

Relazione Geologica

Tecnica

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Titolo

PIANO PARTICOLAREGGIATO DI INIZIATIVA PRIVATA DELLA ZONA DI
TRASFORMAZIONE DIREZIONALE DI TIPO F - COMPARTO F13 – AREA
POSTA TRA LE VIDE DEGLI INVENTORI E ZAPPIANO.

INTEGRAZIONE E PRECISAZIONI RIFERITE ALLA RELAZIONE GEOLOGICA REDATTA DAL DOTT.
GEOL. LORENZO DAINI A RISPOSTA PROVINCIA DI MODENA CLASSIFICA 07-04-05 SASC 2849/2022

In conformità al D.M 14/01/2008 ed alla normativa antisismica 3274/2003 e successive varianti ed alla Legge Regionale 30 Ottobre 2008 n.19 "Norme per la riduzione
del rischio sismico" CIRCOLARE 02/02/2009 n. 617 D.M. 14.09.2005 D.G.R. n° 1677/2005, DM del 17/01/2018 del 22.03.2018.

Committente

Sig.a Rustichelli Antonietta

Provincia - Comune

Provincia di Modena

Comune di Carpi

Albo Geologi Emilia Romagna N° 1080

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Premessa

Il presente documento è redatto a seguito della richiesta avanzata dalla provincia di Modena con classifica 07-04-05 fascicolo 2849/2022, e riferita alla relazione da me redatta in data 10/12/2021. Si ricorda che la precedente relazione è stata scritta secondo D.M. 11/3/88 e Circ. LL.PP. 24/9/88 e del nuovo DM del 17/01/2018 del 22.03.2018 e della normativa antisismica 3274/2003 e relative varianti su commissione della Sig.ra Rustichelli Antonietta.

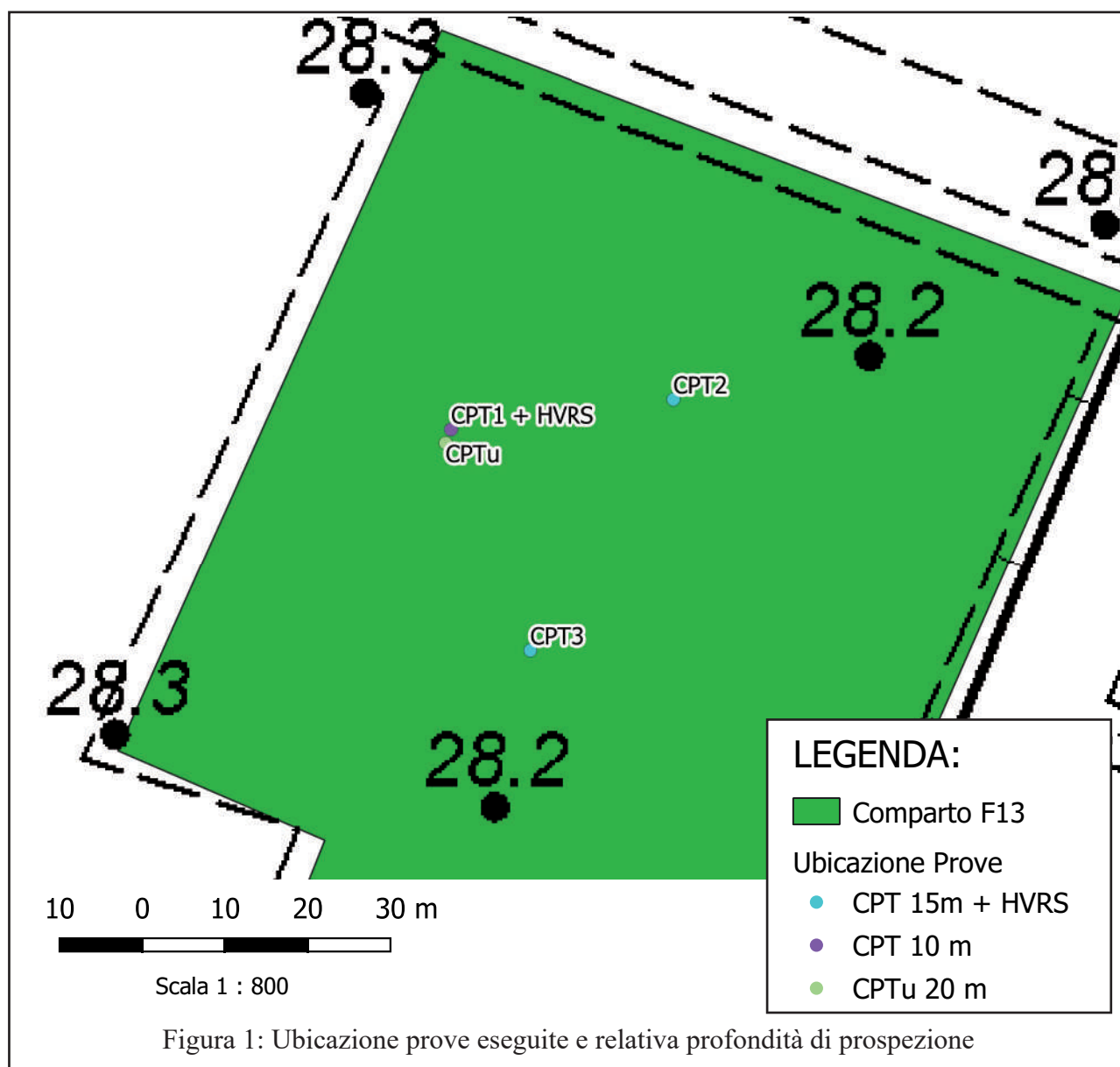
Essa ha per oggetto la cartatterizzazione geologica e geotecnica di un terreno sito in via degli inventori e più precisamente del comparto F13 ZONA DIREZIONALE

COMMERCIALE DI TIPO F (ART. 61) nel Comune di Carpi (Modena).

A.1 Prova Geotecnica CPTu

A.1.1. Prova penetrometrica statica a punta elettica CPTu

Nell'area interessata dal futuro fabbricato si è eseguita una nuova prova penetrometrica mediante l'utilizzo del piezocono (punta elettrica). Tale prova è stata spinta alla profondità di 20 metri da piano campagna ed è stata eseguita nelle adiacenze del



punto CPT1 precedentemente perforato (vedasi ubicazione nella relazione geologica precedente e la figura 1 della presente relazione tecnica).

La prova CPTu ha messo in evidenza una litologia paragonabile a quella riscontrata durante la prova penetrometrica statica "classica". Ovviamente essendo andata più in profondità questa ha permesso di indagare il terreno di oltre 5 metri rispetto alla prova precedente. Da 16.50 a 17.50 m da piano campagna si è potuto vedere che le resistenze alla punta aumentano ma che sono ancora presenti sedimenti argillosi limosi. La prova CPTu è stata utile anche alla determinazione del potenziale di liquefazione.

In allegato 1 è possibile trovare il report della prova CPTu eseguita.

nelle prove CPT2 e CPT3 che, se pur spinte a profondità inferiori sono state importanti per meglio comprendere il potenziale di liquefazione dell'intera area di studio.

In allegato 1 è possibile trovare tutti i report di calcolo della prova condotta in sito.

Dallo studio effettuato e dall'analisi dei dati risulta quanto segue:

L'area oggetto di studio, non è soggetta a fenomeni legati alla liquefazione delle sabbie.

Infatti se vediamo i grafici presenti il allegato "1" possiamo notare che:

- nelle elaborazioni eseguite attraverso le prove penetrometriche CPT i valori del fattore di sicurezza per gli strati liquefacibili è molto vicino a quello di norma e questo è riferito solo a spessori molto limitati del terreno indagato.

- considerando la prova CPTu e i grafici ad esso riferiti, è possibile notare che

A.2 Liquefazione

A.2.1. Calcolo potenziale di liquefazione

Nell'area interessata dal futuro fabbricato si è eseguita, come menzionato precedentemente, una ulteriore prova CPTu (prova penterometrica a punta elettrica) spinta alla profondità di -20 m da piano campagna. Tale prova penetrometrica, oltre ad essere stata richiesta dalla provincia di Modena, è stata altresì utile per il calcolo della liquefazione. Al fine di estendere lo studio della liquefazione si è fatta un'ulteriore verifica anche

i grafici e le tabelle che ti riporto sono presi dal libro di Giulio Riga La liquefazione dei terreni Dario Flacovio editore e sono di Ishihara (1985)

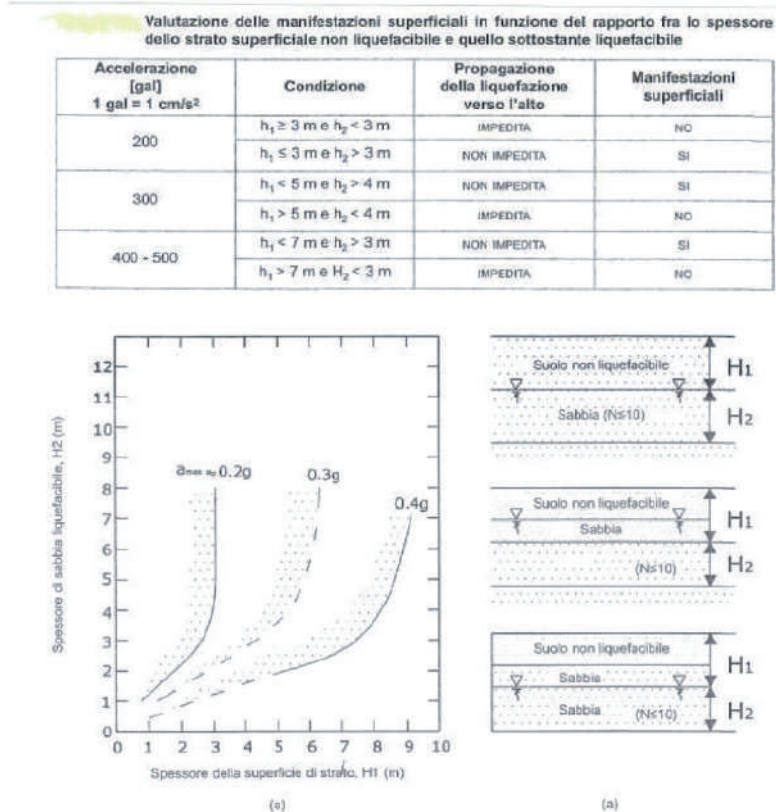


Figura 2: Relazione fra lo spessore dello strato liquefacibile e lo spessore dello strato sovrapposto (Ishihara 1985)

la liquefazione si ha per spessori molto esigui (centimetri) e con fattori di sicurezza paragonabili a quelli calcolati nelle prove CPT.

- considerando la figura 2 a pagina 3 ed in relazione con i grafici delle prove eseguite, gli spessori di terreno argilloso che sovrastano i terreni potenzialmente liquefacibili sono dell'ordine dei 5 m di spessore o più nel caso della CPT3. (liquefazione impedita)

- Se si considera il terremoto del 2012 con la magnitudo di $M_w=6.14$, nella zona adiacente al luogo dove sorgerà il manufatto, non sono stati riscontrati fenomeni di liquefazione.

- L'edificio non sarà dotato di piani interrati pertanto eventuali metri di terreno argilloso non liquefacibile non saranno prossimi alle fondazioni del manufatto.

- Dai Cedimenti post sismici, visibili nel capitolo A3 è possibile vedere che questi sono inferiori ad un centimetro .

A.3 Cedimenti post-sismici

A.3.1. Cedimenti post sismici

Come riportato nel capitolo precedente, per un sisma di magnitudo $M_w = 6.14$ sono stati riscontrati terreni potenzialmente liquefacibili ma con spessori molto ridotti; per tale motivo sono stati calcolati anche in cedimenti post-sismici così come richiesto anche dalla Provincia di Modena.

I cedimenti post-sismici sono stati calcolati per tutti gli strati riscontrati dalle prove penetrometriche e non solo per quelli con $c_u < 70$ kPa. Come riportato nell'Allegato A3, capitolo B della Delibera della RER 112/07 e DGR 476/2021 e s.m.i..

Il cedimento di riconsolidazione post-sismico ΔH in un generico strato di spessore H può essere calcolato con l'espressione:

$$\Delta H = \varepsilon_v H$$

in cui: H è l'altezza dello strato liquefacibile ed ε_v (%) è la deformazione volumetrica,

$$\varepsilon_v = \frac{\alpha \cdot C_r}{1 + e_0} \cdot \log \left(\frac{1}{1 - \frac{\Delta u}{p_0}} \right)$$

calcolabile secondo la relazione:

Tutti questi sono stati ottenuti elaborando i dati della prova penetrometrica e facendo anche riferimento alle tabelle presenti nelle: DGR 369/2019, DGR 476/2021 e DGR 564/2021 e s.m.i.

In allegato 2 è possibile trovare il calcolo dei cedimenti post sismici che, come menzionato precedentemente, sono stati calcolati tenendo conto di una $M_w = 6.14$. Per la PGA si sono considerati i valori di PGA forniti dal PRG del comune di Carpi ed in particolare quelli Carta della microzonazione sismica di 2°livello FA-PGA. (vedere allegato 4 pag. 30 della vecchia relazione geologica) ed in particolare PGA 1.5-1.6.

I cedimenti post-sismici rilevati sono pari a 0.82 cm; si evidenzia che, in caso di terremoto, questi cedimenti avverranno in un lasso di tempo molto breve dell'ordine di uno o due giorni (dal sisma).

A.4 Fattori di A.5 Conclusioni amplificazione RSL

A.4.1. Fattori di amplificazione PGA/PGA₀

Nel seguente paragrafo si riportano i fattori di amplificazione PGA/PGA₀ richiesti dalla provincia di Modena. Per il calcolo dei parametri si sono considerati i DGR 476/2021 e DGR 564/2021 e s.m.i.

Per una migliore comprensione dei risultati ottenuti si faccia riferimento alla mia precedente relazione nella quale si era eseguita l'analisi di terzo livello e gli accelerogrammi riferiti alla zona in studio ed in particolare ai files "TR475_ID15614" (da 1 a 7) scaricati dal sito EUCENTRE. I dati sono stati calcolati mediante il programma di calcolo EERA. (Maggiori informazioni sono visibili nella precedente relazione tecnica).

Nella tabella 1 si riportano, come da voi richiesto, le amplificazioni calcolate per lo spettro dall'analisi RSL citata per i periodi compresi tra 0,1 - 0,5 sec ; 0,4 - 0,8 sec e 0,7 - 1,1 secondi.

Il calcolo della risposta sismica locale ha individuato valori di PGA paragonabili a quelli ripotati a livello comunale. (Vedere allegato 4).

Si precisa che tali calcoli vengono solitamente eseguita a livello di pianificazione territoriale per gli studi di microzonazione sismica e che tali valori possono essere ricavate dalle carte prodotte a livello comunale o provinciale.

Per rispondere adeguatamente alle richieste della provincia di Modena si è ampliata la prospezione mediante l'esecuzione di una prova CPTu spinta a -20 m da piano campagna e adiacente alla prova CPT1 precedentemente eseguita.

Si è eseguito nuovamente il calcolo del potenziale di liquefazione per le prove CPT1, CPT2, CPT3 e CPTu, questi hanno dato valori paragonabili a quelli precedentemente forniti. In particolare la prova CPTu eseguita mediante la punta elettrica ha fornito un quadro più dettagliato di tutti i parametri geotecnici ricavabili da tale prova; in particolare, proprio grazie a tale prospezione è stato possibile determinare che il potenziale di liquefazione del lotto in esame è limitato a orizzonti di modesta entità e tali da non presentare problematiche di edificabilità del terreno in oggetto.

Dai parametri geotecnici forniti precedentemente e dalla nuova prospezione se ne evince che il terreno è edificabile secondo le normali tecniche costruttive (ovviamente purchè armate) e cioè mediante travi rovesce o mediante platea. Si ricorda ancora una volta che il manufatto non presenterà piani interrati e che quindi gli scavi saranno comunque di modesta entità. Si ribadisce che non essendo a conoscenza dei carichi applicati al terreno nè la forma finale del fabbricato risulta difficile definire un piano di fondazione ottimale; tuttavia si ricorda che le fondazioni non dovranno essere poste al di sopra di eventuali riporti

Fattore di amplificazione PGA/PGA ₀	terremoto 1	terremoto 2	terremoto 3	terremoto 4	terremoto 5	terremoto 6	terremoto 7
SA1 0.1-0.5	1.23	1.14	1.19	1.21	1.11	1.12	1.06
SA2 0.4-0.8	1.43	1.40	1.47	1.39	1.29	1.34	1.18
SA3 0.7-1.1	1.40	1.29	1.46	1.33	1.26	1.35	1.12

Tabella 1: Fattore di amplificazione PGA/PGA₀

e che la quota di fondazione minima INDICE:

consigliata è di -0.50 m da piano campagna attuale. Si ricorda poi, visionando anche i parametri geotecnici forniti nella precedente relazione, che aumentando la profondità di posa delle fondazioni i parametri geotecnici tenderanno a diminuire. L'ingegnere progettista in fase esecutiva dovrà tenere conto di tale evidenza così come dovrà considerare il ritiro delle argille dovute al cambiamento in contenuto di acqua nelle varie stagioni.

Per quanto concerne i cedimenti post sismici sarà comunque il progettista strutturale che dovrà calcolare la struttura in base ai dati da me forniti nel presente elaborato tecnico.

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1. Prova Geotecnica CPTu	Pag.2
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4. Fattori di amplificazione RLS	Pag.5
5. Conclusioni	Pag.5
ALLEGATI	Pag. 6

26/01/2022

Il tecnico incaricato
Dott. Geol. Lorenzo Daini





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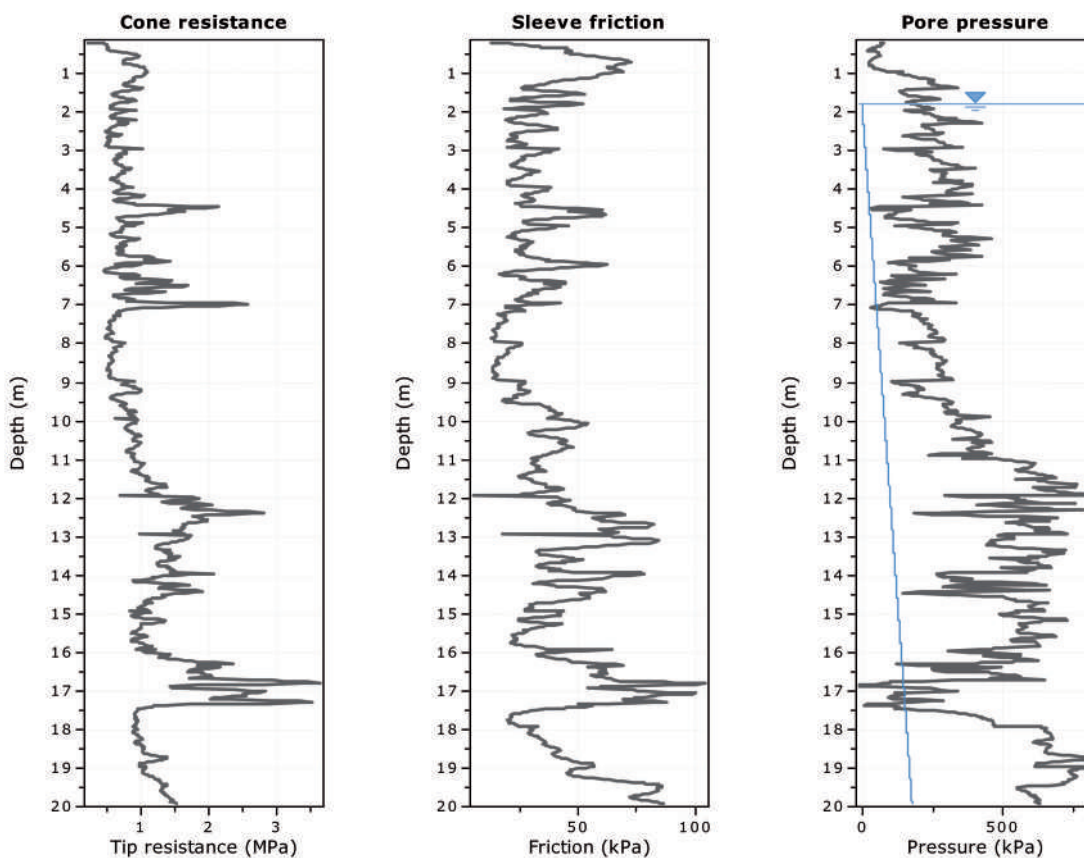
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Project:
Location:

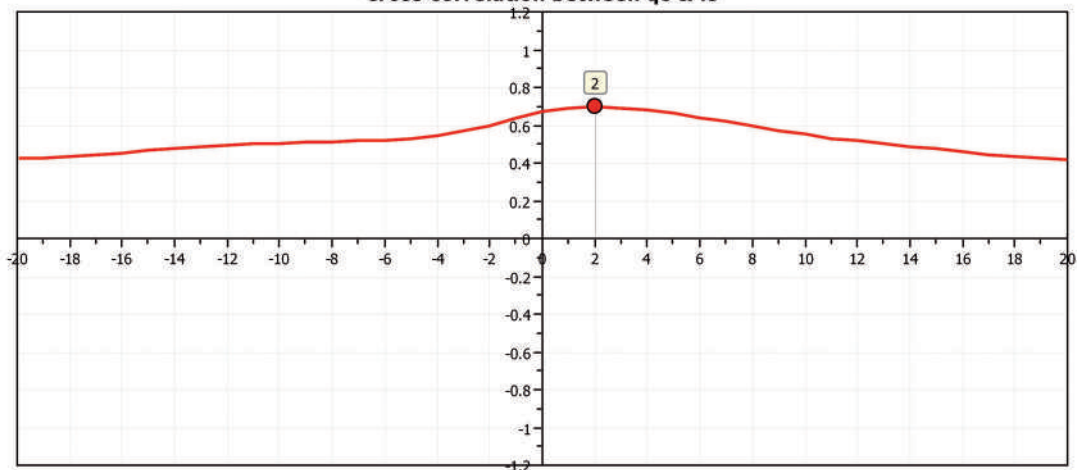
Allegato 1

Prove Penetrometriche CPTu



The plot below presents the cross correlation coefficient between the raw q_c and f_s values (as measured on the field). X axes presents the lag distance (one lag is the distance between two successive CPT measurements).

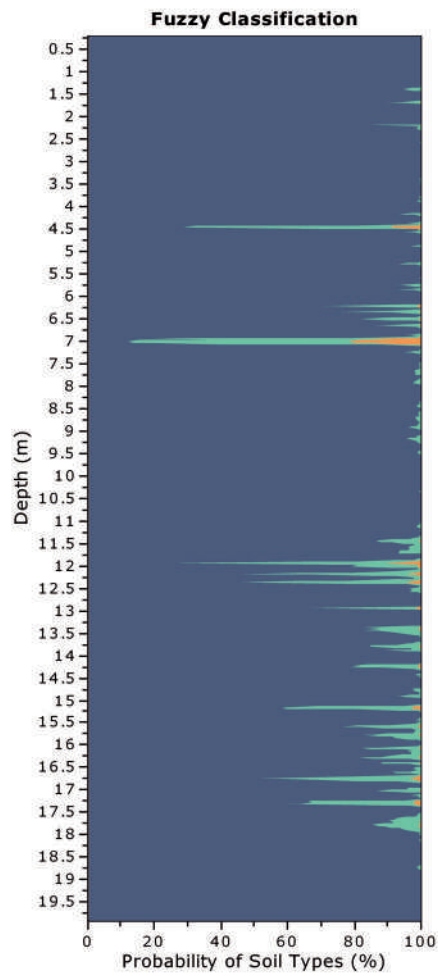
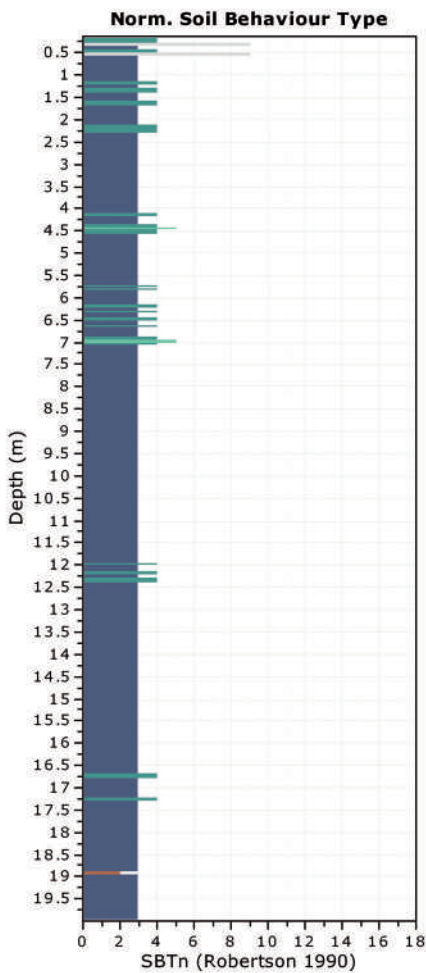
Cross correlation between q_c & f_s



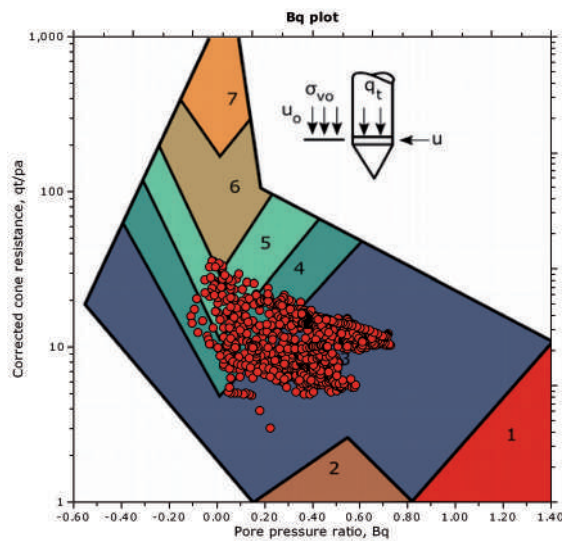
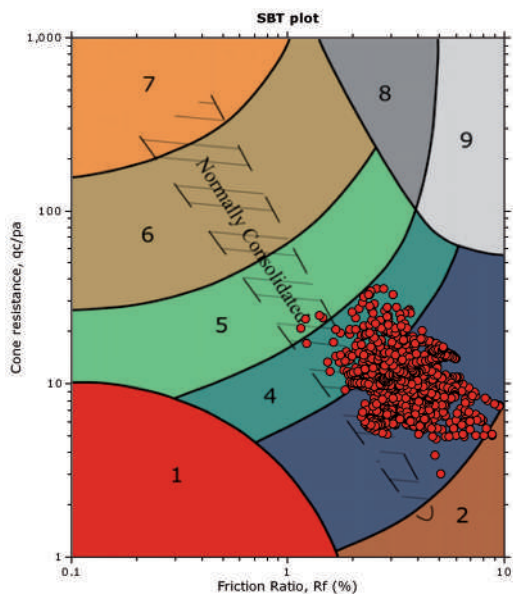
Allegato 1

Prove Penetrometriche CPTu

Project:
Location:



SBT - Bq plots



- SBT legend**
- 1. Sensitive fine grained
 - 2. Organic material
 - 3. Clay to silty clay
 - 4. Clayey silt to silty clay
 - 5. Silty sand to sandy silt
 - 6. Clean sand to silty sand
 - 7. Gravelly sand to sand
 - 8. Very stiff sand to clayey sand
 - 9. Very stiff fine grained



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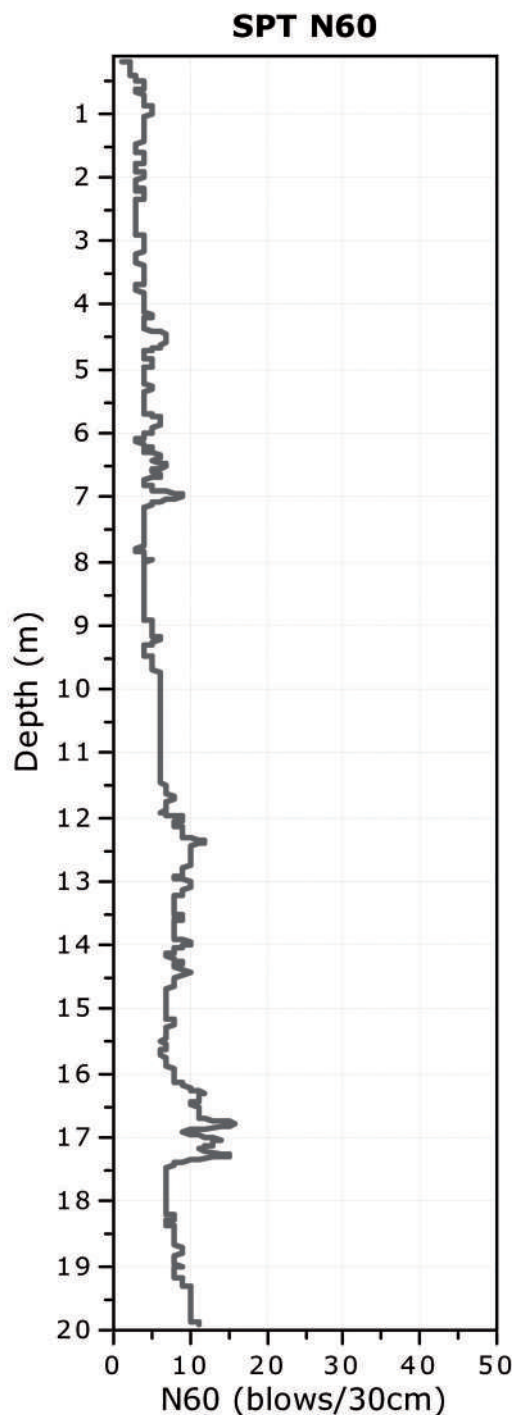
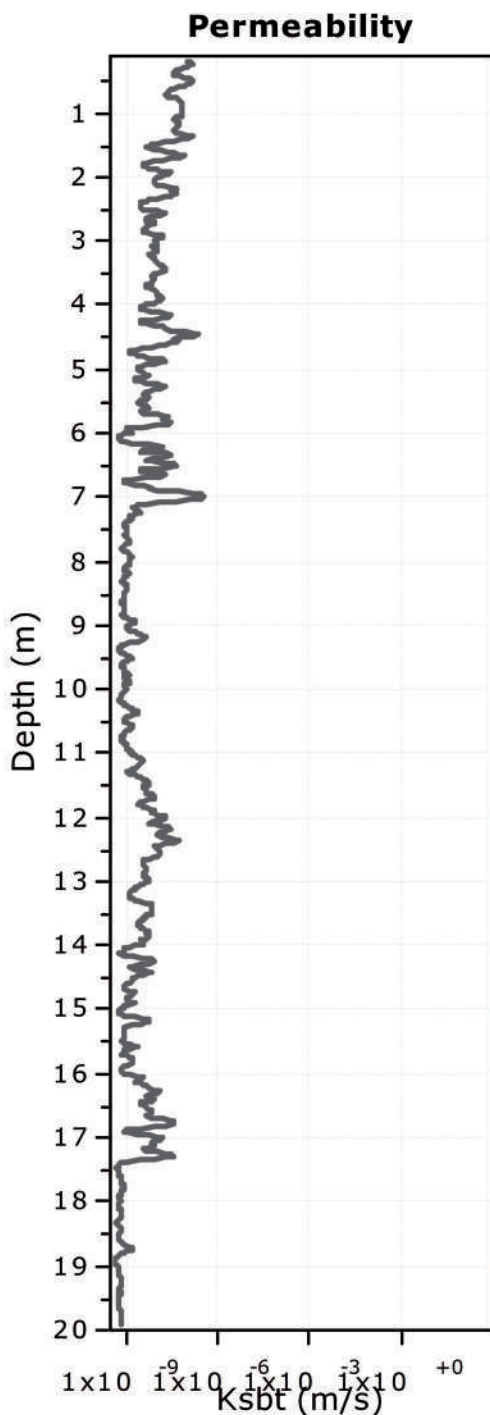
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Project:

