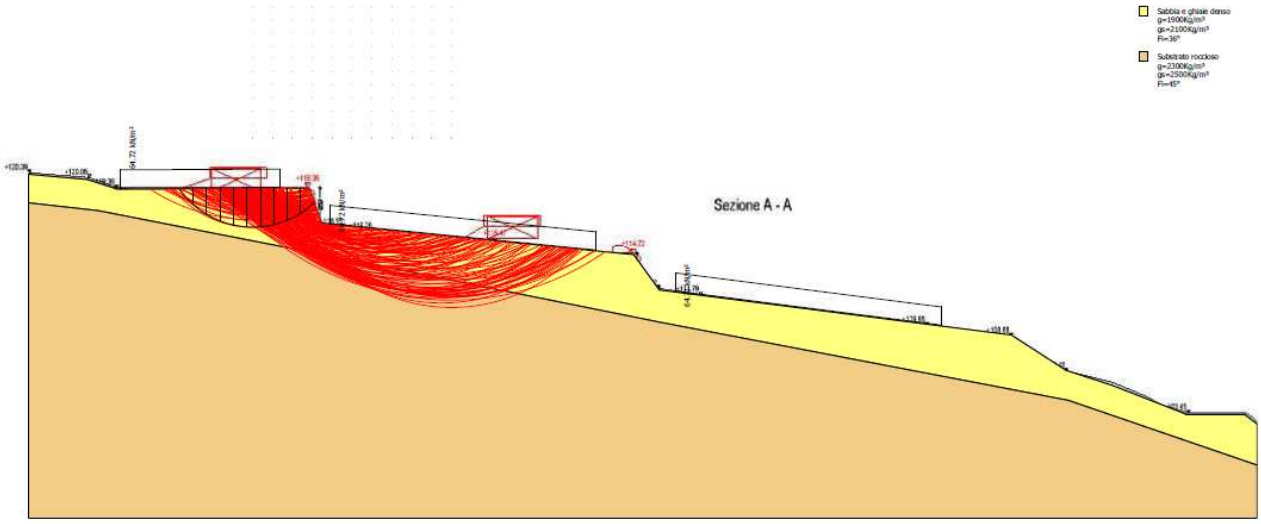
STATO DI PROGETTO

VERIFICA DI STABILITA' – V1 – (Condizioni sismiche) – Pendio parte alta – carico distribuito su tutti i piani pari a 64.72 KN/mq



Analisi di stabilità dei pendii con MORGENSTERN-PRICE

==========

Numero di strati	2.0
Numero dei conci	10.0
Fattore di sicurezza [R2]	1.3

Superficie di forma circolare

==========

Maglia dei Centri

==========

Ascissa vertice sinistro inferiore xi	10.05 m
Ordinata vertice sinistro inferiore yi	41.74 m
Ascissa vertice destro superiore xs	25.01 m
Ordinata vertice destro superiore ys	51.63 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

==========

Coefficienti sismici [N.T.C.]

==========

Dati generali

Descrizione:	
Latitudine:	43.85
Longitudine:	7.58
Tipo opera:	2 - Opere ordinarie
Classe d'uso:	Classe I
Vita nominale:	50.0 [anni]
Vita di riferimento:	35.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo:	A
Categoria topografica:	T2

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s²]	F0 [-]	TC* [sec]
S.L.O.	30.0	0.26	2.55	0.19
S.L.D.	35.0	0.3	2.57	0.2
S.L.V.	332.0	1.17	2.44	0.28
S.L.C.	682.0	1.6	2.47	0.3

Coefficienti sismici orizzontali e verticali

Opera: Opere di sostegno

S.L. Stato limite	amax [m/s²]	beta [-]	kh [-]	kv [sec]
S.L.O.	0.312	0.2	0.0064	0.0032
S.L.D.	0.36	0.2	0.0073	0.0037
S.L.V.	1.404	0.29	0.0415	0.0208
S.L.C.	1.92	0.29	0.0568	0.0284

Coefficiente azione sismica orizzontale 0.0064

Coefficiente azione sismica verticale 0.0032

Vertici profilo

N	X m	y m
1	-6.83	39.0
2	-2.39	38.59
3	-0.13	37.87
4	14.33	37.95
5	15.22	35.28
6	38.72	32.94
7	40.66	30.28
8	67.15	26.88
9	71.27	24.22
10	74.74	23.09
11	80.31	20.91
12	84.68	20.91
13	85.65	20.18

Vertici strato 1

N	X m	y m
1	-6.83	36.84
2	-1.58	36.25
3	18.61	32.29
4	40.66	27.85
5	71.43	21.96
6	85.65	17.08

Stratigrafia

c: coesione; Fi: Angolo di attrito; G: Peso Specifico; Gs: Peso Specifico Saturo; K: Modulo di Winkler

Strato	c (kN/m²)	Fi (°)	G (Kg/m³)	Gs (Kg/m³)	K (Kg/cm³)	Litologia	
1	0	36	1900	2100	0.00		Sabbia e ghiaie denso
2	0	45	2300	2500	0.00		Substrato roccioso

Carichi distribuiti

N°	xi m	yi m	xf m	yf m	Carico esterno (kN/m²)
1	0.12	37.95	12.12	38.01704	64.72
2	15.87	35.28	35.87	33.28687	64.72
3	41.87	30.19	61.87	27.62902	64.72

Risultati analisi pendio

==========

Fs minimo individuato 20.0

Ascissa centro superficie 10.05 m

Ordinata centro superficie 41.74 m

Raggio superficie 6.73 m

==========

Numero di superfici esaminate....(221)

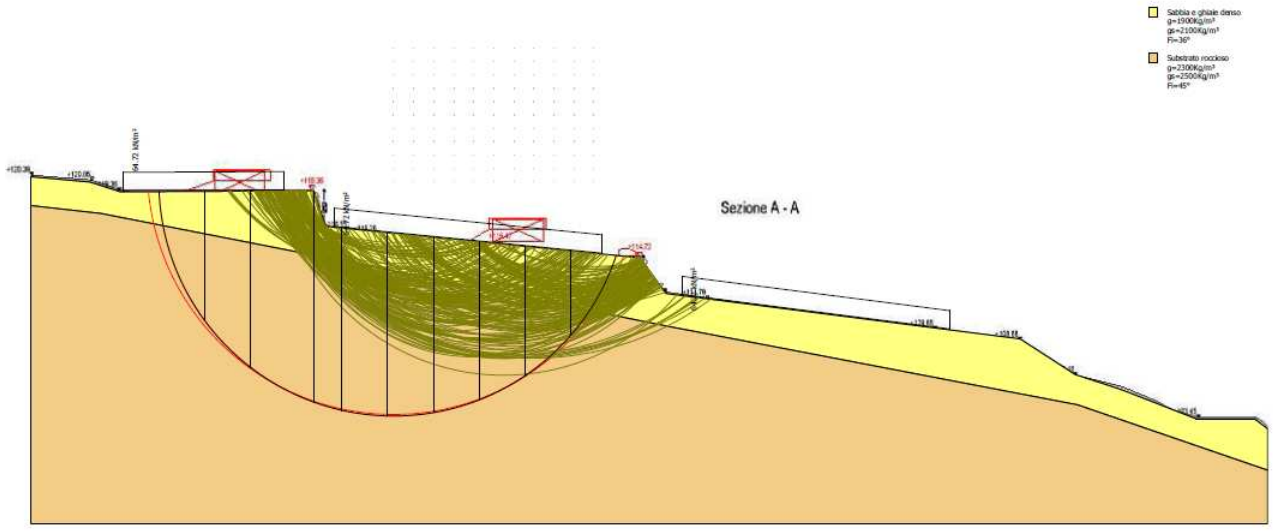
N°	Xo	Yo	Ro	Fs
1	10.1	41.7	6.7	20.00
2	10.8	42.2	6.5	20.00
3	11.5	41.7	4.9	20.00
4	12.3	42.2	6.2	20.00
5	13.0	41.7	6.0	20.00
6	13.8	42.2	6.7	20.00
7	14.5	41.7	7.1	20.00
8	15.3	42.2	6.8	20.00
9	16.0	41.7	7.2	20.00
10	16.8	42.2	7.3	20.00
11	17.5	41.7	7.4	20.00
12	18.3	42.2	8.1	20.00
13	19.0	41.7	7.8	20.00
14	19.8	42.2	8.4	20.00
15	20.5	41.7	10.5	20.00
16	21.3	42.2	11.1	20.00
17	22.0	41.7	10.8	20.00
18	22.8	42.2	10.8	20.00
19	23.5	41.7	10.7	20.00
20	24.3	42.2	12.9	20.00
21	25.0	41.7	12.8	20.00
22	10.1	42.7	7.7	20.00
23	10.8	43.2	7.6	20.00
24	11.5	42.7	6.2	20.00
25	12.3	43.2	6.0	20.00
26	13.0	42.7	6.3	20.00
27	13.8	43.2	6.5	20.00
28	14.5	42.7	6.5	20.00
29	15.3	43.2	7.3	20.00
30	16.0	42.7	7.3	20.00
31	16.8	43.2	8.0	20.00
32	17.5	42.7	8.1	20.00
33	18.3	43.2	8.8	20.00
34	19.0	42.7	8.8	20.00
35	19.8	43.2	11.3	20.00
36	20.5	42.7	11.2	20.00
37	21.3	43.2	11.0	20.00
38	22.0	42.7	10.9	20.00
39	22.8	43.2	13.3	20.00
40	23.5	42.7	13.1	20.00
41	24.3	43.2	13.3	20.00
42	25.0	42.7	13.0	20.00
43	10.1	43.7	7.3	20.00
44	10.8	44.2	7.5	20.00
45	11.5	43.7	7.6	20.00
46	12.3	44.2	8.0	20.00
47	13.0	43.7	6.5	20.00
48	13.8	44.2	7.2	20.00
49	14.5	43.7	7.3	20.00
50	15.3	44.2	8.0	20.00
51	16.0	43.7	8.0	20.00
52	16.8	44.2	10.5	20.00
53	17.5	43.7	10.9	20.00
54	18.3	44.2	10.8	20.00
55	19.0	43.7	11.2	20.00
56	19.8	44.2	11.1	20.00
57	20.5	43.7	11.1	20.00
58	21.3	44.2	11.0	20.00
59	22.0	43.7	13.4	20.00
60	22.8	44.2	14.0	20.00
61	23.5	43.7	13.7	20.00
62	24.3	44.2	14.3	20.00
63	25.0	43.7	14.0	20.00
64	10.1	44.7	9.2	20.00
65	10.8	45.2	8.1	20.00
66	11.5	44.7	8.0	20.00
67	12.3	45.2	8.3	20.00
68	13.0	44.7	8.8	20.00
69	13.8	45.2	9.6	20.00
70	14.5	44.7	7.9	20.00
71	15.3	45.2	9.8	20.00
72	16.0	44.7	10.2	20.00
73	16.8	45.2	10.1	20.00

