

ACQUEDOTTO DELLA ROMAGNA - 4LSUB26/27

TERZA DIRETTRICE DELLA RETE DI ADDUZIONE
DELL'ACQUEDOTTO DELLA ROMAGNA

(CODICI ATERSIR 2014RAAC0005 e 2017RAAC0003)

PROGETTO DI FATTIBILITA' TECNICA
ED ECONOMICA





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IL PROGETTISTA Ing. PAOLA ERBA R.T.O. ALPINA S.p.A.	IL RESPONSABILE DEL PROCEDIMENTO Ing. PAOLO BALDONI ROMAGNA ACQUE - SOCIETA' DELLE FONTI S.p.A.
	

<p align="center">INQUADRAMENTO GENERALE CAMPAGNA DI INDAGINE GEOGNOSTICA DI 1° FASE REPORT ANALISI RISCHIO LIQUEFAZIONE</p>			<h1>1.53</h1>									
Revisioni	<table border="1"> <thead> <tr> <th>Rev.</th> <th>Descrizione</th> </tr> </thead> <tbody> <tr> <td>C</td> <td></td> </tr> <tr> <td>B</td> <td></td> </tr> <tr> <td>A</td> <td>EMISSIONE</td> </tr> </tbody> </table>	Rev.	Descrizione	C		B		A	EMISSIONE	<table border="1"> <thead> <tr> <th>Data</th> </tr> </thead> <tbody> <tr> <td>06/08/2021</td> </tr> </tbody> </table>	Data	06/08/2021
Rev.	Descrizione											
C												
B												
A	EMISSIONE											
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TERZA DIRETTRICE DELLA RETE DI ADDUZIONE
DELL'ACQUEDOTTO DELLA ROMAGNA
(CODICI ATERSIR 2014RAAC0005 e 2014RAAC0003)

ATTIVITA' PROPEDEUTICHE ALL'AFFINAMENTO DEL
PROGETTO DI FATTIBILITA' TECNICA ED ECONOMICA

Dott. Geol. Marco Roncuzzi	IL RESPONSABILE DEL PROCEDIMENTO Ing. PAOLO BALDONI ROMAGNA ACQUE SOCIETA' DELLE FONTI

CAMPAGNA DI INDAGINE GEOGNOSTICA		4.9
REPORT ANALISI RISCHIO LIQUEFAZIONE		
Revisioni	Rev.	Descrizione
	C	
	B	
	A	Emissione
		Novembre 2019
Numero elaborato	A	P I G F 4 0 9 A 0
		Scala -

LIQUEFACTION ANALYSIS REPORT

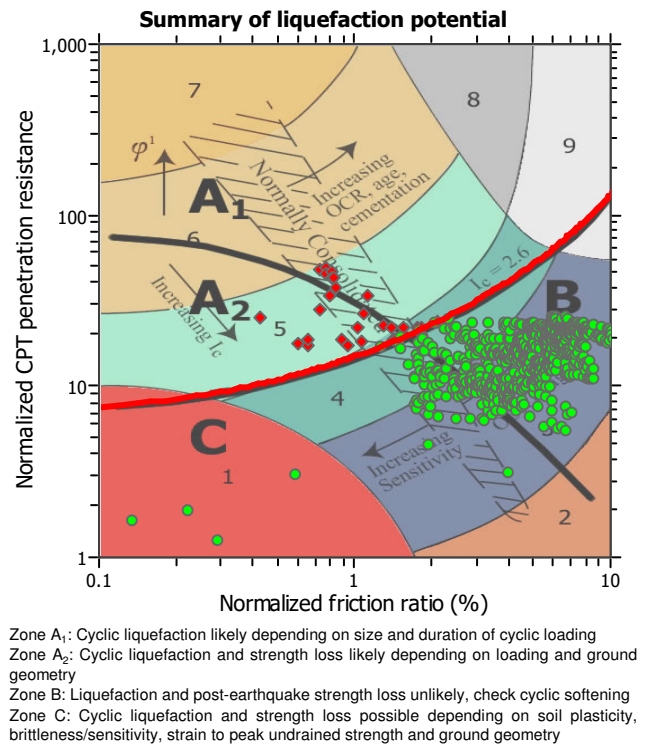
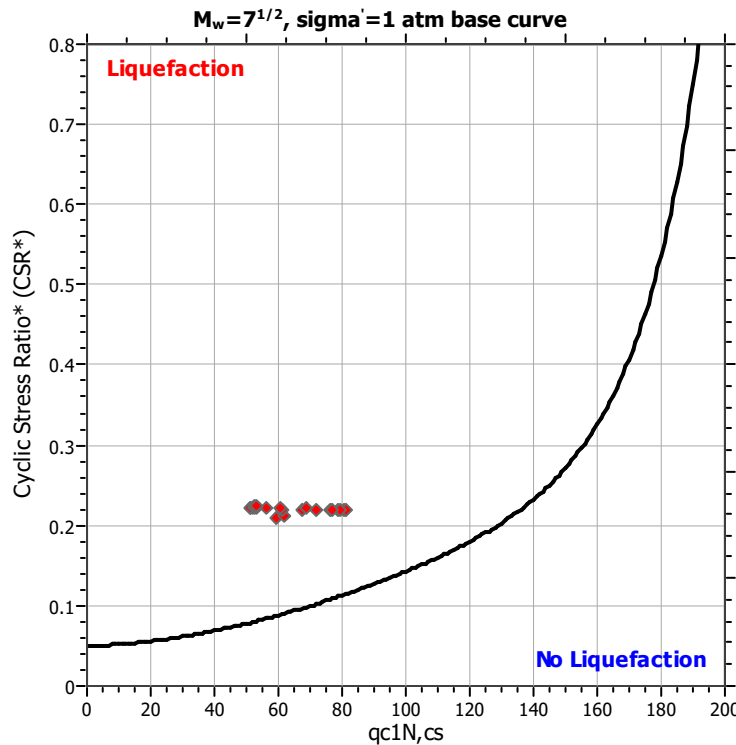
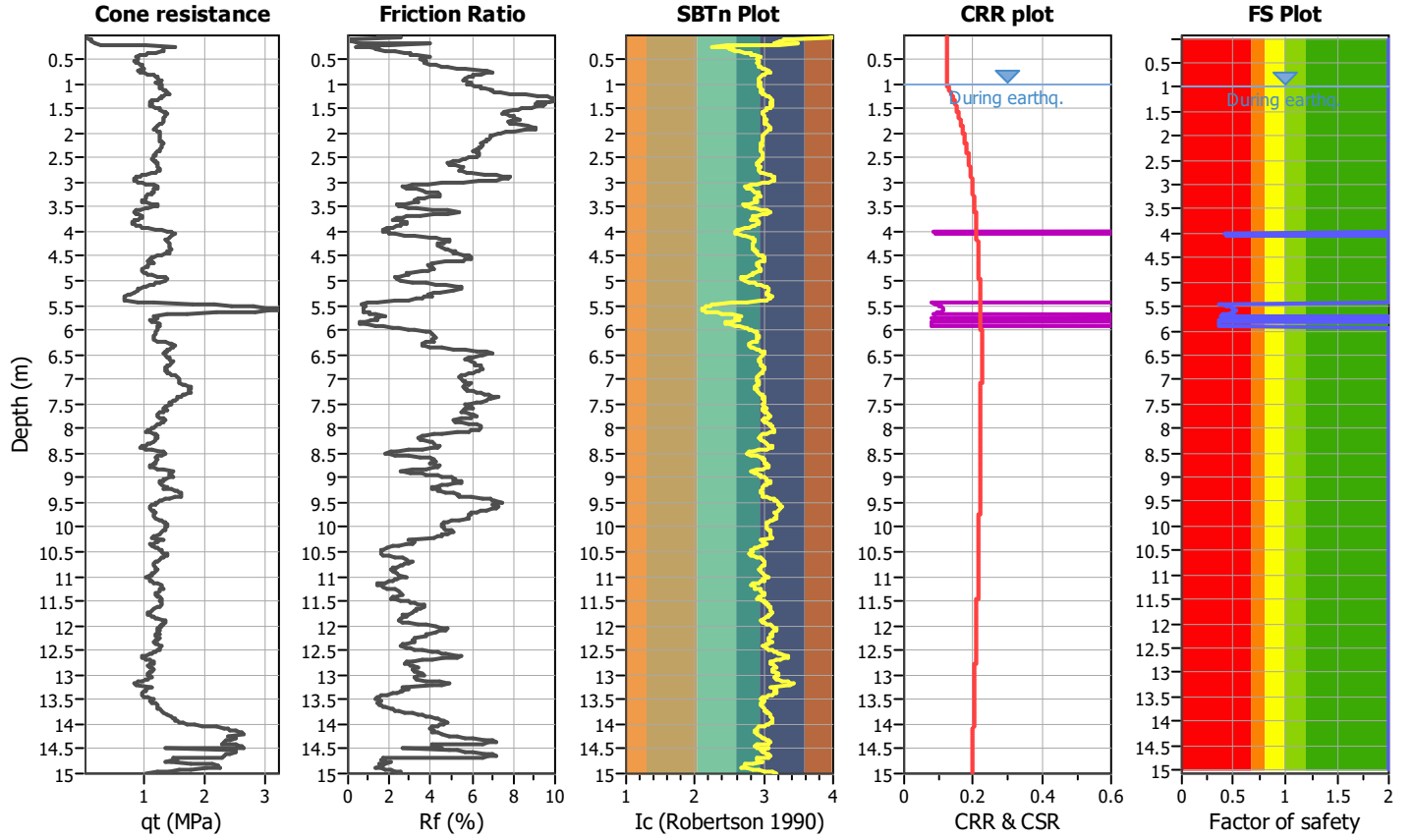
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Location :

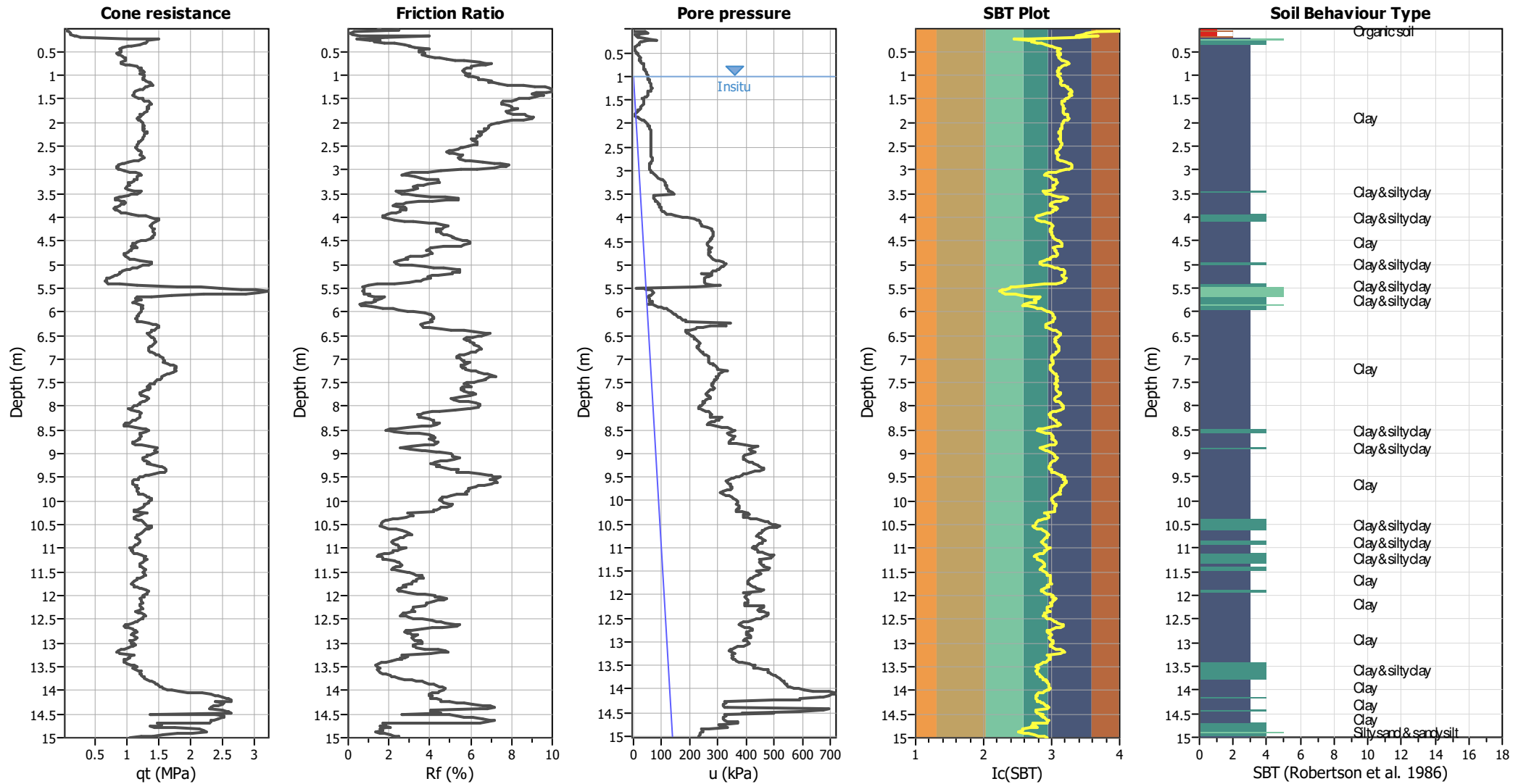
CPT file : CPTU 4 Via Fosso Nuovo

Input parameters and analysis data

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Fines correction method:	I&B (2008)	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:	1	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.31	Unit weight calculation:	Based on SBT	K_G applied:	Yes		



CPT basic interpretation plots



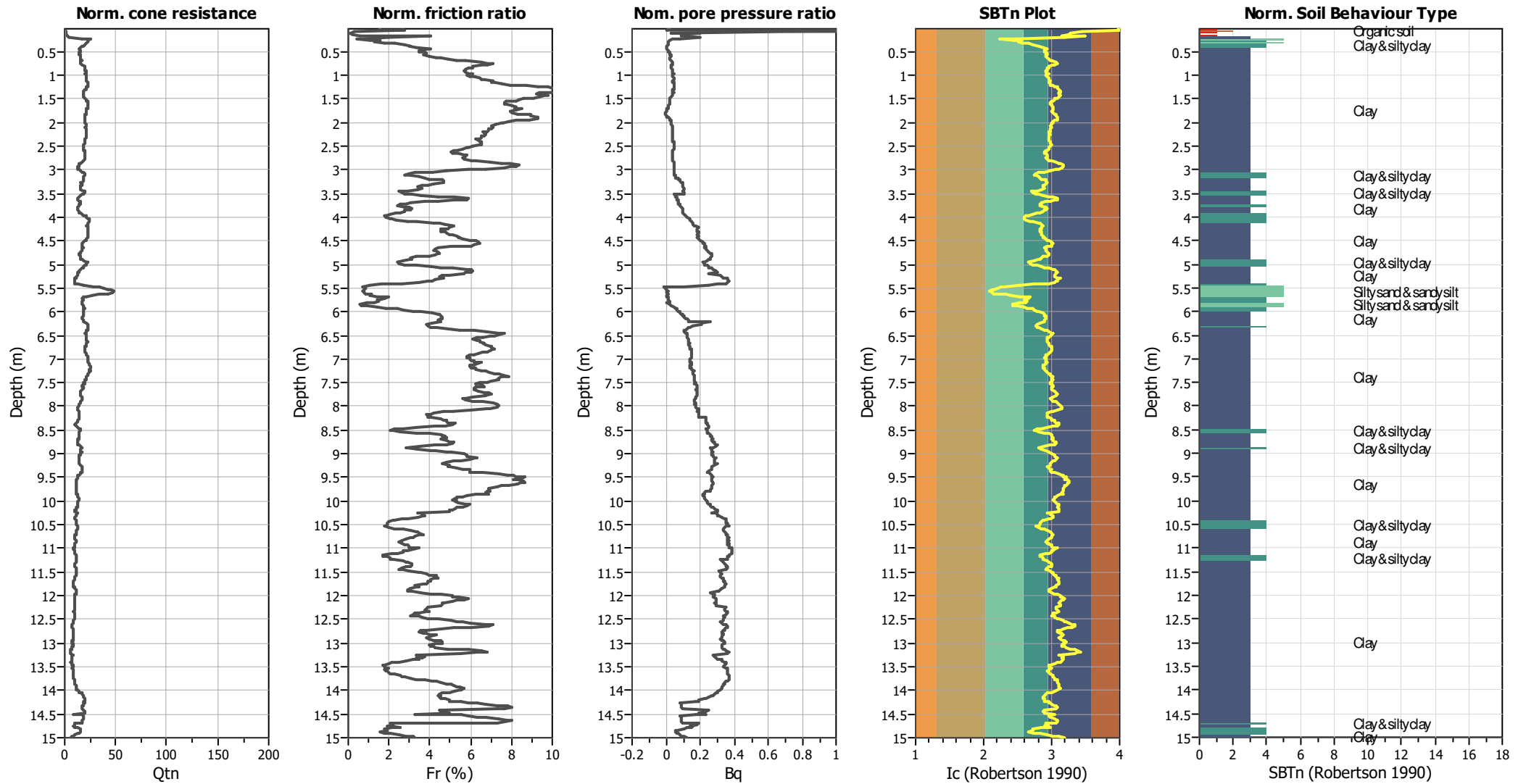
Input parameters and analysis data

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Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
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Peak ground acceleration:	0.31	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

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

CPT basic interpretation plots (normalized)



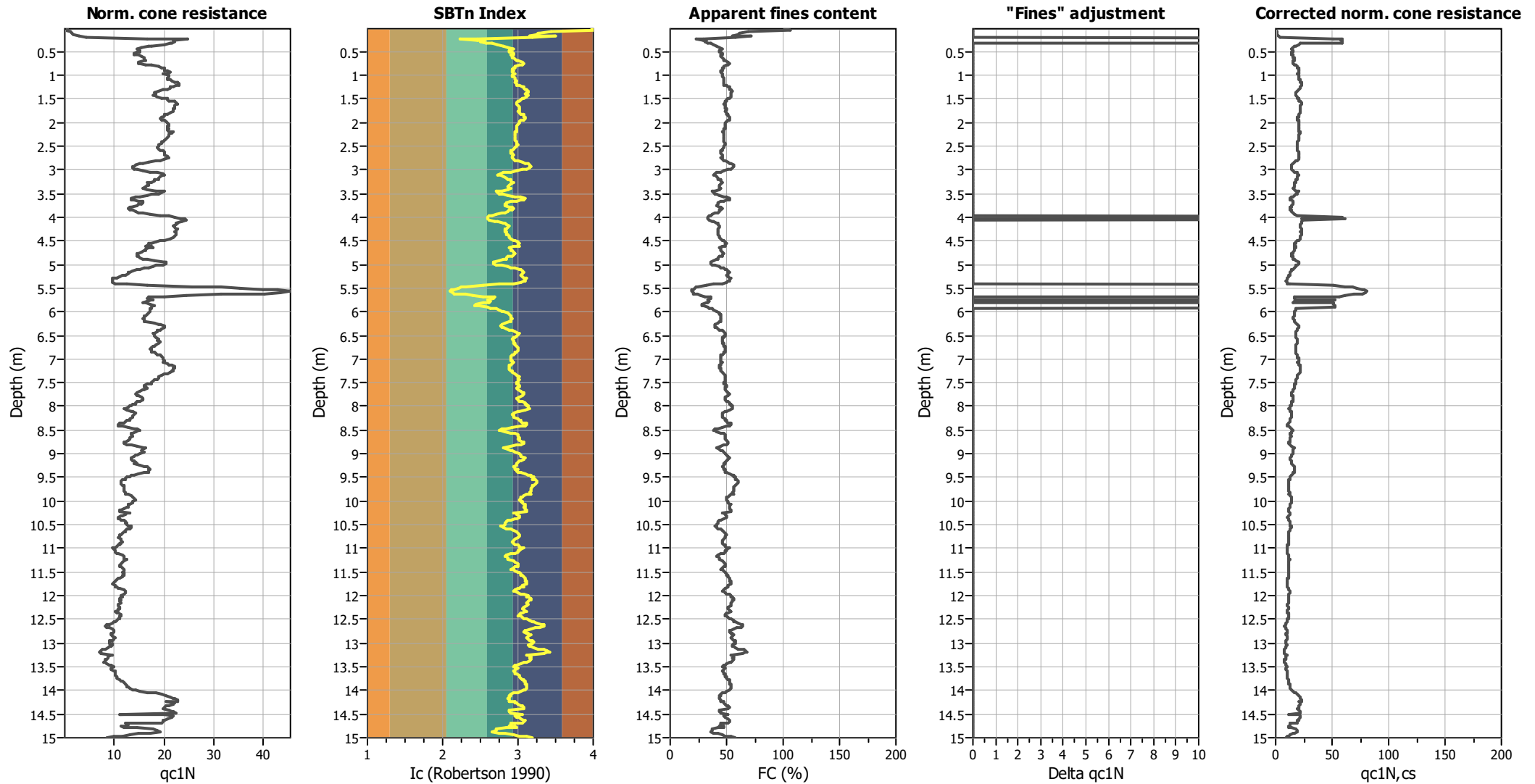
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Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
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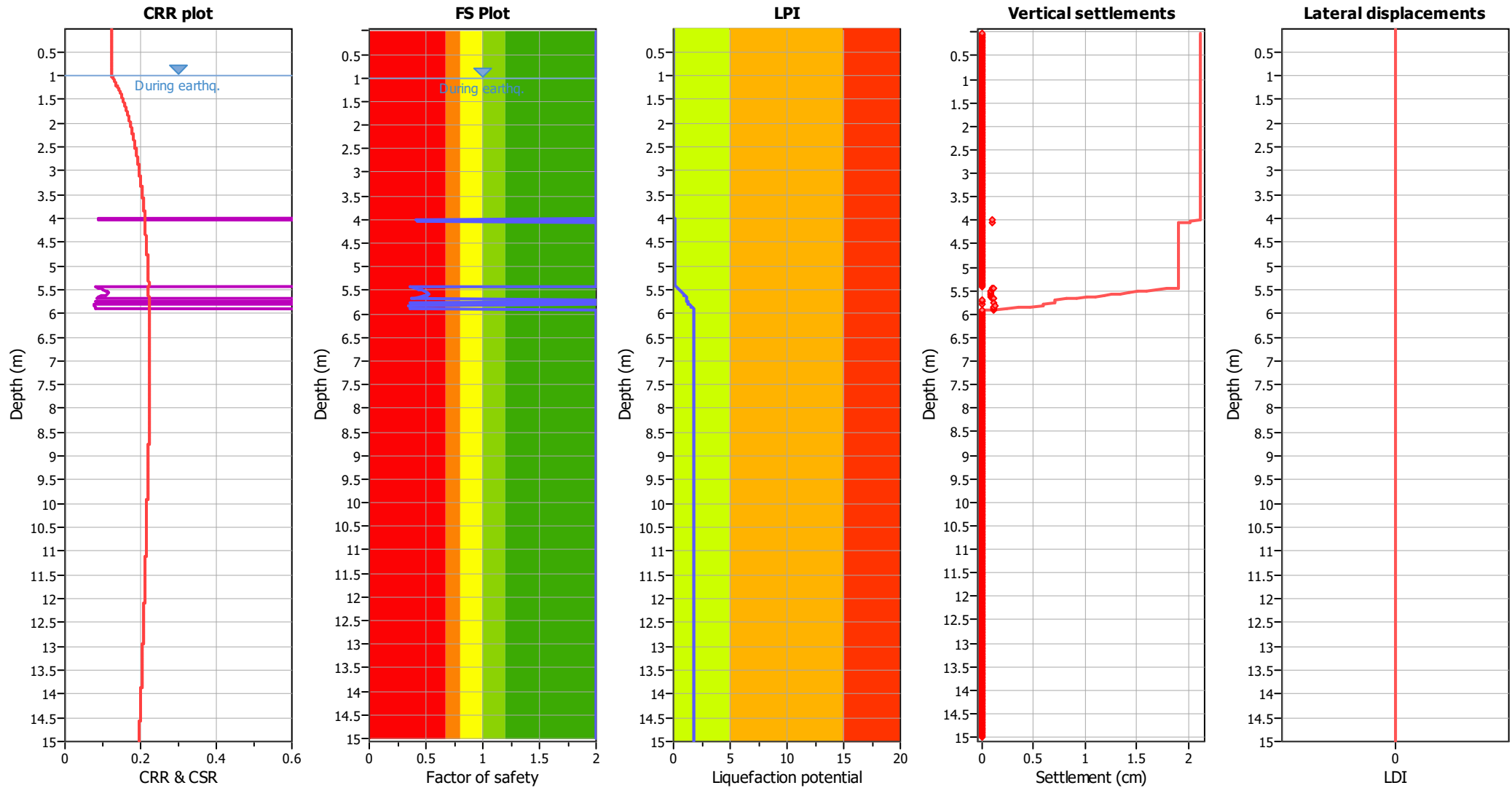
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
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Liquefaction analysis overall plots



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Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

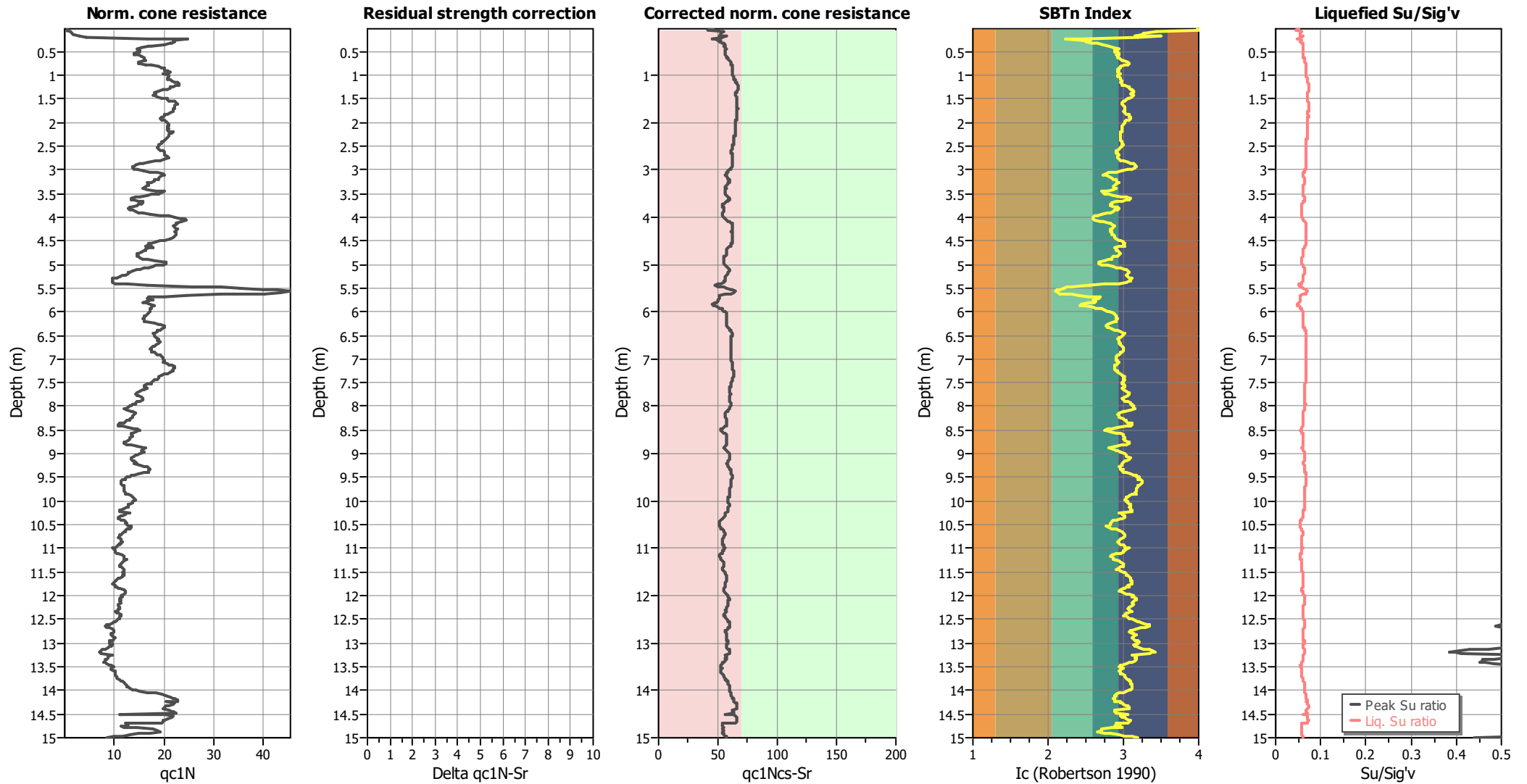
F.S. color scheme

- 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

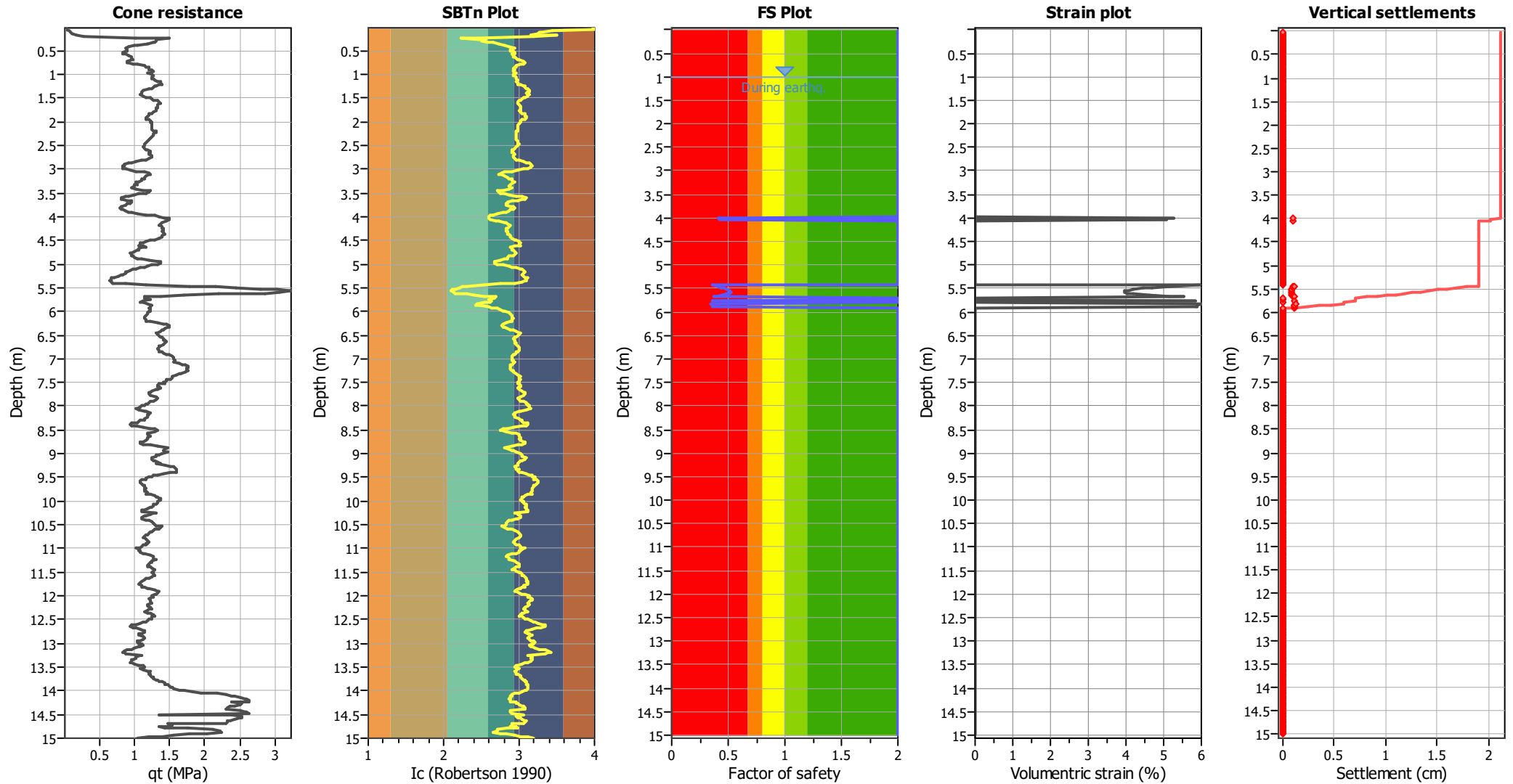
Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
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Estimation of post-earthquake settlements



Abbreviations

- qt: Total cone resistance (cone resistance q_c corrected for pore water effects)
- I_c: Soil Behaviour Type Index
- FS: Calculated Factor of Safety against liquefaction
- Volumetric strain: Post-liquefaction volumetric strain

LIQUEFACTION ANALYSIS REPORT

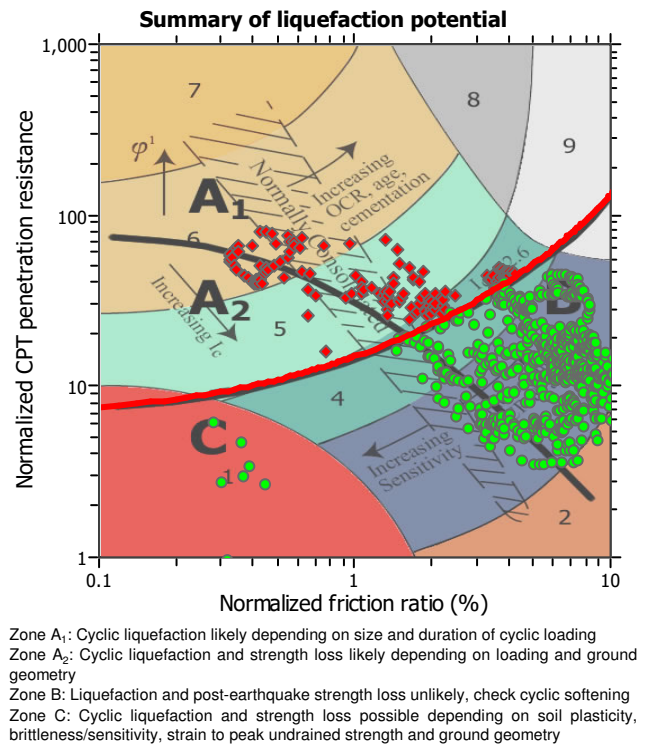
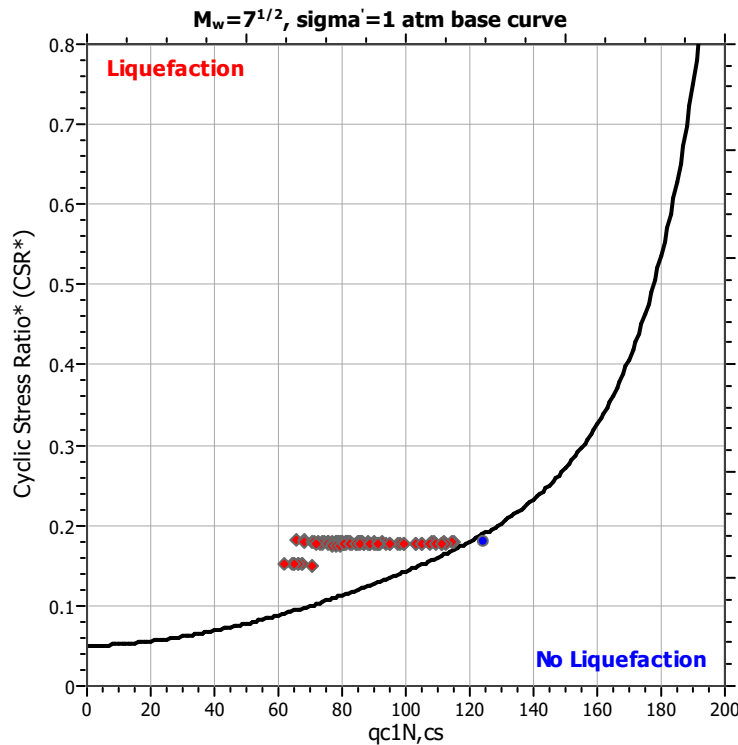
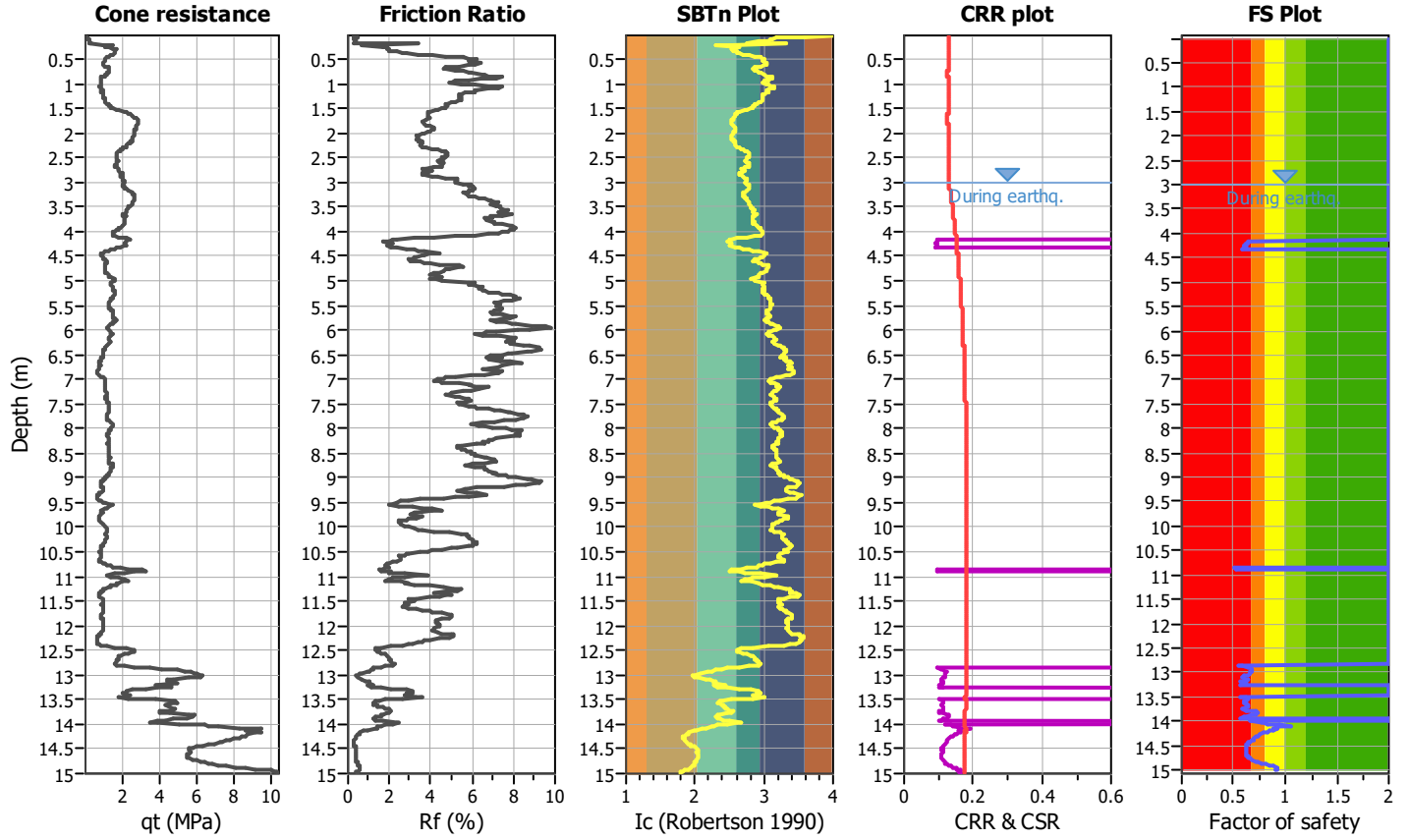
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Location :

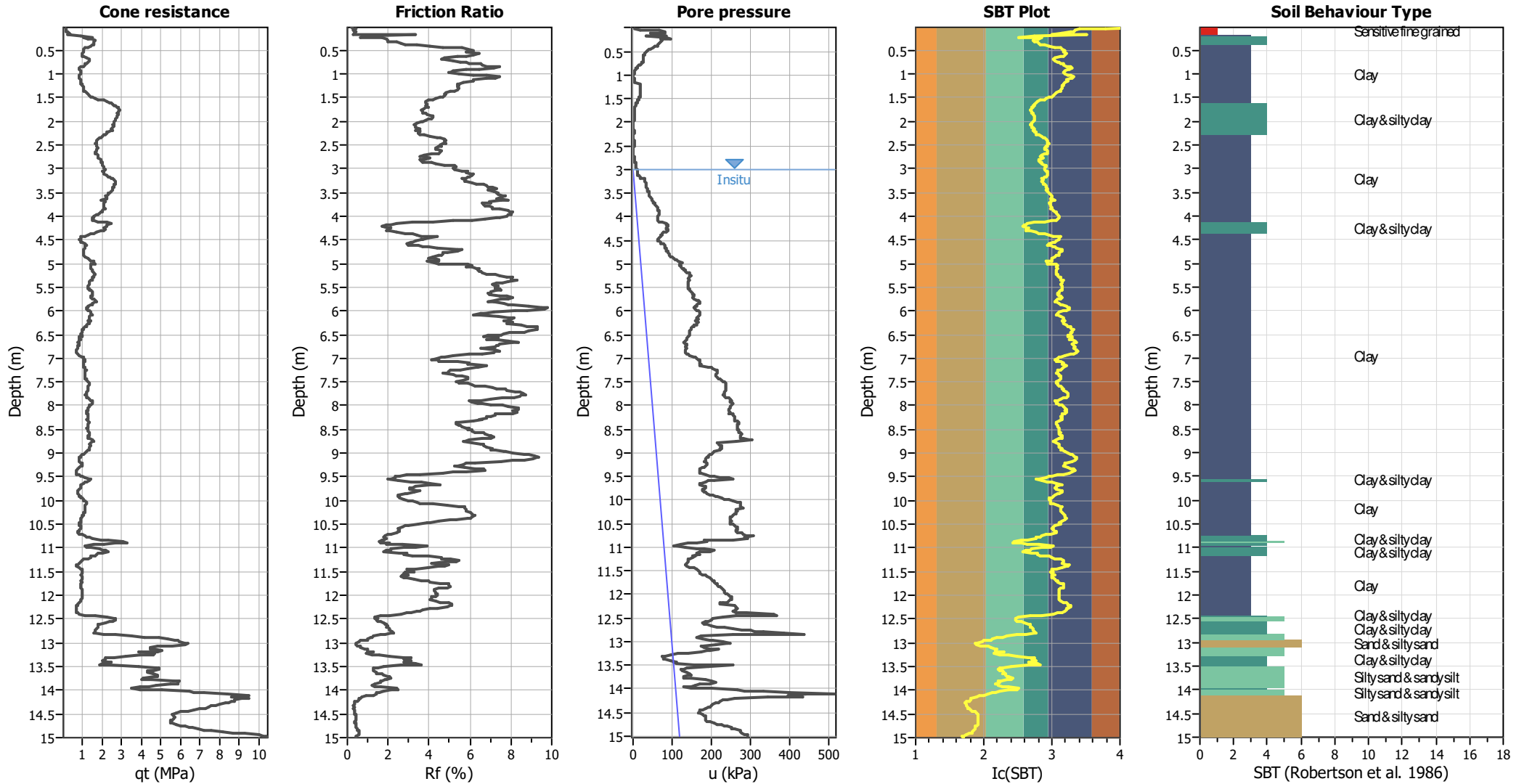
CPT file : CPT 6 Argine sx Bevano

Input parameters and analysis data

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Fines correction method:	I&B (2008)	G.W.T. (earthq.):	3.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	1	Fill weight:	N/A	Limit depth:	N/A
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Peak ground acceleration:	0.32	Unit weight calculation:	Based on SBT	K_g applied:	Yes		



CPT basic interpretation plots



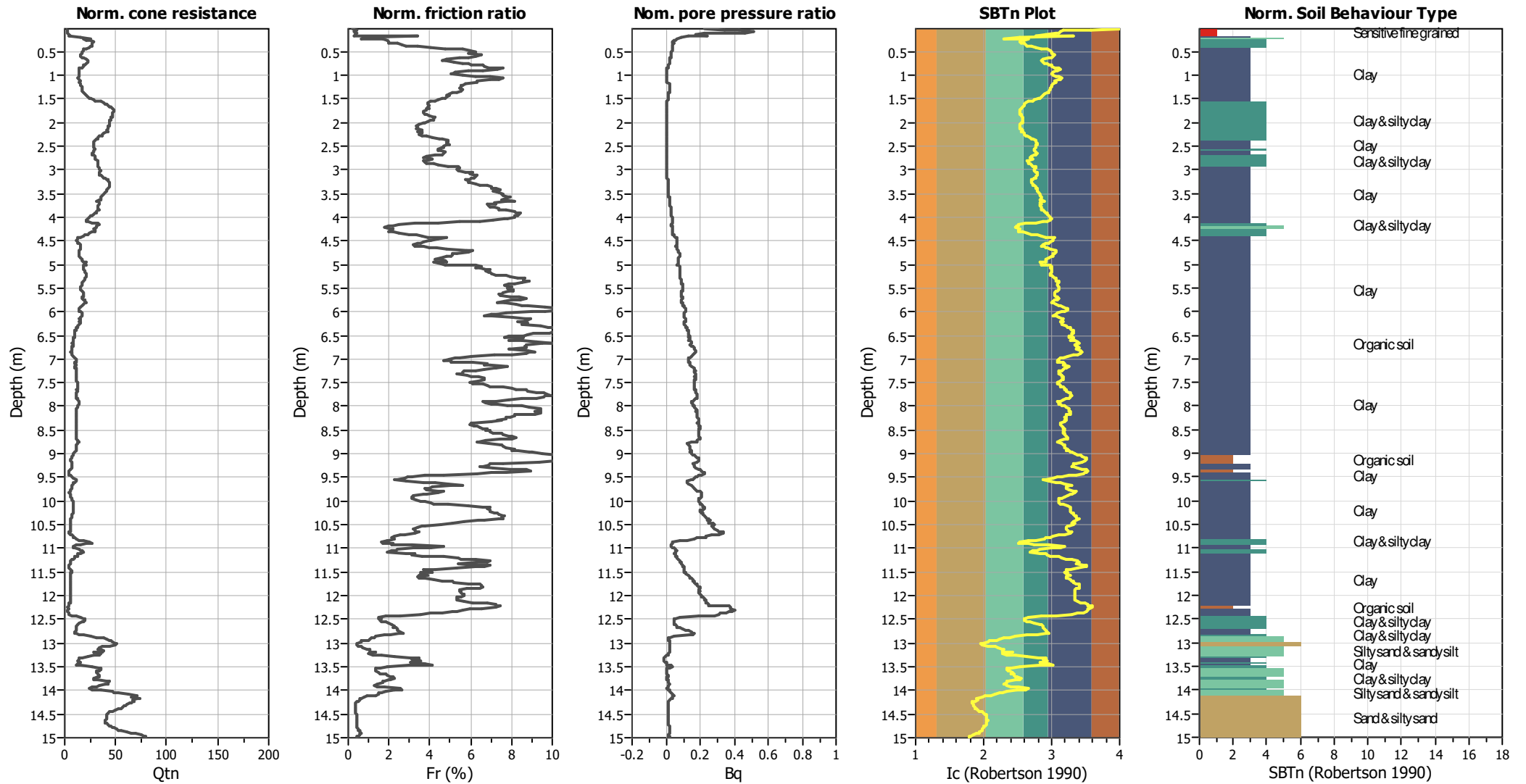
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	3.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.32	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
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3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

CPT basic interpretation plots (normalized)



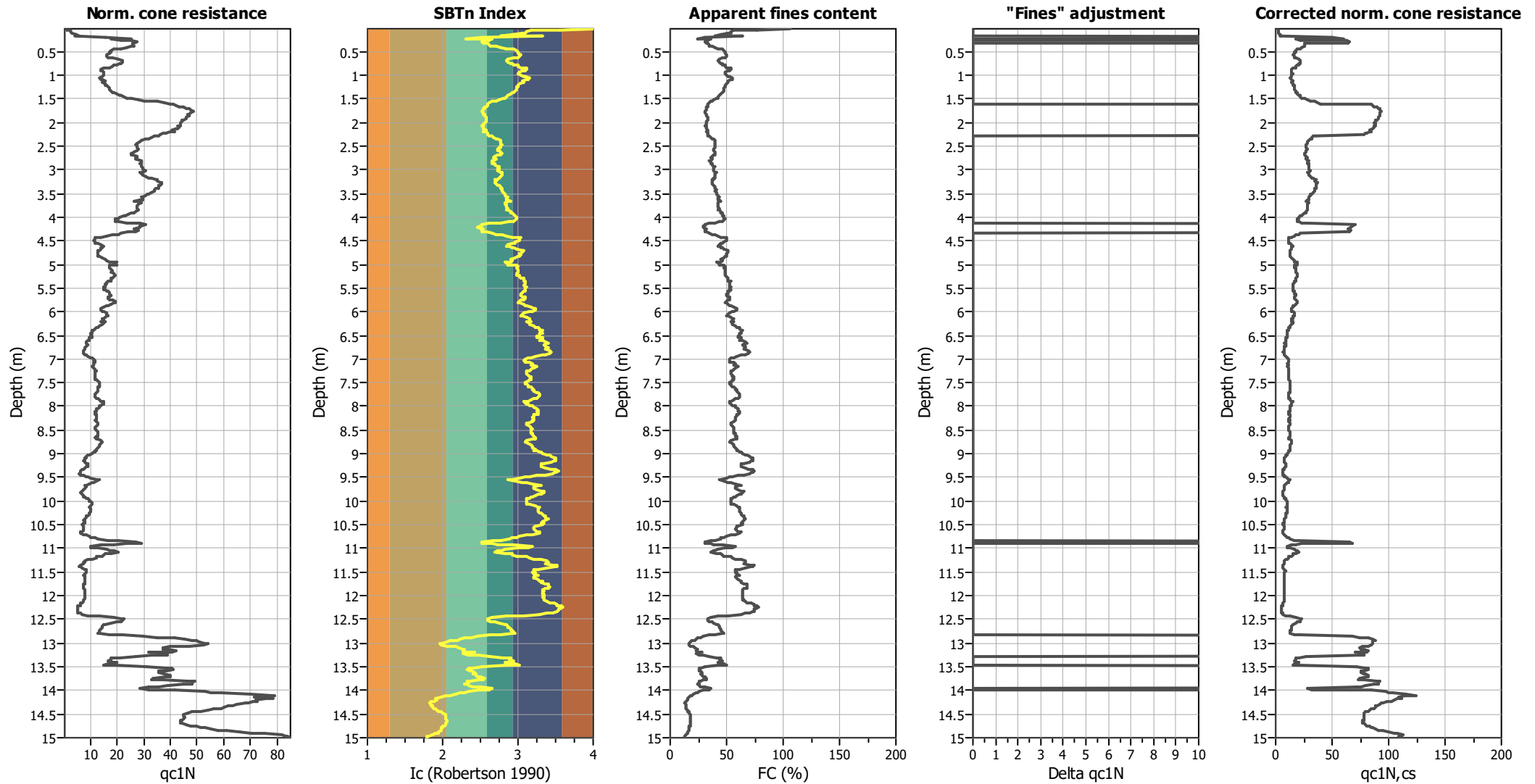
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	3.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
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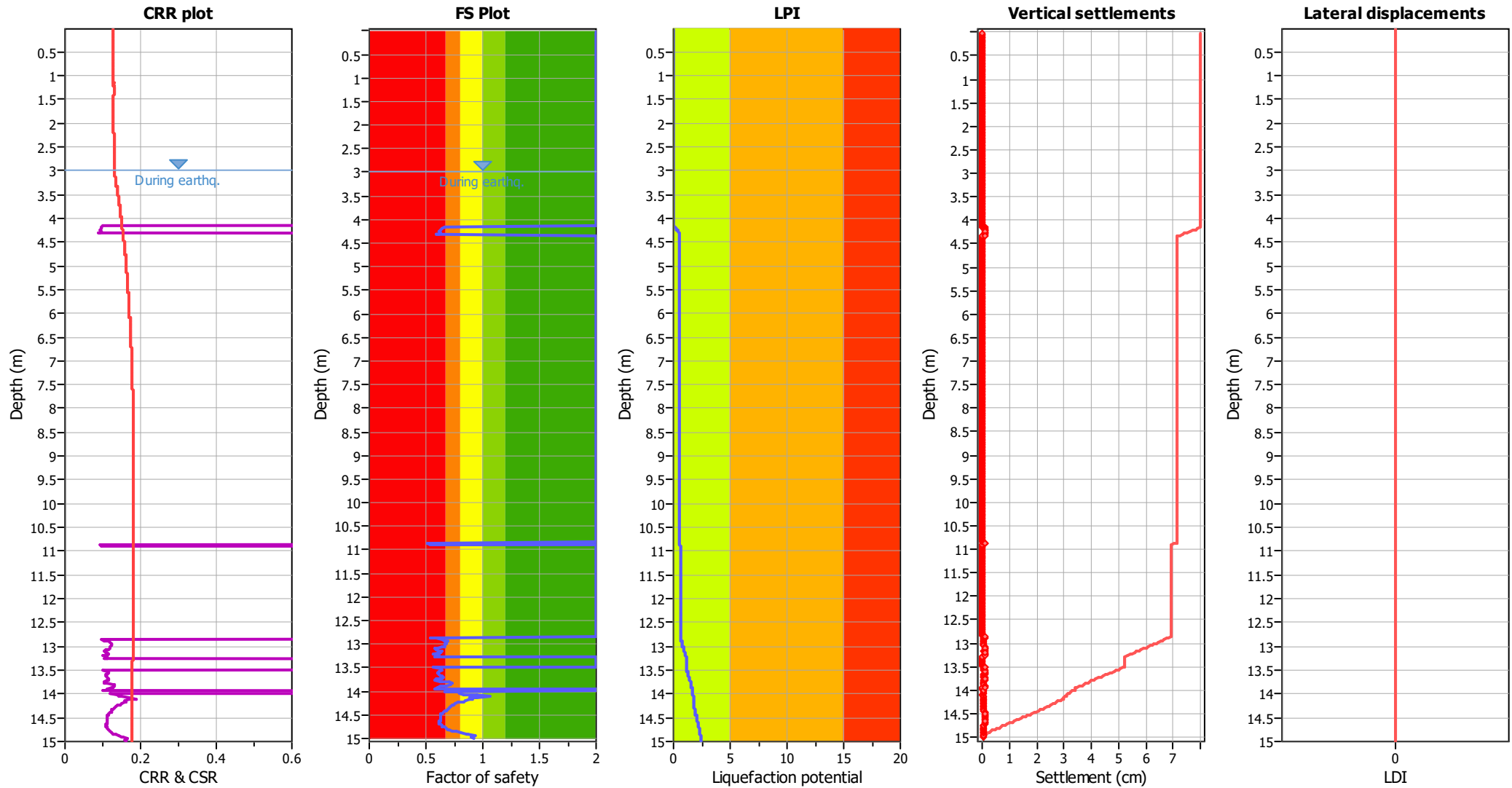
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	3.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
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Liquefaction analysis overall plots



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Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
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Peak ground acceleration:	0.32	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	N/A

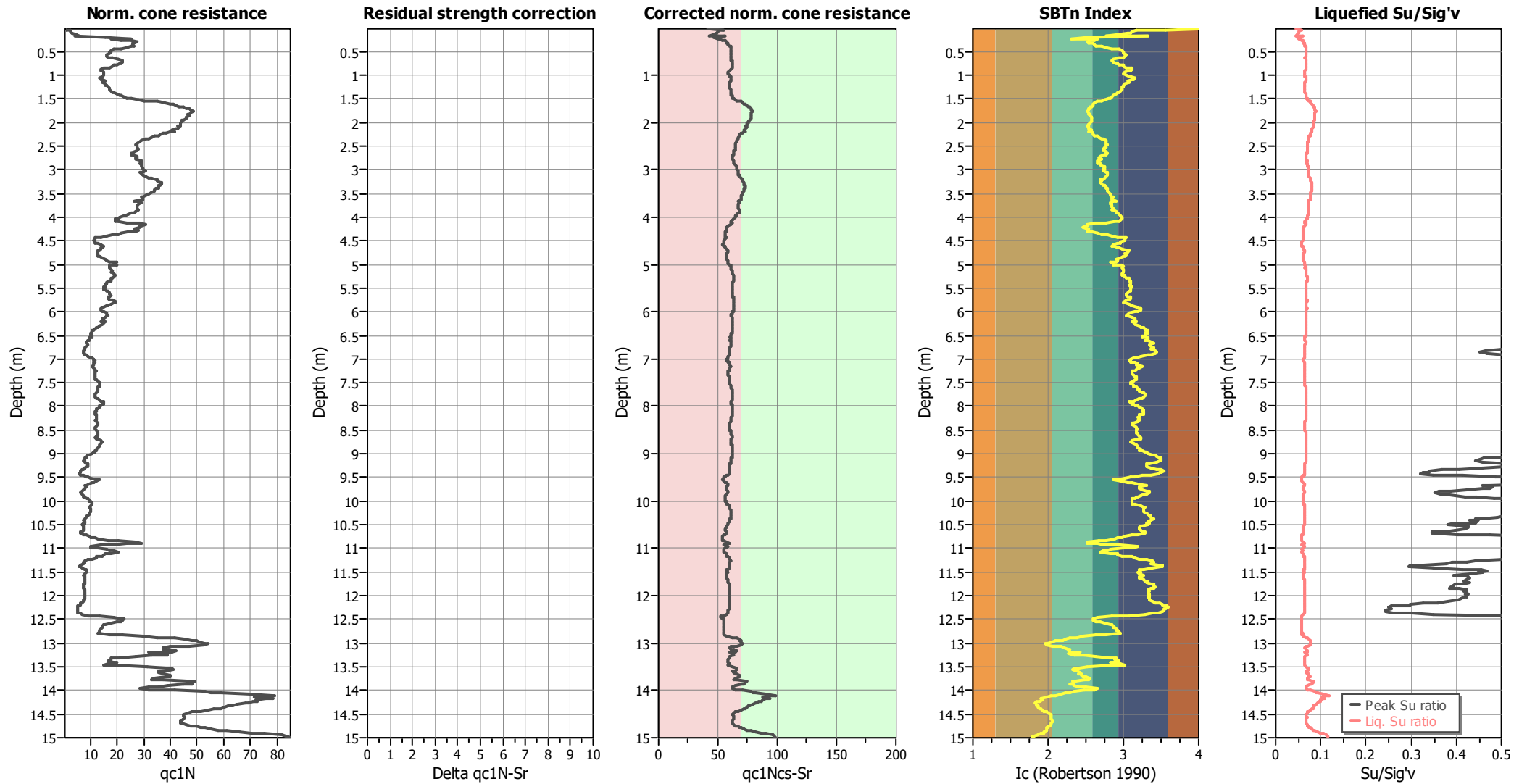
F.S. color scheme

- 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

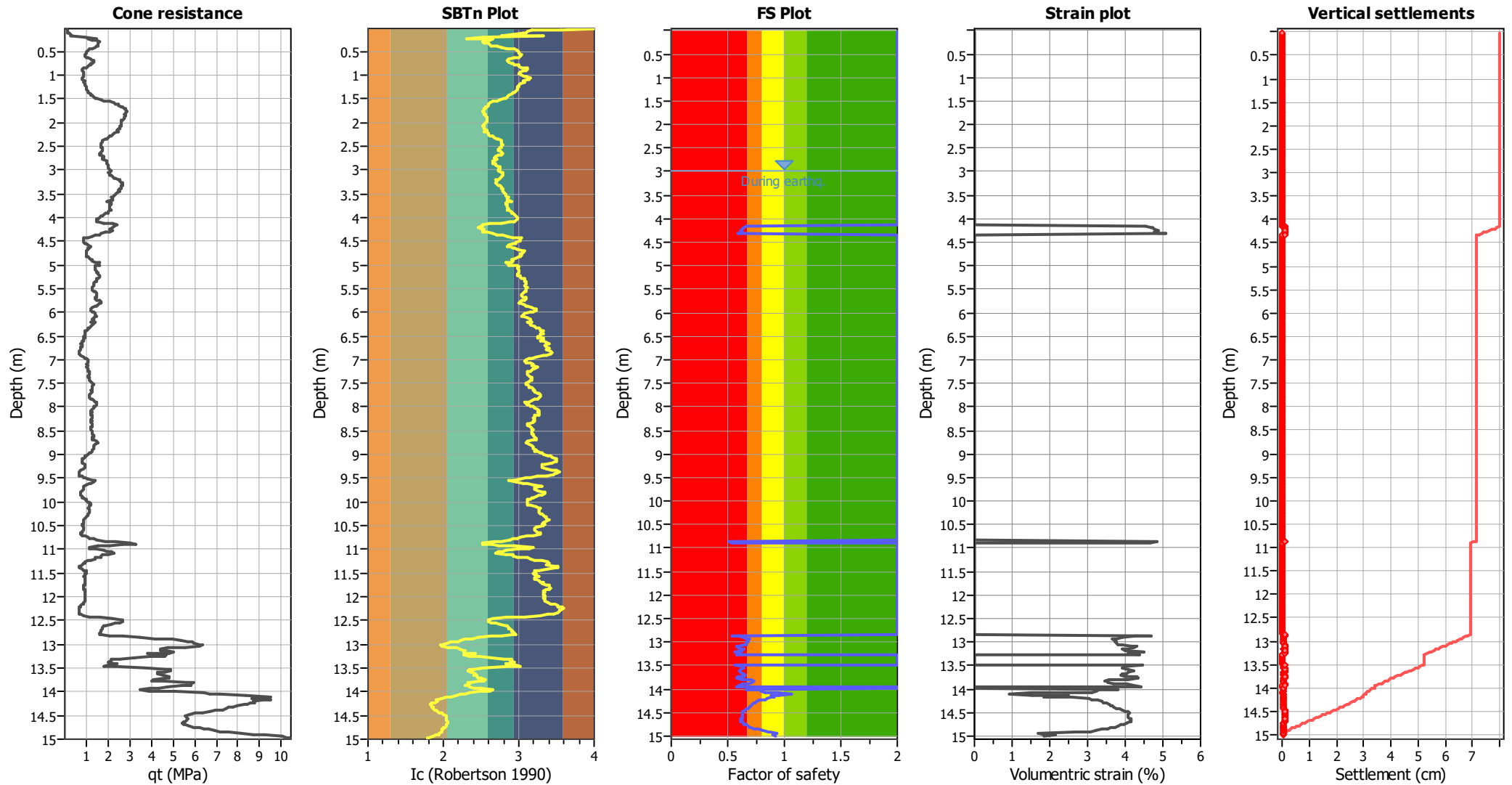
Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	3.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
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Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

- qt: Total cone resistance (cone resistance q_c corrected for pore water effects)
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- FS: Calculated Factor of Safety against liquefaction
- Volumetric strain: Post-liquefaction volumetric strain

LIQUEFACTION ANALYSIS REPORT

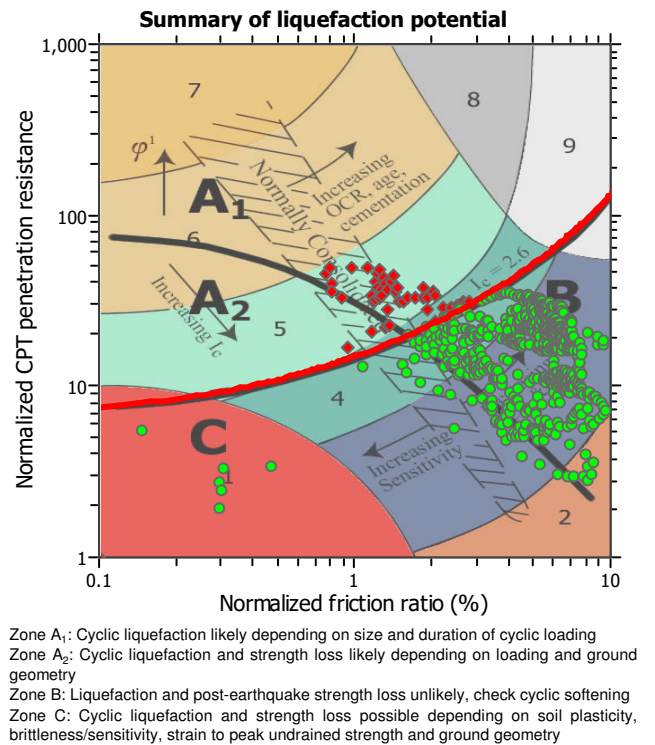
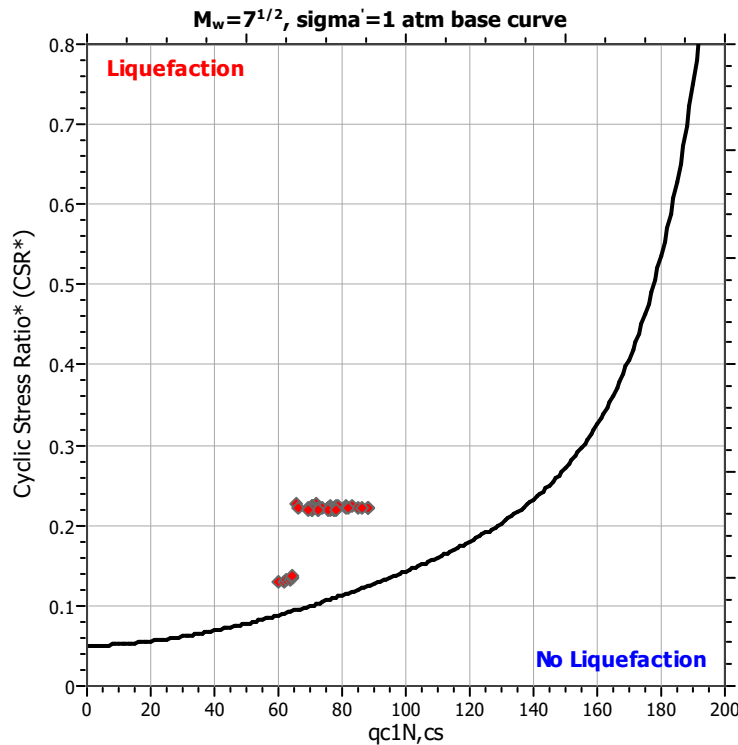
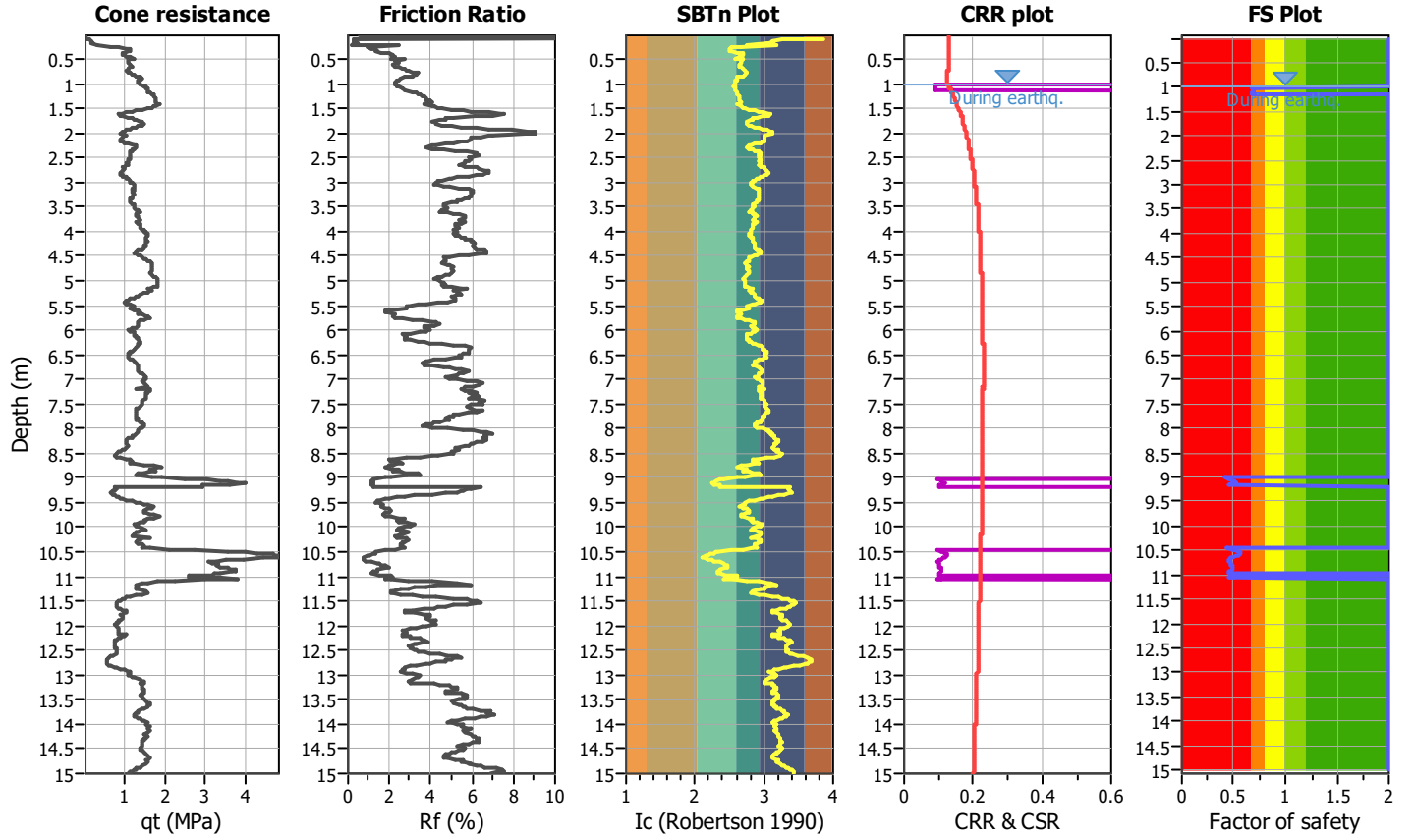
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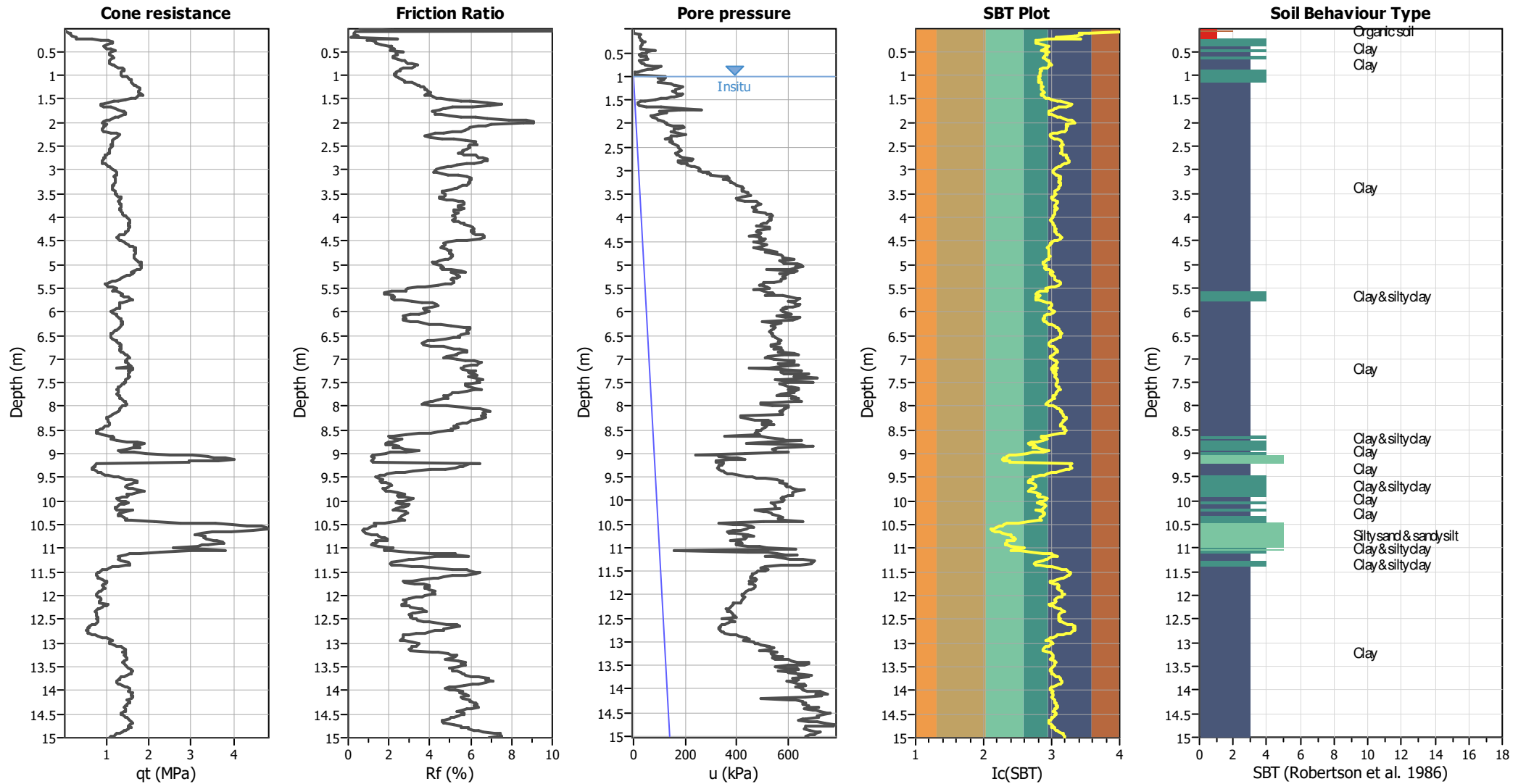
CPTU file : CPTU 7 Via Bagnolo

Input parameters and analysis data

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Fines correction method:	I&B (2008)	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:	1	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.32	Unit weight calculation:	Based on SBT	K_g applied:	Yes		



CPT basic interpretation plots



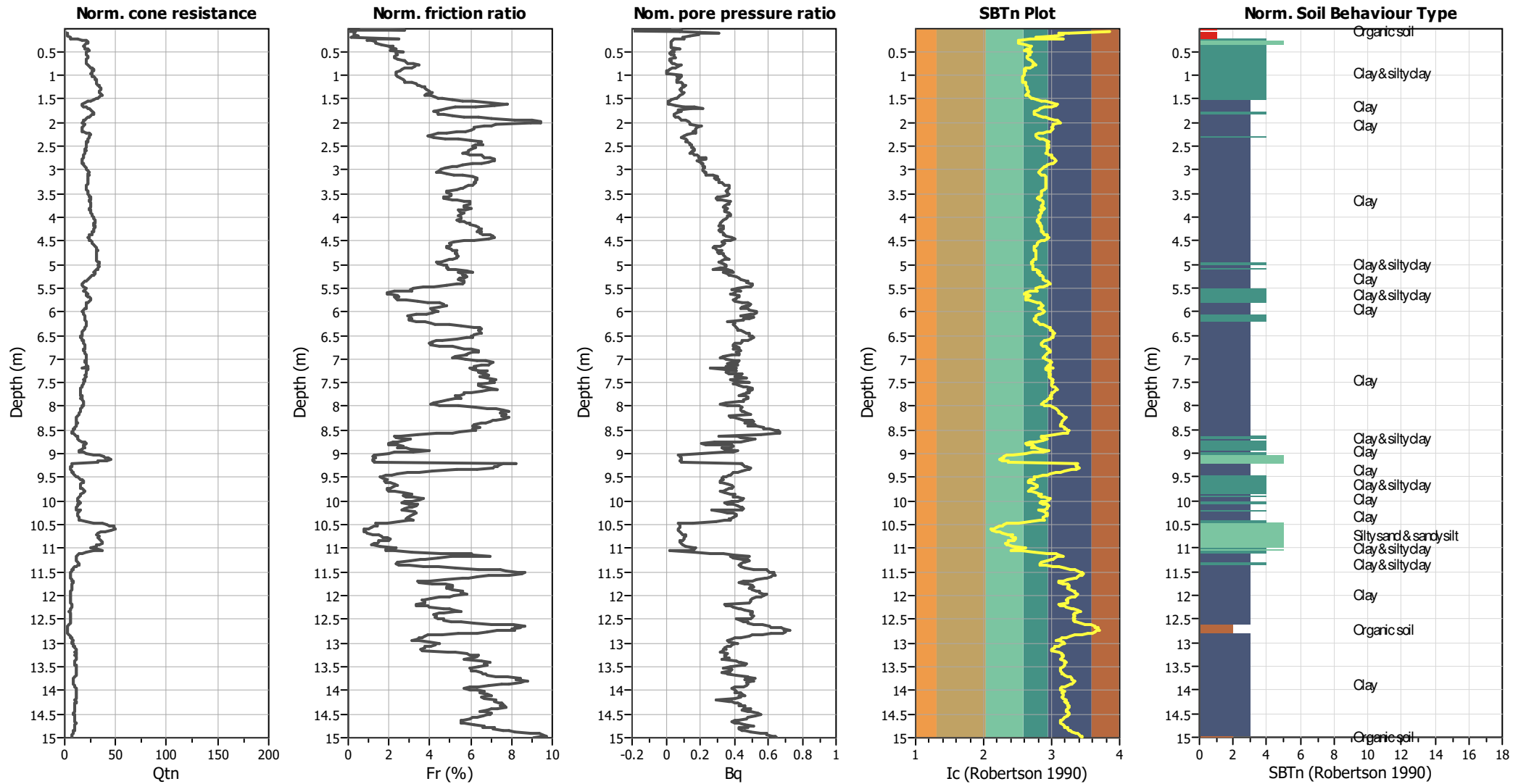
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Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
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SBT legend

