	803.363	1.700	0.000	0.000
599	402990.000	803.448	1.700	0.000	0.000

600	402995.000	803.533	1.700	0.000	0.000	672	403355.000	809.893	2.027	0.000	0.000
601	403000.000	803.618	1.700	0.000	0.000	673	403360.000	809.995	2.038	0.000	0.000
602	403005.000	803.703	1.700	0.000	0.000	674	403365.000	810.097	2.049	0.000	0.000
603	403010.000	803.788	1.700	0.000	0.000	675	403370.000	810.200	2.060	0.000	0.000
604	403015.000	803.873	1.700	0.000	0.000	676	403375.000	810.303	2.071	0.000	0.000
605	403020.000	803.958	1.700	0.000	0.000	677	403380.000	810.407	2.082	0.000	0.000
606	403025.000	804.043	1.700	0.000	0.000	678	403385.000	810.511	2.093	0.000	0.000
607	403030.000	804.128	1.700	0.000	0.000	679	403390.000	810.616	2.105	0.000	0.000
608	403035.000	804.213	1.700	0.000	0.000	680	403395.000	810.722	2.116	0.000	0.000
609	403040.000	804.298	1.700	0.000	0.000	681	403400.000	810.828	2.127	0.000	0.000
610	403045.000	804.383	1.700	0.000	0.000	682	403405.000	810.934	2.138	0.000	0.000
611	403050.000	804.468	1.700	0.000	0.000	683	403410.000	811.041	2.149	0.000	0.000
612	403055.000	804.553	1.700	0.000	0.000	684	403415.000	811.149	2.160	0.000	0.000
613	403060.000	804.638	1.700	0.000	0.000	685	403420.000	811.257	2.171	0.000	0.000
614	403065.000	804.723	1.700	0.000	0.000	686	403425.000	811.366	2.182	0.000	0.000
615	403070.000	804.808	1.700	0.000	0.000	687	403430.000	811.476	2.193	0.000	0.000
616	403075.000	804.893	1.700	0.000	0.000	688	403435.000	811.586	2.205	0.000	0.000
617	403080.000	804.978	1.700	0.000	0.000	689	403440.000	811.696	2.216	0.000	0.000
618	403085.000	805.063	1.700	0.000	0.000	690	403445.000	811.807	2.227	0.000	0.000
619	403090.000	805.148	1.700	0.000	0.000	691	403450.000	811.919	2.238	0.000	0.000
620	403095.000	805.233	1.700	0.000	0.000	692	403455.000	812.031	2.249	0.000	0.000
621	403100.000	805.318	1.700	0.000	0.000	693	403460.000	812.144	2.260	0.000	0.000
622	403105.000	805.403	1.700	0.000	0.000	694	403465.000	812.257	2.271	0.000	0.000
623	403110.000	805.488	1.700	0.000	0.000	695	403470.000	812.371	2.282	0.000	0.000
624	403115.000	805.573	1.700	0.000	0.000	696	403475.000	812.485	2.293	0.000	0.000
625	403120.000	805.658	1.700	0.000	0.000	697	403480.000	812.600	2.305	0.000	0.000
626	403125.000	805.743	1.700	0.000	0.000	698	403485.000	812.716	2.316	0.000	0.000
627	403130.000	805.828	1.700	0.000	0.000	699	403490.000	812.832	2.327	0.000	0.000
628	403135.000	805.913	1.700	0.000	0.000	700	403495.000	812.948	2.338	0.000	0.000
629	403140.000	805.998	1.700	0.000	0.000	701	403500.000	813.066	2.349	0.000	0.000
630	403145.000	806.083	1.700	0.000	0.000	702	403505.000	813.183	2.360	0.000	0.000
631	403150.000	806.168	1.700	0.000	0.000	703	403510.000	813.302	2.371	0.000	0.000
632	403155.000	806.253	1.700	0.000	0.000	704	403515.000	813.420	2.382	0.000	0.000
633	403160.000	806.338	1.700	0.000	0.000	705	403520.000	813.540	2.393	0.000	0.000
634	403165.000	806.423	1.700	0.000	0.000	706	403525.000	813.660	2.400	0.000	0.000
635	403170.000	806.508	1.700	0.000	0.000	707	403530.000	813.780	2.400	0.000	0.000
636	403175.000	806.593	1.700	0.000	0.000	708	403535.000	813.900	2.400	0.000	0.000
637	403180.000	806.678	1.700	0.000	0.000	709	403540.000	814.020	2.400	0.000	0.000
638	403185.000	806.763	1.700	0.000	0.000	710	403545.000	814.140	2.400	0.000	0.000
639	403190.000	806.848	1.700	0.000	0.000	711	403550.000	814.260	2.400	0.000	0.000
640	403195.000	806.933	1.700	0.000	0.000	712	403555.000	814.380	2.400	0.000	0.000
641	403200.000	807.018	1.700	0.000	0.000	713	403560.000	814.500	2.400	0.000	0.000
642	403205.000	807.103	1.700	0.000	0.000	714	403565.000	814.620	2.400	0.000	0.000
643	403210.000	807.188	1.705	0.000	0.000	715	403570.000	814.740	2.400	0.000	0.000
644	403215.000	807.273	1.716	0.000	0.000	716	403575.000	814.860	2.400	0.000	0.000
645	403220.000	807.359	1.727	0.000	0.000	717	403580.000	814.980	2.400	0.000	0.000
646	403225.000	807.446	1.738	0.000	0.000	718	403585.000	815.100	2.400	0.000	0.000
647	403230.000	807.533	1.749	0.000	0.000	719	403590.000	815.220	2.400	0.000	0.000
648	403235.000	807.621	1.760	0.000	0.000	720	403595.000	815.340	2.400	0.000	0.000
649	403240.000	807.709	1.771	0.000	0.000	721	403600.000	815.460	2.400	0.000	0.000
650	403245.000	807.798	1.782	0.000	0.000	722	403605.000	815.580	2.400	0.000	0.000
651	403250.000	807.887	1.793	0.000	0.000	723	403610.000	815.700	2.400	0.000	0.000
652	403255.000	807.977	1.805	0.000	0.000	724	403615.000	815.820	2.400	0.000	0.000
653	403260.000	808.068	1.816	0.000	0.000	725	403620.000	815.940	2.400	0.000	0.000
654	403265.000	808.159	1.827	0.000	0.000	726	403625.000	816.060	2.400	0.000	0.000
655	403270.000	808.251	1.838	0.000	0.000	727	403630.000	816.180	2.400	0.000	0.000
656	403275.000	808.343	1.849	0.000	0.000	728	403635.000	816.300	2.400	0.000	0.000
657	403280.000	808.435	1.860	0.000	0.000	729	403640.000	816.420	2.400	0.000	0.000
658	403285.000	808.529	1.871	0.000	0.000	730	403645.000	816.540	2.400	0.000	0.000
659	403290.000	808.623	1.882	0.000	0.000	731	403650.000	816.660	2.400	0.000	0.000
660	403295.000	808.717	1.893	0.000	0.000	732	403655.000	816.780	2.400	0.000	0.000
661	403300.000	808.812	1.905	0.000	0.000	733	403660.000	816.900	2.400	0.000	0.000
662	403305.000	808.907	1.916	0.000	0.000	734	403665.000	817.020	2.400	0.000	0.000
663	403310.000	809.004	1.927	0.000	0.000	735	403670.000	817.140	2.400	0.000	0.000
664	403315.000	809.100	1.938	0.000	0.000	736	403675.000	817.260	2.400	0.000	0.000
665	403320.000	809.197	1.949	0.000	0.000	737	403680.000	817.380	2.400	0.000	0.000
666	403325.000	809.295	1.960	0.000	0.000	738	403685.000	817.500	2.400	0.000	0.000
667	403330.000	809.393	1.971	0.000	0.000	739	403690.000	817.620	2.400	0.000	0.000
668	403335.000	809.492	1.982	0.000	0.000	740	403695.000	817.740	2.400	0.000	0.000
669	403340.000	809.592	1.993	0.000	0.000	741	403700.000	817.860	2.400	0.000	0.000
670	403345.000	809.691	2.005	0.000	0.000	742	403705.000	817.980	2.400	0.000	0.000
671	403350.000	809.792	2.016	0.000	0.000	743	403710.000	818.100	2.400	0.000	0.000

744	403715.000	818.220	2.400	0.000	0.000
745	403720.000	818.340	2.400	0.000	0.000
746	403725.000	818.460	2.400	0.000	0.000
747	403730.000	818.580	2.400	0.000	0.000
748	403735.000	818.700	2.400	0.000	0.000
749	403740.000	818.820	2.400	0.000	0.000
750	403745.000	818.940	2.400	0.000	0.000
751	403750.000	819.060	2.400	0.000	0.000
752	403755.000	819.180	2.400	0.000	0.000
753	403760.000	819.300	2.400	0.000	0.000
754	403765.000	819.420	2.400	0.000	0.000
755	403770.000	819.540	2.400	0.000	0.000
756	403775.000	819.660	2.400	0.000	0.000
757	403780.000	819.780	2.400	0.000	0.000
758	403785.000	819.900	2.400	0.000	0.000
759	403790.000	820.020	2.400	0.000	0.000
760	403795.000	820.140	2.400	0.000	0.000
761	403800.000	820.260	2.400	0.000	0.000
762	403805.000	820.380	2.400	0.000	0.000
763	403810.000	820.500	2.400	0.000	0.000
764	403815.000	820.620	2.400	0.000	0.000
765	403820.000	820.740	2.400	0.000	0.000
766	403825.000	820.860	2.400	0.000	0.000
767	403830.000	820.980	2.400	0.000	0.000
768	403835.000	821.100	2.400	0.000	0.000
769	403840.000	821.220	2.400	0.000	0.000
770	403845.000	821.340	2.400	0.000	0.000
771	403850.000	821.460	2.400	0.000	0.000
772	403855.000	821.580	2.400	0.000	0.000
773	403860.000	821.700	2.400	0.000	0.000
774	403865.000	821.820	2.400	0.000	0.000
775	403870.000	821.940	2.400	0.000	0.000
776	403875.000	822.060	2.400	0.000	0.000
777	403880.000	822.180	2.400	0.000	0.000
778	403885.000	822.300	2.400	0.000	0.000
779	403890.000	822.420	2.400	0.000	0.000
780	403895.000	822.540	2.400	0.000	0.000
781	403900.000	822.660	2.400	0.000	0.000
782	403905.000	822.780	2.400	0.000	0.000
783	403910.000	822.900	2.400	0.000	0.000
784	403915.000	823.020	2.400	0.000	0.000
785	403920.000	823.140	2.400	0.000	0.000
786	403925.000	823.260	2.400	0.000	0.000
787	403930.000	823.380	2.400	0.000	0.000
788	403935.000	823.500	2.400	0.000	0.000
789	403940.000	823.620	2.400	0.000	0.000
790	403945.000	823.740	2.400	0.000	0.000
791	403950.000	823.860	2.400	0.000	0.000
792	403955.000	823.980	2.400	0.000	0.000
793	403960.000	824.100	2.400	0.000	0.000
794	403965.000	824.220	2.400	0.000	0.000
795	403970.000	824.340	2.400	0.000	0.000
796	403975.000	824.460	2.400	0.000	0.000
797	403980.000	824.580	2.400	0.000	0.000
798	403985.000	824.700	2.400	0.000	0.000
799	403990.000	824.820	2.400	0.000	0.000
800	403995.000	824.940	2.400	0.000	0.000
801	404000.000	825.060	2.400	0.000	0.000
802	404005.000	825.180	2.400	0.000	0.000
803	404010.000	825.300	2.400	0.000	0.000
804	404015.000	825.420	2.400	0.000	0.000
805	404020.000	825.540	2.400	0.000	0.000
806	404025.000	825.660	2.400	0.000	0.000
807	404030.000	825.780	2.400	0.000	0.000
808	404035.000	825.900	2.400	0.000	0.000
809	404040.000	826.020	2.400	0.000	0.000
810	404045.000	826.140	2.400	0.000	0.000
811	404050.000	826.260	2.400	0.000	0.000
812	404055.000	826.380	2.400	0.000	0.000
813	404060.000	826.500	2.400	0.000	0.000
814	404065.000	826.620	2.400	0.000	0.000
815	404070.000	826.740	2.400	0.000	0.000
816	404075.000	826.860	2.400	0.000	0.000
817	404080.000	826.980	2.400	0.000	0.000
818	404085.000	827.100	2.400	0.000	0.000
819	404090.000	827.220	2.400	0.000	0.000
820	404095.000	827.340	2.400	0.000	0.000
821	404100.000	827.460	2.400	0.000	0.000
822	404105.000	827.580	2.400	0.000	0.000
823	404110.000	827.700	2.400	0.000	0.000
824	404115.000	827.820	2.400	0.000	0.000
825	404120.000	827.940	2.400	0.000	0.000
826	404125.000	828.060	2.400	0.000	0.000
827	404130.000	828.180	2.400	0.000	0.000
828	404135.000	828.300	2.400	0.000	0.000
829	404140.000	828.420	2.400	0.000	0.000
830	404145.000	828.540	2.400	0.000	0.000
831	404150.000	828.660	2.400	0.000	0.000
832	404155.000	828.780	2.400	0.000	0.000
833	404160.000	828.900	2.400	0.000	0.000
834	404165.000	829.020	2.400	0.000	0.000
835	404170.000	829.140	2.400	0.000	0.000
836	404175.000	829.260	2.400	0.000	0.000
837	404180.000	829.380	2.400	0.000	0.000
838	404185.000	829.500	2.400	0.000	0.000
839	404190.000	829.620	2.400	0.000	0.000
840	404195.000	829.740	2.400	0.000	0.000
841	404200.000	829.860	2.400	0.000	0.000
842	404205.000	829.980	2.400	0.000	0.000
843	404210.000	830.100	2.400	0.000	0.000
844	404215.000	830.220	2.400	0.000	0.000
845	404220.000	830.340	2.400	0.000	0.000
846	404225.000	830.460	2.400	0.000	0.000
847	404230.000	830.580	2.400	0.000	0.000
848	404235.000	830.700	2.400	0.000	0.000
849	404240.000	830.820	2.400	0.000	0.000
850	404245.000	830.940	2.400	0.000	0.000
851	404250.000	831.060	2.400	0.000	0.000
852	404255.000	831.180	2.400	0.000	0.000
853	404260.000	831.300	2.400	0.000	0.000
854	404265.000	831.420	2.400	0.000	0.000
855	404270.000	831.540	2.400	0.000	0.000
856	404275.000	831.660	2.400	0.000	0.000
857	404280.000	831.780	2.400	0.000	0.000
858	404285.000	831.900	2.400	0.000	0.000
859	404290.000	832.020	2.400	0.000	0.000
860	404295.000	832.140	2.400	0.000	0.000
861	404300.000	832.260	2.400	0.000	0.000
862	404305.000	832.380	2.400	0.000	0.000
863	404310.000	832.500	2.400	0.000	0.000
864	404315.000	832.620	2.400	0.000	0.000
865	404320.000	832.740	2.400	0.000	0.000
866	404325.000	832.860	2.400	0.000	0.000
867	404330.000	832.980	2.400	0.000	0.000
868	404335.000	833.100	2.400	0.000	0.000
869	404340.000	833.220	2.400	0.000	0.000
870	404345.000	833.340	2.400	0.000	0.000
871	404350.000	833.460	2.400	0.000	0.000
872	404355.000	833.580	2.400	0.000	0.000
873	404360.000	833.700	2.400	0.000	0.000
874	404365.000	833.820	2.400	0.000	0.000
875	404370.000	833.940	2.400	0.000	0.000
876	404375.000	834.060	2.400	0.000	0.000
877	404380.000	834.180	2.400	0.000	0.000
878	404385.000	834.300	2.400	0.000	0.000
879	404390.000	834.420	2.400	0.000	0.000
880	404395.000	834.540	2.400	0.000	0.000
881	404400.000	834.660	2.400	0.000	0.000
882	404405.000	834.780	2.400	0.000	0.000
883	404410.000	834.900	2.400	0.000	0.000
884	404415.000	835.020	2.400	0.000	0.000
885	404420.000	835.140	2.400	0.000	0.000
886	404425.000	835.260	2.400	0.000	0.000
887	404430.000	835.380	2.400	0.000	0.000

888	404435.000	835.500	2.400	0.000	0.000
889	404440.000	835.620	2.400	0.000	0.000
890	404445.000	835.740	2.400	0.000	0.000
891	404450.000	835.860	2.400	0.000	0.000
892	404455.000	835.980	2.400	0.000	0.000
893	404460.000	836.100	2.400	0.000	0.000
894	404465.000	836.220	2.400	0.000	0.000
895	404470.000	836.340	2.400	0.000	0.000
896	404475.000	836.460	2.400	0.000	0.000
897	404480.000	836.580	2.400	0.000	0.000
898	404485.000	836.700	2.400	0.000	0.000
899	404490.000	836.820	2.400	0.000	0.000
900	404495.000	836.940	2.400	0.000	0.000
901	404500.000	837.060	2.400	0.000	0.000
902	404505.000	837.180	2.400	0.000	0.000
903	404510.000	837.300	2.400	0.000	0.000
904	404515.000	837.420	2.400	0.000	0.000
905	404520.000	837.540	2.400	0.000	0.000
906	404525.000	837.660	2.400	0.000	0.000
907	404530.000	837.780	2.400	0.000	0.000
908	404535.000	837.900	2.400	0.000	0.000
909	404540.000	838.020	2.400	0.000	0.000
910	404545.000	838.140	2.400	0.000	0.000
911	404550.000	838.260	2.400	0.000	0.000
912	404555.000	838.380	2.400	0.000	0.000
913	404560.000	838.500	2.400	0.000	0.000
914	404565.000	838.620	2.400	0.000	0.000
915	404570.000	838.740	2.400	0.000	0.000
916	404575.000	838.860	2.400	0.000	0.000
917	404580.000	838.980	2.400	0.000	0.000
918	404585.000	839.100	2.400	0.000	0.000
919	404590.000	839.220	2.400	0.000	0.000
920	404595.000	839.340	2.400	0.000	0.000
921	404600.000	839.460	2.400	0.000	0.000
922	404605.000	839.580	2.400	0.000	0.000
923	404610.000	839.700	2.400	0.000	0.000
924	404615.000	839.820	2.400	0.000	0.000
925	404620.000	839.940	2.400	0.000	0.000
926	404625.000	840.060	2.400	0.000	0.000
927	404630.000	840.180	2.400	0.000	0.000
928	404635.000	840.300	2.400	0.000	0.000
929	404640.000	840.420	2.400	0.000	0.000
930	404645.000	840.540	2.400	0.000	0.000
931	404650.000	840.660	2.400	0.000	0.000
932	404655.000	840.780	2.400	0.000	0.000
933	404660.000	840.900	2.400	0.000	0.000
934	404665.000	841.020	2.400	0.000	0.000
935	404670.000	841.140	2.400	0.000	0.000
936	404675.000	841.260	2.400	0.000	0.000
937	404680.000	841.380	2.400	0.000	0.000
938	404685.000	841.500	2.400	0.000	0.000
939	404690.000	841.620	2.400	0.000	0.000
940	404695.000	841.740	2.400	0.000	0.000
941	404700.000	841.860	2.400	0.000	0.000
942	404705.000	841.980	2.400	0.000	0.000
943	404710.000	842.100	2.400	0.000	0.000
944	404715.000	842.220	2.400	0.000	0.000
945	404720.000	842.340	2.400	0.000	0.000
946	404725.000	842.460	2.400	0.000	0.000
947	404730.000	842.580	2.400	0.000	0.000
948	404735.000	842.700	2.400	0.000	0.000
949	404740.000	842.820	2.400	0.000	0.000
950	404745.000	842.940	2.400	0.000	0.000
951	404750.000	843.060	2.400	0.000	0.000
952	404755.000	843.180	2.400	0.000	0.000
953	404760.000	843.300	2.400	0.000	0.000
954	404765.000	843.420	2.400	0.000	0.000
955	404770.000	843.540	2.400	0.000	0.000
956	404775.000	843.660	2.400	0.000	0.000
957	404780.000	843.780	2.400	0.000	0.000
958	404785.000	843.900	2.400	0.000	0.000
959	404790.000	844.020	2.400	0.000	0.000
960	404795.000	844.140	2.400	0.000	0.000
961	404800.000	844.260	2.400	0.000	0.000
962	404805.000	844.380	2.400	0.000	0.000
963	404810.000	844.500	2.400	0.000	0.000
964	404815.000	844.620	2.400	0.000	0.000
965	404820.000	844.740	2.400	0.000	0.000
966	404825.000	844.860	2.400	0.000	0.000
967	404830.000	844.980	2.400	0.000	0.000
968	404835.000	845.100	2.400	0.000	0.000
969	404840.000	845.220	2.400	0.000	0.000
970	404845.000	845.340	2.400	0.000	0.000
971	404850.000	845.460	2.400	0.000	0.000
972	404855.000	845.580	2.400	0.000	0.000
973	404860.000	845.700	2.400	0.000	0.000
974	404865.000	845.820	2.400	0.000	0.000
975	404870.000	845.940	2.400	0.000	0.000
976	404875.000	846.060	2.400	0.000	0.000
977	404880.000	846.180	2.400	0.000	0.000
978	404885.000	846.300	2.400	0.000	0.000
979	404890.000	846.420	2.400	0.000	0.000
980	404895.000	846.540	2.400	0.000	0.000
981	404900.000	846.660	2.400	0.000	0.000
982	404905.000	846.780	2.400	0.000	0.000
983	404910.000	846.900	2.400	0.000	0.000
984	404915.000	847.020	2.400	0.000	0.000
985	404920.000	847.140	2.400	0.000	0.000
986	404925.000	847.260	2.400	0.000	0.000
987	404930.000	847.380	2.400	0.000	0.000
988	404935.000	847.500	2.400	0.000	0.000
989	404940.000	847.620	2.400	0.000	0.000
990	404945.000	847.740	2.400	0.000	0.000
991	404950.000	847.860	2.400	0.000	0.000
992	404955.000	847.980	2.400	0.000	0.000
993	404960.000	848.100	2.400	0.000	0.000
994	404965.000	848.220	2.400	0.000	0.000
995	404970.000	848.340	2.400	0.000	0.000
996	404975.000	848.460	2.400	0.000	0.000
997	404980.000	848.580	2.400	0.000	0.000
998	404985.000	848.700	2.400	0.000	0.000
999	404990.000	848.820	2.400	0.000	0.000
1000	404995.000	848.940	2.400	0.000	0.000
1001	405000.000	849.060	2.400	0.000	0.000
1002	405005.000	849.180	2.400	0.000	0.000
1003	405010.000	849.300	2.400	0.000	0.000
1004	405015.000	849.420	2.400	0.000	0.000
1005	405020.000	849.540	2.400	0.000	0.000
1006	405025.000	849.660	2.400	0.000	0.000
1007	405030.000	849.780	2.400	0.000	0.000
1008	405035.000	849.900	2.400	0.000	0.000
1009	405040.000	850.020	2.400	0.000	0.000
1010	405045.000	850.140	2.400	0.000	0.000
1011	405050.000	850.260	2.400	0.000	0.000
1012	405055.000	850.380	2.400	0.000	0.000
1013	405060.000	850.500	2.400	0.000	0.000
1014	405065.000	850.620	2.400	0.000	0.000
1015	405070.000	850.740	2.400	0.000	0.000
1016	405075.000	850.860	2.400	0.000	0.000
1017	405080.000	850.980	2.400	0.000	0.000
1018	405085.000	851.100	2.400	0.000	0.000
1019	405090.000	851.220	2.400	0.000	0.000
1020	405095.000	851.340	2.400	0.000	0.000
1021	405100.000	851.460	2.400	0.000	0.000
1022	405105.000	851.580	2.400	0.000	0.000
1023	405110.000	851.700	2.400	0.000	0.000
1024	405115.000	851.820	2.400	0.000	0.000
1025	405120.000	851.940	2.400	0.000	0.000
1026	405125.000	852.060	2.400	0.000	0.000
1027	405130.000	852.180	2.400	0.000	0.000
1028	405135.000	852.300	2.400	0.000	0.000
1029	405140.000	852.420	2.400	0.000	0.000
1030	405145.000	852.540	2.400	0.000	0.000
1031	405150.000	852.660	2.400	0.000	0.000

1032	405155.000	852.780	2.400	0.000	0.000
1033	405160.000	852.900	2.400	0.000	0.000
1034	405165.000	853.020	2.400	0.000	0.000
1035	405170.000	853.140	2.400	0.000	0.000
1036	405175.000	853.260	2.400	0.000	0.000
1037	405180.000	853.380	2.400	0.000	0.000
1038	405185.000	853.500	2.400	0.000	0.000
1039	405190.000	853.620	2.400	0.000	0.000
1040	405195.000	853.740	2.400	0.000	0.000
1041	405200.000	853.860	2.400	0.000	0.000
1042	405205.000	853.980	2.400	0.000	0.000
1043	405210.000	854.100	2.400	0.000	0.000
1044	405215.000	854.220	2.400	0.000	0.000
1045	405220.000	854.340	2.400	0.000	0.000
1046	405225.000	854.460	2.400	0.000	0.000
1047	405230.000	854.580	2.400	0.000	0.000
1048	405235.000	854.700	2.400	0.000	0.000
1049	405240.000	854.820	2.400	0.000	0.000
1050	405245.000	854.940	2.400	0.000	0.000
1051	405250.000	855.060	2.400	0.000	0.000
1052	405255.000	855.180	2.400	0.000	0.000
1053	405260.000	855.300	2.400	0.000	0.000
1054	405265.000	855.420	2.400	0.000	0.000
1055	405270.000	855.540	2.400	0.000	0.000
1056	405275.000	855.660	2.400	0.000	0.000
1057	405280.000	855.780	2.400	0.000	0.000
1058	405285.000	855.900	2.400	0.000	0.000
1059	405290.000	856.020	2.400	0.000	0.000
1060	405295.000	856.140	2.400	0.000	0.000
1061	405300.000	856.260	2.400	0.000	0.000
1062	405305.000	856.380	2.400	0.000	0.000
1063	405310.000	856.500	2.400	0.000	0.000
1064	405315.000	856.620	2.400	0.000	0.000
1065	405320.000	856.740	2.400	0.000	0.000
1066	405325.000	856.860	2.400	0.000	0.000
1067	405330.000	856.980	2.400	0.000	0.000
1068	405335.000	857.100	2.400	0.000	0.000
1069	405340.000	857.220	2.400	0.000	0.000
1070	405345.000	857.340	2.400	0.000	0.000
1071	405350.000	857.460	2.400	0.000	0.000
1072	405355.000	857.580	2.400	0.000	0.000
1073	405360.000	857.700	2.400	0.000	0.000
1074	405365.000	857.820	2.400	0.000	0.000
1075	405370.000	857.940	2.400	0.000	0.000
1076	405375.000	858.060	2.400	0.000	0.000
1077	405380.000	858.180	2.400	0.000	0.000
1078	405385.000	858.300	2.400	0.000	0.000
1079	405390.000	858.420	2.400	0.000	0.000
1080	405395.000	858.540	2.400	0.000	0.000
1081	405400.000	858.660	2.400	0.000	0.000
1082	405405.000	858.780	2.400	0.000	0.000
1083	405410.000	858.900	2.400	0.000	0.000
1084	405415.000	859.020	2.400	0.000	0.000
1085	405420.000	859.140	2.400	0.000	0.000
1086	405425.000	859.260	2.400	0.000	0.000
1087	405430.000	859.380	2.400	0.000	0.000
1088	405435.000	859.500	2.400	0.000	0.000
1089	405440.000	859.620	2.400	0.000	0.000
1090	405445.000	859.740	2.400	0.000	0.000
1091	405450.000	859.860	2.400	0.000	0.000
1092	405455.000	859.980	2.400	0.000	0.000
1093	405460.000	860.100	2.400	0.000	0.000
1094	405465.000	860.220	2.400	0.000	0.000
1095	405470.000	860.340	2.400	0.000	0.000
1096	405475.000	860.460	2.400	0.000	0.000
1097	405480.000	860.580	2.400	0.000	0.000
1098	405485.000	860.700	2.400	0.000	0.000
1099	405490.000	860.820	2.400	0.000	0.000
1100	405495.000	860.940	2.400	0.000	0.000
1101	405500.000	861.060	2.400	0.000	0.000
1102	405505.000	861.180	2.400	0.000	0.000
1103	405510.000	861.300	2.400	0.000	0.000
1104	405515.000	861.420	2.400	0.000	0.000
1105	405520.000	861.540	2.400	0.000	0.000
1106	405525.000	861.660	2.400	0.000	0.000
1107	405530.000	861.780	2.400	0.000	0.000
1108	405535.000	861.900	2.400	0.000	0.000
1109	405540.000	862.020	2.400	0.000	0.000
1110	405545.000	862.140	2.400	0.000	0.000
1111	405550.000	862.260	2.400	0.000	0.000
1112	405555.000	862.380	2.400	0.000	0.000
1113	405560.000	862.500	2.400	0.000	0.000
1114	405565.000	862.620	2.400	0.000	0.000
1115	405570.000	862.740	2.400	0.000	0.000
1116	405575.000	862.860	2.400	0.000	0.000
1117	405580.000	862.980	2.400	0.000	0.000
1118	405585.000	863.100	2.400	0.000	0.000
1119	405590.000	863.220	2.400	0.000	0.000
1120	405595.000	863.340	2.400	0.000	0.000
1121	405600.000	863.460	2.400	0.000	0.000
1122	405605.000	863.580	2.400	0.000	0.000
1123	405610.000	863.700	2.400	0.000	0.000
1124	405615.000	863.820	2.400	0.000	0.000
1125	405620.000	863.940	2.400	0.000	0.000
1126	405625.000	864.060	2.400	0.000	0.000
1127	405630.000	864.180	2.400	0.000	0.000
1128	405635.000	864.300	2.400	0.000	0.000
1129	405640.000	864.420	2.400	0.000	0.000
1130	405645.000	864.540	2.400	0.000	0.000
1131	405650.000	864.660	2.400	0.000	0.000
1132	405655.000	864.780	2.400	0.000	0.000
1133	405660.000	864.900	2.400	0.000	0.000
1134	405665.000	865.020	2.400	0.000	0.000
1135	405670.000	865.140	2.400	0.000	0.000
1136	405675.000	865.260	2.400	0.000	0.000
1137	405680.000	865.380	2.400	0.000	0.000
1138	405685.000	865.500	2.400	0.000	0.000
1139	405690.000	865.620	2.400	0.000	0.000
1140	405695.000	865.740	2.400	0.000	0.000
1141	405700.000	865.860	2.400	0.000	0.000
1142	405705.000	865.980	2.400	0.000	0.000
1143	405710.000	866.100	2.400	0.000	0.000
1144	405715.000	866.220	2.400	0.000	0.000
1145	405720.000	866.340	2.400	0.000	0.000
1146	405725.000	866.460	2.400	0.000	0.000
1147	405730.000	866.580	2.400	0.000	0.000
1148	405735.000	866.700	2.400	0.000	0.000
1149	405740.000	866.820	2.400	0.000	0.000
1150	405745.000	866.940	2.400	0.000	0.000
1151	405750.000	867.060	2.400	0.000	0.000
1152	405755.000	867.180	2.400	0.000	0.000
1153	405760.000	867.300	2.400	0.000	0.000
1154	405765.000	867.420	2.400	0.000	0.000
1155	405770.000	867.540	2.400	0.000	0.000
1156	405775.000	867.660	2.400	0.000	0.000
1157	405780.000	867.780	2.400	0.000	0.000
1158	405785.000	867.900	2.400	0.000	0.000
1159	405790.000	868.020	2.400	0.000	0.000
1160	405795.000	868.140	2.400	0.000	0.000
1161	405800.000	868.260	2.400	0.000	0.000
1162	405805.000	868.380	2.400	0.000	0.000
1163	405810.000	868.500	2.400	0.000	0.000
1164	405815.000	868.620	2.400	0.000	0.000
1165	405820.000	868.740	2.400	0.000	0.000
1166	405825.000	868.860	2.400	0.000	0.000
1167	405830.000	868.980	2.400	0.000	0.000
1168	405835.000	869.100	2.400	0.000	0.000
1169	405840.000	869.220	2.400	0.000	0.000
1170	405845.000	869.340	2.400	0.000	0.000
1171	405850.000	869.460	2.400	0.000	0.000
1172	405855.000	869.580	2.400	0.000	0.000
1173	405860.000	869.700	2.400	0.000	0.000
1174	405865.000	869.820	2.400	0.000	0.000
1175	405870.000	869.940	2.400	0.000	0.000

1176	405875.000	870.060	2.400	0.000	0.000
1177	405880.000	870.180	2.400	0.000	0.000
1178	405885.000	870.300	2.400	0.000	0.000
1179	405890.000	870.420	2.400	0.000	0.000
1180	405895.000	870.540	2.400	0.000	0.000
1181	405900.000	870.660	2.400	0.000	0.000
1182	405905.000	870.780	2.400	0.000	0.000
1183	405910.000	870.900	2.400	0.000	0.000
1184	405915.000	871.020	2.400	0.000	0.000
1185	405920.000	871.140	2.400	0.000	0.000
1186	405925.000	871.260	2.400	0.000	0.000
1187	405930.000	871.380	2.400	0.000	0.000
1188	405935.000	871.500	2.400	0.000	0.000
1189	405940.000	871.620	2.400	0.000	0.000
1190	405945.000	871.740	2.400	0.000	0.000
1191	405950.000	871.860	2.400	0.000	0.000
1192	405955.000	871.980	2.400	0.000	0.000
1193	405960.000	872.100	2.400	0.000	0.000
1194	405965.000	872.220	2.400	0.000	0.000
1195	405970.000	872.340	2.400	0.000	0.000
1196	405975.000	872.460	2.400	0.000	0.000
1197	405980.000	872.580	2.400	0.000	0.000
1198	405985.000	872.700	2.400	0.000	0.000
1199	405990.000	872.820	2.400	0.000	0.000
1200	405995.000	872.940	2.400	0.000	0.000
1201	406000.000	873.060	2.400	0.000	0.000
1202	406005.000	873.180	2.400	0.000	0.000
1203	406010.000	873.300	2.400	0.000	0.000
1204	406015.000	873.420	2.400	0.000	0.000
1205	406020.000	873.540	2.400	0.000	0.000
1206	406025.000	873.660	2.400	0.000	0.000
1207	406030.000	873.780	2.400	0.000	0.000
1208	406035.000	873.900	2.400	0.000	0.000
1209	406040.000	874.020	2.400	0.000	0.000
1210	406045.000	874.140	2.400	0.000	0.000
1211	406050.000	874.260	2.400	0.000	0.000
1212	406055.000	874.380	2.400	0.000	0.000
1213	406060.000	874.500	2.400	0.000	0.000
1214	406065.000	874.620	2.400	0.000	0.000
1215	406070.000	874.740	2.400	0.000	0.000
1216	406075.000	874.860	2.400	0.000	0.000
1217	406080.000	874.980	2.400	0.000	0.000
1218	406085.000	875.100	2.400	0.000	0.000
1219	406090.000	875.220	2.400	0.000	0.000
1220	406095.000	875.340	2.400	0.000	0.000
1221	406100.000	875.460	2.400	0.000	0.000
1222	406105.000	875.580	2.400	0.000	0.000
1223	406110.000	875.700	2.400	0.000	0.000
1224	406115.000	875.820	2.400	0.000	0.000
1225	406120.000	875.940	2.400	0.000	0.000
1226	406125.000	876.060	2.400	0.000	0.000
1227	406130.000	876.180	2.400	0.000	0.000
1228	406135.000	876.300	2.392	0.000	0.000
1229	406140.000	876.419	2.380	0.000	0.000
1230	406145.000	876.538	2.369	0.000	0.000
1231	406150.000	876.656	2.358	0.000	0.000
1232	406155.000	876.774	2.347	0.000	0.000
1233	406160.000	876.891	2.336	0.000	0.000
1234	406165.000	877.007	2.325	0.000	0.000
1235	406170.000	877.123	2.314	0.000	0.000
1236	406175.000	877.239	2.303	0.000	0.000
1237	406180.000	877.353	2.292	0.000	0.000
1238	406185.000	877.468	2.280	0.000	0.000
1239	406190.000	877.582	2.269	0.000	0.000
1240	406195.000	877.695	2.258	0.000	0.000
1241	406200.000	877.807	2.247	0.000	0.000
1242	406205.000	877.919	2.236	0.000	0.000
1243	406210.000	878.031	2.225	0.000	0.000
1244	406215.000	878.142	2.214	0.000	0.000
1245	406220.000	878.252	2.203	0.000	0.000
1246	406225.000	878.362	2.192	0.000	0.000
1247	406230.000	878.471	2.180	0.000	0.000
1248	406235.000	878.580	2.169	0.000	0.000
1249	406240.000	878.688	2.158	0.000	0.000
1250	406245.000	878.796	2.147	0.000	0.000
1251	406250.000	878.903	2.136	0.000	0.000
1252	406255.000	879.010	2.125	0.000	0.000
1253	406260.000	879.116	2.114	0.000	0.000
1254	406265.000	879.221	2.103	0.000	0.000
1255	406270.000	879.326	2.092	0.000	0.000
1256	406275.000	879.430	2.080	0.000	0.000
1257	406280.000	879.534	2.069	0.000	0.000
1258	406285.000	879.637	2.058	0.000	0.000
1259	406290.000	879.740	2.047	0.000	0.000
1260	406295.000	879.842	2.036	0.000	0.000
1261	406300.000	879.943	2.025	0.000	0.000
1262	406305.000	880.044	2.014	0.000	0.000
1263	406310.000	880.145	2.003	0.000	0.000
1264	406315.000	880.245	1.992	0.000	0.000
1265	406320.000	880.344	1.980	0.000	0.000
1266	406325.000	880.443	1.969	0.000	0.000
1267	406330.000	880.541	1.958	0.000	0.000
1268	406335.000	880.638	1.947	0.000	0.000
1269	406340.000	880.736	1.936	0.000	0.000
1270	406345.000	880.832	1.925	0.000	0.000
1271	406350.000	880.928	1.914	0.000	0.000
1272	406355.000	881.023	1.903	0.000	0.000
1273	406360.000	881.118	1.892	0.000	0.000
1274	406365.000	881.213	1.880	0.000	0.000
1275	406370.000	881.306	1.869	0.000	0.000
1276	406375.000	881.400	1.858	0.000	0.000
1277	406380.000	881.492	1.847	0.000	0.000
1278	406385.000	881.584	1.836	0.000	0.000
1279	406390.000	881.676	1.825	0.000	0.000
1280	406395.000	881.767	1.814	0.000	0.000
1281	406400.000	881.857	1.803	0.000	0.000
1282	406405.000	881.947	1.792	0.000	0.000
1283	406410.000	882.036	1.780	0.000	0.000
1284	406415.000	882.125	1.769	0.000	0.000
1285	406420.000	882.213	1.758	0.000	0.000
1286	406425.000	882.301	1.747	0.000	0.000
1287	406430.000	882.388	1.736	0.000	0.000
1288	406435.000	882.474	1.725	0.000	0.000
1289	406440.000	882.560	1.714	0.000	0.000
1290	406445.000	882.646	1.703	0.000	0.000
1291	406450.000	882.731	1.692	0.000	0.000
1292	406455.000	882.815	1.680	0.000	0.000
1293	406460.000	882.899	1.669	0.000	0.000
1294	406465.000	882.982	1.658	0.000	0.000
1295	406470.000	883.065	1.647	0.000	0.000
1296	406475.000	883.147	1.636	0.000	0.000
1297	406480.000	883.228	1.625	0.000	0.000
1298	406485.000	883.309	1.614	0.000	0.000
1299	406490.000	883.390	1.603	0.000	0.000
1300	406495.000	883.469	1.592	0.000	0.000
1301	406500.000	883.549	1.580	0.000	0.000
1302	406505.000	883.627	1.569	0.000	0.000
1303	406510.000	883.706	1.558	0.000	0.000
1304	406515.000	883.783	1.547	0.000	0.000
1305	406520.000	883.860	1.536	0.000	0.000
1306	406525.000	883.937	1.525	0.000	0.000
1307	406530.000	884.013	1.514	0.000	0.000
1308	406535.000	884.088	1.503	0.000	0.000
1309	406540.000	884.163	1.492	0.000	0.000
1310	406545.000	884.237	1.480	0.000	0.000
1311	406550.000	884.311	1.469	0.000	0.000
1312	406555.000	884.384	1.458	0.000	0.000
1313	406560.000	884.457	1.447	0.000	0.000
1314	406565.000	884.529	1.436	0.000	0.000
1315	406570.000	884.601	1.425	0.000	0.000
1316	406575.000	884.672	1.414	0.000	0.000
1317	406580.000	884.742	1.403	0.000	0.000
1318	406585.000	884.812	1.392	0.000	0.000
1319	406590.000	884.881	1.380	0.000	0.000

1320	406595.000	884.950	1.369	0.000	0.000
1321	406600.000	885.018	1.358	0.000	0.000
1322	406605.000	885.086	1.347	0.000	0.000
1323	406610.000	885.153	1.336	0.000	0.000
1324	406615.000	885.219	1.325	0.000	0.000
1325	406620.000	885.285	1.314	0.000	0.000
1326	406625.000	885.351	1.303	0.000	0.000
1327	406630.000	885.415	1.292	0.000	0.000
1328	406635.000	885.480	1.280	0.000	0.000
1329	406640.000	885.544	1.269	0.000	0.000
1330	406645.000	885.607	1.258	0.000	0.000
1331	406650.000	885.669	1.247	0.000	0.000
1332	406655.000	885.731	1.236	0.000	0.000
1333	406660.000	885.793	1.225	0.000	0.000
1334	406665.000	885.854	1.214	0.000	0.000
1335	406670.000	885.914	1.203	0.000	0.000
1336	406675.000	885.974	1.192	0.000	0.000
1337	406680.000	886.033	1.180	0.000	0.000
1338	406685.000	886.092	1.169	0.000	0.000
1339	406690.000	886.150	1.158	0.000	0.000
1340	406695.000	886.208	1.147	0.000	0.000
1341	406700.000	886.265	1.136	0.000	0.000
1342	406705.000	886.322	1.125	0.000	0.000
1343	406710.000	886.378	1.114	0.000	0.000
1344	406715.000	886.433	1.103	0.000	0.000
1345	406720.000	886.488	1.092	0.000	0.000
1346	406725.000	886.542	1.080	0.000	0.000
1347	406730.000	886.596	1.069	0.000	0.000
1348	406735.000	886.649	1.058	0.000	0.000
1349	406740.000	886.702	1.047	0.000	0.000
1350	406745.000	886.754	1.036	0.000	0.000
1351	406750.000	886.805	1.025	0.000	0.000
1352	406755.000	886.856	1.014	0.000	0.000
1353	406760.000	886.907	1.003	0.000	0.000
1354	406765.000	886.957	0.992	0.000	0.000
1355	406770.000	887.006	0.980	0.000	0.000
1356	406775.000	887.055	0.969	0.000	0.000
1357	406780.000	887.103	0.958	0.000	0.000
1358	406785.000	887.150	0.947	0.000	0.000
1359	406790.000	887.198	0.936	0.000	0.000
1360	406795.000	887.244	0.925	0.000	0.000
1361	406800.000	887.290	0.914	0.000	0.000
1362	406805.000	887.335	0.903	0.000	0.000
1363	406810.000	887.380	0.892	0.000	0.000
1364	406815.000	887.425	0.880	0.000	0.000
1365	406820.000	887.468	0.869	0.000	0.000
1366	406825.000	887.511	0.858	0.000	0.000
1367	406830.000	887.554	0.847	0.000	0.000
1368	406835.000	887.596	0.836	0.000	0.000
1369	406840.000	887.638	0.825	0.000	0.000
1370	406845.000	887.679	0.814	0.000	0.000
1371	406850.000	887.719	0.803	0.000	0.000
1372	406855.000	887.759	0.792	0.000	0.000
1373	406860.000	887.798	0.780	0.000	0.000
1374	406865.000	887.837	0.769	0.000	0.000
1375	406870.000	887.875	0.758	0.000	0.000
1376	406875.000	887.913	0.747	0.000	0.000
1377	406880.000	887.950	0.736	0.000	0.000
1378	406885.000	887.986	0.725	0.000	0.000
1379	406890.000	888.022	0.714	0.000	0.000
1380	406895.000	888.058	0.703	0.000	0.000
1381	406900.000	888.093	0.692	0.000	0.000
1382	406905.000	888.127	0.680	0.000	0.000
1383	406910.000	888.161	0.669	0.000	0.000
1384	406915.000	888.194	0.658	0.000	0.000
1385	406920.000	888.227	0.647	0.000	0.000
1386	406925.000	888.259	0.636	0.000	0.000
1387	406930.000	888.290	0.625	0.000	0.000
1388	406935.000	888.321	0.614	0.000	0.000
1389	406940.000	888.351	0.603	0.000	0.000
1390	406945.000	888.381	0.592	0.000	0.000
1391	406950.000	888.411	0.580	0.000	0.000
1392	406955.000	888.439	0.569	0.000	0.000
1393	406960.000	888.468	0.558	0.000	0.000
1394	406965.000	888.495	0.547	0.000	0.000
1395	406970.000	888.522	0.536	0.000	0.000
1396	406975.000	888.549	0.525	0.000	0.000
1397	406980.000	888.575	0.514	0.000	0.000
1398	406985.000	888.600	0.503	0.000	0.000
1399	406990.000	888.625	0.494	0.000	0.000
1400	406995.000	888.650	0.494	0.000	0.000
1401	407000.000	888.674	0.494	0.000	0.000
1402	407005.000	888.699	0.494	0.000	0.000
1403	407010.000	888.724	0.494	0.000	0.000
1404	407015.000	888.749	0.494	0.000	0.000
1405	407020.000	888.773	0.494	0.000	0.000
1406	407025.000	888.798	0.494	0.000	0.000
1407	407030.000	888.823	0.494	0.000	0.000
1408	407035.000	888.847	0.494	0.000	0.000
1409	407040.000	888.872	0.494	0.000	0.000
1410	407045.000	888.897	0.494	0.000	0.000
1411	407050.000	888.922	0.494	0.000	0.000
1412	407055.000	888.946	0.494	0.000	0.000
1413	407060.000	888.971	0.494	0.000	0.000
1414	407065.000	888.996	0.494	0.000	0.000
1415	407070.000	889.020	0.494	0.000	0.000
1416	407075.000	889.045	0.494	0.000	0.000
1417	407080.000	889.070	0.494	0.000	0.000
1418	407085.000	889.095	0.494	0.000	0.000
1419	407090.000	889.119	0.494	0.000	0.000
1420	407095.000	889.144	0.494	0.000	0.000
1421	407100.000	889.169	0.494	0.000	0.000
1422	407105.000	889.193	0.494	0.000	0.000
1423	407110.000	889.218	0.494	0.000	0.000
1424	407115.000	889.243	0.494	0.000	0.000
1425	407120.000	889.268	0.494	0.000	0.000
1426	407125.000	889.292	0.494	0.000	0.000
1427	407130.000	889.317	0.494	0.000	0.000
1428	407135.000	889.342	0.494	0.000	0.000
1429	407140.000	889.366	0.494	0.000	0.000
1430	407145.000	889.391	0.494	0.000	0.000
1431	407150.000	889.416	0.494	0.000	0.000
1432	407155.000	889.440	0.494	0.000	0.000
1433	407160.000	889.465	0.494	0.000	0.000
1434	407165.000	889.490	0.494	0.000	0.000
1435	407170.000	889.515	0.494	0.000	0.000
1436	407175.000	889.539	0.494	0.000	0.000
1437	407180.000	889.564	0.494	0.000	0.000
1438	407185.000	889.589	0.494	0.000	0.000
1439	407190.000	889.613	0.494	0.000	0.000
1440	407195.000	889.638	0.494	0.000	0.000
1441	407200.000	889.663	0.494	0.000	0.000
1442	407205.000	889.688	0.494	0.000	0.000
1443	407210.000	889.712	0.494	0.000	0.000
1444	407215.000	889.737	0.494	0.000	0.000
1445	407220.000	889.762	0.494	0.000	0.000
1446	407225.000	889.786	0.494	0.000	0.000
1447	407230.000	889.811	0.494	0.000	0.000
1448	407235.000	889.836	0.494	0.000	0.000
1449	407240.000	889.861	0.494	0.000	0.000
1450	407245.000	889.885	0.494	0.000	0.000
1451	407250.000	889.910	0.494	0.000	0.000
1452	407255.000	889.935	0.494	0.000	0.000
1453	407260.000	889.959	0.494	0.000	0.000
1454	407265.000	889.984	0.494	0.000	0.000
1455	407270.000	890.009	0.494	0.000	0.000
1456	407275.000	890.034	0.494	0.000	0.000
1457	407280.000	890.058	0.494	0.000	0.000
1458	407285.000	890.083	0.494	0.000	0.000
1459	407290.000	890.108	0.494	0.000	0.000
1460	407295.000	890.132	0.494	0.000	0.000
1461	407300.000	890.157	0.494	0.000	0.000
1462	407305.000	890.182	0.494	0.000	0.000
1463	407310.000	890.207	0.494	0.000	0.000

1464	407315.000	890.231	0.494	0.000	0.000
1465	407320.000	890.256	0.494	0.000	0.000
1466	407325.000	890.281	0.494	0.000	0.000
1467	407330.000	890.305	0.494	0.000	0.000
1468	407335.000	890.330	0.494	0.000	0.000
1469	407340.000	890.355	0.494	0.000	0.000
1470	407345.000	890.379	0.494	0.000	0.000
1471	407350.000	890.404	0.494	0.000	0.000
1472	407355.000	890.429	0.494	0.000	0.000
1473	407360.000	890.454	0.494	0.000	0.000
1474	407365.000	890.478	0.494	0.000	0.000
1475	407370.000	890.503	0.494	0.000	0.000
1476	407375.000	890.528	0.494	0.000	0.000
1477	407380.000	890.552	0.494	0.000	0.000
1478	407385.000	890.577	0.494	0.000	0.000
1479	407390.000	890.602	0.494	0.000	0.000
1480	407395.000	890.627	0.494	0.000	0.000
1481	407400.000	890.651	0.494	0.000	0.000
1482	407405.000	890.676	0.494	0.000	0.000
1483	407410.000	890.701	0.494	0.000	0.000
1484	407415.000	890.725	0.494	0.000	0.000
1485	407420.000	890.750	0.494	0.000	0.000
1486	407425.000	890.775	0.494	0.000	0.000
1487	407430.000	890.800	0.494	0.000	0.000
1488	407435.000	890.824	0.494	0.000	0.000
1489	407440.000	890.849	0.494	0.000	0.000
1490	407445.000	890.874	0.494	0.000	0.000
1491	407450.000	890.898	0.494	0.000	0.000
1492	407455.000	890.923	0.494	0.000	0.000
1493	407460.000	890.948	0.494	0.000	0.000
1494	407465.000	890.973	0.494	0.000	0.000
1495	407470.000	890.997	0.494	0.000	0.000
1496	407475.000	891.022	0.494	0.000	0.000
1497	407480.000	891.047	0.494	0.000	0.000
1498	407485.000	891.071	0.494	0.000	0.000
1499	407490.000	891.096	0.494	0.000	0.000
1500	407495.000	891.121	0.494	0.000	0.000
1501	407500.000	891.145	0.494	0.000	0.000
1502	407505.000	891.170	0.494	0.000	0.000
1503	407510.000	891.195	0.494	0.000	0.000
1504	407515.000	891.220	0.494	0.000	0.000
1505	407520.000	891.244	0.494	0.000	0.000
1506	407525.000	891.269	0.494	0.000	0.000
1507	407530.000	891.294	0.494	0.000	0.000
1508	407535.000	891.318	0.494	0.000	0.000
1509	407540.000	891.343	0.494	0.000	0.000
1510	407545.000	891.368	0.494	0.000	0.000
1511	407550.000	891.393	0.494	0.000	0.000
1512	407555.000	891.417	0.494	0.000	0.000
1513	407560.000	891.442	0.494	0.000	0.000
1514	407565.000	891.467	0.494	0.000	0.000
1515	407570.000	891.491	0.494	0.000	0.000
1516	407575.000	891.516	0.494	0.000	0.000
1517	407580.000	891.541	0.494	0.000	0.000
1518	407585.000	891.566	0.494	0.000	0.000
1519	407590.000	891.590	0.494	0.000	0.000
1520	407595.000	891.615	0.494	0.000	0.000
1521	407600.000	891.640	0.494	0.000	0.000
1522	407605.000	891.664	0.494	0.000	0.000
1523	407610.000	891.689	0.494	0.000	0.000
1524	407615.000	891.714	0.494	0.000	0.000
1525	407620.000	891.739	0.494	0.000	0.000
1526	407625.000	891.763	0.494	0.000	0.000
1527	407630.000	891.788	0.494	0.000	0.000
1528	407635.000	891.813	0.494	0.000	0.000
1529	407640.000	891.837	0.494	0.000	0.000
1530	407645.000	891.862	0.494	0.000	0.000
1531	407650.000	891.887	0.494	0.000	0.000
1532	407655.000	891.911	0.494	0.000	0.000
1533	407660.000	891.936	0.494	0.000	0.000
1534	407665.000	891.961	0.494	0.000	0.000
1535	407670.000	891.986	0.494	0.000	0.000
1536	407675.000	892.010	0.494	0.000	0.000
1537	407680.000	892.035	0.494	0.000	0.000
1538	407685.000	892.060	0.494	0.000	0.000
1539	407690.000	892.084	0.494	0.000	0.000
1540	407695.000	892.109	0.494	0.000	0.000
1541	407700.000	892.134	0.494	0.000	0.000
1542	407705.000	892.159	0.494	0.000	0.000
1543	407710.000	892.183	0.494	0.000	0.000
1544	407715.000	892.208	0.494	0.000	0.000
1545	407720.000	892.233	0.494	0.000	0.000
1546	407725.000	892.257	0.494	0.000	0.000
1547	407730.000	892.282	0.494	0.000	0.000
1548	407735.000	892.307	0.494	0.000	0.000
1549	407740.000	892.332	0.494	0.000	0.000
1550	407745.000	892.356	0.494	0.000	0.000
1551	407750.000	892.381	0.494	0.000	0.000
1552	407755.000	892.406	0.494	0.000	0.000
1553	407760.000	892.430	0.494	0.000	0.000
1554	407765.000	892.455	0.494	0.000	0.000
1555	407770.000	892.480	0.494	0.000	0.000
1556	407775.000	892.505	0.494	0.000	0.000
1557	407780.000	892.529	0.494	0.000	0.000
1558	407785.000	892.554	0.494	0.000	0.000
1559	407790.000	892.579	0.494	0.000	0.000
1560	407795.000	892.603	0.494	0.000	0.000
1561	407800.000	892.628	0.494	0.000	0.000
1562	407805.000	892.653	0.494	0.000	0.000
1563	407810.000	892.678	0.501	0.000	0.000
1564	407815.000	892.703	0.508	0.000	0.000
1565	407820.000	892.728	0.516	0.000	0.000
1566	407825.000	892.755	0.524	0.000	0.000
1567	407830.000	892.781	0.532	0.000	0.000
1568	407835.000	892.808	0.539	0.000	0.000
1569	407840.000	892.835	0.547	0.000	0.000
1570	407845.000	892.862	0.555	0.000	0.000
1571	407850.000	892.890	0.562	0.000	0.000
1572	407855.000	892.919	0.570	0.000	0.000
1573	407860.000	892.947	0.578	0.000	0.000
1574	407865.000	892.976	0.585	0.000	0.000
1575	407870.000	893.006	0.593	0.000	0.000
1576	407875.000	893.036	0.601	0.000	0.000
1577	407880.000	893.066	0.608	0.000	0.000
1578	407885.000	893.097	0.616	0.000	0.000
1579	407890.000	893.128	0.624	0.000	0.000
1580	407895.000	893.159	0.632	0.000	0.000
1581	407900.000	893.191	0.639	0.000	0.000
1582	407905.000	893.223	0.647	0.000	0.000
1583	407910.000	893.255	0.655	0.000	0.000
1584	407915.000	893.288	0.662	0.000	0.000
1585	407920.000	893.322	0.670	0.000	0.000
1586	407925.000	893.355	0.678	0.000	0.000
1587	407930.000	893.389	0.685	0.000	0.000
1588	407935.000	893.424	0.693	0.000	0.000
1589	407940.000	893.459	0.701	0.000	0.000
1590	407945.000	893.494	0.708	0.000	0.000
1591	407950.000	893.530	0.716	0.000	0.000
1592	407955.000	893.566	0.724	0.000	0.000
1593	407960.000	893.602	0.732	0.000	0.000
1594	407965.000	893.639	0.739	0.000	0.000
1595	407970.000	893.676	0.747	0.000	0.000
1596	407975.000	893.713	0.755	0.000	0.000
1597	407980.000	893.751	0.762	0.000	0.000
1598	407985.000	893.790	0.770	0.000	0.000
1599	407990.000	893.828	0.778	0.000	0.000
1600	407995.000	893.867	0.785	0.000	0.000
1601	408000.000	893.907	0.793	0.000	0.000
1602	408005.000	893.947	0.800	0.000	0.000

Programa LST0 - Replanteo de viaductos hormigón pretensado y mixtos (V 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

REPLANTEO EN PLANTA DEL EJE DEL PUENTE

LEYENDA: Pk -> Pk, respecto del eje de referencia, de la intersección
de la sección correspondiente con dicho eje
Az -> Azimut del eje del puente (no coincide necesariamente
con el Azimut del eje de referencia
Or -> Orientación = Azimut de la sección
Ancho_esv -> Ancho esviado del puente según la dirección
definida por Or

Eje de referencia: LAV. TRAMO: MADRID-ZARAGOZA; Subtramo IV

**REPLANTEO_EN_PLANTA

Sec	Pk [m]	x [m]	y [m]	Az [g]	Or [g]	Ancho_esv [m]
1	403596.500	479467.881	4481988.877	48.2116	-51.7884	14.000
2	403599.700	479470.079	4481991.203	48.1835	-51.8165	14.000
3	403602.900	479472.276	4481993.530	48.1554	-51.8446	14.000
4	403606.100	479474.471	4481995.858	48.1273	-51.8727	14.000
5	403609.300	479476.666	4481998.187	48.0992	-51.9008	14.000
6	403612.500	479478.860	4482000.516	48.0711	-51.9289	14.000
7	403615.700	479481.052	4482002.847	48.0430	-51.9570	14.000
8	403618.900	479483.244	4482005.179	48.0149	-51.9851	14.000
9	403622.100	479485.434	4482007.512	47.9868	-52.0132	14.000
10	403625.300	479487.624	4482009.845	47.9587	-52.0413	14.000
11	403628.500	479489.813	4482012.180	47.9306	-52.0694	14.000
12	403632.500	479492.547	4482015.099	47.8954	-52.1046	14.000
13	403636.500	479495.279	4482018.021	47.8603	-52.1397	14.000
14	403640.500	479498.010	4482020.943	47.8252	-52.1748	14.000
15	403644.500	479500.740	4482023.867	47.7901	-52.2099	14.000
16	403648.500	479503.467	4482026.793	47.7549	-52.2451	14.000
17	403652.500	479506.194	4482029.720	47.7198	-52.2802	14.000
18	403656.500	479508.918	4482032.649	47.6847	-52.3153	14.000
19	403660.500	479511.641	4482035.579	47.6496	-52.3504	14.000
20	403664.500	479514.362	4482038.511	47.6144	-52.3856	14.000
21	403668.500	479517.082	4482041.444	47.5793	-52.4207	14.000
22	403672.500	479519.800	4482044.378	47.5442	-52.4558	14.000
23	403676.500	479522.516	4482047.315	47.5091	-52.4909	14.000
24	403680.500	479525.231	4482050.252	47.4740	-52.5260	14.000
25	403684.500	479527.944	4482053.191	47.4388	-52.5612	14.000
26	403688.500	479530.656	4482056.132	47.4037	-52.5963	14.000
27	403692.500	479533.366	4482059.074	47.3686	-52.6314	14.000
28	403696.500	479536.074	4482062.018	47.3335	-52.6665	14.000
29	403700.500	479538.781	4482064.963	47.2983	-52.7017	14.000
30	403704.500	479541.486	4482067.910	47.2632	-52.7368	14.000
31	403708.500	479544.189	4482070.858	47.2281	-52.7719	14.000
32	403712.500	479546.891	4482073.807	47.1930	-52.8070	14.000
33	403716.500	479549.591	4482076.758	47.1578	-52.8422	14.000
34	403720.500	479552.290	4482079.711	47.1227	-52.8773	14.000
35	403724.500	479554.987	4482082.665	47.0876	-52.9124	14.000
36	403728.500	479557.682	4482085.621	47.0525	-52.9475	14.000
37	403732.500	479560.376	4482088.578	47.0173	-52.9827	14.000
38	403736.500	479563.068	4482091.536	46.9822	-53.0178	14.000
39	403740.500	479565.758	4482094.496	46.9471	-53.0529	14.000
40	403744.500	479568.447	4482097.458	46.9120	-53.0880	14.000
41	403748.500	479571.134	4482100.421	46.8768	-53.1232	14.000
42	403752.500	479573.820	4482103.385	46.8417	-53.1583	14.000
43	403756.500	479576.504	4482106.351	46.8066	-53.1934	14.000
44	403760.500	479579.186	4482109.318	46.7715	-53.2285	14.000
45	403764.500	479581.867	4482112.287	46.7364	-53.2636	14.000
46	403768.500	479584.545	4482115.258	46.7012	-53.2988	14.000

47	403772.500	479587.223	4482118.230	46.6661	-53.3339	14.000
48	403776.500	479589.898	4482121.203	46.6310	-53.3690	14.000
49	403780.500	479592.572	4482124.178	46.5959	-53.4041	14.000
50	403784.500	479595.245	4482127.154	46.5607	-53.4393	14.000
51	403788.500	479597.916	4482130.132	46.5256	-53.4744	14.000
52	403792.500	479600.585	4482133.111	46.4905	-53.5095	14.000
53	403796.500	479603.252	4482136.092	46.4554	-53.5446	14.000
54	403800.500	479605.918	4482139.074	46.4202	-53.5798	14.000
55	403804.500	479608.582	4482142.058	46.3851	-53.6149	14.000
56	403808.500	479611.245	4482145.043	46.3500	-53.6500	14.000
57	403812.500	479613.906	4482148.029	46.3149	-53.6851	14.000
58	403816.500	479616.565	4482151.017	46.2797	-53.7203	14.000
59	403820.500	479619.222	4482154.007	46.2446	-53.7554	14.000
60	403824.500	479621.878	4482156.998	46.2095	-53.7905	14.000
61	403828.500	479624.533	4482159.990	46.1744	-53.8256	14.000
62	403832.500	479627.185	4482162.984	46.1392	-53.8608	14.000
63	403836.500	479629.836	4482165.980	46.1041	-53.8959	14.000
64	403840.500	479632.486	4482168.977	46.0690	-53.9310	14.000
65	403844.500	479635.133	4482171.975	46.0339	-53.9661	14.000
66	403848.500	479637.779	4482174.975	45.9988	-54.0012	14.000
67	403852.500	479640.424	4482177.976	45.9636	-54.0364	14.000
68	403856.500	479643.066	4482180.979	45.9285	-54.0715	14.000
69	403860.500	479645.707	4482183.983	45.8934	-54.1066	14.000
70	403864.500	479648.347	4482186.988	45.8583	-54.1417	14.000
71	403868.500	479650.984	4482189.995	45.8231	-54.1769	14.000
72	403872.500	479653.621	4482193.004	45.7880	-54.2120	14.000
73	403876.500	479656.255	4482196.014	45.7529	-54.2471	14.000
74	403880.500	479658.888	4482199.025	45.7178	-54.2822	14.000
75	403884.500	479661.519	4482202.038	45.6826	-54.3174	14.000
76	403888.500	479664.148	4482205.052	45.6475	-54.3525	14.000
77	403892.500	479666.776	4482208.068	45.6124	-54.3876	14.000
78	403896.500	479669.402	4482211.085	45.5773	-54.4227	14.000
79	403900.500	479672.027	4482214.104	45.5421	-54.4579	14.000
80	403904.500	479674.649	4482217.124	45.5070	-54.4930	14.000
81	403908.500	479677.270	4482220.146	45.4719	-54.5281	14.000
82	403912.500	479679.890	4482223.169	45.4368	-54.5632	14.000
83	403916.500	479682.508	4482226.193	45.4016	-54.5984	14.000
84	403920.500	479685.124	4482229.219	45.3665	-54.6335	14.000
85	403924.500	479687.738	4482232.246	45.3314	-54.6686	14.000
86	403928.500	479690.351	4482235.275	45.2963	-54.7037	14.000
87	403932.500	479692.962	4482238.305	45.2612	-54.7388	14.000
88	403936.500	479695.571	4482241.337	45.2260	-54.7740	14.000
89	403940.500	479698.179	4482244.370	45.1909	-54.8091	14.000
90	403944.500	479700.785	4482247.405	45.1558	-54.8442	14.000
91	403948.500	479703.390	4482250.441	45.1207	-54.8793	14.000
92	403952.500	479705.992	4482253.478	45.0855	-54.9145	14.000
93	403956.500	479708.593	4482256.517	45.0504	-54.9496	14.000
94	403960.500	479711.193	4482259.557	45.0153	-54.9847	14.000
95	403964.500	479713.790	4482262.599	44.9802	-55.0198	14.000
96	403968.500	479716.386	4482265.642	44.9450	-55.0550	14.000
97	403972.500	479718.981	4482268.687	44.9099	-55.0901	14.000
98	403976.500	479721.573	4482271.733	44.8748	-55.1252	14.000
99	403980.500	479724.164	4482274.780	44.8397	-55.1603	14.000
100	403984.500	479726.754	4482277.829	44.8045	-55.1955	14.000
101	403988.500	479729.341	4482280.879	44.7694	-55.2306	14.000
102	403992.500	479731.927	4482283.931	44.7343	-55.2657	14.000
103	403996.500	479734.511	4482286.984	44.6992	-55.3008	14.000
104	404000.500	479737.094	4482290.039	44.6640	-55.3360	14.000
105	404004.500	479739.675	4482293.095	44.6289	-55.3711	14.000
106	404008.500	479742.254	4482296.152	44.5938	-55.4062	14.000
107	404012.500	479744.831	4482299.211	44.5587	-55.4413	14.000
108	404016.500	479747.407	4482302.271	44.5236	-55.4764	14.000
109	404020.500	479749.981	4482305.333	44.4884	-55.5116	14.000
110	404024.500	479752.554	4482308.396	44.4533	-55.5467	14.000
111	404028.500	479755.124	4482311.461	44.4182	-55.5818	14.000
112	404032.500	479757.693	4482314.527	44.3831	-55.6169	14.000
113	404036.500	479760.261	4482317.594	44.3479	-55.6521	14.000
114	404040.500	479762.826	4482320.663	44.3128	-55.6872	14.000
115	404044.500	479765.390	4482323.733	44.2777	-55.7223	14.000
116	404048.500	479767.953	4482326.805	44.2426	-55.7574	14.000
117	404052.500	479770.513	4482329.878	44.2074	-55.7926	14.000
118	404056.500	479773.072	4482332.952	44.1723	-55.8277	14.000
119	404060.500	479775.629	4482336.028	44.1372	-55.8628	14.000
120	404064.500	479778.185	4482339.105	44.1021	-55.8979	14.000
121	404068.500	479780.739	4482342.184	44.0669	-55.9331	14.000
122	404072.500	479783.291	4482345.264	44.0318	-55.9682	14.000
123	404076.500	479785.841	4482348.345	43.9967	-56.0033	14.000
124	404080.500	479788.390	4482351.428	43.9616	-56.0384	14.000
125	404084.500	479790.937	4482354.513	43.9264	-56.0736	14.000
126	404088.500	479793.482	4482357.598	43.8913	-56.1087	14.000
127	404092.500	479796.026	4482360.685	43.8562	-56.1438	14.000
128	404096.500	479798.568	4482363.774	43.8211	-56.1789	14.000
129	404100.500	479801.108	4482366.864	43.7859	-56.2141	14.000
130	404104.500	479803.646	4482369.955	43.7508	-56.2492	14.000
131	404108.500	479806.183	4482373.048	43.7157	-56.2843	14.000
132	404111.700	479808.211	4482375.523	43.6876	-56.3124	14.000
133	404114.900	479810.238	4482377.999	43.6595	-56.3405	14.000
134	404118.100	479812.264	4482380.476	43.6314	-56.3686	14.000
135	404121.300	479814.289	4482382.954	43.6033	-56.3967	14.000
136	404124.500	479816.313	4482385.433	43.5752	-56.4248	14.000
137	404127.700	479818.336	4482387.912	43.5471	-56.4529	14.000
138	404130.900	479820.357	4482390.393	43.5190	-56.4810	14.000
139	404134.100	479822.378	4482392.874	43.4909	-56.5091	14.000
140	404137.300	479824.397	4482395.356	43.4628	-56.5372	14.000
141	404140.500	479826.415	4482397.840	43.4347	-56.5653	14.000

Programa LST0 - Replanteo de viaductos hormigón pretensado y mixtos (V 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

REPLANTEO DEL TABLERO RESPECTO DEL EJE DEL PUENTE

P.	Pk [m]	x [m]	y [m]	Az [grad]	z0 [m]	z1 [m]	z2 [m]
1	403596.500	479467.881	4481988.877	48.212	814.556	814.556	814.556
2	403599.700	479470.079	4481991.203	48.183	814.632	814.632	814.632
3	403602.900	479472.276	4481993.530	48.155	814.709	814.709	814.709
4	403606.100	479474.471	4481995.858	48.127	814.786	814.786	814.786
5	403609.300	479476.666	4481998.187	48.099	814.863	814.863	814.863
6	403612.500	479478.860	4482000.516	48.071	814.940	814.940	814.940
7	403615.700	479481.052	4482002.847	48.043	815.017	815.017	815.017
8	403618.900	479483.244	4482005.179	48.015	815.093	815.093	815.093
9	403622.100	479485.434	4482007.512	47.987	815.170	815.170	815.170
10	403625.300	479487.624	4482009.845	47.959	815.247	815.247	815.247
11	403628.500	479489.813	4482012.180	47.931	815.324	815.324	815.324
12	403632.500	479492.547	4482015.099	47.895	815.420	815.420	815.420
13	403636.500	479495.279	4482018.021	47.860	815.516	815.516	815.516
14	403640.500	479498.010	4482020.943	47.825	815.612	815.612	815.612
15	403644.500	479500.740	4482023.867	47.790	815.708	815.708	815.708
16	403648.500	479503.467	4482026.793	47.755	815.804	815.804	815.804
17	403652.500	479506.194	4482029.720	47.720	815.900	815.900	815.900
18	403656.500	479508.918	4482032.649	47.685	815.996	815.996	815.996
19	403660.500	479511.641	4482035.579	47.650	816.092	816.092	816.092
20	403664.500	479514.362	4482038.511	47.614	816.188	816.188	816.188
21	403668.500	479517.082	4482041.444	47.579	816.284	816.284	816.284
22	403672.500	479519.800	4482044.378	47.544	816.380	816.380	816.380
23	403676.500	479522.516	4482047.315	47.509	816.476	816.476	816.476
24	403680.500	479525.231	4482050.252	47.474	816.572	816.572	816.572
25	403684.500	479527.944	4482053.191	47.439	816.668	816.668	816.668
26	403688.500	479530.656	4482056.132	47.404	816.764	816.764	816.764
27	403692.500	479533.366	4482059.074	47.369	816.860	816.860	816.860
28	403696.500	479536.074	4482062.018	47.334	816.956	816.956	816.956
29	403700.500	479538.781	4482064.963	47.298	817.052	817.052	817.052
30	403704.500	479541.486	4482067.910	47.263	817.148	817.148	817.148
31	403708.500	479544.189	4482070.858	47.228	817.244	817.244	817.244
32	403712.500	479546.891	4482073.807	47.193	817.340	817.340	817.340
33	403716.500	479549.591	4482076.758	47.158	817.436	817.436	817.436
34	403720.500	479552.290	4482079.711	47.123	817.532	817.532	817.532
35	403724.500	479554.987	4482082.665	47.088	817.628	817.628	817.628
36	403728.500	479557.682	4482085.621	47.052	817.724	817.724	817.724

37	403732.500	479560.376	4482088.578	47.017	817.820	817.820	817.820
38	403736.500	479563.068	4482091.536	46.982	817.916	817.916	817.916
39	403740.500	479565.758	4482094.496	46.947	818.012	818.012	818.012
40	403744.500	479568.447	4482097.458	46.912	818.108	818.108	818.108
41	403748.500	479571.134	4482100.421	46.877	818.204	818.204	818.204
42	403752.500	479573.820	4482103.385	46.842	818.300	818.300	818.300
43	403756.500	479576.504	4482106.351	46.807	818.396	818.396	818.396
44	403760.500	479579.186	4482109.318	46.771	818.492	818.492	818.492
45	403764.500	479581.867	4482112.287	46.736	818.588	818.588	818.588
46	403768.500	479584.545	4482115.258	46.701	818.684	818.684	818.684
47	403772.500	479587.223	4482118.230	46.666	818.780	818.780	818.780
48	403776.500	479589.898	4482121.203	46.631	818.876	818.876	818.876
49	403780.500	479592.572	4482124.178	46.596	818.972	818.972	818.972
50	403784.500	479595.245	4482127.154	46.561	819.068	819.068	819.068
51	403788.500	479597.916	4482130.132	46.526	819.164	819.164	819.164
52	403792.500	479600.585	4482133.111	46.491	819.260	819.260	819.260
53	403796.500	479603.252	4482136.092	46.455	819.356	819.356	819.356
54	403800.500	479605.918	4482139.074	46.420	819.452	819.452	819.452
55	403804.500	479608.582	4482142.058	46.385	819.548	819.548	819.548
56	403808.500	479611.245	4482145.043	46.350	819.644	819.644	819.644
57	403812.500	479613.906	4482148.029	46.315	819.740	819.740	819.740
58	403816.500	479616.565	4482151.017	46.280	819.836	819.836	819.836
59	403820.500	479619.222	4482154.007	46.245	819.932	819.932	819.932
60	403824.500	479621.878	4482156.998	46.209	820.028	820.028	820.028
61	403828.500	479624.533	4482159.990	46.174	820.124	820.124	820.124
62	403832.500	479627.185	4482162.984	46.139	820.220	820.220	820.220
63	403836.500	479629.836	4482165.980	46.104	820.316	820.316	820.316
64	403840.500	479632.486	4482168.977	46.069	820.412	820.412	820.412
65	403844.500	479635.133	4482171.975	46.034	820.508	820.508	820.508
66	403848.500	479637.779	4482174.975	45.999	820.604	820.604	820.604
67	403852.500	479640.424	4482177.976	45.964	820.700	820.700	820.700
68	403856.500	479643.066	4482180.979	45.928	820.796	820.796	820.796
69	403860.500	479645.707	4482183.983	45.893	820.892	820.892	820.892
70	403864.500	479648.347	4482186.988	45.858	820.988	820.988	820.988
71	403868.500	479650.984	4482189.995	45.823	821.084	821.084	821.084
72	403872.500	479653.621	4482193.004	45.788	821.180	821.180	821.180
73	403876.500	479656.255	4482196.014	45.753	821.276	821.276	821.276
74	403880.500	479658.888	4482199.025	45.718	821.372	821.372	821.372
75	403884.500	479661.519	4482202.038	45.683	821.468	821.468	821.468
76	403888.500	479664.148	4482205.052	45.648	821.564	821.564	821.564
77	403892.500	479666.776	4482208.068	45.612	821.660	821.660	821.660
78	403896.500	479669.402	4482211.085	45.577	821.756	821.756	821.756
79	403900.500	479672.027	4482214.104	45.542	821.852	821.852	821.852
80	403904.500	479674.649	4482217.124	45.507	821.948	821.948	821.948
81	403908.500	479677.270	4482220.146	45.472	822.044	822.044	822.044
82	403912.500	479679.890	4482223.169	45.437	822.140	822.140	822.140
83	403916.500	479682.508	4482226.193	45.402	822.236	822.236	822.236
84	403920.500	479685.124	4482229.219	45.367	822.332	822.332	822.332
85	403924.500	479687.738	4482232.246	45.331	822.428	822.428	822.428
86	403928.500	479690.351	4482235.275	45.296	822.524	822.524	822.524
87	403932.500	479692.962	4482238.305	45.261	822.620	822.620	822.620
88	403936.500	479695.571	4482241.337	45.226	822.716	822.716	822.716
89	403940.500	479698.179	4482244.370	45.191	822.812	822.812	822.812
90	403944.500	479700.785	4482247.405	45.156	822.908	822.908	822.908
91	403948.500	479703.390	4482250.441	45.121	823.004	823.004	823.004
92	403952.500	479705.992	4482253.478	45.085	823.100	823.100	823.100
93	403956.500	479708.593	4482256.517	45.050	823.196	823.196	823.196
94	403960.500	479711.193	4482259.557	45.015	823.292	823.292	823.292
95	403964.500	479713.790	4482262.599	44.980	823.388	823.388	823.388
96	403968.500	479716.386	4482265.642	44.945	823.484	823.484	823.484
97	403972.500	479718.981	4482268.687	44.910	823.580	823.580	823.580
98	403976.500	479721.573	4482271.733	44.875	823.676	823.676	823.676
99	403980.500	479724.164	4482274.780	44.840	823.772	823.772	823.772
100	403984.500	479726.754	4482277.829	44.805	823.868	823.868	823.868
101	403988.500	479729.341	4482280.879	44.769	823.964	823.964	823.964
102	403992.500	479731.927	4482283.931	44.734	824.060	824.060	824.060
103	403996.500	479734.511	4482286.984	44.699	824.156	824.156	824.156
104	404000.500	479737.094	4482290.039	44.664	824.252	824.252	824.252
105	404004.500	479739.675	4482293.095	44.629	824.348	824.348	824.348
106	404008.500	479742.254	4482296.152	44.594	824.444	824.444	824.444
107	404012.500	479744.831	4482299.211	44.559	824.540	824.540	824.540
108	404016.500	479747.407	4482302.271	44.524	824.636	824.636	824.636
109	404020.500	479749.981	4482305.333	44.488	824.732	824.732	824.732
110	404024.500	479752.554	4482308.396	44.453	824.828	824.828	824.828
111	404028.500	479755.124	4482311.461	44.418	824.924	824.924	824.924
112	404032.500	479757.693	4482314.527	44.383	825.020	825.020	825.020
113	404036.500	479760.261	4482317.594	44.348	825.116	825.116	825.116
114	404040.500	479762.826	4482320.663	44.313	825.212	825.212	825.212
115	404044.500	479765.390	4482323.733	44.278	825.308	825.308	825.308
116	404048.500	479767.953	4482326.805	44.243	825.404	825.404	825.404
117	404052.500	479770.513	4482329.878	44.207	825.500	825.500	825.500
118	404056.500	479773.072	4482332.952	44.172	825.596	825.596	825.596
119	404060.500	479775.629	4482336.028	44.137	825.692	825.692	825.692
120	404064.500	479778.185	4482339.105	44.102	825.788	825.788	825.788
121	404068.500	479780.739	4482342.184	44.067	825.884	825.884	825.884
122	404072.500	479783.291	4482345.264	44.032	825.980	825.980	825.980
123	404076.500	479785.841	4482348.345	43.997	826.076	826.076	826.076
124	404080.500	479788.390	4482351.428	43.962	826.172	826.172	826.172
125	404084.500	479790.937	4482354.513	43.926	826.268	826.268	826.268
126	404088.500	479793.482	4482357.598	43.891	826.364	826.364	826.364
127	404092.500	479796.026	4482360.685	43.856	826.460	826.460	826.460
128	404096.500	479798.568	4482363.774	43.821	826.556	826.556	826.556
129	404100.500	479801.108	4482366.864	43.786	826.652	826.652	826.652
130	404104.500	479803.646	4482369.955	43.751	826.748	826.748	826.748
131	404108.500	479806.183	4482373.048	43.716	826.844	826.844	826.844
132	404111.700	479808.211	4482375.523	43.688	826.921	826.921	826.921
133	404114.900	479810.238	4482377.999	43.660	826.997	826.997	826.997
134	404118.100	479812.264	4482380.476	43.631	827.074	827.074	827.074
135	404121.300	479814.289	4482382.954	43.603	827.151	827.151	827.151
136	404124.500	479816.313	4482385.433	43.575	827.228	827.228	827.228
137	404127.700	479818.336	4482387.912	43.547	827.305	827.305	827.305
138	404130.900	479820.357	4482390.393	43.519	827.381	827.381	827.381
139	404134.100	479822.378	4482392.874	43.491	827.458	827.458	827.458
140	404137.300	479824.397	4482395.356	43.463	827.535	827.535	827.535
141	404140.500	479826.415	4482397.840	43.435	827.612	827.612	827.612

DEFINICION DE LAS SECCIONES

Punto	Pk [m]	D1 [m]	D2 [m]	D3 [m]	D4 [m]	C [m]
1	403596.500	2.631	2.631	3.300	7.000	3.200
2	403599.700	2.631	2.631	3.300	7.000	3.200
3	403602.900	2.631	2.631	3.300	7.000	3.200
4	403606.100	2.631	2.631	3.300	7.000	3.200
5	403609.300	2.631	2.631	3.300	7.000	3.200
6	403612.500	2.631	2.631	3.300	7.000	3.200
7	403615.700	2.631	2.631	3.300	7.000	3.200
8	403618.900	2.631	2.631	3.300	7.000	3.200
9	403622.100	2.631	2.631	3.300	7.000	3.200
10	403625.300	2.631	2.631	3.300	7.000	3.200
11	403628.500	2.631	2.631	3.300	7.000	3.200
12	403632.500	2.631	2.631	3.300	7.000	3.200
13	403636.500	2.631	2.631	3.300	7.000	3.200
14	403640.500	2.631	2.631	3.300	7.000	3.200
15	403644.500	2.631	2.631	3.300	7.000	3.200
16	403648.500	2.631	2.631	3.300	7.000	3.200
17	403652.500	2.631	2.631	3.300	7.000	3.200
18	403656.500	2.631	2.631	3.300	7.000	3.200
19	403660.500	2.631	2.631	3.300	7.000	3.200
20	403664.500	2.631	2.631	3.300	7.000	3.200
21	403668.500	2.631	2.631	3.300	7.000	3.200
22	403672.500	2.631	2.631	3.300	7.000	3.200
23	403676.500	2.631	2.631	3.300	7.000	3.200
24	403680.500	2.631	2.631	3.300	7.000	3.200
25	403684.500	2.631	2.631	3.300	7.000	3.200
26	403688.500	2.631	2.631	3.300	7.000	3.200

27	403692.500	2.631	2.631	3.300	7.000	3.200
28	403696.500	2.631	2.631	3.300	7.000	3.200
29	403700.500	2.631	2.631	3.300	7.000	3.200
30	403704.500	2.631	2.631	3.300	7.000	3.200
31	403708.500	2.631	2.631	3.300	7.000	3.200
32	403712.500	2.631	2.631	3.300	7.000	3.200
33	403716.500	2.631	2.631	3.300	7.000	3.200
34	403720.500	2.631	2.631	3.300	7.000	3.200
35	403724.500	2.631	2.631	3.300	7.000	3.200
36	403728.500	2.631	2.631	3.300	7.000	3.200
37	403732.500	2.631	2.631	3.300	7.000	3.200
38	403736.500	2.631	2.631	3.300	7.000	3.200
39	403740.500	2.631	2.631	3.300	7.000	3.200
40	403744.500	2.631	2.631	3.300	7.000	3.200
41	403748.500	2.631	2.631	3.300	7.000	3.200
42	403752.500	2.631	2.631	3.300	7.000	3.200
43	403756.500	2.631	2.631	3.300	7.000	3.200
44	403760.500	2.631	2.631	3.300	7.000	3.200
45	403764.500	2.631	2.631	3.300	7.000	3.200
46	403768.500	2.631	2.631	3.300	7.000	3.200
47	403772.500	2.631	2.631	3.300	7.000	3.200
48	403776.500	2.631	2.631	3.300	7.000	3.200
49	403780.500	2.631	2.631	3.300	7.000	3.200
50	403784.500	2.631	2.631	3.300	7.000	3.200
51	403788.500	2.631	2.631	3.300	7.000	3.200
52	403792.500	2.631	2.631	3.300	7.000	3.200
53	403796.500	2.631	2.631	3.300	7.000	3.200
54	403800.500	2.631	2.631	3.300	7.000	3.200
55	403804.500	2.631	2.631	3.300	7.000	3.200
56	403808.500	2.631	2.631	3.300	7.000	3.200
57	403812.500	2.631	2.631	3.300	7.000	3.200
58	403816.500	2.631	2.631	3.300	7.000	3.200
59	403820.500	2.631	2.631	3.300	7.000	3.200
60	403824.500	2.631	2.631	3.300	7.000	3.200
61	403828.500	2.631	2.631	3.300	7.000	3.200
62	403832.500	2.631	2.631	3.300	7.000	3.200
63	403836.500	2.631	2.631	3.300	7.000	3.200
64	403840.500	2.631	2.631	3.300	7.000	3.200
65	403844.500	2.631	2.631	3.300	7.000	3.200
66	403848.500	2.631	2.631	3.300	7.000	3.200
67	403852.500	2.631	2.631	3.300	7.000	3.200
68	403856.500	2.631	2.631	3.300	7.000	3.200
69	403860.500	2.631	2.631	3.300	7.000	3.200
70	403864.500	2.631	2.631	3.300	7.000	3.200
71	403868.500	2.631	2.631	3.300	7.000	3.200
72	403872.500	2.631	2.631	3.300	7.000	3.200
73	403876.500	2.631	2.631	3.300	7.000	3.200
74	403880.500	2.631	2.631	3.300	7.000	3.200
75	403884.500	2.631	2.631	3.300	7.000	3.200
76	403888.500	2.631	2.631	3.300	7.000	3.200
77	403892.500	2.631	2.631	3.300	7.000	3.200
78	403896.500	2.631	2.631	3.300	7.000	3.200
79	403900.500	2.631	2.631	3.300	7.000	3.200
80	403904.500	2.631	2.631	3.300	7.000	3.200
81	403908.500	2.631	2.631	3.300	7.000	3.200
82	403912.500	2.631	2.631	3.300	7.000	3.200
83	403916.500	2.631	2.631	3.300	7.000	3.200
84	403920.500	2.631	2.631	3.300	7.000	3.200
85	403924.500	2.631	2.631	3.300	7.000	3.200
86	403928.500	2.631	2.631	3.300	7.000	3.200
87	403932.500	2.631	2.631	3.300	7.000	3.200
88	403936.500	2.631	2.631	3.300	7.000	3.200
89	403940.500	2.631	2.631	3.300	7.000	3.200
90	403944.500	2.631	2.631	3.300	7.000	3.200
91	403948.500	2.631	2.631	3.300	7.000	3.200
92	403952.500	2.631	2.631	3.300	7.000	3.200
93	403956.500	2.631	2.631	3.300	7.000	3.200
94	403960.500	2.631	2.631	3.300	7.000	3.200
95	403964.500	2.631	2.631	3.300	7.000	3.200
96	403968.500	2.631	2.631	3.300	7.000	3.200
97	403972.500	2.631	2.631	3.300	7.000	3.200
98	403976.500	2.631	2.631	3.300	7.000	3.200
99	403980.500	2.631	2.631	3.300	7.000	3.200
100	403984.500	2.631	2.631	3.300	7.000	3.200
101	403988.500	2.631	2.631	3.300	7.000	3.200
102	403992.500	2.631	2.631	3.300	7.000	3.200
103	403996.500	2.631	2.631	3.300	7.000	3.200
104	404000.500	2.631	2.631	3.300	7.000	3.200
105	404004.500	2.631	2.631	3.300	7.000	3.200
106	404008.500	2.631	2.631	3.300	7.000	3.200
107	404012.500	2.631	2.631	3.300	7.000	3.200
108	404016.500	2.631	2.631	3.300	7.000	3.200
109	404020.500	2.631	2.631	3.300	7.000	3.200
110	404024.500	2.631	2.631	3.300	7.000	3.200
111	404028.500	2.631	2.631	3.300	7.000	3.200
112	404032.500	2.631	2.631	3.300	7.000	3.200
113	404036.500	2.631	2.631	3.300	7.000	3.200
114	404040.500	2.631	2.631	3.300	7.000	3.200
115	404044.500	2.631	2.631	3.300	7.000	3.200
116	404048.500	2.631	2.631	3.300	7.000	3.200
117	404052.500	2.631	2.631	3.300	7.000	3.200
118	404056.500	2.631	2.631	3.300	7.000	3.200
119	404060.500	2.631	2.631	3.300	7.000	3.200
120	404064.500	2.631	2.631	3.300	7.000	3.200
121	404068.500	2.631	2.631	3.300	7.000	3.200
122	404072.500	2.631	2.631	3.300	7.000	3.200
123	404076.500	2.631	2.631	3.300	7.000	3.200
124	404080.500	2.631	2.631	3.300	7.000	3.200
125	404084.500	2.631	2.631	3.300	7.000	3.200
126	404088.500	2.631	2.631	3.300	7.000	3.200
127	404092.500	2.631	2.631	3.300	7.000	3.200
128	404096.500	2.631	2.631	3.300	7.000	3.200
129	404100.500	2.631	2.631	3.300	7.000	3.200
130	404104.500	2.631	2.631	3.300	7.000	3.200
131	404108.500	2.631	2.631	3.300	7.000	3.200
132	404111.700	2.631	2.631	3.300	7.000	3.200
133	404114.900	2.631	2.631	3.300	7.000	3.200
134	404118.100	2.631	2.631	3.300	7.000	3.200
135	404121.300	2.631	2.631	3.300	7.000	3.200
136	404124.500	2.631	2.631	3.300	7.000	3.200
137	404127.700	2.631	2.631	3.300	7.000	3.200
138	404130.900	2.631	2.631	3.300	7.000	3.200
139	404134.100	2.631	2.631	3.300	7.000	3.200
140	404137.300	2.631	2.631	3.300	7.000	3.200
141	404140.500	2.631	2.631	3.300	7.000	3.200

Programa LST0 - Replanteo de viaductos hormigón pretensado y mixtos (V 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

REPLANTEO DE LOS APOYOS

Pk [m]	Apoyo	#Neop	ZNeopS [m]	ZNMB [m]	ZAP [m]
403596.500	1	1	811.356	811.316	811.102
		2	811.356	811.316	811.102
403628.500	2	1	812.124	812.080	811.786
		2	812.124	812.080	811.786
403668.500	3	1	813.084	813.039	812.745
		2	813.084	813.039	812.745
403708.500	4	1	814.044	813.998	813.704
		2	814.044	813.998	813.704
403748.500	5	1	815.004	814.957	814.663
		2	815.004	814.957	814.663
403788.500	6	1	815.964	815.916	815.621
		2	815.964	815.916	815.621
403828.500	7	1	816.924	816.874	816.580
		2	816.924	816.874	816.580
403868.500	8	1	817.884	817.833	817.539
		2	817.884	817.833	817.539

403908.500	9	1	818.844	818.792	818.498
		2	818.844	818.792	818.498
403948.500	10	1	819.804	819.751	819.457
		2	819.804	819.751	819.457
403988.500	11	1	820.764	820.710	820.416
		2	820.764	820.710	820.416
404028.500	12	1	821.724	821.669	821.375
		2	821.724	821.669	821.375
404068.500	13	1	822.684	822.628	822.334
		2	822.684	822.628	822.334
404108.500	14	1	823.644	823.587	823.292
		2	823.644	823.587	823.292
404140.500	15	1	824.412	824.357	824.124
		2	824.412	824.357	824.124

Programa LST0 - Replanteo de viaductos hormigón pretensado y mixtos (V 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

REPLANTEO EJE DE PILAS Y ESTRIBOS

Apoyo	Pk. [m]	sobreespesor [m]	x [m]	y [m]	Az [grad]
E-1	403596.500	0.000	479467.881	4481988.877	-51.7884
P-1	403628.500	0.000	479489.813	4482012.180	-52.0694
P-2	403668.500	0.000	479517.082	4482041.444	-52.4207
P-3	403708.500	0.000	479544.189	4482070.858	-52.7719
P-4	403748.500	0.000	479571.134	4482100.421	-53.1232
P-5	403788.500	0.000	479597.916	4482130.132	-53.4744
P-6	403828.500	0.000	479624.533	4482159.990	-53.8256
P-7	403868.500	0.000	479650.984	4482189.995	-54.1769
P-8	403908.500	0.000	479677.270	4482220.146	-54.5281
P-9	403948.500	0.000	479703.390	4482250.441	-54.8793
P-10	403988.500	0.000	479729.341	4482280.879	-55.2306
P-11	404028.500	0.000	479755.124	4482311.461	-55.5818
P-12	404068.500	0.000	479780.739	4482342.184	-55.9331
P-13	404108.500	0.000	479806.183	4482373.048	-56.2843
E-2	404140.500	0.000	479826.415	4482397.840	-56.5653

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.SK 5
.TP 15

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*     DATOS - ESTRUCTURA    *
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Titulo proy.:  L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

Unidades    :   M , T
.SK 3
.TP 12
D A T O S  D E  N U D O S:( 156 Nudo  )          Apoyo         Especial
.TK 3
                X           Y           Z        V     R
 Nudo       [ M]        [ M]        [ M]       XYZ   XYZ
-------------------------------------------------------------------------
    1      0.0000      0.0000     98.7230                    rotado
    2      2.1980      2.3260     98.8340
    3      4.3950      4.6530     98.8340
    4      6.5900      6.9810     98.8340
    5      8.7850      9.3100     98.8340
    6     10.9790     11.6390     98.8340
    7     13.1710     13.9700     98.8340
    8     15.3630     16.3020     98.8340
    9     17.5530     18.6350     98.8340
   10     19.7430     20.9680     98.8340
   11     21.9320     23.3030     98.7230                    rotado
   12     24.6660     26.2220     98.8340
   13     27.3980     29.1440     98.8340
   14     30.1290     32.0660     98.8340
   15     32.8590     34.9900     98.8340
   16     35.5860     37.9160     98.8340
   17     38.3130     40.8430     98.8340
   18     41.0370     43.7720     98.8340
   19     43.7600     46.7020     98.8340
   20     46.4810     49.6340     98.8340
   21     49.2010     52.5670     98.7230                    rotado
   22     51.9190     55.5010     98.8340
   23     54.6350     58.4380     98.8340
   24     57.3500     61.3750     98.8340
   25     60.0630     64.3140     98.8340
   26     62.7750     67.2550     98.8340
   27     65.4850     70.1970     98.8340
   28     68.1930     73.1410     98.8340
   29     70.9000     76.0860     98.8340
   30     73.6050     79.0330     98.8340
   31     76.3080     81.9810     98.7230                    rotado
   32     79.0100     84.9300     98.8340
   33     81.7100     87.8810     98.8340
   34     84.4090     90.8340     98.8340
   35     87.1060     93.7880     98.8340
   36     89.8010     96.7440     98.8340
   37     92.4950     99.7010     98.8340
   38     95.1870    102.6590     98.8340
   39     97.8770    105.6190     98.8340
   40    100.5660    108.5810     98.8340
   41    103.2530    111.5440     98.7230                    rotado
   42    105.9390    114.5080     98.8340
   43    108.6230    117.4740     98.8340
   44    111.3050    120.4410     98.8340
   45    113.9860    123.4100     98.8340
   46    116.6640    126.3810     98.8340
   47    119.3420    129.3530     98.8340
   48    122.0170    132.3260     98.8340
   49    124.6910    135.3010     98.8340
   50    127.3640    138.2770     98.8340
   51    130.0350    141.2550     98.7230                    rotado
```

52	132.7040	144.2340	98.8340	
53	135.3710	147.2150	98.8340	
54	138.0370	150.1970	98.8340	
55	140.7010	153.1810	98.8340	
56	143.3640	156.1660	98.8340	
57	146.0250	159.1520	98.8340	
58	148.6840	162.1400	98.8340	
59	151.3410	165.1300	98.8340	
60	153.9970	168.1210	98.8340	
61	156.6520	171.1130	98.7230	rotado
62	159.3040	174.1070	98.8340	
63	161.9550	177.1030	98.8340	
64	164.6050	180.1000	98.8340	
65	167.2520	183.0980	98.8340	
66	169.8980	186.0980	98.8340	
67	172.5430	189.0990	98.8340	
68	175.1850	192.1020	98.8340	
69	177.8260	195.1060	98.8340	
70	180.4660	198.1110	98.8340	
71	183.1030	201.1180	98.7230	rotado
72	185.7400	204.1270	98.8340	
73	188.3740	207.1370	98.8340	
74	191.0070	210.1480	98.8340	
75	193.6380	213.1610	98.8340	
76	196.2670	216.1750	98.8340	
77	198.8950	219.1910	98.8340	
78	201.5210	222.2080	98.8340	
79	204.1460	225.2270	98.8340	
80	206.7680	228.2470	98.8340	
81	209.3890	231.2690	98.7230	rotado
82	212.0090	234.2920	98.8340	
83	214.6270	237.3160	98.8340	
84	217.2430	240.3420	98.8340	
85	219.8570	243.3690	98.8340	
86	222.4700	246.3980	98.8340	
87	225.0810	249.4280	98.8340	
88	227.6900	252.4600	98.8340	
89	230.2980	255.4930	98.8340	
90	232.9040	258.5280	98.8340	
91	235.5090	261.5640	98.7230	rotado
92	238.1110	264.6010	98.8340	
93	240.7120	267.6400	98.8340	
94	243.3120	270.6800	98.8340	
95	245.9090	273.7220	98.8340	
96	248.5050	276.7650	98.8340	
97	251.1000	279.8100	98.8340	
98	253.6920	282.8560	98.8340	
99	256.2830	285.9030	98.8340	
100	258.8730	288.9520	98.8340	
101	261.4600	292.0020	98.7230	rotado
102	264.0460	295.0540	98.8340	
103	266.6300	298.1070	98.8340	
104	269.2130	301.1620	98.8340	
105	271.7940	304.2180	98.8340	
106	274.3730	307.2750	98.8340	
107	276.9500	310.3340	98.8340	
108	279.5260	313.3940	98.8340	
109	282.1000	316.4560	98.8340	
110	284.6730	319.5190	98.8340	
111	287.2430	322.5840	98.7230	rotado
112	289.8120	325.6500	98.8340	
113	292.3800	328.7170	98.8340	
114	294.9450	331.7860	98.8340	
115	297.5090	334.8560	98.8340	
116	300.0720	337.9280	98.8340	
117	302.6320	341.0010	98.8340	
118	305.1910	344.0750	98.8340	
119	307.7480	347.1510	98.8340	
120	310.3040	350.2280	98.8340	
121	312.8580	353.3070	98.7230	rotado
122	315.4100	356.3870	98.8340	
123	317.9600	359.4680	98.8340	
124	320.5090	362.5510	98.8340	
125	323.0560	365.6360	98.8340	
126	325.6010	368.7210	98.8340	
127	328.1450	371.8080	98.8340	
128	330.6870	374.8970	98.8340	
129	333.2270	377.9870	98.8340	
130	335.7650	381.0780	98.8340	
131	338.3020	384.1710	98.7230	rotado
132	340.3300	386.6460	98.8340	
133	342.3570	389.1220	98.8340	
134	344.3830	391.5990	98.8340	
135	346.4080	394.0770	98.8340	
136	348.4320	396.5560	98.8340	
137	350.4550	399.0350	98.8340	
138	352.4760	401.5160	98.8340	
139	354.4970	403.9970	98.8340	
140	356.5160	406.4790	98.8340	
141	358.5340	408.9630	98.6310	rotado
1002	21.9320	23.3030	78.8000	BBB BBB
1003	49.2010	52.5670	72.8000	BBB BBB
1004	76.3080	81.9810	71.8000	BBB BBB
1005	103.2530	111.5440	70.8000	BBB BBB
1006	130.0350	141.2550	69.8000	BBB BBB
1007	156.6520	171.1130	69.8000	BBB BBB
1008	183.1030	201.1180	70.8000	BBB BBB
1009	209.3890	231.2690	71.8000	BBB BBB
1010	235.5090	261.5640	70.8000	BBB BBB
1011	261.4600	292.0020	71.8000	BBB BBB
1012	287.2430	322.5840	76.8000	BBB BBB
1013	312.8580	353.3070	84.8000	BBB BBB
1014	338.3020	384.1710	87.8000	BBB BBB
2001	0.0000	0.0000	97.7230	BBB BBB
2002	358.5340	408.9630	97.6310	BBB BBB

.TK 0
.SK 3
.TP 12
NUDOS CON SISTEMA DE COORDENADAS ROTADAS:
.TK 3

	K1	K2	K3			
Nudo	X1	Y1	Z1	X2	Y2	Z2
1	2.20E+00	2.33E+00	0.00E+00	2.20E+00	4.65E+00	0.00E+00
11	2.19E+00	2.33E+00	0.00E+00	2.19E+00	4.67E+00	0.00E+00
21	2.72E+00	2.93E+00	0.00E+00	2.72E+00	5.86E+00	0.00E+00
31	2.70E+00	2.95E+00	0.00E+00	2.70E+00	5.89E+00	0.00E+00
41	2.69E+00	2.96E+00	0.00E+00	2.69E+00	5.93E+00	0.00E+00
51	2.67E+00	2.98E+00	0.00E+00	2.67E+00	5.95E+00	0.00E+00
61	2.65E+00	2.99E+00	0.00E+00	2.65E+00	5.98E+00	0.00E+00
71	2.64E+00	3.01E+00	0.00E+00	2.64E+00	6.01E+00	0.00E+00
81	2.62E+00	3.02E+00	0.00E+00	2.62E+00	6.04E+00	0.00E+00
91	2.61E+00	3.04E+00	0.00E+00	2.61E+00	6.07E+00	0.00E+00
101	2.59E+00	3.05E+00	0.00E+00	2.59E+00	6.10E+00	0.00E+00
111	2.57E+00	3.06E+00	0.00E+00	2.57E+00	6.13E+00	0.00E+00
121	2.56E+00	3.08E+00	0.00E+00	2.56E+00	6.16E+00	0.00E+00
131	2.54E+00	3.09E+00	0.00E+00	2.54E+00	6.18E+00	0.00E+00
141	2.02E+00	2.48E+00	0.00E+00	2.02E+00	4.97E+00	0.00E+00

.TK 0
.SK 4
.TP 8
D A T O S B A R R A S : (155 Barras)
.TK 3

Barra	Incidencias Inicio	Fin	Long.Barras [M]	Nombre-sec. (Cant.var)	Articulaciones Especial Inicio	Fin
1	1	2	3.2022	Canto variable		
2	2	3	3.2003	Canto variable		
3	3	4	3.1996	Canto variable		
4	4	5	3.2004	Canto variable		
5	5	6	3.1997	Canto variable		
6	6	7	3.1998	Canto variable		
7	7	8	3.2005	Canto variable		

8	8	9	3.1998	Canto variable	80	80	81	4.0018	Canto variable		
9	9	10	3.1998	Canto variable	81	81	82	4.0019	Canto variable		
10	10	11	3.2025	Canto variable	82	82	83	3.9998	Canto variable		
11	11	12	4.0010	Canto variable	83	83	84	4.0000	Canto variable		
12	12	13	4.0002	Canto variable	84	84	85	3.9995	Canto variable		
13	13	14	3.9996	Canto variable	85	85	86	4.0003	Canto variable		
14	14	15	4.0003	Canto variable	86	86	87	3.9998	Canto variable		
15	15	16	3.9997	Canto variable	87	87	88	4.0000	Canto variable		
16	16	17	4.0005	Canto variable	88	88	89	4.0001	Canto variable		
17	17	18	3.9999	Canto variable	89	89	90	4.0003	Canto variable		
18	18	19	4.0000	Canto variable	90	90	91	4.0019	Canto variable		
19	19	20	4.0001	Canto variable	91	91	92	4.0008	Canto variable		
20	20	21	4.0017	Canto variable	92	92	93	4.0001	Canto variable		
21	21	22	4.0010	Canto variable	93	93	94	4.0002	Canto variable		
22	22	23	4.0003	Canto variable	94	94	95	3.9998	Canto variable		
23	23	24	3.9996	Canto variable	95	95	96	3.9999	Canto variable		
24	24	25	3.9998	Canto variable	96	96	97	4.0007	Canto variable		
25	25	26	4.0005	Canto variable	97	97	98	3.9996	Canto variable		
26	26	27	3.9999	Canto variable	98	98	99	3.9997	Canto variable		
27	27	28	4.0001	Canto variable	99	99	100	4.0005	Canto variable		
28	28	29	4.0001	Canto variable	100	100	101	4.0009	Canto variable		
29	29	30	4.0002	Canto variable	101	101	102	4.0018	Canto variable		
30	30	31	4.0012	Canto variable	102	102	103	3.9997	Canto variable		
31	31	32	4.0012	Canto variable	103	103	104	4.0006	Canto variable		
32	32	33	3.9998	Canto variable	104	104	105	4.0001	Canto variable		
33	33	34	4.0006	Canto variable	105	105	106	3.9996	Canto variable		
34	34	35	4.0000	Canto variable	106	106	107	3.9998	Canto variable		
35	35	36	4.0001	Canto variable	107	107	108	3.9999	Canto variable		
36	36	37	4.0002	Canto variable	108	108	109	4.0002	Canto variable		
37	37	38	3.9996	Canto variable	109	109	110	4.0003	Canto variable		
38	38	39	3.9997	Canto variable	110	110	111	4.0014	Canto variable		
39	39	40	4.0005	Canto variable	111	111	112	4.0015	Canto variable		
40	40	41	4.0015	Canto variable	112	112	113	4.0001	Canto variable		
41	41	42	4.0015	Canto variable	113	113	114	3.9997	Canto variable		
42	42	43	4.0001	Canto variable	114	114	115	3.9999	Canto variable		
43	43	44	3.9995	Canto variable	115	115	116	4.0008	Canto variable		
44	44	45	4.0003	Canto variable	116	116	117	3.9996	Canto variable		
45	45	46	3.9998	Canto variable	117	117	118	3.9998	Canto variable		
46	46	47	4.0006	Canto variable	118	118	119	4.0000	Canto variable		
47	47	48	3.9993	Canto variable	119	119	120	4.0001	Canto variable		
48	48	49	4.0001	Canto variable	120	120	121	4.0020	Canto variable		
49	49	50	4.0002	Canto variable	121	121	122	4.0014	Canto variable		
50	50	51	4.0019	Canto variable	122	122	123	3.9994	Canto variable		
51	51	52	4.0013	Canto variable	123	123	124	4.0003	Canto variable		
52	52	53	3.9999	Canto variable	124	124	125	4.0005	Canto variable		
53	53	54	4.0000	Canto variable	125	125	126	3.9993	Canto variable		
54	54	55	4.0001	Canto variable	126	126	127	4.0002	Canto variable		
55	55	56	4.0002	Canto variable	127	127	128	4.0005	Canto variable		
56	56	57	3.9996	Canto variable	128	128	129	3.9999	Canto variable		
57	57	58	3.9998	Canto variable	129	129	130	3.9995	Canto variable		
58	58	59	4.0000	Canto variable	130	130	131	4.0019	Canto variable		
59	59	60	4.0000	Canto variable	131	131	132	3.2017	Canto variable		
60	60	61	4.0017	Canto variable	132	132	133	3.1999	Canto variable		
61	61	62	4.0012	Canto variable	133	133	134	3.2000	Canto variable		
62	62	63	4.0005	Canto variable	134	134	135	3.2002	Canto variable		
63	63	64	4.0006	Canto variable	135	135	136	3.2003	Canto variable		
64	64	65	3.9993	Canto variable	136	136	137	3.1997	Canto variable		
65	65	66	4.0002	Canto variable	137	137	138	3.2000	Canto variable		
66	66	67	4.0002	Canto variable	138	138	139	3.2000	Canto variable		
67	67	68	3.9998	Canto variable	139	139	140	3.1995	Canto variable		
68	68	69	3.9999	Canto variable	140	140	141	3.2068	Canto variable		
69	69	70	3.9999	Canto variable	1002*	11	1002	19.9230	Canto variable	--***- ------	Ori
70	70	71	4.0010	Canto variable	1003*	21	1003	25.9230	Canto variable	--***- ------	Ori
71	71	72	4.0025	Canto variable	1004*	31	1004	26.9230	Canto variable	--***- ------	Ori
72	72	73	3.9997	Canto variable	1005*	41	1005	27.9230	Canto variable	--***- ------	Ori
73	73	74	3.9999	Canto variable	1006*	51	1006	28.9230	Canto variable	--***- ------	Ori
74	74	75	4.0000	Canto variable	1007*	61	1007	28.9230	Canto variable	--***- ------	Ori
75	75	76	3.9995	Canto variable	1008*	71	1008	27.9230	Canto variable	--***- ------	Ori
76	76	77	4.0003	Canto variable	1009*	81	1009	26.9230	Canto variable	--***- ------	Ori
77	77	78	3.9998	Canto variable	1010*	91	1010	27.9230	Canto variable	--***- ------	Ori
78	78	79	4.0006	Canto variable	1011*	101	1011	26.9230	Canto variable	--***- ------	Ori
79	79	80	3.9994	Canto variable	1012*	111	1012	21.9230	Canto variable	--***- ------	Ori

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 1013*   121  1013     13.9230  Canto variable    --***- ------  Ori
 1014*   131  1014     10.9230  Canto variable    --***- ------  Ori
 2001*     1  2001      1.0000  %Q0307            ---**- ------  Ori
 2002*   141  2002      1.0000  %Q0308            --***- ------  Ori
.TK 0

Las barras marcadas con "*" son verticales. Sus ejes locales son
tales que la dirección 'y' resulta coincidente con la global siempre
y cuando no se haya rotado con la instruction 'O_ORIENTACION'.

Secciones marcadas con "*" (p.ej.*HEB200) están rotadas
por 90 grados (contra reloj)
.SK 3
.TP 8
ORIENTANCION BARRAS Y CANT.VAR:
.TK 3
       Cantos variables                     Orientación barras
 Barra Inicio-sec       Fin-sec           x/n1/Angulo     y/n2       z
-------------------------------------------------------------------------
    1  %Q0001          %Q0002
    2  %Q0003          %Q0004
    3  %Q0005          %Q0006
    4  %Q0007          %Q0008
    5  %Q0009          %Q0010
    6  %Q0011          %Q0012
    7  %Q0013          %Q0014
    8  %Q0015          %Q0016
    9  %Q0017          %Q0018
   10  %Q0019          %Q0020
   11  %Q0021          %Q0022
   12  %Q0023          %Q0024
   13  %Q0025          %Q0026
   14  %Q0027          %Q0028
   15  %Q0029          %Q0030
   16  %Q0031          %Q0032
   17  %Q0033          %Q0034
   18  %Q0035          %Q0036
   19  %Q0037          %Q0038
   20  %Q0039          %Q0040
   21  %Q0041          %Q0042
   22  %Q0043          %Q0044
   23  %Q0045          %Q0046
   24  %Q0047          %Q0048
   25  %Q0049          %Q0050
   26  %Q0051          %Q0052
   27  %Q0053          %Q0054
   28  %Q0055          %Q0056
   29  %Q0057          %Q0058
   30  %Q0059          %Q0060
   31  %Q0061          %Q0062
   32  %Q0063          %Q0064
   33  %Q0065          %Q0066
   34  %Q0067          %Q0068
   35  %Q0069          %Q0070
   36  %Q0071          %Q0072
   37  %Q0073          %Q0074
   38  %Q0075          %Q0076
   39  %Q0077          %Q0078
   40  %Q0079          %Q0080
   41  %Q0081          %Q0082
   42  %Q0083          %Q0084
   43  %Q0085          %Q0086
   44  %Q0087          %Q0088
   45  %Q0089          %Q0090
   46  %Q0091          %Q0092
   47  %Q0093          %Q0094
   48  %Q0095          %Q0096
   49  %Q0097          %Q0098
   50  %Q0099          %Q0100
   51  %Q0101          %Q0102
   52  %Q0103          %Q0104
   53  %Q0105          %Q0106
   54  %Q0107          %Q0108
   55  %Q0109          %Q0110
   56  %Q0111          %Q0112
   57  %Q0113          %Q0114
   58  %Q0115          %Q0116
   59  %Q0117          %Q0118
   60  %Q0119          %Q0120
   61  %Q0121          %Q0122
   62  %Q0123          %Q0124
   63  %Q0125          %Q0126
   64  %Q0127          %Q0128
   65  %Q0129          %Q0130
   66  %Q0131          %Q0132
   67  %Q0133          %Q0134
   68  %Q0135          %Q0136
   69  %Q0137          %Q0138
   70  %Q0139          %Q0140
   71  %Q0141          %Q0142
   72  %Q0143          %Q0144
   73  %Q0145          %Q0146
   74  %Q0147          %Q0148
   75  %Q0149          %Q0150
   76  %Q0151          %Q0152
   77  %Q0153          %Q0154
   78  %Q0155          %Q0156
   79  %Q0157          %Q0158
   80  %Q0159          %Q0160
   81  %Q0161          %Q0162
   82  %Q0163          %Q0164
   83  %Q0165          %Q0166
   84  %Q0167          %Q0168
   85  %Q0169          %Q0170
   86  %Q0171          %Q0172
   87  %Q0173          %Q0174
   88  %Q0175          %Q0176
   89  %Q0177          %Q0178
   90  %Q0179          %Q0180
   91  %Q0181          %Q0182
   92  %Q0183          %Q0184
   93  %Q0185          %Q0186
   94  %Q0187          %Q0188
   95  %Q0189          %Q0190
   96  %Q0191          %Q0192
   97  %Q0193          %Q0194
   98  %Q0195          %Q0196
   99  %Q0197          %Q0198
  100  %Q0199          %Q0200
  101  %Q0201          %Q0202
  102  %Q0203          %Q0204
  103  %Q0205          %Q0206
  104  %Q0207          %Q0208
  105  %Q0209          %Q0210
  106  %Q0211          %Q0212
  107  %Q0213          %Q0214
  108  %Q0215          %Q0216
  109  %Q0217          %Q0218
  110  %Q0219          %Q0220
  111  %Q0221          %Q0222
  112  %Q0223          %Q0224
  113  %Q0225          %Q0226
  114  %Q0227          %Q0228
  115  %Q0229          %Q0230
  116  %Q0231          %Q0232
  117  %Q0233          %Q0234
  118  %Q0235          %Q0236
  119  %Q0237          %Q0238
  120  %Q0239          %Q0240
  121  %Q0241          %Q0242
  122  %Q0243          %Q0244
  123  %Q0245          %Q0246
  124  %Q0247          %Q0248
  125  %Q0249          %Q0250
```

```
  126  %Q0251          %Q0252
  127  %Q0253          %Q0254
  128  %Q0255          %Q0256
  129  %Q0257          %Q0258
  130  %Q0259          %Q0260
  131  %Q0261          %Q0262
  132  %Q0263          %Q0264
  133  %Q0265          %Q0266
  134  %Q0267          %Q0268
  135  %Q0269          %Q0270
  136  %Q0271          %Q0272
  137  %Q0273          %Q0274
  138  %Q0275          %Q0276
  139  %Q0277          %Q0278
  140  %Q0279          %Q0280
 1002  %Q0281          %Q0282            -46.8600
 1003  %Q0283          %Q0284            -47.1800
 1004  %Q0285          %Q0286            -47.4900
 1005  %Q0287          %Q0288            -47.8100
 1006  %Q0289          %Q0290            -48.1300
 1007  %Q0291          %Q0292            -48.4400
 1008  %Q0293          %Q0294            -48.7600
 1009  %Q0295          %Q0296            -49.0800
 1010  %Q0297          %Q0298            -49.3900
 1011  %Q0299          %Q0300            -49.7100
 1012  %Q0301          %Q0302            -50.0200
 1013  %Q0303          %Q0304            -50.3400
 1014  %Q0305          %Q0306            -50.6600
 2001                                    -46.6100
 2002                                    -50.9100
.TK 0
.SK 3
.TP 8
.TK 4
```

CARACTERISTICAS DE SEC.	Ax [M2]	Iy [M4]	Iz [M4]	Phi[grados]
	Ix [M4]	Fy [M2]	Fz [M2]	
Nombre Sec.	zi [M1]	zs [M1]	yi [M1]	yd [M1]
.TP 4				
.TP 4				
%Q0001	1.8000E+01	1.8000E+01	1.1000E+02	0.00
	2.5000E+01	Undef	Undef	
	-1.9230	1.2770	-7.0000	7.0000
.TP 4				
%Q0002	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0003	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0004	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0005	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0006	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0007	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0008	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0009	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0010	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0011	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0012	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0013	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0014	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0015	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0016	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0017	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0018	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0019	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0020	1.8000E+01	1.8000E+01	1.1000E+02	0.00
	2.5000E+01	Undef	Undef	
	-1.9230	1.2770	-7.0000	7.0000
.TP 4				
%Q0021	1.8000E+01	1.8000E+01	1.1000E+02	0.00
	2.5000E+01	Undef	Undef	
	-1.9230	1.2770	-7.0000	7.0000
.TP 4				
%Q0022	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0023	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0024	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0025	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0026	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0027	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000
.TP 4				
%Q0028	1.0000E+01	1.3000E+01	9.7000E+01	0.00
	4.9000E+01	Undef	Undef	
	-2.0340	1.1660	-7.0000	7.0000

```
.TP 4
%Q0029                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0030                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0031                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0032                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0033                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0034                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0035                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0036                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0037                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0038                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0039                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0040                1.8000E+01   1.8000E+01   1.1000E+02        0.00
                      2.5000E+01        Undef        Undef
                         -1.9230       1.2770      -7.0000       7.0000

.TP 4
%Q0041                1.8000E+01   1.8000E+01   1.1000E+02        0.00
                      2.5000E+01        Undef        Undef
                         -1.9230       1.2770      -7.0000       7.0000

.TP 4
%Q0042                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0043                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0044                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0045                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0046                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0047                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0048                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0049                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0050                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0051                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0052                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0053                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0054                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0055                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0056                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000

.TP 4
%Q0057                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
```

```
                    -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0058          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0059          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0060          1.8000E+01   1.8000E+01   1.1000E+02         0.00
                2.5000E+01        Undef        Undef
                   -1.9230       1.2770      -7.0000       7.0000
.TP 4
%Q0061          1.8000E+01   1.8000E+01   1.1000E+02         0.00
                2.5000E+01        Undef        Undef
                   -1.9230       1.2770      -7.0000       7.0000
.TP 4
%Q0062          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0063          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0064          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0065          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0066          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0067          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0068          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0069          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0070          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0071          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0072          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0073          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0074          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0075          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0076          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0077          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0078          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0079          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0080          1.8000E+01   1.8000E+01   1.1000E+02         0.00
                2.5000E+01        Undef        Undef
                   -1.9230       1.2770      -7.0000       7.0000
.TP 4
%Q0081          1.8000E+01   1.8000E+01   1.1000E+02         0.00
                2.5000E+01        Undef        Undef
                   -1.9230       1.2770      -7.0000       7.0000
.TP 4
%Q0082          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0083          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0084          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0085          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0086          1.0000E+01   1.3000E+01   9.7000E+01         0.00
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                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0087              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0088              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0089              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0090              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0091              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0092              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0093              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0094              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0095              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0096              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0097              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0098              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0099              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0100              1.8000E+01   1.8000E+01   1.1000E+02        0.00
                    2.5000E+01       Undef       Undef
                       -1.9230      1.2770     -7.0000      7.0000
.TP 4
%Q0101              1.8000E+01   1.8000E+01   1.1000E+02        0.00
                    2.5000E+01       Undef       Undef
                       -1.9230      1.2770     -7.0000      7.0000
.TP 4
%Q0102              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0103              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0104              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0105              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0106              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0107              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0108              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0109              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0110              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0111              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0112              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0113              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
%Q0114              1.0000E+01   1.3000E+01   9.7000E+01        0.00
                    4.9000E+01       Undef       Undef
                       -2.0340      1.1660     -7.0000      7.0000
.TP 4
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%Q0115                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0116                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0117                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0118                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0119                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0120                1.8000E+01   1.8000E+01   1.1000E+02        0.00
                      2.5000E+01        Undef        Undef
                         -1.9230       1.2770      -7.0000       7.0000
.TP 4
%Q0121                1.8000E+01   1.8000E+01   1.1000E+02        0.00
                      2.5000E+01        Undef        Undef
                         -1.9230       1.2770      -7.0000       7.0000
.TP 4
%Q0122                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0123                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0124                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0125                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0126                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0127                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0128                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0129                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0130                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0131                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0132                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0133                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0134                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0135                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0136                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0137                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0138                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0139                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0140                1.8000E+01   1.8000E+01   1.1000E+02        0.00
                      2.5000E+01        Undef        Undef
                         -1.9230       1.2770      -7.0000       7.0000
.TP 4
%Q0141                1.8000E+01   1.8000E+01   1.1000E+02        0.00
                      2.5000E+01        Undef        Undef
                         -1.9230       1.2770      -7.0000       7.0000
.TP 4
%Q0142                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0143                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
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.TP 4
%Q0144                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0145                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0146                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0147                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0148                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0149                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0150                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0151                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0152                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0153                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0154                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0155                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0156                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0157                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0158                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0159                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0160                1.8000E+01   1.8000E+01   1.1000E+02        0.00
                      2.5000E+01        Undef        Undef
                         -1.9230       1.2770      -7.0000       7.0000
.TP 4
%Q0161                1.8000E+01   1.8000E+01   1.1000E+02        0.00
                      2.5000E+01        Undef        Undef
                         -1.9230       1.2770      -7.0000       7.0000
.TP 4
%Q0162                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0163                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0164                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0165                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0166                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0167                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0168                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0169                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0170                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0171                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0172                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
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.TP 4
%Q0173                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0174                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0175                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0176                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0177                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0178                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0179                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0180                1.8000E+01   1.8000E+01   1.1000E+02        0.00
                      2.5000E+01        Undef        Undef
                         -1.9230       1.2770      -7.0000      7.0000

.TP 4
%Q0181                1.8000E+01   1.8000E+01   1.1000E+02        0.00
                      2.5000E+01        Undef        Undef
                         -1.9230       1.2770      -7.0000      7.0000

.TP 4
%Q0182                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0183                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0184                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0185                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0186                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0187                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0188                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0189                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0190                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0191                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0192                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0193                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0194                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0195                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0196                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0197                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0198                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0199                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000      7.0000

.TP 4
%Q0200                1.8000E+01   1.8000E+01   1.1000E+02        0.00
                      2.5000E+01        Undef        Undef
                         -1.9230       1.2770      -7.0000      7.0000

.TP 4
%Q0201                1.8000E+01   1.8000E+01   1.1000E+02        0.00
                      2.5000E+01        Undef        Undef
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                    -1.9230       1.2770      -7.0000       7.0000
.TP 4
%Q0202          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0203          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0204          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0205          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0206          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0207          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0208          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0209          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0210          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0211          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0212          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0213          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0214          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0215          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0216          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0217          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0218          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0219          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0220          1.8000E+01   1.8000E+01   1.1000E+02         0.00
                2.5000E+01        Undef        Undef
                   -1.9230       1.2770      -7.0000       7.0000
.TP 4
%Q0221          1.8000E+01   1.8000E+01   1.1000E+02         0.00
                2.5000E+01        Undef        Undef
                   -1.9230       1.2770      -7.0000       7.0000
.TP 4
%Q0222          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0223          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0224          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0225          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0226          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0227          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0228          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0229          1.0000E+01   1.3000E+01   9.7000E+01         0.00
                4.9000E+01        Undef        Undef
                   -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0230          1.0000E+01   1.3000E+01   9.7000E+01         0.00
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                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0231              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0232              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0233              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0234              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0235              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0236              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0237              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0238              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0239              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0240              1.8000E+01   1.8000E+01   1.1000E+02         0.00
                    2.5000E+01        Undef        Undef
                       -1.9230       1.2770      -7.0000       7.0000
.TP 4
%Q0241              1.8000E+01   1.8000E+01   1.1000E+02         0.00
                    2.5000E+01        Undef        Undef
                       -1.9230       1.2770      -7.0000       7.0000
.TP 4
%Q0242              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0243              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0244              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0245              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0246              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0247              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0248              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0249              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0250              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0251              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0252              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0253              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0254              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0255              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0256              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0257              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0258              1.0000E+01   1.3000E+01   9.7000E+01         0.00
                    4.9000E+01        Undef        Undef
                       -2.0340       1.1660      -7.0000       7.0000
.TP 4
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%Q0259                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0260                1.8000E+01   1.8000E+01   1.1000E+02        0.00
                      2.5000E+01        Undef        Undef
                         -1.9230       1.2770      -7.0000       7.0000
.TP 4
%Q0261                1.8000E+01   1.8000E+01   1.1000E+02        0.00
                      2.5000E+01        Undef        Undef
                         -1.9230       1.2770      -7.0000       7.0000
.TP 4
%Q0262                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0263                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0264                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0265                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0266                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0267                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0268                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0269                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0270                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0271                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0272                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0273                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0274                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0275                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0276                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0277                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0278                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0279                1.0000E+01   1.3000E+01   9.7000E+01        0.00
                      4.9000E+01        Undef        Undef
                         -2.0340       1.1660      -7.0000       7.0000
.TP 4
%Q0280                2.1000E+01   2.0000E+01   1.1000E+02        0.00
                      5.8000E+01        Undef        Undef
                         -1.8310       1.3690      -7.0000       7.0000
.TP 4
%Q0281                5.4000E+00   5.5000E+00   1.6000E+01        0.00
                      1.3000E+01        Undef        Undef
                           Undef        Undef        Undef        Undef
.TP 4
%Q0282                5.4000E+00   5.5000E+00   1.6000E+01        0.00
                      1.3000E+01        Undef        Undef
                           Undef        Undef        Undef        Undef
.TP 4
%Q0283                5.4000E+00   5.5000E+00   1.6000E+01        0.00
                      1.3000E+01        Undef        Undef
                           Undef        Undef        Undef        Undef
.TP 4
%Q0284                5.4000E+00   5.5000E+00   1.6000E+01        0.00
                      1.3000E+01        Undef        Undef
                           Undef        Undef        Undef        Undef
.TP 4
%Q0285                5.4000E+00   5.5000E+00   1.6000E+01        0.00
                      1.3000E+01        Undef        Undef
                           Undef        Undef        Undef        Undef
.TP 4
%Q0286                5.4000E+00   5.5000E+00   1.6000E+01        0.00
                      1.3000E+01        Undef        Undef
                           Undef        Undef        Undef        Undef
.TP 4
%Q0287                5.4000E+00   5.5000E+00   1.6000E+01        0.00
                      1.3000E+01        Undef        Undef
                           Undef        Undef        Undef        Undef
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.TP 4
%Q0288                  5.4000E+00   5.5000E+00   1.6000E+01        0.00
                        1.3000E+01        Undef        Undef
                             Undef        Undef        Undef        Undef
.TP 4
%Q0289                  5.4000E+00   5.5000E+00   1.6000E+01        0.00
                        1.3000E+01        Undef        Undef
                             Undef        Undef        Undef        Undef
.TP 4
%Q0290                  5.4000E+00   5.5000E+00   1.6000E+01        0.00
                        1.3000E+01        Undef        Undef
                             Undef        Undef        Undef        Undef
.TP 4
%Q0291                  5.4000E+00   5.5000E+00   1.6000E+01        0.00
                        1.3000E+01        Undef        Undef
                             Undef        Undef        Undef        Undef
.TP 4
%Q0292                  5.4000E+00   5.5000E+00   1.6000E+01        0.00
                        1.3000E+01        Undef        Undef
                             Undef        Undef        Undef        Undef
.TP 4
%Q0293                  5.4000E+00   5.5000E+00   1.6000E+01        0.00
                        1.3000E+01        Undef        Undef
                             Undef        Undef        Undef        Undef
.TP 4
%Q0294                  5.4000E+00   5.5000E+00   1.6000E+01        0.00
                        1.3000E+01        Undef        Undef
                             Undef        Undef        Undef        Undef
.TP 4
%Q0295                  5.4000E+00   5.5000E+00   1.6000E+01        0.00
                        1.3000E+01        Undef        Undef
                             Undef        Undef        Undef        Undef
.TP 4
%Q0296                  5.4000E+00   5.5000E+00   1.6000E+01        0.00
                        1.3000E+01        Undef        Undef
                             Undef        Undef        Undef        Undef
.TP 4
%Q0297                  5.4000E+00   5.5000E+00   1.6000E+01        0.00
                        1.3000E+01        Undef        Undef
                             Undef        Undef        Undef        Undef
.TP 4
%Q0298                  5.4000E+00   5.5000E+00   1.6000E+01        0.00
                        1.3000E+01        Undef        Undef
                             Undef        Undef        Undef        Undef
.TP 4
%Q0299                  5.4000E+00   5.5000E+00   1.6000E+01        0.00
                        1.3000E+01        Undef        Undef
                             Undef        Undef        Undef        Undef
.TP 4
%Q0300                  5.4000E+00   5.5000E+00   1.6000E+01        0.00
                        1.3000E+01        Undef        Undef
                             Undef        Undef        Undef        Undef
.TP 4
%Q0301                  5.4000E+00   5.5000E+00   1.6000E+01        0.00
                        1.3000E+01        Undef        Undef
                             Undef        Undef        Undef        Undef
.TP 4
%Q0302                  5.4000E+00   5.5000E+00   1.6000E+01        0.00
                        1.3000E+01        Undef        Undef
                             Undef        Undef        Undef        Undef
.TP 4
%Q0303                  5.4000E+00   5.5000E+00   1.6000E+01        0.00
                        1.3000E+01        Undef        Undef
                             Undef        Undef        Undef        Undef
.TP 4
%Q0304                  5.4000E+00   5.5000E+00   1.6000E+01        0.00
                        1.3000E+01        Undef        Undef
                             Undef        Undef        Undef        Undef
.TP 4
%Q0305                  5.4000E+00   5.5000E+00   1.6000E+01        0.00
                        1.3000E+01        Undef        Undef
                             Undef        Undef        Undef        Undef
.TP 4
%Q0306                  5.4000E+00   5.5000E+00   1.6000E+01        0.00
                        1.3000E+01        Undef        Undef
                             Undef        Undef        Undef        Undef
.TP 4
%Q0307                  1.0000E+01   1.0000E+01   1.0000E+02        0.00
                        1.0000E+01        Undef        Undef
                             Undef        Undef        Undef        Undef
.TP 4
%Q0308                  1.0000E+01   1.0000E+01   1.0000E+02        0.00
                        1.0000E+01        Undef        Undef
                             Undef        Undef        Undef        Undef
.TK 0
.SK 3
.TP 8
MATERIALES:
.TK 3
                                      E-Módulo     G-Módulo
 Barra (hasta barra)   [ T/ M2]      [ T/ M2]
-------------------------------------------------------------------------------
    1 ..  140        3.8000E+06    1.5833E+06
 1002 .. 1014        3.2909E+06    1.3712E+06
 2001 .. 2002        3.8000E+06    1.5833E+06
.TK 0
```

STS-cálculo ok
Max free mem:105kB

✍
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**CARACT_GENERALES
14 141 10
CARACTERISTICAS MECANICAS DE LAS SECCIONES DEL TABLERO

Sec.	x [m]	h [m]	A [m2]	zg [m]	Iy [m4]	Wys [m3]	Wyi [m3]	Ix [m4]	Iz [m4]
**CARACT_GEOM									
1	0.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
2	3.20	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
3	6.40	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
4	9.60	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
5	12.80	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
6	16.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
7	19.20	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
8	22.40	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
9	25.60	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
10	28.80	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
11	32.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
12	36.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
13	40.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
14	44.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
15	48.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
16	52.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
17	56.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
18	60.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
19	64.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
20	68.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
21	72.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
22	76.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
23	80.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
24	84.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
25	88.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
26	92.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
27	96.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
28	100.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
29	104.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
30	108.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
31	112.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
32	116.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
33	120.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
34	124.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
35	128.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
36	132.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
37	136.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
38	140.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
39	144.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
40	148.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
41	152.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
42	156.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
43	160.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
44	164.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
45	168.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
46	172.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
47	176.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
48	180.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
49	184.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
50	188.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
51	192.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
52	196.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
53	200.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
54	204.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
55	208.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
56	212.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
57	216.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
58	220.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
59	224.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
60	228.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
61	232.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
62	236.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
63	240.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
64	244.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
65	248.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
66	252.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
67	256.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
68	260.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
69	264.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
70	268.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
71	272.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
72	276.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
73	280.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
74	284.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
75	288.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
76	292.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
77	296.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
78	300.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
79	304.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
80	308.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
81	312.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
82	316.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
83	320.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
84	324.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
85	328.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
86	332.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
87	336.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
88	340.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
89	344.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
90	348.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
91	352.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
92	356.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
93	360.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
94	364.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
95	368.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
96	372.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
97	376.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
98	380.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
99	384.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
100	388.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
101	392.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
102	396.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
103	400.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
104	404.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
105	408.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
106	412.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
107	416.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
108	420.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
109	424.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
110	428.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
111	432.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
112	436.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
113	440.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
114	444.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
115	448.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
116	452.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
117	456.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
118	460.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
119	464.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
120	468.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
121	472.00	3.20	17.854	-1.2767	18.1849	14.2435	9.4551	25.4842	114.9334
122	476.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
123	480.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
124	484.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
125	488.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524
126	492.00	3.20	9.992	-1.1663	13.5517	11.6191	6.6637	48.7064	96.6524

```
127 496.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
128 500.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
129 504.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
130 508.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
131 512.00 3.20  17.854  -1.2767 18.1849 14.2435  9.4551  25.4842 114.9334
132 515.20 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
133 518.40 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
134 521.60 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
135 524.80 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
136 528.00 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
137 531.20 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
138 534.40 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
139 537.60 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
140 540.80 3.20   9.992  -1.1663 13.5517 11.6191  6.6637  48.7064  96.6524
141 544.00 3.20  21.213  -1.3687 19.9425 14.5702 10.8899  58.3060 116.0006
CARACTERISTICAS MECANICAS DE LAS SECCIONES TIPO DE LAS PILAS

-------------------------------------------------------------------------
tipo    A     Iy       Iz       Ix
      [m2]   [m4]     [m4]     [m4]
-------------------------------------------------------------------------

**CARACT_GEOM_PILAS
  1   5.37  5.4772  16.3060 13.4300
```

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```
Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
                y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF


DATOS GENERALES

No. Vanos:      14

-------------------------------------------------------------------------
Vano          Luz         vanos_sin_sc
              [m]
-------------------------------------------------------------------------
  1          32.00
  2          40.00
  3          40.00           x
  4          40.00           x
  5          40.00           x
  6          40.00           x
  7          40.00           x
  8          40.00
  9          40.00
 10          40.00
 11          40.00
 12          40.00
 13          40.00
 14          32.00
```

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

DATOS PROCESO CONSTRUCTIVO

No. Fases: 14

Fase	fecha horm. [días]	barras nuevas
1	0.00	1..12 1001..1002 2001..2001
2	15.00	13..22 1003..1003
3	45.00	23..32 1004..1004
4	60.00	33..42 1005..1005
5	75.00	43..52 1006..1006
6	90.00	53..62 1007..1007
7	105.00	63..72 1008..1008
8	120.00	73..82 1009..1009
9	135.00	83..92 1010..1010
10	150.00	93..102 1011..1011
11	165.00	103..112 1012..1012
12	180.00	113..122 1013..1013
13	195.00	123..132 1014..1014
14	210.00	133..140 2002..2002

Fase	fecha tesado [días]	familia tesada (%Ft)
1	15.00	1 (100%) 2 (100%) 3 (100%) 43 (100%) 56 (100%)
2	30.00	4 (100%) 5 (100%) 6 (100%) 44 (100%) 57 (100%) 70 (100%)
3	60.00	7 (100%) 8 (100%) 9 (100%) 45 (100%) 58 (100%)
4	75.00	10 (100%) 11 (100%) 12 (100%) 46 (100%) 59 (100%)
5	90.00	13 (100%) 14 (100%) 15 (100%) 47 (100%) 60 (100%)
6	105.00	16 (100%) 17 (100%) 18 (100%) 48 (100%) 61 (100%)
7	120.00	19 (100%) 20 (100%) 21 (100%) 49 (100%) 62 (100%)
8	135.00	22 (100%) 23 (100%) 24 (100%) 50 (100%) 63 (100%)
9	150.00	25 (100%) 26 (100%) 27 (100%) 51 (100%) 64 (100%)
10	165.00	28 (100%) 29 (100%) 30 (100%) 52 (100%) 65 (100%)
11	180.00	31 (100%) 32 (100%) 33 (100%) 53 (100%) 66 (100%)
12	195.00	34 (100%) 35 (100%) 36 (100%) 54 (100%) 67 (100%)
13	210.00	37 (100%) 38 (100%) 39 (100%) 55 (100%) 68 (100%)
14	225.00	40 (100%) 41 (100%) 42 (100%) 69 (100%)

Fase	barras act	Edad al tesar (j) [días]	fckj/fck28
1	1.. 12	15.00	0.84
	1001..1002	15.00	0.84
	2001..2001	15.00	0.84

2	1.. 12	30.00	1.02
	1001..1002	30.00	1.02
	2001..2001	30.00	1.02
	13.. 22	15.00	0.84
	1003..1003	15.00	0.84
3	1.. 12	60.00	1.16
	1001..1002	60.00	1.16
	2001..2001	60.00	1.16
	13.. 22	45.00	1.10
	1003..1003	45.00	1.10
	23.. 32	15.00	0.84
	1004..1004	15.00	0.84
4	1.. 12	75.00	1.19
	1001..1002	75.00	1.19
	2001..2001	75.00	1.19
	13.. 22	60.00	1.16
	1003..1003	60.00	1.16
	23.. 32	30.00	1.02
	1004..1004	30.00	1.02
	33.. 42	15.00	0.84
	1005..1005	15.00	0.84
5	1.. 12	90.00	1.22
	1001..1002	90.00	1.22
	2001..2001	90.00	1.22
	13.. 22	75.00	1.19
	1003..1003	75.00	1.19
	23.. 32	45.00	1.10
	1004..1004	45.00	1.10
	33.. 42	30.00	1.02
	1005..1005	30.00	1.02
	43.. 52	15.00	0.84
	1006..1006	15.00	0.84
6	1.. 12	105.00	1.24
	1001..1002	105.00	1.24
	2001..2001	105.00	1.24
	13.. 22	90.00	1.22
	1003..1003	90.00	1.22
	23.. 32	60.00	1.16
	1004..1004	60.00	1.16
	33.. 42	45.00	1.10
	1005..1005	45.00	1.10
	43.. 52	30.00	1.02
	1006..1006	30.00	1.02
	53.. 62	15.00	0.84
	1007..1007	15.00	0.84
7	1.. 12	120.00	1.26
	1001..1002	120.00	1.26
	2001..2001	120.00	1.26
	13.. 22	105.00	1.24
	1003..1003	105.00	1.24
	23.. 32	75.00	1.19
	1004..1004	75.00	1.19
	33.. 42	60.00	1.16
	1005..1005	60.00	1.16
	43.. 52	45.00	1.10
	1006..1006	45.00	1.10
	53.. 62	30.00	1.02
	1007..1007	30.00	1.02
	63.. 72	15.00	0.84
	1008..1008	15.00	0.84
8	1.. 12	135.00	1.27
	1001..1002	135.00	1.27
	2001..2001	135.00	1.27
	13.. 22	120.00	1.26
	1003..1003	120.00	1.26
	23.. 32	90.00	1.22
	1004..1004	90.00	1.22
	33.. 42	75.00	1.19
	1005..1005	75.00	1.19
	43.. 52	60.00	1.16
	1006..1006	60.00	1.16
	53.. 62	45.00	1.10
	1007..1007	45.00	1.10
	63.. 72	30.00	1.02
	1008..1008	30.00	1.02
	73.. 82	15.00	0.84
	1009..1009	15.00	0.84
9	1.. 12	150.00	1.29
	1001..1002	150.00	1.29
	2001..2001	150.00	1.29
	13.. 22	135.00	1.27
	1003..1003	135.00	1.27
	23.. 32	105.00	1.24
	1004..1004	105.00	1.24
	33.. 42	90.00	1.22
	1005..1005	90.00	1.22
	43.. 52	75.00	1.19
	1006..1006	75.00	1.19
	53.. 62	60.00	1.16
	1007..1007	60.00	1.16
	63.. 72	45.00	1.10
	1008..1008	45.00	1.10
	73.. 82	30.00	1.02
	1009..1009	30.00	1.02
	83.. 92	15.00	0.84
	1010..1010	15.00	0.84
10	1.. 12	165.00	1.30
	1001..1002	165.00	1.30
	2001..2001	165.00	1.30
	13.. 22	150.00	1.29
	1003..1003	150.00	1.29
	23.. 32	120.00	1.26
	1004..1004	120.00	1.26
	33.. 42	105.00	1.24
	1005..1005	105.00	1.24
	43.. 52	90.00	1.22
	1006..1006	90.00	1.22
	53.. 62	75.00	1.19
	1007..1007	75.00	1.19
	63.. 72	60.00	1.16
	1008..1008	60.00	1.16
	73.. 82	45.00	1.10
	1009..1009	45.00	1.10
	83.. 92	30.00	1.02
	1010..1010	30.00	1.02
	93.. 102	15.00	0.84
	1011..1011	15.00	0.84
11	1.. 12	180.00	1.31
	1001..1002	180.00	1.31
	2001..2001	180.00	1.31
	13.. 22	165.00	1.30
	1003..1003	165.00	1.30
	23.. 32	135.00	1.27
	1004..1004	135.00	1.27
	33.. 42	120.00	1.26
	1005..1005	120.00	1.26
	43.. 52	105.00	1.24
	1006..1006	105.00	1.24
	53.. 62	90.00	1.22
	1007..1007	90.00	1.22
	63.. 72	75.00	1.19
	1008..1008	75.00	1.19
	73.. 82	60.00	1.16
	1009..1009	60.00	1.16

	83.. 92	45.00	1.10
	1010..1010	45.00	1.10
	93.. 102	30.00	1.02
	1011..1011	30.00	1.02
	103.. 112	15.00	0.84
	1012..1012	15.00	0.84
12	1.. 12	195.00	1.31
	1001..1002	195.00	1.31
	2001..2001	195.00	1.31
	13.. 22	180.00	1.31
	1003..1003	180.00	1.31
	23.. 32	150.00	1.29
	1004..1004	150.00	1.29
	33.. 42	135.00	1.27
	1005..1005	135.00	1.27
	43.. 52	120.00	1.26
	1006..1006	120.00	1.26
	53.. 62	105.00	1.24
	1007..1007	105.00	1.24
	63.. 72	90.00	1.22
	1008..1008	90.00	1.22
	73.. 82	75.00	1.19
	1009..1009	75.00	1.19
	83.. 92	60.00	1.16
	1010..1010	60.00	1.16
	93.. 102	45.00	1.10
	1011..1011	45.00	1.10
	103.. 112	30.00	1.02
	1012..1012	30.00	1.02
	113.. 122	15.00	0.84
	1013..1013	15.00	0.84
13	1.. 12	210.00	1.32
	1001..1002	210.00	1.32
	2001..2001	210.00	1.32
	13.. 22	195.00	1.31
	1003..1003	195.00	1.31
	23.. 32	165.00	1.30
	1004..1004	165.00	1.30
	33.. 42	150.00	1.29
	1005..1005	150.00	1.29
	43.. 52	135.00	1.27
	1006..1006	135.00	1.27
	53.. 62	120.00	1.26
	1007..1007	120.00	1.26
	63.. 72	105.00	1.24
	1008..1008	105.00	1.24
	73.. 82	90.00	1.22
	1009..1009	90.00	1.22
	83.. 92	75.00	1.19
	1010..1010	75.00	1.19
	93.. 102	60.00	1.16
	1011..1011	60.00	1.16
	103.. 112	45.00	1.10
	1012..1012	45.00	1.10
	113.. 122	30.00	1.02
	1013..1013	30.00	1.02
	123.. 132	15.00	0.84
	1014..1014	15.00	0.84
14	1.. 12	225.00	1.33
	1001..1002	225.00	1.33
	2001..2001	225.00	1.33
	13.. 22	210.00	1.32
	1003..1003	210.00	1.32
	23.. 32	180.00	1.31
	1004..1004	180.00	1.31
	33.. 42	165.00	1.30
	1005..1005	165.00	1.30
	43.. 52	150.00	1.29
	1006..1006	150.00	1.29
	53.. 62	135.00	1.27
	1007..1007	135.00	1.27
	63.. 72	120.00	1.26
	1008..1008	120.00	1.26
	73.. 82	105.00	1.24
	1009..1009	105.00	1.24
	83.. 92	90.00	1.22
	1010..1010	90.00	1.22
	93.. 102	75.00	1.19
	1011..1011	75.00	1.19
	103.. 112	60.00	1.16
	1012..1012	60.00	1.16
	113.. 122	45.00	1.10
	1013..1013	45.00	1.10
	123.. 132	30.00	1.02
	1014..1014	30.00	1.02
	133.. 140	15.00	0.84
	2002..2002	15.00	0.84

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

DATOS SECCIONES TIPO TABLERO:

Tipo	2 [m]	3 [m]	4 [m]	5 [m]	6 [m]	7 [m]	8 [m]
1	6.60	5.26	5.26	0.20	0.25	2.04	0.71

SITUACION DE SECCIONES TIPO DEL TABLERO:

No. de Situaciones de Secciones Tipo: 1

Cota [m]	Sección Tipo:
0.00	1

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

DATOS SECCIONES TIPO PILAS:

Tipo	geom.	rect / circ / poli	b / ? / xe [m]	h / ? / ye [m]	b0 / ? / xi [m]	h0 / yi [m]	n_fustes	sep_fustes [m]
2	poli.		2.63	0.85	2.23	0.68	1	0.00
			2.13	1.35	1.96	0.95		
			-2.13	1.35	-1.96	0.95		
			-2.63	0.85	-2.23	0.68		
			-2.63	-0.85	-2.23	-0.68		
			-2.13	-1.35	-1.96	-0.95		
			2.13	-1.35	1.96	-0.95		
			2.63	-0.85	2.23	-0.68		

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

DATOS ARMADURAS SECCIONES TIPO PILAS:

Tipo	geom.	rect circ poli	nb_h_ext nb_tot_ext nb_lad_ext	nb_b_ext	nb_h_int nb_tot_int nb_lad_int	nb_b_int
2	poli.		4		3	
			19		16	
			4		3	
			9		7	
			4		3	
			19		16	
			4		3	
			9		7	

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

DATOS PILAS:

apoyo	altura [m]	abscisa [m]	tipo sec
E- 1	0.00		
P- 1	18.00	0.00	1
		18.00	1
P- 2	24.00	0.00	1
		24.00	1
P- 3	25.00	0.00	1
		25.00	1
P- 4	26.00	0.00	1
		26.00	1
P- 5	27.00	0.00	1
		27.00	1
P- 6	27.00	0.00	1
		27.00	1
P- 7	26.00	0.00	1
		26.00	1
P- 8	25.00	0.00	1
		25.00	1
P- 9	26.00	0.00	1
		26.00	1
P-10	25.00	0.00	1
		25.00	1
P-11	20.00	0.00	1
		20.00	1
P-12	12.00	0.00	1
		12.00	1
P-13	9.00	0.00	1
		9.00	1
E- 2	0.00		

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

DATOS ALIGERAMIENTOS TIPO:

No. de Aligeramientos Tipo: 3

Aligeramiento Tipo 1 No. de Huecos: 3

Hueco Tipo	x [m]	y [m]	L o R [m]	l [m]	h [m]
4	0.00	-0.30	0.00	4.84	0.15
4	0.00	-0.45	4.84	5.17	0.25
4	0.00	-0.70	5.17	3.77	2.15

Aligeramiento Tipo 2 No. de Huecos: 3

Hueco Tipo	x [m]	y [m]	L o R [m]	l [m]	h [m]
4	0.00	-0.30	0.00	4.19	0.13
4	0.00	-0.43	4.19	4.39	0.14
4	0.00	-0.57	4.39	2.00	2.13

Aligeramiento Tipo 3 No. de Huecos: 3

Hueco Tipo	x [m]	y [m]	L o R [m]	l [m]	h [m]
4	0.00	-0.95	1.00	2.00	0.28
4	0.00	-1.23	2.00	2.00	0.00
4	0.00	-1.23	2.00	2.00	1.47

DATOS TRAMOS ALIGERADOS

Tramo	Cota Inicial [m]	Cota final [m]	Tipo Alig. Inicial	Tipo Alig. final
1	0.00	0.75	3	3
2	0.75	2.50	2	1
3	2.50	29.50	1	1
4	29.50	31.25	1	2
5	31.25	32.75	3	3
6	32.75	34.25	2	1
7	34.25	69.50	1	1
8	69.50	71.25	1	2
9	71.25	72.75	3	3
10	72.75	74.50	2	1
11	74.50	109.50	1	1
12	109.50	111.25	1	2
13	111.25	112.75	3	3
14	112.75	114.50	2	1
15	114.50	149.50	1	1
16	149.50	151.25	1	2
17	151.25	152.75	3	3
18	152.75	154.50	2	1
19	154.50	189.50	1	1
20	189.50	191.25	1	2
21	191.25	192.75	3	3
22	192.75	194.50	2	1
23	194.50	229.50	1	1
24	229.50	230.25	1	2
25	230.25	232.75	3	3
26	232.75	234.50	2	1
27	234.50	269.50	1	1
28	269.50	271.25	1	2
29	271.25	272.75	3	3
30	272.75	274.50	2	1
31	274.50	309.50	1	1
32	309.50	311.25	1	2
33	311.28	312.75	3	3
34	312.75	314.50	2	1
35	314.50	349.50	1	1
36	349.50	351.25	1	2
37	351.25	352.75	3	3
38	352.75	354.50	2	1
39	354.50	389.51	1	1
40	389.51	391.25	1	2
41	391.25	392.75	3	3
42	392.75	394.50	2	1
43	394.50	429.51	1	1
44	429.51	431.25	1	2
45	431.25	432.75	3	3
46	432.75	434.50	2	1
47	434.50	469.50	1	1
48	469.50	471.25	1	2
49	471.25	472.75	3	3
50	472.75	474.50	2	1
51	474.50	509.51	1	1
52	509.51	511.25	1	2
53	511.25	512.75	3	3
54	512.75	514.50	2	1
55	514.50	541.50	1	1
56	541.50	543.25	1	2
57	543.25	544.00	3	3

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

PRETENSADO EN ALZADO

LEYENDA: RP = recta-parabola
PP = parabola-parabola
PRP = parabola-recta-parabola
PC = parabola-cúbica
PR = parabola-recta

Fam / Tramo	x0 [m] / tipo	y0 [m] / L1 [m]	y0' / L2 [m]	A [cm²] / LT [m]	P1 [t] / yf [m]	P2 [t] / yf'
1	0.00	-0.69	0.00	106.40	1516	1516
1	RP	3.00		12.00	-2.30	0.00
2	PRP	10.60	6.00	20.00	-0.18	0.00
3	PR	5.00		8.00	-1.08	
2	0.00	-1.14	0.00	106.40	1516	1516
1	RP	3.00		12.00	-2.66	0.00
2	PRP	10.60	6.00	20.00	-0.54	0.00
3	PR	5.00		8.00	-1.44	
3	0.00	-1.59	0.00	106.40	1516	1516
1	RP	3.00		12.00	-3.02	0.00
2	PRP	10.60	6.00	20.00	-0.90	0.00
3	PR	5.00		8.00	-1.80	
4	40.00	-1.08	0.00	106.40	0	1516
1	RP	3.00		12.00	-2.30	0.00
2	PRP	9.00	6.00	20.00	-0.18	0.00
3	PR	5.00		8.00	-1.08	
5	40.00	-1.44	0.00	106.40	0	1516
1	RP	3.00		12.00	-2.66	0.00
2	PRP	9.00	6.00	20.00	-0.54	0.00
3	PR	5.00		8.00	-1.44	
6	40.00	-1.80	0.00	106.40	0	1516
1	RP	3.00		12.00	-3.02	0.00
2	PRP	9.00	6.00	20.00	-0.90	0.00
3	PR	5.00		8.00	-1.80	
7	80.00	-1.08	0.00	106.40	0	1516
1	RP	3.00		12.00	-2.30	0.00
2	PRP	9.00	6.00	20.00	-0.18	0.00
3	PR	5.00		8.00	-1.08	
8	80.00	-1.44	0.00	106.40	0	1516
1	RP	3.00		12.00	-2.66	0.00
2	PRP	9.00	6.00	20.00	-0.54	0.00
3	PR	5.00		8.00	-1.44	
9	80.00	-1.80	0.00	106.40	0	1516
1	RP	3.00		12.00	-3.02	0.00
2	PRP	9.00	6.00	20.00	-0.90	0.00
3	PR	5.00		8.00	-1.80	
10	120.00	-1.08	0.00	106.40	0	1516
1	RP	3.00		12.00	-2.30	0.00
2	PRP	9.00	6.00	20.00	-0.18	0.00
3	PR	5.00		8.00	-1.08	
11	120.00	-1.44	0.00	106.40	0	1516
1	RP	3.00		12.00	-2.66	0.00
2	PRP	9.00	6.00	20.00	-0.54	0.00
3	PR	5.00		8.00	-1.44	
12	120.00	-1.80	0.00	106.40	0	1516
1	RP	3.00		12.00	-3.02	0.00
2	PRP	9.00	6.00	20.00	-0.90	0.00
3	PR	5.00		8.00	-1.80	
13	160.00	-1.08	0.00	106.40	0	1516
1	RP	3.00		12.00	-2.30	0.00
2	PRP	9.00	6.00	20.00	-0.18	0.00
3	PR	5.00		8.00	-1.08	
14	160.00	-1.44	0.00	106.40	0	1516
1	RP	3.00		12.00	-2.66	0.00
2	PRP	9.00	6.00	20.00	-0.54	0.00
3	PR	5.00		8.00	-1.44	
15	160.00	-1.80	0.00	106.40	0	1516
1	RP	3.00		12.00	-3.02	0.00
2	PRP	9.00	6.00	20.00	-0.90	0.00
3	PR	5.00		8.00	-1.80	
16	200.00	-1.08	0.00	106.40	0	1516
1	RP	3.00		12.00	-2.30	0.00
2	PRP	9.00	6.00	20.00	-0.18	0.00
3	PR	5.00		8.00	-1.08	
17	200.00	-1.44	0.00	106.40	0	1516
1	RP	3.00		12.00	-2.66	0.00
2	PRP	9.00	6.00	20.00	-0.54	0.00
3	PR	5.00		8.00	-1.44	
18	200.00	-1.80	0.00	106.40	0	1516

```
 1      RP      3.00             12.00   -3.02      0.00
 2     PRP      9.00    6.00     20.00   -0.90      0.00
 3      PR      5.00              8.00   -1.80

19  240.00     -1.08    0.00    106.40       0      1516

 1      RP      3.00             12.00   -2.30      0.00
 2     PRP      9.00    6.00     20.00   -0.18      0.00
 3      PR      5.00              8.00   -1.08

20  240.00     -1.44    0.00    106.40       0      1516

 1      RP      3.00             12.00   -2.66      0.00
 2     PRP      9.00    6.00     20.00   -0.54      0.00
 3      PR      5.00              8.00   -1.44

21  240.00     -1.80    0.00    106.40       0      1516

 1      RP      3.00             12.00   -3.02      0.00
 2     PRP      9.00    6.00     20.00   -0.90      0.00
 3      PR      5.00              8.00   -1.80

22  280.00     -1.08    0.00    106.40       0      1516

 1      RP      3.00             12.00   -2.30      0.00
 2     PRP      9.00    6.00     20.00   -0.18      0.00
 3      PR      5.00              8.00   -1.08

23  280.00     -1.44    0.00    106.40       0      1516

 1      RP      3.00             12.00   -2.66      0.00
 2     PRP      9.00    6.00     20.00   -0.54      0.00
 3      PR      5.00              8.00   -1.44

24  280.00     -1.80    0.00    106.40       0      1516

 1      RP      3.00             12.00   -3.02      0.00
 2     PRP      9.00    6.00     20.00   -0.90      0.00
 3      PR      5.00              8.00   -1.80

25  320.00     -1.08    0.00    106.40       0      1516

 1      RP      3.00             12.00   -2.30      0.00
 2     PRP      9.00    6.00     20.00   -0.18      0.00
 3      PR      5.00              8.00   -1.08

26  320.00     -1.44    0.00    106.40       0      1516

 1      RP      3.00             12.00   -2.66      0.00
 2     PRP      9.00    6.00     20.00   -0.54      0.00
 3      PR      5.00              8.00   -1.44

27  320.00     -1.80    0.00    106.40       0      1516

 1      RP      3.00             12.00   -3.02      0.00
 2     PRP      9.00    6.00     20.00   -0.90      0.00
 3      PR      5.00              8.00   -1.80

28  360.00     -1.08    0.00    106.40       0      1516

 1      RP      3.00             12.00   -2.30      0.00
 2     PRP      9.00    6.00     20.00   -0.18      0.00
 3      PR      5.00              8.00   -1.08

29  360.00     -1.44    0.00    106.40       0      1516

 1      RP      3.00             12.00   -2.66      0.00
 2     PRP      9.00    6.00     20.00   -0.54      0.00
 3      PR      5.00              8.00   -1.44

30  360.00     -1.80    0.00    106.40       0      1516

 1      RP      3.00             12.00   -3.02      0.00
 2     PRP      9.00    6.00     20.00   -0.90      0.00
 3      PR      5.00              8.00   -1.80

31  400.00     -1.08    0.00    106.40       0      1516

 1      RP      3.00             12.00   -2.30      0.00
 2     PRP      9.00    6.00     20.00   -0.18      0.00
 3      PR      5.00              8.00   -1.08

32  400.00     -1.44    0.00    106.40       0      1516

 1      RP      3.00             12.00   -2.66      0.00
 2     PRP      9.00    6.00     20.00   -0.54      0.00
 3      PR      5.00              8.00   -1.44

33  400.00     -1.80    0.00    106.40       0      1516

 1      RP      3.00             12.00   -3.02      0.00
 2     PRP      9.00    6.00     20.00   -0.90      0.00
 3      PR      5.00              8.00   -1.80

34  440.00     -1.08    0.00    106.40       0      1516

 1      RP      3.00             12.00   -2.30      0.00
 2     PRP      9.00    6.00     20.00   -0.18      0.00
 3      PR      5.00              8.00   -1.08

35  440.00     -1.44    0.00    106.40       0      1516

 1      RP      3.00             12.00   -2.66      0.00
 2     PRP      9.00    6.00     20.00   -0.54      0.00
 3      PR      5.00              8.00   -1.44

36  440.00     -1.80    0.00    106.40       0      1516

 1      RP      3.00             12.00   -3.02      0.00
 2     PRP      9.00    6.00     20.00   -0.90      0.00
 3      PR      5.00              8.00   -1.80

37  480.00     -1.08    0.00    106.40       0      1516

 1      RP      3.00             12.00   -2.30      0.00
 2     PRP      9.00    6.00     20.00   -0.18      0.00
 3      PR      3.00              6.00   -0.95

38  480.00     -1.44    0.00    106.40       0      1516

 1      RP      3.00             12.00   -2.66      0.00
 2     PRP      9.00    6.00     20.00   -0.54      0.00
 3      PR      3.00              6.00   -1.31
```

39	480.00	-1.80	0.00	106.40	0	1516
1	RP	3.00		12.00	-3.02	0.00
2	PRP	9.00	6.00	20.00	-0.90	0.00
3	PR	3.00		6.00	-1.67	
40	518.40	-0.95	0.00	106.40	0	1516
1	RP	3.00		13.60	-2.30	0.00
2	PR	9.00		12.00	-0.69	
41	518.40	-1.31	0.00	106.40	0	1516
1	RP	3.00		13.60	-2.66	0.00
2	PR	9.00		12.00	-1.14	
42	518.40	-1.67	0.00	106.40	0	1516
1	RP	3.00		13.60	-3.02	0.00
2	PR	9.00		12.00	-1.59	
43	25.60	-0.18	0.00	106.40	1516	1516
1	RP	6.40		6.40	-0.18	0.00
2	PR	0.00		8.00	-0.18	
44	64.00	-0.18	0.00	159.60	0	2274
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
45	104.00	-0.18	0.00	159.60	0	2274
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
46	144.00	-0.18	0.00	159.60	0	2274
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
47	184.00	-0.18	0.00	159.60	0	2274
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
48	224.00	-0.18	0.00	159.60	0	2274
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
49	264.00	-0.18	0.00	159.60	0	2274
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
50	304.00	-0.18	0.00	159.60	0	2274
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
51	344.00	-0.18	0.00	159.60	0	2274
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
52	384.00	-0.18	0.00	159.60	0	2274
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
53	424.00	-0.18	0.00	159.60	0	2274
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
54	464.00	-0.18	0.00	159.60	0	2274
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		8.00	-0.18	
55	504.00	-0.18	0.00	53.20	0	758
1	RP	8.00		8.00	-0.18	0.00
2	PR	0.00		6.40	-0.18	
56	0.00	-3.02	0.00	212.80	3032	3032
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
57	40.00	-3.02	0.00	159.60	0	2274
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
58	80.00	-3.02	0.00	212.80	0	3032
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
59	120.00	-3.02	0.00	212.80	0	3032
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
60	160.00	-3.02	0.00	212.80	0	3032
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
61	200.00	-3.02	0.00	212.80	0	3032
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	

62	240.00	-3.02	0.00	212.80	0	3032
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
63	280.00	-3.02	0.00	212.80	0	3032
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
64	320.00	-3.02	0.00	212.80	0	3032
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
65	360.00	-3.02	0.00	212.80	0	3032
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
66	400.00	-3.02	0.00	212.80	0	3032
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
67	440.00	-3.02	0.00	212.80	0	3032
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	36.00	36.00	-3.02	0.00
3	PR	1.00		2.00	-3.02	
68	480.00	-3.02	0.00	212.80	0	3032
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	34.40	34.40	-3.02	0.00
3	PR	1.00		2.00	-3.02	
69	518.40	-3.02	0.00	159.60	0	2274
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	21.60	21.60	-3.02	0.00
3	PR	1.00		2.00	-3.02	
70	25.60	-3.02	0.00	106.40	0	1516
1	RP	1.00		2.00	-3.02	0.00
2	PRP	0.00	50.40	50.40	-3.02	0.00
3	PR	1.00		2.00	-3.02	

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

GEOMETRIA APOYOS

Apoyo	Esv. [g]	NNeop / Neop#	Hapoy [mm] / XNeop [m]	Aapoy [mm]	Bapoy [mm]	tipo_ap	hneta [mm]
E- 1	100.000	2	174.00	824.00	0.00	3	
		1	4.95				
		2	9.05				
P- 1	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P- 2	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P- 3	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P- 4	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P- 5	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P- 6	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P- 7	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P- 8	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P- 9	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P-10	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P-11	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P-12	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
P-13	100.000	2	251.00	1090.00	0.00	4	
		1	5.05				
		2	8.95				
E- 2	100.000	2	193.00	824.00	0.00	4	
		1	4.95				
		2	9.05				

ANCHO RIOSTRAS

Ancho Riostra Estribos [m]	Ancho Riostra Pilas [m]
1.0	2.0

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

GEOMETRIA APOYOS PROVISIONALES PARA SUSTITUCION DE NEOPRENOS

Apoyo	NNeop Neop#	tipo XNeop [m]
E-1	2	3
	1	5.00
	2	9.00
P- 2	2	4
	1	5.25
	2	8.75
P- 3	2	4
	1	5.25
	2	8.75
P- 4	2	4
	1	5.25
	2	8.75
P- 5	2	4
	1	5.25
	2	8.75
P- 6	2	4
	1	5.25
	2	8.75
P- 7	2	4
	1	5.25
	2	8.75
P- 8	2	4
	1	5.25
	2	8.75
P- 9	2	4
	1	5.25
	2	8.75
P-10	2	4
	1	5.25
	2	8.75
P-11	2	4
	1	5.25
	2	8.75
P-12	2	4
	1	5.25
	2	8.75
P-13	2	4
	1	5.25
	2	8.75
P-14	2	4
	1	5.25
	2	8.75
E-2	2	4
	1	5.00
	2	9.00

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

PARAMETROS DEL COMPORTAMIENTO DIFERIDO

Def. reológicas [1E+6]
740

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

CARACTERISTICAS DE LOS MATERIALES Y COEFICIENTES DE PONDERACION

gammaf_tab	gammaf_pilas		
fck28_tab	fck28_pilas	fck28_cim	GammaC
fyk	Es	GammaS	
fpk	Ep	GammaP	
[kg/cm2]	[kg/cm2]		
1.50	1.50		
400.00	300.00	250.00	1.50
5100.00	2100000.00	1.15	
17100.00	1950000.00	1.10	

Recubrimiento [cm]: 5.0

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

CARGAS CONSIDERADAS

sc [t/m2]	Carro [t]
1.92	60.00

Vano	ECMax [m]	ECMin [m]					
	cmr [t/m2]	cml1 [t/m]	exc1 [m]	cml2 [t/m]	exc2 [m]	cml3 [t/m]	exc3 [m]
1	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
2	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
3	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
4	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
5	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
6	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
7	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
8	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
9	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
10	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
11	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
12	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
13	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80
14	0.00	0.00					
	0.83	0.55	-6.80	0.00	0.00	0.55	6.80

Cargas Térmicas

Inc(t) unif [grad cent]	Grad(t) [grad cent]
15.10	10.00

Cargas de Viento

w s/ tablero [kp/m2]	w s/pilas [kp/m2]	h peto 1 [m]	h peto 2 [m]

```
--------------------------------------------------------------------------
    200.00              200.00           0.50           0.50

Asiento Diferencial Considerado [cm]: 1.0
```

1.1 Modelos de Cálculo. Análisis Transversal.

```
.SK 5
.TP 15

Cálculo de portico plano (2-D)

*****************************
*     DATOS - ESTRUCTURA    *
*****************************

Titulo proy.:  Análisis en la dirección transversal

Unidades    :   M , T
.SK 3
.TP 12
D A T O S  D E  N U D O S:(   6 Nudo  )          Apoyo         Especial
.TK 3
                X           Y           Z        V     R
 Nudo       [ M]        [ M]        [ M]       XYZ   XYZ
-------------------------------------------------------------------------
    1   -2.140000    0.000000    0.000000       F B    F
    2    2.140000    0.000000    0.000000       B B    F
    3   -7.000000    0.000000    2.838000
    4   -3.085000    0.000000    2.838000
    5    3.085000    0.000000    2.838000
    6    7.000000    0.000000    2.838000
.TK 0
.SK 4
.TP 8
D A T O S   B A R R A S :     (   6 Barras)
.TK 3
      Incidencias  Long.Barras  Nombre-sec.       Articulaciones Especial
 Barra Inicio Fin         [ M]  (Cant.var)        Inicio Fin
-------------------------------------------------------------------------
    1      1     2    4.280000  100X35
    2      4     1    2.991199  100X60
    3      2     5    2.991199  100X60
    4      3     4    3.915000  100X33
    5      4     5    6.170000  100X33
    6      5     6    3.915000  100X33
.TK 0
.SK 3
.TP 8
CARACTERISTICAS DE SEC.
.TK 3
                          Ax  [M2]     Iy  [M4]     Fz  [M2]
Nombre Sec.               zi  [M1]     zs  [M1]
-------------------------------------------------------------------------
100X33                 3.3000E-01   2.9948E-03        Undef
                         -0.1650       0.1650
100X35                 3.5000E-01   3.5729E-03        Undef
                         -0.1750       0.1750
100X60                 6.0000E-01   1.8000E-02        Undef
                         -0.3000       0.3000
.SK 3
.TP 8
MATERIALES:
.TK 3
                       E-Módulo     G-Módulo
 Barra (hasta barra)   [ T/ M2]     [ T/ M2]
-------------------------------------------------------------------------
    1 ..    6        3.8000E+06    1.6500E+06
.TK 0



STS-cálculo ok
Max free mem:105kB
```

```
.SK 5
.TP 15
=================
Hipótesis       1:  carga permanente
=================

.TK 3
                                Distancia
Tipo de carga          Valor(a)  Valor(b)   Números nudos/barras
-------------------------------------------------------------------------------
Fuerza  Z             -0.550000             Nudo          3      6
Fuerza  Z  gl const.     -1.307    -1.307
            de...a        2.500     3.910  Barra         4
Fuerza  Z  gl const.     -1.307    -1.307
            de...a            0     1.415  Barra         6
Fuerza  Z  gl const.     -1.307            Barra         5
P grav. Z  gl const.     -2.500            Barra         1 ..   6
Fuerza  X  lo const.     -6.544            Barra         2
Fuerza  X  lo const.      6.544            Barra         3



.SK 5
.TP 15
=================
Hipótesis       2:  sc excentrica
=================

.TK 3
                                Distancia
Tipo de carga          Valor(a)  Valor(b)   Números nudos/barras
-------------------------------------------------------------------------------
Fuerza  Z  gl const.  -0.400000 -0.400000
            de...a        0     1.750  Barra         4
Fuerza  Z  gl conc.      -7.800     3.728  Barra         4
Fuerza  Z  gl conc.      -7.800     1.253  Barra         5
Fuerza  X  lo const.     -1.486            Barra         2 ..   3      1
Fuerza  X  lo const.      1.486            Barra         5
Fuerza  X  lo const.     -2.871            Barra         2
Fuerza  X  lo const.      2.871            Barra         3



.SK 5
.TP 15
=================
Hipótesis       3:  sc excentrica 2
=================

.TK 3
                                Distancia
Tipo de carga          Valor(a)  Valor(b)   Números nudos/barras
-------------------------------------------------------------------------------
Fuerza  Z  gl const.  -0.400000 -0.400000
            de...a        2.160     3.910  Barra         6
Fuerza  Z  gl conc.      -7.800     4.913  Barra         5
Fuerza  Z  gl conc.      -7.800  0.182000  Barra         6
Fuerza  X  lo const.      1.486            Barra         2 ..   3      1
Fuerza  X  lo const.     -1.486            Barra         5
Fuerza  X  lo const.     -2.871            Barra         2
Fuerza  X  lo const.      2.871            Barra         3



.SK 5
.TP 15
=================
Hipótesis       4:  desbalastado parcial
=================

.TK 3
```

```
                                Distancia
Tipo de carga          Valor(a)  Valor(b)   Números nudos/barras
-------------------------------------------------------------------------
Fuerza  Z             -0.550000             Nudo          3      6
Fuerza  Z  gl const.     -1.307    -1.307
            de...a        2.500     3.910  Barra         4
Fuerza  Z  gl const.     -1.307    -1.307
            de...a             0     3.085  Barra         5
P grav. Z  gl const.     -2.500            Barra         1 ..   6
Fuerza  X  lo const.     -5.508            Barra         2
Fuerza  X  lo const.      5.508            Barra         3
Fuerza  X  lo const.  -0.466000            Barra         1 ..   3
Fuerza  X  lo const.   0.466000            Barra         5



.SK 5
.TP 15
=================
Hipótesis       5:  cableado 300 kg/ml
=================