74	17.5	44.7	10.4	20.00
75	18.3	45.2	12.9	20.00
76	19.0	44.7	10.7	20.00
77	19.8	45.2	11.3	20.00
78	20.5	44.7	11.3	20.00
79	21.3	45.2	12.0	20.00
80	22.0	44.7	11.7	20.00
81	22.8	45.2	15.0	20.00
82	23.5	44.7	14.6	20.00
83	24.3	45.2	15.3	20.00
84	25.0	44.7	14.9	20.00
85	10.1	45.7	9.8	20.00
86	10.8	46.2	9.9	20.00
87	11.5	45.7	9.9	20.00
88	12.3	46.2	8.6	20.00
89	13.0	45.7	9.1	20.00
90	13.8	46.2	9.2	20.00
91	14.5	45.7	9.5	20.00
92	15.3	46.2	11.7	20.00
93	16.0	45.7	9.7	20.00
94	16.8	46.2	12.5	20.00
95	17.5	45.7	10.2	20.00
96	18.3	46.2	11.0	20.00
97	19.0	45.7	11.1	20.00
98	19.8	46.2	11.9	20.00
99	20.5	45.7	12.0	20.00
100	21.3	46.2	12.8	20.00
101	22.0	45.7	12.6	20.00
102	22.8	46.2	15.9	20.00
103	23.5	45.7	15.6	20.00
104	24.3	46.2	16.2	20.00
105	25.0	45.7	15.9	20.00
106	10.1	46.7	9.9	20.00
107	10.8	47.2	9.9	20.00
108	11.5	46.7	10.0	20.00
109	12.3	47.2	10.6	20.00
110	13.0	46.7	10.9	20.00
111	13.8	47.2	11.2	20.00
112	14.5	46.7	11.4	20.00
113	15.3	47.2	12.2	20.00
114	16.0	46.7	12.4	20.00
115	16.8	47.2	13.2	20.00
116	17.5	46.7	13.3	20.00
117	18.3	47.2	14.1	20.00
118	19.0	46.7	14.3	20.00
119	19.8	47.2	15.1	20.00
120	20.5	46.7	12.7	20.00
121	21.3	47.2	13.5	20.00
122	22.0	46.7	13.6	20.00
123	22.8	47.2	14.2	20.00
124	23.5	46.7	16.5	20.00
125	24.3	47.2	16.8	20.00
126	25.0	46.7	16.4	20.00
127	10.1	47.7	11.7	20.00
128	10.8	48.2	11.9	20.00
129	11.5	47.7	10.2	20.00
130	12.3	48.2	10.9	20.00
131	13.0	47.7	11.1	20.00
132	13.8	48.2	11.9	20.00
133	14.5	47.7	12.0	20.00
134	15.3	48.2	12.8	20.00
135	16.0	47.7	13.0	20.00
136	16.8	48.2	13.8	20.00
137	17.5	47.7	14.0	20.00
138	18.3	48.2	14.8	20.00
139	19.0	47.7	14.9	20.00
140	19.8	48.2	15.7	20.00
141	20.5	47.7	15.9	20.00
142	21.3	48.2	16.7	20.00
143	22.0	47.7	14.3	20.00
144	22.8	48.2	17.5	20.00
145	23.5	47.7	17.2	20.00
146	24.3	48.2	17.0	20.00
147	25.0	47.7	16.6	20.00
148	10.1	48.7	11.8	20.00
149	10.8	49.2	12.3	20.00
150	11.5	48.7	12.8	20.00
151	12.3	49.2	11.6	20.00

152	13.0	48.7	11.7	20.00
153	13.8	49.2	12.5	20.00
154	14.5	48.7	12.7	20.00
155	15.3	49.2	13.5	20.00
156	16.0	48.7	13.6	20.00
157	16.8	49.2	14.4	20.00
158	17.5	48.7	14.6	20.00
159	18.3	49.2	15.4	20.00
160	19.0	48.7	15.6	20.00
161	19.8	49.2	16.4	20.00
162	20.5	48.7	16.5	20.00
163	21.3	49.2	17.2	20.00
164	22.0	48.7	17.3	20.00
165	22.8	49.2	17.3	20.00
166	23.5	48.7	17.4	20.00
167	24.3	49.2	17.2	20.00
168	25.0	48.7	16.8	20.00
169	10.1	49.7	14.1	20.00
170	10.8	50.1	12.7	20.00
171	11.5	49.7	13.2	20.00
172	12.3	50.1	14.1	20.00
173	13.0	49.7	12.4	20.00
174	13.8	50.1	13.2	20.00
175	14.5	49.7	13.3	20.00
176	15.3	50.1	14.2	20.00
177	16.0	49.7	14.3	20.00
178	16.8	50.1	15.1	20.00
179	17.5	49.7	15.2	20.00
180	18.3	50.1	16.1	20.00
181	19.0	49.7	16.2	20.00
182	19.8	50.1	17.0	20.00
183	20.5	49.7	17.1	20.00
184	21.3	50.1	17.1	20.00
185	22.0	49.7	17.2	20.00
186	22.8	50.1	17.2	20.00
187	23.5	49.7	17.3	20.00
188	24.3	50.1	20.4	20.00
189	25.0	49.7	20.2	20.00
190	10.1	50.6	14.4	20.00
191	10.8	51.1	15.2	20.00
192	11.5	50.6	13.6	20.00
193	12.3	51.1	14.5	20.00
194	13.0	50.6	14.9	20.00
195	13.8	51.1	13.8	20.00
196	14.5	50.6	14.0	20.00
197	15.3	51.1	14.8	20.00
198	16.0	50.6	15.0	20.00
199	16.8	51.1	15.8	20.00
200	17.5	50.6	15.9	20.00
201	18.3	51.1	16.7	20.00
202	19.0	50.6	16.9	20.00
203	19.8	51.1	16.9	20.00
204	20.5	50.6	17.0	20.00
205	21.3	51.1	17.0	20.00
206	22.0	50.6	17.1	20.00
207	22.8	51.1	20.1	20.00
208	23.5	50.6	20.3	20.00
209	24.3	51.1	20.4	20.00
210	25.0	50.6	20.5	20.00
211	10.1	51.6	14.8	20.00
212	11.5	51.6	14.1	20.00
213	13.0	51.6	15.4	20.00
214	14.5	51.6	14.7	20.00
215	16.0	51.6	15.7	20.00
216	17.5	51.6	16.6	20.00
217	19.0	51.6	16.9	20.00
218	20.5	51.6	19.6	20.00
219	22.0	51.6	19.9	20.00
220	23.5	51.6	20.2	20.00
221	25.0	51.6	20.6	20.00

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VERIFICA DI STABILITA' – V2 – (Condizioni sismiche) – Pendio parte medio – alta – carico distribuito su tutti i piani pari a 64.72 KN/mq



Analisi di stabilità dei pendii con MORGENSTERN-PRICE

==========

Numero di strati	2.0
Numero dei conci	10.0
Fattore di sicurezza [R2]	1.3

Superficie di forma circolare

==========

Maglia dei Centri

==========

Ascissa vertice sinistro inferiore xi	20.31 m
Ordinata vertice sinistro inferiore yi	38.67 m
Ascissa vertice destro superiore xs	35.27 m
Ordinata vertice destro superiore ys	48.56 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

==========

Coefficienti sismici [N.T.C.]