Location:

Allegato 1

Prove Penetrometriche CPTu



Calculation parameters

Permeability: Based on SBT_n

SPT N_{60} : Based on I_c and q_t

Young's modulus: Based on variable alpha using I_c (Robertson, 2009)

Relative densit

Phi: Based on

—●— User



Allegato 1

Prove Penetrometriche CPTu



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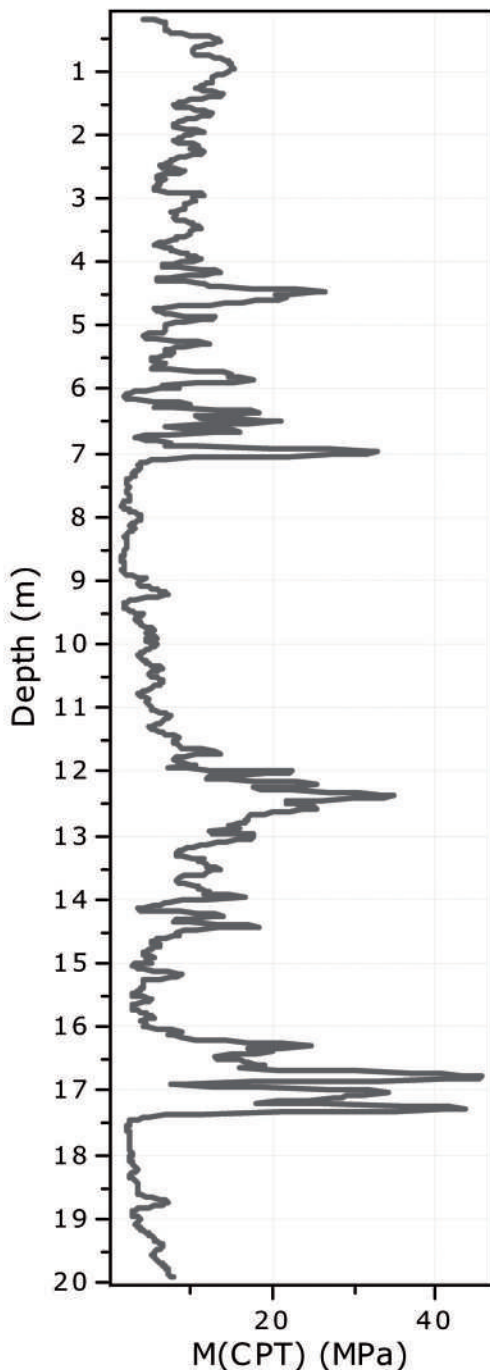
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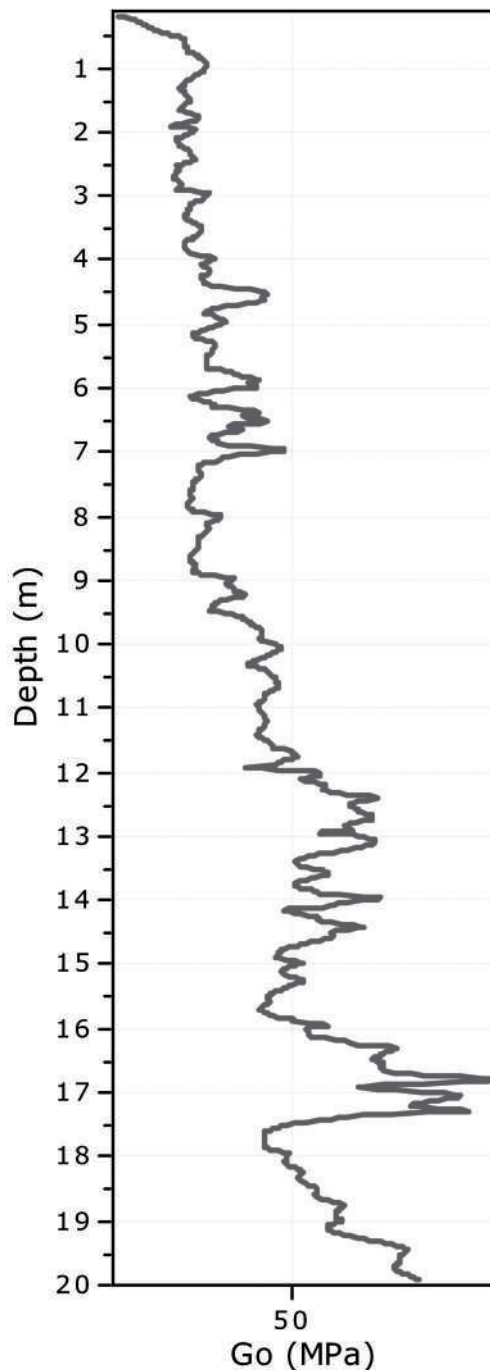
Project:

Location:

Constrained Modulus



Shear modulus



Calculation parameters

Constrained modulus: Based on variable α using I_c and Q_{tn} (Robertson, 2009)

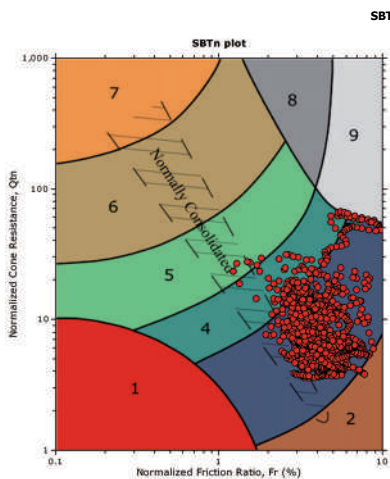
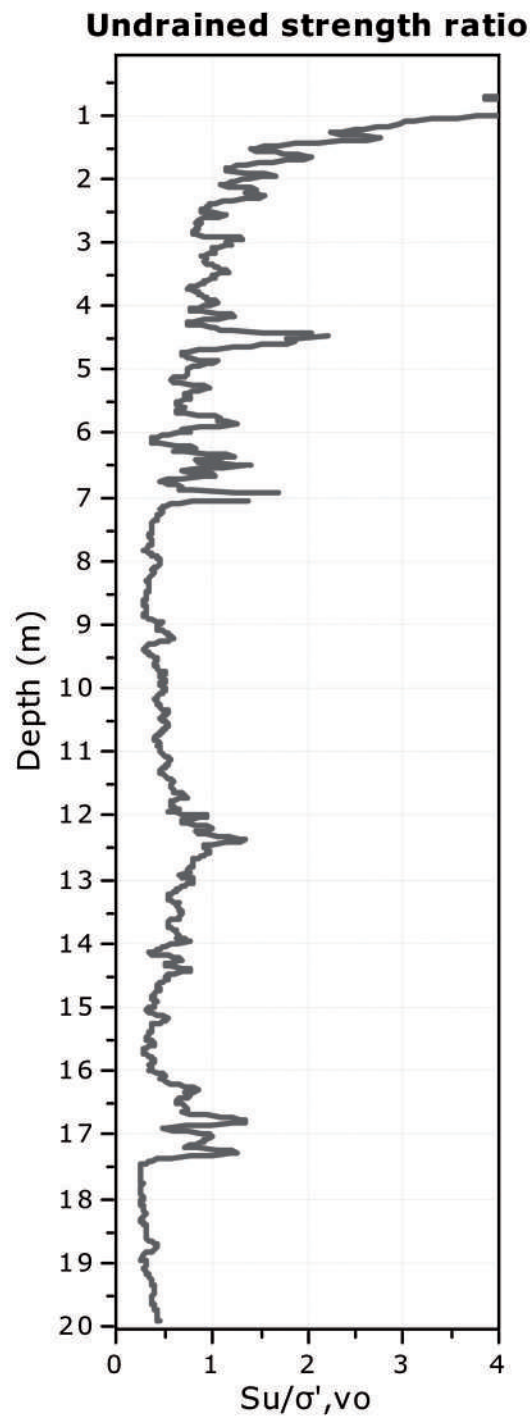
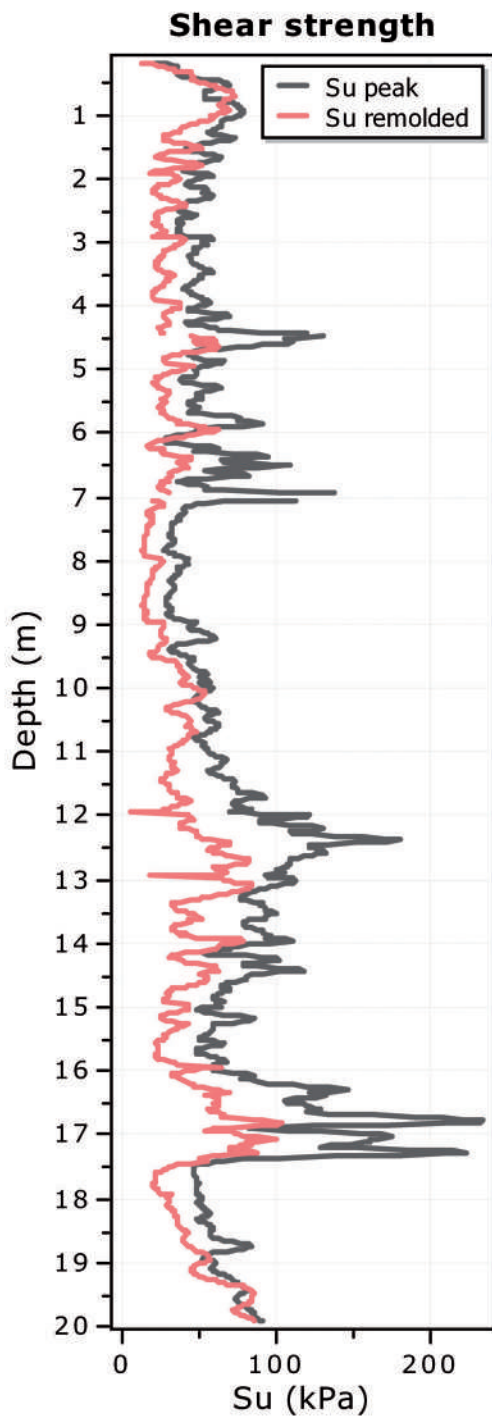
Go: Based on variable α using I_c (Robertson, 2009)

Undrained shear strength cone factor for clays, N_{kt} : 14

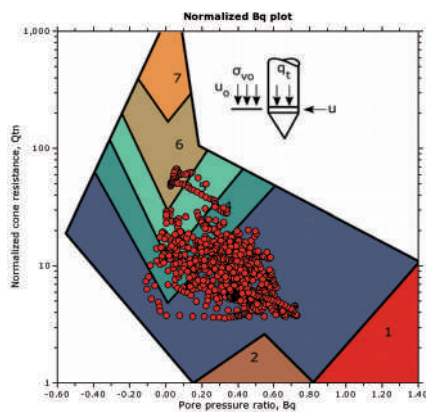


Allegato 1

Prove Penetrometriche CPTu



SBT - Bq plots (normalized)

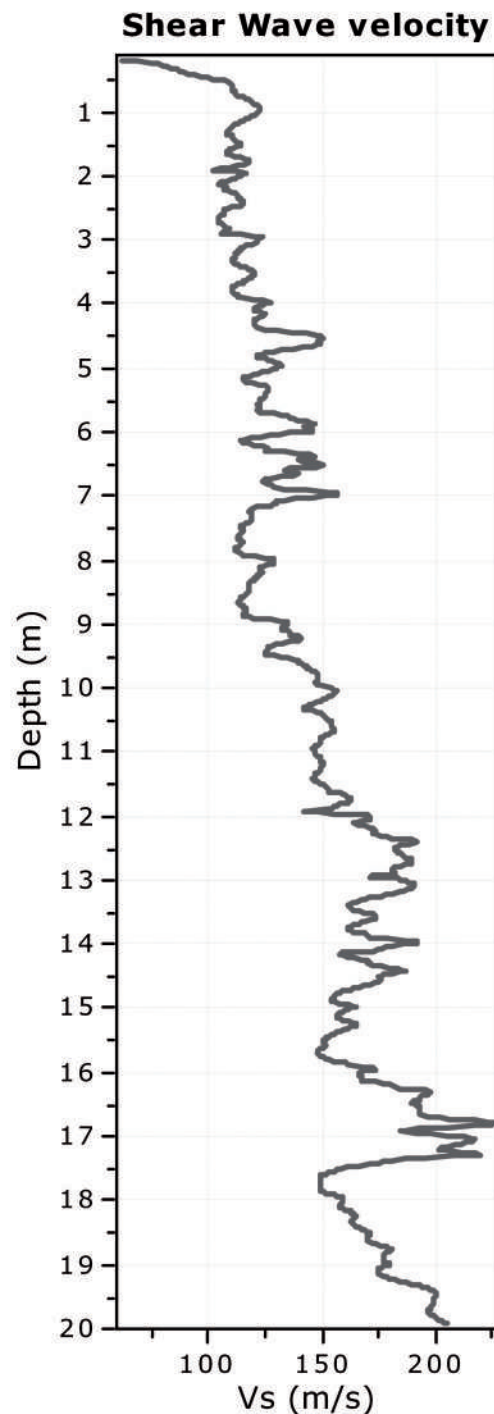
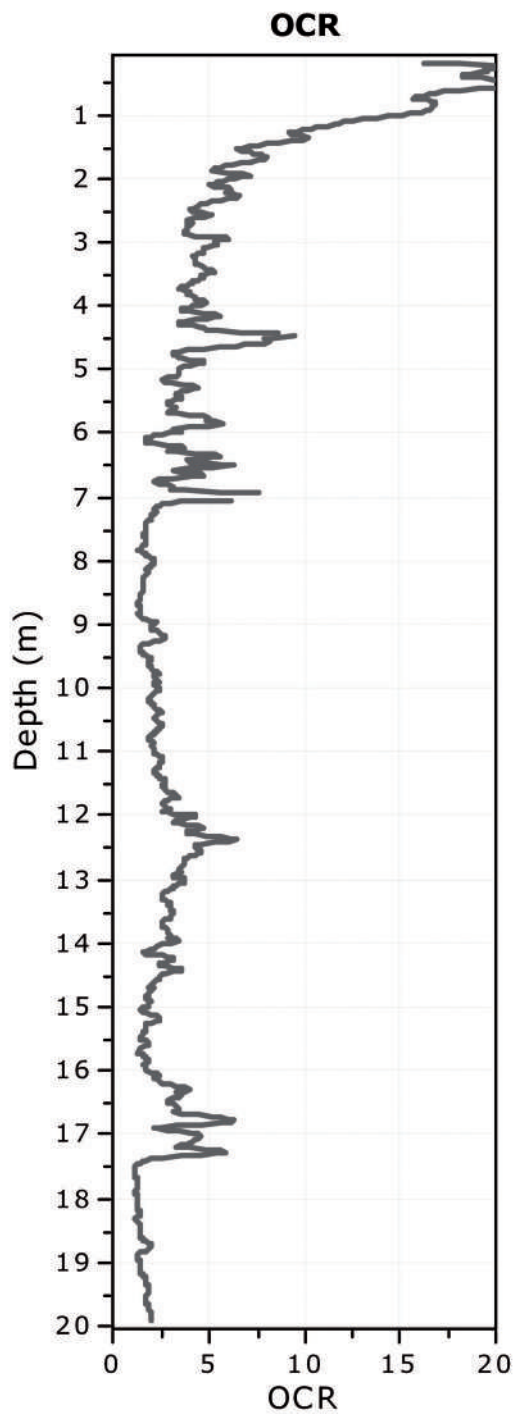


- SBTn legend**
- 1. Sensitive fine grained
 - 2. Organic material
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 - 5. Silty sand to sandy silt
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 - 8. Very stiff sand to clayey sand
 - 9. Very stiff fine grained

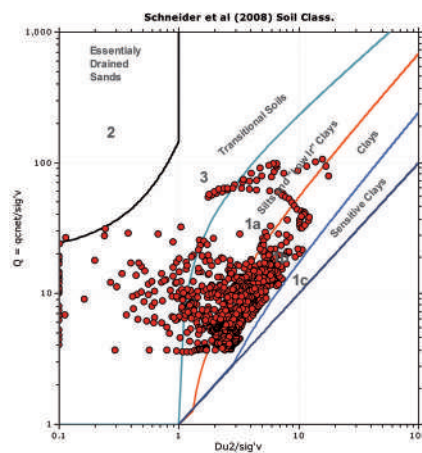
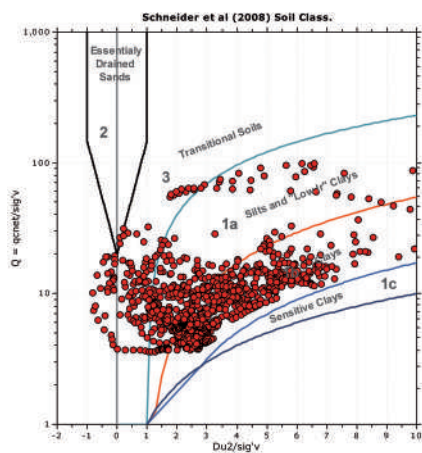


Allegato 1

Prove Penetrometriche CPTu

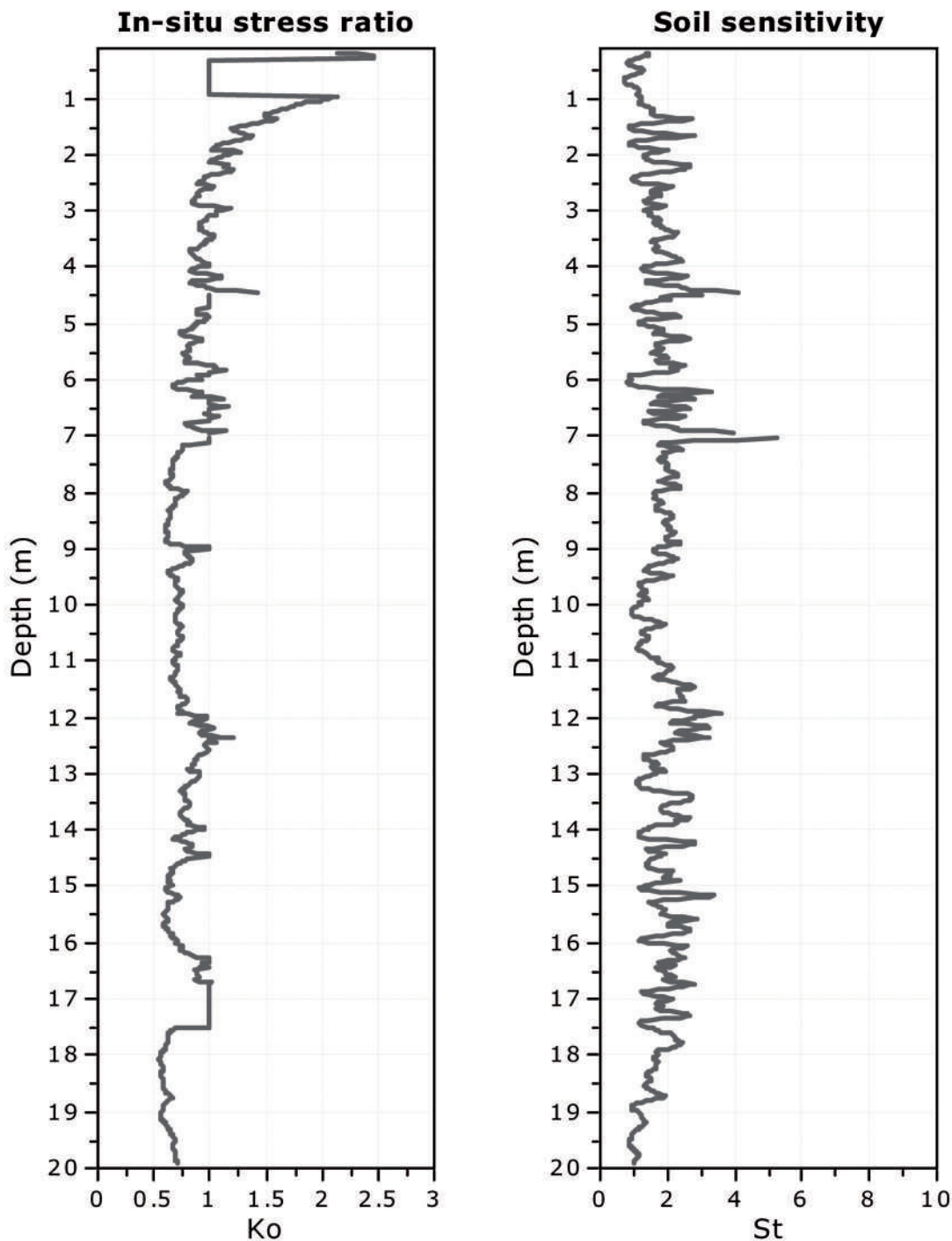


Bq plots (Schneider)

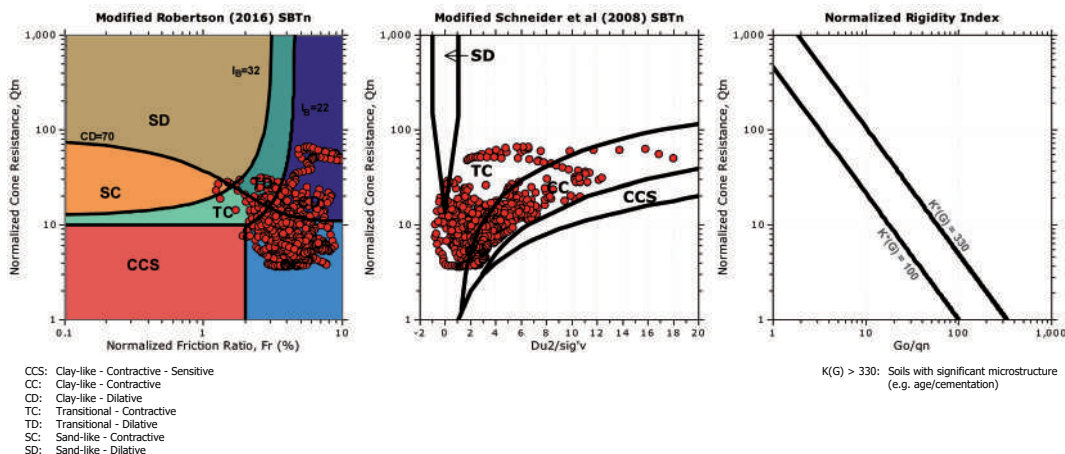


Allegato 1

Prove Penetrometriche CPTu



Updated SBTn plots





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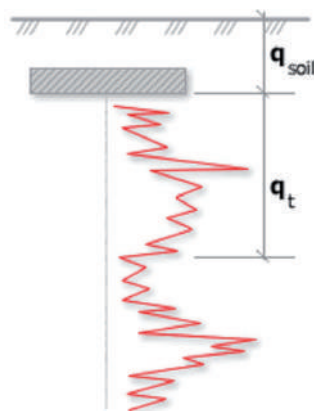
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Allegato 1

Prove Penetrometriche CPTu

Project:
Location:

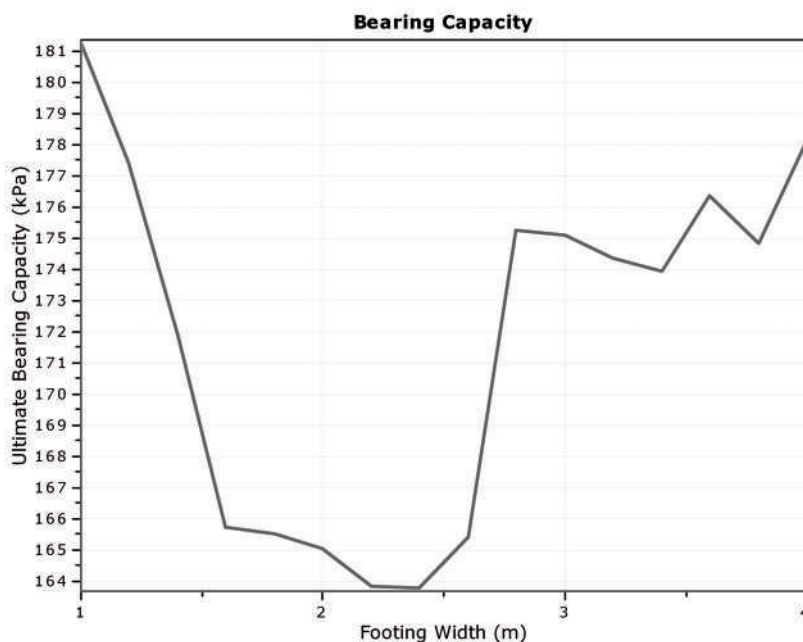


Bearing Capacity calculation is performed based on the formula:

$$Q_{ult} = R_k \times q_t + q_{soil}$$

where:

- R_k: Bearing capacity factor
- q_t: Average corrected cone resistance over calculation depth
- q_{soil}: Pressure applied by soil above footing



:: Tabular results ::

No	B (m)	Start Depth (m)	End Depth (m)	Ave. q _t (MPa)	R _k	Soil Press. (kPa)	Ult. bearing cap. (kPa)
1	1.00	0.50	2.00	0.86	0.20	9.50	181.25
2	1.20	0.50	2.30	0.84	0.20	9.50	177.42
3	1.40	0.50	2.60	0.81	0.20	9.50	171.90
4	1.60	0.50	2.90	0.78	0.20	9.50	165.75
5	1.80	0.50	3.20	0.78	0.20	9.50	165.53
6	2.00	0.50	3.50	0.78	0.20	9.50	165.06
7	2.20	0.50	3.80	0.77	0.20	9.50	163.86
8	2.40	0.50	4.10	0.77	0.20	9.50	163.81
9	2.60	0.50	4.40	0.78	0.20	9.50	165.42
10	2.80	0.50	4.70	0.83	0.20	9.50	175.25
11	3.00	0.50	5.00	0.83	0.20	9.50	175.08
12	3.20	0.50	5.30	0.82	0.20	9.50	174.35
13	3.40	0.50	5.60	0.82	0.20	9.50	173.94
14	3.60	0.50	5.90	0.83	0.20	9.50	176.35
15	3.80	0.50	6.20	0.83	0.20	9.50	174.85
16	4.00	0.50	6.50	0.84	0.20	9.50	178.09



LIQUEFACTION ANALYSIS REPORT

Project title : Geol. Daini - Prova CPTu

Location : Carpi - Via degli Inventori

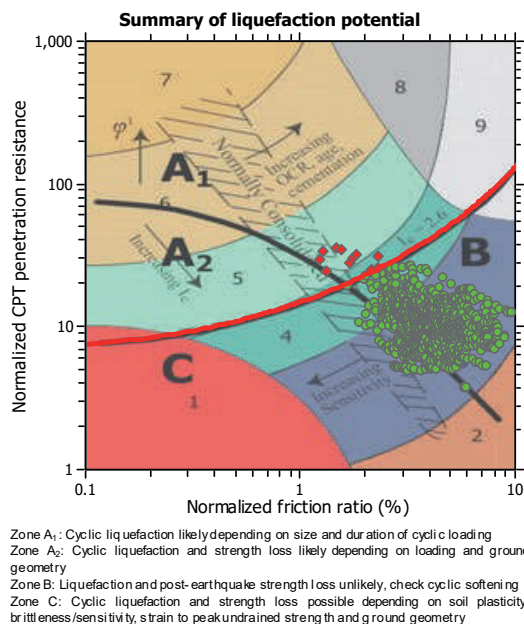
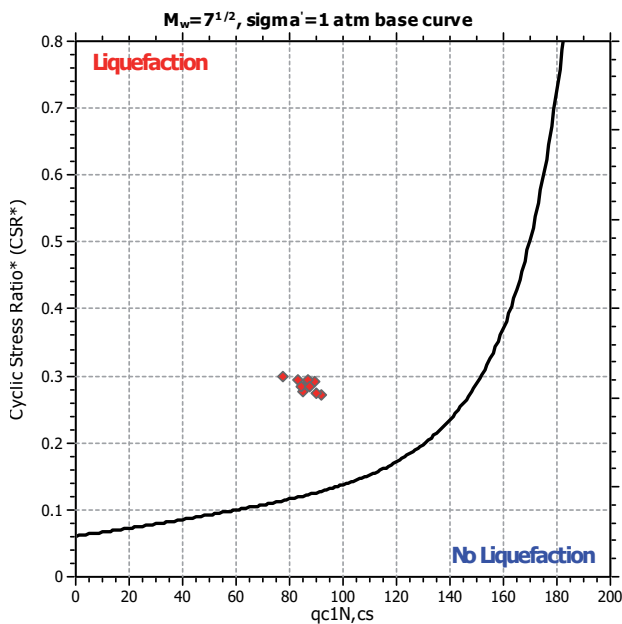
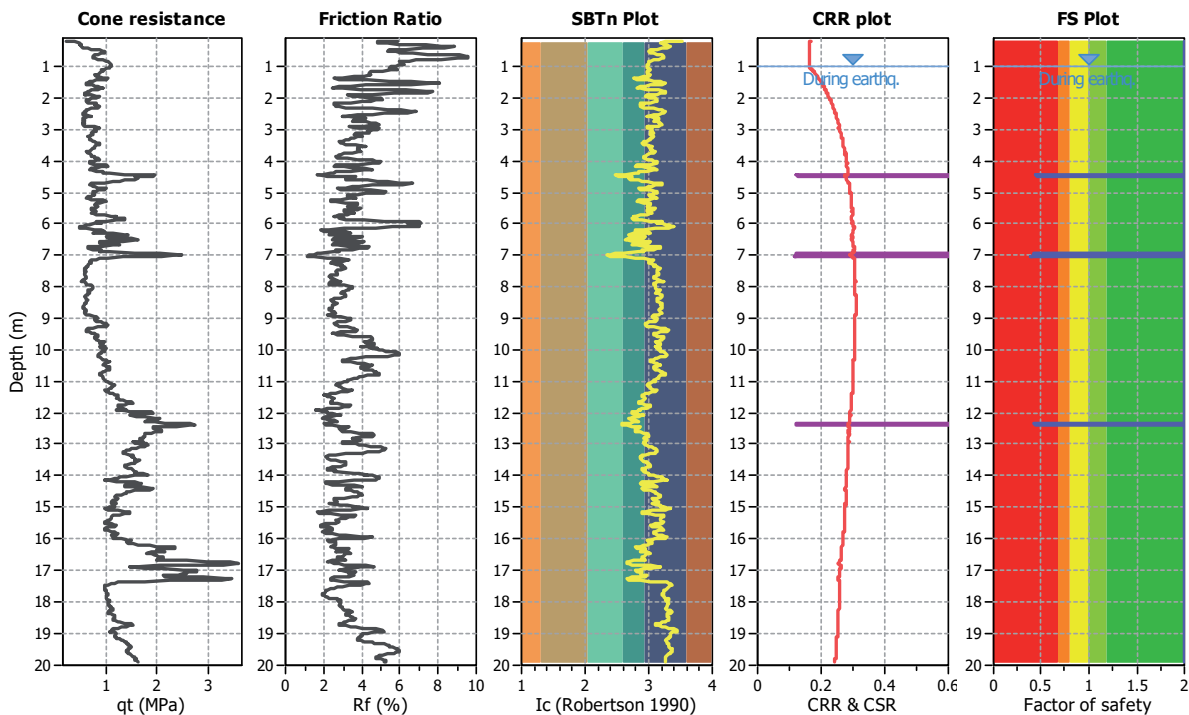
CPT file : CPTu