.TK 3
                                Distancia
Tipo de carga          Valor(a)  Valor(b)   Números nudos/barras
-------------------------------------------------------------------------
Fuerza  Z  gl conc.   -0.300000  0.900000  Barra         4
Fuerza  Z  gl conc.   -0.300000     3.015  Barra         6
Fuerza  X  lo const.  -0.105800            Barra         2
Fuerza  X  lo const.   0.105800            Barra         3
```

1.2 Listado de Hipótesis individuales

A continuación se adjuntan los esfuerzos y reacciones debidas a las hipótesis individuales. Igualmente se incluye la envolvente de esfuerzos producida por el conjunto de la sobrecarga (repartida+carro). Estos listados deben permitir la comprobación de los cálculos por personas ajenas al proyecto.

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Peso propio fase nº 1 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-0.00	0.00	967.75	-1.25	-1.33	0.00
P-2	0.00	0.00	0.00	0.00	0.00	0.00
P-3	0.00	0.00	0.00	0.00	0.00	0.00
P-4	0.00	0.00	0.00	0.00	0.00	0.00
P-5	0.00	0.00	0.00	0.00	0.00	0.00
P-6	0.00	0.00	0.00	0.00	0.00	0.00
P-7	0.00	0.00	0.00	0.00	0.00	0.00
P-8	0.00	0.00	0.00	0.00	0.00	0.00
P-9	0.00	0.00	0.00	0.00	0.00	0.00
P-10	0.00	0.00	0.00	0.00	0.00	0.00
P-11	0.00	0.00	0.00	0.00	0.00	0.00
P-12	0.00	0.00	0.00	0.00	0.00	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	0.00	0.00	405.41	-3.62	-3.83	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	0.00	0.00	1373.16	-4.87	-5.16	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-14.05	0.00	405.16	5.26	0.03	-0.18
16.00	0.00	0.00	-26.66	-0.14	2807.71	-0.00
32.00	-15.90	-0.00	-458.47	-2.39	-853.32	-0.08
32.00	-6.66	-0.00	239.94	-0.18	-853.33	0.00
52.00	0.00	0.00	0.00	0.00	0.00	0.00
72.00	0.00	0.00	0.00	0.00	0.00	0.00
72.00	0.00	0.00	0.00	0.00	0.00	0.00
92.00	0.00	0.00	0.00	0.00	0.00	0.00
112.00	0.00	0.00	0.00	0.00	0.00	0.00
112.00	0.00	0.00	0.00	0.00	0.00	0.00
132.00	0.00	0.00	0.00	0.00	0.00	0.00
152.00	0.00	0.00	0.00	0.00	0.00	0.00
152.00	0.00	0.00	0.00	0.00	0.00	0.00
172.00	0.00	0.00	0.00	0.00	0.00	0.00
192.00	0.00	0.00	0.00	0.00	0.00	0.00
192.00	0.00	0.00	0.00	0.00	0.00	0.00
212.00	0.00	0.00	0.00	0.00	0.00	0.00
232.00	0.00	0.00	0.00	0.00	0.00	0.00
232.00	0.00	0.00	0.00	0.00	0.00	0.00
252.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
292.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
332.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
372.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
412.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
452.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-698.79	-0.00	0.00	0.00	0.00	-1.83
	inf	-967.74	-0.00	0.00	0.00	0.00	-1.83
2	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
3	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
4	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
5	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
6	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
7	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
8	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
9	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
10	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Peso propio fase nº 2 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-0.06	0.06	429.12	-1.31	-1.40	0.00
P-2	0.03	-0.03	1072.67	-1.39	-1.50	0.00
P-3	0.00	0.00	0.00	0.00	0.00	0.00
P-4	0.00	0.00	0.00	0.00	0.00	0.00
P-5	0.00	0.00	0.00	0.00	0.00	0.00
P-6	0.00	0.00	0.00	0.00	0.00	0.00
P-7	0.00	0.00	0.00	0.00	0.00	0.00
P-8	0.00	0.00	0.00	0.00	0.00	0.00
P-9	0.00	0.00	0.00	0.00	0.00	0.00
P-10	0.00	0.00	0.00	0.00	0.00	0.00
P-11	0.00	0.00	0.00	0.00	0.00	0.00
P-12	0.00	0.00	0.00	0.00	0.00	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	0.04	-0.03	-71.73	0.67	0.71	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	0.00	0.00	1430.06	-2.03	-2.19	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	2.49	-0.05	-71.69	-0.93	-0.00	0.03
16.00	0.00	-0.05	-71.73	0.85	-1147.69	-0.77
32.00	-2.49	-0.05	-71.69	3.62	-2295.38	-1.42
32.00	-9.91	0.04	357.25	4.75	-2295.36	-1.67
52.00	0.00	0.04	57.40	1.66	3052.29	-0.77
72.00	-13.39	0.04	-482.48	-3.68	-853.35	-0.10
72.00	-6.66	0.00	239.95	-0.18	-853.36	0.00
92.00	0.00	0.00	0.00	0.00	0.00	0.00
112.00	0.00	0.00	0.00	0.00	0.00	0.00
112.00	0.00	0.00	0.00	0.00	0.00	0.00
132.00	0.00	0.00	0.00	0.00	0.00	0.00
152.00	0.00	0.00	0.00	0.00	0.00	0.00
152.00	0.00	0.00	0.00	0.00	0.00	0.00
172.00	0.00	0.00	0.00	0.00	0.00	0.00
192.00	0.00	0.00	0.00	0.00	0.00	0.00
192.00	0.00	0.00	0.00	0.00	0.00	0.00
212.00	0.00	0.00	0.00	0.00	0.00	0.00
232.00	0.00	0.00	0.00	0.00	0.00	0.00
232.00	0.00	0.00	0.00	0.00	0.00	0.00
252.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
292.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
332.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
372.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
412.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
452.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-429.12	-0.09	0.00	0.00	0.00	-0.18
	inf	-429.12	-0.09	0.00	0.00	0.00	-1.91
2	sup	-722.72	0.04	0.00	0.00	0.00	-3.05
	inf	-1072.67	0.04	0.00	0.00	0.00	-2.05
3	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
4	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
5	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
6	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
7	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
8	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
9	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
10	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Peso propio fase nº 3 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-0.02	0.02	-88.57	-0.48	-0.52	0.00
P-2	-0.03	0.03	425.33	-1.08	-1.17	0.00
P-3	0.02	-0.02	1088.28	-1.64	-1.79	0.00
P-4	0.00	0.00	0.00	0.00	0.00	0.00
P-5	0.00	0.00	0.00	0.00	0.00	0.00
P-6	0.00	0.00	0.00	0.00	0.00	0.00
P-7	0.00	0.00	0.00	0.00	0.00	0.00
P-8	0.00	0.00	0.00	0.00	0.00	0.00
P-9	0.00	0.00	0.00	0.00	0.00	0.00
P-10	0.00	0.00	0.00	0.00	0.00	0.00
P-11	0.00	0.00	0.00	0.00	0.00	0.00
P-12	0.00	0.00	0.00	0.00	0.00	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	0.03	-0.02	18.51	-0.51	-0.54	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	-0.00	0.00	1443.55	-3.72	-4.02	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-0.64	-0.04	18.50	0.79	0.00	-0.03
16.00	0.00	-0.04	18.51	0.33	296.11	-0.57
32.00	0.64	-0.04	18.50	-0.34	592.23	-1.16
32.00	1.94	-0.00	-70.04	-0.60	592.22	-1.13
52.00	0.00	-0.00	-70.07	-0.11	-809.05	-1.23
72.00	-1.94	-0.00	-70.04	3.23	-2210.39	-1.23
72.00	-9.86	0.03	355.13	4.97	-2210.37	-1.45
92.00	0.00	0.03	55.27	1.21	3094.80	-0.66
112.00	-13.45	0.03	-484.59	-3.76	-853.28	-0.10
112.00	-6.66	-0.00	239.94	-0.14	-853.29	0.00
132.00	0.00	0.00	0.00	0.00	0.00	0.00
152.00	0.00	0.00	0.00	0.00	0.00	0.00
152.00	0.00	0.00	0.00	0.00	0.00	0.00
172.00	0.00	0.00	0.00	0.00	0.00	0.00
192.00	0.00	0.00	0.00	0.00	0.00	0.00
192.00	0.00	0.00	0.00	0.00	0.00	0.00
212.00	0.00	0.00	0.00	0.00	0.00	0.00
232.00	0.00	0.00	0.00	0.00	0.00	0.00
232.00	0.00	0.00	0.00	0.00	0.00	0.00
252.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
292.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
332.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
372.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
412.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
452.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	88.57	-0.03	0.00	0.00	0.00	-0.08
	inf	88.57	-0.03	0.00	0.00	0.00	-0.71
2	sup	-425.33	-0.04	0.00	0.00	0.00	-0.63
	inf	-425.33	-0.04	0.00	0.00	0.00	-1.59
3	sup	-724.83	0.03	0.00	0.00	0.00	-3.32
	inf	-1088.28	0.03	0.00	0.00	0.00	-2.43
4	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
5	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
6	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
7	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
8	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
9	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
10	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Peso propio fase nº 4 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.00	-0.00	22.83	-0.05	-0.06	0.00
P-2	-0.01	0.01	-87.30	-0.36	-0.39	0.00
P-3	-0.03	0.03	424.37	-1.14	-1.24	0.00
P-4	0.02	-0.02	1101.99	-1.62	-1.79	0.00
P-5	0.00	0.00	0.00	0.00	0.00	0.00
P-6	0.00	0.00	0.00	0.00	0.00	0.00
P-7	0.00	0.00	0.00	0.00	0.00	0.00
P-8	0.00	0.00	0.00	0.00	0.00	0.00
P-9	0.00	0.00	0.00	0.00	0.00	0.00
P-10	0.00	0.00	0.00	0.00	0.00	0.00
P-11	0.00	0.00	0.00	0.00	0.00	0.00
P-12	0.00	0.00	0.00	0.00	0.00	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	0.01	-0.01	-4.80	0.01	0.01	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	0.00	0.00	1457.09	-3.16	-3.46	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	0.17	-0.01	-4.80	-0.01	-0.00	0.00
16.00	0.00	-0.01	-4.80	0.11	-76.85	-0.19
32.00	-0.17	-0.01	-4.80	0.31	-153.70	-0.37
32.00	-0.50	-0.02	18.02	0.54	-153.70	-0.39
52.00	0.00	-0.02	18.03	0.44	206.80	-0.73
72.00	0.50	-0.02	18.02	-0.38	567.31	-1.09
72.00	1.92	-0.01	-69.24	-0.53	567.31	-1.07
92.00	0.00	-0.01	-69.27	0.15	-818.07	-1.19
112.00	-1.92	-0.01	-69.24	3.65	-2203.44	-1.19
112.00	-9.85	0.03	354.96	5.01	-2203.41	-1.43
132.00	0.00	0.03	55.08	1.29	3098.37	-0.65
152.00	-13.45	0.03	-484.78	-3.76	-853.42	-0.10
152.00	-6.66	-0.00	239.96	-0.14	-853.43	0.00
172.00	0.00	0.00	0.00	0.00	0.00	0.00
192.00	0.00	0.00	0.00	0.00	0.00	0.00
192.00	0.00	0.00	0.00	0.00	0.00	0.00
212.00	0.00	0.00	0.00	0.00	0.00	0.00
232.00	0.00	0.00	0.00	0.00	0.00	0.00
232.00	0.00	0.00	0.00	0.00	0.00	0.00
252.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
292.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
332.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
372.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
412.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
452.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-22.83	0.01	0.00	0.00	0.00	-0.19
	inf	-22.83	0.01	0.00	0.00	0.00	-0.08
2	sup	87.30	-0.01	0.00	0.00	0.00	-0.21
	inf	87.30	-0.01	0.00	0.00	0.00	-0.53
3	sup	-424.37	-0.04	0.00	0.00	0.00	-0.66
	inf	-424.37	-0.04	0.00	0.00	0.00	-1.68
4	sup	-725.04	0.03	0.00	0.00	0.00	-3.32
	inf	-1101.98	0.03	0.00	0.00	0.00	-2.42
5	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
6	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
7	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
8	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
9	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
10	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Peso propio fase nº 5 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.00	-0.00	-5.91	0.03	0.03	0.00
P-2	0.01	-0.01	22.42	0.00	0.00	0.00
P-3	-0.01	0.01	-86.92	-0.37	-0.40	0.00
P-4	-0.02	0.02	424.24	-1.03	-1.13	0.00
P-5	0.02	-0.02	1115.49	-1.47	-1.64	0.00
P-6	0.00	0.00	0.00	0.00	0.00	0.00
P-7	0.00	0.00	0.00	0.00	0.00	0.00
P-8	0.00	0.00	0.00	0.00	0.00	0.00
P-9	0.00	0.00	0.00	0.00	0.00	0.00
P-10	0.00	0.00	0.00	0.00	0.00	0.00
P-11	0.00	0.00	0.00	0.00	0.00	0.00
P-12	0.00	0.00	0.00	0.00	0.00	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	0.00	-0.00	1.24	-0.02	-0.02	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	-0.00	0.00	1470.57	-2.85	-3.16	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-0.04	-0.00	1.24	0.04	0.00	-0.00
16.00	0.00	-0.00	1.24	0.01	19.89	-0.04
32.00	0.04	-0.00	1.24	-0.04	39.78	-0.09
32.00	0.13	-0.01	-4.66	-0.00	39.78	-0.09
52.00	0.00	-0.01	-4.66	0.03	-53.49	-0.25
72.00	-0.13	-0.01	-4.66	0.26	-146.77	-0.40
72.00	-0.49	-0.02	17.75	0.52	-146.77	-0.42
92.00	0.00	-0.02	17.76	0.37	208.36	-0.73
112.00	0.49	-0.02	17.75	-0.48	563.48	-1.06
112.00	1.92	-0.00	-69.14	-0.59	563.48	-1.03
132.00	0.00	-0.00	-69.16	0.05	-819.76	-1.08
152.00	-1.92	-0.00	-69.14	3.54	-2202.97	-1.01
152.00	-9.85	0.03	354.94	4.96	-2202.94	-1.25
172.00	0.00	0.03	55.08	1.33	3098.62	-0.55
192.00	-13.45	0.03	-484.80	-3.60	-853.32	-0.10
192.00	-6.66	0.00	239.95	-0.14	-853.33	0.00
212.00	0.00	0.00	0.00	0.00	0.00	0.00
232.00	0.00	0.00	0.00	0.00	0.00	0.00
232.00	0.00	0.00	0.00	0.00	0.00	0.00
252.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
292.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
332.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
372.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
412.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
452.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	5.91	0.01	0.00	0.00	0.00	-0.06
	inf	5.91	0.01	0.00	0.00	0.00	0.04
2	sup	-22.42	0.01	0.00	0.00	0.00	-0.21
	inf	-22.42	0.01	0.00	0.00	0.00	0.00
3	sup	86.92	-0.01	0.00	0.00	0.00	-0.15
	inf	86.92	-0.01	0.00	0.00	0.00	-0.54
4	sup	-424.24	-0.03	0.00	0.00	0.00	-0.71
	inf	-424.24	-0.03	0.00	0.00	0.00	-1.53
5	sup	-725.04	0.03	0.00	0.00	0.00	-3.00
	inf	-1115.48	0.03	0.00	0.00	0.00	-2.20
6	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
7	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
8	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
9	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
10	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Peso propio fase nº 6 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.00	-0.00	1.52	0.03	0.03	0.00
P-2	0.00	-0.00	-5.77	0.05	0.06	0.00
P-3	0.01	-0.01	22.21	0.04	0.05	0.00
P-4	-0.01	0.01	-86.65	-0.31	-0.34	0.00
P-5	-0.02	0.02	424.00	-0.90	-1.01	0.00
P-6	0.02	-0.02	1115.57	-1.37	-1.54	0.00
P-7	0.00	0.00	0.00	0.00	0.00	0.00
P-8	0.00	0.00	0.00	0.00	0.00	0.00
P-9	0.00	0.00	0.00	0.00	0.00	0.00
P-10	0.00	0.00	0.00	0.00	0.00	0.00
P-11	0.00	0.00	0.00	0.00	0.00	0.00
P-12	0.00	0.00	0.00	0.00	0.00	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	-0.00	0.00	-0.32	0.01	0.01	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	0.00	-0.00	1470.57	-2.43	-2.73	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	0.01	0.00	-0.32	-0.02	-0.00	0.00
16.00	-0.00	0.00	-0.32	-0.01	-5.12	0.01
32.00	-0.01	0.00	-0.32	-0.00	-10.25	0.02
32.00	-0.03	-0.00	1.20	0.02	-10.25	0.02
52.00	0.00	-0.00	1.20	0.01	13.78	-0.03
72.00	0.03	-0.00	1.20	-0.04	37.81	-0.08
72.00	0.13	-0.01	-4.57	-0.02	37.81	-0.08
92.00	0.00	-0.01	-4.57	0.03	-53.65	-0.22
112.00	-0.13	-0.01	-4.57	0.27	-145.11	-0.36
112.00	-0.49	-0.02	17.64	0.48	-145.11	-0.38
132.00	0.00	-0.02	17.64	0.35	207.74	-0.70
152.00	0.49	-0.02	17.64	-0.51	560.57	-1.05
152.00	1.91	-0.00	-68.98	-0.73	560.57	-1.02
172.00	0.00	-0.00	-69.01	-0.15	-819.51	-1.07
192.00	-1.91	-0.00	-68.98	3.33	-2199.64	-1.01
192.00	-9.85	0.03	354.86	4.96	-2199.61	-1.24
212.00	0.00	0.03	54.99	1.39	3100.12	-0.55
232.00	-13.46	0.03	-484.87	-3.72	-853.41	-0.10
232.00	-6.66	-0.00	239.96	-0.10	-853.42	0.00
252.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
292.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
332.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
372.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
412.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
452.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-1.52	0.00	0.00	0.00	0.00	-0.02
	inf	-1.52	0.00	0.00	0.00	0.00	0.05
2	sup	5.77	0.00	0.00	0.00	0.00	-0.05
	inf	5.77	0.00	0.00	0.00	0.00	0.08
3	sup	-22.21	0.01	0.00	0.00	0.00	-0.19
	inf	-22.21	0.01	0.00	0.00	0.00	0.06
4	sup	86.65	-0.02	0.00	0.00	0.00	-0.03
	inf	86.65	-0.02	0.00	0.00	0.00	-0.45
5	sup	-424.00	-0.03	0.00	0.00	0.00	-0.51
	inf	-424.00	-0.03	0.00	0.00	0.00	-1.35
6	sup	-725.12	0.03	0.00	0.00	0.00	-2.85
	inf	-1115.57	0.03	0.00	0.00	0.00	-2.06
7	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
8	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
9	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
10	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Peso propio fase nº 7 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.00	-0.00	-0.39	0.01	0.01	0.00
P-2	0.00	-0.00	1.49	0.03	0.03	0.00
P-3	0.00	-0.00	-5.72	0.04	0.05	0.00
P-4	0.01	-0.01	22.12	0.03	0.04	0.00
P-5	-0.01	0.01	-86.45	-0.28	-0.31	0.00
P-6	-0.03	0.02	423.76	-0.94	-1.07	0.00
P-7	0.02	-0.02	1102.19	-1.48	-1.69	0.00
P-8	0.00	0.00	0.00	0.00	0.00	0.00
P-9	0.00	0.00	0.00	0.00	0.00	0.00
P-10	0.00	0.00	0.00	0.00	0.00	0.00
P-11	0.00	0.00	0.00	0.00	0.00	0.00
P-12	0.00	0.00	0.00	0.00	0.00	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	-0.00	0.00	0.08	0.00	0.00	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	-0.00	-0.00	1457.08	-2.59	-2.94	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-0.00	0.00	0.08	-0.00	0.00	0.00
16.00	-0.00	0.00	0.08	-0.01	1.32	0.01
32.00	0.00	0.00	0.08	-0.01	2.64	0.01
32.00	0.01	-0.00	-0.31	-0.01	2.64	0.02
52.00	-0.00	-0.00	-0.31	-0.01	-3.55	0.01
72.00	-0.01	-0.00	-0.31	0.01	-9.73	0.00
72.00	-0.03	-0.00	1.18	0.03	-9.73	0.00
92.00	0.00	-0.00	1.18	0.01	13.81	-0.04
112.00	0.03	-0.00	1.18	-0.04	37.34	-0.09
112.00	0.13	-0.01	-4.54	-0.01	37.34	-0.09
132.00	0.00	-0.01	-4.54	0.04	-53.44	-0.22
152.00	-0.13	-0.01	-4.54	0.27	-144.21	-0.35
152.00	-0.49	-0.02	17.57	0.51	-144.21	-0.37
172.00	0.00	-0.02	17.58	0.39	207.34	-0.67
192.00	0.49	-0.02	17.57	-0.46	558.90	-1.01
192.00	1.91	-0.01	-68.84	-0.72	558.89	-0.97
212.00	0.00	-0.01	-68.87	-0.07	-818.54	-1.10
232.00	-1.91	-0.01	-68.84	2.96	-2195.92	-1.12
232.00	-9.85	0.03	354.75	5.25	-2195.90	-1.35
252.00	0.00	0.03	54.88	1.63	3101.85	-0.60
272.00	-13.46	0.03	-484.96	-3.51	-853.57	-0.10
272.00	-6.66	-0.00	239.99	-0.15	-853.59	0.00
292.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
332.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
372.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
412.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
452.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	0.39	0.00	0.00	0.00	0.00	-0.00
	inf	0.39	0.00	0.00	0.00	0.00	0.02
2	sup	-1.49	0.00	0.00	0.00	0.00	-0.01
	inf	-1.49	0.00	0.00	0.00	0.00	0.04
3	sup	5.72	0.00	0.00	0.00	0.00	-0.05
	inf	5.72	0.00	0.00	0.00	0.00	0.07
4	sup	-22.12	0.01	0.00	0.00	0.00	-0.21
	inf	-22.12	0.01	0.00	0.00	0.00	0.05
5	sup	86.45	-0.01	0.00	0.00	0.00	-0.10
	inf	86.45	-0.01	0.00	0.00	0.00	-0.42
6	sup	-423.76	-0.04	0.00	0.00	0.00	-0.41
	inf	-423.76	-0.04	0.00	0.00	0.00	-1.42
7	sup	-725.24	0.03	0.00	0.00	0.00	-3.09
	inf	-1102.18	0.03	0.00	0.00	0.00	-2.25
8	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
9	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
10	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Peso propio fase nº 8 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.00	-0.00	0.10	0.00	0.00	0.00
P-2	0.00	-0.00	-0.38	0.01	0.01	0.00
P-3	0.00	-0.00	1.48	0.03	0.03	0.00
P-4	0.00	-0.00	-5.71	0.03	0.03	0.00
P-5	0.00	-0.00	22.15	-0.02	-0.02	0.00
P-6	-0.01	0.01	-86.50	-0.36	-0.41	0.00
P-7	-0.02	0.02	423.77	-1.03	-1.17	0.00
P-8	0.02	-0.02	1088.69	-1.72	-1.98	0.00
P-9	0.00	0.00	0.00	0.00	0.00	0.00
P-10	0.00	0.00	0.00	0.00	0.00	0.00
P-11	0.00	0.00	0.00	0.00	0.00	0.00
P-12	0.00	0.00	0.00	0.00	0.00	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	-0.00	0.00	-0.02	0.00	0.00	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	-0.00	-0.00	1443.57	-3.05	-3.50	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	0.00	0.00	-0.02	-0.00	-0.00	0.00
16.00	0.00	0.00	-0.02	-0.00	-0.34	0.00
32.00	-0.00	0.00	-0.02	-0.00	-0.68	0.01
32.00	-0.00	0.00	0.08	-0.00	-0.68	0.01
52.00	0.00	0.00	0.08	-0.00	0.92	0.01
72.00	0.00	0.00	0.08	-0.01	2.51	0.01
72.00	0.01	-0.00	-0.30	-0.01	2.51	0.01
92.00	0.00	-0.00	-0.30	-0.00	-3.57	-0.00
112.00	-0.01	-0.00	-0.30	0.01	-9.65	-0.02
112.00	-0.03	-0.00	1.17	0.04	-9.65	-0.02
132.00	0.00	-0.00	1.17	0.03	13.80	-0.08
152.00	0.03	-0.00	1.17	-0.03	37.25	-0.14
152.00	0.13	-0.01	-4.54	0.02	37.25	-0.14
172.00	0.00	-0.01	-4.54	0.06	-53.53	-0.27
192.00	-0.13	-0.01	-4.54	0.29	-144.32	-0.40
192.00	-0.49	-0.01	17.60	0.56	-144.31	-0.43
212.00	0.00	-0.01	17.61	0.42	207.82	-0.68
232.00	0.49	-0.01	17.60	-0.32	559.94	-0.96
232.00	1.91	-0.00	-68.86	-0.68	559.94	-0.93
252.00	0.00	-0.00	-68.89	-0.05	-817.90	-0.97
272.00	-1.91	-0.00	-68.86	3.74	-2195.67	-0.89
272.00	-9.84	0.02	354.75	5.24	-2195.64	-1.14
292.00	0.00	0.02	54.89	1.24	3102.21	-0.50
312.00	-13.46	0.02	-484.98	-3.70	-853.43	-0.10
312.00	-6.66	-0.00	239.97	-0.11	-853.46	0.00
332.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
372.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
412.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
452.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-0.10	0.00	0.00	0.00	0.00	0.00
	inf	-0.10	0.00	0.00	0.00	0.00	0.01
2	sup	0.38	0.00	0.00	0.00	0.00	-0.00
	inf	0.38	0.00	0.00	0.00	0.00	0.02
3	sup	-1.48	0.00	0.00	0.00	0.00	-0.02
	inf	-1.48	0.00	0.00	0.00	0.00	0.04
4	sup	5.71	0.00	0.00	0.00	0.00	-0.06
	inf	5.71	0.00	0.00	0.00	0.00	0.05
5	sup	-22.15	0.01	0.00	0.00	0.00	-0.21
	inf	-22.15	0.01	0.00	0.00	0.00	-0.02
6	sup	86.50	-0.01	0.00	0.00	0.00	-0.19
	inf	86.50	-0.01	0.00	0.00	0.00	-0.54
7	sup	-423.77	-0.03	0.00	0.00	0.00	-0.84
	inf	-423.77	-0.03	0.00	0.00	0.00	-1.56
8	sup	-725.24	0.02	0.00	0.00	0.00	-3.29
	inf	-1088.69	0.02	0.00	0.00	0.00	-2.62
9	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
10	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Peso propio fase nº 9 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-0.00	0.00	-0.03	0.00	0.00	0.00
P-2	0.00	-0.00	0.10	0.00	0.00	0.00
P-3	0.00	-0.00	-0.38	0.01	0.01	0.00
P-4	0.00	-0.00	1.48	0.03	0.03	0.00
P-5	0.00	-0.00	-5.75	0.05	0.05	0.00
P-6	0.01	-0.01	22.30	0.03	0.03	0.00
P-7	-0.01	0.01	-86.86	-0.32	-0.37	0.00
P-8	-0.02	0.02	424.20	-1.02	-1.18	0.00
P-9	0.02	-0.02	1102.00	-1.50	-1.75	0.00
P-10	0.00	0.00	0.00	0.00	0.00	0.00
P-11	0.00	0.00	0.00	0.00	0.00	0.00
P-12	0.00	0.00	0.00	0.00	0.00	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	-0.00	0.00	0.01	0.00	0.00	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	-0.00	-0.00	1457.06	-2.72	-3.16	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-0.00	0.00	0.01	-0.00	0.00	0.00
16.00	-0.00	0.00	0.01	-0.00	0.09	0.00
32.00	0.00	0.00	0.01	-0.00	0.18	0.00
32.00	0.00	0.00	-0.02	-0.00	0.18	0.00
52.00	-0.00	0.00	-0.02	-0.00	-0.24	0.01
72.00	-0.00	0.00	-0.02	-0.00	-0.65	0.01
72.00	-0.00	0.00	0.08	-0.00	-0.65	0.01
92.00	-0.00	0.00	0.08	-0.00	0.93	0.01
112.00	0.00	0.00	0.08	-0.01	2.51	0.01
112.00	0.01	-0.00	-0.30	-0.01	2.51	0.02
132.00	-0.00	-0.00	-0.30	-0.01	-3.59	0.01
152.00	-0.01	-0.00	-0.30	0.01	-9.68	0.00
152.00	-0.03	-0.00	1.18	0.03	-9.68	0.00
172.00	0.00	-0.00	1.18	0.02	13.91	-0.05
192.00	0.03	-0.00	1.18	-0.04	37.50	-0.11
192.00	0.13	-0.01	-4.57	-0.01	37.50	-0.10
212.00	0.00	-0.01	-4.57	0.04	-53.98	-0.24
232.00	-0.13	-0.01	-4.57	0.25	-145.46	-0.38
232.00	-0.49	-0.02	17.72	0.55	-145.45	-0.40
252.00	0.00	-0.02	17.72	0.41	209.00	-0.69
272.00	0.49	-0.02	17.72	-0.53	563.44	-1.02
272.00	1.92	-0.00	-69.11	-0.66	563.43	-0.98
292.00	0.00	-0.00	-69.14	0.06	-819.32	-1.03
312.00	-1.92	-0.00	-69.11	3.59	-2202.07	-0.97
312.00	-9.85	0.03	354.92	5.11	-2202.05	-1.21
332.00	0.00	0.03	55.06	1.03	3099.16	-0.53
352.00	-13.45	0.03	-484.81	-3.78	-853.22	-0.10
352.00	-6.66	-0.00	239.93	-0.10	-853.26	0.00
372.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
412.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
452.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	0.03	-0.00	0.00	0.00	0.00	0.00
	inf	0.03	-0.00	0.00	0.00	0.00	0.00
2	sup	-0.10	0.00	0.00	0.00	0.00	0.00
	inf	-0.10	0.00	0.00	0.00	0.00	0.00
3	sup	0.38	0.00	0.00	0.00	0.00	0.00
	inf	0.38	0.00	0.00	0.00	0.00	0.02
4	sup	-1.48	0.00	0.00	0.00	0.00	-0.02
	inf	-1.48	0.00	0.00	0.00	0.00	0.05
5	sup	5.75	0.00	0.00	0.00	0.00	-0.06
	inf	5.75	0.00	0.00	0.00	0.00	0.07
6	sup	-22.30	0.01	0.00	0.00	0.00	-0.20
	inf	-22.30	0.01	0.00	0.00	0.00	0.04
7	sup	86.86	-0.01	0.00	0.00	0.00	-0.11
	inf	86.86	-0.01	0.00	0.00	0.00	-0.49
8	sup	-424.20	-0.03	0.00	0.00	0.00	-0.79
	inf	-424.20	-0.03	0.00	0.00	0.00	-1.56
9	sup	-725.05	0.03	0.00	0.00	0.00	-3.05
	inf	-1101.99	0.03	0.00	0.00	0.00	-2.31
10	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Peso propio fase nº10 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-0.00	0.00	0.01	-0.00	-0.00	0.00
P-2	-0.00	0.00	-0.03	-0.00	-0.00	0.00
P-3	0.00	-0.00	0.10	0.00	0.00	0.00
P-4	0.00	-0.00	-0.38	0.01	0.01	0.00
P-5	0.00	-0.00	1.48	0.03	0.03	0.00
P-6	0.00	-0.00	-5.75	0.05	0.05	0.00
P-7	0.01	-0.01	22.24	0.05	0.05	0.00
P-8	-0.01	0.01	-86.61	-0.30	-0.34	0.00
P-9	-0.02	0.02	423.85	-0.89	-1.03	0.00
P-10	0.02	-0.02	1088.65	-1.50	-1.77	0.00
P-11	0.00	0.00	0.00	0.00	0.00	0.00
P-12	0.00	0.00	0.00	0.00	0.00	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	-0.00	0.00	-0.00	0.00	0.00	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	-0.00	-0.00	1443.56	-2.55	-3.00	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	0.00	0.00	-0.00	-0.00	-0.00	0.00
16.00	0.00	0.00	-0.00	0.00	-0.02	0.00
32.00	-0.00	0.00	-0.00	0.00	-0.05	0.00
32.00	-0.00	0.00	0.01	-0.00	-0.05	0.00
52.00	0.00	0.00	0.01	-0.00	0.06	0.00
72.00	0.00	0.00	0.01	-0.00	0.17	0.00
72.00	0.00	0.00	-0.02	-0.00	0.17	0.00
92.00	0.00	0.00	-0.02	-0.00	-0.24	0.01
112.00	-0.00	0.00	-0.02	-0.00	-0.65	0.01
112.00	-0.00	0.00	0.08	-0.00	-0.65	0.01
132.00	0.00	0.00	0.08	-0.00	0.93	0.01
152.00	0.00	0.00	0.08	-0.01	2.50	0.01
152.00	0.01	-0.00	-0.30	-0.01	2.50	0.01
172.00	0.00	-0.00	-0.30	-0.01	-3.59	0.01
192.00	-0.01	-0.00	-0.30	0.01	-9.68	0.00
192.00	-0.03	-0.00	1.18	0.02	-9.68	0.00
212.00	0.00	-0.00	1.18	0.01	13.93	-0.04
232.00	0.03	-0.00	1.18	-0.03	37.53	-0.08
232.00	0.13	-0.01	-4.57	-0.02	37.53	-0.08
252.00	0.00	-0.01	-4.57	0.02	-53.89	-0.21
272.00	-0.13	-0.01	-4.57	0.28	-145.31	-0.32
272.00	-0.49	-0.02	17.66	0.52	-145.31	-0.35
292.00	0.00	-0.02	17.67	0.35	208.02	-0.66
312.00	0.49	-0.02	17.66	-0.51	561.35	-1.00
312.00	1.91	-0.00	-68.92	-0.70	561.35	-0.97
332.00	0.00	-0.00	-68.94	0.04	-817.49	-1.02
352.00	-1.91	-0.00	-68.92	3.15	-2196.36	-0.98
352.00	-9.85	0.03	354.77	5.28	-2196.32	-1.21
372.00	0.00	0.03	54.91	1.27	3101.66	-0.53
392.00	-13.46	0.03	-484.94	-3.57	-853.39	-0.10
392.00	-6.66	0.00	239.96	-0.11	-853.42	0.00
412.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
452.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-0.01	-0.00	0.00	0.00	0.00	0.00
	inf	-0.01	-0.00	0.00	0.00	0.00	-0.00
2	sup	0.03	-0.00	0.00	0.00	0.00	0.00
	inf	0.03	-0.00	0.00	0.00	0.00	-0.00
3	sup	-0.10	0.00	0.00	0.00	0.00	0.00
	inf	-0.10	0.00	0.00	0.00	0.00	0.00
4	sup	0.38	0.00	0.00	0.00	0.00	0.00
	inf	0.38	0.00	0.00	0.00	0.00	0.01
5	sup	-1.48	0.00	0.00	0.00	0.00	-0.01
	inf	-1.48	0.00	0.00	0.00	0.00	0.04
6	sup	5.75	0.00	0.00	0.00	0.00	-0.05
	inf	5.75	0.00	0.00	0.00	0.00	0.07
7	sup	-22.24	0.01	0.00	0.00	0.00	-0.21
	inf	-22.24	0.01	0.00	0.00	0.00	0.07
8	sup	86.61	-0.01	0.00	0.00	0.00	-0.07
	inf	86.61	-0.01	0.00	0.00	0.00	-0.45
9	sup	-423.85	-0.03	0.00	0.00	0.00	-0.56
	inf	-423.85	-0.03	0.00	0.00	0.00	-1.36
10	sup	-725.19	0.03	0.00	0.00	0.00	-3.03
	inf	-1088.64	0.03	0.00	0.00	0.00	-2.32
11	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Peso propio fase nº11 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-0.00	0.00	-0.00	-0.00	-0.00	0.00
P-2	-0.00	0.00	0.01	-0.00	-0.00	0.00
P-3	-0.00	0.00	-0.03	0.00	0.00	0.00
P-4	0.00	-0.00	0.10	0.00	0.00	0.00
P-5	0.00	-0.00	-0.38	0.01	0.01	0.00
P-6	0.00	-0.00	1.48	0.02	0.02	0.00
P-7	0.00	-0.00	-5.73	0.03	0.03	0.00
P-8	0.01	-0.00	22.13	0.00	0.00	0.00
P-9	-0.01	0.01	-86.14	-0.28	-0.33	0.00
P-10	-0.01	0.01	423.16	-0.76	-0.90	0.00
P-11	0.01	-0.01	1021.48	-1.93	-2.30	0.00
P-12	0.00	0.00	0.00	0.00	0.00	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	0.00	0.00	0.00	-0.00	-0.00	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	-0.00	-0.00	1376.08	-2.92	-3.46	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-0.00	-0.00	0.00	0.00	0.00	-0.00
16.00	-0.00	-0.00	0.00	0.00	0.01	-0.00
32.00	0.00	-0.00	0.00	0.00	0.01	-0.00
32.00	0.00	0.00	-0.00	-0.00	0.01	-0.00
52.00	-0.00	0.00	-0.00	-0.00	-0.02	0.00
72.00	-0.00	0.00	-0.00	-0.00	-0.04	0.00
72.00	-0.00	0.00	0.01	-0.00	-0.04	0.00
92.00	-0.00	0.00	0.01	-0.00	0.06	0.00
112.00	0.00	0.00	0.01	-0.00	0.17	0.00
112.00	0.00	0.00	-0.02	-0.00	0.17	0.00
132.00	-0.00	0.00	-0.02	-0.00	-0.24	0.00
152.00	-0.00	0.00	-0.02	-0.00	-0.64	0.01
152.00	-0.00	0.00	0.08	-0.00	-0.64	0.01
172.00	-0.00	0.00	0.08	-0.00	0.92	0.01
192.00	0.00	0.00	0.08	-0.01	2.49	0.01
192.00	0.01	-0.00	-0.30	-0.01	2.49	0.01
212.00	-0.00	-0.00	-0.30	-0.00	-3.59	-0.00
232.00	-0.01	-0.00	-0.30	0.01	-9.67	-0.01
232.00	-0.03	-0.00	1.18	0.03	-9.67	-0.01
252.00	0.00	-0.00	1.18	0.02	13.88	-0.05
272.00	0.03	-0.00	1.18	-0.04	37.43	-0.09
272.00	0.13	-0.00	-4.55	-0.01	37.43	-0.09
292.00	0.00	-0.00	-4.55	0.03	-53.56	-0.19
312.00	-0.13	-0.00	-4.55	0.27	-144.55	-0.28
312.00	-0.49	-0.01	17.58	0.48	-144.55	-0.30
332.00	0.00	-0.01	17.58	0.32	207.09	-0.52
352.00	0.49	-0.01	17.58	-0.45	558.74	-0.77
352.00	1.90	0.00	-68.54	-0.83	558.73	-0.73
372.00	0.00	0.00	-68.56	-0.12	-812.47	-0.73
392.00	-1.90	0.00	-68.54	3.42	-2183.70	-0.61
392.00	-9.84	0.02	354.46	5.23	-2183.67	-0.85
412.00	0.00	0.02	54.59	0.67	3108.23	-0.35
432.00	-13.47	0.02	-485.28	-3.76	-853.43	-0.11
432.00	-6.66	-0.00	239.96	-0.07	-853.44	0.00
452.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	0.00	-0.00	0.00	0.00	0.00	0.00
	inf	0.00	-0.00	0.00	0.00	0.00	-0.00
2	sup	-0.01	-0.00	0.00	0.00	0.00	0.00
	inf	-0.01	-0.00	0.00	0.00	0.00	-0.00
3	sup	0.03	-0.00	0.00	0.00	0.00	0.00
	inf	0.03	-0.00	0.00	0.00	0.00	0.00
4	sup	-0.10	0.00	0.00	0.00	0.00	0.00
	inf	-0.10	0.00	0.00	0.00	0.00	0.00
5	sup	0.38	0.00	0.00	0.00	0.00	-0.00
	inf	0.38	0.00	0.00	0.00	0.00	0.01
6	sup	-1.48	0.00	0.00	0.00	0.00	-0.02
	inf	-1.48	0.00	0.00	0.00	0.00	0.03
7	sup	5.73	0.00	0.00	0.00	0.00	-0.04
	inf	5.73	0.00	0.00	0.00	0.00	0.04
8	sup	-22.13	0.01	0.00	0.00	0.00	-0.18
	inf	-22.13	0.01	0.00	0.00	0.00	0.00
9	sup	86.14	-0.01	0.00	0.00	0.00	-0.07
	inf	86.14	-0.01	0.00	0.00	0.00	-0.43
10	sup	-423.16	-0.02	0.00	0.00	0.00	-0.73
	inf	-423.16	-0.02	0.00	0.00	0.00	-1.18
11	sup	-725.53	0.02	0.00	0.00	0.00	-3.40
	inf	-1021.48	0.02	0.00	0.00	0.00	-3.01
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Peso propio fase nº12 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-0.00	0.00	0.00	-0.00	-0.00	0.00
P-2	-0.00	0.00	-0.00	-0.00	-0.00	0.00
P-3	-0.00	0.00	0.01	-0.00	-0.00	0.00
P-4	-0.00	0.00	-0.03	0.00	0.00	0.00
P-5	0.00	-0.00	0.10	0.00	0.00	0.00
P-6	0.00	-0.00	-0.39	0.00	0.00	0.00
P-7	0.00	-0.00	1.50	0.01	0.01	0.00
P-8	0.00	-0.00	-5.78	0.00	0.00	0.00
P-9	0.00	-0.00	22.32	-0.00	-0.00	0.00
P-10	-0.01	0.00	-86.19	-0.15	-0.18	0.00
P-11	-0.00	0.00	422.86	-0.47	-0.57	0.00
P-12	0.00	-0.00	913.66	-2.12	-2.56	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	0.00	0.00	-0.00	-0.00	-0.00	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	-0.00	0.00	1268.06	-2.74	-3.30	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	0.00	-0.00	-0.00	0.00	-0.00	-0.00
16.00	-0.00	-0.00	-0.00	0.00	-0.00	-0.00
32.00	-0.00	-0.00	-0.00	0.00	-0.00	-0.00
32.00	-0.00	0.00	0.00	0.00	-0.00	-0.00
52.00	-0.00	0.00	0.00	0.00	0.00	0.00
72.00	0.00	0.00	0.00	-0.00	0.01	0.00
72.00	0.00	0.00	-0.00	-0.00	0.01	0.00
92.00	-0.00	0.00	-0.00	-0.00	-0.02	0.00
112.00	-0.00	0.00	-0.00	0.00	-0.04	0.00
112.00	-0.00	0.00	0.01	-0.00	-0.04	0.00
132.00	-0.00	0.00	0.01	-0.00	0.06	0.00
152.00	0.00	0.00	0.01	-0.00	0.17	0.00
152.00	0.00	0.00	-0.02	-0.00	0.17	0.00
172.00	-0.00	0.00	-0.02	-0.00	-0.24	0.00
192.00	-0.00	0.00	-0.02	0.00	-0.65	0.00
192.00	-0.00	-0.00	0.08	0.00	-0.65	0.00
212.00	-0.00	-0.00	0.08	0.00	0.94	0.00
232.00	0.00	-0.00	0.08	-0.00	2.53	-0.00
232.00	0.01	-0.00	-0.31	-0.00	2.53	0.00
252.00	0.00	-0.00	-0.31	-0.00	-3.63	-0.00
272.00	-0.01	-0.00	-0.31	0.02	-9.78	-0.01
272.00	-0.03	-0.00	1.19	0.03	-9.78	-0.01
292.00	0.00	-0.00	1.19	0.02	13.99	-0.03
312.00	0.03	-0.00	1.19	-0.04	37.76	-0.05
312.00	0.13	-0.00	-4.59	-0.04	37.76	-0.05
332.00	0.00	-0.00	-4.59	0.01	-54.06	-0.08
352.00	-0.13	-0.00	-4.59	0.22	-145.88	-0.11
352.00	-0.49	-0.01	17.72	0.43	-145.88	-0.13
372.00	0.00	-0.01	17.73	0.26	208.64	-0.22
392.00	0.49	-0.01	17.72	-0.64	563.16	-0.35
392.00	1.90	0.00	-68.44	-0.91	563.15	-0.31
412.00	0.00	0.00	-68.47	-0.08	-806.23	-0.29
432.00	-1.90	0.00	-68.44	3.54	-2175.59	-0.15
432.00	-9.83	0.01	354.26	4.94	-2175.57	-0.38
452.00	0.00	0.01	54.38	0.30	3112.41	-0.12
472.00	-13.47	0.01	-485.48	-3.98	-853.23	-0.11
472.00	-6.66	-0.00	239.94	-0.11	-853.26	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-0.00	-0.00	0.00	0.00	0.00	0.00
	inf	-0.00	-0.00	0.00	0.00	0.00	-0.00
2	sup	0.00	-0.00	0.00	0.00	0.00	0.00
	inf	0.00	-0.00	0.00	0.00	0.00	-0.00
3	sup	-0.01	-0.00	0.00	0.00	0.00	0.00
	inf	-0.01	-0.00	0.00	0.00	0.00	-0.00
4	sup	0.03	-0.00	0.00	0.00	0.00	0.00
	inf	0.03	-0.00	0.00	0.00	0.00	0.00
5	sup	-0.10	0.00	0.00	0.00	0.00	-0.00
	inf	-0.10	0.00	0.00	0.00	0.00	0.00
6	sup	0.39	0.00	0.00	0.00	0.00	-0.00
	inf	0.39	0.00	0.00	0.00	0.00	0.00
7	sup	-1.50	0.00	0.00	0.00	0.00	-0.01
	inf	-1.50	0.00	0.00	0.00	0.00	0.01
8	sup	5.78	0.00	0.00	0.00	0.00	-0.02
	inf	5.78	0.00	0.00	0.00	0.00	0.00
9	sup	-22.32	0.00	0.00	0.00	0.00	-0.11
	inf	-22.32	0.00	0.00	0.00	0.00	-0.01
10	sup	86.19	-0.01	0.00	0.00	0.00	-0.03
	inf	86.19	-0.01	0.00	0.00	0.00	-0.24
11	sup	-422.86	-0.00	0.00	0.00	0.00	-0.65
	inf	-422.86	-0.00	0.00	0.00	0.00	-0.74
12	sup	-725.71	0.01	0.00	0.00	0.00	-3.41
	inf	-913.66	0.01	0.00	0.00	0.00	-3.32
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Peso propio fase nº13 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.00	-0.00	-0.00	-0.00	-0.00	0.00
P-2	-0.00	0.00	0.00	-0.00	-0.00	0.00
P-3	-0.00	0.00	-0.00	-0.00	-0.00	0.00
P-4	-0.00	0.00	0.01	-0.00	-0.00	0.00
P-5	-0.00	0.00	-0.03	-0.00	-0.00	0.00
P-6	-0.00	0.00	0.11	-0.00	-0.00	0.00
P-7	-0.00	0.00	-0.42	0.00	0.00	0.00
P-8	0.00	-0.00	1.62	0.01	0.01	0.00
P-9	0.00	-0.00	-6.25	0.01	0.01	0.00
P-10	0.00	-0.00	23.96	0.03	0.04	0.00
P-11	0.00	-0.00	-90.92	-0.03	-0.03	0.00
P-12	-0.01	0.01	436.49	-0.61	-0.74	0.00
P-13	0.01	-0.01	815.03	-2.47	-3.02	0.00
E-1	-0.00	-0.00	0.00	-0.00	-0.00	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	-0.00	-0.00	1179.59	-3.07	-3.74	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	0.00	-0.00	0.00	0.00	0.00	-0.00
16.00	0.00	-0.00	0.00	0.00	0.00	-0.00
32.00	0.00	-0.00	0.00	0.00	0.00	-0.00
32.00	0.00	-0.00	-0.00	0.00	0.00	-0.00
52.00	0.00	-0.00	-0.00	0.00	-0.00	-0.00
72.00	-0.00	-0.00	-0.00	0.00	-0.00	-0.00
72.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
92.00	0.00	-0.00	0.00	0.00	0.00	-0.00
112.00	0.00	-0.00	0.00	-0.00	0.01	-0.00
112.00	0.00	0.00	-0.00	-0.00	0.01	-0.00
132.00	0.00	0.00	-0.00	0.00	-0.02	-0.00
152.00	-0.00	0.00	-0.00	0.00	-0.05	0.00
152.00	-0.00	0.00	0.01	0.00	-0.05	0.00
172.00	0.00	0.00	0.01	0.00	0.07	0.00
192.00	0.00	0.00	0.01	-0.00	0.18	0.00
192.00	0.00	0.00	-0.02	-0.00	0.18	0.00
212.00	0.00	0.00	-0.02	-0.00	-0.26	0.00
232.00	-0.00	0.00	-0.02	0.00	-0.71	0.00
232.00	-0.00	0.00	0.09	0.00	-0.71	0.00
252.00	0.00	0.00	0.09	-0.00	1.01	0.00
272.00	0.00	0.00	0.09	-0.00	2.74	0.00
272.00	0.01	0.00	-0.33	-0.01	2.74	0.00
292.00	0.00	0.00	-0.33	-0.00	-3.92	0.00
312.00	-0.01	0.00	-0.33	0.01	-10.57	0.01
312.00	-0.04	-0.00	1.28	0.02	-10.57	0.01
332.00	0.00	-0.00	1.28	0.01	15.13	-0.00
352.00	0.04	-0.00	1.28	-0.05	40.83	-0.01
352.00	0.14	-0.00	-4.96	-0.08	40.83	-0.01
372.00	0.00	-0.00	-4.96	-0.03	-58.37	-0.02
392.00	-0.14	-0.00	-4.96	0.22	-157.58	-0.03
392.00	-0.53	-0.01	18.99	0.38	-157.57	-0.05
412.00	0.00	-0.01	19.00	0.15	222.39	-0.14
432.00	0.53	-0.01	18.99	-0.84	602.35	-0.27
432.00	2.00	-0.01	-71.90	-1.00	602.34	-0.22
452.00	0.00	-0.01	-71.93	-0.14	-836.22	-0.38
472.00	-2.00	-0.01	-71.90	3.26	-2274.73	-0.41
472.00	-10.11	0.01	364.42	5.16	-2274.71	-0.64
492.00	0.00	0.01	64.56	1.23	3216.28	-0.25
512.00	-13.19	0.01	-475.32	-4.37	-546.14	-0.12
512.00	-6.66	-0.00	191.94	-0.06	-546.16	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	0.00	0.00	0.00	0.00	0.00	-0.00
	inf	0.00	0.00	0.00	0.00	0.00	-0.00
2	sup	-0.00	-0.00	0.00	0.00	0.00	-0.00
	inf	-0.00	-0.00	0.00	0.00	0.00	-0.00
3	sup	0.00	-0.00	0.00	0.00	0.00	0.00
	inf	0.00	-0.00	0.00	0.00	0.00	-0.00
4	sup	-0.01	-0.00	0.00	0.00	0.00	0.00
	inf	-0.01	-0.00	0.00	0.00	0.00	-0.00
5	sup	0.03	-0.00	0.00	0.00	0.00	0.00
	inf	0.03	-0.00	0.00	0.00	0.00	-0.00
6	sup	-0.11	-0.00	0.00	0.00	0.00	0.00
	inf	-0.11	-0.00	0.00	0.00	0.00	-0.00
7	sup	0.42	-0.00	0.00	0.00	0.00	0.00
	inf	0.42	-0.00	0.00	0.00	0.00	0.00
8	sup	-1.62	0.00	0.00	0.00	0.00	-0.00
	inf	-1.62	0.00	0.00	0.00	0.00	0.01
9	sup	6.25	0.00	0.00	0.00	0.00	0.00
	inf	6.25	0.00	0.00	0.00	0.00	0.01
10	sup	-23.96	0.00	0.00	0.00	0.00	-0.08
	inf	-23.96	0.00	0.00	0.00	0.00	0.05
11	sup	90.92	0.00	0.00	0.00	0.00	-0.07
	inf	90.92	0.00	0.00	0.00	0.00	-0.04
12	sup	-436.49	-0.02	0.00	0.00	0.00	-0.70
	inf	-436.49	-0.02	0.00	0.00	0.00	-0.96
13	sup	-667.57	0.01	0.00	0.00	0.00	-4.04
	inf	-815.02	0.01	0.00	0.00	0.00	-3.90

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Peso propio fase nº14 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.00	-0.00	0.00	0.00	0.00	0.00
P-2	0.00	-0.00	-0.00	0.00	0.00	0.00
P-3	0.00	-0.00	0.00	-0.00	-0.00	0.00
P-4	-0.00	0.00	-0.00	-0.00	-0.00	0.00
P-5	-0.00	0.00	0.00	-0.00	-0.00	0.00
P-6	-0.00	0.00	-0.02	-0.00	-0.00	0.00
P-7	-0.00	0.00	0.07	-0.00	-0.00	0.00
P-8	-0.00	0.00	-0.26	-0.00	-0.00	0.00
P-9	0.00	-0.00	1.02	0.00	0.00	0.00
P-10	-0.00	0.00	-3.90	0.00	0.00	0.00
P-11	0.00	-0.00	14.73	0.02	0.02	0.00
P-12	-0.00	0.00	-55.25	0.02	0.03	0.00
P-13	0.00	-0.00	344.12	0.01	0.01	0.00
E-1	0.00	0.00	-0.00	0.00	0.00	0.00
E-2	-0.00	0.00	383.75	-2.21	-2.72	0.00
SUMA	0.00	0.00	684.26	-2.16	-2.66	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-0.00	0.00	-0.00	-0.00	-0.00	0.00
16.00	-0.00	0.00	-0.00	-0.00	-0.00	0.00
32.00	-0.00	0.00	-0.00	-0.00	-0.00	0.00
32.00	-0.00	-0.00	0.00	0.00	-0.00	0.00
52.00	-0.00	-0.00	0.00	0.00	0.00	-0.00
72.00	0.00	-0.00	0.00	-0.00	0.00	-0.00
72.00	0.00	-0.00	-0.00	0.00	0.00	-0.00
92.00	-0.00	-0.00	-0.00	0.00	-0.00	-0.00
112.00	-0.00	-0.00	-0.00	0.00	-0.00	-0.00
112.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
132.00	-0.00	-0.00	0.00	0.00	0.00	-0.00
152.00	0.00	-0.00	0.00	-0.00	0.01	-0.00
152.00	0.00	-0.00	-0.00	-0.00	0.01	-0.00
172.00	-0.00	-0.00	-0.00	0.00	-0.01	-0.00
192.00	-0.00	-0.00	-0.00	0.00	-0.03	-0.00
192.00	-0.00	0.00	0.00	0.00	-0.03	-0.00
212.00	-0.00	0.00	0.00	0.00	0.04	-0.00
232.00	0.00	0.00	0.00	-0.00	0.11	0.00
232.00	0.00	0.00	-0.01	-0.00	0.11	0.00
252.00	-0.00	0.00	-0.01	-0.00	-0.17	0.00
272.00	-0.00	0.00	-0.01	0.00	-0.45	0.00
272.00	-0.00	0.00	0.05	0.00	-0.45	0.00
292.00	-0.00	0.00	0.05	0.00	0.64	0.00
312.00	0.00	0.00	0.05	-0.00	1.72	0.00
312.00	0.01	0.00	-0.21	-0.00	1.72	0.00
332.00	-0.00	0.00	-0.21	-0.00	-2.46	0.00
352.00	-0.01	0.00	-0.21	0.01	-6.64	0.00
352.00	-0.02	-0.00	0.81	0.01	-6.64	0.00
372.00	-0.00	-0.00	0.81	0.00	9.49	0.00
392.00	0.02	-0.00	0.81	-0.04	25.63	0.00
392.00	0.09	0.00	-3.09	-0.06	25.63	0.00
412.00	-0.00	0.00	-3.09	-0.02	-36.16	0.01
432.00	-0.09	0.00	-3.09	0.14	-97.95	0.01
432.00	-0.32	-0.00	11.63	0.19	-97.95	0.01
452.00	0.00	-0.00	11.64	0.05	134.82	-0.02
472.00	0.32	-0.00	11.63	-0.49	367.58	-0.07
472.00	1.21	0.00	-43.59	-0.79	367.58	-0.04
492.00	0.00	0.00	-43.61	-0.41	-504.58	-0.01
512.00	-1.21	0.00	-43.59	1.71	-1376.78	0.09
512.00	-10.42	-0.00	300.33	2.44	-1376.77	-0.04
528.00	-0.00	-0.00	60.49	0.35	2279.24	0.02
544.00	-24.29	-0.00	-382.98	-3.50	0.02	-0.22

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-0.00	0.00	0.00	0.00	0.00	-0.00
	inf	-0.00	0.00	0.00	0.00	0.00	0.00
2	sup	0.00	0.00	0.00	0.00	0.00	-0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
3	sup	-0.00	0.00	0.00	0.00	0.00	-0.00
	inf	-0.00	0.00	0.00	0.00	0.00	-0.00
4	sup	0.00	-0.00	0.00	0.00	0.00	-0.00
	inf	0.00	-0.00	0.00	0.00	0.00	-0.00
5	sup	-0.00	-0.00	0.00	0.00	0.00	-0.00
	inf	-0.00	-0.00	0.00	0.00	0.00	-0.00
6	sup	0.02	-0.00	0.00	0.00	0.00	0.00
	inf	0.02	-0.00	0.00	0.00	0.00	-0.00
7	sup	-0.07	-0.00	0.00	0.00	0.00	0.00
	inf	-0.07	-0.00	0.00	0.00	0.00	-0.00
8	sup	0.26	-0.00	0.00	0.00	0.00	0.00
	inf	0.26	-0.00	0.00	0.00	0.00	-0.00
9	sup	-1.02	0.00	0.00	0.00	0.00	-0.00
	inf	-1.02	0.00	0.00	0.00	0.00	0.00
10	sup	3.90	-0.00	0.00	0.00	0.00	0.01
	inf	3.90	-0.00	0.00	0.00	0.00	0.00
11	sup	-14.73	0.00	0.00	0.00	0.00	-0.01
	inf	-14.73	0.00	0.00	0.00	0.00	0.03
12	sup	55.25	-0.00	0.00	0.00	0.00	0.10
	inf	55.25	-0.00	0.00	0.00	0.00	0.04
13	sup	-344.12	0.00	0.00	0.00	0.00	-0.03
	inf	-344.12	0.00	0.00	0.00	0.00	0.01

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Pretensado fase nº 1 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.00	-0.00	0.00	0.13	0.14	0.00
P-2	0.00	0.00	0.00	0.00	0.00	0.00
P-3	0.00	0.00	0.00	0.00	0.00	0.00
P-4	0.00	0.00	0.00	0.00	0.00	0.00
P-5	0.00	0.00	0.00	0.00	0.00	0.00
P-6	0.00	0.00	0.00	0.00	0.00	0.00
P-7	0.00	0.00	0.00	0.00	0.00	0.00
P-8	0.00	0.00	0.00	0.00	0.00	0.00
P-9	0.00	0.00	0.00	0.00	0.00	0.00
P-10	0.00	0.00	0.00	0.00	0.00	0.00
P-11	0.00	0.00	0.00	0.00	0.00	0.00
P-12	0.00	0.00	0.00	0.00	0.00	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	0.00	0.00	-0.00	-0.13	-0.13	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	0.00	-0.00	-0.00	0.00	0.00	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-6886.60	-0.00	-1051.55	0.19	-4527.80	-0.01
16.00	-7101.43	0.00	257.31	0.19	-11148.90	-0.00
32.00	-8584.27	0.00	297.62	0.19	-396.92	0.00
32.00	-8586.11	-0.00	-238.41	0.00	-397.08	0.00
52.00	0.00	0.00	0.00	0.00	0.00	0.00
72.00	0.00	0.00	0.00	0.00	0.00	0.00
72.00	0.00	0.00	0.00	0.00	0.00	0.00
92.00	0.00	0.00	0.00	0.00	0.00	0.00
112.00	0.00	0.00	0.00	0.00	0.00	0.00
112.00	0.00	0.00	0.00	0.00	0.00	0.00
132.00	0.00	0.00	0.00	0.00	0.00	0.00
152.00	0.00	0.00	0.00	0.00	0.00	0.00
152.00	0.00	0.00	0.00	0.00	0.00	0.00
172.00	0.00	0.00	0.00	0.00	0.00	0.00
192.00	0.00	0.00	0.00	0.00	0.00	0.00
192.00	0.00	0.00	0.00	0.00	0.00	0.00
212.00	0.00	0.00	0.00	0.00	0.00	0.00
232.00	0.00	0.00	0.00	0.00	0.00	0.00
232.00	0.00	0.00	0.00	0.00	0.00	0.00
252.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
292.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
332.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
372.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
412.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
452.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-0.00	0.00	0.00	0.00	0.00	0.18
	inf	-0.00	0.00	0.00	0.00	0.00	0.19
2	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
3	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
4	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
5	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
6	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
7	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
8	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
9	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
10	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Pretensado fase nº 2 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.19	-0.18	-393.62	-5.69	-6.08	0.00
P-2	-0.09	0.08	174.94	-6.71	-7.24	0.00
P-3	0.00	0.00	0.00	0.00	0.00	0.00
P-4	0.00	0.00	0.00	0.00	0.00	0.00
P-5	0.00	0.00	0.00	0.00	0.00	0.00
P-6	0.00	0.00	0.00	0.00	0.00	0.00
P-7	0.00	0.00	0.00	0.00	0.00	0.00
P-8	0.00	0.00	0.00	0.00	0.00	0.00
P-9	0.00	0.00	0.00	0.00	0.00	0.00
P-10	0.00	0.00	0.00	0.00	0.00	0.00
P-11	0.00	0.00	0.00	0.00	0.00	0.00
P-12	0.00	0.00	0.00	0.00	0.00	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	-0.10	0.10	218.67	-10.02	-10.60	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	0.00	0.00	-0.00	-22.42	-23.91	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-7.58	0.15	218.54	14.43	0.01	-0.50
16.00	-0.00	0.14	218.67	9.00	3498.83	2.32
32.00	-1385.35	0.14	266.85	0.55	4571.28	4.65
32.00	-1388.38	-0.12	-213.54	11.18	4570.23	4.32
52.00	-7491.16	-0.12	-174.87	-2.38	-8980.37	2.32
72.00	-10031.10	-0.13	103.16	-6.86	-872.81	-0.20
72.00	-10026.20	0.01	-278.47	-0.00	-872.85	-0.01
92.00	0.00	0.00	0.00	0.00	0.00	0.00
112.00	0.00	0.00	0.00	0.00	0.00	0.00
112.00	0.00	0.00	0.00	0.00	0.00	0.00
132.00	0.00	0.00	0.00	0.00	0.00	0.00
152.00	0.00	0.00	0.00	0.00	0.00	0.00
152.00	0.00	0.00	0.00	0.00	0.00	0.00
172.00	0.00	0.00	0.00	0.00	0.00	0.00
192.00	0.00	0.00	0.00	0.00	0.00	0.00
192.00	0.00	0.00	0.00	0.00	0.00	0.00
212.00	0.00	0.00	0.00	0.00	0.00	0.00
232.00	0.00	0.00	0.00	0.00	0.00	0.00
232.00	0.00	0.00	0.00	0.00	0.00	0.00
252.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
292.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
332.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
372.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
412.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
452.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	393.62	0.26	0.00	0.00	0.00	-13.52
	inf	393.62	0.26	0.00	0.00	0.00	-8.33
2	sup	-174.94	-0.12	0.00	0.00	0.00	-6.86
	inf	-174.94	-0.12	0.00	0.00	0.00	-9.87
3	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
4	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
5	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
6	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
7	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
8	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
9	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
10	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Pretensado fase nº 3 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-0.17	0.16	194.62	-4.18	-4.46	0.00
P-2	0.18	-0.16	-272.63	-3.15	-3.39	0.00
P-3	-0.06	0.06	119.65	-5.21	-5.68	0.00
P-4	0.00	0.00	0.00	0.00	0.00	0.00
P-5	0.00	0.00	0.00	0.00	0.00	0.00
P-6	0.00	0.00	0.00	0.00	0.00	0.00
P-7	0.00	0.00	0.00	0.00	0.00	0.00
P-8	0.00	0.00	0.00	0.00	0.00	0.00
P-9	0.00	0.00	0.00	0.00	0.00	0.00
P-10	0.00	0.00	0.00	0.00	0.00	0.00
P-11	0.00	0.00	0.00	0.00	0.00	0.00
P-12	0.00	0.00	0.00	0.00	0.00	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	0.06	-0.06	-41.65	-1.42	-1.50	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	0.00	-0.00	0.00	-13.95	-15.04	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	1.44	-0.08	-41.62	2.15	-0.00	-0.07
16.00	-0.00	-0.08	-41.65	3.19	-666.41	-1.33
32.00	-1.44	-0.08	-41.63	4.85	-1332.82	-2.49
32.00	-4.24	0.15	152.91	6.71	-1332.80	-2.84
52.00	-0.00	0.15	152.97	5.87	1726.56	0.40
72.00	4.24	0.15	152.91	-1.32	4786.07	3.42
72.00	3.32	-0.09	-119.61	7.13	4786.08	3.26
92.00	-6778.11	-0.09	-119.62	-2.59	-8764.33	1.73
112.00	-9292.60	-0.10	138.18	-5.39	410.32	-0.17
112.00	-9289.27	-0.03	-257.84	0.00	410.31	0.06
132.00	0.00	0.00	0.00	0.00	0.00	0.00
152.00	0.00	0.00	0.00	0.00	0.00	0.00
152.00	0.00	0.00	0.00	0.00	0.00	0.00
172.00	0.00	0.00	0.00	0.00	0.00	0.00
192.00	0.00	0.00	0.00	0.00	0.00	0.00
192.00	0.00	0.00	0.00	0.00	0.00	0.00
212.00	0.00	0.00	0.00	0.00	0.00	0.00
232.00	0.00	0.00	0.00	0.00	0.00	0.00
232.00	0.00	0.00	0.00	0.00	0.00	0.00
252.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
292.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
332.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
372.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
412.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
452.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-194.62	-0.24	0.00	0.00	0.00	-1.42
	inf	-194.62	-0.24	0.00	0.00	0.00	-6.11
2	sup	272.63	0.24	0.00	0.00	0.00	-10.83
	inf	272.63	0.24	0.00	0.00	0.00	-4.63
3	sup	-119.65	-0.09	0.00	0.00	0.00	-5.40
	inf	-119.65	-0.09	0.00	0.00	0.00	-7.71
4	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
5	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
6	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
7	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
8	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
9	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
10	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Pretensado fase nº 4 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-0.08	0.08	-51.48	-1.93	-2.06	0.00
P-2	-0.07	0.07	191.88	-3.37	-3.63	0.00
P-3	0.15	-0.14	-270.49	-3.60	-3.92	0.00
P-4	-0.06	0.05	119.26	-5.18	-5.71	0.00
P-5	0.00	0.00	0.00	0.00	0.00	0.00
P-6	0.00	0.00	0.00	0.00	0.00	0.00
P-7	0.00	0.00	0.00	0.00	0.00	0.00
P-8	0.00	0.00	0.00	0.00	0.00	0.00
P-9	0.00	0.00	0.00	0.00	0.00	0.00
P-10	0.00	0.00	0.00	0.00	0.00	0.00
P-11	0.00	0.00	0.00	0.00	0.00	0.00
P-12	0.00	0.00	0.00	0.00	0.00	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	0.06	-0.06	10.84	-1.09	-1.16	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	-0.00	-0.00	-0.00	-15.16	-16.49	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-0.37	-0.09	10.83	1.68	0.00	-0.06
16.00	0.00	-0.09	10.84	1.42	173.43	-1.43
32.00	0.38	-0.09	10.83	1.10	346.87	-2.82
32.00	1.13	0.02	-40.63	1.31	346.87	-2.89
52.00	0.00	0.02	-40.65	1.64	-466.00	-2.36
72.00	-1.13	0.03	-40.63	3.60	-1278.90	-1.76
72.00	-4.19	0.12	151.17	6.55	-1278.89	-2.04
92.00	0.00	0.13	151.23	5.28	1745.73	0.64
112.00	4.20	0.12	151.17	-2.26	4770.33	3.08
112.00	3.31	-0.08	-119.21	7.04	4770.33	2.95
132.00	-6778.37	-0.08	-118.44	-2.72	-8772.55	1.58
152.00	-9292.78	-0.10	137.01	-5.52	410.55	-0.22
152.00	-9289.38	0.02	-259.36	0.00	410.46	-0.04
172.00	0.00	0.00	0.00	0.00	0.00	0.00
192.00	0.00	0.00	0.00	0.00	0.00	0.00
192.00	0.00	0.00	0.00	0.00	0.00	0.00
212.00	0.00	0.00	0.00	0.00	0.00	0.00
232.00	0.00	0.00	0.00	0.00	0.00	0.00
232.00	0.00	0.00	0.00	0.00	0.00	0.00
252.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
292.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
332.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
372.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
412.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
452.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	51.48	-0.11	0.00	0.00	0.00	-0.55
	inf	51.48	-0.11	0.00	0.00	0.00	-2.82
2	sup	-191.88	-0.10	0.00	0.00	0.00	-2.36
	inf	-191.88	-0.10	0.00	0.00	0.00	-4.95
3	sup	270.49	0.20	0.00	0.00	0.00	-10.80
	inf	270.49	0.20	0.00	0.00	0.00	-5.32
4	sup	-119.26	-0.08	0.00	0.00	0.00	-5.52
	inf	-119.26	-0.08	0.00	0.00	0.00	-7.71
5	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
6	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
7	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
8	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
9	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
10	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Pretensado fase nº 5 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-0.01	0.01	13.34	-0.55	-0.58	0.00
P-2	-0.03	0.03	-50.61	-1.45	-1.57	0.00
P-3	-0.08	0.07	191.01	-3.52	-3.84	0.00
P-4	0.14	-0.13	-270.09	-3.58	-3.95	0.00
P-5	-0.05	0.05	119.15	-5.12	-5.71	0.00
P-6	0.00	0.00	0.00	0.00	0.00	0.00
P-7	0.00	0.00	0.00	0.00	0.00	0.00
P-8	0.00	0.00	0.00	0.00	0.00	0.00
P-9	0.00	0.00	0.00	0.00	0.00	0.00
P-10	0.00	0.00	0.00	0.00	0.00	0.00
P-11	0.00	0.00	0.00	0.00	0.00	0.00
P-12	0.00	0.00	0.00	0.00	0.00	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	0.03	-0.03	-2.81	-0.28	-0.30	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	-0.00	-0.00	0.00	-14.50	-15.96	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	0.10	-0.04	-2.81	0.46	-0.00	-0.02
16.00	0.00	-0.04	-2.81	0.53	-44.93	-0.71
32.00	-0.10	-0.04	-2.81	0.69	-89.86	-1.40
32.00	-0.29	-0.03	10.53	1.11	-89.86	-1.45
52.00	0.00	-0.03	10.54	1.08	120.84	-1.98
72.00	0.29	-0.03	10.53	0.66	331.56	-2.52
72.00	1.11	0.02	-40.06	1.35	331.56	-2.58
92.00	0.00	0.02	-40.08	1.79	-469.95	-2.23
112.00	-1.11	0.02	-40.06	3.84	-1271.45	-1.81
112.00	-4.19	0.12	150.88	6.59	-1271.44	-2.10
132.00	0.00	0.12	150.94	5.43	1747.40	0.47
152.00	4.19	0.12	150.88	-2.09	4766.16	2.80
152.00	3.31	-0.07	-119.11	7.04	4766.17	2.66
172.00	-6778.46	-0.08	-118.37	-2.80	-8774.72	1.44
192.00	-9292.74	-0.07	137.10	-5.61	410.48	-0.17
192.00	-9289.34	-0.00	-259.37	-0.00	410.41	0.01
212.00	0.00	0.00	0.00	0.00	0.00	0.00
232.00	0.00	0.00	0.00	0.00	0.00	0.00
232.00	0.00	0.00	0.00	0.00	0.00	0.00
252.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
292.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
332.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
372.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
412.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
452.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-13.34	-0.02	0.00	0.00	0.00	-0.47
	inf	-13.34	-0.02	0.00	0.00	0.00	-0.80
2	sup	50.61	-0.04	0.00	0.00	0.00	-1.01
	inf	50.61	-0.04	0.00	0.00	0.00	-2.14
3	sup	-191.01	-0.10	0.00	0.00	0.00	-2.41
	inf	-191.01	-0.10	0.00	0.00	0.00	-5.21
4	sup	270.09	0.19	0.00	0.00	0.00	-10.65
	inf	270.09	0.19	0.00	0.00	0.00	-5.33
5	sup	-119.15	-0.07	0.00	0.00	0.00	-5.61
	inf	-119.15	-0.07	0.00	0.00	0.00	-7.67
6	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
7	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
8	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
9	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
10	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Pretensado fase nº 6 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.01	-0.00	-3.45	-0.07	-0.08	0.00
P-2	0.00	-0.00	13.08	-0.36	-0.39	0.00
P-3	-0.04	0.03	-50.28	-1.58	-1.73	0.00
P-4	-0.07	0.06	190.73	-3.47	-3.83	0.00
P-5	0.15	-0.13	-269.90	-3.31	-3.70	0.00
P-6	-0.06	0.05	119.10	-5.21	-5.88	0.00
P-7	0.00	0.00	0.00	0.00	0.00	0.00
P-8	0.00	0.00	0.00	0.00	0.00	0.00
P-9	0.00	0.00	0.00	0.00	0.00	0.00
P-10	0.00	0.00	0.00	0.00	0.00	0.00
P-11	0.00	0.00	0.00	0.00	0.00	0.00
P-12	0.00	0.00	0.00	0.00	0.00	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	0.01	-0.01	0.73	-0.10	-0.11	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	0.00	0.00	-0.00	-14.12	-15.71	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-0.03	-0.02	0.72	0.16	0.00	-0.01
16.00	-0.00	-0.02	0.73	0.15	11.61	-0.26
32.00	0.02	-0.02	0.72	0.13	23.21	-0.52
32.00	0.08	-0.02	-2.72	0.34	23.21	-0.53
52.00	-0.00	-0.02	-2.72	0.37	-31.22	-0.99
72.00	-0.08	-0.02	-2.72	0.54	-85.66	-1.44
72.00	-0.29	-0.03	10.35	1.14	-85.66	-1.49
92.00	-0.00	-0.03	10.36	1.09	121.53	-2.01
112.00	0.29	-0.03	10.35	0.64	328.72	-2.54
112.00	1.11	0.02	-39.91	1.36	328.72	-2.60
132.00	-0.00	0.02	-39.93	1.77	-469.80	-2.09
152.00	-1.11	0.02	-39.91	3.80	-1268.30	-1.51
152.00	-4.18	0.12	150.75	6.68	-1268.28	-1.81
172.00	-0.00	0.12	150.80	5.62	1747.78	0.75
192.00	4.18	0.12	150.75	-1.89	4763.91	3.06
192.00	3.30	-0.08	-119.06	6.35	4763.92	2.94
212.00	-6779.05	-0.08	-118.29	-2.74	-8776.92	1.57
232.00	-9293.03	-0.09	137.24	-5.61	410.42	-0.18
232.00	-9289.63	0.00	-259.33	0.00	410.32	-0.00
252.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
272.00	0.00	0.00	0.00	0.00	0.00	0.00
292.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
332.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
372.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
412.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
452.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	3.45	0.01	0.00	0.00	0.00	-0.24
	inf	3.45	0.01	0.00	0.00	0.00	-0.10
2	sup	-13.08	0.00	0.00	0.00	0.00	-0.64
	inf	-13.08	0.00	0.00	0.00	0.00	-0.53
3	sup	50.28	-0.05	0.00	0.00	0.00	-0.97
	inf	50.28	-0.05	0.00	0.00	0.00	-2.35
4	sup	-190.73	-0.09	0.00	0.00	0.00	-2.52
	inf	-190.73	-0.09	0.00	0.00	0.00	-5.17
5	sup	269.90	0.20	0.00	0.00	0.00	-10.63
	inf	269.90	0.20	0.00	0.00	0.00	-4.96
6	sup	-119.10	-0.08	0.00	0.00	0.00	-5.61
	inf	-119.10	-0.08	0.00	0.00	0.00	-7.86
7	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
8	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
9	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
10	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Pretensado fase nº 7 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.01	-0.01	0.89	0.04	0.05	0.00
P-2	0.01	-0.01	-3.37	-0.00	-0.00	0.00
P-3	0.00	-0.00	12.97	-0.38	-0.42	0.00
P-4	-0.04	0.04	-50.14	-1.60	-1.76	0.00
P-5	-0.07	0.06	190.56	-3.33	-3.72	0.00
P-6	0.15	-0.14	-269.79	-3.24	-3.66	0.00
P-7	-0.06	0.06	119.06	-5.35	-6.11	0.00
P-8	0.00	0.00	0.00	0.00	0.00	0.00
P-9	0.00	0.00	0.00	0.00	0.00	0.00
P-10	0.00	0.00	0.00	0.00	0.00	0.00
P-11	0.00	0.00	0.00	0.00	0.00	0.00
P-12	0.00	0.00	0.00	0.00	0.00	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	0.00	-0.00	-0.19	-0.01	-0.01	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	0.00	-0.00	0.00	-13.88	-15.63	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	0.01	-0.00	-0.19	0.01	-0.00	-0.00
16.00	0.00	-0.00	-0.19	0.02	-2.99	-0.06
32.00	-0.01	-0.00	-0.19	0.03	-5.98	-0.11
32.00	-0.02	-0.01	0.70	0.12	-5.98	-0.11
52.00	0.00	-0.01	0.70	0.12	8.05	-0.34
72.00	0.02	-0.01	0.70	0.11	22.08	-0.58
72.00	0.07	-0.02	-2.67	0.35	22.08	-0.59
92.00	0.00	-0.02	-2.67	0.40	-31.33	-1.04
112.00	-0.07	-0.02	-2.67	0.57	-84.74	-1.48
112.00	-0.29	-0.03	10.29	1.14	-84.74	-1.53
132.00	0.00	-0.03	10.30	1.10	121.24	-2.00
152.00	0.29	-0.03	10.29	0.65	327.20	-2.48
152.00	1.11	0.03	-39.83	1.27	327.20	-2.53
172.00	0.00	0.03	-39.84	1.65	-469.59	-1.92
192.00	-1.10	0.03	-39.82	3.67	-1266.39	-1.24
192.00	-4.18	0.12	150.67	6.66	-1266.38	-1.52
212.00	0.00	0.12	150.72	5.45	1748.11	1.04
232.00	4.18	0.12	150.66	-1.10	4762.48	3.39
232.00	3.30	-0.09	-119.02	5.65	4762.51	3.26
252.00	-6778.35	-0.08	-118.32	-2.76	-8776.43	1.70
272.00	-9292.71	-0.10	137.45	-5.74	410.55	-0.20
272.00	-9289.33	0.02	-259.08	0.00	410.47	-0.02
292.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
312.00	0.00	0.00	0.00	0.00	0.00	0.00
332.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
372.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
412.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
452.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-0.89	0.01	0.00	0.00	0.00	-0.10
	inf	-0.89	0.01	0.00	0.00	0.00	0.06
2	sup	3.37	0.01	0.00	0.00	0.00	-0.29
	inf	3.37	0.01	0.00	0.00	0.00	-0.00
3	sup	-12.97	0.00	0.00	0.00	0.00	-0.63
	inf	-12.97	0.00	0.00	0.00	0.00	-0.57
4	sup	50.14	-0.05	0.00	0.00	0.00	-0.87
	inf	50.14	-0.05	0.00	0.00	0.00	-2.38
5	sup	-190.56	-0.09	0.00	0.00	0.00	-2.39
	inf	-190.56	-0.09	0.00	0.00	0.00	-4.99
6	sup	269.79	0.20	0.00	0.00	0.00	-10.80
	inf	269.79	0.20	0.00	0.00	0.00	-4.89
7	sup	-119.06	-0.09	0.00	0.00	0.00	-5.75
	inf	-119.06	-0.09	0.00	0.00	0.00	-8.12
8	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
9	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
10	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Pretensado fase nº 8 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.00	-0.00	-0.23	0.03	0.03	0.00
P-2	0.01	-0.00	0.87	0.05	0.05	0.00
P-3	0.01	-0.01	-3.35	-0.02	-0.02	0.00
P-4	0.00	-0.00	12.95	-0.39	-0.43	0.00
P-5	-0.03	0.03	-50.15	-1.44	-1.61	0.00
P-6	-0.06	0.06	190.67	-3.16	-3.56	0.00
P-7	0.14	-0.12	-269.92	-3.49	-3.98	0.00
P-8	-0.06	0.05	119.12	-5.29	-6.11	0.00
P-9	0.00	0.00	0.00	0.00	0.00	0.00
P-10	0.00	0.00	0.00	0.00	0.00	0.00
P-11	0.00	0.00	0.00	0.00	0.00	0.00
P-12	0.00	0.00	0.00	0.00	0.00	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	0.00	0.00	0.05	0.00	0.01	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	0.00	0.00	0.00	-13.70	-15.62	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-0.00	0.00	0.05	-0.01	0.00	0.00
16.00	-0.00	0.00	0.05	-0.01	0.77	0.00
32.00	0.00	0.00	0.05	-0.01	1.54	-0.00
32.00	0.00	-0.00	-0.18	0.02	1.54	-0.00
52.00	-0.00	-0.00	-0.18	0.02	-2.08	-0.08
72.00	-0.01	-0.00	-0.18	0.03	-5.70	-0.15
72.00	-0.02	-0.01	0.69	0.13	-5.70	-0.16
92.00	-0.00	-0.01	0.69	0.13	8.08	-0.37
112.00	0.02	-0.01	0.69	0.11	21.87	-0.58
112.00	0.07	-0.02	-2.66	0.35	21.87	-0.59
132.00	-0.00	-0.02	-2.66	0.39	-31.29	-0.98
152.00	-0.07	-0.02	-2.66	0.56	-84.44	-1.37
152.00	-0.29	-0.02	10.28	1.11	-84.44	-1.42
172.00	-0.00	-0.02	10.29	1.07	121.33	-1.80
192.00	0.28	-0.02	10.28	0.61	327.10	-2.20
192.00	1.10	0.02	-39.85	1.21	327.10	-2.25
212.00	-0.00	0.02	-39.87	1.61	-470.22	-1.75
232.00	-1.11	0.02	-39.85	3.38	-1267.51	-1.19
232.00	-4.18	0.11	150.75	6.77	-1267.50	-1.47
252.00	-0.00	0.11	150.80	5.56	1748.69	0.86
272.00	4.18	0.11	150.75	-2.64	4764.70	2.93
272.00	3.30	-0.08	-119.07	6.35	4764.70	2.83
292.00	-6778.73	-0.08	-118.47	-3.32	-8775.99	1.51
312.00	-9293.05	-0.07	137.40	-6.05	410.45	-0.16
312.00	-9289.67	0.02	-259.09	0.00	410.39	-0.04
332.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
352.00	0.00	0.00	0.00	0.00	0.00	0.00
372.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
412.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
452.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	0.23	0.00	0.00	0.00	0.00	-0.03
	inf	0.23	0.00	0.00	0.00	0.00	0.05
2	sup	-0.87	0.01	0.00	0.00	0.00	-0.11
	inf	-0.87	0.01	0.00	0.00	0.00	0.07
3	sup	3.35	0.01	0.00	0.00	0.00	-0.28
	inf	3.35	0.01	0.00	0.00	0.00	-0.02
4	sup	-12.95	0.00	0.00	0.00	0.00	-0.59
	inf	-12.95	0.00	0.00	0.00	0.00	-0.58
5	sup	50.15	-0.04	0.00	0.00	0.00	-0.89
	inf	50.15	-0.04	0.00	0.00	0.00	-2.16
6	sup	-190.67	-0.08	0.00	0.00	0.00	-2.33
	inf	-190.67	-0.08	0.00	0.00	0.00	-4.76
7	sup	269.92	0.18	0.00	0.00	0.00	-10.38
	inf	269.92	0.18	0.00	0.00	0.00	-5.30
8	sup	-119.12	-0.08	0.00	0.00	0.00	-6.05
	inf	-119.12	-0.08	0.00	0.00	0.00	-8.08
9	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
10	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Pretensado fase nº 9 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.00	-0.00	0.06	0.01	0.02	0.00
P-2	0.00	-0.00	-0.23	0.03	0.03	0.00
P-3	0.00	-0.00	0.87	0.05	0.05	0.00
P-4	0.01	-0.01	-3.35	-0.02	-0.02	0.00
P-5	0.00	-0.00	12.99	-0.36	-0.40	0.00
P-6	-0.03	0.03	-50.29	-1.38	-1.55	0.00
P-7	-0.06	0.06	190.90	-3.25	-3.70	0.00
P-8	0.13	-0.11	-270.12	-3.83	-4.42	0.00
P-9	-0.05	0.04	119.18	-4.94	-5.76	0.00
P-10	0.00	0.00	0.00	0.00	0.00	0.00
P-11	0.00	0.00	0.00	0.00	0.00	0.00
P-12	0.00	0.00	0.00	0.00	0.00	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	-0.00	-0.00	-0.01	0.01	0.00	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	-0.00	-0.00	0.00	-13.67	-15.75	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	0.00	0.00	-0.01	-0.01	-0.00	0.00
16.00	0.00	0.00	-0.01	-0.01	-0.20	0.01
32.00	0.00	0.00	-0.01	-0.01	-0.40	0.02
32.00	-0.00	-0.00	0.05	-0.00	-0.40	0.02
52.00	0.00	-0.00	0.05	-0.00	0.54	0.00
72.00	0.00	-0.00	0.05	-0.00	1.47	-0.02
72.00	0.01	-0.00	-0.18	0.02	1.47	-0.02
92.00	0.00	-0.00	-0.18	0.02	-2.09	-0.09
112.00	-0.00	-0.00	-0.18	0.04	-5.66	-0.16
112.00	-0.02	-0.01	0.69	0.13	-5.66	-0.16
132.00	0.00	-0.01	0.69	0.13	8.10	-0.36
152.00	0.02	-0.01	0.69	0.11	21.85	-0.56
152.00	0.07	-0.02	-2.66	0.34	21.85	-0.58
172.00	0.00	-0.02	-2.66	0.38	-31.40	-0.94
192.00	-0.07	-0.02	-2.66	0.54	-84.65	-1.30
192.00	-0.29	-0.02	10.32	1.10	-84.65	-1.34
212.00	0.00	-0.02	10.32	1.05	121.83	-1.72
232.00	0.29	-0.02	10.32	0.66	328.30	-2.11
232.00	1.11	0.02	-39.95	1.21	328.30	-2.16
252.00	0.00	0.02	-39.96	1.61	-470.99	-1.76
272.00	-1.11	0.02	-39.95	3.82	-1270.24	-1.29
272.00	-4.18	0.10	150.88	6.70	-1270.23	-1.58
292.00	0.00	0.10	150.93	5.34	1748.55	0.67
312.00	4.19	0.10	150.88	-2.28	4767.31	2.68
312.00	3.31	-0.07	-119.14	6.66	4767.31	2.56
332.00	-6778.78	-0.07	-118.43	-2.99	-8774.69	1.37
352.00	-9292.94	-0.07	137.09	-5.68	410.38	-0.14
352.00	-9289.55	0.01	-259.40	-0.00	410.32	0.02
372.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
392.00	0.00	0.00	0.00	0.00	0.00	0.00
412.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
452.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-0.06	0.00	0.00	0.00	0.00	-0.00
	inf	-0.06	0.00	0.00	0.00	0.00	0.02
2	sup	0.23	0.00	0.00	0.00	0.00	-0.03
	inf	0.23	0.00	0.00	0.00	0.00	0.05
3	sup	-0.87	0.01	0.00	0.00	0.00	-0.11
	inf	-0.87	0.01	0.00	0.00	0.00	0.07
4	sup	3.35	0.01	0.00	0.00	0.00	-0.27
	inf	3.35	0.01	0.00	0.00	0.00	-0.03
5	sup	-12.99	0.00	0.00	0.00	0.00	-0.58
	inf	-12.99	0.00	0.00	0.00	0.00	-0.53
6	sup	50.29	-0.04	0.00	0.00	0.00	-0.96
	inf	50.29	-0.04	0.00	0.00	0.00	-2.07
7	sup	-190.90	-0.09	0.00	0.00	0.00	-2.54
	inf	-190.90	-0.09	0.00	0.00	0.00	-4.93
8	sup	270.12	0.17	0.00	0.00	0.00	-10.48
	inf	270.12	0.17	0.00	0.00	0.00	-5.85
9	sup	-119.18	-0.07	0.00	0.00	0.00	-5.69
	inf	-119.18	-0.07	0.00	0.00	0.00	-7.59
10	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Pretensado fase nº10 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.00	-0.00	-0.02	0.00	0.00	0.00
P-2	0.00	-0.00	0.06	0.01	0.01	0.00
P-3	0.00	-0.00	-0.22	0.03	0.04	0.00
P-4	0.00	-0.00	0.87	0.05	0.06	0.00
P-5	0.01	-0.01	-3.37	0.01	0.01	0.00
P-6	0.00	-0.00	13.04	-0.28	-0.31	0.00
P-7	-0.03	0.03	-50.36	-1.37	-1.56	0.00
P-8	-0.08	0.07	190.95	-3.48	-4.01	0.00
P-9	0.16	-0.13	-270.12	-3.22	-3.76	0.00
P-10	-0.06	0.05	119.18	-5.20	-6.14	0.00
P-11	0.00	0.00	0.00	0.00	0.00	0.00
P-12	0.00	0.00	0.00	0.00	0.00	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	-0.00	-0.00	0.00	0.00	0.00	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	-0.00	-0.00	-0.00	-13.44	-15.66	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	0.00	0.00	0.00	-0.00	-0.00	0.00
16.00	0.00	0.00	0.00	-0.00	0.05	0.00
32.00	0.00	0.00	0.00	-0.00	0.10	0.01
32.00	0.00	0.00	-0.01	-0.00	0.10	0.01
52.00	0.00	0.00	-0.01	-0.00	-0.14	0.01
72.00	0.00	0.00	-0.01	-0.00	-0.38	0.01
72.00	-0.00	-0.00	0.05	-0.00	-0.38	0.01
92.00	0.00	-0.00	0.05	-0.00	0.54	0.00
112.00	0.00	-0.00	0.05	-0.01	1.47	-0.01
112.00	0.01	-0.00	-0.18	0.01	1.47	-0.01
132.00	0.00	-0.00	-0.18	0.02	-2.10	-0.07
152.00	-0.00	-0.00	-0.18	0.03	-5.66	-0.13
152.00	-0.02	-0.01	0.69	0.12	-5.66	-0.14
172.00	0.00	-0.01	0.69	0.12	8.13	-0.32
192.00	0.02	-0.01	0.69	0.10	21.93	-0.51
192.00	0.07	-0.02	-2.67	0.32	21.93	-0.52
212.00	0.00	-0.02	-2.67	0.36	-31.57	-0.89
232.00	-0.07	-0.02	-2.67	0.50	-85.06	-1.26
232.00	-0.29	-0.03	10.36	1.11	-85.06	-1.31
252.00	0.00	-0.03	10.36	1.06	122.15	-1.78
272.00	0.29	-0.03	10.36	0.55	329.34	-2.27
272.00	1.11	0.02	-39.99	1.25	329.34	-2.32
292.00	0.00	0.02	-40.00	1.71	-470.74	-1.97
312.00	-1.11	0.02	-39.99	3.77	-1270.82	-1.56
312.00	-4.19	0.12	150.88	6.52	-1270.81	-1.84
332.00	0.00	0.12	150.94	5.13	1748.03	0.82
352.00	4.19	0.12	150.89	-1.61	4766.93	3.26
352.00	3.31	-0.08	-119.13	5.76	4766.91	3.15
372.00	-6778.62	-0.08	-118.39	-3.06	-8774.66	1.65
392.00	-9292.72	-0.06	137.19	-5.82	410.23	-0.09
392.00	-9289.32	0.00	-259.29	0.00	410.17	-0.03
412.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
432.00	0.00	0.00	0.00	0.00	0.00	0.00
452.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	0.02	0.00	0.00	0.00	0.00	0.00
	inf	0.02	0.00	0.00	0.00	0.00	0.01
2	sup	-0.06	0.00	0.00	0.00	0.00	-0.00
	inf	-0.06	0.00	0.00	0.00	0.00	0.02
3	sup	0.22	0.00	0.00	0.00	0.00	-0.02
	inf	0.22	0.00	0.00	0.00	0.00	0.05
4	sup	-0.87	0.01	0.00	0.00	0.00	-0.10
	inf	-0.87	0.01	0.00	0.00	0.00	0.08
5	sup	3.37	0.01	0.00	0.00	0.00	-0.26
	inf	3.37	0.01	0.00	0.00	0.00	0.02
6	sup	-13.04	0.01	0.00	0.00	0.00	-0.60
	inf	-13.04	0.01	0.00	0.00	0.00	-0.42
7	sup	50.36	-0.04	0.00	0.00	0.00	-0.94
	inf	50.36	-0.04	0.00	0.00	0.00	-2.08
8	sup	-190.95	-0.11	0.00	0.00	0.00	-2.39
	inf	-190.95	-0.11	0.00	0.00	0.00	-5.31
9	sup	270.12	0.21	0.00	0.00	0.00	-10.72
	inf	270.12	0.21	0.00	0.00	0.00	-4.95
10	sup	-119.18	-0.08	0.00	0.00	0.00	-5.82
	inf	-119.18	-0.08	0.00	0.00	0.00	-8.05
11	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Pretensado fase nº11 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-0.00	0.00	0.00	0.00	0.00	0.00
P-2	0.00	-0.00	-0.02	0.00	0.00	0.00
P-3	0.00	-0.00	0.06	0.01	0.01	0.00
P-4	0.00	-0.00	-0.22	0.03	0.04	0.00
P-5	0.00	-0.00	0.87	0.05	0.06	0.00
P-6	0.01	-0.01	-3.38	0.00	0.00	0.00
P-7	0.00	-0.00	13.05	-0.33	-0.38	0.00
P-8	-0.05	0.04	-50.38	-1.57	-1.81	0.00
P-9	-0.07	0.06	191.05	-3.06	-3.57	0.00
P-10	0.18	-0.16	-270.28	-2.79	-3.29	0.00
P-11	-0.09	0.07	119.25	-5.46	-6.52	0.00
P-12	0.00	0.00	0.00	0.00	0.00	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	0.00	0.00	-0.00	-0.00	0.00	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	0.00	0.00	0.00	-13.11	-15.45	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-0.00	0.00	-0.00	-0.00	-0.00	0.00
16.00	-0.00	0.00	-0.00	-0.00	-0.01	0.00
32.00	-0.00	0.00	-0.00	-0.00	-0.03	0.00
32.00	-0.00	0.00	0.00	-0.00	-0.03	0.00
52.00	-0.00	0.00	0.00	-0.00	0.04	0.01
72.00	-0.00	0.00	0.00	-0.00	0.10	0.01
72.00	-0.00	0.00	-0.01	-0.00	0.10	0.01
92.00	-0.00	0.00	-0.01	-0.01	-0.14	0.01
112.00	-0.00	0.00	-0.01	-0.00	-0.38	0.01
112.00	-0.00	-0.00	0.05	-0.00	-0.38	0.01
132.00	-0.00	-0.00	0.05	-0.00	0.54	0.00
152.00	0.00	-0.00	0.05	-0.01	1.47	-0.01
152.00	0.00	-0.00	-0.18	0.02	1.47	-0.01
172.00	-0.00	-0.00	-0.18	0.02	-2.11	-0.08
192.00	-0.01	-0.00	-0.18	0.03	-5.68	-0.14
192.00	-0.02	-0.01	0.69	0.12	-5.68	-0.15
212.00	-0.00	-0.01	0.69	0.12	8.17	-0.33
232.00	0.02	-0.01	0.69	0.11	22.02	-0.52
232.00	0.07	-0.02	-2.68	0.32	22.02	-0.53
252.00	-0.00	-0.02	-2.68	0.36	-31.63	-0.89
272.00	-0.08	-0.02	-2.68	0.54	-85.28	-1.25
272.00	-0.29	-0.02	10.36	1.09	-85.28	-1.30
292.00	-0.00	-0.02	10.36	1.03	122.02	-1.70
312.00	0.29	-0.02	10.36	0.56	329.31	-2.13
312.00	1.11	0.04	-40.00	1.07	329.31	-2.17
332.00	-0.00	0.04	-40.02	1.53	-471.02	-1.36
352.00	-1.11	0.04	-40.00	3.33	-1271.36	-0.48
352.00	-4.19	0.13	150.98	6.49	-1271.34	-0.75
372.00	-0.00	0.13	151.03	5.07	1749.22	1.97
392.00	4.19	0.13	150.98	-2.71	4769.87	4.44
392.00	3.31	-0.11	-119.20	5.89	4769.86	4.36
412.00	-6779.31	-0.11	-118.54	-3.58	-8774.43	2.26
432.00	-9293.29	-0.09	137.22	-6.03	410.32	-0.12
432.00	-9289.90	-0.00	-259.20	-0.00	410.24	0.02
452.00	0.00	0.00	0.00	0.00	0.00	0.00
472.00	0.00	0.00	0.00	0.00	0.00	0.00
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-0.00	-0.00	0.00	0.00	0.00	0.00
	inf	-0.00	-0.00	0.00	0.00	0.00	0.00
2	sup	0.02	0.00	0.00	0.00	0.00	0.00
	inf	0.02	0.00	0.00	0.00	0.00	0.00
3	sup	-0.06	0.00	0.00	0.00	0.00	-0.00
	inf	-0.06	0.00	0.00	0.00	0.00	0.02
4	sup	0.22	0.00	0.00	0.00	0.00	-0.02
	inf	0.22	0.00	0.00	0.00	0.00	0.05
5	sup	-0.87	0.01	0.00	0.00	0.00	-0.10
	inf	-0.87	0.01	0.00	0.00	0.00	0.08
6	sup	3.38	0.01	0.00	0.00	0.00	-0.26
	inf	3.38	0.01	0.00	0.00	0.00	0.01
7	sup	-13.05	0.00	0.00	0.00	0.00	-0.59
	inf	-13.05	0.00	0.00	0.00	0.00	-0.50
8	sup	50.38	-0.06	0.00	0.00	0.00	-0.75
	inf	50.38	-0.06	0.00	0.00	0.00	-2.39
9	sup	-191.05	-0.09	0.00	0.00	0.00	-2.25
	inf	-191.05	-0.09	0.00	0.00	0.00	-4.71
10	sup	270.28	0.24	0.00	0.00	0.00	-10.77
	inf	270.28	0.24	0.00	0.00	0.00	-4.31
11	sup	-119.25	-0.11	0.00	0.00	0.00	-6.03
	inf	-119.25	-0.11	0.00	0.00	0.00	-8.50
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Pretensado fase nº12 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-0.00	0.00	-0.00	-0.00	-0.00	0.00
P-2	-0.00	0.00	0.00	0.00	0.00	0.00
P-3	0.00	-0.00	-0.02	0.00	0.00	0.00
P-4	0.00	-0.00	0.06	0.01	0.01	0.00
P-5	0.00	-0.00	-0.23	0.03	0.03	0.00
P-6	0.00	-0.00	0.88	0.04	0.04	0.00
P-7	0.00	-0.00	-3.40	-0.03	-0.03	0.00
P-8	-0.00	0.00	13.14	-0.39	-0.45	0.00
P-9	-0.04	0.03	-50.72	-1.27	-1.48	0.00
P-10	-0.06	0.05	191.82	-2.63	-3.10	0.00
P-11	0.18	-0.15	-271.08	-3.43	-4.09	0.00
P-12	-0.09	0.08	119.55	-5.36	-6.46	0.00
P-13	0.00	0.00	0.00	0.00	0.00	0.00
E-1	-0.00	-0.00	0.00	0.00	-0.00	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	-0.00	-0.00	0.00	-13.02	-15.52	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	0.00	0.00	0.00	-0.00	-0.00	0.00
16.00	0.00	0.00	0.00	-0.00	0.00	0.00
32.00	0.00	0.00	0.00	-0.00	0.01	0.00
32.00	0.00	0.00	-0.00	-0.00	0.01	0.00
52.00	0.00	0.00	-0.00	-0.00	-0.01	0.00
72.00	0.00	0.00	-0.00	-0.00	-0.03	0.00
72.00	0.00	0.00	0.00	-0.00	-0.03	0.00
92.00	0.00	0.00	0.00	-0.00	0.04	0.01
112.00	0.00	0.00	0.00	-0.00	0.10	0.01
112.00	0.00	0.00	-0.01	-0.00	0.10	0.01
132.00	0.00	0.00	-0.01	-0.00	-0.14	0.01
152.00	-0.00	0.00	-0.01	-0.00	-0.38	0.01
152.00	-0.00	-0.00	0.05	-0.00	-0.38	0.01
172.00	0.00	-0.00	0.05	-0.00	0.55	-0.01
192.00	0.00	-0.00	0.05	-0.00	1.48	-0.02
192.00	0.01	-0.00	-0.18	0.02	1.48	-0.02
212.00	0.00	-0.00	-0.18	0.02	-2.13	-0.08
232.00	-0.00	-0.00	-0.18	0.03	-5.74	-0.14
232.00	-0.02	-0.01	0.70	0.12	-5.74	-0.15
252.00	0.00	-0.01	0.70	0.12	8.25	-0.31
272.00	0.02	-0.01	0.70	0.09	22.23	-0.47
272.00	0.08	-0.01	-2.70	0.28	22.23	-0.48
292.00	0.00	-0.01	-2.70	0.33	-31.82	-0.77
312.00	-0.07	-0.01	-2.70	0.49	-85.87	-1.05
312.00	-0.29	-0.01	10.44	0.91	-85.87	-1.09
332.00	0.00	-0.01	10.44	0.84	122.94	-1.25
352.00	0.29	-0.01	10.44	0.41	331.76	-1.42
352.00	1.12	0.04	-40.27	0.70	331.75	-1.45
372.00	0.00	0.04	-40.28	1.13	-473.89	-0.66
392.00	-1.12	0.04	-40.27	3.20	-1279.56	0.19
392.00	-4.20	0.12	151.48	5.81	-1279.55	-0.06
412.00	-0.00	0.12	151.53	4.05	1751.24	2.44
432.00	4.20	0.12	151.48	-3.98	4781.95	4.67
432.00	3.32	-0.12	-119.50	5.13	4781.96	4.64
452.00	-6778.70	-0.12	-118.72	-4.36	-8767.31	2.38
472.00	-9292.88	-0.13	136.69	-6.72	410.39	-0.22
472.00	-9289.46	0.00	-259.38	0.00	410.32	-0.04
492.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
512.00	0.00	0.00	0.00	0.00	0.00	0.00
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	0.00	-0.00	0.00	0.00	0.00	0.00
	inf	0.00	-0.00	0.00	0.00	0.00	-0.00
2	sup	-0.00	-0.00	0.00	0.00	0.00	0.00
	inf	-0.00	-0.00	0.00	0.00	0.00	0.00
3	sup	0.02	0.00	0.00	0.00	0.00	0.00
	inf	0.02	0.00	0.00	0.00	0.00	0.01
4	sup	-0.06	0.00	0.00	0.00	0.00	-0.00
	inf	-0.06	0.00	0.00	0.00	0.00	0.02
5	sup	0.23	0.00	0.00	0.00	0.00	-0.02
	inf	0.23	0.00	0.00	0.00	0.00	0.04
6	sup	-0.88	0.01	0.00	0.00	0.00	-0.09
	inf	-0.88	0.01	0.00	0.00	0.00	0.06
7	sup	3.40	0.01	0.00	0.00	0.00	-0.22
	inf	3.40	0.01	0.00	0.00	0.00	-0.04
8	sup	-13.14	-0.01	0.00	0.00	0.00	-0.45
	inf	-13.14	-0.01	0.00	0.00	0.00	-0.60
9	sup	50.72	-0.05	0.00	0.00	0.00	-0.62
	inf	50.72	-0.05	0.00	0.00	0.00	-1.94
10	sup	-191.82	-0.08	0.00	0.00	0.00	-1.96
	inf	-191.82	-0.08	0.00	0.00	0.00	-4.07
11	sup	271.08	0.24	0.00	0.00	0.00	-10.52
	inf	271.08	0.24	0.00	0.00	0.00	-5.34
12	sup	-119.55	-0.12	0.00	0.00	0.00	-6.73
	inf	-119.55	-0.12	0.00	0.00	0.00	-8.39
13	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Pretensado fase nº13 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-0.00	0.00	0.00	-0.00	-0.00	0.00
P-2	-0.00	0.00	-0.00	-0.00	-0.00	0.00
P-3	0.00	-0.00	0.00	0.00	0.00	0.00
P-4	0.00	-0.00	-0.02	0.00	0.00	0.00
P-5	0.00	-0.00	0.06	0.01	0.01	0.00
P-6	0.00	-0.00	-0.24	0.01	0.01	0.00
P-7	0.00	-0.00	0.91	0.01	0.01	0.00
P-8	0.00	-0.00	-3.53	-0.05	-0.05	0.00
P-9	-0.00	0.00	13.62	-0.20	-0.23	0.00
P-10	-0.01	0.01	-52.23	-0.64	-0.76	0.00
P-11	-0.03	0.02	195.70	-1.87	-2.23	0.00
P-12	0.06	-0.05	-275.75	-6.26	-7.55	0.00
P-13	-0.03	0.02	121.46	-4.73	-5.78	0.00
E-1	-0.00	-0.00	-0.00	0.00	-0.00	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	0.00	-0.00	0.00	-13.72	-16.56	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	0.00	0.00	-0.00	-0.00	-0.00	0.00
16.00	0.00	0.00	-0.00	-0.00	-0.00	0.00
32.00	0.00	0.00	-0.00	-0.00	-0.00	0.00
32.00	0.00	0.00	0.00	-0.00	-0.00	0.00
52.00	0.00	0.00	0.00	-0.00	0.00	0.00
72.00	0.00	0.00	0.00	-0.00	0.01	0.00
72.00	0.00	0.00	-0.00	-0.00	0.01	0.00
92.00	0.00	0.00	-0.00	-0.00	-0.01	0.00
112.00	0.00	0.00	-0.00	-0.00	-0.03	0.00
112.00	0.00	0.00	0.00	-0.00	-0.03	0.00
132.00	0.00	0.00	0.00	-0.00	0.04	0.00
152.00	0.00	0.00	0.00	-0.00	0.10	0.00
152.00	0.00	-0.00	-0.01	-0.00	0.10	0.00
172.00	0.00	-0.00	-0.01	-0.00	-0.15	0.00
192.00	0.00	-0.00	-0.01	-0.00	-0.40	0.00
192.00	-0.00	-0.00	0.05	0.00	-0.40	0.00
212.00	0.00	-0.00	0.05	0.00	0.57	-0.01
232.00	0.00	-0.00	0.05	0.00	1.54	-0.02
232.00	0.01	-0.00	-0.19	0.01	1.54	-0.02
252.00	0.00	-0.00	-0.19	0.02	-2.21	-0.05
272.00	-0.00	-0.00	-0.19	0.03	-5.97	-0.08
272.00	-0.02	-0.00	0.73	0.08	-5.97	-0.09
292.00	0.00	-0.00	0.73	0.08	8.54	-0.17
312.00	0.02	-0.00	0.73	0.04	23.05	-0.25
312.00	0.08	-0.01	-2.80	0.14	23.05	-0.25
332.00	0.00	-0.01	-2.80	0.18	-33.00	-0.37
352.00	-0.08	-0.01	-2.80	0.31	-89.05	-0.48
352.00	-0.30	-0.01	10.81	0.65	-89.04	-0.50
372.00	0.00	-0.01	10.82	0.56	127.30	-0.60
392.00	0.30	-0.01	10.81	0.02	343.64	-0.71
392.00	1.15	0.01	-41.40	0.40	343.64	-0.73
412.00	0.00	0.01	-41.42	0.91	-484.69	-0.53
432.00	-1.15	0.01	-41.40	3.10	-1313.01	-0.26
432.00	-4.28	0.04	154.23	5.72	-1313.00	-0.51
452.00	0.00	0.04	154.29	3.97	1772.80	0.49
472.00	4.28	0.04	154.23	-3.28	4858.48	1.25
472.00	3.37	-0.03	-121.42	5.01	4858.48	1.20
492.00	-6791.30	-0.04	-120.71	-4.18	-8749.70	0.67
512.00	-7787.77	-0.04	92.01	-7.10	-1215.10	-0.20
512.00	-7782.56	0.04	-272.59	0.00	-1214.74	-0.04
528.00	0.00	0.00	0.00	0.00	0.00	0.00
544.00	0.00	0.00	0.00	0.00	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-0.00	-0.00	0.00	0.00	0.00	0.00
	inf	-0.00	-0.00	0.00	0.00	0.00	-0.00
2	sup	0.00	-0.00	0.00	0.00	0.00	0.00
	inf	0.00	-0.00	0.00	0.00	0.00	-0.00
3	sup	-0.00	0.00	0.00	0.00	0.00	0.00
	inf	-0.00	0.00	0.00	0.00	0.00	0.00
4	sup	0.02	0.00	0.00	0.00	0.00	0.00
	inf	0.02	0.00	0.00	0.00	0.00	0.00
5	sup	-0.06	0.00	0.00	0.00	0.00	-0.00
	inf	-0.06	0.00	0.00	0.00	0.00	0.01
6	sup	0.24	0.00	0.00	0.00	0.00	-0.02
	inf	0.24	0.00	0.00	0.00	0.00	0.02
7	sup	-0.91	0.00	0.00	0.00	0.00	-0.05
	inf	-0.91	0.00	0.00	0.00	0.00	0.02
8	sup	3.53	0.00	0.00	0.00	0.00	-0.12
	inf	3.53	0.00	0.00	0.00	0.00	-0.07
9	sup	-13.62	-0.00	0.00	0.00	0.00	-0.30
	inf	-13.62	-0.00	0.00	0.00	0.00	-0.30
10	sup	52.23	-0.01	0.00	0.00	0.00	-0.59
	inf	52.23	-0.01	0.00	0.00	0.00	-0.99
11	sup	-195.70	-0.03	0.00	0.00	0.00	-2.19
	inf	-195.70	-0.03	0.00	0.00	0.00	-2.91
12	sup	275.75	0.08	0.00	0.00	0.00	-10.86
	inf	275.75	0.08	0.00	0.00	0.00	-9.81
13	sup	-121.46	-0.03	0.00	0.00	0.00	-7.11
	inf	-121.46	-0.03	0.00	0.00	0.00	-7.47

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Pretensado fase nº14 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-0.00	0.00	-0.00	-0.00	-0.00	0.00
P-2	-0.00	0.00	0.00	-0.00	-0.00	0.00
P-3	-0.00	0.00	-0.00	0.00	0.00	0.00
P-4	0.00	-0.00	0.00	0.00	0.00	0.00
P-5	0.00	-0.00	-0.01	0.00	0.00	0.00
P-6	0.00	-0.00	0.05	0.00	0.00	0.00
P-7	0.00	-0.00	-0.20	0.00	0.00	0.00
P-8	0.00	-0.00	0.77	0.00	0.00	0.00
P-9	0.00	-0.00	-2.96	-0.00	-0.01	0.00
P-10	0.00	-0.00	11.34	-0.01	-0.01	0.00
P-11	0.01	-0.00	-42.86	-0.12	-0.15	0.00
P-12	-0.05	0.04	158.58	-1.32	-1.59	0.00
P-13	0.07	-0.05	-247.18	-3.63	-4.42	0.00
E-1	-0.00	-0.00	0.00	0.00	-0.00	0.00
E-2	-0.03	0.02	122.46	-4.08	-5.03	0.00
SUMA	-0.00	-0.00	-0.00	-9.16	-11.20	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	0.00	-0.00	0.00	0.00	0.00	-0.00
16.00	0.00	-0.00	0.00	0.00	0.00	-0.00
32.00	0.00	0.00	0.00	-0.00	0.00	-0.00
32.00	0.00	0.00	-0.00	-0.00	0.00	-0.00
52.00	0.00	0.00	-0.00	-0.00	-0.00	0.00
72.00	0.00	0.00	-0.00	-0.00	-0.00	0.00
72.00	0.00	0.00	0.00	-0.00	-0.00	0.00
92.00	0.00	0.00	0.00	-0.00	0.00	0.00
112.00	0.00	0.00	0.00	-0.00	0.01	0.00
112.00	0.00	0.00	-0.00	-0.00	0.01	0.00
132.00	0.00	0.00	-0.00	-0.00	-0.01	0.00
152.00	0.00	0.00	-0.00	-0.00	-0.02	0.00
152.00	-0.00	0.00	0.00	-0.00	-0.02	0.00
172.00	0.00	0.00	0.00	-0.00	0.03	0.00
192.00	0.00	0.00	0.00	-0.00	0.09	0.00
192.00	0.00	-0.00	-0.01	-0.00	0.09	0.00
212.00	0.00	-0.00	-0.01	-0.00	-0.12	-0.00
232.00	-0.00	-0.00	-0.01	0.00	-0.33	-0.00
232.00	-0.00	-0.00	0.04	0.00	-0.33	-0.00
252.00	0.00	-0.00	0.04	0.00	0.48	-0.00
272.00	0.00	-0.00	0.04	-0.00	1.30	-0.00
272.00	0.00	-0.00	-0.16	0.00	1.30	-0.00
292.00	0.00	-0.00	-0.16	0.00	-1.85	-0.01
312.00	-0.00	-0.00	-0.16	0.01	-5.00	-0.01
312.00	-0.02	-0.00	0.61	0.02	-5.00	-0.01
332.00	0.00	-0.00	0.61	0.02	7.16	-0.02
352.00	0.02	-0.00	0.61	-0.01	19.33	-0.04
352.00	0.07	-0.00	-2.35	-0.00	19.33	-0.04
372.00	0.00	-0.00	-2.35	0.02	-27.63	-0.06
392.00	-0.07	-0.00	-2.35	0.15	-74.59	-0.09
392.00	-0.25	-0.01	8.99	0.30	-74.59	-0.10
412.00	0.00	-0.01	8.99	0.19	105.25	-0.19
432.00	0.25	-0.01	8.99	-0.27	285.10	-0.30
432.00	0.94	-0.01	-33.85	-0.05	285.10	-0.30
452.00	0.00	-0.01	-33.87	0.36	-392.24	-0.53
472.00	-0.94	-0.01	-33.85	1.97	-1069.56	-0.71
472.00	-3.46	0.05	124.66	3.72	-1069.55	-0.87
492.00	0.00	0.05	124.71	2.69	1424.61	0.21
512.00	3.46	0.05	124.66	-3.34	3918.86	1.09
512.00	4.25	-0.04	-122.39	1.40	3918.87	1.14
528.00	-6351.44	-0.04	-379.11	-4.28	-7801.78	0.59
544.00	-7.75	-0.03	-122.21	-6.43	0.02	-0.40

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	0.00	-0.00	0.00	0.00	0.00	0.00
	inf	0.00	-0.00	0.00	0.00	0.00	-0.00
2	sup	-0.00	-0.00	0.00	0.00	0.00	0.00
	inf	-0.00	-0.00	0.00	0.00	0.00	-0.00
3	sup	0.00	-0.00	0.00	0.00	0.00	0.00
	inf	0.00	-0.00	0.00	0.00	0.00	0.00
4	sup	-0.00	0.00	0.00	0.00	0.00	0.00
	inf	-0.00	0.00	0.00	0.00	0.00	0.00
5	sup	0.01	0.00	0.00	0.00	0.00	-0.00
	inf	0.01	0.00	0.00	0.00	0.00	0.00
6	sup	-0.05	0.00	0.00	0.00	0.00	-0.00
	inf	-0.05	0.00	0.00	0.00	0.00	0.00
7	sup	0.20	0.00	0.00	0.00	0.00	-0.00
	inf	0.20	0.00	0.00	0.00	0.00	0.00
8	sup	-0.77	0.00	0.00	0.00	0.00	-0.01
	inf	-0.77	0.00	0.00	0.00	0.00	0.00
9	sup	2.96	0.00	0.00	0.00	0.00	-0.02
	inf	2.96	0.00	0.00	0.00	0.00	-0.01
10	sup	-11.34	0.00	0.00	0.00	0.00	-0.12
	inf	-11.34	0.00	0.00	0.00	0.00	-0.02
11	sup	42.86	0.01	0.00	0.00	0.00	-0.34
	inf	42.86	0.01	0.00	0.00	0.00	-0.19
12	sup	-158.58	-0.06	0.00	0.00	0.00	-1.22
	inf	-158.58	-0.06	0.00	0.00	0.00	-2.06
13	sup	247.18	0.09	0.00	0.00	0.00	-6.66
	inf	247.18	0.09	0.00	0.00	0.00	-5.72

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Peso propio estructura final

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.00	-0.00	1343.07	0.15	0.16	0.00
P-2	-0.01	0.00	1433.35	0.14	0.16	0.00
P-3	0.00	-0.00	1443.15	0.28	0.31	0.00
P-4	0.01	-0.01	1457.31	0.39	0.44	0.00
P-5	-0.00	0.00	1470.41	0.40	0.45	0.00
P-6	-0.01	0.01	1470.56	0.37	0.42	0.00
P-7	0.00	-0.00	1456.78	0.46	0.53	0.00
P-8	0.01	-0.01	1444.37	0.46	0.53	0.00
P-9	-0.01	0.01	1456.59	0.28	0.32	0.00
P-10	-0.00	0.00	1443.81	0.27	0.31	0.00
P-11	0.01	-0.01	1374.21	0.34	0.41	0.00
P-12	-0.00	0.00	1273.04	0.40	0.49	0.00
P-13	0.01	-0.00	1222.29	0.23	0.28	0.00
E-1	-0.00	0.00	327.11	-1.11	-1.17	0.00
E-2	-0.00	0.00	338.19	-1.32	-1.62	0.00
SUMA	0.00	0.00	18954.24	1.76	2.00	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-11.34	0.00	326.91	1.61	0.02	-0.06
16.00	0.00	0.00	-104.97	-1.85	1554.83	0.02
32.00	-18.61	0.00	-536.72	-1.13	-3359.09	0.01
32.00	-14.90	-0.00	536.85	0.26	-3359.09	0.04
52.00	0.00	-0.00	-2.98	-0.40	1634.44	-0.01
72.00	-15.06	-0.00	-542.83	-1.23	-3478.71	-0.11
72.00	-14.99	0.00	540.14	0.23	-3478.71	-0.08
92.00	0.00	0.00	0.30	-0.42	1580.68	0.01
112.00	-14.97	0.00	-539.53	-0.65	-3466.55	0.07
112.00	-14.98	0.00	539.74	0.25	-3466.55	0.08
132.00	-0.00	0.00	-0.11	-0.45	1584.74	0.10
152.00	-14.98	0.00	-539.95	-0.77	-3470.79	0.08
152.00	-14.98	-0.01	539.98	0.10	-3470.79	0.10
172.00	0.00	-0.01	0.14	-0.55	1585.34	-0.06
192.00	-14.98	-0.01	-539.72	-0.75	-3465.48	-0.24
192.00	-14.98	-0.00	539.81	0.39	-3465.48	-0.23
212.00	0.00	-0.00	-0.03	-0.29	1587.33	-0.30
232.00	-14.98	-0.00	-539.86	-1.17	-3466.45	-0.41
232.00	-14.98	0.01	539.81	0.92	-3466.45	-0.40
252.00	-0.00	0.01	-0.03	-0.00	1586.40	-0.17
272.00	-14.98	0.01	-539.85	0.00	-3467.27	0.03
272.00	-14.97	0.00	539.55	0.59	-3467.26	0.02
292.00	-0.00	0.00	-0.31	-0.27	1580.05	0.13
312.00	-14.99	0.00	-540.16	-0.42	-3479.69	0.21
312.00	-14.99	-0.01	540.33	0.49	-3479.69	0.21
332.00	0.00	-0.01	0.48	-0.48	1583.29	0.04
352.00	-14.97	-0.01	-539.38	-1.02	-3460.81	-0.17
352.00	-14.98	-0.00	539.83	0.86	-3460.81	-0.16
372.00	0.00	0.00	0.01	-0.27	1592.41	-0.14
392.00	-14.98	0.00	-539.82	-0.28	-3460.67	-0.15
392.00	-14.99	0.01	540.11	0.91	-3460.67	-0.16
412.00	-0.00	0.01	0.25	-0.42	1597.95	-0.03
432.00	-14.97	0.00	-539.59	0.01	-3450.39	0.09
432.00	-14.94	-0.00	538.24	0.87	-3450.39	0.06
452.00	-0.00	-0.00	-1.63	-0.51	1570.85	0.04
472.00	-15.02	-0.00	-541.46	-0.27	-3514.93	-0.02
472.00	-15.07	0.00	543.19	0.92	-3514.93	-0.03
492.00	0.00	0.00	3.36	0.03	1605.41	0.06
512.00	-14.89	0.00	-536.50	-0.54	-3380.95	0.11
512.00	-18.66	-0.00	537.80	0.91	-3380.96	0.09
528.00	-0.00	-0.00	106.05	0.97	1550.25	0.06
544.00	-21.41	-0.00	-337.50	-2.08	0.02	-0.13

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-1074.11	0.00	0.00	0.00	0.00	0.14
	inf	-1343.06	0.00	0.00	0.00	0.00	0.22
2	sup	-1083.40	-0.01	0.00	0.00	0.00	0.39
	inf	-1433.35	-0.01	0.00	0.00	0.00	0.21
3	sup	-1079.70	0.00	0.00	0.00	0.00	0.32
	inf	-1443.14	0.00	0.00	0.00	0.00	0.42
4	sup	-1080.36	0.01	0.00	0.00	0.00	0.36
	inf	-1457.30	0.01	0.00	0.00	0.00	0.59
5	sup	-1079.96	-0.00	0.00	0.00	0.00	0.72
	inf	-1470.40	-0.00	0.00	0.00	0.00	0.60
6	sup	-1080.11	-0.01	0.00	0.00	0.00	0.97
	inf	-1470.55	-0.01	0.00	0.00	0.00	0.56
7	sup	-1079.83	0.01	0.00	0.00	0.00	0.55
	inf	-1456.78	0.01	0.00	0.00	0.00	0.70
8	sup	-1080.92	0.01	0.00	0.00	0.00	0.34
	inf	-1444.36	0.01	0.00	0.00	0.00	0.71
9	sup	-1079.64	-0.01	0.00	0.00	0.00	0.68
	inf	-1456.59	-0.01	0.00	0.00	0.00	0.43
10	sup	-1080.36	-0.01	0.00	0.00	0.00	0.56
	inf	-1443.80	-0.01	0.00	0.00	0.00	0.41
11	sup	-1078.25	0.01	0.00	0.00	0.00	0.36
	inf	-1374.20	0.01	0.00	0.00	0.00	0.53
12	sup	-1085.08	-0.01	0.00	0.00	0.00	0.71
	inf	-1273.03	-0.01	0.00	0.00	0.00	0.63
13	sup	-1074.84	0.01	0.00	0.00	0.00	0.28
	inf	-1222.29	0.01	0.00	0.00	0.00	0.36

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Pretensado estructura final

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-0.09	0.08	-417.76	-20.01	-21.35	0.00
P-2	0.19	-0.18	74.49	-19.88	-21.45	0.00
P-3	-0.09	0.08	15.91	-25.30	-27.60	0.00
P-4	-0.06	0.05	-3.19	-25.12	-27.71	0.00
P-5	0.03	-0.03	0.80	-23.18	-25.87	0.00
P-6	0.01	-0.01	-0.20	-23.59	-26.61	0.00
P-7	-0.04	0.03	0.01	-24.59	-28.04	0.00
P-8	-0.09	0.07	0.29	-25.33	-29.22	0.00
P-9	0.03	-0.02	-1.30	-21.82	-25.45	0.00
P-10	0.22	-0.19	5.16	-17.89	-21.10	0.00
P-11	0.08	-0.07	-19.71	-20.55	-24.51	0.00
P-12	-0.56	0.46	78.79	-28.40	-34.25	0.00
P-13	0.18	-0.15	-332.82	-16.54	-20.17	0.00
E-1	0.03	-0.03	329.92	-21.89	-23.15	0.00
E-2	0.14	-0.11	269.62	-12.69	-15.62	0.00
SUMA	0.00	-0.00	0.00	-326.77	-372.12	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-6898.04	-0.04	-721.83	31.88	-4527.77	-1.11
16.00	-7101.43	-0.03	587.21	23.72	-5870.07	-0.66
32.00	-9965.77	-0.03	675.65	11.22	7734.31	-0.89
32.00	-9976.91	0.09	-364.88	33.27	7733.11	-2.24
52.00	-7491.16	0.09	-87.77	7.93	-3678.34	0.24
72.00	-10028.70	0.10	190.23	-10.58	6171.30	1.59
72.00	-10025.90	-0.14	-291.82	21.75	6171.28	1.14
92.00	-6778.11	-0.17	-13.32	2.24	-4380.27	-1.91
112.00	-9289.65	-0.17	244.43	-12.93	6920.34	-5.87
112.00	-9289.34	-0.05	-255.29	18.67	6920.34	-6.09
132.00	-6778.38	0.03	3.38	0.37	-4596.58	-7.02
152.00	-9289.41	-0.19	258.77	-14.59	7022.70	-8.92
152.00	-9289.33	0.02	-260.01	17.82	7022.63	-8.62
172.00	-6778.47	-0.04	0.13	-0.60	-4558.42	-7.69
192.00	-9289.47	-0.02	255.57	-15.59	6997.09	-8.16
192.00	-9289.27	-0.02	-259.21	16.50	6997.02	-7.93
212.00	-6779.03	-0.11	0.96	-0.79	-4569.02	-7.96
232.00	-9289.70	-0.05	256.45	-14.51	7003.39	-9.20
232.00	-9289.65	0.07	-259.37	14.97	7003.33	-9.35
252.00	-6778.37	0.10	0.71	-1.07	-4565.39	-9.82
272.00	-9289.40	0.03	256.42	-17.25	7001.98	-10.79
272.00	-9289.37	0.03	-259.12	15.89	7001.92	-10.69
292.00	-6778.76	0.00	0.62	-2.56	-4567.51	-10.09
312.00	-9289.74	0.03	256.43	-17.49	7000.63	-10.32
312.00	-9289.73	0.13	-258.84	15.21	7000.56	-10.29
332.00	-6778.80	0.23	1.02	-3.28	-4563.07	-7.61
352.00	-9289.61	0.09	256.48	-17.06	7010.83	-5.24
352.00	-9289.50	0.27	-260.44	12.35	7010.76	-5.27
372.00	-6778.61	-0.02	-0.26	-4.79	-4578.56	-2.92
392.00	-9289.39	0.33	255.28	-20.09	6968.92	-0.96
392.00	-9289.46	-0.14	-255.17	12.02	6968.86	-2.05
412.00	-6779.33	-0.15	4.84	-6.76	-4518.30	-5.57
432.00	-9289.95	0.09	260.54	-21.92	7133.74	-9.69
432.00	-9289.48	-0.28	-274.79	9.57	7133.67	-9.77
452.00	-6778.72	-0.20	-14.77	-8.74	-4746.61	-16.06
472.00	-9289.99	-0.21	240.60	-21.34	6510.19	-22.52
472.00	-9291.27	0.54	-196.21	8.50	6510.13	-23.05
492.00	-6791.30	0.52	63.96	-9.16	-3815.18	-14.09
512.00	-7782.60	0.17	276.60	-27.26	7412.72	-6.88
512.00	-7773.23	0.15	-542.04	-3.36	7413.10	-5.03
528.00	-6351.41	0.25	-526.26	-15.59	-5447.35	-2.94
544.00	-17.02	-0.19	-269.08	-20.26	0.02	-1.97

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	417.76	-0.12	0.00	0.00	0.00	-26.91
	inf	417.76	-0.12	0.00	0.00	0.00	-29.26
2	sup	-74.49	0.26	0.00	0.00	0.00	-36.02
	inf	-74.49	0.26	0.00	0.00	0.00	-29.25
3	sup	-15.91	-0.12	0.00	0.00	0.00	-34.21
	inf	-15.91	-0.12	0.00	0.00	0.00	-37.44
4	sup	3.19	-0.08	0.00	0.00	0.00	-35.21
	inf	3.19	-0.08	0.00	0.00	0.00	-37.41
5	sup	-0.80	0.05	0.00	0.00	0.00	-36.05
	inf	-0.80	0.05	0.00	0.00	0.00	-34.73
6	sup	0.20	0.01	0.00	0.00	0.00	-35.83
	inf	0.20	0.01	0.00	0.00	0.00	-35.56
7	sup	-0.01	-0.05	0.00	0.00	0.00	-35.88
	inf	-0.01	-0.05	0.00	0.00	0.00	-37.29
8	sup	-0.29	-0.11	0.00	0.00	0.00	-35.60
	inf	-0.29	-0.11	0.00	0.00	0.00	-38.67
9	sup	1.30	0.04	0.00	0.00	0.00	-34.57
	inf	1.30	0.04	0.00	0.00	0.00	-33.53
10	sup	-5.16	0.29	0.00	0.00	0.00	-35.54
	inf	-5.16	0.29	0.00	0.00	0.00	-27.67
11	sup	19.71	0.11	0.00	0.00	0.00	-34.39
	inf	19.71	0.11	0.00	0.00	0.00	-31.99
12	sup	-78.79	-0.73	0.00	0.00	0.00	-34.39
	inf	-78.79	-0.73	0.00	0.00	0.00	-44.49
13	sup	332.82	0.24	0.00	0.00	0.00	-28.66
	inf	332.82	0.24	0.00	0.00	0.00	-26.08

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Carga muerta

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.00	-0.00	509.21	0.08	0.09	0.00
P-2	-0.00	0.00	510.52	0.08	0.08	0.00
P-3	0.00	-0.00	508.56	0.15	0.16	0.00
P-4	0.00	-0.00	508.96	0.20	0.22	0.00
P-5	-0.00	0.00	508.77	0.20	0.22	0.00
P-6	-0.01	0.00	508.84	0.19	0.21	0.00
P-7	0.00	-0.00	508.73	0.23	0.26	0.00
P-8	0.01	-0.00	509.13	0.23	0.27	0.00
P-9	-0.00	0.00	508.66	0.14	0.16	0.00
P-10	-0.00	0.00	508.99	0.13	0.16	0.00
P-11	0.00	-0.00	507.98	0.17	0.21	0.00
P-12	-0.00	0.00	511.15	0.20	0.24	0.00
P-13	0.00	-0.00	509.37	0.11	0.14	0.00
E-1	-0.00	0.00	150.83	-0.57	-0.60	0.00
E-2	-0.00	0.00	150.61	-0.66	-0.81	0.00
SUMA	0.00	-0.00	6920.31	0.88	1.00	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-5.23	0.00	150.74	0.83	0.01	-0.03
16.00	-0.00	0.00	-52.71	-0.91	784.80	0.01
32.00	-8.88	0.00	-256.11	-0.54	-1686.93	-0.01
32.00	-7.02	-0.00	252.85	0.14	-1686.93	0.01
52.00	-0.00	-0.00	-1.47	-0.18	827.62	-0.02
72.00	-7.10	-0.00	-255.79	-0.60	-1745.83	-0.06
72.00	-7.06	0.00	254.53	0.12	-1745.83	-0.05
92.00	0.00	0.00	0.22	-0.20	802.46	0.00
112.00	-7.05	0.00	-254.10	-0.32	-1737.21	0.04
112.00	-7.06	0.00	254.26	0.13	-1737.21	0.04
132.00	-0.00	0.00	-0.07	-0.22	805.51	0.05
152.00	-7.06	0.00	-254.39	-0.38	-1739.84	0.04
152.00	-7.06	-0.00	254.38	0.05	-1739.83	0.05
172.00	0.00	-0.00	0.06	-0.28	805.30	-0.03
192.00	-7.06	-0.00	-254.27	-0.37	-1737.69	-0.12
192.00	-7.06	-0.00	254.31	0.20	-1737.70	-0.11
212.00	0.00	-0.00	-0.01	-0.14	806.07	-0.15
232.00	-7.06	-0.00	-254.33	-0.59	-1738.10	-0.20
232.00	-7.06	0.01	254.31	0.46	-1738.10	-0.20
252.00	0.00	0.01	-0.01	-0.00	805.73	-0.08
272.00	-7.06	0.01	-254.32	0.00	-1738.34	0.02
272.00	-7.05	0.00	254.21	0.30	-1738.34	0.01
292.00	0.00	0.00	-0.11	-0.14	803.53	0.07
312.00	-7.06	0.00	-254.44	-0.22	-1742.78	0.11
312.00	-7.06	-0.00	254.49	0.25	-1742.78	0.11
332.00	-0.00	-0.00	0.17	-0.25	804.69	0.02
352.00	-7.05	-0.00	-254.16	-0.52	-1736.03	-0.09
352.00	-7.06	-0.00	254.31	0.42	-1736.03	-0.08
372.00	0.00	-0.00	-0.00	-0.14	807.73	-0.08
392.00	-7.06	-0.00	-254.32	-0.14	-1736.34	-0.08
392.00	-7.06	0.00	254.47	0.44	-1736.34	-0.09
412.00	0.00	0.00	0.14	-0.23	810.60	-0.02
432.00	-7.05	0.00	-254.18	0.00	-1730.58	0.04
432.00	-7.04	-0.00	253.61	0.43	-1730.58	0.03
452.00	-0.00	-0.00	-0.72	-0.27	799.17	0.02
472.00	-7.08	-0.00	-255.04	-0.15	-1759.22	0.00
472.00	-7.10	0.00	255.91	0.46	-1759.22	-0.00
492.00	0.00	0.00	1.59	0.00	816.55	0.03
512.00	-7.01	0.00	-252.73	-0.28	-1695.66	0.05
512.00	-8.89	-0.00	256.38	0.44	-1695.67	0.04
528.00	-0.00	-0.00	52.99	0.47	780.39	0.03
544.00	-9.53	-0.00	-150.30	-1.05	0.01	-0.07

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-509.21	0.00	0.00	0.00	0.00	0.09
	inf	-509.21	0.00	0.00	0.00	0.00	0.12
2	sup	-510.52	-0.00	0.00	0.00	0.00	0.21
	inf	-510.52	-0.00	0.00	0.00	0.00	0.11
3	sup	-508.56	0.00	0.00	0.00	0.00	0.16
	inf	-508.56	0.00	0.00	0.00	0.00	0.22
4	sup	-508.96	0.00	0.00	0.00	0.00	0.18
	inf	-508.96	0.00	0.00	0.00	0.00	0.30
5	sup	-508.77	-0.00	0.00	0.00	0.00	0.36
	inf	-508.77	-0.00	0.00	0.00	0.00	0.30
6	sup	-508.84	-0.01	0.00	0.00	0.00	0.48
	inf	-508.84	-0.01	0.00	0.00	0.00	0.28
7	sup	-508.73	0.00	0.00	0.00	0.00	0.27
	inf	-508.73	0.00	0.00	0.00	0.00	0.35
8	sup	-509.13	0.01	0.00	0.00	0.00	0.16
	inf	-509.13	0.01	0.00	0.00	0.00	0.36
9	sup	-508.66	-0.00	0.00	0.00	0.00	0.34
	inf	-508.66	-0.00	0.00	0.00	0.00	0.21
10	sup	-508.99	-0.00	0.00	0.00	0.00	0.29
	inf	-508.99	-0.00	0.00	0.00	0.00	0.21
11	sup	-507.98	0.00	0.00	0.00	0.00	0.18
	inf	-507.98	0.00	0.00	0.00	0.00	0.27
12	sup	-511.15	-0.00	0.00	0.00	0.00	0.34
	inf	-511.15	-0.00	0.00	0.00	0.00	0.31
13	sup	-509.37	0.00	0.00	0.00	0.00	0.14
	inf	-509.37	0.00	0.00	0.00	0.00	0.18

LISTADO ENVOLVENTES

ENVOLVENTE : Envolvente sobrecargas para N

1. ESFUERZOS ENVOLVENTES EN EL TABLERO

x [m]	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	min	-13.58	-1.12	391.40	-98.44	0.01	3.41
	max	2.69	1.02	-77.50	32.28	0.00	-1.12
16.00	min	-0.05	18.92	-65.94	536.46	580.26	298.61
	max	0.05	-18.91	-65.60	-538.15	581.77	-298.54
32.00	min	-19.71	1.12	-568.22	-57.91	-3977.31	34.22
	max	0.00	0.03	-0.01	-1.01	-0.26	1.01
32.00	min	-16.83	0.10	605.88	98.05	-4025.47	36.87
	max	0.00	-0.28	0.03	1.06	-0.26	1.02
52.00	min	-0.08	-3.84	25.46	-11.80	1386.58	523.80
	max	0.08	3.84	25.41	12.12	1389.81	-523.79
72.00	min	-15.25	0.81	-549.08	-90.19	-2310.44	52.59
	max	1.47	0.45	52.75	11.79	426.57	-16.20
72.00	min	-2.02	-0.95	72.46	-19.82	-2315.70	39.27
	max	0.38	0.21	-13.70	5.39	428.10	-6.35
92.00	min	-0.03	-11.49	32.63	-225.50	-395.56	232.83
	max	0.03	11.49	32.48	226.51	-392.43	-232.96
112.00	min	-0.39	1.13	-13.51	-5.99	-114.08	49.26
	max	2.02	-1.89	72.28	-5.84	577.95	-47.09
112.00	min	-0.13	-0.01	4.68	2.66	-120.39	4.29
	max	0.52	-0.20	-18.61	-8.38	584.26	-1.64
132.00	min	-0.03	3.96	-6.33	72.83	87.69	171.11
	max	0.03	-3.95	-6.30	-72.96	86.46	-171.15
152.00	min	-0.52	0.98	-18.42	-0.99	-154.46	50.70
	max	0.13	-0.76	4.50	7.00	61.12	-44.41
152.00	min	-0.17	-0.12	5.94	5.17	-160.39	10.05
	max	0.17	-0.06	-5.88	5.50	67.73	-8.96
172.00	min	-0.04	1.62	-0.31	-34.26	-44.91	284.30
	max	0.04	-1.62	-0.32	34.27	-46.14	-284.22
192.00	min	-0.17	0.59	-5.72	-13.46	-162.63	40.39
	max	0.17	-0.41	5.79	2.65	72.60	-34.82
192.00	min	-0.55	-0.34	19.81	-9.23	-167.33	11.49
	max	0.18	0.03	-6.18	4.21	77.33	-6.65
212.00	min	-0.05	-0.49	5.97	-164.30	81.81	302.63
	max	0.05	0.48	5.90	164.33	80.06	-302.63
232.00	min	-0.17	0.13	-6.22	-5.98	-171.25	13.04
	max	0.55	0.16	19.85	10.55	626.41	-5.54
232.00	min	-0.56	-0.15	20.08	-10.48	-171.59	12.43
	max	2.17	0.89	-78.19	19.94	626.75	-5.30
252.00	min	-0.06	9.93	-32.46	47.17	-394.97	407.25
	max	0.06	-9.92	-32.37	-47.98	-393.41	-407.22
272.00	min	-2.17	0.89	-78.19	24.15	-2501.88	31.82
	max	0.56	0.14	20.08	10.34	631.71	-6.14
272.00	min	-15.85	-0.53	571.27	95.98	-2496.58	43.51
	max	2.18	1.10	-78.48	18.17	630.77	-15.53
292.00	min	-0.09	8.62	-26.38	34.74	1369.63	649.51
	max	0.09	-8.63	-26.30	-36.15	1373.72	-649.31
312.00	min	-17.39	0.25	-626.35	-91.15	-4686.30	33.41
	max	0.55	0.14	19.71	10.22	626.39	-6.41
312.00	min	-17.76	-0.26	639.78	90.74	-4686.27	34.18
	max	2.17	1.03	-78.16	18.74	626.39	-7.22
332.00	min	-0.10	0.54	8.12	-154.30	959.59	701.78
	max	0.09	-0.56	8.06	153.70	966.73	-701.79
352.00	min	-17.36	0.37	-625.61	-92.59	-4670.47	36.51
	max	2.55	-0.88	91.99	-21.28	1170.56	-7.10
352.00	min	-17.74	-0.35	639.02	90.85	-4670.38	38.18
	max	2.63	0.96	-94.95	18.13	1170.20	-2.17
372.00	min	-0.11	-0.44	-0.69	-28.52	1064.14	784.69
	max	0.10	0.76	-1.80	38.25	1081.29	-784.74
392.00	min	-17.85	0.29	-642.87	-92.73	-4809.65	37.61
	max	2.55	-0.98	91.70	-21.25	1167.01	-7.93
392.00	min	-17.84	-0.61	642.71	89.61	-4808.30	40.94
	max	2.61	-0.75	-93.91	-17.91	1167.43	-2.01
412.00	min	-0.11	-5.48	1.58	26.53	1040.71	817.63
	max	0.12	5.48	1.60	-27.16	1046.19	-817.72
432.00	min	-17.85	0.08	-642.82	-93.76	-4798.06	32.15
	max	2.67	-1.22	96.33	-21.12	1202.16	-16.73
432.00	min	-17.72	-1.06	638.49	88.96	-4795.15	37.11
	max	2.57	0.49	-92.65	14.75	1203.25	-1.99
452.00	min	-0.10	10.55	-0.10	475.84	1037.78	689.85
	max	0.10	-10.56	0.21	-476.57	1037.69	-689.82
472.00	min	-17.83	-0.29	-642.37	-94.74	-4742.71	12.51
	max	2.58	-1.49	92.99	-20.25	1078.51	-33.67
472.00	min	-17.38	-0.56	626.06	87.07	-4738.30	22.22
	max	2.06	0.83	-74.16	8.74	1068.15	-6.38
492.00	min	-0.09	-2.29	0.04	393.21	835.56	675.88
	max	0.09	2.30	0.30	-393.23	834.95	-675.83
512.00	min	-17.39	0.23	-626.55	-97.80	-4244.76	18.33
	max	2.28	-0.71	82.09	-19.23	708.14	-23.46
512.00	min	-19.95	-0.88	575.12	59.69	-4198.60	25.72
	max	0.77	0.71	-22.11	-9.29	708.13	-22.61
528.00	min	-0.05	-20.51	58.71	-307.30	999.53	320.01
	max	0.05	20.50	58.47	308.30	1000.56	-319.94
544.00	min	-26.01	0.82	-410.08	97.34	0.02	6.17
	max	5.26	-0.35	82.91	-24.75	-0.00	-1.57

2. ESFUERZOS ENVOLVENTES EN PILAS

Pila	sec	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]

1	sup	min	-1140.35	1.45	0.00	0.00	0.00	-58.60
		max	0.03	0.01	0.00	0.00	0.00	-0.03
1	inf	min	-1140.35	1.45	0.00	0.00	0.00	-29.75
		max	0.03	0.01	0.00	0.00	0.00	0.13
2	sup	min	-621.72	1.64	0.00	0.00	0.00	-64.03
		max	66.55	-0.50	0.00	0.00	0.00	-4.27
2	inf	min	-621.72	1.64	0.00	0.00	0.00	-21.49
		max	66.55	-0.50	0.00	0.00	0.00	-17.32
3	sup	min	-18.41	-0.25	0.00	0.00	0.00	-1.80
		max	91.13	-0.80	0.00	0.00	0.00	-7.90
3	inf	min	-18.41	-0.25	0.00	0.00	0.00	-8.55
		max	91.13	-0.80	0.00	0.00	0.00	-29.38
4	sup	min	-24.58	-0.29	0.00	0.00	0.00	-4.35
		max	10.40	-0.02	0.00	0.00	0.00	-3.27
4	inf	min	-24.58	-0.29	0.00	0.00	0.00	-12.38
		max	10.40	-0.02	0.00	0.00	0.00	-3.95
5	sup	min	-25.76	0.30	0.00	0.00	0.00	5.18
		max	11.93	-0.01	0.00	0.00	0.00	-3.21
5	inf	min	-25.76	0.30	0.00	0.00	0.00	13.80
		max	11.93	-0.01	0.00	0.00	0.00	-3.37
6	sup	min	-26.33	0.26	0.00	0.00	0.00	5.42
		max	98.09	-0.70	0.00	0.00	0.00	-10.31
6	inf	min	-26.33	0.26	0.00	0.00	0.00	12.88
		max	98.09	-0.70	0.00	0.00	0.00	-30.53
7	sup	min	-649.60	1.36	0.00	0.00	0.00	-65.89
		max	98.64	-0.76	0.00	0.00	0.00	-10.12
7	inf	min	-649.60	1.36	0.00	0.00	0.00	-27.88
		max	98.64	-0.76	0.00	0.00	0.00	-31.46
8	sup	min	-1229.07	1.28	0.00	0.00	0.00	-65.79
		max	97.91	-0.89	0.00	0.00	0.00	-9.13
8	inf	min	-1229.07	1.28	0.00	0.00	0.00	-31.33
		max	97.91	-0.89	0.00	0.00	0.00	-33.04
9	sup	min	-1227.60	1.48	0.00	0.00	0.00	-66.03
		max	182.86	-0.72	0.00	0.00	0.00	-10.41
9	inf	min	-1227.60	1.48	0.00	0.00	0.00	-24.81
		max	182.86	-0.72	0.00	0.00	0.00	-30.44
10	sup	min	-1248.63	1.65	0.00	0.00	0.00	-66.81
		max	181.54	-0.74	0.00	0.00	0.00	-10.29
10	inf	min	-1248.63	1.65	0.00	0.00	0.00	-22.52
		max	181.54	-0.74	0.00	0.00	0.00	-30.20
11	sup	min	-1244.47	1.80	0.00	0.00	0.00	-68.71
		max	184.90	-0.42	0.00	0.00	0.00	-8.78
11	inf	min	-1244.47	1.80	0.00	0.00	0.00	-29.35
		max	184.90	-0.42	0.00	0.00	0.00	-18.00
12	sup	min	-1231.81	0.73	0.00	0.00	0.00	-69.62
		max	164.31	-2.11	0.00	0.00	0.00	-11.42
12	inf	min	-1231.81	0.73	0.00	0.00	0.00	-59.51
		max	164.31	-2.11	0.00	0.00	0.00	-40.77
13	sup	min	-1167.81	0.89	0.00	0.00	0.00	-65.30
		max	104.25	-1.43	0.00	0.00	0.00	-11.74
13	inf	min	-1167.81	0.89	0.00	0.00	0.00	-55.59
		max	104.25	-1.43	0.00	0.00	0.00	-27.37

ENVOLVENTE : Envolvente sobrecargas para My

1. ESFUERZOS ENVOLVENTES EN EL TABLERO

x [m]	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	min	-6.06	-18.75	174.78	-1185.69	-0.21	41.12
	max	-6.09	18.73	175.53	1189.43	0.23	-41.25
16.00	min	-0.00	0.99	-77.56	35.09	-1240.89	15.83
	max	-0.00	1.16	-53.71	19.65	2711.77	18.20
32.00	min	-18.52	0.98	-533.99	34.08	-4029.84	33.01
	max	0.00	0.00	0.01	-0.05	0.20	0.10
32.00	min	-16.59	0.17	597.72	87.51	-4029.80	29.42
	max	0.00	-0.00	-0.02	-0.02	0.20	0.10
52.00	min	-0.00	-0.75	52.72	-8.47	-629.63	21.05
	max	0.00	-0.16	4.25	-6.74	3133.14	-35.22
72.00	min	-15.01	0.18	-540.90	-77.38	-2315.74	36.59
	max	1.47	0.71	52.80	10.20	428.23	-5.72
72.00	min	-2.02	-1.00	72.48	-19.63	-2315.81	39.27
	max	0.38	0.25	-13.71	5.05	428.24	-6.14
92.00	min	-0.00	-1.01	72.11	-16.42	-870.42	18.62
	max	0.00	0.25	-13.32	4.43	158.57	-0.99
112.00	min	-0.38	-0.24	-13.71	-4.70	-120.46	-4.13
	max	2.01	0.99	72.46	18.97	584.37	1.66
112.00	min	-0.13	0.01	4.69	-3.08	-120.47	-3.91
	max	0.52	0.23	-18.62	10.25	584.38	0.83
132.00	min	0.00	0.01	3.16	-2.79	-44.66	-3.86
	max	-0.00	0.22	-17.09	9.14	229.95	5.55
152.00	min	-0.52	-0.21	-18.61	-9.33	-160.57	-10.12
	max	0.12	0.12	4.50	-2.79	67.86	8.53
152.00	min	-0.16	0.08	5.96	-5.47	-160.57	-9.72
	max	0.16	0.10	-5.89	-5.68	67.86	8.77
172.00	min	0.00	-0.10	-0.70	5.89	-111.28	-10.51
	max	-0.00	0.11	0.49	-2.43	25.29	5.71
192.00	min	-0.16	-0.09	-5.89	6.38	-167.84	-12.32
	max	0.16	0.11	5.69	-2.59	77.78	7.90
192.00	min	-0.55	0.19	19.86	10.96	-167.84	-12.81
	max	0.17	0.10	-6.23	-5.49	77.77	8.12
212.00	min	0.00	-0.11	-4.90	5.61	-62.83	-9.98
	max	-0.00	-0.20	18.53	-10.91	245.42	8.56
232.00	min	-0.17	-0.11	-6.24	6.15	-171.74	-11.91
	max	0.55	-0.21	19.86	-11.90	626.93	4.20
232.00	min	-0.56	0.14	20.08	11.03	-171.73	-12.38
	max	2.17	-0.88	-78.18	-23.10	626.91	5.18
252.00	min	-0.00	0.89	-77.88	20.68	-941.78	13.15
	max	-0.00	-0.15	19.75	-10.94	234.30	9.02
272.00	min	-2.17	0.88	-78.20	24.19	-2502.13	31.66
	max	0.56	-0.15	20.09	-12.18	632.08	5.62

272.00	min	-15.63	-0.04	563.12	83.63	-2502.07	28.66
	max	2.18	-0.89	-78.50	-22.93	632.07	6.60
292.00	min	-0.00	0.91	-78.46	20.76	-940.02	11.92
	max	0.00	0.03	18.00	-0.61	3391.30	-29.70
312.00	min	-17.16	-0.05	-618.16	-80.49	-4690.58	27.03
	max	0.55	-0.15	19.72	-12.10	626.50	6.04
312.00	min	-16.72	-0.89	602.40	-20.40	-4690.59	29.85
	max	2.17	-1.02	-78.14	-21.88	626.49	6.97
332.00	min	-0.00	-0.88	1.21	-21.71	-1755.15	11.27
	max	0.00	-0.08	18.40	-0.10	3389.36	-31.02
352.00	min	-17.14	0.06	-617.42	-81.89	-4674.77	30.14
	max	2.55	0.87	91.97	22.64	1170.65	6.47
352.00	min	-16.70	-0.99	601.66	-19.60	-4674.81	32.95
	max	2.52	0.19	-90.81	10.58	1170.66	5.54
372.00	min	-0.00	-0.98	1.31	-21.53	-1747.33	12.58
	max	0.00	0.04	0.74	0.62	3589.91	-33.87
392.00	min	-17.62	-0.01	-634.69	-81.94	-4813.94	30.85
	max	2.43	-0.23	87.54	-7.51	1167.46	-2.26
392.00	min	-16.80	-1.23	605.43	-19.94	-4813.96	33.67
	max	2.61	-0.75	-93.91	-17.78	1167.46	-1.57
412.00	min	0.00	-1.22	7.21	-21.09	-1781.53	8.56
	max	0.00	0.26	-0.46	1.42	3577.11	-31.48
432.00	min	-17.62	-0.25	-634.62	-82.73	-4802.00	24.21
	max	2.56	-0.07	92.18	-5.67	1203.28	0.68
432.00	min	-16.69	-1.49	601.31	-20.30	-4802.01	27.07
	max	2.57	-0.45	-92.64	-15.93	1203.28	1.27
452.00	min	0.00	-1.48	11.27	-21.09	-1737.10	-3.32
	max	0.00	0.66	-7.38	1.81	3522.18	-18.94
472.00	min	-17.60	-0.67	-634.13	-83.38	-4745.91	3.42
	max	2.58	1.47	92.98	22.16	1078.54	33.33
472.00	min	-16.35	-0.72	589.07	-20.46	-4745.94	6.32
	max	1.97	-0.60	-71.26	11.19	1078.56	32.41
492.00	min	0.00	-0.71	31.87	-20.62	-1518.46	-8.62
	max	0.00	0.17	-23.02	4.25	3332.54	-14.41
512.00	min	-17.16	-0.16	-618.28	-85.95	-4247.48	8.83
	max	2.28	-0.72	82.09	-19.23	708.14	-23.46
512.00	min	-18.76	-0.36	540.79	-26.80	-4247.52	12.15
	max	0.76	-0.72	-22.12	11.20	708.14	22.58
528.00	min	-0.00	-0.35	83.08	-26.19	-1329.14	5.57
	max	-0.00	-0.83	32.38	-23.16	3017.99	12.29
544.00	min	2.16	-5.82	34.10	400.34	-0.00	25.39
	max	-22.92	5.64	-361.35	-474.87	0.02	-30.12

2. ESFUERZOS ENVOLVENTES EN PILAS

Pila	sec	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
1	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
2	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
2	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
3	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
3	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
4	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
4	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
5	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
5	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
6	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
6	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
7	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
7	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
8	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
8	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
9	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
9	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
10	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
10	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
11	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
12	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
13	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00

ENVOLVENTE : Envolvente sobrecargas para Vz

1. ESFUERZOS ENVOLVENTES EN EL TABLERO

x [m]	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	min	2.69	0.99	-77.51	33.25	0.00	-1.15
	max	-13.57	-1.09	391.42	-99.41	0.01	3.45
16.00	min	-0.00	1.00	-125.93	33.59	1251.87	15.91
	max	0.00	0.00	0.01	-0.04	0.10	0.05
32.00	min	-19.71	1.15	-568.23	-58.92	-3977.75	35.19
	max	-0.00	0.00	0.01	-0.06	0.20	0.14
32.00	min	0.00	0.01	-0.02	0.01	0.20	-0.10
	max	-16.82	-0.18	605.93	99.10	-4025.91	37.90
52.00	min	0.00	0.17	-0.79	3.02	232.95	-36.45
	max	-0.00	-0.74	56.69	-8.72	2259.51	21.03
72.00	min	-15.24	0.52	-549.14	-88.88	-2312.09	42.30
	max	1.46	-0.76	52.81	-8.35	428.18	5.72
72.00	min	0.38	0.25	-13.71	5.05	428.24	-6.14
	max	-2.02	-1.00	72.48	-19.63	-2315.81	39.27
92.00	min	0.00	0.25	-13.72	4.43	153.91	-0.99
	max	-0.00	-1.01	72.51	-16.41	-865.77	18.61
112.00	min	-0.38	0.25	-13.71	4.30	-120.42	4.15
	max	2.01	-1.01	72.48	-16.13	584.29	-1.98
112.00	min	0.52	0.23	-18.62	10.25	584.38	0.83
	max	-0.13	0.01	4.69	-3.08	-120.47	-3.91
132.00	min	-0.00	0.22	-18.62	9.13	211.94	5.55
	max	0.00	0.01	4.69	-2.78	-26.65	-3.86
152.00	min	-0.52	0.22	-18.62	8.81	-160.50	10.22
	max	0.13	0.00	4.69	-2.72	67.17	-3.80
152.00	min	0.16	-0.10	-5.89	5.56	67.84	-8.73
	max	-0.16	0.08	5.96	-5.47	-160.57	-9.72
172.00	min	0.00	-0.10	-5.89	5.80	-50.00	-10.54
	max	0.00	0.08	5.96	-4.94	-41.43	-8.27
192.00	min	-0.16	-0.09	-5.89	6.38	-167.84	-12.32
	max	0.17	0.08	5.96	-4.79	77.72	-6.82
192.00	min	0.17	-0.11	-6.24	5.40	77.76	-8.00
	max	-0.55	-0.20	19.86	-10.41	-167.76	12.84
212.00	min	0.00	-0.11	-6.24	5.61	-46.99	-9.96
	max	-0.00	-0.20	19.87	-10.91	229.59	8.54
232.00	min	-0.17	-0.11	-6.24	6.15	-171.74	-11.91
	max	0.55	-0.21	19.86	-11.90	626.93	4.20
232.00	min	2.17	0.89	-78.20	19.91	626.82	-5.29
	max	-0.56	-0.16	20.09	-10.45	-171.66	12.42
252.00	min	-0.00	0.89	-78.23	20.67	-937.70	13.13
	max	-0.00	-0.15	20.10	-10.93	230.22	9.04
272.00	min	-2.17	0.88	-78.20	24.19	-2502.13	31.66
	max	0.56	-0.15	20.09	-12.18	632.08	5.62
272.00	min	2.18	0.91	-78.52	19.87	631.96	-6.82
	max	-15.85	-0.35	571.31	94.27	-2497.78	34.80
292.00	min	-0.00	0.90	-78.75	20.06	1988.56	12.07
	max	-0.00	-0.16	19.73	-10.92	232.03	9.43
312.00	min	-17.39	0.25	-626.35	-91.15	-4686.30	33.41
	max	0.55	-0.15	19.72	-12.10	626.50	6.04
312.00	min	2.17	1.03	-78.16	18.74	626.39	-7.22
	max	-17.76	-0.26	639.78	90.74	-4686.27	34.18
332.00	min	-0.00	1.03	-78.19	19.65	-937.27	13.88
	max	-0.00	-0.90	92.19	-21.78	2257.28	11.41
352.00	min	-17.36	0.37	-625.61	-92.59	-4670.47	36.51
	max	2.55	-0.88	91.99	-21.28	1170.56	-7.10
352.00	min	2.63	0.96	-94.95	18.13	1170.20	-2.17
	max	-17.74	-0.35	639.02	90.85	-4670.38	38.18
372.00	min	-0.01	0.96	-95.25	17.39	2196.52	17.56
	max	-0.00	-0.99	91.74	-20.68	-667.67	12.58
392.00	min	-17.85	0.30	-642.87	-92.78	-4809.66	37.51
	max	2.55	-0.99	91.70	-21.19	1167.02	-7.82
392.00	min	2.61	0.78	-93.93	16.33	1167.40	0.93
	max	-17.84	-0.61	642.71	89.48	-4808.33	40.51
412.00	min	-0.00	0.77	-95.12	15.12	2207.89	17.04
	max	0.00	-1.23	96.37	-20.55	-725.22	8.53
432.00	min	-17.85	0.08	-642.82	-93.85	-4798.07	31.97
	max	2.67	-1.22	96.33	-21.03	1202.17	-16.55
432.00	min	2.57	0.48	-92.65	14.80	1203.26	-1.75
	max	-17.72	-1.06	638.49	88.90	-4795.16	36.88
452.00	min	-0.00	0.47	-94.63	13.45	2255.67	8.31
	max	0.00	-1.49	93.03	-20.57	-782.05	-3.33
472.00	min	-17.83	-0.29	-642.37	-94.74	-4742.71	12.51
	max	2.58	-1.49	92.99	-20.25	1078.51	-33.67
472.00	min	2.06	0.83	-74.16	8.74	1068.15	-6.38
	max	-17.38	-0.56	626.06	87.07	-4738.30	22.22
492.00	min	-0.00	0.83	-77.43	7.85	2454.04	10.40
	max	0.00	-0.72	82.12	-20.15	-934.26	-8.62
512.00	min	-17.39	0.23	-626.55	-97.80	-4244.76	18.33
	max	2.28	-0.72	82.09	-19.23	708.14	-23.46
512.00	min	0.76	-0.72	-22.12	11.20	708.14	22.58
	max	-19.95	-0.88	575.12	59.69	-4198.60	25.72
528.00	min	-0.00	-0.72	-22.13	9.47	354.06	11.47
	max	-0.00	-0.35	132.73	-25.88	1142.95	5.61
544.00	min	-26.01	0.82	-410.08	97.34	0.02	6.17
	max	5.26	-0.35	82.91	-24.75	-0.00	-1.57

2. ESFUERZOS ENVOLVENTES EN PILAS

Pila	sec	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00

1	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
2	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
2	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
3	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
3	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
4	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
4	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
5	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
5	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
6	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
6	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
7	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
7	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
8	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
8	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
9	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
9	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
10	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
10	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
11	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
12	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
13	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00

ENVOLVENTE : Envolvente sobrecargas para Mx

1. ESFUERZOS ENVOLVENTES EN EL TABLERO

x [m]	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	min	-6.10	-18.72	175.87	-1187.36	-0.21	41.18
	max	-6.09	18.73	175.53	1189.43	0.23	-41.25
16.00	min	0.05	-18.90	-65.60	-538.27	581.77	-298.30
	max	-0.05	18.91	-65.94	536.58	580.26	298.36
32.00	min	-10.55	0.28	-304.13	-799.65	-2055.85	-18.48
	max	-10.55	-0.28	-304.20	798.75	-2057.42	18.59
32.00	min	-9.00	-6.83	324.65	-958.30	-2103.98	-41.49
	max	-9.02	6.82	324.55	960.31	-2105.49	41.58
52.00	min	0.03	-7.51	27.59	-146.37	1388.95	-197.09
	max	-0.03	7.51	27.49	146.75	1388.20	197.10
72.00	min	-7.60	-3.23	-271.63	-838.05	-1047.20	439.25
	max	-7.47	3.22	-271.68	834.31	-1043.04	-439.43
72.00	min	-0.97	-11.55	32.62	-216.12	-1047.57	470.33
	max	-0.84	11.56	32.47	213.34	-1042.70	-470.35
92.00	min	-0.03	-11.56	32.63	-225.91	-395.56	232.90
	max	0.03	11.56	32.48	226.91	-392.43	-233.03
112.00	min	0.90	-11.57	32.62	-226.98	256.58	-4.70
	max	0.91	11.57	32.47	228.32	257.72	4.53
112.00	min	0.21	-0.36	-7.73	-151.08	256.52	7.41
	max	0.22	0.37	-7.79	151.88	257.78	-7.65
132.00	min	-0.00	-0.35	-7.73	-151.67	101.50	-3.90
	max	0.00	0.36	-7.79	151.51	102.45	3.84
152.00	min	-0.22	-0.36	-7.73	-151.40	-53.44	-15.22
	max	-0.21	0.36	-7.79	151.13	-52.96	15.28
152.00	min	0.00	3.80	-0.28	-148.28	-39.43	14.46
	max	0.01	-3.80	-0.35	148.04	-38.95	-14.39
172.00	min	-0.02	3.80	-0.28	-148.92	-45.43	86.36
	max	0.02	-3.80	-0.35	148.93	-45.61	-86.29
192.00	min	-0.03	3.88	-0.28	-152.84	-51.36	160.75
	max	0.01	-3.88	-0.35	153.07	-52.34	-160.65
192.00	min	-0.24	1.68	7.69	-215.58	-51.45	170.94
	max	-0.19	-1.68	7.60	215.83	-52.25	-170.86
212.00	min	-0.03	1.67	7.70	-220.52	101.88	198.40
	max	0.03	-1.68	7.60	220.58	100.41	-198.41
232.00	min	0.18	1.67	7.69	-227.04	255.33	225.67
	max	0.24	-1.68	7.60	226.39	252.93	-225.78
232.00	min	0.87	-7.43	-32.28	-409.62	255.04	243.37
	max	0.93	7.43	-32.52	408.18	253.22	-243.41
252.00	min	-0.01	-7.42	-32.29	-415.08	-391.90	83.58
	max	0.01	7.42	-32.54	414.27	-396.48	-83.55
272.00	min	-0.89	-7.42	-32.28	-412.16	-1038.81	-76.21
	max	-0.91	7.42	-32.52	414.93	-1046.13	76.40

272.00	min	-7.50	-6.80	270.78	-1194.91	-1039.06	-31.63
	max	-7.52	6.82	270.58	1198.26	-1045.85	31.64
292.00	min	-0.05	-9.01	-32.76	-400.99	1070.73	369.09
	max	0.05	9.01	-32.98	399.57	1068.94	-368.90
312.00	min	-9.07	-7.73	-325.41	-1205.49	-2138.79	231.51
	max	-9.00	7.72	-325.63	1203.13	-2140.60	-231.36
312.00	min	-8.49	-19.90	305.26	-1344.18	-2138.67	232.51
	max	-8.44	19.89	304.93	1344.54	-2140.66	-232.27
332.00	min	-0.05	-19.97	12.63	-566.49	660.35	423.33
	max	0.05	19.95	12.27	566.15	662.29	-423.36
352.00	min	-8.09	-18.61	-290.93	-1367.05	-1859.04	33.36
	max	-8.07	18.60	-291.27	1365.42	-1860.12	-33.67
352.00	min	-8.22	-20.92	296.47	-1391.94	-1859.42	30.22
	max	-8.23	20.93	296.13	1393.49	-1859.53	-30.55
372.00	min	-0.03	-23.03	3.86	-621.92	764.10	252.14
	max	0.03	23.04	3.48	621.67	767.18	-252.44
392.00	min	-8.30	-21.66	-299.71	-1416.98	-1931.54	-199.03
	max	-8.35	21.68	-300.06	1415.96	-1930.89	198.79
392.00	min	-8.25	-17.38	298.81	-1381.47	-1930.42	-204.21
	max	-8.32	17.38	298.46	1382.93	-1929.39	203.94
412.00	min	0.01	-24.20	6.26	-632.18	740.29	40.55
	max	-0.00	24.19	5.89	631.89	744.39	-40.65
432.00	min	-8.20	-22.77	-297.42	-1422.28	-1910.04	-430.21
	max	-8.32	22.78	-297.77	1421.67	-1908.37	430.24
432.00	min	-8.18	-8.38	297.34	-1357.11	-1907.17	-426.45
	max	-8.31	8.38	297.01	1358.60	-1905.49	426.44
452.00	min	0.04	-23.55	4.91	-612.43	735.53	-259.10
	max	-0.04	23.54	4.54	612.06	739.42	259.13
472.00	min	-8.21	-22.14	-298.96	-1395.44	-1946.17	-716.24
	max	-8.39	22.13	-299.30	1394.51	-1945.01	716.20
472.00	min	-8.22	2.25	299.70	-1215.78	-1942.05	-683.17
	max	-8.41	-2.24	299.44	1217.33	-1940.34	683.14
492.00	min	0.05	-2.32	7.52	-496.35	751.84	-393.32
	max	-0.05	2.32	7.20	496.51	755.12	393.37
512.00	min	-8.18	-1.09	-296.66	-1288.19	-1886.86	-425.52
	max	-8.29	1.09	-296.96	1287.01	-1885.70	425.60
512.00	min	-10.26	13.80	297.45	-869.14	-1841.00	-408.35
	max	-10.37	-13.81	297.35	870.52	-1839.31	408.43
528.00	min	-0.00	-0.43	59.11	-564.12	689.38	-0.56
	max	0.00	0.42	58.77	565.17	691.04	0.61
544.00	min	-11.55	-0.60	-182.09	-1220.20	0.02	-77.40
	max	-11.57	0.60	-182.42	1217.45	0.00	77.22

1	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
2	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
2	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
3	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
3	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
4	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
4	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
5	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
5	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
6	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
6	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
7	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
7	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
8	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
8	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
9	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
9	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
10	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
10	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
11	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
12	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
13	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00

2. ESFUERZOS ENVOLVENTES EN PILAS

Pila	sec	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Temperatura uniforme

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.12	-0.11	-0.00	1.67	1.78	0.00
P-2	0.01	-0.01	0.00	0.43	0.47	0.00
P-3	0.02	-0.01	-0.00	0.36	0.39	0.00
P-4	0.00	-0.00	0.00	0.05	0.06	0.00
P-5	-0.02	0.02	0.00	-0.28	-0.31	0.00
P-6	0.02	-0.02	-0.00	0.30	0.34	0.00
P-7	0.00	-0.00	-0.00	0.06	0.07	0.00
P-8	-0.03	0.02	0.00	-0.43	-0.50	0.00
P-9	0.03	-0.02	-0.00	0.38	0.44	0.00
P-10	-0.05	0.04	0.00	-0.66	-0.78	0.00
P-11	0.05	-0.04	-0.01	0.62	0.74	0.00
P-12	0.05	-0.04	0.04	0.56	0.67	0.00
P-13	0.06	-0.05	-0.07	0.50	0.62	0.00
E-1	-0.14	0.14	0.00	0.30	0.32	0.00
E-2	-0.13	0.10	0.03	-0.02	-0.03	0.00
SUMA	-0.00	0.00	-0.00	3.85	4.28	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	0.00	0.20	0.00	-0.63	-0.00	0.02
16.00	-0.00	0.21	0.00	-0.66	0.00	3.17
32.00	0.00	0.19	0.00	-0.85	0.00	6.33
32.00	-0.00	0.03	0.00	0.40	0.00	6.37
52.00	-0.00	0.04	-0.00	0.22	0.00	7.03
72.00	0.01	0.05	-0.00	0.01	0.00	7.73
72.00	0.00	-0.02	-0.00	0.33	0.00	7.74
92.00	-0.00	-0.05	-0.00	0.11	0.00	8.09
112.00	-0.01	-0.01	0.00	-0.12	0.00	8.16
112.00	-0.00	0.04	-0.00	0.39	0.00	8.12
132.00	-0.01	-0.04	-0.00	0.16	0.00	8.13
152.00	0.01	0.01	-0.00	-0.06	0.00	8.06
152.00	-0.02	-0.02	-0.00	0.34	0.00	7.92
172.00	0.01	0.00	-0.00	0.12	-0.00	7.68
192.00	-0.01	0.06	0.00	-0.09	0.00	7.79
192.00	-0.03	0.08	0.00	0.04	-0.00	7.34
212.00	-0.01	0.02	0.00	-0.17	-0.00	7.81
232.00	-0.01	-0.00	0.00	-0.39	0.00	8.08
232.00	0.00	-0.10	-0.00	0.31	-0.00	8.26
252.00	-0.01	-0.02	-0.00	0.09	0.00	7.94
272.00	0.00	-0.05	0.00	-0.13	0.00	7.73
272.00	0.02	-0.05	0.00	0.37	-0.00	7.67
292.00	0.00	-0.03	-0.00	0.15	-0.00	7.42
312.00	0.00	-0.08	0.00	-0.04	-0.00	6.92
312.00	0.04	-0.05	0.00	-0.01	-0.00	7.18
332.00	0.01	-0.01	0.00	-0.20	0.00	7.57
352.00	-0.06	-0.17	0.00	-0.42	0.01	7.38
352.00	0.04	-0.16	-0.00	0.46	0.00	7.94
372.00	-0.01	-0.11	-0.00	0.24	-0.01	7.82
392.00	-0.01	-0.00	-0.00	0.04	-0.02	6.97
392.00	-0.02	0.23	0.00	-0.18	-0.02	7.12
412.00	-0.01	0.14	0.00	-0.39	0.03	8.04
432.00	0.07	0.03	0.00	-0.64	0.07	9.20
432.00	-0.02	0.05	-0.01	0.27	0.08	8.91
452.00	0.01	0.11	-0.01	0.01	-0.11	8.57
472.00	0.03	-0.00	-0.01	-0.22	-0.29	8.55
472.00	-0.03	-0.07	0.03	0.29	-0.28	8.82
492.00	0.03	-0.07	0.03	0.06	0.39	6.85
512.00	-0.10	0.03	0.03	-0.10	1.06	5.45
512.00	0.06	-0.56	-0.03	0.32	1.06	5.53
528.00	0.00	0.07	-0.03	0.16	0.53	2.23
544.00	-0.08	-0.21	-0.03	0.13	0.00	0.27

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	0.00	0.17	0.00	0.00	0.00	-0.85
	inf	0.00	0.17	0.00	0.00	0.00	2.44
2	sup	-0.00	0.02	0.00	0.00	0.00	0.11
	inf	-0.00	0.02	0.00	0.00	0.00	0.63
3	sup	0.00	0.02	0.00	0.00	0.00	-0.05
	inf	0.00	0.02	0.00	0.00	0.00	0.53
4	sup	-0.00	0.00	0.00	0.00	0.00	0.04
	inf	-0.00	0.00	0.00	0.00	0.00	0.08
5	sup	-0.00	-0.02	0.00	0.00	0.00	0.28
	inf	-0.00	-0.02	0.00	0.00	0.00	-0.41
6	sup	0.00	0.02	0.00	0.00	0.00	-0.25
	inf	0.00	0.02	0.00	0.00	0.00	0.46
7	sup	0.00	0.01	0.00	0.00	0.00	-0.07
	inf	0.00	0.01	0.00	0.00	0.00	0.09
8	sup	-0.00	-0.04	0.00	0.00	0.00	0.35
	inf	-0.00	-0.04	0.00	0.00	0.00	-0.66
9	sup	0.00	0.04	0.00	0.00	0.00	-0.44
	inf	0.00	0.04	0.00	0.00	0.00	0.58
10	sup	-0.00	-0.06	0.00	0.00	0.00	0.63
	inf	-0.00	-0.06	0.00	0.00	0.00	-1.02
11	sup	0.01	0.06	0.00	0.00	0.00	-0.40
	inf	0.01	0.06	0.00	0.00	0.00	0.97
12	sup	-0.04	0.07	0.00	0.00	0.00	-0.04
	inf	-0.04	0.07	0.00	0.00	0.00	0.88
13	sup	0.07	0.08	0.00	0.00	0.00	-0.09
	inf	0.07	0.08	0.00	0.00	0.00	0.80

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Gradiente de temperatura

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-0.00	0.00	-78.10	-4.07	-4.35	0.00
P-2	0.05	-0.04	15.93	-4.51	-4.86	0.00
P-3	-0.01	0.01	-4.08	-5.97	-6.51	0.00
P-4	-0.01	0.01	1.04	-6.27	-6.92	0.00
P-5	0.00	-0.00	-0.27	-5.99	-6.69	0.00
P-6	0.01	-0.01	0.07	-5.94	-6.70	0.00
P-7	-0.01	0.01	-0.04	-6.29	-7.18	0.00
P-8	-0.03	0.03	0.08	-6.65	-7.67	0.00
P-9	0.02	-0.02	-0.29	-5.46	-6.37	0.00
P-10	0.04	-0.04	1.13	-4.80	-5.66	0.00
P-11	0.04	-0.03	-4.35	-5.06	-6.03	0.00
P-12	-0.12	0.10	16.44	-7.00	-8.44	0.00
P-13	0.05	-0.04	-78.65	-4.07	-4.96	0.00
E-1	-0.02	0.02	65.42	-4.56	-4.82	0.00
E-2	0.00	-0.00	65.65	-3.13	-3.86	0.00
SUMA	-0.00	0.00	-0.00	-79.77	-91.02	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-2.27	0.03	65.38	6.60	0.01	-0.23
16.00	-0.00	0.03	65.42	4.98	1046.76	0.50
32.00	2.27	0.03	65.38	2.46	2093.51	1.08
32.00	0.35	0.04	-12.67	7.44	2093.51	0.78
52.00	-0.00	0.04	-12.68	2.24	1839.95	1.70
72.00	-0.35	0.04	-12.67	-1.80	1586.37	2.37
72.00	-0.09	-0.03	3.25	5.72	1586.36	2.25
92.00	-0.00	-0.03	3.25	1.07	1651.35	1.88
112.00	0.09	-0.03	3.25	-2.85	1716.32	1.28
112.00	0.02	-0.02	-0.83	5.17	1716.33	1.21
132.00	-0.00	-0.02	-0.83	0.31	1699.72	1.03
152.00	-0.02	-0.02	-0.83	-3.61	1683.11	0.61
152.00	-0.01	0.00	0.21	4.71	1683.11	0.58
172.00	-0.00	0.00	0.21	-0.06	1687.36	0.72
192.00	0.01	0.00	0.21	-3.98	1691.58	0.61
192.00	0.00	-0.01	-0.05	4.28	1691.58	0.60
212.00	-0.00	-0.00	-0.05	-0.23	1690.49	0.62
232.00	-0.00	-0.00	-0.05	-3.83	1689.39	0.42
232.00	-0.00	-0.02	0.02	3.97	1689.39	0.42
252.00	-0.00	-0.02	0.02	-0.22	1689.75	0.21
272.00	0.00	-0.02	0.02	-4.43	1690.10	-0.23
272.00	0.00	-0.00	-0.02	4.21	1690.10	-0.22
292.00	0.00	-0.00	-0.02	-0.59	1689.73	-0.17
312.00	-0.00	-0.00	-0.02	-4.48	1689.36	-0.37
312.00	-0.00	0.04	0.06	3.86	1689.36	-0.35
332.00	-0.00	0.04	0.06	-0.95	1690.56	0.57
352.00	0.00	0.04	0.06	-4.55	1691.75	1.26
352.00	0.01	0.02	-0.23	3.32	1691.75	1.30
372.00	-0.00	0.02	-0.23	-1.15	1687.12	1.73
392.00	-0.01	0.02	-0.23	-5.14	1682.47	1.93
392.00	-0.03	-0.04	0.90	3.03	1682.47	1.99
412.00	-0.00	-0.04	0.90	-1.85	1700.52	1.32
432.00	0.02	-0.04	0.90	-5.82	1718.56	0.39
432.00	0.10	-0.09	-3.44	2.51	1718.56	0.48
452.00	0.00	-0.08	-3.44	-2.28	1649.68	-1.15
472.00	-0.10	-0.09	-3.44	-5.61	1580.79	-3.00
472.00	-0.36	0.07	13.00	2.19	1580.79	-2.91
492.00	0.00	0.07	13.00	-2.35	1840.80	-1.47
512.00	0.36	0.07	12.99	-6.86	2100.80	-0.28
512.00	2.28	0.00	-65.61	-0.80	2100.80	-0.06
528.00	0.00	0.00	-65.65	-3.82	1050.38	-0.04
544.00	-4.16	0.00	-65.52	-4.96	0.01	-0.31

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	78.10	-0.00	0.00	0.00	0.00	-5.86
	inf	78.10	-0.00	0.00	0.00	0.00	-5.96
2	sup	-15.93	0.06	0.00	0.00	0.00	-8.24
	inf	-15.93	0.06	0.00	0.00	0.00	-6.63
3	sup	4.08	-0.01	0.00	0.00	0.00	-8.55
	inf	4.08	-0.01	0.00	0.00	0.00	-8.83
4	sup	-1.04	-0.02	0.00	0.00	0.00	-8.88
	inf	-1.04	-0.02	0.00	0.00	0.00	-9.33
5	sup	0.27	0.01	0.00	0.00	0.00	-9.13
	inf	0.27	0.01	0.00	0.00	0.00	-8.98
6	sup	-0.07	0.01	0.00	0.00	0.00	-9.27
	inf	-0.07	0.01	0.00	0.00	0.00	-8.96
7	sup	0.04	-0.01	0.00	0.00	0.00	-9.20
	inf	0.04	-0.01	0.00	0.00	0.00	-9.54
8	sup	-0.08	-0.04	0.00	0.00	0.00	-8.96
	inf	-0.08	-0.04	0.00	0.00	0.00	-10.15
9	sup	0.29	0.02	0.00	0.00	0.00	-9.05
	inf	0.29	0.02	0.00	0.00	0.00	-8.39
10	sup	-1.13	0.06	0.00	0.00	0.00	-8.91
	inf	-1.13	0.06	0.00	0.00	0.00	-7.42
11	sup	4.35	0.05	0.00	0.00	0.00	-8.90
	inf	4.35	0.05	0.00	0.00	0.00	-7.87
12	sup	-16.44	-0.15	0.00	0.00	0.00	-8.82
	inf	-16.44	-0.15	0.00	0.00	0.00	-10.97
13	sup	78.65	0.07	0.00	0.00	0.00	-7.14
	inf	78.65	0.07	0.00	0.00	0.00	-6.42

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Reológicas

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-0.60	0.56	0.00	-8.24	-8.80	0.00
P-2	-0.07	0.07	0.00	-2.13	-2.30	0.00
P-3	-0.08	0.07	0.00	-1.76	-1.92	0.00
P-4	-0.01	0.00	0.00	-0.27	-0.29	0.00
P-5	0.09	-0.08	-0.00	1.36	1.52	0.00
P-6	-0.09	0.08	0.00	-1.50	-1.69	0.00
P-7	-0.02	0.02	0.00	-0.30	-0.35	0.00
P-8	0.14	-0.12	-0.00	2.14	2.47	0.00
P-9	-0.14	0.12	0.00	-1.85	-2.15	0.00
P-10	0.23	-0.20	-0.02	3.27	3.86	0.00
P-11	-0.23	0.20	0.06	-3.04	-3.62	0.00
P-12	-0.25	0.21	-0.21	-2.74	-3.30	0.00
P-13	-0.31	0.26	0.33	-2.49	-3.04	0.00
E-1	0.72	-0.67	-0.00	-1.48	-1.56	0.00
E-2	0.63	-0.51	-0.16	0.12	0.14	0.00
SUMA	0.01	-0.00	0.00	-18.90	-21.03	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-0.00	-0.99	-0.00	3.13	0.00	-0.11
16.00	0.01	-0.95	-0.00	3.24	-0.00	-15.77
32.00	-0.01	-0.97	-0.00	4.22	-0.01	-31.30
32.00	0.01	-0.12	-0.00	-1.95	-0.01	-31.51
52.00	-0.00	-0.21	0.00	-1.06	-0.01	-34.63
72.00	-0.03	-0.03	0.00	-0.03	-0.01	-37.69
72.00	-0.05	0.10	0.00	-1.61	-0.01	-38.25
92.00	0.02	-0.08	0.00	-0.55	-0.01	-39.27
112.00	-0.03	-0.03	-0.00	0.57	-0.01	-40.45
112.00	0.05	0.22	0.00	-1.92	-0.01	-40.87
132.00	0.04	0.31	0.00	-0.80	-0.00	-40.34
152.00	0.04	-0.11	-0.00	0.29	-0.01	-39.86
152.00	0.05	-0.09	0.00	-1.67	-0.00	-38.64
172.00	-0.04	-0.03	0.00	-0.60	0.00	-37.89
192.00	0.10	0.41	-0.00	0.44	-0.01	-36.96
192.00	0.09	-0.02	-0.00	-0.22	0.01	-36.98
212.00	-0.03	-0.23	-0.00	0.82	0.00	-38.24
232.00	-0.16	0.05	-0.00	1.92	-0.01	-39.82
232.00	0.11	0.05	0.00	-1.54	-0.00	-39.89
252.00	-0.00	0.02	0.00	-0.44	-0.00	-38.98
272.00	-0.12	0.33	0.00	0.62	0.00	-37.94
272.00	0.01	0.24	-0.00	-1.81	-0.00	-37.83
292.00	0.03	0.20	0.00	-0.76	0.00	-36.66
312.00	0.03	-0.20	-0.00	0.21	0.00	-35.29
312.00	-0.15	0.03	-0.00	0.02	0.00	-34.97
332.00	0.04	0.42	-0.00	1.00	-0.01	-38.04
352.00	0.01	0.73	-0.00	2.08	-0.03	-36.61
352.00	0.05	1.17	0.01	-2.28	-0.02	-39.97
372.00	0.01	-0.21	0.00	-1.21	0.04	-37.06
392.00	0.09	0.01	0.00	-0.20	0.09	-34.43
392.00	0.14	-0.85	-0.01	0.90	0.10	-35.70
412.00	-0.02	-0.54	-0.01	1.93	-0.14	-40.00
432.00	-0.28	0.90	-0.01	3.15	-0.37	-43.25
432.00	0.14	-0.19	0.05	-1.30	-0.37	-44.07
452.00	-0.12	1.26	0.04	-0.06	0.52	-45.90
472.00	0.01	-0.47	0.04	1.11	1.41	-43.13
472.00	-0.23	0.89	-0.18	-1.41	1.42	-44.58
492.00	0.02	-0.41	-0.17	-0.29	-1.92	-32.23
512.00	0.07	0.05	-0.16	0.48	-5.23	-26.49
512.00	-0.11	2.05	0.16	-1.60	-5.25	-26.12
528.00	0.14	1.10	0.16	-0.79	-2.63	-13.37
544.00	0.15	-0.51	0.18	-0.62	0.02	-3.88

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-0.00	-0.82	0.00	0.00	0.00	4.21
	inf	-0.00	-0.82	0.00	0.00	0.00	-12.05
2	sup	-0.00	-0.10	0.00	0.00	0.00	-0.53
	inf	-0.00	-0.10	0.00	0.00	0.00	-3.14
3	sup	-0.00	-0.11	0.00	0.00	0.00	0.24
	inf	-0.00	-0.11	0.00	0.00	0.00	-2.60
4	sup	-0.00	-0.01	0.00	0.00	0.00	-0.20
	inf	-0.00	-0.01	0.00	0.00	0.00	-0.40
5	sup	0.00	0.12	0.00	0.00	0.00	-1.40
	inf	0.00	0.12	0.00	0.00	0.00	2.04
6	sup	-0.00	-0.12	0.00	0.00	0.00	1.24
	inf	-0.00	-0.12	0.00	0.00	0.00	-2.26
7	sup	-0.00	-0.03	0.00	0.00	0.00	0.32
	inf	-0.00	-0.03	0.00	0.00	0.00	-0.46
8	sup	0.00	0.19	0.00	0.00	0.00	-1.75
	inf	0.00	0.19	0.00	0.00	0.00	3.27
9	sup	-0.00	-0.18	0.00	0.00	0.00	2.19
	inf	-0.00	-0.18	0.00	0.00	0.00	-2.84
10	sup	0.02	0.30	0.00	0.00	0.00	-3.10
	inf	0.02	0.30	0.00	0.00	0.00	5.06
11	sup	-0.06	-0.30	0.00	0.00	0.00	1.95
	inf	-0.06	-0.30	0.00	0.00	0.00	-4.73
12	sup	0.21	-0.32	0.00	0.00	0.00	0.20
	inf	0.21	-0.32	0.00	0.00	0.00	-4.29
13	sup	-0.33	-0.40	0.00	0.00	0.00	0.47
	inf	-0.33	-0.40	0.00	0.00	0.00	-3.93

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Frenado

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	2.77	-2.60	3.40	44.33	47.31	0.00
P-2	2.19	-2.03	-0.69	49.17	53.06	0.00
P-3	2.42	-2.22	0.18	56.37	61.50	0.00
P-4	2.22	-2.02	-0.05	54.36	59.97	0.00
P-5	1.89	-1.69	0.01	48.24	53.83	0.00
P-6	1.68	-1.49	-0.00	42.80	48.28	0.00
P-7	1.56	-1.37	0.00	38.05	43.41	0.00
P-8	1.42	-1.23	-0.00	32.85	37.89	0.00
P-9	0.97	-0.83	0.00	23.54	27.46	0.00
P-10	0.74	-0.62	-0.00	17.11	20.18	0.00
P-11	0.67	-0.56	0.00	12.75	15.21	0.00
P-12	0.64	-0.53	-0.01	8.38	10.11	0.00
P-13	0.07	-0.06	0.03	1.70	2.07	0.00
E-1	-498.22	-529.15	1.30	544.89	-481.57	0.00
E-2	-0.03	0.03	-4.04	0.62	0.77	0.00
SUMA	-479.00	-546.38	0.12	975.17	-0.53	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	726.30	-1.32	26.49	-22.90	-0.00	0.79
16.00	705.41	0.42	1.45	-22.89	34.89	-10.85
32.00	683.67	1.49	-22.41	-22.86	-86.80	2.94
32.00	683.64	-2.01	23.67	-11.68	-86.81	4.07
52.00	657.32	-0.23	4.85	-11.55	-0.11	-20.15
72.00	630.48	1.25	-12.80	-11.19	-59.33	-8.59
72.00	630.24	-1.39	21.50	-6.65	-59.33	-8.08
92.00	603.87	0.35	4.15	-6.29	7.60	-21.18
112.00	577.04	1.71	-12.01	-6.11	-59.53	-0.51
112.00	576.81	-1.36	20.19	-1.24	-59.53	-0.32
132.00	550.43	0.22	4.33	-1.09	5.00	-13.67
152.00	523.63	1.47	-10.35	-1.04	-52.66	3.43
152.00	523.39	-1.35	18.66	2.05	-52.66	3.36
172.00	496.99	0.09	4.28	2.10	5.03	-10.65
192.00	470.20	1.20	-8.91	2.15	-47.62	2.49
192.00	469.98	-1.09	17.19	3.47	-47.62	2.33
212.00	443.55	0.12	4.29	3.51	4.37	-8.97
232.00	416.79	1.03	-7.42	3.51	-42.12	3.93
232.00	416.56	-0.84	15.70	4.25	-42.12	3.71
252.00	390.11	0.15	4.29	4.22	3.87	-4.70
272.00	363.37	1.08	-5.94	4.12	-36.74	7.89
272.00	363.14	-0.86	14.22	4.77	-36.74	7.61
292.00	336.67	0.13	4.29	4.64	3.33	-1.19
312.00	309.95	0.86	-4.46	4.48	-31.34	8.82
312.00	309.72	-0.91	12.74	5.52	-31.33	8.56
332.00	283.23	-0.07	4.29	5.37	2.80	-2.36
352.00	256.52	0.50	-2.97	5.35	-25.94	2.60
352.00	256.30	-0.59	11.26	5.10	-25.94	2.31
372.00	229.79	0.04	4.29	5.09	2.27	-4.12
392.00	203.11	0.55	-1.49	5.09	-20.54	1.94
392.00	202.88	-0.30	9.77	4.75	-20.54	1.70
412.00	176.35	0.21	4.29	4.73	1.73	-0.27
432.00	149.69	0.57	-0.01	4.58	-15.16	7.56
432.00	149.46	-0.22	8.29	4.37	-15.15	7.32
452.00	122.91	0.15	4.29	4.19	1.22	5.76
472.00	96.27	0.37	1.48	3.92	-9.69	10.97
472.00	96.04	-0.39	6.80	2.94	-9.69	10.81
492.00	69.47	-0.18	4.29	2.69	0.61	4.72
512.00	42.84	-0.05	2.95	2.61	-4.52	2.51
512.00	42.59	-0.14	5.64	1.11	-4.52	2.39
528.00	21.38	-0.06	4.31	1.04	0.32	0.82
544.00	0.26	-0.06	4.03	1.03	-0.00	0.06

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-3.40	3.80	0.00	0.00	0.00	-10.92
	inf	-3.40	3.80	0.00	0.00	0.00	64.83
2	sup	0.69	2.98	0.00	0.00	0.00	-4.96
	inf	0.69	2.98	0.00	0.00	0.00	72.34
3	sup	-0.18	3.28	0.00	0.00	0.00	-4.86
	inf	-0.18	3.28	0.00	0.00	0.00	83.42
4	sup	0.05	3.00	0.00	0.00	0.00	-2.89
	inf	0.05	3.00	0.00	0.00	0.00	80.94
5	sup	-0.01	2.54	0.00	0.00	0.00	-1.16
	inf	-0.01	2.54	0.00	0.00	0.00	72.28
6	sup	0.00	2.25	0.00	0.00	0.00	-0.48
	inf	0.00	2.25	0.00	0.00	0.00	64.52
7	sup	-0.00	2.08	0.00	0.00	0.00	-0.20
	inf	-0.00	2.08	0.00	0.00	0.00	57.72
8	sup	0.00	1.88	0.00	0.00	0.00	-0.54
	inf	0.00	1.88	0.00	0.00	0.00	50.15
9	sup	-0.00	1.28	0.00	0.00	0.00	0.41
	inf	-0.00	1.28	0.00	0.00	0.00	36.17
10	sup	0.00	0.97	0.00	0.00	0.00	0.45
	inf	0.00	0.97	0.00	0.00	0.00	26.45
11	sup	-0.00	0.88	0.00	0.00	0.00	0.63
	inf	-0.00	0.88	0.00	0.00	0.00	19.85
12	sup	0.01	0.83	0.00	0.00	0.00	1.59
	inf	0.01	0.83	0.00	0.00	0.00	13.13
13	sup	-0.03	0.09	0.00	0.00	0.00	1.65
	inf	-0.03	0.09	0.00	0.00	0.00	2.68

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Viento longitudinal

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-14.33	-15.29	0.00	152.35	-142.76	0.00
P-2	-18.54	-20.00	0.00	259.27	-240.25	0.00
P-3	-19.14	-20.88	0.00	281.06	-257.63	0.00
P-4	-19.73	-21.77	0.00	303.87	-275.43	0.00
P-5	-20.31	-22.66	0.00	327.67	-293.69	0.00
P-6	-20.18	-22.77	0.00	329.25	-291.91	0.00
P-7	-19.36	-22.09	0.00	308.39	-270.36	0.00
P-8	-18.55	-21.40	0.00	288.10	-249.73	0.00
P-9	-19.12	-22.30	0.00	311.35	-266.95	0.00
P-10	-18.32	-21.60	0.00	290.83	-246.55	0.00
P-11	-14.82	-17.67	0.00	193.72	-162.43	0.00
P-12	-9.35	-11.28	0.00	78.50	-65.08	0.00
P-13	-7.28	-8.89	0.00	48.54	-39.78	0.00
E-1	0.00	0.00	0.00	0.00	0.00	0.00
E-2	0.00	0.00	0.00	0.00	0.00	0.00
SUMA	-219.03	-248.60	0.00	3172.87	-2802.56	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-0.00	-0.00	0.00	-0.00	-0.00	0.00
16.00	0.00	-0.00	0.00	-0.00	0.00	-0.00
32.00	0.00	-0.00	0.00	-0.00	0.00	-0.00
32.00	0.00	0.00	0.00	-0.00	0.00	-0.00
52.00	0.00	0.00	0.00	-0.00	0.00	-0.00
72.00	-0.00	0.00	0.00	-0.00	0.00	0.00
72.00	-0.00	0.00	0.00	-0.00	0.00	0.00
92.00	-0.00	0.00	0.00	-0.00	0.00	0.00
112.00	-0.00	0.00	0.00	-0.00	0.00	0.00
112.00	-0.00	-0.00	-0.00	0.00	0.00	0.00
132.00	-0.00	-0.00	0.00	0.00	0.00	0.00
152.00	0.00	-0.00	-0.00	0.00	0.00	-0.00
152.00	0.00	-0.00	0.00	-0.00	0.00	-0.00
172.00	0.00	-0.00	-0.00	-0.00	0.00	-0.00
192.00	0.00	-0.00	0.00	-0.00	0.00	-0.00
192.00	0.00	0.00	0.00	-0.00	0.00	-0.00
212.00	0.00	0.00	0.00	-0.00	0.00	-0.00
232.00	0.00	0.00	0.00	0.00	0.00	-0.00
232.00	0.00	-0.00	-0.00	0.00	0.00	-0.00
252.00	0.00	-0.00	-0.00	0.00	0.00	-0.00
272.00	0.00	-0.00	-0.00	0.00	0.00	-0.00
272.00	0.00	0.00	-0.00	0.00	0.00	-0.00
292.00	0.00	0.00	-0.00	0.00	0.00	-0.00
312.00	0.00	0.00	-0.00	0.00	-0.00	-0.00
312.00	0.00	0.00	0.00	0.00	-0.00	-0.00
332.00	-0.00	0.00	-0.00	0.00	-0.00	0.00
352.00	-0.00	0.00	0.00	-0.00	-0.00	0.00
352.00	-0.00	-0.00	-0.00	0.00	-0.00	0.00
372.00	-0.00	-0.00	-0.00	0.00	-0.00	0.00
392.00	-0.00	-0.00	-0.00	0.00	-0.00	0.00
392.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
412.00	0.00	-0.00	0.00	-0.00	-0.00	0.00
432.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.00
432.00	0.00	0.00	0.00	-0.00	-0.00	-0.00
452.00	0.00	0.00	-0.00	-0.00	-0.00	-0.00
472.00	0.00	0.00	-0.00	-0.00	-0.00	-0.00
472.00	-0.00	0.00	0.00	-0.00	-0.00	-0.00
492.00	0.00	0.00	0.00	-0.00	-0.00	-0.00
512.00	0.00	0.00	0.00	-0.00	-0.00	0.00
512.00	-0.00	-0.00	0.00	-0.00	-0.00	0.00
528.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
544.00	0.00	-0.00	0.00	-0.00	-0.00	-0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-0.00	0.00	0.00	0.00	0.00	-0.00
	inf	-0.00	0.00	20.96	0.00	208.77	0.00
2	sup	-0.00	0.00	0.00	0.00	0.00	0.00
	inf	-0.00	0.00	27.27	0.00	353.46	0.00
3	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	28.32	0.00	381.25	0.00
4	sup	-0.00	0.00	0.00	0.00	0.00	-0.00
	inf	-0.00	0.00	29.37	0.00	410.10	0.00
5	sup	0.00	-0.00	0.00	0.00	0.00	0.00
	inf	0.00	-0.00	30.43	0.00	440.00	0.00
6	sup	0.00	0.00	0.00	0.00	0.00	-0.00
	inf	0.00	0.00	30.43	0.00	440.00	0.00
7	sup	0.00	-0.00	0.00	0.00	0.00	-0.00
	inf	0.00	-0.00	29.37	0.00	410.10	-0.00
8	sup	-0.00	0.00	0.00	0.00	0.00	-0.00
	inf	-0.00	0.00	28.32	0.00	381.25	0.00
9	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	29.37	0.00	410.10	0.00
10	sup	-0.00	-0.00	0.00	0.00	0.00	0.00
	inf	-0.00	-0.00	28.32	0.00	381.25	-0.00
11	sup	-0.00	0.00	0.00	0.00	0.00	-0.00
	inf	-0.00	0.00	23.06	0.00	252.79	0.00
12	sup	0.00	0.00	0.00	0.00	0.00	0.00
	inf	0.00	0.00	14.65	0.00	101.96	0.00
13	sup	-0.00	0.00	0.00	0.00	0.00	-0.00
	inf	-0.00	0.00	11.49	0.00	62.76	0.00

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Viento transversal

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	34.18	-32.03	-0.03	495.68	528.96	0.00
P-2	30.91	-28.64	-0.01	593.89	640.89	0.00
P-3	36.28	-33.26	-0.01	732.74	799.37	0.00
P-4	37.13	-33.66	-0.01	777.58	857.85	0.00
P-5	35.88	-32.16	-0.00	769.59	858.62	0.00
P-6	35.83	-31.77	-0.00	764.64	862.45	0.00
P-7	37.51	-32.88	-0.00	774.56	883.52	0.00
P-8	40.03	-34.70	-0.01	785.27	905.90	0.00
P-9	34.57	-29.64	-0.01	678.22	791.01	0.00
P-10	32.02	-27.15	-0.01	590.70	696.78	0.00
P-11	33.28	-27.91	-0.00	521.07	621.43	0.00
P-12	42.24	-35.02	0.00	463.04	558.53	0.00
P-13	26.12	-21.41	0.00	225.23	274.78	0.00
E-1	8.10	-7.65	0.06	179.61	190.00	0.00
E-2	7.09	-5.76	0.02	62.08	76.41	0.00
SUMA	471.17	-413.63	0.00	8413.89	9546.51	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-0.00	-11.14	0.06	-250.16	-0.05	8.68
16.00	0.01	2.30	0.06	-249.22	0.31	-70.72
32.00	-0.01	15.75	0.06	-250.03	0.90	65.00
32.00	-0.01	-20.35	0.03	-144.35	0.81	77.67
52.00	0.03	-3.54	0.04	-144.38	1.13	-165.20
72.00	0.02	13.24	0.03	-141.15	1.50	-72.07
72.00	0.01	-14.88	0.03	-107.80	1.42	-65.07
92.00	0.03	1.92	0.03	-104.49	1.63	-197.58
112.00	0.00	18.72	0.03	-102.81	1.89	6.03
112.00	0.01	-15.93	0.01	-57.36	1.86	10.40
132.00	0.02	0.85	0.01	-56.05	1.97	-142.25
152.00	0.00	17.64	0.01	-55.44	2.11	41.18
152.00	0.00	-17.38	0.01	-22.02	2.10	43.34
172.00	0.02	-0.61	0.01	-21.48	2.15	-137.07
192.00	0.01	16.18	0.01	-20.39	2.20	18.43
192.00	0.00	-16.33	0.00	-4.84	2.20	19.23
212.00	0.02	0.45	0.00	-3.75	2.21	-139.80
232.00	0.00	17.28	0.00	-3.06	2.23	37.22
232.00	-0.00	-15.04	-0.00	5.40	2.23	37.17
252.00	0.02	1.79	-0.00	5.85	2.20	-94.79
272.00	-0.01	18.57	-0.00	4.69	2.18	109.22
272.00	-0.01	-16.20	-0.00	18.12	2.19	108.60
292.00	0.01	0.58	-0.00	16.71	2.15	-47.03
312.00	-0.01	17.41	-0.00	14.76	2.10	133.31
312.00	-0.01	-21.03	-0.01	53.68	2.11	131.41
332.00	0.02	-4.23	-0.01	52.16	2.02	-119.95
352.00	0.01	12.56	-0.01	54.36	1.89	-35.25
352.00	0.01	-17.86	-0.02	71.35	1.94	-38.75
372.00	0.03	-1.09	-0.02	74.19	1.77	-226.53
392.00	0.01	15.74	-0.02	77.95	1.58	-78.15
392.00	0.02	-11.74	-0.02	94.60	1.62	-83.04
412.00	0.02	5.06	-0.02	97.98	1.42	-147.08
432.00	-0.02	21.87	-0.02	96.79	1.17	124.96
432.00	-0.01	-9.72	-0.03	115.02	1.20	119.08
452.00	-0.01	7.07	-0.03	112.56	0.99	95.69
472.00	-0.05	23.88	-0.03	103.74	0.70	408.19
472.00	-0.05	-23.48	-0.03	112.40	0.76	402.18
492.00	-0.01	-6.68	-0.03	103.62	0.52	103.52
512.00	-0.02	10.12	-0.03	100.69	0.25	140.74
512.00	-0.01	-17.75	-0.02	90.64	0.30	134.83
528.00	0.01	-4.31	-0.02	87.73	0.14	-38.58
544.00	-0.00	9.13	-0.02	89.13	-0.00	5.65

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	0.03	36.09	0.00	0.00	0.00	-101.16
	inf	0.03	46.84	0.00	0.00	0.00	724.89
2	sup	0.01	28.14	0.00	0.00	0.00	-37.13
	inf	0.01	42.14	0.00	0.00	0.00	873.74
3	sup	0.01	34.68	0.00	0.00	0.00	-44.96
	inf	0.01	49.22	0.00	0.00	0.00	1084.37
4	sup	0.01	35.04	0.00	0.00	0.00	-31.05
	inf	0.01	50.12	0.00	0.00	0.00	1157.79
5	sup	0.00	32.56	0.00	0.00	0.00	-14.48
	inf	0.00	48.18	0.00	0.00	0.00	1153.01
6	sup	0.00	32.26	0.00	0.00	0.00	-6.38
	inf	0.00	47.88	0.00	0.00	0.00	1152.58
7	sup	0.00	34.80	0.00	0.00	0.00	-7.37
	inf	0.00	49.88	0.00	0.00	0.00	1174.94
8	sup	0.01	38.43	0.00	0.00	0.00	-31.55
	inf	0.01	52.97	0.00	0.00	0.00	1198.85
9	sup	0.01	30.46	0.00	0.00	0.00	-19.02
	inf	0.01	45.54	0.00	0.00	0.00	1041.94
10	sup	0.01	27.45	0.00	0.00	0.00	-21.10
	inf	0.01	41.98	0.00	0.00	0.00	913.45
11	sup	0.00	31.60	0.00	0.00	0.00	-11.44
	inf	0.00	43.43	0.00	0.00	0.00	810.96
12	sup	-0.00	47.36	0.00	0.00	0.00	13.83
	inf	-0.00	54.88	0.00	0.00	0.00	725.49
13	sup	-0.00	27.87	0.00	0.00	0.00	18.65
	inf	-0.00	33.77	0.00	0.00	0.00	355.29

LISTADO ENVOLVENTES

ENVOLVENTE : Envolvente dda para N

1. ESFUERZOS ENVOLVENTES EN EL TABLERO

x [m]	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	min	-1.67	0.14	48.06	0.33	0.00	-0.01
	max	1.06	-0.06	-30.52	-1.04	-0.00	0.04
16.00	min	-0.00	0.14	48.09	-0.88	769.54	2.31
	max	0.00	-0.08	-23.91	1.48	-382.55	-1.22
32.00	min	-1.06	-0.06	-30.52	0.94	-977.27	-1.78
	max	1.67	0.14	48.06	-2.85	1539.07	4.52
32.00	min	-1.71	0.13	61.77	-0.88	-977.26	-1.79
	max	1.73	-0.14	-62.28	2.18	1539.07	4.56
52.00	min	-0.00	-0.14	-62.30	-0.20	293.07	1.81
	max	0.00	0.05	24.19	0.92	-281.40	-1.44
72.00	min	-1.73	-0.14	-62.28	0.42	-953.01	-1.00
	max	1.71	0.13	61.76	-1.99	1494.28	3.17
72.00	min	-1.68	0.11	60.45	-0.70	-937.90	-1.28
	max	1.69	-0.11	-60.76	2.14	1494.28	3.17
92.00	min	-0.00	0.11	60.47	0.00	271.47	0.92
	max	0.00	-0.01	-29.42	-0.42	-344.52	-0.90
112.00	min	-1.69	-0.11	-60.76	0.57	-937.15	-1.04
	max	1.68	0.11	60.45	-2.07	1480.87	3.08
112.00	min	-1.67	0.11	60.25	-0.69	-932.84	-1.17
	max	1.67	-0.10	-60.31	2.15	1480.86	3.08
132.00	min	-0.00	0.11	60.27	0.05	272.59	0.96
	max	0.00	-0.01	-29.33	-0.45	-344.55	-0.84
152.00	min	-1.67	-0.10	-60.31	0.57	-932.51	-1.03
	max	1.67	0.11	60.25	-2.02	1478.00	3.04
152.00	min	-1.67	0.10	60.16	-0.67	-931.05	-1.05
	max	1.67	-0.10	-60.20	2.18	1477.99	3.04
172.00	min	-0.00	0.10	60.19	0.11	272.69	0.99
	max	0.00	0.01	29.35	0.60	-345.46	-0.83
192.00	min	-1.67	-0.10	-60.20	0.55	-930.79	-0.99
	max	1.67	0.10	60.16	-1.95	1476.47	2.99
192.00	min	-1.67	0.10	60.15	-0.53	-930.24	-0.97
	max	1.67	-0.10	-60.15	1.95	1476.48	2.99
212.00	min	-0.00	0.10	60.17	0.12	273.14	1.04
	max	0.00	-0.01	-29.29	-0.48	-344.92	-0.82
232.00	min	-1.67	-0.10	-60.15	0.33	-930.24	-0.99
	max	1.67	0.10	60.15	-1.64	1476.49	3.03
232.00	min	-1.67	0.10	60.19	-0.45	-930.77	-1.01
	max	1.67	-0.10	-60.17	1.78	1476.49	3.02
252.00	min	-0.00	0.10	60.22	0.13	273.56	1.05
	max	0.00	-0.01	-29.34	-0.50	-345.27	-0.84
272.00	min	-1.67	-0.10	-60.17	0.64	-931.03	-1.05
	max	1.67	0.10	60.20	-2.13	1477.84	3.06
272.00	min	-1.67	0.11	60.25	-0.63	-932.01	-1.04
	max	1.67	-0.11	-60.22	2.11	1477.82	3.06
292.00	min	-0.00	0.11	60.27	0.04	273.42	1.05
	max	0.00	0.01	29.32	0.60	-344.62	-0.83
312.00	min	-1.67	-0.11	-60.23	0.63	-932.19	-1.13
	max	1.67	0.11	60.25	-2.07	1478.88	3.09
312.00	min	-1.67	0.11	60.27	-0.60	-932.51	-1.06
	max	1.67	-0.11	-60.26	2.10	1478.87	3.09
332.00	min	-0.00	0.11	60.29	0.05	273.33	1.02
	max	0.00	-0.01	-29.39	-0.43	-345.48	-0.82
352.00	min	-1.67	-0.11	-60.26	0.46	-932.46	-1.09
	max	1.67	0.11	60.28	-1.79	1479.19	3.07
352.00	min	-1.68	0.11	60.38	-0.50	-933.36	-1.02
	max	1.67	-0.11	-60.31	1.89	1479.19	3.07
372.00	min	-0.00	0.11	60.40	0.06	274.61	1.07
	max	0.00	0.01	29.38	0.62	-344.99	-0.88
392.00	min	-1.67	-0.11	-60.30	0.65	-933.83	-1.17
	max	1.67	0.11	60.37	-2.08	1482.59	3.12
392.00	min	-1.69	0.12	60.75	-0.63	-938.31	-1.01
	max	1.68	-0.12	-60.54	2.00	1482.61	3.12
412.00	min	-0.00	0.12	60.78	-0.10	277.22	1.28
	max	0.00	-0.02	-29.97	-0.33	-350.89	-1.00
432.00	min	-1.68	-0.12	-60.54	0.81	-939.91	-1.56
	max	1.69	0.12	60.76	-2.38	1492.73	3.51
432.00	min	-1.71	0.14	61.58	-0.69	-950.21	-1.41
	max	1.69	-0.15	-61.10	2.11	1492.72	3.52
452.00	min	-0.00	0.14	61.60	-0.16	281.82	1.28
	max	0.00	-0.04	-30.65	-0.28	-355.96	-1.22
472.00	min	-1.69	-0.15	-61.10	0.81	-952.35	-2.47
	max	1.71	0.14	61.57	-2.23	1513.81	3.92
472.00	min	-1.75	0.16	63.06	-0.58	-968.90	-2.05
	max	1.74	-0.17	-62.66	2.27	1513.81	3.92
492.00	min	-0.00	0.16	63.08	0.07	292.68	1.15
	max	0.00	0.07	30.44	0.57	-343.57	-1.11
512.00	min	-1.74	-0.17	-62.66	0.94	-993.46	-2.95
	max	1.75	0.16	63.05	-2.08	1554.31	4.32
512.00	min	-1.08	0.09	31.03	-0.93	-993.47	-2.94
	max	1.68	-0.14	-48.54	3.18	1554.31	4.26
528.00	min	-0.00	-0.14	-48.58	0.81	777.14	2.19
	max	0.00	0.09	31.05	0.59	-496.72	-1.49
544.00	min	-3.08	-0.14	-48.48	-0.07	-0.00	-0.00
	max	1.97	0.09	30.98	1.15	-0.00	0.07

2. ESFUERZOS ENVOLVENTES EN PILAS

Pila	sec	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]

1	sup	min	-92.33	-0.18	0.00	0.00	0.00	2.16
		max	110.40	0.28	0.00	0.00	0.00	-5.44
1	inf	min	-92.33	-0.18	0.00	0.00	0.00	-1.48
		max	110.40	0.28	0.00	0.00	0.00	0.24
2	sup	min	-92.33	-0.15	0.00	0.00	0.00	2.11
		max	122.58	0.23	0.00	0.00	0.00	-4.75
2	inf	min	-92.33	-0.15	0.00	0.00	0.00	-1.73
		max	122.58	0.23	0.00	0.00	0.00	1.29
3	sup	min	-90.30	-0.12	0.00	0.00	0.00	1.97
		max	120.80	0.22	0.00	0.00	0.00	-4.57
3	inf	min	-90.30	-0.12	0.00	0.00	0.00	-1.21
		max	120.80	0.22	0.00	0.00	0.00	1.23
4	sup	min	-89.69	-0.12	0.00	0.00	0.00	1.99
		max	120.49	0.21	0.00	0.00	0.00	-4.55
4	inf	min	-89.69	-0.12	0.00	0.00	0.00	-1.23
		max	120.49	0.21	0.00	0.00	0.00	1.30
5	sup	min	-89.51	-0.11	0.00	0.00	0.00	2.01
		max	120.36	0.20	0.00	0.00	0.00	-4.52
5	inf	min	-89.51	-0.11	0.00	0.00	0.00	-1.24
		max	120.36	0.20	0.00	0.00	0.00	1.36
6	sup	min	-89.51	-0.11	0.00	0.00	0.00	2.03
		max	120.36	0.20	0.00	0.00	0.00	-4.56
6	inf	min	-89.51	-0.11	0.00	0.00	0.00	-1.25
		max	120.36	0.20	0.00	0.00	0.00	1.36
7	sup	min	-89.61	-0.12	0.00	0.00	0.00	2.00
		max	120.47	0.21	0.00	0.00	0.00	-4.56
7	inf	min	-89.61	-0.12	0.00	0.00	0.00	-1.25
		max	120.47	0.21	0.00	0.00	0.00	1.31
8	sup	min	-89.66	-0.12	0.00	0.00	0.00	1.96
		max	120.55	0.21	0.00	0.00	0.00	-4.53
8	inf	min	-89.66	-0.12	0.00	0.00	0.00	-1.19
		max	120.55	0.21	0.00	0.00	0.00	1.17
9	sup	min	-89.79	-0.12	0.00	0.00	0.00	2.03
		max	120.62	0.21	0.00	0.00	0.00	-4.60
9	inf	min	-89.79	-0.12	0.00	0.00	0.00	-1.21
		max	120.62	0.21	0.00	0.00	0.00	1.35
10	sup	min	-90.33	-0.13	0.00	0.00	0.00	2.10
		max	120.96	0.22	0.00	0.00	0.00	-4.67
10	inf	min	-90.33	-0.13	0.00	0.00	0.00	-1.28
		max	120.96	0.22	0.00	0.00	0.00	1.37
11	sup	min	-91.57	-0.16	0.00	0.00	0.00	2.22
		max	121.90	0.27	0.00	0.00	0.00	-4.81
11	inf	min	-91.57	-0.16	0.00	0.00	0.00	-1.20
		max	121.90	0.27	0.00	0.00	0.00	1.03
12	sup	min	-93.73	-0.20	0.00	0.00	0.00	2.20
		max	124.28	0.31	0.00	0.00	0.00	-5.11
12	inf	min	-93.73	-0.20	0.00	0.00	0.00	-0.63
		max	124.28	0.31	0.00	0.00	0.00	-0.80
13	sup	min	-93.73	-0.27	0.00	0.00	0.00	2.19
		max	111.65	0.30	0.00	0.00	0.00	-5.79
13	inf	min	-93.73	-0.27	0.00	0.00	0.00	-0.72
		max	111.65	0.30	0.00	0.00	0.00	-2.54

ENVOLVENTE : Envolvente dda para My

1. ESFUERZOS ENVOLVENTES EN EL TABLERO

x [m]	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	min	0.83	-0.08	-23.88	0.88	-0.03	-0.03
	max	-1.67	0.14	48.06	0.33	0.00	-0.01
16.00	min	0.00	-0.06	-30.54	-0.27	-488.63	-0.91
	max	-0.00	0.14	48.09	-0.88	769.54	2.31
32.00	min	-1.06	-0.06	-30.52	0.94	-977.27	-1.78
	max	1.67	0.14	48.06	-2.85	1539.07	4.52
32.00	min	-1.71	0.13	61.77	-0.88	-977.26	-1.79
	max	1.73	-0.14	-62.28	2.18	1539.07	4.56
52.00	min	0.00	-0.02	-29.83	-0.54	-341.30	-0.95
	max	-0.00	-0.14	-62.30	-0.20	293.07	1.81
72.00	min	-1.73	-0.14	-62.28	0.42	-953.01	-1.00
	max	1.71	0.13	61.76	-1.99	1494.28	3.17
72.00	min	-0.83	0.01	30.01	-1.24	-953.01	-0.97
	max	1.69	-0.11	-60.76	2.14	1494.28	3.17
92.00	min	0.00	0.01	30.02	0.50	-352.50	-0.86
	max	-0.00	-0.11	-60.79	-0.19	278.57	1.09
112.00	min	-1.69	-0.11	-60.76	0.57	-937.15	-1.04
	max	1.68	0.11	60.45	-2.07	1480.87	3.08
112.00	min	-0.82	0.01	29.50	-1.13	-937.16	-1.02
	max	1.67	-0.10	-60.31	2.15	1480.86	3.08
132.00	min	0.00	0.01	29.51	0.61	-346.90	-0.83
	max	-0.00	-0.10	-60.34	-0.19	274.16	1.05
152.00	min	-1.67	-0.10	-60.31	0.57	-932.51	-1.03
	max	1.67	0.11	60.25	-2.02	1478.00	3.04
152.00	min	-0.81	0.01	29.34	-1.15	-932.52	-1.01
	max	1.67	-0.10	-60.20	2.18	1477.99	3.04
172.00	min	0.00	0.01	29.35	0.60	-345.46	-0.83
	max	-0.00	-0.10	-60.22	-0.20	273.62	1.05
192.00	min	-1.67	-0.10	-60.20	0.55	-930.79	-0.99
	max	1.67	0.10	60.16	-1.95	1476.47	2.99
192.00	min	-0.81	0.01	29.28	-1.02	-930.80	-0.98
	max	1.67	-0.10	-60.15	1.95	1476.48	2.99
212.00	min	0.00	-0.01	-29.29	-0.48	-344.92	-0.82
	max	-0.00	0.10	60.17	0.12	273.14	1.04
232.00	min	-0.81	-0.01	-29.28	0.82	-930.77	-1.00
	max	1.67	0.10	60.15	-1.64	1476.49	3.03
232.00	min	-1.67	0.10	60.19	-0.45	-930.77	-1.01
	max	1.67	-0.10	-60.17	1.78	1476.49	3.02
252.00	min	0.00	-0.01	-29.34	-0.50	-345.27	-0.84
	max	-0.00	0.10	60.22	0.13	273.56	1.05
272.00	min	-0.81	-0.01	-29.33	1.12	-932.01	-1.03
	max	1.67	0.10	60.20	-2.13	1477.84	3.06

272.00	min	-1.67	0.11	60.25	-0.63	-932.01	-1.04
	max	1.67	-0.11	-60.22	2.11	1477.82	3.06
292.00	min	0.00	-0.01	-29.37	-0.43	-345.18	-0.84
	max	-0.00	0.11	60.27	0.04	273.42	1.05
312.00	min	-0.81	-0.01	-29.36	1.08	-932.51	-1.05
	max	1.67	0.11	60.25	-2.07	1478.88	3.09
312.00	min	-1.67	0.11	60.27	-0.60	-932.51	-1.06
	max	1.67	-0.11	-60.26	2.10	1478.87	3.09
332.00	min	0.00	-0.01	-29.39	-0.43	-345.48	-0.82
	max	-0.00	0.11	60.29	0.05	273.33	1.02
352.00	min	-0.82	-0.01	-29.38	0.90	-933.36	-1.01
	max	1.67	0.11	60.28	-1.79	1479.19	3.07
352.00	min	-1.68	0.11	60.38	-0.50	-933.36	-1.02
	max	1.67	-0.11	-60.31	1.89	1479.19	3.07
372.00	min	0.00	-0.01	-29.55	-0.48	-347.28	-0.81
	max	-0.00	0.11	60.40	0.06	274.61	1.07
392.00	min	-0.82	-0.01	-29.54	1.06	-938.32	-1.00
	max	1.67	0.11	60.37	-2.08	1482.59	3.12
392.00	min	-1.69	0.12	60.75	-0.63	-938.31	-1.01
	max	1.68	-0.12	-60.54	2.00	1482.61	3.12
412.00	min	0.00	-0.02	-29.97	-0.33	-350.89	-1.00
	max	-0.00	0.12	60.78	-0.10	277.22	1.28
432.00	min	-0.83	-0.02	-29.95	1.28	-950.21	-1.39
	max	1.69	0.12	60.76	-2.38	1492.73	3.51
432.00	min	-1.71	0.14	61.58	-0.69	-950.21	-1.41
	max	1.69	-0.15	-61.10	2.11	1492.72	3.52
452.00	min	0.00	-0.04	-30.65	-0.28	-355.96	-1.22
	max	-0.00	0.14	61.60	-0.16	281.82	1.28
472.00	min	-0.85	-0.04	-30.64	1.21	-968.91	-2.03
	max	1.71	0.14	61.57	-2.23	1513.81	3.92
472.00	min	-1.75	0.16	63.06	-0.58	-968.90	-2.05
	max	1.74	-0.17	-62.66	2.27	1513.81	3.92
492.00	min	0.00	0.07	30.44	0.57	-343.57	-1.11
	max	-0.00	0.16	63.08	0.07	292.68	1.15
512.00	min	-1.74	-0.17	-62.66	0.94	-993.46	-2.95
	max	1.75	0.16	63.05	-2.08	1554.31	4.32
512.00	min	-1.08	0.09	31.03	-0.93	-993.47	-2.94
	max	1.68	-0.14	-48.54	3.18	1554.31	4.26
528.00	min	0.00	0.09	31.05	0.59	-496.72	-1.49
	max	-0.00	-0.14	-48.58	0.81	777.14	2.19
544.00	min	1.97	0.09	30.98	1.15	-0.00	0.07
	max	-0.52	-0.01	-8.27	0.01	0.00	0.00

2. ESFUERZOS ENVOLVENTES EN PILAS

Pila	sec	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
1	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
2	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
2	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
3	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
3	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
4	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
4	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
5	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
5	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
6	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
6	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
7	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
7	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
8	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
8	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
9	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
9	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
10	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
10	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
11	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
12	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
13	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00

ENVOLVENTE : Envolvente dda para Vz

1. ESFUERZOS ENVOLVENTES EN EL TABLERO

x [m]	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	min	1.06	-0.06	-30.52	-1.04	-0.00	0.04
	max	-1.67	0.14	48.06	0.33	0.00	-0.01
16.00	min	0.00	-0.06	-30.54	-0.27	-488.63	-0.91
	max	-0.00	0.14	48.09	-0.88	769.54	2.31
32.00	min	-1.06	-0.06	-30.52	0.94	-977.27	-1.78
	max	1.67	0.14	48.06	-2.85	1539.07	4.52
32.00	min	1.73	-0.14	-62.28	2.18	1539.07	4.56
	max	-1.71	0.13	61.77	-0.88	-977.26	-1.79
52.00	min	-0.00	-0.14	-62.30	-0.20	293.07	1.81
	max	-0.00	0.13	61.79	-0.05	258.49	0.71
72.00	min	-1.73	-0.14	-62.28	0.42	-953.01	-1.00
	max	1.71	0.13	61.76	-1.99	1494.28	3.17
72.00	min	1.69	-0.11	-60.76	2.14	1494.28	3.17
	max	-1.68	0.11	60.45	-0.70	-937.90	-1.28
92.00	min	-0.00	-0.11	-60.79	-0.19	278.57	1.09
	max	-0.00	0.11	60.47	0.00	271.47	0.92
112.00	min	-1.69	-0.11	-60.76	0.57	-937.15	-1.04
	max	1.68	0.11	60.45	-2.07	1480.87	3.08
112.00	min	1.67	-0.10	-60.31	2.15	1480.86	3.08
	max	-1.67	0.11	60.25	-0.69	-932.84	-1.17
132.00	min	-0.00	-0.10	-60.34	-0.19	274.16	1.05
	max	-0.00	0.11	60.27	0.05	272.59	0.96
152.00	min	-1.67	-0.10	-60.31	0.57	-932.51	-1.03
	max	1.67	0.11	60.25	-2.02	1478.00	3.04
152.00	min	1.67	-0.10	-60.20	2.18	1477.99	3.04
	max	-1.67	0.10	60.16	-0.67	-931.05	-1.05
172.00	min	-0.00	-0.10	-60.22	-0.20	273.62	1.05
	max	-0.00	0.10	60.19	0.11	272.69	0.99
192.00	min	-1.67	-0.10	-60.20	0.55	-930.79	-0.99
	max	1.67	0.10	60.16	-1.95	1476.47	2.99
192.00	min	1.67	-0.10	-60.15	1.95	1476.48	2.99
	max	-1.67	0.10	60.15	-0.53	-930.24	-0.97
212.00	min	-0.00	-0.10	-60.17	-0.21	273.11	1.02
	max	-0.00	0.10	60.17	0.12	273.14	1.04
232.00	min	-1.67	-0.10	-60.15	0.33	-930.24	-0.99
	max	1.67	0.10	60.15	-1.64	1476.49	3.03
232.00	min	1.67	-0.10	-60.17	1.78	1476.49	3.02
	max	-1.67	0.10	60.19	-0.45	-930.77	-1.01
252.00	min	-0.00	-0.10	-60.19	-0.20	272.70	1.00
	max	-0.00	0.10	60.22	0.13	273.56	1.05
272.00	min	-1.67	-0.10	-60.17	0.64	-931.03	-1.05
	max	1.67	0.10	60.20	-2.13	1477.84	3.06
272.00	min	1.67	-0.11	-60.22	2.11	1477.82	3.06
	max	-1.67	0.11	60.25	-0.63	-932.01	-1.04
292.00	min	-0.00	-0.11	-60.25	-0.17	272.83	0.99
	max	-0.00	0.11	60.27	0.04	273.42	1.05
312.00	min	-1.67	-0.11	-60.23	0.63	-932.19	-1.13
	max	1.67	0.11	60.25	-2.07	1478.88	3.09
312.00	min	1.67	-0.11	-60.26	2.10	1478.87	3.09
	max	-1.67	0.11	60.27	-0.60	-932.51	-1.06
332.00	min	-0.00	-0.11	-60.29	-0.17	273.22	1.02
	max	-0.00	0.11	60.29	0.05	273.33	1.02
352.00	min	-1.67	-0.11	-60.26	0.46	-932.46	-1.09
	max	1.67	0.11	60.28	-1.79	1479.19	3.07
352.00	min	1.67	-0.11	-60.31	1.89	1479.19	3.07
	max	-1.68	0.11	60.38	-0.50	-933.36	-1.02
372.00	min	-0.00	-0.11	-60.33	-0.16	272.69	0.97
	max	-0.00	0.11	60.40	0.06	274.61	1.07
392.00	min	-1.67	-0.11	-60.30	0.65	-933.83	-1.17
	max	1.67	0.11	60.37	-2.08	1482.59	3.12
392.00	min	1.68	-0.12	-60.54	2.00	1482.61	3.12
	max	-1.69	0.12	60.75	-0.63	-938.31	-1.01
412.00	min	-0.00	-0.12	-60.56	-0.14	271.34	0.80
	max	-0.00	0.12	60.78	-0.10	277.22	1.28
432.00	min	-1.68	-0.12	-60.54	0.81	-939.91	-1.56
	max	1.69	0.12	60.76	-2.38	1492.73	3.51
432.00	min	1.69	-0.15	-61.10	2.11	1492.72	3.52
	max	-1.71	0.14	61.58	-0.69	-950.21	-1.41
452.00	min	-0.00	-0.15	-61.13	-0.05	270.16	0.54
	max	-0.00	0.14	61.60	-0.16	281.82	1.28
472.00	min	-1.69	-0.15	-61.10	0.81	-952.35	-2.47
	max	1.71	0.14	61.57	-2.23	1513.81	3.92
472.00	min	1.74	-0.17	-62.66	2.27	1513.81	3.92
	max	-1.75	0.16	63.06	-0.58	-968.90	-2.05
492.00	min	-0.00	-0.17	-62.69	0.10	260.21	0.50
	max	-0.00	0.16	63.08	0.07	292.68	1.15
512.00	min	-1.74	-0.17	-62.66	0.94	-993.46	-2.95
	max	1.75	0.16	63.05	-2.08	1554.31	4.32
512.00	min	1.68	-0.14	-48.54	3.18	1554.31	4.26
	max	-1.08	0.09	31.03	-0.93	-993.47	-2.94
528.00	min	-0.00	-0.14	-48.58	0.81	777.14	2.19
	max	0.00	0.09	31.05	0.59	-496.72	-1.49
544.00	min	-3.08	-0.14	-48.48	-0.07	-0.00	-0.00
	max	1.97	0.09	30.98	1.15	-0.00	0.07

2. ESFUERZOS ENVOLVENTES EN PILAS

Pila	sec	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00

1	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
2	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
2	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
3	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
3	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
4	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
4	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
5	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
5	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
6	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
6	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
7	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
7	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
8	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
8	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
9	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
9	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
10	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
10	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
11	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
11	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
12	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
12	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
13	sup	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00
13	inf	min	0.00	0.00	0.00	0.00	0.00	0.00
		max	0.00	0.00	0.00	0.00	0.00	0.00

1.3 Definición del pretensado

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 1			
0.000	-0.690	0.215	0.00
1.600	-1.033	0.215	0.00
3.000	-1.334	0.215	0.00
3.200	-1.377	0.210	41.93
4.800	-1.682	0.172	41.93
6.400	-1.926	0.134	41.93
8.000	-2.109	0.095	41.93
9.600	-2.231	0.057	41.93
11.200	-2.292	0.019	41.93
12.000	-2.300	-0.000	41.93
12.800	-2.295	-0.012	65.02
14.400	-2.256	-0.037	65.02
16.000	-2.177	-0.062	65.02
17.600	-2.059	-0.086	65.02
19.200	-1.901	-0.111	65.02
20.800	-1.704	-0.135	65.02
22.400	-1.468	-0.160	65.02
22.600	-1.436	-0.163	65.02
24.000	-1.207	-0.163	0.00
25.600	-0.946	-0.163	0.00
27.200	-0.686	-0.163	0.00
28.600	-0.457	-0.163	0.00
28.800	-0.426	-0.153	-20.85
30.400	-0.241	-0.077	-20.85
32.000	-0.180	0.000	-20.85
32.001	-0.180	0.000	-20.85
34.001	-0.245	0.065	-30.66
36.001	-0.441	0.131	-30.66
37.000	-0.588	0.163	-30.66
38.001	-0.751	0.163	0.00
40.000	-1.077	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 2			
0.000	-1.140	0.203	0.00
1.600	-1.464	0.203	0.00
3.000	-1.748	0.203	0.00
3.200	-1.788	0.198	44.40
4.800	-2.076	0.162	44.40
6.400	-2.307	0.126	44.40
8.000	-2.480	0.090	44.40
9.600	-2.595	0.054	44.40
11.200	-2.653	0.018	44.40
12.000	-2.660	-0.000	44.40
12.800	-2.655	-0.012	65.02
14.400	-2.616	-0.037	65.02
16.000	-2.537	-0.062	65.02
17.600	-2.419	-0.086	65.02
19.200	-2.261	-0.111	65.02
20.800	-2.064	-0.135	65.02
22.400	-1.828	-0.160	65.02
22.600	-1.796	-0.163	65.02
24.000	-1.567	-0.163	0.00
25.600	-1.307	-0.163	0.00
27.200	-1.046	-0.163	0.00
28.600	-0.817	-0.163	0.00
28.800	-0.786	-0.153	-20.85
30.400	-0.601	-0.077	-20.85
32.000	-0.540	0.000	-20.85
32.001	-0.540	0.000	-20.85
34.001	-0.605	0.065	-30.66
36.001	-0.801	0.131	-30.66
37.000	-0.948	0.163	-30.66
38.001	-1.111	0.163	0.00
40.000	-1.437	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 3			
0.000	-1.590	0.191	0.00
1.600	-1.895	0.191	0.00
3.000	-2.162	0.191	0.00
3.200	-2.200	0.186	47.19
4.800	-2.471	0.153	47.19
6.400	-2.688	0.119	47.19
8.000	-2.851	0.085	47.19
9.600	-2.959	0.051	47.19
11.200	-3.013	0.017	47.19
12.000	-3.020	-0.000	47.19
12.800	-3.015	-0.012	65.02
14.400	-2.976	-0.037	65.02
16.000	-2.897	-0.062	65.02
17.600	-2.779	-0.086	65.02
19.200	-2.621	-0.111	65.02
20.800	-2.424	-0.135	65.02
22.400	-2.188	-0.160	65.02
22.600	-2.156	-0.163	65.02
24.000	-1.927	-0.163	0.00
25.600	-1.666	-0.163	0.00
27.200	-1.406	-0.163	0.00
28.600	-1.177	-0.163	0.00
28.800	-1.146	-0.153	-20.85
30.400	-0.961	-0.077	-20.85
32.000	-0.900	0.000	-20.85
32.001	-0.900	0.000	-20.85
34.001	-0.965	0.065	-30.66
36.001	-1.161	0.131	-30.66
37.000	-1.308	0.163	-30.66
38.001	-1.471	0.163	0.00
40.000	-1.797	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 4			
40.000	-1.077	0.163	0.00
42.001	-1.403	0.163	0.00
43.000	-1.566	0.163	0.00
44.001	-1.720	0.145	55.19
46.001	-1.974	0.109	55.19
48.001	-2.155	0.072	55.19
50.001	-2.264	0.036	55.19
52.001	-2.300	-0.000	55.19
54.001	-2.264	-0.036	55.19
56.001	-2.155	-0.072	55.19
58.001	-1.974	-0.109	55.19
60.001	-1.720	-0.145	55.19
61.000	-1.566	-0.163	55.19
62.001	-1.403	-0.163	0.00
64.001	-1.077	-0.163	0.00
66.001	-0.751	-0.163	0.00
67.000	-0.588	-0.163	0.00
68.001	-0.441	-0.130	-30.66
70.001	-0.245	-0.065	-30.66
72.001	-0.180	0.000	-30.66
74.000	-0.245	0.065	-30.66
76.000	-0.441	0.130	-30.66
77.000	-0.588	0.163	-30.66
78.000	-0.751	0.163	0.00
80.000	-1.077	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 5			
40.000	-1.437	0.163	0.00
42.001	-1.763	0.163	0.00
43.000	-1.926	0.163	0.00
44.001	-2.080	0.145	55.19
46.001	-2.334	0.109	55.19
48.001	-2.515	0.072	55.19
50.001	-2.624	0.036	55.19
52.001	-2.660	-0.000	55.19
54.001	-2.624	-0.036	55.19
56.001	-2.515	-0.072	55.19
58.001	-2.334	-0.109	55.19
60.001	-2.080	-0.145	55.19
61.000	-1.926	-0.163	55.19
62.001	-1.763	-0.163	0.00
64.001	-1.437	-0.163	0.00
66.001	-1.111	-0.163	0.00
67.000	-0.948	-0.163	0.00
68.001	-0.801	-0.130	-30.66
70.001	-0.605	-0.065	-30.66
72.001	-0.540	0.000	-30.66
74.000	-0.605	0.065	-30.66
76.000	-0.801	0.130	-30.66
77.000	-0.948	0.163	-30.66
78.000	-1.111	0.163	0.00
80.000	-1.437	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 6			
40.000	-1.797	0.163	0.00
42.001	-2.123	0.163	0.00
43.000	-2.286	0.163	0.00
44.001	-2.440	0.145	55.19
46.001	-2.694	0.109	55.19
48.001	-2.875	0.072	55.19
50.001	-2.984	0.036	55.19
52.001	-3.020	-0.000	55.19
54.001	-2.984	-0.036	55.19
56.001	-2.875	-0.072	55.19
58.001	-2.694	-0.109	55.19
60.001	-2.440	-0.145	55.19
61.000	-2.286	-0.163	55.19
62.001	-2.123	-0.163	0.00
64.001	-1.797	-0.163	0.00
66.001	-1.471	-0.163	0.00
67.000	-1.308	-0.163	0.00
68.001	-1.161	-0.130	-30.66
70.001	-0.965	-0.065	-30.66
72.001	-0.900	0.000	-30.66
74.000	-0.965	0.065	-30.66
76.000	-1.161	0.130	-30.66
77.000	-1.308	0.163	-30.66
78.000	-1.471	0.163	0.00
80.000	-1.797	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 7			
80.000	-1.077	0.163	0.00
82.000	-1.403	0.163	0.00
83.000	-1.566	0.163	0.00
84.000	-1.720	0.145	55.19
86.000	-1.974	0.109	55.19
88.000	-2.155	0.072	55.19
90.000	-2.264	0.036	55.19
92.000	-2.300	-0.000	55.19
94.000	-2.264	-0.036	55.19
96.000	-2.155	-0.072	55.19
98.000	-1.974	-0.109	55.19
100.000	-1.720	-0.145	55.19
101.000	-1.566	-0.163	55.19
102.000	-1.403	-0.163	0.00
104.000	-1.077	-0.163	0.00
106.000	-0.751	-0.163	0.00
107.000	-0.588	-0.163	0.00
108.000	-0.441	-0.130	-30.66
110.000	-0.245	-0.065	-30.66
112.000	-0.180	-0.000	-30.66
114.000	-0.245	0.065	-30.60
116.000	-0.441	0.131	-30.60
117.000	-0.588	0.163	-30.60
118.000	-0.752	0.163	0.00
119.990	-1.077	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 8			
80.000	-1.437	0.163	0.00
82.000	-1.763	0.163	0.00
83.000	-1.926	0.163	0.00
84.000	-2.080	0.145	55.19
86.000	-2.334	0.109	55.19
88.000	-2.515	0.072	55.19
90.000	-2.624	0.036	55.19
92.000	-2.660	-0.000	55.19
94.000	-2.624	-0.036	55.19
96.000	-2.515	-0.072	55.19
98.000	-2.334	-0.109	55.19
100.000	-2.080	-0.145	55.19
101.000	-1.926	-0.163	55.19
102.000	-1.763	-0.163	0.00
104.000	-1.437	-0.163	0.00
106.000	-1.111	-0.163	0.00
107.000	-0.948	-0.163	0.00
108.000	-0.801	-0.130	-30.66
110.000	-0.605	-0.065	-30.66
112.000	-0.540	-0.000	-30.66
114.000	-0.605	0.065	-30.60
116.000	-0.801	0.131	-30.60
117.000	-0.948	0.163	-30.60
118.000	-1.112	0.163	0.00
119.990	-1.437	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 9			
80.000	-1.797	0.163	0.00
82.000	-2.123	0.163	0.00
83.000	-2.286	0.163	0.00
84.000	-2.440	0.145	55.19
86.000	-2.694	0.109	55.19
88.000	-2.875	0.072	55.19
90.000	-2.984	0.036	55.19
92.000	-3.020	-0.000	55.19
94.000	-2.984	-0.036	55.19
96.000	-2.875	-0.072	55.19
98.000	-2.694	-0.109	55.19
100.000	-2.440	-0.145	55.19
101.000	-2.286	-0.163	55.19
102.000	-2.123	-0.163	0.00
104.000	-1.797	-0.163	0.00
106.000	-1.471	-0.163	0.00
107.000	-1.308	-0.163	0.00
108.000	-1.161	-0.130	-30.66
110.000	-0.965	-0.065	-30.66
112.000	-0.900	-0.000	-30.66
114.000	-0.965	0.065	-30.60
116.000	-1.161	0.131	-30.60
117.000	-1.308	0.163	-30.60
118.000	-1.472	0.163	0.00
119.990	-1.797	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 10			
119.990	-1.077	0.163	0.00
122.001	-1.405	0.163	0.00
122.990	-1.566	0.163	0.00
124.001	-1.722	0.145	55.19
126.001	-1.975	0.109	55.19
128.001	-2.156	0.072	55.19
130.001	-2.264	0.036	55.19
131.990	-2.300	-0.000	55.19
134.001	-2.263	-0.036	55.19
136.001	-2.154	-0.073	55.19
138.001	-1.973	-0.109	55.19
140.001	-1.719	-0.145	55.19
140.990	-1.566	-0.163	55.19
142.001	-1.401	-0.163	0.00
144.001	-1.075	-0.163	0.00
146.001	-0.749	-0.163	0.00
146.990	-0.588	-0.163	0.00
148.001	-0.439	-0.130	-30.66
150.001	-0.245	-0.065	-30.66
151.990	-0.180	-0.000	-30.66
152.001	-0.180	0.000	-30.66
154.001	-0.246	0.066	-30.66
156.001	-0.442	0.131	-30.66
156.990	-0.588	0.163	-30.66
158.001	-0.753	0.163	0.00
159.990	-1.077	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 11			
119.990	-1.437	0.163	0.00
122.001	-1.765	0.163	0.00
122.990	-1.926	0.163	0.00
124.001	-2.082	0.145	55.19
126.001	-2.335	0.109	55.19
128.001	-2.516	0.072	55.19
130.001	-2.624	0.036	55.19
131.990	-2.660	-0.000	55.19
134.001	-2.623	-0.036	55.19
136.001	-2.514	-0.073	55.19
138.001	-2.333	-0.109	55.19
140.001	-2.079	-0.145	55.19
140.990	-1.926	-0.163	55.19
142.001	-1.761	-0.163	0.00
144.001	-1.435	-0.163	0.00
146.001	-1.109	-0.163	0.00
146.990	-0.948	-0.163	0.00
148.001	-0.799	-0.130	-30.66
150.001	-0.605	-0.065	-30.66
151.990	-0.540	-0.000	-30.66
152.001	-0.540	0.000	-30.66
154.001	-0.606	0.066	-30.66
156.001	-0.802	0.131	-30.66
156.990	-0.948	0.163	-30.66
158.001	-1.113	0.163	0.00
159.990	-1.437	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 12			
119.990	-1.797	0.163	0.00
122.001	-2.125	0.163	0.00
122.990	-2.286	0.163	0.00
124.001	-2.442	0.145	55.19
126.001	-2.695	0.109	55.19
128.001	-2.876	0.072	55.19
130.001	-2.984	0.036	55.19
131.990	-3.020	-0.000	55.19
134.001	-2.983	-0.036	55.19
136.001	-2.874	-0.073	55.19
138.001	-2.693	-0.109	55.19
140.001	-2.439	-0.145	55.19
140.990	-2.286	-0.163	55.19
142.001	-2.121	-0.163	0.00
144.001	-1.795	-0.163	0.00
146.001	-1.469	-0.163	0.00
146.990	-1.308	-0.163	0.00
148.001	-1.159	-0.130	-30.66
150.001	-0.965	-0.065	-30.66
151.990	-0.900	-0.000	-30.66
152.001	-0.900	0.000	-30.66
154.001	-0.966	0.066	-30.66
156.001	-1.162	0.131	-30.66
156.990	-1.308	0.163	-30.66
158.001	-1.473	0.163	0.00
159.990	-1.797	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 13			
159.990	-1.077	0.163	0.00
162.001	-1.405	0.163	0.00
162.990	-1.566	0.163	0.00
164.001	-1.722	0.145	55.19
166.001	-1.975	0.109	55.19
168.001	-2.156	0.072	55.19
170.001	-2.264	0.036	55.19
171.990	-2.300	-0.000	55.19
174.001	-2.263	-0.036	55.19
176.001	-2.154	-0.073	55.19
178.001	-1.973	-0.109	55.19
180.001	-1.719	-0.145	55.19
180.990	-1.566	-0.163	55.19
182.001	-1.401	-0.163	0.00
184.001	-1.075	-0.163	0.00
186.001	-0.749	-0.163	0.00
186.990	-0.588	-0.163	0.00
188.001	-0.439	-0.130	-30.66
190.001	-0.245	-0.065	-30.66
191.990	-0.180	-0.000	-30.66
192.001	-0.180	0.000	-30.66
194.001	-0.246	0.066	-30.66
196.001	-0.442	0.131	-30.66
196.990	-0.588	0.163	-30.66
198.001	-0.753	0.163	0.00
199.990	-1.077	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 14			
159.990	-1.437	0.163	0.00
162.001	-1.765	0.163	0.00
162.990	-1.926	0.163	0.00
164.001	-2.082	0.145	55.19
166.001	-2.335	0.109	55.19
168.001	-2.516	0.072	55.19
170.001	-2.624	0.036	55.19
171.990	-2.660	-0.000	55.19
174.001	-2.623	-0.036	55.19
176.001	-2.514	-0.073	55.19
178.001	-2.333	-0.109	55.19
180.001	-2.079	-0.145	55.19
180.990	-1.926	-0.163	55.19
182.001	-1.761	-0.163	0.00
184.001	-1.435	-0.163	0.00
186.001	-1.109	-0.163	0.00
186.990	-0.948	-0.163	0.00
188.001	-0.799	-0.130	-30.66
190.001	-0.605	-0.065	-30.66
191.990	-0.540	-0.000	-30.66
192.001	-0.540	0.000	-30.66
194.001	-0.606	0.066	-30.66
196.001	-0.802	0.131	-30.66
196.990	-0.948	0.163	-30.66
198.001	-1.113	0.163	0.00
199.990	-1.437	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 15			
159.990	-1.797	0.163	0.00
162.001	-2.125	0.163	0.00
162.990	-2.286	0.163	0.00
164.001	-2.442	0.145	55.19
166.001	-2.695	0.109	55.19
168.001	-2.876	0.072	55.19
170.001	-2.984	0.036	55.19
171.990	-3.020	-0.000	55.19
174.001	-2.983	-0.036	55.19
176.001	-2.874	-0.073	55.19
178.001	-2.693	-0.109	55.19
180.001	-2.439	-0.145	55.19
180.990	-2.286	-0.163	55.19
182.001	-2.121	-0.163	0.00
184.001	-1.795	-0.163	0.00
186.001	-1.469	-0.163	0.00
186.990	-1.308	-0.163	0.00
188.001	-1.159	-0.130	-30.66
190.001	-0.965	-0.065	-30.66
191.990	-0.900	-0.000	-30.66
192.001	-0.900	0.000	-30.66
194.001	-0.966	0.066	-30.66
196.001	-1.162	0.131	-30.66
196.990	-1.308	0.163	-30.66
198.001	-1.473	0.163	0.00
199.990	-1.797	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 16			
199.990	-1.077	0.163	0.00
202.001	-1.405	0.163	0.00
202.990	-1.566	0.163	0.00
204.001	-1.722	0.145	55.19
206.001	-1.975	0.109	55.19
208.001	-2.156	0.072	55.19
210.001	-2.264	0.036	55.19
211.990	-2.300	-0.000	55.19
214.001	-2.263	-0.036	55.19
216.001	-2.154	-0.073	55.19
218.001	-1.973	-0.109	55.19
220.001	-1.719	-0.145	55.19
220.990	-1.566	-0.163	55.19
222.001	-1.401	-0.163	0.00
224.001	-1.075	-0.163	0.00
226.001	-0.749	-0.163	0.00
226.990	-0.588	-0.163	0.00
228.001	-0.439	-0.130	-30.66
230.001	-0.245	-0.065	-30.66
231.990	-0.180	-0.000	-30.66
232.001	-0.180	0.000	-30.66
234.001	-0.246	0.066	-30.66
236.001	-0.442	0.131	-30.66
236.990	-0.588	0.163	-30.66
238.001	-0.753	0.163	0.00
239.990	-1.077	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 17			
199.990	-1.437	0.163	0.00
202.001	-1.765	0.163	0.00
202.990	-1.926	0.163	0.00
204.001	-2.082	0.145	55.19
206.001	-2.335	0.109	55.19
208.001	-2.516	0.072	55.19
210.001	-2.624	0.036	55.19
211.990	-2.660	-0.000	55.19
214.001	-2.623	-0.036	55.19
216.001	-2.514	-0.073	55.19
218.001	-2.333	-0.109	55.19
220.001	-2.079	-0.145	55.19
220.990	-1.926	-0.163	55.19
222.001	-1.761	-0.163	0.00
224.001	-1.435	-0.163	0.00
226.001	-1.109	-0.163	0.00
226.990	-0.948	-0.163	0.00
228.001	-0.799	-0.130	-30.66
230.001	-0.605	-0.065	-30.66
231.990	-0.540	-0.000	-30.66
232.001	-0.540	0.000	-30.66
234.001	-0.606	0.066	-30.66
236.001	-0.802	0.131	-30.66
236.990	-0.948	0.163	-30.66
238.001	-1.113	0.163	0.00
239.990	-1.437	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 18			
199.990	-1.797	0.163	0.00
202.001	-2.125	0.163	0.00
202.990	-2.286	0.163	0.00
204.001	-2.442	0.145	55.19
206.001	-2.695	0.109	55.19
208.001	-2.876	0.072	55.19
210.001	-2.984	0.036	55.19
211.990	-3.020	-0.000	55.19
214.001	-2.983	-0.036	55.19
216.001	-2.874	-0.073	55.19
218.001	-2.693	-0.109	55.19
220.001	-2.439	-0.145	55.19
220.990	-2.286	-0.163	55.19
222.001	-2.121	-0.163	0.00
224.001	-1.795	-0.163	0.00
226.001	-1.469	-0.163	0.00
226.990	-1.308	-0.163	0.00
228.001	-1.159	-0.130	-30.66
230.001	-0.965	-0.065	-30.66
231.990	-0.900	-0.000	-30.66
232.001	-0.900	0.000	-30.66
234.001	-0.966	0.066	-30.66
236.001	-1.162	0.131	-30.66
236.990	-1.308	0.163	-30.66
238.001	-1.473	0.163	0.00
239.990	-1.797	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 19			
239.990	-1.077	0.163	0.00
242.000	-1.405	0.163	0.00
242.990	-1.566	0.163	0.00
244.000	-1.722	0.145	55.19
246.000	-1.975	0.109	55.19
248.000	-2.156	0.072	55.19
250.000	-2.264	0.036	55.19
251.990	-2.300	-0.000	55.19
254.000	-2.263	-0.036	55.19
256.000	-2.154	-0.073	55.19
258.000	-1.973	-0.109	55.19
260.000	-1.719	-0.145	55.19
260.990	-1.566	-0.163	55.19
262.000	-1.401	-0.163	0.00
264.000	-1.075	-0.163	0.00
266.000	-0.749	-0.163	0.00
266.990	-0.588	-0.163	0.00
268.000	-0.440	-0.130	-30.66
270.000	-0.245	-0.065	-30.66
271.990	-0.180	-0.000	-30.66
272.000	-0.180	0.000	-30.66
274.000	-0.246	0.066	-30.66
276.000	-0.442	0.131	-30.66
276.990	-0.588	0.163	-30.66
278.000	-0.752	0.163	0.00
279.990	-1.077	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 20			
239.990	-1.437	0.163	0.00
242.000	-1.765	0.163	0.00
242.990	-1.926	0.163	0.00
244.000	-2.082	0.145	55.19
246.000	-2.335	0.109	55.19
248.000	-2.516	0.072	55.19
250.000	-2.624	0.036	55.19
251.990	-2.660	-0.000	55.19
254.000	-2.623	-0.036	55.19
256.000	-2.514	-0.073	55.19
258.000	-2.333	-0.109	55.19
260.000	-2.079	-0.145	55.19
260.990	-1.926	-0.163	55.19
262.000	-1.762	-0.163	0.00
264.000	-1.435	-0.163	0.00
266.000	-1.109	-0.163	0.00
266.990	-0.948	-0.163	0.00
268.000	-0.800	-0.130	-30.66
270.000	-0.605	-0.065	-30.66
271.990	-0.540	-0.000	-30.66
272.000	-0.540	0.000	-30.66
274.000	-0.606	0.066	-30.66
276.000	-0.802	0.131	-30.66
276.990	-0.948	0.163	-30.66
278.000	-1.112	0.163	0.00
279.990	-1.437	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 21			
239.990	-1.797	0.163	0.00
242.000	-2.125	0.163	0.00
242.990	-2.286	0.163	0.00
244.000	-2.442	0.145	55.19
246.000	-2.695	0.109	55.19
248.000	-2.876	0.072	55.19
250.000	-2.984	0.036	55.19
251.990	-3.020	-0.000	55.19
254.000	-2.983	-0.036	55.19
256.000	-2.874	-0.073	55.19
258.000	-2.693	-0.109	55.19
260.000	-2.439	-0.145	55.19
260.990	-2.286	-0.163	55.19
262.000	-2.121	-0.163	0.00
264.000	-1.795	-0.163	0.00
266.000	-1.469	-0.163	0.00
266.990	-1.308	-0.163	0.00
268.000	-1.160	-0.130	-30.66
270.000	-0.965	-0.065	-30.66
271.990	-0.900	-0.000	-30.66
272.000	-0.900	0.000	-30.66
274.000	-0.966	0.066	-30.66
276.000	-1.162	0.131	-30.66
276.990	-1.308	0.163	-30.66
278.000	-1.472	0.163	0.00
279.990	-1.797	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 22			
279.990	-1.077	0.163	0.00
282.000	-1.405	0.163	0.00
282.990	-1.566	0.163	0.00
284.000	-1.722	0.145	55.19
286.000	-1.975	0.109	55.19
288.000	-2.156	0.072	55.19
290.000	-2.264	0.036	55.19
291.990	-2.300	-0.000	55.19
294.000	-2.263	-0.036	55.19
296.000	-2.154	-0.073	55.19
298.000	-1.973	-0.109	55.19
300.000	-1.719	-0.145	55.19
300.990	-1.566	-0.163	55.19
302.000	-1.401	-0.163	0.00
304.000	-1.075	-0.163	0.00
306.000	-0.749	-0.163	0.00
306.990	-0.588	-0.163	0.00
308.000	-0.440	-0.130	-30.66
310.000	-0.245	-0.065	-30.66
311.990	-0.180	-0.000	-30.66
312.001	-0.180	0.000	-30.66
314.001	-0.246	0.066	-30.66
316.001	-0.442	0.131	-30.66
316.990	-0.588	0.163	-30.66
318.001	-0.753	0.163	0.00
319.990	-1.077	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 23			
279.990	-1.437	0.163	0.00
282.000	-1.765	0.163	0.00
282.990	-1.926	0.163	0.00
284.000	-2.082	0.145	55.19
286.000	-2.335	0.109	55.19
288.000	-2.516	0.072	55.19
290.000	-2.624	0.036	55.19
291.990	-2.660	-0.000	55.19
294.000	-2.623	-0.036	55.19
296.000	-2.514	-0.073	55.19
298.000	-2.333	-0.109	55.19
300.000	-2.079	-0.145	55.19
300.990	-1.926	-0.163	55.19
302.000	-1.762	-0.163	0.00
304.000	-1.435	-0.163	0.00
306.000	-1.109	-0.163	0.00
306.990	-0.948	-0.163	0.00
308.000	-0.800	-0.130	-30.66
310.000	-0.605	-0.065	-30.66
311.990	-0.540	-0.000	-30.66
312.001	-0.540	0.000	-30.66
314.001	-0.606	0.066	-30.66
316.001	-0.802	0.131	-30.66
316.990	-0.948	0.163	-30.66
318.001	-1.113	0.163	0.00
319.990	-1.437	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 24			
279.990	-1.797	0.163	0.00
282.000	-2.125	0.163	0.00
282.990	-2.286	0.163	0.00
284.000	-2.442	0.145	55.19
286.000	-2.695	0.109	55.19
288.000	-2.876	0.072	55.19
290.000	-2.984	0.036	55.19
291.990	-3.020	-0.000	55.19
294.000	-2.983	-0.036	55.19
296.000	-2.874	-0.073	55.19
298.000	-2.693	-0.109	55.19
300.000	-2.439	-0.145	55.19
300.990	-2.286	-0.163	55.19
302.000	-2.121	-0.163	0.00
304.000	-1.795	-0.163	0.00
306.000	-1.469	-0.163	0.00
306.990	-1.308	-0.163	0.00
308.000	-1.160	-0.130	-30.66
310.000	-0.965	-0.065	-30.66
311.990	-0.900	-0.000	-30.66
312.001	-0.900	0.000	-30.66
314.001	-0.966	0.066	-30.66
316.001	-1.162	0.131	-30.66
316.990	-1.308	0.163	-30.66
318.001	-1.473	0.163	0.00
319.990	-1.797	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 25			
319.990	-1.077	0.163	0.00
322.001	-1.405	0.163	0.00
322.990	-1.566	0.163	0.00
324.001	-1.722	0.145	55.19
326.001	-1.975	0.109	55.19
328.001	-2.156	0.072	55.19
330.001	-2.264	0.036	55.19
331.990	-2.300	-0.000	55.19
334.001	-2.263	-0.036	55.19
336.001	-2.154	-0.073	55.19
338.001	-1.973	-0.109	55.19
340.001	-1.719	-0.145	55.19
340.990	-1.566	-0.163	55.19
342.001	-1.401	-0.163	0.00
344.001	-1.075	-0.163	0.00
346.001	-0.749	-0.163	0.00
346.990	-0.588	-0.163	0.00
348.001	-0.439	-0.130	-30.66
350.001	-0.245	-0.065	-30.66
351.990	-0.180	-0.000	-30.66
352.001	-0.180	0.000	-30.66
354.001	-0.246	0.066	-30.66
356.001	-0.442	0.131	-30.66
356.990	-0.588	0.163	-30.66
358.001	-0.753	0.163	0.00
359.990	-1.077	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

Cable nº 26

x [m]	y [m]	y'	R [m]
319.990	-1.437	0.163	0.00
322.001	-1.765	0.163	0.00
322.990	-1.926	0.163	0.00
324.001	-2.082	0.145	55.19
326.001	-2.335	0.109	55.19
328.001	-2.516	0.072	55.19
330.001	-2.624	0.036	55.19
331.990	-2.660	-0.000	55.19
334.001	-2.623	-0.036	55.19
336.001	-2.514	-0.073	55.19
338.001	-2.333	-0.109	55.19
340.001	-2.079	-0.145	55.19
340.990	-1.926	-0.163	55.19
342.001	-1.761	-0.163	0.00
344.001	-1.435	-0.163	0.00
346.001	-1.109	-0.163	0.00
346.990	-0.948	-0.163	0.00
348.001	-0.799	-0.130	-30.66
350.001	-0.605	-0.065	-30.66
351.990	-0.540	-0.000	-30.66
352.001	-0.540	0.000	-30.66
354.001	-0.606	0.066	-30.66
356.001	-0.802	0.131	-30.66
356.990	-0.948	0.163	-30.66
358.001	-1.113	0.163	0.00
359.990	-1.437	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

Cable nº 27

x [m]	y [m]	y'	R [m]
319.990	-1.797	0.163	0.00
322.001	-2.125	0.163	0.00
322.990	-2.286	0.163	0.00
324.001	-2.442	0.145	55.19
326.001	-2.695	0.109	55.19
328.001	-2.876	0.072	55.19
330.001	-2.984	0.036	55.19
331.990	-3.020	-0.000	55.19
334.001	-2.983	-0.036	55.19
336.001	-2.874	-0.073	55.19
338.001	-2.693	-0.109	55.19
340.001	-2.439	-0.145	55.19
340.990	-2.286	-0.163	55.19
342.001	-2.121	-0.163	0.00
344.001	-1.795	-0.163	0.00
346.001	-1.469	-0.163	0.00
346.990	-1.308	-0.163	0.00
348.001	-1.159	-0.130	-30.66
350.001	-0.965	-0.065	-30.66
351.990	-0.900	-0.000	-30.66
352.001	-0.900	0.000	-30.66
354.001	-0.966	0.066	-30.66
356.001	-1.162	0.131	-30.66
356.990	-1.308	0.163	-30.66
358.001	-1.473	0.163	0.00
359.990	-1.797	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 28			
359.990	-1.077	0.163	0.00
362.001	-1.405	0.163	0.00
362.990	-1.566	0.163	0.00
364.001	-1.722	0.145	55.19
366.001	-1.975	0.109	55.19
368.001	-2.156	0.072	55.19
370.001	-2.264	0.036	55.19
371.990	-2.300	-0.000	55.19
374.001	-2.263	-0.036	55.19
376.001	-2.154	-0.073	55.19
378.001	-1.973	-0.109	55.19
380.001	-1.719	-0.145	55.19
380.990	-1.566	-0.163	55.19
382.001	-1.401	-0.163	0.00
384.001	-1.075	-0.163	0.00
386.001	-0.749	-0.163	0.00
386.990	-0.588	-0.163	0.00
388.001	-0.439	-0.130	-30.66
390.001	-0.245	-0.065	-30.66
391.990	-0.180	-0.000	-30.66
392.000	-0.180	0.000	-30.60
394.000	-0.246	0.066	-30.60
396.000	-0.443	0.131	-30.60
396.990	-0.588	0.163	-30.60
398.000	-0.753	0.163	0.00
399.980	-1.077	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 29			
359.990	-1.437	0.163	0.00
362.001	-1.765	0.163	0.00
362.990	-1.926	0.163	0.00
364.001	-2.082	0.145	55.19
366.001	-2.335	0.109	55.19
368.001	-2.516	0.072	55.19
370.001	-2.624	0.036	55.19
371.990	-2.660	-0.000	55.19
374.001	-2.623	-0.036	55.19
376.001	-2.514	-0.073	55.19
378.001	-2.333	-0.109	55.19
380.001	-2.079	-0.145	55.19
380.990	-1.926	-0.163	55.19
382.001	-1.761	-0.163	0.00
384.001	-1.435	-0.163	0.00
386.001	-1.109	-0.163	0.00
386.990	-0.948	-0.163	0.00
388.001	-0.799	-0.130	-30.66
390.001	-0.605	-0.065	-30.66
391.990	-0.540	-0.000	-30.66
392.000	-0.540	0.000	-30.66
394.000	-0.606	0.066	-30.66
396.000	-0.802	0.131	-30.66
396.990	-0.948	0.163	-30.66
398.000	-1.112	0.163	0.00
399.990	-1.437	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 30			
359.990	-1.797	0.163	0.00
362.001	-2.125	0.163	0.00
362.990	-2.286	0.163	0.00
364.001	-2.442	0.145	55.19
366.001	-2.695	0.109	55.19
368.001	-2.876	0.072	55.19
370.001	-2.984	0.036	55.19
371.990	-3.020	-0.000	55.19
374.001	-2.983	-0.036	55.19
376.001	-2.874	-0.073	55.19
378.001	-2.693	-0.109	55.19
380.001	-2.439	-0.145	55.19
380.990	-2.286	-0.163	55.19
382.001	-2.121	-0.163	0.00
384.001	-1.795	-0.163	0.00
386.001	-1.469	-0.163	0.00
386.990	-1.308	-0.163	0.00
388.001	-1.159	-0.130	-30.66
390.001	-0.965	-0.065	-30.66
391.990	-0.900	-0.000	-30.66
392.000	-0.900	0.000	-30.66
394.000	-0.966	0.066	-30.66
396.000	-1.162	0.131	-30.66
396.990	-1.308	0.163	-30.66
398.000	-1.472	0.163	0.00
399.990	-1.797	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 31			
399.990	-1.077	0.163	0.00
402.000	-1.405	0.163	0.00
402.990	-1.566	0.163	0.00
404.000	-1.722	0.145	55.19
406.000	-1.975	0.109	55.19
408.000	-2.156	0.072	55.19
410.000	-2.264	0.036	55.19
411.990	-2.300	-0.000	55.19
414.000	-2.263	-0.036	55.19
416.000	-2.154	-0.073	55.19
418.000	-1.973	-0.109	55.19
420.000	-1.719	-0.145	55.19
420.990	-1.566	-0.163	55.19
422.000	-1.401	-0.163	0.00
424.000	-1.075	-0.163	0.00
426.000	-0.749	-0.163	0.00
426.990	-0.588	-0.163	0.00
428.000	-0.440	-0.130	-30.66
430.000	-0.245	-0.065	-30.66
431.990	-0.180	-0.000	-30.66
432.001	-0.180	0.000	-30.66
434.001	-0.246	0.066	-30.66
436.001	-0.442	0.131	-30.66
436.990	-0.588	0.163	-30.66
438.001	-0.753	0.163	0.00
439.990	-1.077	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 32			
399.990	-1.437	0.163	0.00
402.000	-1.765	0.163	0.00
402.990	-1.926	0.163	0.00
404.000	-2.082	0.145	55.19
406.000	-2.335	0.109	55.19
408.000	-2.516	0.072	55.19
410.000	-2.624	0.036	55.19
411.990	-2.660	-0.000	55.19
414.000	-2.623	-0.036	55.19
416.000	-2.514	-0.073	55.19
418.000	-2.333	-0.109	55.19
420.000	-2.079	-0.145	55.19
420.990	-1.926	-0.163	55.19
422.000	-1.762	-0.163	0.00
424.000	-1.435	-0.163	0.00
426.000	-1.109	-0.163	0.00
426.990	-0.948	-0.163	0.00
428.000	-0.800	-0.130	-30.66
430.000	-0.605	-0.065	-30.66
431.990	-0.540	-0.000	-30.66
432.001	-0.540	0.000	-30.66
434.001	-0.606	0.066	-30.66
436.001	-0.802	0.131	-30.66
436.990	-0.948	0.163	-30.66
438.001	-1.113	0.163	0.00
439.990	-1.437	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 33			
399.990	-1.797	0.163	0.00
402.000	-2.125	0.163	0.00
402.990	-2.286	0.163	0.00
404.000	-2.442	0.145	55.19
406.000	-2.695	0.109	55.19
408.000	-2.876	0.072	55.19
410.000	-2.984	0.036	55.19
411.990	-3.020	-0.000	55.19
414.000	-2.983	-0.036	55.19
416.000	-2.874	-0.073	55.19
418.000	-2.693	-0.109	55.19
420.000	-2.439	-0.145	55.19
420.990	-2.286	-0.163	55.19
422.000	-2.121	-0.163	0.00
424.000	-1.795	-0.163	0.00
426.000	-1.469	-0.163	0.00
426.990	-1.308	-0.163	0.00
428.000	-1.160	-0.130	-30.66
430.000	-0.965	-0.065	-30.66
431.990	-0.900	-0.000	-30.66
432.001	-0.900	0.000	-30.66
434.001	-0.966	0.066	-30.66
436.001	-1.162	0.131	-30.66
436.990	-1.308	0.163	-30.66
438.001	-1.473	0.163	0.00
439.990	-1.797	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 34			
439.990	-1.077	0.163	0.00
442.001	-1.405	0.163	0.00
442.990	-1.566	0.163	0.00
444.001	-1.722	0.145	55.19
446.001	-1.975	0.109	55.19
448.001	-2.156	0.072	55.19
450.001	-2.264	0.036	55.19
451.990	-2.300	-0.000	55.19
454.001	-2.263	-0.036	55.19
456.001	-2.154	-0.073	55.19
458.001	-1.973	-0.109	55.19
460.001	-1.719	-0.145	55.19
460.990	-1.566	-0.163	55.19
462.001	-1.401	-0.163	0.00
464.001	-1.075	-0.163	0.00
466.001	-0.749	-0.163	0.00
466.990	-0.588	-0.163	0.00
468.001	-0.439	-0.130	-30.66
470.001	-0.245	-0.065	-30.66
471.990	-0.180	-0.000	-30.66
472.001	-0.180	0.000	-30.66
474.001	-0.246	0.066	-30.66
476.001	-0.442	0.131	-30.66
476.990	-0.588	0.163	-30.66
478.001	-0.753	0.163	0.00
479.990	-1.077	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 35			
439.990	-1.437	0.163	0.00
442.001	-1.765	0.163	0.00
442.990	-1.926	0.163	0.00
444.001	-2.082	0.145	55.19
446.001	-2.335	0.109	55.19
448.001	-2.516	0.072	55.19
450.001	-2.624	0.036	55.19
451.990	-2.660	-0.000	55.19
454.001	-2.623	-0.036	55.19
456.001	-2.514	-0.073	55.19
458.001	-2.333	-0.109	55.19
460.001	-2.079	-0.145	55.19
460.990	-1.926	-0.163	55.19
462.001	-1.761	-0.163	0.00
464.001	-1.435	-0.163	0.00
466.001	-1.109	-0.163	0.00
466.990	-0.948	-0.163	0.00
468.001	-0.799	-0.130	-30.66
470.001	-0.605	-0.065	-30.66
471.990	-0.540	-0.000	-30.66
472.001	-0.540	0.000	-30.66
474.001	-0.606	0.066	-30.66
476.001	-0.802	0.131	-30.66
476.990	-0.948	0.163	-30.66
478.001	-1.113	0.163	0.00
479.990	-1.437	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 36			
439.990	-1.797	0.163	0.00
442.001	-2.125	0.163	0.00
442.990	-2.286	0.163	0.00
444.001	-2.442	0.145	55.19
446.001	-2.695	0.109	55.19
448.001	-2.876	0.072	55.19
450.001	-2.984	0.036	55.19
451.990	-3.020	-0.000	55.19
454.001	-2.983	-0.036	55.19
456.001	-2.874	-0.073	55.19
458.001	-2.693	-0.109	55.19
460.001	-2.439	-0.145	55.19
460.990	-2.286	-0.163	55.19
462.001	-2.121	-0.163	0.00
464.001	-1.795	-0.163	0.00
466.001	-1.469	-0.163	0.00
466.990	-1.308	-0.163	0.00
468.001	-1.159	-0.130	-30.66
470.001	-0.965	-0.065	-30.66
471.990	-0.900	-0.000	-30.66
472.001	-0.900	0.000	-30.66
474.001	-0.966	0.066	-30.66
476.001	-1.162	0.131	-30.66
476.990	-1.308	0.163	-30.66
478.001	-1.473	0.163	0.00
479.990	-1.797	0.163	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 37			
479.990	-1.077	0.163	0.00
482.001	-1.405	0.163	0.00
482.990	-1.566	0.163	0.00
484.001	-1.722	0.145	55.19
486.001	-1.975	0.109	55.19
488.001	-2.156	0.072	55.19
490.001	-2.264	0.036	55.19
491.990	-2.300	-0.000	55.19
494.001	-2.263	-0.036	55.19
496.001	-2.154	-0.073	55.19
498.001	-1.973	-0.109	55.19
500.001	-1.719	-0.145	55.19
500.990	-1.566	-0.163	55.19
502.001	-1.401	-0.163	0.00
504.001	-1.075	-0.163	0.00
506.001	-0.749	-0.163	0.00
506.990	-0.588	-0.163	0.00
508.001	-0.439	-0.130	-30.66
510.001	-0.245	-0.065	-30.66
511.990	-0.180	-0.000	-30.66
512.001	-0.180	0.001	-17.62
513.601	-0.254	0.091	-17.62
514.990	-0.435	0.170	-17.62
515.201	-0.471	0.170	0.00
516.801	-0.744	0.170	0.00
517.990	-0.946	0.170	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 38			
479.990	-1.437	0.163	0.00
482.001	-1.765	0.163	0.00
482.990	-1.926	0.163	0.00
484.001	-2.082	0.145	55.19
486.001	-2.335	0.109	55.19
488.001	-2.516	0.072	55.19
490.001	-2.624	0.036	55.19
491.990	-2.660	-0.000	55.19
494.001	-2.623	-0.036	55.19
496.001	-2.514	-0.073	55.19
498.001	-2.333	-0.109	55.19
500.001	-2.079	-0.145	55.19
500.990	-1.926	-0.163	55.19
502.001	-1.761	-0.163	0.00
504.001	-1.435	-0.163	0.00
506.001	-1.109	-0.163	0.00
506.990	-0.948	-0.163	0.00
508.001	-0.799	-0.130	-30.66
510.001	-0.605	-0.065	-30.66
511.990	-0.540	-0.000	-30.66
512.001	-0.540	0.001	-17.62
513.601	-0.614	0.091	-17.62
514.990	-0.795	0.170	-17.62
515.201	-0.831	0.170	0.00
516.801	-1.104	0.170	0.00
517.990	-1.306	0.170	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 39			
479.990	-1.797	0.163	0.00
482.001	-2.125	0.163	0.00
482.990	-2.286	0.163	0.00
484.001	-2.442	0.145	55.19
486.001	-2.695	0.109	55.19
488.001	-2.876	0.072	55.19
490.001	-2.984	0.036	55.19
491.990	-3.020	-0.000	55.19
494.001	-2.983	-0.036	55.19
496.001	-2.874	-0.073	55.19
498.001	-2.693	-0.109	55.19
500.001	-2.439	-0.145	55.19
500.990	-2.286	-0.163	55.19
502.001	-2.121	-0.163	0.00
504.001	-1.795	-0.163	0.00
506.001	-1.469	-0.163	0.00
506.990	-1.308	-0.163	0.00
508.001	-1.159	-0.130	-30.66
510.001	-0.965	-0.065	-30.66
511.990	-0.900	-0.000	-30.66
512.001	-0.900	0.001	-17.62
513.601	-0.974	0.091	-17.62
514.990	-1.155	0.170	-17.62
515.201	-1.191	0.170	0.00
516.801	-1.464	0.170	0.00
517.990	-1.666	0.170	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 40			
518.390	-0.946	0.163	0.00
520.001	-1.209	0.163	0.00
521.390	-1.435	0.163	0.00
521.601	-1.469	0.160	64.98
523.201	-1.706	0.135	64.98
524.801	-1.902	0.111	64.98
526.401	-2.060	0.086	64.98
528.001	-2.178	0.061	64.98
529.601	-2.256	0.037	64.98
531.201	-2.295	0.012	64.98
531.990	-2.300	-0.000	64.98
532.801	-2.292	-0.019	41.93
534.401	-2.231	-0.058	41.93
536.001	-2.108	-0.096	41.93
537.601	-1.924	-0.134	41.93
539.201	-1.680	-0.172	41.93
540.801	-1.374	-0.210	41.93
540.990	-1.334	-0.215	41.93
542.401	-1.031	-0.215	0.00
543.990	-0.690	-0.215	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 41			
518.390	-1.306	0.163	0.00
520.001	-1.569	0.163	0.00
521.390	-1.795	0.163	0.00
521.601	-1.829	0.160	64.98
523.201	-2.066	0.135	64.98
524.801	-2.262	0.111	64.98
526.401	-2.420	0.086	64.98
528.001	-2.538	0.061	64.98
529.601	-2.616	0.037	64.98
531.201	-2.655	0.012	64.98
531.990	-2.660	-0.000	64.98
532.801	-2.653	-0.018	44.40
534.401	-2.595	-0.054	44.40
536.001	-2.479	-0.090	44.40
537.601	-2.305	-0.126	44.40
539.201	-2.074	-0.162	44.40
540.801	-1.786	-0.198	44.40
540.990	-1.748	-0.203	44.40
542.401	-1.462	-0.203	0.00
543.990	-1.140	-0.203	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 42			
518.390	-1.666	0.163	0.00
520.001	-1.929	0.163	0.00
521.390	-2.155	0.163	0.00
521.601	-2.190	0.160	64.98
523.201	-2.426	0.135	64.98
524.801	-2.622	0.111	64.98
526.401	-2.780	0.086	64.98
528.001	-2.898	0.061	64.98
529.601	-2.976	0.037	64.98
531.201	-3.015	0.012	64.98
531.990	-3.020	-0.000	64.98
532.801	-3.013	-0.017	47.19
534.401	-2.958	-0.051	47.19
536.001	-2.850	-0.085	47.19
537.601	-2.686	-0.119	47.19
539.201	-2.469	-0.153	47.19
540.801	-2.198	-0.187	47.19
540.990	-2.162	-0.191	47.19
542.401	-1.893	-0.191	0.00
543.990	-1.590	-0.191	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 43			
25.600	-0.180	-0.000	0.00
27.201	-0.180	-0.000	0.00
28.801	-0.180	-0.000	0.00
30.401	-0.180	-0.000	0.00
32.000	-0.180	-0.000	0.00
34.001	-0.180	-0.000	0.00
36.001	-0.180	-0.000	0.00
38.001	-0.180	-0.000	0.00
40.000	-0.180	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 44			
64.000	-0.180	-0.000	0.00
66.001	-0.180	-0.000	0.00
68.001	-0.180	-0.000	0.00
70.001	-0.180	-0.000	0.00
72.000	-0.180	-0.000	0.00
74.000	-0.180	-0.000	0.00
76.000	-0.180	-0.000	0.00
78.000	-0.180	-0.000	0.00
80.000	-0.180	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 45			
104.000	-0.180	-0.000	0.00
106.000	-0.180	-0.000	0.00
108.000	-0.180	-0.000	0.00
110.000	-0.180	-0.000	0.00
112.000	-0.180	-0.000	0.00
114.000	-0.180	-0.000	0.00
116.000	-0.180	-0.000	0.00
118.000	-0.180	-0.000	0.00
119.990	-0.180	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 46			
144.000	-0.180	-0.000	0.00
146.000	-0.180	-0.000	0.00
148.000	-0.180	-0.000	0.00
150.000	-0.180	-0.000	0.00
152.000	-0.180	-0.000	0.00
154.000	-0.180	-0.000	0.00
156.000	-0.180	-0.000	0.00
158.000	-0.180	-0.000	0.00
160.000	-0.180	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 47			
184.000	-0.180	-0.000	0.00
186.001	-0.180	-0.000	0.00
188.001	-0.180	-0.000	0.00
190.001	-0.180	-0.000	0.00
192.000	-0.180	-0.000	0.00
194.001	-0.180	-0.000	0.00
196.001	-0.180	-0.000	0.00
198.001	-0.180	-0.000	0.00
200.000	-0.180	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 48			
224.000	-0.180	-0.000	0.00
226.000	-0.180	-0.000	0.00
228.000	-0.180	-0.000	0.00
230.000	-0.180	-0.000	0.00
232.000	-0.180	-0.000	0.00
234.000	-0.180	-0.000	0.00
236.000	-0.180	-0.000	0.00
238.000	-0.180	-0.000	0.00
240.000	-0.180	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 49			
264.000	-0.180	-0.000	0.00
266.000	-0.180	-0.000	0.00
268.000	-0.180	-0.000	0.00
270.000	-0.180	-0.000	0.00
272.000	-0.180	-0.000	0.00
272.000	-0.180	-0.000	0.00
274.000	-0.180	-0.000	0.00
276.000	-0.180	-0.000	0.00
278.000	-0.180	-0.000	0.00
280.000	-0.180	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 50			
304.000	-0.180	-0.000	0.00
306.000	-0.180	-0.000	0.00
308.000	-0.180	-0.000	0.00
310.000	-0.180	-0.000	0.00
312.000	-0.180	-0.000	0.00
314.000	-0.180	-0.000	0.00
316.000	-0.180	-0.000	0.00
318.000	-0.180	-0.000	0.00
320.000	-0.180	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 51			
344.000	-0.180	-0.000	0.00
346.001	-0.180	-0.000	0.00
348.001	-0.180	-0.000	0.00
350.001	-0.180	-0.000	0.00
352.000	-0.180	-0.000	0.00
354.001	-0.180	-0.000	0.00
356.001	-0.180	-0.000	0.00
358.001	-0.180	-0.000	0.00
360.000	-0.180	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 52			
384.000	-0.180	-0.000	0.00
386.000	-0.180	-0.000	0.00
388.000	-0.180	-0.000	0.00
390.000	-0.180	-0.000	0.00
392.000	-0.180	-0.000	0.00
394.000	-0.180	-0.000	0.00
396.000	-0.180	-0.000	0.00
398.000	-0.180	-0.000	0.00
399.990	-0.180	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 53			
424.000	-0.180	-0.000	0.00
426.000	-0.180	-0.000	0.00
428.000	-0.180	-0.000	0.00
430.000	-0.180	-0.000	0.00
432.000	-0.180	-0.000	0.00
434.000	-0.180	-0.000	0.00
436.000	-0.180	-0.000	0.00
438.000	-0.180	-0.000	0.00
440.000	-0.180	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 54			
464.000	-0.180	-0.000	0.00
466.001	-0.180	-0.000	0.00
468.001	-0.180	-0.000	0.00
470.001	-0.180	-0.000	0.00
472.000	-0.180	-0.000	0.00
474.001	-0.180	-0.000	0.00
476.001	-0.180	-0.000	0.00
478.001	-0.180	-0.000	0.00
479.990	-0.180	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 55			
504.000	-0.180	-0.000	0.00
506.001	-0.180	-0.000	0.00
508.001	-0.180	-0.000	0.00
510.001	-0.180	-0.000	0.00
512.000	-0.180	-0.000	0.00
513.601	-0.180	-0.000	0.00
515.201	-0.180	-0.000	0.00
516.801	-0.180	-0.000	0.00
518.400	-0.180	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 56			
0.000	-3.020	-0.000	0.00
1.000	-3.020	-0.000	0.00
1.600	-3.020	-0.000	0.00
2.000	-3.020	-0.000	0.00
3.200	-3.020	-0.000	0.00
4.800	-3.020	-0.000	0.00
6.400	-3.020	-0.000	0.00
8.000	-3.020	-0.000	0.00
9.600	-3.020	-0.000	0.00
11.200	-3.020	-0.000	0.00
12.800	-3.020	-0.000	0.00
14.400	-3.020	-0.000	0.00
16.000	-3.020	-0.000	0.00
17.600	-3.020	-0.000	0.00
19.200	-3.020	-0.000	0.00
20.800	-3.020	-0.000	0.00
22.400	-3.020	-0.000	0.00
24.000	-3.020	-0.000	0.00
25.600	-3.020	-0.000	0.00
27.200	-3.020	-0.000	0.00
28.800	-3.020	-0.000	0.00
30.400	-3.020	-0.000	0.00
32.000	-3.020	-0.000	0.00
32.001	-3.020	-0.000	0.00
34.001	-3.020	-0.000	0.00
36.001	-3.020	-0.000	0.00
38.000	-3.020	-0.000	0.00
39.000	-3.020	-0.000	0.00
40.000	-3.020	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 57			
40.000	-3.020	-0.000	0.00
41.000	-3.020	-0.000	0.00
42.000	-3.020	-0.000	0.00
44.001	-3.020	-0.000	0.00
46.001	-3.020	-0.000	0.00
48.001	-3.020	-0.000	0.00
50.001	-3.020	-0.000	0.00
52.001	-3.020	-0.000	0.00
54.001	-3.020	-0.000	0.00
56.001	-3.020	-0.000	0.00
58.001	-3.020	-0.000	0.00
60.001	-3.020	-0.000	0.00
62.001	-3.020	-0.000	0.00
64.001	-3.020	-0.000	0.00
66.001	-3.020	-0.000	0.00
68.001	-3.020	-0.000	0.00
70.001	-3.020	-0.000	0.00
72.001	-3.020	-0.000	0.00
74.000	-3.020	-0.000	0.00
76.000	-3.020	-0.000	0.00
78.000	-3.020	-0.000	0.00
79.000	-3.020	-0.000	0.00
80.000	-3.020	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 58			
80.000	-3.020	-0.000	0.00
81.000	-3.020	-0.000	0.00
82.000	-3.020	-0.000	0.00
84.000	-3.020	-0.000	0.00
86.000	-3.020	-0.000	0.00
88.000	-3.020	-0.000	0.00
90.000	-3.020	-0.000	0.00
92.000	-3.020	-0.000	0.00
94.000	-3.020	-0.000	0.00
96.000	-3.020	-0.000	0.00
98.000	-3.020	-0.000	0.00
100.000	-3.020	-0.000	0.00
102.000	-3.020	-0.000	0.00
104.000	-3.020	-0.000	0.00
106.000	-3.020	-0.000	0.00
108.000	-3.020	-0.000	0.00
110.000	-3.020	-0.000	0.00
112.000	-3.020	-0.000	0.00
114.000	-3.020	-0.000	0.00
116.000	-3.020	-0.000	0.00
118.000	-3.020	-0.000	0.00
119.000	-3.020	-0.000	0.00
119.990	-3.020	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 59			
119.990	-3.020	-0.000	0.00
120.001	-3.020	-0.000	0.00
120.990	-3.020	-0.000	0.00
121.990	-3.020	-0.000	0.00
124.001	-3.020	-0.000	0.00
126.001	-3.020	-0.000	0.00
128.001	-3.020	-0.000	0.00
130.001	-3.020	-0.000	0.00
132.001	-3.020	-0.000	0.00
134.001	-3.020	-0.000	0.00
136.001	-3.020	-0.000	0.00
138.001	-3.020	-0.000	0.00
140.001	-3.020	-0.000	0.00
142.001	-3.020	-0.000	0.00
144.001	-3.020	-0.000	0.00
146.001	-3.020	-0.000	0.00
148.001	-3.020	-0.000	0.00
150.001	-3.020	-0.000	0.00
152.001	-3.020	-0.000	0.00
152.001	-3.020	-0.000	0.00
154.001	-3.020	-0.000	0.00
156.001	-3.020	-0.000	0.00
157.990	-3.020	-0.000	0.00
158.001	-3.020	-0.000	0.00
158.990	-3.020	-0.000	0.00
159.990	-3.020	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 60			
159.990	-3.020	-0.000	0.00
160.001	-3.020	-0.000	0.00
160.990	-3.020	-0.000	0.00
161.990	-3.020	-0.000	0.00
164.001	-3.020	-0.000	0.00
166.001	-3.020	-0.000	0.00
168.001	-3.020	-0.000	0.00
170.001	-3.020	-0.000	0.00
172.001	-3.020	-0.000	0.00
174.001	-3.020	-0.000	0.00
176.001	-3.020	-0.000	0.00
178.001	-3.020	-0.000	0.00
180.001	-3.020	-0.000	0.00
182.001	-3.020	-0.000	0.00
184.001	-3.020	-0.000	0.00
186.001	-3.020	-0.000	0.00
188.001	-3.020	-0.000	0.00
190.001	-3.020	-0.000	0.00
192.001	-3.020	-0.000	0.00
192.001	-3.020	-0.000	0.00
194.001	-3.020	-0.000	0.00
196.001	-3.020	-0.000	0.00
197.990	-3.020	-0.000	0.00
198.001	-3.020	-0.000	0.00
198.990	-3.020	-0.000	0.00
199.990	-3.020	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 61			
199.990	-3.020	-0.000	0.00
200.001	-3.020	-0.000	0.00
200.990	-3.020	-0.000	0.00
201.990	-3.020	-0.000	0.00
204.001	-3.020	-0.000	0.00
206.001	-3.020	-0.000	0.00
208.001	-3.020	-0.000	0.00
210.001	-3.020	-0.000	0.00
212.001	-3.020	-0.000	0.00
214.001	-3.020	-0.000	0.00
216.001	-3.020	-0.000	0.00
218.001	-3.020	-0.000	0.00
220.001	-3.020	-0.000	0.00
222.001	-3.020	-0.000	0.00
224.001	-3.020	-0.000	0.00
226.001	-3.020	-0.000	0.00
228.001	-3.020	-0.000	0.00
230.001	-3.020	-0.000	0.00
232.001	-3.020	-0.000	0.00
232.001	-3.020	-0.000	0.00
234.001	-3.020	-0.000	0.00
236.001	-3.020	-0.000	0.00
237.990	-3.020	-0.000	0.00
238.001	-3.020	-0.000	0.00
238.990	-3.020	-0.000	0.00
239.990	-3.020	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 62			
239.990	-3.020	-0.000	0.00
240.000	-3.020	-0.000	0.00
240.990	-3.020	-0.000	0.00
241.990	-3.020	-0.000	0.00
244.000	-3.020	-0.000	0.00
246.000	-3.020	-0.000	0.00
248.000	-3.020	-0.000	0.00
250.000	-3.020	-0.000	0.00
252.000	-3.020	-0.000	0.00
254.000	-3.020	-0.000	0.00
256.000	-3.020	-0.000	0.00
258.000	-3.020	-0.000	0.00
260.000	-3.020	-0.000	0.00
262.000	-3.020	-0.000	0.00
264.000	-3.020	-0.000	0.00
266.000	-3.020	-0.000	0.00
268.000	-3.020	-0.000	0.00
270.000	-3.020	-0.000	0.00
272.000	-3.020	-0.000	0.00
272.000	-3.020	-0.000	0.00
274.000	-3.020	-0.000	0.00
276.000	-3.020	-0.000	0.00
277.990	-3.020	-0.000	0.00
278.000	-3.020	-0.000	0.00
278.990	-3.020	-0.000	0.00
279.990	-3.020	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 63			
279.990	-3.020	-0.000	0.00
280.000	-3.020	-0.000	0.00
280.990	-3.020	-0.000	0.00
281.990	-3.020	-0.000	0.00
284.000	-3.020	-0.000	0.00
286.000	-3.020	-0.000	0.00
288.000	-3.020	-0.000	0.00
290.000	-3.020	-0.000	0.00
292.000	-3.020	-0.000	0.00
294.000	-3.020	-0.000	0.00
296.000	-3.020	-0.000	0.00
298.000	-3.020	-0.000	0.00
300.000	-3.020	-0.000	0.00
302.000	-3.020	-0.000	0.00
304.000	-3.020	-0.000	0.00
306.000	-3.020	-0.000	0.00
308.000	-3.020	-0.000	0.00
310.000	-3.020	-0.000	0.00
312.000	-3.020	-0.000	0.00
312.001	-3.020	-0.000	0.00
314.001	-3.020	-0.000	0.00
316.001	-3.020	-0.000	0.00
317.990	-3.020	-0.000	0.00
318.001	-3.020	-0.000	0.00
318.990	-3.020	-0.000	0.00
319.990	-3.020	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 64			
319.990	-3.020	-0.000	0.00
320.001	-3.020	-0.000	0.00
320.990	-3.020	-0.000	0.00
321.990	-3.020	-0.000	0.00
324.001	-3.020	-0.000	0.00
326.001	-3.020	-0.000	0.00
328.001	-3.020	-0.000	0.00
330.001	-3.020	-0.000	0.00
332.001	-3.020	-0.000	0.00
334.001	-3.020	-0.000	0.00
336.001	-3.020	-0.000	0.00
338.001	-3.020	-0.000	0.00
340.001	-3.020	-0.000	0.00
342.001	-3.020	-0.000	0.00
344.001	-3.020	-0.000	0.00
346.001	-3.020	-0.000	0.00
348.001	-3.020	-0.000	0.00
350.001	-3.020	-0.000	0.00
352.001	-3.020	-0.000	0.00
352.001	-3.020	-0.000	0.00
354.001	-3.020	-0.000	0.00
356.001	-3.020	-0.000	0.00
357.990	-3.020	-0.000	0.00
358.001	-3.020	-0.000	0.00
358.990	-3.020	-0.000	0.00
359.990	-3.020	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 65			
359.990	-3.020	-0.000	0.00
360.001	-3.020	-0.000	0.00
360.990	-3.020	-0.000	0.00
361.990	-3.020	-0.000	0.00
364.001	-3.020	-0.000	0.00
366.001	-3.020	-0.000	0.00
368.001	-3.020	-0.000	0.00
370.001	-3.020	-0.000	0.00
372.001	-3.020	-0.000	0.00
374.001	-3.020	-0.000	0.00
376.001	-3.020	-0.000	0.00
378.001	-3.020	-0.000	0.00
380.001	-3.020	-0.000	0.00
382.001	-3.020	-0.000	0.00
384.001	-3.020	-0.000	0.00
386.001	-3.020	-0.000	0.00
388.001	-3.020	-0.000	0.00
390.001	-3.020	-0.000	0.00
392.001	-3.020	-0.000	0.00
392.000	-3.020	-0.000	0.00
394.000	-3.020	-0.000	0.00
396.000	-3.020	-0.000	0.00
397.990	-3.020	-0.000	0.00
398.000	-3.020	-0.000	0.00
398.990	-3.020	-0.000	0.00
399.990	-3.020	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 66			
399.990	-3.020	-0.000	0.00
400.000	-3.020	-0.000	0.00
400.990	-3.020	-0.000	0.00
401.990	-3.020	-0.000	0.00
404.000	-3.020	-0.000	0.00
406.000	-3.020	-0.000	0.00
408.000	-3.020	-0.000	0.00
410.000	-3.020	-0.000	0.00
412.000	-3.020	-0.000	0.00
414.000	-3.020	-0.000	0.00
416.000	-3.020	-0.000	0.00
418.000	-3.020	-0.000	0.00
420.000	-3.020	-0.000	0.00
422.000	-3.020	-0.000	0.00
424.000	-3.020	-0.000	0.00
426.000	-3.020	-0.000	0.00
428.000	-3.020	-0.000	0.00
430.000	-3.020	-0.000	0.00
432.000	-3.020	-0.000	0.00
432.001	-3.020	-0.000	0.00
434.001	-3.020	-0.000	0.00
436.001	-3.020	-0.000	0.00
437.990	-3.020	-0.000	0.00
438.001	-3.020	-0.000	0.00
439.990	-3.020	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 67			
439.990	-3.020	-0.000	0.00
440.001	-3.020	-0.000	0.00
440.990	-3.020	-0.000	0.00
441.990	-3.020	-0.000	0.00
444.001	-3.020	-0.000	0.00
446.001	-3.020	-0.000	0.00
448.001	-3.020	-0.000	0.00
450.001	-3.020	-0.000	0.00
452.001	-3.020	-0.000	0.00
454.001	-3.020	-0.000	0.00
456.001	-3.020	-0.000	0.00
458.001	-3.020	-0.000	0.00
460.001	-3.020	-0.000	0.00
462.001	-3.020	-0.000	0.00
464.001	-3.020	-0.000	0.00
466.001	-3.020	-0.000	0.00
468.001	-3.020	-0.000	0.00
470.001	-3.020	-0.000	0.00
472.001	-3.020	-0.000	0.00
472.001	-3.020	-0.000	0.00
474.001	-3.020	-0.000	0.00
476.001	-3.020	-0.000	0.00
477.990	-3.020	-0.000	0.00
478.001	-3.020	-0.000	0.00
478.990	-3.020	-0.000	0.00
479.990	-3.020	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 68			
479.990	-3.020	-0.000	0.00
480.001	-3.020	-0.000	0.00
480.990	-3.020	-0.000	0.00
481.990	-3.020	-0.000	0.00
484.001	-3.020	-0.000	0.00
486.001	-3.020	-0.000	0.00
488.001	-3.020	-0.000	0.00
490.001	-3.020	-0.000	0.00
492.001	-3.020	-0.000	0.00
494.001	-3.020	-0.000	0.00
496.001	-3.020	-0.000	0.00
498.001	-3.020	-0.000	0.00
500.001	-3.020	-0.000	0.00
502.001	-3.020	-0.000	0.00
504.001	-3.020	-0.000	0.00
506.001	-3.020	-0.000	0.00
508.001	-3.020	-0.000	0.00
510.001	-3.020	-0.000	0.00
512.001	-3.020	-0.000	0.00
512.001	-3.020	-0.000	0.00
513.601	-3.020	-0.000	0.00
515.201	-3.020	-0.000	0.00
516.390	-3.020	-0.000	0.00
516.801	-3.020	-0.000	0.00
517.390	-3.020	-0.000	0.00
518.390	-3.020	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 69			
518.390	-3.020	-0.000	0.00
518.401	-3.020	-0.000	0.00
519.390	-3.020	-0.000	0.00
520.001	-3.020	-0.000	0.00
520.390	-3.020	-0.000	0.00
521.601	-3.020	-0.000	0.00
523.201	-3.020	-0.000	0.00
524.801	-3.020	-0.000	0.00
526.401	-3.020	-0.000	0.00
528.001	-3.020	-0.000	0.00
529.601	-3.020	-0.000	0.00
531.201	-3.020	-0.000	0.00
532.801	-3.020	-0.000	0.00
534.401	-3.020	-0.000	0.00
536.001	-3.020	-0.000	0.00
537.601	-3.020	-0.000	0.00
539.201	-3.020	-0.000	0.00
540.801	-3.020	-0.000	0.00
541.990	-3.020	-0.000	0.00
542.401	-3.020	-0.000	0.00
542.990	-3.020	-0.000	0.00
543.990	-3.020	-0.000	0.00

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 70			
25.600	-3.020	-0.000	0.00
26.600	-3.020	-0.000	0.00
27.201	-3.020	-0.000	0.00
27.600	-3.020	-0.000	0.00
28.801	-3.020	-0.000	0.00
30.401	-3.020	-0.000	0.00
32.001	-3.020	-0.000	0.00
32.001	-3.020	-0.000	0.00
34.001	-3.020	-0.000	0.00
36.001	-3.020	-0.000	0.00
38.001	-3.020	-0.000	0.00
40.001	-3.020	-0.000	0.00
42.001	-3.020	-0.000	0.00
44.001	-3.020	-0.000	0.00
46.001	-3.020	-0.000	0.00
48.001	-3.020	-0.000	0.00
50.001	-3.020	-0.000	0.00
52.001	-3.020	-0.000	0.00
54.001	-3.020	-0.000	0.00
56.001	-3.020	-0.000	0.00
58.001	-3.020	-0.000	0.00
60.001	-3.020	-0.000	0.00
62.001	-3.020	-0.000	0.00
64.001	-3.020	-0.000	0.00
66.001	-3.020	-0.000	0.00
68.001	-3.020	-0.000	0.00
70.001	-3.020	-0.000	0.00
72.001	-3.020	-0.000	0.00
74.000	-3.020	-0.000	0.00
76.000	-3.020	-0.000	0.00
78.000	-3.020	-0.000	0.00
79.000	-3.020	-0.000	0.00
80.000	-3.020	-0.000	0.00

ALARGAMIENTOS DE LAS FAMILIAS EN CADA FASE DE TESADO

Fase	Familia	Alarg 1 [mm]	Alarg 2 [mm]	Alarg. tot [mm]
1	1	281.2	13.5	294.7
1	2	281.8	13.1	294.9
1	3	282.3	12.8	295.1
1	43	110.6	5.0	115.6
1	56	286.3	8.9	295.2
2	4	--	-5.0	-5.0
2	5	--	-5.0	-5.0
2	6	--	-5.0	-5.0
2	44	--	-5.0	-5.0
2	57	--	-5.0	-5.0
2	70	--	-5.0	-5.0
3	7	--	-5.0	-5.0
3	8	--	-5.0	-5.0
3	9	--	-5.0	-5.0
3	45	--	-5.0	-5.0
3	58	--	-5.0	-5.0
4	10	--	-5.0	-5.0
4	11	--	-5.0	-5.0
4	12	--	-5.0	-5.0
4	46	--	-5.0	-5.0
4	59	--	-5.0	-5.0
5	13	--	-5.0	-5.0
5	14	--	-5.0	-5.0
5	15	--	-5.0	-5.0
5	47	--	-5.0	-5.0
5	60	--	-5.0	-5.0
6	16	--	-5.0	-5.0
6	17	--	-5.0	-5.0
6	18	--	-5.0	-5.0
6	48	--	-5.0	-5.0
6	61	--	-5.0	-5.0
7	19	--	-5.0	-5.0
7	20	--	-5.0	-5.0
7	21	--	-5.0	-5.0
7	49	--	-5.0	-5.0
7	62	--	-5.0	-5.0
8	22	--	-5.0	-5.0
8	23	--	-5.0	-5.0
8	24	--	-5.0	-5.0
8	50	--	-5.0	-5.0
8	63	--	-5.0	-5.0
9	25	--	-5.0	-5.0
9	26	--	-5.0	-5.0
9	27	--	-5.0	-5.0
9	51	--	-5.0	-5.0
9	64	--	-5.0	-5.0
10	28	--	-5.0	-5.0
10	29	--	-5.0	-5.0
10	30	--	-5.0	-5.0
10	52	--	-5.0	-5.0
10	65	--	-5.0	-5.0
11	31	--	-5.0	-5.0
11	32	--	-5.0	-5.0
11	33	--	-5.0	-5.0
11	53	--	-5.0	-5.0
11	66	--	-5.0	-5.0
12	34	--	-5.0	-5.0
12	35	--	-5.0	-5.0
12	36	--	-5.0	-5.0
12	54	--	-5.0	-5.0
12	67	--	-5.0	-5.0
13	37	--	-5.0	-5.0
13	38	--	-5.0	-5.0
13	39	--	-5.0	-5.0
13	55	--	-5.0	-5.0
13	68	--	-5.0	-5.0
14	40	--	-5.0	-5.0
14	41	--	-5.0	-5.0
14	42	--	-5.0	-5.0
14	69	--	-5.0	-5.0

COMPROBACION TENSIONES FASE 1

Factores de ponderación considerados para el pretensado:

- Acciones Desfavorables: 1.1
- Acciones Favorables: 0.9

LEYENDA:
+ : Compresión>fck(j)/1.6
* : Tracción
# : Fisuración
! : Requiere comprobación wk

Vano	x		Pxo	Mmax Mmin	?s ?s	?i ?i	fckj
	[m]		[t]	[tm]	[kg/cm²]	[kg/cm²]	[kg/cm²]
1	0.00	der max	-6212.00	-4074.99	-5.60	-78.05	337
1	0.00	min	-7589.32	-4980.55	-6.83	-95.37	337
1	3.20	izq max	-6243.84	-6013.02	-8.51	-156.52	337
1	3.20	min	-7629.09	-7593.91	-8.18	-195.10	337
1	3.20	der max	-6262.39	-6036.79	-8.48	-157.08	337
1	3.20	min	-7654.04	-7622.98	-8.17	-195.81	337
1	6.40	izq max	-6380.20	-7243.54	1.17 *	-177.14	337
1	6.40	min	-7798.03	-9278.04	5.24 *	-223.15 +	337
1	6.40	der max	-6380.21	-7243.57	1.17 *	-177.14	337
1	6.40	min	-7798.03	-9278.08	5.24 *	-223.15 +	337
1	9.60	izq max	-6467.74	-7894.29	6.13 *	-188.19	337
1	9.60	min	-7905.02	-10196.70	12.41 *	-238.59 +	337
1	9.60	der max	-6467.74	-7894.29	6.13 *	-188.19	337
1	9.60	min	-7905.02	-10196.70	12.41 *	-238.59 +	337
1	12.80	izq max	-6457.87	-7812.74	5.50 *	-186.82	337
1	12.80	min	-7892.95	-10163.40	12.23 *	-237.95 +	337
1	12.80	der max	-6457.86	-7812.72	5.50 *	-186.82	337
1	12.80	min	-7892.94	-10163.30	12.23 *	-237.95 +	337
1	16.00	izq max	-6391.29	-7226.30	0.90 *	-176.98	337
1	16.00	min	-7811.58	-9456.08	6.70 *	-226.07 +	337
1	16.00	der max	-6391.29	-7226.30	0.90 *	-176.98	337
1	16.00	min	-7811.58	-9456.08	6.70 *	-226.07 +	337
1	19.20	izq max	-6319.35	-6323.38	-6.48	-162.13	337
1	19.20	min	-7723.65	-8305.12	-2.75	-207.18	337
1	19.20	der max	-6319.35	-6323.38	-6.48	-162.13	337
1	19.20	min	-7723.65	-8305.12	-2.75	-207.18	337
1	22.40	izq max	-6293.66	-5174.54	-16.52	-143.90	337
1	22.40	min	-7692.25	-6796.68	-15.96	-183.26	337
1	22.40	der max	-6293.66	-5174.47	-16.53	-143.90	337
1	22.40	min	-7692.24	-6796.58	-15.96	-183.26	337
1	25.60	izq max	-6310.57	-3990.72	-27.31	-125.55	337
1	25.60	min	-7712.92	-5188.60	-30.59	-158.31	337
1	25.60	der max	-6310.58	-3990.63	-27.31	-125.54	337
1	25.60	min	-7712.93	-5188.49	-30.59	-158.31	337
1	28.80	izq max	-7639.01	-1764.29	-60.57	-103.99	337
1	28.80	min	-9336.57	-2249.36	-73.19	-128.56	337
1	28.80	der max	-7626.68	-1769.14	-60.40	-103.95	337
1	28.80	min	-9318.83	-2255.27	-72.96	-128.47	337
1	32.00	izq max	-7741.74	-1210.55	-34.42	-55.94	337
1	32.00	min	-9458.60	-1289.93	-43.40	-66.33	337
1	32.00	der max	-7734.16	-1210.70	-34.38	-55.90	337
1	32.00	min	-9451.39	-1290.12	-43.36	-66.29	337
2	36.00	izq max	-7549.51	-2480.64	-53.24	-114.31	337
2	36.00	min	-9226.56	-2987.44	-65.47	-139.01	337
2	36.00	der max	-7562.87	-2477.63	-53.41	-114.39	337
2	36.00	min	-9243.50	-2983.76	-65.67	-139.12	337
2	40.00	izq max	-7478.30	-4576.16	-33.74	-146.38	337
2	40.00	min	-9140.15	-5593.09	-41.24	-178.91	337
2	40.00	der max	0.00	0.00	0.00 -	0.00 -	0

2	40.00		min	0.00	0.00	0.00	-	0.00	-	0	3	112.00		min	0.00	0.00	0.00	-	0.00	-	0
2	44.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	4	116.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
2	44.00		min	0.00	0.00	0.00	-	0.00	-	0	4	116.00		min	0.00	0.00	0.00	-	0.00	-	0
2	44.00	der	max	0.00	0.00	0.00	-	0.00	-	0	4	116.00	der	max	0.00	0.00	0.00	-	0.00	-	0
2	44.00		min	0.00	0.00	0.00	-	0.00	-	0	4	116.00		min	0.00	0.00	0.00	-	0.00	-	0
2	48.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	4	120.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
2	48.00		min	0.00	0.00	0.00	-	0.00	-	0	4	120.00		min	0.00	0.00	0.00	-	0.00	-	0
2	48.00	der	max	0.00	0.00	0.00	-	0.00	-	0	4	120.00	der	max	0.00	0.00	0.00	-	0.00	-	0
2	48.00		min	0.00	0.00	0.00	-	0.00	-	0	4	120.00		min	0.00	0.00	0.00	-	0.00	-	0
2	52.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	4	124.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
2	52.00		min	0.00	0.00	0.00	-	0.00	-	0	4	124.00		min	0.00	0.00	0.00	-	0.00	-	0
2	52.00	der	max	0.00	0.00	0.00	-	0.00	-	0	4	124.00	der	max	0.00	0.00	0.00	-	0.00	-	0
2	52.00		min	0.00	0.00	0.00	-	0.00	-	0	4	124.00		min	0.00	0.00	0.00	-	0.00	-	0
2	56.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	4	128.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
2	56.00		min	0.00	0.00	0.00	-	0.00	-	0	4	128.00		min	0.00	0.00	0.00	-	0.00	-	0
2	56.00	der	max	0.00	0.00	0.00	-	0.00	-	0	4	128.00	der	max	0.00	0.00	0.00	-	0.00	-	0
2	56.00		min	0.00	0.00	0.00	-	0.00	-	0	4	128.00		min	0.00	0.00	0.00	-	0.00	-	0
2	60.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	4	132.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
2	60.00		min	0.00	0.00	0.00	-	0.00	-	0	4	132.00		min	0.00	0.00	0.00	-	0.00	-	0
2	60.00	der	max	0.00	0.00	0.00	-	0.00	-	0	4	132.00	der	max	0.00	0.00	0.00	-	0.00	-	0
2	60.00		min	0.00	0.00	0.00	-	0.00	-	0	4	132.00		min	0.00	0.00	0.00	-	0.00	-	0
2	64.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	4	136.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
2	64.00		min	0.00	0.00	0.00	-	0.00	-	0	4	136.00		min	0.00	0.00	0.00	-	0.00	-	0
2	64.00	der	max	0.00	0.00	0.00	-	0.00	-	0	4	136.00	der	max	0.00	0.00	0.00	-	0.00	-	0
2	64.00		min	0.00	0.00	0.00	-	0.00	-	0	4	136.00		min	0.00	0.00	0.00	-	0.00	-	0
2	68.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	4	140.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
2	68.00		min	0.00	0.00	0.00	-	0.00	-	0	4	140.00		min	0.00	0.00	0.00	-	0.00	-	0
2	68.00	der	max	0.00	0.00	0.00	-	0.00	-	0	4	140.00	der	max	0.00	0.00	0.00	-	0.00	-	0
2	68.00		min	0.00	0.00	0.00	-	0.00	-	0	4	140.00		min	0.00	0.00	0.00	-	0.00	-	0
2	72.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	4	144.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
2	72.00		min	0.00	0.00	0.00	-	0.00	-	0	4	144.00		min	0.00	0.00	0.00	-	0.00	-	0
2	72.00	der	max	0.00	0.00	0.00	-	0.00	-	0	4	144.00	der	max	0.00	0.00	0.00	-	0.00	-	0
2	72.00		min	0.00	0.00	0.00	-	0.00	-	0	4	144.00		min	0.00	0.00	0.00	-	0.00	-	0
3	76.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	4	148.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
3	76.00		min	0.00	0.00	0.00	-	0.00	-	0	4	148.00		min	0.00	0.00	0.00	-	0.00	-	0
3	76.00	der	max	0.00	0.00	0.00	-	0.00	-	0	4	148.00	der	max	0.00	0.00	0.00	-	0.00	-	0
3	76.00		min	0.00	0.00	0.00	-	0.00	-	0	4	148.00		min	0.00	0.00	0.00	-	0.00	-	0
3	80.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	4	152.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
3	80.00		min	0.00	0.00	0.00	-	0.00	-	0	4	152.00		min	0.00	0.00	0.00	-	0.00	-	0
3	80.00	der	max	0.00	0.00	0.00	-	0.00	-	0	4	152.00	der	max	0.00	0.00	0.00	-	0.00	-	0
3	80.00		min	0.00	0.00	0.00	-	0.00	-	0	4	152.00		min	0.00	0.00	0.00	-	0.00	-	0
3	84.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	5	156.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
3	84.00		min	0.00	0.00	0.00	-	0.00	-	0	5	156.00		min	0.00	0.00	0.00	-	0.00	-	0
3	84.00	der	max	0.00	0.00	0.00	-	0.00	-	0	5	156.00	der	max	0.00	0.00	0.00	-	0.00	-	0
3	84.00		min	0.00	0.00	0.00	-	0.00	-	0	5	156.00		min	0.00	0.00	0.00	-	0.00	-	0
3	88.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	5	160.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
3	88.00		min	0.00	0.00	0.00	-	0.00	-	0	5	160.00		min	0.00	0.00	0.00	-	0.00	-	0
3	88.00	der	max	0.00	0.00	0.00	-	0.00	-	0	5	160.00	der	max	0.00	0.00	0.00	-	0.00	-	0
3	88.00		min	0.00	0.00	0.00	-	0.00	-	0	5	160.00		min	0.00	0.00	0.00	-	0.00	-	0
3	92.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	5	164.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
3	92.00		min	0.00	0.00	0.00	-	0.00	-	0	5	164.00		min	0.00	0.00	0.00	-	0.00	-	0
3	92.00	der	max	0.00	0.00	0.00	-	0.00	-	0	5	164.00	der	max	0.00	0.00	0.00	-	0.00	-	0
3	92.00		min	0.00	0.00	0.00	-	0.00	-	0	5	164.00		min	0.00	0.00	0.00	-	0.00	-	0
3	96.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	5	168.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
3	96.00		min	0.00	0.00	0.00	-	0.00	-	0	5	168.00		min	0.00	0.00	0.00	-	0.00	-	0
3	96.00	der	max	0.00	0.00	0.00	-	0.00	-	0	5	168.00	der	max	0.00	0.00	0.00	-	0.00	-	0
3	96.00		min	0.00	0.00	0.00	-	0.00	-	0	5	168.00		min	0.00	0.00	0.00	-	0.00	-	0
3	100.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	5	172.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
3	100.00		min	0.00	0.00	0.00	-	0.00	-	0	5	172.00		min	0.00	0.00	0.00	-	0.00	-	0
3	100.00	der	max	0.00	0.00	0.00	-	0.00	-	0	5	172.00	der	max	0.00	0.00	0.00	-	0.00	-	0
3	100.00		min	0.00	0.00	0.00	-	0.00	-	0	5	172.00		min	0.00	0.00	0.00	-	0.00	-	0
3	104.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	5	176.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
3	104.00		min	0.00	0.00	0.00	-	0.00	-	0	5	176.00		min	0.00	0.00	0.00	-	0.00	-	0
3	104.00	der	max	0.00	0.00	0.00	-	0.00	-	0	5	176.00	der	max	0.00	0.00	0.00	-	0.00	-	0
3	104.00		min	0.00	0.00	0.00	-	0.00	-	0	5	176.00		min	0.00	0.00	0.00	-	0.00	-	0
3	108.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	5	180.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
3	108.00		min	0.00	0.00	0.00	-	0.00	-	0	5	180.00		min	0.00	0.00	0.00	-	0.00	-	0
3	108.00	der	max	0.00	0.00	0.00	-	0.00	-	0	5	180.00	der	max	0.00	0.00	0.00	-	0.00	-	0
3	108.00		min	0.00	0.00	0.00	-	0.00	-	0	5	180.00		min	0.00	0.00	0.00	-	0.00	-	0
3	112.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	5	184.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
3	112.00		min	0.00	0.00	0.00	-	0.00	-	0	5	184.00		min	0.00	0.00	0.00	-	0.00	-	0
3	112.00	der	max	0.00	0.00	0.00	-	0.00	-	0	5	184.00	der	max	0.00	0.00	0.00	-	0.00	-	0

5	184.00		min	0.00	0.00	0.00 -	0.00 -	0
5	188.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	188.00		min	0.00	0.00	0.00 -	0.00 -	0
5	188.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	188.00		min	0.00	0.00	0.00 -	0.00 -	0
5	192.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	192.00		min	0.00	0.00	0.00 -	0.00 -	0
5	192.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	192.00		min	0.00	0.00	0.00 -	0.00 -	0
6	196.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	196.00		min	0.00	0.00	0.00 -	0.00 -	0
6	196.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	196.00		min	0.00	0.00	0.00 -	0.00 -	0
6	200.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	200.00		min	0.00	0.00	0.00 -	0.00 -	0
6	200.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	200.00		min	0.00	0.00	0.00 -	0.00 -	0
6	204.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	204.00		min	0.00	0.00	0.00 -	0.00 -	0
6	204.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	204.00		min	0.00	0.00	0.00 -	0.00 -	0
6	208.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	208.00		min	0.00	0.00	0.00 -	0.00 -	0
6	208.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	208.00		min	0.00	0.00	0.00 -	0.00 -	0
6	212.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	212.00		min	0.00	0.00	0.00 -	0.00 -	0
6	212.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	212.00		min	0.00	0.00	0.00 -	0.00 -	0
6	216.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	216.00		min	0.00	0.00	0.00 -	0.00 -	0
6	216.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	216.00		min	0.00	0.00	0.00 -	0.00 -	0
6	220.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	220.00		min	0.00	0.00	0.00 -	0.00 -	0
6	220.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	220.00		min	0.00	0.00	0.00 -	0.00 -	0
6	224.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	224.00		min	0.00	0.00	0.00 -	0.00 -	0
6	224.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	224.00		min	0.00	0.00	0.00 -	0.00 -	0
6	228.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	228.00		min	0.00	0.00	0.00 -	0.00 -	0
6	228.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	228.00		min	0.00	0.00	0.00 -	0.00 -	0
6	232.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	232.00		min	0.00	0.00	0.00 -	0.00 -	0
6	232.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	232.00		min	0.00	0.00	0.00 -	0.00 -	0
7	236.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	236.00		min	0.00	0.00	0.00 -	0.00 -	0
7	236.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	236.00		min	0.00	0.00	0.00 -	0.00 -	0
7	240.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	240.00		min	0.00	0.00	0.00 -	0.00 -	0
7	240.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	240.00		min	0.00	0.00	0.00 -	0.00 -	0
7	244.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	244.00		min	0.00	0.00	0.00 -	0.00 -	0
7	244.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	244.00		min	0.00	0.00	0.00 -	0.00 -	0
7	248.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	248.00		min	0.00	0.00	0.00 -	0.00 -	0
7	248.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	248.00		min	0.00	0.00	0.00 -	0.00 -	0
7	252.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	252.00		min	0.00	0.00	0.00 -	0.00 -	0
7	252.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	252.00		min	0.00	0.00	0.00 -	0.00 -	0
7	256.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	256.00		min	0.00	0.00	0.00 -	0.00 -	0
7	256.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	256.00		min	0.00	0.00	0.00 -	0.00 -	0
7	260.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	260.00		min	0.00	0.00	0.00 -	0.00 -	0
7	260.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	260.00		min	0.00	0.00	0.00 -	0.00 -	0
7	264.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	264.00		min	0.00	0.00	0.00 -	0.00 -	0
7	264.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	264.00		min	0.00	0.00	0.00 -	0.00 -	0
7	268.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	268.00		min	0.00	0.00	0.00 -	0.00 -	0
7	268.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	268.00		min	0.00	0.00	0.00 -	0.00 -	0
7	272.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	272.00		min	0.00	0.00	0.00 -	0.00 -	0
7	272.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	272.00		min	0.00	0.00	0.00 -	0.00 -	0
8	276.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	276.00		min	0.00	0.00	0.00 -	0.00 -	0
8	276.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	276.00		min	0.00	0.00	0.00 -	0.00 -	0
8	280.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	280.00		min	0.00	0.00	0.00 -	0.00 -	0
8	280.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	280.00		min	0.00	0.00	0.00 -	0.00 -	0
8	284.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	284.00		min	0.00	0.00	0.00 -	0.00 -	0
8	284.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	284.00		min	0.00	0.00	0.00 -	0.00 -	0
8	288.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	288.00		min	0.00	0.00	0.00 -	0.00 -	0
8	288.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	288.00		min	0.00	0.00	0.00 -	0.00 -	0
8	292.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	292.00		min	0.00	0.00	0.00 -	0.00 -	0
8	292.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	292.00		min	0.00	0.00	0.00 -	0.00 -	0
8	296.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	296.00		min	0.00	0.00	0.00 -	0.00 -	0
8	296.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	296.00		min	0.00	0.00	0.00 -	0.00 -	0
8	300.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	300.00		min	0.00	0.00	0.00 -	0.00 -	0
8	300.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	300.00		min	0.00	0.00	0.00 -	0.00 -	0
8	304.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	304.00		min	0.00	0.00	0.00 -	0.00 -	0
8	304.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	304.00		min	0.00	0.00	0.00 -	0.00 -	0
8	308.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	308.00		min	0.00	0.00	0.00 -	0.00 -	0
8	308.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	308.00		min	0.00	0.00	0.00 -	0.00 -	0
8	312.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	312.00		min	0.00	0.00	0.00 -	0.00 -	0
8	312.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	312.00		min	0.00	0.00	0.00 -	0.00 -	0
9	316.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	316.00		min	0.00	0.00	0.00 -	0.00 -	0
9	316.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	316.00		min	0.00	0.00	0.00 -	0.00 -	0
9	320.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	320.00		min	0.00	0.00	0.00 -	0.00 -	0
9	320.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	320.00		min	0.00	0.00	0.00 -	0.00 -	0
9	324.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	324.00		min	0.00	0.00	0.00 -	0.00 -	0
9	324.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	324.00		min	0.00	0.00	0.00 -	0.00 -	0
9	328.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	328.00		min	0.00	0.00	0.00 -	0.00 -	0
9	328.00	der	max	0.00	0.00	0.00 -	0.00 -	0

9	328.00		min	0.00	0.00	0.00 -	0.00 -	0
9	332.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	332.00		min	0.00	0.00	0.00 -	0.00 -	0
9	332.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	332.00		min	0.00	0.00	0.00 -	0.00 -	0
9	336.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	336.00		min	0.00	0.00	0.00 -	0.00 -	0
9	336.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	336.00		min	0.00	0.00	0.00 -	0.00 -	0
9	340.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	340.00		min	0.00	0.00	0.00 -	0.00 -	0
9	340.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	340.00		min	0.00	0.00	0.00 -	0.00 -	0
9	344.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	344.00		min	0.00	0.00	0.00 -	0.00 -	0
9	344.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	344.00		min	0.00	0.00	0.00 -	0.00 -	0
9	348.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	348.00		min	0.00	0.00	0.00 -	0.00 -	0
9	348.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	348.00		min	0.00	0.00	0.00 -	0.00 -	0
9	352.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	352.00		min	0.00	0.00	0.00 -	0.00 -	0
9	352.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	352.00		min	0.00	0.00	0.00 -	0.00 -	0
10	356.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	356.00		min	0.00	0.00	0.00 -	0.00 -	0
10	356.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	356.00		min	0.00	0.00	0.00 -	0.00 -	0
10	360.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	360.00		min	0.00	0.00	0.00 -	0.00 -	0
10	360.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	360.00		min	0.00	0.00	0.00 -	0.00 -	0
10	364.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	364.00		min	0.00	0.00	0.00 -	0.00 -	0
10	364.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	364.00		min	0.00	0.00	0.00 -	0.00 -	0
10	368.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	368.00		min	0.00	0.00	0.00 -	0.00 -	0
10	368.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	368.00		min	0.00	0.00	0.00 -	0.00 -	0
10	372.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	372.00		min	0.00	0.00	0.00 -	0.00 -	0
10	372.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	372.00		min	0.00	0.00	0.00 -	0.00 -	0
10	376.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	376.00		min	0.00	0.00	0.00 -	0.00 -	0
10	376.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	376.00		min	0.00	0.00	0.00 -	0.00 -	0
10	380.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	380.00		min	0.00	0.00	0.00 -	0.00 -	0
10	380.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	380.00		min	0.00	0.00	0.00 -	0.00 -	0
10	384.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	384.00		min	0.00	0.00	0.00 -	0.00 -	0
10	384.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	384.00		min	0.00	0.00	0.00 -	0.00 -	0
10	388.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	388.00		min	0.00	0.00	0.00 -	0.00 -	0
10	388.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	388.00		min	0.00	0.00	0.00 -	0.00 -	0
10	392.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	392.00		min	0.00	0.00	0.00 -	0.00 -	0
10	392.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	392.00		min	0.00	0.00	0.00 -	0.00 -	0
11	396.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	396.00		min	0.00	0.00	0.00 -	0.00 -	0
11	396.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	396.00		min	0.00	0.00	0.00 -	0.00 -	0
11	400.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	400.00		min	0.00	0.00	0.00 -	0.00 -	0
11	400.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	404.00		min	0.00	0.00	0.00 -	0.00 -	0
11	404.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	404.00		min	0.00	0.00	0.00 -	0.00 -	0
11	404.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	404.00		min	0.00	0.00	0.00 -	0.00 -	0
11	408.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	408.00		min	0.00	0.00	0.00 -	0.00 -	0
11	408.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	408.00		min	0.00	0.00	0.00 -	0.00 -	0
11	412.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	412.00		min	0.00	0.00	0.00 -	0.00 -	0
11	412.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	412.00		min	0.00	0.00	0.00 -	0.00 -	0
11	416.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	416.00		min	0.00	0.00	0.00 -	0.00 -	0
11	416.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	416.00		min	0.00	0.00	0.00 -	0.00 -	0
11	420.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	420.00		min	0.00	0.00	0.00 -	0.00 -	0
11	420.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	420.00		min	0.00	0.00	0.00 -	0.00 -	0
11	424.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	424.00		min	0.00	0.00	0.00 -	0.00 -	0
11	424.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	424.00		min	0.00	0.00	0.00 -	0.00 -	0
11	428.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	428.00		min	0.00	0.00	0.00 -	0.00 -	0
11	428.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	428.00		min	0.00	0.00	0.00 -	0.00 -	0
11	432.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	432.00		min	0.00	0.00	0.00 -	0.00 -	0
11	432.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	432.00		min	0.00	0.00	0.00 -	0.00 -	0
12	436.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	436.00		min	0.00	0.00	0.00 -	0.00 -	0
12	436.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	436.00		min	0.00	0.00	0.00 -	0.00 -	0
12	440.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	440.00		min	0.00	0.00	0.00 -	0.00 -	0
12	440.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	440.00		min	0.00	0.00	0.00 -	0.00 -	0
12	444.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	444.00		min	0.00	0.00	0.00 -	0.00 -	0
12	444.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	444.00		min	0.00	0.00	0.00 -	0.00 -	0
12	448.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	448.00		min	0.00	0.00	0.00 -	0.00 -	0
12	448.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	448.00		min	0.00	0.00	0.00 -	0.00 -	0
12	452.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	452.00		min	0.00	0.00	0.00 -	0.00 -	0
12	452.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	452.00		min	0.00	0.00	0.00 -	0.00 -	0
12	456.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	456.00		min	0.00	0.00	0.00 -	0.00 -	0
12	456.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	456.00		min	0.00	0.00	0.00 -	0.00 -	0
12	460.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	460.00		min	0.00	0.00	0.00 -	0.00 -	0
12	460.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	460.00		min	0.00	0.00	0.00 -	0.00 -	0
12	464.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	464.00		min	0.00	0.00	0.00 -	0.00 -	0
12	464.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	464.00		min	0.00	0.00	0.00 -	0.00 -	0
12	468.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	468.00		min	0.00	0.00	0.00 -	0.00 -	0
12	468.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	468.00		min	0.00	0.00	0.00 -	0.00 -	0
12	472.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	472.00		min	0.00	0.00	0.00 -	0.00 -	0
12	472.00	der	max	0.00	0.00	0.00 -	0.00 -	0

12	472.00		min	0.00	0.00	0.00 -	0.00 -	0
13	476.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	476.00		min	0.00	0.00	0.00 -	0.00 -	0
13	476.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	476.00		min	0.00	0.00	0.00 -	0.00 -	0
13	480.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	480.00		min	0.00	0.00	0.00 -	0.00 -	0
13	480.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	480.00		min	0.00	0.00	0.00 -	0.00 -	0
13	484.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	484.00		min	0.00	0.00	0.00 -	0.00 -	0
13	484.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	484.00		min	0.00	0.00	0.00 -	0.00 -	0
13	488.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	488.00		min	0.00	0.00	0.00 -	0.00 -	0
13	488.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	488.00		min	0.00	0.00	0.00 -	0.00 -	0
13	492.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	492.00		min	0.00	0.00	0.00 -	0.00 -	0
13	492.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	492.00		min	0.00	0.00	0.00 -	0.00 -	0
13	496.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	496.00		min	0.00	0.00	0.00 -	0.00 -	0
13	496.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	496.00		min	0.00	0.00	0.00 -	0.00 -	0
13	500.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	500.00		min	0.00	0.00	0.00 -	0.00 -	0
13	500.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	500.00		min	0.00	0.00	0.00 -	0.00 -	0
13	504.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	504.00		min	0.00	0.00	0.00 -	0.00 -	0
13	504.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	504.00		min	0.00	0.00	0.00 -	0.00 -	0
13	508.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	508.00		min	0.00	0.00	0.00 -	0.00 -	0
13	508.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	508.00		min	0.00	0.00	0.00 -	0.00 -	0
13	512.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	512.00		min	0.00	0.00	0.00 -	0.00 -	0
13	512.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	512.00		min	0.00	0.00	0.00 -	0.00 -	0
14	515.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	515.20		min	0.00	0.00	0.00 -	0.00 -	0
14	515.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	515.20		min	0.00	0.00	0.00 -	0.00 -	0
14	518.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	518.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	der	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80		min	0.00	0.00	0.00 -	0.00 -	0
14	540.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80		min	0.00	0.00	0.00 -	0.00 -	0
14	544.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	544.00		min	0.00	0.00	0.00 -	0.00 -	0

COMPROBACION TENSIONES FASE 2

Factores de ponderación considerados para el pretensado:

- Acciones Desfavorables: 1.1
- Acciones Favorables: 0.9

LEYENDA:
+ : Compresión>fck(j)/1.6
* : Tracción
# : Fisuración
! : Requiere comprobación wk

Vano	x [m]		Pxo [t]	Mmax Mmin [tm]	?s [kg/cm²]	?i [kg/cm²]	fckj [kg/cm²]
1	0.00	der max	-6216.33	-4074.98	-5.63	-78.07	406
1	0.00	min	-7595.17	-4980.54	-6.86	-95.40	406
1	3.20	izq max	-6248.17	-5612.76	-12.14	-150.30	406
1	3.20	min	-7634.95	-7053.69	-13.08	-186.71	406
1	3.20	der max	-6262.39	-5636.50	-12.07	-150.81	406
1	3.20	min	-7654.04	-7082.72	-13.01	-187.36	406
1	6.40	izq max	-6380.21	-6443.00	-6.01	-164.61	406
1	6.40	min	-7798.03	-8197.58	-4.45	-206.24	406
1	6.40	der max	-6380.21	-6443.01	-6.01	-164.61	406
1	6.40	min	-7798.04	-8197.59	-4.45	-206.24	406
1	9.60	izq max	-6467.75	-6693.54	-4.64	-169.41	406
1	9.60	min	-7905.02	-8576.04	-2.13	-213.23	406
1	9.60	der max	-6467.75	-6693.52	-4.64	-169.41	406
1	9.60	min	-7905.02	-8576.03	-2.13	-213.23	406
1	12.80	izq max	-6457.87	-6211.71	-8.86	-161.77	406
1	12.80	min	-7892.95	-8002.50	-7.15	-204.14	406
1	12.80	der max	-6457.86	-6211.68	-8.86	-161.77	406
1	12.80	min	-7892.94	-8002.47	-7.15	-204.14	406
1	16.00	izq max	-6391.29	-5225.05	-17.05	-145.66	406
1	16.00	min	-7811.58	-6755.07	-17.53	-183.81	406
1	16.00	der max	-6391.29	-5225.04	-17.05	-145.66	406
1	16.00	min	-7811.58	-6755.05	-17.53	-183.81	406
1	19.20	izq max	-6319.35	-3921.93	-28.02	-124.56	406
1	19.20	min	-7723.66	-5063.97	-31.82	-156.47	406
1	19.20	der max	-6319.35	-3921.90	-28.02	-124.56	406
1	19.20	min	-7723.65	-5063.93	-31.82	-156.47	406
1	22.40	izq max	-6293.66	-2372.79	-41.65	-100.06	406
1	22.40	min	-7692.25	-3015.25	-49.88	-124.10	406
1	22.40	der max	-6293.66	-2372.69	-41.66	-100.06	406
1	22.40	min	-7692.25	-3015.13	-49.88	-124.10	406
1	25.60	izq max	-6310.58	-788.73	-56.03	-75.45	406
1	25.60	min	-7712.93	-867.00	-69.35	-90.69	406
1	25.60	der max	-6310.58	-788.63	-56.03	-75.44	406
1	25.60	min	-7712.93	-866.87	-69.35	-90.69	406
1	28.80	izq max	-10863.50	-218.43	-106.68	-112.05	406
1	28.80	min	-8888.28	-478.23	-84.59	-96.37	406
1	28.80	der max	-10839.00	-220.92	-106.41	-111.84	406
1	28.80	min	-8870.87	-480.28	-84.40	-96.22	406
1	32.00	izq max	-10985.00	1443.09	-71.27	-45.61	406
1	32.00	min	-8991.05	608.22	-54.27	-43.45	406
1	32.00	der max	-10988.50	1441.77	-71.28	-45.64	406
1	32.00	min	-8993.62	607.14	-54.27	-43.48	406
2	36.00	izq max	-10771.50	219.61	-109.68	-104.28	406
2	36.00	min	-8815.36	-14.15	-88.03	-88.37	406

2	36.00	der	max	-10784.50	221.12	-109.83	-104.38	406
2	36.00		min	-8823.65	-12.91	-88.12	-88.44	406
2	40.00	izq	max	-13949.90	-5760.24	-87.83	-229.62	406
2	40.00		min	-17049.90	-7165.53	-106.23	-282.61 +	406
2	40.00	der	max	-6471.59	-1184.14	-54.10	-83.24	337
2	40.00		min	-7909.72	-1572.53	-64.99	-103.70	337
2	44.00	izq	max	-6531.56	-2771.85	-40.45	-108.68	337
2	44.00		min	-7983.02	-3786.28	-45.87	-139.07	337
2	44.00	der	max	-6531.57	-2771.90	-40.45	-108.69	337
2	44.00		min	-7983.03	-3786.34	-45.87	-139.07	337
2	48.00	izq	max	-6644.45	-4181.58	-28.94	-131.87	337
2	48.00		min	-8121.00	-5693.65	-30.14	-170.29	337
2	48.00	der	max	-6644.46	-4181.61	-28.94	-131.87	337
2	48.00		min	-8121.01	-5693.69	-30.14	-170.29	337
2	52.00	izq	max	-6742.04	-5030.00	-22.31	-146.12	337
2	52.00		min	-8240.27	-6826.06	-21.18	-189.20	337
2	52.00	der	max	-6742.04	-5030.04	-22.30	-146.12	337
2	52.00		min	-8240.27	-6826.12	-21.18	-189.21	337
2	56.00	izq	max	-6823.11	-5234.76	-21.28	-150.13	337
2	56.00		min	-8339.36	-7082.91	-19.87	-194.21	337
2	56.00	der	max	-6823.11	-5234.77	-21.28	-150.14	337
2	56.00		min	-8339.36	-7082.91	-19.87	-194.21	337
2	60.00	izq	max	-6886.56	-4742.09	-26.33	-143.06	337
2	60.00		min	-8416.91	-6398.43	-26.78	-184.28	337
2	60.00	der	max	-6886.56	-4742.05	-26.33	-143.06	337
2	60.00		min	-8416.91	-6398.37	-26.78	-184.28	337
2	64.00	izq	max	-8884.96	-1899.16	-71.82	-118.56	337
2	64.00		min	-10859.40	-2752.54	-83.91	-151.66	337
2	64.00	der	max	-8884.96	-1899.17	-71.82	-118.56	337
2	64.00		min	-10859.40	-2752.54	-83.91	-151.66	337
2	68.00	izq	max	-8951.93	-1374.99	-77.19	-111.03	337
2	68.00		min	-10941.30	-1851.79	-92.80	-138.39	337
2	68.00	der	max	-8948.84	-1377.82	-77.13	-111.04	337
2	68.00		min	-10935.40	-1855.23	-92.71	-138.38	337
2	72.00	izq	max	-9041.40	-1638.88	-38.60	-67.74	337
2	72.00		min	-11047.60	-1813.44	-48.51	-80.75	337
2	72.00	der	max	-9030.28	-1638.93	-38.54	-67.68	337
2	72.00		min	-11035.50	-1813.50	-48.44	-80.68	337
3	76.00	izq	max	-8853.38	-3080.71	-60.90	-136.73	337
3	76.00		min	-10820.20	-3720.86	-74.83	-166.42	337
3	76.00	der	max	-8867.25	-3078.17	-61.06	-136.83	337
3	76.00		min	-10837.70	-3717.76	-75.03	-166.55	337
3	80.00	izq	max	-1323.38	-2453.56	0.00 -	0.00 -	337
3	80.00		min	-1617.47	-2998.80	0.00 -	0.00 -	337
3	80.00	der	max	0.00	0.00	0.00 -	0.00 -	0
3	80.00		min	0.00	0.00	0.00 -	0.00 -	0
3	84.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
3	84.00		min	0.00	0.00	0.00 -	0.00 -	0
3	84.00	der	max	0.00	0.00	0.00 -	0.00 -	0
3	84.00		min	0.00	0.00	0.00 -	0.00 -	0
3	88.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
3	88.00		min	0.00	0.00	0.00 -	0.00 -	0
3	88.00	der	max	0.00	0.00	0.00 -	0.00 -	0
3	88.00		min	0.00	0.00	0.00 -	0.00 -	0
3	92.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
3	92.00		min	0.00	0.00	0.00 -	0.00 -	0
3	92.00	der	max	0.00	0.00	0.00 -	0.00 -	0
3	92.00		min	0.00	0.00	0.00 -	0.00 -	0
3	96.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
3	96.00		min	0.00	0.00	0.00 -	0.00 -	0
3	96.00	der	max	0.00	0.00	0.00 -	0.00 -	0
3	96.00		min	0.00	0.00	0.00 -	0.00 -	0
3	100.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
3	100.00		min	0.00	0.00	0.00 -	0.00 -	0
3	100.00	der	max	0.00	0.00	0.00 -	0.00 -	0
3	100.00		min	0.00	0.00	0.00 -	0.00 -	0
3	104.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
3	104.00		min	0.00	0.00	0.00 -	0.00 -	0
3	104.00	der	max	0.00	0.00	0.00 -	0.00 -	0
3	104.00		min	0.00	0.00	0.00 -	0.00 -	0
3	108.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
3	108.00		min	0.00	0.00	0.00 -	0.00 -	0
3	108.00	der	max	0.00	0.00	0.00 -	0.00 -	0
3	108.00		min	0.00	0.00	0.00 -	0.00 -	0
3	112.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
3	112.00		min	0.00	0.00	0.00 -	0.00 -	0
3	112.00	der	max	0.00	0.00	0.00 -	0.00 -	0
3	112.00		min	0.00	0.00	0.00 -	0.00 -	0
4	116.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
4	116.00		min	0.00	0.00	0.00 -	0.00 -	0
4	116.00	der	max	0.00	0.00	0.00 -	0.00 -	0
4	116.00		min	0.00	0.00	0.00 -	0.00 -	0
4	120.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
4	120.00		min	0.00	0.00	0.00 -	0.00 -	0
4	120.00	der	max	0.00	0.00	0.00 -	0.00 -	0
4	120.00		min	0.00	0.00	0.00 -	0.00 -	0
4	124.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
4	124.00		min	0.00	0.00	0.00 -	0.00 -	0
4	124.00	der	max	0.00	0.00	0.00 -	0.00 -	0
4	124.00		min	0.00	0.00	0.00 -	0.00 -	0
4	128.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
4	128.00		min	0.00	0.00	0.00 -	0.00 -	0
4	128.00	der	max	0.00	0.00	0.00 -	0.00 -	0
4	128.00		min	0.00	0.00	0.00 -	0.00 -	0
4	132.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
4	132.00		min	0.00	0.00	0.00 -	0.00 -	0
4	132.00	der	max	0.00	0.00	0.00 -	0.00 -	0
4	132.00		min	0.00	0.00	0.00 -	0.00 -	0
4	136.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
4	136.00		min	0.00	0.00	0.00 -	0.00 -	0
4	136.00	der	max	0.00	0.00	0.00 -	0.00 -	0
4	136.00		min	0.00	0.00	0.00 -	0.00 -	0
4	140.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
4	140.00		min	0.00	0.00	0.00 -	0.00 -	0
4	140.00	der	max	0.00	0.00	0.00 -	0.00 -	0
4	140.00		min	0.00	0.00	0.00 -	0.00 -	0
4	144.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
4	144.00		min	0.00	0.00	0.00 -	0.00 -	0
4	144.00	der	max	0.00	0.00	0.00 -	0.00 -	0
4	144.00		min	0.00	0.00	0.00 -	0.00 -	0
4	148.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
4	148.00		min	0.00	0.00	0.00 -	0.00 -	0
4	148.00	der	max	0.00	0.00	0.00 -	0.00 -	0
4	148.00		min	0.00	0.00	0.00 -	0.00 -	0
4	152.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
4	152.00		min	0.00	0.00	0.00 -	0.00 -	0
4	152.00	der	max	0.00	0.00	0.00 -	0.00 -	0
4	152.00		min	0.00	0.00	0.00 -	0.00 -	0
5	156.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	156.00		min	0.00	0.00	0.00 -	0.00 -	0
5	156.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	156.00		min	0.00	0.00	0.00 -	0.00 -	0
5	160.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	160.00		min	0.00	0.00	0.00 -	0.00 -	0
5	160.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	160.00		min	0.00	0.00	0.00 -	0.00 -	0
5	164.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	164.00		min	0.00	0.00	0.00 -	0.00 -	0
5	164.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	164.00		min	0.00	0.00	0.00 -	0.00 -	0
5	168.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	168.00		min	0.00	0.00	0.00 -	0.00 -	0
5	168.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	168.00		min	0.00	0.00	0.00 -	0.00 -	0
5	172.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	172.00		min	0.00	0.00	0.00 -	0.00 -	0
5	172.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	172.00		min	0.00	0.00	0.00 -	0.00 -	0
5	176.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	176.00		min	0.00	0.00	0.00 -	0.00 -	0
5	176.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	176.00		min	0.00	0.00	0.00 -	0.00 -	0
5	180.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	180.00		min	0.00	0.00	0.00 -	0.00 -	0

5	180.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	180.00		min	0.00	0.00	0.00 -	0.00 -	0
5	184.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	184.00		min	0.00	0.00	0.00 -	0.00 -	0
5	184.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	184.00		min	0.00	0.00	0.00 -	0.00 -	0
5	188.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	188.00		min	0.00	0.00	0.00 -	0.00 -	0
5	188.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	188.00		min	0.00	0.00	0.00 -	0.00 -	0
5	192.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	192.00		min	0.00	0.00	0.00 -	0.00 -	0
5	192.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	192.00		min	0.00	0.00	0.00 -	0.00 -	0
6	196.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	196.00		min	0.00	0.00	0.00 -	0.00 -	0
6	196.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	196.00		min	0.00	0.00	0.00 -	0.00 -	0
6	200.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	200.00		min	0.00	0.00	0.00 -	0.00 -	0
6	200.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	200.00		min	0.00	0.00	0.00 -	0.00 -	0
6	204.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	204.00		min	0.00	0.00	0.00 -	0.00 -	0
6	204.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	204.00		min	0.00	0.00	0.00 -	0.00 -	0
6	208.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	208.00		min	0.00	0.00	0.00 -	0.00 -	0
6	208.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	208.00		min	0.00	0.00	0.00 -	0.00 -	0
6	212.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	212.00		min	0.00	0.00	0.00 -	0.00 -	0
6	212.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	212.00		min	0.00	0.00	0.00 -	0.00 -	0
6	216.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	216.00		min	0.00	0.00	0.00 -	0.00 -	0
6	216.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	216.00		min	0.00	0.00	0.00 -	0.00 -	0
6	220.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	220.00		min	0.00	0.00	0.00 -	0.00 -	0
6	220.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	220.00		min	0.00	0.00	0.00 -	0.00 -	0
6	224.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	224.00		min	0.00	0.00	0.00 -	0.00 -	0
6	224.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	224.00		min	0.00	0.00	0.00 -	0.00 -	0
6	228.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	228.00		min	0.00	0.00	0.00 -	0.00 -	0
6	228.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	228.00		min	0.00	0.00	0.00 -	0.00 -	0
6	232.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	232.00		min	0.00	0.00	0.00 -	0.00 -	0
6	232.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	232.00		min	0.00	0.00	0.00 -	0.00 -	0
7	236.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	236.00		min	0.00	0.00	0.00 -	0.00 -	0
7	236.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	236.00		min	0.00	0.00	0.00 -	0.00 -	0
7	240.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	240.00		min	0.00	0.00	0.00 -	0.00 -	0
7	240.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	240.00		min	0.00	0.00	0.00 -	0.00 -	0
7	244.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	244.00		min	0.00	0.00	0.00 -	0.00 -	0
7	244.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	244.00		min	0.00	0.00	0.00 -	0.00 -	0
7	248.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	248.00		min	0.00	0.00	0.00 -	0.00 -	0
7	248.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	248.00		min	0.00	0.00	0.00 -	0.00 -	0
7	252.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	252.00		min	0.00	0.00	0.00 -	0.00 -	0
7	252.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	252.00		min	0.00	0.00	0.00 -	0.00 -	0
7	256.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	256.00		min	0.00	0.00	0.00 -	0.00 -	0
7	256.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	256.00		min	0.00	0.00	0.00 -	0.00 -	0
7	260.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	260.00		min	0.00	0.00	0.00 -	0.00 -	0
7	260.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	260.00		min	0.00	0.00	0.00 -	0.00 -	0
7	264.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	264.00		min	0.00	0.00	0.00 -	0.00 -	0
7	264.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	264.00		min	0.00	0.00	0.00 -	0.00 -	0
7	268.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	268.00		min	0.00	0.00	0.00 -	0.00 -	0
7	268.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	268.00		min	0.00	0.00	0.00 -	0.00 -	0
7	272.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	272.00		min	0.00	0.00	0.00 -	0.00 -	0
7	272.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	272.00		min	0.00	0.00	0.00 -	0.00 -	0
8	276.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	276.00		min	0.00	0.00	0.00 -	0.00 -	0
8	276.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	276.00		min	0.00	0.00	0.00 -	0.00 -	0
8	280.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	280.00		min	0.00	0.00	0.00 -	0.00 -	0
8	280.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	280.00		min	0.00	0.00	0.00 -	0.00 -	0
8	284.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	284.00		min	0.00	0.00	0.00 -	0.00 -	0
8	284.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	284.00		min	0.00	0.00	0.00 -	0.00 -	0
8	288.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	288.00		min	0.00	0.00	0.00 -	0.00 -	0
8	288.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	288.00		min	0.00	0.00	0.00 -	0.00 -	0
8	292.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	292.00		min	0.00	0.00	0.00 -	0.00 -	0
8	292.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	292.00		min	0.00	0.00	0.00 -	0.00 -	0
8	296.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	296.00		min	0.00	0.00	0.00 -	0.00 -	0
8	296.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	296.00		min	0.00	0.00	0.00 -	0.00 -	0
8	300.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	300.00		min	0.00	0.00	0.00 -	0.00 -	0
8	300.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	300.00		min	0.00	0.00	0.00 -	0.00 -	0
8	304.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	304.00		min	0.00	0.00	0.00 -	0.00 -	0
8	304.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	304.00		min	0.00	0.00	0.00 -	0.00 -	0
8	308.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	308.00		min	0.00	0.00	0.00 -	0.00 -	0
8	308.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	308.00		min	0.00	0.00	0.00 -	0.00 -	0
8	312.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	312.00		min	0.00	0.00	0.00 -	0.00 -	0
8	312.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	312.00		min	0.00	0.00	0.00 -	0.00 -	0
9	316.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	316.00		min	0.00	0.00	0.00 -	0.00 -	0
9	316.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	316.00		min	0.00	0.00	0.00 -	0.00 -	0
9	320.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	320.00		min	0.00	0.00	0.00 -	0.00 -	0
9	320.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	320.00		min	0.00	0.00	0.00 -	0.00 -	0
9	324.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	324.00		min	0.00	0.00	0.00 -	0.00 -	0

9	324.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	324.00		min	0.00	0.00	0.00 -	0.00 -	0
9	328.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	328.00		min	0.00	0.00	0.00 -	0.00 -	0
9	328.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	328.00		min	0.00	0.00	0.00 -	0.00 -	0
9	332.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	332.00		min	0.00	0.00	0.00 -	0.00 -	0
9	332.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	332.00		min	0.00	0.00	0.00 -	0.00 -	0
9	336.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	336.00		min	0.00	0.00	0.00 -	0.00 -	0
9	336.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	336.00		min	0.00	0.00	0.00 -	0.00 -	0
9	340.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	340.00		min	0.00	0.00	0.00 -	0.00 -	0
9	340.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	340.00		min	0.00	0.00	0.00 -	0.00 -	0
9	344.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	344.00		min	0.00	0.00	0.00 -	0.00 -	0
9	344.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	344.00		min	0.00	0.00	0.00 -	0.00 -	0
9	348.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	348.00		min	0.00	0.00	0.00 -	0.00 -	0
9	348.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	348.00		min	0.00	0.00	0.00 -	0.00 -	0
9	352.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	352.00		min	0.00	0.00	0.00 -	0.00 -	0
9	352.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	352.00		min	0.00	0.00	0.00 -	0.00 -	0
10	356.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	356.00		min	0.00	0.00	0.00 -	0.00 -	0
10	356.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	356.00		min	0.00	0.00	0.00 -	0.00 -	0
10	360.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	360.00		min	0.00	0.00	0.00 -	0.00 -	0
10	360.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	360.00		min	0.00	0.00	0.00 -	0.00 -	0
10	364.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	364.00		min	0.00	0.00	0.00 -	0.00 -	0
10	364.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	364.00		min	0.00	0.00	0.00 -	0.00 -	0
10	368.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	368.00		min	0.00	0.00	0.00 -	0.00 -	0
10	368.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	368.00		min	0.00	0.00	0.00 -	0.00 -	0
10	372.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	372.00		min	0.00	0.00	0.00 -	0.00 -	0
10	372.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	372.00		min	0.00	0.00	0.00 -	0.00 -	0
10	376.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	376.00		min	0.00	0.00	0.00 -	0.00 -	0
10	376.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	376.00		min	0.00	0.00	0.00 -	0.00 -	0
10	380.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	380.00		min	0.00	0.00	0.00 -	0.00 -	0
10	380.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	380.00		min	0.00	0.00	0.00 -	0.00 -	0
10	384.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	384.00		min	0.00	0.00	0.00 -	0.00 -	0
10	384.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	384.00		min	0.00	0.00	0.00 -	0.00 -	0
10	388.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	388.00		min	0.00	0.00	0.00 -	0.00 -	0
10	388.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	388.00		min	0.00	0.00	0.00 -	0.00 -	0
10	392.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	392.00		min	0.00	0.00	0.00 -	0.00 -	0
10	392.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	392.00		min	0.00	0.00	0.00 -	0.00 -	0
11	396.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	396.00		min	0.00	0.00	0.00 -	0.00 -	0
11	396.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	396.00		min	0.00	0.00	0.00 -	0.00 -	0
11	400.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	400.00		min	0.00	0.00	0.00 -	0.00 -	0
11	400.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	400.00		min	0.00	0.00	0.00 -	0.00 -	0
11	404.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	404.00		min	0.00	0.00	0.00 -	0.00 -	0
11	404.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	404.00		min	0.00	0.00	0.00 -	0.00 -	0
11	408.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	408.00		min	0.00	0.00	0.00 -	0.00 -	0
11	408.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	408.00		min	0.00	0.00	0.00 -	0.00 -	0
11	412.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	412.00		min	0.00	0.00	0.00 -	0.00 -	0
11	412.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	412.00		min	0.00	0.00	0.00 -	0.00 -	0
11	416.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	416.00		min	0.00	0.00	0.00 -	0.00 -	0
11	416.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	416.00		min	0.00	0.00	0.00 -	0.00 -	0
11	420.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	420.00		min	0.00	0.00	0.00 -	0.00 -	0
11	420.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	420.00		min	0.00	0.00	0.00 -	0.00 -	0
11	424.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	424.00		min	0.00	0.00	0.00 -	0.00 -	0
11	424.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	424.00		min	0.00	0.00	0.00 -	0.00 -	0
11	428.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	428.00		min	0.00	0.00	0.00 -	0.00 -	0
11	428.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	428.00		min	0.00	0.00	0.00 -	0.00 -	0
11	432.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	432.00		min	0.00	0.00	0.00 -	0.00 -	0
11	432.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	432.00		min	0.00	0.00	0.00 -	0.00 -	0
12	436.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	436.00		min	0.00	0.00	0.00 -	0.00 -	0
12	436.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	436.00		min	0.00	0.00	0.00 -	0.00 -	0
12	440.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	440.00		min	0.00	0.00	0.00 -	0.00 -	0
12	440.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	440.00		min	0.00	0.00	0.00 -	0.00 -	0
12	444.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	444.00		min	0.00	0.00	0.00 -	0.00 -	0
12	444.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	444.00		min	0.00	0.00	0.00 -	0.00 -	0
12	448.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	448.00		min	0.00	0.00	0.00 -	0.00 -	0
12	448.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	448.00		min	0.00	0.00	0.00 -	0.00 -	0
12	452.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	452.00		min	0.00	0.00	0.00 -	0.00 -	0
12	452.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	452.00		min	0.00	0.00	0.00 -	0.00 -	0
12	456.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	456.00		min	0.00	0.00	0.00 -	0.00 -	0
12	456.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	456.00		min	0.00	0.00	0.00 -	0.00 -	0
12	460.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	460.00		min	0.00	0.00	0.00 -	0.00 -	0
12	460.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	460.00		min	0.00	0.00	0.00 -	0.00 -	0
12	464.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	464.00		min	0.00	0.00	0.00 -	0.00 -	0
12	464.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	464.00		min	0.00	0.00	0.00 -	0.00 -	0
12	468.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	468.00		min	0.00	0.00	0.00 -	0.00 -	0

12	468.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	468.00		min	0.00	0.00	0.00 -	0.00 -	0
12	472.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	472.00		min	0.00	0.00	0.00 -	0.00 -	0
12	472.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	472.00		min	0.00	0.00	0.00 -	0.00 -	0
13	476.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	476.00		min	0.00	0.00	0.00 -	0.00 -	0
13	476.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	476.00		min	0.00	0.00	0.00 -	0.00 -	0
13	480.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	480.00		min	0.00	0.00	0.00 -	0.00 -	0
13	480.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	480.00		min	0.00	0.00	0.00 -	0.00 -	0
13	484.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	484.00		min	0.00	0.00	0.00 -	0.00 -	0
13	484.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	484.00		min	0.00	0.00	0.00 -	0.00 -	0
13	488.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	488.00		min	0.00	0.00	0.00 -	0.00 -	0
13	488.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	488.00		min	0.00	0.00	0.00 -	0.00 -	0
13	492.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	492.00		min	0.00	0.00	0.00 -	0.00 -	0
13	492.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	492.00		min	0.00	0.00	0.00 -	0.00 -	0
13	496.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	496.00		min	0.00	0.00	0.00 -	0.00 -	0
13	496.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	496.00		min	0.00	0.00	0.00 -	0.00 -	0
13	500.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	500.00		min	0.00	0.00	0.00 -	0.00 -	0
13	500.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	500.00		min	0.00	0.00	0.00 -	0.00 -	0
13	504.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	504.00		min	0.00	0.00	0.00 -	0.00 -	0
13	504.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	504.00		min	0.00	0.00	0.00 -	0.00 -	0
13	508.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	508.00		min	0.00	0.00	0.00 -	0.00 -	0
13	508.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	508.00		min	0.00	0.00	0.00 -	0.00 -	0
13	512.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	512.00		min	0.00	0.00	0.00 -	0.00 -	0
13	512.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	512.00		min	0.00	0.00	0.00 -	0.00 -	0
14	515.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	515.20		min	0.00	0.00	0.00 -	0.00 -	0
14	515.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	515.20		min	0.00	0.00	0.00 -	0.00 -	0
14	518.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	518.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	der	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	540.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80		min	0.00	0.00	0.00 -	0.00 -	0
14	540.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80		min	0.00	0.00	0.00 -	0.00 -	0
14	544.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	544.00		min	0.00	0.00	0.00 -	0.00 -	0

COMPROBACION TENSIONES FASE 3

Factores de ponderación considerados para el pretensado:

- Acciones Desfavorables: 1.1
- Acciones Favorables: 0.9

LEYENDA:
+ : Compresión>fck(j)/1.6
* : Tracción
# : Fisuración
! : Requiere comprobación wk

Vano	x		Pxo	Mmax Mmin	?s ?s	?i ?i	fckj
	[m]		[t]	[tm]	[kg/cm²]	[kg/cm²]	[kg/cm²]
1	0.00	der max	-6215.67	-4074.98	-5.62	-78.07	463
1	0.00	min	-7594.22	-4980.54	-6.86	-95.40	463
1	3.20	izq max	-6247.52	-5673.49	-11.59	-151.24	463
1	3.20	min	-7634.00	-7141.08	-12.29	-188.07	463
1	3.20	der max	-6262.39	-5697.24	-11.52	-151.76	463
1	3.20	min	-7654.04	-7170.11	-12.23	-188.73	463
1	6.40	izq max	-6380.21	-6564.47	-4.92	-166.51	463
1	6.40	min	-7798.03	-8372.37	-2.89	-208.98	463
1	6.40	der max	-6380.21	-6564.47	-4.92	-166.51	463
1	6.40	min	-7798.04	-8372.38	-2.89	-208.98	463
1	9.60	izq max	-6467.75	-6875.73	-3.01	-172.26	463
1	9.60	min	-7905.02	-8838.20	0.22 *	-217.33	463
1	9.60	der max	-6467.75	-6875.71	-3.01	-172.26	463
1	9.60	min	-7905.02	-8838.19	0.22 *	-217.33	463
1	12.80	izq max	-6457.87	-6454.63	-6.69	-165.57	463
1	12.80	min	-7892.95	-8352.06	-4.02	-209.61	463
1	12.80	der max	-6457.86	-6454.61	-6.69	-165.57	463
1	12.80	min	-7892.94	-8352.03	-4.02	-209.61	463
1	16.00	izq max	-6391.29	-5528.70	-14.32	-150.42	463
1	16.00	min	-7811.58	-7192.00	-13.61	-190.64	463
1	16.00	der max	-6391.29	-5528.69	-14.32	-150.42	463
1	16.00	min	-7811.58	-7191.98	-13.61	-190.64	463
1	19.20	izq max	-6319.35	-4286.30	-24.75	-130.26	463
1	19.20	min	-7723.66	-5588.27	-27.11	-164.67	463
1	19.20	der max	-6319.35	-4286.28	-24.75	-130.26	463
1	19.20	min	-7723.65	-5588.24	-27.11	-164.67	463
1	22.40	izq max	-6293.66	-2797.90	-37.84	-106.71	463
1	22.40	min	-7692.25	-3626.96	-44.39	-133.67	463
1	22.40	der max	-6293.66	-2797.81	-37.84	-106.71	463
1	22.40	min	-7692.25	-3626.83	-44.39	-133.67	463
1	25.60	izq max	-6310.58	-1274.57	-51.67	-83.05	463
1	25.60	min	-7712.93	-1566.08	-63.08	-101.63	463
1	25.60	der max	-6310.58	-1274.47	-51.67	-83.05	463
1	25.60	min	-7712.93	-1565.96	-63.08	-101.63	463
1	28.80	izq max	-10863.50	-1004.90	-99.62	-124.36	463
1	28.80	min	-8888.28	-1024.79	-79.69	-104.92	463
1	28.80	der max	-10839.90	-1007.39	-99.36	-124.16	463
1	28.80	min	-8871.53	-1026.84	-79.50	-104.78	463
1	32.00	izq max	-10985.90	569.22	-65.07	-54.95	463

1	32.00		min	-8991.70	0.91	-49.96	-49.94	463	3	104.00		min	-10059.20	-1739.57	-84.99	-127.81	337
1	32.00	der	max	-10991.20	567.91	-65.09	-55.00	463	3	104.00	der	max	-8230.25	-1067.26	-72.73	-99.00	337
1	32.00		min	-8995.49	-0.16	-49.97	-49.98	463	3	104.00		min	-10059.20	-1739.52	-84.99	-127.81	337
2	36.00	izq	max	-10774.20	-261.51	-105.40	-111.83	463	3	108.00	izq	max	-8292.91	-344.57	-79.84	-88.32	337
2	36.00		min	-8817.23	-351.07	-85.02	-93.66	463	3	108.00		min	-10135.80	-594.24	-96.03	-110.66	337
2	36.00	der	max	-10784.50	-259.98	-105.51	-111.91	463	3	108.00	der	max	-8288.74	-348.32	-79.76	-88.34	337
2	36.00		min	-8823.65	-349.80	-85.10	-93.71	463	3	108.00		min	-10128.60	-598.82	-95.91	-110.65	337
2	40.00	izq	max	-13949.90	-5826.69	-87.24	-230.66	463	3	112.00	izq	max	-10235.30	-401.92	-54.01	-61.16	337
2	40.00		min	-17049.90	-7253.81	-105.44	-283.99	463	3	112.00		min	-8376.79	-483.98	-43.10	-51.71	337
2	40.00	der	max	-6471.59	-1250.58	-53.50	-84.28	441	3	112.00	der	max	-10224.90	-401.95	-53.95	-61.10	337
2	40.00		min	-7909.72	-1660.79	-64.20	-105.08	441	3	112.00		min	-8367.00	-484.01	-43.05	-51.65	337
2	44.00	izq	max	-6531.56	-2567.90	-42.28	-105.49	441	4	116.00	izq	max	-8185.49	-1845.50	-65.30	-110.73	337
2	44.00		min	-7983.02	-3481.77	-48.60	-134.31	441	4	116.00		min	-10003.90	-2211.17	-80.20	-134.63	337
2	44.00	der	max	-6531.57	-2567.93	-42.28	-105.49	441	4	116.00	der	max	-8199.13	-1842.01	-65.47	-110.81	337
2	44.00		min	-7983.03	-3481.83	-48.60	-134.31	441	4	116.00		min	-10021.20	-2206.91	-80.42	-134.74	337
2	48.00	izq	max	-6644.45	-3707.16	-33.19	-124.45	441	4	120.00	izq	max	0.00	0.01	0.00	- 0.00	- 337
2	48.00		min	-8121.00	-4996.30	-36.40	-159.38	441	4	120.00		min	0.00	0.01	0.00	- 0.00	- 337
2	48.00	der	max	-6644.46	-3707.18	-33.19	-124.45	441	4	120.00	der	max	0.00	0.00	0.00	- 0.00	- 0
2	48.00		min	-8121.01	-4996.32	-36.40	-159.38	441	4	120.00		min	0.00	0.00	0.00	- 0.00	- 0
2	52.00	izq	max	-6742.04	-4285.16	-28.99	-134.47	441	4	124.00	izq	max	0.00	0.00	0.00	- 0.00	- 0
2	52.00		min	-8240.27	-5735.92	-30.96	-172.15	441	4	124.00		min	0.00	0.00	0.00	- 0.00	- 0
2	52.00	der	max	-6742.04	-4285.19	-28.99	-134.47	441	4	124.00	der	max	0.00	0.00	0.00	- 0.00	- 0
2	52.00		min	-8240.27	-5735.95	-30.96	-172.15	441	4	124.00		min	0.00	0.00	0.00	- 0.00	- 0
2	56.00	izq	max	-6823.11	-4219.46	-30.39	-134.25	441	4	128.00	izq	max	0.00	0.00	0.00	- 0.00	- 0
2	56.00		min	-8339.36	-5599.90	-33.17	-171.01	441	4	128.00		min	0.00	0.00	0.00	- 0.00	- 0
2	56.00	der	max	-6823.11	-4219.45	-30.39	-134.25	441	4	128.00	der	max	0.00	0.00	0.00	- 0.00	- 0
2	56.00		min	-8339.36	-5599.89	-33.17	-171.01	441	4	128.00		min	0.00	0.00	0.00	- 0.00	- 0
2	60.00	izq	max	-6886.56	-3456.34	-37.86	-122.94	441	4	132.00	izq	max	0.00	0.00	0.00	- 0.00	- 0
2	60.00		min	-8416.91	-4522.61	-43.60	-154.93	441	4	132.00		min	0.00	0.00	0.00	- 0.00	- 0
2	60.00	der	max	-6886.56	-3456.29	-37.87	-122.94	441	4	132.00	der	max	0.00	0.00	0.00	- 0.00	- 0
2	60.00		min	-8416.91	-4522.54	-43.61	-154.93	441	4	132.00		min	0.00	0.00	0.00	- 0.00	- 0
2	64.00	izq	max	-8884.96	-342.98	-85.77	-94.22	441	4	136.00	izq	max	0.00	0.00	0.00	- 0.00	- 0
2	64.00		min	-10859.40	-483.90	-104.25	-116.17	441	4	136.00		min	0.00	0.00	0.00	- 0.00	- 0
2	64.00	der	max	-8884.96	-342.98	-85.77	-94.22	441	4	136.00	der	max	0.00	0.00	0.00	- 0.00	- 0
2	64.00		min	-10859.40	-483.89	-104.25	-116.17	441	4	136.00		min	0.00	0.00	0.00	- 0.00	- 0
2	68.00	izq	max	-10941.30	809.67	-116.67	-96.74	441	4	140.00	izq	max	0.00	0.00	0.00	- 0.00	- 0
2	68.00		min	-8951.94	451.63	-93.57	-82.45	441	4	140.00		min	0.00	0.00	0.00	- 0.00	- 0
2	68.00	der	max	-10932.60	806.24	-116.56	-96.71	441	4	140.00	der	max	0.00	0.00	0.00	- 0.00	- 0
2	68.00		min	-8946.97	448.81	-93.49	-82.45	441	4	140.00		min	0.00	0.00	0.00	- 0.00	- 0
2	72.00	izq	max	-11044.90	1240.84	-70.16	-48.10	441	4	144.00	izq	max	0.00	0.00	0.00	- 0.00	- 0
2	72.00		min	-9039.52	458.19	-53.47	-45.33	441	4	144.00		min	0.00	0.00	0.00	- 0.00	- 0
2	72.00	der	max	-11041.70	1240.82	-70.15	-48.09	441	4	144.00	der	max	0.00	0.00	0.00	- 0.00	- 0
2	72.00		min	-9037.15	458.17	-53.46	-45.31	441	4	144.00		min	0.00	0.00	0.00	- 0.00	- 0
3	76.00	izq	max	-10826.40	227.88	-110.31	-104.70	441	4	148.00	izq	max	0.00	0.00	0.00	- 0.00	- 0
3	76.00		min	-8860.24	6.52	-88.66	-88.50	441	4	148.00		min	0.00	0.00	0.00	- 0.00	- 0
3	76.00	der	max	-10837.80	231.02	-110.45	-104.76	441	4	148.00	der	max	0.00	0.00	0.00	- 0.00	- 0
3	76.00		min	-8867.25	9.10	-88.75	-88.53	441	4	148.00		min	0.00	0.00	0.00	- 0.00	- 0
3	80.00	izq	max	-7165.03	-3993.81	-35.83	-134.14	441	4	152.00	izq	max	0.00	0.00	0.00	- 0.00	- 0
3	80.00		min	-8757.25	-5021.68	-42.53	-166.14	441	4	152.00		min	0.00	0.00	0.00	- 0.00	- 0
3	80.00	der	max	-5841.65	-1540.31	-44.60	-82.52	337	4	152.00	der	max	0.00	0.00	0.00	- 0.00	- 0
3	80.00		min	-7139.79	-2022.97	-53.25	-103.05	337	4	152.00		min	0.00	0.00	0.00	- 0.00	- 0
3	84.00	izq	max	-5898.46	-2931.68	-32.69	-104.85	337	5	156.00	izq	max	0.00	0.00	0.00	- 0.00	- 0
3	84.00		min	-7209.23	-3994.85	-36.26	-134.60	337	5	156.00		min	0.00	0.00	0.00	- 0.00	- 0
3	84.00	der	max	-5898.46	-2931.74	-32.69	-104.86	337	5	156.00	der	max	0.00	0.00	0.00	- 0.00	- 0
3	84.00		min	-7209.23	-3994.94	-36.26	-134.60	337	5	156.00		min	0.00	0.00	0.00	- 0.00	- 0
3	88.00	izq	max	-6007.01	-4142.78	-22.91	-124.89	337	5	160.00	izq	max	0.00	0.00	0.00	- 0.00	- 0
3	88.00		min	-7341.90	-5657.54	-22.68	-161.94	337	5	160.00		min	0.00	0.00	0.00	- 0.00	- 0
3	88.00	der	max	-6007.02	-4142.85	-22.91	-124.89	337	5	160.00	der	max	0.00	0.00	0.00	- 0.00	- 0
3	88.00		min	-7341.91	-5657.63	-22.67	-161.94	337	5	160.00		min	0.00	0.00	0.00	- 0.00	- 0
3	92.00	izq	max	-6100.30	-4793.08	-18.01	-136.00	337	5	164.00	izq	max	0.00	0.00	0.00	- 0.00	- 0
3	92.00		min	-7455.92	-6545.94	-15.85	-176.98	337	5	164.00		min	0.00	0.00	0.00	- 0.00	- 0
3	92.00	der	max	-6100.30	-4793.10	-18.01	-136.00	337	5	164.00	der	max	0.00	0.00	0.00	- 0.00	- 0
3	92.00		min	-7455.92	-6545.97	-15.85	-176.98	337	5	164.00		min	0.00	0.00	0.00	- 0.00	- 0
3	96.00	izq	max	-6177.04	-4799.51	-18.72	-136.86	337	5	168.00	izq	max	0.00	0.00	0.00	- 0.00	- 0
3	96.00		min	-7549.71	-6558.48	-16.67	-178.11	337	5	168.00		min	0.00	0.00	0.00	- 0.00	- 0
3	96.00	der	max	-6177.04	-4799.50	-18.72	-136.86	337	5	168.00	der	max	0.00	0.00	0.00	- 0.00	- 0
3	96.00		min	-7549.72	-6558.47	-16.67	-178.11	337	5	168.00		min	0.00	0.00	0.00	- 0.00	- 0
3	100.00	izq	max	-6236.17	-4108.63	-25.51	-126.65	337	5	172.00	izq	max	0.00	0.00	0.00	- 0.00	- 0
3	100.00		min	-7621.99	-5629.87	-25.72	-164.31	337	5	172.00		min	0.00	0.00	0.00	- 0.00	- 0
3	100.00	der	max	-6236.18	-4108.56	-25.51	-126.64	337	5	172.00	der	max	0.00	0.00	0.00	- 0.00	- 0
3	100.00		min	-7622.00	-5629.77	-25.73	-164.30	337	5	172.00		min	0.00	0.00	0.00	- 0.00	- 0
3	104.00	izq	max	-8230.25	-1067.29	-72.73	-99.00	337	5	176.00	izq	max	0.00	0.00	0.00	- 0.00	- 0

5	176.00		min	0.00	0.00	0.00 -	0.00 -	0
5	176.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	176.00		min	0.00	0.00	0.00 -	0.00 -	0
5	180.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	180.00		min	0.00	0.00	0.00 -	0.00 -	0
5	180.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	180.00		min	0.00	0.00	0.00 -	0.00 -	0
5	184.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	184.00		min	0.00	0.00	0.00 -	0.00 -	0
5	184.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	184.00		min	0.00	0.00	0.00 -	0.00 -	0
5	188.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	188.00		min	0.00	0.00	0.00 -	0.00 -	0
5	188.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	188.00		min	0.00	0.00	0.00 -	0.00 -	0
5	192.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	192.00		min	0.00	0.00	0.00 -	0.00 -	0
5	192.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	192.00		min	0.00	0.00	0.00 -	0.00 -	0
6	196.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	196.00		min	0.00	0.00	0.00 -	0.00 -	0
6	196.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	196.00		min	0.00	0.00	0.00 -	0.00 -	0
6	200.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	200.00		min	0.00	0.00	0.00 -	0.00 -	0
6	200.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	200.00		min	0.00	0.00	0.00 -	0.00 -	0
6	204.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	204.00		min	0.00	0.00	0.00 -	0.00 -	0
6	204.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	204.00		min	0.00	0.00	0.00 -	0.00 -	0
6	208.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	208.00		min	0.00	0.00	0.00 -	0.00 -	0
6	208.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	208.00		min	0.00	0.00	0.00 -	0.00 -	0
6	212.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	212.00		min	0.00	0.00	0.00 -	0.00 -	0
6	212.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	212.00		min	0.00	0.00	0.00 -	0.00 -	0
6	216.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	216.00		min	0.00	0.00	0.00 -	0.00 -	0
6	216.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	216.00		min	0.00	0.00	0.00 -	0.00 -	0
6	220.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	220.00		min	0.00	0.00	0.00 -	0.00 -	0
6	220.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	220.00		min	0.00	0.00	0.00 -	0.00 -	0
6	224.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	224.00		min	0.00	0.00	0.00 -	0.00 -	0
6	224.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	224.00		min	0.00	0.00	0.00 -	0.00 -	0
6	228.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	228.00		min	0.00	0.00	0.00 -	0.00 -	0
6	228.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	228.00		min	0.00	0.00	0.00 -	0.00 -	0
6	232.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	232.00		min	0.00	0.00	0.00 -	0.00 -	0
6	232.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	232.00		min	0.00	0.00	0.00 -	0.00 -	0
7	236.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	236.00		min	0.00	0.00	0.00 -	0.00 -	0
7	236.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	236.00		min	0.00	0.00	0.00 -	0.00 -	0
7	240.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	240.00		min	0.00	0.00	0.00 -	0.00 -	0
7	240.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	240.00		min	0.00	0.00	0.00 -	0.00 -	0
7	244.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	244.00		min	0.00	0.00	0.00 -	0.00 -	0
7	244.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	244.00		min	0.00	0.00	0.00 -	0.00 -	0
7	248.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	248.00		min	0.00	0.00	0.00 -	0.00 -	0
7	248.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	248.00		min	0.00	0.00	0.00 -	0.00 -	0
7	252.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	252.00		min	0.00	0.00	0.00 -	0.00 -	0
7	252.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	252.00		min	0.00	0.00	0.00 -	0.00 -	0
7	256.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	256.00		min	0.00	0.00	0.00 -	0.00 -	0
7	256.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	256.00		min	0.00	0.00	0.00 -	0.00 -	0
7	260.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	260.00		min	0.00	0.00	0.00 -	0.00 -	0
7	260.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	260.00		min	0.00	0.00	0.00 -	0.00 -	0
7	264.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	264.00		min	0.00	0.00	0.00 -	0.00 -	0
7	264.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	264.00		min	0.00	0.00	0.00 -	0.00 -	0
7	268.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	268.00		min	0.00	0.00	0.00 -	0.00 -	0
7	268.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	268.00		min	0.00	0.00	0.00 -	0.00 -	0
7	272.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	272.00		min	0.00	0.00	0.00 -	0.00 -	0
7	272.00	der	max	0.00	0.00	0.00 -	0.00 -	0
7	272.00		min	0.00	0.00	0.00 -	0.00 -	0
8	276.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	276.00		min	0.00	0.00	0.00 -	0.00 -	0
8	276.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	276.00		min	0.00	0.00	0.00 -	0.00 -	0
8	280.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	280.00		min	0.00	0.00	0.00 -	0.00 -	0
8	280.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	280.00		min	0.00	0.00	0.00 -	0.00 -	0
8	284.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	284.00		min	0.00	0.00	0.00 -	0.00 -	0
8	284.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	284.00		min	0.00	0.00	0.00 -	0.00 -	0
8	288.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	288.00		min	0.00	0.00	0.00 -	0.00 -	0
8	288.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	288.00		min	0.00	0.00	0.00 -	0.00 -	0
8	292.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	292.00		min	0.00	0.00	0.00 -	0.00 -	0
8	292.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	292.00		min	0.00	0.00	0.00 -	0.00 -	0
8	296.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	296.00		min	0.00	0.00	0.00 -	0.00 -	0
8	296.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	296.00		min	0.00	0.00	0.00 -	0.00 -	0
8	300.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	300.00		min	0.00	0.00	0.00 -	0.00 -	0
8	300.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	300.00		min	0.00	0.00	0.00 -	0.00 -	0
8	304.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	304.00		min	0.00	0.00	0.00 -	0.00 -	0
8	304.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	304.00		min	0.00	0.00	0.00 -	0.00 -	0
8	308.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	308.00		min	0.00	0.00	0.00 -	0.00 -	0
8	308.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	308.00		min	0.00	0.00	0.00 -	0.00 -	0
8	312.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	312.00		min	0.00	0.00	0.00 -	0.00 -	0
8	312.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	312.00		min	0.00	0.00	0.00 -	0.00 -	0
9	316.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	316.00		min	0.00	0.00	0.00 -	0.00 -	0
9	316.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	316.00		min	0.00	0.00	0.00 -	0.00 -	0
9	320.00	izq	max	0.00	0.00	0.00 -	0.00 -	0

9	320.00		min	0.00	0.00	0.00	-	0.00	-	0
9	320.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	320.00		min	0.00	0.00	0.00	-	0.00	-	0
9	324.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	324.00		min	0.00	0.00	0.00	-	0.00	-	0
9	324.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	324.00		min	0.00	0.00	0.00	-	0.00	-	0
9	328.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	328.00		min	0.00	0.00	0.00	-	0.00	-	0
9	328.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	328.00		min	0.00	0.00	0.00	-	0.00	-	0
9	332.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	332.00		min	0.00	0.00	0.00	-	0.00	-	0
9	332.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	332.00		min	0.00	0.00	0.00	-	0.00	-	0
9	336.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	336.00		min	0.00	0.00	0.00	-	0.00	-	0
9	336.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	336.00		min	0.00	0.00	0.00	-	0.00	-	0
9	340.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	340.00		min	0.00	0.00	0.00	-	0.00	-	0
9	340.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	340.00		min	0.00	0.00	0.00	-	0.00	-	0
9	344.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	344.00		min	0.00	0.00	0.00	-	0.00	-	0
9	344.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	344.00		min	0.00	0.00	0.00	-	0.00	-	0
9	348.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	348.00		min	0.00	0.00	0.00	-	0.00	-	0
9	348.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	348.00		min	0.00	0.00	0.00	-	0.00	-	0
9	352.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	352.00		min	0.00	0.00	0.00	-	0.00	-	0
9	352.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	352.00		min	0.00	0.00	0.00	-	0.00	-	0
10	356.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
10	356.00		min	0.00	0.00	0.00	-	0.00	-	0
10	356.00	der	max	0.00	0.00	0.00	-	0.00	-	0
10	356.00		min	0.00	0.00	0.00	-	0.00	-	0
10	360.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
10	360.00		min	0.00	0.00	0.00	-	0.00	-	0
10	360.00	der	max	0.00	0.00	0.00	-	0.00	-	0
10	360.00		min	0.00	0.00	0.00	-	0.00	-	0
10	364.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
10	364.00		min	0.00	0.00	0.00	-	0.00	-	0
10	364.00	der	max	0.00	0.00	0.00	-	0.00	-	0
10	364.00		min	0.00	0.00	0.00	-	0.00	-	0
10	368.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
10	368.00		min	0.00	0.00	0.00	-	0.00	-	0
10	368.00	der	max	0.00	0.00	0.00	-	0.00	-	0
10	368.00		min	0.00	0.00	0.00	-	0.00	-	0
10	372.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
10	372.00		min	0.00	0.00	0.00	-	0.00	-	0
10	372.00	der	max	0.00	0.00	0.00	-	0.00	-	0
10	372.00		min	0.00	0.00	0.00	-	0.00	-	0
10	376.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
10	376.00		min	0.00	0.00	0.00	-	0.00	-	0
10	376.00	der	max	0.00	0.00	0.00	-	0.00	-	0
10	376.00		min	0.00	0.00	0.00	-	0.00	-	0
10	380.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
10	380.00		min	0.00	0.00	0.00	-	0.00	-	0
10	380.00	der	max	0.00	0.00	0.00	-	0.00	-	0
10	380.00		min	0.00	0.00	0.00	-	0.00	-	0
10	384.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
10	384.00		min	0.00	0.00	0.00	-	0.00	-	0
10	384.00	der	max	0.00	0.00	0.00	-	0.00	-	0
10	384.00		min	0.00	0.00	0.00	-	0.00	-	0
10	388.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
10	388.00		min	0.00	0.00	0.00	-	0.00	-	0
10	388.00	der	max	0.00	0.00	0.00	-	0.00	-	0
10	388.00		min	0.00	0.00	0.00	-	0.00	-	0
10	392.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
10	392.00		min	0.00	0.00	0.00	-	0.00	-	0
10	392.00	der	max	0.00	0.00	0.00	-	0.00	-	0
10	392.00		min	0.00	0.00	0.00	-	0.00	-	0
11	396.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
11	396.00		min	0.00	0.00	0.00	-	0.00	-	0
11	396.00	der	max	0.00	0.00	0.00	-	0.00	-	0
11	396.00		min	0.00	0.00	0.00	-	0.00	-	0
11	400.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
11	400.00		min	0.00	0.00	0.00	-	0.00	-	0
11	400.00	der	max	0.00	0.00	0.00	-	0.00	-	0
11	400.00		min	0.00	0.00	0.00	-	0.00	-	0
11	404.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
11	404.00		min	0.00	0.00	0.00	-	0.00	-	0
11	404.00	der	max	0.00	0.00	0.00	-	0.00	-	0
11	404.00		min	0.00	0.00	0.00	-	0.00	-	0
11	408.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
11	408.00		min	0.00	0.00	0.00	-	0.00	-	0
11	408.00	der	max	0.00	0.00	0.00	-	0.00	-	0
11	408.00		min	0.00	0.00	0.00	-	0.00	-	0
11	412.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
11	412.00		min	0.00	0.00	0.00	-	0.00	-	0
11	412.00	der	max	0.00	0.00	0.00	-	0.00	-	0
11	412.00		min	0.00	0.00	0.00	-	0.00	-	0
11	416.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
11	416.00		min	0.00	0.00	0.00	-	0.00	-	0
11	416.00	der	max	0.00	0.00	0.00	-	0.00	-	0
11	416.00		min	0.00	0.00	0.00	-	0.00	-	0
11	420.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
11	420.00		min	0.00	0.00	0.00	-	0.00	-	0
11	420.00	der	max	0.00	0.00	0.00	-	0.00	-	0
11	420.00		min	0.00	0.00	0.00	-	0.00	-	0
11	424.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
11	424.00		min	0.00	0.00	0.00	-	0.00	-	0
11	424.00	der	max	0.00	0.00	0.00	-	0.00	-	0
11	424.00		min	0.00	0.00	0.00	-	0.00	-	0
11	428.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
11	428.00		min	0.00	0.00	0.00	-	0.00	-	0
11	428.00	der	max	0.00	0.00	0.00	-	0.00	-	0
11	428.00		min	0.00	0.00	0.00	-	0.00	-	0
11	432.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
11	432.00		min	0.00	0.00	0.00	-	0.00	-	0
11	432.00	der	max	0.00	0.00	0.00	-	0.00	-	0
11	432.00		min	0.00	0.00	0.00	-	0.00	-	0
12	436.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
12	436.00		min	0.00	0.00	0.00	-	0.00	-	0
12	436.00	der	max	0.00	0.00	0.00	-	0.00	-	0
12	436.00		min	0.00	0.00	0.00	-	0.00	-	0
12	440.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
12	440.00		min	0.00	0.00	0.00	-	0.00	-	0
12	440.00	der	max	0.00	0.00	0.00	-	0.00	-	0
12	440.00		min	0.00	0.00	0.00	-	0.00	-	0
12	444.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
12	444.00		min	0.00	0.00	0.00	-	0.00	-	0
12	444.00	der	max	0.00	0.00	0.00	-	0.00	-	0
12	444.00		min	0.00	0.00	0.00	-	0.00	-	0
12	448.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
12	448.00		min	0.00	0.00	0.00	-	0.00	-	0
12	448.00	der	max	0.00	0.00	0.00	-	0.00	-	0
12	448.00		min	0.00	0.00	0.00	-	0.00	-	0
12	452.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
12	452.00		min	0.00	0.00	0.00	-	0.00	-	0
12	452.00	der	max	0.00	0.00	0.00	-	0.00	-	0
12	452.00		min	0.00	0.00	0.00	-	0.00	-	0
12	456.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
12	456.00		min	0.00	0.00	0.00	-	0.00	-	0
12	456.00	der	max	0.00	0.00	0.00	-	0.00	-	0
12	456.00		min	0.00	0.00	0.00	-	0.00	-	0
12	460.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
12	460.00		min	0.00	0.00	0.00	-	0.00	-	0
12	460.00	der	max	0.00	0.00	0.00	-	0.00	-	0
12	460.00		min	0.00	0.00	0.00	-	0.00	-	0
12	464.00	izq	max	0.00	0.00	0.00	-	0.00	-	0

12	464.00		min	0.00	0.00	0.00 -	0.00 -	0
12	464.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	464.00		min	0.00	0.00	0.00 -	0.00 -	0
12	468.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	468.00		min	0.00	0.00	0.00 -	0.00 -	0
12	468.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	468.00		min	0.00	0.00	0.00 -	0.00 -	0
12	472.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	472.00		min	0.00	0.00	0.00 -	0.00 -	0
12	472.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	472.00		min	0.00	0.00	0.00 -	0.00 -	0
13	476.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	476.00		min	0.00	0.00	0.00 -	0.00 -	0
13	476.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	476.00		min	0.00	0.00	0.00 -	0.00 -	0
13	480.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	480.00		min	0.00	0.00	0.00 -	0.00 -	0
13	480.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	480.00		min	0.00	0.00	0.00 -	0.00 -	0
13	484.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	484.00		min	0.00	0.00	0.00 -	0.00 -	0
13	484.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	484.00		min	0.00	0.00	0.00 -	0.00 -	0
13	488.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	488.00		min	0.00	0.00	0.00 -	0.00 -	0
13	488.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	488.00		min	0.00	0.00	0.00 -	0.00 -	0
13	492.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	492.00		min	0.00	0.00	0.00 -	0.00 -	0
13	492.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	492.00		min	0.00	0.00	0.00 -	0.00 -	0
13	496.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	496.00		min	0.00	0.00	0.00 -	0.00 -	0
13	496.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	496.00		min	0.00	0.00	0.00 -	0.00 -	0
13	500.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	500.00		min	0.00	0.00	0.00 -	0.00 -	0
13	500.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	500.00		min	0.00	0.00	0.00 -	0.00 -	0
13	504.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	504.00		min	0.00	0.00	0.00 -	0.00 -	0
13	504.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	504.00		min	0.00	0.00	0.00 -	0.00 -	0
13	508.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	508.00		min	0.00	0.00	0.00 -	0.00 -	0
13	508.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	508.00		min	0.00	0.00	0.00 -	0.00 -	0
13	512.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	512.00		min	0.00	0.00	0.00 -	0.00 -	0
13	512.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	512.00		min	0.00	0.00	0.00 -	0.00 -	0
14	515.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	515.20		min	0.00	0.00	0.00 -	0.00 -	0
14	515.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	515.20		min	0.00	0.00	0.00 -	0.00 -	0
14	518.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	518.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	der	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	540.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80		min	0.00	0.00	0.00 -	0.00 -	0
14	540.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80		min	0.00	0.00	0.00 -	0.00 -	0
14	544.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	544.00		min	0.00	0.00	0.00 -	0.00 -	0

COMPROBACION TENSIONES FASE 4

Factores de ponderación considerados para el pretensado:

- Acciones Desfavorables: 1.1
- Acciones Favorables: 0.9

LEYENDA:
+ : Compresión>fck(j)/1.6
* : Tracción
# : Fisuración
! : Requiere comprobación wk

Vano	x			Pxo	Mmax	?s	?i	fckj
	[m]			[t]	Mmin [tm]	?s [kg/cm²]	?i [kg/cm²]	[kg/cm²]
1	0.00	der	max	-6215.84	-4074.98	-5.62	-78.07	478
1	0.00		min	-7594.47	-4980.54	-6.86	-95.40	478
1	3.20	izq	max	-6247.69	-5657.64	-11.73	-151.00	478
1	3.20		min	-7634.25	-7118.29	-12.50	-187.71	478
1	3.20	der	max	-6262.39	-5681.39	-11.67	-151.52	478
1	3.20		min	-7654.04	-7147.32	-12.43	-188.37	478
1	6.40	izq	max	-6380.20	-6532.77	-5.21	-166.01	478
1	6.40		min	-7798.03	-8326.80	-3.30	-208.26	478
1	6.40	der	max	-6380.21	-6532.77	-5.21	-166.01	478
1	6.40		min	-7798.03	-8326.80	-3.30	-208.26	478
1	9.60	izq	max	-6467.74	-6828.18	-3.43	-171.51	478
1	9.60		min	-7905.02	-8769.84	-0.39	-216.26	478
1	9.60	der	max	-6467.75	-6828.17	-3.43	-171.51	478
1	9.60		min	-7905.02	-8769.83	-0.39	-216.26	478
1	12.80	izq	max	-6457.87	-6391.24	-7.25	-164.58	478
1	12.80		min	-7892.95	-8260.91	-4.84	-208.18	478
1	12.80	der	max	-6457.86	-6391.22	-7.25	-164.58	478
1	12.80		min	-7892.94	-8260.88	-4.84	-208.18	478
1	16.00	izq	max	-6391.29	-5449.46	-15.04	-149.18	478
1	16.00		min	-7811.58	-7078.08	-14.63	-188.86	478
1	16.00	der	max	-6391.29	-5449.45	-15.04	-149.18	478
1	16.00		min	-7811.58	-7078.06	-14.63	-188.86	478
1	19.20	izq	max	-6319.35	-4191.22	-25.60	-128.77	478
1	19.20		min	-7723.65	-5451.57	-28.34	-162.53	478
1	19.20	der	max	-6319.35	-4191.19	-25.60	-128.77	478
1	19.20		min	-7723.65	-5451.53	-28.34	-162.53	478
1	22.40	izq	max	-6293.66	-2686.97	-38.84	-104.98	478
1	22.40		min	-7692.25	-3467.46	-45.82	-131.17	478
1	22.40	der	max	-6293.66	-2686.87	-38.84	-104.98	478
1	22.40		min	-7692.25	-3467.34	-45.82	-131.17	478
1	25.60	izq	max	-6310.57	-1147.79	-52.81	-81.06	478
1	25.60		min	-7712.92	-1383.80	-64.72	-98.78	478
1	25.60	der	max	-6310.58	-1147.69	-52.81	-81.06	478
1	25.60		min	-7712.93	-1383.68	-64.72	-98.78	478

1	28.80	izq	max	-10863.50	-799.83	-101.46	-121.15	478
1	28.80		min	-8888.28	-882.16	-80.97	-102.69	478
1	28.80	der	max	-10839.60	-802.33	-101.20	-120.95	478
1	28.80		min	-8871.35	-884.21	-80.78	-102.55	478
1	32.00	izq	max	-10985.70	797.07	-66.69	-52.52	478
1	32.00		min	-8991.53	159.39	-51.08	-48.25	478
1	32.00	der	max	-10990.50	795.76	-66.70	-52.56	478
1	32.00		min	-8994.98	158.32	-51.10	-48.28	478
2	36.00	izq	max	-10773.50	-140.37	-106.47	-109.93	478
2	36.00		min	-8816.72	-266.80	-85.77	-92.34	478
2	36.00	der	max	-10784.50	-138.84	-106.60	-110.02	478
2	36.00		min	-8823.65	-265.53	-85.85	-92.39	478
2	40.00	izq	max	-13949.90	-5816.64	-87.33	-230.51	478
2	40.00		min	-17049.90	-7239.41	-105.57	-283.77	478
2	40.00	der	max	-6471.59	-1240.53	-53.59	-84.13	463
2	40.00		min	-7909.72	-1646.40	-64.33	-104.86	463
2	44.00	izq	max	-6531.56	-2632.06	-41.71	-106.50	463
2	44.00		min	-7983.02	-3574.10	-47.77	-135.75	463
2	44.00	der	max	-6531.57	-2632.10	-41.71	-106.50	463
2	44.00		min	-7983.03	-3574.16	-47.77	-135.75	463
2	48.00	izq	max	-6644.45	-3845.55	-31.95	-126.61	463
2	48.00		min	-8121.00	-5195.37	-34.61	-162.50	463
2	48.00	der	max	-6644.46	-3845.57	-31.95	-126.61	463
2	48.00		min	-8121.01	-5195.39	-34.61	-162.50	463
2	52.00	izq	max	-6742.04	-4497.76	-27.08	-137.79	463
2	52.00		min	-8240.27	-6041.71	-28.21	-176.93	463
2	52.00	der	max	-6742.04	-4497.78	-27.08	-137.79	463
2	52.00		min	-8240.27	-6041.75	-28.21	-176.93	463
2	56.00	izq	max	-6823.11	-4506.28	-27.81	-138.74	463
2	56.00		min	-8339.35	-6012.45	-29.47	-177.47	463
2	56.00	der	max	-6823.11	-4506.28	-27.81	-138.74	463
2	56.00		min	-8339.36	-6012.43	-29.47	-177.47	463
2	60.00	izq	max	-6886.56	-3817.39	-34.63	-128.59	463
2	60.00		min	-8416.91	-5041.88	-38.95	-163.06	463
2	60.00	der	max	-6886.56	-3817.34	-34.63	-128.59	463
2	60.00		min	-8416.91	-5041.82	-38.95	-163.05	463
2	64.00	izq	max	-8884.96	-778.24	-81.87	-101.03	463
2	64.00		min	-10859.40	-1109.91	-98.64	-125.96	463
2	64.00	der	max	-8884.96	-778.24	-81.87	-101.03	463
2	64.00		min	-10859.40	-1109.90	-98.64	-125.96	463
2	68.00	izq	max	-10941.30	76.92	-110.10	-108.21	463
2	68.00		min	-8951.93	-57.85	-89.00	-90.42	463
2	68.00	der	max	-10933.40	73.50	-109.99	-108.18	463
2	68.00		min	-8947.48	-60.66	-88.93	-90.42	463
2	72.00	izq	max	-11045.60	401.36	-64.21	-57.08	463
2	72.00		min	-9040.04	-125.51	-49.33	-51.56	463
2	72.00	der	max	-11044.40	401.35	-64.21	-57.07	463
2	72.00		min	-9039.00	-125.52	-49.33	-51.56	463
3	76.00	izq	max	-10829.10	-223.31	-106.29	-111.78	463
3	76.00		min	-8862.10	-309.86	-85.84	-93.47	463
3	76.00	der	max	-10837.70	-220.16	-106.40	-111.82	463
3	76.00		min	-8867.25	-307.26	-85.92	-93.48	463
3	80.00	izq	max	-7165.03	-4042.81	-35.39	-134.90	463
3	80.00		min	-8757.25	-5084.50	-41.97	-167.13	463
3	80.00	der	max	-5841.65	-1589.29	-44.16	-83.28	406
3	80.00		min	-7139.79	-2085.77	-52.69	-104.03	406
3	84.00	izq	max	-5898.46	-2713.35	-34.65	-101.44	406
3	84.00		min	-7209.23	-3669.36	-39.18	-129.50	406
3	84.00	der	max	-5898.46	-2713.40	-34.65	-101.44	406
3	84.00		min	-7209.23	-3669.43	-39.18	-129.50	406
3	88.00	izq	max	-6007.01	-3657.10	-27.27	-117.29	406
3	88.00		min	-7341.90	-4943.73	-29.08	-150.77	406
3	88.00	der	max	-6007.02	-3657.16	-27.27	-117.29	406
3	88.00		min	-7341.91	-4943.80	-29.08	-150.77	406
3	92.00	izq	max	-6100.29	-4040.01	-24.77	-124.21	406
3	92.00		min	-7455.92	-5443.73	-25.73	-159.73	406
3	92.00	der	max	-6100.30	-4040.01	-24.77	-124.21	406
3	92.00		min	-7455.92	-5443.73	-25.73	-159.73	406
3	96.00	izq	max	-6177.04	-3779.09	-27.87	-120.90	406
3	96.00		min	-7549.71	-5067.94	-30.04	-154.79	406
3	96.00	der	max	-6177.04	-3779.06	-27.88	-120.90	406
3	96.00		min	-7549.71	-5067.91	-30.04	-154.79	406
3	100.00	izq	max	-6236.17	-2820.84	-37.06	-106.50	406
3	100.00		min	-7621.99	-3750.97	-42.58	-134.91	406
3	100.00	der	max	-6236.18	-2820.77	-37.06	-106.50	406
3	100.00		min	-7621.99	-3750.86	-42.58	-134.91	406
3	104.00	izq	max	-10059.20	527.68	-105.32	-92.34	406
3	104.00		min	-8230.25	487.86	-86.68	-74.67	406
3	104.00	der	max	-10059.20	527.74	-105.33	-92.33	406
3	104.00		min	-8230.25	487.90	-86.68	-74.67	406
3	108.00	izq	max	-10135.80	2061.38	-119.85	-69.11	406
3	108.00		min	-8292.90	1477.95	-96.19	-59.80	406
3	108.00	der	max	-10125.90	2056.82	-119.71	-69.08	406
3	108.00		min	-8286.89	1474.21	-96.09	-59.80	406
3	112.00	izq	max	-10232.60	2642.00	-75.59	-28.62	406
3	112.00		min	-8374.93	1605.87	-57.92	-29.37	406
3	112.00	der	max	-10231.10	2642.00	-75.58	-28.61	406
3	112.00		min	-8373.88	1605.87	-57.91	-29.37	406
4	116.00	izq	max	-10010.10	1728.31	-115.60	-73.06	406
4	116.00		min	-8192.37	1235.31	-93.00	-62.59	406
4	116.00	der	max	-10021.20	1732.64	-115.75	-73.10	406
4	116.00		min	-8199.13	1238.86	-93.10	-62.61	406
4	120.00	izq	max	-5841.51	-1551.28	-44.50	-82.69	406
4	120.00		min	-7139.62	-2037.59	-53.12	-103.28	406
4	120.00	der	max	-5841.51	-1551.30	-44.50	-82.69	337
4	120.00		min	-7139.63	-2037.63	-53.12	-103.28	337
4	124.00	izq	max	-5898.72	-2942.11	-32.60	-105.02	337
4	124.00		min	-7209.54	-4008.72	-36.14	-134.82	337
4	124.00	der	max	-5898.72	-2942.15	-32.60	-105.02	337
4	124.00		min	-7209.55	-4008.79	-36.14	-134.82	337
4	128.00	izq	max	-6007.27	-4150.19	-22.85	-125.01	337
4	128.00		min	-7342.21	-5667.57	-22.59	-162.10	337
4	128.00	der	max	-6007.27	-4150.23	-22.85	-125.01	337
4	128.00		min	-7342.22	-5667.62	-22.59	-162.10	337
4	132.00	izq	max	-6100.53	-4796.90	-17.98	-136.06	337
4	132.00		min	-7456.20	-6551.40	-15.80	-177.07	337
4	132.00	der	max	-6100.53	-4796.92	-17.98	-136.06	337
4	132.00		min	-7456.21	-6551.43	-15.80	-177.07	337
4	136.00	izq	max	-6177.26	-4799.69	-18.72	-136.87	337
4	136.00		min	-7549.98	-6559.33	-16.67	-178.13	337
4	136.00	der	max	-6177.26	-4799.68	-18.72	-136.87	337
4	136.00		min	-7549.98	-6559.31	-16.67	-178.13	337
4	140.00	izq	max	-6236.37	-4105.01	-25.54	-126.59	337
4	140.00		min	-7622.23	-5625.91	-25.76	-164.25	337
4	140.00	der	max	-6236.37	-4104.98	-25.55	-126.59	337
4	140.00		min	-7622.23	-5625.88	-25.76	-164.25	337
4	144.00	izq	max	-6273.04	-2992.15	-35.89	-109.55	337
4	144.00		min	-7667.05	-4092.50	-39.96	-140.70	337
4	144.00	der	max	-6273.05	-2992.10	-35.89	-109.55	337
4	144.00		min	-7667.06	-4092.44	-39.96	-140.70	337
4	148.00	izq	max	-8293.62	-339.55	-79.89	-88.25	337
4	148.00		min	-10136.70	-588.25	-96.09	-110.57	337
4	148.00	der	max	-8289.49	-343.31	-79.81	-88.26	337
4	148.00		min	-10129.50	-592.84	-95.98	-110.57	337
4	152.00	izq	max	-10235.50	-401.81	-54.01	-61.16	337
4	152.00		min	-8376.96	-483.92	-43.11	-51.71	337
4	152.00	der	max	-10225.00	-401.93	-53.95	-61.10	337
4	152.00		min	-8367.10	-484.02	-43.05	-51.66	337
5	156.00	izq	max	-8185.77	-1849.13	-65.27	-110.79	337
5	156.00		min	-10004.20	-2215.60	-80.17	-134.71	337
5	156.00	der	max	-8199.42	-1845.62	-65.44	-110.87	337
5	156.00		min	-10021.50	-2211.31	-80.38	-134.81	337
5	160.00	izq	max	-0.00	-0.03	0.00 -	0.00 -	337
5	160.00		min	-0.00	-0.04	0.00 -	0.00 -	337
5	160.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	160.00		min	0.00	0.00	0.00 -	0.00 -	0
5	164.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	164.00		min	0.00	0.00	0.00 -	0.00 -	0
5	164.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	164.00		min	0.00	0.00	0.00 -	0.00 -	0
5	168.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	168.00		min	0.00	0.00	0.00 -	0.00 -	0
5	168.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	168.00		min	0.00	0.00	0.00 -	0.00 -	0

5	172.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	7	244.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
5	172.00		min	0.00	0.00	0.00	-	0.00	-	0	7	244.00		min	0.00	0.00	0.00	-	0.00	-	0
5	172.00	der	max	0.00	0.00	0.00	-	0.00	-	0	7	244.00	der	max	0.00	0.00	0.00	-	0.00	-	0
5	172.00		min	0.00	0.00	0.00	-	0.00	-	0	7	244.00		min	0.00	0.00	0.00	-	0.00	-	0
5	176.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	7	248.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
5	176.00		min	0.00	0.00	0.00	-	0.00	-	0	7	248.00		min	0.00	0.00	0.00	-	0.00	-	0
5	176.00	der	max	0.00	0.00	0.00	-	0.00	-	0	7	248.00	der	max	0.00	0.00	0.00	-	0.00	-	0
5	176.00		min	0.00	0.00	0.00	-	0.00	-	0	7	248.00		min	0.00	0.00	0.00	-	0.00	-	0
5	180.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	7	252.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
5	180.00		min	0.00	0.00	0.00	-	0.00	-	0	7	252.00		min	0.00	0.00	0.00	-	0.00	-	0
5	180.00	der	max	0.00	0.00	0.00	-	0.00	-	0	7	252.00	der	max	0.00	0.00	0.00	-	0.00	-	0
5	180.00		min	0.00	0.00	0.00	-	0.00	-	0	7	252.00		min	0.00	0.00	0.00	-	0.00	-	0
5	184.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	7	256.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
5	184.00		min	0.00	0.00	0.00	-	0.00	-	0	7	256.00		min	0.00	0.00	0.00	-	0.00	-	0
5	184.00	der	max	0.00	0.00	0.00	-	0.00	-	0	7	256.00	der	max	0.00	0.00	0.00	-	0.00	-	0
5	184.00		min	0.00	0.00	0.00	-	0.00	-	0	7	256.00		min	0.00	0.00	0.00	-	0.00	-	0
5	188.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	7	260.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
5	188.00		min	0.00	0.00	0.00	-	0.00	-	0	7	260.00		min	0.00	0.00	0.00	-	0.00	-	0
5	188.00	der	max	0.00	0.00	0.00	-	0.00	-	0	7	260.00	der	max	0.00	0.00	0.00	-	0.00	-	0
5	188.00		min	0.00	0.00	0.00	-	0.00	-	0	7	260.00		min	0.00	0.00	0.00	-	0.00	-	0
5	192.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	7	264.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
5	192.00		min	0.00	0.00	0.00	-	0.00	-	0	7	264.00		min	0.00	0.00	0.00	-	0.00	-	0
5	192.00	der	max	0.00	0.00	0.00	-	0.00	-	0	7	264.00	der	max	0.00	0.00	0.00	-	0.00	-	0
5	192.00		min	0.00	0.00	0.00	-	0.00	-	0	7	264.00		min	0.00	0.00	0.00	-	0.00	-	0
6	196.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	7	268.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
6	196.00		min	0.00	0.00	0.00	-	0.00	-	0	7	268.00		min	0.00	0.00	0.00	-	0.00	-	0
6	196.00	der	max	0.00	0.00	0.00	-	0.00	-	0	7	268.00	der	max	0.00	0.00	0.00	-	0.00	-	0
6	196.00		min	0.00	0.00	0.00	-	0.00	-	0	7	268.00		min	0.00	0.00	0.00	-	0.00	-	0
6	200.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	7	272.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
6	200.00		min	0.00	0.00	0.00	-	0.00	-	0	7	272.00		min	0.00	0.00	0.00	-	0.00	-	0
6	200.00	der	max	0.00	0.00	0.00	-	0.00	-	0	7	272.00	der	max	0.00	0.00	0.00	-	0.00	-	0
6	200.00		min	0.00	0.00	0.00	-	0.00	-	0	7	272.00		min	0.00	0.00	0.00	-	0.00	-	0
6	204.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	8	276.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
6	204.00		min	0.00	0.00	0.00	-	0.00	-	0	8	276.00		min	0.00	0.00	0.00	-	0.00	-	0
6	204.00	der	max	0.00	0.00	0.00	-	0.00	-	0	8	276.00	der	max	0.00	0.00	0.00	-	0.00	-	0
6	204.00		min	0.00	0.00	0.00	-	0.00	-	0	8	276.00		min	0.00	0.00	0.00	-	0.00	-	0
6	208.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	8	280.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
6	208.00		min	0.00	0.00	0.00	-	0.00	-	0	8	280.00		min	0.00	0.00	0.00	-	0.00	-	0
6	208.00	der	max	0.00	0.00	0.00	-	0.00	-	0	8	280.00	der	max	0.00	0.00	0.00	-	0.00	-	0
6	208.00		min	0.00	0.00	0.00	-	0.00	-	0	8	280.00		min	0.00	0.00	0.00	-	0.00	-	0
6	212.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	8	284.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
6	212.00		min	0.00	0.00	0.00	-	0.00	-	0	8	284.00		min	0.00	0.00	0.00	-	0.00	-	0
6	212.00	der	max	0.00	0.00	0.00	-	0.00	-	0	8	284.00	der	max	0.00	0.00	0.00	-	0.00	-	0
6	212.00		min	0.00	0.00	0.00	-	0.00	-	0	8	284.00		min	0.00	0.00	0.00	-	0.00	-	0
6	216.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	8	288.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
6	216.00		min	0.00	0.00	0.00	-	0.00	-	0	8	288.00		min	0.00	0.00	0.00	-	0.00	-	0
6	216.00	der	max	0.00	0.00	0.00	-	0.00	-	0	8	288.00	der	max	0.00	0.00	0.00	-	0.00	-	0
6	216.00		min	0.00	0.00	0.00	-	0.00	-	0	8	288.00		min	0.00	0.00	0.00	-	0.00	-	0
6	220.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	8	292.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
6	220.00		min	0.00	0.00	0.00	-	0.00	-	0	8	292.00		min	0.00	0.00	0.00	-	0.00	-	0
6	220.00	der	max	0.00	0.00	0.00	-	0.00	-	0	8	292.00	der	max	0.00	0.00	0.00	-	0.00	-	0
6	220.00		min	0.00	0.00	0.00	-	0.00	-	0	8	292.00		min	0.00	0.00	0.00	-	0.00	-	0
6	224.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	8	296.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
6	224.00		min	0.00	0.00	0.00	-	0.00	-	0	8	296.00		min	0.00	0.00	0.00	-	0.00	-	0
6	224.00	der	max	0.00	0.00	0.00	-	0.00	-	0	8	296.00	der	max	0.00	0.00	0.00	-	0.00	-	0
6	224.00		min	0.00	0.00	0.00	-	0.00	-	0	8	296.00		min	0.00	0.00	0.00	-	0.00	-	0
6	228.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	8	300.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
6	228.00		min	0.00	0.00	0.00	-	0.00	-	0	8	300.00		min	0.00	0.00	0.00	-	0.00	-	0
6	228.00	der	max	0.00	0.00	0.00	-	0.00	-	0	8	300.00	der	max	0.00	0.00	0.00	-	0.00	-	0
6	228.00		min	0.00	0.00	0.00	-	0.00	-	0	8	300.00		min	0.00	0.00	0.00	-	0.00	-	0
6	232.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	8	304.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
6	232.00		min	0.00	0.00	0.00	-	0.00	-	0	8	304.00		min	0.00	0.00	0.00	-	0.00	-	0
6	232.00	der	max	0.00	0.00	0.00	-	0.00	-	0	8	304.00	der	max	0.00	0.00	0.00	-	0.00	-	0
6	232.00		min	0.00	0.00	0.00	-	0.00	-	0	8	304.00		min	0.00	0.00	0.00	-	0.00	-	0
7	236.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	8	308.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
7	236.00		min	0.00	0.00	0.00	-	0.00	-	0	8	308.00		min	0.00	0.00	0.00	-	0.00	-	0
7	236.00	der	max	0.00	0.00	0.00	-	0.00	-	0	8	308.00	der	max	0.00	0.00	0.00	-	0.00	-	0
7	236.00		min	0.00	0.00	0.00	-	0.00	-	0	8	308.00		min	0.00	0.00	0.00	-	0.00	-	0
7	240.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	8	312.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
7	240.00		min	0.00	0.00	0.00	-	0.00	-	0	8	312.00		min	0.00	0.00	0.00	-	0.00	-	0
7	240.00	der	max	0.00	0.00	0.00	-	0.00	-	0	8	312.00	der	max	0.00	0.00	0.00	-	0.00	-	0
7	240.00		min	0.00	0.00	0.00	-	0.00	-	0	8	312.00		min	0.00	0.00	0.00	-	0.00	-	0

9	316.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	316.00		min	0.00	0.00	0.00 -	0.00 -	0
9	316.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	316.00		min	0.00	0.00	0.00 -	0.00 -	0
9	320.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	320.00		min	0.00	0.00	0.00 -	0.00 -	0
9	320.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	320.00		min	0.00	0.00	0.00 -	0.00 -	0
9	324.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	324.00		min	0.00	0.00	0.00 -	0.00 -	0
9	324.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	324.00		min	0.00	0.00	0.00 -	0.00 -	0
9	328.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	328.00		min	0.00	0.00	0.00 -	0.00 -	0
9	328.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	328.00		min	0.00	0.00	0.00 -	0.00 -	0
9	332.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	332.00		min	0.00	0.00	0.00 -	0.00 -	0
9	332.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	332.00		min	0.00	0.00	0.00 -	0.00 -	0
9	336.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	336.00		min	0.00	0.00	0.00 -	0.00 -	0
9	336.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	336.00		min	0.00	0.00	0.00 -	0.00 -	0
9	340.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	340.00		min	0.00	0.00	0.00 -	0.00 -	0
9	340.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	340.00		min	0.00	0.00	0.00 -	0.00 -	0
9	344.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	344.00		min	0.00	0.00	0.00 -	0.00 -	0
9	344.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	344.00		min	0.00	0.00	0.00 -	0.00 -	0
9	348.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	348.00		min	0.00	0.00	0.00 -	0.00 -	0
9	348.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	348.00		min	0.00	0.00	0.00 -	0.00 -	0
9	352.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	352.00		min	0.00	0.00	0.00 -	0.00 -	0
9	352.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	352.00		min	0.00	0.00	0.00 -	0.00 -	0
10	356.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	356.00		min	0.00	0.00	0.00 -	0.00 -	0
10	356.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	356.00		min	0.00	0.00	0.00 -	0.00 -	0
10	360.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	360.00		min	0.00	0.00	0.00 -	0.00 -	0
10	360.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	360.00		min	0.00	0.00	0.00 -	0.00 -	0
10	364.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	364.00		min	0.00	0.00	0.00 -	0.00 -	0
10	364.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	364.00		min	0.00	0.00	0.00 -	0.00 -	0
10	368.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	368.00		min	0.00	0.00	0.00 -	0.00 -	0
10	368.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	368.00		min	0.00	0.00	0.00 -	0.00 -	0
10	372.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	372.00		min	0.00	0.00	0.00 -	0.00 -	0
10	372.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	372.00		min	0.00	0.00	0.00 -	0.00 -	0
10	376.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	376.00		min	0.00	0.00	0.00 -	0.00 -	0
10	376.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	376.00		min	0.00	0.00	0.00 -	0.00 -	0
10	380.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	380.00		min	0.00	0.00	0.00 -	0.00 -	0
10	380.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	380.00		min	0.00	0.00	0.00 -	0.00 -	0
10	384.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	384.00		min	0.00	0.00	0.00 -	0.00 -	0
10	384.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	384.00		min	0.00	0.00	0.00 -	0.00 -	0
10	388.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	388.00		min	0.00	0.00	0.00 -	0.00 -	0
10	388.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	388.00		min	0.00	0.00	0.00 -	0.00 -	0
10	392.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	392.00		min	0.00	0.00	0.00 -	0.00 -	0
10	392.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	392.00		min	0.00	0.00	0.00 -	0.00 -	0
11	396.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	396.00		min	0.00	0.00	0.00 -	0.00 -	0
11	396.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	396.00		min	0.00	0.00	0.00 -	0.00 -	0
11	400.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	400.00		min	0.00	0.00	0.00 -	0.00 -	0
11	400.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	400.00		min	0.00	0.00	0.00 -	0.00 -	0
11	404.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	404.00		min	0.00	0.00	0.00 -	0.00 -	0
11	404.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	404.00		min	0.00	0.00	0.00 -	0.00 -	0
11	408.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	408.00		min	0.00	0.00	0.00 -	0.00 -	0
11	408.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	408.00		min	0.00	0.00	0.00 -	0.00 -	0
11	412.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	412.00		min	0.00	0.00	0.00 -	0.00 -	0
11	412.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	412.00		min	0.00	0.00	0.00 -	0.00 -	0
11	416.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	416.00		min	0.00	0.00	0.00 -	0.00 -	0
11	416.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	416.00		min	0.00	0.00	0.00 -	0.00 -	0
11	420.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	420.00		min	0.00	0.00	0.00 -	0.00 -	0
11	420.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	420.00		min	0.00	0.00	0.00 -	0.00 -	0
11	424.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	424.00		min	0.00	0.00	0.00 -	0.00 -	0
11	424.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	424.00		min	0.00	0.00	0.00 -	0.00 -	0
11	428.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	428.00		min	0.00	0.00	0.00 -	0.00 -	0
11	428.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	428.00		min	0.00	0.00	0.00 -	0.00 -	0
11	432.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	432.00		min	0.00	0.00	0.00 -	0.00 -	0
11	432.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	432.00		min	0.00	0.00	0.00 -	0.00 -	0
12	436.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	436.00		min	0.00	0.00	0.00 -	0.00 -	0
12	436.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	436.00		min	0.00	0.00	0.00 -	0.00 -	0
12	440.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	440.00		min	0.00	0.00	0.00 -	0.00 -	0
12	440.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	440.00		min	0.00	0.00	0.00 -	0.00 -	0
12	444.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	444.00		min	0.00	0.00	0.00 -	0.00 -	0
12	444.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	444.00		min	0.00	0.00	0.00 -	0.00 -	0
12	448.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	448.00		min	0.00	0.00	0.00 -	0.00 -	0
12	448.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	448.00		min	0.00	0.00	0.00 -	0.00 -	0
12	452.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	452.00		min	0.00	0.00	0.00 -	0.00 -	0
12	452.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	452.00		min	0.00	0.00	0.00 -	0.00 -	0
12	456.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	456.00		min	0.00	0.00	0.00 -	0.00 -	0
12	456.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	456.00		min	0.00	0.00	0.00 -	0.00 -	0

12	460.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	460.00		min	0.00	0.00	0.00 -	0.00 -	0
12	460.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	460.00		min	0.00	0.00	0.00 -	0.00 -	0
12	464.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	464.00		min	0.00	0.00	0.00 -	0.00 -	0
12	464.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	464.00		min	0.00	0.00	0.00 -	0.00 -	0
12	468.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	468.00		min	0.00	0.00	0.00 -	0.00 -	0
12	468.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	468.00		min	0.00	0.00	0.00 -	0.00 -	0
12	472.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	472.00		min	0.00	0.00	0.00 -	0.00 -	0
12	472.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	472.00		min	0.00	0.00	0.00 -	0.00 -	0
13	476.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	476.00		min	0.00	0.00	0.00 -	0.00 -	0
13	476.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	476.00		min	0.00	0.00	0.00 -	0.00 -	0
13	480.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	480.00		min	0.00	0.00	0.00 -	0.00 -	0
13	480.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	480.00		min	0.00	0.00	0.00 -	0.00 -	0
13	484.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	484.00		min	0.00	0.00	0.00 -	0.00 -	0
13	484.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	484.00		min	0.00	0.00	0.00 -	0.00 -	0
13	488.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	488.00		min	0.00	0.00	0.00 -	0.00 -	0
13	488.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	488.00		min	0.00	0.00	0.00 -	0.00 -	0
13	492.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	492.00		min	0.00	0.00	0.00 -	0.00 -	0
13	492.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	492.00		min	0.00	0.00	0.00 -	0.00 -	0
13	496.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	496.00		min	0.00	0.00	0.00 -	0.00 -	0
13	496.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	496.00		min	0.00	0.00	0.00 -	0.00 -	0
13	500.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	500.00		min	0.00	0.00	0.00 -	0.00 -	0
13	500.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	500.00		min	0.00	0.00	0.00 -	0.00 -	0
13	504.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	504.00		min	0.00	0.00	0.00 -	0.00 -	0
13	504.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	504.00		min	0.00	0.00	0.00 -	0.00 -	0
13	508.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	508.00		min	0.00	0.00	0.00 -	0.00 -	0
13	508.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	508.00		min	0.00	0.00	0.00 -	0.00 -	0
13	512.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	512.00		min	0.00	0.00	0.00 -	0.00 -	0
13	512.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	512.00		min	0.00	0.00	0.00 -	0.00 -	0
14	515.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	515.20		min	0.00	0.00	0.00 -	0.00 -	0
14	515.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	515.20		min	0.00	0.00	0.00 -	0.00 -	0
14	518.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	518.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	der	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	540.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80		min	0.00	0.00	0.00 -	0.00 -	0
14	540.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80		min	0.00	0.00	0.00 -	0.00 -	0
14	544.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	544.00		min	0.00	0.00	0.00 -	0.00 -	0

COMPROBACION TENSIONES FASE 5

Factores de ponderación considerados para el pretensado:

- Acciones Desfavorables: 1.1
- Acciones Favorables: 0.9

LEYENDA:
+ : Compresión>fck(j)/1.6
* : Tracción
# : Fisuración
! : Requiere comprobación wk

Vano	x [m]			Pxo [t]	Mmax Mmin [tm]	?s ?s [kg/cm²]	?i ?i [kg/cm²]	fckj [kg/cm²]
1	0.00	der	max	-6215.80	-4074.98	-5.62	-78.07	489
1	0.00		min	-7594.40	-4980.54	-6.86	-95.40	489
1	3.20	izq	max	-6247.64	-5661.75	-11.69	-151.06	489
1	3.20		min	-7634.18	-7124.20	-12.44	-187.81	489
1	3.20	der	max	-6262.39	-5685.50	-11.63	-151.58	489
1	3.20		min	-7654.03	-7153.23	-12.38	-188.46	489
1	6.40	izq	max	-6380.20	-6540.99	-5.13	-166.14	489
1	6.40		min	-7798.03	-8338.61	-3.19	-208.45	489
1	6.40	der	max	-6380.21	-6540.99	-5.13	-166.14	489
1	6.40		min	-7798.03	-8338.62	-3.19	-208.45	489
1	9.60	izq	max	-6467.74	-6840.51	-3.32	-171.71	489
1	9.60		min	-7905.02	-8787.57	-0.23	-216.54	489
1	9.60	der	max	-6467.74	-6840.50	-3.32	-171.71	489
1	9.60		min	-7905.02	-8787.56	-0.23	-216.54	489
1	12.80	izq	max	-6457.86	-6407.68	-7.11	-164.83	489
1	12.80		min	-7892.95	-8284.54	-4.62	-208.55	489
1	12.80	der	max	-6457.86	-6407.66	-7.11	-164.83	489
1	12.80		min	-7892.94	-8284.51	-4.62	-208.55	489
1	16.00	izq	max	-6391.29	-5470.01	-14.85	-149.50	489
1	16.00		min	-7811.57	-7107.62	-14.37	-189.32	489
1	16.00	der	max	-6391.29	-5470.00	-14.85	-149.50	489
1	16.00		min	-7811.58	-7107.59	-14.37	-189.32	489
1	19.20	izq	max	-6319.35	-4215.88	-25.38	-129.16	489
1	19.20		min	-7723.65	-5487.01	-28.02	-163.09	489
1	19.20	der	max	-6319.35	-4215.85	-25.38	-129.16	489
1	19.20		min	-7723.65	-5486.98	-28.02	-163.09	489
1	22.40	izq	max	-6293.66	-2715.74	-38.58	-105.43	489
1	22.40		min	-7692.25	-3508.81	-45.45	-131.82	489
1	22.40	der	max	-6293.65	-2715.64	-38.58	-105.43	489

1	22.40		min	-7692.24	-3508.69	-45.45	-131.82	489	3	92.00		min	-7455.92	-5752.31	-22.97	-164.56	441
1	25.60	izq	max	-6310.57	-1180.66	-52.52	-81.58	489	3	96.00	izq	max	-6177.03	-4066.92	-25.29	-125.40	441
1	25.60		min	-7712.92	-1431.06	-64.29	-99.52	489	3	96.00		min	-7549.71	-5481.82	-26.33	-161.27	441
1	25.60	der	max	-6310.58	-1180.57	-52.52	-81.58	489	3	96.00	der	max	-6177.04	-4066.90	-25.29	-125.40	441
1	25.60		min	-7712.93	-1430.94	-64.29	-99.52	489	3	96.00		min	-7549.71	-5481.79	-26.33	-161.27	441
1	28.80	izq	max	-10863.50	-853.00	-100.98	-121.98	489	3	100.00	izq	max	-6236.17	-3181.93	-33.82	-112.15	441
1	28.80		min	-8888.28	-919.15	-80.64	-103.26	489	3	100.00		min	-7621.99	-4270.16	-37.92	-143.03	441
1	28.80	der	max	-10839.70	-855.49	-100.72	-121.78	489	3	100.00	der	max	-6236.18	-3181.85	-33.82	-112.15	441
1	28.80		min	-8871.40	-921.20	-80.45	-103.13	489	3	100.00		min	-7621.99	-4270.06	-37.92	-143.03	441
1	32.00	izq	max	-10985.70	738.00	-66.27	-53.15	489	3	104.00	izq	max	-8230.25	53.53	-82.78	-81.47	441
1	32.00		min	-8991.57	118.29	-50.79	-48.69	489	3	104.00		min	-10059.20	-96.82	-99.72	-102.11	441
1	32.00	der	max	-10990.70	736.69	-66.29	-53.19	489	3	104.00	der	max	-8230.25	53.57	-82.78	-81.46	441
1	32.00		min	-8995.11	117.22	-50.80	-48.72	489	3	104.00		min	-10059.20	-96.76	-99.72	-102.11	441
2	36.00	izq	max	-10773.70	-171.75	-106.19	-110.42	489	3	108.00	izq	max	-10135.80	1331.56	-113.30	-80.52	441
2	36.00		min	-8816.85	-288.63	-85.58	-92.68	489	3	108.00		min	-8292.90	970.37	-91.63	-67.75	441
2	36.00	der	max	-10784.50	-170.22	-106.32	-110.51	489	3	108.00	der	max	-10126.60	1327.00	-113.17	-80.50	441
2	36.00		min	-8823.65	-287.36	-85.66	-92.73	489	3	108.00		min	-8287.39	966.63	-91.54	-67.75	441
2	40.00	izq	max	-13949.90	-5819.20	-87.31	-230.55	489	3	112.00	izq	max	-10233.30	1806.89	-69.67	-37.55	441
2	40.00		min	-17049.90	-7243.08	-105.53	-283.83	489	3	112.00		min	-8375.44	1025.05	-53.80	-35.58	441
2	40.00	der	max	-6471.58	-1243.09	-53.57	-84.17	478	3	112.00	der	max	-10233.80	1806.90	-69.67	-37.55	441
2	40.00		min	-7909.71	-1650.07	-64.30	-104.91	478	3	112.00		min	-8375.72	1025.06	-53.80	-35.58	441
2	44.00	izq	max	-6531.56	-2615.34	-41.86	-106.24	478	4	116.00	izq	max	-10012.80	1280.66	-111.61	-80.09	441
2	44.00		min	-7983.02	-3550.07	-47.99	-135.38	478	4	116.00		min	-8194.22	921.21	-90.20	-67.53	441
2	44.00	der	max	-6531.57	-2615.38	-41.86	-106.24	478	4	116.00	der	max	-10021.20	1285.00	-111.74	-80.11	441
2	44.00		min	-7983.03	-3550.13	-47.99	-135.38	478	4	116.00		min	-8199.13	924.77	-90.29	-67.52	441
2	48.00	izq	max	-6644.45	-3809.56	-32.28	-126.05	478	4	120.00	izq	max	-5841.51	-1598.65	-44.08	-83.43	441
2	48.00		min	-8121.00	-5143.63	-35.08	-161.69	478	4	120.00		min	-7139.62	-2097.77	-52.58	-104.22	441
2	48.00	der	max	-6644.46	-3809.57	-32.28	-126.05	478	4	120.00	der	max	-5841.51	-1598.67	-44.08	-83.43	406
2	48.00		min	-8121.00	-5143.66	-35.08	-161.69	478	4	120.00		min	-7139.63	-2097.79	-52.58	-104.22	406
2	52.00	izq	max	-6742.04	-4442.49	-27.57	-136.93	478	4	124.00	izq	max	-5898.72	-2722.71	-34.57	-101.59	406
2	52.00		min	-8240.27	-5962.28	-28.93	-175.69	478	4	124.00		min	-7209.54	-3681.36	-39.08	-129.69	406
2	52.00	der	max	-6742.04	-4442.52	-27.57	-136.93	478	4	124.00	der	max	-5898.72	-2722.75	-34.57	-101.59	406
2	52.00		min	-8240.27	-5962.31	-28.93	-175.69	478	4	124.00		min	-7209.55	-3681.41	-39.08	-129.70	406
2	56.00	izq	max	-6823.11	-4431.75	-28.48	-137.57	478	4	128.00	izq	max	-6007.26	-3664.05	-27.21	-117.40	406
2	56.00		min	-8339.35	-5905.31	-30.43	-175.79	478	4	128.00		min	-7342.21	-4952.71	-29.00	-150.91	406
2	56.00	der	max	-6823.11	-4431.74	-28.48	-137.57	478	4	128.00	der	max	-6007.27	-3664.07	-27.21	-117.40	406
2	56.00		min	-8339.35	-5905.30	-30.43	-175.79	478	4	128.00		min	-7342.22	-4952.73	-29.00	-150.91	406
2	60.00	izq	max	-6886.56	-3723.57	-35.47	-127.13	478	4	132.00	izq	max	-6100.53	-4044.02	-24.73	-124.28	406
2	60.00		min	-8416.90	-4907.05	-40.16	-160.95	478	4	132.00		min	-7456.20	-5449.05	-25.69	-159.82	406
2	60.00	der	max	-6886.56	-3723.52	-35.47	-127.12	478	4	132.00	der	max	-6100.53	-4044.02	-24.73	-124.28	406
2	60.00		min	-8416.91	-4906.98	-40.16	-160.94	478	4	132.00		min	-7456.20	-5449.05	-25.69	-159.82	406
2	64.00	izq	max	-8884.96	-665.15	-82.88	-99.26	478	4	136.00	izq	max	-6177.25	-3780.06	-27.87	-120.92	406
2	64.00		min	-10859.40	-947.37	-100.10	-123.42	478	4	136.00		min	-7549.98	-5069.46	-30.03	-154.82	406
2	64.00	der	max	-8884.96	-665.15	-82.88	-99.26	478	4	136.00	der	max	-6177.26	-3780.04	-27.87	-120.92	406
2	64.00		min	-10859.40	-947.36	-100.10	-123.42	478	4	136.00		min	-7549.98	-5069.43	-30.03	-154.82	406
2	68.00	izq	max	-10941.30	267.17	-111.81	-105.23	478	4	140.00	izq	max	-6236.37	-2818.66	-37.08	-106.46	406
2	68.00		min	-8951.93	74.51	-90.19	-88.35	478	4	140.00		min	-7622.23	-3748.59	-42.60	-134.87	406
2	68.00	der	max	-10933.20	263.74	-111.70	-105.20	478	4	140.00	der	max	-6236.37	-2818.63	-37.08	-106.46	406
2	68.00		min	-8947.34	71.69	-90.12	-88.35	478	4	140.00		min	-7622.23	-3748.54	-42.60	-134.87	406
2	72.00	izq	max	-11045.40	619.31	-65.76	-54.75	478	4	144.00	izq	max	-6273.04	-1439.07	-49.82	-85.25	406
2	72.00		min	-9039.90	26.13	-50.41	-49.94	478	4	144.00		min	-7667.05	-1827.71	-60.28	-105.27	406
2	72.00	der	max	-11043.70	619.29	-65.75	-54.74	478	4	144.00	der	max	-6273.04	-1439.02	-49.82	-85.25	406
2	72.00		min	-9038.50	26.11	-50.40	-49.94	478	4	144.00		min	-7667.05	-1827.64	-60.28	-105.27	406
3	76.00	izq	max	-10828.30	-110.66	-107.29	-110.01	478	4	148.00	izq	max	-10136.70	2064.06	-119.88	-69.07	406
3	76.00		min	-8861.59	-231.46	-86.54	-92.24	478	4	148.00		min	-8293.62	1480.29	-96.21	-59.78	406
3	76.00	der	max	-10837.70	-107.50	-107.41	-110.06	478	4	148.00	der	max	-10126.80	2059.50	-119.74	-69.04	406
3	76.00		min	-8867.25	-228.87	-86.62	-92.25	478	4	148.00		min	-8287.64	1476.55	-96.12	-59.77	406
3	80.00	izq	max	-7165.02	-4037.67	-35.44	-134.82	478	4	152.00	izq	max	-10232.80	2637.99	-75.56	-28.67	406
3	80.00		min	-8757.25	-5077.16	-42.03	-167.01	478	4	152.00		min	-8375.11	1602.65	-57.90	-29.41	406
3	80.00	der	max	-5841.64	-1584.15	-44.21	-83.20	441	4	152.00	der	max	-10231.20	2637.91	-75.55	-28.66	406
3	80.00		min	-7139.79	-2078.43	-52.76	-103.92	441	4	152.00		min	-8373.97	1602.58	-57.89	-29.40	406
3	84.00	izq	max	-5898.46	-2781.44	-34.04	-102.50	441	5	156.00	izq	max	-10010.40	1720.22	-115.53	-73.19	406
3	84.00		min	-7209.23	-3767.32	-38.30	-131.04	441	5	156.00		min	-8192.65	1228.77	-92.95	-62.70	406
3	84.00	der	max	-5898.46	-2781.49	-34.04	-102.50	441	5	156.00	der	max	-10021.50	1724.56	-115.68	-73.23	406
3	84.00		min	-7209.23	-3767.39	-38.30	-131.04	441	5	156.00		min	-8199.42	1232.34	-93.05	-62.71	406
3	88.00	izq	max	-6007.01	-3798.44	-26.00	-119.50	441	5	160.00	izq	max	-5841.60	-1554.02	-44.48	-82.73	406
3	88.00		min	-7341.90	-5146.99	-27.25	-153.95	441	5	160.00		min	-7139.73	-2041.06	-53.09	-103.33	406
3	88.00	der	max	-6007.01	-3798.49	-26.00	-119.50	441	5	160.00	der	max	-5841.60	-1554.02	-44.48	-82.73	337
3	88.00		min	-7341.91	-5147.06	-27.25	-153.95	441	5	160.00		min	-7139.73	-2041.07	-53.09	-103.33	337
3	92.00	izq	max	-6100.29	-4254.60	-22.84	-127.57	441	5	164.00	izq	max	-5898.79	-2944.20	-32.58	-105.05	337
3	92.00		min	-7455.91	-5752.31	-22.97	-164.56	441	5	164.00		min	-7209.63	-4011.33	-36.12	-134.86	337
3	92.00	der	max	-6100.30	-4254.60	-22.84	-127.57	441	5	164.00	der	max	-5898.79	-2944.24	-32.58	-105.05	337

5	164.00		min	-7209.63	-4011.39	-36.12	-134.86	337	7	236.00		min	0.00	0.00	0.00 -	0.00 -	0
5	168.00	izq	max	-6007.35	-4152.17	-22.83	-125.04	337	7	240.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	168.00		min	-7342.32	-5670.05	-22.57	-162.14	337	7	240.00		min	0.00	0.00	0.00 -	0.00 -	0
5	168.00	der	max	-6007.35	-4152.20	-22.83	-125.04	337	7	240.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	168.00		min	-7342.32	-5670.09	-22.57	-162.14	337	7	240.00		min	0.00	0.00	0.00 -	0.00 -	0
5	172.00	izq	max	-6100.61	-4798.59	-17.97	-136.09	337	7	244.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	172.00		min	-7456.30	-6553.52	-15.78	-177.10	337	7	244.00		min	0.00	0.00	0.00 -	0.00 -	0
5	172.00	der	max	-6100.61	-4798.63	-17.97	-136.09	337	7	244.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	172.00		min	-7456.31	-6553.58	-15.78	-177.10	337	7	244.00		min	0.00	0.00	0.00 -	0.00 -	0
5	176.00	izq	max	-6177.35	-4801.12	-18.71	-136.89	337	7	248.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	176.00		min	-7550.09	-6561.13	-16.65	-178.16	337	7	248.00		min	0.00	0.00	0.00 -	0.00 -	0
5	176.00	der	max	-6177.35	-4801.10	-18.71	-136.89	337	7	248.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	176.00		min	-7550.10	-6561.10	-16.65	-178.16	337	7	248.00		min	0.00	0.00	0.00 -	0.00 -	0
5	180.00	izq	max	-6236.46	-4106.23	-25.53	-126.61	337	7	252.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	180.00		min	-7622.34	-5627.47	-25.75	-164.27	337	7	252.00		min	0.00	0.00	0.00 -	0.00 -	0
5	180.00	der	max	-6236.46	-4106.18	-25.54	-126.61	337	7	252.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	180.00		min	-7622.34	-5627.40	-25.75	-164.27	337	7	252.00		min	0.00	0.00	0.00 -	0.00 -	0
5	184.00	izq	max	-8230.46	-1062.86	-72.77	-98.93	337	7	256.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	184.00		min	-10059.50	-1734.54	-85.04	-127.73	337	7	256.00		min	0.00	0.00	0.00 -	0.00 -	0
5	184.00	der	max	-8230.46	-1062.83	-72.77	-98.93	337	7	256.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	184.00		min	-10059.50	-1734.49	-85.04	-127.73	337	7	256.00		min	0.00	0.00	0.00 -	0.00 -	0
5	188.00	izq	max	-8293.55	-339.89	-79.89	-88.25	337	7	260.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	188.00		min	-10136.60	-588.74	-96.09	-110.58	337	7	260.00		min	0.00	0.00	0.00 -	0.00 -	0
5	188.00	der	max	-8289.41	-343.64	-79.81	-88.27	337	7	260.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	188.00		min	-10129.40	-593.31	-95.97	-110.58	337	7	260.00		min	0.00	0.00	0.00 -	0.00 -	0
5	192.00	izq	max	-10235.50	-401.79	-54.01	-61.16	337	7	264.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
5	192.00		min	-8376.91	-483.88	-43.11	-51.71	337	7	264.00		min	0.00	0.00	0.00 -	0.00 -	0
5	192.00	der	max	-10224.90	-401.88	-53.95	-61.10	337	7	264.00	der	max	0.00	0.00	0.00 -	0.00 -	0
5	192.00		min	-8367.06	-483.96	-43.05	-51.65	337	7	264.00		min	0.00	0.00	0.00 -	0.00 -	0
6	196.00	izq	max	-8185.71	-1849.01	-65.27	-110.79	337	7	268.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	196.00		min	-10004.10	-2215.46	-80.17	-134.70	337	7	268.00		min	0.00	0.00	0.00 -	0.00 -	0
6	196.00	der	max	-8199.36	-1845.52	-65.44	-110.87	337	7	268.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	196.00		min	-10021.40	-2211.19	-80.38	-134.81	337	7	268.00		min	0.00	0.00	0.00 -	0.00 -	0
6	200.00	izq	max	0.00	-0.01	0.00 -	0.00 -	337	7	272.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	200.00		min	0.00	-0.01	0.00 -	0.00 -	337	7	272.00		min	0.00	0.00	0.00 -	0.00 -	0
6	200.00	der	max	0.00	0.00	0.00 -	0.00 -	0	7	272.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	200.00		min	0.00	0.00	0.00 -	0.00 -	0	7	272.00		min	0.00	0.00	0.00 -	0.00 -	0
6	204.00	izq	max	0.00	0.00	0.00 -	0.00 -	0	8	276.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	204.00		min	0.00	0.00	0.00 -	0.00 -	0	8	276.00		min	0.00	0.00	0.00 -	0.00 -	0
6	204.00	der	max	0.00	0.00	0.00 -	0.00 -	0	8	276.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	204.00		min	0.00	0.00	0.00 -	0.00 -	0	8	276.00		min	0.00	0.00	0.00 -	0.00 -	0
6	208.00	izq	max	0.00	0.00	0.00 -	0.00 -	0	8	280.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	208.00		min	0.00	0.00	0.00 -	0.00 -	0	8	280.00		min	0.00	0.00	0.00 -	0.00 -	0
6	208.00	der	max	0.00	0.00	0.00 -	0.00 -	0	8	280.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	208.00		min	0.00	0.00	0.00 -	0.00 -	0	8	280.00		min	0.00	0.00	0.00 -	0.00 -	0
6	212.00	izq	max	0.00	0.00	0.00 -	0.00 -	0	8	284.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	212.00		min	0.00	0.00	0.00 -	0.00 -	0	8	284.00		min	0.00	0.00	0.00 -	0.00 -	0
6	212.00	der	max	0.00	0.00	0.00 -	0.00 -	0	8	284.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	212.00		min	0.00	0.00	0.00 -	0.00 -	0	8	284.00		min	0.00	0.00	0.00 -	0.00 -	0
6	216.00	izq	max	0.00	0.00	0.00 -	0.00 -	0	8	288.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	216.00		min	0.00	0.00	0.00 -	0.00 -	0	8	288.00		min	0.00	0.00	0.00 -	0.00 -	0
6	216.00	der	max	0.00	0.00	0.00 -	0.00 -	0	8	288.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	216.00		min	0.00	0.00	0.00 -	0.00 -	0	8	288.00		min	0.00	0.00	0.00 -	0.00 -	0
6	220.00	izq	max	0.00	0.00	0.00 -	0.00 -	0	8	292.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	220.00		min	0.00	0.00	0.00 -	0.00 -	0	8	292.00		min	0.00	0.00	0.00 -	0.00 -	0
6	220.00	der	max	0.00	0.00	0.00 -	0.00 -	0	8	292.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	220.00		min	0.00	0.00	0.00 -	0.00 -	0	8	292.00		min	0.00	0.00	0.00 -	0.00 -	0
6	224.00	izq	max	0.00	0.00	0.00 -	0.00 -	0	8	296.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	224.00		min	0.00	0.00	0.00 -	0.00 -	0	8	296.00		min	0.00	0.00	0.00 -	0.00 -	0
6	224.00	der	max	0.00	0.00	0.00 -	0.00 -	0	8	296.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	224.00		min	0.00	0.00	0.00 -	0.00 -	0	8	296.00		min	0.00	0.00	0.00 -	0.00 -	0
6	228.00	izq	max	0.00	0.00	0.00 -	0.00 -	0	8	300.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	228.00		min	0.00	0.00	0.00 -	0.00 -	0	8	300.00		min	0.00	0.00	0.00 -	0.00 -	0
6	228.00	der	max	0.00	0.00	0.00 -	0.00 -	0	8	300.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	228.00		min	0.00	0.00	0.00 -	0.00 -	0	8	300.00		min	0.00	0.00	0.00 -	0.00 -	0
6	232.00	izq	max	0.00	0.00	0.00 -	0.00 -	0	8	304.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
6	232.00		min	0.00	0.00	0.00 -	0.00 -	0	8	304.00		min	0.00	0.00	0.00 -	0.00 -	0
6	232.00	der	max	0.00	0.00	0.00 -	0.00 -	0	8	304.00	der	max	0.00	0.00	0.00 -	0.00 -	0
6	232.00		min	0.00	0.00	0.00 -	0.00 -	0	8	304.00		min	0.00	0.00	0.00 -	0.00 -	0
7	236.00	izq	max	0.00	0.00	0.00 -	0.00 -	0	8	308.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
7	236.00		min	0.00	0.00	0.00 -	0.00 -	0	8	308.00		min	0.00	0.00	0.00 -	0.00 -	0
7	236.00	der	max	0.00	0.00	0.00 -	0.00 -	0	8	308.00	der	max	0.00	0.00	0.00 -	0.00 -	0

8	308.00		min	0.00	0.00	0.00	-	0.00	-	0	10	380.00		min	0.00	0.00	0.00	-	0.00	-	0
8	312.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	10	384.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
8	312.00		min	0.00	0.00	0.00	-	0.00	-	0	10	384.00		min	0.00	0.00	0.00	-	0.00	-	0
8	312.00	der	max	0.00	0.00	0.00	-	0.00	-	0	10	384.00	der	max	0.00	0.00	0.00	-	0.00	-	0
8	312.00		min	0.00	0.00	0.00	-	0.00	-	0	10	384.00		min	0.00	0.00	0.00	-	0.00	-	0
9	316.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	10	388.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	316.00		min	0.00	0.00	0.00	-	0.00	-	0	10	388.00		min	0.00	0.00	0.00	-	0.00	-	0
9	316.00	der	max	0.00	0.00	0.00	-	0.00	-	0	10	388.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	316.00		min	0.00	0.00	0.00	-	0.00	-	0	10	388.00		min	0.00	0.00	0.00	-	0.00	-	0
9	320.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	10	392.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	320.00		min	0.00	0.00	0.00	-	0.00	-	0	10	392.00		min	0.00	0.00	0.00	-	0.00	-	0
9	320.00	der	max	0.00	0.00	0.00	-	0.00	-	0	10	392.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	320.00		min	0.00	0.00	0.00	-	0.00	-	0	10	392.00		min	0.00	0.00	0.00	-	0.00	-	0
9	324.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	11	396.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	324.00		min	0.00	0.00	0.00	-	0.00	-	0	11	396.00		min	0.00	0.00	0.00	-	0.00	-	0
9	324.00	der	max	0.00	0.00	0.00	-	0.00	-	0	11	396.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	324.00		min	0.00	0.00	0.00	-	0.00	-	0	11	396.00		min	0.00	0.00	0.00	-	0.00	-	0
9	328.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	11	400.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	328.00		min	0.00	0.00	0.00	-	0.00	-	0	11	400.00		min	0.00	0.00	0.00	-	0.00	-	0
9	328.00	der	max	0.00	0.00	0.00	-	0.00	-	0	11	400.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	328.00		min	0.00	0.00	0.00	-	0.00	-	0	11	400.00		min	0.00	0.00	0.00	-	0.00	-	0
9	332.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	11	404.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	332.00		min	0.00	0.00	0.00	-	0.00	-	0	11	404.00		min	0.00	0.00	0.00	-	0.00	-	0
9	332.00	der	max	0.00	0.00	0.00	-	0.00	-	0	11	404.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	332.00		min	0.00	0.00	0.00	-	0.00	-	0	11	404.00		min	0.00	0.00	0.00	-	0.00	-	0
9	336.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	11	408.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	336.00		min	0.00	0.00	0.00	-	0.00	-	0	11	408.00		min	0.00	0.00	0.00	-	0.00	-	0
9	336.00	der	max	0.00	0.00	0.00	-	0.00	-	0	11	408.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	336.00		min	0.00	0.00	0.00	-	0.00	-	0	11	408.00		min	0.00	0.00	0.00	-	0.00	-	0
9	340.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	11	412.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	340.00		min	0.00	0.00	0.00	-	0.00	-	0	11	412.00		min	0.00	0.00	0.00	-	0.00	-	0
9	340.00	der	max	0.00	0.00	0.00	-	0.00	-	0	11	412.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	340.00		min	0.00	0.00	0.00	-	0.00	-	0	11	412.00		min	0.00	0.00	0.00	-	0.00	-	0
9	344.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	11	416.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	344.00		min	0.00	0.00	0.00	-	0.00	-	0	11	416.00		min	0.00	0.00	0.00	-	0.00	-	0
9	344.00	der	max	0.00	0.00	0.00	-	0.00	-	0	11	416.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	344.00		min	0.00	0.00	0.00	-	0.00	-	0	11	416.00		min	0.00	0.00	0.00	-	0.00	-	0
9	348.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	11	420.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	348.00		min	0.00	0.00	0.00	-	0.00	-	0	11	420.00		min	0.00	0.00	0.00	-	0.00	-	0
9	348.00	der	max	0.00	0.00	0.00	-	0.00	-	0	11	420.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	348.00		min	0.00	0.00	0.00	-	0.00	-	0	11	420.00		min	0.00	0.00	0.00	-	0.00	-	0
9	352.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	11	424.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	352.00		min	0.00	0.00	0.00	-	0.00	-	0	11	424.00		min	0.00	0.00	0.00	-	0.00	-	0
9	352.00	der	max	0.00	0.00	0.00	-	0.00	-	0	11	424.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	352.00		min	0.00	0.00	0.00	-	0.00	-	0	11	424.00		min	0.00	0.00	0.00	-	0.00	-	0
10	356.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	11	428.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
10	356.00		min	0.00	0.00	0.00	-	0.00	-	0	11	428.00		min	0.00	0.00	0.00	-	0.00	-	0
10	356.00	der	max	0.00	0.00	0.00	-	0.00	-	0	11	428.00	der	max	0.00	0.00	0.00	-	0.00	-	0
10	356.00		min	0.00	0.00	0.00	-	0.00	-	0	11	428.00		min	0.00	0.00	0.00	-	0.00	-	0
10	360.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	11	432.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
10	360.00		min	0.00	0.00	0.00	-	0.00	-	0	11	432.00		min	0.00	0.00	0.00	-	0.00	-	0
10	360.00	der	max	0.00	0.00	0.00	-	0.00	-	0	11	432.00	der	max	0.00	0.00	0.00	-	0.00	-	0
10	360.00		min	0.00	0.00	0.00	-	0.00	-	0	11	432.00		min	0.00	0.00	0.00	-	0.00	-	0
10	364.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	12	436.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
10	364.00		min	0.00	0.00	0.00	-	0.00	-	0	12	436.00		min	0.00	0.00	0.00	-	0.00	-	0
10	364.00	der	max	0.00	0.00	0.00	-	0.00	-	0	12	436.00	der	max	0.00	0.00	0.00	-	0.00	-	0
10	364.00		min	0.00	0.00	0.00	-	0.00	-	0	12	436.00		min	0.00	0.00	0.00	-	0.00	-	0
10	368.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	12	440.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
10	368.00		min	0.00	0.00	0.00	-	0.00	-	0	12	440.00		min	0.00	0.00	0.00	-	0.00	-	0
10	368.00	der	max	0.00	0.00	0.00	-	0.00	-	0	12	440.00	der	max	0.00	0.00	0.00	-	0.00	-	0
10	368.00		min	0.00	0.00	0.00	-	0.00	-	0	12	440.00		min	0.00	0.00	0.00	-	0.00	-	0
10	372.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	12	444.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
10	372.00		min	0.00	0.00	0.00	-	0.00	-	0	12	444.00		min	0.00	0.00	0.00	-	0.00	-	0
10	372.00	der	max	0.00	0.00	0.00	-	0.00	-	0	12	444.00	der	max	0.00	0.00	0.00	-	0.00	-	0
10	372.00		min	0.00	0.00	0.00	-	0.00	-	0	12	444.00		min	0.00	0.00	0.00	-	0.00	-	0
10	376.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	12	448.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
10	376.00		min	0.00	0.00	0.00	-	0.00	-	0	12	448.00		min	0.00	0.00	0.00	-	0.00	-	0
10	376.00	der	max	0.00	0.00	0.00	-	0.00	-	0	12	448.00	der	max	0.00	0.00	0.00	-	0.00	-	0
10	376.00		min	0.00	0.00	0.00	-	0.00	-	0	12	448.00		min	0.00	0.00	0.00	-	0.00	-	0
10	380.00	izq	max	0.00	0.00	0.00	-	0.00	-	0	12	452.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
10	380.00		min	0.00	0.00	0.00	-	0.00	-	0	12	452.00		min	0.00	0.00	0.00	-	0.00	-	0
10	380.00	der	max	0.00	0.00	0.00	-	0.00	-	0	12	452.00	der	max	0.00	0.00	0.00	-	0.00	-	0

12	452.00		min	0.00	0.00	0.00 -	0.00 -	0
12	456.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	456.00		min	0.00	0.00	0.00 -	0.00 -	0
12	456.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	456.00		min	0.00	0.00	0.00 -	0.00 -	0
12	460.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	460.00		min	0.00	0.00	0.00 -	0.00 -	0
12	460.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	460.00		min	0.00	0.00	0.00 -	0.00 -	0
12	464.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	464.00		min	0.00	0.00	0.00 -	0.00 -	0
12	464.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	464.00		min	0.00	0.00	0.00 -	0.00 -	0
12	468.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	468.00		min	0.00	0.00	0.00 -	0.00 -	0
12	468.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	468.00		min	0.00	0.00	0.00 -	0.00 -	0
12	472.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	472.00		min	0.00	0.00	0.00 -	0.00 -	0
12	472.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	472.00		min	0.00	0.00	0.00 -	0.00 -	0
13	476.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	476.00		min	0.00	0.00	0.00 -	0.00 -	0
13	476.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	476.00		min	0.00	0.00	0.00 -	0.00 -	0
13	480.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	480.00		min	0.00	0.00	0.00 -	0.00 -	0
13	480.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	480.00		min	0.00	0.00	0.00 -	0.00 -	0
13	484.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	484.00		min	0.00	0.00	0.00 -	0.00 -	0
13	484.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	484.00		min	0.00	0.00	0.00 -	0.00 -	0
13	488.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	488.00		min	0.00	0.00	0.00 -	0.00 -	0
13	488.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	488.00		min	0.00	0.00	0.00 -	0.00 -	0
13	492.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	492.00		min	0.00	0.00	0.00 -	0.00 -	0
13	492.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	492.00		min	0.00	0.00	0.00 -	0.00 -	0
13	496.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	496.00		min	0.00	0.00	0.00 -	0.00 -	0
13	496.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	496.00		min	0.00	0.00	0.00 -	0.00 -	0
13	500.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	500.00		min	0.00	0.00	0.00 -	0.00 -	0
13	500.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	500.00		min	0.00	0.00	0.00 -	0.00 -	0
13	504.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	504.00		min	0.00	0.00	0.00 -	0.00 -	0
13	504.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	504.00		min	0.00	0.00	0.00 -	0.00 -	0
13	508.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	508.00		min	0.00	0.00	0.00 -	0.00 -	0
13	508.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	508.00		min	0.00	0.00	0.00 -	0.00 -	0
13	512.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	512.00		min	0.00	0.00	0.00 -	0.00 -	0
13	512.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	512.00		min	0.00	0.00	0.00 -	0.00 -	0
14	515.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	515.20		min	0.00	0.00	0.00 -	0.00 -	0
14	515.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	515.20		min	0.00	0.00	0.00 -	0.00 -	0
14	518.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	518.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	der	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	540.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80		min	0.00	0.00	0.00 -	0.00 -	0
14	540.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80		min	0.00	0.00	0.00 -	0.00 -	0
14	544.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	544.00		min	0.00	0.00	0.00 -	0.00 -	0

COMPROBACION TENSIONES FASE 6

Factores de ponderación considerados para el pretensado:

- Acciones Desfavorables: 1.1
- Acciones Favorables: 0.9

LEYENDA:
+ : Compresión>fck(j)/1.6
* : Tracción
# : Fisuración
! : Requiere comprobación wk

Vano	x		Pxo	Mmax Mmin	?s ?s	?i ?i	fckj
	[m]		[t]	[tm]	[kg/cm²]	[kg/cm²]	[kg/cm²]
1	0.00	der max	-6215.81	-4074.98	-5.62	-78.07	497
1	0.00	min	-7594.42	-4980.54	-6.86	-95.40	497
1	3.20	izq max	-6247.65	-5660.69	-11.70	-151.04	497
1	3.20	min	-7634.20	-7122.67	-12.46	-187.78	497
1	3.20	der max	-6262.39	-5684.43	-11.64	-151.56	497
1	3.20	min	-7654.03	-7151.70	-12.40	-188.44	497
1	6.40	izq max	-6380.20	-6538.86	-5.15	-166.11	497
1	6.40	min	-7798.03	-8335.55	-3.22	-208.40	497
1	6.40	der max	-6380.21	-6538.87	-5.15	-166.11	497
1	6.40	min	-7798.03	-8335.56	-3.22	-208.40	497
1	9.60	izq max	-6467.74	-6837.32	-3.35	-171.66	497
1	9.60	min	-7905.02	-8782.98	-0.27	-216.47	497
1	9.60	der max	-6467.74	-6837.31	-3.35	-171.66	497
1	9.60	min	-7905.02	-8782.97	-0.27	-216.47	497
1	12.80	izq max	-6457.87	-6403.42	-7.14	-164.77	497
1	12.80	min	-7892.95	-8278.43	-4.68	-208.46	497
1	12.80	der max	-6457.86	-6403.40	-7.14	-164.77	497
1	12.80	min	-7892.94	-8278.40	-4.68	-208.45	497
1	16.00	izq max	-6391.29	-5464.69	-14.90	-149.41	497
1	16.00	min	-7811.58	-7099.97	-14.43	-189.20	497
1	16.00	der max	-6391.29	-5464.67	-14.90	-149.41	497
1	16.00	min	-7811.58	-7099.95	-14.43	-189.20	497
1	19.20	izq max	-6319.35	-4209.49	-25.44	-129.06	497
1	19.20	min	-7723.65	-5477.84	-28.10	-162.94	497

1	19.20	der	max	-6319.35	-4209.47	-25.44	-129.06	497
1	19.20		min	-7723.65	-5477.80	-28.10	-162.94	497
1	22.40	izq	max	-6293.66	-2708.29	-38.65	-105.31	497
1	22.40		min	-7692.25	-3498.11	-45.55	-131.65	497
1	22.40	der	max	-6293.66	-2708.19	-38.65	-105.31	497
1	22.40		min	-7692.24	-3497.98	-45.55	-131.65	497
1	25.60	izq	max	-6310.57	-1172.15	-52.59	-81.45	497
1	25.60		min	-7712.92	-1418.83	-64.40	-99.33	497
1	25.60	der	max	-6310.58	-1172.05	-52.59	-81.44	497
1	25.60		min	-7712.93	-1418.71	-64.40	-99.33	497
1	28.80	izq	max	-10863.50	-839.24	-101.11	-121.77	497
1	28.80		min	-8888.28	-909.57	-80.72	-103.11	497
1	28.80	der	max	-10839.70	-841.73	-100.85	-121.57	497
1	28.80		min	-8871.39	-911.62	-80.54	-102.98	497
1	32.00	izq	max	-10985.70	753.29	-66.38	-52.98	497
1	32.00		min	-8991.56	128.94	-50.87	-48.58	497
1	32.00	der	max	-10990.60	751.98	-66.39	-53.03	497
1	32.00		min	-8995.08	127.87	-50.88	-48.61	497
2	36.00	izq	max	-10773.60	-163.63	-106.27	-110.29	497
2	36.00		min	-8816.82	-282.97	-85.63	-92.59	497
2	36.00	der	max	-10784.50	-162.10	-106.39	-110.38	497
2	36.00		min	-8823.65	-281.71	-85.71	-92.64	497
2	40.00	izq	max	-13949.90	-5818.54	-87.31	-230.54	497
2	40.00		min	-17049.90	-7242.13	-105.54	-283.81	497
2	40.00	der	max	-6471.58	-1242.43	-53.57	-84.16	489
2	40.00		min	-7909.72	-1649.12	-64.31	-104.90	489
2	44.00	izq	max	-6531.56	-2619.68	-41.82	-106.30	489
2	44.00		min	-7983.02	-3556.30	-47.93	-135.47	489
2	44.00	der	max	-6531.57	-2619.71	-41.82	-106.30	489
2	44.00		min	-7983.03	-3556.35	-47.93	-135.47	489
2	48.00	izq	max	-6644.45	-3818.88	-32.19	-126.20	489
2	48.00		min	-8121.00	-5157.03	-34.96	-161.90	489
2	48.00	der	max	-6644.46	-3818.90	-32.19	-126.20	489
2	48.00		min	-8121.00	-5157.05	-34.96	-161.90	489
2	52.00	izq	max	-6742.04	-4456.81	-27.45	-137.15	489
2	52.00		min	-8240.27	-5982.84	-28.74	-176.01	489
2	52.00	der	max	-6742.04	-4456.84	-27.45	-137.15	489
2	52.00		min	-8240.27	-5982.88	-28.74	-176.01	489
2	56.00	izq	max	-6823.11	-4451.06	-28.31	-137.87	489
2	56.00		min	-8339.35	-5933.05	-30.18	-176.22	489
2	56.00	der	max	-6823.11	-4451.05	-28.31	-137.87	489
2	56.00		min	-8339.35	-5933.03	-30.18	-176.22	489
2	60.00	izq	max	-6886.56	-3747.88	-35.25	-127.51	489
2	60.00		min	-8416.90	-4941.95	-39.84	-161.49	489
2	60.00	der	max	-6886.56	-3747.83	-35.25	-127.50	489
2	60.00		min	-8416.91	-4941.88	-39.84	-161.49	489
2	64.00	izq	max	-8884.96	-694.45	-82.62	-99.72	489
2	64.00		min	-10859.40	-989.44	-99.72	-124.07	489
2	64.00	der	max	-8884.96	-694.45	-82.62	-99.72	489
2	64.00		min	-10859.40	-989.43	-99.72	-124.07	489
2	68.00	izq	max	-10941.30	217.92	-111.37	-106.00	489
2	68.00		min	-8951.93	40.22	-89.88	-88.89	489
2	68.00	der	max	-10933.20	214.50	-111.25	-105.97	489
2	68.00		min	-8947.38	37.41	-89.81	-88.89	489
2	72.00	izq	max	-11045.50	562.89	-65.36	-55.35	489
2	72.00		min	-9039.94	-13.16	-50.13	-50.36	489
2	72.00	der	max	-11043.90	562.88	-65.35	-55.34	489
2	72.00		min	-9038.63	-13.17	-50.12	-50.36	489
3	76.00	izq	max	-10828.50	-139.79	-107.03	-110.47	489
3	76.00		min	-8861.72	-251.75	-86.36	-92.55	489
3	76.00	der	max	-10837.70	-136.63	-107.15	-110.52	489
3	76.00		min	-8867.25	-249.15	-86.44	-92.57	489
3	80.00	izq	max	-7165.02	-4038.95	-35.42	-134.84	489
3	80.00		min	-8757.25	-5079.00	-42.02	-167.04	489
3	80.00	der	max	-5841.64	-1585.43	-44.20	-83.22	463
3	80.00		min	-7139.79	-2080.27	-52.74	-103.95	463
3	84.00	izq	max	-5898.46	-2763.72	-34.20	-102.23	463
3	84.00		min	-7209.23	-3741.87	-38.53	-130.64	463
3	84.00	der	max	-5898.46	-2763.77	-34.20	-102.23	463
3	84.00		min	-7209.23	-3741.94	-38.53	-130.64	463
3	88.00	izq	max	-6007.01	-3761.72	-26.33	-118.93	463
3	88.00		min	-7341.90	-5094.25	-27.73	-153.12	463
3	88.00	der	max	-6007.01	-3761.77	-26.33	-118.93	463
3	88.00		min	-7341.91	-5094.32	-27.73	-153.13	463
3	92.00	izq	max	-6100.29	-4198.87	-23.34	-126.70	463
3	92.00		min	-7455.91	-5672.27	-23.68	-163.31	463
3	92.00	der	max	-6100.30	-4198.87	-23.34	-126.70	463
3	92.00		min	-7455.92	-5672.28	-23.68	-163.31	463
3	96.00	izq	max	-6177.03	-3992.19	-25.96	-124.23	463
3	96.00		min	-7549.71	-5374.50	-27.29	-159.59	463
3	96.00	der	max	-6177.04	-3992.17	-25.96	-124.23	463
3	96.00		min	-7549.71	-5374.47	-27.29	-159.59	463
3	100.00	izq	max	-6236.17	-3088.19	-34.66	-110.68	463
3	100.00		min	-7621.99	-4135.54	-39.13	-140.93	463
3	100.00	der	max	-6236.18	-3088.11	-34.66	-110.68	463
3	100.00		min	-7621.99	-4135.44	-39.13	-140.92	463
3	104.00	izq	max	-8230.25	166.26	-83.79	-79.70	463
3	104.00		min	-10059.20	65.08	-101.18	-99.57	463
3	104.00	der	max	-8230.25	166.31	-83.79	-79.70	463
3	104.00		min	-10059.20	65.15	-101.18	-99.57	463
3	108.00	izq	max	-10135.80	1520.77	-115.00	-77.56	463
3	108.00		min	-8292.90	1102.12	-92.81	-65.69	463
3	108.00	der	max	-10126.40	1516.20	-114.86	-77.54	463
3	108.00		min	-8287.26	1098.37	-92.72	-65.69	463
3	112.00	izq	max	-10233.20	2023.38	-71.21	-35.23	463
3	112.00		min	-8375.31	1175.79	-54.87	-33.97	463
3	112.00	der	max	-10233.00	2023.38	-71.21	-35.23	463
3	112.00		min	-8375.22	1175.80	-54.87	-33.97	463
4	116.00	izq	max	-10012.00	1392.05	-112.60	-78.34	463
4	116.00		min	-8193.71	998.79	-90.89	-66.31	463
4	116.00	der	max	-10021.20	1396.39	-112.74	-78.36	463
4	116.00		min	-8199.13	1002.35	-90.98	-66.31	463
4	120.00	izq	max	-5841.51	-1594.23	-44.12	-83.36	463
4	120.00		min	-7139.62	-2091.47	-52.64	-104.12	463
4	120.00	der	max	-5841.51	-1594.24	-44.12	-83.36	441
4	120.00		min	-7139.63	-2091.50	-52.64	-104.12	441
4	124.00	izq	max	-5898.72	-2791.46	-33.95	-102.66	441
4	124.00		min	-7209.54	-3780.18	-38.19	-131.24	441
4	124.00	der	max	-5898.72	-2791.50	-33.95	-102.66	441
4	124.00		min	-7209.55	-3780.24	-38.19	-131.24	441
4	128.00	izq	max	-6007.26	-3805.96	-25.94	-119.62	441
4	128.00		min	-7342.21	-5156.64	-27.17	-154.10	441
4	128.00	der	max	-6007.27	-3805.98	-25.94	-119.62	441
4	128.00		min	-7342.22	-5156.67	-27.17	-154.10	441
4	132.00	izq	max	-6100.53	-4259.10	-22.80	-127.64	441
4	132.00		min	-7456.20	-5758.08	-22.92	-164.65	441
4	132.00	der	max	-6100.53	-4259.10	-22.80	-127.64	441
4	132.00		min	-7456.20	-5758.09	-22.92	-164.65	441
4	136.00	izq	max	-6177.25	-4068.30	-25.28	-125.43	441
4	136.00		min	-7549.98	-5483.61	-26.32	-161.30	441
4	136.00	der	max	-6177.26	-4068.28	-25.28	-125.43	441
4	136.00		min	-7549.98	-5483.58	-26.32	-161.30	441
4	140.00	izq	max	-6236.37	-3180.06	-33.84	-112.12	441
4	140.00		min	-7622.23	-4267.82	-37.94	-143.00	441
4	140.00	der	max	-6236.37	-3180.03	-33.84	-112.12	441
4	140.00		min	-7622.23	-4267.78	-37.94	-143.00	441
4	144.00	izq	max	-6273.04	-1873.63	-45.93	-92.05	441
4	144.00		min	-7667.05	-2452.05	-54.68	-115.04	441
4	144.00	der	max	-6273.04	-1873.58	-45.93	-92.04	441
4	144.00		min	-7667.05	-2451.97	-54.68	-115.03	441
4	148.00	izq	max	-10136.70	1334.61	-113.34	-80.48	441
4	148.00		min	-8293.62	972.56	-91.66	-67.72	441
4	148.00	der	max	-10127.50	1330.05	-113.20	-80.46	441
4	148.00		min	-8288.14	968.82	-91.57	-67.72	441
4	152.00	izq	max	-10233.60	1803.44	-69.65	-37.59	441
4	152.00		min	-8375.61	1021.76	-53.78	-35.62	441
4	152.00	der	max	-10233.90	1803.36	-69.65	-37.59	441
4	152.00		min	-8375.82	1021.70	-53.78	-35.62	441
5	156.00	izq	max	-10013.10	1273.17	-111.55	-80.21	441
5	156.00		min	-8194.50	914.75	-90.15	-67.63	441
5	156.00	der	max	-10021.50	1277.53	-111.67	-80.23	441
5	156.00		min	-8199.42	918.33	-90.23	-67.63	441
5	160.00	izq	max	-5841.60	-1601.16	-44.05	-83.47	441
5	160.00		min	-7139.73	-2100.57	-52.56	-104.26	441

5	160.00	der	max	-5841.60	-1601.14	-44.05	-83.47	406
5	160.00		min	-7139.73	-2100.56	-52.56	-104.26	406
5	164.00	izq	max	-5898.79	-2724.50	-34.55	-101.62	406
5	164.00		min	-7209.63	-3683.37	-39.06	-129.73	406
5	164.00	der	max	-5898.79	-2724.52	-34.55	-101.62	406
5	164.00		min	-7209.63	-3683.40	-39.06	-129.73	406
5	168.00	izq	max	-6007.35	-3665.56	-27.20	-117.43	406
5	168.00		min	-7342.32	-4954.53	-28.98	-150.94	406
5	168.00	der	max	-6007.35	-3665.59	-27.20	-117.43	406
5	168.00		min	-7342.32	-4954.56	-28.98	-150.94	406
5	172.00	izq	max	-6100.61	-4045.12	-24.72	-124.30	406
5	172.00		min	-7456.30	-5450.50	-25.68	-159.84	406
5	172.00	der	max	-6100.61	-4045.14	-24.72	-124.30	406
5	172.00		min	-7456.31	-5450.53	-25.68	-159.84	406
5	176.00	izq	max	-6177.35	-3780.74	-27.86	-120.93	406
5	176.00		min	-7550.09	-5070.54	-30.02	-154.84	406
5	176.00	der	max	-6177.35	-3780.71	-27.86	-120.93	406
5	176.00		min	-7550.10	-5070.49	-30.02	-154.83	406
5	180.00	izq	max	-6236.46	-2819.01	-37.08	-106.47	406
5	180.00		min	-7622.34	-3749.42	-42.59	-134.89	406
5	180.00	der	max	-6236.46	-2818.96	-37.08	-106.47	406
5	180.00		min	-7622.34	-3749.34	-42.59	-134.89	406
5	184.00	izq	max	-10059.50	531.04	-105.36	-92.29	406
5	184.00		min	-8230.46	491.23	-86.71	-74.62	406
5	184.00	der	max	-10059.50	531.10	-105.36	-92.28	406
5	184.00		min	-8230.46	491.28	-86.71	-74.62	406
5	188.00	izq	max	-10136.60	2064.37	-119.88	-69.07	406
5	188.00		min	-8293.55	1481.09	-96.22	-59.76	406
5	188.00	der	max	-10126.70	2059.82	-119.74	-69.04	406
5	188.00		min	-8287.56	1477.36	-96.13	-59.76	406
5	192.00	izq	max	-10232.80	2638.87	-75.57	-28.66	406
5	192.00		min	-8375.06	1604.00	-57.91	-29.39	406
5	192.00	der	max	-10231.10	2638.82	-75.56	-28.65	406
5	192.00		min	-8373.94	1603.95	-57.90	-29.39	406
6	196.00	izq	max	-10010.40	1721.07	-115.54	-73.17	406
6	196.00		min	-8192.59	1230.01	-92.96	-62.68	406
6	196.00	der	max	-10021.40	1725.39	-115.69	-73.22	406
6	196.00		min	-8199.36	1233.55	-93.06	-62.69	406
6	200.00	izq	max	-5842.29	-1553.98	-44.48	-82.74	406
6	200.00		min	-7140.58	-2041.56	-53.09	-103.35	406
6	200.00	der	max	-5842.29	-1554.01	-44.48	-82.74	337
6	200.00		min	-7140.58	-2041.62	-53.09	-103.35	337
6	204.00	izq	max	-5899.40	-2944.48	-32.58	-105.06	337
6	204.00		min	-7210.38	-4012.17	-36.12	-134.88	337
6	204.00	der	max	-5899.41	-2944.55	-32.58	-105.06	337
6	204.00		min	-7210.39	-4012.26	-36.12	-134.88	337
6	208.00	izq	max	-6007.92	-4152.49	-22.83	-125.05	337
6	208.00		min	-7343.01	-5670.86	-22.57	-162.16	337
6	208.00	der	max	-6007.92	-4152.54	-22.83	-125.05	337
6	208.00		min	-7343.02	-5670.93	-22.57	-162.16	337
6	212.00	izq	max	-6101.14	-4799.09	-17.97	-136.10	337
6	212.00		min	-7456.95	-6554.47	-15.78	-177.12	337
6	212.00	der	max	-6101.14	-4799.10	-17.97	-136.10	337
6	212.00		min	-7456.95	-6554.49	-15.78	-177.12	337
6	216.00	izq	max	-6177.81	-4801.61	-18.71	-136.90	337
6	216.00		min	-7550.66	-6562.00	-16.65	-178.18	337
6	216.00	der	max	-6177.82	-4801.61	-18.71	-136.90	337
6	216.00		min	-7550.67	-6561.98	-16.65	-178.18	337
6	220.00	izq	max	-6236.89	-4106.70	-25.53	-126.62	337
6	220.00		min	-7622.86	-5628.21	-25.75	-164.29	337
6	220.00	der	max	-6236.89	-4106.65	-25.54	-126.62	337
6	220.00		min	-7622.86	-5628.14	-25.75	-164.29	337
6	224.00	izq	max	-6273.44	-2993.31	-35.89	-109.57	337
6	224.00		min	-7667.54	-4094.07	-39.95	-140.73	337
6	224.00	der	max	-8230.86	-1063.27	-72.77	-98.94	337
6	224.00		min	-10059.90	-1735.13	-85.04	-127.75	337
6	228.00	izq	max	-8293.87	-340.31	-79.89	-88.26	337
6	228.00		min	-10137.00	-589.29	-96.08	-110.59	337
6	228.00	der	max	-8289.73	-344.06	-79.81	-88.28	337
6	228.00		min	-10129.80	-593.85	-95.97	-110.59	337
6	232.00	izq	max	-10235.80	-401.95	-54.01	-61.16	337
6	232.00		min	-8377.18	-484.04	-43.11	-51.71	337
6	232.00	der	max	-10225.30	-402.07	-53.95	-61.10	337
6	232.00		min	-8367.33	-484.14	-43.05	-51.66	337
7	236.00	izq	max	-8185.97	-1848.82	-65.28	-110.79	337
7	236.00		min	-10004.50	-2215.21	-80.17	-134.70	337
7	236.00	der	max	-8199.62	-1845.34	-65.44	-110.87	337
7	236.00		min	-10021.80	-2210.96	-80.39	-134.81	337
7	240.00	izq	max	0.00	0.00	0.00	-0.00	337
7	240.00		min	0.00	0.00	0.00	-0.00	337
7	240.00	der	max	0.00	0.00	0.00	-0.00	0
7	240.00		min	0.00	0.00	0.00	-0.00	0
7	244.00	izq	max	0.00	0.00	0.00	-0.00	0
7	244.00		min	0.00	0.00	0.00	-0.00	0
7	244.00	der	max	0.00	0.00	0.00	-0.00	0
7	244.00		min	0.00	0.00	0.00	-0.00	0
7	248.00	izq	max	0.00	0.00	0.00	-0.00	0
7	248.00		min	0.00	0.00	0.00	-0.00	0
7	248.00	der	max	0.00	0.00	0.00	-0.00	0
7	248.00		min	0.00	0.00	0.00	-0.00	0
7	252.00	izq	max	0.00	0.00	0.00	-0.00	0
7	252.00		min	0.00	0.00	0.00	-0.00	0
7	252.00	der	max	0.00	0.00	0.00	-0.00	0
7	252.00		min	0.00	0.00	0.00	-0.00	0
7	256.00	izq	max	0.00	0.00	0.00	-0.00	0
7	256.00		min	0.00	0.00	0.00	-0.00	0
7	256.00	der	max	0.00	0.00	0.00	-0.00	0
7	256.00		min	0.00	0.00	0.00	-0.00	0
7	260.00	izq	max	0.00	0.00	0.00	-0.00	0
7	260.00		min	0.00	0.00	0.00	-0.00	0
7	260.00	der	max	0.00	0.00	0.00	-0.00	0
7	260.00		min	0.00	0.00	0.00	-0.00	0
7	264.00	izq	max	0.00	0.00	0.00	-0.00	0
7	264.00		min	0.00	0.00	0.00	-0.00	0
7	264.00	der	max	0.00	0.00	0.00	-0.00	0
7	264.00		min	0.00	0.00	0.00	-0.00	0
7	268.00	izq	max	0.00	0.00	0.00	-0.00	0
7	268.00		min	0.00	0.00	0.00	-0.00	0
7	268.00	der	max	0.00	0.00	0.00	-0.00	0
7	268.00		min	0.00	0.00	0.00	-0.00	0
7	272.00	izq	max	0.00	0.00	0.00	-0.00	0
7	272.00		min	0.00	0.00	0.00	-0.00	0
7	272.00	der	max	0.00	0.00	0.00	-0.00	0
7	272.00		min	0.00	0.00	0.00	-0.00	0
8	276.00	izq	max	0.00	0.00	0.00	-0.00	0
8	276.00		min	0.00	0.00	0.00	-0.00	0
8	276.00	der	max	0.00	0.00	0.00	-0.00	0
8	276.00		min	0.00	0.00	0.00	-0.00	0
8	280.00	izq	max	0.00	0.00	0.00	-0.00	0
8	280.00		min	0.00	0.00	0.00	-0.00	0
8	280.00	der	max	0.00	0.00	0.00	-0.00	0
8	280.00		min	0.00	0.00	0.00	-0.00	0
8	284.00	izq	max	0.00	0.00	0.00	-0.00	0
8	284.00		min	0.00	0.00	0.00	-0.00	0
8	284.00	der	max	0.00	0.00	0.00	-0.00	0
8	284.00		min	0.00	0.00	0.00	-0.00	0
8	288.00	izq	max	0.00	0.00	0.00	-0.00	0
8	288.00		min	0.00	0.00	0.00	-0.00	0
8	288.00	der	max	0.00	0.00	0.00	-0.00	0
8	288.00		min	0.00	0.00	0.00	-0.00	0
8	292.00	izq	max	0.00	0.00	0.00	-0.00	0
8	292.00		min	0.00	0.00	0.00	-0.00	0
8	292.00	der	max	0.00	0.00	0.00	-0.00	0
8	292.00		min	0.00	0.00	0.00	-0.00	0
8	296.00	izq	max	0.00	0.00	0.00	-0.00	0
8	296.00		min	0.00	0.00	0.00	-0.00	0
8	296.00	der	max	0.00	0.00	0.00	-0.00	0
8	296.00		min	0.00	0.00	0.00	-0.00	0
8	300.00	izq	max	0.00	0.00	0.00	-0.00	0
8	300.00		min	0.00	0.00	0.00	-0.00	0
8	300.00	der	max	0.00	0.00	0.00	-0.00	0
8	300.00		min	0.00	0.00	0.00	-0.00	0
8	304.00	izq	max	0.00	0.00	0.00	-0.00	0
8	304.00		min	0.00	0.00	0.00	-0.00	0

8	304.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	304.00		min	0.00	0.00	0.00 -	0.00 -	0
8	308.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	308.00		min	0.00	0.00	0.00 -	0.00 -	0
8	308.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	308.00		min	0.00	0.00	0.00 -	0.00 -	0
8	312.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	312.00		min	0.00	0.00	0.00 -	0.00 -	0
8	312.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	312.00		min	0.00	0.00	0.00 -	0.00 -	0
9	316.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	316.00		min	0.00	0.00	0.00 -	0.00 -	0
9	316.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	316.00		min	0.00	0.00	0.00 -	0.00 -	0
9	320.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	320.00		min	0.00	0.00	0.00 -	0.00 -	0
9	320.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	320.00		min	0.00	0.00	0.00 -	0.00 -	0
9	324.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	324.00		min	0.00	0.00	0.00 -	0.00 -	0
9	324.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	324.00		min	0.00	0.00	0.00 -	0.00 -	0
9	328.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	328.00		min	0.00	0.00	0.00 -	0.00 -	0
9	328.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	328.00		min	0.00	0.00	0.00 -	0.00 -	0
9	332.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	332.00		min	0.00	0.00	0.00 -	0.00 -	0
9	332.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	332.00		min	0.00	0.00	0.00 -	0.00 -	0
9	336.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	336.00		min	0.00	0.00	0.00 -	0.00 -	0
9	336.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	336.00		min	0.00	0.00	0.00 -	0.00 -	0
9	340.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	340.00		min	0.00	0.00	0.00 -	0.00 -	0
9	340.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	340.00		min	0.00	0.00	0.00 -	0.00 -	0
9	344.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	344.00		min	0.00	0.00	0.00 -	0.00 -	0
9	344.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	344.00		min	0.00	0.00	0.00 -	0.00 -	0
9	348.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	348.00		min	0.00	0.00	0.00 -	0.00 -	0
9	348.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	348.00		min	0.00	0.00	0.00 -	0.00 -	0
9	352.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	352.00		min	0.00	0.00	0.00 -	0.00 -	0
9	352.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	352.00		min	0.00	0.00	0.00 -	0.00 -	0
10	356.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	356.00		min	0.00	0.00	0.00 -	0.00 -	0
10	356.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	356.00		min	0.00	0.00	0.00 -	0.00 -	0
10	360.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	360.00		min	0.00	0.00	0.00 -	0.00 -	0
10	360.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	360.00		min	0.00	0.00	0.00 -	0.00 -	0
10	364.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	364.00		min	0.00	0.00	0.00 -	0.00 -	0
10	364.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	364.00		min	0.00	0.00	0.00 -	0.00 -	0
10	368.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	368.00		min	0.00	0.00	0.00 -	0.00 -	0
10	368.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	368.00		min	0.00	0.00	0.00 -	0.00 -	0
10	372.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	372.00		min	0.00	0.00	0.00 -	0.00 -	0
10	372.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	372.00		min	0.00	0.00	0.00 -	0.00 -	0
10	376.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	376.00		min	0.00	0.00	0.00 -	0.00 -	0
10	376.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	376.00		min	0.00	0.00	0.00 -	0.00 -	0
10	380.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	380.00		min	0.00	0.00	0.00 -	0.00 -	0
10	380.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	380.00		min	0.00	0.00	0.00 -	0.00 -	0
10	384.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	384.00		min	0.00	0.00	0.00 -	0.00 -	0
10	384.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	384.00		min	0.00	0.00	0.00 -	0.00 -	0
10	388.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	388.00		min	0.00	0.00	0.00 -	0.00 -	0
10	388.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	388.00		min	0.00	0.00	0.00 -	0.00 -	0
10	392.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	392.00		min	0.00	0.00	0.00 -	0.00 -	0
10	392.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	392.00		min	0.00	0.00	0.00 -	0.00 -	0
11	396.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	396.00		min	0.00	0.00	0.00 -	0.00 -	0
11	396.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	396.00		min	0.00	0.00	0.00 -	0.00 -	0
11	400.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	400.00		min	0.00	0.00	0.00 -	0.00 -	0
11	400.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	400.00		min	0.00	0.00	0.00 -	0.00 -	0
11	404.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	404.00		min	0.00	0.00	0.00 -	0.00 -	0
11	404.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	404.00		min	0.00	0.00	0.00 -	0.00 -	0
11	408.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	408.00		min	0.00	0.00	0.00 -	0.00 -	0
11	408.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	408.00		min	0.00	0.00	0.00 -	0.00 -	0
11	412.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	412.00		min	0.00	0.00	0.00 -	0.00 -	0
11	412.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	412.00		min	0.00	0.00	0.00 -	0.00 -	0
11	416.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	416.00		min	0.00	0.00	0.00 -	0.00 -	0
11	416.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	416.00		min	0.00	0.00	0.00 -	0.00 -	0
11	420.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	420.00		min	0.00	0.00	0.00 -	0.00 -	0
11	420.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	420.00		min	0.00	0.00	0.00 -	0.00 -	0
11	424.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	424.00		min	0.00	0.00	0.00 -	0.00 -	0
11	424.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	424.00		min	0.00	0.00	0.00 -	0.00 -	0
11	428.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	428.00		min	0.00	0.00	0.00 -	0.00 -	0
11	428.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	428.00		min	0.00	0.00	0.00 -	0.00 -	0
11	432.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	432.00		min	0.00	0.00	0.00 -	0.00 -	0
11	432.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	432.00		min	0.00	0.00	0.00 -	0.00 -	0
12	436.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	436.00		min	0.00	0.00	0.00 -	0.00 -	0
12	436.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	436.00		min	0.00	0.00	0.00 -	0.00 -	0
12	440.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	440.00		min	0.00	0.00	0.00 -	0.00 -	0
12	440.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	440.00		min	0.00	0.00	0.00 -	0.00 -	0
12	444.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	444.00		min	0.00	0.00	0.00 -	0.00 -	0
12	444.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	444.00		min	0.00	0.00	0.00 -	0.00 -	0
12	448.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	448.00		min	0.00	0.00	0.00 -	0.00 -	0

12	448.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	448.00		min	0.00	0.00	0.00 -	0.00 -	0
12	452.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	452.00		min	0.00	0.00	0.00 -	0.00 -	0
12	452.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	452.00		min	0.00	0.00	0.00 -	0.00 -	0
12	456.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	456.00		min	0.00	0.00	0.00 -	0.00 -	0
12	456.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	456.00		min	0.00	0.00	0.00 -	0.00 -	0
12	460.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	460.00		min	0.00	0.00	0.00 -	0.00 -	0
12	460.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	460.00		min	0.00	0.00	0.00 -	0.00 -	0
12	464.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	464.00		min	0.00	0.00	0.00 -	0.00 -	0
12	464.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	464.00		min	0.00	0.00	0.00 -	0.00 -	0
12	468.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	468.00		min	0.00	0.00	0.00 -	0.00 -	0
12	468.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	468.00		min	0.00	0.00	0.00 -	0.00 -	0
12	472.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	472.00		min	0.00	0.00	0.00 -	0.00 -	0
12	472.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	472.00		min	0.00	0.00	0.00 -	0.00 -	0
13	476.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	476.00		min	0.00	0.00	0.00 -	0.00 -	0
13	476.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	476.00		min	0.00	0.00	0.00 -	0.00 -	0
13	480.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	480.00		min	0.00	0.00	0.00 -	0.00 -	0
13	480.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	480.00		min	0.00	0.00	0.00 -	0.00 -	0
13	484.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	484.00		min	0.00	0.00	0.00 -	0.00 -	0
13	484.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	484.00		min	0.00	0.00	0.00 -	0.00 -	0
13	488.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	488.00		min	0.00	0.00	0.00 -	0.00 -	0
13	488.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	488.00		min	0.00	0.00	0.00 -	0.00 -	0
13	492.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	492.00		min	0.00	0.00	0.00 -	0.00 -	0
13	492.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	492.00		min	0.00	0.00	0.00 -	0.00 -	0
13	496.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	496.00		min	0.00	0.00	0.00 -	0.00 -	0
13	496.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	496.00		min	0.00	0.00	0.00 -	0.00 -	0
13	500.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	500.00		min	0.00	0.00	0.00 -	0.00 -	0
13	500.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	500.00		min	0.00	0.00	0.00 -	0.00 -	0
13	504.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	504.00		min	0.00	0.00	0.00 -	0.00 -	0
13	504.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	504.00		min	0.00	0.00	0.00 -	0.00 -	0
13	508.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	508.00		min	0.00	0.00	0.00 -	0.00 -	0
13	508.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	508.00		min	0.00	0.00	0.00 -	0.00 -	0
13	512.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	512.00		min	0.00	0.00	0.00 -	0.00 -	0
13	512.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	512.00		min	0.00	0.00	0.00 -	0.00 -	0
14	515.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	515.20		min	0.00	0.00	0.00 -	0.00 -	0
14	515.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	515.20		min	0.00	0.00	0.00 -	0.00 -	0
14	518.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	518.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	der	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	540.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80		min	0.00	0.00	0.00 -	0.00 -	0
14	540.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80		min	0.00	0.00	0.00 -	0.00 -	0
14	544.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	544.00		min	0.00	0.00	0.00 -	0.00 -	0

COMPROBACION TENSIONES FASE 7

Factores de ponderación considerados para el pretensado:

- Acciones Desfavorables: 1.1
- Acciones Favorables: 0.9

LEYENDA:
+ : Compresión>fck(j)/1.6
* : Tracción
# : Fisuración
! : Requiere comprobación wk

Vano	x [m]			Pxo [t]	Mmax Mmin [tm]	?s [kg/cm²]	?i [kg/cm²]	fckj [kg/cm²]
1	0.00	der	max	-6215.81	-4074.98	-5.62	-78.07	504
1	0.00		min	-7594.42	-4980.54	-6.86	-95.40	504
1	3.20	izq	max	-6247.65	-5660.96	-11.70	-151.05	504
1	3.20		min	-7634.20	-7123.07	-12.45	-187.79	504
1	3.20	der	max	-6262.39	-5684.71	-11.64	-151.57	504
1	3.20		min	-7654.03	-7152.10	-12.39	-188.44	504
1	6.40	izq	max	-6380.20	-6539.41	-5.15	-166.12	504
1	6.40		min	-7798.03	-8336.34	-3.21	-208.41	504
1	6.40	der	max	-6380.21	-6539.41	-5.15	-166.12	504
1	6.40		min	-7798.03	-8336.35	-3.21	-208.41	504
1	9.60	izq	max	-6467.74	-6838.15	-3.34	-171.67	504
1	9.60		min	-7905.02	-8784.17	-0.26	-216.49	504
1	9.60	der	max	-6467.74	-6838.13	-3.34	-171.67	504
1	9.60		min	-7905.02	-8784.15	-0.26	-216.49	504
1	12.80	izq	max	-6457.87	-6404.52	-7.13	-164.78	504
1	12.80		min	-7892.95	-8280.00	-4.66	-208.48	504
1	12.80	der	max	-6457.86	-6404.50	-7.14	-164.78	504
1	12.80		min	-7892.94	-8279.98	-4.66	-208.48	504
1	16.00	izq	max	-6391.29	-5466.06	-14.89	-149.44	504

1	16.00		min	-7811.58	-7101.94	-14.42	-189.23	504
1	16.00	der	max	-6391.29	-5466.05	-14.89	-149.44	504
1	16.00		min	-7811.58	-7101.92	-14.42	-189.23	504
1	19.20	izq	max	-6319.35	-4211.14	-25.42	-129.08	504
1	19.20		min	-7723.65	-5480.20	-28.08	-162.98	504
1	19.20	der	max	-6319.35	-4211.11	-25.42	-129.08	504
1	19.20		min	-7723.65	-5480.17	-28.08	-162.98	504
1	22.40	izq	max	-6293.66	-2710.21	-38.63	-105.34	504
1	22.40		min	-7692.25	-3500.87	-45.52	-131.70	504
1	22.40	der	max	-6293.66	-2710.11	-38.63	-105.34	504
1	22.40		min	-7692.24	-3500.75	-45.52	-131.70	504
1	25.60	izq	max	-6310.57	-1174.35	-52.57	-81.48	504
1	25.60		min	-7712.92	-1421.99	-64.38	-99.38	504
1	25.60	der	max	-6310.58	-1174.25	-52.57	-81.48	504
1	25.60		min	-7712.93	-1421.86	-64.38	-99.38	504
1	28.80	izq	max	-10863.50	-842.79	-101.08	-121.82	504
1	28.80		min	-8888.28	-912.05	-80.70	-103.15	504
1	28.80	der	max	-10839.70	-845.28	-100.81	-121.62	504
1	28.80		min	-8871.39	-914.09	-80.51	-103.01	504
1	32.00	izq	max	-10985.70	749.34	-66.35	-53.03	504
1	32.00		min	-8991.56	126.19	-50.85	-48.61	504
1	32.00	der	max	-10990.70	748.03	-66.37	-53.07	504
1	32.00		min	-8995.08	125.12	-50.86	-48.64	504
2	36.00	izq	max	-10773.60	-165.73	-106.25	-110.33	504
2	36.00		min	-8816.83	-284.43	-85.62	-92.62	504
2	36.00	der	max	-10784.50	-164.20	-106.37	-110.41	504
2	36.00		min	-8823.65	-283.17	-85.70	-92.67	504
2	40.00	izq	max	-13949.90	-5818.71	-87.31	-230.54	504
2	40.00		min	-17049.90	-7242.38	-105.54	-283.81	504
2	40.00	der	max	-6471.58	-1242.60	-53.57	-84.16	497
2	40.00		min	-7909.71	-1649.37	-64.30	-104.90	497
2	44.00	izq	max	-6531.56	-2618.56	-41.83	-106.29	497
2	44.00		min	-7983.02	-3554.69	-47.95	-135.45	497
2	44.00	der	max	-6531.57	-2618.60	-41.83	-106.29	497
2	44.00		min	-7983.03	-3554.75	-47.95	-135.45	497
2	48.00	izq	max	-6644.45	-3816.48	-32.21	-126.16	497
2	48.00		min	-8121.00	-5153.57	-34.99	-161.84	497
2	48.00	der	max	-6644.46	-3816.49	-32.21	-126.16	497
2	48.00		min	-8121.00	-5153.60	-34.99	-161.84	497
2	52.00	izq	max	-6742.04	-4453.12	-27.48	-137.09	497
2	52.00		min	-8240.27	-5977.54	-28.79	-175.93	497
2	52.00	der	max	-6742.04	-4453.14	-27.48	-137.09	497
2	52.00		min	-8240.27	-5977.57	-28.79	-175.93	497
2	56.00	izq	max	-6823.11	-4446.07	-28.35	-137.79	497
2	56.00		min	-8339.35	-5925.89	-30.24	-176.11	497
2	56.00	der	max	-6823.11	-4446.06	-28.35	-137.79	497
2	56.00		min	-8339.35	-5925.87	-30.24	-176.11	497
2	60.00	izq	max	-6886.56	-3741.60	-35.31	-127.41	497
2	60.00		min	-8416.90	-4932.94	-39.92	-161.35	497
2	60.00	der	max	-6886.56	-3741.56	-35.31	-127.41	497
2	60.00		min	-8416.91	-4932.88	-39.93	-161.35	497
2	64.00	izq	max	-8884.96	-686.89	-82.69	-99.60	497
2	64.00		min	-10859.40	-978.59	-99.82	-123.91	497
2	64.00	der	max	-8884.96	-686.89	-82.69	-99.60	497
2	64.00		min	-10859.40	-978.58	-99.82	-123.90	497
2	68.00	izq	max	-10941.30	230.63	-111.48	-105.80	497
2	68.00		min	-8951.93	49.07	-89.96	-88.75	497
2	68.00	der	max	-10933.20	227.20	-111.37	-105.78	497
2	68.00		min	-8947.37	46.26	-89.89	-88.75	497
2	72.00	izq	max	-11045.50	577.45	-65.46	-55.20	497
2	72.00		min	-9039.93	-3.02	-50.20	-50.25	497
2	72.00	der	max	-11043.80	577.43	-65.45	-55.19	497
2	72.00		min	-9038.59	-3.03	-50.19	-50.25	497
3	76.00	izq	max	-10828.50	-132.28	-107.10	-110.35	497
3	76.00		min	-8861.69	-246.51	-86.40	-92.47	497
3	76.00	der	max	-10837.70	-129.12	-107.22	-110.40	497
3	76.00		min	-8867.25	-243.92	-86.48	-92.49	497
3	80.00	izq	max	-7165.02	-4038.62	-35.43	-134.84	497
3	80.00		min	-8757.25	-5078.53	-42.02	-167.03	497
3	80.00	der	max	-5841.64	-1585.10	-44.20	-83.22	478
3	80.00		min	-7139.79	-2079.80	-52.74	-103.94	478
3	84.00	izq	max	-5898.46	-2768.30	-34.16	-102.30	478
3	84.00		min	-7209.23	-3748.44	-38.47	-130.74	478
3	84.00	der	max	-5898.46	-2768.35	-34.15	-102.30	478
3	84.00		min	-7209.23	-3748.51	-38.47	-130.74	478
3	88.00	izq	max	-6007.01	-3771.20	-26.25	-119.07	478
3	88.00		min	-7341.90	-5107.86	-27.61	-153.34	478
3	88.00	der	max	-6007.01	-3771.25	-26.24	-119.08	478
3	88.00		min	-7341.91	-5107.93	-27.60	-153.34	478
3	92.00	izq	max	-6100.29	-4213.26	-23.21	-126.92	478
3	92.00		min	-7455.91	-5692.93	-23.50	-163.63	478
3	92.00	der	max	-6100.30	-4213.26	-23.21	-126.92	478
3	92.00		min	-7455.92	-5692.93	-23.50	-163.63	478
3	96.00	izq	max	-6177.03	-4011.49	-25.79	-124.53	478
3	96.00		min	-7549.71	-5402.20	-27.04	-160.02	478
3	96.00	der	max	-6177.04	-4011.46	-25.79	-124.53	478
3	96.00		min	-7549.71	-5402.16	-27.04	-160.02	478
3	100.00	izq	max	-6236.17	-3112.39	-34.45	-111.06	478
3	100.00		min	-7621.99	-4170.28	-38.82	-141.47	478
3	100.00	der	max	-6236.17	-3112.32	-34.45	-111.06	478
3	100.00		min	-7621.99	-4170.18	-38.82	-141.47	478
3	104.00	izq	max	-8230.25	137.16	-83.53	-80.16	478
3	104.00		min	-10059.20	23.30	-100.80	-100.23	478
3	104.00	der	max	-8230.25	137.20	-83.53	-80.16	478
3	104.00		min	-10059.20	23.37	-100.80	-100.23	478
3	108.00	izq	max	-10135.80	1471.94	-114.56	-78.33	478
3	108.00		min	-8292.90	1068.10	-92.51	-66.22	478
3	108.00	der	max	-10126.50	1467.38	-114.42	-78.30	478
3	108.00		min	-8287.29	1064.36	-92.42	-66.22	478
3	112.00	izq	max	-10233.20	1967.51	-70.81	-35.83	478
3	112.00		min	-8375.34	1136.87	-54.60	-34.38	478
3	112.00	der	max	-10233.20	1967.52	-70.81	-35.83	478
3	112.00		min	-8375.35	1136.88	-54.60	-34.38	478
4	116.00	izq	max	-10012.20	1363.34	-112.35	-78.79	478
4	116.00		min	-8193.84	978.79	-90.72	-66.62	478
4	116.00	der	max	-10021.20	1367.68	-112.48	-78.81	478
4	116.00		min	-8199.13	982.35	-90.80	-66.62	478
4	120.00	izq	max	-5841.51	-1595.31	-44.11	-83.38	478
4	120.00		min	-7139.62	-2093.03	-52.62	-104.14	478
4	120.00	der	max	-5841.51	-1595.33	-44.11	-83.38	463
4	120.00		min	-7139.63	-2093.06	-52.62	-104.14	463
4	124.00	izq	max	-5898.71	-2773.62	-34.11	-102.38	463
4	124.00		min	-7209.54	-3754.58	-38.42	-130.84	463
4	124.00	der	max	-5898.72	-2773.66	-34.11	-102.38	463
4	124.00		min	-7209.54	-3754.63	-38.42	-130.84	463
4	128.00	izq	max	-6007.26	-3769.20	-26.27	-119.05	463
4	128.00		min	-7342.21	-5103.87	-27.64	-153.28	463
4	128.00	der	max	-6007.27	-3769.22	-26.27	-119.05	463
4	128.00		min	-7342.22	-5103.90	-27.64	-153.28	463
4	132.00	izq	max	-6100.53	-4203.42	-23.30	-126.77	463
4	132.00		min	-7456.20	-5678.16	-23.63	-163.40	463
4	132.00	der	max	-6100.53	-4203.42	-23.30	-126.77	463
4	132.00		min	-7456.20	-5678.16	-23.63	-163.40	463
4	136.00	izq	max	-6177.25	-3993.71	-25.95	-124.26	463
4	136.00		min	-7549.98	-5376.52	-27.28	-159.62	463
4	136.00	der	max	-6177.26	-3993.69	-25.95	-124.26	463
4	136.00		min	-7549.98	-5376.49	-27.28	-159.62	463
4	140.00	izq	max	-6236.37	-3086.54	-34.68	-110.66	463
4	140.00		min	-7622.23	-4133.59	-39.15	-140.90	463
4	140.00	der	max	-6236.37	-3086.52	-34.68	-110.66	463
4	140.00		min	-7622.23	-4133.54	-39.15	-140.90	463
4	144.00	izq	max	-6273.04	-1761.20	-46.93	-90.29	463
4	144.00		min	-7667.05	-2290.65	-56.13	-112.51	463
4	144.00	der	max	-6273.04	-1761.15	-46.93	-90.29	463
4	144.00		min	-7667.05	-2290.58	-56.13	-112.51	463
4	148.00	izq	max	-10136.70	1523.17	-115.03	-77.53	463
4	148.00		min	-8293.62	1103.91	-92.84	-65.66	463
4	148.00	der	max	-10127.30	1518.61	-114.89	-77.51	463
4	148.00		min	-8288.01	1100.17	-92.75	-65.67	463
4	152.00	izq	max	-10233.40	2019.15	-71.18	-35.28	463
4	152.00		min	-8375.48	1172.03	-54.85	-34.01	463
4	152.00	der	max	-10233.10	2019.07	-71.18	-35.28	463
4	152.00		min	-8375.32	1171.96	-54.84	-34.01	463
5	156.00	izq	max	-10012.40	1383.90	-112.53	-78.47	463

5	156.00		min	-8193.99	991.91	-90.84	-66.42	463
5	156.00	der	max	-10021.50	1388.26	-112.67	-78.49	463
5	156.00		min	-8199.42	995.49	-90.92	-66.42	463
5	160.00	izq	max	-5841.60	-1597.11	-44.09	-83.40	463
5	160.00		min	-7139.73	-2094.82	-52.61	-104.17	463
5	160.00	der	max	-5841.60	-1597.10	-44.09	-83.40	441
5	160.00		min	-7139.73	-2094.82	-52.61	-104.17	441
5	164.00	izq	max	-5898.78	-2793.56	-33.93	-102.70	441
5	164.00		min	-7209.63	-3782.60	-38.17	-131.28	441
5	164.00	der	max	-5898.79	-2793.58	-33.93	-102.70	441
5	164.00		min	-7209.63	-3782.64	-38.17	-131.28	441
5	168.00	izq	max	-6007.35	-3807.74	-25.92	-119.65	441
5	168.00		min	-7342.32	-5158.75	-27.15	-154.14	441
5	168.00	der	max	-6007.35	-3807.77	-25.92	-119.65	441
5	168.00		min	-7342.32	-5158.78	-27.15	-154.14	441
5	172.00	izq	max	-6100.61	-4260.41	-22.79	-127.67	441
5	172.00		min	-7456.30	-5759.70	-22.90	-164.68	441
5	172.00	der	max	-6100.61	-4260.44	-22.79	-127.67	441
5	172.00		min	-7456.31	-5759.74	-22.90	-164.68	441
5	176.00	izq	max	-6177.35	-4069.15	-25.28	-125.44	441
5	176.00		min	-7550.09	-5484.74	-26.31	-161.32	441
5	176.00	der	max	-6177.35	-4069.12	-25.28	-125.44	441
5	176.00		min	-7550.10	-5484.70	-26.31	-161.32	441
5	180.00	izq	max	-6236.46	-3180.52	-33.84	-112.13	441
5	180.00		min	-7622.34	-4268.59	-37.94	-143.01	441
5	180.00	der	max	-6236.46	-3180.47	-33.84	-112.13	441
5	180.00		min	-7622.34	-4268.51	-37.94	-143.01	441
5	184.00	izq	max	-8230.46	56.61	-82.81	-81.42	441
5	184.00		min	-10059.50	-93.12	-99.76	-102.05	441
5	184.00	der	max	-8230.46	56.65	-82.81	-81.42	441
5	184.00		min	-10059.50	-93.05	-99.76	-102.05	441
5	188.00	izq	max	-10136.60	1335.22	-113.34	-80.47	441
5	188.00		min	-8293.55	973.35	-91.67	-67.71	441
5	188.00	der	max	-10127.40	1330.67	-113.21	-80.45	441
5	188.00		min	-8288.07	969.62	-91.58	-67.71	441
5	192.00	izq	max	-10233.50	1804.74	-69.66	-37.57	441
5	192.00		min	-8375.57	1023.14	-53.79	-35.60	441
5	192.00	der	max	-10233.80	1804.69	-69.66	-37.57	441
5	192.00		min	-8375.79	1023.10	-53.79	-35.60	441
6	196.00	izq	max	-10013.00	1274.60	-111.56	-80.19	441
6	196.00		min	-8194.44	916.25	-90.16	-67.61	441
6	196.00	der	max	-10021.40	1278.93	-111.69	-80.20	441
6	196.00		min	-8199.36	919.80	-90.24	-67.60	441
6	200.00	izq	max	-5842.29	-1600.62	-44.07	-83.47	441
6	200.00		min	-7140.57	-2100.34	-52.57	-104.27	441
6	200.00	der	max	-5842.29	-1600.64	-44.07	-83.47	406
6	200.00		min	-7140.58	-2100.37	-52.57	-104.27	406
6	204.00	izq	max	-5899.40	-2724.01	-34.56	-101.61	406
6	204.00		min	-7210.38	-3683.25	-39.07	-129.73	406
6	204.00	der	max	-5899.41	-2724.05	-34.56	-101.62	406
6	204.00		min	-7210.39	-3683.32	-39.07	-129.73	406
6	208.00	izq	max	-6007.92	-3664.89	-27.21	-117.42	406
6	208.00		min	-7343.01	-4954.22	-28.99	-150.94	406
6	208.00	der	max	-6007.92	-3664.93	-27.21	-117.42	406
6	208.00		min	-7343.02	-4954.28	-28.99	-150.95	406
6	212.00	izq	max	-6101.14	-4044.34	-24.74	-124.29	406
6	212.00		min	-7456.95	-5450.10	-25.69	-159.84	406
6	212.00	der	max	-6101.14	-4044.35	-24.74	-124.29	406
6	212.00		min	-7456.95	-5450.11	-25.69	-159.84	406
6	216.00	izq	max	-6177.81	-3779.78	-27.88	-120.92	406
6	216.00		min	-7550.66	-5069.98	-30.03	-154.83	406
6	216.00	der	max	-6177.82	-3779.75	-27.88	-120.92	406
6	216.00		min	-7550.66	-5069.94	-30.03	-154.83	406
6	220.00	izq	max	-6236.89	-2817.76	-37.10	-106.46	406
6	220.00		min	-7622.86	-3748.51	-42.61	-134.88	406
6	220.00	der	max	-6236.89	-2817.68	-37.10	-106.45	406
6	220.00		min	-7622.86	-3748.41	-42.61	-134.88	406
6	224.00	izq	max	-6273.44	-1437.25	-49.84	-85.22	406
6	224.00		min	-7667.54	-1826.67	-60.29	-105.26	406
6	224.00	der	max	-10059.90	532.29	-105.37	-92.27	406
6	224.00		min	-8230.86	492.80	-86.73	-74.60	406
6	228.00	izq	max	-10137.00	2065.82	-119.90	-69.05	406
6	228.00		min	-8293.87	1482.89	-96.24	-59.74	406
6	228.00	der	max	-10127.10	2061.27	-119.76	-69.02	406
6	228.00		min	-8287.87	1479.15	-96.14	-59.73	406
6	232.00	izq	max	-10233.10	2640.86	-75.59	-28.64	406
6	232.00		min	-8375.32	1606.28	-57.93	-29.37	406
6	232.00	der	max	-10231.50	2640.79	-75.58	-28.63	406
6	232.00		min	-8374.20	1606.22	-57.92	-29.36	406
7	236.00	izq	max	-10010.70	1723.18	-115.56	-73.14	406
7	236.00		min	-8192.85	1232.31	-92.98	-62.65	406
7	236.00	der	max	-10021.80	1727.48	-115.71	-73.19	406
7	236.00		min	-8199.62	1235.84	-93.08	-62.66	406
7	240.00	izq	max	-5841.54	-1550.63	-44.51	-82.68	406
7	240.00		min	-7139.66	-2038.15	-53.12	-103.29	406
7	240.00	der	max	-5841.54	-1550.70	-44.51	-82.68	337
7	240.00		min	-7139.66	-2038.24	-53.12	-103.29	337
7	244.00	izq	max	-5898.69	-2941.66	-32.60	-105.01	337
7	244.00		min	-7209.51	-4009.33	-36.13	-134.83	337
7	244.00	der	max	-5898.70	-2941.72	-32.60	-105.01	337
7	244.00		min	-7209.52	-4009.42	-36.13	-134.83	337
7	248.00	izq	max	-6007.24	-4149.85	-22.85	-125.00	337
7	248.00		min	-7342.18	-5668.09	-22.58	-162.11	337
7	248.00	der	max	-6007.24	-4149.90	-22.85	-125.00	337
7	248.00		min	-7342.18	-5668.16	-22.58	-162.11	337
7	252.00	izq	max	-6100.52	-4796.94	-17.98	-136.06	337
7	252.00		min	-7456.19	-6552.23	-15.79	-177.08	337
7	252.00	der	max	-6100.52	-4796.94	-17.98	-136.06	337
7	252.00		min	-7456.19	-6552.23	-15.79	-177.08	337
7	256.00	izq	max	-6177.26	-4800.08	-18.72	-136.88	337
7	256.00		min	-7549.98	-6560.39	-16.66	-178.14	337
7	256.00	der	max	-6177.26	-4800.07	-18.72	-136.88	337
7	256.00		min	-7549.99	-6560.39	-16.66	-178.14	337
7	260.00	izq	max	-6236.39	-4105.66	-25.54	-126.60	337
7	260.00		min	-7622.25	-5627.12	-25.75	-164.27	337
7	260.00	der	max	-6236.39	-4105.63	-25.54	-126.60	337
7	260.00		min	-7622.26	-5627.09	-25.75	-164.26	337
7	264.00	izq	max	-6273.03	-2992.86	-35.89	-109.56	337
7	264.00		min	-7667.04	-4093.60	-39.95	-140.72	337
7	264.00	der	max	-8230.56	-1062.72	-72.77	-98.93	337
7	264.00		min	-10059.60	-1734.53	-85.04	-127.73	337
7	268.00	izq	max	-8293.55	-340.38	-79.88	-88.26	337
7	268.00		min	-10136.60	-589.37	-96.08	-110.59	337
7	268.00	der	max	-8289.40	-344.12	-79.81	-88.28	337
7	268.00		min	-10129.40	-593.93	-95.97	-110.58	337
7	272.00	izq	max	-10235.40	-401.96	-54.01	-61.16	337
7	272.00		min	-8376.90	-484.07	-43.10	-51.71	337
7	272.00	der	max	-10224.90	-402.07	-53.95	-61.10	337
7	272.00		min	-8367.06	-484.17	-43.05	-51.66	337
8	276.00	izq	max	-8185.73	-1848.84	-65.27	-110.78	337
8	276.00		min	-10004.20	-2215.26	-80.17	-134.70	337
8	276.00	der	max	-8199.37	-1845.36	-65.44	-110.87	337
8	276.00		min	-10021.50	-2211.01	-80.38	-134.81	337
8	280.00	izq	max	-2327.86	2295.27	0.00 -	0.00 -	337
8	280.00		min	-1904.61	1877.95	0.00 -	0.00 -	337
8	280.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	280.00		min	0.00	0.00	0.00 -	0.00 -	0
8	284.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	284.00		min	0.00	0.00	0.00 -	0.00 -	0
8	284.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	284.00		min	0.00	0.00	0.00 -	0.00 -	0
8	288.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	288.00		min	0.00	0.00	0.00 -	0.00 -	0
8	288.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	288.00		min	0.00	0.00	0.00 -	0.00 -	0
8	292.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	292.00		min	0.00	0.00	0.00 -	0.00 -	0
8	292.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	292.00		min	0.00	0.00	0.00 -	0.00 -	0
8	296.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	296.00		min	0.00	0.00	0.00 -	0.00 -	0
8	296.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	296.00		min	0.00	0.00	0.00 -	0.00 -	0
8	300.00	izq	max	0.00	0.00	0.00 -	0.00 -	0

8	300.00		min	0.00	0.00	0.00 -	0.00 -	0
8	300.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	300.00		min	0.00	0.00	0.00 -	0.00 -	0
8	304.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	304.00		min	0.00	0.00	0.00 -	0.00 -	0
8	304.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	304.00		min	0.00	0.00	0.00 -	0.00 -	0
8	308.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	308.00		min	0.00	0.00	0.00 -	0.00 -	0
8	308.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	308.00		min	0.00	0.00	0.00 -	0.00 -	0
8	312.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
8	312.00		min	0.00	0.00	0.00 -	0.00 -	0
8	312.00	der	max	0.00	0.00	0.00 -	0.00 -	0
8	312.00		min	0.00	0.00	0.00 -	0.00 -	0
9	316.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	316.00		min	0.00	0.00	0.00 -	0.00 -	0
9	316.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	316.00		min	0.00	0.00	0.00 -	0.00 -	0
9	320.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	320.00		min	0.00	0.00	0.00 -	0.00 -	0
9	320.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	320.00		min	0.00	0.00	0.00 -	0.00 -	0
9	324.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	324.00		min	0.00	0.00	0.00 -	0.00 -	0
9	324.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	324.00		min	0.00	0.00	0.00 -	0.00 -	0
9	328.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	328.00		min	0.00	0.00	0.00 -	0.00 -	0
9	328.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	328.00		min	0.00	0.00	0.00 -	0.00 -	0
9	332.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	332.00		min	0.00	0.00	0.00 -	0.00 -	0
9	332.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	332.00		min	0.00	0.00	0.00 -	0.00 -	0
9	336.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	336.00		min	0.00	0.00	0.00 -	0.00 -	0
9	336.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	336.00		min	0.00	0.00	0.00 -	0.00 -	0
9	340.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	340.00		min	0.00	0.00	0.00 -	0.00 -	0
9	340.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	340.00		min	0.00	0.00	0.00 -	0.00 -	0
9	344.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	344.00		min	0.00	0.00	0.00 -	0.00 -	0
9	344.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	344.00		min	0.00	0.00	0.00 -	0.00 -	0
9	348.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	348.00		min	0.00	0.00	0.00 -	0.00 -	0
9	348.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	348.00		min	0.00	0.00	0.00 -	0.00 -	0
9	352.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	352.00		min	0.00	0.00	0.00 -	0.00 -	0
9	352.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	352.00		min	0.00	0.00	0.00 -	0.00 -	0
10	356.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	356.00		min	0.00	0.00	0.00 -	0.00 -	0
10	356.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	356.00		min	0.00	0.00	0.00 -	0.00 -	0
10	360.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	360.00		min	0.00	0.00	0.00 -	0.00 -	0
10	360.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	360.00		min	0.00	0.00	0.00 -	0.00 -	0
10	364.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	364.00		min	0.00	0.00	0.00 -	0.00 -	0
10	364.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	364.00		min	0.00	0.00	0.00 -	0.00 -	0
10	368.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	368.00		min	0.00	0.00	0.00 -	0.00 -	0
10	368.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	368.00		min	0.00	0.00	0.00 -	0.00 -	0
10	372.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	372.00		min	0.00	0.00	0.00 -	0.00 -	0
10	372.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	372.00		min	0.00	0.00	0.00 -	0.00 -	0
10	376.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	376.00		min	0.00	0.00	0.00 -	0.00 -	0
10	376.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	376.00		min	0.00	0.00	0.00 -	0.00 -	0
10	380.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	380.00		min	0.00	0.00	0.00 -	0.00 -	0
10	380.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	380.00		min	0.00	0.00	0.00 -	0.00 -	0
10	384.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	384.00		min	0.00	0.00	0.00 -	0.00 -	0
10	384.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	384.00		min	0.00	0.00	0.00 -	0.00 -	0
10	388.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	388.00		min	0.00	0.00	0.00 -	0.00 -	0
10	388.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	388.00		min	0.00	0.00	0.00 -	0.00 -	0
10	392.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	392.00		min	0.00	0.00	0.00 -	0.00 -	0
10	392.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	392.00		min	0.00	0.00	0.00 -	0.00 -	0
11	396.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	396.00		min	0.00	0.00	0.00 -	0.00 -	0
11	396.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	396.00		min	0.00	0.00	0.00 -	0.00 -	0
11	400.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	400.00		min	0.00	0.00	0.00 -	0.00 -	0
11	400.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	400.00		min	0.00	0.00	0.00 -	0.00 -	0
11	404.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	404.00		min	0.00	0.00	0.00 -	0.00 -	0
11	404.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	404.00		min	0.00	0.00	0.00 -	0.00 -	0
11	408.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	408.00		min	0.00	0.00	0.00 -	0.00 -	0
11	408.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	408.00		min	0.00	0.00	0.00 -	0.00 -	0
11	412.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	412.00		min	0.00	0.00	0.00 -	0.00 -	0
11	412.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	412.00		min	0.00	0.00	0.00 -	0.00 -	0
11	416.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	416.00		min	0.00	0.00	0.00 -	0.00 -	0
11	416.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	416.00		min	0.00	0.00	0.00 -	0.00 -	0
11	420.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	420.00		min	0.00	0.00	0.00 -	0.00 -	0
11	420.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	420.00		min	0.00	0.00	0.00 -	0.00 -	0
11	424.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	424.00		min	0.00	0.00	0.00 -	0.00 -	0
11	424.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	424.00		min	0.00	0.00	0.00 -	0.00 -	0
11	428.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	428.00		min	0.00	0.00	0.00 -	0.00 -	0
11	428.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	428.00		min	0.00	0.00	0.00 -	0.00 -	0
11	432.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	432.00		min	0.00	0.00	0.00 -	0.00 -	0
11	432.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	432.00		min	0.00	0.00	0.00 -	0.00 -	0
12	436.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	436.00		min	0.00	0.00	0.00 -	0.00 -	0
12	436.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	436.00		min	0.00	0.00	0.00 -	0.00 -	0
12	440.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	440.00		min	0.00	0.00	0.00 -	0.00 -	0
12	440.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	440.00		min	0.00	0.00	0.00 -	0.00 -	0
12	444.00	izq	max	0.00	0.00	0.00 -	0.00 -	0

12	444.00		min	0.00	0.00	0.00 -	0.00 -	0
12	444.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	444.00		min	0.00	0.00	0.00 -	0.00 -	0
12	448.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	448.00		min	0.00	0.00	0.00 -	0.00 -	0
12	448.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	448.00		min	0.00	0.00	0.00 -	0.00 -	0
12	452.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	452.00		min	0.00	0.00	0.00 -	0.00 -	0
12	452.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	452.00		min	0.00	0.00	0.00 -	0.00 -	0
12	456.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	456.00		min	0.00	0.00	0.00 -	0.00 -	0
12	456.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	456.00		min	0.00	0.00	0.00 -	0.00 -	0
12	460.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	460.00		min	0.00	0.00	0.00 -	0.00 -	0
12	460.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	460.00		min	0.00	0.00	0.00 -	0.00 -	0
12	464.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	464.00		min	0.00	0.00	0.00 -	0.00 -	0
12	464.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	464.00		min	0.00	0.00	0.00 -	0.00 -	0
12	468.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	468.00		min	0.00	0.00	0.00 -	0.00 -	0
12	468.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	468.00		min	0.00	0.00	0.00 -	0.00 -	0
12	472.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	472.00		min	0.00	0.00	0.00 -	0.00 -	0
12	472.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	472.00		min	0.00	0.00	0.00 -	0.00 -	0
13	476.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	476.00		min	0.00	0.00	0.00 -	0.00 -	0
13	476.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	476.00		min	0.00	0.00	0.00 -	0.00 -	0
13	480.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	480.00		min	0.00	0.00	0.00 -	0.00 -	0
13	480.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	480.00		min	0.00	0.00	0.00 -	0.00 -	0
13	484.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	484.00		min	0.00	0.00	0.00 -	0.00 -	0
13	484.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	484.00		min	0.00	0.00	0.00 -	0.00 -	0
13	488.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	488.00		min	0.00	0.00	0.00 -	0.00 -	0
13	488.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	488.00		min	0.00	0.00	0.00 -	0.00 -	0
13	492.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	492.00		min	0.00	0.00	0.00 -	0.00 -	0
13	492.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	492.00		min	0.00	0.00	0.00 -	0.00 -	0
13	496.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	496.00		min	0.00	0.00	0.00 -	0.00 -	0
13	496.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	496.00		min	0.00	0.00	0.00 -	0.00 -	0
13	500.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	500.00		min	0.00	0.00	0.00 -	0.00 -	0
13	500.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	500.00		min	0.00	0.00	0.00 -	0.00 -	0
13	504.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	504.00		min	0.00	0.00	0.00 -	0.00 -	0
13	504.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	504.00		min	0.00	0.00	0.00 -	0.00 -	0
13	508.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	508.00		min	0.00	0.00	0.00 -	0.00 -	0
13	508.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	508.00		min	0.00	0.00	0.00 -	0.00 -	0
13	512.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	512.00		min	0.00	0.00	0.00 -	0.00 -	0
13	512.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	512.00		min	0.00	0.00	0.00 -	0.00 -	0
14	515.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	515.20		min	0.00	0.00	0.00 -	0.00 -	0
14	515.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	515.20		min	0.00	0.00	0.00 -	0.00 -	0
14	518.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	518.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	der	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	540.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80		min	0.00	0.00	0.00 -	0.00 -	0
14	540.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80		min	0.00	0.00	0.00 -	0.00 -	0
14	544.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	544.00		min	0.00	0.00	0.00 -	0.00 -	0

COMPROBACION TENSIONES FASE 8

Factores de ponderación considerados para el pretensado:

- Acciones Desfavorables: 1.1
- Acciones Favorables: 0.9

LEYENDA:
+ : Compresión>fck(j)/1.6
* : Tracción
# : Fisuración
! : Requiere comprobación wk

Vano	x		Pxo	Mmax Mmin	?s	?i	fckj
	[m]		[t]	[tm]	[kg/cm²]	[kg/cm²]	[kg/cm²]
1	0.00	der max	-6215.81	-4074.98	-5.62	-78.07	510
1	0.00	min	-7594.42	-4980.54	-6.86	-95.40	510
1	3.20	izq max	-6247.65	-5660.89	-11.70	-151.05	510
1	3.20	min	-7634.20	-7122.97	-12.45	-187.79	510
1	3.20	der max	-6262.39	-5684.64	-11.64	-151.57	510
1	3.20	min	-7654.04	-7151.99	-12.39	-188.44	510
1	6.40	izq max	-6380.21	-6539.27	-5.15	-166.12	510
1	6.40	min	-7798.03	-8336.14	-3.21	-208.41	510
1	6.40	der max	-6380.21	-6539.27	-5.15	-166.12	510
1	6.40	min	-7798.03	-8336.15	-3.21	-208.41	510
1	9.60	izq max	-6467.75	-6837.93	-3.35	-171.66	510
1	9.60	min	-7905.02	-8783.86	-0.27	-216.48	510
1	9.60	der max	-6467.75	-6837.92	-3.35	-171.66	510
1	9.60	min	-7905.02	-8783.85	-0.27	-216.48	510

1	12.80	izq	max	-6457.87	-6404.24	-7.14	-164.78	510
1	12.80		min	-7892.95	-8279.60	-4.67	-208.47	510
1	12.80	der	max	-6457.86	-6404.22	-7.14	-164.78	510
1	12.80		min	-7892.94	-8279.57	-4.67	-208.47	510
1	16.00	izq	max	-6391.29	-5465.71	-14.89	-149.43	510
1	16.00		min	-7811.58	-7101.43	-14.42	-189.23	510
1	16.00	der	max	-6391.29	-5465.69	-14.89	-149.43	510
1	16.00		min	-7811.58	-7101.41	-14.42	-189.23	510
1	19.20	izq	max	-6319.35	-4210.72	-25.43	-129.08	510
1	19.20		min	-7723.65	-5479.59	-28.09	-162.97	510
1	19.20	der	max	-6319.35	-4210.69	-25.43	-129.07	510
1	19.20		min	-7723.65	-5479.56	-28.09	-162.97	510
1	22.40	izq	max	-6293.66	-2709.72	-38.63	-105.33	510
1	22.40		min	-7692.25	-3500.16	-45.53	-131.69	510
1	22.40	der	max	-6293.66	-2709.62	-38.63	-105.33	510
1	22.40		min	-7692.24	-3500.03	-45.53	-131.68	510
1	25.60	izq	max	-6310.58	-1173.78	-52.58	-81.47	510
1	25.60		min	-7712.92	-1421.17	-64.38	-99.37	510
1	25.60	der	max	-6310.58	-1173.69	-52.58	-81.47	510
1	25.60		min	-7712.93	-1421.05	-64.38	-99.36	510
1	28.80	izq	max	-10863.50	-841.88	-101.08	-121.81	510
1	28.80		min	-8888.28	-911.41	-80.71	-103.14	510
1	28.80	der	max	-10839.70	-844.37	-100.82	-121.61	510
1	28.80		min	-8871.39	-913.46	-80.52	-103.00	510
1	32.00	izq	max	-10985.70	750.36	-66.36	-53.02	510
1	32.00		min	-8991.56	126.90	-50.85	-48.60	510
1	32.00	der	max	-10990.60	749.05	-66.37	-53.06	510
1	32.00		min	-8995.08	125.83	-50.87	-48.63	510
2	36.00	izq	max	-10773.60	-165.19	-106.25	-110.32	510
2	36.00		min	-8816.82	-284.06	-85.62	-92.61	510
2	36.00	der	max	-10784.50	-163.66	-106.38	-110.41	510
2	36.00		min	-8823.65	-282.79	-85.70	-92.66	510
2	40.00	izq	max	-13949.90	-5818.66	-87.31	-230.54	510
2	40.00		min	-17049.90	-7242.32	-105.54	-283.81	510
2	40.00	der	max	-6471.59	-1242.55	-53.57	-84.16	504
2	40.00		min	-7909.72	-1649.30	-64.30	-104.90	504
2	44.00	izq	max	-6531.56	-2618.84	-41.83	-106.29	504
2	44.00		min	-7983.02	-3555.11	-47.94	-135.45	504
2	44.00	der	max	-6531.57	-2618.89	-41.83	-106.29	504
2	44.00		min	-7983.03	-3555.16	-47.94	-135.45	504
2	48.00	izq	max	-6644.45	-3817.10	-32.21	-126.17	504
2	48.00		min	-8121.00	-5154.46	-34.98	-161.86	504
2	48.00	der	max	-6644.46	-3817.11	-32.21	-126.17	504
2	48.00		min	-8121.01	-5154.49	-34.98	-161.86	504
2	52.00	izq	max	-6742.04	-4454.07	-27.47	-137.11	504
2	52.00		min	-8240.27	-5978.91	-28.78	-175.95	504
2	52.00	der	max	-6742.04	-4454.10	-27.47	-137.11	504
2	52.00		min	-8240.27	-5978.94	-28.78	-175.95	504
2	56.00	izq	max	-6823.11	-4447.36	-28.34	-137.82	504
2	56.00		min	-8339.35	-5927.73	-30.23	-176.14	504
2	56.00	der	max	-6823.11	-4447.35	-28.34	-137.82	504
2	56.00		min	-8339.36	-5927.72	-30.23	-176.14	504
2	60.00	izq	max	-6886.56	-3743.22	-35.29	-127.43	504
2	60.00		min	-8416.91	-4935.27	-39.90	-161.39	504
2	60.00	der	max	-6886.56	-3743.17	-35.29	-127.43	504
2	60.00		min	-8416.91	-4935.20	-39.90	-161.39	504
2	64.00	izq	max	-8884.96	-688.84	-82.67	-99.63	504
2	64.00		min	-10859.40	-981.38	-99.79	-123.95	504
2	64.00	der	max	-8884.96	-688.84	-82.67	-99.63	504
2	64.00		min	-10859.40	-981.37	-99.79	-123.95	504
2	68.00	izq	max	-10941.30	227.35	-111.45	-105.86	504
2	68.00		min	-8951.93	46.79	-89.94	-88.79	504
2	68.00	der	max	-10933.20	223.93	-111.34	-105.83	504
2	68.00		min	-8947.37	43.97	-89.87	-88.78	504
2	72.00	izq	max	-11045.50	573.70	-65.43	-55.24	504
2	72.00		min	-9039.93	-5.63	-50.18	-50.28	504
2	72.00	der	max	-11043.90	573.68	-65.43	-55.23	504
2	72.00		min	-9038.60	-5.64	-50.17	-50.28	504
3	76.00	izq	max	-10828.50	-134.21	-107.08	-110.38	504
3	76.00		min	-8861.69	-247.86	-86.39	-92.49	504
3	76.00	der	max	-10837.70	-131.05	-107.20	-110.43	504
3	76.00		min	-8867.25	-245.26	-86.47	-92.51	504
3	80.00	izq	max	-7165.02	-4038.70	-35.43	-134.84	504
3	80.00		min	-8757.25	-5078.65	-42.02	-167.03	504
3	80.00	der	max	-5841.64	-1585.19	-44.20	-83.22	489
3	80.00		min	-7139.79	-2079.92	-52.74	-103.94	489
3	84.00	izq	max	-5898.46	-2767.12	-34.17	-102.28	489
3	84.00		min	-7209.23	-3746.74	-38.49	-130.71	489
3	84.00	der	max	-5898.46	-2767.17	-34.17	-102.28	489
3	84.00		min	-7209.23	-3746.81	-38.49	-130.72	489
3	88.00	izq	max	-6007.01	-3768.75	-26.27	-119.04	489
3	88.00		min	-7341.90	-5104.35	-27.64	-153.28	489
3	88.00	der	max	-6007.01	-3768.81	-26.27	-119.04	489
3	88.00		min	-7341.91	-5104.42	-27.64	-153.28	489
3	92.00	izq	max	-6100.29	-4209.55	-23.25	-126.87	489
3	92.00		min	-7455.91	-5687.60	-23.55	-163.55	489
3	92.00	der	max	-6100.30	-4209.55	-23.25	-126.87	489
3	92.00		min	-7455.92	-5687.61	-23.55	-163.55	489
3	96.00	izq	max	-6177.03	-4006.51	-25.84	-124.46	489
3	96.00		min	-7549.71	-5395.05	-27.11	-159.91	489
3	96.00	der	max	-6177.04	-4006.49	-25.84	-124.46	489
3	96.00		min	-7549.71	-5395.02	-27.11	-159.91	489
3	100.00	izq	max	-6236.17	-3106.16	-34.50	-110.96	489
3	100.00		min	-7621.99	-4161.32	-38.90	-141.33	489
3	100.00	der	max	-6236.18	-3106.08	-34.50	-110.96	489
3	100.00		min	-7621.99	-4161.22	-38.90	-141.33	489
3	104.00	izq	max	-8230.25	144.66	-83.60	-80.04	489
3	104.00		min	-10059.20	34.08	-100.90	-100.06	489
3	104.00	der	max	-8230.25	144.71	-83.60	-80.04	489
3	104.00		min	-10059.20	34.14	-100.90	-100.06	489
3	108.00	izq	max	-10135.80	1484.53	-114.67	-78.13	489
3	108.00		min	-8292.90	1076.87	-92.59	-66.08	489
3	108.00	der	max	-10126.40	1479.97	-114.54	-78.11	489
3	108.00		min	-8287.28	1073.13	-92.50	-66.08	489
3	112.00	izq	max	-10233.20	1981.92	-70.91	-35.68	489
3	112.00		min	-8375.33	1146.90	-54.67	-34.28	489
3	112.00	der	max	-10233.20	1981.92	-70.91	-35.68	489
3	112.00		min	-8375.31	1146.91	-54.67	-34.28	489
4	116.00	izq	max	-10012.20	1370.74	-112.41	-78.67	489
4	116.00		min	-8193.81	983.94	-90.76	-66.54	489
4	116.00	der	max	-10021.20	1375.08	-112.54	-78.70	489
4	116.00		min	-8199.13	987.51	-90.85	-66.54	489
4	120.00	izq	max	-5841.51	-1595.03	-44.11	-83.37	489
4	120.00		min	-7139.62	-2092.63	-52.63	-104.14	489
4	120.00	der	max	-5841.51	-1595.05	-44.11	-83.37	478
4	120.00		min	-7139.63	-2092.66	-52.63	-104.14	478
4	124.00	izq	max	-5898.72	-2778.22	-34.07	-102.46	478
4	124.00		min	-7209.54	-3761.18	-38.36	-130.94	478
4	124.00	der	max	-5898.72	-2778.26	-34.07	-102.46	478
4	124.00		min	-7209.55	-3761.24	-38.36	-130.94	478
4	128.00	izq	max	-6007.26	-3778.68	-26.18	-119.19	478
4	128.00		min	-7342.21	-5117.48	-27.52	-153.49	478
4	128.00	der	max	-6007.27	-3778.70	-26.18	-119.19	478
4	128.00		min	-7342.22	-5117.51	-27.52	-153.49	478
4	132.00	izq	max	-6100.53	-4217.78	-23.18	-127.00	478
4	132.00		min	-7456.20	-5698.77	-23.45	-163.73	478
4	132.00	der	max	-6100.53	-4217.78	-23.18	-127.00	478
4	132.00		min	-7456.20	-5698.78	-23.45	-163.73	478
4	136.00	izq	max	-6177.25	-4012.94	-25.78	-124.56	478
4	136.00		min	-7549.98	-5404.14	-27.03	-160.05	478
4	136.00	der	max	-6177.26	-4012.92	-25.78	-124.56	478
4	136.00		min	-7549.98	-5404.11	-27.03	-160.05	478
4	140.00	izq	max	-6236.37	-3110.66	-34.46	-111.03	478
4	140.00		min	-7622.23	-4168.21	-38.84	-141.44	478
4	140.00	der	max	-6236.37	-3110.63	-34.46	-111.03	478
4	140.00		min	-7622.23	-4168.17	-38.84	-141.44	478
4	144.00	izq	max	-6273.04	-1790.19	-46.67	-90.74	478
4	144.00		min	-7667.05	-2332.28	-55.75	-113.16	478
4	144.00	der	max	-6273.04	-1790.14	-46.67	-90.74	478
4	144.00		min	-7667.05	-2332.20	-55.75	-113.16	478
4	148.00	izq	max	-10136.70	1474.54	-114.59	-78.30	478
4	148.00		min	-8293.62	1070.04	-92.53	-66.19	478
4	148.00	der	max	-10127.40	1469.98	-114.46	-78.27	478
4	148.00		min	-8288.05	1066.30	-92.44	-66.20	478

4	152.00	izq	max	-10233.40	1963.52	-70.78	-35.88	478
4	152.00		min	-8375.52	1133.28	-54.57	-34.42	478
4	152.00	der	max	-10233.30	1963.44	-70.78	-35.88	478
4	152.00		min	-8375.45	1133.22	-54.57	-34.42	478
5	156.00	izq	max	-10012.60	1355.38	-112.28	-78.92	478
5	156.00		min	-8194.12	972.04	-90.66	-66.73	478
5	156.00	der	max	-10021.50	1359.74	-112.41	-78.94	478
5	156.00		min	-8199.42	975.62	-90.74	-66.73	478
5	160.00	izq	max	-5841.60	-1598.09	-44.08	-83.42	478
5	160.00		min	-7139.73	-2096.23	-52.60	-104.20	478
5	160.00	der	max	-5841.60	-1598.08	-44.08	-83.42	463
5	160.00		min	-7139.73	-2096.23	-52.60	-104.20	463
5	164.00	izq	max	-5898.79	-2775.66	-34.09	-102.42	463
5	164.00		min	-7209.63	-3756.90	-38.40	-130.88	463
5	164.00	der	max	-5898.79	-2775.68	-34.09	-102.42	463
5	164.00		min	-7209.63	-3756.93	-38.40	-130.88	463
5	168.00	izq	max	-6007.35	-3770.96	-26.25	-119.07	463
5	168.00		min	-7342.32	-5105.94	-27.63	-153.31	463
5	168.00	der	max	-6007.35	-3770.98	-26.25	-119.07	463
5	168.00		min	-7342.32	-5105.97	-27.63	-153.31	463
5	172.00	izq	max	-6100.61	-4204.74	-23.29	-126.79	463
5	172.00		min	-7456.30	-5679.78	-23.62	-163.43	463
5	172.00	der	max	-6100.61	-4204.77	-23.29	-126.79	463
5	172.00		min	-7456.31	-5679.81	-23.62	-163.43	463
5	176.00	izq	max	-6177.35	-3994.61	-25.94	-124.27	463
5	176.00		min	-7550.09	-5377.70	-27.27	-159.64	463
5	176.00	der	max	-6177.35	-3994.57	-25.95	-124.27	463
5	176.00		min	-7550.10	-5377.65	-27.27	-159.64	463
5	180.00	izq	max	-6236.46	-3087.10	-34.68	-110.67	463
5	180.00		min	-7622.34	-4134.44	-39.14	-140.91	463
5	180.00	der	max	-6236.46	-3087.04	-34.68	-110.67	463
5	180.00		min	-7622.34	-4134.36	-39.14	-140.91	463
5	184.00	izq	max	-8230.46	168.92	-83.82	-79.66	463
5	184.00		min	-10059.50	68.15	-101.21	-99.53	463
5	184.00	der	max	-8230.46	168.96	-83.82	-79.66	463
5	184.00		min	-10059.50	68.21	-101.21	-99.53	463
5	188.00	izq	max	-10136.60	1523.60	-115.03	-77.53	463
5	188.00		min	-8293.55	1104.54	-92.84	-65.65	463
5	188.00	der	max	-10127.20	1519.05	-114.90	-77.50	463
5	188.00		min	-8287.94	1100.81	-92.75	-65.65	463
5	192.00	izq	max	-10233.30	2020.23	-71.18	-35.27	463
5	192.00		min	-8375.44	1173.21	-54.85	-34.00	463
5	192.00	der	max	-10233.10	2020.18	-71.18	-35.27	463
5	192.00		min	-8375.28	1173.17	-54.85	-34.00	463
6	196.00	izq	max	-10012.30	1385.12	-112.54	-78.45	463
6	196.00		min	-8193.93	993.23	-90.85	-66.40	463
6	196.00	der	max	-10021.40	1389.45	-112.68	-78.47	463
6	196.00		min	-8199.36	996.79	-90.93	-66.40	463
6	200.00	izq	max	-5842.29	-1596.72	-44.10	-83.41	463
6	200.00		min	-7140.58	-2094.80	-52.62	-104.18	463
6	200.00	der	max	-5842.29	-1596.74	-44.10	-83.41	441
6	200.00		min	-7140.58	-2094.84	-52.62	-104.18	441
6	204.00	izq	max	-5899.40	-2793.20	-33.94	-102.70	441
6	204.00		min	-7210.38	-3782.70	-38.18	-131.29	441
6	204.00	der	max	-5899.41	-2793.25	-33.94	-102.70	441
6	204.00		min	-7210.39	-3782.77	-38.18	-131.29	441
6	208.00	izq	max	-6007.92	-3807.17	-25.93	-119.65	441
6	208.00		min	-7343.01	-5158.66	-27.16	-154.14	441
6	208.00	der	max	-6007.92	-3807.22	-25.93	-119.65	441
6	208.00		min	-7343.02	-5158.72	-27.16	-154.14	441
6	212.00	izq	max	-6101.14	-4259.72	-22.81	-127.66	441
6	212.00		min	-7456.95	-5759.52	-22.91	-164.68	441
6	212.00	der	max	-6101.14	-4259.73	-22.80	-127.66	441
6	212.00		min	-7456.95	-5759.53	-22.91	-164.68	441
6	216.00	izq	max	-6177.81	-4068.24	-25.29	-125.43	441
6	216.00		min	-7550.66	-5484.37	-26.32	-161.32	441
6	216.00	der	max	-6177.82	-4068.21	-25.29	-125.43	441
6	216.00		min	-7550.67	-5484.33	-26.32	-161.32	441
6	220.00	izq	max	-6236.89	-3179.30	-33.85	-112.11	441
6	220.00		min	-7622.86	-4267.88	-37.95	-143.00	441
6	220.00	der	max	-6236.89	-3179.23	-33.85	-112.11	441
6	220.00		min	-7622.86	-4267.79	-37.95	-143.00	441
6	224.00	izq	max	-6273.44	-1871.88	-45.95	-92.02	441
6	224.00		min	-7667.54	-2451.02	-54.69	-115.02	441
6	224.00	der	max	-8230.86	58.16	-82.83	-81.40	441
6	224.00		min	-10059.90	-92.07	-99.77	-102.04	441
6	228.00	izq	max	-10137.00	1336.48	-113.36	-80.46	441
6	228.00		min	-8293.87	975.15	-91.69	-67.68	441
6	228.00	der	max	-10127.80	1331.93	-113.22	-80.44	441
6	228.00		min	-8288.38	971.41	-91.60	-67.68	441
6	232.00	izq	max	-10233.80	1806.53	-69.67	-37.56	441
6	232.00		min	-8375.83	1025.46	-53.81	-35.58	441
6	232.00	der	max	-10234.20	1806.47	-69.67	-37.56	441
6	232.00		min	-8376.06	1025.40	-53.81	-35.58	441
7	236.00	izq	max	-10013.40	1276.79	-111.58	-80.16	441
7	236.00		min	-8194.70	918.80	-90.19	-67.57	441
7	236.00	der	max	-10021.80	1281.12	-111.71	-80.17	441
7	236.00		min	-8199.62	922.34	-90.27	-67.57	441
7	240.00	izq	max	-5841.54	-1596.77	-44.09	-83.40	441
7	240.00		min	-7139.66	-2096.49	-52.59	-104.20	441
7	240.00	der	max	-5841.54	-1596.82	-44.09	-83.40	406
7	240.00		min	-7139.66	-2096.57	-52.59	-104.20	406
7	244.00	izq	max	-5898.69	-2720.41	-34.59	-101.55	406
7	244.00		min	-7209.51	-3679.63	-39.09	-129.67	406
7	244.00	der	max	-5898.70	-2720.46	-34.59	-101.55	406
7	244.00		min	-7209.52	-3679.70	-39.09	-129.67	406
7	248.00	izq	max	-6007.24	-3661.31	-27.23	-117.36	406
7	248.00		min	-7342.18	-4950.47	-29.02	-150.88	406
7	248.00	der	max	-6007.24	-3661.34	-27.23	-117.36	406
7	248.00		min	-7342.19	-4950.52	-29.02	-150.88	406
7	252.00	izq	max	-6100.52	-4041.04	-24.76	-124.23	406
7	252.00		min	-7456.19	-5446.59	-25.71	-159.78	406
7	252.00	der	max	-6100.52	-4041.02	-24.76	-124.23	406
7	252.00		min	-7456.19	-5446.57	-25.71	-159.78	406
7	256.00	izq	max	-6177.26	-3776.82	-27.90	-120.87	406
7	256.00		min	-7549.99	-5066.76	-30.05	-154.78	406
7	256.00	der	max	-6177.26	-3776.80	-27.90	-120.87	406
7	256.00		min	-7549.99	-5066.73	-30.06	-154.77	406
7	260.00	izq	max	-6236.39	-2815.07	-37.11	-106.41	406
7	260.00		min	-7622.25	-3745.50	-42.63	-134.83	406
7	260.00	der	max	-6236.39	-2815.03	-37.12	-106.41	406
7	260.00		min	-7622.26	-3745.45	-42.63	-134.82	406
7	264.00	izq	max	-6273.03	-1434.94	-49.86	-85.18	406
7	264.00		min	-7667.04	-1824.02	-60.31	-105.21	406
7	264.00	der	max	-10059.60	535.07	-105.39	-92.22	406
7	264.00		min	-8230.56	495.21	-86.75	-74.56	406
7	268.00	izq	max	-10136.60	2068.20	-119.92	-69.01	406
7	268.00		min	-8293.55	1484.88	-96.25	-59.70	406
7	268.00	der	max	-10126.70	2063.66	-119.77	-68.98	406
7	268.00		min	-8287.55	1481.15	-96.16	-59.70	406
7	272.00	izq	max	-10232.80	2643.54	-75.60	-28.61	406
7	272.00		min	-8375.05	1608.49	-57.94	-29.34	406
7	272.00	der	max	-10231.10	2643.45	-75.59	-28.60	406
7	272.00		min	-8373.93	1608.42	-57.93	-29.34	406
8	276.00	izq	max	-10010.40	1725.88	-115.58	-73.10	406
8	276.00		min	-8192.60	1234.66	-93.00	-62.61	406
8	276.00	der	max	-10021.50	1730.19	-115.73	-73.14	406
8	276.00		min	-8199.37	1238.21	-93.10	-62.62	406
8	280.00	izq	max	-7746.65	328.67	-80.41	-72.32	406
8	280.00		min	-9468.13	258.68	-97.00	-90.63	406
8	280.00	der	max	-5842.05	-1549.32	-44.52	-82.66	337
8	280.00		min	-7140.28	-2036.65	-53.14	-103.27	337
8	284.00	izq	max	-5899.13	-2940.14	-32.62	-104.99	337
8	284.00		min	-7210.05	-4007.53	-36.16	-134.80	337
8	284.00	der	max	-5899.14	-2940.19	-32.62	-104.99	337
8	284.00		min	-7210.06	-4007.60	-36.16	-134.80	337
8	288.00	izq	max	-6007.65	-4148.87	-22.86	-124.99	337
8	288.00		min	-7342.68	-5666.99	-22.60	-162.09	337
8	288.00	der	max	-6007.65	-4148.92	-22.86	-124.99	337
8	288.00		min	-7342.68	-5667.06	-22.60	-162.09	337
8	292.00	izq	max	-6100.85	-4796.16	-17.99	-136.05	337
8	292.00		min	-7456.60	-6551.35	-15.81	-177.07	337
8	292.00	der	max	-6100.86	-4796.18	-17.99	-136.05	337
8	292.00		min	-7456.61	-6551.38	-15.81	-177.07	337

8	296.00	izq	max	-6177.55	-4799.70	-18.73	-136.87	337
8	296.00		min	-7550.34	-6560.03	-16.66	-178.14	337
8	296.00	der	max	-6177.55	-4799.68	-18.73	-136.87	337
8	296.00		min	-7550.34	-6560.00	-16.67	-178.14	337
8	300.00	izq	max	-6236.63	-4105.75	-25.54	-126.61	337
8	300.00		min	-7622.55	-5627.34	-25.75	-164.27	337
8	300.00	der	max	-6236.63	-4105.72	-25.54	-126.61	337
8	300.00		min	-7622.55	-5627.29	-25.75	-164.27	337
8	304.00	izq	max	-8230.80	-1062.85	-72.78	-98.94	337
8	304.00		min	-10059.90	-1734.77	-85.04	-127.74	337
8	304.00	der	max	-8230.80	-1062.83	-72.78	-98.94	337
8	304.00		min	-10059.90	-1734.74	-85.04	-127.74	337
8	308.00	izq	max	-8293.81	-340.46	-79.88	-88.27	337
8	308.00		min	-10136.90	-589.58	-96.08	-110.59	337
8	308.00	der	max	-8289.67	-344.21	-79.81	-88.28	337
8	308.00		min	-10129.70	-594.14	-95.97	-110.59	337
8	312.00	izq	max	-10235.80	-401.94	-54.01	-61.16	337
8	312.00		min	-8377.20	-484.03	-43.11	-51.71	337
8	312.00	der	max	-10225.30	-402.03	-53.96	-61.10	337
8	312.00		min	-8367.36	-484.11	-43.05	-51.66	337
9	316.00	izq	max	-8186.02	-1848.41	-65.28	-110.78	337
9	316.00		min	-10004.50	-2214.72	-80.18	-134.70	337
9	316.00	der	max	-8199.66	-1844.90	-65.45	-110.86	337
9	316.00		min	-10021.80	-2210.44	-80.39	-134.80	337
9	320.00	izq	max	-0.00	-0.00	0.00 -	0.00 -	337
9	320.00		min	-0.00	-0.00	0.00 -	0.00 -	337
9	320.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	320.00		min	0.00	0.00	0.00 -	0.00 -	0
9	324.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	324.00		min	0.00	0.00	0.00 -	0.00 -	0
9	324.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	324.00		min	0.00	0.00	0.00 -	0.00 -	0
9	328.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	328.00		min	0.00	0.00	0.00 -	0.00 -	0
9	328.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	328.00		min	0.00	0.00	0.00 -	0.00 -	0
9	332.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	332.00		min	0.00	0.00	0.00 -	0.00 -	0
9	332.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	332.00		min	0.00	0.00	0.00 -	0.00 -	0
9	336.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	336.00		min	0.00	0.00	0.00 -	0.00 -	0
9	336.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	336.00		min	0.00	0.00	0.00 -	0.00 -	0
9	340.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	340.00		min	0.00	0.00	0.00 -	0.00 -	0
9	340.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	340.00		min	0.00	0.00	0.00 -	0.00 -	0
9	344.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	344.00		min	0.00	0.00	0.00 -	0.00 -	0
9	344.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	344.00		min	0.00	0.00	0.00 -	0.00 -	0
9	348.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	348.00		min	0.00	0.00	0.00 -	0.00 -	0
9	348.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	348.00		min	0.00	0.00	0.00 -	0.00 -	0
9	352.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
9	352.00		min	0.00	0.00	0.00 -	0.00 -	0
9	352.00	der	max	0.00	0.00	0.00 -	0.00 -	0
9	352.00		min	0.00	0.00	0.00 -	0.00 -	0
10	356.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	356.00		min	0.00	0.00	0.00 -	0.00 -	0
10	356.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	356.00		min	0.00	0.00	0.00 -	0.00 -	0
10	360.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	360.00		min	0.00	0.00	0.00 -	0.00 -	0
10	360.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	360.00		min	0.00	0.00	0.00 -	0.00 -	0
10	364.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	364.00		min	0.00	0.00	0.00 -	0.00 -	0
10	364.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	364.00		min	0.00	0.00	0.00 -	0.00 -	0
10	368.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	368.00		min	0.00	0.00	0.00 -	0.00 -	0
10	368.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	368.00		min	0.00	0.00	0.00 -	0.00 -	0
10	372.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	372.00		min	0.00	0.00	0.00 -	0.00 -	0
10	372.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	372.00		min	0.00	0.00	0.00 -	0.00 -	0
10	376.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	376.00		min	0.00	0.00	0.00 -	0.00 -	0
10	376.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	376.00		min	0.00	0.00	0.00 -	0.00 -	0
10	380.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	380.00		min	0.00	0.00	0.00 -	0.00 -	0
10	380.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	380.00		min	0.00	0.00	0.00 -	0.00 -	0
10	384.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	384.00		min	0.00	0.00	0.00 -	0.00 -	0
10	384.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	384.00		min	0.00	0.00	0.00 -	0.00 -	0
10	388.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	388.00		min	0.00	0.00	0.00 -	0.00 -	0
10	388.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	388.00		min	0.00	0.00	0.00 -	0.00 -	0
10	392.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
10	392.00		min	0.00	0.00	0.00 -	0.00 -	0
10	392.00	der	max	0.00	0.00	0.00 -	0.00 -	0
10	392.00		min	0.00	0.00	0.00 -	0.00 -	0
11	396.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	396.00		min	0.00	0.00	0.00 -	0.00 -	0
11	396.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	396.00		min	0.00	0.00	0.00 -	0.00 -	0
11	400.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	400.00		min	0.00	0.00	0.00 -	0.00 -	0
11	400.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	400.00		min	0.00	0.00	0.00 -	0.00 -	0
11	404.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	404.00		min	0.00	0.00	0.00 -	0.00 -	0
11	404.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	404.00		min	0.00	0.00	0.00 -	0.00 -	0
11	408.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	408.00		min	0.00	0.00	0.00 -	0.00 -	0
11	408.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	408.00		min	0.00	0.00	0.00 -	0.00 -	0
11	412.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	412.00		min	0.00	0.00	0.00 -	0.00 -	0
11	412.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	412.00		min	0.00	0.00	0.00 -	0.00 -	0
11	416.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	416.00		min	0.00	0.00	0.00 -	0.00 -	0
11	416.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	416.00		min	0.00	0.00	0.00 -	0.00 -	0
11	420.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	420.00		min	0.00	0.00	0.00 -	0.00 -	0
11	420.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	420.00		min	0.00	0.00	0.00 -	0.00 -	0
11	424.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	424.00		min	0.00	0.00	0.00 -	0.00 -	0
11	424.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	424.00		min	0.00	0.00	0.00 -	0.00 -	0
11	428.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	428.00		min	0.00	0.00	0.00 -	0.00 -	0
11	428.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	428.00		min	0.00	0.00	0.00 -	0.00 -	0
11	432.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	432.00		min	0.00	0.00	0.00 -	0.00 -	0
11	432.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	432.00		min	0.00	0.00	0.00 -	0.00 -	0
12	436.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	436.00		min	0.00	0.00	0.00 -	0.00 -	0
12	436.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	436.00		min	0.00	0.00	0.00 -	0.00 -	0

12	440.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	440.00		min	0.00	0.00	0.00 -	0.00 -	0
12	440.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	440.00		min	0.00	0.00	0.00 -	0.00 -	0
12	444.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	444.00		min	0.00	0.00	0.00 -	0.00 -	0
12	444.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	444.00		min	0.00	0.00	0.00 -	0.00 -	0
12	448.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	448.00		min	0.00	0.00	0.00 -	0.00 -	0
12	448.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	448.00		min	0.00	0.00	0.00 -	0.00 -	0
12	452.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	452.00		min	0.00	0.00	0.00 -	0.00 -	0
12	452.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	452.00		min	0.00	0.00	0.00 -	0.00 -	0
12	456.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	456.00		min	0.00	0.00	0.00 -	0.00 -	0
12	456.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	456.00		min	0.00	0.00	0.00 -	0.00 -	0
12	460.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	460.00		min	0.00	0.00	0.00 -	0.00 -	0
12	460.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	460.00		min	0.00	0.00	0.00 -	0.00 -	0
12	464.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	464.00		min	0.00	0.00	0.00 -	0.00 -	0
12	464.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	464.00		min	0.00	0.00	0.00 -	0.00 -	0
12	468.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	468.00		min	0.00	0.00	0.00 -	0.00 -	0
12	468.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	468.00		min	0.00	0.00	0.00 -	0.00 -	0
12	472.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	472.00		min	0.00	0.00	0.00 -	0.00 -	0
12	472.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	472.00		min	0.00	0.00	0.00 -	0.00 -	0
13	476.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	476.00		min	0.00	0.00	0.00 -	0.00 -	0
13	476.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	476.00		min	0.00	0.00	0.00 -	0.00 -	0
13	480.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	480.00		min	0.00	0.00	0.00 -	0.00 -	0
13	480.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	480.00		min	0.00	0.00	0.00 -	0.00 -	0
13	484.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	484.00		min	0.00	0.00	0.00 -	0.00 -	0
13	484.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	484.00		min	0.00	0.00	0.00 -	0.00 -	0
13	488.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	488.00		min	0.00	0.00	0.00 -	0.00 -	0
13	488.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	488.00		min	0.00	0.00	0.00 -	0.00 -	0
13	492.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	492.00		min	0.00	0.00	0.00 -	0.00 -	0
13	492.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	492.00		min	0.00	0.00	0.00 -	0.00 -	0
13	496.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	496.00		min	0.00	0.00	0.00 -	0.00 -	0
13	496.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	496.00		min	0.00	0.00	0.00 -	0.00 -	0
13	500.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	500.00		min	0.00	0.00	0.00 -	0.00 -	0
13	500.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	500.00		min	0.00	0.00	0.00 -	0.00 -	0
13	504.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	504.00		min	0.00	0.00	0.00 -	0.00 -	0
13	504.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	504.00		min	0.00	0.00	0.00 -	0.00 -	0
13	508.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	508.00		min	0.00	0.00	0.00 -	0.00 -	0
13	508.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	508.00		min	0.00	0.00	0.00 -	0.00 -	0
13	512.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	512.00		min	0.00	0.00	0.00 -	0.00 -	0
13	512.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	512.00		min	0.00	0.00	0.00 -	0.00 -	0
14	515.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	515.20		min	0.00	0.00	0.00 -	0.00 -	0
14	515.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	515.20		min	0.00	0.00	0.00 -	0.00 -	0
14	518.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	518.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	der	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	540.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80		min	0.00	0.00	0.00 -	0.00 -	0
14	540.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80		min	0.00	0.00	0.00 -	0.00 -	0
14	544.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	544.00		min	0.00	0.00	0.00 -	0.00 -	0

COMPROBACION TENSIONES FASE 9

Factores de ponderación considerados para el pretensado:

- Acciones Desfavorables: 1.1
- Acciones Favorables: 0.9

LEYENDA:
+ : Compresión>fck(j)/1.6
* : Tracción
# : Fisuración
! : Requiere comprobación wk

Vano	x		Pxo	Mmax Mmin	?s ?s	?i ?i	fckj
	[m]		[t]	[tm]	[kg/cm²]	[kg/cm²]	[kg/cm²]
1	0.00	der max	-6215.81	-4074.98	-5.62	-78.07	515
1	0.00	min	-7594.42	-4980.54	-6.86	-95.40	515
1	3.20	izq max	-6247.65	-5660.91	-11.70	-151.05	515
1	3.20	min	-7634.20	-7122.99	-12.45	-187.79	515
1	3.20	der max	-6262.39	-5684.66	-11.64	-151.57	515
1	3.20	min	-7654.04	-7152.02	-12.39	-188.44	515
1	6.40	izq max	-6380.20	-6539.31	-5.15	-166.12	515
1	6.40	min	-7798.03	-8336.19	-3.21	-208.41	515
1	6.40	der max	-6380.21	-6539.31	-5.15	-166.12	515

1	6.40		min	-7798.03	-8336.20	-3.21	-208.41	515
1	9.60	izq	max	-6467.74	-6837.99	-3.35	-171.67	515
1	9.60		min	-7905.02	-8783.94	-0.27	-216.49	515
1	9.60	der	max	-6467.75	-6837.97	-3.35	-171.67	515
1	9.60		min	-7905.02	-8783.93	-0.27	-216.48	515
1	12.80	izq	max	-6457.87	-6404.31	-7.14	-164.78	515
1	12.80		min	-7892.95	-8279.70	-4.67	-208.48	515
1	12.80	der	max	-6457.86	-6404.29	-7.14	-164.78	515
1	12.80		min	-7892.94	-8279.67	-4.67	-208.47	515
1	16.00	izq	max	-6391.29	-5465.80	-14.89	-149.43	515
1	16.00		min	-7811.58	-7101.56	-14.42	-189.23	515
1	16.00	der	max	-6391.29	-5465.79	-14.89	-149.43	515
1	16.00		min	-7811.58	-7101.54	-14.42	-189.23	515
1	19.20	izq	max	-6319.35	-4210.83	-25.43	-129.08	515
1	19.20		min	-7723.65	-5479.75	-28.09	-162.97	515
1	19.20	der	max	-6319.35	-4210.80	-25.43	-129.08	515
1	19.20		min	-7723.65	-5479.72	-28.09	-162.97	515
1	22.40	izq	max	-6293.66	-2709.84	-38.63	-105.34	515
1	22.40		min	-7692.25	-3500.34	-45.53	-131.69	515
1	22.40	der	max	-6293.66	-2709.75	-38.63	-105.33	515
1	22.40		min	-7692.24	-3500.22	-45.53	-131.69	515
1	25.60	izq	max	-6310.57	-1173.93	-52.58	-81.47	515
1	25.60		min	-7712.92	-1421.38	-64.38	-99.37	515
1	25.60	der	max	-6310.58	-1173.83	-52.58	-81.47	515
1	25.60		min	-7712.93	-1421.26	-64.38	-99.37	515
1	28.80	izq	max	-10863.50	-842.11	-101.08	-121.81	515
1	28.80		min	-8888.28	-911.57	-80.71	-103.15	515
1	28.80	der	max	-10839.70	-844.60	-100.82	-121.61	515
1	28.80		min	-8871.39	-913.62	-80.52	-103.01	515
1	32.00	izq	max	-10985.70	750.10	-66.35	-53.02	515
1	32.00		min	-8991.56	126.71	-50.85	-48.60	515
1	32.00	der	max	-10990.60	748.79	-66.37	-53.06	515
1	32.00		min	-8995.08	125.65	-50.86	-48.63	515
2	36.00	izq	max	-10773.60	-165.33	-106.25	-110.32	515
2	36.00		min	-8816.82	-284.15	-85.62	-92.61	515
2	36.00	der	max	-10784.50	-163.79	-106.38	-110.41	515
2	36.00		min	-8823.65	-282.89	-85.70	-92.66	515
2	40.00	izq	max	-13949.90	-5818.68	-87.31	-230.54	515
2	40.00		min	-17049.90	-7242.33	-105.54	-283.81	515
2	40.00	der	max	-6471.58	-1242.57	-53.57	-84.16	510
2	40.00		min	-7909.72	-1649.32	-64.30	-104.90	510
2	44.00	izq	max	-6531.56	-2618.77	-41.83	-106.29	510
2	44.00		min	-7983.02	-3555.00	-47.94	-135.45	510
2	44.00	der	max	-6531.57	-2618.81	-41.83	-106.29	510
2	44.00		min	-7983.03	-3555.05	-47.94	-135.45	510
2	48.00	izq	max	-6644.45	-3816.94	-32.21	-126.16	510
2	48.00		min	-8121.00	-5154.23	-34.98	-161.85	510
2	48.00	der	max	-6644.46	-3816.95	-32.21	-126.17	510
2	48.00		min	-8121.00	-5154.26	-34.98	-161.85	510
2	52.00	izq	max	-6742.04	-4453.82	-27.47	-137.11	510
2	52.00		min	-8240.27	-5978.55	-28.78	-175.94	510
2	52.00	der	max	-6742.04	-4453.85	-27.47	-137.11	510
2	52.00		min	-8240.27	-5978.58	-28.78	-175.94	510
2	56.00	izq	max	-6823.11	-4447.03	-28.34	-137.81	510
2	56.00		min	-8339.35	-5927.26	-30.23	-176.13	510
2	56.00	der	max	-6823.11	-4447.02	-28.34	-137.81	510
2	56.00		min	-8339.35	-5927.24	-30.23	-176.13	510
2	60.00	izq	max	-6886.56	-3742.80	-35.30	-127.43	510
2	60.00		min	-8416.90	-4934.67	-39.91	-161.38	510
2	60.00	der	max	-6886.56	-3742.76	-35.30	-127.43	510
2	60.00		min	-8416.91	-4934.60	-39.91	-161.38	510
2	64.00	izq	max	-8884.96	-688.33	-82.68	-99.62	510
2	64.00		min	-10859.40	-980.66	-99.80	-123.94	510
2	64.00	der	max	-8884.96	-688.33	-82.68	-99.62	510
2	64.00		min	-10859.40	-980.65	-99.80	-123.94	510
2	68.00	izq	max	-10941.30	228.20	-111.46	-105.84	510
2	68.00		min	-8951.93	47.38	-89.94	-88.78	510
2	68.00	der	max	-10933.20	224.77	-111.35	-105.81	510
2	68.00		min	-8947.37	44.56	-89.87	-88.78	510
2	72.00	izq	max	-11045.50	574.66	-65.44	-55.23	510
2	72.00		min	-9039.93	-4.96	-50.19	-50.28	510
2	72.00	der	max	-11043.80	574.65	-65.43	-55.22	510
2	72.00		min	-9038.60	-4.97	-50.18	-50.27	510
3	76.00	izq	max	-10828.50	-133.71	-107.08	-110.38	510
3	76.00		min	-8861.69	-247.51	-86.40	-92.49	510
3	76.00	der	max	-10837.70	-130.55	-107.21	-110.42	510
3	76.00		min	-8867.25	-244.92	-86.48	-92.50	510
3	80.00	izq	max	-7165.02	-4038.68	-35.43	-134.84	510
3	80.00		min	-8757.25	-5078.62	-42.02	-167.03	510
3	80.00	der	max	-5841.64	-1585.16	-44.20	-83.22	497
3	80.00		min	-7139.79	-2079.89	-52.74	-103.94	497
3	84.00	izq	max	-5898.46	-2767.42	-34.16	-102.28	497
3	84.00		min	-7209.23	-3747.18	-38.48	-130.72	497
3	84.00	der	max	-5898.46	-2767.47	-34.16	-102.28	497
3	84.00		min	-7209.23	-3747.25	-38.48	-130.72	497
3	88.00	izq	max	-6007.01	-3769.38	-26.26	-119.05	497
3	88.00		min	-7341.90	-5105.26	-27.63	-153.30	497
3	88.00	der	max	-6007.01	-3769.44	-26.26	-119.05	497
3	88.00		min	-7341.91	-5105.33	-27.63	-153.30	497
3	92.00	izq	max	-6100.29	-4210.51	-23.24	-126.88	497
3	92.00		min	-7455.91	-5688.98	-23.53	-163.57	497
3	92.00	der	max	-6100.30	-4210.51	-23.24	-126.88	497
3	92.00		min	-7455.92	-5688.98	-23.53	-163.57	497
3	96.00	izq	max	-6177.03	-4007.79	-25.82	-124.48	497
3	96.00		min	-7549.71	-5396.90	-27.09	-159.94	497
3	96.00	der	max	-6177.04	-4007.77	-25.82	-124.48	497
3	96.00		min	-7549.71	-5396.87	-27.09	-159.94	497
3	100.00	izq	max	-6236.17	-3107.76	-34.49	-110.99	497
3	100.00		min	-7621.99	-4163.63	-38.88	-141.36	497
3	100.00	der	max	-6236.17	-3107.68	-34.49	-110.99	497
3	100.00		min	-7621.99	-4163.53	-38.88	-141.36	497
3	104.00	izq	max	-8230.25	142.73	-83.58	-80.07	497
3	104.00		min	-10059.20	31.30	-100.87	-100.10	497
3	104.00	der	max	-8230.25	142.77	-83.58	-80.07	497
3	104.00		min	-10059.20	31.36	-100.87	-100.10	497
3	108.00	izq	max	-10135.80	1481.28	-114.64	-78.18	497
3	108.00		min	-8292.90	1074.61	-92.57	-66.12	497
3	108.00	der	max	-10126.40	1476.72	-114.51	-78.16	497
3	108.00		min	-8287.29	1070.87	-92.48	-66.12	497
3	112.00	izq	max	-10233.20	1978.20	-70.89	-35.72	497
3	112.00		min	-8375.33	1144.32	-54.65	-34.30	497
3	112.00	der	max	-10233.20	1978.21	-70.89	-35.72	497
3	112.00		min	-8375.32	1144.33	-54.65	-34.30	497
4	116.00	izq	max	-10012.20	1368.83	-112.40	-78.70	497
4	116.00		min	-8193.81	982.62	-90.75	-66.56	497
4	116.00	der	max	-10021.20	1373.17	-112.53	-78.73	497
4	116.00		min	-8199.13	986.18	-90.84	-66.56	497
4	120.00	izq	max	-5841.51	-1595.11	-44.11	-83.37	497
4	120.00		min	-7139.62	-2092.73	-52.63	-104.14	497
4	120.00	der	max	-5841.51	-1595.12	-44.11	-83.37	489
4	120.00		min	-7139.63	-2092.76	-52.63	-104.14	489
4	124.00	izq	max	-5898.71	-2777.04	-34.08	-102.44	489
4	124.00		min	-7209.54	-3759.48	-38.38	-130.92	489
4	124.00	der	max	-5898.72	-2777.07	-34.08	-102.44	489
4	124.00		min	-7209.54	-3759.53	-38.38	-130.92	489
4	128.00	izq	max	-6007.26	-3776.24	-26.20	-119.16	489
4	128.00		min	-7342.21	-5113.97	-27.55	-153.44	489
4	128.00	der	max	-6007.27	-3776.26	-26.20	-119.16	489
4	128.00		min	-7342.22	-5114.00	-27.55	-153.44	489
4	132.00	izq	max	-6100.53	-4214.08	-23.21	-126.94	489
4	132.00		min	-7456.20	-5693.45	-23.50	-163.64	489
4	132.00	der	max	-6100.53	-4214.08	-23.21	-126.94	489
4	132.00		min	-7456.20	-5693.46	-23.50	-163.64	489
4	136.00	izq	max	-6177.25	-4007.98	-25.82	-124.48	489
4	136.00		min	-7549.98	-5397.02	-27.09	-159.94	489
4	136.00	der	max	-6177.26	-4007.96	-25.82	-124.48	489
4	136.00		min	-7549.98	-5396.99	-27.09	-159.94	489
4	140.00	izq	max	-6236.37	-3104.44	-34.52	-110.94	489
4	140.00		min	-7622.23	-4159.27	-38.92	-141.30	489
4	140.00	der	max	-6236.37	-3104.41	-34.52	-110.94	489
4	140.00		min	-7622.23	-4159.23	-38.92	-141.30	489
4	144.00	izq	max	-6273.04	-1782.72	-46.74	-90.62	489
4	144.00		min	-7667.05	-2321.54	-55.85	-112.99	489
4	144.00	der	max	-6273.04	-1782.67	-46.74	-90.62	489

4	144.00		min	-7667.05	-2321.46	-55.85	-112.99	489
4	148.00	izq	max	-10136.70	1487.09	-114.70	-78.10	489
4	148.00		min	-8293.62	1078.77	-92.61	-66.06	489
4	148.00	der	max	-10127.40	1482.53	-114.57	-78.08	489
4	148.00		min	-8288.04	1075.03	-92.52	-66.06	489
4	152.00	izq	max	-10233.40	1977.87	-70.88	-35.72	489
4	152.00		min	-8375.51	1143.27	-54.64	-34.32	489
4	152.00	der	max	-10233.30	1977.80	-70.88	-35.72	489
4	152.00		min	-8375.41	1143.21	-54.64	-34.32	489
5	156.00	izq	max	-10012.50	1362.74	-112.35	-78.80	489
5	156.00		min	-8194.09	977.16	-90.70	-66.65	489
5	156.00	der	max	-10021.50	1367.10	-112.48	-78.83	489
5	156.00		min	-8199.42	980.74	-90.79	-66.65	489
5	160.00	izq	max	-5841.60	-1597.84	-44.08	-83.42	489
5	160.00		min	-7139.73	-2095.87	-52.60	-104.19	489
5	160.00	der	max	-5841.60	-1597.83	-44.08	-83.42	478
5	160.00		min	-7139.73	-2095.87	-52.60	-104.19	478
5	164.00	izq	max	-5898.78	-2780.28	-34.05	-102.49	478
5	164.00		min	-7209.63	-3763.53	-38.34	-130.98	478
5	164.00	der	max	-5898.79	-2780.30	-34.05	-102.49	478
5	164.00		min	-7209.63	-3763.57	-38.34	-130.98	478
5	168.00	izq	max	-6007.35	-3780.45	-26.17	-119.22	478
5	168.00		min	-7342.32	-5119.57	-27.50	-153.52	478
5	168.00	der	max	-6007.35	-3780.47	-26.17	-119.22	478
5	168.00		min	-7342.32	-5119.60	-27.50	-153.53	478
5	172.00	izq	max	-6100.61	-4219.09	-23.16	-127.02	478
5	172.00		min	-7456.30	-5700.41	-23.43	-163.75	478
5	172.00	der	max	-6100.61	-4219.12	-23.16	-127.02	478
5	172.00		min	-7456.30	-5700.44	-23.43	-163.75	478
5	176.00	izq	max	-6177.35	-4013.82	-25.77	-124.57	478
5	176.00		min	-7550.09	-5405.33	-27.02	-160.07	478
5	176.00	der	max	-6177.35	-4013.79	-25.77	-124.57	478
5	176.00		min	-7550.10	-5405.28	-27.02	-160.07	478
5	180.00	izq	max	-6236.46	-3111.18	-34.46	-111.04	478
5	180.00		min	-7622.34	-4169.06	-38.83	-141.45	478
5	180.00	der	max	-6236.46	-3111.13	-34.46	-111.04	478
5	180.00		min	-7622.34	-4168.98	-38.83	-141.45	478
5	184.00	izq	max	-8230.46	139.96	-83.56	-80.11	478
5	184.00		min	-10059.50	26.53	-100.83	-100.18	478
5	184.00	der	max	-8230.46	140.01	-83.56	-80.11	478
5	184.00		min	-10059.50	26.59	-100.83	-100.18	478
5	188.00	izq	max	-10136.60	1474.98	-114.60	-78.29	478
5	188.00		min	-8293.55	1070.72	-92.54	-66.18	478
5	188.00	der	max	-10127.30	1470.43	-114.46	-78.26	478
5	188.00		min	-8287.97	1066.99	-92.45	-66.18	478
5	192.00	izq	max	-10233.40	1964.61	-70.79	-35.86	478
5	192.00		min	-8375.47	1134.53	-54.58	-34.41	478
5	192.00	der	max	-10233.30	1964.56	-70.79	-35.86	478
5	192.00		min	-8375.41	1134.49	-54.58	-34.41	478
6	196.00	izq	max	-10012.50	1356.63	-112.29	-78.90	478
6	196.00		min	-8194.06	973.42	-90.67	-66.71	478
6	196.00	der	max	-10021.40	1360.96	-112.42	-78.92	478
6	196.00		min	-8199.36	976.97	-90.76	-66.71	478
6	200.00	izq	max	-5842.29	-1597.67	-44.09	-83.42	478
6	200.00		min	-7140.57	-2096.16	-52.60	-104.20	478
6	200.00	der	max	-5842.29	-1597.69	-44.09	-83.42	463
6	200.00		min	-7140.58	-2096.20	-52.60	-104.20	463
6	204.00	izq	max	-5899.40	-2775.27	-34.10	-102.42	463
6	204.00		min	-7210.38	-3756.93	-38.41	-130.89	463
6	204.00	der	max	-5899.41	-2775.32	-34.10	-102.42	463
6	204.00		min	-7210.39	-3757.00	-38.41	-130.89	463
6	208.00	izq	max	-6007.91	-3770.38	-26.26	-119.07	463
6	208.00		min	-7343.01	-5105.76	-27.64	-153.32	463
6	208.00	der	max	-6007.92	-3770.42	-26.26	-119.07	463
6	208.00		min	-7343.01	-5105.81	-27.63	-153.32	463
6	212.00	izq	max	-6101.14	-4204.05	-23.30	-126.79	463
6	212.00		min	-7456.95	-5679.49	-23.63	-163.43	463
6	212.00	der	max	-6101.14	-4204.06	-23.30	-126.79	463
6	212.00		min	-7456.95	-5679.50	-23.63	-163.43	463
6	216.00	izq	max	-6177.81	-3993.70	-25.96	-124.26	463
6	216.00		min	-7550.66	-5377.21	-27.28	-159.64	463
6	216.00	der	max	-6177.82	-3993.68	-25.96	-124.26	463
6	216.00		min	-7550.66	-5377.17	-27.28	-159.64	463
6	220.00	izq	max	-6236.88	-3085.90	-34.69	-110.65	463
6	220.00		min	-7622.86	-4133.59	-39.15	-140.90	463
6	220.00	der	max	-6236.89	-3085.82	-34.69	-110.65	463
6	220.00		min	-7622.86	-4133.50	-39.15	-140.90	463
6	224.00	izq	max	-6273.44	-1759.61	-46.95	-90.27	463
6	224.00		min	-7667.54	-2289.61	-56.14	-112.50	463
6	224.00	der	max	-8230.86	170.44	-83.84	-79.64	463
6	224.00		min	-10059.90	69.35	-101.22	-99.51	463
6	228.00	izq	max	-10137.00	1525.03	-115.05	-77.51	463
6	228.00		min	-8293.87	1106.30	-92.86	-65.63	463
6	228.00	der	max	-10127.60	1520.48	-114.91	-77.49	463
6	228.00		min	-8288.25	1102.56	-92.77	-65.63	463
6	232.00	izq	max	-10233.60	2022.21	-71.20	-35.25	463
6	232.00		min	-8375.70	1175.47	-54.87	-33.97	463
6	232.00	der	max	-10233.40	2022.15	-71.20	-35.25	463
6	232.00		min	-8375.55	1175.43	-54.87	-33.97	463
7	236.00	izq	max	-10012.60	1387.53	-112.57	-78.42	463
7	236.00		min	-8194.19	995.84	-90.87	-66.36	463
7	236.00	der	max	-10021.80	1391.85	-112.70	-78.44	463
7	236.00		min	-8199.62	999.39	-90.96	-66.36	463
7	240.00	izq	max	-5841.53	-1592.71	-44.13	-83.34	463
7	240.00		min	-7139.66	-2090.72	-52.64	-104.11	463
7	240.00	der	max	-5841.54	-1592.77	-44.13	-83.34	441
7	240.00		min	-7139.66	-2090.80	-52.64	-104.11	441
7	244.00	izq	max	-5898.69	-2789.34	-33.97	-102.63	441
7	244.00		min	-7209.51	-3778.82	-38.20	-131.22	441
7	244.00	der	max	-5898.70	-2789.39	-33.97	-102.63	441
7	244.00		min	-7209.52	-3778.89	-38.20	-131.22	441
7	248.00	izq	max	-6007.24	-3803.21	-25.96	-119.58	441
7	248.00		min	-7342.18	-5154.60	-27.19	-154.07	441
7	248.00	der	max	-6007.24	-3803.25	-25.96	-119.58	441
7	248.00		min	-7342.18	-5154.65	-27.19	-154.07	441
7	252.00	izq	max	-6100.52	-4255.93	-22.83	-127.59	441
7	252.00		min	-7456.19	-5755.67	-22.94	-164.62	441
7	252.00	der	max	-6100.52	-4255.91	-22.83	-127.59	441
7	252.00		min	-7456.19	-5755.66	-22.94	-164.62	441
7	256.00	izq	max	-6177.26	-4064.70	-25.32	-125.37	441
7	256.00		min	-7549.98	-5480.80	-26.34	-161.25	441
7	256.00	der	max	-6177.26	-4064.68	-25.32	-125.37	441
7	256.00		min	-7549.99	-5480.77	-26.34	-161.25	441
7	260.00	izq	max	-6236.39	-3175.92	-33.88	-112.05	441
7	260.00		min	-7622.25	-4264.49	-37.97	-142.95	441
7	260.00	der	max	-6236.39	-3175.88	-33.88	-112.05	441
7	260.00		min	-7622.26	-4264.44	-37.97	-142.94	441
7	264.00	izq	max	-6273.03	-1868.77	-45.97	-91.97	441
7	264.00		min	-7667.04	-2447.95	-54.71	-114.97	441
7	264.00	der	max	-8230.56	61.39	-82.86	-81.35	441
7	264.00		min	-10059.60	-88.87	-99.80	-101.99	441
7	268.00	izq	max	-10136.60	1339.31	-113.38	-80.41	441
7	268.00		min	-8293.55	978.07	-91.71	-67.63	441
7	268.00	der	max	-10127.40	1334.77	-113.24	-80.39	441
7	268.00		min	-8288.05	974.34	-91.62	-67.63	441
7	272.00	izq	max	-10233.50	1809.72	-69.69	-37.52	441
7	272.00		min	-8375.55	1028.71	-53.83	-35.54	441
7	272.00	der	max	-10233.80	1809.64	-69.69	-37.52	441
7	272.00		min	-8375.78	1028.65	-53.83	-35.54	441
8	276.00	izq	max	-10013.10	1279.72	-111.61	-80.11	441
8	276.00		min	-8194.45	921.77	-90.21	-67.52	441
8	276.00	der	max	-10021.50	1284.05	-111.73	-80.12	441
8	276.00		min	-8199.37	925.33	-90.29	-67.52	441
8	280.00	izq	max	-7746.65	282.59	-80.00	-73.05	441
8	280.00		min	-9468.13	200.07	-96.48	-91.55	441
8	280.00	der	max	-5842.05	-1595.39	-44.11	-83.38	406
8	280.00		min	-7140.28	-2095.25	-52.61	-104.19	406
8	284.00	izq	max	-5899.13	-2719.40	-34.60	-101.54	406
8	284.00		min	-7210.05	-3678.58	-39.11	-129.66	406
8	284.00	der	max	-5899.14	-2719.44	-34.60	-101.54	406
8	284.00		min	-7210.05	-3678.63	-39.11	-129.66	406
8	288.00	izq	max	-6007.64	-3661.31	-27.24	-117.36	406
8	288.00		min	-7342.68	-4950.46	-29.03	-150.88	406
8	288.00	der	max	-6007.65	-3661.35	-27.24	-117.36	406

8	288.00		min	-7342.68	-4950.52	-29.02	-150.88	406	10	360.00		min	0.00	0.00	0.00	-	0.00	-	0
8	292.00	izq	max	-6100.85	-4041.80	-24.76	-124.25	406	10	364.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
8	292.00		min	-7456.60	-5447.29	-25.71	-159.80	406	10	364.00		min	0.00	0.00	0.00	-	0.00	-	0
8	292.00	der	max	-6100.86	-4041.80	-24.76	-124.25	406	10	364.00	der	max	0.00	0.00	0.00	-	0.00	-	0
8	292.00		min	-7456.60	-5447.29	-25.71	-159.80	406	10	364.00		min	0.00	0.00	0.00	-	0.00	-	0
8	296.00	izq	max	-6177.55	-3778.51	-27.89	-120.89	406	10	368.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
8	296.00		min	-7550.34	-5068.38	-30.04	-154.80	406	10	368.00		min	0.00	0.00	0.00	-	0.00	-	0
8	296.00	der	max	-6177.55	-3778.46	-27.89	-120.89	406	10	368.00	der	max	0.00	0.00	0.00	-	0.00	-	0
8	296.00		min	-7550.34	-5068.31	-30.04	-154.80	406	10	368.00		min	0.00	0.00	0.00	-	0.00	-	0
8	300.00	izq	max	-6236.63	-2817.74	-37.09	-106.45	406	10	372.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
8	300.00		min	-7622.55	-3748.12	-42.61	-134.87	406	10	372.00		min	0.00	0.00	0.00	-	0.00	-	0
8	300.00	der	max	-6236.63	-2817.69	-37.09	-106.45	406	10	372.00	der	max	0.00	0.00	0.00	-	0.00	-	0
8	300.00		min	-7622.55	-3748.06	-42.61	-134.87	406	10	372.00		min	0.00	0.00	0.00	-	0.00	-	0
8	304.00	izq	max	-10059.90	532.08	-105.37	-92.27	406	10	376.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
8	304.00		min	-8230.80	492.03	-86.72	-74.61	406	10	376.00		min	0.00	0.00	0.00	-	0.00	-	0
8	304.00	der	max	-10059.90	532.13	-105.37	-92.27	406	10	376.00	der	max	0.00	0.00	0.00	-	0.00	-	0
8	304.00		min	-8230.80	492.06	-86.72	-74.61	406	10	376.00		min	0.00	0.00	0.00	-	0.00	-	0
8	308.00	izq	max	-10136.90	2064.79	-119.89	-69.06	406	10	380.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
8	308.00		min	-8293.81	1481.20	-96.22	-59.76	406	10	380.00		min	0.00	0.00	0.00	-	0.00	-	0
8	308.00	der	max	-10127.00	2060.24	-119.75	-69.03	406	10	380.00	der	max	0.00	0.00	0.00	-	0.00	-	0
8	308.00		min	-8287.82	1477.46	-96.13	-59.76	406	10	380.00		min	0.00	0.00	0.00	-	0.00	-	0
8	312.00	izq	max	-10233.10	2640.03	-75.58	-28.65	406	10	384.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
8	312.00		min	-8375.35	1604.48	-57.91	-29.39	406	10	384.00		min	0.00	0.00	0.00	-	0.00	-	0
8	312.00	der	max	-10231.50	2639.96	-75.57	-28.64	406	10	384.00	der	max	0.00	0.00	0.00	-	0.00	-	0
8	312.00		min	-8374.23	1604.42	-57.91	-29.38	406	10	384.00		min	0.00	0.00	0.00	-	0.00	-	0
9	316.00	izq	max	-10010.70	1723.14	-115.56	-73.15	406	10	388.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	316.00		min	-8192.90	1231.35	-92.97	-62.66	406	10	388.00		min	0.00	0.00	0.00	-	0.00	-	0
9	316.00	der	max	-10021.80	1727.49	-115.71	-73.19	406	10	388.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	316.00		min	-8199.66	1234.92	-93.07	-62.67	406	10	388.00		min	0.00	0.00	0.00	-	0.00	-	0
9	320.00	izq	max	-5841.85	-1552.73	-44.49	-82.71	406	10	392.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	320.00		min	-7140.04	-2039.66	-53.11	-103.31	406	10	392.00		min	0.00	0.00	0.00	-	0.00	-	0
9	320.00	der	max	-5841.85	-1552.79	-44.49	-82.71	337	10	392.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	320.00		min	-7140.04	-2039.73	-53.11	-103.31	337	10	392.00		min	0.00	0.00	0.00	-	0.00	-	0
9	324.00	izq	max	-5899.13	-2943.35	-32.59	-105.04	337	11	396.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	324.00		min	-7210.05	-4010.47	-36.13	-134.85	337	11	396.00		min	0.00	0.00	0.00	-	0.00	-	0
9	324.00	der	max	-5899.14	-2943.41	-32.59	-105.04	337	11	396.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	324.00		min	-7210.06	-4010.55	-36.13	-134.85	337	11	396.00		min	0.00	0.00	0.00	-	0.00	-	0
9	328.00	izq	max	-6007.65	-4151.30	-22.84	-125.03	337	11	400.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	328.00		min	-7342.68	-5669.11	-22.58	-162.13	337	11	400.00		min	0.00	0.00	0.00	-	0.00	-	0
9	328.00	der	max	-6007.65	-4151.36	-22.84	-125.03	337	11	400.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	328.00		min	-7342.69	-5669.19	-22.58	-162.13	337	11	400.00		min	0.00	0.00	0.00	-	0.00	-	0
9	332.00	izq	max	-6100.90	-4798.04	-17.97	-136.08	337	11	404.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	332.00		min	-7456.65	-6552.97	-15.79	-177.10	337	11	404.00		min	0.00	0.00	0.00	-	0.00	-	0
9	332.00	der	max	-6100.90	-4798.05	-17.97	-136.08	337	11	404.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	332.00		min	-7456.65	-6552.99	-15.79	-177.10	337	11	404.00		min	0.00	0.00	0.00	-	0.00	-	0
9	336.00	izq	max	-6177.59	-4800.83	-18.72	-136.89	337	11	408.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	336.00		min	-7550.39	-6560.88	-16.66	-178.16	337	11	408.00		min	0.00	0.00	0.00	-	0.00	-	0
9	336.00	der	max	-6177.60	-4800.82	-18.72	-136.89	337	11	408.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	336.00		min	-7550.40	-6560.88	-16.66	-178.16	337	11	408.00		min	0.00	0.00	0.00	-	0.00	-	0
9	340.00	izq	max	-6236.70	-4106.04	-25.54	-126.61	337	11	412.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	340.00		min	-7622.63	-5627.32	-25.75	-164.27	337	11	412.00		min	0.00	0.00	0.00	-	0.00	-	0
9	340.00	der	max	-6236.70	-4106.00	-25.54	-126.61	337	11	412.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	340.00		min	-7622.63	-5627.27	-25.75	-164.27	337	11	412.00		min	0.00	0.00	0.00	-	0.00	-	0
9	344.00	izq	max	-8230.81	-1062.69	-72.78	-98.94	337	11	416.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	344.00		min	-10059.90	-1734.39	-85.04	-127.74	337	11	416.00		min	0.00	0.00	0.00	-	0.00	-	0
9	344.00	der	max	-8230.82	-1062.65	-72.78	-98.93	337	11	416.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	344.00		min	-10059.90	-1734.34	-85.04	-127.73	337	11	416.00		min	0.00	0.00	0.00	-	0.00	-	0
9	348.00	izq	max	-8293.85	-339.82	-79.89	-88.26	337	11	420.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	348.00		min	-10136.90	-588.70	-96.09	-110.58	337	11	420.00		min	0.00	0.00	0.00	-	0.00	-	0
9	348.00	der	max	-8289.70	-343.56	-79.81	-88.27	337	11	420.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	348.00		min	-10129.70	-593.26	-95.97	-110.58	337	11	420.00		min	0.00	0.00	0.00	-	0.00	-	0
9	352.00	izq	max	-10235.70	-401.80	-54.01	-61.16	337	11	424.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
9	352.00		min	-8377.10	-483.88	-43.11	-51.71	337	11	424.00		min	0.00	0.00	0.00	-	0.00	-	0
9	352.00	der	max	-10225.20	-401.91	-53.96	-61.10	337	11	424.00	der	max	0.00	0.00	0.00	-	0.00	-	0
9	352.00		min	-8367.25	-483.97	-43.05	-51.66	337	11	424.00		min	0.00	0.00	0.00	-	0.00	-	0
10	356.00	izq	max	-8185.96	-1848.76	-65.28	-110.78	337	11	428.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
10	356.00		min	-10004.40	-2215.15	-80.17	-134.70	337	11	428.00		min	0.00	0.00	0.00	-	0.00	-	0
10	356.00	der	max	-8199.60	-1845.24	-65.45	-110.87	337	11	428.00	der	max	0.00	0.00	0.00	-	0.00	-	0
10	356.00		min	-10021.70	-2210.85	-80.39	-134.81	337	11	428.00		min	0.00	0.00	0.00	-	0.00	-	0
10	360.00	izq	max	0.00	-0.01	0.00	- 0.00	- 337	11	432.00	izq	max	0.00	0.00	0.00	-	0.00	-	0
10	360.00		min	0.00	-0.02	0.00	- 0.00	- 337	11	432.00		min	0.00	0.00	0.00	-	0.00	-	0
10	360.00	der	max	0.00	0.00	0.00	- 0.00	- 0	11	432.00	der	max	0.00	0.00	0.00	-	0.00	-	0

11	432.00		min	0.00	0.00	0.00 -	0.00 -	0
12	436.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	436.00		min	0.00	0.00	0.00 -	0.00 -	0
12	436.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	436.00		min	0.00	0.00	0.00 -	0.00 -	0
12	440.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	440.00		min	0.00	0.00	0.00 -	0.00 -	0
12	440.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	440.00		min	0.00	0.00	0.00 -	0.00 -	0
12	444.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	444.00		min	0.00	0.00	0.00 -	0.00 -	0
12	444.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	444.00		min	0.00	0.00	0.00 -	0.00 -	0
12	448.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	448.00		min	0.00	0.00	0.00 -	0.00 -	0
12	448.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	448.00		min	0.00	0.00	0.00 -	0.00 -	0
12	452.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	452.00		min	0.00	0.00	0.00 -	0.00 -	0
12	452.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	452.00		min	0.00	0.00	0.00 -	0.00 -	0
12	456.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	456.00		min	0.00	0.00	0.00 -	0.00 -	0
12	456.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	456.00		min	0.00	0.00	0.00 -	0.00 -	0
12	460.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	460.00		min	0.00	0.00	0.00 -	0.00 -	0
12	460.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	460.00		min	0.00	0.00	0.00 -	0.00 -	0
12	464.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	464.00		min	0.00	0.00	0.00 -	0.00 -	0
12	464.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	464.00		min	0.00	0.00	0.00 -	0.00 -	0
12	468.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	468.00		min	0.00	0.00	0.00 -	0.00 -	0
12	468.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	468.00		min	0.00	0.00	0.00 -	0.00 -	0
12	472.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	472.00		min	0.00	0.00	0.00 -	0.00 -	0
12	472.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	472.00		min	0.00	0.00	0.00 -	0.00 -	0
13	476.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	476.00		min	0.00	0.00	0.00 -	0.00 -	0
13	476.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	476.00		min	0.00	0.00	0.00 -	0.00 -	0
13	480.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	480.00		min	0.00	0.00	0.00 -	0.00 -	0
13	480.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	480.00		min	0.00	0.00	0.00 -	0.00 -	0
13	484.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	484.00		min	0.00	0.00	0.00 -	0.00 -	0
13	484.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	484.00		min	0.00	0.00	0.00 -	0.00 -	0
13	488.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	488.00		min	0.00	0.00	0.00 -	0.00 -	0
13	488.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	488.00		min	0.00	0.00	0.00 -	0.00 -	0
13	492.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	492.00		min	0.00	0.00	0.00 -	0.00 -	0
13	492.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	492.00		min	0.00	0.00	0.00 -	0.00 -	0
13	496.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	496.00		min	0.00	0.00	0.00 -	0.00 -	0
13	496.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	496.00		min	0.00	0.00	0.00 -	0.00 -	0
13	500.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	500.00		min	0.00	0.00	0.00 -	0.00 -	0
13	500.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	500.00		min	0.00	0.00	0.00 -	0.00 -	0
13	504.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	504.00		min	0.00	0.00	0.00 -	0.00 -	0
13	504.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	504.00		min	0.00	0.00	0.00 -	0.00 -	0
13	508.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	508.00		min	0.00	0.00	0.00 -	0.00 -	0
13	508.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	508.00		min	0.00	0.00	0.00 -	0.00 -	0
13	512.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	512.00		min	0.00	0.00	0.00 -	0.00 -	0
13	512.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	512.00		min	0.00	0.00	0.00 -	0.00 -	0
14	515.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	515.20		min	0.00	0.00	0.00 -	0.00 -	0
14	515.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	515.20		min	0.00	0.00	0.00 -	0.00 -	0
14	518.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	518.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	der	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	540.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80		min	0.00	0.00	0.00 -	0.00 -	0
14	540.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80		min	0.00	0.00	0.00 -	0.00 -	0
14	544.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	544.00		min	0.00	0.00	0.00 -	0.00 -	0

COMPROBACION TENSIONES FASE 10

Factores de ponderación considerados para el pretensado:

- Acciones Desfavorables: 1.1
- Acciones Favorables: 0.9

LEYENDA:
+ : Compresión>fck(j)/1.6
* : Tracción
# : Fisuración
! : Requiere comprobación wk

Vano	x		Pxo	Mmax Mmin	?s ?s	?i ?i	fckj
	[m]		[t]	[tm]	[kg/cm²]	[kg/cm²]	[kg/cm²]
1	0.00	der max	-6215.81	-4074.98	-5.62	-78.07	519
1	0.00	min	-7594.42	-4980.54	-6.86	-95.40	519
1	3.20	izq max	-6247.65	-5660.91	-11.70	-151.05	519
1	3.20	min	-7634.20	-7122.98	-12.45	-187.79	519

1	3.20	der	max	-6262.39	-5684.65	-11.64	-151.57	519
1	3.20		min	-7654.03	-7152.01	-12.39	-188.44	519
1	6.40	izq	max	-6380.20	-6539.30	-5.15	-166.12	519
1	6.40		min	-7798.03	-8336.18	-3.21	-208.41	519
1	6.40	der	max	-6380.21	-6539.30	-5.15	-166.12	519
1	6.40		min	-7798.03	-8336.19	-3.21	-208.41	519
1	9.60	izq	max	-6467.74	-6837.97	-3.35	-171.67	519
1	9.60		min	-7905.02	-8783.92	-0.27	-216.48	519
1	9.60	der	max	-6467.74	-6837.96	-3.35	-171.67	519
1	9.60		min	-7905.02	-8783.91	-0.27	-216.48	519
1	12.80	izq	max	-6457.87	-6404.30	-7.14	-164.78	519
1	12.80		min	-7892.95	-8279.67	-4.67	-208.47	519
1	12.80	der	max	-6457.86	-6404.27	-7.14	-164.78	519
1	12.80		min	-7892.94	-8279.65	-4.67	-208.47	519
1	16.00	izq	max	-6391.29	-5465.78	-14.89	-149.43	519
1	16.00		min	-7811.58	-7101.53	-14.42	-189.23	519
1	16.00	der	max	-6391.29	-5465.76	-14.89	-149.43	519
1	16.00		min	-7811.58	-7101.51	-14.42	-189.23	519
1	19.20	izq	max	-6319.35	-4210.80	-25.43	-129.08	519
1	19.20		min	-7723.65	-5479.71	-28.09	-162.97	519
1	19.20	der	max	-6319.35	-4210.77	-25.43	-129.08	519
1	19.20		min	-7723.65	-5479.68	-28.09	-162.97	519
1	22.40	izq	max	-6293.66	-2709.81	-38.63	-105.33	519
1	22.40		min	-7692.25	-3500.30	-45.53	-131.69	519
1	22.40	der	max	-6293.66	-2709.71	-38.63	-105.33	519
1	22.40		min	-7692.24	-3500.17	-45.53	-131.69	519
1	25.60	izq	max	-6310.57	-1173.89	-52.58	-81.47	519
1	25.60		min	-7712.92	-1421.33	-64.38	-99.37	519
1	25.60	der	max	-6310.58	-1173.79	-52.58	-81.47	519
1	25.60		min	-7712.93	-1421.20	-64.38	-99.37	519
1	28.80	izq	max	-10863.50	-842.05	-101.08	-121.81	519
1	28.80		min	-8888.28	-911.53	-80.71	-103.14	519
1	28.80	der	max	-10839.70	-844.54	-100.82	-121.61	519
1	28.80		min	-8871.39	-913.58	-80.52	-103.01	519
1	32.00	izq	max	-10985.70	750.17	-66.35	-53.02	519
1	32.00		min	-8991.56	126.76	-50.85	-48.60	519
1	32.00	der	max	-10990.60	748.86	-66.37	-53.06	519
1	32.00		min	-8995.08	125.69	-50.86	-48.63	519
2	36.00	izq	max	-10773.60	-165.29	-106.25	-110.32	519
2	36.00		min	-8816.82	-284.13	-85.62	-92.61	519
2	36.00	der	max	-10784.50	-163.76	-106.38	-110.41	519
2	36.00		min	-8823.65	-282.86	-85.70	-92.66	519
2	40.00	izq	max	-13949.90	-5818.67	-87.31	-230.54	519
2	40.00		min	-17049.90	-7242.33	-105.54	-283.81	519
2	40.00	der	max	-6471.58	-1242.56	-53.57	-84.16	515
2	40.00		min	-7909.71	-1649.32	-64.30	-104.90	515
2	44.00	izq	max	-6531.56	-2618.79	-41.83	-106.29	515
2	44.00		min	-7983.02	-3555.03	-47.94	-135.45	515
2	44.00	der	max	-6531.57	-2618.83	-41.83	-106.29	515
2	44.00		min	-7983.03	-3555.08	-47.94	-135.45	515
2	48.00	izq	max	-6644.45	-3816.98	-32.21	-126.17	515
2	48.00		min	-8121.00	-5154.29	-34.98	-161.85	515
2	48.00	der	max	-6644.46	-3816.99	-32.21	-126.17	515
2	48.00		min	-8121.00	-5154.32	-34.98	-161.86	515
2	52.00	izq	max	-6742.04	-4453.89	-27.47	-137.11	515
2	52.00		min	-8240.27	-5978.65	-28.78	-175.95	515
2	52.00	der	max	-6742.04	-4453.91	-27.47	-137.11	515
2	52.00		min	-8240.27	-5978.68	-28.78	-175.95	515
2	56.00	izq	max	-6823.11	-4447.11	-28.34	-137.81	515
2	56.00		min	-8339.35	-5927.38	-30.23	-176.13	515
2	56.00	der	max	-6823.11	-4447.10	-28.34	-137.81	515
2	56.00		min	-8339.35	-5927.37	-30.23	-176.13	515
2	60.00	izq	max	-6886.56	-3742.91	-35.29	-127.43	515
2	60.00		min	-8416.90	-4934.82	-39.91	-161.38	515
2	60.00	der	max	-6886.56	-3742.86	-35.30	-127.43	515
2	60.00		min	-8416.91	-4934.76	-39.91	-161.38	515
2	64.00	izq	max	-8884.96	-688.46	-82.67	-99.62	515
2	64.00		min	-10859.40	-980.85	-99.80	-123.94	515
2	64.00	der	max	-8884.96	-688.46	-82.67	-99.62	515
2	64.00		min	-10859.40	-980.84	-99.80	-123.94	515
2	68.00	izq	max	-10941.30	227.98	-111.46	-105.85	515
2	68.00		min	-8951.93	47.22	-89.94	-88.78	515
2	68.00	der	max	-10933.20	224.55	-111.34	-105.82	515
2	68.00		min	-8947.37	44.41	-89.87	-88.78	515
2	72.00	izq	max	-11045.50	574.41	-65.44	-55.23	515
2	72.00		min	-9039.93	-5.13	-50.19	-50.28	515
2	72.00	der	max	-11043.80	574.40	-65.43	-55.22	515
2	72.00		min	-9038.60	-5.14	-50.18	-50.27	515
3	76.00	izq	max	-10828.50	-133.84	-107.08	-110.38	515
3	76.00		min	-8861.69	-247.60	-86.39	-92.49	515
3	76.00	der	max	-10837.70	-130.68	-107.21	-110.42	515
3	76.00		min	-8867.25	-245.01	-86.48	-92.51	515
3	80.00	izq	max	-7165.02	-4038.68	-35.43	-134.84	515
3	80.00		min	-8757.25	-5078.63	-42.02	-167.03	515
3	80.00	der	max	-5841.64	-1585.17	-44.20	-83.22	504
3	80.00		min	-7139.79	-2079.90	-52.74	-103.94	504
3	84.00	izq	max	-5898.45	-2767.34	-34.16	-102.28	504
3	84.00		min	-7209.23	-3747.07	-38.48	-130.72	504
3	84.00	der	max	-5898.46	-2767.39	-34.16	-102.28	504
3	84.00		min	-7209.23	-3747.14	-38.48	-130.72	504
3	88.00	izq	max	-6007.01	-3769.22	-26.26	-119.04	504
3	88.00		min	-7341.90	-5105.02	-27.63	-153.29	504
3	88.00	der	max	-6007.01	-3769.27	-26.26	-119.04	504
3	88.00		min	-7341.91	-5105.09	-27.63	-153.29	504
3	92.00	izq	max	-6100.29	-4210.26	-23.24	-126.88	504
3	92.00		min	-7455.91	-5688.62	-23.54	-163.56	504
3	92.00	der	max	-6100.30	-4210.26	-23.24	-126.88	504
3	92.00		min	-7455.92	-5688.63	-23.54	-163.56	504
3	96.00	izq	max	-6177.03	-4007.46	-25.83	-124.47	504
3	96.00		min	-7549.71	-5396.42	-27.10	-159.93	504
3	96.00	der	max	-6177.04	-4007.44	-25.83	-124.47	504
3	96.00		min	-7549.71	-5396.39	-27.10	-159.93	504
3	100.00	izq	max	-6236.17	-3107.34	-34.49	-110.98	504
3	100.00		min	-7621.99	-4163.03	-38.88	-141.36	504
3	100.00	der	max	-6236.17	-3107.27	-34.49	-110.98	504
3	100.00		min	-7621.99	-4162.93	-38.88	-141.35	504
3	104.00	izq	max	-8230.25	143.23	-83.59	-80.06	504
3	104.00		min	-10059.20	32.02	-100.88	-100.09	504
3	104.00	der	max	-8230.25	143.28	-83.59	-80.06	504
3	104.00		min	-10059.20	32.08	-100.88	-100.09	504
3	108.00	izq	max	-10135.80	1482.12	-114.65	-78.17	504
3	108.00		min	-8292.90	1075.20	-92.57	-66.11	504
3	108.00	der	max	-10126.40	1477.56	-114.52	-78.14	504
3	108.00		min	-8287.28	1071.45	-92.48	-66.11	504
3	112.00	izq	max	-10233.20	1979.16	-70.89	-35.71	504
3	112.00		min	-8375.33	1144.99	-54.65	-34.30	504
3	112.00	der	max	-10233.20	1979.17	-70.89	-35.71	504
3	112.00		min	-8375.32	1145.00	-54.65	-34.30	504
4	116.00	izq	max	-10012.20	1369.32	-112.40	-78.70	504
4	116.00		min	-8193.81	982.96	-90.75	-66.56	504
4	116.00	der	max	-10021.20	1373.66	-112.53	-78.72	504
4	116.00		min	-8199.13	986.52	-90.84	-66.56	504
4	120.00	izq	max	-5841.51	-1595.09	-44.11	-83.37	504
4	120.00		min	-7139.62	-2092.70	-52.63	-104.14	504
4	120.00	der	max	-5841.51	-1595.10	-44.11	-83.37	497
4	120.00		min	-7139.62	-2092.73	-52.63	-104.14	497
4	124.00	izq	max	-5898.71	-2777.34	-34.08	-102.44	497
4	124.00		min	-7209.54	-3759.92	-38.37	-130.92	497
4	124.00	der	max	-5898.72	-2777.38	-34.08	-102.44	497
4	124.00		min	-7209.54	-3759.98	-38.37	-130.92	497
4	128.00	izq	max	-6007.26	-3776.88	-26.20	-119.17	497
4	128.00		min	-7342.21	-5114.88	-27.55	-153.45	497
4	128.00	der	max	-6007.27	-3776.90	-26.20	-119.17	497
4	128.00		min	-7342.22	-5114.91	-27.55	-153.45	497
4	132.00	izq	max	-6100.53	-4215.04	-23.20	-126.95	497
4	132.00		min	-7456.20	-5694.84	-23.48	-163.66	497
4	132.00	der	max	-6100.53	-4215.04	-23.20	-126.95	497
4	132.00		min	-7456.20	-5694.84	-23.48	-163.66	497
4	136.00	izq	max	-6177.25	-4009.27	-25.81	-124.50	497
4	136.00		min	-7549.98	-5398.87	-27.08	-159.97	497
4	136.00	der	max	-6177.26	-4009.25	-25.81	-124.50	497
4	136.00		min	-7549.98	-5398.84	-27.08	-159.97	497
4	140.00	izq	max	-6236.37	-3106.06	-34.50	-110.96	497
4	140.00		min	-7622.23	-4161.60	-38.90	-141.34	497

4	140.00	der	max	-6236.37	-3106.03	-34.50	-110.96	497
4	140.00		min	-7622.23	-4161.55	-38.90	-141.33	497
4	144.00	izq	max	-6273.04	-1784.66	-46.72	-90.65	497
4	144.00		min	-7667.05	-2324.33	-55.82	-113.04	497
4	144.00	der	max	-6273.04	-1784.61	-46.72	-90.65	497
4	144.00		min	-7667.05	-2324.25	-55.82	-113.04	497
4	148.00	izq	max	-10136.60	1483.83	-114.68	-78.15	497
4	148.00		min	-8293.62	1076.50	-92.59	-66.09	497
4	148.00	der	max	-10127.40	1479.27	-114.54	-78.13	497
4	148.00		min	-8288.04	1072.76	-92.50	-66.09	497
4	152.00	izq	max	-10233.40	1974.14	-70.86	-35.76	497
4	152.00		min	-8375.51	1140.67	-54.62	-34.34	497
4	152.00	der	max	-10233.30	1974.07	-70.86	-35.76	497
4	152.00		min	-8375.42	1140.61	-54.62	-34.35	497
5	156.00	izq	max	-10012.50	1360.82	-112.33	-78.83	497
5	156.00		min	-8194.09	975.83	-90.69	-66.67	497
5	156.00	der	max	-10021.50	1365.18	-112.46	-78.86	497
5	156.00		min	-8199.42	979.41	-90.78	-66.67	497
5	160.00	izq	max	-5841.60	-1597.91	-44.08	-83.42	497
5	160.00		min	-7139.73	-2095.97	-52.60	-104.19	497
5	160.00	der	max	-5841.60	-1597.90	-44.08	-83.42	489
5	160.00		min	-7139.73	-2095.96	-52.60	-104.19	489
5	164.00	izq	max	-5898.78	-2779.08	-34.06	-102.47	489
5	164.00		min	-7209.63	-3761.81	-38.36	-130.95	489
5	164.00	der	max	-5898.79	-2779.10	-34.06	-102.47	489
5	164.00		min	-7209.63	-3761.85	-38.36	-130.95	489
5	168.00	izq	max	-6007.35	-3777.98	-26.19	-119.18	489
5	168.00		min	-7342.32	-5116.03	-27.54	-153.47	489
5	168.00	der	max	-6007.35	-3778.00	-26.19	-119.18	489
5	168.00		min	-7342.32	-5116.06	-27.54	-153.47	489
5	172.00	izq	max	-6100.61	-4215.36	-23.20	-126.96	489
5	172.00		min	-7456.30	-5695.05	-23.48	-163.67	489
5	172.00	der	max	-6100.61	-4215.39	-23.20	-126.96	489
5	172.00		min	-7456.30	-5695.08	-23.48	-163.67	489
5	176.00	izq	max	-6177.35	-4008.82	-25.82	-124.50	489
5	176.00	der	max	-6177.35	-4008.79	-25.82	-124.50	489
5	176.00		min	-7550.10	-5398.10	-27.08	-159.96	489
5	180.00	izq	max	-6236.46	-3104.92	-34.52	-110.94	489
5	180.00		min	-7622.34	-4160.06	-38.91	-141.31	489
5	180.00	der	max	-6236.46	-3104.86	-34.52	-110.94	489
5	180.00		min	-7622.34	-4159.99	-38.91	-141.31	489
5	184.00	izq	max	-8230.46	147.49	-83.63	-80.00	489
5	184.00		min	-10059.50	37.34	-100.93	-100.01	489
5	184.00	der	max	-8230.46	147.54	-83.63	-80.00	489
5	184.00		min	-10059.50	37.40	-100.93	-100.01	489
5	188.00	izq	max	-10136.60	1487.61	-114.71	-78.09	489
5	188.00		min	-8293.55	1079.52	-92.62	-66.05	489
5	188.00	der	max	-10127.30	1483.06	-114.57	-78.07	489
5	188.00		min	-8287.96	1075.79	-92.53	-66.05	489
5	192.00	izq	max	-10233.30	1979.06	-70.89	-35.71	489
5	192.00		min	-8375.47	1144.59	-54.65	-34.30	489
5	192.00	der	max	-10233.20	1979.01	-70.89	-35.71	489
5	192.00		min	-8375.38	1144.55	-54.65	-34.30	489
6	196.00	izq	max	-10012.50	1364.03	-112.36	-78.78	489
6	196.00		min	-8194.03	978.57	-90.72	-66.63	489
6	196.00	der	max	-10021.40	1368.36	-112.49	-78.80	489
6	196.00		min	-8199.36	982.13	-90.80	-66.63	489
6	200.00	izq	max	-5842.29	-1597.42	-44.10	-83.42	489
6	200.00		min	-7140.57	-2095.81	-52.61	-104.20	489
6	200.00	der	max	-5842.29	-1597.44	-44.10	-83.42	478
6	200.00		min	-7140.58	-2095.84	-52.61	-104.20	478
6	204.00	izq	max	-5899.40	-2779.94	-34.06	-102.49	478
6	204.00		min	-7210.38	-3763.63	-38.35	-130.99	478
6	204.00	der	max	-5899.41	-2779.99	-34.06	-102.49	478
6	204.00		min	-7210.39	-3763.69	-38.35	-130.99	478
6	208.00	izq	max	-6007.91	-3779.95	-26.18	-119.22	478
6	208.00		min	-7343.01	-5119.50	-27.51	-153.53	478
6	208.00	der	max	-6007.92	-3779.99	-26.18	-119.22	478
6	208.00		min	-7343.01	-5119.56	-27.51	-153.53	478
6	212.00	izq	max	-6101.14	-4218.53	-23.17	-127.02	478
6	212.00		min	-7456.95	-5700.28	-23.44	-163.76	478
6	212.00	der	max	-6101.14	-4218.54	-23.17	-127.02	478
6	212.00		min	-7456.95	-5700.30	-23.44	-163.76	478
6	216.00	izq	max	-6177.81	-4013.10	-25.78	-124.57	478
6	216.00		min	-7550.66	-5405.06	-27.03	-160.07	478
6	216.00	der	max	-6177.81	-4013.07	-25.78	-124.57	478
6	216.00		min	-7550.66	-5405.02	-27.03	-160.07	478
6	220.00	izq	max	-6236.88	-3110.20	-34.47	-111.03	478
6	220.00		min	-7622.86	-4168.48	-38.84	-141.45	478
6	220.00	der	max	-6236.89	-3110.13	-34.47	-111.03	478
6	220.00		min	-7622.86	-4168.39	-38.84	-141.45	478
6	224.00	izq	max	-6273.44	-1788.82	-46.69	-90.72	478
6	224.00		min	-7667.54	-2331.55	-55.76	-113.16	478
6	224.00	der	max	-8230.86	141.23	-83.58	-80.10	478
6	224.00		min	-10059.90	27.41	-100.85	-100.17	478
6	228.00	izq	max	-10136.90	1476.04	-114.61	-78.28	478
6	228.00		min	-8293.87	1072.18	-92.56	-66.16	478
6	228.00	der	max	-10127.70	1471.49	-114.47	-78.25	478
6	228.00		min	-8288.28	1068.45	-92.46	-66.16	478
6	232.00	izq	max	-10233.70	1966.17	-70.80	-35.85	478
6	232.00		min	-8375.73	1136.45	-54.59	-34.39	478
6	232.00	der	max	-10233.60	1966.11	-70.80	-35.85	478
6	232.00		min	-8375.68	1136.40	-54.59	-34.39	478
7	236.00	izq	max	-10012.80	1358.79	-112.31	-78.87	478
7	236.00		min	-8194.32	975.83	-90.69	-66.67	478
7	236.00	der	max	-10021.80	1363.12	-112.44	-78.89	478
7	236.00		min	-8199.61	979.38	-90.78	-66.67	478
7	240.00	izq	max	-5841.53	-1593.71	-44.12	-83.35	478
7	240.00		min	-7139.65	-2092.15	-52.63	-104.13	478
7	240.00	der	max	-5841.54	-1593.77	-44.12	-83.35	463
7	240.00		min	-7139.66	-2092.23	-52.63	-104.13	463
7	244.00	izq	max	-5898.69	-2771.33	-34.13	-102.35	463
7	244.00		min	-7209.51	-3752.95	-38.43	-130.81	463
7	244.00	der	max	-5898.70	-2771.38	-34.13	-102.35	463
7	244.00		min	-7209.52	-3753.02	-38.43	-130.82	463
7	248.00	izq	max	-6007.24	-3766.18	-26.29	-119.00	463
7	248.00	der	max	-6007.24	-3766.22	-26.29	-119.00	463
7	248.00		min	-7342.18	-5101.48	-27.67	-153.24	463
7	252.00	izq	max	-6100.52	-4199.89	-23.34	-126.72	463
7	252.00		min	-7456.19	-5675.21	-23.66	-163.36	463
7	252.00	der	max	-6100.52	-4199.87	-23.34	-126.72	463
7	252.00		min	-7456.19	-5675.19	-23.66	-163.36	463
7	256.00	izq	max	-6177.26	-3989.64	-25.99	-124.20	463
7	256.00		min	-7549.98	-5373.03	-27.31	-159.57	463
7	256.00	der	max	-6177.26	-3989.62	-25.99	-124.19	463
7	256.00		min	-7549.99	-5373.00	-27.31	-159.57	463
7	260.00	izq	max	-6236.39	-3081.85	-34.72	-110.58	463
7	260.00		min	-7622.25	-4129.43	-39.18	-140.83	463
7	260.00	der	max	-6236.39	-3081.82	-34.72	-110.58	463
7	260.00		min	-7622.25	-4129.37	-39.19	-140.83	463
7	264.00	izq	max	-6273.03	-1755.69	-46.98	-90.20	463
7	264.00		min	-7667.04	-2285.58	-56.17	-112.43	463
7	264.00	der	max	-8230.56	174.46	-83.87	-79.58	463
7	264.00		min	-10059.60	73.50	-101.25	-99.45	463
7	268.00	izq	max	-10136.60	1528.98	-115.08	-77.44	463
7	268.00		min	-8293.54	1110.16	-92.89	-65.57	463
7	268.00	der	max	-10127.20	1524.45	-114.94	-77.42	463
7	268.00		min	-8287.92	1106.44	-92.80	-65.57	463
7	272.00	izq	max	-10233.30	2026.68	-71.23	-35.20	463
7	272.00		min	-8375.42	1179.81	-54.90	-33.93	463
7	272.00	der	max	-10233.10	2026.61	-71.23	-35.20	463
7	272.00		min	-8375.27	1179.75	-54.90	-33.93	463
8	276.00	izq	max	-10012.30	1391.31	-112.60	-78.35	463
8	276.00		min	-8193.94	999.51	-90.90	-66.30	463
8	276.00	der	max	-10021.50	1395.64	-112.73	-78.38	463
8	276.00		min	-8199.37	1003.06	-90.99	-66.30	463
8	280.00	izq	max	-7746.65	286.98	-80.04	-72.98	463
8	280.00		min	-9468.13	206.32	-96.53	-91.45	463
8	280.00	der	max	-5842.05	-1591.00	-44.15	-83.31	441
8	280.00		min	-7140.28	-2089.00	-52.67	-104.09	441
8	284.00	izq	max	-5899.13	-2788.36	-33.98	-102.62	441
8	284.00		min	-7210.05	-3777.68	-38.22	-131.21	441

8	284.00	der	max	-5899.13	-2788.39	-33.98	-102.62	441
8	284.00		min	-7210.05	-3777.73	-38.22	-131.21	441
8	288.00	izq	max	-6007.64	-3803.61	-25.96	-119.59	441
8	288.00		min	-7342.67	-5154.91	-27.19	-154.08	441
8	288.00	der	max	-6007.65	-3803.65	-25.96	-119.59	441
8	288.00		min	-7342.68	-5154.97	-27.19	-154.08	441
8	292.00	izq	max	-6100.85	-4257.44	-22.82	-127.62	441
8	292.00		min	-7456.60	-5757.07	-22.93	-164.64	441
8	292.00	der	max	-6100.86	-4257.45	-22.82	-127.62	441
8	292.00		min	-7456.60	-5757.08	-22.93	-164.64	441
8	296.00	izq	max	-6177.55	-4067.50	-25.29	-125.42	441
8	296.00		min	-7550.34	-5483.52	-26.32	-161.30	441
8	296.00	der	max	-6177.55	-4067.45	-25.29	-125.42	441
8	296.00		min	-7550.34	-5483.46	-26.32	-161.30	441
8	300.00	izq	max	-6236.63	-3180.08	-33.84	-112.12	441
8	300.00		min	-7622.55	-4268.61	-37.94	-143.01	441
8	300.00	der	max	-6236.63	-3180.03	-33.84	-112.12	441
8	300.00		min	-7622.55	-4268.55	-37.94	-143.01	441
8	304.00	izq	max	-8230.79	56.33	-82.81	-81.43	441
8	304.00		min	-10059.90	-93.78	-99.76	-102.07	441
8	304.00	der	max	-8230.80	56.37	-82.81	-81.43	441
8	304.00		min	-10059.90	-93.73	-99.76	-102.07	441
8	308.00	izq	max	-10136.90	1333.60	-113.33	-80.50	441
8	308.00		min	-8293.81	972.17	-91.66	-67.73	441
8	308.00	der	max	-10127.70	1329.05	-113.20	-80.48	441
8	308.00		min	-8288.33	968.43	-91.57	-67.73	441
8	312.00	izq	max	-10233.90	1803.48	-69.65	-37.59	441
8	312.00		min	-8375.86	1022.09	-53.78	-35.61	441
8	312.00	der	max	-10234.20	1803.43	-69.65	-37.59	441
8	312.00		min	-8376.08	1022.05	-53.79	-35.62	441
9	316.00	izq	max	-10013.40	1275.00	-111.57	-80.18	441
9	316.00		min	-8194.75	916.61	-90.17	-67.60	441
9	316.00	der	max	-10021.80	1279.36	-111.69	-80.20	441
9	316.00		min	-8199.66	920.18	-90.25	-67.60	441
9	320.00	izq	max	-5841.85	-1599.87	-44.07	-83.45	441
9	320.00		min	-7140.04	-2099.45	-52.57	-104.25	441
9	320.00	der	max	-5841.85	-1599.90	-44.07	-83.45	406
9	320.00		min	-7140.04	-2099.50	-52.57	-104.25	406
9	324.00	izq	max	-5899.13	-2722.86	-34.57	-101.59	406
9	324.00		min	-7210.05	-3681.88	-39.08	-129.71	406
9	324.00	der	max	-5899.14	-2722.91	-34.57	-101.59	406
9	324.00		min	-7210.06	-3681.95	-39.08	-129.71	406
9	328.00	izq	max	-6007.65	-3663.22	-27.22	-117.39	406
9	328.00		min	-7342.68	-4952.19	-29.01	-150.91	406
9	328.00	der	max	-6007.65	-3663.27	-27.22	-117.39	406
9	328.00		min	-7342.69	-4952.26	-29.01	-150.91	406
9	332.00	izq	max	-6100.90	-4042.32	-24.75	-124.26	406
9	332.00		min	-7456.65	-5447.65	-25.71	-159.80	406
9	332.00	der	max	-6100.90	-4042.32	-24.75	-124.26	406
9	332.00		min	-7456.65	-5447.65	-25.71	-159.80	406
9	336.00	izq	max	-6177.59	-3777.50	-27.89	-120.88	406
9	336.00		min	-7550.39	-5067.21	-30.05	-154.79	406
9	336.00	der	max	-6177.60	-3777.48	-27.89	-120.88	406
9	336.00		min	-7550.40	-5067.18	-30.06	-154.79	406
9	340.00	izq	max	-6236.70	-2815.09	-37.12	-106.41	406
9	340.00		min	-7622.63	-3745.27	-42.63	-134.83	406
9	340.00	der	max	-6236.70	-2815.04	-37.12	-106.41	406
9	340.00		min	-7622.63	-3745.20	-42.63	-134.82	406
9	344.00	izq	max	-10059.90	536.05	-105.41	-92.21	406
9	344.00		min	-8230.81	495.89	-86.76	-74.55	406
9	344.00	der	max	-10059.90	536.12	-105.41	-92.21	406
9	344.00		min	-8230.82	495.94	-86.76	-74.55	406
9	348.00	izq	max	-10136.90	2070.15	-119.94	-68.98	406
9	348.00		min	-8293.85	1486.41	-96.27	-59.68	406
9	348.00	der	max	-10127.00	2065.60	-119.80	-68.95	406
9	348.00		min	-8287.84	1482.68	-96.18	-59.68	406
9	352.00	izq	max	-10233.00	2645.46	-75.62	-28.59	406
9	352.00		min	-8375.24	1609.99	-57.95	-29.33	406
9	352.00	der	max	-10231.40	2645.37	-75.61	-28.58	406
9	352.00		min	-8374.13	1609.92	-57.94	-29.32	406
10	356.00	izq	max	-10010.70	1727.21	-115.60	-73.08	406
10	356.00		min	-8192.83	1235.53	-93.01	-62.60	406
10	356.00	der	max	-10021.70	1731.56	-115.75	-73.13	406
10	356.00		min	-8199.60	1239.10	-93.11	-62.61	406
10	360.00	izq	max	-5841.80	-1548.78	-44.53	-82.65	406
10	360.00		min	-7139.98	-2035.77	-53.14	-103.25	406
10	360.00	der	max	-5841.81	-1548.79	-44.53	-82.65	337
10	360.00		min	-7139.99	-2035.80	-53.14	-103.25	337
10	364.00	izq	max	-5898.98	-2939.90	-32.62	-104.99	337
10	364.00		min	-7209.87	-4007.08	-36.16	-134.79	337
10	364.00	der	max	-5898.99	-2939.95	-32.62	-104.99	337
10	364.00		min	-7209.88	-4007.14	-36.16	-134.80	337
10	368.00	izq	max	-6007.51	-4148.36	-22.87	-124.98	337
10	368.00		min	-7342.52	-5666.21	-22.60	-162.08	337
10	368.00	der	max	-6007.52	-4148.42	-22.87	-124.98	337
10	368.00		min	-7342.52	-5666.29	-22.60	-162.08	337
10	372.00	izq	max	-6100.76	-4795.50	-18.00	-136.04	337
10	372.00		min	-7456.48	-6550.42	-15.81	-177.05	337
10	372.00	der	max	-6100.76	-4795.53	-18.00	-136.04	337
10	372.00		min	-7456.48	-6550.47	-15.81	-177.05	337
10	376.00	izq	max	-6177.48	-4798.70	-18.73	-136.86	337
10	376.00		min	-7550.25	-6558.70	-16.68	-178.12	337
10	376.00	der	max	-6177.48	-4798.66	-18.73	-136.86	337
10	376.00		min	-7550.26	-6558.65	-16.68	-178.12	337
10	380.00	izq	max	-6236.58	-4104.41	-25.55	-126.58	337
10	380.00		min	-7622.48	-5625.60	-25.77	-164.24	337
10	380.00	der	max	-6236.58	-4104.35	-25.55	-126.58	337
10	380.00		min	-7622.48	-5625.52	-25.77	-164.24	337
10	384.00	izq	max	-6273.21	-2991.82	-35.90	-109.54	337
10	384.00		min	-7667.26	-4092.37	-39.97	-140.70	337
10	384.00	der	max	-6273.21	-2991.79	-35.90	-109.54	337
10	384.00		min	-7667.26	-4092.32	-39.97	-140.70	337
10	388.00	izq	max	-8293.71	-339.61	-79.89	-88.25	337
10	388.00		min	-10136.80	-588.44	-96.09	-110.57	337
10	388.00	der	max	-8289.58	-343.37	-79.81	-88.27	337
10	388.00		min	-10129.60	-593.02	-95.98	-110.57	337
10	392.00	izq	max	-10235.50	-402.14	-54.01	-61.16	337
10	392.00		min	-8376.91	-484.19	-43.10	-51.71	337
10	392.00	der	max	-10224.90	-402.23	-53.95	-61.10	337
10	392.00		min	-8367.05	-484.27	-43.05	-51.66	337
11	396.00	izq	max	-8185.61	-1849.85	-65.26	-110.80	337
11	396.00		min	-10004.00	-2216.48	-80.16	-134.72	337
11	396.00	der	max	-8199.27	-1846.36	-65.43	-110.88	337
11	396.00		min	-10021.30	-2212.22	-80.37	-134.83	337
11	400.00	izq	max	-0.00	0.01	0.00 -	0.00 -	337
11	400.00		min	-0.00	0.01	0.00 -	0.00 -	337
11	400.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	400.00		min	0.00	0.00	0.00 -	0.00 -	0
11	404.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	404.00		min	0.00	0.00	0.00 -	0.00 -	0
11	404.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	404.00		min	0.00	0.00	0.00 -	0.00 -	0
11	408.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	408.00		min	0.00	0.00	0.00 -	0.00 -	0
11	408.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	408.00		min	0.00	0.00	0.00 -	0.00 -	0
11	412.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	412.00		min	0.00	0.00	0.00 -	0.00 -	0
11	412.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	412.00		min	0.00	0.00	0.00 -	0.00 -	0
11	416.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	416.00		min	0.00	0.00	0.00 -	0.00 -	0
11	416.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	416.00		min	0.00	0.00	0.00 -	0.00 -	0
11	420.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	420.00		min	0.00	0.00	0.00 -	0.00 -	0
11	420.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	420.00		min	0.00	0.00	0.00 -	0.00 -	0
11	424.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	424.00		min	0.00	0.00	0.00 -	0.00 -	0
11	424.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	424.00		min	0.00	0.00	0.00 -	0.00 -	0
11	428.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	428.00		min	0.00	0.00	0.00 -	0.00 -	0

11	428.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	428.00		min	0.00	0.00	0.00 -	0.00 -	0
11	432.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
11	432.00		min	0.00	0.00	0.00 -	0.00 -	0
11	432.00	der	max	0.00	0.00	0.00 -	0.00 -	0
11	432.00		min	0.00	0.00	0.00 -	0.00 -	0
12	436.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	436.00		min	0.00	0.00	0.00 -	0.00 -	0
12	436.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	436.00		min	0.00	0.00	0.00 -	0.00 -	0
12	440.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	440.00		min	0.00	0.00	0.00 -	0.00 -	0
12	440.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	440.00		min	0.00	0.00	0.00 -	0.00 -	0
12	444.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	444.00		min	0.00	0.00	0.00 -	0.00 -	0
12	444.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	444.00		min	0.00	0.00	0.00 -	0.00 -	0
12	448.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	448.00		min	0.00	0.00	0.00 -	0.00 -	0
12	448.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	448.00		min	0.00	0.00	0.00 -	0.00 -	0
12	452.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	452.00		min	0.00	0.00	0.00 -	0.00 -	0
12	452.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	452.00		min	0.00	0.00	0.00 -	0.00 -	0
12	456.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	456.00		min	0.00	0.00	0.00 -	0.00 -	0
12	456.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	456.00		min	0.00	0.00	0.00 -	0.00 -	0
12	460.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	460.00		min	0.00	0.00	0.00 -	0.00 -	0
12	460.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	460.00		min	0.00	0.00	0.00 -	0.00 -	0
12	464.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	464.00		min	0.00	0.00	0.00 -	0.00 -	0
12	464.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	464.00		min	0.00	0.00	0.00 -	0.00 -	0
12	468.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	468.00		min	0.00	0.00	0.00 -	0.00 -	0
12	468.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	468.00		min	0.00	0.00	0.00 -	0.00 -	0
12	472.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	472.00		min	0.00	0.00	0.00 -	0.00 -	0
12	472.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	472.00		min	0.00	0.00	0.00 -	0.00 -	0
13	476.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	476.00		min	0.00	0.00	0.00 -	0.00 -	0
13	476.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	476.00		min	0.00	0.00	0.00 -	0.00 -	0
13	480.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	480.00		min	0.00	0.00	0.00 -	0.00 -	0
13	480.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	480.00		min	0.00	0.00	0.00 -	0.00 -	0
13	484.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	484.00		min	0.00	0.00	0.00 -	0.00 -	0
13	484.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	484.00		min	0.00	0.00	0.00 -	0.00 -	0
13	488.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	488.00		min	0.00	0.00	0.00 -	0.00 -	0
13	488.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	488.00		min	0.00	0.00	0.00 -	0.00 -	0
13	492.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	492.00		min	0.00	0.00	0.00 -	0.00 -	0
13	492.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	492.00		min	0.00	0.00	0.00 -	0.00 -	0
13	496.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	496.00		min	0.00	0.00	0.00 -	0.00 -	0
13	496.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	496.00		min	0.00	0.00	0.00 -	0.00 -	0
13	500.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	500.00		min	0.00	0.00	0.00 -	0.00 -	0
13	500.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	500.00		min	0.00	0.00	0.00 -	0.00 -	0
13	504.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	504.00		min	0.00	0.00	0.00 -	0.00 -	0
13	504.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	504.00		min	0.00	0.00	0.00 -	0.00 -	0
13	508.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	508.00		min	0.00	0.00	0.00 -	0.00 -	0
13	508.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	508.00		min	0.00	0.00	0.00 -	0.00 -	0
13	512.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	512.00		min	0.00	0.00	0.00 -	0.00 -	0
13	512.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	512.00		min	0.00	0.00	0.00 -	0.00 -	0
14	515.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	515.20		min	0.00	0.00	0.00 -	0.00 -	0
14	515.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	515.20		min	0.00	0.00	0.00 -	0.00 -	0
14	518.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	518.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	der	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	540.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80		min	0.00	0.00	0.00 -	0.00 -	0
14	540.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80		min	0.00	0.00	0.00 -	0.00 -	0
14	544.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	544.00		min	0.00	0.00	0.00 -	0.00 -	0

COMPROBACION TENSIONES FASE 11

Factores de ponderación considerados para el pretensado:

- Acciones Desfavorables: 1.1
- Acciones Favorables: 0.9

LEYENDA:
+ : Compresión>fck(j)/1.6
* : Tracción
# : Fisuración
! : Requiere comprobación wk

Vano	x	Pxo	Mmax Mmin	?s ?s	?i ?i	fckj
	[m]	[t]	[tm]	[kg/cm²]	[kg/cm²]	[kg/cm²]

1	0.00	der	max	-6215.81	-4074.98	-5.62	-78.07	522
1	0.00		min	-7594.42	-4980.54	-6.86	-95.40	522
1	3.20	izq	max	-6247.65	-5660.91	-11.70	-151.05	522
1	3.20		min	-7634.20	-7122.99	-12.45	-187.79	522
1	3.20	der	max	-6262.39	-5684.65	-11.64	-151.57	522
1	3.20		min	-7654.04	-7152.02	-12.39	-188.44	522
1	6.40	izq	max	-6380.21	-6539.30	-5.15	-166.12	522
1	6.40		min	-7798.03	-8336.18	-3.21	-208.41	522
1	6.40	der	max	-6380.21	-6539.30	-5.15	-166.12	522
1	6.40		min	-7798.03	-8336.19	-3.21	-208.41	522
1	9.60	izq	max	-6467.75	-6837.98	-3.35	-171.67	522
1	9.60		min	-7905.02	-8783.92	-0.27	-216.48	522
1	9.60	der	max	-6467.75	-6837.96	-3.35	-171.67	522
1	9.60		min	-7905.02	-8783.91	-0.27	-216.48	522
1	12.80	izq	max	-6457.87	-6404.30	-7.14	-164.78	522
1	12.80		min	-7892.95	-8279.68	-4.67	-208.47	522
1	12.80	der	max	-6457.86	-6404.27	-7.14	-164.78	522
1	12.80		min	-7892.94	-8279.65	-4.67	-208.47	522
1	16.00	izq	max	-6391.29	-5465.78	-14.89	-149.43	522
1	16.00		min	-7811.58	-7101.54	-14.42	-189.23	522
1	16.00	der	max	-6391.29	-5465.77	-14.89	-149.43	522
1	16.00		min	-7811.58	-7101.52	-14.42	-189.23	522
1	19.20	izq	max	-6319.35	-4210.80	-25.43	-129.08	522
1	19.20		min	-7723.65	-5479.72	-28.09	-162.97	522
1	19.20	der	max	-6319.35	-4210.78	-25.43	-129.08	522
1	19.20		min	-7723.65	-5479.69	-28.09	-162.97	522
1	22.40	izq	max	-6293.66	-2709.82	-38.63	-105.33	522
1	22.40		min	-7692.25	-3500.31	-45.53	-131.69	522
1	22.40	der	max	-6293.66	-2709.72	-38.63	-105.33	522
1	22.40		min	-7692.24	-3500.18	-45.53	-131.69	522
1	25.60	izq	max	-6310.58	-1173.90	-52.58	-81.47	522
1	25.60		min	-7712.92	-1421.34	-64.38	-99.37	522
1	25.60	der	max	-6310.58	-1173.80	-52.58	-81.47	522
1	25.60		min	-7712.93	-1421.22	-64.38	-99.37	522
1	28.80	izq	max	-10863.50	-842.07	-101.08	-121.81	522
1	28.80		min	-8888.28	-911.54	-80.71	-103.14	522
1	28.80	der	max	-10839.70	-844.56	-100.82	-121.61	522
1	28.80		min	-8871.39	-913.59	-80.52	-103.01	522
1	32.00	izq	max	-10985.70	750.15	-66.35	-53.02	522
1	32.00		min	-8991.56	126.75	-50.85	-48.60	522
1	32.00	der	max	-10990.60	748.84	-66.37	-53.06	522
1	32.00		min	-8995.08	125.68	-50.86	-48.63	522
2	36.00	izq	max	-10773.60	-165.30	-106.25	-110.32	522
2	36.00		min	-8816.82	-284.13	-85.62	-92.61	522
2	36.00	der	max	-10784.50	-163.77	-106.38	-110.41	522
2	36.00		min	-8823.65	-282.87	-85.70	-92.66	522
2	40.00	izq	max	-13949.90	-5818.67	-87.31	-230.54	522
2	40.00		min	-17049.90	-7242.33	-105.54	-283.81	522
2	40.00	der	max	-6471.59	-1242.56	-53.57	-84.16	519
2	40.00		min	-7909.72	-1649.32	-64.30	-104.90	519
2	44.00	izq	max	-6531.56	-2618.79	-41.83	-106.29	519
2	44.00		min	-7983.02	-3555.02	-47.94	-135.45	519
2	44.00	der	max	-6531.57	-2618.82	-41.83	-106.29	519
2	44.00		min	-7983.03	-3555.07	-47.94	-135.45	519
2	48.00	izq	max	-6644.45	-3816.97	-32.21	-126.17	519
2	48.00		min	-8121.00	-5154.28	-34.98	-161.85	519
2	48.00	der	max	-6644.46	-3816.98	-32.21	-126.17	519
2	48.00		min	-8121.01	-5154.30	-34.98	-161.86	519
2	52.00	izq	max	-6742.04	-4453.87	-27.47	-137.11	519
2	52.00		min	-8240.27	-5978.62	-28.78	-175.95	519
2	52.00	der	max	-6742.04	-4453.90	-27.47	-137.11	519
2	52.00		min	-8240.27	-5978.65	-28.78	-175.95	519
2	56.00	izq	max	-6823.11	-4447.09	-28.34	-137.81	519
2	56.00		min	-8339.35	-5927.35	-30.23	-176.13	519
2	56.00	der	max	-6823.11	-4447.08	-28.34	-137.81	519
2	56.00		min	-8339.35	-5927.33	-30.23	-176.13	519
2	60.00	izq	max	-6886.56	-3742.89	-35.29	-127.43	519
2	60.00		min	-8416.90	-4934.78	-39.91	-161.38	519
2	60.00	der	max	-6886.56	-3742.84	-35.30	-127.43	519
2	60.00		min	-8416.91	-4934.72	-39.91	-161.38	519
2	64.00	izq	max	-8884.96	-688.43	-82.67	-99.62	519
2	64.00		min	-10859.40	-980.80	-99.80	-123.94	519
2	64.00	der	max	-8884.96	-688.43	-82.67	-99.62	519
2	64.00		min	-10859.40	-980.79	-99.80	-123.94	519
2	68.00	izq	max	-10941.30	228.03	-111.46	-105.84	519
2	68.00		min	-8951.93	47.26	-89.94	-88.78	519
2	68.00	der	max	-10933.20	224.61	-111.34	-105.82	519
2	68.00		min	-8947.37	44.45	-89.87	-88.78	519
2	72.00	izq	max	-11045.50	574.48	-65.44	-55.23	519
2	72.00		min	-9039.93	-5.09	-50.19	-50.28	519
2	72.00	der	max	-11043.80	574.46	-65.43	-55.22	519
2	72.00		min	-9038.60	-5.10	-50.18	-50.27	519
3	76.00	izq	max	-10828.50	-133.81	-107.08	-110.38	519
3	76.00		min	-8861.69	-247.58	-86.39	-92.49	519
3	76.00	der	max	-10837.70	-130.65	-107.21	-110.42	519
3	76.00		min	-8867.25	-244.98	-86.48	-92.51	519
3	80.00	izq	max	-7165.02	-4038.68	-35.43	-134.84	519
3	80.00		min	-8757.25	-5078.62	-42.02	-167.03	519
3	80.00	der	max	-5841.64	-1585.17	-44.20	-83.22	510
3	80.00		min	-7139.79	-2079.89	-52.74	-103.94	510
3	84.00	izq	max	-5898.46	-2767.36	-34.16	-102.28	510
3	84.00		min	-7209.23	-3747.10	-38.48	-130.72	510
3	84.00	der	max	-5898.46	-2767.41	-34.16	-102.28	510
3	84.00		min	-7209.23	-3747.16	-38.48	-130.72	510
3	88.00	izq	max	-6007.01	-3769.26	-26.26	-119.04	510
3	88.00		min	-7341.90	-5105.08	-27.63	-153.29	510
3	88.00	der	max	-6007.01	-3769.32	-26.26	-119.05	510
3	88.00		min	-7341.91	-5105.15	-27.63	-153.29	510
3	92.00	izq	max	-6100.29	-4210.32	-23.24	-126.88	510
3	92.00		min	-7455.91	-5688.71	-23.54	-163.57	510
3	92.00	der	max	-6100.30	-4210.33	-23.24	-126.88	510
3	92.00		min	-7455.92	-5688.72	-23.54	-163.57	510
3	96.00	izq	max	-6177.03	-4007.55	-25.83	-124.47	510
3	96.00		min	-7549.71	-5396.54	-27.09	-159.93	510
3	96.00	der	max	-6177.04	-4007.52	-25.83	-124.47	510
3	96.00		min	-7549.71	-5396.51	-27.09	-159.93	510
3	100.00	izq	max	-6236.17	-3107.45	-34.49	-110.98	510
3	100.00		min	-7621.99	-4163.19	-38.88	-141.36	510
3	100.00	der	max	-6236.18	-3107.38	-34.49	-110.98	510
3	100.00		min	-7621.99	-4163.09	-38.88	-141.36	510
3	104.00	izq	max	-8230.25	143.10	-83.59	-80.06	510
3	104.00		min	-10059.20	31.83	-100.88	-100.09	510
3	104.00	der	max	-8230.25	143.15	-83.59	-80.06	510
3	104.00		min	-10059.20	31.90	-100.88	-100.09	510
3	108.00	izq	max	-10135.80	1481.90	-114.65	-78.17	510
3	108.00		min	-8292.90	1075.04	-92.57	-66.11	510
3	108.00	der	max	-10126.40	1477.34	-114.51	-78.15	510
3	108.00		min	-8287.28	1071.30	-92.48	-66.11	510
3	112.00	izq	max	-10233.20	1978.91	-70.89	-35.71	510
3	112.00		min	-8375.33	1144.82	-54.65	-34.30	510
3	112.00	der	max	-10233.20	1978.92	-70.89	-35.71	510
3	112.00		min	-8375.32	1144.82	-54.65	-34.30	510
4	116.00	izq	max	-10012.20	1369.20	-112.40	-78.70	510
4	116.00		min	-8193.81	982.87	-90.75	-66.56	510
4	116.00	der	max	-10021.20	1373.54	-112.53	-78.72	510
4	116.00		min	-8199.13	986.43	-90.84	-66.56	510
4	120.00	izq	max	-5841.51	-1595.09	-44.11	-83.37	510
4	120.00		min	-7139.62	-2092.71	-52.63	-104.14	510
4	120.00	der	max	-5841.51	-1595.11	-44.11	-83.37	504
4	120.00		min	-7139.63	-2092.74	-52.63	-104.14	504
4	124.00	izq	max	-5898.72	-2777.26	-34.08	-102.44	504
4	124.00		min	-7209.54	-3759.81	-38.37	-130.92	504
4	124.00	der	max	-5898.72	-2777.30	-34.08	-102.44	504
4	124.00		min	-7209.55	-3759.86	-38.37	-130.92	504
4	128.00	izq	max	-6007.26	-3776.71	-26.20	-119.16	504
4	128.00		min	-7342.21	-5114.65	-27.55	-153.45	504
4	128.00	der	max	-6007.27	-3776.73	-26.20	-119.16	504
4	128.00		min	-7342.22	-5114.67	-27.55	-153.45	504
4	132.00	izq	max	-6100.53	-4214.79	-23.20	-126.95	504
4	132.00		min	-7456.20	-5694.48	-23.49	-163.66	504
4	132.00	der	max	-6100.53	-4214.79	-23.20	-126.95	504
4	132.00		min	-7456.20	-5694.48	-23.49	-163.66	504
4	136.00	izq	max	-6177.25	-4008.94	-25.82	-124.50	504

4	136.00		min	-7549.98	-5398.39	-27.08	-159.96	504
4	136.00	der	max	-6177.26	-4008.92	-25.82	-124.50	504
4	136.00		min	-7549.98	-5398.36	-27.08	-159.96	504
4	140.00	izq	max	-6236.37	-3105.64	-34.51	-110.96	504
4	140.00		min	-7622.23	-4160.99	-38.90	-141.33	504
4	140.00	der	max	-6236.37	-3105.61	-34.51	-110.95	504
4	140.00		min	-7622.23	-4160.95	-38.90	-141.33	504
4	144.00	izq	max	-6273.04	-1784.16	-46.73	-90.65	504
4	144.00		min	-7667.05	-2323.60	-55.83	-113.03	504
4	144.00	der	max	-6273.04	-1784.11	-46.73	-90.64	504
4	144.00		min	-7667.05	-2323.53	-55.83	-113.02	504
4	148.00	izq	max	-10136.70	1484.67	-114.68	-78.14	504
4	148.00		min	-8293.62	1077.09	-92.60	-66.08	504
4	148.00	der	max	-10127.40	1480.11	-114.55	-78.11	504
4	148.00		min	-8288.04	1073.35	-92.51	-66.09	504
4	152.00	izq	max	-10233.40	1975.11	-70.87	-35.75	504
4	152.00		min	-8375.51	1141.35	-54.63	-34.34	504
4	152.00	der	max	-10233.30	1975.04	-70.86	-35.75	504
4	152.00		min	-8375.42	1141.28	-54.63	-34.34	504
5	156.00	izq	max	-10012.50	1361.32	-112.33	-78.82	504
5	156.00		min	-8194.09	976.17	-90.70	-66.67	504
5	156.00	der	max	-10021.50	1365.68	-112.46	-78.85	504
5	156.00		min	-8199.42	979.76	-90.78	-66.66	504
5	160.00	izq	max	-5841.60	-1597.89	-44.08	-83.42	504
5	160.00		min	-7139.73	-2095.94	-52.60	-104.19	504
5	160.00	der	max	-5841.60	-1597.88	-44.08	-83.42	497
5	160.00		min	-7139.73	-2095.94	-52.60	-104.19	497
5	164.00	izq	max	-5898.79	-2779.39	-34.06	-102.47	497
5	164.00		min	-7209.63	-3762.26	-38.35	-130.96	497
5	164.00	der	max	-5898.79	-2779.41	-34.06	-102.48	497
5	164.00		min	-7209.63	-3762.29	-38.35	-130.96	497
5	168.00	izq	max	-6007.35	-3778.62	-26.18	-119.19	497
5	168.00		min	-7342.32	-5116.95	-27.53	-153.48	497
5	168.00	der	max	-6007.35	-3778.64	-26.18	-119.19	497
5	168.00		min	-7342.32	-5116.98	-27.53	-153.48	497
5	172.00	izq	max	-6100.61	-4216.33	-23.19	-126.98	497
5	172.00		min	-7456.30	-5696.44	-23.47	-163.69	497
5	172.00	der	max	-6100.61	-4216.36	-23.19	-126.98	497
5	172.00		min	-7456.31	-5696.48	-23.47	-163.69	497
5	176.00	izq	max	-6177.35	-4010.13	-25.81	-124.52	497
5	176.00		min	-7550.09	-5400.02	-27.07	-159.99	497
5	176.00	der	max	-6177.35	-4010.09	-25.81	-124.52	497
5	176.00		min	-7550.10	-5399.97	-27.07	-159.99	497
5	180.00	izq	max	-6236.46	-3106.55	-34.50	-110.97	497
5	180.00		min	-7622.34	-4162.40	-38.89	-141.35	497
5	180.00	der	max	-6236.46	-3106.49	-34.50	-110.97	497
5	180.00		min	-7622.34	-4162.33	-38.89	-141.35	497
5	184.00	izq	max	-8230.46	145.53	-83.61	-80.03	497
5	184.00		min	-10059.50	34.53	-100.90	-100.05	497
5	184.00	der	max	-8230.46	145.58	-83.61	-80.03	497
5	184.00		min	-10059.50	34.59	-100.90	-100.05	497
5	188.00	izq	max	-10136.60	1484.33	-114.68	-78.14	497
5	188.00		min	-8293.55	1077.23	-92.60	-66.08	497
5	188.00	der	max	-10127.30	1479.78	-114.54	-78.12	497
5	188.00		min	-8287.97	1073.50	-92.51	-66.08	497
5	192.00	izq	max	-10233.40	1975.31	-70.87	-35.75	497
5	192.00		min	-8375.47	1141.97	-54.63	-34.33	497
5	192.00	der	max	-10233.30	1975.26	-70.87	-35.75	497
5	192.00		min	-8375.39	1141.93	-54.63	-34.33	497
6	196.00	izq	max	-10012.50	1362.11	-112.34	-78.81	497
6	196.00		min	-8194.04	977.23	-90.70	-66.65	497
6	196.00	der	max	-10021.40	1366.44	-112.47	-78.83	497
6	196.00		min	-8199.36	980.78	-90.79	-66.65	497
6	200.00	izq	max	-5842.29	-1597.49	-44.09	-83.42	497
6	200.00		min	-7140.57	-2095.90	-52.61	-104.20	497
6	200.00	der	max	-5842.29	-1597.51	-44.09	-83.42	489
6	200.00		min	-7140.58	-2095.94	-52.61	-104.20	489
6	204.00	izq	max	-5899.40	-2778.73	-34.07	-102.47	489
6	204.00		min	-7210.38	-3761.89	-38.36	-130.96	489
6	204.00	der	max	-5899.41	-2778.77	-34.07	-102.47	489
6	204.00		min	-7210.39	-3761.95	-38.36	-130.96	489
6	208.00	izq	max	-6007.91	-3777.46	-26.20	-119.18	489
6	208.00		min	-7343.01	-5115.93	-27.54	-153.47	489
6	208.00	der	max	-6007.92	-3777.50	-26.20	-119.18	489
6	208.00		min	-7343.02	-5115.99	-27.54	-153.48	489
6	212.00	izq	max	-6101.14	-4214.76	-23.21	-126.96	489
6	212.00		min	-7456.95	-5694.88	-23.49	-163.67	489
6	212.00	der	max	-6101.14	-4214.77	-23.21	-126.96	489
6	212.00		min	-7456.95	-5694.89	-23.49	-163.67	489
6	216.00	izq	max	-6177.81	-4008.05	-25.83	-124.49	489
6	216.00		min	-7550.66	-5397.82	-27.09	-159.96	489
6	216.00	der	max	-6177.82	-4008.02	-25.83	-124.49	489
6	216.00		min	-7550.66	-5397.78	-27.09	-159.96	489
6	220.00	izq	max	-6236.89	-3103.88	-34.53	-110.93	489
6	220.00		min	-7622.86	-4159.42	-38.92	-141.31	489
6	220.00	der	max	-6236.89	-3103.80	-34.53	-110.93	489
6	220.00		min	-7622.86	-4159.33	-38.92	-141.31	489
6	224.00	izq	max	-6273.44	-1781.22	-46.76	-90.60	489
6	224.00		min	-7667.54	-2320.65	-55.86	-112.98	489
6	224.00	der	max	-8230.86	148.83	-83.64	-79.98	489
6	224.00		min	-10059.90	38.31	-100.94	-100.00	489
6	228.00	izq	max	-10137.00	1488.77	-114.72	-78.08	489
6	228.00		min	-8293.87	1081.06	-92.63	-66.02	489
6	228.00	der	max	-10127.60	1484.21	-114.59	-78.05	489
6	228.00		min	-8288.28	1077.32	-92.54	-66.03	489
6	232.00	izq	max	-10233.70	1980.73	-70.91	-35.69	489
6	232.00		min	-8375.73	1146.60	-54.67	-34.28	489
6	232.00	der	max	-10233.60	1980.67	-70.91	-35.69	489
6	232.00		min	-8375.65	1146.55	-54.67	-34.28	489
7	236.00	izq	max	-10012.80	1366.26	-112.38	-78.75	489
7	236.00		min	-8194.29	981.04	-90.74	-66.59	489
7	236.00	der	max	-10021.80	1370.58	-112.51	-78.77	489
7	236.00		min	-8199.62	984.58	-90.83	-66.59	489
7	240.00	izq	max	-5841.53	-1593.45	-44.12	-83.35	489
7	240.00		min	-7139.66	-2091.78	-52.63	-104.12	489
7	240.00	der	max	-5841.54	-1593.51	-44.12	-83.35	478
7	240.00		min	-7139.66	-2091.86	-52.63	-104.13	478
7	244.00	izq	max	-5898.69	-2776.02	-34.09	-102.42	478
7	244.00		min	-7209.51	-3759.67	-38.37	-130.92	478
7	244.00	der	max	-5898.70	-2776.07	-34.09	-102.42	478
7	244.00		min	-7209.52	-3759.74	-38.37	-130.92	478
7	248.00	izq	max	-6007.24	-3775.82	-26.21	-119.15	478
7	248.00		min	-7342.18	-5115.25	-27.54	-153.46	478
7	248.00	der	max	-6007.24	-3775.86	-26.21	-119.15	478
7	248.00		min	-7342.18	-5115.30	-27.54	-153.46	478
7	252.00	izq	max	-6100.52	-4214.47	-23.20	-126.95	478
7	252.00		min	-7456.19	-5696.12	-23.47	-163.68	478
7	252.00	der	max	-6100.52	-4214.46	-23.20	-126.95	478
7	252.00		min	-7456.19	-5696.10	-23.47	-163.68	478
7	256.00	izq	max	-6177.26	-4009.17	-25.81	-124.50	478
7	256.00		min	-7549.98	-5401.03	-27.06	-160.01	478
7	256.00	der	max	-6177.26	-4009.15	-25.81	-124.50	478
7	256.00		min	-7549.99	-5401.00	-27.06	-160.00	478
7	260.00	izq	max	-6236.39	-3106.33	-34.50	-110.97	478
7	260.00		min	-7622.25	-4164.52	-38.87	-141.38	478
7	260.00	der	max	-6236.39	-3106.30	-34.50	-110.97	478
7	260.00		min	-7622.26	-4164.47	-38.87	-141.38	478
7	264.00	izq	max	-6273.03	-1785.12	-46.72	-90.66	478
7	264.00		min	-7667.04	-2327.77	-55.79	-113.09	478
7	264.00	der	max	-8230.56	145.04	-83.61	-80.04	478
7	264.00		min	-10059.60	31.31	-100.88	-100.11	478
7	268.00	izq	max	-10136.60	1479.70	-114.64	-78.21	478
7	268.00		min	-8293.55	1075.79	-92.58	-66.10	478
7	268.00	der	max	-10127.30	1475.16	-114.50	-78.19	478
7	268.00		min	-8287.95	1072.06	-92.49	-66.10	478
7	272.00	izq	max	-10233.30	1970.31	-70.83	-35.80	478
7	272.00		min	-8375.45	1140.49	-54.62	-34.35	478
7	272.00	der	max	-10233.30	1970.23	-70.83	-35.80	478
7	272.00		min	-8375.40	1140.43	-54.62	-34.35	478
8	276.00	izq	max	-10012.50	1362.34	-112.34	-78.81	478
8	276.00		min	-8194.07	979.30	-90.72	-66.62	478
8	276.00	der	max	-10021.50	1366.67	-112.47	-78.83	478
8	276.00		min	-8199.37	982.86	-90.81	-66.62	478
8	280.00	izq	max	-7746.65	285.89	-80.03	-72.99	478

8	280.00		min	-9468.13	204.76	-96.52	-91.48	478
8	280.00	der	max	-5842.05	-1592.09	-44.14	-83.33	463
8	280.00		min	-7140.28	-2090.56	-52.65	-104.11	463
8	284.00	izq	max	-5899.13	-2770.33	-34.14	-102.34	463
8	284.00		min	-7210.05	-3751.83	-38.45	-130.80	463
8	284.00	der	max	-5899.14	-2770.37	-34.14	-102.34	463
8	284.00		min	-7210.05	-3751.88	-38.45	-130.80	463
8	288.00	izq	max	-6007.64	-3766.47	-26.29	-119.01	463
8	288.00		min	-7342.68	-5101.66	-27.67	-153.25	463
8	288.00	der	max	-6007.65	-3766.51	-26.29	-119.01	463
8	288.00		min	-7342.68	-5101.72	-27.67	-153.25	463
8	292.00	izq	max	-6100.85	-4201.19	-23.33	-126.74	463
8	292.00		min	-7456.60	-5676.42	-23.65	-163.38	463
8	292.00	der	max	-6100.86	-4201.19	-23.33	-126.74	463
8	292.00		min	-7456.60	-5676.43	-23.65	-163.38	463
8	296.00	izq	max	-6177.55	-3992.13	-25.97	-124.24	463
8	296.00		min	-7550.34	-5375.46	-27.29	-159.61	463
8	296.00	der	max	-6177.55	-3992.09	-25.97	-124.24	463
8	296.00		min	-7550.34	-5375.40	-27.29	-159.61	463
8	300.00	izq	max	-6236.63	-3085.59	-34.69	-110.64	463
8	300.00		min	-7622.55	-4133.14	-39.15	-140.89	463
8	300.00	der	max	-6236.63	-3085.55	-34.69	-110.64	463
8	300.00		min	-7622.55	-4133.08	-39.15	-140.89	463
8	304.00	izq	max	-8230.80	169.93	-83.83	-79.65	463
8	304.00		min	-10059.90	69.10	-101.22	-99.52	463
8	304.00	der	max	-8230.80	169.97	-83.83	-79.65	463
8	304.00		min	-10059.90	69.15	-101.22	-99.52	463
8	308.00	izq	max	-10136.90	1523.88	-115.04	-77.53	463
8	308.00		min	-8293.81	1104.88	-92.85	-65.65	463
8	308.00	der	max	-10127.50	1519.33	-114.90	-77.50	463
8	308.00		min	-8288.20	1101.14	-92.76	-65.65	463
8	312.00	izq	max	-10233.70	2021.17	-71.19	-35.26	463
8	312.00		min	-8375.73	1173.92	-54.86	-33.99	463
8	312.00	der	max	-10233.50	2021.12	-71.19	-35.26	463
8	312.00		min	-8375.57	1173.87	-54.86	-33.99	463
9	316.00	izq	max	-10012.70	1386.94	-112.57	-78.43	463
9	316.00		min	-8194.24	994.70	-90.86	-66.38	463
9	316.00	der	max	-10021.80	1391.29	-112.70	-78.45	463
9	316.00		min	-8199.66	998.27	-90.95	-66.38	463
9	320.00	izq	max	-5841.85	-1595.50	-44.11	-83.38	463
9	320.00		min	-7140.04	-2093.25	-52.63	-104.15	463
9	320.00	der	max	-5841.85	-1595.54	-44.11	-83.38	441
9	320.00		min	-7140.04	-2093.31	-52.63	-104.15	441
9	324.00	izq	max	-5899.13	-2792.23	-33.95	-102.68	441
9	324.00		min	-7210.05	-3781.43	-38.18	-131.27	441
9	324.00	der	max	-5899.14	-2792.28	-33.95	-102.68	441
9	324.00		min	-7210.06	-3781.50	-38.18	-131.27	441
9	328.00	izq	max	-6007.65	-3806.30	-25.94	-119.63	441
9	328.00		min	-7342.68	-5157.46	-27.17	-154.12	441
9	328.00	der	max	-6007.65	-3806.36	-25.94	-119.63	441
9	328.00		min	-7342.69	-5157.53	-27.17	-154.12	441
9	332.00	izq	max	-6100.90	-4259.14	-22.81	-127.65	441
9	332.00		min	-7456.65	-5758.67	-22.92	-164.67	441
9	332.00	der	max	-6100.90	-4259.15	-22.81	-127.65	441
9	332.00		min	-7456.65	-5758.68	-22.92	-164.67	441
9	336.00	izq	max	-6177.59	-4068.05	-25.29	-125.43	441
9	336.00		min	-7550.40	-5483.97	-26.32	-161.31	441
9	336.00	der	max	-6177.60	-4068.03	-25.29	-125.43	441
9	336.00		min	-7550.40	-5483.95	-26.32	-161.31	441
9	340.00	izq	max	-6236.70	-3179.37	-33.85	-112.11	441
9	340.00		min	-7622.63	-4267.78	-37.95	-143.00	441
9	340.00	der	max	-6236.70	-3179.32	-33.85	-112.11	441
9	340.00		min	-7622.63	-4267.71	-37.95	-143.00	441
9	344.00	izq	max	-8230.81	57.88	-82.83	-81.40	441
9	344.00		min	-10059.90	-92.21	-99.77	-102.04	441
9	344.00	der	max	-8230.82	57.93	-82.83	-81.40	441
9	344.00		min	-10059.90	-92.14	-99.77	-102.04	441
9	348.00	izq	max	-10136.90	1336.14	-113.35	-80.46	441
9	348.00		min	-8293.85	974.66	-91.68	-67.69	441
9	348.00	der	max	-10127.80	1331.59	-113.22	-80.44	441
9	348.00		min	-8288.36	970.92	-91.59	-67.69	441
9	352.00	izq	max	-10233.70	1805.70	-69.67	-37.56	441
9	352.00		min	-8375.75	1024.51	-53.80	-35.59	441
9	352.00	der	max	-10234.10	1805.62	-69.67	-37.57	441
9	352.00		min	-8376.00	1024.44	-53.80	-35.59	441
10	356.00	izq	max	-10013.40	1277.67	-111.59	-80.14	441
10	356.00		min	-8194.70	919.46	-90.19	-67.56	441
10	356.00	der	max	-10021.70	1282.03	-111.72	-80.16	441
10	356.00		min	-8199.60	923.04	-90.27	-67.55	441
10	360.00	izq	max	-5841.80	-1595.37	-44.11	-83.38	441
10	360.00		min	-7139.98	-2095.00	-52.61	-104.18	441
10	360.00	der	max	-5841.81	-1595.38	-44.11	-83.38	406
10	360.00		min	-7139.99	-2095.01	-52.61	-104.18	406
10	364.00	izq	max	-5898.98	-2717.00	-34.62	-101.50	406
10	364.00		min	-7209.87	-3675.99	-39.13	-129.61	406
10	364.00	der	max	-5898.99	-2717.03	-34.62	-101.50	406
10	364.00		min	-7209.88	-3676.03	-39.13	-129.61	406
10	368.00	izq	max	-6007.51	-3656.01	-27.28	-117.28	406
10	368.00		min	-7342.52	-4944.85	-29.07	-150.79	406
10	368.00	der	max	-6007.52	-3656.05	-27.28	-117.28	406
10	368.00		min	-7342.52	-4944.91	-29.07	-150.79	406
10	372.00	izq	max	-6100.76	-4033.68	-24.83	-124.12	406
10	372.00		min	-7456.48	-5438.76	-25.78	-159.66	406
10	372.00	der	max	-6100.76	-4033.71	-24.83	-124.12	406
10	372.00		min	-7456.48	-5438.79	-25.78	-159.66	406
10	376.00	izq	max	-6177.48	-3767.36	-27.98	-120.72	406
10	376.00		min	-7550.25	-5056.67	-30.15	-154.62	406
10	376.00	der	max	-6177.48	-3767.30	-27.99	-120.72	406
10	376.00		min	-7550.26	-5056.59	-30.15	-154.62	406
10	380.00	izq	max	-6236.58	-2803.63	-37.22	-106.23	406
10	380.00		min	-7622.48	-3733.32	-42.74	-134.64	406
10	380.00	der	max	-6236.58	-2803.55	-37.22	-106.23	406
10	380.00		min	-7622.48	-3733.22	-42.74	-134.64	406
10	384.00	izq	max	-6273.21	-1421.58	-49.98	-84.97	406
10	384.00		min	-7667.26	-1809.81	-60.44	-104.99	406
10	384.00	der	max	-6273.21	-1421.54	-49.98	-84.97	406
10	384.00		min	-7667.26	-1809.75	-60.44	-104.99	406
10	388.00	izq	max	-10136.80	2084.47	-120.06	-68.75	406
10	388.00		min	-8293.71	1500.14	-96.39	-59.47	406
10	388.00	der	max	-10126.90	2079.91	-119.92	-68.72	406
10	388.00		min	-8287.71	1496.39	-96.30	-59.46	406
10	392.00	izq	max	-10232.70	2661.02	-75.73	-28.42	406
10	392.00		min	-8375.04	1625.00	-58.06	-29.17	406
10	392.00	der	max	-10231.10	2660.95	-75.72	-28.41	406
10	392.00		min	-8373.91	1624.94	-58.05	-29.16	406
11	396.00	izq	max	-10010.20	1740.42	-115.71	-72.87	406
11	396.00		min	-8192.47	1248.48	-93.12	-62.39	406
11	396.00	der	max	-10021.30	1744.72	-115.86	-72.92	406
11	396.00		min	-8199.27	1252.02	-93.22	-62.40	406
11	400.00	izq	max	-5842.60	-1536.94	-44.64	-82.47	406
11	400.00		min	-7140.96	-2023.60	-53.26	-103.07	406
11	400.00	der	max	-5842.60	-1536.98	-44.64	-82.47	337
11	400.00		min	-7140.96	-2023.67	-53.26	-103.07	337
11	404.00	izq	max	-5899.74	-2929.80	-32.72	-104.84	337
11	404.00		min	-7210.80	-3996.77	-36.26	-134.64	337
11	404.00	der	max	-5899.75	-2929.87	-32.72	-104.84	337
11	404.00		min	-7210.81	-3996.87	-36.26	-134.64	337
11	408.00	izq	max	-6008.21	-4140.01	-22.95	-124.86	337
11	408.00		min	-7343.37	-5657.77	-22.69	-161.96	337
11	408.00	der	max	-6008.22	-4140.04	-22.95	-124.86	337
11	408.00		min	-7343.38	-5657.82	-22.69	-161.96	337
11	412.00	izq	max	-6101.38	-4788.75	-18.06	-135.94	337
11	412.00		min	-7457.24	-6543.64	-15.88	-176.96	337
11	412.00	der	max	-6101.38	-4788.76	-18.06	-135.94	337
11	412.00		min	-7457.24	-6543.65	-15.88	-176.96	337
11	416.00	izq	max	-6178.02	-4793.67	-18.78	-136.78	337
11	416.00		min	-7550.91	-6553.73	-16.73	-178.05	337
11	416.00	der	max	-6178.02	-4793.65	-18.78	-136.78	337
11	416.00		min	-7550.92	-6553.71	-16.73	-178.05	337
11	420.00	izq	max	-6237.05	-4101.10	-25.59	-126.54	337
11	420.00		min	-7623.06	-5622.45	-25.80	-164.20	337
11	420.00	der	max	-6237.05	-4101.07	-25.59	-126.54	337
11	420.00		min	-7623.06	-5622.41	-25.80	-164.20	337
11	424.00	izq	max	-8231.10	-1059.76	-72.81	-98.89	337

11	424.00		min	-10060.20	-1731.56	-85.07	-127.69	337
11	424.00	der	max	-8231.10	-1059.74	-72.81	-98.89	337
11	424.00		min	-10060.20	-1731.53	-85.07	-127.69	337
11	428.00	izq	max	-8294.12	-338.77	-79.90	-88.24	337
11	428.00		min	-10137.30	-587.75	-96.10	-110.57	337
11	428.00	der	max	-8290.00	-342.50	-79.83	-88.26	337
11	428.00		min	-10130.10	-592.29	-95.99	-110.57	337
11	432.00	izq	max	-10236.10	-402.08	-54.02	-61.16	337
11	432.00		min	-8377.43	-484.14	-43.11	-51.71	337
11	432.00	der	max	-10225.50	-402.18	-53.96	-61.11	337
11	432.00		min	-8367.57	-484.23	-43.05	-51.66	337
12	436.00	izq	max	-8186.19	-1848.60	-65.28	-110.78	337
12	436.00		min	-10004.70	-2214.95	-80.18	-134.70	337
12	436.00	der	max	-8199.83	-1845.12	-65.45	-110.87	337
12	436.00		min	-10022.00	-2210.70	-80.39	-134.81	337
12	440.00	izq	max	0.00	-0.00	0.00 -	0.00 -	337
12	440.00		min	0.00	-0.00	0.00 -	0.00 -	337
12	440.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	440.00		min	0.00	0.00	0.00 -	0.00 -	0
12	444.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	444.00		min	0.00	0.00	0.00 -	0.00 -	0
12	444.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	444.00		min	0.00	0.00	0.00 -	0.00 -	0
12	448.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	448.00		min	0.00	0.00	0.00 -	0.00 -	0
12	448.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	448.00		min	0.00	0.00	0.00 -	0.00 -	0
12	452.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	452.00		min	0.00	0.00	0.00 -	0.00 -	0
12	452.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	452.00		min	0.00	0.00	0.00 -	0.00 -	0
12	456.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	456.00		min	0.00	0.00	0.00 -	0.00 -	0
12	456.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	456.00		min	0.00	0.00	0.00 -	0.00 -	0
12	460.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	460.00		min	0.00	0.00	0.00 -	0.00 -	0
12	460.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	460.00		min	0.00	0.00	0.00 -	0.00 -	0
12	464.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	464.00		min	0.00	0.00	0.00 -	0.00 -	0
12	464.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	464.00		min	0.00	0.00	0.00 -	0.00 -	0
12	468.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	468.00		min	0.00	0.00	0.00 -	0.00 -	0
12	468.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	468.00		min	0.00	0.00	0.00 -	0.00 -	0
12	472.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
12	472.00		min	0.00	0.00	0.00 -	0.00 -	0
12	472.00	der	max	0.00	0.00	0.00 -	0.00 -	0
12	472.00		min	0.00	0.00	0.00 -	0.00 -	0
13	476.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	476.00		min	0.00	0.00	0.00 -	0.00 -	0
13	476.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	476.00		min	0.00	0.00	0.00 -	0.00 -	0
13	480.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	480.00		min	0.00	0.00	0.00 -	0.00 -	0
13	480.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	480.00		min	0.00	0.00	0.00 -	0.00 -	0
13	484.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	484.00		min	0.00	0.00	0.00 -	0.00 -	0
13	484.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	484.00		min	0.00	0.00	0.00 -	0.00 -	0
13	488.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	488.00		min	0.00	0.00	0.00 -	0.00 -	0
13	488.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	488.00		min	0.00	0.00	0.00 -	0.00 -	0
13	492.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	492.00		min	0.00	0.00	0.00 -	0.00 -	0
13	492.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	492.00		min	0.00	0.00	0.00 -	0.00 -	0
13	496.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	496.00		min	0.00	0.00	0.00 -	0.00 -	0
13	496.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	496.00		min	0.00	0.00	0.00 -	0.00 -	0
13	500.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	500.00		min	0.00	0.00	0.00 -	0.00 -	0
13	500.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	500.00		min	0.00	0.00	0.00 -	0.00 -	0
13	504.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	504.00		min	0.00	0.00	0.00 -	0.00 -	0
13	504.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	504.00		min	0.00	0.00	0.00 -	0.00 -	0
13	508.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	508.00		min	0.00	0.00	0.00 -	0.00 -	0
13	508.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	508.00		min	0.00	0.00	0.00 -	0.00 -	0
13	512.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
13	512.00		min	0.00	0.00	0.00 -	0.00 -	0
13	512.00	der	max	0.00	0.00	0.00 -	0.00 -	0
13	512.00		min	0.00	0.00	0.00 -	0.00 -	0
14	515.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	515.20		min	0.00	0.00	0.00 -	0.00 -	0
14	515.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	515.20		min	0.00	0.00	0.00 -	0.00 -	0
14	518.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	518.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	der	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	540.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80		min	0.00	0.00	0.00 -	0.00 -	0
14	540.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	540.80		min	0.00	0.00	0.00 -	0.00 -	0
14	544.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	544.00		min	0.00	0.00	0.00 -	0.00 -	0

COMPROBACION TENSIONES FASE 12

Factores de ponderación considerados para el pretensado:

- Acciones Desfavorables: 1.1
- Acciones Favorables: 0.9

LEYENDA:
+ : Compresión>fck(j)/1.6
* : Tracción
# : Fisuración
! : Requiere comprobación wk

Vano	x		Pxo	Mmax Mmin	?s ?s	?i ?i	fckj
	[m]		[t]	[tm]	[kg/cm²]	[kg/cm²]	[kg/cm²]
1	0.00	der max	-6215.81	-4074.98	-5.62	-78.07	525
1	0.00	min	-7594.42	-4980.54	-6.86	-95.40	525
1	3.20	izq max	-6247.65	-5660.91	-11.70	-151.05	525
1	3.20	min	-7634.20	-7122.99	-12.45	-187.79	525
1	3.20	der max	-6262.39	-5684.65	-11.64	-151.57	525
1	3.20	min	-7654.04	-7152.02	-12.39	-188.44	525
1	6.40	izq max	-6380.21	-6539.30	-5.15	-166.12	525
1	6.40	min	-7798.03	-8336.18	-3.21	-208.41	525
1	6.40	der max	-6380.21	-6539.30	-5.15	-166.12	525
1	6.40	min	-7798.03	-8336.19	-3.21	-208.41	525
1	9.60	izq max	-6467.75	-6837.98	-3.35	-171.67	525
1	9.60	min	-7905.02	-8783.92	-0.27	-216.48	525
1	9.60	der max	-6467.75	-6837.96	-3.35	-171.67	525
1	9.60	min	-7905.02	-8783.91	-0.27	-216.48	525
1	12.80	izq max	-6457.87	-6404.30	-7.14	-164.78	525
1	12.80	min	-7892.95	-8279.68	-4.67	-208.47	525
1	12.80	der max	-6457.86	-6404.27	-7.14	-164.78	525
1	12.80	min	-7892.94	-8279.65	-4.67	-208.47	525
1	16.00	izq max	-6391.29	-5465.78	-14.89	-149.43	525
1	16.00	min	-7811.58	-7101.54	-14.42	-189.23	525
1	16.00	der max	-6391.29	-5465.77	-14.89	-149.43	525
1	16.00	min	-7811.58	-7101.52	-14.42	-189.23	525
1	19.20	izq max	-6319.35	-4210.80	-25.43	-129.08	525
1	19.20	min	-7723.65	-5479.72	-28.09	-162.97	525
1	19.20	der max	-6319.35	-4210.77	-25.43	-129.08	525
1	19.20	min	-7723.65	-5479.69	-28.09	-162.97	525
1	22.40	izq max	-6293.66	-2709.82	-38.63	-105.33	525
1	22.40	min	-7692.25	-3500.31	-45.53	-131.69	525
1	22.40	der max	-6293.66	-2709.72	-38.63	-105.33	525
1	22.40	min	-7692.24	-3500.18	-45.53	-131.69	525
1	25.60	izq max	-6310.58	-1173.89	-52.58	-81.47	525
1	25.60	min	-7712.92	-1421.34	-64.38	-99.37	525
1	25.60	der max	-6310.58	-1173.80	-52.58	-81.47	525
1	25.60	min	-7712.93	-1421.21	-64.38	-99.37	525
1	28.80	izq max	-10863.50	-842.06	-101.08	-121.81	525
1	28.80	min	-8888.28	-911.54	-80.71	-103.14	525
1	28.80	der max	-10839.70	-844.55	-100.82	-121.61	525
1	28.80	min	-8871.39	-913.59	-80.52	-103.01	525
1	32.00	izq max	-10985.70	750.15	-66.35	-53.02	525
1	32.00	min	-8991.56	126.75	-50.85	-48.60	525
1	32.00	der max	-10990.60	748.84	-66.37	-53.06	525
1	32.00	min	-8995.08	125.68	-50.86	-48.63	525
2	36.00	izq max	-10773.60	-165.30	-106.25	-110.32	525
2	36.00	min	-8816.82	-284.13	-85.62	-92.61	525
2	36.00	der max	-10784.50	-163.76	-106.38	-110.41	525
2	36.00	min	-8823.65	-282.87	-85.70	-92.66	525
2	40.00	izq max	-13949.90	-5818.67	-87.31	-230.54	525
2	40.00	min	-17049.90	-7242.33	-105.54	-283.81	525
2	40.00	der max	-6471.59	-1242.56	-53.57	-84.16	522
2	40.00	min	-7909.72	-1649.32	-64.30	-104.90	522
2	44.00	izq max	-6531.56	-2618.79	-41.83	-106.29	522
2	44.00	min	-7983.02	-3555.02	-47.94	-135.45	522
2	44.00	der max	-6531.57	-2618.82	-41.83	-106.29	522
2	44.00	min	-7983.03	-3555.08	-47.94	-135.45	522
2	48.00	izq max	-6644.45	-3816.97	-32.21	-126.17	522
2	48.00	min	-8121.00	-5154.28	-34.98	-161.85	522
2	48.00	der max	-6644.46	-3816.99	-32.21	-126.17	522
2	48.00	min	-8121.00	-5154.30	-34.98	-161.86	522
2	52.00	izq max	-6742.04	-4453.88	-27.47	-137.11	522
2	52.00	min	-8240.27	-5978.63	-28.78	-175.95	522
2	52.00	der max	-6742.04	-4453.90	-27.47	-137.11	522
2	52.00	min	-8240.27	-5978.66	-28.78	-175.95	522
2	56.00	izq max	-6823.11	-4447.09	-28.34	-137.81	522
2	56.00	min	-8339.35	-5927.36	-30.23	-176.13	522
2	56.00	der max	-6823.11	-4447.09	-28.34	-137.81	522
2	56.00	min	-8339.35	-5927.34	-30.23	-176.13	522
2	60.00	izq max	-6886.56	-3742.89	-35.29	-127.43	522
2	60.00	min	-8416.90	-4934.79	-39.91	-161.38	522
2	60.00	der max	-6886.56	-3742.84	-35.30	-127.43	522
2	60.00	min	-8416.91	-4934.73	-39.91	-161.38	522
2	64.00	izq max	-8884.96	-688.44	-82.67	-99.62	522
2	64.00	min	-10859.40	-980.82	-99.80	-123.94	522
2	64.00	der max	-8884.96	-688.44	-82.67	-99.62	522
2	64.00	min	-10859.40	-980.80	-99.80	-123.94	522
2	68.00	izq max	-10941.30	228.02	-111.46	-105.84	522
2	68.00	min	-8951.93	47.25	-89.94	-88.78	522
2	68.00	der max	-10933.20	224.59	-111.34	-105.82	522
2	68.00	min	-8947.37	44.44	-89.87	-88.78	522
2	72.00	izq max	-11045.50	574.46	-65.44	-55.23	522
2	72.00	min	-9039.93	-5.10	-50.19	-50.28	522
2	72.00	der max	-11043.80	574.45	-65.43	-55.22	522
2	72.00	min	-9038.60	-5.11	-50.18	-50.27	522
3	76.00	izq max	-10828.50	-133.82	-107.08	-110.38	522
3	76.00	min	-8861.69	-247.59	-86.39	-92.49	522
3	76.00	der max	-10837.70	-130.66	-107.21	-110.42	522
3	76.00	min	-8867.25	-244.99	-86.48	-92.51	522
3	80.00	izq max	-7165.02	-4038.68	-35.43	-134.84	522
3	80.00	min	-8757.25	-5078.62	-42.02	-167.03	522
3	80.00	der max	-5841.64	-1585.17	-44.20	-83.22	515
3	80.00	min	-7139.79	-2079.89	-52.74	-103.94	515
3	84.00	izq max	-5898.46	-2767.36	-34.16	-102.28	515
3	84.00	min	-7209.23	-3747.09	-38.48	-130.72	515
3	84.00	der max	-5898.46	-2767.41	-34.16	-102.28	515
3	84.00	min	-7209.23	-3747.16	-38.48	-130.72	515
3	88.00	izq max	-6007.01	-3769.25	-26.26	-119.04	515
3	88.00	min	-7341.90	-5105.06	-27.63	-153.29	515
3	88.00	der max	-6007.01	-3769.30	-26.26	-119.05	515
3	88.00	min	-7341.91	-5105.13	-27.63	-153.29	515
3	92.00	izq max	-6100.29	-4210.30	-23.24	-126.88	515
3	92.00	min	-7455.91	-5688.69	-23.54	-163.57	515
3	92.00	der max	-6100.30	-4210.31	-23.24	-126.88	515
3	92.00	min	-7455.92	-5688.69	-23.54	-163.57	515
3	96.00	izq max	-6177.03	-4007.52	-25.83	-124.47	515
3	96.00	min	-7549.71	-5396.51	-27.09	-159.93	515
3	96.00	der max	-6177.04	-4007.50	-25.83	-124.47	515
3	96.00	min	-7549.71	-5396.48	-27.09	-159.93	515
3	100.00	izq max	-6236.17	-3107.43	-34.49	-110.98	515
3	100.00	min	-7621.99	-4163.15	-38.88	-141.36	515
3	100.00	der max	-6236.18	-3107.35	-34.49	-110.98	515
3	100.00	min	-7621.99	-4163.05	-38.88	-141.36	515
3	104.00	izq max	-8230.25	143.13	-83.59	-80.06	515
3	104.00	min	-10059.20	31.88	-100.88	-100.09	515
3	104.00	der max	-8230.25	143.18	-83.59	-80.06	515
3	104.00	min	-10059.20	31.95	-100.88	-100.09	515
3	108.00	izq max	-10135.80	1481.96	-114.65	-78.17	515
3	108.00	min	-8292.90	1075.08	-92.57	-66.11	515
3	108.00	der max	-10126.40	1477.40	-114.51	-78.15	515
3	108.00	min	-8287.29	1071.34	-92.48	-66.11	515
3	112.00	izq max	-10233.20	1978.98	-70.89	-35.71	515
3	112.00	min	-8375.33	1144.86	-54.65	-34.30	515
3	112.00	der max	-10233.20	1978.99	-70.89	-35.71	515
3	112.00	min	-8375.32	1144.87	-54.65	-34.30	515
4	116.00	izq max	-10012.20	1369.23	-112.40	-78.70	515

4	116.00		min	-8193.81	982.89	-90.75	-66.56	515
4	116.00	der	max	-10021.20	1373.57	-112.53	-78.72	515
4	116.00		min	-8199.13	986.46	-90.84	-66.56	515
4	120.00	izq	max	-5841.51	-1595.09	-44.11	-83.37	515
4	120.00		min	-7139.62	-2092.71	-52.63	-104.14	515
4	120.00	der	max	-5841.51	-1595.11	-44.11	-83.37	510
4	120.00		min	-7139.63	-2092.74	-52.63	-104.14	510
4	124.00	izq	max	-5898.72	-2777.28	-34.08	-102.44	510
4	124.00		min	-7209.54	-3759.84	-38.37	-130.92	510
4	124.00	der	max	-5898.72	-2777.32	-34.08	-102.44	510
4	124.00		min	-7209.54	-3759.89	-38.37	-130.92	510
4	128.00	izq	max	-6007.26	-3776.75	-26.20	-119.16	510
4	128.00		min	-7342.21	-5114.71	-27.55	-153.45	510
4	128.00	der	max	-6007.27	-3776.77	-26.20	-119.16	510
4	128.00		min	-7342.22	-5114.74	-27.55	-153.45	510
4	132.00	izq	max	-6100.53	-4214.85	-23.20	-126.95	510
4	132.00		min	-7456.20	-5694.57	-23.49	-163.66	510
4	132.00	der	max	-6100.53	-4214.86	-23.20	-126.95	510
4	132.00		min	-7456.20	-5694.58	-23.49	-163.66	510
4	136.00	izq	max	-6177.25	-4009.03	-25.81	-124.50	510
4	136.00		min	-7549.98	-5398.51	-27.08	-159.97	510
4	136.00	der	max	-6177.26	-4009.00	-25.81	-124.50	510
4	136.00		min	-7549.98	-5398.48	-27.08	-159.97	510
4	140.00	izq	max	-6236.37	-3105.75	-34.51	-110.96	510
4	140.00		min	-7622.23	-4161.15	-38.90	-141.33	510
4	140.00	der	max	-6236.37	-3105.72	-34.51	-110.96	510
4	140.00		min	-7622.23	-4161.11	-38.90	-141.33	510
4	144.00	izq	max	-6273.04	-1784.29	-46.73	-90.65	510
4	144.00		min	-7667.05	-2323.79	-55.83	-113.03	510
4	144.00	der	max	-6273.04	-1784.24	-46.73	-90.65	510
4	144.00		min	-7667.05	-2323.72	-55.83	-113.03	510
4	148.00	izq	max	-10136.70	1484.45	-114.68	-78.14	510
4	148.00		min	-8293.62	1076.94	-92.60	-66.09	510
4	148.00	der	max	-10127.40	1479.89	-114.55	-78.12	510
4	148.00		min	-8288.04	1073.20	-92.50	-66.09	510
4	152.00	izq	max	-10233.40	1974.86	-70.86	-35.75	510
4	152.00		min	-8375.51	1141.17	-54.63	-34.34	510
4	152.00	der	max	-10233.30	1974.78	-70.86	-35.75	510
4	152.00		min	-8375.42	1141.11	-54.63	-34.34	510
5	156.00	izq	max	-10012.50	1361.19	-112.33	-78.83	510
5	156.00		min	-8194.09	976.08	-90.69	-66.67	510
5	156.00	der	max	-10021.50	1365.55	-112.46	-78.85	510
5	156.00		min	-8199.42	979.67	-90.78	-66.67	510
5	160.00	izq	max	-5841.60	-1597.90	-44.08	-83.42	510
5	160.00		min	-7139.73	-2095.95	-52.60	-104.19	510
5	160.00	der	max	-5841.60	-1597.88	-44.08	-83.42	504
5	160.00		min	-7139.73	-2095.95	-52.60	-104.19	504
5	164.00	izq	max	-5898.79	-2779.31	-34.06	-102.47	504
5	164.00		min	-7209.63	-3762.14	-38.35	-130.96	504
5	164.00	der	max	-5898.79	-2779.33	-34.06	-102.47	504
5	164.00		min	-7209.63	-3762.18	-38.35	-130.96	504
5	168.00	izq	max	-6007.35	-3778.45	-26.18	-119.19	504
5	168.00		min	-7342.32	-5116.71	-27.53	-153.48	504
5	168.00	der	max	-6007.35	-3778.47	-26.18	-119.19	504
5	168.00		min	-7342.32	-5116.74	-27.53	-153.48	504
5	172.00	izq	max	-6100.61	-4216.08	-23.19	-126.97	504
5	172.00		min	-7456.30	-5696.08	-23.47	-163.68	504
5	172.00	der	max	-6100.61	-4216.11	-23.19	-126.97	504
5	172.00		min	-7456.30	-5696.11	-23.47	-163.69	504
5	176.00	izq	max	-6177.35	-4009.79	-25.81	-124.51	504
5	176.00		min	-7550.09	-5399.53	-27.07	-159.98	504
5	176.00	der	max	-6177.35	-4009.75	-25.81	-124.51	504
5	176.00		min	-7550.10	-5399.48	-27.07	-159.98	504
5	180.00	izq	max	-6236.46	-3106.13	-34.51	-110.96	504
5	180.00		min	-7622.34	-4161.79	-38.90	-141.34	504
5	180.00	der	max	-6236.46	-3106.07	-34.51	-110.96	504
5	180.00		min	-7622.34	-4161.72	-38.90	-141.34	504
5	184.00	izq	max	-8230.46	146.04	-83.61	-80.02	504
5	184.00		min	-10059.50	35.26	-100.91	-100.04	504
5	184.00	der	max	-8230.46	146.09	-83.61	-80.02	504
5	184.00		min	-10059.50	35.32	-100.91	-100.04	504
5	188.00	izq	max	-10136.60	1485.19	-114.69	-78.13	504
5	188.00		min	-8293.55	1077.83	-92.60	-66.07	504
5	188.00	der	max	-10127.30	1480.63	-114.55	-78.10	504
5	188.00		min	-8287.97	1074.09	-92.51	-66.07	504
5	192.00	izq	max	-10233.40	1976.29	-70.87	-35.74	504
5	192.00		min	-8375.47	1142.65	-54.64	-34.32	504
5	192.00	der	max	-10233.30	1976.24	-70.87	-35.74	504
5	192.00		min	-8375.38	1142.61	-54.64	-34.32	504
6	196.00	izq	max	-10012.50	1362.61	-112.34	-78.80	504
6	196.00		min	-8194.04	977.58	-90.71	-66.64	504
6	196.00	der	max	-10021.40	1366.94	-112.47	-78.83	504
6	196.00		min	-8199.36	981.13	-90.79	-66.64	504
6	200.00	izq	max	-5842.29	-1597.47	-44.09	-83.42	504
6	200.00		min	-7140.57	-2095.88	-52.61	-104.20	504
6	200.00	der	max	-5842.29	-1597.49	-44.09	-83.42	497
6	200.00		min	-7140.58	-2095.91	-52.61	-104.20	497
6	204.00	izq	max	-5899.40	-2779.04	-34.07	-102.48	497
6	204.00		min	-7210.38	-3762.34	-38.36	-130.97	497
6	204.00	der	max	-5899.41	-2779.09	-34.07	-102.48	497
6	204.00		min	-7210.39	-3762.41	-38.36	-130.97	497
6	208.00	izq	max	-6007.91	-3778.11	-26.19	-119.19	497
6	208.00		min	-7343.01	-5116.86	-27.54	-153.49	497
6	208.00	der	max	-6007.92	-3778.15	-26.19	-119.19	497
6	208.00		min	-7343.01	-5116.92	-27.54	-153.49	497
6	212.00	izq	max	-6101.14	-4215.74	-23.20	-126.97	497
6	212.00		min	-7456.95	-5696.29	-23.48	-163.69	497
6	212.00	der	max	-6101.14	-4215.75	-23.20	-126.97	497
6	212.00		min	-7456.95	-5696.30	-23.48	-163.69	497
6	216.00	izq	max	-6177.81	-4009.36	-25.82	-124.51	497
6	216.00		min	-7550.66	-5399.71	-27.08	-159.99	497
6	216.00	der	max	-6177.82	-4009.34	-25.82	-124.51	497
6	216.00		min	-7550.66	-5399.66	-27.08	-159.99	497
6	220.00	izq	max	-6236.89	-3105.52	-34.51	-110.96	497
6	220.00		min	-7622.86	-4161.78	-38.90	-141.34	497
6	220.00	der	max	-6236.89	-3105.45	-34.52	-110.96	497
6	220.00		min	-7622.86	-4161.69	-38.90	-141.34	497
6	224.00	izq	max	-6273.44	-1783.20	-46.74	-90.63	497
6	224.00		min	-7667.54	-2323.49	-55.84	-113.03	497
6	224.00	der	max	-8230.86	146.85	-83.63	-80.01	497
6	224.00		min	-10059.90	35.47	-100.92	-100.04	497
6	228.00	izq	max	-10137.00	1485.45	-114.69	-78.13	497
6	228.00		min	-8293.87	1078.75	-92.61	-66.06	497
6	228.00	der	max	-10127.70	1480.90	-114.56	-78.10	497
6	228.00		min	-8288.28	1075.01	-92.52	-66.06	497
6	232.00	izq	max	-10233.70	1976.94	-70.88	-35.73	497
6	232.00		min	-8375.73	1143.96	-54.65	-34.31	497
6	232.00	der	max	-10233.60	1976.88	-70.88	-35.73	497
6	232.00		min	-8375.65	1143.91	-54.65	-34.31	497
7	236.00	izq	max	-10012.80	1364.31	-112.36	-78.78	497
7	236.00		min	-8194.30	979.68	-90.73	-66.61	497
7	236.00	der	max	-10021.80	1368.63	-112.49	-78.80	497
7	236.00		min	-8199.62	983.23	-90.81	-66.61	497
7	240.00	izq	max	-5841.53	-1593.52	-44.12	-83.35	497
7	240.00		min	-7139.65	-2091.88	-52.63	-104.13	497
7	240.00	der	max	-5841.54	-1593.58	-44.12	-83.35	489
7	240.00		min	-7139.66	-2091.96	-52.63	-104.13	489
7	244.00	izq	max	-5898.69	-2774.80	-34.10	-102.40	489
7	244.00		min	-7209.51	-3757.92	-38.39	-130.89	489
7	244.00	der	max	-5898.70	-2774.85	-34.10	-102.40	489
7	244.00		min	-7209.52	-3757.99	-38.39	-130.89	489
7	248.00	izq	max	-6007.24	-3773.31	-26.23	-119.11	489
7	248.00		min	-7342.18	-5111.65	-27.57	-153.40	489
7	248.00	der	max	-6007.24	-3773.35	-26.23	-119.11	489
7	248.00		min	-7342.18	-5111.70	-27.57	-153.40	489
7	252.00	izq	max	-6100.52	-4210.68	-23.24	-126.89	489
7	252.00		min	-7456.19	-5690.67	-23.52	-163.60	489
7	252.00	der	max	-6100.52	-4210.66	-23.24	-126.89	489
7	252.00		min	-7456.19	-5690.66	-23.52	-163.60	489
7	256.00	izq	max	-6177.26	-4004.09	-25.86	-124.42	489
7	256.00		min	-7549.98	-5393.74	-27.12	-159.89	489
7	256.00	der	max	-6177.26	-4004.07	-25.86	-124.42	489
7	256.00		min	-7549.99	-5393.71	-27.12	-159.89	489
7	260.00	izq	max	-6236.39	-3099.96	-34.56	-110.87	489

7	260.00		min	-7622.25	-4155.38	-38.95	-141.24	489
7	260.00	der	max	-6236.39	-3099.93	-34.56	-110.87	489
7	260.00		min	-7622.26	-4155.33	-38.95	-141.24	489
7	264.00	izq	max	-6273.03	-1777.46	-46.79	-90.54	489
7	264.00		min	-7667.04	-2316.79	-55.89	-112.92	489
7	264.00	der	max	-8230.56	152.70	-83.68	-79.92	489
7	264.00		min	-10059.60	42.30	-100.98	-99.93	489
7	268.00	izq	max	-10136.60	1492.54	-114.75	-78.01	489
7	268.00		min	-8293.55	1084.73	-92.66	-65.96	489
7	268.00	der	max	-10127.20	1488.00	-114.62	-77.99	489
7	268.00		min	-8287.94	1081.01	-92.57	-65.96	489
7	272.00	izq	max	-10233.30	1984.99	-70.93	-35.65	489
7	272.00		min	-8375.44	1150.73	-54.69	-34.24	489
7	272.00	der	max	-10233.20	1984.91	-70.93	-35.65	489
7	272.00		min	-8375.36	1150.66	-54.69	-34.24	489
8	276.00	izq	max	-10012.50	1369.88	-112.41	-78.69	489
8	276.00		min	-8194.04	984.56	-90.77	-66.53	489
8	276.00	der	max	-10021.50	1374.21	-112.54	-78.71	489
8	276.00		min	-8199.37	988.12	-90.86	-66.53	489
8	280.00	izq	max	-7746.65	286.17	-80.03	-72.99	489
8	280.00		min	-9468.13	205.17	-96.52	-91.47	489
8	280.00	der	max	-5842.05	-1591.81	-44.14	-83.33	478
8	280.00		min	-7140.28	-2090.15	-52.66	-104.11	478
8	284.00	izq	max	-5899.13	-2775.03	-34.10	-102.41	478
8	284.00		min	-7210.05	-3758.57	-38.39	-130.91	478
8	284.00	der	max	-5899.13	-2775.06	-34.10	-102.41	478
8	284.00		min	-7210.05	-3758.62	-38.39	-130.91	478
8	288.00	izq	max	-6007.64	-3776.14	-26.21	-119.16	478
8	288.00		min	-7342.68	-5115.53	-27.54	-153.47	478
8	288.00	der	max	-6007.65	-3776.18	-26.21	-119.16	478
8	288.00		min	-7342.68	-5115.59	-27.54	-153.47	478
8	292.00	izq	max	-6100.85	-4215.83	-23.20	-126.97	478
8	292.00		min	-7456.60	-5697.43	-23.46	-163.71	478
8	292.00	der	max	-6100.86	-4215.84	-23.20	-126.97	478
8	292.00		min	-7456.60	-5697.44	-23.46	-163.71	478
8	296.00	izq	max	-6177.55	-4011.75	-25.79	-124.54	478
8	296.00		min	-7550.34	-5403.61	-27.04	-160.05	478
8	296.00	der	max	-6177.55	-4011.71	-25.79	-124.54	478
8	296.00		min	-7550.34	-5403.54	-27.04	-160.05	478
8	300.00	izq	max	-6236.63	-3110.19	-34.47	-111.03	478
8	300.00		min	-7622.55	-4168.43	-38.84	-141.45	478
8	300.00	der	max	-6236.63	-3110.15	-34.47	-111.03	478
8	300.00		min	-7622.55	-4168.37	-38.84	-141.44	478
8	304.00	izq	max	-8230.80	140.36	-83.57	-80.11	478
8	304.00		min	-10059.90	26.68	-100.84	-100.18	478
8	304.00	der	max	-8230.80	140.39	-83.57	-80.11	478
8	304.00		min	-10059.90	26.73	-100.84	-100.18	478
8	308.00	izq	max	-10136.90	1474.32	-114.59	-78.30	478
8	308.00		min	-8293.81	1070.33	-92.54	-66.19	478
8	308.00	der	max	-10127.60	1469.77	-114.46	-78.28	478
8	308.00		min	-8288.23	1066.59	-92.45	-66.19	478
8	312.00	izq	max	-10233.70	1964.47	-70.79	-35.87	478
8	312.00		min	-8375.76	1134.39	-54.58	-34.41	478
8	312.00	der	max	-10233.70	1964.41	-70.79	-35.87	478
8	312.00		min	-8375.71	1134.35	-54.58	-34.41	478
9	316.00	izq	max	-10012.90	1357.81	-112.31	-78.88	478
9	316.00		min	-8194.37	974.39	-90.68	-66.70	478
9	316.00	der	max	-10021.80	1362.17	-112.44	-78.91	478
9	316.00		min	-8199.66	977.97	-90.77	-66.70	478
9	320.00	izq	max	-5841.85	-1596.58	-44.10	-83.40	478
9	320.00		min	-7140.04	-2094.80	-52.61	-104.18	478
9	320.00	der	max	-5841.85	-1596.62	-44.10	-83.40	463
9	320.00		min	-7140.04	-2094.85	-52.61	-104.18	463
9	324.00	izq	max	-5899.13	-2774.09	-34.11	-102.40	463
9	324.00		min	-7210.05	-3755.40	-38.42	-130.86	463
9	324.00	der	max	-5899.14	-2774.14	-34.11	-102.40	463
9	324.00		min	-7210.06	-3755.47	-38.42	-130.86	463
9	328.00	izq	max	-6007.65	-3768.94	-26.27	-119.05	463
9	328.00		min	-7342.68	-5103.87	-27.65	-153.28	463
9	328.00	der	max	-6007.65	-3769.00	-26.27	-119.05	463
9	328.00		min	-7342.69	-5103.94	-27.65	-153.28	463
9	332.00	izq	max	-6100.90	-4202.56	-23.32	-126.76	463
9	332.00		min	-7456.65	-5677.50	-23.64	-163.40	463
9	332.00	der	max	-6100.90	-4202.56	-23.32	-126.76	463
9	332.00		min	-7456.65	-5677.51	-23.64	-163.40	463
9	336.00	izq	max	-6177.59	-3992.24	-25.97	-124.24	463
9	336.00		min	-7550.39	-5375.23	-27.29	-159.61	463
9	336.00	der	max	-6177.60	-3992.22	-25.97	-124.24	463
9	336.00		min	-7550.40	-5375.20	-27.29	-159.61	463
9	340.00	izq	max	-6236.70	-3084.34	-34.70	-110.63	463
9	340.00		min	-7622.63	-4131.45	-39.17	-140.87	463
9	340.00	der	max	-6236.69	-3084.29	-34.70	-110.62	463
9	340.00		min	-7622.63	-4131.38	-39.17	-140.87	463
9	344.00	izq	max	-8230.81	172.13	-83.85	-79.61	463
9	344.00		min	-10059.90	71.69	-101.24	-99.48	463
9	344.00	der	max	-8230.82	172.18	-83.85	-79.61	463
9	344.00		min	-10059.90	71.76	-101.24	-99.48	463
9	348.00	izq	max	-10136.90	1527.62	-115.07	-77.47	463
9	348.00		min	-8293.85	1108.14	-92.88	-65.60	463
9	348.00	der	max	-10127.60	1523.07	-114.93	-77.44	463
9	348.00		min	-8288.22	1104.40	-92.79	-65.60	463
9	352.00	izq	max	-10233.50	2024.75	-71.22	-35.22	463
9	352.00		min	-8375.62	1177.21	-54.88	-33.95	463
9	352.00	der	max	-10233.30	2024.67	-71.22	-35.22	463
9	352.00		min	-8375.48	1177.14	-54.88	-33.95	463
10	356.00	izq	max	-10012.60	1390.40	-112.60	-78.37	463
10	356.00		min	-8194.18	998.06	-90.89	-66.32	463
10	356.00	der	max	-10021.70	1394.76	-112.73	-78.39	463
10	356.00		min	-8199.60	1001.64	-90.98	-66.32	463
10	360.00	izq	max	-5841.80	-1590.89	-44.15	-83.31	463
10	360.00		min	-7139.98	-2088.62	-52.67	-104.08	463
10	360.00	der	max	-5841.81	-1590.89	-44.15	-83.31	441
10	360.00		min	-7139.99	-2088.63	-52.67	-104.08	441
10	364.00	izq	max	-5898.98	-2786.64	-34.00	-102.59	441
10	364.00		min	-7209.87	-3775.95	-38.23	-131.18	441
10	364.00	der	max	-5898.99	-2786.68	-34.00	-102.59	441
10	364.00		min	-7209.88	-3776.00	-38.23	-131.18	441
10	368.00	izq	max	-6007.51	-3799.76	-25.99	-119.53	441
10	368.00		min	-7342.52	-5151.15	-27.22	-154.02	441
10	368.00	der	max	-6007.52	-3799.80	-25.99	-119.53	441
10	368.00		min	-7342.52	-5151.21	-27.22	-154.02	441
10	372.00	izq	max	-6100.76	-4251.54	-22.87	-127.53	441
10	372.00		min	-7456.48	-5751.40	-22.98	-164.55	441
10	372.00	der	max	-6100.76	-4251.57	-22.87	-127.53	441
10	372.00		min	-7456.48	-5751.44	-22.98	-164.55	441
10	376.00	izq	max	-6177.48	-4059.36	-25.37	-125.29	441
10	376.00		min	-7550.25	-5475.67	-26.39	-161.18	441
10	376.00	der	max	-6177.48	-4059.29	-25.37	-125.29	441
10	376.00		min	-7550.26	-5475.60	-26.39	-161.17	441
10	380.00	izq	max	-6236.58	-3169.73	-33.94	-111.96	441
10	380.00		min	-7622.48	-4258.66	-38.03	-142.86	441
10	380.00	der	max	-6236.58	-3169.66	-33.94	-111.96	441
10	380.00		min	-7622.48	-4258.56	-38.03	-142.85	441
10	384.00	izq	max	-6273.21	-1861.79	-46.03	-91.86	441
10	384.00		min	-7667.26	-2441.48	-54.77	-114.87	441
10	384.00	der	max	-6273.21	-1861.76	-46.03	-91.86	441
10	384.00		min	-7667.26	-2441.43	-54.77	-114.87	441
10	388.00	izq	max	-10136.80	1346.44	-113.44	-80.30	441
10	388.00		min	-8293.71	985.80	-91.78	-67.51	441
10	388.00	der	max	-10127.60	1341.87	-113.31	-80.28	441
10	388.00		min	-8288.22	982.05	-91.69	-67.52	441
10	392.00	izq	max	-10233.50	1816.66	-69.74	-37.45	441
10	392.00		min	-8375.56	1036.55	-53.88	-35.46	441
10	392.00	der	max	-10233.80	1816.60	-69.74	-37.45	441
10	392.00		min	-8375.79	1036.50	-53.89	-35.46	441
11	396.00	izq	max	-10012.90	1288.97	-111.69	-79.96	441
11	396.00		min	-8194.36	931.71	-90.30	-67.36	441
11	396.00	der	max	-10021.30	1293.29	-111.81	-79.98	441
11	396.00		min	-8199.27	935.25	-90.38	-67.36	441
11	400.00	izq	max	-5842.60	-1582.07	-44.24	-83.18	441
11	400.00		min	-7140.96	-2082.19	-52.73	-103.99	441
11	400.00	der	max	-5842.60	-1582.10	-44.24	-83.18	406
11	400.00		min	-7140.96	-2082.24	-52.73	-103.99	406
11	404.00	izq	max	-5899.74	-2703.23	-34.75	-101.29	406

11	404.00		min	-7210.80	-3662.41	-39.26	-129.41	406	13	476.00		min	-10004.30	-2215.63	-80.17	-134.71	337
11	404.00	der	max	-5899.75	-2703.29	-34.75	-101.29	406	13	476.00	der	max	-8199.48	-1845.63	-65.44	-110.87	337
11	404.00		min	-7210.81	-3662.49	-39.26	-129.41	406	13	476.00		min	-10021.60	-2211.34	-80.38	-134.81	337
11	408.00	izq	max	-6008.21	-3641.77	-27.42	-117.06	406	13	480.00	izq	max	0.00	0.00	0.00	- 0.00	- 337
11	408.00		min	-7343.37	-4930.51	-29.21	-150.58	406	13	480.00		min	0.00	0.00	0.00	- 0.00	- 337
11	408.00	der	max	-6008.22	-3641.79	-27.42	-117.06	406	13	480.00	der	max	0.00	0.00	0.00	- 0.00	- 0
11	408.00		min	-7343.38	-4930.54	-29.21	-150.58	406	13	480.00		min	0.00	0.00	0.00	- 0.00	- 0
11	412.00	izq	max	-6101.38	-4018.89	-24.97	-123.89	406	13	484.00	izq	max	0.00	0.00	0.00	- 0.00	- 0
11	412.00		min	-7457.24	-5423.53	-25.93	-159.43	406	13	484.00		min	0.00	0.00	0.00	- 0.00	- 0
11	412.00	der	max	-6101.38	-4018.88	-24.97	-123.89	406	13	484.00	der	max	0.00	0.00	0.00	- 0.00	- 0
11	412.00		min	-7457.24	-5423.52	-25.93	-159.43	406	13	484.00		min	0.00	0.00	0.00	- 0.00	- 0
11	416.00	izq	max	-6178.02	-3752.15	-28.13	-120.49	406	13	488.00	izq	max	0.00	0.00	0.00	- 0.00	- 0
11	416.00		min	-7550.91	-5040.75	-30.30	-154.38	406	13	488.00		min	0.00	0.00	0.00	- 0.00	- 0
11	416.00	der	max	-6178.02	-3752.12	-28.13	-120.49	406	13	488.00	der	max	0.00	0.00	0.00	- 0.00	- 0
11	416.00		min	-7550.92	-5040.71	-30.30	-154.38	406	13	488.00		min	0.00	0.00	0.00	- 0.00	- 0
11	420.00	izq	max	-6237.05	-2787.93	-37.36	-105.99	406	13	492.00	izq	max	0.00	0.00	0.00	- 0.00	- 0
11	420.00		min	-7623.06	-3716.59	-42.90	-134.38	406	13	492.00		min	0.00	0.00	0.00	- 0.00	- 0
11	420.00	der	max	-6237.05	-2787.89	-37.37	-105.99	406	13	492.00	der	max	0.00	0.00	0.00	- 0.00	- 0
11	420.00		min	-7623.06	-3716.53	-42.90	-134.38	406	13	492.00		min	0.00	0.00	0.00	- 0.00	- 0
11	424.00	izq	max	-10060.20	567.20	-105.69	-91.73	406	13	496.00	izq	max	0.00	0.00	0.00	- 0.00	- 0
11	424.00		min	-8231.10	525.08	-87.02	-74.10	406	13	496.00		min	0.00	0.00	0.00	- 0.00	- 0
11	424.00	der	max	-10060.20	567.25	-105.69	-91.73	406	13	496.00	der	max	0.00	0.00	0.00	- 0.00	- 0
11	424.00		min	-8231.10	525.11	-87.02	-74.10	406	13	496.00		min	0.00	0.00	0.00	- 0.00	- 0
11	428.00	izq	max	-10137.30	2103.94	-120.24	-68.45	406	13	500.00	izq	max	0.00	0.00	0.00	- 0.00	- 0
11	428.00		min	-8294.12	1517.75	-96.55	-59.19	406	13	500.00		min	0.00	0.00	0.00	- 0.00	- 0
11	428.00	der	max	-10127.40	2099.41	-120.10	-68.42	406	13	500.00	der	max	0.00	0.00	0.00	- 0.00	- 0
11	428.00		min	-8288.12	1514.03	-96.46	-59.19	406	13	500.00		min	0.00	0.00	0.00	- 0.00	- 0
11	432.00	izq	max	-10233.40	2682.48	-75.88	-28.19	406	13	504.00	izq	max	0.00	0.00	0.00	- 0.00	- 0
11	432.00		min	-8375.55	1644.03	-58.19	-28.97	406	13	504.00		min	0.00	0.00	0.00	- 0.00	- 0
11	432.00	der	max	-10231.70	2682.42	-75.87	-28.19	406	13	504.00	der	max	0.00	0.00	0.00	- 0.00	- 0
11	432.00		min	-8374.41	1643.98	-58.19	-28.96	406	13	504.00		min	0.00	0.00	0.00	- 0.00	- 0
12	436.00	izq	max	-10010.90	1761.18	-115.90	-72.55	406	13	508.00	izq	max	0.00	0.00	0.00	- 0.00	- 0
12	436.00		min	-8193.04	1266.77	-93.29	-62.11	406	13	508.00		min	0.00	0.00	0.00	- 0.00	- 0
12	436.00	der	max	-10022.00	1765.49	-116.06	-72.60	406	13	508.00	der	max	0.00	0.00	0.00	- 0.00	- 0
12	436.00		min	-8199.83	1270.31	-93.39	-62.12	406	13	508.00		min	0.00	0.00	0.00	- 0.00	- 0
12	440.00	izq	max	-5841.68	-1521.00	-44.77	-82.21	406	13	512.00	izq	max	0.00	0.00	0.00	- 0.00	- 0
12	440.00		min	-7139.83	-2005.58	-53.41	-102.78	406	13	512.00		min	0.00	0.00	0.00	- 0.00	- 0
12	440.00	der	max	-5841.68	-1521.02	-44.77	-82.21	337	13	512.00	der	max	0.00	0.00	0.00	- 0.00	- 0
12	440.00		min	-7139.84	-2005.61	-53.41	-102.78	337	13	512.00		min	0.00	0.00	0.00	- 0.00	- 0
12	444.00	izq	max	-5899.02	-2915.50	-32.84	-104.61	337	14	515.20	izq	max	0.00	0.00	0.00	- 0.00	- 0
12	444.00		min	-7209.92	-3980.54	-36.40	-134.38	337	14	515.20		min	0.00	0.00	0.00	- 0.00	- 0
12	444.00	der	max	-5899.03	-2915.57	-32.84	-104.61	337	14	515.20	der	max	0.00	0.00	0.00	- 0.00	- 0
12	444.00		min	-7209.92	-3980.62	-36.40	-134.38	337	14	515.20		min	0.00	0.00	0.00	- 0.00	- 0
12	448.00	izq	max	-6007.56	-4127.45	-23.06	-124.65	337	14	518.40	izq	max	0.00	0.00	0.00	- 0.00	- 0
12	448.00		min	-7342.57	-5643.49	-22.81	-161.72	337	14	518.40		min	0.00	0.00	0.00	- 0.00	- 0
12	448.00	der	max	-6007.56	-4127.48	-23.06	-124.65	337	14	518.40	der	max	0.00	0.00	0.00	- 0.00	- 0
12	448.00		min	-7342.58	-5643.53	-22.81	-161.73	337	14	518.40		min	0.00	0.00	0.00	- 0.00	- 0
12	452.00	izq	max	-6100.82	-4778.17	-18.15	-135.77	337	14	521.60	izq	max	0.00	0.00	0.00	- 0.00	- 0
12	452.00		min	-7456.56	-6531.63	-15.98	-176.76	337	14	521.60		min	0.00	0.00	0.00	- 0.00	- 0
12	452.00	der	max	-6100.83	-4778.17	-18.15	-135.77	337	14	521.60	der	max	0.00	0.00	0.00	- 0.00	- 0
12	452.00		min	-7456.56	-6531.63	-15.98	-176.76	337	14	521.60		min	0.00	0.00	0.00	- 0.00	- 0
12	456.00	izq	max	-6177.52	-4784.72	-18.86	-136.64	337	14	524.80	izq	max	0.00	0.00	0.00	- 0.00	- 0
12	456.00		min	-7550.31	-6543.54	-16.81	-177.88	337	14	524.80		min	0.00	0.00	0.00	- 0.00	- 0
12	456.00	der	max	-6177.53	-4784.69	-18.86	-136.64	337	14	524.80	der	max	0.00	0.00	0.00	- 0.00	- 0
12	456.00		min	-7550.31	-6543.51	-16.81	-177.88	337	14	524.80		min	0.00	0.00	0.00	- 0.00	- 0
12	460.00	izq	max	-6236.63	-4093.86	-25.65	-126.42	337	14	528.00	izq	max	0.00	0.00	0.00	- 0.00	- 0
12	460.00		min	-7622.54	-5614.18	-25.87	-164.07	337	14	528.00		min	0.00	0.00	0.00	- 0.00	- 0
12	460.00	der	max	-6236.63	-4093.82	-25.65	-126.42	337	14	528.00	der	max	0.00	0.00	0.00	- 0.00	- 0
12	460.00		min	-7622.54	-5614.13	-25.87	-164.07	337	14	528.00		min	0.00	0.00	0.00	- 0.00	- 0
12	464.00	izq	max	-8230.61	-1054.61	-72.85	-98.81	337	14	531.20	izq	max	0.00	0.00	0.00	- 0.00	- 0
12	464.00		min	-10059.60	-1725.69	-85.12	-127.60	337	14	531.20		min	0.00	0.00	0.00	- 0.00	- 0
12	464.00	der	max	-8230.61	-1054.59	-72.85	-98.81	337	14	531.20	der	max	0.00	0.00	0.00	- 0.00	- 0
12	464.00		min	-10059.60	-1725.64	-85.12	-127.60	337	14	531.20		min	0.00	0.00	0.00	- 0.00	- 0
12	468.00	izq	max	-8293.72	-335.73	-79.93	-88.19	337	14	534.40	izq	max	0.00	0.00	0.00	- 0.00	- 0
12	468.00		min	-10136.80	-584.29	-96.13	-110.51	337	14	534.40		min	0.00	0.00	0.00	- 0.00	- 0
12	468.00	der	max	-8289.61	-339.50	-79.85	-88.21	337	14	534.40	der	max	0.00	0.00	0.00	- 0.00	- 0
12	468.00		min	-10129.60	-588.89	-96.01	-110.51	337	14	534.40		min	0.00	0.00	0.00	- 0.00	- 0
12	472.00	izq	max	-10235.60	-401.80	-54.01	-61.16	337	14	537.60	izq	max	0.00	0.00	0.00	- 0.00	- 0
12	472.00		min	-8377.06	-483.88	-43.11	-51.71	337	14	537.60		min	0.00	0.00	0.00	- 0.00	- 0
12	472.00	der	max	-10225.10	-401.91	-53.96	-61.10	337	14	537.60	der	max	0.00	0.00	0.00	- 0.00	- 0
12	472.00		min	-8367.17	-483.97	-43.05	-51.66	337	14	537.60		min	0.00	0.00	0.00	- 0.00	- 0
13	476.00	izq	max	-8185.83	-1849.14	-65.27	-110.79	337	14	540.80	izq	max	0.00	0.00	0.00	- 0.00	- 0

14	540.80	min	0.00	0.00	0.00	-	0.00	- 0
14	540.80 der	max	0.00	0.00	0.00	-	0.00	- 0
14	540.80	min	0.00	0.00	0.00	-	0.00	- 0
14	544.00 izq	max	0.00	0.00	0.00	-	0.00	- 0
14	544.00	min	0.00	0.00	0.00	-	0.00	- 0

COMPROBACION TENSIONES FASE 13

Factores de ponderación considerados para el pretensado:

- Acciones Desfavorables: 1.1
- Acciones Favorables: 0.9

LEYENDA:
+ : Compresión>fck(j)/1.6
* : Tracción
# : Fisuración
! : Requiere comprobación wk

Vano	x		Pxo	Mmax Mmin	?s ?s	?i ?i	fckj
	[m]		[t]	[tm]	[kg/cm²]	[kg/cm²]	[kg/cm²]
1	0.00	der max	-6215.81	-4074.98	-5.62	-78.07	528
1	0.00	min	-7594.42	-4980.54	-6.86	-95.40	528
1	3.20	izq max	-6247.65	-5660.91	-11.70	-151.05	528
1	3.20	min	-7634.20	-7122.98	-12.45	-187.79	528
1	3.20	der max	-6262.39	-5684.65	-11.64	-151.57	528
1	3.20	min	-7654.03	-7152.01	-12.39	-188.44	528
1	6.40	izq max	-6380.20	-6539.30	-5.15	-166.12	528
1	6.40	min	-7798.03	-8336.18	-3.21	-208.41	528
1	6.40	der max	-6380.21	-6539.30	-5.15	-166.12	528
1	6.40	min	-7798.03	-8336.19	-3.21	-208.41	528
1	9.60	izq max	-6467.74	-6837.98	-3.35	-171.67	528
1	9.60	min	-7905.02	-8783.92	-0.27	-216.48	528
1	9.60	der max	-6467.75	-6837.96	-3.35	-171.67	528
1	9.60	min	-7905.02	-8783.91	-0.27	-216.48	528
1	12.80	izq max	-6457.87	-6404.30	-7.14	-164.78	528
1	12.80	min	-7892.95	-8279.68	-4.67	-208.47	528
1	12.80	der max	-6457.86	-6404.27	-7.14	-164.78	528
1	12.80	min	-7892.94	-8279.65	-4.67	-208.47	528
1	16.00	izq max	-6391.29	-5465.78	-14.89	-149.43	528
1	16.00	min	-7811.58	-7101.54	-14.42	-189.23	528
1	16.00	der max	-6391.29	-5465.77	-14.89	-149.43	528
1	16.00	min	-7811.58	-7101.52	-14.42	-189.23	528
1	19.20	izq max	-6319.35	-4210.80	-25.43	-129.08	528
1	19.20	min	-7723.65	-5479.72	-28.09	-162.97	528
1	19.20	der max	-6319.35	-4210.78	-25.43	-129.08	528
1	19.20	min	-7723.65	-5479.69	-28.09	-162.97	528
1	22.40	izq max	-6293.66	-2709.82	-38.63	-105.33	528
1	22.40	min	-7692.25	-3500.31	-45.53	-131.69	528
1	22.40	der max	-6293.66	-2709.72	-38.63	-105.33	528
1	22.40	min	-7692.24	-3500.18	-45.53	-131.69	528
1	25.60	izq max	-6310.57	-1173.90	-52.58	-81.47	528
1	25.60	min	-7712.92	-1421.34	-64.38	-99.37	528
1	25.60	der max	-6310.58	-1173.80	-52.58	-81.47	528
1	25.60	min	-7712.93	-1421.21	-64.38	-99.37	528
1	28.80	izq max	-10863.50	-842.06	-101.08	-121.81	528
1	28.80	min	-8888.28	-911.54	-80.71	-103.14	528
1	28.80	der max	-10839.70	-844.56	-100.82	-121.61	528
1	28.80	min	-8871.39	-913.59	-80.52	-103.01	528
1	32.00	izq max	-10985.70	750.15	-66.35	-53.02	528
1	32.00	min	-8991.56	126.75	-50.85	-48.60	528
1	32.00	der max	-10990.60	748.84	-66.37	-53.06	528
1	32.00	min	-8995.08	125.68	-50.86	-48.63	528
2	36.00	izq max	-10773.60	-165.30	-106.25	-110.32	528
2	36.00	min	-8816.82	-284.13	-85.62	-92.61	528
2	36.00	der max	-10784.50	-163.77	-106.38	-110.41	528
2	36.00	min	-8823.65	-282.87	-85.70	-92.66	528
2	40.00	izq max	-13949.90	-5818.67	-87.31	-230.54	528
2	40.00	min	-17049.90	-7242.33	-105.54	-283.81	528
2	40.00	der max	-6471.58	-1242.56	-53.57	-84.16	525
2	40.00	min	-7909.71	-1649.32	-64.30	-104.90	525
2	44.00	izq max	-6531.56	-2618.79	-41.83	-106.29	525
2	44.00	min	-7983.02	-3555.02	-47.94	-135.45	525
2	44.00	der max	-6531.57	-2618.82	-41.83	-106.29	525
2	44.00	min	-7983.03	-3555.08	-47.94	-135.45	525
2	48.00	izq max	-6644.45	-3816.97	-32.21	-126.17	525
2	48.00	min	-8121.00	-5154.28	-34.98	-161.85	525
2	48.00	der max	-6644.46	-3816.98	-32.21	-126.17	525
2	48.00	min	-8121.00	-5154.30	-34.98	-161.86	525
2	52.00	izq max	-6742.04	-4453.88	-27.47	-137.11	525
2	52.00	min	-8240.27	-5978.63	-28.78	-175.95	525
2	52.00	der max	-6742.04	-4453.90	-27.47	-137.11	525
2	52.00	min	-8240.27	-5978.66	-28.78	-175.95	525
2	56.00	izq max	-6823.11	-4447.09	-28.34	-137.81	525
2	56.00	min	-8339.35	-5927.36	-30.23	-176.13	525
2	56.00	der max	-6823.11	-4447.08	-28.34	-137.81	525
2	56.00	min	-8339.35	-5927.34	-30.23	-176.13	525
2	60.00	izq max	-6886.56	-3742.89	-35.29	-127.43	525
2	60.00	min	-8416.90	-4934.79	-39.91	-161.38	525
2	60.00	der max	-6886.56	-3742.84	-35.30	-127.43	525
2	60.00	min	-8416.91	-4934.72	-39.91	-161.38	525
2	64.00	izq max	-8884.96	-688.44	-82.67	-99.62	525
2	64.00	min	-10859.40	-980.81	-99.80	-123.94	525
2	64.00	der max	-8884.96	-688.44	-82.67	-99.62	525
2	64.00	min	-10859.40	-980.80	-99.80	-123.94	525
2	68.00	izq max	-10941.30	228.02	-111.46	-105.84	525
2	68.00	min	-8951.93	47.26	-89.94	-88.78	525
2	68.00	der max	-10933.20	224.60	-111.34	-105.82	525
2	68.00	min	-8947.37	44.44	-89.87	-88.78	525
2	72.00	izq max	-11045.50	574.46	-65.44	-55.23	525
2	72.00	min	-9039.93	-5.10	-50.19	-50.28	525
2	72.00	der max	-11043.80	574.45	-65.43	-55.22	525
2	72.00	min	-9038.60	-5.11	-50.18	-50.27	525
3	76.00	izq max	-10828.50	-133.82	-107.08	-110.38	525
3	76.00	min	-8861.69	-247.59	-86.39	-92.49	525
3	76.00	der max	-10837.70	-130.66	-107.21	-110.42	525
3	76.00	min	-8867.25	-244.99	-86.48	-92.51	525
3	80.00	izq max	-7165.02	-4038.68	-35.43	-134.84	525
3	80.00	min	-8757.25	-5078.62	-42.02	-167.03	525
3	80.00	der max	-5841.64	-1585.17	-44.20	-83.22	519
3	80.00	min	-7139.79	-2079.89	-52.74	-103.94	519
3	84.00	izq max	-5898.46	-2767.36	-34.16	-102.28	519
3	84.00	min	-7209.23	-3747.09	-38.48	-130.72	519
3	84.00	der max	-5898.46	-2767.41	-34.16	-102.28	519
3	84.00	min	-7209.23	-3747.16	-38.48	-130.72	519
3	88.00	izq max	-6007.01	-3769.25	-26.26	-119.04	519
3	88.00	min	-7341.90	-5105.07	-27.63	-153.29	519
3	88.00	der max	-6007.01	-3769.31	-26.26	-119.05	519
3	88.00	min	-7341.91	-5105.14	-27.63	-153.29	519
3	92.00	izq max	-6100.29	-4210.31	-23.24	-126.88	519
3	92.00	min	-7455.91	-5688.69	-23.54	-163.57	519
3	92.00	der max	-6100.30	-4210.31	-23.24	-126.88	519
3	92.00	min	-7455.92	-5688.70	-23.54	-163.57	519
3	96.00	izq max	-6177.03	-4007.53	-25.83	-124.47	519
3	96.00	min	-7549.71	-5396.52	-27.09	-159.93	519
3	96.00	der max	-6177.04	-4007.51	-25.83	-124.47	519
3	96.00	min	-7549.71	-5396.49	-27.09	-159.93	519
3	100.00	izq max	-6236.17	-3107.43	-34.49	-110.98	519
3	100.00	min	-7621.99	-4163.16	-38.88	-141.36	519
3	100.00	der max	-6236.17	-3107.35	-34.49	-110.98	519
3	100.00	min	-7621.99	-4163.06	-38.88	-141.36	519
3	104.00	izq max	-8230.25	143.12	-83.59	-80.06	519
3	104.00	min	-10059.20	31.87	-100.88	-100.09	519
3	104.00	der max	-8230.25	143.17	-83.59	-80.06	519
3	104.00	min	-10059.20	31.93	-100.88	-100.09	519
3	108.00	izq max	-10135.80	1481.95	-114.65	-78.17	519
3	108.00	min	-8292.90	1075.07	-92.57	-66.11	519
3	108.00	der max	-10126.40	1477.38	-114.51	-78.15	519
3	108.00	min	-8287.28	1071.33	-92.48	-66.11	519
3	112.00	izq max	-10233.20	1978.96	-70.89	-35.71	519
3	112.00	min	-8375.33	1144.85	-54.65	-34.30	519
3	112.00	der max	-10233.20	1978.97	-70.89	-35.71	519
3	112.00	min	-8375.32	1144.86	-54.65	-34.30	519
4	116.00	izq max	-10012.20	1369.22	-112.40	-78.70	519

4	116.00		min	-8193.81	982.89	-90.75	-66.56	519
4	116.00	der	max	-10021.20	1373.56	-112.53	-78.72	519
4	116.00		min	-8199.13	986.45	-90.84	-66.56	519
4	120.00	izq	max	-5841.51	-1595.09	-44.11	-83.37	519
4	120.00		min	-7139.62	-2092.71	-52.63	-104.14	519
4	120.00	der	max	-5841.51	-1595.11	-44.11	-83.37	515
4	120.00		min	-7139.62	-2092.74	-52.63	-104.14	515
4	124.00	izq	max	-5898.71	-2777.28	-34.08	-102.44	515
4	124.00		min	-7209.54	-3759.83	-38.37	-130.92	515
4	124.00	der	max	-5898.72	-2777.32	-34.08	-102.44	515
4	124.00		min	-7209.54	-3759.88	-38.37	-130.92	515
4	128.00	izq	max	-6007.26	-3776.74	-26.20	-119.16	515
4	128.00		min	-7342.21	-5114.69	-27.55	-153.45	515
4	128.00	der	max	-6007.27	-3776.76	-26.20	-119.16	515
4	128.00		min	-7342.22	-5114.72	-27.55	-153.45	515
4	132.00	izq	max	-6100.53	-4214.84	-23.20	-126.95	515
4	132.00		min	-7456.20	-5694.55	-23.49	-163.66	515
4	132.00	der	max	-6100.53	-4214.84	-23.20	-126.95	515
4	132.00		min	-7456.20	-5694.55	-23.49	-163.66	515
4	136.00	izq	max	-6177.25	-4009.00	-25.81	-124.50	515
4	136.00		min	-7549.98	-5398.48	-27.08	-159.97	515
4	136.00	der	max	-6177.26	-4008.98	-25.82	-124.50	515
4	136.00		min	-7549.98	-5398.45	-27.08	-159.96	515
4	140.00	izq	max	-6236.37	-3105.72	-34.51	-110.96	515
4	140.00		min	-7622.23	-4161.11	-38.90	-141.33	515
4	140.00	der	max	-6236.37	-3105.69	-34.51	-110.96	515
4	140.00		min	-7622.23	-4161.07	-38.90	-141.33	515
4	144.00	izq	max	-6273.04	-1784.25	-46.73	-90.65	515
4	144.00		min	-7667.05	-2323.74	-55.83	-113.03	515
4	144.00	der	max	-6273.04	-1784.20	-46.73	-90.65	515
4	144.00		min	-7667.05	-2323.67	-55.83	-113.03	515
4	148.00	izq	max	-10136.70	1484.51	-114.68	-78.14	515
4	148.00		min	-8293.62	1076.98	-92.60	-66.09	515
4	148.00	der	max	-10127.40	1479.95	-114.55	-78.12	515
4	148.00		min	-8288.04	1073.24	-92.51	-66.09	515
4	152.00	izq	max	-10233.40	1974.93	-70.86	-35.75	515
4	152.00		min	-8375.51	1141.21	-54.63	-34.34	515
4	152.00	der	max	-10233.30	1974.85	-70.86	-35.75	515
4	152.00		min	-8375.42	1141.15	-54.63	-34.34	515
5	156.00	izq	max	-10012.50	1361.22	-112.33	-78.83	515
5	156.00		min	-8194.09	976.11	-90.69	-66.67	515
5	156.00	der	max	-10021.50	1365.59	-112.46	-78.85	515
5	156.00		min	-8199.42	979.69	-90.78	-66.67	515
5	160.00	izq	max	-5841.60	-1597.89	-44.08	-83.42	515
5	160.00		min	-7139.73	-2095.95	-52.60	-104.19	515
5	160.00	der	max	-5841.60	-1597.88	-44.08	-83.42	510
5	160.00		min	-7139.73	-2095.94	-52.60	-104.19	510
5	164.00	izq	max	-5898.78	-2779.33	-34.06	-102.47	510
5	164.00		min	-7209.63	-3762.17	-38.35	-130.96	510
5	164.00	der	max	-5898.79	-2779.35	-34.06	-102.47	510
5	164.00		min	-7209.63	-3762.21	-38.35	-130.96	510
5	168.00	izq	max	-6007.35	-3778.50	-26.18	-119.19	510
5	168.00		min	-7342.32	-5116.77	-27.53	-153.48	510
5	168.00	der	max	-6007.35	-3778.52	-26.18	-119.19	510
5	168.00		min	-7342.32	-5116.80	-27.53	-153.48	510
5	172.00	izq	max	-6100.61	-4216.14	-23.19	-126.97	510
5	172.00		min	-7456.30	-5696.17	-23.47	-163.69	510
5	172.00	der	max	-6100.61	-4216.17	-23.19	-126.97	510
5	172.00		min	-7456.30	-5696.21	-23.47	-163.69	510
5	176.00	izq	max	-6177.35	-4009.88	-25.81	-124.51	510
5	176.00		min	-7550.09	-5399.66	-27.07	-159.98	510
5	176.00	der	max	-6177.35	-4009.84	-25.81	-124.51	510
5	176.00		min	-7550.10	-5399.61	-27.07	-159.98	510
5	180.00	izq	max	-6236.46	-3106.23	-34.50	-110.97	510
5	180.00		min	-7622.34	-4161.95	-38.89	-141.34	510
5	180.00	der	max	-6236.46	-3106.18	-34.50	-110.96	510
5	180.00		min	-7622.34	-4161.88	-38.89	-141.34	510
5	184.00	izq	max	-8230.46	145.91	-83.61	-80.02	510
5	184.00		min	-10059.50	35.07	-100.91	-100.05	510
5	184.00	der	max	-8230.46	145.96	-83.61	-80.02	510
5	184.00		min	-10059.50	35.13	-100.91	-100.04	510
5	188.00	izq	max	-10136.60	1484.96	-114.68	-78.13	510
5	188.00		min	-8293.55	1077.67	-92.60	-66.07	510
5	188.00	der	max	-10127.30	1480.41	-114.55	-78.11	510
5	188.00		min	-8287.97	1073.94	-92.51	-66.08	510
5	192.00	izq	max	-10233.40	1976.03	-70.87	-35.74	510
5	192.00		min	-8375.47	1142.47	-54.64	-34.33	510
5	192.00	der	max	-10233.30	1975.98	-70.87	-35.74	510
5	192.00		min	-8375.38	1142.44	-54.64	-34.33	510
6	196.00	izq	max	-10012.50	1362.48	-112.34	-78.81	510
6	196.00		min	-8194.04	977.49	-90.71	-66.65	510
6	196.00	der	max	-10021.40	1366.81	-112.47	-78.83	510
6	196.00		min	-8199.36	981.04	-90.79	-66.64	510
6	200.00	izq	max	-5842.29	-1597.47	-44.09	-83.42	510
6	200.00		min	-7140.57	-2095.88	-52.61	-104.20	510
6	200.00	der	max	-5842.29	-1597.49	-44.09	-83.42	504
6	200.00		min	-7140.58	-2095.92	-52.61	-104.20	504
6	204.00	izq	max	-5899.40	-2778.96	-34.07	-102.47	504
6	204.00		min	-7210.38	-3762.22	-38.36	-130.97	504
6	204.00	der	max	-5899.41	-2779.01	-34.07	-102.47	504
6	204.00		min	-7210.39	-3762.29	-38.36	-130.97	504
6	208.00	izq	max	-6007.91	-3777.94	-26.19	-119.19	504
6	208.00		min	-7343.01	-5116.62	-27.54	-153.49	504
6	208.00	der	max	-6007.92	-3777.98	-26.19	-119.19	504
6	208.00		min	-7343.01	-5116.68	-27.54	-153.49	504
6	212.00	izq	max	-6101.14	-4215.49	-23.20	-126.97	504
6	212.00		min	-7456.95	-5695.92	-23.48	-163.69	504
6	212.00	der	max	-6101.14	-4215.50	-23.20	-126.97	504
6	212.00		min	-7456.95	-5695.93	-23.48	-163.69	504
6	216.00	izq	max	-6177.81	-4009.03	-25.82	-124.50	504
6	216.00		min	-7550.66	-5399.22	-27.08	-159.98	504
6	216.00	der	max	-6177.82	-4009.00	-25.82	-124.50	504
6	216.00		min	-7550.66	-5399.17	-27.08	-159.98	504
6	220.00	izq	max	-6236.88	-3105.10	-34.52	-110.95	504
6	220.00		min	-7622.86	-4161.17	-38.91	-141.33	504
6	220.00	der	max	-6236.89	-3105.02	-34.52	-110.95	504
6	220.00		min	-7622.86	-4161.07	-38.91	-141.33	504
6	224.00	izq	max	-6273.44	-1782.69	-46.75	-90.63	504
6	224.00		min	-7667.54	-2322.75	-55.84	-113.02	504
6	224.00	der	max	-8230.86	147.36	-83.63	-80.00	504
6	224.00		min	-10059.90	36.21	-100.92	-100.03	504
6	228.00	izq	max	-10137.00	1486.32	-114.70	-78.11	504
6	228.00		min	-8293.87	1079.35	-92.62	-66.05	504
6	228.00	der	max	-10127.60	1481.77	-114.57	-78.09	504
6	228.00		min	-8288.28	1075.61	-92.53	-66.05	504
6	232.00	izq	max	-10233.70	1977.93	-70.89	-35.72	504
6	232.00		min	-8375.73	1144.64	-54.65	-34.30	504
6	232.00	der	max	-10233.60	1977.87	-70.89	-35.72	504
6	232.00		min	-8375.65	1144.59	-54.65	-34.30	504
7	236.00	izq	max	-10012.80	1364.82	-112.37	-78.77	504
7	236.00		min	-8194.30	980.03	-90.73	-66.61	504
7	236.00	der	max	-10021.80	1369.14	-112.50	-78.80	504
7	236.00		min	-8199.62	983.58	-90.82	-66.61	504
7	240.00	izq	max	-5841.53	-1593.50	-44.12	-83.35	504
7	240.00		min	-7139.65	-2091.85	-52.63	-104.13	504
7	240.00	der	max	-5841.54	-1593.56	-44.12	-83.35	497
7	240.00		min	-7139.66	-2091.93	-52.63	-104.13	497
7	244.00	izq	max	-5898.69	-2775.11	-34.10	-102.41	497
7	244.00		min	-7209.51	-3758.38	-38.39	-130.90	497
7	244.00	der	max	-5898.70	-2775.16	-34.10	-102.41	497
7	244.00		min	-7209.52	-3758.45	-38.38	-130.90	497
7	248.00	izq	max	-6007.24	-3773.96	-26.22	-119.12	497
7	248.00		min	-7342.18	-5112.59	-27.57	-153.41	497
7	248.00	der	max	-6007.24	-3774.00	-26.22	-119.12	497
7	248.00		min	-7342.18	-5112.64	-27.57	-153.42	497
7	252.00	izq	max	-6100.52	-4211.65	-23.23	-126.90	497
7	252.00		min	-7456.19	-5692.09	-23.51	-163.62	497
7	252.00	der	max	-6100.52	-4211.64	-23.23	-126.90	497
7	252.00		min	-7456.19	-5692.08	-23.51	-163.62	497
7	256.00	izq	max	-6177.26	-4005.40	-25.85	-124.44	497
7	256.00		min	-7549.98	-5395.64	-27.11	-159.92	497
7	256.00	der	max	-6177.26	-4005.38	-25.85	-124.44	497
7	256.00		min	-7549.99	-5395.61	-27.11	-159.92	497
7	260.00	izq	max	-6236.39	-3101.60	-34.54	-110.89	497

7	260.00		min	-7622.25	-4157.77	-38.93	-141.28	497
7	260.00	der	max	-6236.39	-3101.57	-34.55	-110.89	497
7	260.00		min	-7622.25	-4157.71	-38.93	-141.27	497
7	264.00	izq	max	-6273.03	-1779.43	-46.77	-90.57	497
7	264.00		min	-7667.04	-2319.65	-55.86	-112.96	497
7	264.00	der	max	-8230.56	150.72	-83.66	-79.95	497
7	264.00		min	-10059.60	39.43	-100.95	-99.98	497
7	268.00	izq	max	-10136.60	1489.19	-114.72	-78.07	497
7	268.00		min	-8293.55	1082.43	-92.64	-66.00	497
7	268.00	der	max	-10127.20	1484.65	-114.59	-78.04	497
7	268.00		min	-8287.95	1078.71	-92.55	-66.00	497
7	272.00	izq	max	-10233.30	1981.16	-70.91	-35.69	497
7	272.00		min	-8375.44	1148.09	-54.68	-34.27	497
7	272.00	der	max	-10233.20	1981.08	-70.91	-35.69	497
7	272.00		min	-8375.37	1148.03	-54.67	-34.27	497
8	276.00	izq	max	-10012.50	1367.92	-112.39	-78.72	497
8	276.00		min	-8194.05	983.21	-90.76	-66.56	497
8	276.00	der	max	-10021.50	1372.25	-112.52	-78.74	497
8	276.00		min	-8199.37	986.76	-90.84	-66.55	497
8	280.00	izq	max	-7746.65	286.10	-80.03	-72.99	497
8	280.00		min	-9468.13	205.06	-96.52	-91.47	497
8	280.00	der	max	-5842.05	-1591.88	-44.14	-83.33	489
8	280.00		min	-7140.28	-2090.26	-52.65	-104.11	489
8	284.00	izq	max	-5899.13	-2773.82	-34.11	-102.39	489
8	284.00		min	-7210.05	-3756.81	-38.40	-130.88	489
8	284.00	der	max	-5899.13	-2773.85	-34.11	-102.39	489
8	284.00		min	-7210.05	-3756.86	-38.40	-130.88	489
8	288.00	izq	max	-6007.64	-3773.65	-26.23	-119.12	489
8	288.00		min	-7342.67	-5111.91	-27.58	-153.41	489
8	288.00	der	max	-6007.65	-3773.69	-26.23	-119.12	489
8	288.00		min	-7342.68	-5111.97	-27.58	-153.41	489
8	292.00	izq	max	-6100.85	-4212.06	-23.23	-126.91	489
8	292.00		min	-7456.60	-5691.95	-23.51	-163.62	489
8	292.00	der	max	-6100.86	-4212.07	-23.23	-126.91	489
8	292.00		min	-7456.60	-5691.96	-23.51	-163.62	489
8	296.00	izq	max	-6177.55	-4006.70	-25.84	-124.47	489
8	296.00		min	-7550.34	-5396.27	-27.10	-159.93	489
8	296.00	der	max	-6177.55	-4006.66	-25.84	-124.46	489
8	296.00		min	-7550.34	-5396.20	-27.10	-159.93	489
8	300.00	izq	max	-6236.63	-3103.86	-34.53	-110.93	489
8	300.00		min	-7622.55	-4159.23	-38.92	-141.30	489
8	300.00	der	max	-6236.63	-3103.82	-34.53	-110.93	489
8	300.00		min	-7622.55	-4159.17	-38.92	-141.30	489
8	304.00	izq	max	-8230.80	147.97	-83.64	-79.99	489
8	304.00		min	-10059.90	37.74	-100.94	-100.01	489
8	304.00	der	max	-8230.80	148.00	-83.64	-79.99	489
8	304.00		min	-10059.90	37.79	-100.94	-100.01	489
8	308.00	izq	max	-10136.90	1487.24	-114.71	-78.10	489
8	308.00		min	-8293.81	1079.22	-92.62	-66.05	489
8	308.00	der	max	-10127.60	1482.69	-114.57	-78.08	489
8	308.00		min	-8288.22	1075.48	-92.53	-66.05	489
8	312.00	izq	max	-10233.70	1979.25	-70.90	-35.71	489
8	312.00		min	-8375.75	1144.57	-54.65	-34.30	489
8	312.00	der	max	-10233.60	1979.20	-70.90	-35.71	489
8	312.00		min	-8375.67	1144.52	-54.65	-34.30	489
9	316.00	izq	max	-10012.80	1365.40	-112.37	-78.76	489
9	316.00		min	-8194.34	979.62	-90.73	-66.62	489
9	316.00	der	max	-10021.80	1369.76	-112.50	-78.79	489
9	316.00		min	-8199.66	983.20	-90.82	-66.61	489
9	320.00	izq	max	-5841.85	-1596.31	-44.10	-83.39	489
9	320.00		min	-7140.04	-2094.39	-52.62	-104.17	489
9	320.00	der	max	-5841.85	-1596.35	-44.10	-83.40	478
9	320.00		min	-7140.04	-2094.45	-52.61	-104.17	478
9	324.00	izq	max	-5899.13	-2778.76	-34.07	-102.47	478
9	324.00		min	-7210.05	-3762.19	-38.36	-130.96	478
9	324.00	der	max	-5899.14	-2778.81	-34.07	-102.47	478
9	324.00		min	-7210.06	-3762.26	-38.36	-130.97	478
9	328.00	izq	max	-6007.65	-3778.56	-26.19	-119.20	478
9	328.00		min	-7342.68	-5117.84	-27.52	-153.50	478
9	328.00	der	max	-6007.65	-3778.61	-26.19	-119.20	478
9	328.00		min	-7342.69	-5117.91	-27.52	-153.50	478
9	332.00	izq	max	-6100.90	-4217.12	-23.18	-126.99	478
9	332.00		min	-7456.65	-5698.67	-23.45	-163.73	478
9	332.00	der	max	-6100.90	-4217.13	-23.18	-126.99	478
9	332.00		min	-7456.65	-5698.67	-23.45	-163.73	478
9	336.00	izq	max	-6177.59	-4011.76	-25.79	-124.54	478
9	336.00		min	-7550.39	-5403.58	-27.04	-160.05	478
9	336.00	der	max	-6177.60	-4011.74	-25.79	-124.54	478
9	336.00		min	-7550.40	-5403.56	-27.04	-160.05	478
9	340.00	izq	max	-6236.69	-3108.80	-34.48	-111.01	478
9	340.00		min	-7622.63	-4167.00	-38.85	-141.42	478
9	340.00	der	max	-6236.69	-3108.75	-34.48	-111.01	478
9	340.00		min	-7622.63	-4166.93	-38.85	-141.42	478
9	344.00	izq	max	-8230.81	142.72	-83.59	-80.08	478
9	344.00		min	-10059.90	28.95	-100.86	-100.15	478
9	344.00	der	max	-8230.82	142.77	-83.59	-80.07	478
9	344.00		min	-10059.90	29.02	-100.86	-100.14	478
9	348.00	izq	max	-10136.90	1477.69	-114.62	-78.25	478
9	348.00		min	-8293.85	1073.78	-92.57	-66.14	478
9	348.00	der	max	-10127.60	1473.14	-114.49	-78.23	478
9	348.00		min	-8288.26	1070.04	-92.48	-66.14	478
9	352.00	izq	max	-10233.60	1967.63	-70.81	-35.83	478
9	352.00		min	-8375.65	1137.90	-54.60	-34.38	478
9	352.00	der	max	-10233.50	1967.55	-70.81	-35.83	478
9	352.00		min	-8375.61	1137.83	-54.60	-34.38	478
10	356.00	izq	max	-10012.80	1361.03	-112.33	-78.83	478
10	356.00		min	-8194.31	977.85	-90.71	-66.64	478
10	356.00	der	max	-10021.70	1365.39	-112.46	-78.85	478
10	356.00		min	-8199.60	981.43	-90.80	-66.64	478
10	360.00	izq	max	-5841.80	-1592.00	-44.14	-83.33	478
10	360.00		min	-7139.98	-2090.23	-52.65	-104.10	478
10	360.00	der	max	-5841.81	-1592.00	-44.14	-83.33	463
10	360.00		min	-7139.99	-2090.24	-52.65	-104.10	463
10	364.00	izq	max	-5898.98	-2768.65	-34.16	-102.31	463
10	364.00		min	-7209.87	-3749.81	-38.47	-130.77	463
10	364.00	der	max	-5898.99	-2768.68	-34.16	-102.31	463
10	364.00		min	-7209.88	-3749.85	-38.47	-130.77	463
10	368.00	izq	max	-6007.51	-3762.67	-26.33	-118.95	463
10	368.00		min	-7342.52	-5097.25	-27.71	-153.18	463
10	368.00	der	max	-6007.52	-3762.71	-26.33	-118.95	463
10	368.00		min	-7342.52	-5097.31	-27.71	-153.18	463
10	372.00	izq	max	-6100.76	-4195.35	-23.38	-126.65	463
10	372.00		min	-7456.48	-5669.75	-23.71	-163.27	463
10	372.00	der	max	-6100.76	-4195.38	-23.38	-126.65	463
10	372.00		min	-7456.48	-5669.79	-23.71	-163.28	463
10	376.00	izq	max	-6177.48	-3984.06	-26.04	-124.11	463
10	376.00		min	-7550.25	-5366.26	-27.37	-159.46	463
10	376.00	der	max	-6177.48	-3984.00	-26.04	-124.11	463
10	376.00		min	-7550.26	-5366.19	-27.37	-159.46	463
10	380.00	izq	max	-6236.58	-3075.34	-34.78	-110.48	463
10	380.00		min	-7622.48	-4121.49	-39.26	-140.71	463
10	380.00	der	max	-6236.58	-3075.26	-34.78	-110.48	463
10	380.00		min	-7622.48	-4121.39	-39.26	-140.71	463
10	384.00	izq	max	-6273.21	-1748.29	-47.05	-90.09	463
10	384.00		min	-7667.26	-2276.56	-56.25	-112.29	463
10	384.00	der	max	-6273.21	-1748.26	-47.05	-90.09	463
10	384.00		min	-7667.26	-2276.50	-56.25	-112.29	463
10	388.00	izq	max	-10136.80	1539.12	-115.17	-77.29	463
10	388.00		min	-8293.71	1118.40	-92.97	-65.44	463
10	388.00	der	max	-10127.40	1534.55	-115.04	-77.26	463
10	388.00		min	-8288.09	1114.65	-92.88	-65.44	463
10	392.00	izq	max	-10233.30	2037.09	-71.30	-35.09	463
10	392.00		min	-8375.42	1188.25	-54.96	-33.84	463
10	392.00	der	max	-10233.10	2037.02	-71.30	-35.09	463
10	392.00		min	-8375.28	1188.20	-54.96	-33.84	463
11	396.00	izq	max	-10012.20	1403.15	-112.71	-78.17	463
11	396.00		min	-8193.85	1010.30	-91.00	-66.13	463
11	396.00	der	max	-10021.30	1407.47	-112.84	-78.19	463
11	396.00		min	-8199.27	1013.84	-91.09	-66.13	463
11	400.00	izq	max	-5842.60	-1576.58	-44.29	-83.09	463
11	400.00		min	-7140.96	-2074.24	-52.81	-103.86	463
11	400.00	der	max	-5842.60	-1576.61	-44.29	-83.09	441
11	400.00		min	-7140.96	-2074.29	-52.80	-103.86	441
11	404.00	izq	max	-5899.74	-2770.86	-34.15	-102.35	441

11	404.00		min	-7210.80	-3760.71	-38.38	-130.95	441
11	404.00	der	max	-5899.75	-2770.92	-34.14	-102.35	441
11	404.00		min	-7210.80	-3760.80	-38.38	-130.95	441
11	408.00	izq	max	-6008.21	-3782.50	-26.16	-119.26	441
11	408.00		min	-7343.37	-5135.05	-27.38	-153.78	441
11	408.00	der	max	-6008.22	-3782.53	-26.16	-119.26	441
11	408.00		min	-7343.38	-5135.08	-27.38	-153.78	441
11	412.00	izq	max	-6101.38	-4232.72	-23.05	-127.24	441
11	412.00		min	-7457.24	-5734.30	-23.14	-164.29	441
11	412.00	der	max	-6101.38	-4232.72	-23.05	-127.24	441
11	412.00		min	-7457.24	-5734.29	-23.14	-164.29	441
11	416.00	izq	max	-6178.02	-4039.09	-25.55	-124.98	441
11	416.00		min	-7550.91	-5457.75	-26.56	-160.90	441
11	416.00	der	max	-6178.02	-4039.06	-25.55	-124.98	441
11	416.00		min	-7550.92	-5457.71	-26.56	-160.90	441
11	420.00	izq	max	-6237.05	-3147.97	-34.14	-111.62	441
11	420.00		min	-7623.06	-4239.83	-38.20	-142.57	441
11	420.00	der	max	-6237.05	-3147.93	-34.14	-111.62	441
11	420.00		min	-7623.06	-4239.77	-38.20	-142.57	441
11	424.00	izq	max	-8231.10	91.93	-83.14	-80.87	441
11	424.00		min	-10060.20	-62.28	-100.04	-101.58	441
11	424.00	der	max	-8231.10	91.96	-83.14	-80.87	441
11	424.00		min	-10060.20	-62.23	-100.04	-101.58	441
11	428.00	izq	max	-10137.30	1368.21	-113.64	-79.97	441
11	428.00		min	-8294.12	1011.49	-92.01	-67.12	441
11	428.00	der	max	-10128.10	1363.68	-113.51	-79.94	441
11	428.00		min	-8288.62	1007.77	-91.92	-67.12	441
11	432.00	izq	max	-10234.10	1840.52	-69.91	-37.19	441
11	432.00		min	-8376.05	1064.67	-54.09	-35.16	441
11	432.00	der	max	-10234.40	1840.46	-69.92	-37.20	441
11	432.00		min	-8376.27	1064.62	-54.09	-35.16	441
12	436.00	izq	max	-10013.60	1310.36	-111.89	-79.63	441
12	436.00		min	-8194.89	955.13	-90.51	-67.00	441
12	436.00	der	max	-10022.00	1314.68	-112.01	-79.65	441
12	436.00		min	-8199.83	958.67	-90.60	-67.00	441
12	440.00	izq	max	-5841.68	-1564.91	-44.38	-82.90	441
12	440.00		min	-7139.83	-2065.23	-52.87	-103.71	441
12	440.00	der	max	-5841.68	-1564.91	-44.38	-82.90	406
12	440.00		min	-7139.84	-2065.24	-52.87	-103.71	406
12	444.00	izq	max	-5899.02	-2691.71	-34.85	-101.11	406
12	444.00		min	-7209.92	-3649.06	-39.37	-129.19	406
12	444.00	der	max	-5899.03	-2691.75	-34.85	-101.11	406
12	444.00		min	-7209.92	-3649.12	-39.37	-129.19	406
12	448.00	izq	max	-6007.56	-3635.94	-27.46	-116.96	406
12	448.00		min	-7342.57	-4920.88	-29.29	-150.42	406
12	448.00	der	max	-6007.56	-3635.96	-27.46	-116.96	406
12	448.00		min	-7342.58	-4920.90	-29.29	-150.42	406
12	452.00	izq	max	-6100.82	-4018.87	-24.96	-123.89	406
12	452.00		min	-7456.56	-5417.78	-25.97	-159.33	406
12	452.00	der	max	-6100.83	-4018.87	-24.96	-123.89	406
12	452.00		min	-7456.56	-5417.77	-25.97	-159.33	406
12	456.00	izq	max	-6177.52	-3757.73	-28.07	-120.57	406
12	456.00		min	-7550.31	-5038.57	-30.31	-154.34	406
12	456.00	der	max	-6177.53	-3757.69	-28.07	-120.57	406
12	456.00		min	-7550.31	-5038.52	-30.31	-154.34	406
12	460.00	izq	max	-6236.63	-2799.16	-37.26	-106.16	406
12	460.00		min	-7622.54	-3718.09	-42.88	-134.40	406
12	460.00	der	max	-6236.63	-2799.12	-37.26	-106.16	406
12	460.00		min	-7622.54	-3718.03	-42.88	-134.40	406
12	464.00	izq	max	-10059.60	561.56	-105.63	-91.81	406
12	464.00		min	-8230.61	507.81	-86.86	-74.36	406
12	464.00	der	max	-10059.60	561.62	-105.63	-91.81	406
12	464.00		min	-8230.61	507.85	-86.86	-74.36	406
12	468.00	izq	max	-10136.80	2094.10	-120.15	-68.60	406
12	468.00		min	-8293.72	1494.41	-96.34	-59.56	406
12	468.00	der	max	-10126.90	2089.53	-120.01	-68.57	406
12	468.00		min	-8287.75	1490.66	-96.25	-59.55	406
12	472.00	izq	max	-10232.90	2667.80	-75.78	-28.35	406
12	472.00		min	-8375.20	1614.03	-57.98	-29.29	406
12	472.00	der	max	-10231.50	2667.71	-75.77	-28.34	406
12	472.00		min	-8374.25	1613.95	-57.97	-29.28	406
13	476.00	izq	max	-10010.70	1777.74	-116.05	-72.29	406
13	476.00		min	-8192.91	1269.69	-93.32	-62.06	406
13	476.00	der	max	-10021.60	1782.07	-116.20	-72.33	406
13	476.00		min	-8199.48	1273.25	-93.41	-62.07	406
13	480.00	izq	max	-5854.95	-1498.28	-45.11	-81.99	406
13	480.00		min	-7156.05	-1973.78	-53.86	-102.44	406
13	480.00	der	max	-5854.96	-1498.32	-45.11	-81.99	337
13	480.00		min	-7156.06	-1973.84	-53.86	-102.44	337
13	484.00	izq	max	-5911.83	-2862.40	-33.44	-103.90	337
13	484.00		min	-7225.56	-3920.66	-37.09	-133.60	337
13	484.00	der	max	-5911.83	-2862.46	-33.44	-103.90	337
13	484.00		min	-7225.57	-3920.75	-37.09	-133.60	337
13	488.00	izq	max	-6019.67	-4042.16	-23.94	-123.44	337
13	488.00		min	-7357.37	-5553.33	-23.76	-160.46	337
13	488.00	der	max	-6019.67	-4042.20	-23.94	-123.44	337
13	488.00		min	-7357.38	-5553.39	-23.76	-160.46	337
13	492.00	izq	max	-6112.17	-4658.43	-19.34	-134.01	337
13	492.00		min	-7470.42	-6408.36	-17.23	-174.97	337
13	492.00	der	max	-6112.17	-4658.45	-19.34	-134.01	337
13	492.00		min	-7470.43	-6408.40	-17.23	-174.97	337
13	496.00	izq	max	-6188.12	-4628.99	-20.36	-134.31	337
13	496.00		min	-7563.25	-6385.32	-18.36	-175.54	337
13	496.00	der	max	-6188.12	-4628.96	-20.36	-134.31	337
13	496.00		min	-7563.26	-6385.29	-18.36	-175.54	337
13	500.00	izq	max	-6246.43	-3899.84	-27.49	-123.48	337
13	500.00		min	-7634.52	-5418.18	-27.75	-161.12	337
13	500.00	der	max	-6246.43	-3899.81	-27.49	-123.48	337
13	500.00		min	-7634.53	-5418.13	-27.75	-161.12	337
13	504.00	izq	max	-6931.62	-2110.53	-50.39	-102.34	337
13	504.00		min	-8471.98	-3066.39	-57.22	-132.70	337
13	504.00	der	max	-6931.63	-2110.52	-50.39	-102.34	337
13	504.00		min	-8471.99	-3066.37	-57.22	-132.70	337
13	508.00	izq	max	-7002.80	-1343.28	-57.98	-91.05	337
13	508.00		min	-8558.98	-1874.95	-68.77	-114.93	337
13	508.00	der	max	-6998.92	-1346.04	-57.92	-91.05	337
13	508.00		min	-8552.17	-1878.31	-68.67	-114.91	337
13	512.00	izq	max	-7022.19	-1639.73	-27.38	-56.53	337
13	512.00		min	-8579.74	-1882.75	-34.31	-67.78	337
13	512.00	der	max	-7010.96	-1639.42	-27.32	-56.46	337
13	512.00		min	-8567.47	-1882.37	-34.24	-67.71	337
14	515.20	izq	max	-6786.75	-3177.43	-39.37	-117.58	337
14	515.20		min	-8294.30	-3855.08	-48.36	-143.26	337
14	515.20	der	max	-6809.01	-3174.11	-39.62	-117.75	337
14	515.20		min	-8322.12	-3851.03	-48.68	-143.48	337
14	518.40	izq	max	0.00	-0.00	0.00 -	0.00 -	337
14	518.40		min	0.00	-0.00	0.00 -	0.00 -	337
14	518.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	518.40		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	521.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	521.60		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	524.80	der	max	0.00	0.00	0.00 -	0.00 -	0
14	524.80		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	528.00	der	max	0.00	0.00	0.00 -	0.00 -	0
14	528.00		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	531.20	der	max	0.00	0.00	0.00 -	0.00 -	0
14	531.20		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	534.40	der	max	0.00	0.00	0.00 -	0.00 -	0
14	534.40		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	izq	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	537.60	der	max	0.00	0.00	0.00 -	0.00 -	0
14	537.60		min	0.00	0.00	0.00 -	0.00 -	0
14	540.80	izq	max	0.00	0.00	0.00 -	0.00 -	0

14	540.80	min	0.00	0.00	0.00	- 0.00	-	0
14	540.80	der max	0.00	0.00	0.00	- 0.00	-	0
14	540.80	min	0.00	0.00	0.00	- 0.00	-	0
14	544.00	izq max	0.00	0.00	0.00	- 0.00	-	0
14	544.00	min	0.00	0.00	0.00	- 0.00	-	0

COMPROBACION TENSIONES FASE 14

Factores de ponderación considerados para el pretensado:

- Acciones Desfavorables: 1.1
- Acciones Favorables: 0.9

LEYENDA:
+ : Compresión>fck(j)/1.6
* : Tracción
# : Fisuración
! : Requiere comprobación wk

Vano	x		Pxo	Mmax Mmin	?s ?s	?i ?i	fckj
	[m]		[t]	[tm]	[kg/cm²]	[kg/cm²]	[kg/cm²]
1	0.00	der max	-6215.81	-4074.98	-5.62	-78.07	530
1	0.00	min	-7594.42	-4980.54	-6.86	-95.40	530
1	3.20	izq max	-6247.65	-5660.91	-11.70	-151.05	530
1	3.20	min	-7634.20	-7122.98	-12.45	-187.79	530
1	3.20	der max	-6262.39	-5684.65	-11.64	-151.57	530
1	3.20	min	-7654.03	-7152.01	-12.39	-188.44	530
1	6.40	izq max	-6380.20	-6539.30	-5.15	-166.12	530
1	6.40	min	-7798.03	-8336.18	-3.21	-208.41	530
1	6.40	der max	-6380.21	-6539.30	-5.15	-166.12	530
1	6.40	min	-7798.03	-8336.19	-3.21	-208.41	530
1	9.60	izq max	-6467.74	-6837.98	-3.35	-171.67	530
1	9.60	min	-7905.02	-8783.92	-0.27	-216.48	530
1	9.60	der max	-6467.75	-6837.96	-3.35	-171.67	530
1	9.60	min	-7905.02	-8783.91	-0.27	-216.48	530
1	12.80	izq max	-6457.87	-6404.30	-7.14	-164.78	530
1	12.80	min	-7892.95	-8279.68	-4.67	-208.47	530
1	12.80	der max	-6457.86	-6404.27	-7.14	-164.78	530
1	12.80	min	-7892.94	-8279.65	-4.67	-208.47	530
1	16.00	izq max	-6391.29	-5465.78	-14.89	-149.43	530
1	16.00	min	-7811.58	-7101.54	-14.42	-189.23	530
1	16.00	der max	-6391.29	-5465.77	-14.89	-149.43	530
1	16.00	min	-7811.58	-7101.52	-14.42	-189.23	530
1	19.20	izq max	-6319.35	-4210.80	-25.43	-129.08	530
1	19.20	min	-7723.65	-5479.72	-28.09	-162.97	530
1	19.20	der max	-6319.35	-4210.78	-25.43	-129.08	530
1	19.20	min	-7723.65	-5479.69	-28.09	-162.97	530
1	22.40	izq max	-6293.66	-2709.82	-38.63	-105.33	530
1	22.40	min	-7692.25	-3500.31	-45.53	-131.69	530
1	22.40	der max	-6293.66	-2709.72	-38.63	-105.33	530
1	22.40	min	-7692.24	-3500.18	-45.53	-131.69	530
1	25.60	izq max	-6310.57	-1173.90	-52.58	-81.47	530
1	25.60	min	-7712.92	-1421.34	-64.38	-99.37	530
1	25.60	der max	-6310.58	-1173.80	-52.58	-81.47	530
1	25.60	min	-7712.93	-1421.21	-64.38	-99.37	530
1	28.80	izq max	-10863.50	-842.06	-101.08	-121.81	530
1	28.80	min	-8888.28	-911.54	-80.71	-103.14	530
1	28.80	der max	-10839.70	-844.56	-100.82	-121.61	530
1	28.80	min	-8871.39	-913.59	-80.52	-103.01	530
1	32.00	izq max	-10985.70	750.15	-66.35	-53.02	530
1	32.00	min	-8991.56	126.75	-50.85	-48.60	530
1	32.00	der max	-10990.60	748.84	-66.37	-53.06	530
1	32.00	min	-8995.08	125.68	-50.86	-48.63	530
2	36.00	izq max	-10773.60	-165.30	-106.25	-110.32	530
2	36.00	min	-8816.82	-284.13	-85.62	-92.61	530
2	36.00	der max	-10784.50	-163.77	-106.38	-110.41	530
2	36.00	min	-8823.65	-282.87	-85.70	-92.66	530
2	40.00	izq max	-13949.90	-5818.67	-87.31	-230.54	530
2	40.00	min	-17049.90	-7242.33	-105.54	-283.81	530
2	40.00	der max	-6471.58	-1242.56	-53.57	-84.16	528
2	40.00	min	-7909.71	-1649.32	-64.30	-104.90	528
2	44.00	izq max	-6531.56	-2618.79	-41.83	-106.29	528
2	44.00	min	-7983.02	-3555.02	-47.94	-135.45	528
2	44.00	der max	-6531.57	-2618.82	-41.83	-106.29	528
2	44.00	min	-7983.03	-3555.08	-47.94	-135.45	528
2	48.00	izq max	-6644.45	-3816.97	-32.21	-126.17	528
2	48.00	min	-8121.00	-5154.28	-34.98	-161.85	528
2	48.00	der max	-6644.46	-3816.98	-32.21	-126.17	528
2	48.00	min	-8121.00	-5154.30	-34.98	-161.86	528
2	52.00	izq max	-6742.04	-4453.88	-27.47	-137.11	528
2	52.00	min	-8240.27	-5978.63	-28.78	-175.95	528
2	52.00	der max	-6742.04	-4453.90	-27.47	-137.11	528
2	52.00	min	-8240.27	-5978.66	-28.78	-175.95	528
2	56.00	izq max	-6823.11	-4447.09	-28.34	-137.81	528
2	56.00	min	-8339.35	-5927.36	-30.23	-176.13	528
2	56.00	der max	-6823.11	-4447.09	-28.34	-137.81	528
2	56.00	min	-8339.35	-5927.34	-30.23	-176.13	528
2	60.00	izq max	-6886.56	-3742.89	-35.29	-127.43	528
2	60.00	min	-8416.90	-4934.79	-39.91	-161.38	528
2	60.00	der max	-6886.56	-3742.84	-35.30	-127.43	528
2	60.00	min	-8416.91	-4934.72	-39.91	-161.38	528
2	64.00	izq max	-8884.96	-688.44	-82.67	-99.62	528
2	64.00	min	-10859.40	-980.81	-99.80	-123.94	528
2	64.00	der max	-8884.96	-688.44	-82.67	-99.62	528
2	64.00	min	-10859.40	-980.80	-99.80	-123.94	528
2	68.00	izq max	-10941.30	228.02	-111.46	-105.84	528
2	68.00	min	-8951.93	47.26	-89.94	-88.78	528
2	68.00	der max	-10933.20	224.60	-111.34	-105.82	528
2	68.00	min	-8947.37	44.44	-89.87	-88.78	528
2	72.00	izq max	-11045.50	574.46	-65.44	-55.23	528
2	72.00	min	-9039.93	-5.10	-50.19	-50.28	528
2	72.00	der max	-11043.80	574.45	-65.43	-55.22	528
2	72.00	min	-9038.60	-5.11	-50.18	-50.27	528
3	76.00	izq max	-10828.50	-133.82	-107.08	-110.38	528
3	76.00	min	-8861.69	-247.59	-86.39	-92.49	528
3	76.00	der max	-10837.70	-130.66	-107.21	-110.42	528
3	76.00	min	-8867.25	-244.99	-86.48	-92.51	528
3	80.00	izq max	-7165.02	-4038.68	-35.43	-134.84	528
3	80.00	min	-8757.25	-5078.62	-42.02	-167.03	528
3	80.00	der max	-5841.64	-1585.17	-44.20	-83.22	522
3	80.00	min	-7139.79	-2079.89	-52.74	-103.94	522
3	84.00	izq max	-5898.46	-2767.36	-34.16	-102.28	522
3	84.00	min	-7209.23	-3747.09	-38.48	-130.72	522
3	84.00	der max	-5898.46	-2767.41	-34.16	-102.28	522
3	84.00	min	-7209.23	-3747.16	-38.48	-130.72	522
3	88.00	izq max	-6007.01	-3769.25	-26.26	-119.04	522
3	88.00	min	-7341.90	-5105.07	-27.63	-153.29	522
3	88.00	der max	-6007.01	-3769.31	-26.26	-119.05	522
3	88.00	min	-7341.91	-5105.14	-27.63	-153.29	522
3	92.00	izq max	-6100.29	-4210.31	-23.24	-126.88	522
3	92.00	min	-7455.91	-5688.69	-23.54	-163.57	522
3	92.00	der max	-6100.30	-4210.31	-23.24	-126.88	522
3	92.00	min	-7455.92	-5688.70	-23.54	-163.57	522
3	96.00	izq max	-6177.03	-4007.53	-25.83	-124.47	522
3	96.00	min	-7549.71	-5396.52	-27.09	-159.93	522
3	96.00	der max	-6177.04	-4007.51	-25.83	-124.47	522
3	96.00	min	-7549.71	-5396.48	-27.09	-159.93	522
3	100.00	izq max	-6236.17	-3107.43	-34.49	-110.98	522
3	100.00	min	-7621.99	-4163.16	-38.88	-141.36	522
3	100.00	der max	-6236.17	-3107.35	-34.49	-110.98	522
3	100.00	min	-7621.99	-4163.06	-38.88	-141.36	522
3	104.00	izq max	-8230.25	143.13	-83.59	-80.06	522
3	104.00	min	-10059.20	31.87	-100.88	-100.09	522
3	104.00	der max	-8230.25	143.17	-83.59	-80.06	522
3	104.00	min	-10059.20	31.94	-100.88	-100.09	522
3	108.00	izq max	-10135.80	1481.95	-114.65	-78.17	522
3	108.00	min	-8292.90	1075.08	-92.57	-66.11	522
3	108.00	der max	-10126.40	1477.39	-114.51	-78.15	522
3	108.00	min	-8287.28	1071.33	-92.48	-66.11	522
3	112.00	izq max	-10233.20	1978.97	-70.89	-35.71	522
3	112.00	min	-8375.33	1144.85	-54.65	-34.30	522

3	112.00	der	max	-10233.20	1978.97	-70.89	-35.71	522
3	112.00		min	-8375.32	1144.86	-54.65	-34.30	522
4	116.00	izq	max	-10012.20	1369.22	-112.40	-78.70	522
4	116.00		min	-8193.81	982.89	-90.75	-66.56	522
4	116.00	der	max	-10021.20	1373.56	-112.53	-78.72	522
4	116.00		min	-8199.13	986.45	-90.84	-66.56	522
4	120.00	izq	max	-5841.51	-1595.09	-44.11	-83.37	522
4	120.00		min	-7139.62	-2092.71	-52.63	-104.14	522
4	120.00	der	max	-5841.51	-1595.11	-44.11	-83.37	519
4	120.00		min	-7139.62	-2092.74	-52.63	-104.14	519
4	124.00	izq	max	-5898.71	-2777.28	-34.08	-102.44	519
4	124.00		min	-7209.54	-3759.83	-38.37	-130.92	519
4	124.00	der	max	-5898.72	-2777.32	-34.08	-102.44	519
4	124.00		min	-7209.54	-3759.89	-38.37	-130.92	519
4	128.00	izq	max	-6007.26	-3776.75	-26.20	-119.16	519
4	128.00		min	-7342.21	-5114.70	-27.55	-153.45	519
4	128.00	der	max	-6007.27	-3776.77	-26.20	-119.16	519
4	128.00		min	-7342.22	-5114.72	-27.55	-153.45	519
4	132.00	izq	max	-6100.53	-4214.84	-23.20	-126.95	519
4	132.00		min	-7456.20	-5694.55	-23.49	-163.66	519
4	132.00	der	max	-6100.53	-4214.85	-23.20	-126.95	519
4	132.00		min	-7456.20	-5694.56	-23.49	-163.66	519
4	136.00	izq	max	-6177.25	-4009.01	-25.81	-124.50	519
4	136.00		min	-7549.98	-5398.49	-27.08	-159.97	519
4	136.00	der	max	-6177.26	-4008.99	-25.81	-124.50	519
4	136.00		min	-7549.98	-5398.46	-27.08	-159.96	519
4	140.00	izq	max	-6236.37	-3105.73	-34.51	-110.96	519
4	140.00		min	-7622.23	-4161.12	-38.90	-141.33	519
4	140.00	der	max	-6236.37	-3105.70	-34.51	-110.96	519
4	140.00		min	-7622.23	-4161.08	-38.90	-141.33	519
4	144.00	izq	max	-6273.04	-1784.26	-46.73	-90.65	519
4	144.00		min	-7667.05	-2323.75	-55.83	-113.03	519
4	144.00	der	max	-6273.04	-1784.21	-46.73	-90.65	519
4	144.00		min	-7667.05	-2323.68	-55.83	-113.03	519
4	148.00	izq	max	-10136.70	1484.49	-114.68	-78.14	519
4	148.00	der	max	-10127.40	1479.93	-114.55	-78.12	519
4	148.00		min	-8288.04	1073.23	-92.50	-66.09	519
4	152.00	izq	max	-10233.40	1974.91	-70.86	-35.75	519
4	152.00		min	-8375.51	1141.20	-54.63	-34.34	519
4	152.00	der	max	-10233.30	1974.83	-70.86	-35.75	519
4	152.00		min	-8375.42	1141.14	-54.63	-34.34	519
5	156.00	izq	max	-10012.50	1361.22	-112.33	-78.83	519
5	156.00		min	-8194.09	976.10	-90.69	-66.67	519
5	156.00	der	max	-10021.50	1365.58	-112.46	-78.85	519
5	156.00		min	-8199.42	979.68	-90.78	-66.67	519
5	160.00	izq	max	-5841.60	-1597.89	-44.08	-83.42	519
5	160.00		min	-7139.73	-2095.95	-52.60	-104.19	519
5	160.00	der	max	-5841.60	-1597.88	-44.08	-83.42	515
5	160.00		min	-7139.73	-2095.94	-52.60	-104.19	515
5	164.00	izq	max	-5898.78	-2779.32	-34.06	-102.47	515
5	164.00		min	-7209.63	-3762.16	-38.35	-130.96	515
5	164.00	der	max	-5898.79	-2779.35	-34.06	-102.47	515
5	164.00		min	-7209.63	-3762.20	-38.35	-130.96	515
5	168.00	izq	max	-6007.35	-3778.49	-26.18	-119.19	515
5	168.00		min	-7342.32	-5116.76	-27.53	-153.48	515
5	168.00	der	max	-6007.35	-3778.51	-26.18	-119.19	515
5	168.00		min	-7342.32	-5116.78	-27.53	-153.48	515
5	172.00	izq	max	-6100.61	-4216.13	-23.19	-126.97	515
5	172.00		min	-7456.30	-5696.15	-23.47	-163.69	515
5	172.00	der	max	-6100.61	-4216.16	-23.19	-126.97	515
5	172.00		min	-7456.30	-5696.18	-23.47	-163.69	515
5	176.00	izq	max	-6177.35	-4009.85	-25.81	-124.51	515
5	176.00		min	-7550.09	-5399.63	-27.07	-159.98	515
5	176.00	der	max	-6177.35	-4009.81	-25.81	-124.51	515
5	176.00		min	-7550.10	-5399.58	-27.07	-159.98	515
5	180.00	izq	max	-6236.46	-3106.20	-34.50	-110.96	515
5	180.00		min	-7622.34	-4161.91	-38.89	-141.34	515
5	180.00	der	max	-6236.46	-3106.15	-34.50	-110.96	515
5	180.00		min	-7622.34	-4161.84	-38.90	-141.34	515
5	184.00	izq	max	-8230.46	145.95	-83.61	-80.02	515
5	184.00		min	-10059.50	35.12	-100.91	-100.05	515
5	184.00	der	max	-8230.46	145.99	-83.61	-80.02	515
5	184.00		min	-10059.50	35.18	-100.91	-100.04	515
5	188.00	izq	max	-10136.60	1485.02	-114.69	-78.13	515
5	188.00		min	-8293.55	1077.71	-92.60	-66.07	515
5	188.00	der	max	-10127.30	1480.47	-114.55	-78.11	515
5	188.00		min	-8287.97	1073.98	-92.51	-66.07	515
5	192.00	izq	max	-10233.40	1976.10	-70.87	-35.74	515
5	192.00		min	-8375.47	1142.52	-54.64	-34.32	515
5	192.00	der	max	-10233.30	1976.05	-70.87	-35.74	515
5	192.00		min	-8375.39	1142.48	-54.64	-34.32	515
6	196.00	izq	max	-10012.50	1362.51	-112.34	-78.81	515
6	196.00		min	-8194.04	977.51	-90.71	-66.64	515
6	196.00	der	max	-10021.40	1366.84	-112.47	-78.83	515
6	196.00		min	-8199.36	981.07	-90.79	-66.64	515
6	200.00	izq	max	-5842.29	-1597.47	-44.09	-83.42	515
6	200.00		min	-7140.57	-2095.88	-52.61	-104.20	515
6	200.00	der	max	-5842.29	-1597.49	-44.09	-83.42	510
6	200.00		min	-7140.58	-2095.92	-52.61	-104.20	510
6	204.00	izq	max	-5899.40	-2778.98	-34.07	-102.47	510
6	204.00		min	-7210.38	-3762.25	-38.36	-130.97	510
6	204.00	der	max	-5899.41	-2779.03	-34.07	-102.48	510
6	204.00		min	-7210.39	-3762.32	-38.36	-130.97	510
6	208.00	izq	max	-6007.91	-3777.99	-26.19	-119.19	510
6	208.00		min	-7343.01	-5116.68	-27.54	-153.49	510
6	208.00	der	max	-6007.92	-3778.03	-26.19	-119.19	510
6	208.00		min	-7343.01	-5116.74	-27.54	-153.49	510
6	212.00	izq	max	-6101.14	-4215.56	-23.20	-126.97	510
6	212.00		min	-7456.95	-5696.02	-23.48	-163.69	510
6	212.00	der	max	-6101.14	-4215.57	-23.20	-126.97	510
6	212.00		min	-7456.95	-5696.03	-23.48	-163.69	510
6	216.00	izq	max	-6177.81	-4009.12	-25.82	-124.51	510
6	216.00		min	-7550.66	-5399.34	-27.08	-159.99	510
6	216.00	der	max	-6177.82	-4009.09	-25.82	-124.51	510
6	216.00		min	-7550.66	-5399.30	-27.08	-159.98	510
6	220.00	izq	max	-6236.88	-3105.21	-34.52	-110.95	510
6	220.00	der	max	-6236.89	-3105.14	-34.52	-110.95	510
6	220.00		min	-7622.86	-4161.23	-38.91	-141.34	510
6	224.00	izq	max	-6273.44	-1782.83	-46.74	-90.63	510
6	224.00		min	-7667.54	-2322.94	-55.84	-113.02	510
6	224.00	der	max	-8230.86	147.23	-83.63	-80.01	510
6	224.00		min	-10059.90	36.02	-100.92	-100.04	510
6	228.00	izq	max	-10137.00	1486.10	-114.70	-78.12	510
6	228.00		min	-8293.87	1079.18	-92.62	-66.05	510
6	228.00	der	max	-10127.60	1481.54	-114.56	-78.09	510
6	228.00		min	-8288.28	1075.44	-92.53	-66.05	510
6	232.00	izq	max	-10233.70	1977.68	-70.88	-35.73	510
6	232.00		min	-8375.73	1144.45	-54.65	-34.31	510
6	232.00	der	max	-10233.60	1977.62	-70.88	-35.73	510
6	232.00		min	-8375.65	1144.40	-54.65	-34.31	510
7	236.00	izq	max	-10012.80	1364.69	-112.37	-78.77	510
7	236.00		min	-8194.30	979.93	-90.73	-66.61	510
7	236.00	der	max	-10021.80	1369.01	-112.50	-78.80	510
7	236.00		min	-8199.62	983.48	-90.82	-66.61	510
7	240.00	izq	max	-5841.53	-1593.51	-44.12	-83.35	510
7	240.00		min	-7139.65	-2091.86	-52.63	-104.13	510
7	240.00	der	max	-5841.54	-1593.57	-44.12	-83.35	504
7	240.00		min	-7139.66	-2091.94	-52.63	-104.13	504
7	244.00	izq	max	-5898.69	-2775.02	-34.10	-102.41	504
7	244.00		min	-7209.51	-3758.26	-38.39	-130.90	504
7	244.00	der	max	-5898.70	-2775.07	-34.10	-102.41	504
7	244.00		min	-7209.52	-3758.33	-38.39	-130.90	504
7	248.00	izq	max	-6007.24	-3773.78	-26.22	-119.12	504
7	248.00		min	-7342.18	-5112.35	-27.57	-153.41	504
7	248.00	der	max	-6007.24	-3773.82	-26.22	-119.12	504
7	248.00		min	-7342.18	-5112.40	-27.57	-153.41	504
7	252.00	izq	max	-6100.52	-4211.39	-23.23	-126.90	504
7	252.00		min	-7456.19	-5691.73	-23.51	-163.62	504
7	252.00	der	max	-6100.52	-4211.37	-23.23	-126.90	504
7	252.00		min	-7456.19	-5691.71	-23.51	-163.62	504
7	256.00	izq	max	-6177.26	-4005.04	-25.85	-124.44	504
7	256.00		min	-7549.98	-5395.16	-27.11	-159.91	504

7	256.00	der	max	-6177.26	-4005.02	-25.85	-124.44	504
7	256.00		min	-7549.99	-5395.12	-27.11	-159.91	504
7	260.00	izq	max	-6236.39	-3101.15	-34.55	-110.88	504
7	260.00		min	-7622.25	-4157.16	-38.94	-141.27	504
7	260.00	der	max	-6236.39	-3101.12	-34.55	-110.88	504
7	260.00		min	-7622.25	-4157.10	-38.94	-141.27	504
7	264.00	izq	max	-6273.03	-1778.89	-46.78	-90.56	504
7	264.00		min	-7667.04	-2318.92	-55.87	-112.95	504
7	264.00	der	max	-8230.56	151.26	-83.66	-79.94	504
7	264.00		min	-10059.60	40.17	-100.96	-99.97	504
7	268.00	izq	max	-10136.60	1490.04	-114.73	-78.05	504
7	268.00		min	-8293.55	1083.06	-92.65	-65.99	504
7	268.00	der	max	-10127.20	1485.51	-114.59	-78.03	504
7	268.00		min	-8287.95	1079.34	-92.56	-65.99	504
7	272.00	izq	max	-10233.30	1982.14	-70.91	-35.68	504
7	272.00		min	-8375.44	1148.81	-54.68	-34.26	504
7	272.00	der	max	-10233.20	1982.06	-70.91	-35.68	504
7	272.00		min	-8375.37	1148.75	-54.68	-34.26	504
8	276.00	izq	max	-10012.50	1368.42	-112.40	-78.71	504
8	276.00		min	-8194.05	983.58	-90.76	-66.55	504
8	276.00	der	max	-10021.50	1372.75	-112.53	-78.74	504
8	276.00		min	-8199.37	987.13	-90.85	-66.55	504
8	280.00	izq	max	-7746.65	286.12	-80.03	-72.99	504
8	280.00		min	-9468.13	205.09	-96.52	-91.47	504
8	280.00	der	max	-5842.05	-1591.86	-44.14	-83.33	497
8	280.00		min	-7140.28	-2090.23	-52.65	-104.11	497
8	284.00	izq	max	-5899.13	-2774.15	-34.11	-102.40	497
8	284.00		min	-7210.05	-3757.26	-38.40	-130.89	497
8	284.00	der	max	-5899.13	-2774.18	-34.11	-102.40	497
8	284.00		min	-7210.05	-3757.31	-38.40	-130.89	497
8	288.00	izq	max	-6007.64	-3774.33	-26.22	-119.13	497
8	288.00		min	-7342.67	-5112.84	-27.57	-153.42	497
8	288.00	der	max	-6007.65	-3774.38	-26.22	-119.13	497
8	288.00		min	-7342.68	-5112.90	-27.57	-153.42	497
8	292.00	izq	max	-6100.85	-4213.09	-23.22	-126.93	497
8	292.00	der	max	-6100.86	-4213.10	-23.22	-126.93	497
8	292.00		min	-7456.60	-5693.36	-23.50	-163.65	497
8	296.00	izq	max	-6177.55	-4008.09	-25.83	-124.49	497
8	296.00		min	-7550.34	-5398.15	-27.09	-159.96	497
8	296.00	der	max	-6177.55	-4008.04	-25.83	-124.49	497
8	296.00		min	-7550.34	-5398.08	-27.09	-159.96	497
8	300.00	izq	max	-6236.63	-3105.59	-34.51	-110.96	497
8	300.00		min	-7622.55	-4161.58	-38.90	-141.34	497
8	300.00	der	max	-6236.63	-3105.55	-34.51	-110.96	497
8	300.00		min	-7622.55	-4161.52	-38.90	-141.34	497
8	304.00	izq	max	-8230.80	145.89	-83.62	-80.03	497
8	304.00		min	-10059.90	34.91	-100.91	-100.05	497
8	304.00	der	max	-8230.80	145.92	-83.62	-80.02	497
8	304.00		min	-10059.90	34.96	-100.91	-100.05	497
8	308.00	izq	max	-10136.90	1483.93	-114.68	-78.15	497
8	308.00		min	-8293.81	1076.79	-92.60	-66.09	497
8	308.00	der	max	-10127.60	1479.38	-114.54	-78.13	497
8	308.00		min	-8288.23	1073.05	-92.51	-66.09	497
8	312.00	izq	max	-10233.70	1975.47	-70.87	-35.75	497
8	312.00		min	-8375.75	1141.78	-54.63	-34.33	497
8	312.00	der	max	-10233.60	1975.41	-70.87	-35.75	497
8	312.00		min	-8375.68	1141.74	-54.63	-34.33	497
9	316.00	izq	max	-10012.80	1363.46	-112.36	-78.79	497
9	316.00		min	-8194.35	978.19	-90.72	-66.64	497
9	316.00	der	max	-10021.80	1367.82	-112.49	-78.82	497
9	316.00		min	-8199.66	981.77	-90.80	-66.64	497
9	320.00	izq	max	-5841.85	-1596.38	-44.10	-83.40	497
9	320.00		min	-7140.04	-2094.50	-52.61	-104.17	497
9	320.00	der	max	-5841.85	-1596.42	-44.10	-83.40	489
9	320.00		min	-7140.04	-2094.56	-52.61	-104.17	489
9	324.00	izq	max	-5899.13	-2777.48	-34.08	-102.45	489
9	324.00		min	-7210.05	-3760.45	-38.37	-130.94	489
9	324.00	der	max	-5899.14	-2777.53	-34.08	-102.45	489
9	324.00		min	-7210.06	-3760.52	-38.37	-130.94	489
9	328.00	izq	max	-6007.65	-3775.93	-26.21	-119.16	489
9	328.00		min	-7342.68	-5114.27	-27.56	-153.45	489
9	328.00	der	max	-6007.65	-3775.98	-26.21	-119.16	489
9	328.00		min	-7342.69	-5114.33	-27.56	-153.45	489
9	332.00	izq	max	-6100.90	-4213.14	-23.22	-126.93	489
9	332.00		min	-7456.65	-5693.25	-23.50	-163.64	489
9	332.00	der	max	-6100.90	-4213.14	-23.22	-126.93	489
9	332.00		min	-7456.65	-5693.25	-23.50	-163.64	489
9	336.00	izq	max	-6177.59	-4006.42	-25.84	-124.46	489
9	336.00		min	-7550.39	-5396.33	-27.10	-159.94	489
9	336.00	der	max	-6177.60	-4006.40	-25.84	-124.46	489
9	336.00		min	-7550.40	-5396.30	-27.10	-159.94	489
9	340.00	izq	max	-6236.69	-3102.11	-34.54	-110.90	489
9	340.00		min	-7622.63	-4157.90	-38.93	-141.28	489
9	340.00	der	max	-6236.69	-3102.06	-34.54	-110.90	489
9	340.00		min	-7622.63	-4157.83	-38.93	-141.28	489
9	344.00	izq	max	-8230.81	150.77	-83.66	-79.95	489
9	344.00		min	-10059.90	39.89	-100.96	-99.97	489
9	344.00	der	max	-8230.82	150.82	-83.66	-79.95	489
9	344.00		min	-10059.90	39.96	-100.96	-99.97	489
9	348.00	izq	max	-10136.90	1490.47	-114.74	-78.05	489
9	348.00		min	-8293.85	1083.18	-92.65	-65.99	489
9	348.00	der	max	-10127.60	1485.92	-114.60	-78.03	489
9	348.00		min	-8288.25	1079.44	-92.56	-65.99	489
9	352.00	izq	max	-10233.60	1982.25	-70.92	-35.68	489
9	352.00		min	-8375.64	1148.65	-54.68	-34.26	489
9	352.00	der	max	-10233.50	1982.17	-70.92	-35.68	489
9	352.00		min	-8375.58	1148.59	-54.68	-34.26	489
10	356.00	izq	max	-10012.80	1368.55	-112.40	-78.71	489
10	356.00		min	-8194.28	983.38	-90.76	-66.56	489
10	356.00	der	max	-10021.70	1372.91	-112.53	-78.74	489
10	356.00		min	-8199.60	986.96	-90.85	-66.55	489
10	360.00	izq	max	-5841.80	-1591.70	-44.14	-83.32	489
10	360.00		min	-7139.98	-2089.82	-52.66	-104.10	489
10	360.00	der	max	-5841.81	-1591.70	-44.14	-83.32	478
10	360.00		min	-7139.99	-2089.83	-52.66	-104.10	478
10	364.00	izq	max	-5898.98	-2773.57	-34.11	-102.39	478
10	364.00	der	max	-5898.99	-2773.61	-34.11	-102.39	478
10	364.00		min	-7209.88	-3756.55	-38.41	-130.87	478
10	368.00	izq	max	-6007.51	-3772.82	-26.24	-119.11	478
10	368.00		min	-7342.52	-5111.05	-27.58	-153.39	478
10	368.00	der	max	-6007.52	-3772.86	-26.24	-119.11	478
10	368.00		min	-7342.52	-5111.11	-27.58	-153.39	478
10	372.00	izq	max	-6100.76	-4210.72	-23.24	-126.89	478
10	372.00		min	-7456.48	-5690.65	-23.52	-163.60	478
10	372.00	der	max	-6100.76	-4210.75	-23.24	-126.89	478
10	372.00		min	-7456.48	-5690.69	-23.52	-163.60	478
10	376.00	izq	max	-6177.48	-4004.66	-25.86	-124.43	478
10	376.00		min	-7550.25	-5394.27	-27.12	-159.90	478
10	376.00	der	max	-6177.48	-4004.60	-25.86	-124.43	478
10	376.00		min	-7550.26	-5394.19	-27.12	-159.90	478
10	380.00	izq	max	-6236.58	-3101.16	-34.55	-110.89	478
10	380.00		min	-7622.48	-4156.60	-38.94	-141.26	478
10	380.00	der	max	-6236.58	-3101.09	-34.55	-110.89	478
10	380.00		min	-7622.48	-4156.50	-38.94	-141.26	478
10	384.00	izq	max	-6273.21	-1779.35	-46.77	-90.57	478
10	384.00		min	-7667.26	-2318.78	-55.87	-112.95	478
10	384.00	der	max	-6273.21	-1779.31	-46.77	-90.57	478
10	384.00		min	-7667.26	-2318.72	-55.88	-112.95	478
10	388.00	izq	max	-10136.80	1489.80	-114.73	-78.06	478
10	388.00		min	-8293.71	1082.12	-92.64	-66.01	478
10	388.00	der	max	-10127.50	1485.23	-114.59	-78.04	478
10	388.00		min	-8288.13	1078.37	-92.55	-66.01	478
10	392.00	izq	max	-10233.30	1980.66	-70.90	-35.69	478
10	392.00		min	-8375.46	1146.74	-54.67	-34.28	478
10	392.00	der	max	-10233.30	1980.60	-70.90	-35.69	478
10	392.00		min	-8375.42	1146.69	-54.67	-34.28	478
11	396.00	izq	max	-10012.40	1373.94	-112.45	-78.63	478
11	396.00		min	-8193.99	988.81	-90.81	-66.47	478
11	396.00	der	max	-10021.30	1378.26	-112.58	-78.65	478
11	396.00		min	-8199.27	992.35	-90.89	-66.47	478
11	400.00	izq	max	-5842.60	-1578.06	-44.27	-83.12	478
11	400.00		min	-7140.96	-2076.25	-52.79	-103.89	478

11	400.00	der	max	-5842.60	-1578.09	-44.27	-83.12	463
11	400.00		min	-7140.96	-2076.29	-52.79	-103.90	463
11	404.00	izq	max	-5899.74	-2752.32	-34.31	-102.06	463
11	404.00		min	-7210.80	-3735.51	-38.60	-130.55	463
11	404.00	der	max	-5899.75	-2752.38	-34.31	-102.06	463
11	404.00		min	-7210.80	-3735.59	-38.60	-130.56	463
11	408.00	izq	max	-6008.21	-3743.95	-26.50	-118.66	463
11	408.00		min	-7343.37	-5082.63	-27.85	-152.96	463
11	408.00	der	max	-6008.22	-3743.97	-26.50	-118.66	463
11	408.00		min	-7343.38	-5082.67	-27.85	-152.96	463
11	412.00	izq	max	-6101.38	-4174.16	-23.57	-126.32	463
11	412.00		min	-7457.24	-5654.69	-23.85	-163.05	463
11	412.00	der	max	-6101.38	-4174.15	-23.57	-126.32	463
11	412.00		min	-7457.24	-5654.68	-23.85	-163.05	463
11	416.00	izq	max	-6178.02	-3960.51	-26.26	-123.75	463
11	416.00		min	-7550.91	-5350.93	-27.52	-159.23	463
11	416.00	der	max	-6178.02	-3960.48	-26.26	-123.75	463
11	416.00		min	-7550.92	-5350.89	-27.52	-159.23	463
11	420.00	izq	max	-6237.05	-3049.38	-35.02	-110.08	463
11	420.00		min	-7623.06	-4105.80	-39.40	-140.47	463
11	420.00	der	max	-6237.05	-3049.34	-35.02	-110.08	463
11	420.00		min	-7623.06	-4105.74	-39.41	-140.47	463
11	424.00	izq	max	-8231.10	210.54	-84.20	-79.02	463
11	424.00		min	-10060.20	98.96	-101.49	-99.05	463
11	424.00	der	max	-8231.10	210.57	-84.20	-79.02	463
11	424.00		min	-10060.20	99.01	-101.49	-99.05	463
11	428.00	izq	max	-10137.30	1556.66	-115.33	-77.02	463
11	428.00		min	-8294.12	1150.11	-93.26	-64.95	463
11	428.00	der	max	-10127.90	1552.13	-115.20	-76.99	463
11	428.00		min	-8288.48	1146.39	-93.17	-64.95	463
11	432.00	izq	max	-10233.90	2056.18	-71.44	-34.89	463
11	432.00		min	-8375.91	1223.30	-55.21	-33.46	463
11	432.00	der	max	-10233.70	2056.11	-71.44	-34.89	463
11	432.00		min	-8375.75	1223.25	-55.21	-33.46	463
12	436.00	izq	max	-10012.90	1423.56	-112.90	-77.85	463
12	436.00		min	-8194.37	1038.40	-91.26	-65.70	463
12	436.00	der	max	-10022.00	1427.88	-113.03	-77.88	463
12	436.00		min	-8199.83	1041.95	-91.34	-65.70	463
12	440.00	izq	max	-5841.68	-1557.00	-44.45	-82.78	463
12	440.00		min	-7139.83	-2054.49	-52.97	-103.54	463
12	440.00	der	max	-5841.68	-1557.01	-44.45	-82.78	441
12	440.00		min	-7139.84	-2054.50	-52.97	-103.54	441
12	444.00	izq	max	-5899.02	-2759.16	-34.24	-102.16	441
12	444.00		min	-7209.92	-3740.77	-38.55	-130.63	441
12	444.00	der	max	-5899.03	-2759.21	-34.24	-102.16	441
12	444.00		min	-7209.92	-3740.84	-38.55	-130.63	441
12	448.00	izq	max	-6007.56	-3778.76	-26.18	-119.20	441
12	448.00		min	-7342.57	-5115.05	-27.55	-153.46	441
12	448.00	der	max	-6007.56	-3778.78	-26.18	-119.20	441
12	448.00		min	-7342.58	-5115.07	-27.55	-153.46	441
12	452.00	izq	max	-6100.82	-4237.07	-23.01	-127.30	441
12	452.00		min	-7456.56	-5714.42	-23.31	-163.97	441
12	452.00	der	max	-6100.83	-4237.07	-23.01	-127.30	441
12	452.00		min	-7456.56	-5714.42	-23.31	-163.97	441
12	456.00	izq	max	-6177.52	-4051.28	-25.44	-125.16	441
12	456.00		min	-7550.31	-5437.67	-26.73	-160.58	441
12	456.00	der	max	-6177.53	-4051.25	-25.44	-125.16	441
12	456.00		min	-7550.31	-5437.62	-26.73	-160.58	441
12	460.00	izq	max	-6236.63	-3168.08	-33.95	-111.93	441
12	460.00		min	-7622.54	-4219.64	-38.38	-142.25	441
12	460.00	der	max	-6236.63	-3168.04	-33.95	-111.93	441
12	460.00		min	-7622.54	-4219.58	-38.38	-142.25	441
12	464.00	izq	max	-8230.61	63.53	-82.88	-81.31	441
12	464.00		min	-10059.60	-42.44	-100.22	-101.26	441
12	464.00	der	max	-8230.61	63.57	-82.88	-81.31	441
12	464.00		min	-10059.60	-42.39	-100.22	-101.26	441
12	468.00	izq	max	-10136.80	1387.64	-113.81	-79.66	441
12	468.00		min	-8293.72	974.76	-91.68	-67.69	441
12	468.00	der	max	-10127.60	1383.07	-113.68	-79.63	441
12	468.00		min	-8288.27	971.01	-91.59	-67.69	441
12	472.00	izq	max	-10233.60	1858.87	-70.04	-36.99	441
12	472.00		min	-8375.73	1019.01	-53.76	-35.65	441
12	472.00	der	max	-10234.10	1858.79	-70.04	-37.00	441
12	472.00		min	-8376.16	1018.94	-53.76	-35.65	441
13	476.00	izq	max	-10013.30	1343.08	-112.18	-79.12	441
13	476.00		min	-8194.81	949.19	-90.46	-67.10	441
13	476.00	der	max	-10021.60	1347.44	-112.30	-79.13	441
13	476.00		min	-8199.48	952.76	-90.54	-67.09	441
13	480.00	izq	max	-5854.95	-1544.31	-44.70	-82.71	441
13	480.00		min	-7156.05	-2034.20	-53.32	-103.39	441
13	480.00	der	max	-5854.96	-1544.33	-44.70	-82.71	406
13	480.00		min	-7156.06	-2034.24	-53.32	-103.39	406
13	484.00	izq	max	-5911.83	-2633.88	-35.49	-100.33	406
13	484.00		min	-7225.56	-3606.77	-39.91	-128.69	406
13	484.00	der	max	-5911.83	-2633.94	-35.49	-100.33	406
13	484.00		min	-7225.57	-3606.84	-39.91	-128.69	406
13	488.00	izq	max	-6019.67	-3539.07	-28.45	-115.57	406
13	488.00		min	-7357.37	-4865.08	-29.94	-149.69	406
13	488.00	der	max	-6019.67	-3539.10	-28.45	-115.57	406
13	488.00		min	-7357.38	-4865.12	-29.94	-149.69	406
13	492.00	izq	max	-6112.17	-3880.88	-26.31	-121.84	406
13	492.00		min	-7470.42	-5345.90	-26.76	-158.35	406
13	492.00	der	max	-6112.17	-3880.89	-26.31	-121.84	406
13	492.00		min	-7470.43	-5345.91	-26.76	-158.35	406
13	496.00	izq	max	-6188.12	-3576.90	-29.80	-117.85	406
13	496.00		min	-7563.25	-4948.54	-31.25	-153.06	406
13	496.00	der	max	-6188.12	-3576.86	-29.80	-117.85	406
13	496.00		min	-7563.26	-4948.49	-31.25	-153.06	406
13	500.00	izq	max	-6246.43	-2573.20	-39.38	-102.73	406
13	500.00		min	-7634.52	-3607.06	-43.99	-132.78	406
13	500.00	der	max	-6246.43	-2573.15	-39.39	-102.72	406
13	500.00		min	-7634.53	-3607.00	-43.99	-132.78	406
13	504.00	izq	max	-6931.62	-509.36	-64.75	-77.29	406
13	504.00		min	-8471.98	-880.99	-76.82	-98.50	406
13	504.00	der	max	-6931.63	-509.35	-64.75	-77.29	406
13	504.00		min	-8471.99	-880.96	-76.82	-98.50	406
13	508.00	izq	max	-8558.98	684.71	-91.73	-74.88	406
13	508.00		min	-7002.80	532.38	-74.80	-61.70	406
13	508.00	der	max	-8549.58	681.35	-91.61	-74.83	406
13	508.00		min	-6997.02	529.62	-74.72	-61.68	406
13	512.00	izq	max	-8577.15	1051.22	-55.11	-36.42	406
13	512.00		min	-7020.28	510.47	-42.62	-33.55	406
13	512.00	der	max	-8573.22	1051.62	-55.09	-36.39	406
13	512.00		min	-7017.56	510.80	-42.61	-33.53	406
14	515.20	izq	max	-8300.04	-390.61	-79.50	-89.11	406
14	515.20		min	-6793.34	-418.36	-64.18	-74.48	406
14	515.20	der	max	-8322.12	-386.54	-79.75	-89.27	406
14	515.20		min	-6809.01	-415.03	-64.37	-74.58	406
14	518.40	izq	max	-5542.36	-774.14	-48.48	-67.54	406
14	518.40		min	-6773.99	-1067.58	-58.16	-84.44	406
14	518.40	der	max	-5542.36	-774.18	-48.48	-67.54	337
14	518.40		min	-6774.00	-1067.64	-58.16	-84.44	337
14	521.60	izq	max	-5571.06	-2187.33	-36.09	-89.93	337
14	521.60		min	-6809.07	-2980.06	-41.36	-114.72	337
14	521.60	der	max	-5571.06	-2187.37	-36.09	-89.93	337
14	521.60		min	-6809.07	-2980.12	-41.36	-114.72	337
14	524.80	izq	max	-5647.13	-3603.46	-24.15	-112.85	337
14	524.80		min	-6902.05	-4839.26	-25.62	-144.74	337
14	524.80	der	max	-5647.13	-3603.56	-24.15	-112.85	337
14	524.80		min	-6902.05	-4839.38	-25.62	-144.74	337
14	528.00	izq	max	-5716.30	-4742.28	-14.63	-131.36	337
14	528.00		min	-6986.59	-6302.62	-13.34	-168.48	337
14	528.00	der	max	-5716.30	-4742.35	-14.63	-131.36	337
14	528.00		min	-6986.59	-6302.71	-13.34	-168.48	337
14	531.20	izq	max	-5777.75	-5561.72	-7.89	-144.80	337
14	531.20		min	-7061.70	-7318.73	-4.97	-185.13	337
14	531.20	der	max	-5777.75	-5561.72	-7.89	-144.80	337
14	531.20		min	-7061.70	-7318.73	-4.97	-185.13	337
14	534.40	izq	max	-5782.28	-5874.99	-5.13	-149.74	337
14	534.40		min	-7067.23	-7659.30	-1.97	-190.51	337
14	534.40	der	max	-5782.28	-5874.98	-5.13	-149.74	337
14	534.40		min	-7067.23	-7659.29	-1.97	-190.51	337
14	537.60	izq	max	-5689.29	-5455.80	-7.96	-142.26	337
14	537.60		min	-6953.58	-7047.77	-6.32	-179.81	337

14	537.60	der	max	-5689.29	-5455.80	-7.96	-142.26		337
14	537.60		min	-6953.58	-7047.76	-6.32	-179.81		337
14	540.80	izq	max	-5566.35	-4481.72	-15.47	-125.79		337
14	540.80		min	-6803.32	-5701.17	-16.90	-157.23		337
14	540.80	der	max	-5532.96	-4430.71	-15.59	-124.65		337
14	540.80		min	-6758.85	-5638.82	-17.01	-155.81		337
14	544.00	izq	max	-32.81	0.04	0.00	- 0.00	-	337
14	544.00		min	-31.26	0.04	0.00	- 0.00	-	337

1.5 Tablero. Servicio a tiempo cero

?

COMPROBACION ESTADO LIMITE DE SERVICIO A TIEMPO CERO

Factores de ponderación considerados para el pretensado:

- Acciones Desfavorables: 1.1
- Acciones Favorables: 0.9

LEYENDA:
+ : Compresión>fckj/1.6
* : Tracción
# : Fisuración
! : Requiere comprobación wk
-0000 : Sección armada

Vano	x		Pxo	Mmax Mmin	Mp,isos Mp,isos	?s ?s	?i ?i	wk wk	
	[m]		[t]	[tm]	[tm]	[kg/cm²]	[kg/cm²]	[mm]	
1	0.00	der max	-6954.91	-4074.92	-4980.58	-9.73	-82.17		
1	0.00	min	-6879.37	-4980.56	-4075.02	-2.88	-91.43		
1	3.20	izq max	-4439.16	-3178.98	-7114.02	-15.88	-94.13		
1	3.20	min	-9462.67	-7457.66	-8694.92	-27.74	-211.31		
1	3.20	der max	-4430.69	-3202.65	-7137.82	-15.58	-94.42		
1	3.20	min	-9485.74	-7486.68	-8724.00	-27.71	-212.00		
1	6.40	izq max	-5665.01	-2194.97	-9155.27	-36.96	-90.99		
1	6.40	min	-8513.22	-8980.15	-11189.80	-4.59	-225.64		
1	6.40	der max	-5665.01	-2194.89	-9155.33	-36.96	-90.99		
1	6.40	min	-8513.23	-8980.17	-11189.80	-4.59	-225.64		
1	9.60	izq max	-5752.55	-1057.05	-10360.60	-48.04	-74.06		
1	9.60	min	-8620.22	-9905.52	-12663.00	2.64 *	-241.19		
1	9.60	der max	-5752.55	-1056.99	-10360.70	-48.05	-74.06		
1	9.60	min	-8620.22	-9905.52	-12663.00	2.64 *	-241.19		
1	12.80	izq max	-5742.67	349.72	-10577.80	-60.56	-51.95		
1	12.80	min	-8608.14	-10009.30	-12928.40	3.69 *	-242.69		
1	12.80	der max	-5742.66	349.75	-10577.80	-60.56	-51.95		
1	12.80	min	-8608.14	-10009.30	-12928.40	3.69 *	-242.69		
1	16.00	izq max	-5676.09	1797.47	-10034.00	-72.88	-28.64		
1	16.00	min	-8526.77	-9569.24	-12263.80	0.56 *	-234.99		
1	16.00	der max	-5676.09	1797.46	-10034.00	-72.88	-28.64		
1	16.00	min	-8526.77	-9569.22	-12263.80	0.56 *	-234.99		
1	19.20	izq max	-5604.16	3098.03	-8917.84	-83.83	-7.57		
1	19.20	min	-8438.85	-8815.77	-10899.60	-5.32	-222.32		
1	19.20	der max	-5604.15	3098.05	-8917.79	-83.83	-7.57		
1	19.20	min	-8438.84	-8815.76	-10899.50	-5.32	-222.32		
1	22.40	izq max	-5578.46	4180.84	-7299.59	-93.28	9.63 *		
1	22.40	min	-8407.44	-7835.19	-8921.73	-13.80	-206.66		
1	22.40	der max	-5578.46	4180.90	-7299.51	-93.28	9.63 *		
1	22.40	min	-8407.44	-7835.09	-8921.62	-13.80	-206.66		
1	25.60	izq max	-5595.38	4834.90	-5390.44	-99.32	19.69 *		
1	25.60	min	-8428.12	-6885.09	-6588.31	-22.53	-192.01		
1	25.60	der max	-5595.38	4834.97	-5390.35	-99.32	19.69 *		
1	25.60	min	-8428.12	-6885.02	-6588.21	-22.53	-192.01		
1	28.80	izq max	-11578.70	4349.88	-5498.69	-154.80	-47.73		
1	28.80	min	-8173.09	-8038.48	-4498.93	-9.63	-207.50		
1	28.80	der max	-11554.50	4347.39	-5501.16	-154.54	-47.52		
1	28.80	min	-8185.66	-8040.65	-4500.95	-9.74	-207.66		
1	32.00	izq max	-11701.90	5955.88	-3105.65	-107.27	-1.38		
1	32.00	min	-8310.36	-9969.67	-2540.98	24.36 *	-152.68		0.00
1	32.00	der max	-11660.80	5954.56	-3107.00	-107.03	-1.17		
1	32.00	min	-8355.74	-9970.72	-2542.09	24.32 *	-152.94		
2	36.00	izq max	-11442.40	5109.22	-5642.14	-160.25	-34.48		
2	36.00	min	-8171.24	-6579.02	-4616.29	-22.70	-184.65		
2	36.00	der max	-11453.20	5110.78	-5640.68	-160.37	-34.57		
2	36.00	min	-8154.94	-6577.63	-4615.10	-22.55	-184.46		
2	40.00	izq max	-14618.60	540.29	-11362.20	-151.03	-137.73		

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2   40.00     min -16381.10-11636.10-13887.20  -59.44   -345.87 +
2   40.00 der max  -7140.30  5116.47 -6786.16 -117.29      8.65 *
2   40.00     min  -7241.00 -6043.05 -8294.20  -18.21   -166.96
2   44.00 izq max  -7200.28  5177.76 -8973.59 -118.44      9.01 *
2   44.00     min  -7314.31 -7246.49-10967.70   -8.15   -186.52
2   44.00 der max  -7200.29  5177.78 -8973.67 -118.44      9.01 *
2   44.00     min  -7314.31 -7246.53-10967.80   -8.15   -186.52
2   48.00 izq max  -7313.17  4726.77-10583.10 -115.53      0.82 *
2   48.00     min  -7452.28 -8380.80-12934.90    0.65 * -205.65
2   48.00 der max  -7313.17  4726.80-10583.20 -115.53      0.82 *
2   48.00     min  -7452.29 -8380.83-12935.00    0.65 * -205.65
2   52.00 izq max  -7410.75  4112.47-11231.40 -110.99     -9.76
2   52.00     min  -7571.55 -9032.75-13727.20    5.30 * -217.04
2   52.00 der max  -7410.76  4112.44-11231.40 -110.99     -9.76
2   52.00     min  -7571.55 -9032.79-13727.20    5.30 * -217.04
2   56.00 izq max  -6154.39  3860.34-10835.90  -96.17     -1.14
2   56.00     min  -9008.07 -9212.80-13243.80   -7.45   -234.23
2   56.00 der max  -6154.39  3860.32-10835.80  -96.17     -1.14
2   56.00     min  -9008.07 -9212.78-13243.80   -7.45   -234.23
2   60.00 izq max  -6217.84  3612.11 -9342.97  -94.58     -5.66
2   60.00     min  -9085.62 -8655.75-11419.20  -13.22   -226.29
2   60.00 der max  -6217.85  3612.09 -9342.89  -94.58     -5.66
2   60.00     min  -9085.63 -8655.70-11419.10  -13.22   -226.28
2   64.00 izq max  -7165.70  5015.79 -5099.82 -116.64      6.82 *
2   64.00     min -12578.60 -5366.99 -6233.11  -77.65   -209.76
2   64.00 der max  -7165.71  5015.69 -5099.74 -116.64      6.82 *
2   64.00     min -12578.70 -5367.00 -6233.01  -77.65   -209.76
2   68.00 izq max -10272.50  4541.96 -3392.17 -143.46    -31.66
2   68.00     min  -9620.65 -6037.37 -2775.41  -42.06   -190.67
2   68.00 der max -10266.90  4538.52 -3395.52 -143.37    -31.66
2   68.00     min  -9637.35 -6040.31 -2778.15  -42.20   -190.88
2   72.00 izq max -11717.50  4525.08  -960.12  -97.20    -16.75
2   72.00     min  -8398.33 -9579.46  -785.55   21.30 * -149.00
2   72.00 der max -11659.60  4525.07  -960.13  -96.88    -16.43
2   72.00     min  -8453.43 -9579.47  -785.56   21.00 * -149.31
3   76.00 izq max -10217.10  4078.81 -3520.80 -138.75    -38.35
3   76.00     min  -9496.37 -6310.01 -2880.66  -38.37   -193.69
3   76.00 der max -10224.50  4081.97 -3517.72 -138.86    -38.38
3   76.00     min  -9480.48 -6307.28 -2878.13  -38.23   -193.49
3   80.00 izq max  -6551.79  1483.30 -8071.44  -78.82    -42.31
3   80.00     min  -9370.49 -9398.49 -9865.09   -9.41   -240.76
3   80.00 der max  -5228.41  3936.89 -5617.99  -87.60      9.31 *
3   80.00     min  -7753.02 -6399.72 -6866.44  -20.13   -177.66
3   84.00 izq max  -5285.22  4355.12 -7799.54  -91.91     15.29 *
3   84.00     min  -7822.46 -7402.73 -9532.77  -11.83   -194.05
3   84.00 der max  -5285.22  4355.12 -7799.62  -91.91     15.29 *
3   84.00     min  -7822.47 -7402.77 -9532.87  -11.83   -194.05
3   88.00 izq max  -5393.77  4238.55 -9401.04  -91.95     12.38 *
3   88.00     min  -7955.14 -8309.15-11490.20   -5.02   -209.56
3   88.00 der max  -5393.78  4238.52 -9401.09  -91.95     12.38 *
3   88.00     min  -7955.14 -8309.20-11490.20   -5.02   -209.56
3   92.00 izq max  -5487.06  3958.27-10041.60  -90.37      7.06 *
3   92.00     min  -8069.15 -8647.01-12273.10   -3.13   -215.98
3   92.00 der max  -5487.06  3958.27-10041.60  -90.37      7.06 *
3   92.00     min  -8069.16 -8647.01-12273.10   -3.13   -215.98
3   96.00 izq max  -5563.80  4049.35 -9638.42  -91.96      7.72 *
3   96.00     min  -8162.95 -8618.20-11780.30   -4.33   -216.47
3   96.00 der max  -5563.80  4049.34 -9638.37  -91.96      7.72 *
3   96.00     min  -8162.95 -8618.18-11780.20   -4.33   -216.47
3  100.00 izq max  -5622.94  4119.62 -8137.81  -93.18      8.23 *
3  100.00     min  -8235.23 -7858.74 -9946.21  -11.87   -205.31
3  100.00 der max  -5622.94  4119.64 -8137.73  -93.18      8.23 *
3  100.00     min  -8235.23 -7858.67 -9946.11  -11.87   -205.31
3  104.00 izq max  -6653.44  5833.76 -3886.75 -118.86     24.34 *
3  104.00     min -11636.00 -4359.15 -4750.48  -77.26   -184.56
3  104.00 der max  -6653.45  5833.72 -3886.66 -118.86     24.34 *
3  104.00     min -11636.00 -4359.12 -4750.37  -77.26   -184.56
3  108.00 izq max  -9522.53  5908.23 -1899.62 -148.22     -2.78
3  108.00     min  -8906.14 -5053.75 -1554.23  -43.73   -168.13
3  108.00 der max  -9514.71  5903.65 -1904.10 -148.10     -2.78
3  108.00     min  -8922.08 -5057.62 -1557.90  -43.86   -168.35
3  112.00 izq max -11812.20  6219.42   451.35 -109.75      0.82 *
3  112.00     min  -6826.11 -8555.46   369.28   22.77 * -129.32
3  112.00 der max -11669.60  6219.44   451.34 -108.96      1.61 *
3  112.00     min  -6969.38 -8555.47   369.28   21.98 * -130.12
4  116.00 izq max  -9456.06  5808.95 -2011.19 -146.66     -3.67
4  116.00     min  -8773.09 -5150.56 -1645.52  -41.53   -168.32
4  116.00 der max  -9463.40  5813.31 -2006.93 -146.77     -3.68
4  116.00     min  -8756.89 -5146.87 -1642.04  -41.41   -168.10
4  120.00 izq max  -5283.75  4116.19 -5623.11  -89.76     11.57 *
4  120.00     min  -7697.38 -6482.92 -6872.69  -18.83   -178.41
4  120.00 der max  -5283.75  4116.24 -5623.19  -89.76     11.57 *
4  120.00     min  -7697.38 -6482.91 -6872.78  -18.83   -178.41
4  124.00 izq max  -5340.96  4506.41 -7805.09  -93.83     17.10 *
4  124.00     min  -7767.30 -7477.35 -9539.56  -10.61   -194.66
4  124.00 der max  -5340.96  4506.44 -7805.17  -93.83     17.10 *
4  124.00     min  -7767.30 -7477.38 -9539.66  -10.61   -194.67
4  128.00 izq max  -5449.51  4359.59 -9404.20  -93.60     13.72 *
4  128.00     min  -7899.97 -8368.28-11494.00   -3.94   -209.93
4  128.00 der max  -5449.51  4359.61 -9404.23  -93.60     13.72 *
4  128.00     min  -7899.98 -8368.30-11494.10   -3.94   -209.93
4  132.00 izq max  -5542.77  4049.64-10041.90  -91.75      7.93 *
4  132.00     min  -8013.96 -8688.14-12273.50   -2.21   -216.08
4  132.00 der max  -5542.77  4049.61-10041.90  -91.75      7.93 *
4  132.00     min  -8013.96 -8688.14-12273.50   -2.21   -216.08
4  136.00 izq max  -5619.49  4113.75 -9635.66  -93.09      8.17 *
4  136.00     min  -8107.73 -8646.33-11776.90   -3.53   -216.36
4  136.00 der max  -5619.50  4113.74 -9635.61  -93.09      8.17 *
4  136.00     min  -8107.74 -8646.31-11776.90   -3.53   -216.36
4  140.00 izq max  -4802.00  4156.17 -8132.09  -85.30     17.01 *
4  140.00     min  -9056.59 -7872.69 -9939.22  -19.95   -213.74
4  140.00 der max  -4802.00  4156.16 -8132.00  -85.30     17.01 *
4  140.00     min  -9056.59 -7872.66 -9939.12  -19.95   -213.74
4  144.00 izq max  -4838.68  3900.57 -5810.30  -83.37     12.64 *
4  144.00     min  -9101.42 -6710.80 -7101.48  -30.82   -196.01
4  144.00 der max  -4838.69  3900.55 -5810.22  -83.37     12.64 *
4  144.00     min  -9101.41 -6710.76 -7101.38  -30.82   -196.01
4  148.00 izq max  -8702.29  5872.58 -1548.53 -139.70      4.86 *
4  148.00     min  -9727.98 -5037.23 -1892.65  -52.10   -176.09
4  148.00 der max  -8695.10  5868.01 -1552.21 -139.58      4.86 *
4  148.00     min  -9743.51 -5041.09 -1897.14  -52.22   -176.31
4  152.00 izq max -11670.00  6155.28   451.59 -108.50      0.93 *
4  152.00     min  -6968.68 -8540.80   369.48   21.88 * -129.96
4  152.00 der max -11527.60  6155.21   451.51 -107.71      1.72 *
4  152.00     min  -7111.87 -8540.86   369.42   21.08 * -130.76
5  156.00 izq max  -9511.93  5734.58 -2015.60 -146.55     -5.39
5  156.00     min  -8717.88 -5125.87 -1649.13  -41.20   -167.38
5  156.00 der max  -9519.24  5738.94 -2011.34 -146.67     -5.40
5  156.00     min  -8701.70 -5122.17 -1645.64  -41.08   -167.16
5  160.00 izq max  -5339.32  4061.23 -5623.31  -89.82     10.15 *
5  160.00     min  -7642.01 -6463.31 -6872.94  -18.45   -177.55
5  160.00 der max  -5339.32  4061.33 -5623.39  -89.82     10.15 *
5  160.00     min  -7642.01 -6463.28 -6873.03  -18.45   -177.55
5  164.00 izq max  -5396.51  4461.52 -7804.80  -93.98     15.84 *
5  164.00     min  -7711.91 -7460.89 -9539.20  -10.20   -193.85
5  164.00 der max  -5396.51  4461.55 -7804.88  -93.98     15.84 *
5  164.00     min  -7711.91 -7460.90 -9539.30  -10.20   -193.85
5  168.00 izq max  -4715.43  4324.80 -9404.21  -85.94     20.51 *
5  168.00     min  -8634.23 -8355.21-11494.00  -11.40   -217.07
5  168.00 der max  -4715.44  4324.80 -9404.24  -85.94     20.51 *
5  168.00     min  -8634.24 -8355.23-11494.10  -11.40   -217.07
5  172.00 izq max  -4808.70  4027.01-10042.00  -84.21     14.92 *
5  172.00     min  -8748.22 -8680.14-12273.60   -9.63   -223.29
5  172.00 der max  -4808.69  4026.98-10042.10  -84.21     14.92 *
5  172.00     min  -8748.22 -8680.17-12273.60   -9.63   -223.29
5  176.00 izq max  -4885.43  4103.18 -9635.87  -85.66     15.34 *
5  176.00     min  -8842.01 -8644.12-11777.20  -10.89   -223.67
5  176.00 der max  -4885.44  4103.20 -9635.82  -85.66     15.34 *
5  176.00     min  -8842.01 -8644.09-11777.10  -10.89   -223.67
5  180.00 izq max  -4944.55  4153.19 -8132.48  -86.70     15.54 *
5  180.00     min  -8914.26 -7871.13 -9939.70  -18.54   -212.30
5  180.00 der max  -4944.54  4153.21 -8132.40  -86.70     15.54 *
5  180.00     min  -8914.26 -7871.09 -9939.60  -18.54   -212.29
5  184.00 izq max  -6938.55  5831.57 -3880.49 -121.69     21.86 *
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5	184.00		min	-11351.40	-4346.97	-4742.82	-74.52	-181.53	
5	184.00	der	max	-6938.55	5831.53	-3880.40	-121.69	21.86	*
5	184.00		min	-11351.40	-4346.95	-4742.71	-74.52	-181.53	
5	188.00	izq	max	-8844.65	5882.19	-1548.85	-141.21	3.59	*
5	188.00		min	-9585.47	-5033.91	-1893.03	-50.70	-174.62	
5	188.00	der	max	-8837.31	5877.63	-1552.51	-141.09	3.59	*
5	188.00		min	-9601.09	-5037.76	-1897.52	-50.82	-174.83	
5	192.00	izq	max	-11527.40	6166.42	451.54	-107.79	1.84	*
5	192.00		min	-7111.07	-8531.36	369.44	21.02	* -130.65	
5	192.00	der	max	-11385.10	6166.37	451.46	-107.00	2.63	*
5	192.00		min	-7254.23	-8531.38	369.38	20.22	* -131.45	
6	196.00	izq	max	-8864.93	5747.34	-1649.00	-140.20	1.28	*
6	196.00		min	-9364.75	-5120.89	-2015.45	-47.72	-173.77	
6	196.00	der	max	-8871.97	5751.70	-1645.53	-140.31	1.27	*
6	196.00		min	-9348.83	-5117.22	-2011.21	-47.59	-173.55	
6	200.00	izq	max	-4692.82	4077.82	-5624.19	-83.50	16.87	*
6	200.00		min	-8290.04	-6466.01	-6874.02	-24.91	-184.07	
6	200.00	der	max	-4692.82	4077.89	-5624.27	-83.50	16.88	*
6	200.00		min	-8290.05	-6466.01	-6874.11	-24.91	-184.07	
6	204.00	izq	max	-4749.93	4477.02	-7805.93	-87.65	22.55	*
6	204.00		min	-8359.86	-7464.82	-9540.58	-16.64	-200.39	
6	204.00	der	max	-4749.94	4477.02	-7806.01	-87.65	22.55	*
6	204.00		min	-8359.86	-7464.87	-9540.68	-16.64	-200.40	
6	208.00	izq	max	-4858.44	4338.68	-9405.19	-87.50	19.30	*
6	208.00		min	-8492.48	-8359.65	-11495.20	-9.95	-215.72	
6	208.00	der	max	-4858.45	4338.67	-9405.24	-87.50	19.30	*
6	208.00		min	-8492.48	-8359.69	-11495.30	-9.94	-215.72	
6	212.00	izq	max	-4951.67	4037.12	-10043.00	-85.73	13.65	*
6	212.00		min	-8606.42	-8682.92	-12274.70	-8.18	-221.92	
6	212.00	der	max	-4951.66	4037.15	-10043.00	-85.73	13.65	*
6	212.00		min	-8606.42	-8682.94	-12274.70	-8.18	-221.92	
6	216.00	izq	max	-5028.34	4110.32	-9636.77	-87.15	14.03	*
6	216.00		min	-8700.13	-8645.77	-11778.30	-9.46	-222.27	
6	216.00	der	max	-5028.34	4110.32	-9636.74	-87.15	14.03	*
6	216.00		min	-8700.14	-8645.75	-11778.20	-9.46	-222.27	
6	220.00	izq	max	-5087.41	4156.48	-8133.10	-88.15	14.16	*
6	220.00		min	-8772.33	-7870.79	-9940.45	-17.13	-210.87	
6	220.00	der	max	-5087.42	4156.50	-8133.02	-88.15	14.16	*
6	220.00		min	-8772.33	-7870.72	-9940.35	-17.13	-210.87	
6	224.00	izq	max	-5123.98	3900.94	-5810.95	-86.23	9.79	*
6	224.00		min	-8817.01	-6703.38	-7102.28	-28.05	-193.05	
6	224.00	der	max	-7081.39	5830.93	-3880.85	-123.11	20.42	*
6	224.00		min	-11209.40	-4344.46	-4743.26	-73.13	-180.07	
6	228.00	izq	max	-8987.48	5881.08	-1549.20	-142.62	2.14	*
6	228.00		min	-9443.34	-5031.98	-1893.46	-49.30	-173.16	
6	228.00	der	max	-8980.09	5876.53	-1552.86	-142.51	2.14	*
6	228.00		min	-9459.02	-5035.85	-1897.94	-49.42	-173.38	
6	232.00	izq	max	-11385.60	6150.56	451.42	-106.89	2.45	*
6	232.00		min	-7254.53	-8515.86	369.35	20.11	* -131.28	
6	232.00	der	max	-11242.90	6150.50	451.35	-106.10	3.25	*
6	232.00		min	-7396.07	-8515.90	369.29	19.33	* -132.07	
7	236.00	izq	max	-9007.64	5745.60	-1648.76	-141.61	-0.18	
7	236.00		min	-9222.63	-5118.44	-2015.16	-46.32	-172.31	
7	236.00	der	max	-9014.73	5749.93	-1645.29	-141.72	-0.18	
7	236.00		min	-9206.64	-5114.78	-2010.91	-46.19	-172.09	
7	240.00	izq	max	-4834.51	4079.05	-5622.80	-84.93	15.48	*
7	240.00		min	-8146.68	-6461.95	-6872.32	-23.51	-182.57	
7	240.00	der	max	-4834.51	4079.08	-5622.91	-84.93	15.48	*
7	240.00		min	-8146.68	-6462.00	-6872.44	-23.51	-182.57	
7	244.00	izq	max	-4891.67	4478.12	-7804.82	-89.08	21.15	*
7	244.00		min	-8216.53	-7460.34	-9539.23	-15.25	-198.89	
7	244.00	der	max	-4891.67	4478.13	-7804.91	-89.08	21.15	*
7	244.00		min	-8216.54	-7460.39	-9539.33	-15.25	-198.89	
7	248.00	izq	max	-5000.21	4339.78	-9403.86	-88.93	17.90	*
7	248.00		min	-8349.20	-8354.81	-11493.60	-8.56	-214.21	
7	248.00	der	max	-5000.22	4339.77	-9403.91	-88.93	17.90	*
7	248.00		min	-8349.20	-8354.86	-11493.70	-8.56	-214.21	
7	252.00	izq	max	-5093.49	4038.98	-10041.90	-87.16	12.26	*
7	252.00		min	-8463.21	-8678.64	-12273.40	-6.79	-220.42	
7	252.00	der	max	-5093.49	4039.02	-10041.90	-87.16	12.26	*
7	252.00		min	-8463.22	-8678.63	-12273.40	-6.79	-220.42	
7	256.00	izq	max	-5170.23	4112.23	-9635.86	-88.59	12.64	*
7	256.00		min	-8557.01	-8641.65	-11777.20	-8.06	-220.78	
7	256.00	der	max	-5170.24	4112.25	-9635.83	-88.59	12.64	*
7	256.00		min	-8557.01	-8641.64	-11777.10	-8.06	-220.78	
7	260.00	izq	max	-5229.36	4158.54	-8132.43	-89.59	12.77	*
7	260.00		min	-8629.27	-7866.84	-9939.63	-15.73	-209.38	
7	260.00	der	max	-5229.37	4158.52	-8132.34	-89.59	12.77	*
7	260.00		min	-8629.28	-7866.81	-9939.52	-15.73	-209.38	
7	264.00	izq	max	-5266.01	3903.32	-5810.57	-87.67	8.41	*
7	264.00		min	-8674.06	-6699.90	-7101.81	-26.65	-191.57	
7	264.00	der	max	-7223.54	5833.38	-3880.37	-124.56	19.03	*
7	264.00		min	-11066.60	-4340.85	-4742.67	-71.73	-178.58	
7	268.00	izq	max	-9129.53	5890.73	-1549.02	-144.13	0.87	*
7	268.00		min	-9300.57	-5034.62	-1893.25	-47.85	-171.78	
7	268.00	der	max	-9122.06	5886.18	-1552.69	-144.01	0.88	*
7	268.00		min	-9316.31	-5038.47	-1897.73	-47.97	-171.99	
7	272.00	izq	max	-11242.90	6149.87	451.58	-106.09	3.24	*
7	272.00		min	-7396.66	-8506.64	369.47	19.26	* -131.97	
7	272.00	der	max	-11100.10	6149.78	451.51	-105.30	4.03	*
7	272.00		min	-7538.18	-8506.69	369.42	18.47	* -132.76	
8	276.00	izq	max	-9149.70	5754.48	-2015.29	-143.11	-1.46	
8	276.00		min	-9079.98	-5120.91	-1648.88	-44.87	-170.92	
8	276.00	der	max	-9156.88	5758.85	-2011.03	-143.22	-1.46	
8	276.00		min	-9063.94	-5117.24	-1645.39	-44.74	-170.70	
8	280.00	izq	max	-6882.08	5957.85	-3745.48	-122.26	24.40	*
8	280.00		min	-10332.70	-4168.06	-4577.81	-65.94	-168.54	
8	280.00	der	max	-4977.46	4079.95	-5623.51	-86.37	14.06	*
8	280.00		min	-8004.86	-6463.34	-6873.17	-22.08	-181.18	
8	284.00	izq	max	-5034.55	4475.67	-7805.01	-90.49	19.68	*
8	284.00		min	-8074.63	-7462.08	-9539.45	-13.82	-197.50	
8	284.00	der	max	-5034.56	4475.69	-7805.09	-90.49	19.68	*
8	284.00		min	-8074.63	-7462.11	-9539.55	-13.82	-197.50	
8	288.00	izq	max	-5143.07	4334.49	-9404.46	-90.31	16.39	*
8	288.00		min	-8207.25	-8358.23	-11494.30	-7.11	-212.85	
8	288.00	der	max	-5143.07	4334.49	-9404.52	-90.31	16.39	*
8	288.00		min	-8207.25	-8358.28	-11494.40	-7.11	-212.85	
8	292.00	izq	max	-5236.28	4030.73	-10042.50	-88.52	10.70	*
8	292.00		min	-8321.17	-8683.36	-12274.20	-5.33	-219.07	
8	292.00	der	max	-5236.28	4030.74	-10042.50	-88.52	10.70	*
8	292.00		min	-8321.18	-8683.37	-12274.20	-5.33	-219.07	
8	296.00	izq	max	-5312.97	4101.57	-9636.78	-89.92	11.04	*
8	296.00		min	-8414.92	-8648.62	-11778.30	-6.58	-219.47	
8	296.00	der	max	-5312.97	4101.59	-9636.74	-89.92	11.04	*
8	296.00		min	-8414.92	-8648.58	-11778.20	-6.58	-219.47	
8	300.00	izq	max	-5372.05	4145.38	-8133.64	-90.90	11.14	*
8	300.00		min	-8487.12	-7876.02	-9941.11	-14.23	-208.10	
8	300.00	der	max	-5372.05	4145.38	-8133.56	-90.90	11.14	*
8	300.00		min	-8487.13	-7875.98	-9941.02	-14.23	-208.10	
8	304.00	izq	max	-7366.21	5818.30	-3881.30	-125.85	17.37	*
8	304.00		min	-10924.40	-4352.15	-4743.81	-70.21	-177.34	
8	304.00	der	max	-7366.22	5818.26	-3881.20	-125.85	17.37	*
8	304.00		min	-10924.40	-4352.14	-4743.69	-70.21	-177.34	
8	308.00	izq	max	-9272.31	5878.50	-1894.29	-145.45	-0.75	
8	308.00		min	-9158.39	-5052.41	-1549.87	-46.27	-170.63	
8	308.00	der	max	-9264.80	5873.94	-1898.77	-145.33	-0.74	
8	308.00		min	-9174.20	-5056.27	-1553.54	-46.39	-170.85	
8	312.00	izq	max	-11100.60	6124.03	451.48	-105.12	3.75	*
8	312.00		min	-7539.38	-8513.78	369.39	18.51	* -132.84	
8	312.00	der	max	-10958.30	6123.98	451.41	-104.33	4.54	*
8	312.00		min	-7680.90	-8513.82	369.34	17.73	* -133.63	
9	316.00	izq	max	-9292.47	5746.36	-2014.76	-144.46	-3.02	
9	316.00		min	-8937.92	-5137.85	-1648.44	-43.30	-169.76	
9	316.00	der	max	-9299.67	5750.75	-2010.49	-144.58	-3.02	
9	316.00		min	-8921.80	-5134.15	-1644.95	-43.17	-169.55	
9	320.00	izq	max	-5119.72	4068.50	-5623.63	-87.69	12.46	*
9	320.00		min	-7862.18	-6471.38	-6873.32	-20.58	-179.87	
9	320.00	der	max	-5119.72	4068.55	-5623.73	-87.69	12.46	*
9	320.00		min	-7862.17	-6471.41	-6873.45	-20.58	-179.87	
9	324.00	izq	max	-5177.00	4468.81	-7805.46	-91.85	18.15	*
9	324.00		min	-7932.18	-7466.83	-9540.01	-12.35	-196.15	
9	324.00	der	max	-5177.00	4468.81	-7805.54	-91.85	18.15	*
9	324.00		min	-7932.19	-7466.88	-9540.11	-12.35	-196.15	
9	328.00	izq	max	-5285.51	4332.16	-9404.56	-91.71	14.93	*

9	328.00		min	-8064.81	-8358.74	-11494.50	-5.68	-211.43	
9	328.00	der	max	-5285.52	4332.13	-9404.62	-91.71	14.93	*
9	328.00		min	-8064.82	-8358.80	-11494.50	-5.68	-211.43	
9	332.00	izq	max	-5378.76	4032.41	-10042.60	-89.96	9.30	*
9	332.00		min	-8178.78	-8679.67	-12274.20	-3.94	-217.59	
9	332.00	der	max	-5378.76	4032.41	-10042.60	-89.96	9.30	*
9	332.00		min	-8178.79	-8679.68	-12274.20	-3.94	-217.59	
9	336.00	izq	max	-5455.46	4108.03	-9636.55	-91.40	9.72	*
9	336.00		min	-8272.53	-8640.44	-11778.00	-5.23	-217.91	
9	336.00	der	max	-5455.47	4108.03	-9636.53	-91.40	9.72	*
9	336.00		min	-8272.53	-8640.44	-11778.00	-5.23	-217.91	
9	340.00	izq	max	-5514.57	4156.67	-8133.02	-92.43	9.89	*
9	340.00		min	-8344.75	-7863.59	-9940.36	-12.92	-206.48	
9	340.00	der	max	-5514.56	4156.69	-8132.94	-92.43	9.89	*
9	340.00		min	-8344.76	-7863.55	-9940.26	-12.92	-206.48	
9	344.00	izq	max	-7508.68	5834.99	-3880.85	-127.42	16.21	*
9	344.00		min	-10782.00	-4336.60	-4743.27	-68.92	-175.67	
9	344.00	der	max	-7508.68	5834.99	-3880.75	-127.42	16.21	*
9	344.00		min	-10782.00	-4336.58	-4743.14	-68.92	-175.67	
9	348.00	izq	max	-9414.79	5893.18	-1893.29	-147.01	-1.94	
9	348.00		min	-9015.98	-5028.00	-1549.05	-45.06	-168.83	
9	348.00	der	max	-9407.21	5888.62	-1897.77	-146.89	-1.94	
9	348.00		min	-9031.80	-5031.87	-1552.72	-45.18	-169.05	
9	352.00	izq	max	-10958.10	6128.42	451.43	-104.36	4.59	*
9	352.00		min	-7681.65	-8473.03	369.35	17.44	* -133.20	
9	352.00	der	max	-10815.80	6128.33	451.35	-103.57	5.38	*
9	352.00		min	-7823.17	-8473.09	369.29	16.65	* -133.98	
10	356.00	izq	max	-10593.70	5760.60	-2015.13	-157.60	-15.80	
10	356.00		min	-7636.53	-5115.29	-1648.74	-30.48	-156.40	
10	356.00	der	max	-10601.40	5764.96	-2010.86	-157.72	-15.81	
10	356.00		min	-7619.91	-5111.58	-1645.25	-30.35	-156.18	
10	360.00	izq	max	-5262.11	4084.43	-5623.69	-89.26	11.28	*
10	360.00		min	-7719.67	-6455.15	-6873.40	-19.30	-178.19	
10	360.00	der	max	-5262.13	4084.50	-5623.77	-89.26	11.29	*
10	360.00		min	-7719.67	-6455.12	-6873.49	-19.30	-178.19	
10	364.00	izq	max	-5319.30	4477.82	-7805.48	-93.36	16.87	*
10	364.00		min	-7789.55	-7449.73	-9540.04	-11.08	-194.46	
10	364.00	der	max	-5319.30	4477.88	-7805.57	-93.36	16.87	*
10	364.00		min	-7789.57	-7449.76	-9540.14	-11.08	-194.46	
10	368.00	izq	max	-5427.82	4334.80	-9404.54	-93.16	13.54	*
10	368.00		min	-7922.21	-8341.34	-11494.40	-4.41	-209.73	
10	368.00	der	max	-5427.83	4334.77	-9404.60	-93.16	13.54	*
10	368.00		min	-7922.21	-8341.38	-11494.50	-4.41	-209.73	
10	372.00	izq	max	-5521.07	4030.34	-10042.30	-91.36	7.85	*
10	372.00		min	-8036.17	-8663.52	-12274.00	-2.66	-215.91	
10	372.00	der	max	-5521.07	4030.31	-10042.30	-91.36	7.85	*
10	372.00		min	-8036.17	-8663.57	-12274.00	-2.66	-215.91	
10	376.00	izq	max	-5597.79	4100.09	-9636.06	-92.75	8.17	*
10	376.00		min	-8129.94	-8623.88	-11777.40	-3.95	-216.23	
10	376.00	der	max	-5597.79	4100.15	-9636.00	-92.75	8.17	*
10	376.00		min	-8129.95	-8623.83	-11777.30	-3.95	-216.23	
10	380.00	izq	max	-5656.88	4142.85	-8132.41	-93.73	8.25	*
10	380.00		min	-8202.17	-7847.07	-9939.61	-11.64	-204.80	
10	380.00	der	max	-5656.89	4142.88	-8132.33	-93.73	8.25	*
10	380.00		min	-8202.17	-7847.00	-9939.51	-11.64	-204.80	
10	384.00	izq	max	-5693.52	3884.76	-5810.56	-91.78	3.85	*
10	384.00		min	-8246.94	-6678.90	-7101.79	-22.56	-186.97	
10	384.00	der	max	-5693.53	3884.73	-5810.47	-91.78	3.85	*
10	384.00		min	-8246.94	-6678.88	-7101.68	-22.56	-186.97	
10	388.00	izq	max	-9557.07	5877.08	-1892.90	-148.28	-3.62	
10	388.00		min	-8873.39	-5019.77	-1548.74	-43.71	-167.27	
10	388.00	der	max	-9549.47	5872.50	-1897.39	-148.16	-3.61	
10	388.00		min	-8889.31	-5023.64	-1552.41	-43.83	-167.49	
10	392.00	izq	max	-10815.70	6094.23	451.25	-103.32	5.02	*
10	392.00		min	-7823.86	-8455.17	369.20	16.52	* -133.80	
10	392.00	der	max	-10673.10	6094.17	451.17	-102.53	5.81	*
10	392.00		min	-7965.37	-8455.22	369.14	15.73	* -134.58	
11	396.00	izq	max	-10451.00	5761.29	-2016.50	-156.18	-14.37	
11	396.00		min	-7778.59	-5107.79	-1649.86	-31.97	-157.70	
11	396.00	der	max	-10458.60	5765.60	-2012.25	-156.30	-14.38	
11	396.00		min	-7762.03	-5104.10	-1646.39	-31.84	-157.48	
11	400.00	izq	max	-6279.85	4109.41	-5624.31	-99.66	1.50	*
11	400.00		min	-6703.72	-6448.20	-6874.16	-9.20	-167.93	
11	400.00	der	max	-6279.85	4109.44	-5624.39	-99.66	1.50	*
11	400.00		min	-6703.72	-6448.19	-6874.26	-9.20	-167.93	
11	404.00	izq	max	-5462.51	4505.58	-7806.37	-95.04	15.87	*
11	404.00		min	-7648.04	-7424.13	-9541.12	-9.89	-192.64	
11	404.00	der	max	-5462.51	4505.59	-7806.45	-95.04	15.87	*
11	404.00		min	-7648.05	-7424.20	-9541.22	-9.89	-192.64	
11	408.00	izq	max	-5570.97	4373.78	-9405.64	-94.94	12.72	*
11	408.00		min	-7780.62	-8305.72	-11495.80	-3.31	-207.76	
11	408.00	der	max	-5570.98	4373.78	-9405.67	-94.94	12.72	*
11	408.00		min	-7780.62	-8305.74	-11495.80	-3.31	-207.76	
11	412.00	izq	max	-5664.14	4084.07	-10043.40	-93.27	7.26	*
11	412.00		min	-7894.48	-8621.55	-12275.30	-1.62	-213.84	
11	412.00	der	max	-5664.14	4084.10	-10043.40	-93.27	7.26	*
11	412.00		min	-7894.48	-8621.54	-12275.30	-1.62	-213.84	
11	416.00	izq	max	-5740.78	4167.31	-9637.46	-94.79	7.79	*
11	416.00		min	-7988.15	-8573.25	-11779.10	-2.99	-214.02	
11	416.00	der	max	-5740.78	4167.32	-9637.44	-94.79	7.79	*
11	416.00		min	-7988.16	-8573.24	-11779.10	-2.99	-214.02	
11	420.00	izq	max	-5799.81	4223.51	-8133.99	-95.88	8.08	*
11	420.00		min	-8060.31	-7788.61	-9941.55	-10.75	-202.46	
11	420.00	der	max	-5799.81	4223.52	-8133.91	-95.88	8.08	*
11	420.00		min	-8060.30	-7788.58	-9941.45	-10.75	-202.46	
11	424.00	izq	max	-7793.86	5914.86	-3881.74	-130.99	14.61	*
11	424.00		min	-10497.50	-4258.91	-4744.34	-66.78	-171.61	
11	424.00	der	max	-7793.86	5914.85	-3881.64	-130.99	14.61	*
11	424.00		min	-10497.50	-4258.91	-4744.22	-66.78	-171.61	
11	428.00	izq	max	-9700.02	6016.39	-1894.04	-150.96	-2.87	
11	428.00		min	-8731.37	-4970.13	-1549.67	-42.74	-165.08	
11	428.00	der	max	-9692.22	6011.85	-1898.52	-150.84	-2.86	
11	428.00		min	-8747.31	-4973.99	-1553.34	-42.86	-165.29	
11	432.00	izq	max	-10673.80	6241.28	451.33	-103.58	7.38	*
11	432.00		min	-7966.73	-8393.33	369.27	15.29	* -133.93	
11	432.00	der	max	-10530.90	6241.22	451.26	-102.78	8.17	*
11	432.00		min	-8108.08	-8393.37	369.21	14.50	* -134.72	
12	436.00	izq	max	-10308.90	5867.48	-2014.94	-155.71	-11.28	
12	436.00		min	-7921.35	-5085.96	-1648.59	-33.60	-158.79	
12	436.00	der	max	-10316.80	5871.80	-2010.70	-155.83	-11.30	
12	436.00		min	-7905.03	-5082.28	-1645.12	-33.47	-158.57	
12	440.00	izq	max	-6136.47	4151.88	-5623.61	-98.60	3.60	*
12	440.00		min	-6845.03	-6451.85	-6873.30	-10.58	-169.40	
12	440.00	der	max	-6136.48	4151.92	-5623.69	-98.60	3.60	*
12	440.00		min	-6845.04	-6451.81	-6873.40	-10.58	-169.40	
12	444.00	izq	max	-6193.82	4442.06	-7805.32	-101.78	7.56	*
12	444.00		min	-6915.12	-7409.06	-9539.83	-2.70	-185.07	
12	444.00	der	max	-6193.82	4442.05	-7805.40	-101.78	7.56	*
12	444.00		min	-6915.13	-7409.09	-9539.93	-2.70	-185.08	
12	448.00	izq	max	-5712.76	4219.34	-9404.52	-94.97	8.89	*
12	448.00		min	-7637.36	-8286.73	-11494.40	-2.05	-206.03	
12	448.00	der	max	-5712.77	4219.36	-9404.56	-94.97	8.89	*
12	448.00		min	-7637.37	-8286.75	-11494.50	-2.05	-206.03	
12	452.00	izq	max	-5806.03	3844.01	-10042.40	-92.54	2.08	*
12	452.00		min	-7751.35	-8603.11	-12274.10	-0.35	-212.12	
12	452.00	der	max	-5806.02	3844.02	-10042.40	-92.54	2.08	*
12	452.00		min	-7751.36	-8603.12	-12274.10	-0.35	-212.12	
12	456.00	izq	max	-5882.73	3841.53	-9636.23	-93.28	1.28	*
12	456.00		min	-7845.11	-8554.42	-11777.60	-1.72	-212.29	
12	456.00	der	max	-5882.74	3841.54	-9636.18	-93.28	1.28	*
12	456.00		min	-7845.10	-8554.39	-11777.60	-1.72	-212.29	
12	460.00	izq	max	-5941.84	3811.99	-8132.63	-93.61	0.22	*
12	460.00		min	-7917.33	-7770.43	-9939.88	-9.48	-200.75	
12	460.00	der	max	-5941.83	3811.97	-8132.55	-93.61	0.22	*
12	460.00		min	-7917.34	-7770.40	-9939.78	-9.48	-200.75	
12	464.00	izq	max	-7935.81	5432.52	-3880.65	-128.08	5.64	*
12	464.00		min	-10354.40	-4257.05	-4743.02	-65.36	-170.15	
12	464.00	der	max	-7935.82	5432.49	-3880.55	-128.08	5.64	*
12	464.00		min	-10354.40	-4257.04	-4742.90	-65.36	-170.15	
12	468.00	izq	max	-9841.97	5477.66	-1893.17	-147.55	-12.72	
12	468.00		min	-8588.51	-5012.66	-1548.96	-40.93	-164.31	
12	468.00	der	max	-9834.65	5473.07	-1897.65	-147.43	-12.71	
12	468.00		min	-8604.59	-5016.54	-1552.63	-41.05	-164.53	
12	472.00	izq	max	-10531.20	5630.27	451.42	-98.45	1.64	*

12	472.00		min	-8108.81	-8437.12	369.35	14.81	*	-135.19
12	472.00	der	max	-10390.50	5630.19	451.35	-97.67		2.42 *
12	472.00		min	-8250.22	-8437.19	369.28	14.02	*	-135.97
13	476.00	izq	max	-10168.30	5588.88	-2015.69	-151.81		-14.24
13	476.00		min	-8063.50	-5124.62	-1649.20	-34.67		-160.81
13	476.00	der	max	-10173.90	5593.25	-2011.43	-151.91		-14.23
13	476.00		min	-8047.12	-5120.92	-1645.71	-34.54		-160.59
13	480.00	izq	max	-6007.31	4136.08	-5637.96	-97.17		4.64 *
13	480.00		min	-7003.70	-6457.51	-6890.84	-12.12		-171.07
13	480.00	der	max	-6007.31	4136.11	-5638.03	-97.17		4.64 *
13	480.00		min	-7003.71	-6457.51	-6890.93	-12.12		-171.07
13	484.00	izq	max	-6064.17	4614.12	-7823.12	-102.03		11.55 *
13	484.00		min	-7073.21	-7277.64	-9561.59	-5.46		-184.60
13	484.00	der	max	-6064.18	4614.12	-7823.22	-102.03		11.55 *
13	484.00		min	-7073.22	-7277.69	-9561.71	-5.46		-184.60
13	488.00	izq	max	-6172.02	4570.76	-9423.86	-102.72		9.79 *
13	488.00		min	-7205.02	-8005.88	-11518.10	-0.24		-197.31
13	488.00	der	max	-6172.02	4570.74	-9423.91	-102.72		9.79 *
13	488.00		min	-7205.04	-8005.89	-11518.10	-0.24		-197.31
13	492.00	izq	max	-5959.82	4395.80	-10061.10	-99.03		9.18 *
13	492.00		min	-7622.77	-8161.58	-12296.90	-3.02		-203.93
13	492.00	der	max	-5959.82	4395.80	-10061.10	-99.03		9.18 *
13	492.00		min	-7622.78	-8161.59	-12296.90	-3.02		-203.93
13	496.00	izq	max	-6035.77	4589.24	-9652.61	-101.52		11.45 *
13	496.00		min	-7715.60	-7843.10	-11797.60	-6.81		-199.87
13	496.00	der	max	-6035.77	4589.27	-9652.58	-101.52		11.45 *
13	496.00		min	-7715.61	-7843.07	-11797.60	-6.81		-199.87
13	500.00	izq	max	-6094.08	4757.70	-8144.29	-103.61		13.50 *
13	500.00		min	-7786.88	-6874.46	-9954.13	-16.21		-185.43
13	500.00	der	max	-6094.08	4757.70	-8144.21	-103.61		13.50 *
13	500.00		min	-7786.88	-6874.42	-9954.03	-16.21		-185.43
13	504.00	izq	max	-6779.27	5323.53	-5175.95	-115.54		15.50 *
13	504.00		min	-8624.34	-4786.37	-6326.17	-43.31		-161.13
13	504.00	der	max	-6779.28	5323.48	-5175.85	-115.54		15.50 *
13	504.00		min	-8624.34	-4786.39	-6326.04	-43.31		-161.13
13	508.00	izq	max	-8406.63	5374.24	-3458.67	-132.27		0.02 *
13	508.00		min	-7155.15	-5211.90	-2829.82	-24.80		-153.10
13	508.00	der	max	-8398.11	5370.88	-3461.96	-132.15		0.05 *
13	508.00		min	-7171.62	-5214.79	-2832.51	-24.94		-153.31
13	512.00	izq	max	-8731.68	5524.78	-1336.64	-87.71		10.51 *
13	512.00		min	-6896.52	-8880.24	-1093.62	24.29	*	-133.19
13	512.00	der	max	-8615.32	5525.17	-1336.21	-87.06		11.16 *
13	512.00		min	-7010.48	-8879.93	-1093.26	24.05	*	-133.82
14	515.20	izq	max	-8340.73	4216.98	-3727.07	-121.23		-17.43
14	515.20		min	-6781.73	-6985.59	-3049.42	-5.16		-177.11
14	515.20	der	max	-8362.03	4221.04	-3723.05	-121.48		-17.58
14	515.20		min	-6769.09	-6982.16	-3046.13	-5.07		-176.93
14	518.40	izq	max	-5582.27	4661.16	-4142.12	-97.63		17.11 *
14	518.40		min	-6734.08	-5989.94	-5062.59	-13.62		-161.06
14	518.40	der	max	-5582.29	4661.16	-4142.20	-97.63		17.11 *
14	518.40		min	-6734.07	-5989.96	-5062.69	-13.62		-161.06
14	521.60	izq	max	-5610.98	4190.69	-6036.20	-93.70		9.46 *
14	521.60		min	-6769.14	-6830.20	-7377.58	-6.43		-174.56
14	521.60	der	max	-5610.98	4190.65	-6036.29	-93.70		9.46 *
14	521.60		min	-6769.15	-6830.22	-7377.68	-6.43		-174.56
14	524.80	izq	max	-5659.11	3253.54	-7677.28	-85.77		-5.69
14	524.80		min	-6890.07	-7747.50	-9383.35	0.59	*	-190.12
14	524.80	der	max	-5659.11	3253.46	-7677.34	-85.77		-5.69
14	524.80		min	-6890.08	-7747.57	-9383.42	0.59	*	-190.12
14	528.00	izq	max	-5676.38	2131.90	-8785.04	-75.89		-23.41
14	528.00		min	-7026.50	-8401.14	-10737.30	5.09	*	-201.71
14	528.00	der	max	-5676.38	2131.82	-8785.07	-75.88		-23.41
14	528.00		min	-7026.51	-8401.19	-10737.30	5.09	*	-201.71
14	531.20	izq	max	-5737.83	866.81	-9317.35	-65.15		-43.82
14	531.20		min	-7101.61	-8738.69	-11387.90	7.36	*	-207.74
14	531.20	der	max	-5737.83	866.77	-9317.36	-65.15		-43.82
14	531.20		min	-7101.62	-8738.66	-11387.90	7.36	*	-207.74
14	534.40	izq	max	-5742.36	-355.87	-9087.52	-54.23		-62.99
14	534.40		min	-7107.15	-8530.89	-11107.00	5.44	*	-204.55
14	534.40	der	max	-5742.36	-355.90	-9087.49	-54.23		-62.99
14	534.40		min	-7107.15	-8530.86	-11106.90	5.44	*	-204.55
14	537.60	izq	max	-5649.37	-1309.87	-7869.28	-44.75		-76.99
14	537.60		min	-6993.51	-7501.24	-9618.01	-2.65		-187.30
14	537.60	der	max	-5649.37	-1309.92	-7869.22	-44.74		-76.99
14	537.60		min	-6993.50	-7501.21	-9617.94	-2.65		-187.30
14	540.80	izq	max	-5526.43	-2172.29	-5840.28	-35.78		-89.25
14	540.80		min	-6843.24	-5866.80	-7138.13	-15.81		-160.23
14	540.80	der	max	-5533.95	-2121.36	-5789.22	-36.31		-88.53
14	540.80		min	-6794.27	-5804.43	-7075.71	-15.88		-158.76
14	544.00	izq	max	-76.73	0.10	0.00	-0000		-0000
14	544.00		min	-31.17	0.04	0.00	-0000		-0000

1.6 Tablero. Servicio a tiempo infinito

COMPROBACION PARA CARGAS PERMANENTES A TIEMPO INFINITO

Factores de ponderación considerados para el pretensado:

- Acciones Desfavorables: 1.1
- Acciones Favorables: 0.9

LEYENDA:
+ : Compresión>fck28/1.6
* : Tracción
# : Fisuración
! : Requiere comprobación wk

Vano	x		Px?	Mmax Mmin	?s ?s	?i ?i
	[m]		[t]	[tm]	[kg/cm²]	[kg/cm²]
1	0.00	der max	-6012.00	-3463.59	-8.83	-70.40
1	0.00	min	-5753.75	-4233.54	-1.93	-77.19
1	3.20	izq max	-4609.47	-3296.19	-16.53	-97.67
1	3.20	min	-7210.61	-5418.37	-23.51	-156.88
1	3.20	der max	-4607.84	-3316.33	-16.33	-97.97
1	3.20	min	-7221.13	-5443.01	-23.39	-157.37
1	6.40	izq max	-4707.98	-2937.21	-20.74	-93.04
1	6.40	min	-7343.52	-5907.83	-20.45	-165.87
1	6.40	der max	-4707.98	-2937.19	-20.74	-93.04
1	6.40	min	-7343.52	-5907.81	-20.45	-165.87
1	9.60	izq max	-4782.39	-2411.02	-26.20	-85.55
1	9.60	min	-7434.46	-5915.41	-21.29	-166.90
1	9.60	der max	-4782.39	-2410.99	-26.20	-85.55
1	9.60	min	-7434.47	-5915.38	-21.29	-166.90
1	12.80	izq max	-4773.99	-1587.56	-33.50	-72.58
1	12.80	min	-7424.20	-5282.41	-26.86	-156.89
1	12.80	der max	-4773.99	-1587.52	-33.50	-72.58
1	12.80	min	-7424.20	-5282.36	-26.86	-156.89
1	16.00	izq max	-4717.40	-660.41	-41.25	-57.51
1	16.00	min	-7355.04	-4245.27	-35.47	-139.97
1	16.00	der max	-4717.40	-660.40	-41.25	-57.51
1	16.00	min	-7355.03	-4245.20	-35.47	-139.97
1	19.20	izq max	-4656.25	210.40	-48.45	-43.27
1	19.20	min	-7280.30	-2999.61	-45.90	-119.74
1	19.20	der max	-4656.25	210.41	-48.45	-43.27
1	19.20	min	-7280.30	-2999.57	-45.90	-119.73
1	22.40	izq max	-4634.41	964.89	-55.00	-31.25
1	22.40	min	-7253.61	-1618.70	-58.02	-97.86
1	22.40	der max	-4634.41	964.92	-55.00	-31.25
1	22.40	min	-7253.61	-1618.60	-58.02	-97.86
1	25.60	izq max	-5642.13	1833.28	-72.86	-27.74
1	25.60	min	-6277.85	-731.26	-56.22	-74.22
1	25.60	der max	-5642.13	1833.34	-72.86	-27.74
1	25.60	min	-6277.85	-731.21	-56.22	-74.22
1	28.80	izq max	-9949.17	1418.07	-112.21	-77.30
1	28.80	min	-6839.84	-1411.51	-55.74	-90.48
1	28.80	der max	-9934.07	1415.94	-112.04	-77.19
1	28.80	min	-6842.64	-1413.33	-55.75	-90.54
1	32.00	izq max	-10060.15	2247.64	-71.84	-31.88
1	32.00	min	-6948.49	-2320.89	-22.14	-63.40
1	32.00	der max	-10018.27	2246.52	-71.60	-31.66
1	32.00	min	-6995.81	-2321.81	-22.39	-63.67
2	36.00	izq max	-9831.84	2367.12	-119.55	-61.28
2	36.00	min	-6840.60	-206.67	-66.55	-71.64
2	36.00	der max	-9835.54	2368.47	-119.60	-61.30
2	36.00	min	-6831.39	-205.52	-66.47	-71.53
2	40.00	izq max	-12526.13	-1851.68	-108.65	-154.23
2	40.00	min	-13823.70	-4165.88	-100.87	-203.42
2	40.00	der max	-7188.24	2366.00	-93.10	-34.86

2	40.00		min	-5035.87	260.30	-52.69	-46.29
2	44.00	izq	max	-6220.54	1928.87	-79.51	-32.03
2	44.00		min	-6116.86	-347.59	-58.05	-66.61
2	44.00	der	max	-6220.55	1928.87	-79.51	-32.03
2	44.00		min	-6116.86	-347.63	-58.05	-66.61
2	48.00	izq	max	-6316.50	1477.00	-76.41	-40.06
2	48.00		min	-6234.13	-1300.44	-50.68	-82.69
2	48.00	der	max	-6316.50	1477.01	-76.41	-40.06
2	48.00		min	-6234.14	-1300.47	-50.68	-82.69
2	52.00	izq	max	-6399.44	1006.40	-73.02	-48.25
2	52.00		min	-6335.51	-1881.57	-46.48	-92.79
2	52.00	der	max	-6399.45	1006.37	-73.02	-48.25
2	52.00		min	-6335.52	-1881.60	-46.48	-92.80
2	56.00	izq	max	-5130.93	729.41	-57.85	-39.90
2	56.00		min	-7757.17	-2045.29	-59.23	-109.57
2	56.00	der	max	-5130.92	729.40	-57.85	-39.90
2	56.00		min	-7757.16	-2045.27	-59.23	-109.57
2	60.00	izq	max	-5184.85	562.33	-56.89	-43.05
2	60.00		min	-7823.08	-1673.09	-63.22	-104.41
2	60.00	der	max	-5184.87	562.32	-56.89	-43.05
2	60.00		min	-7823.10	-1673.06	-63.22	-104.41
2	64.00	izq	max	-8282.06	2202.12	-102.57	-48.37
2	64.00		min	-8500.65	635.25	-90.70	-75.07
2	64.00	der	max	-8282.06	2202.08	-102.57	-48.37
2	64.00		min	-8500.64	635.23	-90.70	-75.07
2	68.00	izq	max	-8631.32	1785.75	-102.33	-58.37
2	68.00		min	-8277.85	-76.58	-82.09	-83.98
2	68.00	der	max	-8631.62	1782.80	-102.31	-58.42
2	68.00		min	-8288.85	-79.06	-82.18	-84.12
2	72.00	izq	max	-10066.01	1001.51	-63.03	-45.22
2	72.00		min	-7034.60	-2616.71	-20.52	-67.04
2	72.00	der	max	-10008.52	1001.50	-62.71	-44.90
2	72.00		min	-7081.56	-2616.76	-20.78	-67.30
3	76.00	izq	max	-8597.45	1383.69	-98.38	-64.32
3	76.00		min	-8154.92	-1245.06	-70.38	-101.03
3	76.00	der	max	-8598.81	1386.42	-98.42	-64.30
3	76.00		min	-8150.40	-1242.78	-70.36	-100.95
3	80.00	izq	max	-5477.03	-1618.39	-40.25	-80.09
3	80.00		min	-8056.90	-3689.73	-47.48	-138.30
3	80.00	der	max	-5271.68	565.58	-57.79	-43.87
3	80.00		min	-5762.53	-1239.26	-46.51	-77.01
3	84.00	izq	max	-4400.45	51.48	-44.47	-43.20
3	84.00		min	-6741.07	-1736.38	-51.84	-94.58
3	84.00	der	max	-4400.46	51.45	-44.47	-43.20
3	84.00		min	-6741.09	-1736.40	-51.84	-94.58
3	88.00	izq	max	-4492.73	-491.86	-40.52	-52.62
3	88.00		min	-6853.86	-2355.90	-47.41	-105.40
3	88.00	der	max	-4492.72	-491.88	-40.52	-52.62
3	88.00		min	-6853.85	-2355.92	-47.41	-105.40
3	92.00	izq	max	-4572.01	-862.64	-37.98	-59.22
3	92.00		min	-6950.76	-2580.60	-46.36	-109.88
3	92.00	der	max	-4572.02	-862.65	-37.98	-59.22
3	92.00		min	-6950.77	-2580.59	-46.36	-109.88
3	96.00	izq	max	-4637.25	-809.62	-39.11	-59.04
3	96.00		min	-7030.50	-2411.96	-48.67	-108.04
3	96.00	der	max	-4637.25	-809.61	-39.11	-59.04
3	96.00		min	-7030.49	-2411.94	-48.67	-108.04
3	100.00	izq	max	-4687.51	-465.51	-42.70	-54.16
3	100.00		min	-7091.93	-1709.62	-55.59	-97.67
3	100.00	der	max	-4687.51	-465.49	-42.70	-54.16
3	100.00		min	-7091.93	-1709.57	-55.59	-97.67
3	104.00	izq	max	-7677.98	1922.40	-94.02	-46.70
3	104.00		min	-7868.05	896.45	-86.72	-64.65
3	104.00	der	max	-7677.98	1922.40	-94.02	-46.70
3	104.00		min	-7868.05	896.44	-86.72	-64.65
3	108.00	izq	max	-8002.19	2403.02	-101.57	-42.42
3	108.00		min	-7662.20	537.90	-81.45	-68.21
3	108.00	der	max	-8000.46	2399.11	-101.52	-42.47
3	108.00		min	-7666.34	534.67	-81.46	-68.30
3	112.00	izq	max	-9319.22	1871.14	-65.05	-31.78
3	112.00		min	-6517.78	-936.17	-29.57	-46.21
3	112.00	der	max	-9264.24	1871.16	-64.74	-31.48
3	112.00		min	-6572.62	-936.17	-29.87	-46.52
4	116.00	izq	max	-7959.34	2369.88	-100.85	-42.51
4	116.00		min	-7531.13	421.56	-79.09	-68.71
4	116.00	der	max	-7960.26	2373.61	-100.89	-42.46
4	116.00		min	-7527.01	424.64	-79.08	-68.63
4	120.00	izq	max	-5327.02	302.70	-55.99	-48.53
4	120.00		min	-5706.94	-716.39	-50.64	-68.28
4	120.00	der	max	-5327.03	302.69	-55.99	-48.53
4	120.00		min	-5706.94	-716.37	-50.64	-68.28
4	124.00	izq	max	-4456.15	-119.41	-43.49	-46.43
4	124.00		min	-6685.87	-1354.83	-54.71	-88.06
4	124.00	der	max	-4456.16	-119.43	-43.49	-46.43
4	124.00		min	-6685.88	-1354.85	-54.71	-88.06
4	128.00	izq	max	-4548.42	-628.46	-39.85	-55.32
4	128.00		min	-6798.64	-2053.66	-49.57	-100.12
4	128.00	der	max	-4548.41	-628.46	-39.85	-55.32
4	128.00		min	-6798.63	-2053.66	-49.57	-100.12
4	132.00	izq	max	-4627.68	-964.54	-37.63	-61.37
4	132.00		min	-6895.52	-2357.23	-47.81	-105.84
4	132.00	der	max	-4627.70	-964.55	-37.63	-61.37
4	132.00		min	-6895.54	-2357.24	-47.81	-105.84
4	136.00	izq	max	-4692.91	-875.64	-39.08	-60.63
4	136.00		min	-6975.25	-2268.38	-49.41	-105.24
4	136.00	der	max	-4692.91	-875.62	-39.08	-60.63
4	136.00		min	-6975.24	-2268.35	-49.41	-105.24
4	140.00	izq	max	-4743.15	-497.54	-42.97	-55.22
4	140.00		min	-7036.65	-1643.77	-55.62	-96.09
4	140.00	der	max	-4743.15	-497.53	-42.97	-55.22
4	140.00		min	-7036.65	-1643.74	-55.62	-96.08
4	144.00	izq	max	-5761.75	-24.45	-57.40	-58.00
4	144.00		min	-6087.33	-816.29	-53.55	-73.65
4	144.00	der	max	-5761.76	-24.43	-57.40	-58.00
4	144.00		min	-6087.33	-816.30	-53.55	-73.65
4	148.00	izq	max	-8058.44	2322.08	-101.41	-44.25
4	148.00		min	-7607.34	553.65	-81.04	-67.41
4	148.00	der	max	-8057.29	2318.16	-101.36	-44.30
4	148.00		min	-7611.33	550.42	-81.05	-67.50
4	152.00	izq	max	-9264.46	1698.52	-63.52	-33.32
4	152.00		min	-6573.19	-888.05	-30.22	-46.01
4	152.00	der	max	-9208.97	1698.46	-63.21	-33.02
4	152.00		min	-6628.11	-888.11	-30.52	-46.31
5	156.00	izq	max	-8015.15	2216.41	-100.03	-45.47
5	156.00		min	-7475.86	454.17	-78.83	-67.65
5	156.00	der	max	-8016.00	2220.14	-100.07	-45.42
5	156.00		min	-7471.79	457.25	-78.82	-67.56
5	160.00	izq	max	-5382.60	167.71	-55.33	-51.20
5	160.00		min	-5651.54	-685.19	-50.37	-67.24
5	160.00	der	max	-5382.59	167.72	-55.33	-51.20
5	160.00		min	-5651.54	-685.16	-50.37	-67.24
5	164.00	izq	max	-4511.69	-240.53	-42.96	-48.88
5	164.00		min	-6630.46	-1327.02	-54.40	-87.07
5	164.00	der	max	-4511.69	-240.53	-42.96	-48.88
5	164.00		min	-6630.47	-1327.04	-54.40	-87.07
5	168.00	izq	max	-4603.97	-724.22	-39.54	-57.37
5	168.00		min	-6743.25	-2041.07	-49.13	-99.37
5	168.00	der	max	-4603.96	-724.23	-39.54	-57.37
5	168.00		min	-6743.24	-2041.09	-49.13	-99.37
5	172.00	izq	max	-4683.23	-1034.89	-37.55	-63.02
5	172.00		min	-6840.12	-2359.77	-47.24	-105.32
5	172.00	der	max	-4683.25	-1034.91	-37.55	-63.02
5	172.00		min	-6840.14	-2359.78	-47.24	-105.32
5	176.00	izq	max	-4748.47	-920.66	-39.23	-61.89
5	176.00		min	-6919.86	-2286.29	-48.69	-104.97
5	176.00	der	max	-4748.47	-920.63	-39.23	-61.89
5	176.00		min	-6919.87	-2286.26	-48.69	-104.97
5	180.00	izq	max	-4798.71	-517.45	-43.35	-56.08
5	180.00		min	-6981.27	-1676.52	-54.78	-96.04
5	180.00	der	max	-4798.71	-517.43	-43.35	-56.08
5	180.00		min	-6981.27	-1676.50	-54.78	-96.04
5	184.00	izq	max	-7789.18	1923.22	-95.14	-47.80
5	184.00		min	-7757.28	839.54	-85.10	-64.44
5	184.00	der	max	-7789.11	1923.24	-95.14	-47.80

5	184.00		min	-7757.28	839.53	-85.10	-64.44
5	188.00	izq	max	-8113.83	2318.94	-101.94	-44.86
5	188.00		min	-7551.79	525.30	-80.23	-67.30
5	188.00	der	max	-8112.71	2315.03	-101.89	-44.90
5	188.00		min	-7555.70	522.07	-80.24	-67.39
5	192.00	izq	max	-9209.05	1684.51	-63.11	-33.17
5	192.00		min	-6628.50	-894.89	-30.48	-46.39
5	192.00	der	max	-9153.43	1684.45	-62.80	-32.86
5	192.00		min	-6683.70	-894.94	-30.78	-46.69
6	196.00	izq	max	-8070.53	2207.87	-100.51	-46.16
6	196.00		min	-7420.51	469.71	-78.42	-66.85
6	196.00	der	max	-8071.39	2211.58	-100.55	-46.11
6	196.00		min	-7416.26	472.77	-78.40	-66.77
6	200.00	izq	max	-5438.77	159.23	-55.82	-51.90
6	200.00		min	-5596.67	-643.87	-50.19	-66.04
6	200.00	der	max	-5438.77	159.23	-55.82	-51.90
6	200.00		min	-5596.67	-643.85	-50.19	-66.04
6	204.00	izq	max	-4567.69	-212.74	-43.77	-49.01
6	204.00		min	-6575.62	-1294.14	-54.15	-86.00
6	204.00	der	max	-4567.70	-212.75	-43.77	-49.01
6	204.00		min	-6575.63	-1294.17	-54.15	-86.01
6	208.00	izq	max	-4659.93	-661.62	-40.67	-56.95
6	208.00		min	-6688.36	-2014.93	-48.81	-98.41
6	208.00	der	max	-4659.93	-661.64	-40.66	-56.95
6	208.00		min	-6688.36	-2014.96	-48.81	-98.41
6	212.00	izq	max	-4739.17	-937.53	-38.98	-62.06
6	212.00		min	-6785.20	-2340.42	-46.86	-104.47
6	212.00	der	max	-4739.16	-937.51	-38.98	-62.06
6	212.00		min	-6785.20	-2340.42	-46.86	-104.47
6	216.00	izq	max	-4804.33	-788.19	-40.97	-60.38
6	216.00		min	-6864.85	-2273.88	-48.25	-104.23
6	216.00	der	max	-4804.35	-788.19	-40.97	-60.38
6	216.00		min	-6864.87	-2273.88	-48.25	-104.23
6	220.00	izq	max	-4854.56	-350.16	-45.40	-54.02
6	220.00		min	-6926.24	-1670.66	-54.28	-95.40
6	220.00	der	max	-4854.55	-350.15	-45.40	-54.02
6	220.00		min	-6926.22	-1670.64	-54.28	-95.40
6	224.00	izq	max	-5873.10	180.54	-60.35	-55.91
6	224.00		min	-5976.72	-861.95	-52.04	-73.25
6	224.00	der	max	-7845.07	2124.87	-97.51	-45.20
6	224.00		min	-7702.15	839.32	-84.55	-63.89
6	228.00	izq	max	-8169.65	2548.16	-104.55	-41.83
6	228.00		min	-7496.59	525.81	-79.68	-66.74
6	228.00	der	max	-8168.26	2544.26	-104.50	-41.87
6	228.00		min	-7500.49	522.58	-79.69	-66.83
6	232.00	izq	max	-9153.68	1936.34	-64.59	-30.17
6	232.00		min	-6683.83	-887.96	-30.83	-46.62
6	232.00	der	max	-9097.37	1936.28	-64.28	-29.86
6	232.00		min	-6739.76	-888.00	-31.14	-46.93
7	236.00	izq	max	-8125.39	2331.18	-102.16	-44.78
7	236.00		min	-7365.33	471.70	-77.88	-66.27
7	236.00	der	max	-8127.14	2334.88	-102.21	-44.74
7	236.00		min	-7360.98	474.76	-77.87	-66.18
7	240.00	izq	max	-5493.47	150.67	-56.29	-52.58
7	240.00		min	-5540.51	-641.45	-49.65	-65.44
7	240.00	der	max	-5493.48	150.60	-56.29	-52.58
7	240.00		min	-5540.53	-641.43	-49.65	-65.44
7	244.00	izq	max	-4622.56	-220.69	-44.25	-49.68
7	244.00		min	-6519.40	-1426.84	-52.40	-87.52
7	244.00	der	max	-4622.59	-220.69	-44.25	-49.68
7	244.00		min	-6519.43	-1426.88	-52.40	-87.52
7	248.00	izq	max	-4714.85	-667.76	-41.16	-57.60
7	248.00		min	-6632.19	-2283.77	-45.84	-102.05
7	248.00	der	max	-4714.82	-667.77	-41.16	-57.60
7	248.00		min	-6632.16	-2283.80	-45.84	-102.05
7	252.00	izq	max	-4794.10	-941.65	-39.50	-62.67
7	252.00		min	-6729.07	-2745.86	-42.66	-110.25
7	252.00	der	max	-4794.13	-941.65	-39.50	-62.67
7	252.00		min	-6729.09	-2745.88	-42.66	-110.25
7	256.00	izq	max	-4859.36	-790.58	-41.50	-60.96
7	256.00		min	-6808.81	-2815.81	-42.83	-112.14
7	256.00	der	max	-4859.34	-790.56	-41.50	-60.96
7	256.00		min	-6808.80	-2815.81	-42.83	-112.14
7	260.00	izq	max	-4909.60	-350.84	-45.95	-54.59
7	260.00		min	-6870.23	-2349.07	-47.63	-105.46
7	260.00	der	max	-4909.62	-350.82	-45.95	-54.59
7	260.00		min	-6870.24	-2349.04	-47.63	-105.46
7	264.00	izq	max	-5928.18	181.65	-60.91	-56.44
7	264.00		min	-5920.89	-1676.86	-44.17	-85.45
7	264.00	der	max	-7900.22	2126.07	-98.07	-45.74
7	264.00		min	-7646.41	24.48	-76.68	-76.08
7	268.00	izq	max	-8224.72	2548.93	-105.11	-42.37
7	268.00		min	-7440.83	-423.39	-70.61	-81.03
7	268.00	der	max	-8223.45	2545.02	-105.06	-42.41
7	268.00		min	-7445.68	-426.63	-70.63	-81.13
7	272.00	izq	max	-9097.88	1932.34	-64.25	-29.90
7	272.00		min	-6739.99	-1965.69	-23.50	-58.45
7	272.00	der	max	-9041.64	1932.29	-63.94	-29.59
7	272.00		min	-6802.05	-1965.72	-23.84	-58.79
8	276.00	izq	max	-8180.57	2330.60	-102.71	-45.34
8	276.00		min	-7315.32	306.12	-75.90	-68.36
8	276.00	der	max	-8182.36	2334.33	-102.76	-45.30
8	276.00		min	-7305.29	309.23	-75.83	-68.21
8	280.00	izq	max	-7468.18	2584.59	-97.86	-34.24
8	280.00		min	-7164.36	1013.32	-80.73	-55.79
8	280.00	der	max	-5549.47	692.72	-61.71	-44.66
8	280.00		min	-5485.49	-642.02	-49.10	-64.90
8	284.00	izq	max	-4678.41	829.06	-54.22	-33.81
8	284.00		min	-6464.37	-1429.28	-51.82	-87.01
8	284.00	der	max	-4678.43	829.05	-54.22	-33.81
8	284.00		min	-6464.39	-1429.32	-51.82	-87.01
8	288.00	izq	max	-4770.66	685.72	-53.86	-36.98
8	288.00		min	-6577.12	-2289.08	-45.24	-101.59
8	288.00	der	max	-4770.65	685.70	-53.86	-36.98
8	288.00		min	-6577.11	-2289.11	-45.24	-101.59
8	292.00	izq	max	-4849.87	532.33	-53.27	-40.17
8	292.00		min	-6673.94	-2753.80	-42.04	-109.83
8	292.00	der	max	-4849.91	532.33	-53.27	-40.17
8	292.00		min	-6673.98	-2753.81	-42.04	-109.83
8	296.00	izq	max	-4915.10	558.06	-54.16	-40.42
8	296.00		min	-6753.65	-2826.66	-42.18	-111.76
8	296.00	der	max	-4915.06	558.07	-54.16	-40.42
8	296.00		min	-6753.61	-2826.65	-42.18	-111.76
8	300.00	izq	max	-4965.27	689.24	-55.83	-38.87
8	300.00		min	-6814.98	-2362.84	-46.96	-105.12
8	300.00	der	max	-4965.31	689.24	-55.84	-38.87
8	300.00		min	-6815.02	-2362.82	-46.96	-105.12
8	304.00	izq	max	-7955.95	2653.86	-103.36	-38.04
8	304.00		min	-7591.15	7.71	-75.98	-75.79
8	304.00	der	max	-7955.95	2653.86	-103.36	-38.04
8	304.00		min	-7591.13	7.70	-75.98	-75.79
8	308.00	izq	max	-8280.52	2531.06	-105.51	-43.20
8	308.00		min	-7385.57	-613.25	-68.36	-83.45
8	308.00	der	max	-8279.18	2527.15	-105.46	-43.25
8	308.00		min	-7396.14	-616.52	-68.43	-83.61
8	312.00	izq	max	-9042.77	1907.38	-63.77	-29.86
8	312.00		min	-6802.80	-3071.92	-16.00	-70.61
8	312.00	der	max	-8986.55	1907.32	-63.46	-29.55
8	312.00		min	-6858.76	-3071.96	-16.31	-70.92
9	316.00	izq	max	-8236.38	2316.45	-103.14	-46.12
9	316.00		min	-7261.11	-663.69	-66.66	-82.99
9	316.00	der	max	-8238.17	2320.18	-103.19	-46.08
9	316.00		min	-7250.07	-660.57	-66.58	-82.84
9	320.00	izq	max	-5604.76	681.28	-62.16	-45.39
9	320.00		min	-5429.84	-1468.05	-41.13	-77.27
9	320.00	der	max	-5604.77	681.20	-62.16	-45.39
9	320.00		min	-5429.85	-1467.98	-41.13	-77.27
9	324.00	izq	max	-4733.90	822.85	-54.72	-34.46
9	324.00		min	-6408.91	-2113.29	-45.13	-97.15
9	324.00	der	max	-4733.90	822.84	-54.72	-34.46
9	324.00		min	-6408.91	-2113.33	-45.13	-97.15
9	328.00	izq	max	-4826.14	685.40	-54.41	-37.54
9	328.00		min	-6521.64	-2830.94	-39.83	-109.51
9	328.00	der	max	-4826.13	685.39	-54.41	-37.54

9	328.00		min	-6521.63	-2830.98	-39.82	-109.51
9	332.00	izq	max	-4905.38	537.73	-53.88	-40.64
9	332.00		min	-6618.50	-3153.62	-37.90	-115.53
9	332.00	der	max	-4905.41	537.73	-53.88	-40.64
9	332.00		min	-6618.54	-3153.63	-37.90	-115.53
9	336.00	izq	max	-4970.61	569.50	-54.81	-40.80
9	336.00		min	-6698.21	-3084.37	-39.32	-115.24
9	336.00	der	max	-4970.59	569.48	-54.81	-40.80
9	336.00		min	-6698.20	-3084.39	-39.32	-115.24
9	340.00	izq	max	-5020.82	706.74	-56.55	-39.15
9	340.00		min	-6759.59	-2478.44	-45.37	-106.37
9	340.00	der	max	-5020.82	706.75	-56.55	-39.15
9	340.00		min	-6759.59	-2478.41	-45.37	-106.37
9	344.00	izq	max	-8011.43	2678.12	-104.13	-38.21
9	344.00		min	-7535.67	33.21	-75.65	-74.84
9	344.00	der	max	-8011.43	2678.21	-104.14	-38.21
9	344.00		min	-7535.67	33.13	-75.65	-74.84
9	348.00	izq	max	-8336.00	2694.02	-107.52	-41.21
9	348.00		min	-7330.13	-579.32	-68.11	-82.37
9	348.00	der	max	-8333.66	2690.12	-107.46	-41.25
9	348.00		min	-7340.66	-582.58	-68.18	-82.52
9	352.00	izq	max	-8986.25	2205.43	-65.57	-26.36
9	352.00		min	-6858.12	-3027.48	-16.62	-70.44
9	352.00	der	max	-8930.69	2205.36	-65.26	-26.05
9	352.00		min	-6914.04	-3027.53	-16.93	-70.76
10	356.00	izq	max	-8741.04	2578.65	-110.54	-47.06
10	356.00		min	-6755.92	-633.07	-61.88	-77.46
10	356.00	der	max	-8743.33	2582.37	-110.60	-47.03
10	356.00		min	-6744.78	-629.94	-61.80	-77.30
10	360.00	izq	max	-5660.19	905.14	-64.72	-42.44
10	360.00		min	-5374.33	-1445.59	-40.78	-76.36
10	360.00	der	max	-5660.20	905.13	-64.72	-42.44
10	360.00		min	-5374.34	-1445.54	-40.78	-76.36
10	364.00	izq	max	-4789.26	1006.39	-56.92	-32.15
10	364.00	der	max	-4789.25	1006.40	-56.92	-32.15
10	364.00		min	-6353.28	-2097.78	-44.72	-96.35
10	368.00	izq	max	-4881.50	827.87	-56.24	-35.86
10	368.00		min	-6466.02	-2821.51	-39.35	-108.81
10	368.00	der	max	-4881.52	827.84	-56.24	-35.86
10	368.00		min	-6466.04	-2821.55	-39.35	-108.81
10	372.00	izq	max	-4960.77	639.23	-55.34	-39.61
10	372.00		min	-6562.90	-3150.92	-37.37	-114.93
10	372.00	der	max	-4960.75	639.22	-55.34	-39.61
10	372.00		min	-6562.89	-3150.94	-37.37	-114.93
10	376.00	izq	max	-5025.97	630.59	-55.92	-40.39
10	376.00		min	-6642.60	-3088.02	-38.73	-114.74
10	376.00	der	max	-5025.97	630.61	-55.92	-40.39
10	376.00		min	-6642.60	-3088.00	-38.73	-114.74
10	380.00	izq	max	-5076.20	726.93	-57.28	-39.39
10	380.00		min	-6703.99	-2488.46	-44.72	-105.97
10	380.00	der	max	-5076.21	726.94	-57.28	-39.39
10	380.00		min	-6703.99	-2488.42	-44.72	-105.97
10	384.00	izq	max	-6094.79	710.15	-67.32	-49.84
10	384.00		min	-5754.60	-1681.96	-42.46	-83.86
10	384.00	der	max	-6094.79	710.19	-67.32	-49.84
10	384.00		min	-5754.60	-1682.02	-42.46	-83.86
10	388.00	izq	max	-8391.40	2666.54	-107.83	-42.19
10	388.00		min	-7274.53	-637.21	-67.03	-82.72
10	388.00	der	max	-8388.99	2662.63	-107.77	-42.23
10	388.00		min	-7285.35	-640.48	-67.11	-82.87
10	392.00	izq	max	-8930.58	2166.16	-64.98	-26.47
10	392.00		min	-6913.67	-3120.19	-16.27	-71.74
10	392.00	der	max	-8875.16	2166.10	-64.67	-26.17
10	392.00		min	-6969.51	-3120.23	-16.58	-72.05
11	396.00	izq	max	-8685.40	2565.77	-109.87	-46.71
11	396.00		min	-6811.27	-706.79	-61.77	-79.17
11	396.00	der	max	-8687.51	2569.46	-109.92	-46.67
11	396.00		min	-6799.98	-703.68	-61.69	-79.01
11	400.00	izq	max	-6055.29	914.21	-68.75	-46.25
11	400.00		min	-4980.75	-1496.64	-36.38	-73.22
11	400.00	der	max	-6055.28	914.21	-68.75	-46.25
11	400.00		min	-4980.74	-1496.62	-36.38	-73.22
11	404.00	izq	max	-4845.37	1025.31	-57.65	-32.41
11	404.00		min	-6298.58	-2114.64	-44.02	-96.07
11	404.00	der	max	-4845.39	1025.32	-57.65	-32.41
11	404.00		min	-6298.59	-2114.67	-44.02	-96.07
11	408.00	izq	max	-4937.58	860.01	-57.09	-35.92
11	408.00		min	-6411.27	-2807.94	-38.93	-108.05
11	408.00	der	max	-4937.58	860.02	-57.09	-35.92
11	408.00		min	-6411.27	-2807.94	-38.93	-108.05
11	412.00	izq	max	-5016.76	684.91	-56.31	-39.45
11	412.00		min	-6508.05	-3108.23	-37.20	-113.71
11	412.00	der	max	-5016.78	684.92	-56.31	-39.45
11	412.00		min	-6508.08	-3108.24	-37.20	-113.71
11	416.00	izq	max	-5081.92	691.62	-57.02	-40.00
11	416.00		min	-6587.69	-3015.55	-38.83	-113.06
11	416.00	der	max	-5081.89	691.60	-57.02	-40.00
11	416.00		min	-6587.66	-3015.56	-38.83	-113.06
11	420.00	izq	max	-5132.07	802.11	-58.52	-38.77
11	420.00		min	-6648.98	-2386.21	-45.09	-103.82
11	420.00	der	max	-5132.08	802.11	-58.52	-38.77
11	420.00		min	-6648.99	-2386.19	-45.09	-103.82
11	424.00	izq	max	-8122.64	2763.35	-106.01	-37.99
11	424.00		min	-7424.95	132.42	-75.44	-72.18
11	424.00	der	max	-8122.64	2763.37	-106.01	-37.99
11	424.00		min	-7424.96	132.41	-75.44	-72.18
11	428.00	izq	max	-8447.30	2813.08	-109.70	-40.46
11	428.00		min	-7219.41	-516.66	-67.56	-80.28
11	428.00	der	max	-8444.78	2809.18	-109.64	-40.49
11	428.00		min	-7230.22	-519.94	-67.64	-80.44
11	432.00	izq	max	-8875.55	2336.95	-65.89	-24.34
11	432.00		min	-6969.54	-2978.64	-17.59	-70.54
11	432.00	der	max	-8819.70	2336.90	-65.58	-24.03
11	432.00		min	-7024.90	-2978.68	-17.90	-70.85
12	436.00	izq	max	-8630.03	2669.89	-110.25	-44.53
12	436.00		min	-6866.70	-641.81	-62.91	-78.71
12	436.00	der	max	-8632.62	2673.58	-110.31	-44.49
12	436.00		min	-6855.91	-638.71	-62.83	-78.55
12	440.00	izq	max	-5998.85	941.79	-68.44	-45.25
12	440.00		min	-5035.38	-1502.96	-36.87	-73.87
12	440.00	der	max	-5998.90	941.80	-68.44	-45.25
12	440.00		min	-5035.43	-1502.94	-36.87	-73.87
12	444.00	izq	max	-5128.12	964.43	-59.93	-36.19
12	444.00		min	-6014.53	-2179.79	-40.59	-94.25
12	444.00	der	max	-5128.10	964.43	-59.93	-36.19
12	444.00		min	-6014.50	-2179.82	-40.59	-94.25
12	448.00	izq	max	-4992.49	719.31	-56.38	-38.67
12	448.00		min	-6355.10	-2940.23	-37.18	-109.55
12	448.00	der	max	-4992.48	719.31	-56.38	-38.67
12	448.00		min	-6355.09	-2940.25	-37.18	-109.55
12	452.00	izq	max	-5071.75	464.32	-54.88	-43.45
12	452.00		min	-6451.97	-3309.58	-34.84	-116.30
12	452.00	der	max	-5071.79	464.32	-54.88	-43.45
12	452.00		min	-6452.03	-3309.58	-34.84	-116.30
12	456.00	izq	max	-5136.98	395.46	-54.92	-45.18
12	456.00		min	-6531.71	-3285.47	-35.85	-116.72
12	456.00	der	max	-5136.98	395.47	-54.92	-45.18
12	456.00		min	-6531.70	-3285.45	-35.85	-116.72
12	460.00	izq	max	-5187.22	428.24	-55.71	-45.17
12	460.00		min	-6593.10	-2724.70	-41.49	-108.56
12	460.00	der	max	-5187.17	428.23	-55.71	-45.17
12	460.00		min	-6593.05	-2724.68	-41.49	-108.56
12	464.00	izq	max	-8177.63	2257.73	-102.03	-46.45
12	464.00		min	-7369.02	-221.29	-71.71	-77.15
12	464.00	der	max	-8177.70	2257.74	-102.03	-46.45
12	464.00		min	-7369.07	-221.29	-71.71	-77.15
12	468.00	izq	max	-8502.35	2238.01	-105.10	-50.01
12	468.00		min	-7163.60	-947.94	-63.13	-86.47
12	468.00	der	max	-8500.37	2234.09	-105.04	-50.05
12	468.00		min	-7174.82	-951.23	-63.22	-86.63
12	472.00	izq	max	-8820.23	1673.97	-60.88	-31.12
12	472.00		min	-7025.07	-3470.67	-14.41	-76.11
12	472.00	der	max	-8766.12	1673.91	-60.58	-30.82

12	472.00		min	-7081.61	-3470.72	-14.72	-76.42
13	476.00	izq	max	-8576.46	2335.35	-106.71	-49.22
13	476.00		min	-6923.43	-914.99	-61.03	-83.55
13	476.00	der	max	-8576.73	2339.07	-106.75	-49.17
13	476.00		min	-6911.08	-911.87	-60.93	-83.38
13	480.00	izq	max	-5956.73	904.22	-67.68	-45.42
13	480.00		min	-5102.56	-1553.10	-37.10	-75.33
13	480.00	der	max	-5956.81	904.24	-67.68	-45.42
13	480.00		min	-5102.61	-1553.07	-37.10	-75.33
13	484.00	izq	max	-5083.53	1141.55	-61.07	-32.97
13	484.00		min	-6083.31	-1903.59	-43.76	-90.62
13	484.00	der	max	-5083.47	1141.54	-61.07	-32.97
13	484.00		min	-6083.25	-1903.63	-43.76	-90.62
13	488.00	izq	max	-5175.14	1108.61	-61.69	-34.41
13	488.00		min	-6195.29	-2331.89	-41.04	-98.44
13	488.00	der	max	-5175.18	1108.59	-61.70	-34.41
13	488.00		min	-6195.34	-2331.91	-41.04	-98.44
13	492.00	izq	max	-5136.91	1070.16	-60.97	-34.63
13	492.00		min	-6408.32	-2363.74	-42.88	-101.07
13	492.00	der	max	-5136.90	1070.16	-60.97	-34.63
13	492.00		min	-6408.32	-2363.73	-42.88	-101.07
13	496.00	izq	max	-5201.45	1226.82	-63.02	-32.82
13	496.00		min	-6487.22	-1971.72	-47.19	-95.72
13	496.00	der	max	-5201.44	1226.81	-63.02	-32.82
13	496.00		min	-6487.19	-1971.71	-47.19	-95.72
13	500.00	izq	max	-5251.00	1481.86	-65.80	-29.32
13	500.00		min	-6547.77	-1064.92	-55.93	-82.14
13	500.00	der	max	-5251.03	1481.86	-65.80	-29.32
13	500.00		min	-6547.81	-1064.89	-55.93	-82.14
13	504.00	izq	max	-6924.54	2512.38	-91.78	-29.94
13	504.00		min	-6168.56	372.46	-65.03	-55.86
13	504.00	der	max	-6924.50	2512.39	-91.78	-29.94
13	504.00		min	-6168.53	372.45	-65.03	-55.86
13	508.00	izq	max	-7216.67	2767.13	-96.99	-28.87
13	508.00		min	-6010.81	-68.61	-59.49	-61.18
13	508.00	der	max	-7213.25	2764.25	-96.92	-28.88
13	508.00		min	-6020.83	-71.05	-59.57	-61.32
13	512.00	izq	max	-7355.52	2280.86	-57.05	-16.50
13	512.00		min	-5927.45	-2510.84	-15.12	-59.75
13	512.00	der	max	-7307.03	2281.20	-56.78	-16.22
13	512.00		min	-5973.96	-2510.57	-15.38	-60.01
14	515.20	izq	max	-7072.83	1679.39	-85.79	-44.45
14	515.20		min	-5779.68	-1535.05	-44.03	-81.81
14	515.20	der	max	-7085.77	1682.85	-85.95	-44.53
14	515.20		min	-5775.67	-1532.16	-44.01	-81.73
14	518.40	izq	max	-5595.38	2006.77	-73.95	-24.56
14	518.40		min	-4873.50	-855.08	-41.07	-62.11
14	518.40	der	max	-5595.40	2006.73	-73.95	-24.56
14	518.40		min	-4873.52	-855.10	-41.07	-62.11
14	521.60	izq	max	-4747.38	1271.75	-58.88	-27.58
14	521.60		min	-5775.74	-1555.56	-43.81	-82.10
14	521.60	der	max	-4747.35	1271.71	-58.88	-27.58
14	521.60		min	-5775.71	-1555.61	-43.80	-82.10
14	524.80	izq	max	-4812.02	597.56	-53.48	-38.77
14	524.80		min	-5854.74	-2768.18	-33.72	-101.86
14	524.80	der	max	-4812.07	597.52	-53.48	-38.77
14	524.80		min	-5854.80	-2768.25	-33.72	-101.86
14	528.00	izq	max	-4846.90	-166.21	-46.98	-51.07
14	528.00		min	-5950.61	-3813.11	-25.31	-119.17
14	528.00	der	max	-4846.86	-166.25	-46.98	-51.07
14	528.00		min	-5950.55	-3813.15	-25.30	-119.17
14	531.20	izq	max	-4899.10	-982.98	-40.17	-64.37
14	531.20		min	-6014.39	-4647.35	-18.46	-132.86
14	531.20	der	max	-4899.14	-983.01	-40.17	-64.37
14	531.20		min	-6014.45	-4647.37	-18.46	-132.86
14	534.40	izq	max	-4902.99	-1694.87	-33.83	-75.55
14	534.40		min	-6019.16	-5076.04	-14.66	-139.61
14	534.40	der	max	-4902.97	-1694.90	-33.83	-75.55
14	534.40		min	-6019.12	-5076.06	-14.66	-139.61
14	537.60	izq	max	-4823.93	-2109.57	-29.32	-81.25
14	537.60		min	-5922.52	-4864.13	-15.60	-135.33
14	537.60	der	max	-4823.90	-2109.59	-29.32	-81.25
14	537.60		min	-5922.49	-4864.13	-15.60	-135.33
14	540.80	izq	max	-4719.40	-2377.75	-25.87	-84.40
14	540.80		min	-5794.77	-4195.94	-20.31	-123.60
14	540.80	der	max	-4715.94	-2334.45	-26.22	-83.68
14	540.80		min	-5768.04	-4142.98	-20.52	-122.50
14	544.00	izq	max	-57.72	0.06	0.00	- 0.00 -
14	544.00		min	-41.58	0.04	0.00	- 0.00 -

COMPROBACION ESTADO LIMITE DE SERVICIO A TIEMPO INFINITO

Factores de ponderación considerados para el pretensado:

- Acciones Desfavorables: 1.1
- Acciones Favorables: 0.9

LEYENDA:
+ : Compresión>fck28/1.6
* : Tracción
# : Fisuración
! : Requiere comprobación wk

Vano	x [m]		Px? [t]	Mmax Mmin [tm]	Mp,isos Mp,isos [tm]	?s ?s [kg/cm2]	?i ?i [kg/cm2]	wk wk [mm]	
1	0.00	der	max	-7132.85	-3463.47 -4256.13	-15.06	-76.63		
1	0.00		min	-4640.39	-4233.65 -3441.13	4.26	* -71.01		
1	3.20	izq	max	-3501.29	-2389.58 -6007.40	-13.58	-72.40		
1	3.20		min	-8325.16	-5661.95 -7430.20	-32.47	-171.84		
1	3.20	der	max	-3491.33	-2409.67 -6027.49	-13.30	-72.62		
1	3.20		min	-8337.64	-5686.57 -7455.06	-32.37	-172.35		
1	6.40	izq	max	-3591.47	-1401.55 -7731.12	-23.34	-57.84		
1	6.40		min	-8460.03	-6271.05 -9562.17	-28.35	-182.72		
1	6.40	der	max	-3591.47	-1401.47 -7731.17	-23.34	-57.84		
1	6.40		min	-8460.04	-6270.99 -9562.23	-28.35	-182.72		
1	9.60	izq	max	-3665.88	-400.00 -8748.97	-33.07	-42.92		
1	9.60		min	-8550.98	-6398.24-10821.10	-28.12	-185.62		
1	9.60	der	max	-3665.88	-399.94 -8748.99	-33.07	-42.92		
1	9.60		min	-8550.98	-6398.19-10821.10	-28.12	-185.62		
1	12.80	izq	max	-3657.48	745.27 -8932.35	-43.26	-24.91		
1	12.80		min	-8540.72	-5884.90-11047.90	-32.62	-177.48		
1	12.80	der	max	-3657.48	745.32 -8932.35	-43.26	-24.91		
1	12.80		min	-8540.71	-5884.84-11047.90	-32.62	-177.48		
1	16.00	izq	max	-3600.89	1840.61 -8473.17	-52.52	-7.21		
1	16.00		min	-8471.55	-4967.38-10480.00	-40.16	-162.44		
1	16.00	der	max	-3600.89	1840.62 -8473.14	-52.52	-7.21		
1	16.00		min	-8471.55	-4967.26-10479.90	-40.16	-162.43		
1	19.20	izq	max	-3539.74	2726.01 -7530.63	-59.85	7.25	*	
1	19.20		min	-8396.81	-3841.32 -9314.19	-49.51	-144.07		
1	19.20	der	max	-3539.73	2726.01 -7530.58	-59.85	7.25	*	
1	19.20		min	-8396.81	-3841.26 -9314.13	-49.51	-144.07		
1	22.40	izq	max	-3517.90	3341.49 -6164.10	-65.15	17.10	*	
1	22.40		min	-8370.12	-2580.07 -7624.02	-60.56	-124.07		
1	22.40	der	max	-3517.90	3341.49 -6164.03	-65.15	17.10	*	
1	22.40		min	-8370.12	-2579.92 -7623.93	-60.56	-124.07		
1	25.60	izq	max	-4525.61	3917.27 -4551.92	-80.39	16.03	*	
1	25.60		min	-7394.36	-1812.24 -5630.01	-57.69	-102.30		
1	25.60	der	max	-4525.61	3917.31 -4551.85	-80.39	16.03	*	
1	25.60		min	-7394.37	-1812.19 -5629.92	-57.69	-102.30		
1	28.80	izq	max	-10637.48	3185.91 -4698.88	-134.95	-56.53		
1	28.80		min	-6151.54	-2723.26 -3799.10	-37.09	-104.12		
1	28.80	der	max	-10619.88	3183.81 -4700.99	-134.75	-56.38		
1	28.80		min	-6162.66	-2725.10 -3800.80	-37.18	-104.26		
1	32.00	izq	max	-11173.71	4348.50 -2653.92	-92.93	-15.62		
1	32.00		min	-5842.17	-4568.47 -2145.72	-0.05	-81.26		
1	32.00	der	max	-11068.04	4347.40 -2655.07	-92.33	-15.04		
1	32.00		min	-5954.49	-4569.36 -2146.66	-0.66	-81.90		
2	36.00	izq	max	-10881.61	4298.85 -4821.46	-147.37	-41.55		
2	36.00		min	-5797.01	-1241.01 -3898.20	-46.84	-77.39		

2	36.00	der	max	-10886.08	4300.22	-4820.22	-147.43	-41.58	
2	36.00		min	-5780.85	-1239.84	-3897.20	-46.69	-77.21	
2	40.00	izq	max	-13576.66	620.27	-11867.20	-141.33	-126.06	
2	40.00		min	-12773.16	-4861.48	-9594.78	-84.13	-203.79	
2	40.00	der	max	-8238.77	4837.98	-7087.77	-125.78	-6.69	
2	40.00		min	-3985.33	-435.30	-5730.54	-35.95	0.00	-
2	44.00	izq	max	-7271.08	4950.00	-9372.41	-117.11	4.74	*
2	44.00		min	-5066.32	-924.85	-7577.70	-42.37	-65.13	
2	44.00	der	max	-7271.09	4950.02	-9372.50	-117.11	4.74	*
2	44.00		min	-5066.32	-924.90	-7577.77	-42.37	-65.13	
2	48.00	izq	max	-7367.04	4810.82	-11053.50	-116.82	1.60	*
2	48.00		min	-5183.59	-1759.37	-8936.86	-36.06	-79.36	
2	48.00	der	max	-7367.04	4810.83	-11053.50	-116.82	1.60	*
2	48.00		min	-5183.60	-1759.43	-8936.91	-36.06	-79.36	
2	52.00	izq	max	-7056.75	4404.29	-11730.50	-110.07	-1.66	
2	52.00		min	-5678.20	-2222.31	-9484.27	-36.85	-91.55	
2	52.00	der	max	-7056.77	4404.26	-11730.50	-110.07	-1.66	
2	52.00		min	-5678.20	-2222.34	-9484.27	-36.85	-91.55	
2	56.00	izq	max	-4080.39	3984.35	-9150.28	-76.54	21.54	*
2	56.00		min	-8807.71	-2275.54	-11317.50	-67.67	-123.68	
2	56.00	der	max	-4080.38	3984.32	-9150.25	-76.54	21.54	*
2	56.00		min	-8807.70	-2275.51	-11317.40	-67.67	-123.68	
2	60.00	izq	max	-4134.31	3426.62	-7889.62	-72.08	12.27	*
2	60.00		min	-8873.62	-1793.70	-9758.21	-72.65	-116.80	
2	60.00	der	max	-4134.32	3426.59	-7889.55	-72.08	12.27	*
2	60.00		min	-8873.64	-1793.66	-9758.13	-72.65	-116.80	
2	64.00	izq	max	-7231.52	4440.53	-4306.51	-112.14	-2.84	
2	64.00		min	-9551.19	622.32	-5326.48	-101.09	-85.77	
2	64.00	der	max	-7231.52	4440.49	-4306.44	-112.14	-2.84	
2	64.00		min	-9551.18	622.31	-5326.39	-101.09	-85.77	
2	68.00	izq	max	-7580.78	3448.59	-2343.68	-106.74	-21.85	
2	68.00		min	-9328.40	-303.97	-2898.77	-90.56	-98.04	
2	68.00	der	max	-7580.99	3445.64	-2346.00	-106.71	-21.90	
2	68.00		min	-9345.38	-306.51	-2901.63	-90.70	-98.25	
2	72.00	izq	max	-11115.71	2808.70	-820.46	-81.68	-31.75	
2	72.00		min	-5992.45	-3957.89	-663.35	-5.21	-75.58	
2	72.00	der	max	-10971.60	2808.69	-820.48	-80.88	-30.95	
2	72.00		min	-6119.47	-3957.99	-663.36	-5.92	-76.28	
3	76.00	izq	max	-7634.13	3090.14	-2432.56	-104.06	-27.99	
3	76.00		min	-9119.23	-2346.59	-3008.69	-70.14	-127.91	
3	76.00	der	max	-7635.24	3092.86	-2430.42	-104.09	-27.96	
3	76.00		min	-9113.96	-2344.32	-3006.05	-70.11	-127.82	
3	80.00	izq	max	-4513.47	70.99	-6815.88	-45.77	-44.02	
3	80.00		min	-9020.46	-4635.21	-8430.17	-48.63	-162.73	
3	80.00	der	max	-4308.10	2254.96	-4744.08	-63.31	-7.80	
3	80.00		min	-6726.11	-2184.74	-5867.68	-47.67	-101.44	
3	84.00	izq	max	-3436.87	1724.54	-6586.28	-49.84	-7.39	
3	84.00		min	-7704.65	-2526.58	-8146.19	-54.39	-116.58	
3	84.00	der	max	-3436.90	1724.51	-6586.35	-49.84	-7.39	
3	84.00		min	-7704.65	-2526.61	-8146.27	-54.38	-116.58	
3	88.00	izq	max	-3529.16	1164.93	-7938.65	-45.74	-17.07	
3	88.00		min	-7817.42	-2990.87	-9818.86	-51.35	-124.97	
3	88.00	der	max	-3529.14	1164.90	-7938.70	-45.74	-17.07	
3	88.00		min	-7817.44	-2990.89	-9818.92	-51.35	-124.97	
3	92.00	izq	max	-3608.43	777.87	-8479.60	-43.06	-23.91	
3	92.00		min	-7914.34	-3060.31	-10487.90	-51.69	-127.03	
3	92.00	der	max	-3608.45	777.86	-8479.60	-43.06	-23.91	
3	92.00		min	-7914.34	-3060.30	-10487.90	-51.69	-127.03	
3	96.00	izq	max	-3673.68	814.62	-8139.11	-44.04	-23.99	
3	96.00		min	-7994.06	-2736.43	-10066.80	-55.40	-122.76	
3	96.00	der	max	-3673.67	814.62	-8139.06	-44.04	-23.99	
3	96.00		min	-7994.07	-2736.40	-10066.70	-55.40	-122.75	
3	100.00	izq	max	-3723.94	1142.45	-6871.93	-47.49	-19.36	
3	100.00		min	-8055.51	-1878.87	-8499.49	-63.70	-109.95	
3	100.00	der	max	-3723.94	1142.47	-6871.86	-47.49	-19.36	
3	100.00		min	-8055.50	-1878.82	-8499.41	-63.70	-109.95	
3	104.00	izq	max	-6714.41	3517.58	-3282.15	-98.69	-12.11	
3	104.00		min	-8831.62	878.98	-4059.50	-96.20	-74.56	
3	104.00	der	max	-6714.42	3517.59	-3282.07	-98.69	-12.11	
3	104.00		min	-8831.61	878.98	-4059.40	-96.20	-74.56	
3	108.00	izq	max	-7038.63	4166.55	-1312.46	-107.76	-5.20	
3	108.00		min	-8625.77	491.12	-1623.31	-90.66	-78.57	
3	108.00	der	max	-7036.10	4162.64	-1315.56	-107.70	-5.23	
3	108.00		min	-8629.75	487.90	-1627.14	-90.67	-78.66	
3	112.00	izq	max	-10281.25	3886.83	385.70	-84.69	-15.59	
3	112.00		min	-5554.79	-1096.18	311.84	-23.08	-42.57	
3	112.00	der	max	-10140.20	3886.85	385.69	-83.91	-14.81	
3	112.00		min	-5696.41	-1096.19	311.84	-23.87	-43.36	
4	116.00	izq	max	-7387.57	4250.81	-1389.55	-112.00	-7.37	
4	116.00		min	-8102.64	362.94	-1718.65	-84.28	-75.35	
4	116.00	der	max	-7388.45	4254.55	-1386.61	-112.04	-7.32	
4	116.00		min	-8098.82	366.02	-1715.02	-84.27	-75.26	
4	120.00	izq	max	-4450.42	2140.72	-4748.40	-63.70	-11.01	
4	120.00		min	-6583.54	-765.45	-5873.03	-58.97	-77.81	
4	120.00	der	max	-4450.42	2140.72	-4748.47	-63.70	-11.01	
4	120.00		min	-6583.54	-765.43	-5873.11	-58.97	-77.81	
4	124.00	izq	max	-3579.55	1679.30	-6590.97	-50.86	-9.52	
4	124.00		min	-7562.47	-1397.95	-8151.99	-63.09	-97.50	
4	124.00	der	max	-3579.56	1679.29	-6591.04	-50.86	-9.52	
4	124.00		min	-7562.48	-1397.97	-8152.07	-63.09	-97.50	
4	128.00	izq	max	-3671.82	1131.12	-7941.33	-46.86	-19.02	
4	128.00		min	-7675.24	-2091.01	-9822.17	-58.00	-109.47	
4	128.00	der	max	-3671.81	1131.13	-7941.35	-46.86	-19.02	
4	128.00		min	-7675.23	-2091.02	-9822.20	-58.00	-109.47	
4	132.00	izq	max	-3751.08	755.91	-8479.85	-44.29	-25.68	
4	132.00		min	-7772.12	-2388.82	-10488.20	-56.30	-115.10	
4	132.00	der	max	-3751.10	755.89	-8479.85	-44.29	-25.68	
4	132.00		min	-7772.12	-2388.83	-10488.20	-56.30	-115.10	
4	136.00	izq	max	-3816.32	805.67	-8136.78	-45.39	-25.56	
4	136.00		min	-7851.83	-2294.19	-10063.90	-57.94	-114.41	
4	136.00	der	max	-3816.30	805.69	-8136.74	-45.39	-25.56	
4	136.00		min	-7851.84	-2294.17	-10063.90	-57.94	-114.41	
4	140.00	izq	max	-3866.54	1144.64	-6867.09	-48.93	-20.76	
4	140.00		min	-7913.24	-1663.81	-8493.51	-64.21	-105.16	
4	140.00	der	max	-3866.56	1144.66	-6867.03	-48.93	-20.76	
4	140.00		min	-7913.24	-1663.79	-8493.43	-64.21	-105.16	
4	144.00	izq	max	-4885.16	1583.36	-4906.48	-63.05	-24.08	
4	144.00		min	-6963.92	-833.43	-6068.54	-62.16	-82.68	
4	144.00	der	max	-4885.16	1583.37	-4906.41	-63.05	-24.08	
4	144.00		min	-6963.95	-833.44	-6068.45	-62.16	-82.68	
4	148.00	izq	max	-7181.84	3936.94	-1307.65	-107.13	-10.22	
4	148.00		min	-8483.96	495.57	-1617.35	-89.28	-77.09	
4	148.00	der	max	-7180.97	3933.02	-1310.75	-107.08	-10.27	
4	148.00		min	-8487.87	492.33	-1621.19	-89.29	-77.17	
4	152.00	izq	max	-10140.71	3391.40	385.91	-80.40	-20.11	
4	152.00		min	-5697.17	-1058.26	312.01	-24.14	-42.96	
4	152.00	der	max	-9998.21	3391.33	385.84	-79.61	-19.31	
4	152.00		min	-5838.85	-1058.32	311.96	-24.93	-43.74	
5	156.00	izq	max	-7497.04	3818.67	-1392.60	-109.22	-15.22	
5	156.00		min	-7993.96	376.03	-1722.42	-83.31	-74.05	
5	156.00	der	max	-7497.63	3822.40	-1389.65	-109.26	-15.17	
5	156.00		min	-7990.13	379.11	-1718.78	-83.30	-73.97	
5	160.00	izq	max	-4592.94	1759.94	-4748.57	-61.71	-18.39	
5	160.00		min	-6441.18	-751.15	-5873.24	-57.67	-76.16	
5	160.00	der	max	-4592.96	1759.96	-4748.64	-61.72	-18.39	
5	160.00		min	-6441.18	-751.12	-5873.32	-57.67	-76.16	
5	164.00	izq	max	-3722.05	1353.26	-6590.72	-49.36	-16.05	
5	164.00		min	-7420.10	-1392.40	-8151.68	-61.71	-95.99	
5	164.00	der	max	-3722.05	1353.26	-6590.79	-49.36	-16.05	
5	164.00		min	-7420.10	-1392.42	-8151.77	-61.71	-95.99	
5	168.00	izq	max	-3814.32	871.74	-7941.34	-45.96	-24.50	
5	168.00		min	-7532.89	-2106.47	-9822.18	-56.44	-108.29	
5	168.00	der	max	-3814.31	871.72	-7941.36	-45.96	-24.50	
5	168.00		min	-7532.89	-2106.49	-9822.21	-56.44	-108.29	
5	172.00	izq	max	-3893.57	563.49	-8479.95	-43.99	-30.12	
5	172.00		min	-7629.77	-2425.21	-10488.40	-54.55	-114.24	
5	172.00	der	max	-3893.63	563.48	-8479.95	-43.99	-30.12	
5	172.00		min	-7629.78	-2425.23	-10488.40	-54.55	-114.24	
5	176.00	izq	max	-3958.85	680.57	-8136.96	-45.69	-28.94	
5	176.00		min	-7709.50	-2354.68	-10064.10	-55.98	-113.94	
5	176.00	der	max	-3958.83	680.59	-8136.92	-45.69	-28.94	
5	176.00		min	-7709.49	-2354.65	-10064.10	-55.98	-113.94	
5	180.00	izq	max	-4009.07	1086.61	-6867.43	-49.84	-23.09	
5	180.00		min	-7770.90	-1747.86	-8493.93	-62.03	-105.06	

5	180.00	der	max	-4009.06	1086.63	-6867.36	-49.84	-23.09	
5	180.00		min	-7770.91	-1747.83	-8493.84	-62.03	-105.06	
5	184.00	izq	max	-6999.53	3530.66	-3276.86	-101.66	-14.75	
5	184.00		min	-8546.93	764.72	-4052.95	-92.33	-73.50	
5	184.00	der	max	-6999.48	3530.68	-3276.78	-101.66	-14.75	
5	184.00		min	-8546.92	764.71	-4052.86	-92.33	-73.50	
5	188.00	izq	max	-7324.19	3939.62	-1307.91	-108.58	-11.60	
5	188.00		min	-8341.43	437.14	-1617.68	-87.34	-76.57	
5	188.00	der	max	-7323.25	3935.70	-1311.01	-108.53	-11.65	
5	188.00		min	-8345.11	433.91	-1621.51	-87.34	-76.66	
5	192.00	izq	max	-9998.30	3382.55	385.86	-79.54	-19.41	
5	192.00		min	-5839.22	-1060.52	311.97	-24.92	-43.77	
5	192.00	der	max	-9855.66	3382.49	385.79	-78.75	-18.62	
5	192.00		min	-5981.63	-1060.56	311.92	-25.71	-44.56	
6	196.00	izq	max	-7605.76	3821.50	-1392.49	-110.33	-16.26	
6	196.00		min	-7885.46	418.68	-1722.29	-82.61	-72.30	
6	196.00	der	max	-7606.45	3825.22	-1389.56	-110.37	-16.21	
6	196.00		min	-7881.18	421.75	-1718.67	-82.59	-72.21	
6	200.00	izq	max	-4979.17	1760.61	-4749.32	-65.58	-22.25	
6	200.00		min	-6056.25	-652.54	-5874.16	-54.71	-70.77	
6	200.00	der	max	-4979.17	1760.61	-4749.38	-65.58	-22.25	
6	200.00		min	-6056.26	-652.52	-5874.24	-54.71	-70.77	
6	204.00	izq	max	-3865.01	1424.48	-6591.68	-51.43	-16.36	
6	204.00		min	-7278.30	-1311.48	-8152.86	-61.02	-93.30	
6	204.00	der	max	-3865.03	1424.46	-6591.74	-51.43	-16.36	
6	204.00		min	-7278.30	-1311.51	-8152.95	-61.02	-93.30	
6	208.00	izq	max	-3957.26	1016.15	-7942.16	-48.69	-23.67	
6	208.00		min	-7391.02	-2043.70	-9823.19	-55.58	-105.89	
6	208.00	der	max	-3957.27	1016.13	-7942.21	-48.69	-23.67	
6	208.00		min	-7391.03	-2043.73	-9823.25	-55.58	-105.89	
6	212.00	izq	max	-4036.50	780.81	-8480.73	-47.37	-28.15	
6	212.00		min	-7487.87	-2380.62	-10489.30	-53.53	-112.13	
6	212.00	der	max	-4036.49	780.82	-8480.73	-47.37	-28.15	
6	212.00		min	-7487.88	-2380.62	-10489.30	-53.53	-112.13	
6	216.00	izq	max	-4101.67	970.70	-8137.71	-49.72	-25.83	
6	216.00	der	max	-4101.66	970.70	-8137.69	-49.72	-25.83	
6	216.00		min	-7567.54	-2325.50	-10065.00	-54.82	-112.06	
6	220.00	izq	max	-4151.88	1449.29	-6867.95	-54.52	-18.84	
6	220.00		min	-7628.89	-1733.71	-8494.57	-60.74	-103.41	
6	220.00	der	max	-4151.88	1449.29	-6867.88	-54.52	-18.84	
6	220.00		min	-7628.90	-1733.69	-8494.48	-60.74	-103.41	
6	224.00	izq	max	-5170.44	2020.67	-4907.03	-69.83	-20.09	
6	224.00		min	-6679.39	-936.56	-6069.22	-58.39	-81.45	
6	224.00	der	max	-7142.40	3965.01	-3277.16	-106.99	-9.39	
6	224.00		min	-8404.81	764.71	-4053.34	-90.91	-72.08	
6	228.00	izq	max	-7466.98	4431.54	-1308.21	-114.42	-5.33	
6	228.00		min	-8199.25	437.09	-1618.05	-85.91	-75.15	
6	228.00	der	max	-7465.55	4427.64	-1311.31	-114.37	-5.38	
6	228.00		min	-8203.06	433.86	-1621.88	-85.92	-75.24	
6	232.00	izq	max	-9855.87	3918.78	385.76	-82.56	-12.89	
6	232.00		min	-5981.50	-1046.60	311.89	-25.81	-44.41	
6	232.00	der	max	-9711.67	3918.69	385.70	-81.76	-12.09	
6	232.00		min	-6124.55	-1046.63	311.84	-26.60	-45.21	
7	236.00	izq	max	-7712.97	4082.65	-1392.29	-113.75	-13.25	
7	236.00		min	-7776.84	419.56	-1722.04	-81.53	-71.20	
7	236.00	der	max	-7715.65	4086.33	-1389.36	-113.81	-13.22	
7	236.00		min	-7772.46	422.62	-1718.42	-81.52	-71.11	
7	240.00	izq	max	-5087.32	1735.76	-4748.15	-66.44	-23.72	
7	240.00		min	-5946.65	-651.71	-5872.71	-53.62	-69.66	
7	240.00	der	max	-5087.34	1735.64	-4748.23	-66.44	-23.72	
7	240.00		min	-5946.67	-651.65	-5872.81	-53.62	-69.66	
7	244.00	izq	max	-4006.86	1404.03	-6590.74	-52.66	-18.10	
7	244.00		min	-7135.11	-1601.38	-8151.71	-56.99	-96.41	
7	244.00	der	max	-4006.87	1404.03	-6590.81	-52.66	-18.10	
7	244.00		min	-7135.15	-1601.41	-8151.79	-56.99	-96.41	
7	248.00	izq	max	-4099.13	1000.26	-7941.04	-49.96	-25.34	
7	248.00		min	-7247.91	-2626.09	-9821.81	-48.93	-113.57	
7	248.00	der	max	-4099.13	1000.24	-7941.08	-49.96	-25.34	
7	248.00		min	-7247.84	-2626.13	-9821.86	-48.92	-113.57	
7	252.00	izq	max	-4178.41	769.67	-8479.81	-48.69	-29.74	
7	252.00		min	-7344.74	-3256.01	-10488.20	-44.24	-124.39	
7	252.00	der	max	-4178.43	769.67	-8479.81	-48.69	-29.74	
7	252.00		min	-7344.80	-3256.03	-10488.20	-44.24	-124.39	
7	256.00	izq	max	-4243.66	964.04	-8136.95	-51.08	-27.35	
7	256.00		min	-7424.52	-3493.79	-10064.10	-42.91	-128.91	
7	256.00	der	max	-4243.64	964.05	-8136.93	-51.08	-27.35	
7	256.00		min	-7424.52	-3493.78	-10064.10	-42.91	-128.91	
7	260.00	izq	max	-4293.90	1447.07	-6867.38	-55.92	-20.30	
7	260.00		min	-7485.95	-3194.85	-8493.87	-46.20	-124.85	
7	260.00	der	max	-4293.92	1447.09	-6867.31	-55.92	-20.30	
7	260.00		min	-7485.94	-3194.83	-8493.77	-46.20	-124.85	
7	264.00	izq	max	-5312.49	2022.89	-4906.70	-71.27	-21.47	
7	264.00		min	-6536.58	-2690.50	-6068.82	-41.23	-107.46	
7	264.00	der	max	-7284.52	3967.31	-3276.75	-108.43	-10.77	
7	264.00		min	-8262.10	-989.16	-4052.83	-73.75	-98.10	
7	268.00	izq	max	-7609.02	4434.16	-1308.06	-115.86	-6.71	
7	268.00		min	-8056.52	-1605.53	-1617.87	-66.16	-105.69	
7	268.00	der	max	-7607.67	4430.25	-1311.16	-115.81	-6.76	
7	268.00		min	-8062.38	-1608.76	-1621.70	-66.19	-105.79	
7	272.00	izq	max	-9713.06	3909.44	385.90	-81.70	-12.20	
7	272.00		min	-6125.73	-3364.20	312.00	-10.16	-69.97	
7	272.00	der	max	-9569.02	3909.37	385.84	-80.90	-11.40	
7	272.00		min	-6281.80	-3364.18	311.95	-11.03	-70.84	
8	276.00	izq	max	-7821.63	4084.10	-1722.16	-114.85	-14.32	
8	276.00		min	-7679.75	43.16	-1392.38	-77.18	-76.12	
8	276.00	der	max	-7824.32	4087.82	-1718.52	-114.91	-14.28	
8	276.00		min	-7663.33	46.35	-1389.44	-77.05	-75.91	
8	280.00	izq	max	-7115.46	4813.88	-3162.85	-114.33	4.16	*
8	280.00		min	-7517.07	1007.42	-3911.95	-84.21	-59.41	
8	280.00	der	max	-5196.73	2921.98	-4748.74	-78.18	-6.25	
8	280.00		min	-5838.19	-647.88	-5873.44	-52.57	-68.52	
8	284.00	izq	max	-4149.64	3683.96	-6590.90	-74.54	16.14	*
8	284.00		min	-6993.11	-1599.76	-8151.90	-55.58	-94.96	
8	284.00	der	max	-4149.74	3683.96	-6590.96	-74.54	16.14	*
8	284.00		min	-6993.12	-1599.79	-8151.98	-55.58	-94.96	
8	288.00	izq	max	-4241.98	3933.23	-7941.54	-77.70	19.12	*
8	288.00	der	max	-4241.90	3933.22	-7941.59	-77.70	19.12	*
8	288.00		min	-7105.84	-2628.61	-9822.50	-47.48	-112.19	
8	292.00	izq	max	-4321.12	3915.66	-8480.36	-78.33	18.05	*
8	292.00		min	-7202.67	-3262.30	-10488.90	-42.77	-123.07	
8	292.00	der	max	-4321.16	3915.66	-8480.36	-78.33	18.05	*
8	292.00		min	-7202.72	-3262.31	-10488.90	-42.77	-123.07	
8	296.00	izq	max	-4386.35	3879.10	-8137.73	-78.66	16.83	*
8	296.00		min	-7282.39	-3504.19	-10065.10	-41.39	-127.65	
8	296.00	der	max	-4386.31	3879.12	-8137.69	-78.66	16.83	*
8	296.00		min	-7282.35	-3504.18	-10065.00	-41.39	-127.65	
8	300.00	izq	max	-4436.53	3691.20	-6868.41	-77.47	13.39	*
8	300.00		min	-7343.72	-3209.39	-8495.13	-44.65	-123.65	
8	300.00	der	max	-4436.55	3691.21	-6868.34	-77.47	13.39	*
8	300.00		min	-7343.76	-3209.37	-8495.05	-44.65	-123.65	
8	304.00	izq	max	-7427.19	5099.92	-3277.54	-120.01	5.52	*
8	304.00		min	-8119.89	-1007.89	-4053.80	-72.16	-96.97	
8	304.00	der	max	-7427.21	5099.94	-3277.45	-120.01	5.52	*
8	304.00		min	-8119.88	-1007.90	-4053.70	-72.16	-96.97	
8	308.00	izq	max	-7751.79	4412.73	-1308.78	-117.10	-8.48	
8	308.00		min	-7914.32	-1969.13	-1618.75	-61.48	-109.95	
8	308.00	der	max	-7750.34	4408.82	-1311.87	-117.05	-8.52	
8	308.00		min	-7931.51	-1972.43	-1622.58	-61.62	-110.17	
8	312.00	izq	max	-9571.02	3871.96	385.81	-80.64	-11.81	
8	312.00		min	-6283.31	-5556.06	311.93	4.51	*	-94.27
8	312.00	der	max	-9427.08	3871.90	385.75	-79.84	-11.01	
8	312.00		min	-6425.56	-5556.13	311.88	3.72	*	-95.06
9	316.00	izq	max	-7930.95	4066.91	-1721.70	-115.79	-15.68	
9	316.00		min	-7572.47	-1986.57	-1392.01	-57.91	-106.81	
9	316.00	der	max	-7933.54	4070.63	-1718.05	-115.85	-15.65	
9	316.00		min	-7554.68	-1983.43	-1389.06	-57.76	-106.58	
9	320.00	izq	max	-5305.47	2906.05	-4748.84	-79.12	-7.59	
9	320.00		min	-5729.11	-2425.33	-5873.57	-35.54	-95.24	
9	320.00	der	max	-5305.50	2905.91	-4748.93	-79.12	-7.59	
9	320.00		min	-5729.13	-2425.21	-5873.67	-35.54	-95.24	
9	324.00	izq	max	-4439.99	3674.49	-6591.28	-77.36	13.09	*
9	324.00		min	-6702.84	-3054.16	-8152.37	-39.63	-114.81	

9	324.00	der	max	-4439.98	3674.49	-6591.35	-77.36	13.09	*
9	324.00		min	-6702.79	-3054.22	-8152.46	-39.63	-114.81	
9	328.00	izq	max	-4384.36	3930.71	-7941.63	-79.10	17.66	*
9	328.00		min	-6963.37	-3758.93	-9822.54	-35.92	-128.45	
9	328.00	der	max	-4384.35	3930.71	-7941.68	-79.10	17.66	*
9	328.00		min	-6963.42	-3758.98	-9822.60	-35.92	-128.45	
9	332.00	izq	max	-4463.60	3920.02	-8480.38	-79.80	16.70	*
9	332.00		min	-7060.29	-4068.84	-10488.90	-34.11	-134.26	
9	332.00	der	max	-4463.63	3920.04	-8480.38	-79.80	16.70	*
9	332.00		min	-7060.31	-4068.87	-10488.90	-34.11	-134.27	
9	336.00	izq	max	-4528.82	3890.74	-8137.53	-80.19	15.59	*
9	336.00		min	-7139.99	-4031.49	-10064.80	-35.24	-134.48	
9	336.00	der	max	-4528.85	3890.73	-8137.51	-80.19	15.59	*
9	336.00		min	-7139.97	-4031.50	-10064.80	-35.24	-134.48	
9	340.00	izq	max	-4579.08	3710.10	-6867.88	-79.07	12.26	*
9	340.00		min	-7201.36	-3457.62	-8494.49	-41.00	-126.11	
9	340.00	der	max	-4579.04	3710.10	-6867.81	-79.07	12.26	*
9	340.00		min	-7201.35	-3457.58	-8494.40	-41.00	-126.11	
9	344.00	izq	max	-7569.64	5127.38	-3277.16	-121.68	4.53	*
9	344.00		min	-7977.44	-978.56	-4053.34	-71.00	-95.08	
9	344.00	der	max	-7569.65	5127.54	-3277.08	-121.69	4.53	*
9	344.00		min	-7977.47	-978.71	-4053.23	-71.00	-95.09	
9	348.00	izq	max	-7894.22	4712.54	-1617.90	-121.21	-5.21	
9	348.00		min	-7771.93	-1927.59	-1308.09	-60.43	-107.88	
9	348.00	der	max	-7890.88	4708.64	-1621.73	-121.14	-5.24	
9	348.00		min	-7789.02	-1930.89	-1311.19	-60.57	-108.10	
9	352.00	izq	max	-9426.55	4435.84	385.77	-83.84	-4.98	
9	352.00		min	-6425.52	-5494.71	311.89	3.28	-94.40	*
9	352.00	der	max	-9284.03	4435.77	385.70	-83.05	-4.19	
9	352.00		min	-6567.82	-5494.79	311.84	2.49	-95.19	*
10	356.00	izq	max	-8488.76	4585.06	-1722.02	-126.01	-13.15	
10	356.00		min	-7013.90	-1949.10	-1392.27	-52.66	-100.63	
10	356.00	der	max	-8492.18	4588.77	-1718.37	-126.08	-13.13	
10	356.00		min	-6995.94	-1945.95	-1389.32	-52.51	-100.41	
10	360.00	izq	max	-5414.34	3336.15	-4748.89	-84.07	-1.95	
10	360.00		min	-5620.19	-2399.09	-5873.63	-34.68	-93.74	
10	360.00	der	max	-5414.36	3336.12	-4748.96	-84.07	-1.95	
10	360.00		min	-5620.16	-2399.01	-5873.71	-34.68	-93.74	
10	364.00	izq	max	-4548.76	4027.51	-6591.30	-81.61	17.53	*
10	364.00		min	-6593.76	-3034.40	-8152.40	-38.72	-113.41	
10	364.00	der	max	-4548.75	4027.53	-6591.37	-81.61	17.53	*
10	364.00		min	-6593.77	-3034.46	-8152.48	-38.72	-113.42	
10	368.00	izq	max	-4526.67	4205.75	-7941.61	-82.99	20.54	*
10	368.00		min	-6820.84	-3744.82	-9822.52	-34.62	-126.80	
10	368.00	der	max	-4526.69	4205.73	-7941.66	-82.99	20.54	*
10	368.00		min	-6820.83	-3744.87	-9822.58	-34.62	-126.80	
10	372.00	izq	max	-4605.94	4118.07	-8480.20	-83.00	18.37	*
10	372.00		min	-6917.69	-4061.32	-10488.70	-32.75	-132.72	
10	372.00	der	max	-4605.94	4118.07	-8480.20	-83.00	18.37	*
10	372.00		min	-6917.70	-4061.35	-10488.70	-32.75	-132.72	
10	376.00	izq	max	-4671.15	4011.26	-8137.11	-82.69	16.05	*
10	376.00		min	-6997.41	-4029.84	-10064.30	-33.83	-133.03	
10	376.00	der	max	-4671.16	4011.29	-8137.07	-82.69	16.05	*
10	376.00		min	-6997.40	-4029.81	-10064.30	-33.83	-133.03	
10	380.00	izq	max	-4721.39	3753.18	-6867.37	-80.88	11.51	*
10	380.00		min	-7058.79	-3462.03	-8493.85	-39.54	-124.76	
10	380.00	der	max	-4721.42	3753.18	-6867.30	-80.88	11.51	*
10	380.00		min	-7058.81	-3461.99	-8493.77	-39.54	-124.75	
10	384.00	izq	max	-5740.00	3147.57	-4906.69	-85.63	-8.15	
10	384.00		min	-6109.42	-2689.62	-6068.80	-36.97	-103.18	
10	384.00	der	max	-5739.99	3147.67	-4906.62	-85.63	-8.15	
10	384.00		min	-6109.41	-2689.73	-6068.71	-36.97	-103.18	
10	388.00	izq	max	-8036.60	4675.67	-1617.57	-122.30	-7.21	
10	388.00		min	-7629.34	-2018.99	-1307.82	-58.18	-107.88	
10	388.00	der	max	-8033.05	4671.76	-1621.40	-122.23	-7.24	
10	388.00		min	-7647.09	-2022.28	-1310.92	-58.33	-108.11	
10	392.00	izq	max	-9283.98	4377.09	385.61	-82.63	-4.82	
10	392.00		min	-6568.31	-5648.50	311.77	3.58	-96.84	*
10	392.00	der	max	-9141.46	4377.03	385.55	-81.84	-4.02	
10	392.00		min	-6710.28	-5648.56	311.72	2.79	-97.63	*
11	396.00	izq	max	-8486.55	4567.15	-1723.19	-125.83	-13.41	
11	396.00		min	-7015.89	-2084.39	-1393.21	-51.46	-102.77	
11	396.00	der	max	-8489.80	4570.82	-1719.56	-125.90	-13.38	
11	396.00		min	-6997.71	-2081.26	-1390.28	-51.31	-102.54	
11	400.00	izq	max	-5862.92	3348.84	-5874.28	-88.67	-6.23	
11	400.00		min	-5173.13	-2506.11	-4749.42	-29.25	-90.94	
11	400.00	der	max	-5862.89	3348.85	-5874.37	-88.67	-6.23	
11	400.00		min	-5173.13	-2506.10	-4749.49	-29.25	-90.94	
11	404.00	izq	max	-4658.33	4048.36	-6592.05	-82.89	16.76	*
11	404.00		min	-6485.62	-3091.69	-8153.32	-37.13	-113.23	
11	404.00	der	max	-4658.34	4048.37	-6592.11	-82.89	16.76	*
11	404.00		min	-6485.63	-3091.74	-8153.40	-37.13	-113.23	
11	408.00	izq	max	-4669.73	4241.50	-7942.54	-84.74	19.67	*
11	408.00		min	-6679.11	-3759.42	-9823.67	-33.07	-125.61	
11	408.00	der	max	-4669.74	4241.51	-7942.57	-84.74	19.67	*
11	408.00		min	-6679.09	-3759.43	-9823.70	-33.07	-125.61	
11	412.00	izq	max	-4748.93	4170.38	-8481.13	-84.89	17.76	*
11	412.00		min	-6775.88	-4034.93	-10489.80	-31.57	-130.89	
11	412.00	der	max	-4748.95	4170.40	-8481.13	-84.89	17.76	*
11	412.00		min	-6775.91	-4034.96	-10489.80	-31.57	-130.89	
11	416.00	izq	max	-4814.09	4079.70	-8138.30	-84.73	15.69	*
11	416.00		min	-6855.53	-3961.54	-10065.80	-33.02	-130.54	
11	416.00	der	max	-4814.04	4079.68	-8138.28	-84.73	15.69	*
11	416.00		min	-6855.50	-3961.56	-10065.80	-33.02	-130.54	
11	420.00	izq	max	-4864.21	3837.49	-6868.70	-83.06	11.40	*
11	420.00		min	-6916.83	-3352.26	-8495.50	-39.10	-121.62	
11	420.00	der	max	-4864.24	3837.49	-6868.63	-83.06	11.40	*
11	420.00		min	-6916.86	-3352.23	-8495.42	-39.10	-121.62	
11	424.00	izq	max	-7854.81	5214.66	-4054.26	-125.32	3.04	*
11	424.00		min	-7692.82	-858.98	-3277.91	-69.22	-90.37	
11	424.00	der	max	-7854.80	5214.68	-4054.15	-125.32	3.04	*
11	424.00		min	-7692.76	-858.98	-3277.82	-69.22	-90.37	
11	428.00	izq	max	-8179.46	4861.12	-1618.54	-125.39	-5.74	
11	428.00		min	-7487.21	-1890.72	-1308.61	-57.91	-104.45	
11	428.00	der	max	-8175.65	4857.22	-1622.37	-125.32	-5.76	
11	428.00		min	-7505.20	-1894.04	-1311.71	-58.06	-104.69	
11	432.00	izq	max	-9141.90	4592.91	385.68	-83.37	-1.72	
11	432.00		min	-6711.27	-5493.37	311.83	1.69	-95.97	*
11	432.00	der	max	-8999.05	4592.85	385.62	-82.58	-0.93	
11	432.00		min	-6852.46	-5493.42	311.78	0.90	-96.76	*
12	436.00	izq	max	-8809.51	4710.61	-1721.86	-130.34	-14.39	
12	436.00		min	-6692.85	-2023.07	-1392.14	-48.78	-98.58	
12	436.00	der	max	-8813.52	4714.29	-1718.24	-130.42	-14.37	
12	436.00		min	-6675.03	-2019.94	-1389.21	-48.63	-98.35	
12	440.00	izq	max	-6179.74	3397.37	-5873.55	-92.27	-8.64	
12	440.00		min	-4854.50	-2520.88	-4748.83	-25.93	-87.99	
12	440.00	der	max	-6179.75	3397.36	-5873.63	-92.27	-8.64	
12	440.00		min	-4854.56	-2520.86	-4748.89	-25.94	-87.99	
12	444.00	izq	max	-4994.51	3971.61	-6591.16	-85.57	12.20	*
12	444.00		min	-6148.11	-3150.76	-8152.22	-33.22	-110.78	
12	444.00	der	max	-4994.48	3971.61	-6591.23	-85.57	12.20	*
12	444.00		min	-6148.12	-3150.81	-8152.30	-33.22	-110.78	
12	448.00	izq	max	-4864.22	4054.57	-7941.59	-85.01	14.80	*
12	448.00		min	-6483.38	-3877.34	-9822.50	-30.06	-125.50	
12	448.00	der	max	-4864.21	4054.57	-7941.63	-85.01	14.80	*
12	448.00		min	-6483.33	-3877.37	-9822.54	-30.06	-125.50	
12	452.00	izq	max	-4890.86	3875.09	-8480.26	-83.67	11.72	*
12	452.00		min	-6632.84	-4213.52	-10488.70	-28.54	-132.25	
12	452.00	der	max	-4890.97	3875.09	-8480.27	-83.67	11.72	*
12	452.00		min	-6632.88	-4213.55	-10488.80	-28.54	-132.25	
12	456.00	izq	max	-4956.17	3676.14	-8137.26	-82.53	7.96	*
12	456.00		min	-6712.57	-4200.51	-10064.50	-29.45	-132.85	
12	456.00	der	max	-4956.10	3676.14	-8137.22	-82.53	7.96	*
12	456.00		min	-6712.58	-4200.49	-10064.50	-29.45	-132.85	
12	460.00	izq	max	-5006.34	3325.39	-6867.55	-79.89	1.97	*
12	460.00		min	-6773.98	-3652.10	-8494.08	-34.98	-124.88	
12	460.00	der	max	-5006.31	3325.38	-6867.48	-79.89	1.97	*
12	460.00		min	-6773.91	-3652.08	-8493.99	-34.98	-124.88	
12	464.00	izq	max	-7996.76	4547.93	-4053.13	-120.76	-8.81	
12	464.00		min	-7549.88	-1174.07	-3277.00	-64.97	-93.87	
12	464.00	der	max	-7996.82	4547.94	-4053.02	-120.76	-8.81	
12	464.00		min	-7549.95	-1174.08	-3276.91	-64.97	-93.87	
12	468.00	izq	max	-8321.48	4106.38	-1617.80	-120.05	-18.97	
12	468.00		min	-7344.48	-2293.92	-1308.01	-52.87	-109.34	

12	468.00	der	max	-8318.45	4102.46	-1621.63	-119.98	-19.00
12	468.00		min	-7362.65	-2297.25	-1311.11	-53.02	-109.57
12	472.00	izq	max	-8999.80	3726.79	385.76	-76.44	-10.18
12	472.00		min	-6853.51	-5949.01	311.89	4.13 *	-101.63
12	472.00	der	max	-8859.38	3726.75	385.70	-75.66	-9.40
12	472.00		min	-6996.04	-5949.08	311.84	3.34 *	-102.42
13	476.00	izq	max	-8669.72	4280.42	-1722.50	-125.09	-19.72
13	476.00		min	-6836.44	-2294.03	-1392.66	-47.79	-104.26
13	476.00	der	max	-8670.62	4284.14	-1718.86	-125.13	-19.68
13	476.00		min	-6817.14	-2290.87	-1389.71	-47.62	-104.01
13	480.00	izq	max	-6050.61	3347.53	-5888.53	-90.53	-8.13
13	480.00		min	-5008.62	-2582.93	-4760.94	-26.92	-90.50
13	480.00	der	max	-6050.70	3347.55	-5888.62	-90.53	-8.13
13	480.00		min	-5008.72	-2582.90	-4761.01	-26.92	-90.50
13	484.00	izq	max	-5177.43	4170.65	-6606.19	-89.18	13.48 *
13	484.00		min	-5989.41	-2848.21	-8170.81	-34.35	-104.46
13	484.00	der	max	-5177.39	4170.64	-6606.27	-89.18	13.48 *
13	484.00		min	-5989.32	-2848.27	-8170.91	-34.35	-104.46
13	488.00	izq	max	-5100.33	4496.48	-7957.93	-91.33	19.35 *
13	488.00		min	-6270.07	-3200.94	-9842.70	-33.99	-112.78
13	488.00	der	max	-5100.38	4496.46	-7957.97	-91.33	19.35 *
13	488.00		min	-6270.18	-3200.97	-9842.75	-33.99	-112.78
13	492.00	izq	max	-5067.45	4568.80	-8496.04	-91.65	20.81 *
13	492.00		min	-6477.82	-3157.80	-10508.30	-36.46	-114.19
13	492.00	der	max	-5067.42	4568.81	-8496.04	-91.65	20.81 *
13	492.00		min	-6477.79	-3157.80	-10508.30	-36.45	-114.19
13	496.00	izq	max	-5107.54	4620.85	-8151.09	-92.52	21.22 *
13	496.00		min	-6581.12	-2717.21	-10081.60	-41.44	-108.33
13	496.00	der	max	-5107.52	4620.86	-8151.07	-92.52	21.22 *
13	496.00		min	-6581.10	-2717.20	-10081.60	-41.44	-108.32
13	500.00	izq	max	-5157.08	4522.92	-6877.40	-92.14	19.20 *
13	500.00		min	-6641.67	-1777.09	-8506.26	-50.48	-94.22
13	500.00	der	max	-5157.13	4522.92	-6877.33	-92.14	19.19 *
13	500.00		min	-6641.71	-1777.05	-8506.17	-50.48	-94.22
13	504.00	izq	max	-6830.64	4994.86	-5406.00	-113.11	9.84 *
13	504.00		min	-6262.46	-337.18	-4370.80	-59.60	-67.90
13	504.00	der	max	-6830.58	4994.87	-5405.89	-113.11	9.84 *
13	504.00		min	-6262.41	-337.19	-4370.72	-59.60	-67.90
13	508.00	izq	max	-7122.75	4893.74	-2955.59	-115.12	5.34 *
13	508.00		min	-6104.69	-1160.93	-2389.63	-50.63	-79.21
13	508.00	der	max	-7117.92	4890.88	-2958.40	-115.05	5.34 *
13	508.00		min	-6121.38	-1163.40	-2391.90	-50.78	-79.42
13	512.00	izq	max	-7447.93	4636.54	-1142.22	-74.27	8.16 *
13	512.00		min	-5842.52	-4738.50	-923.50	1.16 *	-83.08
13	512.00	der	max	-7332.34	4636.86	-1141.85	-73.63	8.80 *
13	512.00		min	-5955.63	-4738.27	-923.20	0.53 *	-83.71
14	515.20	izq	max	-7098.14	3796.16	-3184.95	-105.03	-11.59
14	515.20		min	-5759.94	-2948.67	-2575.07	-31.15	-103.73
14	515.20	der	max	-7113.72	3799.62	-3181.51	-105.22	-11.69
14	515.20		min	-5747.66	-2945.78	-2572.29	-31.06	-103.57
14	518.40	izq	max	-5623.32	4328.93	-4326.21	-95.06	11.50 *
14	518.40		min	-4845.49	-1997.97	-3497.79	-30.53	-79.72
14	518.40	der	max	-5623.35	4328.89	-4326.30	-95.06	11.50 *
14	518.40		min	-4845.66	-1998.00	-3497.86	-30.54	-79.72
14	521.60	izq	max	-4775.33	3840.55	-5097.24	-82.20	12.34 *
14	521.60		min	-5747.88	-2554.88	-6304.48	-34.56	-97.45
14	521.60	der	max	-4775.27	3840.52	-5097.31	-82.20	12.34 *
14	521.60		min	-5747.77	-2554.94	-6304.56	-34.56	-97.45
14	524.80	izq	max	-4786.34	3259.69	-6483.04	-77.10	3.14 *
14	524.80		min	-5880.40	-3624.20	-8018.50	-26.30	-115.51
14	524.80	der	max	-4786.43	3259.64	-6483.09	-77.10	3.14 *
14	524.80		min	-5880.40	-3624.28	-8018.56	-26.30	-115.51
14	528.00	izq	max	-4818.97	2437.15	-7418.48	-70.05	-10.06
14	528.00		min	-5978.49	-4527.30	-9175.48	-19.18	-130.62
14	528.00	der	max	-4818.92	2437.10	-7418.50	-70.05	-10.06
14	528.00		min	-5978.45	-4527.35	-9175.52	-19.18	-130.62
14	531.20	izq	max	-4871.15	1408.13	-7867.99	-61.34	-26.68
14	531.20		min	-6042.29	-5219.85	-9731.46	-13.60	-142.09
14	531.20	der	max	-4871.21	1408.05	-7867.99	-61.34	-26.68
14	531.20		min	-6042.39	-5219.89	-9731.46	-13.61	-142.10
14	534.40	izq	max	-4875.06	330.34	-7673.91	-51.71	-43.58
14	534.40		min	-6047.10	-5506.84	-9491.41	-11.08	-146.63
14	534.40	der	max	-4875.03	330.29	-7673.88	-51.71	-43.58
14	534.40		min	-6047.14	-5506.85	-9491.38	-11.08	-146.63
14	537.60	izq	max	-4796.00	-603.87	-6645.17	-42.54	-57.41
14	537.60		min	-5950.54	-5153.21	-8219.03	-13.29	-140.13
14	537.60	der	max	-4795.95	-603.96	-6645.12	-42.54	-57.41
14	537.60		min	-5950.40	-5153.22	-8218.96	-13.28	-140.13
14	540.80	izq	max	-4691.45	-1545.06	-4931.80	-33.06	-71.09
14	540.80		min	-5822.68	-4343.34	-6099.85	-19.27	-126.18
14	540.80	der	max	-4702.99	-1501.80	-4888.67	-33.56	-70.53
14	540.80		min	-5792.96	-4290.40	-6046.52	-19.45	-125.06
14	544.00	izq	max	-74.26	0.11	0.00	-0000	-0000
14	544.00		min	-40.06	-0.02	0.00	-0000	-0000

1.7 Tablero. Estado Límite Último. Análisis Longitudinal

ENVOLVENTE DE ESFUERZOS ESTADO LIMITE ULTIMO

Factores de Ponderación Considerados:

- Coeficiente de minoracion acc. perm. favorables : 0.90
- Coeficiente de mayoración de acc. desfavorables : 1.50

1. Momentos Flectores Envolventes y Esfuerzos Concomitantes

Vano	x (m)		Mfmax Mfmin (tm)	Qcon Qcon (t)	Mtcon Mtcon (tm)
1	0.00	der	0.44	1253.86	1917.34
			-0.27	1039.61	-1840.55
1	3.20	izq	5117.95	1425.54	-176.14
			1339.92	354.52	171.17
		der	5118.14	1331.07	84.31
			1340.03	450.03	170.06
1	6.40	izq	8873.60	1017.06	60.77
			2606.37	341.39	170.07
		der	8873.78	1017.05	54.83
			2606.52	341.38	168.33
1	9.60	izq	11622.90	703.10	31.30
			3525.01	232.76	168.33
		der	11623.00	703.09	28.80
			3525.09	232.75	167.57
1	12.80	izq	13366.90	389.07	5.27
			4096.12	124.11	167.57
		der	13366.90	389.06	2.23
			4096.18	124.12	166.64
1	16.00	izq	14104.90	71.85	-26.32
			4319.54	15.50	166.64
		der	14104.80	71.84	-38.78
			4319.68	15.50	162.82
1	19.20	izq	13837.20	-242.09	-79.09
			4195.49	-93.12	162.82
		der	13837.10	-242.09	-82.05
			4195.50	-93.13	161.92
1	22.40	izq	12563.60	-556.12	-58.52
			3723.61	-201.77	161.92
		der	12563.50	-556.15	-66.93
			3723.69	-201.79	159.43
1	25.60	izq	10831.70	-558.24	-41.31
			2356.90	-622.29	157.34
		der	10831.60	-558.24	-41.31
			2356.85	-622.29	157.34
1	28.80	izq	9019.40	-174.87	84.09
			-254.31	-1378.51	-6.40
		der	9019.42	-101.78	77.63
			-254.50	-1450.65	-6.66
1	32.00	izq	8586.13	-208.35	98.08
			-5534.83	-1833.15	-27.11
		der	8586.19	508.54	86.74
			-5534.77	2115.71	112.01
2	4.00	izq	10253.10	336.78	86.74
			1903.60	1630.12	-29.75
		der	10253.30	408.47	76.96
			1903.82	1559.15	-31.51
2	8.00	izq	13257.90	774.95	1.54
			5827.32	693.22	-37.03
		der	13258.00	774.95	-0.89
			5827.43	693.22	-38.10
2	12.00	izq	16531.30	650.71	31.96
			7372.54	288.38	-39.58

		der	16531.40	650.69	23.32			der	7230.10	488.58	31.99
			7372.56	288.37	-43.43				1262.70	924.30	13.11
2	16.00	izq	18359.00	262.40	32.59	4	8.00	izq	8887.28	346.72	30.68
			8254.49	152.57	-43.43				4532.40	704.07	14.42
		der	18359.10	262.39	16.25			der	8887.35	346.72	26.12
			8254.48	152.57	-50.78				4532.52	704.06	11.96
2	20.00	izq	18621.10	-136.59	37.25	4	12.00	izq	10722.10	394.16	27.84
			8557.95	-8.22	-41.25				6176.97	294.48	10.24
		der	18621.10	-136.60	34.09			der	10722.20	394.14	22.10
			8557.93	-8.23	-42.70				6177.03	294.47	6.93
2	24.00	izq	17593.50	-448.71	-14.80	4	16.00	izq	11846.10	167.83	22.10
			8211.63	-155.05	37.56				7083.29	158.68	6.93
		der	17593.40	-448.72	-30.47			der	11846.20	167.83	13.72
			8211.64	-155.05	30.25				7083.33	158.68	1.92
2	28.00	izq	15021.00	-837.02	-21.22	4	20.00	izq	12064.80	-58.49	13.72
			7319.89	-290.85	29.83				7446.45	22.89	1.92
		der	15020.80	-837.04	-26.52			der	12064.80	-58.50	9.47
			7319.86	-290.86	27.24				7446.45	22.88	-0.70
2	32.00	izq	11070.90	-883.41	8.18	4	24.00	izq	11651.00	-216.40	9.52
			5695.25	-780.01	37.97				7133.54	-146.44	-1.32
		der	11070.80	-883.41	0.36			der	11651.00	-216.41	3.22
			5695.15	-780.01	33.95				7133.51	-146.45	-5.17
2	36.00	izq	7459.12	-522.97	-41.67	4	28.00	izq	10332.90	-442.70	3.22
			1569.73	-1652.45	-63.65				6276.28	-282.23	-5.17
		der	7459.02	-594.31	-42.94			der	10332.90	-442.71	-4.07
			1569.43	-1580.30	-66.12				6276.23	-282.23	-9.60
2	40.00	izq	5228.82	-628.39	44.84	4	32.00	izq	8316.64	-364.93	-19.76
			-6097.48	-2188.00	-171.45				4671.81	-720.28	-6.30
		der	5228.84	587.91	62.17			der	8316.57	-364.93	-24.08
			-6097.62	1372.07	-38.61				4671.69	-720.29	-8.73
3	4.00	izq	7270.76	547.38	10.11	4	36.00	izq	6585.08	-500.74	-24.08
			-1278.18	954.57	13.46				1329.60	-948.70	-23.93
		der	7270.85	481.95	4.97			der	6584.98	-560.24	-27.90
			-1278.00	1020.57	12.59				1329.44	-888.66	-23.36
3	8.00	izq	8927.13	346.16	4.37	4	40.00	izq	4436.56	-614.03	-19.86
			2351.78	794.24	13.19				-3172.87	-1310.46	-31.61
		der	8927.18	346.15	2.74			der	4436.56	617.45	5.96
			2351.90	794.23	12.76				-3172.88	1270.91	14.21
3	12.00	izq	10745.40	392.34	4.90	5	4.00	izq	6562.06	549.45	32.06
			4370.61	385.97	10.60				1277.85	881.25	-1.28
		der	10745.40	392.34	-2.70			der	6562.16	507.17	27.24
			4370.67	385.96	7.51				1278.00	924.07	-0.78
3	16.00	izq	11862.10	166.04	-2.70	5	8.00	izq	8294.26	365.27	28.49
			5642.84	250.18	7.51				4546.60	703.87	-2.02
		der	11862.10	166.02	-8.89			der	8294.34	365.25	24.73
			5642.89	250.17	4.57				4546.72	703.85	-5.19
3	20.00	izq	12073.50	-60.32	-8.89	5	12.00	izq	10226.40	419.54	25.42
			6372.05	114.37	4.57				6166.34	287.50	-5.89
		der	12073.50	-60.32	-15.39			der	10226.50	419.54	20.47
			6372.07	114.37	1.13				6166.39	287.50	-9.46
3	24.00	izq	11650.80	-217.85	-15.37	5	16.00	izq	11452.10	193.21	20.10
			6426.76	-55.27	0.59				7044.85	151.71	-9.10
		der	11650.80	-217.87	-23.60			der	11452.10	193.21	9.91
			6426.75	-55.28	-3.94				7044.85	151.71	-15.37
3	28.00	izq	10326.70	-444.18	-23.60	5	20.00	izq	11772.70	-32.84	4.25
			5934.04	-191.26	-6.46				7380.07	14.83	0.97
		der	10326.70	-444.19	-27.25			der	11772.70	-32.86	2.27
			5934.01	-191.26	-8.56				7380.06	14.81	-0.28
3	32.00	izq	8302.01	-271.40	-6.26	5	24.00	izq	11461.30	-190.89	2.36
			4693.52	-725.28	17.19				7034.46	-154.42	-0.91
		der	8301.94	-271.40	-12.12			der	11461.30	-190.90	-5.97
			4693.40	-725.28	13.87				7034.44	-154.42	-6.03
3	36.00	izq	6947.95	-406.31	-9.52	5	28.00	izq	10245.40	-417.17	-5.97
			1333.64	-953.20	5.75				6145.43	-290.18	-6.03
		der	6947.88	-471.79	-12.68			der	10245.40	-417.17	-11.26
			1333.50	-887.23	5.50				6145.38	-290.18	-9.20
3	40.00	izq	5208.53	-512.32	35.07	5	32.00	izq	8319.36	-364.23	-9.29
			-3219.26	-1322.44	-42.48				4517.80	-705.23	-11.17
		der	5208.56	593.03	45.43			der	8319.29	-364.24	-12.25
			-3219.26	1277.38	4.72				4517.68	-705.24	-12.77
4	4.00	izq	7229.98	535.40	36.99	5	36.00	izq	6590.75	-500.03	-12.25
			1262.54	876.95	13.15				1244.04	-931.56	-12.77

		der	6590.65	-553.60	-16.16			der	10784.90	-388.38	-15.04
			1243.89	-877.47	-13.26				3974.51	-405.74	6.37
5	40.00	izq	4428.03	-618.91	-33.33	7	32.00	izq	8973.47	-342.56	-13.64
			-3173.16	-1287.76	3.72				1885.54	-813.64	4.98
		der	4428.02	622.91	-0.55			der	8973.40	-342.58	-16.81
			-3173.15	1286.18	44.64				1885.40	-813.66	4.31
6	4.00	izq	6570.25	544.51	35.55	7	36.00	izq	7331.61	-478.36	-16.81
			1344.28	906.91	20.26				-1821.64	-1039.96	4.31
		der	6570.36	506.76	31.88			der	7331.52	-520.09	-24.13
			1344.44	945.20	19.54				-1821.80	-997.67	6.38
6	8.00	izq	8300.09	370.98	31.88	7	40.00	izq	5216.22	-609.11	-57.04
			4697.89	716.81	2.24				-6631.11	-1366.68	39.28
		der	8300.16	370.97	28.93			der	5216.20	525.90	-32.45
			4698.02	716.80	0.57				-6631.00	2105.98	158.29
6	12.00	izq	10336.40	446.86	14.56	8	4.00	izq	6962.47	426.09	-0.05
			6292.25	280.50	4.43				778.53	1564.67	109.65
		der	10336.50	446.85	7.30			der	6962.54	397.37	-3.54
			6292.29	280.50	0.01				778.86	1594.13	107.43
6	16.00	izq	11671.30	220.53	7.30	8	8.00	izq	10040.80	816.87	-334.21
			7142.70	144.71	0.01				4701.66	666.71	314.72
		der	11671.30	220.52	3.15			der	10040.80	816.87	-337.72
			7142.72	144.70	-2.53				4701.87	666.71	313.07
6	20.00	izq	12100.80	62.47	2.26	8	12.00	izq	13722.50	774.26	0.89
			7449.93	8.90	-1.54				5859.32	169.65	21.39
		der	12100.80	62.46	-3.26			der	13722.60	774.24	-8.83
			7449.93	-24.50	-7.16				5859.36	169.64	17.24
6	24.00	izq	11898.10	-163.83	-4.25	8	16.00	izq	16044.20	386.00	-0.87
			7080.44	-160.27	-6.17				6266.35	33.86	17.24
		der	11898.00	-163.83	-11.65			der	16044.20	386.00	-9.57
			7080.41	-160.27	-12.15				6266.37	33.85	13.85
6	28.00	izq	10790.20	-390.13	-12.64	8	20.00	izq	16800.80	61.07	21.84
			6167.83	-296.05	-11.16				6129.96	-135.37	13.25
		der	10790.10	-390.15	-19.30			der	16800.80	61.05	13.22
			6167.76	-296.06	-16.52				6129.95	-135.37	10.10
6	32.00	izq	8971.01	-342.85	-18.61	8	24.00	izq	16259.20	-332.33	44.60
			4518.01	-705.46	-17.20				5316.83	-271.17	10.10
		der	8970.95	-342.85	-21.78			der	16259.20	-332.34	35.74
			4517.90	-705.46	-18.80				5316.78	-271.17	7.21
6	36.00	izq	7328.01	-478.64	-21.78	8	28.00	izq	14152.50	-720.55	43.69
			1243.51	-931.78	-18.80				3960.67	-406.95	7.21
		der	7327.93	-526.29	-23.54			der	14152.40	-720.57	36.36
			1243.36	-883.60	-18.73				3960.61	-406.96	5.15
6	40.00	izq	5230.56	-603.53	-51.54	8	32.00	izq	10680.80	-841.99	69.03
			-3153.53	-1264.47	9.28				1858.35	-814.75	3.87
		der	5230.52	520.86	-31.47			der	10680.80	-842.00	61.30
			-3153.50	1297.87	47.50				1858.22	-814.76	2.52
7	4.00	izq	6959.88	431.58	-2.51	8	36.00	izq	7308.65	-479.28	-19.48
			1343.97	911.63	18.35				-2365.97	-1653.81	-3.56
		der	6959.93	398.32	-4.54			der	7308.55	-515.07	-23.05
			1344.13	945.39	17.55				-2366.24	-1617.22	-2.94
7	8.00	izq	8258.97	314.38	-301.52	8	40.00	izq	5169.26	-616.01	-58.89
			4696.06	665.96	299.14				-9918.63	-2171.32	-118.03
		der	8258.91	314.37	-304.46			der	5169.25	533.67	-34.27
			4696.27	665.95	297.47				-9918.66	2160.82	4.75
7	12.00	izq	10303.10	448.56	17.04	9	4.00	izq	6942.88	423.43	4.17
			5854.10	170.83	22.83				-2266.45	1642.33	-33.93
		der	10303.20	448.54	9.58			der	6942.95	399.24	0.97
			5854.15	170.82	18.59				-2266.21	1667.29	-33.43
7	16.00	izq	11644.50	222.27	9.58	9	8.00	izq	10021.50	819.12	-314.41
			6265.83	35.06	18.59				2035.93	777.26	243.50
		der	11644.60	222.28	3.53			der	10021.40	819.11	-321.50
			6265.84	35.06	15.33				2036.22	777.25	242.06
7	20.00	izq	12081.50	64.27	3.63	9	12.00	izq	13709.00	782.94	-4.03
			6134.13	-134.14	14.69				3680.20	284.29	-44.03
		der	12081.50	64.24	-0.60			der	13709.10	782.92	-11.47
			6134.10	-134.16	12.54				3680.21	284.28	-46.02
7	24.00	izq	11885.80	-162.08	-0.60	9	16.00	izq	16040.60	388.63	1.43
			5325.85	-269.96	12.54				4570.27	154.62	-50.89
		der	11885.80	-162.09	-11.26			der	16040.60	388.61	-6.78
			5325.84	-269.96	7.77				4570.27	154.62	-53.23
7	28.00	izq	10785.00	-388.38	-11.26	9	20.00	izq	16807.40	63.63	24.63
			3974.57	-405.74	7.77				4916.92	-14.66	-53.82

		der	16807.50	63.63	15.46			der	14265.20	758.62	-12.53
			4916.89	-14.67	-56.51				3604.63	296.38	-44.14
9	24.00	izq	16276.40	-329.69	46.84	11	16.00	izq	16498.70	364.24	0.21
			4519.70	-167.26	6.95				4544.19	166.70	-48.29
		der	16276.30	-329.71	35.37			der	16498.80	364.22	-8.82
			4519.68	-167.27	3.76				4544.20	166.70	-50.78
9	28.00	izq	14180.00	-717.94	43.41	11	20.00	izq	17171.10	39.73	22.49
			3579.06	-303.06	3.76				4935.95	-2.93	-51.36
		der	14179.90	-717.96	38.44			der	17171.10	39.72	10.51
			3579.02	-303.06	2.51				4935.91	-2.93	-54.80
9	32.00	izq	10710.40	-789.08	379.81	11	24.00	izq	16544.40	-353.61	41.89
			1901.64	-761.09	-307.48				4586.55	-155.53	3.31
		der	10710.50	-789.09	372.35			der	16544.30	-353.62	36.00
			1901.29	-761.10	-308.97				4586.51	-155.54	1.68
9	36.00	izq	7743.86	-375.80	-13.69	11	28.00	izq	14352.10	-741.86	44.61
			-2304.83	-1650.88	-8.89				3692.85	-291.32	1.68
		der	7743.79	-405.70	-16.80			der	14352.00	-741.89	34.58
			-2305.09	-1620.22	-8.18				3692.80	-291.33	-0.90
9	40.00	izq	5999.49	-512.22	-11.06	11	32.00	izq	10790.50	-728.97	70.37
			-9826.68	-2162.48	-116.20				2058.58	-833.40	-5.32
		der	5999.48	518.40	14.03			der	10790.50	-728.98	66.53
			-9826.72	2151.73	0.57				2058.45	-833.41	-6.09
10	4.00	izq	7708.37	378.63	33.87	11	36.00	izq	7909.41	-364.67	-11.94
			-2209.39	1662.89	-19.45				-2276.02	-1673.95	-11.75
		der	7708.44	377.68	29.38			der	7909.35	-382.73	-19.82
			-2209.14	1664.62	-18.42				-2276.31	-1655.13	-9.06
10	8.00	izq	10657.40	790.81	-298.57	11	40.00	izq	6170.46	-519.18	-55.44
			2076.32	775.02	224.35				-9855.47	-2173.80	-121.32
		der	10657.40	790.79	-301.60			der	6170.46	508.00	-26.28
			2076.53	775.01	222.89				-9855.48	2124.26	-5.15
10	12.00	izq	14240.00	753.90	-3.40	12	4.00	izq	7858.90	342.46	14.85
			3703.42	282.74	-43.92				-2340.91	1666.89	-5.28
		der	14240.10	753.89	-16.15			der	7858.95	354.86	11.89
			3703.42	282.74	-47.24				-2340.65	1655.24	-4.61
10	16.00	izq	16455.10	359.58	-3.40	12	8.00	izq	10739.20	714.24	-65.56
			4587.87	153.07	-51.78				1883.63	819.34	-10.65
		der	16455.10	359.57	-9.27			der	10739.20	714.22	-75.13
			4587.87	153.06	-53.42				1883.75	819.32	-12.33
10	20.00	izq	17106.70	34.71	22.15	12	12.00	izq	14156.80	720.56	-23.73
			4927.31	-16.30	-54.06				3546.22	283.88	-32.35
		der	17106.80	34.69	13.45			der	14156.90	720.55	-28.68
			4927.28	-16.30	-56.56				3546.25	283.88	-33.59
10	24.00	izq	16459.50	-358.73	44.83	12	16.00	izq	16239.70	332.69	-7.25
			4523.88	-168.88	4.58				4434.17	147.66	-46.12
		der	16459.50	-358.74	32.73			der	16239.80	332.67	-15.71
			4523.86	-168.88	1.25				4434.17	147.64	-48.43
10	28.00	izq	14247.40	-746.93	40.95	12	20.00	izq	16764.40	2.73	19.10
			3576.93	-304.65	1.25				4771.80	-16.45	-52.56
		der	14247.30	-746.93	35.82			der	16764.40	2.71	6.85
			3576.89	-304.66	-0.04				4771.77	-16.46	-56.04
10	32.00	izq	10665.00	-792.06	376.06	12	24.00	izq	15989.70	-390.60	38.23
			1890.57	-788.63	-308.90				4368.32	-169.24	-0.27
		der	10665.10	-792.08	370.67			der	15989.60	-390.61	32.66
			1890.29	-788.64	-309.85				4368.29	-169.24	-1.79
10	36.00	izq	7699.42	-378.24	-12.67	12	28.00	izq	13649.20	-778.89	41.58
			-2437.70	-1678.93	-11.07				3419.86	-305.02	-1.79
		der	7699.34	-402.22	-17.42			der	13649.10	-778.91	31.89
			-2437.96	-1654.17	-10.91				3419.81	-305.03	-4.22
10	40.00	izq	5925.47	-526.82	-57.24	12	32.00	izq	10005.60	-760.35	67.54
			-10052.10	-2184.55	-120.07				1664.95	-852.72	-8.49
		der	5925.47	526.00	-27.46			der	10005.50	-760.36	64.05
			-10052.10	2156.67	0.13				1664.81	-852.72	-9.07
11	4.00	izq	7687.44	386.54	33.81	12	36.00	izq	7028.54	-395.22	-11.92
			-2410.02	1673.43	-18.43				-2785.46	-1694.41	-15.05
		der	7687.48	385.50	30.18			der	7028.45	-407.33	-16.47
			-2409.75	1675.24	-18.54				-2785.75	-1681.51	-12.61
11	8.00	izq	10672.40	746.05	-47.07	12	40.00	izq	5160.49	-548.96	-8.58
			1913.41	838.21	-24.75				-10428.00	-2188.32	-128.38
		der	10672.50	746.04	-52.54			der	5160.53	642.08	17.32
			1913.52	838.20	-25.73				-10428.10	2178.43	-10.26
11	12.00	izq	14265.10	758.63	-4.73	13	4.00	izq	7362.00	470.30	17.32
			3604.59	296.39	-42.17				-2695.50	1720.68	-10.49

		der	7362.07	476.83	14.55
			-2695.22	1714.99	-9.94
13	8.00	izq	10694.10	834.26	-59.44
			1798.41	881.12	-16.08
		der	10694.20	834.24	-64.88
			1798.55	881.11	-16.99
13	12.00	izq	14409.20	790.99	-29.81
			3891.31	395.19	-20.69
		der	14409.40	790.98	-39.95
			3891.35	395.19	-23.43
13	16.00	izq	16798.50	409.22	-20.13
			5200.38	252.70	-33.64
		der	16798.50	409.21	-26.64
			5200.40	252.69	-35.66
13	20.00	izq	17640.10	87.46	12.48
			5964.03	116.56	-43.50
		der	17640.10	87.44	3.38
			5964.03	116.56	-46.58
13	24.00	izq	17179.00	-312.10	36.92
			6056.29	-59.62	-4.27
		der	17179.00	-312.11	25.03
			6056.28	-59.62	-8.46
13	28.00	izq	15151.80	-700.50	34.66
			5546.16	-195.42	-8.46
		der	15151.70	-700.52	26.26
			5546.12	-195.43	-11.54
13	32.00	izq	11791.70	-681.56	61.85
			4259.76	-743.52	-15.75
		der	11791.60	-681.56	55.52
			4259.63	-743.53	-18.04
13	36.00	izq	9217.07	-307.19	14.34
			118.69	-1608.81	-23.57
		der	9217.02	-313.41	8.37
			118.41	-1601.87	-23.44
13	40.00	izq	7674.33	-473.38	-73.58
			-7235.40	-2099.08	-142.49
		der	7674.27	330.15	12.40
			-7235.50	1793.87	-38.98
14	3.20	izq	8495.92	192.73	-18.33
			-2080.65	1442.36	-38.98
		der	8495.93	194.91	7.71
			-2080.50	1441.14	-37.95
14	6.40	izq	10222.00	570.13	-42.70
			816.38	695.60	-42.39
		der	10222.10	570.13	-47.17
			816.44	695.59	-42.75
14	9.60	izq	11981.30	568.86	-21.85
			2428.59	274.25	-44.53
		der	11981.30	568.84	-27.15
			2428.61	274.25	-45.61
14	12.80	izq	13295.90	261.77	-12.13
			3131.98	158.71	-49.50
		der	13296.00	261.76	-17.91
			3131.97	158.72	-50.86
14	16.00	izq	13607.20	-61.10	-43.24
			3485.37	55.66	-54.49
		der	13607.20	-61.13	-46.66
			3485.36	55.64	-55.37
14	19.20	izq	12914.10	-375.07	-70.19
			3489.63	-52.97	-55.37
		der	12914.00	-375.08	-81.36
			3489.59	-52.97	-58.39
14	22.40	izq	11215.20	-689.05	-104.90
			3146.28	-161.60	-58.39
		der	11215.10	-689.07	-105.05
			3146.25	-161.60	-58.43
14	25.60	izq	8510.48	-1003.05	-128.58
			2455.35	-270.23	-58.43
		der	8510.29	-1003.07	-134.38
			2455.27	-270.24	-60.10
14	28.80	izq	4800.65	-1317.00	-157.91
			1416.93	-378.85	-60.10
		der	4800.44	-1318.16	97.53
			1416.82	-374.32	-60.77
14	32.00	izq	0.15	-1584.15	-738.06
			-0.06	-595.79	576.86

2. Momentos Torsores Envolventes y Esfuerzos Concomitantes

Vano	x		Mtmax Mtmin	Mfcon Mfcon	Qcon Qcon
	(m)		(tm)	(tm)	(t)
1	0.00	der	1917.34	0.44	1253.86
			-1843.06	-0.27	1041.25
1	3.20	izq	1721.30	3506.27	953.33
			-1647.02	2981.71	832.35
		der	1717.42	3507.14	1049.20
			-1645.88	2981.08	737.55
1	6.40	izq	1518.63	6458.25	796.44
			-1447.09	5050.74	557.22
		der	1514.30	6459.35	796.43
			-1450.46	5049.84	557.20
1	9.60	izq	1315.55	8600.20	543.72
			-1251.70	6541.12	376.91
		der	1313.74	7054.80	493.47
			-1253.15	8086.69	427.13
1	12.80	izq	1114.95	8341.41	313.13
			-1054.35	9045.14	174.37
		der	1113.05	8341.72	313.14
			-1056.40	9044.93	174.37
1	16.00	izq	930.72	8583.54	128.73
			-874.54	8727.30	-82.44
		der	923.13	8584.36	128.73
			-882.65	9438.23	-37.96
1	19.20	izq	747.90	8724.50	-41.13
			-707.42	8929.17	-280.24
		der	746.03	8724.63	-41.14
			-709.32	8928.97	-280.24
1	22.40	izq	759.15	8321.77	-210.86
			-722.44	7643.65	-522.75
		der	753.58	8322.24	-210.88
			-727.57	7643.11	-522.77
1	25.60	izq	928.81	7375.71	-380.75
			-902.80	5582.77	-765.05
		der	928.82	7375.69	-380.75
			-902.81	5582.70	-765.06
1	28.80	izq	1112.12	6104.50	-591.94
			-1087.21	2965.07	-1048.73
		der	1108.33	6105.16	-496.36
			-1088.82	2964.21	-1143.32
1	32.00	izq	1304.52	4198.91	-705.29
			-1285.00	-1150.36	-1443.89
		der	1527.47	2400.05	1469.22
			-1456.96	381.57	1232.29
2	4.00	izq	1290.99	7457.21	1094.09
			-1220.48	4735.92	971.68
		der	1280.63	7458.52	1166.07
			-1220.62	5227.97	848.46
2	8.00	izq	1044.46	11448.30	850.82
			-984.52	8128.39	623.74
		der	1042.34	11448.70	850.81
			-986.00	8128.31	623.73
2	12.00	izq	799.78	14230.50	537.54
			-743.44	10183.00	400.97
		der	792.41	13517.40	586.45
			-748.76	10182.70	400.96
2	16.00	izq	541.96	15231.80	269.64
			-498.31	11336.20	174.68
		der	528.50	13925.40	181.77

			-508.48	12642.60	262.53			-221.24	5567.38	381.79
2	20.00	izq	278.08	14204.10	-44.48	4	12.00	izq	249.25	10392.60	406.74
			-258.07	13063.20	-54.24				-221.24	6823.05	245.98
		der	275.66	14204.10	-44.49			der	243.68	10392.80	406.73
			-260.27	13063.20	-54.25				-224.90	6822.97	245.97
2	24.00	izq	325.45	13559.40	-273.90	4	16.00	izq	243.68	11567.10	180.42
			-310.15	12192.00	-374.28				-224.90	7535.26	110.19
		der	313.38	13559.60	-273.90			der	235.79	11012.40	231.46
			-321.27	12738.90	-322.29				-230.23	7535.12	110.18
2	28.00	izq	563.81	12009.40	-500.16	4	20.00	izq	235.79	11485.60	5.14
			-571.69	10814.20	-639.07				-230.23	7704.27	-25.61
		der	559.58	12009.50	-500.17			der	232.15	10051.50	5.24
			-575.52	10813.90	-639.08				-233.34	9138.33	-25.72
2	32.00	izq	802.16	9557.83	-722.96	4	24.00	izq	232.15	9800.87	-130.55
			-818.10	7625.55	-952.38				-233.34	8582.80	-252.04
		der	797.05	7193.01	-704.90			der	227.70	7421.46	-129.34
			-825.13	9990.08	-970.45				-238.89	11514.40	-202.37
2	36.00	izq	1033.14	3969.42	-929.56	4	28.00	izq	227.70	6632.66	-265.12
			-1061.33	5523.21	-1285.64				-238.89	10252.50	-428.65
		der	1048.96	3969.64	-857.68			der	223.02	6632.78	-265.12
			-1080.06	5522.62	-1356.69				-246.12	10252.30	-428.66
2	40.00	izq	1285.35	70.27	-1118.38	4	32.00	izq	223.02	5300.90	-400.90
			-1316.44	-586.69	-1731.93				-246.12	8085.26	-654.96
		der	374.82	-112.31	1133.99			der	220.27	5300.95	-400.90
			-333.57	-1060.53	835.49				-250.32	8085.03	-654.96
3	4.00	izq	374.82	3811.95	847.71	4	36.00	izq	220.27	3425.57	-536.71
			-333.57	1914.53	663.72				-250.32	5012.22	-881.30
		der	387.04	3812.43	913.68			der	218.02	2890.34	-510.34
			-350.50	2460.17	564.48				-251.52	5011.95	-940.66
3	8.00	izq	387.04	7014.62	687.35	4	40.00	izq	218.02	528.64	-682.12
			-350.50	4446.59	428.69				-251.52	715.30	-1226.96
		der	385.75	7014.80	687.33			der	254.04	737.05	1210.89
			-351.32	4446.59	428.68				-217.50	548.14	676.42
3	12.00	izq	385.75	9311.26	461.04	5	4.00	izq	254.04	4969.43	924.58
			-351.32	5889.57	292.90				-217.50	2887.06	504.64
		der	379.19	8950.72	491.87			der	251.69	4969.74	871.15
			-355.48	5889.36	292.90				-219.88	3422.26	525.18
3	16.00	izq	379.19	10465.40	265.57	5	8.00	izq	251.69	8001.68	644.83
			-355.48	6789.31	157.12				-219.88	5251.38	389.39
		der	373.75	10141.00	286.28			der	247.37	8001.93	644.81
			-359.02	6789.16	157.11				-222.71	5251.33	389.38
3	20.00	izq	373.75	10833.50	59.94	5	12.00	izq	247.37	10128.30	418.52
			-359.02	7146.02	21.30				-222.71	6537.10	253.61
		der	368.29	9403.84	59.63			der	242.10	10128.50	418.53
			-363.25	8575.72	21.61				-226.11	6537.03	253.61
3	24.00	izq	368.29	9370.78	-76.16	5	16.00	izq	242.10	11350.00	192.20
			-363.25	8209.59	-204.69				-226.11	7279.91	117.81
		der	361.82	7037.44	-80.86			der	232.61	9544.15	152.45
			-369.38	11095.10	-148.94				-232.84	8532.57	208.45
3	28.00	izq	361.82	6442.42	-216.65	5	20.00	izq	232.61	9882.35	16.67
			-369.38	10046.70	-375.25				-232.84	8913.75	-17.85
		der	359.55	6442.52	-216.66			der	231.03	7516.08	16.33
			-372.93	10046.50	-375.25				-234.44	11280.00	-17.55
3	32.00	izq	359.55	5304.33	-352.45	5	24.00	izq	231.03	7309.78	-119.47
			-372.93	8092.91	-601.57				-234.44	10757.10	-243.90
		der	355.80	5304.51	-352.45			der	225.72	7309.94	-119.47
			-378.64	8092.53	-601.58				-242.35	11308.90	-193.06
3	36.00	izq	355.80	3623.09	-488.25	5	28.00	izq	225.72	6560.68	-255.24
			-378.64	5233.51	-827.91				-242.35	10084.40	-419.33
		der	355.61	3085.76	-456.29			der	222.34	6560.75	-255.24
			-382.19	5233.17	-893.22				-247.55	10084.20	-419.34
3	40.00	izq	355.61	940.53	-628.06	5	32.00	izq	222.34	5268.23	-391.03
			-382.19	1126.71	-1179.50				-247.55	7954.22	-645.65
		der	258.12	1596.41	1085.67			der	220.46	5268.25	-391.04
			-217.52	468.47	782.36				-250.38	7954.02	-645.66
4	4.00	izq	258.12	5327.51	799.38	5	36.00	izq	220.46	3432.51	-526.83
			-217.52	3231.09	610.58				-250.38	4918.71	-871.98
		der	253.59	5327.83	859.39			der	224.88	2898.27	-613.80
			-218.33	3768.88	517.57				-259.63	4918.39	-817.91
4	8.00	izq	253.59	8312.53	633.09	5	40.00	izq	224.88	122.29	-785.60
			-218.33	5567.44	381.79				-259.63	1112.43	-1104.25
		der	249.25	8312.76	633.09			der	359.66	738.62	1216.89

			-323.38	495.80	694.69				-656.23	6860.10	-693.84
6	4.00	izq	359.66	4994.81	930.60	7	36.00	izq	628.49	2130.58	-574.80
			-323.38	2907.70	522.92				-656.23	3632.28	-920.15
		der	364.42	4995.21	883.10			der	625.40	134.01	-1011.90
			-333.00	3441.91	537.57				-657.01	5093.55	-515.91
6	8.00	izq	364.42	8074.80	656.79	7	40.00	izq	625.40	-4447.11	-1298.17
			-333.00	5320.49	401.78				-657.01	2709.89	-687.67
		der	361.56	8075.04	656.78			der	1838.88	-709.13	1598.79
			-334.89	5320.44	401.78				-1799.27	-1027.49	1100.73
6	12.00	izq	361.56	10249.50	430.47	8	4.00	izq	1603.72	4867.83	1223.55
			-334.89	6655.92	265.99				-1564.11	2801.31	840.05
		der	354.38	9494.02	481.30			der	1596.73	4869.20	1188.02
			-339.57	6655.73	265.99				-1561.82	3335.18	842.89
6	16.00	izq	354.38	10966.60	254.98	8	8.00	izq	1361.88	8944.95	872.88
			-339.57	7448.09	130.20				-1327.06	6211.54	618.27
		der	350.48	10966.70	254.97			der	1358.74	8945.57	872.89
			-342.22	7447.99	130.19				-1329.22	6211.18	618.27
6	20.00	izq	350.48	11534.00	28.65	8	12.00	izq	1116.16	11815.90	559.59
			-342.22	7697.17	-5.60				-1086.64	8244.13	395.50
		der	344.87	7727.18	28.75			der	1107.79	11816.70	559.57
			-346.95	11504.00	-5.72				-1092.47	8243.41	395.48
6	24.00	izq	344.87	7570.65	-107.03	8	16.00	izq	857.35	13423.50	242.78
			-346.95	11028.60	-232.01				-842.04	9374.92	169.21
		der	339.53	7570.88	-107.03			der	850.28	12871.70	293.66
			-354.81	11580.70	-181.17				-847.11	9374.49	169.21
6	28.00	izq	339.53	6871.27	-242.81	8	20.00	izq	621.43	12967.90	-32.89
			-354.81	10403.50	-407.47				-618.74	9146.42	-66.81
		der	334.66	6871.46	-242.82			der	615.86	9168.26	-32.63
			-362.18	10403.20	-407.50				-624.51	12946.10	-67.10
6	32.00	izq	334.66	5628.67	-378.60	8	24.00	izq	847.56	9060.43	-252.37
			-362.18	8320.66	-633.81				-856.29	12518.30	-377.39
		der	332.68	5628.73	-378.61			der	842.63	9060.86	-252.38
			-365.12	8320.44	-633.81				-863.19	13070.90	-326.47
6	36.00	izq	332.68	3842.78	-514.39	8	28.00	izq	1093.04	7596.83	-478.63
			-365.12	5332.66	-860.12				-1113.61	11129.50	-643.24
		der	341.85	3842.82	-562.03			der	1089.12	7597.32	-478.64
			-376.45	5332.41	-811.98				-1119.38	11128.90	-643.26
6	40.00	izq	341.85	1274.13	-733.82	8	32.00	izq	1331.74	5231.27	-701.46
			-376.45	1550.42	-1098.30				-1362.00	7923.15	-956.62
		der	651.08	1218.97	1150.70			der	1327.96	5232.13	-701.46
			-619.28	937.94	640.50				-1367.75	7922.01	-956.62
7	4.00	izq	651.08	5210.24	864.42	8	36.00	izq	1562.70	2023.29	-926.06
			-619.28	3132.97	468.73				-1602.59	3511.73	-1271.73
		der	656.82	5210.72	822.82			der	1572.78	1488.45	-995.13
			-628.53	3666.98	477.41				-1614.35	3510.68	-1235.29
7	8.00	izq	656.82	8049.56	596.49	8	40.00	izq	1807.91	-2960.18	-1255.77
			-628.53	5305.15	341.61				-1849.48	-2112.15	-1610.46
		der	653.96	8049.88	596.47			der	2059.24	-2356.51	1646.33
			-630.41	5304.98	341.60				-2025.04	-2715.55	1159.60
7	12.00	izq	653.96	9983.29	370.13	9	4.00	izq	1824.03	3409.96	1271.14
			-630.41	6399.88	205.79				-1789.83	1348.33	898.95
		der	646.74	9228.49	420.96			der	1828.56	3411.14	1241.57
			-635.05	6399.46	205.79				-1796.02	1883.03	895.86
7	16.00	izq	646.74	10459.50	194.68	9	8.00	izq	1593.62	7701.15	926.42
			-635.05	6950.96	70.02				-1561.19	4971.35	671.24
		der	641.30	10459.90	194.69			der	1588.16	7702.40	926.42
			-638.66	6950.64	70.03				-1564.70	4970.35	671.24
7	20.00	izq	641.30	10786.00	-31.63	9	12.00	izq	1345.57	10786.90	613.11
			-638.66	6959.17	-65.76				-1322.11	7215.22	448.45
		der	637.84	6981.09	-31.65			der	1339.71	10787.70	613.09
			-641.40	10764.00	-65.78				-1326.02	7214.56	448.44
7	24.00	izq	637.84	6582.88	-167.45	9	16.00	izq	1089.30	12608.40	296.34
			-641.40	10048.30	-292.11				-1075.61	8557.79	222.21
		der	631.93	6583.44	-167.45			der	1083.07	9685.42	347.17
			-650.59	10600.70	-241.23				-1080.02	10928.00	222.28
7	28.00	izq	631.93	5642.18	-303.23	9	20.00	izq	873.19	9996.09	36.87
			-650.59	9183.32	-467.53				-870.26	10911.70	2.56
		der	629.95	5642.34	-303.23			der	868.17	8563.79	36.48
			-653.81	9183.00	-467.53				-876.66	12344.00	2.94
7	32.00	izq	629.95	4157.98	-439.01	9	24.00	izq	1099.64	8666.63	-199.56
			-653.81	6860.47	-693.83				-1108.58	12131.70	-323.64
		der	628.49	4158.12	-439.02			der	1093.54	8667.36	-199.57

			-1117.29	12684.20	-272.70				-1117.61	11142.80	216.47
9	28.00	izq	1343.98	7414.44	-425.84	11	20.00	izq	968.72	10184.80	30.24
			-1367.72	10957.70	-589.48				-968.61	11104.90	-3.01
		der	1341.39	7414.84	-425.85			der	962.01	8740.32	30.00
			-1371.56	10957.10	-589.50				-976.75	12549.40	-2.79
9	32.00	izq	1583.98	5260.35	-648.63	11	24.00	izq	1195.94	8815.83	-206.18
			-1614.16	7966.99	-902.82				-1211.27	12312.80	-329.51
		der	1580.26	5261.36	-648.64			der	1192.82	8816.20	-206.20
			-1619.82	7965.70	-902.83				-1215.77	12872.90	-277.98
9	36.00	izq	1815.12	2263.01	-873.29	11	28.00	izq	1443.24	7536.81	-432.46
			-1854.79	3769.48	-1218.01				-1466.19	11125.30	-594.76
		der	1820.46	1727.46	-936.48			der	1437.99	7537.76	-432.47
			-1861.30	3768.65	-1187.50				-1473.97	11124.20	-594.79
9	40.00	izq	2055.69	-2486.60	-1197.13	11	32.00	izq	1680.58	5356.73	-655.26
			-2096.51	-1663.14	-1562.69				-1716.57	8112.82	-908.11
		der	2129.05	-1862.33	1624.62			der	1678.66	5357.24	-655.27
			-2098.79	-2286.65	1150.61				-1719.50	8112.07	-908.12
10	4.00	izq	1893.73	3815.86	1249.54	11	36.00	izq	1914.10	2331.81	-879.94
			-1863.47	1740.25	890.04				-1955.01	3894.12	-1223.32
		der	1888.73	3817.02	1225.88			der	1899.47	340.17	-1293.38
			-1860.69	2275.50	880.92				-1944.54	5340.24	-842.94
10	8.00	izq	1653.59	8044.51	910.71	11	40.00	izq	2135.28	-5515.02	-1668.54
			-1625.65	5304.25	656.29				-2180.36	1500.48	-1103.58
		der	1650.74	8045.24	910.69			der	2069.97	-1713.45	1593.26
			-1627.51	5303.79	656.28				-2044.95	-2286.89	1149.57
10	12.00	izq	1408.15	11066.90	597.37	12	4.00	izq	1833.92	3841.34	1218.03
			-1384.91	7488.90	433.49				-1808.90	1737.66	888.87
		der	1398.26	10311.70	648.33			der	1812.01	3842.17	1206.22
			-1391.61	7487.73	433.48				-1787.79	2281.15	867.09
10	16.00	izq	1147.84	12273.50	331.56	12	8.00	izq	1576.16	7991.90	890.98
			-1141.19	8771.19	207.23				-1552.04	5255.40	642.38
		der	1143.86	9906.59	331.89			der	1569.03	7993.44	890.96
			-1144.72	11138.20	206.88				-1556.72	5254.12	642.37
10	20.00	izq	953.62	10156.20	21.65	12	12.00	izq	1326.45	10936.00	577.67
			-954.58	11060.90	-12.80				-1314.15	7383.41	419.60
		der	948.71	8716.65	21.62			der	1322.91	8584.26	582.62
			-960.46	12500.50	-12.81				-1317.01	9735.27	414.63
10	24.00	izq	1181.19	8759.47	-214.49	12	16.00	izq	1072.49	10283.20	265.85
			-1193.38	12224.50	-339.49				-1066.59	10943.40	188.38
		der	1174.75	8760.31	-214.50			der	1067.22	9730.10	317.43
			-1202.51	12779.20	-288.40				-1072.28	10942.80	188.37
10	28.00	izq	1425.16	7447.89	-440.73	12	20.00	izq	933.24	9922.84	7.57
			-1452.92	10990.20	-605.16				-938.44	10794.50	-30.91
		der	1422.49	7448.33	-440.74			der	926.47	8501.51	8.96
			-1456.88	10989.60	-605.16				-946.80	12215.90	-32.32
10	32.00	izq	1665.06	5234.51	-663.51	12	24.00	izq	1160.95	8491.08	-227.38
			-1699.45	7937.11	-918.45				-1181.89	11859.40	-359.20
		der	1662.42	5235.25	-663.52			der	1158.00	8491.44	-227.38
			-1703.47	7936.10	-918.46				-1186.20	12427.80	-306.88
10	36.00	izq	1897.49	2177.10	-888.18	12	28.00	izq	1408.42	7127.38	-453.63
			-1938.63	3676.98	-1233.66				-1436.62	10564.80	-623.65
		der	1891.68	1639.81	-945.54			der	1403.37	7128.31	-453.65
			-1936.35	3675.36	-1209.07				-1444.13	10563.60	-623.66
10	40.00	izq	2127.04	-2609.34	-1206.12	12	32.00	izq	1645.95	4862.67	-676.43
			-2171.71	-1841.23	-1584.17				-1686.72	7436.97	-936.97
		der	2111.35	-1992.91	1628.75			der	1644.27	4863.14	-676.43
			-2080.07	-2451.29	1164.89				-1689.32	7436.23	-936.98
11	4.00	izq	1875.61	3703.38	1253.55	12	36.00	izq	1880.00	1752.18	-901.16
			-1844.32	1633.94	904.22				-1925.14	3102.03	-1252.23
		der	1862.48	3704.56	1235.83			der	1853.84	1198.81	-947.39
			-1833.62	2171.33	888.91				-1900.37	3099.05	-1239.55
11	8.00	izq	1626.97	7971.75	920.67	12	40.00	izq	2090.05	-3060.59	-1208.12
			-1598.20	5231.97	664.27				-2136.57	-2542.68	-1614.81
		der	1622.88	7972.72	920.65			der	1851.23	-2600.19	1691.32
			-1600.88	5231.25	664.26				-1828.18	-2321.97	1201.69
11	12.00	izq	1380.26	11034.50	607.29	13	4.00	izq	1614.48	3347.78	1316.02
			-1358.26	7448.48	441.44				-1591.42	1911.94	940.91
		der	1374.21	11035.40	607.28			der	1583.38	3348.87	1310.19
			-1362.32	7447.81	441.43				-1561.53	1911.22	947.60
11	16.00	izq	1123.77	12833.00	290.49	13	8.00	izq	1346.87	7914.37	994.96
			-1111.89	8763.13	215.17				-1325.11	5207.64	722.89
		der	1117.85	9901.11	340.30			der	1342.84	7915.21	994.94

			-1327.76	5207.08	722.88
13	12.00	izq	1100.23	11274.00	681.61
			-1085.15	7658.65	500.08
		der	1093.28	8839.69	663.12
			-1091.53	10093.20	518.57
13	16.00	izq	842.81	10860.80	346.29
			-841.07	11717.10	292.27
		der	838.64	10308.70	399.09
			-845.60	11716.90	292.26
13	20.00	izq	753.14	10831.80	89.77
			-760.26	11989.60	73.55
		der	747.57	10832.20	89.76
			-766.45	11989.20	73.54
13	24.00	izq	984.88	10957.90	-237.48
			-1004.15	12231.20	-163.20
		der	978.17	9674.53	-149.94
			-1013.49	13514.50	-250.76
13	28.00	izq	1228.63	8619.97	-376.22
			-1263.95	11875.50	-567.58
		der	1223.85	8620.59	-376.23
			-1270.80	12592.80	-518.10
13	32.00	izq	1466.44	6664.62	-599.01
			-1513.39	9888.38	-831.40
		der	1462.87	6665.31	-599.02
			-1518.71	9887.44	-831.42
13	36.00	izq	1699.27	3863.00	-823.78
			-1755.20	5974.70	-1146.70
		der	1680.52	3354.80	-882.80
			-1740.57	5978.81	-1139.74
13	40.00	izq	1917.45	-646.77	-1143.56
			-1977.49	735.87	-1515.04
		der	1311.33	-2176.98	1383.55
			-1313.59	2532.54	850.66
14	3.20	izq	1114.81	1743.62	1083.06
			-1117.07	4903.95	641.79
		der	1094.08	1744.23	1081.62
			-1098.52	4903.53	644.24
14	6.40	izq	895.64	4469.35	797.87
			-901.29	6344.36	432.94
		der	893.69	4469.84	797.86
			-904.05	6344.02	432.94
14	9.60	izq	718.44	6635.24	555.56
			-728.81	7457.58	263.06
		der	715.50	6635.63	555.55
			-732.10	7457.28	263.05
14	12.80	izq	671.59	8025.58	313.08
			-688.20	8027.38	93.32
		der	668.10	8025.90	313.08
			-691.70	8027.08	93.32
14	16.00	izq	843.36	8640.08	70.76
			-866.95	8053.90	-76.57
		der	841.20	8640.31	70.74
			-868.99	8053.66	-76.58
14	19.20	izq	1033.27	8919.27	-185.98
			-1061.13	7977.44	-260.89
		der	1026.38	6756.18	-163.98
			-1068.54	9564.36	-237.89
14	22.40	izq	1225.15	5947.05	-344.29
			-1267.32	8402.88	-490.62
		der	1225.08	5947.02	-344.30
			-1267.44	8402.78	-490.63
14	25.60	izq	1423.85	4559.88	-524.62
			-1466.21	6431.56	-743.36
		der	1420.75	4560.78	-524.63
			-1470.60	6430.48	-743.38
14	28.80	izq	1619.50	2595.98	-704.91
			-1669.35	3649.97	-996.08
		der	1614.01	2596.90	-707.27
			-1667.53	3648.76	-990.30
14	32.00	izq	1810.69	0.09	-926.98
			-1864.22	0.01	-1308.84

3. Cortantes Envolventes y Esfuerzos Concomitantes

Vano	x (m)		Qmax Qmin (t)	Mtcon Mtcon (tm)	Mfcon Mfcon (tm)
1	0.00	der	1787.54	-199.68	0.08
			491.96	171.17	0.07
1	3.20	izq	1425.76	-179.00	5116.70
			354.52	171.17	1339.92
		der	1352.59	-1.92	4575.04
			428.75	-8.69	1881.79
1	6.40	izq	1038.58	21.61	8399.03
			320.12	-8.69	3080.03
		der	1038.56	15.99	8399.17
			320.10	-10.74	3080.06
1	9.60	izq	724.62	39.53	11216.80
			211.49	-10.74	3930.48
		der	724.61	37.12	11216.90
			211.48	-11.59	3930.51
1	12.80	izq	432.79	60.71	11438.60
			80.64	-11.64	6024.10
		der	432.78	58.11	11438.70
			80.65	-13.01	6024.12
1	16.00	izq	268.31	120.19	8364.37
			-172.94	-11.96	9731.71
		der	268.30	112.80	8364.50
			-172.94	-20.56	9731.66
1	19.20	izq	159.68	112.80	9049.19
			-486.31	-68.07	9152.38
		der	159.68	110.87	9049.22
			-486.32	-70.03	9152.28
1	22.40	izq	51.03	110.87	9386.39
			-800.34	-93.56	7097.43
		der	51.02	104.58	9386.47
			-800.37	-98.32	7097.26
1	25.60	izq	-57.61	104.58	9375.93
			-1114.34	-121.85	4037.06
		der	-57.61	104.58	9375.95
			-1114.34	-121.85	4036.94
1	28.80	izq	-166.23	104.58	9017.83
			-1428.31	-145.39	-28.88
		der	-70.89	98.07	9017.87
			-1522.69	-145.80	-29.17
1	32.00	izq	-208.34	98.07	8586.13
			-1884.51	-166.61	-5456.70
		der	2128.02	129.39	-5528.93
			508.54	86.79	8586.19
2	4.00	izq	1676.36	-145.37	2011.48
			336.78	86.79	10253.10
		der	1611.06	-134.16	2023.53
			402.81	66.63	10241.40
2	8.00	izq	1221.18	-110.63	7662.82
			267.02	66.63	11606.70
		der	1221.16	-112.03	7663.01
			267.02	64.50	11606.80
2	12.00	izq	829.42	-94.99	11691.40
			131.25	64.50	12428.80
		der	829.41	-101.10	11691.50
			131.24	58.00	12428.90
2	16.00	izq	436.03	-69.72	14199.00
			-4.56	58.00	12707.90
		der	436.02	-82.36	14199.00
			-4.56	46.69	12707.90
2	20.00	izq	49.75	-40.59	13230.80
			-144.15	51.15	14270.90
		der	49.73	-42.83	13230.80
			-144.16	48.73	14270.80

2	24.00	izq	-91.87	-42.47	8777.36				4	16.00	izq	276.23	0.53	8663.78
			-531.76	79.74	17284.00							67.66	28.44	10546.00
		der	-91.87	-50.28	8777.32						der	276.22	-5.60	8663.82
			-531.77	64.35	17283.90							67.66	20.98	10546.00
2	28.00	izq	-227.65	-50.28	8112.66				4	20.00	izq	50.01	-5.69	7856.27
			-925.11	95.73	14393.90							-68.24	21.08	12004.90
		der	-227.66	-53.15	8112.62						der	50.01	-8.46	7856.26
			-925.13	90.65	14393.80							-68.24	16.86	12004.90
2	32.00	izq	-363.44	-53.15	6904.82				4	24.00	izq	-85.79	-8.46	7759.05
			-1316.87	-61.13	9982.77							-294.56	16.86	11304.90
		der	-363.45	-58.03	6904.72						der	-85.80	-12.65	7759.02
			-1316.88	-68.18	9982.52							-294.58	10.75	11304.80
2	36.00	izq	-499.24	-58.03	5153.74				4	28.00	izq	-221.57	-12.65	7118.73
			-1706.74	-91.71	3960.74							-520.87	10.75	9699.84
		der	-438.53	19.52	5082.44						der	-221.57	-17.67	7118.69
			-1766.63	-173.95	4031.61							-520.87	3.90	9699.76
2	40.00	izq	-610.32	19.52	3007.97				4	32.00	izq	-357.35	-17.67	5935.31
			-2218.42	-191.19	-3871.23							-747.17	3.90	7189.61
		der	1393.98	-28.40	-3869.00						der	-357.35	-20.76	5935.25
			583.21	52.22	3008.07							-747.18	0.17	7189.49
3	4.00	izq	1107.71	-28.40	1095.46				4	36.00	izq	-493.16	-20.76	4208.42
			411.45	52.22	4973.81							-973.52	0.17	3773.45
		der	1048.71	-5.71	1069.84						der	-440.75	-14.52	4158.76
			471.03	23.45	4999.70							-1025.39	-9.63	3822.86
3	8.00	izq	822.38	-5.71	4786.53				4	40.00	izq	-612.53	-14.52	2075.54
			335.23	23.45	6637.93							-1311.69	-9.63	-812.79
		der	822.38	-6.59	4786.65						der	1288.64	22.05	-812.11
			335.22	22.23	6637.98							617.13	15.18	2076.55
3	12.00	izq	596.09	-6.59	7597.57				5	4.00	izq	1002.33	22.05	3731.38
			199.44	22.23	7732.81							445.35	15.18	4178.23
		der	596.07	-11.96	7597.65						der	955.04	17.19	3732.06
			199.44	16.77	7732.85							493.17	16.21	4177.79
3	16.00	izq	369.77	-11.96	9503.50				5	8.00	izq	728.72	17.19	7073.91
			63.66	16.77	8284.65							357.38	16.21	5904.54
		der	369.76	-16.91	9503.56						der	728.71	13.37	7074.05
			63.65	12.45	8284.68							357.37	13.02	5904.62
3	20.00	izq	143.42	-16.91	10504.40				5	12.00	izq	502.42	13.37	9510.29
			-72.16	12.45	8293.31							221.60	13.02	7088.01
		der	143.42	-22.57	10504.40						der	502.42	8.42	9510.38
			-72.16	7.98	8293.31							221.60	9.33	7088.07
3	24.00	izq	7.32	-22.20	9349.68				5	16.00	izq	276.09	8.42	11041.80
			-298.15	7.60	9008.89							85.80	9.33	7728.56
		der	7.31	-28.80	9349.65						der	276.09	-1.40	11041.90
			-298.16	1.24	9008.84							85.80	2.46	7728.56
3	28.00	izq	-128.48	-28.80	9081.67				5	20.00	izq	49.79	-1.40	11667.90
			-524.47	1.24	7389.27							-49.98	2.46	7825.86
		der	-128.48	-32.01	9081.65						der	49.77	-3.37	11667.90
			-524.48	-1.37	7389.19							-50.00	1.14	7825.84
3	32.00	izq	-264.27	-32.01	8270.52				5	24.00	izq	-86.16	-2.87	10134.90
			-750.80	-1.37	4864.30							-276.22	0.64	8633.61
		der	-264.27	-37.84	8270.43						der	-86.16	-10.24	10134.90
			-750.81	-4.80	4864.17							-276.22	-5.64	8633.58
3	36.00	izq	-400.07	-37.84	6916.07				5	28.00	izq	-221.92	-10.24	9493.19
			-977.13	-4.80	1433.88							-502.49	-5.64	7102.13
		der	-340.53	-17.58	6890.51						der	-221.92	-15.14	9493.15
			-1036.16	-28.98	1459.19							-502.50	-9.30	7102.03
3	40.00	izq	-512.30	-17.58	5208.41				5	32.00	izq	-357.71	-15.14	8308.24
			-1322.44	-28.98	-3219.19							-728.82	-9.30	4665.09
		der	1294.74	6.07	-3216.89						der	-357.72	-18.09	8308.18
			593.03	44.26	5208.56							-728.83	-10.96	4664.96
4	4.00	izq	1008.46	6.07	1350.73				5	36.00	izq	-493.51	-18.09	6580.06
			421.26	44.26	7213.66							-955.15	-10.96	1322.63
		der	955.20	6.81	1351.98						der	-446.70	-36.61	6535.27
			475.05	38.43	7212.68							-1001.42	3.72	1367.17
4	8.00	izq	728.90	6.81	4694.24				5	40.00	izq	-618.50	-36.61	4427.95
			339.27	38.43	8866.80							-1287.76	3.72	-3173.16
		der	728.89	4.36	4694.36						der	1303.61	12.81	-3172.73
			339.27	33.79	8866.87							622.90	15.79	4428.00
4	12.00	izq	502.55	4.36	7131.87				6	4.00	izq	1017.32	12.81	1430.44
			203.46	33.79	9978.08							451.13	15.79	6552.65
		der	502.54	0.53	7131.95						der	975.96	8.14	1431.87
			203.45	28.44	9978.14							493.04	15.63	6551.47

6	8.00	izq	749.65	8.14	4857.24				7	40.00	izq	-609.11	-57.04	5216.22
			357.25	15.63	8277.60							-1384.10	39.06	-6630.58
		der	749.64	6.42	4857.37						der	2118.26	173.16	-6624.55
			357.25	12.70	8277.67							525.88	32.85	5216.05
6	12.00	izq	523.33	6.42	7377.56				8	4.00	izq	1666.45	157.19	878.28
			221.46	12.70	9460.69							354.05	32.85	6952.92
		der	523.33	1.23	7377.65						der	1637.20	151.73	880.81
			221.46	6.04	9460.73							384.05	32.57	6950.86
6	16.00	izq	297.01	1.23	8992.66				8	8.00	izq	1247.35	128.19	6624.01
			85.67	6.04	10100.60							248.27	32.57	8241.01
		der	297.00	-1.96	8992.70						der	1247.35	125.88	6624.25
			85.66	2.46	10100.60							248.27	29.69	8241.06
6	20.00	izq	70.70	-2.48	8266.36				8	12.00	izq	855.65	-46.36	10757.00
			-50.16	2.97	11633.40							112.49	29.69	8988.19
		der	70.69	-6.92	8266.39						der	855.63	-53.97	10757.10
			-50.17	-3.29	11633.40							112.48	23.32	8988.22
6	24.00	izq	-65.08	-6.92	8251.94				8	16.00	izq	462.28	-22.59	13369.30
			-276.46	-3.29	11005.90							-23.30	23.32	9192.22
		der	-65.08	-12.74	8251.93						der	462.27	-29.84	13369.40
			-276.46	-11.05	11005.80							-23.31	18.34	9192.22
6	28.00	izq	-200.86	-12.74	7694.45				8	20.00	izq	70.03	-1.25	8259.21
			-502.76	-11.05	9473.18							-159.61	20.04	14674.60
		der	-200.88	-18.19	7694.38						der	70.02	-5.49	8259.23
			-502.78	-17.76	9473.08							-159.64	12.51	14674.60
6	32.00	izq	-336.66	-18.19	6593.71				8	24.00	izq	-65.78	-5.49	8242.06
			-729.09	-17.76	7035.11							-546.25	27.40	13752.90
		der	-336.66	-20.52	6593.65						der	-65.78	-9.98	8242.05
			-729.09	-20.25	7035.00							-546.26	19.90	13752.80
6	36.00	izq	-472.45	-20.52	4949.82				8	28.00	izq	-201.55	-9.98	7681.80
			-955.40	-20.25	3691.75							-939.58	51.28	10804.90
		der	-431.65	-46.17	4908.24						der	-201.57	-13.96	7681.75
			-995.67	3.68	3733.09							-939.61	45.68	10804.80
6	40.00	izq	-603.45	-46.17	2861.26				8	32.00	izq	-337.37	-13.96	6578.09
			-1281.99	3.68	-783.95							-1331.38	61.44	6335.73
		der	1297.90	19.92	-784.09						der	-337.38	-18.72	6578.02
			520.80	28.42	2861.09							-1331.38	56.85	6335.57
7	4.00	izq	1011.62	19.92	3796.13				8	36.00	izq	-473.14	-18.72	4931.65
			349.04	28.42	4577.21							-1721.19	80.39	256.86
		der	976.19	14.68	3797.95						der	-444.18	-52.74	4897.20
			384.98	29.94	4575.61							-1749.34	113.59	291.00
7	8.00	izq	749.85	14.68	7224.65				8	40.00	izq	-615.98	-52.74	2800.01
			249.18	29.94	5869.67							-2201.07	-140.37	-7542.79
		der	749.84	12.11	7224.77						der	2217.37	171.88	-7516.25
			249.17	27.85	5869.72							533.15	26.25	2773.20
7	12.00	izq	523.50	12.11	9746.05				9	4.00	izq	1765.62	-79.81	357.28
			113.36	27.85	6620.50							361.35	26.25	4564.63
		der	523.48	5.05	9746.15						der	1741.94	153.92	356.90
			113.35	23.06	6620.55							385.83	25.40	4564.70
7	16.00	izq	297.21	5.05	11361.50				9	8.00	izq	1352.10	130.39	6519.11
			-22.41	23.06	6828.03							250.05	25.40	5862.00
		der	297.21	-0.85	11361.60						der	1352.08	-60.38	6519.89
			-22.40	19.51	6828.04							250.05	21.25	5862.06
7	20.00	izq	70.92	-1.35	10636.90				9	12.00	izq	960.37	-44.55	11071.20
			-158.22	20.01	7927.77							114.26	21.25	6616.31
		der	70.90	-5.07	10636.90						der	960.35	-50.56	11071.30
			-158.24	17.23	7927.74							114.25	17.66	6616.33
7	24.00	izq	-64.90	-5.07	10623.20				9	16.00	izq	567.06	-19.18	14102.10
			-384.56	17.23	6867.75							-21.52	17.66	6827.42
		der	-64.90	-14.60	10623.20						der	567.03	-26.39	14102.20
			-384.57	11.07	6867.72							-21.52	14.16	6827.43
7	28.00	izq	-200.68	-14.60	10066.50				9	20.00	izq	180.43	-13.67	15107.10
			-610.87	11.07	4902.66							-157.32	14.16	6495.40
		der	-200.67	-18.13	10066.40						der	180.43	-21.92	15107.10
			-610.87	9.35	4902.56							-157.32	10.62	6495.38
7	32.00	izq	-336.46	-18.13	8966.61				9	24.00	izq	44.00	-20.27	9705.42
			-837.18	9.35	2032.32							-543.23	26.32	11409.10
		der	-336.47	-21.29	8966.54						der	44.00	-27.11	9705.39
			-837.19	8.64	2032.18							-543.24	18.29	11409.00
7	36.00	izq	-472.25	-21.29	7323.53				9	28.00	izq	-91.79	-27.11	9584.16
			-1063.50	8.64	-1743.35							-936.58	49.67	8472.98
		der	-437.35	-57.04	7285.60						der	-91.80	-30.46	9584.14
			-1097.83	39.06	-1705.67							-936.60	46.70	8472.84

9	32.00	izq	-227.59	-30.46	8919.71				11	24.00	izq	55.07	-26.20	9737.46
			-1328.32	-127.87	4016.07							-566.28	28.40	11713.90
		der	-227.60	-36.79	8919.65						der	55.06	-29.67	9737.45
			-1328.33	59.68	4016.37							-566.29	24.24	11713.80
9	36.00	izq	-363.39	-36.79	7711.98				11	28.00	izq	-80.72	-29.67	9660.49
			-1718.23	83.22	-2051.70							-959.63	55.62	8685.63
		der	-340.39	-75.69	7681.26						der	-80.73	-36.41	9660.45
			-1740.45	122.42	-2021.30							-959.66	49.55	8685.51
9	40.00	izq	-512.19	-75.69	5999.35				11	32.00	izq	-216.52	-36.41	9040.28
			-2192.20	-133.69	-9819.73							-1351.41	65.94	4136.41
		der	2209.56	163.08	-9798.44						der	-216.53	-39.66	9040.24
			510.40	28.53	5977.16							-1351.41	64.45	4136.23
10	4.00	izq	1757.94	146.86	-1958.89				11	36.00	izq	-352.33	-39.66	7876.84
			338.65	28.53	7677.16							-1741.30	87.98	-2024.12
		der	1738.78	146.18	-1958.56						der	-341.18	-78.48	7853.60
			358.59	25.63	7677.23							-1751.67	124.24	-2001.18
10	8.00	izq	1348.91	122.65	4191.42				11	40.00	izq	-512.96	-78.48	6168.80
			222.80	25.63	8865.65							-2203.39	-138.22	-9843.99
		der	1348.89	121.17	4191.69						der	2184.59	154.91	-9833.63
			222.79	22.50	8865.70							503.42	23.56	6158.85
10	12.00	izq	957.16	-46.99	8730.86				12	4.00	izq	1732.80	137.99	-2091.52
			87.00	22.50	9510.92							331.63	23.56	7831.19
		der	957.15	-54.81	8730.97						der	1722.71	138.39	-2091.20
			87.00	13.99	9510.96							342.51	21.10	7831.25
10	16.00	izq	563.83	-23.43	11749.10				12	8.00	izq	1332.83	114.85	3994.54
			-48.78	13.99	9613.03							206.72	21.10	8955.36
		der	563.82	-27.62	11749.20						der	1332.81	111.29	3994.85
			-48.79	10.55	9613.02							206.71	13.11	8955.40
10	20.00	izq	177.66	-17.18	8352.62				12	12.00	izq	941.05	-50.50	8469.63
			-184.95	11.88	13560.90							70.93	13.11	9536.26
		der	177.64	-21.42	8352.63						der	941.03	-53.46	8469.76
			-184.97	4.98	13560.90							70.93	9.78	9536.28
10	24.00	izq	41.83	-21.18	7325.89				12	16.00	izq	547.70	-22.08	11423.50
			-571.69	25.01	13976.50							-64.85	9.78	9574.08
		der	41.82	-26.57	7325.89						der	547.68	-28.03	11423.60
			-571.70	14.73	13976.40							-64.87	4.79	9574.08
10	28.00	izq	-93.95	-26.57	7195.98				12	20.00	izq	165.80	-21.83	6572.43
			-965.00	46.11	10927.00							-204.99	6.72	14849.80
		der	-93.95	-29.16	7195.98						der	165.79	-26.63	6572.44
			-965.02	42.18	10926.80							-205.00	-4.12	14849.80
10	32.00	izq	-229.73	-29.16	6523.03				12	24.00	izq	30.02	-26.63	6938.36
			-1356.70	58.20	6357.32							-591.63	23.66	13742.60
		der	-229.74	-32.45	6522.98						der	30.02	-29.05	6938.35
			-1356.72	54.98	6357.13							-591.64	18.87	13742.50
10	36.00	izq	-365.54	-32.45	5306.66				12	28.00	izq	-105.76	-29.05	6761.23
			-1746.64	78.52	175.11							-984.96	50.25	10613.10
		der	-348.47	-70.56	5279.45						der	-105.77	-33.85	6761.19
			-1762.92	114.68	202.03							-984.98	42.71	10612.90
10	40.00	izq	-520.23	-70.56	3565.72				12	32.00	izq	-241.55	-33.85	6040.92
			-2214.55	-143.72	-7684.18							-1376.78	59.41	5961.99
		der	2217.11	164.33	-7668.12						der	-241.56	-35.96	6040.88
			521.46	23.62	3549.82							-1376.78	57.33	5961.79
11	4.00	izq	1765.35	147.74	203.70				12	36.00	izq	-377.35	-35.96	4777.41
			349.67	23.62	5294.44							-1766.66	80.86	-299.75
		der	1750.73	145.82	204.07						der	-372.17	-64.33	4756.23
			365.08	21.55	5294.47							-1771.04	109.29	-278.91
11	8.00	izq	1360.89	122.29	6401.38				12	40.00	izq	-543.97	-64.33	2947.12
			229.30	21.55	6508.77							-2222.86	-153.46	-8201.32
		der	1360.88	119.01	6401.65						der	2258.43	151.75	-8197.64
			229.29	18.21	6508.81							613.20	12.92	2925.96
11	12.00	izq	969.09	-44.63	10989.30				13	4.00	izq	1806.58	134.12	-159.35
			93.48	18.21	7180.08							441.42	12.92	5037.52
		der	969.07	-50.65	10989.40						der	1801.05	133.04	-158.98
			93.48	14.28	7180.11							447.81	12.49	5037.59
11	16.00	izq	575.72	-19.27	14055.40				13	8.00	izq	1411.24	109.51	6239.03
			-42.31	14.28	7308.09							312.04	12.49	6582.63
		der	575.70	-26.96	14055.50						der	1411.22	106.33	6239.32
			-42.32	10.28	7308.10							312.03	9.13	6582.68
11	20.00	izq	191.09	-19.11	10716.40				13	12.00	izq	1019.36	-49.80	11028.70
			-179.82	11.68	11272.60							176.24	9.13	7584.90
		der	191.08	-26.59	10716.50						der	1019.36	-57.57	11028.90
			-179.82	3.82	11272.60							176.23	3.79	7584.93

13	16.00	izq	625.96	-26.19	14296.30
			40.43	3.79	8043.94
		der	625.94	-31.73	14296.40
			40.42	0.68	8043.95
13	20.00	izq	245.16	-27.42	11239.90
			-100.20	2.25	12264.10
		der	245.15	-33.21	11239.90
			-100.21	-4.08	12264.10
13	24.00	izq	106.39	-33.24	10458.20
			-485.83	35.14	13007.70
		der	106.39	-40.47	10458.20
			-485.85	26.14	13007.60
13	28.00	izq	-29.42	-40.47	10586.50
			-879.24	57.52	10300.70
		der	-29.43	-46.35	10586.50
			-879.26	51.80	10300.60
13	32.00	izq	-165.21	-46.35	10171.60
			-1271.12	69.21	6071.35
		der	-165.22	-51.81	10171.50
			-1271.13	65.95	6071.18
13	36.00	izq	-300.98	-51.81	9213.64
			-1660.95	89.48	233.30
		der	-300.81	-63.65	9206.58
			-1660.39	98.54	240.06
13	40.00	izq	-472.61	-63.65	7657.41
			-2112.25	-170.18	-7214.41
		der	1851.95	89.95	-7158.83
			323.57	13.21	7670.98
14	3.20	izq	1490.22	68.76	-1857.19
			186.15	13.21	8492.09
		der	1488.48	69.13	-1856.99
			188.88	8.47	8492.12
14	6.40	izq	1174.51	45.60	2380.93
			80.25	8.47	8943.22
		der	1174.49	44.56	2381.09
			80.26	4.56	8943.22
14	9.60	izq	860.51	21.02	5613.41
			-28.37	4.56	9046.75
		der	860.50	18.54	5613.54
			-28.39	0.56	9046.74
14	12.80	izq	546.50	-5.00	7840.17
			-137.02	0.56	8802.61
		der	546.50	-8.41	7840.23
			-137.02	-3.27	8802.59
14	16.00	izq	232.93	-45.12	8594.00
			-245.66	-3.27	8210.78
		der	232.91	-47.28	8594.02
			-245.67	-5.34	8210.75
14	19.20	izq	-22.61	-47.74	5082.63
			-405.67	41.99	11320.60
		der	-22.61	-52.14	5082.59
			-405.67	32.20	11320.60
14	22.40	izq	-154.25	-51.63	3154.43
			-696.64	55.22	11206.30
		der	-154.25	-51.67	3154.39
			-696.66	55.08	11206.20
14	25.60	izq	-262.88	-51.67	2466.49
			-1010.64	78.61	8498.20
		der	-262.89	-53.35	2466.42
			-1010.66	72.82	8498.15
14	28.80	izq	-371.50	-53.35	1431.08
			-1324.59	96.36	4785.10
		der	-370.49	-56.92	1425.10
			-1322.20	96.16	4790.85
14	32.00	izq	-518.74	-56.92	-0.05
			-1701.99	117.22	0.13

ESFUERZOS DE CALCULO Y COMPROBACION TABLERO

LEYENDA:
- !: Md/Mu>1
- *: Vd>Vu1
- **: Td>Tu1
- A: Td>5Tc (ACI)
- +: Vd/Vu1+Td/Tu1>1
- mc: Armadura mínima por cortante
- mt: Armadura mínima por torsión
- i: Seccion por la izquierda
- d: Seccion por la derecha
- x.xx: Seccion armada

Vano	x [m]	Mdmax(+) [tm]	Mdmin(-) [tm]	Mu(+) [tm]	Mu(-) [tm]	Mdmax/Mu	Mdmin/Mu
						As_max [cm²]	As_min [cm²]
		Vdmax [t]	Td [tm]	Vu1 [t]	Vcu [t]	Vd/Vu1+Td/Tu1	
				A90 [cm²/m]	Abl90cer [cm²/m]	Abl45 [cm²/m]	
		Vd [t]	Tdmax [tm]	Tu1 [tm]	Tc(ACI) [tm]	Vd/Vu1+Td/Tu1	
					At (EH) [cm²/m]	Al (EH) [cm²]	
					At(ACI) [cm²/m]	Al(ACI) [cm²]	
1	0.00d	0.44	-0.27	14792.35	8906.39	0.00	0.00
						0.00	0.00
		2081.92	-199.68	8221.50	839.10	0.29	
				104.38	34.79	49.20	
		1548.24	1917.34	6053.33	1383.37	0.51	
					18.10	306.33	
					7.27	121.60	
1	3.20i	5117.95	1339.92	18346.40	5019.68	0.28	0.07
						0.00	0.00
		1713.17	-179.00	3761.10	383.87	0.49	
				111.64	37.21	52.63	
		1240.74	1721.30	6053.33	1463.52	0.61	
					16.25	275.01	
					3.51	58.71	
	d	5118.14	1340.03	18346.40	5019.68	0.28	0.07
						0.00	0.00
		1640.00	-1.92	3761.10	383.87	0.44	
				105.50	35.17	49.73	
		1336.61	1717.42	6053.33	1409.90	0.64	
					16.21	274.39	
					4.19	70.03	
1	6.40i	8873.60	2606.37	21285.64	2604.22	0.42	0.12
						0.00	0.00
		1224.06	21.61	3761.10	383.87	0.33	
				70.56	23.52	33.26	
		981.92	1518.63	6053.33	1535.34	0.51	
					14.34	242.63	
					0.00	0.00	
	d	8873.78	2606.52	21285.64	2604.22	0.42	0.12
						0.00	0.00
		1224.04	15.99	3761.10	383.87	0.33	
				70.56	23.52	33.26	
		981.91	1514.30	6053.33	1533.53	0.51	
					14.29	241.94	
					0.00	0.00	
1	9.60i	11622.90	3525.01	22942.03	1471.06	0.51	0.15
						0.00	0.00
		804.42	39.53	3761.10	383.87	0.22	
				35.32	11.77	16.65	
					623.52	1315.55	6053.33	1707.63	0.38	
								12.42	210.19	
								0.00	0.00	
	d	11623.00	3525.09	22942.03	1471.06	0.51	0.15
								0.00	0.00	
					804.41	37.12	3761.10	383.87	0.22	
							35.32	11.77	16.65	
					573.27	1313.74	6053.33	1744.61	0.37	
								12.40	209.90	
								0.00	0.00	
1	12.80i	13366.90	4096.12	23288.83	1262.30	0.57	0.18
								0.00	0.00	
					415.03	60.71	3761.10	383.87	0.12	
							18.95mc	6.32mc	8.93mc	
					295.37	1114.95	6053.33	1896.51	0.26	
								10.53	178.14	
								0.00	0.00	
	d	13366.90	4096.18	23288.83	1262.30	0.57	0.18
								0.00	0.00	
					415.02	58.11	3761.10	383.87	0.12	
							18.95mc	6.32mc	8.93mc	
					295.38	1113.05	6053.33	1896.16	0.26	
								10.51	177.83	
								0.00	0.00	
1	16.00i	14104.90	4319.54	22607.49	1673.46	0.62	0.19
								0.00	0.00	
					-264.52	-11.96	3761.10	383.87	0.07	
							18.95mc	6.32mc	8.93mc	
					37.15	930.72	6053.33	2003.19	0.16	
								8.79	148.70	
								0.00	0.00	
	d	14104.80	4319.68	22607.49	1673.46	0.62	0.19
								0.00	0.00	
					-264.52	-20.56	3761.10	383.87	0.07	
							18.95mc	6.32mc	8.93mc	
					37.15	923.13	6053.33	2003.14	0.16	
								8.71	147.49	
								0.00	0.00	
1	19.20i	13837.20	4195.49	21020.77	2783.25	0.66	0.20
								0.00	0.00	
					-649.58	-68.07	3761.10	383.87	0.18	
							22.32	7.44	10.52	
					-204.40	747.90	6053.33	1890.08	0.18	
								7.06	119.49	
								0.00	0.00	
	d	13837.10	4195.50	21020.77	2783.25	0.66	0.20
								0.00	0.00	
					-649.59	-70.03	3761.10	383.87	0.18	
							22.32	7.44	10.52	
					-204.41	746.03	6053.33	1889.54	0.18	
								7.04	119.19	
								0.00	0.00	
1	22.40i	12563.60	3723.61	18566.50	4802.96	0.68	0.20
								0.00	0.00	
					-1034.15	-93.56	3761.10	383.87	0.29	
							54.61	18.20	25.75	
					-444.67	759.15	6053.33	1595.73	0.24	
								7.17	121.29	
								0.00	0.00	
	d	12563.50	3723.69	18566.50	4802.96	0.68	0.20
								0.00	0.00	
					-1034.18	-98.32	3761.10	383.87	0.29	
							54.62	18.21	25.75	
					-444.69	753.58	6053.33	1591.37	0.24	
								7.11	120.40	
								0.00	0.00	
1	25.60i	10831.70	2356.90	20184.58	9604.89	0.54	0.12
								0.00	0.00	
					-1352.43	-121.85	3761.10	383.87	0.38	
							81.34	27.11	38.35	
					-618.84	928.81	6053.33	1516.06	0.32	
								8.77	148.40	