==========

Dati generali

Descrizione:	
Latitudine:	43.85
Longitudine:	7.58
Tipo opera:	2 - Opere ordinarie
Classe d'uso:	Classe I
Vita nominale:	50.0 [anni]
Vita di riferimento:	35.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo:	A
Categoria topografica:	T2

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s²]	F0 [-]	TC* [sec]
S.L.O.	30.0	0.26	2.55	0.19
S.L.D.	35.0	0.3	2.57	0.2
S.L.V.	332.0	1.17	2.44	0.28
S.L.C.	682.0	1.6	2.47	0.3

Coefficienti sismici orizzontali e verticali

Opera: Opere di sostegno

S.L. Stato limite	amax [m/s²]	beta [-]	kh [-]	kv [sec]
S.L.O.	0.312	0.2	0.0064	0.0032
S.L.D.	0.36	0.2	0.0073	0.0037
S.L.V.	1.404	0.29	0.0415	0.0208
S.L.C.	1.92	0.29	0.0568	0.0284

Coefficiente azione sismica orizzontale 0.0064
Coefficiente azione sismica verticale 0.0032

Vertici profilo

N	X m	y m
1	-6.83	39.0
2	-2.39	38.59
3	-0.13	37.87
4	14.33	37.95
5	15.22	35.28
6	38.72	32.94
7	40.66	30.28
8	67.15	26.88
9	71.27	24.22
10	74.74	23.09
11	80.31	20.91
12	84.68	20.91
13	85.65	20.18

Vertici strato 1

N	X m	y m
1	-6.83	36.84
2	-1.58	36.25
3	18.61	32.29
4	40.66	27.85
5	71.43	21.96
6	85.65	17.08

Stratigrafia

c: coesione; Fi: Angolo di attrito; G: Peso Specifico; Gs: Peso Specifico Saturo; K: Modulo di Winkler

Strato	c (kN/m²)	Fi (°)	G (Kg/m³)	Gs (Kg/m³)	K (Kg/cm³)	Litologia	
1	0	36	1900	2100	0.00		Sabbia e ghiaie denso
2	0	45	2300	2500	0.00		Substrato roccioso

Carichi distribuiti

N°	xi m	yi m	xf m	yf m	Carico esterno (kN/m²)
1	0.12	37.95	12.12	38.01704	64.72
2	15.87	35.28	35.87	33.28687	64.72
3	41.87	30.19	61.87	27.62902	64.72

Risultati analisi pendio

==========

Fs minimo individuato 4.53
Ascissa centro superficie 20.31 m
Ordinata centro superficie 38.67 m
Raggio superficie 17.55 m

==========

Numero di superfici esaminate....(221)

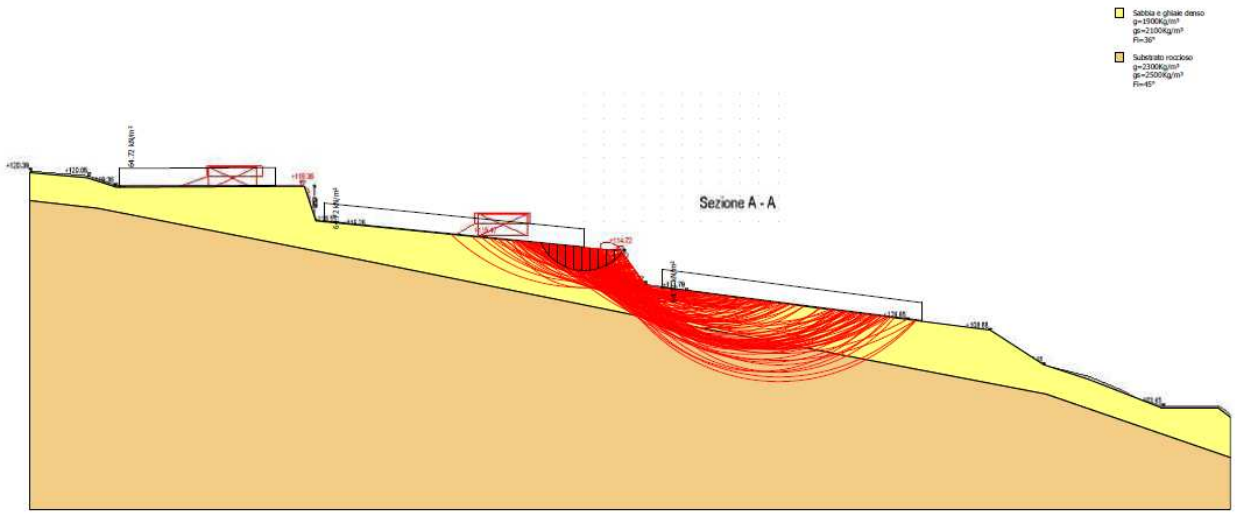
N°	Xo	Yo	Ro	Fs
1	20.3	38.7	17.6	4.53
2	21.1	39.2	7.5	20.00
3	21.8	38.7	9.1	20.00
4	22.6	39.2	9.4	20.00
5	23.3	38.7	9.1	20.00
6	24.0	39.2	11.3	20.00
7	24.8	38.7	11.2	20.00
8	25.5	39.2	11.2	20.00
9	26.3	38.7	13.1	20.00
10	27.0	39.2	13.6	20.00
11	27.8	38.7	13.2	20.00
12	28.5	39.2	13.8	20.00
13	29.3	38.7	11.2	20.00
14	30.0	39.2	11.7	20.00
15	30.8	38.7	11.2	20.00
16	31.5	39.2	11.5	20.00
17	32.3	38.7	9.1	20.00
18	33.0	39.2	9.0	20.00
19	33.8	38.7	9.0	20.00
20	34.5	39.2	9.1	20.00
21	35.3	38.7	8.8	20.00
22	20.3	39.7	18.4	4.88
23	21.1	40.2	9.5	20.00
24	21.8	39.7	9.5	20.00
25	22.6	40.2	9.3	20.00
26	23.3	39.7	9.2	20.00
27	24.0	40.2	11.9	20.00
28	24.8	39.7	11.5	20.00
29	25.5	40.2	12.1	20.00
30	26.3	39.7	14.0	20.00
31	27.0	40.2	14.5	20.00
32	27.8	39.7	14.1	20.00
33	28.5	40.2	14.3	20.00
34	29.3	39.7	11.9	20.00
35	30.0	40.2	11.8	20.00
36	30.8	39.7	11.7	20.00
37	31.5	40.2	11.7	20.00
38	32.3	39.7	11.4	20.00
39	33.0	40.2	9.5	20.00
40	33.8	39.7	9.1	20.00
41	34.5	40.2	9.8	20.00
42	35.3	39.7	7.6	20.00
43	20.3	40.7	9.6	20.00
44	21.1	41.1	10.0	20.00
45	21.8	40.7	9.7	20.00
46	22.6	41.1	10.3	20.00
47	23.3	40.7	10.0	20.00
48	24.0	41.1	12.9	20.00
49	24.8	40.7	12.5	20.00
50	25.5	41.1	12.7	20.00
51	26.3	40.7	12.5	20.00
52	27.0	41.1	14.8	20.00
53	27.8	40.7	14.5	20.00
54	28.5	41.1	17.0	20.00
55	29.3	40.7	14.3	20.00
56	30.0	41.1	12.4	20.00
57	30.8	40.7	12.0	20.00
58	31.5	41.1	12.6	20.00
59	32.3	40.7	12.2	20.00
60	33.0	41.1	12.2	20.00
61	33.8	40.7	9.8	20.00
62	34.5	41.1	10.6	20.00
63	35.3	40.7	10.5	20.00
64	20.3	41.6	10.4	20.00
65	21.1	42.1	11.0	20.00
66	21.8	41.6	10.6	20.00
67	22.6	42.1	10.9	20.00
68	23.3	41.6	10.8	20.00
69	24.0	42.1	13.0	20.00
70	24.8	41.6	12.8	20.00
71	25.5	42.1	12.7	20.00
72	26.3	41.6	15.0	20.00
73	27.0	42.1	15.3	20.00