Input parameters and analysis data

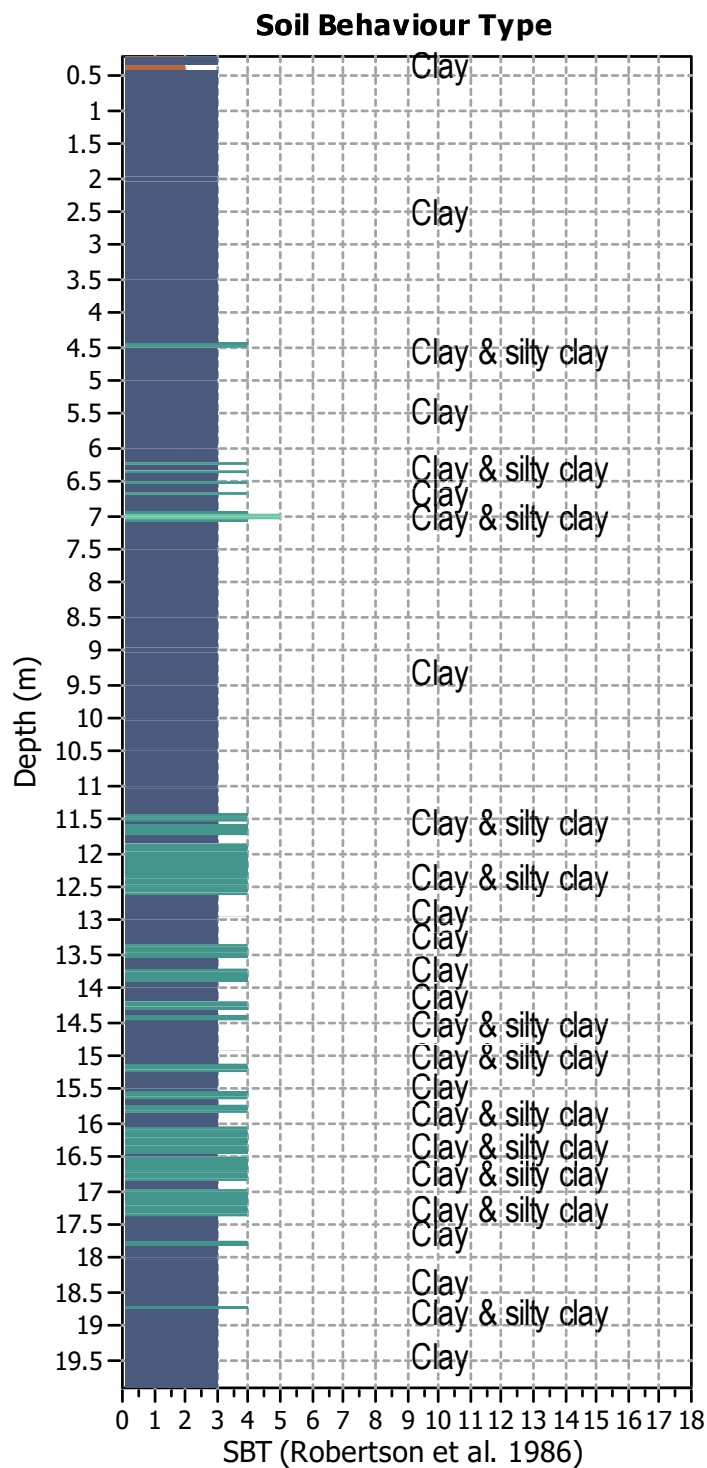
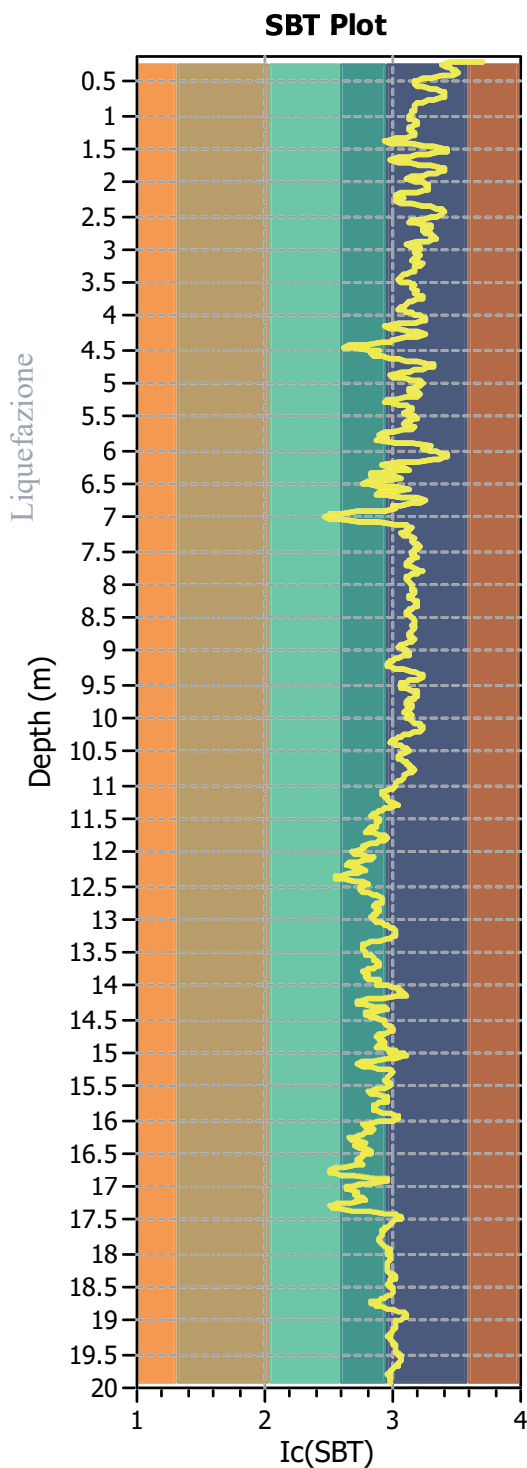
Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	6.14	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.24	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		

Allegato 2

Liquefazione



Allegato 2



SBT legend

- | | | |
|---------------------------|-----------------------------|----------------------------|
| 1. Sensitive fine grained | 4. Clayey silt to silty | 7. Gravely sand to sand |
| 2. Organic material | 5. Silty sand to sandy silt | 8. Very stiff sand to |
| 3. Clay to silty clay | 6. Clean sand to silty sand | 9. Very stiff fine grained |



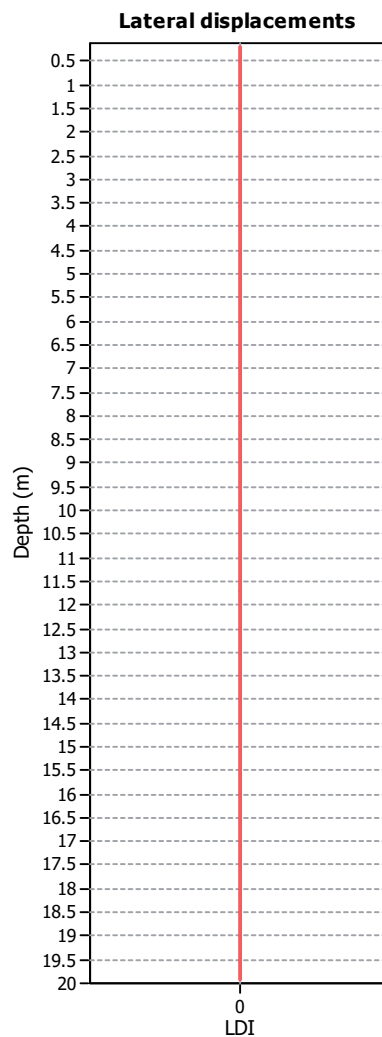
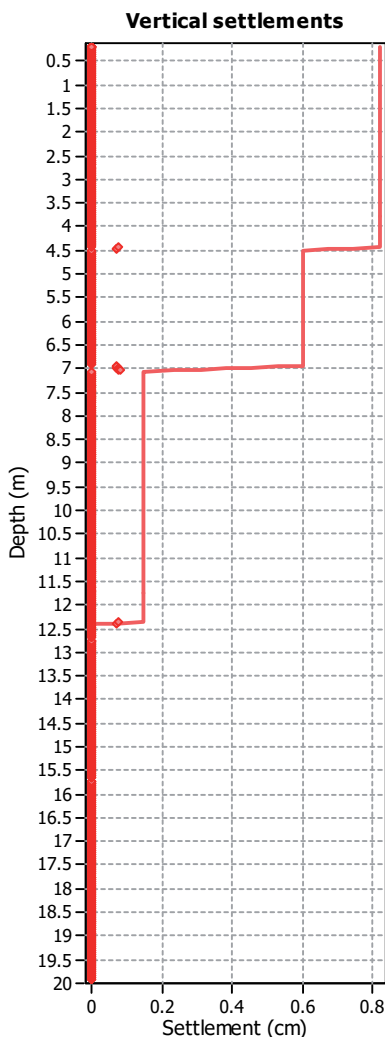
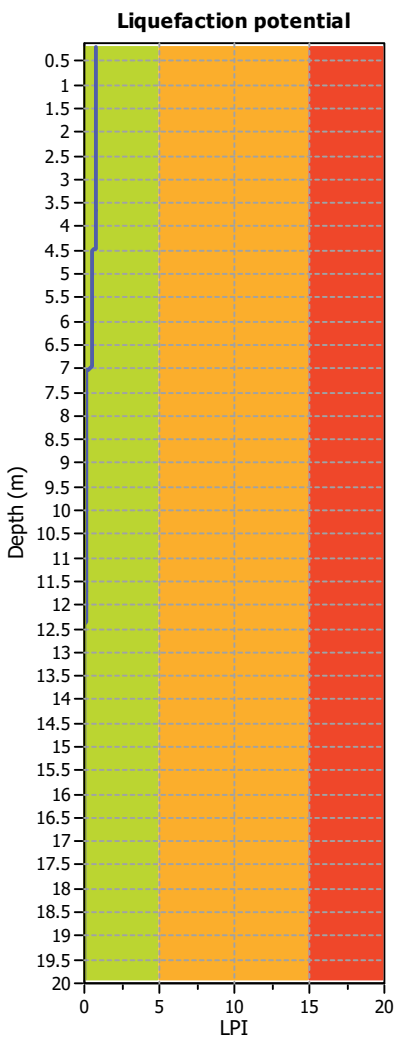
LIQUEFACTION ANALYSIS REPORT

Project title : Geol. Daini - Prova CPTu
 CPT file : CPTu

Location : Carpi - Via degli Inventori

Allegato 2

Liquefazione



Fill weight: N/A
 Transition detect. applied: No
 K₀ applied: Yes
 Clay like behavior applied: Sands only
 Limit depth applied: No
 Limit depth: N/A

F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

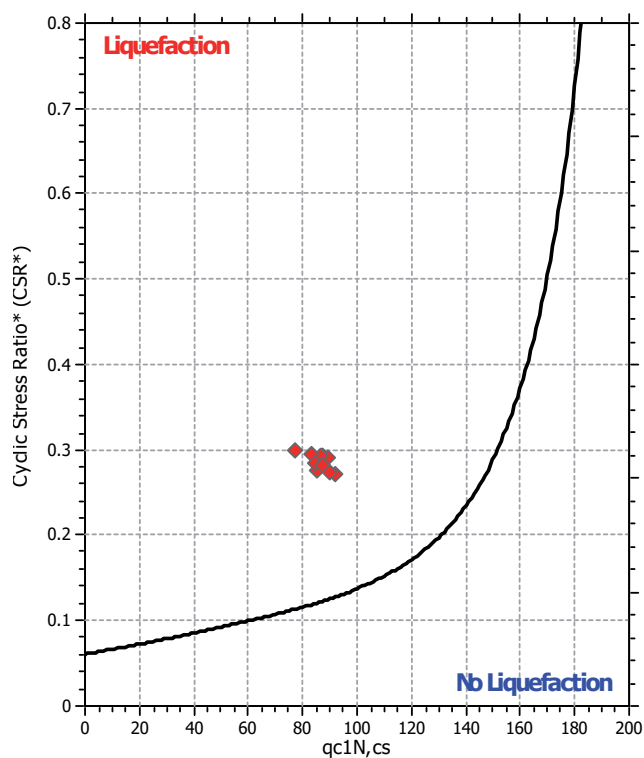
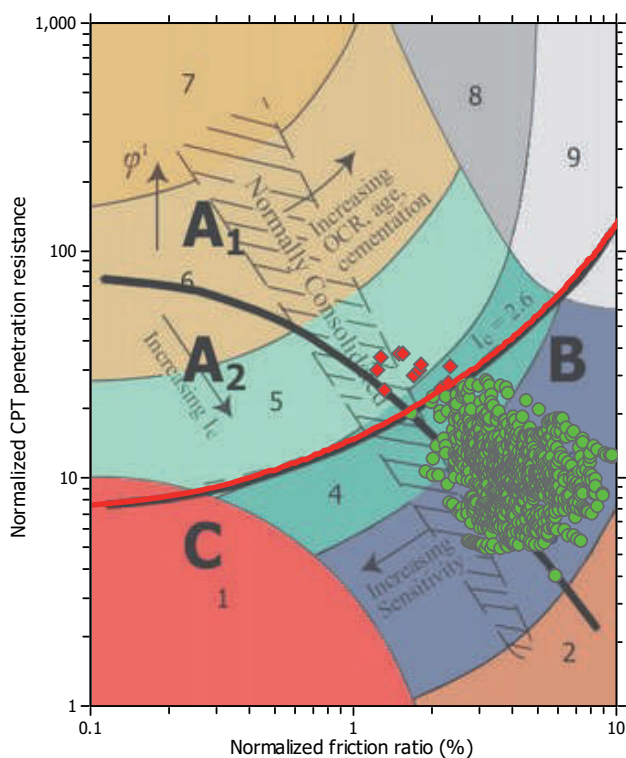
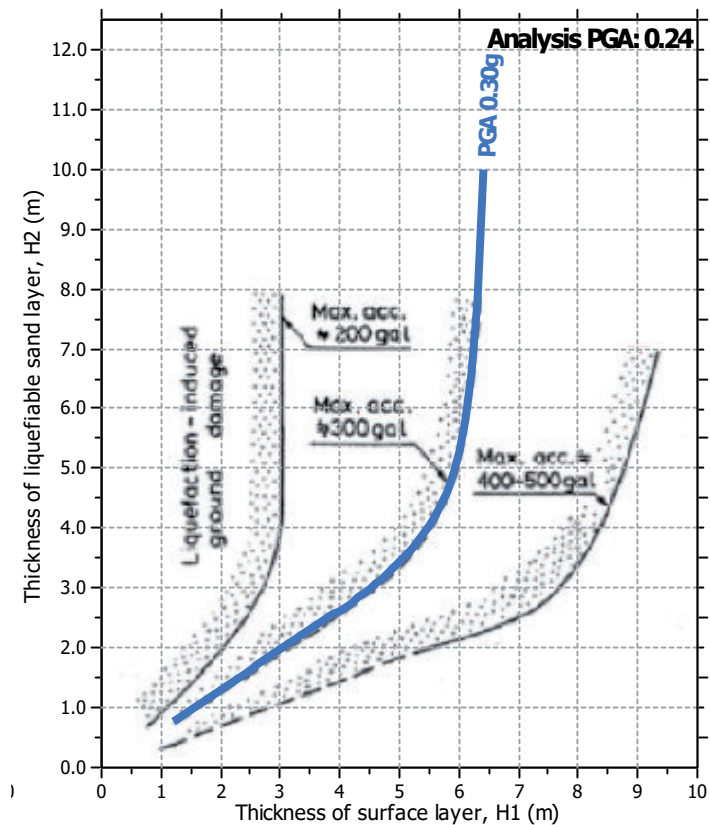
LPI color scheme

- Very high risk
- High risk
- Low risk



Allegato 2

Liquefazione



LIQUEFAZIONE PUNTO CPT1

Allegato 2

Liquefazione

DATI GENERALI

Normativa: Norme Tecniche Costruzioni, Circolare 2 febbraio 2009, n.617

Fattore sicurezza normativa 1.25

FALDA

Profondità falda idrica 2.35 m

DATI SISMICI

Accelerazione Bedrock 0.15

Fattore amplificazione 2.575

Tipo Suolo: C-Sabbie, ghiaie mediamente addensate, argille di media consistenza Vs30=180-360

Morfologia: T1-Superficie pianeggiante, pendii e rilievi isolati con inclinazione media $i \leq 15^\circ$

Coefficiente amplificazione stratigrafica (SS) 1.46

Coefficiente amplificazione topografica (ST) 1

Magnitudo momento sismico (Mw) 6.14

Distanza epicentro 5 Km

Peak ground acceleration (PGA) 0.219

PARAMETRI GEOTECNICI

Strato Nr	Descrizione	Quota iniziale (m)	Quota finale (m)	Peso unità volume (KN/mc)	Peso unità volume saturo (KN/mc)	Resistenza qc (KPa)	Resistenza attrito laterale fs (KPa)
1	limo argilloso	0	0.6	18	21	1400	53
2	limo argilloso	0.6	1	18.5	21.5	2350	150
3	argilla limosa	1	1.4	18.5	21.5	1750	250
4	argilla limosa	1.4	2.2	18.5	21.5	1050	57
5	argilla limosa	2.2	2.8	18	21	770	47
6	limo argillosa	2.8	4.2	18.5	21.5	1030	61
7	argilla limosa	4.2	5.4	18.5	21.5	1300	33
8	argilla limosa	5.4	8.8	18	21	925	61
9	argilla limosa	8.8	9.6	18.5	21.5	1400	68
10	argilla limosa	9.6	10.4	18.5	21.5	1580	68
11	argilla limosa	10.4	10.8	18.5	21.5	1650	100
12	argilla limosa	10.8	12.2	18.5	21.5	1400	93
13	argilla limosa	12.2	12.6	18.5	21.5	2100	80
14	limo argilloso	12.6	13.2	19	22	3270	170
15	Argilla limosa	13.2	14	18.5	21.5	1825	100
16	Sabbia limosa	14	15	21	22.5	2200	75

Allegato 2

Liquefazione

Robertson Wride, 1998

Correzione per la magnitudo (MSF) 1.67

Nr.	Prof. (m)	Pressione litostatica totale (KPa)	Press. Vert. (KPa)	Resist Punta Norm Q	Attrito Lat. Norm. F(%)	Inf. Comp. Ic	Correz Eff. CQ	Resist. Punta qc1 (KPa)	Coeff. Riduz. (rd)	Resist. Liquef. (CRR)	Sforzo di taglio normalizzato (CSR)	Coeff. Sic. Fs	Susc. Liquef.	Ind. Liquef	Risc.
1	2.55	47.300	45.339	15.940	6.503	3.046	1.7	95.101	0.980	0.160	0.087	1.833	N.L	0	Molto basso
2	2.75	51.500	47.577	15.102	6.541	3.065	1.7	98.088	0.979	0.168	0.090	1.856	N.L	0	Molto basso
3	2.95	55.775	49.891	19.527	6.261	2.969	1.7	112.210	0.977	0.211	0.093	2.267	N.L	0	Molto basso
4	3.15	60.075	52.230	18.570	6.289	2.987	1.7	115.501	0.976	0.223	0.096	2.331	N.L	0	Molto basso
5	3.35	64.375	54.568	17.696	6.317	3.003	1.7	118.751	0.974	0.236	0.098	2.404	N.L	0	Molto basso
6	3.55	68.675	56.907	16.893	6.345	3.020	1.7	121.963	0.973	0.249	0.100	2.483	N.L	0	Molto basso
7	3.75	72.975	59.246	16.154	6.374	3.035	1.68786	124.247	0.971	0.258	0.102	2.531	N.L	0	Molto basso
8	3.95	77.275	61.584	15.470	6.403	3.051	1.623789	122.532	0.970	0.251	0.104	2.418	N.L	0	Molto basso
9	4.15	81.575	63.923	14.837	6.432	3.066	1.564381	120.913	0.968	0.244	0.105	2.318	N.L	0	Molto basso
10	4.35	85.875	66.262	18.323	2.718	2.758	1.509168	87.099	0.967	0.141	0.107	1.323	N.L	0	Molto basso
11	4.55	90.175	68.600	17.636	2.728	2.772	1.457718	86.304	0.965	0.140	0.108	1.291	N.L	0	Molto basso
12	4.75	94.475	70.939	16.994	2.737	2.786	1.409661	85.551	0.964	0.138	0.110	1.262	N.L	0	Molto basso
13	4.95	98.775	73.278	16.393	2.747	2.800	1.364672	84.836	0.962	0.137	0.111	1.236	L	0.00	Molto basso
14	5.15	103.075	75.616	15.829	2.757	2.813	1.322465	84.157	0.961	0.135	0.112	1.212	L	0.00	Molto basso
15	5.35	107.375	77.955	15.299	2.767	2.826	1.282791	83.509	0.959	0.134	0.113	1.190	L	0.00	Molto basso
16	5.55	111.600	80.219	10.140	7.499	3.234	1.246592	112.257	0.958	0.212	0.114	1.861	N.L	0	Molto basso
17	5.75	115.800	82.457	9.814	7.538	3.247	1.212748	111.211	0.956	0.208	0.115	1.815	N.L	0	Molto basso
18	5.95	120.000	84.696	9.505	7.578	3.259	1.180693	110.210	0.954	0.204	0.115	1.772	N.L	0	Molto basso
19	6.15	124.200	86.935	9.212	7.617	3.270	1.150288	109.252	0.953	0.201	0.116	1.733	N.L	0	Molto basso
20	6.35	128.400	89.173	8.933	7.658	3.282	1.121411	108.333	0.951	0.198	0.117	1.696	N.L	0	Molto basso
21	6.55	132.600	91.412	8.668	7.698	3.294	1.093948	107.451	0.950	0.195	0.118	1.662	N.L	0	Molto basso
22	6.75	136.800	93.651	8.416	7.739	3.305	1.067797	106.605	0.948	0.193	0.118	1.630	N.L	0	Molto basso

Allegato 2

Liquificazione

23	6.95	141.000	95.889	8.176	7.781	3.316	1.042868	105.792	0.947	0.190	0.119	1.600	N.L	0	Molto basso
24	7.15	145.200	98.128	7.947	7.823	3.327	1.019076	105.010	0.945	0.188	0.119	1.573	N.L	0	Molto basso
25	7.35	149.400	100.367	7.728	7.865	3.338	0.9963459	104.258	0.944	0.185	0.120	1.547	N.L	0	Molto basso
26	7.55	153.600	102.605	7.518	7.908	3.349	0.9746075	103.534	0.942	0.183	0.120	1.522	N.L	0	Molto basso
27	7.75	157.800	104.844	7.318	7.951	3.359	0.9537973	102.837	0.941	0.181	0.121	1.499	N.L	0	Molto basso
28	7.95	162.000	107.083	7.125	7.995	3.370	0.9338573	102.166	0.939	0.179	0.121	1.478	N.L	0	Molto basso
29	8.15	166.200	109.321	6.941	8.039	3.380	0.9147339	101.518	0.938	0.177	0.122	1.458	N.L	0	Molto basso
30	8.35	170.400	111.560	6.764	8.084	3.390	0.8963778	100.894	0.936	0.176	0.122	1.439	N.L	0	Molto basso
31	8.55	174.600	113.799	6.594	8.129	3.401	0.8787441	100.292	0.935	0.174	0.122	1.421	N.L	0	Molto basso
32	8.75	178.800	116.037	6.431	8.175	3.411	0.8617909	99.711	0.933	0.172	0.123	1.404	N.L	0	Molto basso
33	8.95	183.075	118.351	10.282	5.588	3.148	0.8449435	101.101	0.932	0.176	0.123	1.432	N.L	0	Molto basso
34	9.15	187.375	120.690	10.047	5.608	3.157	0.8285705	100.496	0.930	0.174	0.123	1.416	N.L	0	Molto basso
35	9.35	191.675	123.029	9.822	5.628	3.166	0.8128201	99.910	0.924	0.173	0.123	1.406	N.L	0	Molto basso
36	9.55	195.975	125.367	9.604	5.648	3.174	0.7976573	99.341	0.919	0.171	0.123	1.396	N.L	0	Molto basso
37	9.75	200.275	127.706	10.804	4.929	3.098	0.7830499	97.683	0.914	0.167	0.122	1.363	N.L	0	Molto basso
38	9.95	204.575	130.045	10.577	4.944	3.106	0.7689677	97.161	0.908	0.165	0.122	1.356	N.L	0	Molto basso
39	10.15	208.875	132.383	10.357	4.959	3.114	0.7553833	96.655	0.903	0.164	0.122	1.349	N.L	0	Molto basso
40	10.35	213.175	134.722	10.146	4.975	3.122	0.7422704	96.162	0.898	0.163	0.121	1.342	N.L	0	Molto basso
41	10.55	217.475	137.061	10.452	6.981	3.204	0.729605	112.035	0.892	0.211	0.121	1.745	N.L	0	Molto basso
42	10.75	221.775	139.399	10.246	7.002	3.212	0.7173645	111.398	0.887	0.209	0.120	1.732	N.L	0	Molto basso
43	10.95	226.075	141.738	8.282	7.922	3.317	0.7055281	108.427	0.882	0.199	0.120	1.655	N.L	0	Molto basso
44	11.15	230.375	144.077	8.118	7.951	3.325	0.6940758	107.844	0.876	0.197	0.120	1.645	N.L	0	Molto basso
45	11.35	234.675	146.415	7.959	7.981	3.332	0.6829895	107.276	0.871	0.195	0.119	1.636	N.L	0	Molto basso
46	11.55	238.975	148.754	7.805	8.010	3.340	0.6722516	106.724	0.866	0.193	0.119	1.627	N.L	0	Molto basso
47	11.75	243.275	151.093	7.656	8.040	3.347	0.6618463	106.186	0.860	0.191	0.118	1.619	N.L	0	Molto basso
48	11.95	247.575	153.431	7.511	8.070	3.355	0.6517581	105.662	0.855	0.190	0.118	1.612	N.L	0	Molto basso
49	12.15	251.875	155.770	7.371	8.100	3.362	0.6419729	105.151	0.850	0.188	0.117	1.605	N.L	0	Molto basso
50	12.35	256.175	158.109	11.662	4.339	3.037	0.6324771	95.221	0.844	0.160	0.117	1.373	N.L	0	Molto basso
51	12.55	260.47	160.44	11.465	4.349	3.044	0.6232	94.823	0.839	0.159	0.116	1.371	N.L	0	Molto

Allegato 2

Liquefazione

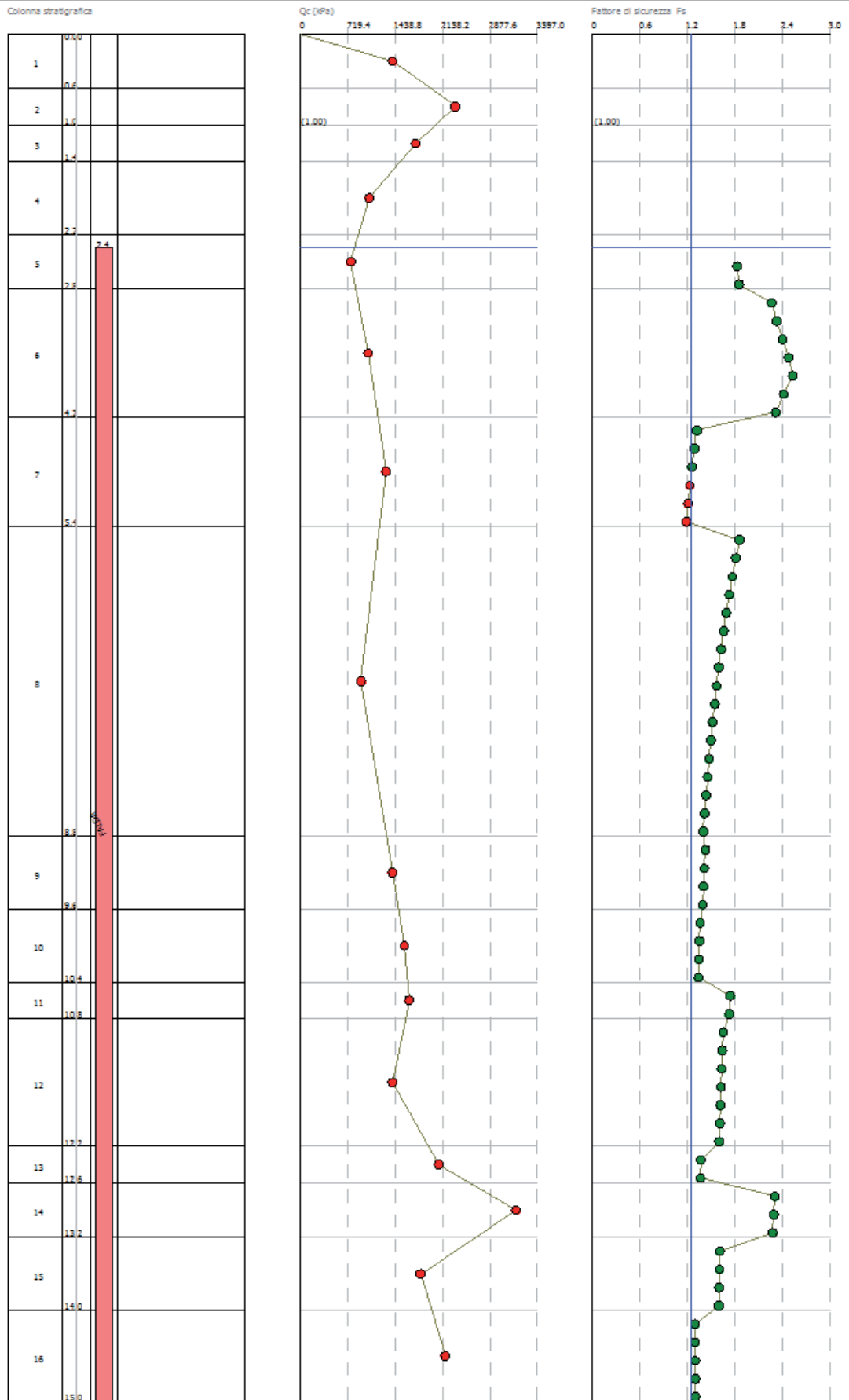
		5	7				582								basso
52	12.75	264.85 0	162.86 1	18.452	5.657	2.958	0.6140 212	126.21 6	0.834	0.267	0.116	2.308	N.L	0	Molto basso
53	12.95	269.25 0	165.30 0	18.153	5.665	2.963	0.6049 626	125.55 1	0.828	0.264	0.115	2.294	N.L	0	Molto basso
54	13.15	273.65 0	167.73 8	17.863	5.674	2.969	0.5961 673	124.90 1	0.823	0.261	0.115	2.280	N.L	0	Molto basso
55	13.35	277.97 5	170.10 2	9.095	6.464	3.229	0.5878 832	103.70 3	0.818	0.184	0.114	1.612	N.L	0	Molto basso
56	13.55	282.27 5	172.44 1	8.946	6.482	3.236	0.5799 102	103.26 0	0.812	0.182	0.113	1.608	N.L	0	Molto basso
57	13.75	286.57 5	174.77 9	8.802	6.500	3.242	0.5721 505	102.82 6	0.807	0.181	0.113	1.604	N.L	0	Molto basso
58	13.95	290.87 5	177.11 8	8.662	6.518	3.248	0.5645 959	102.40 2	0.802	0.180	0.112	1.601	N.L	0	Molto basso
59	14.15	295.32 5	179.60 7	10.605	3.938	3.045	0.5567 727	88.883	0.796	0.145	0.112	1.301	N.L	0	Molto basso
60	14.35	299.82 5	182.14 5	10.432	3.947	3.051	0.5490 126	88.546	0.791	0.145	0.111	1.301	N.L	0	Molto basso
61	14.55	304.32 5	184.68 4	10.264	3.956	3.057	0.5414 659	88.216	0.786	0.144	0.110	1.302	N.L	0	Molto basso
62	14.75	308.82 5	187.22 3	10.101	3.966	3.064	0.5341 238	87.894	0.780	0.143	0.110	1.304	N.L	0	Molto basso

IPL (Sonmez)=0 Zcrit=20 m Rischio=Basso

GRAFICO LIQUEFAZIONE CPT1

Allegato 2

Liquefazione



Copia di documento acquisito nel protocollo informatico del Comune di Carpi.