```
                                                0.00       0.00
          d 10831.60  2356.85  20184.58      9604.89       0.54       0.12
                                                0.00       0.00
            -1352.43  -121.85   3761.10       383.87       0.38
                                  81.34        27.11      38.35
             -618.84   928.82   6053.33      1516.06       0.32
                                                8.77     148.40
                                                0.00       0.00
  1  28.80i  9019.40  -254.31  17657.21     11900.51       0.51       0.02
                                                0.00       0.00
            -1652.13  -145.39   3761.10       383.87       0.46
                                 106.51        35.50      50.21
             -815.76  1112.12   6053.33      1451.50       0.40
                                               10.50     177.68
                                                0.00       0.00
          d  9019.42  -254.50  17657.21     11900.51       0.51       0.02
                                                0.00       0.00
            -1746.51  -145.80   3761.10       383.87       0.49
                                 114.44        38.15      53.95
             -720.18  1108.33   6053.33      1532.18       0.37
                                               10.46     177.08
                                                0.00       0.00
  1  32.00i  8586.13 -5534.83  16680.26     15747.08       0.51       0.35
                                                0.00       0.00
            -1884.51  -166.61   8221.50       839.10       0.26
                                  87.80        29.27      41.39
             -705.29  1304.52   6053.33      1640.95       0.30
                                               12.31     208.42
                                                0.00       0.00
          d  8586.19 -5534.77  16680.26     15747.08       0.51       0.35
                                                0.00       0.00
             2128.02   129.39   8221.50       839.10       0.28
                                 108.25        36.08      51.03
             1469.22  1527.47   6053.33      1252.62       0.43
                                               14.42     244.04
                                                3.74      62.59
  2   4.00i 10253.10  1903.60  17721.31     11832.28       0.58       0.11
                                                0.00       0.00
             1868.59  -145.37   3761.10       383.87       0.52
                                 124.69        41.56      58.78
             1286.32  1290.99   6053.33      1225.61       0.56
                                               12.19     206.26
                                                0.89      14.89
          d 10253.30  1903.82  17721.31     11832.28       0.58       0.11
                                                0.00       0.00
             1803.29  -134.16   3761.10       383.87       0.50
                                 119.21        39.74      56.20
             1358.30  1280.63   6053.33      1177.46       0.57
                                               12.09     204.61
                                                1.40      23.50
  2   8.00i 13257.90  5827.32  25496.36      8715.26       0.52       0.23
                                                0.00       0.00
             1697.35  -110.63   3761.10       383.87       0.47
                                 110.31        36.77      52.00
             1326.99  1044.46   6053.33      1038.70       0.53
                                                9.86     166.87
                                                0.08       1.31
          d 13258.00  5827.43  25496.36      8715.26       0.52       0.23
                                                0.00       0.00
             1697.33  -112.03   3761.10       383.87       0.47
                                 110.31        36.77      52.00
             1326.98  1042.34   6053.33      1037.17       0.53
                                                9.84     166.53
                                                0.07       1.18
  2  12.00i 16531.30  7372.54  22380.41      3512.70       0.74       0.33
                                                0.00       0.00
             1041.79   -94.99   3761.10       383.87       0.29
                                  55.26        18.42      26.05
              749.91   799.78   6053.33      1272.06       0.33
                                                7.55     127.78
                                                0.00       0.00
          d 16531.40  7372.56  22380.41      3512.70       0.74       0.33
                                                                     0.00       0.00
                      1041.78  -101.10   3761.10       383.87       0.29
                                           55.25        18.42      26.05
                       798.82   792.41   6053.33      1216.63       0.34
                                                      7.48     126.60
                                                      0.00       0.00
  2  16.00i 18359.00  8254.49  24867.75      1673.06       0.74       0.33
                                                                     0.00       0.00
                       542.31   -69.72   3761.10       383.87       0.16
                                           18.95mc      6.32mc     8.93mc
                       375.92   541.96   6053.33      1489.52       0.19
                                                      5.12      86.59
                                                      0.00       0.00
          d 18359.10  8254.48  24867.75      1673.06       0.74       0.33
                                                                     0.00       0.00
                       542.30   -82.36   3761.10       383.87       0.16
                                           18.95mc      6.32mc     8.93mc
                       288.05   528.50   6053.33      1636.56       0.16
                                                      4.99      84.44
                                                      0.00       0.00
  2  20.00i 18621.10  8557.95  25705.48      1177.02       0.72       0.33
                                                                     0.00       0.00
                      -144.15    51.15   3761.10       383.87       0.05
                                           18.95mc      6.32mc     8.93mc
                       -44.48   278.08   6053.33      1963.86       0.06
                                                      2.63      44.43
                                                      0.00       0.00
          d 18621.10  8557.93  25705.48      1177.02       0.72       0.33
                                                                     0.00       0.00
                      -144.16    48.73   3761.10       383.87       0.05
                                           18.95mc      6.32mc     8.93mc
                       -44.49   275.66   6053.33      1963.12       0.06
                                                      2.60      44.04
                                                      0.00       0.00
  2  24.00i 17593.50  8211.63  24867.75      1673.06       0.71       0.33
                                                                     0.00       0.00
                      -638.04    79.74   3761.10       383.87       0.18
                                           21.35        7.12      10.06
                      -380.18   325.45   6053.33      1102.98       0.15
                                                      3.07      52.00
                                                      0.00       0.00
          d 17593.40  8211.64  24867.75      1673.06       0.71       0.33
                                                                     0.00       0.00
                      -638.05    64.35   3761.10       383.87       0.18
                                           21.35        7.12      10.06
                      -428.57  -321.27   6053.33      1001.83       0.17
                                                      3.03      51.33
                                                      0.00       0.00
  2  28.00i 15021.00  7319.89  22380.41      3512.70       0.67       0.33
                                                                     0.00       0.00
                     -1137.48    95.73   3761.10       383.87       0.32
                                           63.29        21.10      29.84
                      -851.44  -571.69   6053.33       920.32       0.32
                                                      5.40      91.34
                                                      0.00       0.00
          d 15020.80  7319.86  22380.41      3512.70       0.67       0.33
                                                                     0.00       0.00
                     -1137.50    90.65   3761.10       383.87       0.32
                                           63.29        21.10      29.84
                      -851.45  -575.52   6053.33       925.17       0.32
                                                      5.43      91.95
                                                      0.00       0.00
  2  32.00i 11070.90  5695.25  18543.70     10539.00       0.60       0.31
                                                                     0.00       0.00
                     -1554.96   -61.13   3761.10       383.87       0.42
                                           98.35        32.78      46.36
                     -1190.47  -818.10   6053.33       937.26       0.45
                                                      7.72     130.71
                                                      0.00       0.00
          d 11070.80  5695.15  18543.70     10539.00       0.60       0.31
                                                                     0.00       0.00
                     -1554.97   -68.18   3761.10       383.87       0.42
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                                98.35       32.78      46.36
          -1208.54  -825.13   6053.33      932.49       0.46
                                             7.79     131.83
                                             0.00       0.00
2  36.00i  7459.12  1569.73  15313.42    13079.93       0.49       0.10
                                                        0.00       0.00
          -1897.53   -91.71   3761.10      383.87       0.52
                               127.12       42.37      59.93
          -1476.43 -1061.33   6053.33      970.48       0.57
                                            10.02     169.57
                                             1.24      20.69
        d  7459.02  1569.43  15313.42    13079.93       0.49       0.10
                                                        0.00       0.00
          -1957.42  -173.95   3761.10      383.87       0.55
                               132.15       44.05      62.30
          -1547.48 -1080.06   6053.33      948.65       0.59
                                            10.20     172.56
                                             1.79      29.93
2  40.00i  5228.82 -6097.48  14235.23    17537.61       0.37       0.35
                                                        0.00       0.00
          -2218.42  -191.19   8221.50      839.10       0.30
                               115.84       38.61      54.61
          -1731.93 -1316.44   6053.33     1012.28       0.43
                                            12.43     210.33
                                             4.14      69.27
        d  5228.84 -6097.62  14235.23    17537.61       0.37       0.35
                                                        0.00       0.00
           1393.98   -28.40   8221.50      839.10       0.17
                                46.60       15.53      21.97
           1133.99   374.82   6053.33      494.17       0.20
                                             3.54      59.89
                                             0.00       0.00
3   4.00i  7270.76 -1278.18  15313.42    13079.93       0.47       0.10
                                                        0.00       0.00
           1298.50   -28.40   3761.10      383.87       0.35
                                76.81       25.60      36.21
           1038.50   374.82   6053.33      536.49       0.34
                                             3.54      59.89
                                             0.00       0.00
        d  7270.85 -1278.00  15313.42    13079.93       0.47       0.10
                                                        0.00       0.00
           1239.50    -5.71   3761.10      383.87       0.33
                                71.86       23.95      33.87
           1104.47   387.04   6053.33      521.96       0.36
                                             3.65      61.84
                                             0.00       0.00
3   8.00i  8927.13  2351.78  25182.89     9442.49       0.35       0.09
                                                        0.00       0.00
           1298.55    -5.71   3761.10      383.87       0.35
                                76.82       25.61      36.21
           1163.52   387.04   6053.33      497.13       0.37
                                             3.65      61.84
                                             0.00       0.00
        d  8927.18  2351.90  25182.89     9442.49       0.35       0.09
                                                        0.00       0.00
           1298.55    -6.59   3761.10      383.87       0.35
                                76.82       25.61      36.21
           1163.50   385.75   6053.33      495.59       0.37
                                             3.64      61.63
                                             0.00       0.00
3  12.00i 10745.40  4370.61  19989.72     3610.09       0.54       0.22
                                                        0.00       0.00
            808.46    -6.59   3761.10      383.87       0.22
                                35.66       11.89      16.81
            673.41   385.75   6053.33      808.67       0.24
                                             3.64      61.63
                                             0.00       0.00
        d 10745.40  4370.67  19989.72     3610.09       0.54       0.22
                                                        0.00       0.00
            808.44   -11.96   3761.10      383.87       0.22
                                35.66       11.89      16.81
            704.24   379.19   6053.33      767.41       0.25
                                                                    3.58      60.58
                                                                    0.00       0.00
3  16.00i 11862.10  5642.84  22479.77     1754.56       0.53       0.25
                                                                                0.00       0.00
                     476.05   -11.96   3761.10      383.87       0.13
                                                     18.95mc      6.32mc     8.93mc
                     371.85   379.19   6053.33     1237.82       0.16
                                                                    3.58      60.58
                                                                    0.00       0.00
        d 11862.10  5642.89  22479.77     1754.56       0.53       0.25
                                                                                0.00       0.00
                     476.04   -16.91   3761.10      383.87       0.13
                                                     18.95mc      6.32mc     8.93mc
                     392.56   373.75   6053.33     1185.01       0.17
                                                                    3.53      59.71
                                                                    0.00       0.00
3  20.00i 12073.50  6372.05  23318.30     1245.03       0.52       0.27
                                                                                0.00       0.00
                     143.42   -16.91   3761.10      383.87       0.04
                                                     18.95mc      6.32mc     8.93mc
                      59.94   373.75   6053.33     1963.64       0.08
                                                                    3.53      59.71
                                                                    0.00       0.00
        d 12073.50  6372.07  23318.30     1245.03       0.52       0.27
                                                                                0.00       0.00
                     143.42   -22.57   3761.10      383.87       0.04
                                                     18.95mc      6.32mc     8.93mc
                      59.63   368.29   6053.33     1962.85       0.08
                                                                    3.48      58.84
                                                                    0.00       0.00
3  24.00i 11650.80  6426.76  22479.77     1754.56       0.52       0.29
                                                                                0.00       0.00
                    -404.43     7.60   3761.10      383.87       0.11
                                                     18.95mc      6.32mc     8.93mc
                    -182.44   368.29   6053.33     1686.32       0.11
                                                                    3.48      58.84
                                                                    0.00       0.00
        d 11650.80  6426.75  22479.77     1754.56       0.52       0.29
                                                                                0.00       0.00
                    -404.44     1.24   3761.10      383.87       0.11
                                                     18.95mc      6.32mc     8.93mc
                    -255.22   -369.38   6053.33     1492.12       0.13
                                                                    3.49      59.02
                                                                    0.00       0.00
3  28.00i 10326.70  5934.04  19989.72     3610.09       0.52       0.30
                                                                                0.00       0.00
                    -736.84     1.24   3761.10      383.87       0.20
                                                     29.64        9.88      13.97
                    -587.62   -369.38   6053.33      873.03       0.22
                                                                    3.49      59.02
                                                                    0.00       0.00
        d 10326.70  5934.01  19989.72     3610.09       0.52       0.30
                                                                                0.00       0.00
                    -736.85    -1.37   3761.10      383.87       0.20
                                                     29.64        9.88      13.97
                    -587.62   -372.93   6053.33      879.81       0.22
                                                                    3.52      59.58
                                                                    0.00       0.00
3  32.00i  8302.01  4693.52  16222.82    10820.34       0.51       0.29
                                                                                0.00       0.00
                    -988.89    -1.37   3761.10      383.87       0.26
                                                     50.81       16.94      23.95
                    -839.66   -372.93   6053.33      648.37       0.28
                                                                    3.52      59.58
                                                                    0.00       0.00
        d  8301.94  4693.40  16222.82    10820.34       0.51       0.29
                                                                                0.00       0.00
                    -988.90    -4.80   3761.10      383.87       0.26
                                                     50.81       16.94      23.95
                    -839.67   -378.64   6053.33      657.23       0.29
                                                                    3.57      60.50
                                                                    0.00       0.00
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3  36.00i  6947.95  1333.64  12931.02  13415.38      0.54      0.10
                                                     0.00      0.00
          -1167.92    -4.80   3761.10     383.87      0.31
                                65.85      21.95     31.04
          -1018.70  -378.64   6053.33     551.29      0.33
                                           3.57     60.50
                                           0.00      0.00
        d  6947.88  1333.50  12931.02  13415.38      0.54      0.10
                                                     0.00      0.00
          -1226.95   -28.98   3761.10     383.87      0.33
                                70.81      23.60     33.38
          -1084.01  -382.19   6053.33     524.93      0.35
                                           3.61     61.06
                                           0.00      0.00
3  40.00i  5208.53 -3219.26  11823.62  17759.53      0.44      0.18
                                                     0.00      0.00
          -1322.44   -28.98   8221.50     839.10      0.17
                               41.43mc    13.81mc   19.53mc
          -1179.50  -382.19   6053.33     485.02      0.21
                                           3.61     61.06
                                           0.00      0.00
        d  5208.56 -3219.26  11823.62  17759.53      0.44      0.18
                                                     0.00      0.00
           1294.74     6.07   8221.50     839.10      0.16
                               41.43mc    13.81mc   19.53mc
           1085.67   258.12   6053.33     360.78      0.17
                                           2.44     41.24
                                           0.00      0.00
4   4.00i  7229.98  1262.54  12931.02  13415.38      0.56      0.10
                                                     0.00      0.00
           1200.69     6.07   3761.10     383.87      0.32
                                68.60      22.87     32.34
            991.61   258.12   6053.33     393.74      0.31
                                           2.44     41.24
                                           0.00      0.00
        d  7230.10  1262.70  12931.02  13415.38      0.56      0.10
                                                     0.00      0.00
           1147.43     6.81   3761.10     383.87      0.31
                                64.13      21.38     30.23
           1051.62   253.59   6053.33     365.75      0.32
                                           2.39     40.52
                                           0.00      0.00
4   8.00i  8887.28  4532.40  24141.96   9767.82      0.37      0.19
                                                     0.00      0.00
           1205.07     6.81   3761.10     383.87      0.32
                                68.97      22.99     32.51
           1109.26   253.59   6053.33     347.33      0.34
                                           2.39     40.52
                                           0.00      0.00
        d  8887.35  4532.52  24141.96   9767.82      0.37      0.19
                                                     0.00      0.00
           1205.06     4.36   3761.10     383.87      0.32
                                68.97      22.99     32.51
           1109.26   249.25   6053.33     341.56      0.34
                                           2.35     39.82
                                           0.00      0.00
4  12.00i 10722.10  6176.97  20001.18   3599.94      0.54      0.31
                                                     0.00      0.00
            714.92     4.36   3761.10     383.87      0.19
                                27.80      9.27     13.11
            619.11   249.25   6053.33     593.26      0.21
                                           2.35     39.82
                                           0.00      0.00
        d 10722.20  6177.03  20001.18   3599.94      0.54      0.31
                                                     0.00      0.00
            714.91     0.53   3761.10     383.87      0.19
                                27.80      9.27     13.11
            619.10   243.68   6053.33     581.14      0.20
                                           2.30     38.93
                                           0.00      0.00
4  16.00i 11846.10  7083.29  22485.57   1751.20      0.53      0.32
                                                     0.00      0.00
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             382.51     0.53   3761.10     383.87      0.10
                                18.95mc     6.32mc    8.93mc
             286.70   243.68   6053.33    1097.48      0.12
                                           2.30     38.93
                                           0.00      0.00
          d 11846.20  7083.33  22485.57   1751.20      0.53      0.32
                                                     0.00      0.00
             382.50    -5.60   3761.10     383.87      0.10
                                18.95mc     6.32mc    8.93mc
             337.74   235.79   6053.33     948.85      0.13
                                           2.23     37.67
                                           0.00      0.00
4  20.00i 12064.80  7446.45  23318.30   1245.03      0.52      0.32
                                                     0.00      0.00
             -68.24    21.08   3761.10     383.87      0.02
                                18.95mc     6.32mc    8.93mc
               5.14   235.79   6053.33    2005.08      0.04
                                           2.23     37.67
                                           0.00      0.00
          d 12064.80  7446.45  23318.30   1245.03      0.52      0.32
                                                     0.00      0.00
             -68.24    16.86   3761.10     383.87      0.02
                                18.95mc     6.32mc    8.93mc
             -25.72  -233.34   6053.33    1985.59      0.05
                                           2.20     37.28
                                           0.00      0.00
4  24.00i 11651.00  7133.54  22473.52   1757.93      0.52      0.32
                                                     0.00      0.00
            -402.31    16.86   3761.10     383.87      0.11
                                18.95mc     6.32mc    8.93mc
            -359.79  -233.34   6053.33     895.28      0.13
                                           2.20     37.28
                                           0.00      0.00
          d 11651.00  7133.51  22473.52   1757.93      0.52      0.32
                                                     0.00      0.00
            -402.33    10.75   3761.10     383.87      0.11
                                18.95mc     6.32mc    8.93mc
            -310.12  -238.89   6053.33    1022.37      0.12
                                           2.26     38.17
                                           0.00      0.00
4  28.00i 10332.90  6276.28  19984.69   3614.18      0.52      0.31
                                                     0.00      0.00
            -733.24    10.75   3761.10     383.87      0.20
                                29.34      9.78     13.83
            -641.02  -238.89   6053.33     552.64      0.21
                                           2.26     38.17
                                           0.00      0.00
          d 10332.90  6276.23  19984.69   3614.18      0.52      0.31
                                                     0.00      0.00
            -733.24     3.90   3761.10     383.87      0.20
                                29.34      9.78     13.83
            -641.03  -246.12   6053.33     568.03      0.21
                                           2.32     39.32
                                           0.00      0.00
4  32.00i  8316.64  4671.81  16212.43  10827.77      0.51      0.29
                                                     0.00      0.00
            -985.26     3.90   3761.10     383.87      0.26
                                50.51      16.84     23.81
            -893.05  -246.12   6053.33     415.90      0.28
                                           2.32     39.32
                                           0.00      0.00
          d  8316.57  4671.69  16212.43  10827.77      0.51      0.29
                                                     0.00      0.00
            -985.27     0.17   3761.10     383.87      0.26
                                50.51      16.84     23.81
            -893.05  -250.32   6053.33     422.68      0.28
                                           2.36     39.99
                                           0.00      0.00
4  36.00i  6585.08  1329.60  12923.18  13426.47      0.51      0.10
                                                     0.00      0.00
           -1164.31     0.17   3761.10     383.87      0.31
                                65.54      21.85     30.90
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          -1072.09  -250.32   6053.33       354.51       0.33
                                            2.36        39.99
                                            0.00         0.00
        d  6584.98  1329.44  12923.18     13426.47       0.51       0.10
                                                         0.00       0.00
          -1216.18    -9.63   3761.10       383.87       0.32
                                 69.90        23.30      32.95
          -1131.45  -251.52   6053.33       338.02       0.34
                                            2.37        40.19
                                            0.00         0.00
4  40.00i  4436.56 -3172.87  11823.62     17759.53       0.38       0.18
                                                         0.00       0.00
          -1311.69    -9.63   8221.50       839.10       0.16
                                41.43mc      13.81mc    19.53mc
          -1226.96  -251.52   6053.33       312.37       0.19
                                            2.37        40.19
                                            0.00         0.00
        d  4436.56 -3172.88  11823.62     17759.53       0.38       0.18
                                                         0.00       0.00
           1288.64    22.05   8221.50       839.10       0.16
                                41.43mc      13.81mc    19.53mc
           1210.89   254.04   6053.33       319.50       0.19
                                            2.40        40.59
                                            0.00         0.00
5   4.00i  6562.06  1277.85  12934.94     13411.19       0.51       0.10
                                                         0.00       0.00
           1194.56    22.05   3761.10       383.87       0.32
                                 68.09        22.70      32.10
           1116.81   254.04   6053.33       345.65       0.34
                                            2.40        40.59
                                            0.00         0.00
        d  6562.16  1278.00  12934.94     13411.19       0.51       0.10
                                                         0.00       0.00
           1147.27    17.19   3761.10       383.87       0.31
                                 64.11        21.37      30.22
           1063.38   251.69   6053.33       359.22       0.32
                                            2.38        40.21
                                            0.00         0.00
5   8.00i  8294.26  4546.60  24141.96      9767.82       0.34       0.19
                                                         0.00       0.00
           1204.89    17.19   3761.10       383.87       0.32
                                 68.95        22.98      32.50
           1121.00   251.69   6053.33       341.30       0.34
                                            2.38        40.21
                                            0.00         0.00
        d  8294.34  4546.72  24141.96      9767.82       0.34       0.19
                                                         0.00       0.00
           1204.88    13.37   3761.10       383.87       0.32
                                 68.95        22.98      32.50
           1120.98   247.37   6053.33       335.61       0.34
                                            2.34        39.52
                                            0.00         0.00
5  12.00i 10226.40  6166.34  20001.18      3599.94       0.51       0.31
                                                         0.00       0.00
            714.79    13.37   3761.10       383.87       0.19
                                 27.79         9.26      13.10
            630.89   247.37   6053.33       579.10       0.21
                                            2.34        39.52
                                            0.00         0.00
        d 10226.50  6166.39  20001.18      3599.94       0.51       0.31
                                                         0.00       0.00
            714.79     8.42   3761.10       383.87       0.19
                                 27.79         9.26      13.10
            630.90   242.10   6053.33       567.75       0.21
                                            2.29        38.68
                                            0.00         0.00
5  16.00i 11452.10  7044.85  22485.57      1751.20       0.51       0.31
                                                         0.00       0.00
            382.37     8.42   3761.10       383.87       0.10
                                18.95mc       6.32mc     8.93mc
            298.48   242.10   6053.33      1061.62       0.12
                                            2.29        38.68
                                                         0.00       0.00
        d 11452.10  7044.85  22485.57      1751.20       0.51       0.31
                                                                    0.00       0.00
             382.37    -1.40   3761.10       383.87       0.10
                                18.95mc       6.32mc     8.93mc
             314.73  -232.84   6053.33       991.93       0.12
                                            2.20        37.20
                                            0.00         0.00
5  20.00i 11772.70  7380.07  23318.30      1245.03       0.50       0.32
                                                                    0.00       0.00
             -49.98     2.46   3761.10       383.87       0.01
                                18.95mc       6.32mc     8.93mc
             -17.85  -232.84   6053.33      1995.99       0.04
                                            2.20        37.20
                                            0.00         0.00
        d 11772.70  7380.06  23318.30      1245.03       0.50       0.32
                                                                    0.00       0.00
             -50.00     1.14   3761.10       383.87       0.01
                                18.95mc       6.32mc     8.93mc
             -17.55  -234.44   6053.33      1996.45       0.04
                                            2.21        37.46
                                            0.00         0.00
5  24.00i 11461.30  7034.46  22473.52      1757.93       0.51       0.31
                                                                    0.00       0.00
            -383.97     0.64   3761.10       383.87       0.10
                                18.95mc       6.32mc     8.93mc
            -351.65  -234.44   6053.33       915.17       0.13
                                            2.21        37.46
                                            0.00         0.00
        d 11461.30  7034.44  22473.52      1757.93       0.51       0.31
                                                                    0.00       0.00
            -383.97    -5.64   3761.10       383.87       0.10
                                18.95mc       6.32mc     8.93mc
            -300.81  -242.35   6053.33      1056.47       0.12
                                            2.29        38.72
                                            0.00         0.00
5  28.00i 10245.40  6145.43  19984.69      3614.18       0.51       0.31
                                                                    0.00       0.00
            -714.86    -5.64   3761.10       383.87       0.19
                                27.80         9.27      13.10
            -631.70  -242.35   6053.33       567.63       0.21
                                            2.29        38.72
                                            0.00         0.00
        d 10245.40  6145.38  19984.69      3614.18       0.51       0.31
                                                                    0.00       0.00
            -714.87    -9.30   3761.10       383.87       0.19
                                27.80         9.27      13.10
            -631.71  -247.55   6053.33       578.80       0.21
                                            2.34        39.55
                                            0.00         0.00
5  32.00i  8319.36  4517.80  16212.43     10827.77       0.51       0.28
                                                                    0.00       0.00
            -966.91    -9.30   3761.10       383.87       0.26
                                48.97        16.32      23.08
            -883.74  -247.55   6053.33       422.42       0.28
                                            2.34        39.55
                                            0.00         0.00
        d  8319.29  4517.68  16212.43     10827.77       0.51       0.28
                                                                    0.00       0.00
            -966.92   -10.96   3761.10       383.87       0.26
                                48.97        16.32      23.08
            -883.75  -250.38   6053.33       427.03       0.28
                                            2.36        40.00
                                            0.00         0.00
5  36.00i  6590.75  1244.04  12923.18     13426.47       0.51       0.10
                                                                    0.00       0.00
           -1145.94   -10.96   3761.10       383.87       0.31
                                64.00        21.33      30.17
           -1062.77  -250.38   6053.33       357.61       0.32
                                            2.36        40.00
                                            0.00         0.00
        d  6590.65  1243.89  12923.18     13426.47       0.51       0.10
```

						0.00	0.00							18.95mc	6.32mc	8.93mc	
		-1192.21	3.72	3761.10	383.87	0.32						361.25	350.48	6053.33	1199.53	0.15	
				67.89	22.63	32.00									3.31	56.00	
		-1008.70	-259.63	6053.33	389.50	0.31									0.00	0.00	
					2.45	41.48					6	20.00i	12100.80	7449.93	23318.30	1245.03	0.52	0.32
					0.00	0.00										0.00	0.00	
5	40.00i	4428.03	-3173.16	11823.62	17759.53	0.37	0.18						70.70	-2.48	3761.10	383.87	0.02	
						0.00	0.00								18.95mc	6.32mc	8.93mc	
		-1287.76	3.72	8221.50	839.10	0.16							28.65	350.48	6053.33	1994.65	0.07	
				41.43mc	13.81mc	19.53mc										3.31	56.00	
		-1104.25	-259.63	6053.33	356.91	0.18										0.00	0.00	
					2.45	41.48						d	12100.80	7449.93	23318.30	1245.03	0.52	0.32
					0.00	0.00											0.00	0.00
	d	4428.02	-3173.15	11823.62	17759.53	0.37	0.18						70.69	-6.92	3761.10	383.87	0.02	
						0.00	0.00								18.95mc	6.32mc	8.93mc	
		1303.61	12.81	8221.50	839.10	0.16							-5.72	-346.95	6053.33	2005.42	0.06	
				41.43mc	13.81mc	19.53mc										3.28	55.43	
		1216.89	359.66	6053.33	444.59	0.21										0.00	0.00	
					3.40	57.46					6	24.00i	11898.10	7080.44	22473.52	1757.93	0.53	0.32
					0.00	0.00											0.00	0.00
6	4.00i	6570.25	1344.28	12934.94	13411.19	0.51	0.10						-384.21	-3.29	3761.10	383.87	0.10	
						0.00	0.00								18.95mc	6.32mc	8.93mc	
		1209.55	12.81	3761.10	383.87	0.32							-339.76	-346.95	6053.33	1238.90	0.15	
				69.34	23.11	32.69										3.28	55.43	
		1122.83	359.66	6053.33	479.78	0.36										0.00	0.00	
					3.40	57.46						d	11898.00	7080.41	22473.52	1757.93	0.53	0.32
					0.00	0.00											0.00	0.00
	d	6570.36	1344.44	12934.94	13411.19	0.51	0.10						-384.21	-11.05	3761.10	383.87	0.10	
						0.00	0.00								18.95mc	6.32mc	8.93mc	
		1168.19	8.14	3761.10	383.87	0.31							-288.92	-354.81	6053.33	1377.28	0.14	
				65.87	21.96	31.05										3.35	56.69	
		1075.33	364.42	6053.33	505.88	0.35										0.00	0.00	
					3.44	58.22					6	28.00i	10790.20	6167.83	19984.69	3614.18	0.54	0.31
					0.00	0.00											0.00	0.00
6	8.00i	8300.09	4697.89	24141.96	9767.82	0.34	0.19						-715.13	-11.05	3761.10	383.87	0.19	
						0.00	0.00								27.82	9.27	13.11	
		1225.82	8.14	3761.10	383.87	0.33							-619.84	-354.81	6053.33	808.18	0.22	
				70.71	23.57	33.33										3.35	56.69	
		1132.96	364.42	6053.33	481.67	0.36										0.00	0.00	
					3.44	58.22						d	10790.10	6167.76	19984.69	3614.18	0.54	0.31
					0.00	0.00											0.00	0.00
	d	8300.16	4698.02	24141.96	9767.82	0.34	0.19						-715.15	-17.76	3761.10	383.87	0.19	
						0.00	0.00								27.82	9.27	13.12	
		1225.81	6.42	3761.10	383.87	0.33							-619.87	-362.18	6053.33	822.14	0.22	
				70.71	23.57	33.33										3.42	57.87	
		1132.95	361.56	6053.33	478.11	0.36										0.00	0.00	
					3.41	57.77					6	32.00i	8971.01	4518.01	16212.43	10827.77	0.55	0.28
					0.00	0.00											0.00	0.00
6	12.00i	10336.40	6292.25	20001.18	3599.94	0.52	0.31						-967.18	-17.76	3761.10	383.87	0.26	
						0.00	0.00								48.99	16.33	23.09	
		735.70	6.42	3761.10	383.87	0.20							-871.90	-362.18	6053.33	610.40	0.29	
				29.55	9.85	13.93										3.42	57.87	
		642.84	361.56	6053.33	796.33	0.23										0.00	0.00	
					3.41	57.77						d	8970.95	4517.90	16212.43	10827.77	0.55	0.28
					0.00	0.00											0.00	0.00
	d	10336.50	6292.29	20001.18	3599.94	0.52	0.31						-967.18	-20.25	3761.10	383.87	0.26	
						0.00	0.00								48.99	16.33	23.09	
		735.70	1.23	3761.10	383.87	0.20							-871.90	-365.12	6053.33	614.89	0.29	
				29.55	9.85	13.93										3.45	58.34	
		693.67	354.38	6053.33	733.50	0.24										0.00	0.00	
					3.35	56.62					6	36.00i	7328.01	1243.51	12923.18	13426.47	0.57	0.10
					0.00	0.00											0.00	0.00
6	16.00i	11671.30	7142.70	22485.57	1751.20	0.52	0.32						-1146.19	-20.25	3761.10	383.87	0.31	
						0.00	0.00								64.02	21.34	30.18	
		403.29	1.23	3761.10	383.87	0.11							-1050.91	-365.12	6053.33	517.79	0.34	
				18.95mc	6.32mc	8.93mc										3.45	58.34	
		361.26	354.38	6053.33	1208.03	0.15										0.00	0.00	
					3.35	56.62						d	7327.93	1243.36	12923.18	13426.47	0.57	0.10
					0.00	0.00											0.00	0.00
	d	11671.30	7142.72	22485.57	1751.20	0.52	0.32						-1186.46	3.68	3761.10	383.87	0.32	
						0.00	0.00								67.40	22.47	31.77	
		403.28	-1.96	3761.10	383.87	0.11							-1002.77	-376.45	6053.33	556.39	0.33	

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                                          3.55      60.15
                                          0.00       0.00
  6  40.00i  5230.56 -3153.53  11823.62  17759.53     0.44       0.18
                                                     0.00       0.00
           -1281.99     3.68   8221.50     839.10     0.16
                                41.43mc    13.81mc   19.53mc
           -1098.30  -376.45   6053.33     511.28     0.20
                                          3.55      60.15
                                          0.00       0.00
         d  5230.52 -3153.50  11823.62  17759.53     0.44       0.18
                                                     0.00       0.00
            1297.90    19.92   8221.50     839.10     0.16
                                41.43mc    13.81mc   19.53mc
            1150.70   651.08   6053.33     800.34     0.25
                                          6.15      104.02
                                          0.00       0.00
  7   4.00i  6959.88  1343.97  12934.94  13411.19     0.54       0.10
                                                     0.00       0.00
            1203.85    19.92   3761.10     383.87     0.32
                                68.87      22.96     32.46
            1056.65   651.08   6053.33     858.96     0.39
                                          6.15      104.02
                                          0.00       0.00
         d  6959.93  1344.13  12934.94  13411.19     0.54       0.10
                                                     0.00       0.00
            1168.42    14.68   3761.10     383.87     0.31
                                65.89      21.96     31.06
            1015.05   656.82   6053.33     893.66     0.38
                                          6.20      104.94
                                          0.00       0.00
  7   8.00i  8258.97  4696.06  24141.96   9767.82     0.34       0.19
                                                     0.00       0.00
            1226.02    14.68   3761.10     383.87     0.33
                                70.73      23.58     33.34
            1072.66   656.82   6053.33     854.57     0.39
                                          6.20      104.94
                                          0.00       0.00
         d  8258.91  4696.27  24141.96   9767.82     0.34       0.19
                                                     0.00       0.00
            1226.01    12.11   3761.10     383.87     0.33
                                70.73      23.58     33.34
            1072.64   653.96   6053.33     851.53     0.39
                                          6.17      104.48
                                          0.00       0.00
  7  12.00i 10303.10  5854.10  20001.18   3599.94     0.52       0.29
                                                     0.00       0.00
             735.87    12.11   3761.10     383.87     0.20
                                29.56       9.85     13.94
             582.50   653.96   6053.33    1310.87     0.26
                                          6.17      104.48
                                          0.00       0.00
         d 10303.20  5854.15  20001.18   3599.94     0.52       0.29
                                                     0.00       0.00
             735.85     5.05   3761.10     383.87     0.20
                                29.56       9.85     13.94
             633.33   646.74   6053.33    1238.90     0.28
                                          6.11      103.33
                                          0.00       0.00
  7  16.00i 11644.50  6265.83  22485.57   1751.20     0.52       0.28
                                                     0.00       0.00
             403.49     5.05   3761.10     383.87     0.11
                                18.95mc     6.32mc    8.93mc
             300.96   646.74   6053.33    1716.16     0.19
                                          6.11      103.33
                                          0.00       0.00
         d 11644.60  6265.84  22485.57   1751.20     0.52       0.28
                                                     0.00       0.00
             403.49    -0.85   3761.10     383.87     0.11
                                18.95mc     6.32mc    8.93mc
             300.97   641.30   6053.33    1712.24     0.19
                                          6.05      102.46
                                          0.00       0.00
  7  20.00i 12081.50  6134.13  23318.30   1245.03     0.52       0.26
                                                     0.00       0.00
            -158.22    20.01   3761.10     383.87     0.05
                                18.95mc     6.32mc    8.93mc
             -31.63   641.30   6053.33    2001.77     0.11
                                          6.05      102.46
                                          0.00       0.00
         d 12081.50  6134.10  23318.30   1245.03     0.52       0.26
                                                     0.00       0.00
            -158.24    17.23   3761.10     383.87     0.04
                                18.95mc     6.32mc    8.93mc
             -65.78  -641.40   6053.33    1988.28     0.12
                                          6.05      102.48
                                          0.00       0.00
  7  24.00i 11885.80  5325.85  22473.52   1757.93     0.53       0.24
                                                     0.00       0.00
            -492.31    17.23   3761.10     383.87     0.13
                                18.95mc     6.32mc    8.93mc
            -399.86  -641.40   6053.33    1558.21     0.21
                                          6.05      102.48
                                          0.00       0.00
         d 11885.80  5325.84  22473.52   1757.93     0.53       0.24
                                                     0.00       0.00
            -492.32    11.07   3761.10     383.87     0.13
                                18.95mc     6.32mc    8.93mc
            -348.98  -650.59   6053.33    1645.22     0.20
                                          6.14      103.94
                                          0.00       0.00
  7  28.00i 10785.00  3974.57  19984.69   3614.18     0.54       0.20
                                                     0.00       0.00
            -823.24    11.07   3761.10     383.87     0.22
                                36.90      12.30     17.40
            -679.90  -650.59   6053.33    1188.89     0.29
                                          6.14      103.94
                                          0.00       0.00
         d 10784.90  3974.51  19984.69   3614.18     0.54       0.20
                                                     0.00       0.00
            -823.24     9.35   3761.10     383.87     0.22
                                36.90      12.30     17.40
            -679.90  -653.81   6053.33    1192.70     0.29
                                          6.17      104.46
                                          0.00       0.00
  7  32.00i  8973.47  1885.54  16212.43  10827.77     0.55       0.12
                                                     0.00       0.00
           -1075.27     9.35   3761.10     383.87     0.29
                                58.07      19.36     27.37
            -931.92  -653.81   6053.33     952.47     0.36
                                          6.17      104.46
                                          0.00       0.00
         d  8973.40  1885.40  16212.43  10827.77     0.55       0.12
                                                     0.00       0.00
           -1075.28     8.64   3761.10     383.87     0.29
                                58.07      19.36     27.37
            -931.93  -656.23   6053.33     955.19     0.36
                                          6.19      104.85
                                          0.00       0.00
  7  36.00i  7331.61 -1821.64  12927.10  13423.93     0.57       0.14
                                                     0.00       0.00
           -1254.29     8.64   3761.10     383.87     0.33
                                73.10      24.37     34.46
           -1110.94  -656.23   6053.33     829.63     0.40
                                          6.19      104.85
                                          0.00       0.00
         d  7331.52 -1821.80  12927.10  13423.93     0.57       0.14
                                                     0.00       0.00
           -1288.62    39.06   3761.10     383.87     0.35
                                75.98      25.33     35.82
            -706.70  -657.01   6053.33    1166.64     0.30
                                          6.20      104.97
                                          0.00       0.00
  7  40.00i  5216.22 -6631.11  11823.62  17759.53     0.44       0.37
                                                     0.00       0.00
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		-1384.10	39.06	8221.50	839.10	0.17					-32.89	621.43	6053.33	2001.15	0.11		
				45.77	15.26	21.58								5.87	99.29		
		-687.67	-657.01	6053.33	1187.70	0.19								0.00	0.00		
					6.20	104.97				d	16800.80	6129.95	23318.30	1245.03	0.72	0.26	
					0.00	0.00									0.00	0.00	
	d	5216.20	-6631.00	11823.62	17759.53	0.44	0.37				-159.64	12.51	3761.10	383.87	0.04		
					0.00	0.00							18.95mc	6.32mc	8.93mc		
		2118.26	173.16	8221.50	839.10	0.29					-67.10	-624.51	6053.33	1986.59	0.12		
				107.43	35.81	50.64								5.90	99.78		
		1598.79	1838.88	6053.33	1328.97	0.50								0.00	0.00		
					17.36	293.80				8	24.00i	16259.20	5316.83	22473.52	1757.93	0.72	0.24	
					6.94	116.12									0.00	0.00	
8	4.00i	6962.47	778.53	12934.94	13411.19	0.54	0.06				-654.00	27.40	3761.10	383.87	0.18		
					0.00	0.00							22.69	7.56	10.69		
		1858.68	157.19	3761.10	383.87	0.52					-485.14	-856.29	6053.33	1614.95	0.27		
				123.86	41.29	58.39								8.08	136.81		
		1415.78	1603.72	6053.33	1317.57	0.64								0.00	0.00		
					15.14	256.23				d	16259.20	5316.78	22473.52	1757.93	0.72	0.24	
					3.90	65.17									0.00	0.00	
	d	6962.54	778.86	12934.94	13411.19	0.54	0.06				-654.01	19.90	3761.10	383.87	0.18		
					0.00	0.00							22.69	7.56	10.70		
		1829.43	151.73	3761.10	383.87	0.51					-434.22	-863.19	6053.33	1678.66	0.26		
				121.40	40.47	57.23								8.15	137.91		
		1380.25	1596.73	6053.33	1333.28	0.63								0.00	0.00		
					15.07	255.11				8	28.00i	14152.50	3960.67	19984.69	3614.18	0.71	0.20	
					3.59	60.00									0.00	0.00	
8	8.00i	10040.80	4701.66	24141.96	9767.82	0.42	0.19				-1151.95	51.28	3761.10	383.87	0.31		
					0.00	0.00							64.51	21.50	30.41		
		1723.52	128.19	3761.10	383.87	0.48					-855.61	-1113.61	6053.33	1419.04	0.41		
				112.51	37.50	53.04								10.51	177.92		
		1349.05	1361.88	6053.33	1230.09	0.58								0.00	0.00		
					12.86	217.59				d	14152.40	3960.61	19984.69	3614.18	0.71	0.20	
					1.79	30.01									0.00	0.00	
	d	10040.80	4701.87	24141.96	9767.82	0.42	0.19				-1151.98	45.68	3761.10	383.87	0.31		
					0.00	0.00							64.51	21.50	30.41		
		1723.52	125.88	3761.10	383.87	0.48					-855.63	-1119.38	6053.33	1422.68	0.41		
				112.51	37.50	53.04								10.57	178.84		
		1349.06	1358.74	6053.33	1228.31	0.58								0.00	0.00		
					12.83	217.09				8	32.00i	10680.80	1858.35	16212.43	10827.77	0.66	0.11	
					1.78	29.70									0.00	0.00	
8	12.00i	13722.50	5859.32	20001.18	3599.94	0.69	0.29				-1569.47	61.44	3761.10	383.87	0.43		
					0.00	0.00							99.57	33.19	46.94		
		1068.02	-46.36	3761.10	383.87	0.29					-1194.71	-1362.00	6053.33	1322.36	0.54		
				57.46	19.15	27.09								12.86	217.61		
		771.96	1116.16	6053.33	1491.46	0.39								0.54	9.03		
					10.54	178.33				d	10680.80	1858.22	16212.43	10827.77	0.66	0.11	
					0.00	0.00									0.00	0.00	
	d	13722.60	5859.36	20001.18	3599.94	0.69	0.29				-1569.47	56.85	3761.10	383.87	0.43		
					0.00	0.00							99.57	33.19	46.94		
		1068.00	-53.97	3761.10	383.87	0.29					-1194.71	-1367.75	6053.33	1325.51	0.54		
				57.46	19.15	27.09								12.91	218.53		
		771.94	1107.79	6053.33	1486.45	0.39								0.58	9.62		
					10.46	176.99				8	36.00i	7308.65	-2365.97	12927.10	13423.93	0.57	0.18	
					0.00	0.00									0.00	0.00	
8	16.00i	16044.20	6266.35	22485.57	1751.20	0.71	0.28				-1911.98	80.39	3761.10	383.87	0.52		
					0.00	0.00							128.34	42.78	60.50		
		568.56	-22.59	3761.10	383.87	0.15					-1462.52	-1602.59	6053.33	1292.59	0.65		
				18.95mc	6.32mc	8.93mc								15.13	256.05		
		349.06	857.35	6053.33	1772.78	0.23								4.22	70.60		
					8.09	136.98				d	7308.55	-2366.24	12927.10	13423.93	0.57	0.18	
					0.00	0.00									0.00	0.00	
	d	16044.20	6266.37	22485.57	1751.20	0.71	0.28				-1940.13	113.59	3761.10	383.87	0.53		
					0.00	0.00							130.70	43.57	61.61		
		568.55	-29.84	3761.10	383.87	0.16					-1426.08	-1614.35	6053.33	1317.09	0.65		
				18.95mc	6.32mc	8.93mc								15.24	257.93		
		399.94	850.28	6053.33	1711.20	0.25								4.05	67.70		
					8.03	135.85				8	40.00i	5169.26	-9918.63	11823.62	17759.53	0.44	0.56	
					0.00	0.00									0.00	0.00	
8	20.00i	16800.80	6129.96	23318.30	1245.03	0.72	0.26				-2201.07	-140.37	8221.50	839.10	0.29		
					0.00	0.00							114.38	38.13	53.92		
		-159.61	20.04	3761.10	383.87	0.05					-1610.46	-1849.48	6053.33	1327.84	0.50		
				18.95mc	6.32mc	8.93mc								17.46	295.49		

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                                    7.10     118.80                                                                                                  0.00       0.00
        d  5169.25 -9918.66  11823.62     17759.53       0.44       0.56                                  180.43   -21.92   3761.10       383.87       0.05
                                            0.00       0.00                                                        18.95mc      6.32mc     8.93mc
           2217.37   171.88   8221.50       839.10       0.30                                    2.94  -876.66   6053.33      2005.86       0.15
                     115.75                38.58      54.57                                                                    8.28     140.06
           1646.33  2059.24   6053.33      1390.58       0.54                                                                    0.00       0.00
                                           19.44      329.01                 9  24.00i 16276.40  4519.70  22473.52      1757.93       0.72       0.20
                                            9.10      152.28                                                                                  0.00       0.00
 9   4.00i  6942.88 -2266.45  12934.94     13411.19       0.54       0.17                                 -650.98    26.32   3761.10       383.87       0.18
                                            0.00       0.00                                                        22.43      7.48      10.58
           1957.85   -79.81   3761.10       383.87       0.53                                 -431.39 -1108.58   6053.33      1789.80       0.30
                     132.19                44.06      62.31                                                                   10.46     177.12
           1463.37  1824.03   6053.33      1388.07       0.69                                                                    0.00       0.00
                                           17.22      291.43                       d 16276.30  4519.68  22473.52      1757.93       0.72       0.20
                                            5.94       99.28                                                                                  0.00       0.00
        d  6942.95 -2266.21  12934.94     13411.19       0.54       0.17                                 -650.99    18.29   3761.10       383.87       0.18
                                            0.00       0.00                                                        22.43      7.48      10.58
           1934.17   153.92   3761.10       383.87       0.54                                 -380.45 -1117.29   6053.33      1834.14       0.29
                     130.20                43.40      61.38                                                                   10.55     178.51
           1433.80  1828.56   6053.33      1404.55       0.68                                                                    0.00       0.00
                                           17.26      292.15                 9  28.00i 14180.00  3579.06  19984.69      3614.18       0.71       0.18
                                            5.77       96.56                                                                                  0.00       0.00
 9   8.00i 10021.50  2035.93  24141.96      9767.82       0.42       0.08                                -1148.95    49.67   3761.10       383.87       0.31
                                            0.00       0.00                                                        64.25     21.42      30.29
           1828.27   130.39   3761.10       383.87       0.51                                 -801.85 -1367.72   6053.33      1595.21       0.44
                     121.31                40.44      57.18                                                                   12.91     218.52
           1402.59  1593.62   6053.33      1319.84       0.64                                                                    0.00       0.00
                                           15.04      254.61                       d 14179.90  3579.02  19984.69      3614.18       0.71       0.18
                                            3.73       62.35                                                                                  0.00       0.00
        d 10021.40  2036.22  24141.96      9767.82       0.42       0.08                                -1148.97    46.70   3761.10       383.87       0.31
                                            0.00       0.00                                                        64.26     21.42      30.29
           1828.25   -60.38   3761.10       383.87       0.50                                 -801.87 -1371.56   6053.33      1596.84       0.44
                     121.31                40.44      57.18                                                                   12.95     219.13
           1402.59  1588.16   6053.33      1317.27       0.64                                                                    0.00       0.00
                                           14.99      253.74                 9  32.00i 10710.40  1901.64  16212.43     10827.77       0.66       0.12
                                            3.69       61.69                                                                                  0.00       0.00
 9  12.00i 13709.00  3680.20  20001.18      3599.94       0.69       0.18                               -1566.41  -127.87   3761.10       383.87       0.44
                                            0.00       0.00                                                        99.31     33.10      46.82
          1172.74   -44.55   3761.10       383.87       0.32                                -1140.91 -1614.16   6053.33      1476.87       0.57
                     66.25                 22.08      31.23                                                                   15.24     257.89
           825.48  1345.57   6053.33      1568.08       0.44                                                                    1.87      31.27
                                           12.70      214.98                       d 10710.50  1901.29  16212.43     10827.77       0.66       0.12
                                            0.00       0.00                                                                                   0.00       0.00
        d 13709.10  3680.21  20001.18      3599.94       0.69       0.18                               -1566.42    59.68   3761.10       383.87       0.43
                                            0.00       0.00                                                        99.32     33.11      46.82
           1172.72   -50.56   3761.10       383.87       0.32                                -1140.92 -1619.82   6053.33      1479.23       0.57
                     66.25                 22.08      31.23                                                                   15.29     258.80
           825.46  1339.71   6053.33      1565.43       0.44                                                                    1.91      32.02
                                           12.65      214.05                 9  36.00i  7743.86 -2304.83  12923.18     13426.47       0.60       0.17
                                            0.00       0.00                                                                                   0.00       0.00
 9  16.00i 16040.60  4570.27  22485.57      1751.20       0.71       0.20                               -1909.02    83.22   3761.10       383.87       0.52
                                            0.00       0.00                                                       128.09     42.70      60.38
           673.34   -19.18   3761.10       383.87       0.18                                -1408.80 -1854.79   6053.33      1427.16       0.68
                     24.31                  8.10      11.46                                                                   17.51     296.34
           402.62  1089.30   6053.33      1807.92       0.29                                                                    5.82      97.39
                                           10.28      174.04                       d  7743.79 -2305.09  12923.18     13426.47       0.60       0.17
                                            0.00       0.00                                                                                   0.00       0.00
        d 16040.60  4570.27  22485.57      1751.20       0.71       0.20                               -1931.24   122.42   3761.10       383.87       0.53
                                            0.00       0.00                                                       129.95     43.32      61.26
           673.31   -26.39   3761.10       383.87       0.18                                -1378.29 -1861.30   6053.33      1444.94       0.67
                     24.31                  8.10      11.46                                                                   17.57     297.38
           453.45  1083.07   6053.33      1761.73       0.30                                                                    5.67      94.82
                                           10.22      173.04                 9  40.00i  5999.49 -9826.68  11823.62     17759.53       0.51       0.55
                                            0.00       0.00                                                                                   0.00       0.00
 9  20.00i 16807.40  4916.92  23318.30      1245.03       0.72       0.21                               -2192.20  -133.69   8221.50       839.10       0.29
                                            0.00       0.00                                                       113.64     37.88      53.57
           180.43   -13.67   3761.10       383.87       0.05                                -1562.69 -2096.51   6053.33      1440.36       0.54
                     18.95mc      6.32mc     8.93mc                                                                  19.79     334.96
            36.87   873.19   6053.33      2002.87       0.15                                                                    8.93     149.43
                                            8.24      139.51                       d  5999.48 -9826.72  11823.62     17759.53       0.51       0.55
                                            0.00       0.00                                                                                   0.00       0.00
        d 16807.50  4916.89  23318.30      1245.03       0.72       0.21                  2209.56   163.08   8221.50       839.10       0.30
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                                115.10       38.37      54.26
             1624.62  2129.05   6053.33     1423.89       0.55
                                            20.10     340.16
                                             9.60     160.59
10   4.00i  7708.37 -2209.39  12934.94    13411.19       0.60       0.16
                                                0.00       0.00
             1950.17   146.86   3761.10      383.87       0.54
                                131.54       43.85      62.01
             1441.77  1893.73   6053.33     1425.50       0.70
                                            17.88     302.56
                                             6.38     106.63
         d  7708.44 -2209.14  12934.94    13411.19       0.60       0.16
                                                0.00       0.00
             1931.01   146.18   3761.10      383.87       0.54
                                129.94       43.31      61.25
             1418.11  1888.73   6053.33     1435.27       0.69
                                            17.83     301.76
                                             6.17     103.27
10   8.00i 10657.40  2076.32  24141.96     9767.82       0.44       0.09
                                                0.00       0.00
             1825.08   122.65   3761.10      383.87       0.51
                                121.04       40.35      57.06
             1386.88  1653.59   6053.33     1355.64       0.64
                                            15.61     264.19
                                             4.06      67.85
         d 10657.40  2076.53  24141.96     9767.82       0.44       0.09
                                                0.00       0.00
             1825.06   121.17   3761.10      383.87       0.51
                                121.04       40.35      57.06
             1386.86  1650.74   6053.33     1354.38       0.64
                                            15.58     263.74
                                             4.04      67.49
10  12.00i 14240.00  3703.42  20001.18     3599.94       0.71       0.19
                                                0.00       0.00
             1169.53   -46.99   3761.10      383.87       0.32
                                 65.98       21.99      31.10
              809.74  1408.15   6053.33     1606.46       0.45
                                            13.29     224.98
                                             0.00       0.00
         d 14240.10  3703.42  20001.18     3599.94       0.71       0.19
                                                0.00       0.00
             1169.52   -54.81   3761.10      383.87       0.32
                                 65.98       21.99      31.10
              860.70  1398.26   6053.33     1566.02       0.46
                                            13.20     223.40
                                             0.00       0.00
10  16.00i 16455.10  4587.87  22485.57     1751.20       0.73       0.20
                                                0.00       0.00
              670.11   -23.43   3761.10      383.87       0.18
                                 24.04        8.01      11.33
              437.84  1147.84   6053.33     1796.98       0.31
                                            10.84     183.39
                                             0.00       0.00
         d 16455.10  4587.87  22485.57     1751.20       0.73       0.20
                                                0.00       0.00
              670.10   -27.62   3761.10      383.87       0.18
                                 24.04        8.01      11.33
              313.16 -1144.72   6053.33     1889.87       0.27
                                            10.81     182.89
                                             0.00       0.00
10  20.00i 17106.70  4927.31  23318.30     1245.03       0.73       0.21
                                                0.00       0.00
             -184.95    11.88   3761.10      383.87       0.05
                                18.95mc      6.32mc     8.93mc
              -12.80  -954.58   6053.33     2005.58       0.16
                                             9.01     152.51
                                             0.00       0.00
         d 17106.80  4927.28  23318.30     1245.03       0.73       0.21
                                                0.00       0.00
             -184.97     4.98   3761.10      383.87       0.05
                                18.95mc      6.32mc     8.93mc
              -12.81  -960.46   6053.33     2005.58       0.16
                                                                    9.07     153.45
                                                                    0.00       0.00
10  24.00i 16459.50  4523.88  22473.52     1757.93       0.73       0.20
                                                                    0.00       0.00
             -679.44    25.01   3761.10      383.87       0.18
                                                24.82       8.27      11.70
             -447.24 -1193.38   6053.33     1803.17       0.32
                                                                   11.27     190.67
                                                                    0.00       0.00
         d 16459.50  4523.86  22473.52     1757.93       0.73       0.20
                                                                    0.00       0.00
             -679.45    14.73   3761.10      383.87       0.18
                                                24.82       8.27      11.70
             -396.15 -1202.51   6053.33     1843.83       0.30
                                                                   11.35     192.13
                                                                    0.00       0.00
10  28.00i 14247.40  3576.93  19984.69     3614.18       0.71       0.18
                                                                    0.00       0.00
            -1177.37    46.11   3761.10      383.87       0.32
                                                66.64      22.21      31.42
             -817.53 -1452.92   6053.33     1618.84       0.46
                                                                   13.72     232.13
                                                                    0.00       0.00
         d 14247.30  3576.89  19984.69     3614.18       0.71       0.18
                                                                    0.00       0.00
            -1177.39    42.18   3761.10      383.87       0.32
                                                66.64      22.21      31.42
             -817.53 -1456.88   6053.33     1620.38       0.46
                                                                   13.75     232.77
                                                                    0.00       0.00
10  32.00i 10665.00  1890.57  16212.43    10827.77       0.66       0.12
                                                                    0.00       0.00
            -1594.79    58.20   3761.10      383.87       0.43
                                                101.70      33.90      47.94
            -1156.54 -1699.45   6053.33     1502.18       0.59
                                                                   16.04     271.52
                                                                    2.69      44.93
         d 10665.10  1890.29  16212.43    10827.77       0.66       0.12
                                                                    0.00       0.00
            -1594.81    54.98   3761.10      383.87       0.43
                                                101.70      33.90      47.94
            -1156.55 -1703.47   6053.33     1503.73       0.59
                                                                   16.08     272.16
                                                                    2.72      45.49
10  36.00i  7699.42 -2437.70  12923.18    13426.47       0.60       0.18
                                                                    0.00       0.00
            -1937.43    78.52   3761.10      383.87       0.53
                                                130.47      43.49      61.51
            -1424.45 -1938.63   6053.33     1450.32       0.70
                                                                   18.30     309.74
                                                                    6.65     111.20
         d  7699.34 -2437.96  12923.18    13426.47       0.60       0.18
                                                                    0.00       0.00
            -1953.71   114.68   3761.10      383.87       0.54
                                                131.84      43.95      62.15
            -1399.86 -1936.35   6053.33     1461.51       0.69
                                                                   18.28     309.37
                                                                    6.47     108.14
10  40.00i  5925.47 -10052.10  11823.62    17759.53       0.50       0.57
                                                                    0.00       0.00
            -2214.55   -143.72   8221.50      839.10       0.29
                                                115.52      38.51      54.45
            -1584.17 -2171.71   6053.33     1455.34       0.55
                                                                   20.50     346.97
                                                                    9.75     163.14
         d  5925.47 -10052.10  11823.62    17759.53       0.50       0.57
                                                                    0.00       0.00
             2217.11   164.33   8221.50      839.10       0.30
                                                115.73      38.58      54.56
             1628.75  2111.35   6053.33     1416.18       0.55
                                                                   19.93     337.33
                                                                    9.47     158.32
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11   4.00i  7687.44 -2410.02  12936.08     13409.77      0.59       0.18
                                                          0.00       0.00
            1957.58   147.74   3761.10       383.87      0.54
                               132.17        44.06     62.30
            1445.78  1875.61   6053.33      1416.73      0.69
                                            17.71     299.67
                                             6.25     104.50
         d  7687.48 -2409.75  12936.08     13409.77      0.59       0.18
                                                          0.00       0.00
            1942.96   145.82   3761.10       383.87      0.54
                               130.94        43.65     61.73
            1428.06  1862.48   6053.33      1420.49      0.69
                                            17.58     297.57
                                             6.02     100.66
11   8.00i 10672.40  1913.41  24141.96      9767.82      0.44       0.08
                                                          0.00       0.00
            1837.06   122.29   3761.10       383.87      0.51
                               122.05        40.68     57.53
            1396.84  1626.97   6053.33      1338.35      0.64
                                            15.36     259.94
                                             3.93     65.73
         d 10672.50  1913.52  24141.96      9767.82      0.44       0.08
                                                          0.00       0.00
            1837.05   119.01   3761.10       383.87      0.51
                               122.04        40.68     57.53
            1396.82  1622.88   6053.33      1336.49      0.64
                                            15.32     259.29
                                             3.90     65.22
11  12.00i 14265.10  3604.59  20001.18      3599.94      0.71       0.18
                                                          0.00       0.00
            1181.46   -44.63   3761.10       383.87      0.32
                                66.99        22.33     31.58
             819.66  1380.26   6053.33      1587.64      0.45
                                            13.03     220.52
                                             0.00       0.00
         d 14265.20  3604.63  20001.18      3599.94      0.71       0.18
                                                          0.00       0.00
            1181.44   -50.65   3761.10       383.87      0.32
                                66.98        22.33     31.58
             819.65  1374.21   6053.33      1585.04      0.44
                                            12.97     219.56
                                             0.00       0.00
11  16.00i 16498.70  4544.19  22485.57      1751.20      0.73       0.20
                                                          0.00       0.00
             682.00   -19.27   3761.10       383.87      0.18
                                25.04         8.35     11.80
             396.77  1123.77   6053.33      1822.95      0.29
                                            10.61     179.55
                                             0.00       0.00
         d 16498.80  4544.20  22485.57      1751.20      0.73       0.20
                                                          0.00       0.00
             681.98   -26.96   3761.10       383.87      0.19
                                25.04         8.35     11.80
             446.58  1117.85   6053.33      1780.04      0.30
                                            10.55     178.60
                                             0.00       0.00
11  20.00i 17171.10  4935.95  23318.30      1245.03      0.74       0.21
                                                          0.00       0.00
             191.09   -19.11   3761.10       383.87      0.05
                                18.95mc       6.32mc     8.93mc
              30.24   968.72   6053.33      2004.23      0.17
                                             9.14     154.77
                                             0.00       0.00
         d 17171.10  4935.91  23318.30      1245.03      0.74       0.21
                                                          0.00       0.00
             191.08   -26.59   3761.10       383.87      0.06
                                18.95mc       6.32mc     8.93mc
              -2.79  -976.75   6053.33      2005.87      0.16
                                             9.22     156.06
                                             0.00       0.00
11  24.00i 16544.40  4586.55  22473.52      1757.93      0.74       0.20
                                                          0.00       0.00
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                    -674.03    28.40   3761.10       383.87      0.18
                                           24.37         8.12     11.49
                    -437.26 -1211.27   6053.33      1815.79      0.32
                                                      11.43     193.52
                                                       0.00       0.00
                d 16544.30  4586.51  22473.52      1757.93      0.74       0.20
                                                                 0.00       0.00
                    -674.04    24.24   3761.10       383.87      0.18
                                           24.37         8.12     11.49
                    -385.73 -1215.77   6053.33      1854.28      0.30
                                                      11.48     194.24
                                                       0.00       0.00
            11  28.00i 14352.10  3692.85  19984.69      3614.18      0.72       0.18
                                                                 0.00       0.00
                   -1172.00    55.62   3761.10       383.87      0.32
                                           66.19        22.06     31.20
                    -807.13 -1466.19   6053.33      1631.07      0.46
                                                      13.84     234.25
                                                       0.00       0.00
                d 14352.00  3692.80  19984.69      3614.18      0.72       0.18
                                                                 0.00       0.00
                   -1172.03    49.55   3761.10       383.87      0.32
                                           66.19        22.06     31.20
                    -807.16 -1473.97   6053.33      1633.97      0.46
                                                      13.91     235.50
                                                       0.00       0.00
            11  32.00i 10790.50  2058.58  16212.43     10827.77      0.67       0.13
                                                                 0.00       0.00
                   -1589.50    65.94   3761.10       383.87      0.43
                                          101.25        33.75     47.73
                    -1146.20 -1716.57   6053.33      1514.63      0.59
                                                      16.20     274.26
                                                       2.75     45.99
                d 10790.50  2058.45  16212.43     10827.77      0.67       0.13
                                                                 0.00       0.00
                   -1589.50    64.45   3761.10       383.87      0.43
                                          101.25        33.75     47.73
                    -1146.21 -1719.50   6053.33      1515.74      0.59
                                                      16.23     274.73
                                                       2.77     46.40
            11  36.00i  7909.41 -2276.02  12927.10     13423.93      0.61       0.17
                                                                 0.00       0.00
                   -1932.09    87.98   3761.10       383.87      0.53
                                          130.03        43.34     61.29
                    -1414.11 -1955.01   6053.33      1461.14      0.70
                                                      18.46     312.35
                                                       6.72     112.47
                d  7909.35 -2276.31  12927.10     13423.93      0.61       0.17
                                                                 0.00       0.00
                   -1942.46   124.24   3761.10       383.87      0.54
                                          130.90        43.63     61.71
                    -1033.73 -1944.54   6053.33      1650.04      0.60
                                                      18.36     310.68
                                                       4.01     67.07
            11  40.00i  6170.46 -9855.47  11823.62     17759.53      0.52       0.55
                                                                 0.00       0.00
                   -2203.39  -138.22   8221.50       839.10      0.29
                                          114.58        38.19     54.01
                    -1103.58 -2180.36   6053.33      1675.55      0.49
                                                      20.58     348.36
                                                       6.87     114.96
                d  6170.46 -9855.48  11823.62     17759.53      0.52       0.55
                                                                 0.00       0.00
                    2184.59   154.91   8221.50       839.10      0.29
                                          113.00        37.67     53.27
                    1593.26  2069.97   6053.33      1417.77      0.54
                                                      19.54     330.72
                                                       8.88     148.53
            12   4.00i  7858.90 -2340.91  12934.94     13411.19      0.61       0.17
                                                                 0.00       0.00
                    1925.03   137.99   3761.10       383.87      0.53
                                          129.43        43.14     61.02
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            1410.26  1833.92   6053.33      1418.43      0.68
                                            17.31      293.01
                                             5.66       94.62
          d  7858.95 -2340.65  12934.94     13411.19      0.61       0.17
                                                0.00       0.00
             1914.94   138.39   3761.10       383.87      0.53
                                128.59        42.86      60.62
             1398.45  1812.01   6053.33      1415.86      0.67
                                            17.11      289.51
                                             5.39       90.22
12   8.00i 10739.20  1883.63  24141.96      9767.82      0.44       0.08
                                                0.00       0.00
             1809.00   114.85   3761.10       383.87      0.50
                                119.69        39.90      56.42
             1367.15  1576.16   6053.33      1330.73      0.62
                                            14.88      251.82
                                             3.34       55.89
          d 10739.20  1883.75  24141.96      9767.82      0.44       0.08
                                                0.00       0.00
             1808.98   111.29   3761.10       383.87      0.50
                                119.69        39.90      56.42
             1367.13  1569.03   6053.33      1327.36      0.62
                                            14.81      250.68
                                             3.29       55.04
12  12.00i 14156.80  3546.22  20001.18      3599.94      0.71       0.18
                                                0.00       0.00
             1153.42   -50.50   3761.10       383.87      0.32
                                 64.63        21.54      30.47
              790.04  1326.45   6053.33      1585.88      0.43
                                            12.52      211.93
                                             0.00       0.00
          d 14156.90  3546.25  20001.18      3599.94      0.71       0.18
                                                0.00       0.00
             1153.40   -53.46   3761.10       383.87      0.32
                                 64.63        21.54      30.47
              794.99  1322.91   6053.33      1580.56      0.43
                                            12.49      211.36
                                             0.00       0.00
12  16.00i 16239.70  4434.17  22485.57      1751.20      0.72       0.20
                                                0.00       0.00
              653.98   -22.08   3761.10       383.87      0.18
                                 22.69         7.56      10.69
              372.13  1072.49   6053.33      1828.40      0.28
                                            10.12      171.35
                                             0.00       0.00
          d 16239.80  4434.17  22485.57      1751.20      0.72       0.20
                                                0.00       0.00
              653.96   -28.03   3761.10       383.87      0.18
                                 22.68         7.56      10.69
              294.65 -1072.28   6053.33      1888.92      0.26
                                            10.12      171.32
                                             0.00       0.00
12  20.00i 16764.40  4771.80  23318.30      1245.03      0.72       0.20
                                                0.00       0.00
             -204.99     6.72   3761.10       383.87      0.06
                                18.95mc       6.32mc     8.93mc
              -30.91  -938.44   6053.33      2004.05      0.16
                                             8.86      149.93
                                             0.00       0.00
          d 16764.40  4771.77  23318.30      1245.03      0.72       0.20
                                                0.00       0.00
             -205.00    -4.12   3761.10       383.87      0.06
                                18.95mc       6.32mc     8.93mc
              -32.32  -946.80   6053.33      2003.91      0.17
                                             8.94      151.27
                                             0.00       0.00
12  24.00i 15989.70  4368.32  22473.52      1757.93      0.71       0.19
                                                0.00       0.00
             -699.38    23.66   3761.10       383.87      0.19
                                 26.50         8.83      12.49
             -466.95 -1181.89   6053.33      1784.21      0.32
                                            11.16      188.83
                                                0.00       0.00
          d 15989.60  4368.29  22473.52      1757.93      0.71       0.19
                                                0.00       0.00
             -699.39    18.87   3761.10       383.87      0.19
                                 26.50         8.83      12.49
             -414.63 -1186.20   6053.33      1826.11      0.31
                                            11.20      189.52
                                                0.00       0.00
12  28.00i 13649.20  3419.86  19984.69      3614.18      0.68       0.17
                                                0.00       0.00
            -1197.33    50.25   3761.10       383.87      0.33
                                 68.32        22.77      32.21
             -836.02 -1436.62   6053.33      1599.55      0.46
                                            13.56      229.53
                                                0.00       0.00
          d 13649.10  3419.81  19984.69      3614.18      0.68       0.17
                                                0.00       0.00
            -1197.35    42.71   3761.10       383.87      0.33
                                 68.32        22.77      32.21
             -836.03 -1444.13   6053.33      1602.57      0.46
                                            13.63      230.73
                                                0.00       0.00
12  32.00i 10005.60  1664.95  16212.43     10827.77      0.62       0.10
                                                0.00       0.00
            -1614.87    59.41   3761.10       383.87      0.44
                                103.38        34.46      48.74
            -1175.06 -1686.72   6053.33      1486.62      0.59
                                            15.92      269.49
                                             2.72       45.57
          d 10005.50  1664.81  16212.43     10827.77      0.62       0.10
                                                0.00       0.00
            -1614.87    57.33   3761.10       383.87      0.44
                                103.38        34.46      48.74
            -1175.07 -1689.32   6053.33      1487.64      0.59
                                            15.95      269.90
                                             2.75       45.93
12  36.00i  7028.54 -2785.46  12923.18     13426.47      0.54       0.21
                                                0.00       0.00
            -1957.45    80.86   3761.10       383.87      0.53
                                132.16        44.05      62.30
            -1443.02 -1925.14   6053.33      1436.45      0.70
                                            18.17      307.58
                                             6.65      111.29
          d  7028.45 -2785.75  12923.18     13426.47      0.54       0.21
                                                0.00       0.00
            -1961.83   109.29   3761.10       383.87      0.54
                                132.52        44.17      62.47
            -1430.34 -1900.37   6053.33      1433.56      0.69
                                            17.94      303.62
                                             6.36      106.31
12  40.00i  5160.49 -10428.00  11823.62     17759.53      0.44       0.59
                                                0.00       0.00
            -2222.86  -153.46   8221.50       839.10      0.30
                                116.21        38.74      54.78
            -1614.81 -2136.57   6053.33      1430.64      0.55
                                            20.17      341.36
                                             9.61      160.77
          d  5160.53 -10428.10  11823.62     17759.53      0.44       0.59
                                                0.00       0.00
             2258.43   151.75   8221.50       839.10      0.30
                                119.20        39.73      56.19
             1691.32  1851.23   6053.33      1291.75      0.51
                                            17.48      295.77
                                             7.62      127.41
13   4.00i  7362.00 -2695.50  12934.94     13411.19      0.57       0.20
                                                0.00       0.00
             1998.81   134.12   3761.10       383.87      0.55
                                135.63        45.21      63.94
             1508.25  1614.48   6053.33      1274.86      0.67
                                            15.24      257.95
                                             4.62       77.34
          d  7362.07 -2695.22  12934.94     13411.19      0.57       0.20
```

```
                                                0.00       0.00
             1993.28   133.04   3761.10      383.87       0.55
                       135.17     45.06       63.72
             1502.42  1583.38   6053.33     1263.00       0.66
                                   14.95      252.98
                                    4.36       72.96
13   8.00i 10694.10  1798.41  24141.96     9767.82       0.44       0.07
                                                0.00       0.00
             1887.41   109.51   3761.10      383.87       0.52
                       126.27     42.09       59.53
             1471.13  1346.87   6053.33     1154.79       0.61
                                   12.71      215.19
                                    2.62       43.74
         d 10694.20  1798.55  24141.96     9767.82       0.44       0.07
                                                0.00       0.00
             1887.39   106.33   3761.10      383.87       0.52
                       126.27     42.09       59.53
             1471.11  1342.84   6053.33     1152.49       0.61
                                   12.68      214.55
                                    2.59       43.35
13  12.00i 14409.20  3891.31  20001.18     3599.94       0.72       0.19
                                                0.00       0.00
             1231.73   -49.80   3761.10      383.87       0.34
                       71.21     23.74       33.57
              893.98  1100.23   6053.33     1378.85       0.42
                                   10.39      175.78
                                    0.00       0.00
         d 14409.40  3891.35  20001.18     3599.94       0.72       0.19
                                                0.00       0.00
             1231.73   -57.57   3761.10      383.87       0.34
                       71.21     23.74       33.57
              875.49  1093.28   6053.33     1389.41       0.41
                                   10.32      174.67
                                    0.00       0.00
13  16.00i 16798.50  5200.38  22485.57     1751.20       0.75       0.23
                                                0.00       0.00
              732.24   -26.19   3761.10      383.87       0.20
                       29.26      9.75       13.79
              452.57   842.81   6053.33     1644.64       0.26
                                    7.96      134.66
                                    0.00       0.00
         d 16798.50  5200.40  22485.57     1751.20       0.75       0.23
                                                0.00       0.00
              732.22   -31.73   3761.10      383.87       0.20
                       29.26      9.75       13.79
              398.54  -845.60   6053.33     1710.26       0.25
                                    7.98      135.10
                                    0.00       0.00
13  20.00i 17640.10  5964.03  23318.30     1245.03       0.76       0.26
                                                0.00       0.00
              245.16   -27.42   3761.10      383.87       0.07
                       18.95mc    6.32mc      8.93mc
               73.55  -760.26   6053.33     1990.20       0.15
                                    7.18      121.47
                                    0.00       0.00
         d 17640.10  5964.03  23318.30     1245.03       0.76       0.26
                                                0.00       0.00
              245.15   -33.21   3761.10      383.87       0.07
                       18.95mc    6.32mc      8.93mc
               73.54  -766.45   6053.33     1990.45       0.15
                                    7.24      122.46
                                    0.00       0.00
13  24.00i 17179.00  6056.29  22473.52     1757.93       0.76       0.27
                                                0.00       0.00
             -593.58    35.14   3761.10      383.87       0.16
                       18.95mc    6.32mc      8.93mc
             -270.95 -1004.15   6053.33     1892.76       0.24
                                    9.48      160.43
                                    0.00       0.00
         d 17179.00  6056.28  22473.52     1757.93       0.76       0.27
                                                0.00       0.00
             -593.60    26.14   3761.10      383.87       0.16
                                                      18.95mc    6.32mc     8.93mc
                                   -358.51 -1013.49   6053.33     1822.35      0.26
                                                                    9.57    161.93
                                                                    0.00      0.00
13  28.00i 15151.80  5546.16  19984.69     3614.18       0.76       0.28
                                                                               0.00      0.00
                                  -1091.61    57.52   3761.10      383.87      0.30
                                                                   59.44       19.81     28.02
                                   -779.95 -1263.95   6053.33     1564.51      0.42
                                                                   11.93      201.94
                                                                    0.00       0.00
                                d 15151.70  5546.12  19984.69     3614.18      0.76       0.28
                                                                               0.00      0.00
                                  -1091.63    51.80   3761.10      383.87      0.30
                                                                   59.44       19.81     28.02
                                   -730.47 -1270.80   6053.33     1606.68      0.40
                                                                   12.00      203.04
                                                                    0.00       0.00
13  32.00i 11791.70  4259.76  16326.16     8246.59       0.72       0.26
                                                                               0.00      0.00
                                  -1509.21    69.21   3761.10      383.87      0.41
                                                                   94.51       31.50     44.55
                                  -1069.49 -1513.39   6053.33     1476.99      0.53
                                                                   14.29      241.79
                                                                    0.50       8.29
                                d 11791.60  4259.63  16326.16     8246.59      0.72       0.26
                                                                               0.00      0.00
                                  -1509.22    65.95   3761.10      383.87      0.41
                                                                   94.51       31.50     44.55
                                  -1069.51 -1518.71   6053.33     1479.35      0.54
                                                                   14.34      242.64
                                                                    0.54       8.96
13  36.00i  9217.07   118.69  13013.90    11350.72       0.71       0.01
                                                                               0.00      0.00
                                  -1851.74    89.48   3761.10      383.87      0.51
                                                                  123.28       41.09     58.11
                                  -1337.49 -1755.20   6053.33     1424.87      0.65
                                                                   16.57      280.43
                                                                    4.50       75.23
                                d  9217.02   118.41  13013.90    11350.72      0.71       0.01
                                                                               0.00      0.00
                                  -1851.18    98.54   3761.10      383.87      0.51
                                                                  123.23       41.08     58.09
                                  -1330.53 -1740.57   6053.33     1422.64      0.64
                                                                   16.43      278.09
                                                                    4.33       72.40
13  40.00i  7674.33 -7235.40  11899.44    14416.87       0.64       0.50
                                                                               0.00      0.00
                                  -2112.25  -170.18   8221.50      839.10      0.29
                                                                  106.92       35.64     50.40
                                  -1515.04 -1977.49   6053.33     1421.05      0.51
                                                                   18.67      315.94
                                                                    7.58       126.72
                                d  7674.27 -7235.50  11899.44    14416.87      0.64       0.50
                                                                               0.00      0.00
                                   1851.95    89.95   8221.50      839.10      0.24
                                                                   85.06       28.35     40.10
                                    850.66 -1313.59   6053.33     1534.35      0.32
                                                                   12.40      209.87
                                                                    0.00       0.00
14   3.20i  8495.92 -2080.65  13164.17    11186.46       0.65       0.19
                                                                               0.00      0.00
                                   1738.25    68.76   3761.10      383.87      0.47
                                                                  113.75       37.92     53.62
                                    889.82 -1117.07   6053.33     1393.22      0.42
                                                                   10.55      178.47
                                                                    0.00       0.00
                                d  8495.93 -2080.50  13164.17    11186.46      0.65       0.19
                                                                               0.00      0.00
                                   1736.51    69.13   3761.10      383.87      0.47
                                                                  113.60       37.87     53.55
                                    892.27 -1098.52   6053.33     1379.11      0.42
```

```
                                                10.37     175.51
                                                 0.00       0.00
14   6.40i 10222.00   816.38  22459.72      8086.93       0.46       0.04
                                                 0.00       0.00
            1412.60    45.60   3761.10       383.87       0.38
                          86.40              28.80      40.73
             671.03  -901.29   6053.33      1441.17       0.33
                                                 8.51     144.00
                                                 0.00       0.00
         d 10222.10   816.44  22459.72      8086.93       0.46       0.04
                                                 0.00       0.00
            1412.58    44.56   3761.10       383.87       0.38
                          86.40              28.80      40.73
             671.03  -904.05   6053.33      1443.30       0.33
                                                 8.53     144.44
                                                 0.00       0.00
14   9.60i 11981.30  2428.59  16150.99      4976.49       0.74       0.15
                                                 0.00       0.00
            1094.32    21.02   3761.10       383.87       0.29
                          59.67              19.89      28.13
             496.87  -728.81   6053.33      1500.99       0.25
                                                 6.88     116.44
                                                 0.00       0.00
         d 11981.30  2428.61  16150.99      4976.49       0.74       0.15
                                                 0.00       0.00
            1094.31    18.54   3761.10       383.87       0.29
                          59.67              19.89      28.13
             496.86  -732.10   6053.33      1503.97       0.25
                                                 6.91     116.97
                                                 0.00       0.00
14  12.80i 13295.90  3131.98  18602.38      2881.93       0.71       0.17
                                                 0.00       0.00
             709.77    -5.00   3761.10       383.87       0.19
                          27.37               9.12      12.90
             256.59  -688.20   6053.33      1804.95       0.18
                                                 6.50     109.95
                                                 0.00       0.00
         d 13296.00  3131.97  18602.38      2881.93       0.71       0.17
                                                 0.00       0.00
             709.77    -8.41   3761.10       383.87       0.19
                          27.37               9.12      12.90
             256.59  -691.70   6053.33      1806.68       0.18
                                                 6.53     110.51
                                                 0.00       0.00
14  16.00i 13607.20  3485.37  20189.06      1755.47       0.67       0.17
                                                 0.00       0.00
             323.04   -45.12   3761.10       383.87       0.09
                       18.95mc               6.32mc     8.93mc
              13.54  -866.95   6053.33      2005.47       0.15
                                                 8.18     138.51
                                                 0.00       0.00
         d 13607.20  3485.36  20189.06      1755.47       0.67       0.17
                                                 0.00       0.00
             323.02   -47.28   3761.10       383.87       0.09
                       18.95mc               6.32mc     8.93mc
              13.53  -868.99   6053.33      2005.47       0.15
                                                 8.20     138.84
                                                 0.00       0.00
14  19.20i 12914.10  3489.63  20866.72      1334.42       0.62       0.17
                                                 0.00       0.00
            -387.91    41.99   3761.10       383.87       0.11
                       18.95mc               6.32mc     8.93mc
            -243.13 -1061.13   6053.33      1922.38       0.24
                                                10.02     169.54
                                                 0.00       0.00
         d 12914.00  3489.59  20866.72      1334.42       0.62       0.17
                                                 0.00       0.00
            -387.91    32.20   3761.10       383.87       0.11
                       18.95mc               6.32mc     8.93mc
            -220.13 -1068.54   6053.33      1937.57       0.24
                                                10.09     170.72
                                                 0.00       0.00
14  22.40i 11215.20  3146.28  20516.83      1552.17       0.55       0.15
                                                                    0.00       0.00
            -776.93    55.22   3761.10       383.87       0.22
                                                33.01      11.00      15.56
            -570.91 -1267.32   6053.33      1730.80       0.36
                                                           11.96     202.48
                                                            0.00       0.00
         d 11215.10  3146.25  20516.83      1552.17       0.55       0.15
                                                                    0.00       0.00
            -776.95    55.08   3761.10       383.87       0.22
                                                33.01      11.00      15.56
            -570.92 -1267.44   6053.33      1730.83       0.36
                                                           11.96     202.50
                                                            0.00       0.00
14  25.60i  8510.48  2455.35  18849.93      2712.94       0.45       0.13
                                                                    0.00       0.00
           -1196.12    78.61   3761.10       383.87       0.33
                                                68.22      22.74      32.16
            -928.84 -1466.21   6053.33      1548.24       0.49
                                                           13.84     234.26
                                                            0.00       0.00
         d  8510.29  2455.27  18849.93      2712.94       0.45       0.13
                                                                    0.00       0.00
           -1196.14    72.82   3761.10       383.87       0.33
                                                68.22      22.74      32.16
            -928.86 -1470.60   6053.33      1550.09       0.49
                                                           13.88     234.96
                                                            0.00       0.00
14  28.80i  4800.65  1416.93  15911.45      5210.51       0.30       0.09
                                                                    0.00       0.00
           -1612.47    96.36   3761.10       383.87       0.44
                                               103.18      34.39      48.64
           -1283.96 -1669.35   6053.33      1418.29       0.62
                                                           15.76     266.71
                                                            3.42      57.18
         d  4800.44  1416.82  15911.45      5210.51       0.30       0.09
                                                                    0.00       0.00
           -1610.08    96.16   3761.10       383.87       0.44
                                               102.98      34.33      48.55
           -1278.18 -1667.53   6053.33      1420.71       0.62
                                                           15.74     266.42
                                                            3.36      56.21
14  32.00i     0.15    -0.06  12359.36      8995.64       0.00       0.00
                                                                    0.00       0.00
           -1996.37   117.22  13261.50      1353.50       0.17
                                               66.83mc    22.28mc    31.50mc
           -1603.22 -1864.22   6053.33      1337.10       0.43
                                                           17.60     297.85
                                                            7.18     120.04
```