■ 1. Sensitive fine grained	■ 4. Clayey silt to silty	■ 7. Gravely sand to sand
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CPT basic interpretation plots (normalized)



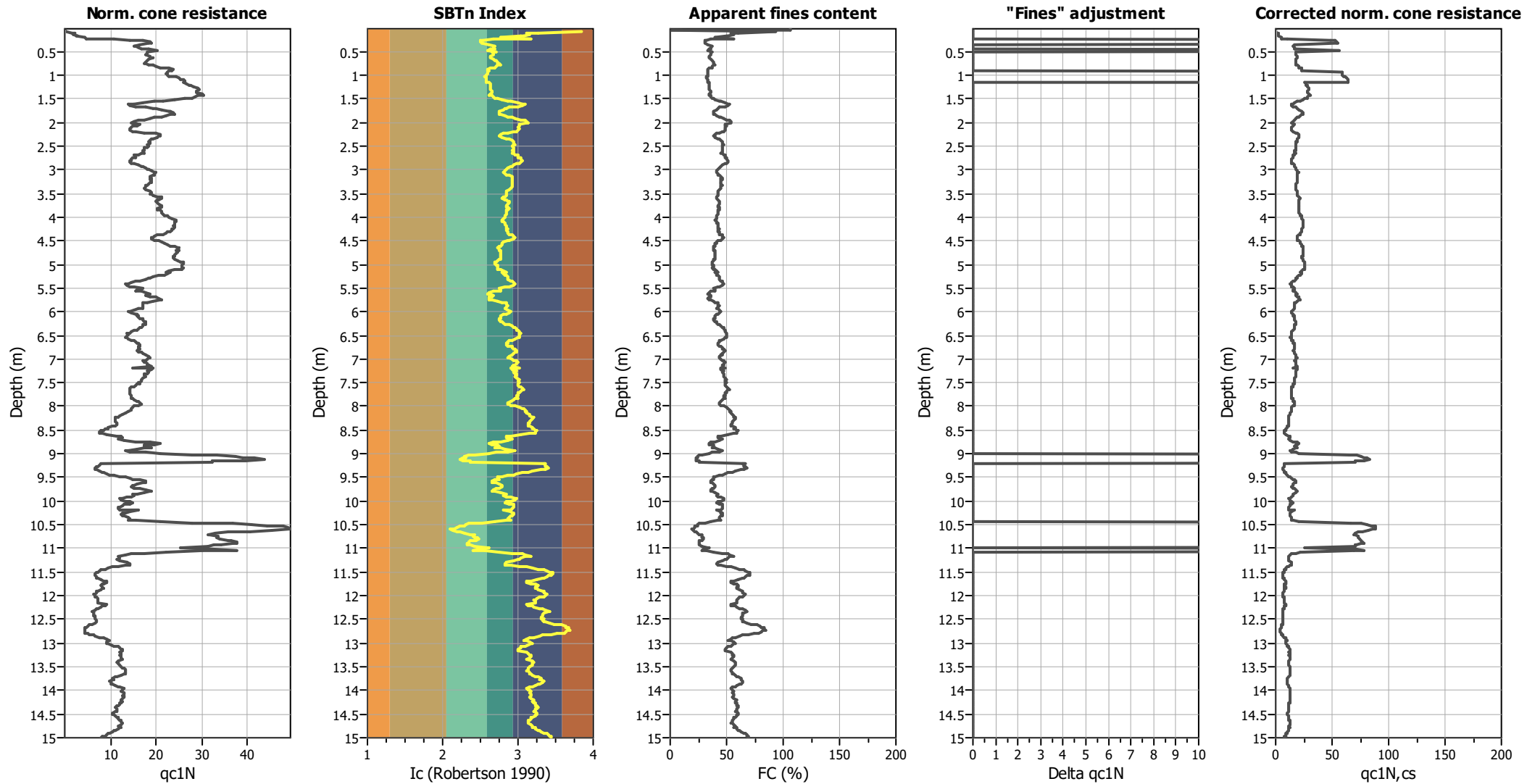
Input parameters and analysis data

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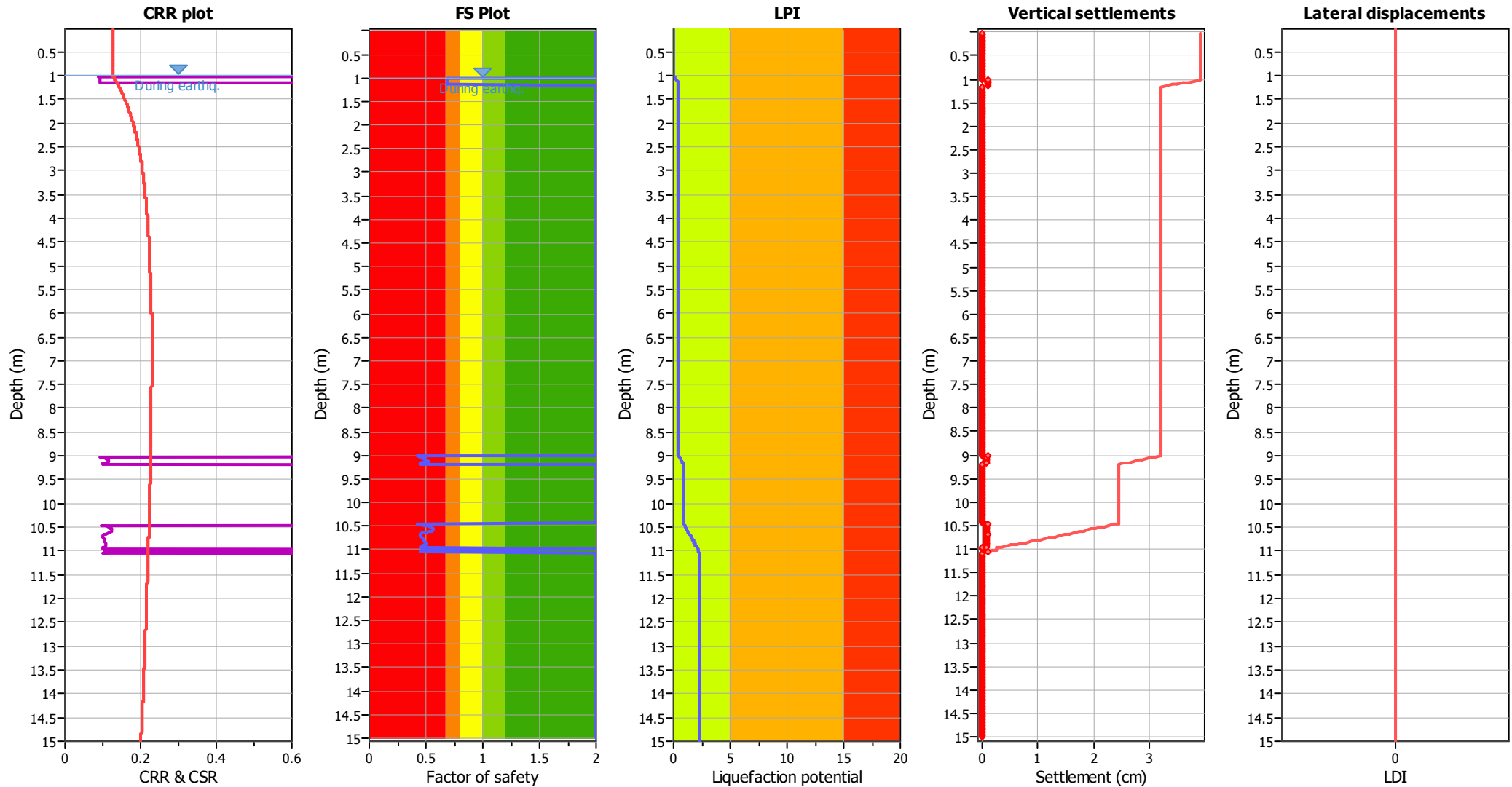
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
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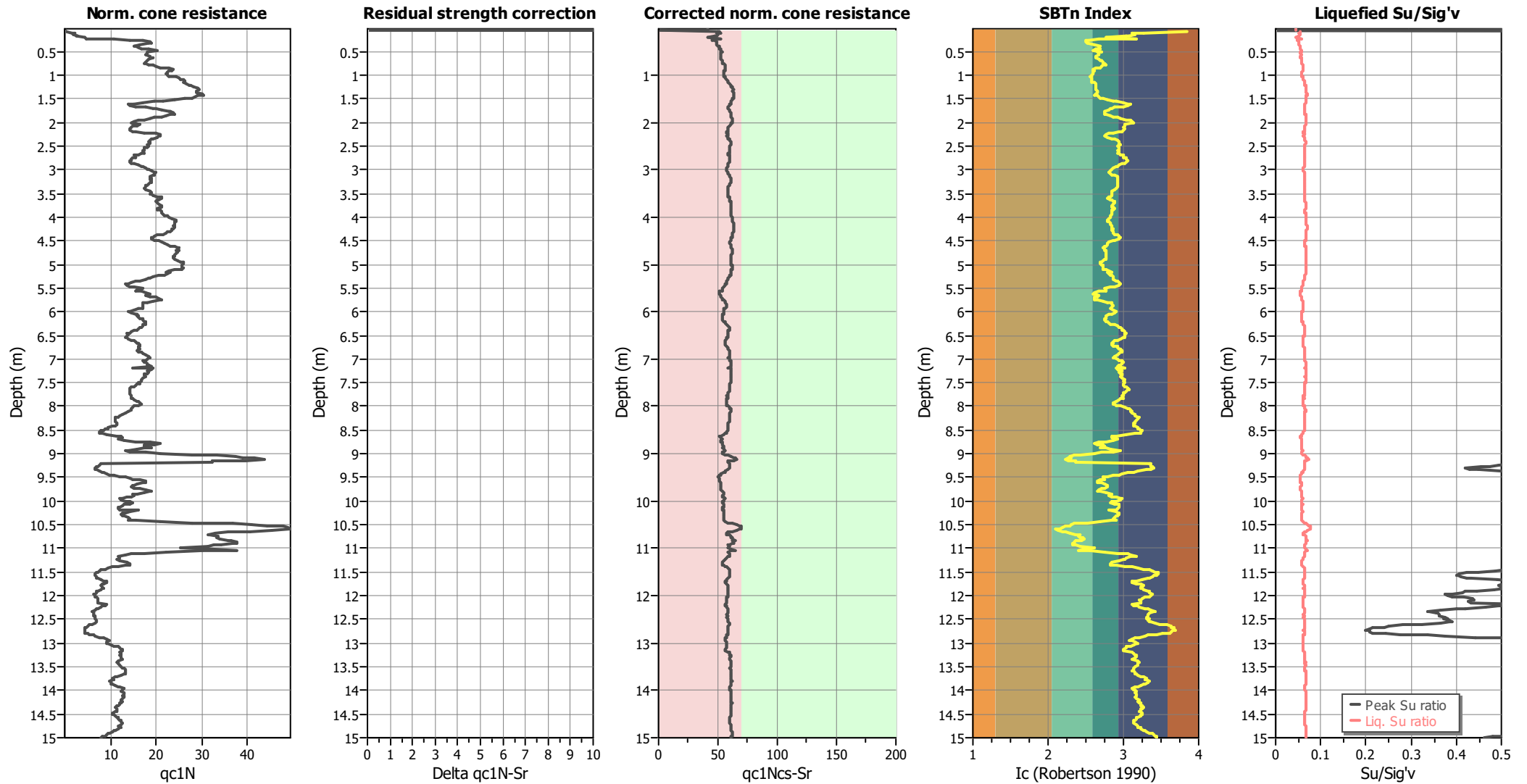
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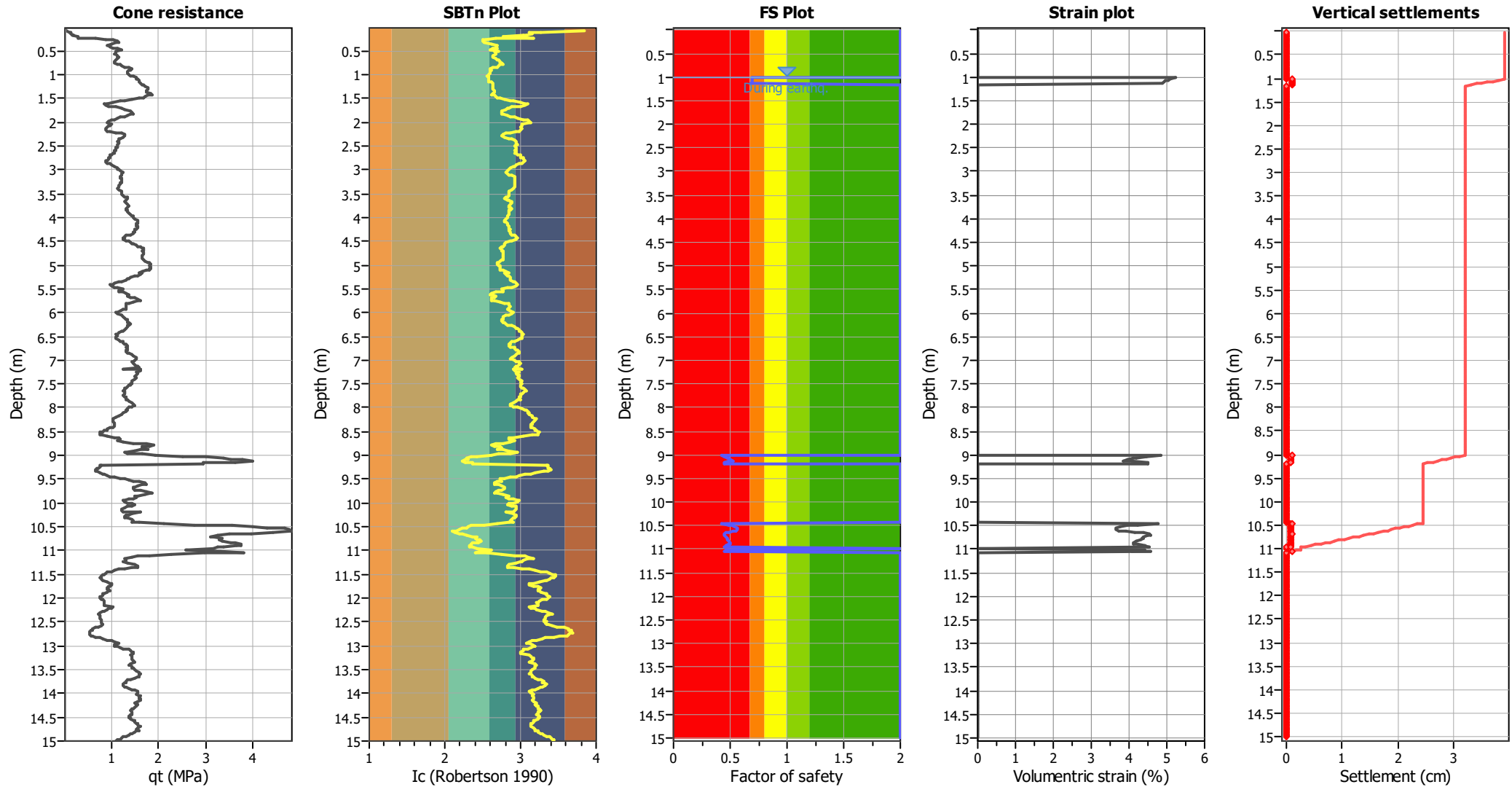
Check for strength loss plots (Idriss & Boulanger (2008))



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Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
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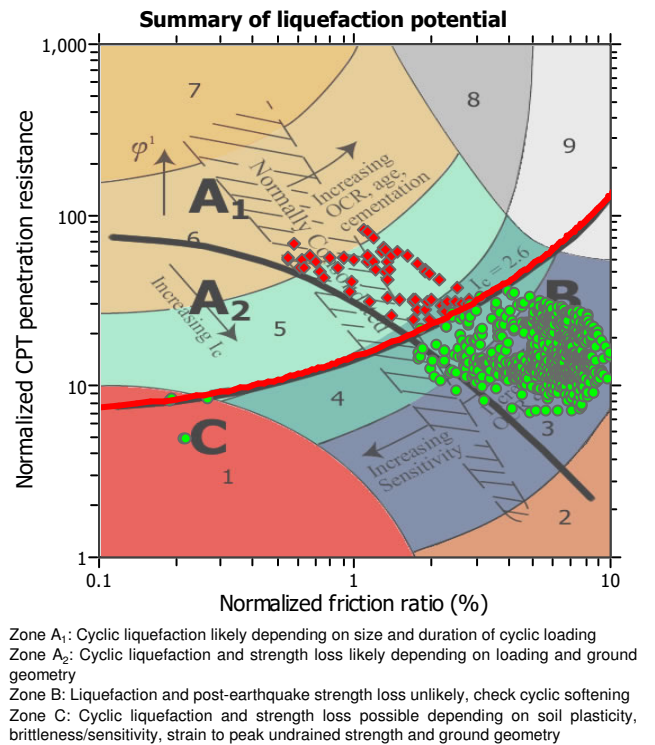
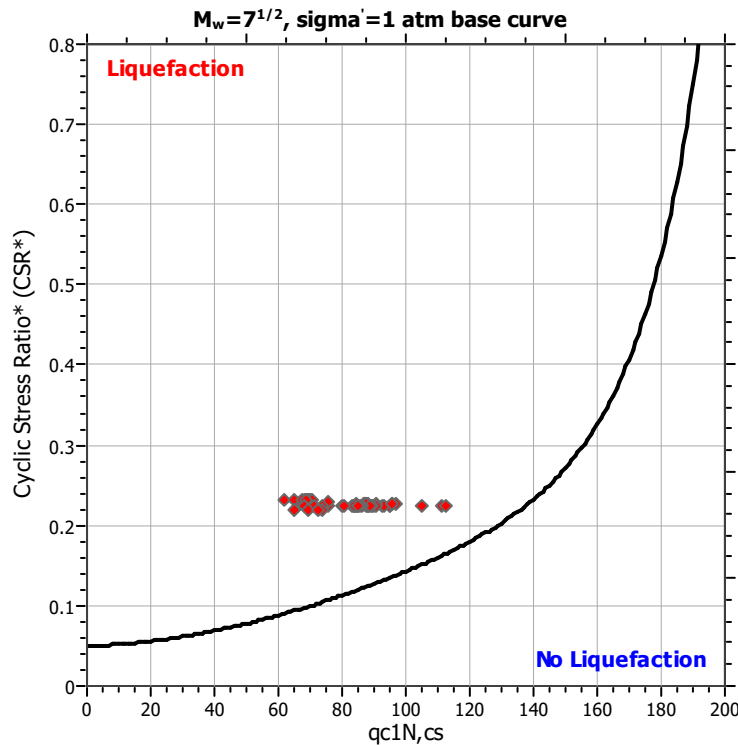
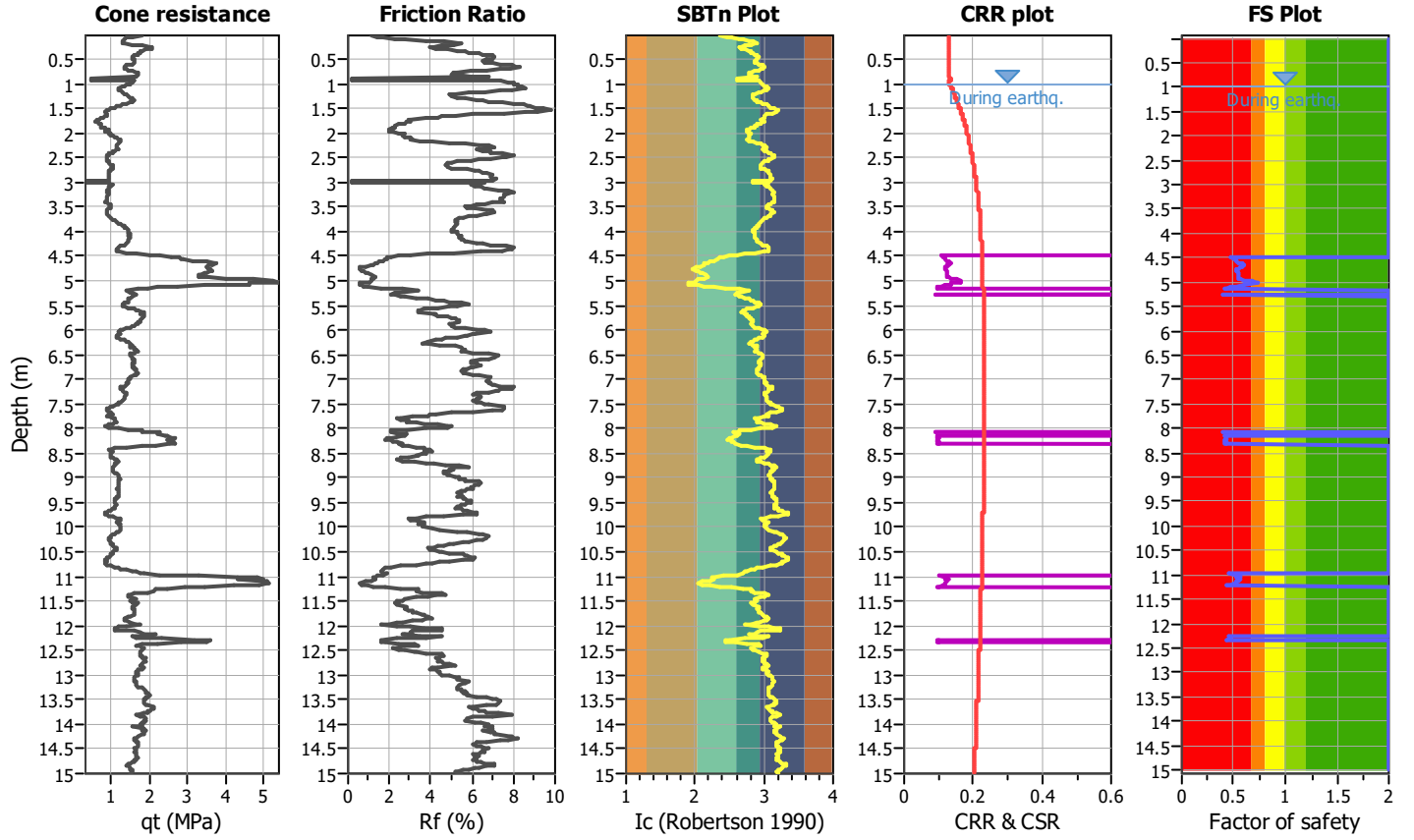
Project title :

Location :

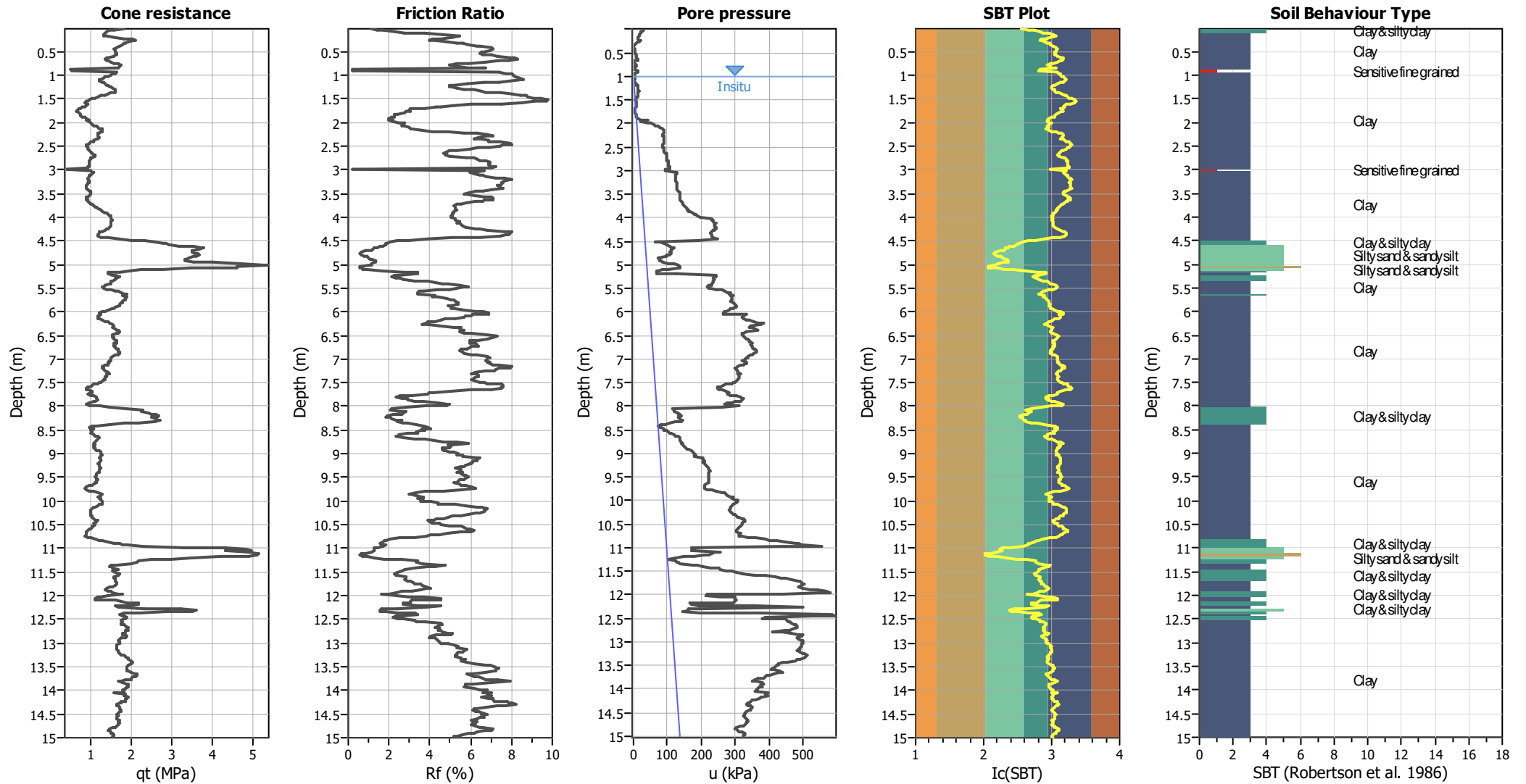
CPT file : CPTU 8 Via della Riforma

Input parameters and analysis data

Analysis method:	I&B (2008)	G.W.T. (in-situ):	1.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	I&B (2008)	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:	1	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.33	Unit weight calculation:	Based on SBT	K_g applied:	Yes		



CPT basic interpretation plots



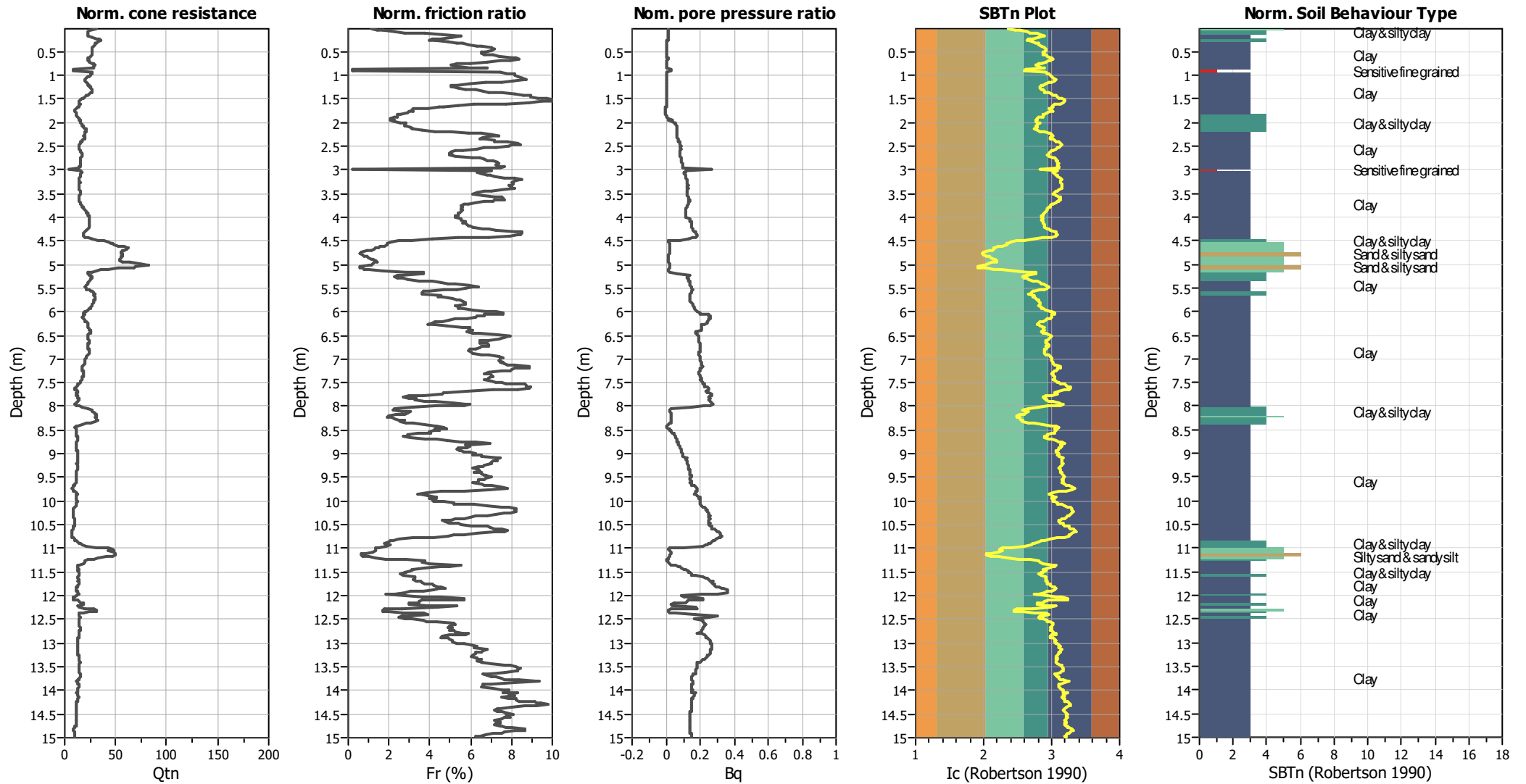
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

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

CPT basic interpretation plots (normalized)



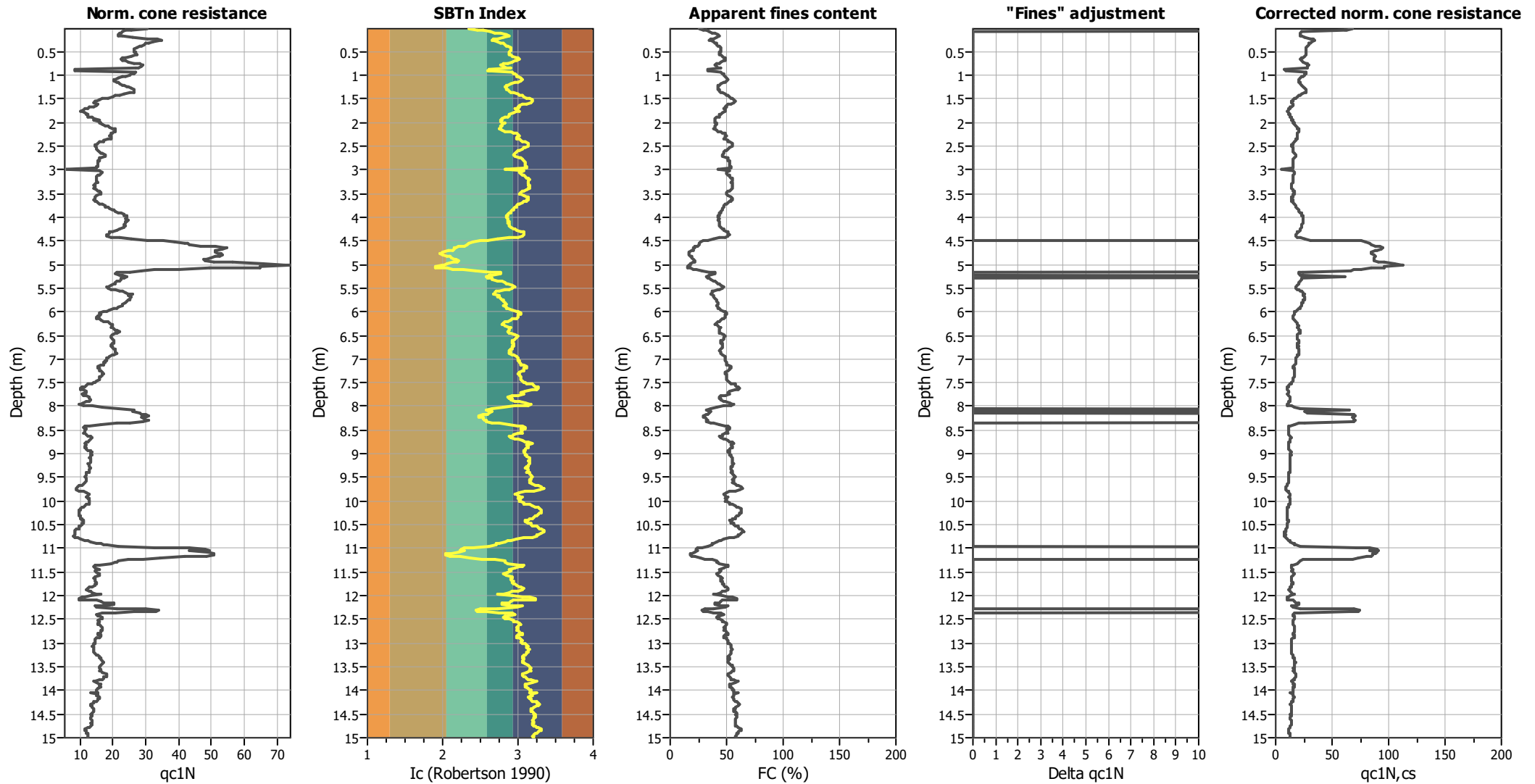
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

SBTn 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

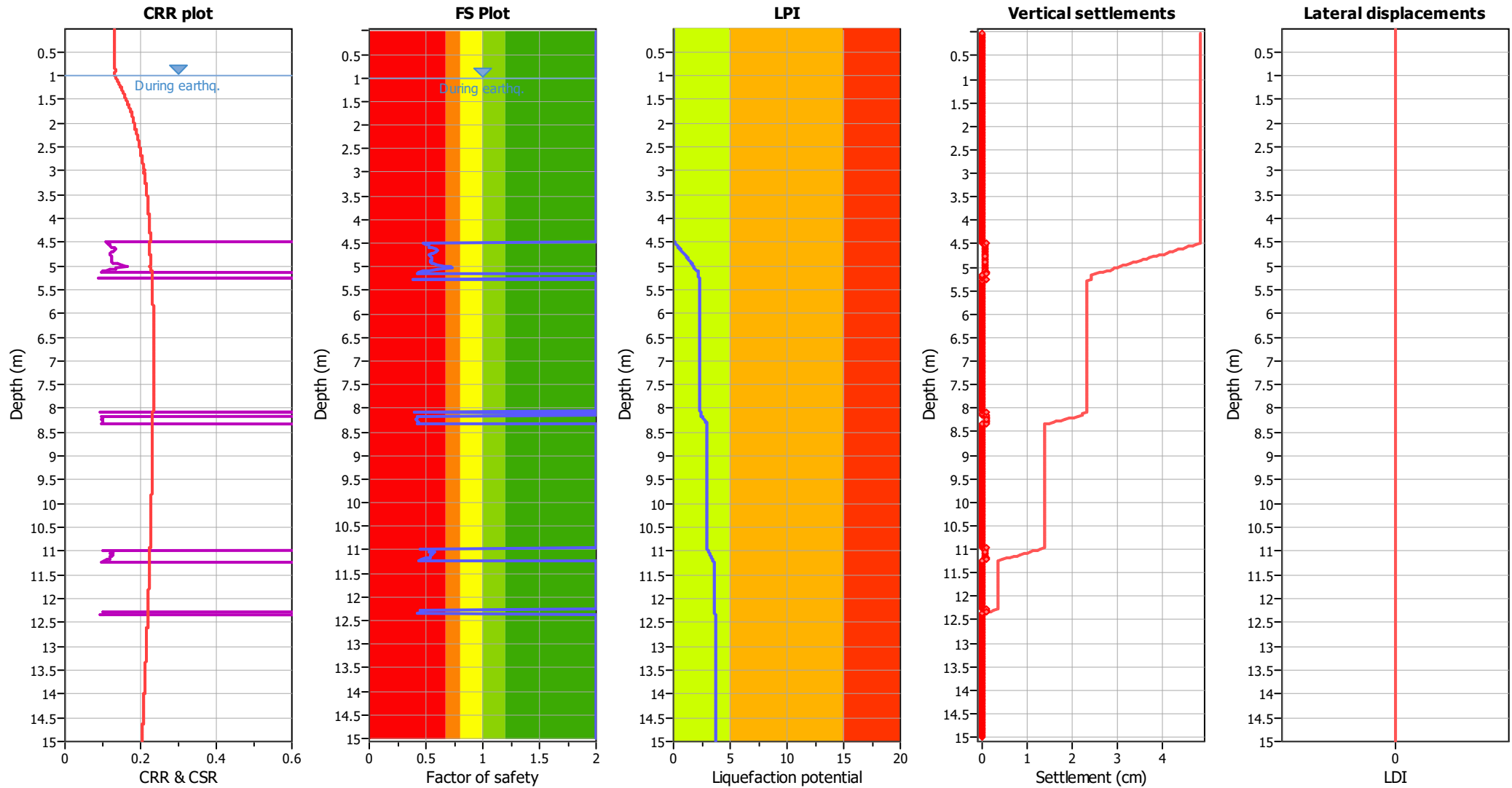
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

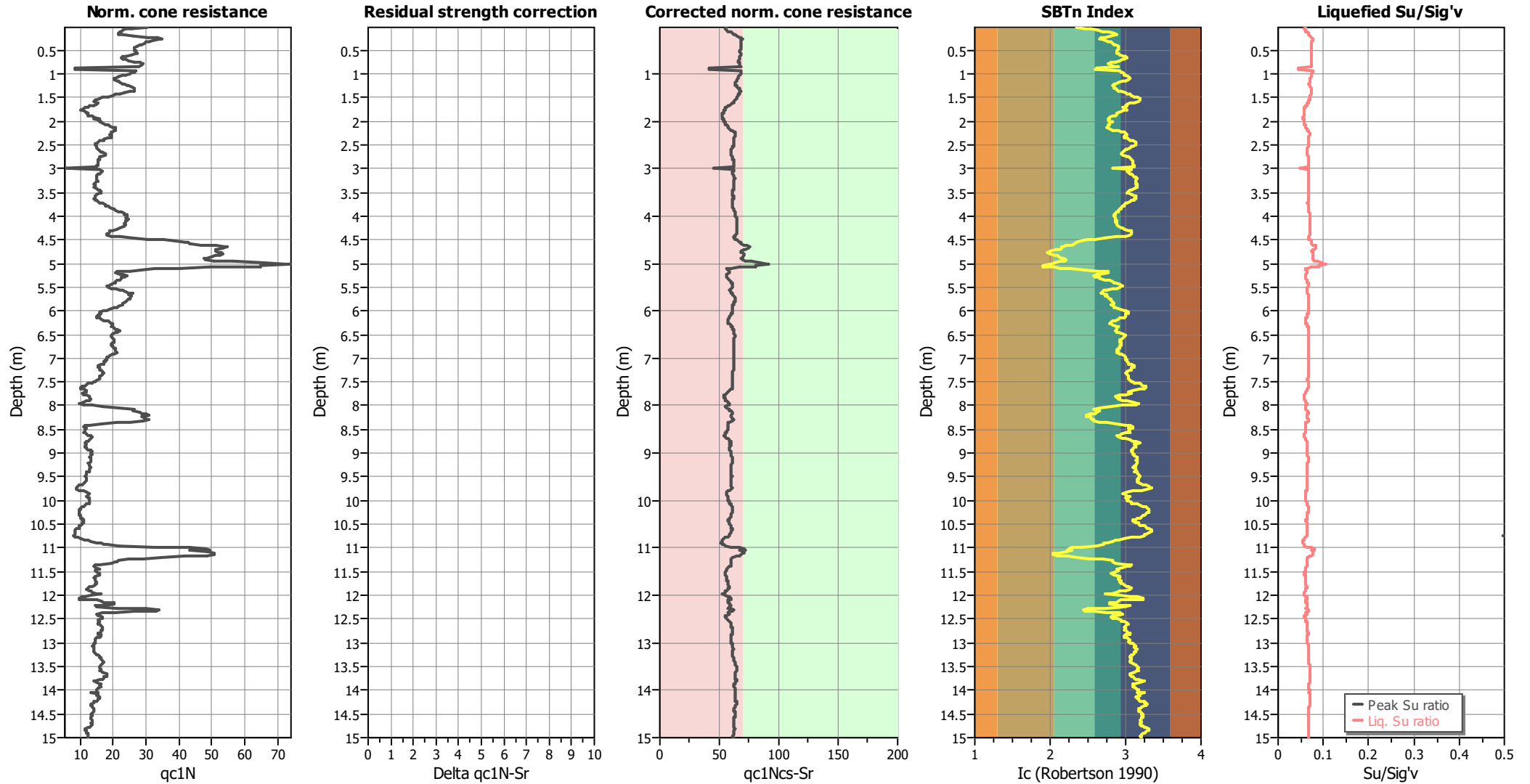
F.S. color scheme

- 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

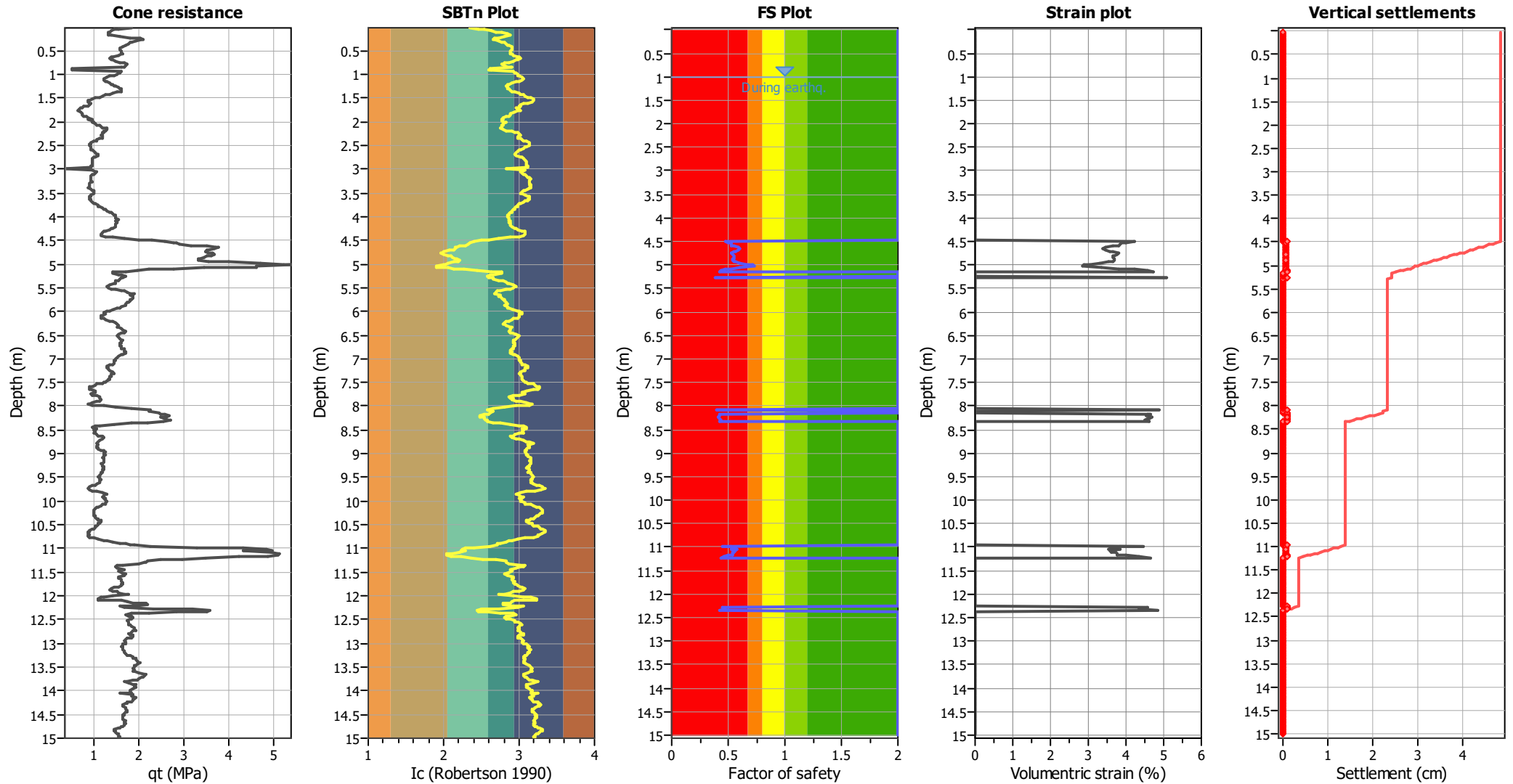
Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

- qt: Total cone resistance (cone resistance q_c corrected for pore water effects)
- Ic: Soil Behaviour Type Index
- FS: Calculated Factor of Safety against liquefaction
- Volumetric strain: Post-liquefaction volumetric strain

LIQUEFACTION ANALYSIS REPORT

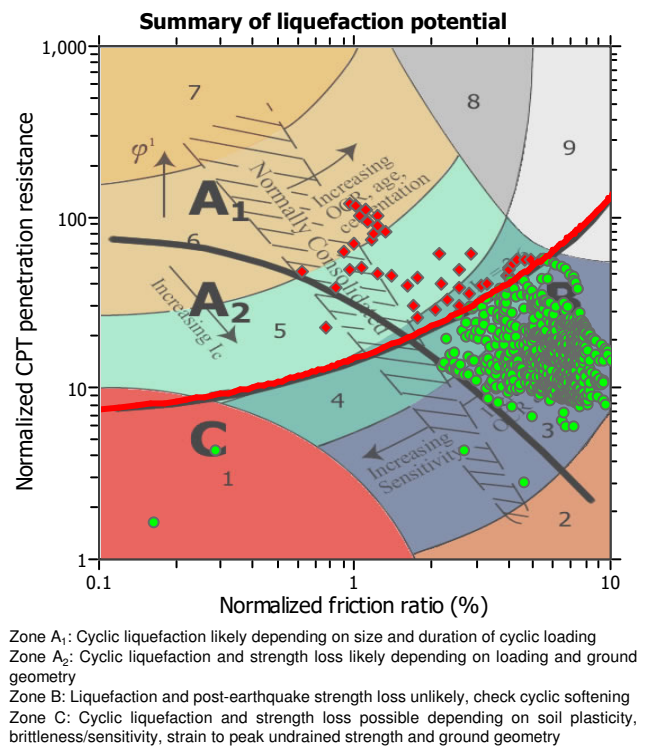
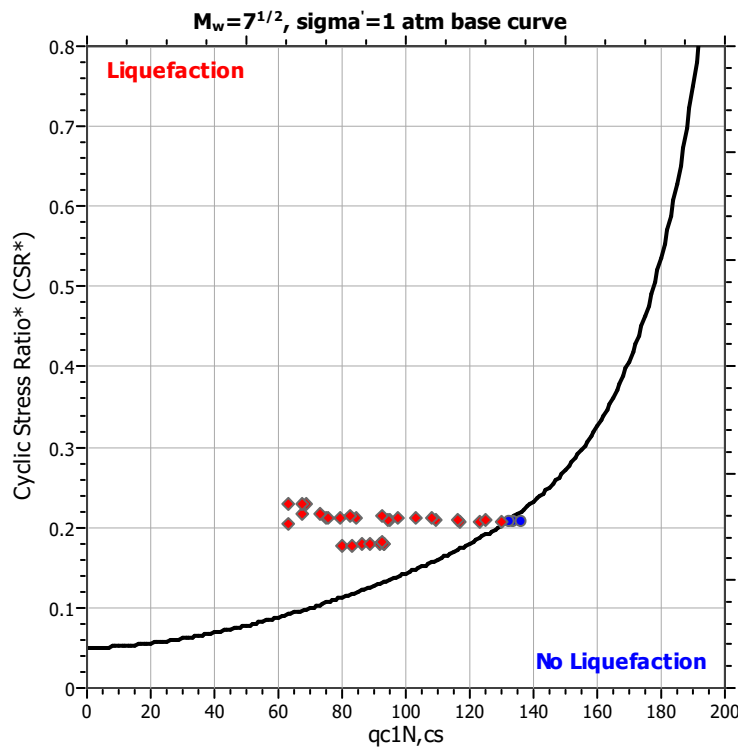
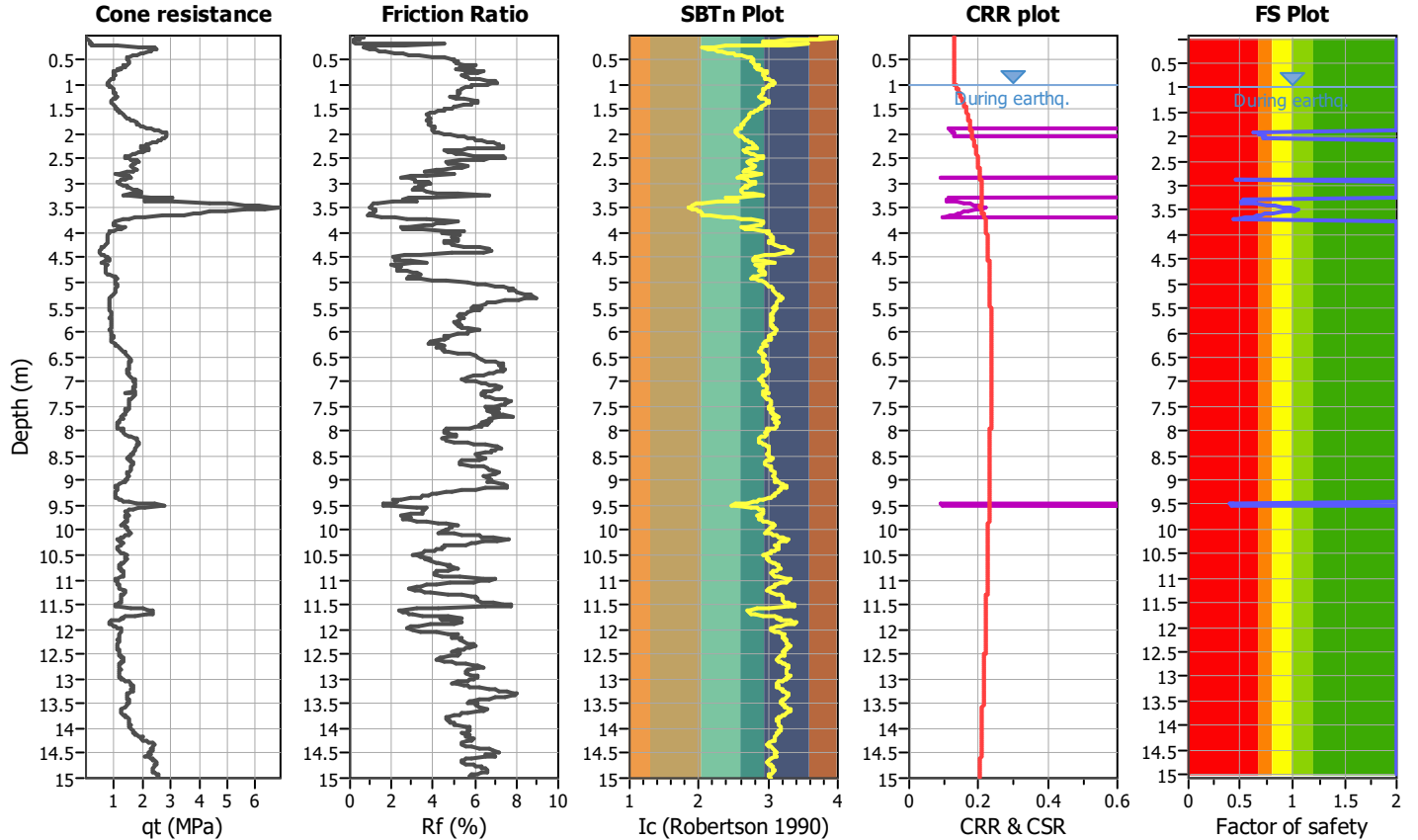
Project title :

Location :

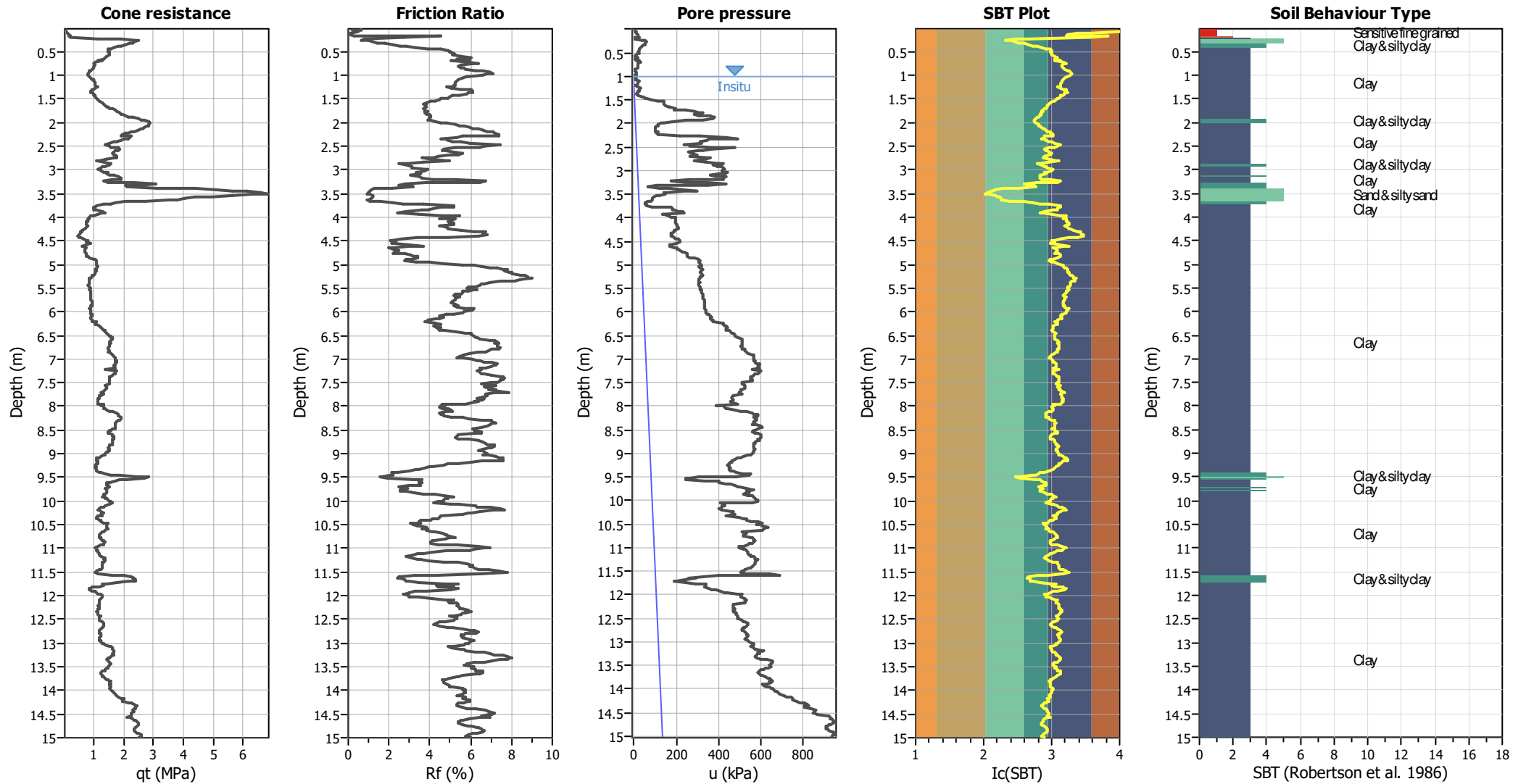
CPT file : CPTU 9 Via Palazzone Mensa

Input parameters and analysis data

Analysis method:	I&B (2008)	G.W.T. (in-situ):	1.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	I&B (2008)	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:	1	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.33	Unit weight calculation:	Based on SBT	K_g applied:	Yes		



CPT basic interpretation plots



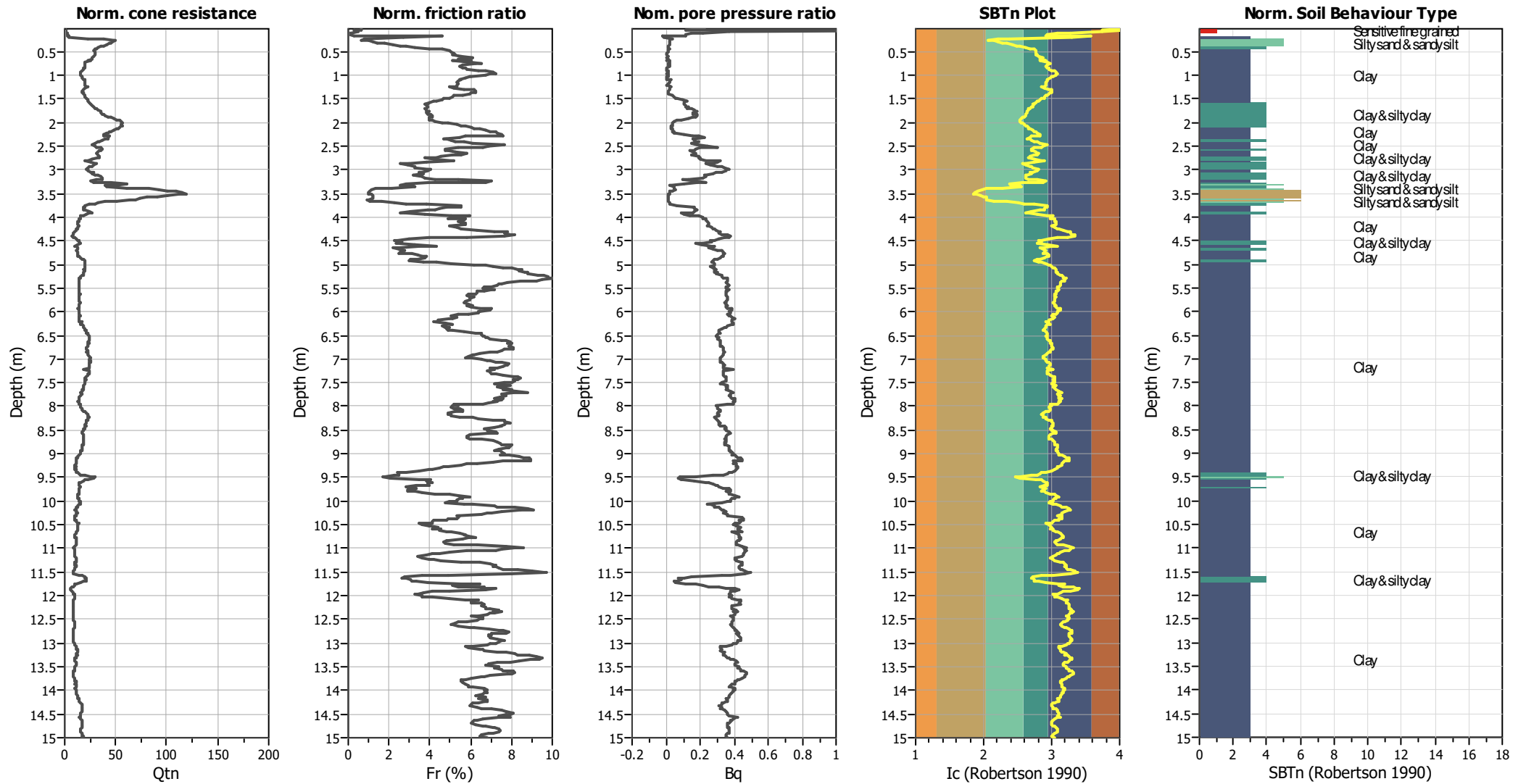
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

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

CPT basic interpretation plots (normalized)



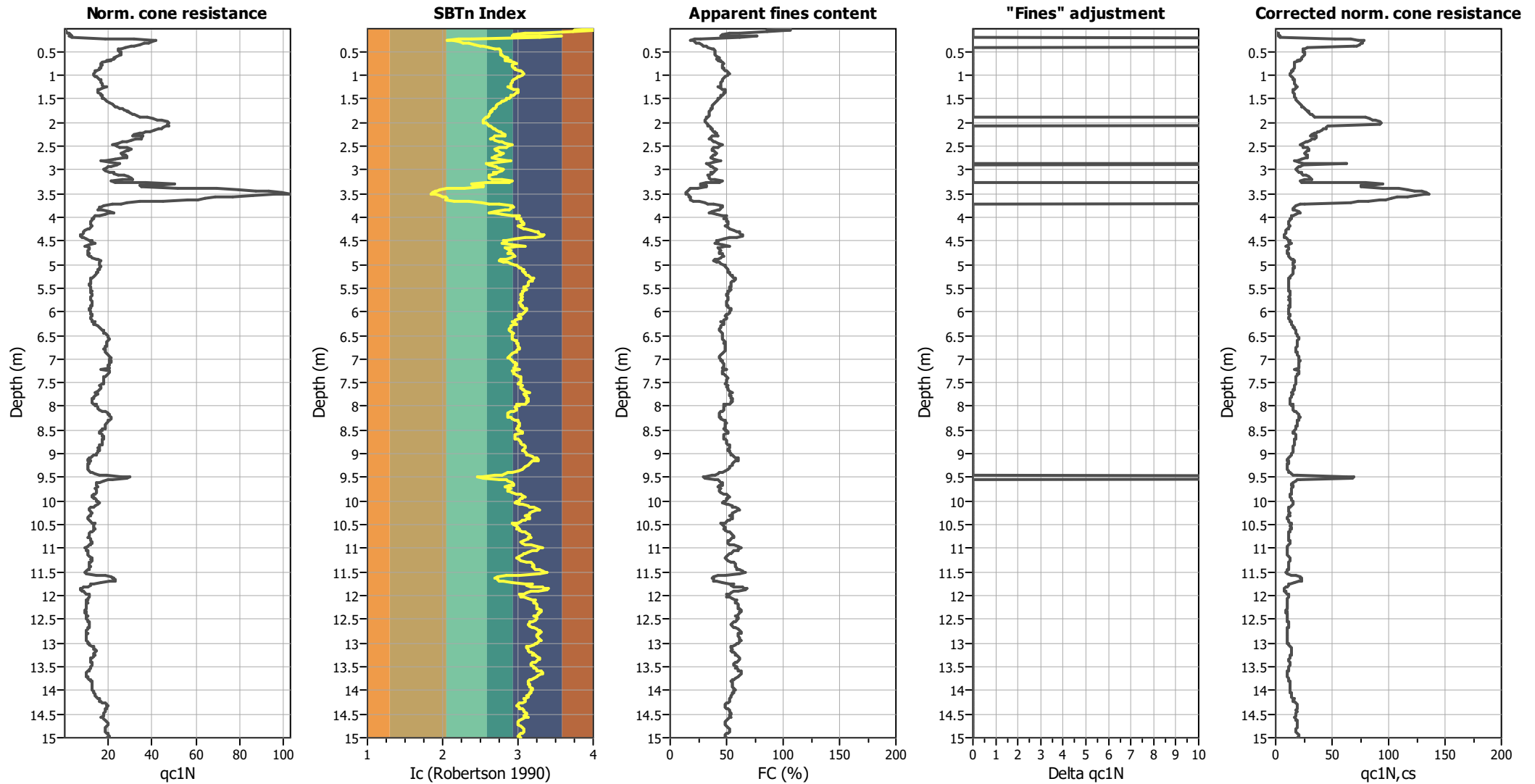
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

SBTn 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

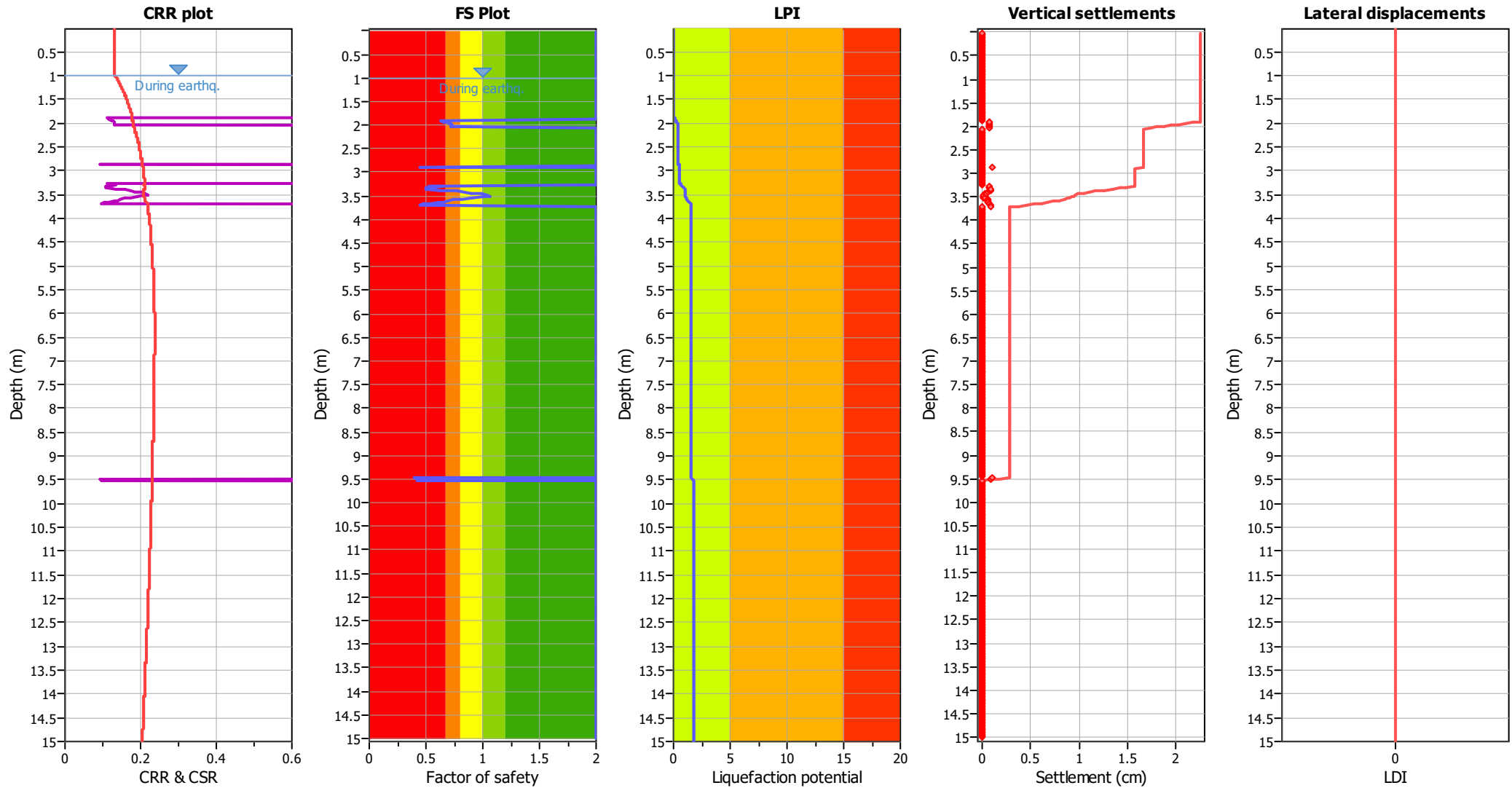
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (earthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

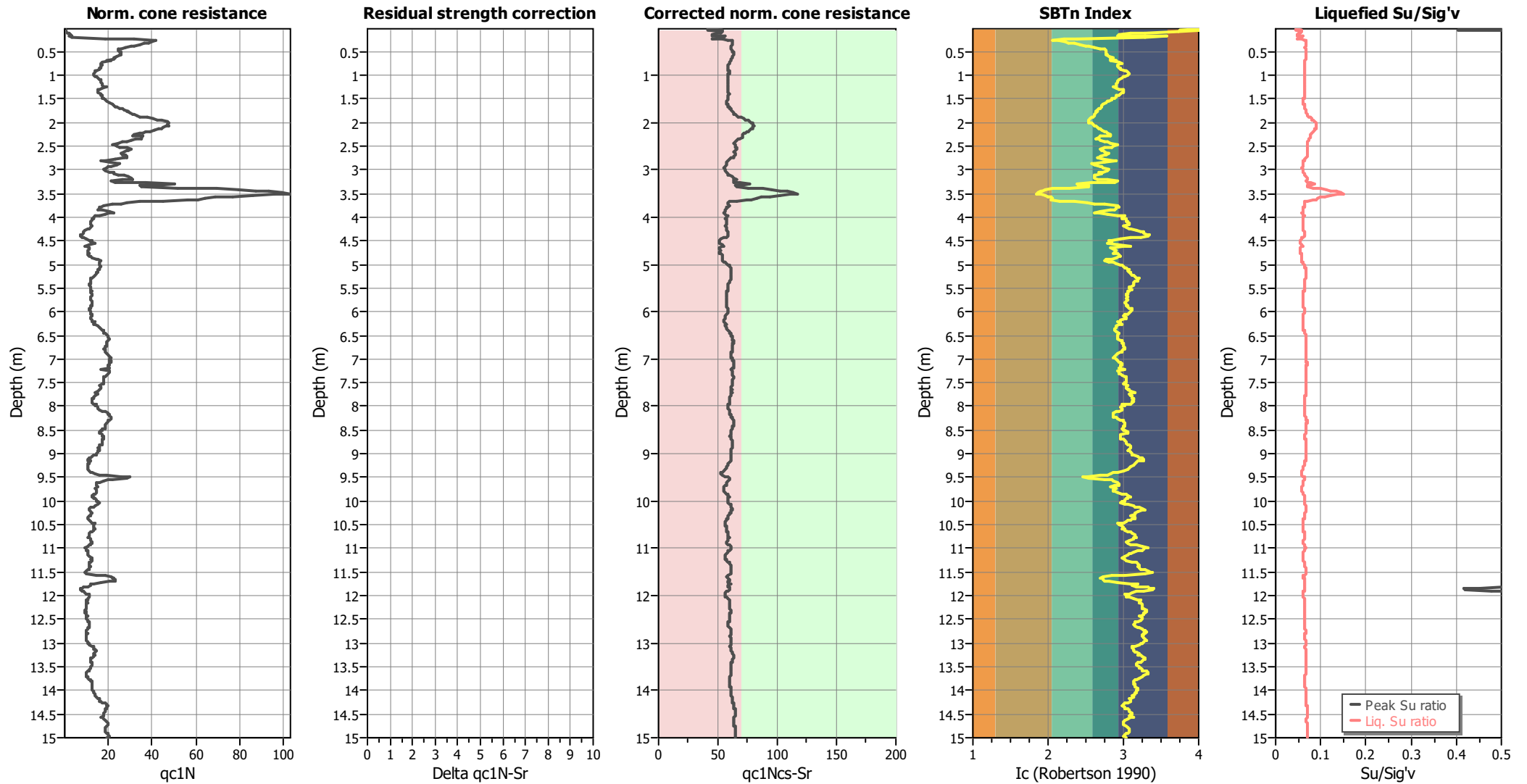
F.S. color scheme

- 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

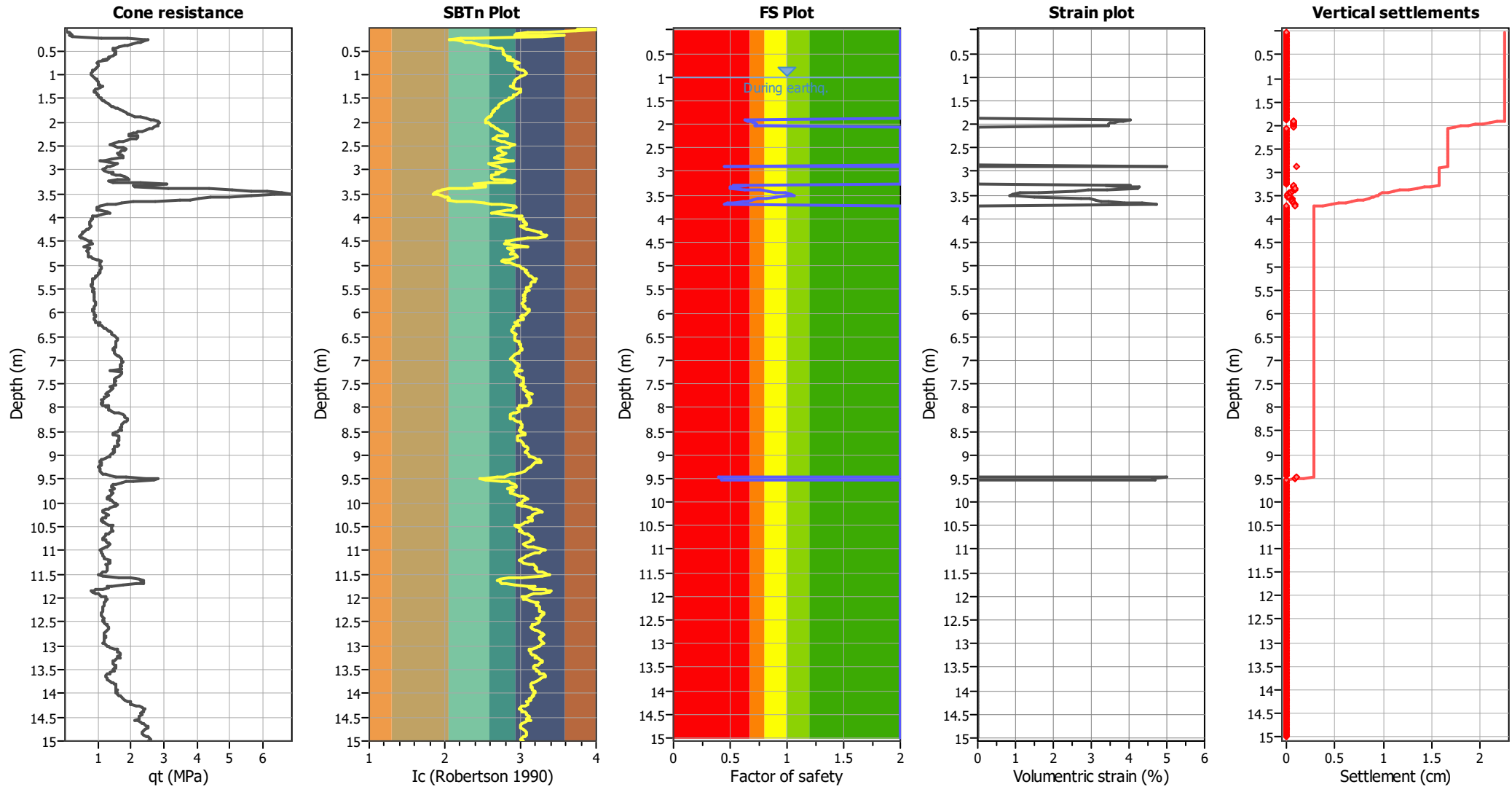
Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

- q_t : Total cone resistance (cone resistance q_c corrected for pore water effects)
- I_c : Soil Behaviour Type Index
- FS: Calculated Factor of Safety against liquefaction
- Volumetric strain: Post-liquefaction volumetric strain