LIQUEFAZIONE PUNTO CPT2

Allegato 2

Liquefazione

Normativa: Norme Tecniche Costruzioni, Circolare 2 febbraio 2009, n.617
 Fattore sicurezza normativa 1.25

FALDA
 Profondità falda idrica 2.55 m
 CARICHI SUL PIANO CAMPAGNA
 Base 50 m
 Lunghezza 20 m
 Carico in superficie 100 kPa
 Metodo calcolo stato tensionale Bussinesq
 Coefficiente di Poisson 0.35

DATI SISMICI

Accelerazione Bedrock 0.154
 Fattore amplificazione 2.575

Tipo Suolo: C-Sabbie, ghiaie mediamente addensate, argille di media consistenza Vs30=180-360
 Morfologia: T1-Superficie pianeggiante, pendii e rilievi isolati con inclinazione media $i \leq 15^\circ$

Coefficiente amplificazione stratigrafica (SS) 1.46207
 Coefficiente amplificazione topografica (ST) 1
 Magnitudo momento sismico (Mw) 6.14
 Distanza epicentro 5 Km
 Peak ground acceleration (PGA) 0.2251588

PARAMETRI GEOTECNICI

Strato Nr	Descrizione	Quota iniziale (m)	Quota finale (m)	Peso unità volume (KN/mc)	Peso unità volume saturo (KN/mc)	Resistenza qc (KPa)	Resistenza attrito laterale fs (KPa)
1	Argilla limosa	0	0.4	18.5	21.5	1300	93
2	argilla limosa	0.4	1.2	19	22	4025	218
3	Argilla limosa	1.2	2.4	18.5	21.5	1283	165
4	argilla limosa molle	2.4	3.4	18	21	760	31
5	Argilla limosa	3.4	6.6	18.5	21.5	1106	63
6	Limo sabbioso argilloso	6.6	7.4	20.5	22.5	3375	66
7	Argilla limosa	7.4	8.8	18.5	21.5	1528	76
8	Argilla limosa	8.8	10	18.5	21.5	1285	82

Allegato 2

Liquefazione

Robertson Wride, 1998

Correzione per la magnitudo (MSF) 1.67

Nr.	Profondità dal p.c. (m)	Pressione litostatica totale (KPa)	Pressione verticale effettiva (KPa)	Resistenza alla punta normalizzata Q (KPa)	Attrito laterale normalizzato F(%)	Indice di compattamento Ic	Correzione per la pressione litostatica efficace CQ	Resistenza alla punta corretta qc1 (KPa)	Coefficiente di riduzione (rd)	Resistenza alla liquefazione (CR)	Sforzo di taglio normalizzato (CSR)	Coefficiente di sicurezza Fs	Suscettibilità di liquefazione	Indice di liquefazione	Rischio
1	2.75	76.685	74.724	9.145	4.537	3.133	1.338264	84.914	0.979	0.137	0.088	1.554	NL	0	Molto basso
2	2.95	80.879	76.956	8.825	4.565	3.147	1.299444	84.259	0.977	0.136	0.090	1.505	NL	0	Molto basso
3	3.15	85.071	79.187	8.523	4.593	3.161	1.262828	83.635	0.976	0.134	0.092	1.461	NL	0	Molto basso
4	3.35	89.263	81.418	8.238	4.622	3.174	1.228232	83.040	0.974	0.133	0.094	1.422	NL	0	Molto basso
5	3.55	93.529	83.722	12.093	6.222	3.123	1.194425	108.641	0.973	0.199	0.095	2.090	NL	0	Molto basso
6	3.75	97.819	86.051	11.716	6.249	3.135	1.162104	107.649	0.971	0.196	0.097	2.024	NL	0	Molto basso
7	3.95	102.108	88.378	11.359	6.276	3.147	1.131501	106.698	0.970	0.193	0.098	1.963	NL	0	Molto basso
8	4.15	106.395	90.704	11.020	6.302	3.158	1.102482	105.787	0.968	0.190	0.100	1.908	NL	0	Molto basso
9	4.35	110.682	93.030	10.699	6.330	3.169	1.074927	104.912	0.967	0.187	0.101	1.857	NL	0	Molto basso
10	4.55	114.967	95.354	10.393	6.357	3.180	1.048729	104.071	0.965	0.185	0.102	1.811	NL	0	Molto basso
11	4.75	119.251	97.676	10.102	6.385	3.191	1.02379	103.263	0.964	0.182	0.103	1.767	NL	0	Molto basso

Allegato 2

Liquefazione

12	4.95	123.534	99.998	9.825	6.412	3.201	1.000023	102.486	0.962	0.180	0.104	1.727	NL	0	Molto basso
13	5.15	127.815	102.318	9.560	6.441	3.212	0.9773459	101.738	0.961	0.178	0.105	1.690	NL	0	Molto basso
14	5.35	132.095	104.637	9.307	6.469	3.222	0.9556866	101.017	0.959	0.176	0.106	1.656	NL	0	Molto basso
15	5.55	136.374	106.954	9.066	6.497	3.232	0.9349779	100.322	0.958	0.174	0.107	1.624	NL	0	Molto basso
16	5.75	140.652	109.271	8.834	6.526	3.242	0.9151591	99.651	0.956	0.172	0.108	1.594	NL	0	Molto basso
17	5.95	144.928	111.586	8.613	6.555	3.252	0.8961741	99.005	0.954	0.170	0.109	1.566	NL	0	Molto basso
18	6.15	149.203	113.899	8.400	6.584	3.261	0.8779714	98.380	0.953	0.169	0.110	1.539	NL	0	Molto basso
19	6.35	153.476	116.211	8.197	6.614	3.271	0.8605038	97.777	0.951	0.167	0.110	1.514	NL	0	Molto basso
20	6.55	157.748	118.522	8.001	6.644	3.280	0.8437277	97.194	0.950	0.165	0.111	1.491	NL	0	Molto basso
21	6.75	162.169	120.981	30.684	2.054	2.506	0.9091628	85.935	0.948	0.139	0.112	1.247	L	0.00	Molto basso
22	6.95	166.638	123.489	30.371	2.057	2.510	0.8998838	85.666	0.947	0.138	0.112	1.235	L	0.00	Molto basso
23	7.15	171.106	125.995	30.067	2.060	2.514	0.8908883	85.406	0.945	0.138	0.113	1.225	L	0.00	Molto basso
24	7.35	175.572	128.500	29.773	2.063	2.518	0.8821623	85.153	0.944	0.137	0.113	1.215	L	0.00	Molto basso
25	7.55	179.887	130.854	10.302	5.638	3.150	0.7642136	100.070	0.942	0.173	0.114	1.524	NL	0	Molto basso
26	7.75	184.150	133.156	10.092	5.655	3.158	0.7510017	99.536	0.941	0.172	0.114	1.505	NL	0	Molto basso
27	7.95	188.412	135.456	9.889	5.673	3.166	0.7382465	99.017	0.939	0.170	0.115	1.486	NL	0	Molto basso

Allegato 2

Liquefazione

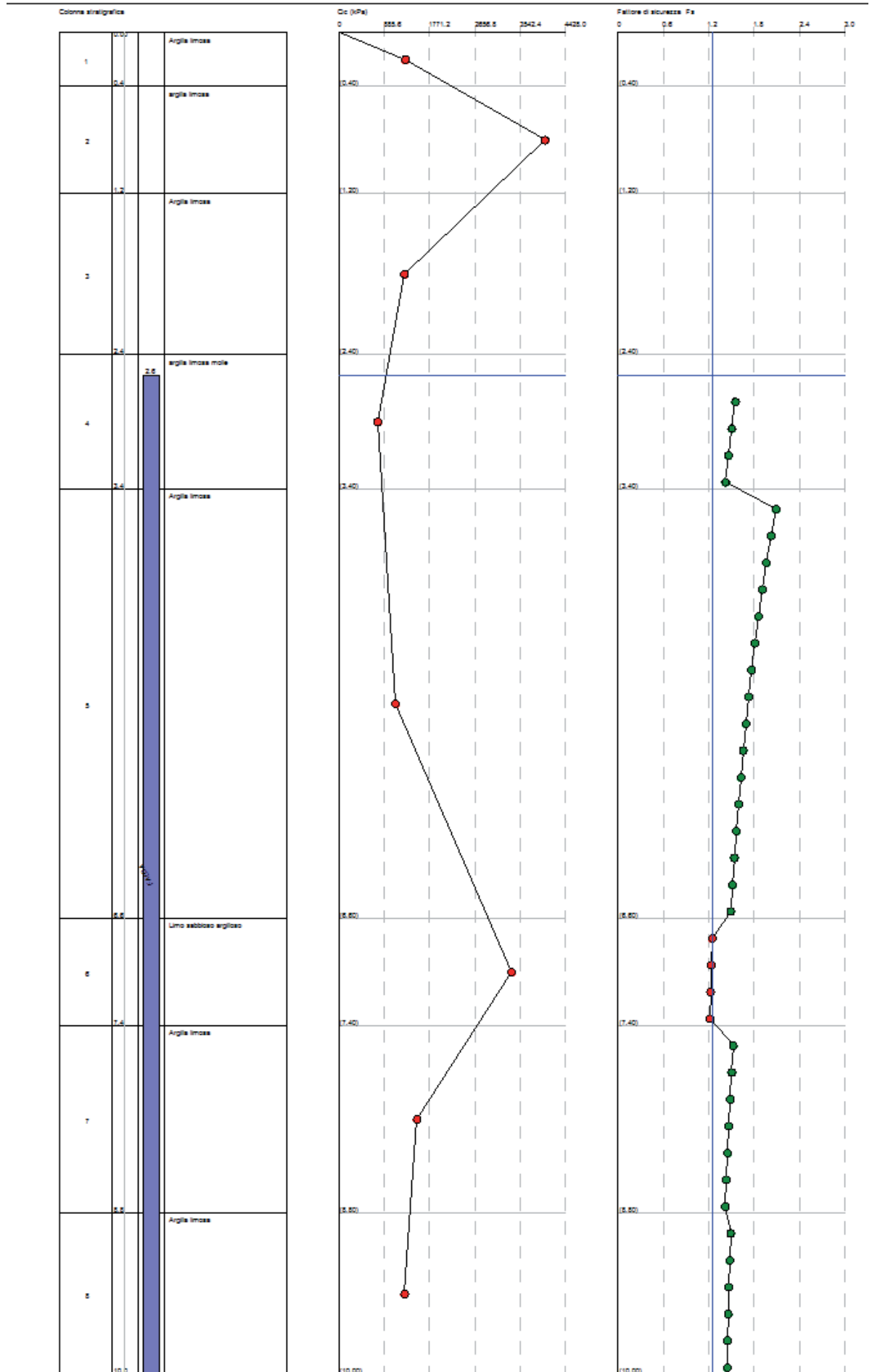
28	8.15	192.673	137.755	9.693	5.691	3.173	0.7259249	98.512	0.938	0.169	0.115	1.468	NL	0	Molto basso
29	8.35	196.932	140.053	9.504	5.710	3.181	0.7140151	98.021	0.936	0.168	0.115	1.451	NL	0	Molto basso
30	8.55	201.189	142.349	9.321	5.728	3.188	0.7024968	97.543	0.935	0.166	0.116	1.435	NL	0	Molto basso
31	8.75	205.446	144.644	9.143	5.746	3.196	0.6913511	97.078	0.933	0.165	0.116	1.420	NL	0	Molto basso
32	8.95	209.700	146.938	7.318	7.626	3.348	0.6805598	100.316	0.932	0.174	0.117	1.491	NL	0	Molto basso
33	9.15	213.954	149.230	7.177	7.656	3.356	0.6701064	99.839	0.930	0.173	0.117	1.476	NL	0	Molto basso
34	9.35	218.206	151.521	7.041	7.687	3.363	0.6599753	99.376	0.924	0.171	0.117	1.467	NL	0	Molto basso
35	9.55	222.457	153.810	6.908	7.717	3.371	0.6501518	98.925	0.919	0.170	0.117	1.458	NL	0	Molto basso
36	9.75	226.706	156.098	6.780	7.748	3.378	0.6406217	98.486	0.914	0.169	0.116	1.450	NL	0	Molto basso
37	9.95	230.954	158.385	6.655	7.780	3.386	0.6313724	98.059	0.908	0.168	0.116	1.443	NL	0	Molto basso

IPL (Sonmez)=0 Zcrit=10 m Rischio=Molto basso

GRAFICO LIQUEFAZIONE CPT2

Allegato 2

Liquefazione



LIQUEFAZIONE PUNTO CPT3

Allegato 2

Liquefazione

DATI GENERALI

Normativa: Norme Tecniche Costruzioni, Circolare 2 febbraio 2009, n.617

Fattore sicurezza normativa 1.25

FALDA

Profondità falda idrica 2.4 m

CARICHI SUL PIANO CAMPAGNA

Base 50 m

Lunghezza 20 m

Carico in superficie 100 kPa

Metodo calcolo stato tensionale Bussinesq

Coefficiente di Poisson 0.35

DATI SISMICI

Accelerazione Bedrock 0.154

Fattore amplificazione 2.575

Tipo Suolo: C-Sabbie, ghiaie mediamente addensate, argille di media consistenza Vs30=180-360

Morfologia: T1-Superficie pianeggiante, pendii e rilievi isolati con inclinazione media $i \leq 15^\circ$

Coefficiente amplificazione stratigrafica (SS) 1.46207

Coefficiente amplificazione topografica (ST) 1

Magnitudo momento sismico (Mw) 6.14

Distanza epicentro 5 Km

Peak ground acceleration (PGA) 0.2251588

PARAMETRI GEOTECNICI

Strato Nr	Descrizione	Quota iniziale (m)	Quota finale (m)	Peso unità volume (KN/mc)	Peso unità volume saturo (KN/mc)	Resistenza qc (KPa)	Resistenza attrito laterale fs (KPa)
1	limo argilloso	0	0.6	18.5	21.5	2700	104
2	argilla limosa	0.6	1.2	18.5	21.5	1900	152
3	limo argilloso sabbioso	1.2	2.2	19	22	1260	50
4	argilla limosa	2.2	3.6	18	21	1057	51
5	Limo argilloso-arg. limosa	3.6	5.4	18.5	21.5	1178	51
6	sabbia limosa	5.4	5.8	20.5	22.5	2000	50
7	Argilla limosa	5.8	6.6	18.5	21.5	1175	70
8	Sabbia limosa	6.6	8.2	21	23	4060	66
9	Limo argilloso	8.2	10	18.5	21.5	1766	75

Allegato 2

Liquefazione

Robertson Wride, 1998

Correzione per la magnitudo (MSF) 1.67

Nr.	Profondità dal p.c. (m)	Pressione litostatica totale (KPa)	Pressione verticale effettiva (KPa)	Resistenza alla punta normalizzata Q	Attrito laterale normalizzato F(%)	Indice di compattamento Ic	Correzione per la pressione litostatica efficace CQ	Resistenza alla punta corretta qc1 (KPa)	Coefficiente ridotto (rd)	Resistenza alla liquefazione (CR)	Sforzo di taglio normalizzato (CSR)	Coefficiente di sicurezza Fs	Suscettibilità di liquefazione	Indice di liquefazione	Rischio
1	2.60	73.989	72.028	13.648	5.188	3.033	1.38835	104.388	0.980	0.186	0.088	2.104	NL	0	Molto basso
2	2.80	78.184	74.261	13.181	5.210	3.045	1.346605	103.381	0.979	0.183	0.090	2.022	NL	0	Molto basso
3	3.00	82.377	76.493	12.741	5.233	3.058	1.307311	102.420	0.977	0.180	0.092	1.949	NL	0	Molto basso
4	3.20	86.569	78.724	12.327	5.255	3.070	1.270259	101.502	0.976	0.177	0.094	1.884	NL	0	Molto basso
5	3.40	90.761	80.954	11.936	5.278	3.082	1.235265	100.624	0.974	0.175	0.096	1.824	NL	0	Molto basso
6	3.60	94.952	83.184	13.020	4.709	3.022	1.202161	98.981	0.972	0.170	0.097	1.748	NL	0	Molto basso
7	3.80	99.241	85.512	12.615	4.728	3.034	1.16943	98.154	0.971	0.168	0.099	1.699	NL	0	Molto basso
8	4.00	103.530	87.839	12.232	4.747	3.045	1.138449	97.361	0.969	0.166	0.100	1.655	NL	0	Molto basso
9	4.20	107.817	90.165	11.869	4.766	3.056	1.10908	96.601	0.968	0.164	0.102	1.614	NL	0	Molto basso
10	4.40	112.103	92.490	11.525	4.785	3.068	1.081202	95.871	0.966	0.162	0.103	1.576	NL	0	Molto basso
11	4.60	116.388	94.813	11.197	4.804	3.078	1.054704	95.169	0.965	0.160	0.104	1.542	NL	0	Molto basso
12	4.80	120.672	97.136	10.885	4.823	3.089	1.029487	94.494	0.963	0.158	0.105	1.510	NL	0	Molto basso

Allegato 2

Liquefazione

13	5.00	124.954	99.457	10.588	4.843	3.100	1.005461	93.845	0.962	0.157	0.106	1.480	NL	0	Molto basso
14	5.20	129.235	101.777	10.305	4.863	3.110	0.9825424	93.220	0.960	0.155	0.107	1.452	NL	0	Molto basso
15	5.40	133.515	104.095	10.034	4.883	3.120	0.9606578	92.617	0.959	0.154	0.108	1.427	NL	0	Molto basso
16	5.60	137.994	106.613	17.465	2.685	2.772	0.9379758	85.334	0.957	0.138	0.109	1.268	NL	0	Molto basso
17	5.80	142.471	109.128	17.021	2.692	2.781	0.9163513	84.812	0.956	0.137	0.109	1.249	L	0.00	Molto basso
18	6.00	146.747	111.443	9.227	6.808	3.239	0.8973201	103.334	0.954	0.183	0.110	1.657	NL	0	Molto basso
19	6.20	151.021	113.756	9.002	6.836	3.248	0.8790739	102.656	0.953	0.181	0.111	1.628	NL	0	Molto basso
20	6.40	155.294	116.068	8.785	6.865	3.258	0.8615655	102.000	0.951	0.179	0.112	1.601	NL	0	Molto basso
21	6.60	159.566	118.378	8.578	6.894	3.267	0.844751	101.365	0.950	0.177	0.112	1.575	NL	0	Molto basso
22	6.80	164.136	120.987	36.911	1.694	2.392	0.9091399	84.114	0.948	0.135	0.113	1.200	L	0.00	Molto basso
23	7.00	168.705	123.594	36.520	1.696	2.396	0.8994989	83.809	0.946	0.135	0.113	1.189	L	0.00	Molto basso
24	7.20	173.272	126.200	36.141	1.698	2.400	0.8901632	83.514	0.945	0.134	0.114	1.179	L	0.00	Molto basso
25	7.40	177.838	128.805	35.773	1.700	2.403	0.8811172	83.228	0.943	0.134	0.114	1.169	L	0.00	Molto basso
26	7.60	182.403	131.408	35.417	1.702	2.407	0.8723464	82.952	0.942	0.133	0.115	1.160	L	0.00	Molto basso
27	7.80	186.966	134.010	35.072	1.704	2.411	0.8638369	82.684	0.940	0.133	0.115	1.152	L	0.00	Molto basso
28	8.00	191.527	136.610	34.736	1.706	2.415	0.8555762	82.425	0.939	0.132	0.115	1.144	L	0.00	Molto basso
29	8.20	196.087	139.209	34.411	1.708	2.418	0.8475524	82.173	0.937	0.132	0.116	1.136	L	0.00	Molto basso

Allegato 2

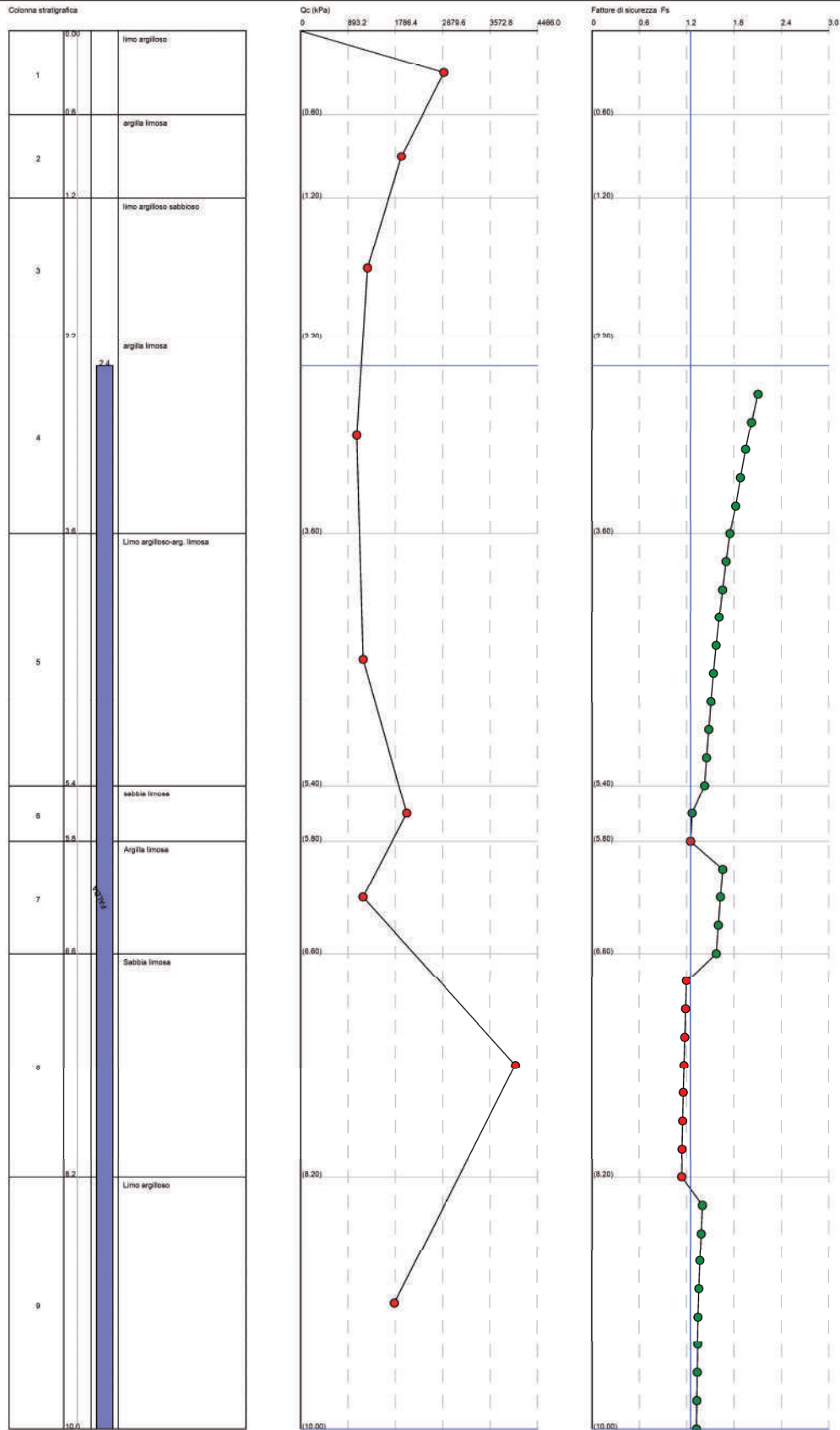
Liquefazione

30	8.40	200.346	141.506	11.064	4.790	3.082	0.7066824	96.100	0.936	0.163	0.116	1.399	NL	0	Molto basso
31	8.60	204.604	143.802	10.858	4.803	3.089	0.6953993	95.650	0.934	0.161	0.117	1.384	NL	0	Molto basso
32	8.80	208.859	146.097	10.658	4.817	3.096	0.6844774	95.211	0.933	0.160	0.117	1.370	NL	0	Molto basso
33	9.00	213.114	148.390	10.465	4.830	3.103	0.6738998	94.783	0.931	0.159	0.117	1.357	NL	0	Molto basso
34	9.20	217.367	150.682	10.278	4.843	3.110	0.66365	94.365	0.928	0.158	0.117	1.346	NL	0	Molto basso
35	9.40	221.619	152.972	10.096	4.856	3.117	0.6537132	93.959	0.923	0.157	0.117	1.340	NL	0	Molto basso
36	9.60	225.869	155.261	9.920	4.870	3.124	0.6440751	93.562	0.918	0.156	0.117	1.334	NL	0	Molto basso
37	9.80	230.118	157.549	9.749	4.883	3.130	0.6347225	93.174	0.912	0.155	0.117	1.328	NL	0	Molto basso
38	10.00	234.366	159.836	9.583	4.897	3.137	0.6256428	92.796	0.907	0.154	0.117	1.323	NL	0	Molto basso

IPL (Sonmez)=0 Zcrit=10 m Rischio=Basso

Allegato 2

Liquefazione



Copia di documento acquisito nel protocollo informatico del Comune di Carpi.

Dati per il calcolo dell'indice del potenziale di liquefazione - CPTu -

Allegato 3

Cedimenti post sismici

:: Liquefaction Potential Index calculation data ::											
Depth (m)	FS	m(FS)	H ₁ *m(FS)	d _z	LPI _{ISH}	Depth (m)	FS	m(FS)	H ₁ *m(FS)	d _z	LPI _{ISH}
0.20	2.00	0.00	0.00	0.00	0.00	0.20	2.00	0.00	0.00	0.00	0.00
0.20	2.00	0.00	0.00	0.00	0.00	0.20	2.00	0.00	0.00	0.00	0.00
0.20	2.00	0.00	0.00	0.00	0.00	0.20	2.00	0.00	0.00	0.00	0.00
0.20	2.00	0.00	0.00	0.00	0.00	0.20	2.00	0.00	0.00	0.00	0.00
0.20	2.00	0.00	0.00	0.00	0.00	0.20	2.00	0.00	0.00	0.00	0.00
0.20	2.00	0.00	0.00	0.00	0.00	0.22	2.00	0.00	0.00	0.02	0.00
0.24	2.00	0.00	0.00	0.02	0.00	0.26	2.00	0.00	0.00	0.02	0.00
0.28	2.00	0.00	0.00	0.02	0.00	0.30	2.00	0.00	0.00	0.02	0.00
0.32	2.00	0.00	0.00	0.02	0.00	0.34	2.00	0.00	0.00	0.02	0.00
0.36	2.00	0.00	0.00	0.02	0.00	0.38	2.00	0.00	0.00	0.02	0.00
0.40	2.00	0.00	0.00	0.02	0.00	0.42	2.00	0.00	0.00	0.02	0.00
0.44	2.00	0.00	0.00	0.02	0.00	0.46	2.00	0.00	0.00	0.02	0.00
0.48	2.00	0.00	0.00	0.02	0.00	0.50	2.00	0.00	0.00	0.02	0.00
0.52	2.00	0.00	0.00	0.02	0.00	0.54	2.00	0.00	0.00	0.02	0.00
0.56	2.00	0.00	0.00	0.02	0.00	0.58	2.00	0.00	0.00	0.02	0.00
0.60	2.00	0.00	0.00	0.02	0.00	0.62	2.00	0.00	0.00	0.02	0.00
0.64	2.00	0.00	0.00	0.02	0.00	0.66	2.00	0.00	0.00	0.02	0.00
0.68	2.00	0.00	0.00	0.02	0.00	0.70	2.00	0.00	0.00	0.02	0.00
0.72	2.00	0.00	0.00	0.02	0.00	0.74	2.00	0.00	0.00	0.02	0.00
0.76	2.00	0.00	0.00	0.02	0.00	0.78	2.00	0.00	0.00	0.02	0.00
0.80	2.00	0.00	0.00	0.02	0.00	0.82	2.00	0.00	0.00	0.02	0.00
0.84	2.00	0.00	0.00	0.02	0.00	0.86	2.00	0.00	0.00	0.02	0.00
0.88	2.00	0.00	0.00	0.02	0.00	0.90	2.00	0.00	0.00	0.02	0.00
0.92	2.00	0.00	0.00	0.02	0.00	0.94	2.00	0.00	0.00	0.02	0.00
0.96	2.00	0.00	0.00	0.02	0.00	0.98	2.00	0.00	0.00	0.02	0.00
1.00	2.00	0.00	0.00	0.02	0.00	1.02	2.00	0.00	0.00	0.02	0.00
1.04	2.00	0.00	0.00	0.02	0.00	1.06	2.00	0.00	0.00	0.02	0.00
1.08	2.00	0.00	0.00	0.02	0.00	1.10	2.00	0.00	0.00	0.02	0.00
1.12	2.00	0.00	0.00	0.02	0.00	1.15	2.00	0.00	0.00	0.03	0.00
1.16	2.00	0.00	0.00	0.01	0.00	1.18	2.00	0.00	0.00	0.02	0.00
1.20	2.00	0.00	0.00	0.02	0.00	1.22	2.00	0.00	0.00	0.02	0.00
1.24	2.00	0.00	0.00	0.02	0.00	1.26	2.00	0.00	0.00	0.02	0.00
1.28	2.00	0.00	0.00	0.02	0.00	1.30	2.00	0.00	0.00	0.02	0.00
1.32	2.00	0.00	0.00	0.02	0.00	1.34	2.00	0.00	0.00	0.02	0.00
1.36	2.00	0.00	0.00	0.02	0.00	1.38	2.00	0.00	0.00	0.02	0.00
1.40	2.00	0.00	0.00	0.02	0.00	1.42	2.00	0.00	0.00	0.02	0.00
1.44	2.00	0.00	0.00	0.02	0.00	1.46	2.00	0.00	0.00	0.02	0.00
1.48	2.00	0.00	0.00	0.02	0.00	1.50	2.00	0.00	0.00	0.02	0.00
1.52	2.00	0.00	0.00	0.02	0.00	1.54	2.00	0.00	0.00	0.02	0.00
1.56	2.00	0.00	0.00	0.02	0.00	1.58	2.00	0.00	0.00	0.02	0.00
1.60	2.00	0.00	0.00	0.02	0.00	1.62	2.00	0.00	0.00	0.02	0.00
1.64	2.00	0.00	0.00	0.02	0.00	1.66	2.00	0.00	0.00	0.02	0.00
1.68	2.00	0.00	0.00	0.02	0.00	1.70	2.00	0.00	0.00	0.02	0.00
1.72	2.00	0.00	0.00	0.02	0.00	1.74	2.00	0.00	0.00	0.02	0.00
1.76	2.00	0.00	0.00	0.02	0.00	1.78	2.00	0.00	0.00	0.02	0.00
1.80	2.00	0.00	0.00	0.02	0.00	1.82	2.00	0.00	0.00	0.02	0.00
1.84	2.00	0.00	0.00	0.02	0.00	1.86	2.00	0.00	0.00	0.02	0.00
1.88	2.00	0.00	0.00	0.02	0.00	1.90	2.00	0.00	0.00	0.02	0.00
1.92	2.00	0.00	0.00	0.02	0.00	1.94	2.00	0.00	0.00	0.02	0.00