1.8 Tablero. Estado Límite Último. Análisis Transversal

```
.ID Envolv.   BY
.SK 4
.TP 20
ENVOLVENTE:            BY   'Env Flexión Transversal + Dist'Ejec.  "HIP"
================================================================================
Grupo Espe. Hipótesis       Factor Etapa  Título

  A   PERM.    1             1.500         carga permanente
  B   MAS      2             1.500         sc excentrica
  C   MAS      3             1.500         sc excentrica 2
  D   MAS      5             1.500         cableado 300 kg/ml

 ALTERNATIVA PARA ENVOLVENTE:
  E   PERM.    4             1.500         desbalastado parcial
  F   MAS      2             1.500         sc excentrica
  G   MAS      5             1.500         cableado 300 kg/ml
================================================================================
```

```
.ID GWS2MY,STATIK2,1.53
.UN  M, T
.EL !LHIP.027
.SK 3
.TP 12
.TK 6
ENVOLVENTE para< My > (y valores concomitantes)
(1. línea: MIN., 2. línea: MAX.

Barra  Distancia        N        Vz        My
          [m]       [t]       [t]      [tm]
--------------------------------------------------------------------------------
   1       0     7.072     6.241    -9.254
               -5.194    -1.723     7.928
   1   1.070     4.688     4.837    -3.328
               -2.061    -3.127     5.333
   1   2.140     3.411  0.010959  0.951816
             -0.036583    -1.111     1.379
   1   3.210     4.675    -5.936    -4.415
             -0.552883     2.028     4.066
   1   4.280     7.808    -7.340   -11.517
               -2.938  0.623494     5.484
.
   2       0   -19.549     4.188    -8.598
             -44.997 -0.222657     1.769
   2   0.748   -14.327     3.657    -5.665
             -32.813 -0.754177     1.404
   2   1.496    -6.824    -3.229    -3.581
             -22.622     3.228     1.383
   2   2.243  0.592295    -3.760    -6.195
             -12.916     4.537     4.684
   2   2.991     8.156    -4.738    -9.254
               -3.073     4.452     7.927
.
   3       0     9.249     5.149   -11.517
               -1.501    -2.597     5.484
   3   0.748     3.370     4.172    -8.150
             -11.983    -2.682     3.628
   3   1.496    -2.362     3.640    -5.229
             -22.614    -3.214     1.423
   3   2.243    -8.542    -1.386    -5.323
             -32.797  0.748733     1.438
   3   2.991   -12.719    -1.917    -6.558
             -44.980  0.217213     1.800
.
   4       0         0 -0.825144 -6.44E-05
                     0 -0.825097 -6.35E-05
   4   0.979         0    -3.073    -1.723
```

```
                    0    -2.036    -1.400
    4   1.957           0    -4.747    -5.598
                        0    -3.247    -3.986
    4   2.936           0    -6.814   -11.024
                        0    -5.314    -7.944
    4   3.915           0   -21.634   -21.411
                        0    -8.434   -14.676
.
    5       0     14.625    21.579   -21.893
                   9.530     8.341    -7.362
    5   1.543      8.225     7.414    -1.244
                  14.852  0.940240     7.141
    5   3.085      7.994    -1.525     3.080
                  14.005  0.013525     8.095
    5   4.628      6.439    -5.902    -2.915
                  14.482    -2.451     6.482
    5   6.170     14.625   -21.552   -21.860
                   5.217    -5.342    -7.441
.
    6       0         0    21.644   -21.347
                      0     5.670   -12.713
    6   0.979         0     6.814   -11.019
                      0     4.459    -7.757
    6   1.957         0     4.747    -5.593
                      0     3.247    -3.986
    6   2.936         0     3.070    -1.720
                      0     2.036    -1.400
    6   3.915         0  0.825095 -6.40E-05
                      0  0.825096 -6.17E-05
.


.ID GWS2KX,STATIK2,1.53
.UN  M, T
.EL !LHIP.027
.SK 3
.TP 12
.TK 6
ENVOLVENTE para< N  > (y valores concomitantes)
(1. línea: MIN., 2. línea: MAX.

Barra  Distancia        N        Vz        My
          [m]       [t]       [t]      [tm]
------------------------------------------------------------------------
    1       0    -5.194    -1.723     7.928
                  7.072     6.241    -9.254
    1   1.070    -2.061    -3.127     5.333
                  4.688     4.837    -3.328
    1   2.140 -0.036583    -1.111     1.379
                  3.411  0.010959  0.951816
    1   3.210 -0.552883     2.028     4.066
                  4.675    -5.936    -4.415
    1   4.280    -2.938  0.623494     5.484
                  7.808    -7.340   -11.517
.
    2       0   -45.620  0.223716  0.483154
                -18.926     3.742    -7.313
    2   0.748   -33.758     4.206    -2.181
                -13.736    -3.144 -0.413630
    2   1.496   -23.293     5.515  0.474839
                 -6.438    -3.675    -2.963
    2   2.243   -13.183     4.983     4.400
                0.859193    -4.207    -5.910
    2   2.991    -3.073     4.452     7.927
                  8.156    -4.738    -9.254
.
    3       0    -1.501    -2.597     5.484
                  9.249     5.149   -11.517
    3   0.748   -12.250    -3.129     3.343
                  3.637     4.618    -7.865
    3   1.496   -23.000    -3.660  0.804982
                 -1.976     4.086    -4.611
    3   2.243   -33.750    -4.192    -2.131
                 -7.589     3.555    -1.754
    3   2.991   -45.603 -0.229160  0.513771
                -12.096    -1.471    -5.272
.
    4       0         0 -0.825097 -6.37E-05
                      0 -0.825097 -6.37E-05
    4   0.979         0    -2.036    -1.400
                      0    -2.036    -1.400
    4   1.957         0    -3.247    -3.986
                      0    -3.247    -3.986
    4   2.936         0    -5.314    -7.944
                      0    -5.314    -7.944
    4   3.915         0    -8.434   -14.676
                      0    -8.434   -14.676
.
    5       0     4.167    12.347   -16.413
                 19.988    17.573   -12.843
    5   1.543      7.605     7.414    -1.173
                 15.472  0.940240     7.070
    5   3.085      7.374    -1.525     3.151
                 14.625  0.013525     8.024
    5   4.628      5.819    -5.902    -2.844
                 15.102    -2.451     6.411
    5   6.170      1.303    -7.810   -13.418
                 18.540   -19.084   -15.883
.
    6       0         0     8.444   -14.676
                      0     8.444   -14.676
    6   0.979         0     5.314    -7.944
                      0     5.314    -7.944
    6   1.957         0     3.247    -3.986
                      0     3.247    -3.986
    6   2.936         0     2.036    -1.400
                      0     2.036    -1.400
    6   3.915         0  0.825096 -6.18E-05
                      0  0.825096 -6.18E-05
```