LIQUEFACTION ANALYSIS REPORT

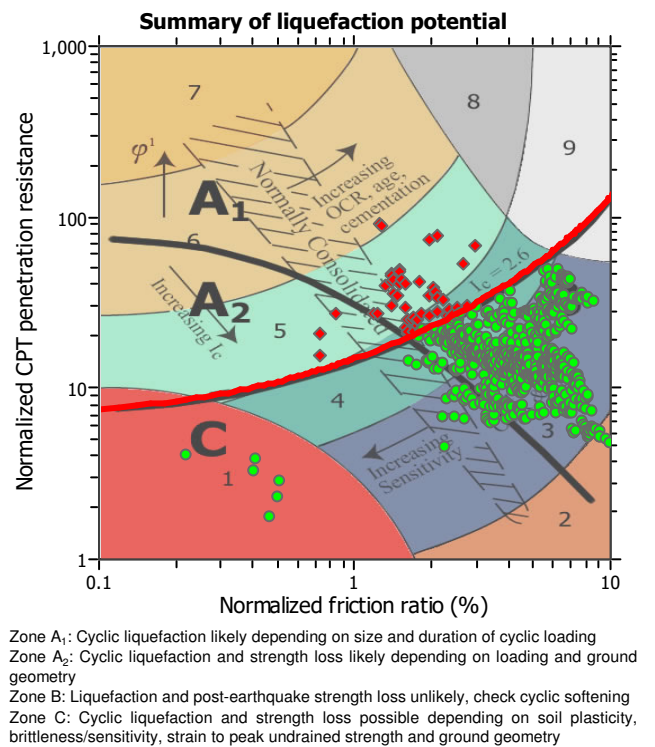
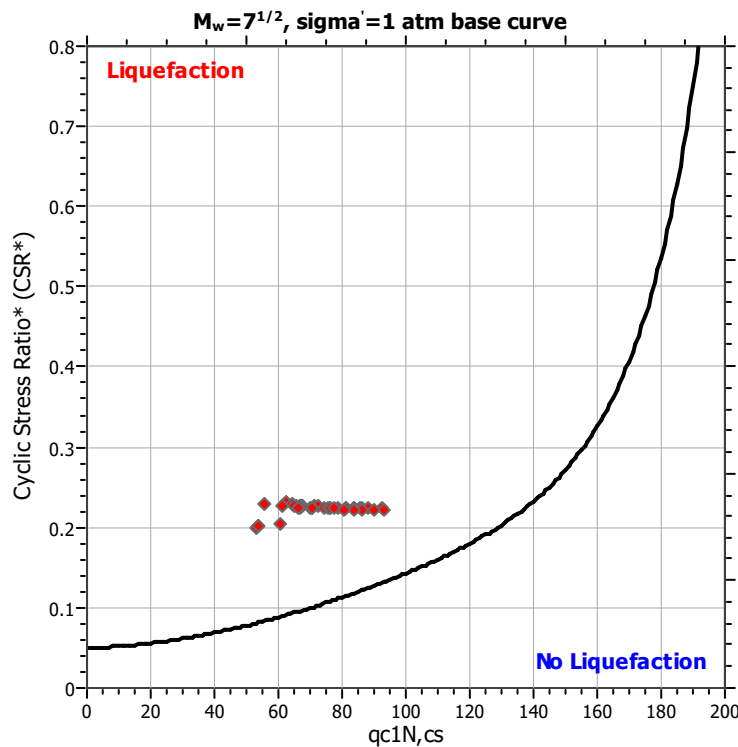
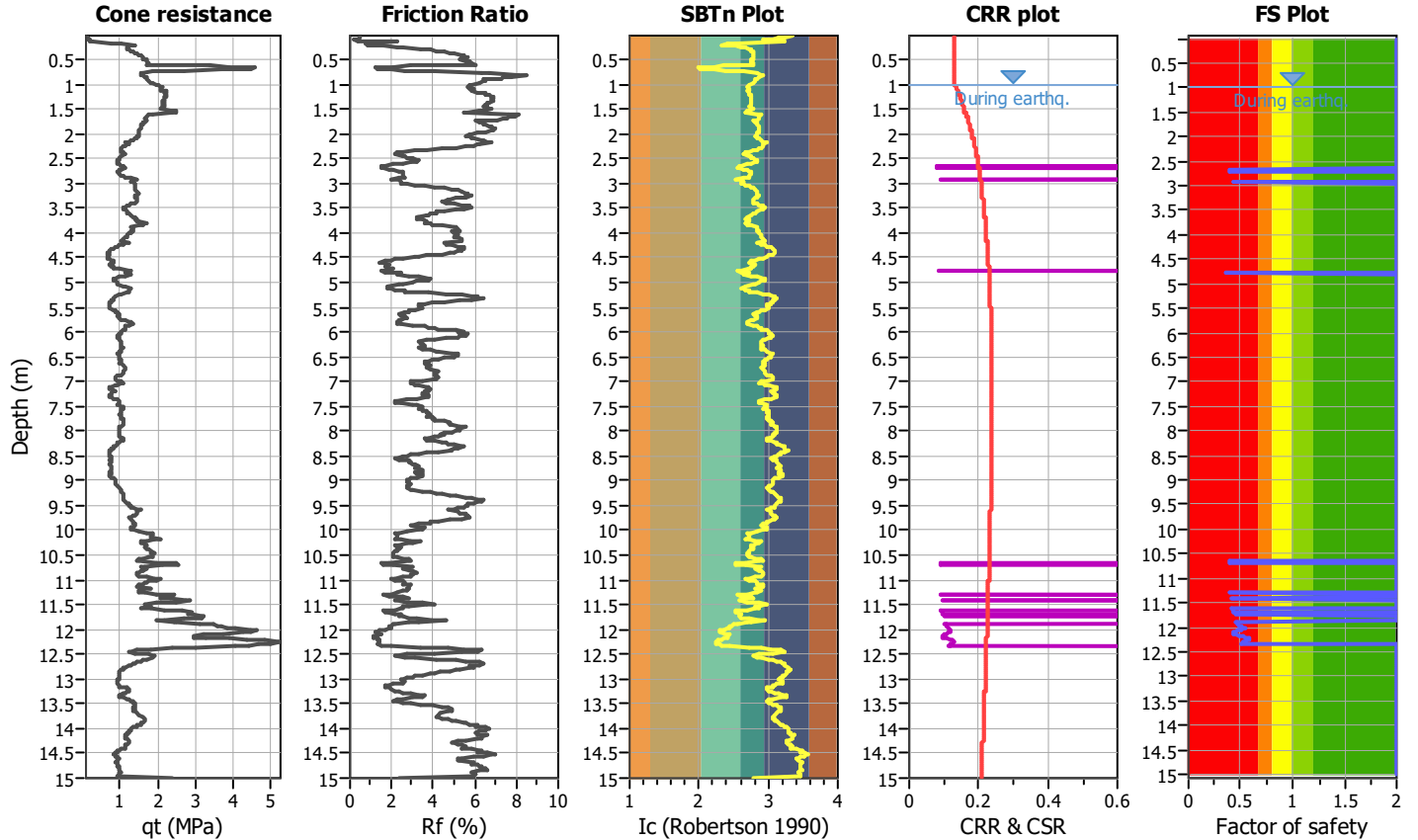
Project title :

Location :

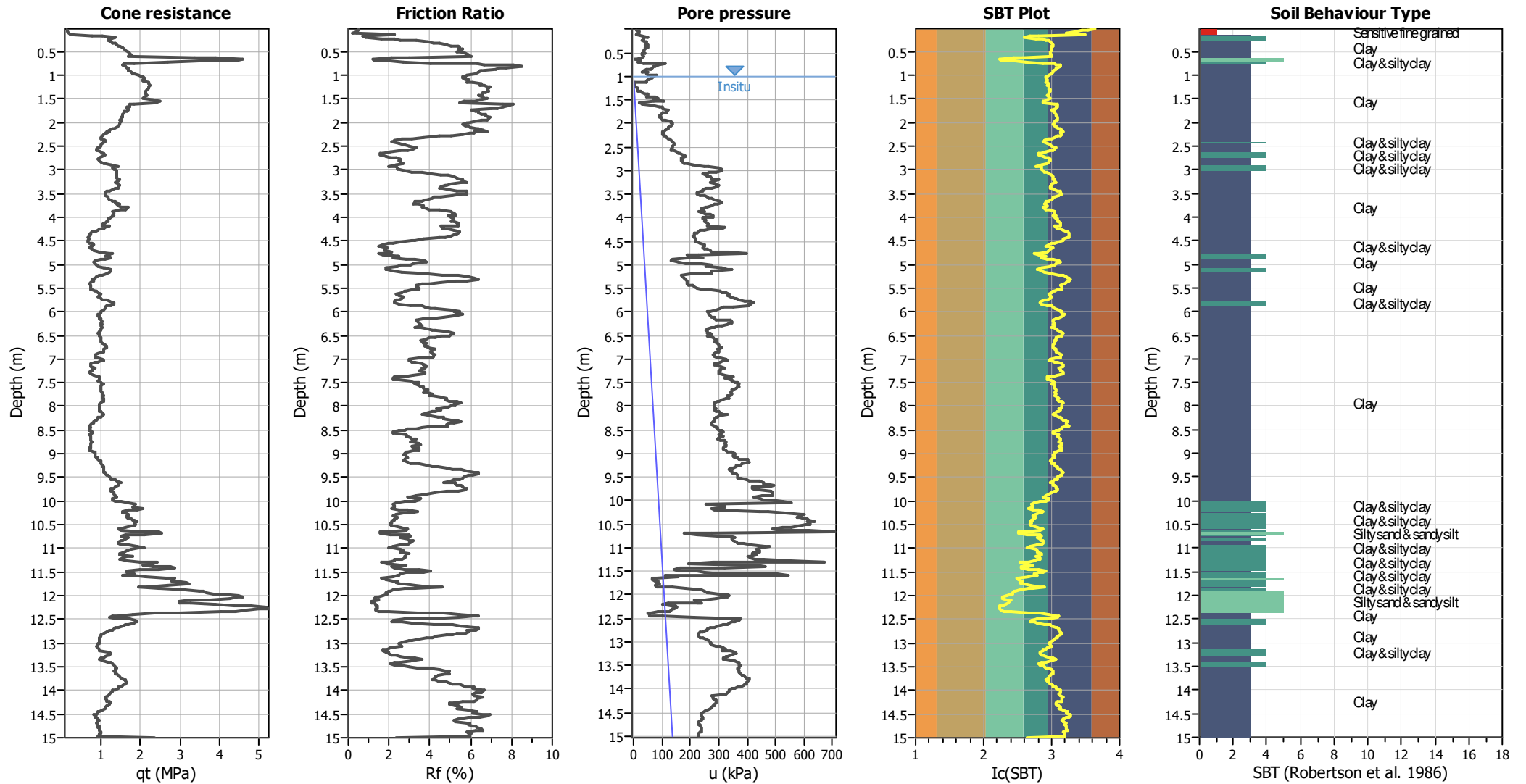
CPT file : CPTU 10 Via Viazza Cesena

Input parameters and analysis data

Analysis method:	I&B (2008)	G.W.T. (in-situ):	1.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	I&B (2008)	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:	1	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.33	Unit weight calculation:	Based on SBT	K_g applied:	Yes		



CPT basic interpretation plots



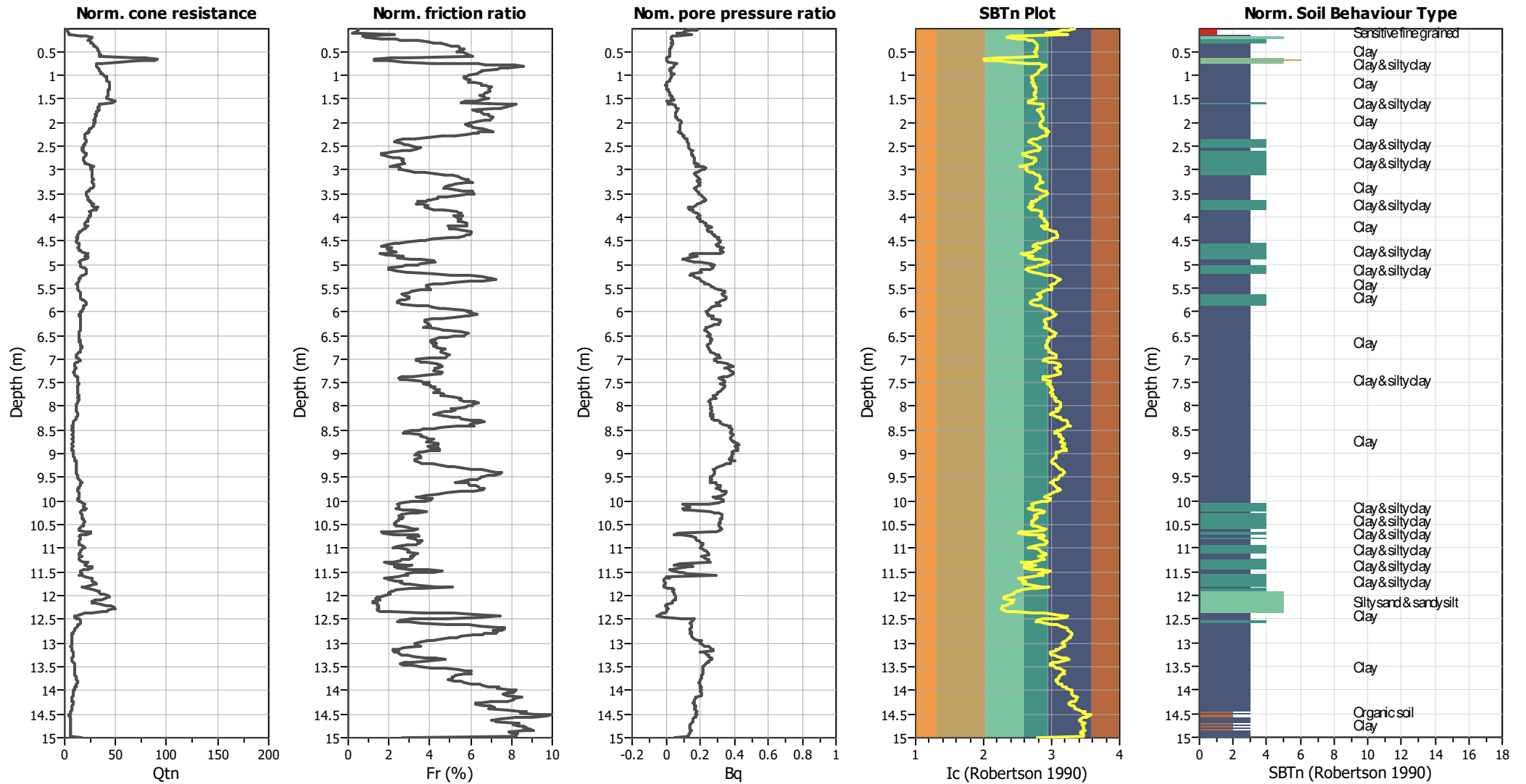
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

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

CPT basic interpretation plots (normalized)



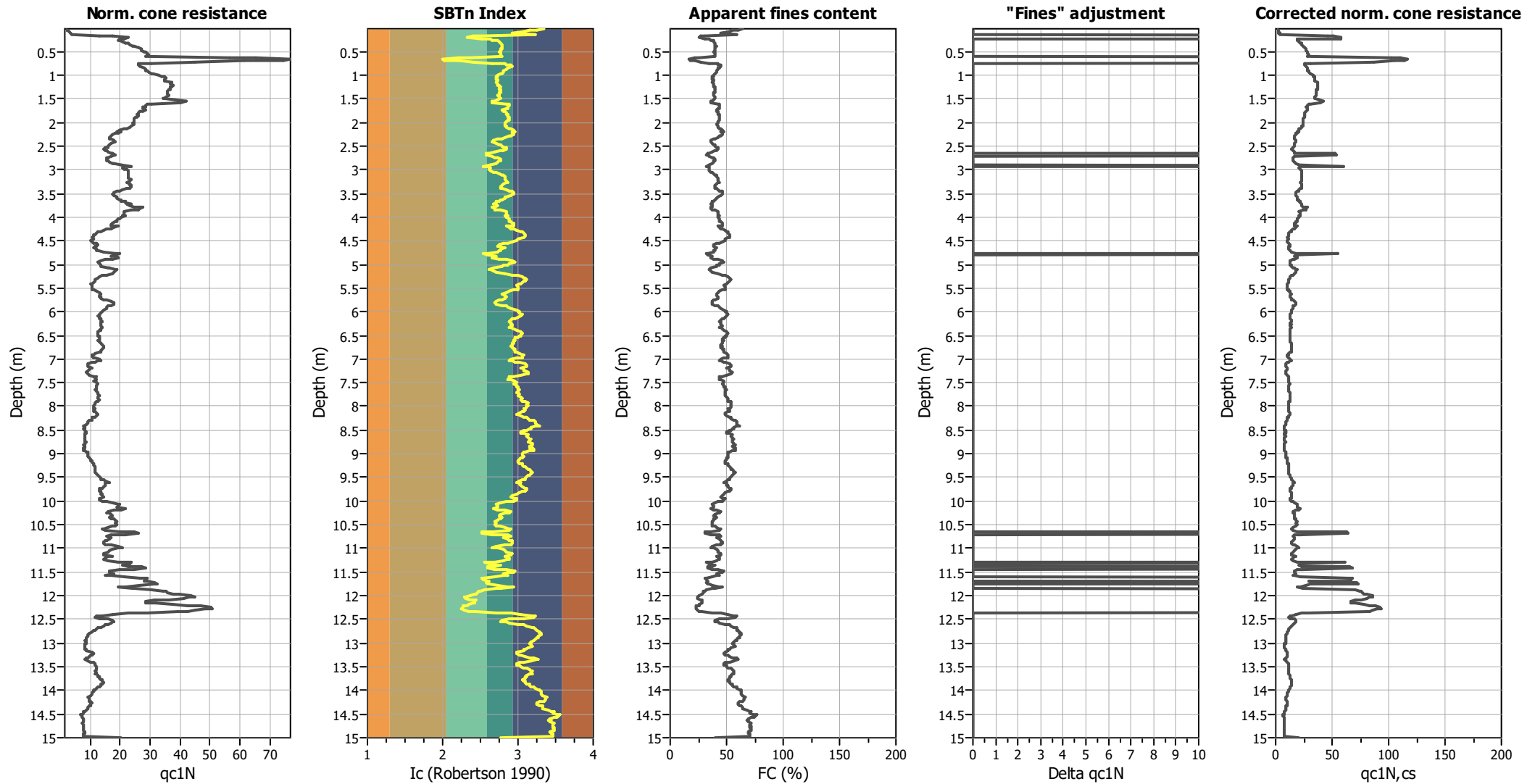
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

SBTn 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

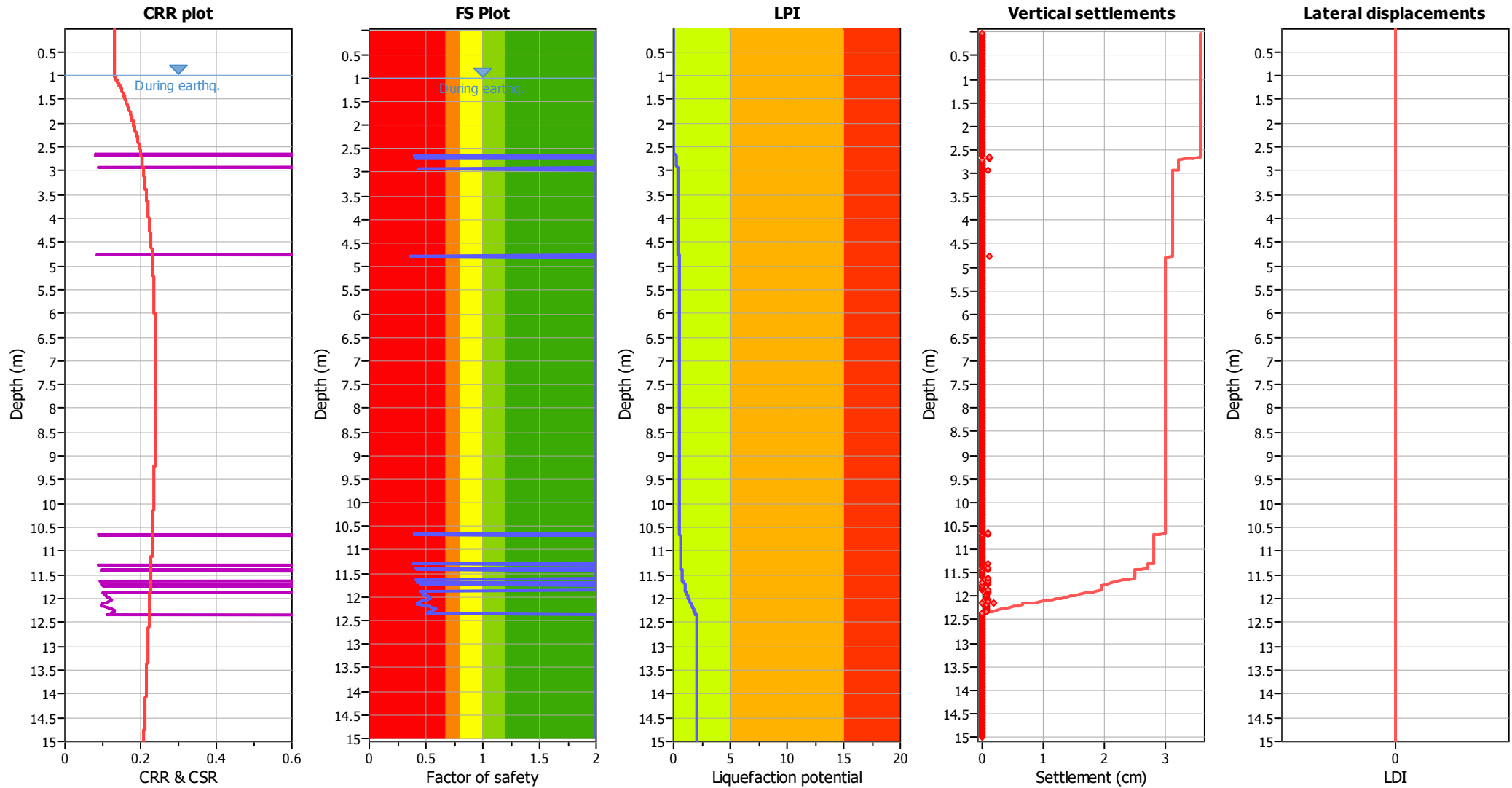
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

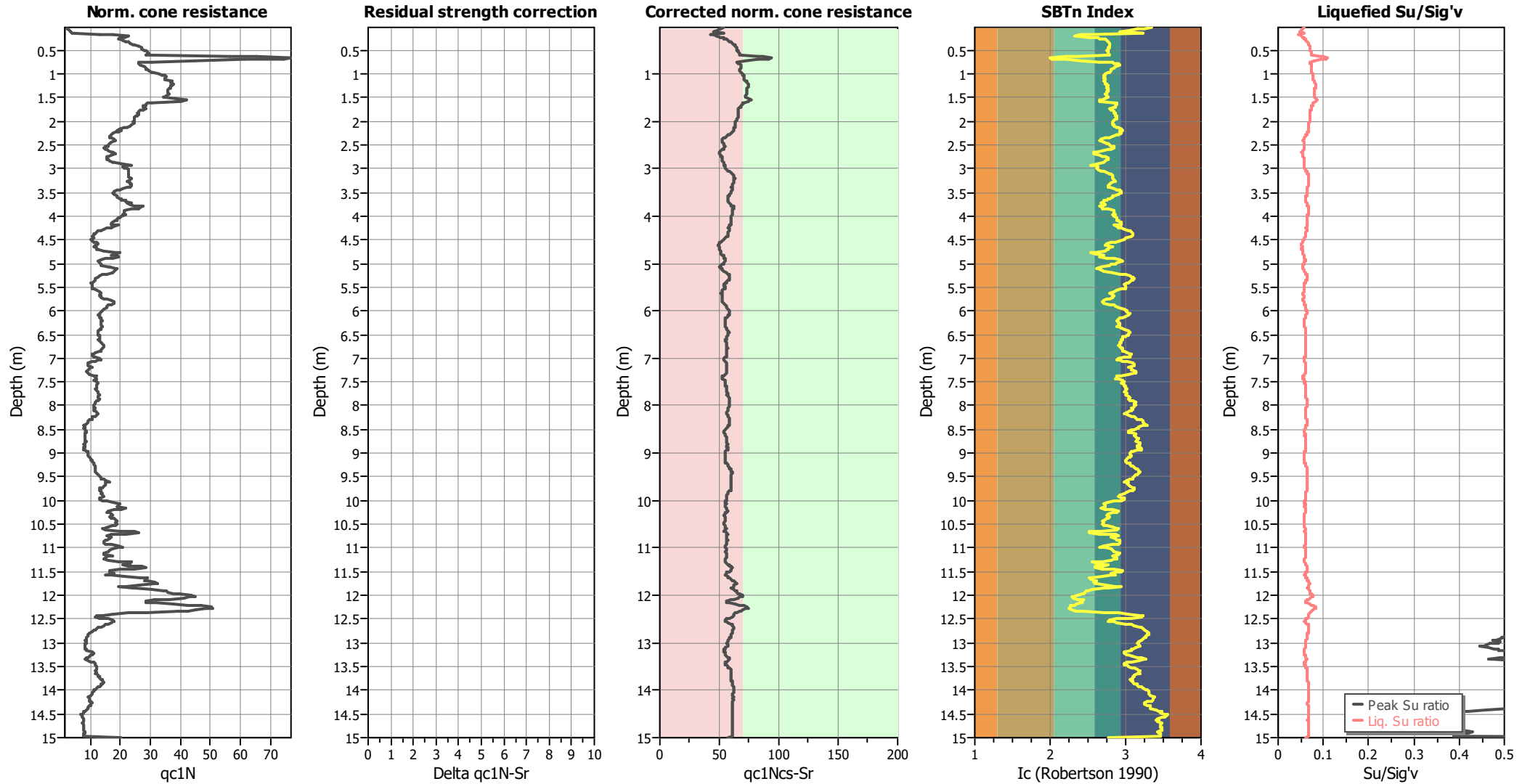
F.S. color scheme

- 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

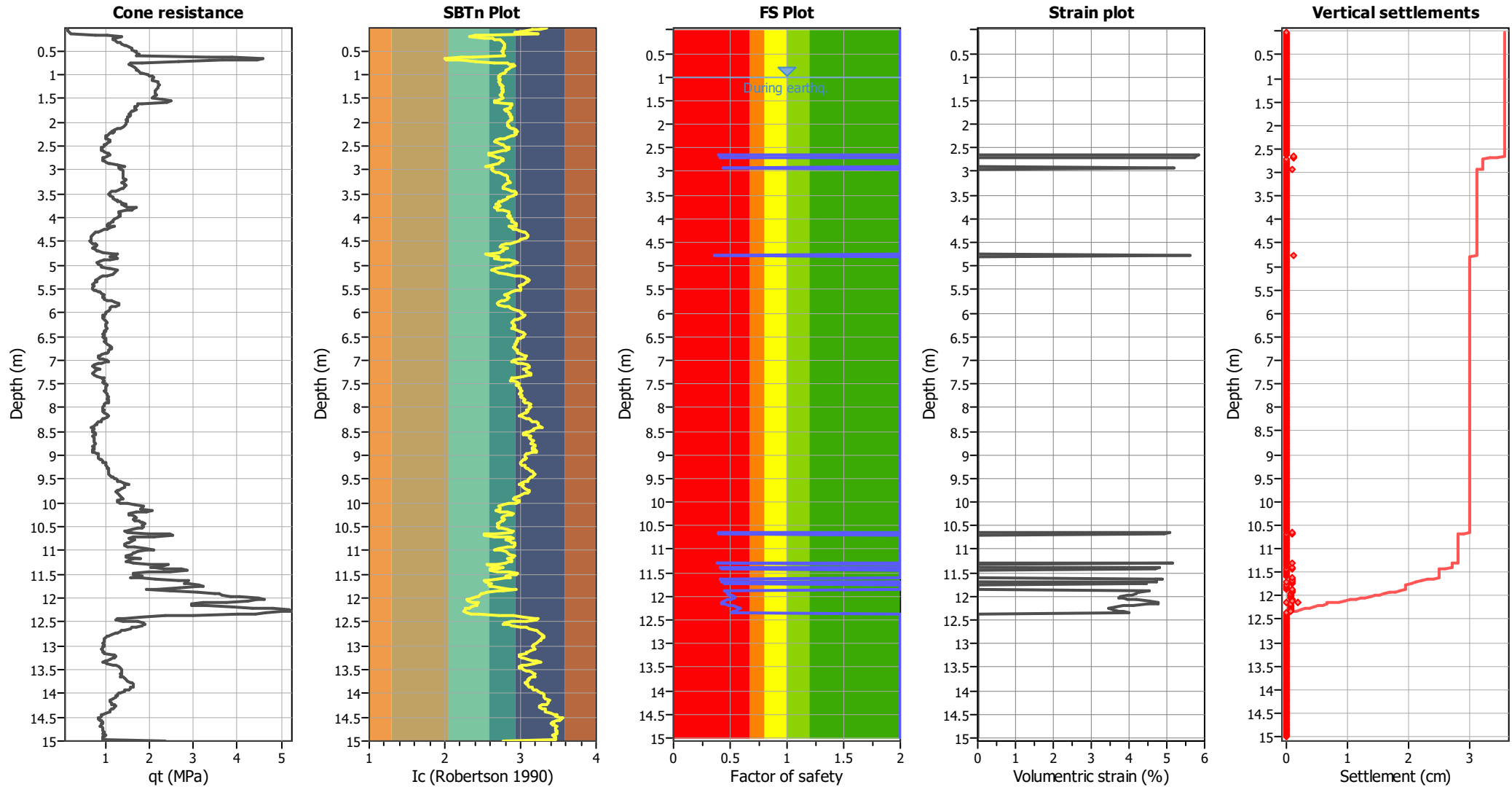
Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

- qt: Total cone resistance (cone resistance q_c corrected for pore water effects)
- I_c: Soil Behaviour Type Index
- FS: Calculated Factor of Safety against liquefaction
- Volumetric strain: Post-liquefaction volumetric strain

LIQUEFACTION ANALYSIS REPORT

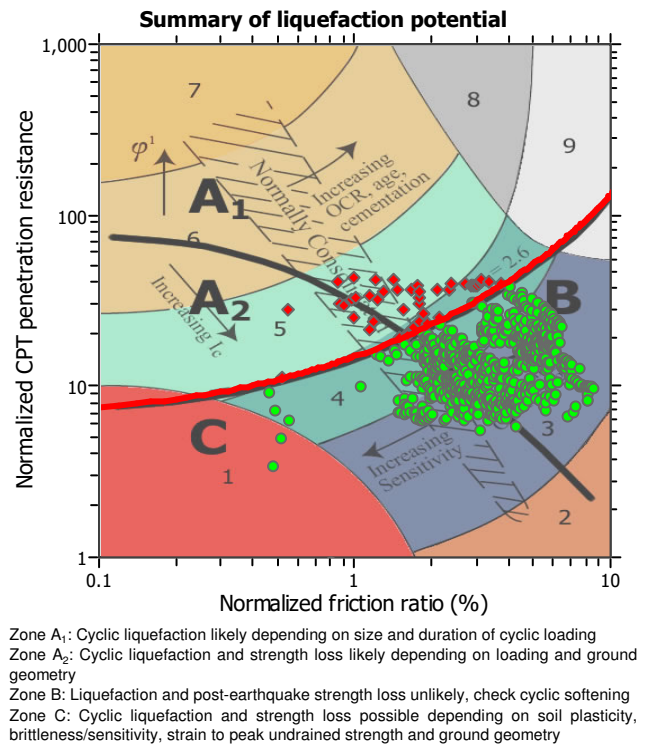
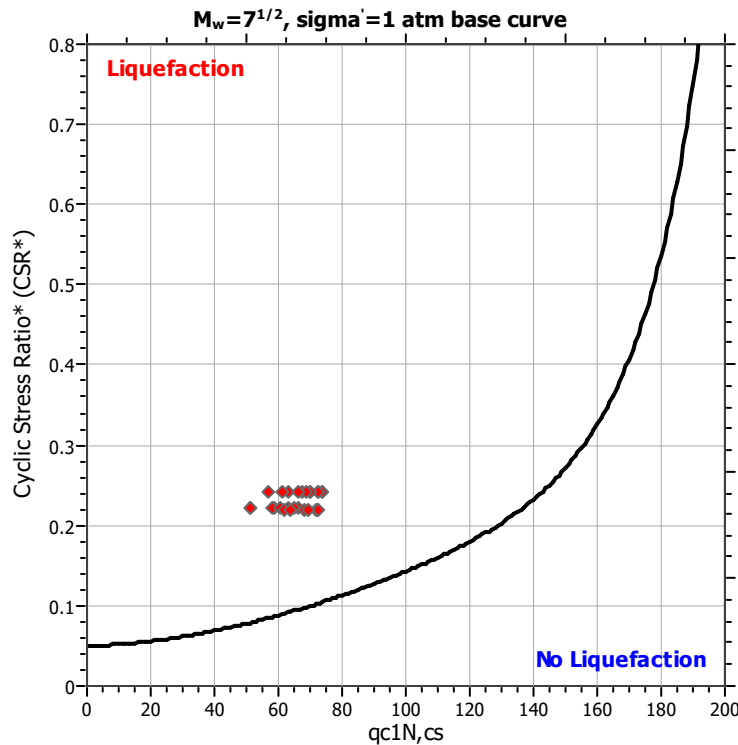
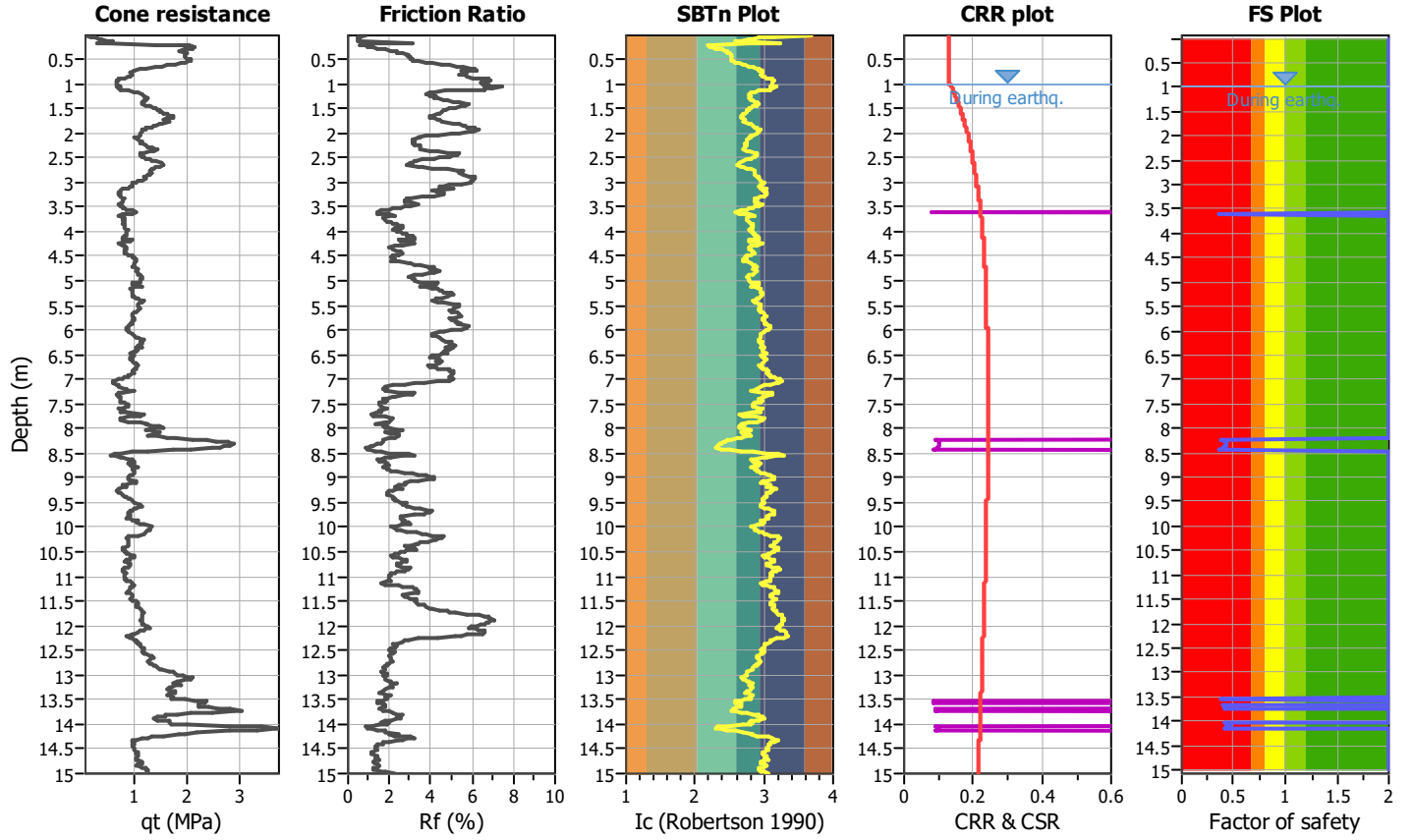
Project title :

Location :

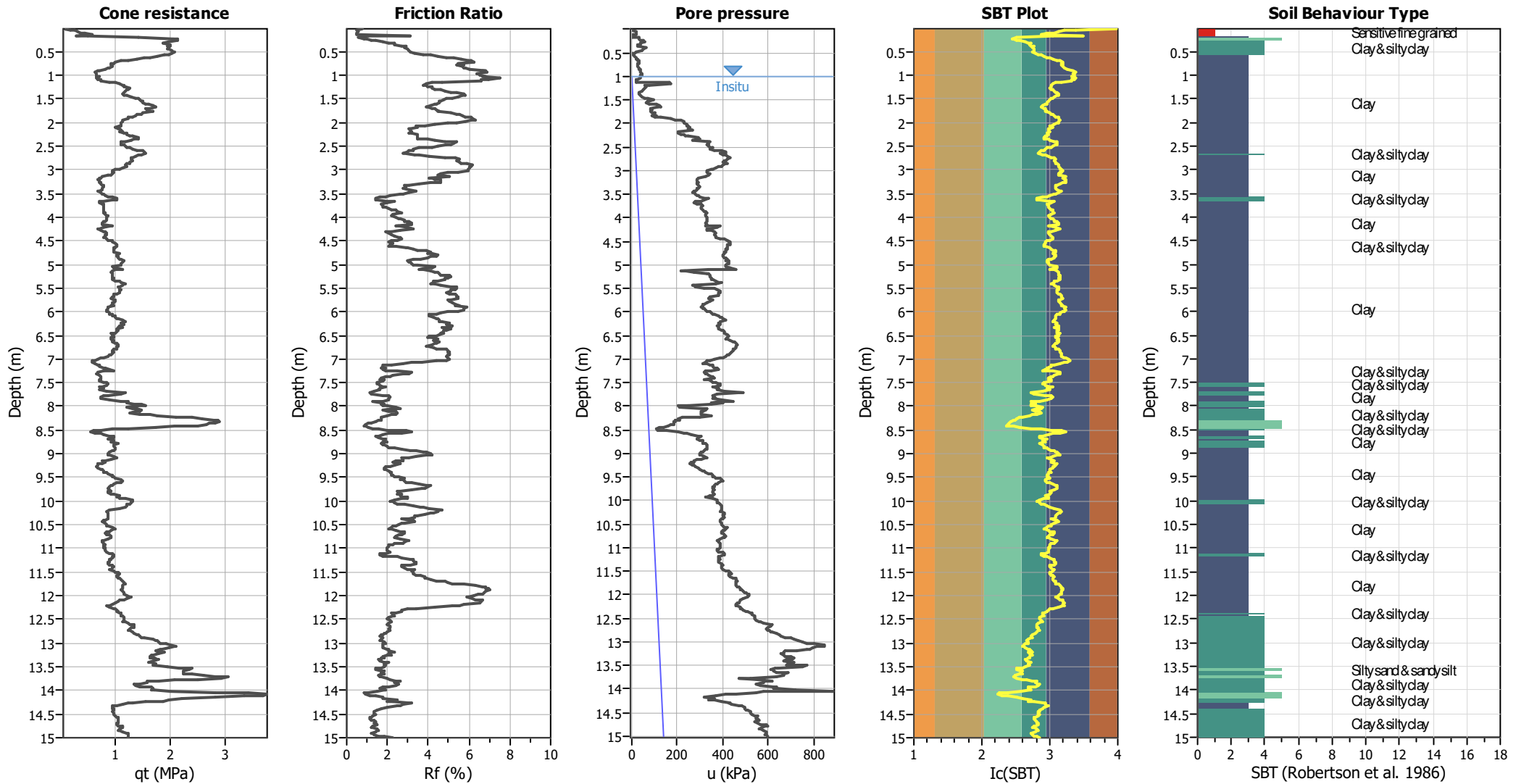
CPT file : CPTU 11 Via S. Cristoforo (Cesena)

Input parameters and analysis data

Analysis method:	I&B (2008)	G.W.T. (in-situ):	1.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	I&B (2008)	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:	1	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.33	Unit weight calculation:	Based on SBT	K_g applied:	Yes		



CPT basic interpretation plots



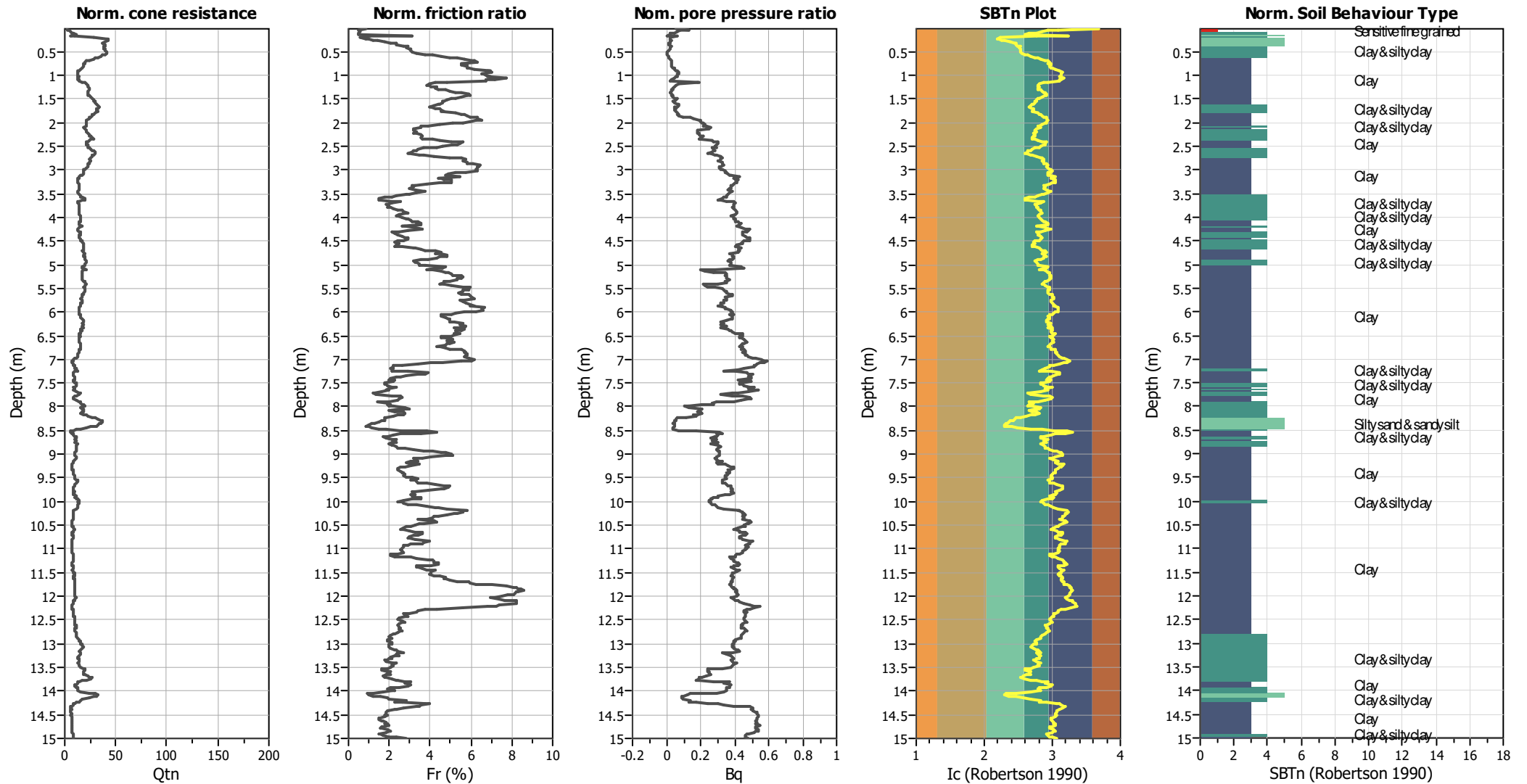
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

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

CPT basic interpretation plots (normalized)



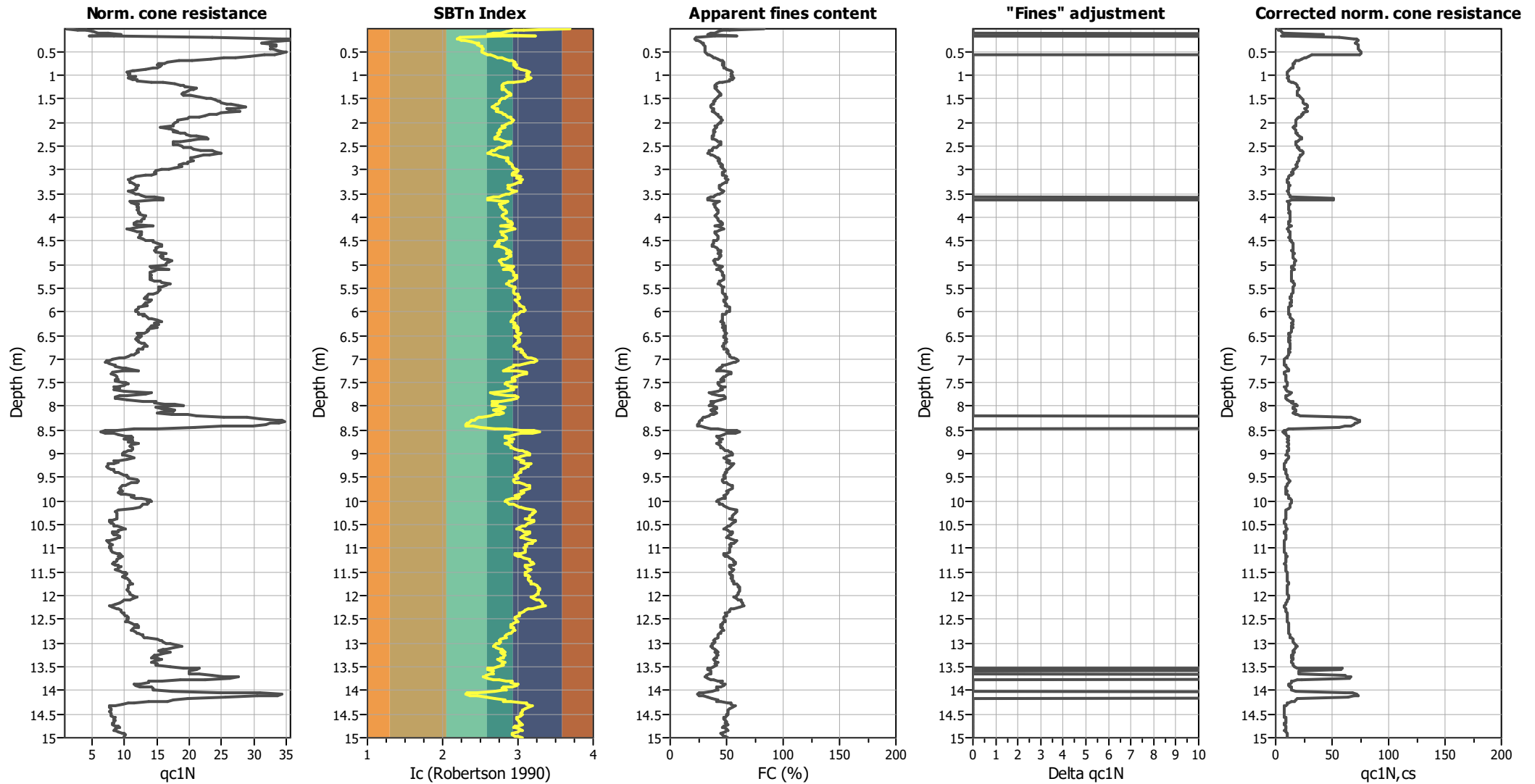
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

SBTn 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

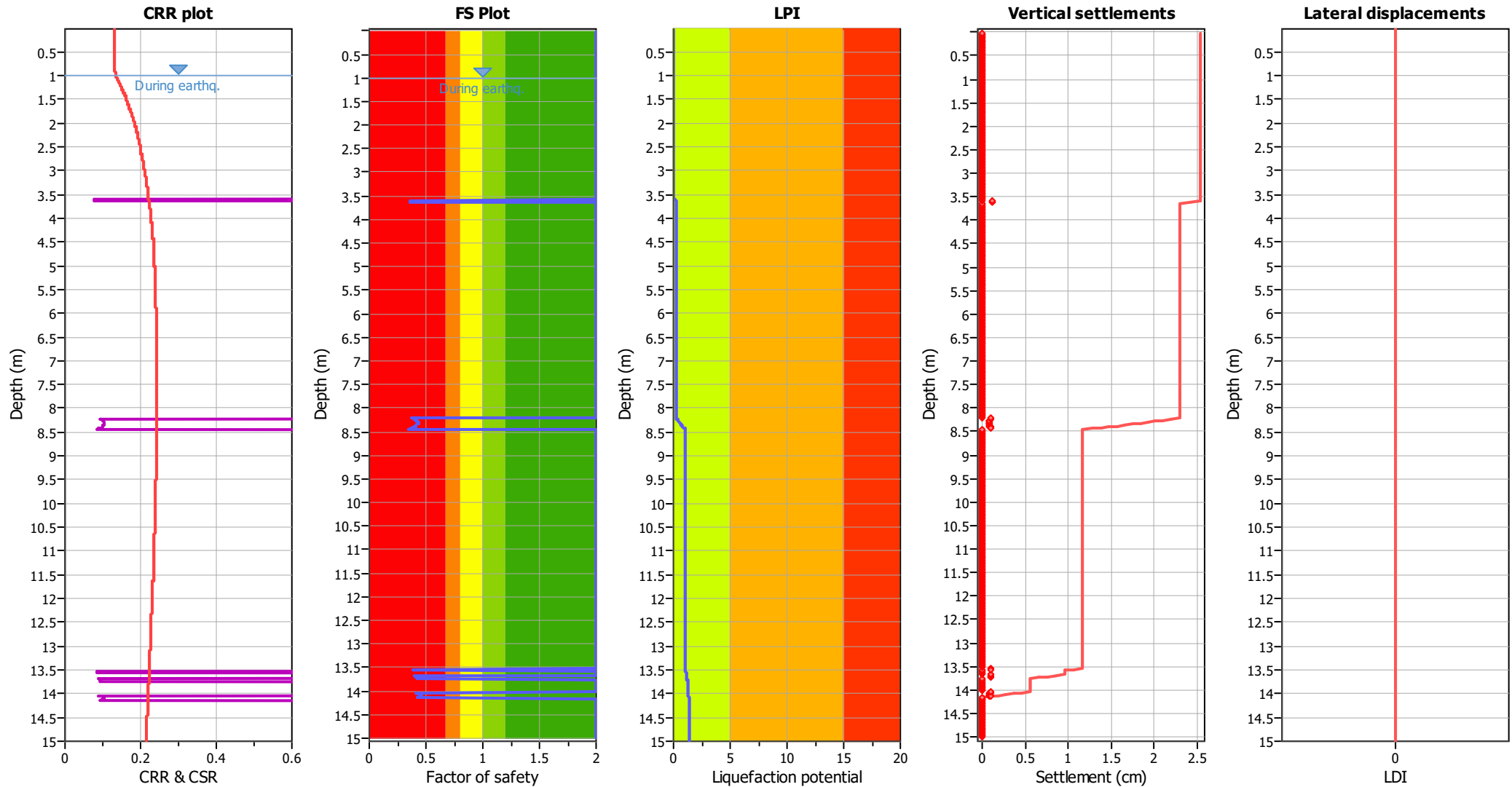
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (earthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

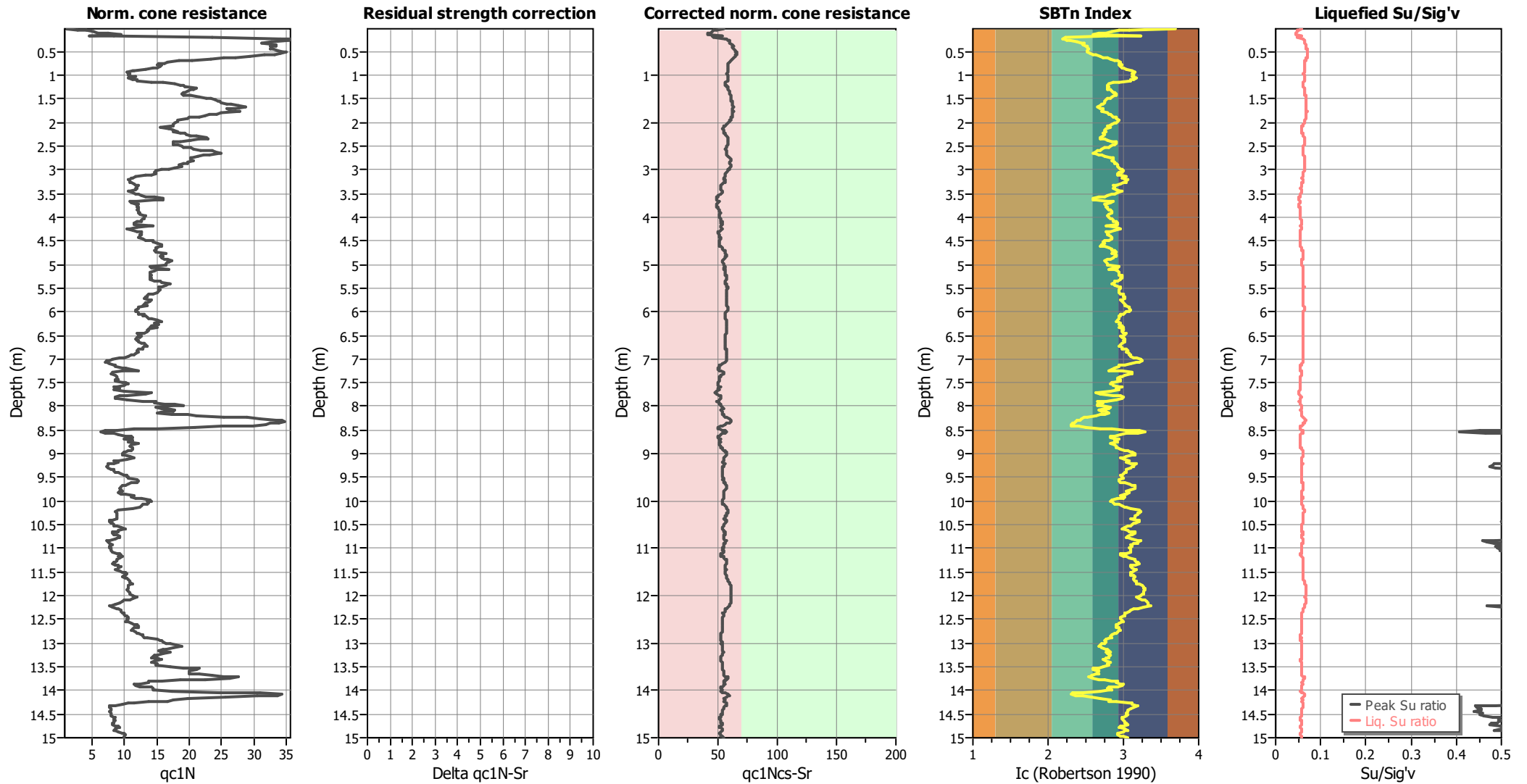
F.S. color scheme

- 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

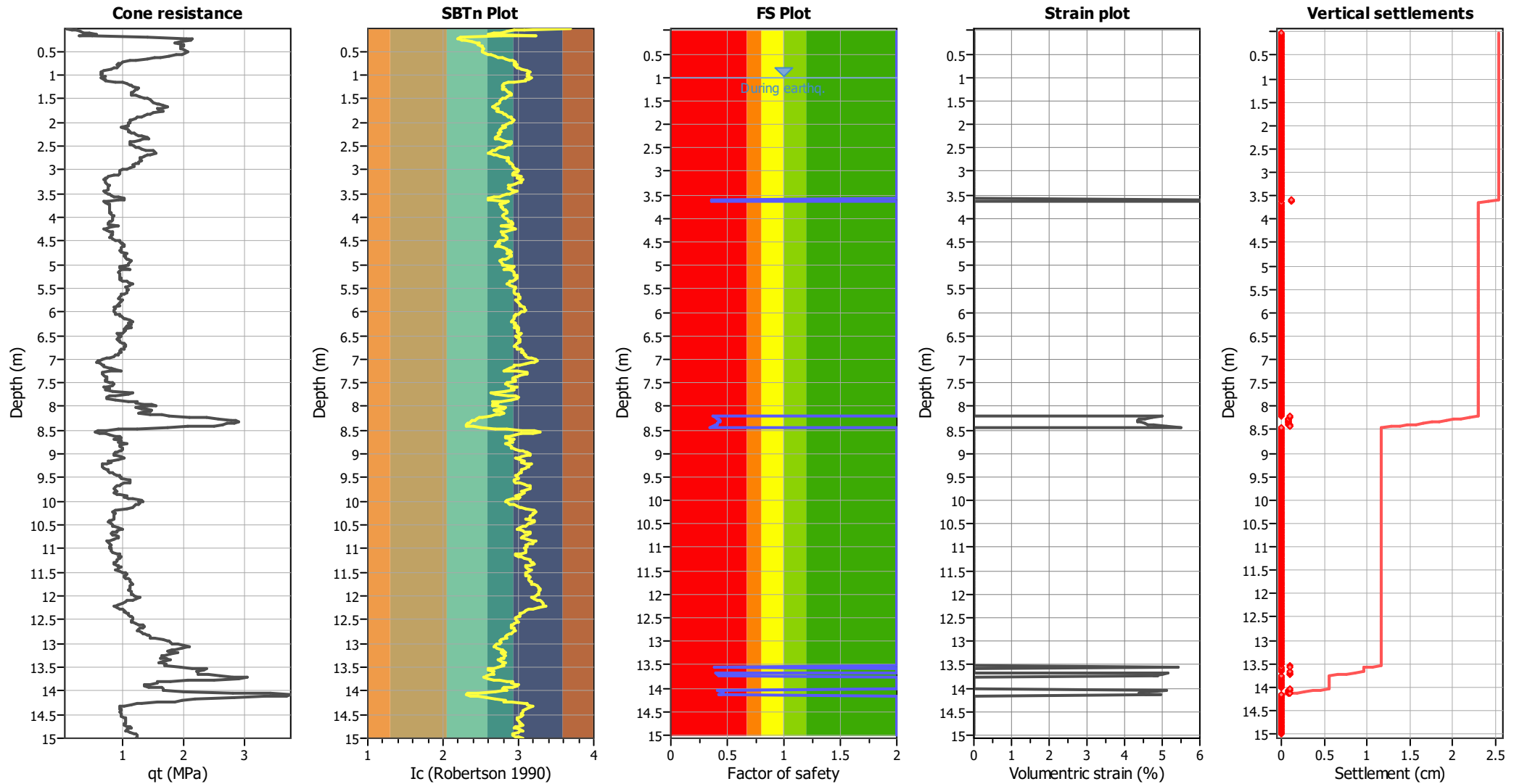
Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

- qt: Total cone resistance (cone resistance q_c corrected for pore water effects)
- I_c: Soil Behaviour Type Index
- FS: Calculated Factor of Safety against liquefaction
- Volumetric strain: Post-liquefaction volumetric strain

LIQUEFACTION ANALYSIS REPORT

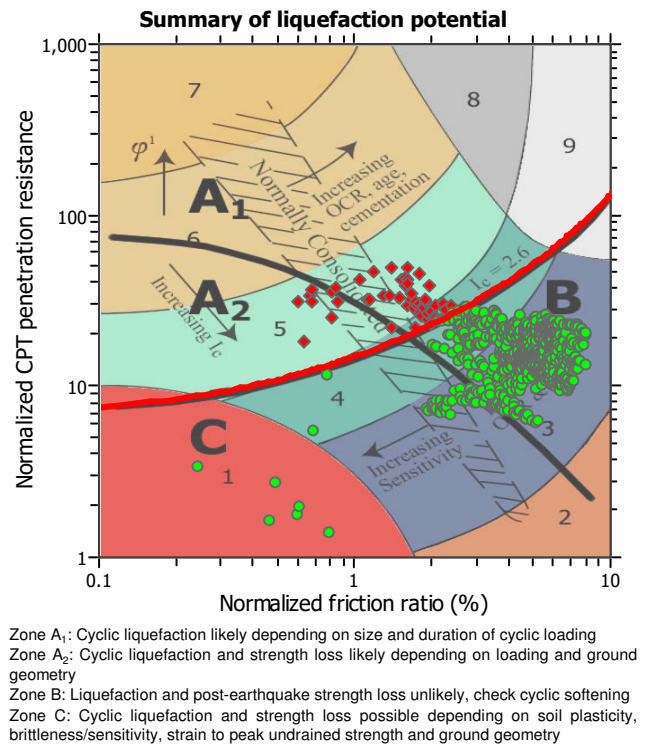
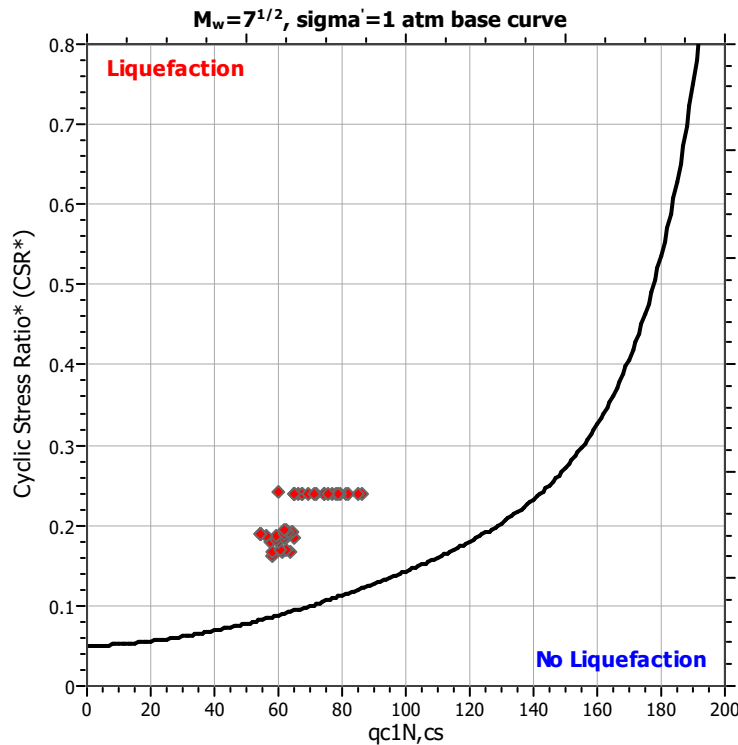
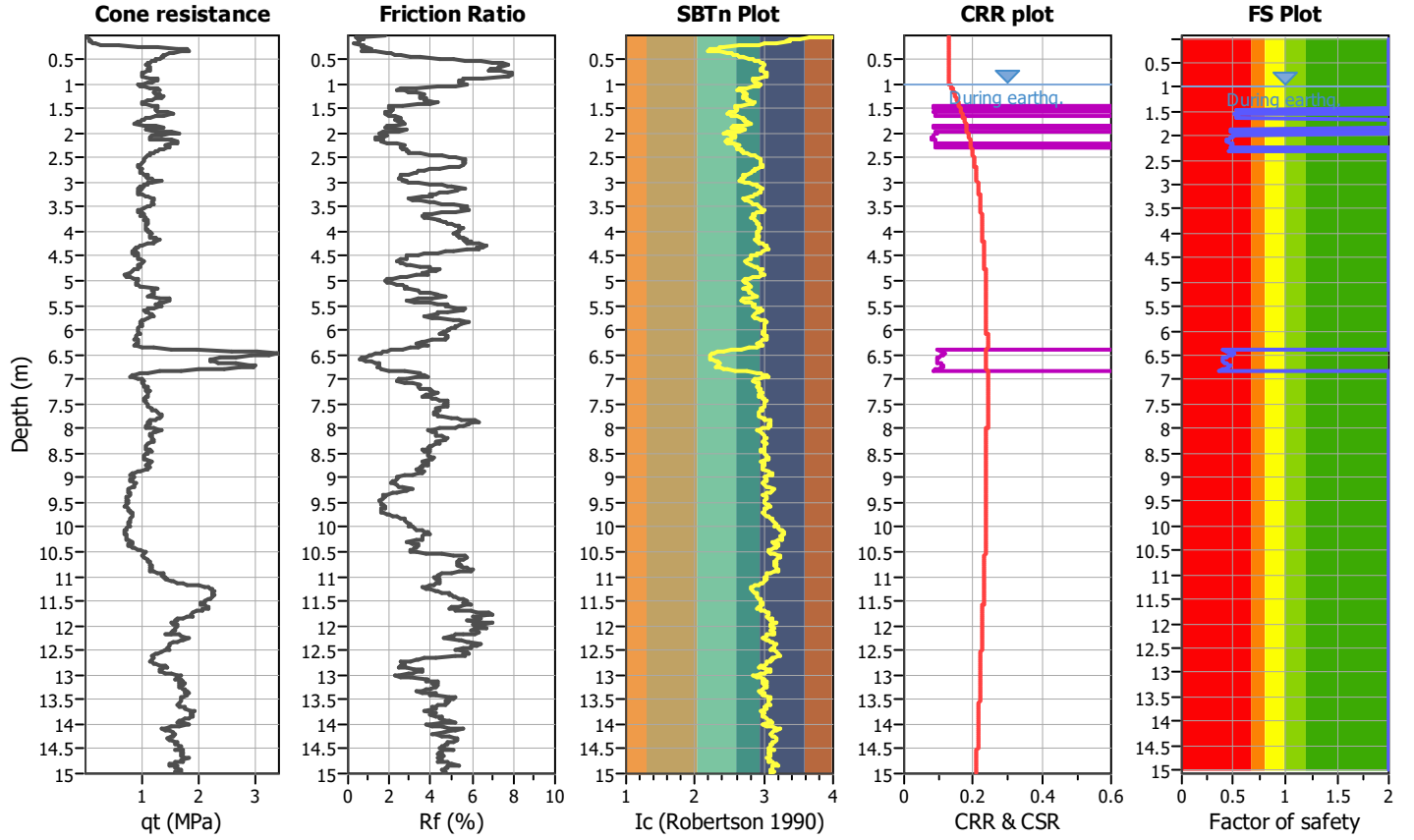
Project title :

Location :

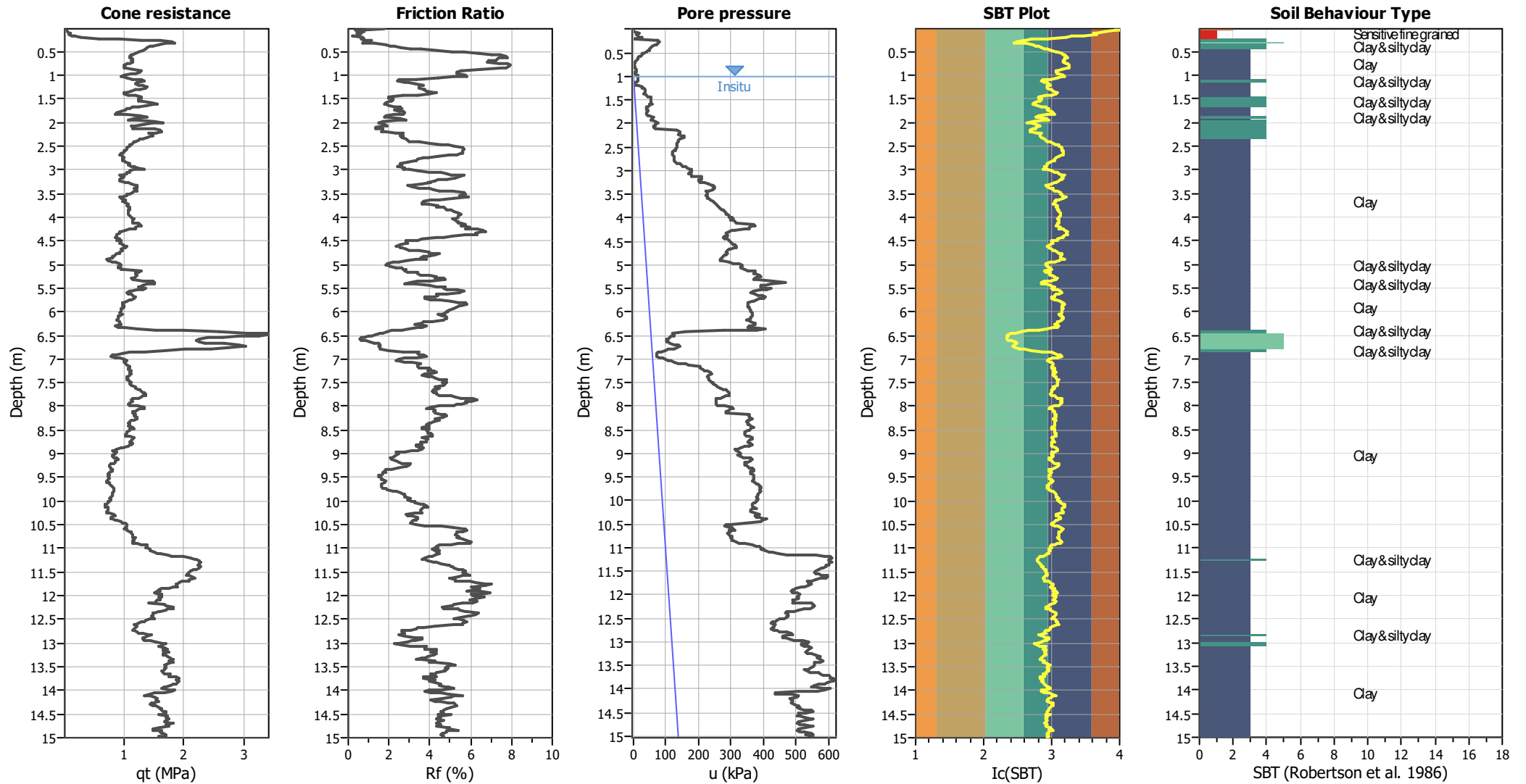
CPT file : CPTU 12 S. Maria Nuova di Bertinoro

Input parameters and analysis data

Analysis method:	I&B (2008)	G.W.T. (in-situ):	1.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	I&B (2008)	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:	1	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.33	Unit weight calculation:	Based on SBT	K_G applied:	Yes		



CPT basic interpretation plots



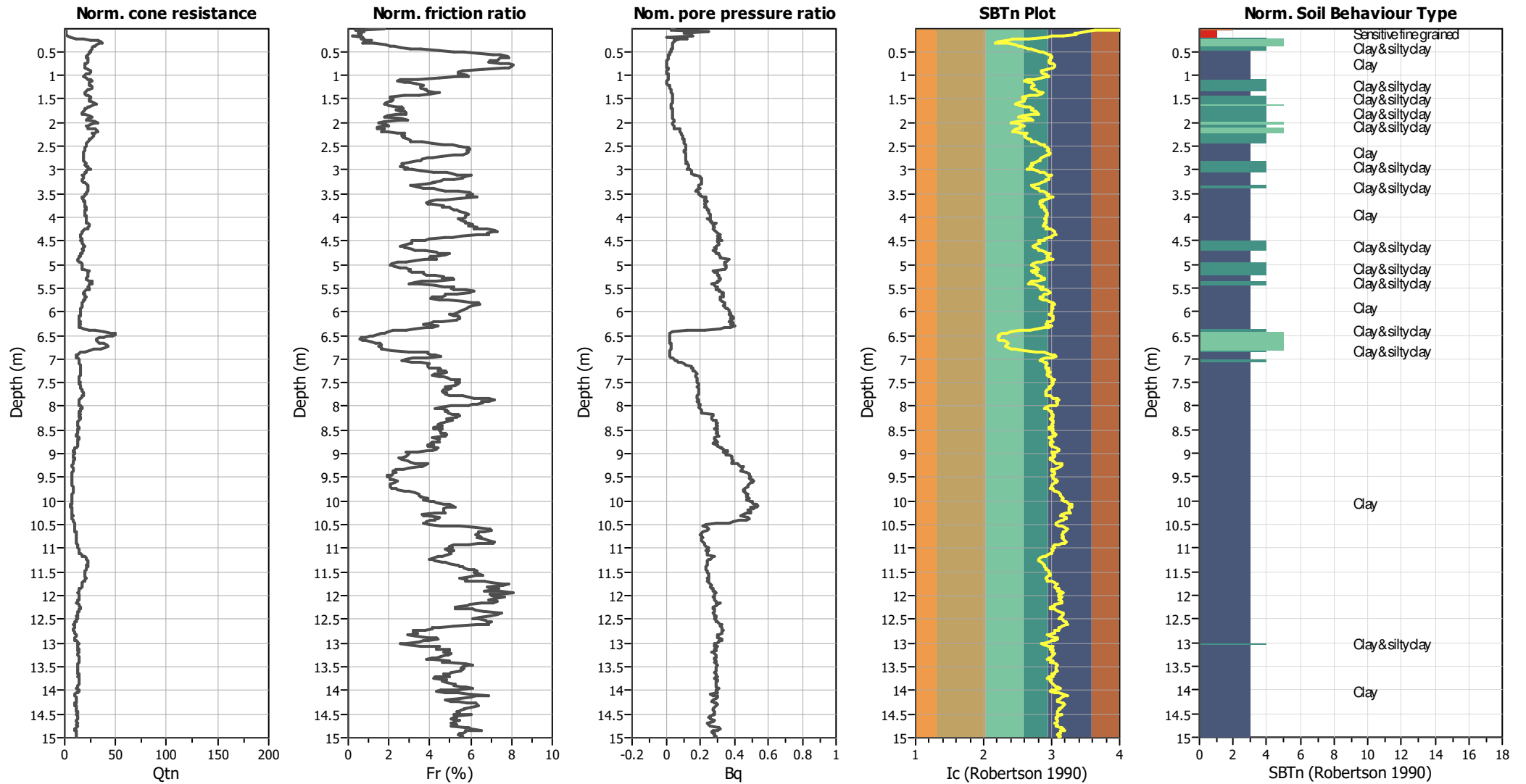
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _g applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

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

CPT basic interpretation plots (normalized)