Allegato 3

Cedimenti post sismici

:: Liquefaction Potential Index calculation data ::											
Depth (m)	FS	m(FS)	H ₁ *m(FS)	d _z	LPI _{ISH}	Depth (m)	FS	m(FS)	H ₁ *m(FS)	d _z	LPI _{ISH}
1.96	2.00	0.00	0.00	0.02	0.00	1.98	2.00	0.00	0.00	0.02	0.00
2.00	2.00	0.00	0.00	0.02	0.00	2.02	2.00	0.00	0.00	0.02	0.00
2.04	2.00	0.00	0.00	0.02	0.00	2.06	2.00	0.00	0.00	0.02	0.00
2.08	2.00	0.00	0.00	0.02	0.00	2.10	2.00	0.00	0.00	0.02	0.00
2.12	2.00	0.00	0.00	0.02	0.00	2.14	2.00	0.00	0.00	0.02	0.00
2.16	2.00	0.00	0.00	0.02	0.00	2.18	2.00	0.00	0.00	0.02	0.00
2.20	2.00	0.00	0.00	0.02	0.00	2.22	2.00	0.00	0.00	0.02	0.00
2.24	2.00	0.00	0.00	0.02	0.00	2.26	2.00	0.00	0.00	0.02	0.00
2.28	2.00	0.00	0.00	0.02	0.00	2.30	2.00	0.00	0.00	0.02	0.00
2.32	2.00	0.00	0.00	0.02	0.00	2.34	2.00	0.00	0.00	0.02	0.00
2.36	2.00	0.00	0.00	0.02	0.00	2.38	2.00	0.00	0.00	0.02	0.00
2.40	2.00	0.00	0.00	0.02	0.00	2.42	2.00	0.00	0.00	0.02	0.00
2.44	2.00	0.00	0.00	0.02	0.00	2.46	2.00	0.00	0.00	0.02	0.00
2.48	2.00	0.00	0.00	0.02	0.00	2.50	2.00	0.00	0.00	0.02	0.00
2.52	2.00	0.00	0.00	0.02	0.00	2.54	2.00	0.00	0.00	0.02	0.00
2.56	2.00	0.00	0.00	0.02	0.00	2.58	2.00	0.00	0.00	0.02	0.00
2.60	2.00	0.00	0.00	0.02	0.00	2.62	2.00	0.00	0.00	0.02	0.00
2.64	2.00	0.00	0.00	0.02	0.00	2.70	2.00	0.00	0.00	0.06	0.00
2.70	2.00	0.00	0.00	0.00	0.00	2.70	2.00	0.00	0.00	0.00	0.00
2.72	2.00	0.00	0.00	0.02	0.00	2.75	2.00	0.00	0.00	0.03	0.00
2.76	2.00	0.00	0.00	0.01	0.00	2.78	2.00	0.00	0.00	0.02	0.00
2.80	2.00	0.00	0.00	0.02	0.00	2.82	2.00	0.00	0.00	0.02	0.00
2.84	2.00	0.00	0.00	0.02	0.00	2.86	2.00	0.00	0.00	0.02	0.00
2.88	2.00	0.00	0.00	0.02	0.00	2.90	2.00	0.00	0.00	0.02	0.00
2.92	2.00	0.00	0.00	0.02	0.00	2.94	2.00	0.00	0.00	0.02	0.00
2.96	2.00	0.00	0.00	0.02	0.00	2.98	2.00	0.00	0.00	0.02	0.00
3.00	2.00	0.00	0.00	0.02	0.00	3.02	2.00	0.00	0.00	0.02	0.00
3.04	2.00	0.00	0.00	0.02	0.00	3.06	2.00	0.00	0.00	0.02	0.00
3.08	2.00	0.00	0.00	0.02	0.00	3.10	2.00	0.00	0.00	0.02	0.00
3.12	2.00	0.00	0.00	0.02	0.00	3.14	2.00	0.00	0.00	0.02	0.00
3.16	2.00	0.00	0.00	0.02	0.00	3.18	2.00	0.00	0.00	0.02	0.00
3.20	2.00	0.00	0.00	0.02	0.00	3.22	2.00	0.00	0.00	0.02	0.00
3.24	2.00	0.00	0.00	0.02	0.00	3.26	2.00	0.00	0.00	0.02	0.00
3.28	2.00	0.00	0.00	0.02	0.00	3.30	2.00	0.00	0.00	0.02	0.00
3.32	2.00	0.00	0.00	0.02	0.00	3.34	2.00	0.00	0.00	0.02	0.00
3.36	2.00	0.00	0.00	0.02	0.00	3.38	2.00	0.00	0.00	0.02	0.00
3.40	2.00	0.00	0.00	0.02	0.00	3.42	2.00	0.00	0.00	0.02	0.00
3.44	2.00	0.00	0.00	0.02	0.00	3.46	2.00	0.00	0.00	0.02	0.00
3.48	2.00	0.00	0.00	0.02	0.00	3.50	2.00	0.00	0.00	0.02	0.00
3.52	2.00	0.00	0.00	0.02	0.00	3.54	2.00	0.00	0.00	0.02	0.00
3.56	2.00	0.00	0.00	0.02	0.00	3.58	2.00	0.00	0.00	0.02	0.00
3.60	2.00	0.00	0.00	0.02	0.00	3.62	2.00	0.00	0.00	0.02	0.00
3.65	2.00	0.00	0.00	0.03	0.00	3.66	2.00	0.00	0.00	0.01	0.00
3.68	2.00	0.00	0.00	0.02	0.00	3.70	2.00	0.00	0.00	0.02	0.00
3.72	2.00	0.00	0.00	0.02	0.00	3.74	2.00	0.00	0.00	0.02	0.00
3.76	2.00	0.00	0.00	0.02	0.00	3.79	2.00	0.00	0.00	0.03	0.00
3.80	2.00	0.00	0.00	0.01	0.00	3.82	2.00	0.00	0.00	0.02	0.00
3.84	2.00	0.00	0.00	0.02	0.00	3.86	2.00	0.00	0.00	0.02	0.00
3.88	2.00	0.00	0.00	0.02	0.00	3.90	2.00	0.00	0.00	0.02	0.00



Allegato 3

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:: Liquefaction Potential Index calculation data ::											
Depth (m)	FS	m(FS)	H ₁ *m(FS)	d _z	LPI _{ISH}	Depth (m)	FS	m(FS)	H ₁ *m(FS)	d _z	LPI _{ISH}
3.92	2.00	0.00	0.00	0.02	0.00	3.94	2.00	0.00	0.00	0.02	0.00
3.96	2.00	0.00	0.00	0.02	0.00	3.98	2.00	0.00	0.00	0.02	0.00
4.00	2.00	0.00	0.00	0.02	0.00	4.02	2.00	0.00	0.00	0.02	0.00
4.04	2.00	0.00	0.00	0.02	0.00	4.06	2.00	0.00	0.00	0.02	0.00
4.08	2.00	0.00	0.00	0.02	0.00	4.10	2.00	0.00	0.00	0.02	0.00
4.12	2.00	0.00	0.00	0.02	0.00	4.14	2.00	0.00	0.00	0.02	0.00
4.16	2.00	0.00	0.00	0.02	0.00	4.18	2.00	0.00	0.00	0.02	0.00
4.20	2.00	0.00	0.00	0.02	0.00	4.22	2.00	0.00	0.00	0.02	0.00
4.24	2.00	0.00	0.00	0.02	0.00	4.26	2.00	0.00	0.00	0.02	0.00
4.28	2.00	0.00	0.00	0.02	0.00	4.30	2.00	0.00	0.00	0.02	0.00
4.32	2.00	0.00	0.00	0.02	0.00	4.34	2.00	0.00	0.00	0.02	0.00
4.36	2.00	0.00	0.00	0.02	0.00	4.38	2.00	0.00	0.00	0.02	0.00
4.40	2.00	0.00	0.00	0.02	0.00	4.42	2.00	0.00	0.00	0.02	0.00
4.44	0.44	0.56	0.41	0.02	0.09	4.46	0.47	0.53	0.45	0.02	0.08
4.48	0.46	0.54	0.44	0.02	0.08	4.50	2.00	0.00	0.00	0.02	0.00
4.52	2.00	0.00	0.00	0.02	0.00	4.54	2.00	0.00	0.00	0.02	0.00
4.56	2.00	0.00	0.00	0.02	0.00	4.58	2.00	0.00	0.00	0.02	0.00
4.60	2.00	0.00	0.00	0.02	0.00	4.62	2.00	0.00	0.00	0.02	0.00
4.64	2.00	0.00	0.00	0.02	0.00	4.66	2.00	0.00	0.00	0.02	0.00
4.68	2.00	0.00	0.00	0.02	0.00	4.70	2.00	0.00	0.00	0.02	0.00
4.72	2.00	0.00	0.00	0.02	0.00	4.74	2.00	0.00	0.00	0.02	0.00
4.76	2.00	0.00	0.00	0.02	0.00	4.78	2.00	0.00	0.00	0.02	0.00
4.80	2.00	0.00	0.00	0.02	0.00	4.82	2.00	0.00	0.00	0.02	0.00
4.84	2.00	0.00	0.00	0.02	0.00	4.86	2.00	0.00	0.00	0.02	0.00
4.88	2.00	0.00	0.00	0.02	0.00	4.90	2.00	0.00	0.00	0.02	0.00
4.92	2.00	0.00	0.00	0.02	0.00	4.94	2.00	0.00	0.00	0.02	0.00
4.96	2.00	0.00	0.00	0.02	0.00	4.98	2.00	0.00	0.00	0.02	0.00
5.00	2.00	0.00	0.00	0.02	0.00	5.02	2.00	0.00	0.00	0.02	0.00
5.04	2.00	0.00	0.00	0.02	0.00	5.06	2.00	0.00	0.00	0.02	0.00
5.08	2.00	0.00	0.00	0.02	0.00	5.10	2.00	0.00	0.00	0.02	0.00
5.12	2.00	0.00	0.00	0.02	0.00	5.14	2.00	0.00	0.00	0.02	0.00
5.16	2.00	0.00	0.00	0.02	0.00	5.18	2.00	0.00	0.00	0.02	0.00
5.20	2.00	0.00	0.00	0.02	0.00	5.22	2.00	0.00	0.00	0.02	0.00
5.24	2.00	0.00	0.00	0.02	0.00	5.26	2.00	0.00	0.00	0.02	0.00
5.28	2.00	0.00	0.00	0.02	0.00	5.30	2.00	0.00	0.00	0.02	0.00
5.32	2.00	0.00	0.00	0.02	0.00	5.34	2.00	0.00	0.00	0.02	0.00
5.36	2.00	0.00	0.00	0.02	0.00	5.38	2.00	0.00	0.00	0.02	0.00
5.40	2.00	0.00	0.00	0.02	0.00	5.42	2.00	0.00	0.00	0.02	0.00
5.44	2.00	0.00	0.00	0.02	0.00	5.46	2.00	0.00	0.00	0.02	0.00
5.48	2.00	0.00	0.00	0.02	0.00	5.50	2.00	0.00	0.00	0.02	0.00
5.52	2.00	0.00	0.00	0.02	0.00	5.54	2.00	0.00	0.00	0.02	0.00
5.56	2.00	0.00	0.00	0.02	0.00	5.58	2.00	0.00	0.00	0.02	0.00
5.60	2.00	0.00	0.00	0.02	0.00	5.62	2.00	0.00	0.00	0.02	0.00
5.64	2.00	0.00	0.00	0.02	0.00	5.66	2.00	0.00	0.00	0.02	0.00
5.68	2.00	0.00	0.00	0.02	0.00	5.70	2.00	0.00	0.00	0.02	0.00
5.72	2.00	0.00	0.00	0.02	0.00	5.74	2.00	0.00	0.00	0.02	0.00
5.76	2.00	0.00	0.00	0.02	0.00	5.78	2.00	0.00	0.00	0.02	0.00
5.80	2.00	0.00	0.00	0.02	0.00	5.82	2.00	0.00	0.00	0.02	0.00
5.84	2.00	0.00	0.00	0.02	0.00	5.86	2.00	0.00	0.00	0.02	0.00



Allegato 3

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:: Liquefaction Potential Index calculation data ::											
Depth (m)	FS	m(FS)	H ₁ *m(FS)	d _z	LPI _{ISH}	Depth (m)	FS	m(FS)	H ₁ *m(FS)	d _z	LPI _{ISH}
5.88	2.00	0.00	0.00	0.02	0.00	5.90	2.00	0.00	0.00	0.02	0.00
5.92	2.00	0.00	0.00	0.02	0.00	5.95	2.00	0.00	0.00	0.03	0.00
5.96	2.00	0.00	0.00	0.01	0.00	5.98	2.00	0.00	0.00	0.02	0.00
6.00	2.00	0.00	0.00	0.02	0.00	6.02	2.00	0.00	0.00	0.02	0.00
6.04	2.00	0.00	0.00	0.02	0.00	6.06	2.00	0.00	0.00	0.02	0.00
6.08	2.00	0.00	0.00	0.02	0.00	6.10	2.00	0.00	0.00	0.02	0.00
6.12	2.00	0.00	0.00	0.02	0.00	6.14	2.00	0.00	0.00	0.02	0.00
6.16	2.00	0.00	0.00	0.02	0.00	6.18	2.00	0.00	0.00	0.02	0.00
6.20	2.00	0.00	0.00	0.02	0.00	6.22	2.00	0.00	0.00	0.02	0.00
6.24	2.00	0.00	0.00	0.02	0.00	6.26	2.00	0.00	0.00	0.02	0.00
6.28	2.00	0.00	0.00	0.02	0.00	6.30	2.00	0.00	0.00	0.02	0.00
6.32	2.00	0.00	0.00	0.02	0.00	6.34	2.00	0.00	0.00	0.02	0.00
6.36	2.00	0.00	0.00	0.02	0.00	6.38	2.00	0.00	0.00	0.02	0.00
6.40	2.00	0.00	0.00	0.02	0.00	6.42	2.00	0.00	0.00	0.02	0.00
6.44	2.00	0.00	0.00	0.02	0.00	6.46	2.00	0.00	0.00	0.02	0.00
6.48	2.00	0.00	0.00	0.02	0.00	6.50	2.00	0.00	0.00	0.02	0.00
6.52	2.00	0.00	0.00	0.02	0.00	6.54	2.00	0.00	0.00	0.02	0.00
6.56	2.00	0.00	0.00	0.02	0.00	6.58	2.00	0.00	0.00	0.02	0.00
6.60	2.00	0.00	0.00	0.02	0.00	6.62	2.00	0.00	0.00	0.02	0.00
6.64	2.00	0.00	0.00	0.02	0.00	6.66	2.00	0.00	0.00	0.02	0.00
6.68	2.00	0.00	0.00	0.02	0.00	6.70	2.00	0.00	0.00	0.02	0.00
6.72	2.00	0.00	0.00	0.02	0.00	6.74	2.00	0.00	0.00	0.02	0.00
6.76	2.00	0.00	0.00	0.02	0.00	6.78	2.00	0.00	0.00	0.02	0.00
6.80	2.00	0.00	0.00	0.02	0.00	6.82	2.00	0.00	0.00	0.02	0.00
6.84	2.00	0.00	0.00	0.02	0.00	6.86	2.00	0.00	0.00	0.02	0.00
6.88	2.00	0.00	0.00	0.02	0.00	6.90	2.00	0.00	0.00	0.02	0.00
6.92	2.00	0.00	0.00	0.02	0.00	6.94	0.42	0.58	0.40	0.02	0.08
6.96	0.42	0.58	0.40	0.02	0.08	6.98	0.43	0.57	0.41	0.02	0.07
7.00	0.42	0.58	0.40	0.02	0.08	7.02	0.40	0.60	0.39	0.02	0.08
7.04	0.38	0.62	0.37	0.02	0.08	7.06	2.00	0.00	0.00	0.02	0.00
7.08	2.00	0.00	0.00	0.02	0.00	7.10	2.00	0.00	0.00	0.02	0.00
7.12	2.00	0.00	0.00	0.02	0.00	7.14	2.00	0.00	0.00	0.02	0.00
7.16	2.00	0.00	0.00	0.02	0.00	7.18	2.00	0.00	0.00	0.02	0.00
7.20	2.00	0.00	0.00	0.02	0.00	7.22	2.00	0.00	0.00	0.02	0.00
7.24	2.00	0.00	0.00	0.02	0.00	7.26	2.00	0.00	0.00	0.02	0.00
7.28	2.00	0.00	0.00	0.02	0.00	7.30	2.00	0.00	0.00	0.02	0.00
7.34	2.00	0.00	0.00	0.04	0.00	7.34	2.00	0.00	0.00	0.00	0.00
7.36	2.00	0.00	0.00	0.02	0.00	7.38	2.00	0.00	0.00	0.02	0.00
7.40	2.00	0.00	0.00	0.02	0.00	7.42	2.00	0.00	0.00	0.02	0.00
7.46	2.00	0.00	0.00	0.04	0.00	7.46	2.00	0.00	0.00	0.00	0.00
7.48	2.00	0.00	0.00	0.02	0.00	7.50	2.00	0.00	0.00	0.02	0.00
7.52	2.00	0.00	0.00	0.02	0.00	7.54	2.00	0.00	0.00	0.02	0.00
7.56	2.00	0.00	0.00	0.02	0.00	7.58	2.00	0.00	0.00	0.02	0.00
7.60	2.00	0.00	0.00	0.02	0.00	7.62	2.00	0.00	0.00	0.02	0.00
7.64	2.00	0.00	0.00	0.02	0.00	7.66	2.00	0.00	0.00	0.02	0.00
7.68	2.00	0.00	0.00	0.02	0.00	7.70	2.00	0.00	0.00	0.02	0.00
7.72	2.00	0.00	0.00	0.02	0.00	7.74	2.00	0.00	0.00	0.02	0.00
7.76	2.00	0.00	0.00	0.02	0.00	7.82	2.00	0.00	0.00	0.06	0.00
7.82	2.00	0.00	0.00	0.00	0.00	7.82	2.00	0.00	0.00	0.00	0.00



Allegato 3

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:: Liquefaction Potential Index calculation data ::											
Depth (m)	FS	m(FS)	H ₁ *m(FS)	d _z	LPI _{ISH}	Depth (m)	FS	m(FS)	H ₁ *m(FS)	d _z	LPI _{ISH}
7.84	2.00	0.00	0.00	0.02	0.00	7.86	2.00	0.00	0.00	0.02	0.00
7.88	2.00	0.00	0.00	0.02	0.00	7.90	2.00	0.00	0.00	0.02	0.00
7.92	2.00	0.00	0.00	0.02	0.00	7.94	2.00	0.00	0.00	0.02	0.00
7.96	2.00	0.00	0.00	0.02	0.00	7.98	2.00	0.00	0.00	0.02	0.00
8.00	2.00	0.00	0.00	0.02	0.00	8.02	2.00	0.00	0.00	0.02	0.00
8.04	2.00	0.00	0.00	0.02	0.00	8.06	2.00	0.00	0.00	0.02	0.00
8.08	2.00	0.00	0.00	0.02	0.00	8.10	2.00	0.00	0.00	0.02	0.00
8.12	2.00	0.00	0.00	0.02	0.00	8.14	2.00	0.00	0.00	0.02	0.00
8.16	2.00	0.00	0.00	0.02	0.00	8.18	2.00	0.00	0.00	0.02	0.00
8.20	2.00	0.00	0.00	0.02	0.00	8.22	2.00	0.00	0.00	0.02	0.00
8.24	2.00	0.00	0.00	0.02	0.00	8.26	2.00	0.00	0.00	0.02	0.00
8.28	2.00	0.00	0.00	0.02	0.00	8.30	2.00	0.00	0.00	0.02	0.00
8.32	2.00	0.00	0.00	0.02	0.00	8.34	2.00	0.00	0.00	0.02	0.00
8.36	2.00	0.00	0.00	0.02	0.00	8.38	2.00	0.00	0.00	0.02	0.00
8.42	2.00	0.00	0.00	0.04	0.00	8.42	2.00	0.00	0.00	0.00	0.00
8.44	2.00	0.00	0.00	0.02	0.00	8.46	2.00	0.00	0.00	0.02	0.00
8.48	2.00	0.00	0.00	0.02	0.00	8.50	2.00	0.00	0.00	0.02	0.00
8.52	2.00	0.00	0.00	0.02	0.00	8.54	2.00	0.00	0.00	0.02	0.00
8.56	2.00	0.00	0.00	0.02	0.00	8.58	2.00	0.00	0.00	0.02	0.00
8.60	2.00	0.00	0.00	0.02	0.00	8.62	2.00	0.00	0.00	0.02	0.00
8.64	2.00	0.00	0.00	0.02	0.00	8.66	2.00	0.00	0.00	0.02	0.00
8.68	2.00	0.00	0.00	0.02	0.00	8.70	2.00	0.00	0.00	0.02	0.00
8.72	2.00	0.00	0.00	0.02	0.00	8.74	2.00	0.00	0.00	0.02	0.00
8.76	2.00	0.00	0.00	0.02	0.00	8.78	2.00	0.00	0.00	0.02	0.00
8.80	2.00	0.00	0.00	0.02	0.00	8.82	2.00	0.00	0.00	0.02	0.00
8.84	2.00	0.00	0.00	0.02	0.00	8.86	2.00	0.00	0.00	0.02	0.00
8.88	2.00	0.00	0.00	0.02	0.00	8.90	2.00	0.00	0.00	0.02	0.00
8.92	2.00	0.00	0.00	0.02	0.00	8.94	2.00	0.00	0.00	0.02	0.00
8.96	2.00	0.00	0.00	0.02	0.00	8.98	2.00	0.00	0.00	0.02	0.00
9.00	2.00	0.00	0.00	0.02	0.00	9.02	2.00	0.00	0.00	0.02	0.00
9.04	2.00	0.00	0.00	0.02	0.00	9.06	2.00	0.00	0.00	0.02	0.00
9.08	2.00	0.00	0.00	0.02	0.00	9.10	2.00	0.00	0.00	0.02	0.00
9.12	2.00	0.00	0.00	0.02	0.00	9.14	2.00	0.00	0.00	0.02	0.00
9.16	2.00	0.00	0.00	0.02	0.00	9.18	2.00	0.00	0.00	0.02	0.00
9.20	2.00	0.00	0.00	0.02	0.00	9.22	2.00	0.00	0.00	0.02	0.00
9.24	2.00	0.00	0.00	0.02	0.00	9.26	2.00	0.00	0.00	0.02	0.00
9.28	2.00	0.00	0.00	0.02	0.00	9.30	2.00	0.00	0.00	0.02	0.00
9.32	2.00	0.00	0.00	0.02	0.00	9.34	2.00	0.00	0.00	0.02	0.00
9.36	2.00	0.00	0.00	0.02	0.00	9.38	2.00	0.00	0.00	0.02	0.00
9.40	2.00	0.00	0.00	0.02	0.00	9.42	2.00	0.00	0.00	0.02	0.00
9.44	2.00	0.00	0.00	0.02	0.00	9.46	2.00	0.00	0.00	0.02	0.00
9.49	2.00	0.00	0.00	0.03	0.00	9.50	2.00	0.00	0.00	0.01	0.00
9.52	2.00	0.00	0.00	0.02	0.00	9.54	2.00	0.00	0.00	0.02	0.00
9.56	2.00	0.00	0.00	0.02	0.00	9.58	2.00	0.00	0.00	0.02	0.00
9.60	2.00	0.00	0.00	0.02	0.00	9.62	2.00	0.00	0.00	0.02	0.00
9.64	2.00	0.00	0.00	0.02	0.00	9.66	2.00	0.00	0.00	0.02	0.00
9.68	2.00	0.00	0.00	0.02	0.00	9.70	2.00	0.00	0.00	0.02	0.00
9.72	2.00	0.00	0.00	0.02	0.00	9.74	2.00	0.00	0.00	0.02	0.00
9.76	2.00	0.00	0.00	0.02	0.00	9.78	2.00	0.00	0.00	0.02	0.00



Allegato 3

Cedimenti post sismici

:: Liquefaction Potential Index calculation data ::											
Depth (m)	FS	m(FS)	H ₁ *m(FS)	d _z	LPI _{ISH}	Depth (m)	FS	m(FS)	H ₁ *m(FS)	d _z	LPI _{ISH}
9.80	2.00	0.00	0.00	0.02	0.00	9.82	2.00	0.00	0.00	0.02	0.00
9.84	2.00	0.00	0.00	0.02	0.00	9.86	2.00	0.00	0.00	0.02	0.00
9.88	2.00	0.00	0.00	0.02	0.00	9.90	2.00	0.00	0.00	0.02	0.00
9.92	2.00	0.00	0.00	0.02	0.00	9.94	2.00	0.00	0.00	0.02	0.00
9.96	2.00	0.00	0.00	0.02	0.00	9.98	2.00	0.00	0.00	0.02	0.00
10.00	2.00	0.00	0.00	0.02	0.00	10.02	2.00	0.00	0.00	0.02	0.00
10.04	2.00	0.00	0.00	0.02	0.00	10.06	2.00	0.00	0.00	0.02	0.00
10.08	2.00	0.00	0.00	0.02	0.00	10.10	2.00	0.00	0.00	0.02	0.00
10.12	2.00	0.00	0.00	0.02	0.00	10.14	2.00	0.00	0.00	0.02	0.00
10.16	2.00	0.00	0.00	0.02	0.00	10.18	2.00	0.00	0.00	0.02	0.00
10.20	2.00	0.00	0.00	0.02	0.00	10.22	2.00	0.00	0.00	0.02	0.00
10.24	2.00	0.00	0.00	0.02	0.00	10.26	2.00	0.00	0.00	0.02	0.00
10.28	2.00	0.00	0.00	0.02	0.00	10.30	2.00	0.00	0.00	0.02	0.00
10.32	2.00	0.00	0.00	0.02	0.00	10.34	2.00	0.00	0.00	0.02	0.00
10.36	2.00	0.00	0.00	0.02	0.00	10.38	2.00	0.00	0.00	0.02	0.00
10.40	2.00	0.00	0.00	0.02	0.00	10.42	2.00	0.00	0.00	0.02	0.00
10.44	2.00	0.00	0.00	0.02	0.00	10.46	2.00	0.00	0.00	0.02	0.00
10.48	2.00	0.00	0.00	0.02	0.00	10.50	2.00	0.00	0.00	0.02	0.00
10.52	2.00	0.00	0.00	0.02	0.00	10.54	2.00	0.00	0.00	0.02	0.00
10.56	2.00	0.00	0.00	0.02	0.00	10.58	2.00	0.00	0.00	0.02	0.00
10.60	2.00	0.00	0.00	0.02	0.00	10.62	2.00	0.00	0.00	0.02	0.00
10.64	2.00	0.00	0.00	0.02	0.00	10.66	2.00	0.00	0.00	0.02	0.00
10.68	2.00	0.00	0.00	0.02	0.00	10.70	2.00	0.00	0.00	0.02	0.00
10.72	2.00	0.00	0.00	0.02	0.00	10.74	2.00	0.00	0.00	0.02	0.00
10.76	2.00	0.00	0.00	0.02	0.00	10.78	2.00	0.00	0.00	0.02	0.00
10.80	2.00	0.00	0.00	0.02	0.00	10.82	2.00	0.00	0.00	0.02	0.00
10.84	2.00	0.00	0.00	0.02	0.00	10.86	2.00	0.00	0.00	0.02	0.00
10.88	2.00	0.00	0.00	0.02	0.00	10.90	2.00	0.00	0.00	0.02	0.00
10.92	2.00	0.00	0.00	0.02	0.00	10.94	2.00	0.00	0.00	0.02	0.00
10.96	2.00	0.00	0.00	0.02	0.00	10.98	2.00	0.00	0.00	0.02	0.00
11.00	2.00	0.00	0.00	0.02	0.00	11.02	2.00	0.00	0.00	0.02	0.00
11.04	2.00	0.00	0.00	0.02	0.00	11.06	2.00	0.00	0.00	0.02	0.00
11.08	2.00	0.00	0.00	0.02	0.00	11.10	2.00	0.00	0.00	0.02	0.00
11.12	2.00	0.00	0.00	0.02	0.00	11.14	2.00	0.00	0.00	0.02	0.00
11.16	2.00	0.00	0.00	0.02	0.00	11.18	2.00	0.00	0.00	0.02	0.00
11.20	2.00	0.00	0.00	0.02	0.00	11.22	2.00	0.00	0.00	0.02	0.00
11.24	2.00	0.00	0.00	0.02	0.00	11.26	2.00	0.00	0.00	0.02	0.00
11.28	2.00	0.00	0.00	0.02	0.00	11.30	2.00	0.00	0.00	0.02	0.00
11.32	2.00	0.00	0.00	0.02	0.00	11.34	2.00	0.00	0.00	0.02	0.00
11.36	2.00	0.00	0.00	0.02	0.00	11.38	2.00	0.00	0.00	0.02	0.00
11.40	2.00	0.00	0.00	0.02	0.00	11.42	2.00	0.00	0.00	0.02	0.00
11.44	2.00	0.00	0.00	0.02	0.00	11.46	2.00	0.00	0.00	0.02	0.00
11.48	2.00	0.00	0.00	0.02	0.00	11.50	2.00	0.00	0.00	0.02	0.00
11.52	2.00	0.00	0.00	0.02	0.00	11.54	2.00	0.00	0.00	0.02	0.00
11.56	2.00	0.00	0.00	0.02	0.00	11.58	2.00	0.00	0.00	0.02	0.00
11.62	2.00	0.00	0.00	0.04	0.00	11.62	2.00	0.00	0.00	0.00	0.00
11.64	2.00	0.00	0.00	0.02	0.00	11.66	2.00	0.00	0.00	0.02	0.00
11.72	2.00	0.00	0.00	0.06	0.00	11.72	2.00	0.00	0.00	0.00	0.00
11.72	2.00	0.00	0.00	0.00	0.00	11.74	2.00	0.00	0.00	0.02	0.00

Copia di documento acquisito nel protocollo informatico del Comune di Carpi.