1.9 Tablero. Comprobación de deformaciones

```
.SK 5
.TP 15
=================
Hipótesis      95:  flecha sc UIC-71
=================

.TK 3
                                    Distancia
Tipo de carga          Valor(a)  Valor(b)   Números nudos/barras
-------------------------------------------------------------------------------
Fuerza  Z  gl const.     -8.000            Barra         1 ..  10     21
                                             ..  30     41 ..  50     81
                                             ..  90    101 .. 110    121
                                             .. 130     61 ..  64     67
                                             ..  70
Fuerza  Z  gl const.     -8.000    -8.000
           de...a             0  0.800000  Barra        65
Fuerza  Z  gl const.     -8.000    -8.000
           de...a         3.200     4.000  Barra        66
Fuerza  Z  gl conc.     -25.000     1.600  Barra        65
Fuerza  Z  gl conc.     -25.000     3.200  Barra        65
Fuerza  Z  gl conc.     -25.000  0.800000  Barra        66
Fuerza  Z  gl conc.     -25.000     2.400  Barra        66



.ID Hipótesi  95
.SK 4
.TP 20
CARGAS:                    ''                            Ejec.  "FLCH"
================================================================================
Hipótesis     Factor        Etapa      Título
 95           1.0000                   flecha sc UIC-71
================================================================================


.ID VER3,STATIK2,1.53
.UN  M, T
.EL !LFLCH.001
.SK 3
.TP 12
.TK 4
DESPLAZAMIENTOS:
NUDOS            DX         DY         DZ         RX         RY         RZ
                [m]        [m]        [m]      [rad]      [rad]      [rad]
-------------------------------------------------------------------------------
    1    -2.88E-13  -1.55E-09  -3.13E-06   3.89E-08   0.000193   3.94E-09
    2     1.43E-05   1.51E-05  -0.000610  -0.000133   0.000126   5.93E-09
    3     1.43E-05   1.51E-05  -0.001150  -0.000110   0.000104   5.93E-09
    4     1.43E-05   1.52E-05  -0.001567  -7.77E-05   7.37E-05   5.93E-09
    5     1.43E-05   1.52E-05  -0.001826  -3.87E-05   3.70E-05   5.94E-09
    6     1.42E-05   1.52E-05  -0.001906   2.74E-06  -2.00E-06   5.95E-09
    7     1.42E-05   1.52E-05  -0.001806   4.28E-05  -3.97E-05   5.96E-09
    8     1.42E-05   1.52E-05  -0.001540   7.77E-05  -7.25E-05   5.97E-09
    9     1.42E-05   1.52E-05  -0.001140   0.000103  -9.67E-05   5.99E-09
   10     1.42E-05   1.52E-05  -0.000653   0.000116  -0.000109   6.00E-09
   11     3.82E-05   1.21E-07  -0.000145   9.05E-08  -0.000155   8.02E-09
   12     1.50E-05   1.62E-05   0.000436   9.76E-05  -9.16E-05   6.22E-09
   13     1.50E-05   1.62E-05   0.000917   7.75E-05  -7.28E-05   6.23E-09
   14     1.50E-05   1.62E-05   0.001283   5.54E-05  -5.23E-05   6.23E-09
   15     1.49E-05   1.63E-05   0.001523   3.15E-05  -2.99E-05   6.23E-09
   16     1.49E-05   1.63E-05   0.001627   5.62E-06  -5.86E-06   6.21E-09
   17     1.49E-05   1.63E-05   0.001584  -2.21E-05   2.00E-05   6.18E-09
   18     1.49E-05   1.63E-05   0.001385  -5.18E-05   4.76E-05   6.14E-09
   19     1.49E-05   1.63E-05   0.001018  -8.33E-05   7.70E-05   6.09E-09
   20     1.49E-05   1.63E-05   0.000474  -0.000117   0.000108   6.03E-09
   21     2.03E-06   2.19E-07  -0.000248  -1.31E-07   0.000200   4.07E-09
   22     1.71E-05   1.88E-05  -0.001099  -0.000161   0.000150   6.38E-09
```

23	1.70E-05	1.88E-05	-0.001958	-0.000149	0.000138	6.39E-09
24	1.70E-05	1.88E-05	-0.002682	-0.000113	0.000105	6.45E-09
25	1.70E-05	1.88E-05	-0.003163	-6.12E-05	5.74E-05	6.56E-09
26	1.70E-05	1.88E-05	-0.003338	-1.43E-06	2.26E-06	6.73E-09
27	1.70E-05	1.88E-05	-0.003183	5.89E-05	-5.33E-05	6.95E-09
28	1.69E-05	1.89E-05	-0.002716	0.000112	-0.000102	7.23E-09
29	1.69E-05	1.89E-05	-0.001995	0.000151	-0.000138	7.56E-09
30	1.69E-05	1.89E-05	-0.001123	0.000167	-0.000153	7.94E-09
31	4.96E-05	3.76E-07	-0.000238	4.34E-08	-0.000211	1.10E-08
32	1.87E-05	2.10E-05	0.000538	0.000129	-0.000118	9.05E-09
33	1.87E-05	2.10E-05	0.001151	9.70E-05	-8.92E-05	9.49E-09
34	1.86E-05	2.10E-05	0.001591	6.49E-05	-5.99E-05	9.92E-09
35	1.86E-05	2.11E-05	0.001857	3.26E-05	-3.05E-05	1.03E-08
36	1.86E-05	2.11E-05	0.001948	1.51E-07	-8.98E-07	1.07E-08
37	1.85E-05	2.11E-05	0.001863	-3.25E-05	2.89E-05	1.11E-08
38	1.85E-05	2.12E-05	0.001600	-6.54E-05	5.89E-05	1.15E-08
39	1.85E-05	2.12E-05	0.001158	-9.85E-05	8.90E-05	1.18E-08
40	1.84E-05	2.12E-05	0.000537	-0.000132	0.000119	1.22E-08
41	6.11E-06	6.31E-07	-0.000255	-1.67E-07	0.000216	1.01E-08
42	2.04E-05	2.35E-05	-0.001165	-0.000173	0.000157	1.30E-08
43	2.03E-05	2.35E-05	-0.002067	-0.000157	0.000143	1.32E-08
44	2.03E-05	2.35E-05	-0.002820	-0.000118	0.000107	1.32E-08
45	2.02E-05	2.36E-05	-0.003317	-6.35E-05	5.82E-05	1.32E-08
46	2.02E-05	2.36E-05	-0.003494	-8.22E-07	1.71E-06	1.31E-08
47	2.02E-05	2.36E-05	-0.003330	6.22E-05	-5.51E-05	1.30E-08
48	2.01E-05	2.37E-05	-0.002843	0.000118	-0.000105	1.27E-08
49	2.01E-05	2.37E-05	-0.002093	0.000158	-0.000142	1.23E-08
50	2.00E-05	2.37E-05	-0.001182	0.000176	-0.000158	1.19E-08
51	5.66E-05	1.00E-06	-0.000250	8.43E-08	-0.000223	1.40E-08
52	2.17E-05	2.58E-05	0.000577	0.000140	-0.000126	1.10E-08
53	2.17E-05	2.58E-05	0.001243	0.000108	-9.68E-05	1.03E-08
54	2.16E-05	2.58E-05	0.001732	7.40E-05	-6.69E-05	9.63E-09
55	2.16E-05	2.58E-05	0.002039	3.93E-05	-3.59E-05	8.90E-09
56	2.16E-05	2.59E-05	0.002156	3.39E-06	-3.88E-06	8.13E-09
57	2.16E-05	2.59E-05	0.002078	-3.37E-05	2.92E-05	7.33E-09
58	2.15E-05	2.59E-05	0.001797	-7.20E-05	6.33E-05	6.49E-09
59	2.15E-05	2.59E-05	0.001309	-0.000112	9.85E-05	5.61E-09
60	2.15E-05	2.59E-05	0.000605	-0.000152	0.000135	4.69E-09
61	8.32E-06	1.10E-06	-0.000308	-2.33E-07	0.000251	1.47E-09
62	2.40E-05	2.88E-05	-0.001370	-0.000205	0.000182	3.65E-09
63	2.40E-05	2.88E-05	-0.002439	-0.000189	0.000168	2.80E-09
64	2.40E-05	2.88E-05	-0.003345	-0.000145	0.000129	2.03E-09
65	2.40E-05	2.88E-05	-0.003951	-7.86E-05	7.04E-05	1.35E-09
66	2.40E-05	2.88E-05	-0.004164	7.67E-07	4.36E-07	7.52E-10
67	2.40E-05	2.88E-05	-0.003948	8.01E-05	-6.95E-05	2.35E-10
68	2.40E-05	2.88E-05	-0.003340	0.000146	-0.000128	-1.99E-10
69	2.40E-05	2.88E-05	-0.002433	0.000191	-0.000167	-5.50E-10
70	2.40E-05	2.88E-05	-0.001361	0.000206	-0.000181	-8.18E-10
71	6.66E-05	9.81E-07	-0.000297	1.10E-07	-0.000251	1.89E-09
72	2.65E-05	3.16E-05	0.000618	0.000153	-0.000134	-9.14E-10
73	2.65E-05	3.16E-05	0.001323	0.000112	-9.86E-05	-9.49E-10
74	2.65E-05	3.16E-05	0.001814	7.21E-05	-6.38E-05	-9.10E-10
75	2.65E-05	3.16E-05	0.002096	3.34E-05	-3.00E-05	-7.98E-10
76	2.65E-05	3.16E-05	0.002175	-4.12E-06	2.74E-06	-6.13E-10
77	2.65E-05	3.16E-05	0.002058	-4.05E-05	3.44E-05	-3.55E-10
78	2.65E-05	3.16E-05	0.001752	-7.56E-05	6.51E-05	-2.30E-11
79	2.65E-05	3.16E-05	0.001262	-0.000110	9.47E-05	3.82E-10
80	2.65E-05	3.16E-05	0.000595	-0.000142	0.000123	8.60E-10
81	1.82E-05	7.06E-07	-0.000233	-1.82E-07	0.000224	-1.17E-09
82	2.82E-05	3.36E-05	-0.001167	-0.000179	0.000155	2.14E-09
83	2.82E-05	3.36E-05	-0.002080	-0.000161	0.000140	2.60E-09
84	2.82E-05	3.36E-05	-0.002833	-0.000120	0.000104	2.98E-09
85	2.82E-05	3.36E-05	-0.003323	-6.30E-05	5.53E-05	3.28E-09
86	2.82E-05	3.36E-05	-0.003490	1.32E-06	-2.01E-07	3.50E-09
87	2.82E-05	3.36E-05	-0.003314	6.53E-05	-5.54E-05	3.64E-09
88	2.81E-05	3.36E-05	-0.002819	0.000121	-0.000104	3.69E-09
89	2.81E-05	3.36E-05	-0.002067	0.000161	-0.000138	3.67E-09
90	2.81E-05	3.37E-05	-0.001165	0.000177	-0.000152	3.56E-09
91	6.88E-05	6.19E-07	-0.000254	6.74E-08	-0.000217	6.09E-09
92	3.00E-05	3.59E-05	0.000540	0.000135	-0.000116	3.66E-09
93	3.00E-05	3.59E-05	0.001164	0.000101	-8.71E-05	3.43E-09
94	3.00E-05	3.59E-05	0.001609	6.72E-05	-5.81E-05	3.21E-09
95	3.00E-05	3.59E-05	0.001874	3.32E-05	-2.91E-05	2.99E-09
96	2.99E-05	3.59E-05	0.001962	-5.91E-07	-2.51E-07	2.77E-09
97	2.99E-05	3.60E-05	0.001872	-3.43E-05	2.85E-05	2.55E-09
98	2.99E-05	3.60E-05	0.001606	-6.79E-05	5.71E-05	2.34E-09
99	2.99E-05	3.60E-05	0.001162	-0.000101	8.57E-05	2.13E-09
100	2.99E-05	3.60E-05	0.000544	-0.000135	0.000114	1.92E-09
101	2.50E-05	4.53E-07	-0.000241	-2.06E-07	0.000214	-6.31E-10
102	3.17E-05	3.81E-05	-0.001138	-0.000175	0.000148	1.88E-09
103	3.17E-05	3.81E-05	-0.002023	-0.000158	0.000134	1.78E-09
104	3.17E-05	3.81E-05	-0.002755	-0.000118	0.000100	1.74E-09
105	3.17E-05	3.81E-05	-0.003233	-6.19E-05	5.31E-05	1.76E-09
106	3.17E-05	3.81E-05	-0.003394	1.83E-06	-6.18E-07	1.84E-09
107	3.17E-05	3.81E-05	-0.003219	6.54E-05	-5.42E-05	1.99E-09
108	3.17E-05	3.81E-05	-0.002729	0.000121	-0.000101	2.21E-09
109	3.17E-05	3.81E-05	-0.001986	0.000160	-0.000134	2.49E-09
110	3.17E-05	3.82E-05	-0.001096	0.000176	-0.000147	2.83E-09
111	7.42E-05	2.91E-07	-0.000200	9.62E-08	-0.000213	5.68E-09
112	3.36E-05	4.04E-05	0.000578	0.000134	-0.000112	3.90E-09
113	3.35E-05	4.05E-05	0.001186	9.93E-05	-8.36E-05	4.26E-09
114	3.35E-05	4.05E-05	0.001617	6.55E-05	-5.54E-05	4.57E-09
115	3.35E-05	4.05E-05	0.001873	3.22E-05	-2.76E-05	4.83E-09
116	3.35E-05	4.05E-05	0.001957	-6.77E-07	-1.26E-07	5.03E-09
117	3.35E-05	4.05E-05	0.001871	-3.31E-05	2.69E-05	5.19E-09
118	3.35E-05	4.05E-05	0.001617	-6.51E-05	5.35E-05	5.29E-09
119	3.35E-05	4.05E-05	0.001198	-9.66E-05	7.98E-05	5.34E-09
120	3.34E-05	4.05E-05	0.000616	-0.000128	0.000106	5.34E-09
121	3.22E-05	1.70E-07	-0.000118	-1.46E-07	0.000199	3.08E-09
122	3.50E-05	4.25E-05	-0.000953	-0.000163	0.000136	5.51E-09
123	3.50E-05	4.25E-05	-0.001767	-0.000146	0.000121	5.45E-09
124	3.50E-05	4.25E-05	-0.002431	-0.000106	8.84E-05	5.41E-09
125	3.50E-05	4.25E-05	-0.002848	-5.23E-05	4.40E-05	5.38E-09
126	3.49E-05	4.25E-05	-0.002967	7.80E-06	-5.58E-06	5.36E-09
127	3.49E-05	4.26E-05	-0.002775	6.61E-05	-5.36E-05	5.35E-09
128	3.49E-05	4.26E-05	-0.002302	0.000115	-9.36E-05	5.36E-09
129	3.49E-05	4.26E-05	-0.001621	0.000145	-0.000119	5.38E-09
130	3.49E-05	4.26E-05	-0.000844	0.000150	-0.000123	5.41E-09
131	7.49E-05	1.10E-07	-0.000118	1.04E-07	-0.000164	7.55E-09
132	3.72E-05	4.55E-05	0.000344	9.55E-05	-7.84E-05	6.08E-09
133	3.72E-05	4.56E-05	0.000670	6.25E-05	-5.14E-05	6.12E-09
134	3.72E-05	4.56E-05	0.000867	3.33E-05	-2.75E-05	6.15E-09
135	3.72E-05	4.56E-05	0.000952	8.08E-06	-6.91E-06	6.17E-09
136	3.72E-05	4.56E-05	0.000941	-1.33E-05	1.06E-05	6.20E-09
137	3.71E-05	4.56E-05	0.000849	-3.08E-05	2.48E-05	6.22E-09
138	3.71E-05	4.56E-05	0.000693	-4.44E-05	3.59E-05	6.23E-09
139	3.71E-05	4.56E-05	0.000489	-5.41E-05	4.39E-05	6.24E-09
140	3.71E-05	4.56E-05	0.000252	-5.99E-05	4.86E-05	6.25E-09
141	4.29E-05	1.15E-09	6.37E-07	-2.26E-09	7.93E-05	5.04E-09
1002	-2.14E-24	2.00E-24	-1.29E-18	-1.89E-22	-2.02E-22	0
1003	1.07E-23	-9.89E-24	-1.70E-18	-1.47E-22	-1.58E-22	0
1004	-1.16E-23	1.06E-23	-1.57E-18	-4.48E-22	-4.89E-22	0
1005	-1.31E-23	1.19E-23	-1.62E-18	-6.80E-22	-7.50E-22	0
1006	9.23E-24	-8.27E-24	-1.54E-18	-7.29E-22	-8.13E-22	0
1007	2.07E-23	-1.84E-23	-1.89E-18	-7.39E-22	-8.34E-22	0
1008	-1.66E-24	1.45E-24	-1.89E-18	-8.45E-22	-9.64E-22	0
1009	-2.70E-23	2.34E-23	-1.54E-18	-8.71E-22	-1.00E-21	0
1010	1.49E-23	-1.28E-23	-1.62E-18	-3.94E-22	-4.59E-22	0
1011	1.07E-23	-9.08E-24	-1.59E-18	-3.26E-22	-3.84E-22	0
1012	-2.04E-23	1.71E-23	-1.62E-18	-4.78E-22	-5.70E-22	0
1013	1.15E-23	-9.49E-24	-1.51E-18	-4.75E-22	-5.72E-22	0
1014	-3.50E-24	2.87E-24	-1.91E-18	-3.34E-22	-4.07E-22	0
2001	5.09E-25	-4.80E-25	-1.19E-18	8.10E-21	8.57E-21	0
2002	1.18E-24	-9.59E-25	2.42E-19	-4.07E-21	-5.01E-21	0

.ID REA3,STATIK2,1.53
.UN M, T
.EL !LFLCH.001
.SK 3
.TP 12
.TK 4
REACCIONES EN APOYOS:

NUDOS	FX	FY	FZ	MX	MY	MZ

	[t]	[t]	[t]	[tm]	[tm]	[tm]
1002	0.000214	-0.000200	129.128	0.018887	0.020155	0
1003	-0.001068	0.000989	170.159	0.014667	0.015828	0
1004	0.001156	-0.001060	157.020	0.044843	0.048920	0
1005	0.001310	-0.001188	162.271	0.068003	0.075023	0
1006	-0.000923	0.000827	153.689	0.072874	0.081305	0
1007	-0.002074	0.001839	189.328	0.073941	0.083400	0
1008	0.000166	-0.000145	189.294	0.084504	0.096392	0
1009	0.002702	-0.002342	153.892	0.087102	0.100482	0
1010	-0.001487	0.001275	161.726	0.039360	0.045906	0
1011	-0.001071	0.000908	158.959	0.032577	0.038428	0
1012	0.002039	-0.001710	162.468	0.047784	0.056987	0
1013	-0.001145	0.000949	150.974	0.047457	0.057244	0
1014	0.000350	-0.000287	191.388	0.033369	0.040711	0
2001	-5.09E-05	4.80E-05	118.893	-0.810276	-0.857143	0
2002	-0.000118	9.59E-05	-24.205	0.406865	0.500826	0
Sumas:	-4.16E-08	-4.05E-08	2224.983			

1.10 Tablero. Comprobación de descarrilamiento

```
.SK 5
.TP 15
=================
Hipótesis      11:  Descarrilamiento Caso II
=================

.TK 3
                                    Distancia
Tipo de carga          Valor(a)  Valor(b)   Números nudos/barras
-------------------------------------------------------------------------------
Fuerza  Z  gl const.     -8.000    -8.000
            de...a            0     3.202  Barra         1
Fuerza  Z  gl const.     -8.000    -8.000
            de...a            0     3.200  Barra         2
Fuerza  Z  gl const.     -8.000    -8.000
            de...a            0     3.200  Barra         3
Fuerza  Z  gl const.     -8.000    -8.000
            de...a            0     3.200  Barra         4
Fuerza  Z  gl const.     -8.000    -8.000
            de...a            0     3.200  Barra         5
Fuerza  Z  gl const.     -8.000    -8.000
            de...a            0     3.200  Barra         6
Fuerza  Z  gl const.     -8.000    -8.000
            de...a            0  0.798168  Barra         7
Momento X  lo const.     35.200    35.200
            de...a            0     3.202  Barra         1
Momento X  lo const.     35.200    35.200
            de...a            0     3.200  Barra         2
Momento X  lo const.     35.200    35.200
            de...a            0     3.200  Barra         3
Momento X  lo const.     35.200    35.200
            de...a            0     3.200  Barra         4
Momento X  lo const.     35.200    35.200
            de...a            0     3.200  Barra         5
Momento X  lo const.     35.200    35.200
            de...a            0     3.200  Barra         6
Momento X  lo const.     35.200    35.200
            de...a            0  0.798168  Barra         7


.ID Hipótesi  11
.SK 4
.TP 20
CARGAS:                    ''                                  Ejec.  "DESC"
===============================================================================
Hipótesis     Factor        Etapa      Título
 11           1.0000                   Descarrilamiento Caso II
===============================================================================


.ID REA3,STATIK2,1.53
.UN  M, T
.EL !LDESC.001
.SK 3
.TP 12
.TK 4
REACCIONES EN APOYOS:
NUDOS           FX         FY         FZ         MX         MY         MZ
                [t]        [t]        [t]       [tm]       [tm]       [tm]
-------------------------------------------------------------------------------
 1002         4.027     -3.773     69.514    -17.192    -18.346          0
 1003        -1.039   0.963200    -12.320    -33.944    -36.630          0
 1004    -0.558820   0.512243      3.188    -17.416    -18.999          0
 1005    -0.089184   0.080838  -0.828372     -5.251     -5.794          0
 1006     0.037540  -0.033648   0.213418  -0.739650  -0.825223          0
 1007     0.038152  -0.033826  -0.055504   0.259395   0.292575          0
 1008     0.020984  -0.018396   0.014171   0.284522   0.324550          0
```

1009	0.007882	-0.006832	-0.003698	0.141983	0.163794	0
1010	0.001266	-0.001085	0.000956	0.038613	0.045035	0
1011	-0.000153	0.000129	-0.000244	0.005934	0.007000	0
1012	-0.000289	0.000243	6.59E-05	-0.000941	-0.001122	0
1013	-0.000225	0.000186	-1.65E-05	-0.001343	-0.001620	0
1014	-3.90E-05	3.19E-05	4.61E-06	-0.000284	-0.000346	0
2001	-2.444	2.310	100.277	-375.076	-396.772	0
2002	2.13E-05	-1.73E-05	-1.00E-06	-3.04E-05	-3.75E-05	0
.						
. Sumas:	7.61E-07	-1.09E-07	160.000			

.ID SKR3,STATIK2,1.53
.UN M, T
.EL !LDESC.001
.SK 3
.TP 12
.TK 4
ESFUERZOS:

Barra	Distancia [m]	N [t]	Vy [t]	Vz [t]	Mx [tm]	My [tm]	Mz [tm]
1	0	-3.476	3.363	100.216	542.303	0.107097	-18.810
1	1.601	-3.032	3.363	87.416	485.947	150.308	-13.425
1	3.202	-2.588	3.363	74.616	429.591	280.016	-8.040
.							
2	0	-0.001824	3.363	74.659	429.484	280.216	6.857
2	1.600	-0.001824	3.363	61.858	373.161	389.435	12.238
2	3.200	-0.001824	3.363	49.058	316.839	478.172	17.620
.							
3	0	-0.004026	3.363	49.058	316.514	478.390	17.620
3	1.600	-0.004026	3.363	36.260	260.203	546.634	23.000
3	3.200	-0.004026	3.363	23.462	203.892	594.405	28.380
.							
4	0	-0.004820	3.363	23.459	203.760	594.453	28.382
4	1.600	-0.004820	3.363	10.658	147.436	621.748	33.763
4	3.200	-0.004820	3.363	-2.143	91.112	628.560	39.145
.							
5	0	-0.005489	3.364	-2.142	90.965	628.583	39.145
5	1.600	-0.005489	3.364	-14.940	34.653	614.919	44.526
5	3.200	-0.005489	3.364	-27.738	-21.659	580.781	49.907
.							
6	0	-0.008589	3.363	-27.738	-22.177	580.756	49.908
6	1.600	-0.008589	3.363	-40.537	-78.490	526.142	55.288
6	3.200	-0.008589	3.363	-53.335	-134.804	451.053	60.667
.							
7	0	-0.009204	3.363	-53.339	-134.905	451.016	60.669
7	1.600	-0.009204	3.363	-59.724	-162.998	357.996	66.050
7	3.200	-0.009204	3.363	-59.724	-162.998	262.427	71.432
.							
8	0	-0.011393	3.365	-59.722	-163.174	262.312	71.431
8	1.600	-0.011393	3.365	-59.722	-163.174	166.765	76.814
8	3.200	-0.011393	3.365	-59.722	-163.174	71.218	82.197
.							
9	0	-0.011604	3.362	-59.722	-163.174	71.209	82.197
9	1.600	-0.011604	3.362	-59.722	-163.174	-24.339	87.575
9	3.200	-0.011604	3.362	-59.722	-163.174	-119.886	92.954
.							
10	0	-2.084	3.365	-59.686	-166.219	-120.001	87.246
10	1.601	-2.084	3.365	-59.686	-166.219	-215.571	92.634
10	3.202	-2.084	3.365	-59.686	-166.219	-311.140	98.023
.							
11	0	-0.285374	-2.155	9.787	-24.609	-311.184	104.444
11	2.000	-0.285374	-2.155	9.787	-24.609	-291.606	100.134
11	4.001	-0.285374	-2.155	9.787	-24.609	-272.029	95.823
.							
12	0	-0.011979	-2.155	9.791	-27.019	-272.051	95.103
12	2.000	-0.011979	-2.155	9.791	-27.019	-252.469	90.792
12	4.000	-0.011979	-2.155	9.791	-27.019	-232.887	86.482
.							
13	0	-0.011574	-2.154	9.791	-26.977	-232.891	86.481
13	2.000	-0.011574	-2.154	9.791	-26.977	-213.311	82.173
13	3.999	-0.011574	-2.154	9.791	-26.977	-193.732	77.864
.							
14	0	-0.010367	-2.155	9.791	-26.875	-193.745	77.864
14	2.000	-0.010367	-2.155	9.791	-26.875	-174.162	73.553
14	4.000	-0.010367	-2.155	9.791	-26.875	-154.580	69.241
.							
15	0	-0.008586	-2.155	9.791	-26.738	-154.602	69.242
15	2.000	-0.008586	-2.155	9.791	-26.738	-135.022	64.932
15	4.000	-0.008586	-2.155	9.791	-26.738	-115.442	60.623
.							
16	0	-0.008005	-2.155	9.791	-26.718	-115.446	60.623
16	2.000	-0.008005	-2.155	9.791	-26.718	-95.862	56.312
16	4.000	-0.008005	-2.155	9.791	-26.718	-76.279	52.001
.							
17	0	-0.006219	-2.155	9.791	-26.650	-76.301	52.002
17	2.000	-0.006219	-2.155	9.791	-26.650	-56.720	47.691
17	4.000	-0.006219	-2.155	9.791	-26.650	-37.140	43.381
.							
18	0	-0.005462	-2.155	9.791	-26.637	-37.148	43.381
18	2.000	-0.005462	-2.155	9.791	-26.637	-17.567	39.071
18	4.000	-0.005462	-2.155	9.791	-26.637	2.014	34.762
.							
19	0	-0.003952	-2.155	9.791	-26.639	1.996	34.761
19	2.000	-0.003952	-2.155	9.791	-26.639	21.578	30.451
19	4.000	-0.003952	-2.155	9.791	-26.639	41.159	26.141
.							
20	0	0.268335	-2.154	9.787	-27.368	41.151	25.393
20	2.001	0.268335	-2.154	9.787	-27.368	60.733	21.084
20	4.002	0.268335	-2.154	9.787	-27.368	80.315	16.776
.							
21	0	0.067956	-0.738150	-2.528	-13.240	80.303	17.896
21	2.001	0.067956	-0.738150	-2.528	-13.240	75.245	16.419
21	4.001	0.067956	-0.738150	-2.528	-13.240	70.188	14.942
.							
22	0	-0.001484	-0.737832	-2.529	-13.711	70.175	14.569
22	2.000	-0.001484	-0.737832	-2.529	-13.711	65.117	13.093
22	4.000	-0.001484	-0.737832	-2.529	-13.711	60.058	11.618
.							
23	0	-0.001515	-0.738047	-2.529	-13.722	60.055	11.618
23	2.000	-0.001515	-0.738047	-2.529	-13.722	54.997	10.142
23	4.000	-0.001515	-0.738047	-2.529	-13.722	49.940	8.666
.							
24	0	-0.000897	-0.737862	-2.529	-13.757	49.929	8.666
24	2.000	-0.000897	-0.737862	-2.529	-13.757	44.872	7.190
24	4.000	-0.000897	-0.737862	-2.529	-13.757	39.814	5.714
.							
25	0	-0.000568	-0.737613	-2.529	-13.778	39.806	5.713
25	2.000	-0.000568	-0.737613	-2.529	-13.778	34.747	4.238
25	4.000	-0.000568	-0.737613	-2.529	-13.778	29.688	2.763
.							
26	0	-0.000182	-0.738240	-2.529	-13.794	29.681	2.762
26	2.000	-0.000182	-0.738240	-2.529	-13.794	24.622	1.286
26	4.000	-0.000182	-0.738240	-2.529	-13.794	19.564	-0.190440
.							
27	0	0.000397	-0.738343	-2.529	-13.808	19.554	-0.189179
27	2.000	0.000397	-0.738343	-2.529	-13.808	14.496	-1.666
27	4.000	0.000397	-0.738343	-2.529	-13.808	9.438	-3.142
.							
28	0	0.000667	-0.737582	-2.529	-13.811	9.432	-3.142
28	2.000	0.000667	-0.737582	-2.529	-13.811	4.374	-4.617
28	4.000	0.000667	-0.737582	-2.529	-13.811	-0.684311	-6.093
.							
29	0	0.001170	-0.737757	-2.529	-13.810	-0.694415	-6.094
29	2.000	0.001170	-0.737757	-2.529	-13.810	-5.753	-7.570
29	4.000	0.001170	-0.737757	-2.529	-13.810	-10.811	-9.045
.							
30	0	-0.068561	-0.738124	-2.528	-13.548	-10.819	-9.426
30	2.001	-0.068561	-0.738124	-2.528	-13.548	-15.877	-10.902
30	4.001	-0.068561	-0.738124	-2.528	-13.548	-20.935	-12.379
.							

1.11 Aparatos de apoyo

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

ESFUERZOS STATIK2 ESTADO LIMITE DE SERVICIO

apoyo	sec	env		Nk [t]	Myk [mt]	Mzk [mt]
1	1	Mz	min	-1013.05	-0.04	-1372.82
	1	Mz	max	-912.03	0.04	1304.15
1	1	N	min	-1209.40	-0.04	-10.98
	1	N	max	-682.55	0.04	0.19
2	1	Mz	min	-1607.80	0.00	-909.96
	1	Mz	max	-1842.26	0.00	861.02
2	1	N	min	-2373.68	0.00	-97.63
	1	N	max	-1027.45	0.00	-7.52
3	1	Mz	min	-2156.31	0.00	-1217.06
	1	Mz	max	-2241.97	0.00	1149.52
3	1	N	min	-2829.12	0.00	-79.66
	1	N	max	-1520.76	0.00	-55.85
4	1	Mz	min	-2077.20	0.00	-1266.44
	1	Mz	max	-2187.08	0.00	1201.62
4	1	N	min	-2776.68	0.00	-70.50
	1	N	max	-1439.32	0.00	-61.58
5	1	Mz	min	-2065.12	0.00	-1304.15
	1	Mz	max	-2174.53	0.00	1237.30
5	1	N	min	-2769.65	0.00	-84.87
	1	N	max	-1421.76	0.00	-49.06
6	1	Mz	min	-2066.92	0.00	-1331.60
	1	Mz	max	-2176.63	0.00	1264.04
6	1	N	min	-2771.59	0.00	-80.33
	1	N	max	-1423.76	0.00	-54.37
7	1	Mz	min	-2066.54	0.00	-1342.78
	1	Mz	max	-2176.16	0.00	1277.55
7	1	N	min	-2771.53	0.00	-89.41
	1	N	max	-1422.97	0.00	-43.05
8	1	Mz	min	-2066.18	0.00	-1342.36
	1	Mz	max	-2175.83	0.00	1275.03
8	1	N	min	-2771.62	0.00	-83.44
	1	N	max	-1422.16	0.00	-51.07
9	1	Mz	min	-2068.41	0.00	-1311.67
	1	Mz	max	-2177.99	0.00	1243.34
9	1	N	min	-2774.17	0.00	-90.77
	1	N	max	-1423.97	0.00	-43.51
10	1	Mz	min	-2072.28	0.00	-1313.29
	1	Mz	max	-2166.59	0.00	1249.63
10	1	N	min	-2769.98	0.00	-82.50
	1	N	max	-1420.69	0.00	-47.47
11	1	Mz	min	-2081.00	0.00	-1299.84
	1	Mz	max	-2172.86	0.00	1232.11
11	1	N	min	-2776.60	0.00	-92.84
	1	N	max	-1429.06	0.00	-40.96
12	1	Mz	min	-2048.46	0.00	-1306.48
	1	Mz	max	-2149.75	0.00	1241.91
12	1	N	min	-2749.46	0.00	-85.66
	1	N	max	-1400.40	0.00	-46.83
13	1	Mz	min	-2173.30	0.00	-1286.83
	1	Mz	max	-2238.18	0.00	1222.96
13	1	N	min	-2838.86	0.00	-97.09
	1	N	max	-1524.73	0.00	-35.86
14	1	Mz	min	-1682.02	0.00	-1043.81
	1	Mz	max	-1906.91	0.00	989.70
14	1	N	min	-2437.53	0.00	-68.99
	1	N	max	-1106.41	0.00	-38.58
15	1	Mz	min	-958.20	0.00	-1083.35
	1	Mz	max	-885.56	0.00	1035.08
15	1	N	min	-1161.66	0.00	58.67
	1	N	max	-649.58	0.00	-37.98

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
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CARGAS EN NEOPRENOS

apoyo	env	nº neop	Nk [t]
E-1	Mz min	1	-841.36
	Mz min	2	-171.69
	Mz max	1	-137.93
	Mz max	2	-774.10
E-1	N min	1	-607.38
	N min	2	-602.02
	N max	1	-341.23
	N max	2	-341.32
P-1	Mz min	1	-1037.22
	Mz min	2	-570.58
	Mz max	1	-700.36
	Mz max	2	-1141.90
P-1	N min	1	-1211.88
	N min	2	-1161.81
	N max	1	-515.65
	N max	2	-511.80
P-2	Mz min	1	-1390.22
	Mz min	2	-766.09
	Mz max	1	-826.24
	Mz max	2	-1415.73
P-2	N min	1	-1434.98
	N min	2	-1394.13
	N max	1	-774.70
	N max	2	-746.06
P-3	Mz min	1	-1363.33
	Mz min	2	-713.87
	Mz max	1	-785.43
	Mz max	2	-1401.65
P-3	N min	1	-1406.42
	N min	2	-1370.26
	N max	1	-735.45
	N max	2	-703.87
P-4	Mz min	1	-1366.96
	Mz min	2	-698.16
	Mz max	1	-770.01
	Mz max	2	-1404.52
P-4	N min	1	-1406.59
	N min	2	-1363.06
	N max	1	-723.46
	N max	2	-698.30
P-5	Mz min	1	-1374.90
	Mz min	2	-692.03
	Mz max	1	-764.20
	Mz max	2	-1412.43
P-5	N min	1	-1406.39
	N min	2	-1365.20
	N max	1	-725.82
	N max	2	-697.94
P-6	Mz min	1	-1377.57
	Mz min	2	-688.97
	Mz max	1	-760.50
	Mz max	2	-1415.66
P-6	N min	1	-1408.69
	N min	2	-1362.84
	N max	1	-722.53
	N max	2	-700.45
P-7	Mz min	1	-1377.29
	Mz min	2	-688.90
	Mz max	1	-760.99
	Mz max	2	-1414.85
P-7	N min	1	-1407.20
	N min	2	-1364.41
	N max	1	-724.17
	N max	2	-697.99
P-8	Mz min	1	-1370.53
	Mz min	2	-697.88
	Mz max	1	-770.19
	Mz max	2	-1407.80
P-8	N min	1	-1410.36
	N min	2	-1363.81
	N max	1	-723.14
	N max	2	-700.83
P-9	Mz min	1	-1372.88
	Mz min	2	-699.40
	Mz max	1	-762.88
	Mz max	2	-1403.71
P-9	N min	1	-1406.14
	N min	2	-1363.83
	N max	1	-722.52
	N max	2	-698.17
P-10	Mz min	1	-1373.79
	Mz min	2	-707.21
	Mz max	1	-770.51
	Mz max	2	-1402.36
P-10	N min	1	-1412.11
	N min	2	-1364.49
	N max	1	-725.03
	N max	2	-704.03
P-11	Mz min	1	-1359.22
	Mz min	2	-689.23
	Mz max	1	-756.44
	Mz max	2	-1393.31
P-11	N min	1	-1396.70

	N min	2	-1352.77	
	N max	1	-712.21	
	N max	2	-688.19	
P-12	Mz min	1	-1416.60	
	Mz min	2	-756.69	
	Mz max	1	-805.51	
	Mz max	2	-1432.67	
P-12	N min	1	-1444.32	
	N min	2	-1394.53	
	N max	1	-771.56	
	N max	2	-753.17	
P-13	Mz min	1	-1108.65	
	Mz min	2	-573.37	
	Mz max	1	-699.69	
	Mz max	2	-1207.23	
P-13	N min	1	-1236.46	
	N min	2	-1201.08	
	N max	1	-563.10	
	N max	2	-543.31	
E-2	Mz min	1	-743.33	
	Mz min	2	-214.87	
	Mz max	1	-190.32	
	Mz max	2	-695.24	
E-2	N min	1	-566.52	
	N min	2	-595.14	
	N max	1	-334.05	
	N max	2	-315.52	

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DESPLAZAMIENTOS HORIZONTALES

apoyo	dir	pret. [cm]	reol. [cm]	temp. [cm]	frenado [cm]	total [cm]
E-1	long	-0.000	-0.000	0.000	0.001	0.001
	trans	-0.000	-0.000	0.000	0.000	0.000
P-1	long	-0.632	-2.368	0.480	0.057	3.538
	trans	-0.011	-0.004	0.001	0.015	0.031
P-2	long	-1.470	-5.328	1.080	0.123	8.001
	trans	-0.021	-0.004	0.001	0.030	0.056
P-3	long	-2.255	-8.288	1.680	0.183	12.406
	trans	-0.026	-0.004	0.001	0.037	0.067
P-4	long	-3.026	-11.248	2.280	0.238	16.792
	trans	-0.029	-0.007	0.001	0.039	0.077
P-5	long	-3.797	-14.208	2.880	0.288	21.173
	trans	-0.031	-0.009	0.002	0.038	0.080
P-6	long	-4.568	-17.168	3.480	0.332	25.548
	trans	-0.031	-0.011	0.002	0.034	0.079
P-7	long	-5.338	-20.128	4.080	0.371	29.918
	trans	-0.031	-0.014	0.003	0.029	0.077
P-8	long	-6.109	-23.088	4.680	0.405	34.283
	trans	-0.030	-0.013	0.003	0.023	0.069
P-9	long	-6.880	-26.048	5.280	0.434	38.642
	trans	-0.029	-0.015	0.003	0.018	0.064
P-10	long	-7.651	-29.008	5.880	0.457	42.996
	trans	-0.027	-0.022	0.004	0.013	0.065
P-11	long	-8.421	-31.968	6.480	0.474	47.343
	trans	-0.019	-0.018	0.004	0.006	0.048
P-12	long	-9.194	-34.928	7.080	0.487	51.688
	trans	-0.013	-0.022	0.005	0.002	0.042
P-13	long	-9.934	-37.888	7.680	0.494	55.995
	trans	-0.010	-0.027	0.005	0.001	0.043
E-2	long	-10.485	-40.256	8.160	0.495	59.396
	trans	-0.000	-0.000	0.000	0.000	0.000

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
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COMPROBACION NEOPRENOS

LEYENDA !: reacción negativa
+: tensión en el apoyo superior a 150 kg/cm2
*: tensión en el apoyo inferior a 50 kg/cm2
**: (solo neop) desplazamiento no admisible (?/h>0.7)

apoyo	nº neop	?max [kp/cm2]	?min [kp/cm2]	?/h_neta
E-1	1	-25.87 *	-157.77 +	-----
	2	-32.20 *	-145.16	
P-1	1	-55.26	-129.87	-----
	2	-54.85	-124.51	
P-2	1	-83.02	-153.78 +	-----
	2	-79.95	-151.72 +	
P-3	1	-78.81	-150.72 +	-----
	2	-75.43	-150.21 +	
P-4	1	-77.53	-150.74 +	-----
	2	-74.82	-150.52 +	
P-5	1	-77.78	-150.72 +	-----
	2	-74.16	-151.36 +	
P-6	1	-77.43	-150.96 +	-----
	2	-73.83	-151.71 +	
P-7	1	-77.61	-150.80 +	-----
	2	-73.83	-151.62 +	
P-8	1	-77.50	-151.14 +	-----
	2	-74.79	-150.87 +	

P-9	1	-77.43	-150.69 +	-----
	2	-74.82	-150.43 +	
P-10	1	-77.70	-151.33 +	-----
	2	-75.45	-150.29 +	
P-11	1	-76.32	-149.68	-----
	2	-73.75	-149.32	
P-12	1	-82.69	-154.78 +	-----
	2	-80.71	-153.53 +	
P-13	1	-60.34	-132.51	-----
	2	-58.22	-129.37	
E-2	1	-35.69 *	-139.39	-----
	2	-40.29 *	-130.37	

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
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ESFUERZOS STATIK2 ESTADO LIMITE ULTIMO: 1. TENSIONES NORMALES

LEYENDA *: el teflón no desliza

pila	sec	env	Nd [t]	Myd [mt]	Mzd [mt]	Myd_tef [mt]	Mzd_tef [mt]
1	1	My min	-2019.89	-0.00	-22.54	0.00	0.00
	1	My max	-2019.89	0.00	-22.54	0.00	0.00
	2	My min	-2221.60	-78.29	-23.45	908.95	0.00
	2	My max	-2221.60	78.29	-23.45	908.95	0.00
	3	My min	-2423.32	-313.16	-24.35	1817.90	0.00
	3	My max	-2423.32	313.16	-24.35	1817.90	0.00
1	1	Mz min	-1692.52	0.00	-1350.20	0.00	0.00
	1	Mz max	-2734.91	0.00	1299.51	0.00	0.00
	2	Mz min	-1581.03	-35.23	-1439.12	761.63	0.00
	2	Mz max	-2623.09	35.23	1382.43	1230.71	0.00
	3	Mz min	-1623.89	-140.92	-1863.82	1523.27	0.00
	3	Mz max	-2738.60	140.92	1800.37	2461.41	0.00
1	1	N min	-3532.04	0.00	-138.47	0.00	0.00
	1	N max	-704.15	-0.00	-74.54	0.00	0.00
	2	N min	-3733.75	0.00	21.32	1589.42	0.00
	2	N max	-813.08	-35.23	58.36	316.87	0.00
	3	N min	-3935.47	0.00	181.10	3178.84	0.00
	3	N max	-922.00	-140.92	227.43	633.74	0.00
2	1	My min	-2454.20	-0.00	-29.70	0.00	0.00
	1	My max	-2454.20	0.00	-29.70	0.00	0.00
	2	My min	-2716.66	-132.55	-27.04	1472.52	0.00
	2	My max	-2716.66	132.55	-27.04	1472.52	0.00
	3	My min	-2979.12	-530.19	-24.37	2945.04	0.00
	3	My max	-2979.12	530.19	-24.37	2945.04	0.00
2	1	Mz min	-2236.96	0.00	-1806.05	0.00	0.00
	1	Mz max	-3187.64	0.00	1734.94	0.00	0.00
	2	Mz min	-2173.41	-59.65	-1794.60	1342.18	0.00
	2	Mz max	-3099.34	59.65	1730.02	1912.58	0.00
	3	Mz min	-2249.77	-238.58	-2102.84	2684.35	0.00
	3	Mz max	-3270.22	238.58	2043.82	3825.17	0.00
2	1	N min	-4068.36	0.00	-108.83	0.00	0.00
	1	N max	-1165.03	-0.00	-82.64	0.00	0.00
	2	N min	-4330.82	0.00	-228.97	2441.02	0.00
	2	N max	-1306.76	-59.65	294.80	699.02	0.00
	3	N min	-4593.28	0.00	-349.11	4882.03	0.00
	3	N max	-1448.48	-238.58	733.47	1398.03	0.00
3	1	My min	-2395.90	-0.00	-28.36	0.00	0.00
	1	My max	-2395.90	0.00	-28.36	0.00	0.00
	2	My min	-2668.48	-142.98	-29.62	1497.44	0.00
	2	My max	-2668.48	142.98	-29.62	1497.44	0.00
	3	My min	-2941.07	-571.88	-30.87	2994.87	0.00
	3	My max	-2941.07	571.88	-30.87	2994.87	0.00
3	1	Mz min	-2154.06	0.00	-1881.05	0.00	0.00
	1	Mz max	-3123.32	0.00	1812.57	0.00	0.00
	2	Mz min	-2093.72	-64.34	-2114.87	1346.29	0.00
	2	Mz max	-3051.15	64.34	2043.91	1952.08	0.00
	3	Mz min	-2175.71	-257.35	-2682.56	2692.57	0.00
	3	Mz max	-3231.30	257.35	2608.07	3904.15	0.00
3	1	N min	-4007.72	0.00	-95.63	0.00	0.00
	1	N max	-1081.29	0.00	-83.28	0.00	0.00
	2	N min	-4280.30	0.00	-246.10	2504.82	0.00
	2	N max	-1228.48	64.34	257.16	675.81	0.00
	3	N min	-4552.89	0.00	-396.57	5009.65	0.00
	3	N max	-1375.68	257.35	663.65	1351.61	0.00
4	1	My min	-2381.27	-0.00	-29.12	0.00	0.00
	1	My max	-2381.27	0.00	-29.12	0.00	0.00
	2	My min	-2663.97	-153.79	-29.80	1547.82	0.00
	2	My max	-2663.97	153.79	-29.80	1547.82	0.00
	3	My min	-2946.68	-615.15	-30.47	3095.64	0.00
	3	My max	-2946.68	615.15	-30.47	3095.64	0.00
4	1	Mz min	-2145.85	0.00	-1937.10	0.00	0.00
	1	Mz max	-3110.05	0.00	1866.37	0.00	0.00
	2	Mz min	-2091.61	-69.21	-2213.80	1394.80	0.00
	2	Mz max	-3045.26	69.21	2142.49	2021.54	0.00
	3	Mz min	-2179.14	-276.82	-2813.40	2789.61	0.00
	3	Mz max	-3234.59	276.82	2740.41	4043.07	0.00
4	1	N min	-4002.74	0.00	-116.89	0.00	0.00
	1	N max	-1065.51	-0.00	-71.06	0.00	0.00
	2	N min	-4285.45	0.00	-256.23	2601.78	0.00
	2	N max	-1218.18	-69.21	400.04	692.58	0.00
	3	N min	-4568.16	0.00	-395.58	5203.56	0.00
	3	N max	-1370.84	-276.82	942.18	1385.17	0.00
5	1	My min	-2383.78	-0.00	-29.03	0.00	0.00
	1	My max	-2383.78	0.00	-29.03	0.00	0.00
	2	My min	-2676.61	-165.01	-28.61	1609.05	0.00

	2	My max	-2676.61	165.01	-28.61	1609.05	0.00
	3	My min	-2969.45	-660.00	-28.18	3218.10	0.00
	3	My max	-2969.45	660.00	-28.18	3218.10	0.00
5	1	Mz min	-2146.70	0.00	-1978.12	0.00	0.00
	1	Mz max	-3112.07	0.00	1906.68	0.00	0.00
	2	Mz min	-2097.80	-74.25	-2189.82	1449.02	0.00
	2	Mz max	-3056.91	74.25	2121.33	2100.65	0.00
	3	Mz min	-2190.85	-297.00	-2714.09	2898.05	0.00
	3	Mz max	-3255.41	297.00	2647.59	4201.29	0.00
5	1	N min	-4004.52	0.00	-109.87	0.00	0.00
	1	N max	-1066.82	0.00	-65.05	0.00	0.00
	2	N min	-4297.35	0.00	-226.64	2703.05	0.00
	2	N max	-1224.95	74.25	286.10	720.10	0.00
	3	N min	-4590.19	0.00	-343.41	5406.10	0.00
	3	N max	-1383.08	297.00	713.48	1440.20	0.00
6	1	My min	-2383.25	-0.00	-28.28	0.00	0.00
	1	My max	-2383.25	0.00	-28.28	0.00	0.00
	2	My min	-2676.08	-165.01	-28.62	1608.69	0.00
	2	My max	-2676.08	165.01	-28.62	1608.69	0.00
	3	My min	-2968.91	-660.00	-28.96	3217.38	0.00
	3	My max	-2968.91	660.00	-28.96	3217.38	0.00
6	1	Mz min	-2146.55	0.00	-1995.24	0.00	0.00
	1	Mz max	-3111.65	0.00	1926.84	0.00	0.00
	2	Mz min	-2097.68	-74.25	-2190.55	1448.92	0.00
	2	Mz max	-3056.35	74.25	2121.46	2100.36	0.00
	3	Mz min	-2190.73	-297.00	-2687.95	2897.84	0.00
	3	Mz max	-3254.85	297.00	2617.28	4200.73	0.00
6	1	N min	-4004.71	0.00	-123.60	0.00	0.00
	1	N max	-1066.09	0.00	-48.08	0.00	0.00
	2	N min	-4297.54	0.00	-225.42	2703.18	0.00
	2	N max	-1224.22	74.25	385.73	719.61	0.00
	3	N min	-4590.38	0.00	-327.24	5406.36	0.00
	3	N max	-1382.35	297.00	895.75	1439.23	0.00
7	1	My min	-2382.85	-0.00	-29.26	0.00	0.00
	1	My max	-2382.85	0.00	-29.26	0.00	0.00
	2	My min	-2665.56	-153.79	-29.69	1548.85	0.00
	2	My max	-2665.56	153.79	-29.69	1548.85	0.00
	3	My min	-2948.27	-615.15	-30.12	3097.71	0.00
	3	My max	-2948.27	615.15	-30.12	3097.71	0.00
7	1	Mz min	-2146.13	0.00	-1994.21	0.00	0.00
	1	Mz max	-3111.12	0.00	1923.13	0.00	0.00
	2	Mz min	-2091.82	69.21	-2244.12	1394.99	0.00
	2	Mz max	-3046.81	-69.21	2172.78	2022.23	0.00
	3	Mz min	-2179.35	276.82	-2787.03	2789.97	0.00
	3	Mz max	-3236.14	-276.82	2714.37	4044.46	0.00
7	1	N min	-4004.80	0.00	-114.56	0.00	0.00
	1	N max	-1065.11	0.00	-58.90	0.00	0.00
	2	N min	-4287.51	0.00	-202.39	2603.12	0.00
	2	N max	-1217.77	69.21	295.04	692.32	0.00
	3	N min	-4570.22	0.00	-290.21	5206.25	0.00
	3	N max	-1370.44	276.82	720.03	1384.64	0.00
8	1	My min	-2385.31	-0.00	-29.51	0.00	0.00
	1	My max	-2385.31	0.00	-29.51	0.00	0.00
	2	My min	-2657.89	-142.98	-30.39	1490.82	0.00
	2	My max	-2657.89	142.98	-30.39	1490.82	0.00
	3	My min	-2930.48	-571.88	-31.27	2981.64	0.00
	3	My max	-2930.48	571.88	-31.27	2981.64	0.00
8	1	Mz min	-2148.43	0.00	-1948.13	0.00	0.00
	1	Mz max	-3114.16	0.00	1875.55	0.00	0.00
	2	Mz min	-2088.47	-64.34	-2273.11	1342.77	0.00
	2	Mz max	-3040.44	64.34	2200.65	1946.35	0.00
	3	Mz min	-2214.00	-257.35	-2902.09	2685.54	0.00
	3	Mz max	-3264.10	257.35	2828.62	3892.70	0.00
8	1	N min	-4008.44	0.00	-125.61	0.00	0.00
	1	N max	-1066.65	-0.00	-65.47	0.00	0.00
	2	N min	-4281.02	0.00	-202.81	2505.27	0.00
	2	N max	-1213.84	-64.34	375.09	666.65	0.00
	3	N min	-4553.60	0.00	-280.02	5010.55	0.00
	3	N max	-1361.04	-257.35	881.70	1333.31	0.00
9	1	My min	-2381.34	-0.00	-27.86	0.00	0.00
	1	My max	-2381.34	0.00	-27.86	0.00	0.00
	2	My min	-2664.05	-153.79	-27.70	1547.87	0.00
	2	My max	-2664.05	153.79	-27.70	1547.87	0.00
	3	My min	-2946.76	-615.15	-27.54	3095.75	0.00
	3	My max	-2946.76	615.15	-27.54	3095.75	0.00
9	1	Mz min	-2156.16	0.00	-1951.45	0.00	0.00
	1	Mz max	-3097.66	0.00	1884.62	0.00	0.00
	2	Mz min	-2090.08	-69.21	-2040.16	1401.50	0.00
	2	Mz max	-3045.24	69.21	1973.54	2013.48	0.00
	3	Mz min	-2177.66	-276.82	-2433.11	2803.01	0.00
	3	Mz max	-3234.61	276.82	2365.71	4026.96	0.00
9	1	N min	-4002.75	0.00	-113.57	0.00	0.00
	1	N max	-1063.81	0.00	-64.65	0.00	0.00
	2	N min	-4285.46	0.00	-156.65	2601.79	0.00
	2	N max	-1216.47	69.21	249.35	691.47	0.00
	3	N min	-4568.17	0.00	-199.72	5203.58	0.00
	3	N max	-1369.13	276.82	634.40	1382.95	0.00

10	1	My min	-2388.41	-0.00	-28.93	0.00	0.00
	1	My max	-2388.41	0.00	-28.93	0.00	0.00
	2	My min	-2660.99	-142.98	-25.76	1492.75	0.00
	2	My max	-2660.99	142.98	-25.76	1492.75	0.00
	3	My min	-2933.58	-571.88	-22.59	2985.51	0.00
	3	My max	-2933.58	571.88	-22.59	2985.51	0.00
10	1	Mz min	-2165.05	0.00	-1930.64	0.00	0.00
	1	Mz max	-3105.06	0.00	1858.65	0.00	0.00
	2	Mz min	-2093.16	64.34	-1881.92	1353.15	0.00
	2	Mz max	-3043.33	-64.34	1820.64	1940.66	0.00
	3	Mz min	-2218.85	257.35	-2131.86	2706.31	0.00
	3	Mz max	-3267.14	-257.35	2080.33	3881.33	0.00
10	1	N min	-4010.67	0.00	-128.78	0.00	0.00
	1	N max	-1071.88	-0.00	-55.88	0.00	0.00
	2	N min	-4283.26	0.00	-145.53	2506.67	0.00
	2	N max	-1219.07	-64.34	260.12	669.92	0.00
	3	N min	-4555.84	0.00	-162.28	5013.34	0.00
	3	N max	-1366.27	-257.35	642.17	1339.85	0.00
11	1	My min	-2362.60	-0.00	-28.42	0.00	0.00
	1	My max	-2362.60	0.00	-28.42	0.00	0.00
	2	My min	-2584.56	-94.80	-27.20	1181.30	0.00
	2	My max	-2584.56	94.80	-27.20	1181.30	0.00
	3	My min	-2806.52	-379.19	-25.99	2362.60	0.00
	3	My max	-2806.52	379.19	-25.99	2362.60	0.00
11	1	Mz min	-2131.83	0.00	-1941.05	0.00	0.00
	1	Mz max	-3078.09	0.00	1873.04	0.00	0.00
	2	Mz min	-2033.89	-42.66	-1901.48	1065.92	0.00
	2	Mz max	-2971.32	42.66	1835.63	1539.05	0.00
	3	Mz min	-2132.33	-170.64	-2130.89	2131.83	0.00
	3	Mz max	-3149.67	170.64	2066.11	3078.09	0.00
11	1	N min	-3977.66	0.00	-118.32	0.00	0.00
	1	N max	-1045.09	-0.00	-59.24	0.00	0.00
	2	N min	-4199.63	0.00	-127.77	1988.83	0.00
	2	N max	-1164.95	-42.66	193.14	522.54	0.00
	3	N min	-4421.59	0.00	-137.21	3977.66	0.00
	3	N max	-1284.81	-170.64	489.32	1045.09	0.00
12	1	My min	-2461.31	-0.00	-27.65	0.00	0.00
	1	My max	-2461.31	0.00	-27.65	0.00	0.00
	2	My min	-2602.28	-38.24	-32.02	738.39	0.00
	2	My max	-2602.28	38.24	-32.02	738.39	0.00
	3	My min	-2743.24	-152.94	-36.40	1476.79	0.00
	3	My max	-2743.24	152.94	-36.40	1476.79	0.00
12	1	Mz min	-2258.68	0.00	-1911.87	0.00	0.00
	1	Mz max	-3180.49	0.00	1844.57	0.00	0.00
	2	Mz min	-2112.30	-17.21	-2176.82	677.60	0.00
	2	Mz max	-2999.33	17.21	2099.00	954.15	0.00
	3	Mz min	-2167.10	-68.82	-2654.64	1355.21	0.00
	3	Mz max	-3104.88	68.82	2565.40	1908.29	0.00
12	1	N min	-4081.50	0.00	-135.51	0.00	0.00
	1	N max	-1167.04	0.00	-45.22	0.00	0.00
	2	N min	-4222.46	0.00	-150.58	1224.45	0.00
	2	N max	-1243.16	17.21	-282.11	350.11	0.00
	3	N min	-4363.43	0.00	-165.66	2448.90	0.00
	3	N max	-1319.28	68.82	-536.65	700.22	0.00
13	1	My min	-2093.40	-0.00	-23.73	0.00	0.00
	1	My max	-2093.40	0.00	-23.73	0.00	0.00
	2	My min	-2203.99	-23.53	-22.55	471.01	0.00
	2	My max	-2203.99	23.53	-22.55	471.01	0.00
	3	My min	-2314.58	-94.13	-21.37	942.03	0.00
	3	My max	-2314.58	94.13	-21.37	942.03	0.00
13	1	Mz min	-1756.39	0.00	-1550.13	0.00	0.00
	1	Mz max	-2806.57	0.00	1493.03	0.00	0.00
	2	Mz min	-1804.05	0.00	-1473.13	395.19	0.00
	2	Mz max	-2897.74	0.00	1417.63	631.48	0.00
	3	Mz min	-1652.41	-42.36	-1542.14	790.37	0.00
	3	Mz max	-2681.90	42.36	1488.91	1262.96	0.00
13	1	N min	-3602.50	0.00	-95.00	0.00	0.00
	1	N max	-778.04	-0.00	-58.54	0.00	0.00
	2	N min	-3713.09	0.00	-84.71	810.56	0.00
	2	N max	-837.76	-10.59	-171.40	175.06	0.00
	3	N min	-3823.68	0.00	-74.42	1621.13	0.00
	3	N max	-897.48	-42.36	-295.12	350.12	0.00

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

ESFUERZOS EN FUSTES

pila	sec	fuste	env	Nd [t]	Myd [mt]	Mzd [mt]
1	1	1	My min	-2019.89	-0.00	-22.54
	1	1	My max	-2019.89	0.00	-22.54
	2	1	My min	-2221.60	-987.25	-23.45
	2	1	My max	-2221.60	987.25	-23.45
	3	1	My min	-2423.32	-2131.06	-24.35
	3	1	My max	-2423.32	2131.06	-24.35

1	1	1	Mz	min	-1692.52	0.00	-1350.20
	1	1	Mz	max	-2734.91	0.00	1299.51
	2	1	Mz	min	-1581.03	-796.87	-1439.12
	2	1	Mz	max	-2623.09	1265.94	1382.43
	3	1	Mz	min	-1623.89	-1664.19	-1863.82
	3	1	Mz	max	-2738.60	2602.34	1800.37
1	1	1	N	min	-3532.04	0.00	-138.47
	1	1	N	max	-704.15	-0.00	-74.54
	2	1	N	min	-3733.75	-1589.42	21.32
	2	1	N	max	-813.08	-352.10	58.36
	3	1	N	min	-3935.47	-3178.84	181.10
	3	1	N	max	-922.00	-774.66	227.43
2	1	1	My	min	-2454.20	-0.00	-29.70
	1	1	My	max	-2454.20	0.00	-29.70
	2	1	My	min	-2716.66	-1605.07	-27.04
	2	1	My	max	-2716.66	1605.07	-27.04
	3	1	My	min	-2979.12	-3475.23	-24.37
	3	1	My	max	-2979.12	3475.23	-24.37
2	1	1	Mz	min	-2236.96	0.00	-1806.05
	1	1	Mz	max	-3187.64	0.00	1734.94
	2	1	Mz	min	-2173.41	-1401.83	-1794.60
	2	1	Mz	max	-3099.34	1972.23	1730.02
	3	1	Mz	min	-2249.77	-2922.94	-2102.84
	3	1	Mz	max	-3270.22	4063.75	2043.82
2	1	1	N	min	-4068.36	0.00	-108.83
	1	1	N	max	-1165.03	-0.00	-82.64
	2	1	N	min	-4330.82	-2441.02	-228.97
	2	1	N	max	-1306.76	-758.67	294.80
	3	1	N	min	-4593.28	-4882.03	-349.11
	3	1	N	max	-1448.48	-1636.62	733.47
3	1	1	My	min	-2395.90	-0.00	-28.36
	1	1	My	max	-2395.90	0.00	-28.36
	2	1	My	min	-2668.48	-1640.41	-29.62
	2	1	My	max	-2668.48	1640.41	-29.62
	3	1	My	min	-2941.07	-3566.76	-30.87
	3	1	My	max	-2941.07	3566.76	-30.87
3	1	1	Mz	min	-2154.06	0.00	-1881.05
	1	1	Mz	max	-3123.32	0.00	1812.57
	2	1	Mz	min	-2093.72	-1410.62	-2114.87
	2	1	Mz	max	-3051.15	2016.42	2043.91
	3	1	Mz	min	-2175.71	-2949.92	-2682.56
	3	1	Mz	max	-3231.30	4161.50	2608.07
3	1	1	N	min	-4007.72	0.00	-95.63
	1	1	N	max	-1081.29	0.00	-83.28
	2	1	N	min	-4280.30	-2504.82	-246.10
	2	1	N	max	-1228.48	740.14	257.16
	3	1	N	min	-4552.89	-5009.65	-396.57
	3	1	N	max	-1375.68	1608.96	663.65
4	1	1	My	min	-2381.27	-0.00	-29.12
	1	1	My	max	-2381.27	0.00	-29.12
	2	1	My	min	-2663.97	-1701.62	-29.80
	2	1	My	max	-2663.97	1701.62	-29.80
	3	1	My	min	-2946.68	-3710.80	-30.47
	3	1	My	max	-2946.68	3710.80	-30.47
4	1	1	Mz	min	-2145.85	0.00	-1937.10
	1	1	Mz	max	-3110.05	0.00	1866.37
	2	1	Mz	min	-2091.61	-1464.01	-2213.80
	2	1	Mz	max	-3045.26	2090.74	2142.49
	3	1	Mz	min	-2179.14	-3066.43	-2813.40
	3	1	Mz	max	-3234.59	4319.89	2740.41
4	1	1	N	min	-4002.74	0.00	-116.89
	1	1	N	max	-1065.51	-0.00	-71.06
	2	1	N	min	-4285.45	-2601.78	-256.23
	2	1	N	max	-1218.18	-761.79	400.04
	3	1	N	min	-4568.16	-5203.56	-395.58
	3	1	N	max	-1370.84	-1661.98	942.18
5	1	1	My	min	-2383.78	-0.00	-29.03
	1	1	My	max	-2383.78	0.00	-29.03
	2	1	My	min	-2676.61	-1774.06	-28.61
	2	1	My	max	-2676.61	1774.06	-28.61
	3	1	My	min	-2969.45	-3878.10	-28.18
	3	1	My	max	-2969.45	3878.10	-28.18
5	1	1	Mz	min	-2146.70	0.00	-1978.12
	1	1	Mz	max	-3112.07	0.00	1906.68
	2	1	Mz	min	-2097.80	-1523.28	-2189.82
	2	1	Mz	max	-3056.91	2174.90	2121.33
	3	1	Mz	min	-2190.85	-3195.05	-2714.09
	3	1	Mz	max	-3255.41	4498.29	2647.59
5	1	1	N	min	-4004.52	0.00	-109.87
	1	1	N	max	-1066.82	0.00	-65.05
	2	1	N	min	-4297.35	-2703.05	-226.64
	2	1	N	max	-1224.95	794.36	286.10
	3	1	N	min	-4590.19	-5406.10	-343.41
	3	1	N	max	-1383.08	1737.21	713.48
6	1	1	My	min	-2383.25	-0.00	-28.28
	1	1	My	max	-2383.25	0.00	-28.28

	2	1	My min	-2676.08	-1773.70	-28.62
	2	1	My max	-2676.08	1773.70	-28.62
	3	1	My min	-2968.91	-3877.39	-28.96
	3	1	My max	-2968.91	3877.39	-28.96
6	1	1	Mz min	-2146.55	0.00	-1995.24
	1	1	Mz max	-3111.65	0.00	1926.84
	2	1	Mz min	-2097.68	-1523.17	-2190.55
	2	1	Mz max	-3056.35	2174.62	2121.46
	3	1	Mz min	-2190.73	-3194.84	-2687.95
	3	1	Mz max	-3254.85	4497.73	2617.28
6	1	1	N min	-4004.71	0.00	-123.60
	1	1	N max	-1066.09	0.00	-48.08
	2	1	N min	-4297.54	-2703.18	-225.42
	2	1	N max	-1224.22	793.87	385.73
	3	1	N min	-4590.38	-5406.36	-327.24
	3	1	N max	-1382.35	1736.23	895.75
7	1	1	My min	-2382.85	-0.00	-29.26
	1	1	My max	-2382.85	0.00	-29.26
	2	1	My min	-2665.56	-1702.65	-29.69
	2	1	My max	-2665.56	1702.65	-29.69
	3	1	My min	-2948.27	-3712.86	-30.12
	3	1	My max	-2948.27	3712.86	-30.12
7	1	1	Mz min	-2146.13	0.00	-1994.21
	1	1	Mz max	-3111.12	0.00	1923.13
	2	1	Mz min	-2091.82	1464.19	-2244.12
	2	1	Mz max	-3046.81	-2091.44	2172.78
	3	1	Mz min	-2179.35	3066.79	-2787.03
	3	1	Mz max	-3236.14	-4321.28	2714.37
7	1	1	N min	-4004.80	0.00	-114.56
	1	1	N max	-1065.11	0.00	-58.90
	2	1	N min	-4287.51	-2603.12	-202.39
	2	1	N max	-1217.77	761.53	295.04
	3	1	N min	-4570.22	-5206.25	-290.21
	3	1	N max	-1370.44	1661.46	720.03
8	1	1	My min	-2385.31	-0.00	-29.51
	1	1	My max	-2385.31	0.00	-29.51
	2	1	My min	-2657.89	-1633.79	-30.39
	2	1	My max	-2657.89	1633.79	-30.39
	3	1	My min	-2930.48	-3553.52	-31.27
	3	1	My max	-2930.48	3553.52	-31.27
8	1	1	Mz min	-2148.43	0.00	-1948.13
	1	1	Mz max	-3114.16	0.00	1875.55
	2	1	Mz min	-2088.47	-1407.11	-2273.11
	2	1	Mz max	-3040.44	2010.69	2200.65
	3	1	Mz min	-2214.00	-2942.89	-2902.09
	3	1	Mz max	-3264.10	4150.05	2828.62
8	1	1	N min	-4008.44	0.00	-125.61
	1	1	N max	-1066.65	-0.00	-65.47
	2	1	N min	-4281.02	-2505.27	-202.81
	2	1	N max	-1213.84	-730.99	375.09
	3	1	N min	-4553.60	-5010.55	-280.02
	3	1	N max	-1361.04	-1590.66	881.70
9	1	1	My min	-2381.34	-0.00	-27.86
	1	1	My max	-2381.34	0.00	-27.86
	2	1	My min	-2664.05	-1701.67	-27.70
	2	1	My max	-2664.05	1701.67	-27.70
	3	1	My min	-2946.76	-3710.90	-27.54
	3	1	My max	-2946.76	3710.90	-27.54
9	1	1	Mz min	-2156.16	0.00	-1951.45
	1	1	Mz max	-3097.66	0.00	1884.62
	2	1	Mz min	-2090.08	-1470.71	-2040.16
	2	1	Mz max	-3045.24	2082.69	1973.54
	3	1	Mz min	-2177.66	-3079.83	-2433.11
	3	1	Mz max	-3234.61	4303.78	2365.71
9	1	1	N min	-4002.75	0.00	-113.57
	1	1	N max	-1063.81	0.00	-64.65
	2	1	N min	-4285.46	-2601.79	-156.65
	2	1	N max	-1216.47	760.68	249.35
	3	1	N min	-4568.17	-5203.58	-199.72
	3	1	N max	-1369.13	1659.77	634.40
10	1	1	My min	-2388.41	-0.00	-28.93
	1	1	My max	-2388.41	0.00	-28.93
	2	1	My min	-2660.99	-1635.73	-25.76
	2	1	My max	-2660.99	1635.73	-25.76
	3	1	My min	-2933.58	-3557.39	-22.59
	3	1	My max	-2933.58	3557.39	-22.59
10	1	1	Mz min	-2165.05	0.00	-1930.64
	1	1	Mz max	-3105.06	0.00	1858.65
	2	1	Mz min	-2093.16	1417.49	-1881.92
	2	1	Mz max	-3043.33	-2005.00	1820.64
	3	1	Mz min	-2218.85	2963.65	-2131.86
	3	1	Mz max	-3267.14	-4138.68	2080.33
10	1	1	N min	-4010.67	0.00	-128.78
	1	1	N max	-1071.88	-0.00	-55.88
	2	1	N min	-4283.26	-2506.67	-145.53
	2	1	N max	-1219.07	-734.26	260.12
	3	1	N min	-4555.84	-5013.34	-162.28

	3	1	N	max	-1366.27	-1597.20	642.17
11	1	1	My	min	-2362.60	-0.00	-28.42
	1	1	My	max	-2362.60	0.00	-28.42
	2	1	My	min	-2584.56	-1276.10	-27.20
	2	1	My	max	-2584.56	1276.10	-27.20
	3	1	My	min	-2806.52	-2741.79	-25.99
	3	1	My	max	-2806.52	2741.79	-25.99
11	1	1	Mz	min	-2131.83	0.00	-1941.05
	1	1	Mz	max	-3078.09	0.00	1873.04
	2	1	Mz	min	-2033.89	-1108.58	-1901.48
	2	1	Mz	max	-2971.32	1581.71	1835.63
	3	1	Mz	min	-2132.33	-2302.47	-2130.89
	3	1	Mz	max	-3149.67	3248.73	2066.11
11	1	1	N	min	-3977.66	0.00	-118.32
	1	1	N	max	-1045.09	-0.00	-59.24
	2	1	N	min	-4199.63	-1988.83	-127.77
	2	1	N	max	-1164.95	-565.21	193.14
	3	1	N	min	-4421.59	-3977.66	-137.21
	3	1	N	max	-1284.81	-1215.73	489.32
12	1	1	My	min	-2461.31	-0.00	-27.65
	1	1	My	max	-2461.31	0.00	-27.65
	2	1	My	min	-2602.28	-776.63	-32.02
	2	1	My	max	-2602.28	776.63	-32.02
	3	1	My	min	-2743.24	-1629.73	-36.40
	3	1	My	max	-2743.24	1629.73	-36.40
12	1	1	Mz	min	-2258.68	0.00	-1911.87
	1	1	Mz	max	-3180.49	0.00	1844.57
	2	1	Mz	min	-2112.30	-694.81	-2176.82
	2	1	Mz	max	-2999.33	971.35	2099.00
	3	1	Mz	min	-2167.10	-1424.03	-2654.64
	3	1	Mz	max	-3104.88	1977.12	2565.40
12	1	1	N	min	-4081.50	0.00	-135.51
	1	1	N	max	-1167.04	0.00	-45.22
	2	1	N	min	-4222.46	-1224.45	-150.58
	2	1	N	max	-1243.16	367.32	-282.11
	3	1	N	min	-4363.43	-2448.90	-165.66
	3	1	N	max	-1319.28	769.05	-536.65
13	1	1	My	min	-2093.40	-0.00	-23.73
	1	1	My	max	-2093.40	0.00	-23.73
	2	1	My	min	-2203.99	-494.55	-22.55
	2	1	My	max	-2203.99	494.55	-22.55
	3	1	My	min	-2314.58	-1036.16	-21.37
	3	1	My	max	-2314.58	1036.16	-21.37
13	1	1	Mz	min	-1756.39	0.00	-1550.13
	1	1	Mz	max	-2806.57	0.00	1493.03
	2	1	Mz	min	-1804.05	-395.19	-1473.13
	2	1	Mz	max	-2897.74	-631.48	1417.63
	3	1	Mz	min	-1652.41	-832.73	-1542.14
	3	1	Mz	max	-2681.90	1305.32	1488.91
13	1	1	N	min	-3602.50	0.00	-95.00
	1	1	N	max	-778.04	-0.00	-58.54
	2	1	N	min	-3713.09	-810.56	-84.71
	2	1	N	max	-837.76	-185.65	-171.40
	3	1	N	min	-3823.68	-1621.13	-74.42
	3	1	N	max	-897.48	-392.48	-295.12

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

DIMENSIONAMIENTO FUSTES

LEYENDA m: armadura mínima (As$$fyd=0.1$$Ac$$fcd)
xxxx: Anec$$fyd > Ac$$fcd

pila	sec	fuste	env		Nd [t]	Myd_eq [mt]	Mzd_eq [mt]	fi_nom [mm]	A_tot [cm2]
1	2	1	My	min	-2221.60	-1551.21	-584.28	16.45	242.15 m
	2	1	My	max	-2221.60	-1551.21	-584.28	16.45	242.15 m
1	3	1	My	min	-2423.32	-2800.48	-637.33	16.45	242.15 m
	3	1	My	max	-2423.32	-2800.48	-637.33	16.45	242.15 m
1	2	1	Mz	min	-1581.03	-1205.42	-1439.12	16.45	242.15 m
	2	1	Mz	max	-2623.09	-1939.70	-1382.43	16.45	242.15 m
1	3	1	Mz	min	-1623.89	-2119.48	-1863.82	16.45	242.15 m
	3	1	Mz	max	-2738.60	-3364.69	-1800.37	16.45	242.15 m
1	2	1	N	min	-3733.75	-2531.31	-981.98	16.45	242.15 m
	2	1	N	max	-813.08	-557.73	-213.84	16.45	242.15 m
1	3	1	N	min	-3935.47	-4256.35	-1035.03	16.45	242.15 m
	3	1	N	max	-922.00	-1028.16	-242.49	16.45	242.15 m
2	2	1	My	min	-2716.66	-2879.69	-714.48	16.45	242.15 m
	2	1	My	max	-2716.66	-2879.69	-714.48	16.45	242.15 m
2	3	1	My	min	-2979.12	-4977.17	-783.51	17.19	264.69
	3	1	My	max	-2979.12	-4977.17	-783.51	17.19	264.69
2	2	1	Mz	min	-2173.41	-2432.78	-1794.60	16.45	242.15 m

	2	1	Mz	max	-3099.34	-3439.98	-1730.02	16.45	242.15 m
2	3	1	Mz	min	-2249.77	-4067.12	-2102.84	16.45	242.15 m
	3	1	Mz	max	-3270.22	-5721.07	-2043.82	23.27	484.75
2	2	1	N	min	-4330.82	-4460.64	-1139.01	16.45	242.15 m
	2	1	N	max	-1306.76	-1370.40	-343.68	16.45	242.15 m
2	3	1	N	min	-4593.28	-7179.08	-1208.03	29.98	804.62
	3	1	N	max	-1448.48	-2364.90	-733.47	16.45	242.15 m
3	2	1	My	min	-2668.48	-3005.76	-701.81	16.45	242.15 m
	2	1	My	max	-2668.48	-3005.76	-701.81	16.45	242.15 m
3	3	1	My	min	-2941.07	-5180.86	-773.50	18.90	319.88
	3	1	My	max	-2941.07	-5180.86	-773.50	18.90	319.88
3	2	1	Mz	min	-2093.72	-2493.95	-2114.87	16.45	242.15 m
	2	1	Mz	max	-3051.15	-3591.49	-2043.91	16.45	242.15 m
3	3	1	Mz	min	-2175.71	-4154.50	-2682.56	17.02	259.50
	3	1	Mz	max	-3231.30	-5943.45	-2608.07	25.56	585.07
3	2	1	N	min	-4280.30	-4681.25	-1125.72	16.45	242.15 m
	2	1	N	max	-1228.48	-1367.12	-323.09	16.45	242.15 m
3	3	1	N	min	-4552.89	-7487.80	-1197.41	31.38	881.56
	3	1	N	max	-1375.68	-2361.68	-663.65	16.45	242.15 m
4	2	1	My	min	-2663.97	-3182.90	-700.63	16.45	242.15 m
	2	1	My	max	-2663.97	-3182.90	-700.63	16.45	242.15 m
4	3	1	My	min	-2946.68	-5465.28	-774.98	20.85	389.16
	3	1	My	max	-2946.68	-5465.28	-774.98	20.85	389.16
4	2	1	Mz	min	-2091.61	-2639.84	-2213.80	16.45	242.15 m
	2	1	Mz	max	-3045.26	-3798.80	-2142.49	16.45	242.15 m
4	3	1	Mz	min	-2179.14	-4374.98	-2813.40	18.93	320.91
	3	1	Mz	max	-3234.59	-6254.64	-2740.41	27.34	669.41
4	2	1	N	min	-4285.45	-4969.67	-1127.07	16.45	242.15 m
	2	1	N	max	-1218.18	-1437.38	-400.04	16.45	242.15 m
4	3	1	N	min	-4568.16	-7901.01	-1201.42	33.22	987.80
	3	1	N	max	-1370.84	-2475.69	-942.18	16.45	242.15 m
5	2	1	My	min	-2676.61	-3386.27	-703.95	16.45	242.15 m
	2	1	My	max	-2676.61	-3386.27	-703.95	16.45	242.15 m
5	3	1	My	min	-2969.45	-5790.22	-780.96	22.85	467.31
	3	1	My	max	-2969.45	-5790.22	-780.96	22.85	467.31
5	2	1	Mz	min	-2097.80	-2800.45	-2189.82	16.45	242.15 m
	2	1	Mz	max	-3056.91	-4031.63	-2121.33	16.45	242.15 m
5	3	1	Mz	min	-2190.85	-4617.46	-2714.09	20.20	365.28
	3	1	Mz	max	-3255.41	-6603.56	-2647.59	28.90	747.67
5	2	1	N	min	-4297.35	-5275.02	-1130.20	18.16	295.24
	2	1	N	max	-1224.95	-1530.24	-322.16	16.45	242.15 m
5	3	1	N	min	-4590.19	-8337.33	-1207.22	35.06	1100.45
	3	1	N	max	-1383.08	-2625.08	-713.48	16.45	242.15 m
6	2	1	My	min	-2676.08	-3385.59	-703.81	16.45	242.15 m
	2	1	My	max	-2676.08	-3385.59	-703.81	16.45	242.15 m
6	3	1	My	min	-2968.91	-5789.16	-780.82	22.85	467.39
	3	1	My	max	-2968.91	-5789.16	-780.82	22.85	467.39
6	2	1	Mz	min	-2097.68	-2800.26	-2190.55	16.45	242.15 m
	2	1	Mz	max	-3056.35	-4031.02	-2121.46	16.45	242.15 m
6	3	1	Mz	min	-2190.73	-4617.17	-2687.95	20.17	364.30
	3	1	Mz	max	-3254.85	-6602.65	-2617.28	28.85	745.16
6	2	1	N	min	-4297.54	-5275.27	-1130.25	18.16	295.36
	2	1	N	max	-1224.22	-1529.31	-385.73	16.45	242.15 m
6	3	1	N	min	-4590.38	-8337.71	-1207.27	35.06	1100.52
	3	1	N	max	-1382.35	-2623.63	-895.75	16.45	242.15 m
7	2	1	My	min	-2665.56	-3184.81	-701.04	16.45	242.15 m
	2	1	My	max	-2665.56	-3184.81	-701.04	16.45	242.15 m
7	3	1	My	min	-2948.27	-5468.29	-775.40	20.86	389.78
	3	1	My	max	-2948.27	-5468.29	-775.40	20.86	389.78
7	2	1	Mz	min	-2091.82	-2640.14	-2244.12	16.45	242.15 m
	2	1	Mz	max	-3046.81	-3800.33	-2172.78	16.45	242.15 m
7	3	1	Mz	min	-2179.35	-4375.47	-2787.03	18.87	318.85
	3	1	Mz	max	-3236.14	-6256.94	-2714.37	27.31	667.90
7	2	1	N	min	-4287.51	-4972.17	-1127.62	16.45	242.15 m
	2	1	N	max	-1217.77	-1436.89	-320.27	16.45	242.15 m
7	3	1	N	min	-4570.22	-7904.93	-1201.97	33.23	988.87
	3	1	N	max	-1370.44	-2474.93	-720.03	16.45	242.15 m
8	2	1	My	min	-2657.89	-2993.71	-699.03	16.45	242.15 m
	2	1	My	max	-2657.89	-2993.71	-699.03	16.45	242.15 m
8	3	1	My	min	-2930.48	-5161.79	-770.72	18.80	316.46
	3	1	My	max	-2930.48	-5161.79	-770.72	18.80	316.46
8	2	1	Mz	min	-2088.47	-2487.72	-2273.11	16.45	242.15 m

	2	1	Mz	max	-3040.44	-3580.36	-2200.65	16.45	242.15 m
8	3	1	Mz	min	-2214.00	-4166.82	-2902.09	17.49	273.83
	3	1	Mz	max	-3264.10	-5948.27	-2828.62	25.87	599.20
8	2	1	N	min	-4281.02	-4682.07	-1125.91	16.45	242.15 m
	2	1	N	max	-1213.84	-1350.46	-375.09	16.45	242.15 m
8	3	1	N	min	-4553.60	-7489.10	-1197.60	31.38	881.85
	3	1	N	max	-1361.04	-2335.32	-881.70	16.45	242.15 m
9	2	1	My	min	-2664.05	-3182.99	-700.65	16.45	242.15 m
	2	1	My	max	-2664.05	-3182.99	-700.65	16.45	242.15 m
9	3	1	My	min	-2946.76	-5465.43	-775.00	20.85	389.21
	3	1	My	max	-2946.76	-5465.43	-775.00	20.85	389.21
9	2	1	Mz	min	-2090.08	-2646.40	-2040.16	16.45	242.15 m
	2	1	Mz	max	-3045.24	-3789.96	-1973.54	16.45	242.15 m
9	3	1	Mz	min	-2177.66	-4387.97	-2433.11	18.24	297.97
	3	1	Mz	max	-3234.61	-6238.00	-2365.71	26.69	637.84
9	2	1	N	min	-4285.46	-4969.69	-1127.08	16.45	242.15 m
	2	1	N	max	-1216.47	-1435.32	-319.93	16.45	242.15 m
9	3	1	N	min	-4568.17	-7901.04	-1201.43	33.21	987.77
	3	1	N	max	-1369.13	-2472.46	-634.40	16.45	242.15 m
10	2	1	My	min	-2660.99	-2997.24	-699.84	16.45	242.15 m
	2	1	My	max	-2660.99	-2997.24	-699.84	16.45	242.15 m
10	3	1	My	min	-2933.58	-5167.37	-771.53	18.83	317.59
	3	1	My	max	-2933.58	-5167.37	-771.53	18.83	317.59
10	2	1	Mz	min	-2093.16	-2501.19	-1881.92	16.45	242.15 m
	2	1	Mz	max	-3043.33	-3575.45	-1820.64	16.45	242.15 m
10	3	1	Mz	min	-2218.85	-4190.73	-2131.86	16.45	242.15 m
	3	1	Mz	max	-3267.14	-5938.04	-2080.33	24.70	546.13
10	2	1	N	min	-4283.26	-4684.61	-1126.50	16.45	242.15 m
	2	1	N	max	-1219.07	-1356.41	-320.62	16.45	242.15 m
10	3	1	N	min	-4555.84	-7493.12	-1198.19	31.41	883.10
	3	1	N	max	-1366.27	-2344.74	-642.17	16.45	242.15 m
11	2	1	My	min	-2584.56	-2098.30	-679.74	16.45	242.15 m
	2	1	My	max	-2584.56	-2098.30	-679.74	16.45	242.15 m
11	3	1	My	min	-2806.52	-3708.89	-738.12	16.45	242.15 m
	3	1	My	max	-2806.52	-3708.89	-738.12	16.45	242.15 m
11	2	1	Mz	min	-2033.89	-1764.34	-1901.48	16.45	242.15 m
	2	1	Mz	max	-2971.32	-2536.70	-1835.63	16.45	242.15 m
11	3	1	Mz	min	-2132.33	-3044.04	-2130.89	16.45	242.15 m
	3	1	Mz	max	-3149.67	-4339.59	-2066.11	16.45	242.15 m
11	2	1	N	min	-4199.63	-3317.03	-1104.50	16.45	242.15 m
	2	1	N	max	-1164.95	-934.90	-306.38	16.45	242.15 m
11	3	1	N	min	-4421.59	-5489.06	-1162.88	19.78	350.48
	3	1	N	max	-1284.81	-1657.10	-489.32	16.45	242.15 m
12	2	1	My	min	-2602.28	-776.63	-684.40	16.45	242.15 m
	2	1	My	max	-2602.28	-776.63	-684.40	16.45	242.15 m
12	3	1	My	min	-2743.24	-1629.73	-721.47	16.45	242.15 m
	3	1	My	max	-2743.24	-1629.73	-721.47	16.45	242.15 m
12	2	1	Mz	min	-2112.30	-694.81	-2176.82	16.45	242.15 m
	2	1	Mz	max	-2999.33	-971.35	-2099.00	16.45	242.15 m
12	3	1	Mz	min	-2167.10	-1424.03	-2654.64	16.45	242.15 m
	3	1	Mz	max	-3104.88	-1977.12	-2565.40	16.45	242.15 m
12	2	1	N	min	-4222.46	-1224.45	-1110.51	16.45	242.15 m
	2	1	N	max	-1243.16	-367.32	-326.95	16.45	242.15 m
12	3	1	N	min	-4363.43	-2448.90	-1147.58	16.45	242.15 m
	3	1	N	max	-1319.28	-769.05	-536.65	16.45	242.15 m
13	2	1	My	min	-2203.99	-494.55	-579.65	16.45	242.15 m
	2	1	My	max	-2203.99	-494.55	-579.65	16.45	242.15 m
13	3	1	My	min	-2314.58	-1036.16	-608.74	16.45	242.15 m
	3	1	My	max	-2314.58	-1036.16	-608.74	16.45	242.15 m
13	2	1	Mz	min	-1804.05	-395.19	-1473.13	16.45	242.15 m
	2	1	Mz	max	-2897.74	-631.48	-1417.63	16.45	242.15 m
13	3	1	Mz	min	-1652.41	-832.73	-1542.14	16.45	242.15 m
	3	1	Mz	max	-2681.90	-1305.32	-1488.91	16.45	242.15 m
13	2	1	N	min	-3713.09	-810.56	-976.54	16.45	242.15 m
	2	1	N	max	-837.76	-185.65	-220.33	16.45	242.15 m
13	3	1	N	min	-3823.68	-1621.13	-1005.63	16.45	242.15 m
	3	1	N	max	-897.48	-392.48	-295.12	16.45	242.15 m

LEYENDA m: armadura mínima (As$$fyd=0.1$$Ac$$fcd)
xxxx: Anec$$fyd > Ac$$fcd

pila	sec	fi_nom (máx) [mm]	A_tot (máx) [cm2]
1	2	16.45	242.15
	3	16.45	242.15
2	2	16.45	242.15
	3	29.98	804.62
3	2	16.45	242.15
	3	31.38	881.56
4	2	16.45	242.15
	3	33.22	987.80
5	2	18.16	295.24
	3	35.06	1100.45
6	2	18.16	295.36
	3	35.06	1100.52
7	2	16.45	242.15
	3	33.23	988.87
8	2	16.45	242.15
	3	31.38	881.85
9	2	16.45	242.15
	3	33.21	987.77
10	2	16.45	242.15
	3	31.41	883.10
11	2	16.45	242.15
	3	19.78	350.48
12	2	16.45	242.15
	3	16.45	242.15
13	2	16.45	242.15
	3	16.45	242.15

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

ESFUERZOS STATIK2 ESTADO LIMITE ULTIMO: 2.CORTANTE

pila	sec	env	Vyd [t]	Vzd [t]
1	1	Vy min	-91.18	-0.00
	1	Vy max	90.51	0.00
	1	Vz min	-0.09	-0.00
	1	Vz max	-0.09	0.00
	2	Vy min	-94.81	-7.07
	2	Vy max	94.14	7.07
	2	Vz min	-0.09	-15.72
	2	Vz max	-0.09	15.72
	3	Vy min	-98.44	-14.15
	3	Vy max	97.77	14.15
	3	Vz min	-0.09	-31.44
	3	Vz max	-0.09	31.44
2	1	Vy min	-71.96	-0.00
	1	Vy max	72.39	0.00
	1	Vz min	0.21	-0.00
	1	Vz max	0.21	0.00
	2	Vy min	-76.68	-9.20
	2	Vy max	77.11	9.20
	2	Vz min	0.21	-20.45
	2	Vz max	0.21	20.45
	3	Vy min	-81.41	-18.41
	3	Vy max	81.84	18.41
	3	Vz min	0.21	-40.91
	3	Vz max	0.21	40.91
3	1	Vy min	-80.09	-0.00
	1	Vy max	79.83	0.00
	1	Vz min	-0.09	-0.00
	1	Vz max	-0.09	0.00
	2	Vy min	-84.99	-9.56
	2	Vy max	84.73	9.56
	2	Vz min	-0.09	-21.24
	2	Vz max	-0.09	21.24
	3	Vy min	-89.90	-19.12
	3	Vy max	89.64	19.12
	3	Vz min	-0.09	-42.48
	3	Vz max	-0.09	42.48
4	1	Vy min	-79.81	-0.00
	1	Vy max	79.69	0.00
	1	Vz min	-0.05	-0.00
	1	Vz max	-0.05	0.00
	2	Vy min	-84.90	-9.91
	2	Vy max	84.78	9.91
	2	Vz min	-0.05	-22.03
	2	Vz max	-0.05	22.03
	3	Vy min	-89.98	-19.83
	3	Vy max	89.87	19.83
	3	Vz min	-0.05	-44.06
	3	Vz max	-0.05	44.06
5	1	Vy min	-75.23	0.00
	1	Vy max	75.37	-0.00
	1	Vz min	0.03	-0.00
	1	Vz max	0.03	0.00

	2	Vy min	-80.50	10.27
	2	Vy max	80.64	-10.27
	2	Vz min	0.03	-22.82
	2	Vz max	0.03	22.82
	3	Vy min	-85.78	20.54
	3	Vy max	85.91	-20.54
	3	Vz min	0.03	-45.64
	3	Vz max	0.03	45.64
6	1	Vy min	-74.52	-0.00
	1	Vy max	74.42	0.00
	1	Vz min	-0.02	-0.00
	1	Vz max	-0.02	0.00
	2	Vy min	-79.79	-10.27
	2	Vy max	79.69	10.27
	2	Vz min	-0.02	-22.82
	2	Vz max	-0.02	22.82
	3	Vy min	-85.06	-20.54
	3	Vy max	84.96	20.54
	3	Vz min	-0.02	-45.64
	3	Vz max	-0.02	45.64
7	1	Vy min	-76.53	0.00
	1	Vy max	76.44	-0.00
	1	Vz min	-0.03	-0.00
	1	Vz max	-0.03	0.00
	2	Vy min	-81.62	9.91
	2	Vy max	81.53	-9.91
	2	Vz min	-0.03	-22.03
	2	Vz max	-0.03	22.03
	3	Vy min	-86.71	19.83
	3	Vy max	86.61	-19.83
	3	Vz min	-0.03	-44.06
	3	Vz max	-0.03	44.06
8	1	Vy min	-79.84	-0.00
	1	Vy max	79.77	0.00
	1	Vz min	-0.07	-0.00
	1	Vz max	-0.07	0.00
	2	Vy min	-84.75	-9.56
	2	Vy max	84.68	9.56
	2	Vz min	-0.07	-21.24
	2	Vz max	-0.07	21.24
	3	Vy min	-89.65	-19.12
	3	Vy max	89.58	19.12
	3	Vz min	-0.07	-42.48
	3	Vz max	-0.07	42.48
9	1	Vy min	-71.34	-0.00
	1	Vy max	71.29	0.00
	1	Vz min	0.01	-0.00
	1	Vz max	0.01	0.00
	2	Vy min	-76.43	-9.91
	2	Vy max	76.37	9.91
	2	Vz min	0.01	-22.03
	2	Vz max	0.01	22.03
	3	Vy min	-81.52	-19.83
	3	Vy max	81.46	19.83
	3	Vz min	0.01	-44.06
	3	Vz max	0.01	44.06
10	1	Vy min	-68.47	0.00
	1	Vy max	69.19	-0.00
	1	Vz min	0.24	-0.00
	1	Vz max	0.24	0.00
	2	Vy min	-73.38	9.56
	2	Vy max	74.10	-9.56
	2	Vz min	0.24	-21.24
	2	Vz max	0.24	21.24
	3	Vy min	-78.29	19.12
	3	Vy max	79.01	-19.12
	3	Vz min	0.24	-42.48
	3	Vz max	0.24	42.48
11	1	Vy min	-78.42	-0.00
	1	Vy max	78.52	0.00
	1	Vz min	0.11	-0.00
	1	Vz max	0.11	0.00
	2	Vy min	-82.42	-7.78
	2	Vy max	82.51	7.78
	2	Vz min	0.11	-17.30
	2	Vz max	0.11	17.30
	3	Vy min	-86.41	-15.57
	3	Vy max	86.51	15.57
	3	Vz min	0.11	-34.59
	3	Vz max	0.11	34.59
12	1	Vy min	-84.59	-0.00
	1	Vy max	82.95	0.00
	1	Vz min	-0.63	-0.00
	1	Vz max	-0.63	0.00
	2	Vy min	-87.13	-4.94
	2	Vy max	85.48	4.94
	2	Vz min	-0.63	-10.99
	2	Vz max	-0.63	10.99
	3	Vy min	-89.67	-9.89
	3	Vy max	88.02	9.89
	3	Vz min	-0.63	-21.97
	3	Vz max	-0.63	21.97

13	1	Vy min	-64.96	-0.00			
	1	Vy max	65.23	0.00			
	1	Vz min	0.22	-0.00			
	1	Vz max	0.22	0.00			
	2	Vy min	-66.95	-3.88			
	2	Vy max	67.22	3.88			
	2	Vz min	0.22	-8.62			
	2	Vz max	0.22	8.62			
	3	Vy min	-68.94	-7.76			
	3	Vy max	69.21	7.76			
	3	Vz min	0.22	-17.24			
	3	Vz max	0.22	17.24			

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Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

DIMENSIONAMIENTO A CORTANTE (ARMADURA POR FUSTE)

LEYENDA !: Vd>Vu1
m: armadura mínima

pila	sec	env	Vyd [t]	Vzd [t]	Vu1 [t]	Vcu [t]	As [cm2/m]
1	1	Vy min	91.18	73.07	2500.80	294.72	7.62 m
	1	Vy max	90.51	121.59	2500.80	294.72	7.62 m
	1	Vz min	0.09	101.00	1272.00	149.91	7.62 m
	1	Vz max	0.09	101.00	1272.00	149.91	7.62 m
	3	Vy min	98.44	98.11	2500.80	294.72	7.62 m
	3	Vy max	97.77	153.89	2500.80	294.72	7.62 m
	3	Vz min	0.09	152.60	1272.00	149.91	7.62 m
	3	Vz max	0.09	152.60	1272.00	149.91	7.62 m
2	1	Vy min	71.96	143.58	2500.80	294.72	7.62 m
	1	Vy max	72.39	101.16	2500.80	294.72	7.62 m
	1	Vz min	0.21	122.71	1272.00	149.91	7.62 m
	1	Vz max	0.21	122.71	1272.00	149.91	7.62 m
	3	Vy min	81.41	185.61	2500.80	294.72	7.62 m
	3	Vy max	81.84	133.74	2500.80	294.72	7.62 m
	3	Vz min	0.21	189.86	1272.00	149.91	7.62 m
	3	Vz max	0.21	189.86	1272.00	149.91	7.62 m
3	1	Vy min	80.09	97.31	2500.80	294.72	7.62 m
	1	Vy max	79.83	140.31	2500.80	294.72	7.62 m
	1	Vz min	0.09	119.80	1272.00	149.91	7.62 m
	1	Vz max	0.09	119.80	1272.00	149.91	7.62 m
	3	Vy min	89.90	131.15	2500.80	294.72	7.62 m
	3	Vy max	89.64	183.96	2500.80	294.72	7.62 m
	3	Vz min	0.09	189.54	1272.00	149.91	7.62 m
	3	Vz max	0.09	189.54	1272.00	149.91	7.62 m
4	1	Vy min	79.81	96.93	2500.80	294.72	7.62 m
	1	Vy max	79.69	139.56	2500.80	294.72	7.62 m
	1	Vz min	0.05	119.06	1272.00	149.91	7.62 m
	1	Vz max	0.05	119.06	1272.00	149.91	7.62 m
	3	Vy min	89.98	132.02	2500.80	294.72	7.62 m
	3	Vy max	89.87	184.83	2500.80	294.72	7.62 m
	3	Vz min	0.05	191.40	1272.00	149.91	7.62 m
	3	Vz max	0.05	191.40	1272.00	149.91	7.62 m
5	1	Vy min	75.23	139.88	2500.80	294.72	7.62 m
	1	Vy max	75.37	96.77	2500.80	294.72	7.62 m
	1	Vz min	0.03	119.19	1272.00	149.91	7.62 m
	1	Vz max	0.03	119.19	1272.00	149.91	7.62 m
	3	Vy min	85.78	186.77	2500.80	294.72	7.62 m
	3	Vy max	85.91	133.12	2500.80	294.72	7.62 m
	3	Vz min	0.03	194.11	1272.00	149.91	7.62 m
	3	Vz max	0.03	194.11	1272.00	149.91	7.62 m
6	1	Vy min	74.52	139.86	2500.80	294.72	7.62 m
	1	Vy max	74.42	96.76	2500.80	294.72	7.62 m
	1	Vz min	0.02	119.16	1272.00	149.91	7.62 m
	1	Vz max	0.02	119.16	1272.00	149.91	7.62 m
	3	Vy min	85.06	186.75	2500.80	294.72	7.62 m
	3	Vy max	84.96	133.11	2500.80	294.72	7.62 m
	3	Vz min	0.02	194.09	1272.00	149.91	7.62 m
	3	Vz max	0.02	194.09	1272.00	149.91	7.62 m
7	1	Vy min	76.53	96.94	2500.80	294.72	7.62 m
	1	Vy max	76.44	139.64	2500.80	294.72	7.62 m
	1	Vz min	0.03	119.14	1272.00	149.91	7.62 m
	1	Vz max	0.03	119.14	1272.00	149.91	7.62 m
	3	Vy min	86.71	132.04	2500.80	294.72	7.62 m
	3	Vy max	86.61	184.91	2500.80	294.72	7.62 m
	3	Vz min	0.03	191.48	1272.00	149.91	7.62 m
	3	Vz max	0.03	191.48	1272.00	149.91	7.62 m
8	1	Vy min	79.84	97.05	2500.80	294.72	7.62 m
	1	Vy max	79.77	139.77	2500.80	294.72	7.62 m
	1	Vz min	0.07	119.27	1272.00	149.91	7.62 m
	1	Vz max	0.07	119.27	1272.00	149.91	7.62 m
	3	Vy min	89.65	130.88	2500.80	294.72	7.62 m
	3	Vy max	89.58	183.42	2500.80	294.72	7.62 m
	3	Vz min	0.07	189.01	1272.00	149.91	7.62 m
	3	Vz max	0.07	189.01	1272.00	149.91	7.62 m
9	1	Vy min	71.34	139.76	2500.80	294.72	7.62 m

	1	Vy max	71.29	96.65	2500.80	294.72	7.62 m
	1	Vz min	0.01	119.07	1272.00	149.91	7.62 m
	1	Vz max	0.01	119.07	1272.00	149.91	7.62 m
	3	Vy min	81.52	185.03	2500.80	294.72	7.62 m
	3	Vy max	81.46	131.75	2500.80	294.72	7.62 m
	3	Vz min	0.01	191.40	1272.00	149.91	7.62 m
	3	Vz max	0.01	191.40	1272.00	149.91	7.62 m
10	1	Vy min	68.47	140.12	2500.80	294.72	7.62 m
	1	Vy max	69.19	97.08	2500.80	294.72	7.62 m
	1	Vz min	0.24	119.42	1272.00	149.91	7.62 m
	1	Vz max	0.24	119.42	1272.00	149.91	7.62 m
	3	Vy min	78.29	183.77	2500.80	294.72	7.62 m
	3	Vy max	79.01	130.92	2500.80	294.72	7.62 m
	3	Vz min	0.24	189.16	1272.00	149.91	7.62 m
	3	Vz max	0.24	189.16	1272.00	149.91	7.62 m
11	1	Vy min	78.42	95.97	2500.80	294.72	7.62 m
	1	Vy max	78.52	138.31	2500.80	294.72	7.62 m
	1	Vz min	0.11	118.13	1272.00	149.91	7.62 m
	1	Vz max	0.11	118.13	1272.00	149.91	7.62 m
	3	Vy min	86.41	123.52	2500.80	294.72	7.62 m
	3	Vy max	86.51	173.85	2500.80	294.72	7.62 m
	3	Vz min	0.11	174.92	1272.00	149.91	7.62 m
	3	Vz max	0.11	174.92	1272.00	149.91	7.62 m
12	1	Vy min	84.59	141.66	2500.80	294.72	7.62 m
	1	Vy max	82.95	97.31	2500.80	294.72	7.62 m
	1	Vz min	0.63	123.07	1272.00	149.91	7.62 m
	1	Vz max	0.63	123.07	1272.00	149.91	7.62 m
	3	Vy min	89.67	164.23	2500.80	294.72	7.62 m
	3	Vy max	88.02	114.81	2500.80	294.72	7.62 m
	3	Vz min	0.63	159.13	1272.00	149.91	7.62 m
	3	Vz max	0.63	159.13	1272.00	149.91	7.62 m
13	1	Vy min	64.96	82.47	2500.80	294.72	7.62 m
	1	Vy max	65.23	120.03	2500.80	294.72	7.62 m
	1	Vz min	0.22	104.67	1272.00	149.91	7.62 m
	1	Vz max	0.22	104.67	1272.00	149.91	7.62 m
	3	Vy min	68.94	96.20	2500.80	294.72	7.62 m
	3	Vy max	69.21	137.74	2500.80	294.72	7.62 m
	3	Vz min	0.22	132.97	1272.00	149.91	7.62 m
	3	Vz max	0.22	132.97	1272.00	149.91	7.62 m

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

ESFUERZOS DE PRIMER ORDEN EN LA CIMENTACION. ELS

pila	sec	env	Nk [t]	Vyk [t]	Vzk [t]	Myk [mt]	Mzk [mt]		
1	3	My min	-1634.53	-0.08	-20.96	-208.77	-22.01	1229.02	0.00
	3	My max	-1634.53	-0.08	20.96	208.77	-22.01	1229.02	0.00
	3	Mz min	-1780.27	-36.56	-10.48	-104.39	-1334.52	1447.02	0.00
	3	Mz max	-2030.44	36.04	10.48	104.39	1275.85	1658.03	0.00
	3	N min	-2642.63	10.67	0.00	0.00	114.96	2136.31	0.00
	3	N max	-1296.40	-11.37	0.00	0.00	-234.07	924.71	0.00
2	3	My min	-2102.96	0.19	-27.27	-353.46	-22.03	2103.61	0.00
	3	My max	-2102.96	0.19	27.27	353.46	-22.03	2103.61	0.00
	3	Mz min	-2424.32	-23.04	-13.63	-176.73	-1506.70	2587.58	0.00
	3	Mz max	-2488.55	23.47	13.63	176.73	1450.99	2690.37	0.00
	3	N min	-3179.06	-6.13	0.00	0.00	-238.52	3394.94	0.00
	3	N max	-1870.71	7.28	0.00	0.00	132.73	1824.92	0.00
3	3	My min	-2065.58	-0.09	-28.32	-381.25	-27.96	2127.66	0.00
	3	My max	-2065.58	-0.09	28.32	381.25	-27.96	2127.66	0.00
	3	Mz min	-2356.41	-36.05	-14.16	-190.63	-1914.27	2596.50	0.00
	3	Mz max	-2451.94	35.81	14.16	190.63	1843.79	2733.85	0.00
	3	N min	-3140.12	-7.48	0.00	0.00	-271.77	3470.85	0.00
	3	N max	-1802.76	7.69	0.00	0.00	145.49	1799.14	0.00
4	3	My min	-2065.61	-0.05	-29.37	-410.10	-27.67	2195.27	0.00
	3	My max	-2065.61	-0.05	29.37	410.10	-27.67	2195.27	0.00
	3	Mz min	-2358.51	-36.35	-14.69	-205.05	-2003.18	2684.66	0.00
	3	Mz max	-2451.74	36.24	14.69	205.05	1933.88	2826.89	0.00
	3	N min	-3146.59	-6.67	0.00	0.00	-271.08	3600.54	0.00
	3	N max	-1798.71	7.02	0.00	0.00	147.04	1848.29	0.00
5	3	My min	-2081.54	0.03	-30.43	-440.00	-25.61	2282.98	0.00
	3	My max	-2081.54	0.03	30.43	440.00	-25.61	2282.98	0.00
	3	Mz min	-2373.69	-31.41	-15.21	-220.00	-1929.62	2790.34	0.00
	3	Mz max	-2467.70	31.52	15.21	220.00	1866.16	2938.44	0.00
	3	N min	-3162.04	-5.38	0.00	0.00	-235.77	3741.65	0.00
	3	N max	-1814.21	6.07	0.00	0.00	121.04	1922.08	0.00
6	3	My min	-2081.00	-0.02	-30.43	-440.00	-26.31	2282.25	0.00
	3	My max	-2081.00	-0.02	30.43	440.00	-26.31	2282.25	0.00
	3	Mz min	-2373.35	-30.10	-15.21	-220.00	-1906.95	2789.82	0.00
	3	Mz max	-2467.15	30.02	15.21	220.00	1840.22	2937.82	0.00

	3	N	min	-3161.98	-4.69	0.00	0.00	-225.16	3741.57	0.00
	3	N	max	-1813.42	5.21	0.00	0.00	107.65	1921.01	0.00
7	3	My	min	-2067.26	-0.03	-29.37	-410.10	-27.41	2197.41	0.00
	3	My	max	-2067.26	-0.03	29.37	410.10	-27.41	2197.41	0.00
	3	Mz	min	-2359.45	-33.14	14.69	205.05	-1969.62	2686.04	0.00
	3	Mz	max	-2453.32	33.05	-14.69	-205.05	1900.71	2828.58	0.00
	3	N	min	-3148.56	-4.20	0.00	0.00	-200.80	3603.10	0.00
	3	N	max	-1799.11	4.61	0.00	0.00	77.73	1848.81	0.00
8	3	My	min	-2055.54	-0.06	-28.32	-381.25	-28.45	2115.11	0.00
	3	My	max	-2055.54	-0.06	28.32	381.25	-28.45	2115.11	0.00
	3	Mz	min	-2377.13	-37.30	-14.16	-190.63	-2042.43	2585.52	0.00
	3	Mz	max	-2470.88	37.19	14.16	190.63	1972.20	2722.49	0.00
	3	N	min	-3137.62	-3.85	0.00	0.00	-194.28	3467.72	0.00
	3	N	max	-1787.42	4.05	0.00	0.00	65.56	1779.97	0.00
9	3	My	min	-2065.98	0.01	-29.37	-410.10	-24.96	2195.75	0.00
	3	My	max	-2065.98	0.01	29.37	410.10	-24.96	2195.75	0.00
	3	Mz	min	-2357.72	-25.92	-14.69	-205.05	-1710.46	2693.97	0.00
	3	Mz	max	-2452.00	25.90	14.69	205.05	1646.93	2816.56	0.00
	3	N	min	-3146.92	-2.05	0.00	0.00	-139.75	3600.97	0.00
	3	N	max	-1797.64	2.70	0.00	0.00	27.93	1846.90	0.00
10	3	My	min	-2058.54	0.21	28.32	381.25	-20.51	2118.87	0.00
	3	My	max	-2058.54	0.21	28.32	381.25	-20.51	2118.87	0.00
	3	Mz	min	-2381.84	-17.93	14.16	190.63	-1494.28	2601.25	0.00
	3	Mz	max	-2473.77	18.57	-14.16	-190.63	1444.63	2716.08	0.00
	3	N	min	-3140.05	-0.77	0.00	0.00	-113.63	3470.75	0.00
	3	N	max	-1792.50	2.35	0.00	0.00	22.44	1786.32	0.00
11	3	My	min	-1968.71	0.10	-23.06	-252.79	-23.62	1672.76	0.00
	3	My	max	-1968.71	0.10	23.06	252.79	-23.62	1672.76	0.00
	3	Mz	min	-2282.50	-18.46	-11.53	-126.40	-1485.36	2048.46	0.00
	3	Mz	max	-2383.29	18.59	11.53	126.40	1424.55	2149.75	0.00
	3	N	min	-3045.41	-0.55	0.00	0.00	-97.77	2749.46	0.00
	3	N	max	-1696.35	1.95	0.00	0.00	-4.10	1400.40	0.00
12	3	My	min	-1946.68	-0.56	-14.65	-101.96	-33.03	1055.24	0.00
	3	My	max	-1946.68	-0.56	14.65	101.96	-33.03	1055.24	0.00
	3	Mz	min	-2296.95	-51.22	-7.32	-50.98	-1830.03	1303.98	0.00
	3	Mz	max	-2363.72	49.70	7.32	50.98	1745.92	1342.91	0.00
	3	N	min	-3026.81	-1.59	0.00	0.00	-119.20	1703.31	0.00
	3	N	max	-1712.69	-0.47	0.00	0.00	-42.46	914.84	0.00
13	3	My	min	-1578.92	0.19	-11.49	-62.76	-19.39	644.16	0.00
	3	My	max	-1578.92	0.19	11.49	62.76	-19.39	644.16	0.00
	3	Mz	min	-1777.77	-19.47	-5.75	-31.38	-1056.65	756.91	0.00
	3	Mz	max	-1994.77	19.79	5.75	31.38	1006.72	858.11	0.00
	3	N	min	-2584.99	1.30	0.00	0.00	-54.75	1096.89	0.00
	3	N	max	-1253.87	-0.35	0.00	0.00	-42.45	497.89	0.00

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

ESFUERZOS DE PRIMER ORDEN EN CIMENTACION. REPARTO ENTRE FUSTES. ELS

pila	sec	fus	env	Nk [t]	Vyk [t]	Vzk [t]	Myk [mt]	Mzk [mt]
1	3	1	My min	-1634.53	-0.08	-20.96	-1437.80	-22.01
	3	1	My max	-1634.53	-0.08	20.96	1437.80	-22.01
	3	1	Mz min	-1780.27	-36.56	-10.48	-1551.41	-1334.52
	3	1	Mz max	-2030.44	36.04	10.48	1762.42	1275.85
	3	1	N min	-2642.63	10.67	0.00	-2136.31	114.96
	3	1	N max	-1296.40	-11.37	0.00	-924.71	-234.07
2	3	1	My min	-2102.96	0.19	-27.27	-2457.07	-22.03
	3	1	My max	-2102.96	0.19	27.27	2457.07	-22.03
	3	1	Mz min	-2424.32	-23.04	-13.63	-2764.31	-1506.70
	3	1	Mz max	-2488.55	23.47	13.63	2867.09	1450.99
	3	1	N min	-3179.06	-6.13	0.00	-3394.94	-238.52
	3	1	N max	-1870.71	7.28	0.00	-1824.92	132.73
3	3	1	My min	-2065.58	-0.09	-28.32	-2508.92	-27.96
	3	1	My max	-2065.58	-0.09	28.32	2508.92	-27.96
	3	1	Mz min	-2356.41	-36.05	-14.16	-2787.12	-1914.27
	3	1	Mz max	-2451.94	35.81	14.16	2924.48	1843.79
	3	1	N min	-3140.12	-7.48	0.00	-3470.85	-271.77
	3	1	N max	-1802.76	7.69	0.00	-1799.14	145.49
4	3	1	My min	-2065.61	-0.05	-29.37	-2605.37	-27.67
	3	1	My max	-2065.61	-0.05	29.37	2605.37	-27.67
	3	1	Mz min	-2358.51	-36.35	-14.69	-2889.71	-2003.18
	3	1	Mz max	-2451.74	36.24	14.69	3031.94	1933.88
	3	1	N min	-3146.59	-6.67	0.00	-3600.54	-271.08
	3	1	N max	-1798.71	7.02	0.00	-1848.29	147.04
5	3	1	My min	-2081.54	0.03	-30.43	-2722.99	-25.61
	3	1	My max	-2081.54	0.03	30.43	2722.99	-25.61
	3	1	Mz min	-2373.69	-31.41	-15.21	-3010.35	-1929.62
	3	1	Mz max	-2467.70	31.52	15.21	3158.44	1866.16
	3	1	N min	-3162.04	-5.38	0.00	-3741.65	-235.77
	3	1	N max	-1814.21	6.07	0.00	-1922.08	121.04
6	3	1	My min	-2081.00	-0.02	-30.43	-2722.26	-26.31
	3	1	My max	-2081.00	-0.02	30.43	2722.26	-26.31
	3	1	Mz min	-2373.35	-30.10	-15.21	-3009.82	-1906.95
	3	1	Mz max	-2467.15	30.02	15.21	3157.82	1840.22
	3	1	N min	-3161.98	-4.69	0.00	-3741.57	-225.16

	3	1	N	max	-1813.42	5.21	0.00	-1921.01	107.65
7	3	1	My	min	-2067.26	-0.03	-29.37	-2607.52	-27.41
	3	1	My	max	-2067.26	-0.03	29.37	2607.52	-27.41
	3	1	Mz	min	-2359.45	-33.14	14.69	2891.09	-1969.62
	3	1	Mz	max	-2453.32	33.05	-14.69	-3033.63	1900.71
	3	1	N	min	-3148.56	-4.20	0.00	-3603.10	-200.80
	3	1	N	max	-1799.11	4.61	0.00	-1848.81	77.73
8	3	1	My	min	-2055.54	-0.06	-28.32	-2496.37	-28.45
	3	1	My	max	-2055.54	-0.06	28.32	2496.37	-28.45
	3	1	Mz	min	-2377.13	-37.30	-14.16	-2776.14	-2042.43
	3	1	Mz	max	-2470.88	37.19	14.16	2913.11	1972.20
	3	1	N	min	-3137.62	-3.85	0.00	-3467.72	-194.28
	3	1	N	max	-1787.42	4.05	0.00	-1779.97	65.56
9	3	1	My	min	-2065.98	0.01	-29.37	-2605.85	-24.96
	3	1	My	max	-2065.98	0.01	29.37	2605.85	-24.96
	3	1	Mz	min	-2357.72	-25.92	-14.69	-2899.02	-1710.46
	3	1	Mz	max	-2452.00	25.90	14.69	3021.61	1646.93
	3	1	N	min	-3146.92	-2.05	0.00	-3600.97	-139.75
	3	1	N	max	-1797.64	2.70	0.00	-1846.90	27.93
10	3	1	My	min	-2058.54	0.21	-28.32	-2500.12	-20.51
	3	1	My	max	-2058.54	0.21	28.32	2500.12	-20.51
	3	1	Mz	min	-2381.84	-17.93	14.16	2791.88	-1494.28
	3	1	Mz	max	-2473.77	18.57	-14.16	-2906.71	1444.63
	3	1	N	min	-3140.05	-0.77	0.00	-3470.75	-113.63
	3	1	N	max	-1792.50	2.35	0.00	-1786.32	22.44
11	3	1	My	min	-1968.71	0.10	-23.06	-1925.55	-23.62
	3	1	My	max	-1968.71	0.10	23.06	1925.55	-23.62
	3	1	Mz	min	-2282.50	-18.46	-11.53	-2174.85	-1485.36
	3	1	Mz	max	-2383.29	18.59	11.53	2276.15	1424.55
	3	1	N	min	-3045.41	-0.55	0.00	-2749.46	-97.77
	3	1	N	max	-1696.35	1.95	0.00	-1400.40	-4.10
12	3	1	My	min	-1946.68	-0.56	-14.65	-1157.20	-33.03
	3	1	My	max	-1946.68	-0.56	14.65	1157.20	-33.03
	3	1	Mz	min	-2296.95	-51.22	-7.32	-1354.96	-1830.03
	3	1	Mz	max	-2363.72	49.70	7.32	1393.89	1745.92
	3	1	N	min	-3026.81	-1.59	0.00	-1703.31	-119.20
	3	1	N	max	-1712.69	-0.47	0.00	-914.84	-42.46
13	3	1	My	min	-1578.92	0.19	-11.49	-706.91	-19.39
	3	1	My	max	-1578.92	0.19	11.49	706.91	-19.39
	3	1	Mz	min	-1777.77	-19.47	-5.75	-788.29	-1056.65
	3	1	Mz	max	-1994.77	19.79	5.75	889.49	1006.72
	3	1	N	min	-2584.99	1.30	0.00	-1096.89	-54.75
	3	1	N	max	-1253.87	-0.35	0.00	-497.89	-42.45

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

ESFUERZOS DE SEGUNDO ORDEN EN CIMENTACION. ELS

pila	sec	fus	env	Nk [t]	Vyk [t]	Vzk [t]	Myk [mt]	Mzk [mt]
1	3	1	My min	-1634.53	-0.08	-89.24	-1437.80	-32.69
	3	1	My max	-1634.53	-0.08	89.24	-1437.80	-32.69
	3	1	Mz min	-1780.27	-36.56	-90.87	-1551.41	-1334.52
	3	1	Mz max	-2030.44	36.04	102.59	-1762.42	-1275.85
	3	1	N min	-2642.63	10.67	-118.68	-2136.31	-114.96
	3	1	N max	-1296.40	-11.37	-51.37	-924.71	-234.07
2	3	1	My min	-2102.96	0.19	-114.92	-3053.53	-42.06
	3	1	My max	-2102.96	0.19	114.92	-3053.53	-42.06
	3	1	Mz min	-2424.32	-23.04	-121.45	-3450.49	-1506.70
	3	1	Mz max	-2488.55	23.47	125.73	-3572.08	-1450.99
	3	1	N min	-3179.06	-6.13	-141.46	-4289.59	-238.52
	3	1	N max	-1870.71	7.28	-76.04	-2346.99	-132.73
3	3	1	My min	-2065.58	-0.09	-113.43	-3146.66	-41.31
	3	1	My max	-2065.58	-0.09	113.43	-3146.66	-41.31
	3	1	Mz min	-2356.41	-36.05	-118.02	-3513.06	-1914.27
	3	1	Mz max	-2451.94	35.81	123.52	-3680.37	-1843.79
	3	1	N min	-3140.12	-7.48	-138.83	-4432.64	-271.77
	3	1	N max	-1802.76	7.69	-71.97	-2346.23	-145.49
4	3	1	My min	-2065.61	-0.05	-113.81	-3297.27	-41.31
	3	1	My max	-2065.61	-0.05	113.81	-3297.27	-41.31
	3	1	Mz min	-2358.51	-36.35	-117.94	-3677.87	-2003.18
	3	1	Mz max	-2451.74	36.24	123.41	-3851.87	-1933.88
	3	1	N min	-3146.59	-6.67	-138.48	-4646.09	-271.08
	3	1	N max	-1798.71	7.02	-71.09	-2440.29	-147.04
5	3	1	My min	-2081.54	0.03	-114.98	-3477.04	-41.63
	3	1	My max	-2081.54	0.03	114.98	-3477.04	-41.63
	3	1	Mz min	-2373.69	-31.41	-118.56	-3868.14	-1929.62
	3	1	Mz max	-2467.70	31.52	124.04	-4050.86	-1866.16
	3	1	N min	-3162.04	-5.38	-138.58	-4877.92	-235.77
	3	1	N max	-1814.21	6.07	-71.19	-2567.79	-121.04
6	3	1	My min	-2081.00	-0.02	-114.95	-3476.12	-41.62
	3	1	My max	-2081.00	-0.02	114.95	-3476.12	-41.62
	3	1	Mz min	-2373.35	-30.10	-118.54	-3867.50	-1906.95
	3	1	Mz max	-2467.15	30.02	124.02	-4050.04	-1840.22
	3	1	N min	-3161.98	-4.69	-138.58	-4877.82	-225.16
	3	1	N max	-1813.42	5.21	-71.15	-2566.44	-107.65

7	3	1	My min	-2067.26	-0.03	-113.89	-3299.96	-41.35
	3	1	My max	-2067.26	-0.03	113.89	-3299.96	-41.35
	3	1	Mz min	-2359.45	-33.14	118.00	-3679.57	-1969.62
	3	1	Mz max	-2453.32	33.05	-123.48	-3854.09	-1900.71
	3	1	N min	-3148.56	-4.20	-138.58	-4649.31	-200.80
	3	1	N max	-1799.11	4.61	-71.11	-2440.94	-77.73
8	3	1	My min	-2055.54	-0.06	-112.93	-3131.00	-41.11
	3	1	My max	-2055.54	-0.06	112.93	-3131.00	-41.11
	3	1	Mz min	-2377.13	-37.30	-117.58	-3507.68	-2042.43
	3	1	Mz max	-2470.88	37.19	123.06	-3674.12	-1972.20
	3	1	N min	-3137.62	-3.85	-138.71	-4428.74	-194.28
	3	1	N max	-1787.42	4.05	-71.20	-2322.29	-65.56
9	3	1	My min	-2065.98	0.01	-113.83	-3297.87	-41.32
	3	1	My max	-2065.98	0.01	113.83	-3297.87	-41.32
	3	1	Mz min	-2357.72	-25.92	-118.30	-3687.14	-1710.46
	3	1	Mz max	-2452.00	25.90	123.02	-3841.40	-1646.93
	3	1	N min	-3146.92	-2.05	-138.50	-4646.63	-139.75
	3	1	N max	-1797.64	2.70	-71.03	-2438.54	-35.95
10	3	1	My min	-2058.54	0.21	-113.08	-3135.68	-41.17
	3	1	My max	-2058.54	0.21	113.08	-3135.68	-41.17
	3	1	Mz min	-2381.84	-17.93	118.21	-3525.10	-1494.28
	3	1	Mz max	-2473.77	18.57	-122.80	-3668.38	-1444.63
	3	1	N min	-3140.05	-0.77	-138.83	-4432.52	-113.63
	3	1	N max	-1792.50	2.35	-71.45	-2330.22	-35.85
11	3	1	My min	-1968.71	0.10	-106.70	-1925.55	-39.37
	3	1	My max	-1968.71	0.10	106.70	-1925.55	-39.37
	3	1	Mz min	-2282.50	-18.46	-113.95	-2174.85	-1485.36
	3	1	Mz max	-2383.29	18.59	119.02	-2276.15	-1424.55
	3	1	N min	-3045.41	-0.55	-137.47	-2749.46	-97.77
	3	1	N max	-1696.35	1.95	-70.02	-1400.40	-33.93
12	3	1	My min	-1946.68	-0.56	-102.58	-1157.20	-38.93
	3	1	My max	-1946.68	-0.56	102.58	-1157.20	-38.93
	3	1	Mz min	-2296.95	-51.22	-115.99	-1354.96	-1830.03
	3	1	Mz max	-2363.72	49.70	119.23	-1393.89	-1745.92
	3	1	N min	-3026.81	-1.59	-141.94	-1703.31	-119.20
	3	1	N max	-1712.69	-0.47	-76.24	-914.84	-42.46
13	3	1	My min	-1578.92	0.19	-83.06	-706.91	-31.58
	3	1	My max	-1578.92	0.19	83.06	-706.91	-31.58
	3	1	Mz min	-1777.77	-19.47	-89.85	-788.29	-1056.65
	3	1	Mz max	-1994.77	19.79	101.09	-889.49	-1006.72
	3	1	N min	-2584.99	1.30	-121.88	-1096.89	-54.75
	3	1	N max	-1253.87	-0.35	-55.32	-497.89	-42.45

Programa LSTC - Cálculo de Cimentaciones
(V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF. E-1.

COMPROBACION CANTO DE LA ZAPATA

LEYENDA: A,B = dimensiones de la zapata en planta
Tipo de zapata -> 0=hexagonal, 1= rectangular
H = canto de la zapata
a_pila = dimensión del fuste en la dir perpend al eje pte
b_pila = dimensión del fuste en la dir paralela al eje pte
tipo_p -> tipo de superficie de punzonamiento
?max = tensión tangencial máxima en el perímetro de punz
?adm = tensión tangencial admisible
! = ?max > ?adm

Pila	hip	fuste	N [t]	My [mt]	Mz [mt]	A [m]	B [m]	H [m]	a_pila [m]	b_pila [m]	tipo_p	?max [kp/cm2]	?adm [kp/cm2]
Tipo de zapata: 1													
1	1	1	-2385.18	-47.70	2084.32	12.80	12.80	4.00	0.80	0.80	1	3.79	14.33
	2	1	-2385.18	-47.70	2084.32	12.80	12.80	4.00	0.80	0.80	1	3.79	14.33
	3	1	-1636.55	-2078.59	1562.97	12.80	12.80	4.00	0.80	0.80	1	3.23	14.33
	4	1	-2724.59	-2006.94	2583.69	12.80	12.80	4.00	0.80	0.80	1	4.95	14.33
	5	1	-3914.75	-179.13	3178.42	12.80	12.80	4.00	0.80	0.80	1	6.18	14.33
	6	1	-832.22	-67.40	689.91	12.80	12.80	4.00	0.80	0.80	1	1.33	14.33
Tipo de zapata: 1													
2	1	1	-2940.41	-58.81	4499.80	12.80	12.80	4.00	0.80	0.80	1	5.23	14.33
	2	1	-2940.41	-58.81	4262.62	12.80	12.80	4.00	0.80	0.80	1	5.16	14.33
	3	1	-2270.67	-2134.34	3613.48	12.80	12.80	4.00	0.80	0.80	1	4.68	14.33
	4	1	-3140.86	-2074.99	4962.14	12.80	12.80	4.00	0.80	0.80	1	6.20	14.33
	5	1	-4569.87	-337.56	6505.01	12.80	12.80	4.00	0.80	0.80	1	8.05	14.33
	6	1	-1351.23	-876.60	1901.91	12.80	12.80	4.00	0.80	0.80	1	2.60	14.33
Tipo de zapata: 1													
3	1	1	-2918.20	-58.36	4695.27	12.80	12.80	4.00	0.80	0.80	1	5.25	14.33
	2	1	-2918.20	-58.36	4439.02	12.80	12.80	4.00	0.80	0.80	1	5.18	14.33
	3	1	-2207.26	-2767.12	3702.07	12.80	12.80	4.00	0.80	0.80	1	4.80	14.33
	4	1	-3120.97	-2689.55	5151.04	12.80	12.80	4.00	0.80	0.80	1	6.41	14.33
	5	1	-4542.24	-395.27	6782.57	12.80	12.80	4.00	0.80	0.80	1	8.11	14.33
	6	1	-1297.69	-854.95	1910.74	12.80	12.80	4.00	0.80	0.80	1	2.52	14.33
Tipo de zapata: 1													

4	1	1	-2919.41	-58.39	4931.19	12.80	12.80	4.00
			0.80	0.80	1	5.32	14.33	
	2	1	-2919.41	-58.39	4653.08	12.80	12.80	4.00
			0.80	0.80	1	5.24	14.33	
	3	1	-2207.16	-2905.15	3882.97	12.80	12.80	4.00
			0.80	0.80	1	4.89	14.33	
	4	1	-3119.49	-2828.05	5385.80	12.80	12.80	4.00
			0.80	0.80	1	6.51	14.33	
	5	1	-4552.18	-398.47	7124.80	12.80	12.80	4.00
			0.80	0.80	1	8.22	14.33	
	6	1	-1288.85	-1133.51	1985.58	12.80	12.80	4.00
			0.80	0.80	1	2.61	14.33	

Tipo de zapata: 1

5	1	1	-2943.27	-58.87	5212.06	12.80	12.80	4.00
			0.80	0.80	1	5.43	14.33	
	2	1	-2943.27	-58.87	4908.82	12.80	12.80	4.00
			0.80	0.80	1	5.35	14.33	
	3	1	-2219.68	-2793.20	4091.24	12.80	12.80	4.00
			0.80	0.80	1	4.93	14.33	
	4	1	-3141.63	-2722.55	5659.53	12.80	12.80	4.00
			0.80	0.80	1	6.59	14.33	
	5	1	-4575.08	-346.04	7496.47	12.80	12.80	4.00
			0.80	0.80	1	8.35	14.33	
	6	1	-1302.48	-884.98	2098.55	12.80	12.80	4.00
			0.80	0.80	1	2.59	14.33	

Tipo de zapata: 1

6	1	1	-2942.37	-58.85	5210.42	12.80	12.80	4.00
			0.80	0.80	1	5.43	14.33	
	2	1	-2942.37	-58.85	4907.28	12.80	12.80	4.00
			0.80	0.80	1	5.35	14.33	
	3	1	-2219.22	-2748.79	4090.32	12.80	12.80	4.00
			0.80	0.80	1	4.92	14.33	
	4	1	-3140.67	-2673.87	5658.10	12.80	12.80	4.00
			0.80	0.80	1	6.58	14.33	
	5	1	-4574.85	-330.84	7496.05	12.80	12.80	4.00
			0.80	0.80	1	8.34	14.33	
	6	1	-1301.40	-1049.41	2096.70	12.80	12.80	4.00
			0.80	0.80	1	2.64	14.33	

Tipo de zapata: 1

7	1	1	-2923.61	-58.47	4938.47	12.80	12.80	4.00
			0.80	0.80	1	5.33	14.33	
	2	1	-2923.61	-58.47	4659.96	12.80	12.80	4.00
			0.80	0.80	1	5.25	14.33	
	3	1	-2209.79	-2825.15	3887.83	12.80	12.80	4.00
			0.80	0.80	1	4.87	14.33	
	4	1	-3123.79	-2747.80	5392.01	12.80	12.80	4.00
			0.80	0.80	1	6.50	14.33	
	5	1	-4556.65	-293.06	7132.54	12.80	12.80	4.00
			0.80	0.80	1	8.20	14.33	
	6	1	-1291.32	-855.76	1989.61	12.80	12.80	4.00
			0.80	0.80	1	2.54	14.33	

Tipo de zapata: 1

8	1	1	-2902.16	-58.04	4668.83	12.80	12.80	4.00
			0.80	0.80	1	5.22	14.33	
	2	1	-2902.16	-58.04	4414.00	12.80	12.80	4.00
			0.80	0.80	1	5.15	14.33	
	3	1	-2240.55	-2915.00	3700.67	12.80	12.80	4.00
			0.80	0.80	1	4.88	14.33	
	4	1	-3147.84	-2836.33	5139.92	12.80	12.80	4.00
			0.80	0.80	1	6.48	14.33	
	5	1	-4536.45	-283.99	6773.02	12.80	12.80	4.00
			0.80	0.80	1	8.07	14.33	
	6	1	-1278.13	-999.26	1880.23	12.80	12.80	4.00
			0.80	0.80	1	2.53	14.33	

Tipo de zapata: 1

9	1	1	-2920.88	-58.42	4933.74	12.80	12.80	4.00
			0.80	0.80	1	5.32	14.33	
	2	1	-2920.88	-58.42	4655.49	12.80	12.80	4.00
			0.80	0.80	1	5.24	14.33	
	3	1	-2206.94	-2427.60	3898.32	12.80	12.80	4.00
			0.80	0.80	1	4.76	14.33	
	4	1	-3120.94	-2355.96	5371.80	12.80	12.80	4.00
			0.80	0.80	1	6.38	14.33	
	5	1	-4553.51	-202.22	7127.10	12.80	12.80	4.00
			0.80	0.80	1	8.17	14.33	
	6	1	-1288.68	-717.51	1985.30	12.80	12.80	4.00
			0.80	0.80	1	2.49	14.33	

Tipo de zapata: 1

10	1	1	-2906.25	-58.13	4675.58	12.80	12.80	4.00
			0.80	0.80	1	5.23	14.33	
	2	1	-2906.25	-58.13	4420.39	12.80	12.80	4.00
			0.80	0.80	1	5.16	14.33	
	3	1	-2246.50	-2098.48	3725.10	12.80	12.80	4.00
			0.80	0.80	1	4.66	14.33	
	4	1	-3151.66	-2043.69	5131.37	12.80	12.80	4.00
			0.80	0.80	1	6.26	14.33	
	5	1	-4540.38	-164.39	6779.51	12.80	12.80	4.00
			0.80	0.80	1	8.04	14.33	
	6	1	-1283.90	-700.25	1889.22	12.80	12.80	4.00
			0.80	0.80	1	2.45	14.33	

Tipo de zapata: 1

11	1	1	-2783.75	-55.67	2719.02	12.80	12.80	4.00
			0.80	0.80	1	4.51	14.33	
	2	1	-2783.75	-55.67	2719.02	12.80	12.80	4.00
			0.80	0.80	1	4.51	14.33	
	3	1	-2164.89	-1995.19	2200.62	12.80	12.80	4.00
			0.80	0.80	1	4.09	14.33	
	4	1	-3038.05	-1929.88	3264.38	12.80	12.80	4.00
			0.80	0.80	1	5.54	14.33	
	5	1	-4411.56	-133.04	3967.64	12.80	12.80	4.00
			0.80	0.80	1	7.06	14.33	
	6	1	-1206.04	-517.95	1136.96	12.80	12.80	4.00
			0.80	0.80	1	2.08	14.33	

Tipo de zapata: 1

12	1	1	-2682.50	-53.65	1584.25	12.80	12.80	4.00
			0.80	0.80	1	4.04	14.33	
	2	1	-2682.50	-53.65	1584.25	12.80	12.80	4.00
			0.80	0.80	1	4.04	14.33	
	3	1	-2043.13	-2635.52	1342.62	12.80	12.80	4.00
			0.80	0.80	1	3.86	14.33	
	4	1	-3011.95	-2537.93	1966.65	12.80	12.80	4.00
			0.80	0.80	1	5.31	14.33	
	5	1	-4320.30	-175.35	2435.17	12.80	12.80	4.00
			0.80	0.80	1	6.51	14.33	
	6	1	-1208.36	-501.80	699.52	12.80	12.80	4.00
			0.80	0.80	1	1.95	14.33	

Tipo de zapata: 1

13	1	1	-2278.11	-45.56	1012.42	12.80	12.80	4.00
			0.80	0.80	1	3.34	14.33	
	2	1	-2278.11	-45.56	1012.42	12.80	12.80	4.00
			0.80	0.80	1	3.34	14.33	
	3	1	-1552.86	-1483.77	782.09	12.80	12.80	4.00
			0.80	0.80	1	2.72	14.33	
	4	1	-2661.09	-1427.04	1296.14	12.80	12.80	4.00
			0.80	0.80	1	4.33	14.33	

5	1	-3805.43	-78.96	1622.02	12.80	12.80	4.00
		0.80	0.80	1	5.56	14.33	
6	1	-810.58	-267.01	350.89	12.80	12.80	4.00
		0.80	0.80	1	1.26	14.33	

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Programa LSTC2 - Cálculo de Cimentaciones. Posprocesador
(V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF. E-1.

DIMENSIONAMIENTO PILOTES

LEYENDA: Pmax = pilote más cargado
Pmin = pilote más descargado
Nd = axil más desfavorable en el pilote para la hip considerada
Vd = cortante aplicado en cabeza del pilote
Md = momento máximo en el pilote x 1.2 (coef incertidumbre nh)
Leq = luz de la ménsula equivalente
?p = diámetro del pilote
m = condiciona la armadura mínima
xxx = la armadura necesaria es mayor que la máxima permitida

Pila	hip	Descripción de la hipótesis	Nd [t]	Vd [t]	Md [mt]	Leq [m]	?p [m]	As [cm²]
1	1	Envolvente My min Pmax	-781.98	14.71	70.67	4.80	1.80	95.63 m
	2	Envolvente My min Pmin	-417.18	14.71	70.67	4.80	1.80	95.63 m
	3	Envolvente My max Pmax	-757.19	14.71	70.67	4.80	1.80	95.63 m
	4	Envolvente My max Pmin	-441.97	14.71	70.67	4.80	1.80	95.63 m
	5	Envolvente Mz min Pmax	-737.18	12.17	58.44	4.80	1.80	95.63 m
	6	Envolvente Mz min Pmin	-284.33	12.17	58.44	4.80	1.80	95.63 m
	7	Envolvente Mz max Pmax	-884.19	17.55	84.32	4.80	1.80	95.63 m
	8	Envolvente Mz max Pmin	-385.03	17.55	84.32	4.80	1.80	95.63 m
	9	Envolvente N min Pmax	-1017.74	19.70	94.64	4.80	1.80	95.63 m
	10	Envolvente N min Pmin	-517.45	19.70	94.64	4.80	1.80	95.63 m
	11	Envolvente N max Pmax	-537.23	5.87	28.18	4.80	1.80	95.63 m
	12	Envolvente N max Pmin	-328.30	5.87	28.18	4.80	1.80	95.63 m
2	1	Envolvente My min Pmax	-1034.38	18.18	81.50	4.48	1.80	95.63 m
	2	Envolvente My min Pmin	-393.26	18.18	81.50	4.48	1.80	95.63 m
	3	Envolvente My max Pmax	-1010.04	18.18	81.50	4.48	1.80	95.63 m
	4	Envolvente My max Pmin	-417.60	18.18	81.50	4.48	1.80	95.63 m
	5	Envolvente Mz min Pmax	-994.55	14.81	66.40	4.48	1.80	95.63 m
	6	Envolvente Mz min Pmin	-271.02	14.81	66.40	4.48	1.80	95.63 m
	7	Envolvente Mz max Pmax	-1147.25	20.01	89.69	4.48	1.80	95.63 m
	8	Envolvente Mz max Pmin	-345.08	20.01	89.69	4.48	1.80	95.63 m
	9	Envolvente N min Pmax	-1313.24	22.62	101.42	4.48	1.80	95.63 m
	10	Envolvente N min Pmin	-473.10	22.62	101.42	4.48	1.80	95.63 m
	11	Envolvente N max Pmax	-773.16	9.42	42.23	4.48	1.80	95.63 m
	12	Envolvente N max Pmin	-314.33	9.42	42.23	4.48	1.80	95.63 m
3	1	Envolvente My min Pmax	-1056.54	18.03	80.82	4.48	1.80	95.63 m
	2	Envolvente My min Pmin	-381.74	18.03	80.82	4.48	1.80	95.63 m
	3	Envolvente My max Pmax	-1030.38	18.03	80.82	4.48	1.80	95.63 m
	4	Envolvente My max Pmin	-407.89	18.03	80.82	4.48	1.80	95.63 m
	5	Envolvente Mz min Pmax	-1032.34	15.02	67.34	4.48	1.80	95.63 m
	6	Envolvente Mz min Pmin	-235.85	15.02	67.34	4.48	1.80	95.63 m
	7	Envolvente Mz max Pmax	-1191.38	20.16	90.36	4.48	1.80	95.63 m
	8	Envolvente Mz max Pmin	-311.38	20.16	90.36	4.48	1.80	95.63 m
	9	Envolvente N min Pmax	-1340.87	22.30	99.99	4.48	1.80	95.63 m
	10	Envolvente N min Pmin	-455.59	22.30	99.99	4.48	1.80	95.63 m
	11	Envolvente N max Pmax	-780.01	8.90	39.91	4.48	1.80	95.63 m
	12	Envolvente N max Pmin	-310.39	8.90	39.91	4.48	1.80	95.63 m
4	1	Envolvente My min Pmax	-1048.73	18.13	81.28	4.48	1.80	95.63 m
	2	Envolvente My min Pmin	-371.70	18.13	81.28	4.48	1.80	95.63 m
	3	Envolvente My max Pmax	-1020.30	18.13	81.28	4.48	1.80	95.63 m

	4	Envolvente My max Pmin						
		-400.13	18.13	81.28	4.48	1.80	95.63	m
	5	Envolvente Mz min Pmax						
		-1026.79	15.08	67.60	4.48	1.80	95.63	m
	6	Envolvente Mz min Pmin						
		-223.07	15.08	67.60	4.48	1.80	95.63	m
	7	Envolvente Mz max Pmax						
		-1186.75	20.18	90.48	4.48	1.80	95.63	m
	8	Envolvente Mz max Pmin						
		-297.66	20.18	90.48	4.48	1.80	95.63	m
	9	Envolvente N min Pmax						
		-1338.53	22.27	99.83	4.48	1.80	95.63	m
	10	Envolvente N min Pmin						
		-442.23	22.27	99.83	4.48	1.80	95.63	m
	11	Envolvente N max Pmax						
		-775.22	9.33	41.84	4.48	1.80	95.63	m
	12	Envolvente N max Pmin						
		-295.02	9.33	41.84	4.48	1.80	95.63	m
5	1	Envolvente My min Pmax						
		-1044.47	18.31	82.05	4.48	1.80	95.63	m
	2	Envolvente My min Pmin						
		-361.93	18.31	82.05	4.48	1.80	95.63	m
	3	Envolvente My max Pmax						
		-1013.50	18.31	82.05	4.48	1.80	95.63	m
	4	Envolvente My max Pmin						
		-392.91	18.31	82.05	4.48	1.80	95.63	m
	5	Envolvente Mz min Pmax						
		-1013.42	14.92	66.85	4.48	1.80	95.63	m
	6	Envolvente Mz min Pmin						
		-219.96	14.92	66.85	4.48	1.80	95.63	m
	7	Envolvente Mz max Pmax						
		-1175.87	20.09	90.05	4.48	1.80	95.63	m
	8	Envolvente Mz max Pmin						
		-294.09	20.09	90.05	4.48	1.80	95.63	m
	9	Envolvente N min Pmax						
		-1335.86	22.27	99.79	4.48	1.80	95.63	m
	10	Envolvente N min Pmin						
		-430.72	22.27	99.79	4.48	1.80	95.63	m
	11	Envolvente N max Pmax						
		-752.12	8.96	40.14	4.48	1.80	95.63	m
	12	Envolvente N max Pmin						
		-301.76	8.96	40.14	4.48	1.80	95.63	m
6	1	Envolvente My min Pmax						
		-977.58	18.31	83.80	4.58	1.80	95.63	m
	2	Envolvente My min Pmin						
		-361.92	18.31	83.80	4.58	1.80	95.63	m
	3	Envolvente My max Pmax						
		-946.60	18.31	83.80	4.58	1.80	95.63	m
	4	Envolvente My max Pmin						
		-392.89	18.31	83.80	4.58	1.80	95.63	m
	5	Envolvente Mz min Pmax						
		-945.40	14.86	68.03	4.58	1.80	95.63	m
	6	Envolvente Mz min Pmin						
		-221.17	14.86	68.03	4.58	1.80	95.63	m
	7	Envolvente Mz max Pmax						
		-1107.57	20.05	91.76	4.58	1.80	95.63	m
	8	Envolvente Mz max Pmin						
		-295.46	20.05	91.76	4.58	1.80	95.63	m
	9	Envolvente N min Pmax						
		-1268.34	22.27	101.90	4.58	1.80	95.63	m
	10	Envolvente N min Pmin						
		-431.48	22.27	101.90	4.58	1.80	95.63	m
	11	Envolvente N max Pmax						
		-692.78	9.22	42.19	4.58	1.80	95.63	m
	12	Envolvente N max Pmin						
		-294.14	9.22	42.19	4.58	1.80	95.63	m
7	1	Envolvente My min Pmax						
		-1010.86	18.13	81.15	4.48	1.80	95.63	m
	2	Envolvente My min Pmin						
		-371.76	18.13	81.15	4.48	1.80	95.63	m
	3	Envolvente My max Pmax						
		-982.41	18.13	81.15	4.48	1.80	95.63	m
	4	Envolvente My max Pmin						
		-400.20	18.13	81.15	4.48	1.80	95.63	m
	5	Envolvente Mz min Pmax						
		-987.13	14.95	66.90	4.48	1.80	95.63	m
	6	Envolvente Mz min Pmin						
		-224.61	14.95	66.90	4.48	1.80	95.63	m
	7	Envolvente Mz max Pmax						
		-1147.31	20.09	89.91	4.48	1.80	95.63	m
	8	Envolvente Mz max Pmin						
		-299.27	20.09	89.91	4.48	1.80	95.63	m
	9	Envolvente N min Pmax						
		-1296.30	22.26	99.64	4.48	1.80	95.63	m
	10	Envolvente N min Pmin						
		-446.75	22.26	99.64	4.48	1.80	95.63	m
	11	Envolvente N max Pmax						
		-727.51	8.91	39.87	4.48	1.80	95.63	m
	12	Envolvente N max Pmin						
		-304.47	8.91	39.87	4.48	1.80	95.63	m
8	1	Envolvente My min Pmax						
		-968.68	17.97	80.65	4.49	1.80	95.63	m
	2	Envolvente My min Pmin						
		-381.35	17.97	80.65	4.49	1.80	95.63	m
	3	Envolvente My max Pmax						
		-942.62	17.97	80.65	4.49	1.80	95.63	m

	4	Envolvente My max Pmin						
		-407.41	17.97	80.65	4.49	1.80	95.63	m
	5	Envolvente Mz min Pmax						
		-959.71	15.12	67.86	4.49	1.80	95.63	m
	6	Envolvente Mz min Pmin						
		-231.10	15.12	67.86	4.49	1.80	95.63	m
	7	Envolvente Mz max Pmax						
		-1117.66	20.21	90.69	4.49	1.80	95.63	m
	8	Envolvente Mz max Pmin						
		-306.51	20.21	90.69	4.49	1.80	95.63	m
	9	Envolvente N min Pmax						
		-1249.99	22.28	99.99	4.49	1.80	95.63	m
	10	Envolvente N min Pmin						
		-460.73	22.28	99.99	4.49	1.80	95.63	m
	11	Envolvente N max Pmax						
		-700.73	9.20	41.28	4.49	1.80	95.63	m
	12	Envolvente N max Pmin						
		-300.54	9.20	41.28	4.49	1.80	95.63	m
9	1	Envolvente My min Pmax						
		-981.94	18.13	81.37	4.49	1.80	95.63	m
	2	Envolvente My min Pmin						
		-371.71	18.13	81.37	4.49	1.80	95.63	m
	3	Envolvente My max Pmax						
		-953.51	18.13	81.37	4.49	1.80	95.63	m
	4	Envolvente My max Pmin						
		-400.14	18.13	81.37	4.49	1.80	95.63	m
	5	Envolvente Mz min Pmax						
		-944.32	14.68	65.89	4.49	1.80	95.63	m
	6	Envolvente Mz min Pmin						
		-238.42	14.68	65.89	4.49	1.80	95.63	m
	7	Envolvente Mz max Pmax						
		-1103.40	19.78	88.76	4.49	1.80	95.63	m
	8	Envolvente Mz max Pmin						
		-314.21	19.78	88.76	4.49	1.80	95.63	m
	9	Envolvente N min Pmax						
		-1263.46	22.24	99.83	4.49	1.80	95.63	m
	10	Envolvente N min Pmin						
		-450.51	22.24	99.83	4.49	1.80	95.63	m
	11	Envolvente N max Pmax						
		-695.05	8.77	39.38	4.49	1.80	95.63	m
	12	Envolvente N max Pmin						
		-308.01	8.77	39.38	4.49	1.80	95.63	m
10	1	Envolvente My min Pmax						
		-969.28	17.99	80.74	4.49	1.80	95.63	m
	2	Envolvente My min Pmin						
		-381.44	17.99	80.74	4.49	1.80	95.63	m
	3	Envolvente My max Pmax						
		-943.19	17.99	80.74	4.49	1.80	95.63	m
	4	Envolvente My max Pmin						
		-407.53	17.99	80.74	4.49	1.80	95.63	m
	5	Envolvente Mz min Pmax						
		-928.73	14.38	64.53	4.49	1.80	95.63	m
	6	Envolvente Mz min Pmin						
		-263.17	14.38	64.53	4.49	1.80	95.63	m
	7	Envolvente Mz max Pmax						
		-1085.92	19.55	87.73	4.49	1.80	95.63	m
	8	Envolvente Mz max Pmin						
		-338.92	19.55	87.73	4.49	1.80	95.63	m
	9	Envolvente N min Pmax						
		-1245.38	22.28	100.00	4.49	1.80	95.63	m
	10	Envolvente N min Pmin						
		-465.85	22.28	100.00	4.49	1.80	95.63	m
	11	Envolvente N max Pmax						
		-691.41	8.78	39.40	4.49	1.80	95.63	m
	12	Envolvente N max Pmin						
		-311.02	8.78	39.40	4.49	1.80	95.63	m
11	1	Envolvente My min Pmax						
		-861.50	16.97	81.52	4.80	1.80	95.63	m
	2	Envolvente My min Pmin						
		-422.82	16.97	81.52	4.80	1.80	95.63	m
	3	Envolvente My max Pmax						
		-825.68	16.97	81.52	4.80	1.80	95.63	m
	4	Envolvente My max Pmin						
		-458.63	16.97	81.52	4.80	1.80	95.63	m
	5	Envolvente Mz min Pmax						
		-837.77	13.82	66.40	4.80	1.80	95.63	m
	6	Envolvente Mz min Pmin						
		-296.73	13.82	66.40	4.80	1.80	95.63	m
	7	Envolvente Mz max Pmax						
		-963.01	19.01	91.34	4.80	1.80	95.63	m
	8	Envolvente Mz max Pmin						
		-397.56	19.01	91.34	4.80	1.80	95.63	m
	9	Envolvente N min Pmax						
		-1116.84	22.10	106.17	4.80	1.80	95.63	m
	10	Envolvente N min Pmin						
		-526.38	22.10	106.17	4.80	1.80	95.63	m
	11	Envolvente N max Pmax						
		-607.83	8.20	39.39	4.80	1.80	95.63	m
	12	Envolvente N max Pmin						
		-338.33	8.20	39.39	4.80	1.80	95.63	m
12	1	Envolvente My min Pmax						
		-776.35	16.12	77.44	4.80	1.80	95.63	m
	2	Envolvente My min Pmin						
		-493.90	16.12	77.44	4.80	1.80	95.63	m
	3	Envolvente My max Pmax						
		-776.35	16.12	77.44	4.80	1.80	95.63	m

```
          4   Envolvente My max Pmin
                 -493.90     16.12     77.44     4.80     1.80    95.63 m

          5   Envolvente Mz min Pmax
                 -808.22     15.80     75.88     4.80     1.80    95.63 m

          6   Envolvente Mz min Pmin
                 -334.00     15.80     75.88     4.80     1.80    95.63 m

          7   Envolvente Mz max Pmax
                 -936.19     20.31     97.59     4.80     1.80    95.63 m

          8   Envolvente Mz max Pmin
                 -414.43     20.31     97.59     4.80     1.80    95.63 m

          9   Envolvente N min Pmax
                 -999.79     22.67    108.91     4.80     1.80    95.63 m

         10   Envolvente N min Pmin
                 -630.50     22.67    108.91     4.80     1.80    95.63 m

         11   Envolvente N max Pmax
                 -598.24      8.67     41.63     4.80     1.80    95.63 m

         12   Envolvente N max Pmin
                 -355.58      8.67     41.63     4.80     1.80    95.63 m

13       1   Envolvente My min Pmax
                 -702.94     13.55     65.09     4.80     1.80    95.63 m

          2   Envolvente My min Pmin
                 -472.06     13.55     65.09     4.80     1.80    95.63 m

          3   Envolvente My max Pmax
                 -702.94     13.55     65.09     4.80     1.80    95.63 m

          4   Envolvente My max Pmin
                 -472.06     13.55     65.09     4.80     1.80    95.63 m

          5   Envolvente Mz min Pmax
                 -677.26     11.03     52.98     4.80     1.80    95.63 m

          6   Envolvente Mz min Pmin
                 -350.58     11.03     52.98     4.80     1.80    95.63 m

          7   Envolvente Mz max Pmax
                 -815.00     16.72     80.33     4.80     1.80    95.63 m

          8   Envolvente Mz max Pmin
                 -441.62     16.72     80.33     4.80     1.80    95.63 m

          9   Envolvente N min Pmax
                 -902.27     20.01     96.13     4.80     1.80    95.63 m

         10   Envolvente N min Pmin
                 -608.08     20.01     96.13     4.80     1.80    95.63 m

         11   Envolvente N max Pmax
                 -523.18      5.81     27.91     4.80     1.80    95.63 m

         12   Envolvente N max Pmin
                 -336.90      5.81     27.91     4.80     1.80    95.63 m
```

1.14 Estribos

```
Programa CIM EST - Esfuerzos de Cimentación en Estribos

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

ESFUERZOS EN CIMENTACION DE ESTRIBOS

LEYENDA: N    -> axil, incluyendo peso de tierras y zapata
         Vy   -> cortante perpendicular al eje del pte
         Vz   -> cortante paralelo al eje de la estr.
         My   -> momento según eje perp. referido a la puntera zap
         Mz   -> momento según eje paralelo ref al eje de la estr
         exc_z_N -> excentricidad apoyo pte resp. puntera zap.
         Pt   -> peso de las tierras
         exc_z_Pt -> exectricidad carga de tierras
         Pzp  -> peso de la zapata
         exc_z_Pzp -> exectricidad peso zapata
--------------------------------------------------------------------------------
  Estr        exc_z_N      Pt     exc_z_Pt      Pzp      exc_z_Pzp
                [m]        [t]       [m]        [t]        [m]
  Estr                  P_propio  exc_P_propio
                           [t]       [m]
  Estr  hip      N         Vy         Vz         My         Mz
                [t]        [t]        [t]       [mt]       [mt]
--------------------------------------------------------------------------------

    1           2.050  -2066.790     12.300  -1264.000      7.900
                       -1157.600      6.460
          1  -5708.870     -3.050  -3248.551 -19909.477    -18.210
          2  -5155.770      3.250    414.859 -55973.807     -6.520
          3  -5438.930    -32.620  -3248.551 -19356.100   -894.640
          4  -5364.180     33.030    414.869 -56401.149    826.240
          5  -5404.970     -3.130  -3248.551 -19286.482   -357.140
          6  -5417.170      3.590    414.869 -56509.778    288.700
          7  -5404.970     -3.130  -3248.551 -19286.482   -357.140
          8  -5417.170      3.590    414.869 -56509.778    288.700
          9  -5466.650    -13.170  -3248.551 -19412.926  -1334.800
         10  -5364.640     13.670    414.869 -56402.092   1266.440

    2           2.000  -2827.000      9.170   -968.000      6.050
                       -663.010       5.920
          1  -5630.470      0.660    914.791  34179.443     59.330
          2  -5091.680      0.640    882.464  33101.863    -39.190
          3  -5335.360    -19.740    897.085  33589.223   -815.000
          4  -5375.000     20.360    899.463  33668.503    768.110
          5  -5177.490      0.140    887.612  33273.483    -19.480
          6  -5177.490      0.140    887.612  33273.483    -19.480
          7  -5177.490      0.140    887.612  33273.483    -19.480
          8  -5177.490      0.140    887.612  33273.483    -19.480
          9  -5402.990      0.260    901.142  33724.483  -1028.040
         10  -5322.640      0.440    896.321  33563.783    979.080
```

6. TABLERO

TABLERO

Control de tensiones durante el proceso constructivo

Se han controlado las tensiones en el hormigón en cada una de las distintas fases del procedimiento constructivo. Se ha comprobado que no se alcanza nunca la tensión de fisuración del hormigón y que la compresión es menor que la resistencia característica en el momento del tesado dividida por 1.6.

A continuación se incluyen gráficos correspondientes a cada fase en los que se representa la tensión en la fibra superior y en la fibra inferior del hormigón a lo largo del eje longitudinal de la estructura.

Como puede verse la tensión del hormigón se mantiene dentro de los límites admisibles [1].

En el apartado "RESULTADOS DEL CÁLCULO" se incluyen estos resultados en formato numérico.

1.1 Control de tensiones a tiempo cero

Se han controlado las tensiones en el hormigón a tiempo cero, es decir antes de que se produzcan redistribuciones de esfuerzos por fluencia, debido al cambio en las condiciones de apoyo y antes de que se produzcan pérdidas de pretensado.

Nuevamente se puede comprobar, que, para el pretensado definido, no se alcanza a fisurar el hormigón y que las tensiones de compresión son siempre menores que la resistencia característica dividida por 1.6.

A continuación se incluye un gráfico correspondiente a esta comprobación y que representa la tensión en la fibra superior y en la fibra inferior del hormigón a lo largo del eje longitudinal de la estructura.

Como puede verse la tensión del hormigón se mantiene dentro de los límites admisibles [2].

En el apartado "RESULTADOS DEL CÁLCULO" se incluyen estos resultados en formato numérico.

Control de tensiones a tiempo infinito

Se han controlado las tensiones en el hormigón a tiempo infinito, es decir una vez que se han producido las redistribuciones de esfuerzos por fluencia, debido al cambio en las condiciones de apoyo y una vez que ya se han producido las pérdidas de pretensado.

Para evaluar la magnitud de la redistribución se ha aplicado la siguiente fórmula, basada en el método del coeficiente de envejecimiento.

$$S_{\infty} = S_0 + (S_c - S_0)(\varphi/(1+\chi\varphi)$$

Para aplicar esta fórmula se ha considerado un coeficiente de fluencia de 2.50 y un coeficiente de envejecimiento de 0.80.

Por limitaciones de capacidad del programa, en la comprobación de tensiones del tablero a tiempo infinito no es posible poner la sobrecarga en todos los vanos. Ello no supone un inconveniente importante debido a que el comportamiento de todos los vanos de 40.00 metros es similar. En todo caso, se ha colocado la sobrecarga en los vanos próximos al estribo anclado, puesto que es allí donde se produce el máximo axil debido al rozamiento transmitido por los teflones.

Para esta situación se han controlado las tensiones para carga permanente más sobrecarga frecuente (que se ha tomado igual a la mitad de la sobrecarga total), comprobando que no se producen tracciones en el tablero.

Por otra parte, se ha comprobado el servicio con carga total. Nuevamente, se puede comprobar, que, para el pretensado definido, no se alcanza a fisurar el hormigón y que las tensiones de compresión son siempre menores que la resistencia característica dividida por 1.6.

A continuación se incluyen los gráficos correspondientes a esta comprobación y que representan la tensión en la fibra superior y en la fibra inferior del hormigón a lo largo del eje longitudinal de la estructura.

Como puede verse la tensión del hormigón se mantiene dentro de los límites admisibles [3].

En el apartado "RESULTADOS DEL CÁLCULO" se incluyen estos resultados en formato numérico.

Estado Límite Ultimo. Flexión longitudinal.

Con el pretensado definido y para la combinación de agotamiento, se ha comparado el momento solicitante con el momento resistido por el tablero teniendo en cuenta, únicamente el pretensado, es decir, despreciando la armadura pasiva.

Se comprueba que, en todas las secciones, pretensado es ampliamente suficiente para resistir los esfuerzos de flexión global, como es lógico en una estructura proyectada en clase II.

A continuación, se incluye un gráfico que sintetiza esta comprobración. En él se representa, en abscisas el eje del puente y en ordenadas el momento resistente y el momento solicitante.

Por limitaciones de capacidad del programa, en la comprobación del estado límite último de tensiones normales del tablero, no es posible poner la sobrecarga en todos los vanos. Ello no supone un inconveniente importante debido a que el comportamiento de todos los vanos de 40.00 metros es similar.

Estos resultados se incluyen en formato numérico en el apartado "RESULTADOS DEL CÁLCULO".

[1] En la sección de acopladores, el programa puede interpretar mal el número de cables realmente presentes en la sección, ya sea por exceso, ya sea por defecto. Ello crea distorsiones que no son reales y que no deben ser tenidas en cuenta.
[2] En la sección de acopladores, el programa puede interpretar mal el número de cables realmente presentes en la sección, ya sea por exceso, ya sea por defecto. Ello crea distorsiones que no son reales y que no deben ser tenidas en cuenta.
[3] En la sección de acopladores, el programa puede interpretar mal el número de cables realmente presentes en la sección, ya sea por exceso, ya sea por defecto. Ello crea distorsiones que no son reales y que no deben ser tenidas en cuenta.

Estado Límite Último. Flexión Transversal, Torsión, Cortante y Distorsión

En el apartado "MODELOS", se describió el modelo que ha servido para tener en cuenta los efectos de flexión local y distorsión. A estos efectos, se ha considerado la locomotora del tren tipo UIC-71 del Eurocódigo, puesto que para esta comprobación resulta más desfavorable. Igualmente, se ha comprobado la hipótesis de desbalastado parcial, tanto a efectos de la flexión local como a efectos de la torsión.

A continuación se incluyen gráficos con las leyes de momentos fectores y esfuerzos axiles transversales que se producen en la sección.

En el apartado "RESULTADO DE LOS CÁLCULOS" se incluye una hoja de cálculo que ha servido para determinar la armadura transversal del tablero. Esta armadura se obtiene como combinación de los esfuerzos debidos a:

- Torsión

- Cortante

- Esfuerzo Rasante

- Flexión Transversal

- Axil Transversal

A continuación se relacionan las armaduras de la sección transversal y se explica su obtención:

- Armadura superior de voladizo: Flexión transversal y rasante

- Armadura inferior de voladizo: Rasante

- Armadura superior de losa central: Flexión transversal, axil transversal, rasante y torsión

- Armadura inferior de losa central: Flexión transversal, rasante y torsión.

- Armadura de las almas: Cortante, flexión transversal y torsión

- Armadura de losa inferior: Flexión transversal, rasante y torsión

Para el dimensionamiento frente a esfuerzo rasante se han seguido criterios elásticos.

Riostras

Para el dimensionamiento de las riostras, se ha aplicado el método de bielas y tirantes. Para ello, se supone que la carga llega a las riostras aplicada en el tercio inferior del alma. Una parte de dicha carga puede transmitirse directamente al apoyo. Sin embargo, debido a que existe una excentricidad entre el eje del alma y el eje del apoyo existe una parte importante de dicha carga que no puede seguir el mismo camino.

Esta parte de la carga se transmite hacia la cara superior de la sección mediante una armadura de cuelgue inclinada. Una vez situada en la zona superior de la sección y centrada respecto del apoyo, gracias a la inclinación de la armadura de cuelgue esta fuerza puede bajar directamente al apoyo.

Por otra parte, debido a que una parte de la carga puede entrar también por la posición del pretensado, es necesario disponer, además, una armadura importante en la cara superior de la riostra, con objeto de poder absorber la excentricidad de dicha carga respecto del eje del apoyo (distancia entre el cdg del pretensado y el eje del apoyo).

El cálculo de las riostras se recoge en el apartado "RESULTADOS DEL CÁLCULO".

Comprobación de fatiga

El criterio adoptado para el diseño del pretensado, Clase II para sobrecarga total y Clase I para la mitad de la sobrecarga, permite asegurar un adecuado comportamiento frente a la fatiga, tanto para las armaduras pasivas, como para las armaduras activas.

Comprobación de deformaciones

Para la comprobación de flechas se ha seguido el apartado 3.4.15.2 del Eurocódigo 1, parte 3.4. Se han considerado dos trenes UIC-71 con un factor dinámico de 1.05. Se han cargado vanos alternos y se ha determinado la flecha hacia abajo en el vano más cargado que resulta ser igual a 8.73 mm y en el vano adyacente en el que se obtiene la máxima flecha hacia arriba, siendo ésta igual a 4.46 mm.

Por lo tanto el valor de w es igual a 13.29 mm que para un vano de 2x40=80 metros da lugar a una relación L/w de 6019, muy superior a la exigida que resulta ser de 1700 para velocidades de 350 km/hora, vanos mayores de 30.00 metros y más de 3 tramos de viga continua.

Este resultado no es sorprendente, ya que la esbeltez de la estructura (L/12.5) está en el rango inferior de las habituales en ferrocarriles y se corresponde con los criterios normales utilizados en los Ferrocarriles alemanes.

Comprobación de vibraciones

Se ha llevado a cabo un análisis modal de la estructura obteniéndose los valores de frecuencias propias y factores de participación. Como puede verse, el primer modo de vibración vertical es el modo 10 con un período de 0.268 segundos, lo cual equivale a una frecuencia de 3.728 Hz. Esta frecuencia propia queda dentro del rango supuesto por la ficha 776.3 de la UIC para un puente de 40 metros de luz que es de 2.5 Hz a 6 Hz.

Igualmente, la flecha máxima, de 8.74 mm para 2 trenes UIC-71 con un coeficiente de impacto de 1.05, queda muy por debajo del límite establecido por esta normativa, que para un vano de 40.00 metros sería más de 40 mm.

.SK 5
.TP 15

```
*****************************************************************
* Módulo S3L                                                    *
* DINAMICA Cálculo de valores/modos propios                     *
*****************************************************************
Ensamblaje de la matriz de masa global [M]
------------------------------------------


Nº max. de vectores iniciales :  846
Determinando 16 de los vectores iniciales

1º vector inicial
 2. Vector inicial: valor carga  116067.0     Nudo   51  Nº grado de libertad 4
 3. Vector inicial: valor carga  116070.8     Nudo   61  Nº grado de libertad 4
 4. Vector inicial: valor carga  129915.4     Nudo   71  Nº grado de libertad 4
 5. Vector inicial: valor carga  129922.8     Nudo   41  Nº grado de libertad 4
 6. Vector inicial: valor carga  129926.6     Nudo   91  Nº grado de libertad 4
 7. Vector inicial: valor carga  146049.6     Nudo   81  Nº grado de libertad 4
 8. Vector inicial: valor carga  146064.8     Nudo  101  Nº grado de libertad 4
 9. Vector inicial: valor carga  146069.7     Nudo   31  Nº grado de libertad 4
10. Vector inicial: valor carga  164976.4     Nudo   21  Nº grado de libertad 4
11. Vector inicial: valor carga  283688.8     Nudo  111  Nº grado de libertad 4
12. Vector inicial: valor carga  424928.2     Nudo   11  Nº grado de libertad 4
13. Vector inicial: valor carga  827222.9     Nudo   51  Nº grado de libertad 3
14. Vector inicial: valor carga  827333.9     Nudo   61  Nº grado de libertad 3
15. Vector inicial: valor carga  841809.8     Nudo   71  Nº grado de libertad 3
16. Vector inicial: valor carga  842011.9     Nudo   41  Nº grado de libertad 3
```

.TP 10
"Sturm Sequence Check" para comprobar cálculo de valores propios

```
---------------------------------------------------------------
- Desplazamiento para "Sturm Sequence Check"  554.228
- Ensamblaje y solución del sistema de ecuaciones


Solución del "Sturm Sequence Check"
-----------------------------------
- En la zona:  0.00   bis  554.228       se han encontrado10  valores propios.

max free memory:80kB
```

.TP 7
.TK 3
RESULTADOS DEL CALCULO DE AUTOVALORES

Nº	Frec.c.**2	Frecuencia circ.	Periodo	Frecuencia
1	44.982	6.707	0.936826	1.067
2	59.665	7.724	0.813433	1.229
3	82.796	9.099	0.690517	1.448
4	85.658	9.255	0.678884	1.473
5	131.963	11.488	0.546957	1.828
6	208.524	14.440	0.435113	2.298
7	324.465	18.013	0.348816	2.867
8	488.901	22.111	0.284164	3.519
9	509.288	22.567	0.278418	3.592
10	548.740	23.425	0.268223	3.728

.TK 0
.SK 3
.TP 7
.TK 3
FACTORES MODALES DE PARTICIPACION (método de espectros de respuesta)

Nº	Sismo-X	Sismo-Y	Sismo-Z
1	21.337	29.894	0.005701
2	3.516	1.632	0.001493
3	15.595	28.242	0.077974
4	29.064	6.646	0.069839
5	0.004682	0.124904	0.002485
6	8.089	8.702	0.001093
7	2.337	2.014	0.000943
8	7.416	7.891	0.000330
9	0.016038	0.016903	0.003679
10	0.042347	0.036751	0.200665

.TK 0

Comprobación de descarrilamiento

Para esta comprobación se utilizan las cargas especificadas en el apartado 3.4.12 del Eurocódigo 1 Parte 3.4.

Efecto sobre la estabilidad de la estructura.

A efectos de estabilidad de la estructura, la peor situación, es la situación correspondiente al Caso II. Haciendo la hipótesis, desfavorable, de que el descarrilamiento se produce en la proximidad del estribo, se obtiene un momento torsor de 543.3 mt y un axil, debido al tren descarrilado, de 100 toneladas. Ello produce en los apoyos, separados 4.10 metros una fuerza máxima hacia arriba de 100/2-542.3/4.1 = -82.26 toneladas. Dedido a la carga permanente, se tiene un axil de 478 toneladas, por lo que en cada apoyo habrá 156 toneladas.

Por lo tanto, en la situación más desfavorable, debida al descarrilamiento, se tendrá una fuerza de compresión mínima en el apoyo de 225-81.5 =143.5 toneladas.

Efecto sobre el posible colapso de la estructura por agotamiento

Tanto el caso I, como el caso II, dan lugar a un momento torsor en la estructura, considerablemente menor que el que se obtiene con la sobrecarga de diseño cuya longitud no está acotada. Además, al tratarse de una acción accidental, no es necesario considerar un coeficiente de mayoración de 1.50 como se hace con las cargas de diseño, por lo que queda asegurado el no colapso de la estructura por un fallo en torsión.

Respecto de un posible colapso por rotura local del voladizo, nuevamente, la situación más desfavorable se plantea con la carga del Caso II. Para esta carga se genera un momento flector en el voladizo de 8x(4.4-3.30) = 9.60 mt/m debido al descarrilamiento, al cual hay que sumar 10.68 mt/m debidos a la carga permanente, por lo que el momento total para esta situación es de 20.28 mt/m. El momento que es capaz de absorber la armadura dispuesta en el voladizo es de 32.09 mt/m en la sección menos armada (?16a0.10), debido a que en esta sección se dispone, además de la armadura de flexión transversal, parte de la armadura de rasante, cuyo valor máximo no será concomitante con el descarrilamiento. El coeficiente de seguridad resultante para esta situación accidental sería por lo tanto de 1.58.

TABLERO DEL VIADUCTO 2.

Dado que las dimensiones de las secciones de los viaducto 1, y 2 son las mismas así como el trazado de los cables del pretensado, se remiten los cálculos justificativos a los expuestos en el apartado anterior para del Viaducto 1.