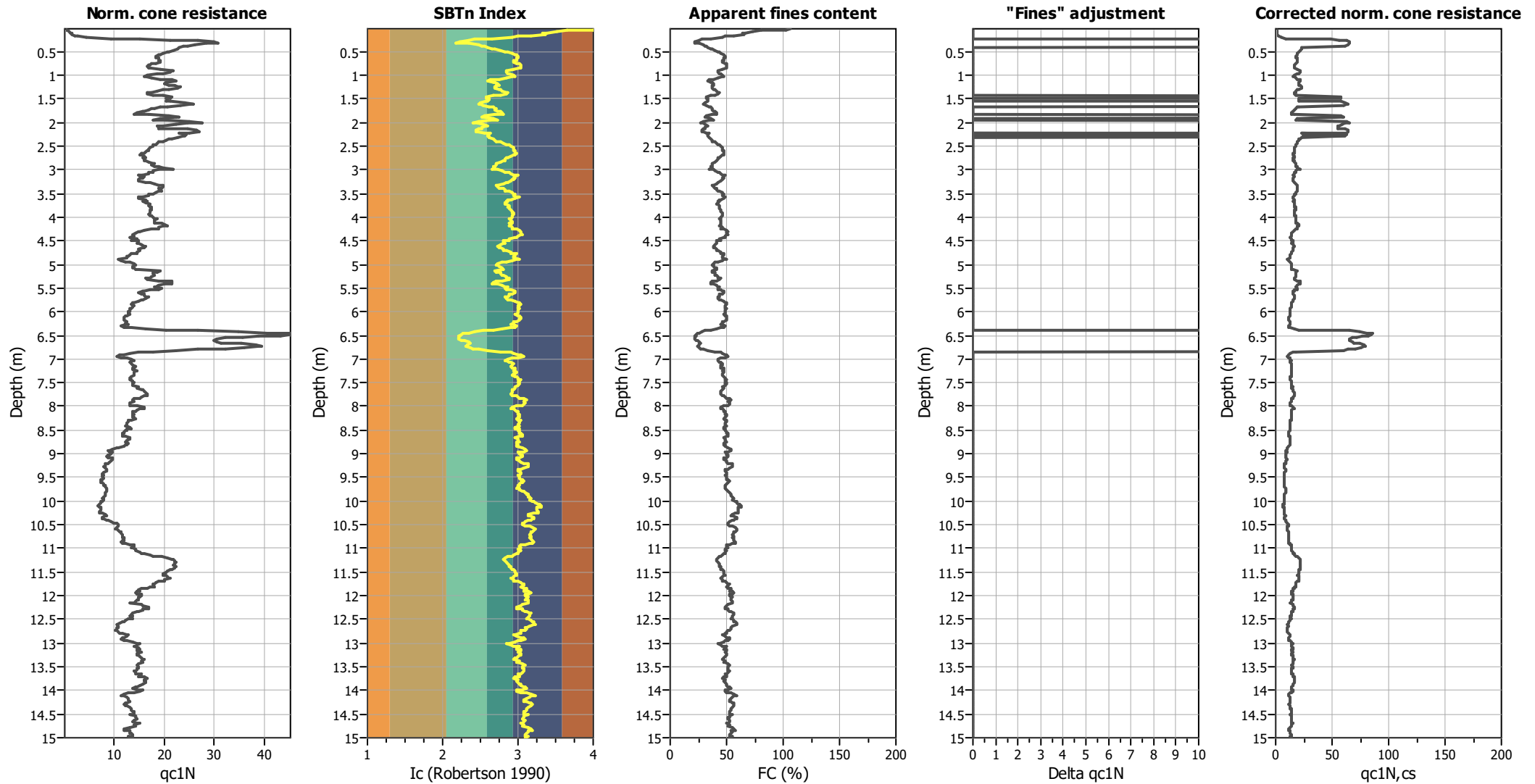
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

SBTn 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

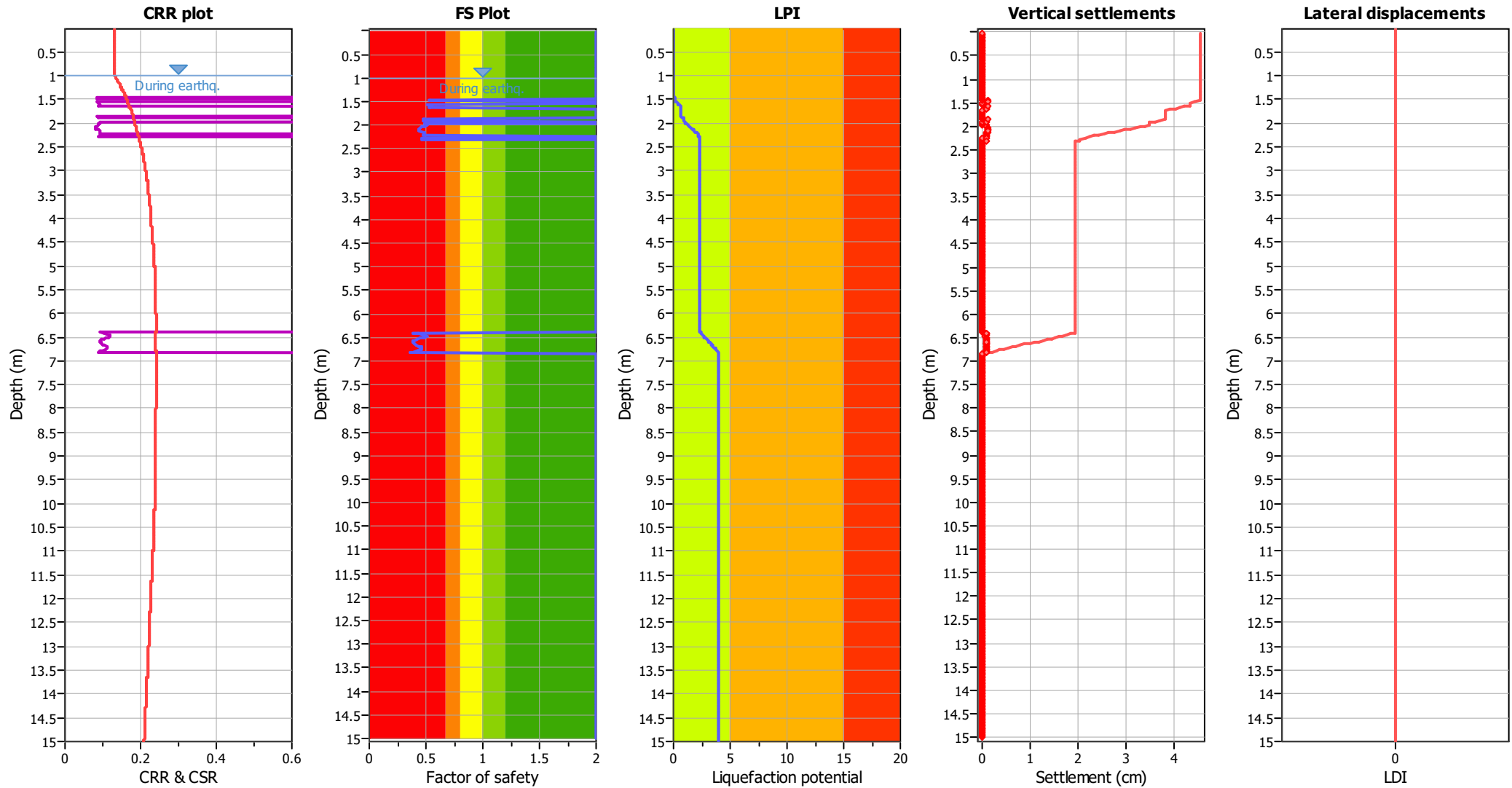
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (earthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

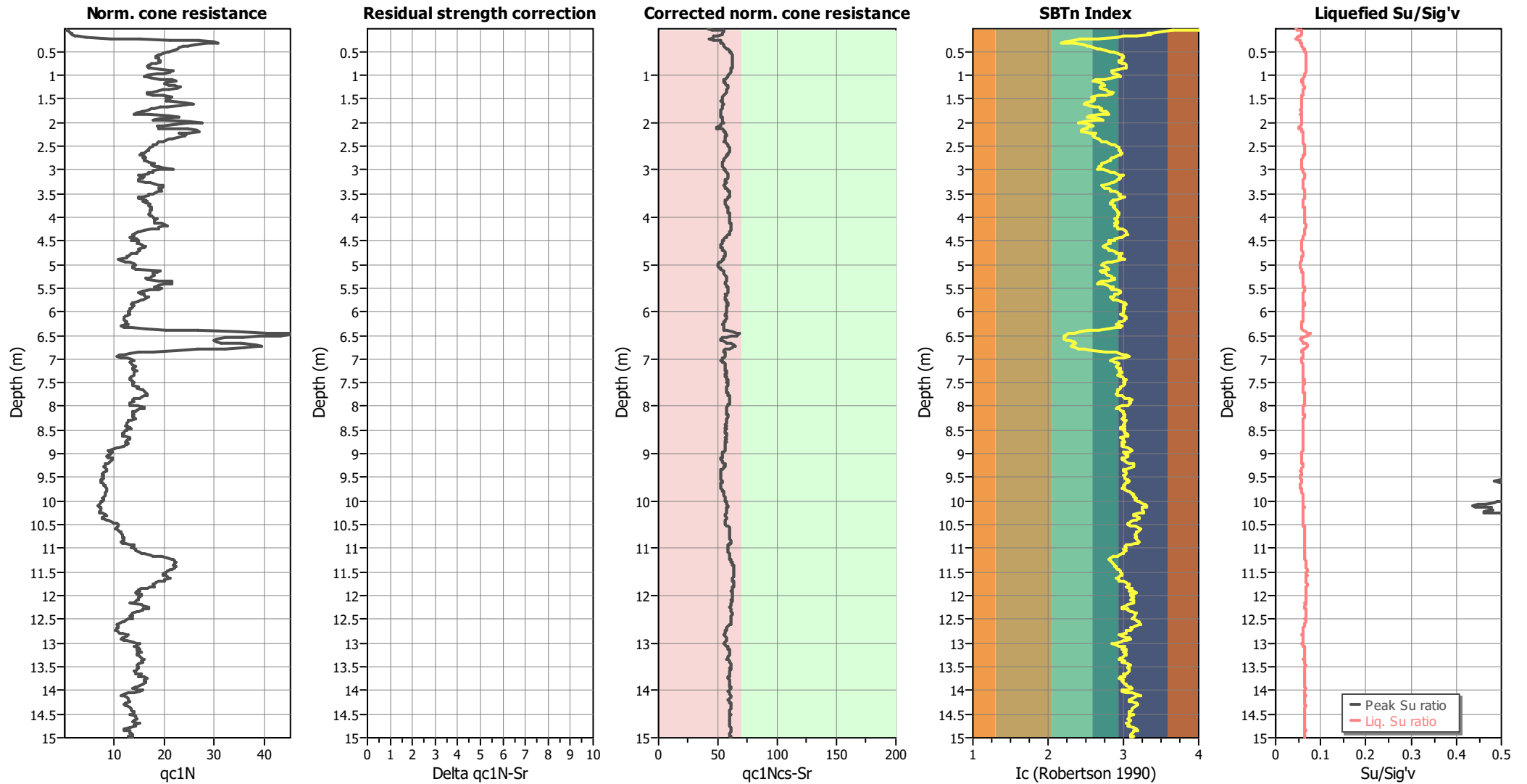
F.S. color scheme

- 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

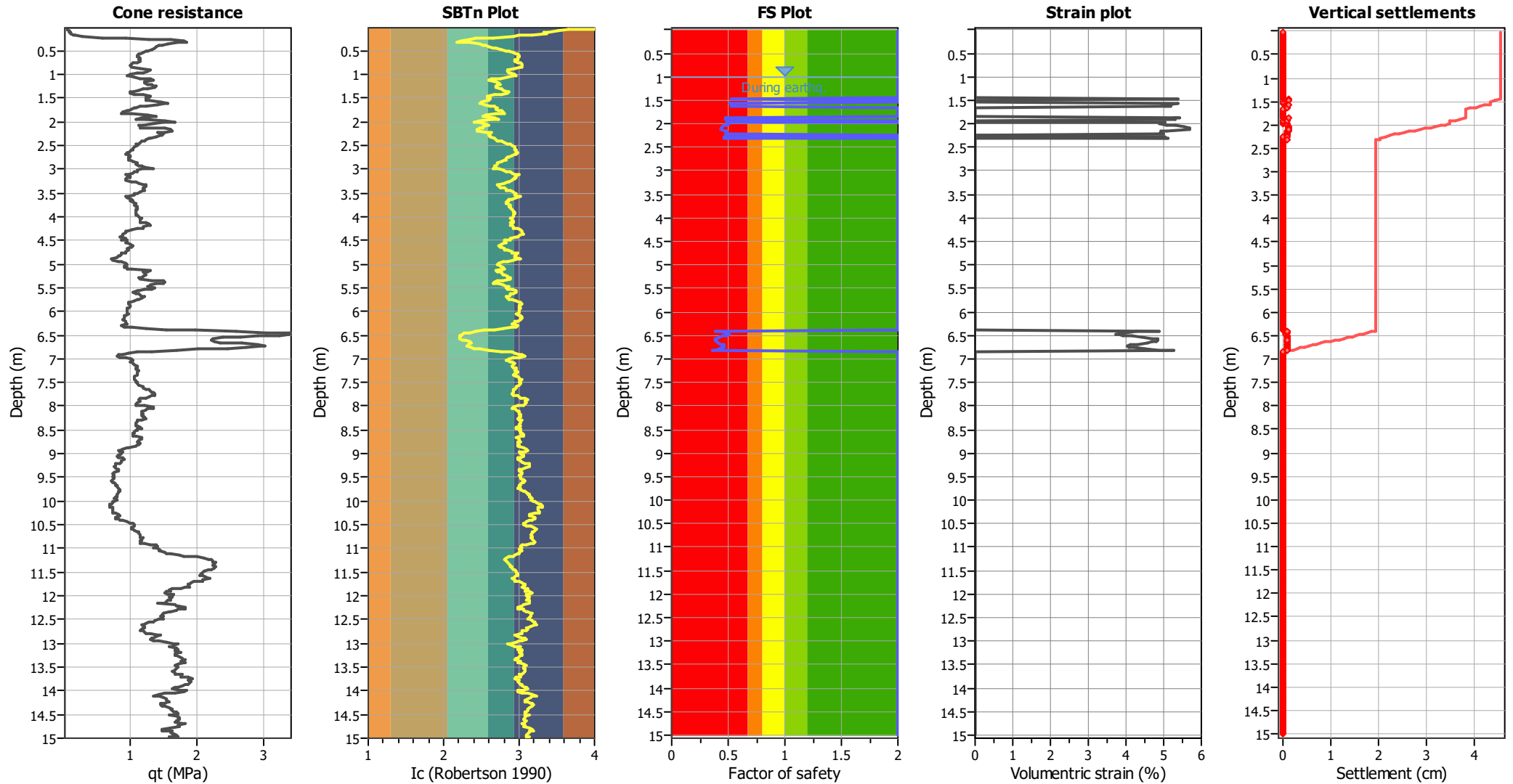
Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

- qt: Total cone resistance (cone resistance q_c corrected for pore water effects)
- I_c: Soil Behaviour Type Index
- FS: Calculated Factor of Safety against liquefaction
- Volumetric strain: Post-liquefaction volumetric strain

LIQUEFACTION ANALYSIS REPORT

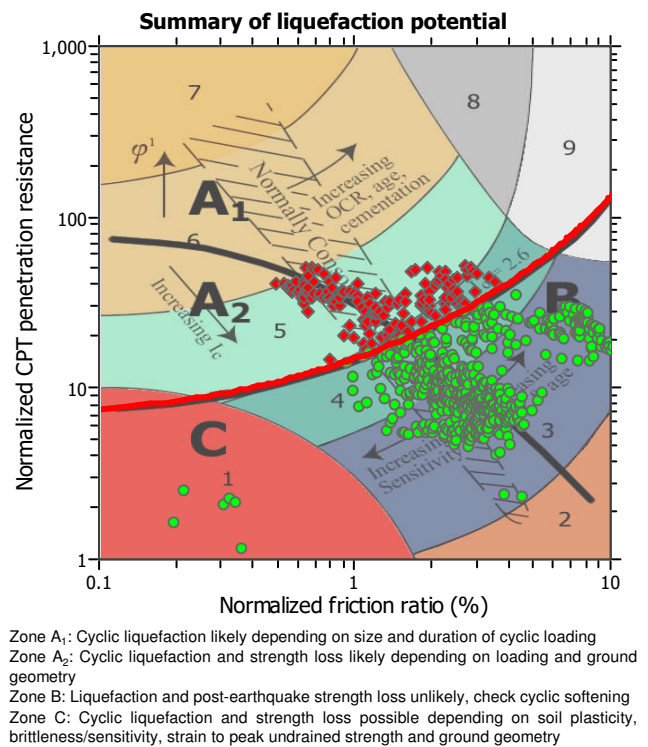
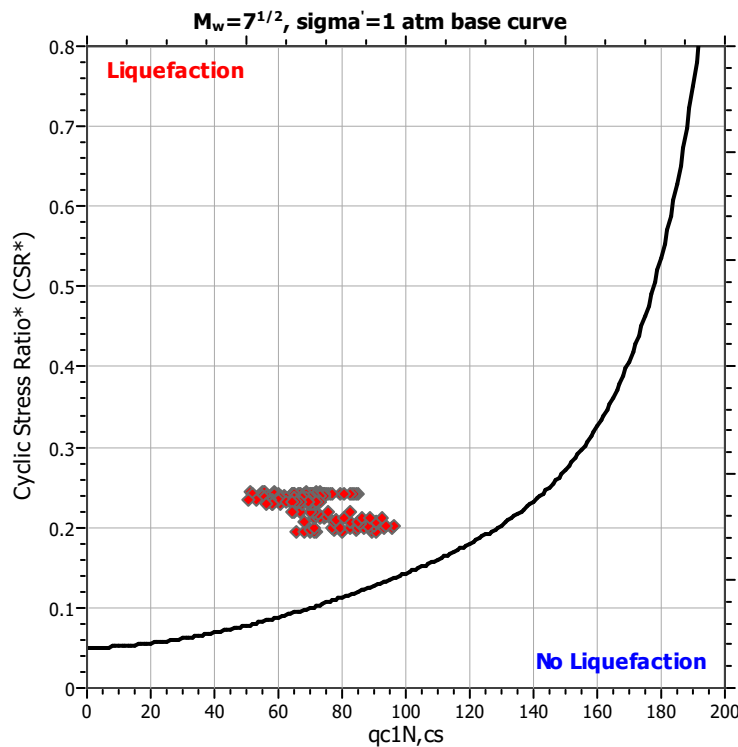
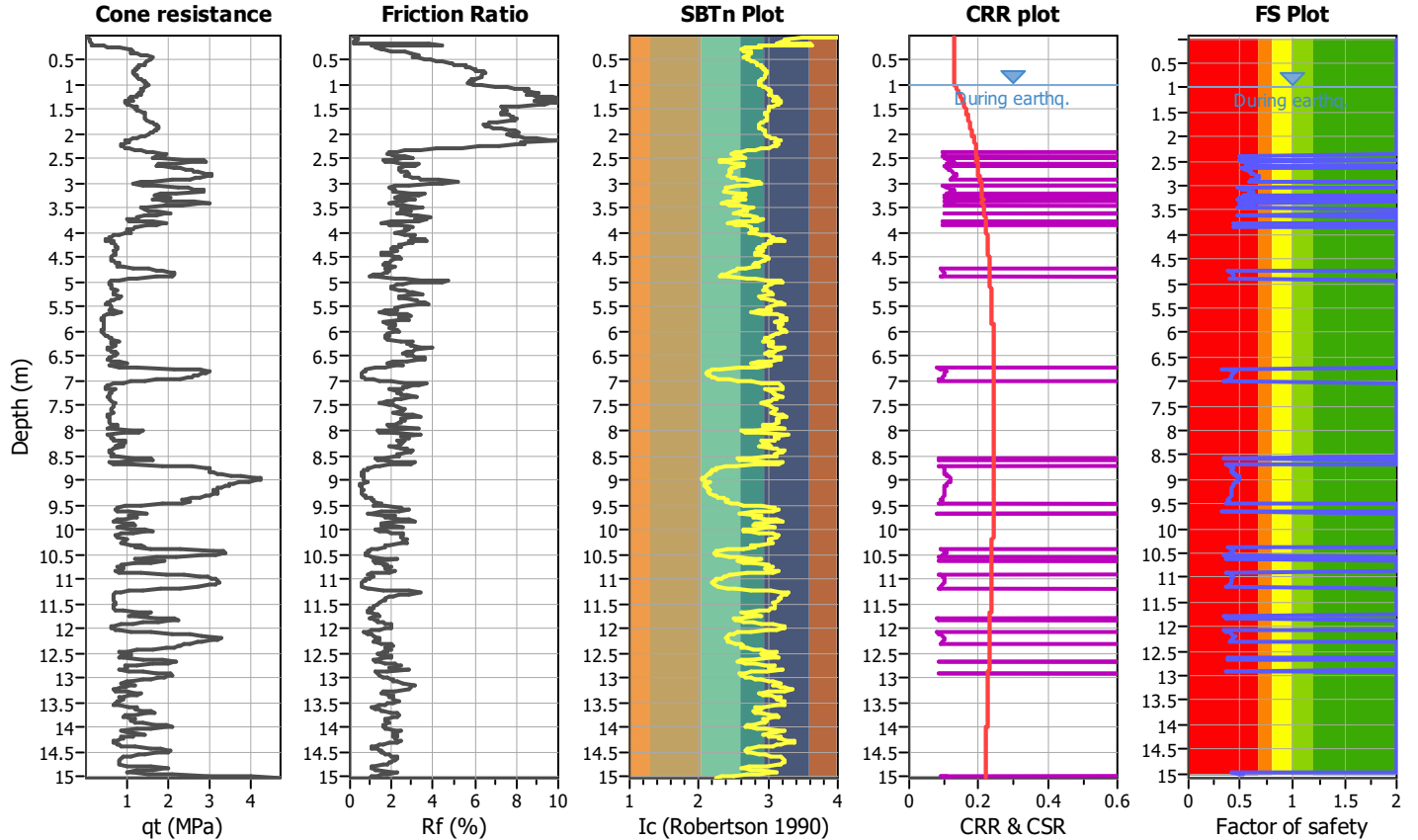
Project title :

Location :

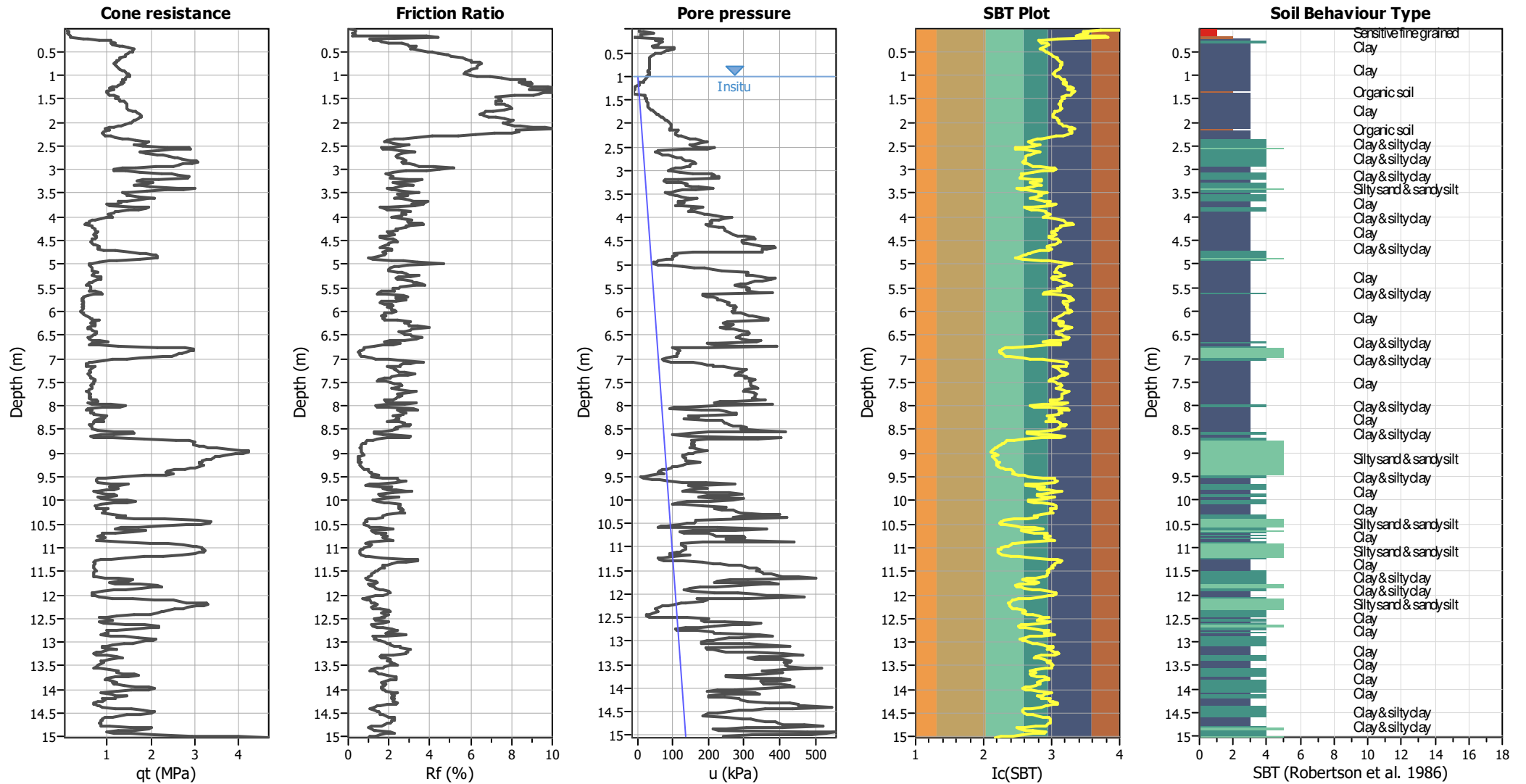
CPT file : CPTU 13 Via Com. Montanara - Forlimpopoli

Input parameters and analysis data

Analysis method:	I&B (2008)	G.W.T. (in-situ):	1.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	I&B (2008)	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:	1	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.33	Unit weight calculation:	Based on SBT	K_g applied:	Yes		



CPT basic interpretation plots



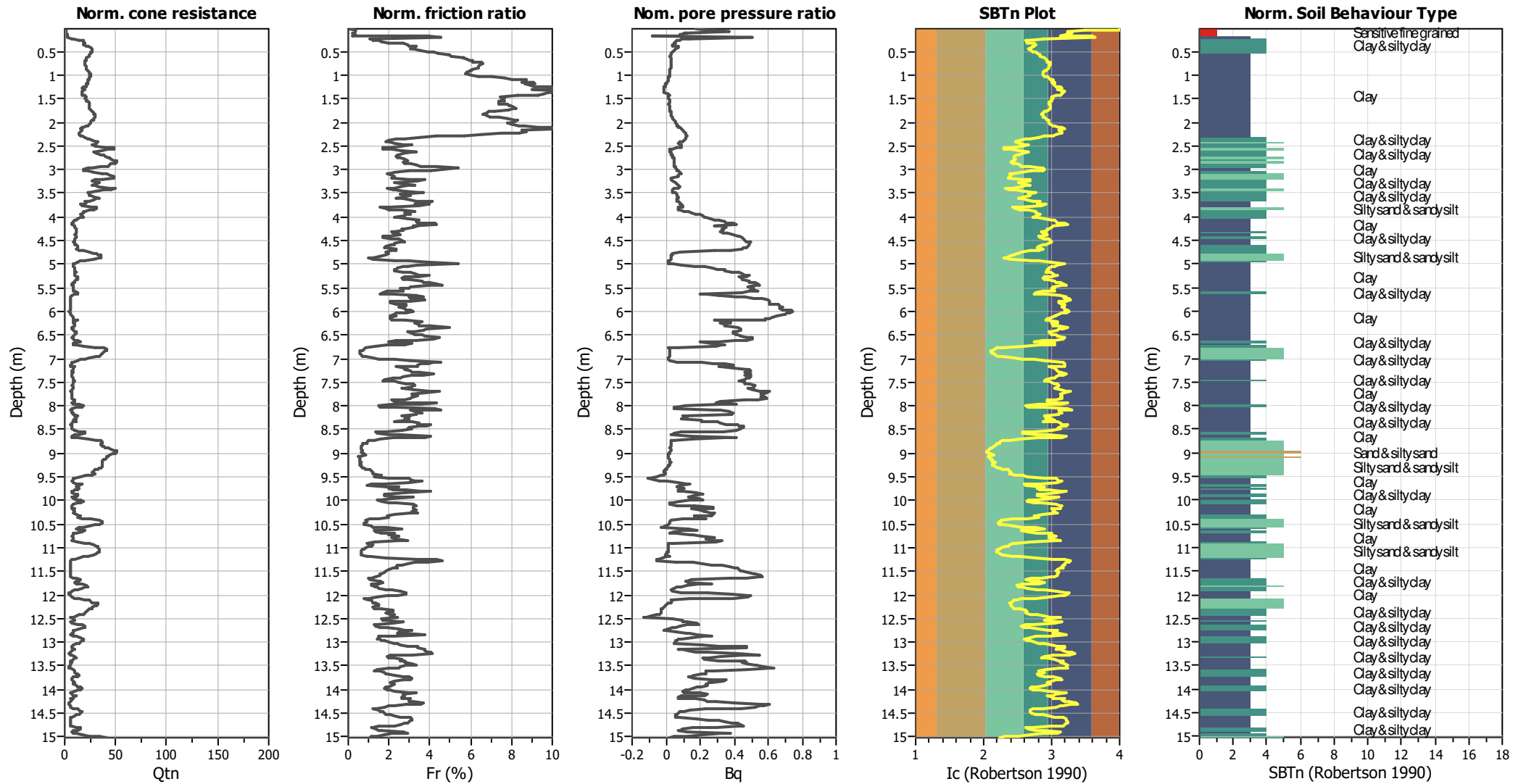
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

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

CPT basic interpretation plots (normalized)



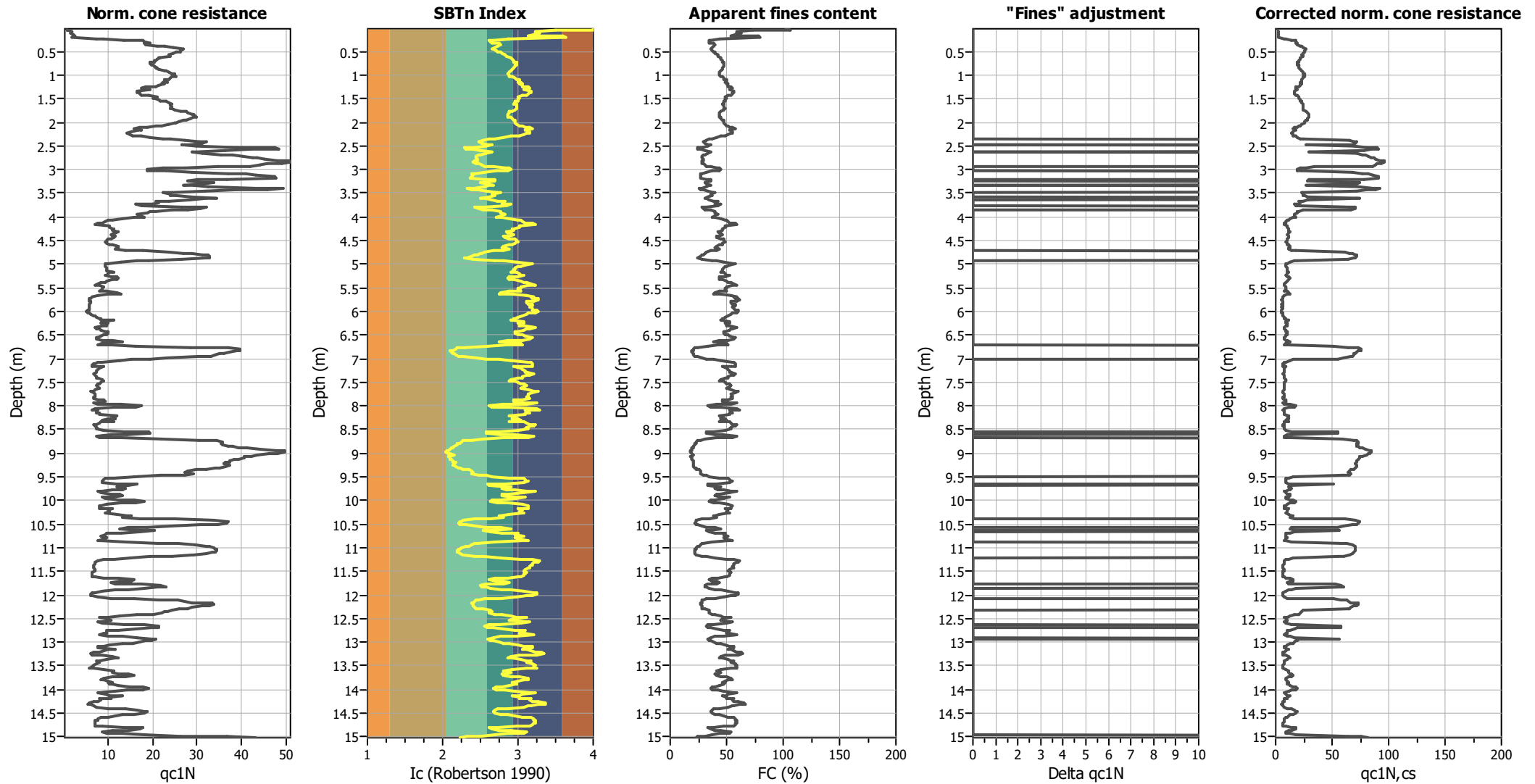
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

SBTn 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

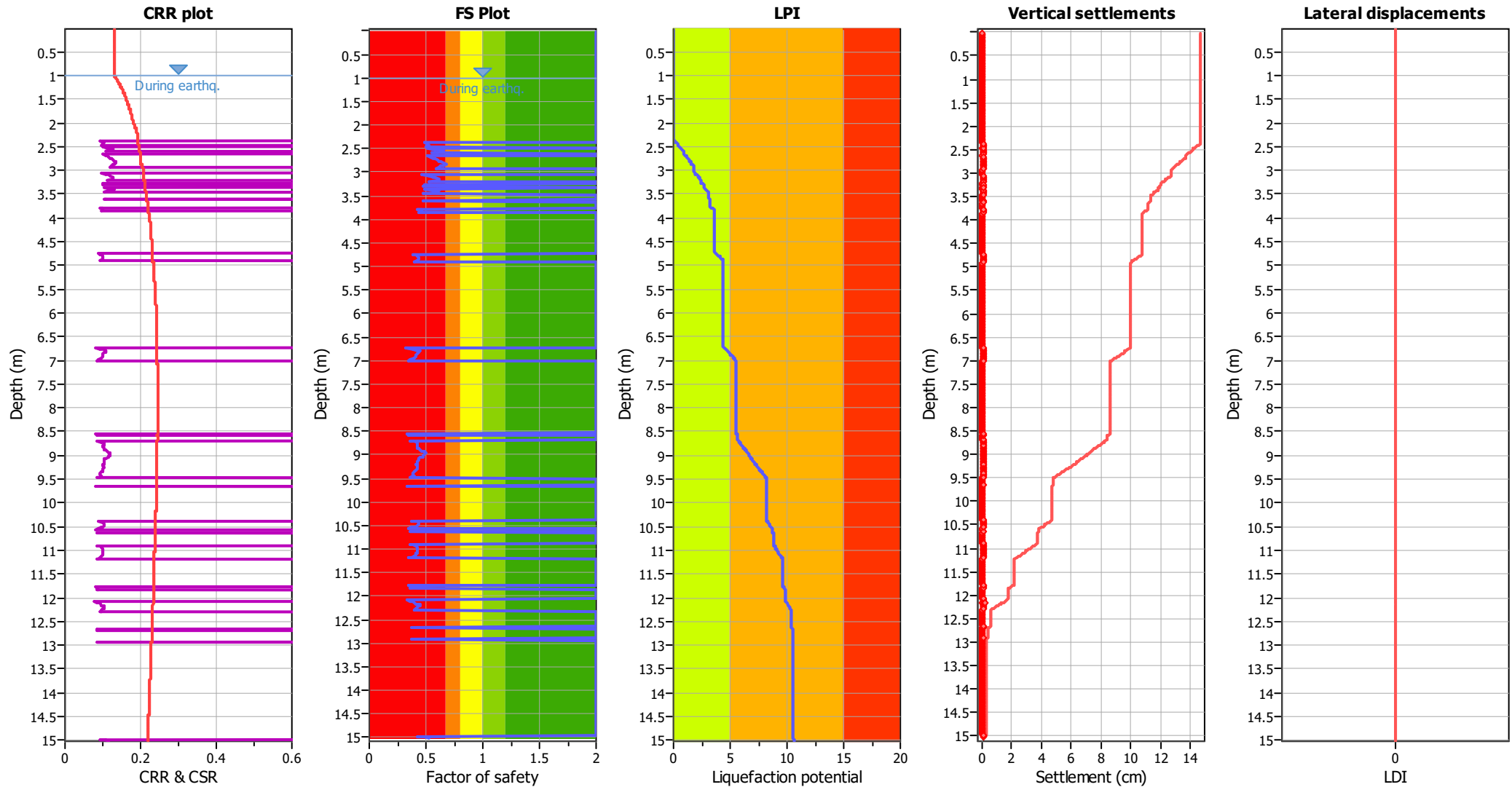
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

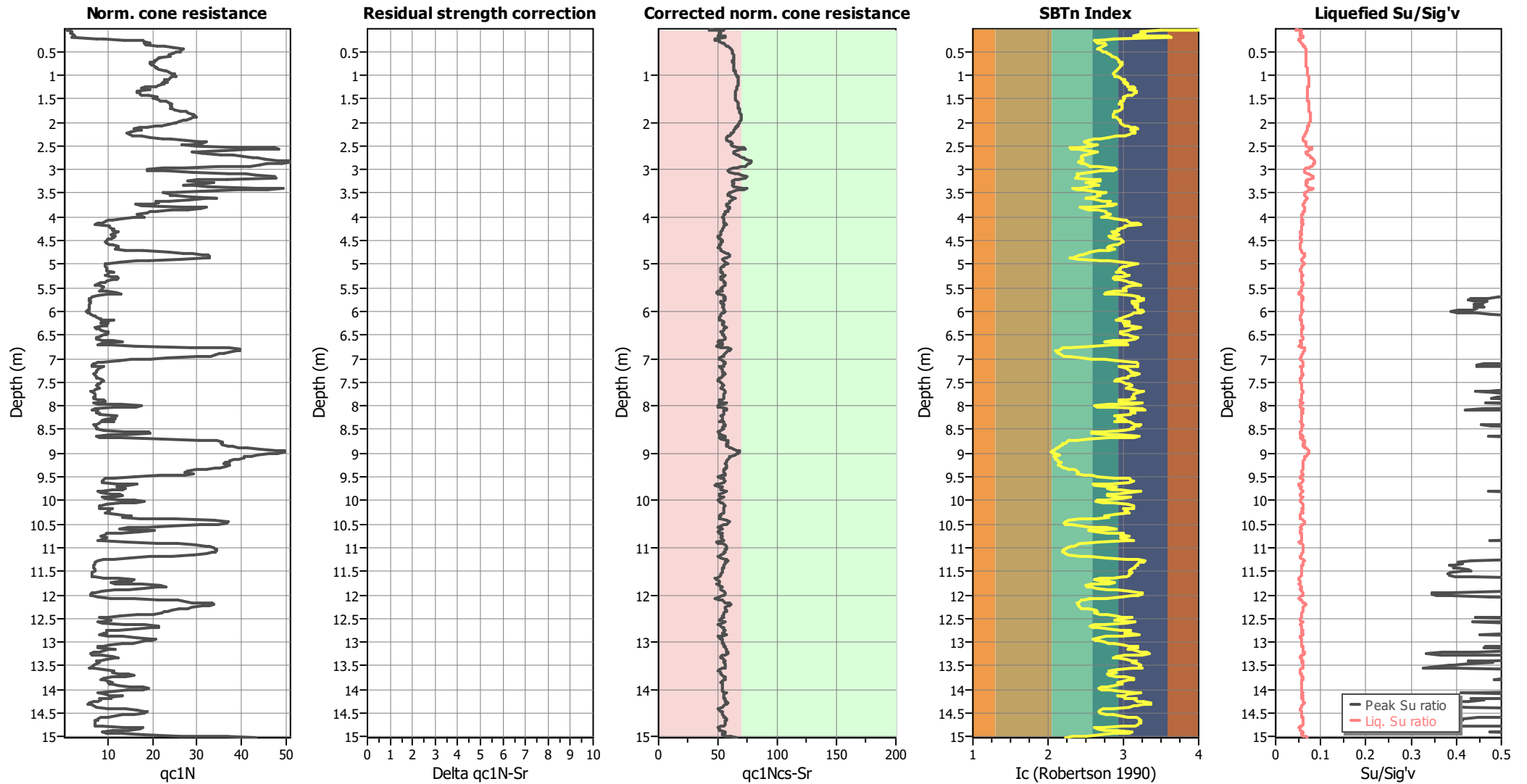
F.S. color scheme

- 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

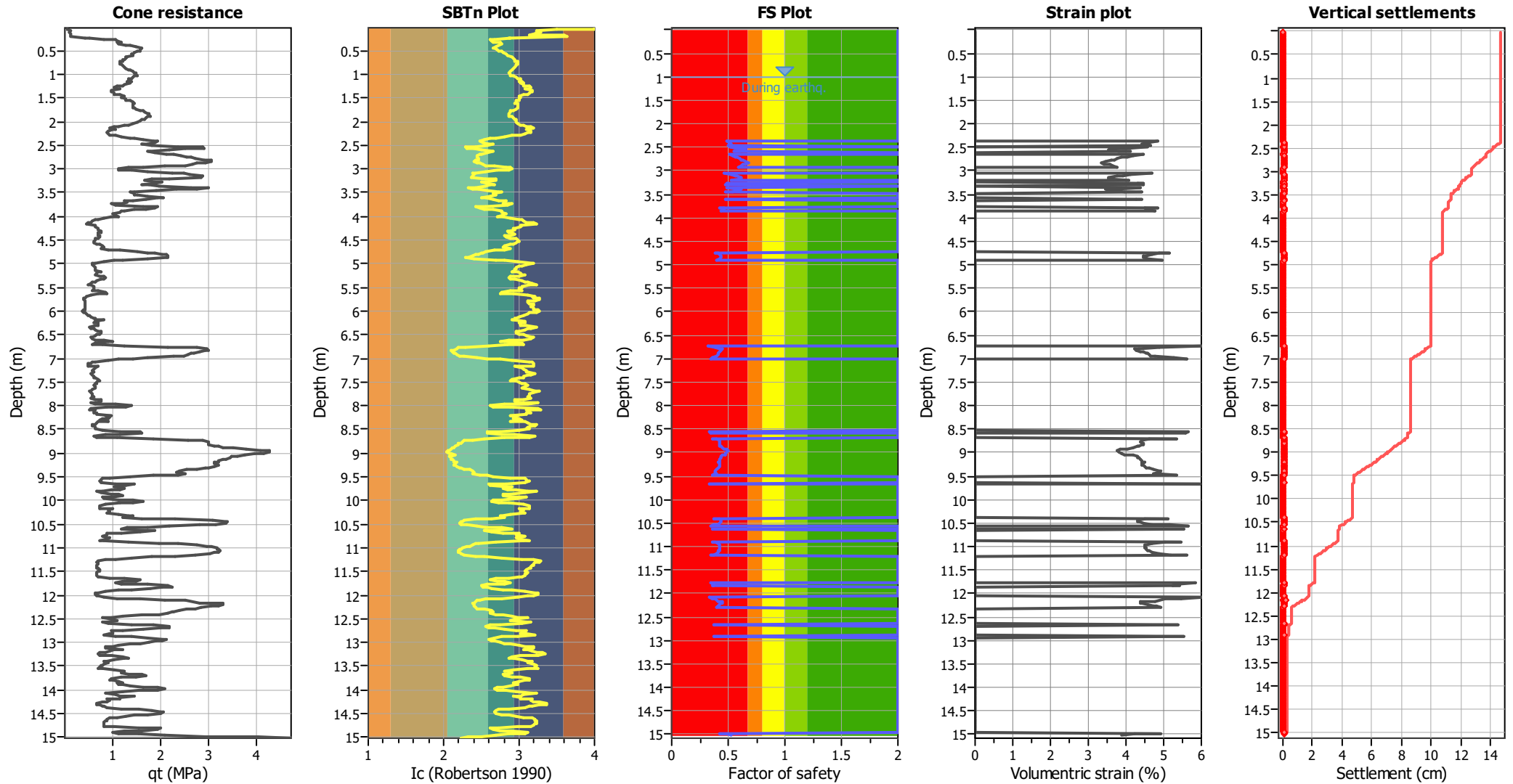
Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

- qt: Total cone resistance (cone resistance q_c corrected for pore water effects)
- I_c: Soil Behaviour Type Index
- FS: Calculated Factor of Safety against liquefaction
- Volumetric strain: Post-liquefaction volumetric strain

LIQUEFACTION ANALYSIS REPORT

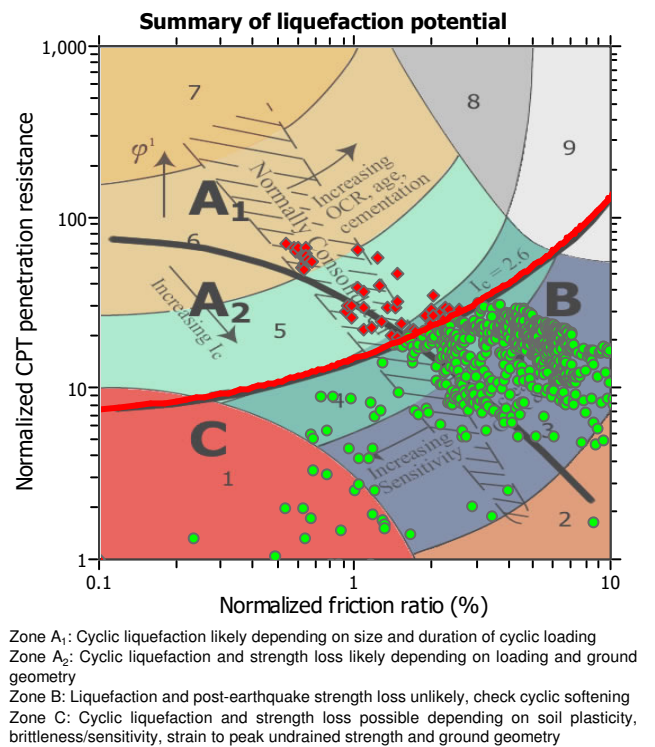
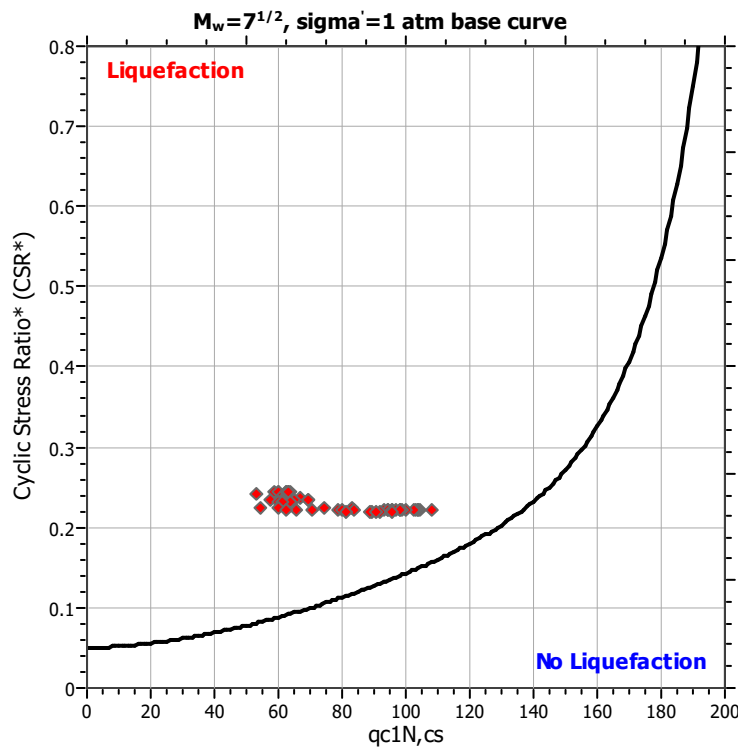
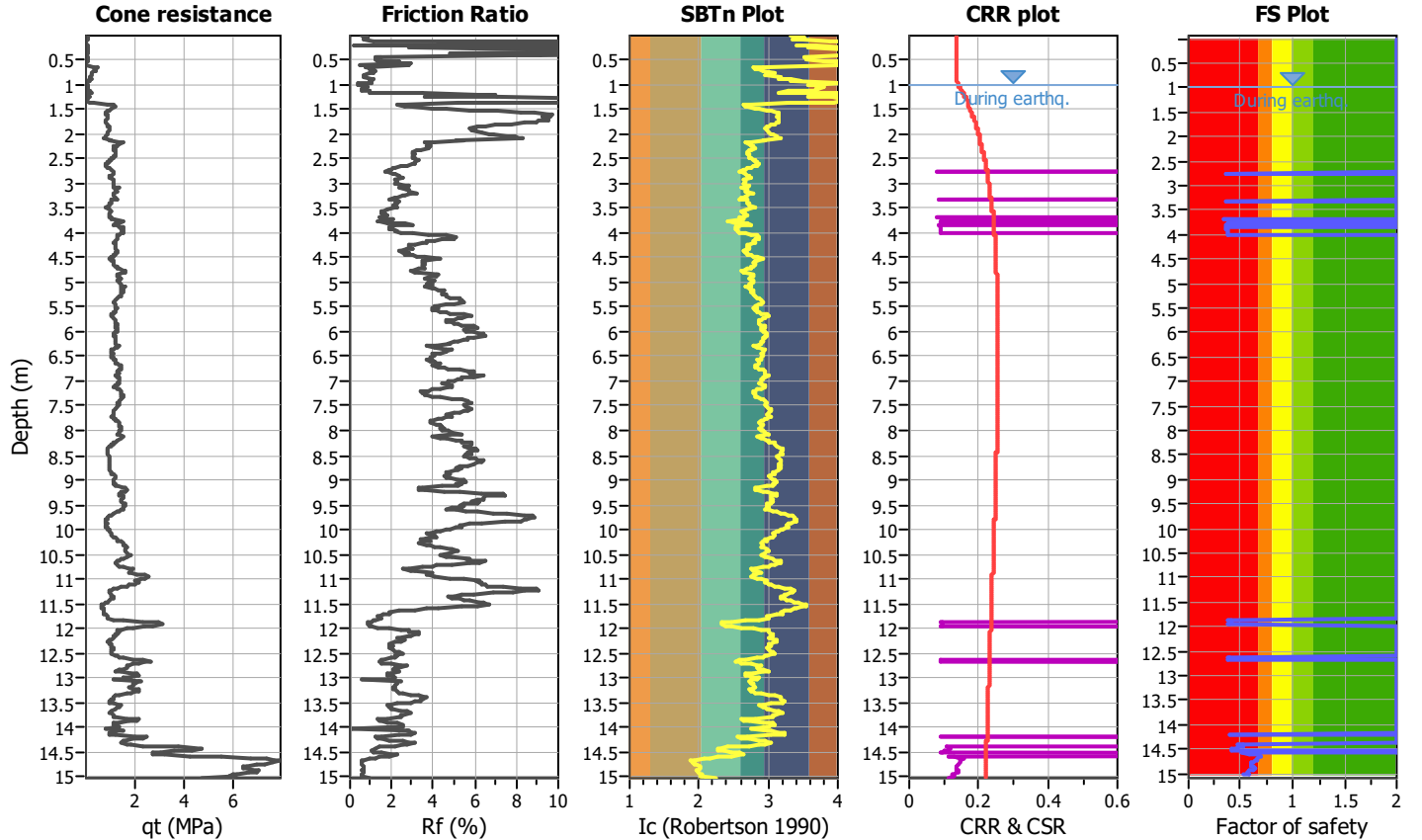
Project title :

Location :

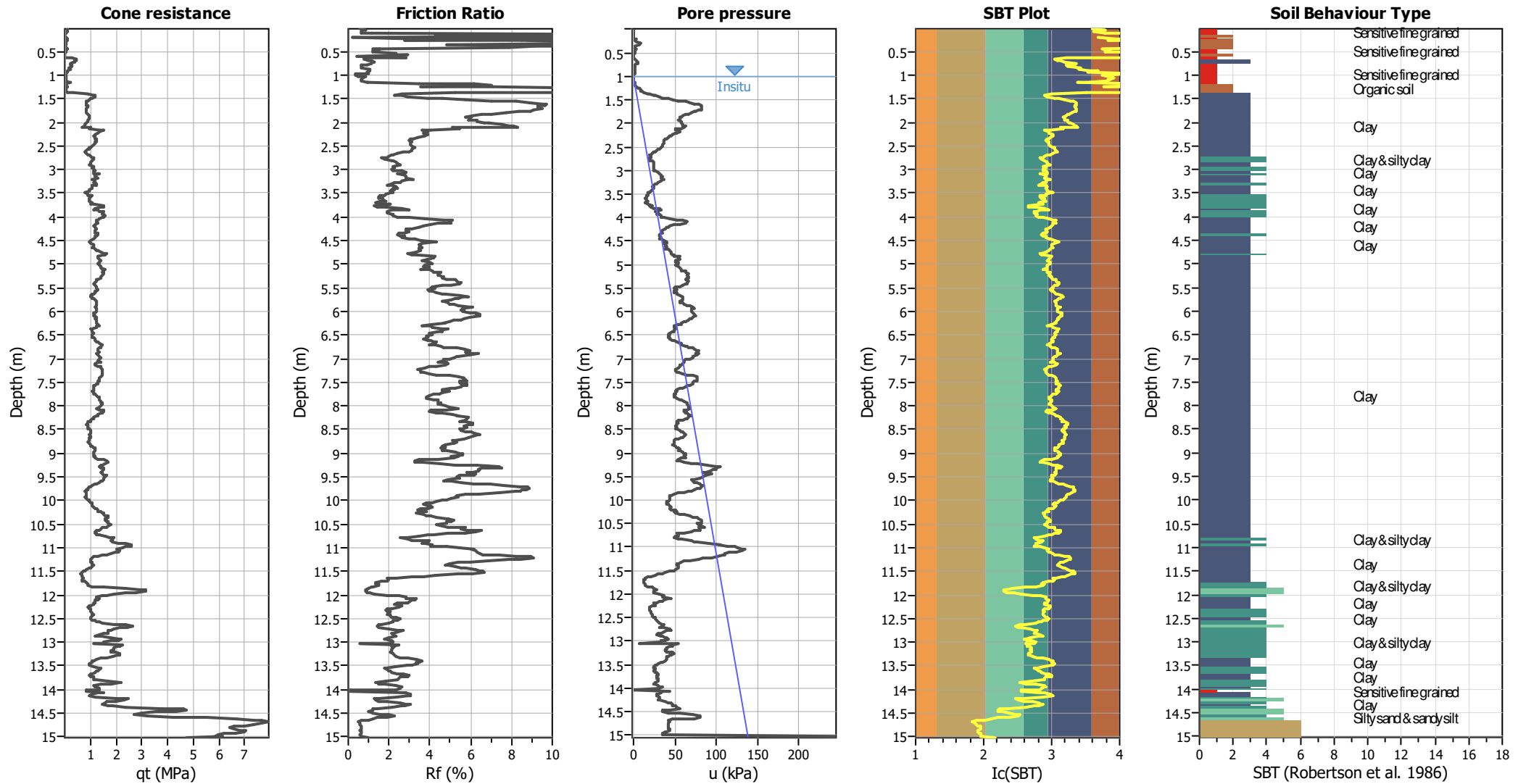
CPT file : CPTU 14 Via Emilia - Bertinoro

Input parameters and analysis data

Analysis method:	I&B (2008)	G.W.T. (in-situ):	1.00 m	Use fill:	No	Clay like behavior	
Fines correction method:	I&B (2008)	G.W.T. (earthq.):	1.00 m	Fill height:	N/A	applied:	Sands only
Points to test:	Based on Ic value	Average results interval:	1	Fill weight:	N/A	Limit depth applied:	No
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	Limit depth:	N/A
Peak ground acceleration:	0.34	Unit weight calculation:	Based on SBT	K_σ applied:	Yes	MSF method:	Method based



CPT basic interpretation plots



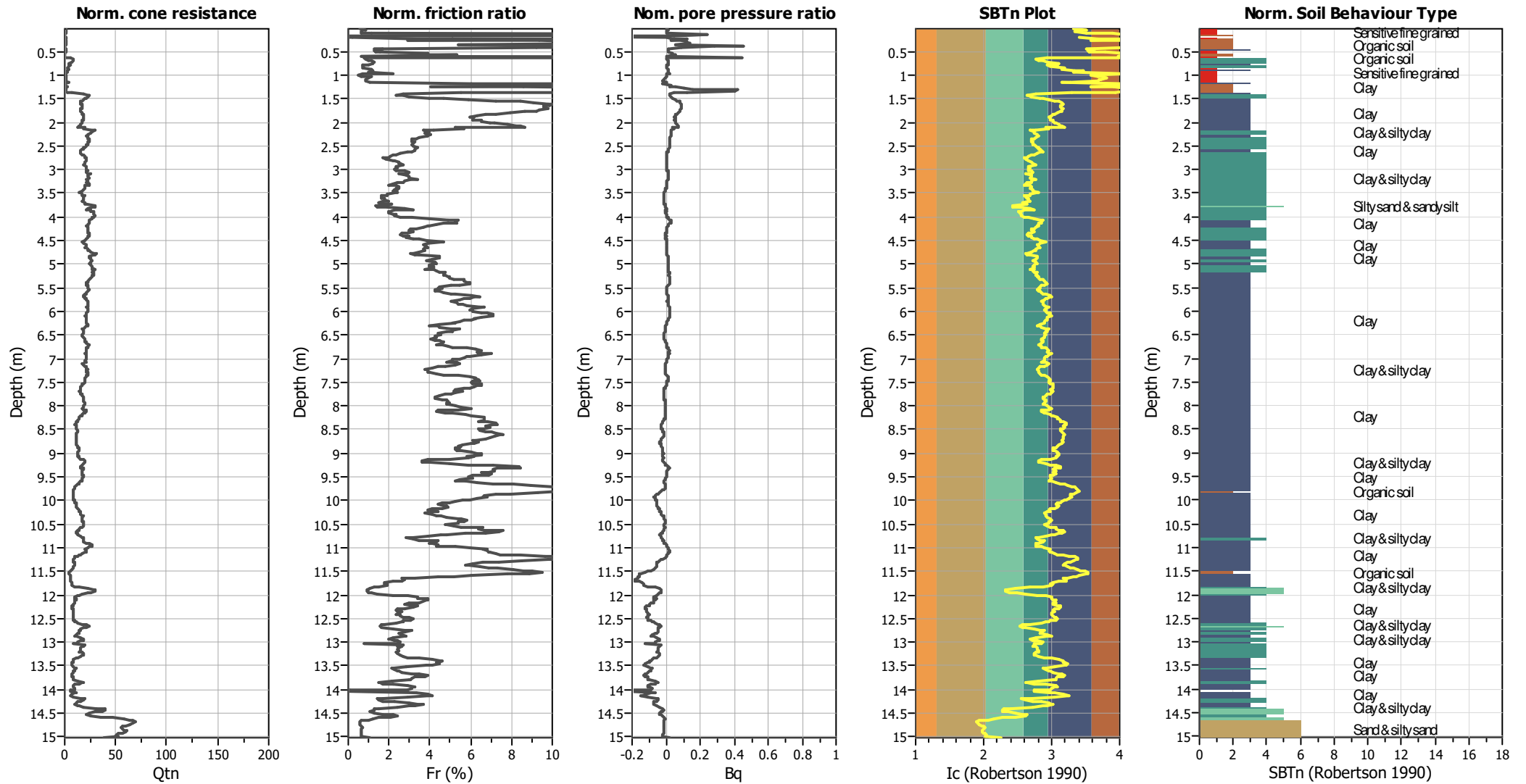
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.34	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

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

CPT basic interpretation plots (normalized)



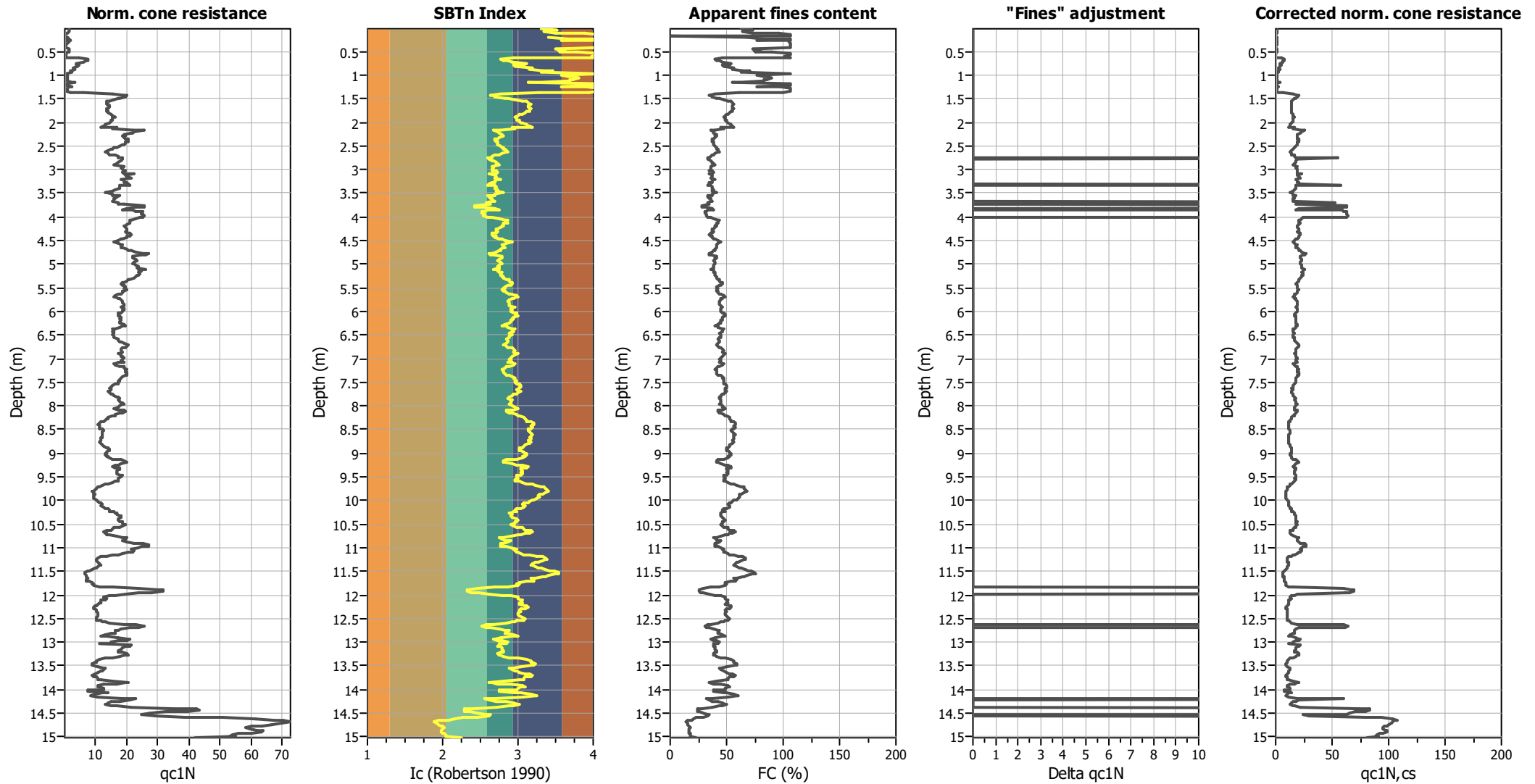
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.34	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

SBTn legend

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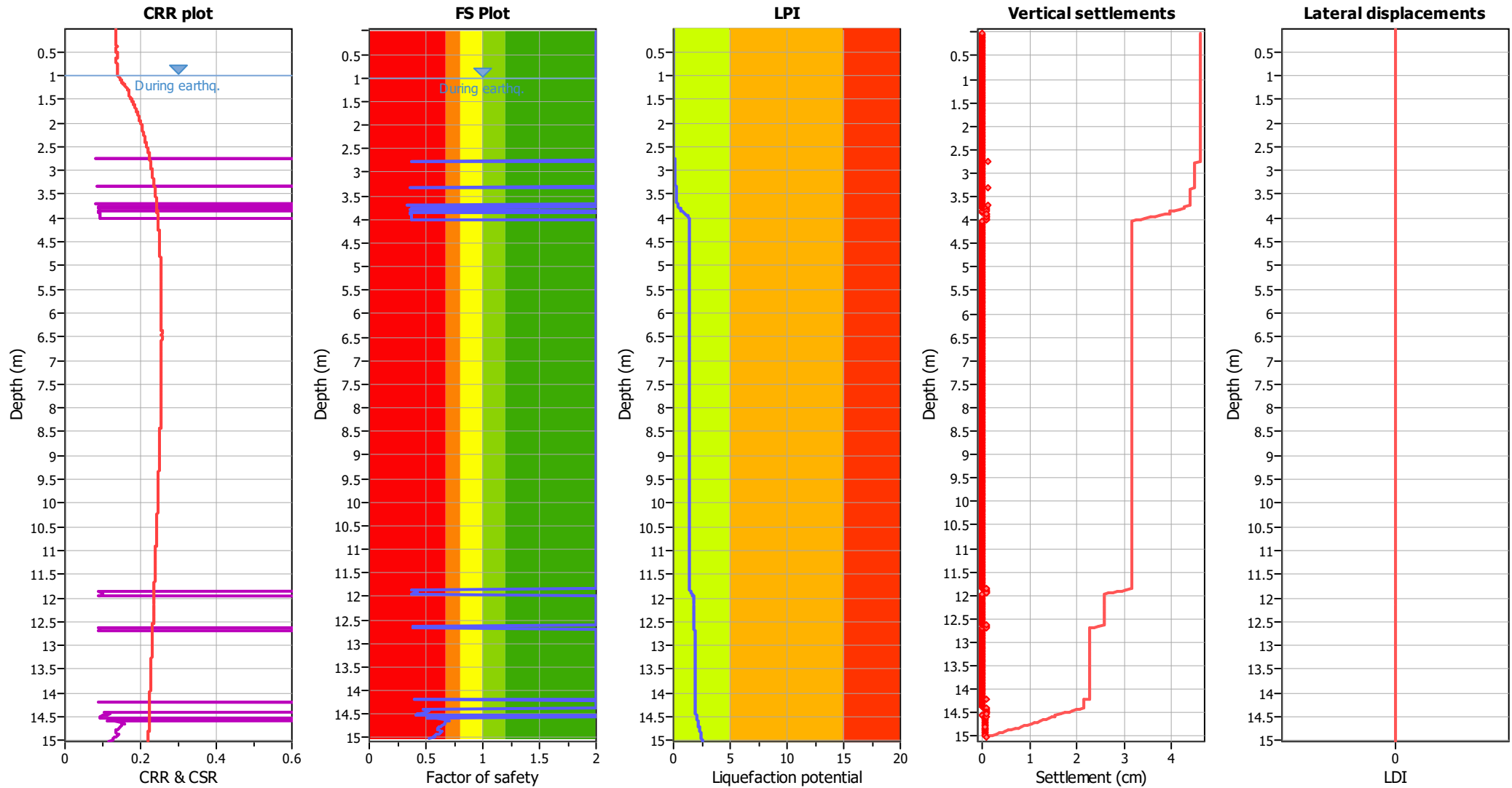
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.34	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (earthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.34	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

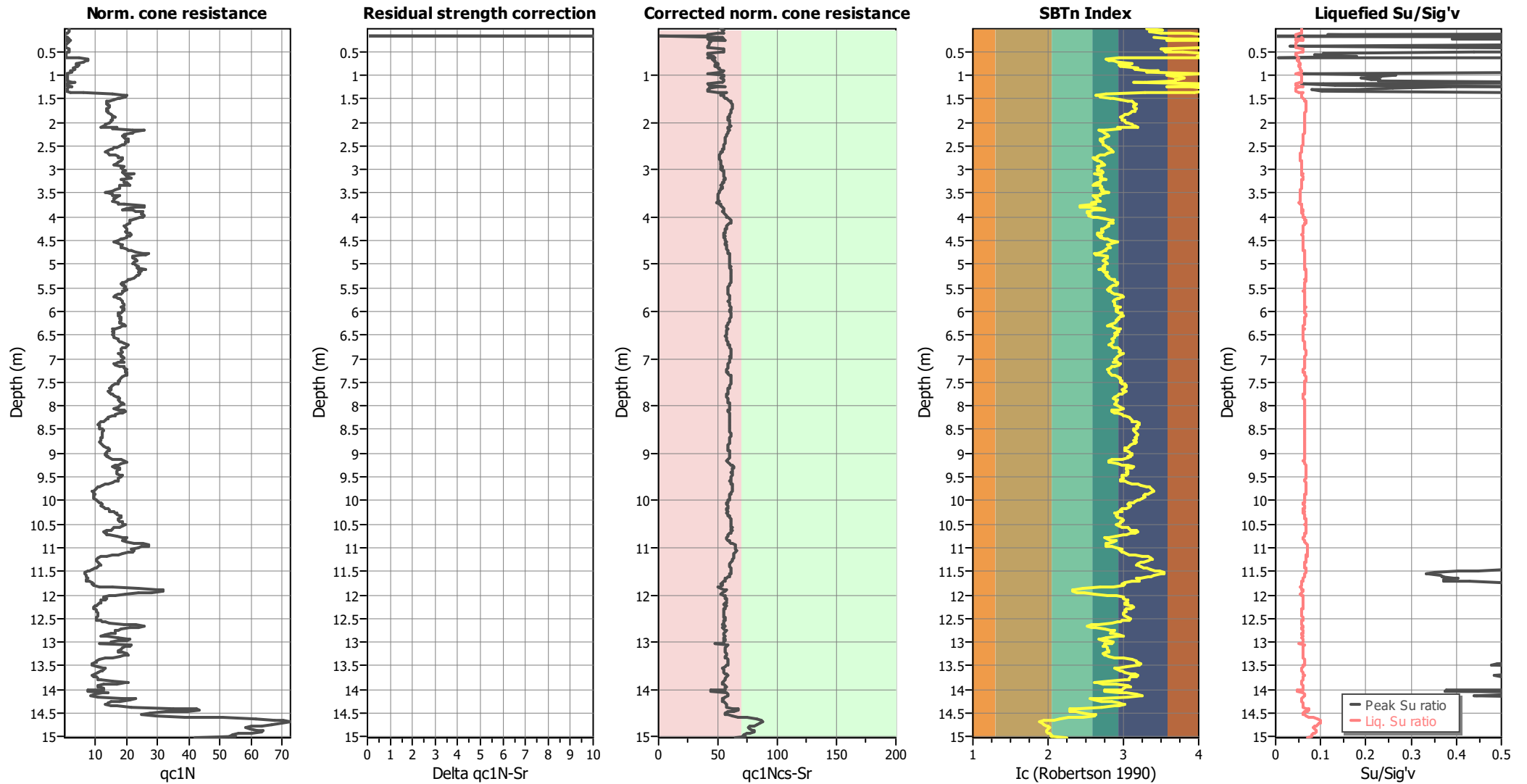
F.S. color scheme

- Almost certain it will liquefy
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- Very high risk
- High risk
- Low risk

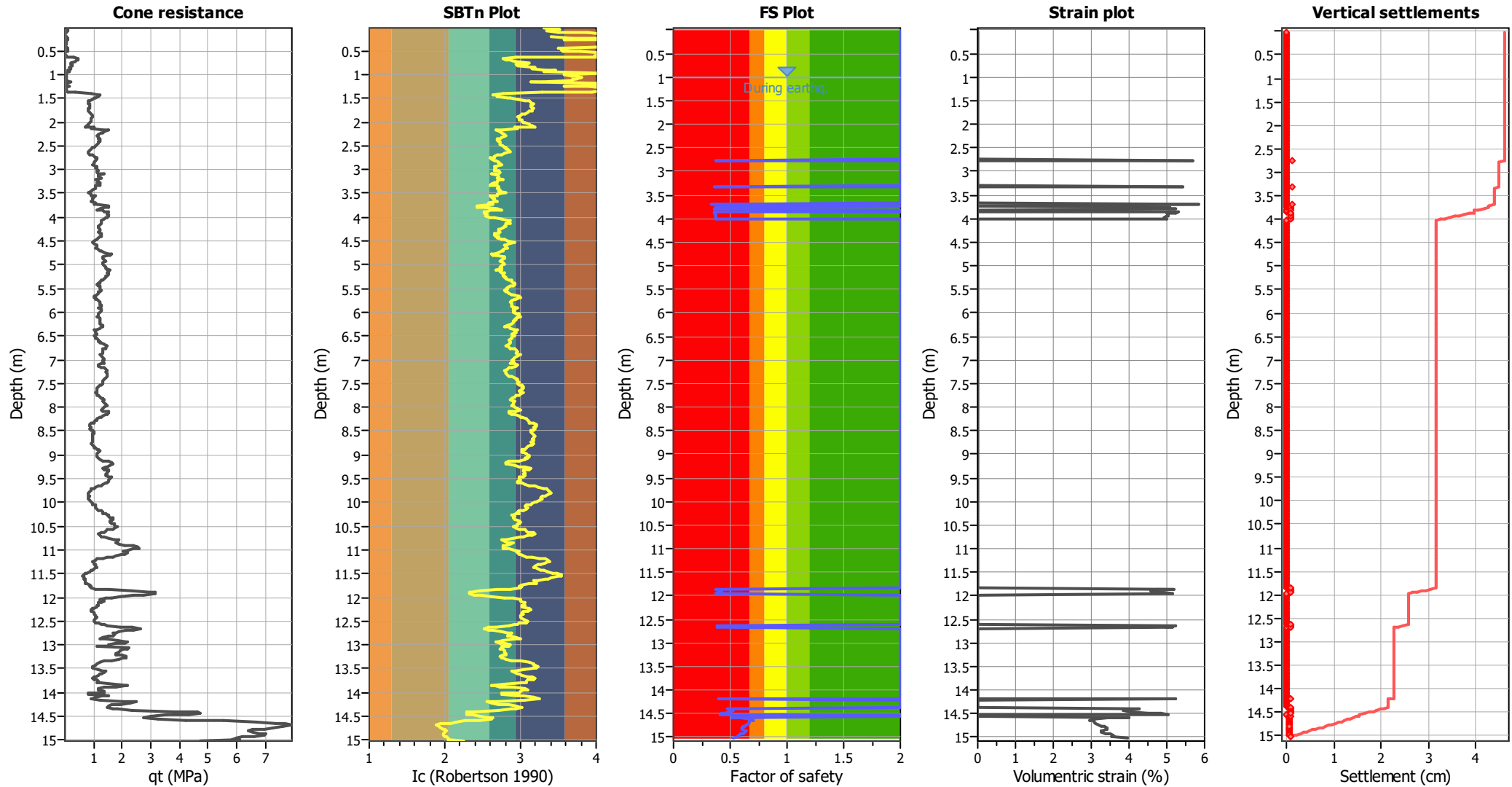
Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GW (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.34	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

- qt: Total cone resistance (cone resistance q_c corrected for pore water effects)
- I_c: Soil Behaviour Type Index
- FS: Calculated Factor of Safety against liquefaction
- Volumetric strain: Post-liquefaction volumetric strain