Allegato 3

Cedimenti post sismici

:: Liquefaction Potential Index calculation data ::											
Depth (m)	FS	m(FS)	H ₁ *m(FS)	d _z	LPI _{ISH}	Depth (m)	FS	m(FS)	H ₁ *m(FS)	d _z	LPI _{ISH}
11.76	2.00	0.00	0.00	0.02	0.00	11.78	2.00	0.00	0.00	0.02	0.00
11.80	2.00	0.00	0.00	0.02	0.00	11.82	2.00	0.00	0.00	0.02	0.00
11.84	2.00	0.00	0.00	0.02	0.00	11.86	2.00	0.00	0.00	0.02	0.00
11.88	2.00	0.00	0.00	0.02	0.00	11.90	2.00	0.00	0.00	0.02	0.00
11.92	2.00	0.00	0.00	0.02	0.00	11.94	2.00	0.00	0.00	0.02	0.00
11.96	2.00	0.00	0.00	0.02	0.00	11.98	2.00	0.00	0.00	0.02	0.00
12.00	2.00	0.00	0.00	0.02	0.00	12.02	2.00	0.00	0.00	0.02	0.00
12.04	2.00	0.00	0.00	0.02	0.00	12.06	2.00	0.00	0.00	0.02	0.00
12.08	2.00	0.00	0.00	0.02	0.00	12.10	2.00	0.00	0.00	0.02	0.00
12.12	2.00	0.00	0.00	0.02	0.00	12.14	2.00	0.00	0.00	0.02	0.00
12.16	2.00	0.00	0.00	0.02	0.00	12.18	2.00	0.00	0.00	0.02	0.00
12.20	2.00	0.00	0.00	0.02	0.00	12.22	2.00	0.00	0.00	0.02	0.00
12.24	2.00	0.00	0.00	0.02	0.00	12.26	2.00	0.00	0.00	0.02	0.00
12.28	2.00	0.00	0.00	0.02	0.00	12.30	2.00	0.00	0.00	0.02	0.00
12.32	2.00	0.00	0.00	0.02	0.00	12.34	2.00	0.00	0.00	0.02	0.00
12.36	0.42	0.58	0.40	0.02	0.04	12.38	0.43	0.57	0.41	0.02	0.04
12.40	2.00	0.00	0.00	0.02	0.00	12.42	2.00	0.00	0.00	0.02	0.00
12.44	2.00	0.00	0.00	0.02	0.00	12.46	2.00	0.00	0.00	0.02	0.00
12.48	2.00	0.00	0.00	0.02	0.00	12.50	2.00	0.00	0.00	0.02	0.00
12.52	2.00	0.00	0.00	0.02	0.00	12.54	2.00	0.00	0.00	0.02	0.00
12.56	2.00	0.00	0.00	0.02	0.00	12.58	2.00	0.00	0.00	0.02	0.00
12.60	2.00	0.00	0.00	0.02	0.00	12.62	2.00	0.00	0.00	0.02	0.00
12.64	2.00	0.00	0.00	0.02	0.00	12.66	2.00	0.00	0.00	0.02	0.00
12.68	2.00	0.00	0.00	0.02	0.00	12.70	2.00	0.00	0.00	0.02	0.00
12.75	2.00	0.00	0.00	0.05	0.00	12.75	2.00	0.00	0.00	0.00	0.00
12.76	2.00	0.00	0.00	0.01	0.00	12.78	2.00	0.00	0.00	0.02	0.00
12.80	2.00	0.00	0.00	0.02	0.00	12.82	2.00	0.00	0.00	0.02	0.00
12.84	2.00	0.00	0.00	0.02	0.00	12.86	2.00	0.00	0.00	0.02	0.00
12.88	2.00	0.00	0.00	0.02	0.00	12.90	2.00	0.00	0.00	0.02	0.00
12.92	2.00	0.00	0.00	0.02	0.00	12.94	2.00	0.00	0.00	0.02	0.00
12.96	2.00	0.00	0.00	0.02	0.00	12.98	2.00	0.00	0.00	0.02	0.00
13.00	2.00	0.00	0.00	0.02	0.00	13.02	2.00	0.00	0.00	0.02	0.00
13.04	2.00	0.00	0.00	0.02	0.00	13.06	2.00	0.00	0.00	0.02	0.00
13.08	2.00	0.00	0.00	0.02	0.00	13.10	2.00	0.00	0.00	0.02	0.00
13.12	2.00	0.00	0.00	0.02	0.00	13.14	2.00	0.00	0.00	0.02	0.00
13.16	2.00	0.00	0.00	0.02	0.00	13.18	2.00	0.00	0.00	0.02	0.00
13.20	2.00	0.00	0.00	0.02	0.00	13.22	2.00	0.00	0.00	0.02	0.00
13.24	2.00	0.00	0.00	0.02	0.00	13.26	2.00	0.00	0.00	0.02	0.00
13.28	2.00	0.00	0.00	0.02	0.00	13.30	2.00	0.00	0.00	0.02	0.00
13.32	2.00	0.00	0.00	0.02	0.00	13.34	2.00	0.00	0.00	0.02	0.00
13.36	2.00	0.00	0.00	0.02	0.00	13.38	2.00	0.00	0.00	0.02	0.00
13.40	2.00	0.00	0.00	0.02	0.00	13.42	2.00	0.00	0.00	0.02	0.00
13.44	2.00	0.00	0.00	0.02	0.00	13.46	2.00	0.00	0.00	0.02	0.00
13.48	2.00	0.00	0.00	0.02	0.00	13.50	2.00	0.00	0.00	0.02	0.00
13.52	2.00	0.00	0.00	0.02	0.00	13.54	2.00	0.00	0.00	0.02	0.00
13.56	2.00	0.00	0.00	0.02	0.00	13.58	2.00	0.00	0.00	0.02	0.00
13.60	2.00	0.00	0.00	0.02	0.00	13.62	2.00	0.00	0.00	0.02	0.00
13.64	2.00	0.00	0.00	0.02	0.00	13.66	2.00	0.00	0.00	0.02	0.00
13.68	2.00	0.00	0.00	0.02	0.00	13.70	2.00	0.00	0.00	0.02	0.00



Allegato 3

Cedimenti post sismici

:: Liquefaction Potential Index calculation data ::											
Depth (m)	FS	m(FS)	H ₁ *m(FS)	d _z	LPI _{ISH}	Depth (m)	FS	m(FS)	H ₁ *m(FS)	d _z	LPI _{ISH}
13.72	2.00	0.00	0.00	0.02	0.00	13.74	2.00	0.00	0.00	0.02	0.00
13.76	2.00	0.00	0.00	0.02	0.00	13.78	2.00	0.00	0.00	0.02	0.00
13.80	2.00	0.00	0.00	0.02	0.00	13.82	2.00	0.00	0.00	0.02	0.00
13.84	2.00	0.00	0.00	0.02	0.00	13.86	2.00	0.00	0.00	0.02	0.00
13.88	2.00	0.00	0.00	0.02	0.00	13.90	2.00	0.00	0.00	0.02	0.00
13.92	2.00	0.00	0.00	0.02	0.00	13.94	2.00	0.00	0.00	0.02	0.00
13.96	2.00	0.00	0.00	0.02	0.00	13.98	2.00	0.00	0.00	0.02	0.00
14.00	2.00	0.00	0.00	0.02	0.00	14.02	2.00	0.00	0.00	0.02	0.00
14.04	2.00	0.00	0.00	0.02	0.00	14.06	2.00	0.00	0.00	0.02	0.00
14.08	2.00	0.00	0.00	0.02	0.00	14.10	2.00	0.00	0.00	0.02	0.00
14.12	2.00	0.00	0.00	0.02	0.00	14.14	2.00	0.00	0.00	0.02	0.00
14.16	2.00	0.00	0.00	0.02	0.00	14.18	2.00	0.00	0.00	0.02	0.00
14.20	2.00	0.00	0.00	0.02	0.00	14.22	2.00	0.00	0.00	0.02	0.00
14.24	2.00	0.00	0.00	0.02	0.00	14.26	2.00	0.00	0.00	0.02	0.00
14.28	2.00	0.00	0.00	0.02	0.00	14.30	2.00	0.00	0.00	0.02	0.00
14.32	2.00	0.00	0.00	0.02	0.00	14.34	2.00	0.00	0.00	0.02	0.00
14.36	2.00	0.00	0.00	0.02	0.00	14.38	2.00	0.00	0.00	0.02	0.00
14.40	2.00	0.00	0.00	0.02	0.00	14.42	2.00	0.00	0.00	0.02	0.00
14.44	2.00	0.00	0.00	0.02	0.00	14.46	2.00	0.00	0.00	0.02	0.00
14.48	2.00	0.00	0.00	0.02	0.00	14.50	2.00	0.00	0.00	0.02	0.00
14.52	2.00	0.00	0.00	0.02	0.00	14.54	2.00	0.00	0.00	0.02	0.00
14.56	2.00	0.00	0.00	0.02	0.00	14.58	2.00	0.00	0.00	0.02	0.00
14.60	2.00	0.00	0.00	0.02	0.00	14.62	2.00	0.00	0.00	0.02	0.00
14.64	2.00	0.00	0.00	0.02	0.00	14.66	2.00	0.00	0.00	0.02	0.00
14.68	2.00	0.00	0.00	0.02	0.00	14.72	2.00	0.00	0.00	0.04	0.00
14.72	2.00	0.00	0.00	0.00	0.00	14.74	2.00	0.00	0.00	0.02	0.00
14.76	2.00	0.00	0.00	0.02	0.00	14.78	2.00	0.00	0.00	0.02	0.00
14.80	2.00	0.00	0.00	0.02	0.00	14.82	2.00	0.00	0.00	0.02	0.00
14.84	2.00	0.00	0.00	0.02	0.00	14.86	2.00	0.00	0.00	0.02	0.00
14.88	2.00	0.00	0.00	0.02	0.00	14.90	2.00	0.00	0.00	0.02	0.00
14.92	2.00	0.00	0.00	0.02	0.00	14.94	2.00	0.00	0.00	0.02	0.00
14.97	2.00	0.00	0.00	0.03	0.00	14.98	2.00	0.00	0.00	0.01	0.00
15.00	2.00	0.00	0.00	0.02	0.00	15.02	2.00	0.00	0.00	0.02	0.00
15.04	2.00	0.00	0.00	0.02	0.00	15.06	2.00	0.00	0.00	0.02	0.00
15.08	2.00	0.00	0.00	0.02	0.00	15.10	2.00	0.00	0.00	0.02	0.00
15.12	2.00	0.00	0.00	0.02	0.00	15.14	2.00	0.00	0.00	0.02	0.00
15.16	2.00	0.00	0.00	0.02	0.00	15.18	2.00	0.00	0.00	0.02	0.00
15.20	2.00	0.00	0.00	0.02	0.00	15.22	2.00	0.00	0.00	0.02	0.00
15.24	2.00	0.00	0.00	0.02	0.00	15.26	2.00	0.00	0.00	0.02	0.00
15.28	2.00	0.00	0.00	0.02	0.00	15.30	2.00	0.00	0.00	0.02	0.00
15.32	2.00	0.00	0.00	0.02	0.00	15.34	2.00	0.00	0.00	0.02	0.00
15.36	2.00	0.00	0.00	0.02	0.00	15.38	2.00	0.00	0.00	0.02	0.00
15.40	2.00	0.00	0.00	0.02	0.00	15.42	2.00	0.00	0.00	0.02	0.00
15.44	2.00	0.00	0.00	0.02	0.00	15.46	2.00	0.00	0.00	0.02	0.00
15.48	2.00	0.00	0.00	0.02	0.00	15.50	2.00	0.00	0.00	0.02	0.00
15.52	2.00	0.00	0.00	0.02	0.00	15.54	2.00	0.00	0.00	0.02	0.00
15.56	2.00	0.00	0.00	0.02	0.00	15.58	2.00	0.00	0.00	0.02	0.00
15.60	2.00	0.00	0.00	0.02	0.00	15.62	2.00	0.00	0.00	0.02	0.00
15.64	2.00	0.00	0.00	0.02	0.00	15.66	2.00	0.00	0.00	0.02	0.00



Allegato 3

Cedimenti post sismici

:: Liquefaction Potential Index calculation data ::											
Depth (m)	FS	m(FS)	H ₁ *m(FS)	d _z	LPI _{ISH}	Depth (m)	FS	m(FS)	H ₁ *m(FS)	d _z	LPI _{ISH}
15.72	2.00	0.00	0.00	0.06	0.00	15.72	2.00	0.00	0.00	0.00	0.00
15.72	2.00	0.00	0.00	0.00	0.00	15.76	2.00	0.00	0.00	0.04	0.00
15.76	2.00	0.00	0.00	0.00	0.00	15.78	2.00	0.00	0.00	0.02	0.00
15.80	2.00	0.00	0.00	0.02	0.00	15.82	2.00	0.00	0.00	0.02	0.00
15.84	2.00	0.00	0.00	0.02	0.00	15.86	2.00	0.00	0.00	0.02	0.00
15.88	2.00	0.00	0.00	0.02	0.00	15.90	2.00	0.00	0.00	0.02	0.00
15.92	2.00	0.00	0.00	0.02	0.00	15.94	2.00	0.00	0.00	0.02	0.00
15.96	2.00	0.00	0.00	0.02	0.00	15.98	2.00	0.00	0.00	0.02	0.00
16.00	2.00	0.00	0.00	0.02	0.00	16.02	2.00	0.00	0.00	0.02	0.00
16.04	2.00	0.00	0.00	0.02	0.00	16.06	2.00	0.00	0.00	0.02	0.00
16.08	2.00	0.00	0.00	0.02	0.00	16.10	2.00	0.00	0.00	0.02	0.00
16.12	2.00	0.00	0.00	0.02	0.00	16.14	2.00	0.00	0.00	0.02	0.00
16.16	2.00	0.00	0.00	0.02	0.00	16.19	2.00	0.00	0.00	0.03	0.00
16.20	2.00	0.00	0.00	0.01	0.00	16.22	2.00	0.00	0.00	0.02	0.00
16.26	2.00	0.00	0.00	0.04	0.00	16.26	2.00	0.00	0.00	0.00	0.00
16.28	2.00	0.00	0.00	0.02	0.00	16.30	2.00	0.00	0.00	0.02	0.00
16.32	2.00	0.00	0.00	0.02	0.00	16.34	2.00	0.00	0.00	0.02	0.00
16.36	2.00	0.00	0.00	0.02	0.00	16.38	2.00	0.00	0.00	0.02	0.00
16.40	2.00	0.00	0.00	0.02	0.00	16.42	2.00	0.00	0.00	0.02	0.00
16.44	2.00	0.00	0.00	0.02	0.00	16.46	2.00	0.00	0.00	0.02	0.00
16.49	2.00	0.00	0.00	0.03	0.00	16.50	2.00	0.00	0.00	0.01	0.00
16.52	2.00	0.00	0.00	0.02	0.00	16.54	2.00	0.00	0.00	0.02	0.00
16.56	2.00	0.00	0.00	0.02	0.00	16.58	2.00	0.00	0.00	0.02	0.00
16.60	2.00	0.00	0.00	0.02	0.00	16.62	2.00	0.00	0.00	0.02	0.00
16.64	2.00	0.00	0.00	0.02	0.00	16.66	2.00	0.00	0.00	0.02	0.00
16.68	2.00	0.00	0.00	0.02	0.00	16.70	2.00	0.00	0.00	0.02	0.00
16.72	2.00	0.00	0.00	0.02	0.00	16.74	2.00	0.00	0.00	0.02	0.00
16.76	2.00	0.00	0.00	0.02	0.00	16.78	2.00	0.00	0.00	0.02	0.00
16.80	2.00	0.00	0.00	0.02	0.00	16.82	2.00	0.00	0.00	0.02	0.00
16.84	2.00	0.00	0.00	0.02	0.00	16.86	2.00	0.00	0.00	0.02	0.00
16.88	2.00	0.00	0.00	0.02	0.00	16.90	2.00	0.00	0.00	0.02	0.00
16.92	2.00	0.00	0.00	0.02	0.00	16.94	2.00	0.00	0.00	0.02	0.00
16.96	2.00	0.00	0.00	0.02	0.00	16.98	2.00	0.00	0.00	0.02	0.00
17.00	2.00	0.00	0.00	0.02	0.00	17.02	2.00	0.00	0.00	0.02	0.00
17.04	2.00	0.00	0.00	0.02	0.00	17.06	2.00	0.00	0.00	0.02	0.00
17.08	2.00	0.00	0.00	0.02	0.00	17.10	2.00	0.00	0.00	0.02	0.00
17.12	2.00	0.00	0.00	0.02	0.00	17.14	2.00	0.00	0.00	0.02	0.00
17.16	2.00	0.00	0.00	0.02	0.00	17.18	2.00	0.00	0.00	0.02	0.00
17.20	2.00	0.00	0.00	0.02	0.00	17.22	2.00	0.00	0.00	0.02	0.00
17.24	2.00	0.00	0.00	0.02	0.00	17.26	2.00	0.00	0.00	0.02	0.00
17.28	2.00	0.00	0.00	0.02	0.00	17.30	2.00	0.00	0.00	0.02	0.00
17.32	2.00	0.00	0.00	0.02	0.00	17.34	2.00	0.00	0.00	0.02	0.00
17.36	2.00	0.00	0.00	0.02	0.00	17.38	2.00	0.00	0.00	0.02	0.00
17.40	2.00	0.00	0.00	0.02	0.00	17.42	2.00	0.00	0.00	0.02	0.00
17.44	2.00	0.00	0.00	0.02	0.00	17.46	2.00	0.00	0.00	0.02	0.00
17.48	2.00	0.00	0.00	0.02	0.00	17.50	2.00	0.00	0.00	0.02	0.00
17.52	2.00	0.00	0.00	0.02	0.00	17.54	2.00	0.00	0.00	0.02	0.00
17.56	2.00	0.00	0.00	0.02	0.00	17.58	2.00	0.00	0.00	0.02	0.00
17.60	2.00	0.00	0.00	0.02	0.00	17.62	2.00	0.00	0.00	0.02	0.00



Allegato 3

Cedimenti post sismici

:: Liquefaction Potential Index calculation data ::											
Depth (m)	FS	m(FS)	H ₁ *m(FS)	d _z	LPI _{ISH}	Depth (m)	FS	m(FS)	H ₁ *m(FS)	d _z	LPI _{ISH}
17.64	2.00	0.00	0.00	0.02	0.00	17.66	2.00	0.00	0.00	0.02	0.00
17.68	2.00	0.00	0.00	0.02	0.00	17.70	2.00	0.00	0.00	0.02	0.00
17.72	2.00	0.00	0.00	0.02	0.00	17.75	2.00	0.00	0.00	0.03	0.00
17.76	2.00	0.00	0.00	0.01	0.00	17.78	2.00	0.00	0.00	0.02	0.00
17.80	2.00	0.00	0.00	0.02	0.00	17.82	2.00	0.00	0.00	0.02	0.00
17.84	2.00	0.00	0.00	0.02	0.00	17.86	2.00	0.00	0.00	0.02	0.00
17.88	2.00	0.00	0.00	0.02	0.00	17.90	2.00	0.00	0.00	0.02	0.00
17.92	2.00	0.00	0.00	0.02	0.00	17.94	2.00	0.00	0.00	0.02	0.00
17.96	2.00	0.00	0.00	0.02	0.00	17.98	2.00	0.00	0.00	0.02	0.00
18.00	2.00	0.00	0.00	0.02	0.00	18.02	2.00	0.00	0.00	0.02	0.00
18.04	2.00	0.00	0.00	0.02	0.00	18.06	2.00	0.00	0.00	0.02	0.00
18.08	2.00	0.00	0.00	0.02	0.00	18.10	2.00	0.00	0.00	0.02	0.00
18.12	2.00	0.00	0.00	0.02	0.00	18.14	2.00	0.00	0.00	0.02	0.00
18.16	2.00	0.00	0.00	0.02	0.00	18.18	2.00	0.00	0.00	0.02	0.00
18.20	2.00	0.00	0.00	0.02	0.00	18.22	2.00	0.00	0.00	0.02	0.00
18.24	2.00	0.00	0.00	0.02	0.00	18.26	2.00	0.00	0.00	0.02	0.00
18.28	2.00	0.00	0.00	0.02	0.00	18.30	2.00	0.00	0.00	0.02	0.00
18.32	2.00	0.00	0.00	0.02	0.00	18.34	2.00	0.00	0.00	0.02	0.00
18.36	2.00	0.00	0.00	0.02	0.00	18.38	2.00	0.00	0.00	0.02	0.00
18.40	2.00	0.00	0.00	0.02	0.00	18.42	2.00	0.00	0.00	0.02	0.00
18.44	2.00	0.00	0.00	0.02	0.00	18.46	2.00	0.00	0.00	0.02	0.00
18.48	2.00	0.00	0.00	0.02	0.00	18.50	2.00	0.00	0.00	0.02	0.00
18.52	2.00	0.00	0.00	0.02	0.00	18.54	2.00	0.00	0.00	0.02	0.00
18.56	2.00	0.00	0.00	0.02	0.00	18.58	2.00	0.00	0.00	0.02	0.00
18.60	2.00	0.00	0.00	0.02	0.00	18.62	2.00	0.00	0.00	0.02	0.00
18.64	2.00	0.00	0.00	0.02	0.00	18.66	2.00	0.00	0.00	0.02	0.00
18.68	2.00	0.00	0.00	0.02	0.00	18.70	2.00	0.00	0.00	0.02	0.00
18.72	2.00	0.00	0.00	0.02	0.00	18.74	2.00	0.00	0.00	0.02	0.00
18.76	2.00	0.00	0.00	0.02	0.00	18.78	2.00	0.00	0.00	0.02	0.00
18.80	2.00	0.00	0.00	0.02	0.00	18.82	2.00	0.00	0.00	0.02	0.00
18.84	2.00	0.00	0.00	0.02	0.00	18.86	2.00	0.00	0.00	0.02	0.00
18.88	2.00	0.00	0.00	0.02	0.00	18.90	2.00	0.00	0.00	0.02	0.00
18.96	2.00	0.00	0.00	0.06	0.00	18.96	2.00	0.00	0.00	0.00	0.00
18.96	2.00	0.00	0.00	0.00	0.00	18.98	2.00	0.00	0.00	0.02	0.00
19.00	2.00	0.00	0.00	0.02	0.00	19.02	2.00	0.00	0.00	0.02	0.00
19.04	2.00	0.00	0.00	0.02	0.00	19.06	2.00	0.00	0.00	0.02	0.00
19.08	2.00	0.00	0.00	0.02	0.00	19.10	2.00	0.00	0.00	0.02	0.00
19.12	2.00	0.00	0.00	0.02	0.00	19.14	2.00	0.00	0.00	0.02	0.00
19.16	2.00	0.00	0.00	0.02	0.00	19.18	2.00	0.00	0.00	0.02	0.00
19.20	2.00	0.00	0.00	0.02	0.00	19.22	2.00	0.00	0.00	0.02	0.00
19.24	2.00	0.00	0.00	0.02	0.00	19.26	2.00	0.00	0.00	0.02	0.00
19.28	2.00	0.00	0.00	0.02	0.00	19.30	2.00	0.00	0.00	0.02	0.00
19.32	2.00	0.00	0.00	0.02	0.00	19.34	2.00	0.00	0.00	0.02	0.00
19.36	2.00	0.00	0.00	0.02	0.00	19.38	2.00	0.00	0.00	0.02	0.00
19.40	2.00	0.00	0.00	0.02	0.00	19.42	2.00	0.00	0.00	0.02	0.00
19.44	2.00	0.00	0.00	0.02	0.00	19.46	2.00	0.00	0.00	0.02	0.00
19.48	2.00	0.00	0.00	0.02	0.00	19.50	2.00	0.00	0.00	0.02	0.00
19.52	2.00	0.00	0.00	0.02	0.00	19.54	2.00	0.00	0.00	0.02	0.00
19.56	2.00	0.00	0.00	0.02	0.00	19.58	2.00	0.00	0.00	0.02	0.00



Allegato 3

Cedimenti post sismici

:: Liquefaction Potential Index calculation data ::											
Depth (m)	FS	m(FS)	H ₁ *m(FS)	d _z	LPI _{ISH}	Depth (m)	FS	m(FS)	H ₁ *m(FS)	d _z	LPI _{ISH}
19.60	2.00	0.00	0.00	0.02	0.00	19.62	2.00	0.00	0.00	0.02	0.00
19.64	2.00	0.00	0.00	0.02	0.00	19.66	2.00	0.00	0.00	0.02	0.00
19.68	2.00	0.00	0.00	0.02	0.00	19.70	2.00	0.00	0.00	0.02	0.00
19.72	2.00	0.00	0.00	0.02	0.00	19.74	2.00	0.00	0.00	0.02	0.00
19.76	2.00	0.00	0.00	0.02	0.00	19.78	2.00	0.00	0.00	0.02	0.00
19.80	2.00	0.00	0.00	0.02	0.00	19.82	2.00	0.00	0.00	0.02	0.00
19.84	2.00	0.00	0.00	0.02	0.00	19.86	2.00	0.00	0.00	0.02	0.00
19.88	2.00	0.00	0.00	0.02	0.00	19.90	2.00	0.00	0.00	0.02	0.00
19.92	2.00	0.00	0.00	0.02	0.00						

Overall liquefaction potential: 0.80LPI_{ISH} > 5.0 - Liquefaction manifestation is expected**Abbreviations**

FS: Calculated factor of safety for test point

d_z: Layer thickness (m)

LPI: Liquefaction potential index value for test point

Cedimento post-sismico dovuto alla liquefazione del suolo - CPTu -

Allegato 3

Cedimenti post sismici

:: Post-earthquake settlement due to soil liquefaction ::											
Depth (m)	q _{clN,cs}	FS	e _v (%)	DF	Settlement (cm)	Depth (m)	q _{clN,cs}	FS	e _v (%)	DF	Settlement (cm)
1.00	17.46	2.00	0.00	1.00	0.00	1.02	17.58	2.00	0.00	1.00	0.00
1.04	17.57	2.00	0.00	1.00	0.00	1.06	16.73	2.00	0.00	1.00	0.00
1.08	15.44	2.00	0.00	1.00	0.00	1.10	14.76	2.00	0.00	1.00	0.00
1.12	14.67	2.00	0.00	1.00	0.00	1.15	14.78	2.00	0.00	1.00	0.00
1.16	15.08	2.00	0.00	1.00	0.00	1.18	14.63	2.00	0.00	1.00	0.00
1.20	14.02	2.00	0.00	1.00	0.00	1.22	13.77	2.00	0.00	1.00	0.00
1.24	13.36	2.00	0.00	1.00	0.00	1.26	12.95	2.00	0.00	1.00	0.00
1.28	12.34	2.00	0.00	1.00	0.00	1.30	12.28	2.00	0.00	1.00	0.00
1.32	13.23	2.00	0.00	1.00	0.00	1.34	14.46	2.00	0.00	1.00	0.00
1.36	16.32	2.00	0.00	1.00	0.00	1.38	17.10	2.00	0.00	1.00	0.00
1.40	16.25	2.00	0.00	1.00	0.00	1.42	14.76	2.00	0.00	1.00	0.00
1.44	13.39	2.00	0.00	1.00	0.00	1.46	12.06	2.00	0.00	1.00	0.00
1.48	10.97	2.00	0.00	1.00	0.00	1.50	10.52	2.00	0.00	1.00	0.00
1.52	9.58	2.00	0.00	1.00	0.00	1.54	9.48	2.00	0.00	1.00	0.00
1.56	9.87	2.00	0.00	1.00	0.00	1.58	10.80	2.00	0.00	1.00	0.00
1.60	11.70	2.00	0.00	1.00	0.00	1.62	12.52	2.00	0.00	1.00	0.00
1.64	13.21	2.00	0.00	1.00	0.00	1.66	14.79	2.00	0.00	1.00	0.00
1.68	15.53	2.00	0.00	1.00	0.00	1.70	14.83	2.00	0.00	1.00	0.00
1.72	13.70	2.00	0.00	1.00	0.00	1.74	12.77	2.00	0.00	1.00	0.00
1.76	11.63	2.00	0.00	1.00	0.00	1.78	10.54	2.00	0.00	1.00	0.00
1.80	9.80	2.00	0.00	1.00	0.00	1.82	10.02	2.00	0.00	1.00	0.00
1.84	9.20	2.00	0.00	1.00	0.00	1.86	9.42	2.00	0.00	1.00	0.00
1.88	9.24	2.00	0.00	1.00	0.00	1.90	9.29	2.00	0.00	1.00	0.00
1.92	9.11	2.00	0.00	1.00	0.00	1.94	15.63	2.00	0.00	1.00	0.00
1.96	13.79	2.00	0.00	1.00	0.00	1.98	12.35	2.00	0.00	1.00	0.00
2.00	12.19	2.00	0.00	1.00	0.00	2.02	10.71	2.00	0.00	1.00	0.00
2.04	10.39	2.00	0.00	1.00	0.00	2.06	10.30	2.00	0.00	1.00	0.00
2.08	9.58	2.00	0.00	1.00	0.00	2.10	9.09	2.00	0.00	1.00	0.00
2.12	9.13	2.00	0.00	1.00	0.00	2.14	9.48	2.00	0.00	1.00	0.00
2.16	11.74	2.00	0.00	1.00	0.00	2.18	15.45	2.00	0.00	1.00	0.00
2.20	11.01	2.00	0.00	1.00	0.00	2.22	11.28	2.00	0.00	1.00	0.00
2.24	12.58	2.00	0.00	1.00	0.00	2.26	13.41	2.00	0.00	1.00	0.00
2.28	13.52	2.00	0.00	1.00	0.00	2.30	13.43	2.00	0.00	1.00	0.00
2.32	12.59	2.00	0.00	1.00	0.00	2.34	10.86	2.00	0.00	1.00	0.00
2.36	10.21	2.00	0.00	1.00	0.00	2.38	9.80	2.00	0.00	1.00	0.00
2.40	9.10	2.00	0.00	1.00	0.00	2.42	9.09	2.00	0.00	1.00	0.00
2.44	9.32	2.00	0.00	1.00	0.00	2.46	8.94	2.00	0.00	1.00	0.00
2.48	8.57	2.00	0.00	1.00	0.00	2.50	8.15	2.00	0.00	1.00	0.00
2.52	8.41	2.00	0.00	1.00	0.00	2.54	9.23	2.00	0.00	1.00	0.00
2.56	11.09	2.00	0.00	1.00	0.00	2.58	11.80	2.00	0.00	1.00	0.00
2.60	11.06	2.00	0.00	1.00	0.00	2.62	8.92	2.00	0.00	1.00	0.00
2.64	8.32	2.00	0.00	1.00	0.00	2.70	8.66	2.00	0.00	1.00	0.00
2.70	8.66	2.00	0.00	1.00	0.00	2.70	9.27	2.00	0.00	1.00	0.00
2.72	9.06	2.00	0.00	1.00	0.00	2.75	8.85	2.00	0.00	1.00	0.00
2.76	8.48	2.00	0.00	1.00	0.00	2.78	8.50	2.00	0.00	1.00	0.00
2.80	8.57	2.00	0.00	1.00	0.00	2.82	8.76	2.00	0.00	1.00	0.00
2.84	8.31	2.00	0.00	1.00	0.00	2.86	7.94	2.00	0.00	1.00	0.00
2.88	8.72	2.00	0.00	1.00	0.00	2.90	8.95	2.00	0.00	1.00	0.00
2.92	10.53	2.00	0.00	1.00	0.00	2.94	17.26	2.00	0.00	1.00	0.00



Allegato 3

Cedimenti post sismici

:: Post-earthquake settlement due to soil liquefaction :: (continued)											
Depth (m)	q _{clN,cs}	FS	e _v (%)	DF	Settlement (cm)	Depth (m)	q _{clN,cs}	FS	e _v (%)	DF	Settlement (cm)
2.96	13.83	2.00	0.00	1.00	0.00	2.98	12.47	2.00	0.00	1.00	0.00
3.00	12.27	2.00	0.00	1.00	0.00	3.02	12.87	2.00	0.00	1.00	0.00
3.04	13.10	2.00	0.00	1.00	0.00	3.06	13.06	2.00	0.00	1.00	0.00
3.08	11.70	2.00	0.00	1.00	0.00	3.10	10.81	2.00	0.00	1.00	0.00
3.12	11.24	2.00	0.00	1.00	0.00	3.14	11.80	2.00	0.00	1.00	0.00
3.16	11.59	2.00	0.00	1.00	0.00	3.18	11.11	2.00	0.00	1.00	0.00
3.20	10.22	2.00	0.00	1.00	0.00	3.22	9.97	2.00	0.00	1.00	0.00
3.24	10.29	2.00	0.00	1.00	0.00	3.26	10.75	2.00	0.00	1.00	0.00
3.28	10.75	2.00	0.00	1.00	0.00	3.30	10.54	2.00	0.00	1.00	0.00
3.32	10.42	2.00	0.00	1.00	0.00	3.34	10.73	2.00	0.00	1.00	0.00
3.36	11.20	2.00	0.00	1.00	0.00	3.38	12.11	2.00	0.00	1.00	0.00
3.40	12.11	2.00	0.00	1.00	0.00	3.42	12.34	2.00	0.00	1.00	0.00
3.44	12.81	2.00	0.00	1.00	0.00	3.46	14.36	2.00	0.00	1.00	0.00
3.48	13.88	2.00	0.00	1.00	0.00	3.50	13.11	2.00	0.00	1.00	0.00
3.52	11.87	2.00	0.00	1.00	0.00	3.54	11.94	2.00	0.00	1.00	0.00
3.56	12.29	2.00	0.00	1.00	0.00	3.58	12.68	2.00	0.00	1.00	0.00
3.60	11.08	2.00	0.00	1.00	0.00	3.62	11.19	2.00	0.00	1.00	0.00
3.65	11.18	2.00	0.00	1.00	0.00	3.66	11.06	2.00	0.00	1.00	0.00
3.68	10.37	2.00	0.00	1.00	0.00	3.70	9.44	2.00	0.00	1.00	0.00
3.72	9.36	2.00	0.00	1.00	0.00	3.74	9.32	2.00	0.00	1.00	0.00
3.76	10.26	2.00	0.00	1.00	0.00	3.79	11.18	2.00	0.00	1.00	0.00
3.80	10.81	2.00	0.00	1.00	0.00	3.82	10.65	2.00	0.00	1.00	0.00
3.84	11.00	2.00	0.00	1.00	0.00	3.86	11.83	2.00	0.00	1.00	0.00
3.88	12.23	2.00	0.00	1.00	0.00	3.90	11.94	2.00	0.00	1.00	0.00
3.92	11.90	2.00	0.00	1.00	0.00	3.94	14.76	2.00	0.00	1.00	0.00
3.96	13.32	2.00	0.00	1.00	0.00	3.98	12.57	2.00	0.00	1.00	0.00
4.00	12.05	2.00	0.00	1.00	0.00	4.02	11.09	2.00	0.00	1.00	0.00
4.04	10.72	2.00	0.00	1.00	0.00	4.06	10.20	2.00	0.00	1.00	0.00
4.08	9.96	2.00	0.00	1.00	0.00	4.10	11.23	2.00	0.00	1.00	0.00
4.12	13.86	2.00	0.00	1.00	0.00	4.14	16.49	2.00	0.00	1.00	0.00
4.16	17.60	2.00	0.00	1.00	0.00	4.18	16.60	2.00	0.00	1.00	0.00
4.20	14.75	2.00	0.00	1.00	0.00	4.22	13.23	2.00	0.00	1.00	0.00
4.24	11.19	2.00	0.00	1.00	0.00	4.26	10.19	2.00	0.00	1.00	0.00
4.28	9.95	2.00	0.00	1.00	0.00	4.30	10.91	2.00	0.00	1.00	0.00
4.32	12.14	2.00	0.00	1.00	0.00	4.34	14.00	2.00	0.00	1.00	0.00
4.36	14.92	2.00	0.00	1.00	0.00	4.38	14.15	2.00	0.00	1.00	0.00
4.40	15.49	2.00	0.00	1.00	0.00	4.42	19.81	2.00	0.00	1.00	0.00
4.44	85.00	0.44	3.78	1.00	0.08	4.46	92.07	0.47	3.49	1.00	0.07
4.48	89.85	0.46	3.58	1.00	0.07	4.50	25.27	2.00	0.00	1.00	0.00
4.52	22.63	2.00	0.00	1.00	0.00	4.54	25.57	2.00	0.00	1.00	0.00
4.56	26.15	2.00	0.00	1.00	0.00	4.58	24.62	2.00	0.00	1.00	0.00
4.60	22.75	2.00	0.00	1.00	0.00	4.62	21.74	2.00	0.00	1.00	0.00
4.64	19.70	2.00	0.00	1.00	0.00	4.66	17.89	2.00	0.00	1.00	0.00
4.68	15.33	2.00	0.00	1.00	0.00	4.70	12.59	2.00	0.00	1.00	0.00
4.72	10.71	2.00	0.00	1.00	0.00	4.74	10.53	2.00	0.00	1.00	0.00
4.76	10.62	2.00	0.00	1.00	0.00	4.78	10.82	2.00	0.00	1.00	0.00
4.80	11.08	2.00	0.00	1.00	0.00	4.82	11.83	2.00	0.00	1.00	0.00
4.84	12.13	2.00	0.00	1.00	0.00	4.86	14.08	2.00	0.00	1.00	0.00
4.88	16.13	2.00	0.00	1.00	0.00	4.90	14.78	2.00	0.00	1.00	0.00