VIADUCTO Nº 2 DEL LAV

CALCULOS JUSTIFICATIVOS DEL TABLERO

MEMORIA DESCRIPTIVA Y BASES DE CALCULO

1. - Descripción de las Modificaciones

El nuevo tablero del Viaducto consta de 14 vanos, siendo, al igual que en el original, los vanos extremos de 32.00 m de luz y los intermedios de 40.00.

La sección transversal del tablero es la misma que la adoptada para el tablero del Viaducto 1 de este mismo tramo. Al ser asimismo la modulación de éste del mismo tipo que la del Viaducto 1 (vanos extremos de 32.00 m de luz y vanos intermedios de 40.00), siendo la única diferencia entre ambos el número de vanos intermedios existentes en cada uno (16 vanos de 40.00 m en el Viaducto 1 y 12 en el Viaducto 2), es válido para el viaducto que nos ocupa todo lo dicho en la Memoria Descriptiva del tablero del Viaducto 1.

La disposición del pretensado es también similar a la del tablero del Viaducto 1, pudiéndose dividir éste en los mismos tres tipos que allí se enumeraban:

.- El primero, debido al proceso constructivo vano a vano, consiste en cuatro familias de tendones que se van anclando al final de cada fase y conectándose, mediante acopladores, con los siguientes tendones de su misma familia que integran la siguiente fase. Este pretensado se dimensiona para soportar los esfuerzos producidos durante la ejecución del tablero (Peso propio, pretensado, cargas transmitidas por la cimbra y gradiente térmico).

.- El segundo es un pretensado que se introduce una vez hormigonado todo el tablero y esta destinado a aguantar los esfuerzos debidos a las cargas y sobrecargas de los puentes de FFCC, con exclusión de las que producen esfuerzos predominantemente axiles sobre el tablero. Este pretensado, formado por tres familias, recorren toda la longitud del viaducto y se van anclando en la zona regruesada sobre las pilas, de la que parten a su vez los siguientes tendones de la misma familia, cruzandose sobre cada pila los tendones de una misma familia que se anclan y que parten de ella. Al tener cada tendón un recorrido de 3 vanos y estar este pretensado compuesto por 3 familias, sobre cada pila se van cruzando, alternativamente, los tendones correspondientes a cada familia, mejorando, de cara a los momentos negativos, el efecto del pretensado sobre cada pila.

.- Por último, el tercero es un pretensado dispuesto para contrarrestar los esfuerzos de componente fundamentalmente axil producidos por acciones como el frenado y el rozamiento de los aparatos de

apoyo. Al estar el tablero fijado en uno de los extremos, estos esfuerzos van variando desde un valor mínimo o nulo sobre el extremo móvil a un valor máximo sobre el fijo. Por las características de los esfuerzos que acabamos de comentar, este pretensado se dispone en la losa inferior del tablero y consta de cuatro familias que partiendo del extremo fijo, se van anclando a lo largo del tablero siguiendo la evolución de los esfuerzos axiles que deben de soportar.

2. – Características de los Materiales

Al igual que en el tablero del Viaducto 1, se han considerado los siguientes materiales con sus respectivas características:

. – Hormigón Tipo : HP-40

Resistencia característica a los 28 días $f_{ck} = 400$ kg/cm^2

Resistencia característica al tesar $f_{ck} = 300$ kg/cm^2

Coeficiente de minoración del hormigón $\gamma_c = 1.50$

. – Acero pasivo : B 500 S

Límite elástico $f_{yk} = 5100$ kg/cm^2

Coeficiente de minoración del acero $\gamma_s = 1.15$

. – Acero activo :

Carga unitaria de rotura $f_{max,k} = 19000$ kg/cm^2

Límite elástico $f_{yk} = 17100$ kg/cm^2

Coeficiente de minoración del acero $\gamma_s = 1.15$

3. – Cargas consideradas

De acuerdo con la Instrucción de Cargas a considerar en el Proyecto de Puentes de FFCC (IAPF-75) y siguiendo el criterio adoptado en los cálculos del Proyecto original, se han considerado las siguientes cargas para el estudio general del tablero:

.- Pretensado:

Como se ha dicho anteriormente el pretensado se divide en tres tipos:

.- El primero, durante la fase de ejecución, esta compuesto por 4 familias de 2 tendones cada una (8 tendones), que se van conectando entre si de una fase a otra. Los tendones son del tipo 19 ϕ 0.6", tesados al 75 % de su carga de rotura.

.- El segundo, que se introduce una vez hormigonado el tablero, esta compuesto por 3 familias de 2 tendones cada una (6 tendones), que se van cruzando sobre las pilas de dos en dos. Los tendones son también del tipo 19 ϕ 0.6", tesados al 75 % de su carga de rotura

.- El tercero, dispuesto en la losa inferior y que se introduce tambien una vez hormigonado todo el tablero, esta compuesto de 4 familias de 2 tendones cada una (8 tendones), que arrancan todas desde el estribo fijo y se van anclando en diferentes secciones. Estos tendones son del tipo 12 ϕ 0.6", tesados al 75 % de su carga de rotura

Para el cálculo de las perdidas de pretensado se adoptan los siguientes valores de las características reológicas:

Fluëncia $\varphi = 2.74$

Retracción $\varepsilon = 0.000239$

.- Peso Propio: p = Area x 2.70 t/m2

p1 = 9.771 x 2.50 = 24.43 t/m2

p2 = 16.768 x 2.50 = 41.92 t/m2

.- Carga Permanente:

p = 10.10 x 0.03 x 2.40 + 9.42 x 0.57 x 1.60 + 2 x 0.20 x 0.50 x 2.50 + 2 x 0.10 = 10.00 t/m

adoptando un coeficiente de ponderación de 1.20 para tener en cuenta la posible variación de esta carga, se toma finalmente como valor de la carga permanente:

p = 10.00 x 1.20 = 12.00 t/m

.- Sobrecargas de uso:

Sobrecarga uniforme de 0.40 t/m2 en paseos

Sobrecarga debida a cableado de 0.30 t/m a cada lado

Tren tipo A para vía Renfe afectado de un coeficiente de impacto de 1.16.

El Tren tipo A equivale, por cada vía, a: Una sobrecarga uniforme de 12.00 t/m extendida en una longitud de 15.00 ó 30.00 m, seguida de otras sobrecargas de 10.00 y 1.00 t/m, que se extienden en una longitud indefinida sin solución de continuidad entre ellas.

Teniendo en cuenta lo anterior las sobrecargas a aplicar para el cálculo serán:

p1 = 2 x 1.00 x 1.16 = 2.32 t/m

p2 = 2 x 1.75 x 0.40 + 2 x 0.30 + 2 x 10.00 x 1.16 – 2.32 = 22.88 t/m

p3 = (12.00 – 10.00) x 1.16 = 2.32 t/m

donde la carga p1 equivale a la sobrecarga de 1 t/m2 y estará extendida en toda la longitud del tren, la carga p2 es la diferencia entre la sobrecarga total de 10 t/m mas la de los paseos, menos la sobrecarga mínima, e irá extendida, en cada caso, en las longitudes que produzcan los efectos más desfavorables, y por último la carga p3 es la diferencia entre la sobrecarga de 12.00 t/m y la de 10 t/m, e irá extendida en una longitud de 30.00 m en la zona mas desfavorable en cada caso.

.- Gradiente de temperatura entre la cara superior e inferior del tablero.

Teniendo en cuenta el espesor de balasto sobre el tablero se adoptan los siguientes valores del gradiente:

En construcción, sin balasto $\Delta T = 10$ °C

En servicio, con balasto $\Delta T = 7$ °C

.- Asientos diferenciales.

Entre elementos pilotados, s = 1.00 cm

Entre estribos y pilas adyacentes, s = 2.00 cm

.- Frenado.

Se considera la acción de un tren de 300.00 m de longitud máxima

F = 1/8 x (30.00 x 12.00 + 270.00 x 10.00) x 1.90 = 726.75 t.

Actuando a la altura de la cota superior del carril.

.- Rozamiento de los apoyos.

Se adoptan, de acuerdo con el proyecto original, dos hipótesis: Actuación solamente de las fuerzas de rozamiento o acción conjunta de éstas con el frenado. En el primer caso se considera un coeficiente de rozamiento de 0.05 actuando sobre las cargas totales incluidas las sobrecargas y en el segundo uno de 0.03 sobre las cargas permanentes.

En ambos casos las fuerzas actuantes serán las que se originan por rozamiento en todos los apoyos salvo en el del estribo 2 por ser éste el apoyo fijo.

Acción solamente del rozamiento:

H = 0.05 x (24.43 x 35.00 x 13 + 41.92 x 5.00 x 13 + 24.43 x 10.00 x 1 +41.92 x 3.10 x 1 + 533.10 x 12.00 + 533.10 x 22.00 +2 x 30 x 2.00) = 1623.00 t

Acción conjunta con el frenado:

H = 0.03 x (24.43 x 35.00 x 13 + 41.92 x 5.00 x 13 + 24.43 x 10.00 x 1 +41.92 x 3.30 x 1 + 533.10 x 12.00) = 618.61 t

3. – Desarrollo de los cálculos

Al ser el proceso de ejecución del tablero por el sistema de vano a vano mediante cimbra autolanzable, durante este proceso tendremos tantas fases como número de vanos tiene el puente, es decir 14.

Como a partir de un cierto número de vanos los esfuerzos en los vanos interiores se repiten, es totalmente válido para este tablero el cálculo realizado para el tablero del Viaducto 1, con los distintos modelos que

allí se utilizaron para el estudio de los esfuerzos que se van originando por el efecto de las diferentes acciones que inciden sobre el tablero.

Son igualmente válidas para las distintas secciones del tablero de este viaducto las comprobaciones realizadas en el tablero del Viaducto 1 referentes, tanto a los estados límites de servicio (comprobación de tensiones en las diferentes fases constructivas y para las distintas hipótesis de carga), como a los estados límites últimos (comprobación de la seguridad a rotura en los mismos casos anteriormente mencionados).

Por todo lo dicho damos por válidos los cálculos realizados para el tablero del Viaducto 1, sin mas que acomodar algunas acciones, como por ejemplo las fuerzas debidas al rozamiento de apoyos, a las dimensiones reales del nuevo tablero.

Estribo 1 - Viaducto 2

Losa de unión de estribo y tablero

Al ser iguales los tableros de los viaductos 1 y 2, los datos los sacamos del cálculo del tablero del Viaducto 1

Giros que se producen en el tablero una vez hormigonada la losa

Pretensado $= (0'223 + 0'540 + 0'552) \cdot 10^{-3} = 1'320 \cdot 10^{-3}$ rad.

Pes. propio $= -0'299 \cdot 10^{-3}$

Grad Temp. Y.C $= 0'190 \cdot 10^{-3}$

C. Permanente $= -0'140 \cdot 10^{-3}$

Asient. diferencial del estrib. de 20 cms $= 0'78 \cdot 10^{-3}$

Sobrecargas $= 0'26 \cdot 10^{-3}$

Giro del estrib. $= 0'638 \cdot 10^{-3}$

Poniéndonos del lado de la seguridad hemos adoptado un giro del estribo igual al del Viaducto 1, aunque sabemos que la altura del estribo es menor, la longitud de la zapata mayor y la fuerza que ejerce el tablero sobre el estribo menor en este caso que en el del Viaducto 1 el giro del estribo será menor también en este caso.

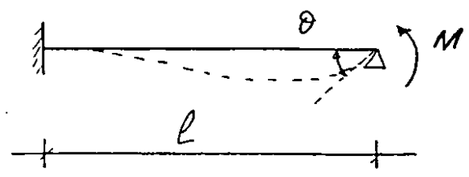
El efecto de los giros debidos a asientos y giros del estribo se reducen por la fluencia.

Giro Total $= 10^{-3} \cdot (0'85 \cdot 1'32 - 0'299 + 0'190 - 0'140 + 0'260) +$

$+ 0'34 \cdot 10^{-3} \cdot (0'780 + 0'638) = 1'615 \cdot 10^{-3}$

Efecto del giro:

Se considera, poniéndonos del lado de la seguridad, que la losa actúa como empotramiento articulado.



$$\theta = \frac{M \cdot l}{4 E I}$$

$E = 38 \cdot 10^6 \ t/m^2$

$I = \frac{1}{12} \cdot 5'26 \cdot 0'35^3 = 0'0188 \ m^4$

$l = 2'35 \ m.$

$$M = \frac{4 \cdot E \cdot I \cdot \theta}{l} = 196'38 \ m.t/_{m} \text{ en } 5'26 \ m. \text{ de anchura}$$

Acciones ponderadas.

Gto. total: $0'85 \cdot 1'320 \cdot 10^{-3} - 10^{-3}(0'299 + 0'140) +$

$+ 1'5 \cdot 10^{-3}(0'190 + 0'260) + 1'5 \cdot 0'34 \cdot 10^{-3}(0'180 + 0'638) =$

$= 2'081 \cdot 10^{-3}$

$$M_d = \frac{4 \cdot E \cdot I \cdot \theta_d}{l} = 253'32 \ m.t.$$

$N_d = \pm 16300 \cdot 1'5 = \pm 2434'50 \ t$

Pretensado:

2 Tendones 19 ø 0'6" y 8 tendones 12 ø 0'6".

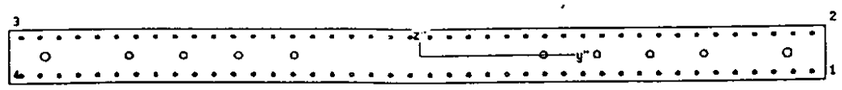
$N_{pret} = 2490'28 \ t.$

$A_s = 2 \cdot 2660 + 8 \cdot 1680 = 18760 \ cm^2$

Def. impuesta:

$$\varepsilon = \frac{\sigma}{E} = \frac{2490'28 \cdot 10^3 / 18760}{2 \cdot 10^6} = 0'00663$$

Mstb. 1 : 40.0



SecciÂn :"LOSA" Armadura :"B1"
Tipo : tipo viga/ Rect ngulo Unidades :[m]
Material :"H450"

Ancho = 5.26 m Canto = 0.35 m

CaracterÀsticas mec nicas de la secciÂn:
Area : Ax= 1.841 [m2]
Momentos de inercia : Iy= 0.018794 [m4] Iz= 4.245 [m4]
Inercia a torsiÂn : Ix= 0.072023 [m4]

PosiciÂn del centro de gravedad: ys= 0.000 [m] zs= 0.175000 [m]

	I:	R=dist.borde [m]	W=I/R [m3]	W/Ax [m]
izq.	Iz	-2.630	-1.614	0.877
dch.	Iz	2.630	1.614	-0.877
abajo	Iy	-0.175	-0.107392	0.058
arriba	Iy	0.175	0.107392	-0.058

Armadura: "B1"

NÏ	Nom.mat	Cod.dim.	Area [cm2]	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]
1	A1900	(0)	26.60	-239.00	17.50		
2	A1900	(0)	16.80	-185.00	17.50		
3	A1900	(0)	16.80	-150.00	17.50		
4	A1900	(0)	16.80	-115.00	17.50		
5	A1900	(0)	16.80	-80.00	17.50		
6	A1900	(0)	16.80	80.00	17.50		
7	A1900	(0)	16.80	115.00	17.50		
8	A1900	(0)	16.80	150.00	17.50		
9	A1900	(0)	16.80	185.00	17.50		
10	A1900	(0)	26.60	239.00	17.50		
11	AEH500	(0)	206.17	-255.00	5.00	255.00	5.00
12	AEH500	(0)	206.17	-255.00	30.00	255.00	30.00
	Total:		599.93	CuantÀa de armadura: 3.259 [o/o]			

CÂd. dimensionamiento: (0) = As constante
CÂd. dimensionamiento: (1) = Aumentar As en zonas comprimida y traccionada
CÂd. dimensionamiento: (2) = Aumentar As solo en zona traccionada

Armaduras pretensadas :

NÏ	Def.Impuesta	NÏ	Def.Impuesta	NÏ	Def.Impuesta
1	6.637E-0003	2	6.637E-0003	3	6.637E-0003
4	6.637E-0003	5	6.637E-0003	6	6.637E-0003
7	6.637E-0003	8	6.637E-0003	9	6.637E-0003
10	6.637E-0003				

Dimens. a cortante (valores por defecto): (Acero"AEH500"/HormigÂn"H450")

Cortante	Area mÀn.cercos	Ancho alma ideal	Canto Ètil	Incl.bielas
Vz	0.00 [cm2/m]	526.00 [cm]	31.00 [cm]	0.00
Vy	0.00 [cm2/m]	35.00 [cm]	522.00 [cm]	0.00

CaracterÀsticas del material:

Nom.Mat.	MÂdulo E [t/m2]	0.85*fcd,fyd [t/m2]	eps-fc [o/oo]	fct [t/m2]	fcv [t/m2]	fcw,mÀn [t/m2]
"H450"	4.00E+06	-2550.000	-2.000	0.0	86.600	4500.000
"AEH500"	2.10E+07	44347.0				
"A1900"	2.00E+07	155400.0				

Leyenda:
fcd,fyd resistencia de c lculo del hormigÂn,acero
eps-fc deformaciÂn al final de la par bola (fig.2.3, cap.2.2)
fct resistencia de c lculo a tracciÂn del hormigÂn
fcv resistencia virtual de c lculo del hormigÂn a esfuerzo cortante

C lculo Resistencia Ultima: Viga "LOSA"/"B1"

SolicitaciÂn Unidades : [tm]

N	Vy	Vz	Mx	My	Mz
2434.500				253.320	

Coeficiente de seguridad 1.092

Dimensionamiento : Viga "LOSA"/"B1"

Esfuerzos (Rotura) Unidades : [tm]

N	Vy	Vz	Mx	My	Mz	Alpha
2434.500				253.320		45.0

La armadura mÀnima entrada es suficiente !
Armadura mÀnima definida con las reas entradas ..
Factor actual de minoraciÂn de la resistencia de la secciÂn 1.09
Factor necesario de minoraciÂn de la resistencia de la secciÂn .. 1.00

Armadura Longitudinal:		y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]	dado (As-min)	dimens. [cm2]	As-nuevo [cm2]
1	"A1900"	-239.0	17.5			26.60	-	26.60
2	"A1900"	-185.0	17.5			16.80	-	16.80
3	"A1900"	-150.0	17.5			16.80	-	16.80
4	"A1900"	-115.0	17.5			16.80	-	16.80
5	"A1900"	-80.0	17.5			16.80	-	16.80
6	"A1900"	80.0	17.5			16.80	-	16.80
7	"A1900"	115.0	17.5			16.80	-	16.80
8	"A1900"	150.0	17.5			16.80	-	16.80
9	"A1900"	185.0	17.5			16.80	-	16.80
10	"A1900"	239.0	17.5			26.60	-	26.60
11	"AEH500"	-255.0	5.0	255.0	5.0	206.17	-	206.17
12	"AEH500"	-255.0	30.0	255.0	30.0	206.17	-	206.17

CuantÀa arm. 3.26 [o/o] Suma 599.93

Deformaciones y tensiones extremas (Rotura):

1	Coordenadas y [m]	z [m]	Eps [o/oo]	Estado-II [t/m2]	
HormigÂn-Min	-2.630	0.350	-3.146	-2550.000	"H450"
Armadura-Min	-2.550	0.300	-0.955	-20058.5	"AEH500"
HormigÂn-Max	2.630	0.000	12.191	0.000	"H450"
Armadura-Max	2.550	0.050	10.000	44347.0	"AEH500"

Fibra neutra zn 0.278 m yn -0.000 m Angulo 0.0
Ancho zona comprim. 0.072 m Zona comprimida/Canto Ètil 0.35

ComprobaciÂn de las tensiones en el estado II: Viga "LOSA"/"B1"

Esfuerzos (E.L.S.) Unidades : [tm]

N	Vy	Vz	Mx	My	Mz
2434.500				253.320	

Deformaciones y tensiones extremas:

3	Coordenadas y [m]	z [m]	Eps [o/oo]	Estado-II [t/m2]	Estado-I [t/m2]	
HormigÂn-Min	-2.630	0.350	-1.694	-1831.210	-2389.101	"H450"
Armadura-Min	-2.550	0.300	-1.072	-22507.6		"AEH500"
HormigÂn-Max	2.630	0.000	2.661	0.000	2328.588	"H450"
Armadura-Max	2.550	0.050	2.039	42810.6		"AEH500"

Fibra neutra zn 0.214 m yn -0.000 m Angulo 0.0
Ancho zona comprim. 0.136 m Zona comprimida/Canto Ètil 0.66

Esfuerzos		Rigideces secantes:		Deformaciones:	
N =	2434.500 [t]	EAx=	--1-- [t]	4.834041E-04	
My=	253.320 [tm]	EIy=	--1-- [tm2]	1.244156E-02	[1/m]
Mz=	0.000 [tm]	*EIz=	--1-- [tm2]	-8.220530E-15	[1/m]

Aviso: --1-- SecciÂn pretensada !

Deformaciones y tensiones en vertices de la secciÂn:

Coordenadas y [m]	z [m]	Eps [o/oo]	Est. I [t/m2]	Est. II [t/m2]	Dist.Fuerz.Compr. [t]	[m]
2.630	0.000	2.661	2328.6	0.0	-655.690	0.130
2.630	0.350	-1.694	-2389.1	-1831.2		
-2.630	0.350	-1.694	-2389.1	-1831.2		
-2.630	0.000	2.661	2328.6	0.0		

Deformaciones y tensiones de la armadura pasiva (Estado II):

NÏ	Coordenadas y [m]	z [m]	Eps [o/oo]	Sigma-s [t/m2]
11	-2.550	0.050	2.039	42810.585
	2.550	0.050	2.039	42810.585
12	-2.550	0.300	-1.072	-22507.615
	2.550	0.300	-1.072	-22507.615

Suma fuerzas de pretensado iniciales (usado en c lculo estado I)
Np= -2490.202 [t] Myp= 0.000 [tm] Mzp= 4.83124E-15 [tm]

Deformaciones y tensiones de armadura de pretensado:

NÏ	Coordenadas y [m]	z [m]	Eps-0 [o/oo]	D-Eps [o/oo]	Eps-tot [o/oo]	D-Sigma-p [t/m2]	Sigma-p [t/m2]
1	-2.390	0.175	6.637	0.483	7.120	9668.081	142408.1
2	-1.850	0.175	6.637	0.483	7.120	9668.081	142408.1
3	-1.500	0.175	6.637	0.483	7.120	9668.081	142408.1
4	-1.150	0.175	6.637	0.483	7.120	9668.081	142408.1
5	-0.800	0.175	6.637	0.483	7.120	9668.081	142408.1
6	0.800	0.175	6.637	0.483	7.120	9668.081	142408.1
7	1.150	0.175	6.637	0.483	7.120	9668.081	142408.1
8	1.500	0.175	6.637	0.483	7.120	9668.081	142408.1
9	1.850	0.175	6.637	0.483	7.120	9668.081	142408.1
10	2.390	0.175	6.637	0.483	7.120	9668.081	142408.1

Par metros globales de c lculo :

Norma	EH-1991	
InclinaciÂn est ndar bielas comprimidas hormigÂn	45.00	[Grados]
Coeficiente de fluencia phi	2.70	
Factor minoraciÂn de la resistencia de la secciÂn	1.00	
Def. m xima en compresiÂn centrada del hormigÂn	-2.00	[o/oo]
DeformaciÂn m xima en flexiÂn en vigas	-3.50	[o/oo]
Def. m xima en tracciÂn del acero en vigas	10.00	[o/oo]
Modo de an lisis / InclinaciÂn del eje neutro	flexiÂn esviada	
CuantÀa mÀnima de armadura long. para pilas	0.40	[o/o]
CuantÀa m xima de armadura long.	8.00	[o/o]
Modo de pretensado	adherente	

NO se usaron coef. de homogeneizaciÂn para calcular las caract. mec nicas

Modelo para dimensionamiento a cortante:

Usar un canto Ètil constante en los c lculos a cortante
C lculo separado para la arm. longitudinal adicional debida a cortante

C lculo Resistencia Ultima: Viga "LOSA"/"B1"

SolicitaciÂn Unidades : [tm]

N	Vy	Vz	Mx	My	Mz
-2434.500				253.320	

Coeficiente de seguridad 1.011

Dimensionamiento : Viga "LOSA"/"B1"

Esfuerzos (Rotura) Unidades : [tm]

N	Vy	Vz	Mx	My	Mz	Alpha
-2434.500				253.320		45.0

La armadura mÀnima entrada es suficiente !
Armadura mÀnima definida con las reas entradas ..
Factor actual de minoraciÂn de la resistencia de la secciÂn 1.01
Factor necesario de minoraciÂn de la resistencia de la secciÂn .. 1.00

Armadura Longitudinal:	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]	dado (As-min)	dimens. [cm2]	As-nuevo [cm2]
1 "A1900"	-239.0	17.5			26.60	-	26.60
2 "A1900"	-185.0	17.5			16.80	-	16.80
3 "A1900"	-150.0	17.5			16.80	-	16.80
4 "A1900"	-115.0	17.5			16.80	-	16.80
5 "A1900"	-80.0	17.5			16.80	-	16.80
6 "A1900"	80.0	17.5			16.80	-	16.80
7 "A1900"	115.0	17.5			16.80	-	16.80
8 "A1900"	150.0	17.5			16.80	-	16.80
9 "A1900"	185.0	17.5			16.80	-	16.80
10 "A1900"	239.0	17.5			26.60	-	26.60
11 "AEH500"	-255.0	5.0	255.0	5.0	206.17	-	206.17
12 "AEH500"	-255.0	30.0	255.0	30.0	206.17	-	206.17
				CuantÀa arm. 3.26 [o/o]		Suma	599.93

Deformaciones y tensiones extremas (Rotura):

1	Coordenadas y [m]	z [m]	Eps [o/oo]	Estado-II [t/m2]	
HormigÂn-Min	2.630	0.350	-3.373	-2550.000	"H450"
Armadura-Min	2.550	0.300	-2.839	-44347.0	"AEH500"
HormigÂn-Max	-2.630	0.000	0.364	0.000	"H450"
Armadura-Max	-2.550	0.050	-0.170	-3562.563	"AEH500"

Fibra neutra zn 0.034 m yn -0.000 m Angulo 0.0
Ancho zona comprim. 0.316 m Zona comprimida/Canto Ètil 1.81

Comprobaci n de las tensiones en el estado II: Viga "LOSA"/"B "

Esfuerzos (E.L.S.) Unidades : [tm]

N	Vy	Vz	Mx	My	Mz
-2434.500				253.320	

Deformaciones y tensiones extremas:

3	Coordenadas y [m]	z [m]	Eps [o/oo]	Estado-II [t/m2]	Estado-I [t/m2]	
Hormig n-Min	-2.630	0.350	-3.960	-2550.000	-5033.859	"H450"
Armadura-Min	-2.550	0.300	-3.366	-44347.0		"AEH500"
Hormig n-Max	2.630	0.000	0.203	0.000	-316.170	"H450"
Armadura-Max	2.550	0.050	-0.392	-8226.652		"AEH500"

Fibra neutra zn 0.017 m yn 0.000 m Angulo 0.0
Ancho zona comprim. 0.333 m Zona comprimida/Canto til 1.90

Esfuerzos :	Rigideces secantes:		Deformaciones:	
N = -2434.500 [t]	EAx=	--1-- [t]	-1.878699E-03	
My= 253.320 [tm]	EIy=	--1-- [tm2]	1.189563E-02	[1/m]
Mz= 0.000 [tm]	*EIz=	--1-- [tm2]	-2.836932E-14	[1/m]

Aviso: --1-- Secci n pretensada !

Deformaciones y tensiones en vertices de la secci n:

Coordenadas y [m]	z [m]	Eps [o/oo]	Est. I [t/m2]	Est. II [t/m2]	Dist.Fuerz.Compr. [t]	[m]
2.630	0.000	0.203	-316.2	0.0	-3135.803	0.051
2.630	0.350	-3.960	-5033.9	-2550.0		
-2.630	0.350	-3.960	-5033.9	-2550.0		
-2.630	0.000	0.203	-316.2	0.0		

Deformaciones y tensiones de la armadura pasiva (Estado II):

N	Coordenadas y [m]	z [m]	Eps [o/oo]	Sigma-s [t/m2]
11	-2.550	0.050	-0.392	-8226.652
	2.550	0.050	-0.392	-8226.652
12	-2.550	0.300	-3.366	-44347.000
	2.550	0.300	-3.366	-44347.000

Suma fuerzas de pretensado iniciales (usado en c lculo estado I)
Np= -2490.202 [t] Myp= 0.000 [tm] Mzp= 4.83124E-15 [tm]

Deformaciones y tensiones de armadura de pretensado:

N	Coordenadas y [m]	z [m]	Eps-0 [o/oo]	D-Eps [o/oo]	Eps-tot [o/oo]	D-Sigma-p [t/m2]	Sigma-p [t/m2]
1	-2.390	0.175	6.637	-1.879	4.758	-37574.0	95166.0
2	-1.850	0.175	6.637	-1.879	4.758	-37574.0	95166.0
3	-1.500	0.175	6.637	-1.879	4.758	-37574.0	95166.0
4	-1.150	0.175	6.637	-1.879	4.758	-37574.0	95166.0
5	-0.800	0.175	6.637	-1.879	4.758	-37574.0	95166.0
6	0.800	0.175	6.637	-1.879	4.758	-37574.0	95166.0
7	1.150	0.175	6.637	-1.879	4.758	-37574.0	95166.0
8	1.500	0.175	6.637	-1.879	4.758	-37574.0	95166.0
9	1.850	0.175	6.637	-1.879	4.758	-37574.0	95166.0
10	2.390	0.175	6.637	-1.879	4.758	-37574.0	95166.0

Par metros globales de c lculo :

Norma	EH-1991	
Inclinaci n est ndar bielas comprimidas hormig n	45.00	[Grados]
Coeficiente de fluencia phi	2.70	
Factor minoraci n de la resistencia de la secci n	1.00	
Def. m xima en compresi n centrada del hormig n	-2.00	[o/oo]
Deformaci n m xima en flexi n en vigas	-3.50	[o/oo]
Def. m xima en tracci n del acero en vigas	10.00	[o/oo]
Modo de an lisis / Inclinaci n del eje neutro	flexi n esviada	
Cuant a m nima de armadura long. para pilas	0.40	[o/o]
Cuant a m xima de armadura long.	8.00	[o/o]
Modo de pretensado	adherente	

NO se usaron coef. de homogeneizaci n para calcular las caract. mec nicas

Modelo para dimensionamiento a cortante:

Usar un canto til constante en los c lculos a cortante
C lculo separado para la arm. longitudinal adicional debida a cortante

MOVIMIENTOS DE APOYOS DEBIDOS A ACORTAMIENTO ELASTICO INSTANTANEO, RETRACCION Y FLUENCIA (EN

Coeficiente de Fluencia φ = 2.74
Coeficiente de Retracción ε = 0.00023900

Acort. Elast. Inst. en Fases 1 a 14 ε = 0.00006825

FASE	PILA													ESTRIBO 2
	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	2.14													
2	0.00	2.13												
3	0.00	0.00	2.13											
4	0.00	0.00	0.00	2.13										
5	0.00	0.00	0.00	0.00	2.13									
6	0.00	0.00	0.00	0.00	0.00	2.13								
7	0.00	0.00	0.00	0.00	0.00	0.00	2.13							
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.13						
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.13					
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.13				
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.13			
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.13		
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.13	
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67
15-Tend cruz.	1.73	3.78	5.81	7.82	9.84	11.86	13.88	15.90	17.92	19.94	21.96	23.98	26.00	27.70
15'-Tend cruz.	1.73	3.78	5.81	7.82	9.84	11.28	12.04	12.13	12.12	12.12	12.12	12.12	12.12	11.80
16-Tend. Inf.	1.48	3.31	5.06	6.74	8.37	9.97	11.10	12.20	13.40	14.70	15.50	16.40	17.30	17.70
16'-Tend Inf	1.48	3.31	5.06	6.74	8.37	9.97	10.27	11.37	10.89	10.10	8.40	9.30	10.20	9.35
Fluencia	14.78	32.89	50.73	68.32	85.80	103.20	119.31	135.34	151.64	168.22	183.43	198.91	214.39	226.13
Retracción	7.65	17.21	26.77	36.33	45.89	55.45	65.01	74.57	84.13	93.69	103.25	112.81	122.37	130.02
Desp. Total	27.78	59.32	90.50	121.34	152.03	182.03	208.76	235.54	260.90	286.25	309.33	335.27	361.21	378.96

Las Fases 15-Tend cruz y 16-Tend Inf corresponden al caso en que todos los tendones de las familias 5 a 11 se tesasen una vez hormigonado todo el tablero, y se utilizan para deducir los movimientos debidos a la fluencia, mientras las Fases 15'-Tend cruz y 16'-Tend Inf corresponden al proceso real de tesado.

MOVIMIENTOS DE APOYOS DEBIDOS A ACCIONES REOLOGICAS (ACORTAMIENTO ELASTICO INSTANTANEO, RETRACCION Y FLUENCIA) Y VARIACION DE TEMPERATURA (EN MM)

Temperatura Media y Variación de Temperatura en función de la Estación en que se coloca el Apoyo

Estación	Temperatura Media	Incremento deTemperatura	Descenso de Temperatura
Primavera	15	25	-25
Verano	25	15	-35
Otoño	15	25	-25
Invierno	5	35	-15

Movimientos de los Apoyos debidos a Variación Temperatura en función de la Estación en que se colocan (+ Alargamiento del Tablero ; - Acortamiento del Tablero)

Estacion	PILA													ESTRIBO 2
	1	2	3	4	5	6	7	8	9	10	11	12	13	
Primavera	8	18	28	38	48	58	68	78	88	98	108	118	128	136
	-8	-18	-28	-38	-48	-58	-68	-78	-88	-98	-108	-118	-128	-136
Verano	5	11	17	23	29	35	41	47	53	59	65	71	77	82
	-11	-25	-39	-53	-67	-81	-95	-109	-123	-137	-151	-165	-179	-190
Otoño	8	18	28	38	48	58	68	78	88	98	108	118	128	136
	-8	-18	-28	-38	-48	-58	-68	-78	-88	-98	-108	-118	-128	-136
Invierno	11	25	39	53	67	81	95	109	123	137	151	165	179	190
	-5	-11	-17	-23	-29	-35	-41	-47	-53	-59	-65	-71	-77	-82

Movimientos de los Apoyos debidos a Acciones Reológicas (+ Alargamiento del Tablero; - Acortamiento del Tablero)

Estación	PILA													ESTRIBO 2
	1	2	3	4	5	6	7	8	9	10	11	12	13	
Cualquiera	-28	-59	-90	-121	-152	-182	-209	-236	-261	-286	-309	-335	-361	-379

Máximos Movimientos de los Apoyos debidos a Acciones Reológicas y Variación de Temperatura (+ Alargamiento del Tablero; - Acortamiento del Tablero)

Estacion	PILA													ESTRIBO 2
	1	2	3	4	5	6	7	8	9	10	11	12	13	
Primavera	8	18	28	38	48	58	68	78	88	98	108	118	128	136
	-36	-77	-118	-159	-200	-240	-277	-314	-349	-384	-417	-453	-489	-515
Verano	5	11	17	23	29	35	41	47	53	59	65	71	77	82
	-39	-85	-130	-175	-219	-263	-304	-345	-384	-423	-461	-500	-540	-569
Otoño	8	18	28	38	48	58	68	78	88	98	108	118	128	136
	-36	-77	-118	-159	-200	-240	-277	-314	-349	-384	-417	-453	-489	-515
Invierno	11	25	39	53	67	81	95	109	123	137	151	165	179	190
	-33	-70	-107	-144	-181	-217	-250	-282	-314	-345	-374	-406	-438	-461

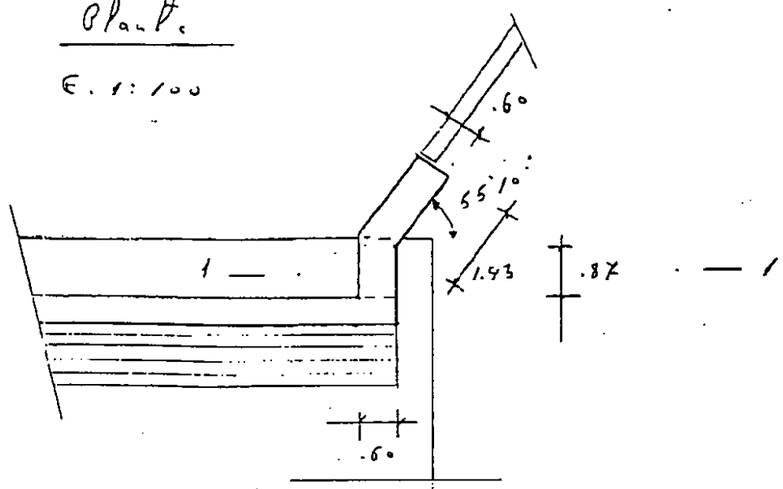
VIADUCTO N.º 2

ESTRIBO 2

ALETA DE UNION DE ESTRIBO 2 Y MURO PREFABRICADO

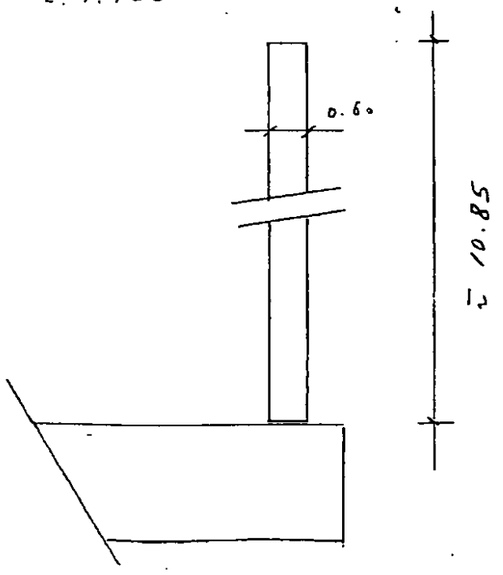
Planta

E. 1:100



Sección 1-1

E. 1:100



Se estudia la aleta como empotrada verticalmente en el extremo del muro lateral del estribo y libre en su apoyo en la zapata del estribo.

Teniendo en cuenta las características del relleno del trasdós, nos ponemos muy del lado de la seguridad considerando el empuje al reposo de un terreno con ángulo de rozamiento $\varphi = 35°$

$C_0 = 1 - \operatorname{sen}\varphi = 0'43$

$\gamma = 2'00 \ t/m^3$

Momento próximo = 10'85 m. de profundidad.

$e_h = (10'85 \cdot 2'0 + 3'0) \cdot 0'43 = 10'62 \ t/m.$

$M = 10'62 \cdot (0'87 + 1'43)^2 \cdot \frac{1}{2} = 28'09 \ m.t.$

$M_d = 28'09 \cdot 1'5 = 42'14$

$$V = 100 \cdot 55 \cdot \frac{25}{1'5} \cdot 10^{-3} = 917 \quad ; \quad \frac{Md}{V \cdot d} = 0'09$$

$$U = 0'97 \cdot \frac{42'14}{0'55} \cdot 1'09 = 81'01 \ t.$$

$$A_s = \frac{81'01}{5'434} = 18'27 \ cm^2.$$

Comprobación a cortante:

Longitud en la dirección inicial de mm.:

$$l = 0'87 + 1'43 \cdot \text{en } 55\% = 2'04.$$

Se comprueba el cortante a una distancia del empotramiento de un canto útil.

$$l_1 = 2'04 - 0'55 = 1'49.$$

$$V = 10'82 \cdot 1'49 = 15'82 \ ;$$

$$Vd = 15'82 \cdot 1'5 = 23'74$$

$$V_{u2} = \left[0'12 \cdot \xi \cdot (100 \cdot \rho_1 \cdot f_{ck})^{1/3} \right] \cdot b_o \cdot d.$$

$$\xi = 1 + \sqrt{\frac{200}{550}} = 1'60$$

$$\rho_1 = \frac{3'14 \cdot 10}{100 \cdot 55} = 0'0057.$$

$$f_{ck} = 25 \ N/mm^2$$

$$b_o = 1000 \ mm$$

$$d = 550 \ mm.$$

$$V_{u2} = 0'12 \cdot 1'60 \cdot (100 \cdot 0'0057 \cdot 25)^{1/3} \cdot 1000 \cdot 550 \cdot 10^{-4} =$$

$$= 25'60 \ t > Vd.$$

Vale.

Armado de la segunda parte del muro.

$L = 1'43$ m.

$M = 10'62 - \frac{1'43^2}{2} = 10'86$;

$Md = 10'86 \cdot 1'5 = 16'29$

$V = 9'7$; $\frac{Md}{V \cdot d} = 0'03$

$U = 0'7 \cdot \frac{16'29}{0'55} \cdot 1'03 = 29'59$ t.

$\alpha = 1'1$; $U = 1'1 \cdot 29'59 = 32'55$ t $\equiv$

$\equiv 7'34$ cm^2

ALETA DE UNION DE ESTRIB. 2 Y MURO PREFABRICADO

ARMADO

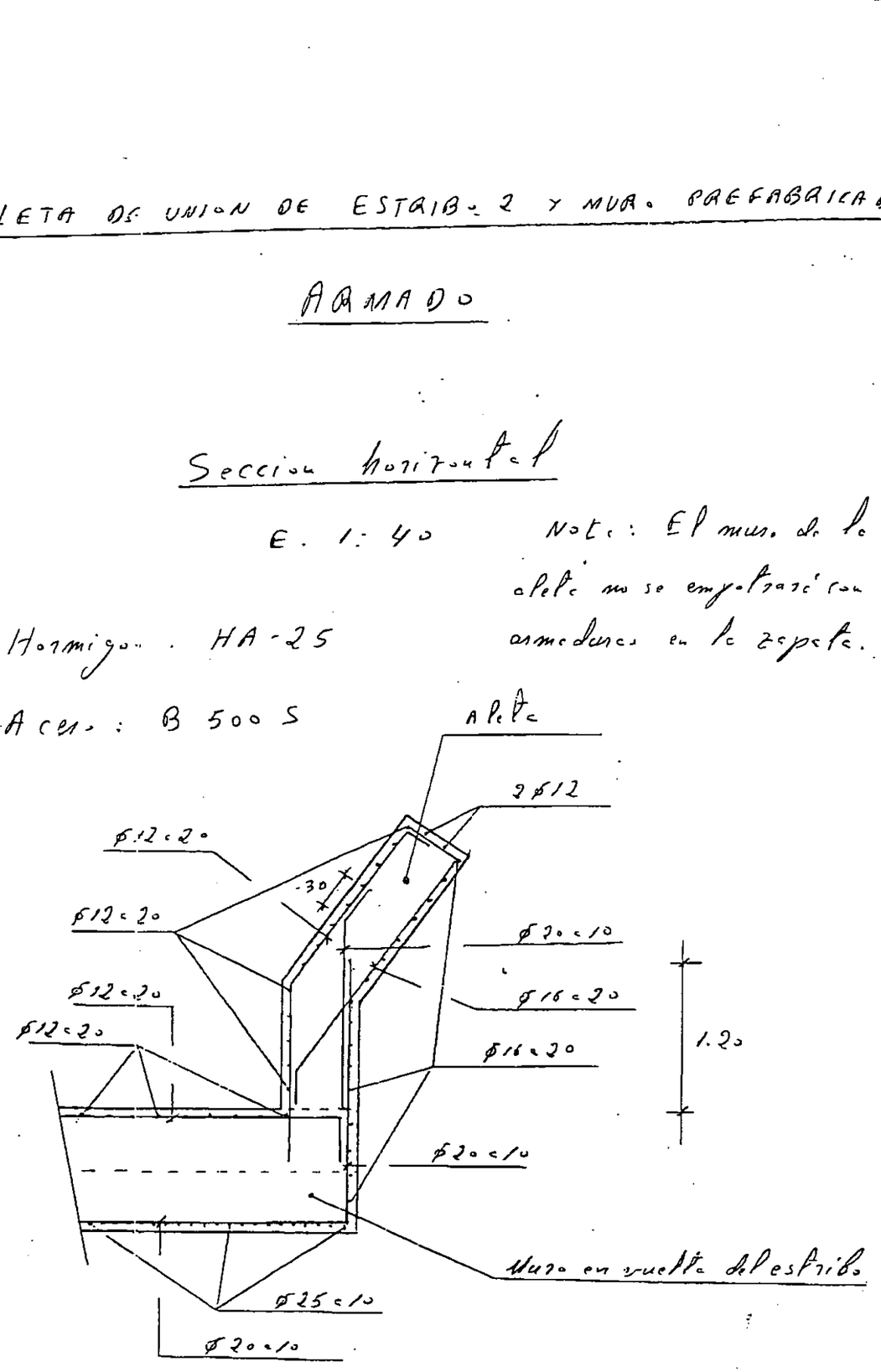
Seccion horizontal

E. 1:40

Nota: El muro de la aleta no se empalmará con armaduras en la zapata.

Hormigon. HA-25

Acero: B 500 S



7. APARATOS DE APOYO

APARATOS DE APOYO

Los aparatos de apoyo corresponden a aparatos de neopreno-teflón guiados o libres, por lo que sólo deben comprobarse las tensiones verticales transmitidas a los mismos.

A continuación se incluye esta comprobación.

En el apartado "RESULTADO DE LOS CÁLCULOS" se presentan, además, listados de desplazamientos longitudinales, esfuerzos de servicio y cargas verticales en apoyos.

Para transformar esfuerzos en pilas en cargas verticales en cada apoyo, se ha seguido un criterio de reparto rígido.

```
Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
                con STATIK2 (V. 3.1)

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COMPROBACION NEOPRENOS


LEYENDA     !: reacción negativa
            +: tensión en el apoyo superior a 150 kg/cm2
            *: tensión en el apoyo inferior a 50 kg/cm2
           **: (solo neop) desplazamiento no admisible (?/h>0.7)

-------------------------------------------------------------------------
apoyo     nº neop        ?max        ?min        ?/h_neta
                       [kp/cm2]    [kp/cm2]
-------------------------------------------------------------------------
 E-1         1          -25.87 *   -157.77 +       -----
             2          -32.20 *   -145.16

 P-1         1          -55.26     -129.87         -----
             2          -54.85     -124.51

 P-2         1          -83.02     -153.78 +       -----
             2          -79.95     -151.72 +

 P-3         1          -78.81     -150.72 +       -----
             2          -75.43     -150.21 +

 P-4         1          -77.53     -150.74 +       -----
             2          -74.82     -150.52 +

 P-5         1          -77.78     -150.72 +       -----
             2          -74.16     -151.36 +

 P-6         1          -77.43     -150.96 +       -----
             2          -73.83     -151.71 +

 P-7         1          -77.61     -150.80 +       -----
             2          -73.83     -151.62 +

 P-8         1          -77.50     -151.14 +       -----
             2          -74.79     -150.87 +

 P-9         1          -77.43     -150.69 +       -----
             2          -74.82     -150.43 +

 P-10        1          -77.70     -151.33 +       -----
             2          -75.45     -150.29 +

 P-11        1          -76.32     -149.68         -----
             2          -73.75     -149.32

 P-12        1          -82.69     -154.78 +       -----
             2          -80.71     -153.53 +

 P-13        1          -60.34     -132.51         -----
             2          -58.22     -129.37

 E-2         1          -35.69 *   -139.39         -----
             2          -40.29 *   -130.37
```

30	0	-0.068561	-0.738124	-2.528	-13.548	-10.819	-9.426
30	2.001	-0.068561	-0.738124	-2.528	-13.548	-15.877	-10.902
30	4.001	-0.068561	-0.738124	-2.528	-13.548	-20.935	-12.379

Línea de Alta Velocidad Madrid-Zaragoza. Tramo IV.

Dimensionamiento de chapas de teflón en apoyos

Def. reológicas = 740
Temperatura = 195

Apoyo	dist al punto fijo	Apoyo	WS	L1	L2
E-1	0	PU-800	824	412	412
P-1	32	PU-1400	1090	553	582
P-2	72	PU-1400	1090	563	629
P-3	112	PU-1400	1090	572	676
P-4	152	PU-1400	1090	582	723
P-5	192	PU-1400	1090	592	769
P-6	232	PU-1400	1090	602	816
P-7	272	PU-1400	1090	611	863
P-8	312	PU-1400	1090	621	910
P-9	352	PU-1400	1090	631	956
P-10	392	PU-1400	1090	641	1003
P-11	432	PU-1400	1090	650	1050
P-12	472	PU-1400	1090	660	1097
P-13	512	PU-1400	1090	670	1143
E-2	544	PU-800	824	545	1048

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

ESFUERZOS STATIK2 ESTADO LIMITE DE SERVICIO

apoyo	sec	env	Nk [t]	Myk [mt]	Mzk [mt]
1	1	Mz min	-1013.05	-0.04	-1372.82
	1	Mz max	-912.03	0.04	1304.15
1	1	N min	-1209.40	-0.04	-10.98
	1	N max	-682.55	0.04	0.19
2	1	Mz min	-1607.80	0.00	-909.96
	1	Mz max	-1842.26	0.00	861.02
2	1	N min	-2373.68	0.00	-97.63
	1	N max	-1027.45	0.00	-7.52
3	1	Mz min	-2156.31	0.00	-1217.06
	1	Mz max	-2241.97	0.00	1149.52
3	1	N min	-2829.12	0.00	-79.66
	1	N max	-1520.76	0.00	-55.85
4	1	Mz min	-2077.20	0.00	-1266.44
	1	Mz max	-2187.08	0.00	1201.62
4	1	N min	-2776.68	0.00	-70.50
	1	N max	-1439.32	0.00	-61.58
5	1	Mz min	-2065.12	0.00	-1304.15
	1	Mz max	-2174.53	0.00	1237.30
5	1	N min	-2769.65	0.00	-84.87
	1	N max	-1421.76	0.00	-49.06
6	1	Mz min	-2066.92	0.00	-1331.60
	1	Mz max	-2176.63	0.00	1264.04
6	1	N min	-2771.59	0.00	-80.33
	1	N max	-1423.76	0.00	-54.37
7	1	Mz min	-2066.54	0.00	1342.78
	1	Mz max	-2176.16	0.00	1277.56
7	1	N min	-2771.53	0.00	-89.41
	1	N max	-1422.97	0.00	-43.05
8	1	Mz min	-2066.18	0.00	-1342.36
	1	Mz max	-2175.83	0.00	1275.03
8	1	N min	-2771.62	0.00	-83.44
	1	N max	-1422.16	0.00	-51.07
9	1	Mz min	-2068.41	0.00	-1311.67
	1	Mz max	-2177.99	0.00	1243.34
9	1	N min	-2774.17	0.00	-90.77
	1	N max	-1423.97	0.00	-43.51
10	1	Mz min	-2072.28	0.00	-1313.29
	1	Mz max	-2166.59	0.00	1249.63
10	1	N min	-2769.98	0.00	-82.50
	1	N max	-1420.69	0.00	-47.47
11	1	Mz min	-2081.00	0.00	-1299.84
	1	Mz max	-2172.86	0.00	1232.11
11	1	N min	-2776.60	0.00	-92.84
	1	N max	-1429.06	0.00	-40.96
12	1	Mz min	-2048.46	0.00	-1306.48
	1	Mz max	-2149.75	0.00	1241.91
12	1	N min	-2749.46	0.00	-85.66
	1	N max	-1400.40	0.00	-46.83
13	1	Mz min	-2173.30	0.00	-1286.83
	1	Mz max	-2238.18	0.00	1222.96
13	1	N min	-2838.86	0.00	-97.09
	1	N max	-1524.73	0.00	-35.86
14	1	Mz min	-1682.02	0.00	-1043.81
	1	Mz max	-1906.91	0.00	989.70
14	1	N min	-2437.53	0.00	-68.99
	1	N max	-1106.41	0.00	-38.58
15	1	Mz min	-958.20	0.00	-1083.35
	1	Mz max	-885.56	0.00	1035.08
15	1	N min	1161.66	0.00	58.67
	1	N max	-649.58	0.00	-37.98

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CARGAS EN NEOPRENOS

apoyo	env	nº neop	Nk (t)
E-1	Mz min	1	-841.36
	Mz min	2	-171.69
	Mz max	1	-137.93
	Mz max	2	-774.10
E-1	N min	1	-607.38
	N min	2	-602.02
	N max	1	-341.23
	N max	2	-341.32
P-1	Mz min	1	-1037.22
	Mz min	2	-570.58
	Mz max	1	-700.36
	Mz max	2	-1141.90
P-1	N min	1	-1211.88
	N min	2	-1161.81
	N max	1	-515.65
	N max	2	-511.80
P-2	Mz min	1	-1390.22
	Mz min	2	-766.09
	Mz max	1	-826.24
	Mz max	2	-1415.73
P-2	N min	1	-1434.98
	N min	2	-1394.13
	N max	1	-774.70
	N max	2	-746.06
P-3	Mz min	1	-1363.33
	Mz min	2	-713.87
	Mz max	1	-785.43
	Mz max	2	-1401.65
P-3	N min	1	-1406.42
	N min	2	-1370.26
	N max	1	-735.45
	N max	2	-703.87
P-4	Mz min	1	-1366.96
	Mz min	2	-698.16
	Mz max	1	-770.01
	Mz max	2	-1404.52
P-4	N min	1	-1406.59
	N min	2	-1363.06
	N max	1	-723.46
	N max	2	-698.30
P-5	Mz min	1	-1374.90
	Mz min	2	-692.03
	Mz max	1	-764.20
	Mz max	2	-1412.43
P-5	N min	1	-1406.39
	N min	2	-1365.20
	N max	1	-725.82
	N max	2	-697.94
P-6	Mz min	1	-1377.57
	Mz min	2	-688.97
	Mz max	1	-760.50
	Mz max	2	-1415.66
P-6	N min	1	-1408.69
	N min	2	-1362.84
	N max	1	-722.53
	N max	2	-700.45
P-7	Mz min	1	-1377.29
	Mz min	2	-688.90
	Mz max	1	-760.99
	Mz max	2	-1414.85
P-7	N min	1	-1407.20
	N min	2	-1364.41
	N max	1	-724.17
	N max	2	-697.99
P-8	Mz min	1	-1370.53
	Mz min	2	-697.88
	Mz max	1	-770.19
	Mz max	2	-1407.80
P-8	N min	1	-1410.36
	N min	2	-1363.81
	N max	1	-723.14
	N max	2	-700.83
P-9	Mz min	1	-1372.88
	Mz min	2	-699.40
	Mz max	1	-762.88
	Mz max	2	-1403.71
P-9	N min	1	-1406.14
	N min	2	-1363.83
	N max	1	-722.52
	N max	2	-698.17
P-10	Mz min	1	-1373.79
	Mz min	2	-707.21
	Mz max	1	-770.51
	Mz max	2	-1402.36
P-10	N min	1	-1412.11
	N min	2	-1364.49
	N max	1	-725.03
	N max	2	-704.03

P-11	Mz min	1	-1359.22
	Mz min	2	-689.23
	Mz max	1	-756.44
	Mz max	2	-1393.31
P-11	N min	1	-1396.70
	N min	2	-1352.77
	N max	1	-712.21
	N max	2	-688.19
P-12	Mz min	1	-1416.60
	Mz min	2	-756.69
	Mz max	1	-805.51
	Mz max	2	-1432.67
P-12	N min	1	-1444.32
	N min	2	-1394.53
	N max	1	-771.56
	N max	2	-753.17
P-13	Mz min	1	-1108.65
	Mz min	2	-573.37
	Mz max	1	-699.69
	Mz max	2	-1207.23
P-13	N min	1	-1236.46
	N min	2	-1201.08
	N max	1	-563.10
	N max	2	-543.31
E-2	Mz min	1	-743.33
	Mz min	2	-214.87
	Mz max	1	-190.32
	Mz max	2	-695.24
E-2	N min	1	-566.52
	N min	2	-595.14
	N max	1	-334.05
	N max	2	-315.52

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DESPLAZAMIENTOS HORIZONTALES

apoyo	dir	pret. [cm]	reol. [cm]	temp. [cm]	frenado [cm]	total [cm]
E-1	long	-0.000	-0.000	0.000	0.001	0.001
	trans	-0.000	-0.000	0.000	0.000	0.000
P-1	long	-0.632	-2.368	0.480	0.057	3.538
	trans	-0.011	-0.004	0.001	0.015	0.031
P-2	long	-1.470	-5.328	1.080	0.123	8.001
	trans	-0.021	-0.004	0.001	0.030	0.056
P-3	long	-2.255	-8.288	1.680	0.183	12.406
	trans	-0.026	-0.004	0.001	0.037	0.067
P-4	long	-3.026	-11.248	2.280	0.238	16.792
	trans	-0.029	-0.007	0.001	0.039	0.077
P-5	long	-3.797	-14.208	2.880	0.288	21.173
	trans	-0.031	-0.009	0.002	0.038	0.080
P-6	long	-4.568	-17.168	3.480	0.332	25.548
	trans	-0.031	-0.011	0.002	0.034	0.079
P-7	long	-5.338	-20.128	4.080	0.371	29.918
	trans	-0.031	-0.014	0.003	0.029	0.077
P-8	long	-6.109	-23.088	4.680	0.405	34.283
	trans	-0.030	-0.013	0.003	0.023	0.069
P-9	long	-6.880	-26.048	5.280	0.434	38.642
	trans	-0.029	-0.015	0.003	0.018	0.064
P-10	long	-7.651	-29.008	5.880	0.457	42.996
	trans	-0.027	-0.022	0.004	0.013	0.065
P-11	long	-8.421	-31.968	6.480	0.474	47.343
	trans	-0.019	-0.018	0.004	0.006	0.048
P-12	long	-9.194	-34.928	7.080	0.487	51.688
	trans	-0.013	-0.022	0.005	0.002	0.042
P-13	long	-9.934	-37.888	7.680	0.494	55.995
	trans	-0.010	-0.027	0.005	0.001	0.043
E-2	long	-10.485	-40.256	8.160	0.495	59.396
	trans	-0.000	-0.000	0.000	0.000	0.000

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COMPROBACION NEOPRENOS

LEYENDA
!: reacción negativa
+: tensión en el apoyo superior a 150 kg/cm2
*: tensión en el apoyo inferior a 50 kg/cm2
**: (solo neop) desplazamiento no admisible (ϕ/h>0.7)

apoyo	nº neop	σmax [kp/cm2]	σmin [kp/cm2]	ϕ/h_neta
E-1	1	-25.87 *	-157.77 +	-----
	2	-32.20 *	-145.16	
P-1	1	-55.26	-129.87	-----
	2	-54.85	-124.51	
P-2	1	-83.02	-153.78 +	-----
	2	-79.95	-151.72 +	
P-3	1	-78.81	-150.72 +	-----
	2	-75.43	-150.21 +	
P-4	1	-77.53	-150.74 +	-----

	2	-74.82	-150.52 +	
P-5	1	-77.78	-150.72 +	-----
	2	-74.16	-151.36 +	
P-6	1	-77.43	-150.96 +	-----
	2	-73.83	-151.71 +	
P-7	1	-77.61	-150.80 +	-----
	2	-73.83	-151.62 +	
P-8	1	-77.50	-151.14 +	-----
	2	-74.79	-150.87 +	
P-9	1	-77.43	-150.69 +	-----
	2	-74.82	-150.43 +	
P-10	1	-77.70	-151.33 +	-----
	2	-75.45	-150.29 +	
P-11	1	-76.32	-149.68	-----
	2	-73.75	-149.32	
P-12	1	-82.69	-154.78 +	-----
	2	-80.71	-153.53 +	
P-13	1	-60.34	-132.51	-----
	2	-58.22	-129.37	
E-2	1	-35.69 *	-139.39	-----
	2	-40.29 *	-130.37	

8. PILAS.

8. PILAS

ÍNDICE

- CIMENTACIÓN DE PILAS VIADUCTO 2
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  2. DESCRIPCIÓN DE LA SOLUCIÓN ADOPTADA
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     - CÁLCULO DE CARGAS VERTICALES EN PILOTES
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     - ARMADURA ENCEPADOS

8 PILAS

Para el dimensionamiento de las pilas se han tenido en cuenta los efectos de segundo orden en ambas direcciones aplicando el método de la excentricidad adicional propuesto por la Instrucción EH-91. A estos efectos se han considerado las pilas como ménsulas (alfa=2).

El cálculo de la armadura se ha llevado a cabo mediante un dimensionamiento a flexión compuesta esviada.

Se han considerado 6 envolventes de esfuerzos:

- Axil máximo
- Axil mínimo
- Momento máximo My
- Momento mínimo (en valor algebráico) My
- Momento máximo Mz
- Momento mínimo (en valor algebráico) Mz

En cada envolvente el esfuerzo principal va acompañado de los valores concomitantes de los demás esfuerzos.

Para el cálculo de las pilas, se ha considerado la fuerza de rozamiento transmitida por el teflón. Esta fuerza horizontal se ha determinado multiplicando en cada hipótesis el axil en cabeza de pila por un coeficiente de rozamiento del 5%.

En el apartado "RESULTADO DEL CÁLCULO" se incluyen los resultados del dimensionamiento.

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ESFUERZOS STATIK2 ESTADO LIMITE ULTIMO: 1. TENSIONES NORMALES

LEYENDA *: el teflón no desliza

pila	sec	env	Nd [t]	Myd [mt]	Mzd [mt]	Myd_tef [mt]	Mzd_tef [mt]
1	1	My min	-2019.89	-0.00	-22.54	0.00	0.00
	1	My max	-2019.89	0.00	-22.54	0.00	0.00
	2	My min	-2221.60	-78.29	-23.45	908.95	0.00
	2	My max	-2221.60	78.29	-23.45	908.95	0.00
	3	My min	-2423.32	-313.16	-24.35	1817.90	0.00
	3	My max	-2423.32	313.16	-24.35	1817.90	0.00
1	1	Mz min	-1692.52	0.00	-1350.20	0.00	0.00
	1	Mz max	-2734.91	0.00	1299.51	0.00	0.00
	2	Mz min	-1581.03	-35.23	-1439.12	761.63	0.00
	2	Mz max	-2623.09	35.23	1382.43	1230.71	0.00
	3	Mz min	-1623.89	-140.92	-1863.82	1523.27	0.00
	3	Mz max	-2738.60	140.92	1800.37	2461.41	0.00
1	1	N min	-3532.04	0.00	-138.47	0.00	0.00
	1	N max	-704.15	-0.00	-74.54	0.00	0.00
	2	N min	-3733.75	0.00	21.32	1589.42	0.00
	2	N max	-813.08	-35.23	58.36	316.87	0.00
	3	N min	-3935.47	0.00	181.10	3178.84	0.00
	3	N max	-922.00	-140.92	227.43	633.74	0.00
2	1	My min	-2454.20	-0.00	-29.70	0.00	0.00
	1	My max	-2454.20	0.00	-29.70	0.00	0.00
	2	My min	-2716.66	-132.55	-27.04	1472.52	0.00
	2	My max	-2716.66	132.55	-27.04	1472.52	0.00
	3	My min	-2979.12	-530.19	-24.37	2945.04	0.00
	3	My max	-2979.12	530.19	-24.37	2945.04	0.00
2	1	Mz min	-2236.96	0.00	-1806.05	0.00	0.00
	1	Mz max	-3187.64	0.00	1734.94	0.00	0.00
	2	Mz min	-2173.41	-59.65	-1794.60	1342.18	0.00
	2	Mz max	-3099.34	59.65	1730.02	1912.58	0.00
	3	Mz min	-2249.77	-238.58	-2102.84	2684.35	0.00
	3	Mz max	-3270.22	238.58	2043.82	3825.17	0.00
2	1	N min	-4068.36	0.00	-108.83	0.00	0.00
	1	N max	-1165.03	-0.00	-82.64	0.00	0.00
	2	N min	-4330.82	0.00	-228.97	2441.02	0.00
	2	N max	-1306.76	-59.65	294.80	699.02	0.00
	3	N min	-4593.28	0.00	-349.11	4882.03	0.00
	3	N max	-1448.48	-238.58	733.47	1398.03	0.00
3	1	My min	-2395.90	-0.00	-28.36	0.00	0.00
	1	My max	-2395.90	0.00	-28.36	0.00	0.00
	2	My min	-2668.48	-142.98	-29.62	1497.44	0.00
	2	My max	-2668.48	142.98	-29.62	1497.44	0.00
	3	My min	-2941.07	-571.88	-30.87	2994.87	0.00
	3	My max	-2941.07	571.88	-30.87	2994.87	0.00
3	1	Mz min	-2154.06	0.00	-1881.05	0.00	0.00
	1	Mz max	-3123.32	0.00	1812.57	0.00	0.00
	2	Mz min	-2093.72	-64.34	-2114.87	1346.29	0.00
	2	Mz max	-3051.15	64.34	2043.91	1952.08	0.00
	3	Mz min	-2175.71	-257.35	-2682.56	2692.57	0.00
	3	Mz max	-3231.30	257.35	2608.07	3904.15	0.00
3	1	N min	-4007.72	0.00	-95.63	0.00	0.00
	1	N max	-1081.29	0.00	-83.28	0.00	0.00
	2	N min	-4280.30	0.00	-246.10	2504.82	0.00
	2	N max	-1228.48	64.34	257.16	675.81	0.00
	3	N min	-4552.89	0.00	-396.57	5009.65	0.00
	3	N max	-1375.68	257.35	663.65	1351.61	0.00
4	1	My min	-2381.27	-0.00	-29.12	0.00	0.00
	1	My max	-2381.27	0.00	-29.12	0.00	0.00
	2	My min	-2663.97	-153.79	-29.80	1547.82	0.00
	2	My max	-2663.97	153.79	-29.80	1547.82	0.00
	3	My min	-2946.68	-615.15	-30.47	3095.64	0.00
	3	My max	-2946.68	615.15	-30.47	3095.64	0.00
4	1	Mz min	-2145.85	0.00	-1937.10	0.00	0.00
	1	Mz max	-3110.05	0.00	1866.37	0.00	0.00
	2	Mz min	-2091.61	-69.21	-2213.80	1394.80	0.00
	2	Mz max	-3045.26	69.21	2142.49	2021.54	0.00
	3	Mz min	-2179.14	-276.82	-2813.40	2789.61	0.00
	3	Mz max	-3234.59	276.82	2740.41	4043.07	0.00
4	1	N min	-4002.74	0.00	-116.89	0.00	0.00
	1	N max	-1065.51	-0.00	-71.06	0.00	0.00
	2	N min	-4285.45	0.00	-256.23	2601.78	0.00
	2	N max	-1218.18	-69.21	400.04	692.58	0.00
	3	N min	-4568.16	0.00	-395.58	5203.56	0.00
	3	N max	-1370.84	-276.82	942.18	1385.17	0.00

5	1	My min	-2383.78	-0.00	-29.03	0.00	0.00
	1	My max	-2383.78	0.00	-29.03	0.00	0.00
	2	My min	-2676.61	-165.01	-28.61	1609.05	0.00
	2	My max	-2676.61	165.01	-28.61	1609.05	0.00
	3	My min	-2969.45	-660.00	-28.18	3218.10	0.00
	3	My max	-2969.45	660.00	-28.18	3218.10	0.00
5	1	Mz min	-2146.70	0.00	-1978.12	0.00	0.00
	1	Mz max	-3112.07	0.00	1906.68	0.00	0.00
	2	Mz min	-2097.80	-74.25	-2189.82	1449.02	0.00
	2	Mz max	-3056.91	74.25	2121.33	2100.65	0.00
	3	Mz min	-2190.85	-297.00	-2714.09	2898.05	0.00
	3	Mz max	-3255.41	297.00	2647.59	4201.29	0.00
5	1	N min	-4004.52	0.00	-109.87	0.00	0.00
	1	N max	-1066.82	0.00	-65.05	0.00	0.00
	2	N min	-4297.35	0.00	-226.64	2703.05	0.00
	2	N max	-1224.95	74.25	286.10	720.10	0.00
	3	N min	-4590.19	0.00	-343.41	5406.10	0.00
	3	N max	-1383.08	297.00	713.48	1440.20	0.00
6	1	My min	-2383.25	-0.00	-28.28	0.00	0.00
	1	My max	-2383.25	0.00	-28.28	0.00	0.00
	2	My min	-2676.08	-165.01	-28.62	1608.69	0.00
	2	My max	-2676.08	165.01	-28.62	1608.69	0.00
	3	My min	-2968.91	-660.00	-28.96	3217.38	0.00
	3	My max	-2968.91	660.00	-28.96	3217.38	0.00
6	1	Mz min	-2146.55	0.00	-1995.24	0.00	0.00
	1	Mz max	-3111.65	0.00	1926.84	0.00	0.00
	2	Mz min	-2097.68	-74.25	-2190.55	1448.92	0.00
	2	Mz max	-3056.35	74.25	2121.46	2100.36	0.00
	3	Mz min	-2190.73	-297.00	-2687.95	2897.84	0.00
	3	Mz max	-3254.85	297.00	2617.28	4200.73	0.00
6	1	N min	-4004.71	0.00	-123.60	0.00	0.00
	1	N max	-1066.09	0.00	-48.08	0.00	0.00
	2	N min	-4297.54	0.00	-225.42	2703.18	0.00
	2	N max	-1224.22	74.25	385.73	719.61	0.00
	3	N min	-4590.38	0.00	-327.24	5406.36	0.00
	3	N max	-1382.35	297.00	895.75	1439.23	0.00
7	1	My min	-2382.85	-0.00	-29.26	0.00	0.00
	1	My max	-2382.85	0.00	-29.26	0.00	0.00
	2	My min	-2665.56	-153.79	-29.69	1548.85	0.00
	2	My max	-2665.56	153.79	-29.69	1548.85	0.00
	3	My min	-2948.27	-615.15	-30.12	3097.71	0.00
	3	My max	-2948.27	615.15	-30.12	3097.71	0.00
7	1	Mz min	-2146.13	0.00	-1994.21	0.00	0.00
	1	Mz max	-3111.12	0.00	1923.13	0.00	0.00
	2	Mz min	-2091.82	69.21	-2244.12	1394.99	0.00
	2	Mz max	-3046.81	-69.21	2172.78	2022.23	0.00
	3	Mz min	-2179.35	276.82	-2787.03	2789.97	0.00
	3	Mz max	-3236.14	-276.82	2714.37	4044.46	0.00
7	1	N min	-4004.80	0.00	-114.56	0.00	0.00
	1	N max	-1065.11	0.00	-58.90	0.00	0.00
	2	N min	-4287.51	0.00	-202.39	2603.12	0.00
	2	N max	-1217.77	69.21	295.04	692.32	0.00
	3	N min	-4570.22	0.00	-290.21	5206.25	0.00
	3	N max	-1370.44	276.82	720.03	1384.64	0.00
8	1	My min	-2385.31	-0.00	-29.51	0.00	0.00
	1	My max	-2385.31	0.00	-29.51	0.00	0.00
	2	My min	-2657.89	-142.98	-30.39	1490.82	0.00
	2	My max	-2657.89	142.98	-30.39	1490.82	0.00
	3	My min	-2930.48	-571.88	-31.27	2981.64	0.00
	3	My max	-2930.48	571.88	-31.27	2981.64	0.00
8	1	Mz min	-2148.43	0.00	-1948.13	0.00	0.00
	1	Mz max	-3114.16	0.00	1875.55	0.00	0.00
	2	Mz min	-2088.47	-64.34	-2273.11	1342.77	0.00
	2	Mz max	-3040.44	64.34	2200.65	1946.35	0.00
	3	Mz min	-2214.00	-257.35	-2902.09	2685.54	0.00
	3	Mz max	-3264.10	257.35	2828.62	3892.70	0.00
8	1	N min	-4008.44	0.00	-125.61	0.00	0.00
	1	N max	-1066.65	-0.00	-65.47	0.00	0.00
	2	N min	-4281.02	0.00	-202.81	2505.27	0.00
	2	N max	-1213.84	-64.34	375.09	666.65	0.00
	3	N min	-4553.60	0.00	-280.02	5010.55	0.00
	3	N max	-1361.04	-257.35	881.70	1333.31	0.00
9	1	My min	-2381.34	-0.00	-27.86	0.00	0.00
	1	My max	-2381.34	0.00	-27.86	0.00	0.00
	2	My min	-2664.05	-153.79	-27.70	1547.87	0.00
	2	My max	-2664.05	153.79	-27.70	1547.87	0.00
	3	My min	-2946.76	-615.15	-27.54	3095.75	0.00
	3	My max	-2946.76	615.15	-27.54	3095.75	0.00
9	1	Mz min	-2156.16	0.00	-1951.45	0.00	0.00
	1	Mz max	-3097.66	0.00	1884.62	0.00	0.00
	2	Mz min	-2090.08	-69.21	-2040.16	1401.50	0.00
	2	Mz max	-3045.24	69.21	1973.54	2013.48	0.00
	3	Mz min	-2177.66	-276.82	-2433.11	2803.01	0.00
	3	Mz max	-3234.61	276.82	2365.71	4026.96	0.00

9	1	N	min	-4002.75	0.00	-113.57	0.00	0.00
	1	N	max	-1063.81	0.00	-64.65	0.00	0.00
	2	N	min	-4285.46	0.00	-156.65	2601.79	0.00
	2	N	max	-1216.47	69.21	249.35	691.47	0.00
	3	N	min	-4568.17	0.00	-199.72	5203.58	0.00
	3	N	max	-1369.13	276.82	634.40	1382.95	0.00
10	1	My	min	-2388.41	-0.00	-28.93	0.00	0.00
	1	My	max	-2388.41	0.00	-28.93	0.00	0.00
	2	My	min	-2660.99	-142.98	-25.76	1492.75	0.00
	2	My	max	-2660.99	142.98	-25.76	1492.75	0.00
	3	My	min	-2933.58	-571.88	-22.59	2985.51	0.00
	3	My	max	-2933.58	571.88	-22.59	2985.51	0.00
10	1	Mz	min	-2165.05	0.00	-1930.64	0.00	0.00
	1	Mz	max	-3105.06	0.00	1858.65	0.00	0.00
	2	Mz	min	-2093.16	64.34	-1881.92	1353.15	0.00
	2	Mz	max	-3043.33	-64.34	1820.64	1940.66	0.00
	3	Mz	min	-2218.85	257.35	-2131.86	2706.31	0.00
	3	Mz	max	-3267.14	-257.35	2080.33	3881.33	0.00
10	1	N	min	-4010.67	0.00	-128.78	0.00	0.00
	1	N	max	-1071.88	-0.00	-55.88	0.00	0.00
	2	N	min	-4283.26	0.00	-145.53	2506.67	0.00
	2	N	max	-1219.07	-64.34	260.12	669.92	0.00
	3	N	min	-4555.84	0.00	-162.28	5013.34	0.00
	3	N	max	-1366.27	-257.35	642.17	1339.85	0.00
11	1	My	min	-2362.60	-0.00	-28.42	0.00	0.00
	1	My	max	-2362.60	0.00	-28.42	0.00	0.00
	2	My	min	-2584.56	-94.80	-27.20	1181.30	0.00
	2	My	max	-2584.56	94.80	-27.20	1181.30	0.00
	3	My	min	-2806.52	-379.19	-25.99	2362.60	0.00
	3	My	max	-2806.52	379.19	-25.99	2362.60	0.00
11	1	Mz	min	-2131.83	0.00	-1941.05	0.00	0.00
	1	Mz	max	-3078.09	0.00	1873.04	0.00	0.00
	2	Mz	min	-2033.89	-42.66	-1901.48	1065.92	0.00
	2	Mz	max	-2971.32	42.66	1835.63	1539.05	0.00
	3	Mz	min	-2132.33	-170.64	-2130.89	2131.83	0.00
	3	Mz	max	-3149.67	170.64	2066.11	3078.09	0.00
11	1	N	min	-3977.66	0.00	-118.32	0.00	0.00
	1	N	max	-1045.09	-0.00	-59.24	0.00	0.00
	2	N	min	-4199.63	0.00	-127.77	1988.63	0.00
	2	N	max	-1164.95	-42.66	193.14	522.54	0.00
	3	N	min	-4421.59	0.00	-137.21	3977.66	0.00
	3	N	max	-1284.81	-170.64	489.32	1045.09	0.00
12	1	My	min	-2461.31	-0.00	-27.65	0.00	0.00
	1	My	max	-2461.31	0.00	-27.65	0.00	0.00
	2	My	min	-2602.28	-38.24	-32.02	738.39	0.00
	2	My	max	-2602.28	38.24	-32.02	738.39	0.00
	3	My	min	-2743.24	-152.94	-36.40	1476.79	0.00
	3	My	max	-2743.24	152.94	-36.40	1476.79	0.00
12	1	Mz	min	-2258.68	0.00	-1911.87	0.00	0.00
	1	Mz	max	-3180.49	0.00	1844.57	0.00	0.00
	2	Mz	min	-2112.30	-17.21	-2176.82	677.60	0.00
	2	Mz	max	-2999.33	17.21	2099.00	954.15	0.00
	3	Mz	min	-2167.10	-68.82	-2654.64	1355.21	0.00
	3	Mz	max	-3104.88	68.82	2565.40	1908.29	0.00
12	1	N	min	-4081.50	0.00	-135.51	0.00	0.00
	1	N	max	-1167.04	0.00	-45.22	0.00	0.00
	2	N	min	-4222.46	0.00	-150.58	1224.45	0.00
	2	N	max	-1243.16	17.21	-282.11	350.11	0.00
	3	N	min	-4363.43	0.00	-165.66	2448.90	0.00
	3	N	max	-1319.28	68.82	-536.65	700.22	0.00
13	1	My	min	-2093.40	-0.00	-23.73	0.00	0.00
	1	My	max	-2093.40	0.00	-23.73	0.00	0.00
	2	My	min	-2203.99	-23.53	-22.55	471.01	0.00
	2	My	max	-2203.99	23.53	-22.55	471.01	0.00
	3	My	min	-2314.58	-94.13	-21.37	942.03	0.00
	3	My	max	-2314.58	94.13	-21.37	942.03	0.00
13	1	Mz	min	-1756.39	0.00	-1550.13	0.00	0.00
	1	Mz	max	-2806.57	0.00	1493.03	0.00	0.00
	2	Mz	min	-1804.05	0.00	-1473.13	395.19	0.00
	2	Mz	max	-2897.74	0.00	1417.63	631.48	0.00
	3	Mz	min	-1652.41	-42.36	-1542.14	790.37	0.00
	3	Mz	max	-2681.90	42.36	1488.91	1262.96	0.00
13	1	N	min	-3602.50	0.00	-95.00	0.00	0.00
	1	N	max	-778.04	-0.00	-58.54	0.00	0.00
	2	N	min	-3713.09	0.00	-84.71	810.56	0.00
	2	N	max	-837.76	-10.59	-171.40	175.06	0.00
	3	N	min	-3823.68	0.00	-74.42	1621.13	0.00
	3	N	max	-897.48	-42.36	-295.12	350.12	0.00

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

ESFUERZOS EN FUSTES

pila	sec	fuste	env	Nd	Myd	Mzd

				[t]	[mt]	[mt]
1	1	1	My min	-2019.89	-0.00	-22.54
	1	1	My max	-2019.89	0.00	-22.54
	2	1	My min	-2221.60	-987.25	-23.45
	2	1	My max	-2221.60	987.25	-23.45
	3	1	My min	-2423.32	-2131.06	-24.35
	3	1	My max	-2423.32	2131.06	-24.35
1	1	1	Mz min	-1692.52	0.00	-1350.20
	1	1	Mz max	-2734.91	0.00	1299.51
	2	1	Mz min	-1581.03	-796.87	-1439.12
	2	1	Mz max	-2623.09	1265.94	1382.43
	3	1	Mz min	-1623.89	-1664.19	-1863.82
	3	1	Mz max	-2738.60	2602.34	1800.37
1	1	1	N min	-3532.04	0.00	-138.47
	1	1	N max	-704.15	-0.00	-74.54
	2	1	N min	-3733.75	-1589.42	21.32
	2	1	N max	-813.08	-352.10	58.36
	3	1	N min	-3935.47	-3178.84	181.10
	3	1	N max	-922.00	-774.66	227.43
2	1	1	My min	-2454.20	-0.00	-29.70
	1	1	My max	-2454.20	0.00	-29.70
	2	1	My min	-2716.66	-1605.07	-27.04
	2	1	My max	-2716.66	1605.07	-27.04
	3	1	My min	-2979.12	-3475.23	-24.37
	3	1	My max	-2979.12	3475.23	-24.37
2	1	1	Mz min	-2236.96	0.00	-1806.05
	1	1	Mz max	-3187.64	0.00	1734.94
	2	1	Mz min	-2173.41	-1401.83	-1794.60
	2	1	Mz max	-3099.34	1972.23	1730.02
	3	1	Mz min	-2249.77	-2922.94	-2102.84
	3	1	Mz max	-3270.22	4063.75	2043.82
2	1	1	N min	-4068.36	0.00	-108.83
	1	1	N max	-1165.03	-0.00	-82.64
	2	1	N min	-4330.82	-2441.02	-228.97
	2	1	N max	-1306.76	-758.67	294.80
	3	1	N min	-4593.28	-4882.03	-349.11
	3	1	N max	-1448.48	-1636.62	733.47
3	1	1	My min	-2395.90	-0.00	-28.36
	1	1	My max	2395.90	0.00	-28.36
	2	1	My min	-2668.48	-1640.41	-29.62
	2	1	My max	-2668.48	1640.41	-29.62
	3	1	My min	-2941.07	-3566.76	-30.87
	3	1	My max	-2941.07	3566.76	-30.87
3	1	1	Mz min	-2154.06	0.00	-1881.05
	1	1	Mz max	-3123.32	0.00	1812.57
	2	1	Mz min	-2093.72	-1410.62	-2114.87
	2	1	Mz max	-3051.15	2016.42	2043.91
	3	1	Mz min	-2175.71	-2949.92	-2682.56
	3	1	Mz max	-3231.30	4161.50	2608.07
3	1	1	N min	-4007.72	0.00	-95.63
	1	1	N max	-1081.29	0.00	-83.28
	2	1	N min	-4280.30	-2504.82	-246.10
	2	1	N max	-1228.48	740.14	257.16
	3	1	N min	-4552.89	-5009.65	-396.57
	3	1	N max	-1375.68	1608.96	663.65
4	1	1	My min	-2381.27	-0.00	-29.12
	1	1	My max	-2381.27	0.00	-29.12
	2	1	My min	-2663.97	-1701.62	-29.80
	2	1	My max	-2663.97	1701.62	-29.80
	3	1	My min	-2946.68	-3710.80	-30.47
	3	1	My max	-2946.68	3710.80	-30.47
4	1	1	Mz min	-2145.85	0.00	-1937.10
	1	1	Mz max	-3110.05	0.00	1866.37
	2	1	Mz min	-2091.61	-1464.01	-2213.80
	2	1	Mz max	-3045.26	2090.74	2142.49
	3	1	Mz min	-2179.14	-3066.43	-2813.40
	3	1	Mz max	-3234.59	4319.89	2740.41
4	1	1	N min	-4002.74	0.00	-116.89
	1	1	N max	-1065.51	-0.00	-71.06
	2	1	N min	-4285.45	-2601.78	-256.23
	2	1	N max	-1218.18	-761.79	400.04
	3	1	N min	-4568.16	-5203.56	-395.58
	3	1	N max	-1370.84	-1661.98	942.18
5	1	1	My min	-2383.78	-0.00	-29.03
	1	1	My max	-2383.78	0.00	-29.03
	2	1	My min	-2676.61	-1774.06	-28.61
	2	1	My max	-2676.61	1774.06	-28.61
	3	1	My min	-2969.45	-3878.10	-28.18
	3	1	My max	-2969.45	3878.10	-28.18
5	1	1	Mz min	-2146.70	0.00	-1978.12
	1	1	Mz max	-3112.07	0.00	1906.68
	2	1	Mz min	-2097.80	-1523.28	-2189.82
	2	1	Mz max	-3056.91	2174.90	2121.33
	3	1	Mz min	-2190.85	-3195.05	-2714.09

	3	1	Mz max	-3255.41	4498.29	2647.59
5	1	1	N min	-4004.52	0.00	-109.87
	1	1	N max	-1066.82	0.00	-65.05
	2	1	N min	-4297.35	-2703.05	-226.64
	2	1	N max	-1224.95	794.36	286.10
	3	1	N min	-4590.19	-5406.10	-343.41
	3	1	N max	-1383.08	1737.21	713.48
6	1	1	My min	-2383.25	-0.00	-28.28
	1	1	My max	-2383.25	0.00	-28.28
	2	1	My min	-2676.08	-1773.70	-28.62
	2	1	My max	-2676.08	1773.70	-28.62
	3	1	My min	-2968.91	-3877.39	-28.96
	3	1	My max	-2968.91	3877.39	-28.96
6	1	1	Mz min	-2146.55	0.00	-1995.24
	1	1	Mz max	-3111.65	0.00	1926.84
	2	1	Mz min	-2097.68	-1523.17	-2190.55
	2	1	Mz max	-3056.35	2174.62	2121.46
	3	1	Mz min	-2190.73	-3194.84	-2687.95
	3	1	Mz max	-3254.85	4497.73	2617.28
6	1	1	N min	-4004.71	0.00	-123.60
	1	1	N max	-1066.09	0.00	-48.08
	2	1	N min	-4297.54	-2703.18	-225.42
	2	1	N max	-1224.22	793.87	385.73
	3	1	N min	-4590.38	-5406.36	-327.24
	3	1	N max	-1382.35	1736.23	895.75
7	1	1	My min	-2382.85	-0.00	-29.26
	1	1	My max	-2382.85	0.00	-29.26
	2	1	My min	-2665.56	-1702.65	-29.69
	2	1	My max	-2665.56	1702.65	-29.69
	3	1	My min	-2948.27	-3712.86	-30.12
	3	1	My max	-2948.27	3712.86	-30.12
7	1	1	Mz min	-2146.13	0.00	-1994.21
	1	1	Mz max	-3111.12	0.00	1923.13
	2	1	Mz min	-2091.82	1464.19	-2244.12
	2	1	Mz max	-3046.81	-2091.44	2172.78
	3	1	Mz min	-2179.35	3066.79	-2787.03
	3	1	Mz max	-3236.14	-4321.28	2714.37
7	1	1	N min	-4004.80	0.00	-114.56
	1	1	N max	-1065.11	0.00	-58.90
	2	1	N min	-4287.51	-2603.12	-202.39
	2	1	N max	-1217.77	761.53	295.04
	3	1	N min	-4570.22	-5206.25	-290.21
	3	1	N max	-1370.44	1661.46	720.03
8	1	1	My min	-2385.31	-0.00	-29.51
	1	1	My max	-2385.31	0.00	-29.51
	2	1	My min	-2657.89	-1633.79	-30.39
	2	1	My max	-2657.89	1633.79	-30.39
	3	1	My min	-2930.48	-3553.52	-31.27
	3	1	My max	-2930.48	3553.52	-31.27
8	1	1	Mz min	-2148.43	0.00	-1948.13
	1	1	Mz max	-3114.16	0.00	1875.55
	2	1	Mz min	-2088.47	-1407.11	-2273.11
	2	1	Mz max	-3040.44	2010.69	2200.65
	3	1	Mz min	-2214.00	-2942.89	-2902.09
	3	1	Mz max	-3264.10	4150.05	2828.62
8	1	1	N min	-4008.44	0.00	-125.61
	1	1	N max	-1066.65	-0.00	-65.47
	2	1	N min	-4281.02	-2505.27	-202.81
	2	1	N max	-1213.84	-730.99	375.09
	3	1	N min	-4553.60	-5010.55	-280.02
	3	1	N max	-1361.04	-1590.66	881.70
9	1	1	My min	-2381.34	-0.00	-27.86
	1	1	My max	-2381.34	0.00	-27.86
	2	1	My min	-2664.05	-1701.67	-27.70
	2	1	My max	-2664.05	1701.67	-27.70
	3	1	My min	-2946.76	-3710.90	-27.54
	3	1	My max	-2946.76	3710.90	-27.54
9	1	1	Mz min	-2156.16	0.00	-1951.45
	1	1	Mz max	-3097.66	0.00	1884.62
	2	1	Mz min	-2090.08	-1470.71	-2040.16
	2	1	Mz max	-3045.24	2082.69	1973.54
	3	1	Mz min	-2177.66	-3079.83	-2433.11
	3	1	Mz max	-3234.61	4303.78	2365.71
9	1	1	N min	-4002.75	0.00	-113.57
	1	1	N max	-1063.81	0.00	-64.65
	2	1	N min	-4285.46	-2601.79	-156.65
	2	1	N max	-1216.47	760.68	249.35
	3	1	N min	-4568.17	-5203.58	-199.72
	3	1	N max	-1369.13	1659.77	634.40
10	1	1	My min	-2388.41	-0.00	-28.93
	1	1	My max	-2388.41	0.00	-28.93
	2	1	My min	-2660.99	-1635.73	-25.76
	2	1	My max	-2660.99	1635.73	-25.76
	3	1	My min	-2933.58	-3557.39	-22.59

	3	1	My max	-2933.58	3557.39	-22.59
10	1	1	Mz min	-2165.05	0.00	-1930.64
	1	1	Mz max	-3105.06	0.00	1858.65
	2	1	Mz min	-2093.16	1417.49	-1881.92
	2	1	Mz max	-3043.33	-2005.00	1820.64
	3	1	Mz min	-2218.85	2963.65	-2131.86
	3	1	Mz max	-3267.14	-4138.68	2080.33
10	1	1	N min	-4010.67	0.00	-128.78
	1	1	N max	-1071.88	-0.00	-55.88
	2	1	N min	-4283.26	-2506.67	-145.53
	2	1	N max	-1219.07	-734.26	260.12
	3	1	N min	-4555.84	-5013.34	-162.28
	3	1	N max	-1366.27	-1597.20	642.17
11	1	1	My min	-2362.60	-0.00	-28.42
	1	1	My max	-2362.60	0.00	-28.42
	2	1	My min	-2584.56	-1276.10	-27.20
	2	1	My max	-2584.56	1276.10	-27.20
	3	1	My min	-2806.52	-2741.79	-25.99
	3	1	My max	-2806.52	2741.79	-25.99
11	1	1	Mz min	-2131.83	0.00	-1941.05
	1	1	Mz max	-3078.09	0.00	1873.04
	2	1	Mz min	-2033.89	-1108.58	-1901.48
	2	1	Mz max	-2971.32	1581.71	1835.63
	3	1	Mz min	-2132.33	-2302.47	-2130.89
	3	1	Mz max	-3149.67	3248.73	2066.11
11	1	1	N min	-3977.66	0.00	-118.32
	1	1	N max	-1045.09	-0.00	-59.24
	2	1	N min	-4199.63	-1988.83	-127.77
	2	1	N max	-1164.95	-565.21	193.14
	3	1	N min	-4421.59	-3977.66	-137.21
	3	1	N max	-1284.81	-1215.73	489.32
12	1	1	My min	-2461.31	-0.00	-27.65
	1	1	My max	-2461.31	0.00	-27.65
	2	1	My min	-2602.28	-776.63	-32.02
	2	1	My max	-2602.28	776.63	-32.02
	3	1	My min	-2743.24	-1629.73	-36.40
	3	1	My max	-2743.24	1629.73	-36.40
12	1	1	Mz min	-2258.68	0.00	-1911.87
	1	1	Mz max	-3180.49	0.00	1844.57
	2	1	Mz min	-2112.30	-694.81	-2176.82
	2	1	Mz max	-2999.33	971.35	2099.00
	3	1	Mz min	-2167.10	-1424.03	-2654.64

	3	1	Mz max	-3104.88	1977.12	2565.40
12	1	1	N min	-4081.50	0.00	-135.51
	1	1	N max	-1167.04	0.00	-45.22
	2	1	N min	-4222.46	-1224.45	-150.58
	2	1	N max	-1243.16	367.32	-282.11
	3	1	N min	-4363.43	-2448.90	-165.66
	3	1	N max	-1319.28	769.05	-536.65
13	1	1	My min	-2093.40	-0.00	-23.73
	1	1	My max	-2093.40	0.00	-23.73
	2	1	My min	-2203.99	-494.55	-22.55
	2	1	My max	-2203.99	494.55	-22.55
	3	1	My min	-2314.58	-1036.16	-21.37
	3	1	My max	-2314.58	1036.16	-21.37
13	1	1	Mz min	-1756.39	0.00	-1550.13
	1	1	Mz max	-2806.57	0.00	1493.03
	2	1	Mz min	-1804.05	-395.19	-1473.13
	2	1	Mz max	-2897.74	-631.48	1417.63
	3	1	Mz min	-1652.41	-832.73	-1542.14
	3	1	Mz max	-2681.90	1305.32	1488.91
13	1	1	N min	-3602.50	0.00	-95.00
	1	1	N max	-778.04	-0.00	-58.54
	2	1	N min	-3713.09	-810.56	-84.71
	2	1	N max	-837.76	-185.65	-171.40
	3	1	N min	-3823.68	-1621.13	-74.42
	3	1	N max	-897.48	-392.48	-295.12

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

DIMENSIONAMIENTO FUSTES

LEYENDA m: armadura mínima (As$$fyd=0.1$$Ac$$fcd)
xxxx: Anec$$fyd > Ac$$fcd

pila	sec	fuste	env	Nd [t]	Myd_eq [mt]	Mzd_eq [mt]	fi_nom [mm]	A_tot [cm2]
1	2	1	My min	-2221.60	-1551.21	-584.28	16.45	242.15 m
	2	1	My max	-2221.60	-1551.21	-584.28	16.45	242.15 m
1	3	1	My min	-2423.32	-2800.48	-637.33	16.45	242.15 m
	3	1	My max	-2423.32	-2800.48	-637.33	16.45	242.15 m
1	2	1	Mz min	-1581.03	-1205.42	-1439.12	16.45	242.15 m

	2	1	Mz max	-2623.09	-1939.70	-1382.43	16.45	242.15 m
1	3	1	Mz min	-1623.89	-2119.48	-1863.82	16.45	242.15 m
	3	1	Mz max	-2738.60	-3364.69	-1800.37	16.45	242.15 m
1	2	1	N min	-3733.75	-2531.31	-981.98	16.45	242.15 m
	2	1	N max	-813.08	-557.73	-213.84	16.45	242.15 m
1	3	1	N min	-3935.47	-4256.35	-1035.03	16.45	242.15 m
	3	1	N max	-922.00	-1028.16	-242.49	16.45	242.15 m
2	2	1	My min	-2716.66	-2879.69	-714.48	16.45	242.15 m
	2	1	My max	-2716.66	-2879.69	-714.48	16.45	242.15 m
2	3	1	My min	-2979.12	-4977.17	-783.51	17.19	264.69
	3	1	My max	-2979.12	-4977.17	-783.51	17.19	264.69
2	2	1	Mz min	-2173.41	-2432.78	-1794.60	16.45	242.15 m
	2	1	Mz max	-3099.34	-3439.98	-1730.02	16.45	242.15 m
2	3	1	Mz min	-2249.77	-4067.12	-2102.84	16.45	242.15 m
	3	1	Mz max	-3270.22	-5721.07	-2043.82	23.27	484.75
2	2	1	N min	-4330.82	-4460.64	-1139.01	16.45	242.15 m
	2	1	N max	-1306.76	-1370.40	-343.68	16.45	242.15 m
2	3	1	N min	-4593.28	-7179.08	-1208.03	29.98	804.62
	3	1	N max	-1448.48	-2364.90	-733.47	16.45	242.15 m
3	2	1	My min	-2668.48	-3005.76	-701.81	16.45	242.15 m
	2	1	My max	-2668.48	-3005.76	-701.81	16.45	242.15 m
3	3	1	My min	-2941.07	-5180.86	-773.50	18.90	319.88
	3	1	My max	-2941.07	-5180.86	-773.50	18.90	319.88
3	2	1	Mz min	-2093.72	-2493.95	-2114.87	16.45	242.15 m
	2	1	Mz max	-3051.15	-3591.49	-2043.91	16.45	242.15 m
3	3	1	Mz min	-2175.71	-4154.50	-2682.56	17.02	259.50
	3	1	Mz max	-3231.30	-5943.45	-2608.07	25.56	585.07
3	2	1	N min	-4280.30	-4681.25	-1125.72	16.45	242.15 m
	2	1	N max	-1228.48	-1367.12	-323.09	16.45	242.15 m
3	3	1	N min	-4552.89	-7487.80	-1197.41	31.38	881.56
	3	1	N max	-1375.68	-2361.68	-663.65	16.45	242.15 m
4	2	1	My min	-2663.97	-3182.90	-700.63	16.45	242.15 m
	2	1	My max	-2663.97	-3182.90	-700.63	16.45	242.15 m
4	3	1	My min	-2946.68	-5465.28	-774.98	20.85	389.16
	3	1	My max	-2946.68	-5465.28	-774.98	20.85	389.16
4	2	1	Mz min	-2091.61	-2639.84	-2213.80	16.45	242.15 m
	2	1	Mz max	-3045.26	-3798.80	-2142.49	16.45	242.15 m
4	3	1	Mz min	-2179.14	-4374.98	-2813.40	18.93	320.91
	3	1	Mz max	-3234.59	-6254.64	-2740.41	27.34	669.41
4	2	1	N min	-4285.45	-4969.67	-1127.07	16.45	242.15 m
	2	1	N max	-1218.18	-1437.38	-400.04	16.45	242.15 m
4	3	1	N min	-4568.16	-7901.01	-1201.42	33.22	987.80
	3	1	N max	-1370.84	-2475.69	-942.18	16.45	242.15 m
5	2	1	My min	-2676.61	-3386.27	-703.95	16.45	242.15 m
	2	1	My max	-2676.61	-3386.27	-703.95	16.45	242.15 m
5	3	1	My min	-2969.45	-5790.22	-780.96	22.85	467.31
	3	1	My max	-2969.45	-5790.22	-780.96	22.85	467.31
5	2	1	Mz min	-2097.80	-2800.45	-2189.82	16.45	242.15 m
	2	1	Mz max	-3056.91	-4031.63	-2121.33	16.45	242.15 m
5	3	1	Mz min	-2190.85	-4617.46	-2714.09	20.20	365.28
	3	1	Mz max	-3255.41	-6603.56	-2647.59	28.90	747.67
5	2	1	N min	-4297.35	-5275.02	-1130.20	18.16	295.24
	2	1	N max	-1224.95	-1530.24	-322.16	16.45	242.15 m
5	3	1	N min	-4590.19	-8337.33	-1207.22	35.06	1100.45
	3	1	N max	-1383.08	-2625.08	-713.48	16.45	242.15 m
6	2	1	My min	-2676.08	-3385.59	-703.81	16.45	242.15 m
	2	1	My max	-2676.08	-3385.59	-703.81	16.45	242.15 m
6	3	1	My min	-2968.91	-5789.16	-780.82	22.85	467.39
	3	1	My max	-2968.91	-5789.16	-780.82	22.85	467.39
6	2	1	Mz min	-2097.68	-2800.26	-2190.55	16.45	242.15 m
	2	1	Mz max	-3056.35	-4031.02	-2121.46	16.45	242.15 m
6	3	1	Mz min	-2190.73	-4617.17	-2687.95	20.17	364.30
	3	1	Mz max	-3254.85	-6602.65	-2617.28	28.85	745.16
6	2	1	N min	-4297.54	-5275.27	-1130.25	18.16	295.36
	2	1	N max	-1224.22	-1529.31	-385.73	16.45	242.15 m
6	3	1	N min	-4590.38	-8337.71	-1207.27	35.06	1100.52
	3	1	N max	-1382.35	-2623.63	-895.75	16.45	242.15 m
7	2	1	My min	-2665.56	-3184.81	-701.04	16.45	242.15 m
	2	1	My max	-2665.56	-3184.81	-701.04	16.45	242.15 m
7	3	1	My min	-2948.27	-5468.29	-775.40	20.86	389.78

	3	1	My max	-2948.27	-5468.29	-775.40	20.86	389.78
7	2	1	Mz min	-2091.82	-2640.14	-2244.12	16.45	242.15 m
	2	1	Mz max	-3046.81	-3800.33	-2172.78	16.45	242.15 m
7	3	1	Mz min	-2179.35	-4375.47	-2787.03	18.87	318.85
	3	1	Mz max	-3236.14	-6256.94	-2714.37	27.31	667.90
7	2	1	N min	-4287.51	-4972.17	-1127.62	16.45	242.15 m
	2	1	N max	-1217.77	-1436.89	-320.27	16.45	242.15 m
7	3	1	N min	-4570.22	-7904.93	-1201.97	33.23	988.87
	3	1	N max	-1370.44	-2474.93	-720.03	16.45	242.15 m
8	2	1	My min	-2657.89	-2993.71	-699.03	16.45	242.15 m
	2	1	My max	-2657.89	-2993.71	-699.03	16.45	242.15 m
8	3	1	My min	-2930.48	-5161.79	-770.72	18.80	316.46
	3	1	My max	-2930.48	-5161.79	-770.72	18.80	316.46
8	2	1	Mz min	-2088.47	-2487.72	-2273.11	16.45	242.15 m
	2	1	Mz max	-3040.44	-3580.36	-2200.65	16.45	242.15 m
8	3	1	Mz min	-2214.00	-4166.82	-2902.09	17.49	273.83
	3	1	Mz max	-3264.10	-5948.27	-2828.62	25.87	599.20
8	2	1	N min	-4281.02	-4682.07	-1125.91	16.45	242.15 m
	2	1	N max	-1213.84	-1350.46	-375.09	16.45	242.15 m
8	3	1	N min	-4553.60	-7489.10	-1197.60	31.38	881.85
	3	1	N max	-1361.04	-2335.32	-881.70	16.45	242.15 m
9	2	1	My min	-2664.05	-3182.99	-700.65	16.45	242.15 m
	2	1	My max	-2664.05	-3182.99	-700.65	16.45	242.15 m
9	3	1	My min	-2946.76	-5465.43	-775.00	20.85	389.21
	3	1	My max	-2946.76	-5465.43	-775.00	20.85	389.21
9	2	1	Mz min	-2090.08	-2646.40	-2040.16	16.45	242.15 m
	2	1	Mz max	-3045.24	-3789.96	-1973.54	16.45	242.15 m
9	3	1	Mz min	-2177.66	-4387.97	-2433.11	18.24	297.97
	3	1	Mz max	-3234.61	-6238.00	-2365.71	26.69	637.84
9	2	1	N min	-4285.46	-4969.69	-1127.08	16.45	242.15 m
	2	1	N max	-1216.47	-1435.32	-319.93	16.45	242.15 m
9	3	1	N min	-4568.17	-7901.04	-1201.43	33.21	987.77
	3	1	N max	-1369.13	-2472.46	-634.40	16.45	242.15 m
10	2	1	My min	-2660.99	-2997.24	-699.84	16.45	242.15 m
	2	1	My max	-2660.99	-2997.24	-699.84	16.45	242.15 m
10	3	1	My min	-2933.58	-5167.37	-771.53	18.83	317.59
	3	1	My max	-2933.58	-5167.37	-771.53	18.83	317.59
10	2	1	Mz min	-2093.16	-2501.19	-1881.92	16.45	242.15 m
	2	1	Mz max	-3043.33	-3575.45	-1820.64	16.45	242.15 m
10	3	1	Mz min	-2218.85	-4190.73	-2131.86	16.45	242.15 m
	3	1	Mz max	-3267.14	-5938.04	-2080.33	24.70	546.13
10	2	1	N min	-4283.26	-4684.61	-1126.50	16.45	242.15 m
	2	1	N max	-1219.07	-1356.41	-320.62	16.45	242.15 m
10	3	1	N min	-4555.84	-7493.12	-1198.19	31.41	883.10
	3	1	N max	-1366.27	-2344.74	-642.17	16.45	242.15 m
11	2	1	My min	-2584.56	-2098.30	-679.74	16.45	242.15 m
	2	1	My max	-2584.56	-2098.30	-679.74	16.45	242.15 m
11	3	1	My min	-2806.52	-3708.89	-738.12	16.45	242.15 m
	3	1	My max	-2806.52	-3708.89	-738.12	16.45	242.15 m
11	2	1	Mz min	-2033.89	-1764.34	-1901.48	16.45	242.15 m
	2	1	Mz max	-2971.32	-2536.70	-1835.63	16.45	242.15 m
11	3	1	Mz min	-2132.33	-3044.04	-2130.89	16.45	242.15 m
	3	1	Mz max	-3149.67	-4339.59	-2066.11	16.45	242.15 m
11	2	1	N min	-4199.63	-3317.03	-1104.50	16.45	242.15 m
	2	1	N max	-1164.95	-934.90	-306.38	16.45	242.15 m
11	3	1	N min	-4421.59	-5489.06	-1162.88	19.78	350.48
	3	1	N max	-1284.81	-1657.10	-489.32	16.45	242.15 m
12	2	1	My min	-2602.28	-776.63	-684.40	16.45	242.15 m
	2	1	My max	-2602.28	-776.63	-684.40	16.45	242.15 m
12	3	1	My min	-2743.24	-1629.73	-721.47	16.45	242.15 m
	3	1	My max	-2743.24	-1629.73	-721.47	16.45	242.15 m
12	2	1	Mz min	-2112.30	-694.81	-2176.82	16.45	242.15 m
	2	1	Mz max	-2999.33	-971.35	-2099.00	16.45	242.15 m
12	3	1	Mz min	-2167.10	-1424.03	-2654.64	16.45	242.15 m
	3	1	Mz max	-3104.88	-1977.12	-2565.40	16.45	242.15 m
12	2	1	N min	-4222.46	-1224.45	-1110.51	16.45	242.15 m
	2	1	N max	-1243.16	-367.32	-326.95	16.45	242.15 m
12	3	1	N min	-4363.43	-2448.90	-1147.58	16.45	242.15 m
	3	1	N max	-1319.28	-769.05	-536.65	16.45	242.15 m
13	2	1	My min	-2203.99	-494.55	-579.65	16.45	242.15 m

	2	1	My max	-2203.99	-494.55	-579.65	16.45	242.15 m
13	3	1	My min	-2314.58	-1036.16	-608.74	16.45	242.15 m
	3	1	My max	-2314.58	-1036.16	-608.74	16.45	242.15 m
13	2	1	Mz min	-1804.05	-395.19	-1473.13	16.45	242.15 m
	2	1	Mz max	-2897.74	-631.48	-1417.63	16.45	242.15 m
13	3	1	Mz min	-1652.41	-832.73	-1542.14	16.45	242.15 m
	3	1	Mz max	-2681.90	-1305.32	-1488.91	16.45	242.15 m
13	2	1	N min	-3713.09	-810.56	-976.54	16.45	242.15 m
	2	1	N max	-837.76	-185.65	-220.33	16.45	242.15 m
13	3	1	N min	-3823.68	-1621.13	-1005.63	16.45	242.15 m
	3	1	N max	-897.48	-392.48	-295.12	16.45	242.15 m

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

DIMENSIONAMIENTO VALORES PESIMOS

LEYENDA m: armadura mínima (As$$fyd=0.1$$Ac$$fcd)
xxxx: Anec$$fyd > Ac$$fcd

pila	sec	fi_nom (máx) [mm]	A_tot (máx) [cm2]
1	2	16.45	242.15
	3	16.45	242.15
2	2	16.45	242.15
	3	29.98	804.62
3	2	16.45	242.15
	3	31.38	881.56
4	2	16.45	242.15
	3	33.22	987.80
5	2	18.16	295.24
	3	35.06	1100.45
6	2	18.16	295.36
	3	35.06	1100.52
7	2	16.45	242.15
	3	33.23	988.87
8	2	16.45	242.15
	3	31.38	881.85
9	2	16.45	242.15
	3	33.21	987.77
10	2	16.45	242.15
	3	31.41	883.10
11	2	16.45	242.15
	3	19.78	350.48
12	2	16.45	242.15
	3	16.45	242.15
13	2	16.45	242.15
	3	16.45	242.15

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

ESFUERZOS STATIK2 ESTADO LIMITE ULTIMO: 2.CORTANTE

pila	sec	env	Vyd [t]	Vzd [t]
1	1	Vy min	-91.18	-0.00
	1	Vy max	90.51	0.00
	1	Vz min	-0.09	-0.00
	1	Vz max	-0.09	0.00
	2	Vy min	-94.81	-7.07
	2	Vy max	94.14	7.07
	2	Vz min	-0.09	-15.72
	2	Vz max	-0.09	15.72
	3	Vy min	-98.44	-14.15
	3	Vy max	97.77	14.15
	3	Vz min	-0.09	-31.44
	3	Vz max	-0.09	31.44
2	1	Vy min	-71.96	-0.00
	1	Vy max	72.39	0.00
	1	Vz min	0.21	-0.00
	1	Vz max	0.21	0.00
	2	Vy min	-76.68	-9.20
	2	Vy max	77.11	9.20
	2	Vz min	0.21	-20.45
	2	Vz max	0.21	20.45
	3	Vy min	-81.41	-18.41
	3	Vy max	81.84	18.41
	3	Vz min	0.21	-40.91
	3	Vz max	0.21	40.91
3	1	Vy min	-80.09	-0.00
	1	Vy max	79.83	0.00
	1	Vz min	-0.09	-0.00
	1	Vz max	-0.09	0.00
	2	Vy min	-84.99	-9.56
	2	Vy max	84.73	9.56

	2	Vz min	-0.09	-21.24
	2	Vz max	-0.09	21.24
	3	Vy min	-89.90	-19.12
	3	Vy max	89.64	19.12
	3	Vz min	-0.09	-42.48
	3	Vz max	-0.09	42.48
4	1	Vy min	-79.81	-0.00
	1	Vy max	79.69	0.00
	1	Vz min	-0.05	-0.00
	1	Vz max	-0.05	0.00
	2	Vy min	-84.90	-9.91
	2	Vy max	84.78	9.91
	2	Vz min	-0.05	-22.03
	2	Vz max	-0.05	22.03
	3	Vy min	-89.98	-19.83
	3	Vy max	89.87	19.83
	3	Vz min	-0.05	-44.06
	3	Vz max	-0.05	44.06
5	1	Vy min	-75.23	0.00
	1	Vy max	75.37	-0.00
	1	Vz min	0.03	-0.00
	1	Vz max	0.03	0.00
	2	Vy min	-80.50	10.27
	2	Vy max	80.64	-10.27
	2	Vz min	0.03	-22.82
	2	Vz max	0.03	22.82
	3	Vy min	-85.78	20.54
	3	Vy max	85.91	-20.54
	3	Vz min	0.03	-45.64
	3	Vz max	0.03	45.64
6	1	Vy min	-74.52	-0.00
	1	Vy max	74.42	0.00
	1	Vz min	-0.02	-0.00
	1	Vz max	-0.02	0.00
	2	Vy min	-79.79	-10.27
	2	Vy max	79.69	10.27
	2	Vz min	-0.02	-22.82
	2	Vz max	-0.02	22.82
	3	Vy min	-85.06	-20.54
	3	Vy max	84.96	20.54
	3	Vz min	-0.02	-45.64
	3	Vz max	-0.02	45.64
7	1	Vy min	-76.53	0.00
	1	Vy max	76.44	-0.00
	1	Vz min	-0.03	-0.00
	1	Vz max	-0.03	0.00
	2	Vy min	-81.62	9.91
	2	Vy max	81.53	-9.91
	2	Vz min	-0.03	-22.03
	2	Vz max	-0.03	22.03
	3	Vy min	-86.71	19.83
	3	Vy max	86.61	-19.83
	3	Vz min	-0.03	-44.06
	3	Vz max	-0.03	44.06
8	1	Vy min	-79.84	-0.00
	1	Vy max	79.77	0.00
	1	Vz min	-0.07	-0.00
	1	Vz max	-0.07	0.00
	2	Vy min	-84.75	-9.56
	2	Vy max	84.68	9.56
	2	Vz min	-0.07	-21.24
	2	Vz max	-0.07	21.24
	3	Vy min	-89.65	-19.12
	3	Vy max	89.58	19.12
	3	Vz min	-0.07	-42.48
	3	Vz max	-0.07	42.48
9	1	Vy min	-71.34	-0.00
	1	Vy max	71.29	0.00
	1	Vz min	0.01	-0.00
	1	Vz max	0.01	0.00
	2	Vy min	-76.43	-9.91
	2	Vy max	76.37	9.91
	2	Vz min	0.01	-22.03
	2	Vz max	0.01	22.03
	3	Vy min	-81.52	-19.83
	3	Vy max	81.46	19.83
	3	Vz min	0.01	-44.06
	3	Vz max	0.01	44.06
10	1	Vy min	-68.47	0.00
	1	Vy max	69.19	-0.00
	1	Vz min	0.24	-0.00
	1	Vz max	0.24	0.00
	2	Vy min	-73.38	9.56
	2	Vy max	74.10	-9.56
	2	Vz min	0.24	-21.24
	2	Vz max	0.24	21.24
	3	Vy min	-78.29	19.12
	3	Vy max	79.01	-19.12

	3	Vz min	0.24	-42.48
	3	Vz max	0.24	42.48
11	1	Vy min	-78.42	-0.00
	1	Vy max	78.52	0.00
	1	Vz min	0.11	-0.00
	1	Vz max	0.11	0.00
	2	Vy min	-82.42	-7.78
	2	Vy max	82.51	7.78
	2	Vz min	0.11	-17.30
	2	Vz max	0.11	17.30
	3	Vy min	-86.41	-15.57
	3	Vy max	86.51	15.57
	3	Vz min	0.11	-34.59
	3	Vz max	0.11	34.59
12	1	Vy min	-84.59	-0.00
	1	Vy max	82.95	0.00
	1	Vz min	-0.63	-0.00
	1	Vz max	-0.63	0.00
	2	Vy min	-87.13	-4.94
	2	Vy max	85.48	4.94
	2	Vz min	-0.63	-10.99
	2	Vz max	-0.63	10.99
	3	Vy min	-89.67	-9.89
	3	Vy max	88.02	9.89
	3	Vz min	-0.63	-21.97
	3	Vz max	-0.63	21.97
13	1	Vy min	-64.96	-0.00
	1	Vy max	65.23	0.00
	1	Vz min	0.22	-0.00
	1	Vz max	0.22	0.00
	2	Vy min	-66.95	-3.88
	2	Vy max	67.22	3.88
	2	Vz min	0.22	-8.62
	2	Vz max	0.22	8.62
	3	Vy min	-68.94	-7.76
	3	Vy max	69.21	7.76
	3	Vz min	0.22	-17.24
	3	Vz max	0.22	17.24

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

DIMENSIONAMIENTO A CORTANTE (ARMADURA POR FUSTE)

LEYENDA !: Vd>Vu1
m: armadura mínima

pila	sec	env	Vyd [t]	Vzd [t]	Vu1 [t]	Vcu [t]	As [cm2/m]
1	1	Vy min	91.18	73.07	2500.80	294.72	7.62 m
	1	Vy max	90.51	121.59	2500.80	294.72	7.62 m
	1	Vz min	0.09	101.00	1272.00	149.91	7.62 m
	1	Vz max	0.09	101.00	1272.00	149.91	7.62 m
	3	Vy min	98.44	98.11	2500.80	294.72	7.62 m
	3	Vy max	97.77	153.89	2500.80	294.72	7.62 m
	3	Vz min	0.09	152.60	1272.00	149.91	7.62 m
	3	Vz max	0.09	152.60	1272.00	149.91	7.62 m
2	1	Vy min	71.96	143.58	2500.80	294.72	7.62 m
	1	Vy max	72.39	101.16	2500.80	294.72	7.62 m
	1	Vz min	0.21	122.71	1272.00	149.91	7.62 m
	1	Vz max	0.21	122.71	1272.00	149.91	7.62 m
	3	Vy min	81.41	185.61	2500.80	294.72	7.62 m
	3	Vy max	81.84	133.74	2500.80	294.72	7.62 m
	3	Vz min	0.21	189.86	1272.00	149.91	7.62 m
	3	Vz max	0.21	189.86	1272.00	149.91	7.62 m
3	1	Vy min	80.09	97.31	2500.80	294.72	7.62 m
	1	Vy max	79.83	140.31	2500.80	294.72	7.62 m
	1	Vz min	0.09	119.80	1272.00	149.91	7.62 m
	1	Vz max	0.09	119.80	1272.00	149.91	7.62 m
	3	Vy min	89.90	131.15	2500.80	294.72	7.62 m
	3	Vy max	89.64	183.96	2500.80	294.72	7.62 m
	3	Vz min	0.09	189.54	1272.00	149.91	7.62 m
	3	Vz max	0.09	189.54	1272.00	149.91	7.62 m
4	1	Vy min	79.81	96.93	2500.80	294.72	7.62 m
	1	Vy max	79.69	139.56	2500.80	294.72	7.62 m
	1	Vz min	0.05	119.06	1272.00	149.91	7.62 m
	1	Vz max	0.05	119.06	1272.00	149.91	7.62 m
	3	Vy min	89.98	132.02	2500.80	294.72	7.62 m
	3	Vy max	89.87	184.83	2500.80	294.72	7.62 m
	3	Vz min	0.05	191.40	1272.00	149.91	7.62 m
	3	Vz max	0.05	191.40	1272.00	149.91	7.62 m
5	1	Vy min	75.23	139.88	2500.80	294.72	7.62 m
	1	Vy max	75.37	96.77	2500.80	294.72	7.62 m
	1	Vz min	0.03	119.19	1272.00	149.91	7.62 m
	1	Vz max	0.03	119.19	1272.00	149.91	7.62 m
	3	Vy min	85.78	186.77	2500.80	294.72	7.62 m
	3	Vy max	85.91	133.12	2500.80	294.72	7.62 m

	3	Vz min	0.03	194.11	1272.00	149.91	7.62 m
	3	Vz max	0.03	194.11	1272.00	149.91	7.62 m
6	1	Vy min	74.52	139.86	2500.80	294.72	7.62 m
	1	Vy max	74.42	96.76	2500.80	294.72	7.62 m
	1	Vz min	0.02	119.16	1272.00	149.91	7.62 m
	1	Vz max	0.02	119.16	1272.00	149.91	7.62 m
	3	Vy min	85.06	186.75	2500.80	294.72	7.62 m
	3	Vy max	84.96	133.11	2500.80	294.72	7.62 m
	3	Vz min	0.02	194.09	1272.00	149.91	7.62 m
	3	Vz max	0.02	194.09	1272.00	149.91	7.62 m
7	1	Vy min	76.53	96.94	2500.80	294.72	7.62 m
	1	Vy max	76.44	139.64	2500.80	294.72	7.62 m
	1	Vz min	0.03	119.14	1272.00	149.91	7.62 m
	1	Vz max	0.03	119.14	1272.00	149.91	7.62 m
	3	Vy min	86.71	132.04	2500.80	294.72	7.62 m
	3	Vy max	86.61	184.91	2500.80	294.72	7.62 m
	3	Vz min	0.03	191.48	1272.00	149.91	7.62 m
	3	Vz max	0.03	191.48	1272.00	149.91	7.62 m
8	1	Vy min	79.84	97.05	2500.80	294.72	7.62 m
	1	Vy max	79.77	139.77	2500.80	294.72	7.62 m
	1	Vz min	0.07	119.27	1272.00	149.91	7.62 m
	1	Vz max	0.07	119.27	1272.00	149.91	7.62 m
	3	Vy min	89.65	130.88	2500.80	294.72	7.62 m
	3	Vy max	89.58	183.42	2500.80	294.72	7.62 m
	3	Vz min	0.07	189.01	1272.00	149.91	7.62 m
	3	Vz max	0.07	189.01	1272.00	149.91	7.62 m
9	1	Vy min	71.34	139.76	2500.80	294.72	7.62 m
	1	Vy max	71.29	96.65	2500.80	294.72	7.62 m
	1	Vz min	0.01	119.07	1272.00	149.91	7.62 m
	1	Vz max	0.01	119.07	1272.00	149.91	7.62 m
	3	Vy min	81.52	185.03	2500.80	294.72	7.62 m
	3	Vy max	81.46	131.75	2500.80	294.72	7.62 m
	3	Vz min	0.01	191.40	1272.00	149.91	7.62 m
	3	Vz max	0.01	191.40	1272.00	149.91	7.62 m
10	1	Vy min	68.47	140.12	2500.80	294.72	7.62 m
	1	Vy max	69.19	97.08	2500.80	294.72	7.62 m
	1	Vz min	0.24	119.42	1272.00	149.91	7.62 m
	1	Vz max	0.24	119.42	1272.00	149.91	7.62 m
	3	Vy min	78.29	183.77	2500.80	294.72	7.62 m
	3	Vy max	79.01	130.92	2500.80	294.72	7.62 m
	3	Vz min	- 0.24	189.16	1272.00	149.91	7.62 m
	3	Vz max	0.24	189.16	1272.00	149.91	7.62 m
11	1	Vy min	78.42	95.97	2500.80	294.72	7.62 m
	1	Vy max	78.52	138.31	2500.80	294.72	7.62 m
	1	Vz min	0.11	118.13	1272.00	149.91	7.62 m
	1	Vz max	0.11	118.13	1272.00	149.91	7.62 m
	3	Vy min	86.41	123.52	2500.80	294.72	7.62 m
	3	Vy max	86.51	173.85	2500.80	294.72	7.62 m
	3	Vz min	0.11	174.92	1272.00	149.91	7.62 m
	3	Vz max	0.11	174.92	1272.00	149.91	7.62 m
12	1	Vy min	84.59	141.66	2500.80	294.72	7.62 m
	1	Vy max	82.95	97.31	2500.80	294.72	7.62 m
	1	Vz min	0.63	123.07	1272.00	149.91	7.62 m
	1	Vz max	0.63	123.07	1272.00	149.91	7.62 m
	3	Vy min	89.67	164.23	2500.80	294.72	7.62 m
	3	Vy max	88.02	114.81	2500.80	294.72	7.62 m
	3	Vz min	0.63	159.13	1272.00	149.91	7.62 m
	3	Vz max	0.63	159.13	1272.00	149.91	7.62 m
13	1	Vy min	64.96	82.47	2500.80	294.72	7.62 m
	1	Vy max	65.23	120.03	2500.80	294.72	7.62 m
	1	Vz min	0.22	104.67	1272.00	149.91	7.62 m
	1	Vz max	0.22	104.67	1272.00	149.91	7.62 m
	3	Vy min	68.94	96.20	2500.80	294.72	7.62 m
	3	Vy max	69.21	137.74	2500.80	294.72	7.62 m
	3	Vz min	0.22	132.97	1272.00	149.91	7.62 m
	3	Vz max	0.22	132.97	1272.00	149.91	7.62 m

14.16 Cimentación de Pilas

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

ESFUERZOS DE PRIMER ORDEN EN LA CIMENTACION. ELS

pila	sec	env	Nk [t]	Vyk [t]	Vzk [t]	Myk [mt]	Mzk [mt]		
1	3	My min	-1634.53	-0.08	-20.96	-208.77	-22.01	1229.02	0.00
	3	My max	-1634.53	-0.08	20.96	208.77	-22.01	1229.02	0.00
	3	Mz min	-1780.27	-36.56	-10.48	-104.39	-1334.52	1447.02	0.00
	3	Mz max	-2030.44	36.04	10.48	104.39	1275.85	1658.03	0.00
	3	N min	-2642.63	10.67	0.00	0.00	114.96	2136.31	0.00
	3	N max	-1296.40	-11.37	0.00	0.00	-234.07	924.71	0.00
2	3	My min	-2102.96	0.19	-27.27	-353.46	-22.03	2103.61	0.00
	3	My max	-2102.96	0.19	27.27	353.46	-22.03	2103.61	0.00
	3	Mz min	-2424.32	-23.04	-13.63	-176.73	-1506.70	2587.58	0.00
	3	Mz max	-2488.55	23.47	13.63	176.73	1450.99	2690.37	0.00
	3	N min	-3179.06	-6.13	0.00	0.00	-238.52	3394.94	0.00
	3	N max	-1870.71	7.28	0.00	0.00	132.73	1824.92	0.00
3	3	My min	-2065.58	-0.09	-28.32	-381.25	-27.96	2127.66	0.00
	3	My max	-2065.58	-0.09	28.32	381.25	-27.96	2127.66	0.00
	3	Mz min	-2356.41	-36.05	-14.16	-190.63	-1914.27	2596.50	0.00
	3	Mz max	-2451.94	35.81	14.16	190.63	1843.79	2733.85	0.00
	3	N min	-3140.12	-7.48	0.00	0.00	-271.77	3470.85	0.00
	3	N max	-1802.76	7.69	0.00	0.00	145.49	1799.14	0.00
4	3	My min	-2065.61	-0.05	-29.37	-410.10	-27.67	2195.27	0.00
	3	My max	-2065.61	-0.05	29.37	410.10	-27.67	2195.27	0.00
	3	Mz min	-2358.51	-36.35	-14.69	-205.05	-2003.18	2684.66	0.00
	3	Mz max	-2451.74	36.24	14.69	205.05	1933.88	2826.89	0.00
	3	N min	-3146.59	-6.67	0.00	0.00	-271.08	3600.54	0.00
	3	N max	-1798.71	7.02	0.00	0.00	147.04	1848.29	0.00
5	3	My min	-2081.54	0.03	-30.43	-440.00	-25.61	2282.98	0.00
	3	My max	-2081.54	0.03	30.43	440.00	-25.61	2282.98	0.00
	3	Mz min	-2373.69	-31.41	-15.21	-220.00	-1929.62	2790.34	0.00
	3	Mz max	-2467.70	31.52	15.21	220.00	1866.16	2938.44	0.00
	3	N min	-3162.04	-5.38	0.00	0.00	-235.77	3741.65	0.00
	3	N max	-1814.21	6.07	0.00	0.00	121.04	1922.08	0.00
6	3	My min	-2081.00	-0.02	-30.43	-440.00	-26.31	2282.25	0.00
	3	My max	-2081.00	-0.02	30.43	440.00	-26.31	2282.25	0.00
	3	Mz min	-2373.35	-30.10	-15.21	-220.00	-1906.95	2789.82	0.00

CIMENTACIÓN DE PILAS VIADUCTO 2

CIMENTACIÓN DE PILAS EN VIADUCTO Nº 2

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1 CIMENTACION DE PILAS

A continuación se incluye la comprobación de la cimentación. Esta comprobación se lleva a cabo con el programa LSTC, desarrollado por Fhecor Ingenieros Consultores.

Para la comprobación de la cimentación se tienen en cuenta los efectos de segundo orden mediante el método de la excentricidad adicional propuesto por la Instrucción EH-91.

En el caso de esta estructura, las pilas se cimentan mediante pilotes.

La longitud del pilote se calcula en cada apoyo para que la tensión de trabajo global sea de 40 kg/cm^2, sin tener en cuenta el efecto de grupo. La cimentación resultante es un conjunto de 9 pilotes de 1.80 metros de diámetro separados 4.50 metros entre sí (2.5 veces el diámetro).

Para esta disposición de pilotes, el efecto grupo es de 0.76, por lo que la capacidad de los pilotes es de 760 toneladas.

Para el dimensionamiento de la armadura de los encepados, se ha aplicado el método de bielas y tirantes, puesto que se trata de elementos rígidos.

Para dimensionar la armadura de los pilotes se elaboró un modelo de barras que representa al pilote empotrado en cabeza, apoyado verticalmente en la punta y horizontalmente en muelles correspondientes al coeficiente de balasto horizontal. Para el coeficiente de balasto horizontal se ha tomado, de lado de la seguridad, un valor constante con la profundidad igual a *555 t/m^3* correspondiente al peor suelo (E_s=200 kg/cm^2). Estos parámetros dan lugar a una luz equivalente (suponiendo el pilote en ménsula) de 4.90 metros.

El detalle de este cálculo se incluye en el apartado "RESULTADOS DEL CÁLCULO".

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✍
Programa LSTC - Cálculo de Cimentaciones
                (V. 3.1)

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COMPROBACION DE CARGAS VERTICALES EN PILOTES

LEYENDA: npy = nº de pilotes en la dirección y
         npz = nº de pilotes en la dirección z (-1=> 3 pilotes)
         dpy = separación de los pilotes en la dirección y
         dpz = separación de los pilotes en la dirección z
         ?= diámetro de los pilotes
         lp 0 longitud de los pilotes
         Pmax = carga soportada por el pilote más cargado
         Pmin = carga soportada por el pilote menos cargado
         Pu = carga admisible del pilote
         Pua= carga admisible del pilote a tracción
         * = Pmax > Pu
         ! = Pmin < Pua
-------------------------------------------------------------------------------
Pila  hip     N        Vy       Vz       My       Mz      ?      lp
            [t]       [t]      [t]     [mt]     [mt]    [m]     [m]
            Pmax     Pmin      Pu
            [t]       [t]      [t]
-------------------------------------------------------------------------------

Distribución de los pilotes:
npy =   3   npz =  3   dpy [m] = 4.50   dpz [m] = 4.50

 1     1 -3246.09    -0.22   -87.52 -1755.44   -33.03    1.80   13.00
           426.92   294.44   760.00    -0.00
       2 -3246.09    -0.22    87.52 -1755.44   -33.03    1.80   13.00
           426.92   294.44   760.00    -0.00
       3 -3420.14   -42.59   -86.94 -1827.76 -1545.07    1.80   13.00
           504.94   255.10   760.00    -0.00
       4 -3651.38    41.59   101.82 -2154.97 -1474.84    1.80   13.00
           540.15   271.27   760.00    -0.00
       5 -4265.80    11.11  -118.60 -2609.16  -157.36    1.80   13.00
           576.44   371.51   760.00    -0.00
       6 -2867.84   -12.42   -48.70 -1071.39  -295.06    1.80   13.00
           369.26   268.04   760.00    -0.00

Distribución de los pilotes:
npy =   3   npz =  3   dpy [m] = 4.50   dpz [m] = 4.50

 2     1 -3709.35     0.25  -113.32 -3459.30   -42.42    1.80   24.00
           541.84   282.46   760.00    -0.00
       2 -3709.35     0.25   113.32 -3459.30   -42.42    1.80   24.00
           541.84   282.46   760.00    -0.00
       3 -4059.87   -21.04  -116.95 -3807.23 -1497.06    1.80   24.00
           647.55   254.64   760.00    -0.00
       4 -4036.17    21.66   125.43 -4042.72 -1443.62    1.80   24.00
           651.66   245.27   760.00    -0.00
       5 -4795.66    -5.69  -140.37 -4818.70  -253.56    1.80   24.00
           720.71   344.99   760.00    -0.00
       6 -3435.01     7.13   -72.33 -2526.26  -155.19    1.80   24.00
           480.98   282.35   760.00    -0.00

Distribución de los pilotes:
npy =   3   npz =  3   dpy [m] = 4.50   dpz [m] = 4.50

 3     1 -3685.93    -0.07  -112.53 -3568.63   -41.23    1.80   26.00
           543.25   275.85   760.00    -0.00
       2 -3685.93    -0.07   112.53 -3568.63   -41.23    1.80   26.00
           543.25   275.85   760.00    -0.00
       3 -4007.07   -35.50  -114.36 -3880.35 -1980.14    1.80   26.00
           662.29   228.17   760.00    -0.00
       4 -4014.40    35.32   123.87 -4163.32 -1906.13    1.80   26.00
```

```
          670.84   221.25   760.00    -0.00
       5 -4768.63    -7.44  -138.34 -4970.56  -300.90    1.80   26.00
          725.09   334.61   760.00    -0.00
       6 -3385.31     7.73   -69.17 -2535.74  -173.18    1.80   26.00
          476.48   275.82   760.00    -0.00

Distribución de los pilotes:
npy =   3   npz =  3   dpy [m] = 4.50   dpz [m] = 4.50

 4     1 -3682.13    -0.05  -112.71 -3712.32   -41.07    1.80   24.00
          548.14   270.11   760.00    -0.00
       2 -3682.13    -0.05   112.71 -3712.32   -41.07    1.80   24.00
          548.14   270.11   760.00    -0.00
       3 -4004.65   -36.26  -114.06 -4033.32 -2080.96    1.80   24.00
          671.42   218.51   760.00    -0.00
       4 -4010.42    36.17   123.57 -4325.68 -2007.50    1.80   24.00
          680.16   211.04   760.00    -0.00
       5 -4770.65    -6.72  -137.77 -5173.70  -300.23    1.80   24.00
          732.81   327.33   760.00    -0.00
       6 -3377.15     7.10   -68.09 -2614.49  -173.86    1.80   24.00
          478.51   271.97   760.00    -0.00

Distribución de los pilotes:
npy =   3   npz =  3   dpy [m] = 4.50   dpz [m] = 4.50

 5     1 -3699.02     0.03  -113.93 -3896.91   -41.33    1.80   22.00
          556.86   265.14   760.00    -0.00
       2 -3699.02     0.03   113.93 -3896.91   -41.33    1.80   22.00
          556.86   265.14   760.00    -0.00
       3 -4020.91   -31.51  -114.74 -4224.50 -1993.86    1.80   22.00
          677.08   216.46   760.00    -0.00
       4 -4027.41    31.66   124.24 -4527.07 -1927.16    1.80   22.00
          686.54   208.44   760.00    -0.00
       5 -4786.90    -5.43  -137.90 -5406.31  -259.59    1.80   22.00
          741.73   322.03   760.00    -0.00
       6 -3393.95     6.15   -68.26 -2740.25  -143.84    1.80   22.00
          483.92   270.29   760.00    -0.00

Distribución de los pilotes:
npy =   3   npz =  3   dpy [m] = 4.50   dpz [m] = 4.50

 6     1 -3698.15    -0.02  -113.89 -3895.27   -41.28    1.80   15.00
          556.70   265.11   760.00    -0.00
       2 -3698.15    -0.02   113.89 -3895.27   -41.28    1.80   15.00
          556.70   265.11   760.00    -0.00
       3 -4020.17   -30.20  -114.70 -4223.02 -1966.32    1.80   15.00
          675.92   217.45   760.00    -0.00
       4 -4026.54    30.16   124.20 -4525.52 -1895.48    1.80   15.00
          685.21   209.58   760.00    -0.00
       5 -4786.47    -4.74  -137.88 -5405.51  -246.89    1.80   15.00
          741.18   322.48   760.00    -0.00
       6 -3392.80     5.29   -68.20 -2738.03  -127.56    1.80   15.00
          483.11   270.84   760.00    -0.00

Distribución de los pilotes:
npy =   3   npz =  3   dpy [m] = 4.50   dpz [m] = 4.50

 7     1 -3686.12    -0.03  -112.91 -3719.63   -41.07    1.80   20.00
          548.85   270.28   760.00    -0.00
       2 -3686.12    -0.03   112.91 -3719.63   -41.07    1.80   20.00
          548.85   270.28   760.00    -0.00
       3 -4008.39   -33.10   114.26 -4040.45 -2036.69    1.80   20.00
          670.46   220.30   760.00    -0.00
       4 -4014.35    33.04  -123.75 -4332.44 -1963.18    1.80   20.00
          679.21   212.87   760.00    -0.00
       5 -4774.81    -4.26  -137.97 -5181.31  -220.15    1.80   20.00
          730.59   330.48   760.00    -0.00
       6 -3380.52     4.69   -68.26 -2620.69   -94.37    1.80   20.00
          476.17   275.06   760.00    -0.00

Distribución de los pilotes:
npy =   3   npz =  3   dpy [m] = 4.50   dpz [m] = 4.50

 8     1 -3671.06    -0.07  -111.78 -3542.45   -40.93    1.80   16.00
          540.61   275.18   760.00    -0.00
       2 -3671.06    -0.07   111.78 -3542.45   -40.93    1.80   16.00
          540.61   275.18   760.00    -0.00
       3 -4021.87   -37.07  -113.64 -3863.21 -2121.08    1.80   16.00
          668.51   225.23   760.00    -0.00
       4 -4028.45    36.98   123.17 -4146.61 -2045.67    1.80   16.00
          676.95   218.26   760.00    -0.00
       5 -4760.59    -3.90  -137.94 -4956.43  -212.97    1.80   16.00
          720.41   337.50   760.00    -0.00
       6 -3364.71     4.13   -68.14 -2499.47   -80.28    1.80   16.00
          469.40   278.31   760.00    -0.00

Distribución de los pilotes:
npy =   3   npz =  3   dpy [m] = 4.50   dpz [m] = 4.50

 9     1 -3683.76     0.02  -112.79 -3715.30   -40.99    1.80   16.00
          548.43   270.18   760.00    -0.00
       2 -3683.76     0.02   112.79 -3715.30   -40.99    1.80   16.00
          548.43   270.18   760.00    -0.00
       3 -4005.37   -26.10  -114.50 -4046.77 -1755.12    1.80   16.00
          659.93   230.16   760.00    -0.00
       4 -4011.88    26.12   123.24 -4316.01 -1687.71    1.80   16.00
          668.12   223.40   760.00    -0.00
       5 -4772.18    -2.09  -137.84 -5176.48  -150.15    1.80   16.00
          727.52   332.96   760.00    -0.00
       6 -3377.64     2.79   -68.11 -2615.38   -45.94    1.80   16.00
          473.86   276.73   760.00    -0.00

Distribución de los pilotes:
npy =   3   npz =  3   dpy [m] = 4.50   dpz [m] = 4.50

10     1 -3674.91     0.23  -111.98 -3549.24   -41.65    1.80   16.00
          541.32   275.33   760.00    -0.00
       2 -3674.91     0.23   111.98 -3549.24   -41.65    1.80   16.00
          541.32   275.33   760.00    -0.00
       3 -4027.70   -18.11   114.31 -3884.76 -1503.61    1.80   16.00
          647.09   247.95   760.00    -0.00
       4 -4032.06    18.83  -122.97 -4141.80 -1453.80    1.80   16.00
          655.25   240.76   760.00    -0.00
       5 -4764.33    -0.80  -138.12 -4962.98  -118.52    1.80   16.00
          717.57   341.17   760.00    -0.00
       6 -3370.54     2.46   -68.43 -2509.73   -44.48    1.80   16.00
          469.10   279.90   760.00    -0.00

Distribución de los pilotes:
npy =   3   npz =  3   dpy [m] = 4.50   dpz [m] = 4.50

11     1 -3589.45     0.17  -105.82 -2331.17   -39.70    1.80   13.00
          486.64   311.02   760.00    -0.00
       2 -3589.45     0.17   105.82 -2331.17   -39.70    1.80   13.00
          486.64   311.02   760.00    -0.00
       3 -3933.81   -15.53  -110.29 -2542.81 -1425.48    1.80   13.00
          584.06   290.12   760.00    -0.00
       4 -3945.37    15.90   119.42 -2761.79 -1365.72    1.80   13.00
          591.25   285.50   760.00    -0.00
       5 -4674.65    -0.36  -137.02 -3288.38   -96.42    1.80   13.00
          644.77   394.04   760.00    -0.00
       6 -3278.84     2.18   -67.22 -1613.37   -41.53    1.80   13.00
          425.61   303.02   760.00    -0.00

Distribución de los pilotes:
npy =   3   npz =  3   dpy [m] = 4.50   dpz [m] = 4.50

12     1 -3537.54    -0.69   -99.83 -1521.98   -40.74    1.80   13.00
          450.94   335.18   760.00    -0.00
       2 -3537.54    -0.69    99.83 -1521.98   -40.74    1.80   13.00
          450.94   335.18   760.00    -0.00
       3 -3829.67   -55.50  -110.80 -1735.18 -2020.12    1.80   13.00
          564.60   286.43   760.00    -0.00
       4 -3932.57    53.81   118.30 -1855.18 -1921.40    1.80   13.00
          576.83   297.08   760.00    -0.00
       5 -4629.42    -2.06  -140.83 -2253.26  -134.68    1.80   13.00
```

```
          602.82   425.94   760.00    -0.00
       6 -3259.60    -0.53   -72.34 -1157.41   -49.26    1.80   13.00
          406.87   317.49   760.00    -0.00

Distribución de los pilotes:
npy =   3   npz =  3   dpy [m] = 4.50   dpz [m] = 4.50

13     1 -3192.27     0.22   -81.43 -1016.47   -31.96    1.80   13.00
          393.53   315.87   760.00    -0.00
       2 -3192.27     0.22    81.43 -1016.47   -31.96    1.80   13.00
          393.53   315.87   760.00    -0.00
       3 -3338.01   -18.15    86.00 -1096.95 -1085.61    1.80   13.00
          451.73   290.05   760.00    -0.00
       4 -3617.47    18.63  -100.40 -1284.09 -1034.45    1.80   13.00
          487.81   316.07   760.00    -0.00
       5 -4210.48     1.25  -121.91 -1584.80   -63.05    1.80   13.00
          528.86   406.80   760.00    -0.00
       6 -2826.69    -0.17   -52.72  -685.33   -45.82    1.80   13.00
          341.16   287.00   760.00    -0.00


Programa LSTC - Cálculo de Cimentaciones
               (V. 3.1)

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF. E-1.

COMPROBACION CANTO DE LA ZAPATA

LEYENDA: A,B    = dimensiones de la zapata en planta
         Tipo de zapata -> 0=hexagonal, 1= rectangular
         H      = canto de la zapata
         a_pila = dimensión del fuste en la dir perpend al eje pte
         b_pila = dimensión del fuste en la dir paralela al eje pte
         tipo_p -> tipo de superficie de punzonamiento
         ?max   = tensión tangencial máxima en el perímetro de punz
         ?adm   = tensión tangencial admisible
         !      = ?max > ?adm
-------------------------------------------------------------------------
Pila  hip    fuste     N        My       Mz       A        B        H
                      [t]      [mt]     [mt]     [m]      [m]      [m]
                    a_pila   b_pila   tipo_p   ?max      ?adm
                     [m]      [m]              [kp/cm2] [kp/cm2]
-------------------------------------------------------------------------

Tipo de zapata: 1

 1     1       1   -2385.18   -47.70  2084.32   12.80     12.80    4.00
                      0.80     0.80      1      3.79     14.33
       2       1   -2385.18   -47.70  2084.32   12.80     12.80    4.00
                      0.80     0.80      1      3.79     14.33
       3       1   -1636.55 -2078.59  1562.97   12.80     12.80    4.00
                      0.80     0.80      1      3.23     14.33
       4       1   -2724.59 -2006.94  2583.69   12.80     12.80    4.00
                      0.80     0.80      1      4.95     14.33
       5       1   -3914.75  -179.13  3178.42   12.80     12.80    4.00
                      0.80     0.80      1      6.18     14.33
       6       1    -832.22   -67.40   689.91   12.80     12.80    4.00
                      0.80     0.80      1      1.33     14.33

Tipo de zapata: 1

 2     1       1   -2940.41   -58.81  4499.80   12.80     12.80    4.00
                      0.80     0.80      1      5.23     14.33
       2       1   -2940.41   -58.81  4262.62   12.80     12.80    4.00
                      0.80     0.80      1      5.16     14.33
       3       1   -2270.67 -2134.34  3613.48   12.80     12.80    4.00
                      0.80     0.80      1      4.68     14.33
       4       1   -3140.86 -2074.99  4962.14   12.80     12.80    4.00
                      0.80     0.80      1      6.20     14.33
       5       1   -4569.87  -337.56  6505.01   12.80     12.80    4.00
                      0.80     0.80      1      8.05     14.33
       6       1   -1351.23  -876.60  1901.91   12.80     12.80    4.00
                      0.80     0.80      1      2.60     14.33

Tipo de zapata: 1

 3     1       1   -2918.20   -58.36  4695.27   12.80     12.80    4.00
                      0.80     0.80      1      5.25     14.33
       2       1   -2918.20   -58.36  4439.02   12.80     12.80    4.00
                      0.80     0.80      1      5.18     14.33
       3       1   -2207.26 -2767.12  3702.07   12.80     12.80    4.00
                      0.80     0.80      1      4.80     14.33
       4       1   -3120.97 -2689.55  5151.04   12.80     12.80    4.00
                      0.80     0.80      1      6.41     14.33
       5       1   -4542.24  -395.27  6782.57   12.80     12.80    4.00
                      0.80     0.80      1      8.11     14.33
       6       1   -1297.69  -854.95  1910.74   12.80     12.80    4.00
                      0.80     0.80      1      2.52     14.33

Tipo de zapata: 1

 4     1       1   -2919.41   -58.39  4931.19   12.80     12.80    4.00
                      0.80     0.80      1      5.32     14.33
       2       1   -2919.41   -58.39  4653.08   12.80     12.80    4.00
                      0.80     0.80      1      5.24     14.33
       3       1   -2207.16 -2905.15  3882.97   12.80     12.80    4.00
                      0.80     0.80      1      4.89     14.33
       4       1   -3119.49 -2828.05  5385.80   12.80     12.80    4.00
                      0.80     0.80      1      6.51     14.33
       5       1   -4552.18  -398.47  7124.80   12.80     12.80    4.00
                      0.80     0.80      1      8.22     14.33
       6       1   -1288.85 -1133.51  1985.58   12.80     12.80    4.00
                      0.80     0.80      1      2.61     14.33

Tipo de zapata: 1

 5     1       1   -2943.27   -58.87  5212.06   12.80     12.80    4.00
                      0.80     0.80      1      5.43     14.33
       2       1   -2943.27   -58.87  4908.82   12.80     12.80    4.00
                      0.80     0.80      1      5.35     14.33
       3       1   -2219.68 -2793.20  4091.24   12.80     12.80    4.00
                      0.80     0.80      1      4.93     14.33
       4       1   -3141.63 -2722.55  5659.53   12.80     12.80    4.00
                      0.80     0.80      1      6.59     14.33
       5       1   -4575.08  -346.04  7496.47   12.80     12.80    4.00
                      0.80     0.80      1      8.35     14.33
       6       1   -1302.48  -884.98  2098.55   12.80     12.80    4.00
                      0.80     0.80      1      2.59     14.33

Tipo de zapata: 1

 6     1       1   -2942.37   -58.85  5210.42   12.80     12.80    4.00
                      0.80     0.80      1      5.43     14.33
       2       1   -2942.37   -58.85  4907.28   12.80     12.80    4.00
                      0.80     0.80      1      5.35     14.33
       3       1   -2219.22 -2748.79  4090.32   12.80     12.80    4.00
                      0.80     0.80      1      4.92     14.33
       4       1   -3140.67 -2673.87  5658.10   12.80     12.80    4.00
                      0.80     0.80      1      6.58     14.33
       5       1   -4574.85  -330.84  7496.05   12.80     12.80    4.00
                      0.80     0.80      1      8.34     14.33
       6       1   -1301.40 -1049.41  2096.70   12.80     12.80    4.00
                      0.80     0.80      1      2.64     14.33

Tipo de zapata: 1

 7     1       1   -2923.61   -58.47  4938.47   12.80     12.80    4.00
                      0.80     0.80      1      5.33     14.33
       2       1   -2923.61   -58.47  4659.96   12.80     12.80    4.00
                      0.80     0.80      1      5.25     14.33
       3       1   -2209.79 -2825.15  3887.83   12.80     12.80    4.00
                      0.80     0.80      1      4.87     14.33
       4       1   -3123.79 -2747.80  5392.01   12.80     12.80    4.00
                      0.80     0.80      1      6.50     14.33
       5       1   -4556.65  -293.06  7132.54   12.80     12.80    4.00
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                    0.80     0.80      1      8.20     14.33
       6       1   -1291.32  -855.76  1989.61   12.80     12.80    4.00
                    0.80     0.80      1      2.54     14.33

Tipo de zapata: 1

 8     1       1   -2902.16   -58.04  4668.83   12.80     12.80    4.00
                    0.80     0.80      1      5.22     14.33
       2       1   -2902.16   -58.04  4414.00   12.80     12.80    4.00
                    0.80     0.80      1      5.15     14.33
       3       1   -2240.55 -2915.00  3700.67   12.80     12.80    4.00
                    0.80     0.80      1      4.88     14.33
       4       1   -3147.84 -2836.33  5139.92   12.80     12.80    4.00
                    0.80     0.80      1      6.48     14.33
       5       1   -4536.45  -283.99  6773.02   12.80     12.80    4.00
                    0.80     0.80      1      8.07     14.33
       6       1   -1278.13  -999.26  1880.23   12.80     12.80    4.00
                    0.80     0.80      1      2.53     14.33

Tipo de zapata: 1

 9     1       1   -2920.88   -58.42  4933.74   12.80     12.80    4.00
                    0.80     0.80      1      5.32     14.33
       2       1   -2920.88   -58.42  4655.49   12.80     12.80    4.00
                    0.80     0.80      1      5.24     14.33
       3       1   -2206.94 -2427.60  3898.32   12.80     12.80    4.00
                    0.80     0.80      1      4.76     14.33
       4       1   -3120.94 -2355.96  5371.80   12.80     12.80    4.00
                    0.80     0.80      1      6.38     14.33
       5       1   -4553.51  -202.22  7127.10   12.80     12.80    4.00
                    0.80     0.80      1      8.17     14.33
       6       1   -1288.68  -717.51  1985.30   12.80     12.80    4.00
                    0.80     0.80      1      2.49     14.33

Tipo de zapata: 1

10     1       1   -2906.25   -58.13  4675.58   12.80     12.80    4.00
                    0.80     0.80      1      5.23     14.33
       2       1   -2906.25   -58.13  4420.39   12.80     12.80    4.00
                    0.80     0.80      1      5.16     14.33
       3       1   -2246.50 -2098.48  3725.10   12.80     12.80    4.00
                    0.80     0.80      1      4.66     14.33
       4       1   -3151.66 -2043.69  5131.37   12.80     12.80    4.00
                    0.80     0.80      1      6.26     14.33
       5       1   -4540.38  -164.39  6779.51   12.80     12.80    4.00
                    0.80     0.80      1      8.04     14.33
       6       1   -1283.90  -700.25  1889.22   12.80     12.80    4.00
                    0.80     0.80      1      2.45     14.33

Tipo de zapata: 1

11     1       1   -2783.75   -55.67  2719.02   12.80     12.80    4.00
                    0.80     0.80      1      4.51     14.33
       2       1   -2783.75   -55.67  2719.02   12.80     12.80    4.00
                    0.80     0.80      1      4.51     14.33
       3       1   -2164.89 -1995.19  2200.62   12.80     12.80    4.00
                    0.80     0.80      1      4.09     14.33
       4       1   -3038.05 -1929.88  3264.38   12.80     12.80    4.00
                    0.80     0.80      1      5.54     14.33
       5       1   -4411.56  -133.04  3967.64   12.80     12.80    4.00
                    0.80     0.80      1      7.06     14.33
       6       1   -1206.04  -517.95  1136.96   12.80     12.80    4.00
                    0.80     0.80      1      2.08     14.33

Tipo de zapata: 1

12     1       1   -2682.50   -53.65  1584.25   12.80     12.80    4.00
                    0.80     0.80      1      4.04     14.33
       2       1   -2682.50   -53.65  1584.25   12.80     12.80    4.00
                    0.80     0.80      1      4.04     14.33
       3       1   -2043.13 -2635.52  1342.62   12.80     12.80    4.00
                    0.80     0.80      1      3.86     14.33
       4       1   -3011.95 -2537.93  1966.65   12.80     12.80    4.00
                    0.80     0.80      1      5.31     14.33
       5       1   -4320.30  -175.35  2435.17   12.80     12.80    4.00
                    0.80     0.80      1      6.51     14.33
       6       1   -1208.36  -501.80   699.52   12.80     12.80    4.00
                    0.80     0.80      1      1.95     14.33