LIQUEFACTION ANALYSIS REPORT

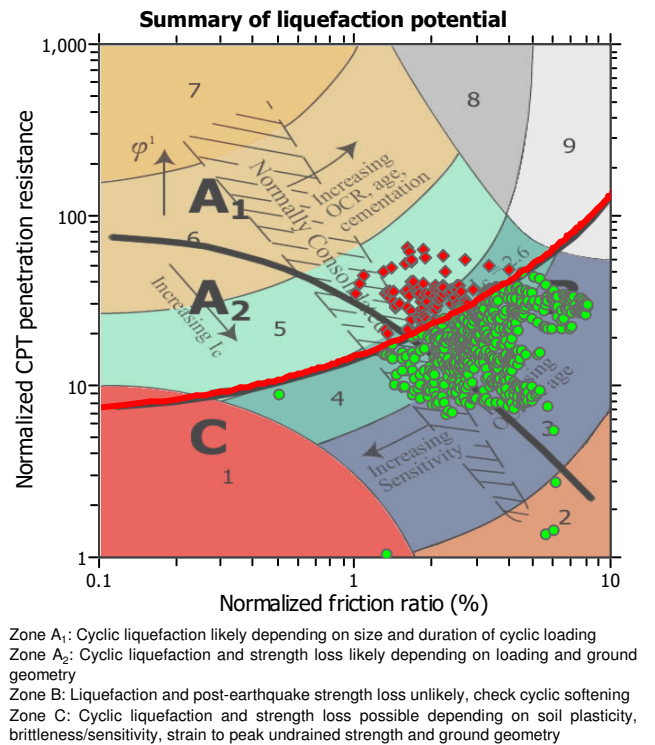
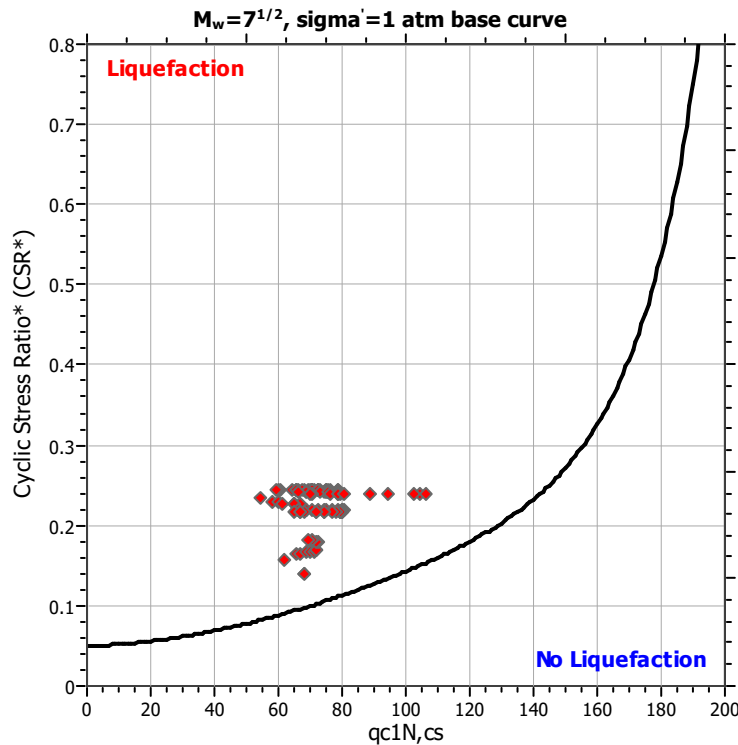
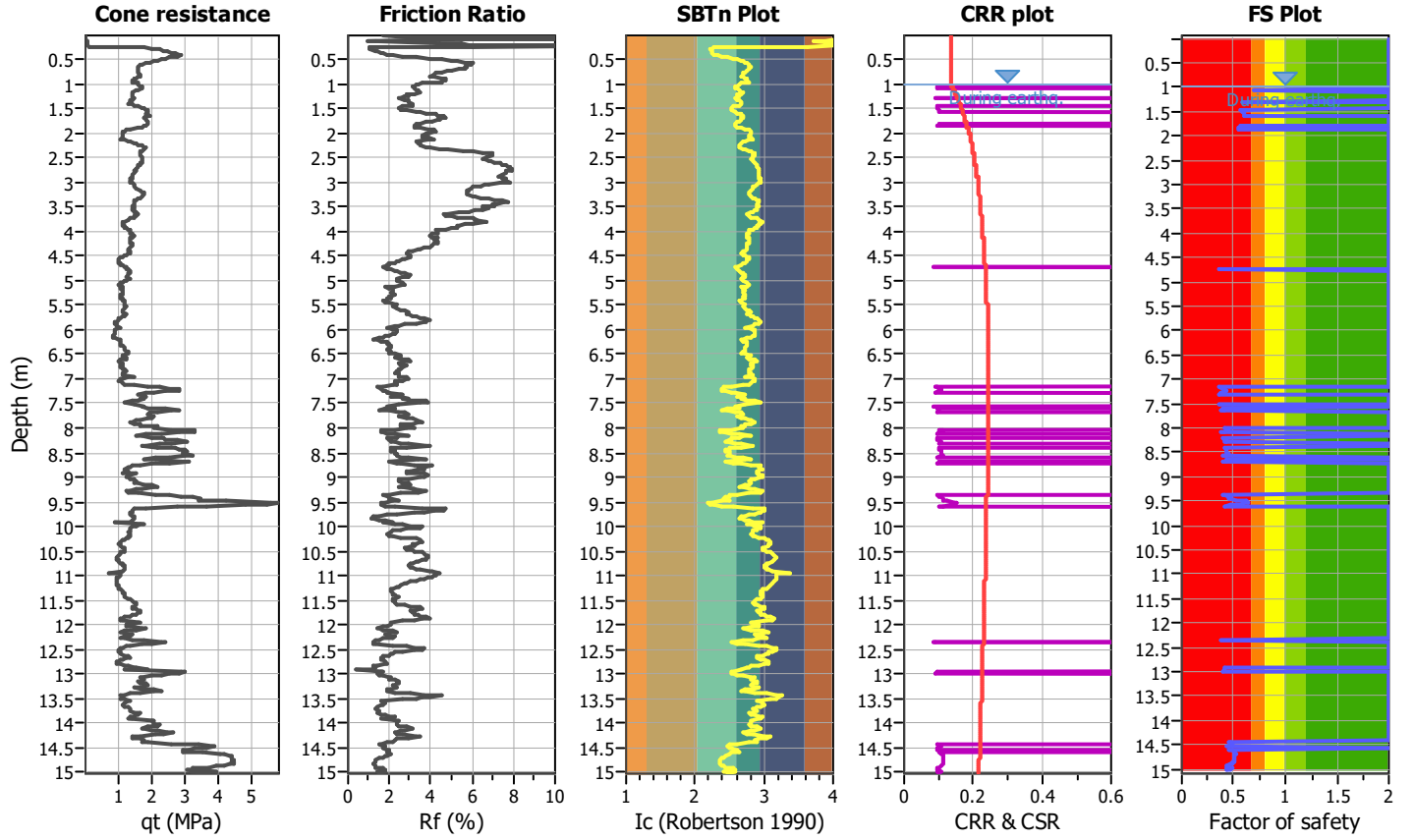
Project title :

Location :

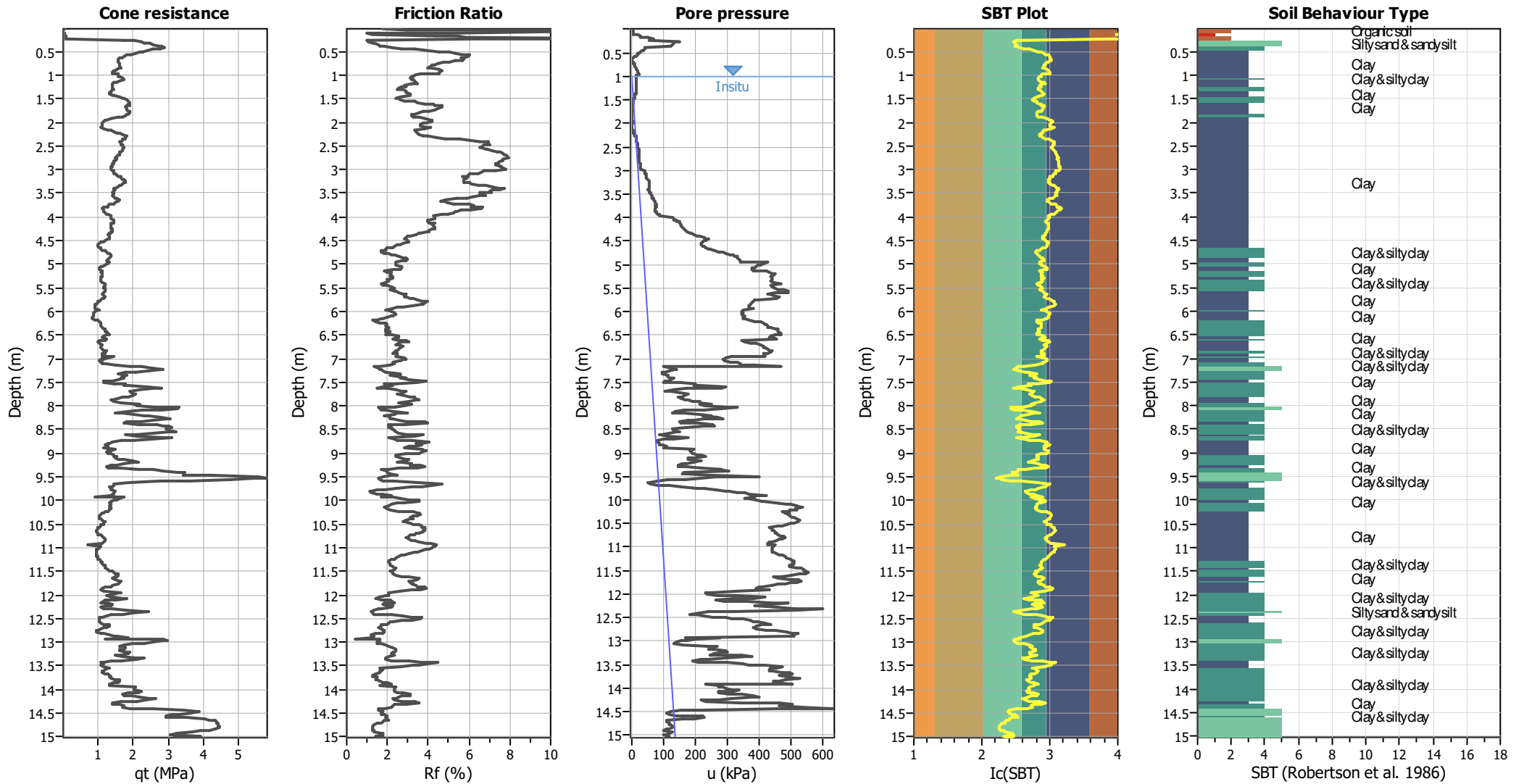
CPT file : CPTU 15 Potabilizzatore c/o Forlimpopoli (Maraldi)

Input parameters and analysis data

Analysis method:	I&B (2008)	G.W.T. (in-situ):	1.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	I&B (2008)	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:	1	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.34	Unit weight calculation:	Based on SBT	K_g applied:	Yes		



CPT basic interpretation plots



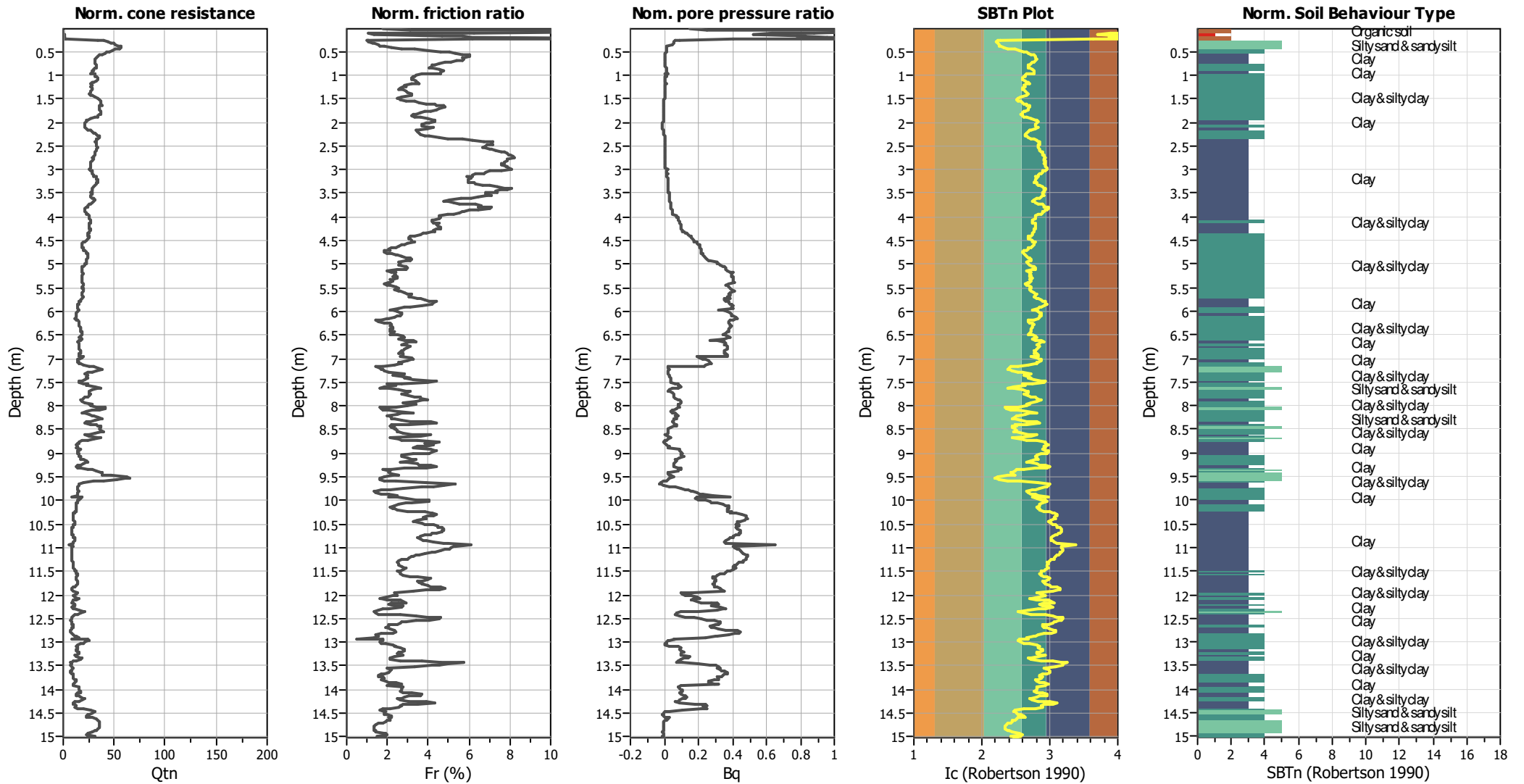
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K ₀ applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.34	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

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

CPT basic interpretation plots (normalized)



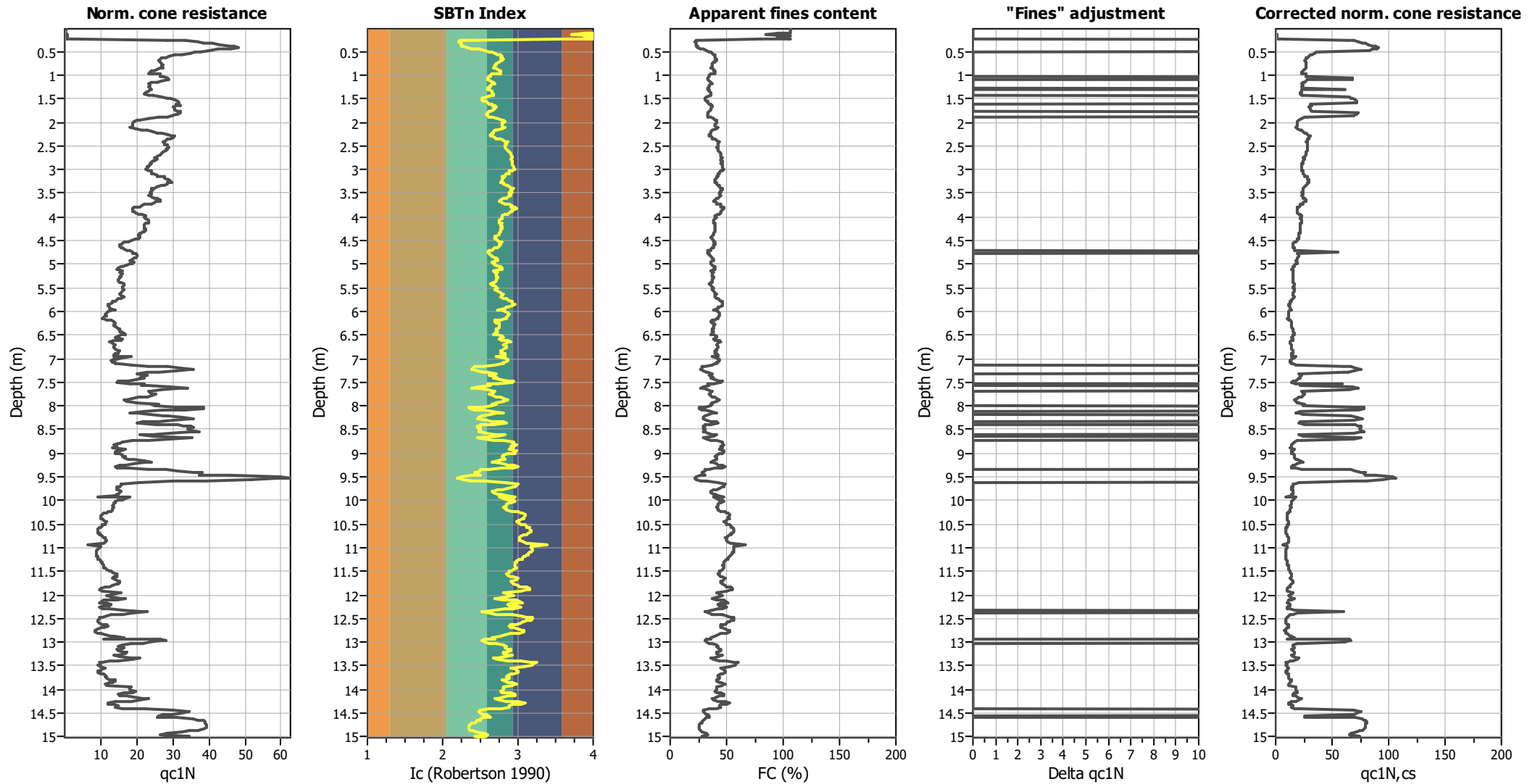
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.34	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

SBTn 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

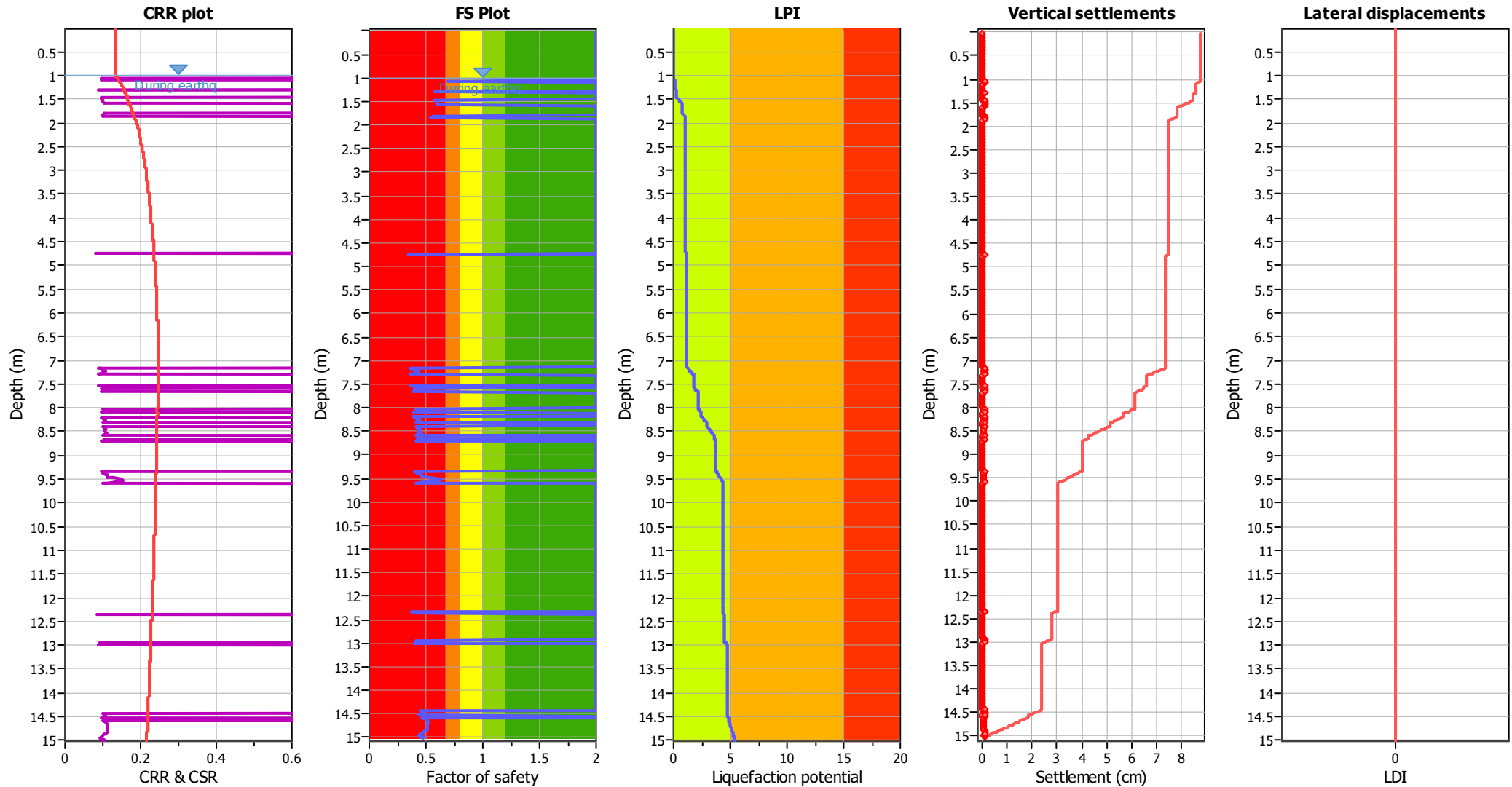
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.34	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.34	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

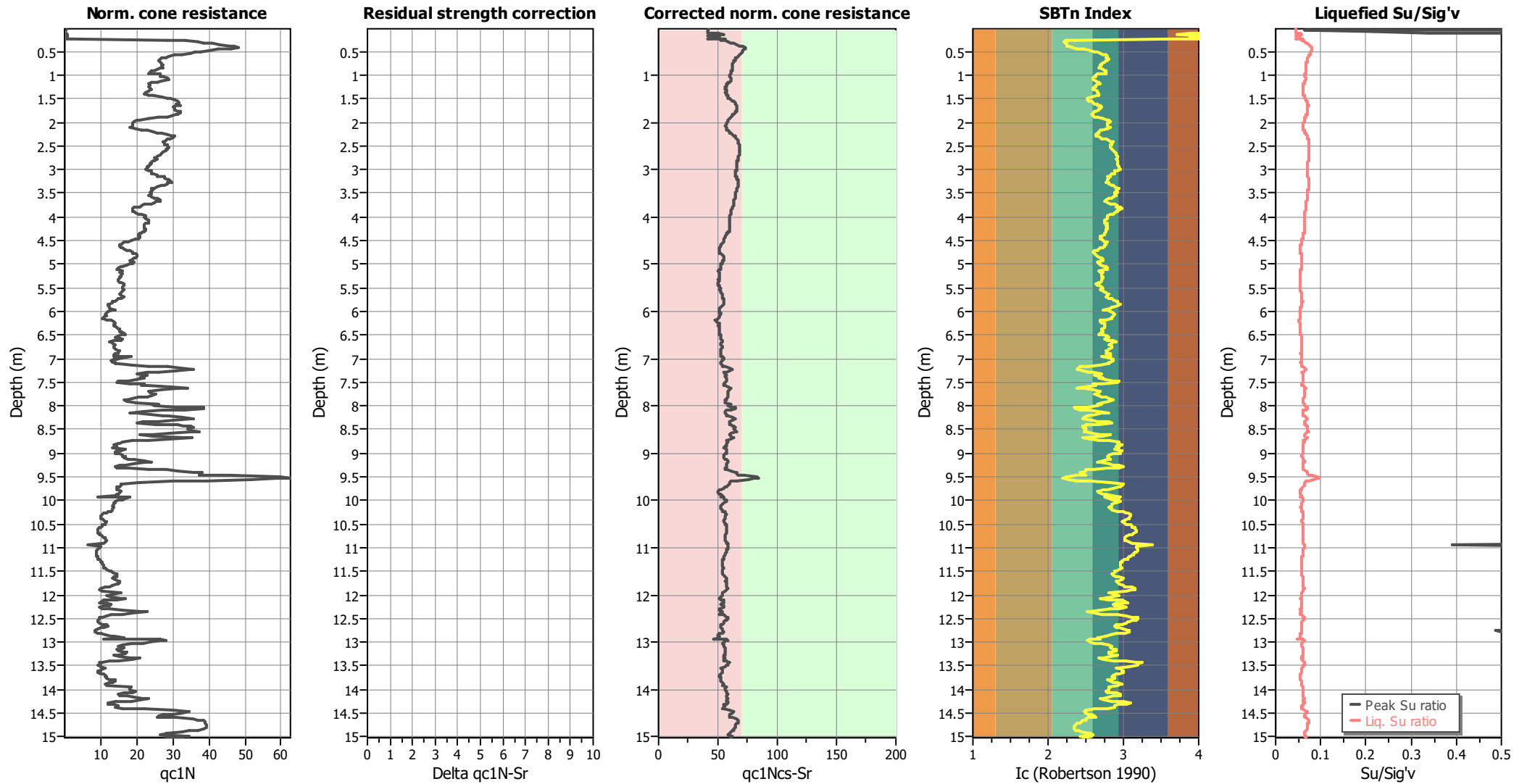
F.S. color scheme

- 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

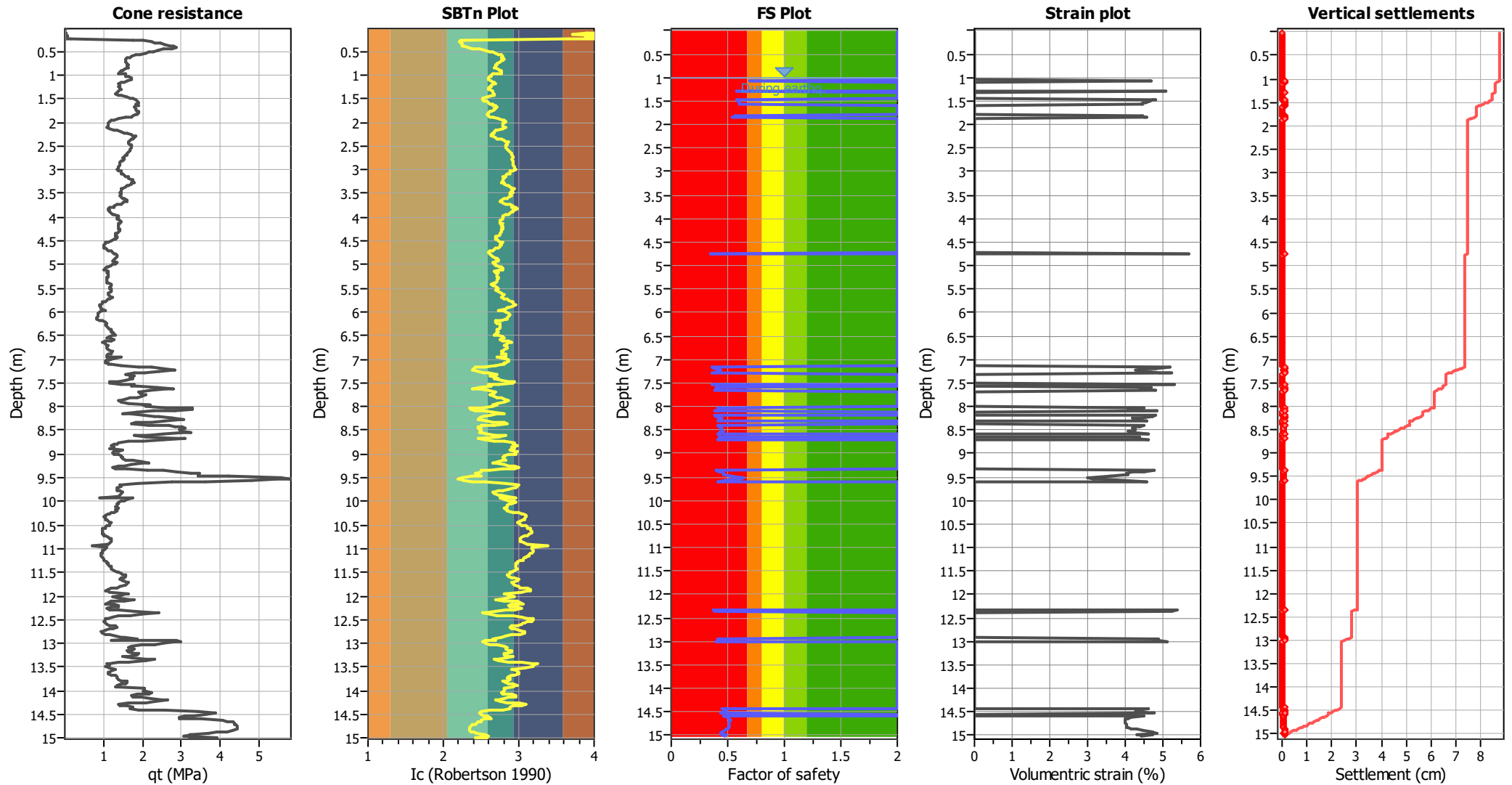
Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.34	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

- qt: Total cone resistance (cone resistance q_c corrected for pore water effects)
- I_c: Soil Behaviour Type Index
- FS: Calculated Factor of Safety against liquefaction
- Volumetric strain: Post-liquefaction volumetric strain

LIQUEFACTION ANALYSIS REPORT

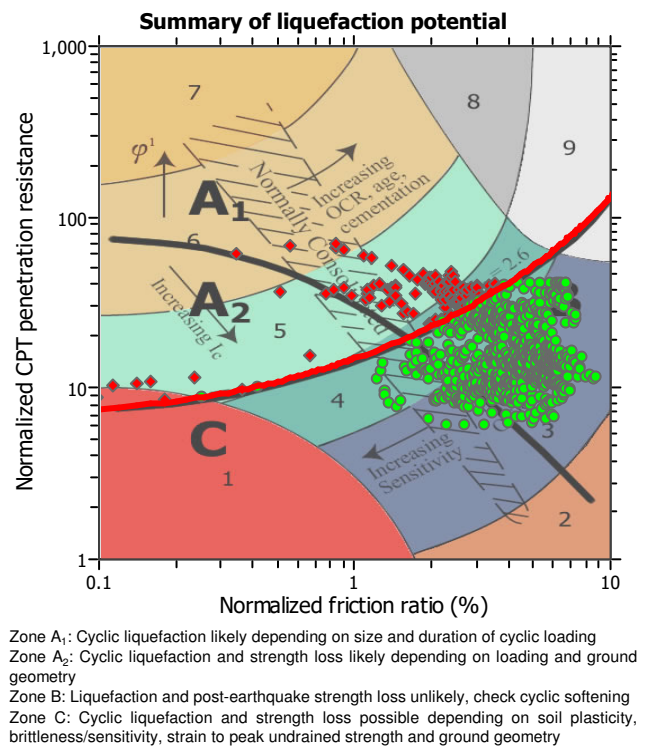
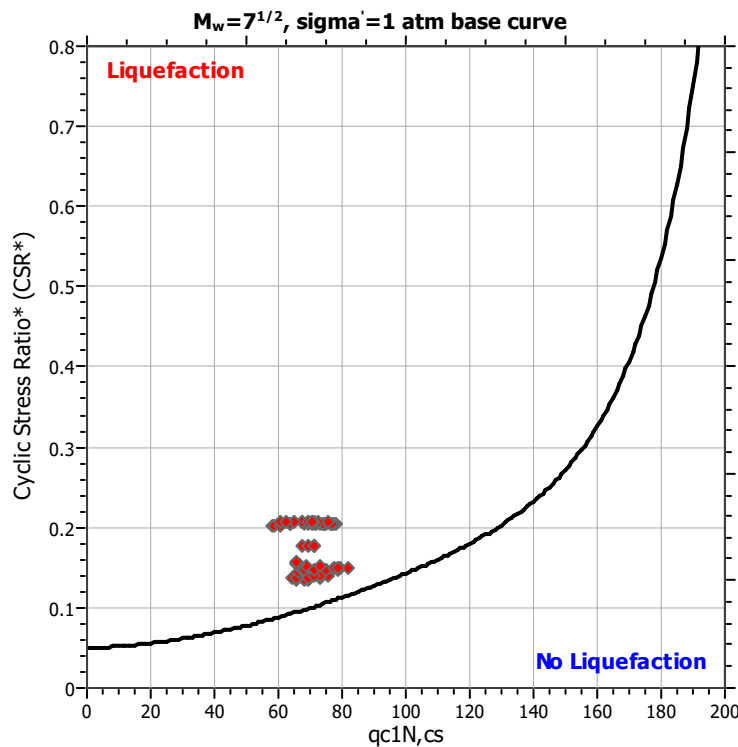
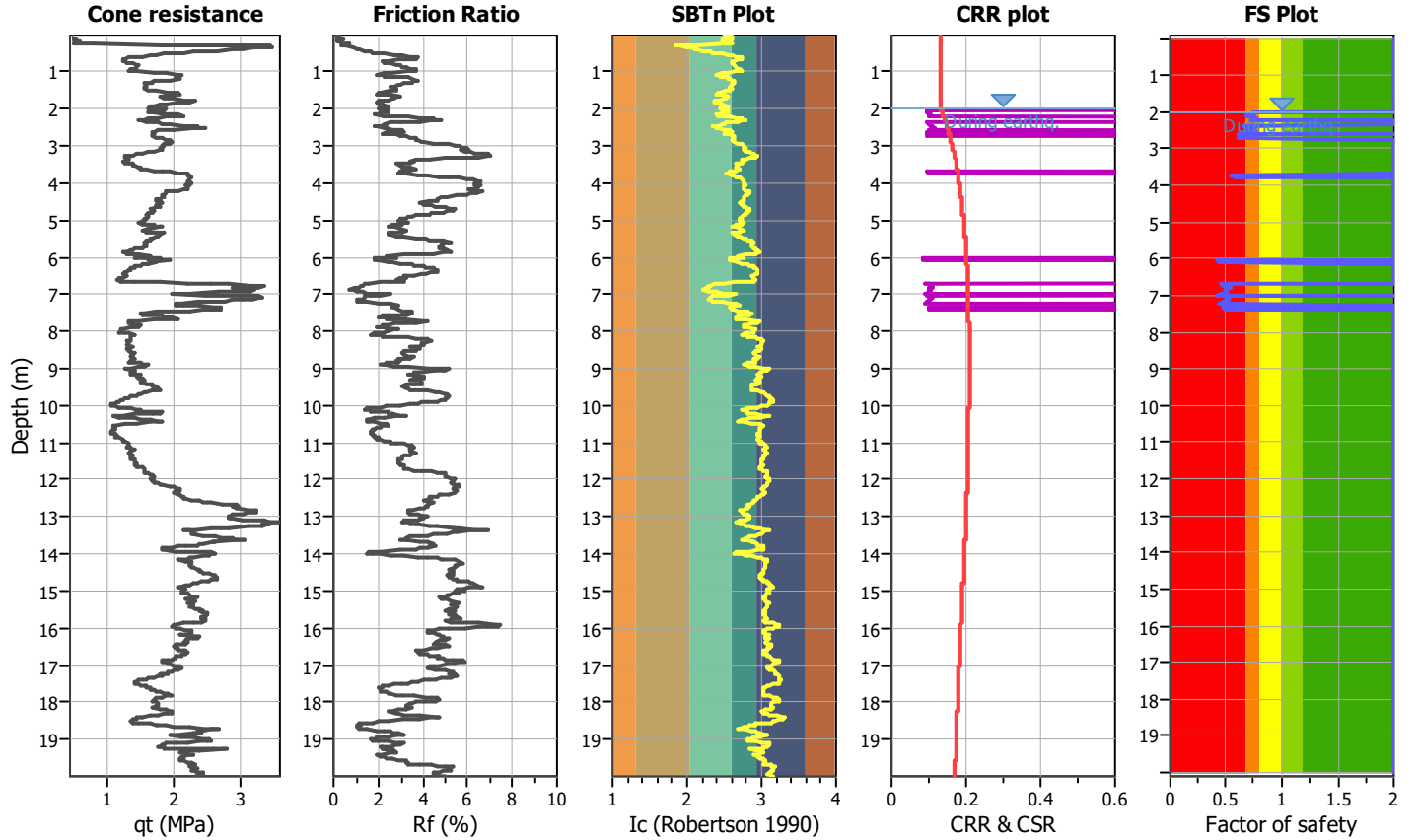
Project title :

Location :

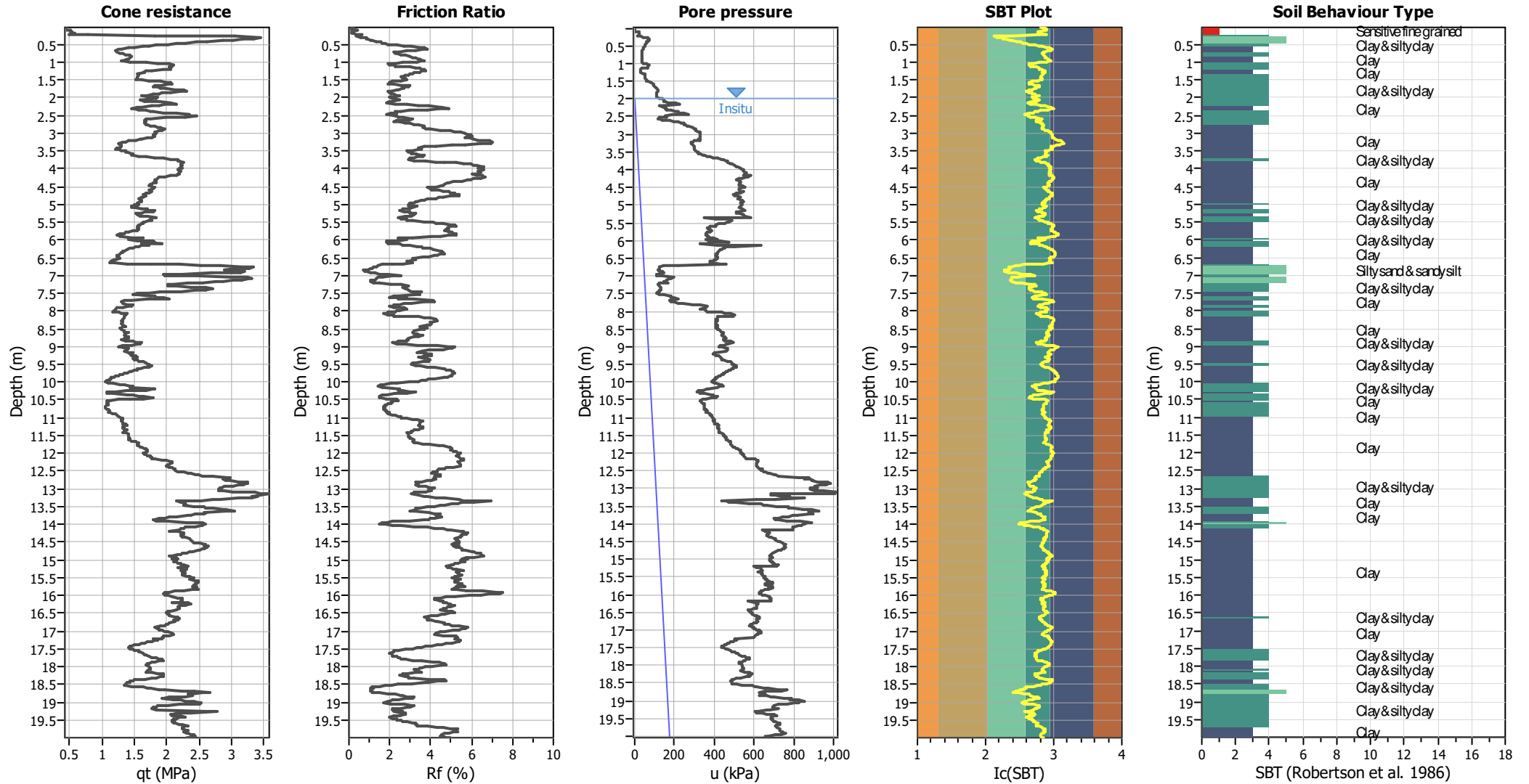
CPT file : CPTU 16 Via Fornace (Cesena)

Input parameters and analysis data

Analysis method:	I&B (2008)	G.W.T. (in-situ):	2.00 m	Use fill:	No	Clay like behavior	
Fines correction method:	I&B (2008)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	applied:	Sands only
Points to test:	Based on Ic value	Average results interval:	1	Fill weight:	N/A	Limit depth applied:	No
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	Limit depth:	N/A
Peak ground acceleration:	0.33	Unit weight calculation:	Based on SBT	K_G applied:	Yes	MSF method:	Method based



CPT basic interpretation plots



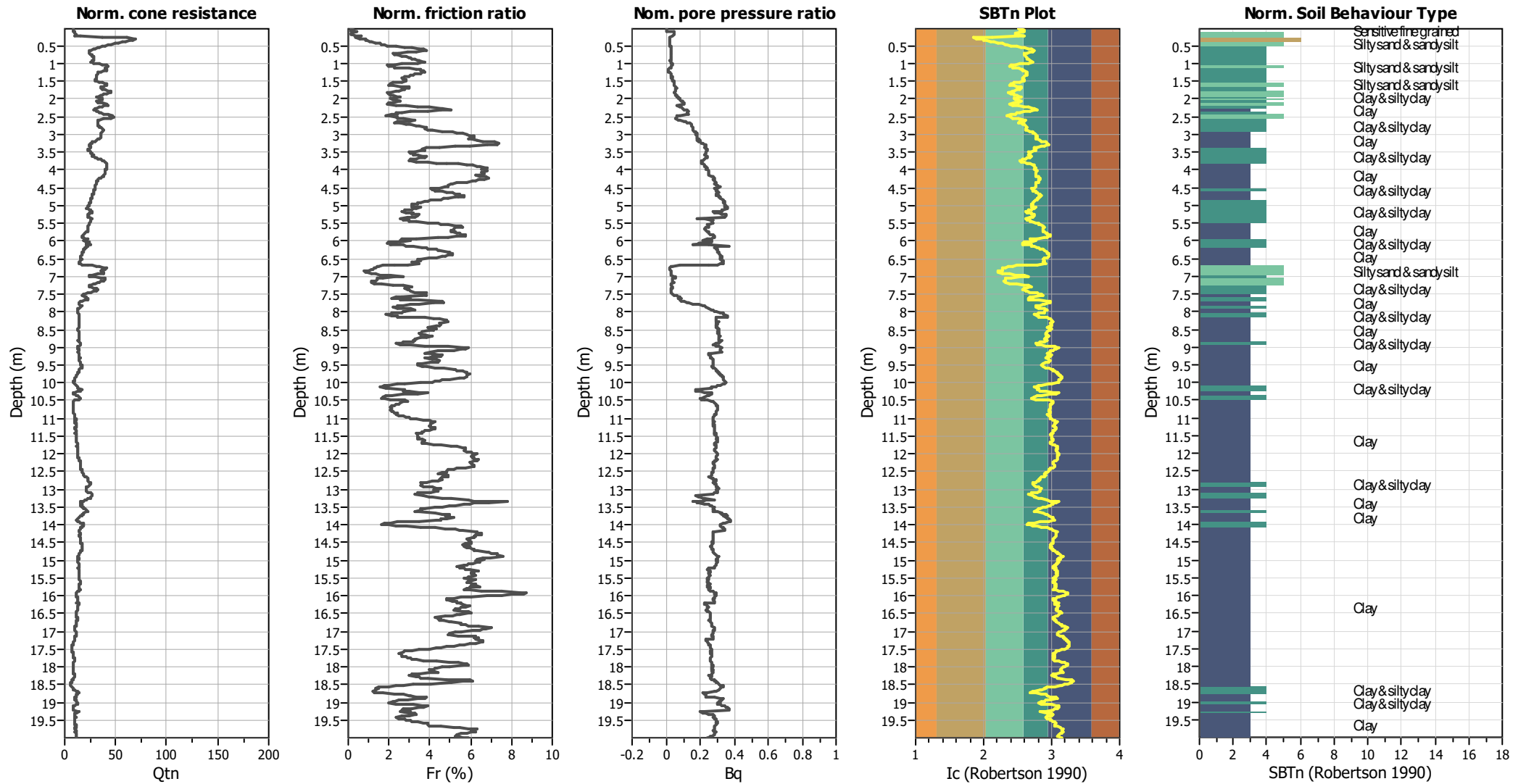
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	2.00 m	Fill height:	N/A	Limit depth:	N/A

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

CPT basic interpretation plots (normalized)



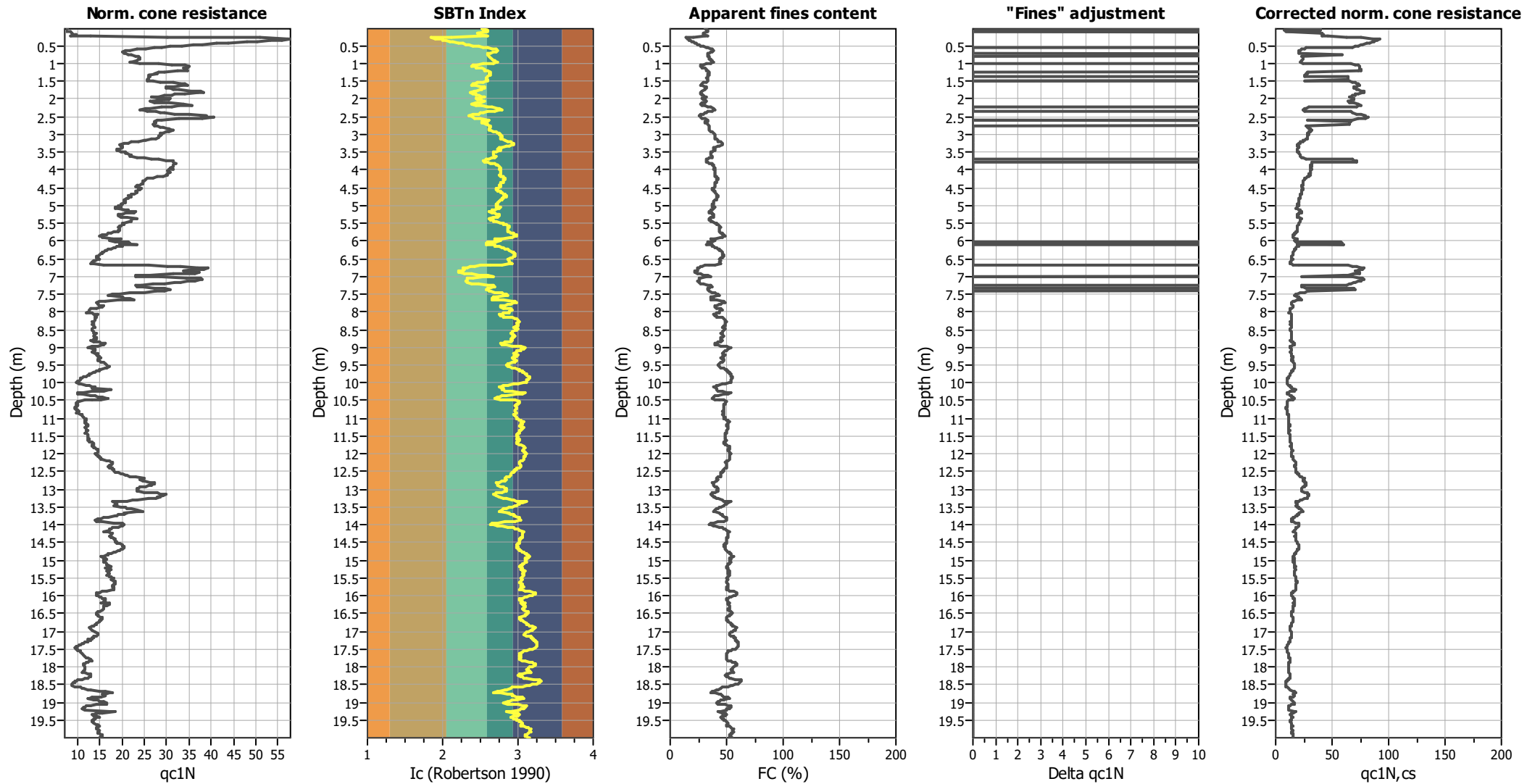
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	2.00 m	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
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3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

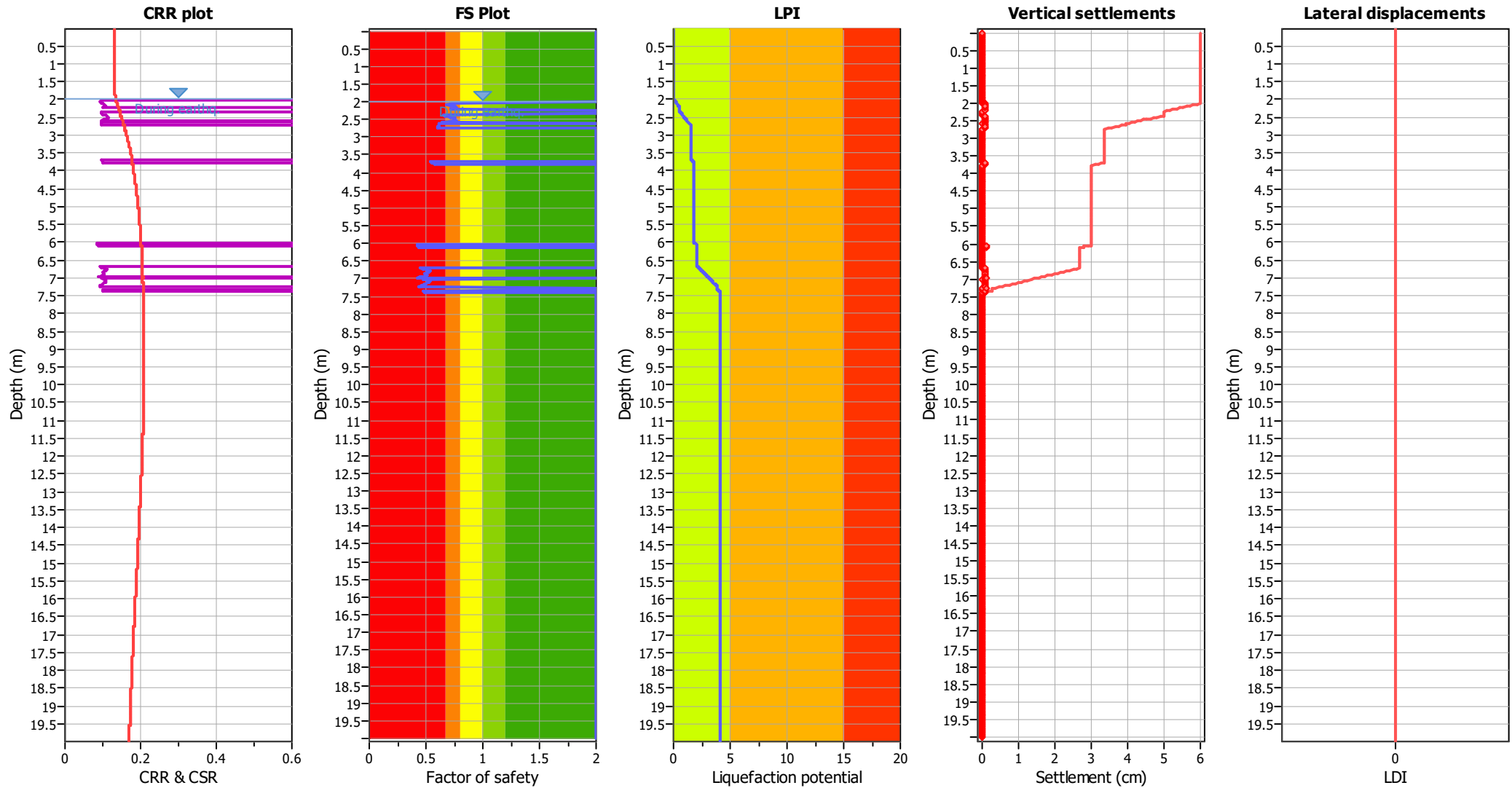
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	2.00 m	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_f applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	2.00 m	Fill height:	N/A	Limit depth:	N/A

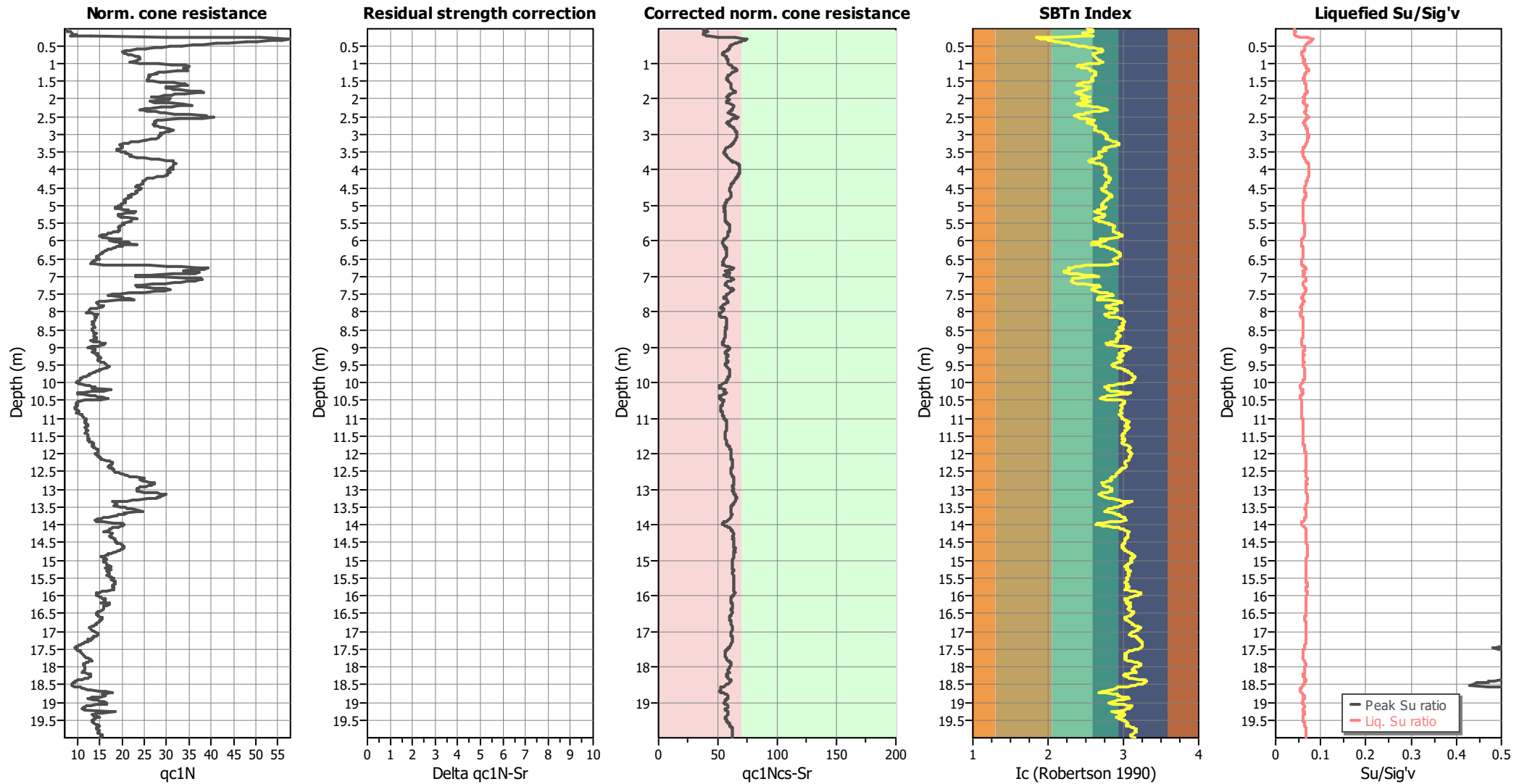
F.S. color scheme

- 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

Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	2.00 m	Fill height:	N/A	Limit depth:	N/A

:: Liquefaction Potential Index calculation data :: (continued)											
Depth (m)	FS	F _L	w _z	d _z	LPI	Depth (m)	FS	F _L	w _z	d _z	LPI
19.22	2.00	0.00	0.39	0.02	0.00	19.24	2.00	0.00	0.38	0.02	0.00
19.26	2.00	0.00	0.37	0.02	0.00	19.28	2.00	0.00	0.36	0.02	0.00
19.30	2.00	0.00	0.35	0.02	0.00	19.32	2.00	0.00	0.34	0.02	0.00
19.34	2.00	0.00	0.33	0.02	0.00	19.36	2.00	0.00	0.32	0.02	0.00
19.38	2.00	0.00	0.31	0.02	0.00	19.40	2.00	0.00	0.30	0.02	0.00
19.42	2.00	0.00	0.29	0.02	0.00	19.44	2.00	0.00	0.28	0.02	0.00
19.46	2.00	0.00	0.27	0.02	0.00	19.48	2.00	0.00	0.26	0.02	0.00
19.50	2.00	0.00	0.25	0.02	0.00	19.52	2.00	0.00	0.24	0.02	0.00
19.54	2.00	0.00	0.23	0.02	0.00	19.56	2.00	0.00	0.22	0.02	0.00
19.58	2.00	0.00	0.21	0.02	0.00	19.60	2.00	0.00	0.20	0.02	0.00
19.62	2.00	0.00	0.19	0.02	0.00	19.64	2.00	0.00	0.18	0.02	0.00
19.66	2.00	0.00	0.17	0.02	0.00	19.68	2.00	0.00	0.16	0.02	0.00
19.70	2.00	0.00	0.15	0.02	0.00	19.72	2.00	0.00	0.14	0.02	0.00
19.74	2.00	0.00	0.13	0.02	0.00	19.76	2.00	0.00	0.12	0.02	0.00
19.78	2.00	0.00	0.11	0.02	0.00	19.80	2.00	0.00	0.10	0.02	0.00
19.82	2.00	0.00	0.09	0.02	0.00	19.84	2.00	0.00	0.08	0.02	0.00
19.86	2.00	0.00	0.07	0.02	0.00	19.88	2.00	0.00	0.06	0.02	0.00
19.90	2.00	0.00	0.05	0.02	0.00	19.92	2.00	0.00	0.04	0.02	0.00
19.94	2.00	0.00	0.03	0.02	0.00	19.96	2.00	0.00	0.02	0.02	0.00
19.98	2.00	0.00	0.01	0.02	0.00	20.00	2.00	0.00	0.00	0.02	0.00

Overall liquefaction potential: 4.06

LPI = 0.00 - Liquefaction risk very low
 LPI between 0.00 and 5.00 - Liquefaction risk low
 LPI between 5.00 and 15.00 - Liquefaction risk high
 LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point
 F_L: 1 - FS
 w_z: Function value of the extend of soil liquefaction according to depth
 d_z: Layer thickness (m)
 LPI: Liquefaction potential index value for test point

LIQUEFACTION ANALYSIS REPORT

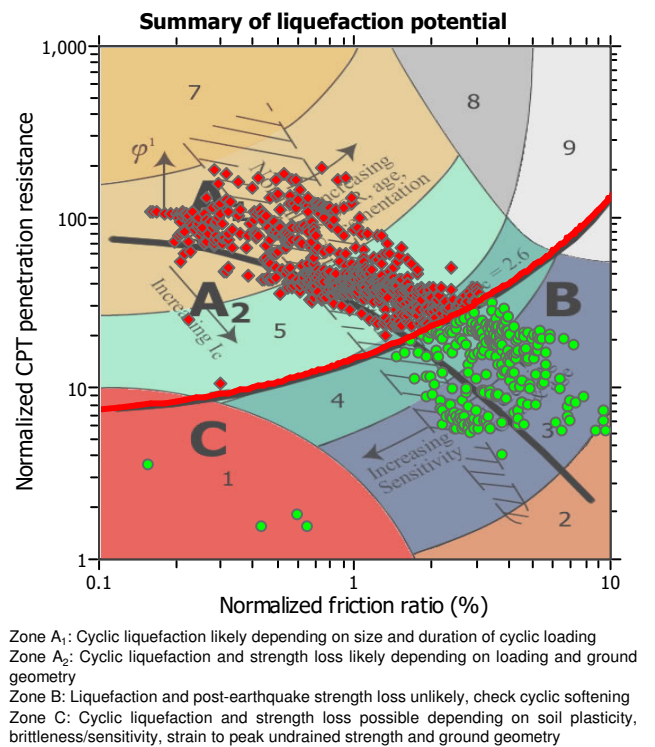
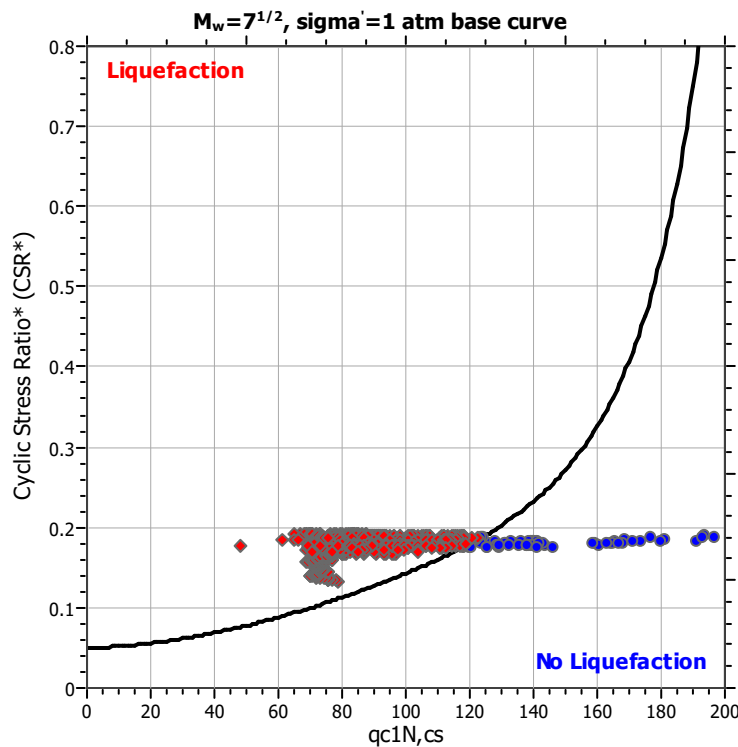
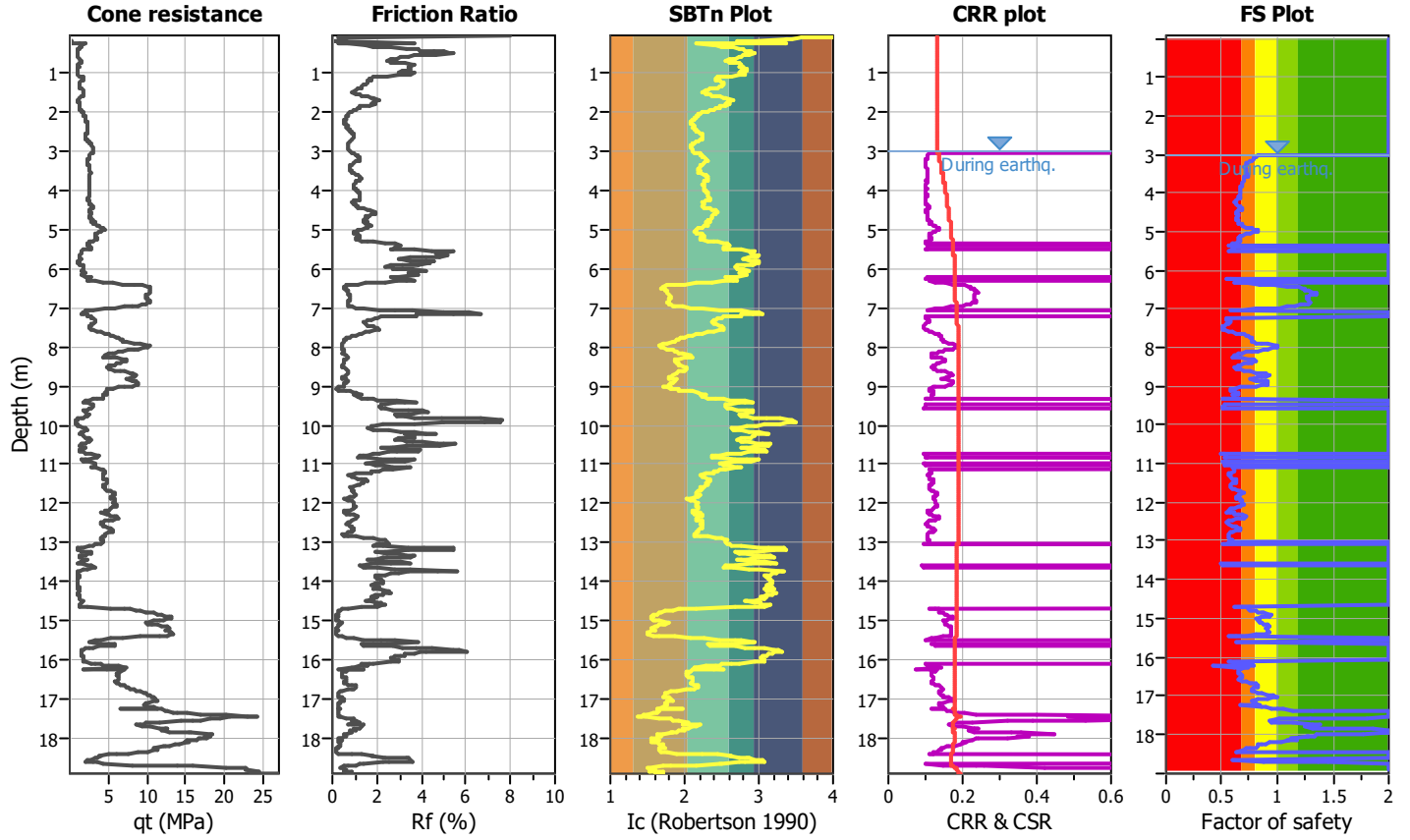
Project title :

Location :

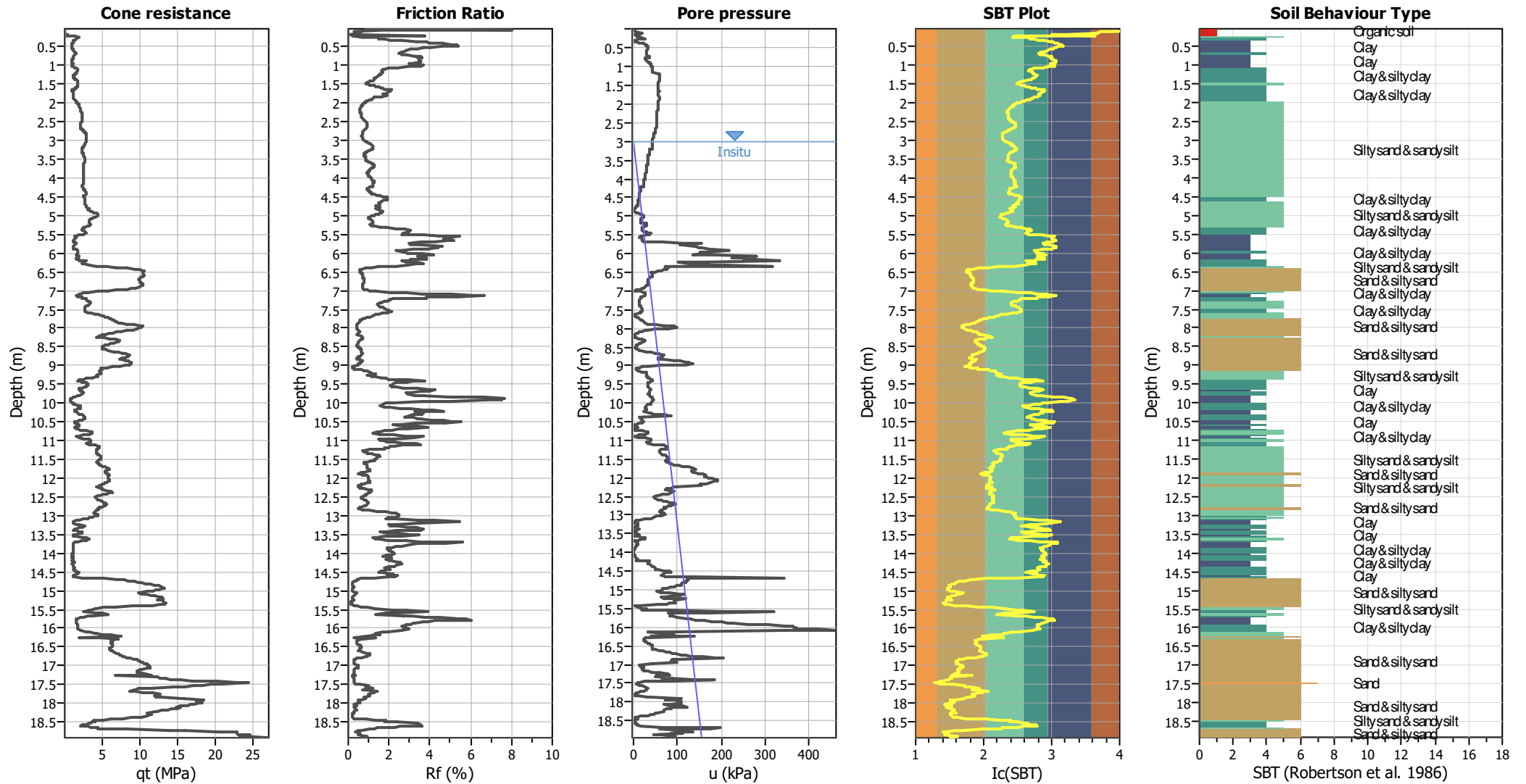
CPT file : CPTU 17 Via Fiume di Sant'Andrea (Cesena)

Input parameters and analysis data

Analysis method:	I&B (2008)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	I&B (2008)	G.W.T. (earthq.):	3.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	1	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.33	Unit weight calculation:	Based on SBT	K_G applied:	Yes		



CPT basic interpretation plots



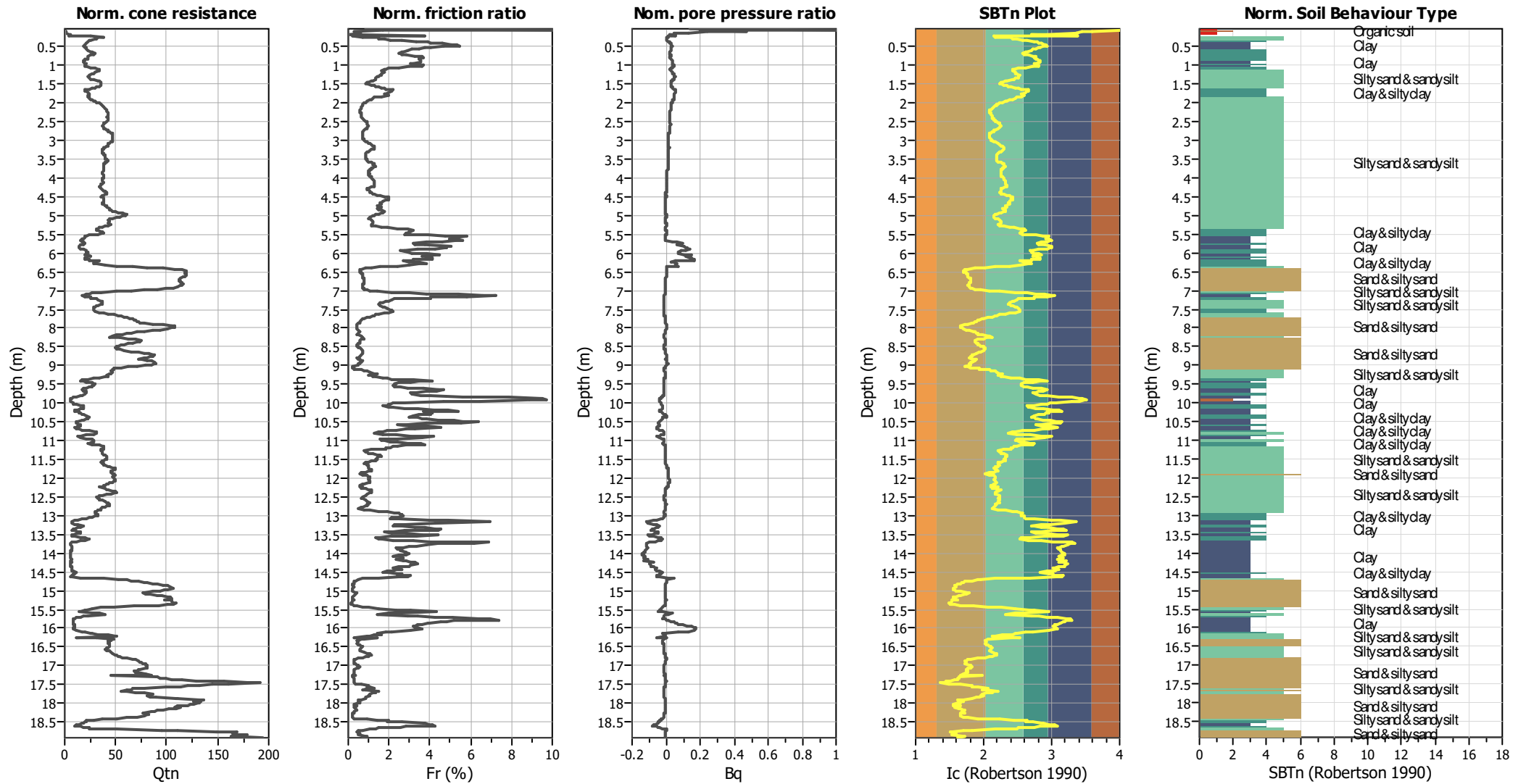
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	3.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_p applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	N/A

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

CPT basic interpretation plots (normalized)



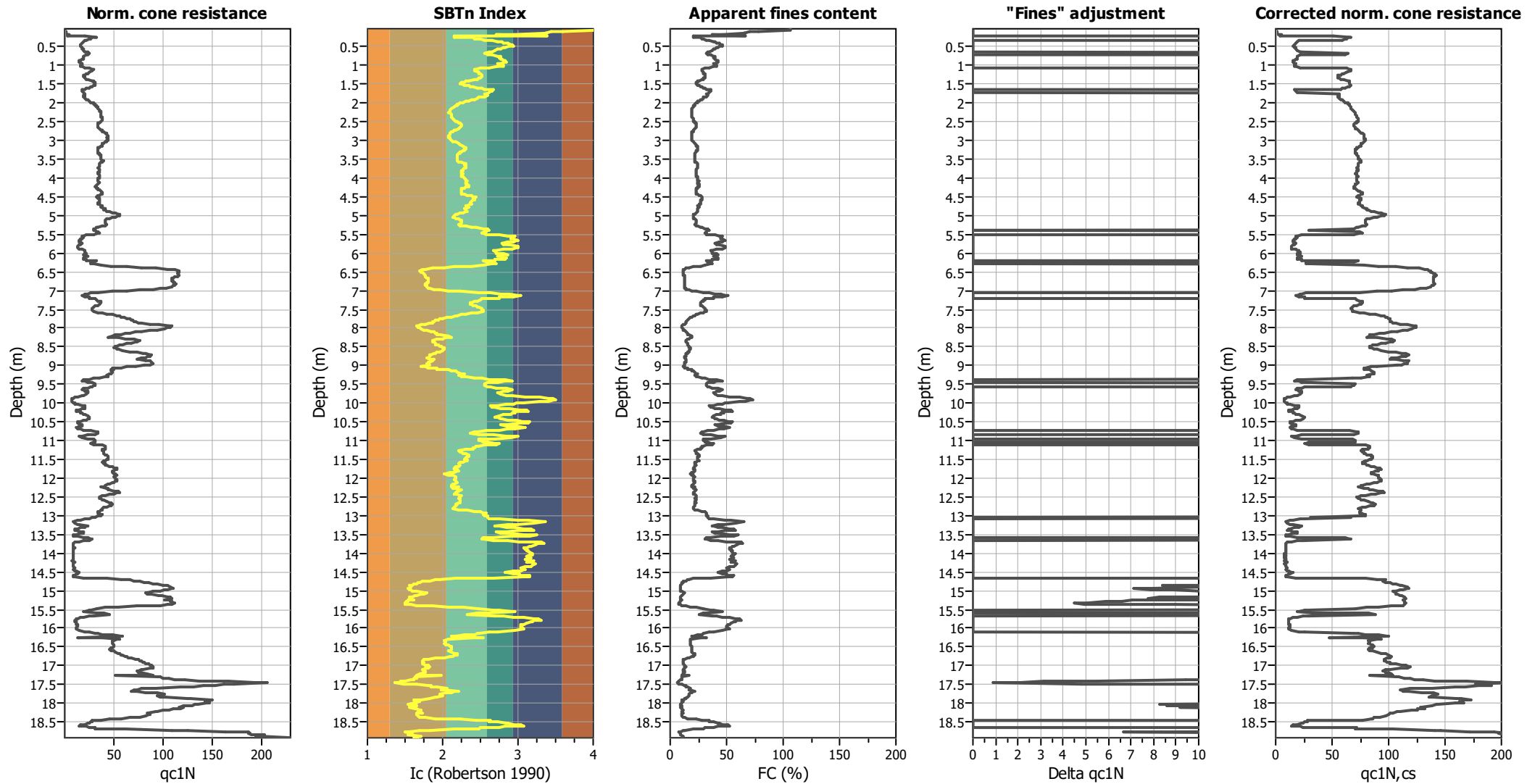
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	3.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K ₀ applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	N/A