Allegato 3

Cedimenti post sismici

:: Post-earthquake settlement due to soil liquefaction :: (continued)											
Depth (m)	q _{clN,cs}	FS	e _v (%)	DF	Settlement (cm)	Depth (m)	q _{clN,cs}	FS	e _v (%)	DF	Settlement (cm)
4.92	12.86	2.00	0.00	1.00	0.00	4.94	14.11	2.00	0.00	1.00	0.00
4.96	12.00	2.00	0.00	1.00	0.00	4.98	11.15	2.00	0.00	1.00	0.00
5.00	11.05	2.00	0.00	1.00	0.00	5.02	11.58	2.00	0.00	1.00	0.00
5.04	11.19	2.00	0.00	1.00	0.00	5.06	10.89	2.00	0.00	1.00	0.00
5.08	11.15	2.00	0.00	1.00	0.00	5.10	11.06	2.00	0.00	1.00	0.00
5.12	10.10	2.00	0.00	1.00	0.00	5.14	9.04	2.00	0.00	1.00	0.00
5.16	8.66	2.00	0.00	1.00	0.00	5.18	8.72	2.00	0.00	1.00	0.00
5.20	8.88	2.00	0.00	1.00	0.00	5.22	9.84	2.00	0.00	1.00	0.00
5.24	11.22	2.00	0.00	1.00	0.00	5.26	13.72	2.00	0.00	1.00	0.00
5.28	14.82	2.00	0.00	1.00	0.00	5.30	13.64	2.00	0.00	1.00	0.00
5.32	12.55	2.00	0.00	1.00	0.00	5.34	11.69	2.00	0.00	1.00	0.00
5.36	11.18	2.00	0.00	1.00	0.00	5.38	10.84	2.00	0.00	1.00	0.00
5.40	10.62	2.00	0.00	1.00	0.00	5.42	10.77	2.00	0.00	1.00	0.00
5.44	11.49	2.00	0.00	1.00	0.00	5.46	11.89	2.00	0.00	1.00	0.00
5.48	11.00	2.00	0.00	1.00	0.00	5.50	9.87	2.00	0.00	1.00	0.00
5.52	9.72	2.00	0.00	1.00	0.00	5.54	9.56	2.00	0.00	1.00	0.00
5.56	9.93	2.00	0.00	1.00	0.00	5.58	10.92	2.00	0.00	1.00	0.00
5.60	11.22	2.00	0.00	1.00	0.00	5.62	11.06	2.00	0.00	1.00	0.00
5.64	9.87	2.00	0.00	1.00	0.00	5.66	9.55	2.00	0.00	1.00	0.00
5.68	10.05	2.00	0.00	1.00	0.00	5.70	10.90	2.00	0.00	1.00	0.00
5.72	12.20	2.00	0.00	1.00	0.00	5.74	16.34	2.00	0.00	1.00	0.00
5.76	17.43	2.00	0.00	1.00	0.00	5.78	16.13	2.00	0.00	1.00	0.00
5.80	15.30	2.00	0.00	1.00	0.00	5.82	17.15	2.00	0.00	1.00	0.00
5.84	20.05	2.00	0.00	1.00	0.00	5.86	20.41	2.00	0.00	1.00	0.00
5.88	17.54	2.00	0.00	1.00	0.00	5.90	13.26	2.00	0.00	1.00	0.00
5.92	11.53	2.00	0.00	1.00	0.00	5.95	8.95	2.00	0.00	1.00	0.00
5.96	14.47	2.00	0.00	1.00	0.00	5.98	12.62	2.00	0.00	1.00	0.00
6.00	10.73	2.00	0.00	1.00	0.00	6.02	9.37	2.00	0.00	1.00	0.00
6.04	8.31	2.00	0.00	1.00	0.00	6.06	7.41	2.00	0.00	1.00	0.00
6.08	6.82	2.00	0.00	1.00	0.00	6.10	6.71	2.00	0.00	1.00	0.00
6.12	6.66	2.00	0.00	1.00	0.00	6.14	6.72	2.00	0.00	1.00	0.00
6.16	7.31	2.00	0.00	1.00	0.00	6.18	10.28	2.00	0.00	1.00	0.00
6.20	13.02	2.00	0.00	1.00	0.00	6.22	13.99	2.00	0.00	1.00	0.00
6.24	13.03	2.00	0.00	1.00	0.00	6.26	10.64	2.00	0.00	1.00	0.00
6.28	9.93	2.00	0.00	1.00	0.00	6.30	10.71	2.00	0.00	1.00	0.00
6.32	15.54	2.00	0.00	1.00	0.00	6.34	19.56	2.00	0.00	1.00	0.00
6.36	20.02	2.00	0.00	1.00	0.00	6.38	19.35	2.00	0.00	1.00	0.00
6.40	15.78	2.00	0.00	1.00	0.00	6.42	13.11	2.00	0.00	1.00	0.00
6.44	13.23	2.00	0.00	1.00	0.00	6.46	16.62	2.00	0.00	1.00	0.00
6.48	20.59	2.00	0.00	1.00	0.00	6.50	23.27	2.00	0.00	1.00	0.00
6.52	22.09	2.00	0.00	1.00	0.00	6.54	18.66	2.00	0.00	1.00	0.00
6.56	13.69	2.00	0.00	1.00	0.00	6.58	11.87	2.00	0.00	1.00	0.00
6.60	10.50	2.00	0.00	1.00	0.00	6.62	12.64	2.00	0.00	1.00	0.00
6.64	17.41	2.00	0.00	1.00	0.00	6.66	18.53	2.00	0.00	1.00	0.00
6.68	15.09	2.00	0.00	1.00	0.00	6.70	11.98	2.00	0.00	1.00	0.00
6.72	9.28	2.00	0.00	1.00	0.00	6.74	8.18	2.00	0.00	1.00	0.00
6.76	8.32	2.00	0.00	1.00	0.00	6.78	8.66	2.00	0.00	1.00	0.00
6.80	9.16	2.00	0.00	1.00	0.00	6.82	10.74	2.00	0.00	1.00	0.00
6.84	12.18	2.00	0.00	1.00	0.00	6.86	12.39	2.00	0.00	1.00	0.00

Allegato 3

Cedimenti post sismici

:: Post-earthquake settlement due to soil liquefaction :: (continued)											
Depth (m)	q _{clN,cs}	FS	e _v (%)	DF	Settlement (cm)	Depth (m)	q _{clN,cs}	FS	e _v (%)	DF	Settlement (cm)
6.88	10.63	2.00	0.00	1.00	0.00	6.90	11.48	2.00	0.00	1.00	0.00
6.92	18.72	2.00	0.00	1.00	0.00	6.94	87.43	0.42	3.68	1.00	0.07
6.96	87.15	0.42	3.69	1.00	0.07	6.98	89.51	0.43	3.59	1.00	0.07
7.00	86.63	0.42	3.71	1.00	0.07	7.02	83.17	0.40	3.86	1.00	0.08
7.04	77.34	0.38	4.14	1.00	0.08	7.06	17.29	2.00	0.00	1.00	0.00
7.08	13.51	2.00	0.00	1.00	0.00	7.10	10.93	2.00	0.00	1.00	0.00
7.12	10.61	2.00	0.00	1.00	0.00	7.14	9.66	2.00	0.00	1.00	0.00
7.16	8.86	2.00	0.00	1.00	0.00	7.18	8.91	2.00	0.00	1.00	0.00
7.20	8.65	2.00	0.00	1.00	0.00	7.22	8.67	2.00	0.00	1.00	0.00
7.24	9.15	2.00	0.00	1.00	0.00	7.26	9.05	2.00	0.00	1.00	0.00
7.28	7.92	2.00	0.00	1.00	0.00	7.30	7.91	2.00	0.00	1.00	0.00
7.34	8.04	2.00	0.00	1.00	0.00	7.34	8.32	2.00	0.00	1.00	0.00
7.36	8.03	2.00	0.00	1.00	0.00	7.38	7.93	2.00	0.00	1.00	0.00
7.40	7.30	2.00	0.00	1.00	0.00	7.42	7.05	2.00	0.00	1.00	0.00
7.46	7.18	2.00	0.00	1.00	0.00	7.46	7.21	2.00	0.00	1.00	0.00
7.48	7.05	2.00	0.00	1.00	0.00	7.50	7.20	2.00	0.00	1.00	0.00
7.52	7.22	2.00	0.00	1.00	0.00	7.54	7.22	2.00	0.00	1.00	0.00
7.56	7.30	2.00	0.00	1.00	0.00	7.58	6.96	2.00	0.00	1.00	0.00
7.60	6.86	2.00	0.00	1.00	0.00	7.62	6.67	2.00	0.00	1.00	0.00
7.64	7.12	2.00	0.00	1.00	0.00	7.66	7.21	2.00	0.00	1.00	0.00
7.68	7.26	2.00	0.00	1.00	0.00	7.70	7.32	2.00	0.00	1.00	0.00
7.72	7.59	2.00	0.00	1.00	0.00	7.74	7.46	2.00	0.00	1.00	0.00
7.76	6.60	2.00	0.00	1.00	0.00	7.82	6.10	2.00	0.00	1.00	0.00
7.82	6.10	2.00	0.00	1.00	0.00	7.82	6.10	2.00	0.00	1.00	0.00
7.84	6.19	2.00	0.00	1.00	0.00	7.86	6.67	2.00	0.00	1.00	0.00
7.88	7.15	2.00	0.00	1.00	0.00	7.90	7.26	2.00	0.00	1.00	0.00
7.92	7.35	2.00	0.00	1.00	0.00	7.94	7.43	2.00	0.00	1.00	0.00
7.96	9.59	2.00	0.00	1.00	0.00	7.98	9.01	2.00	0.00	1.00	0.00
8.00	9.00	2.00	0.00	1.00	0.00	8.02	8.99	2.00	0.00	1.00	0.00
8.04	8.89	2.00	0.00	1.00	0.00	8.06	9.06	2.00	0.00	1.00	0.00
8.08	8.48	2.00	0.00	1.00	0.00	8.10	7.72	2.00	0.00	1.00	0.00
8.12	7.42	2.00	0.00	1.00	0.00	8.14	7.76	2.00	0.00	1.00	0.00
8.16	7.87	2.00	0.00	1.00	0.00	8.18	8.13	2.00	0.00	1.00	0.00
8.20	8.18	2.00	0.00	1.00	0.00	8.22	7.60	2.00	0.00	1.00	0.00
8.24	7.30	2.00	0.00	1.00	0.00	8.26	7.17	2.00	0.00	1.00	0.00
8.28	7.08	2.00	0.00	1.00	0.00	8.30	6.77	2.00	0.00	1.00	0.00
8.32	6.68	2.00	0.00	1.00	0.00	8.34	6.90	2.00	0.00	1.00	0.00
8.36	7.10	2.00	0.00	1.00	0.00	8.38	7.09	2.00	0.00	1.00	0.00
8.42	7.11	2.00	0.00	1.00	0.00	8.42	7.11	2.00	0.00	1.00	0.00
8.44	7.34	2.00	0.00	1.00	0.00	8.46	7.07	2.00	0.00	1.00	0.00
8.48	7.00	2.00	0.00	1.00	0.00	8.50	6.82	2.00	0.00	1.00	0.00
8.52	6.61	2.00	0.00	1.00	0.00	8.54	6.51	2.00	0.00	1.00	0.00
8.56	6.48	2.00	0.00	1.00	0.00	8.58	6.47	2.00	0.00	1.00	0.00
8.60	6.35	2.00	0.00	1.00	0.00	8.62	6.46	2.00	0.00	1.00	0.00
8.64	6.14	2.00	0.00	1.00	0.00	8.66	6.13	2.00	0.00	1.00	0.00
8.68	6.18	2.00	0.00	1.00	0.00	8.70	6.58	2.00	0.00	1.00	0.00
8.72	6.61	2.00	0.00	1.00	0.00	8.74	6.66	2.00	0.00	1.00	0.00
8.76	6.71	2.00	0.00	1.00	0.00	8.78	6.77	2.00	0.00	1.00	0.00
8.80	6.73	2.00	0.00	1.00	0.00	8.82	6.47	2.00	0.00	1.00	0.00



Allegato 3

Cedimenti post sismici

:: Post-earthquake settlement due to soil liquefaction :: (continued)											
Depth (m)	q _{clN,cs}	FS	e _v (%)	DF	Settlement (cm)	Depth (m)	q _{clN,cs}	FS	e _v (%)	DF	Settlement (cm)
8.84	6.26	2.00	0.00	1.00	0.00	8.86	6.37	2.00	0.00	1.00	0.00
8.88	6.57	2.00	0.00	1.00	0.00	8.90	7.13	2.00	0.00	1.00	0.00
8.92	7.81	2.00	0.00	1.00	0.00	8.94	7.92	2.00	0.00	1.00	0.00
8.96	10.81	2.00	0.00	1.00	0.00	8.98	10.03	2.00	0.00	1.00	0.00
9.00	9.11	2.00	0.00	1.00	0.00	9.02	9.30	2.00	0.00	1.00	0.00
9.04	9.06	2.00	0.00	1.00	0.00	9.06	8.55	2.00	0.00	1.00	0.00
9.08	9.01	2.00	0.00	1.00	0.00	9.10	10.16	2.00	0.00	1.00	0.00
9.12	10.71	2.00	0.00	1.00	0.00	9.14	10.47	2.00	0.00	1.00	0.00
9.16	11.19	2.00	0.00	1.00	0.00	9.18	11.54	2.00	0.00	1.00	0.00
9.20	11.77	2.00	0.00	1.00	0.00	9.22	11.73	2.00	0.00	1.00	0.00
9.24	11.74	2.00	0.00	1.00	0.00	9.26	11.37	2.00	0.00	1.00	0.00
9.28	9.32	2.00	0.00	1.00	0.00	9.30	8.44	2.00	0.00	1.00	0.00
9.32	7.68	2.00	0.00	1.00	0.00	9.34	7.19	2.00	0.00	1.00	0.00
9.36	6.90	2.00	0.00	1.00	0.00	9.38	6.67	2.00	0.00	1.00	0.00
9.40	6.47	2.00	0.00	1.00	0.00	9.42	6.79	2.00	0.00	1.00	0.00
9.44	7.15	2.00	0.00	1.00	0.00	9.46	7.81	2.00	0.00	1.00	0.00
9.49	7.66	2.00	0.00	1.00	0.00	9.50	8.67	2.00	0.00	1.00	0.00
9.52	8.72	2.00	0.00	1.00	0.00	9.54	9.15	2.00	0.00	1.00	0.00
9.56	9.33	2.00	0.00	1.00	0.00	9.58	8.53	2.00	0.00	1.00	0.00
9.60	8.16	2.00	0.00	1.00	0.00	9.62	8.54	2.00	0.00	1.00	0.00
9.64	8.66	2.00	0.00	1.00	0.00	9.66	8.79	2.00	0.00	1.00	0.00
9.68	8.89	2.00	0.00	1.00	0.00	9.70	9.12	2.00	0.00	1.00	0.00
9.72	9.24	2.00	0.00	1.00	0.00	9.74	10.35	2.00	0.00	1.00	0.00
9.76	10.85	2.00	0.00	1.00	0.00	9.78	9.99	2.00	0.00	1.00	0.00
9.80	9.74	2.00	0.00	1.00	0.00	9.82	9.37	2.00	0.00	1.00	0.00
9.84	9.63	2.00	0.00	1.00	0.00	9.86	10.05	2.00	0.00	1.00	0.00
9.88	9.95	2.00	0.00	1.00	0.00	9.90	10.26	2.00	0.00	1.00	0.00
9.92	10.54	2.00	0.00	1.00	0.00	9.94	7.14	2.00	0.00	1.00	0.00
9.96	10.83	2.00	0.00	1.00	0.00	9.98	10.77	2.00	0.00	1.00	0.00
10.00	10.46	2.00	0.00	1.00	0.00	10.02	10.26	2.00	0.00	1.00	0.00
10.04	10.49	2.00	0.00	1.00	0.00	10.06	10.10	2.00	0.00	1.00	0.00
10.08	9.79	2.00	0.00	1.00	0.00	10.10	9.40	2.00	0.00	1.00	0.00
10.12	9.28	2.00	0.00	1.00	0.00	10.14	9.02	2.00	0.00	1.00	0.00
10.16	8.80	2.00	0.00	1.00	0.00	10.18	8.62	2.00	0.00	1.00	0.00
10.20	8.66	2.00	0.00	1.00	0.00	10.22	8.97	2.00	0.00	1.00	0.00
10.24	9.17	2.00	0.00	1.00	0.00	10.26	9.23	2.00	0.00	1.00	0.00
10.28	9.51	2.00	0.00	1.00	0.00	10.30	9.53	2.00	0.00	1.00	0.00
10.32	9.78	2.00	0.00	1.00	0.00	10.34	10.19	2.00	0.00	1.00	0.00
10.36	10.81	2.00	0.00	1.00	0.00	10.38	11.19	2.00	0.00	1.00	0.00
10.40	10.79	2.00	0.00	1.00	0.00	10.42	10.22	2.00	0.00	1.00	0.00
10.44	9.98	2.00	0.00	1.00	0.00	10.46	9.84	2.00	0.00	1.00	0.00
10.48	9.69	2.00	0.00	1.00	0.00	10.50	9.68	2.00	0.00	1.00	0.00
10.52	10.28	2.00	0.00	1.00	0.00	10.54	10.87	2.00	0.00	1.00	0.00
10.56	10.91	2.00	0.00	1.00	0.00	10.58	11.16	2.00	0.00	1.00	0.00
10.60	10.91	2.00	0.00	1.00	0.00	10.62	10.82	2.00	0.00	1.00	0.00
10.64	10.57	2.00	0.00	1.00	0.00	10.66	10.30	2.00	0.00	1.00	0.00
10.68	9.87	2.00	0.00	1.00	0.00	10.70	9.91	2.00	0.00	1.00	0.00
10.72	9.67	2.00	0.00	1.00	0.00	10.74	9.04	2.00	0.00	1.00	0.00
10.76	8.67	2.00	0.00	1.00	0.00	10.78	8.63	2.00	0.00	1.00	0.00



Allegato 3

Cedimenti post sismici

:: Post-earthquake settlement due to soil liquefaction :: (continued)											
Depth (m)	q _{clN,cs}	FS	e _v (%)	DF	Settlement (cm)	Depth (m)	q _{clN,cs}	FS	e _v (%)	DF	Settlement (cm)
10.80	8.57	2.00	0.00	1.00	0.00	10.82	9.00	2.00	0.00	1.00	0.00
10.84	9.69	2.00	0.00	1.00	0.00	10.86	9.96	2.00	0.00	1.00	0.00
10.88	9.49	2.00	0.00	1.00	0.00	10.90	9.27	2.00	0.00	1.00	0.00
10.92	9.36	2.00	0.00	1.00	0.00	10.94	9.46	2.00	0.00	1.00	0.00
10.96	9.93	2.00	0.00	1.00	0.00	10.98	9.66	2.00	0.00	1.00	0.00
11.00	9.70	2.00	0.00	1.00	0.00	11.02	9.67	2.00	0.00	1.00	0.00
11.04	9.76	2.00	0.00	1.00	0.00	11.06	10.37	2.00	0.00	1.00	0.00
11.08	10.79	2.00	0.00	1.00	0.00	11.10	11.29	2.00	0.00	1.00	0.00
11.12	11.20	2.00	0.00	1.00	0.00	11.14	11.06	2.00	0.00	1.00	0.00
11.16	10.79	2.00	0.00	1.00	0.00	11.18	10.65	2.00	0.00	1.00	0.00
11.20	10.67	2.00	0.00	1.00	0.00	11.22	10.58	2.00	0.00	1.00	0.00
11.24	10.50	2.00	0.00	1.00	0.00	11.26	10.13	2.00	0.00	1.00	0.00
11.28	9.54	2.00	0.00	1.00	0.00	11.30	9.07	2.00	0.00	1.00	0.00
11.32	9.42	2.00	0.00	1.00	0.00	11.34	9.91	2.00	0.00	1.00	0.00
11.36	10.28	2.00	0.00	1.00	0.00	11.38	10.42	2.00	0.00	1.00	0.00
11.40	10.71	2.00	0.00	1.00	0.00	11.42	11.10	2.00	0.00	1.00	0.00
11.44	11.52	2.00	0.00	1.00	0.00	11.46	11.69	2.00	0.00	1.00	0.00
11.48	11.88	2.00	0.00	1.00	0.00	11.50	11.84	2.00	0.00	1.00	0.00
11.52	11.40	2.00	0.00	1.00	0.00	11.54	11.34	2.00	0.00	1.00	0.00
11.56	11.58	2.00	0.00	1.00	0.00	11.58	12.14	2.00	0.00	1.00	0.00
11.62	12.00	2.00	0.00	1.00	0.00	11.62	12.00	2.00	0.00	1.00	0.00
11.64	13.48	2.00	0.00	1.00	0.00	11.66	14.29	2.00	0.00	1.00	0.00
11.72	14.50	2.00	0.00	1.00	0.00	11.72	14.50	2.00	0.00	1.00	0.00
11.72	13.97	2.00	0.00	1.00	0.00	11.74	12.89	2.00	0.00	1.00	0.00
11.76	12.29	2.00	0.00	1.00	0.00	11.78	11.61	2.00	0.00	1.00	0.00
11.80	11.22	2.00	0.00	1.00	0.00	11.82	11.39	2.00	0.00	1.00	0.00
11.84	11.72	2.00	0.00	1.00	0.00	11.86	11.88	2.00	0.00	1.00	0.00
11.88	12.39	2.00	0.00	1.00	0.00	11.90	12.97	2.00	0.00	1.00	0.00
11.92	13.30	2.00	0.00	1.00	0.00	11.94	7.12	2.00	0.00	1.00	0.00
11.96	18.07	2.00	0.00	1.00	0.00	11.98	18.20	2.00	0.00	1.00	0.00
12.00	18.93	2.00	0.00	1.00	0.00	12.02	19.16	2.00	0.00	1.00	0.00
12.04	17.61	2.00	0.00	1.00	0.00	12.06	15.19	2.00	0.00	1.00	0.00
12.08	13.81	2.00	0.00	1.00	0.00	12.10	13.45	2.00	0.00	1.00	0.00
12.12	14.57	2.00	0.00	1.00	0.00	12.14	16.73	2.00	0.00	1.00	0.00
12.16	18.96	2.00	0.00	1.00	0.00	12.18	21.07	2.00	0.00	1.00	0.00
12.20	20.63	2.00	0.00	1.00	0.00	12.22	18.71	2.00	0.00	1.00	0.00
12.24	17.39	2.00	0.00	1.00	0.00	12.26	16.37	2.00	0.00	1.00	0.00
12.28	16.23	2.00	0.00	1.00	0.00	12.30	18.22	2.00	0.00	1.00	0.00
12.32	20.80	2.00	0.00	1.00	0.00	12.34	23.05	2.00	0.00	1.00	0.00
12.36	84.58	0.42	3.80	1.00	0.08	12.38	87.39	0.43	3.68	1.00	0.07
12.40	26.94	2.00	0.00	1.00	0.00	12.42	23.47	2.00	0.00	1.00	0.00
12.44	19.99	2.00	0.00	1.00	0.00	12.46	18.19	2.00	0.00	1.00	0.00
12.48	17.85	2.00	0.00	1.00	0.00	12.50	19.31	2.00	0.00	1.00	0.00
12.52	18.75	2.00	0.00	1.00	0.00	12.54	19.12	2.00	0.00	1.00	0.00
12.56	19.95	2.00	0.00	1.00	0.00	12.58	19.85	2.00	0.00	1.00	0.00
12.60	19.42	2.00	0.00	1.00	0.00	12.62	18.09	2.00	0.00	1.00	0.00
12.64	18.26	2.00	0.00	1.00	0.00	12.66	17.03	2.00	0.00	1.00	0.00
12.68	16.60	2.00	0.00	1.00	0.00	12.70	16.24	2.00	0.00	1.00	0.00
12.75	16.39	2.00	0.00	1.00	0.00	12.75	16.39	2.00	0.00	1.00	0.00

Allegato 3

Cedimenti post sismici

:: Post-earthquake settlement due to soil liquefaction :: (continued)											
Depth (m)	q _{clN,cs}	FS	e _v (%)	DF	Settlement (cm)	Depth (m)	q _{clN,cs}	FS	e _v (%)	DF	Settlement (cm)
12.76	16.05	2.00	0.00	1.00	0.00	12.78	16.01	2.00	0.00	1.00	0.00
12.80	15.94	2.00	0.00	1.00	0.00	12.82	16.11	2.00	0.00	1.00	0.00
12.84	15.42	2.00	0.00	1.00	0.00	12.86	14.70	2.00	0.00	1.00	0.00
12.88	15.33	2.00	0.00	1.00	0.00	12.90	15.69	2.00	0.00	1.00	0.00
12.92	16.25	2.00	0.00	1.00	0.00	12.94	9.77	2.00	0.00	1.00	0.00
12.96	17.10	2.00	0.00	1.00	0.00	12.98	16.56	2.00	0.00	1.00	0.00
13.00	16.81	2.00	0.00	1.00	0.00	13.02	16.82	2.00	0.00	1.00	0.00
13.04	16.73	2.00	0.00	1.00	0.00	13.06	16.43	2.00	0.00	1.00	0.00
13.08	15.89	2.00	0.00	1.00	0.00	13.10	15.35	2.00	0.00	1.00	0.00
13.12	14.90	2.00	0.00	1.00	0.00	13.14	14.15	2.00	0.00	1.00	0.00
13.16	13.66	2.00	0.00	1.00	0.00	13.18	13.40	2.00	0.00	1.00	0.00
13.20	12.96	2.00	0.00	1.00	0.00	13.22	12.43	2.00	0.00	1.00	0.00
13.24	12.06	2.00	0.00	1.00	0.00	13.26	12.00	2.00	0.00	1.00	0.00
13.28	11.84	2.00	0.00	1.00	0.00	13.30	11.95	2.00	0.00	1.00	0.00
13.32	11.89	2.00	0.00	1.00	0.00	13.34	12.87	2.00	0.00	1.00	0.00
13.36	13.98	2.00	0.00	1.00	0.00	13.38	13.64	2.00	0.00	1.00	0.00
13.40	12.81	2.00	0.00	1.00	0.00	13.42	13.36	2.00	0.00	1.00	0.00
13.44	14.15	2.00	0.00	1.00	0.00	13.46	13.50	2.00	0.00	1.00	0.00
13.48	13.61	2.00	0.00	1.00	0.00	13.50	14.33	2.00	0.00	1.00	0.00
13.52	15.06	2.00	0.00	1.00	0.00	13.54	14.63	2.00	0.00	1.00	0.00
13.56	13.48	2.00	0.00	1.00	0.00	13.58	14.01	2.00	0.00	1.00	0.00
13.60	14.40	2.00	0.00	1.00	0.00	13.62	12.99	2.00	0.00	1.00	0.00
13.64	12.33	2.00	0.00	1.00	0.00	13.66	12.07	2.00	0.00	1.00	0.00
13.68	11.77	2.00	0.00	1.00	0.00	13.70	11.76	2.00	0.00	1.00	0.00
13.72	11.80	2.00	0.00	1.00	0.00	13.74	11.84	2.00	0.00	1.00	0.00
13.76	12.13	2.00	0.00	1.00	0.00	13.78	13.22	2.00	0.00	1.00	0.00
13.80	13.70	2.00	0.00	1.00	0.00	13.82	13.27	2.00	0.00	1.00	0.00
13.84	13.49	2.00	0.00	1.00	0.00	13.86	13.90	2.00	0.00	1.00	0.00
13.88	14.33	2.00	0.00	1.00	0.00	13.90	14.15	2.00	0.00	1.00	0.00
13.92	13.50	2.00	0.00	1.00	0.00	13.94	14.03	2.00	0.00	1.00	0.00
13.96	19.63	2.00	0.00	1.00	0.00	13.98	16.44	2.00	0.00	1.00	0.00
14.00	14.20	2.00	0.00	1.00	0.00	14.02	12.59	2.00	0.00	1.00	0.00
14.04	11.78	2.00	0.00	1.00	0.00	14.06	10.96	2.00	0.00	1.00	0.00
14.08	11.17	2.00	0.00	1.00	0.00	14.10	10.78	2.00	0.00	1.00	0.00
14.12	9.15	2.00	0.00	1.00	0.00	14.14	8.27	2.00	0.00	1.00	0.00
14.16	8.37	2.00	0.00	1.00	0.00	14.18	10.15	2.00	0.00	1.00	0.00
14.20	12.83	2.00	0.00	1.00	0.00	14.22	13.25	2.00	0.00	1.00	0.00
14.24	14.14	2.00	0.00	1.00	0.00	14.26	15.97	2.00	0.00	1.00	0.00
14.28	14.85	2.00	0.00	1.00	0.00	14.30	12.93	2.00	0.00	1.00	0.00
14.32	12.06	2.00	0.00	1.00	0.00	14.34	11.76	2.00	0.00	1.00	0.00
14.36	12.45	2.00	0.00	1.00	0.00	14.38	14.88	2.00	0.00	1.00	0.00
14.40	16.83	2.00	0.00	1.00	0.00	14.42	17.72	2.00	0.00	1.00	0.00
14.44	17.09	2.00	0.00	1.00	0.00	14.46	15.27	2.00	0.00	1.00	0.00
14.48	13.94	2.00	0.00	1.00	0.00	14.50	12.71	2.00	0.00	1.00	0.00
14.52	12.09	2.00	0.00	1.00	0.00	14.54	12.01	2.00	0.00	1.00	0.00
14.56	12.56	2.00	0.00	1.00	0.00	14.58	11.83	2.00	0.00	1.00	0.00
14.60	10.65	2.00	0.00	1.00	0.00	14.62	10.58	2.00	0.00	1.00	0.00
14.64	10.08	2.00	0.00	1.00	0.00	14.66	9.76	2.00	0.00	1.00	0.00
14.68	9.57	2.00	0.00	1.00	0.00	14.72	9.69	2.00	0.00	1.00	0.00