74	27.8	41.6	14.9	20.00
75	28.5	42.1	15.5	20.00
76	29.3	41.6	15.1	20.00
77	30.0	42.1	13.3	20.00
78	30.8	41.6	13.0	20.00
79	31.5	42.1	12.8	20.00
80	32.3	41.6	12.4	20.00
81	33.0	42.1	13.0	20.00
82	33.8	41.6	10.6	20.00
83	34.5	42.1	11.3	20.00
84	35.3	41.6	11.3	20.00
85	20.3	42.6	11.3	20.00
86	21.1	43.1	11.0	20.00
87	21.8	42.6	10.9	20.00
88	22.6	43.1	13.3	20.00
89	23.3	42.6	13.1	20.00
90	24.0	43.1	13.2	20.00
91	24.8	42.6	12.9	20.00
92	25.5	43.1	13.5	20.00
93	26.3	42.6	15.7	20.00
94	27.0	43.1	16.2	20.00
95	27.8	42.6	15.9	20.00
96	28.5	43.1	16.5	20.00
97	29.3	42.6	13.7	20.00
98	30.0	43.1	13.6	20.00
99	30.8	42.6	13.2	20.00
100	31.5	43.1	13.2	20.00
101	32.3	42.6	13.1	20.00
102	33.0	43.1	13.8	20.00
103	33.8	42.6	11.3	20.00
104	34.5	43.1	12.0	20.00
105	35.3	42.6	12.0	20.00
106	20.3	43.6	11.1	20.00
107	21.1	44.1	10.9	20.00
108	21.8	43.6	10.8	20.00
109	22.6	44.1	13.9	20.00
110	23.3	43.6	13.5	20.00
111	24.0	44.1	14.2	20.00
112	24.8	43.6	13.8	20.00
113	25.5	44.1	14.4	20.00
114	26.3	43.6	14.1	20.00
115	27.0	44.1	17.2	20.00
116	27.8	43.6	16.8	20.00
117	28.5	44.1	17.0	20.00
118	29.3	43.6	16.6	20.00
119	30.0	44.1	16.5	20.00
120	30.8	43.6	13.4	20.00
121	31.5	44.1	14.0	20.00
122	32.3	43.6	13.9	20.00
123	33.0	44.1	14.6	20.00
124	33.8	43.6	12.1	20.00
125	34.5	44.1	12.8	20.00
126	35.3	43.6	12.6	20.00
127	20.3	44.6	11.2	20.00
128	21.1	45.1	11.8	20.00
129	21.8	44.6	11.5	20.00
130	22.6	45.1	14.8	20.00
131	23.3	44.6	14.5	20.00
132	24.0	45.1	15.1	20.00
133	24.8	44.6	14.8	20.00
134	25.5	45.1	15.4	20.00
135	26.3	44.6	15.0	20.00
136	27.0	45.1	17.8	20.00
137	27.8	44.6	17.4	20.00
138	28.5	45.1	17.4	20.00
139	29.3	44.6	16.9	20.00
140	30.0	45.1	17.0	20.00
141	30.8	44.6	16.8	20.00
142	31.5	45.1	14.8	20.00
143	32.3	44.6	14.7	20.00
144	33.0	45.1	15.4	20.00
145	33.8	44.6	12.8	20.00
146	34.5	45.1	15.3	20.00
147	35.3	44.6	12.5	20.00
148	20.3	45.6	11.8	20.00
149	21.1	46.1	12.6	20.00
150	21.8	45.6	12.5	20.00
151	22.6	46.1	13.1	20.00

152	23.3	45.6	15.5	20.00
153	24.0	46.1	16.1	20.00
154	24.8	45.6	15.7	20.00
155	25.5	46.1	16.1	20.00
156	26.3	45.6	15.6	20.00
157	27.0	46.1	18.2	20.00
158	27.8	45.6	17.8	20.00
159	28.5	46.1	17.7	20.00
160	29.3	45.6	20.1	20.00
161	30.0	46.1	20.6	20.00
162	30.8	45.6	17.6	20.00
163	31.5	46.1	15.6	20.00
164	32.3	45.6	15.5	20.00
165	33.0	46.1	15.8	20.00
166	33.8	45.6	15.6	20.00
167	34.5	46.1	15.4	20.00
168	35.3	45.6	15.1	20.00
169	20.3	46.6	12.5	20.00
170	21.1	47.1	13.3	20.00
171	21.8	46.6	13.4	20.00
172	22.6	47.1	14.1	20.00
173	23.3	46.6	16.4	20.00
174	24.0	47.1	16.9	20.00
175	24.8	46.6	16.5	20.00
176	25.5	47.1	16.3	20.00
177	26.3	46.6	15.9	20.00
178	27.0	47.1	18.6	20.00
179	27.8	46.6	18.1	20.00
180	28.5	47.1	18.1	20.00
181	29.3	46.6	20.9	20.00
182	30.0	47.1	21.5	20.00
183	30.8	46.6	18.4	20.00
184	31.5	47.1	16.3	20.00
185	32.3	46.6	16.0	20.00
186	33.0	47.1	15.9	20.00
187	33.8	46.6	15.6	20.00
188	34.5	47.1	15.5	20.00
189	35.3	46.6	15.2	20.00
190	20.3	47.6	15.7	20.00
191	21.1	48.1	16.5	20.00
192	21.8	47.6	14.1	20.00
193	22.6	48.1	14.8	20.00
194	23.3	47.6	17.3	20.00
195	24.0	48.1	17.1	20.00
196	24.8	47.6	16.7	20.00
197	25.5	48.1	16.5	20.00
198	26.3	47.6	19.0	20.00
199	27.0	48.1	18.9	20.00
200	27.8	47.6	18.5	20.00
201	28.5	48.1	19.0	20.00
202	29.3	47.6	18.8	20.00
203	30.0	48.1	22.4	20.00
204	30.8	47.6	22.1	20.00
205	31.5	48.1	19.3	20.00
206	32.3	47.6	16.1	20.00
207	33.0	48.1	19.0	20.00
208	33.8	47.6	15.7	20.00
209	34.5	48.1	18.7	20.00
210	35.3	47.6	15.4	20.00
211	20.3	48.6	16.3	20.00
212	21.8	48.6	17.3	20.00
213	23.3	48.6	17.4	20.00
214	24.8	48.6	16.9	20.00
215	26.3	48.6	19.3	20.00
216	27.8	48.6	19.1	20.00
217	29.3	48.6	19.6	20.00
218	30.8	48.6	22.6	20.00
219	32.3	48.6	19.3	20.00
220	33.8	48.6	19.0	20.00
221	35.3	48.6	16.3	20.00

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VERIFICA DI STABILITA' – V3 – (Condizioni sismiche) – Pendio parte medio – bassa – carico distribuito su tutti i piani pari a 64.72 KN/mq



Analisi di stabilità dei pendii con MORGENSTERN-PRICE

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Numero di strati	2.0
Numero dei conci	10.0
Fattore di sicurezza [R2]	1.3

Superficie di forma circolare

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Maglia dei Centri

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Ascissa vertice sinistro inferiore xi	35.89 m
Ordinata vertice sinistro inferiore yi	35.2 m
Ascissa vertice destro superiore xs	50.86 m
Ordinata vertice destro superiore ys	45.09 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

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Coefficienti sismici [N.T.C.]