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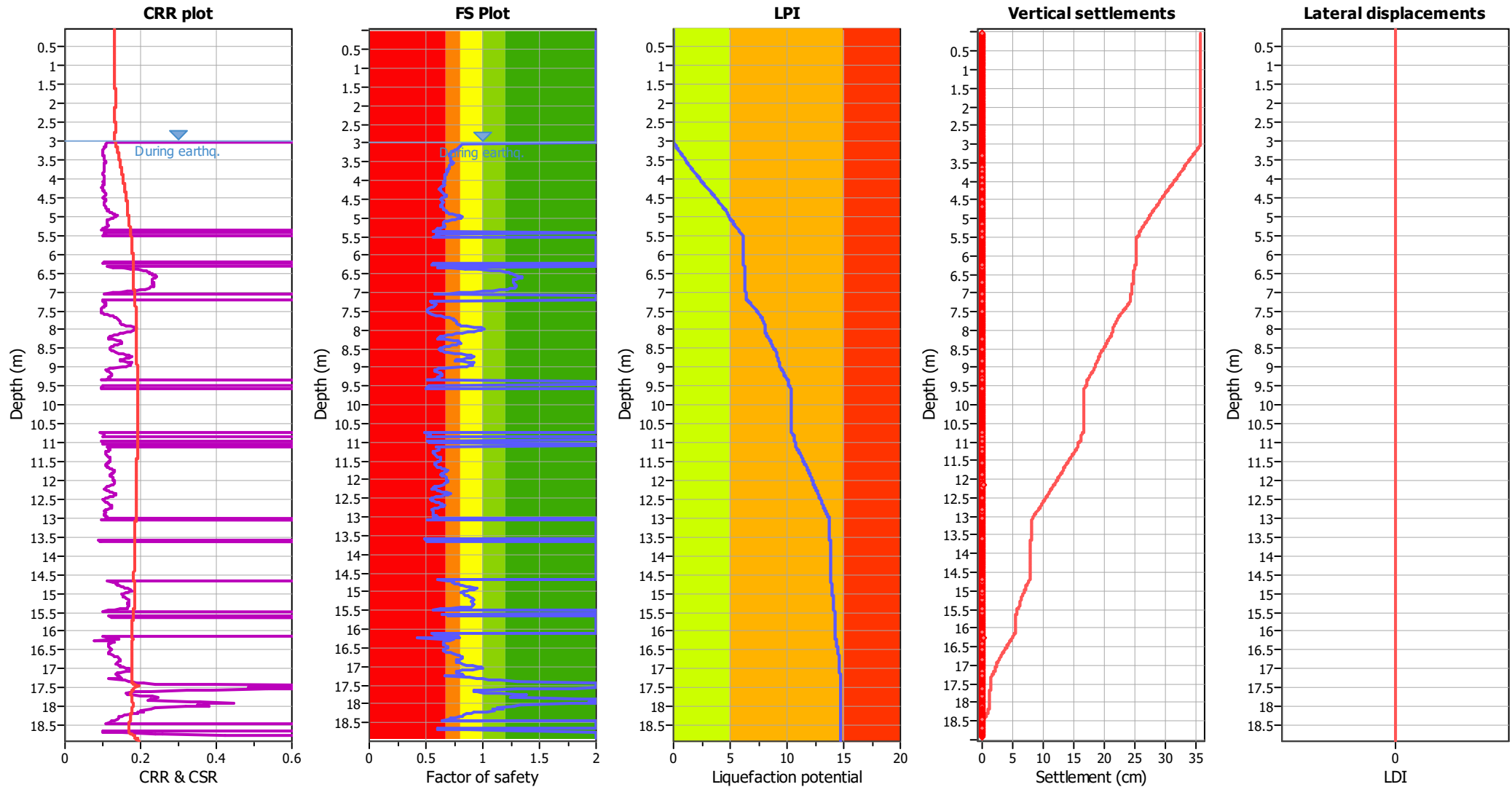
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	3.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (earthq.):	3.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	N/A

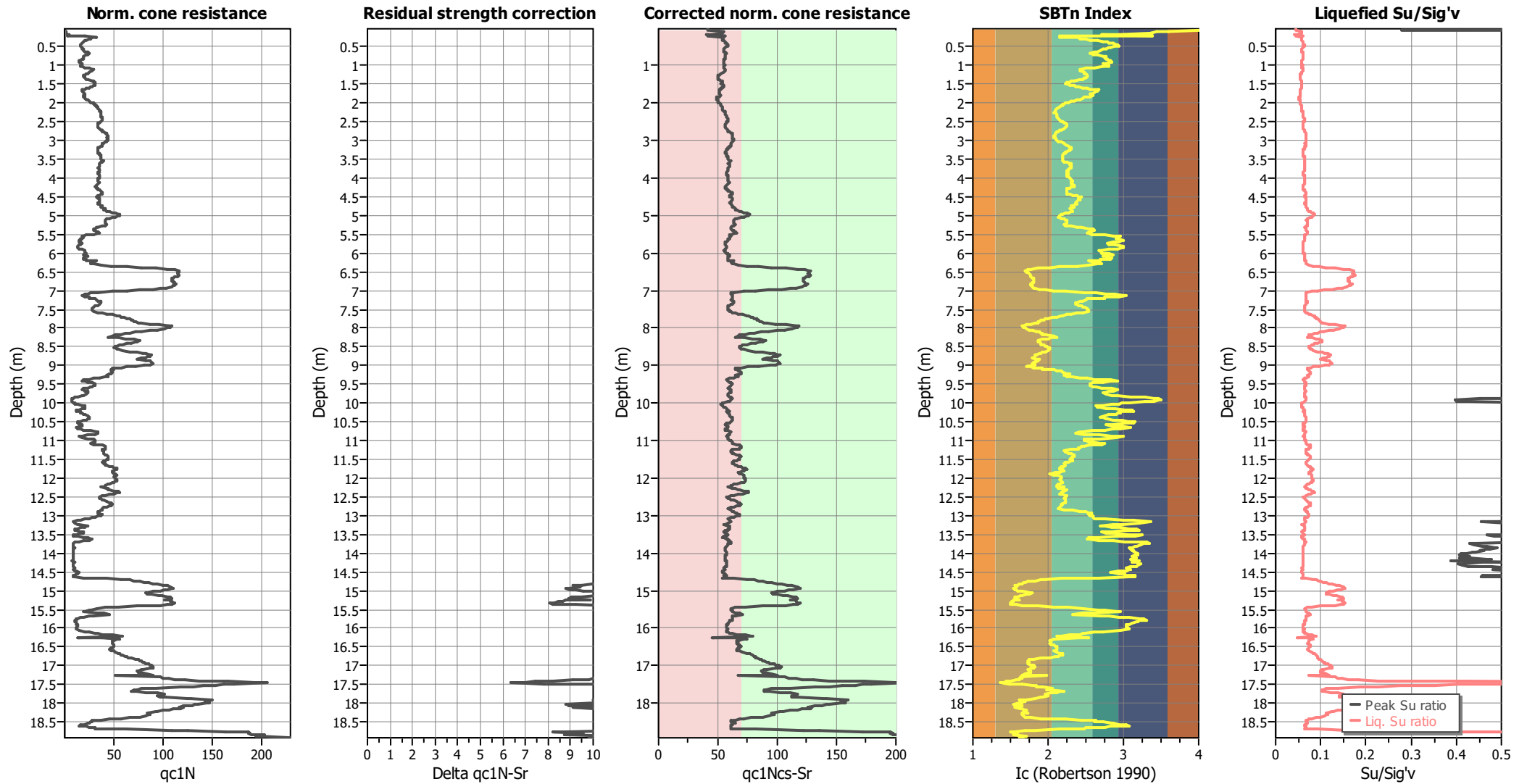
F.S. color scheme

- Almost certain it will liquefy
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LPI color scheme

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- High risk
- Low risk

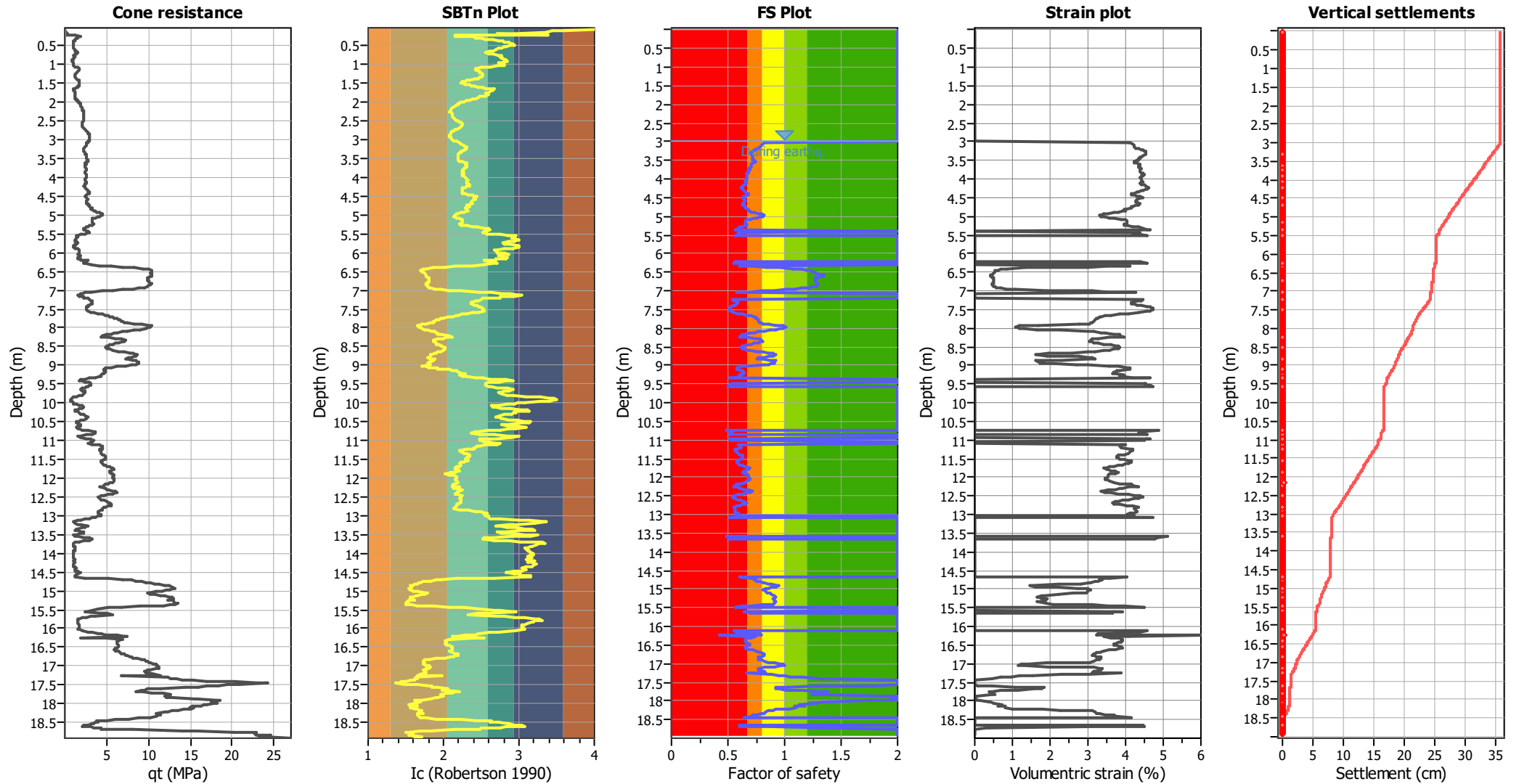
Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	3.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

- qt: Total cone resistance (cone resistance q_c corrected for pore water effects)
- Ic: Soil Behaviour Type Index
- FS: Calculated Factor of Safety against liquefaction
- Volumetric strain: Post-liquefaction volumetric strain

LIQUEFACTION ANALYSIS REPORT

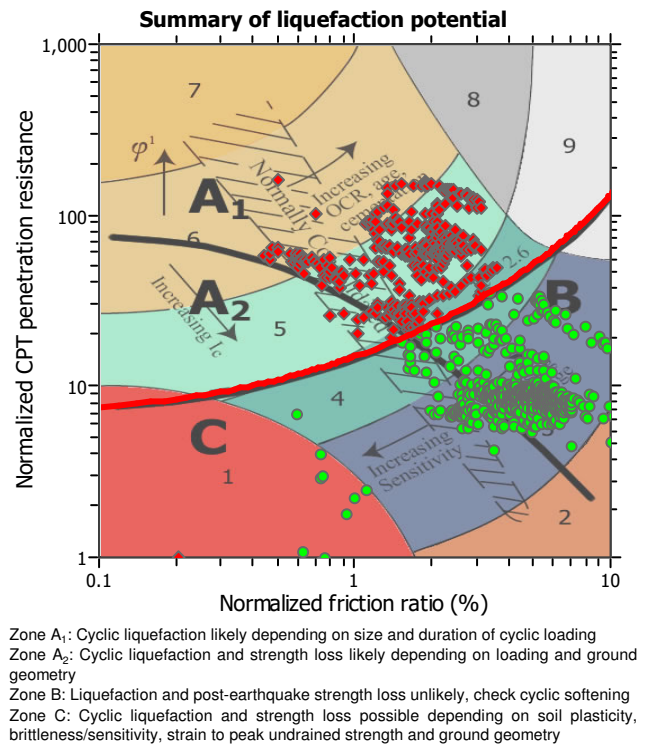
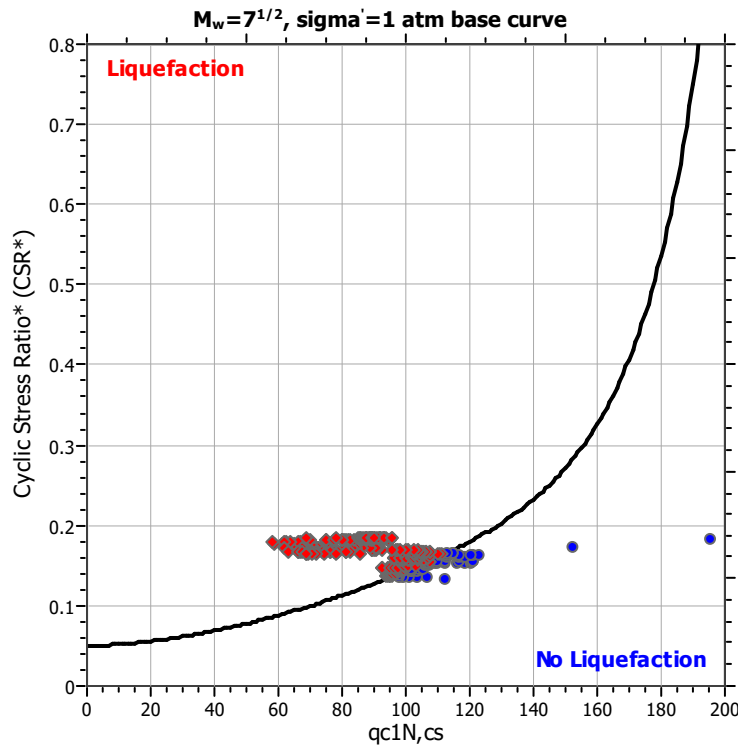
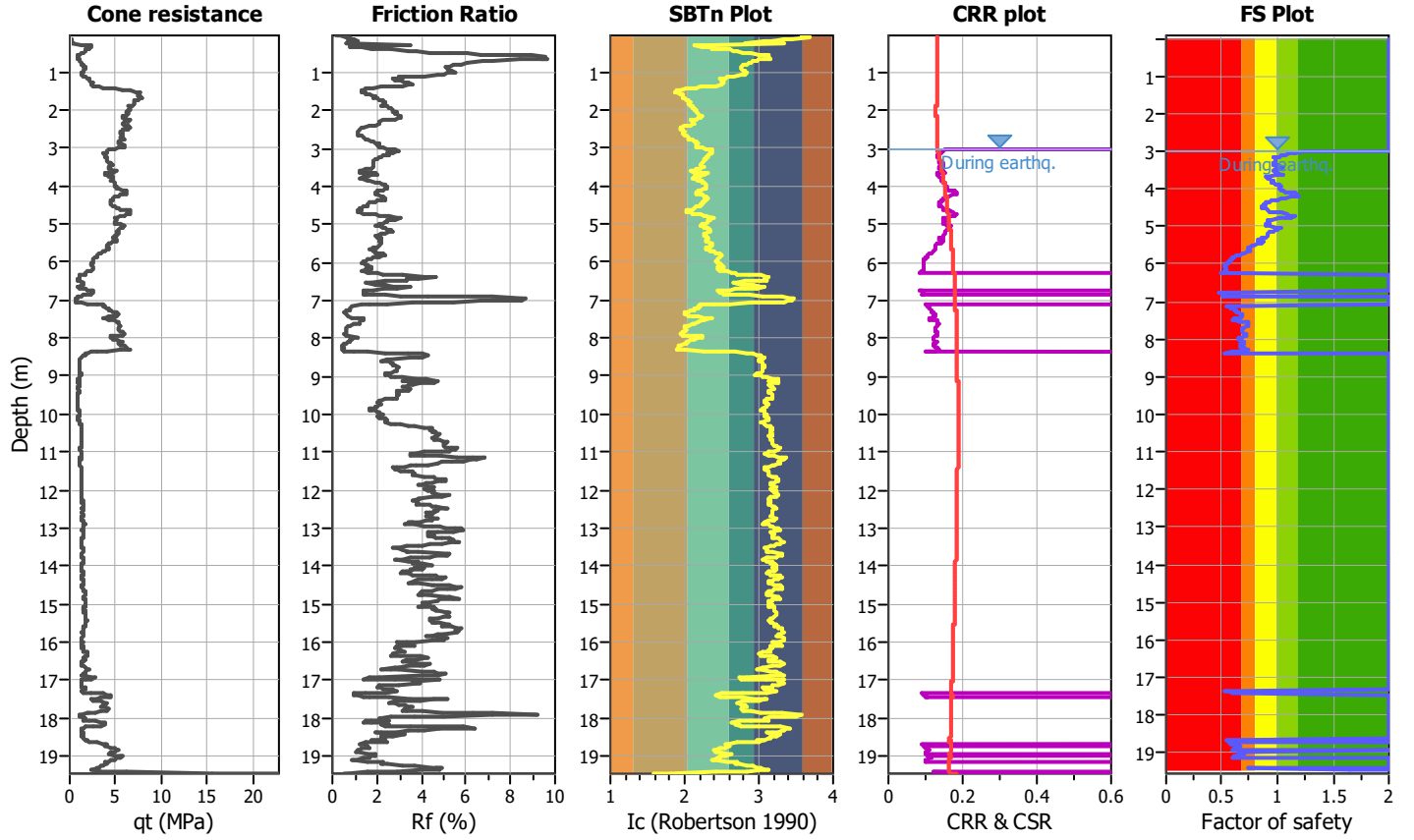
Project title :

Location :

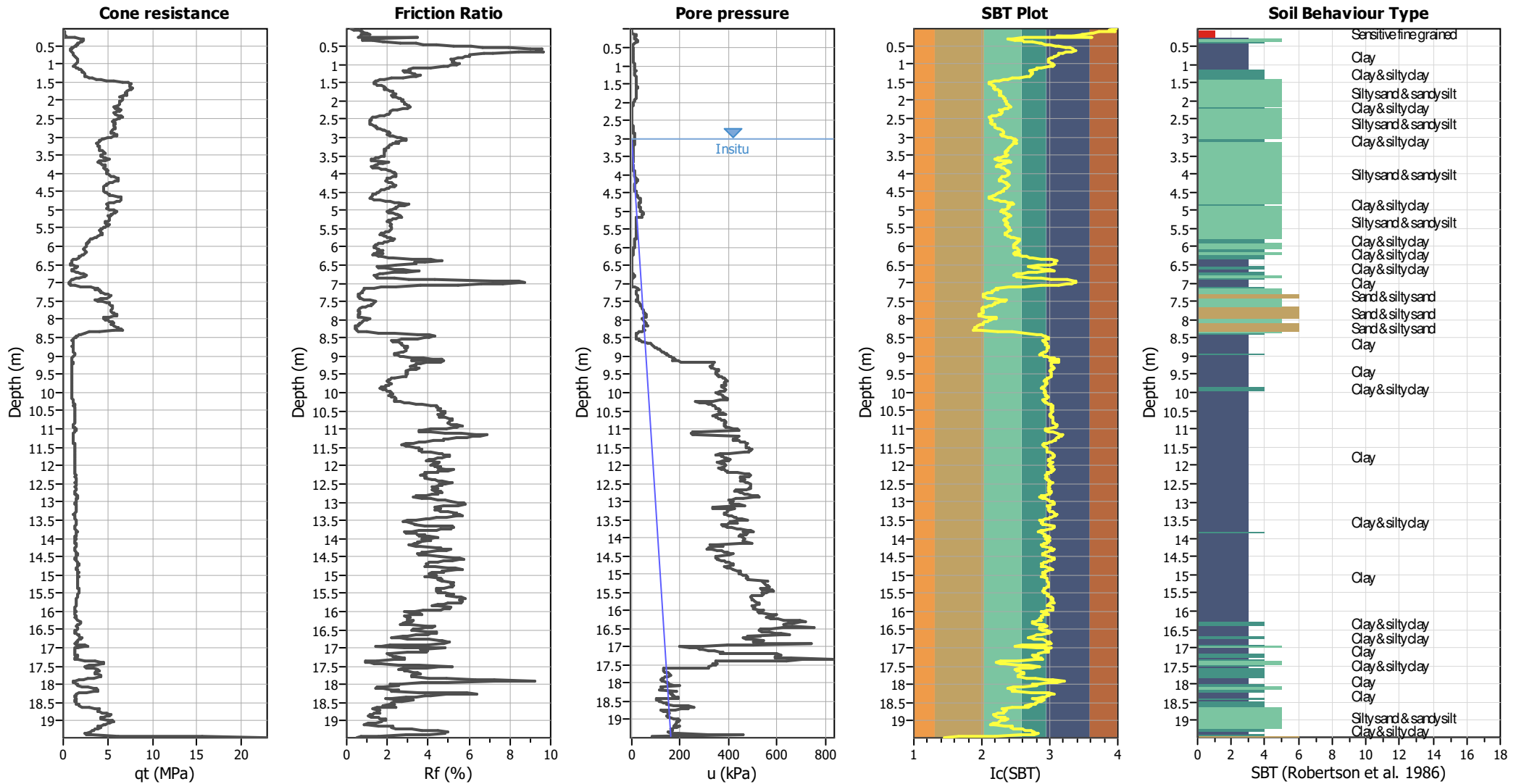
CPT file : CPTU 18 Via del Fiume in Ronta (Cesena)

Input parameters and analysis data

Analysis method:	I&B (2008)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior	
Fines correction method:	I&B (2008)	G.W.T. (earthq.):	3.00 m	Fill height:	N/A	applied:	Sands only
Points to test:	Based on Ic value	Average results interval:	1	Fill weight:	N/A	Limit depth applied:	No
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	Limit depth:	N/A
Peak ground acceleration:	0.33	Unit weight calculation:	Based on SBT	K_G applied:	Yes	MSF method:	Method based



CPT basic interpretation plots



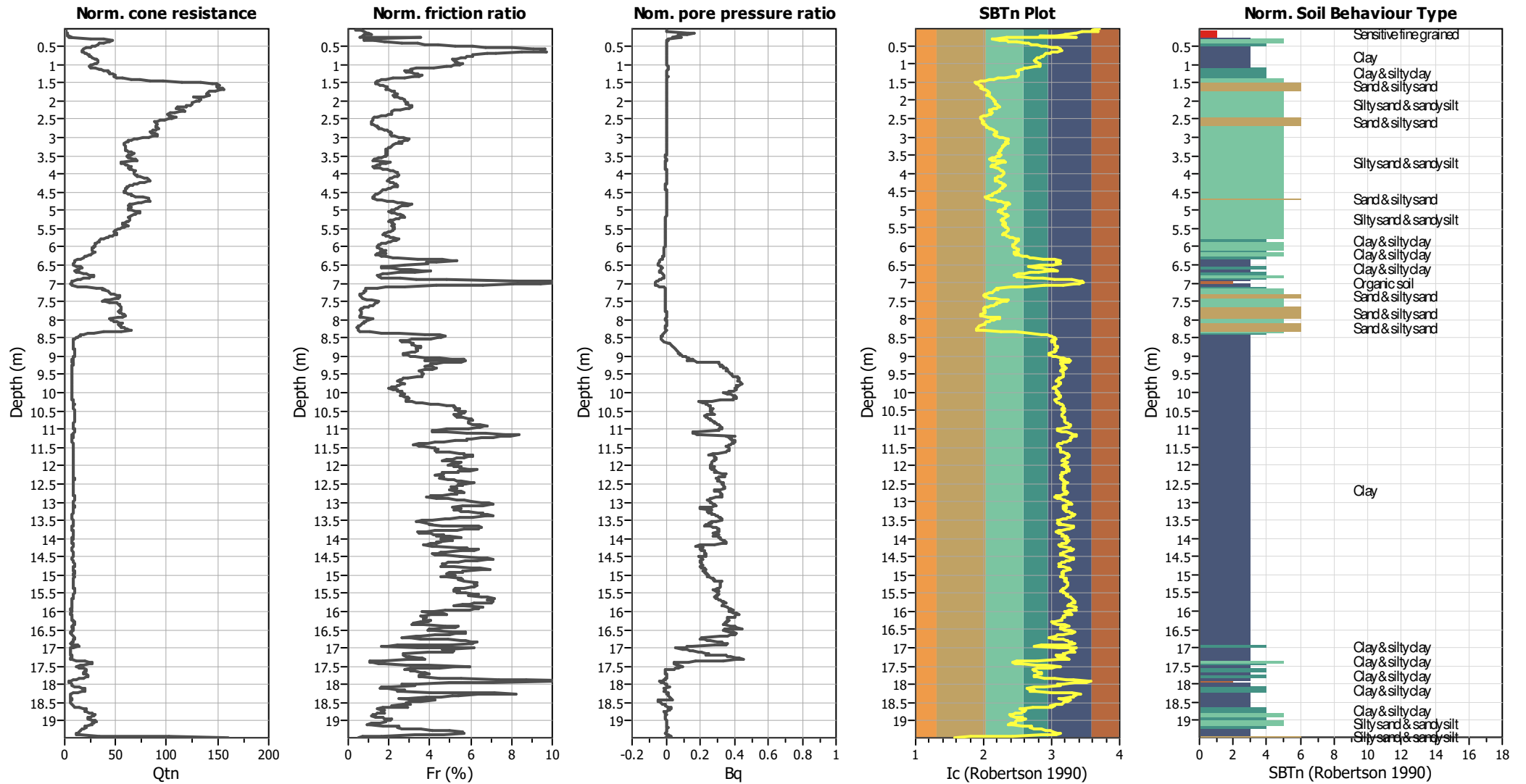
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	3.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	N/A

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

CPT basic interpretation plots (normalized)



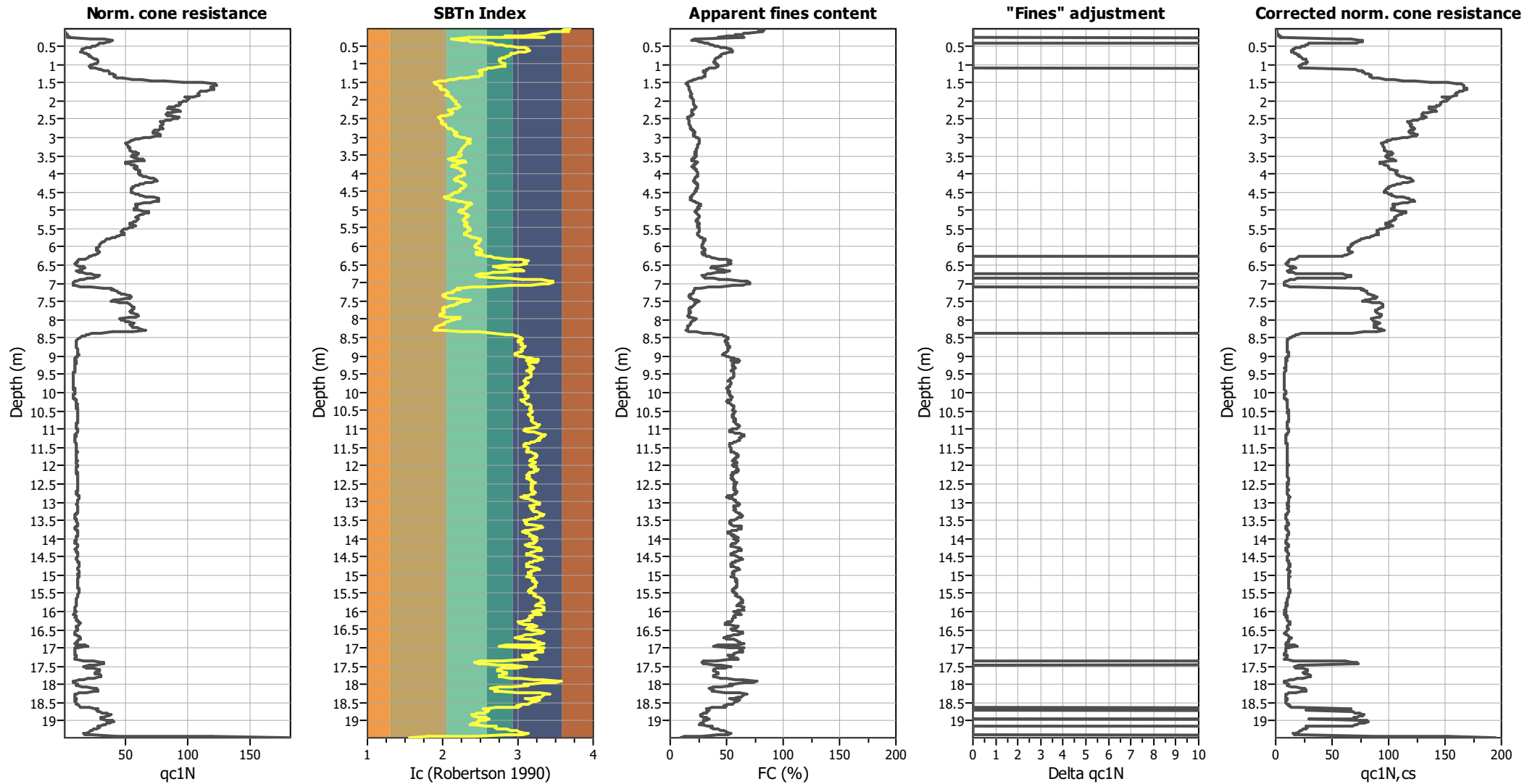
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	3.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	N/A

SBTn 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

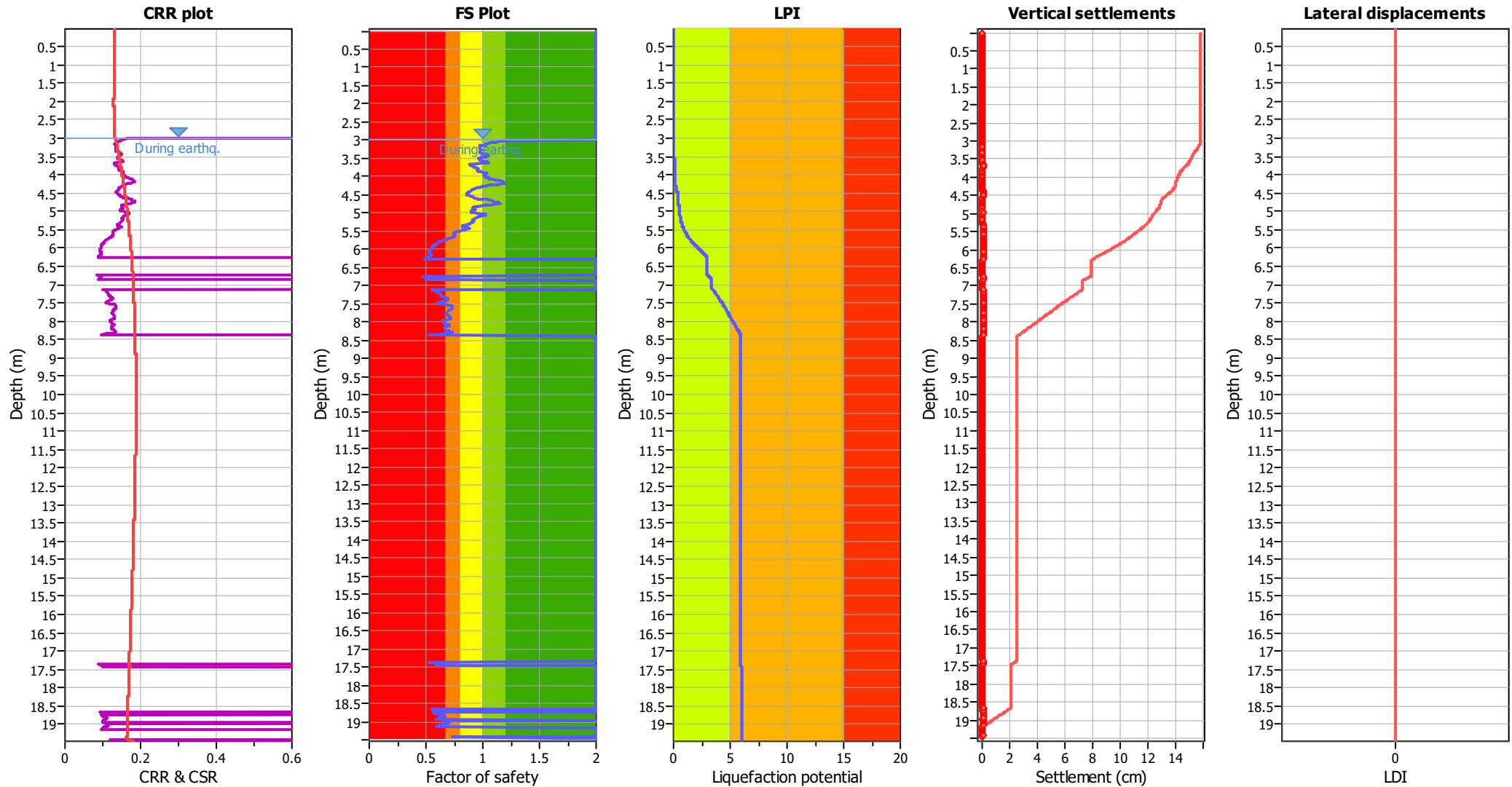
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	3.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (earthq.):	3.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_0 applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	N/A

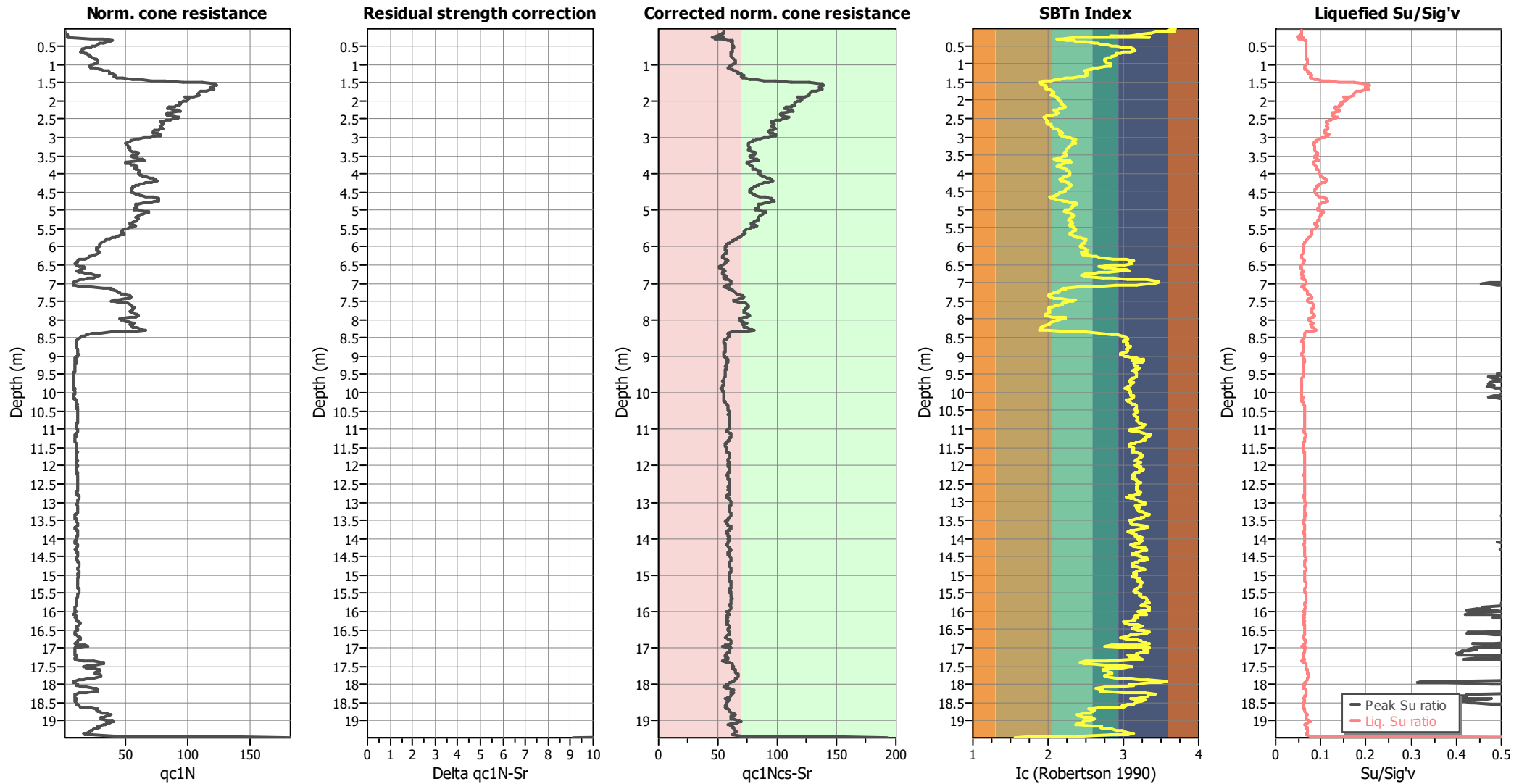
F.S. color scheme

- 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

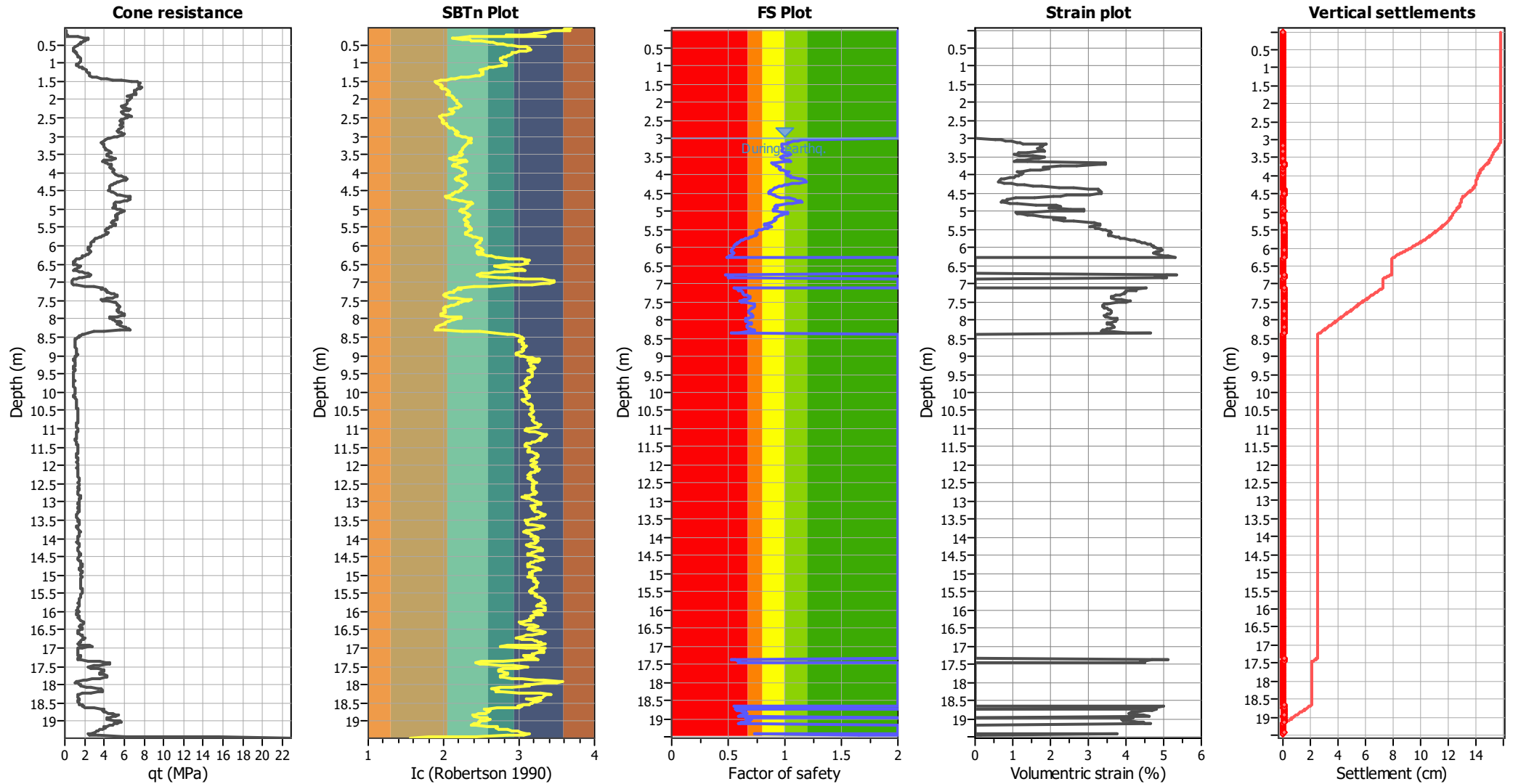
Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	3.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

- qt: Total cone resistance (cone resistance q_c corrected for pore water effects)
- I_c: Soil Behaviour Type Index
- FS: Calculated Factor of Safety against liquefaction
- Volumetric strain: Post-liquefaction volumetric strain

LIQUEFACTION ANALYSIS REPORT

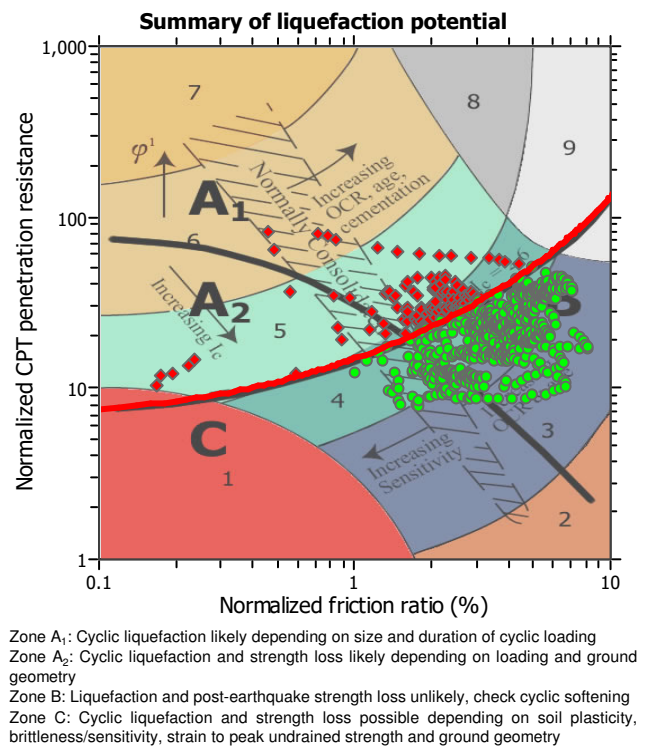
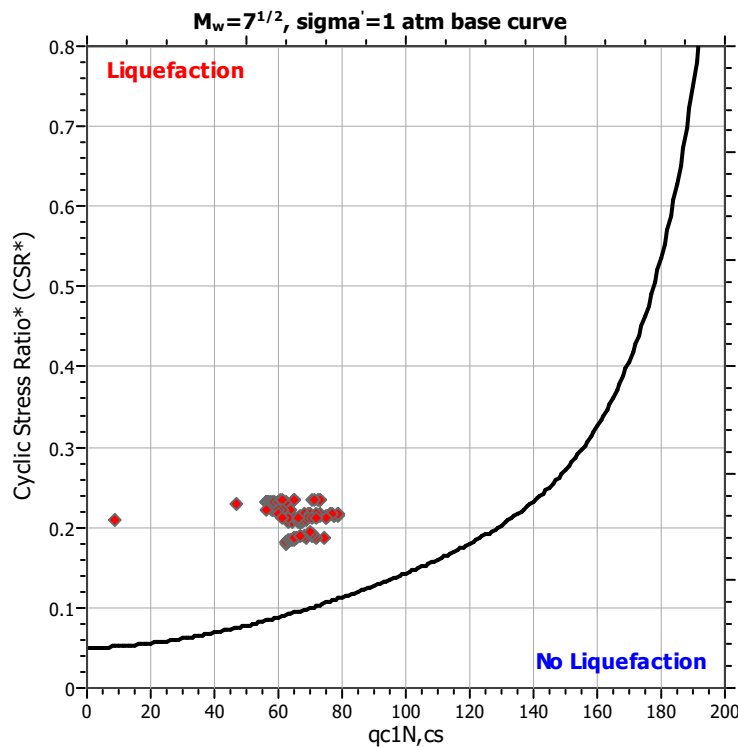
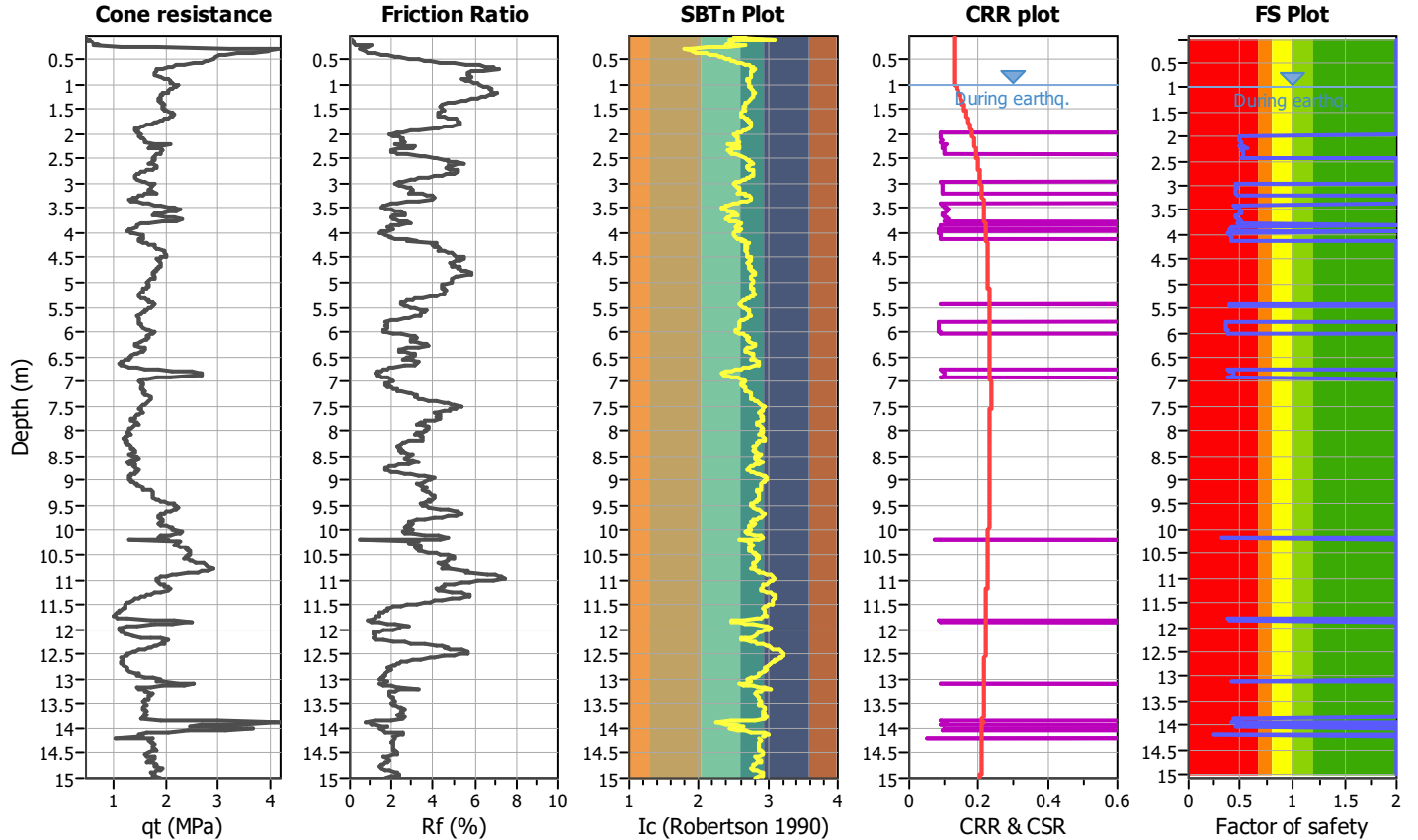
Project title :

Location :

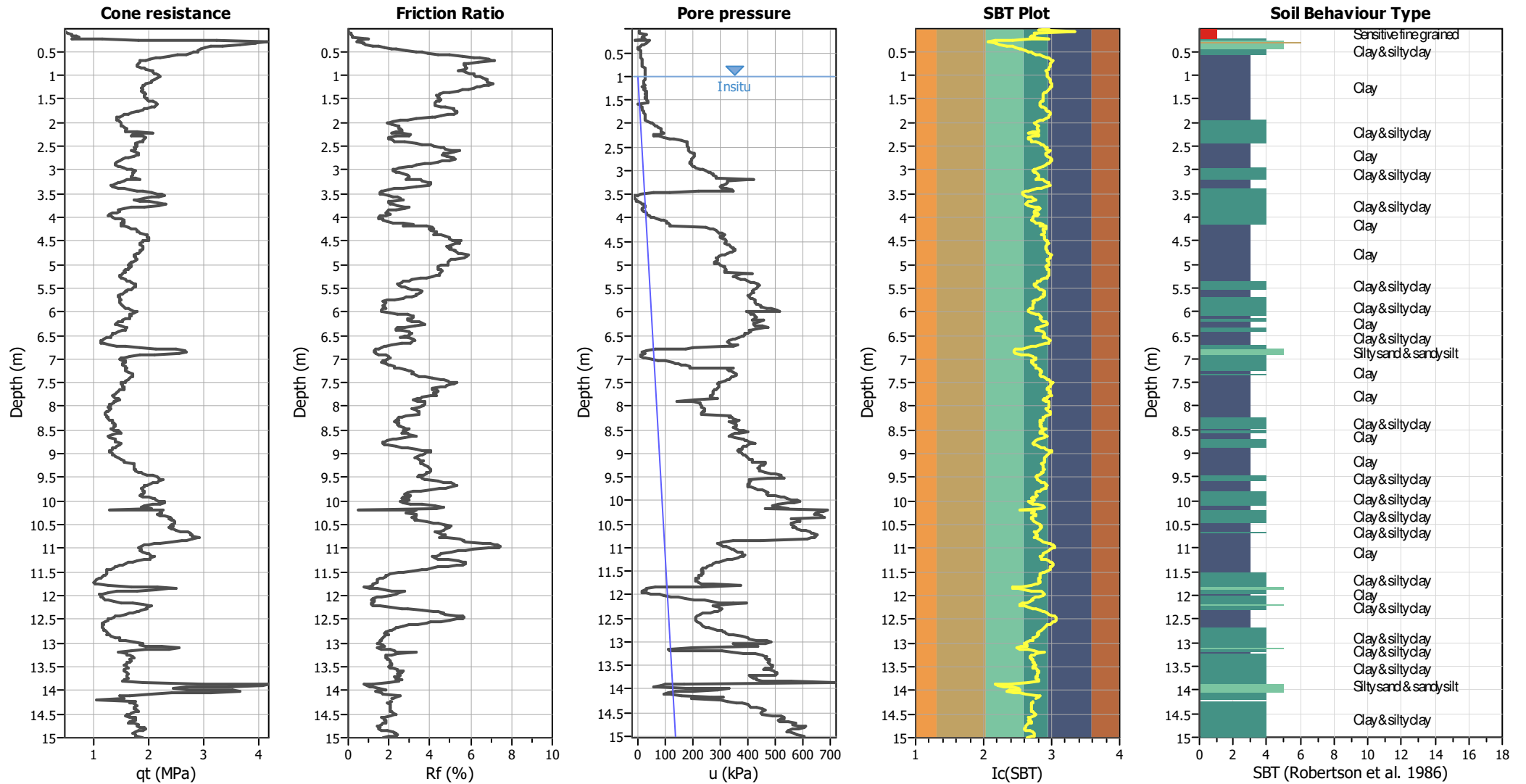
CPT file : CPTU 20 Via Parataglio (Cesena)

Input parameters and analysis data

Analysis method:	I&B (2008)	G.W.T. (in-situ):	1.00 m	Use fill:	No	Clay like behavior	
Fines correction method:	I&B (2008)	G.W.T. (earthq.):	1.00 m	Fill height:	N/A	applied:	Sands only
Points to test:	Based on Ic value	Average results interval:	1	Fill weight:	N/A	Limit depth applied:	No
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	Limit depth:	N/A
Peak ground acceleration:	0.33	Unit weight calculation:	Based on SBT	K_g applied:	Yes	MSF method:	Method based



CPT basic interpretation plots



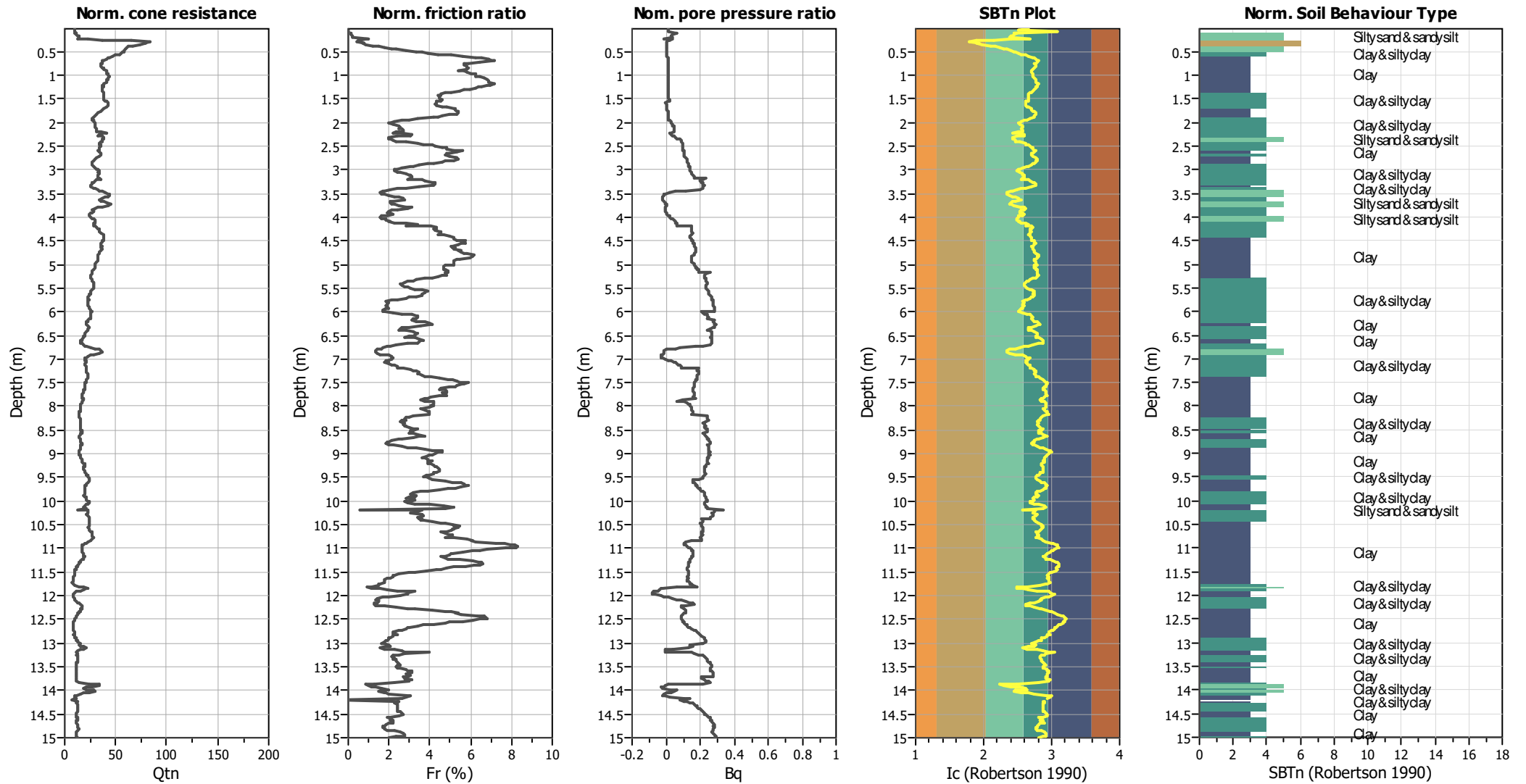
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K ₀ applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

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

CPT basic interpretation plots (normalized)



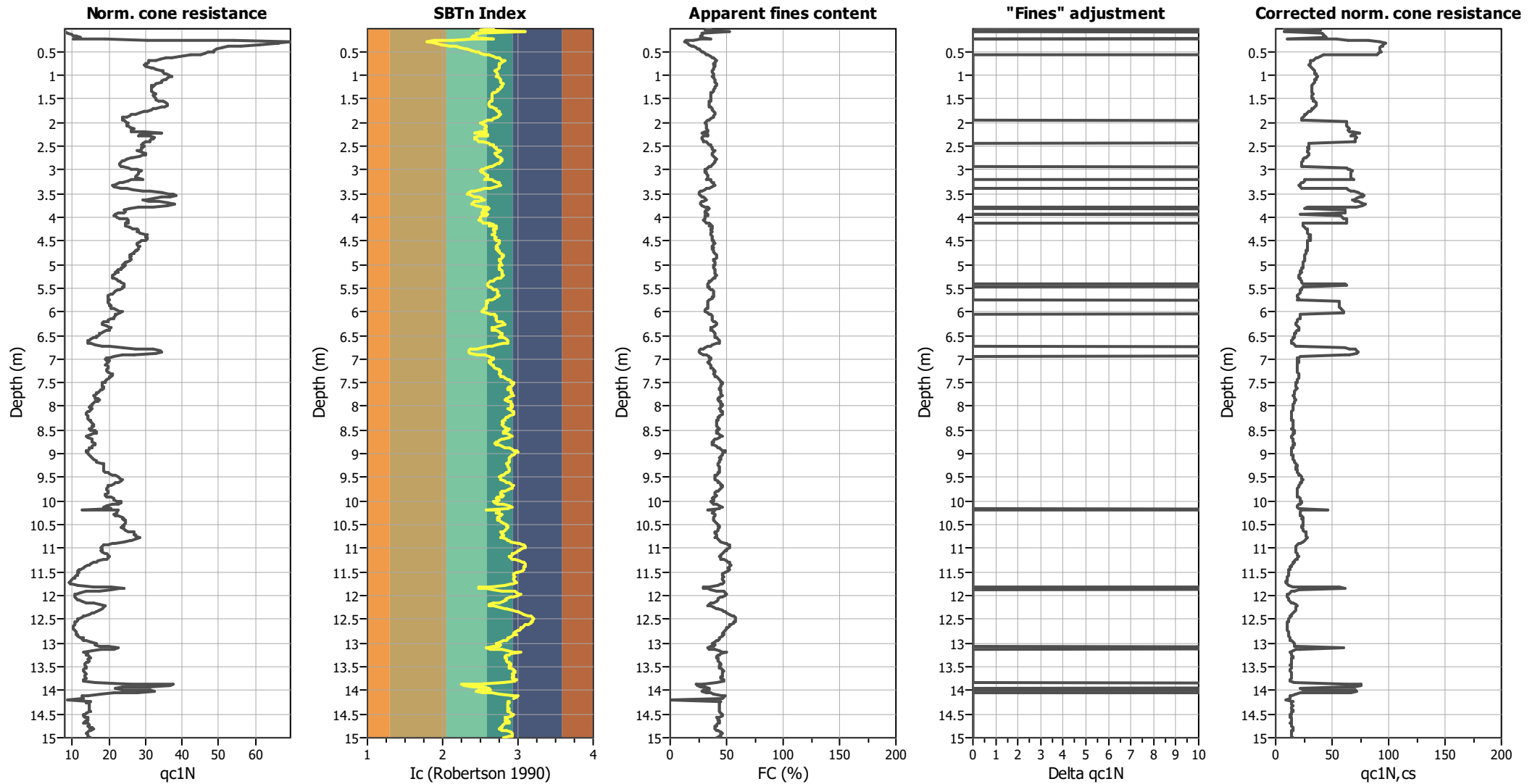
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

SBTn 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

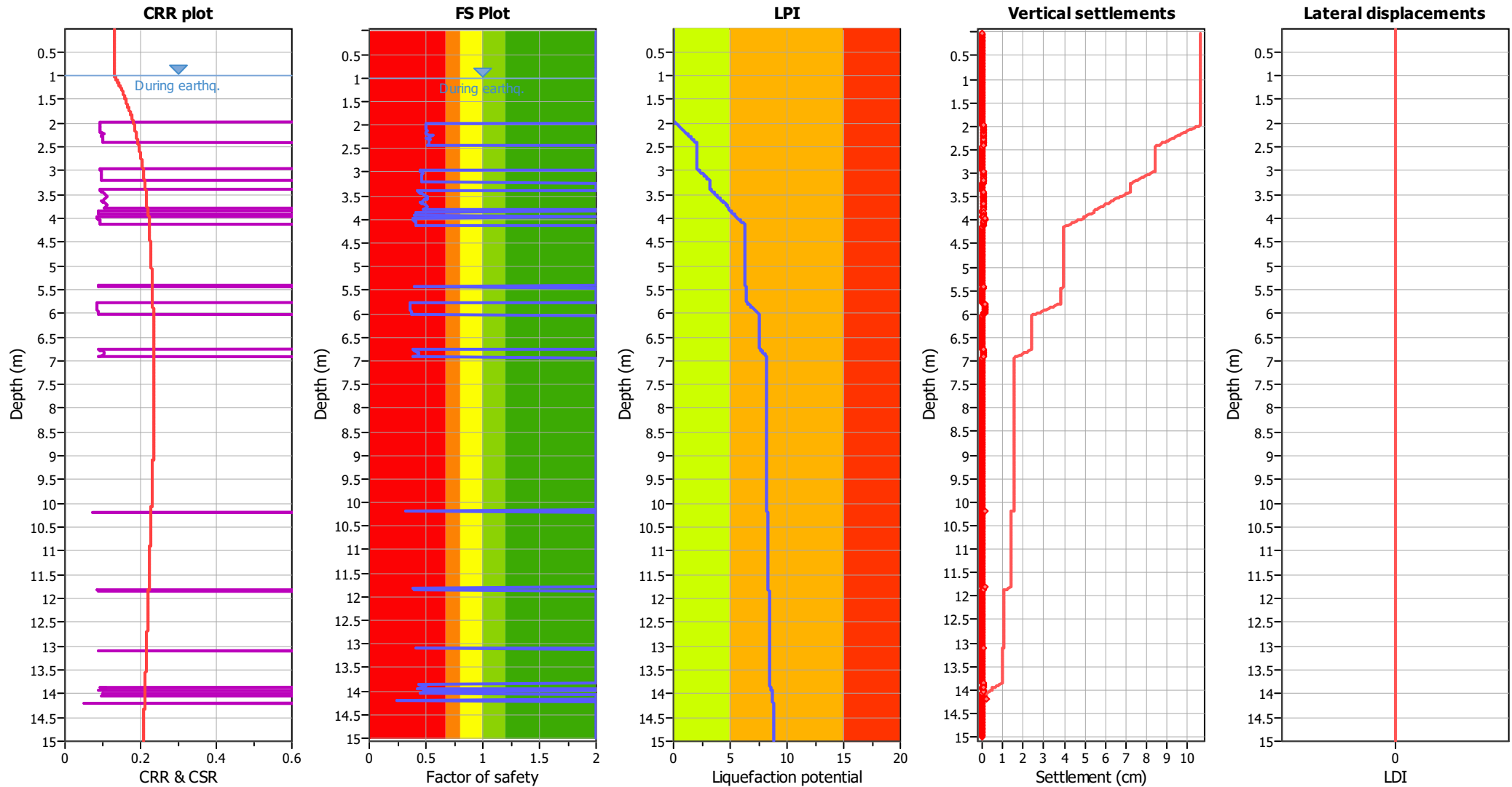
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

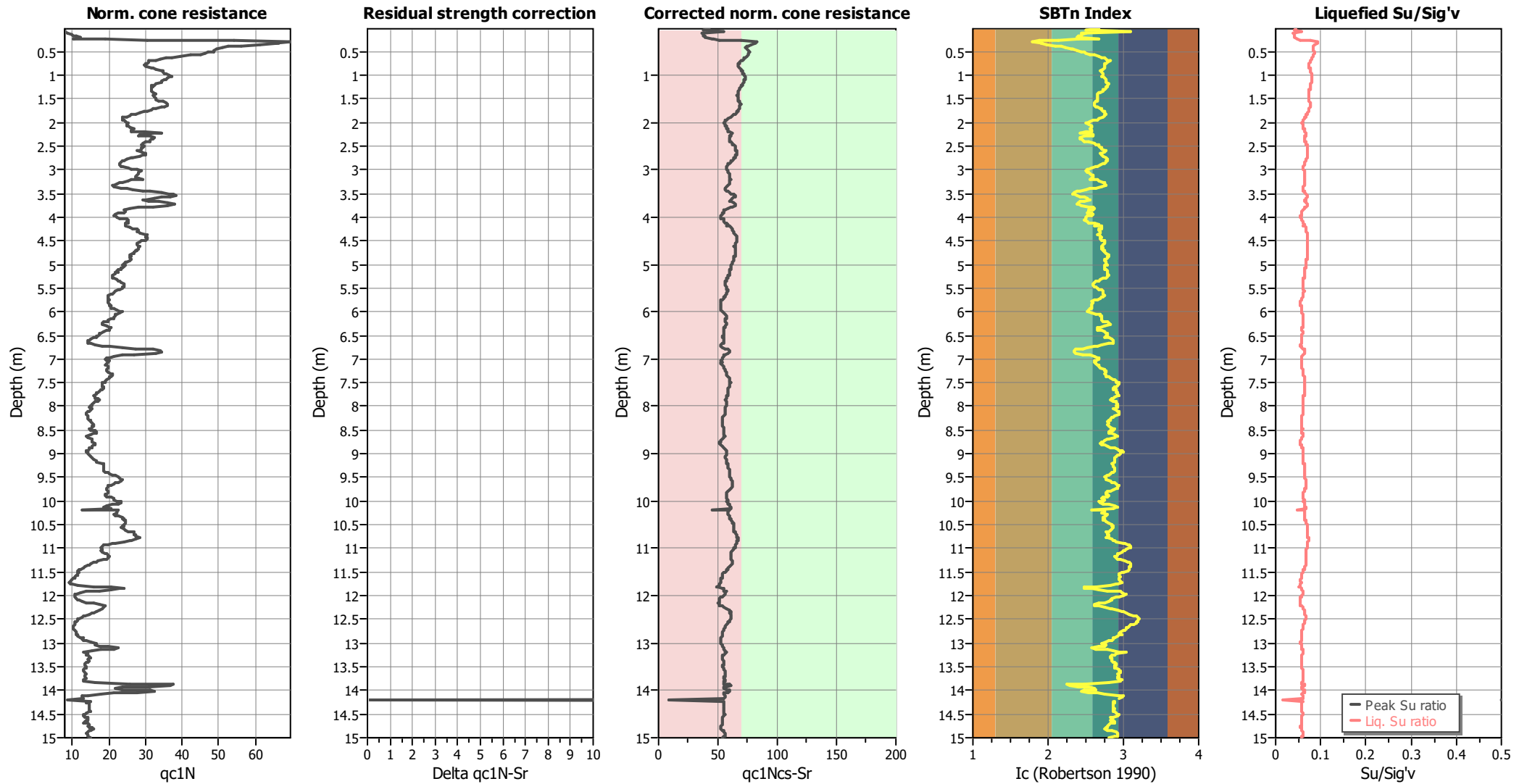
F.S. color scheme

- 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

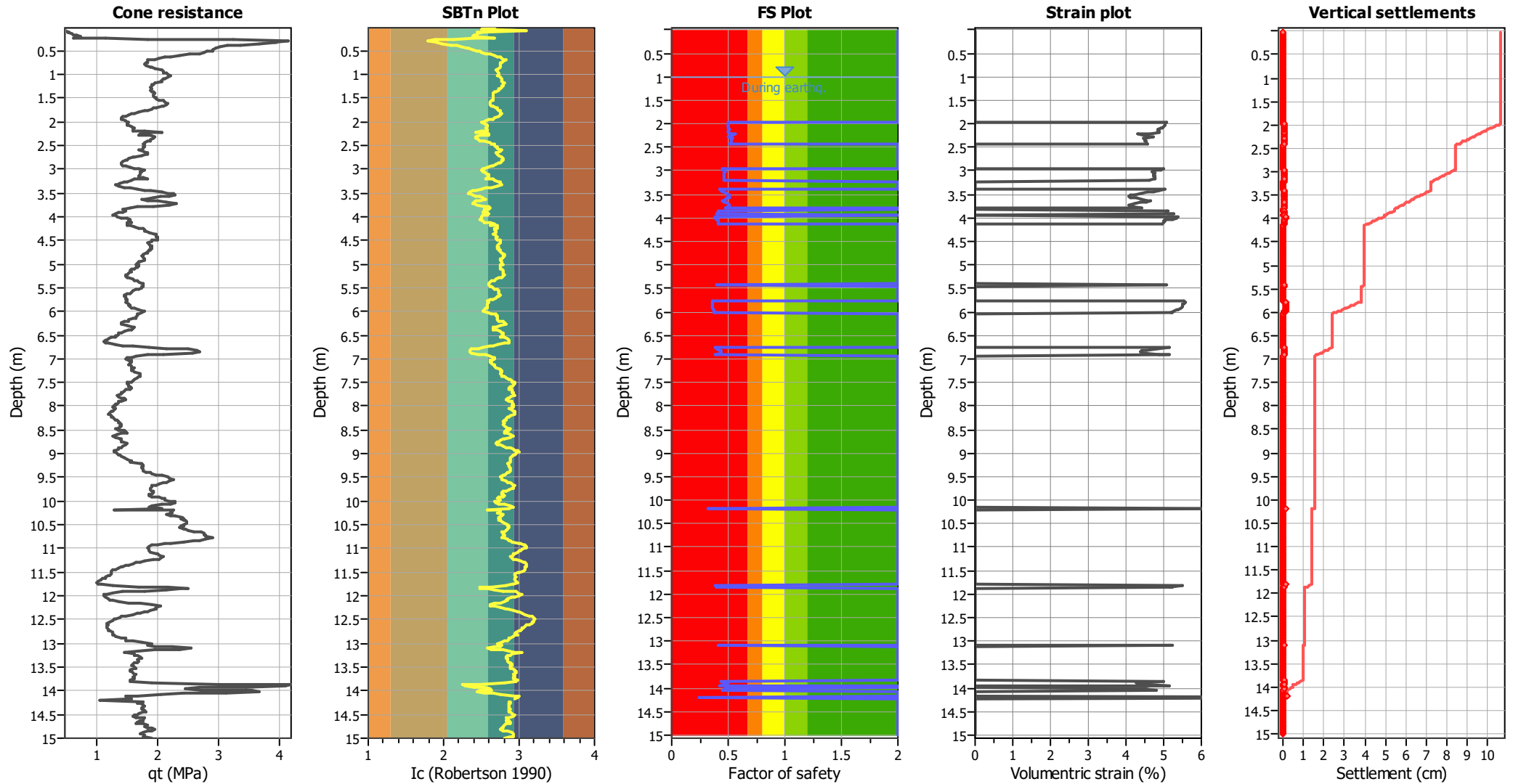
Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

- qt: Total cone resistance (cone resistance q_c corrected for pore water effects)
- I_c: Soil Behaviour Type Index
- FS: Calculated Factor of Safety against liquefaction
- Volumetric strain: Post-liquefaction volumetric strain

LIQUEFACTION ANALYSIS REPORT

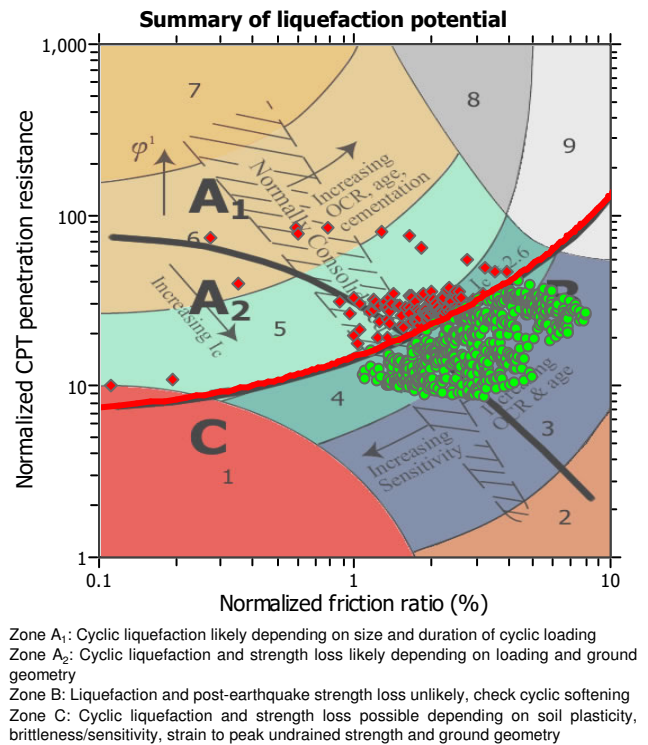
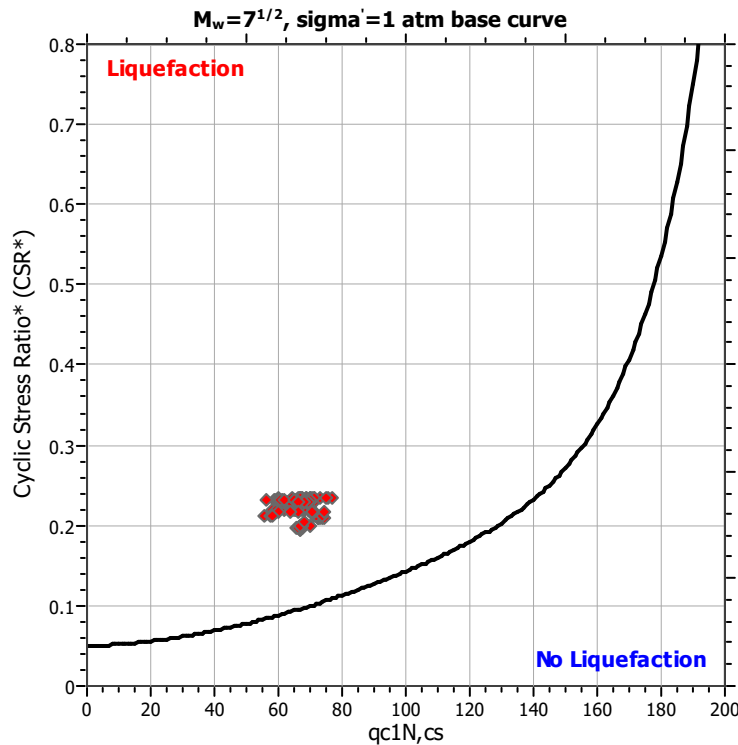
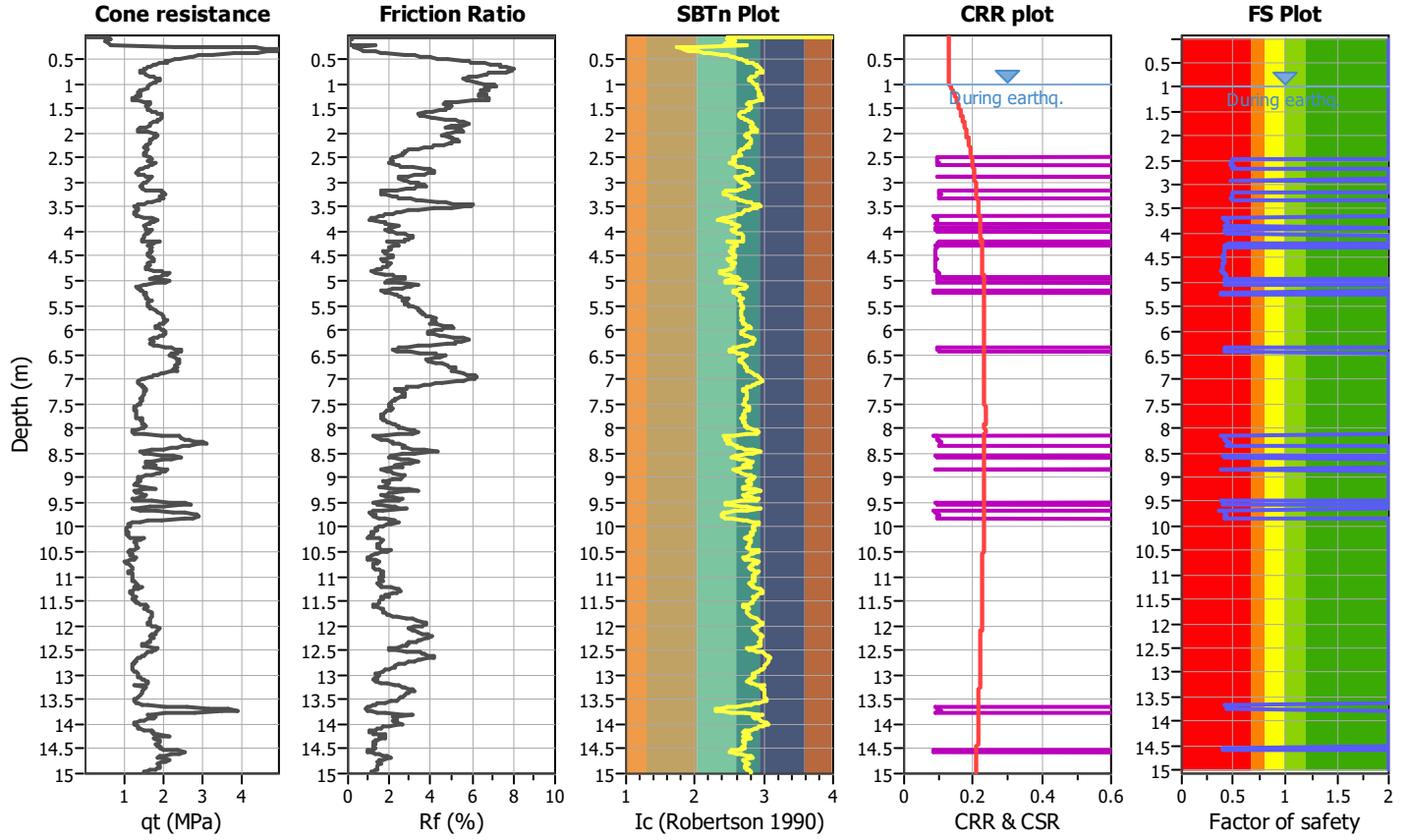
Project title :