Allegato 3

Cedimenti post sismici

:: Post-earthquake settlement due to soil liquefaction :: (continued)											
Depth (m)	q _{clN,cs}	FS	e _v (%)	DF	Settlement (cm)	Depth (m)	q _{clN,cs}	FS	e _v (%)	DF	Settlement (cm)
14.72	10.80	2.00	0.00	1.00	0.00	14.74	10.29	2.00	0.00	1.00	0.00
14.76	9.69	2.00	0.00	1.00	0.00	14.78	9.71	2.00	0.00	1.00	0.00
14.80	9.35	2.00	0.00	1.00	0.00	14.82	9.15	2.00	0.00	1.00	0.00
14.84	8.90	2.00	0.00	1.00	0.00	14.86	8.79	2.00	0.00	1.00	0.00
14.88	9.24	2.00	0.00	1.00	0.00	14.90	9.85	2.00	0.00	1.00	0.00
14.92	10.23	2.00	0.00	1.00	0.00	14.94	7.57	2.00	0.00	1.00	0.00
14.97	10.47	2.00	0.00	1.00	0.00	14.98	9.81	2.00	0.00	1.00	0.00
15.00	8.96	2.00	0.00	1.00	0.00	15.02	8.11	2.00	0.00	1.00	0.00
15.04	7.69	2.00	0.00	1.00	0.00	15.06	7.81	2.00	0.00	1.00	0.00
15.08	8.22	2.00	0.00	1.00	0.00	15.10	8.77	2.00	0.00	1.00	0.00
15.12	9.48	2.00	0.00	1.00	0.00	15.14	11.33	2.00	0.00	1.00	0.00
15.16	12.18	2.00	0.00	1.00	0.00	15.18	12.24	2.00	0.00	1.00	0.00
15.20	11.97	2.00	0.00	1.00	0.00	15.22	11.42	2.00	0.00	1.00	0.00
15.24	10.55	2.00	0.00	1.00	0.00	15.26	9.42	2.00	0.00	1.00	0.00
15.28	8.94	2.00	0.00	1.00	0.00	15.30	8.91	2.00	0.00	1.00	0.00
15.32	8.99	2.00	0.00	1.00	0.00	15.34	8.96	2.00	0.00	1.00	0.00
15.36	8.87	2.00	0.00	1.00	0.00	15.38	8.84	2.00	0.00	1.00	0.00
15.40	8.81	2.00	0.00	1.00	0.00	15.42	8.47	2.00	0.00	1.00	0.00
15.44	8.50	2.00	0.00	1.00	0.00	15.46	7.98	2.00	0.00	1.00	0.00
15.48	7.76	2.00	0.00	1.00	0.00	15.50	7.65	2.00	0.00	1.00	0.00
15.52	8.05	2.00	0.00	1.00	0.00	15.54	8.75	2.00	0.00	1.00	0.00
15.56	9.36	2.00	0.00	1.00	0.00	15.58	9.84	2.00	0.00	1.00	0.00
15.60	9.52	2.00	0.00	1.00	0.00	15.62	8.77	2.00	0.00	1.00	0.00
15.64	7.96	2.00	0.00	1.00	0.00	15.66	7.57	2.00	0.00	1.00	0.00
15.72	7.58	2.00	0.00	1.00	0.00	15.72	7.58	2.00	0.00	1.00	0.00
15.72	8.38	2.00	0.00	1.00	0.00	15.76	8.60	2.00	0.00	1.00	0.00
15.76	8.92	2.00	0.00	1.00	0.00	15.78	9.11	2.00	0.00	1.00	0.00
15.80	9.17	2.00	0.00	1.00	0.00	15.82	9.33	2.00	0.00	1.00	0.00
15.84	9.79	2.00	0.00	1.00	0.00	15.86	10.23	2.00	0.00	1.00	0.00
15.88	9.82	2.00	0.00	1.00	0.00	15.90	8.88	2.00	0.00	1.00	0.00
15.92	8.23	2.00	0.00	1.00	0.00	15.94	10.76	2.00	0.00	1.00	0.00
15.96	9.73	2.00	0.00	1.00	0.00	15.98	8.88	2.00	0.00	1.00	0.00
16.00	9.36	2.00	0.00	1.00	0.00	16.02	10.27	2.00	0.00	1.00	0.00
16.04	11.95	2.00	0.00	1.00	0.00	16.06	12.56	2.00	0.00	1.00	0.00
16.08	12.38	2.00	0.00	1.00	0.00	16.10	11.18	2.00	0.00	1.00	0.00
16.12	11.09	2.00	0.00	1.00	0.00	16.14	11.75	2.00	0.00	1.00	0.00
16.16	12.32	2.00	0.00	1.00	0.00	16.19	13.22	2.00	0.00	1.00	0.00
16.20	14.48	2.00	0.00	1.00	0.00	16.22	15.23	2.00	0.00	1.00	0.00
16.26	16.02	2.00	0.00	1.00	0.00	16.26	18.43	2.00	0.00	1.00	0.00
16.28	20.71	2.00	0.00	1.00	0.00	16.30	20.76	2.00	0.00	1.00	0.00
16.32	18.77	2.00	0.00	1.00	0.00	16.34	16.73	2.00	0.00	1.00	0.00
16.36	16.04	2.00	0.00	1.00	0.00	16.38	17.81	2.00	0.00	1.00	0.00
16.40	18.81	2.00	0.00	1.00	0.00	16.42	17.31	2.00	0.00	1.00	0.00
16.44	15.66	2.00	0.00	1.00	0.00	16.46	14.86	2.00	0.00	1.00	0.00
16.49	14.63	2.00	0.00	1.00	0.00	16.50	15.80	2.00	0.00	1.00	0.00
16.52	16.46	2.00	0.00	1.00	0.00	16.54	16.38	2.00	0.00	1.00	0.00
16.56	16.62	2.00	0.00	1.00	0.00	16.58	16.79	2.00	0.00	1.00	0.00
16.60	17.45	2.00	0.00	1.00	0.00	16.62	17.65	2.00	0.00	1.00	0.00
16.64	17.00	2.00	0.00	1.00	0.00	16.66	14.83	2.00	0.00	1.00	0.00

Allegato 3

Cedimenti post sismici

:: Post-earthquake settlement due to soil liquefaction :: (continued)											
Depth (m)	q _{clN,cs}	FS	e _v (%)	DF	Settlement (cm)	Depth (m)	q _{clN,cs}	FS	e _v (%)	DF	Settlement (cm)
16.68	16.71	2.00	0.00	1.00	0.00	16.70	22.40	2.00	0.00	1.00	0.00
16.72	25.41	2.00	0.00	1.00	0.00	16.74	27.11	2.00	0.00	1.00	0.00
16.76	29.91	2.00	0.00	1.00	0.00	16.78	31.35	2.00	0.00	1.00	0.00
16.80	31.63	2.00	0.00	1.00	0.00	16.82	29.11	2.00	0.00	1.00	0.00
16.84	24.43	2.00	0.00	1.00	0.00	16.86	15.91	2.00	0.00	1.00	0.00
16.88	12.43	2.00	0.00	1.00	0.00	16.90	12.09	2.00	0.00	1.00	0.00
16.92	12.80	2.00	0.00	1.00	0.00	16.94	12.37	2.00	0.00	1.00	0.00
16.96	19.88	2.00	0.00	1.00	0.00	16.98	20.44	2.00	0.00	1.00	0.00
17.00	22.36	2.00	0.00	1.00	0.00	17.02	24.22	2.00	0.00	1.00	0.00
17.04	23.42	2.00	0.00	1.00	0.00	17.06	22.38	2.00	0.00	1.00	0.00
17.08	21.43	2.00	0.00	1.00	0.00	17.10	21.54	2.00	0.00	1.00	0.00
17.12	21.81	2.00	0.00	1.00	0.00	17.14	20.33	2.00	0.00	1.00	0.00
17.16	18.50	2.00	0.00	1.00	0.00	17.18	17.57	2.00	0.00	1.00	0.00
17.20	17.11	2.00	0.00	1.00	0.00	17.22	19.64	2.00	0.00	1.00	0.00
17.24	24.98	2.00	0.00	1.00	0.00	17.26	28.52	2.00	0.00	1.00	0.00
17.28	29.99	2.00	0.00	1.00	0.00	17.30	28.65	2.00	0.00	1.00	0.00
17.32	24.24	2.00	0.00	1.00	0.00	17.34	18.18	2.00	0.00	1.00	0.00
17.36	14.33	2.00	0.00	1.00	0.00	17.38	11.38	2.00	0.00	1.00	0.00
17.40	9.96	2.00	0.00	1.00	0.00	17.42	9.63	2.00	0.00	1.00	0.00
17.44	9.34	2.00	0.00	1.00	0.00	17.46	8.25	2.00	0.00	1.00	0.00
17.48	7.91	2.00	0.00	1.00	0.00	17.50	7.84	2.00	0.00	1.00	0.00
17.52	7.89	2.00	0.00	1.00	0.00	17.54	7.62	2.00	0.00	1.00	0.00
17.56	7.61	2.00	0.00	1.00	0.00	17.58	7.47	2.00	0.00	1.00	0.00
17.60	7.37	2.00	0.00	1.00	0.00	17.62	7.46	2.00	0.00	1.00	0.00
17.64	7.46	2.00	0.00	1.00	0.00	17.66	7.57	2.00	0.00	1.00	0.00
17.68	7.59	2.00	0.00	1.00	0.00	17.70	7.55	2.00	0.00	1.00	0.00
17.72	7.53	2.00	0.00	1.00	0.00	17.75	7.70	2.00	0.00	1.00	0.00
17.76	7.74	2.00	0.00	1.00	0.00	17.78	7.74	2.00	0.00	1.00	0.00
17.80	7.64	2.00	0.00	1.00	0.00	17.82	7.52	2.00	0.00	1.00	0.00
17.84	7.52	2.00	0.00	1.00	0.00	17.86	7.54	2.00	0.00	1.00	0.00
17.88	7.58	2.00	0.00	1.00	0.00	17.90	7.44	2.00	0.00	1.00	0.00
17.92	7.44	2.00	0.00	1.00	0.00	17.94	7.27	2.00	0.00	1.00	0.00
17.96	7.66	2.00	0.00	1.00	0.00	17.98	7.67	2.00	0.00	1.00	0.00
18.00	7.73	2.00	0.00	1.00	0.00	18.02	7.41	2.00	0.00	1.00	0.00
18.04	7.44	2.00	0.00	1.00	0.00	18.06	7.26	2.00	0.00	1.00	0.00
18.08	7.24	2.00	0.00	1.00	0.00	18.10	7.45	2.00	0.00	1.00	0.00
18.12	7.52	2.00	0.00	1.00	0.00	18.14	7.71	2.00	0.00	1.00	0.00
18.16	7.76	2.00	0.00	1.00	0.00	18.18	7.74	2.00	0.00	1.00	0.00
18.20	8.06	2.00	0.00	1.00	0.00	18.22	8.11	2.00	0.00	1.00	0.00
18.24	8.24	2.00	0.00	1.00	0.00	18.26	8.16	2.00	0.00	1.00	0.00
18.28	7.86	2.00	0.00	1.00	0.00	18.30	7.60	2.00	0.00	1.00	0.00
18.32	7.29	2.00	0.00	1.00	0.00	18.34	7.24	2.00	0.00	1.00	0.00
18.36	7.45	2.00	0.00	1.00	0.00	18.38	7.81	2.00	0.00	1.00	0.00
18.40	8.06	2.00	0.00	1.00	0.00	18.42	8.13	2.00	0.00	1.00	0.00
18.44	8.28	2.00	0.00	1.00	0.00	18.46	8.37	2.00	0.00	1.00	0.00
18.48	8.28	2.00	0.00	1.00	0.00	18.50	8.33	2.00	0.00	1.00	0.00
18.52	8.19	2.00	0.00	1.00	0.00	18.54	8.22	2.00	0.00	1.00	0.00
18.56	8.20	2.00	0.00	1.00	0.00	18.58	8.17	2.00	0.00	1.00	0.00
18.60	8.24	2.00	0.00	1.00	0.00	18.62	8.37	2.00	0.00	1.00	0.00



Allegato 3

Cedimenti post sismici

:: Post-earthquake settlement due to soil liquefaction :: (continued)											
Depth (m)	$q_{clN,cs}$	FS	e_v (%)	DF	Settlement (cm)	Depth (m)	$q_{clN,cs}$	FS	e_v (%)	DF	Settlement (cm)
18.64	8.69	2.00	0.00	1.00	0.00	18.66	9.18	2.00	0.00	1.00	0.00
18.68	9.51	2.00	0.00	1.00	0.00	18.70	10.35	2.00	0.00	1.00	0.00
18.72	11.02	2.00	0.00	1.00	0.00	18.74	11.09	2.00	0.00	1.00	0.00
18.76	10.83	2.00	0.00	1.00	0.00	18.78	10.57	2.00	0.00	1.00	0.00
18.80	10.04	2.00	0.00	1.00	0.00	18.82	9.28	2.00	0.00	1.00	0.00
18.84	8.81	2.00	0.00	1.00	0.00	18.86	8.38	2.00	0.00	1.00	0.00
18.88	7.90	2.00	0.00	1.00	0.00	18.90	7.76	2.00	0.00	1.00	0.00
18.96	7.65	2.00	0.00	1.00	0.00	18.96	7.65	2.00	0.00	1.00	0.00
18.96	7.71	2.00	0.00	1.00	0.00	18.98	8.54	2.00	0.00	1.00	0.00
19.00	8.48	2.00	0.00	1.00	0.00	19.02	8.26	2.00	0.00	1.00	0.00
19.04	8.33	2.00	0.00	1.00	0.00	19.06	8.04	2.00	0.00	1.00	0.00
19.08	7.99	2.00	0.00	1.00	0.00	19.10	8.06	2.00	0.00	1.00	0.00
19.12	8.13	2.00	0.00	1.00	0.00	19.14	8.16	2.00	0.00	1.00	0.00
19.16	8.38	2.00	0.00	1.00	0.00	19.18	8.68	2.00	0.00	1.00	0.00
19.20	8.84	2.00	0.00	1.00	0.00	19.22	9.23	2.00	0.00	1.00	0.00
19.24	9.44	2.00	0.00	1.00	0.00	19.26	9.43	2.00	0.00	1.00	0.00
19.28	9.61	2.00	0.00	1.00	0.00	19.30	9.92	2.00	0.00	1.00	0.00
19.32	9.90	2.00	0.00	1.00	0.00	19.34	10.12	2.00	0.00	1.00	0.00
19.36	10.05	2.00	0.00	1.00	0.00	19.38	10.04	2.00	0.00	1.00	0.00
19.40	10.31	2.00	0.00	1.00	0.00	19.42	10.73	2.00	0.00	1.00	0.00
19.44	10.75	2.00	0.00	1.00	0.00	19.46	10.80	2.00	0.00	1.00	0.00
19.48	10.65	2.00	0.00	1.00	0.00	19.50	10.24	2.00	0.00	1.00	0.00
19.52	10.40	2.00	0.00	1.00	0.00	19.54	10.20	2.00	0.00	1.00	0.00
19.56	10.15	2.00	0.00	1.00	0.00	19.58	9.99	2.00	0.00	1.00	0.00
19.60	10.07	2.00	0.00	1.00	0.00	19.62	10.38	2.00	0.00	1.00	0.00
19.64	10.25	2.00	0.00	1.00	0.00	19.66	10.32	2.00	0.00	1.00	0.00
19.68	10.56	2.00	0.00	1.00	0.00	19.70	10.55	2.00	0.00	1.00	0.00
19.72	10.79	2.00	0.00	1.00	0.00	19.74	10.93	2.00	0.00	1.00	0.00
19.76	10.92	2.00	0.00	1.00	0.00	19.78	11.13	2.00	0.00	1.00	0.00
19.80	11.18	2.00	0.00	1.00	0.00	19.82	11.44	2.00	0.00	1.00	0.00
19.84	11.31	2.00	0.00	1.00	0.00	19.86	11.15	2.00	0.00	1.00	0.00
19.88	11.37	2.00	0.00	1.00	0.00	19.90	11.72	2.00	0.00	1.00	0.00
19.92	11.76	2.00	0.00	1.00	0.00						

Total estimated settlement: 0.82**Abbreviations**

$Q_{n,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumetric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

SA1 0,1 - 0,5 Spettri superficie/Bedrock

spec.sup	14.70	16.66	19.73	17.01	16.41	13.00	16.94
spec.bed	11.92	14.60	16.59	14.04	14.84	11.62	15.90
SA1 0.1-0.5	1.23	1.14	1.19	1.21	1.11	1.12	1.06

Allegato 4

PGA/PGA₀

Da 0,1 a 0,5 spetra superficie

sec	terr 1	terr 2	terr 3	terr 4	terr 5	terr 6	terr 7
0.10	0.28	0.28	0.26	0.21	0.19	0.25	0.21
0.11	0.31	0.31	0.28	0.22	0.22	0.22	0.21
0.12	0.30	0.41	0.27	0.24	0.28	0.24	0.21
0.13	0.33	0.46	0.30	0.24	0.31	0.23	0.21
0.14	0.33	0.49	0.39	0.25	0.31	0.25	0.21
0.15	0.40	0.56	0.39	0.26	0.30	0.20	0.22
0.16	0.49	0.62	0.53	0.26	0.30	0.23	0.23
0.17	0.54	0.59	0.55	0.28	0.32	0.25	0.23
0.18	0.47	0.62	0.48	0.29	0.35	0.26	0.23
0.19	0.48	0.70	0.39	0.31	0.36	0.32	0.25
0.20	0.51	0.70	0.39	0.33	0.37	0.34	0.27
0.21	0.40	0.61	0.40	0.30	0.41	0.30	0.30
0.22	0.45	0.47	0.44	0.33	0.44	0.32	0.32
0.23	0.42	0.41	0.54	0.37	0.47	0.30	0.34
0.24	0.37	0.37	0.68	0.37	0.50	0.25	0.34
0.25	0.34	0.39	0.65	0.41	0.52	0.27	0.41
0.26	0.39	0.39	0.65	0.42	0.53	0.31	0.45
0.27	0.42	0.36	0.59	0.50	0.54	0.35	0.47
0.28	0.42	0.30	0.52	0.57	0.56	0.38	0.51
0.29	0.39	0.30	0.59	0.52	0.58	0.34	0.48
0.30	0.36	0.29	0.66	0.47	0.58	0.34	0.49
0.31	0.34	0.30	0.68	0.48	0.57	0.37	0.57
0.32	0.34	0.31	0.68	0.50	0.53	0.40	0.66
0.33	0.33	0.33	0.64	0.50	0.48	0.42	0.71
0.34	0.33	0.35	0.55	0.48	0.44	0.42	0.66
0.35	0.34	0.36	0.45	0.48	0.38	0.42	0.67
0.36	0.34	0.37	0.41	0.50	0.36	0.43	0.59
0.37	0.34	0.38	0.39	0.52	0.36	0.43	0.51
0.38	0.35	0.38	0.36	0.55	0.35	0.41	0.45
0.39	0.36	0.38	0.35	0.55	0.34	0.38	0.44
0.40	0.36	0.37	0.35	0.56	0.34	0.34	0.45
0.41	0.36	0.35	0.37	0.56	0.35	0.30	0.45
0.42	0.35	0.33	0.38	0.54	0.36	0.26	0.44
0.43	0.33	0.31	0.43	0.53	0.38	0.27	0.43
0.44	0.30	0.31	0.49	0.51	0.36	0.29	0.39
0.45	0.29	0.33	0.53	0.49	0.37	0.32	0.39
0.46	0.27	0.35	0.56	0.46	0.40	0.33	0.45
0.47	0.26	0.37	0.56	0.44	0.41	0.33	0.49
0.48	0.24	0.38	0.55	0.42	0.40	0.32	0.53
0.49	0.23	0.38	0.53	0.39	0.39	0.30	0.55
0.50	0.21	0.38	0.51	0.38	0.40	0.28	0.53
	14.70	16.66	19.73	17.01	16.41	13.00	16.94

SA1 0,1 - 0,5 Spettri superficie/Bedrock

Allegato 4

PGA/PGA₀

Da 0,1 a 0,5 spectra bedrock

sec	terr 1	terr 2	terr 3	terr 4	terr 5	terr 6	terr 7
0.10	0.33	0.37	0.29	0.27	0.27	0.41	0.17
0.11	0.39	0.39	0.30	0.28	0.36	0.28	0.17
0.12	0.35	0.50	0.29	0.23	0.38	0.33	0.17
0.13	0.36	0.54	0.31	0.28	0.39	0.29	0.18
0.14	0.33	0.55	0.41	0.28	0.36	0.30	0.19
0.15	0.39	0.60	0.44	0.30	0.32	0.24	0.19
0.16	0.45	0.64	0.55	0.28	0.32	0.25	0.21
0.17	0.48	0.59	0.58	0.29	0.39	0.25	0.21
0.18	0.41	0.59	0.49	0.28	0.41	0.23	0.22
0.19	0.39	0.64	0.38	0.29	0.40	0.29	0.25
0.20	0.41	0.63	0.36	0.28	0.40	0.30	0.27
0.21	0.33	0.53	0.38	0.27	0.37	0.27	0.32
0.22	0.38	0.40	0.44	0.27	0.40	0.28	0.35
0.23	0.35	0.34	0.51	0.31	0.42	0.26	0.37
0.24	0.31	0.31	0.63	0.30	0.43	0.23	0.38
0.25	0.25	0.35	0.61	0.33	0.45	0.24	0.48
0.26	0.29	0.35	0.58	0.34	0.45	0.26	0.52
0.27	0.32	0.30	0.53	0.39	0.45	0.29	0.55
0.28	0.31	0.25	0.45	0.45	0.47	0.31	0.58
0.29	0.29	0.25	0.46	0.41	0.48	0.28	0.52
0.30	0.27	0.25	0.51	0.38	0.49	0.30	0.47
0.31	0.25	0.25	0.53	0.39	0.48	0.33	0.50
0.32	0.25	0.27	0.53	0.40	0.45	0.36	0.59
0.33	0.26	0.28	0.50	0.39	0.41	0.36	0.64
0.34	0.26	0.30	0.44	0.37	0.37	0.37	0.60
0.35	0.26	0.31	0.35	0.39	0.32	0.37	0.62
0.36	0.26	0.31	0.34	0.43	0.31	0.38	0.56
0.37	0.25	0.31	0.32	0.44	0.31	0.38	0.46
0.38	0.24	0.30	0.29	0.47	0.30	0.36	0.42
0.39	0.25	0.29	0.27	0.46	0.28	0.33	0.41
0.40	0.25	0.28	0.27	0.43	0.27	0.30	0.40
0.41	0.25	0.26	0.28	0.42	0.27	0.27	0.39
0.42	0.24	0.23	0.29	0.40	0.28	0.23	0.39
0.43	0.22	0.21	0.28	0.37	0.29	0.20	0.39
0.44	0.21	0.21	0.30	0.35	0.28	0.21	0.35
0.45	0.20	0.21	0.34	0.34	0.28	0.22	0.35
0.46	0.19	0.22	0.35	0.33	0.29	0.23	0.38
0.47	0.18	0.23	0.36	0.32	0.30	0.23	0.39
0.48	0.17	0.23	0.36	0.30	0.30	0.22	0.43
0.49	0.16	0.25	0.35	0.27	0.30	0.20	0.44
0.50	0.15	0.26	0.34	0.25	0.30	0.18	0.43
	11.92	14.60	16.59	14.04	14.84	11.62	15.90

SA2 0,4 - 0,8 Spettri superficie/Bedrock

Allegato 4

PGA/PGA₀

spec.sup	5.81	8.73	10.80	10.07	10.84	7.01	17.70
spec.bed	4.07	6.25	7.34	7.22	8.38	5.24	15.00
SA2 0.4-0.8	1.43	1.40	1.47	1.39	1.29	1.34	1.18

da 0,4 a 0,8 spectra superficie

sec	terr 1	terr 2	terr 3	terr 4	terr 5	terr 6	terr 7
0.40	0.36	0.37	0.35	0.56	0.34	0.34	0.45
0.41	0.36	0.35	0.37	0.56	0.35	0.30	0.45
0.42	0.35	0.33	0.38	0.54	0.36	0.26	0.44
0.43	0.33	0.31	0.43	0.53	0.38	0.27	0.43
0.44	0.30	0.31	0.49	0.51	0.36	0.29	0.39
0.45	0.29	0.33	0.53	0.49	0.37	0.32	0.39
0.46	0.27	0.35	0.56	0.46	0.40	0.33	0.45
0.47	0.26	0.37	0.56	0.44	0.41	0.33	0.49
0.48	0.24	0.38	0.55	0.42	0.40	0.32	0.53
0.49	0.23	0.38	0.53	0.39	0.39	0.30	0.55
0.50	0.21	0.38	0.51	0.38	0.40	0.28	0.53
0.51	0.20	0.36	0.48	0.38	0.40	0.25	0.56
0.52	0.19	0.35	0.46	0.37	0.39	0.24	0.56
0.53	0.18	0.33	0.44	0.36	0.38	0.22	0.59
0.54	0.18	0.31	0.43	0.35	0.37	0.20	0.65
0.55	0.17	0.31	0.42	0.32	0.36	0.18	0.70
0.56	0.17	0.33	0.41	0.31	0.35	0.17	0.74
0.57	0.16	0.33	0.40	0.30	0.34	0.16	0.74
0.58	0.16	0.33	0.39	0.28	0.33	0.16	0.69
0.60	0.15	0.29	0.36	0.23	0.32	0.17	0.62
0.62	0.14	0.25	0.32	0.20	0.32	0.17	0.66
0.64	0.13	0.21	0.27	0.19	0.32	0.17	0.65
0.66	0.12	0.20	0.22	0.18	0.32	0.19	0.69
0.68	0.11	0.20	0.18	0.19	0.33	0.21	0.74
0.70	0.10	0.20	0.15	0.18	0.35	0.22	0.68
0.72	0.10	0.19	0.13	0.17	0.36	0.22	0.68
0.74	0.09	0.16	0.12	0.19	0.36	0.21	0.67
0.76	0.09	0.17	0.11	0.20	0.37	0.20	0.67
0.78	0.08	0.17	0.11	0.20	0.36	0.17	0.67
0.80	0.08	0.17	0.11	0.19	0.36	0.15	0.65
	5.81	8.73	10.80	10.07	10.84	7.01	17.70

SA2 0,4 - 0,8 Spettri superficie/Bedrock

Allegato 4

PGA/PGA₀

da 0,4 a 0,8 spectra bedrock

sec	terr 1	terr 2	terr 3	terr 4	terr 5	terr 6	terr 7
0.40	0.25	0.28	0.27	0.43	0.27	0.30	0.40
0.41	0.25	0.26	0.28	0.42	0.27	0.27	0.39
0.42	0.24	0.23	0.29	0.40	0.28	0.23	0.39
0.43	0.22	0.21	0.28	0.37	0.29	0.20	0.39
0.44	0.21	0.21	0.30	0.35	0.28	0.21	0.35
0.45	0.20	0.21	0.34	0.34	0.28	0.22	0.35
0.46	0.19	0.22	0.35	0.33	0.29	0.23	0.38
0.47	0.18	0.23	0.36	0.32	0.30	0.23	0.39
0.48	0.17	0.23	0.36	0.30	0.30	0.22	0.43
0.49	0.16	0.25	0.35	0.27	0.30	0.20	0.44
0.50	0.15	0.26	0.34	0.25	0.30	0.18	0.43
0.51	0.14	0.24	0.32	0.24	0.30	0.16	0.45
0.52	0.13	0.22	0.31	0.24	0.30	0.16	0.47
0.53	0.13	0.21	0.30	0.23	0.29	0.15	0.47
0.54	0.12	0.21	0.29	0.22	0.28	0.13	0.49
0.55	0.12	0.23	0.29	0.22	0.27	0.12	0.50
0.56	0.12	0.24	0.28	0.23	0.26	0.11	0.54
0.57	0.12	0.25	0.28	0.22	0.26	0.11	0.55
0.58	0.12	0.24	0.27	0.20	0.25	0.11	0.55
0.60	0.11	0.22	0.25	0.17	0.25	0.12	0.51
0.62	0.10	0.19	0.23	0.15	0.25	0.13	0.52
0.64	0.09	0.17	0.20	0.14	0.25	0.15	0.57
0.66	0.08	0.17	0.16	0.14	0.25	0.16	0.64
0.68	0.07	0.17	0.13	0.14	0.26	0.17	0.67
0.70	0.07	0.17	0.11	0.14	0.27	0.17	0.62
0.72	0.07	0.16	0.10	0.14	0.28	0.18	0.62
0.74	0.07	0.14	0.09	0.15	0.28	0.18	0.61
0.76	0.06	0.15	0.08	0.16	0.29	0.17	0.63
0.78	0.06	0.15	0.08	0.16	0.30	0.15	0.63
0.80	0.06	0.15	0.08	0.15	0.31	0.12	0.61
	4.07	6.25	7.34	7.22	8.38	5.24	15.00

SA2 0,7 - 1,1 Spettri superficie/Bedrock

spec.sup	1.23	3.06	2.39	3.53	6.07	3.44	9.60
spec.bed	0.88	2.37	1.64	2.66	4.83	2.55	8.57
SA3 0.7-1.1	1.40	1.29	1.46	1.33	1.26	1.35	1.12

Allegato 4

PGA/PGA₀

da 0,7 a 1,1 spetra superficie							
sec	terr 1	terr 2	terr 3	terr 4	terr 5	terr 6	terr 7
0.70	0.10	0.20	0.15	0.18	0.35	0.22	0.68
0.72	0.10	0.19	0.13	0.17	0.36	0.22	0.68
0.74	0.09	0.16	0.12	0.19	0.36	0.21	0.67
0.76	0.09	0.17	0.11	0.20	0.37	0.20	0.67
0.78	0.08	0.17	0.11	0.20	0.36	0.17	0.67
0.80	0.08	0.17	0.11	0.19	0.36	0.15	0.65
0.82	0.07	0.16	0.10	0.20	0.37	0.14	0.58
0.84	0.07	0.16	0.10	0.21	0.38	0.13	0.51
0.86	0.07	0.16	0.12	0.21	0.38	0.14	0.46
0.88	0.07	0.17	0.13	0.21	0.37	0.16	0.43
0.90	0.06	0.17	0.15	0.22	0.36	0.18	0.43
0.92	0.06	0.17	0.17	0.23	0.34	0.20	0.42
0.94	0.06	0.17	0.17	0.23	0.32	0.21	0.44
0.96	0.05	0.17	0.17	0.22	0.30	0.22	0.44
0.98	0.05	0.17	0.16	0.20	0.28	0.22	0.45
1.00	0.05	0.17	0.14	0.18	0.27	0.22	0.47
1.05	0.05	0.17	0.13	0.15	0.28	0.22	0.47
1.10	0.04	0.17	0.12	0.13	0.25	0.22	0.47
	1.23	3.06	2.39	3.53	6.07	3.44	9.60

da 0,7 a 1,1 spetra bedrock							
sec	terr 1	terr 2	terr 3	terr 4	terr 5	terr 6	terr 7
0.70	0.07	0.17	0.11	0.14	0.27	0.17	0.62
0.72	0.07	0.16	0.10	0.14	0.28	0.18	0.62
0.74	0.07	0.14	0.09	0.15	0.28	0.18	0.61
0.76	0.06	0.15	0.08	0.16	0.29	0.17	0.63
0.78	0.06	0.15	0.08	0.16	0.30	0.15	0.63
0.80	0.06	0.15	0.08	0.15	0.31	0.12	0.61
0.82	0.05	0.14	0.07	0.15	0.31	0.12	0.55
0.84	0.05	0.13	0.08	0.16	0.32	0.11	0.47
0.86	0.05	0.13	0.08	0.16	0.31	0.11	0.43
0.88	0.05	0.14	0.09	0.16	0.30	0.11	0.40
0.90	0.04	0.13	0.10	0.17	0.29	0.13	0.39
0.92	0.04	0.13	0.11	0.17	0.28	0.14	0.38
0.94	0.04	0.12	0.11	0.17	0.26	0.15	0.37
0.96	0.04	0.12	0.11	0.16	0.24	0.15	0.36
0.98	0.04	0.11	0.10	0.15	0.22	0.15	0.37
1.00	0.03	0.11	0.09	0.13	0.20	0.15	0.39
1.05	0.03	0.11	0.08	0.10	0.20	0.14	0.37
1.10	0.03	0.11	0.08	0.09	0.17	0.14	0.37
	0.88	2.37	1.64	2.66	4.83	2.55	8.57