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Dati generali

Descrizione:	
Latitudine:	43.85
Longitudine:	7.58
Tipo opera:	2 - Opere ordinarie
Classe d'uso:	Classe I
Vita nominale:	50.0 [anni]
Vita di riferimento:	35.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo:	A
Categoria topografica:	T2

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s²]	F0 [-]	TC* [sec]
S.L.O.	30.0	0.26	2.55	0.19
S.L.D.	35.0	0.3	2.57	0.2
S.L.V.	332.0	1.17	2.44	0.28
S.L.C.	682.0	1.6	2.47	0.3

Coefficienti sismici orizzontali e verticali

Opera: Opere di sostegno

S.L. Stato limite	amax [m/s²]	beta [-]	kh [-]	kv [sec]
S.L.O.	0.312	0.2	0.0064	0.0032
S.L.D.	0.36	0.2	0.0073	0.0037
S.L.V.	1.404	0.29	0.0415	0.0208
S.L.C.	1.92	0.29	0.0568	0.0284

Coefficiente azione sismica orizzontale 0.0064
Coefficiente azione sismica verticale 0.0032

Vertici profilo

N	X m	y m
1	-6.83	39.0
2	-2.39	38.59
3	-0.13	37.87
4	14.33	37.95
5	15.22	35.28
6	38.72	32.94
7	40.66	30.28
8	67.15	26.88
9	71.27	24.22
10	74.74	23.09
11	80.31	20.91
12	84.68	20.91
13	85.65	20.18

Vertici strato 1

N	X m	y m
1	-6.83	36.84
2	-1.58	36.25
3	18.61	32.29
4	40.66	27.85
5	71.43	21.96
6	85.65	17.08

Stratigrafia

c: coesione; Fi: Angolo di attrito; G: Peso Specifico; Gs: Peso Specifico Saturo; K: Modulo di Winkler

Strato	c (kN/m²)	Fi (°)	G (Kg/m³)	Gs (Kg/m³)	K (Kg/cm³)	Litologia	
1	0	36	1900	2100	0.00		Sabbia e ghiaie denso
2	0	45	2300	2500	0.00		Substrato roccioso

Carichi distribuiti

N°	xi m	yi m	xf m	yf m	Carico esterno (kN/m²)
1	0.12	37.95	12.12	38.01704	64.72
2	15.87	35.28	35.87	33.28687	64.72
3	41.87	30.19	61.87	27.62902	64.72

Risultati analisi pendio

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Fs minimo individuato 20.0
Ascissa centro superficie 35.89 m
Ordinata centro superficie 35.2 m
Raggio superficie 3.73 m

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Numero di superfici esaminate....(221)

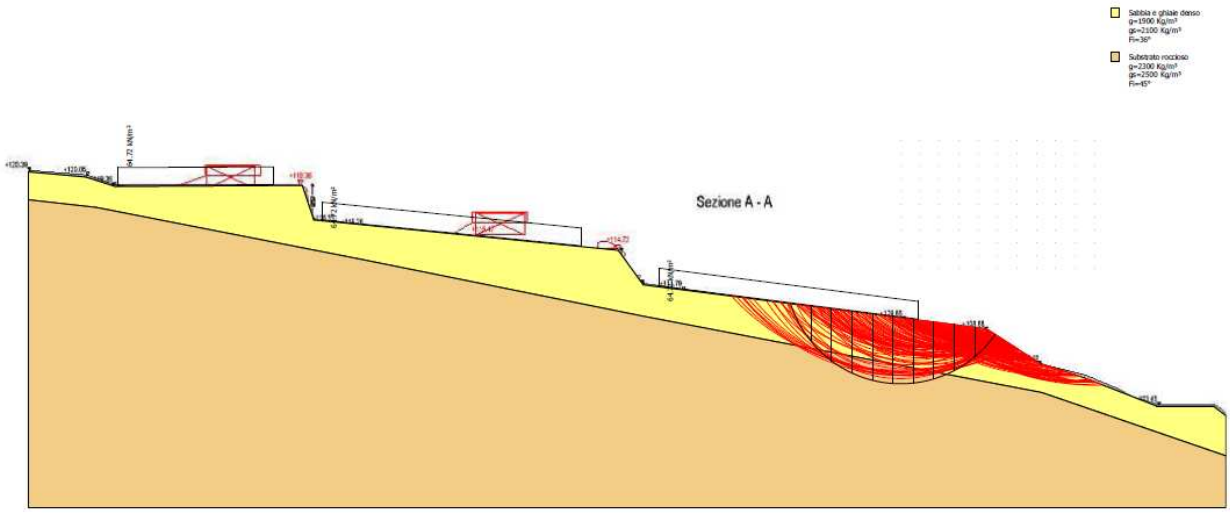
N°	Xo	Yo	Ro	Fs
1	35.9	35.2	3.7	20.00
2	36.6	35.7	3.8	20.00
3	37.4	35.2	3.7	20.00
4	38.1	35.7	4.3	20.00
5	38.9	35.2	3.9	20.00
6	39.6	35.7	4.5	20.00
7	40.4	35.2	5.8	20.00
8	41.1	35.7	6.0	20.00
9	41.9	35.2	5.9	20.00
10	42.6	35.7	7.5	20.00
11	43.4	35.2	7.4	20.00
12	44.1	35.7	7.9	20.00
13	44.9	35.2	7.6	20.00
14	45.6	35.7	8.2	20.00
15	46.4	35.2	7.9	20.00
16	47.1	35.7	8.5	20.00
17	47.9	35.2	9.7	20.00
18	48.6	35.7	10.3	20.00
19	49.4	35.2	11.5	20.00
20	50.1	35.7	12.0	20.00
21	50.9	35.2	11.6	20.00
22	35.9	36.2	6.0	20.00
23	36.6	36.7	4.4	20.00
24	37.4	36.2	4.5	20.00
25	38.1	36.7	6.4	20.00
26	38.9	36.2	4.5	20.00
27	39.6	36.7	6.0	20.00
28	40.4	36.2	6.0	20.00
29	41.1	36.7	6.2	20.00
30	41.9	36.2	7.9	20.00
31	42.6	36.7	8.5	20.00
32	43.4	36.2	8.2	20.00
33	44.1	36.7	8.8	20.00
34	44.9	36.2	8.5	20.00
35	45.6	36.7	8.8	20.00
36	46.4	36.2	8.8	20.00
37	47.1	36.7	10.6	20.00
38	47.9	36.2	10.6	20.00
39	48.6	36.7	10.6	20.00
40	49.4	36.2	10.6	20.00
41	50.1	36.7	12.3	20.00
42	50.9	36.2	12.0	20.00
43	35.9	37.2	6.2	20.00
44	36.6	37.7	6.4	20.00
45	37.4	37.2	6.4	20.00
46	38.1	37.7	6.4	20.00
47	38.9	37.2	6.1	20.00
48	39.6	37.7	6.5	20.00
49	40.4	37.2	6.5	20.00
50	41.1	37.7	8.6	20.00
51	41.9	37.2	8.7	20.00
52	42.6	37.7	8.6	20.00
53	43.4	37.2	8.7	20.00
54	44.1	37.7	8.6	20.00
55	44.9	37.2	8.7	20.00
56	45.6	37.7	10.6	20.00
57	46.4	37.2	10.6	20.00
58	47.1	37.7	10.6	20.00
59	47.9	37.2	10.6	20.00
60	48.6	37.7	12.6	20.00
61	49.4	37.2	12.5	20.00
62	50.1	37.7	12.5	20.00
63	50.9	37.2	14.3	20.00
64	35.9	38.2	6.4	20.00
65	36.6	38.7	6.9	20.00
66	37.4	38.2	6.4	20.00
67	38.1	38.7	6.9	20.00
68	38.9	38.2	6.4	20.00
69	39.6	38.7	6.9	20.00
70	40.4	38.2	8.5	20.00
71	41.1	38.7	9.0	20.00
72	41.9	38.2	8.5	20.00
73	42.6	38.7	9.0	20.00