Location :

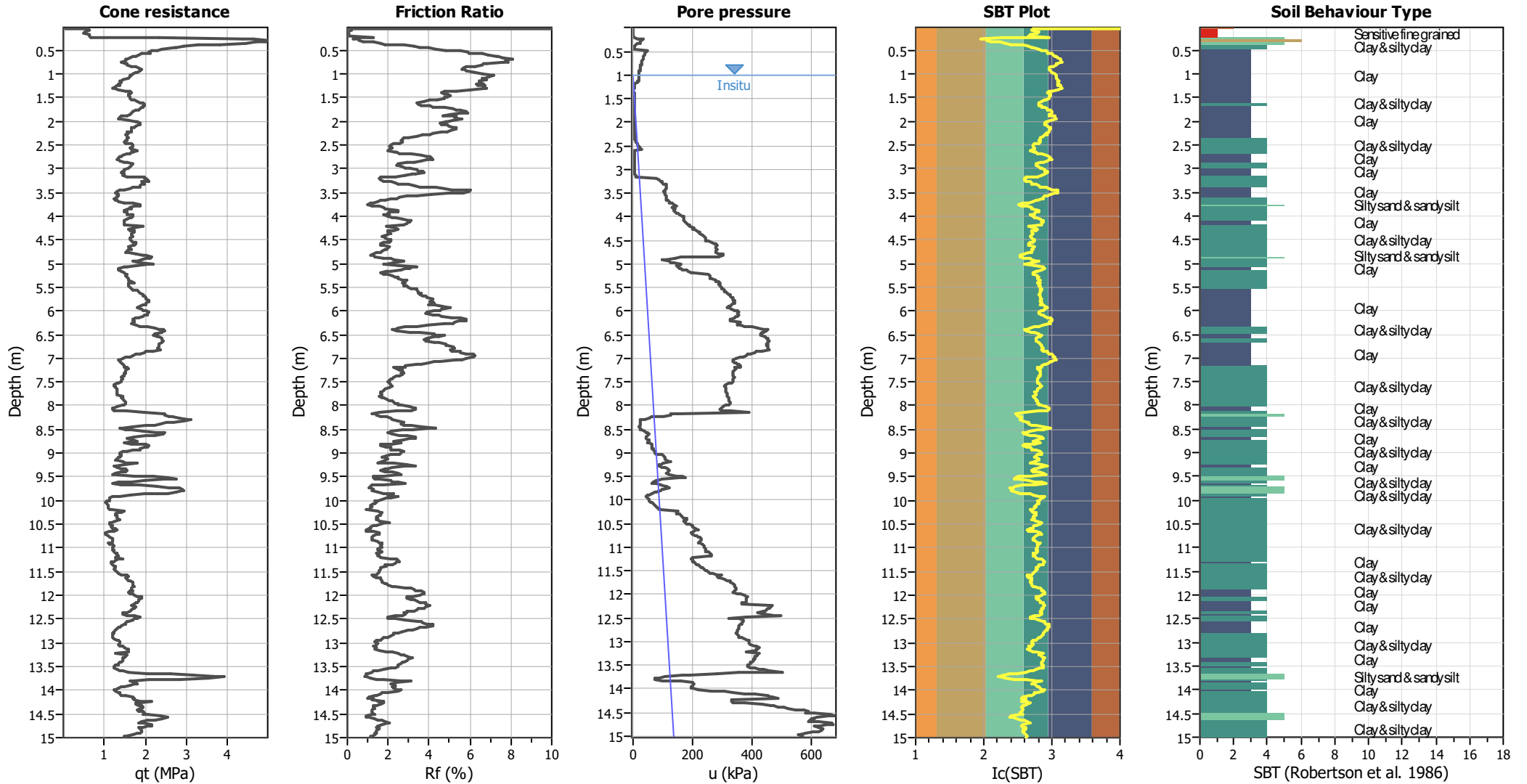
CPTU file : CPTU 21 Via Pisignano (Cesena)

Input parameters and analysis data

Analysis method:	I&B (2008)	G.W.T. (in-situ):	1.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	I&B (2008)	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:	1	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.33	Unit weight calculation:	Based on SBT	K_g applied:	Yes		



CPT basic interpretation plots



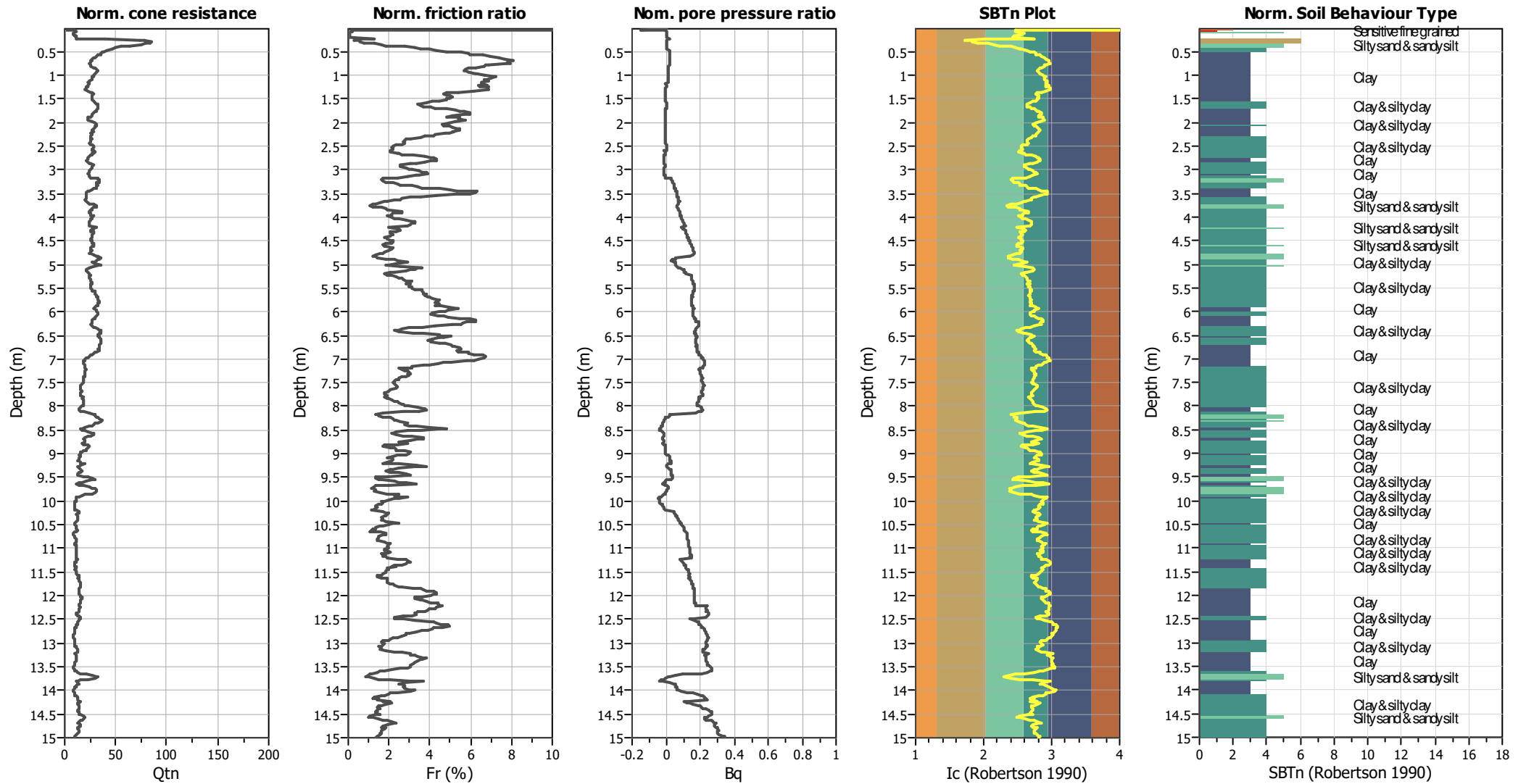
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

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

CPT basic interpretation plots (normalized)



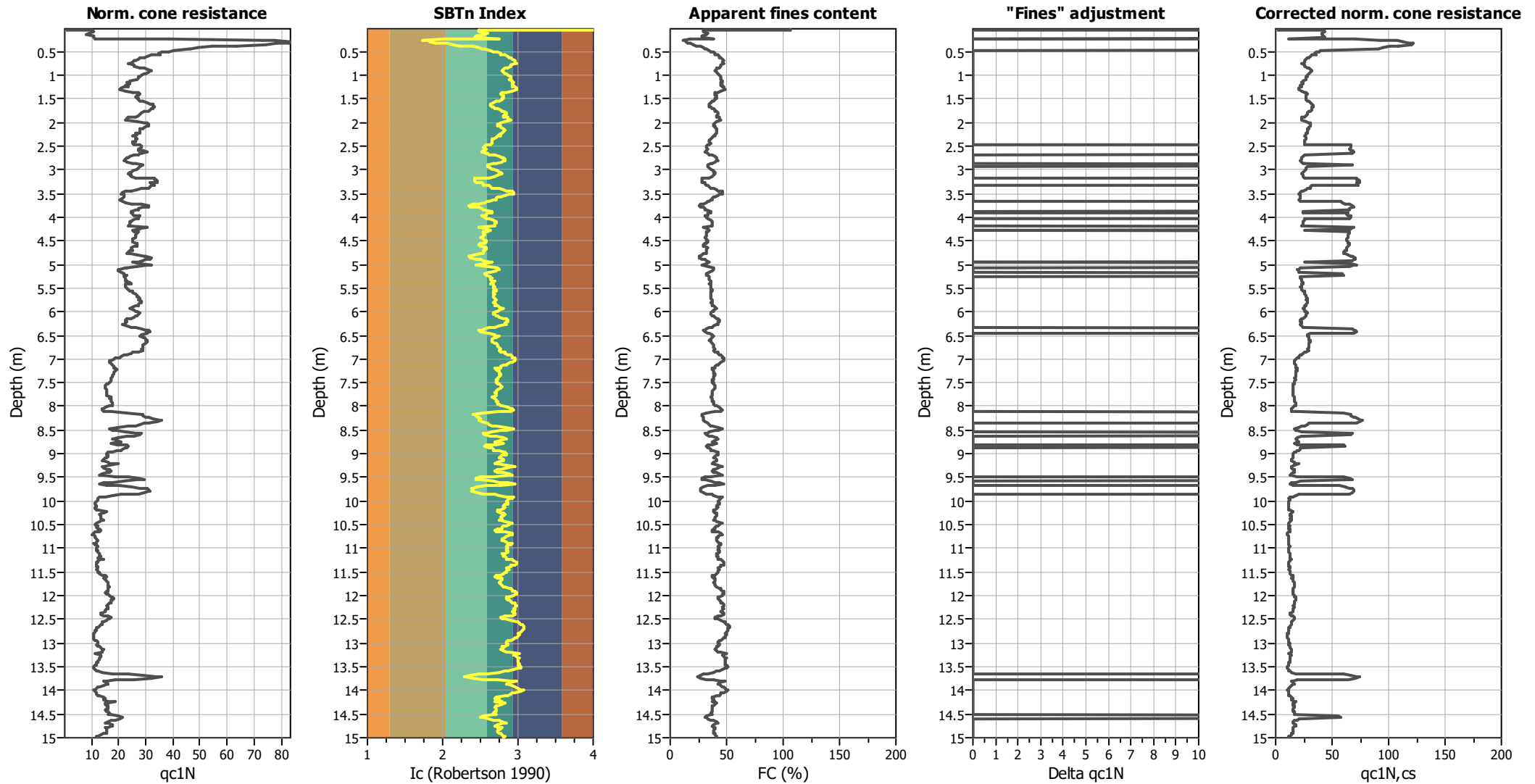
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

SBTn 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

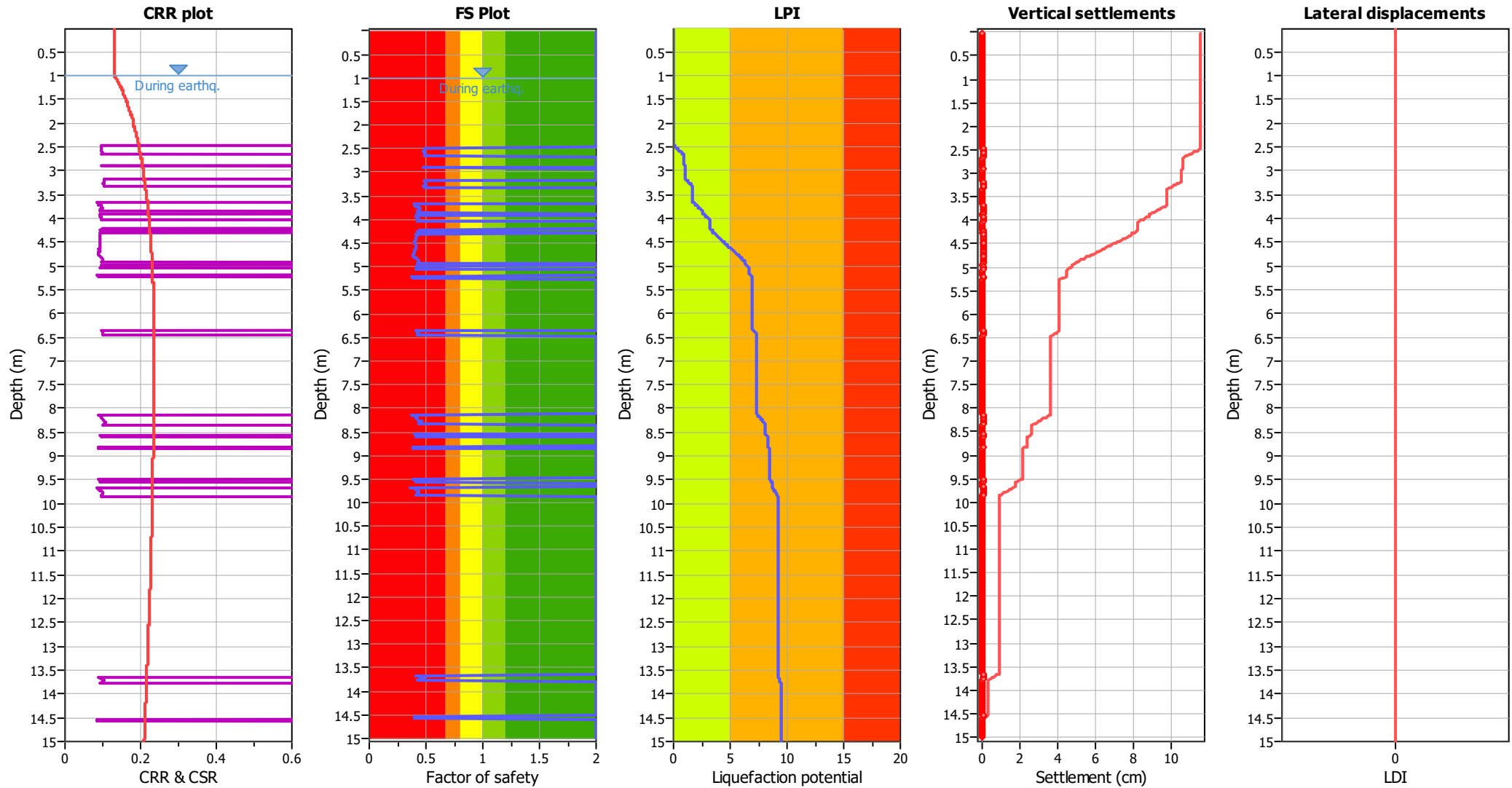
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

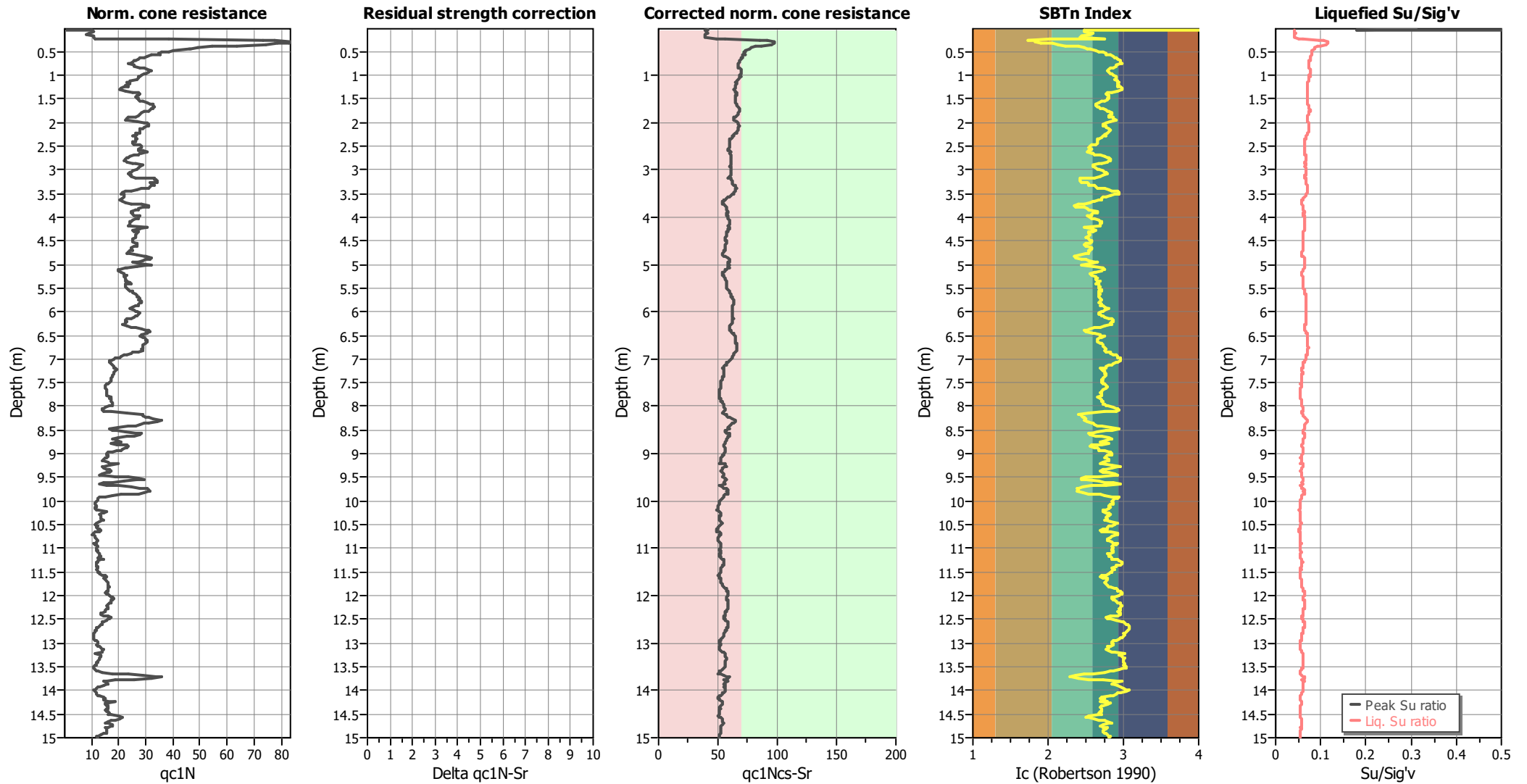
F.S. color scheme

- 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

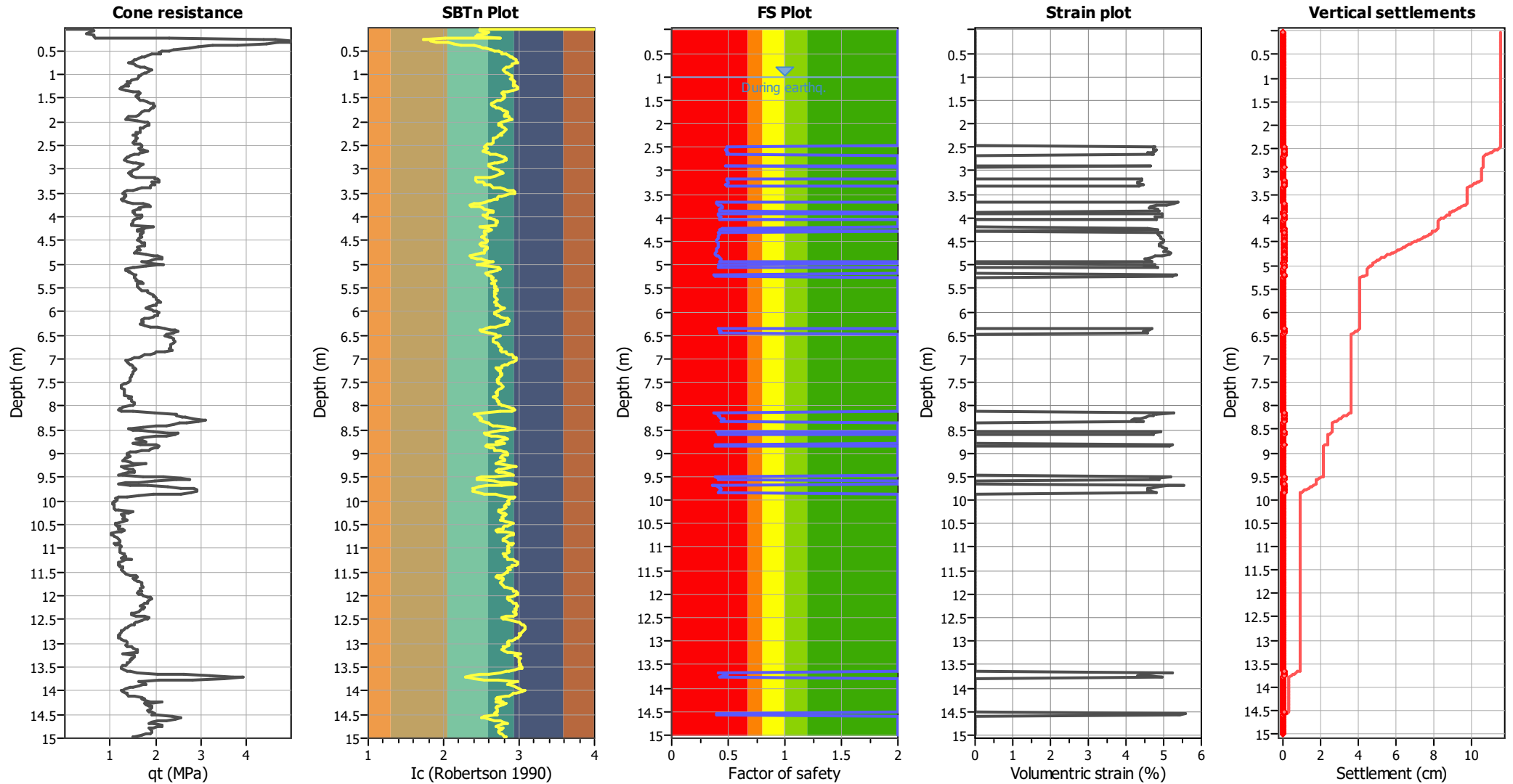
Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GW (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

- qt: Total cone resistance (cone resistance q_c corrected for pore water effects)
- I_c: Soil Behaviour Type Index
- FS: Calculated Factor of Safety against liquefaction
- Volumetric strain: Post-liquefaction volumetric strain

LIQUEFACTION ANALYSIS REPORT

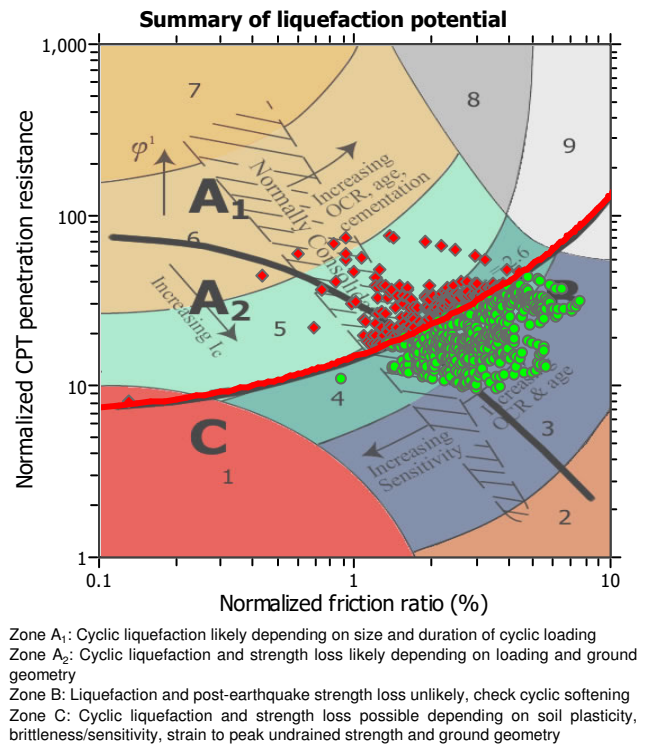
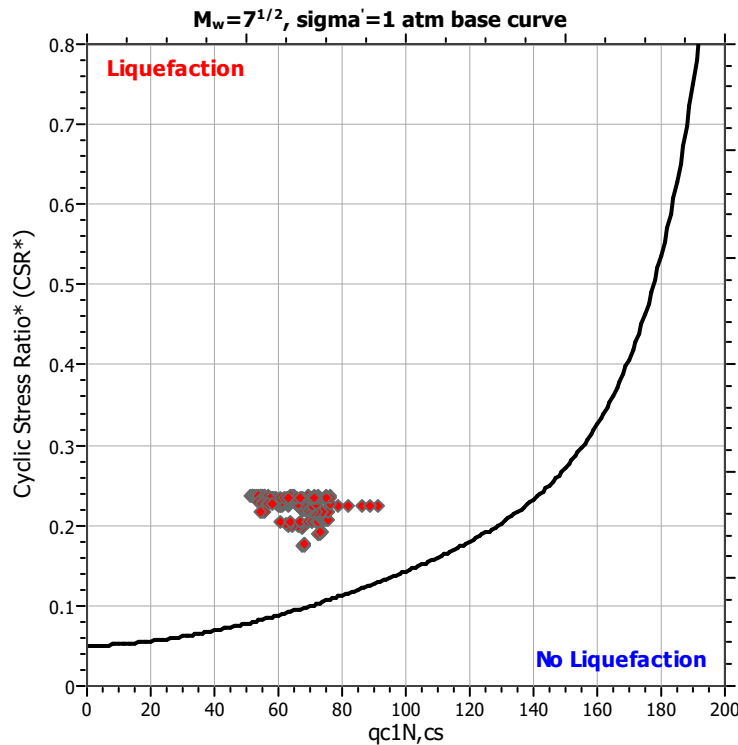
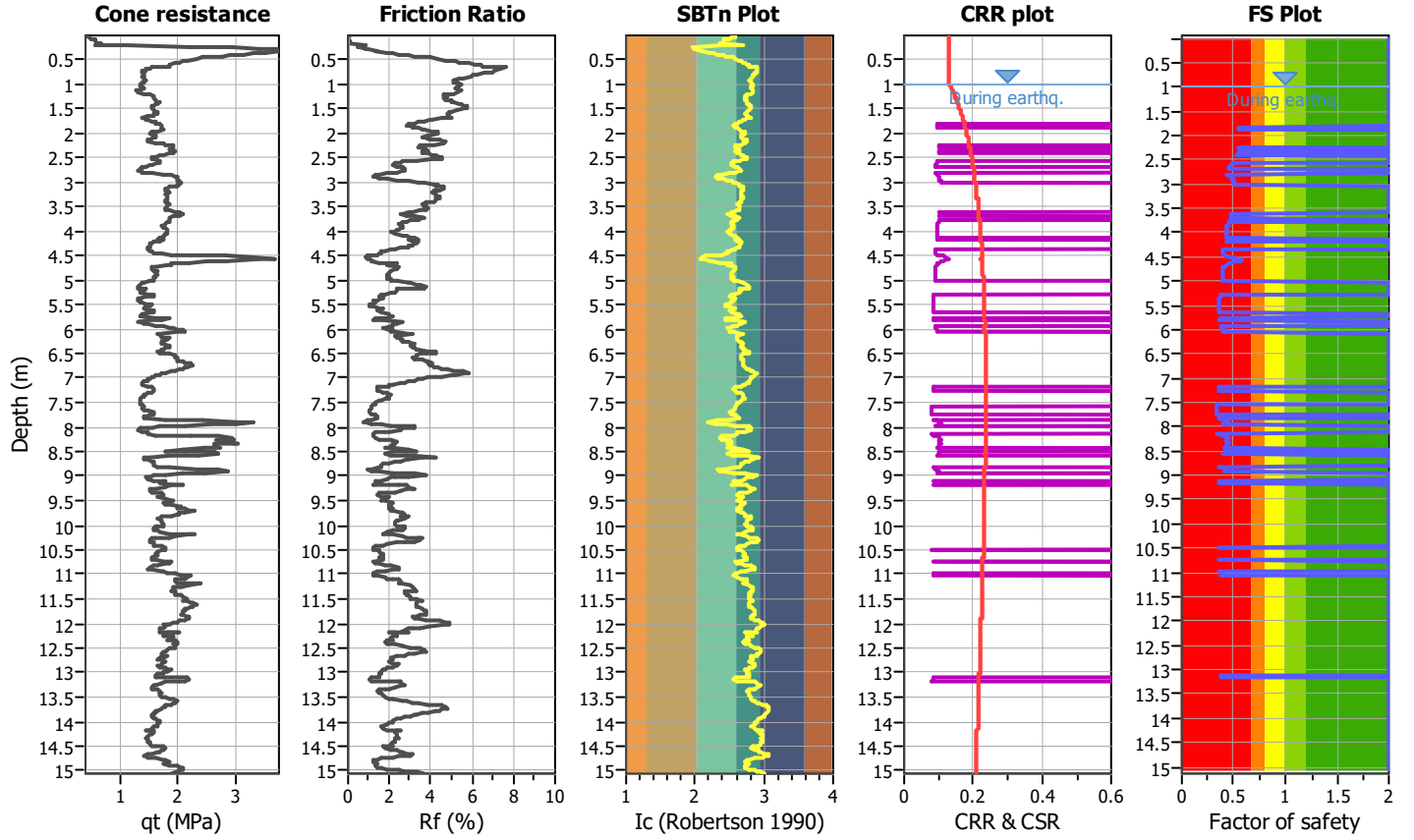
Project title :

Location :

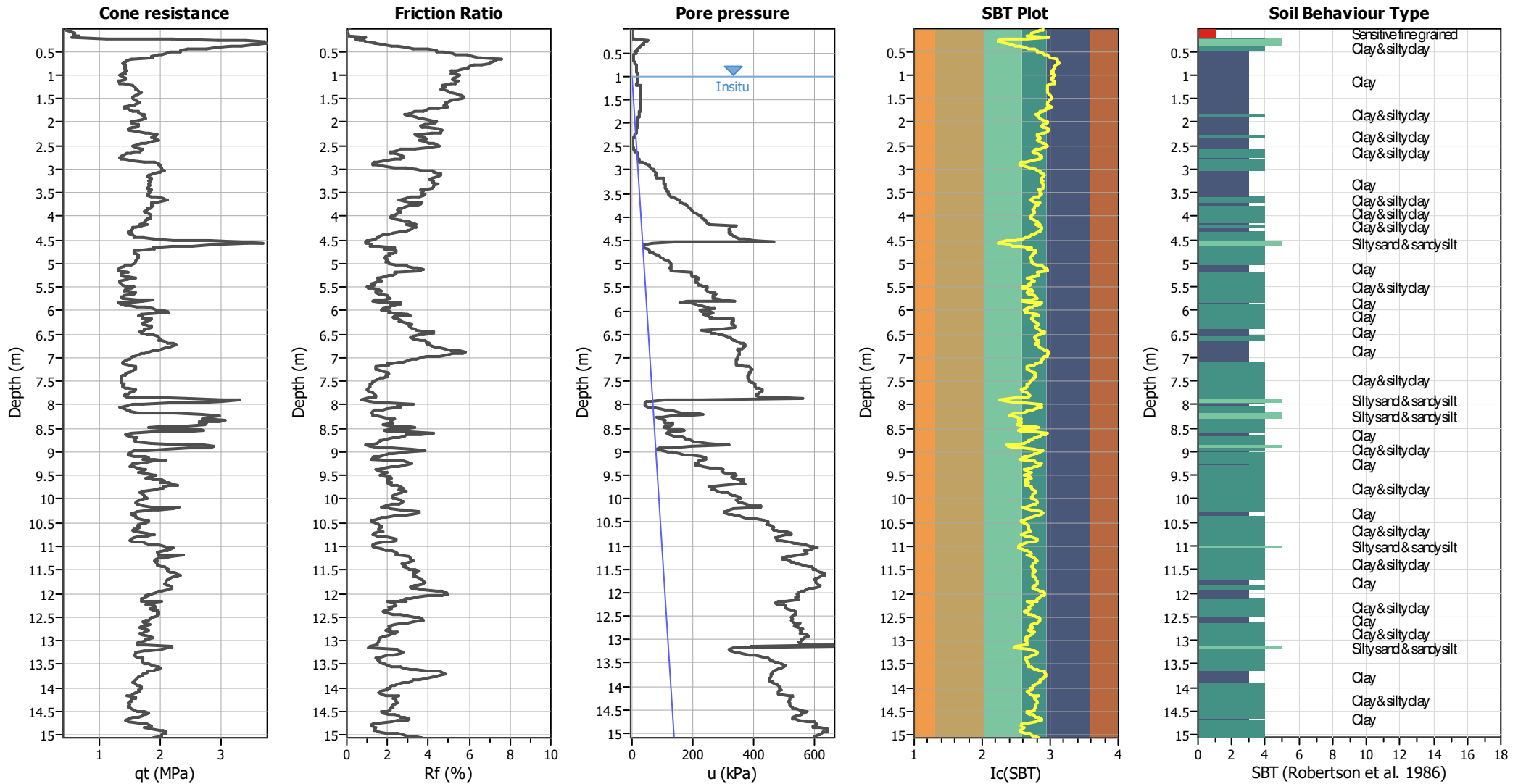
CPT file : CPTU 22 Via Violone ang. Via Calabria

Input parameters and analysis data

Analysis method:	I&B (2008)	G.W.T. (in-situ):	1.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	I&B (2008)	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:	1	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.33	Unit weight calculation:	Based on SBT	K_g applied:	Yes		



CPT basic interpretation plots



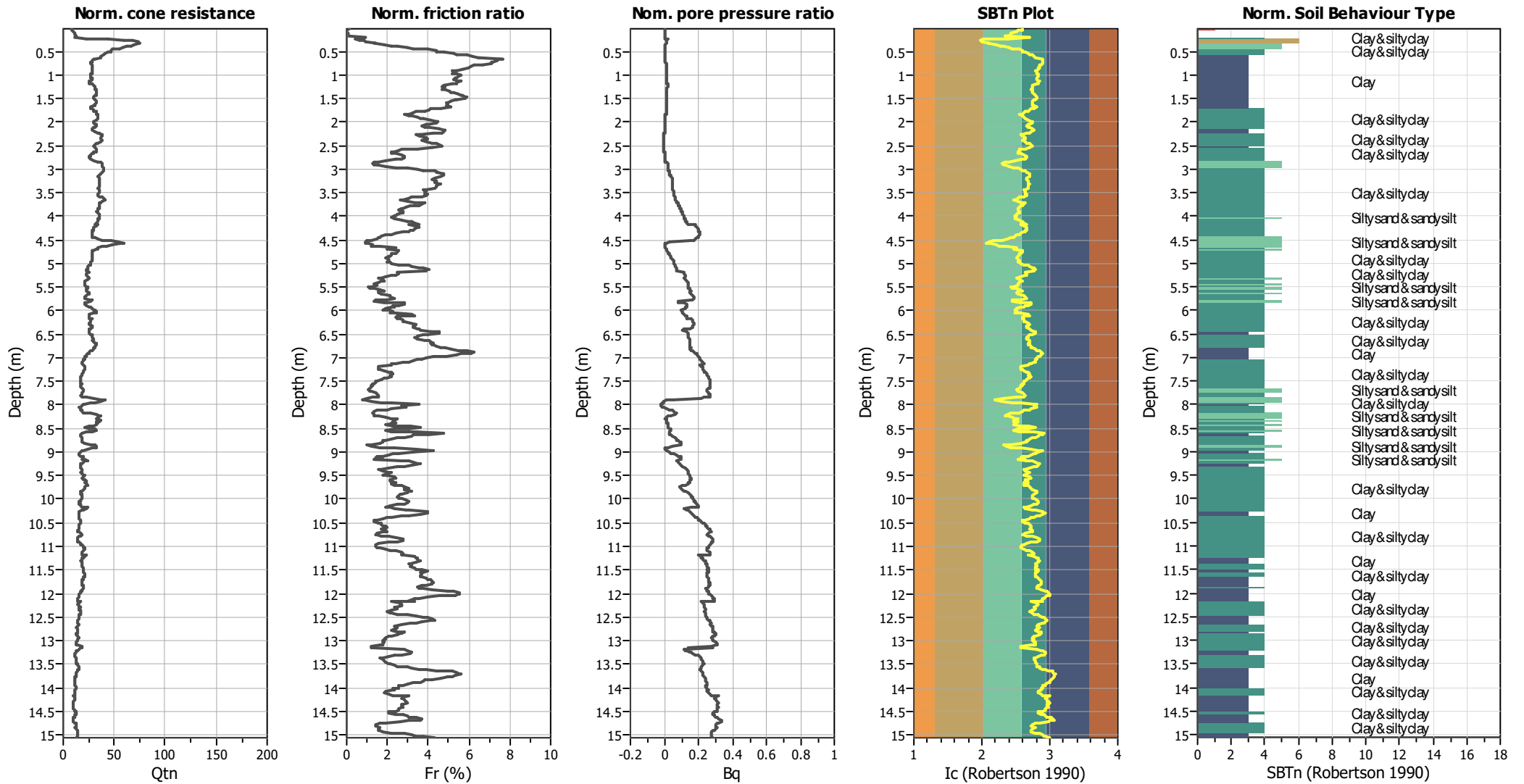
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

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

CPT basic interpretation plots (normalized)



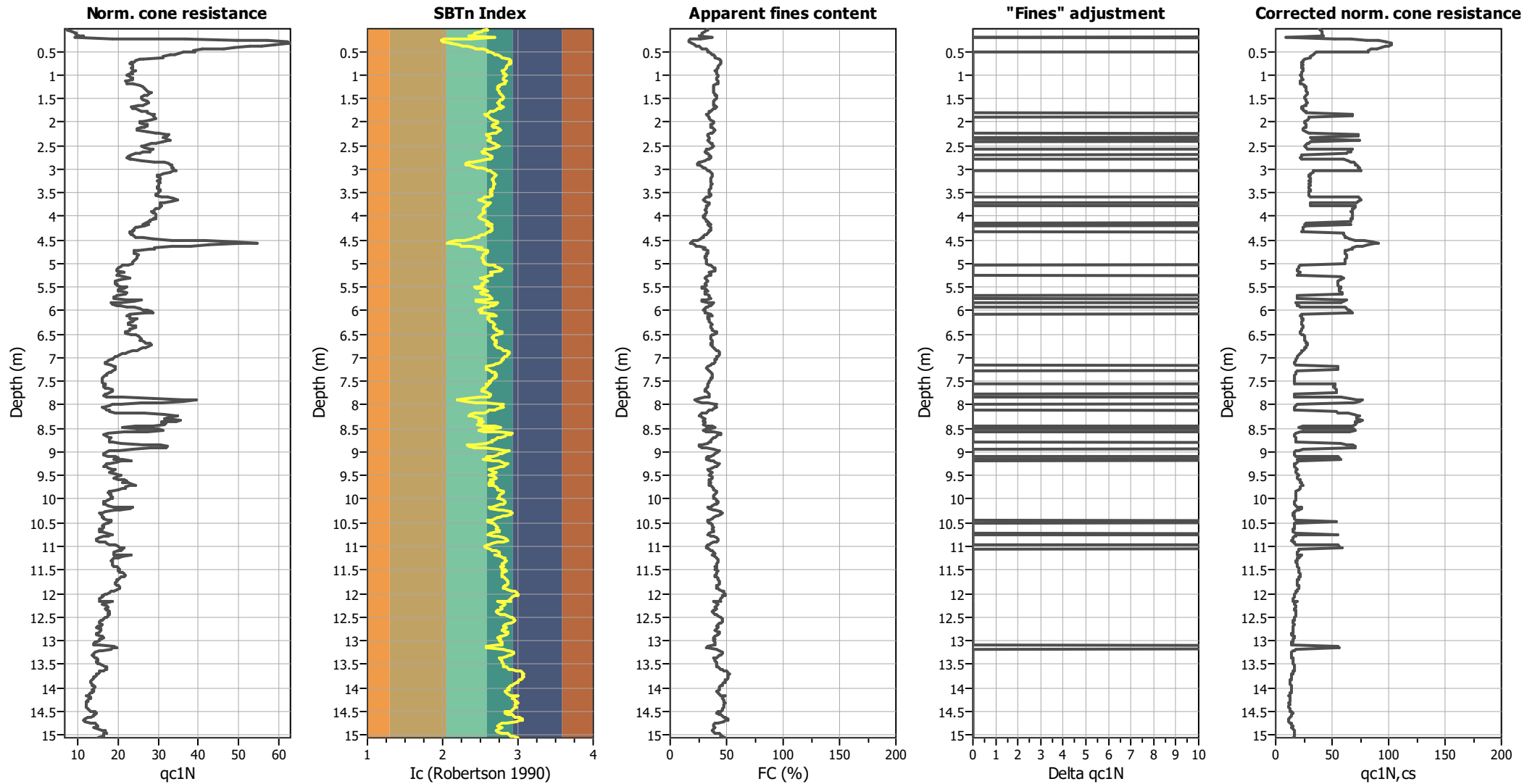
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

SBTn 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

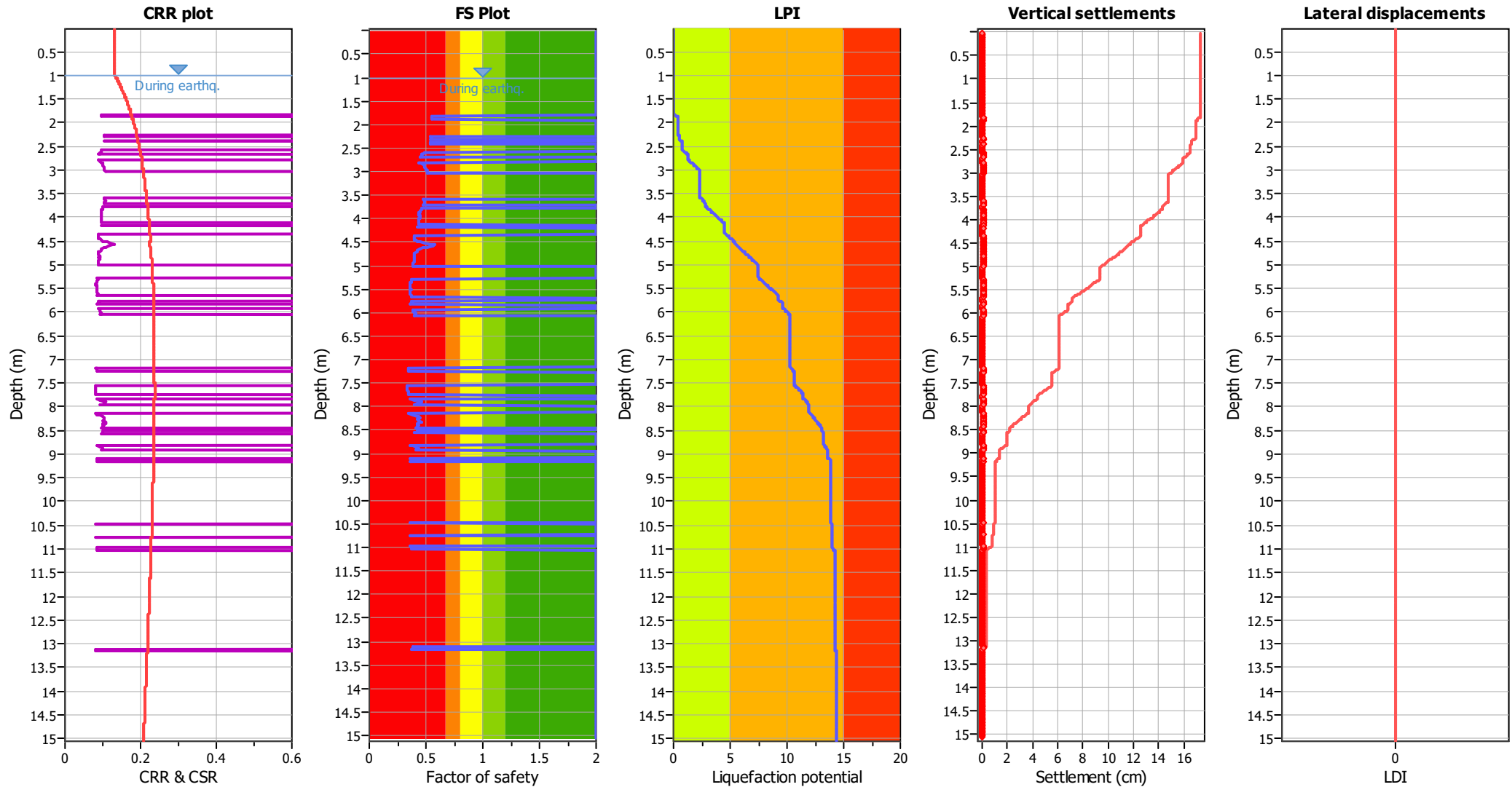
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

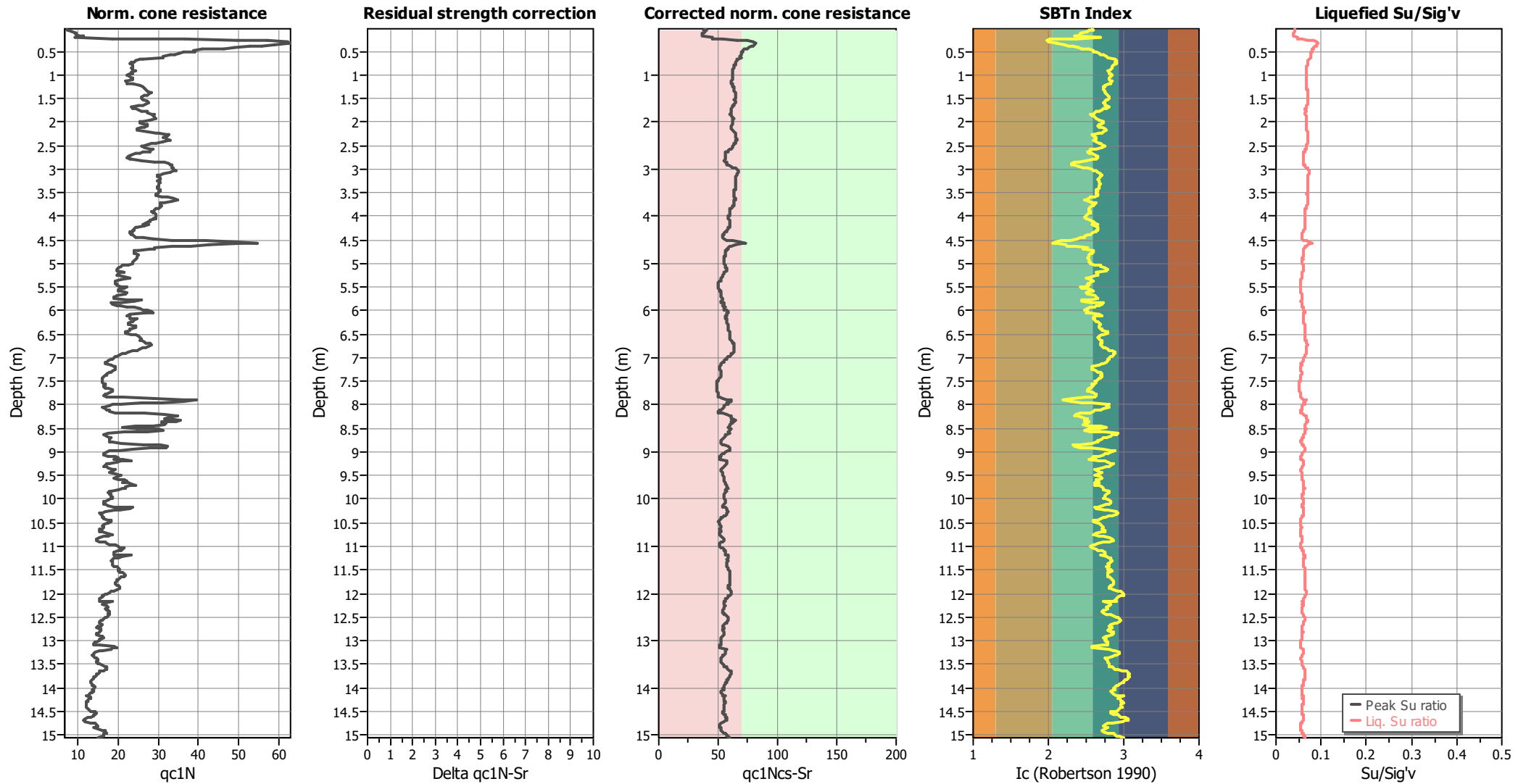
F.S. color scheme

- 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

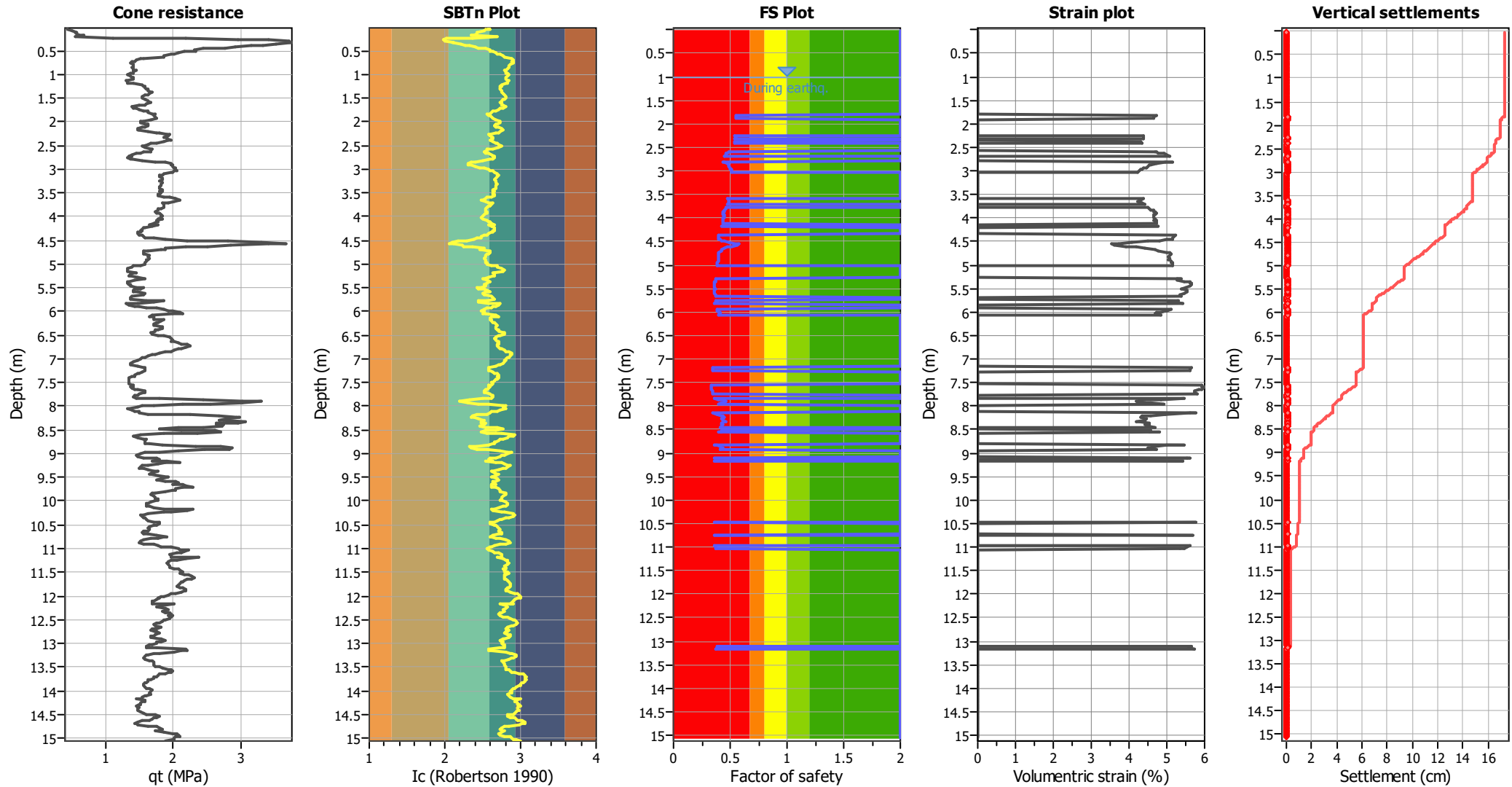
Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

- qt: Total cone resistance (cone resistance q_c corrected for pore water effects)
- Ic: Soil Behaviour Type Index
- FS: Calculated Factor of Safety against liquefaction
- Volumetric strain: Post-liquefaction volumetric strain

LIQUEFACTION ANALYSIS REPORT

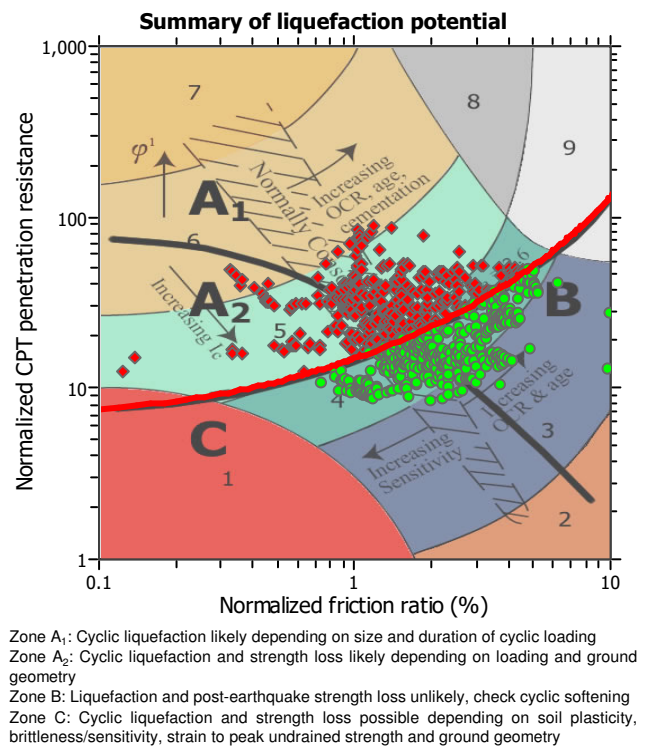
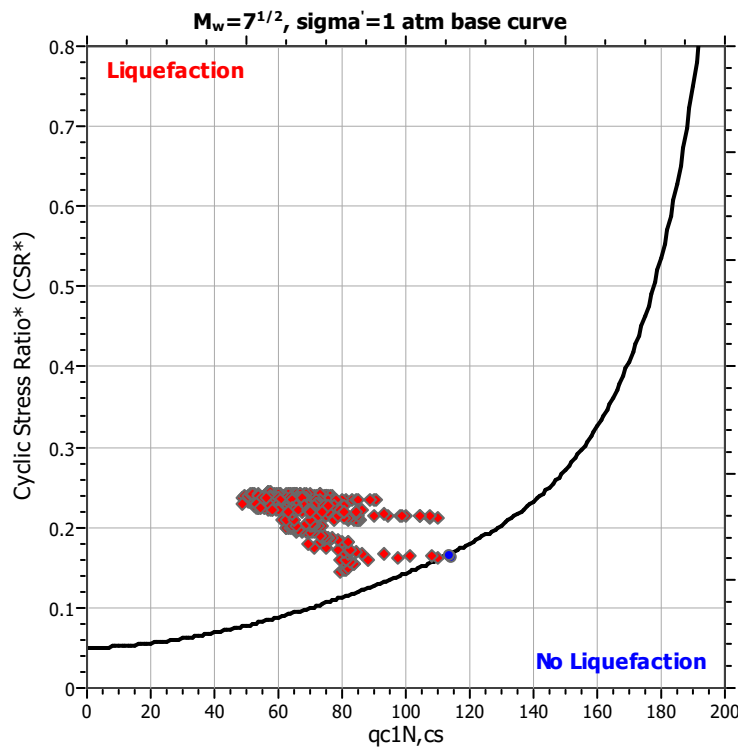
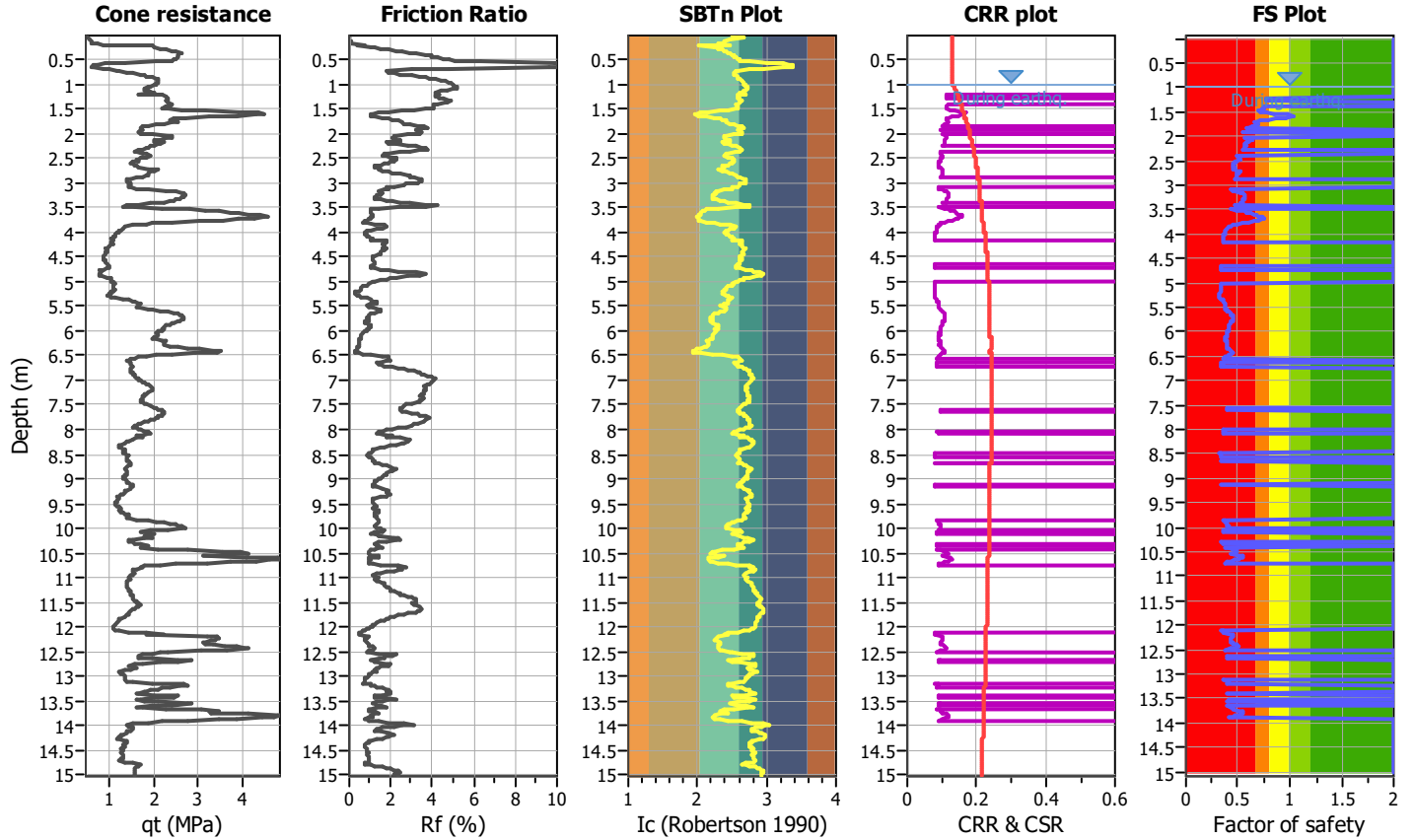
Project title :

Location :

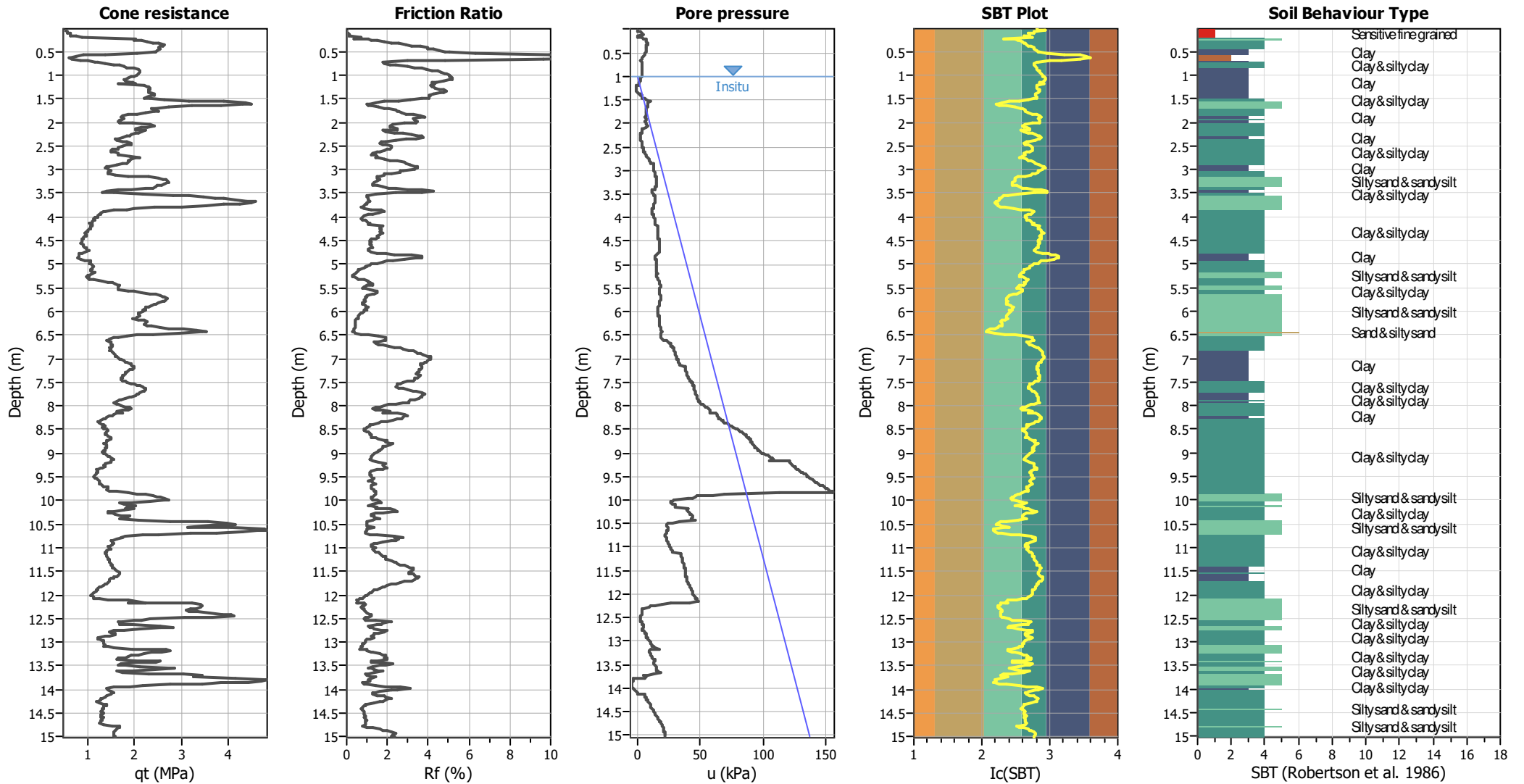
CPT file : CPTU 23 Via Mesola (Cesena)

Input parameters and analysis data

Analysis method:	I&B (2008)	G.W.T. (in-situ):	1.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	I&B (2008)	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:	1	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.33	Unit weight calculation:	Based on SBT	K_G applied:	Yes		



CPT basic interpretation plots



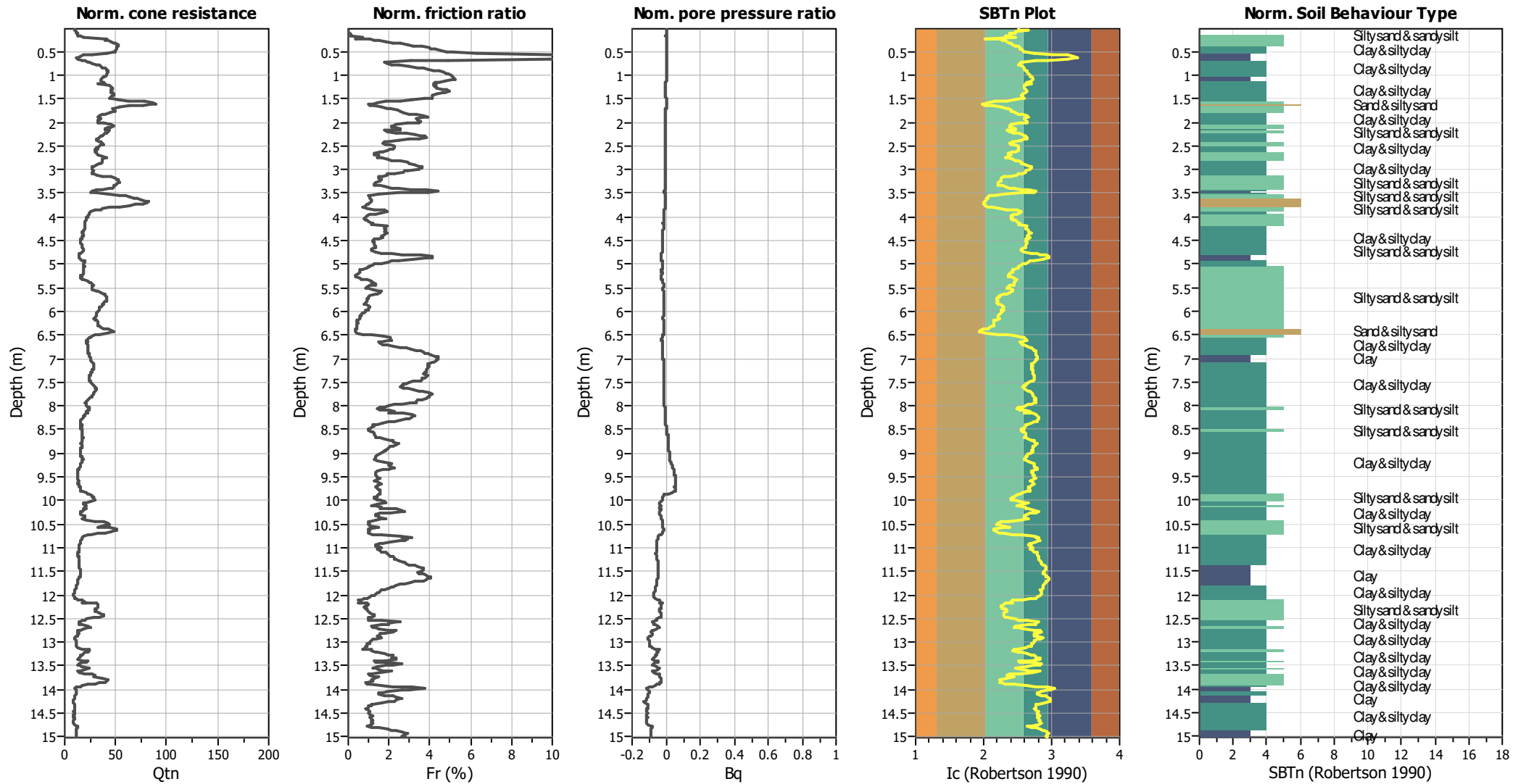
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

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

CPT basic interpretation plots (normalized)



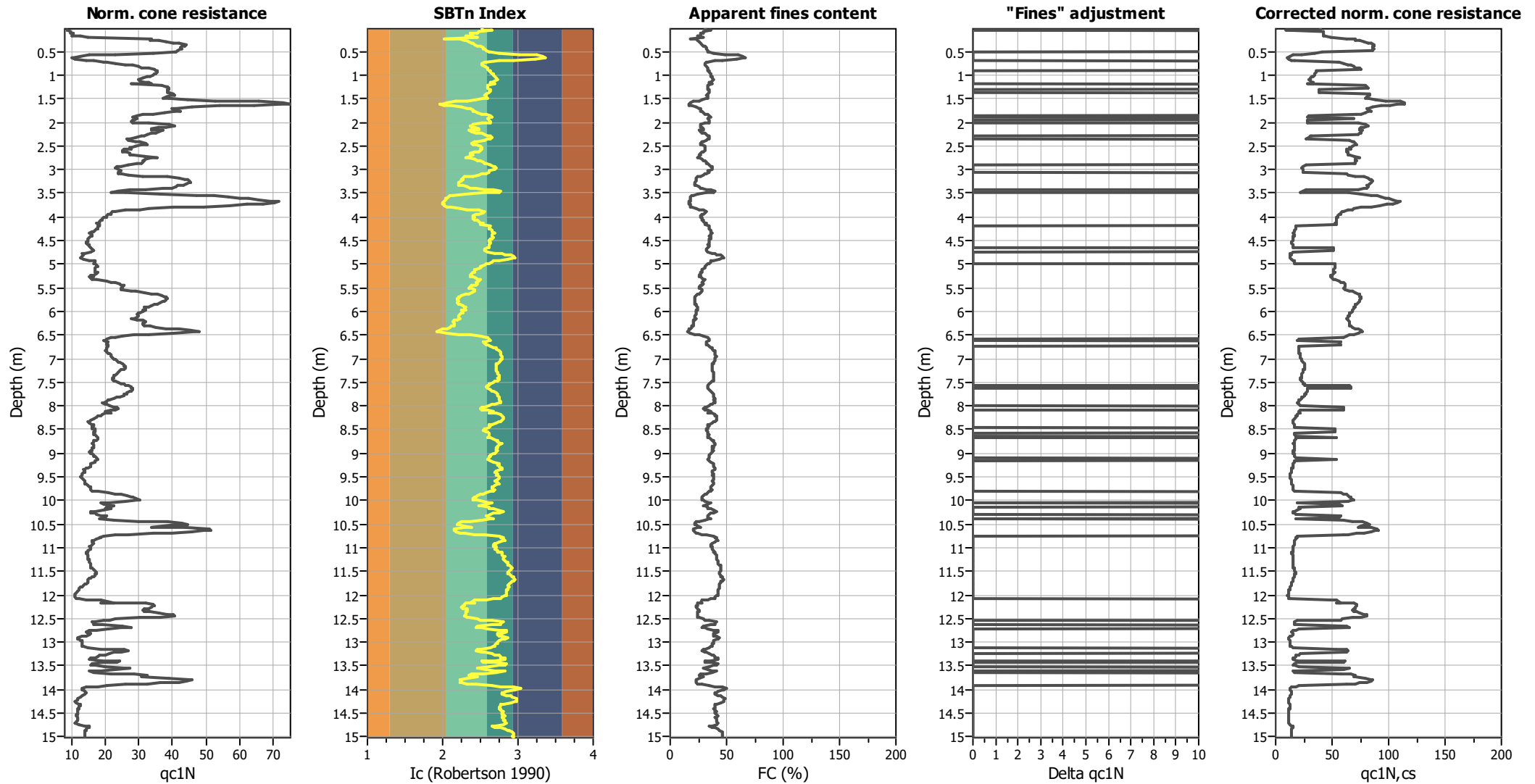
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

SBTn 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

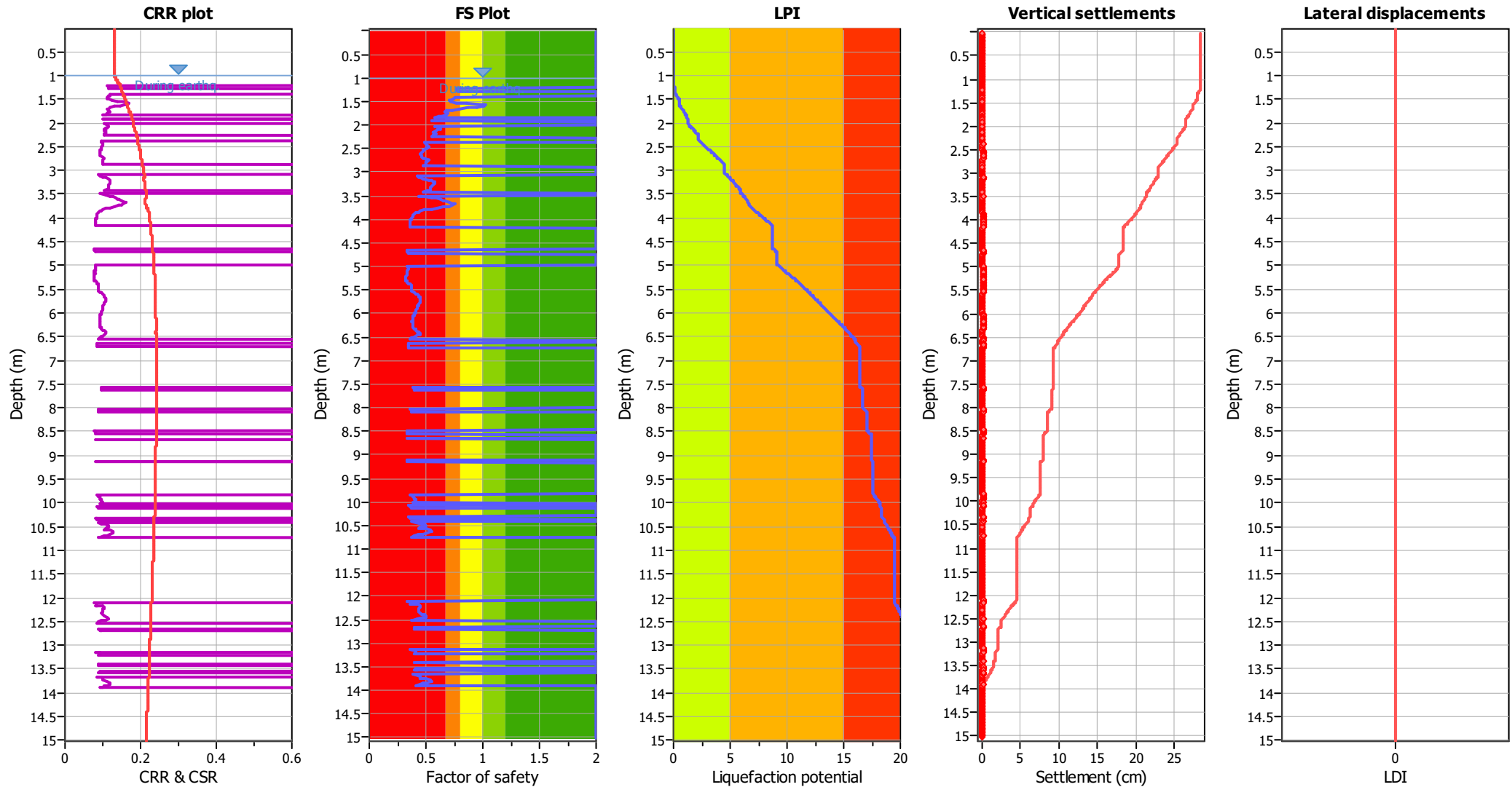
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