Tipo de zapata: 1

13     1       1   -2278.11   -45.56  1012.42   12.80     12.80    4.00
                    0.80     0.80      1      3.34     14.33
       2       1   -2278.11   -45.56  1012.42   12.80     12.80    4.00
                    0.80     0.80      1      3.34     14.33
       3       1   -1552.86 -1483.77   782.09   12.80     12.80    4.00
                    0.80     0.80      1      2.72     14.33
       4       1   -2661.09 -1427.04  1296.14   12.80     12.80    4.00
                    0.80     0.80      1      4.33     14.33
       5       1   -3805.43   -78.96  1622.02   12.80     12.80    4.00
                    0.80     0.80      1      5.56     14.33
       6       1    -810.58  -267.01   350.89   12.80     12.80    4.00
                    0.80     0.80      1      1.26     14.33
```

1.0 INTRODUCCION

Este informe tiene como objeto la presentación de una alternativa a la cimentación de las pilas del viaducto nº 2, utilizando para ello unos pilotes de 1800 mm de diámetro. Para el cálculo de los mismos se han utilizado los mismos esfuerzos utilizados en Proyecto para el cálculo de la cimentación.

1.1 ANTECEDENTES

Se cita como antecedente de este informe el Proyecto de Construcción de la citada estructura.

2.0 DESCRIPCION DE LA SOLUCION ADOPTADA

El dimensionamiento de la nueva cimentación se ha realizado a partir de los parámetros geotécnicos y con las cargas en encepados utilizados en el dimensionamiento de los pilotes en el Proyecto de Construcción.

Para poder utilizar las cargas del proyecto de construcción se ha eliminado la carga correspondiente al peso del encepado de Proyecto y se ha añadido el peso del nuevo encepado. En la nueva carga vertical no se ha tenido en cuenta la reducción del peso de las tierras que se encuentran encima del encepado debido a la disminución de éste.

El cálculo de los pilotes frente a esfuerzos transversales, se ha realizado bajo las mismas hipótesis de proyecto. Se considera un empotramiento de los mismos en el sustrato sano de 1,1 veces la longitud elástica, que supone una longitud de:

$$1{,}1 * \sqrt[4]{\frac{Ep * Ip}{G}} = 1.1 * \sqrt[4]{\frac{300416 * 0.5153}{300}} = 5.24\ m$$

Esta condición es menos exigente que la de empotrar el pilote en el sustrato sano cuatro diámetros (7,2m), para poder desarrollar toda la resistencia por punta del mismo, y dado que la diferencia no es sustancial, respecto a la anterior, se ha considerado esta última opción en los pilotes en los que no se alcanzaba dicha longitud.

El cálculo de la longitud de los pilotes se ha realizado con la resistencia por punta y por fuste dadas en el Proyecto de Construcción, y con los mismos espesores de las distintas formaciones que atraviesa cada uno de ellos.

Una vez establecida la longitud de los pilotes, se ha procedido al cálculo de la armadura, para lo cual, se ha discretizado cada pilote en cuarenta barras, siendo modelizado el terreno mediante muelles horizontales con una rigidez deducida del módulo de balasto horizontal de 555 t/m^3, constante en profundidad, dado en el Proyecto de Construcción. Estructuralmente, el pilote se ha considerado empotrado en cabeza y apoyado en su pie. Con los esfuerzos así obtenidos se ha realizado un cálculo de la armadura considerando la hipótesis de mínimo axil en pilote concomitante con el momento calculado en cabeza del mismo. Con el esfuerzo horizontal considerado en cabeza se ha realizado un cálculo de la armadura de cortante necesaria.

Por otra parte, el cálculo de la armadura de los encepados se ha realizado igual que en el proyecto de construcción, aplicando el método de bielas y tirantes, puesto que se trata de elementos rígidos.

Todos los cálculos realizados y los planos de la cimentación propuesta se adjuntan en el anejo correspondiente.

Madrid, *20 de agosto de 1999*

Fdo: Andrés Viñuela Rueda
Ingeniero de Caminos

3.0 ANEJO DE CALCULO

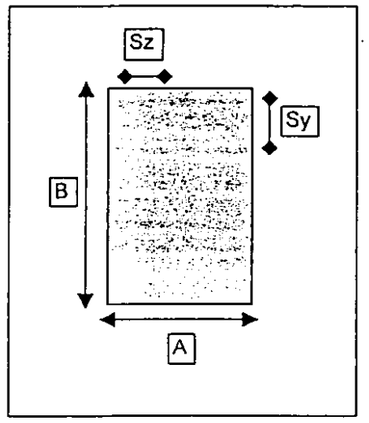
CALCULO DE CARGAS VERTICALES EN PILOTES

DIMENSIONES NUEVAS	Sz	Sy	CANTO	NUMERO DE PILOTES	
	2.5	3.6	2.5		6

ESFUERZOS	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
N	-2 122.03	-2 122.03	-2 267.77	-2 517.94	-3 130.13	-1 783.90
Vy	-0.08	-0.08	-36.56	-36.04	-10.67	-11.37
Vz	-89.24	-89.24	-90.87	-102.59	-118.68	-51.37
My	-1 660.90	-1 660.90	-1 778.59	-2 018.89	-2 433.01	-1 053.13
Mz	-32.89	-32.89	-1 425.92	-1 365.95	-141.64	-262.50

ESF. MAX.	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
Nmax	466.68	466.68	595.56	649.11	693.72	385.75
Nmin	240.66	240.66	160.37	190.21	349.65	208.88
Qmax	14.87	14.87	16.32	18.12	19.86	8.77

	A (m)	B (m)	LONGITUD PILOTES (m):
DIMENSIONES	7.8	10.0	15.0

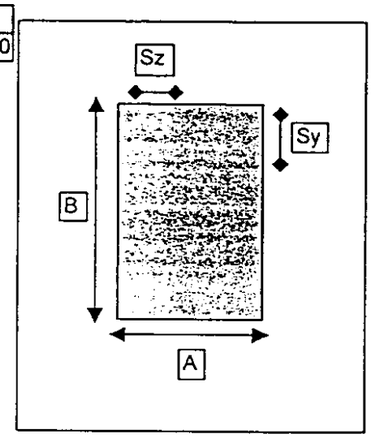


DIMENSIONES NUEVAS	Sz	Sy	CANTO	NUMERO DE PILOTES	
	3.6	3.6	2.5		6

ESFUERZOS	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
N	-2 727.96	-2 727.96	-3 049.32	-3 113.55	-3 804.06	-2 495.71
Vy	0.19	0.19	-23.04	23.47	-6.13	-7.28
Vz	114.92	114.92	121.45	125.73	-141.46	-76.04
My	-3 340.83	-3 340.83	-3 754.11	-3 886.40	-4 643.24	-2 537.09
Mz	-42.53	-42.53	-1 564.30	-1 509.67	-253.84	-150.93

ESF. MAX.	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
Nmax	612.28	612.28	790.65	803.69	866.60	543.89
Nmin	297.04	297.04	225.79	234.16	401.42	288.01
Qmax	19.15	19.15	20.60	21.32	23.60	12.73

	A (m)	B (m)	LONGITUD PILOTES (m):
DIMENSIONES	10.0	10.0	26.0



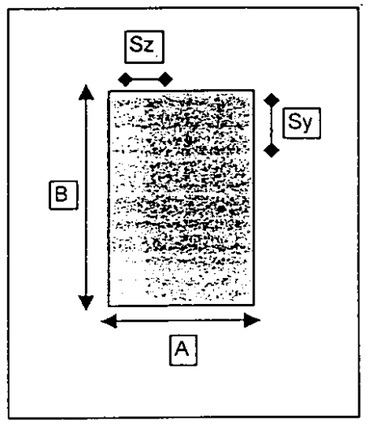
PILA 3

DIMENSIONES NUEVAS	Sz	Sy	CANTO	NUMERO DE PILOTES	
	3.6	3.6	2.5		6

ESFUERZOS	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
N	-2 693.08	-2.693.08	-2 983.91	-3 079.44	-3 767.62	-2 430.26
Vy	-0.09	-0.09	-36.05	-35.81	-7.48	-7.69
Vz	113.43	113.43	118.02	123.52	138.83	71.97
My	-3 430.23	-3 430.23	-3 808.11	-3 989.17	-4 779.72	-2 526.16
Mz	-41,53	-41.53	-2 004.39	-1.933.31	-290.47	-164.72

ESF. MAX.	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
Nmax	610.54	610.54	812.81	832.18	869.39	533.43
Nmin	287.16	287.16	181.82	194.30	386.48	276.65
Qmax	18.91	18.91	20.57	21.43	23.17	12.06

	A (m)	B (m)	LONGITUD PILOTES (m):
DIMENSIONES	10.0	10.0	31.0



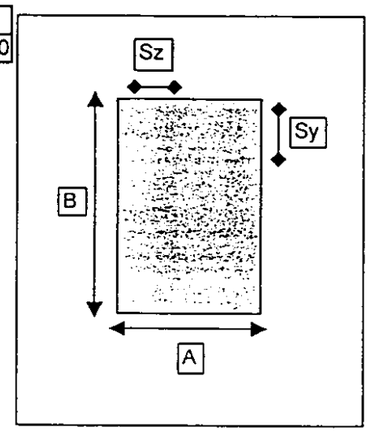
PILA 4

DIMENSIONES NUEVAS	Sz	Sy	CANTO	NUMERO DE PILOTES	
	3.6	3.6	2.5		6

ESFUERZOS	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
N	-2 690.61	-2 690.61	-2 983.51	-3 076.74	-3 771.59	-2 423.71
Vy	-0.05	-0.05	-36.35	-36.24	-6.67	-7.02
Vz	113.81	113.81	117.94	123.41	138.48	71.09
My	-3 581.79	-3 581.79	-3 972.72	-4 160.40	-4 992.29	-2 618.02
Mz	-41.43	-41.43	-2 094.05	-2 024.48	-287.75	-164.59

ESF. MAX.	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
Nmax	617.14	617.14	826.59	845.99	879.70	536.59
Nmin	279.73	279.73	167.91	179.59	377.49	271.32
Qmax	18.97	18.97	20.57	21.44	23.11	11.91

	A (m)	B (m)	LONGITUD PILOTES (m):
DIMENSIONES	10.0	10.0	28.0



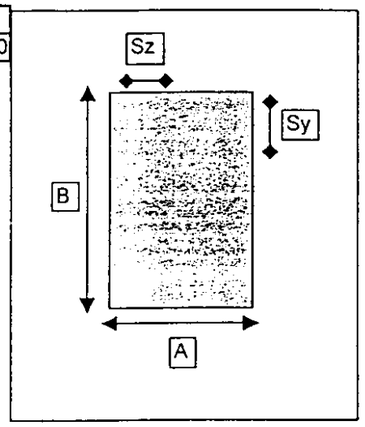
PILA 5

DIMENSIONES NUEVAS	Sz	Sy	CANTO	NUMERO DE PILOTES	
	3.6	3.6	2.5		6

ESFUERZOS	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
N	-2 706.54	-2 706.54	-2 998.69	-3 092.70	-3 787.04	-2 439.21
Vy	0.03	0.03	-31.41	-31.52	-5.38	6.07
Vz	-114.98	-114.98	-118.56	-124.04	-138.58	-71.19
My	-3 764.49	-3 764.49	-4 164.54	-4 360.96	-5 224.37	-2 745.77
Mz	-41.71	-41.71	-2 008.14	-1 944.96	-249.22	-136.22

ESF. MAX.	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
Nmax	628.27	628.27	832.04	852.41	890.35	543.11
Nmin	273.91	273.91	167.52	178.49	372.00	269.96
Qmax	19.16	19.16	20.44	21.33	23.11	11.91

	A (m)	B (m)	LONGITUD PILOTES (m):
DIMENSIONES	10.0	10.0	22.0



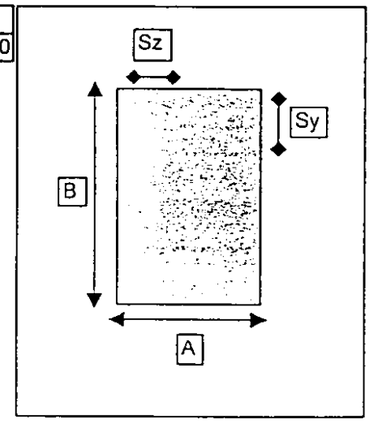
PILA 6

DIMENSIONES NUEVAS	Sz	Sy	CANTO	NUMERO DE PILOTES	
	3.6	3.6	2.5		6

ESFUERZOS	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
N	-2 706.00	-2 706.00	-2 998.35	-3 092.15	-3 786.98	-2 438.42
Vy	0.02	0.02	30.10	30.02	-4.69	5.21
Vz	-114.95	-114.95	118.54	-124.02	-138.58	-71.15
My	-3 763.50	-3 763.50	-4 163.85	-4 360.09	-5 224.27	-2 744.32
Mz	-41.67	-41.67	-1 982.20	-1 915.27	-236.89	-120.68

ESF. MAX.	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
Nmax	628.13	628.13	830.15	850.22	889.48	541.84
Nmin	273.87	273.87	169.30	180.50	372.85	270.97
Qmax	19.16	19.16	20.38	21.27	23.11	11.89

	A (m)	B (m)	LONGITUD PILOTES (m):
DIMENSIONES	10.0	10.0	20.0



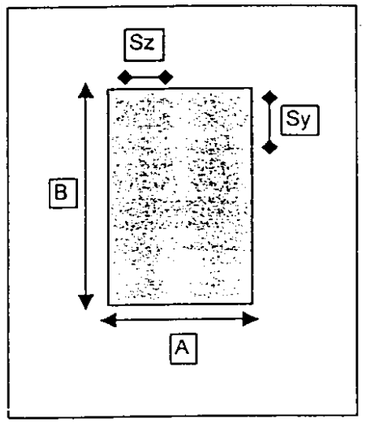
PILA 7

DIMENSIONES NUEVAS	Sz	Sy	CANTO	NUMERO DE PILOTES	
	3.6	3.6	2.5		6

ESFUERZOS	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
N	-2 692.26	-2 692.26	-2 984.45	-3 078.32	-3 773.56	-2 424.11
Vy	-0.03	-0.03	-33.14	33.05	-4.20	4.61
Vz	-113.89	113.89	118.00	-123.48	-138.58	-71.11
My	-3 584.69	-3 584.69	-3 974.57	-4 162.79	-4 995.76	-2 618.71
Mz	-41.42	-41.42	-2 052.47	-1 983.34	-211.30	-89.26

ESF. MAX.	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
Nmax	617.54	617.54	823.95	843.51	874.88	531.45
Nmin	279.88	279.88	170.87	182.60	382.97	276.58
Qmax	18.98	18.98	20.43	21.30	23.11	11.88

	A (m)	B (m)	LONGITUD PILOTES (m):
DIMENSIONES	10.0	10.0	20.0



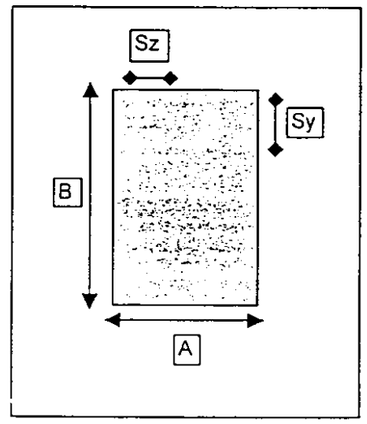
PILA 8

DIMENSIONES NUEVAS	Sz	Sy	CANTO	NUMERO DE PILOTES	
	3.6	3.6	2.5		6

ESFUERZOS	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
N	-2 680.54	-2 680.54	-3 002.13	-3 095.88	-3 762.62	-2 412.42
Vy	-0.06	-0.06	-37.30	37.19	-3.85	4.05
Vz	112.93	112.93	-117.58	-123.06	138.71	-71.20
My	-3 413.32	-3 413.32	-3 801.63	-3 981.77	-4 775.52	-2 500.29
Mz	-41.26	-41.26	-2 135.68	-2 065.18	-203.91	-75.69

ESF. MAX.	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
Nmax	607.65	607.65	824.67	843.74	862.35	523.08
Nmin	285.87	285.87	176.04	188.22	391.85	281.06
Qmax	18.82	18.82	20.56	21.43	23.13	11.89

	A (m)	B (m)	LONGITUD PILOTES (m):
DIMENSIONES	10	10	21.5

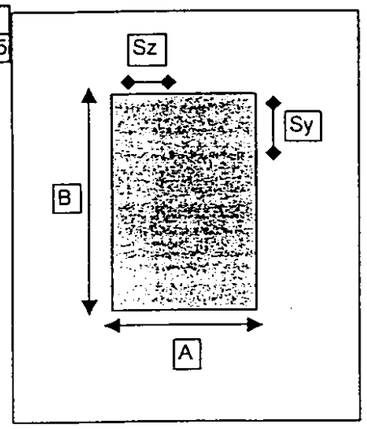


DIMENSIONES NUEVAS	Sz	Sy	CANTO	NUMERO DE PILOTES	
	3.6	3.6	2.5		6

ESFUERZOS	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
N	-2 690.98	-2 690.98	-2 982.72	-3 077.00	-3 771.92	-2 422.64
Vy	0.01	0.01	-25.92	25.90	-2.05	2.70
Vz	-113.83	-113.83	-118.30	-123.02	-138.50	-71.03
My	-3 582.45	-3 582.45	-3 982.89	-4 148.95	-4 992.88	-2 616.11
Mz	-41.35	-41.35	-1 775.26	-1 711.68	-144.88	-42.70

ESF. MAX.	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
Nmax	617.22	617.22	804.79	823.78	869.87	527.85
Nmin	279.77	279.77	189.44	201.89	387.44	279.69
Qmax	18.97	18.97	20.18	20.95	23.09	11.85

	A (m)	B (m)	LONGITUD PILOTES (m):
DIMENSIONES	10.0	10.0	22.5

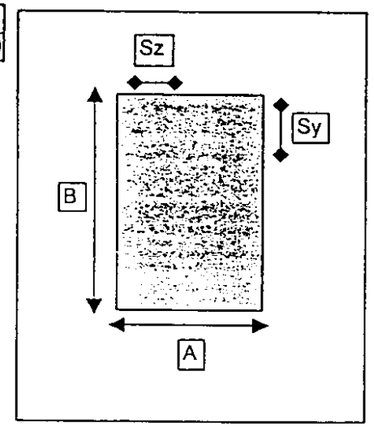


DIMENSIONES NUEVAS	Sz	Sy	CANTO	NUMERO DE PILOTES	
	3.6	3.6	2.5		6

ESFUERZOS	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
N	-2 683.54	-2 683.54	-3 006.84	-3 098.77	-3 765.05	-2 417.50
Vy	0.21	0.21	-17.93	18.57	-0.77	2.35
Vz	-113.08	-113.08	-118.21	-122.80	-138.83	-71.45
My	-3 418.38	-3 418.38	-3 820.63	-3 975.38	-4 779.60	-2 508.84
Mz	-41.70	-41.70	-1 539.10	-1 491.06	-115.56	-41.72

ESF. MAX.	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
Nmax	608.41	608.41	784.90	804.05	856.81	521.96
Nmin	286.10	286.10	217.38	228.87	398.20	283.87
Qmax	18.85	18.85	19.93	20.70	23.14	11.91

	A (m)	B (m)	LONGITUD PILOTES (m):
DIMENSIONES	10.0	10.0	22.0

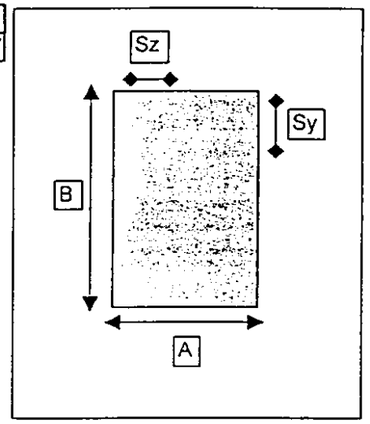


DIMENSIONES NUEVAS	Sz	Sy	CANTO	NUMERO DE PILOTES	
	2.5	3.6	2.5		6

ESFUERZOS	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
N	-2 456.21	-2 456.21	-2 770.00	-2 870.79	-3 532.91	-2 183.85
Vy	0.10	0.10	18.45	18.59	-0.55	1.95
Vz	106.70	106.70	113.95	119.02	137.47	70.02
My	-2 192.30	-2 192.30	-2 459.73	-2 573.70	-3 093.14	-1 575.45
Mz	-39.62	-39.62	-1 531.51	-1 471.03	-99.15	-38.80

ESF. MAX.	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
Nmax	558.27	558.27	732.00	752.20	801.91	471.70
Nmin	260.46	260.46	191.33	204.73	375.72	256.25
Qmax	17.78	17.78	19.24	20.08	22.91	11.67

	A (m)	B (m)	LONGITUD PILOTES (m):
DIMENSIONES	7.8	10.0	17

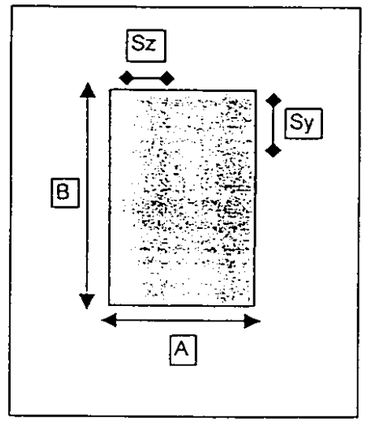


DIMENSIONES NUEVAS	Sz	Sy	CANTO	NUMERO DE PILOTES	
	2.5	3.6	2.5		6

ESFUERZOS	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
N	-2 434.18	-2 434.18	-2 784.45	-2 851.22	-3,514.31	-2 200.19
Vy	0.56	0.56	51.22	49.70	-1.59	0.47
Vz	102.58	102.58	115.99	119.23	141.94	76.24
My	-1 413.65	-1 413.65	-1 644.94	-1 691.96	-2 058.16	-1 105.44
Mz	-40.33	-40.33	-1 958.08	-1 870.17	-123.17	-43.64

ESF. MAX.	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
Nmax	502.74	502.74	709.72	717.87	731.48	443.42
Nmin	308.65	308.65	218.43	232.53	439.95	289.97
Qmax	17.10	17.10	21.13	21.53	23.66	12.71

	A (m)	B (m)	LONGITUD PILOTES (m):
DIMENSIONES	7.8	10.0	19.0



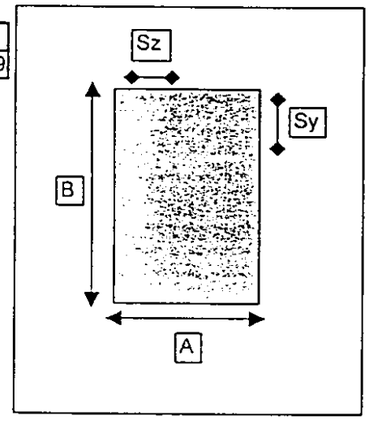
PILA 13

DIMENSIONES NUEVAS	Sz	Sy	CANTO	NUMERO DE PILOTES	
	2.5	3.6	2.5		6

ESFUERZOS	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
N	-2 066.42	-2 066.42	-2 265.27	-2 482.27	-3 072.49	-1 741.37
Vy	0.19	0.19	-19.47	19.79	-1.30	-0.35
Vz	-83.06	83.06	-89.85	101.09	-121.88	-55.32
My	-914.56	-914.56	-1 012.92	-1 142.21	-1 401.59	-636.19
Mz	-32.05	-32.05	-1 105.33	-1 056.20	-58.00	-43.33

ESF. MAX.	HIP 1	HIP 2	HIP 3	HIP 4	HIP 5	HIP 6
Nmax	407.60	407.60	521.83	563.21	609.55	335.65
Nmin	281.21	281.21	233.26	264.22	414.61	244.81
Qmax	13.84	13.84	15.32	17.17	20.31	9.22

	A (m)	B (m)	LONGITUD PILOTES (m):
DIMENSIONES	7.8	10.0	19



CALCULO DE LA LONGITUD DE LOS PILOTES

VIADUCTO 2 - PILA 1 (6 pilotes D1800)

CALCULO DE LONGITUD DE PILOTES

DATOS

Diámetro (m) 1,8

	F.S. Punta	F.S. Fuste
	3	2

Terreno

	Cw (T/m2)	Li (m)
Depósitos aluviales Qa	2	0
Depósitos eluvio-coluviales Qc	3	0
Facies Anchuelo (M2)		
Parte superior floja	3	2
Parte compacta	7	0
Facies Alcalá (M1)		
Parte superior más alterada (5 m)	6,5	5
En profundidad	8	7,20

Long. pilote= 14,20

Qult = 723,84 T

VIADUCTO 2 - PILA 2 (6 pilotes D1800)

CALCULO DE LONGITUD DE PILOTES

DATOS

Diámetro (m) 1,8

	F.S. Punta	F.S. Fuste
	3	2

Terreno

	Cw (T/m2)	Li (m)
Depósitos aluviales Qa	2	11
Depósitos eluvio-coluviales Qc	3	0
Facies Anchuelo (M2)		
Parte superior floja	3	0
Parte compacta	7	0
Facies Alcalá (M1)		
Parte superior más alterada (5 m)	6,5	5
En profundidad	8	7,20

Long. pilote= 23,20

Qult = 994,71 T

VIADUCTO 2 - PILA 3 (6 pilotes D1800)

CALCULO DE LONGITUD DE PILOTES

DATOS

Diámetro (m) 1,8

	F.S. Punta	F.S. Fuste
	3	2

Terreno

	Cw (T/m2)	Li (m)
Depósitos aluviales Qa	2	16
Depósitos eluvio-coluviales Qc	3	0
Facies Anchuelo (M2)		
Parte superior floja	3	0
Parte compacta	7	0
Facies Alcalá (M1)		
Parte superior más alterada (5 m)	6,5	5
En profundidad	8	7,20

Long. pilote= 28,20

Qult = 999,39 T

VIADUCTO 2 - PILA 4 (6 pilotes D1800)

CALCULO DE LONGITUD DE PILOTES

DATOS

Diámetro (m) 1,8

	F.S. Punta	F.S. Fuste
	3	2

Terreno

	Cw (T/m2)	Li (m)
Depósitos aluviales Qa	2	13
Depósitos eluvio-coluviales Qc	3	0
Facies Anchuelo (M2)		
Parte superior floja	3	0
Parte compacta	7	0
Facies Alcalá (M1)		
Parte superior más alterada (5 m)	6,5	5
En profundidad	8	7,20

Long. pilote= 25,20

Qult = 1015,11 T

VIADUCTO 2 - PILA 5 (6 pilotes D1800)

CALCULO DE LONGITUD DE PILOTES

DATOS

Diámetro (m) 1,8

	F.S. Punta	F.S. Fuste
	3	2

Terreno

	Cw (T/m2)	Li (m)
Depósitos aluviales Qa	2	6
Depósitos eluvio-coluviales Qc	3	0
Facies Anchuelo (M2)		
Parte superior floja	3	0
Parte compacta	7	0
Facies Alcalá (M1)		
Parte superior más alterada (5 m)	6,5	5
En profundidad	8	10,65

Long. pilote= 21,65

Qult = 1032,01 T

VIADUCTO 2 - PILA 6 (6 pilotes D1800)

CALCULO DE LONGITUD DE PILOTES

DATOS

Diámetro (m) 1,8

	F.S. Punta	F.S. Fuste
	3	2

Terreno

	Cw (T/m2)	Li (m)
Depósitos aluviales Qa	2	1
Depósitos eluvio-coluviales Qc	3	0
Facies Anchuelo (M2)		
Parte superior floja	3	0
Parte compacta	7	0
Facies Alcalá (M1)		
Parte superior más alterada (5 m)	6,5	5
En profundidad	8	13,77

Long. pilote= 19,77

Qult = 1031,43 T

VIADUCTO 2 - PILA 7 (6 pilotes D1800)

CALCULO DE LONGITUD DE PILOTES

DATOS

Diámetro (m) 1,8

	F.S. Punta	F.S. Fuste
	3	2

Terreno

	Cw (T/m2)	Li (m)
Depósitos aluviales Qa	2	2
Depósitos eluvio-coluviales Qc	3	0
Facies Anchuelo (M2)		
Parte superior floja	3	0
Parte compacta	7	0
Facies Alcalá (M1)		
Parte superior más alterada (5 m)	6,5	5
En profundidad	8	12,72

Long. pilote= 19,72

Qult = 1012,14 T

VIADUCTO 2 - PILA 8 (6 pilotes D1800)

CALCULO DE LONGITUD DE PILOTES

DATOS

Diámetro (m) 1,8

	F.S. Punta	F.S. Fuste
	3	2

Terreno

	Cw (T/m2)	Li (m)
Depósitos aluviales Qa	2	6
Depósitos eluvio-coluviales Qc	3	0
Facies Anchuelo (M2)		
Parte superior floja	3	0
Parte compacta	7	0
Facies Alcalá (M1)		
Parte superior más alterada (5 m)	6,5	5
En profundidad	8	9,83

Long. pilote= 20,83

Qult = 994,68 T

VIADUCTO 2 - PILA 9 (6 pilotes D1800)

CALCULO DE LONGITUD DE PILOTES

DATOS

Diámetro (m) 1,8

	F.S. Punta	F.S. Fuste
	3	2

Terreno

	Cw (T/m2)	Li (m)
Depósitos aluviales Qa	2	7
Depósitos eluvio-coluviales Qc	3	0
Facies Anchuelo (M2)		
Parte superior floja	3	0
Parte compacta	7	0
Facies Alcalá (M1)		
Parte superior más alterada (5 m)	6,5	5
En profundidad	8	9,50

Long. pilote= 21,50

Qult = 1008,59 T

VIADUCTO 2 - PILA 10 (6 pilotes D1800)

CALCULO DE LONGITUD DE PILOTES

DATOS

Diámetro (m) 1,8

	F.S. Punta	F.S. Fuste
	3	2

Terreno

	Cw (T/m2)	Li (m)
Depósitos aluviales Qa	2	6
Depósitos eluvio-coluviales Qc	3	0
Facies Anchuelo (M2)		
Parte superior floja	3	0
Parte compacta	7	0
Facies Alcalá (M1)		
Parte superior más alterada (5 m)	6,5	5
En profundidad	8	9,75

Long. pilote= 20,75

Qult = 991,27 T

VIADUCTO 2 - PILA 11 (6 pilotes D1800)

CALCULO DE LONGITUD DE PILOTES

DATOS

Diámetro (m) 1,8

	F.S. Punta	F.S. Fuste
	3	2

Terreno	Cw (T/m2)	Li (m)
Depósitos aluviales Qa	2	0
Depósitos eluvio-coluviales Qc	3	0
Facies Anchuelo (M2)		
Parte superior floja	3	7
Parte compacta	7	0
Facies Alcalá (M1)		
Parte superior más alterada (5 m)	6,5	0
En profundidad	8	9,77

Long. pilote= 16,77

Qult = 833,98 T

VIADUCTO 2 - PILA 12 (6 pilotes D1800)

CALCULO DE LONGITUD DE PILOTES

DATOS

Diámetro (m) 1,8

	F.S. Punta	F.S. Fuste
	3	2

Terreno	Cw (T/m2)	Li (m)
Depósitos aluviales Qa	2	0
Depósitos eluvio-coluviales Qc	3	0
Facies Anchuelo (M2)		
Parte superior floja	3	11
Parte compacta	7	0
Facies Alcalá (M1)		
Parte superior más alterada (5 m)	6,5	0
En profundidad	8	7,20

Long. pilote= 18,20

Qult = 760,61 T

VIADUCTO 2 - PILA 13 (6 pilotes D1800)

CALCULO DE LONGITUD DE PILOTES

DATOS

Diámetro (m) 1,8

	F.S. Punta	F.S. Fuste
	3	2

Terreno	Cw (T/m2)	Li (m)
Depósitos aluviales Qa	2	0
Depósitos eluvio-coluviales Qc	3	0
Facies Anchuelo (M2)		
Parte superior floja	3	11
Parte compacta	7	0
Facies Alcalá (M1)		
Parte superior más alterada (5 m)	6,5	0
En profundidad	8	7,20

Long. pilote= 18,20

Qult = 637,03 T

CALCULO TRANSVERSAL DE PILOTES

CALCULO MATRICIAL DE PILOTES FRENTE A FUERZAS HORIZONTALES
==========

TITULO....VIADUCTO 2. SUBTRAMO 4.

Fuerza horizontal en cabeza (positiva izda-decha)= 19.86 Tn.
Momento en cabeza (positivo anti-horario)= 0 m.Tn.

Di metro del pilote= 1.8 m.
Resistencia caracteristica del horm del pilote fck= 200 kg/cm2.
Longitud total del pilote= 15 m.

Rigidez superior al giro= 1D+30 m.Tn/rad.
Rigidez inferior al giro= articulado

DATOS DEL TERRENO

PROFUNDIDAD	MODULO DE BALASTO (Tn/m3)
100.00	555.0

MODELO DE CALCULO EMPLEADO

El pilote se divide en 40 barras. El terreno es representado por muelles cuya constante es deducida del m¢dulo de balasto. Los m¢dulos de balasto en cada nudo se obtienen calculando la media ponderada de los m¢dulos del terreno en la zona cobaricentrica al nudo. Las constantes de muelle ser n el producto del m¢dulo de balasto por el di metro del pilote por la distancia entre muelles.

POSICION DE NUDOS CON MODULOS DE BALASTO INTERPOLADOS

NUDO	PROFUNDIDAD	M.BALASTO	K MUELLE	ESQUEMA
1	0.00	555.0	187.3	>ÄÄÄÒ·
2	0.38	555.0	374.6	>ÄÄÄ¶°
3	0.75	555.0	374.6	>ÄÄÄ¶°
4	1.13	555.0	374.6	>ÄÄÄ¶°
5	1.50	555.0	374.6	>ÄÄÄ¶°
6	1.88	555.0	374.6	>ÄÄÄ¶°
7	2.25	555.0	374.6	>ÄÄÄ¶°
8	2.63	555.0	374.6	>ÄÄÄ¶°
9	3.00	555.0	374.6	>ÄÄÄ¶°
10	3.38	555.0	374.6	>ÄÄÄ¶°
11	3.75	555.0	374.6	>ÄÄÄ¶°
12	4.13	555.0	374.6	>ÄÄÄ¶°
13	4.50	555.0	374.6	>ÄÄÄ¶°
14	4.88	555.0	374.6	>ÄÄÄ¶°
15	5.25	555.0	374.6	>ÄÄÄ¶°
16	5.63	555.0	374.6	>ÄÄÄ¶°
17	6.00	555.0	374.6	>ÄÄÄ¶°
18	6.38	555.0	374.6	>ÄÄÄ¶°
19	6.75	555.0	374.6	>ÄÄÄ¶°
20	7.13	555.0	374.6	>ÄÄÄ¶°
21	7.50	555.0	374.6	>ÄÄÄ¶°
22	7.88	555.0	374.6	>ÄÄÄ¶°
23	8.25	555.0	374.6	>ÄÄÄ¶°
24	8.63	555.0	374.6	>ÄÄÄ¶°
25	9.00	555.0	374.6	>ÄÄÄ¶°
26	9.38	555.0	374.6	>ÄÄÄ¶°
27	9.75	555.0	374.6	>ÄÄÄ¶°
28	10.13	555.0	374.6	>ÄÄÄ¶°
29	10.50	555.0	374.6	>ÄÄÄ¶°
30	10.88	555.0	374.6	>ÄÄÄ¶°
31	11.25	555.0	374.6	>ÄÄÄ¶°
32	11.63	555.0	374.6	>ÄÄÄ¶°
33	12.00	555.0	374.6	>ÄÄÄ¶°
34	12.38	555.0	374.6	>ÄÄÄ¶°
35	12.75	555.0	374.6	>ÄÄÄ¶°
36	13.13	555.0	374.6	>ÄÄÄ¶°
37	13.50	555.0	374.6	>ÄÄÄ¶°
38	13.88	555.0	374.6	>ÄÄÄ¶°
39	14.25	555.0	374.6	>ÄÄÄ¶°
40	14.63	555.0	374.6	>ÄÄÄ¶°
41	15.00	555.0	187.3	>ÄÄÄÐ¼

RESULTADOS DEL CALCULO MATRICIAL

Formada la matriz de rigidez del pilote dividido en 40 barras se ha sumado en la diagonal principal las constantes de muelle que se deducen de los módulos de balasto del terreno. Tambien se han sumado en los nudos extremos las constantes de rigidez al giro introducidas en los datos. Resolviendo el sistema p=k*d para la estructura, se obtienen los desplazamientos, que multiplicados por la matriz de rigidez de barra se obtienen los esfuerzos.

ESFUERZOS EN EL PILOTE

NUDO	PROFUN	M(m.Tn.)	Q (Tn.)	DESPL(m.)	GIRO(rad.)
1	0.0	92.71	19.39	0.002510	-0.0000000
2	0.4	85.43	18.45	0.002505	-0.0000241
3	0.8	78.51	17.52	0.002492	-0.0000463
4	1.1	71.95	16.59	0.002471	-0.0000667
5	1.5	65.72	15.68	0.002442	-0.0000853
6	1.9	59.84	14.78	0.002407	-0.0001023
7	2.3	54.30	13.89	0.002366	-0.0001178
8	2.6	49.09	13.02	0.002319	-0.0001318
9	3.0	44.21	12.17	0.002267	-0.0001444
10	3.4	39.65	11.34	0.002211	-0.0001558
11	3.8	35.39	10.54	0.002150	-0.0001660
12	4.1	31.44	9.76	0.002086	-0.0001750
13	4.5	27.78	9.00	0.002019	-0.0001830
14	4.9	24.41	8.27	0.001949	-0.0001901
15	5.3	21.31	7.57	0.001877	-0.0001963
16	5.6	18.47	6.89	0.001802	-0.0002017
17	6.0	15.88	6.25	0.001725	-0.0002063
18	6.4	13.54	5.63	0.001647	-0.0002103
19	6.8	11.43	5.04	0.001568	-0.0002137
20	7.1	9.54	4.48	0.001487	-0.0002165
21	7.5	7.86	3.96	0.001405	-0.0002189
22	7.9	6.38	3.46	0.001323	-0.0002208
23	8.3	5.08	3.00	0.001240	-0.0002224
24	8.6	3.95	2.56	0.001156	-0.0002236
25	9.0	2.99	2.16	0.001072	-0.0002245
26	9.4	2.18	1.79	0.000988	-0.0002252
27	9.8	1.51	1.45	0.000903	-0.0002257
28	10.1	0.96	1.15	0.000819	-0.0002261
29	10.5	0.53	0.87	0.000734	-0.0002263
30	10.9	0.21	0.63	0.000649	-0.0002264
31	11.3	-0.03	0.42	0.000564	-0.0002264
32	11.6	-0.19	0.24	0.000479	-0.0002264
33	12.0	-0.28	0.09	0.000394	-0.0002263
34	12.4	-0.31	-0.02	0.000309	-0.0002262
35	12.8	-0.30	-0.11	0.000225	-0.0002261
36	13.1	-0.26	-0.16	0.000140	-0.0002261
37	13.5	-0.20	-0.18	0.000055	-0.0002260
38	13.9	-0.13	-0.17	-0.000030	-0.0002260
39	14.3	-0.07	-0.13	-0.000114	-0.0002259
40	14.6	-0.02	-0.05	-0.000199	-0.0002259
41	15.0	0.00	-0.05	-0.000284	-0.0002259

CALCULO MATRICIAL DE PILOTES FRENTE A FUERZAS HORIZONTALES
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TITULO....VIADUCTO 2. SUBTRAMO 4.

Fuerza horizontal en cabeza (positiva izda-decha)= 23.6 Tn.
Momento en cabeza (positivo anti-horario)= 0 m.Tn.

Di metro del pilote= 1.8 m.
Resistencia caracteristica del horm del pilote fck= 200 kg/cm2.
Longitud total del pilote= 24 m.

Rigidez superior al giro= 1D+30 m.Tn/rad.
Rigidez inferior al giro= articulado

DATOS DEL TERRENO

PROFUNDIDAD	MODULO DE BALASTO (Tn/m3)
100.00	555.0

MODELO DE CALCULO EMPLEADO

El pilote se divide en 40 barras. El terreno es representado por muelles cuya constante es deducida del m¢dulo de balasto. Los m¢dulos de balasto en cada nudo se obtienen calculando la media ponderada de los m¢dulos del terreno en la zona cobaricentrica al nudo. Las constantes de muelle ser n el producto del m¢dulo de balasto por el di metro del pilote por la distancia entre muelles.

POSICION DE NUDOS CON MODULOS DE BALASTO INTERPOLADOS

NUDO	PROFUNDIDAD	M.BALASTO	K MUELLE	ESQUEMA
1	0.00	555.0	299.7	>ÄÄÄÒ·
2	0.60	555.0	599.4	>ÄÄÄ¶°
3	1.20	555.0	599.4	>ÄÄÄ¶°
4	1.80	555.0	599.4	>ÄÄÄ¶°
5	2.40	555.0	599.4	>ÄÄÄ¶°
6	3.00	555.0	599.4	>ÄÄÄ¶°
7	3.60	555.0	599.4	>ÄÄÄ¶°
8	4.20	555.0	599.4	>ÄÄÄ¶°
9	4.80	555.0	599.4	>ÄÄÄ¶°
10	5.40	555.0	599.4	>ÄÄÄ¶°
11	6.00	555.0	599.4	>ÄÄÄ¶°
12	6.60	555.0	599.4	>ÄÄÄ¶°
13	7.20	555.0	599.4	>ÄÄÄ¶°
14	7.80	555.0	599.4	>ÄÄÄ¶°
15	8.40	555.0	599.4	>ÄÄÄ¶°
16	9.00	555.0	599.4	>ÄÄÄ¶°
17	9.60	555.0	599.4	>ÄÄÄ¶°
18	10.20	555.0	599.4	>ÄÄÄ¶°
19	10.80	555.0	599.4	>ÄÄÄ¶°
20	11.40	555.0	599.4	>ÄÄÄ¶°
21	12.00	555.0	599.4	>ÄÄÄ¶°
22	12.60	555.0	599.4	>ÄÄÄ¶°
23	13.20	555.0	599.4	>ÄÄÄ¶°
24	13.80	555.0	599.4	>ÄÄÄ¶°
25	14.40	555.0	599.4	>ÄÄÄ¶°
26	15.00	555.0	599.4	>ÄÄÄ¶°
27	15.60	555.0	599.4	>ÄÄÄ¶°
28	16.20	555.0	599.4	>ÄÄÄ¶°
29	16.80	555.0	599.4	>ÄÄÄ¶°
30	17.40	555.0	599.4	>ÄÄÄ¶°
31	18.00	555.0	599.4	>ÄÄÄ¶°
32	18.60	555.0	599.4	>ÄÄÄ¶°
33	19.20	555.0	599.4	>ÄÄÄ¶°
34	19.80	555.0	599.4	>ÄÄÄ¶°
35	20.40	555.0	599.4	>ÄÄÄ¶°
36	21.00	555.0	599.4	>ÄÄÄ¶°
37	21.60	555.0	599.4	>ÄÄÄ¶°
38	22.20	555.0	599.4	>ÄÄÄ¶°
39	22.80	555.0	599.4	>ÄÄÄ¶°
40	23.40	555.0	599.4	>ÄÄÄ¶°
41	24.00	555.0	299.7	>ÄÄÄÐ½

RESULTADOS DEL CALCULO MATRICIAL

Formada la matriz de rigidez del pilote dividido en 40 barras se ha sumado en la diagonal principal las constantes de muelle que se deducen de los módulos de balasto del terreno. Tambien se han sumado en los nudos extremos las constantes de rigidez al giro introducidas en los datos. Resolviendo el sistema p=k*d para la estructura, se obtienen los desplazamientos, que multiplicados por la matriz de rigidez de barra se obtienen los esfuerzos.

ESFUERZOS EN EL PILOTE

NUDO	PROFUN	M(m.Tn.)	Q (Tn.)	DESPL(m.)	GIRO(rad.)
1	0.0	101.67	22.76	0.002810	-0.0000000
2	0.6	88.01	21.08	0.002797	-0.0000411
3	1.2	75.36	19.43	0.002762	-0.0000765
4	1.8	63.71	17.80	0.002706	-0.0001066
5	2.4	53.03	16.22	0.002635	-0.0001319
6	3.0	43.29	14.70	0.002549	-0.0001528
7	3.6	34.47	13.23	0.002452	-0.0001696
8	4.2	26.54	11.82	0.002346	-0.0001829
9	4.8	19.44	10.48	0.002233	-0.0001928
10	5.4	13.16	9.21	0.002115	-0.0001999
11	6.0	7.63	8.02	0.001994	-0.0002044
12	6.6	2.81	6.90	0.001870	-0.0002066
13	7.2	-1.32	5.85	0.001746	-0.0002070
14	7.8	-4.84	4.88	0.001622	-0.0002056
15	8.4	-7.76	3.98	0.001500	-0.0002029
16	9.0	-10.15	3.15	0.001379	-0.0001990
17	9.6	-12.04	2.40	0.001261	-0.0001942
18	10.2	-13.48	1.71	0.001146	-0.0001887
19	10.8	-14.51	1.09	0.001035	-0.0001826
20	11.4	-15.16	0.53	0.000927	-0.0001762
21	12.0	-15.48	0.04	0.000823	-0.0001696
22	12.6	-15.51	-0.39	0.000724	-0.0001628
23	13.2	-15.27	-0.77	0.000628	-0.0001562
24	13.8	-14.81	-1.09	0.000536	-0.0001497
25	14.4	-14.15	-1.36	0.000448	-0.0001434
26	15.0	-13.34	-1.58	0.000364	-0.0001374
27	15.6	-12.39	-1.75	0.000283	-0.0001318
28	16.2	-11.34	-1.87	0.000206	-0.0001267
29	16.8	-10.22	-1.95	0.000131	-0.0001220
30	17.4	-9.05	-1.99	0.000059	-0.0001179
31	18.0	-7.86	-1.98	-0.000010	-0.0001142
32	18.6	-6.67	-1.93	-0.000078	-0.0001110
33	19.2	-5.51	-1.85	-0.000144	-0.0001084
34	19.8	-4.40	-1.72	-0.000208	-0.0001063
35	20.4	-3.37	-1.56	-0.000271	-0.0001046
36	21.0	-2.44	-1.36	-0.000334	-0.0001033
37	21.6	-1.62	-1.12	-0.000395	-0.0001024
38	22.2	-0.95	-0.85	-0.000457	-0.0001019
39	22.8	-0.44	-0.54	-0.000518	-0.0001016
40	23.4	-0.11	-0.19	-0.000579	-0.0001015
41	24.0	-0.00	-0.19	-0.000639	-0.0001014

CALCULO MATRICIAL DE PILOTES FRENTE A FUERZAS HORIZONTALES
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TITULO....VIADUCTO 2. SUBTRAMO 4.

Fuerza horizontal en cabeza (positiva izda-decha)= 23.2 Tn.
Momento en cabeza (positivo anti-horario)= 0 m.Tn.

Di metro del pilote= 1.8 m.
Resistencia caracteristica del horm del pilote fck= 200 kg/cm2.
Longitud total del pilote= 29 m.

Rigidez superior al giro= 1D+30 m.Tn/rad.
Rigidez inferior al giro= articulado

DATOS DEL TERRENO

PROFUNDIDAD	MODULO DE BALASTO (Tn/m3)
100.00	555.0

MODELO DE CALCULO EMPLEADO

El pilote se divide en 40 barras. El terreno es representado por muelles cuya constante es deducida del m¢dulo de balasto. Los m¢dulos de balasto en cada nudo se obtienen calculando la media ponderada de los m¢dulos del terreno en la zona cobaricentrica al nudo. Las constantes de muelle ser n el producto del m¢dulo de balasto por el di metro del pilote por la distancia entre muelles.

POSICION DE NUDOS CON MODULOS DE BALASTO INTERPOLADOS

NUDO	PROFUNDIDAD	M.BALASTO	K MUELLE	ESQUEMA
1	0.00	555.0	362.1	>ÄÄÄÒ·
2	0.73	555.0	724.3	>ÄÄÄ¶°
3	1.45	555.0	724.3	>ÄÄÄ¶°
4	2.18	555.0	724.3	>ÄÄÄ¶°
5	2.90	555.0	724.3	>ÄÄÄ¶°
6	3.63	555.0	724.3	>ÄÄÄ¶°
7	4.35	555.0	724.3	>ÄÄÄ¶°
8	5.08	555.0	724.3	>ÄÄÄ¶°
9	5.80	555.0	724.3	>ÄÄÄ¶°
10	6.52	555.0	724.3	>ÄÄÄ¶°
11	7.25	555.0	724.3	>ÄÄÄ¶°
12	7.98	555.0	724.3	>ÄÄÄ¶°
13	8.70	555.0	724.3	>ÄÄÄ¶°
14	9.42	555.0	724.3	>ÄÄÄ¶°
15	10.15	555.0	724.3	>ÄÄÄ¶°
16	10.88	555.0	724.3	>ÄÄÄ¶°
17	11.60	555.0	724.3	>ÄÄÄ¶°
18	12.33	555.0	724.3	>ÄÄÄ¶°
19	13.05	555.0	724.3	>ÄÄÄ¶°
20	13.78	555.0	724.3	>ÄÄÄ¶°
21	14.50	555.0	724.3	>ÄÄÄ¶°
22	15.23	555.0	724.3	>ÄÄÄ¶°
23	15.95	555.0	724.3	>ÄÄÄ¶°
24	16.68	555.0	724.3	>ÄÄÄ¶°
25	17.40	555.0	724.3	>ÄÄÄ¶°
26	18.13	555.0	724.3	>ÄÄÄ¶°
27	18.85	555.0	724.3	>ÄÄÄ¶°
28	19.58	555.0	724.3	>ÄÄÄ¶°
29	20.30	555.0	724.3	>ÄÄÄ¶°
30	21.03	555.0	724.3	>ÄÄÄ¶°
31	21.75	555.0	724.3	>ÄÄÄ¶°
32	22.48	555.0	724.3	>ÄÄÄ¶°
33	23.20	555.0	724.3	>ÄÄÄ¶°
34	23.93	555.0	724.3	>ÄÄÄ¶°
35	24.65	555.0	724.3	>ÄÄÄ¶°
36	25.38	555.0	724.3	>ÄÄÄ¶°
37	26.10	555.0	724.3	>ÄÄÄ¶°
38	26.83	555.0	724.3	>ÄÄÄ¶°
39	27.55	555.0	724.3	>ÄÄÄ¶°
40	28.28	555.0	724.3	>ÄÄÄ¶°
41	29.00	555.0	362.1	>ÄÄÄÐ½

RESULTADOS DEL CALCULO MATRICIAL

Formada la matriz de rigidez del pilote dividido en 40 barras se ha sumado en la diagonal principal las constantes de muelle que se deducen de los módulos de balasto del terreno. Tambien se han sumado en los nudos extremos las constantes de rigidez al giro introducidas en los datos. Resolviendo el sistema p=k*d para la estructura, se obtienen los desplazamientos, que multiplicados por la matriz de rigidez de barra se obtienen los esfuerzos.

ESFUERZOS EN EL PILOTE

NUDO	PROFUN	M(m.Tn.)	Q (Tn.)	DESPL(m.)	GIRO(rad.)
1	0.0	99.66	22.22	0.002707	-0.0000000
2	0.7	83.55	20.27	0.002689	-0.0000480
3	1.5	68.85	18.36	0.002640	-0.0000879
4	2.2	55.54	16.50	0.002564	-0.0001204
5	2.9	43.58	14.72	0.002467	-0.0001464
6	3.6	32.91	13.01	0.002353	-0.0001664
7	4.4	23.47	11.40	0.002227	-0.0001812
8	5.1	15.21	9.88	0.002091	-0.0001913
9	5.8	8.04	8.47	0.001950	-0.0001974
10	6.5	1.90	7.16	0.001806	-0.0002000
11	7.3	-3.29	5.96	0.001661	-0.0001996
12	8.0	-7.61	4.86	0.001517	-0.0001968
13	8.7	-11.14	3.87	0.001376	-0.0001919
14	9.4	-13.94	2.97	0.001239	-0.0001853
15	10.2	-16.09	2.16	0.001108	-0.0001774
16	10.9	-17.66	1.45	0.000982	-0.0001686
17	11.6	-18.72	0.83	0.000864	-0.0001591
18	12.3	-19.32	0.28	0.000752	-0.0001491
19	13.1	-19.52	-0.19	0.000647	-0.0001389
20	13.8	-19.39	-0.58	0.000550	-0.0001288
21	14.5	-18.96	-0.92	0.000461	-0.0001187
22	15.2	-18.30	-1.19	0.000378	-0.0001090
23	16.0	-17.43	-1.41	0.000303	-0.0000996
24	16.7	-16.41	-1.58	0.000234	-0.0000907
25	17.4	-15.26	-1.70	0.000171	-0.0000824
26	18.1	-14.03	-1.79	0.000114	-0.0000748
27	18.9	-12.73	-1.83	0.000062	-0.0000678
28	19.6	-11.41	-1.84	0.000016	-0.0000615
29	20.3	-10.07	-1.82	-0.000027	-0.0000558
30	21.0	-8.75	-1.78	-0.000066	-0.0000509
31	21.8	-7.46	-1.70	-0.000101	-0.0000467
32	22.5	-6.23	-1.61	-0.000133	-0.0000431
33	23.2	-5.06	-1.49	-0.000164	-0.0000401
34	23.9	-3.98	-1.35	-0.000192	-0.0000378
35	24.7	-3.00	-1.19	-0.000218	-0.0000359
36	25.4	-2.14	-1.01	-0.000244	-0.0000346
37	26.1	-1.40	-0.82	-0.000269	-0.0000337
38	26.8	-0.81	-0.61	-0.000293	-0.0000331
39	27.6	-0.37	-0.38	-0.000317	-0.0000328
40	28.3	-0.10	-0.13	-0.000340	-0.0000326
41	29.0	0.00	-0.13	-0.000364	-0.0000326

CALCULO MATRICIAL DE PILOTES FRENTE A FUERZAS HORIZONTALES
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TITULO....VIADUCTO 2. SUBTRAMO 4.

Fuerza horizontal en cabeza (positiva izda-decha)= 23.1 Tn.
Momento en cabeza (positivo anti-horario)= 0 m.Tn.

Di metro del pilote= 1.8 m.
Resistencia caracteristica del horm del pilote fck= 200 kg/cm2.
Longitud total del pilote= 26 m.

Rigidez superior al giro= 1D+30 m.Tn/rad.
Rigidez inferior al giro= articulado

DATOS DEL TERRENO

PROFUNDIDAD	MODULO DE BALASTO (Tn/m3)
100.00	555.0

MODELO DE CALCULO EMPLEADO

El pilote se divide en 40 barras. El terreno es representado por muelles cuya constante es deducida del m¢dulo de balasto. Los m¢dulos de balasto en cada nudo se obtienen calculando la media ponderada de los m¢dulos del terreno en la zona cobaricentrica al nudo. Las constantes de muelle ser n el producto del m¢dulo de balasto por el di metro del pilote por la distancia entre muelles.

POSICION DE NUDOS CON MODULOS DE BALASTO INTERPOLADOS

NUDO	PROFUNDIDAD	M.BALASTO	K MUELLE	ESQUEMA
1	0.00	555.0	324.7	>ÄÄÄÒ·
2	0.65	555.0	649.4	>ÄÄÄ¶°
3	1.30	555.0	649.3	>ÄÄÄ¶°
4	1.95	555.0	649.4	>ÄÄÄ¶°
5	2.60	555.0	649.4	>ÄÄÄ¶°
6	3.25	555.0	649.4	>ÄÄÄ¶°
7	3.90	555.0	649.4	>ÄÄÄ¶°
8	4.55	555.0	649.4	>ÄÄÄ¶°
9	5.20	555.0	649.4	>ÄÄÄ¶°
10	5.85	555.0	649.4	>ÄÄÄ¶°
11	6.50	555.0	649.4	>ÄÄÄ¶°
12	7.15	555.0	649.4	>ÄÄÄ¶°
13	7.80	555.0	649.3	>ÄÄÄ¶°
14	8.45	555.0	649.3	>ÄÄÄ¶°
15	9.10	555.0	649.3	>ÄÄÄ¶°
16	9.75	555.0	649.3	>ÄÄÄ¶°
17	10.40	555.0	649.3	>ÄÄÄ¶°
18	11.05	555.0	649.3	>ÄÄÄ¶°
19	11.70	555.0	649.3	>ÄÄÄ¶°
20	12.35	555.0	649.3	>ÄÄÄ¶°
21	13.00	555.0	649.3	>ÄÄÄ¶°
22	13.65	555.0	649.3	>ÄÄÄ¶°
23	14.30	555.0	649.3	>ÄÄÄ¶°
24	14.95	555.0	649.3	>ÄÄÄ¶°
25	15.60	555.0	649.3	>ÄÄÄ¶°
26	16.25	555.0	649.3	>ÄÄÄ¶°
27	16.90	555.0	649.3	>ÄÄÄ¶°
28	17.55	555.0	649.3	>ÄÄÄ¶°
29	18.20	555.0	649.3	>ÄÄÄ¶°
30	18.85	555.0	649.3	>ÄÄÄ¶°
31	19.50	555.0	649.3	>ÄÄÄ¶°
32	20.15	555.0	649.3	>ÄÄÄ¶°
33	20.80	555.0	649.3	>ÄÄÄ¶°
34	21.45	555.0	649.3	>ÄÄÄ¶°
35	22.10	555.0	649.3	>ÄÄÄ¶°
36	22.75	555.0	649.3	>ÄÄÄ¶°
37	23.40	555.0	649.3	>ÄÄÄ¶°
38	24.05	555.0	649.3	>ÄÄÄ¶°
39	24.70	555.0	649.3	>ÄÄÄ¶°
40	25.35	555.0	649.3	>ÄÄÄ¶°
41	26.00	555.0	324.7	>ÄÄÄÐ½

RESULTADOS DEL CALCULO MATRICIAL

Formada la matriz de rigidez del pilote dividido en 40 barras se ha sumado en la diagonal principal las constantes de muelle que se deducen de los módulos de balasto del terreno. Tambien se han sumado en los nudos extremos las constantes de rigidez al giro introducidas en los datos. Resolviendo el sistema p=k*d para la estructura, se obtienen los desplazamientos, que multiplicados por la matriz de rigidez de barra se obtienen los esfuerzos.

ESFUERZOS EN EL PILOTE

NUDO	PROFUN	M(m.Tn.)	Q (Tn.)	DESPL(m.)	GIRO(rad.)
1	0.0	99.23	22.22	0.002721	-0.0000000
2	0.7	84.79	20.46	0.002707	-0.0000432
3	1.3	71.49	18.73	0.002667	-0.0000799
4	2.0	59.32	17.04	0.002604	-0.0001106
5	2.6	48.24	15.40	0.002524	-0.0001358
6	3.3	38.23	13.82	0.002429	-0.0001561
7	3.9	29.25	12.31	0.002322	-0.0001720
8	4.6	21.25	10.88	0.002206	-0.0001838
9	5.2	14.18	9.53	0.002084	-0.0001921
10	5.9	7.99	8.26	0.001957	-0.0001973
11	6.5	2.62	7.07	0.001828	-0.0001998
12	7.2	-1.97	5.97	0.001698	-0.0002000
13	7.8	-5.85	4.95	0.001568	-0.0001981
14	8.5	-9.07	4.01	0.001441	-0.0001946
15	9.1	-11.68	3.16	0.001316	-0.0001898
16	9.8	-13.73	2.38	0.001194	-0.0001838
17	10.4	-15.28	1.68	0.001077	-0.0001770
18	11.1	-16.37	1.06	0.000964	-0.0001696
19	11.7	-17.06	0.50	0.000857	-0.0001617
20	12.4	-17.38	0.01	0.000754	-0.0001536
21	13.0	-17.39	-0.42	0.000657	-0.0001455
22	13.7	-17.12	-0.78	0.000565	-0.0001374
23	14.3	-16.61	-1.09	0.000478	-0.0001295
24	15.0	-15.90	-1.35	0.000397	-0.0001218
25	15.6	-15.02	-1.56	0.000320	-0.0001146
26	16.3	-14.01	-1.72	0.000248	-0.0001078
27	16.9	-12.89	-1.84	0.000180	-0.0001014
28	17.6	-11.69	-1.91	0.000116	-0.0000957
29	18.2	-10.45	-1.95	0.000055	-0.0000905
30	18.9	-9.19	-1.95	-0.000002	-0.0000859
31	19.5	-7.92	-1.91	-0.000057	-0.0000819
32	20.2	-6.68	-1.84	-0.000109	-0.0000784
33	20.8	-5.49	-1.73	-0.000159	-0.0000756
34	21.5	-4.36	-1.60	-0.000207	-0.0000733
35	22.1	-3.32	-1.44	-0.000254	-0.0000715
36	22.8	-2.39	-1.24	-0.000300	-0.0000701
37	23.4	-1.58	-1.02	-0.000345	-0.0000692
38	24.1	-0.92	-0.76	-0.000390	-0.0000686
39	24.7	-0.42	-0.48	-0.000435	-0.0000683
40	25.4	-0.11	-0.17	-0.000479	-0.0000682
41	26.0	-0.00	-0.17	-0.000523	-0.0000681

CALCULO MATRICIAL DE PILOTES FRENTE A FUERZAS HORIZONTALES
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TITULO....VIADUCTO 2. SUBTRAMO 4.

Fuerza horizontal en cabeza (positiva izda-decha)= 23.11 Tn.
Momento en cabeza (positivo anti-horario)= 0 m.Tn.

Di metro del pilote= 1.8 m.
Resistencia caracteristica del horm del pilote fck= 200 kg/cm2.
Longitud total del pilote= 22 m.

Rigidez superior al giro= 1D+30 m.Tn/rad.
Rigidez inferior al giro= articulado

DATOS DEL TERRENO

PROFUNDIDAD	MODULO DE BALASTO (Tn/m3)
100.00	555.0

MODELO DE CALCULO EMPLEADO

El pilote se divide en 40 barras. El terreno es representado por muelles cuya constante es deducida del m¢dulo de balasto. Los m¢dulos de balasto en cada nudo se obtienen calculando la media ponderada de los m¢dulos del terreno en la zona cobaricentrica al nudo. Las constantes de muelle ser n el producto del m¢dulo de balasto por el di metro del pilote por la distancia entre muelles.

POSICION DE NUDOS CON MODULOS DE BALASTO INTERPOLADOS

NUDO	PROFUNDIDAD	M.BALASTO	K MUELLE	ESQUEMA
1	0.00	555.0	274.7	>ÄÄÄÒ·
2	0.55	555.0	549.5	>ÄÄÄ¶°
3	1.10	555.0	549.4	>ÄÄÄ¶°
4	1.65	555.0	549.5	>ÄÄÄ¶°
5	2.20	555.0	549.4	>ÄÄÄ¶°
6	2.75	555.0	549.4	>ÄÄÄ¶°
7	3.30	555.0	549.4	>ÄÄÄ¶°
8	3.85	555.0	549.5	>ÄÄÄ¶°
9	4.40	555.0	549.5	>ÄÄÄ¶°
10	4.95	555.0	549.5	>ÄÄÄ¶°
11	5.50	555.0	549.5	>ÄÄÄ¶°
12	6.05	555.0	549.5	>ÄÄÄ¶°
13	6.60	555.0	549.5	>ÄÄÄ¶°
14	7.15	555.0	549.5	>ÄÄÄ¶°
15	7.70	555.0	549.5	>ÄÄÄ¶°
16	8.25	555.0	549.5	>ÄÄÄ¶°
17	8.80	555.0	549.5	>ÄÄÄ¶°
18	9.35	555.0	549.5	>ÄÄÄ¶°
19	9.90	555.0	549.5	>ÄÄÄ¶°
20	10.45	555.0	549.5	>ÄÄÄ¶°
21	11.00	555.0	549.5	>ÄÄÄ¶°
22	11.55	555.0	549.5	>ÄÄÄ¶°
23	12.10	555.0	549.5	>ÄÄÄ¶°
24	12.65	555.0	549.5	>ÄÄÄ¶°
25	13.20	555.0	549.5	>ÄÄÄ¶°
26	13.75	555.0	549.5	>ÄÄÄ¶°
27	14.30	555.0	549.5	>ÄÄÄ¶°
28	14.85	555.0	549.5	>ÄÄÄ¶°
29	15.40	555.0	549.5	>ÄÄÄ¶°
30	15.95	555.0	549.5	>ÄÄÄ¶°
31	16.50	555.0	549.4	>ÄÄÄ¶°
32	17.05	555.0	549.4	>ÄÄÄ¶°
33	17.60	555.0	549.4	>ÄÄÄ¶°
34	18.15	555.0	549.4	>ÄÄÄ¶°
35	18.70	555.0	549.4	>ÄÄÄ¶°
36	19.25	555.0	549.4	>ÄÄÄ¶°
37	19.80	555.0	549.4	>ÄÄÄ¶°
38	20.35	555.0	549.4	>ÄÄÄ¶°
39	20.90	555.0	549.4	>ÄÄÄ¶°
40	21.45	555.0	549.4	>ÄÄÄ¶°
41	22.00	555.0	274.7	>ÄÄÄÐ½

RESULTADOS DEL CALCULO MATRICIAL

Formada la matriz de rigidez del pilote dividido en 40 barras se ha sumado en la diagonal principal las constantes de muelle que se deducen de los módulos de balasto del terreno. Tambien se han sumado en los nudos extremos las constantes de rigidez al giro introducidas en los datos. Resolviendo el sistema p=k·d para la estructura, se obtienen los desplazamientos, que multiplicados por la matriz de rigidez de barra se obtienen los esfuerzos.

ESFUERZOS EN EL PILOTE

NUDO	PROFUN	M(m.Tn.)	Q (Tn.)	DESPL(m.)	GIRO(rad.)
1	0.0	100.32	22.34	0.002790	-0.0000000
2	0.6	88.03	20.82	0.002780	-0.0000374
3	1.1	76.58	19.31	0.002750	-0.0000701
4	1.7	65.96	17.82	0.002703	-0.0000984
5	2.2	56.16	16.37	0.002642	-0.0001227
6	2.8	47.16	14.96	0.002569	-0.0001432
7	3.3	38.93	13.59	0.002486	-0.0001603
8	3.9	31.46	12.28	0.002393	-0.0001743
9	4.4	24.71	11.02	0.002294	-0.0001854
10	5.0	18.65	9.81	0.002190	-0.0001940
11	5.5	13.25	8.67	0.002081	-0.0002004
12	6.1	8.48	7.59	0.001970	-0.0002047
13	6.6	4.31	6.57	0.001857	-0.0002072
14	7.2	0.70	5.61	0.001742	-0.0002082
15	7.7	-2.38	4.71	0.001628	-0.0002079
16	8.3	-4.98	3.88	0.001514	-0.0002064
17	8.8	-7.11	3.11	0.001401	-0.0002040
18	9.4	-8.82	2.40	0.001289	-0.0002009
19	9.9	-10.15	1.76	0.001180	-0.0001971
20	10.5	-11.11	1.17	0.001073	-0.0001929
21	11.0	-11.75	0.63	0.000968	-0.0001883
22	11.6	-12.10	0.16	0.000866	-0.0001836
23	12.1	-12.19	-0.26	0.000766	-0.0001788
24	12.7	-12.05	-0.63	0.000669	-0.0001740
25	13.2	-11.70	-0.94	0.000575	-0.0001692
26	13.8	-11.18	-1.21	0.000483	-0.0001647
27	14.3	-10.52	-1.43	0.000393	-0.0001604
28	14.9	-9.73	-1.59	0.000306	-0.0001564
29	15.4	-8.85	-1.72	0.000221	-0.0001527
30	16.0	-7.91	-1.79	0.000138	-0.0001493
31	16.5	-6.92	-1.82	0.000057	-0.0001464
32	17.1	-5.92	-1.81	-0.000023	-0.0001438
33	17.6	-4.93	-1.76	-0.000101	-0.0001417
34	18.2	-3.96	-1.66	-0.000179	-0.0001399
35	18.7	-3.05	-1.52	-0.000255	-0.0001385
36	19.3	-2.22	-1.33	-0.000331	-0.0001375
37	19.8	-1.48	-1.11	-0.000407	-0.0001367
38	20.4	-0.87	-0.85	-0.000482	-0.0001363
39	20.9	-0.40	-0.54	-0.000557	-0.0001360
40	21.5	-0.11	-0.19	-0.000631	-0.0001359
41	22.0	-0.00	-0.19	-0.000706	-0.0001359

CALCULO MATRICIAL DE PILOTES FRENTE A FUERZAS HORIZONTALES
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TITULO....VIADUCTO 2. SUBTRAMO 4.

Fuerza horizontal en cabeza (positiva izda-decha)= 23.11 Tn.
Momento en cabeza (positivo anti-horario)= 0 m.Tn.

Di metro del pilote= 1.8 m.
Resistencia caracteristica del horm del pilote fck= 200 kg/cm2.
Longitud total del pilote= 20 m.

Rigidez superior al giro= 1D+30 m.Tn/rad.
Rigidez inferior al giro= articulado

DATOS DEL TERRENO

PROFUNDIDAD	MODULO DE BALASTO (Tn/m3)
100.00	555.0

MODELO DE CALCULO EMPLEADO

El pilote se divide en 40 barras. El terreno es representado por muelles cuya constante es deducida del m¢dulo de balasto. Los m¢dulos de balasto en cada nudo se obtienen calculando la media ponderada de los m¢dulos del terreno en la zona cobaricentrica al nudo. Las constantes de muelle ser n el producto del m¢dulo de balasto por el di metro del pilote por la distancia entre muelles.

POSICION DE NUDOS CON MODULOS DE BALASTO INTERPOLADOS

NUDO	PROFUNDIDAD	M.BALASTO	K MUELLE	ESQUEMA
1	0.00	555.0	249.8	>ÄÄÄÒ·
2	0.50	555.0	499.5	>ÄÄÄ¶°
3	1.00	555.0	499.5	>ÄÄÄ¶°
4	1.50	555.0	499.5	>ÄÄÄ¶°
5	2.00	555.0	499.5	>ÄÄÄ¶°
6	2.50	555.0	499.5	>ÄÄÄ¶°
7	3.00	555.0	499.5	>ÄÄÄ¶°
8	3.50	555.0	499.5	>ÄÄÄ¶°
9	4.00	555.0	499.5	>ÄÄÄ¶°
10	4.50	555.0	499.5	>ÄÄÄ¶°
11	5.00	555.0	499.5	>ÄÄÄ¶°
12	5.50	555.0	499.5	>ÄÄÄ¶°
13	6.00	555.0	499.5	>ÄÄÄ¶°
14	6.50	555.0	499.5	>ÄÄÄ¶°
15	7.00	555.0	499.5	>ÄÄÄ¶°
16	7.50	555.0	499.5	>ÄÄÄ¶°
17	8.00	555.0	499.5	>ÄÄÄ¶°
18	8.50	555.0	499.5	>ÄÄÄ¶°
19	9.00	555.0	499.5	>ÄÄÄ¶°
20	9.50	555.0	499.5	>ÄÄÄ¶°
21	10.00	555.0	499.5	>ÄÄÄ¶°
22	10.50	555.0	499.5	>ÄÄÄ¶°
23	11.00	555.0	499.5	>ÄÄÄ¶°
24	11.50	555.0	499.5	>ÄÄÄ¶°
25	12.00	555.0	499.5	>ÄÄÄ¶°
26	12.50	555.0	499.5	>ÄÄÄ¶°
27	13.00	555.0	499.5	>ÄÄÄ¶°
28	13.50	555.0	499.5	>ÄÄÄ¶°
29	14.00	555.0	499.5	>ÄÄÄ¶°
30	14.50	555.0	499.5	>ÄÄÄ¶°
31	15.00	555.0	499.5	>ÄÄÄ¶°
32	15.50	555.0	499.5	>ÄÄÄ¶°
33	16.00	555.0	499.5	>ÄÄÄ¶°
34	16.50	555.0	499.5	>ÄÄÄ¶°
35	17.00	555.0	499.5	>ÄÄÄ¶°
36	17.50	555.0	499.5	>ÄÄÄ¶°
37	18.00	555.0	499.5	>ÄÄÄ¶°
38	18.50	555.0	499.5	>ÄÄÄ¶°
39	19.00	555.0	499.5	>ÄÄÄ¶°
40	19.50	555.0	499.5	>ÄÄÄ¶°
41	20.00	555.0	249.8	>ÄÄÄÐ¼

RESULTADOS DEL CALCULO MATRICIAL

Formada la matriz de rigidez del pilote dividido en 40 barras se ha sumado en la diagonal principal las constantes de muelle que se deducen de los m¢dulos de balasto del terreno. Tambien se han sumado en los nudos extremos las constantes de rigidez al giro introducidas en los datos. Resolviendo el sistema p=k*d para la estructura, se obtienen los desplazamientos, que multiplicados por la matriz de rigidez de barra se obtienen los esfuerzos.

ESFUERZOS EN EL PILOTE

NUDO	PROFUN	M(m.Tn.)	Q (Tn.)	DESPL(m.)	GIRO(rad.)
1	0.0	101.78	22.40	0.002836	-0.0000000
2	0.5	90.58	20.99	0.002827	-0.0000347
3	1.0	80.08	19.59	0.002802	-0.0000655
4	1.5	70.29	18.21	0.002762	-0.0000927
5	2.0	61.18	16.86	0.002710	-0.0001164
6	2.5	52.76	15.53	0.002646	-0.0001370
7	3.0	44.99	14.25	0.002573	-0.0001547
8	3.5	37.86	13.00	0.002492	-0.0001696
9	4.0	31.36	11.80	0.002404	-0.0001821
10	4.5	25.46	10.65	0.002310	-0.0001924
11	5.0	20.14	9.54	0.002212	-0.0002006
12	5.5	15.36	8.49	0.002110	-0.0002070
13	6.0	11.12	7.49	0.002005	-0.0002118
14	6.5	7.37	6.54	0.001899	-0.0002151
15	7.0	4.10	5.65	0.001790	-0.0002172
16	7.5	1.28	4.81	0.001682	-0.0002182
17	8.0	-1.12	4.02	0.001572	-0.0002182
18	8.5	-3.13	3.29	0.001463	-0.0002174
19	9.0	-4.78	2.61	0.001355	-0.0002160
20	9.5	-6.08	1.99	0.001248	-0.0002141
21	10.0	-7.08	1.42	0.001141	-0.0002117
22	10.5	-7.79	0.90	0.001036	-0.0002090
23	11.0	-8.24	0.44	0.000932	-0.0002061
24	11.5	-8.46	0.02	0.000830	-0.0002031
25	12.0	-8.47	-0.34	0.000729	-0.0002000
26	12.5	-8.30	-0.66	0.000630	-0.0001970
27	13.0	-7.97	-0.92	0.000532	-0.0001941
28	13.5	-7.51	-1.14	0.000436	-0.0001913
29	14.0	-6.94	-1.31	0.000341	-0.0001887
30	14.5	-6.29	-1.43	0.000247	-0.0001863
31	15.0	-5.57	-1.51	0.000154	-0.0001841
32	15.5	-4.81	-1.54	0.000063	-0.0001822
33	16.0	-4.04	-1.53	-0.000028	-0.0001807
34	16.5	-3.28	-1.47	-0.000118	-0.0001793
35	17.0	-2.55	-1.37	-0.000207	-0.0001783
36	17.5	-1.86	-1.22	-0.000296	-0.0001775
37	18.0	-1.25	-1.03	-0.000385	-0.0001769
38	18.5	-0.74	-0.79	-0.000473	-0.0001766
39	19.0	-0.35	-0.51	-0.000561	-0.0001764
40	19.5	-0.09	-0.18	-0.000649	-0.0001763
41	20.0	0.00	-0.18	-0.000738	-0.0001763

CALCULO MATRICIAL DE PILOTES FRENTE A FUERZAS HORIZONTALES
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TITULO....VIADUCTO 2. SUBTRAMO 4.

Fuerza horizontal en cabeza (positiva izda-decha)= 23.11 Tn.
Momento en cabeza (positivo anti-horario)= 0 m.Tn.

Di metro del pilote= 1.8 m.
Resistencia caracteristica del horm del pilote fck= 200 kg/cm2.
Longitud total del pilote= 20 m.

Rigidez superior al giro= 1D+30 m.Tn/rad.
Rigidez inferior al giro= articulado

DATOS DEL TERRENO

PROFUNDIDAD	MODULO DE BALASTO (Tn/m3)
100.00	555.0

MODELO DE CALCULO EMPLEADO

El pilote se divide en 40 barras. El terreno es representado por muelles cuya constante es deducida del m¢dulo de balasto. Los m¢dulos de balasto en cada nudo se obtienen calculando la media ponderada de los m¢dulos del terreno en la zona cobaricentrica al nudo. Las constantes de muelle ser n el producto del m¢dulo de balasto por el di metro del pilote por la distancia entre muelles.

POSICION DE NUDOS CON MODULOS DE BALASTO INTERPOLADOS

NUDO	PROFUNDIDAD	M.BALASTO	K MUELLE	ESQUEMA
1	0.00	555.0	249.8	>ÄÄÄÒ·
2	0.50	555.0	499.5	>ÄÄÄ¶°
3	1.00	555.0	499.5	>ÄÄÄ¶°
4	1.50	555.0	499.5	>ÄÄÄ¶°
5	2.00	555.0	499.5	>ÄÄÄ¶°
6	2.50	555.0	499.5	>ÄÄÄ¶°
7	3.00	555.0	499.5	>ÄÄÄ¶°
8	3.50	555.0	499.5	>ÄÄÄ¶°
9	4.00	555.0	499.5	>ÄÄÄ¶°
10	4.50	555.0	499.5	>ÄÄÄ¶°
11	5.00	555.0	499.5	>ÄÄÄ¶°
12	5.50	555.0	499.5	>ÄÄÄ¶°
13	6.00	555.0	499.5	>ÄÄÄ¶°
14	6.50	555.0	499.5	>ÄÄÄ¶°
15	7.00	555.0	499.5	>ÄÄÄ¶°
16	7.50	555.0	499.5	>ÄÄÄ¶°
17	8.00	555.0	499.5	>ÄÄÄ¶°
18	8.50	555.0	499.5	>ÄÄÄ¶°
19	9.00	555.0	499.5	>ÄÄÄ¶°
20	9.50	555.0	499.5	>ÄÄÄ¶°
21	10.00	555.0	499.5	>ÄÄÄ¶°
22	10.50	555.0	499.5	>ÄÄÄ¶°
23	11.00	555.0	499.5	>ÄÄÄ¶°
24	11.50	555.0	499.5	>ÄÄÄ¶°
25	12.00	555.0	499.5	>ÄÄÄ¶°
26	12.50	555.0	499.5	>ÄÄÄ¶°
27	13.00	555.0	499.5	>ÄÄÄ¶°
28	13.50	555.0	499.5	>ÄÄÄ¶°
29	14.00	555.0	499.5	>ÄÄÄ¶°
30	14.50	555.0	499.5	>ÄÄÄ¶°
31	15.00	555.0	499.5	>ÄÄÄ¶°
32	15.50	555.0	499.5	>ÄÄÄ¶°
33	16.00	555.0	499.5	>ÄÄÄ¶°
34	16.50	555.0	499.5	>ÄÄÄ¶°
35	17.00	555.0	499.5	>ÄÄÄ¶°
36	17.50	555.0	499.5	>ÄÄÄ¶°
37	18.00	555.0	499.5	>ÄÄÄ¶°
38	18.50	555.0	499.5	>ÄÄÄ¶°
39	19.00	555.0	499.5	>ÄÄÄ¶°
40	19.50	555.0	499.5	>ÄÄÄ¶°
41	20.00	555.0	249.8	>ÄÄÄÐ¼

RESULTADOS DEL CALCULO MATRICIAL

Formada la matriz de rigidez del pilote dividido en 40 barras se ha sumado en la diagonal principal las constantes de muelle que se deducen de los m¢dulos de balasto del terreno. Tambien se han sumado en los nudos extremos las constantes de rigidez al giro introducidas en los datos. Resolviendo el sistema p=k*d para la estructura, se obtienen los desplazamientos, que multiplicados por la matriz de rigidez de barra se obtienen los esfuerzos.

ESFUERZOS EN EL PILOTE

NUDO	PROFUN	M(m.Tn.)	Q (Tn.)	DESPL(m.)	GIRO(rad.)
1	0.0	101.78	22.40	0.002836	-0.0000000
2	0.5	90.58	20.99	0.002827	-0.0000347
3	1.0	80.08	19.59	0.002802	-0.0000655
4	1.5	70.29	18.21	0.002762	-0.0000927
5	2.0	61.18	16.86	0.002710	-0.0001164
6	2.5	52.76	15.53	0.002646	-0.0001370
7	3.0	44.99	14.25	0.002573	-0.0001547
8	3.5	37.86	13.00	0.002492	-0.0001696
9	4.0	31.36	11.80	0.002404	-0.0001821
10	4.5	25.46	10.65	0.002310	-0.0001924
11	5.0	20.14	9.54	0.002212	-0.0002006
12	5.5	15.36	8.49	0.002110	-0.0002070
13	6.0	11.12	7.49	0.002005	-0.0002118
14	6.5	7.37	6.54	0.001899	-0.0002151
15	7.0	4.10	5.65	0.001790	-0.0002172
16	7.5	1.28	4.81	0.001682	-0.0002182
17	8.0	-1.12	4.02	0.001572	-0.0002182
18	8.5	-3.13	3.29	0.001463	-0.0002174
19	9.0	-4.78	2.61	0.001355	-0.0002160
20	9.5	-6.08	1.99	0.001248	-0.0002141
21	10.0	-7.08	1.42	0.001141	-0.0002117
22	10.5	-7.79	0.90	0.001036	-0.0002090
23	11.0	-8.24	0.44	0.000932	-0.0002061
24	11.5	-8.46	0.02	0.000830	-0.0002031
25	12.0	-8.47	-0.34	0.000729	-0.0002000
26	12.5	-8.30	-0.66	0.000630	-0.0001970
27	13.0	-7.97	-0.92	0.000532	-0.0001941
28	13.5	-7.51	-1.14	0.000436	-0.0001913
29	14.0	-6.94	-1.31	0.000341	-0.0001887
30	14.5	-6.29	-1.43	0.000247	-0.0001863
31	15.0	-5.57	-1.51	0.000154	-0.0001841
32	15.5	-4.81	-1.54	0.000063	-0.0001822
33	16.0	-4.04	-1.53	-0.000028	-0.0001807
34	16.5	-3.28	-1.47	-0.000118	-0.0001793
35	17.0	-2.55	-1.37	-0.000207	-0.0001783
36	17.5	-1.86	-1.22	-0.000296	-0.0001775
37	18.0	-1.25	-1.03	-0.000385	-0.0001769
38	18.5	-0.74	-0.79	-0.000473	-0.0001766
39	19.0	-0.35	-0.51	-0.000561	-0.0001764
40	19.5	-0.09	-0.18	-0.000649	-0.0001763
41	20.0	0.00	-0.18	-0.000738	-0.0001763

CALCULO MATRICIAL DE PILOTES FRENTE A FUERZAS HORIZONTALES
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TITULO....VIADUCTO 2. SUBTRAMO 4.

Fuerza horizontal en cabeza (positiva izda-decha)= 23.13 Tn.
Momento en cabeza (positivo anti-horario)= 0 m.Tn.

Di metro del pilote= 1.8 m.
Resistencia caracteristica del horm del pilote fck= 200 kg/cm2.
Longitud total del pilote= 21 m.

Rigidez superior al giro= 1D+30 m.Tn/rad.
Rigidez inferior al giro= articulado

DATOS DEL TERRENO

PROFUNDIDAD	MODULO DE BALASTO (Tn/m3)
100.00	555.0

MODELO DE CALCULO EMPLEADO

El pilote se divide en 40 barras. El terreno es representado por muelles cuya constante es deducida del m¢dulo de balasto. Los m¢dulos de balasto en cada nudo se obtienen calculando la media ponderada de los m¢dulos del terreno en la zona cobaricentrica al nudo. Las constantes de muelle ser n el producto del m¢dulo de balasto por el di metro del pilote por la distancia entre muelles.

POSICION DE NUDOS CON MODULOS DE BALASTO INTERPOLADOS

NUDO	PROFUNDIDAD	M.BALASTO	K MUELLE	ESQUEMA
1	0.00	555.0	262.2	>ÄÄÄÒ·
2	0.53	555.0	524.5	>ÄÄÄ¶°
3	1.05	555.0	524.5	>ÄÄÄ¶°
4	1.58	555.0	524.5	>ÄÄÄ¶°
5	2.10	555.0	524.5	>ÄÄÄ¶°
6	2.63	555.0	524.5	>ÄÄÄ¶°
7	3.15	555.0	524.5	>ÄÄÄ¶°
8	3.68	555.0	524.5	>ÄÄÄ¶°
9	4.20	555.0	524.5	>ÄÄÄ¶°
10	4.73	555.0	524.5	>ÄÄÄ¶°
11	5.25	555.0	524.5	>ÄÄÄ¶°
12	5.78	555.0	524.5	>ÄÄÄ¶°
13	6.30	555.0	524.5	>ÄÄÄ¶°
14	6.83	555.0	524.5	>ÄÄÄ¶°
15	7.35	555.0	524.5	>ÄÄÄ¶°
16	7.88	555.0	524.5	>ÄÄÄ¶°
17	8.40	555.0	524.5	>ÄÄÄ¶°
18	8.93	555.0	524.5	>ÄÄÄ¶°
19	9.45	555.0	524.5	>ÄÄÄ¶°
20	9.98	555.0	524.5	>ÄÄÄ¶°
21	10.50	555.0	524.5	>ÄÄÄ¶°
22	11.03	555.0	524.5	>ÄÄÄ¶°
23	11.55	555.0	524.5	>ÄÄÄ¶°
24	12.08	555.0	524.5	>ÄÄÄ¶°
25	12.60	555.0	524.5	>ÄÄÄ¶°
26	13.13	555.0	524.5	>ÄÄÄ¶°
27	13.65	555.0	524.5	>ÄÄÄ¶°
28	14.18	555.0	524.5	>ÄÄÄ¶°
29	14.70	555.0	524.5	>ÄÄÄ¶°
30	15.23	555.0	524.5	>ÄÄÄ¶°
31	15.75	555.0	524.5	>ÄÄÄ¶°
32	16.28	555.0	524.5	>ÄÄÄ¶°
33	16.80	555.0	524.5	>ÄÄÄ¶°
34	17.33	555.0	524.5	>ÄÄÄ¶°
35	17.85	555.0	524.5	>ÄÄÄ¶°
36	18.38	555.0	524.5	>ÄÄÄ¶°
37	18.90	555.0	524.5	>ÄÄÄ¶°
38	19.43	555.0	524.5	>ÄÄÄ¶°
39	19.95	555.0	524.5	>ÄÄÄ¶°
40	20.48	555.0	524.5	>ÄÄÄ¶°
41	21.00	555.0	262.2	>ÄÄÄÐ½

RESULTADOS DEL CALCULO MATRICIAL

Formada la matriz de rigidez del pilote dividido en 40 barras se ha sumado en la diagonal principal las constantes de muelle que se deducen de los m¢dulos de balasto del terreno. Tambien se han sumado en los nudos extremos las constantes de rigidez al giro introducidas en los datos. Resolviendo el sistema p=k*d para la estructura, se obtienen los desplazamientos, que multiplicados por la matriz de rigidez de barra se obtienen los esfuerzos.

ESFUERZOS EN EL PILOTE

NUDO	PROFUN	M(m.Tn.)	Q (Tn.)	DESPL(m.)	GIRO(rad.)
1	0.0	101.04	22.39	0.002815	-0.0000000
2	0.5	89.28	20.92	0.002805	-0.0000361
3	1.1	78.30	19.46	0.002778	-0.0000679
4	1.6	68.08	18.03	0.002735	-0.0000956
5	2.1	58.61	16.62	0.002678	-0.0001196
6	2.6	49.89	15.26	0.002610	-0.0001402
7	3.2	41.88	13.93	0.002532	-0.0001576
8	3.7	34.57	12.65	0.002445	-0.0001721
9	4.2	27.93	11.41	0.002351	-0.0001839
10	4.7	21.94	10.23	0.002252	-0.0001934
11	5.3	16.56	9.10	0.002149	-0.0002007
12	5.8	11.78	8.03	0.002042	-0.0002061
13	6.3	7.57	7.02	0.001933	-0.0002097
14	6.8	3.88	6.06	0.001822	-0.0002119
15	7.4	0.70	5.17	0.001710	-0.0002128
16	7.9	-2.02	4.33	0.001599	-0.0002125
17	8.4	-4.29	3.55	0.001487	-0.0002113
18	8.9	-6.15	2.83	0.001377	-0.0002093
19	9.5	-7.64	2.16	0.001268	-0.0002067
20	10.0	-8.77	1.55	0.001160	-0.0002036
21	10.5	-9.59	1.00	0.001054	-0.0002001
22	11.0	-10.11	0.50	0.000950	-0.0001964
23	11.6	-10.38	0.06	0.000848	-0.0001925
24	12.1	-10.41	-0.33	0.000748	-0.0001886
25	12.6	-10.23	-0.68	0.000650	-0.0001847
26	13.1	-9.88	-0.97	0.000554	-0.0001809
27	13.7	-9.37	-1.21	0.000460	-0.0001772
28	14.2	-8.74	-1.40	0.000368	-0.0001738
29	14.7	-8.00	-1.54	0.000277	-0.0001706
30	15.2	-7.19	-1.64	0.000189	-0.0001677
31	15.8	-6.33	-1.70	0.000101	-0.0001652
32	16.3	-5.44	-1.70	0.000015	-0.0001629
33	16.8	-4.54	-1.67	-0.000070	-0.0001610
34	17.3	-3.66	-1.59	-0.000154	-0.0001595
35	17.9	-2.83	-1.46	-0.000238	-0.0001582
36	18.4	-2.06	-1.29	-0.000320	-0.0001573
37	18.9	-1.38	-1.08	-0.000403	-0.0001567
38	19.4	-0.82	-0.83	-0.000485	-0.0001563
39	20.0	-0.38	-0.53	-0.000567	-0.0001560
40	20.5	-0.10	-0.19	-0.000649	-0.0001559
41	21.0	-0.00	-0.19	-0.000731	-0.0001559

CALCULO MATRICIAL DE PILOTES FRENTE A FUERZAS HORIZONTALES
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TITULO....VIADUCTO 2. SUBTRAMO 4.

Fuerza horizontal en cabeza (positiva izda-decha)= 23.1 Tn.
Momento en cabeza (positivo anti-horario)= 0 m.Tn.

Di metro del pilote= 1.8 m.
Resistencia caracteristica del horm del pilote fck= 200 kg/cm2.
Longitud total del pilote= 22 m.

Rigidez superior al giro= 1D+30 m.Tn/rad.
Rigidez inferior al giro= articulado

DATOS DEL TERRENO

PROFUNDIDAD	MODULO DE BALASTO (Tn/m3)
100.00	555.0

MODELO DE CALCULO EMPLEADO

El pilote se divide en 40 barras. El terreno es representado por muelles cuya constante es deducida del m¢dulo de balasto. Los m¢dulos de balasto en cada nudo se obtienen calculando la media ponderada de los m¢dulos del terreno en la zona cobaricentrica al nudo. Las constantes de muelle ser n el producto del m¢dulo de balasto por el di metro del pilote por la distancia entre muelles.

POSICION DE NUDOS CON MODULOS DE BALASTO INTERPOLADOS

NUDO	PROFUNDIDAD	M.BALASTO	K MUELLE	ESQUEMA
1	0.00	555.0	274.7	>ÄÄÄÒ·
2	0.55	555.0	549.5	>ÄÄÄ¶°
3	1.10	555.0	549.4	>ÄÄÄ¶°
4	1.65	555.0	549.5	>ÄÄÄ¶°
5	2.20	555.0	549.4	>ÄÄÄ¶°
6	2.75	555.0	549.4	>ÄÄÄ¶°
7	3.30	555.0	549.4	>ÄÄÄ¶°
8	3.85	555.0	549.5	>ÄÄÄ¶°
9	4.40	555.0	549.5	>ÄÄÄ¶°
10	4.95	555.0	549.5	>ÄÄÄ¶°
11	5.50	555.0	549.5	>ÄÄÄ¶°
12	6.05	555.0	549.5	>ÄÄÄ¶°
13	6.60	555.0	549.5	>ÄÄÄ¶°
14	7.15	555.0	549.5	>ÄÄÄ¶°
15	7.70	555.0	549.5	>ÄÄÄ¶°
16	8.25	555.0	549.5	>ÄÄÄ¶°
17	8.80	555.0	549.5	>ÄÄÄ¶°
18	9.35	555.0	549.5	>ÄÄÄ¶°
19	9.90	555.0	549.5	>ÄÄÄ¶°
20	10.45	555.0	549.5	>ÄÄÄ¶°
21	11.00	555.0	549.5	>ÄÄÄ¶°
22	11.55	555.0	549.5	>ÄÄÄ¶°
23	12.10	555.0	549.5	>ÄÄÄ¶°
24	12.65	555.0	549.5	>ÄÄÄ¶°
25	13.20	555.0	549.5	>ÄÄÄ¶°
26	13.75	555.0	549.5	>ÄÄÄ¶°
27	14.30	555.0	549.5	>ÄÄÄ¶°
28	14.85	555.0	549.5	>ÄÄÄ¶°
29	15.40	555.0	549.5	>ÄÄÄ¶°
30	15.95	555.0	549.5	>ÄÄÄ¶°
31	16.50	555.0	549.4	>ÄÄÄ¶°
32	17.05	555.0	549.4	>ÄÄÄ¶°
33	17.60	555.0	549.4	>ÄÄÄ¶°
34	18.15	555.0	549.4	>ÄÄÄ¶°
35	18.70	555.0	549.4	>ÄÄÄ¶°
36	19.25	555.0	549.4	>ÄÄÄ¶°
37	19.80	555.0	549.4	>ÄÄÄ¶°
38	20.35	555.0	549.4	>ÄÄÄ¶°
39	20.90	555.0	549.4	>ÄÄÄ¶°
40	21.45	555.0	549.4	>ÄÄÄ¶°
41	22.00	555.0	274.7	>ÄÄÄÐ½

RESULTADOS DEL CALCULO MATRICIAL

Formada la matriz de rigidez del pilote dividido en 40 barras se ha sumado en la diagonal principal las constantes de muelle que se deducen de los módulos de balasto del terreno. Tambien se han sumado en los nudos extremos las constantes de rigidez al giro introducidas en los datos. Resolviendo el sistema p=k*d para la estructura, se obtienen los desplazamientos, que multiplicados por la matriz de rigidez de barra se obtienen los esfuerzos.

ESFUERZOS EN EL PILOTE

NUDO	PROFUN	M(m.Tn.)	Q (Tn.)	DESPL(m.)	GIRO(rad.)
1	0.0	100.27	22.33	0.002789	-0.0000000
2	0.6	87.99	20.81	0.002778	-0.0000374
3	1.1	76.55	19.30	0.002749	-0.0000701
4	1.7	65.93	17.81	0.002702	-0.0000984
5	2.2	56.14	16.36	0.002641	-0.0001226
6	2.8	47.14	14.95	0.002568	-0.0001431
7	3.3	38.92	13.58	0.002484	-0.0001602
8	3.9	31.44	12.27	0.002392	-0.0001742
9	4.4	24.70	11.01	0.002293	-0.0001853
10	5.0	18.64	9.81	0.002189	-0.0001939
11	5.5	13.25	8.66	0.002080	-0.0002003
12	6.1	8.48	7.58	0.001969	-0.0002046
13	6.6	4.31	6.56	0.001856	-0.0002071
14	7.2	0.70	5.61	0.001741	-0.0002081
15	7.7	-2.38	4.71	0.001627	-0.0002078
16	8.3	-4.97	3.88	0.001513	-0.0002063
17	8.8	-7.11	3.11	0.001400	-0.0002039
18	9.4	-8.82	2.40	0.001289	-0.0002008
19	9.9	-10.14	1.76	0.001179	-0.0001970
20	10.5	-11.11	1.17	0.001072	-0.0001928
21	11.0	-11.75	0.63	0.000967	-0.0001882
22	11.6	-12.10	0.16	0.000865	-0.0001835
23	12.1	-12.19	-0.26	0.000766	-0.0001787
24	12.7	-12.04	-0.63	0.000669	-0.0001739
25	13.2	-11.70	-0.94	0.000574	-0.0001692
26	13.8	-11.18	-1.21	0.000483	-0.0001646
27	14.3	-10.51	-1.43	0.000393	-0.0001603
28	14.9	-9.73	-1.59	0.000306	-0.0001563
29	15.4	-8.85	-1.72	0.000221	-0.0001526
30	16.0	-7.91	-1.79	0.000138	-0.0001493
31	16.5	-6.92	-1.82	0.000057	-0.0001463
32	17.1	-5.92	-1.81	-0.000023	-0.0001438
33	17.6	-4.92	-1.75	-0.000101	-0.0001416
34	18.2	-3.96	-1.66	-0.000179	-0.0001399
35	18.7	-3.05	-1.52	-0.000255	-0.0001385
36	19.3	-2.21	-1.33	-0.000331	-0.0001374
37	19.8	-1.48	-1.11	-0.000406	-0.0001367
38	20.4	-0.87	-0.85	-0.000481	-0.0001362
39	20.9	-0.40	-0.54	-0.000556	-0.0001360
40	21.5	-0.11	-0.19	-0.000631	-0.0001359
41	22.0	-0.00	-0.19	-0.000706	-0.0001358

CALCULO MATRICIAL DE PILOTES FRENTE A FUERZAS HORIZONTALES
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TITULO....VIADUCTO 2. SUBTRAMO 4.

Fuerza horizontal en cabeza (positiva izda-decha)= 23.1 Tn.
Momento en cabeza (positivo anti-horario)= 0 m.Tn.

Di metro del pilote= 1.8 m.
Resistencia caracteristica del horm del pilote fck= 200 kg/cm2.
Longitud total del pilote= 21 m.

Rigidez superior al giro= 1D+30 m.Tn/rad.
Rigidez inferior al giro= articulado

DATOS DEL TERRENO

PROFUNDIDAD	MODULO DE BALASTO (Tn/m3)
100.00	555.0

MODELO DE CALCULO EMPLEADO

El pilote se divide en 40 barras. El terreno es representado por muelles cuya constante es deducida del m¢dulo de balasto. Los m¢dulos de balasto en cada nudo se obtienen calculando la media ponderada de los m¢dulos del terreno en la zona cobaricentrica al nudo. Las constantes de muelle ser n el producto del m¢dulo de balasto por el di metro del pilote por la distancia entre muelles.

POSICION DE NUDOS CON MODULOS DE BALASTO INTERPOLADOS

NUDO	PROFUNDIDAD	M.BALASTO	K MUELLE	ESQUEMA
1	0.00	555.0	262.2	>ÄÄÄÒ·
2	0.53	555.0	524.5	>ÄÄÄ¶°
3	1.05	555.0	524.5	>ÄÄÄ¶°
4	1.58	555.0	524.5	>ÄÄÄ¶°
5	2.10	555.0	524.5	>ÄÄÄ¶°
6	2.63	555.0	524.5	>ÄÄÄ¶°
7	3.15	555.0	524.5	>ÄÄÄ¶°
8	3.68	555.0	524.5	>ÄÄÄ¶°
9	4.20	555.0	524.5	>ÄÄÄ¶°
10	4.73	555.0	524.5	>ÄÄÄ¶°
11	5.25	555.0	524.5	>ÄÄÄ¶°
12	5.78	555.0	524.5	>ÄÄÄ¶°
13	6.30	555.0	524.5	>ÄÄÄ¶°
14	6.83	555.0	524.5	>ÄÄÄ¶°
15	7.35	555.0	524.5	>ÄÄÄ¶°
16	7.88	555.0	524.5	>ÄÄÄ¶°
17	8.40	555.0	524.5	>ÄÄÄ¶°
18	8.93	555.0	524.5	>ÄÄÄ¶°
19	9.45	555.0	524.5	>ÄÄÄ¶°
20	9.98	555.0	524.5	>ÄÄÄ¶°
21	10.50	555.0	524.5	>ÄÄÄ¶°
22	11.03	555.0	524.5	>ÄÄÄ¶°
23	11.55	555.0	524.5	>ÄÄÄ¶°
24	12.08	555.0	524.5	>ÄÄÄ¶°
25	12.60	555.0	524.5	>ÄÄÄ¶°
26	13.13	555.0	524.5	>ÄÄÄ¶°
27	13.65	555.0	524.5	>ÄÄÄ¶°
28	14.18	555.0	524.5	>ÄÄÄ¶°
29	14.70	555.0	524.5	>ÄÄÄ¶°
30	15.23	555.0	524.5	>ÄÄÄ¶°
31	15.75	555.0	524.5	>ÄÄÄ¶°
32	16.28	555.0	524.5	>ÄÄÄ¶°
33	16.80	555.0	524.5	>ÄÄÄ¶°
34	17.33	555.0	524.5	>ÄÄÄ¶°
35	17.85	555.0	524.5	>ÄÄÄ¶°
36	18.38	555.0	524.5	>ÄÄÄ¶°
37	18.90	555.0	524.5	>ÄÄÄ¶°
38	19.43	555.0	524.5	>ÄÄÄ¶°
39	19.95	555.0	524.5	>ÄÄÄ¶°
40	20.48	555.0	524.5	>ÄÄÄ¶°
41	21.00	555.0	262.2	>ÄÄÄÐ¼

RESULTADOS DEL CALCULO MATRICIAL

Formada la matriz de rigidez del pilote dividido en 40 barras se ha sumado en la diagonal principal las constantes de muelle que se deducen de los m¢dulos de balasto del terreno. Tambien se han sumado en los nudos extremos las constantes de rigidez al giro introducidas en los datos. Resolviendo el sistema p=k*d para la estructura, se obtienen los desplazamientos, que multiplicados por la matriz de rigidez de barra se obtienen los esfuerzos.

ESFUERZOS EN EL PILOTE

NUDO	PROFUN	M(m.Tn.)	Q (Tn.)	DESPL(m.)	GIRO(rad.)
1	0.0	100.91	22.36	0.002811	-0.0000000
2	0.5	89.17	20.89	0.002802	-0.0000360
3	1.1	78.20	19.44	0.002774	-0.0000678
4	1.6	67.99	18.01	0.002731	-0.0000955
5	2.1	58.54	16.60	0.002675	-0.0001195
6	2.6	49.82	15.24	0.002606	-0.0001400
7	3.2	41.82	13.91	0.002528	-0.0001574
8	3.7	34.52	12.63	0.002442	-0.0001719
9	4.2	27.89	11.40	0.002348	-0.0001837
10	4.7	21.91	10.22	0.002249	-0.0001931
11	5.3	16.54	9.09	0.002146	-0.0002004
12	5.8	11.77	8.02	0.002039	-0.0002058
13	6.3	7.56	7.01	0.001930	-0.0002095
14	6.8	3.88	6.06	0.001819	-0.0002116
15	7.4	0.70	5.16	0.001708	-0.0002125
16	7.9	-2.01	4.32	0.001597	-0.0002122
17	8.4	-4.28	3.54	0.001485	-0.0002110
18	8.9	-6.14	2.82	0.001375	-0.0002091
19	9.5	-7.63	2.16	0.001266	-0.0002065
20	10.0	-8.76	1.55	0.001158	-0.0002033
21	10.5	-9.57	1.00	0.001053	-0.0001999
22	11.0	-10.10	0.50	0.000949	-0.0001961
23	11.6	-10.36	0.06	0.000847	-0.0001923
24	12.1	-10.39	-0.33	0.000747	-0.0001883
25	12.6	-10.22	-0.67	0.000649	-0.0001844
26	13.1	-9.86	-0.96	0.000553	-0.0001806
27	13.7	-9.36	-1.21	0.000459	-0.0001770
28	14.2	-8.72	-1.40	0.000367	-0.0001735
29	14.7	-7.99	-1.54	0.000277	-0.0001704
30	15.2	-7.18	-1.64	0.000188	-0.0001675
31	15.8	-6.32	-1.69	0.000101	-0.0001649
32	16.3	-5.43	-1.70	0.000015	-0.0001627
33	16.8	-4.53	-1.67	-0.000070	-0.0001608
34	17.3	-3.66	-1.59	-0.000154	-0.0001593
35	17.9	-2.83	-1.46	-0.000237	-0.0001580
36	18.4	-2.06	-1.29	-0.000320	-0.0001571
37	18.9	-1.38	-1.08	-0.000402	-0.0001565
38	19.4	-0.81	-0.83	-0.000484	-0.0001560
39	20.0	-0.38	-0.53	-0.000566	-0.0001558
40	20.5	-0.10	-0.19	-0.000648	-0.0001557
41	21.0	0.00	-0.19	-0.000730	-0.0001557

CALCULO MATRICIAL DE PILOTES FRENTE A FUERZAS HORIZONTALES
==========

TITULO....VIADUCTO 2. SUBTRAMO 4.

Fuerza horizontal en cabeza (positiva izda-decha)= 22.9 Tn.
Momento en cabeza (positivo anti-horario)= 0 m.Tn.

Di metro del pilote= 1.8 m.
Resistencia caracteristica del horm del pilote fck= 200 kg/cm2.
Longitud total del pilote= 17 m.

Rigidez superior al giro= 10+30 m.Tn/rad.
Rigidez inferior al giro= articulado

DATOS DEL TERRENO

PROFUNDIDAD	MODULO DE BALASTO (Tn/m3)
100.00	555.0

MODELO DE CALCULO EMPLEADO

El pilote se divide en 40 barras. El terreno es representado por muelles cuya constante es deducida del m¢dulo de balasto. Los m¢dulos de balasto en cada nudo se obtienen calculando la media ponderada de los m¢dulos del terreno en la zona cobaricentrica al nudo. Las constantes de muelle ser n el producto del m¢dulo de balasto por el di metro del pilote por la distancia entre muelles.

POSICION DE NUDOS CON MODULOS DE BALASTO INTERPOLADOS

NUDO	PROFUNDIDAD	M.BALASTO	K MUELLE	ESQUEMA
1	0.00	555.0	212.3	>ÄÄÄÒ·
2	0.43	555.0	424.6	>ÄÄÄ¶°
3	0.85	555.0	424.6	>ÄÄÄ¶°
4	1.28	555.0	424.6	>ÄÄÄ¶°
5	1.70	555.0	424.6	>ÄÄÄ¶°
6	2.13	555.0	424.6	>ÄÄÄ¶°
7	2.55	555.0	424.6	>ÄÄÄ¶°
8	2.98	555.0	424.6	>ÄÄÄ¶°
9	3.40	555.0	424.6	>ÄÄÄ¶°
10	3.83	555.0	424.6	>ÄÄÄ¶°
11	4.25	555.0	424.6	>ÄÄÄ¶°
12	4.68	555.0	424.6	>ÄÄÄ¶°
13	5.10	555.0	424.6	>ÄÄÄ¶°
14	5.52	555.0	424.6	>ÄÄÄ¶°
15	5.95	555.0	424.6	>ÄÄÄ¶°
16	6.38	555.0	424.6	>ÄÄÄ¶°
17	6.80	555.0	424.6	>ÄÄÄ¶°
18	7.23	555.0	424.6	>ÄÄÄ¶°
19	7.65	555.0	424.6	>ÄÄÄ¶°
20	8.07	555.0	424.6	>ÄÄÄ¶°
21	8.50	555.0	424.6	>ÄÄÄ¶°
22	8.92	555.0	424.6	>ÄÄÄ¶°
23	9.35	555.0	424.6	>ÄÄÄ¶°
24	9.78	555.0	424.6	>ÄÄÄ¶°
25	10.20	555.0	424.6	>ÄÄÄ¶°
26	10.63	555.0	424.6	>ÄÄÄ¶°
27	11.05	555.0	424.6	>ÄÄÄ¶°
28	11.48	555.0	424.6	>ÄÄÄ¶°
29	11.90	555.0	424.6	>ÄÄÄ¶°
30	12.33	555.0	424.6	>ÄÄÄ¶°
31	12.75	555.0	424.6	>ÄÄÄ¶°
32	13.18	555.0	424.6	>ÄÄÄ¶°
33	13.60	555.0	424.6	>ÄÄÄ¶°
34	14.03	555.0	424.6	>ÄÄÄ¶°
35	14.45	555.0	424.6	>ÄÄÄ¶°
36	14.88	555.0	424.6	>ÄÄÄ¶°
37	15.30	555.0	424.6	>ÄÄÄ¶°
38	15.73	555.0	424.6	>ÄÄÄ¶°
39	16.15	555.0	424.6	>ÄÄÄ¶°
40	16.58	555.0	424.6	>ÄÄÄ¶°
41	17.00	555.0	212.3	>ÄÄÄÐ½

RESULTADOS DEL CALCULO MATRICIAL

Formada la matriz de rigidez del pilote dividido en 40 barras se ha sumado en la diagonal principal las constantes de muelle que se deducen de los m¢dulos de balasto del terreno. Tambien se han sumado en los nudos extremos las constantes de rigidez al giro introducidas en los datos. Resolviendo el sistema p=k*d para la estructura, se obtienen los desplazamientos, que multiplicados por la matriz de rigidez de barra se obtienen los esfuerzos.

ESFUERZOS EN EL PILOTE

NUDO	PROFUN	M(m.Tn.)	Q (Tn.)	DESPL(m.)	GIRO(rad.)
1	0.0	104.42	22.29	0.002873	-0.0000000
2	0.4	94.94	21.07	0.002866	-0.0000306
3	0.9	85.99	19.86	0.002847	-0.0000584
4	1.3	77.54	18.67	0.002817	-0.0000835
5	1.7	69.61	17.49	0.002777	-0.0001060
6	2.1	62.18	16.33	0.002727	-0.0001263
7	2.6	55.24	15.20	0.002670	-0.0001443
8	3.0	48.78	14.09	0.002605	-0.0001603
9	3.4	42.79	13.02	0.002534	-0.0001743
10	3.8	37.26	11.97	0.002457	-0.0001866
11	4.3	32.17	10.96	0.002375	-0.0001972
12	4.7	27.51	9.99	0.002290	-0.0002064
13	5.1	23.26	9.06	0.002200	-0.0002142
14	5.5	19.41	8.16	0.002108	-0.0002207
15	6.0	15.94	7.31	0.002013	-0.0002262
16	6.4	12.84	6.49	0.001916	-0.0002306
17	6.8	10.08	5.72	0.001817	-0.0002341
18	7.2	7.65	4.99	0.001717	-0.0002368
19	7.6	5.52	4.31	0.001616	-0.0002389
20	8.1	3.69	3.67	0.001514	-0.0002403
21	8.5	2.13	3.07	0.001412	-0.0002412
22	8.9	0.83	2.51	0.001309	-0.0002416
23	9.4	-0.24	2.00	0.001206	-0.0002417
24	9.8	-1.09	1.53	0.001104	-0.0002415
25	10.2	-1.74	1.11	0.001001	-0.0002411
26	10.6	-2.21	0.72	0.000899	-0.0002405
27	11.1	-2.51	0.39	0.000797	-0.0002397
28	11.5	-2.68	0.09	0.000695	-0.0002389
29	11.9	-2.72	-0.16	0.000593	-0.0002381
30	12.3	-2.65	-0.37	0.000492	-0.0002373
31	12.8	-2.49	-0.54	0.000392	-0.0002365
32	13.2	-2.26	-0.66	0.000291	-0.0002358
33	13.6	-1.98	-0.74	0.000191	-0.0002351
34	14.0	-1.67	-0.78	0.000092	-0.0002346
35	14.5	-1.33	-0.78	-0.000008	-0.0002341
36	14.9	-1.00	-0.73	-0.000107	-0.0002337
37	15.3	-0.69	-0.64	-0.000207	-0.0002335
38	15.7	-0.42	-0.51	-0.000306	-0.0002333
39	16.2	-0.20	-0.34	-0.000405	-0.0002332
40	16.6	-0.05	-0.13	-0.000504	-0.0002332
41	17.0	-0.00	-0.13	-0.000603	-0.0002332

CALCULO MATRICIAL DE PILOTES FRENTE A FUERZAS HORIZONTALES
==========

TITULO....VIADUCTO 2. SUBTRAMO 4.

Fuerza horizontal en cabeza (positiva izda-decha)= 23.7 Tn.
Momento en cabeza (positivo anti-horario)= 0 m.Tn.

Di metro del pilote= 1.8 m.
Resistencia caracteristica del horm del pilote fck= 200 kg/cm2.
Longitud total del pilote= 19 m.

Rigidez superior al giro= 10+30 m.Tn/rad.
Rigidez inferior al giro= articulado

DATOS DEL TERRENO

PROFUNDIDAD	MODULO DE BALASTO (Tn/m3)
100.00	555.0

MODELO DE CALCULO EMPLEADO

El pilote se divide en 40 barras. El terreno es representado por muelles cuya constante es deducida del m¢dulo de balasto. Los m¢dulos de balasto en cada nudo se obtienen calculando la media ponderada de los m¢dulos del terreno en la zona cobaricentrica al nudo. Las constantes de muelle ser n el producto del m¢dulo de balasto por el di metro del pilote por la distancia entre muelles.

POSICION DE NUDOS CON MODULOS DE BALASTO INTERPOLADOS

NUDO	PROFUNDIDAD	M.BALASTO	K MUELLE	ESQUEMA
1	0.00	555.0	237.3	>ÄÄÄÒ·
2	0.48	555.0	474.5	>ÄÄÄ¶°
3	0.95	555.0	474.5	>ÄÄÄ¶°
4	1.43	555.0	474.5	>ÄÄÄ¶°
5	1.90	555.0	474.5	>ÄÄÄ¶°
6	2.38	555.0	474.5	>ÄÄÄ¶°
7	2.85	555.0	474.5	>ÄÄÄ¶°
8	3.33	555.0	474.5	>ÄÄÄ¶°
9	3.80	555.0	474.5	>ÄÄÄ¶°
10	4.27	555.0	474.5	>ÄÄÄ¶°
11	4.75	555.0	474.5	>ÄÄÄ¶°
12	5.23	555.0	474.5	>ÄÄÄ¶°
13	5.70	555.0	474.5	>ÄÄÄ¶°
14	6.18	555.0	474.5	>ÄÄÄ¶°
15	6.65	555.0	474.5	>ÄÄÄ¶°
16	7.13	555.0	474.5	>ÄÄÄ¶°
17	7.60	555.0	474.5	>ÄÄÄ¶°
18	8.07	555.0	474.5	>ÄÄÄ¶°
19	8.55	555.0	474.5	>ÄÄÄ¶°
20	9.03	555.0	474.5	>ÄÄÄ¶°
21	9.50	555.0	474.5	>ÄÄÄ¶°
22	9.98	555.0	474.5	>ÄÄÄ¶°
23	10.45	555.0	474.5	>ÄÄÄ¶°
24	10.93	555.0	474.5	>ÄÄÄ¶°
25	11.40	555.0	474.5	>ÄÄÄ¶°
26	11.88	555.0	474.5	>ÄÄÄ¶°
27	12.35	555.0	474.5	>ÄÄÄ¶°
28	12.83	555.0	474.5	>ÄÄÄ¶°
29	13.30	555.0	474.5	>ÄÄÄ¶°
30	13.78	555.0	474.5	>ÄÄÄ¶°
31	14.25	555.0	474.5	>ÄÄÄ¶°
32	14.73	555.0	474.5	>ÄÄÄ¶°
33	15.20	555.0	474.5	>ÄÄÄ¶°
34	15.68	555.0	474.5	>ÄÄÄ¶°
35	16.15	555.0	474.5	>ÄÄÄ¶°
36	16.63	555.0	474.5	>ÄÄÄ¶°
37	17.10	555.0	474.5	>ÄÄÄ¶°
38	17.58	555.0	474.5	>ÄÄÄ¶°
39	18.05	555.0	474.5	>ÄÄÄ¶°
40	18.53	555.0	474.5	>ÄÄÄ¶°
41	19.00	555.0	237.3	>ÄÄÄÐ¼

RESULTADOS DEL CALCULO MATRICIAL

Formada la matriz de rigidez del pilote dividido en 40 barras se ha sumado en la diagonal principal las constantes de muelle que se deducen de los módulos de balasto del terreno. Tambien se han sumado en los nudos extremos las constantes de rigidez al giro introducidas en los datos. Resolviendo el sistema p=k*d para la estructura, se obtienen los desplazamientos, que multiplicados por la matriz de rigidez de barra se obtienen los esfuerzos.

ESFUERZOS EN EL PILOTE

NUDO	PROFUN	M(m.Tn.)	Q (Tn.)	DESPL(m.)	GIRO(rad.)
1	0.0	105.44	23.00	0.002932	-0.0000000
2	0.5	94.51	21.62	0.002924	-0.0000343
3	1.0	84.25	20.24	0.002900	-0.0000650
4	1.4	74.63	18.88	0.002863	-0.0000922
5	1.9	65.66	17.55	0.002813	-0.0001163
6	2.4	57.33	16.24	0.002753	-0.0001374
7	2.9	49.61	14.97	0.002683	-0.0001557
8	3.3	42.50	13.73	0.002605	-0.0001715
9	3.8	35.98	12.53	0.002521	-0.0001850
10	4.3	30.03	11.38	0.002430	-0.0001963
11	4.8	24.62	10.27	0.002334	-0.0002057
12	5.2	19.74	9.21	0.002235	-0.0002133
13	5.7	15.36	8.20	0.002132	-0.0002193
14	6.2	11.47	7.24	0.002027	-0.0002239
15	6.6	8.03	6.33	0.001920	-0.0002273
16	7.1	5.02	5.47	0.001811	-0.0002295
17	7.6	2.42	4.66	0.001702	-0.0002308
18	8.1	0.21	3.91	0.001592	-0.0002312
19	8.5	-1.65	3.20	0.001482	-0.0002310
20	9.0	-3.17	2.55	0.001373	-0.0002301
21	9.5	-4.38	1.95	0.001264	-0.0002289
22	10.0	-5.31	1.40	0.001155	-0.0002272
23	10.5	-5.97	0.91	0.001048	-0.0002253
24	10.9	-6.41	0.46	0.000941	-0.0002231
25	11.4	-6.62	0.06	0.000836	-0.0002209
26	11.9	-6.65	-0.28	0.000731	-0.0002186
27	12.4	-6.52	-0.58	0.000628	-0.0002164
28	12.8	-6.24	-0.83	0.000526	-0.0002142
29	13.3	-5.85	-1.03	0.000425	-0.0002121
30	13.8	-5.36	-1.19	0.000324	-0.0002102
31	14.3	-4.80	-1.29	0.000225	-0.0002084
32	14.7	-4.18	-1.35	0.000126	-0.0002069
33	15.2	-3.54	-1.37	0.000028	-0.0002056
34	15.7	-2.89	-1.33	-0.000069	-0.0002045
35	16.2	-2.26	-1.25	-0.000166	-0.0002036
36	16.6	-1.66	-1.13	-0.000262	-0.0002029
37	17.1	-1.12	-0.96	-0.000359	-0.0002024
38	17.6	-0.67	-0.74	-0.000455	-0.0002021
39	18.1	-0.31	-0.48	-0.000551	-0.0002020
40	18.5	-0.08	-0.18	-0.000647	-0.0002019
41	19.0	0.00	-0.18	-0.000743	-0.0002019

CALCULO MATRICIAL DE PILOTES FRENTE A FUERZAS HORIZONTALES
==========

TITULO....VIADUCTO 2. SUBTRAMO 4.

Fuerza horizontal en cabeza (positiva izda-decha)= 20.3 Tn.
Momento en cabeza (positivo anti-horario)= 0 m.Tn.

Di metro del pilote= 1.8 m.
Resistencia caracteristica del horm del pilote fck= 200 kg/cm2.
Longitud total del pilote= 19 m.

Rigidez superior al giro= 1D+30 m.Tn/rad.
Rigidez inferior al giro= articulado

DATOS DEL TERRENO

PROFUNDIDAD	MODULO DE BALASTO (Tn/m3)
100.00	555.0

MODELO DE CALCULO EMPLEADO

El pilote se divide en 40 barras. El terreno es representado por muelles cuya constante es deducida del m¢dulo de balasto. Los m¢dulos de balasto en cada nudo se obtienen calculando la media ponderada de los m¢dulos del terreno en la zona cobaricentrica al nudo. Las constantes de muelle ser n el producto del m¢dulo de balasto por el di metro del pilote por la distancia entre muelles.

POSICION DE NUDOS CON MODULOS DE BALASTO INTERPOLADOS

NUDO	PROFUNDIDAD	M.BALASTO	K MUELLE	ESQUEMA
1	0.00	555.0	237.3	>ÄÄÄÒ·
2	0.48	555.0	474.5	>ÄÄÄ¶°
3	0.95	555.0	474.5	>ÄÄÄ¶°
4	1.43	555.0	474.5	>ÄÄÄ¶°
5	1.90	555.0	474.5	>ÄÄÄ¶°
6	2.38	555.0	474.5	>ÄÄÄ¶°
7	2.85	555.0	474.5	>ÄÄÄ¶°
8	3.33	555.0	474.5	>ÄÄÄ¶°
9	3.80	555.0	474.5	>ÄÄÄ¶°
10	4.27	555.0	474.5	>ÄÄÄ¶°
11	4.75	555.0	474.5	>ÄÄÄ¶°
12	5.23	555.0	474.5	>ÄÄÄ¶°
13	5.70	555.0	474.5	>ÄÄÄ¶°
14	6.18	555.0	474.5	>ÄÄÄ¶°
15	6.65	555.0	474.5	>ÄÄÄ¶°
16	7.13	555.0	474.5	>ÄÄÄ¶°
17	7.60	555.0	474.5	>ÄÄÄ¶°
18	8.07	555.0	474.5	>ÄÄÄ¶°
19	8.55	555.0	474.5	>ÄÄÄ¶°
20	9.03	555.0	474.5	>ÄÄÄ¶°
21	9.50	555.0	474.5	>ÄÄÄ¶°
22	9.98	555.0	474.5	>ÄÄÄ¶°
23	10.45	555.0	474.5	>ÄÄÄ¶°
24	10.93	555.0	474.5	>ÄÄÄ¶°
25	11.40	555.0	474.5	>ÄÄÄ¶°
26	11.88	555.0	474.5	>ÄÄÄ¶°
27	12.35	555.0	474.5	>ÄÄÄ¶°
28	12.83	555.0	474.5	>ÄÄÄ¶°
29	13.30	555.0	474.5	>ÄÄÄ¶°
30	13.78	555.0	474.5	>ÄÄÄ¶°
31	14.25	555.0	474.5	>ÄÄÄ¶°
32	14.73	555.0	474.5	>ÄÄÄ¶°
33	15.20	555.0	474.5	>ÄÄÄ¶°
34	15.68	555.0	474.5	>ÄÄÄ¶°
35	16.15	555.0	474.5	>ÄÄÄ¶°
36	16.63	555.0	474.5	>ÄÄÄ¶°
37	17.10	555.0	474.5	>ÄÄÄ¶°
38	17.58	555.0	474.5	>ÄÄÄ¶°
39	18.05	555.0	474.5	>ÄÄÄ¶°
40	18.53	555.0	474.5	>ÄÄÄ¶°
41	19.00	555.0	237.3	>ÄÄÄÐ¼

RESULTADOS DEL CALCULO MATRICIAL

Formada la matriz de rigidez del pilote dividido en 40 barras se ha sumado en la diagonal principal las constantes de muelle que se deducen de los m¢dulos de balasto del terreno. Tambien se han sumado en los nudos extremos las constantes de rigidez al giro introducidas en los datos. Resolviendo el sistema p=k*d para la estructura, se obtienen los desplazamientos, que multiplicados por la matriz de rigidez de barra se obtienen los esfuerzos.

ESFUERZOS EN EL PILOTE

NUDO	PROFUN	M(m.Tn.)	Q (Tn.)	DESPL(m.)	GIRO(rad.)
1	0.0	90.31	19.70	0.002512	-0.0000000
2	0.5	80.95	18.52	0.002505	-0.0000294
3	1.0	72.16	17.34	0.002484	-0.0000556
4	1.4	63.92	16.17	0.002452	-0.0000790
5	1.9	56.24	15.03	0.002410	-0.0000996
6	2.4	49.10	13.91	0.002358	-0.0001177
7	2.9	42.50	12.82	0.002298	-0.0001334
8	3.3	36.41	11.76	0.002232	-0.0001469
9	3.8	30.82	10.74	0.002159	-0.0001584
10	4.3	25.72	9.75	0.002081	-0.0001681
11	4.8	21.09	8.80	0.002000	-0.0001762
12	5.2	16.91	7.89	0.001914	-0.0001827
13	5.7	13.16	7.03	0.001826	-0.0001878
14	6.2	9.82	6.20	0.001736	-0.0001918
15	6.6	6.88	5.42	0.001644	-0.0001947
16	7.1	4.30	4.69	0.001551	-0.0001966
17	7.6	2.08	3.99	0.001458	-0.0001977
18	8.1	0.18	3.35	0.001364	-0.0001980
19	8.5	-1.41	2.74	0.001270	-0.0001978
20	9.0	-2.71	2.19	0.001176	-0.0001971
21	9.5	-3.75	1.67	0.001082	-0.0001960
22	10.0	-4.55	1.20	0.000990	-0.0001946
23	10.5	-5.12	0.78	0.000897	-0.0001929
24	10.9	-5.49	0.39	0.000806	-0.0001911
25	11.4	-5.67	0.05	0.000716	-0.0001892
26	11.9	-5.70	-0.24	0.000627	-0.0001873
27	12.4	-5.58	-0.50	0.000538	-0.0001853
28	12.8	-5.35	-0.71	0.000450	-0.0001834
29	13.3	-5.01	-0.88	0.000364	-0.0001817
30	13.8	-4.59	-1.02	0.000278	-0.0001800
31	14.3	-4.11	-1.11	0.000193	-0.0001785
32	14.7	-3.58	-1.16	0.000108	-0.0001772
33	15.2	-3.03	-1.17	0.000024	-0.0001761
34	15.7	-2.47	-1.14	-0.000059	-0.0001751
35	16.2	-1.93	-1.07	-0.000142	-0.0001744
36	16.6	-1.42	-0.97	-0.000225	-0.0001738
37	17.1	-0.96	-0.82	-0.000307	-0.0001734
38	17.6	-0.57	-0.64	-0.000390	-0.0001731
39	18.1	-0.27	-0.41	-0.000472	-0.0001730
40	18.5	-0.07	-0.15	-0.000554	-0.0001729
41	19.0	-0.00	-0.15	-0.000636	-0.0001729

ARMADURA DE LOS PILOTES

Obra : Viaducto 2.(Arroyo Valderachas)
Fecha: 20/8/1999
Hora : 0:01

CALCULO DE SECCIONES CIRCULARES A FLEXION COMPUESTA RECTA

1. Datos

- Materiales:

fck [kp/cm²] = 250
fyk [kp/cm²] = 5100
γc = 1.50
γs = 1.15

- Sección

ϕ Sección [cm] = 180.00
r [cm] = 5.0
n° de redondos = 22

2. Dimensionamiento

Nd [Mp] = 140.00
Md [m·Mp] = 160.00

Propuesta armadura dimensionamiento

Aest [cm²]	ϕest [mm]	A [cm²]	ϕ [mm]	Nu [Mp]	Mu [m·Mp]
101.8*	24.3	108.0	25	599.1	684.6

* Cuantía mínima

PRONTUARIO INFORMATICO DEL HORMIGON. PROGRAMA TN4 Versión 2.0

Obra : Viaducto 2.(Arroyo Valderachas)
Fecha: 20/8/1999
Hora : 0:01

CALCULO DE SECCIONES CIRCULARES A FLEXION COMPUESTA RECTA

1. Datos

- Materiales:

fck [kp/cm²] = 250
fyk [kp/cm²] = 5100
γc = 1.50
γs = 1.15

- Sección

ϕ Sección [cm] = 180.00
r [cm] = 5.0
n° de redondos = 22

2. Comprobación

ϕ [mm] = 25.0
Nk [Mp] = 140.00
Mk [m·Mp] = 160.00
Nu [Mp] = 599.06
Mu [m·Mp] = 684.64
γ = 4.28

Plano de deformación de agotamiento

x [cm] = 57.30
1/r [1/m]·1.E-3 = 6.11
ϵs ·1.E-3 = 3.50
ϵi ·1.E-3 = -7.50

Deformación y tensión de armaduras superior e inferior

Profundidad [cm]	Deformación ·1.E-3	Tensión [kp/cm²]
5.0	3.19	4434.8
175.0	-7.19	-4434.8

Obra : Viaducto 2.(Arroyo Valderachas)
Fecha: 20/8/1999
Hora : 0:02

CALCULO DE SECCIONES CIRCULARES A FLEXION COMPUESTA RECTA

1. Datos

- Materiales:

  fck [kp/cm²] = 250
  fyk [kp/cm²] = 5100
  γc = 1.50
  γs = 1.15

- Sección

  ϕ Sección [cm] = 180.00
  r [cm] = 5.0
  n° de redondos = 22

2. Diagrama

ϕ [mm] = 25

Resultados numéricos del diagrama de interacción

x [cm]	1/r [1/m] ·1.E-3	Nu [Mp]	Mu [m·Mp]	Nc [Mp]	Mc [m·Mp]	Ns [Mp]	Ms [m·Mp]
-1800.0	0.5	-478.7	0.0	0.0	0.0	-478.7	0.0
-360.0	1.9	-478.7	0.0	0.0	0.0	-478.7	0.0
0.0	5.7	-401.5	60.6	0.0	0.0	-401.5	60.6
36.0	7.2	152.8	458.0	372.3	271.4	-219.5	186.6
72.0	4.9	926.5	798.9	994.5	559.1	-68.0	239.8
108.0	3.2	1786.0	907.4	1710.7	686.8	75.3	220.6
144.0	2.4	2664.7	756.6	2436.6	609.1	228.1	147.4
180.0	1.9	3407.1	454.1	3091.7	352.5	315.4	101.6
270.0	1.0	3989.6	57.2	3605.0	0.0	384.6	57.2
900.0	0.2	4048.8	18.0	3605.0	0.0	443.8	18.0

ARMADURA ENCEPADOS

PILA 1

SENTIDO Z

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	Nº ϕ
693.72	1 040.59	2.30	1.35	718.56	179.64	32	23

SENTIDO Y

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	Nº ϕ
693.72	1 040.59	2.30	1.17	622.76	155.69	32	20

PILA 2

SENTIDO Z

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	Nº ϕ
866.60	1 299.90	2.30	2.45	1 629.03	407.26	32	51

SENTIDO Y

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	Nº ϕ
866.60	1 299.90	2.30	1.17	777.95	194.49	32	25

PILA 3

SENTIDO Z

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	Nº ϕ
869.39	1 304.09	2.30	2.45	1 634.28	408.57	32	51

SENTIDO Y

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	Nº ϕ
869.39	1 304.09	2.30	1.17	780.45	195.11	32	25

PILA 4

SENTIDO Z

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	Nº ϕ
879.70	1 319.56	2.30	2.45	1 653.67	413.42	32	52

SENTIDO Y

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	Nº ϕ
879.70	1 319.56	2.30	1.17	789.71	197.43	32	25

PILA 5

SENTIDO Z

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	Nº ϕ
890.35	1335.52	2.30	2.45	1673.67	418.42	32	53

SENTIDO Y

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	Nº ϕ
890.35	1335.52	2.30	1.17	799.26	199.82	32	25

PILA 6

SENTIDO Z

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	Nº ϕ
889.48	1334.22	2.30	2.45	1672.04	418.01	32	52

SENTIDO Y

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	Nº ϕ
889.48	1334.22	2.30	1.17	798.48	199.62	32	25

PILA 7

SENTIDO Z

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	Nº ϕ
874.88	1 312.33	2.30	2.45	1 644.60	411.15	32	52

SENTIDO Y

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	Nº ϕ
874.88	1 312.33	2.30	1.17	785.38	196.35	32	25

PILA 8

SENTIDO Z

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	Nº ϕ
862.35	1 293.53	2.30	2.45	1 621.05	405.26	32	51

SENTIDO Y

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	Nº ϕ
862.35	1 293.53	2.30	1.17	774.13	193.53	32	25

PILA 9

SENTIDO Z

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	N°ϕ
869.87	1 304.80	2.30	2.45	1 635.17	408.79	32	51

SENTIDO Y

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	N°ϕ
869.87	1 304.80	2.30	1.17	780.88	195.22	32	25

PILA 10

SENTIDO Z

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	N°ϕ
856.81	1 285.22	2.30	2.45	1 610.63	402.66	32	51

SENTIDO Y

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	N°ϕ
856.81	1 285.22	2.30	1.17	769.16	192.29	32	24

PILA 11

SENTIDO Z

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	Nº ϕ
801.91	1 202.87	2.30	1.35	830.63	207.66	32	26

SENTIDO Y

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	Nº ϕ
801.91	1 202.87	2.30	1.17	719.88	179.97	32	23

PILA 12

SENTIDO Z

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	Nº ϕ
731.48	1 097.22	2.30	1.35	757.67	189.42	32	24

SENTIDO Y

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	Nº ϕ
731.48	1 097.22	2.30	1.17	656.65	164.16	32	21

PILA 13

SENTIDO Z

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	Nº ϕ
609.55	914.32	2.30	1.35	631.37	157.84	32	20

SENTIDO Y

Npilote	Nd	d	l	T (t)	As(cm2)	ϕ (mm)	Nº ϕ
609.55	914.32	2.30	1.17	547.19	136.80	32	18

9. ESTRIBOS VIADUCTO 2

9. ESTRIBOS

ÍNDICE

- CIMENTACIÓN DE ESTRIBO 1
- CÁLCULO DE ESTRIBO 2

CIMENTACIÓN **ESTRIBO 1 VIADUCTO 2.**

Nota técnica

Obra: L.A.V. Madrid-Zaragoza. Subtramo IV.

Asunto: Cimentación Estribo 1 del Viaducto 2.

En el Estribo 1 del viaducto 2 de la obra de referencia se ha previsto en proyecto una mejora de su cimentación mediante la colocación de columnas de grava.

El departamento de geotecnia de la Dirección Técnica de Ferrovial-Agroman realizó una investigación adicional en la que se realizaron 2 sondeos en el eje del trazado a lo largo del tramo ocupado por la cimentación de este estribo.

En esta investigación se constató la existencia de un nivel superficial de sustrato alterado, de unos 5 metros de espesor, debajo del cual aparece el sustrato sano. En este sustrato los ensayos SPT realizados han dado todos rechazo.

Dado que la cota de cimentación del estribo queda por debajo de esta zona de sustrato alterado se recomendó la cimentación directa del estribo a la cota de proyecto, sin la necesidad de ejecutar las columnas de grava.

La confirmación de este supuesto quedó supeditada a la comprobación "in situ", tras la excavación del terreno hasta la cota de apoyo de la cimentación del estribo.

A fecha de hoy se ha excavado hasta esta cota de cimentación, y se ha realizado una campaña adicional de investigación consistente en la ejecución de 12 penetrómetros tipo Borros.

Estos penetrómetros han dado golpeos superiores a 40, excepto en el 2, 3 y 6, en donde se ha detectado niveles superficiales de menor consistencia y espesor variable.

Tras la inspección visual realizada por un geólogo de Ferrovial-Agroman, se ha comprobado que toda la zona de apoyo del estribo 1 se localiza en sustrato terciario, y que los bajos golpeos de los penetrómetros 2, 3 y 6 no son debidos a ninguna concha de deslizamiento ni a suelos coluviales, sino a una alteración superficial del sustrato y a la diferente competencia que existe entre los niveles que forman la secuencia estratigráfica.

La aparición de niveles con bajos golpeos de SPT o Borros en el sustrato terciario sano ha sido detectada en numerosas ocasiones a lo largo de la investigación realizada en materiales pertenecientes a la misma formación litológica, tanto en fase de proyecto como en estudios posteriores, siendo las posibles causas de este descenso del golpeo en profundidad de distinto origen (disolución de yesos, circulación de agua, etc.).

Considerando un sustrato arcilloso en la ubicación de los penetrómetros, la interpretación para los penetrómetros que han dado un golpeo más bajo, es la siguiente:

- Penetrómetro PD-2: De 0.0 a 3.6 metros, arcillas muy firmes y, por debajo, arcillas duras, alcanzándose el rechazo a 5 metros.

- Penetrómetro PD-3: De 0.0 a 7.0 metros, arcillas muy firmes y, por debajo, arcillas duras, alcanzándose el rechazo a 9.8 metros.

- Penetrómetro PD-5: De 0.0 a 1.7 metros, arcillas muy firmes y, por debajo, arcillas duras, alcanzándose el rechazo a 3.0 metros.

- Penetrómetro PD-6: De 0.0 a 7.1 metros, arcillas muy firmes y, por debajo, arcillas duras, alcanzándose el rechazo a 9.2 metros.

Aun no siendo de mala calidad el material donde se ha detectado un golpeo menor, se deberá sustituir las arcillas muy firmes por un hormigón ciclópeo para homogeneizar el área de apoyo del estribo en esta zona.

En las figuras adjuntas se indican la zona y las profundidades a sanear, tanto en planta como en perfiles.

Madrid a 7 de Febrero de 2000

V°B°. Félix Lorenzo Martín
ICCP
Jefe Departamento de Geotecnia
Dirección Técnica Ferrovial-Agroman

Fdo: David Borrego Álvarez
Geólogo
Departamento de Geotecnia
Dirección Técnica Ferrovial-Agroman

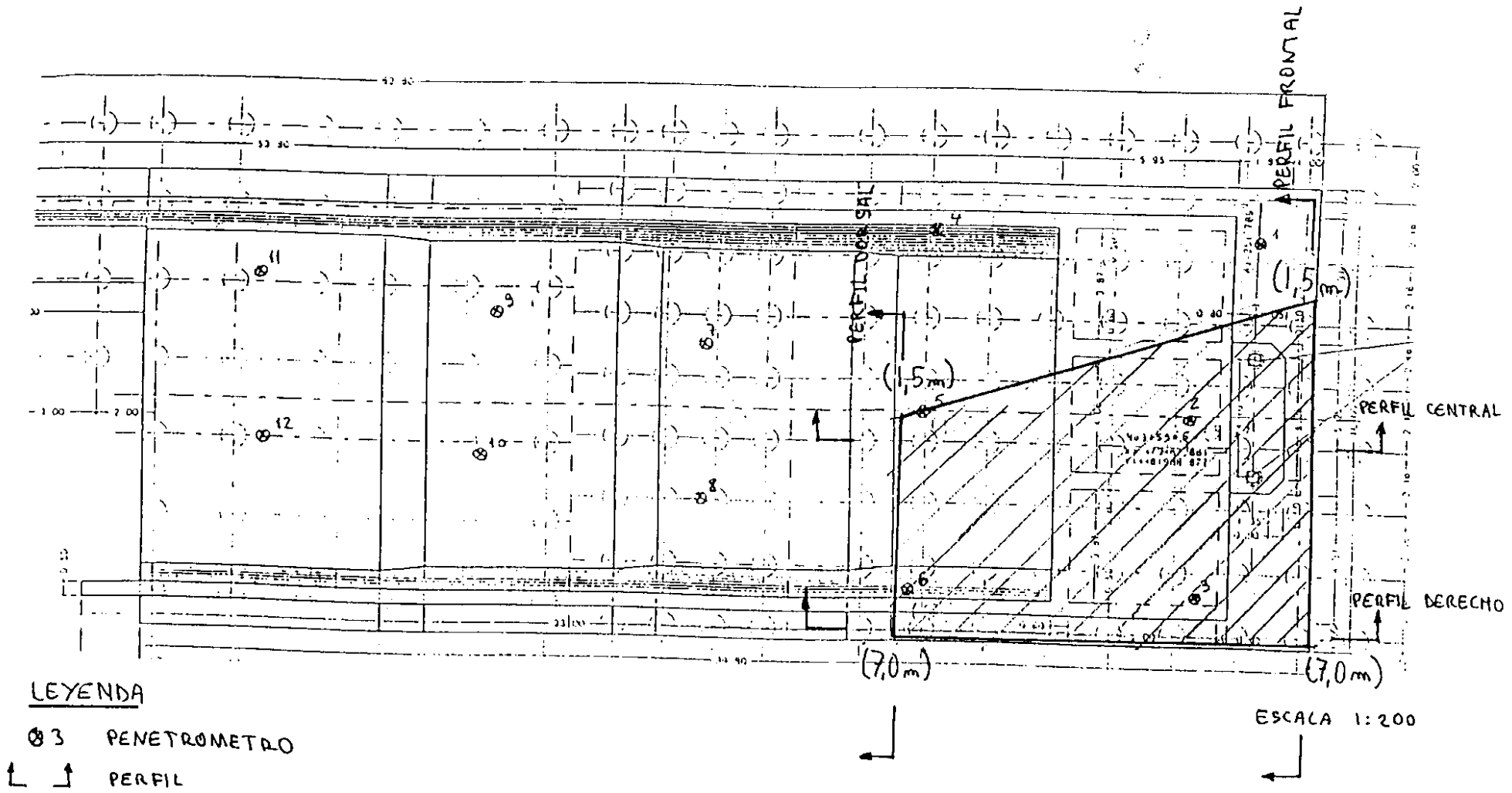
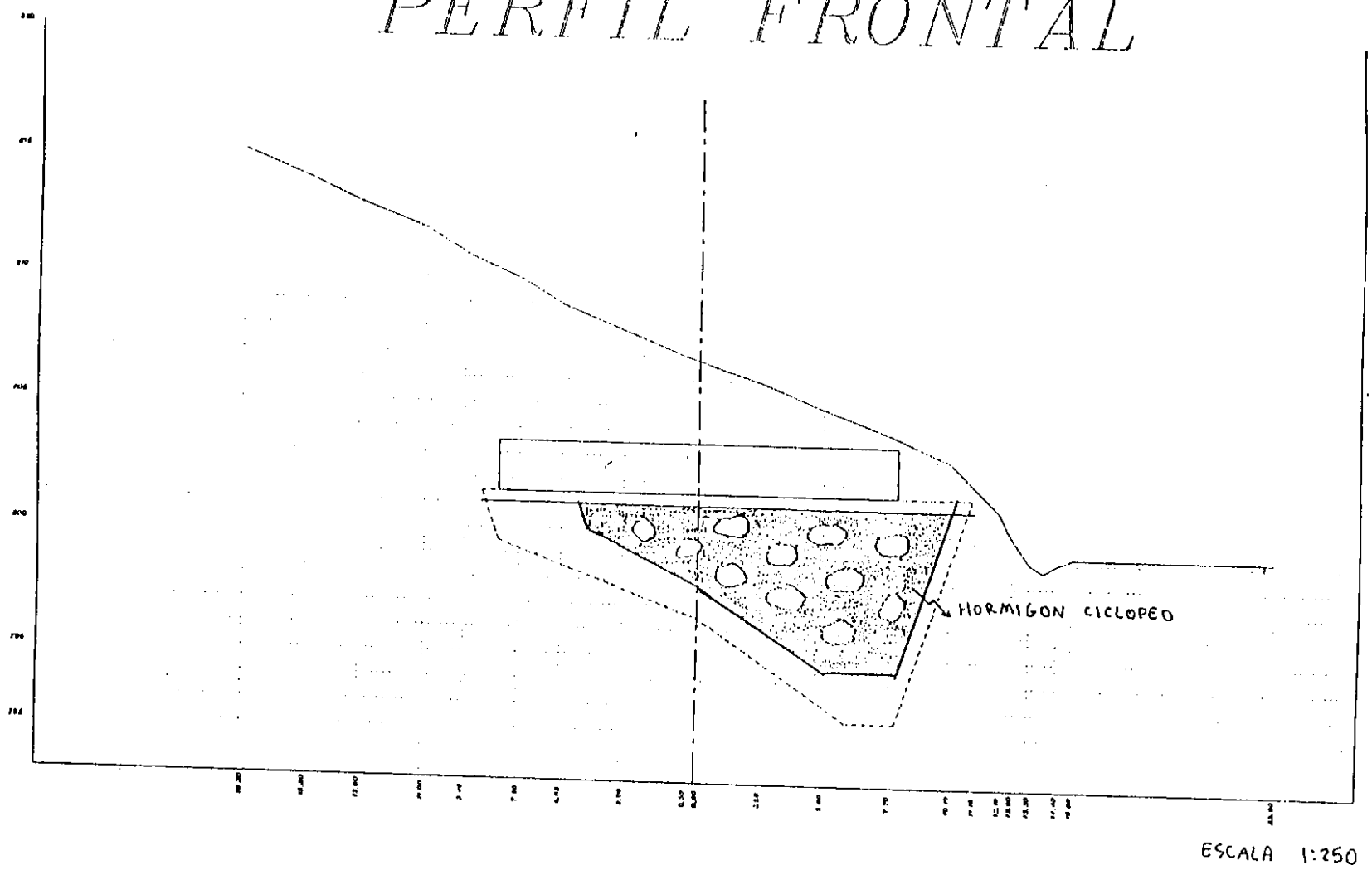


FIGURA 1

PERFIL FRONTAL



FIGURA

PERFIL DORSAL

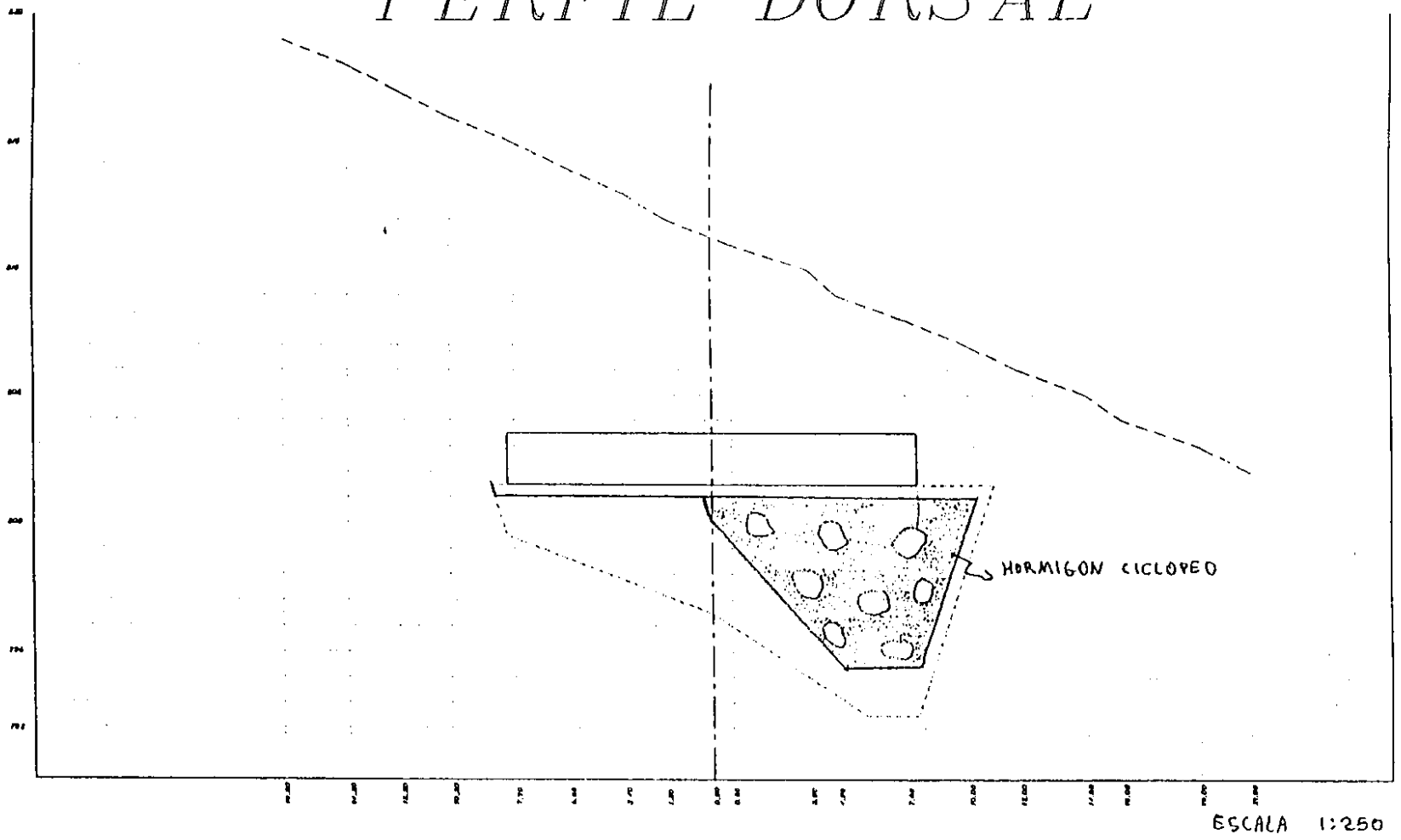


FIGURA 3

PERFIL CENTRAL

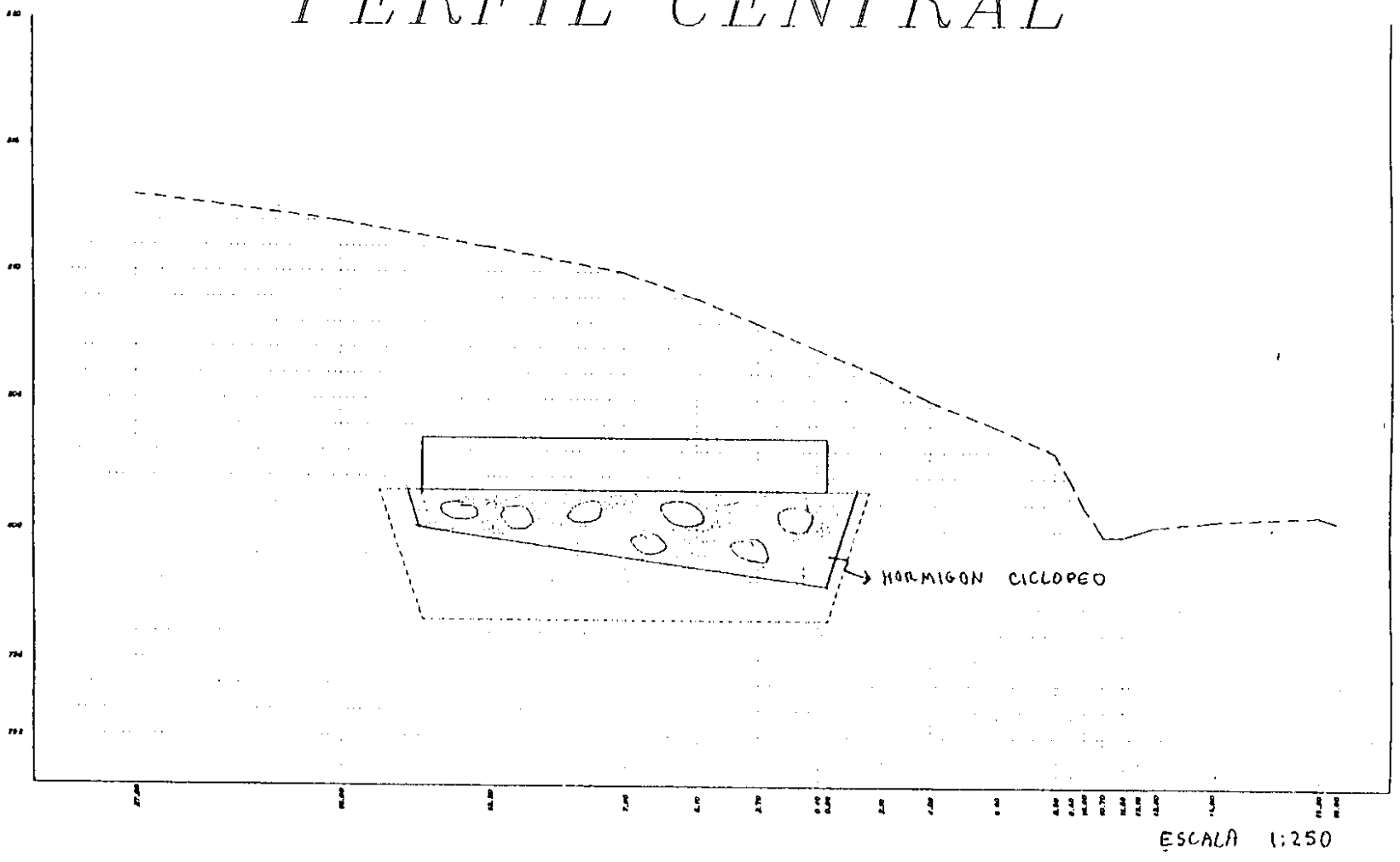


FIGURA 4

PERFIL DERECHO



ESCALA 1:250

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Trabajo Nº : MP-0141-696 | Informe Nº : D-44520-S | Hoja: 1 de 1

INFORME DE PENETRACIONES DINAMICAS

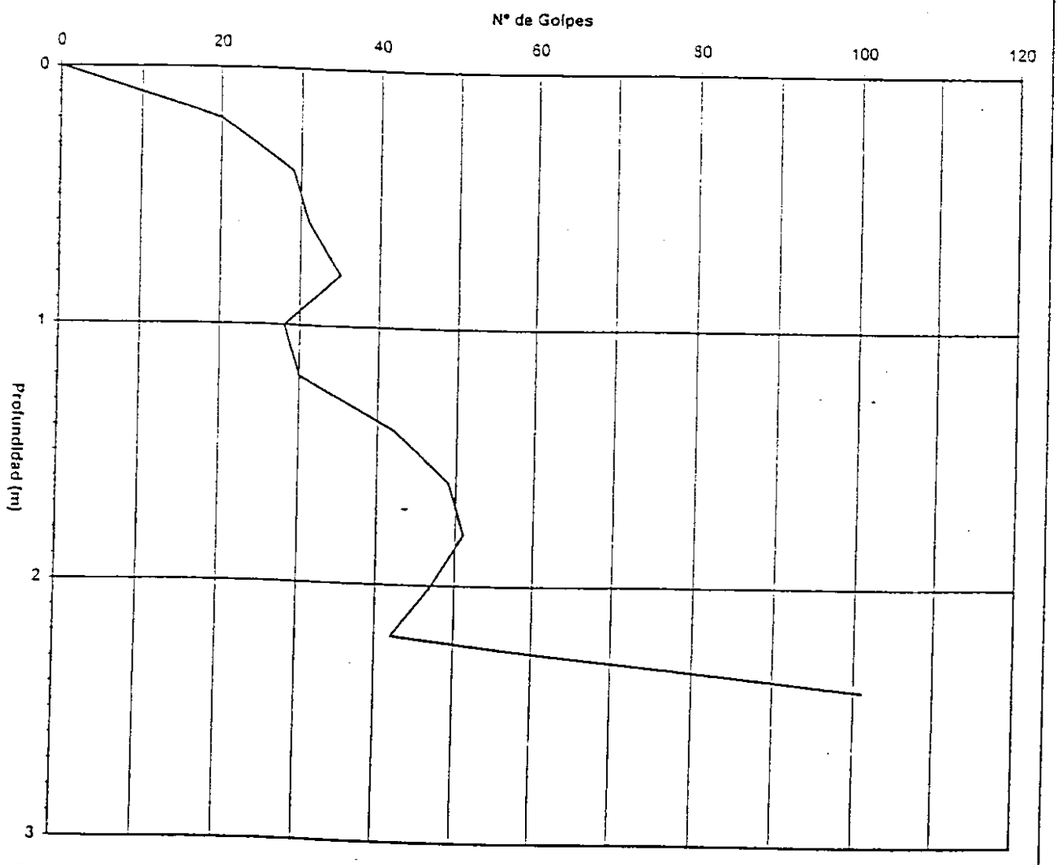
Peticionario: TORCAZ U.T.E.

Proyecto/Obra: SUBTRAMO 4. L.A.V. MADRID-BARCELONA.

Localización: Estribo 1. Viaducto 2. PD-1,

Fecha Realización: 28/01/00 Fecha Registro: 28/01/00 Profundidad alcanzada: 2,40m

Tipo: BORRO Peso de la maza: 63,5 Kg Altura de la caida: 0,50 m



Observaciones:

Madrid, 31-ene-00

V.B. Javier Sáez Urbina
DIRECTOR DEL LABORATORIO

Servicios de Ingeniería, S.A.
C/. María Tubau, 8 - 28050 Madrid

Fdo. José Espinós Espinós
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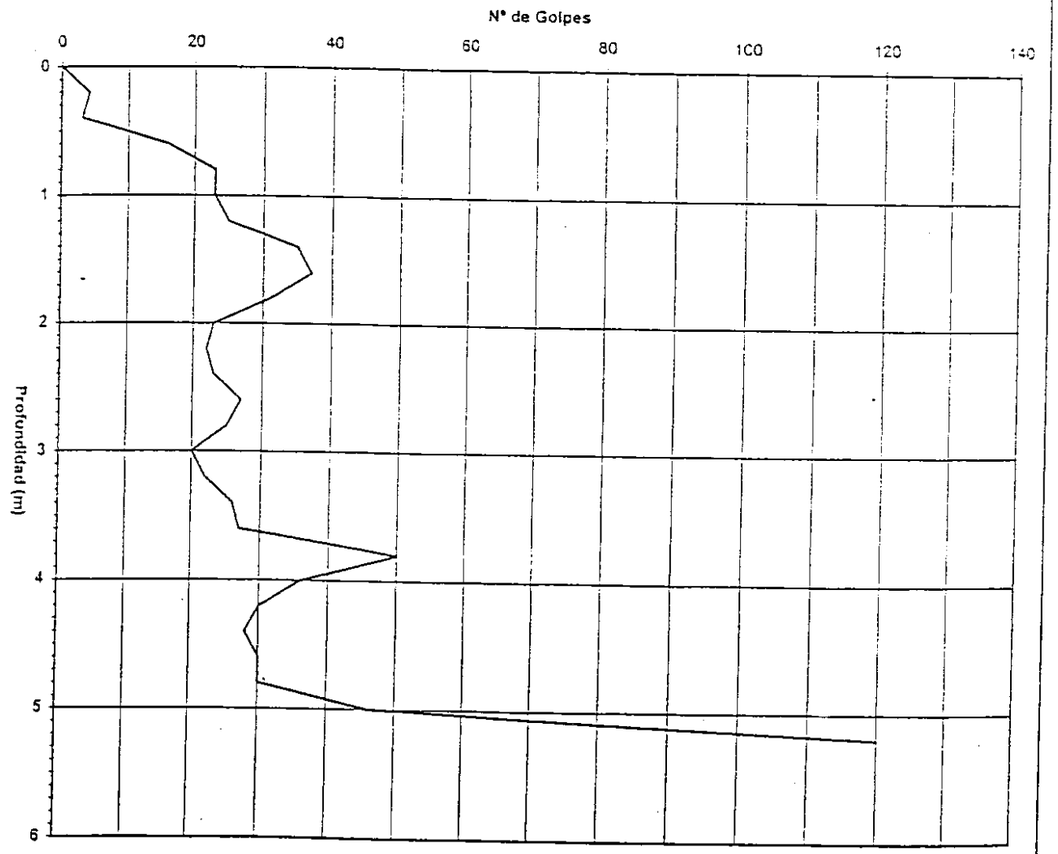
Peticionario: TORCAZ U.T.E.

Proyecto/Obra: SUBTRAMO 4. L.A.V. MADRID-BARCELONA.

Localización: Estribo 1. Viaducto 2. PD-2.

Fecha Realización: 28/01/00 Fecha Registro: 28/01/00 Profundidad alcanzada: 5,20m

Tipo: BORRO Peso de la maza: 63,5 Kg Altura de la caida: 0,50 m



Observaciones:

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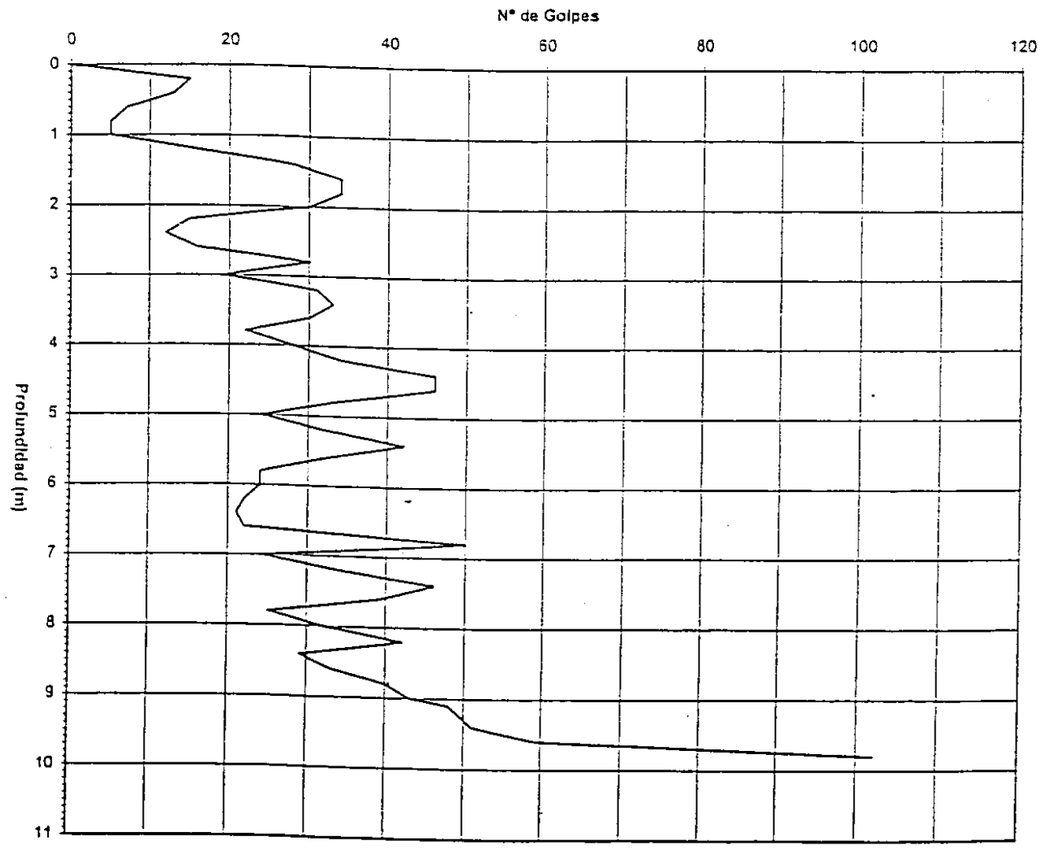
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Trabajo Nº : MP-0141-696 | Informe Nº : 0-44522-S | Hoja: 1 de 1

INFORME DE PENETRACIONES DINAMICAS

Peticionario: TORCAZ U.T.E.
Proyecto/Obra: SUBTRAMO 4. L.A.V. MADRID-BARCELONA.
Localización: Estribo 1. Viaducto 2. PD-3.
Fecha Realización: 28/01/00 **Fecha Registro:** 28/01/00 **Profundidad alcanzada:** 9,80m

Tipo: BORRO **Peso de la maza:** 63,5 Kg **Altura de la caida:** 0,50 m



Observaciones:

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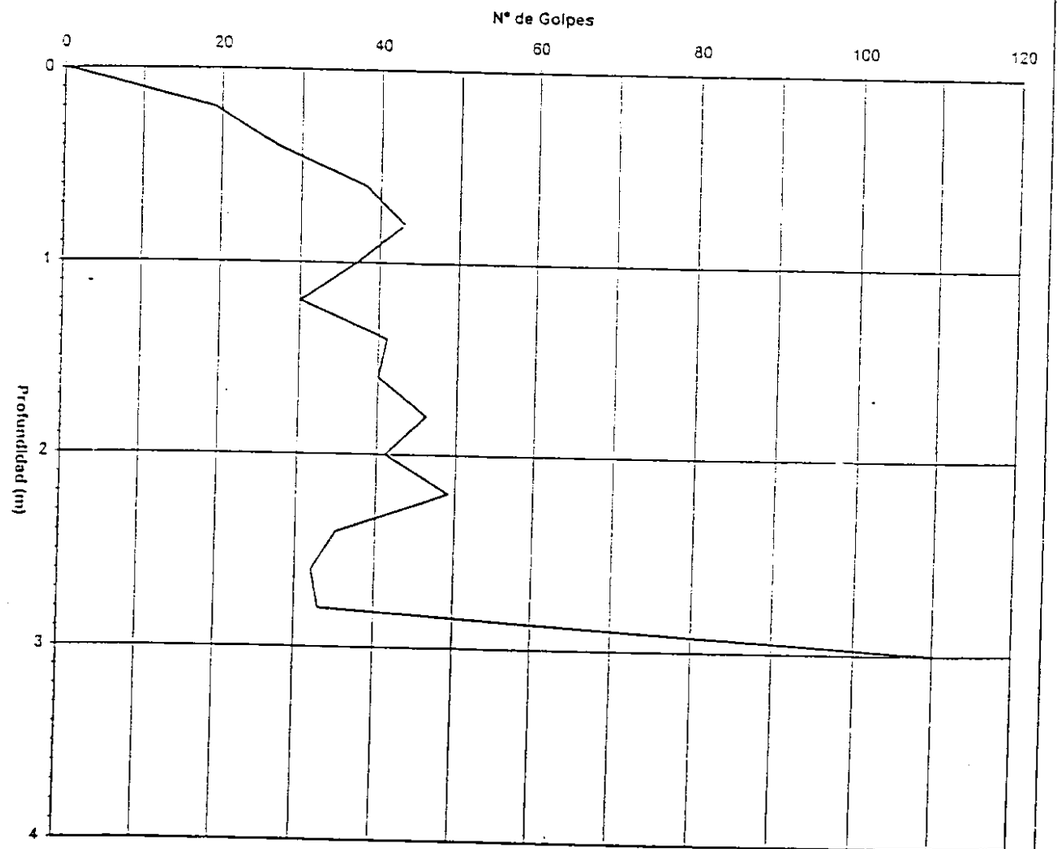
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INFORME DE PENETRACIONES DINAMICAS

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Proyecto/Obra: SUBTRAMO 4. L.A.V. MADRID-BARCELONA.
Localización: Estribo 1. Viaducto 2. PD-4.
Fecha Realización: 28/01/00 **Fecha Registro:** 28/01/00 **Profundidad alcanzada:** 3,00m

Tipo: BORRO **Peso de la maza:** 63,5 Kg **Altura de la caida:** 0,50 m



Observaciones:

Madrid, 31-ene-00

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Trabajo Nº : MP-0141-696	Informe Nº : D-44524-S	Hoja: 1 de 1

INFORME DE PENETRACIONES DINAMICAS

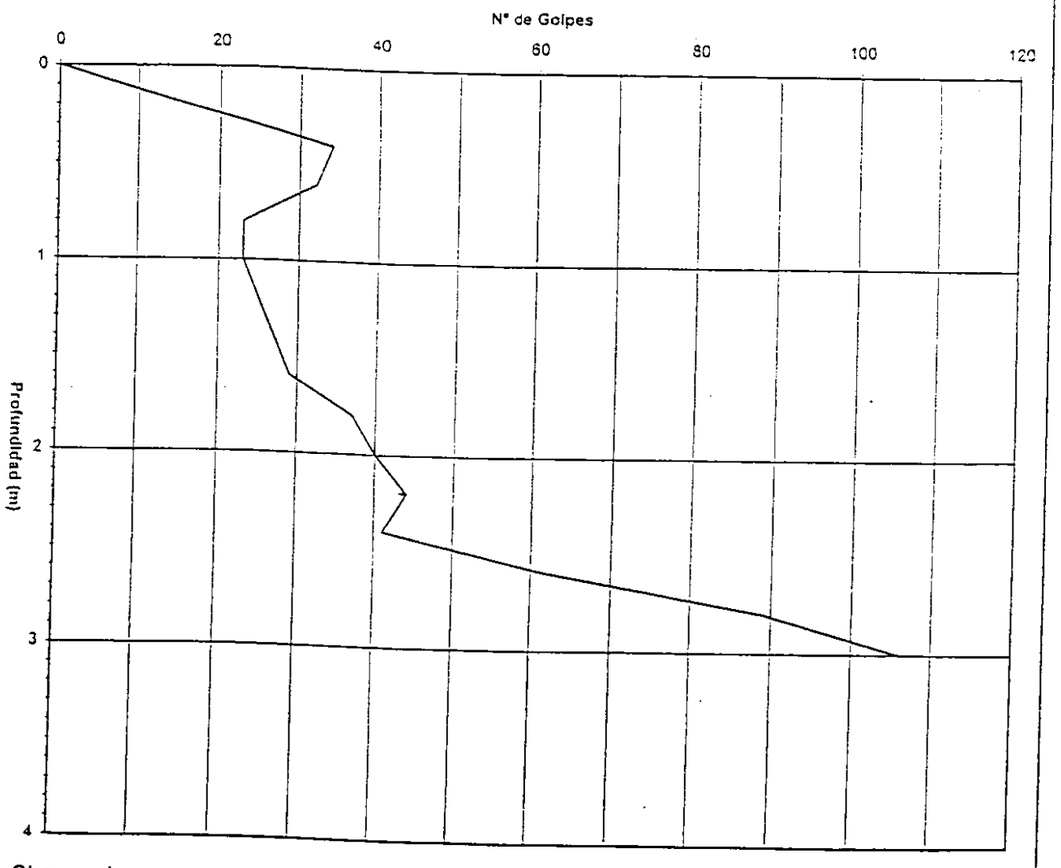
Peticionario: TORCAZ U.T.E.

Proyecto/Obra: SUBTRAMO 4. L.A.V. MADRID-BARCELONA.

Localización: Estribo 1. Viaducto 2. PD-5.

Fecha Realización: 28/01/00 **Fecha Registro:** 28/01/00 **Profundidad alcanzada:** 3,00m

Tipo: BORRO **Peso de la maza:** 63,5 Kg **Altura de la caida:** 0,50 m



Observaciones:

Madrid, 31-ene-00

V.B. Javier Sainz Urbina
DIRECTOR DEL LABORATORIO

Servicios de Ingeniería, S.A.

Fdo. José Espinós Espinós
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	c/ María Tubau, 8	Fecha de Acreditación:
	28050 - MADRID	3 Julio de 1.998(ver dorso)
Trabajo Nº : MP-0141-696	Informe Nº : D-44531-S	Hoja: 1 de 1

INFORME DE PENETRACIONES DINAMICAS

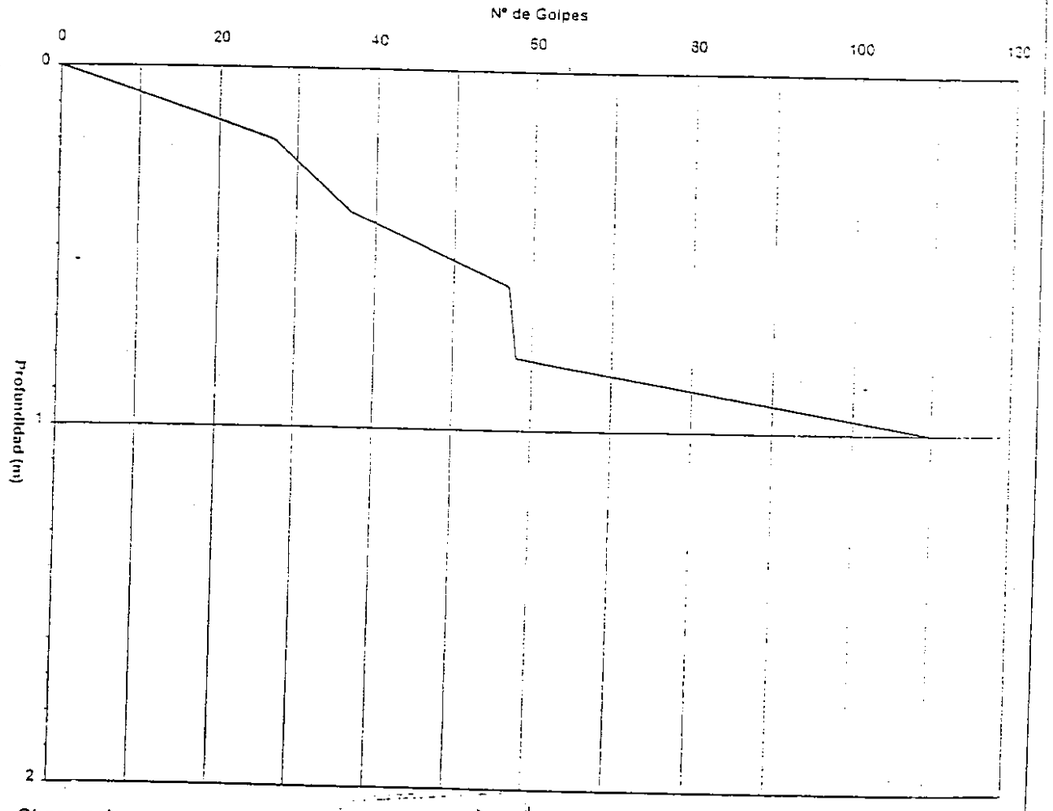
Peticionario: TORCAZ U.T.E.

Proyecto/Obra: SUBTRAMO 4. L.A.V. MADRID-BARCELONA.

Localización: Estribo 1. Viaducto 2. PD-12.

Fecha Realización: 31/01/00 **Fecha Registro:** 31/01/00 **Profundidad alcanzada:** 1,00m

Tipo: BORRO **Peso de la maza:** 63,5 Kg **Altura de la caida:** 0,50 m



Observaciones:

Madrid, 31-ene-00

V.B. Javier Sainz Urbina
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28050 - MADRID

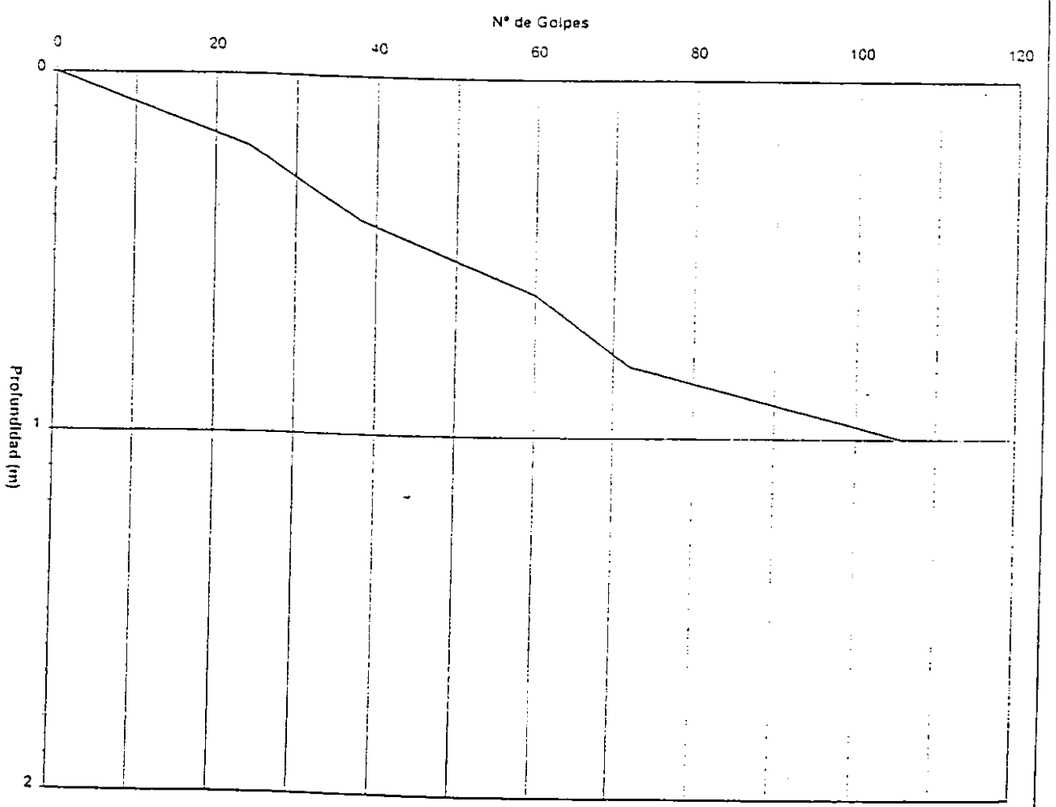
Laboratorio Acreditado en:
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Fecha de Acreditación:
3 Julio de 1.998(ver dorso)

Trabajo Nº : MP-0141-696 | Informe Nº : D-44530-S | Hoja: 1 de 1

INFORME DE PENETRACIONES DINAMICAS

Peticionario: TORCAZ U.T.E.
Proyecto/Obra: SUBTRAMO 4. L.A.V. MADRID-BARCELONA.
Localización: Estribo 1. Viaducto 2. PD-11.
Fecha Realización: 31/01/00 **Fecha Registro:** 31/01/00 **Profundidad alcanzada:** 1,00m

Tipo: BORRO **Peso de la maza:** 63,5 Kg **Altura de la caida:** 0,50 m



Observaciones:

Madrid, 31-ene-00

V.B. Javier Sanz Urbina
DIRECTOR DEL LABORATORIO

Fdo. José Espinós Espinós
JEFE DE AREA

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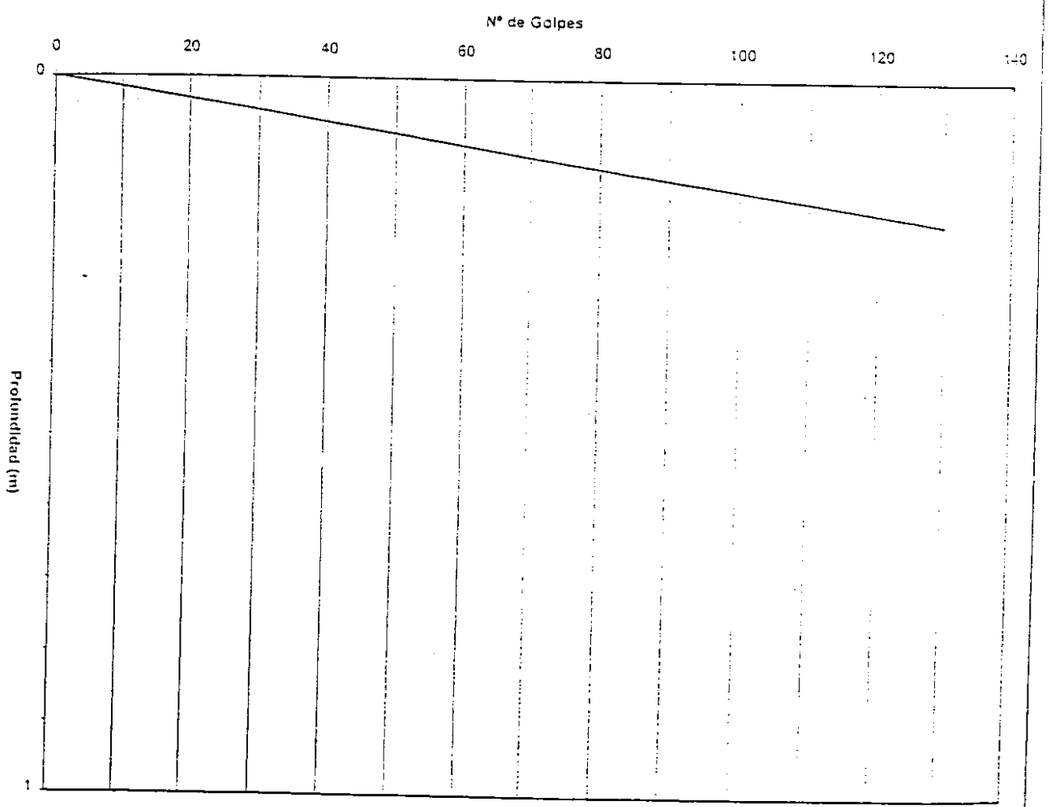
Laboratorio Acreditado en:
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Fecha de Acreditación:
3 Julio de 1.998(ver dorso)

Trabajo Nº : MP-0141-696 | Informe Nº : D-44529-S | Hoja: 1 de 1

INFORME DE PENETRACIONES DINAMICAS

Peticionario: TORCAZ U.T.E.
Proyecto/Obra: SUBTRAMO 4. L.A.V. MADRID-BARCELONA.
Localización: Estribo 1. Viaducto 2. PD-10. (Roca)
Fecha Realización: 31/01/00 **Fecha Registro:** 31/01/00 **Profundidad alcanzada:** 0,20m

Tipo: BORRO **Peso de la maza:** 63,5 Kg **Altura de la caida:** 0,50 m



Observaciones:

Madrid, 31-ene-00

V.B. Javier Sanz Urbina
DIRECTOR DEL LABORATORIO

Fdo. José Espinós Espinós
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Trabajo Nº : MP-0141-696	Informe Nº : D-44528-S	Hoja: 1 de 1

INFORME DE PENETRACIONES DINAMICAS

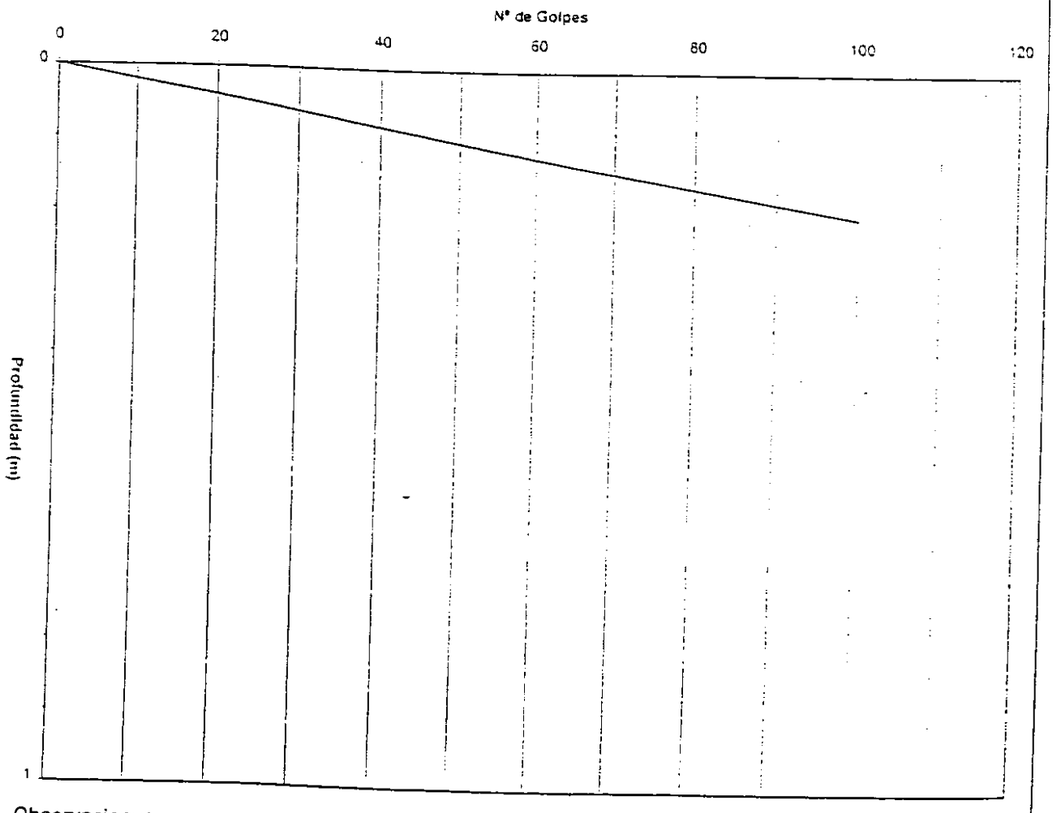
Peticionario: TORCAZ U.T.E.

Proyecto/Obra: SUBTRAMO 4. L.A.V. MADRID-BARCELONA.

Localización: Estribo 1. Viaducto 2. PD-9. (ROCA)

Fecha Realización: 31/01/00 Fecha Registro: 31/01/00 Profundidad alcanzada: 0,20m

Tipo: BORRO Peso de la maza: 63,5 Kg Altura de la caida: 0,50 m



Observaciones:

Madrid, 31-ene-00

V.B. Javier Sanz Urbina
DIRECTOR DEL LABORATORIO

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Trabajo Nº : MP-0141-696	Informe Nº : D-44527-S	Hoja: 1 de 1

INFORME DE PENETRACIONES DINAMICAS

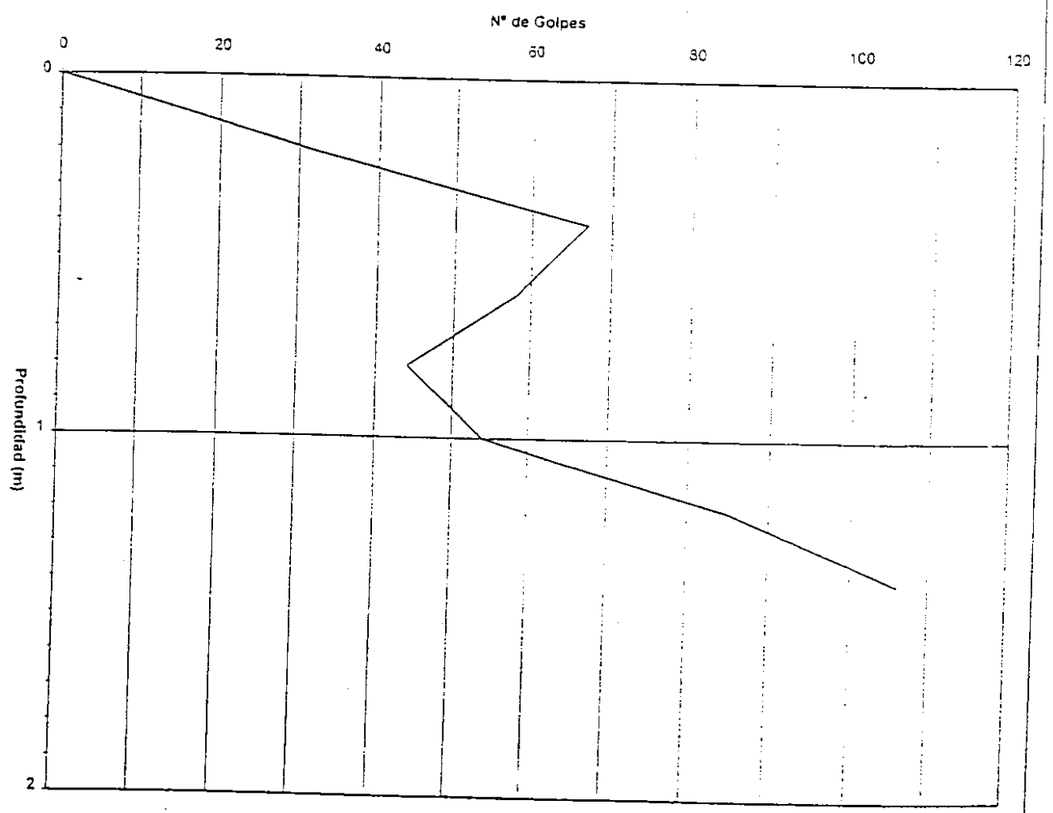
Peticionario: TORCAZ U.T.E.

Proyecto/Obra: SUBTRAMO 4. L.A.V. MADRID-BARCELONA.

Localización: Estribo 1. Viaducto 2. PD-8.

Fecha Realización: 31/01/00 Fecha Registro: 31/01/00 Profundidad alcanzada: 1,40m

Tipo: BORRO Peso de la maza: 63,5 Kg Altura de la caida: 0,50 m



Observaciones:

Madrid, 31-ene-00

V.B. Javier Sanz Urbina
DIRECTOR DEL LABORATORIO

Fdo. José Espinós Espinós
JEFE DE AREA

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Fecha de Acreditación:
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Trabajo Nº : MP-0141-696 | Informe Nº : D-44525-S | Hoja: 1 de 1

INFORME DE PENETRACIONES DINAMICAS

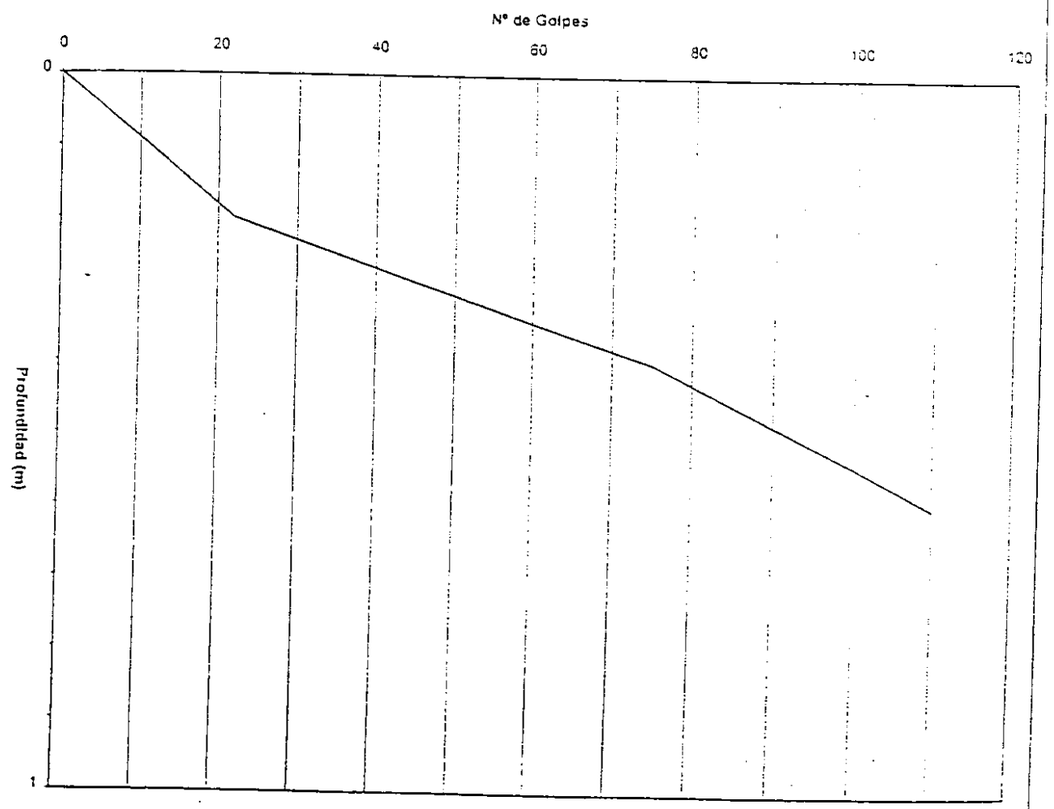
Peticionario: TORCAZ U.T.E.

Proyecto/Obra: SUBTRAMO 4. L.A.V. MADRID-BARCELONA.

Localización: Estribo 1. Viaducto 2. PD-7.

Fecha Realización: 31/01/00 **Fecha Registro:** 31/01/00 **Profundidad alcanzada:** 0,60m

Tipo: BORRO **Peso de la maza:** 63,5 Kg **Altura de la caida:** 0,50 m



Observaciones:

Madrid, 31-ene-00

V.B. Javier José Urbina
DIRECTOR DEL LABORATORIO

Fdo. José Espinós Espinós
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TRABAJO Nº: MP. MUESTRA/D - -SCLAVE: Pág. de

ENSAYO DE PENETRACION DINAMICA TIPO BORRO

PETICIONARIO :

PROYECTO/OBRA : PARQUE DE OCIO S.A. DE LOVERA.

LOCALIZACION : AVILS.

Tipo Borro: Altura de caida 0,50 m. Peso = 63,5 Kp PD-9

Prof. en m.	Nº de Golpes	SERIE Penetración	SERIE Golpes / cm	Resistencia Dinámica
,20	100	ROCA		
,40				
,60				
,80				
1,00				
,20				
,40				
,60				
,80				
2,00				
,20				
,40				
,60				
,80				
3,00				
,20				
,40				
,60				
,80				
4,00				
,20				
,40				
,60				
,80				
5,00				
,20				
,40				
,60				
,80				
6,00				

Prof. en m.	Nº de Golpes	SERIE Penetración	SERIE Golpes / cm	Resistencia Dinámica
,20				
,40				
,60				
,80				
1,00				
,20				
,40				
,60				
,80				
2,00				
,20				
,40				
,60				
,80				
3,00				
,20				
,40				
,60				
,80				
4,00				
,20				
,40				
,60				
,80				
5,00				
,20				
,40				
,60				
,80				
6,00				

Fecha de realización :

Realizado por :

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15 – jul – 93

TRABAJO Nº: MP. MUESTRA/D - -SCLAVE: Pág. de

ENSAYO DE PENETRACION DINAMICA TIPO BORRO

PETICIONARIO :

PROYECTO/OBRA : PARQUE DE OCIO S.A. DE LOVERA.

LOCALIZACION : AVILS.

Tipo Borro: Altura de caida 0,50 m. Peso = PD-10

Prof. en m.	Nº de Golpes	SERIE Penetración	SERIE Golpes / cm	Resistencia Dinámica
,20	130	ROCA		
,40				
,60				
,80				
1,00				
,20				
,40				
,60				
,80				
2,00				
,20				
,40				
,60				
,80				
3,00				
,20				
,40				
,60				
,80				
4,00				
,20				
,40				
,60				
,80				
5,00				
,20				
,40				
,60				
,80				
6,00				

Prof. en m.	Nº de Golpes	SERIE Penetración	SERIE Golpes / cm	Resistencia Dinámica
,20				
,40				
,60				
,80				
1,00				
,20				
,40				
,60				
,80				
2,00				
,20				
,40				
,60				
,80				
3,00				
,20				
,40				
,60				
,80				
4,00				
,20				
,40				
,60				
,80				
5,00				
,20				
,40				
,60				
,80				
6,00				

Fecha de realización : 629790854

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TRABAJO Nº: M2. MUESTRA/D - -SCLAVE: Pág. de

ENSAYO DE PENETRACION DINAMICA TIPO BORRO

PETICIONARIO : TORCAS UTE.

PROYECTO/OBRA : SUBTRAMO 4 LAV MADRID-BARCELONA

LOCALIZACION : ESTRIBO 1 VIADUCTO 2 PD-1

Tipo Borro: Altura de caida 0,50 m. Peso = 63,5 Kg

Prof. en m.	Nº de Golpes	SERIE Penetración	SERIE Golpes / cm	Resistencia Dinámica
,20	30			
,40	29			
,60	31			
,80	35			
1,00	28			
,20	30			
,40	42			
,60	49			
,80	51			
2,00	42			
,20	42			
,40	101			
,60				
,80				
3,00				
,20				
,40				
,60				
,80				
4,00				
,20				
,40				
,60				
,80				
5,00				
,20				
,40				
,60				
,80				
6,00				
,20				
,40				
,60				
,80				
7,00				
,20				
,40				
,60				
,80				
8,00				

Prof. en m.	Nº de Golpes	SERIE Penetración	SERIE Golpes / cm	Resistencia Dinámica
,20				
,40				
,60				
,80				
1,00				
,20				
,40				
,60				
,80				
2,00				
,20				
,40				
,60				
,80				
3,00				
,20				
,40				
,60				
,80				
4,00				
,20				
,40				
,60				
,80				
5,00				
,20				
,40				
,60				
,80				
6,00				
,20				
,40				
,60				
,80				
7,00				
,20				
,40				
,60				
,80				
8,00				

Fecha de realización :

Realizado por :

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15 – jul – 93

TRABAJO Nº: M2. MUESTRA/D - -SCLAVE: Pág. de

ENSAYO DE PENETRACION DINAMICA TIPO BORRO

PETICIONARIO : TORCAS UTE

PROYECTO/OBRA :

LOCALIZACION : PD-2

Tipo Borro: Altura de caida 0,50 m. Peso = 63,5 Kg

Prof. en m.	Nº de Golpes	SERIE Penetración	SERIE Golpes / cm	Resistencia Dinámica
,20	4			
,40	3			
,60	16			
,80	23			
1,00	23			
,20	25			
,40	35			
,60	37			
,80	31			
2,00	23			
,20	22			
,40	23			
,60	22			
,80	20			
3,00	20			
,20	22			
,40	24			
,60	24			
,80	50			
4,00	36			
,20	30			
,40	42			
,60	30			
,80	30			
5,00	46			
,20	120			
,40				
,60				
,80				
6,00				
,20				
,40				
,60				
,80				
7,00				
,20				
,40				
,60				
,80				
8,00				

Prof. en m.	Nº de Golpes	SERIE Penetración	SERIE Golpes / cm	Resistencia Dinámica
,20				
,40				
,60				
,80				
1,00				
,20				
,40				
,60				
,80				
2,00				
,20				
,40				
,60				
,80				
3,00				
,20				
,40				
,60				
,80				
4,00				
,20				
,40				
,60				
,80				
5,00				
,20				
,40				
,60				
,80				
6,00				
,20				
,40				
,60				
,80				
7,00				
,20				
,40				
,60				
,80				
8,00				

Fecha de realización :

Realizado por :

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15 – jul – 93

TRABAJO Nº: MP. MUESTRA Nº: - SONDEO: Pág. de

ENSAYO DE PENETRACION DINAMICA TIPO BORRO

PETICIONARIO :

PROYECTO/OBRA :

LOCALIZACION :

Tipo Borro: Altura de caida 0,50 m. Peso = 63,5 Kp FD-3

Prof. en m.	Nº de Golpes	SERIE Penetración	SERIE Golpes / cm	Resistencia Dinámica
,20	15			
,40	13			
,60	7			
,80	5			
1,00	5			
,20	16			
,40	23			
,60	34			
,80	24			
2,00	30			
,20	15			
,40	13			
,60	16			
,80	30			
3,00	19			
,20	31			
,40	33			
,60	39			
,80	22			
4,00	28			
,20	34			
,40	46			
,60	46			
,80	53			
5,00	34			
,20	22			
,40	22			
,60	33			
,80	29			
6,00	24			
,20	35			
,40	31			
,60	22			
,80	50			
7,00	24			
,20	37			
,40	46			
,60	39			
,80	25			
8,00	37			

Fecha de realización :

Prof. en m.	Nº de Golpes	SERIE Penetración	SERIE Golpes / cm	Resistencia Dinámica
,20	42			
,40	29			
,60	33			
,80	40			
9,00	43			
,20	48			
,40	51			
,60	54			
,80	103			
10,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				

Realizado por :

EPTISA
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TRABAJO Nº: MP. MUESTRA Nº: - SONDEO: Pág. de

ENSAYO DE PENETRACION DINAMICA TIPO BORRO

PETICIONARIO : TECSA E.T.E.

PROYECTO/OBRA :

LOCALIZACION :

Tipo Borro: Altura de caida 0,50 m. Peso = 63,5 Kp E

Prof. en m.	Nº de Golpes	SERIE Penetración	SERIE Golpes / cm	Resistencia Dinámica
,20	19			
,40	27			
,60	33			
,80	43			
1,00	37			
,20	30			
,40	41			
,60	40			
,80	46			
2,00	41			
,20	49			
,40	37			
,60	32			
,80	77			
3,00	110			
,20				
,40				
,60				
,80				
4,00				
,20				
,40				
,60				
,80				
5,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				

Fecha de realización :

Prof. en m.	Nº de Golpes	SERIE Penetración	SERIE Golpes / cm	Resistencia Dinámica
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				

Realizado por :

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15 – jul – 93

TRABAJO Nº: MP. MUESTRA/D - -SCLAVE: Pág. de

ENSAYO DE PENETRACION DINAMICA TIPO BORRO

PETICIONARIO : TERCA2 UTE

PROYECTO/OBRA :

LOCALIZACION :

Tipo Borro: Altura de caida 0,50 m. Peso = 63,5 Kp PD-5

Prof. en m.	Nº de Golpes	SERIE Penetración	SERIE Golpes / cm	Resistencia Dinámica
,20	26			
,40	34			
,60	32			
,80	23			
1,00	23			
,20	20			
,40	27			
,60	29			
,80	25			
2,00	40			
,20	44			
,40	41			
,60	62			
,80	89			
3,00	256			
,20				
,40				
,60				
,80				
4,00				
,20				
,40				
,60				
,80				
5,00				
,20				
,40				
,60				
,80				
6,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				

Prof. en m.	Nº de Golpes	SERIE Penetración	SERIE Golpes / cm	Resistencia Dinámica
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				

Fecha de realización :

Realizado por :

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28050 MADRID

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15 – jul – 93

TRABAJO Nº: MP. MUESTRA/D - -SCLAVE: Pág. de

ENSAYO DE PENETRACION DINAMICA TIPO BORRO

PETICIONARIO :

PROYECTO/OBRA :

LOCALIZACION :

Tipo Borro: Altura de caida 0,50 m. Peso = 63,5 Kp PD-5

Prof. en m.	Nº de Golpes	SERIE Penetración	SERIE Golpes / cm	Resistencia Dinámica
,20	10			
,40	22			
,60	27			
,80	29			
1,00	27			
,20	33			
,40	26			
,60	31			
,80	47			
2,00	49			
,20	40			
,40	41			
,60	29			
,80	29			
3,00	19			
,20	24			
,40	21			
,60	24			
,80	23			
4,00	28			
,20	34			
,40	35			
,60	31			
,80	24			
5,00	16			
,20	15			
,40	17			
,60	17			
,80	21			
6,00	22			
,20	19			
,40	21			
,60	16			
,80	25			
7,00	27			
,20	33			
,40	37			
,60	40			
,80	39			
8,00	25			

Prof. en m.	Nº de Golpes	SERIE Penetración	SERIE Golpes / cm	Resistencia Dinámica
,20	24			
,40	29			
,60	26			
,80	44			
9,00	62			
,20	104			
,40				
,60				
,80				
10,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				

Fecha de realización :

Realizado por :

EPTISA
ESTUDIOS Y PROYECTOS TECNICOS INDUSTRIALES

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AP.AS.SE.ST.SV
Fecha de acreditación
15 - jul - 93

TRABAJO Nº: M/2. MUESTRA/D - -SCLAVE: Pág. de

ENSAYO DE PENETRACION DINAMICA TIPO BORRO

PETICIONARIO :

PROYECTO/OBRA :

LOCALIZACION :

Tipo Borro: Altura de caida 0,50 m. PD-2 Peso = 63,5 Kp

Prof. en m.	Nº de Golpes	SERIE Penetración	Golpes / cm	Resistencia Dinámica
,20	31			
,40	67			
,60	58			
,80	44			
1,00	54			
,20	85			
,40	106			
,60				
,80				
2,00				
,20				
,40				
,60				
,80				
3,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				

Prof. en m.	Nº de Golpes	SERIE Penetración	Golpes / cm	Resistencia Dinámica
,20				
,40				
,60				
,80				
1,00				
,20				
,40				
,60				
,80				
2,00				
,20				
,40				
,60				
,80				
3,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				

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ENSAYO DE PENETRACION DINAMICA TIPO BORRO

PETICIONARIO :

PROYECTO/OBRA :

LOCALIZACION :

Tipo Borro: Altura de caida 0,50 m. PD-2 Peso = 63,5 Kp

Prof. en m.	Nº de Golpes	SERIE Penetración	Golpes / cm	Resistencia Dinámica
,20	22			
,40	75			
,60	110			
,80				
1,00				
,20				
,40				
,60				
,80				
2,00				
,20				
,40				
,60				
,80				
3,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				

Prof. en m.	Nº de Golpes	SERIE Penetración	Golpes / cm	Resistencia Dinámica
,20				
,40				
,60				
,80				
1,00				
,20				
,40				
,60				
,80				
2,00				
,20				
,40				
,60				
,80				
3,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				

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TRABAJO Nº: MP2 · MUESTRA/D · ESCLAVE: Pág. de

ENSAYO DE PENETRACION DINAMICA TIPO BORRO

PETICIONARIO :

PROYECTO/OBRA :

LOCALIZACION :

Tipo Borro: Altura de caida 0,50 m. Rpd = 63,5 Kp PD-12

Prof. en m.	Nº de Golpes	SERIE Penetración	SERIE Golpes / cm	Resistencia Dinámica
,20	27			
,40	37			
,60	57			
,80	78			
1,00	110			
,20				
,40				
,60				
,80				
2,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				

Prof. en m.	Nº de Golpes	SERIE Penetración	SERIE Golpes / cm	Resistencia Dinámica
,20				
,40				
,60				
,80				
1,00				
,20				
,40				
,60				
,80				
2,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				

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ENSAYO DE PENETRACION DINAMICA TIPO BORRO

PETICIONARIO :

PROYECTO/OBRA : ~~PARCELA EN AVDA. [illegible]~~

LOCALIZACION : AVDA

Tipo Borro: Altura de caida 0,50 m. Rpd = 63,5 Kp PD-11

Prof. en m.	Nº de Golpes	SERIE Penetración	SERIE Golpes / cm	Resistencia Dinámica
,20	24			
,40	38			
,60	60			
,80	72			
1,00	106			
,20				
,40				
,60				
,80				
2,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				

Prof. en m.	Nº de Golpes	SERIE Penetración	SERIE Golpes / cm	Resistencia Dinámica
,20				
,40				
,60				
,80				
1,00				
,20				
,40				
,60				
,80				
2,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				
,20				
,40				
,60				
,80				
,00				

Fecha de realización :

Realizado por :

CÁLCULO ESTRIBO 2 VIADUCTO 2.

14.17 Estribos

Programa CIM EST - Esfuerzos de Cimentación en Estribos

L.A.V. Madrid-Zaragoza. IV. Viaducto 2. IAPF

ESFUERZOS EN CIMENTACION DE ESTRIBOS

LEYENDA: N -> axil, incluyendo peso de tierras y zapata
Vy -> cortante perpendicular al eje del pte
Vz -> cortante paralelo al eje de la estr.
My -> momento según eje perp. referido a la puntera zap
Mz -> momento según eje paralelo ref al eje de la estr
exc_z_N -> excentricidad apoyo pte resp. puntera zap.
Pt -> peso de las tierras
exc_z_Pt -> exectricidad carga de tierras
Pzp -> peso de la zapata
exc_z_Pzp -> exectricidad peso zapata

Estr		exc_z_N [m]	Pt [t]	exc_z_Pt [m]	Pzp [t]	exc_z_Pzp [m]
			P_propio [t]	exc_P_propio [m]		
Estr	Hip	N [t]	Vy [t]	Vz [t]	My [mt]	Mz [mt]
1		2.050	-2066.790	12.300	-1264.000	7.900
			-1157.600	6.460		
	1	-5703.870	-3.050	-3248.551	-19909.477	-18.210
	2	-5155.770	3.250	414.869	-55973.807	-6.520
	3	-5438.930	-32.620	-3248.551	-19356.100	-894.640
	4	-5364.180	33.030	414.869	-56401.149	826.340
	5	-5404.970	-3.130	-3248.551	-19286.482	-357.140
	6	-5417.170	3.590	414.869	-56509.778	288.700
	7	-5404.970	-3.130	-3248.551	-19286.482	-357.140
	8	-5417.170	3.590	414.869	-56509.778	288.700
	9	-5466.650	-13.170	-3248.551	-19412.926	-1334.800
	10	-5364.640	13.670	414.869	-56402.092	1266.440
2		2.000	-2827.000	9.170	-968.000	6.050
			-663.010	5.920		
	1	-5630.470	0.660	914.791	34179.443	59.330
	2	-5091.680	0.640	882.464	33101.863	-39.190
	3	-5335.360	-19.740	897.085	33589.223	-815.000
	4	-5375.000	20.360	899.463	33668.503	768.110
	5	-5177.490	0.140	887.612	33273.483	-19.480
	6	-5177.490	0.140	887.612	33273.483	-19.480
	7	-5177.490	0.140	887.612	33273.483	-19.480
	8	-5177.490	0.140	887.612	33273.483	-19.480
	9	-5402.990	0.260	901.142	33724.483	-1028.040
	10	-5322.640	0.440	896.321	33563.783	979.080

L.A.V. Madrid-Zaragoza
Viaducto 2 (Arroyo Valderachas)

Cálculo de Estribos
Estribo - 1

1. Datos

Dimensiones longitudinales

Lp (m) =	1.00	longitud de la puntera del estribo
HM (m) =	1.85	canto muro frontal
HM (m) =	0.35	canto murete
Ll (m) =	5.00	largo libre de cámara intermedia
hmc (m) =	0.60	canto muro de cierre
Lt (m) =	15.00	Longitud del talón del estribo
L muro prolong (m) =	15.00	Longitud muro en prolongación
L aletas (m) =	0.00	Longitud de aletas
cdg. aletas (m) =	0.00	Distancia del cdg aleta a inicio aleta
Largo zap =	23.80	Largo total de la zapata

Dimensiones transversales

Rz (m) =	1.00	resguardo zapata
hmv (m) =	0.50	canto del muro en vuelta
Aci1(m) =	3.87	ancho de las cámaras laterales
b,cf (m) =	0.60	espesor de los contrafuertes
Aci2 (m) =	4.06	ancho cámara central
Ancho m,fr (m) =	5.26	ancho muro frontal
Ancho zap =	16.00	Ancho total de la zapata

Dimensiones verticales

Hzap (m) =	2.00	Canto de la zapata
Hmurofr (m) =	7.60	Altura del muro frontal
Hneop (m) =	0.25	Altura por neopreno y camas
H, tab (m) =	3.20	Canto del tablero
H, losa superior (m) =	0.40	canto de la losa superior de cierre
H, losa intermedia (m) =	0.35	canto de la losa intermadia de conexión con el tablero
H,tot muro=	11.05	Altura de estribo

Htot+Hzap =	13.05	Altura de estribo + canto de zapata

Datos del terreno

Densidad [t/m3] =	2.00	Densidad del terreno de relleno
fi [°]	30.00	Coeficiente de rozamiento interno
k activo	0.33	Coefciente de empuje activo
k resposo	0.50	Coeficiente de empuje al reposo
mu zap-terreno	0.58	Coeficiente de rozamiento cimiento-terreno
Sc, terr [t/m2]	3.00	Sobrecarga en terraplén

Características de la zapata

Area [m2] =	380.80	Area zapata
W y [m3] =	1510.51	Módulo Resistente según eje yy
W z [m3] =	1015.47	Módulo Resistente según eje zz

e,cargas tablero [m] =	2.05	Excentricidad de las cargas transmitidas por el tablero

2. Cálculo de pesos

	Pv [t]	eh [m]	Momento [	Ph [t]	ev [m]	Momento	Mom,cdg	sigma, punt [t/m2]	sigma, talon [t/m2]
Peso de la zapata	1904.000	11.900	22657.600				0.000	5	5
Peso del muro frontal	184.889	1.925	355.911				1844.268	2	-1
Peso del murete	135.412	3.025	409.620				1201.777	1	0
Peso muro de cierre	232.134	8.500	1973.139				789.256	1	0
Peso contrafuertes	165.810	5.700	945.117				1028.022	1	0
Peso muro en vuelta	138.175	5.700	787.598				856.685	1	0
Peso muro prolong	414.525	16.300	6756.758				-1823.910	0	2
Peso aletas	0.001	23.800	0.030				-0.015	0	0
Peso losa intermedia	17.763	5.700	101.246				110.128	0	0
Peso losa superior	59.000	5.700	336.300				365.800	0	0
Peso tierras	4311.060	16.300	70270.278				-18968.664	-1	24
TOTAL PESOS	7562.768	13.830	########				-14596.654	10	30
Sin zapata ni tierras	1347.708	8.656	11665.718				4372.010		
Empuje tierras base muro									
1 Reposo				794.239	3.685	2926.507		2	-2
2 Activo				529.497	3.685	1951.020		1	-1
Empuje tierras base zap									
1. Reposo				1107.643	4.351	4819.722		3	-3
2 Activo				738.434	4.351	3213.173		2	-2
Empuje de sc base muro									
1. Reposo				215.553	5.527	1191.359		1	-1
2 Activo				143.703	5.527	794.245		1	-1
Empuje de sc base zap									
1 Reposo				254.552	6.527	1661.464		1	-1
2 Activo				169.703	6.527	1107.651		1	-1

3. Cargas transmitidas por el tablero (servicio)

	Nk [t]	Vyk [t]	Vzk [t]	Myk [mt]	Mzk [mt]	zk*(HM+HZ [mt]	My,exc,Carg	Ntot	My tot	Cargas Tablero		Totales Empuje al reposo		Totales Empuje activo	
N min	-1220.48	-3.05	-1831.71	-0.04	-12.11	18370.22	2501.98	1220	30392	23.3	-16.9	37.8	8.3	36.4	9.7
N max	-667.38	3.25	1831.7	0.04	-0.02	-18370.12	1368.13	667	-11796	-6.1	9.6	8.4	34.8	7.0	36.2
Vy min	-950.54	-32.62	-1831.71	-0.04	-829.4	18370.22	1948.61	951	27733	21.7	-16.7	36.2	8.6	34.7	10.0
Vy max	-875.79	33.03	1831.71	0.04	760.18	-18370.22	1795.37	876	-9744	-4.9	9.5	9.6	34.7	8.2	36.2
Vz min	-916.58	-3.13	-1831.71	-0.04	-350.88	18370.22	1878.99	917	27399	20.9	-16.1	35.4	9.2	33.9	10.6
Vz max	-928.78	3.59	1831.71	0.04	281.52	-18370.22	1904.00	929	-9222	-3.9	8.8	10.5	34.1	9.1	35.5
My min	-916.58	-3.13	-1831.71	-0.04	-350.88	18370.22	1878.99	917	27399	20.9	-16.1	35.4	9.2	33.9	10.6
My max	-928.78	3.59	1831.71	0.04	281.52	-18370.22	1904.00	929	-9222	-3.9	8.8	10.5	34.1	9.1	35.5
Mz min	-978.26	-13.17	-1831.71	-0.04	-1308.46	18370.22	2005.43	978	28006	22.4	-17.3	36.9	8.0	35.5	9.4
Mz max	-876.25	13.67	1831.71	0.04	1239.1	-18370.22	1796.31	876	-9739	-5.4	10.0	9.1	35.2	7.7	36.6
											maxim	**37.8**	**35.2**	**36.4**	**36.6**
											mínimo	**8.4**	**8.0**	**7.0**	**9.4**

4. Deslizamiento

	Fe [t]	Fd [t] Reposo	gamma d	Fd [t] Activo	gamma d
N min	5071.025	3193.905	1.588	2739.847	1.851
N max	4751.692	-469.505	-10.121	-923.563	-5.145
Vy min	4915.175	3193.905	1.539	2739.847	1.794
Vy max	4872.018	-469.515	-10.377	-923.573	-5.275
Vz min	4895.568	3193.905	1.533	2739.847	1.787
Vz max	4902.612	-469.515	-10.442	-923.573	-5.308
My min	4895.568	3193.905	1.533	2739.847	1.787
My max	4902.612	-469.515	-10.442	-923.573	-5.308
Mz min	4931.179	3193.905	1.544	2739.847	1.800
Mz max	4872.283	-469.515	-10.377	-923.573	-5.275

5. Vuelco

	Me [mt]	Mv [mt], rep	gamma
N min	107095.580	24851.406	4.309
N max	105961.725	-11888.933	8.913
Vy min	106542.203	24851.406	4.287
Vy max	106388.966	-11889.033	8.948
Vz min	106472.585	24851.406	4.284
Vz max	106497.595	-11889.033	8.958
My min	106472.585	24851.406	4.284
My max	106497.595	-11889.033	8.958
Mz min	106599.029	24851.406	4.289
Mz max	106389.909	-11889.033	8.949

L.A.V. Madrid-Zaragoza
Viaducto 2 (Arroyo Valderachas)

Cálculo de Estribos
Estribo - 2

1. Datos

Dimensiones longitudinales

Lp [m] =	1.30	longitud de la puntera del estribo
HM [m] =	2.00	canto muro frontal
HM [m] =	0.50	canto murete
Li [m] =	0.00	largo libre de cámara intermadia
hmc [m] =	0.00	canto muro de cierre
Lt-d [m] =	12.40	Longitud del talón del estribo (lado derecho)
L muro prolong-d[m] =	12.15	Longitud muro en prolongación (lado derecho)
L aletas-d [m] =	3.50	Longitud de aleta (lado derecho)
Lt-i [m] =	8.30	Longitud del talón del estribo (lado izquierdo)
L muro prolong-i[m] =	8.05	Longitud muro en prolongación (lado izquierdo)
L aletas-i [m] =	3.50	Longitud de aleta (lado izquierdo)
cdg. aleta-d [m] =	1.34	Distancia del cdg aleta a inicio aleta (lado derecho)
Largo zap-d =	16.20	Largo total de la zapata (lado derecho)
cdg. aleta-i [m] =	1.34	Distancia del cdg aleta a inicio aleta (lado izquierdo)
Largo zap-i =	12.10	Largo total de la zapata (lado izquierdo)

Dimensiones transversales

Rz [m] =	1.00	resguardo zapata
hmv [m] =	0.50	canto del muro en vuelta
Aci1[m] =	0.00	ancho de las cámaras laterales
b,cf [m] =	0.00	espesor de los contrafuertes
Aci2 [m] =	13.00	ancho cámara central
Ancho m,fr [m] =	5.26	ancho muro frontal
Ancho zap =	16.00	Ancho total de la zapata

L.A.V. Madrid-Zaragoza
Viaducto 2 (Arroyo Valderachas)

Cálculo de Estribos
Estribo - 2

Dimensiones verticales

Hzap [m] =	2.00	Canto de la zapata
Hmurofr [m] =	7.02	Altura del muro frontal
Hneop [m] =	0.29	Altura por neopreno y camas
H, tab [m] =	3.20	Canto del tablero
H, losa superior [m] =	0.00	canto de la losa superior de cierre
H, losa intermedia [m] =	0.00	canto de la losa intermedia de conexión con el tablero
H,tot muro=	10.51	Altura de estribo
Htot+Hzap =	12.51	Altura de estribo + canto de zapata

Datos del terreno

Densidad [t/m3] =	2.00	Densidad del terreno de relleno
fi [°]	30.00	Coeficiente de rozamiento interno
k activo	0.33	Coefciente de empuje activo
k reposo	0.33	Coeficiente de empuje al reposo
mu zap-terreno	0.58	Coeficiente de rozamiento cimiento-terreno
Sc, terr [t/m2]	3.00	Sobrecarga en terraplén

Características de la zapata

Area [m2] =	226.40	Area zapata
cdg z [m] =	7.22	cdg en sentido longitudinal desde puntera
cdg y [m] =	-0.58	cdg en sentido transversal desde eje
I y [m4] =	4248.26	
I z [m4] =	4753.84	
W y punt [m3] =	588.12	Módulo Resistente según eje yy
W y talón -d [m3] =	473.26	
W y talón -i [m3] =	871.17	
W z d[m3] =	640.64	Módulo Resistente según eje zz
W z i[m3] =	554.09	Módulo Resistente según eje zz
e,cargas tablero [m] =	2.00	Excentricidad de las cargas transmitidas por el tablero

L.A.V. Madrid-Zaragoza
Viaducto 2 (Arroyo Valderachas)

Cálculo de Estribos
Estribo - 2

2. Cálculo de pesos

	Pv [t]	ez [m]	M yy [mt]	Ph [t]	ey [m]	M zz cdg	M yy,cdg
Peso de la zapata	1132.00	7.22	8177.00		0.000	0.000	0.000
Peso del muro frontal	184.63	2.30	424.64		-0.580	-106.992	909.006
Peso del murete	183.89	3.55	652.81		-0.580	-106.565	675.520
Peso muro de cierre	0.00	3.80	0.00		-0.580	0.000	0.000
Peso contrafuertes	0.00	3.80	0.00		-0.580	0.000	0.000
Peso muro en vuelta	0.00	3.80	0.00		-0.580	0.000	0.000
Peso muro prolong-d	159.59	9.88	1575.95		6.170	984.751	-423.154
Peso muro prolong-i	105.74	7.83	827.39		-7.330	-774.998	-63.601
Peso aleta-d	14.58	17.29	252.17		6.170	89.986	-146.827
Peso aleta-i	14.58	13.19	192.38		-7.330	-106.889	-87.036
Peso losa intermedia	0.00	3.80	0.00		-0.580	0.000	0.000
Peso losa superior	0.00	3.80	0.00		-0.580	0.000	0.000
Peso tierras - d	1693.89	10.00	16938.90		2.670	4523.523	-4703.087
Peso tierras - i	1133.81	7.95	9013.81		-3.830	-4341.944	-823.717
TOTAL PESOS	4622.71	8.23	38055.05			160.873	-4662.897
Sin zapata ni tierras	663.01	5.92	3925.34			-20.706	863.907

Tensiones peso propio			
σ,punt-d [t/m2]	σ,talon-d [t/m2]	σ,punt-i [t/m2]	σ,talon-i [t/m2]
5	5	5	5
2	-1	3	0
2	-1	2	0
0	0	0	0
0	0	0	0
0	0	0	0
2	3	-2	-1
-1	-1	2	2
0	1	0	0
0	0	0	0
0	0	0	0
0	0	0	0
7	24	-9	5
-3	0	11	14
13	31	12	25
4	1	4	2

	Empuje [t]	h [m]	Myy [m.t]
Empuje tierras base muro			
1. Reposo	478.481	3.503	1675.959
2. Activo	478.481	3.503	1675.959
Empuje tierras base zap			
1. Reposo	677.954	4.169	2826.617
2. Activo	677.954	4.169	2826.617
Empuje de sc base muro			
1. Reposo	136.605	5.254	717.721
2. Activo	136.605	5.254	717.721
Empuje de sc base zap			
1. Reposo	162.605	6.254	1016.931
2. Activo	162.605	6.254	1016.931

Tensiones empujes			
σ,punt-d [t/m2]	σ,talon-d [t/m2]	σ,punt-i [t/m2]	σ,talon-i [t/m2]
3	-4	3	-2
3	-4	3	-2
5	-6	5	-3
5	-6	5	-3
1	-2	1	-1
1	-2	1	-1
2	-2	2	-1
2	-2	2	-1

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Cálculo de Estribos
Estribo - 2

3 Cargas transmitidas por el tablero (servicio)

Estribo Nº 2

	Nk [t]	Vyk [t]	Vzk [t]	Myk [mt]	Mzk [mt]	My, tiro [mt]	My,carga	Ntot	Mz cdg	My cdg
N min	-1172.46	0.66	-70.35	0.00	58.01	654.80	2344.92	1172.46	-58.01	6779.14
N max	-633.67	0.64	-38.02	0.00	-37.91	353.89	1267.34	633.67	37.91	3663.87
Vy min	-877.35	-19.74	-52.64	0.00	-775.52	489.98	1754.70	877.35	775.52	5072.82
Vy max	-916.99	20.36	-55.02	0.00	727.39	512.12	1833.98	916.99	-727.39	5302.02
Vz min	-719.48	0.14	-43.17	0.00	-19.20	401.82	1438.96	719.48	19.20	4160.02
Vz max	-719.48	0.14	-43.17	0.00	-19.20	401.82	1438.96	719.48	19.20	4160.02
My min	-719.48	0.14	-43.17	0.00	-19.20	401.82	1438.96	719.48	19.20	4160.02
My max	-719.48	0.14	-43.17	0.00	-19.20	401.82	1438.96	719.48	19.20	4160.02
Mz min	-944.98	0.26	-56.70	0.00	-1027.52	527.75	1889.96	944.98	1027.52	5463.85
Mz max	-864.63	0.44	-51.88	0.00	978.20	482.88	1729.26	864.63	-978.20	4999.27

	Tensiones Cargas Tab				Tensiones Totales Empuje al reposo				Tensiones Totales Empuje activo			
	σ,punt-d [t/m2]	σ,talon-d [t/m2]	σ,punt-i [t/m2]	σ,talon-i [t/m2]	σ,punt-d [t/m2]	σ,talon-d [t/m2]	σ,punt-i [t/m2]	σ,talon-i [t/m2]	σ,punt-d [t/m2]	σ,talon-d [t/m2]	σ,punt-i [t/m2]	σ,talon-i [t/m2]
	16.6	-9.2	16.8	-2.5	35.9	13.2	35.5	18.6	35.9	13.2	35.5	18.6
	9.1	-4.9	9.0	-1.5	28.4	17.5	27.7	19.6	28.4	17.5	27.7	19.6
	13.7	-5.6	11.1	-3.3	33.0	16.8	29.8	17.7	33.0	16.8	29.8	17.7
	11.9	-8.3	14.4	-0.7	31.2	14.1	33.1	20.3	31.2	14.1	33.1	20.3
	10.3	-5.6	10.2	-1.6	29.6	16.8	29.0	19.4	29.6	16.8	29.0	19.4
	10.3	-5.6	10.2	-1.6	29.6	16.8	29.0	19.4	29.6	16.8	29.0	19.4
	10.3	-5.6	10.2	-1.6	29.6	16.8	29.0	19.4	29.6	16.8	29.0	19.4
	10.3	-5.6	10.2	-1.6	29.6	16.8	29.0	19.4	29.6	16.8	29.0	19.4
	15.1	-5.8	11.6	-4.0	34.3	16.6	30.3	17.1	34.3	16.6	30.3	17.1
	10.8	-8.3	14.1	-0.2	30.1	14.1	32.8	20.9	30.1	14.1	32.8	20.9
maximo	16.6	-4.9	16.8	-0.2	35.9	17.5	35.5	20.9	35.9	17.5	35.5	20.9
mínimo	9.1	-9.2	9.0	-4.0	28.4	13.2	27.7	17.1	28.4	13.2	33.1	20.9

L.A.V. Madrid-Zaragoza
Viaducto 2 (Arroyo Valderachas)

Cálculo de Estribos
Estribo - 2

4. Deslizamiento

	Fe [t]	Fd [t] Reposo	gamma d	Fd [t] Activo	gamma d
Vacio	2668.93	840.56	3.18	840.56	3.18
N min	3345.85	910.91	3.67	910.91	3.67
N max	3034.78	878.58	3.45	878.58	3.45
Vy min	3175.47	893.20	3.56	893.20	3.56
Vy max	3198.36	895.58	3.57	895.58	3.57
Vz min	3084.32	883.73	3.49	883.73	3.49
Vz max	3084.32	883.73	3.49	883.73	3.49
My min	3084.32	883.73	3.49	883.73	3.49
My max	3084.32	883.73	3.49	883.73	3.49
Mz min	3214.52	897.26	3.58	897.26	3.58
Mz max	3168.13	892.44	3.55	892.44	3.55

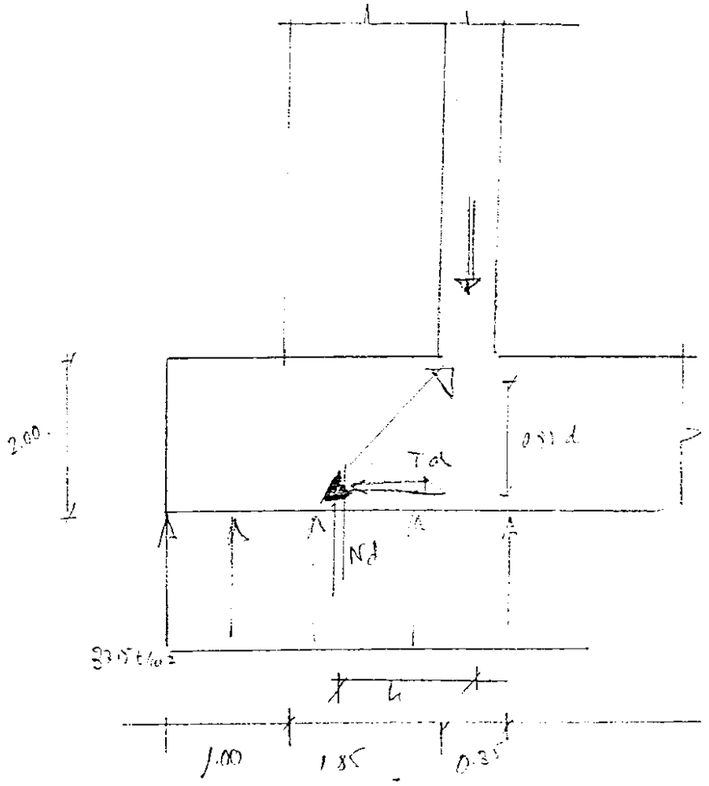
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Viaducto 2 (Arroyo Valderachas)

Cálculo de Estribos
Estribo - 2

5. Vuelco

	Me [mt]	Mv [mt] Reposo	gamma	Mv [mt] Activo	gamma
Vacio	38055.05	3843.55	9.90	3843.55	9.90
N min	40399.97	4498.34	8.98	4498.34	8.98
N max	39322.39	4197.44	9.37	4197.44	9.37
Vy min	39809.75	4333.53	9.19	4333.53	9.19
Vy max	39889.03	4355.67	9.16	4355.67	9.16
Vz min	39494.01	4245.36	9.30	4245.36	9.30
Vz max	39494.01	4245.36	9.30	4245.36	9.30
My min	39494.01	4245.36	9.30	4245.36	9.30
My max	39494.01	4245.36	9.30	4245.36	9.30
Mz min	39945.01	4371.30	9.14	4371.30	9.14
Mz max	39784.31	4326.43	9.20	4326.43	9.20

1- ARMADURA DE PANTALLA



$$Td = \frac{Nd}{0.85d} \times L = \frac{33.5 \times 1.50 \times 3.025}{0.85 \times 1.90} \times 1.513 = 159.4 \text{ t-m/m}$$

↓

$\phi 25$ a 0.10

2- Fuerza de frenado

Tiro del camión T = 18.20 t

$$Nd = 1.5 \times 18.20 \times (7.60 + 0.25 + \frac{0.35}{2}) + 1.50 \times \frac{11.00^2}{2} \times 1.00$$

$$= 21908 + 90.15 = 22000 \text{ m-t}$$

$$\frac{22000}{5.475} \times \frac{1.15}{5.1} = 906.00 \text{ cm}^2 \rightarrow 64.7 \text{ cm}^2 \rightarrow 32.35 \text{ cm}^2/\text{m/cara}$$

↓

$\phi 20$ c/ 0.10 m cada cara

3- Frenado contra barrera (T = 18.20 t)

$$Nd = 1820 \times (7.60 + 0.25 + 0.175) \times 1.50 = 21908 \text{ m-t}$$

$$T 10.64 \times \frac{5.1}{1.15} \times 7.225 + As \cdot \frac{5.1}{1.15} \times 5.475 = 22000.$$

$As = 232 \text{ cm}^2 \rightarrow 17 \text{ cm}^2/\text{m} \rightarrow 8.50 \text{ cm}^2/\text{m/cara}$

↓

$\phi 20$ c/ 0.20 m cada cara

Armadura de pilotes

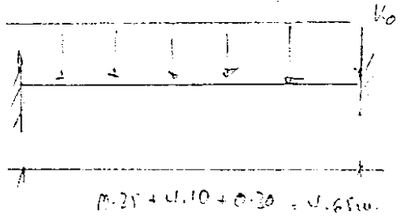
$V_d = 1.60 \times \frac{1520}{2} = 1368\ t$

$A_s = \frac{3.05}{0.15} \times \frac{1368}{9.1177} \times \frac{1}{0.2} = 27.34\ cm^2/m \rightarrow 13.67\ cm^2/m/cara$ $\left\{ \begin{array}{l} \phi 16\ c\ 0.15 \\ \phi 20\ c\ 0.20 \end{array} \right.$

Flexión transversal (la fuerza cortante del estribo empuja sobre el trasdós)

(la cortante empuja con respecto a la cara de trasdós en zona rígida)

$V_d = 1.5 \times 7.00 \left(11.00 - \frac{2.325}{2} \right) = 8.67\ m/m$



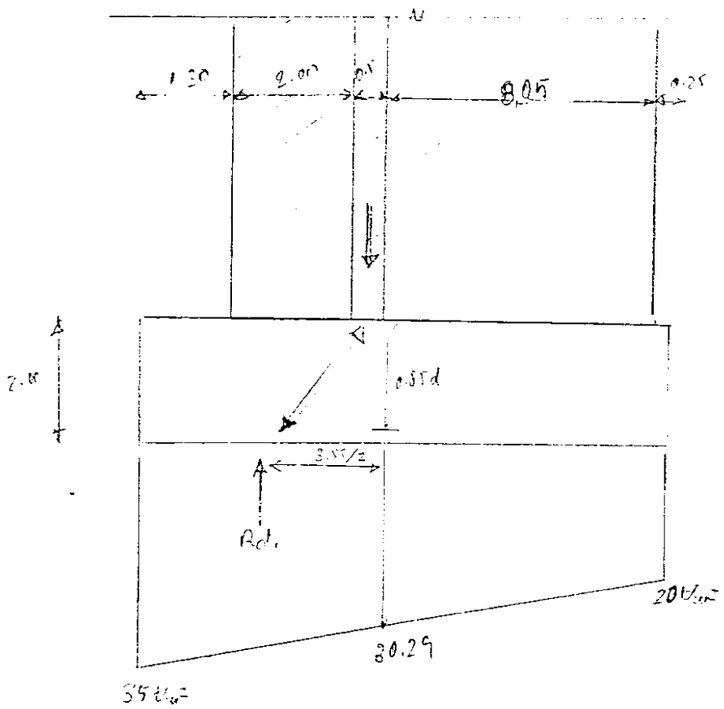
$M_d = 1.5 \times 8.67 \times \frac{0.65^2}{12} = 23.43\ mt/m \rightarrow \phi 16\ c\ 0.15$

$e = 0.60m.$

Se dispondrá horizontalmente $\rightarrow \phi 20\ c\ 0.20 + \phi 16\ c\ 0.30.$

ARMADURA DE ESTRIBO

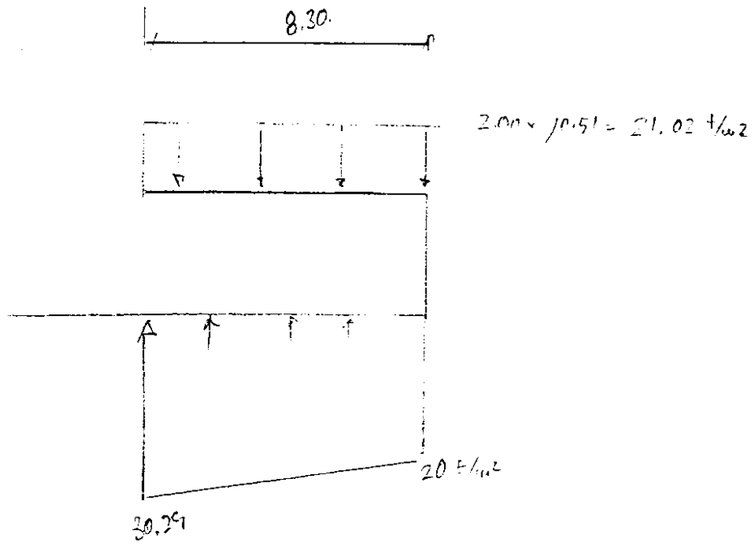
FUNDICIÓN (LADO ITA.)



$R_d = 1.5 \times 35 \times 3.55 = 186\ t$

$T_d = \frac{186}{2.50 \cdot 1.90} \times \frac{3.15}{2} = 204\ t \rightarrow A_s = 46\ cm^2 \rightarrow \phi 25\ a\ 0.10.$

TALON (LADO IZQ)

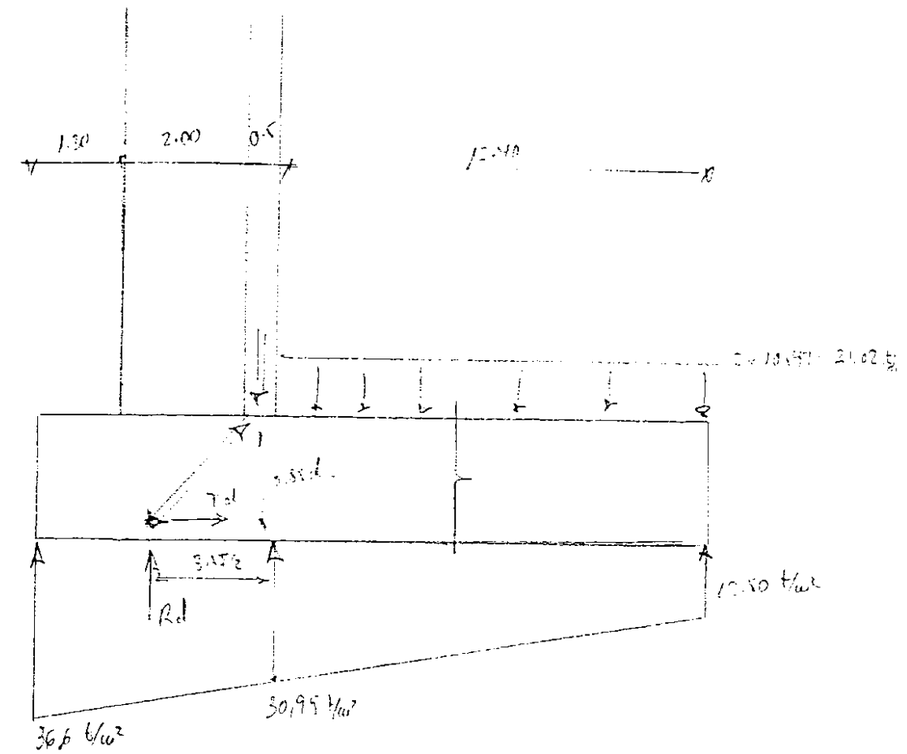


$M_d = 1.90 \times \left(20 \times 8.30 \times \frac{8.30}{2} + (30.29-20)\frac{8.30}{2}\cdot\frac{8.30}{3} - 21.02 \times \frac{8.30^2}{2}\right)$

$M_d = 124.91$ mt $\Rightarrow$ 16,4 cm²/m (ϕ 20 c 0.20)

A_{min} (1.5‰) : ϕ 20 c 0.20.

PUNTERA (LADO DER.)



$R_d = 36.6 \times 3.55 \times 1.5 = 195$ t/m.

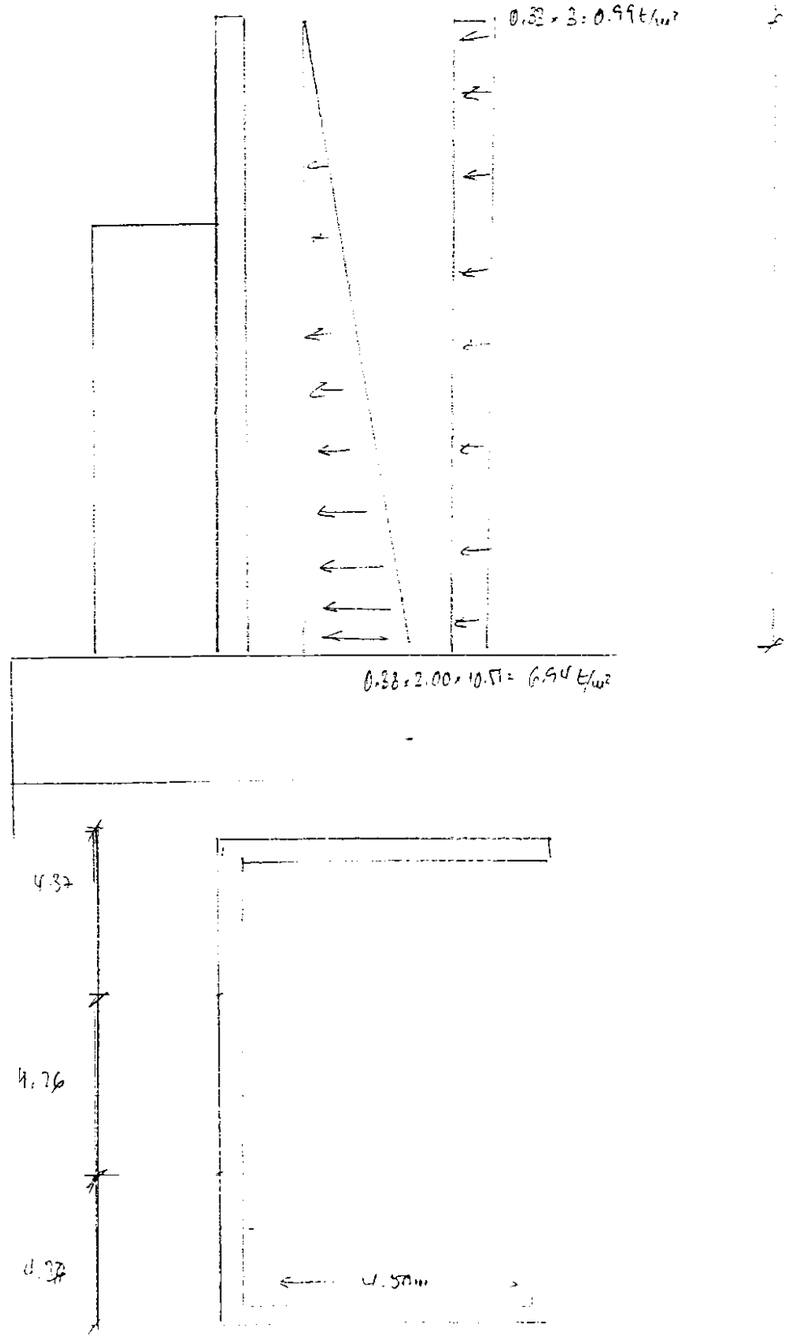
$T_d = \frac{195}{0.85 \cdot 1.90} \times \frac{3.55}{2} = 214$ t $\rightarrow$ 48 cm²/m $\rightarrow$ ϕ 25 c 0.10.

TALON (LADO DER.)

$M_d = 1.50 \times \left(12.50 \times \frac{12.40^2}{2} + \frac{1}{2} \times 12.40^2 \times \left(30.99 - 10.50\right)\frac{1}{3} - 21.02 \times \frac{12.40^2}{2}\right) = -233.30$ mt

$\Rightarrow$ 36 cm²/m : ϕ 25 c 12,5 / ϕ 20 c 0.10 + ϕ 12 c 0.20

ARMADURA VERTICAL DE MURO.



$M_d = 1.50 \times \left(6.94 \times \frac{10.51}{2} \times \frac{10.51}{3} + 0.99 \times \frac{10.51^2}{2}\right) = 273.66$ t-m/m.

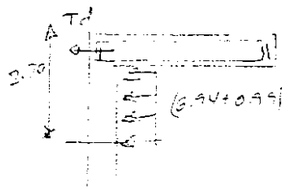
Tomando una faja de $\frac{11.31}{2}$ m (Sección en L)

$M_d = 273.6 \times \frac{11.31}{2} = 591.31$ m-T

Para un brazo de 4.50 m

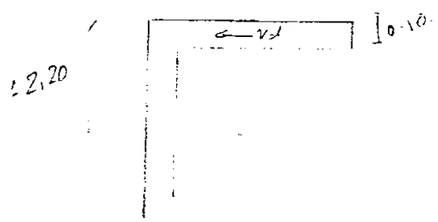
$T = \frac{591.31}{4.5} = 132.8$ t -> 30 cm² -> 6 ϕ 25

Armadura horizontal de muro frontal



$T = (6.94 + 0.99) \times \frac{4.37}{2} = 17.32$ t. (ϕ 12 c/ 20)

Armadura horizontal de cortante



$V_d = 1.50 \times \left(6.94 \times \frac{10.51}{2} + [illegible]\right) \times 2.20 = 155$ t

Para

$V_{cu} = 5 \sqrt{\frac{270}{1.5}} \times 0.5 \times 4.50 = 145$ t

Armadura vertical principal

$M_d = 243.6 \times (5.26 + 4.13) = 2733$ mt

Tiro de las defensas:

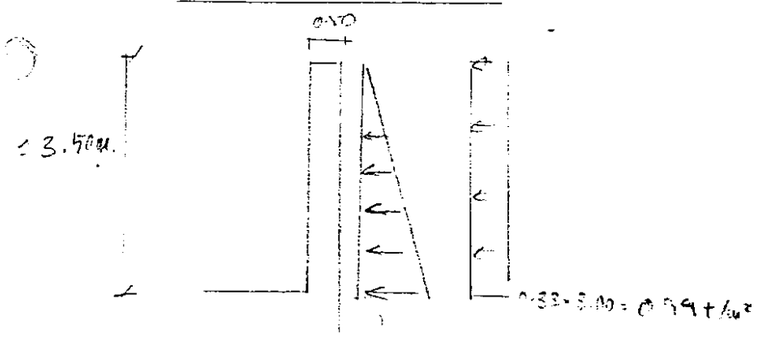
$M_d = 1172 \times 1.5 = 1758$ t

$M_{d_{def}} = 1758 \times 0.06 \times (7.02 + 0.28) = 770$ mt

$M_{d_{TOT.}} = 2733 + 770 = \underline{3503}$ mt

$A_s = 36 cm^2/m$ → $\phi 20$ a 0.10 en ambas caras del muro

Armadura Vertical en muro



$M_d = 1.50 \times \left(2.31 \times \frac{3.5}{2}, \frac{3.5}{3} + 0.99 \times \frac{3.5^2}{2}\right) = 16.17$ mt/m.

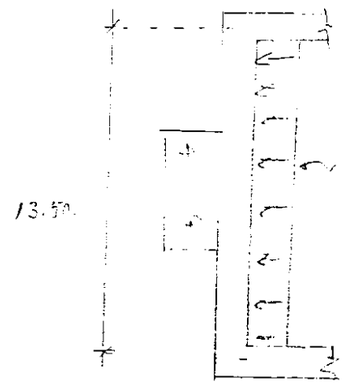
+

9.00 cm²/m.

+

$\phi 16$ c. 0.20

Transversal muro (zona superior)

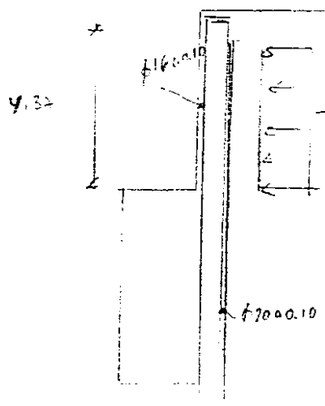


$M_d = 1.50 \times 2.145 \times \frac{13.1^2}{12} = 48.86$ mt/m

+

$A_s = 27 cm^2/m$ → $\underline{\phi 20 \text{ a } 0.10}$

Transversal muro (zona inferior)



$[0.33 \times 2.00 \times (10.11 + 3 \times 0.22)] = 7.92$ t/m²

$M_d = 1.50 \times 7.92 \times \frac{4.37^2}{12} = 18.92$ mt/m

+

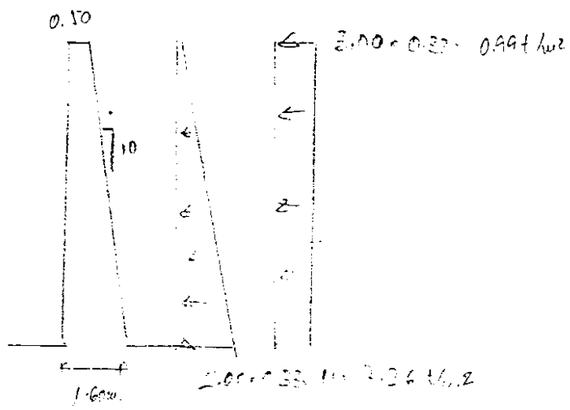
$A_s = 10.53 cm^2/m$

↓

Se dispondrá $\underline{\phi 16 \text{ c } 0.10}$ en cara exterior.

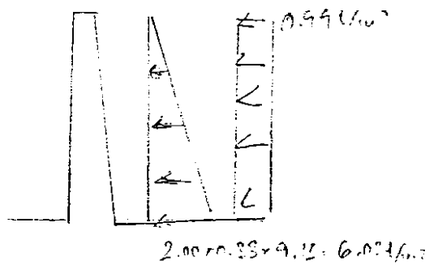
Vigas en vuelta y muros de contención

H = 11.00 m.



$M_d = 1.50 \left(7.26 \cdot \frac{11^2}{6} + 0.99 \cdot \frac{11^2}{2} \right)$ 309,45 mt/m ⇒ 50 cm²/m → ϕ25 a 0.10.

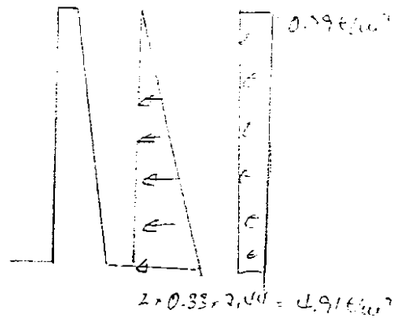
H = 9.13 m.



$M_d = 1.50 \left(6,02 \cdot \frac{9,13^2}{6} + 0.99 \cdot \frac{7.13^2}{2} \right) = 187 \text{ mt/m}.$

$A_s = 38 \text{ cm}^2/\text{m} \rightarrow \phi 25 \text{ a } 0.15$

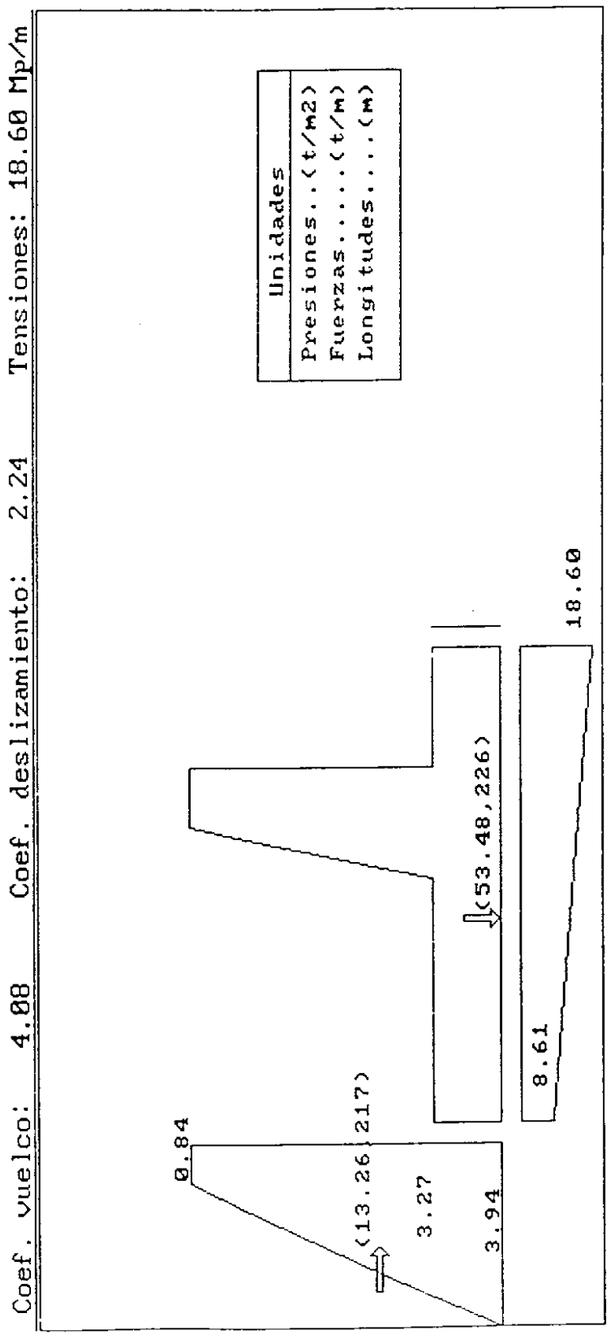
H = 7.44 m.



$M_d = 1.50 \left(4.91 \cdot \frac{7.44^2}{6} + 0.99 \cdot \frac{7.44^2}{2} \right) = 109 \text{ mt/m}$

$A_s = 22,7 \text{ cm}^2/\text{m}$ ϕ25 a 0.20

Muro1 H=11.51m.



==========

\# #

\# COMPROBACION DE CONDICIONES DE ESTABILIDAD Y DESLIZAMIENTO #

\# #

==========

Esfuerzos horizontales debidos a:	F (t.)	M (t. x m.)
Empuje activo	13.26	28.84
Zapata colindante	0.00	0.00
Empuje pasivo	0.00	0.00
Resultantes horizontales	13.26	28.84

Esfuerzos verticales debidos a:	F (t.)	M (t. x m.)
Zapata colindante	0.00	0.01
Sobrecarga y peso del terreno dorsal	23.40	68.56
Peso propio muro	7.00	10.25
Peso propio zapata	10.61	20.85
Empuje activo	9.51	17.44
Peso del terreno frontal	1.00	0.50
Carga coronacion	0.00	0.00
Resultantes Verticales	51.52	117.61
Coeficiente seguridad vuelco	4.08	
Coeficiente seguridad deslizamiento	2.24	

COMPROBACION DE TENSIONES DEL TERRENO

fuerzos horizontales debidos a:	F (t.)	M (t. x m.)
Empuje activo	13.26	28.84
Zapata colindante	0.00	0.00
Empuje pasivo	0.00	0.00
Resultantes horizontales	13.26	28.84

fuerzos verticales debidos a:	F (t.)	M (t. x m.)
Zapata colindante	0.00	0.01
Sobrecarga y peso del terreno dorsal	23.40	68.56
Peso propio muro	7.78	11.39
Peso propio zapata	11.79	23.17
Empuje activo	9.51	17.44
Peso del Terreno frontal	1.00	0.50
Carga en coronacion	0.00	0.00
Resultantes verticales	53.48	121.06

Tension maxima (t/m2)	18.60
Tension media (t/m2)	13.61

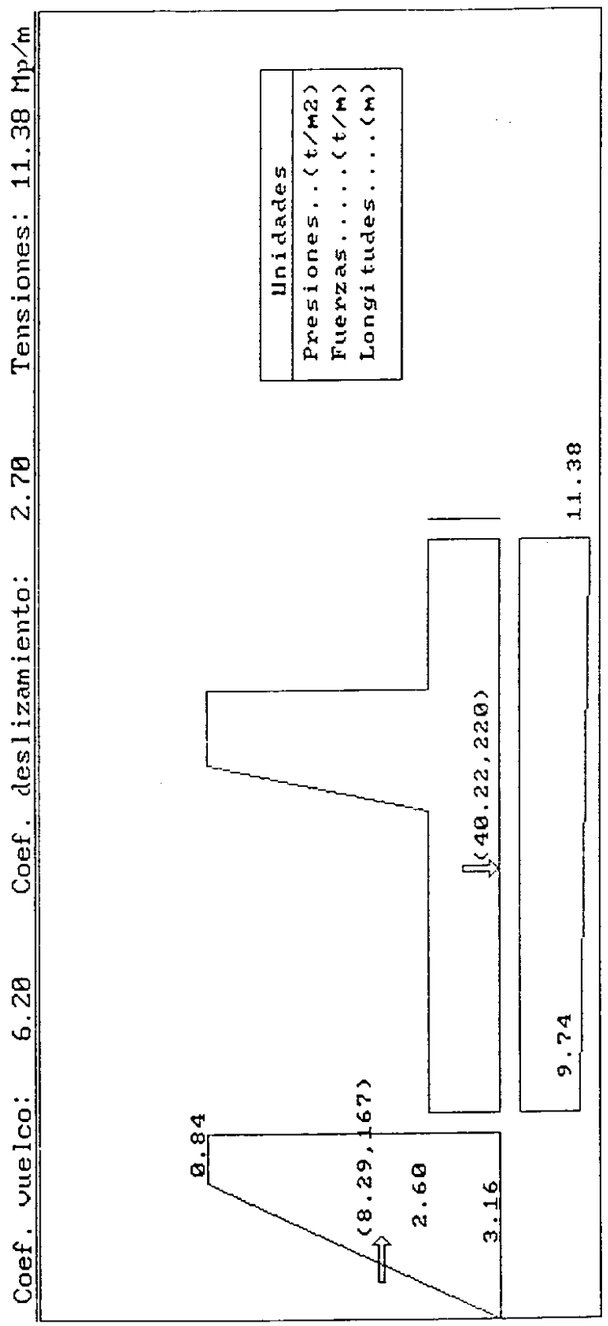
ESFUERZOS DE DISEÑO MURO

	Momento (tm*m)	Axil (tn)	Cortante (tn*m)
Fuste	15.60	7.00	8.93
Talon	-8.79		-7.09
Puntera	6.88		13.33

DIMENSIONAMIENTO Y CUANTIAS MINIMAS

Tipo	Armadura estricta (cm2/m)	Armadura real (cm2/m)	Diametro (mm)	Separacion (cm)	Patilla izda/abajo (m)	Longitud (m)	Patilla dcha/arriba (m)
1	16.39	20.11	16	10	0.65	3.80	0.65
2	5.40	5.65	12	20	0.00	1.00	0.00
3	16.39	20.11	16	10	0.65	3.80	0.65
4	5.40	5.65	12	20	0.00	1.00	0.00
5	11.26	11.31	12	10	0.15	1.80	0.00
6	0.00	0.00	0	0	0.00	0.00	0.00
7	11.26	11.31	12	10	0.00	4.25	0.35
8	5.72	6.16	14	25	0.00	1.00	0.00
9	2.14	3.77	12	30	0.15	1.35	0.00
10	2.14	3.77	12	30	0.00	4.25	0.35
11	5.72	6.16	14	25	0.00	1.00	0.00

Muro 2 H= 3,15m.



RESULTADOS DEL MURO: 2

H= 3,15m

COMPROBACION DE CONDICIONES DE ESTABILIDAD Y DESLIZAMIENTO

Esfuerzos horizontales debidos a:	F (t.)	M (t. x m.)
Empuje activo	8.29	13.87
Zapata colindante	0.00	0.00
Empuje pasivo	0.00	0.00
Resultantes horizontales	8.29	13.87

Esfuerzos verticales debidos a:	F (t.)	M (t. x m.)
Zapata colindante	0.00	0.01
Sobrecarga y peso del terreno dorsal	18.60	52.27
Peso propio muro	4.64	6.52
Peso propio zapata	8.57	16.33
Empuje activo	5.94	10.36
Peso del terreno frontal	1.00	0.50
Carga coronacion	0.00	0.00
Resultantes Verticales	38.76	85.98

Coeficiente seguridad vuelco	6.20
Coeficiente seguridad deslizamiento	2.70

COMPROBACION DE TENSIONES DEL TERRENO

uerzos horizontales debidos a:	F (t.)	M (t. x m.)
Empuje activo	8.29	13.87
Zapata colindante	0.00	0.00
Empuje pasivo	0.00	0.00
Resultantes horizontales	8.29	13.87

ue:zos verticales debidos a:	F (t.)	M (t. x m.)
Zapata colindante	0.00	0.01
Sobrecarga y peso del terreno dorsal	18.60	52.27
Peso propio muro	5.16	7.25
Peso propio zapata	9.52	18.15
Empuje activo	5.94	10.36
Peso del Terreno frontal	1.00	0.50
Carga en coronacion	0.00	0.00
Resultantes verticales	40.22	88.52

Tension maxima (t/m2)	11.38
Tension media (t/m2)	10.56

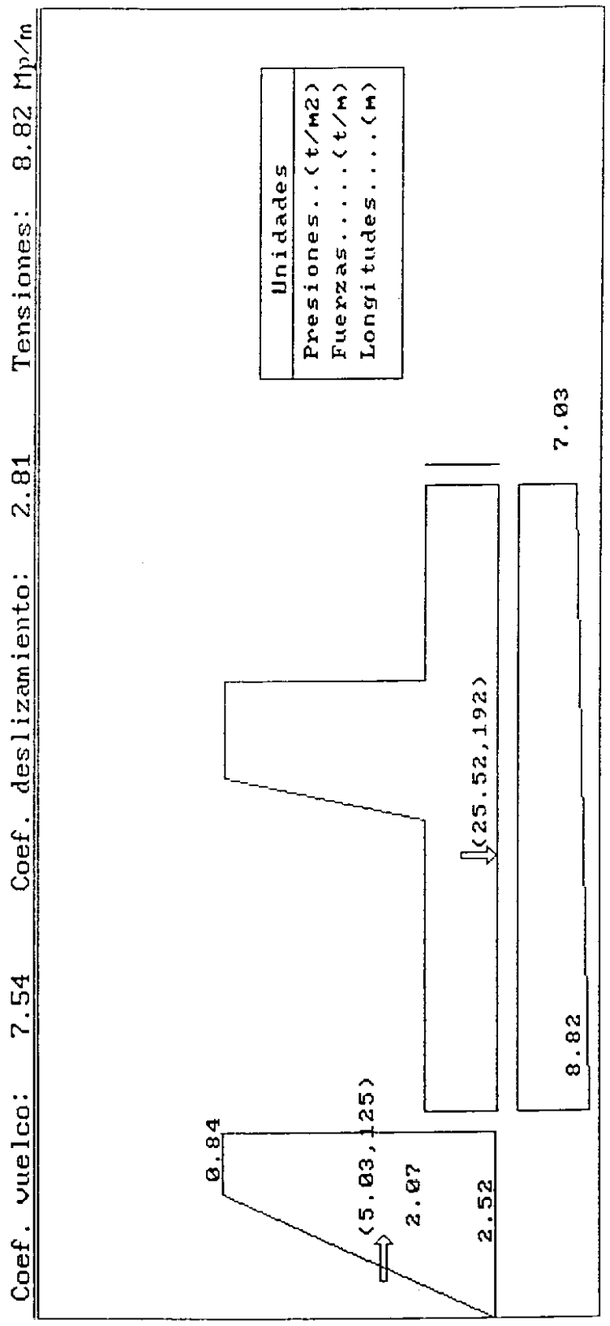
ESFUERZOS DE DISEÑO MURO

	Momento (tm*m)	Axil (tn)	Cortante (tn*m)
Fuste	7.07	4.64	5.41
Talon	-3.55		-3.26
Puntera	3.87		7.66

DIMENSIONAMIENTO Y CUANTIAS MINIMAS

Tipo	Armadura estricta (cm2/m)	Armadura real (cm2/m)	Diametro (mm)	Separacion (cm)	Patilla izda/abajo (m)	Longitud (m)	Patilla dcha/arriba (m)
1	13.52	15.39	14	10	0.55	3.70	0.55
2	4.50	4.52	12	25	0.00	1.00	0.00
3	13.52	15.39	14	10	0.55	3.70	0.55
4	4.50	4.52	12	25	0.00	1.00	0.00
5	9.71	10.05	16	20	0.15	1.55	0.00
6	0.00	0.00	0	0	0.00	0.00	0.00
7	9.71	10.05	16	20	0.00	3.05	0.35
8	5.24	5.65	12	20	0.00	1.00	0.00
9	1.96	3.77	12	30	0.15	1.15	0.00
10	1.96	3.77	12	30	0.00	3.05	0.35
11	5.24	5.65	12	20	0.00	1.00	0.00

Muro H=2.20 m.



RESULTADOS DEL MURO: 3

COMPROBACION DE CONDICIONES DE ESTABILIDAD Y DESLIZAMIENTO

Esfuerzos horizontales debidos a:	F (t.)	M (t. x m.)
Empuje activo	5.03	6.29
Zapata colindante	0.00	0.00
Empuje pasivo	0.00	0.00
Resultantes horizontales	5.03	6.29

Esfuerzos verticales debidos a:	F (t.)	M (t. x m.)
Zapata colindante	0.00	0.00
Sobrecarga y peso del terreno dorsal	11.10	27.42
Peso propio muro	3.02	4.11
Peso propio zapata	5.80	9.33
Empuje activo	3.62	6.06
Peso del terreno frontal	1.00	0.50
Carga coronacion	0.00	0.00
Resultantes Verticales	24.54	47.42

Coeficiente seguridad vuelco	7.54
Coeficiente seguridad deslizamiento	2.81

COMPROBACION DE TENSIONES DEL TERRENO

fuerzos horizontales debidos a:	F (t.)	M (t. x m.)
Empuje activo	5.03	6.29
Zapata colindante	0.00	0.00
Empuje pasivo	0.00	0.00
Resultantes horizontales	5.03	6.29

fuerzos verticales debidos a:	F (t.)	M (t. x m.)
Zapata colindante	0.00	0.00
Sobrecarga y peso del terreno dorsal	11.10	27.42
Peso propio muro	3.35	4.56
Peso propio zapata	6.44	10.37
Empuje activo	3.62	6.06
Peso del Terreno frontal	1.00	0.50
Carga en coronacion	0.00	0.00
Resultantes verticales	25.52	48.91

Tension maxima (t/m2)	8.82
Tension media (t/m2)	7.92

ESFUERZOS DE DISEÑO MURO

	Momento (tm*m)	Axil (tn)	Cortante (tn*m)
Fuste	3.02	3.02	3.20
Talon	-0.97		-1.50
Puntera	2.11		4.31

DIMENSIONAMIENTO Y CUANTIAS MINIMAS

Tipo	Armadura estricta (cm2/m)	Armadura real (cm2/m)	Diametro (mm)	Separacion (cm)	Patilla izda/abajo (m)	Longitud (m)	Patilla dcha/arriba (m)
1	10.64	11.31	12	10	0.45	3.10	0.45
2	3.60	3.77	12	30	0.00	1.00	0.00
3	10.64	11.31	12	10	0.45	3.10	0.45
4	3.60	3.77	12	30	0.00	1.00	0.00
5	8.54	10.05	16	20	0.15	1.25	0.00
6	0.00	0.00	0	0	0.00	0.00	0.00
7	8.54	10.05	16	20	0.00	2.15	0.35
8	4.88	5.13	14	30	0.00	1.00	0.00
9	1.83	3.77	12	30	0.15	0.95	0.00
10	1.83	3.77	12	30	0.00	2.15	0.35
11	4.88	5.13	14	30	0.00	1.00	0.00

DATOS CONTORNO: (ID=A)

COORDENADAS: (Optimizado Nº de nudos)

Nudo	X-Coord [m]	Y-Coord [m]	Nudo	X-Coord [m]	Y-Coord [m]	Nudo	X-Coord [m]	Y-Coord [m]
Puntos contorno								
1	0.000	0.000	23	0.000	10.500	438	12.150	0.000
454	12.150	7.670	491	15.650	10.000	492	15.650	10.500

CANTOS Y MATERIALES:

d : Canto losa
Emod : Módulo de elasticidad
Nue : Poisson
Adir : Dirección x para salida de resultados
Mdir : Dirección principales para materiales
d11.. : Coeficientes de ortotropia
h : Canto nervio
dPlt : Canto de la losa al lado del nervio (0 = adoptar)
dÜbr : Canto del espesor superior
Dir : Dirección del eje del nervio

I1: Isótropo d = 0.525 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I2: Isótropo d = 0.600 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I3: Isótropo d = 0.700 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I4: Isótropo d = 0.800 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I5: Isótropo d = 0.900 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I6: Isótropo d = 1.000 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I7: Isótropo d = 1.100 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I8: Isótropo d = 1.200 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I9: Isótropo d = 1.300 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I10: Isótropo d = 1.400 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

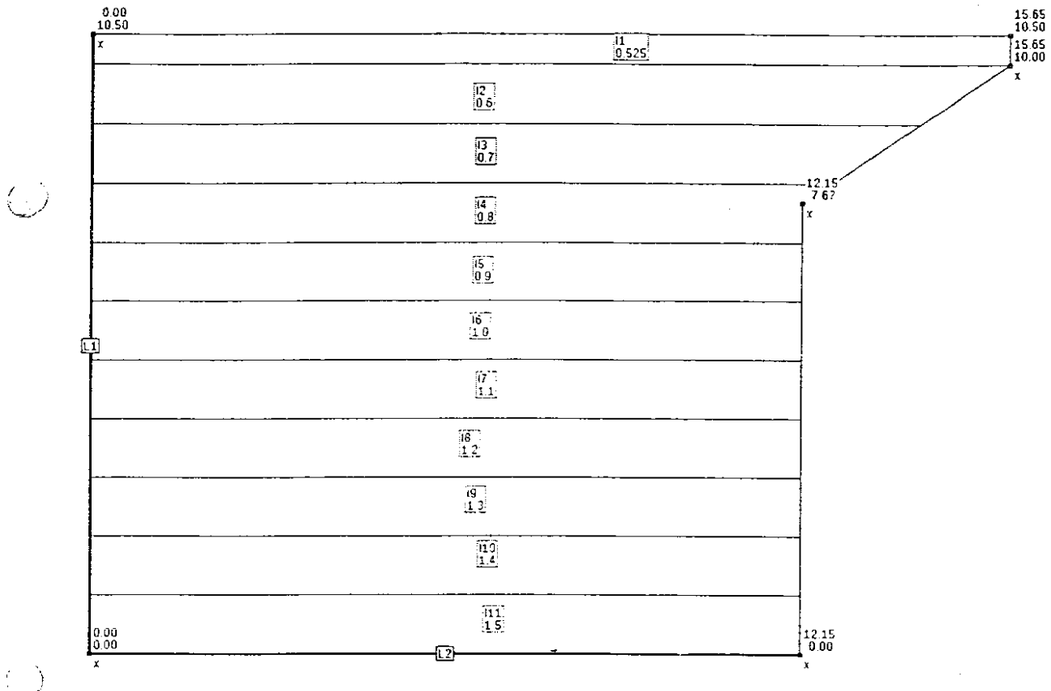
I11: Isótropo d = 1.500 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

APOYOS PUNTUALES/linealES

Id	tipo	vz [kN/m2]	rx [kNm/m]	ry [kNm/m]	Angulo [Grados]
Apoyo lineal:					
L1:	empotrado	bloqueado	bloqueado	bloqueado	-90.000
Nu:	L11 = 23	L12 = 22	L13 = 21	L14 = 20	
	L15 = 19	L16 = 18	L17 = 17	L18 = 16	
	L19 = 15	L110 = 14	L111 = 13	L112 = 12	
	L113 = 11	L114 = 10	L115 = 9	L116 = 8	
	L117 = 7	L118 = 6	L119 = 5	L120 = 4	
	L121 = 3	L122 = 2	L123 = 1		
L2:	empotrado	bloqueado	bloqueado	bloqueado	180.000
Nu:	L21 = 438	L22 = 415	L23 = 392	L24 = 369	
	L25 = 346	L26 = 323	L27 = 300	L28 = 277	
	L29 = 254	L210 = 231	L211 = 208	L212 = 185	
	L213 = 162	L214 = 139	L215 = 116	L216 = 93	
	L217 = 70	L218 = 47	L219 = 24	L220 = 1	

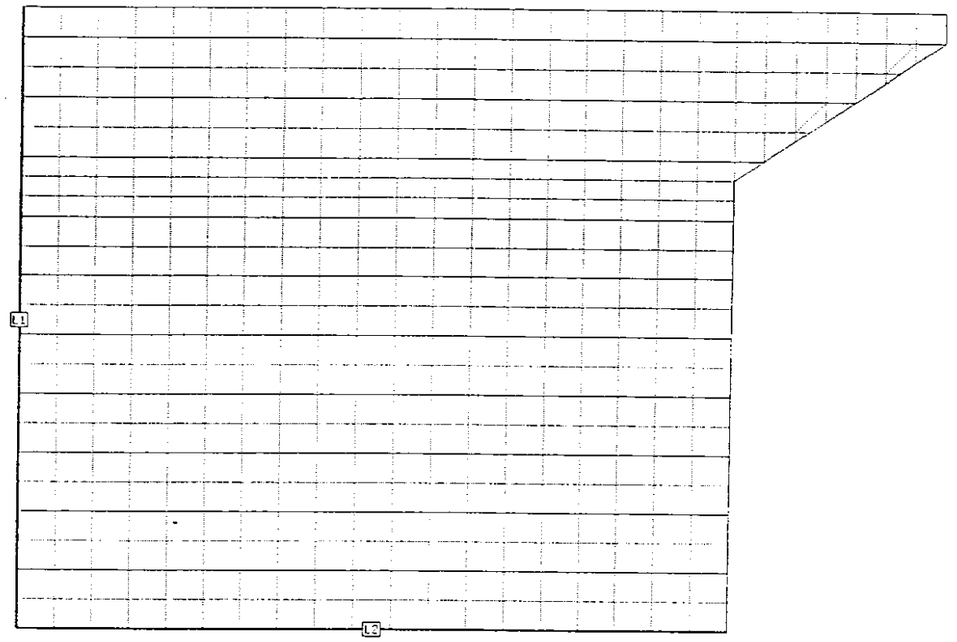
L.A.V. Madrid-Barcelona-Frontera Francesa
Viaducto 2. Estribo 2. Muro derecho

Escala 1 : 102.0
Geometrie (ID=A)
- Zonas de materiales
- Apoyo puntual o lineal
- Puntos aux.
- ID zona material y canto [m]
- Coord. de puntos auxiliares [m]



L.A.V. Madrid-Barcelona-Frontera Francesa
Viaducto 2. Estribo 2. Muro derecho

Escala 1 : 102.0
Malla (ID=A)



HIPOTESIS 1: "Empuje tierras"
==========

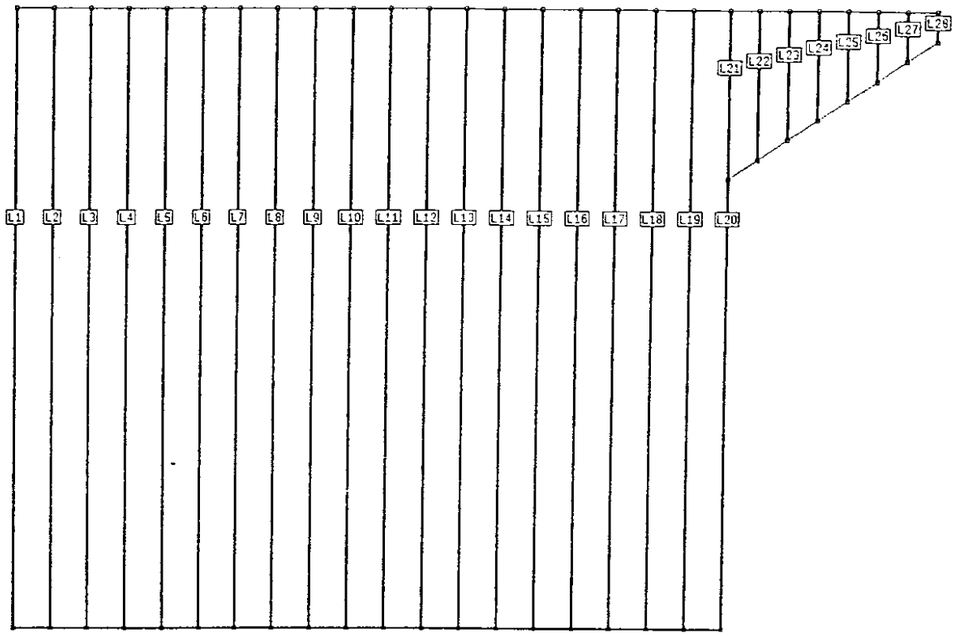
CARGA lineal:

ID	Sitio	carga [kN/m]	Mom [kNm/m]	X [m]	Y [m]	Lsuma [kN]
L1	: Inicio	0.0	-	0.000	10.500	-116.65
	Fin	-22.22	-	0.000	0.000	
L2	: Inicio	0.0	-	0.639	10.500	-233.31
	Fin	-44.44	-	0.639	0.000	
L3	: Inicio	0.0	-	1.279	10.500	-233.31
	Fin	-44.44	-	1.279	0.000	
L4	: Inicio	0.0	-	1.918	10.500	-233.31
	Fin	-44.44	-	1.918	0.000	
L5	: Inicio	0.0	-	2.558	10.500	-233.31
	Fin	-44.44	-	2.558	0.000	

ID	Sitio	carga [kN/m]	Mom [kNm/m]	X [m]	Y [m]	Lsuma [kN]
L6	: Inicio	0.0	-	3.197	10.500	-233.31
	Fin	-44.44	-	3.197	0.000	
L7	: Inicio	0.0	-	3.837	10.500	-233.31
	Fin	-44.44	-	3.837	0.000	
L8	: Inicio	0.0	-	4.476	10.500	-233.31
	Fin	-44.44	-	4.476	0.000	
L9	: Inicio	0.0	-	5.116	10.500	-233.31
	Fin	-44.44	-	5.116	0.000	
L10	: Inicio	0.0	-	5.755	10.500	-233.31
	Fin	-44.44	-	5.755	0.000	
L11	: Inicio	0.0	-	6.395	10.500	-233.31
	Fin	-44.44	-	6.395	0.000	
L12	: Inicio	0.0	-	7.034	10.500	-233.31
	Fin	-44.44	-	7.034	0.000	
	: Inicio	0.0	-	7.674	10.500	-233.31
	Fin	-44.44	-	7.674	0.000	
L14	: Inicio	0.0	-	8.313	10.500	-233.31
	Fin	-44.44	-	8.313	0.000	
L15	: Inicio	0.0	-	8.953	10.500	-233.31
	Fin	-44.44	-	8.953	0.000	
L16	: Inicio	0.0	-	9.592	10.500	-233.31
	Fin	-44.44	-	9.592	0.000	
L17	: Inicio	0.0	-	10.232	10.500	-233.31
	Fin	-44.44	-	10.232	0.000	
L18	: Inicio	0.0	-	10.871	10.500	-233.31
	Fin	-44.44	-	10.871	0.000	
L19	: Inicio	0.0	-	11.511	10.500	-233.31
	Fin	-44.44	-	11.511	0.000	
L20	: Inicio	0.0	-	12.150	10.500	-116.65
	Fin	-22.22	-	12.150	0.000	
L21	: Inicio	0.0	-	12.150	10.500	-6.61
	Fin	-4.67	-	12.150	7.670	
L22	: Inicio	0.0	-	12.646	10.500	-10.31
	Fin	-8.25	-	12.646	8.000	
	: Inicio	0.0	-	13.146	10.500	-7.15
	Fin	-6.60	-	13.146	8.333	
L24	: Inicio	0.0	-	13.647	10.500	-5.29
	Fin	-5.77	-	13.647	8.667	
L25	: Inicio	0.0	-	14.148	10.500	-3.71
	Pin	-4.95	-	14.148	9.000	
L26	: Inicio	0.0	-	14.649	10.500	-2.41
	Fin	-4.13	-	14.649	9.333	
L27	: Inicio	0.0	-	15.149	10.500	-1.37
	Fin	-3.30	-	15.149	9.667	
L28	: Inicio	0.0	-	15.650	10.500	-0.33000
	Fin	-1.32	-	15.650	10.000	
					Suma	-4470.07

Suma carg [kN] Hipótesis 1: -4470.07

Escala 1 : 102.0
Hipótesis 001: "Empuje tierras" (Suma cargas= -4470.07 kN)
- Apoyo puntual o lineal
- Cargas linealse
  Valores p: distr.linealmente [kN/m]



HIPOTESIS 2: "Sobrecarga"

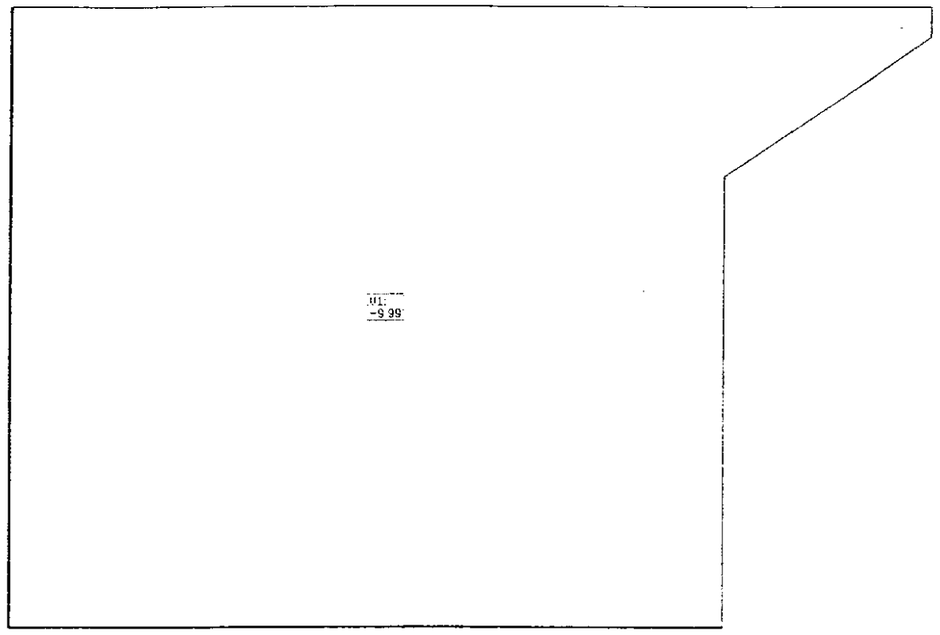
CARGAS DISTRIB:

ID	Tipo	Dim.	Valor	Nº Ptos.	Lsuma [kN]
V1	dist.	kN/m2	-9.99	6	-1332.69
				Suma	-1332.69

Suma carg [kN] Hipótesis 2: -1332.69

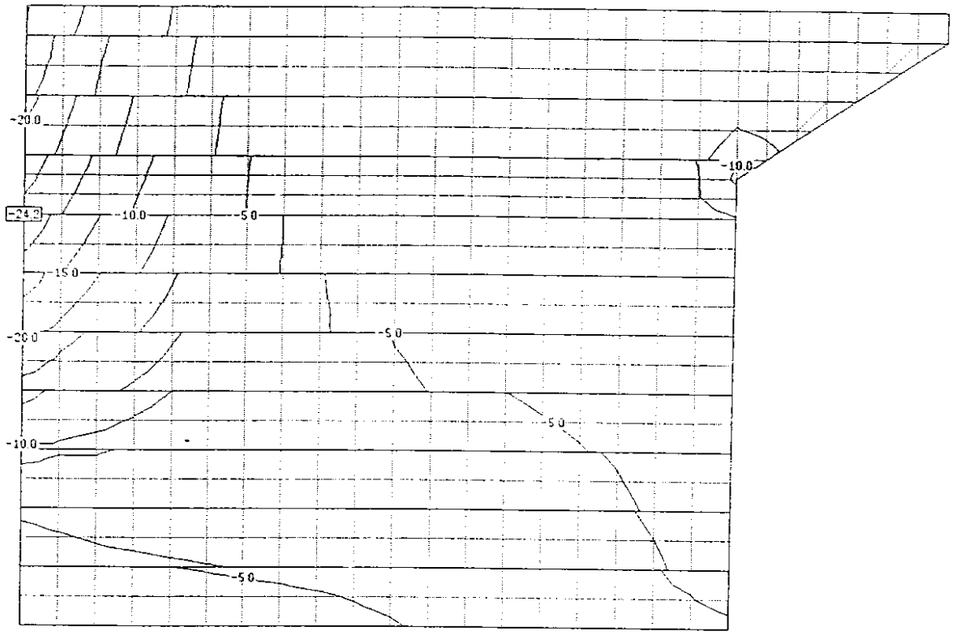
V. Madrid-Barcelona-Frontera Francesa
ducto 2. Estribo 2. Muro derecho

Escala 1 : 102.0
Hipótesis 002: "Sobrecarga" (Suma cargas= -1332.69 kN)
- Valores cargas dist.: E=Peso propio [kN/m3]
  V=Carga distribuida [kN/m2], K=Curvatura [m-1]
- Apoyo puntual o lineal



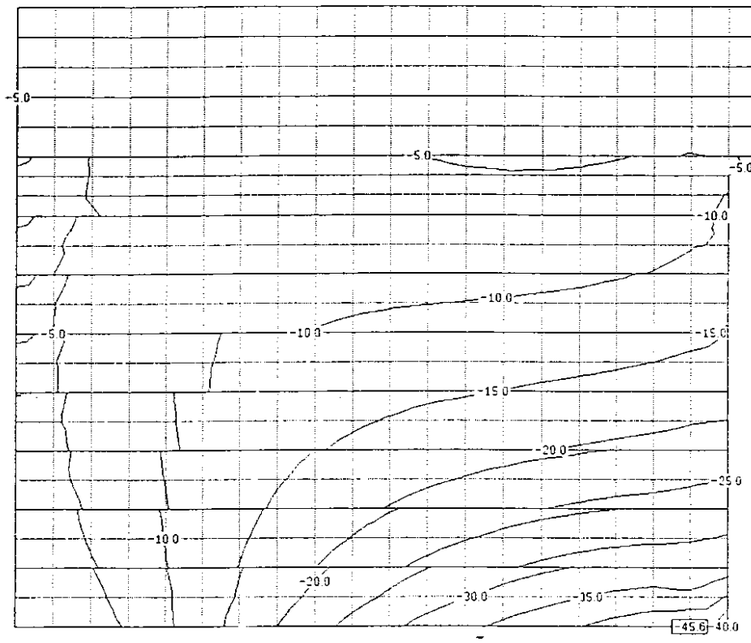
L.A.V. Madrid-Barcelona-Frontera Francesa
Viaducto 2. Estribo 2. Muro derecho

Escala 1 : 102.0
Armaduras [cm2/m] (A01)
Carga: S1 1.5 U2 1.5
EH-Dimensionamento: Horm.=H250, Acero=AEH500
-
- Armaduras AsX- [cm2/m], Recub.= 5.00 cm, Dir-X= 0.00 Grados



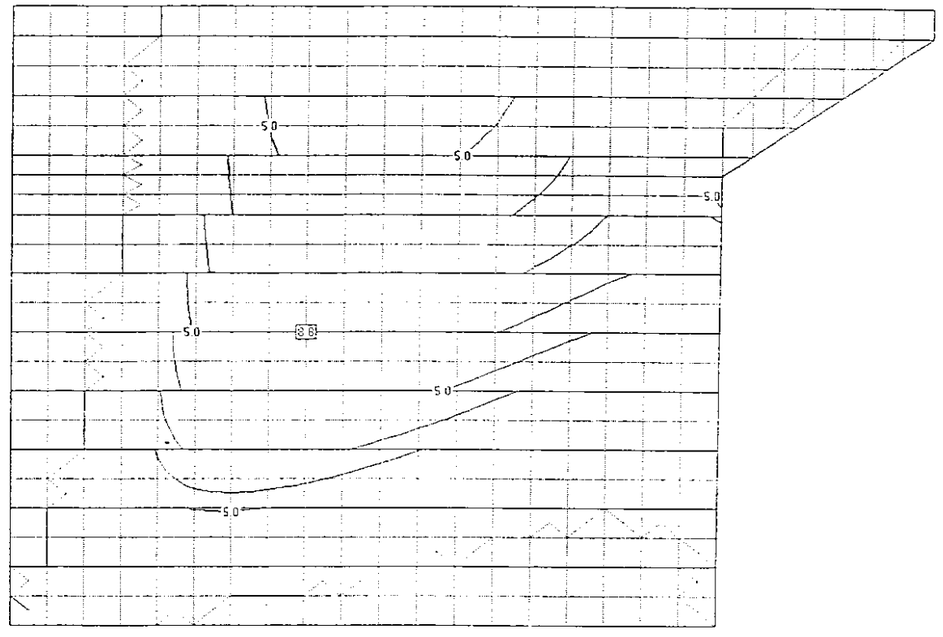
. Madrid-Barcelona-Frontera Francesa
ducto 2. Estribo 2. Muro derecho

Escala 1 : 102.0
Armaduras [cm2/m] (A01)
Carga: S1 1.5 U2 1.5
EH-Dimensionamento: Horm.=H250, Acero=AEH500
-
- Armaduras AsY- [cm2/m], Recub.= 5.00 cm, Dir-X= 0.00 Grados



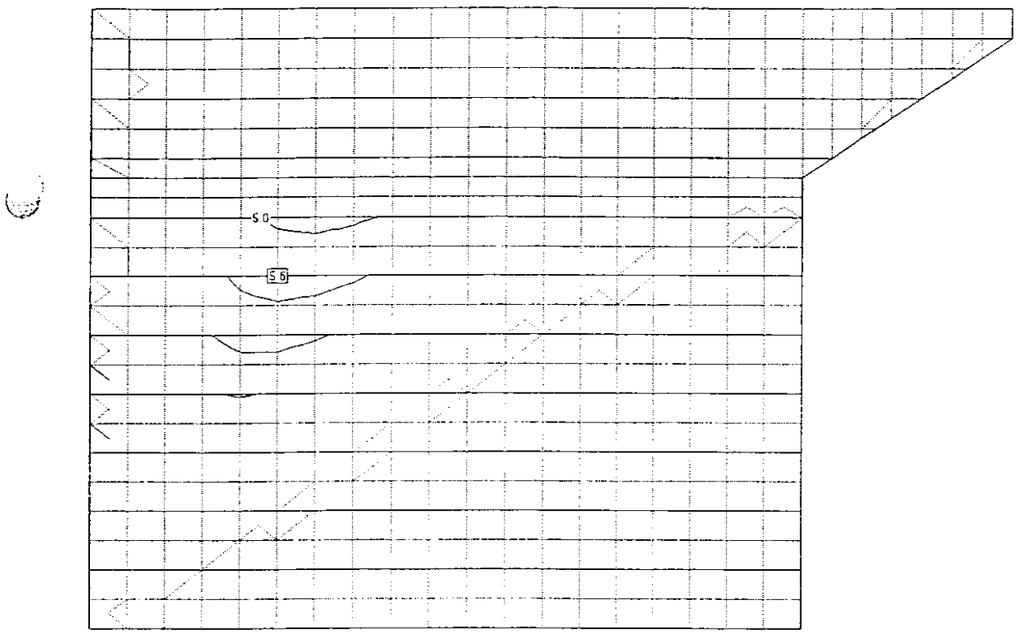
L.A.V. Madrid-Barcelona-Frontera Francesa
Viaducto 2. Estribo 2. Muro derecho

Escala 1 : 102.0
Armaduras [cm2/m] (A01)
Carga: S1 1.5 U2 1.5
EH-Dimensionamento: Horm.=H250, Acero=AEH500
-
- Armaduras AsX+ [cm2/m], Recub.= 5.00 cm, Dir-X= 0.00 Grados



L.A.V. Madrid-Barcelona-Frontera Francesa
Viaducto 2. Estribo 2. Muro derecho

Escala 1 : 102.0
Armaduras [cm2/m] (A01)
Carga: S1 1.5 U2 1.5
EH-Dimensionamento: Horm.=H250, Acero=AEH500
-
- Armaduras AsY+ [cm2/m], Recub.= 5.00 cm, Dir-X= 0.00 Grados



L.A.V. Madrid-Barcelona-Frontera Francesa
Viaducto 2. Estribo 2. Muro izquierdo

DATOS CONTORNO: (ID=A)
==========

COORDENADAS: (Optimizado Nº de nudos)

Nudo	X-Coord [m]	Y-Coord [m]	Nudo	X-Coord [m]	Y-Coord [m]	Nudo	X-Coord [m]	Y-Coord [m]
Puntos contorno								
1	0.000	0.000	23	0.000	10.500	346	8.050	0.000
362	8.050	7.670	399	11.550	10.000	400	11.550	10.500

CANTOS Y MATERIALES:

---

d : Canto losa
Emod : Módulo de elasticidad
Nue : Poisson
Adir : Dirección x para salida de resultados
Mdir : Dirección principales para materiales
d11.. : Coeficientes de ortotropia
h : Canto nervio
dPlt : Canto de la losa al lado del nervio (0 = adoptar)
dUbr : Canto del espesor superior
Dir : Dirección del eje del nervio

I1: Isótropo d = 0.525 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I2: Isótropo d = 0.600 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I3: Isótropo d = 0.700 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I4: Isótropo d = 0.800 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I5: Isótropo d = 0.900 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I6: Isótropo d = 1.000 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I7: Isótropo d = 1.100 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I8: Isótropo d = 1.200 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I9: Isótropo d = 1.300 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I10: Isótropo d = 1.400 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

I11: Isótropo d = 1.500 [m] Adir= 0.00 [Grados]
modE=2.10E+07 [kN/m2] Nue = 0.167 [-] drec= 0.000 [m]

APOYOS PUNTUALES/lineales

Id	tipo	vz [kN/m2]	rx [kNm/m]	ry [kNm/m]	Angulo [Grados]

Apoyo lineal:

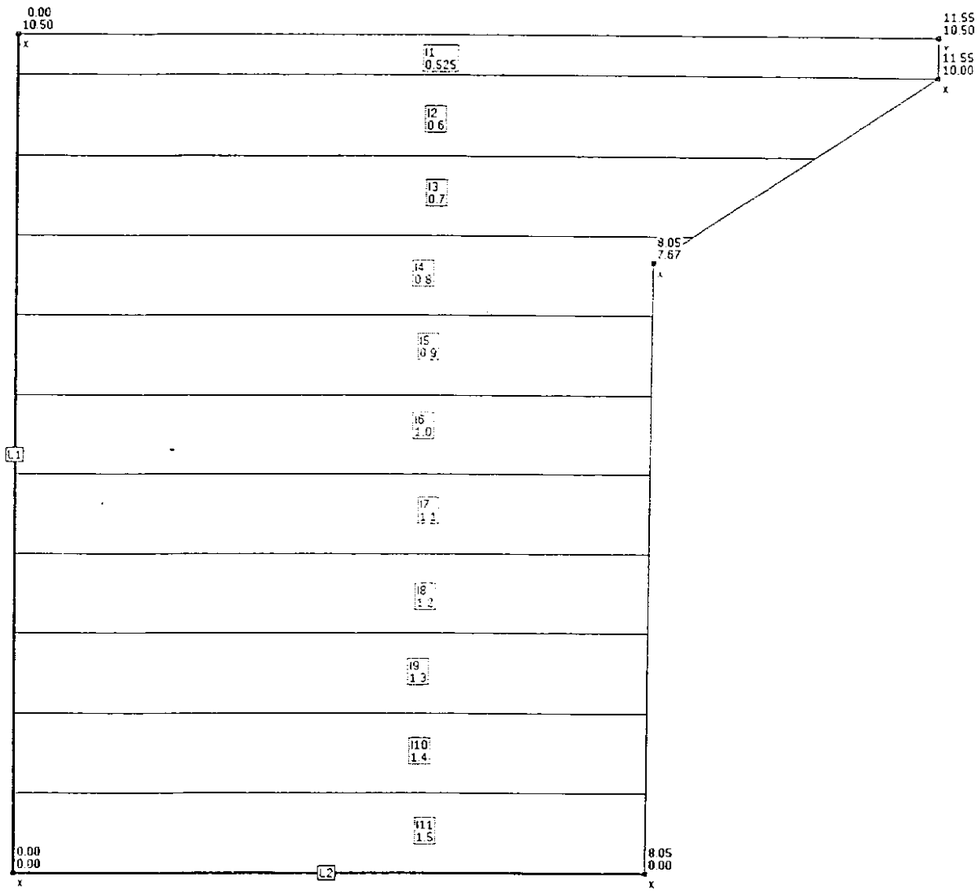
L1: empotrado -90.000

Nu:	L11 =	23	L12 =	22	L13 =	21	L14 =	20
	L15 =	19	L16 =	18	L17 =	17	L18 =	16
	L19 =	15	L110 =	14	L111 =	13	L112 =	12
	L113 =	11	L114 =	10	L115 =	9	L116 =	8
	L117 =	7	L118 =	6	L119 =	5	L120 =	4
	L121 =	3	L122 =	2	L123 =	1		

L2: empotrado 0.000

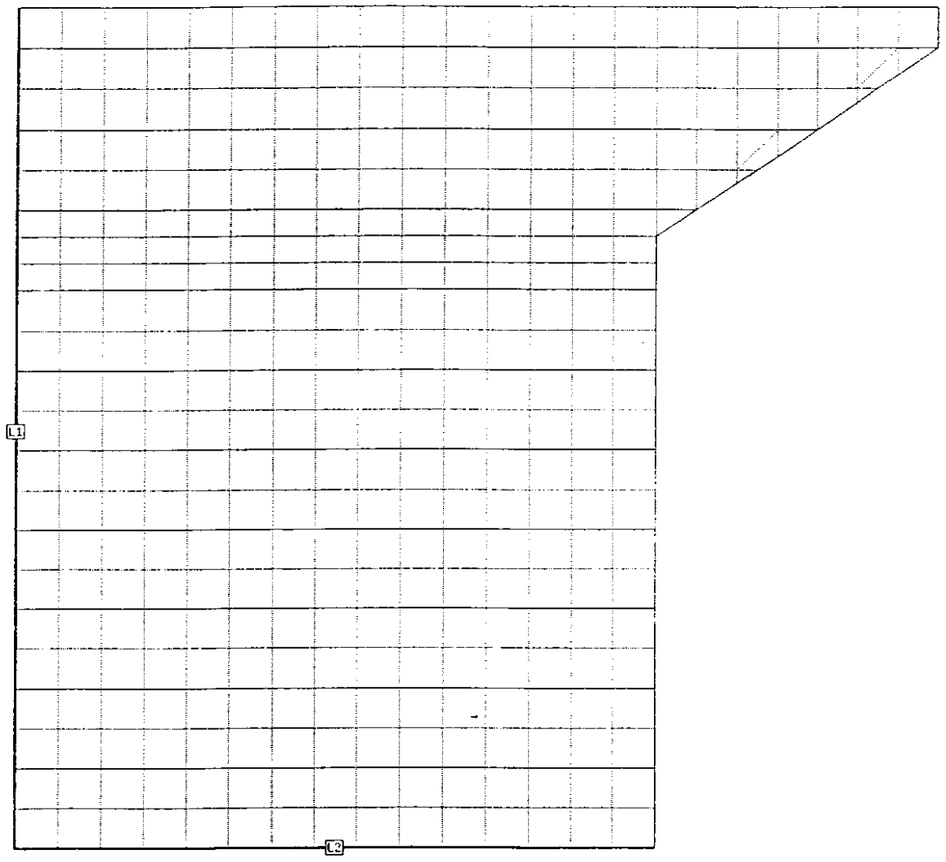
Nu:	L21 =	1	L22 =	24	L23 =	47	L24 =	70
	L25 =	93	L26 =	116	L27 =	139	L28 =	162
	L29 =	185	L210 =	208	L211 =	231	L212 =	254
	L213 =	277	L214 =	300	L215 =	323	L216 =	346

Escala 1 : 75.3
Geometrie (ID=A)
- Zonas de materiales
- Apoyo puntual o lineal
- Puntos aux.
- ID zona material y canto [m]
- Coord. de puntos auxiliares [m]



L.A.V. Madrid-Barcelona-Frontera Francesa
Viaducto 2. Estribo 2. Muro izquierdo

Escala 1 : 75.3
Malla (ID=A)



L.A.V. Madrid-Barcelona-Frontera Francesa
Viaducto 2. Estribo 2. Muro izquierdo

HIPOTESIS 1: "Empuje tierras"

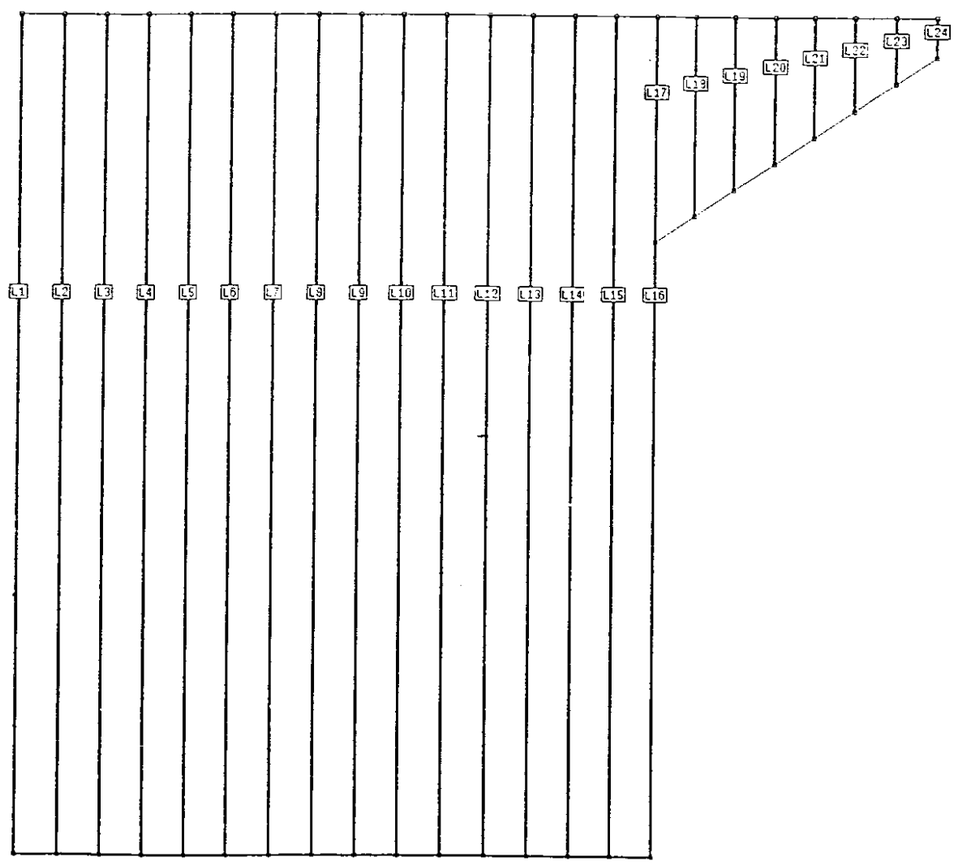
CARGA lineal:

ID	Sitio	carga [kN/m]	Mom [kNm/m]	X [m]	Y [m]	Lsuma [kN]
L1	Inicio	0.0	-	0.000	10.500	-100.33
	Fin	-19.11	-	0.000	0.000	
L2	Inicio	0.0	-	0.537	10.500	-200.65
	Fin	-38.22	-	0.537	0.000	
L3	Inicio	0.0	-	1.073	10.500	-200.65
	Fin	-38.22	-	1.073	0.000	
L4	Inicio	0.0	-	1.610	10.500	-200.65
	Fin	-38.22	-	1.610	0.000	
L5	Inicio	0.0	-	2.147	10.500	-200.65
	Fin	-38.22	-	2.147	0.000	
6	Inicio	0.0	-	2.683	10.500	-200.65
	Fin	-38.22	-	2.683	0.000	
L7	Inicio	0.0	-	3.220	10.500	-200.65
	Fin	-38.22	-	3.220	0.000	
L8	Inicio	0.0	-	3.757	10.500	-200.65
	Fin	-38.22	-	3.757	0.000	
L9	Inicio	0.0	-	4.293	10.500	-200.65
	Fin	-38.22	-	4.293	0.000	
L10	Inicio	0.0	-	4.830	10.500	-200.65
	Fin	-38.22	-	4.830	0.000	
L11	Inicio	0.0	-	5.367	10.500	-200.65
	Fin	-38.22	-	5.367	0.000	
L12	Inicio	0.0	-	5.903	10.500	-200.65
	Fin	-38.22	-	5.903	0.000	
L13	Inicio	0.0	-	6.440	10.500	-200.65
	Fin	-38.22	-	6.440	0.000	
L14	Inicio	0.0	-	6.977	10.500	-200.65
	Fin	-38.22	-	6.977	0.000	
L15	Inicio	0.0	-	7.513	10.500	-200.65
	Fin	-38.22	-	7.513	0.000	
16	Inicio	0.0	-	8.050	10.500	-100.33
	Fin	-19.11	-	8.050	0.000	
L17	Inicio	0.0	-	8.050	10.500	-7.26
	Fin	-5.13	-	8.050	7.670	
L18	Inicio	0.0	-	8.546	10.500	-11.25
	Fin	-9.00	-	8.546	8.000	
L19	Inicio	0.0	-	9.046	10.500	-8.53
	Fin	-7.87	-	9.046	8.333	
L20	Inicio	0.0	-	9.547	10.500	-6.10
	Fin	-6.65	-	9.547	8.667	
L21	Inicio	0.0	-	10.048	10.500	-4.08
	Fin	-5.44	-	10.048	9.000	
L22	Inicio	0.0	-	10.549	10.500	-2.47
	Fin	-4.24	-	10.549	9.333	
L23	Inicio	0.0	-	11.049	10.500	-1.26
	Fin	-3.02	-	11.049	9.667	
L24	Inicio	0.0	-	11.550	10.500	-0.22500
	Fin	-0.90000	-	11.550	10.000	

ID	Sitio	carga [kN/m]	Mom [kNm/m]	X [m]	Y [m]	Lsuma [kN]
					Suma	-3050.99

Suma carg [kN] Hipótesis 1: -3050.99

Escala 1 : 75.3
Hipótesis 001: "Empuje tierras" (Suma cargas= -3050.99 kN)
- Apoyo puntual o lineal
- Cargas linealse
  Valores p: distr.linealmente [kN/m]



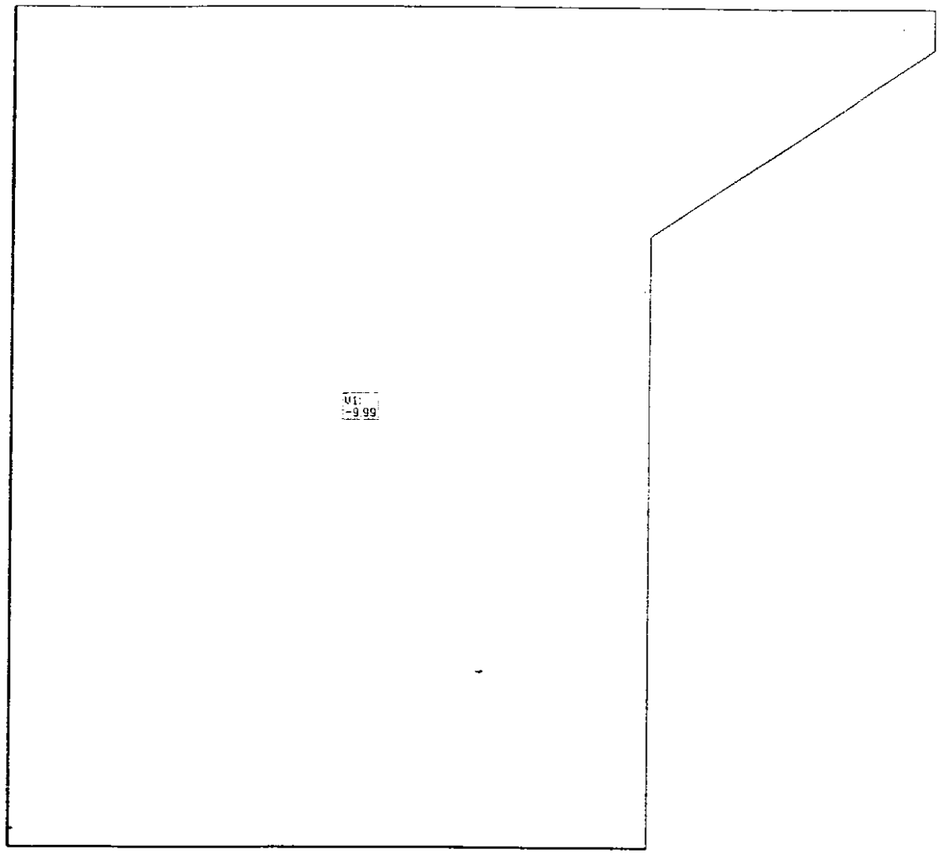
HIPOTESIS 2: "Sobrecarga"

CARGAS DISTRIB:

ID	Tipo	Dim.	Valor	Nº Ptos.	Lsuma [kN]
V1	dist.	kN/m2	-9.99	6	-902.62
				Suma	-902.62

Suma carg [kN] Hipótesis 2: -902.62

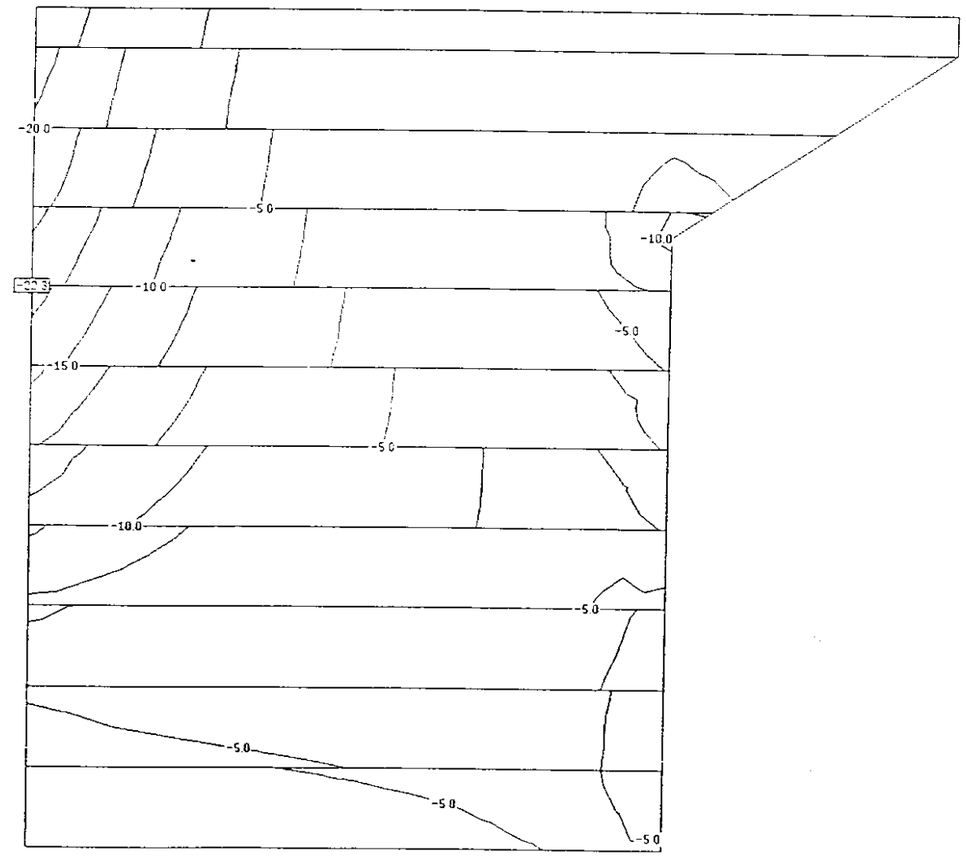
Escala 1 : 75.3
Hipótesis 002: "Sobrecarga" (Suma cargas= -902.62 kN)
- Valores cargas dist.: E=Peso propio [kN/m3]
  V=Carga distribuida [kN/m2], K=Curvatura [m-1]
- Apoyo puntual o lineal



ENVOLVENTES: (A01)

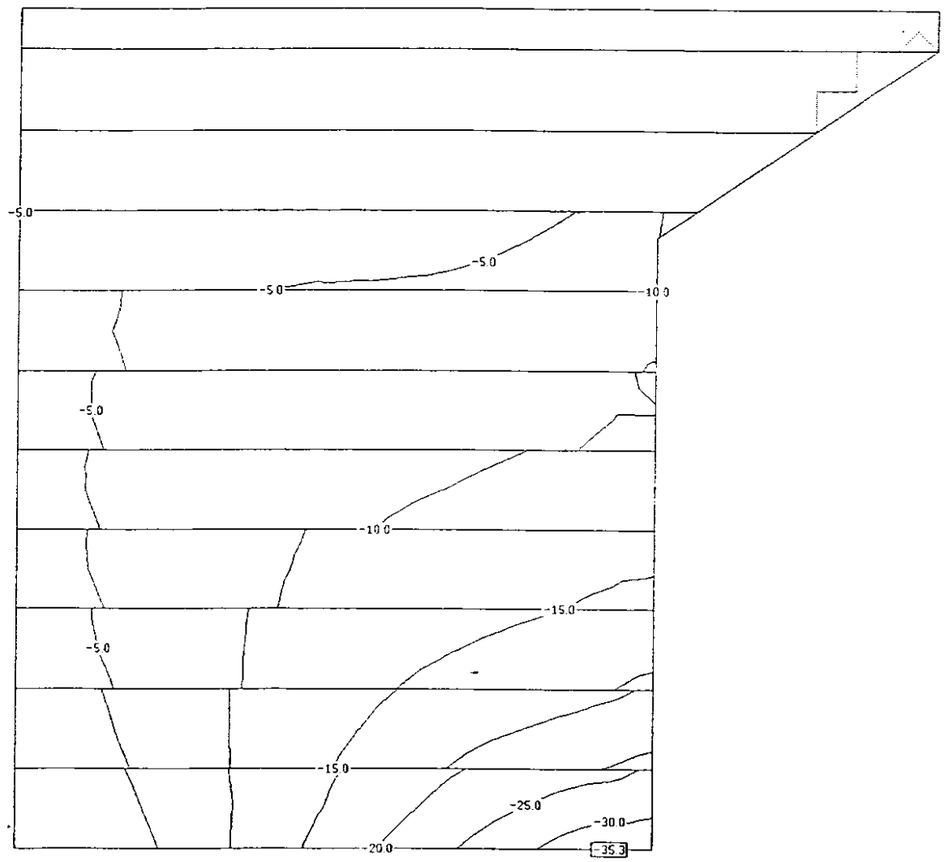
Espec.	Nº Hip.	Factor	Título
PERM	1	1.500	Empuje tierras
Y	2	1.500	Sobrecarga

Escala 1 : 75.3
Armaduras [cm2/m] (A01)
Carga: S1 1.5 U2 1.5
EH-Dimensionamento: Horm.=H250, Acero=AEH500
- Armaduras AsX- [cm2/m], Recub.= 5.00 cm, Dir-X= 0.00 Grados



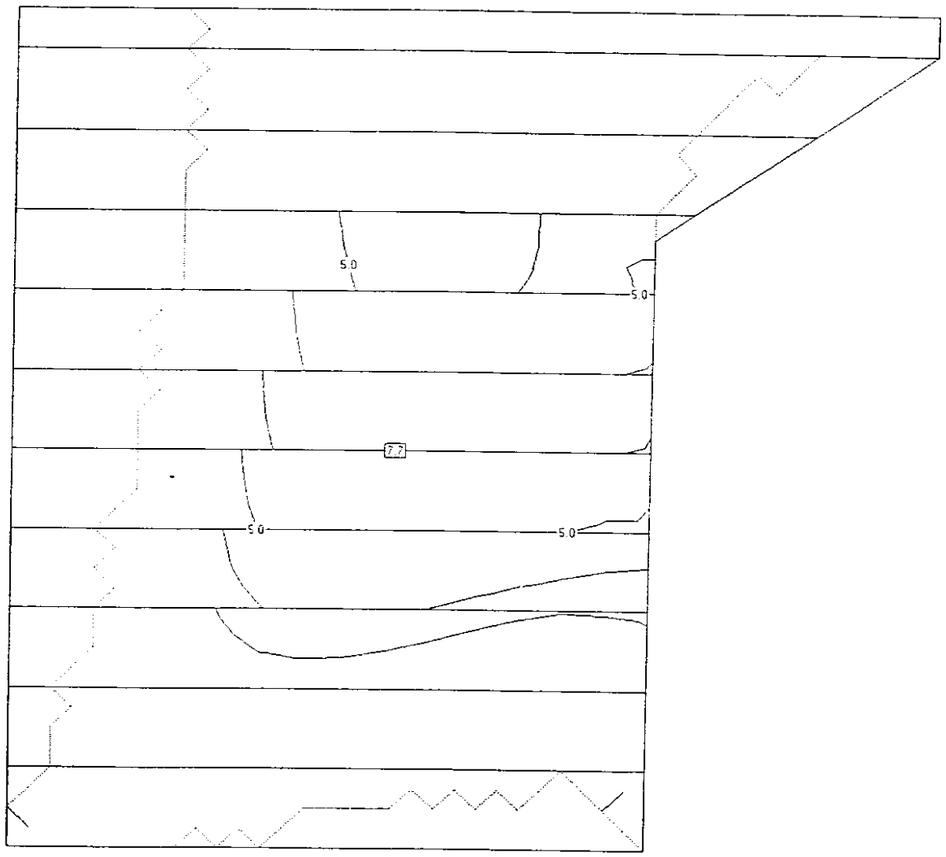
L.A.V. Madrid-Barcelona-Frontera Francesa
Viaducto 2. Estribo 2. Muro izquierdo

Escala 1 : 75.3
Armaduras [cm2/m] (A01)
Carga: S1 1.5 U2 1.5
EH-Dimensionamento: Horm.=H250, Acero=AEH500
- Armaduras AsY- [cm2/m], Recub.= 5.00 cm, Dir-X= 0.00 Grados



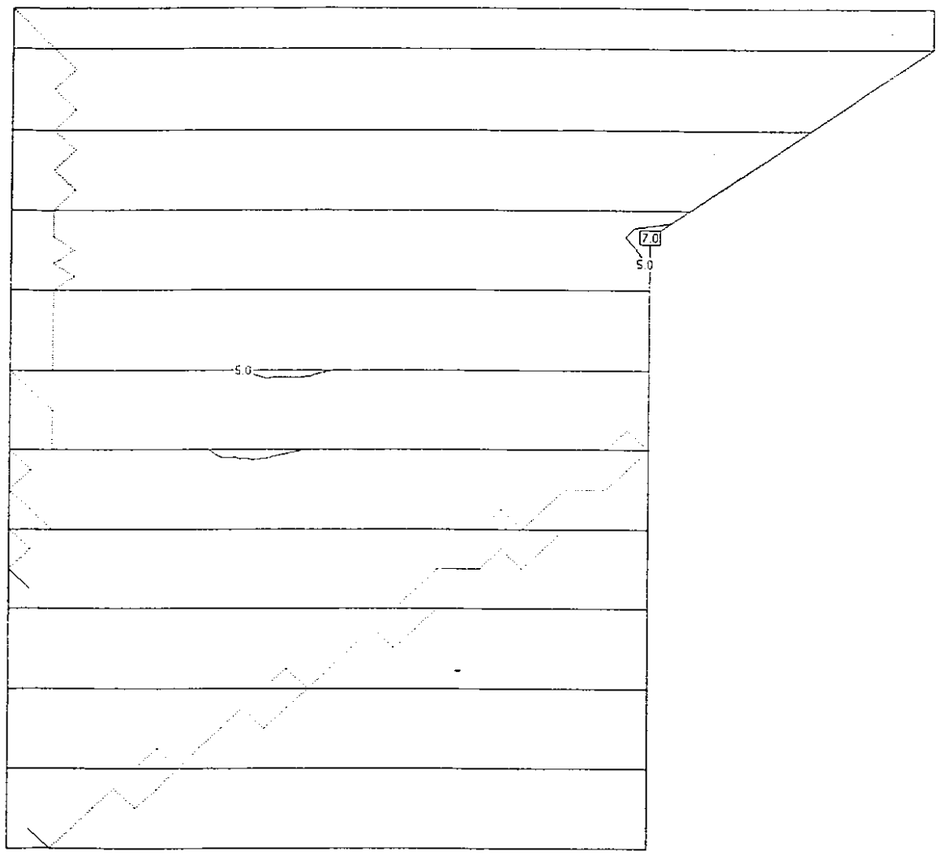
L.A.V. Madrid-Barcelona-Frontera Francesa
Viaducto 2. Estribo 2. Muro izquierdo

Escala 1 : 75.3
Armaduras [cm2/m] (A01)
Carga: S1 1.5 U2 1.5
EH-Dimensionamento: Horm.=H250, Acero=AEH500
- Armaduras AsX+ [cm2/m], Recub.= 5.00 cm, Dir-X= 0.00 Grados

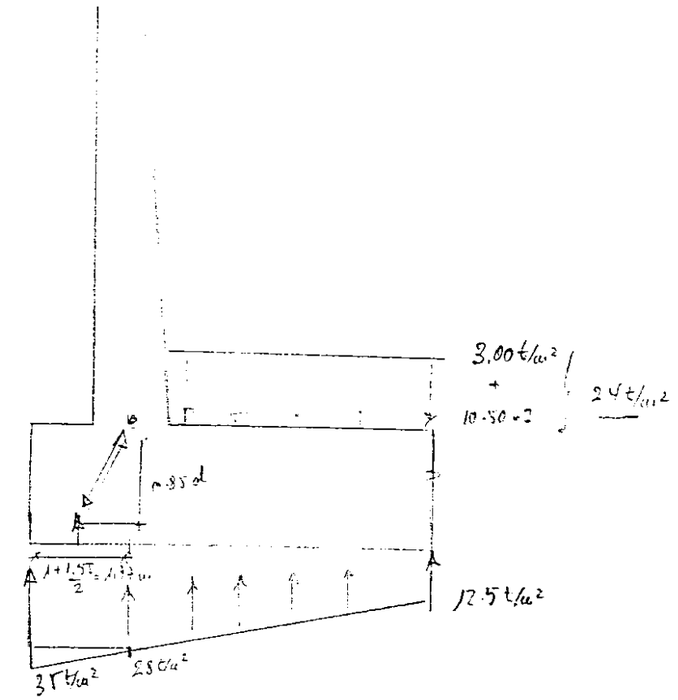


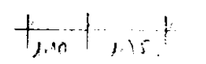
A.V. Madrid-Barcelona-Frontera Francesa
ducto 2. Estribo 2. Muro izquierdo

Escala 1 : 75.3
Armaduras [cm2/m] (A01)
Carga: S1 1.5 U2 1.5
EH-Dimensionamento: Horm.=H250, Acero=AEH500
- Armaduras AsY+ [cm2/m], Recub.= 5.00 cm, Dir-X= 0.00 Grados



ZAPATA MURO





Puntera

$Nd = 1.50 \times 35 \times 1.17 = 93\ t/m.$

$Td = \frac{93}{0.85 \times 1.50} \times \frac{1.17}{2} = 51.6 \rightarrow 11,5\ cm^2/m \quad \phi 20\ a\ 0.20$

Talón

$Md = 1.50 \times \left(24 \times \frac{5,45^2}{2} - 12.5 \times \frac{5,45^2}{2} - (28 - 12.5) \times \frac{5,45^2}{6} \right) = 144\ mt/m.$

$As^{+} = 18,6\ cm^2/m \Rightarrow \phi 20\ a\ 0.15$

Fecha ..... Referencia ..... Hoja Nº ..... De .....

4.3 Paso superior de carretera (PK 406+100)

4.3 PASO SUPERIOR DE CARRETERA (PK 406+100)

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    - 14.9 TABLERO. ESTADO LÍMITE ÚLTIMO. ANÁLISIS LONGITUDINAL
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    - 14.14 ESTUDIO DE LAS ALETAS DE LOS ESTRIBOS

1. DESCRIPCION

1. DESCRIPCION

La estructura objeto del presente anejo permite el cruce a distinto nivel de una carretera sobre la Línea de Alta Velocidad Madrid-Zaragoza, en el P.K. 406+100 de dicha línea de Alta Velocidad.

En la zona de cruce la vía superior discurre en una curva, de radio 600 m, dentro de un acuerdo convexo de parámetro K_v=3050, ligeramente en desmonte (apróximadamente 0.5 metros). La vía inferior discurre en una clotoide de parámetro 1826.20, en una rampa del 2,4%.

Ambas vías se cortan con un ángulo de 66.3938 g.

El ancho de la estructura es 13.20 metros, y permite albergar dos carriles de 3.50 metros, dos arcenes y dos aceras con barrera rígida de separación y barandilla con valla antivandálica en el vano central.

El encaje de la estructura se hace teniendo en cuenta las condiciones de gálibo impuestas:

- Gálibo horizontal de 17.00 metros.

- Gálibo vertical de 7.00 metros.

Además se tiene en cuenta las condiciones geotécnicas de la zona, que fuerzan unos taludes variables 3/2, y el esviaje de la estructura, lo que condiciona un encaje más largo que el estricto por gálibo, para evitar estribos excesivamente grandes.

Con estas premisas resulta una estructura de tres vanos, con luces 21.00+26.50+21.00, viniendo la luz central condicionada por la necesidad de respetar las cunetas al tiempo que los caminos de mantenimiento. Para este encaje se ha proyectado una estructura con tipología de losa pretensada. Para esta tipología se adopta un canto de 1.20 metros, lo que representa una relación canto/luz de 1/22, que resulta dentro del orden usual para estas estructuras.

La solución armada obligaría a una relación canto-luz de 1/17 - 1/18, esto es, un canto de 1.50 metros, lo cual unido a la mayor cuantía de acero pasivo que exigen estas estructuras la hace poco recomendable.

La sección transversal se aligera exteriormente con dos voladizos de un metro y medio, de los que la acera vuela otros 5 cm, e interiormente por medio de aligeramientos circulares de 0.75 metros de diámetro de poliestireno expandido.

Para las pilas se ha elegido una solución de un solo fuste circular, empotrado en el tablero. Esta solución permite minimizar las operaciones de mantenimiento, al eliminar la necesidad de cambio de aparatos de apoyo, a la vez que mejora las condiciones resistentes de las pilas, al reducir su longitud de pandeo.

El diámetro adoptado para el fuste es de un metro, lo cual permite uniformizar todas las estructuras del tramo, redundando en una mayor calidad formal de la obra en su conjunto, y en una mayor economía por la posibilidad de reutilización de los encofrados.

De acuerdo al informe geotécnico, la cimentación es directa, tanto en pilas como en estribos.

El gálibo mínimo medido en el eje de la vía inferior es de 10.34 metros, cumpliendo por tanto las condiciones requeridas.

2 PROCESO CONSTRUCTIVO

El proceso constructivo previsto para este paso es el de construcción sobre cimbra en una sola fase. La elección de este proceso constructivo viene justificada por:

- No existencia de condicionantes de tráfico, al no estar construida la vía inferior, y ser la vía inferior una variante del trazado actual, lo que permite cimbrar.

- Altura de tablero sobre el terreno moderada, lo que hace que el coste del cimbrado no sea excesivo.

Las fases en que se desarrollará la construcción del paso son:

- Excavación de la cimentación, una vez realizada la excavación de la plataforma.

- Ejecución de la cimentación y alzado de pilas y estribos, salvo el murete de estribos.

- Cimbrado de la estructura y colocación de encofrados de tablero.

- Replanteo y colocación de vainas.

- Ferrallado y hormigonado de tablero.

- Enfilado de cables y tesado de los mismos.

- Desencofrado y descimbrado.

- Ejecución de acabados, y construcción de los muretes traseros de los estribos.

3. NORMATIVA, CARGAS CONSIDERADAS Y COMBINACION DE HIPOTESIS

3. NORMATIVA, CARGAS CONSIDERADAS Y COMBINACION DE HIPOTESIS

3.1. Normativa

La normativa y documentos de referencia empleados en el proyecto de la presente estructura han sido:

- Instrucción para el proyecto y ejecución de las obras de hormigón armado y en masa, EH-91.

- Instrucción de acciones en puentes de carretera IAP-96.

- Instrucciones para la elaboración de proyectos, INECO.

3.2. Cargas consideradas

Las cargas consideradas en el cálculo son las siguientes:

- peso propio
- carga muerta
- sobrecarga repartida de 4.00 kN/m²
- vehículo pesado de 600 kN
- variación de temperatura axil de 18º C
- gradiente de temperatura de 14º C entre la cara superior (+caliente) y la cara inferior
- una deformación axil de 250 $\mu\varepsilon$ debida a la retracción
- frenado F_{fr}=160.00 kN
- viento transversal de 2 kN/m²
- viento longitudinal de 3 kN/m²
- Empuje de tierras sobre estribos
- descenso de apoyos de 2.00 cm

3.3. Combinación de hipótesis

A continuación se incluyen los listados de las diferentes combinaciones elegidas para la comprobación de cada elemento estructural tanto en servicio como en rotura. Los coeficientes adoptados corresponden a los indicados en la Instrucción de Acciones en Puentes de Carretera multiplicados por el correspondiente coeficiente de mayoración de acciones, que se ha tomado igual a 1.50 para todas las acciones, tanto permanentes como sobrecargas.

Programa LST1 - Preprocesador para el calculo de viaductos de hormigon
y mixtos con STATIK2 (V. 3.1)

Paso Superior de Camino P.K. 406+100

DATOS REFERENTES A LAS COMBINACIONES DE HIPOTESIS

NOTAS: - En el descenso de apoyos se considera una reduccion del 60% por relajación del hormigón Eeff = Ec/(1+chi*fi)
- Se consideran un 15% de pérdidas diferidas de pretensado
- Archivo de Configuración utilizado: LST1AP.CPA

1 ESTADO LIMITE DE SERVICIO A TIEMPO CERO

Envolvente ELS t=0

Alternativa	Hipotesis	G_fav	G_desf
1	peso propio	1.00	1.00
	pretensado	0.90	1.10
	carga muerta	1.00	1.50
	sc repartida	0.00	0.50
	carro	0.00	0.50
	gradiente temperatura	0.00	0.20
	descenso de apoyos	0.00	1.00
2	peso propio	1.00	1.00
	pretensado	0.90	1.10
	carga muerta	1.00	1.50
	sc repartida	0.00	0.20
	carro	0.00	0.20
	gradiente temperatura	0.00	0.50
	descenso de apoyos	0.00	1.00

Programa LST1 - Preprocesador para el calculo de viaductos de hormigon
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Paso Superior de Camino P.K. 406+100

2 ESTADO LIMITE DE SERVICIO A INFINITO

Envolvente cargas permanentes o cuasipermanentes

Alternativa	Hipotesis	G_fav	G_desf
1	peso propio	1.00	1.00
	pretensado	0.77	0.94
	carga muerta	1.00	1.50
	sc repartida	0.00	0.20
	carro	0.00	0.20
	gradiente temperatura	0.00	0.20
	descenso de apoyos	0.00	0.40

Envolvente ELS a tiempo infinito

Alternativa	Hipotesis	G_fav	G_desf
1	peso propio	1.00	1.00
	pretensado	0.77	0.94
	carga muerta	1.00	1.50
	sc repartida	0.00	0.50
	carro	0.00	0.50
	gradiente temperatura	0.00	0.20
	descenso de apoyos	0.00	0.40
2	peso propio	1.00	1.00
	pretensado	0.77	0.94
	carga muerta	1.00	1.50
	sc repartida	0.00	0.20
	carro	0.00	0.20
	gradiente temperatura	0.00	0.50
	descenso de apoyos	0.00	0.40

Programa LST1 - Preprocesador para el calculo de viaductos de hormigon
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Paso Superior de Camino. P.K. 406+100

3 ESTADO LIMITE ULTIMO TABLERO

Envolvente ELU tablero

Alternativa	Hipótesis	G_fav	G_dest
1	peso propio	1.00	1.35
	pretensado	0.85	0.85
	carga muerta	1.00	2.00
	sc repartida	0.00	1.50
	carro	0.00	1.50
	gradiente temperatura	0.00	0.90
	descenso de apoyos	0.00	0.60
2	peso propio	1.00	1.35
	pretensado	0.85	0.85
	carga muerta	1.00	2.00
	sc repartida	0.00	0.90
	carro	0.00	0.90
	gradiente temperatura	0.00	1.50
	descenso de apoyos	0.00	0.60

Programa LST1 - Preprocesador para el calculo de viaductos de hormigon
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4 ENVOLVENTE PARA NEOPRENOS

Envolvente neoprenos

Alternativa	Hipótesis	G_fav	G_dest
1	peso propio	1.00	1.00
	pretensado	0.77	0.94
	carga muerta	1.00	1.50
	sc repartida	0.00	1.00
	carro	0.00	1.00
	temp. uniforme	0.00	0.60
	gradiente temperatura	0.00	0.60
	reologicas	0.00	0.40
	frenado	0.00	1.00
	viento longitudinal	0.00	0.30
	viento transversal	0.00	0.30
	descenso de apoyos	0.00	0.40
2	peso propio	1.00	1.00
	pretensado	0.77	0.94
	carga muerta	1.00	1.50
	sc repartida	0.00	0.60
	carro	0.00	0.60
	temp. uniforme	0.00	1.00
	gradiente temperatura	0.00	1.00
	reologicas	0.00	0.40
	frenado	0.00	0.60
	viento longitudinal	0.00	0.30
	viento transversal	0.00	0.30
	descenso de apoyos	0.00	0.40
3	peso propio	1.00	1.00
	pretensado	0.77	0.94
	carga muerta	1.00	1.50
	temp. uniforme	0.00	0.60
	gradiente temperatura	0.00	0.60
	reologicas	0.00	0.40
	viento longitudinal	0.00	1.00
	viento transversal	0.00	1.00
	descenso de apoyos	0.00	0.40

5 ENVOLVENTE PARA CIMENTACION

Envolvente cimentación

Alternativa	Hipotesis	G_fav	G_desf
1	peso propio	1.00	1.00
	pretensado	0.77	0.94
	carga muerta	1.00	1.50
	sc repartida	0.00	1.00
	carro	0.00	1.00
	temp. uniforme	0.00	0.60
	gradiente temperatura	0.00	0.60
	reológicas	0.00	0.40
	frenado	0.00	1.00
	viento longitudinal	0.00	0.30
	viento transversal	0.00	0.30
	descenso de apoyos	0.00	0.40
2	peso propio	1.00	1.00
	pretensado	0.77	0.94
	carga muerta	1.00	1.50
	sc repartida	0.00	0.60
	carro	0.00	0.60
	temp. uniforme	0.00	1.00
	gradiente temperatura	0.00	1.00
	reológicas	0.00	0.40
	frenado	0.00	0.60
	viento longitudinal	0.00	0.30
	viento transversal	0.00	0.30
	descenso de apoyos	0.00	0.40
3	peso propio	1.00	1.00
	pretensado	0.77	0.94
	carga muerta	1.00	1.50
	temp. uniforme	0.00	0.60
	gradiente temperatura	0.00	0.60
	reológicas	0.00	0.40
	viento longitudinal	0.00	1.00
	viento transversal	0.00	1.00
	descenso de apoyos	0.00	0.40

Programa LST1 - Preprocesador para el calculo de viaductos de hormigon
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6 ENVOLVENTE ESTADO LIMITE ULTIMO PILAS

Envolvente ELU pilas

Alternativa	Hipotesis	G_fav	G_desf
1	peso propio	1.00	1.35
	pretensado	0.85	0.85
	carga muerta	1.00	2.03
	sc repartida	0.00	1.50
	carro	0.00	1.50
	temp. uniforme	0.00	0.90
	gradiente temperatura	0.00	0.90
	reológicas	0.00	0.60
	frenado	0.00	1.50
	viento longitudinal	0.00	0.45
	viento transversal	0.00	0.45
	descenso de apoyos	0.00	0.60
2	peso propio	1.00	1.35
	pretensado	0.85	0.85
	carga muerta	1.00	2.03
	sc repartida	0.00	0.90
	carro	0.00	0.90
	temp. uniforme	0.00	1.50
	gradiente temperatura	0.00	1.50
	reológicas	0.00	0.60
	frenado	0.00	0.90
	viento longitudinal	0.00	0.45
	viento transversal	0.00	0.45
	descenso de apoyos	0.00	0.60
3	peso propio	1.00	1.35
	pretensado	0.85	0.85
	carga muerta	1.00	2.03
	temp. uniforme	0.00	0.90
	gradiente temperatura	0.00	0.90
	reológicas	0.00	0.60
	viento longitudinal	0.00	1.50
	viento transversal	0.00	1.50
	descenso de apoyos	0.00	0.60

3.4. Justificación de las cargas adoptadas.

- Para el peso propio se ha adoptado, en todos los elementos, un peso específico del hormigón de 2.5 T/m^3. Con la sección transversal planteada, esto supone 8.925 T/m. En las pilas el peso propio supone 1.96 T/m
- Para la carga muerta se ha adoptado una carga de pavimento equivalente a 7 cm de pavimento (156 kg/m^2), teniendo este valor el carácter de valor característico inferior. Se ha tomado en el cálculo como valor característico superior (artículo 3.2.1.2 de la IAP-96) un aumento de un 50 % sobre este valor, esto es, 240 kp/m^2. Esto supone, en carga lineal, 1.248 T/m como valor característico inferior y 1.92 T/m como valor característico superior.
- Igualmente, se ha considerado una carga de 1.25 T/m, colocada a +6.60 metros y a –6.60 metros del eje de la estructura, que engloba a la barrera rígida, la barandilla y la acera con imposta.
- La acción de frenado se toma igual a 264 kN, esto es, 20*b, según el artículo 3.2.3.1.1,apartado b1 de la instrucción IAP, por ser el veinteavo de la sobrecarga total inferior al mínimo.
- Para el valor de la acción eólica se han tomado, por ser la luz principal de la estructura inferior a 40 metros, el criterio simplificado expuesto en el Art. 3.2.3.2.1, apartado h de la IAP-96, en el supuesto de pilas de altura inferior a 10 metros, en los que se tiene una presión de 2.25 kN/m^2 sobre el tablero y 2.76 kN/m^2 sobre pilas. Se ha considerado además la acción del viento sobre los petos de protección.
- La acción térmica sobre el puente, compuesta de incremento uniforme y gradiente térmico, se obtiene de la siguiente manera:

Incremento uniforme:

$\Delta T = K \cdot z^a \cdot h^b \cdot s^c$

K. – Función de la zona y la tipología. 23.89

z. – Número árabe que designa la zona climática. 4.00

h. - Canto del tablero. 0.95

s. - 1.00

a. - Función de la zona y la tipología. 0.292

b. - Función de la zona y la tipología. - 0.139

c. - Función de la zona y la tipología. 1.00

$\Delta T = K \cdot z^a \cdot h^b \cdot s^c = 23.89 \cdot 4.00^{0.292} \cdot 0.95^{-0.139} = 36.06^o C$

En el cálculo se supone la mitad de este incremento como semioscilación térmica máxima.

Gradiente máximo.

$\Delta T_{Sl} = (K_1 \cdot K_3 \cdot K_4) \cdot \Delta T_{Sl,rf}$

K_1.Factor de corrección por canto del tablero. 0.85

K_3. Factor de corrección por aligeramientos. 1.075

K_4. Factor de corrección por pavimento. 1.15

$\Delta T_{Sl,ref} = 11.5^o C$

$\Delta T_{Sl} = (K_1 \cdot K_3 \cdot K_4) \cdot \Delta T_{Sl,rf} = 12.7^o C$

- La deformación reológica por retracción se justifica de la siguiente manera:

$\varepsilon_r = \beta_t \cdot \varepsilon_{01} \cdot \varepsilon_{02}$

ε_{01}. – Depende de la humedad ambiente. Para ambiente normal ($H_r = 70\%$), $32 \cdot 10^{-5}$

ε_{02}. – Depende del espesor ficticio e :

$A = 3.57 m^2$

$u = 8.86 m$

$e = 1210 mm$

Si se considera expuesta a la evaporación la cara superior del tablero, u =16.86 m

$\varepsilon_{02} = 0.75 \quad \varepsilon_{02} = 0.78$(En la hipótesis antes mencionada).

β_t. - Para evaluación a tiempo infinito, 1.00.

$\varepsilon_r = 32 \cdot 10^{-5} \cdot 0.75 = 240 \cdot 10^{-6} \mu\varepsilon$

Suponiendo evaporación a través del pavimento.

$\varepsilon_r = 32 \cdot 10^{-5} \cdot 0.78 = 250 \cdot 10^{-6} \mu\varepsilon$

Para la deformación por fluencia se han tomado como criterio simplificado 450 με.

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DATOS REFERENTES A LAS COMBINACIONES DE HIPOTESIS

NOTAS: - En el descenso de apoyos se considera una reducción del 60% por relajación del hormigón Eeff = Ec/(1+chi*fi)
- Se consideran un 15% de pérdidas diferidas de pretensado

1. ESTADO LIMITE DE SERVICIO A TIEMPO CERO

Envolvente ELS t=0

Alternativa	Hipótesis	G_fav	G_desf
1	peso propio	1.00	1.00
	pretensado	0.90	1.10
	carga muerta	1.00	1.00
	sc repartida	0.00	0.50
	carro	0.00	0.50
	gradiente temperatura	0.00	0.20
2	peso propio	1.00	1.00
	pretensado	0.90	1.10
	carga muerta	1.00	1.00
	sc repartida	0.00	0.20
	carro	0.00	0.20
	gradiente temperatura	0.00	0.50

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2. ESTADO LIMITE DE SERVICIO A INFINITO

Envolvente cargas permanentes

Alternativa	Hipótesis	G_fav	G_desf
1	peso propio	1.00	1.00
	pretensado	0.77	0.94
	carga muerta	1.00	1.00
	descenso de apoyos	0.00	0.20

Envolvente ELS a tiempo infinito

Alternativa	Hipótesis	G_fav	G_desf
1	peso propio	1.00	1.00
	pretensado	0.77	0.94
	carga muerta	1.00	1.00
	sc repartida	0.00	0.50
	carro	0.00	0.50
	gradiente temperatura	0.00	0.20
	descenso de apoyos	0.00	0.20
2	peso propio	1.00	1.00
	pretensado	0.77	0.94
	carga muerta	1.00	1.00
	sc repartida	0.00	0.20
	carro	0.00	0.20
	gradiente temperatura	0.00	0.50
	descenso de apoyos	0.00	0.20
3	peso propio	1.00	1.00
	pretensado	0.77	0.94
	carga muerta	1.00	1.00
	sc repartida	0.00	0.20
	carro	0.00	0.20
	gradiente temperatura	0.00	0.20
	descenso de apoyos	0.00	0.50

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.0)

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3. ESTADO LIMITE ULTIMO TABLERO

Envolvente ELU tablero

Alternativa	Hipótesis	G_fav	G_desf
1	peso propio	1.00	1.50
	pretensado	0.85	0.85
	carga muerta	1.00	1.50
	sc repartida	0.00	1.50
	carro	0.00	1.50
	gradiente temperatura	0.00	0.90
	descenso de apoyos	0.00	0.90

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
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4. ENVOLVENTE PARA NEOPRENOS

Envolvente neoprenos

Alternativa	Hipótesis	G_fav	G_desf
1	peso propio	1.00	1.00
	pretensado	0.77	0.94
	carga muerta	1.00	1.00
	sc repartida	0.00	0.60
	carro	0.00	0.60
	temp. uniforme	0.00	0.60
	gradiente temperatura	0.00	0.60
	reológicas	0.00	0.90
	frenado	0.00	0.60
	descenso de apoyos	0.00	0.60
2	peso propio	1.00	1.00
	pretensado	0.77	0.94
	carga muerta	1.00	1.00
	temp. uniforme	0.00	0.60
	gradiente temperatura	0.00	0.60
	reológicas	0.00	0.90
	viento longitudinal	0.00	0.60
	viento transversal	0.00	0.60
	descenso de apoyos	0.00	0.60
3	peso propio	1.00	1.00
	pretensado	0.77	0.94
	carga muerta	1.00	1.00
	sc repartida	0.00	0.60
	carro	0.00	0.60
	temp. uniforme	0.00	0.60
	gradiente temperatura	0.00	0.60
	reológicas	0.00	1.00
	frenado	0.00	0.60
	viento longitudinal	0.00	0.60
	viento transversal	0.00	0.60
	descenso de apoyos	0.00	0.20

5. ENVOLVENTE PARA CIMENTACION

Envolvente cimentación

Alternativa	Hipótesis	G_fav	G_desf
1	peso propio	1.00	1.00
	pretensado	0.77	0.94
	carga muerta	1.00	1.00
	sc repartida	0.00	0.20
	carro	0.00	0.20
	temp. uniforme	0.00	0.20
	gradiente temperatura	0.00	0.20
	reológicas	0.00	1.00
	frenado	0.00	0.20
	descenso de apoyos	0.00	0.20
2	peso propio	1.00	1.00
	pretensado	0.77	0.94
	carga muerta	1.00	1.00
	temp. uniforme	0.00	0.20
	gradiente temperatura	0.00	0.20
	reológicas	0.00	1.00
	viento longitudinal	0.00	0.20
	viento transversal	0.00	0.20
	descenso de apoyos	0.00	0.20
3	peso propio	1.00	1.00
	pretensado	0.77	0.94
	carga muerta	1.00	1.00
	sc repartida	0.00	0.60
	carro	0.00	0.60
	temp. uniforme	0.00	0.60
	gradiente temperatura	0.00	0.60
	reológicas	0.00	1.00
	frenado	0.00	0.60
	viento longitudinal	0.00	0.60
	viento transversal	0.00	0.60
	descenso de apoyos	0.00	0.20
4	peso propio	1.00	1.00
	pretensado	0.85	0.85
	carga muerta	1.00	1.00
	reológicas	0.00	1.00
	descenso de apoyos	0.00	0.20
	sismo	0.00	1.00

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6. ENVOLVENTE ESTADO LIMITE ULTIMO PILAS

Envolvente ELU pilas

Alternativa	Hipótesis	G_fav	G_desf
1	peso propio	1.00	1.50
	pretensado	0.85	0.85
	carga muerta	1.00	1.50
	sc repartida	0.00	1.50
	carro	0.00	1.50
	temp. uniforme	0.00	1.50
	gradiente temperatura	0.00	1.50
	reológicas	0.00	1.50
	frenado	0.00	1.50
	descenso de apoyos	0.00	0.60
2	peso propio	1.00	1.50
	pretensado	0.85	0.85
	carga muerta	1.00	1.50
	temp. uniforme	0.00	1.50
	gradiente temperatura	0.00	1.50
	reológicas	0.00	1.50
	viento longitudinal	0.00	1.50
	viento transversal	0.00	1.50
	descenso de apoyos	0.00	0.60
3	peso propio	1.00	1.50
	pretensado	0.85	0.85
	carga muerta	1.00	1.50
	sc repartida	0.00	1.50
	carro	0.00	1.50
	temp. uniforme	0.00	0.90
	gradiente temperatura	0.00	0.90
	reológicas	0.00	1.50
	frenado	0.00	0.90
	viento longitudinal	0.00	0.45
	viento transversal	0.00	0.45
	descenso de apoyos	0.00	0.90
4	peso propio	1.00	1.50
	pretensado	0.85	0.85
	carga muerta	1.00	1.50
	sc repartida	0.00	0.90
	carro	0.00	0.90
	temp. uniforme	0.00	1.50
	gradiente temperatura	0.00	1.50
	reológicas	0.00	1.50
	frenado	0.00	0.90
	viento longitudinal	0.00	0.45
	viento transversal	0.00	0.90
	descenso de apoyos	0.00	1.00
5	peso propio	1.00	1.00
	pretensado	0.85	0.85
	carga muerta	1.00	1.00
	sc repartida	0.00	0.30
	carro	0.00	0.30
	temp. uniforme	0.00	0.30
	gradiente temperatura	0.00	0.30
	reológicas	0.00	1.50
	frenado	0.00	1.50
	viento longitudinal	0.00	0.90
	viento transversal	0.00	0.90
	descenso de apoyos	0.00	1.00
	sismo	0.00	1.00

4 MATERIALES

4.1 Tablero

Los materiales empleados en el tablero de la estructura, de acuerdo a las recomendaciones de INECO, son:

- Hormigón: H-400

- Control: Intenso, conforme a lo dispuesto en el artículo 69.3.3 de la Instrucción para el Proyecto y la Ejecución de Obras de Hormigón en Masa y Armado, 65.3.2 de la Instrucción para el Proyecto y Ejecución de Obras de Hormigón Pretensado, EP-93.

- Coeficiente de minoración de resistencia del hormigón: 1.50

- Acero: AEH-500 N

- Coeficiente de minoración de resistencia del acero: 1.15

- Control: Normal.

- Acero activo: $f_{pyk} \geq 17.000$ kg/cm^2

4.2 Alzados de Pilas

Los materiales empleados en las pilas de la estructura son:

- Hormigón: H-300

- Coeficiente de minoración de resistencia del hormigón: 1.50

- Control del hormigón: Intenso, conforme a lo indicado en la Instrucción para el proyecto y ejecución de obras de hormigón en masa y armado, EH-91, artículo 69.3.3

- Acero: AEH-500 N

- Coeficiente de minoración de resistencia del acero: 1.15

- Control del acero: Normal, conforme a lo indicado en la Instrucción para el proyecto, ejecución y control de obras de hormigón en masa y armado, artículo 31.

4.3 Cimentaciones y Estribos

Los materiales empleados en las cimentaciones de la estructura, así como en los alzados de estribos son:

- Hormigón: H-250

- Control: Normal, conforme a los artículos 31 y 69.3.2 de la Instrucción EH-91.

- Coeficiente de minoración de resistencia del hormigón: 1.50

- Acero: AEH-500 N

- Coeficiente de minoración de resistencia del acero: 1.15

- Control: Normal.

5. REPLANTEO

5 REPLANTEO

Para el replanteo de la estructura de ha partido de los datos de trazado.

Con estos datos y el encaje proyectado, así como con la geometría de la sección, se ha procedido al cálculo del replanteo de la estructura, usando el programa LST0.

Este programa genera varios ejes auxiliares, paralelos a los ejes de trazado, de las vías superior e inferior, así como a los bordes de la estructura, tanto en planta como en alzado. Esto permite determinar, en coordenadas, todos los puntos necesarios para la definición de la estructura. Los listados de replanteo obtenidos se incluyen en el apartado de resultados.

Éstos incluyen:

- Datos de trazado. Se incluye un listado de puntos singulares del trazado de la vía inferior y de la vía superior. Igualmente se calcula el punto de intersección de los ejes superior e inferior.

- Replanteo de la estructura. Bajo este epígrafe, se incluye:

  * Definición en planta del eje del tablero (10 secciones por vano), incluyendo las coordenadas (x,y) del eje, la cota de la estructura en estos puntos, el acimut y la orientación de las secciones (este dato permite definir la posición de los bordes en el caso de estructuras esviadas).

  * Cota de los bordes del tablero (10 secciones por vano).

  * Cotas de la cara superior de los neoprenos y de la sección superior de las pilas.

  * Cotas y posición en planta del murete de guarda y del extremo de las aletas de los estribos.

  * Coordenadas de los puntos de intersección del eje de la estructura y de los ejes de apoyo. Para situar los apoyos, el criterio seguido es centrar pilas y estribos respecto del centro de la cara inferior de la sección. Ello supone que, en estructuras con, peralte, el centro de pilas y estribos, no coincide con el punto central del tablero de la sección correspondiente.

Programa LST0 - Replanteo de viaductos hormigón pretensado y mixtos (V 3.1)

Paso Superior de Camino. P.K. 406+100

REPLANTEO EJE DE PILAS Y ESTRIBOS

Apoyo	Pk. [m]	sobreespesor [m]	x [m]	y [m]	Ac [grad]
E-1	68.816	0.000	480868.676	4484028.094	-1.9244
P-1	89.816	-0.001	480889.675	4484028.361	0.3037
P-2	116.316	0.000	480916.167	4484027.649	3.1155
E-2	137.316	-0.000	480937.121	4484026.255	5.3436

6. MODELO

6 MODELO

Para el cálculo de la estructura se ha empleado un modelo de elementos finitos tipo barra, para ser procesados por el programa STATIK-2, de CUBUS AG. Los pasos seguidos en la modelización han sido.

El modelo se ha construído partiendo de los datos generados en el replanteo, y definiendo las barras del tablero a lo largo del centro de gravedad del mismo. El modelo reproduce, tanto en planta como en alzado, la totalidad de la estructura, y consta de:

•Diez barras por vano, cada una con las características medias de las secciones que engloba.
•Una barra por pila, estableciendo en cabeza la vinculación que en cada caso sea oportuna. En este caso, empotramiento.
•Los estribos se modelizan una barra de gran rigidez, estableciendo en cabeza la coacción que imponen los neoprenos.

Este modelo se genera con el programa LST1, que enlaza con el programa de replanteo.

Posteriormente se aplican las cargas sobre la estructura, con el mismo programa. Estas cargas se obtienen a partir de las indicadas en el apartado correspondiente. La aplicación de las cargas se realiza de la siguiente manera:
•Las cargas puntuales se modelizan como una fuerza y el momento de esa fuerza respecto al eje de la losa.
•Las cargas lineales se modelizan como fuerzas por unidad de longitud y un momento distribuido linealmente, de forma que el sistema sea equivalente al inicial.
•Las cargas superficiales se modelizan como fuerzas por unidad de longitud y un momento distribuido linealmente, con el mismo criterio que en el punto anterior.

- Generación de envolventes de resultados (esfuerzos y reacciones), usando el programa STATIK-2, desarrollado por CUBUS AG.

Se han considerado cuatro modelos de cálculo diferentes:

- Modelo para cálculo a tiempo cero, en el que se podría considerar el proceso constructivo, si este tuviera varias fases, y en cualquier caso, permite el estudio de la estructura en vacío.

- Modelo para cálculo a tiempo infinito.

- Modelo para cálculo de pilas y comprobación de aparatos de apoyo y cimentación.

- Modelo para prueba de carga.

El cálculo realizado con estos modelos es elástico y lineal, tomando como módulo de elasticidad del hormigón el establecido en la Instrucción EH-91, que para el caso concreto del hormigón H-400 utilizado en el tablero vale 380000 kp/cm^2, y en las pilas 329000 kp/cm^2.

7. PRETENSADO

7 PRETENSADO

Debido a la luz central de la estructura, se ha optado por pretensar esta, de forma que su respuesta conjunta ante la combinación de cargas externas y la presolicitación sea mejor que la respuesta que tendría sin esta presolicitación, teniendo en cuenta también que esta solución no puede gravar económicamente el coste total de la estructura.

Debido a que la longitud total del tablero es moderada (21.00+26.50+21.00=68.50), se define una única familia de pretensado, que recorre el tablero sin acoplamientos, facilitando las operaciones de replanteo de vainas, enfilado y tesado.

Esta familia consta de cinco tendones de 37t0.6'', cuyo trazado en planta es recto, discurriendo entre los aligeramientos, y entre estos y las caras laterales exteriores de la losa, los recubrimientos adecuados. El trazado en alzado está compuesto por rectas y parábolas, buscando el máximo efecto isostático.

La fuerza considerada en anclajes es del 75% de la carga de rotura de los tendones.

En el apartado correspondiente a Listados se incluye la definición del pretensado, tanto en planta como en alzado.

8. LISTADO DE HIPOTESIS INDIVIDUALES

8 LISTADO DE HIPOTESIS INDIVIDUALES

A fin de poder comprobar los resultados obtenidos en las envolventes, se facilitan los esfuerzos y reacciones que las hipótesis individuales de carga producen en la estructura. De las sobrecargas, al ser concomitantes en la forma que se define en la Instrucción de Acciones en Puentes de Carretera IAP-96, se da el resultado de la envolvente de sobrecargas, considerando ya la actuación de la sobrecarga repartida sobre todo o parte del tablero.

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Peso propio fase n° 1 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.95	-0.02	535.47	0.12	3.63	-0.00
P-2	-0.95	0.03	535.48	-0.07	-3.63	0.00
E-1	0.07	-0.01	167.19	6.05	0.25	0.00
E-2	-0.07	-0.01	167.20	6.06	-0.58	0.00
SUMA	0.00	-0.00	1405.34	12.15	-0.33	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-9.21	-0.01	166.94	-6.03	0.02	0.33
10.50	-0.07	-0.01	-51.70	2.39	517.40	-0.13
21.00	-2.75	-0.01	-255.67	1.55	-1075.31	-0.24
21.00	-3.16	-0.02	257.39	-2.68	-1082.51	-0.23
34.25	-1.02	0.00	-0.00	1.36	589.16	-0.39
47.50	-3.16	0.02	-257.39	3.17	-1082.55	-0.20
47.50	-2.75	0.01	255.68	-1.67	-1075.35	-0.21
58.00	-0.07	0.01	51.70	-0.68	517.47	-0.12
68.50	-9.21	0.01	-166.94	6.07	0.02	0.33

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-513.09	0.01	-0.95	0.00	7.21	-0.02
	inf	-535.47	0.01	-0.95	0.00	-3.63	0.10
2	sup	-513.10	0.01	0.95	-0.00	-7.21	-0.05
	inf	-535.48	0.01	0.95	-0.00	3.63	0.11

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Pretensado fase n° 1 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	3.39	0.27	-34.52	0.17	9.41	-0.00
P-2	-3.43	0.45	-32.42	-0.32	-9.39	0.00
E-1	-2.35	-0.29	33.86	24.27	-1.63	0.00
E-2	2.40	-0.42	33.07	24.14	0.40	0.00
SUMA	0.00	0.00	-0.00	48.26	-1.20	-0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-3375.38	-0.23	-285.90	-23.95	-16.79	1.31
10.50	-3476.38	-0.27	-4.38	-20.22	-1238.57	-2.55
21.00	-3300.32	-0.31	68.47	-12.81	1379.17	-5.71
21.00	-3304.12	-0.02	-28.05	-13.54	1350.07	-5.43
34.25	-3100.30	0.00	-0.67	1.60	-782.31	-5.67
47.50	-3303.37	0.02	26.80	13.29	1332.58	-5.39
47.50	-3299.50	0.30	-67.60	12.93	1362.43	-5.64
58.00	-3475.75	0.25	5.15	21.32	-1246.68	-2.52
68.50	-3373.94	0.24	286.54	23.77	-16.80	1.33

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	34.52	-0.28	-3.39	0.00	29.18	3.36
	inf	34.52	-0.28	-3.39	0.00	-9.41	0.13
2	sup	32.42	-0.28	3.45	-0.00	-29.94	3.33
	inf	32.42	-0.28	3.45	-0.00	9.39	0.14

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Peso propio estructura final

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.95	-0.02	535.47	0.12	3.63	-0.00
P-2	-0.95	0.03	535.48	-0.07	-3.63	0.00
E-1	0.07	-0.01	167.19	6.05	0.25	0.00
E-2	-0.07	-0.01	167.20	6.06	-0.58	0.00
SUMA	0.00	-0.00	1405.34	12.15	-0.33	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-9.21	-0.01	166.94	-6.03	0.02	0.33
10.50	-0.07	-0.01	-51.70	2.39	517.40	-0.13
21.00	-2.75	-0.01	-255.67	1.55	-1075.31	-0.24
21.00	-3.16	-0.02	257.39	-2.68	-1082.51	-0.23
34.25	-1.02	0.00	-0.00	1.36	589.16	-0.39
47.50	-3.16	0.02	-257.39	3.17	-1082.55	-0.20
47.50	-2.75	0.01	255.68	-1.67	-1075.35	-0.21
58.00	-0.07	0.01	51.70	-0.68	517.47	-0.12
68.50	-9.21	0.01	-166.94	6.07	0.02	0.33

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-513.09	0.01	-0.95	0.00	7.21	-0.02
	inf	-535.47	0.01	-0.95	0.00	-3.63	0.10
2	sup	-513.10	0.01	0.95	-0.00	-7.21	-0.05
	inf	-535.48	0.01	0.95	-0.00	3.63	0.11

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Pretensado estructura final

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	3.39	0.27	-34.52	0.17	9.41	-0.00
P-2	-3.43	0.45	-32.42	-0.32	-9.39	0.00
E-1	-2.35	-0.29	33.86	24.27	-1.63	0.00
E-2	2.40	-0.42	33.07	24.14	0.40	0.00
SUMA	0.00	0.00	-0.00	48.26	-1.20	-0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-3375.38	-0.23	-285.90	-23.95	-16.79	1.31
10.50	-3476.38	-0.27	-4.38	-20.22	-1238.57	-2.55
21.00	-3300.32	-0.31	68.47	-12.81	1379.17	-5.71
21.00	-3304.12	-0.02	-28.05	-13.54	1350.07	-5.43
34.25	-3100.30	0.00	-0.67	1.60	-782.31	-5.67
47.50	-3303.37	0.02	26.80	13.29	1332.58	-5.39
47.50	-3299.50	0.30	-67.60	12.93	1362.43	-5.64
58.00	-3475.75	0.25	5.15	21.32	-1246.68	-2.52
68.50	-3373.94	0.24	286.54	23.77	-16.80	1.33

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	34.52	-0.28	-3.39	0.00	29.18	3.36
	inf	34.52	-0.28	-3.39	0.00	-9.41	0.13
2	sup	32.42	-0.28	3.45	-0.00	-29.94	3.33
	inf	32.42	-0.28	3.45	-0.00	9.39	0.14

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Carga muerta

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.44	-0.01	181.94	0.05	1.67	-0.00
P-2	-0.44	0.01	181.94	-0.03	-1.67	0.00
E-1	0.02	-0.00	52.60	2.08	0.09	0.00
E-2	-0.02	-0.00	52.60	2.08	-0.20	0.00
SUMA	0.00	0.00	469.09	4.17	-0.11	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-2.90	-0.01	52.52	-2.07	0.01	0.11
10.50	-0.02	-0.01	-18.50	0.84	178.96	-0.05
21.00	-0.96	-0.00	-89.58	0.46	-388.52	-0.10
21.00	-1.23	-0.01	92.34	-1.06	-391.85	-0.09
34.25	-0.46	0.00	-0.00	0.51	219.98	-0.17
47.50	-1.23	0.01	-92.34	1.23	-391.86	-0.08
47.50	-0.96	0.00	89.58	-0.51	-388.54	-0.09
58.00	-0.02	0.00	18.50	-0.25	178.98	-0.05
68.50	-2.90	0.01	-52.53	2.08	0.01	0.11

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-181.94	0.01	-0.44	0.00	3.33	-0.02
	inf	-181.94	0.01	-0.44	0.00	-1.67	0.04
2	sup	-181.94	0.01	0.44	-0.00	-3.32	-0.03
	inf	-181.94	0.01	0.44	-0.00	1.67	0.05

LISTADO ENVOLVENTES

ENVOLVENTE : Envolvente sobrecargas para N

1. ESFUERZOS ENVOLVENTES EN EL TABLERO

x [m]	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	min	-2.87	-1.37	48.75	-9.47	0.02	0.45
	max	0.70	-0.61	-7.60	-9.95	0.02	0.74
10.50	min	-0.25	1.27	-10.68	88.84	177.23	4.47
	max	0.31	-1.53	-3.57	-105.80	-35.40	-15.45
21.00	min	-0.91	0.99	-71.04	-13.56	-327.25	-11.34
	max	0.26	0.28	1.35	-3.57	28.66	5.75
21.00	min	-2.99	-2.02	69.94	-2.78	-206.83	-15.18
	max	2.30	0.05	0.02	1.96	-93.27	9.93
34.25	min	-2.42	0.03	-0.00	0.58	256.63	-28.89
	max	2.30	-0.00	-0.00	-0.20	-93.25	10.27
47.50	min	-2.99	2.04	-69.94	2.86	-206.82	-15.16
	max	2.30	-0.06	-0.02	-1.90	-93.29	9.91
47.50	min	-0.91	-1.06	71.04	13.52	-327.26	-11.13
	max	0.26	-0.25	-1.35	3.58	28.66	5.73
58.00	min	-0.25	-1.16	10.68	-88.25	177.56	4.44
	max	0.32	1.42	3.57	105.68	-35.77	-15.44
68.50	min	-2.87	1.33	-48.75	9.50	0.02	0.46
	max	0.70	0.39	7.60	9.93	0.01	0.49

2. ESFUERZOS ENVOLVENTES EN PILAS

Pila	sec	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	min	-147.13	3.02	-1.09	-0.48	7.41	-15.96
		max	7.49	0.34	0.91	0.49	-5.87	-1.63
1	inf	min	-147.13	3.02	-1.09	-0.48	-4.98	18.43
		max	7.49	0.34	0.91	0.49	4.47	2.30
2	sup	min	-147.14	3.02	1.09	0.48	-7.42	-15.97
		max	7.49	0.34	-0.91	-0.49	5.87	-1.63
2	inf	min	-147.14	3.02	1.09	0.48	4.98	18.43
		max	7.49	0.34	-0.91	-0.49	-4.46	2.30

ENVOLVENTE : Envolvente sobrecargas para My

1. ESFUERZOS ENVOLVENTES EN EL TABLERO

x [m]	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	min	-1.26	1.44	21.33	258.58	-0.54	-13.99
	max	-0.91	-3.42	19.82	-278.00	0.58	15.18
10.50	min	0.04	-0.77	-8.98	-6.94	-94.16	-7.54
	max	0.03	0.51	-5.27	-10.02	236.00	-3.44
21.00	min	-0.91	0.99	-71.04	-13.56	-327.25	-11.34
	max	0.26	0.28	1.35	-3.57	28.66	5.75
21.00	min	-1.89	-1.89	76.08	0.88	-334.64	-11.55
	max	1.20	-0.08	-6.12	-1.70	34.54	6.31
34.25	min	2.30	-0.00	-0.00	-0.20	-93.25	10.27
	max	-2.42	0.03	-0.00	0.58	256.63	-28.89
47.50	min	-1.89	1.91	-76.08	-0.74	-334.65	-11.52
	max	1.20	0.06	6.12	1.69	34.54	6.27
47.50	min	-0.91	-1.06	71.04	13.52	-327.26	-11.13
	max	0.26	-0.25	-1.35	3.58	28.66	5.73
58.00	min	0.04	0.72	8.98	6.59	-94.18	-7.58
	max	0.03	-0.46	5.26	10.84	235.97	-3.42
68.50	min	-1.27	-1.55	-21.33	-258.58	-0.38	-14.21
	max	-0.90	3.26	-19.82	278.01	0.41	15.16

2. ESFUERZOS ENVOLVENTES EN PILAS

Pila	sec	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	min	-60.71	2.02	2.25	-0.01	-16.96	-10.56
		max	-78.94	1.34	-2.43	0.02	18.50	-7.03
1	inf	min	-78.94	1.34	-2.43	0.02	-9.17	8.29
		max	-60.71	2.02	2.25	-0.01	8.65	12.44
2	sup	min	-78.94	1.34	2.43	-0.02	-18.50	-7.03
		max	-60.71	2.02	-2.25	0.01	16.96	-10.57
2	inf	min	-60.71	2.02	-2.25	0.01	-8.65	12.44
		max	-78.94	1.34	2.43	-0.02	9.17	8.29

ENVOLVENTE : Envolvente sobrecargas para Vz

1. ESFUERZOS ENVOLVENTES EN EL TABLERO

x [m]	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	min	0.54	-0.87	-8.96	-6.02	0.01	0.50
	max	-2.71	-1.11	50.12	-13.40	0.03	0.68
10.50	min	-0.17	-0.54	-15.60	-13.15	127.48	-13.89
	max	0.24	0.29	1.36	-3.81	14.36	2.90
21.00	min	-0.91	0.99	-71.04	-13.56	-327.25	-11.34
	max	0.26	0.28	1.35	-3.57	28.66	5.75
21.00	min	1.20	-0.08	-6.12	-1.70	34.54	6.31
	max	-1.89	-1.89	76.08	0.88	-334.64	-11.55
34.25	min	0.02	-0.07	-6.13	-1.78	77.53	-38.35
	max	-0.15	0.09	6.13	2.16	85.86	19.73
47.50	min	-1.89	1.91	-76.08	-0.74	-334.65	-11.52
	max	1.20	0.06	6.12	1.69	34.54	6.27
47.50	min	0.26	-0.25	-1.35	3.58	28.66	5.73
	max	-0.91	-1.06	71.04	13.52	-327.26	-11.13
58.00	min	0.24	-0.28	-1.36	3.87	14.34	2.92
	max	-0.17	0.54	15.60	13.56	127.45	-13.91
68.50	min	-2.71	1.06	-50.12	13.43	0.02	0.69
	max	0.54	0.66	8.96	6.00	0.01	0.27

2. ESFUERZOS ENVOLVENTES EN PILAS

Pila	sec	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	min	-78.94	1.34	-2.43	0.02	18.50	-7.03
		max	-60.71	2.02	2.25	-0.01	-16.96	-10.56
1	inf	min	-78.94	1.34	-2.43	0.02	-9.17	8.29
		max	-60.71	2.02	2.25	-0.01	8.65	12.44
2	sup	min	-60.71	2.02	-2.25	0.01	16.96	-10.57
		max	-78.94	1.34	2.43	-0.02	-18.50	-7.03
2	inf	min	-60.71	2.02	-2.25	0.01	-8.65	12.44
		max	-78.94	1.34	2.43	-0.02	9.17	8.29

ENVOLVENTE : Envolvente sobrecargas para Mx

1. ESFUERZOS ENVOLVENTES EN EL TABLERO

x [m]	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	min	-0.91	-3.42	19.82	-278.00	0.58	15.18
	max	-1.26	1.44	21.33	258.58	-0.54	-13.99
10.50	min	0.13	-2.61	-7.89	-185.48	67.12	-30.33
	max	-0.06	2.35	-6.36	168.52	74.72	19.35
21.00	min	-0.29	-0.33	-35.11	-164.24	-152.92	-25.40
	max	-0.37	1.59	-34.58	147.11	-145.67	19.81
21.00	min	-0.24	-1.62	34.72	-164.20	-152.77	-21.88
	max	-0.44	-0.35	35.24	163.38	-147.33	16.63
34.25	min	1.15	-0.66	-0.26	-48.37	-46.52	5.15
	max	-1.27	0.69	0.26	48.75	209.90	-23.77
47.50	min	-0.44	0.36	-35.24	-163.31	-147.41	16.65
	max	-0.24	1.61	-34.72	164.27	-152.71	-21.91
47.50	min	-0.37	-1.64	34.58	-147.13	-145.65	19.83
	max	-0.29	0.33	35.11	164.22	-152.95	-25.23
58.00	min	-0.07	-2.29	6.36	-168.27	75.33	19.32
	max	0.14	2.55	7.89	185.70	66.47	-30.31
68.50	min	-1.27	-1.55	-21.33	-258.58	-0.38	-14.21
	max	-0.90	3.26	-19.82	278.01	0.41	15.16

2. ESFUERZOS ENVOLVENTES EN PILAS

Pila	sec	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	min	-107.23	3.74	0.07	-0.51	-1.57	-29.13
		max	-32.42	-0.38	-0.25	0.52	3.11	11.54
1	inf	min	-107.23	3.74	0.07	-0.51	-0.73	13.51
		max	-32.42	-0.38	-0.25	0.52	0.22	7.22
2	sup	min	-32.42	-0.38	0.25	-0.52	-3.11	11.54
		max	-107.23	3.74	-0.07	0.51	1.57	-29.13
2	inf	min	-32.42	-0.38	0.25	-0.52	-0.22	7.22
		max	-107.23	3.74	-0.07	0.51	0.73	13.51

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Temperatura uniforme

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	2.28	-0.10	-0.42	0.59	13.17	-0.00
P-2	-2.28	0.03	-0.42	-0.12	-13.18	0.00
E-1	2.19	-0.02	0.42	0.53	2.21	0.00
E-2	-2.19	0.09	0.42	0.41	-2.23	0.00
SUMA	0.00	0.00	0.00	1.42	-0.04	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-2.21	-0.09	0.30	-0.51	0.00	0.03
10.50	-2.19	-0.05	0.42	-0.46	4.14	-0.74
21.00	-2.19	-0.02	0.44	-0.36	8.58	-1.09
21.00	-4.47	-0.09	-0.04	0.08	-4.21	-1.08
34.25	-4.47	0.01	-0.00	-0.01	-4.31	-1.74
47.50	-4.47	0.09	0.04	-0.07	-4.21	-1.08
47.50	-2.18	0.02	-0.44	0.36	8.58	-1.09
58.00	-2.19	0.06	-0.42	0.47	4.14	-0.75
68.50	-2.21	0.09	-0.30	0.51	0.00	0.03

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	0.42	0.09	-2.28	0.00	12.79	-0.45
	inf	0.42	0.09	-2.28	0.00	-13.17	0.53
2	sup	0.42	0.09	2.28	-0.00	-12.79	-0.45
	inf	0.42	0.09	2.28	-0.00	13.17	0.53

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Gradiente de temperatura

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	1.46	0.13	-21.74	0.41	5.53	-0.00
P-2	-1.45	0.21	-21.74	0.12	-5.54	0.00
E-1	-0.03	-0.17	21.74	16.08	0.45	0.00
E-2	0.02	-0.17	21.74	16.05	-1.31	0.00
SUMA	-0.00	0.00	-0.00	32.65	-0.88	-0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-1.15	-0.16	21.71	-15.89	0.03	0.85
10.50	0.03	-0.17	21.74	-13.50	228.60	-1.75
21.00	0.26	-0.17	21.74	-8.74	457.07	-3.63
21.00	-1.43	-0.03	-0.01	-8.98	446.01	-3.44
34.25	-1.43	0.00	0.00	0.98	446.07	-3.73
47.50	-1.43	0.03	0.01	8.76	446.02	-3.45
47.50	0.26	0.17	-21.74	8.78	457.07	-3.62
58.00	0.03	0.17	-21.74	14.30	228.55	-1.76
68.50	-1.15	0.17	-21.71	15.91	0.02	0.88

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	21.74	-0.14	-1.46	0.00	11.09	1.95
	inf	21.74	-0.14	-1.46	0.00	-5.53	0.39
2	sup	21.74	-0.14	1.46	-0.00	-11.09	1.95
	inf	21.74	-0.14	1.46	-0.00	5.53	0.39

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Reológicas

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-8.85	0.37	1.62	-2.29	-51.20	0.00
P-2	8.86	-0.10	1.62	0.46	51.26	-0.00
E-1	-8.51	0.09	-1.62	-2.07	-8.57	0.00
E-2	8.51	-0.37	-1.62	-1.61	8.68	0.00
SUMA	0.00	-0.00	0.00	-5.51	0.16	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	8.59	0.32	-1.16	1.98	-0.00	-0.09
10.50	8.52	0.19	-1.62	1.78	-16.10	2.88
21.00	8.49	0.07	-1.71	1.40	-33.36	4.24
21.00	17.38	0.35	0.14	-0.29	16.36	4.20
34.25	17.37	-0.04	0.00	0.04	16.74	6.75
47.50	17.37	-0.34	-0.14	0.29	16.36	4.21
47.50	8.49	-0.08	1.71	-1.40	-33.36	4.23
58.00	8.50	-0.21	1.62	-1.83	-16.10	2.88
68.50	8.59	-0.34	1.16	-1.98	-0.00	-0.11

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-1.62	-0.33	8.85	-0.00	-49.72	1.74
	inf	-1.62	-0.33	8.85	-0.00	51.20	-2.05
2	sup	-1.62	-0.33	-8.86	0.00	49.73	1.74
	inf	-1.62	-0.33	-8.86	0.00	-51.22	-2.05

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Frenado

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-6.60	0.04	-1.01	-0.24	-37.93	0.09
P-2	-6.59	0.31	1.01	-1.80	-37.89	0.09
E-1	-2.41	-0.06	-0.74	-0.04	-2.41	0.00
E-2	-2.40	0.19	0.74	-0.09	-2.41	0.00
SUMA	-18.00	0.48	-0.00	-2.17	-80.64	0.19

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	2.45	0.01	-0.60	0.11	-0.00	-0.01
10.50	-0.35	-0.01	-0.71	0.03	-7.21	-0.03
21.00	-3.12	0.02	-0.68	-0.12	-14.59	0.00
21.00	3.50	0.03	-1.69	-0.16	22.67	-0.09
34.25	0.00	-0.01	-1.72	0.05	-0.00	-0.00
47.50	-3.50	0.03	-1.69	-0.15	-22.67	0.09
47.50	3.12	0.02	-0.68	-0.12	14.59	-0.01
58.00	0.35	-0.01	-0.71	0.06	7.21	0.03
68.50	-2.45	0.01	-0.60	0.11	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	1.01	-0.01	6.60	-0.09	-37.25	0.06
	inf	1.01	-0.01	6.60	-0.09	37.93	-0.06
2	sup	-1.01	0.01	6.60	-0.09	-37.25	-0.05
	inf	-1.01	0.01	6.60	-0.09	37.93	0.06

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Viento longitudinal

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-2.73	0.02	-0.09	-0.09	-9.61	0.01
P-2	-2.73	0.13	0.09	-0.43	-9.60	0.01
E-1	-0.42	-0.01	-0.07	-0.02	-0.42	0.00
E-2	-0.42	0.03	0.07	-0.00	-0.42	0.00
SUMA	-6.29	0.17	0.00	-0.54	-20.04	0.02

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	0.42	0.01	-0.05	0.02	-0.00	-0.00
10.50	0.42	-0.00	-0.07	0.02	-0.68	0.04
21.00	0.42	-0.01	-0.07	0.00	-1.41	0.01
21.00	0.00	0.00	-0.16	-0.04	2.16	-0.01
34.25	-0.00	0.00	-0.16	-0.02	0.00	-0.00
47.50	-0.00	0.00	-0.16	-0.04	-2.16	0.01
47.50	-0.41	-0.01	-0.07	0.00	1.41	-0.01
58.00	-0.42	0.00	-0.07	0.02	0.68	-0.04
68.50	-0.42	0.01	-0.05	0.02	0.00	0.00

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	0.09	-0.01	-0.42	-0.01	-3.57	0.04
	inf	0.09	-0.01	2.73	-0.01	9.61	-0.04
2	sup	-0.09	0.01	-0.42	-0.01	-3.57	-0.04
	inf	-0.09	0.01	2.73	-0.01	9.61	0.04

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Viento transversal

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-0.40	-12.82	0.31	79.02	-2.33	-0.02
P-2	-0.29	-12.82	0.31	79.03	-1.92	0.02
E-1	-0.15	-5.66	-0.31	73.45	1.90	0.00
E-2	-0.15	-5.66	-0.31	73.24	-5.84	0.00
SUMA	-0.99	-36.96	0.00	304.75	-8.19	-0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	0.33	-5.14	-0.29	-67.72	0.14	2.89
10.50	0.27	-0.10	-0.31	-67.26	-1.95	-29.46
21.00	0.31	5.68	-0.32	-67.19	-4.31	-0.73
21.00	0.65	-7.10	0.00	-0.09	-2.29	0.43
34.25	0.58	-0.12	-0.00	-0.01	-2.28	-46.82
47.50	0.64	7.08	-0.01	0.09	-2.30	0.33
47.50	0.31	-5.51	0.32	67.19	-4.32	-0.39
58.00	0.27	-0.36	0.31	67.25	-2.19	-29.23
68.50	0.33	5.86	0.30	67.72	0.10	4.15

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-0.31	12.82	0.34	0.02	-1.90	-67.11
	inf	-0.31	12.82	0.34	0.02	1.95	79.03
2	sup	-0.31	12.82	-0.34	-0.02	1.89	-67.11
	inf	-0.31	12.82	-0.34	-0.02	-1.94	79.03

LISTADO ENVOLVENTES

ENVOLVENTE : Envolvente dda para N

1. ESFUERZOS ENVOLVENTES EN EL TABLERO

x [m]	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	min	-1.54	-0.11	19.96	-6.66	0.02	0.35
	max	1.07	-0.00	-12.04	1.58	-0.00	-0.09
10.50	min	-0.45	-0.11	20.01	-4.46	210.20	-1.19
	max	0.41	-0.01	-12.08	0.25	-126.80	-0.04
21.00	min	-0.34	0.09	-10.27	-0.48	-215.89	1.65
	max	0.28	-0.02	-12.08	-2.37	-253.62	-0.18
21.00	min	-1.90	-0.12	25.82	-2.79	-271.65	-0.10
	max	1.61	-0.00	9.75	-0.32	-199.76	1.68
34.25	min	-1.69	-0.08	25.83	-4.29	70.68	-1.48
	max	1.69	-0.04	9.74	-3.07	-70.67	1.48
47.50	min	-1.90	0.12	-25.82	2.91	-271.65	-0.09
	max	1.77	-0.07	9.72	-3.20	58.36	0.77
47.50	min	-0.24	0.10	-20.01	0.14	420.36	-2.32
	max	0.30	-0.04	-2.34	-2.93	49.13	0.85
58.00	min	-0.45	0.11	-20.01	5.20	210.17	-1.20
	max	0.41	0.01	12.08	-0.71	-126.79	-0.04
68.50	min	-1.54	0.13	-19.96	6.69	0.01	0.38
	max	1.07	0.00	12.04	-1.60	-0.00	-0.09

2. ESFUERZOS ENVOLVENTES EN PILAS

Pila	sec	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	min	-37.91	0.11	-2.10	0.03	18.04	-0.61
		max	45.85	-0.15	-1.24	-0.03	7.33	1.57
1	inf	min	-37.91	0.11	-2.10	0.03	-5.87	0.61
		max	45.85	-0.15	-1.24	-0.03	-6.82	-0.12
2	sup	min	-37.91	0.11	2.10	-0.03	-18.04	-0.61
		max	45.84	-0.15	1.24	0.03	-7.33	1.58
2	inf	min	-37.91	0.11	2.10	-0.03	5.87	0.60
		max	45.84	-0.15	1.24	0.03	6.82	-0.12

ENVOLVENTE : Envolvente dda para My

1. ESFUERZOS ENVOLVENTES EN EL TABLERO

x [m]	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	min	1.07	-0.00	-12.04	1.58	-0.00	-0.09
	max	-1.54	-0.11	19.96	-6.66	0.02	0.35
10.50	min	0.41	-0.01	-12.08	0.25	-126.80	-0.04
	max	-0.45	-0.11	20.01	-4.46	210.20	-1.19
21.00	min	0.28	-0.02	-12.08	-2.37	-253.62	-0.18
	max	-0.24	-0.10	20.01	-0.09	420.38	-2.32
21.00	min	-1.90	-0.12	25.82	-2.79	-271.65	-0.10
	max	-1.48	0.05	-25.85	-0.07	413.05	-2.34
34.25	min	1.69	-0.04	9.74	-3.07	-70.67	1.48
	max	-1.69	-0.08	25.83	-4.29	70.68	-1.48
47.50	min	-1.90	0.12	-25.82	2.91	-271.65	-0.09
	max	-1.48	-0.05	25.85	-0.12	413.04	-2.35
47.50	min	0.28	0.01	12.08	2.33	-253.62	-0.17
	max	-0.24	0.10	-20.01	0.14	420.36	-2.32
58.00	min	0.41	0.01	12.08	-0.71	-126.79	-0.04
	max	-0.45	0.11	-20.01	5.20	210.17	-1.20
68.50	min	0.15	-0.04	-2.35	-2.17	-0.00	-0.12
	max	-1.54	0.13	-19.96	6.69	0.01	0.38

2. ESFUERZOS ENVOLVENTES EN PILAS

Pila	sec	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	min	-20.01	0.08	1.93	0.02	-16.12	-0.95
		max	-37.91	0.11	-2.10	0.03	18.04	-0.61
1	inf	min	45.85	-0.15	-1.24	-0.03	-6.82	-0.12
		max	-20.01	0.08	1.93	0.02	5.83	-0.05
2	sup	min	-37.91	0.11	2.10	-0.03	-18.04	-0.61
		max	12.08	-0.04	-1.41	0.02	9.25	-0.01
2	inf	min	12.08	-0.04	-1.41	0.02	-6.86	-0.43
		max	45.84	-0.15	1.24	0.03	6.82	-0.12

ENVOLVENTE : Envolvente dda para Vz

1. ESFUERZOS ENVOLVENTES EN EL TABLERO

x [m]	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	min	1.07	-0.00	-12.04	1.58	-0.00	-0.09
	max	-1.54	-0.11	19.96	-6.66	0.02	0.35
10.50	min	0.41	-0.01	-12.08	0.25	-126.80	-0.04
	max	-0.45	-0.11	20.01	-4.46	210.20	-1.19
21.00	min	0.28	-0.02	-12.08	-2.37	-253.62	-0.18
	max	-0.24	-0.10	20.01	-0.09	420.38	-2.32
21.00	min	-1.48	0.05	-25.85	-0.07	413.05	-2.34
	max	-1.90	-0.12	25.82	-2.79	-271.65	-0.10
34.25	min	-1.69	0.09	-25.83	4.60	70.66	-1.48
	max	-1.69	-0.08	25.83	-4.29	70.68	-1.48
47.50	min	-1.90	0.12	-25.82	2.91	-271.65	-0.09
	max	-1.48	-0.05	25.85	-0.12	413.04	-2.35
47.50	min	-0.24	0.10	-20.01	0.14	420.36	-2.32
	max	0.28	0.01	12.08	2.33	-253.62	-0.17
58.00	min	-0.45	0.11	-20.01	5.20	210.17	-1.20
	max	0.41	0.01	12.08	-0.71	-126.79	-0.04
68.50	min	-1.54	0.13	-19.96	6.69	0.01	0.38
	max	1.07	0.00	12.04	-1.60	-0.00	-0.09

2. ESFUERZOS ENVOLVENTES EN PILAS

Pila	sec	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	min	-37.91	0.11	-2.10	0.03	18.04	-0.61
		max	-20.01	0.08	1.93	0.02	-16.12	-0.95
1	inf	min	-37.91	0.11	-2.10	0.03	-5.87	0.61
		max	-20.01	0.08	1.93	0.02	5.83	-0.05
2	sup	min	12.08	-0.04	-1.41	0.02	9.25	-0.01
		max	-37.91	0.11	2.10	-0.03	-18.04	-0.61
2	inf	min	12.08	-0.04	-1.41	0.02	-6.86	-0.43
		max	-37.91	0.11	2.10	-0.03	5.87	0.60

9. TABLERO

9 TABLERO

9.1 Control de tensiones durante el proceso constructivo

En los listados que siguen se incluye el cálculo de las tensiones en las fibras superior e inferior de la sección en cada una de las etapas del proceso constructivo.

Igualmente se incluye en la última columna la resistencia característica del hormigón en la edad en la que se ejecuta cada fase. Este valor se deduce de la ley de variación de la resistencia del hormigón con el tiempo que propone la Instrucción EH-91.

En caso de producirse compresiones excesivas, tracciones o fisuración el programa avisa de esta circunstancia mediante la aparición del símbolo correspondiente al lado de la tensión que incumple la condición dada.

COMPROBACION TENSIONES FASE 1

Factores de ponderación considerados para el pretensado:

- Acciones Desfavorables: 1.1
- Acciones Favorables: 0.9

LEYENDA:
+ : Compresión>fck(j)/1.6
* : Tracción
# : Fisuración
! : Requiere comprobación wk

Vano	x [m]		Pxo [t]	Mmax Mmin [tm]	σs [kg/cm²]	σi [kg/cm²]	fckj [kg/cm²]	
1	0.00	der max	-3047.05	-15.10	-19.81	-20.80	255	
1	0.00	min	-3722.13	-18.45	-24.19	-25.41	255	
1	2.10	izq max	-3056.64	-273.85	-28.27	-58.22	255	
1	2.10	min	-3734.57	-397.34	-31.79	-75.26	255	
1	2.10	der max	-3060.31	-277.00	-28.18	-58.48	255	
1	2.10	min	-3740.37	-401.19	-31.70	-75.59	255	
1	4.20	izq max	-3073.19	-288.00	-27.87	-59.37	255	
1	4.20	min	-3756.11	-455.62	-29.53	-79.37	255	
1	4.20	der max	-3073.20	-287.89	-27.87	-59.36	255	
1	4.20	min	-3756.12	-455.50	-29.53	-79.36	255	
1	6.30	izq max	-3090.27	-372.67	-24.39	-65.15	255	
1	6.30	min	-3776.98	-581.51	-24.29	-87.90	255	
1	6.30	der max	-3090.26	-372.62	-24.39	-65.15	255	
1	6.30	min	-3776.98	-581.45	-24.29	-87.90	255	
1	8.40	izq max	-3109.67	-478.27	-20.02	-72.34	255	
1	8.40	min	-3800.70	-714.35	-18.79	-96.93	255	
1	8.40	der max	-3109.68	-478.19	-20.03	-72.33	255	
1	8.40	min	-3800.70	-714.25	-18.80	-96.93	255	
1	10.50	izq max	-3128.81	-597.36	-15.06	-80.41	255	
1	10.50	min	-3824.09	-845.09	-13.38	-105.82	255	
1	10.50	der max	-3128.82	-597.31	-15.07	-80.40	255	
1	10.50	min	-3824.09	-845.02	-13.38	-105.82	255	
1	12.60	izq max	-3147.69	-728.75	-9.56	-89.28	255	
1	12.60	min	-3847.16	-972.25	-8.12	-114.47	255	
1	12.60	der max	-3147.69	-728.71	-9.56	-89.28	255	
1	12.60	min	-3847.17	-972.19	-8.12	-114.47	255	
1	14.70	izq max	-3143.39	-641.36	-13.33	-83.49	255	
1	14.70	min	-3841.91	-813.39	-15.00	-103.98	255	
1	14.70	der max	-3143.39	-641.29	-13.33	-83.48	255	
1	14.70	min	-3841.91	-813.31	-15.00	-103.97	255	
1	16.80	izq max	-3733.27	-100.23	-44.78	-55.74	255	
1	16.80	min	-3054.51	-115.66	-35.16	-47.81	255	
1	16.80	der max	-3733.27	-100.14	-44.78	-55.73	255	
1	16.80	min	-3054.51	-115.59	-35.16	-47.81	255	
1	18.90	izq max	-3692.68	483.09	-69.76	-16.92	255	
1	18.90	min	-3021.30	288.58	-52.41	-20.85	255	
1	18.90	der max	-3691.31	482.81	-69.73	-16.92	255	
1	18.90	min	-3020.57	288.34	-52.39	-20.85	255	
1	21.00	izq max	-3633.10	441.79	-57.60	-12.67	255	
1	21.00	min	-2973.03	165.95	-38.82	-21.94	255	
1	21.00	der max	-3637.69	402.56	-55.98	-15.04	255	
1	21.00	min	-2976.87	132.55	-37.44	-23.96	255	
2	23.65	izq max	-3585.45	720.67	-78.75	0.09	*	255
2	23.65	min	-2934.04	502.83	-60.64	-5.63		255
2	23.65	der max	-3585.14	720.93	-78.75	0.11	*	255
2	23.65	min	-2933.48	503.05	-60.64	-5.61		255
2	26.30	izq max	-3529.30	600.05	-72.73	-7.09		255
2	26.30	min	-2887.79	489.00	-59.42	-5.93		255
2	26.30	der max	-3529.29	600.07	-72.73	-7.09		255
2	26.30	min	-2887.79	489.02	-59.42	-5.93		255
2	28.95	izq max	-2853.18	157.73	-44.47	-27.22		255
2	28.95	min	-3486.99	121.10	-51.22	-37.97		255
2	28.95	der max	-2853.18	157.77	-44.47	-27.22		255
2	28.95	min	-3486.99	121.14	-51.22	-37.97		255
2	31.60	izq max	-2824.04	-55.51	-34.76	-40.83		255
2	31.60	min	-3451.38	-183.95	-37.40	-57.52		255
2	31.60	der max	-2824.04	-55.50	-34.76	-40.83		255
2	31.60	min	-3451.37	-183.95	-37.40	-57.52		255
2	34.25	izq max	-2791.30	-114.92	-31.73	-44.30		255
2	34.25	min	-3411.36	-271.38	-33.05	-62.73		255
2	34.25	der max	-2791.30	-114.92	-31.73	-44.30		255
2	34.25	min	-3411.36	-271.38	-33.05	-62.73		255
2	36.90	izq max	-2825.24	-44.75	-35.25	-40.14		255
2	36.90	min	-3452.85	-170.81	-37.99	-56.68		255
2	36.90	der max	-2825.24	-44.78	-35.24	-40.14		255
2	36.90	min	-3452.85	-170.84	-37.99	-56.68		255
2	39.55	izq max	-2855.42	209.25	-46.76	-23.87		255
2	39.55	min	-3489.73	184.10	-54.01	-33.87		255
2	39.55	der max	-2855.42	209.24	-46.76	-23.87		255
2	39.55	min	-3489.73	184.09	-54.01	-33.87		255
2	42.20	izq max	-3536.30	660.55	-75.47	-3.21		255
2	42.20	min	-2893.52	538.46	-61.66	-2.76		255
2	42.20	der max	-3536.30	660.49	-75.47	-3.22		255
2	42.20	min	-2893.53	538.41	-61.66	-2.76		255
2	44.85	izq max	-3587.71	724.18	-78.93	0.29	*	255
2	44.85	min	-2935.59	505.70	-60.78	-5.47		255
2	44.85	der max	-3588.16	723.91	-78.92	0.26	*	255
2	44.85	min	-2936.25	505.47	-60.78	-5.49		255
2	47.50	izq max	-3636.86	383.29	-55.16	-16.18		255
2	47.50	min	-2976.19	116.77	-36.76	-24.89		255
2	47.50	der max	-3632.20	423.33	-56.81	-13.76		255
2	47.50	min	-2972.30	150.84	-38.17	-22.83		255
3	49.60	izq max	-3690.42	466.43	-69.01	-17.98		255
3	49.60	min	-3019.85	274.97	-51.80	-21.72		255
3	49.60	der max	-3691.78	466.74	-69.04	-17.98		255
3	49.60	min	-3020.56	275.23	-51.82	-21.71		255
3	51.70	izq max	-3732.36	-114.51	-44.14	-56.66		255
3	51.70	min	-3053.76	-127.33	-34.64	-48.57		255
3	51.70	der max	-3732.36	-114.60	-44.13	-56.67		255
3	51.70	min	-3053.76	-127.40	-34.64	-48.57		255
3	53.80	izq max	-3142.60	-651.28	-12.89	-84.13		255
3	53.80	min	-3840.94	-825.52	-14.46	-104.76		255
3	53.80	der max	-3142.61	-651.33	-12.88	-84.13		255
3	53.80	min	-3840.95	-825.59	-14.45	-104.77		255
3	55.90	izq max	-3147.11	-737.37	-9.18	-89.84		255
3	55.90	min	-3846.45	-982.78	-7.65	-115.15		255
3	55.90	der max	-3147.11	-737.42	-9.18	-89.84		255
3	55.90	min	-3846.45	-982.85	-7.65	-115.16		255
3	58.00	izq max	-3128.25	-604.49	-14.74	-80.87		255
3	58.00	min	-3823.40	-853.81	-12.99	-106.39		255
3	58.00	der max	-3128.25	-604.54	-14.74	-80.87		255
3	58.00	min	-3823.40	-853.88	-12.99	-106.39		255
3	60.10	izq max	-3109.13	-483.89	-19.77	-72.70		255
3	60.10	min	-3800.03	-721.23	-18.48	-97.38		255
3	60.10	der max	-3109.13	-483.95	-19.77	-72.71		255
3	60.10	min	-3800.03	-721.31	-18.48	-97.38		255
3	62.20	izq max	-3089.73	-376.85	-24.20	-65.42		255
3	62.20	min	-3776.32	-586.63	-24.06	-88.23		255
3	62.20	der max	-3089.73	-376.94	-24.19	-65.43		255
3	62.20	min	-3776.32	-586.73	-24.05	-88.24		255
3	64.30	izq max	-3072.55	-290.71	-27.74	-59.54		255
3	64.30	min	-3755.32	-458.95	-29.37	-79.57		255
3	64.30	der max	-3072.55	-290.78	-27.74	-59.55		255
3	64.30	min	-3755.32	-459.03	-29.37	-79.58		255
3	66.40	izq max	-3059.36	-278.28	-28.11	-58.55		255
3	66.40	min	-3739.21	-402.78	-31.62	-75.67		255
3	66.40	der max	-3055.65	-275.16	-28.20	-58.30		255
3	66.40	min	-3733.36	-398.95	-31.70	-75.35		255
3	68.50	izq max	-3045.76	-15.10	-19.80	-20.79		255
3	68.50	min	-3720.55	-18.46	-24.18	-25.40		255

9.2 Estado Límite de Servicio a tiempo cero

Para la comprobación del estado límite de servicio a tiempo cero se ha verificado que, tal y como puede comprobarse en los listados adjuntos, para las combinaciones de carga consideradas, no es necesario suplemento de armadura pasiva para el control de la abertura de fisura, aunque se admite la existencia de secciones con descompresión (Clase II).

9.3 Estado Límite de Servicio a tiempo infinito

Al igual que a tiempo cero, para tiempo infinito se ha comprobado la fisuración para los esquemas de armado empleados, verificando que la abertura de fisura resulta admisible.

Se incluyen listados de comprobación del estado límite de fisuración, así como de la comprobación tensional a nivel de sección, a efectos de determinar qué secciones requieren la comprobación de fisuración. Dichos listados se encuentran en el anejo "RESULTADOS DEL CALCULO".

9.4 Estado Límite Ultimo. Flexión longitudinal, torsión y cortante

A efectos de estado límite último, los pasos seguidos para el dimensionamiento y comprobación han sido:

- Determinación de las envolventes de esfuerzos pésimos mayorados, que constituyen la solicitación correspondiente al estado límite último.

- Determinación de las armaduras que para esos esfuerzos son necesarias para soportar el nivel de solicitación requerido. En el caso de la flexión, se ha verificado que el momento último de la sección teniendo en cuenta la acción de pretensado es inferior al momento solicitante, esto es, no es necesario armadura pasiva por flexión.

- Comprobación de la validez de la sección adoptada a efectos de cortante y torsor, así como a efectos de la interacción de estos.

En los listados al final del anejo se dan los resultados de este proceso.

Para los esfuerzos torsores se facilita también la armadura necesaria según la ACI. Esto se hace porque la armadura proporcionada por la instrucción EH-91 resulta bastante conservadora, y en algún caso puede resultar justificado mantener puntualmente alguna sección en que $V_{u1}<V_d$.

Se facilita asimismo el resultado de la comprobación torsor-cortante, tal y como se propone en la instrucción EH-91, esto es, $T_d/T_{u1}+V_d/V_{u1}<1$, haciendo notar, no obstante, la diferencia que existiría si la comprobación se hiciese con el Eurocódigo 2, en que los dos sumandos del primer término de la inecuación, en lugar de lineales, son cuadráticos, lo cual resulta, en general, más permisivo.

9.5 Voladizos

Para la comprobación de los voladizos de la sección transversal se ha planteado un modelo en ménsula, no considerando el efecto local que pudieran tener las riostras de estribos (comportamiento longitudinal de los voladizos), lo cual queda del lado de la seguridad, a la vez que es suficientemente preciso.

Este modelo implica que se ha supuesto un comportamiento estrictamente transversal, englobando la flexión longitudinal del voladizo dentro de la flexión global de la sección.

Con este modelo se han determinado las armaduras necesarias por flexión, así como se ha comprobado que no es necesaria ninguna armadura de cortante en los voladizos.

Se han comprobado como voladizos tres secciones de cada sección de referencia (10 por vano):

- La correspondiente al voladizo propiamente dicho, que condiciona la armadura necesaria por flexión.(1)

- La correspondiente a la primera sección de canto máximo, que sirve para comprobar que la armadura dispuesta en esa sección es ya suficiente para resistir la flexión transversal local que en ese punto pudiera existir. Como puede comprobarse, esta armadura es la mínima geométrica, inferior a la dispuesta.

- La correspondiente al eje de la estructura, en la que se establece la misma comprobación que en la sección anterior.

(1) Para el dimensionamiento de los voladizo, se considera el peso propio, la carga muerta, la sobrecarga repartida y el carro. Para el carro, se considera un reparto a 45º. El resultado de este análisis se incluye a continuación.

ESFUERZOS DE CALCULO Y ARMADURA VOLADICOS

LEYENDA
- Vu1/Vd
- mg: Armadura mínima geométrica en flexión
- mf: Armadura mínima por ductilidad en flexión
- mc: Armadura mínima por cortante

Vano	x (m)	Sec	Md (tm) Vd (t)	Asup (cm2) Vu1 (t)	Ainf (cm2) A90 (cm2/m)	Ab190 (cm2/m)	Ab145 (cm2/m)
1	2.10	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-44.26	33.60mg	0.00		
			29.09	920.00	0.00	0.00	0.00
1	4.20	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-50.42	33.60mg	0.00		
			29.10	920.00	0.00	0.00	0.00
1	6.30	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-56.47	33.60mg	0.00		
			29.23	920.00	0.00	0.00	0.00
1	8.40	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-62.47	33.60mg	0.00		
			29.46	920.00	0.00	0.00	0.00
1	10.50	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-69.48	33.60mg	0.00		
			29.78	920.00	0.00	0.00	0.00
1	12.60	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-74.52	33.60mg	0.00		
			30.16	920.00	0.00	0.00	0.00
1	14.70	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-80.62	33.60mg	0.00		
			30.61	920.00	0.00	0.00	0.00
1	16.80	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-86.80	33.60mg	0.00		
			31.10	920.00	0.00	0.00	0.00
1	18.90	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-93.09	33.60mg	0.00		
			31.63	920.00	0.00	0.00	0.00
2	2.65	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-99.49	33.60mg	0.00		
			32.20	920.00	0.00	0.00	0.00
2	5.30	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-99.49	33.60mg	0.00		
			32.20	920.00	0.00	0.00	0.00
2	7.95	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-99.49	33.60mg	0.00		
			32.20	920.00	0.00	0.00	0.00
2	10.60	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-99.49	33.60mg	0.00		
			32.20	920.00	0.00	0.00	0.00
2	13.25	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-99.49	33.60mg	0.00		
			32.20	920.00	0.00	0.00	0.00
2	15.90	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-99.49	33.60mg	0.00		
			32.20	920.00	0.00	0.00	0.00
2	18.55	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-99.49	33.60mg	0.00		
			32.20	920.00	0.00	0.00	0.00
2	21.20	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-99.49	33.60mg	0.00		
			32.20	920.00	0.00	0.00	0.00
2	23.85	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-99.49	33.60mg	0.00		
			32.20	920.00	0.00	0.00	0.00
3	2.10	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-99.49	33.60mg	0.00		
			31.63	920.00	0.00	0.00	0.00
3	4.20	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-86.80	33.60mg	0.00		
			31.10	920.00	0.00	0.00	0.00
3	6.30	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-80.62	33.60mg	0.00		
			30.61	920.00	0.00	0.00	0.00
3	8.40	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-74.52	33.60mg	0.00		
			30.16	920.00	0.00	0.00	0.00
3	10.50	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-68.48	33.60mg	0.00		
			29.78	920.00	0.00	0.00	0.00
3	12.60	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-62.47	33.60mg	0.00		
			29.46	920.00	0.00	0.00	0.00
3	14.70	1	-20.84	18.27	0.00		
			17.01	220.00	0.00	0.00	0.00
		2	-39.65	33.60mg	0.00		
			22.32	920.00	0.00	0.00	0.00
		3	-56.47	33.60mg	0.00		
			29.23	920.00	0.00	0.00	0.00

3 10.50	1	-20.84	18.27	0.00		
		17.01	220.00	0.00	0.00	0.00
	2	-39.65	33.60mg	0.00		
		22.32	920.00	0.00	0.00	0.00
	3	-68.48	33.60mg	0.00		
		29.78	920.00	0.00	0.00	0.00
3 12.60	1	-20.84	18.27	0.00		
		17.01	220.00	0.00	0.00	0.00
	2	-39.65	33.60mg	0.00		
		22.32	920.00	0.00	0.00	0.00
	3	-62.47	33.60mg	0.00		
		29.46	920.00	0.00	0.00	0.00
3 14.70	1	-20.84	18.27	0.00		
		17.01	220.00	0.00	0.00	0.00
	2	-39.65	33.60mg	0.00		
		22.32	920.00	0.00	0.00	0.00
	3	-56.47	33.60mg	0.00		
		29.23	920.00	0.00	0.00	0.00
3 16.80	1	-20.84	18.27	0.00		
		17.01	220.00	0.00	0.00	0.00
	2	-39.65	33.60mg	0.00		
		22.32	920.00	0.00	0.00	0.00
	3	-50.42	33.60mg	0.00		
		29.10	920.00	0.00	0.00	0.00
3 18.90	1	-20.84	18.27	0.00		
		17.01	220.00	0.00	0.00	0.00
	2	-39.65	33.60mg	0.00		
		22.32	920.00	0.00	0.00	0.00
	3	-44.26	33.60mg	0.00		
		29.09	920.00	0.00	0.00	0.00

9.6 Riostras

Para la comprobación y dimensionamiento de las riostras de pila y estribo se han tomado los siguientes criterios:

- En la riostra de pilas se ha tomado un modelo ménsula, cargado con una carga uniforme cuya resultante sería la mitad de la reacción en la pila. Este modelo permite determinar la totalidad de las armaduras necesarias .

- En la riostra de estribos se ha tomado un modelo de viga biapoyada con voladizos, cargado con una carga uniforme, ya sobre el vano central, ya sobre los voladizos, amén de con una carga concentrada que representa al carro. Este modelo permite asimismo determinar el esquema de armado necesario.

10 APARATOS DE APOYO Y PILAS

10.1 APARATOS DE APOYO

Para el apoyo del tablero se emplean las siguientes soluciones:

En el apoyo sobre pila el tablero se empotra. Esta solución permite ahorrar el aparato de apoyo, mejorar el comportamiento de la pila frente a pandeo y reducir el nivel de solicitación del tablero frente a cargas dispuestas en alguno de los vanos y no en todos.

En el apoyo en estribos, se emplean aparatos de apoyo de neopreno zunchado, de 350*450 mm en planta, 99 mm de altura bruta y 71 de altura neta. Esta solución es compatible con los desplazamientos admisibles en neoprenos (relación altura-desplazamiento menor que 0.7), así como con la tensión máxima admisible en el contacto (150 kp/cm^2). La tipología de neopreno zunchado es admisible debido a que la tensión mínima en el contacto neopreno-tablero es superior a 50 kp/cm^2. [1]

Los resultados de las comprobaciones acerca de la validez de estas soluciones se reflejan en el anejo "RESULTADOS DEL CALCULO".

10.2 PILAS

Las pilas se proyectan como fustes circulares de 1.00 metros de diámetro.

Para el dimensionamiento y comprobación de las pilas se ha empleado el programa LST3, desarrollado por Fhecor Ingenieros Consultores, que permite la comprobación en estado límite último de soportes, así como la determinación de esfuerzos de segundo orden en cimentación.

Para ello, se han considerado las siguientes longitudes de pandeo:

- 1.00 veces la altura de la pila para los momentos My.

- 1.00 veces la altura de la pila para los momentos Mz.

Para el análisis de las pilas se ha empleado un modelo de elementos finitos tipo barra, del que se han obtenido los resultados únicamente en las barras que representan las pilas.

El programa LST3, antes mencionado, es un posprocesador de los resultados obtenidos por el programa STATIK-2, descrito en el apartado "modelo". Mediante dicho posprocesador es posible introducir los efectos de segundo orden, tener en cuenta la existencia de varios fustes en una misma pila, analizar el comportamiento de los aparatos de apoyo y determinar los esfuerzos en cimentación. En cuanto al cálculo de armaduras, el programa hace un análisis de los esfuerzos en tres secciones por pila, para cada una de las envolventes de esfuerzos obtenidas en el análisis.

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[1] A pesar de que en las recomendaciones para el proyecto facilitadas por INECO se da una tensión mínima admisible de 23 kp/cm^2, es práctica habitual no considerar tensiones inferiores a 50 kp/cm^2 como aceptables en aparatos de apoyo zunchados.

ALZADO DE PILAS

Las pilas están formadas por un único fuste circular de 1.00 metro de diámetro.

Para el dimensionamiento de las pilas se ha utilizado el programa LST3. Este programa permite el dimensionamiento a flexión compuesta esviada de secciones genéricas. Igualmente, el programa tiene en cuenta los efectos de segundo orden mediante el método de la excentricidad adicional, incluido en la IEH-91. La longitud de pandeo, se ha tomado igual a la longitud real, teniendo en cuenta que se trata de un pilar biempotrado traslacional.

Con objeto de obtener un reparto de fuerzas horizontales realista (fisuración), se ha considerado una rigidez reducida de la pila (50% de la rigidez bruta). Con esta rigidez se han determinado los esfuerzos de la pila.

A partir de éstos y el armado resultante, se ha determinado la rigidez seccional real de la pila para la hipótesis de cálculo condicionante.

Esta rigidez resulta ser del 55% de la rigidez bruta. Con esta rigidez, se ha vuelto a calcular el reparto de fuerzas horizontales, obteniendo unos esfuerzos muy similares a los del cálculo inicial y una rigidez seccional, prácticamente, igual a la rigidez obtenida en la primera iteración. A continuación, se incluye el detalle de este análisis. El dimensionamiento de las pilas, se incluye en el apartado "Resultados del Cálculo".

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Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
                con STATIK2 (V. 3.1)

     Paso Superior de Camino. P.K. 406+100

     DIMENSIONAMIENTO VALORES PESIMOS


     LEYENDA     m: armadura mínima (As$$fyd=0.1$$Ac$$fcd)
              xxxx: Anec$$fyd > Ac$$fcd

     ------------------------------------------------------------------------
     pila     sec        fi_nom       A_tot
                         (máx)         (máx)
                          [mm]         [cm2]
     ------------------------------------------------------------------------
       1       1         31.16        190.63
               2         31.68        197.10
               3         33.01        213.93

       2       1         33.45        219.70
               2         34.01        227.09
               3         34.56        234.55
```

11. ESTRIBOS

11. ESTRIBOS

Los estribos proyectados son estribos cerrados con cimentación directa. Esta solución se justifica por las siguientes razones:

- El terreno es apto para resistir las cargas que transmite la estructura, por lo que no se hace necesaria ninguna solución con cimentación profunda o mejora de terreno.

- La disposición de un estribo cerrado es compatible con hacer una reserva de terreno para el mantenimiento de aparatos de apoyo e inspección.

- Al no poder invadir las tierras el fondo de la excavación, es necesario la disposición de unas aletas que hagan que los conos de derrame sean moderados, y un muro frontal, que impida el derrame de tierras bajo el cargadero, lo cual constituye el estribo cerrado.

Las comprobaciones hechas en los estribos han sido:

- Estabilidad de la cimentación. Se hace la hipótesis de distribución lineal de presiones en el contacto estructura-cimiento, y se comprueba que no se superan las presiones admisibles dadas en el informe geotécnico, así como que los coeficientes de seguridad a vuelco y deslizamiento son razonables.

- El armado del muro y de la cimentación. Para esto se toma un modelo de muro en ménsula.

Para el cálculo se han empleado los programas EST1 y EST2, desarrollados por Fhecor Ingenieros Consultores, que realizan las siguientes operaciones:

- El programa EST1 comprueba el estado tensional en el contacto estructura-terreno, así como la estabilidad a vuelco y deslizamiento.

- El programa EST2 dimensiona el esquema de armado del estribo cerrado. Para la determinación de dicho esquema de armado se emplea un modelo tipo ménsula en el muro frontal, sometido al empuje de tierras y a la reacción del tablero. Para la determinación del armado de la cimentación se emplea un modelo análogo al del muro, sometido a la reacción del terreno y con una vinculación de empotramiento en el muro.

De acuerdo al informe geotécnico, se ha considerado una presión admisible en el contacto estructura-terreno de 3.0 kp/cm2 en el estribo 1, apoyado en calizas, aunque próximo a una capa limoso-arcillosa, siendo las condiciones de apoyo del estribo 2 análogas a las del estribo 1.

Las aletas de los estribos se han estudiado empleando un modelo de elementos finitos tipo placa, cargados con la presión del terreno (coeficiente de empuje al reposo), y con una vinculación de empotramiento elástico en el muro.

En el apartado de Listados se incluyen todos los resultados del cálculo.

Los estribos se han dimensionado y comprobado mediante una hoja de cálculo, a partir de los esfuerzos de servicio y de estado límite último transmitidos por el tablero y que se obtienen del modelc de cálculo de la estructura.

Se han comprobado las tensiones teniendo en cuenta todas las cargas actuantes, incluyendo el peso y el empuje de las tierras, el peso propio del estribo, la acción de una sobrecarga de 1 t/m^2 actuando sobre el trasdos del muro, así como las cargas transmitidas por el tablero.

Para el dimensionamiento de la puntera, se ha considerado un modelo de bielas y tirantes, determinado la ley de tensiones en Estado Límite Último, calculando su resultante sobre la puntera y considerando que esta fuerza se transmite a la cara comprimida del muro frontal. Como canto del modelo se ha considerado 0.85d. Este dimensionamiento está en la linea de la nueva Instrucción de Hormigón Estructural EHE.

Para el dimensionamiento de la puntera se considera una ménsula de luz igual a la puntera más un 15% del espesor del muro frontal. Sobre esta ménsula actúa el peso propio de la zapata, el peso propio de las tierras y la reacción del terreno.

El muro se ha dimensionado teniendo en cuenta el empuje del terreno, el empuje debido a la sobrecarga y las acciones transmitidas por el tablero.

Para el dimensionamiento de las aletas se ha elaborado un modelo de elementos finitos tipo placa, utilizando el programa CEDRUS3, desarrollado por CUBUS AG. La aleta se supone empotrada en la cimentación (sólo en el caso del estribo 2) y en el muro frontal. Sobre la aleta, y perpendicularmente a su plano, actúa el empuje debido a las tierras y el empuje debido a la sobrecarga de 1 t/m^2.

Programa LSTC - Cálculo de Cimentaciones
(V. 3.1)

Paso Superior de Camino. P.K. 406+100. E-1.

COMPROBACION DE TENSIONES EN LAS ZAPATAS

LEYENDA: A,B = dimensiones de la zapata
Tipo de zapata -> 0=hexagonal, 1= rectangular
σmax = tension máxima en el terreno (punta)
σmin = tensión mínima en el terreno
σmed = tensión media
β= ángulo que forma el eje neutro con el eje Y de la zapata
ymax = distancia del cdg de la zapata a la fibra más comprimida
ymin = distancia del cdg de la zapata a la fibra más traccionada
f.n. = distancia de la fibra neutra a la fibra más comprimida
σadm = tension admisible del terreno
γd = coeficiente de seguridad frente al deslizamiento
γv = coeficiente de seguridad frente al vuelco
* = tensión de punta > 1.25* σadm
! = tensión media > σadm
= coef. de seguridad frente al deslizamiento < 1.5
@ = coef. de seguridad frente al vuelco < 1.5

Pila	hip	N [t]	Vy [t]	Vz [t]	My [mt]	Mz [mt]	A [m]	B [m]
		β [°]	ymax [m]	ymin [m]	f.n. [m]	σmax [kp/cm2]	σmin [kp/cm2]	σmed [kp/cm2]
		σadm [kp/cm2]	γd	γv				
Tipo de zapata: 1								
1	1	-1032.89	-0.46	-6.16	-210.26	-113.77	6.60	6.60
		209.19	4.47	-4.47	20.02	3.05	1.69	2.37
		3.00	66.68	19.16				
	2	-899.20	4.35	7.01	-196.84	-131.58	6.60	6.60
		213.76	4.58	-4.58	18.42	2.75	1.38	2.06
		3.00	43.60	17.38				
	3	-800.45	-10.14	2.49	-138.64	-184.05	6.60	6.60
		233.01	4.62	-4.62	17.19	2.51	1.16	1.84
		3.00	30.66	16.05				
	4	-907.52	9.65	-1.28	-157.19	-193.56	6.60	6.60
		230.92	4.64	-4.64	17.85	2.82	1.35	2.08
		3.00	37.29	16.90				
	5	-1117.41	3.34	-2.35	-202.58	-148.26	6.60	6.60
		216.20	4.61	-4.61	20.80	3.30	1.83	2.57
		3.00	109.45	20.53				
	6	-784.85	-2.93	0.79	-130.85	-98.64	6.60	6.60
		217.01	4.62	-4.62	22.07	2.28	1.32	1.80
		3.00	103.45	22.14				
Tipo de zapata: 1								
2	1	-950.04	2.24	-6.03	-224.64	-132.98	6.60	6.60
		210.62	4.52	-4.52	17.73	2.93	1.43	2.18
		3.00	59.08	16.45				
	2	-979.21	-1.27	5.19	-221.50	-122.45	6.60	6.60
		208.93	4.48	-4.48	18.50	2.97	1.53	2.25
		3.00	78.31	17.35				
	3	-799.98	-9.31	-2.34	-156.96	-184.82	6.60	6.60
		229.66	4.65	-4.65	16.59	2.55	1.12	1.84
		3.00	37.07	15.35				
	4	-906.64	7.87	1.27	-179.54	-195.94	6.60	6.60
		227.50	4.66	-4.66	17.06	2.86	1.30	2.08
		3.00	45.19	15.91				
	5	-1115.69	2.64	2.32	-231.08	-157.89	6.60	6.60
		214.34	4.59	-4.59	19.06	3.37	1.75	2.56
		3.00	126.98	18.28				
	6	-784.26	-2.44	-1.29	-150.32	-105.93	6.60	6.60
		215.17	4.61	-4.60	20.06	2.34	1.27	1.80
		3.00	113.85	19.61				

12. CIMENTACIÓN DE PILAS

12 CIMENTACION DE PILAS

La cimentación de las pilas se resuelve mediante una zapata superficial, habiéndose considerado en el cálculo una presión admisible en el contacto estructura-terreno de 3kp/cm^2, conforme al informe geotécnico.

Ambas pilas quedan apoyadas muy próximas a la capa caliza inferior, y con el correspondiente saneo con hormigón de limpieza se puede considerar que el apoyo se produce en esta capa.

Para el dimensionamiento de la cimentación se ha empleado el programa LSTC, desarrollado por Fhecor Ingenieros Consultores, que permite la comprobación de la estabilidad y de la distribución de tensiones en el terreno, en hipótesis de cimentación rígida.

Habida cuenta que las zapatas se disponen con lados paralelos a la vía inferior, es necesario hacer una rotación de ejes en los esfuerzos dados por el programa de cálculo, para tener solicitaciones según los ejes principales de la zapata

Se han considerado en cimentación los esfuerzos de segundo orden, calculados según el método de la excentricidad adicional, propuesto en la Instrucción Española EH-91.

Para ello, se han considerado las siguientes longitudes de pandeo:

- 1.00 veces la altura de la pila para los momentos My.

- 1.00 veces la altura de la pila para los momentos Mz.

El armado de la cimentación se ha determinado empleando un modelo de emparrillado apoyado elásticamente, que reproduce el comportamiento de la zapata.

13. PRUEBA DE CARGA

13 PRUEBA DE CARGA

13.1 Características y disposición de los camiones

El cálculo de las flechas obtenidas en la prueba de carga se han evaluado con el mismo modelo usado para la comprobación de estado límite último y estado límite de servicio.

El camión propuesto tiene 33.50 toneladas de peso total y 3 ejes, con los siguientes pesos por eje:

- eje trasero: 130.00 kN
- eje intermedio: 130.00 kN
- eje delantero: 75.00 kN

En planta el camión tiene unas dimensiones de 8.30 metros de largo por 2.45 metros de ancho. Las separaciones entre ejes y las distancias de los ejes extremos a los bordes del camión son las siguientes:

- distancia del eje trasero al borde del camión: 1.60 m
- distancia del eje trasero al intermedio: 1.35 m
- distancia del eje delantero al anterior: 3.85 m
- distancia del eje delantero al borde del camión: 1.50 m

Se han estudiado tres posiciones diferentes de camiones, buscando el máximo momento flector sobre pila, en centro de vano, y el máximo momento torsor.

Se ha verificado que no se sobrepasan los niveles de solicitación alcanzados con la sobrecarga máxima, así como que la estructura alcanza una solicitación suficientemente considerable como para considerarla probada.

En alguna combinación se puede encontrar en los listados niveles de esfuerzo cortante superiores al 100% de los originados bajo carga máxima. Estos son resultados anómalos ocasionados por ser el signo del cortante bajo prueba de carga contrario al del cortante bajo sobrecarga máxima, o por coincidir en algún punto un cortante alto bajo prueba de carga con un cortante prácticamente nulo, o muy bajo, bajo sobrecarga total.

Programa LSTCR - Posprocesador para la Prueba de Carga
(versión 3.0)

L. A. V. Madrid-Zaragoza. Subtramo IV. P.K. 406+100

DATOS DEL CAMION DE LA PRUEBA DE CARGA

N° de ejes del camión	: 3
Dist. transv entre ruedas [m]	: 2.00
Ancho total del camión [m]	: 2.45
Longitud Total del camion [m]	: 8.30
Dist eje trasero al borde del camión [m]	: 1.60
Dist eje delentero al borde del camión [m]	: 1.50

Eje	Peso [t]	Dist al eje anterior [m]
1	7.50	0.00
2	13.00	3.85
3	13.00	1.35

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L. A. V. Madrid-Zaragoza. Subtramo IV. P.K. 406+100

DATOS DE LA PRUEBA DE CARGA

LEYENDA: posición -> normal = el camión avanza según el sentido de los P.K.
-> invertido = el camión avanza en el sentido contrario al avance de los P.K.
Exc = excentricidad del eje del camión respecto del eje del puente
Exc>0 -> Camión situado a la derecha según avance de P.K.
Exc<0 -> Camión situado a la izquierda según avance de P.K.

Hip	Camion	Posición	Distancia al origen [m]	Exc. [m]
1	1	normal	16.00	0.00
	2	invertido	36.00	-1.50
	3	invertido	36.00	1.50
2	1	invertido	14.60	-1.50
	2	invertido	14.60	1.50
	3	normal	53.70	0.00
3	1	normal	22.00	-2.50
	2	normal	32.00	-2.50
	3	normal	42.00	-2.50

13.2 Medidas y ensayos a realizar

Se medirá la flecha en el centro de cada vano en cada fase de la prueba de carga, así como el descenso que hubiere en los apoyos como consecuencia de la deformabilidad de los neoprenos y posibles descensos del terreno. La flecha de comparación se obtendrá restando a la flecha en centro de vano la media de los descensos medidos en los apoyos contiguos.

El módulo de elasticidad teórico utilizado para el cálculo de las deformaciones ha sido el recomendado en la instrucción EH-91 para cargas instantáneas, esto es, 380000 kp/cm2.

13.3 Resultados

Los listados siguientes indican las relaciones entre los esfuerzos obtenidos con cada hipótesis de prueba de carga y los esfuerzos obtenidos con las sobrecargas de la instrucción, así como los desplazamientos (flechas) en el centro de cada vano del puente para las citadas hipótesis de carga.

Se incluyen también otros listados correspondientes a diferentes aspectos geométricos a controlar durante la prueba de carga (posición de los camiones, sentido de avance de los mismos, etc.).