74	43.4	38.2	8.5	20.00
75	44.1	38.7	11.2	20.00
76	44.9	38.2	10.7	20.00
77	45.6	38.7	11.1	20.00
78	46.4	38.2	10.7	20.00
79	47.1	38.7	11.1	20.00
80	47.9	38.2	12.8	20.00
81	48.6	38.7	13.1	20.00
82	49.4	38.2	12.8	20.00
83	50.1	38.7	13.3	20.00
84	50.9	38.2	14.9	20.00
85	35.9	39.2	7.2	20.00
86	36.6	39.7	7.9	20.00
87	37.4	39.2	7.4	20.00
88	38.1	39.7	7.9	20.00
89	38.9	39.2	7.4	20.00
90	39.6	39.7	7.9	20.00
91	40.4	39.2	9.5	20.00
92	41.1	39.7	10.0	20.00
93	41.9	39.2	9.5	20.00
94	42.6	39.7	10.0	20.00
95	43.4	39.2	9.5	20.00
96	44.1	39.7	10.0	20.00
97	44.9	39.2	11.6	20.00
98	45.6	39.7	11.9	20.00
99	46.4	39.2	11.6	20.00
100	47.1	39.7	11.5	20.00
101	47.9	39.2	13.4	20.00
102	48.6	39.7	13.9	20.00
103	49.4	39.2	13.6	20.00
104	50.1	39.7	14.2	20.00
105	50.9	39.2	13.8	20.00
106	35.9	40.1	8.2	20.00
107	36.6	40.6	8.8	20.00
108	37.4	40.1	8.4	20.00
109	38.1	40.6	8.9	20.00
110	38.9	40.1	8.4	20.00
111	39.6	40.6	8.9	20.00
112	40.4	40.1	8.4	20.00
113	41.1	40.6	11.0	20.00
114	41.9	40.1	10.5	20.00
115	42.6	40.6	10.6	20.00
116	43.4	40.1	10.4	20.00
117	44.1	40.6	12.3	20.00
118	44.9	40.1	12.1	20.00
119	45.6	40.6	11.9	20.00
120	46.4	40.1	11.7	20.00
121	47.1	40.6	14.5	20.00
122	47.9	40.1	14.2	20.00
123	48.6	40.6	14.8	20.00
124	49.4	40.1	14.5	20.00
125	50.1	40.6	15.2	20.00
126	50.9	40.1	14.7	20.00
127	35.9	41.1	9.0	20.00
128	36.6	41.6	9.8	20.00
129	37.4	41.1	9.4	20.00
130	38.1	41.6	9.8	20.00
131	38.9	41.1	9.4	20.00
132	39.6	41.6	11.4	20.00
133	40.4	41.1	11.2	20.00
134	41.1	41.6	10.9	20.00
135	41.9	41.1	10.7	20.00
136	42.6	41.6	12.8	20.00
137	43.4	41.1	12.6	20.00
138	44.1	41.6	12.4	20.00
139	44.9	41.1	12.2	20.00
140	45.6	41.6	12.7	20.00
141	46.4	41.1	12.5	20.00
142	47.1	41.6	13.1	20.00
143	47.9	41.1	15.1	20.00
144	48.6	41.6	15.8	20.00
145	49.4	41.1	15.5	20.00
146	50.1	41.6	16.1	20.00
147	50.9	41.1	15.7	20.00
148	35.9	42.1	9.7	20.00
149	36.6	42.6	10.1	20.00
150	37.4	42.1	9.9	20.00
151	38.1	42.6	11.8	20.00

152	38.9	42.1	11.6	20.00
153	39.6	42.6	11.3	20.00
154	40.4	42.1	11.1	20.00
155	41.1	42.6	13.3	20.00
156	41.9	42.1	13.1	20.00
157	42.6	42.6	12.9	20.00
158	43.4	42.1	12.7	20.00
159	44.1	42.6	13.2	20.00
160	44.9	42.1	13.0	20.00
161	45.6	42.6	13.6	20.00
162	46.4	42.1	13.4	20.00
163	47.1	42.6	14.0	20.00
164	47.9	42.1	16.1	20.00
165	48.6	42.6	16.7	20.00
166	49.4	42.1	16.4	20.00
167	50.1	42.6	16.8	20.00
168	50.9	42.1	16.5	20.00
169	35.9	43.1	12.5	20.00
170	36.6	43.6	12.2	20.00
171	37.4	43.1	12.0	20.00
172	38.1	43.6	11.7	20.00
173	38.9	43.1	11.5	20.00
174	39.6	43.6	13.8	20.00
175	40.4	43.1	13.6	20.00
176	41.1	43.6	13.4	20.00
177	41.9	43.1	13.2	20.00
178	42.6	43.6	13.7	20.00
179	43.4	43.1	13.5	20.00
180	44.1	43.6	14.1	20.00
181	44.9	43.1	13.9	20.00
182	45.6	43.6	14.5	20.00
183	46.4	43.1	14.3	20.00
184	47.1	43.6	14.9	20.00
185	47.9	43.1	17.0	20.00
186	48.6	43.6	17.4	20.00
187	49.4	43.1	17.1	20.00
188	50.1	43.6	17.1	20.00
189	50.9	43.1	16.7	20.00
190	35.9	44.1	12.4	20.00
191	36.6	44.6	12.1	20.00
192	37.4	44.1	11.9	20.00
193	38.1	44.6	14.3	20.00
194	38.9	44.1	14.0	20.00
195	39.6	44.6	13.9	20.00
196	40.4	44.1	13.6	20.00
197	41.1	44.6	14.2	20.00
198	41.9	44.1	14.0	20.00
199	42.6	44.6	14.6	20.00
200	43.4	44.1	14.4	20.00
201	44.1	44.6	15.0	20.00
202	44.9	44.1	14.8	20.00
203	45.6	44.6	15.4	20.00
204	46.4	44.1	15.2	20.00
205	47.1	44.6	18.0	20.00
206	47.9	44.1	17.7	20.00
207	48.6	44.6	17.7	20.00
208	49.4	44.1	17.4	20.00
209	50.1	44.6	17.3	20.00
210	50.9	44.1	19.6	20.00
211	35.9	45.1	14.9	20.00
212	37.4	45.1	14.5	20.00
213	38.9	45.1	14.1	20.00
214	40.4	45.1	14.5	20.00
215	41.9	45.1	14.9	20.00
216	43.4	45.1	15.3	20.00
217	44.9	45.1	15.7	20.00
218	46.4	45.1	15.9	20.00
219	47.9	45.1	18.0	20.00
220	49.4	45.1	17.6	20.00
221	50.9	45.1	20.0	20.00

==========

VERIFICA DI STABILITA' – V4 – (Condizioni sismiche) – Pendio parte bassa – carico distribuito su tutti i piani pari a 64.72 KN/mq



Analisi di stabilità dei pendii con MORGENSTERN-PRICE

==========

Numero di strati	2.0
Numero dei conci	10.0
Fattore di sicurezza [R2]	1.3

Superficie di forma circolare

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Maglia dei Centri

==========

Ascissa vertice sinistro inferiore xi	60.53 m
Ordinata vertice sinistro inferiore yi	31.57 m
Ascissa vertice destro superiore xs	75.49 m
Ordinata vertice destro superiore ys	41.46 m
Passo di ricerca	10.0
Numero di celle lungo x	10.0
Numero di celle lungo y	10.0

==========

Coefficienti sismici [N.T.C.]

==========

Dati generali

Descrizione:	
Latitudine:	43.85
Longitudine:	7.58
Tipo opera:	2 - Opere ordinarie
Classe d'uso:	Classe I
Vita nominale:	50.0 [anni]
Vita di riferimento:	35.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo:	A
Categoria topografica:	T2

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s²]	F0 [-]	TC* [sec]
S.L.O.	30.0	0.26	2.55	0.19
S.L.D.	35.0	0.3	2.57	0.2
S.L.V.	332.0	1.17	2.44	0.28
S.L.C.	682.0	1.6	2.47	0.3

Coefficienti sismici orizzontali e verticali

Opera: Opere di sostegno

S.L. Stato limite	amax [m/s²]	beta [-]	kh [-]	kv [sec]
S.L.O.	0.312	0.2	0.0064	0.0032
S.L.D.	0.36	0.2	0.0073	0.0037
S.L.V.	1.404	0.29	0.0415	0.0208
S.L.C.	1.92	0.29	0.0568	0.0284

Coefficiente azione sismica orizzontale 0.0064
Coefficiente azione sismica verticale 0.0032

Vertici profilo

N	X m	y m
1	-6.83	39.0
2	-2.39	38.59
3	-0.13	37.87
4	14.33	37.95
5	15.22	35.28
6	38.72	32.94
7	40.66	30.28
8	67.15	26.88
9	71.27	24.22
10	74.74	23.09
11	80.31	20.91
12	84.68	20.91
13	85.65	20.18

Vertici strato 1

N	X m	y m
1	-6.83	36.84
2	-1.58	36.25
3	18.61	32.29
4	40.66	27.85
5	71.43	21.96
6	85.65	17.08

Stratigrafia

c: coesione; Fi: Angolo di attrito; G: Peso Specifico; Gs: Peso Specifico Saturo; K: Modulo di Winkler

Strato	c (kN/m²)	Fi (°)	G (Kg/m³)	Gs (Kg/m³)	K (Kg/cm³)	Litologia	
1	0	36	1900	2100	0.00		Sabbia e ghiaie denso
2	0	45	2300	2500	0.00		Substrato roccioso

Carichi distribuiti

N°	xi m	yi m	xf m	yf m	Carico esterno (kN/m²)
1	0.12	37.95	12.12	38.01704	64.72
2	15.87	35.28	35.87	33.28687	64.72
3	41.87	30.19	61.87	27.62902	64.72

Risultati analisi pendio

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Fs minimo individuato 20.0
Ascissa centro superficie 60.53 m
Ordinata centro superficie 31.57 m
Raggio superficie 8.93 m

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Numero di superfici esaminate....(221)