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DESPLAZAMIENTO VERTICAL EN CENTRO DE VANO

LEYENDA: dz: desplazamiento vertical en el eje del tablero (cdv)
rx: rotación según el eje global x
ry: rotación según el eje global y
Az: Azimut de eje de la estructura en el pto considerado
P4: Ancho inferior del cajón
dz,bi: desplazamiento vertical borde izquierdo del cajón
dz,bd: desplazamiento vertical borde derecho del cajón

hip	vano	dz [mm]	rx [1E-3]	ry [1E-3]	Az [g]	P4 [m]	dz,bi [mm]	dz,bd [mm]
1	1	0.62	0.00	-0.01	99.19	5.50	0.63	0.62
	2	-3.61	-0.01	0.08	101.71	5.50	-3.65	-3.58
	3	1.10	0.01	0.02	104.23	5.50	1.11	1.08
2	1	-1.51	-0.01	0.05	99.19	5.50	-1.52	-1.49
	2	1.02	0.00	-0.01	101.71	5.50	1.03	1.01
	3	-1.60	-0.00	0.02	104.23	5.50	-1.62	-1.59
3	1	0.96	-0.45	-0.03	99.19	5.50	-0.27	2.20
	2	-3.56	-1.30	0.04	101.71	5.50	-7.14	0.03
	3	0.75	-0.53	0.05	104.23	5.50	-0.71	2.21

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COMPROBACION DEL NIVEL DE ESFUERZOS ALCANZADO DURANTE LA PDC

FASE No. 1: Máximo Flector en apoyo P-1

vano	x [m]	Vz [t]	Vz/Vz,sc [%]	Mx [mt]	Mx/Mx,sc [%]	My [mt]	My/My,sc [%]
1	0.00	-4.39	9	0.54	0	-0.00	0
	10.50	-4.40	28	0.21	0	-46.18	49
	10.50	-4.40	28	0.05	0	-46.18	49
	21.00	-11.90	17	-0.93	1	-117.88	36
2	21.00	44.81	59	-1.40	1	-117.87	35
	34.25	18.81	307	-0.79	2	160.51	63
	34.25	18.81	307	-0.06	0	160.52	63
	47.50	-48.19	63	2.08	1	-147.40	44
3	47.50	7.02	10	1.42	1	-147.41	45
	58.00	7.02	45	-0.10	0	-73.71	78
	58.00	7.02	45	-0.35	0	-73.71	78
	68.50	7.01	14	-0.87	0	-0.00	0

Programa LSTCR - Posprocesador para la Prueba de Carga
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COMPROBACION DEL NIVEL DE ESFUERZOS ALCANZADO DURANTE LA PDC

FASE No. 2: Máximo Flector en vano 1

vano	x [m]	Vz [t]	Vz/Vz,sc [%]	Mx [mt]	Mx/Mx,sc [%]	My [mt]	My/My,sc [%]
1	0.00	7.85	16	-0.93	0	0.00	0
	10.50	7.86	50	-0.34	0	82.56	35
	10.50	7.86	50	-0.06	0	82.56	35
	21.00	-44.14	62	1.21	1	-54.75	17
2	21.00	15.32	20	1.00	1	-54.76	16
	34.25	0.32	5	0.14	0	-46.10	49
	34.25	0.32	5	-0.07	0	-46.10	49
	47.50	0.32	0	-0.83	1	-41.87	13
3	47.50	17.45	25	-1.02	1	-41.87	13
	58.00	9.95	64	-0.33	0	121.14	51
	58.00	9.95	64	0.08	0	121.14	51
	68.50	-16.02	32	1.25	0	0.00	0

Programa LSTCR - Posprocesador para la Prueba de Carga
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L. A. V. Madrid-Zaragoza. Subtramo IV. P.K. 406+100

COMPROBACION DEL NIVEL DE ESFUERZOS ALCANZADO DURANTE LA PDC

FASE No. 3: Máximo Torsor

vano	x [m]	Vz [t]	Vz/Vz,sc [%]	Mx [mt]	Mx/Mx,sc [%]	My [mt]	My/My,sc [%]
1	0.00	-6.53	13	-114.02	41	0.24	24
	10.50	-6.54	42	-114.67	62	-66.88	71
	10.50	-6.54	42	-114.89	62	-66.50	71
	21.00	-6.54	9	-116.26	71	-133.61	41
2	21.00	40.01	53	-116.79	71	-133.14	40
	34.25	-0.98	16	-13.00	27	154.07	60
	34.25	-0.98	16	-12.30	25	154.13	60
	47.50	-47.48	62	105.13	64	-133.42	40
3	47.50	18.79	26	104.52	64	-133.89	41
	58.00	5.79	37	135.82	73	-58.16	62
	58.00	5.79	37	135.63	73	-58.61	62
	68.50	5.78	12	135.01	49	0.20	20

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JUSTIFICACION PRECIO PARTIDA ALZADA DE LA PRUEBA DE CARGA

Concepto	Número	Precio [pts/hora]	No. horas [horas]	Parcial [pts]	Total [pts]
Camiones	3	4500	8	108000	
Mano de obra					
Ingeniero Sup.	1	8000	8	64000	
Topógrafo	1	4500	8	36000	
Peón	1	1500	8	12000	
Equipo					
Nivel Alta Prec.	1	3500	8	28000	248000

14. RESULTADOS DEL CÁLCULO

14 RESULTADOS DEL CÁLCULO

14.1 Replanteo. Datos del Trazado

Programa LST0 - Replanteo de viaductos hormigón pretensado y mixtos (V 3.1)

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LISTADO DE PUNTOS SINGULARES EJES EN PLANTA

Pk	Long.	x1 x2 xc	y1 y2 yc	Az1 Az2	R	A_ant A_post
[m]	[m]	[m]	[m]	[g]	[m]	[m]
Eje sup no. 1: Paso Superior PK 406+100 06-04-98 - ps61						
0.000	0.000	480800.040	4484023.245	94.3104	0.00	
0.000	0.000	480800.040	4484023.245	94.3104		
66.667	66.667	480866.530	4484027.964	97.8475	600.00	200.00
190.658	123.991	480990.002	4484019.367	111.0034		200.00
		480886.813	4483428.307			
257.325	66.667	481055.197	4484005.480	114.5398	0.00	
257.325	0.000	481055.197	4484005.480	114.5398		

Programa LST0 - Replanteo de viaductos hormigón pretensado y mixtos (V 3.1)

Paso Superior de Camino. P.K. 406+100

LISTADO DE PUNTOS SINGULARES EJES EN PLANTA

Pk	Long.	x1 x2 xc	y1 y2 yc	Az1 Az2	R	A_ant A_post
[m]	[m]	[m]	[m]	[g]	[m]	[m]
Eje inf no. 1: LAV. TRAMO: MADRID - ZARAGOZA; Subtramo IV						
400838.541	0.000	477241.995	4480388.726	72.4291	-7250.00	1826.20
404863.022	4024.481	480253.333	4482980.375	37.0903		1826.20
		474199.380	4486969.379			
405323.023	460.001	480498.237	4483369.737	35.0706	0.00	
405935.541	612.518	480818.856	4483891.639	35.0706		
406395.542	460.001	481063.761	4484281.001	37.0902	7250.00	1826.20
407542.146	1146.605	481767.558	4485184.679	47.1585		1826.20
		487117.716	4480291.999			

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LISTADO DE PUNTOS SINGULARES EJES EN ALZADO

N°	Pk Cota	TE TS	Cota TE Cota TS	pE[%] pS[%]	Long Flecha	Kv Theta[%]
Eje sup no. 1: Paso Superior PK 406+100 06-04-1998 ps61						
1	0.000 881.146	0.000	881.146	6.2121		
2	111.171 888.052	37.421 184.921	883.471 889.067	6.2121 1.3760	147.501 0.892	-3050.000 -4.8361
3	257.324 890.063	257.324	890.063	1.3760		

Peraltes:

Peralte Izq Tramo	Pk	Per[%]	Peralte Der Tramo	Pk	Per[%]
1	0.000	0.000	1	0.000	-2.000
2	20.000	2.000	2	20.000	-2.000
3	66.667	5.050	3	66.667	-5.050
4	190.656	5.050	4	190.656	-5.050
5	237.325	2.000	5	237.325	-2.000
6	257.325	0.000	6	257.325	-2.000

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LISTADO DE PUNTOS SINGULARES EJES EN ALZADO

N°	Pk Cota	TE TS	Cota TE Cota TS	pE[%] pS[%]	Long Flecha	Kv Theta[%]
Eje inf no. 1: LAV. TRAMO: MADRID - ZARAGOZA; Subtramo IV						
1	400000.000 734.589	400000.000	734.589	2.4860		
2	402293.647 791.610	402116.782 402470.512	787.213 794.617	2.4860 1.7000	353.731 0.348	-45000.000 -0.7861
3	403365.429 809.830	403207.921 403522.937	807.152 813.610	1.7000 2.4000	315.017 -0.276	45000.000 0.7000
4	406560.000 886.500	406131.193 406988.807	876.209 888.619	2.4000 0.4942	857.614 2.043	-45000.000 -1.9058
5	407905.000 893.147	407905.716 408004.284	892.656 893.941	0.4942 0.7997	198.569 -0.076	65000.000 0.3055
6	408006.039 893.955	408006.039	893.955	0.7997		

Peraltes:

Peralte Izq Tramo	Pk	Per[%]	Peralte Der Tramo	Pk	Per[%]
1	400000.000	0.000	1	400000.000	0.000
2	410000.000	0.000	2	410000.000	0.000

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LISTADO DE PUNTOS A INTERVALO CONSTANTE

LEYENDA: * -> no está definido el peralte en este P.K
pdte -> pendiente del eje
per_i-> peralte izquierdo asociado al eje
per_d-> peralte derecho asociado al eje

N°	Pk [m]	Cota [m]	pdte [%]	per_i [%]	per_d [%]
Eje no. 1: Paso Superior PK 406+100 06-04-1998 ps61					
1	0.000	881.146	6.212	0.000	-2.000
2	5.000	881.457	6.212	0.500	-2.000
3	10.000	881.767	6.212	1.000	-2.000
4	15.000	882.078	6.212	1.500	-2.000
5	20.000	882.388	6.212	2.000	-2.000
6	25.000	882.699	6.212	2.327	-2.327
7	30.000	883.010	6.212	2.654	-2.654
8	35.000	883.320	6.212	2.980	-2.980
9	40.000	883.630	6.127	3.307	-3.307
10	45.000	883.932	5.964	3.634	-3.634
11	50.000	884.226	5.800	3.961	-3.961
12	55.000	884.512	5.636	4.287	-4.287
13	60.000	884.790	5.472	4.614	-4.614
14	65.000	885.059	5.308	4.941	-4.941
15	70.000	885.320	5.144	5.050	-5.050
16	75.000	885.574	4.980	5.050	-5.050
17	80.000	885.818	4.816	5.050	-5.050
18	85.000	886.055	4.652	5.050	-5.050
19	90.000	886.284	4.488	5.050	-5.050
20	95.000	886.504	4.324	5.050	-5.050
21	100.000	886.716	4.160	5.050	-5.050
22	105.000	886.920	3.996	5.050	-5.050
23	110.000	887.116	3.832	5.050	-5.050
24	115.000	887.303	3.668	5.050	-5.050
25	120.000	887.483	3.505	5.050	-5.050
26	125.000	887.654	3.341	5.050	-5.050
27	130.000	887.817	3.177	5.050	-5.050
28	135.000	887.971	3.013	5.050	-5.050
29	140.000	888.118	2.849	5.050	-5.050
30	145.000	888.256	2.685	5.050	-5.050
31	150.000	888.386	2.521	5.050	-5.050
32	155.000	888.508	2.357	5.050	-5.050
33	160.000	888.622	2.193	5.050	-5.050
34	165.000	888.728	2.029	5.050	-5.050
35	170.000	888.825	1.865	5.050	-5.050
36	175.000	888.914	1.701	5.050	-5.050
37	180.000	888.995	1.537	5.050	-5.050
38	185.000	889.068	1.376	5.050	-5.050
39	190.000	889.137	1.376	5.050	-5.050
40	195.000	889.205	1.376	4.766	-4.766
41	200.000	889.274	1.376	4.439	-4.439
42	205.000	889.343	1.376	4.113	-4.113
43	210.000	889.412	1.376	3.786	-3.786
44	215.000	889.481	1.376	3.459	-3.459
45	220.000	889.549	1.376	3.132	-3.132
46	225.000	889.618	1.376	2.805	-2.805
47	230.000	889.687	1.376	2.479	-2.479
48	235.000	889.756	1.376	2.152	-2.152
49	240.000	889.825	1.376	1.732	-2.000
50	245.000	889.893	1.376	1.233	-2.000
51	250.000	889.962	1.376	0.733	-2.000
52	255.000	890.031	1.376	0.233	-2.000

14.2 Replanteo de la Estructura

Programa LST0 - Replanteo de viaductos hormigón pretensado y mixtos (V 3.1)

Paso Superior de Camino. P.K. 406+100

REPLANTEO EN PLANTA DEL EJE DEL PUENTE

LEYENDA: Pk -> Pk, respecto del eje de referencia, de la intersección
de la sección correspondiente con dicho eje
Az -> Azimut del eje del puente (no coincide necesariamente
con el Azimut del eje de referencia
Or -> Orientación = Azimut de la sección
Ancho_esv -> Ancho esviado del puente según la dirección
definida por Or

Sec	Pk [m]	x [m]	y [m]	Az [g]	Or [g]	Ancho_esv [m]
Eje de referencia: Paso Superior PK 406+100 06-04-98 - ps61						
**REPLANTEO_EN_PLANTA						
1	68.916	480868.678	4484028.033	98.0756	-1.9244	13.200
2	70.916	480870.777	4484028.093	99.2984	-1.7016	13.200
3	73.016	480872.877	4484028.145	98.5212	-1.4788	13.200
4	75.116	480874.976	4484028.190	98.7440	-1.2560	13.200
5	77.216	480877.076	4484028.228	98.9668	-1.0332	13.200
6	79.316	480879.176	4484028.258	99.1896	-0.8104	13.200
7	81.416	480881.276	4484028.281	99.4125	-0.5875	13.200
8	83.516	480883.375	4484028.297	99.6353	-0.3647	13.200
9	85.616	480885.475	4484028.305	99.8581	-0.1419	13.200
10	87.716	480887.575	4484028.306	100.0809	0.0809	13.200
11	89.816	480889.675	4484028.300	100.3037	0.3037	13.200
12	92.466	480892.325	4484028.282	100.5849	0.5849	13.200
13	95.116	480894.975	4484028.251	100.8661	0.8661	13.200
14	97.766	480897.625	4484028.210	101.1472	1.1472	13.200
15	100.416	480900.274	4484028.156	101.4284	1.4284	13.200
16	103.066	480902.924	4484028.091	101.7096	1.7096	13.200
17	105.716	480905.572	4484028.014	101.9908	1.9908	13.200
18	108.366	480908.221	4484027.925	102.2719	2.2719	13.200
19	111.016	480910.869	4484027.824	102.5531	2.5531	13.200
20	113.666	480913.517	4484027.712	102.8343	2.8343	13.200
21	116.316	480916.164	4484027.589	103.1155	3.1155	13.200
22	118.416	480918.261	4484027.482	103.3383	3.3383	13.200
23	120.516	480920.358	4484027.368	103.5611	3.5611	13.200
24	122.616	480922.454	4484027.247	103.7839	3.7839	13.200
25	124.716	480924.551	4484027.119	104.0067	4.0067	13.200
26	126.816	480926.646	4484026.983	104.2296	4.2296	13.200
27	128.916	480928.741	4484026.840	104.4524	4.4524	13.200
28	131.016	480930.836	4484026.690	104.6752	4.6752	13.200
29	133.116	480932.930	4484026.532	104.8980	4.8980	13.200
30	135.216	480935.023	4484026.367	105.1208	5.1208	13.200
31	137.316	480937.116	4484026.195	105.3436	5.3436	13.200

Programa LST0 - Replanteo de viaductos hormigón pretensado y mixtos (V 3.1)

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REPLANTEO DEL TABLERO RESPECTO DEL EJE DEL PUENTE

P.	Pk [m]	x [m]	y [m]	Az [grad]	z0 [m]	z1 [m]	z2 [m]
1	68.816	480868.678	4484028.033	98.076	885.189	885.522	884.856
2	70.916	480870.777	4484028.093	98.298	885.297	885.631	884.964
3	73.016	480872.877	4484028.145	98.521	885.404	885.737	885.071
4	75.116	480874.976	4484028.190	98.744	885.509	885.842	885.176
5	77.216	480877.076	4484028.228	98.967	885.613	885.946	885.280
6	79.316	480879.176	4484028.258	99.190	885.715	886.049	885.382
7	81.416	480881.276	4484028.291	99.412	885.816	886.150	885.483
8	83.516	480883.375	4484028.297	99.635	885.916	886.249	885.582
9	85.616	480885.475	4484028.305	99.858	886.014	886.347	885.680
10	87.716	480887.575	4484028.306	100.081	886.110	886.444	885.777
11	89.816	480889.675	4484028.300	100.304	886.205	886.539	885.872
12	92.466	480892.325	4484028.282	100.585	886.323	886.657	885.990
13	95.116	480894.975	4484028.251	100.866	886.439	886.772	886.106
14	97.766	480897.625	4484028.210	101.147	886.552	886.886	886.219
15	100.416	480900.274	4484028.156	101.428	886.663	886.997	886.330
16	103.066	480902.924	4484028.091	101.710	886.772	887.105	886.439
17	105.716	480905.572	4484028.014	101.991	886.878	887.212	886.545
18	108.366	480908.221	4484027.925	102.272	886.983	887.316	886.649
19	111.016	480910.869	4484027.824	102.553	887.084	887.418	886.751
20	113.666	480913.517	4484027.712	102.834	887.184	887.517	886.851
21	116.316	480916.164	4484027.589	103.115	887.281	887.614	886.948
22	118.416	480918.261	4484027.482	103.338	887.357	887.690	887.023
23	120.516	480920.358	4484027.368	103.561	887.431	887.764	887.097
24	122.616	480922.454	4484027.247	103.784	887.503	887.836	887.170
25	124.716	480924.551	4484027.119	104.007	887.574	887.907	887.241
26	126.816	480926.646	4484026.983	104.230	887.644	887.977	887.310
27	128.916	480928.741	4484026.840	104.452	887.712	888.045	887.379
28	131.016	480930.836	4484026.690	104.675	887.779	888.112	887.445
29	133.116	480932.930	4484026.532	104.898	887.844	888.177	887.511
30	135.216	480935.023	4484026.367	105.121	887.908	888.241	887.574
31	137.316	480937.116	4484026.195	105.344	887.970	888.303	887.637

Programa LST0 - Replanteo de viaductos hormigón pretensado y mixtos (V 3.1)

Paso Superior de Camino. P.K. 406+100

DEFINICION DE LAS SECCIONES

Punto	Pk [m]	D1 [m]	D2 [m]	D3 [m]	D4 [m]	C [m]
1	68.816	6.000	6.000	6.000	6.600	1.200
2	70.916	2.750	2.750	3.620	6.600	1.200
3	73.016	2.750	2.750	3.620	6.600	1.200
4	75.116	2.750	2.750	3.620	6.600	1.200
5	77.216	2.750	2.750	3.620	6.600	1.200
6	79.316	2.750	2.750	3.620	6.600	1.200
7	81.416	2.750	2.750	3.620	6.600	1.200
8	83.516	2.750	2.750	3.620	6.600	1.200
9	85.616	2.750	2.750	3.620	6.600	1.200
10	87.716	2.750	2.750	3.620	6.600	1.200
11	89.816	2.750	2.750	3.620	6.600	1.200
12	92.466	2.750	2.750	3.620	6.600	1.200
13	95.116	2.750	2.750	3.620	6.600	1.200
14	97.766	2.750	2.750	3.620	6.600	1.200
15	100.416	2.750	2.750	3.620	6.600	1.200
16	103.066	2.750	2.750	3.620	6.600	1.200
17	105.716	2.750	2.750	3.620	6.600	1.200
18	108.366	2.750	2.750	3.620	6.600	1.200
19	111.016	2.750	2.750	3.620	6.600	1.200
20	113.666	2.750	2.750	3.620	6.600	1.200
21	116.316	2.750	2.750	3.620	6.600	1.200
22	118.416	2.750	2.750	3.620	6.600	1.200
23	120.516	2.750	2.750	3.620	6.600	1.200
24	122.616	2.750	2.750	3.620	6.600	1.200
25	124.716	2.750	2.750	3.620	6.600	1.200
26	126.816	2.750	2.750	3.620	6.600	1.200
27	128.916	2.750	2.750	3.620	6.600	1.200
28	131.016	2.750	2.750	3.620	6.600	1.200
29	133.116	2.750	2.750	3.620	6.600	1.200
30	135.216	2.750	2.750	3.620	6.600	1.200
31	137.316	6.000	6.000	6.000	6.600	1.200

Programa LST0 - Replanteo de viaductos hormigón pretensado y mixtos (V 3.1)

Paso Superior de Camino. P.K. 406+100

REPLANTEO DE LOS APOYOS

Pk [m]	Apoyo	#Neop	ZNeopS [m]	ZNMS [m]	ZAP [m]
68.816	1	1	884.128	884.077	883.928
		2	883.850	883.800	883.650
89.816	2	1	885.005	885.005	885.005
116.316	3	1	886.081	886.081	886.081
137.316	4	1	886.909	886.862	886.717
		2	886.631	886.585	886.439

Programa LST0 - Replanteo de viaductos hormigón pretensado y mixtos (V 3.1)

Paso Superior de Camino. P.K. 406+100

REPLANTEO EJE DE PILAS Y ESTRIBOS

Apoyo	Pk. [m]	sobreespesor [m]	x [m]	y [m]	Az [grad]
E-1	68.816	0.000	480868.676	4484028.094	-1.9244
P-1	89.816	-0.001	480889.675	4484028.361	0.3037
P-2	116.316	0.000	480916.167	4484027.649	3.1155
E-2	137.316	-0.000	480937.121	4484026.255	5.3436

14.3 Modelo de cálculo. Análisis Global del Tablero

```
.SK 5
.TP 15

*****************************
*     DATOS - ESTRUCTURA    *
*****************************


Titulo proy.:  Paso Superior de Camino. P.K. 406+100

Unidades    :  M , T
.SK 3
.TP 12
D A T O S  D E  N U D O S:(  35 Nudo  )          Apoyo          Especial
.TK 3
                X           Y           Z        V     R
 Nudo       [ M]        [ M]        [ M]      XYZ   XYZ
-------------------------------------------------------------------------
    1     0.00000     0.00000    99.40700                          rotado
    2     2.09900     0.06000    99.52000
    3     4.19900     0.11200    99.52000
    4     6.29800     0.15700    99.52000
    5     8.39800     0.19500    99.52000
    6    10.49800     0.22500    99.52000
    7    12.59800     0.24800    99.52000
    8    14.69700     0.26400    99.52000
    9    16.79700     0.27200    99.52000
   10    18.89700     0.27300    99.52000
   11    20.99700     0.26700    99.49700                          rotado
   12    23.64700     0.24900    99.52000
   13    26.29700     0.21800    99.52000
   14    28.94700     0.17700    99.52000
   15    31.59600     0.12300    99.52000
   16    34.24600     0.05800    99.52000
   17    36.89400    -0.01900    99.52000
   18    39.54300    -0.10800    99.52000
   19    42.19100    -0.20900    99.52000
   20    44.83900    -0.32100    99.52000
   21    47.48600    -0.44400    99.49700                          rotado
   22    49.58300    -0.55100    99.52000
   23    51.68000    -0.66500    99.52000
   24    53.77600    -0.78600    99.52000
   25    55.87300    -0.91400    99.52000
   26    57.96800    -1.05000    99.52000
   27    60.06300    -1.19300    99.52000
   28    62.15800    -1.34300    99.52000
   29    64.25200    -1.50100    99.52000
   30    66.34500    -1.66600    99.52000
   31    68.43800    -1.83800    99.40700                          rotado
 1002    20.99700     0.26700    84.89500        BBB   BBB
 1003    47.48600    -0.44400    83.81800        BBB   BBB
 2001     0.00000     0.00000    98.40700        BBB   BBB
 2002    68.43800    -1.83800    98.40700        BBB   BBB
.TK 0
.SK 3
.TP 12
NUDOS CON SISTEMA DE COORDENADAS ROTADAS:
.TK 3
             K1          K2          K3
Nudo         X1          Y1          Z1          X2          Y2          Z2
-------------------------------------------------------------------------
    1  2.10E+00  6.00E-02  0.00E+00  2.10E+00  1.20E-01  0.00E+00
   11  2.10E+00 -2.00E-03  0.00E+00  2.10E+00  1.00E+00  0.00E+00
   21  2.65E+00 -1.18E-01  0.00E+00  2.65E+00  1.00E+00  0.00E+00
   31  2.09E+00 -1.72E-01  0.00E+00  2.09E+00  1.00E+00  0.00E+00
.TK 0
.SK 4
.TP 8
```

```
D A T O S  B A R R A S :     ( 34 Barras.
.TK 3
      Incidencias  Long.Barras  Nombre-sec.        Articulaciones Especial
 Barra Inicio Fin        [ M]  (Cant.var)         Inicio Fin
-------------------------------------------------------------------------
     1      1   2     2.10290  Canto variable
     2      2   3     2.10064  Canto variable
     3      3   4     2.09948  Canto variable
     4      4   5     2.10034  Canto variable
     5      5   6     2.10021  Canto variable
     6      6   7     2.10013  Canto variable
     7      7   8     2.09906  Canto variable
     8      8   9     2.10002  Canto variable
     9      9  10     2.10000  Canto variable
    10     10  11     2.10013  Canto variable
    11     11  12     2.65016  Canto variable
    12     12  13     2.65019  Canto variable
    13     13  14     2.65032  Canto variable
    14     14  15     2.64955  Canto variable
    15     15  16     2.65079  Canto variable
    16     16  17     2.64912  Canto variable
    17     17  18     2.65049  Canto variable
    18     18  19     2.64993  Canto variable
    19     19  20     2.65037  Canto variable
    20     20  21     2.64996  Canto variable
    21     21  22     2.09985  Canto variable
    22     22  23     2.10010  Canto variable
    23     23  24     2.09949  Canto variable
    24     24  25     2.10090  Canto variable
    25     25  26     2.09941  Canto variable
    26     26  27     2.09998  Canto variable
    27     27  28     2.10036  Canto variable
    28     28  29     2.09995  Canto variable
    29     29  30     2.09950  Canto variable
    30     30  31     2.10310  Canto variable
 1002*     11 1002    14.60207  Canto variable                    Ori
 1003*     21 1003    15.67900  Canto variable                    Ori
 2001*      1 2001     1.00000  *Q0065           -SS**- ------  Ori
 2002*     31 2002     1.00000  *Q0066           -SS**- ------  Ori
.TK 0

Las barras marcadas con "*" son verticales. Sus ejes locales son
tales que la direccion 'y' resulta coincidente con la global siempre
y cuando no se haya rotado con la instruction 'Q_ORIENTACION'.

Secciones marcadas con "*" (p.e).*HEB2000 estan rotadas
por 90 grados .contra reloj:
.SK 3
.TP 9
ORIENTANCION BARRAS Y CANT.VAR:
.TK 3
      Cantos variables                    Orientación barras
 Barra Inicio-sec       Fin-sec          x/n1/Angulo     y/n2       z
-------------------------------------------------------------------------
    1  *Q0001          *Q0002
    2  *Q0003          *Q0004
    3  *Q0005          %Q0006
    4  *Q0007          %Q0008
    5  %Q0009          %Q0010
    6  %Q0011          %Q0012
    7  %Q0013          %Q0014
    8  %Q0015          %Q0016
    9  %Q0017          %Q0018
   10  %Q0019          %Q0020
   11  %Q0021          %Q0022
   12  %Q0023          %Q0024
   13  %Q0025          %Q0026
   14  %Q0027          %Q0028
   15  %Q0029          %Q0030
   16  %Q0031          %Q0032
   17  %Q0033          %Q0034
   19  %Q0035          %Q0036
   19  %Q0037          %Q0038
   20  %Q0039          %Q0040
```

21	%Q0041	%Q0042		
22	%Q0043	%Q0044		
23	%Q0045	%Q0046		
24	%Q0047	%Q0048		
25	%Q0049	%Q0050		
26	%Q0051	%Q0052		
27	%Q0053	%Q0054		
28	%Q0055	%Q0056		
29	%Q0057	%Q0058		
30	%Q0059	%Q0060		
1002	%Q0061	%Q0062	0.2700	
1003	%Q0063	%Q0064	2.8000	
2001			-1.7300	
2002			4.8100	

.TK 0
.SK 3
.TP 8
.TK 4

CARACTERISTICAS DE SEC. / Nombre Sec.	Ax [M2] / Ix [M4] / zi [M1]	Iy [M4] / Fy [M2] / zs [M1]	Iz [M4] / Fz [M2] / yi [M1]	Phi[grados] / yd [M1]
.TP 4				
.TP 4				
%Q0001	1.4000E+01	1.8000E-00	1.8000E+02	0.00
	6.2000E+00	Undef	Undef	
	-0.6070	0.5930	-6.6000	6.6000
.TP 4				
%Q0002	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0003	7.6000E-00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0004	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0005	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0006	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0007	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0008	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0009	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0010	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0011	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0012	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0013	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0014	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0015	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0016	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0017	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0018	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0019	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0020	9.3000E+00	1.2000E+00	6.5000E+01	0.00
	2.9000E+00	Undef	Undef	
	-0.6970	0.5030	-6.6000	6.6000
.TP 4				
%Q0021	9.3000E+00	1.2000E+00	6.5000E+01	0.00
	2.9000E+00	Undef	Undef	
	-0.6970	0.5030	-6.6000	6.6000
.TP 4				
%Q0022	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0023	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0024	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0025	7.6000E+00	1.1000E-00	6.1000E+01	0.00
	2.0000E-00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000

.TP 4				
%Q0026	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0027	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0028	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0029	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0030	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0031	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0032	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0033	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0034	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0035	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0036	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0037	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0038	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0039	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0040	9.3000E+00	1.2000E+00	6.5000E+01	0.00
	2.9000E+00	Undef	Undef	
	-0.6970	0.5030	-6.6000	6.6000
.TP 4				
%Q0041	9.3000E+00	1.2000E+00	6.5000E+01	0.00
	2.9000E+00	Undef	Undef	
	-0.6970	0.5030	-6.6000	6.6000
.TP 4				
%Q0042	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0043	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0044	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0045	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0046	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0047	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0048	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0049	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0050	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0051	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0052	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0053	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0054	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	
	-0.7200	0.4800	-6.6000	6.6000
.TP 4				
%Q0055	7.6000E+00	1.1000E+00	6.1000E+01	0.00
	2.0000E+00	Undef	Undef	

```
                    -0.7200         0.4800        -6.6000         6.6000

.TP 4
%Q0056          7.6000E+00      1.1000E+00      6.1000E+01          0.00
                2.0000E+00           Undef           Undef
                   -0.7200         0.4800        -6.6000         6.6000

.TP 4
%Q0057          7.6000E+00      1.1000E+00      6.1000E+01          0.00
                2.0000E+00           Undef           Undef
                   -0.7200         0.4800        -6.6000         6.6000

.TP 4
%Q0058          7.6000E+00      1.1000E+00      6.1000E+01          0.00
                2.0000E+00           Undef           Undef
                   -0.7200         0.4800        -6.6000         6.6000

.TP 4
%Q0059          7.6000E+00      1.1000E+00      6.1000E+01          0.00
                2.0000E+00           Undef           Undef
                   -0.7200         0.4800        -6.6000         6.6000

.TP 4
%Q0060          1.4000E+01      1.8000E+00      1.8000E+02          0.00
                6.2000E+00           Undef           Undef
                   -0.6070         0.5930        -6.6000         6.6000

.TP 4
%Q0061          7.9000E-01      4.9000E-02      4.9000E-02          0.00
                9.8000E-02           Undef           Undef
                     Undef           Undef           Undef         Undef

.TP 4
%Q0062          7.9000E-01      4.9000E-02      4.9000E-02          0.00
                9.8000E-02           Undef           Undef
                     Undef           Undef           Undef         Undef

.TP 4
%Q0063          7.9000E-01      4.9000E-02      4.9000E-02          0.00
                9.8000E-02           Undef           Undef
                     Undef           Undef           Undef         Undef

.TP 4
%Q0064          7.9000E-01      4.9000E-02      4.9000E-02          0.00
                9.8000E-02           Undef           Undef
                     Undef           Undef           Undef         Undef

.TP 4
%Q0065          1.0000E+01      1.0000E+01      1.0000E+02          0.00
                1.0000E+01           Undef           Undef
                     Undef           Undef           Undef         Undef

.TP 4
%Q0066          1.0000E+01      1.0000E-01      1.0000E+02          0.00
                1.0000E+01           Undef           Undef
                     Undef           Undef           Undef         Undef

.TK 0
.SK 3
.TP 8
MATERIALES:
.TK 3

                          E-Módulo      G-Módulo
 Barra (hasta barra)     [ T/ M2]      [ T/ M2]
-------------------------------------------------------------------------
    1 ..   30         3.8000E+06    1.5833E+06
 1002 .. 1003         1.7982E+06    1.3712E+06
 2001 .. 2002         3.8000E+06    1.5833E+06
.TK 0
.SK 3
.TP 8
.TK 5
RIGIDEZ DE ARTICULACIONES ("-" sin art.; "*"=con art.)
 Barra Ini.-art-sx   I-art-sy   I-art-sz   I-art-rx   I-art-ry   I-art-rz
```

```
        Fin-art-sx      F-art-sy      F-art-sz      F-art-rx      F-art-ry      F-art-rz
                [T/M]         [T/M]         [T/M]     [TM/ARC]      [TM/ARC]      [TM/ARC]
-------------------------------------------------------------------------------------------
 2001             -   6.061E+02   6.061E+02             *             *             -
                  -             -             -             -             -             -
 2002             -   6.061E+02   6.061E+02             *             *             -
                  -             -             -             -             -             -
.TK 0


STS-calculo ok
Max free mem:105kB


Paso Superior de Camino. P.K. 406+100
**CARACT_GENERALES
         3         31         10
CARACTERISTICAS MECANICAS DE LAS SECCIONES DEL TABLERO

-------------------------------------------------------------------------------------------
Sec.    x    h        A        zg        Iy       Wys       Wyi        Ix        Iz
       [m]  [m]      [m2]      [m]      [m4]      [m3]      [m3]      [m4]      [m4]
-------------------------------------------------------------------------------------------

**CARACT_GEOM
  1    0.00 1.20   14.601   -0.5929   1.7812    3.0043    2.9340    6.2208  180.7573
  2    2.10 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
  3    4.20 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
  4    6.30 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
  5    8.40 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
  6   10.50 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
  7   12.60 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
  8   14.70 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
  9   16.80 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
 10   18.90 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
 11   21.00 1.20    9.342   -0.5028   1.1785    2.3439    1.6902    2.8512   64.8390
 12   23.65 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
 13   26.30 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
 14   28.95 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
 15   31.60 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
 16   34.25 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
 17   36.90 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
 18   39.55 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
 19   42.20 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
 20   44.85 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
 21   47.50 1.20    9.342   -0.5028   1.1785    2.3439    1.6902    2.8512   64.8390
 22   49.60 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
 23   51.70 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
 24   53.80 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
 25   55.90 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
 26   58.00 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
 27   60.10 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
 28   62.20 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
 29   64.30 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
 30   66.40 1.20    7.575   -0.4801   1.0957    2.2824    1.5221    1.9860   60.7456
 31   68.50 1.20   14.601   -0.5929   1.7812    3.0043    2.9340    6.2208  180.7573
CARACTERISTICAS MECANICAS DE LAS SECCIONES TIPO DE LAS PILAS

-------------------------------------------------------------------------------
tipo     A        Iy        Iz        Ix
        [m2]     [m4]      [m4]      [m4]
-------------------------------------------------------------------------------

**CARACT_GEOM_PILAS
  1    0.79   0.0491    0.0491    0.0982
```

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

DATOS GENERALES

No. Vanos: 3

Vano	Luz [m]
1	21.00
2	26.50
3	21.00

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

DATOS PROCESO CONSTRUCTIVO

No. Fases: 1

Fase	fecha horm. [días]	barras nuevas
1	0.00	1..30 1001..1003 2001..2002

Fase	fecha tesado [días]	familia tesada (*Ft)
1	14.00	1 (100%)

Fase	barras act	Edad al tesar (j) [días]	fckj/fck28
1	1.. 30	14.00	0.82
	1001..1003	14.00	0.82
	2001..2002	14.00	0.82

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

DATOS SECCIONES TIPO TABLERO:

Tipo	2 [m]	3 [m]	4 [m]	5 [m]	6 [m]	7 [m]	8 [m]
1	12.00	12.00	12.00	0.15	0.04	1.01	0.00
2	7.24	5.50	5.50	0.15	0.17	0.98	0.00

SITUACION DE SECCIONES TIPO DEL TABLERO:

No. de Situaciones de Secciones Tipo: 6

Cota [m]	Sección Tipo:
0.00	1
0.50	1
0.50	2
68.00	2
68.00	1
68.50	1

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

DATOS SECCIONES TIPO PILAS:

Tipo	geom.	rect / circ / poli	b / ϕ / xe [m]	h / ye [m]	b0 / ϕ / xi [m]	h0 / yi [m]	n_fustes	sep_fustes [m]
0	circ.		1.00	0.00	0.00	0.00	1	0.00

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

DATOS ARMADURAS SECCIONES TIPO PILAS:

Tipo	geom.	rect / circ / poli	nb_h_ext / nb_tot_ext / nb_lad_ext	nb_b_ext	nb_h_int / nb_tot_int / nb_lad_int	nb_b_int
0	circ.		25			

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

DATOS PILAS:

apoyo	altura [m]	abscisa [m]	tipo sec
E- 1	0.00		
P- 1	13.90	0.00	1
		13.90	1
P- 2	14.98	0.00	1
		14.98	1
E- 2	0.00		

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

DATOS ALIGERAMIENTOS TIPO:

No. de Aligeramientos Tipo: 1

Aligeramiento Tipo 1 No. de Huecos: 4

Hueco	Tipo	x [m]	y [m]	L o R [m]	l [m]	h [m]
0		-2.00	-0.60	0.75	0.00	0.00
0		-0.75	-0.60	0.75	0.00	0.00
0		0.75	-0.60	0.75	0.00	0.00
0		2.00	-0.60	0.75	0.00	0.00

DATOS TRAMOS ALIGERADOS

Tramo	Cota Inicial [m]	Cota final [m]	Tipo Alig. Inicial	Tipo Alig. final
1	0.50	19.75	1	1
2	22.25	46.25	1	1
3	48.75	68.00	1	1

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

PRETENSADO EN ALZADO

LEYENDA: RP = recta-parabola
PP = parabola-parabola
PRP = parabola-recta-parabola
PC = parabola-cúbica
PR = parabola-recta

Fam / Tramo	x0 [m] / tipo	y0 [m] / L1 [m]	y0' / L2 [m]	A [cm²] / LT [m]	P1 [t] / yf [m]	P2 [t] / yf'
1	0.00	-0.48	0.00	217.00	3092	3092
1	RP	3.00		8.40	-0.80	0.00
2	PP	10.10		12.60	-0.18	0.00
3	PP	2.50		13.25	-1.02	0.00
4	PP	10.75		13.25	-0.18	0.00
5	PP	2.50		12.60	-0.80	0.00
6	PR	5.40		8.40	-0.48	

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

GEOMETRIA APOYOS

Apoyo	Esv. [g]	NNeop / Neop#	Hapoy [mm] / XNeop [m]	Aapoy [mm]	Bapoy [mm]	tipo_ap	hneta [mm]
E- 1	100.000	2	106.00	400.00	500.00	0	66.00
		1	3.85				
		2	9.35				
P- 1	100.000	1	0.00	0.00	0.00	6	
		1	6.60				
P- 2	100.000	1	0.00	0.00	0.00	6	
		1	6.60				
E- 2	100.000	2	106.00	400.00	500.00	0	66.00
		1	3.85				
		2	9.35				

ANCHO RIOSTRAS

Ancho Riostra Estribos [m]	Ancho Riostra Pilas [m]
1.0	2.5

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

GEOMETRIA APOYOS PROVISIONALES PARA SUSTITUCION DE NEOPRENOS

Apoyo	NNeop Neop#	tipo XNeop [m]
E-1	2	0
	1	3.85
	2	9.35
P- 2	1	6
	1	6.60
P- 3	1	6
	1	6.60
E-2	2	0
	1	3.85
	2	9.35

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigon
y mixtos con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

PARAMETROS DEL COMPORTAMIENTO DIFERIDO

Def. reológicas [1E+6]
600

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

CARACTERISTICAS DE LOS MATERIALES Y COEFICIENTES DE PONDERACION

gammaf_tab fck28_tab fyk fpk [kg/cm2]	gammaf_pilas fck28_pilas Es Ep [kg/cm2]	fck28_cim GammaS GammaP	GammaC
1.50	1.50		
400.00	300.00	250.00	1.50
5100.00	2100000.00	1.15	
17100.00	2000000.00	1.10	

Recubrimiento [cm]: 5.0

Programa LST1 - Preprocesador para el cálculo de viaductos de hormigón
y mixtos con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

CARGAS CONSIDERADAS

sc [t/m2]	Carro [t]
0.40	60.00

Vano	ECMax [m] cmr [t/m2]	ECMin [m] cml1 [t/m]	excl [m]	cml2 [t/m]	exc2 [m]	cml3 [t/m]	exc3 [m]
1	-3.50	3.50					
	0.17	1.57	-5.85	0.00	0.00	1.57	5.85
2	-3.50	3.50					
	0.17	1.57	-5.85	0.00	0.00	1.57	5.85
3	-3.50	3.50					
	0.17	1.57	-5.85	0.00	0.00	1.57	5.85

Cargas Térmicas

Inc(t) unif [grad cent]	Grad(t) [grad cent]
19.30	14.20

Cargas de Viento

w s/ tablero [kp/m2]	w s/pil l [kp/m2]	w s/pil t [kp/m2]	h peto 1 [m]	h peto 2 [m]
197.00	128.00	128.00	2.50	0.50

Asiento Diferencial Considerado [cm]: 1.0

14.4 Listado de Hipótesis individuales

A continuación se adjuntan los esfuerzos y reacciones debidas a las hipótesis individuales. Igualmente se incluye la envolvente de esfuerzos producida por el conjunto de la sobrecarga (repartida+carro). Estos listados deben permitir la comprobación de los cálculos por personas ajenas al proyecto.

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Peso propio fase nº 1 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.67	-0.01	542.18	0.08	3.18	-0.00
P-2	-0.62	0.03	543.07	-0.11	-3.31	0.00
E-1	0.03	-0.01	164.77	6.19	0.21	0.00
E-2	-0.08	-0.01	165.24	6.13	-0.60	0.00
SUMA	0.00	0.00	1415.26	12.29	-0.51	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-8.88	-0.01	164.53	-6.17	0.02	0.33
10.50	-0.03	-0.01	-51.62	2.28	517.34	-0.15
21.00	-2.83	-0.01	-255.55	1.44	-1075.00	-0.28
21.00	-2.93	-0.02	257.75	-2.83	-1081.57	-0.27
34.25	-0.70	0.00	0.37	1.32	596.44	-0.41
47.50	-2.93	0.01	-256.99	3.28	-1071.44	-0.29
47.50	-2.87	0.01	255.08	-1.63	-1065.09	-0.30
58.00	-0.08	0.02	51.14	-0.50	522.29	-0.17
68.50	-8.96	0.02	-165.00	6.14	0.02	0.34

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-513.34	0.00	-0.67	0.00	6.58	0.03
	inf	-542.18	0.00	-0.67	0.00	-3.18	0.07
2	sup	-512.10	0.00	0.62	-0.00	-6.35	0.04
	inf	-543.07	0.00	0.62	-0.00	3.31	0.05

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Pretensado fase nº 1 del pc

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-1.98	0.21	-20.46	-0.68	-11.27	-0.00
P-2	1.85	0.10	-20.41	-0.12	11.46	0.00
E-1	-1.42	-0.12	20.44	15.20	-0.96	0.00
E-2	1.56	-0.20	20.43	15.24	0.29	0.00
SUMA	0.00	0.00	-0.00	29.64	-0.48	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-2789.21	-0.08	-287.16	-15.07	314.79	0.81
10.50	-2904.58	-0.10	79.92	-12.83	-652.34	-0.90
21.00	-2824.38	-0.11	51.40	-8.37	1342.60	-2.14
21.00	-2822.68	0.07	-24.49	-9.02	1360.36	-1.98
34.25	-2616.77	-0.00	0.00	0.97	-967.40	-1.49
47.50	-2822.97	-0.06	24.44	9.75	1359.92	-1.84
47.50	-2824.51	0.12	-51.42	8.43	1342.42	-2.01
58.00	-2904.68	0.09	-79.90	13.59	-652.64	-0.82
68.50	-2789.60	0.07	287.21	15.08	314.85	0.82

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	20.46	-0.20	1.98	0.00	-17.69	2.34
	inf	20.46	-0.20	1.98	0.00	11.27	-0.63
2	sup	20.41	-0.19	-1.84	-0.00	17.42	2.28
	inf	20.41	-0.19	-1.84	-0.00	-11.44	-0.68

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Peso propio estructura final

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.67	-0.00	542.18	0.06	3.22	-0.00
P-2	-0.61	0.03	543.07	-0.12	-3.27	0.00
E-1	0.04	-0.02	164.77	6.18	0.23	0.00
E-2	-0.10	-0.01	165.24	6.12	-0.62	0.00
SUMA	0.00	0.00	1415.26	12.24	-0.45	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-8.90	-0.02	164.53	-6.15	0.02	0.33
10.50	-0.04	-0.02	-51.62	2.30	517.34	-0.18
21.00	-2.84	-0.02	-255.55	1.46	-1074.98	-0.34
21.00	-2.95	-0.01	257.76	-2.83	-1081.59	-0.33
34.25	-0.72	0.00	0.37	1.32	596.44	-0.47
47.50	-2.95	0.01	-256.99	3.28	-1071.42	-0.34
47.50	-2.90	0.02	255.08	-1.64	-1065.10	-0.36
58.00	-0.10	0.02	51.14	-0.51	522.28	-0.20
68.50	-8.98	0.02	-165.00	6.12	0.02	0.33

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-513.34	0.00	-0.67	0.00	6.62	0.04
	inf	-542.18	0.00	-0.67	0.00	-3.22	0.05
2	sup	-512.10	-0.00	0.61	-0.00	-6.32	0.05
	inf	-543.07	-0.00	0.61	-0.00	3.28	0.04

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Pretensado estructura final

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-2.00	0.24	-20.46	-0.89	-11.36	-0.00
P-2	1.84	0.12	-20.40	-0.31	11.38	0.00
E-1	-1.95	-0.13	20.44	15.04	-1.50	0.00
E-2	2.11	-0.23	20.43	15.11	0.86	0.00
SUMA	0.00	0.00	0.00	28.95	-0.62	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-2788.68	-0.07	-287.13	-14.89	314.79	0.79
10.50	-2904.04	-0.11	79.92	-12.65	-652.33	-0.89
21.00	-2923.84	-0.13	51.39	-8.19	1342.55	-2.23
21.00	-2922.13	0.09	-24.49	-9.03	1360.41	-2.07
34.25	-2616.22	-0.00	-0.00	0.96	-967.40	-1.48
47.50	-2922.42	-0.07	24.43	8.74	1359.85	-1.88
47.50	-2923.95	0.13	-51.41	8.26	1342.44	-2.05
58.00	-2904.13	0.09	-79.90	13.42	-652.58	-0.78
68.50	-2789.04	0.07	287.18	14.91	314.85	0.81

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	20.46	-0.23	2.00	0.00	-17.78	2.53
	inf	20.46	-0.23	2.00	0.00	11.37	-0.94
2	sup	20.40	-0.21	-1.83	-0.00	17.33	2.44
	inf	20.40	-0.21	-1.83	-0.00	-11.35	-0.86

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Carga muerta

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.19	-0.00	142.31	0.02	0.91	-0.00
P-2	-0.17	0.01	141.98	-0.03	-0.93	0.00
E-1	0.01	-0.00	42.08	1.71	0.06	0.00
E-2	-0.03	-0.00	42.20	1.69	-0.17	0.00
SUMA	0.00	-0.00	368.57	3.39	-0.13	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-2.27	-0.00	42.02	-1.70	0.00	0.09
10.50	-0.01	-0.00	-14.43	0.65	145.09	-0.05
21.00	-0.79	-0.00	-70.91	0.41	-302.96	-0.09
21.00	-0.82	-0.00	71.38	-0.80	-304.83	-0.09
34.25	-0.20	0.00	0.10	0.37	168.80	-0.13
47.50	-0.82	0.00	-71.15	0.93	-302.16	-0.09
47.50	-0.80	0.00	70.79	-0.46	-300.38	-0.10
58.00	-0.03	0.00	14.30	-0.15	146.39	-0.05
68.50	-2.30	0.01	-42.14	1.69	0.00	0.09

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-142.31	0.00	-0.19	0.00	1.87	0.01
	inf	-142.31	0.00	-0.19	0.00	-0.91	0.01
2	sup	-141.98	0.00	0.17	-0.00	-1.79	0.01
	inf	-141.98	0.00	0.17	-0.00	0.93	0.01

LISTADO ENVOLVENTES

ENVOLVENTE : Envolvente sobrecargas para N

1. ESFUERZOS ENVOLVENTES EN EL TABLERO

x [m]	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	min	-5.70	-3.19	101.82	189.76	-0.30	-10.27
	max	1.25	-2.86	-14.00	-103.32	0.17	5.46
10.50	min	-0.42	0.67	-21.42	20.45	453.35	-14.65
	max	0.54	-1.46	-6.74	-39.53	-69.91	-15.77
21.00	min	-1.62	4.76	-121.74	10.54	-259.50	26.77
	max	0.47	-2.11	-2.62	-134.42	-50.33	-48.09
21.00	min	-3.14	-3.38	100.04	100.85	-331.61	-12.49
	max	1.98	-0.51	-5.02	-26.37	-68.11	-8.96
34.25	min	-2.31	0.21	-9.90	-33.41	498.69	-40.43
	max	1.94	0.33	5.13	29.01	-134.42	-17.43
47.50	min	-3.15	3.17	-99.84	-99.75	-329.21	-15.41
	max	1.99	0.31	5.12	27.37	-66.93	-12.93
47.50	min	-1.64	-2.48	126.58	91.03	-357.91	-21.95
	max	0.54	0.35	-2.40	31.35	51.56	-6.59
58.00	min	-0.38	-0.54	5.46	-184.89	409.75	-9.80
	max	0.58	2.25	2.55	134.02	-24.59	-23.79
68.50	min	-5.64	3.62	-101.87	-190.36	-0.37	-9.63
	max	1.13	3.25	13.90	102.82	0.20	6.10

2. ESFUERZOS ENVOLVENTES EN PILAS

Pila	sec	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	min	-205.94	0.91	-0.86	-0.67	8.24	2.99
		max	13.39	0.56	0.83	0.85	-7.04	-1.90
1	inf	min	-205.94	0.91	-0.86	-0.67	-4.32	16.29
		max	13.39	0.56	0.83	0.85	5.05	6.31
2	sup	min	-205.60	0.56	0.80	0.68	-8.11	4.55
		max	13.48	0.40	-0.77	-0.75	6.97	-1.11
2	inf	min	-205.60	0.56	0.80	0.68	4.47	13.32
		max	13.48	0.40	-0.77	-0.75	-5.08	5.18

ENVOLVENTE : Envolvente sobrecargas para My

1. ESFUERZOS ENVOLVENTES EN EL TABLERO

x [m]	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	min	-4.07	-0.34	74.23	457.26	-0.74	-24.62
	max	-3.70	-5.54	72.64	-487.93	0.79	26.19
10.50	min	0.22	-2.97	-15.37	-100.11	-159.46	-31.59
	max	-0.19	0.79	-20.10	15.89	467.35	-13.55
21.00	min	-0.87	-1.33	-77.26	-107.56	-454.83	-69.36
	max	0.41	0.59	2.53	19.61	52.74	12.42
21.00	min	-2.43	-2.98	106.01	-106.39	-468.53	-67.85
	max	1.27	-0.34	-10.66	26.92	59.41	12.66
34.25	min	1.94	0.33	5.13	29.01	-134.42	-17.43
	max	-2.31	0.21	-9.90	-33.41	498.69	-40.43
47.50	min	-2.45	2.82	-105.80	107.57	-465.48	-71.51
	max	1.29	0.16	10.72	-26.21	59.94	12.29
47.50	min	-1.00	1.71	77.13	106.74	-452.09	-73.19
	max	0.49	-0.55	-2.56	-18.87	53.36	12.14
58.00	min	0.06	3.11	15.28	99.19	-158.84	-32.41
	max	-0.06	0.01	0.02	-85.12	468.40	-15.73
68.50	min	-4.07	0.72	-74.30	-458.18	-0.89	-24.40
	max	-3.69	5.97	-72.70	487.54	0.96	27.16

2. ESFUERZOS ENVOLVENTES EN PILAS

Pila	sec	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	min	-101.30	1.35	2.06	-0.30	-20.49	-4.60
		max	-114.60	2.86	-2.38	0.04	23.42	-26.29
1	inf	min	-114.60	2.86	-2.38	0.04	-11.36	15.48
		max	-101.30	1.35	2.06	-0.30	9.62	15.15
2	sup	min	-114.30	2.50	2.21	0.02	-22.95	-24.70
		max	-101.10	1.01	-1.91	0.33	20.05	-3.08
2	inf	min	-101.10	1.01	-1.91	0.33	-9.91	12.82
		max	-114.30	2.50	2.21	0.02	11.74	14.55

ENVOLVENTE : Envolvente sobrecargas para Vz

1. ESFUERZOS ENVOLVENTES EN EL TABLERO

x [m]	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	min	1.10	-2.97	-15.33	-98.64	0.16	5.21
	max	-5.54	-3.07	103.16	185.08	-0.30	-10.02
10.50	min	-0.27	-2.06	-31.16	-46.72	357.32	-43.91
	max	0.12	0.64	5.60	126.34	56.36	6.69
21.00	min	-1.57	0.07	-127.65	59.24	-371.85	-77.12
	max	0.41	0.59	2.53	18.61	52.74	12.42
21.00	min	1.35	-0.84	-11.01	-29.59	58.14	-4.25
	max	-2.04	-2.90	132.44	-145.84	-382.10	-80.39
34.25	min	-0.17	-0.09	-15.92	34.22	185.94	-51.46
	max	-0.12	0.66	11.13	31.15	171.51	-57.22
47.50	min	-2.05	2.74	-132.23	146.94	-379.07	-83.20
	max	1.37	0.71	11.06	30.11	58.69	-5.21
47.50	min	0.49	-0.55	-2.56	-18.87	53.36	12.14
	max	-1.61	0.28	127.51	-59.95	-368.99	-80.14
58.00	min	0.11	-0.31	-6.39	-91.84	244.62	-2.65
	max	-0.15	1.24	22.58	11.76	174.81	-19.39
68.50	min	-5.44	3.56	-103.22	-185.83	-0.36	-9.35
	max	0.92	3.31	15.25	98.29	0.19	5.82

2. ESFUERZOS ENVOLVENTES EN PILAS

Pila	sec	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	min	-114.60	2.86	-2.38	0.04	23.42	-26.29
		max	-101.30	1.35	2.06	-0.30	-20.49	-4.60
1	inf	min	-114.60	2.86	-2.38	0.04	-11.36	15.48
		max	-101.30	1.35	2.06	-0.30	9.62	15.15
2	sup	min	-101.10	1.01	-1.91	0.33	20.05	-3.08
		max	-114.30	2.50	2.21	0.02	-22.95	-24.70
2	inf	min	-101.10	1.01	-1.91	0.33	-9.91	12.82
		max	-114.30	2.50	2.21	0.02	11.74	14.55

ENVOLVENTE : Envolvente sobrecargas para Mx

1. ESFUERZOS ENVOLVENTES EN EL TABLERO

x [m]	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	min	-3.70	-5.54	72.64	-487.93	0.79	26.19
	max	-4.07	-0.34	74.23	457.26	-0.74	-24.62
10.50	min	0.12	-5.45	-4.53	-324.13	105.04	-60.55
	max	-0.13	2.24	-2.10	298.74	116.98	17.62
21.00	min	-0.22	-3.00	-37.59	-290.29	-200.73	-89.43
	max	-0.33	1.94	-36.08	264.70	-181.22	26.35
21.00	min	-0.94	-2.48	91.01	-311.45	-203.20	-83.81
	max	-1.14	-2.65	91.33	310.47	-186.46	20.67
34.25	min	0.49	-1.51	3.36	-113.86	-25.19	-39.38
	max	-0.99	1.35	-3.21	115.01	233.20	-83.41
47.50	min	-1.14	2.35	-91.19	-309.06	-184.50	16.41
	max	-0.94	2.41	-91.06	311.98	-201.05	-85.35
47.50	min	-0.36	-1.84	35.99	-265.70	-179.18	22.25
	max	-0.24	3.37	37.49	289.90	-198.85	-91.19
58.00	min	-0.14	-1.93	2.00	-299.48	119.01	14.69
	max	0.16	5.34	4.44	324.40	104.89	-60.52
68.50	min	-4.07	0.72	-74.30	-458.18	-0.89	-24.40
	max	-3.68	5.97	-72.70	487.54	0.96	27.16

2. ESFUERZOS ENVOLVENTES EN PILAS

Pila	sec	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	min	-76.29	1.89	1.07	-0.89	-11.05	-12.46
		max	-70.31	1.72	-0.89	0.95	9.56	-11.38
1	inf	min	-76.29	1.89	1.07	-0.88	4.54	15.06
		max	-70.31	1.72	-0.89	0.95	-3.44	13.79
2	sup	min	-31.01	-0.38	0.14	-0.84	-2.22	10.17
		max	-115.25	3.35	-0.30	0.88	3.69	-31.13
2	inf	min	-31.01	-0.38	0.14	-0.84	-0.04	4.14
		max	-115.25	3.35	-0.30	0.88	-1.03	21.34

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Temperatura uniforme

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.81	-0.06	-0.20	0.42	5.94	-0.00
P-2	-0.70	-0.01	-0.21	0.07	-5.54	0.00
E-1	3.88	-0.07	0.21	0.47	3.90	0.00
E-2	-3.99	0.14	0.20	0.24	-4.02	0.00
SUMA	0.00	0.00	-0.00	1.20	0.27	-0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-3.90	-0.17	0.00	-0.39	0.00	0.01
10.50	-3.88	-0.12	0.21	-0.36	1.79	-1.65
21.00	-3.88	-0.06	0.25	-0.29	4.10	-2.59
21.00	-4.69	-0.10	-0.03	0.02	-1.78	-2.59
34.25	-4.69	0.01	0.01	0.01	-1.76	-3.33
47.50	-4.69	0.09	0.05	0.00	-1.54	-2.68
47.50	-3.99	0.07	-0.25	0.28	3.94	-2.69
58.00	-3.99	0.13	-0.20	0.35	1.70	-1.70
68.50	-3.99	0.19	0.01	0.38	0.00	0.04

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	0.20	0.05	-0.81	0.00	5.87	-0.36
	inf	0.20	0.05	-0.81	0.00	-5.94	0.39
2	sup	0.21	0.04	0.70	-0.00	-5.47	-0.32
	inf	0.21	0.04	0.70	-0.00	5.53	0.34

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Gradiente de temperatura

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	0.58	0.16	-25.96	-0.54	2.78	-0.00
P-2	-0.52	0.17	-25.86	-0.70	-2.75	0.00
E-1	-0.07	-0.17	25.93	19.85	0.52	0.00
E-2	0.01	-0.16	25.89	19.80	-1.64	0.00
SUMA	0.00	0.00	-0.00	38.42	-1.09	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	-1.32	-0.16	25.90	-19.67	0.03	1.05
10.50	0.07	-0.17	25.93	-16.82	272.65	-1.73
21.00	0.36	-0.16	25.93	-11.15	545.09	-3.58
21.00	-0.51	-0.00	-0.03	-10.87	539.47	-3.38
34.25	-0.51	0.01	-0.03	1.18	539.19	-3.49
47.50	-0.51	0.01	-0.02	10.57	538.73	-3.27
47.50	0.30	0.16	-25.89	11.25	544.16	-3.49
58.00	0.02	0.16	-25.89	17.80	272.11	-1.68
68.50	-1.37	0.16	-25.85	19.68	0.04	1.07

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	25.96	-0.16	-0.58	0.00	5.67	1.78
	inf	25.96	-0.16	-0.58	0.00	-2.78	-0.55
2	sup	25.86	-0.15	0.53	-0.00	-5.48	1.71
	inf	25.86	-0.15	0.53	-0.00	2.78	-0.56

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Reológicas

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-2.55	0.17	0.64	-1.31	-18.75	0.01
P-2	2.22	0.03	0.67	-0.23	17.51	-0.00
E-1	-12.27	0.23	-0.67	-1.48	-12.30	0.00
E-2	12.60	-0.43	-0.64	-0.75	12.70	0.00
SUMA	0.00	0.00	0.00	-3.78	-0.85	0.00

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	12.28	0.58	-0.01	1.24	-0.00	-0.07
10.50	12.25	0.37	-0.67	1.13	-5.64	5.22
21.00	12.27	0.18	-0.80	0.92	-12.94	8.19
21.00	14.83	0.31	0.10	-0.07	5.61	8.19
34.25	14.83	-0.02	-0.03	-0.03	5.57	10.51
47.50	14.83	-0.28	-0.16	-0.01	4.85	8.47
47.50	12.60	-0.22	0.78	-0.87	-12.43	8.50
58.00	12.60	-0.43	0.64	-1.10	-5.36	5.39
68.50	12.57	-0.60	-0.03	-1.19	-0.00	-0.13

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-0.64	-0.16	2.56	-0.01	-18.54	1.14
	inf	-0.64	-0.16	2.56	-0.01	18.76	-1.23
2	sup	-0.67	-0.13	-2.22	0.00	17.29	1.01
	inf	-0.67	-0.13	-2.22	0.00	-17.47	-1.09

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Frenado

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-3.69	0.04	-0.56	-0.31	-27.05	0.12
P-2	-2.98	0.13	0.67	-1.02	-23.47	0.11
E-1	-6.66	-0.09	-0.25	-0.06	-6.67	0.00
E-2	-6.65	0.46	0.14	-0.37	-6.65	0.00
SUMA	-19.98	0.54	0.00	-1.75	-63.85	0.24

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	6.66	0.09	0.10	0.15	-0.00	-0.01
10.50	3.60	0.02	-0.22	0.09	-5.31	0.62
21.00	0.52	-0.02	-0.23	-0.03	-11.33	0.59
21.00	4.23	-0.00	-0.75	-0.18	15.51	0.47
34.25	0.35	-0.05	-0.78	-0.04	0.62	0.13
47.50	-3.53	-0.01	-0.76	-0.15	-14.30	-0.30
47.50	-0.55	-0.02	-0.12	-0.05	9.04	-0.43
58.00	-3.59	0.02	-0.11	0.06	4.17	-0.54
68.50	-6.64	0.08	0.21	0.09	0.00	0.01

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	0.56	-0.02	3.69	-0.12	-26.84	0.17
	inf	0.56	-0.02	3.69	-0.12	27.05	-0.18
2	sup	-0.67	0.02	2.99	-0.11	-23.34	-0.12
	inf	-0.67	0.02	2.99	-0.11	23.49	0.13

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Viento longitudinal

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-1.29	0.01	0.02	-0.05	-4.90	0.01
P-2	-1.29	0.06	0.00	-0.22	-4.91	0.01
E-1	-0.64	-0.00	-0.01	-0.01	-0.64	0.00
E-2	-0.64	0.04	-0.01	-0.04	-0.64	0.00
SUMA	-3.87	0.11	0.00	-0.32	-11.09	0.02

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	0.64	0.01	0.02	0.01	-0.00	-0.00
10.50	0.64	0.00	-0.01	0.01	-0.08	0.10
21.00	0.64	-0.01	-0.02	0.01	-0.25	0.09
21.00	0.07	-0.00	0.00	-0.01	0.10	0.08
34.25	0.07	-0.00	0.00	-0.01	0.12	0.03
47.50	0.07	-0.01	0.00	-0.01	0.14	-0.05
47.50	-0.64	-0.01	-0.00	0.01	-0.19	-0.06
58.00	-0.64	0.00	0.01	0.00	-0.14	-0.09
68.50	-0.64	0.02	0.04	0.00	0.00	0.01

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-0.02	-0.00	-0.57	-0.01	-0.35	0.03
	inf	-0.02	-0.00	1.29	-0.01	4.90	-0.02
2	sup	-0.00	0.00	-0.71	-0.01	0.33	-0.02
	inf	-0.00	0.00	1.30	-0.01	4.91	0.02

LISTADO HIPOTESIS INDIVIDUALES

HIPOTESIS : Viento transversal

1. REACCIONES

Apoyo	Rx [t]	Ry [t]	Rz [t]	Mx [mt]	My [mt]	Mz [mt]
P-1	-0.28	-9.74	0.37	74.17	-2.06	-0.30
P-2	-0.29	-7.96	0.35	65.13	-1.62	-0.01
E-1	-0.53	-19.11	-0.37	138.66	2.19	0.00
E-2	-0.52	-19.79	-0.35	105.83	-7.76	0.00
SUMA	-1.52	-56.60	0.00	383.79	-9.29	-0.30

2. ESFUERZOS EN EL TABLERO

x [m]	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	1.09	-20.58	-0.31	-99.46	0.14	6.31
10.50	0.83	-10.43	-0.37	-80.84	-2.10	-154.75
21.00	0.74	-0.92	-0.37	-71.83	-4.89	-219.23
21.00	0.95	-11.06	0.01	-8.00	-3.04	-219.47
34.25	0.84	-0.51	0.01	2.55	-2.92	-298.10
47.50	0.92	10.37	-0.00	13.21	-2.98	-232.66
47.50	0.76	2.93	0.36	68.36	-4.70	-233.69
58.00	0.89	10.93	0.35	77.51	-2.29	-161.74
68.50	1.12	20.80	0.29	86.22	0.17	7.56

3. ESFUERZOS EN PILAS

Pila	sec	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	-0.37	9.75	0.24	0.30	-1.71	-68.14
	inf	-0.37	9.75	0.24	0.30	1.73	74.18
2	sup	-0.35	7.96	-0.20	0.01	1.54	-59.74
	inf	-0.35	7.96	-0.20	0.01	-1.56	65.13

LISTADO ENVOLVENTES

ENVOLVENTE : Envolvente dda para N

1. ESFUERZOS ENVOLVENTES EN EL TABLERO

x [m]	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	min	-0.89	-0.05	12.66	-4.44	0.01	0.24
	max	0.63	-0.01	-7.76	1.06	-0.00	-0.06
10.50	min	-0.21	-0.05	12.69	-3.04	133.34	-0.53
	max	0.21	-0.01	-7.78	0.20	-81.71	-0.14
21.00	min	-0.21	0.04	-6.46	-0.18	-135.82	0.77
	max	0.12	-0.02	-7.78	-1.48	-163.41	-0.33
21.00	min	-0.52	-0.03	16.39	-2.04	-169.40	-0.29
	max	0.32	-0.00	6.23	-0.26	-130.61	0.78
34.25	min	-0.38	-0.02	16.40	-2.92	47.93	-0.68
	max	0.38	-0.01	6.23	-2.08	-48.04	0.73
47.50	min	-0.50	0.03	-16.39	2.12	-169.17	-0.34
	max	0.43	-0.02	6.22	-2.21	34.51	0.54
47.50	min	-0.11	0.04	-12.68	0.33	266.38	-0.95
	max	0.19	-0.03	-1.55	-1.93	32.60	0.59
58.00	min	-0.25	0.05	-12.68	3.53	133.18	-0.49
	max	0.18	0.02	7.78	-0.50	-81.70	-0.16
68.50	min	-0.93	0.05	-12.65	4.45	0.01	0.25
	max	0.60	0.02	7.76	-1.07	-0.00	-0.05

2. ESFUERZOS ENVOLVENTES EN PILAS

Pila	sec	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	min	-24.18	0.01	-0.59	0.00	6.00	-0.10
		max	29.09	-0.06	-0.14	-0.00	1.18	0.65
1	inf	min	-24.18	0.01	-0.59	0.00	-2.59	0.10
		max	29.09	-0.06	-0.14	-0.00	-0.93	-0.24
2	sup	min	-24.18	0.01	0.53	-0.00	-5.78	-0.10
		max	29.08	-0.06	0.13	0.00	-1.16	0.63
2	inf	min	-24.18	0.01	0.53	-0.00	2.59	0.10
		max	29.08	-0.06	0.13	0.00	0.93	-0.25

ENVOLVENTE : Envolvente dda para My

1. ESFUERZOS ENVOLVENTES EN EL TABLERO

x [m]	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	min	0.21	0.04	-6.46	1.94	-0.01	-0.10
	max	-0.89	-0.05	12.66	-4.44	0.01	0.24
10.50	min	0.21	-0.01	-7.78	0.20	-81.71	-0.14
	max	-0.21	-0.05	12.69	-3.04	133.34	-0.53
21.00	min	0.12	-0.02	-7.78	-1.48	-163.41	-0.33
	max	-0.07	-0.04	12.69	-0.28	266.63	-1.01
21.00	min	-0.52	-0.03	16.39	-2.04	-169.40	-0.29
	max	-0.22	0.02	-16.40	0.10	265.45	-1.01
34.25	min	0.38	-0.01	6.23	-2.08	-48.04	0.73
	max	-0.36	0.03	-16.40	3.13	48.13	-0.74
47.50	min	-0.50	0.03	-16.39	2.12	-169.17	-0.34
	max	-0.24	-0.02	16.40	-0.23	265.22	-0.95
47.50	min	0.09	0.02	7.78	1.45	-163.40	-0.38
	max	-0.11	0.04	-12.68	0.33	266.38	-0.95
58.00	min	0.18	0.02	7.78	-0.50	-81.70	-0.16
	max	-0.25	0.05	-12.68	3.53	133.18	-0.49
68.50	min	0.09	-0.03	-1.56	-1.43	-0.00	-0.08
	max	-0.93	0.05	-12.65	4.45	0.01	0.25

2. ESFUERZOS ENVOLVENTES EN PILAS

Pila	sec	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	min	-12.69	0.04	0.51	0.01	-5.21	-0.43
		max	-24.18	0.01	-0.59	0.00	6.00	-0.10
1	inf	min	-24.18	0.01	-0.59	0.00	-2.59	0.10
		max	-12.69	0.04	0.51	0.01	2.25	0.15
2	sup	min	-24.18	0.01	0.53	-0.00	-5.78	-0.10
		max	7.78	0.01	-0.20	0.01	1.92	-0.12
2	inf	min	7.78	0.01	-0.20	0.01	-1.27	0.00
		max	-24.18	0.01	0.53	-0.00	2.59	0.10

ENVOLVENTE : Envolvente dda para Vz

1. ESFUERZOS ENVOLVENTES EN EL TABLERO

x [m]	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
0.00	min	0.63	-0.01	-7.76	1.06	-0.00	-0.06
	max	-0.89	-0.05	12.66	-4.44	0.01	0.24
10.50	min	0.21	-0.01	-7.78	0.20	-81.71	-0.14
	max	-0.21	-0.05	12.69	-3.04	133.34	-0.53
21.00	min	0.12	-0.02	-7.78	-1.48	-163.41	-0.33
	max	-0.07	-0.04	12.69	-0.28	266.63	-1.01
21.00	min	-0.22	0.02	-16.40	0.10	265.45	-1.01
	max	-0.52	-0.03	16.39	-2.04	-169.40	-0.29
34.25	min	-0.36	0.03	-16.40	3.13	48.13	-0.74
	max	-0.38	-0.02	16.40	-2.92	47.93	-0.68
47.50	min	-0.50	0.03	-16.39	2.12	-169.17	-0.34
	max	-0.24	-0.02	16.40	-0.23	265.22	-0.95
47.50	min	-0.11	0.04	-12.68	0.33	266.38	-0.95
	max	0.09	0.02	7.78	1.45	-163.40	-0.38
58.00	min	-0.25	0.05	-12.68	3.53	133.18	-0.49
	max	0.18	0.02	7.78	-0.50	-81.70	-0.16
68.50	min	-0.93	0.05	-12.65	4.45	0.01	0.25
	max	0.60	0.02	7.76	-1.07	-0.00	-0.05

2. ESFUERZOS ENVOLVENTES EN PILAS

Pila	sec	extr.	N [t]	Vy [t]	Vz [t]	Mx [mt]	My [mt]	Mz [mt]
1	sup	min	-24.18	0.01	-0.59	0.00	6.00	-0.10
		max	-12.69	0.04	0.51	0.01	-5.21	-0.43
1	inf	min	-24.18	0.01	-0.59	0.00	-2.59	0.10
		max	-12.69	0.04	0.51	0.01	2.25	0.15
2	sup	min	7.78	0.01	-0.20	0.01	1.92	-0.12
		max	-24.18	0.01	0.53	-0.00	-5.78	-0.10
2	inf	min	7.78	0.01	-0.20	0.01	-1.27	0.00
		max	-24.18	0.01	0.53	-0.00	2.59	0.10

14.5 Definición del pretensado

DEFINICION GEOMETRICA DEL PRETENSADO

x [m]	y [m]	y'	R [m]
Cable nº 1			
0.000	-0.480	0.056	0.00
1.050	-0.539	0.056	0.00
2.100	-0.598	0.056	0.00
3.000	-0.648	0.056	0.00
3.150	-0.657	0.055	96.15
4.200	-0.708	0.044	96.15
5.250	-0.748	0.033	96.15
6.300	-0.777	0.022	96.15
7.350	-0.794	0.011	96.15
8.400	-0.800	-0.000	96.15
9.450	-0.795	-0.010	102.67
10.500	-0.779	-0.020	102.67
11.550	-0.752	-0.031	102.67
12.600	-0.714	-0.041	102.67
13.650	-0.666	-0.051	102.67
14.700	-0.607	-0.061	102.67
15.750	-0.537	-0.072	102.67
16.800	-0.456	-0.082	102.67
17.850	-0.365	-0.092	102.67
18.500	-0.303	-0.098	102.67
18.900	-0.267	-0.083	-25.40
19.950	-0.202	-0.041	-25.40
21.000	-0.180	-0.000	-25.40
21.000	-0.180	-0.000	-25.40
22.325	-0.225	0.067	-19.72
23.500	-0.338	0.127	-19.72
23.650	-0.357	0.125	84.82
24.975	-0.513	0.109	84.82
26.300	-0.647	0.094	84.82
27.625	-0.761	0.078	84.82
28.950	-0.854	0.063	84.82
30.275	-0.927	0.047	84.82
31.600	-0.979	0.031	84.82
32.925	-1.010	0.016	84.82
34.250	-1.020	-0.000	84.82
35.575	-1.010	-0.016	84.82
36.900	-0.979	-0.031	84.82
38.225	-0.927	-0.047	84.82
39.550	-0.854	-0.063	84.82
40.875	-0.761	-0.078	84.82
42.200	-0.647	-0.094	84.82
43.525	-0.513	-0.109	84.82
44.850	-0.357	-0.125	84.82
45.000	-0.338	-0.127	84.82
46.175	-0.225	-0.067	-19.72
47.500	-0.180	0.000	-19.72
48.550	-0.202	0.041	-25.40
49.600	-0.267	0.083	-25.40
50.000	-0.303	0.098	-25.40
50.650	-0.365	0.092	102.67
51.700	-0.456	0.082	102.67
52.750	-0.537	0.072	102.67
53.800	-0.607	0.061	102.67
54.850	-0.666	0.051	102.67
55.900	-0.714	0.041	102.67
56.950	-0.752	0.031	102.67
58.000	-0.779	0.020	102.67
59.050	-0.795	0.010	102.67
60.100	-0.800	0.000	102.67
61.150	-0.794	-0.011	96.15
62.200	-0.777	-0.022	96.15
63.250	-0.748	-0.033	96.15
64.300	-0.708	-0.044	96.15
65.350	-0.657	-0.055	96.15
65.500	-0.648	-0.056	96.15
66.400	-0.598	-0.056	0.00
67.450	-0.539	-0.056	0.00
68.500	-0.480	-0.056	0.00

ALARGAMIENTOS DE LAS FAMILIAS EN CADA FASE DE TESADO

Fase	Familia	Alarg 1 [mm]	Alarg 2 [mm]	Alarg. tot [mm]
1	1	410.2	37.2	447.4

14.6 Tablero. Proceso Constructivo

COMPROBACION TENSIONES FASE 1

Factores de ponderación considerados para el pretensado:

- Acciones Desfavorables: 1.1
- Acciones Favorables: 0.9

LEYENDA:

+ : Compresión>fck(j)/1.6
* : Tracción
# : Fisuración
! : Requiere comprobación wk

Vano	x [m]		Pxo [t]	Mmax Mmin [tm]	σs σs [kg/cm²]	σi σi [kg/cm²]	fckj [kg/cm²]
1	0.00	der max	-3077.02	346.28	-33.39	-10.30	330
1	0.00	min	-2519.17	283.32	-27.33	-8.44	330
1	2.10	izq max	-2526.96	22.50	-34.23	-31.78	330
1	2.10	min	-3087.21	-34.83	-39.10	-42.90	330
1	2.10	der max	-2531.46	20.80	-34.22	-31.95	330
1	2.10	min	-3094.01	-36.91	-39.10	-43.13	330
1	4.20	izq max	-2549.61	-39.46	-31.83	-36.13	330
1	4.20	min	-3116.18	-151.67	-34.38	-50.93	330
1	4.20	der max	-2549.61	-39.40	-31.83	-36.13	330
1	4.20	min	-3116.18	-151.60	-34.39	-50.93	330
1	6.30	izq max	-2572.36	-81.84	-30.29	-39.20	330
1	6.30	min	-3143.99	-225.92	-31.51	-56.16	330
1	6.30	der max	-2572.36	-81.78	-30.28	-39.20	330
1	6.30	min	-3143.99	-225.86	-31.51	-56.15	330
1	8.40	izq max	-2594.09	-91.80	-30.13	-40.14	330
1	8.40	min	-3170.55	-241.95	-31.16	-57.55	330
1	8.40	der max	-2594.10	-91.75	-30.13	-40.14	330
1	8.40	min	-3170.56	-241.88	-31.16	-57.55	330
1	10.50	izq max	-2614.15	-69.82	-31.35	-38.97	330
1	10.50	min	-3195.06	-200.30	-33.30	-55.15	330
1	10.50	der max	-2614.15	-69.77	-31.35	-38.96	330
1	10.50	min	-3195.06	-200.23	-33.30	-55.15	330
1	12.60	izq max	-2628.00	-16.06	-33.89	-35.63	330
1	12.60	min	-3211.99	-101.19	-37.85	-48.89	330
1	12.60	der max	-2628.00	-16.04	-33.88	-35.63	330
1	12.60	min	-3211.99	-101.16	-37.85	-48.88	330
1	14.70	izq max	-2633.02	70.32	-37.71	-30.04	330
1	14.70	min	-3218.13	56.38	-44.80	-38.65	330
1	14.70	der max	-2633.02	70.34	-37.71	-30.04	330
1	14.70	min	-3218.13	56.41	-44.81	-38.65	330
1	16.80	izq max	-3195.39	269.46	-53.80	-24.41	330
1	16.80	min	-2614.41	186.87	-42.55	-22.17	330
1	16.80	der max	-3195.39	269.50	-53.80	-24.40	330
1	16.80	min	-2614.41	186.90	-42.56	-22.17	330
1	18.90	izq max	-3162.18	513.62	-64.02	-7.99	330
1	18.90	min	-2587.24	313.61	-47.73	-13.52	330
1	18.90	der max	-3161.19	512.96	-63.98	-8.02	330
1	18.90	min	-2586.85	313.07	-47.70	-13.55	330
1	21.00	izq max	-3109.64	401.86	-50.28	-10.10	330
1	21.00	min	-2544.76	133.34	-32.95	-19.62	330
1	21.00	der max	-3107.88	414.83	-50.81	-9.32	330
1	21.00	min	-2543.34	142.75	-33.33	-19.06	330
2	23.65	izq max	-2984.59	383.42	-56.00	-14.17	330
2	23.65	min	-2442.38	227.31	-42.06	-17.26	330
2	23.65	der max	-2986.19	383.88	-56.04	-14.16	330
2	23.65	min	-2443.37	227.70	-42.09	-17.25	330
2	26.30	izq max	-2424.64	-10.23	-31.46	-32.57	330
2	26.30	min	-2963.30	-10.92	-38.51	-39.71	330
2	26.30	der max	-2424.64	-10.19	-31.46	-32.57	330
2	26.30	min	-2963.30	-10.88	-38.52	-39.70	330
2	28.95	izq max	-2403.75	-170.39	-24.19	-42.78	330
2	28.95	min	-2937.76	-281.04	-26.39	-57.05	330
2	28.95	der max	-2403.75	-170.36	-24.19	-42.79	330
2	28.95	min	-2937.76	-281.01	-26.39	-57.05	330
2	31.60	izq max	-2380.77	-256.71	-20.12	-48.13	330
2	31.60	min	-2909.67	-431.24	-19.47	-66.51	330
2	31.60	der max	-2380.76	-256.69	-20.13	-48.13	330
2	31.60	min	-2909.67	-431.22	-19.47	-66.51	330
2	34.25	izq max	-2355.79	-274.21	-19.03	-48.95	330
2	34.25	min	-2879.14	-467.69	-17.48	-68.50	330
2	34.25	der max	-2355.79	-274.22	-19.03	-48.95	330
2	34.25	min	-2879.14	-467.70	-17.47	-68.50	330
2	36.90	izq max	-2380.94	-254.85	-20.21	-48.01	330
2	36.90	min	-2909.89	-429.43	-19.55	-66.40	330
2	36.90	der max	-2380.94	-254.88	-20.21	-48.01	330
2	36.90	min	-2909.89	-429.46	-19.55	-66.40	330
2	39.55	izq max	-2404.00	-166.54	-24.36	-42.53	330
2	39.55	min	-2938.07	-277.24	-26.56	-56.81	330
2	39.55	der max	-2404.00	-166.59	-24.36	-42.54	330
2	39.55	min	-2938.07	-277.29	-26.56	-56.81	330
2	42.20	izq max	-2424.89	-4.41	-31.71	-32.20	330
2	42.20	min	-2963.60	-5.17	-38.77	-39.33	330
2	42.20	der max	-2424.89	-4.43	-31.71	-32.20	330
2	42.20	min	-2963.60	-5.19	-38.77	-39.33	330
2	44.85	izq max	-2986.50	391.64	-56.39	-13.66	330
2	44.85	min	-2442.62	235.51	-42.43	-16.74	330
2	44.85	der max	-2984.88	391.19	-56.34	-13.67	330
2	44.85	min	-2442.62	235.14	-42.40	-16.75	330
2	47.50	izq max	-3108.19	424.47	-51.21	-8.77	330
2	47.50	min	-2543.60	152.49	-33.74	-18.49	330
2	47.50	der max	-3109.93	411.57	-50.69	-9.53	330
2	47.50	min	-2544.93	143.08	-33.36	-19.05	330
3	49.60	izq max	-3161.40	521.65	-64.36	-7.45	330
3	49.60	min	-2587.03	321.78	-48.08	-12.98	330
3	49.60	der max	-3162.40	522.31	-64.40	-7.42	330
3	49.60	min	-2587.43	322.33	-48.11	-12.95	330
3	51.70	izq max	-3195.60	277.16	-54.14	-23.91	330
3	51.70	min	-2614.60	194.59	-42.89	-21.67	330
3	51.70	der max	-3195.60	277.12	-54.14	-23.91	330
3	51.70	min	-2614.60	194.57	-42.89	-21.67	330
3	53.80	izq max	-2633.19	77.06	-38.01	-29.60	330
3	53.80	min	-3219.33	63.10	-45.10	-38.22	330
3	53.80	der max	-2633.20	77.05	-38.01	-29.60	330
3	53.80	min	-3218.33	63.09	-45.10	-38.22	330
3	55.90	izq max	-2628.16	-10.38	-34.13	-35.26	330
3	55.90	min	-3212.18	-95.58	-38.09	-48.52	330
3	55.90	der max	-2628.16	-10.40	-34.13	-35.26	330
3	55.90	min	-3212.18	-95.61	-38.09	-48.52	330
3	58.00	izq max	-2614.30	-65.05	-31.56	-38.66	330
3	58.00	min	-3195.23	-195.57	-33.51	-54.84	330
3	58.00	der max	-2614.29	-65.09	-31.56	-38.66	330
3	58.00	min	-3195.23	-195.62	-33.51	-54.85	330
3	60.10	izq max	-2594.23	-87.98	-30.30	-39.89	330
3	60.10	min	-3170.71	-238.15	-31.33	-57.31	330
3	60.10	der max	-2594.23	-88.03	-30.29	-39.90	330
3	60.10	min	-3170.71	-238.20	-31.33	-57.31	330
3	62.20	izq max	-2572.50	-78.97	-30.40	-39.02	330
3	62.20	min	-3144.14	-223.06	-31.64	-55.97	330
3	62.20	der max	-2572.50	-79.03	-30.40	-39.02	330
3	62.20	min	-3144.14	-223.14	-31.63	-55.98	330
3	64.30	izq max	-2549.73	-37.52	-31.91	-36.01	330
3	64.30	min	-3116.32	-149.72	-34.47	-50.80	330
3	64.30	der max	-2549.73	-37.57	-31.91	-36.01	330
3	64.30	min	-3116.31	-149.78	-34.47	-50.81	330
3	66.40	izq max	-2531.67	21.72	-34.26	-31.89	330
3	66.40	min	-3094.25	-36.01	-39.14	-43.07	330
3	66.40	der max	-2527.19	23.43	-34.27	-31.72	330
3	66.40	min	-3087.48	-33.92	-39.14	-42.84	330
3	68.50	izq max	-3077.51	346.35	-33.39	-10.30	330
3	68.50	min	-2519.99	293.38	-27.33	-8.44	330

14.7 Tablero. Servicio a tiempo cero

COMPROBACION ESTADO LIMITE DE SERVICIO A TIEMPO CERO

Factores de ponderación considerados para el pretensado:

- Acciones Desfavorables: 1.1
- Acciones Favorables: 0.9

LEYENDA:

+ : Compresión>fckj/1.6
* : Tracción
# : Fisuración
! : Requiere comprobación wk
-0000 : Sección armada

Vano	x		Pxo	Mmax Mmin	Mp,isos Mp,isos	σs σs	σi σi	wk wk
	[m]		[t]	[tm]	[tm]	[kg/cm²]	[kg/cm²]	[mm]
1	0.00	der max	-3082.27	346.33	346.23	-33.43	-10.34	
1	0.00	min	-2522.39	283.33	283.28	-27.35	-8.46	
1	2.10	izq max	-2532.44	248.51	-296.80	-44.17	-17.05	
1	2.10	min	-3087.69	9.31	-362.75	-41.03	-40.02	
1	2.10	der max	-2531.77	246.91	-298.58	-44.09	-17.15	
1	2.10	min	-3093.66	7.25	-364.93	-41.02	-40.23	
1	4.20	izq max	-2549.92	365.46	-582.42	-49.50	-9.63	
1	4.20	min	-3115.83	-87.15	-711.85	-37.19	-46.70	
1	4.20	der max	-2549.92	365.59	-582.42	-49.50	-9.62	
1	4.20	min	-3115.84	-87.06	-711.85	-37.20	-46.70	
1	6.30	izq max	-2572.67	454.65	-764.55	-53.69	-4.09	
1	6.30	min	-3143.65	-164.76	-934.45	-34.17	-52.15	
1	6.30	der max	-2572.68	454.77	-764.55	-53.70	-4.08	
1	6.30	min	-3143.65	-164.68	-934.45	-34.18	-52.14	
1	8.40	izq max	-2594.41	529.06	-830.51	-57.22	0.49	*
1	8.40	min	-3170.21	-207.87	-1015.07	-32.64	-55.32	
1	8.40	der max	-2594.41	529.18	-830.51	-57.23	0.50	*
1	8.40	min	-3170.22	-207.79	-1015.07	-32.65	-55.31	
1	10.50	izq max	-2614.46	573.18	-780.72	-59.41	3.12	*
1	10.50	min	-3194.72	-217.04	-954.21	-32.57	-56.24	
1	10.50	der max	-2614.47	573.28	-780.70	-59.42	3.12	*
1	10.50	min	-3194.73	-216.96	-954.18	-32.57	-56.24	
1	12.60	izq max	-2628.32	568.81	-615.33	-59.40	2.65	*
1	12.60	min	-3211.66	-192.48	-752.07	-33.86	-54.86	
1	12.60	der max	-2628.32	568.87	-615.33	-59.41	2.65	*
1	12.60	min	-3211.66	-192.43	-752.07	-33.86	-54.85	
1	14.70	izq max	-2633.27	565.97	-333.63	-59.35	2.40	*
1	14.70	min	-3217.79	-133.12	-407.76	-36.53	-51.05	
1	14.70	der max	-2633.27	566.03	-333.63	-59.35	2.40	*
1	14.70	min	-3217.80	-133.07	-407.76	-36.53	-51.05	
1	16.80	izq max	-3195.64	683.20	75.90	-71.86	2.67	*
1	16.80	min	-2614.09	-150.89	62.10	-27.81	-44.27	
1	16.80	der max	-3195.64	683.27	75.93	-71.86	2.68	*
1	16.80	min	-2614.09	-150.85	62.12	-27.81	-44.27	
1	18.90	izq max	-3162.34	850.57	674.44	-78.73	14.06	*
1	18.90	min	-2587.00	-235.04	551.82	-23.76	-49.42	
1	18.90	der max	-3161.71	849.93	673.77	-78.69	14.03	*
1	18.90	min	-2588.04	-235.55	551.27	-23.77	-49.47	
1	21.00	izq max	-3110.29	657.61	1004.02	-61.01	4.75	*
1	21.00	min	-2546.20	-712.43	821.47	2.48	* -68.76	
1	21.00	der max	-3109.40	662.21	1004.06	-61.19	5.03	*
1	21.00	min	-2546.59	-722.75	821.50	2.91	* -69.36	
2	23.65	izq max	-2985.99	750.56	366.23	-72.04	9.84	*
2	23.65	min	-2444.57	-225.98	299.64	-22.30	-46.96	
2	23.65	der max	-2987.26	751.05	366.61	-72.08	9.85	*
2	23.65	min	-2444.39	-225.57	299.95	-22.32	-46.93	
2	26.30	izq max	-2964.93	461.86	-496.17	-59.17	-8.78	
2	26.30	min	-2423.68	-197.06	-405.96	-23.29	-44.79	
2	26.30	der max	-2964.93	461.92	-496.19	-59.17	-8.78	
2	26.30	min	-2423.68	-197.01	-405.98	-23.29	-44.79	
2	28.95	izq max	-2405.61	433.15	-900.73	-50.55	-3.30	
2	28.95	min	-2936.36	-348.49	-1100.90	-23.43	-61.45	
2	28.95	der max	-2405.61	433.21	-900.75	-50.56	-3.30	
2	28.95	min	-2936.36	-348.44	-1100.92	-23.43	-61.44	
2	31.60	izq max	-2382.63	414.57	-1188.17	-49.44	-4.21	
2	31.60	min	-2908.27	-418.30	-1452.20	-20.01	-65.65	
2	31.60	der max	-2382.63	414.59	-1186.17	-49.44	-4.21	
2	31.60	min	-2909.27	-418.27	-1452.20	-20.01	-65.64	
2	34.25	izq max	-2357.65	394.71	-1273.39	-48.25	-5.19	
2	34.25	min	-2877.74	-412.12	-1556.36	-19.88	-64.84	
2	34.25	der max	-2357.65	394.69	-1273.39	-48.24	-5.19	
2	34.25	min	-2877.74	-412.12	-1556.36	-19.88	-64.84	
2	36.90	izq max	-2382.82	417.15	-1188.29	-49.56	-4.05	
2	36.90	min	-2908.49	-415.73	-1452.36	-20.13	-65.48	
2	36.90	der max	-2382.82	417.12	-1188.29	-49.55	-4.05	
2	36.90	min	-2908.50	-415.77	-1452.36	-20.13	-65.48	
2	39.55	izq max	-2405.98	438.57	-900.75	-50.79	-2.95	
2	39.55	min	-2936.68	-343.29	-1100.92	-23.66	-61.11	
2	39.55	der max	-2405.88	438.51	-900.75	-50.79	-2.95	
2	39.55	min	-2936.68	-343.35	-1100.92	-23.66	-61.11	
2	42.20	izq max	-2426.63	469.82	-405.98	-52.43	-1.18	
2	42.20	min	-2962.56	-189.01	-496.20	-30.73	-51.35	
2	42.20	der max	-2426.63	469.77	-405.94	-52.43	-1.18	
2	42.20	min	-2962.56	-189.03	-496.15	-30.73	-51.35	
2	44.85	izq max	-2987.58	760.71	366.78	-72.51	10.48	*
2	44.85	min	-2444.64	-213.40	300.09	-22.95	-46.13	
2	44.85	der max	-2986.30	760.23	366.40	-72.47	10.47	*
2	44.85	min	-2444.81	-213.80	299.78	-22.84	-46.16	
2	47.50	izq max	-3109.73	674.29	1004.17	-61.70	5.73	*
2	47.50	min	-2546.94	-707.41	821.59	2.27	* -68.47	
2	47.50	der max	-3110.55	669.63	1004.12	-61.52	5.45	*
2	47.50	min	-2546.48	-697.40	821.55	1.95	* -67.89	
3	49.60	izq max	-3161.99	860.69	673.87	-79.16	14.73	*
3	49.60	min	-2588.33	-222.12	551.35	-24.36	-48.60	
3	49.60	der max	-3162.63	861.33	674.54	-79.20	14.76	*
3	49.60	min	-2587.30	-221.60	551.99	-24.37	-48.55	
3	51.70	izq max	-3195.92	692.92	75.94	-72.29	3.30	*
3	51.70	min	-2614.41	-139.25	62.13	-28.32	-43.51	
3	51.70	der max	-3195.92	692.86	75.91	-72.29	3.30	*
3	51.70	min	-2614.40	-139.29	62.11	-28.32	-43.52	
3	53.80	izq max	-2633.52	575.37	-333.58	-59.76	3.01	*
3	53.80	min	-3218.13	-123.90	-407.70	-36.94	-50.45	
3	53.80	der max	-2633.52	575.33	-333.58	-59.76	3.01	*
3	53.80	min	-3218.13	-123.93	-407.70	-36.94	-50.46	
3	55.90	izq max	-2628.50	577.25	-615.53	-59.77	3.20	*
3	55.90	min	-3211.98	-184.65	-752.31	-34.21	-54.35	
3	55.90	der max	-2628.50	577.19	-615.52	-59.77	3.19	*
3	55.90	min	-3211.97	-184.70	-752.31	-34.20	-54.35	
3	58.00	izq max	-2614.63	580.22	-780.80	-59.72	3.57	*
3	58.00	min	-3195.02	-210.49	-954.32	-32.85	-55.82	
3	58.00	der max	-2614.63	580.13	-780.80	-59.72	3.57	*
3	58.00	min	-3195.02	-210.55	-954.32	-32.85	-55.82	
3	60.10	izq max	-2594.57	534.71	-830.58	-57.47	0.86	*
3	60.10	min	-3170.50	-202.63	-1015.15	-32.88	-54.98	
3	60.10	der max	-2594.57	534.62	-830.58	-57.47	0.85	*
3	60.10	min	-3170.50	-202.70	-1015.15	-32.87	-54.98	
3	62.20	izq max	-2572.83	458.90	-764.59	-53.88	-3.82	
3	62.20	min	-3143.93	-160.82	-934.50	-34.35	-51.89	
3	62.20	der max	-2572.82	458.77	-764.59	-53.87	-3.82	
3	62.20	min	-3143.93	-160.91	-934.50	-34.35	-51.90	
3	64.30	izq max	-2550.06	368.29	-582.39	-49.62	-9.45	
3	64.30	min	-3116.10	-84.48	-711.81	-37.31	-46.53	
3	64.30	der max	-2550.05	368.16	-582.37	-49.62	-9.46	
3	64.30	min	-3116.09	-84.56	-711.79	-37.31	-46.54	
3	66.40	izq max	-2532.00	248.29	-298.65	-44.15	-17.06	
3	66.40	min	-3094.03	8.50	-365.02	-41.08	-40.15	
3	66.40	der max	-2532.00	248.92	-296.87	-44.23	-16.97	
3	66.40	min	-3088.09	10.57	-362.84	-41.09	-39.94	
3	68.50	izq max	-3082.63	346.40	346.30	-33.43	-10.34	
3	68.50	min	-2522.92	283.39	283.34	-27.36	-8.46	

14.8 Tablero. Servicio a tiempo infinito

COMPROBACION PARA CARGAS PERMANENTES A TIEMPO INFINITO

Factores de ponderación considerados para el pretensado:

- Acciones Desfavorables: 1.1
- Acciones Favorables: 0.9

LEYENDA:
+ : Compresión>fck28/1.6
* : Tracción
# : Fisuración
! : Requiere comprobación wk

Vano	x [m]		Pxoo [t]	Mmax Mmin [tm]	σs σs [kg/cm²]	σi σi [kg/cm²]
1	0.00	der max	-2621.20	294.52	-28.43	-8.79
1	0.00	min	-2145.32	240.68	-23.25	-7.21
1	2.10	izq max	-2152.17	232.13	-38.45	-13.12
1	2.10	min	-2625.74	75.92	-37.86	-29.58
1	2.10	der max	-2151.53	230.79	-38.38	-13.20
1	2.10	min	-2629.34	74.23	-37.84	-29.74
1	4.20	izq max	-2166.99	327.84	-42.82	-7.05
1	4.20	min	-2648.18	44.06	-36.77	-31.96
1	4.20	der max	-2166.99	327.89	-42.82	-7.05
1	4.20	min	-2648.19	44.19	-36.77	-31.95
1	6.30	izq max	-2186.33	392.31	-45.89	-3.09
1	6.30	min	-2671.82	12.05	-35.68	-34.37
1	6.30	der max	-2186.33	392.32	-45.89	-3.09
1	6.30	min	-2671.83	12.18	-35.69	-34.36
1	8.40	izq max	-2204.81	431.56	-47.84	-0.76
1	8.40	min	-2694.40	-6.74	-35.16	-35.89
1	8.40	der max	-2204.80	431.54	-47.84	-0.76
1	8.40	min	-2694.41	-6.61	-35.16	-35.89
1	10.50	izq max	-2221.86	439.11	-48.40	-0.49
1	10.50	min	-2715.24	-12.82	-35.17	-36.57
1	10.50	der max	-2221.85	439.11	-48.40	-0.49
1	10.50	min	-2715.24	-12.70	-35.17	-36.56
1	12.60	izq max	-2233.63	407.70	-47.18	-2.70
1	12.60	min	-2729.63	-6.35	-35.64	-36.33
1	12.60	der max	-2233.63	407.75	-47.18	-2.70
1	12.60	min	-2729.63	-6.27	-35.64	-36.33
1	14.70	izq max	-2237.89	345.37	-44.52	-6.84
1	14.70	min	-2734.85	13.57	-36.58	-35.10
1	14.70	der max	-2237.89	345.42	-44.52	-6.84
1	14.70	min	-2734.85	13.66	-36.58	-35.09
1	16.80	izq max	-2715.81	357.95	-51.35	-12.30
1	16.80	min	-2221.78	-52.13	-26.96	-32.65
1	16.80	der max	-2715.81	357.90	-51.35	-12.31
1	16.80	min	-2221.78	-52.06	-26.96	-32.64
1	18.90	izq max	-2687.54	394.89	-52.59	-9.51
1	18.90	min	-2198.72	-191.13	-20.59	-41.44
1	18.90	der max	-2687.61	394.29	-52.57	-9.55
1	18.90	min	-2199.90	-191.54	-20.59	-41.48
1	21.00	izq max	-2643.90	107.20	-32.92	-22.20
1	21.00	min	-2164.41	-659.97	4.39 *	-61.61
1	21.00	der max	-2642.68	113.67	-33.18	-21.81
1	21.00	min	-2163.98	-662.55	4.50 *	-61.75
2	23.65	izq max	-2537.87	332.26	-47.89	-11.64
2	23.65	min	-2077.56	-181.19	-19.43	-39.20
2	23.65	der max	-2538.52	332.68	-47.92	-11.63
2	23.65	min	-2077.23	-180.86	-19.44	-39.17
2	26.30	izq max	-2061.63	199.18	-35.82	-14.09
2	26.30	min	-2518.21	-87.69	-29.31	-38.87
2	26.30	der max	-2061.63	199.26	-35.82	-14.08
2	26.30	min	-2518.21	-87.64	-29.31	-38.87
2	28.95	izq max	-2044.16	265.38	-38.46	-9.55
2	28.95	min	-2496.34	-161.63	-25.79	-43.43
2	28.95	der max	-2044.16	265.03	-38.46	-9.55
2	28.95	min	-2496.34	-161.62	-25.79	-43.43
2	31.60	izq max	-2024.63	316.35	-40.44	-5.93
2	31.60	min	-2472.46	-192.77	-24.12	-45.15
2	31.60	der max	-2024.63	316.29	-40.44	-5.94
2	31.60	min	-2472.46	-192.77	-24.12	-45.15
2	34.25	izq max	-2003.40	336.03	-41.02	-4.37
2	34.25	min	-2446.51	-185.02	-24.12	-44.30
2	34.25	der max	-2003.40	335.99	-41.02	-4.37
2	34.25	min	-2446.51	-185.03	-24.12	-44.30
2	36.90	izq max	-2024.79	319.96	-40.56	-5.76
2	36.90	min	-2472.66	-190.34	-24.23	-44.99
2	36.90	der max	-2024.79	319.03	-40.56	-5.76
2	36.90	min	-2472.66	-190.35	-24.23	-44.99
2	39.55	izq max	-2044.39	270.54	-38.71	-9.19
2	39.55	min	-2496.61	-156.66	-26.01	-43.10
2	39.55	der max	-2044.39	270.57	-38.71	-9.19
2	39.55	min	-2496.61	-156.70	-26.01	-43.11
2	42.20	izq max	-2061.85	206.88	-36.16	-13.59
2	42.20	min	-2518.48	-79.36	-29.68	-38.33
2	42.20	der max	-2061.85	206.80	-36.15	-13.59
2	42.20	min	-2518.48	-79.39	-29.67	-38.33
2	44.85	izq max	-2539.79	342.63	-48.36	-10.98
2	44.85	min	-2077.43	-169.37	-19.94	-38.42
2	44.85	der max	-2538.13	342.22	-48.33	-11.00
2	44.85	min	-2077.76	-169.69	-19.93	-38.45
2	47.50	izq max	-2642.95	126.00	-33.70	-21.10
2	47.50	min	-2164.19	-648.11	3.90 *	-60.92
2	47.50	der max	-2644.10	119.52	-33.44	-21.49
2	47.50	min	-2164.62	-645.78	3.79 *	-60.78
3	49.60	izq max	-2687.83	405.39	-53.06	-8.53
3	49.60	min	-2200.12	-178.85	-21.14	-40.66
3	49.60	der max	-2687.76	406.00	-53.08	-8.79
3	49.60	min	-2198.95	-178.44	-21.15	-40.61
3	51.70	izq max	-2716.01	367.85	-51.79	-11.66
3	51.70	min	-2222.01	-40.94	-27.45	-31.92
3	51.70	der max	-2716.01	367.90	-51.79	-11.66
3	51.70	min	-2222.01	-41.02	-27.45	-31.92
3	53.80	izq max	-2238.07	354.99	-44.94	-6.21
3	53.80	min	-2735.09	22.42	-36.97	-34.52
3	53.80	der max	-2238.08	354.94	-44.94	-6.22
3	53.80	min	-2735.09	22.35	-36.96	-34.53
3	55.90	izq max	-2233.80	415.99	-47.54	-2.16
3	55.90	min	-2729.86	1.21	-35.97	-35.84
3	55.90	der max	-2233.80	415.91	-47.54	-2.17
3	55.90	min	-2729.86	1.11	-35.97	-35.85
3	58.00	izq max	-2222.01	445.91	-48.69	-0.05
3	58.00	min	-2715.45	-6.51	-35.45	-36.16
3	58.00	der max	-2222.01	445.88	-48.69	-0.05
3	58.00	min	-2715.45	-6.60	-35.44	-36.16
3	60.10	izq max	-2204.95	436.95	-48.08	-0.41
3	60.10	min	-2694.61	-1.68	-35.38	-35.57
3	60.10	der max	-2204.96	436.94	-48.08	-0.41
3	60.10	min	-2694.60	-1.79	-35.38	-35.57
3	62.20	izq max	-2186.47	396.39	-46.07	-2.82
3	62.20	min	-2672.02	15.88	-35.85	-34.12
3	62.20	der max	-2186.48	396.33	-46.06	-2.83
3	62.20	min	-2672.02	15.74	-35.84	-34.13
3	64.30	izq max	-2167.12	330.54	-42.94	-6.88
3	64.30	min	-2648.37	46.64	-36.88	-31.79
3	64.30	der max	-2167.13	330.48	-42.94	-6.88
3	64.30	min	-2648.36	46.52	-36.88	-31.80
3	66.40	izq max	-2151.75	232.16	-38.44	-13.12
3	66.40	min	-2629.61	75.44	-37.89	-29.66
3	66.40	der max	-2152.42	233.52	-38.51	-13.04
3	66.40	min	-2626.05	77.15	-37.92	-29.50
3	68.50	izq max	-2621.69	294.61	-29.43	-8.79
3	68.50	min	-2145.69	240.70	-23.26	-7.21

COMPROBACION ESTADO LIMITE DE SERVICIO A TIEMPO INFINITO

Factores de ponderación considerados para el pretensado:

- Acciones Desfavorables: 1.1
- Acciones Favorables: 0.9

LEYENDA:

+ : Compresión>fck28/1.6
* : Tracción
# : Fisuración
! : Requiere comprobación wk

Vano	x [m]		Pxx [t]	Mmax Mmin [tm]	Mp,isos Mp,isos [tm]	σs σs [kg/cm2]	σi σi [kg/cm2]	wk wk [mm]	
1	0.00	der max	-2622.31	294.75	295.87	-28.44	-8.79		
1	0.00	min	-2146.54	240.46	239.22	-23.25	-7.22		
1	2.10	izq max	-2153.01	283.54	-250.63	-40.70	-9.77		
1	2.10	min	-2625.42	66.29	-309.99	-37.44	-30.21		
1	2.10	der max	-2151.53	282.30	-252.14	-40.63	-9.83		
1	2.10	min	-2629.26	64.72	-311.85	-37.42	-30.36		
1	4.20	izq max	-2167.05	408.56	-491.83	-46.34	-1.77		
1	4.20	min	-2648.11	24.86	-608.31	-35.93	-33.22		
1	4.20	der max	-2167.02	408.57	-491.83	-46.34	-1.77		
1	4.20	min	-2648.11	25.09	-608.31	-35.94	-33.20		
1	6.30	izq max	-2186.39	502.88	-645.62	-50.71	4.15	*	
1	6.30	min	-2671.75	-16.73	-798.53	-34.42	-36.25		
1	6.30	der max	-2186.37	502.78	-645.52	-50.71	4.14	*	
1	6.30	min	-2671.75	-16.51	-798.53	-34.43	-36.23		
1	8.40	izq max	-2204.86	565.00	-701.32	-53.67	7.97	*	
1	8.40	min	-2694.33	-45.11	-867.42	-33.48	-38.40		
1	8.40	der max	-2204.85	564.84	-701.32	-53.66	7.96	*	
1	8.40	min	-2694.34	-44.86	-867.42	-33.49	-38.39		
1	10.50	izq max	-2221.91	579.40	-659.27	-54.52	8.69	*	
1	10.50	min	-2715.17	-60.75	-815.41	-33.08	-39.70		
1	10.50	der max	-2221.91	579.31	-659.25	-54.51	8.68	*	
1	10.50	min	-2715.17	-60.54	-815.39	-33.08	-39.69		
1	12.60	izq max	-2233.68	528.15	-519.61	-52.44	5.18	*	
1	12.60	min	-2729.56	-63.87	-642.68	-33.13	-40.10		
1	12.60	der max	-2233.68	528.25	-519.61	-52.44	5.19	*	
1	12.60	min	-2729.57	-63.69	-642.68	-33.14	-40.08		
1	14.70	izq max	-2237.87	460.70	-281.73	-49.55	0.71	*	
1	14.70	min	-2734.78	-53.52	-348.45	-33.65	-39.49		
1	14.70	der max	-2237.87	460.77	-281.73	-49.55	0.71	*	
1	14.70	min	-2734.79	-53.32	-348.45	-33.66	-39.47		
1	16.80	izq max	-2715.78	489.76	64.86	-57.11	-3.68		
1	16.80	min	-2221.72	-128.80	52.44	-23.61	-37.66		
1	16.80	der max	-2715.78	489.72	64.88	-57.10	-3.68		
1	16.80	min	-2221.72	-128.62	52.46	-23.62	-37.65		
1	18.90	izq max	-2687.51	543.17	576.34	-59.06	0.19	*	
1	18.90	min	-2198.73	-282.50	465.98	-16.60	-47.42		
1	18.90	der max	-2687.50	542.59	575.77	-59.04	0.15	*	
1	18.90	min	-2200.13	-282.80	465.52	-16.61	-47.46		
1	21.00	izq max	-2643.79	271.95	857.98	-39.83	-12.63		
1	21.00	min	-2164.67	-796.42	693.68	10.11	-69.54	*	
1	21.00	der max	-2642.96	275.37	858.02	-39.96	-12.42		
1	21.00	min	-2164.71	-803.11	693.72	10.39	-69.92	*	
2	23.65	izq max	-2538.16	493.94	312.96	-54.95	-1.07		
2	23.65	min	-2077.77	-253.95	253.03	-16.26	-43.96		
2	23.65	der max	-2538.81	494.37	313.28	-54.98	-1.05		
2	23.65	min	-2077.26	-253.67	253.29	-16.26	-43.94		
2	26.30	izq max	-2061.92	360.85	-342.81	-42.88	-3.51		
2	26.30	min	-2517.73	-140.51	-424.00	-27.00	-42.33		
2	26.30	der max	-2061.92	360.94	-342.83	-42.88	-3.51		
2	26.30	min	-2517.73	-140.47	-424.02	-27.00	-42.32		
2	28.95	izq max	-2044.45	426.76	-760.62	-45.52	1.03	*	
2	28.95	min	-2495.76	-210.00	-940.77	-23.68	-46.58		
2	28.95	der max	-2044.45	426.72	-760.63	-45.52	1.03	*	
2	28.95	min	-2495.76	-210.03	-940.79	-23.67	-46.59		
2	31.60	izq max	-2024.92	478.02	-1003.34	-47.50	4.64	*	
2	31.60	min	-2471.88	-237.10	-1240.97	-22.18	-48.04		
2	31.60	der max	-2024.92	477.97	-1003.34	-47.50	4.64	*	
2	31.60	min	-2471.88	-237.13	-1240.97	-22.19	-48.05		
2	34.25	izq max	-2003.69	497.69	-1075.30	-48.08	6.21	*	
2	34.25	min	-2445.94	-225.32	-1329.98	-22.35	-46.93		
2	34.25	der max	-2003.69	497.65	-1075.30	-48.08	6.21	*	
2	34.25	min	-2445.93	-225.35	-1329.98	-22.35	-46.93		
2	36.90	izq max	-2025.08	480.61	-1003.45	-47.62	4.81	*	
2	36.90	min	-2472.08	-234.61	-1241.10	-22.29	-47.88		
2	36.90	der max	-2025.08	480.68	-1003.45	-47.62	4.82	*	
2	36.90	min	-2472.08	-234.58	-1241.10	-22.29	-47.88		
2	39.55	izq max	-2044.67	432.18	-760.64	-45.76	1.38	*	
2	39.55	min	-2496.03	-204.90	-940.79	-23.90	-46.25		
2	39.55	der max	-2044.67	432.21	-760.64	-45.76	1.39	*	
2	39.55	min	-2496.04	-204.89	-940.79	-23.90	-46.25		
2	42.20	izq max	-2062.14	368.50	-342.83	-43.21	-3.01		
2	42.20	min	-2518.00	-131.97	-424.02	-27.37	-41.77		
2	42.20	der max	-2062.14	368.41	-342.80	-43.21	-3.02		
2	42.20	min	-2518.00	-132.00	-423.99	-27.37	-41.77		
2	44.85	izq max	-2539.07	504.23	313.43	-55.41	-0.40		
2	44.85	min	-2077.48	-241.53	253.41	-16.80	-43.14		
2	44.85	der max	-2538.42	503.91	313.11	-55.38	-0.42		
2	44.85	min	-2077.98	-241.82	253.15	-16.79	-43.17		
2	47.50	izq max	-2643.23	287.58	858.11	-40.48	-11.72		
2	47.50	min	-2164.93	-787.75	693.79	9.74	-69.03	*	
2	47.50	der max	-2644.01	284.10	858.06	-40.34	-11.93		
2	47.50	min	-2164.92	-781.40	693.75	9.48	-68.67	*	
3	49.60	izq max	-2687.74	553.53	575.85	-59.52	0.87	*	
3	49.60	min	-2200.38	-269.39	465.58	-17.20	-46.58		
3	49.60	der max	-2687.75	554.13	576.42	-59.55	0.90	*	
3	49.60	min	-2198.99	-269.08	466.04	-17.19	-46.55		
3	51.70	izq max	-2716.01	499.54	64.89	-57.53	-3.04		
3	51.70	min	-2222.01	-117.06	52.46	-24.13	-36.90		
3	51.70	der max	-2716.01	499.58	64.87	-57.54	-3.04		
3	51.70	min	-2222.00	-117.23	52.45	-24.12	-36.91		
3	53.80	izq max	-2238.07	470.21	-281.69	-49.97	1.33	*	
3	53.80	min	-2735.08	-44.17	-348.40	-34.06	-38.88		
3	53.80	der max	-2238.07	470.16	-281.69	-49.96	1.33	*	
3	53.80	min	-2735.08	-44.34	-348.40	-34.05	-38.89		
3	55.90	izq max	-2233.82	536.84	-519.78	-52.82	5.75	*	
3	55.90	min	-2729.85	-55.86	-642.88	-33.48	-39.58		
3	55.90	der max	-2233.82	536.71	-519.79	-52.81	5.74	*	
3	55.90	min	-2729.84	-56.07	-642.88	-33.47	-39.59		
3	58.00	izq max	-2222.03	586.41	-659.35	-54.83	9.15	*	
3	58.00	min	-2715.44	-54.06	-815.51	-33.37	-39.27		
3	58.00	der max	-2222.03	586.40	-659.34	-54.83	9.15	*	
3	58.00	min	-2715.43	-54.26	-815.51	-33.36	-39.28		
3	60.10	izq max	-2204.96	570.49	-701.38	-53.91	8.33	*	
3	60.10	min	-2694.59	-39.71	-867.49	-33.72	-38.05		
3	60.10	der max	-2204.98	570.54	-701.38	-53.91	8.33	*	
3	60.10	min	-2694.58	-39.91	-867.49	-33.71	-38.07		
3	62.20	izq max	-2186.47	507.05	-645.66	-50.90	4.42	*	
3	62.20	min	-2672.00	-12.62	-798.58	-34.61	-35.98		
3	62.20	der max	-2186.50	507.03	-645.66	-50.89	4.42	*	
3	62.20	min	-2671.99	-12.88	-798.58	-34.60	-36.00		
3	64.30	izq max	-2167.12	411.32	-491.80	-46.46	-1.59		
3	64.30	min	-2648.34	27.65	-608.28	-36.05	-33.04		
3	64.30	der max	-2167.14	411.29	-491.78	-46.46	-1.59		
3	64.30	min	-2648.33	27.43	-608.25	-36.04	-33.05		
3	66.40	izq max	-2151.71	283.75	-252.20	-40.69	-9.74		
3	66.40	min	-2629.58	65.98	-311.93	-37.48	-30.28		
3	66.40	der max	-2153.22	295.02	-250.69	-40.77	-9.68		
3	66.40	min	-2625.77	67.58	-310.07	-37.50	-30.13		
3	68.50	izq max	-2622.80	294.90	295.93	-28.45	-8.79		
3	68.50	min	-2146.91	240.43	239.26	-23.26	-7.23		

14.9 Tablero. Estado Límite Último. Análisis Longitudinal

ENVOLVENTE DE ESFUERZOS ESTADO LIMITE ULTIMO

Factores de Ponderación Considerados:

- Coeficiente de minoracion acc. perm. favorables : 0.90
- Coeficiente de mayoración de acc. desfavorables : 1.50

1. Momentos Flectores Envolventes y Esfuerzos Concomitantes

Vano	x [m]		Mfmax Mfmin [tm]	Qcon Qcon [t]	Mtcon Mtcon [tm]	Ncon Ncon [t]
1	0.00	der	1.28	465.08	-775.94	-23.24
			-1.07	331.33	666.48	-16.45
1	2.10	izq	893.44	334.69	-169.47	-16.49
			335.56	128.25	-167.80	-4.69
		der	894.12	335.10	-166.40	1.51
			336.21	128.32	-166.24	2.19
1	4.20	izq	1499.28	259.88	184.14	1.22
			551.96	77.11	-166.24	2.19
		der	1499.20	258.93	-320.60	1.29
			552.52	77.10	-164.41	2.17
1	6.30	izq	1946.20	166.46	189.12	1.21
			660.66	25.92	-164.41	2.17
		der	1945.62	165.52	-314.10	1.27
			661.21	25.92	-162.20	2.15
1	8.40	izq	2197.05	73.02	195.62	1.20
			661.87	-25.29	-162.20	2.15
		der	2196.51	72.07	-305.73	1.26
			662.48	-25.29	-159.68	2.14
1	10.50	izq	2206.51	-50.43	98.99	1.19
			555.60	-76.49	-159.68	2.14
		der	2206.17	-80.43	1.34	1.20
			556.13	-76.49	-157.82	2.12
1	12.60	izq	1921.16	-203.86	-103.66	1.20
			341.73	-127.69	-157.82	2.12
		der	1921.47	-203.86	-97.26	1.20
			342.24	-127.69	-156.68	2.11
1	14.70	izq	1456.66	-244.21	-74.56	1.36
			20.51	-178.87	-156.68	2.11
		der	1456.92	-244.22	-69.01	1.37
			21.09	-178.87	-156.60	2.09
1	16.80	izq	997.22	-185.96	84.55	1.48
			-527.08	-339.79	-154.03	2.06
		der	996.92	-185.96	87.98	1.48
			-526.59	-339.79	-155.78	2.05
1	18.90	izq	532.37	-219.41	29.21	1.66
			-1346.39	-492.81	-163.01	1.74
		der	532.25	-219.41	30.96	-0.74
			-1345.98	-492.80	-166.39	-3.67
1	21.00	izq	22.82	-259.83	-3.84	-0.95
			-2483.10	-592.25	-166.39	-4.76
		der	18.65	309.38	-3.40	-1.00
			-2507.35	662.03	-173.85	-6.42
2	2.65	izq	777.24	257.84	-23.25	-1.26
			-977.16	499.16	31.79	-2.92
		der	777.38	257.84	-19.45	0.97
			-977.25	499.16	27.73	1.40
2	5.30	izq	1426.11	215.86	-62.21	-0.60
			43.98	307.22	-4.95	4.80
		der	1426.35	215.85	-56.83	-0.60
			44.03	307.22	-4.79	4.80
2	7.95	izq	2167.75	236.64	68.48	-1.91
			510.33	141.19	34.82	5.73
		der	2167.41	236.64	79.12	-1.91
			510.17	141.19	37.33	5.73
2	10.60	izq	2649.33	127.15	79.12	-1.91
			798.65	76.59	37.33	5.73
		der	2649.00	127.15	90.09	-1.92
			798.50	76.59	40.63	5.73
2	13.25	izq	2813.84	-0.39	27.10	-1.92
			915.76	-3.29	-45.88	5.72
		der	2813.69	-18.39	-23.11	-1.92
			915.67	11.96	44.80	5.73
2	15.90	izq	2652.93	-125.59	-89.66	-1.93
			801.49	-75.51	-39.39	5.70
		der	2653.29	-125.59	-77.68	-1.93
			801.65	-75.51	-35.77	5.70
2	18.55	izq	2175.29	-235.11	-77.68	-1.93
			515.90	-140.12	-35.77	5.70
		der	2175.59	-235.12	-67.81	-1.92
			516.04	-140.13	-33.43	5.70
2	21.20	izq	1434.72	-214.79	57.75	-0.61
			56.29	-305.70	5.76	4.76
		der	1434.45	-214.80	63.70	-0.60
			56.23	-305.71	6.00	4.76
2	23.85	izq	787.40	-256.88	20.53	0.97
			-959.19	-497.49	-26.01	1.37
		der	787.28	-256.88	23.81	-1.26
			-959.12	-497.49	-29.23	-2.94
2	26.50	izq	30.81	-309.44	3.83	-0.99
			-2484.06	-660.32	176.27	-6.42
		der	34.76	259.25	3.61	-0.95
			-2460.61	591.17	164.84	-4.94
3	2.10	izq	543.30	218.83	-31.52	-0.75
			-1325.80	491.73	164.84	-3.95
		der	543.43	218.82	-29.71	1.64
			-1326.30	491.74	161.59	1.55
3	4.20	izq	1007.36	185.33	-88.71	1.50
			-509.70	336.78	154.92	1.79
		der	1007.66	185.33	-85.33	1.50
			-510.19	336.79	153.21	1.81
3	6.30	izq	1470.10	243.34	68.23	1.38
			31.51	178.16	155.86	1.87
		der	1469.88	243.33	73.08	1.37
			31.01	178.16	155.97	1.89
3	8.40	izq	1934.07	202.85	96.23	1.33
			351.49	126.94	155.97	1.89
		der	1933.71	202.85	102.70	1.33
			350.89	126.94	157.32	1.91
3	10.50	izq	2216.53	79.44	-2.30	1.33
			563.66	75.76	157.32	1.91
		der	2216.53	49.44	-99.93	1.33
			563.14	75.75	159.20	1.92
3	12.60	izq	2204.73	-73.08	305.20	1.39
			668.46	24.56	159.20	1.92
		der	2204.93	-73.39	-197.60	1.33
			667.93	24.56	161.42	1.93
3	14.70	izq	1952.08	-166.53	312.53	1.40
			665.74	-26.64	161.42	1.93
		der	1952.13	-167.43	-190.12	1.34
			665.11	-26.65	163.97	1.95
3	16.80	izq	1503.07	-259.96	320.01	1.42
			555.41	-77.84	163.97	1.95
		der	1503.06	-260.87	-185.07	1.35
			554.85	-77.84	165.84	1.97
3	18.90	izq	896.36	-336.01	165.66	1.60
			337.69	-129.03	165.84	1.97
		der	895.78	-335.61	168.32	-16.45
			337.13	-128.95	167.25	-4.95
3	21.00	izq	1.54	-466.01	775.33	-23.33
			-1.30	-332.02	-667.89	-16.39

2. Momentos Torsores Envolventes y Esfuerzos Concomitantes

Vano	x [m]		Mtmax Mtmin [tm]	Mfcon Mfcon [tm]	Qcon Qcon [t]	Ncon Ncon [t]
1	0.00	der	666.48	-1.07	331.33	-16.45
			-775.94	1.28	465.08	-23.24
1	2.10	izq	585.64	521.57	213.15	-10.35
			-698.02	768.21	314.65	-15.33
		der	588.47	519.34	213.40	1.12
			-695.16	770.90	315.02	1.57
1	4.20	izq	561.03	905.08	153.87	1.12
			-667.71	1343.19	229.88	1.57
		der	564.03	903.22	153.86	1.12
			-663.25	1345.42	229.87	1.53
1	6.30	izq	536.60	1163.78	94.36	1.12
			-635.82	1738.69	144.78	1.53
		der	540.49	1161.99	94.36	1.13
			-630.00	1740.82	144.78	1.51
1	8.40	izq	513.05	1297.67	34.84	1.13
			-602.56	1955.49	59.65	1.51
		der	518.44	1710.16	32.47	1.33
			-595.48	1584.98	66.97	1.50
1	10.50	izq	438.16	1362.71	-83.90	1.48
			-514.60	1330.47	-24.14	1.71
		der	442.70	1361.23	-83.81	1.49
			-510.16	1332.18	-24.14	1.68
1	12.60	izq	415.26	1095.86	-168.92	1.49
			-482.72	1218.98	-83.66	1.68
		der	418.91	1094.46	-168.93	1.50
			-478.66	1220.57	83.66	1.66
1	14.70	izq	391.48	650.60	-254.00	1.50
			-451.24	982.54	-143.15	1.66
		der	393.96	649.08	-254.01	1.51
			-447.49	984.24	-143.15	1.63
1	16.80	izq	367.94	-35.24	-309.70	1.69
			-421.46	682.70	-232.09	1.45
		der	367.82	-36.49	-309.70	1.70
			-419.25	472.74	-244.67	1.80
1	18.90	izq	370.05	-947.33	-433.64	1.78
			-423.79	-261.36	-282.76	2.18
		der	366.57	-948.60	-433.63	-2.96
			-423.26	-259.97	-282.77	-0.94
1	21.00	izq	394.01	-1952.84	-524.77	-3.96
			-450.70	-919.41	-346.74	-1.64
		der	455.68	-1263.39	462.34	-1.71
			-491.23	-1624.27	639.82	-5.05
2	2.65	izq	357.62	-381.48	342.58	-1.60
			-397.43	-319.18	485.16	-4.64
		der	355.55	-383.19	342.58	1.36
			-397.90	-317.18	485.18	-0.45
2	5.30	izq	320.93	425.16	267.48	1.36
			-363.28	826.27	377.77	-0.45
		der	322.53	423.98	267.48	1.36
			-360.16	827.67	377.77	-0.46
2	7.95	izq	287.90	1033.32	192.37	1.36
			-325.53	1686.49	270.35	-0.46
		der	293.15	1122.06	186.04	0.58
			-317.24	1688.10	270.35	-0.48
2	10.60	izq	258.53	1515.51	110.96	0.58
			-282.63	2262.11	162.96	-0.48
		der	264.80	1514.44	110.96	0.58
			-273.26	2263.20	162.95	-0.49
2	13.25	izq	170.44	1136.01	-14.60	2.79
			-177.70	2391.42	15.93	-0.61
		der	178.77	2391.35	-14.29	-0.60
			-169.99	1136.09	15.62	2.78
2	15.90	izq	273.56	2267.96	-161.34	-0.47
			-263.05	1517.32	-109.76	0.56
		der	283.80	2266.68	-161.34	-0.46
			-256.20	1518.48	-109.76	0.56
2	18.55	izq	318.43	1696.70	-268.77	-0.46
			-290.83	1128.05	-184.87	0.56
		der	326.13	1695.21	-268.77	-0.45
			-285.96	1039.25	-191.20	1.35
2	21.20	izq	360.75	840.71	-376.17	-0.45
			-320.58	433.12	-266.29	1.35
		der	364.23	839.17	-376.18	-0.44
			-318.79	434.42	-266.29	1.36
2	23.85	izq	398.86	-300.15	-483.60	-0.44
			-353.40	-370.86	-341.40	1.36
		der	398.72	-301.86	-483.58	-4.62
			-355.11	-369.42	-341.40	-1.59
2	26.50	izq	492.40	-1602.67	-638.22	-5.03
			-453.24	-1248.19	-461.19	-1.69
		der	450.01	-904.83	346.04	-1.69
			-395.78	-1931.35	523.74	-3.94
3	0.10	izq	422.58	-246.95	282.07	-0.99
			-368.35	-929.39	432.62	-2.94
		der	423.17	-248.33	282.06	2.12
			-371.70	-928.12	432.62	1.79
3	4.20	izq	418.55	484.89	243.94	1.83
			-369.32	-19.91	308.71	1.72
		der	420.87	694.80	231.36	1.48
			-369.39	-18.65	308.71	1.71
3	6.30	izq	447.33	994.31	142.47	1.62
			-395.85	663.89	253.01	1.57
		der	450.61	992.84	142.47	1.65
			-393.66	665.21	253.00	1.56
3	8.40	izq	478.06	1229.60	82.93	1.65
			-421.11	1107.28	167.85	1.56
		der	482.81	1227.75	82.93	1.68
			-416.83	1108.91	167.85	1.55
3	10.50	izq	510.23	1339.40	23.43	1.68
			-444.25	1371.96	82.76	1.55
		der	514.69	1337.70	23.43	1.71
			-439.69	1373.45	82.75	1.54
3	12.60	izq	595.41	1590.79	-67.69	1.53
			-519.77	1718.45	-33.47	1.43
		der	601.61	1964.01	-60.66	1.49
			-515.04	1303.34	-35.56	1.26
3	14.70	izq	629.05	1747.21	-145.78	1.49
			-542.48	1166.16	-95.08	1.26
		der	635.75	1744.78	-145.79	1.52
			-538.00	1168.22	-95.08	1.25
3	16.80	izq	663.18	1349.28	-230.90	1.52
			-565.44	906.08	-154.59	1.25
		der	667.71	1347.02	-230.90	1.56
			-562.39	907.96	-154.59	1.25
3	18.90	izq	695.14	772.94	-315.99	1.56
			-589.82	520.96	-214.09	1.25
		der	697.64	770.60	-315.63	-15.40
			-587.20	522.90	-213.85	-10.25
3	21.00	izq	775.33	1.54	-466.01	-23.33
			-667.89	-1.30	-332.02	-16.39

3. Cortantes Envolventes y Esfuerzos Concomitantes

Vano	x [m]		Qmax Qmin [t]	Mtcon Mtcon [tm]	Mfcon Mfcon [tm]	Ncon Ncon [t]
1	0.00	der	510.86	233.58	-0.36	-25.99
			196.24	-167.80	0.28	-8.35
1	2.10	izq	352.89	180.22	855.91	-17.76
			128.25	-167.80	335.56	-4.69
		der	353.33	184.14	855.24	1.22
			128.32	-166.24	336.21	2.19
1	4.20	izq	259.88	184.14	1499.28	1.22
			75.82	-27.08	726.58	1.97
		der	259.87	189.12	1498.68	1.21

			75.81	-24.66	726.67	1.97
1	6.30	izq	166.46	189.12	1946.20	1.21
			24.63	-24.66	832.11	1.97
		der	166.46	195.62	1945.57	1.20
			24.63	-21.88	832.19	1.96
1	8.40	izq	80.34	196.67	1824.26	1.23
			-33.90	-22.93	1202.95	1.94
		der	80.34	203.62	1823.51	1.22
			-33.90	-18.35	1203.02	1.93
1	10.50	izq	4.06	44.19	1559.16	1.58
			-129.40	-28.92	1386.22	1.61
		der	3.37	80.11	1390.15	1.67
			-133.11	-76.26	1661.81	1.36
1	12.60	izq	-47.83	80.11	1343.46	1.67
			-256.54	29.74	1266.17	1.36
		der	-47.83	84.59	1343.18	1.66
			-256.55	32.96	1266.04	1.36
1	14.70	izq	-99.01	84.59	1189.07	1.66
			-349.93	32.96	629.55	1.36
		der	-99.01	89.12	1188.73	1.66
			-349.94	35.35	629.39	1.35
1	16.80	izq	-150.21	89.12	927.06	1.66
			-443.37	35.35	-203.56	1.35
		der	-150.21	92.21	926.75	1.66
			-443.37	34.68	-203.71	1.35
1	18.90	izq	-204.16	-5.53	508.47	1.90
			-536.80	34.68	-1232.95	1.35
		der	-204.17	-3.84	508.46	-0.34
			-536.78	31.42	-1233.00	-4.53
1	21.00	izq	-259.83	-3.84	22.82	-0.95
			-667.84	83.81	-2358.64	-5.81
		der	701.67	-233.03	-2377.70	-5.83
			302.48	-65.49	-271.00	0.45
2	2.65	izq	536.55	141.85	-906.52	-5.45
			232.24	-65.49	435.04	1.06
		der	536.57	137.75	-907.15	-0.82
			232.23	-63.21	435.38	3.06
2	5.30	izq	418.67	137.75	358.58	-0.82
			167.62	-63.21	965.18	3.06
		der	418.66	139.11	358.10	-0.83
			167.61	-59.57	965.43	3.06
2	7.95	izq	300.75	139.11	1311.40	-0.83
			103.00	-59.57	1324.02	3.06
		der	300.75	145.55	1310.73	-0.84
			103.00	-53.06	1324.31	3.05
2	10.60	izq	182.87	145.55	1951.38	-0.84
			38.40	-53.06	1511.63	3.05
		der	182.86	153.63	1950.79	-0.85
			38.40	-46.80	1511.84	3.05
2	13.25	izq	34.93	48.63	2234.18	-0.85
			-26.22	-46.80	1527.98	3.05
		der	27.52	48.38	1813.76	1.40
			-33.58	56.73	1937.84	0.94
2	15.90	izq	-37.39	46.27	1029.13	3.94
			-181.12	163.84	2430.29	-1.60
		der	-37.39	50.91	1028.90	3.94
			-181.12	174.81	2429.50	-1.59
2	18.55	izq	-102.01	50.91	844.18	3.94
			-299.04	174.81	1793.19	-1.59
		der	-102.01	54.74	843.93	3.95
			-299.05	182.95	1792.35	-1.58
2	21.20	izq	-166.61	54.74	488.04	3.95
			-416.94	182.95	843.73	-1.58
		der	-166.61	56.77	487.79	3.95
			-416.94	186.44	842.92	-1.57
2	23.85	izq	-231.23	56.77	-39.41	3.95
			-534.86	186.44	-418.35	-1.57
		der	-231.25	56.72	-39.66	1.95
			-534.83	185.79	-419.18	-6.20
2	26.50	izq	-301.49	56.72	-743.02	1.34
			-699.96	244.84	-1869.70	-6.70
		der	666.75	-85.19	-2335.96	-5.86
			259.25	3.61	34.76	-0.95
3	2.10	izq	535.70	-33.03	-1213.01	-4.55
			203.60	3.61	519.14	-0.34
		der	535.71	-36.16	-1212.85	1.32
			203.59	5.33	519.15	1.89
3	4.20	izq	442.28	-36.16	-185.96	1.32
			149.62	-92.71	936.58	1.64
		der	442.28	-36.78	-185.80	1.33
			149.62	-89.57	936.90	1.64
3	6.30	izq	348.87	-36.78	644.68	1.33
			98.44	-89.57	1197.29	1.64
		der	348.87	-34.65	644.82	1.33
			98.43	-85.62	1197.59	1.64
3	8.40	izq	255.40	-34.65	1279.55	1.33
			47.21	-85.62	1350.57	1.64
		der	255.40	-29.71	1279.69	1.34
			47.21	-80.41	1350.90	1.65
3	10.50	izq	131.99	75.29	1672.83	1.34
			-3.97	-80.41	1396.29	1.65
		der	119.34	27.71	1397.21	1.55
			-4.65	-44.35	1565.11	1.58
3	12.60	izq	32.92	17.64	1211.30	1.79
			-81.02	-204.59	1829.04	1.39
		der	32.92	21.66	1211.24	1.79
			-81.02	-198.51	1829.71	1.40
3	14.70	izq	-25.31	20.75	836.63	1.86
			-167.43	-187.60	1951.40	1.33
		der	-25.31	23.96	836.54	1.86
			-167.43	-190.12	1952.13	1.34
3	16.80	izq	-76.51	23.96	729.63	1.86
			-260.86	-190.12	1502.45	1.34
		der	-76.51	26.41	729.54	1.87
			-260.87	-185.07	1503.06	1.35
3	18.90	izq	-129.03	165.84	337.69	1.87
			-354.27	-185.07	857.35	1.35
		der	-128.95	167.25	337.13	-4.95
			-353.89	-181.52	857.93	-17.67
3	21.00	izq	-196.95	167.25	0.34	-8.61
			-511.90	-234.73	-0.44	-25.95

ESFUERZOS DE CALCULO Y COMPROBACION TABLERO

LEYENDA:
- !: Md/Mu>1
- *: Vd>Vu1
- **: Td>Tu1
- A: Td>5Tc (ACI)
- -: Vd/Vu1+Td/Tu1>1
- mc: Armadura minima por cortante
- mt: Armadura minima por torsión
- i: Seccion por la izquierda
- d: Seccion por la derecha
- x.xx: Seccion armada

Vano	x [m]	Mdmax(+) [tm] / N con [t] / Vdmax [t] / Vd [t]	Mdmin(-) [tm] / N con [t] / Td [tm] / Tdmax [tm]	Mu(+) [tm] / A90 [cm2/m] / Tu1 [tm]	Mu(-) [tm] / Vcu [t] / Ab190cer [cm2/m] / Tc(ACI) [tm] / At (EH) [cm2/m] / At(ACI) [cm2/m]	Mdmax/Mu / Vd/Vu1+Td/Tu1 / Ab145 [cm2/m] / Vd/Vu1+Td/Tu1 / Al (EH) [cm2] / Al(ACI) [cm2]	Mdmin/Mu / As_max [cm2]	As_min [cm2]
1	0.00d	1.28	-1.07	1357.79	2239.95	0.00	0.00	
		23.24	16.45			0.00	0.00	
		567.11	233.58	11040.00	1126.77	0.16		
				152.38mc	50.79mc	71.83mc		

		521.33	-775.94	2124.00	609.62	0.41		
					7.83	206.67		
					2.18	57.00		
1	2.10i	893.44	335.56	1799.95	1514.38	0.50	0.19	
		16.49	4.69			0.00	0.00	
		409.14	180.22	2642.24	269.67	0.31		
				36.47mc	12.16mc	17.19mc		
		370.90	-698.03	1168.74	346.69	0.74		
					12.80	202.03		
					8.27	128.96		
	d	894.12	336.21	1799.95	1514.38	0.50	0.19	
		1.51	2.19			0.00	0.00	
		409.58	184.14	2642.24	269.67	0.31		
				36.47mc	12.16mc	17.19mc		
		371.27	-695.16	1168.74	346.57	0.74		
					12.75	201.20		
					8.20	127.85		
1	4.20i	1499.28	551.96	2223.59	1123.23	0.67	0.25	
		1.22	2.19			0.00	0.00	
		304.11	184.14	2642.24	269.67	0.27		
				36.47mc	12.16mc	17.19mc		
		274.11	-667.71	1168.74	351.40	0.68		
					12.24	193.26		
					7.44	116.01		
	d	1499.20	552.52	2223.58	1123.23	0.67	0.25	
		1.29	2.17			0.00	0.00	
		304.10	189.12	2642.24	269.67	0.28		
				36.47mc	12.16mc	17.19mc		
		274.10	-663.25	1168.74	351.31	0.67		
					12.16	191.97		
					7.34	114.41		
1	6.30i	1946.20	660.66	2487.49	885.86	0.78	0.27	
		1.21	2.17			0.00	0.00	
		188.59	189.12	2642.24	269.67	0.23		
				36.47mc	12.16mc	17.19mc		
		166.91	-635.82	1168.74	355.69	0.61		
					11.66	184.03		
					6.59	102.74		
	d	1945.82	661.21	2487.49	885.86	0.78	0.27	
		1.27	2.15			0.00	0.00	
		188.59	195.62	2642.24	269.67	0.24		
				36.47mc	12.16mc	17.19mc		
		166.91	-630.00	1168.74	355.64	0.60		
					11.55	182.24		
					6.46	100.62		
1	8.40i	2197.05	661.87	2575.84	807.42	0.85	0.26	
		1.20	2.15			0.00	0.00	
		80.34	196.67	2642.24	269.67	0.20		
				36.47mc	12.16mc	17.19mc		
		59.65	-602.56	1168.74	358.31	0.54		
					11.05	174.40		
					5.75	89.58		
	d	2196.51	662.48	2575.84	807.42	0.85	0.26	
		1.26	2.14			0.00	0.00	
		80.34	203.62	2642.24	269.67	0.20		
				36.47mc	12.16mc	17.19mc		
		66.97	-595.48	1168.74	358.19	0.53		
					10.92	172.35		
					5.58	87.03		
1	10.50i	2206.51	555.60	2495.07	878.59	0.88	0.22	
		1.19	2.14			0.00	0.00	
		-140.92	-28.92	2642.24	269.67	0.08		
				36.47mc	12.16mc	17.19mc		
		-44.26	-514.60	1168.74	358.42	0.46		
					9.44	148.94		
					3.68	57.28		
	d	2206.17	556.13	2495.06	878.60	0.88	0.22	
		1.20	2.12			0.00	0.00	
		-153.23	-76.26	2642.24	269.67	0.12		
				36.47mc	12.16mc	17.19mc		
		-44.26	-510.16	1168.74	358.42	0.45		
					9.35	147.66		
					3.57	55.65		
1	12.60i	1921.16	341.73	2246.46	1102.25	0.86	0.15	
		1.20	2.12			0.00	0.00	
		-297.76	28.74	2642.24	269.67	0.14		
				36.47mc	12.16mc	17.19mc		
		-124.68	-482.72	1168.74	355.79	0.46		
					8.85	139.71		
					2.99	46.56		
	d	1921.47	342.24	2246.46	1102.25	0.86	0.15	
		1.20	2.11			0.00	0.00	
		-297.77	32.96	2642.24	269.67	0.14		
				36.47mc	12.16mc	17.19mc		
		-124.88	-478.66	1168.74	355.73	0.46		
					8.79	138.54		
					2.89	45.09		
1	14.70i	1456.66	20.51	1840.83	1482.42	0.79	0.01	
		1.36	2.11			0.00	0.00	
		-411.19	32.96	2642.24	269.67	0.18		
				36.47mc	12.16mc	17.19mc		
		-204.41	-451.24	1168.74	349.66	0.46		
					8.27	130.60		
					2.39	37.18		
	d	1456.92	21.09	1840.83	1482.42	0.79	0.01	
		1.37	2.09			0.00	0.00	
		-411.20	35.35	2642.24	269.67	0.19		
				36.47mc	12.16mc	17.19mc		
		-204.41	-447.49	1168.74	349.72	0.46		
					8.20	129.52		
					2.30	35.86		
1	16.80i	997.22	-527.08	1280.42	2033.52	0.78	0.26	
		1.48	2.06			0.00	0.00	
		-525.59	35.35	2642.24	269.67	0.23		
				58.87	19.62	27.75		
		-314.31	-421.46	1168.74	336.07	0.48		
					7.73	121.98		
					2.01	31.32		
	d	996.92	-526.59	1280.42	2033.52	0.78	0.26	
		1.48	2.05			0.00	0.00	
		-525.59	34.68	2642.24	269.67	0.23		
				58.87	19.62	27.75		
		-326.89	-419.25	1168.74	334.17	0.48		
					7.69	121.34		
					2.00	31.20		
1	18.90i	532.37	-1346.39	609.78	2741.25	0.87	0.49	
		1.66	1.74			0.00	0.00	
		-620.02	34.68	2642.24	269.67	0.26		
				80.60	26.87	37.99		
		-365.98	-423.79	1168.74	329.27	0.50		
					7.77	122.66		
					2.22	34.67		
	d	532.25	-1345.88	609.78	2741.25	0.87	0.49	
		0.74	3.67			0.00	0.00	
		-620.00	31.42	2642.24	269.67	0.26		
				80.59	26.86	37.99		
		-365.99	-423.26	1168.74	329.21	0.50		
					7.76	122.51		
					2.21	34.50		
1	21.00i	22.82	-2483.10	342.47	3071.80	0.07	0.81	
		0.95	4.76			0.00	0.00	
		-667.84	83.81	5060.00	516.43	0.20		
				69.84mc	23.28mc	32.92mc		
		-346.71	-450.70	1168.74	334.76	0.45		
					8.26	130.45		
					2.73	42.52		
	d	18.65	-2507.35	342.43	3071.94	0.05	0.82	
		1.00	6.42			0.00	0.00	
		701.67	-233.03	5060.00	516.43	0.34		
				69.84mc	23.28mc	32.92mc		
		639.82	-491.23	1168.74	300.47	0.55		
					9.01	142.18		
					4.49	69.96		
2	2.68i	777.24	-977.16	922.57	2402.26	0.84	0.41	
		1.26	2.92			0.00	0.00	
		661.34	141.85	2642.24	269.67	0.27		
				90.10	30.03	42.47		
		609.95	-397.43	1168.74	284.43	0.57		

						7.29	115.03	
						2.66	41.44	
		d	777.38	-977.25	922.57	2402.26	0.84	0.41
			0.97	1.40			0.00	0.00
			661.36	137.75	2642.24	269.67	0.37	
					90.11	30.04	42.48	
			609.97	-397.90	1168.74	284.55	0.67	
						7.30	115.17	
						2.67	41.57	
2	5.30i		1426.11	43.98	1992.18	1337.58	0.72	0.02
			0.60	4.80			0.00	0.00
			512.83	137.75	2642.24	269.67	0.31	
					55.94	18.65	26.37	
			471.93	-363.28	1168.74	300.70	0.49	
						6.66	105.15	
						1.47	22.95	
		d	1426.35	44.03	1992.19	1337.58	0.72	0.02
			0.60	4.80			0.00	0.00
			512.82	139.11	2642.24	269.67	0.31	
					55.93	18.64	26.37	
			471.93	-360.16	1168.74	299.93	0.49	
						6.60	104.24	
						1.42	22.09	
2	7.95i		2167.75	510.33	2784.95	631.75	0.78	0.18
			1.91	5.73			0.00	0.00
			364.01	139.11	2642.24	269.67	0.26	
					36.47mc	12.16mc	17.19mc	
			333.61	-325.53	1168.74	319.16	0.40	
						5.97	94.22	
						0.15	2.33	
		d	2167.41	510.17	2784.95	631.75	0.78	0.18
			1.91	5.73			0.00	0.00
			364.01	145.55	2642.24	269.67	0.26	
					36.47mc	12.16mc	17.19mc	
			333.61	-317.24	1168.74	317.42	0.40	
						5.82	91.92	
						0.00	0.00	
2	10.60i		2649.33	798.65	3273.74	292.80	0.81	0.24
			1.91	5.73			0.00	0.00
			214.04	145.55	2642.24	269.67	0.21	
					36.47mc	12.16mc	17.19mc	
			194.13	-282.63	1168.74	339.24	0.32	
						5.18	81.80	
						0.00	0.00	
		d	2649.00	798.50	3273.74	292.80	0.81	0.24
			1.92	5.73			0.00	0.00
			214.03	153.63	2642.24	269.67	0.21	
					36.47mc	12.16mc	17.19mc	
			194.12	-273.26	1168.74	338.00	0.31	
						5.01	79.09	
						0.00	0.00	
2	13.25i		2813.84	915.76	3434.87	200.88	0.82	0.27
			1.92	5.72			0.00	0.00
			34.93	48.63	2642.24	269.67	0.05	
					36.47mc	12.16mc	17.19mc	
			15.93	-177.70	1168.74	358.39	0.16	
						3.26	51.43	
						0.00	0.00	
		d	2813.69	915.67	3434.87	200.87	0.82	0.27
			1.92	5.73			0.00	0.00
			-33.58	56.73	2642.24	269.67	0.06	
					36.47mc	12.16mc	17.19mc	
			-14.29	178.77	1168.74	358.47	0.16	
						3.28	51.74	
						0.00	0.00	
2	15.90i		2652.93	801.49	3273.73	292.82	0.81	0.24
			1.93	5.70			0.00	0.00
			-212.29	163.84	2642.24	269.67	0.22	
					36.47mc	12.16mc	17.19mc	
			-192.51	273.56	1168.74	338.25	0.31	
					-	5.02	79.18	
						0.00	0.00	
		d	2653.29	801.65	3273.73	292.82	0.81	0.24
			1.93	5.70			0.00	0.00

				-212.29	174.81	2642.24	269.67	0.23
						36.47mc	12.16mc	17.19mc
				-192.51	283.80	1168.74	339.68	0.32
							5.20	82.14
							0.00	0.00
2	18.55i		2175.29	515.90	2784.94		631.76	0.78	0.19
			1.93	5.70				0.00	0.00
			-362.30	174.81	2642.24		269.67	0.29	
					36.47mc		12.16mc	17.19mc	
			-332.03	318.43	1168.74		318.00	0.40	
							5.84	92.16	
							0.01	0.16	
		d	2175.59	516.04	2784.94		631.76	0.78	0.19
			1.92	5.70				0.00	0.00
			-362.31	182.95	2642.24		269.67	0.29	
					36.47mc		12.16mc	17.19mc	
			-332.03	326.13	1168.74		319.60	0.40	
							5.98	94.39	
							0.15	2.39	
2	21.20i		1434.72	56.29	1992.18		1337.60	0.72	0.03
			0.61	4.76				0.00	0.00
			-511.10	182.95	2642.24		269.67	0.35	
					55.54		18.51	26.18	
			-470.33	360.75	1168.74		300.38	0.49	
							6.61	104.41	
							1.42	22.14	
		d	1434.45	56.23	1992.18		1337.60	0.72	0.03
			0.60	4.76				0.00	0.00
			-511.10	186.44	2642.24		269.67	0.35	
					55.54		18.51	26.18	
			-470.34	364.23	1168.74		301.24	0.49	
							6.68	105.42	
							1.48	23.10	
2	23.85i		787.40	-959.18	922.71		2402.33	0.85	0.40
			0.97	1.37				0.00	0.00
			-659.65	186.44	2642.24		269.67	0.41	
					89.71		29.90	42.29	
			-608.39	398.86	1168.74		295.08	0.57	
							7.31	115.44	
							2.68	41.73	
		d	787.28	-959.12	922.71		2402.33	0.85	0.40
			1.26	2.94				0.00	0.00
			-659.62	185.79	2642.24		269.67	0.41	
					89.71		29.90	42.29	
			-608.37	398.72	1168.74		285.04	0.57	
							7.31	115.40	
							2.67	41.69	
2	26.50i		30.81	-2484.06	342.45		3071.79	0.09	0.81
			0.99	6.42				0.00	0.00
			-699.96	244.84	5060.00		516.43	0.35	
					69.84mc		23.28mc	32.92mc	
			-638.22	492.40	1168.74		300.91	0.55	
							9.03	142.52	
							4.51	70.23	
		d	34.76	-2460.61	342.45		3071.83	0.10	0.80
			0.95	4.94				0.00	0.00
			666.75	-85.19	5060.00		516.43	0.20	
					69.84mc		23.28mc	32.92mc	
			346.04	450.01	1168.74		334.78	0.45	
							8.25	130.25	
							2.71	42.26	
3	2.10i		543.30	-1325.80	610.11		2741.04	0.89	0.48
			0.75	3.65				0.00	0.00
			618.92	-33.03	2642.24		269.67	0.26	
					80.34		26.78	37.87	
			365.29	422.58	1168.74		329.22	0.50	
							7.75	122.31	
							2.20	34.24	
		d	543.43	-1326.30	610.11		2741.04	0.89	0.48
			1.64	1.55				0.00	0.00
			618.93	-36.16	2642.24		269.67	0.27	
					80.34		26.79	37.87	
			365.29	423.17	1168.74		329.30	0.50	
							7.76	122.48	

					2.21	34.43	
3	4.20i	1007.36	-509.70	1280.41	2033.64	0.79	0.25
		1.50	1.79			0.00	0.00
		524.50	-36.16	2642.24	269.67	0.23	
				58.62	19.54	27.63	
		326.16	418.55	1168.74	334.20	0.48	
					7.67	121.14	
					1.98	30.94	
	d	1007.66	-510.19	1280.41	2033.64	0.79	0.25
		1.50	1.81			0.00	0.00
		524.50	-36.78	2642.24	269.67	0.23	
				58.62	19.54	27.63	
		313.56	429.87	1168.74	336.11	0.48	
					7.72	121.81	
					1.99	31.09	
3	6.30i	1470.10	31.51	1840.82	1482.54	0.80	0.02
		1.38	1.87			0.00	0.00
		410.13	-36.78	2642.24	269.67	0.19	
				36.47mc	12.16mc	17.19mc	
		203.73	447.33	1168.74	349.77	0.46	
					8.20	129.47	
					2.30	35.78	
	d	1469.88	31.01	1840.82	1482.54	0.80	0.02
		1.37	1.89			0.00	0.00
		410.13	-34.65	2642.24	269.67	0.18	
				36.47mc	12.16mc	17.19mc	
		203.73	450.61	1168.74	349.90	0.46	
					8.26	130.42	
					2.37	36.94	
3	8.40i	1934.07	351.49	2246.41	1102.36	0.86	0.16
		1.33	1.89			0.00	0.00
		296.62	-34.65	2642.24	269.67	0.14	
				36.47mc	12.16mc	17.19mc	
		124.15	478.06	1168.74	355.76	0.46	
					8.77	138.37	
					2.98	44.86	
	d	1933.71	350.89	2246.41	1102.36	0.86	0.16
		1.33	1.91			0.00	0.00
		296.62	-29.71	2642.24	269.67	0.14	
				36.47mc	12.16mc	17.19mc	
		124.15	482.81	1168.74	355.82	0.46	
					8.85	139.74	
					2.99	46.58	
3	10.50i	2216.53	563.66	2495.02	878.71	0.89	0.23
		1.33	1.91			0.00	0.00
		152.11	75.29	2642.24	269.67	0.12	
				36.47mc	12.16mc	17.19mc	
		43.55	510.23	1168.74	358.43	0.45	
					9.35	147.68	
					3.57	55.67	
	d	2216.53	563.14	2495.02	878.70	0.89	0.23
		1.33	1.92			0.00	0.00
		139.46	27.71	2642.24	269.67	0.08	
				36.47mc	12.16mc	17.19mc	
		43.55	514.69	1168.74	358.43	0.46	
					9.44	148.97	
					3.68	57.31	
3	12.60i	2204.73	668.46	2575.78	807.53	0.86	0.26
		1.39	1.92			0.00	0.00
		-81.02	-204.59	2642.24	269.67	0.21	
				36.47mc	12.16mc	17.19mc	
		-67.69	595.41	1168.74	358.17	0.54	
					10.92	172.33	
					5.58	87.01	
	d	2204.93	667.93	2575.78	807.53	0.86	0.26
		1.33	1.93			0.00	0.00
		-81.02	-198.51	2642.24	269.67	0.20	
				36.47mc	12.16mc	17.19mc	
		-60.66	601.61	1168.74	358.30	0.54	
					11.03	174.12	
					5.73	89.24	
3	14.70i	1952.98	665.74	2487.42	885.98	0.78	0.27
		1.40	1.93			0.00	0.00
		-189.56	-197.60	2642.24	269.67	0.24	

				36.47mc	12.16mc	17.19mc	
		-167.91	629.05	1168.74	355.59	0.60	
					11.53	182.07	
					6.43	100.29	
	d	1952.13	665.11	2487.42	885.98	0.78	0.27
		1.34	1.95			0.00	0.00
		-189.56	-190.12	2642.24	269.67	0.23	
				36.47mc	12.16mc	17.19mc	
		-167.92	635.75	1168.74	355.66	0.61	
					11.66	184.01	
					6.59	102.73	
3	16.80i	1503.07	555.41	2223.51	1123.35	0.68	0.25
		1.42	1.95			0.00	0.00
		-305.09	-190.12	2642.24	269.67	0.29	
				36.47mc	12.16mc	17.19mc	
		-275.13	663.18	1168.74	351.25	0.67	
					12.16	191.95	
					7.34	114.40	
	d	1503.36	554.85	2223.51	1123.35	0.68	0.25
		1.35	1.97			0.00	0.00
		-305.10	-185.97	2642.24	269.67	0.27	
				36.47mc	12.16mc	17.19mc	
		-275.13	667.71	1168.74	351.35	0.68	
					12.24	193.26	
					7.44	116.03	
3	18.90i	896.36	337.69	1807.31	1514.44	0.50	0.19
		1.60	1.97			0.00	0.00
		-410.52	-185.07	2642.24	269.67	0.31	
				36.47mc	12.16mc	17.19mc	
		-372.24	695.14	1168.74	346.51	0.74	
					12.75	201.20	
					8.20	127.86	
	d	895.79	337.13	1807.31	1514.44	0.50	0.19
		16.45	4.95			0.00	0.00
		-410.09	-181.52	2642.24	269.67	0.31	
				36.47mc	12.16mc	17.19mc	
		-371.88	697.64	1168.74	346.61	0.74	
					12.79	201.92	
					8.26	128.74	
3	21.00i	1.54	-1.30	1360.39	2238.13	0.00	0.00
		23.33	16.39			0.00	0.00
		-568.05	-234.73	11040.00	1126.77	0.16	
				152.38mc	50.79mc	71.83mc	
		-322.26	775.33	2124.00	609.46	0.41	
					7.82	206.50	
					2.17	56.85	

14.10 Aparatos de apoyo

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

ESFUERZOS STATIK2 ESTADO LIMITE DE SERVICIO

apoyo	sec	env	Nk [t]	Myk [mt]	Mzk [mt]
1	1	Mz min	-318.25	0.00	-479.38
	1	Mz max	-322.97	-0.00	560.69
1	1	N min	-371.61	-0.00	-182.14
	1	N max	-212.75	0.00	186.49
2	1	Mz min	-715.34	0.31	-67.01
	1	Mz max	-608.26	-7.99	71.97
2	1	N min	-925.22	22.23	-17.62
	1	N max	-592.66	-7.02	21.94
3	1	Mz min	-838.00	-23.56	-59.69
	1	Mz max	-605.66	6.91	63.37
3	1	N min	-921.38	-16.39	-14.62
	1	N max	-589.95	5.61	19.67
4	1	Mz min	-319.61	-0.00	-479.02
	1	Mz max	-323.92	0.00	559.51
4	1	N min	-372.67	0.00	-181.71
	1	N max	-214.33	-0.00	113.96

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

CARGAS EN NEOPRENOS

apoyo	env	nº neop	Nk [t]
E-1	Mz min	1	-246.28
	Mz min	2	-71.96
	Mz max	1	-59.54
	Mz max	2	-263.43
E-1	N min	1	-218.92
	N min	2	-152.69
	N max	1	-72.47
	N max	2	-140.28
P-1	Mz min	1	-715.34
	Mz max	1	-608.26
P-1	N min	1	-925.22
	N max	1	-592.66
P-2	Mz min	1	-838.00
	Mz max	1	-605.66
P-2	N min	1	-921.38
	N max	1	-589.95
E-2	Mz min	1	-246.90
	Mz min	2	-72.71
	Mz max	1	-60.23
	Mz max	2	-263.69
E-2	N min	1	-219.37
	N min	2	-153.30
	N max	1	-86.45
	N max	2	-127.89

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

DESPLAZAMIENTOS HORIZONTALES

apoyo	dir	pret. [cm]	reol. [cm]	temp. [cm]	frenado [cm]	total [cm]
E-1	long	0.326	2.022	-0.640	1.099	4.088
	trans	0.004	-0.096	0.031	-0.016	0.147
P-1	long	0.113	0.765	-0.242	1.100	2.220
	trans	0.010	-0.056	0.018	-0.012	0.095
P-2	long	-0.132	-0.822	0.260	1.100	2.314
	trans	0.011	-0.050	0.016	0.001	0.078
E-2	long	-0.346	-2.078	0.658	1.099	4.181
	trans	0.002	-0.099	0.031	0.015	0.147

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

COMPROBACION NEOPRENOS

LEYENDA
!: reacción negativa
+: tensión en el apoyo superior a 150 kg/cm2
*: tensión en el apoyo inferior a 50 kg/cm2
**: (solo neop) desplazamiento no admisible (ϕ/h>0.7)

apoyo	nº neop	σmax [kp/cm2]	σmin [kp/cm2]	ϕ/h_neta
E-1	1	-29.77 *	-123.14	0.62
	2	-35.98 *	-131.71	
P-1	1	-100.00	-100.00	-----

P-2	1	-100.00	-100.00	-----
E-2	1	-30.12 *	-123.45	0.63
	2	-36.35 *	-131.85	

14.11 Pilas

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

ESFUERZOS STATIK2 ESTADO LIMITE ULTIMO: 1. TENSIONES NORMALES

pila	sec	env	Nd [t]	Myd [mt]	Mzd [mt]
1	1	My min	-744.55	-74.08	-45.64
	1	My max	-1159.04	72.01	-2.37
	2	My min	-759.57	-4.30	0.08
	2	My max	-1180.04	8.11	10.22
	3	My min	-1197.97	-59.82	-11.73
	3	My max	-773.39	69.47	51.11
1	1	Mz min	-645.17	-1.29	-101.16
	1	Mz max	-922.24	-6.43	107.01
	2	Mz min	-847.88	0.01	-18.06
	2	Mz max	-1136.03	3.79	20.83
	3	Mz min	-961.17	18.52	-113.68
	3	Mz max	-674.01	-6.79	111.10
1	1	N min	-1285.82	35.17	-26.97
	1	N max	-573.02	-8.54	31.86
	2	N min	-1305.29	3.21	9.97
	2	N max	-587.44	2.80	0.48
	3	N min	-1324.75	-25.68	46.91
	3	N max	-601.86	11.06	-30.91
2	1	My min	-1075.76	-64.45	11.74
	1	My max	-818.96	68.02	-18.39
	2	My min	-1095.87	-7.28	5.72
	2	My max	-835.35	4.38	6.34
	3	My min	-849.92	-63.22	35.81
	3	My max	-1117.56	53.86	-17.44
2	1	Mz min	-830.97	-33.78	-90.17
	1	Mz max	-918.31	5.06	94.16
	2	Mz min	-844.92	1.30	-16.56
	2	Mz max	-1132.47	-2.45	19.10
	3	Mz min	-960.12	-17.60	-100.00
	3	Mz max	-673.42	6.77	97.49
2	1	N min	-1280.48	-26.35	-22.44
	1	N max	-570.29	6.43	28.50
	2	N min	-1301.38	-2.86	8.96
	2	N max	-585.77	-1.44	0.50
	3	N min	-1322.28	24.17	40.37
	3	N max	-601.25	-12.86	-27.50

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

ESFUERZOS EN FUSTES

pila	sec	fuste	env	Nd [t]	Myd [mt]	Mzd [mt]
1	1	1	My min	-744.55	-74.08	-45.64
	1	1	My max	-1159.04	72.01	-2.37
	2	1	My min	-759.57	-4.30	0.08
	2	1	My max	-1180.04	8.11	10.22
	3	1	My min	-1197.97	-59.82	-11.73
	3	1	My max	-773.39	69.47	51.11
1	1	1	Mz min	-645.17	-1.29	-101.16
	1	1	Mz max	-922.24	-6.43	107.01
	2	1	Mz min	-847.88	0.01	-18.06
	2	1	Mz max	-1136.03	3.79	20.83
	3	1	Mz min	-961.17	18.52	-113.68
	3	1	Mz max	-674.01	-6.79	111.10
1	1	1	N min	-1285.82	35.17	-26.97
	1	1	N max	-573.02	-8.54	31.86
	2	1	N min	-1305.29	3.21	9.97
	2	1	N max	-587.44	2.80	0.48
	3	1	N min	-1324.75	-25.68	46.91
	3	1	N max	-601.86	11.06	-30.91
2	1	1	My min	-1075.76	-64.45	11.74
	1	1	My max	-818.96	68.02	-18.39
	2	1	My min	-1095.87	-7.28	5.72
	2	1	My max	-835.35	4.38	6.34
	3	1	My min	-849.92	-63.22	35.81
	3	1	My max	-1117.56	53.86	-17.44
2	1	1	Mz min	-830.97	-33.78	-90.17
	1	1	Mz max	-918.31	5.06	94.16
	2	1	Mz min	-844.92	1.30	-16.56
	2	1	Mz max	-1132.47	-2.45	19.10
	3	1	Mz min	-960.12	-17.60	-100.00
	3	1	Mz max	-673.42	6.77	97.49
2	1	1	N min	-1280.48	-26.35	-22.44
	1	1	N max	-570.29	6.43	28.50

2	1	N	min	-1301.38	-2.86	8.96
2	1	N	max	-585.77	-1.44	0.50
3	1	N	min	-1322.28	24.17	40.37
3	1	N	max	-601.25	-12.86	-27.50

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

DIMENSIONAMIENTO FUSTES

LEYENDA m: armadura mínima (As$$fyd=0.1$$Ac$$fcd)
xxxx: Anec$$fyd > Ac$$fcd

pila	sec	fuste	env	Nd [t]	Myd_eq [mt]	Mzd_eq [mt]	fi_nom [mm]	A_tot [cm2]	
1	1	1	My min	-744.55	-195.08	0.00	24.47	117.61	
1	2	1	My min	-759.57	-133.50	0.00	16.54	53.73	m
	2	1	My max	-1180.04	-207.40	0.00	28.09	154.93	
1	3	1	My min	-1197.97	-212.07	0.00	28.79	162.73	
	3	1	My max	-773.39	-197.66	0.00	24.74	120.23	
1	1	1	Mz min	-645.17	-199.18	0.00	26.71	140.06	
1	2	1	Mz min	-847.88	-149.02	0.00	16.54	53.73	m
	2	1	Mz max	-1136.03	-199.67	0.00	26.74	140.41	
1	3	1	Mz min	-961.17	-255.25	0.00	33.01	213.93	
	3	1	Mz max	-674.01	-214.48	0.00	29.12	166.45	
1	1	1	N min	-1285.82	-226.00	0.00	31.16	190.63	
1	2	1	N min	-1305.29	-229.42	0.00	31.68	197.10	
	2	1	N max	-587.44	-103.25	0.00	16.54	53.73	m
1	3	1	N min	-1324.75	-232.84	0.00	32.21	203.75	
	3	1	N max	-601.86	-109.63	0.00	16.54	53.73	m
2	1	1	My min	-1075.76	-227.89	0.00	29.50	170.94	
2	2	1	My min	-1095.87	-214.79	0.00	28.06	154.63	
	2	1	My max	-835.35	-163.73	0.00	18.16	64.79	
2	3	1	My min	-849.92	-208.61	0.00	26.36	136.47	
	3	1	My max	-1117.56	-220.13	0.00	28.87	163.63	
2	1	1	Mz min	-830.97	-236.12	0.00	30.97	188.31	
2	2	1	Mz min	-844.92	-165.60	0.00	18.60	67.91	
	2	1	Mz max	-1138.47	-221.96	0.00	29.19	167.35	
2	3	1	Mz min	-960.12	-260.70	0.00	33.75	223.62	
	3	1	Mz max	-673.42	-215.11	0.00	29.23	167.74	

2	1	1	N min	-1280.48	-250.37	0.00	33.45	219.70
2	2	1	N min	-1301.38	-255.07	0.00	34.01	227.09
	2	1	N max	-585.77	-114.81	0.00	16.54	53.73 m
2	3	1	N min	-1322.28	-259.16	0.00	34.56	234.55
	3	1	N max	-601.25	-118.29	0.00	16.54	53.73 m

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

DIMENSIONAMIENTO VALORES PESIMOS

LEYENDA m: armadura mínima (As$$fyd=0.1$$Ac$$fcd)
xxxx: Anec$$fyd > Ac$$fcd

pila	sec	fi_nom (máx) [mm]	A_tot (máx) [cm2]
1	1	31.16	190.63
	2	31.68	197.10
	3	33.01	213.93
2	1	33.45	219.70
	2	34.01	227.09
	3	34.56	234.55

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

ESFUERZOS STATIK2 ESTADO LIMITE ULTIMO: 2.CORTANTE

pila	sec	env	Vyd [t]	Vzd [t]
	0	Vy min	-15.11	0.31
	0	Vy max	14.54	1.02
	0	Vz min	-0.64	-9.13
	0	Vz max	6.63	9.93
1	1	Vy min	-15.11	0.31
	1	Vy max	14.54	1.02
	1	Vz min	-0.64	-9.13
	1	Vz max	6.63	9.93
	2	Vy min	-15.11	1.71
	2	Vy max	14.54	-0.38
	2	Vz min	-0.64	-9.03
	2	Vz max	6.63	9.83
	3	Vy min	-15.11	3.11
	3	Vy max	14.54	-1.78
	3	Vz min	-0.64	-9.45
	3	Vz max	6.63	10.25
	0	Vy min	-12.38	0.06

	0	Vy max	11.87	-1.23
	0	Vz min	3.46	-8.54
	0	Vz max	-1.86	7.72
2	1	Vy min	-12.38	0.06
	1	Vy max	11.87	-1.23
	1	Vz min	3.46	-8.54
	1	Vz max	-1.86	7.72
	2	Vy min	-12.38	-1.44
	2	Vy max	11.87	0.28
	2	Vz min	3.46	-8.35
	2	Vz max	-1.86	7.53
	3	Vy min	-12.38	-2.95
	3	Vy max	11.87	1.78
	3	Vz min	3.46	-8.80
	3	Vz max	-1.86	7.98

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

DIMENSIONAMIENTO A CORTANTE (ARMADURA POR FUSTE)

LEYENDA !: Vd>Vu1
m: armadura mínima

pila	sec	env	Vyd [t]	Vzd [t]	Vu1 [t]	Vcu [t]	As [cm2/m]
1	1	Vy min	15.11	0.31	493.63	58.18	8.25 m
	1	Vy max	14.54	1.02	493.63	58.18	8.25 m
	1	Vz min	0.64	9.13	493.63	58.18	8.25 m
	1	Vz max	6.63	9.93	493.63	58.18	8.25 m
	3	Vy min	15.11	3.11	493.63	58.18	8.25 m
	3	Vy max	14.54	1.78	493.63	58.18	8.25 m
	3	Vz min	0.64	9.45	493.63	58.18	8.25 m
	3	Vz max	6.63	10.25	493.63	58.18	8.25 m
2	1	Vy min	12.38	0.06	493.63	58.18	8.25 m
	1	Vy max	11.87	1.23	493.63	58.18	8.25 m
	1	Vz min	3.46	8.54	493.63	58.18	8.25 m
	1	Vz max	1.86	7.72	493.63	58.18	8.25 m
	3	Vy min	12.38	2.95	493.63	58.18	8.25 m
	3	Vy max	11.87	1.78	493.63	58.18	8.25 m
	3	Vz min	3.46	8.80	493.63	58.18	8.25 m
	3	Vz max	1.86	7.98	493.63	58.18	8.25 m

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

ESFUERZOS DE PRIMER ORDEN EN LA CIMENTACION. ELS

pila	sec	env	Nk [t]	Vyk [t]	Vzk [t]	Myk [mt]	Mzk [mt]
1	3	My min	-869.54	-0.46	-6.16	-38.99	-7.96
	3	My max	-735.85	4.35	7.01	47.52	33.80
	3	Mz min	-637.10	-10.14	2.49	14.72	-76.05
	3	Mz max	-744.17	9.65	-1.28	-4.80	73.92
	3	N min	-954.06	3.34	-2.35	-16.23	31.13
	3	N max	-621.50	-2.93	0.79	8.58	-20.88
2	3	My min	-786.69	2.24	-6.03	-43.30	23.60
	3	My max	-815.86	-1.27	5.19	35.05	-11.77
	3	Mz min	-636.63	-8.31	-2.34	-14.03	-66.92
	3	Mz max	-743.29	7.87	1.27	4.79	64.83
	3	N min	-952.34	2.64	2.32	15.26	26.77
	3	N max	-620.91	-2.44	-1.28	-9.73	-18.60

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

ESFUERZOS DE PRIMER ORDEN EN CIMENTACION. REPARTO ENTRE FUSTES. ELS

pila	sec	fus	env	Nk [t]	Vyk [t]	Vzk [t]	Myk [mt]	Mzk [mt]
1	3	1	My min	-869.54	-0.46	-6.16	-38.99	-7.96
	3	1	My max	-735.85	4.35	7.01	47.52	33.80
	3	1	Mz min	-637.10	-10.14	2.49	14.72	-76.05
	3	1	Mz max	-744.17	9.65	-1.28	-4.80	73.92
	3	1	N min	-954.06	3.34	-2.35	-16.23	31.13
	3	1	N max	-621.50	-2.93	0.79	8.58	-20.88
2	3	1	My min	-786.69	2.24	-6.03	-43.30	23.60
	3	1	My max	-815.86	-1.27	5.19	35.05	-11.77
	3	1	Mz min	-636.63	-8.31	-2.34	-14.03	-66.92
	3	1	Mz max	-743.29	7.87	1.27	4.79	64.83
	3	1	N min	-952.34	2.64	2.32	15.26	26.77
	3	1	N max	-620.91	-2.44	-1.28	-9.73	-18.60

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.1)

Paso Superior de Camino. P.K. 406+100

ESFUERZOS DE SEGUNDO ORDEN EN CIMENTACION. ELS

pila	sec	fus	env	Nk [t]	Vyk [t]	Vzk [t]	Myk [mt]	Mzk [mt]
1	3	1	My min	-869.54	-0.46	-6.16	-203.02	-113.08
	3	1	My max	-735.85	4.35	7.01	-186.33	-125.06
	3	1	Mz min	-637.10	-10.14	2.49	-134.90	-168.84
	3	1	Mz max	-744.17	9.65	-1.28	-155.27	-179.08
	3	1	N min	-954.06	3.34	-2.35	-199.06	-143.25
	3	1	N max	-621.50	-2.93	0.79	-129.67	-94.24
2	3	1	My min	-786.69	2.24	-6.03	-215.59	-129.62
	3	1	My max	-815.86	-1.27	5.19	-213.72	-120.54
	3	1	Mz min	-636.63	-8.31	-2.34	-153.45	-172.35
	3	1	Mz max	-743.29	7.87	1.27	-177.64	-184.14
	3	1	N min	-952.34	2.64	2.32	-227.60	-153.93
	3	1	N max	-620.91	-2.44	-1.28	-148.40	-102.27

Programa LSTC - Cálculo de Cimentaciones
(V. 3.1)

Paso Superior de Camino. P.K. 406+100. E-1.

COMPROBACION CANTO DE LA ZAPATA

LEYENDA: A,B = dimensiones de la zapata en planta
Tipo de zapata -> 0=hexagonal, 1= rectangular
H = canto de la zapata
a_pila = dimensión del fuste en la dir perpend al eje pte
b_pila = dimensión del fuste en la dir paralela al eje pte
tipo_p -> tipo de superficie de punzonamiento
γmax = tensión tangencial máxima en el perímetro de punz
γadm = tensión tangencial admisible
! = γmax > γadm

Pila	hip	fuste	N [t]	My [mt]	Mz [mt]	A [m]	B [m]	H [m]
			a_pila [m]	b_pila [m]	tipo_p	γmax [kp/cm2]	γadm [kp/cm2]	

Tipo de zapata: 1

1	1	1	-1197.97	-155.79	210.45	6.60	6.60	1.50
			1.00	0.00	1	12.38	14.33	
	2	1	-773.39	-153.09	215.37	6.60	6.60	1.50
			1.00	0.00	1	8.64	14.33	
	3	1	-961.17	-253.46	124.99	6.60	6.60	1.50
			1.00	0.00	1	10.39	14.33	
	4	1	-674.01	-214.25	140.63	6.60	6.60	1.50
			1.00	0.00	1	7.72	14.33	
	5	1	-1324.75	-204.53	172.27	6.60	6.60	1.50
			1.00	0.00	1	13.57	14.33	
	6	1	-601.96	-106.94	125.57	6.60	6.60	1.50
			1.00	0.00	1	6.46	14.33	

Tipo de zapata: 1

2	1	1	-849.92	-156.46	195.98	6.60	6.60	1.50
			1.00	0.00	1	9.24	14.33	
	2	1	-1117.56	-165.12	298.60	6.60	6.60	1.50
			1.00	0.00	1	12.14	14.33	
	3	1	-960.12	-258.76	141.85	6.60	6.60	1.50
			1.00	0.00	1	10.48	14.33	
	4	1	-673.42	-214.84	160.94	6.60	6.60	1.50
			1.00	0.00	1	7.81	14.33	
	5	1	-1322.28	-219.02	195.36	6.60	6.60	1.50
			1.00	0.00	1	13.73	14.33	
	6	1	-601.25	-114.00	144.53	6.60	6.60	1.50
			1.00	0.00	1	6.58	14.33	

Programa ESTI - Cálculo de Estribos en E.L.S.
(version3.0)
L. A. V. Madrid-Zaragoza. Subtramo IV. P.K. 406+100

ESTRIBO 1

DATOS GENERALES

Tipo de estribo: Cerrado
Tipo de cimentacion: Directa

Leyenda:
d:: Valor resultado del dimensionamiento

GEOMETRIA GENERAL DEL ESTRIBO

Dimensión	Longitud [m]
$$Esviaje	-0.00°
$$Zapata	
Canto :	0.80
Longitud total :	3.25
Ancho:	14.20
Longitud del talon :	0.80
Longitud de la puntera :	0.80
$$Muro	
Altura :	2.54
Canto inferior :	1.65
Canto superior :	1.65
Ancho de la zona de apoyos:	1.05
Excentricidad de los apoyos:	0.50
Excentricidad de la carga:	0.50
$$Murete	
Altura :	1.44
Canto :	0.30
Altura trasdós:	0.80

ALETAS

Dimensión	Longitud [m]
ALETA DERECHA, Tipo: Aleta	
Longitud aleta:	3.60
Canto en el voladizo:	0.50
Canto en union con muro:	2.90
Espesor de la aleta:	0.30
ALETA IZQUIERDA, Tipo: Aleta	
Longitud aleta:	3.60
Canto en el voladizo:	0.50
Canto en union con muro:	2.90
Espesor de la aleta:	0.30

APOYOS

N° de apoyos	Aapoyo [mm]	Bapoyo [mm]	Ineta [mm]	separacion [m]
2	350	450	71	5.500

MATERIALES Y COEFICIENTES DE SEGURIDAD

fck (Cimentación)	fck (Alzados)	fyk	yg	yvuelco	ydeslizamiento	yh_sismo
yc		yy				
250	250	5100	1.5	1.5	1.5	0.1
1.5		1.1				

ENVOLVENTE DE CARGAS TRANSMITIDAS POR EL TABLERO

Hipotesis	Nv [Mp]	Mz [Mp*m]	My [Mp*m]	Vz [Mp]	Vy [Mp]
N min	339.30	-70.58	-0.00	-2.65	1.81
N max	230.10	104.60	0.00	16.36	1.57
Vy min	239.04	-157.39	0.00	17.13	-6.62
Vy max	294.63	138.54	-0.00	-2.65	8.73
Vz min	309.45	-184.71	-0.00	-3.92	-3.54
Vz max	260.71	216.50	0.00	18.53	6.81
My min	309.45	-184.71	-0.00	-3.92	-3.54
My max	260.71	216.50	0.00	18.53	6.81
Mz min	264.83	-2021.96	0.00	17.04	-5.44
Mz max	312.90	376.61	-0.00	-2.67	8.04

SOBRECARGA DIRAE EL TERRENO

q [Kp/m^2]= 0.

CARACTERISTICAS DEL TERRENO

Peso especifico [t/m^3]	δ [°]	β [°]	ϕ	a_zapsuelo	σ_admisible [kp/cm^2]	Kv [Kp/m3]
2.00	30.0	0.0	0.0	0.60	2.75	10.00

Terreno no cohesivo

Leyenda:
ϕ: Angulo de rozamiento interno.
δ: Angulo de rozamiento muro-talud.
β: Inclinación del relleno del muro.

L. A. V. Madrid-Zaragoza. Subtramo IV. P.K. 406+100

ESTRIBO 1

DATOS GENERALES

Tipo de estribo: Cerrado
Tipo de cimentacion: Directa

Leyenda:
d!: Valor resultado del dimensionamiento

GEOMETRIA GENERAL DEL ESTRIBO

Dimensión	Longitud [m]
$$Esviaje	-0.00°
$$Zapata	
Canto :	1.20
Longitud total :	5.30
Ancho:	14.20
Longitud del talon :	3.30
Longitud de la puntera :	1.00
$$Muro	
Altura :	4.36
Canto inferior :	1.00
Canto superior :	1.00
Ancho de la zona de apoyos:	1.05
Excentricidad de los apoyos:	0.50
Excentricidad de la carga	0.50
$$Murete	
Altura :	1.46
Canto :	0.30
Altura trasdós:	0.80

ALETAS

Dimensión	Longitud [m]
ALETA IZQUIERDA, Tipo: Muro en vuelta+Aleta	
Longitud total:	5.55
Longitud en aleta:	7.50
Canto en el voladizo:	0.50
Canto en union con muro:	4.20
Espesor:	0.30
ALETA DERECHA, Tipo: Muro en vuelta+Aleta	
Longitud total:	5.55
Longitud en aleta:	7.50
Canto en el voladizo:	0.50
Canto en union con muro:	4.20
Espesor:	0.30

APOYOS

N° de apoyos	Aapoyo [mm]	Bapoyo [mm]	hneta [mm]	separacion [m]
2	350	450	71	5.500

MATERIALES Y COEFICIENTES DE SEGURIDAD

fck (Cimentación)	fck (Alzados)	fyk	γg	γvuelco	γdeslizamiento	γh_sismo
γc		γγ				
250	250	5100	1.5	1.5	1.5	0.1
1.5		1.1				

ENVOLVENTE DE CARGAS TRANSMITIDAS POR EL TABLERO

Hipotesis	Nv [Mp]	Mz [Mp*m]	My [Mp*m]	Vz [Mp]	Vy [Mp]
N min	226.60	-70.58	0.00	2.79	1.61
N max	230.19	43.94	+0.00	-16.36	0.91
Vy min	242.02	-164.63	-0.00	-17.10	-6.50
Vy max	197.18	246.92	0.00	1.67	9.79
Vz min	257.61	142.28	-0.00	-18.53	5.26
Vz max	279.67	-142.33	0.00	3.93	-4.56
My min	257.61	142.28	-0.00	-18.53	5.26
My max	279.67	-142.33	0.00	3.93	-4.56
Mz min	266.21	-293.00	-0.00	-17.08	-8.44
Mz max	310.16	375.91	0.00	2.62	8.96

SOBRECARGA SOBRE EL TERRENO

q [Kp/cm²]=1.00

CARACTERISTICAS DEL TERRENO

Peso especifico [t/m$^3]	φ [°]	β [°]	δ [°]	ω_tapsuelo	σ_admisible [Kp/cm²]	Kv [Kp/m3]
2.00	30.0	0.0	0.0	0.60	2.75	10.00

Terreno no cohesivo

Leyenda:
φ: Angulo de rozamiento interno.
δ: Angulo de rozamiento muro-talud.
β: Inclinación del relleno del muro.

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.0)

L. A. V. Madrid-Zaragoza. Subtramo IV. P.K. 406+100

ESFUERZOS EN ESTRIBOS ESTADO LIMITE DE SERVICIO

Estribo	sec	env	Nk [t]	Vyk [t]	Vzk [t]	Myk [mt]	Mzk [mt]
1	1	N min	-339.36	1.81	-2.85	-0.00	-70.55
	1	N max	-230.10	1.57	16.38	0.00	104.52
	1	Vy min	-239.36	-6.62	17.13	0.00	-157.39
	1	Vy max	-294.53	8.73	-2.65	-0.00	238.54
	1	Vz min	-309.45	-3.54	-3.92	-0.00	-184.71
	1	Vz max	-256.71	6.81	18.53	0.00	216.50
	1	My min	-309.45	-3.54	-3.92	-0.00	-184.71
	1	My max	-256.71	6.81	18.53	0.00	216.50
	1	Mz min	-286.83	-5.44	17.04	0.00	-292.95
	1	Mz max	-312.90	8.06	-2.67	-0.00	376.01
2	1	N min	-338.60	1.81	2.79	0.00	-70.58
	1	N max	-230.19	0.81	-16.36	-0.00	63.94
	1	Vy min	-242.22	-6.50	-17.10	-0.00	-164.63
	1	Vy max	-297.28	8.70	2.67	0.00	246.52
	1	Vz min	-257.61	5.25	-18.53	-0.00	142.28
	1	Vz max	-279.67	-4.56	3.93	0.00	-142.33
	1	My min	-257.61	5.25	-18.53	-0.00	142.28
	1	My max	-279.67	-4.56	3.93	0.00	-142.33
	1	Mz min	-286.21	-5.44	-17.08	-0.00	-293.00
	1	Mz max	-312.15	8.06	2.61	0.00	375.91

Programa LST3 - Posprocesador para el cálculo de pilas de viaductos
con STATIK2 (V. 3.0)

L. A. V. Madrid-Zaragoza. Subtramo IV. P.K. 406+100

ESFUERZOS EN ESTRIBOS ESTADO LIMITE ULTIMO

Estribo	sec	env	Nd [t]	Vyd [t]	Vzd [t]	Myd [mt]	Mzd [mt]
1	1	N min	-559.61	4.07	-10.09	-0.00	-226.52
	1	N max	-217.61	7.62	26.13	0.00	254.56
	1	Vy min	-240.38	-12.54	23.09	0.00	-71.73
	1	Vy max	-450.10	13.24	-6.96	-0.00	358.78
	1	Vz min	-519.76	2.69	-10.60	-0.00	-400.13
	1	Vz max	-261.73	5.36	30.68	0.00	399.78
	1	My min	-519.76	2.69	-10.60	-0.00	-400.13
	1	My max	-261.73	5.36	30.68	0.00	399.78
	1	Mz min	-349.30	-5.06	24.55	0.00	-702.77
	1	Mz max	-506.13	11.38	-5.43	-0.00	822.09
2	1	N min	-556.89	4.06	10.04	0.00	-226.39
	1	N max	-218.67	5.75	-26.00	-0.00	153.24
	1	Vy min	-239.72	-12.54	-22.14	-0.00	-71.84
	1	Vy max	-454.67	13.20	7.04	0.00	370.87
	1	Vz min	-269.14	1.46	-30.58	-0.00	214.43
	1	Vz max	-449.12	0.14	10.69	0.00	-294.04
	1	My min	-269.14	1.46	-30.58	-0.00	214.43
	1	My max	-449.12	0.14	10.69	0.00	-294.04
	1	Mz min	-347.67	-5.06	-24.60	-0.00	-702.76
	1	Mz max	-505.41	11.37	5.38	0.00	822.07

Programa EST1 - Cálculo de Estribos en E.L.S.
(version3.0)
L. A. V. Madrid-Zaragoza. Subtramo IV. P.K. 406+100

ESTRIBO 1

LEYENDA:
!d: No cumple deslizamiento
!v: No cumple vuelco
!t: No cumple tensiones
!q: No cumple carga admisible(pilotes)

ESFUERZOS INDIVIDUALES EN CIMENTACION

Origen	Nv [Mp]	Mz [Mp*m]	My [Mp*m]	Vz [Mp]	Vy [Mp]	M_est [Mp*m]	Mvol [Mp*m]
Peso propio	313.81	0.00	-51.03	0.00	0.00	560.98	0.00
Tierras	57.71	0.00	85.75	98.18	0.00	164.47	156.44
Sobrecarga q	11.36	0.00	-2.60	22.63	0.00	32.38	11.31
Vacio	382.88	0.00	32.11	120.80	0.00	757.82	167.76
N min	339.36	-70.55	100.77	-2.85	1.81	441.17	-9.82
N max	230.10	104.52	129.49	16.38	1.57	299.13	54.71
Vy min	239.36	-157.39	135.01	17.13	-6.62	311.17	57.21
Vy max	294.53	238.54	86.87	-2.65	8.73	382.89	-8.85
Vz min	309.45	-184.71	87.48	-3.92	-3.54	402.29	-13.09
Vz max	256.71	216.50	145.32	18.53	6.81	333.72	61.89
My min	309.45	-184.71	87.48	-3.92	-3.54	402.29	-13.09
My max	256.71	216.50	145.32	18.53	6.81	333.72	61.89
Mz min	286.83	-292.96	150.13	17.04	-5.44	372.88	56.91
Mz max	312.90	376.01	92.77	-2.67	8.06	406.77	-8.52

COMPROBACION A DESLIZAMIENTO

Hipotesis	Nv [Mp]	Nh [Mp]	ydc
Vacio	382.88	120.80	1.90
N min	722.24	117.97	3.67
N max	612.98	137.19	2.68
Vy min	622.24	138.09	2.70
Vy max	677.41	118.48	3.43
Vz min	692.33	116.94	3.55
Vz max	639.59	139.50	2.75
My min	692.33	116.94	3.55
My max	639.59	139.50	2.75
Mz min	669.71	137.95	2.91
Mz max	695.78	118.41	3.53

COMPROBACION A VUELCO

Hipotesis	Mest [Mp]	Mvol [Mp]	γvc
Vacio	757.82	167.76	4.52
N min	1198.99	158.24	7.58
N max	1056.95	222.47	4.75
Vy min	1066.99	224.97	4.75
Vy max	1140.71	158.91	7.18
Vz min	1160.11	154.66	7.50
Vz max	1091.55	229.65	4.75
My min	1160.11	154.66	7.50
My max	1091.55	229.65	4.75
Mz min	1130.70	224.67	5.03
Mz max	1164.59	158.84	7.33

COMPROBACION DE TENSIONES

Hipotesis	Nv [Mp]	My [Mp*m]	Mz [Mp*m]	σmin [Kp/cm²]	σmax [Kp/cm²]	σmed [Kp/cm²]	β [°]	s/y
Vacio	382.88	32.11	0.00	0.70	0.84	0.83	90.00	1.00
N min	722.24	132.89	-70.55	0.97	2.16	1.56	91.60	1.00
N max	612.98	161.61	104.52	0.59	2.07	1.33	88.06	1.00
Vy min	622.24	167.12	-157.39	0.54	2.16	1.35	92.82	1.00
Vy max	677.41	118.98	238.54	0.77	2.16	1.47	83.99	1.00
Vz min	692.33	119.59	-184.71	0.85	2.15	1.50	94.63	1.00
Vz max	639.59	177.43	216.50	0.48	2.09	1.39	86.34	1.00
My min	692.33	119.59	-184.71	0.85	2.15	1.50	94.62	1.00
My max	639.59	177.43	216.50	0.48	2.09	1.39	86.34	1.00
Mz min	669.71	182.25	-292.96	0.46	2.45	1.45	94.81	1.00
Mz max	695.78	124.89	376.01	0.66	2.35	1.51	81.04	1.00

Programa EST1 - Cálculo de Estribos en E.L.S.
(version3.0)
L. A. V. Madrid-Zaragoza. Subtramo IV. P.K. 406+100

ESTRIBO 2

LEYENDA:
!d: No cumple deslizamiento
!v: No cumple vuelco
!t: No cumple tensiones
!q: No cumple carga admisible(pilotes)

ESFUERZOS INDIVIDUALES EN CIMENTACION

Origen	Nv [Mp]	Mz [Mp*m]	My [Mp*m]	Vz [Mp]	Vy [Mp]	M_est [Mp*m]	Mvol [Mp*m]
Peso propio	407.43	0.00	163.19	0.00	0.00	916.49	0.00
Tierras	410.31	0.00	91.22	213.22	0.00	1497.62	501.52
Sobrecarga q	46.86	0.00	-30.16	33.40	0.00	171.04	16.70
Vacio	864.59	0.00	224.25	246.62	0.00	2585.15	518.22
N min	338.60	-70.56	404.95	2.79	1.61	507.90	15.56
N max	230.19	63.94	173.46	-16.36	0.81	345.28	-91.26
Vy min	242.22	-164.63	193.17	-17.10	-6.50	363.33	-95.38
Vy max	297.28	246.52	356.77	2.67	8.70	445.92	14.89
Vz min	257.61	142.28	192.89	-18.53	5.25	386.42	-103.36
Vz max	279.67	-142.33	343.54	3.93	-4.56	419.50	21.92
My min	257.61	142.28	192.89	-18.53	5.25	386.42	-103.36
My max	279.67	-142.33	343.54	3.93	-4.56	419.50	21.92
Mz min	286.21	-293.00	233.87	-17.08	-5.44	429.31	-95.27
Mz max	312.15	375.91	373.53	2.61	8.06	468.22	14.56

COMPROBACION A DESLIZAMIENTO

Hipotesis	Nv [Mp]	Nh [Mp]	ydc
Vacio	864.59	246.62	2.10
N min	1203.19	249.41	2.89
N max	1094.78	230.26	2.85
Vy min	1106.81	229.61	2.89
Vy max	1161.87	249.44	2.79
Vz min	1122.20	228.15	2.95
Vz max	1144.26	250.59	2.74
My min	1122.20	228.15	2.95
My max	1144.26	250.59	2.74
Mz min	1150.80	229.60	3.01
Mz max	1176.74	249.36	2.83

COMPROBACION A VUELCO

Hipotesis	Mest [Mp]	Mvol [Mp]	yvc
Vacio	2585.15	518.22	4.99
N min	3093.05	533.78	5.79
N max	2930.43	426.97	6.86
Vy min	2948.48	422.84	6.97
Vy max	3031.07	533.12	5.69
Vz min	2971.56	414.86	7.16
Vz max	3004.65	540.14	5.56
My min	2971.56	414.86	7.16
My max	3004.65	540.14	5.56
Mz min	3014.46	422.95	7.13
Mz max	3053.37	532.78	5.73

COMPROBACION DE TENSIONES

Hipotesis	Nv [Mp]	My [Mp*m]	Mz [Mp*m]	σmin [Kp/cm²]	σmax [Kp/cm²]	σmed [Kp/cm²]	β [°]	s/y
Vacio	864.59	224.25	0.00	0.81	1.49	1.15	90.00	1.00
N min	1203.19	529.20	-70.56	0.61	2.58	1.60	90.90	1.00
N max	1094.78	397.71	63.94	0.82	2.09	1.45	88.71	1.00
Vy min	1106.81	407.42	-164.63	0.77	2.18	1.47	93.22	1.00
Vy max	1161.87	581.01	246.52	0.53	2.56	1.54	86.61	1.00
Vz min	1122.20	417.14	142.28	0.78	2.20	1.49	87.27	1.00
Vz max	1144.26	567.79	-142.33	0.59	2.46	1.52	92.00	1.00
My min	1122.20	417.14	142.28	0.78	2.20	1.49	87.27	1.00
My max	1144.26	567.79	-142.33	0.59	2.46	1.52	92.00	1.00
Mz min	1150.80	458.12	-293.00	0.66	2.38	1.53	95.09	1.00
Mz max	1176.74	597.78	375.91	0.45	2.67	1.56	85.00	1.00

Programa EST2.- Cálculo de Estribos
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ESTRIBO 1

Leyenda:
!g: Cuantía mínima geométrica

ESPUERZOS Y ARMADURA E.L.U DE LA ZAPATA

Hipotesis	Talon			Puntera		
	Ms [Mp*m] As [cm²/m]	Vs [Mp] Vcu [Mp]	Vsa [Mp]	Ms [Mp*m] As [cm²/m]	Vs [Mp]	Vsa [Mp]
Vacio	-2.000	-2.700	-4.792	6.744	5.337	12.523
	7.20!g	48.41		7.20!g		
N min	0.301	0.271	1.346	15.941	12.673	29.418
	7.20!g	48.41		7.20!g		
N max	-2.177	-3.025	-4.822	12.046	9.670	21.937
	7.20!g	48.41		7.20!g		
Vy min	-1.957	-2.730	-4.288	12.218	9.794	22.290
	7.20!g	48.41		7.20!g		
Vy max	-0.197	-0.376	0.038	14.218	11.303	26.238
	7.20!g	48.41		7.20!g		
Vz min	0.169	0.104	0.980	15.211	12.087	28.088
	7.20!g	48.41		7.20!g		
Vz max	-2.193	-3.063	-4.783	13.089	10.521	23.793
	7.20!g	48.41		7.20!g		
My min	0.169	0.104	0.980	15.211	12.087	28.088
	7.20!g	48.41		7.20!g		
My max	-2.193	-3.063	-4.783	13.089	10.521	23.793
	7.20!g	48.41		7.20!g		
Mz min	-1.679	-2.385	-3.476	14.257	11.437	25.986
	7.20!g	48.41		7.20!g		
Mz max	-0.063	-0.211	0.435	15.294	12.170	28.186
	7.20!g	48.41		7.20!g		

ESFUERZOS Y ARMADURA E.L.U DEL MURO

Hipotesis	Seccion inferior			Seccion media		
	Msi [Mp*m] As,int [cm²/m]	Nsi [Mp] As,ext [cm²/m]	Vsi [Mp]	Msm [Mp*m] As,int [cm²/m]	Nsm [Mp] As,ext [cm²/m]	Vsm [Mp]
Vacio	12.401	17.955	9.912	5.033	11.523	5.876
	9.90!g	9.90!g		9.90!g	9.90!g	
N min	25.937	57.364	10.199	19.787	50.932	6.163
	9.90!g	9.90!g		9.90!g	9.90!g	
N max	18.745	33.280	10.449	11.418	26.848	6.413
	9.90!g	9.90!g		9.90!g	9.90!g	
Vy min	15.660	34.883	9.029	9.837	28.451	4.993
	9.90!g	9.90!g		9.90!g	9.90!g	
Vy max	25.071	49.652	10.845	17.969	43.220	6.809
	9.90!g	9.90!g		9.90!g	9.90!g	
Vz min	24.756	54.488	10.102	18.594	48.055	6.066
	9.90!g	9.90!g		9.90!g	9.90!g	
Vz max	19.350	36.387	10.290	12.305	29.955	6.254
	9.90!g	9.90!g		9.90!g	9.90!g	
My min	24.756	54.488	10.102	18.594	48.055	6.066
	9.90!g	9.90!g		9.90!g	9.90!g	
My max	19.350	36.387	10.290	12.305	29.955	6.254
	9.90!g	9.90!g		9.90!g	9.90!g	
Mz min	19.470	42.483	9.557	13.402	36.051	5.521
	9.90!g	9.90!g		9.90!g	9.90!g	
Mz max	26.021	53.598	10.714	19.203	47.166	6.678
	9.90!g	9.90!g		9.90!g	9.90!g	

Nota: Todos los esfuerzos están referidos a una franja de 1m de ancho

Programa EST2 - Cálculo de Estribos
L. A. V. Madrid-Zaragoza. Subtramo IV. P.K. 406+100

ESTRIBO 2

Leyenda:
!g: Cuantía mínima geométrica

ESFUERZOS Y ARMADURA E.L.U DE LA ZAPATA

Hipotesis	Talon			Puntera		
	Ms [Mp*m] As [cm²/m]	Vs [Mp] Vcu [Mp]	Vsa [Mp]	Ms [Mp*m] As [cm²/m]	Vs [Mp]	Vsa [Mp]
Vacio	-35.269	-14.044	-17.410	13.840	9.054	23.589
	10.80!g	74.23		10.80!g		
N min	-26.297	-11.504	-5.988	24.694	16.318	41.590
	10.80!g	74.23		10.80!g		
N max	-24.536	-9.838	-9.811	16.665	10.914	28.369
	10.80!g	74.23		10.80!g		
Vy min	-25.238	-10.129	-9.758	17.245	11.305	29.319
	10.80!g	74.23		10.80!g		
Vy max	-29.225	-11.828	-7.972	22.604	14.918	38.128
	10.80!g	74.23		10.80!g		
Vz min	-22.525	-9.053	-8.302	17.214	11.342	29.461
	10.80!g	74.23		10.80!g		
Vz max	-30.350	-12.275	-8.561	22.597	14.917	38.105
	10.80!g	74.23		10.80!g		
My min	-22.525	-9.053	-8.302	17.214	11.342	29.461
	10.80!g	74.23		10.80!g		
My max	-30.350	-12.275	-8.561	22.597	14.917	38.105
	10.80!g	74.23		10.80!g		
Mz min	-22.645	-9.139	-7.066	19.128	12.554	32.440
	10.80!g	74.23		10.80!g		
Mz max	-28.066	-11.386	-6.730	23.496	15.512	39.614
	10.80!g	74.23		10.80!g		

ESFUERZOS Y ARMADURA E.L.U DEL MURO

Hipotesis	Seccion inferior			Seccion media		
	Msi [Mp*m] As,int [cm²/m]	Nsi [Mp] As,ext [cm²/m]	Vsi [Mp]	Msm [Mp*m] As,int [cm²/m]	Nsm [Mp] As,ext [cm²/m]	Vsm [Mp]
Vacio	40.076	19.712	20.078	14.501	12.850	10.479
	7.19!g	6.00!g		6.00!g	6.00!g	
N min	41.328	59.070	20.363	17.017	52.209	10.765
	6.00!g	6.00!g		6.00!g	6.00!g	
N max	41.849	35.111	20.483	16.255	26.250	10.884
	6.00!g	6.00!g		6.00!g	6.00!g	
Vy min	36.210	36.593	19.184	12.936	29.732	9.596
	6.00!g	6.00!g		6.00!g	6.00!g	
Vy max	44.146	51.731	21.007	18.379	44.869	11.409
	6.00!g	6.00!g		6.00!g	6.00!g	
Vz min	40.527	38.384	20.180	15.608	31.522	10.582
	6.00!g	6.00!g		6.00!g	6.00!g	
Vz max	40.120	51.059	20.087	15.933	44.197	10.489
	6.00!g	6.00!g		6.00!g	6.00!g	
My min	40.527	38.384	20.180	15.608	31.522	10.582
	6.00!g	6.00!g		6.00!g	6.00!g	
My max	40.120	51.059	20.087	15.933	44.197	10.489
	6.00!g	6.00!g		6.00!g	6.00!g	
Mz min	38.516	44.169	19.721	14.663	37.327	10.123
	6.00!g	6.00!g		6.00!g	6.00!g	
Mz max	43.582	55.304	20.676	18.200	48.443	11.280
	6.00!g	6.00!g		6.00!g	6.00!g	

Nota: Todos los esfuerzos están referidos a una franja de 1m de ancho

Programa EST2 - Cálculo de Estribos
L. A. V. Madrid-Zaragoza. Subtramo IV. P.K. 406+100

ESTRIBO 1

Leyenda:
RESULTADOS: RESUMEN DEL ARMADO DEL ESTRIBO

Nº	Posicion	A_estr [cm²]	A_real [cm²]	Armado	l [m]	ln [m]	Obs
1	Zapata. Principal inferior	7.2	7.5	Φ12a15			!g
2	Zapata. Reparto inferior	3.2	4.5	Φ12a25			!g
3	Zapata. Principal superior	7.2	7.5	Φ12a15			!g
4	Zapata. Reparto superior	3.2	4.5	Φ12a25			!g
5	Muro. Principal en union con zapat	9.9	10.1	Φ16a20			!g
6	Muro. Principal 0.4h superior	9.9	10.1	Φ16a20			!g
7	Muro. Principal intradós	9.9	10.1	Φ16a20			!g
8	Muro.Reparto en unión con zapata	16.5	19.6	Φ25a25			
9	Muro. Reparto 0.4h superior	2.7	4.5	Φ12a25			
10	Muro. Reparto intradós	16.5	19.6	Φ25a25			
11	Murete. Principal trasdós	0.9	4.5	Φ12a25			
12	Murete. Principal intradós	6.6	7.5	Φ12a15			
13	Murete. Reparto ambas caras	3.0	4.5	Φ12a25			
14	Reparto bajo apoyos Z	187.9	191.5	39Φ25			
15	Reparto bajo apoyos Y	187.9	191.5	39Φ25			

Programa EST2 - Cálculo de Estribos
L. A. V. Madrid-Zaragoza. Subtramo IV. P.K. 406+100

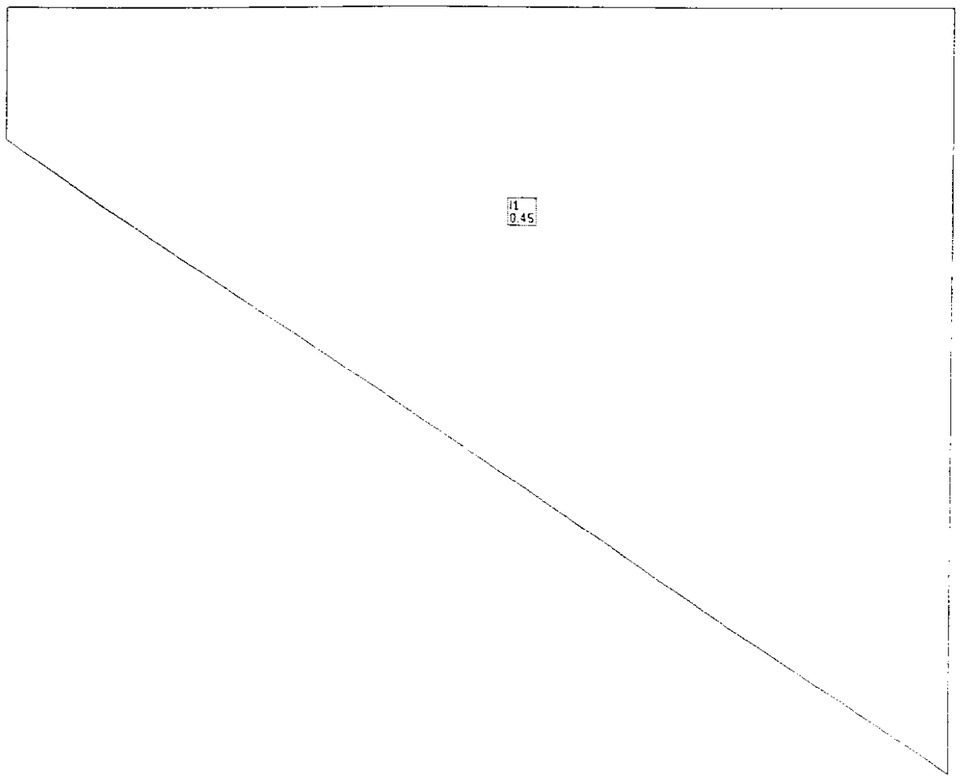
ESTRIBO 2

Leyenda:
RESULTADOS: RESUMEN DEL ARMADO DEL ESTRIBO

Nº	Posicion	A_estr [cm²]	A_real [cm²]	Armado	l [m]	ln [m]	Obs
1	Zapata. Principal inferior	10.6	11.3	Φ12a10			!g
2	Zapata. Reparto inferior	4.8	5.7	Φ12a20			!g
3	Zapata. Principal superior	10.8	11.3	Φ12a10			!g
4	Zapata. Reparto superior	4.8	5.7	Φ12a20			!g
5	Muro. Principal en union con zapat	7.2	7.5	Φ12a15			!g
6	Muro. Principal 0.4h superior	6.0	7.5	Φ12a15			!g
7	Muro. Principal intradós	6.0	7.5	Φ12a15			!g
8	Muro.Reparto en unión con zapata	10.0	10.1	Φ16a20			
9	Muro. Reparto 0.4h superior	3.1	4.5	Φ12a25			
10	Muro. Reparto intradós	10.0	10.1	Φ16a20			
11	Murete. Principal trasdós	1.0	4.5	Φ12a25			
12	Murete. Principal intradós	4.0	4.5	Φ12a25			
13	Murete. Reparto ambas caras	3.0	4.5	Φ12a25			
14	Reparto bajo apoyos Z	187.9	191.5	39Φ25			
15	Reparto bajo apoyos Y	187.9	191.5	39Φ25			

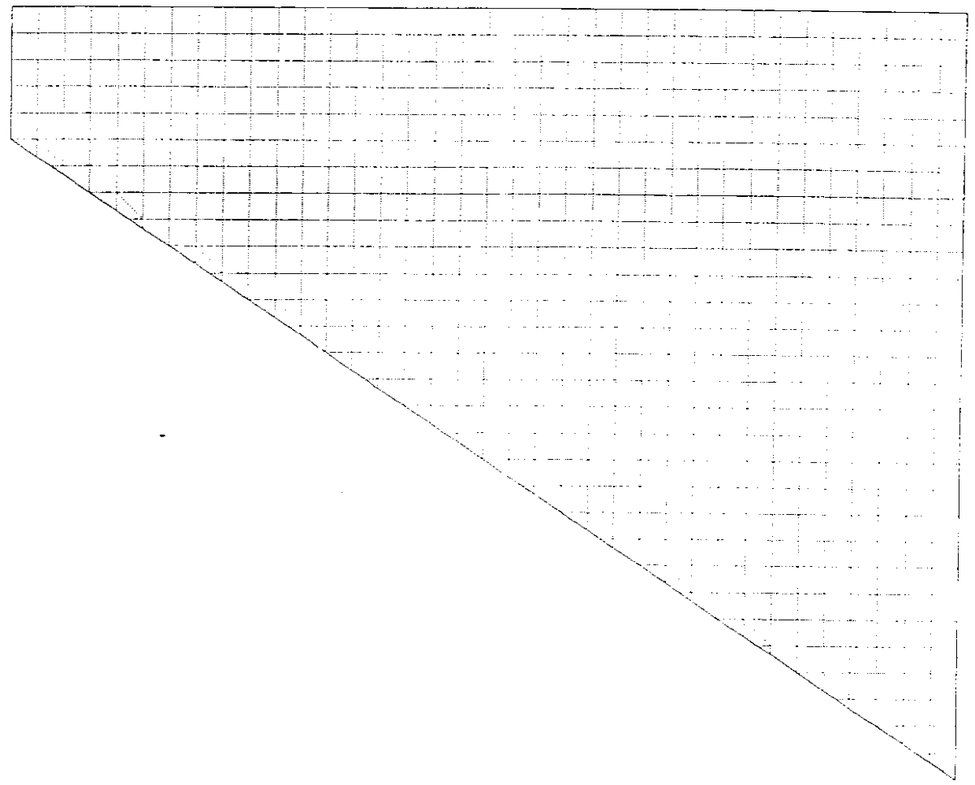
Aleta sin muro en vuelta Tipo
Línea de Alta Velocidad. Madrid-Barcelona-Frontera francesa

Escala 1 : 23.6
Geometrie (ID=A)
- ID zona material y canto [m]



Aleta sin muro en vuelta Tipo
Línea de Alta Velocidad. Madrid-Barcelona-Frontera francesa

Escala 1 : 23.5
Malla (ID=A)
-



LISTA TODAS HIPOTESIS

N°	Tipo	Título
1	Hip.	'Tierras'
2	Hip.	'Sobrecarga'
4	Hip.	'Impacto 2'

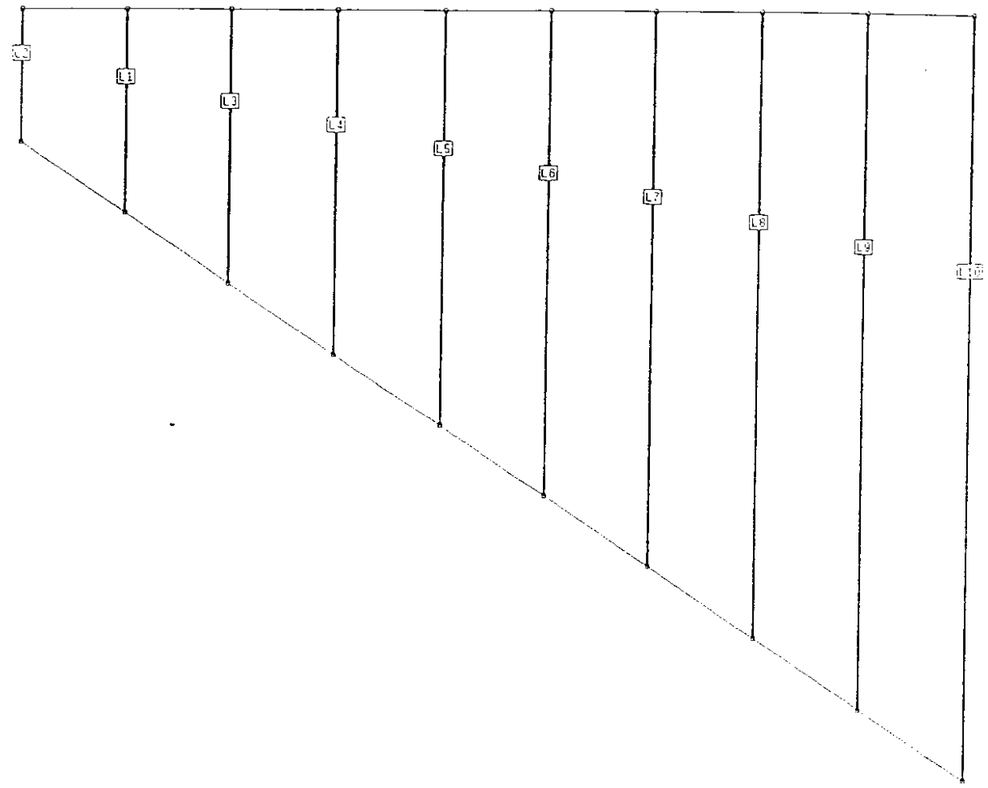
HIPOTESIS 1: "Tierras"

CARGA líneal:

ID	Sitio	carga [kN/m]	Mom [kNm/m]	X [m]	Y [m]	Lsuma [kN]
L1	: Inicio	0.0	-	0.400	2.900	0.80960
	Fin	2.112	-	0.400	2.133	
L2	: Inicio	0.0	-	0.000	2.900	0.16500
	Fin	0.66000	-	0.000	2.400	
L3	: Inicio	0.0	-	0.800	2.900	1.364
	Fin	2.640	-	0.800	1.867	
L4	: Inicio	0.0	-	1.200	2.900	2.231
	Fin	3.432	-	1.200	1.600	
L5	: Inicio	0.0	-	1.600	2.900	3.309
	Fin	4.224	-	1.600	1.333	
L6	: Inicio	0.0	-	2.000	2.900	4.356
	Fin	4.752	-	2.000	1.067	
L7	: Inicio	0.0	-	2.400	2.900	5.821
	Fin	5.544	-	2.400	0.800	
L8	: Inicio	0.0	-	2.800	2.900	7.498
	Fin	6.336	-	2.800	0.533	
L9	: Inicio	0.0	-	3.200	2.900	9.032
	Fin	6.860	-	3.200	0.267	
L10	: Inicio	0.0	-	3.600	2.900	5.551
	Fin	3.828	-	3.600	0.000	
				Suma		40.136

Suma carg [kN] Hipótesis 1: 40.136

Escala 1 : 23.5
Hipótesis 001: "Tierras" (Suma cargas= 40.136 kN)
- Cargas linealse
  Valores p: distr.linealmente [kN/m]



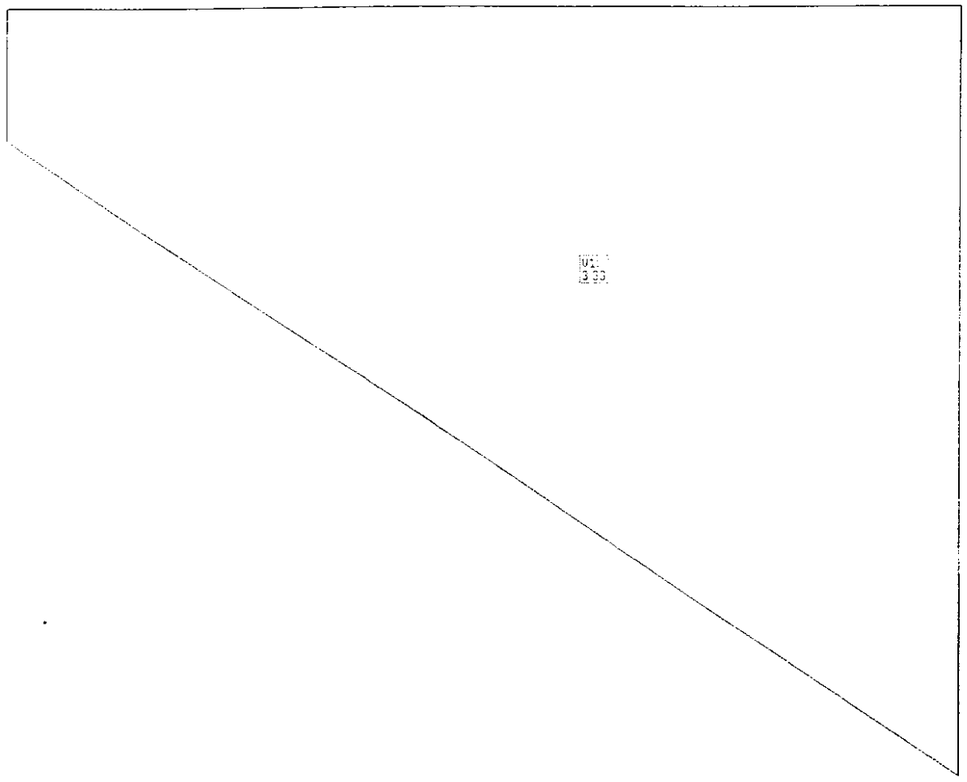
HIPOTESIS 2: "Sobrecarga"

CARGAS DISTRIB:

ID	Tipo	Dim.	Valor	N° Ptos.	Lsuma [kN]
V1	dist.	kN/m2	3.330	4	20.380
				Suma	20.380

Suma carg [kN] Hipótesis 2: 20.380

Escala 1 : 23.5
Hipótesis 002: "Sobrecarga" (Suma cargas= 20.380 kN)
- Valores cargas dist.: E=Peso propio [kN/m3]
  V=Carga distribuida [kN/m2], K=Curvatura [m-1]



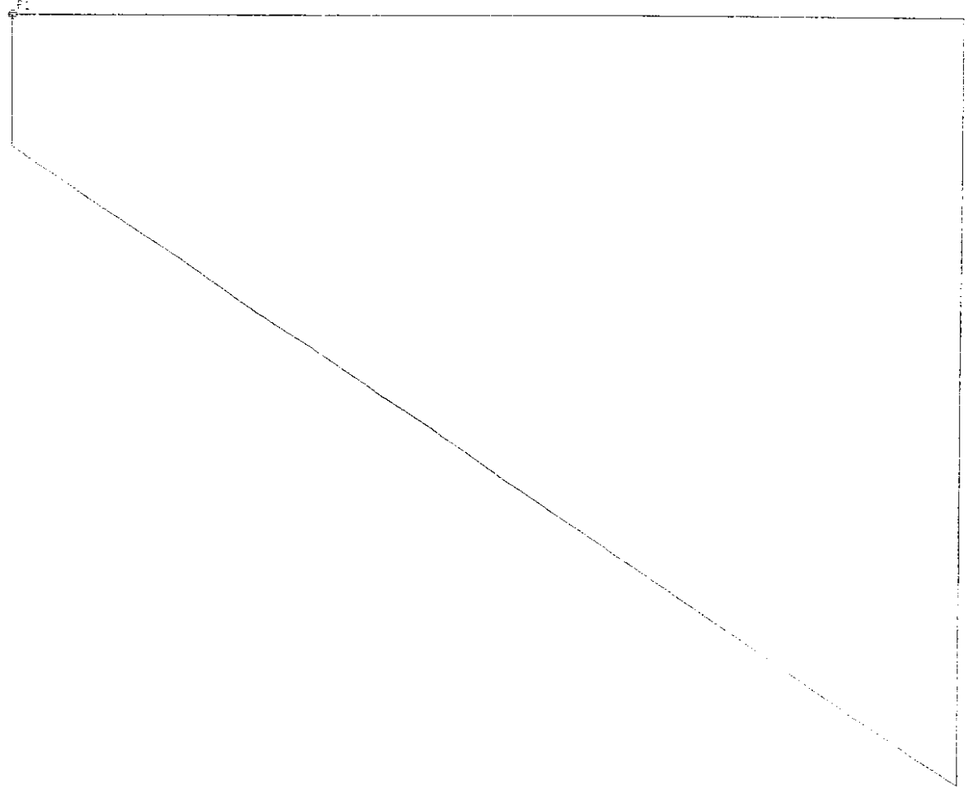
HIPOTESIS 4: "Impacto 2"

CARGA PUNTUAL:

ID	KZ [kN]	RX [kNm]	RY [kNm]	X [m]	Y [m]	Lsuma [kN]
P1 :	45.000	27.000	0.0	0.000	2.900	45.000
					Suma	45.000

Suma carg [kN] Hipótesis 4: 45.000

Escala 1 : 23.5
Hipótesis 004: "Impacto 2" (Suma cargas= 45.000 kN)
- cargas puntuales
  valores: PZ [kN]

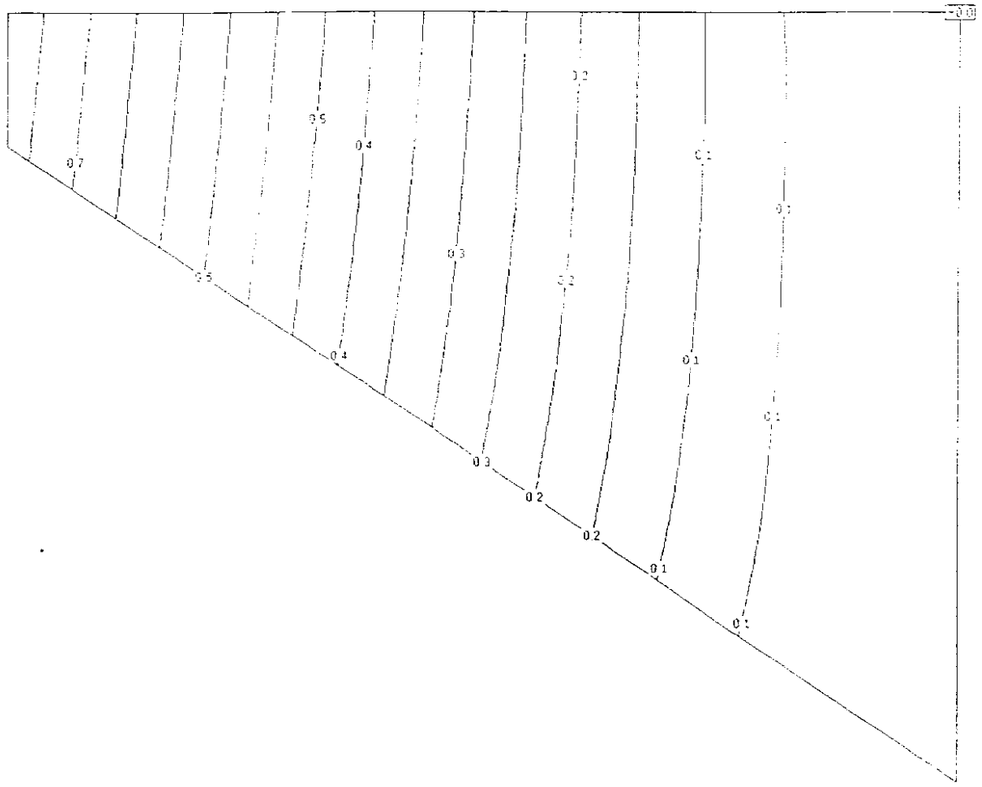


Aleta sin muro en vuelta Tipo
Línea de Alta Velocidad. Madrid-Barcelona-Frontera francesa

ENVOLVENTES: (A03)

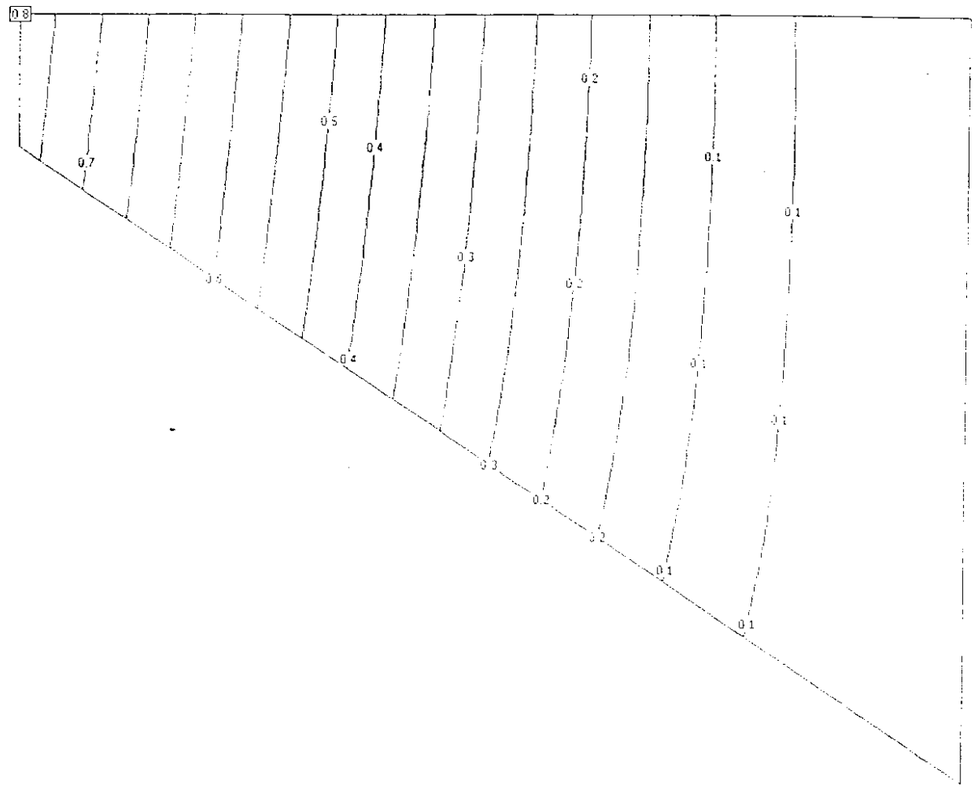
Espec.	N° Hip.	Factor	Título
PERM	1	1.500	Tierras
Y	2	1.500	Sobrecarga

Escala 1 : 23.5
ENVOLVENTE DEFORMACIONES [mm] (A03)
Carga: S1 1.5 U2 1.5
- Min. Desplazamietos, Equidist= 0.1 [mm]



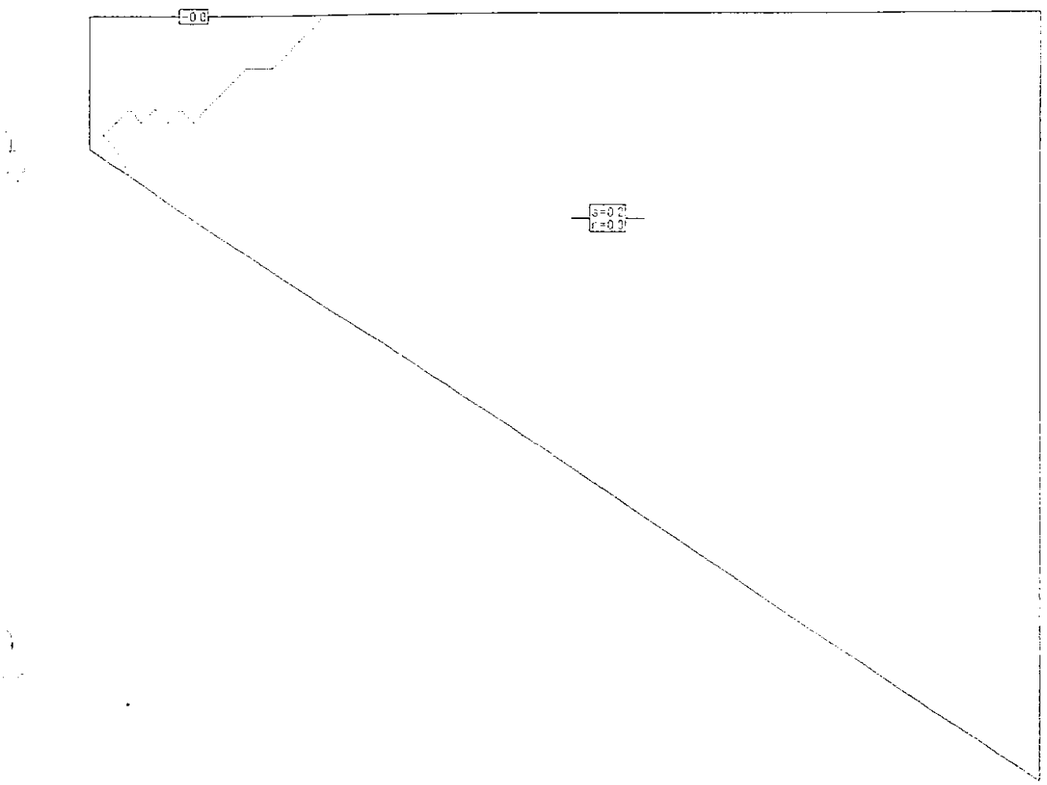
Aleta sin muro en vuelta Tipo
Línea de Alta Velocidad. Madrid-Barcelona-Frontera francesa

Escala 1 : 23.5
ENVOLVENTE DEFORMACIONES [mm] (A03)
Carga: S1 1.5 U2 1.5
- Max. Desplazamietos, Equidist= 0.050 [mm]



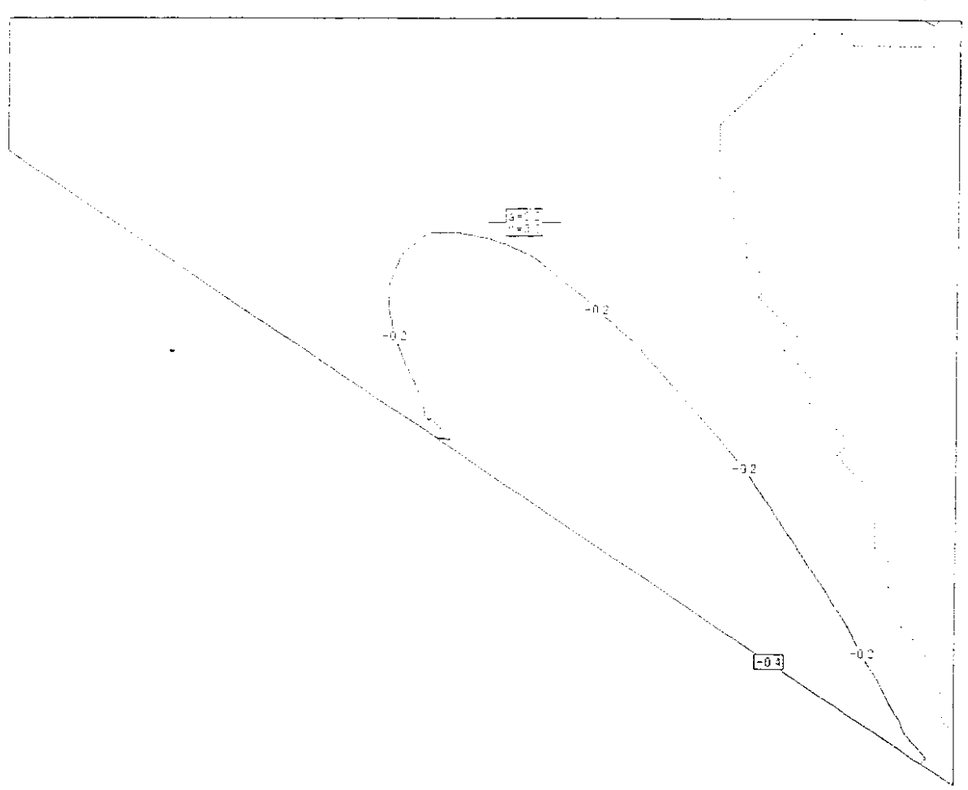
Aleta sin muro en vuelta Tipo
Línea de Alta Velocidad. Madrid-Barcelona-Frontera francesa

Escala 1 : 23.5
Armaduras [cm2/m] (A03)
Carga: S1 1.5 U2 1.5
EH-Dimensionamento: Horm.=H250, Acero=AEH500
- Armaduras AsX- [cm2/m], Recub.= 3.00 cm, Dir-X= 0.00 Grados
- Valores de referencia para Armaduras [cm2/m]
  a=Equidistancia, r=Linea de ref., f=Archivo de isolineas



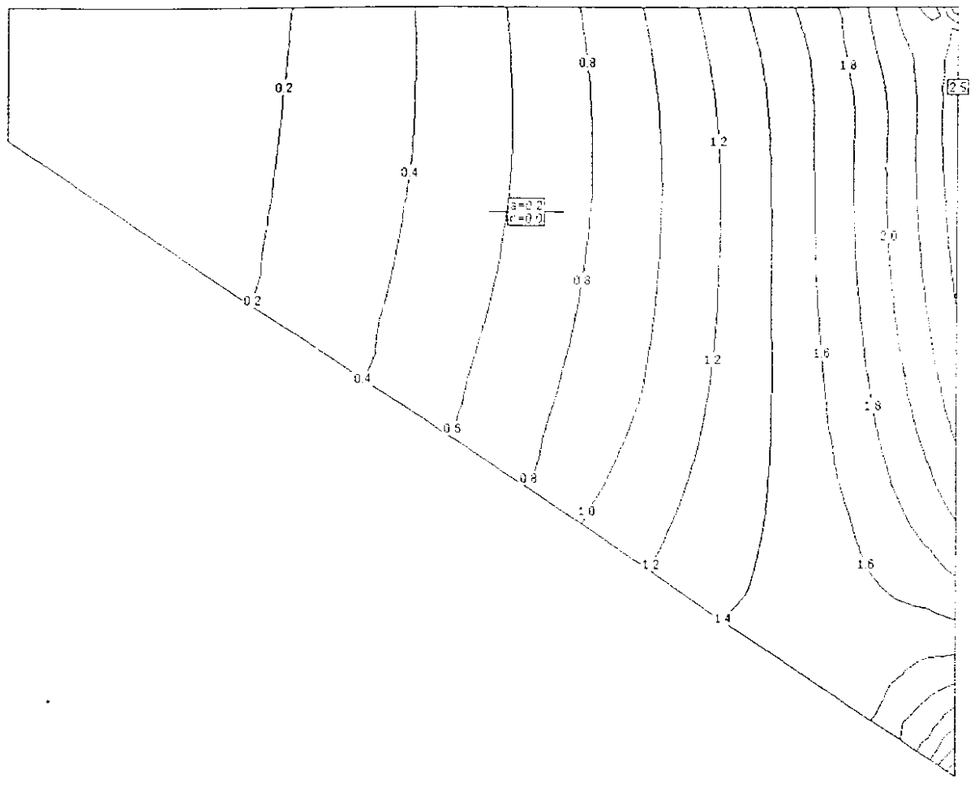
Aleta sin muro en vuelta Tipo
Línea de Alta Velocidad. Madrid-Barcelona-Frontera francesa

Escala 1 : 23.5
Armaduras [cm2/m] (A03)
Carga: S1 1.5 U2 1.5
EH-Dimensionamento: Horm.=H250, Acero=AEH500
- Armaduras AsY- [cm2/m], Recub.= 3.00 cm, Dir-X= 0.00 Grados
- Valores de referencia para Armaduras [cm2/m]
  a=Equidistancia, r=Linea de ref., f=Archivo de isolineas



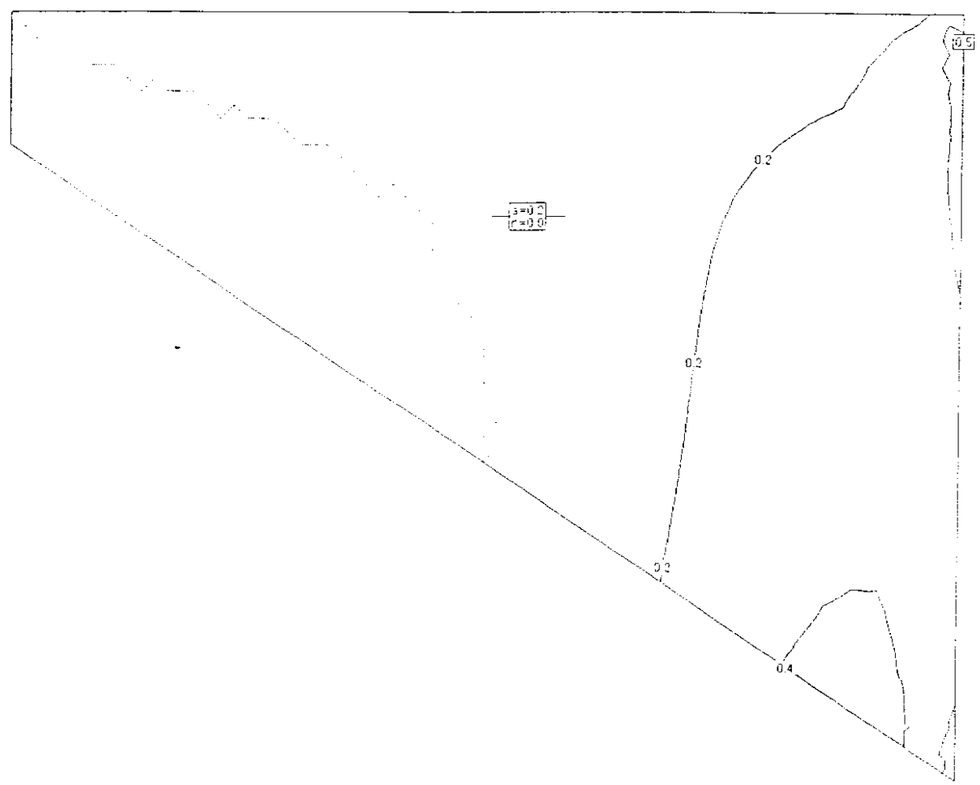
Aleta sin muro en vuelta Tipo
Línea de Alta Velocidad. Madrid-Barcelona-Frontera francesa

Escala 1 : 23.5
Armaduras [cm2/m] (A03)
Carga: S1 1.5 U2 1.5
EH-Dimensionamento: Horm.=H250, Acero=AEH500
- Armaduras AsX+ [cm2/m], Recub.= 3.00 cm, Dir-X= 0.00 Grados
- Valores de referencia para Armaduras [cm2/m]
  a=Equidistancia, r=Linea de ref., f=Archivo de isolineas

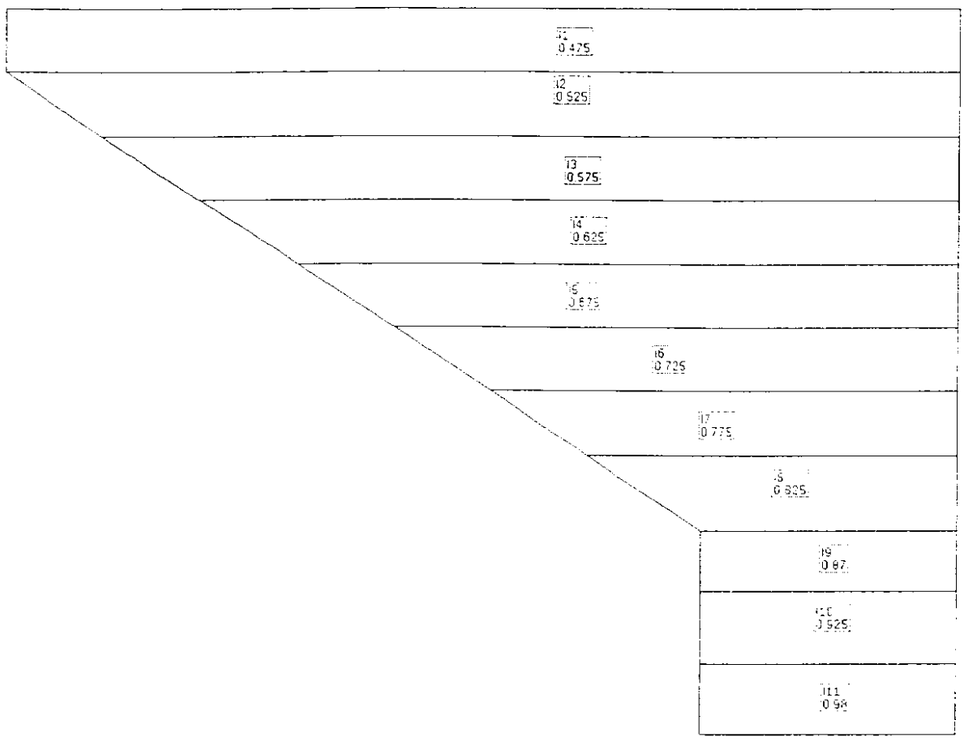


Aleta sin muro en vuelta Tipo
Línea de Alta Velocidad. Madrid-Barcelona-Frontera francesa

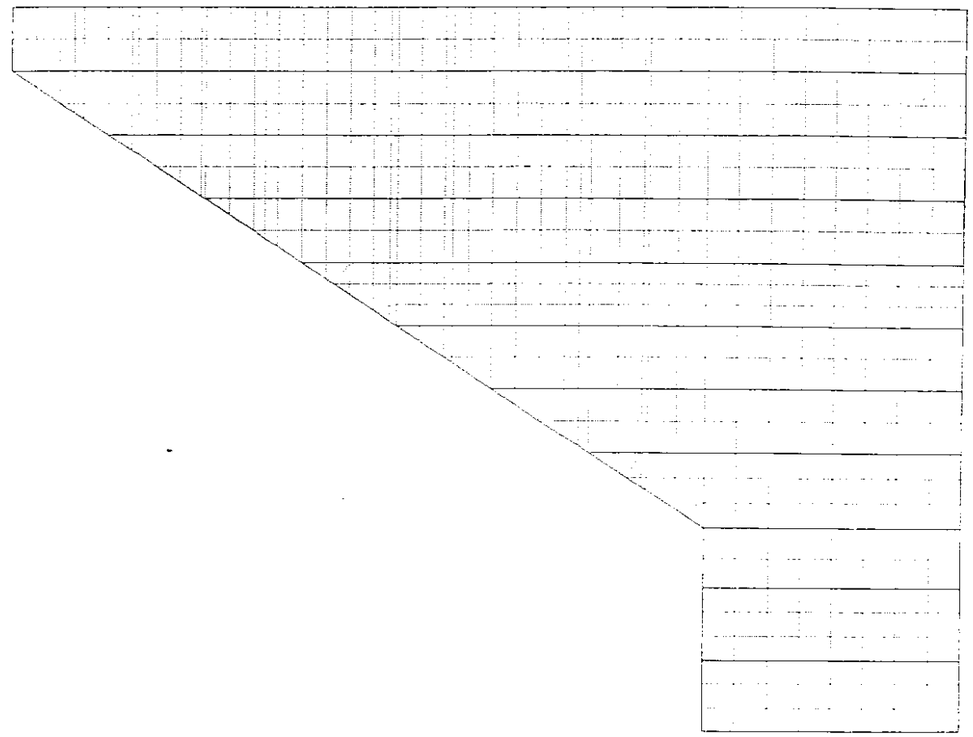
Escala 1 : 23.5
Armaduras [cm2/m] (A03)
Carga: S1 1.5 U2 1.5
EH-Dimensionamento: Horm.=H250, Acero=AEH500
- Armaduras AsY+ [cm2/m], Recub.= 3.00 cm, Dir-X= 0.00 Grados
- Valores de referencia para Armaduras [cm2/m]
  a=Equidistancia, r=Linea de ref., f=Archivo de isolineas



Escala 1 : 48.9
Geometrie (ID=A)
- Zonas de materiales
- ID zona material y canto [m]



Escala 1 : 48.9
Malla (ID=A)



LISTA TODAS HIPOTESIS

N°	Tipo	Título
1	Hip.	'Tierras'
2	Hip.	'Sobrecarga'
3	Hip.	'Impacto'

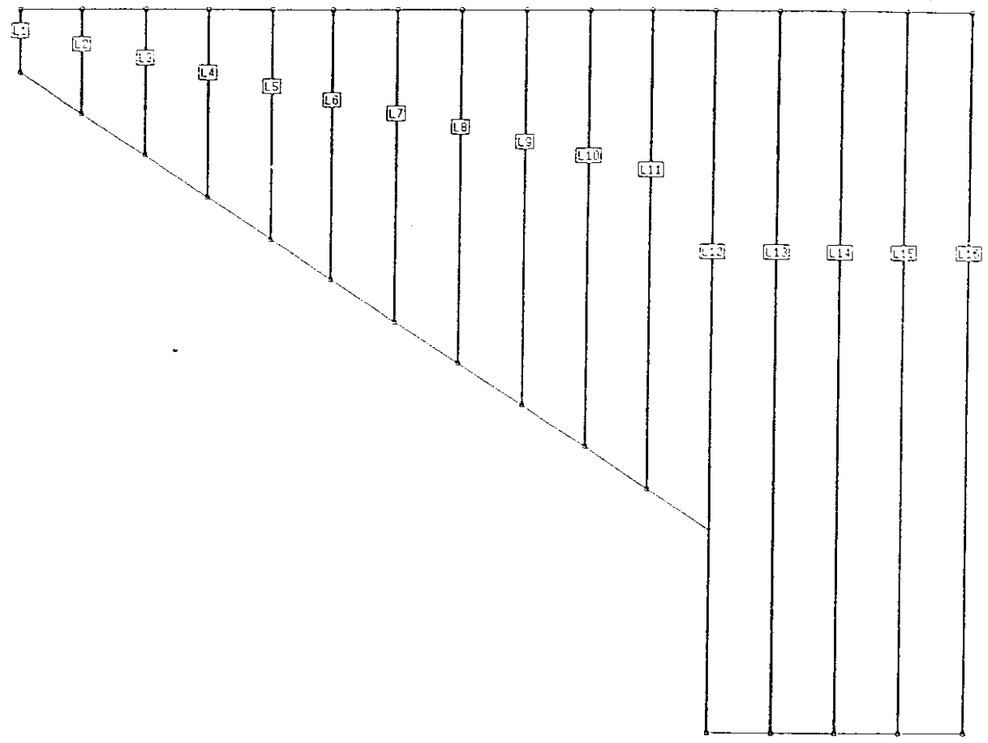
HIPOTESIS 1: "Tierras"

CARGA líneal:

ID	Sitio	carga [kN/m]	Mom [kNm/m]	X [m]	Y [m]	Lsuma [kN]
L1	: Inicio	0.0	-	0.000	5.700	0.20625
	Fin	0.82500	-	0.000	5.200	
L2	: Inicio	0.0	-	0.500	5.700	1.160
	Fin	2.805	-	0.500	4.873	
L3	: Inicio	0.0	-	1.000	5.700	2.286
	Fin	3.960	-	1.000	4.545	
L4	: Inicio	0.0	-	1.500	5.700	3.668
	Fin	4.950	-	1.500	4.218	
L5	: Inicio	0.0	-	2.000	5.700	5.373
	Fin	5.940	-	2.000	3.891	
L6	: Inicio	0.0	-	2.483	5.700	7.538
	Fin	7.095	-	2.483	3.575	
L7	: Inicio	0.0	-	3.000	5.700	10.162
	Fin	8.250	-	3.000	3.236	
L8	: Inicio	0.0	-	3.500	5.700	13.124
	Fin	9.405	-	3.500	2.909	
L9	: Inicio	0.0	-	4.010	5.700	16.242
	Fin	10.395	-	4.010	2.575	
L10	: Inicio	0.0	-	4.500	5.700	19.613
	Fin	11.385	-	4.500	2.255	
L11	: Inicio	0.0	-	5.000	5.700	23.344
	Fin	12.375	-	5.000	1.927	
L12	: Inicio	0.0	-	5.500	5.700	53.609
	Fin	18.810	-	5.500	0.000	
L13	: Inicio	0.0	-	6.000	5.700	53.609
	Fin	18.810	-	6.000	0.000	
L14	: Inicio	0.0	-	6.500	5.700	53.609
	Fin	18.810	-	6.500	0.000	
L15	: Inicio	0.0	-	7.000	5.700	53.609
	Fin	18.810	-	7.000	0.000	
L16	: Inicio	0.0	-	7.500	5.700	26.804
	Fin	9.405	-	7.500	0.000	
					Suma	343.956

Suma carg [kN] Hipótesis 1: 343.956

Escala 1 : 48.9
Hipótesis 001: "Tierras" (Suma cargas= 343.956 kN)
- Cargas linealse
  Valores p: distr.linealmente [kN/m]



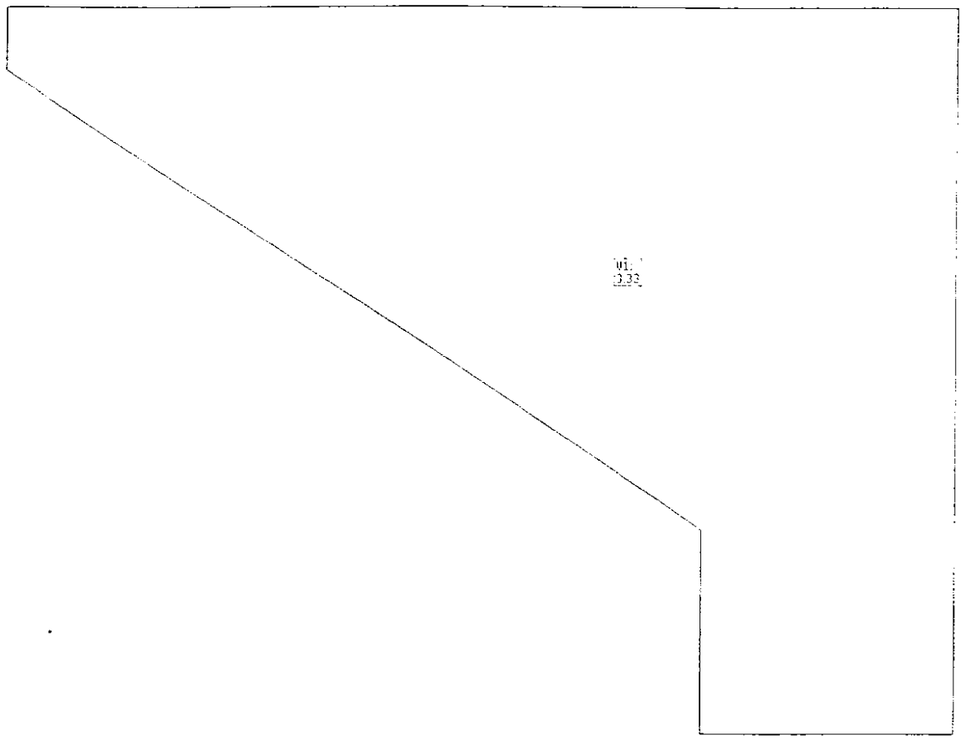
HIPOTESIS 2: "Sobrecarga"

CARGAS DISTRIB:

ID	Tipo	Dim.	Valor	N° Ptos.	Lsuma [kN]
V1	dist.	kN/m2	3.330	6	80.086
				Suma	80.086

Suma carg [kN] Hipótesis 2: 80.086

Escala 1 : 48.9
Hipótesis 002: "Sobrecarga" (Suma cargas= 80.086 kN)
- Valores cargas dist.: E=Peso propio [kN/m3]
  V=Carga distribuida [kN/m2], K=Curvatura [m-1]



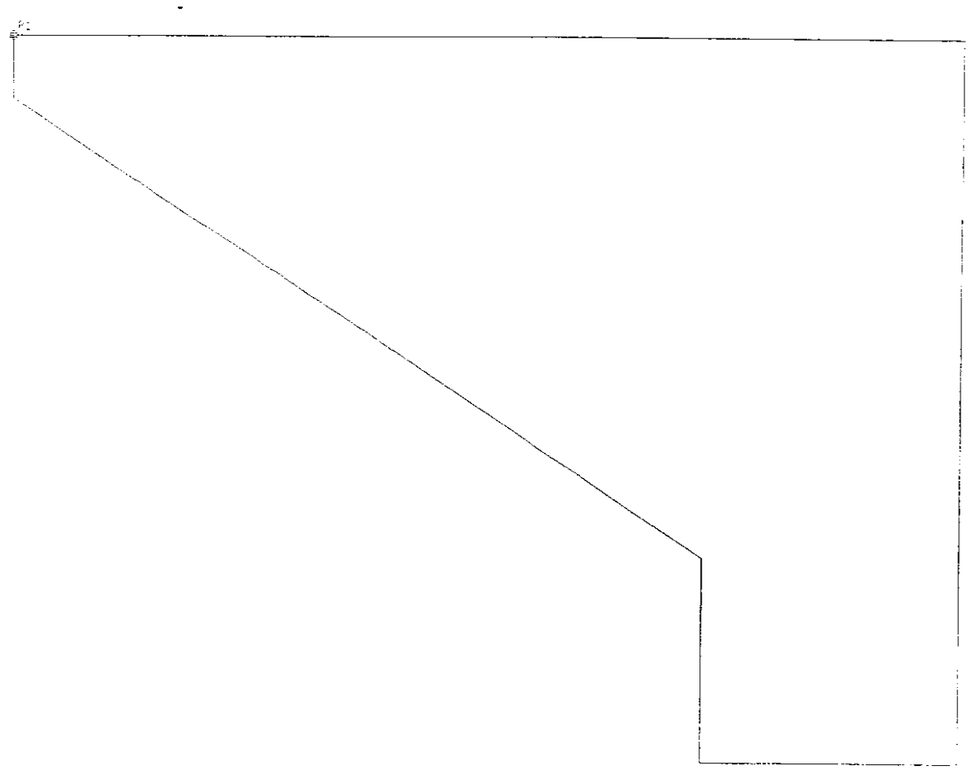
HIPOTESIS 3: "Impacto"

CARGA PUNTUAL:

ID	KZ [kN]	RX [kNm]	RY [kNm]	X [m]	Y [m]	Lsuma [kN]
P1 :	45.000	27.000	0.0	0.000	5.700	45.000
					Suma	45.000

Suma carg [kN] Hipótesis 3: 45.000

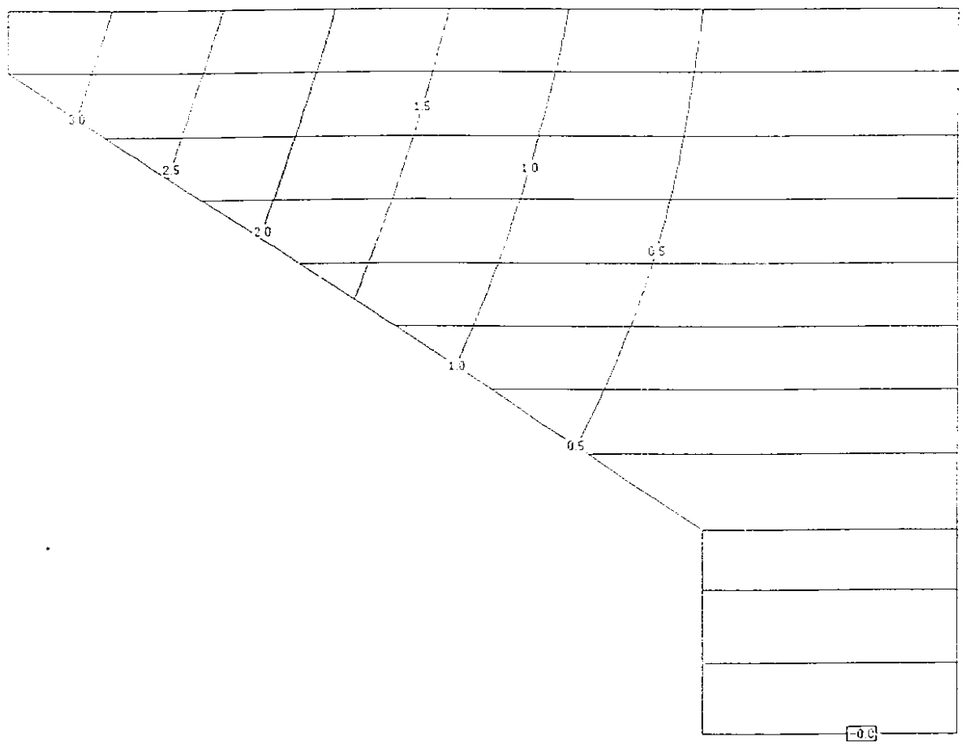
Escala 1 : 48.9
Hipótesis 003: "Impacto" (Suma cargas= 45.000 kN)
- cargas puntuales
  valores: PZ [kN]



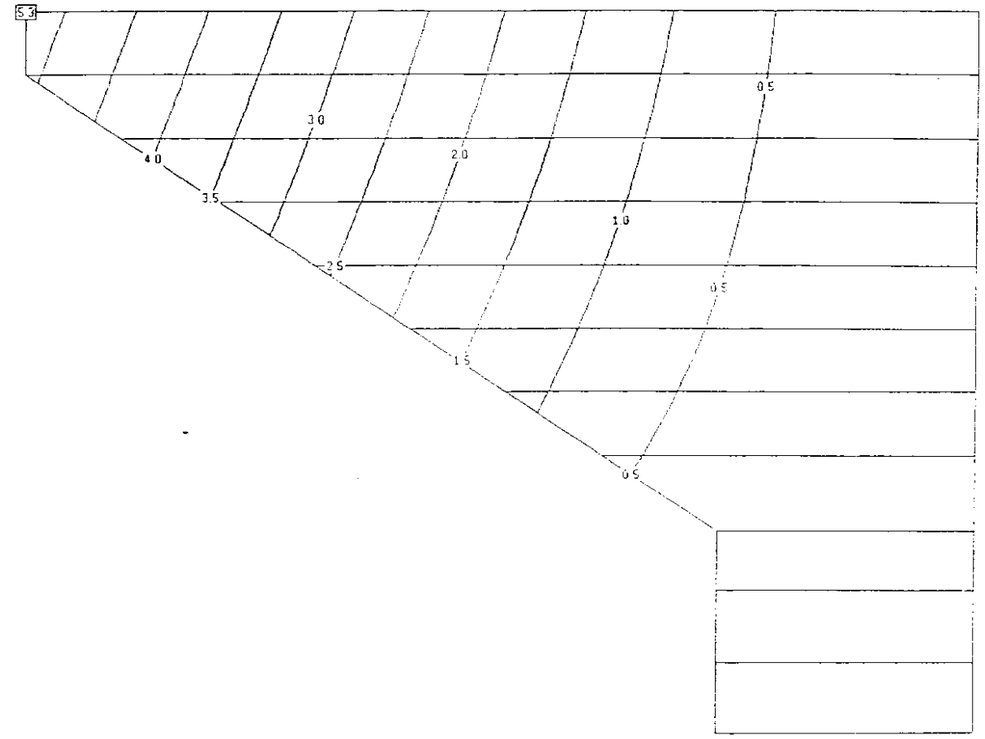
ENVOLVENTES: "Habitual" (A01)

Espec.	N° Hip.	Factor	Título
PERM	1	1.500	Tierras
MAS	2	1.500	Sobrecarga

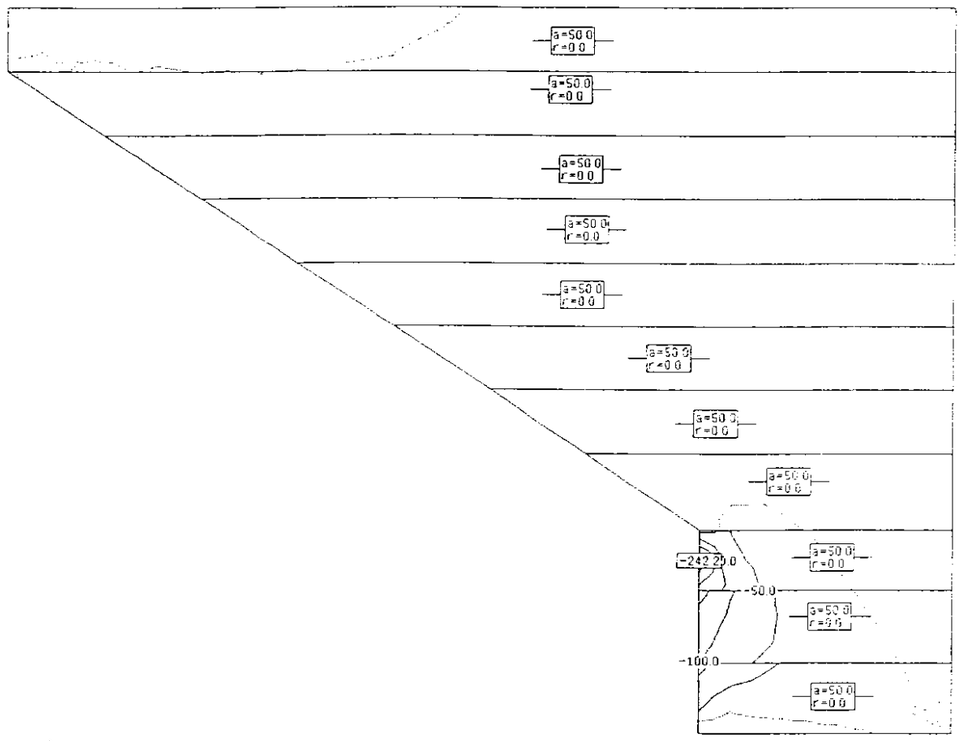
Escala 1 : 48.9
ENVOLVENTE DEFORMACIONES [mm] "Habitual" (A01)
Carga: S1 1.5 P2 1.5
- Min. Desplazamietos, Equidist= 0.5 [mm]



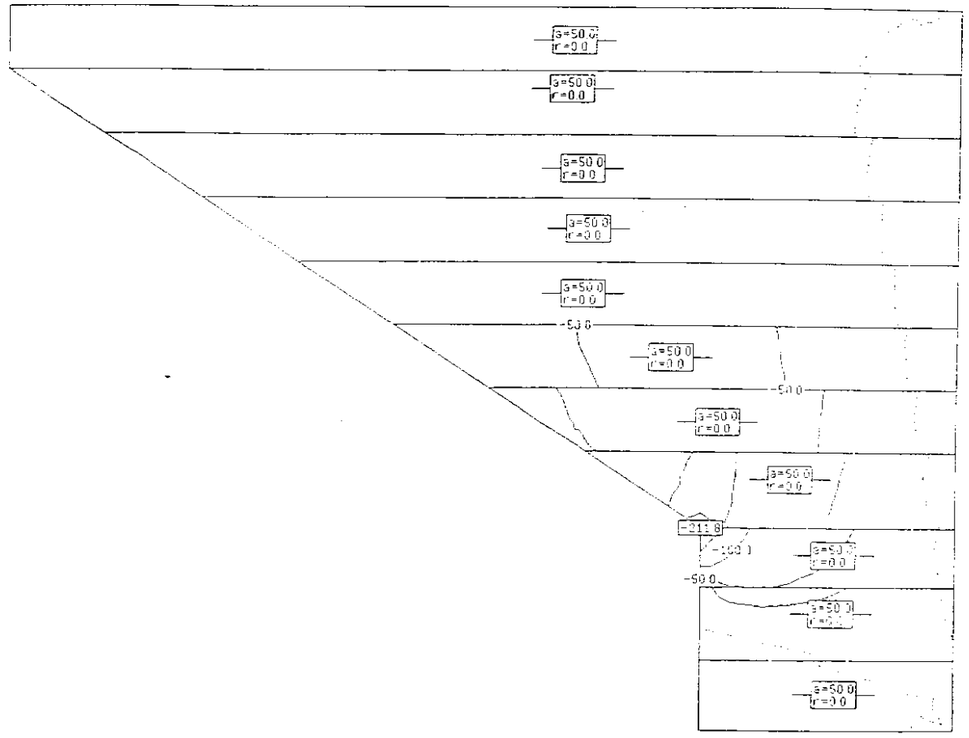
Escala 1 : 48.9
ENVOLVENTE DEFORMACIONES [mm] "Habitual" (A01)
Carga: S1 1.5 P2 1.5
- Max. Desplazamietos, Equidist= 0.500 [mm]



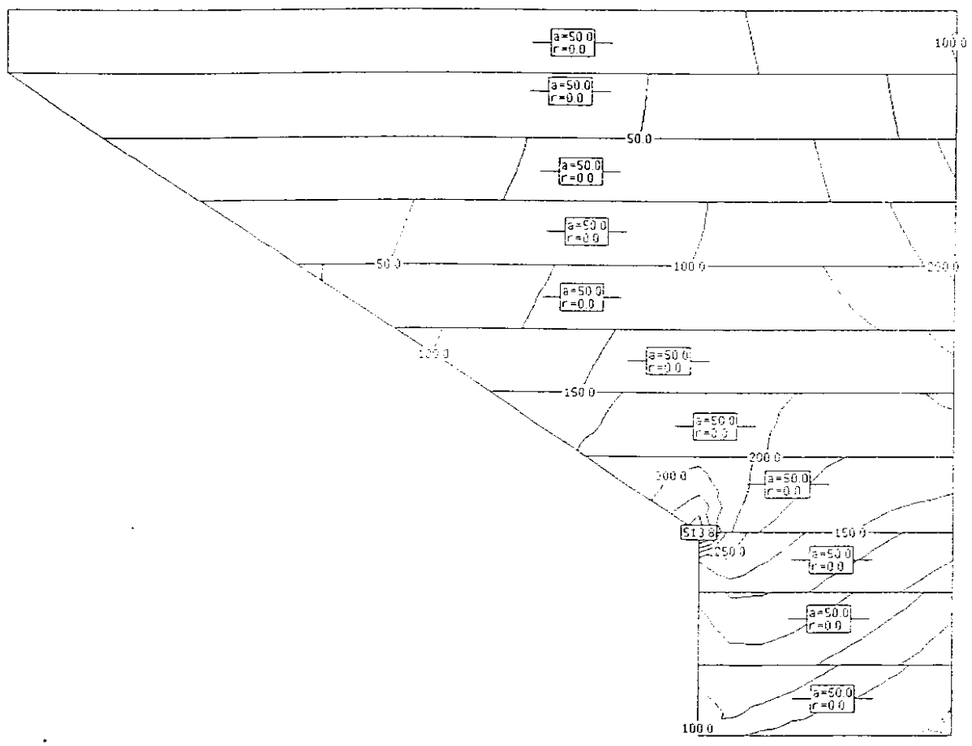
Escala 1 : 48.9
Momentos de armadura [kNm/m] "Habitual" (A01)
Carga: S1 1.5 P2 1.5
- Momentos de armadura MX- [kNm/m], Dir-X= 0.00 Grados
- Valores de referencia para Momentos de armadura [kNm/m]
  a=Equidistancia, r=Linea de ref., f=Archivo de isolineas



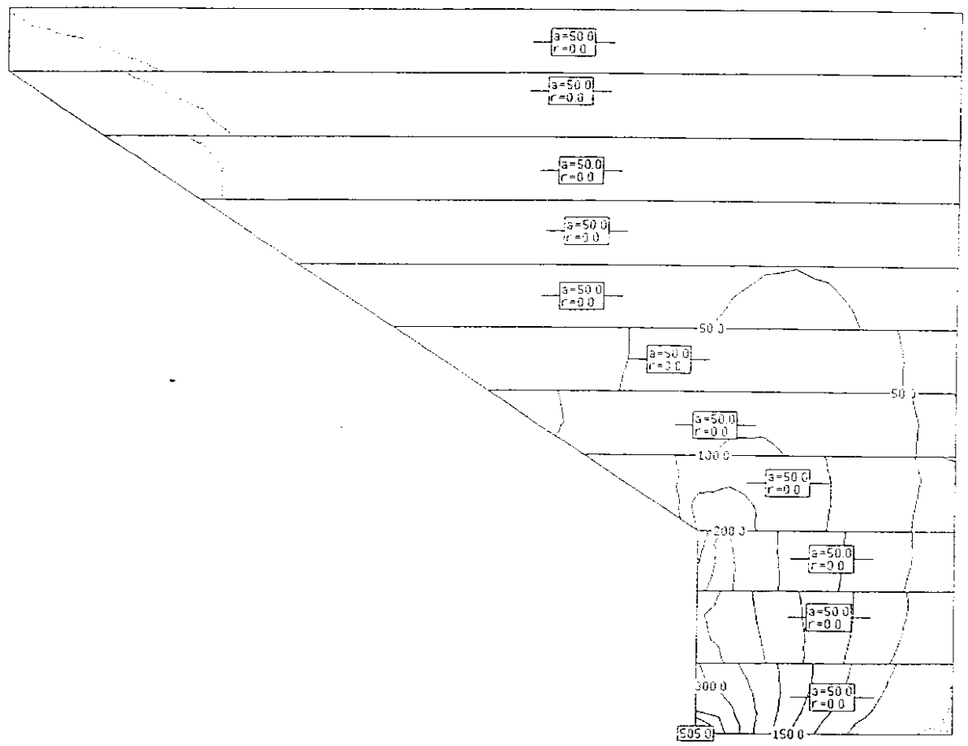
Escala 1 : 48.9
Momentos de armadura [kNm/m] "Habitual" (A01)
Carga: S1 1.5 P2 1.5
- Momentos de armadura MY- [kNm/m], Dir-X= 0.00 Grados
- Valores de referencia para Momentos de armadura [kNm/m]
  a=Equidistancia, r=Linea de ref., f=Archivo de isolineas



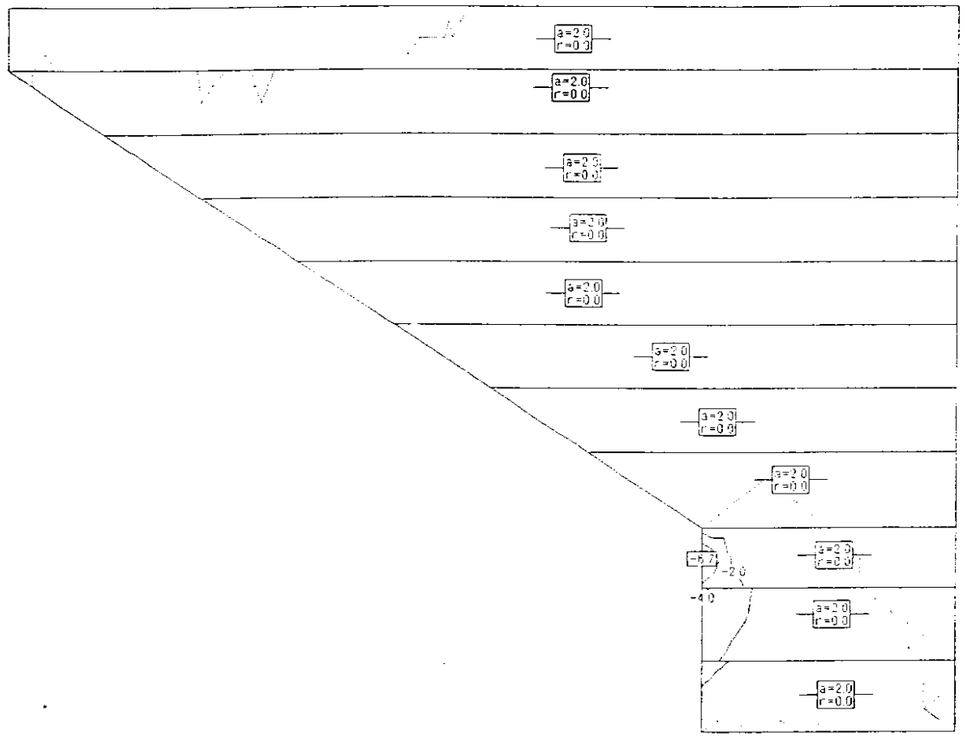
Escala 1 : 48.9
Momentos de armadura [kNm/m] "Habitual" (A01)
Carga: S1 1.5 P2 1.5
- Momentos de armadura MX+ [kNm/m], Dir-X= 0.00 Grados
- Valores de referencia para Momentos de armadura [kNm/m]
  a=Equidistancia, r=Linea de ref., f=Archivo de isolineas



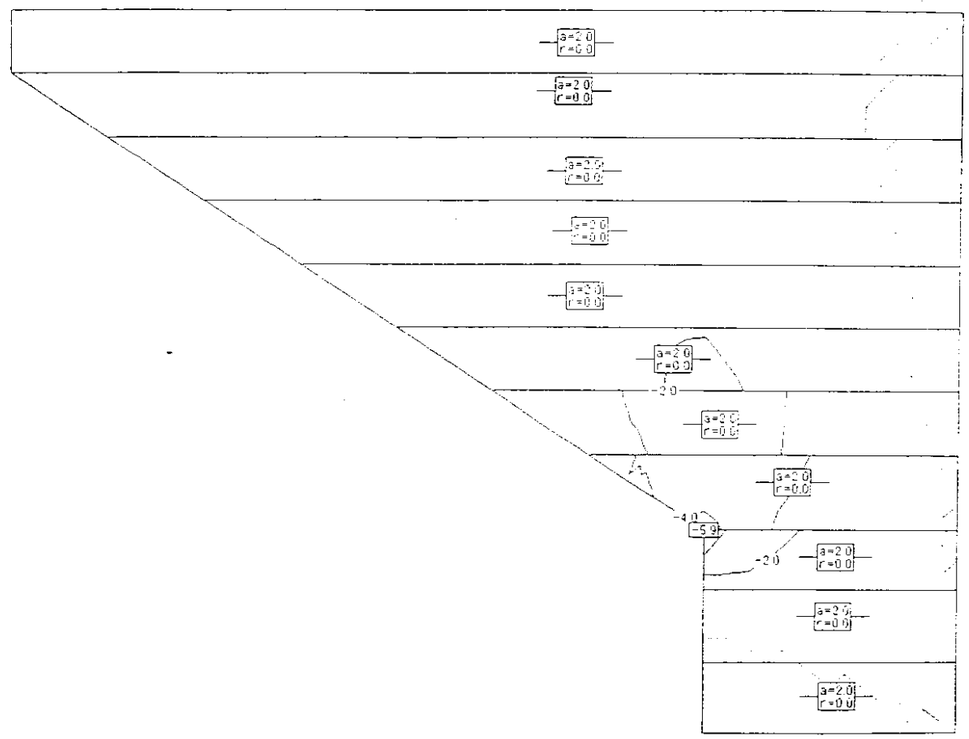
Escala 1 : 48.9
Momentos de armadura [kNm/m] "Habitual" (A01)
Carga: S1 1.5 P2 1.5
- Momentos de armadura MY+ [kNm/m], Dir-X= 0.00 Grados
- Valores de referencia para Momentos de armadura [kNm/m]
  a=Equidistancia, r=Linea de ref., f=Archivo de isolineas



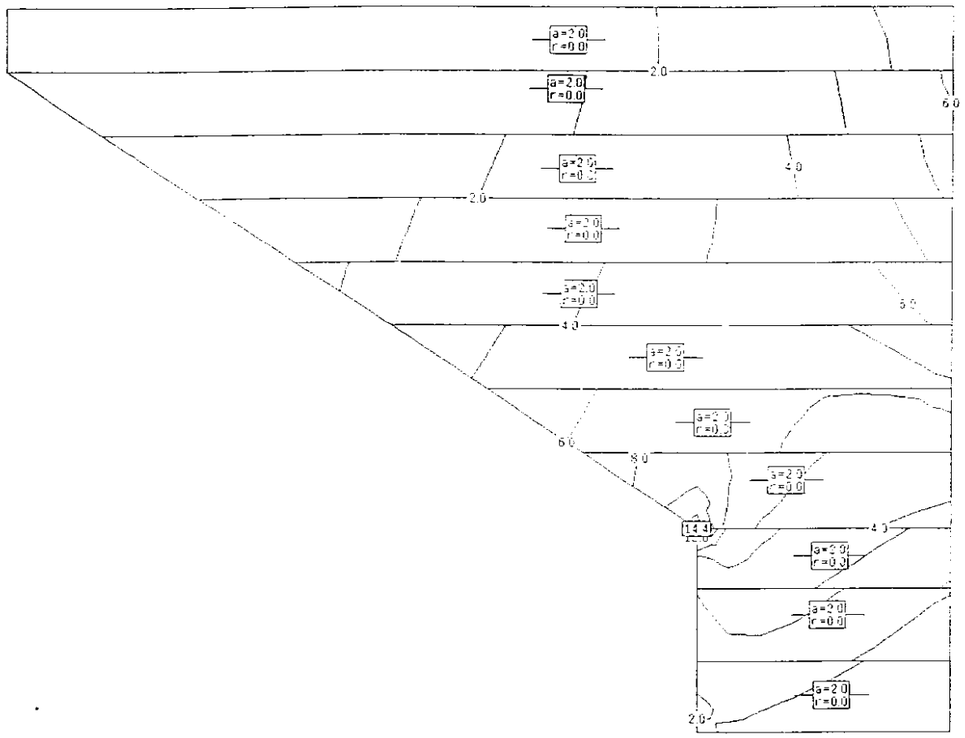
Escala 1 : 48.9
Armaduras [cm2/m] "Habitual" (A01)
Carga: S1 1.5 P2 1.5
EH-Dimensionamento: Horm.=H250, Acero=AEH500
- Armaduras AsX- [cm2/m], Recub.= 3.00 cm, Dir-X= 0.00 Grados
- Valores de referencia para Armaduras [cm2/m]
  a=Equidistancia, r=Linea de ref., f=Archivo de isolineas



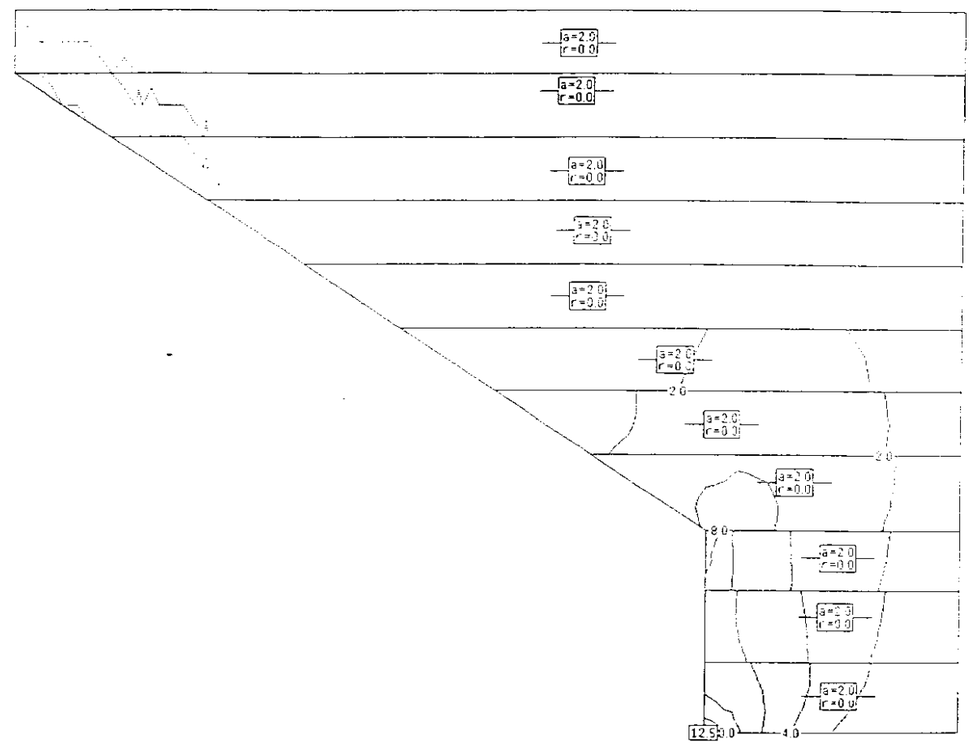
Escala 1 : 48.9
Armaduras [cm2/m] "Habitual" (A01)
Carga: S1 1.5 P2 1.5
EH-Dimensionamento: Horm.=H250, Acero=AEH500
- Armaduras AsY- [cm2/m], Recub.= 3.00 cm, Dir-X= 0.00 Grados
- Valores de referencia para Armaduras [cm2/m]
  a=Equidistancia, r=Linea de ref., f=Archivo de isolineas



Escala 1 : 48.9
Armaduras [cm2/m] "Habitual" (A01)
Carga: S1 1.5 P2 1.5
EH-Dimensionamento: Horm.=H250, Acero=AEH500
- Armaduras AsX+ [cm2/m], Recub.= 3.00 cm, Dir-X= 0.00 Grados
- Valores de referencia para Armaduras [cm2/m]
  a=Equidistancia, r=Linea de ref., f=Archivo de isolineas



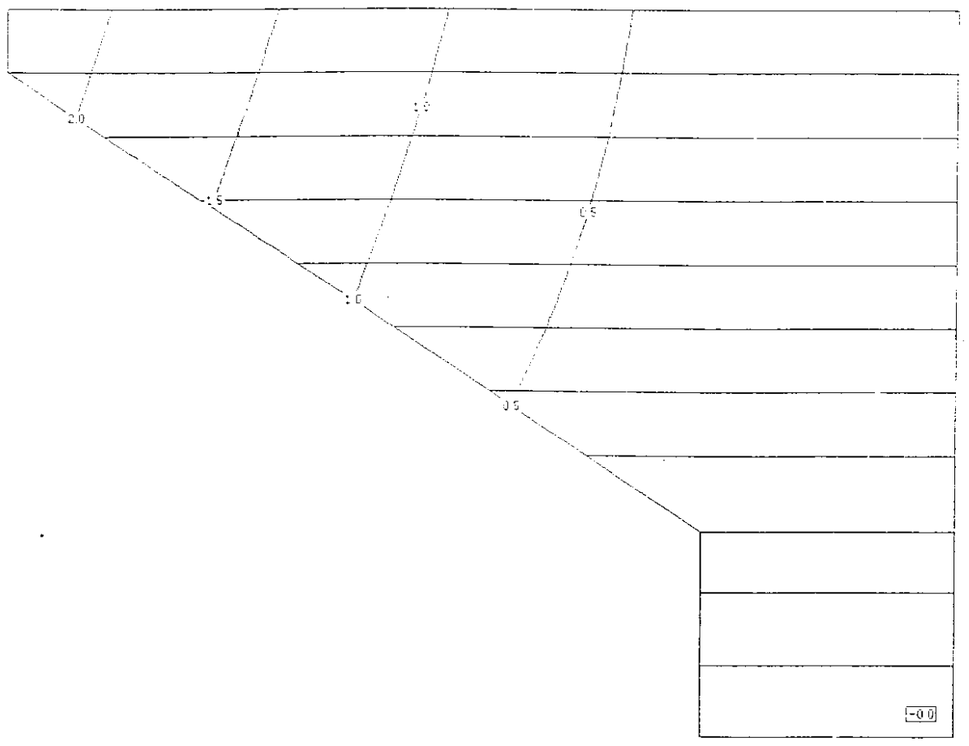
Escala 1 : 48.9
Armaduras [cm2/m] "Habitual" (A01)
Carga: S1 1.5 P2 1.5
EH-Dimensionamento: Horm.=H250, Acero=AEH500
- Armaduras AsY+ [cm2/m], Recub.= 3.00 cm, Dir-X= 0.00 Grados
- Valores de referencia para Armaduras [cm2/m]
  a=Equidistancia, r=Linea de ref., f=Archivo de isolineas



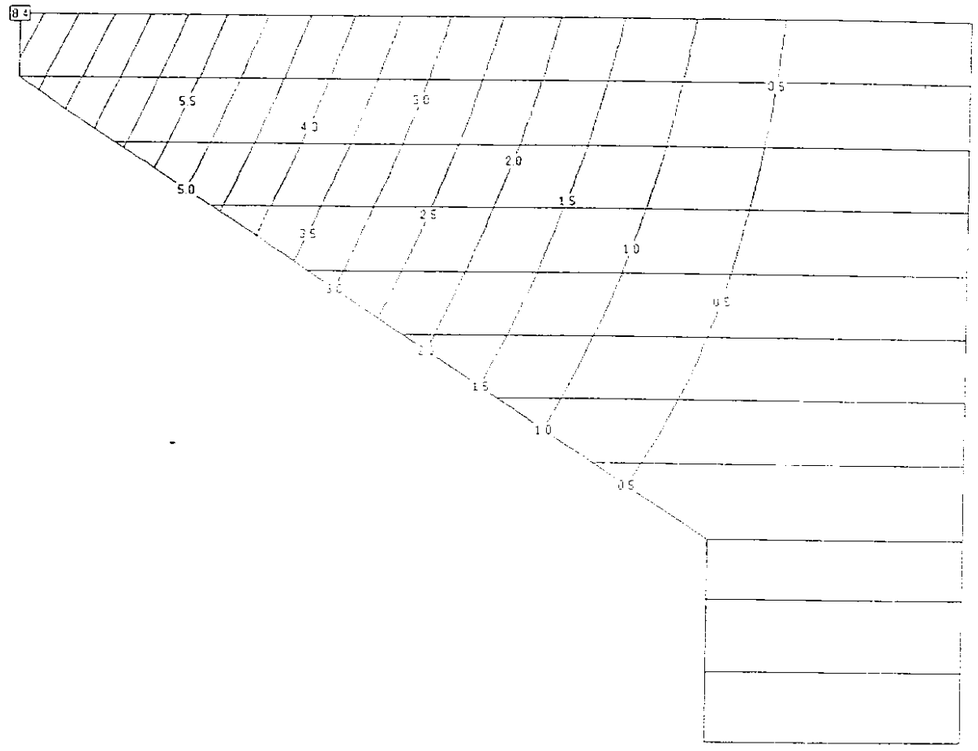
ENVOLVENTES: "Accidental" (A02)

Espec.	N° Hip.	Factor	Título
PERM	1	1.000	Tierras
MAS	2	1.000	Sobrecarga
MAS	3	1.000	Impacto

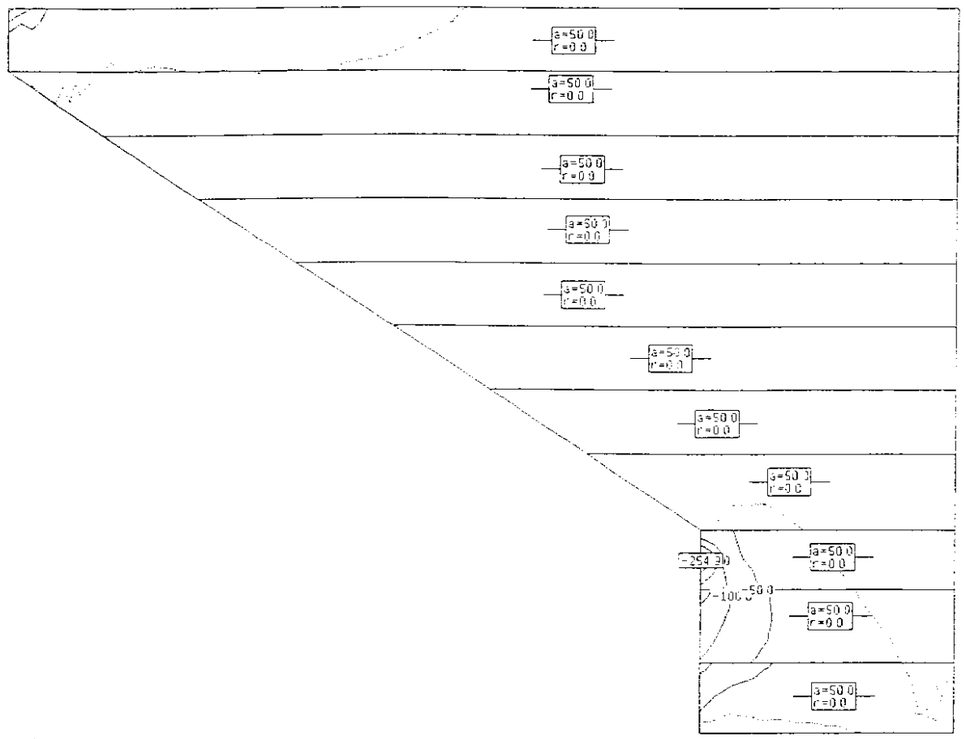
Escala 1 : 48.9
ENVOLVENTE DEFORMACIONES [mm] "Accidental" (A02)
Carga: S1 P2 P3
- Min. Desplazamietos, Equidist= 0.5 [mm]



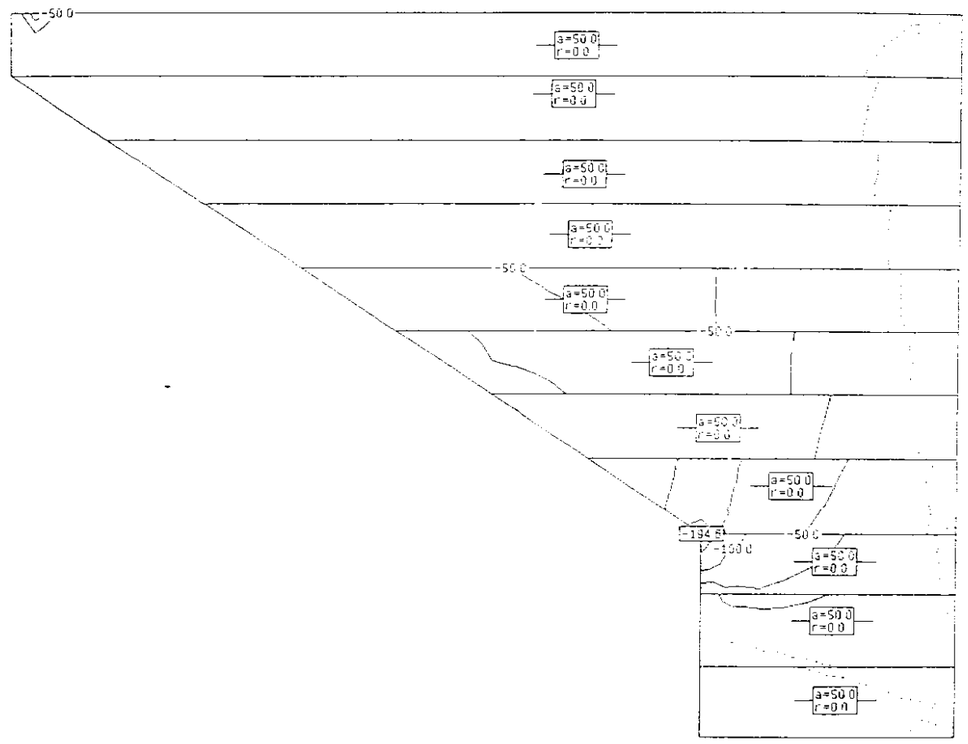
Escala 1 : 48.9
ENVOLVENTE DEFORMACIONES [mm] "Accidental" (A02)
Carga: S1 P2 P3
- Max. Desplazamietos, Equidist= 0.500 [mm]



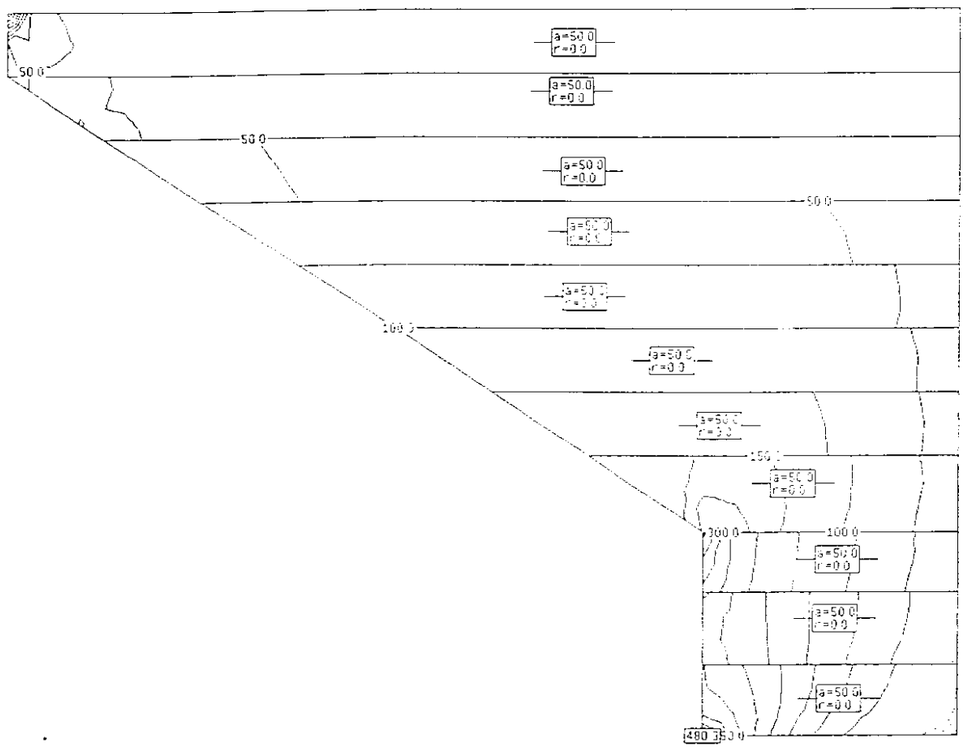
Escala 1 : 48.9
Momentos de armadura [kNm/m] "Accidental" (A02)
Carga: S1 P2 P3
- Momentos de armadura MX- [kNm/m], Dir-X= 0.00 Grados
- Valores de referencia para Momentos de armadura [kNm/m]
  a=Equidistancia, r=Linea de ref., f=Archivo de isolineas



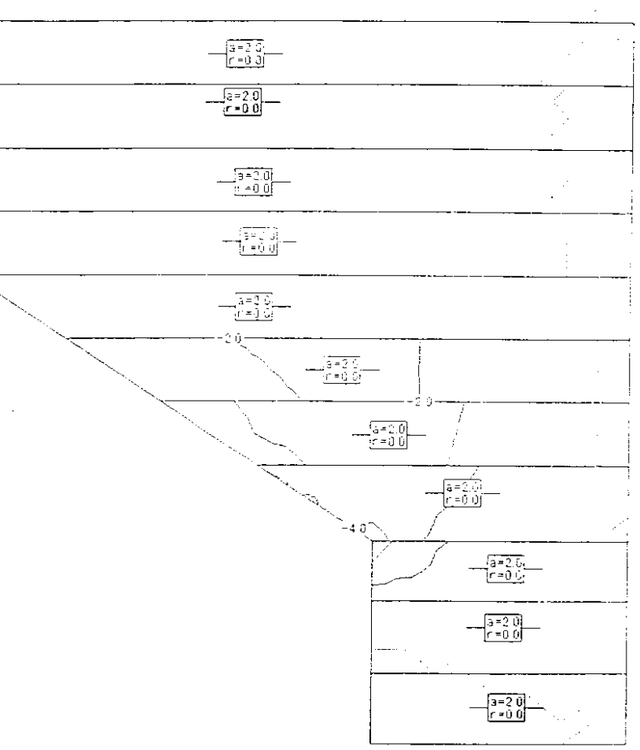
Escala 1 : 48.9
Momentos de armadura [kNm/m] "Accidental" (A02)
Carga: S1 P2 P3
- Momentos de armadura MY- [kNm/m], Dir-X= 0.00 Grados
- Valores de referencia para Momentos de armadura [kNm/m]
  a=Equidistancia, r=Linea de ref., f=Archivo de isolineas



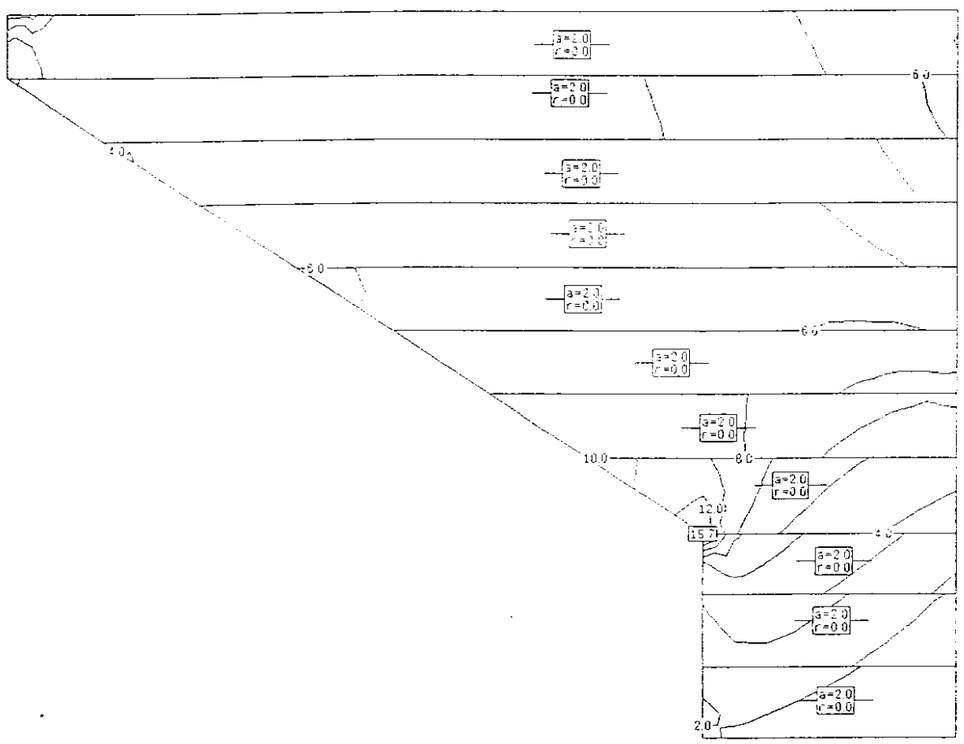
Escala 1 : 48.9
Momentos de armadura [kNm/m] "Accidental" (A02)
Carga: S1 P2 P3
- Momentos de armadura MY+ [kNm/m], Dir-X= 0.00 Grados
- Valores de referencia para Momentos de armadura [kNm/m]
  a=Equidistancia, r=Linea de ref., f=Archivo de isolineas



Escala 1 : 48.9
Armaduras [cm2/m] "Accidental" (A02)
Carga: S1 P2 P3
EH-Dimensionamento: Horm.=H250, Acero=AEH500
- Armaduras AsY- [cm2/m], Recub.= 3.00 cm, Dir-X= 0.00 Grados
- Valores de referencia para Armaduras [cm2/m]
  a=Equidistancia, r=Linea de ref., f=Archivo de isolineas



Escala 1 : 48.9
Armaduras [cm2/m] "Accidental" (A02)
Carga: S1 P2 P3
EH-Dimensionamento: Horm.=H250, Acero=AEH500
- Armaduras AsX+ [cm2/m], Recub.= 3.00 cm, Dir-X= 0.00 Grados
- Valores de referencia para Armaduras [cm2/m]
  a=Equidistancia, r=Linea de ref., f=Archivo de isolineas



Escala 1 : 48.9
Armaduras [cm2/m] "Accidental" (A02)
Carga: S1 P2 P3
EH-Dimensionamento: Horm.=H250, Acero=AEH500
- Armaduras AsY+ [cm2/m], Recub.= 3.00 cm, Dir-X= 0.00 Grados
- Valores de referencia para Armaduras [cm2/m]
  a=Equidistancia, r=Linea de ref., f=Archivo de isolineas