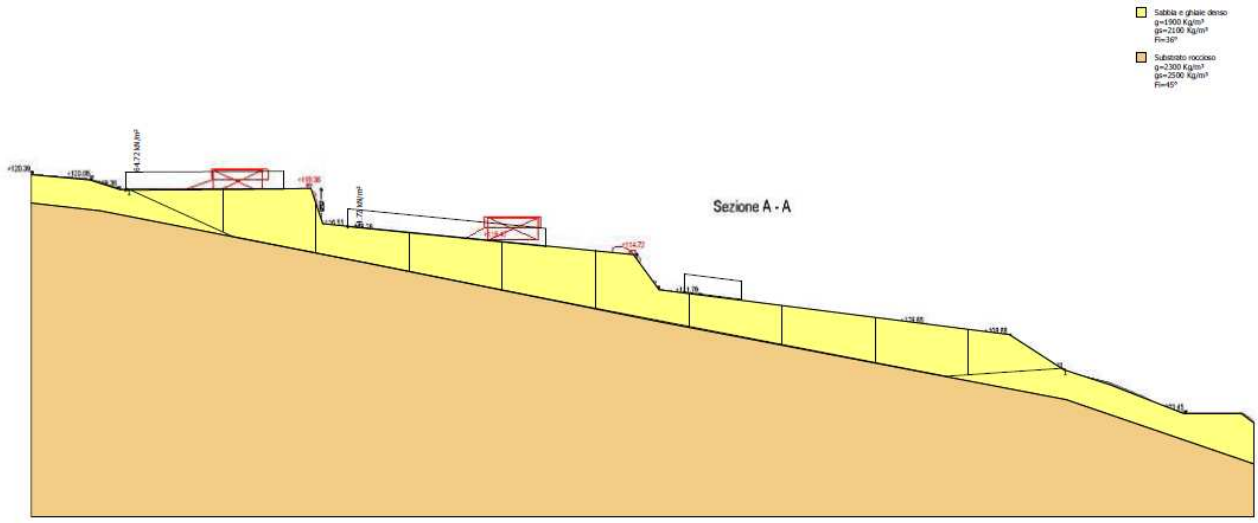
N°	Xo	Yo	Ro	Fs
1	60.5	31.6	8.9	20.00
2	61.3	32.1	7.9	20.00
3	62.0	31.6	7.8	20.00
4	62.8	32.1	7.9	20.00
5	63.5	31.6	6.5	20.00
6	64.3	32.1	6.3	20.00
7	65.0	31.6	6.4	20.00
8	65.8	32.1	6.3	20.00
9	66.5	31.6	6.3	20.00
10	67.3	32.1	6.2	20.00
11	68.0	31.6	6.2	20.00
12	68.8	32.1	7.6	20.00
13	69.5	31.6	6.2	20.00
14	70.3	32.1	7.6	20.00
15	71.0	31.6	7.5	20.00
16	71.8	32.1	7.7	20.00
17	72.5	31.6	7.4	20.00
18	73.2	32.1	9.2	20.00
19	74.0	31.6	8.8	20.00
20	74.7	32.1	9.3	20.00
21	75.5	31.6	8.8	20.00
22	60.5	32.6	9.5	20.00
23	61.3	33.1	9.8	20.00
24	62.0	32.6	7.9	20.00
25	62.8	33.1	8.3	20.00
26	63.5	32.6	7.8	20.00
27	64.3	33.1	8.3	20.00
28	65.0	32.6	6.3	20.00
29	65.8	33.1	6.8	20.00
30	66.5	32.6	6.4	20.00
31	67.3	33.1	6.9	20.00
32	68.0	32.6	6.5	20.00
33	68.8	33.1	8.2	20.00
34	69.5	32.6	7.9	20.00
35	70.3	33.1	8.6	20.00
36	71.0	32.6	8.1	20.00
37	71.8	33.1	8.7	20.00
38	72.5	32.6	8.2	20.00
39	73.2	33.1	10.2	20.00
40	74.0	32.6	9.8	20.00
41	74.7	33.1	10.3	20.00
42	75.5	32.6	9.8	20.00
43	60.5	33.5	10.3	20.00
44	61.3	34.0	10.8	20.00
45	62.0	33.5	8.7	20.00
46	62.8	34.0	9.2	20.00
47	63.5	33.5	8.8	20.00
48	64.3	34.0	7.8	20.00
49	65.0	33.5	7.3	20.00
50	65.8	34.0	7.4	20.00
51	66.5	33.5	7.1	20.00
52	67.3	34.0	8.6	20.00
53	68.0	33.5	8.4	20.00
54	68.8	34.0	9.0	20.00
55	69.5	33.5	8.8	20.00
56	70.3	34.0	9.5	20.00
57	71.0	33.5	9.1	20.00
58	71.8	34.0	9.7	20.00
59	72.5	33.5	9.2	20.00
60	73.2	34.0	11.2	20.00
61	74.0	33.5	10.7	20.00
62	74.7	34.0	11.3	20.00
63	75.5	33.5	10.8	20.00
64	60.5	34.5	11.2	20.00
65	61.3	35.0	10.2	20.00
66	62.0	34.5	9.7	20.00
67	62.8	35.0	10.0	20.00
68	63.5	34.5	9.7	20.00
69	64.3	35.0	9.5	20.00
70	65.0	34.5	9.3	20.00
71	65.8	35.0	9.1	20.00
72	66.5	34.5	8.8	20.00
73	67.3	35.0	9.5	20.00

74	68.0	34.5	9.3	20.00
75	68.8	35.0	9.9	20.00
76	69.5	34.5	9.7	20.00
77	70.3	35.0	10.4	20.00
78	71.0	34.5	10.1	20.00
79	71.8	35.0	10.6	20.00
80	72.5	34.5	10.2	20.00
81	73.2	35.0	10.7	20.00
82	74.0	34.5	11.7	20.00
83	74.7	35.0	12.2	20.00
84	75.5	34.5	11.8	20.00
85	60.5	35.5	12.2	20.00
86	61.3	36.0	12.2	20.00
87	62.0	35.5	10.3	20.00
88	62.8	36.0	11.9	20.00
89	63.5	35.5	9.8	20.00
90	64.3	36.0	9.6	20.00
91	65.0	35.5	9.4	20.00
92	65.8	36.0	9.9	20.00
93	66.5	35.5	9.7	20.00
94	67.3	36.0	10.4	20.00
95	68.0	35.5	10.2	20.00
96	68.8	36.0	10.7	20.00
97	69.5	35.5	10.6	20.00
98	70.3	36.0	10.7	20.00
99	71.0	35.5	10.7	20.00
100	71.8	36.0	12.4	20.00
101	72.5	35.5	12.3	20.00
102	73.2	36.0	12.4	20.00
103	74.0	35.5	12.3	20.00
104	74.7	36.0	12.4	20.00
105	75.5	35.5	12.1	20.00
106	60.5	36.5	12.4	20.00
107	61.3	37.0	12.5	20.00
108	62.0	36.5	12.2	20.00
109	62.8	37.0	12.2	20.00
110	63.5	36.5	11.8	20.00
111	64.3	37.0	12.3	20.00
112	65.0	36.5	10.1	20.00
113	65.8	37.0	10.7	20.00
114	66.5	36.5	10.6	20.00
115	67.3	37.0	10.7	20.00
116	68.0	36.5	10.7	20.00
117	68.8	37.0	12.6	20.00
118	69.5	36.5	10.7	20.00
119	70.3	37.0	12.6	20.00
120	71.0	36.5	12.5	20.00
121	71.8	37.0	12.6	20.00
122	72.5	36.5	12.5	20.00
123	73.2	37.0	12.6	20.00
124	74.0	36.5	12.5	20.00
125	74.7	37.0	14.4	20.00
126	75.5	36.5	14.0	20.00
127	60.5	37.5	12.6	20.00
128	61.3	38.0	12.7	20.00
129	62.0	37.5	12.5	20.00
130	62.8	38.0	12.7	20.00
131	63.5	37.5	12.6	20.00
132	64.3	38.0	12.7	20.00
133	65.0	37.5	12.6	20.00
134	65.8	38.0	12.7	20.00
135	66.5	37.5	10.7	20.00
136	67.3	38.0	12.8	20.00
137	68.0	37.5	12.7	20.00
138	68.8	38.0	12.8	20.00
139	69.5	37.5	12.7	20.00
140	70.3	38.0	12.8	20.00
141	71.0	37.5	12.7	20.00
142	71.8	38.0	12.8	20.00
143	72.5	37.5	12.7	20.00
144	73.2	38.0	14.8	20.00
145	74.0	37.5	14.7	20.00
146	74.7	38.0	14.7	20.00
147	75.5	37.5	14.3	20.00
148	60.5	38.5	15.2	20.00
149	61.3	39.0	15.6	20.00
150	62.0	38.5	13.1	20.00
151	62.8	39.0	13.6	20.00

152	63.5	38.5	13.1	20.00
153	64.3	39.0	13.5	20.00
154	65.0	38.5	13.1	20.00
155	65.8	39.0	13.5	20.00
156	66.5	38.5	13.1	20.00
157	67.3	39.0	13.5	20.00
158	68.0	38.5	13.0	20.00
159	68.8	39.0	13.5	20.00
160	69.5	38.5	13.0	20.00
161	70.3	39.0	13.5	20.00
162	71.0	38.5	13.0	20.00
163	71.8	39.0	15.7	20.00
164	72.5	38.5	15.2	20.00
165	73.2	39.0	15.7	20.00
166	74.0	38.5	15.2	20.00
167	74.7	39.0	15.4	20.00
168	75.5	38.5	14.7	20.00
169	60.5	39.5	15.9	20.00
170	61.3	40.0	16.5	20.00
171	62.0	39.5	14.0	20.00
172	62.8	40.0	14.5	20.00
173	63.5	39.5	14.0	20.00
174	64.3	40.0	14.5	20.00
175	65.0	39.5	14.0	20.00
176	65.8	40.0	14.5	20.00
177	66.5	39.5	14.0	20.00
178	67.3	40.0	14.5	20.00
179	68.0	39.5	14.0	20.00
180	68.8	40.0	14.5	20.00
181	69.5	39.5	14.0	20.00
182	70.3	40.0	14.5	20.00
183	71.0	39.5	14.0	20.00
184	71.8	40.0	14.5	20.00
185	72.5	39.5	16.2	20.00
186	73.2	40.0	16.7	20.00
187	74.0	39.5	16.1	20.00
188	74.7	40.0	16.3	20.00
189	75.5	39.5	15.6	20.00
190	60.5	40.5	16.8	20.00
191	61.3	41.0	17.4	20.00
192	62.0	40.5	15.0	20.00
193	62.8	41.0	15.5	20.00
194	63.5	40.5	15.0	20.00
195	64.3	41.0	15.5	20.00
196	65.0	40.5	15.0	20.00
197	65.8	41.0	15.5	20.00
198	66.5	40.5	15.0	20.00
199	67.3	41.0	15.5	20.00
200	68.0	40.5	15.0	20.00
201	68.8	41.0	15.5	20.00
202	69.5	40.5	15.0	20.00
203	70.3	41.0	15.5	20.00
204	71.0	40.5	15.0	20.00
205	71.8	41.0	15.5	20.00
206	72.5	40.5	17.2	20.00
207	73.2	41.0	17.6	20.00
208	74.0	40.5	17.0	20.00
209	74.7	41.0	17.2	20.00
210	75.5	40.5	16.5	20.00
211	60.5	41.5	17.8	20.00
212	62.0	41.5	15.9	20.00
213	63.5	41.5	16.0	20.00
214	65.0	41.5	16.0	20.00
215	66.5	41.5	16.0	20.00
216	68.0	41.5	16.0	20.00
217	69.5	41.5	16.0	20.00
218	71.0	41.5	16.0	20.00
219	72.5	41.5	18.1	20.00
220	74.0	41.5	17.9	20.00
221	75.5	41.5	17.5	20.00

==========

VERIFICA DI STABILITA' – V5 – (Condizioni sismiche) – Pendio completo – piano di scivolamento globale - – carico distribuito su tutti i piani pari a 64.72 KN/mq



Analisi di stabilità dei pendii con MORGENSTERN-PRICE

==========

Numero di strati	2.0
Numero dei conci	10.0
Fattore di sicurezza [R2]	1.3

Superficie di forma generica

==========

Coefficienti sismici [N.T.C.]

==========

Dati generali

Descrizione:	
Latitudine:	43.85
Longitudine:	7.58
Tipo opera:	2 - Opere ordinarie
Classe d'uso:	Classe I
Vita nominale:	50.0 [anni]
Vita di riferimento:	35.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo:	A
Categoria topografica:	T2

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s²]	F0 [-]	TC* [sec]
S.L.O.	30.0	0.26	2.55	0.19
S.L.D.	35.0	0.3	2.57	0.2
S.L.V.	332.0	1.17	2.44	0.28
S.L.C.	682.0	1.6	2.47	0.3

Coefficienti sismici orizzontali e verticali

Opera: Opere di sostegno

S.L. Stato limite	amax [m/s²]	beta [-]	kh [-]	kv [sec]
S.L.O.	0.312	0.2	0.0064	0.0032
S.L.D.	0.36	0.2	0.0073	0.0037
S.L.V.	1.404	0.29	0.0415	0.0208
S.L.C.	1.92	0.29	0.0568	0.0284

Coefficiente azione sismica orizzontale 0.0064

Coefficiente azione sismica verticale 0.0032

Vertici profilo

N	X m	y m
1	-6.83	39.0
2	-2.39	38.59
3	-0.13	37.87
4	14.33	37.95
5	15.22	35.28
6	38.72	32.94
7	40.66	30.28
8	67.15	26.88
9	71.27	24.22
10	74.74	23.09
11	80.31	20.91
12	84.68	20.91
13	85.65	20.18

Vertici strato 1

N	X m	y m
1	-6.83	36.84
2	-1.58	36.25
3	18.61	32.29
4	40.66	27.85
5	71.43	21.96
6	85.65	17.08

Vertici superficie Nr...1

N	X m	y m
1	0.4	37.96
2	8.41	34.32
3	32.93	29.45
4	62.37	23.73
5	71.2	24.33

Stratigrafia

c: coesione; Fi: Angolo di attrito; G: Peso Specifico; Gs: Peso Specifico Saturo; K: Modulo di Winkler

Strato	c (kN/m²)	Fi (°)	G (Kg/m³)	Gs (Kg/m³)	K (Kg/cm³)	Litologia	
1	0	36	1900	2100	0.00		Sabbia e ghiaie denso
2	0	45	2300	2500	0.00		Substrato roccioso

Carichi distribuiti

N°	xi m	yi m	xf m	yf m	Carico esterno (kN/m²)
1	0.29	37.82	12.29	37.88704	64.72
2	17.11	35.05	32.11	33.55515	64.72
3	42.56264	30.11108	46.88217	29.55797	0

B: Larghezza del concio; Alfa: Angolo di inclinazione della base del concio; Li: Lunghezza della base del concio; Wi: Peso del concio ; Ui: Forze derivanti dalle pressioni neutre; Ni: forze agenti normalmente alla direzione di scivolamento; Ti: forze agenti parallelamente alla superficie di scivolamento; Ei, Ei-1: Forze agenti normalmente alle facce del concio; Xi, Xi-1: Forze di tipo tagliante applicate sulle facce laterali .

Superficie Nr...1 Fattore di sicurezza=20.00
Lambda = -0.193

Nr.	B m	Alfa (°)	Li m	Wi (Kg)
1	7.05	-24.49	7.75	67632.65
2	7.05	-12.74	7.23	85049.28
3	7.05	-11.23	7.19	65700.98
4	7.05	-11.23	7.19	90897.23
5	7.05	-11.13	7.18	75433.27
6	7.05	-11.0	7.18	51421.97
7	7.05	-11.0	7.18	36314.05
8	7.05	-11.0	7.18	42570.74
9	7.05	-7.5	7.11	45867.82
10	7.05	3.91	7.07	33778.66

Sforzi sui conci

Nr.	Xi (Kg)	Ei (Kg)	Xi-1 (Kg)	Ei-1 (Kg)	N'i (Kg)	Ti (Kg)	Ui (Kg)
1	-2961.33	15336.29	0.0	0.0	58264.0	2116.56	0.0
2	-3402.55	17621.33	-2961.33	15336.29	83268.47	3024.9	0.0
3	-2528.5	13094.76	-3402.55	17621.33	64755.31	3237.77	0.0
4	-2539.86	13153.59	-2528.5	13094.76	89555.02	3253.28	0.0
5	-2524.49	13073.99	-2539.86	13153.59	74344.09	2700.71	0.0
6	-2490.2	12896.4	-2524.49	13073.99	50702.41	1841.87	0.0
7	-2465.98	12770.99	-2490.2	12896.4	35805.89	1300.73	0.0
8	-2437.6	12623.97	-2465.98	12770.99	41975.04	1524.83	0.0
9	-1857.5	9619.71	-2437.6	12623.97	45476.33	1652.02	0.0
10	0.0	-0.01	-1857.5	9619.71	31283.68	1136.45	0.0