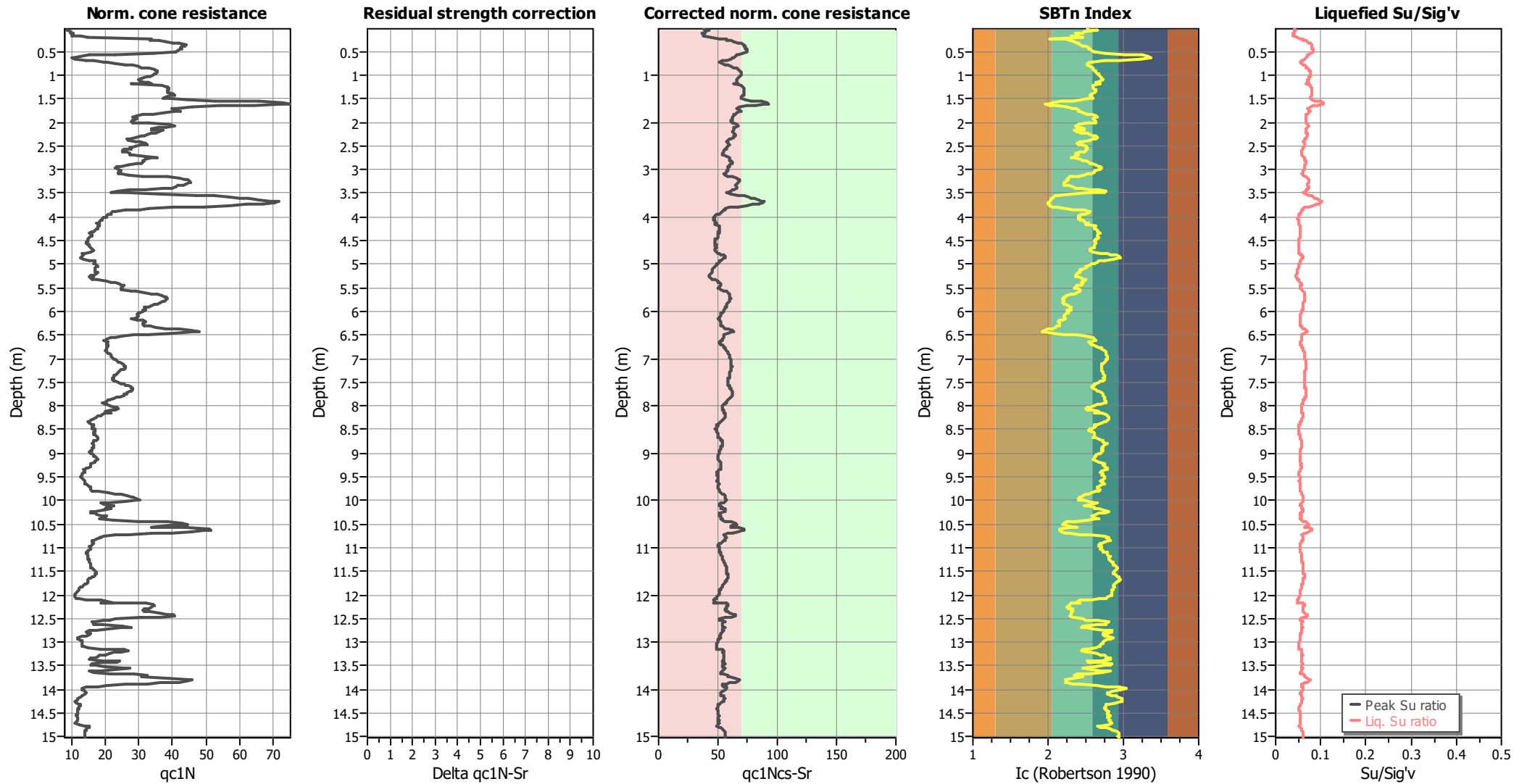
F.S. color scheme

- 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

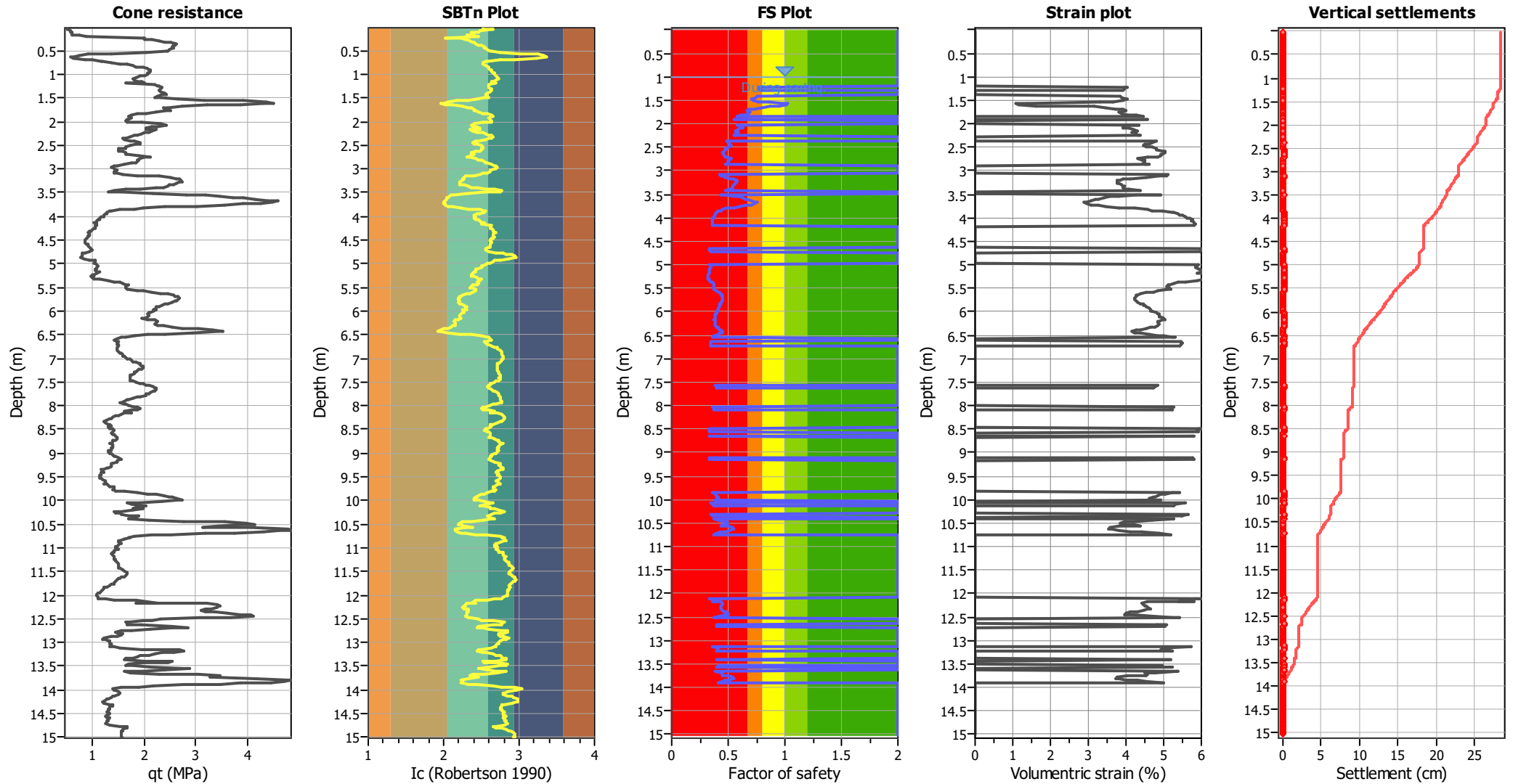
Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GW (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

- qt: Total cone resistance (cone resistance q_c corrected for pore water effects)
- I_c: Soil Behaviour Type Index
- FS: Calculated Factor of Safety against liquefaction
- Volumetric strain: Post-liquefaction volumetric strain

LIQUEFACTION ANALYSIS REPORT

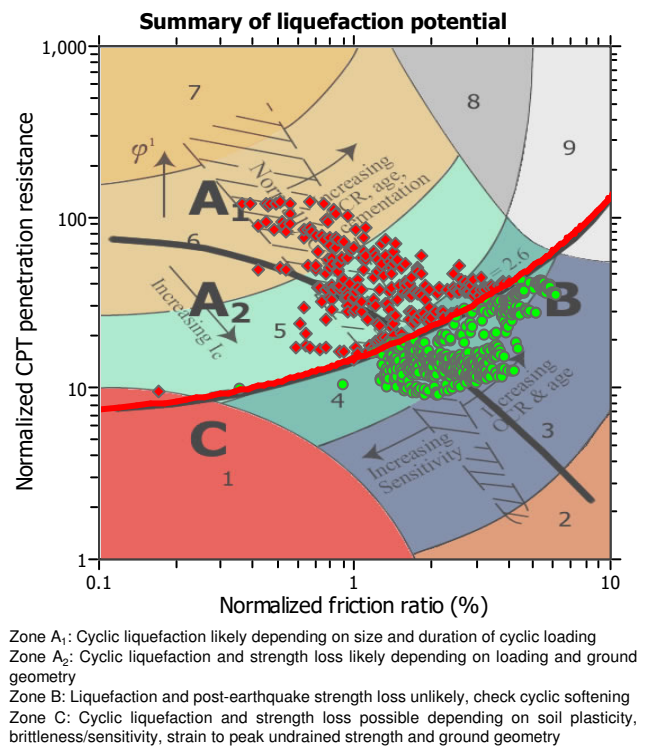
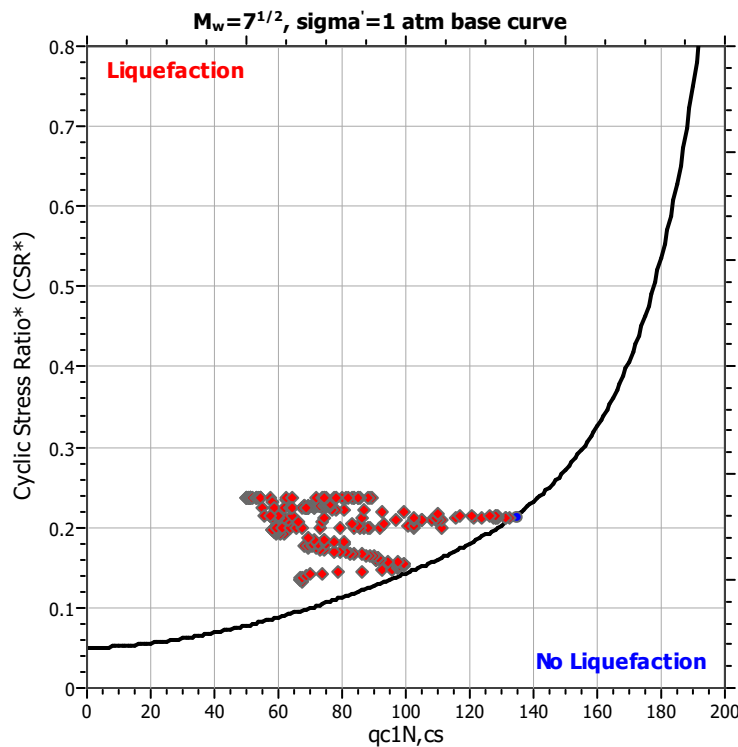
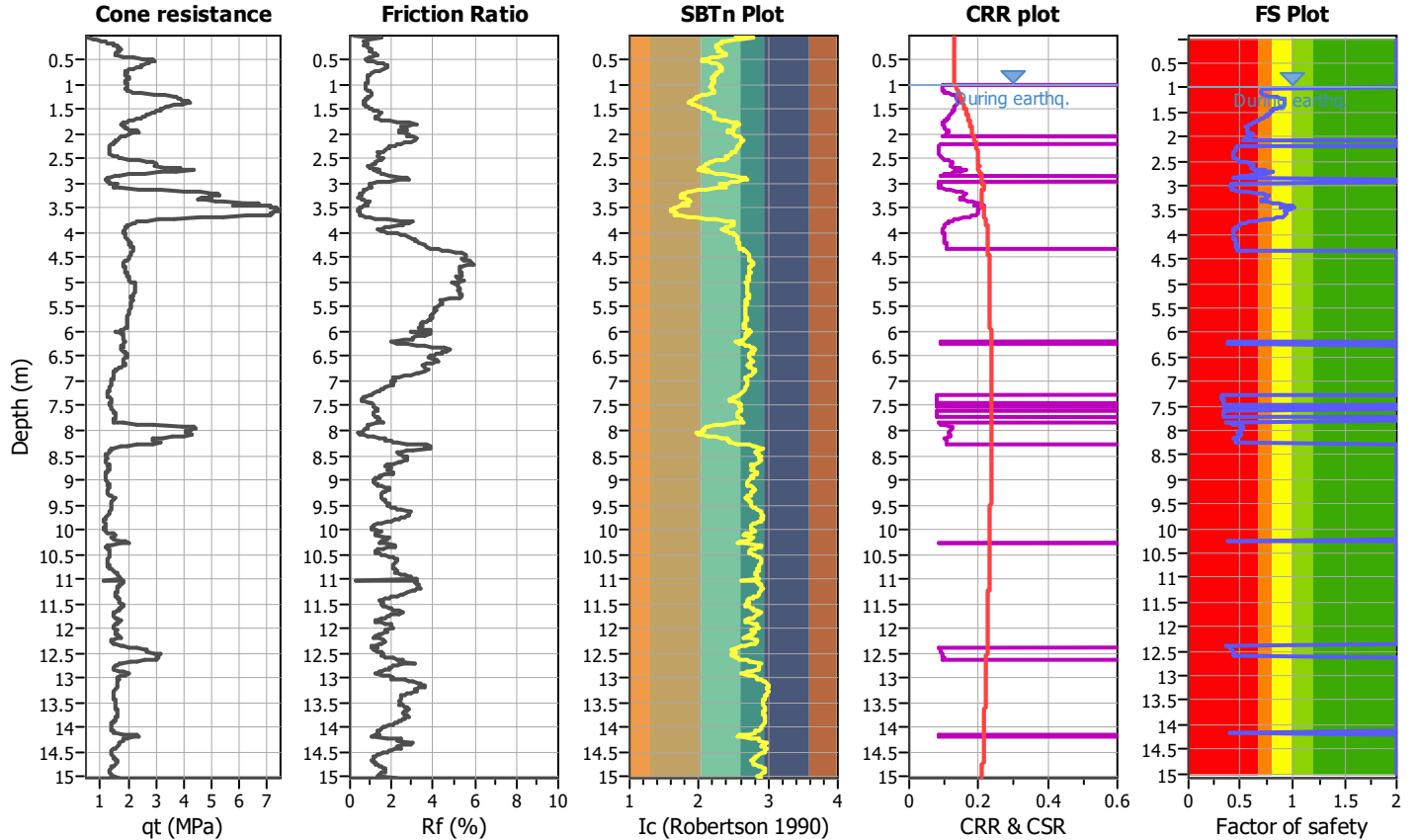
Project title :

Location :

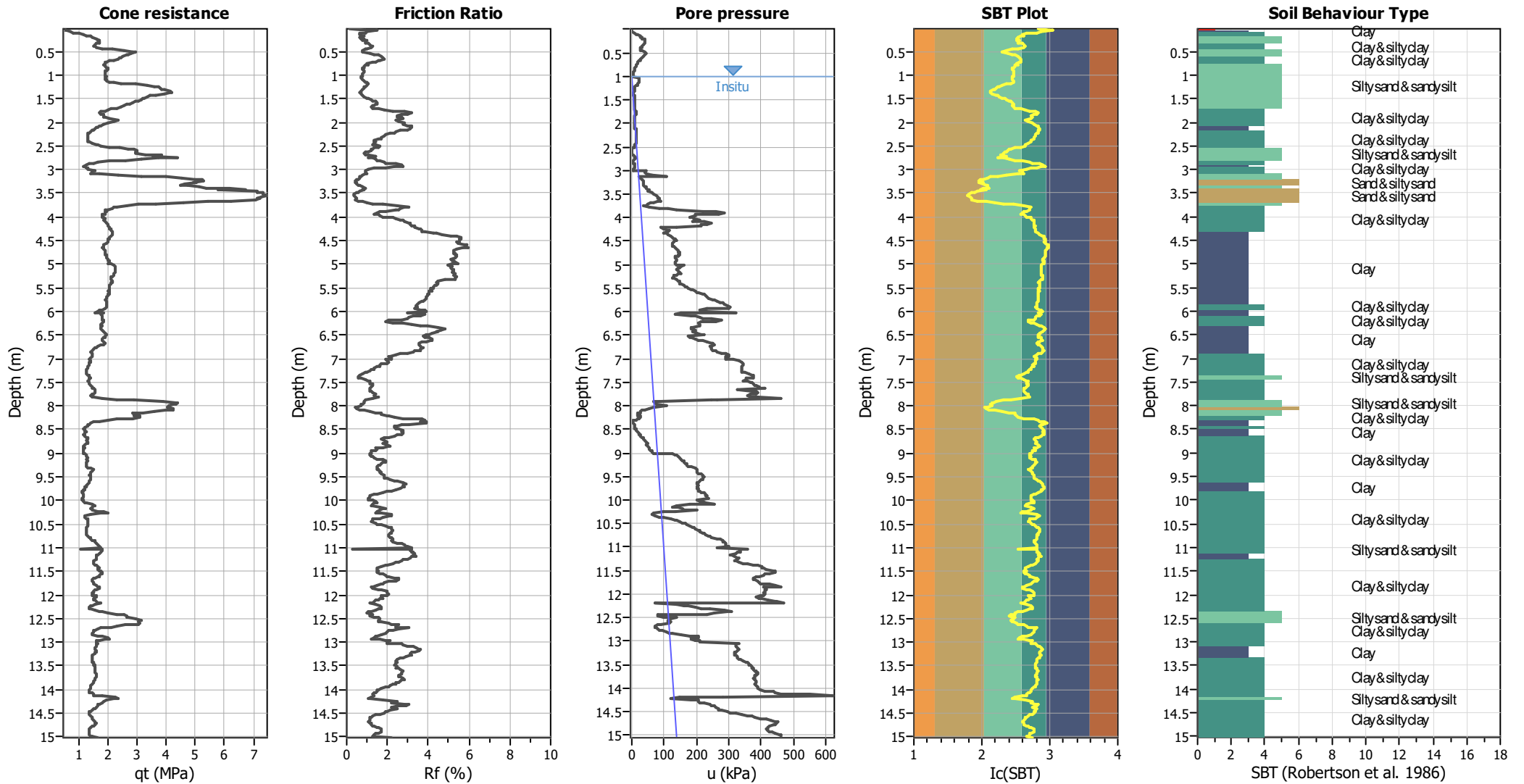
CPT file : CPTU 24 Via Via Rubicone ang. Via Vanzie (Cesenatico)

Input parameters and analysis data

Analysis method:	I&B (2008)	G.W.T. (in-situ):	1.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	I&B (2008)	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:	1	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.33	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		



CPT basic interpretation plots



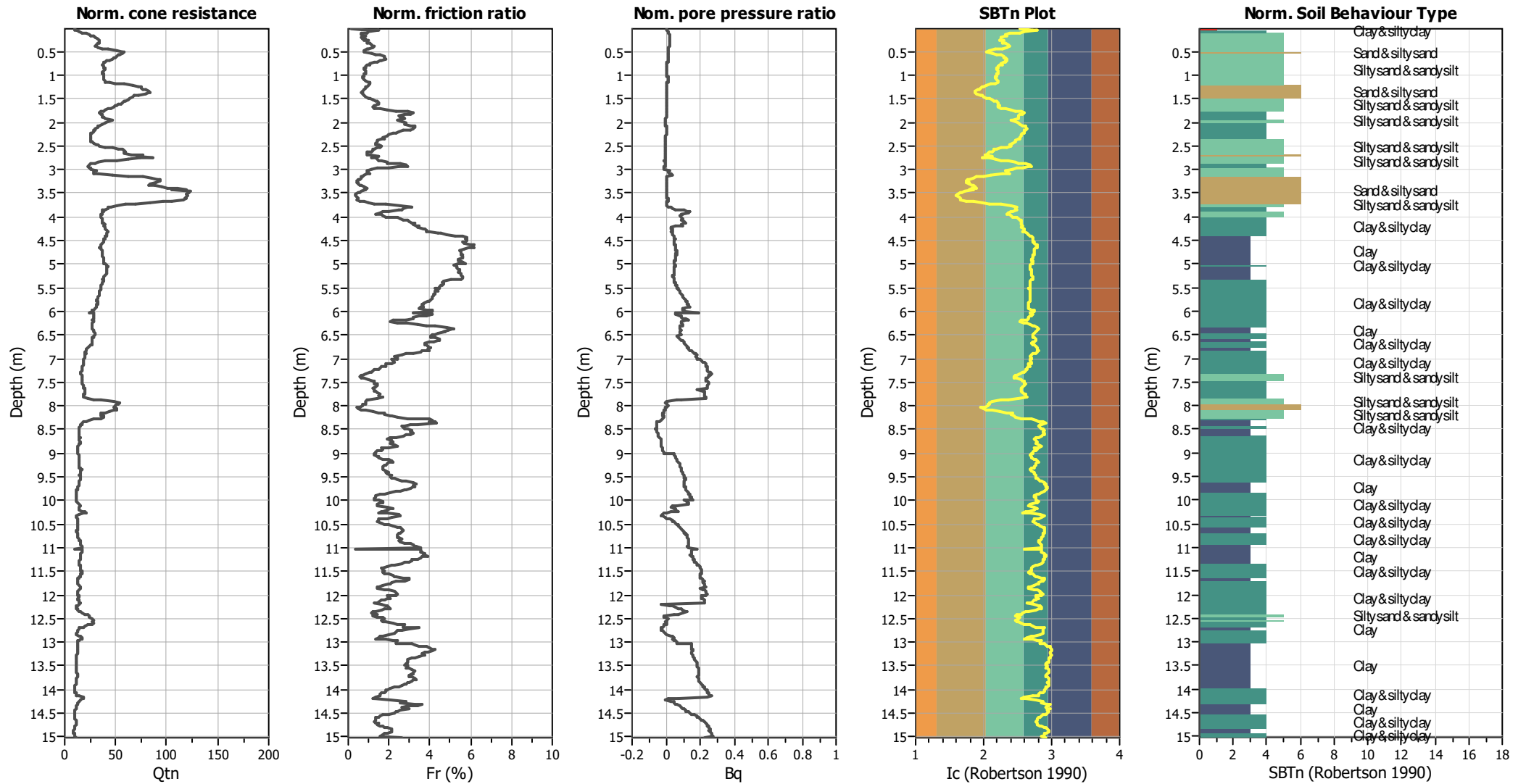
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

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

CPT basic interpretation plots (normalized)



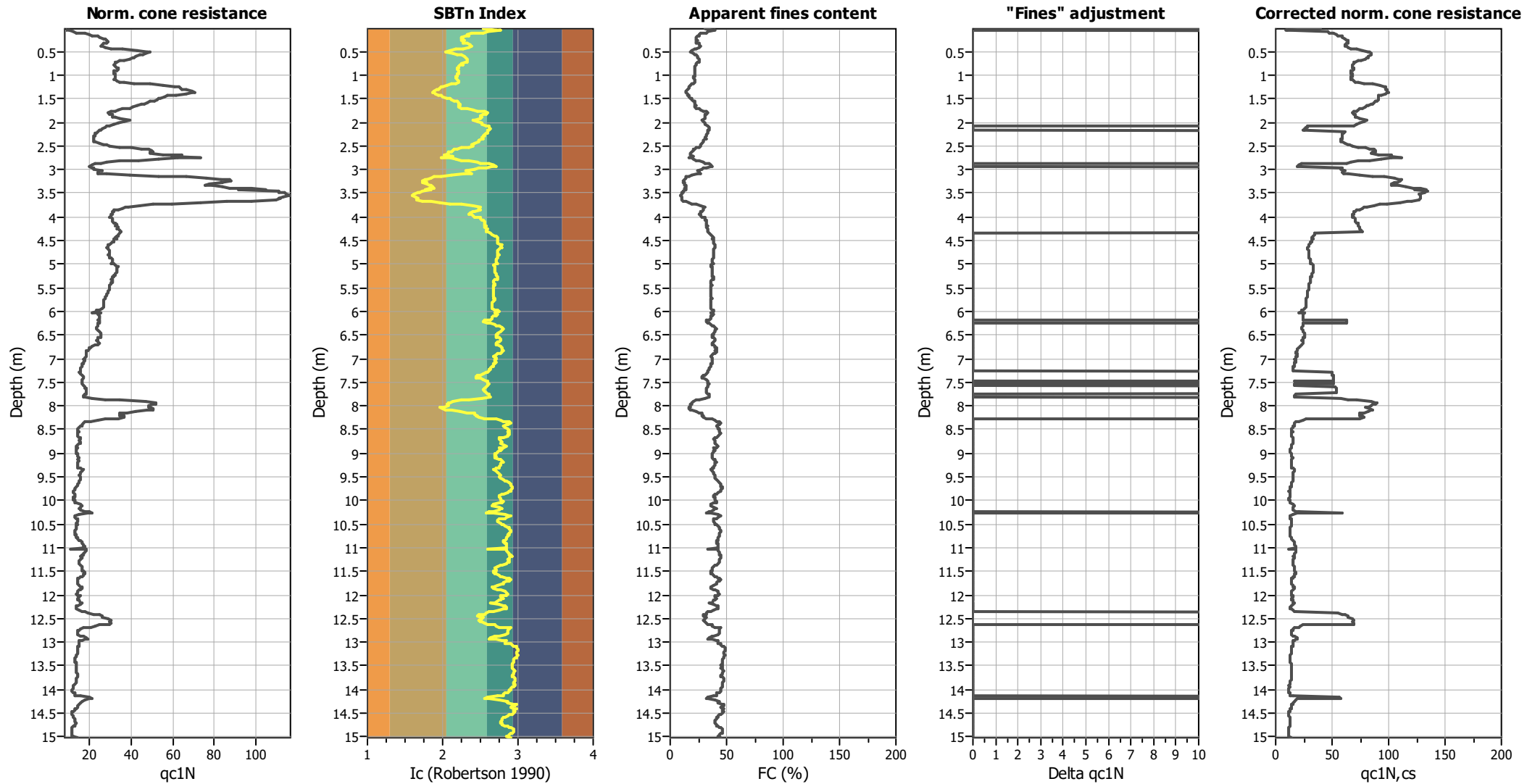
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{ϕ} applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

SBTn 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

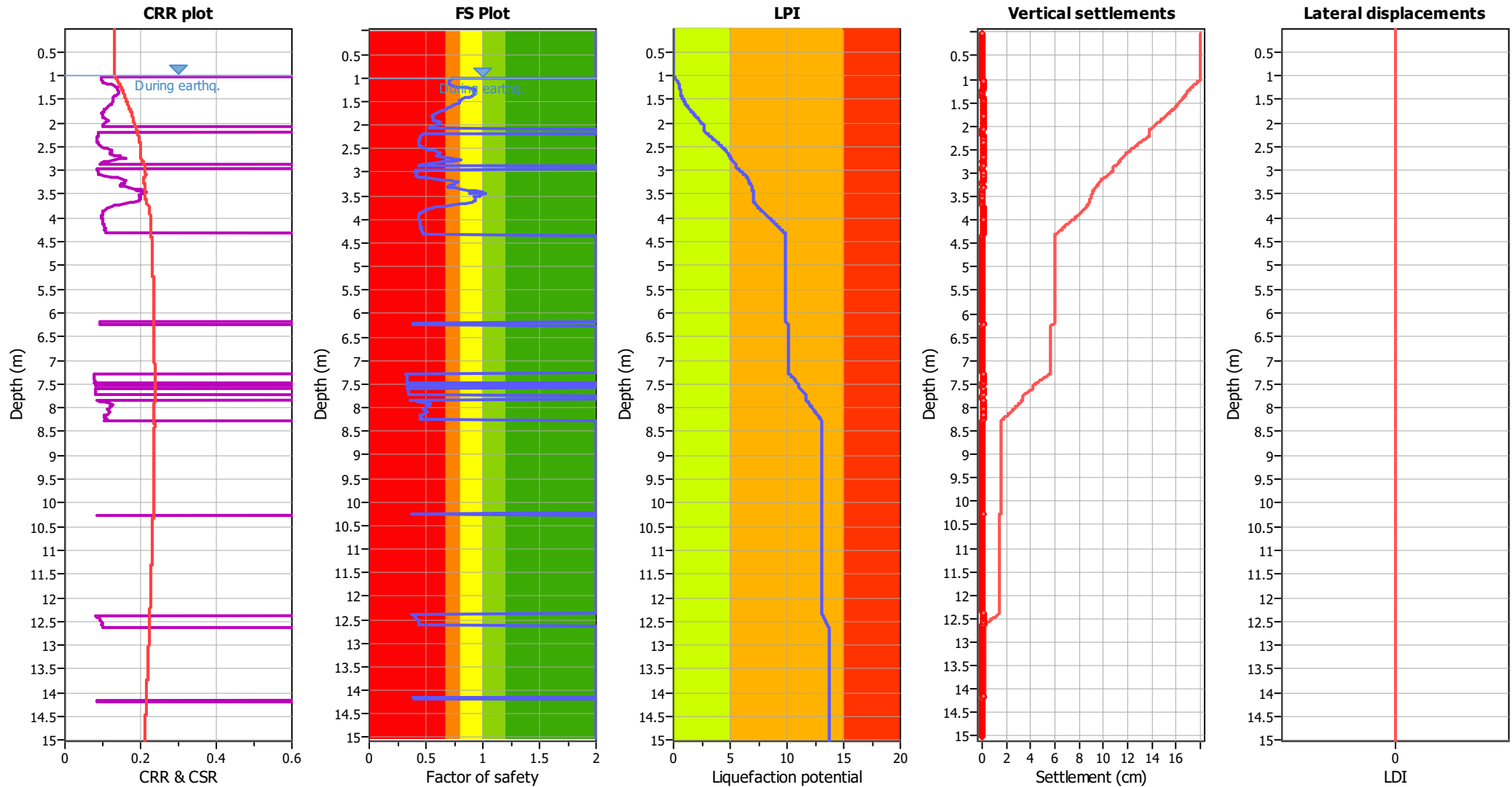
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

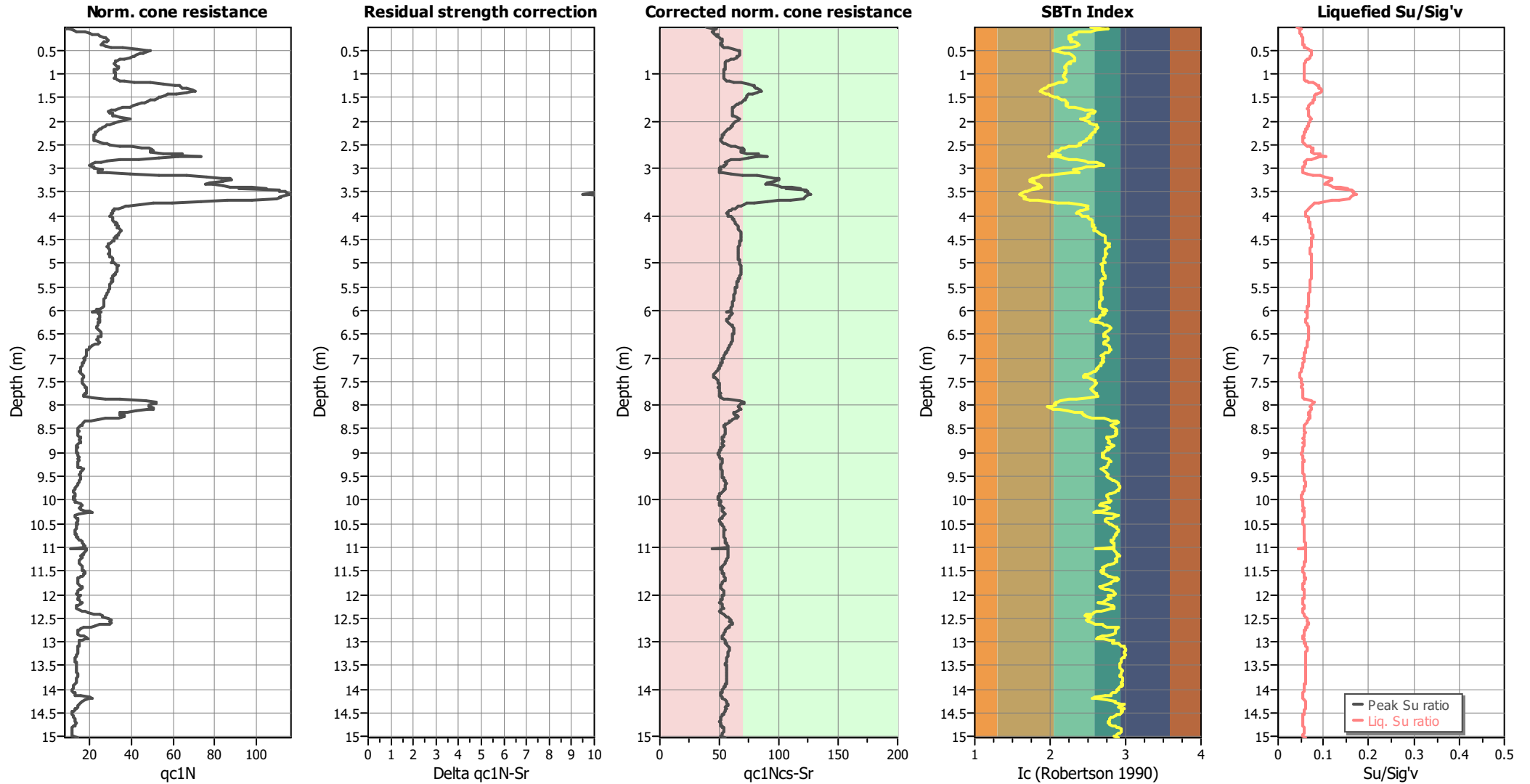
F.S. color scheme

- 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

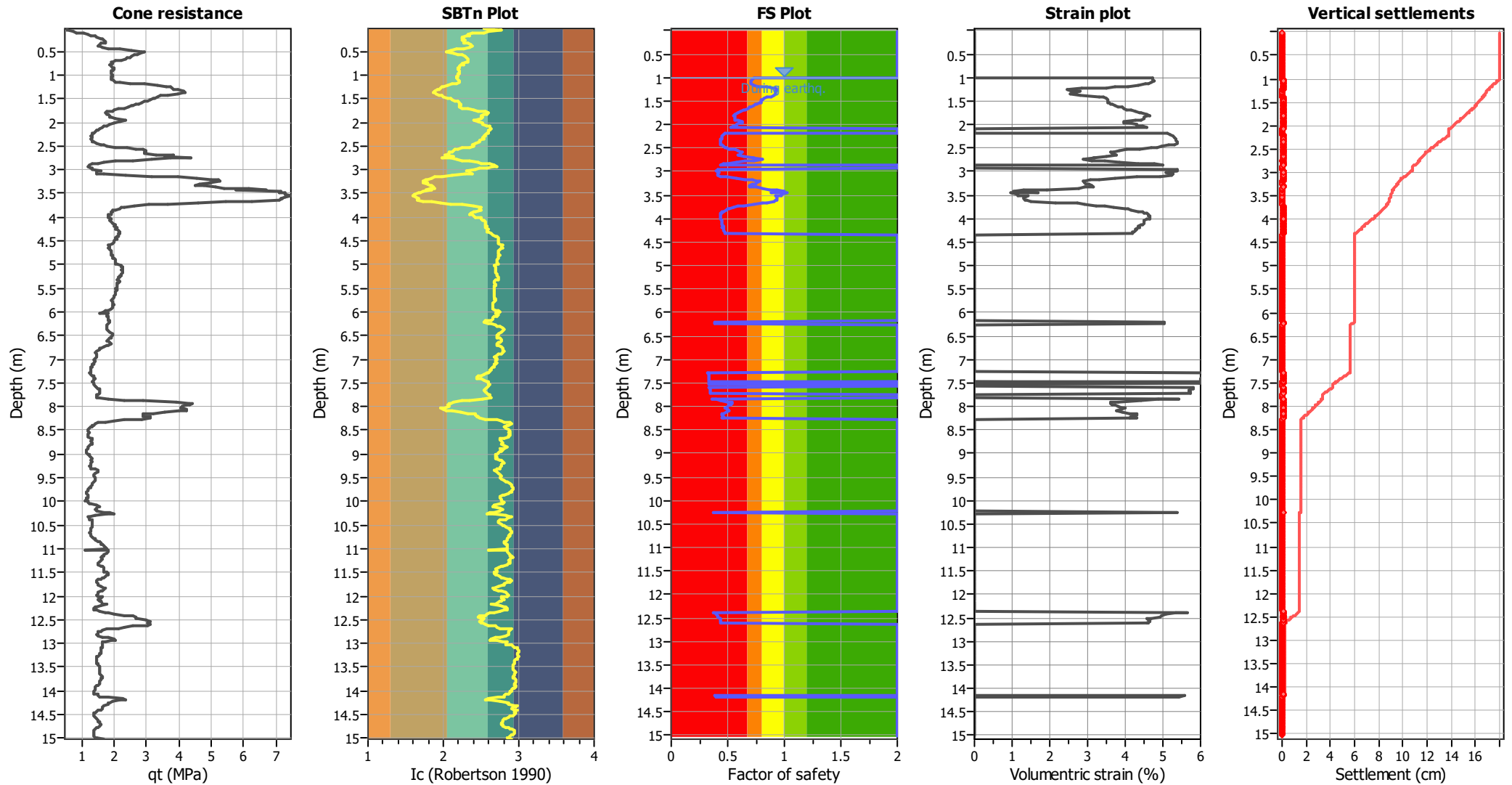
Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

- qt: Total cone resistance (cone resistance q_c corrected for pore water effects)
- I_c: Soil Behaviour Type Index
- FS: Calculated Factor of Safety against liquefaction
- Volumetric strain: Post-liquefaction volumetric strain

LIQUEFACTION ANALYSIS REPORT

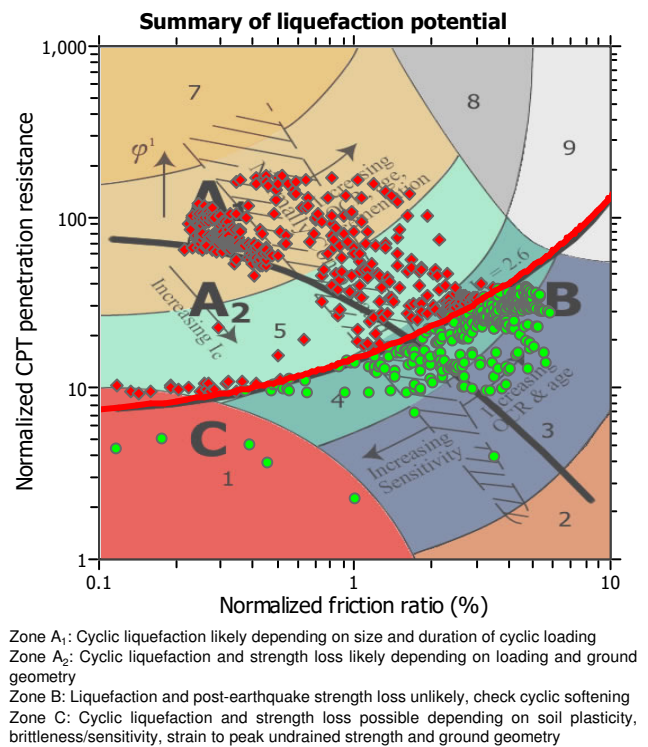
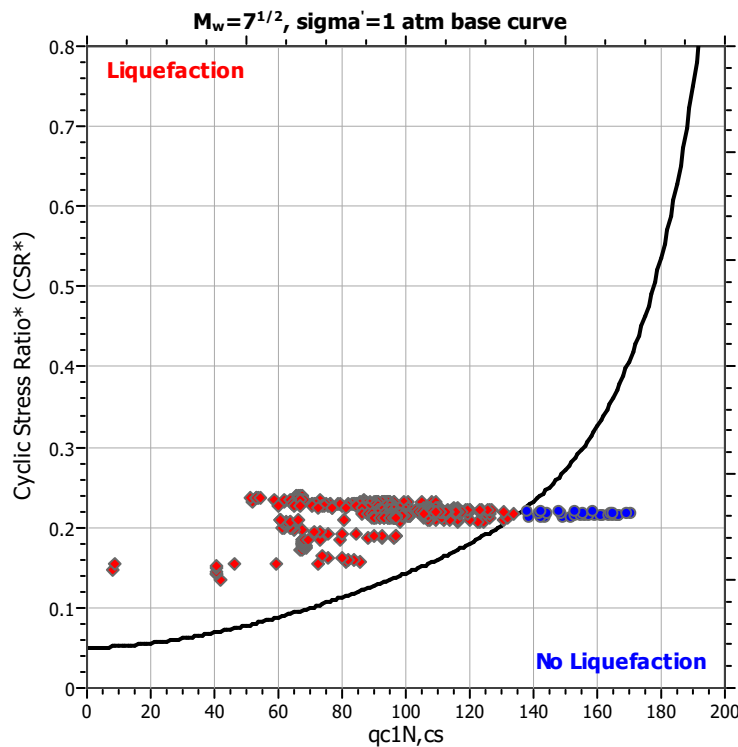
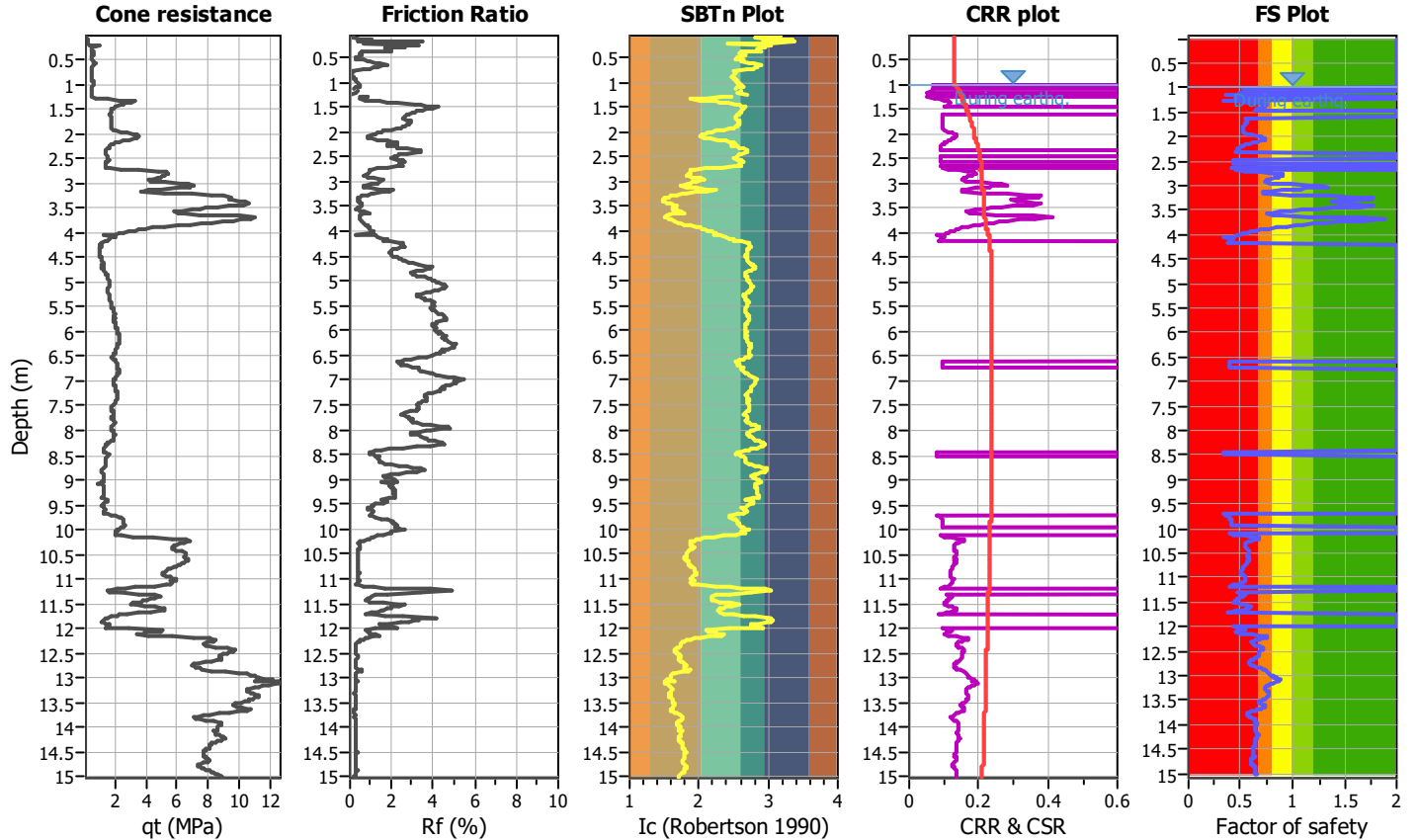
Project title :

Location :

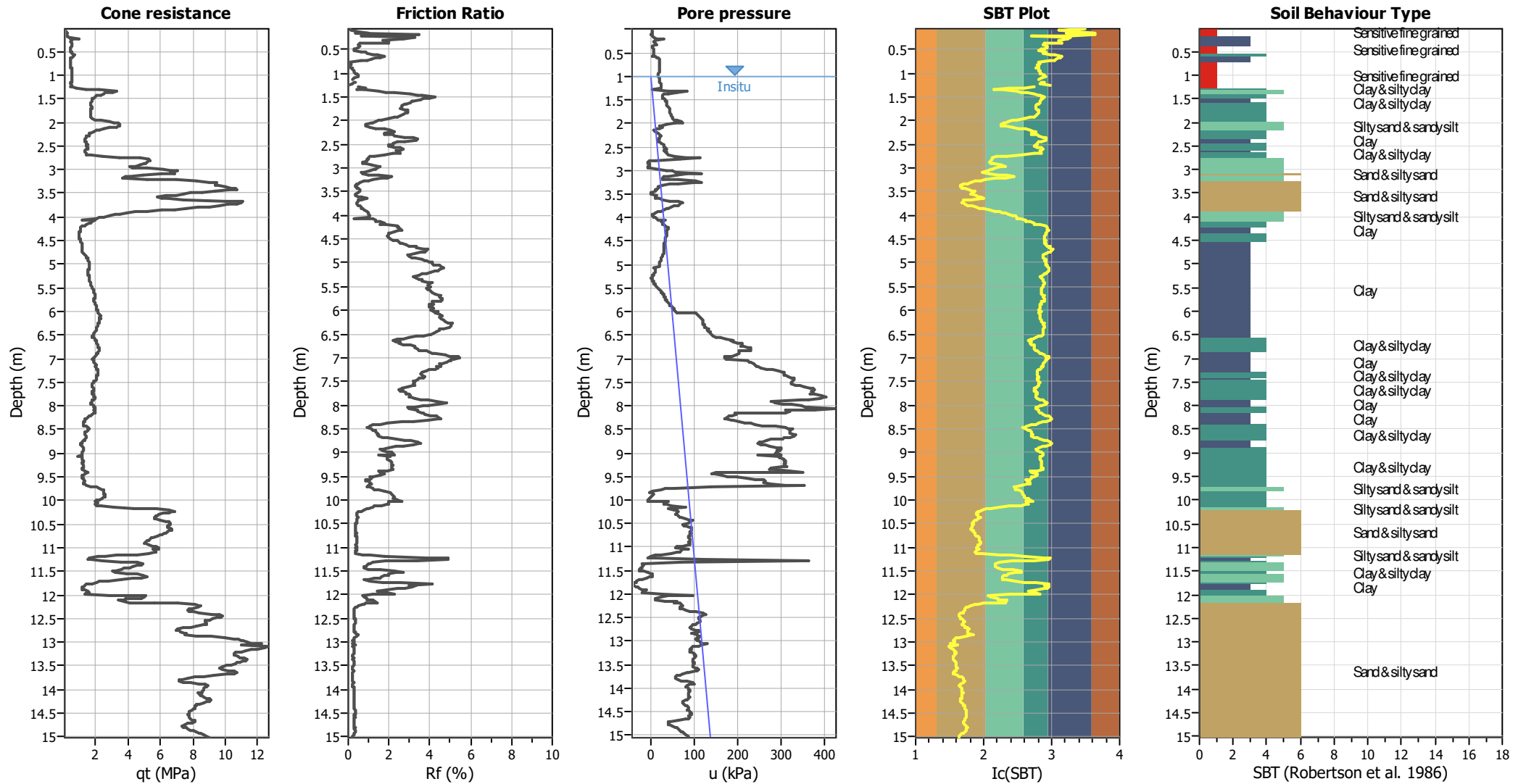
CPT file : CPTU 25 Via Vetreto ang. Via Capannaguzzo (Cesena)

Input parameters and analysis data

Analysis method:	I&B (2008)	G.W.T. (in-situ):	1.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	I&B (2008)	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:	1	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.33	Unit weight calculation:	Based on SBT	K_G applied:	Yes		



CPT basic interpretation plots



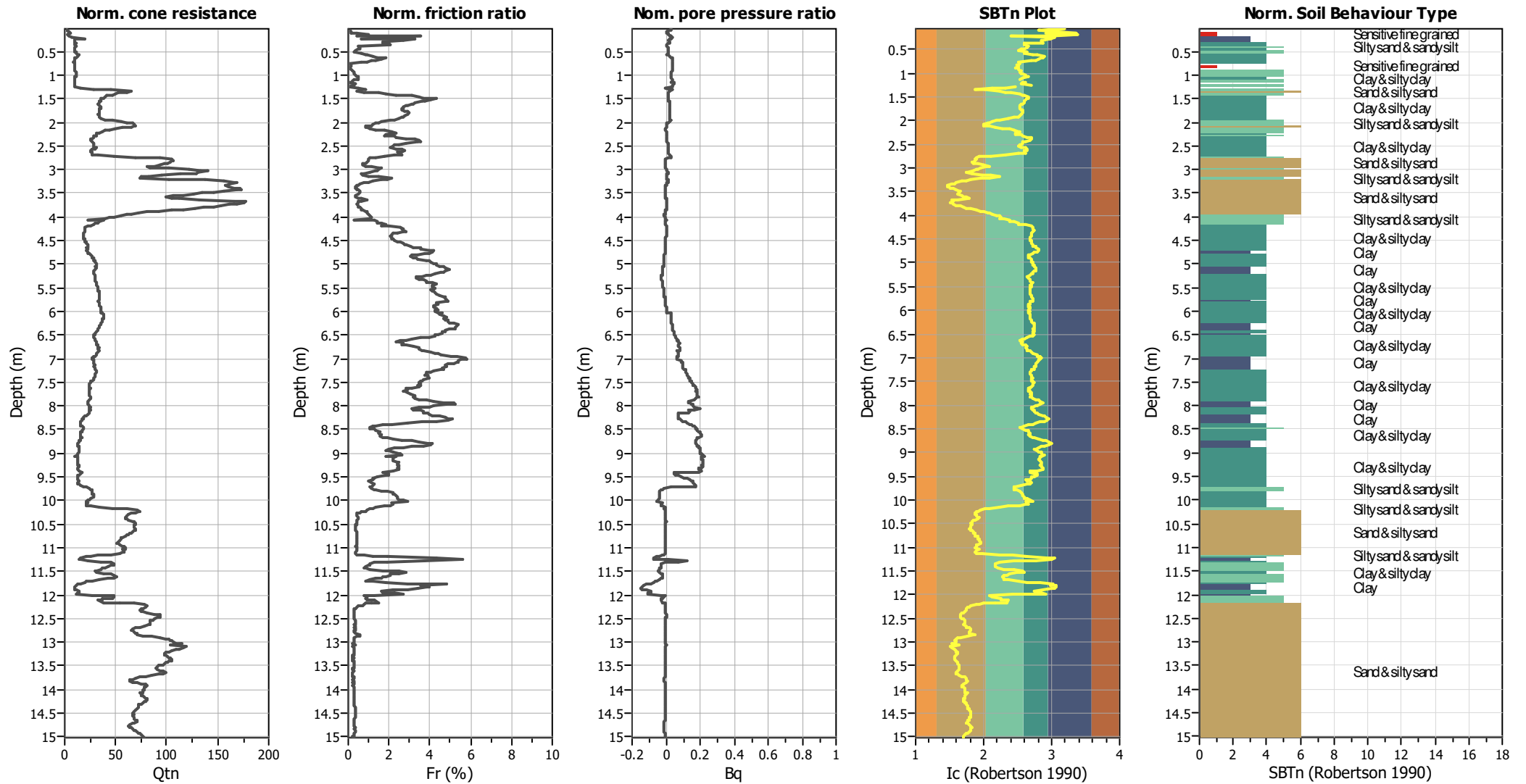
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

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

CPT basic interpretation plots (normalized)



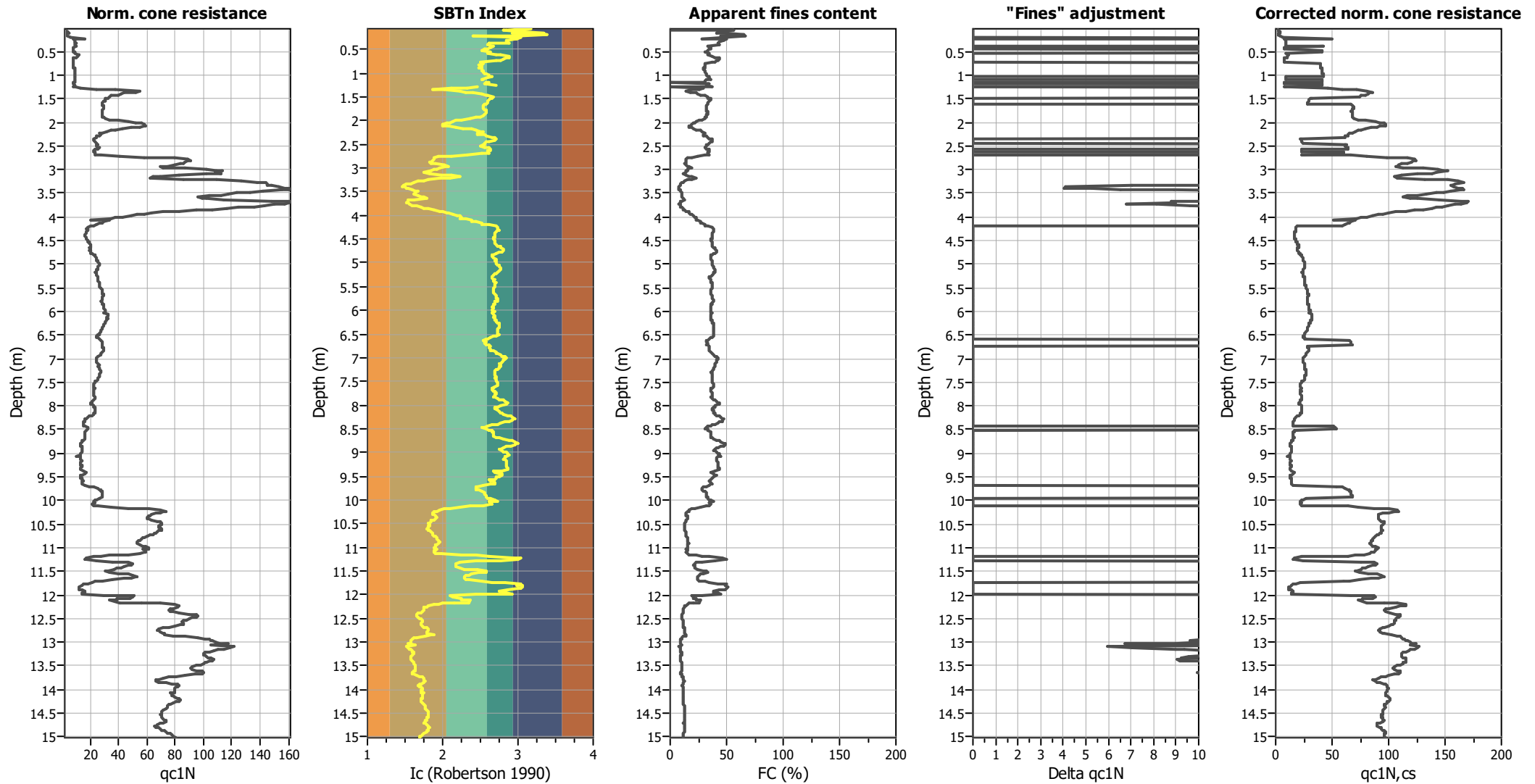
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

SBTn 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

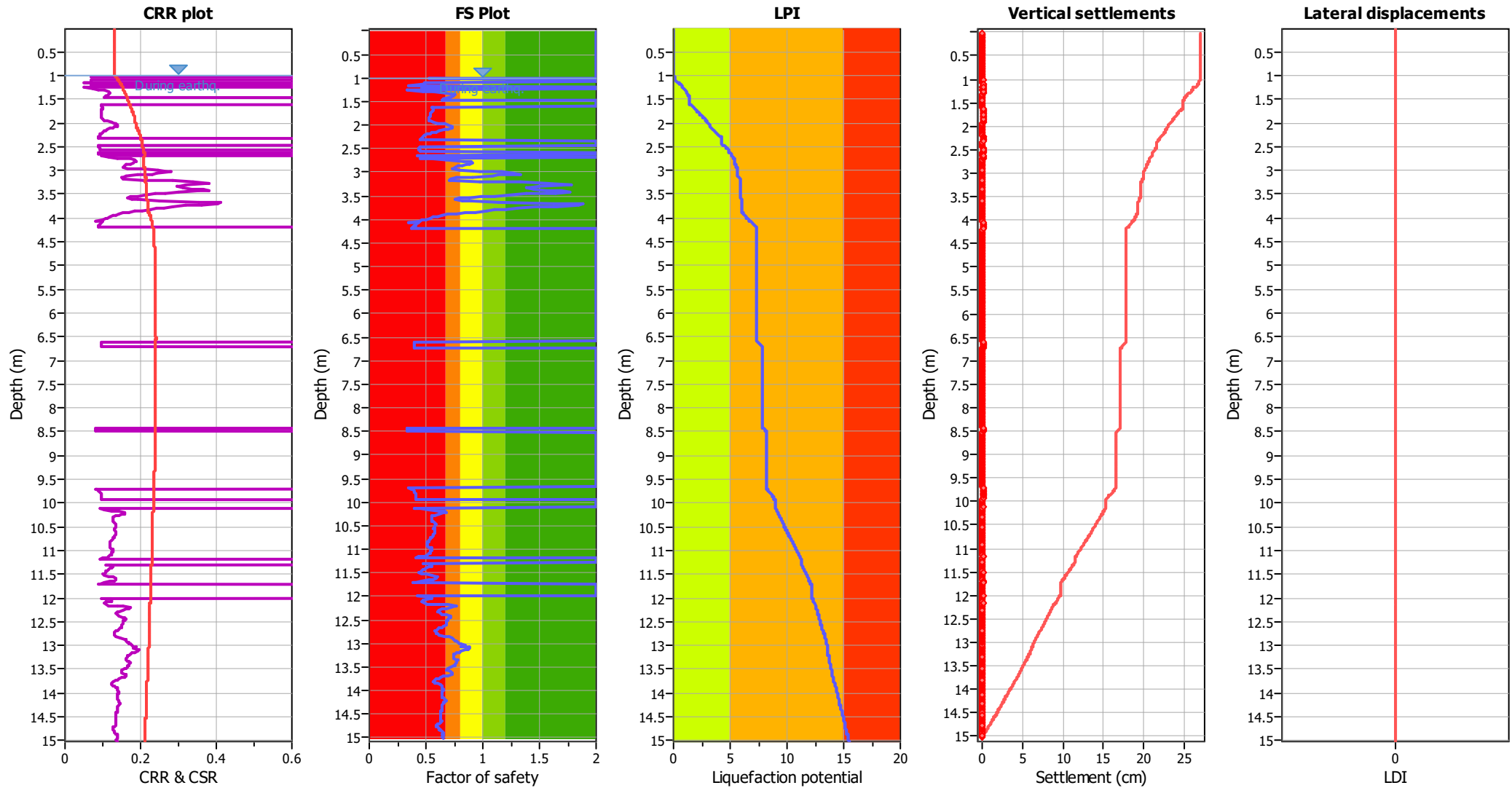
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

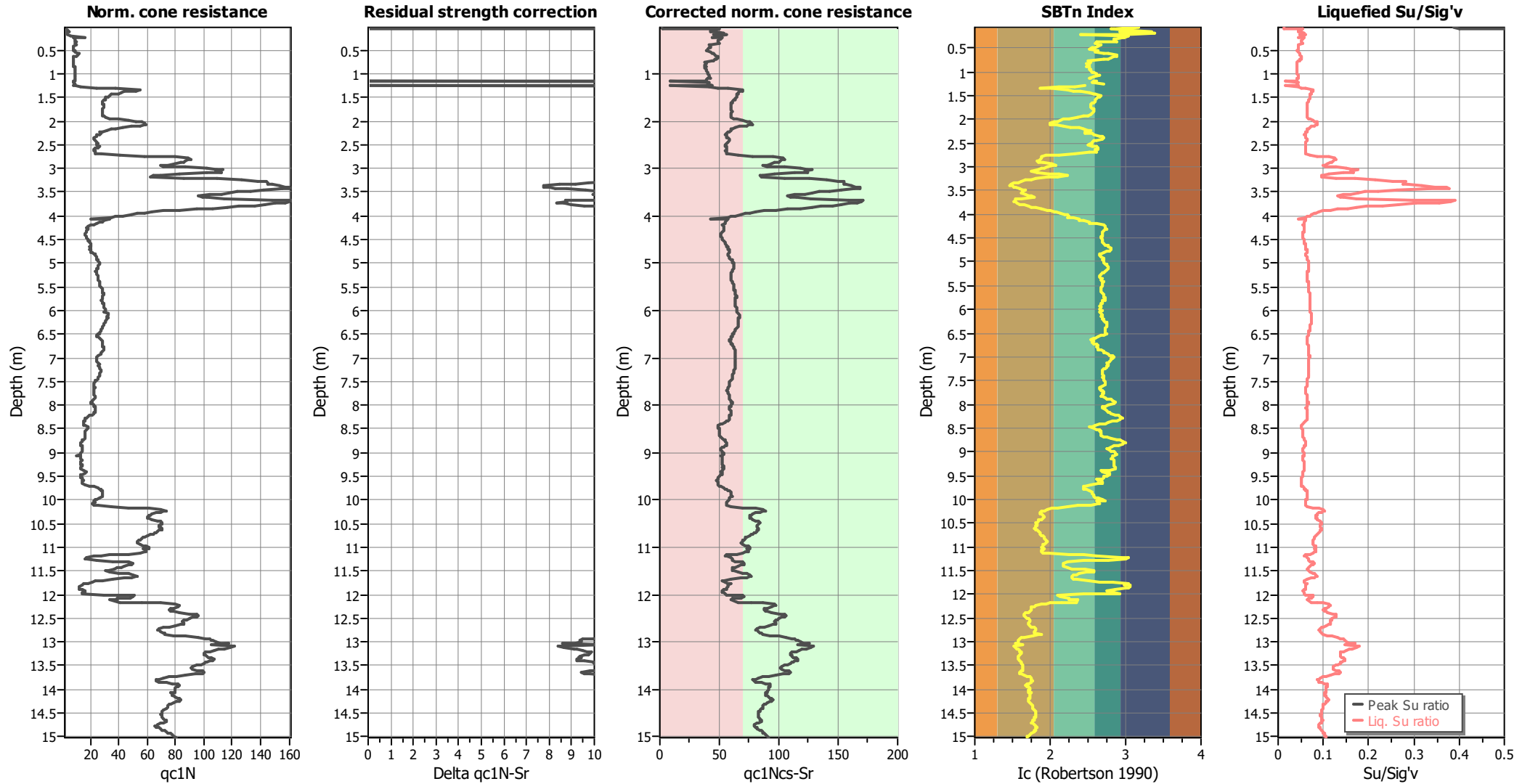
F.S. color scheme

- 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

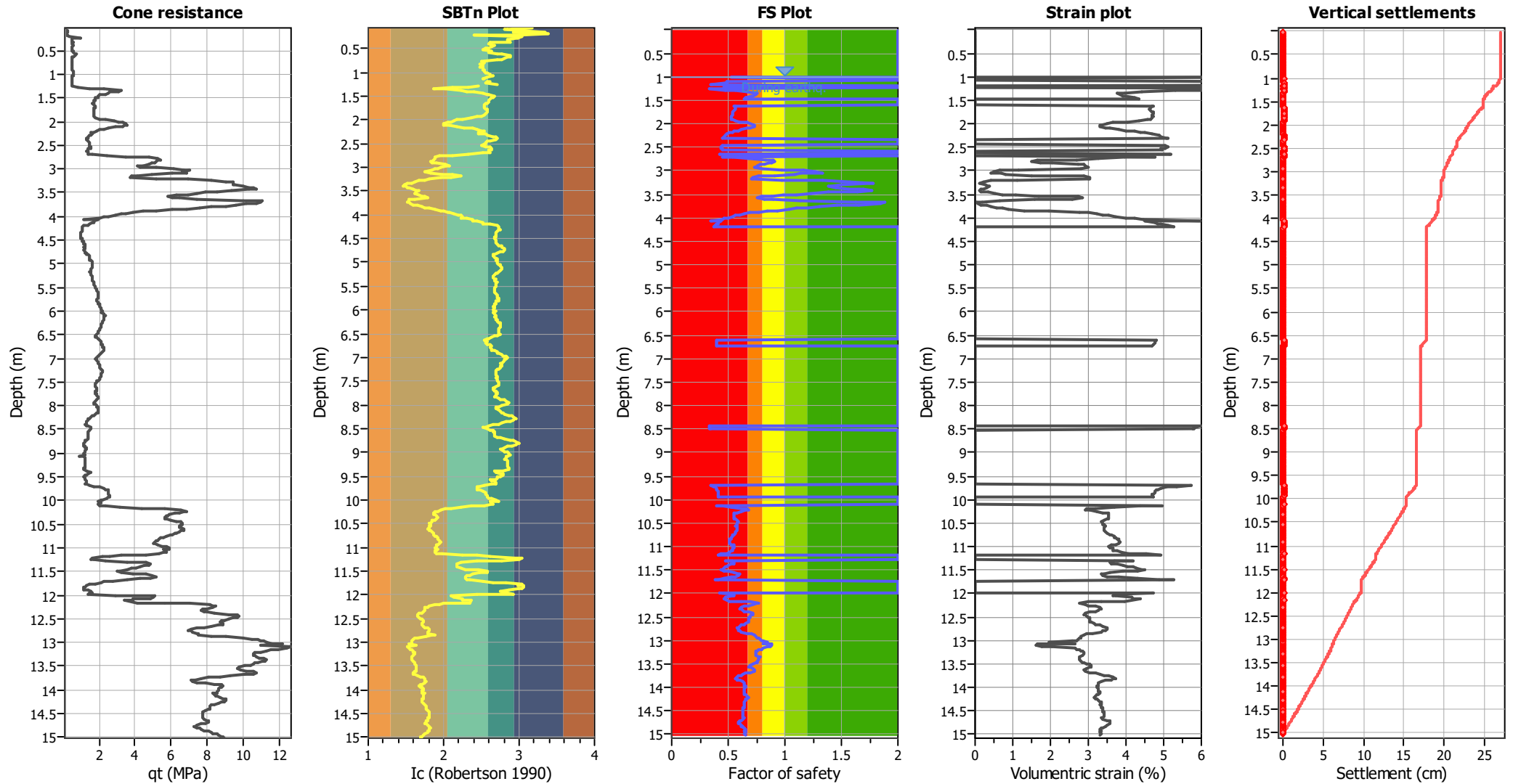
Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.33	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

- qt: Total cone resistance (cone resistance q_c corrected for pore water effects)
- I_c: Soil Behaviour Type Index
- FS: Calculated Factor of Safety against liquefaction
- Volumetric strain: Post-liquefaction volumetric strain

LIQUEFACTION ANALYSIS REPORT

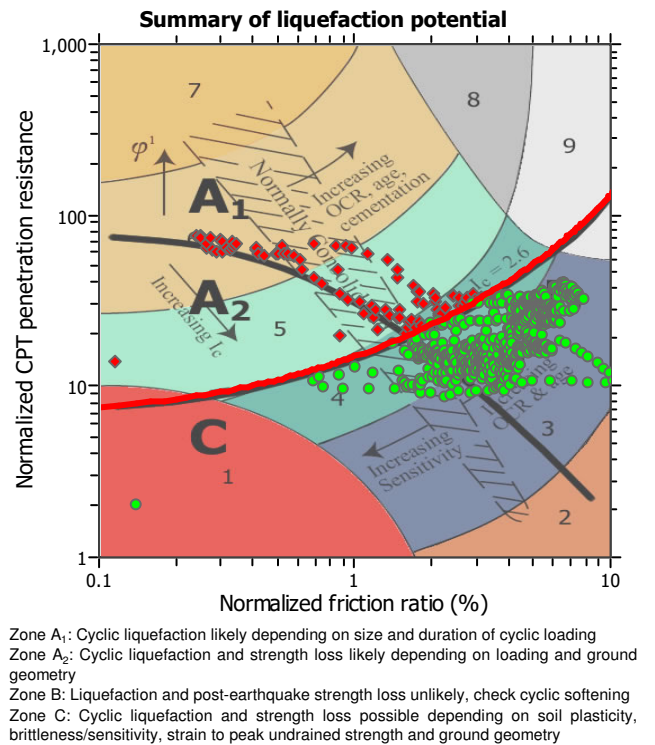
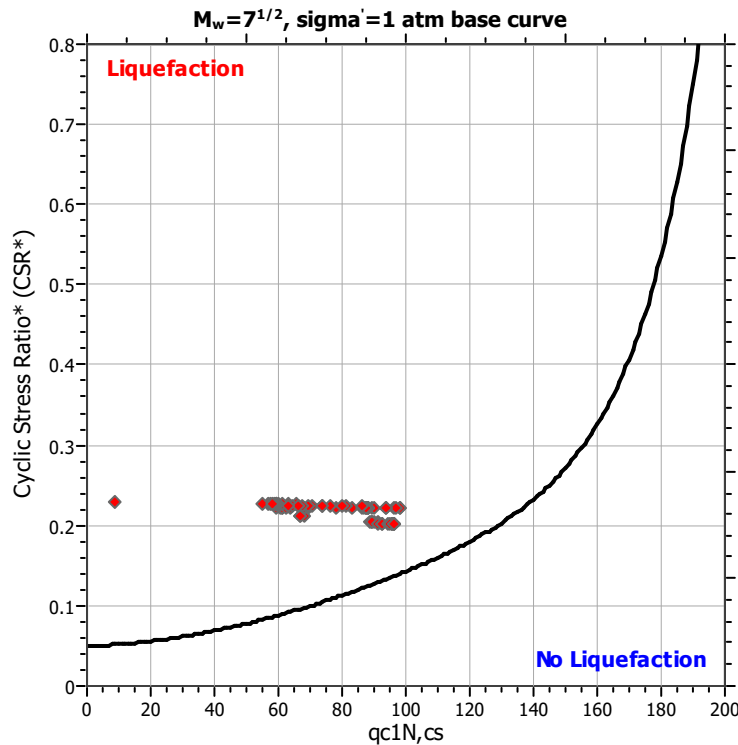
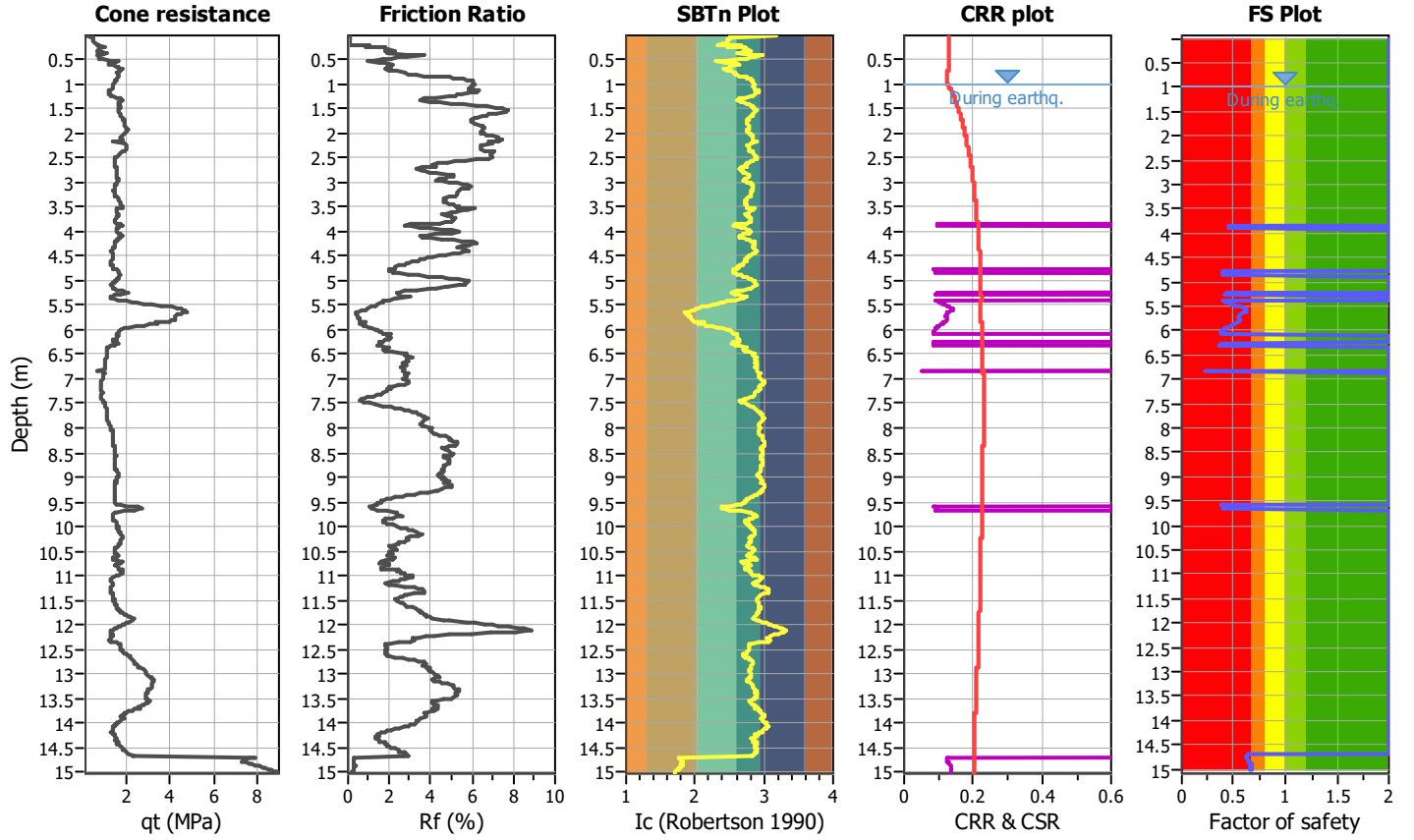
Project title :

Location :

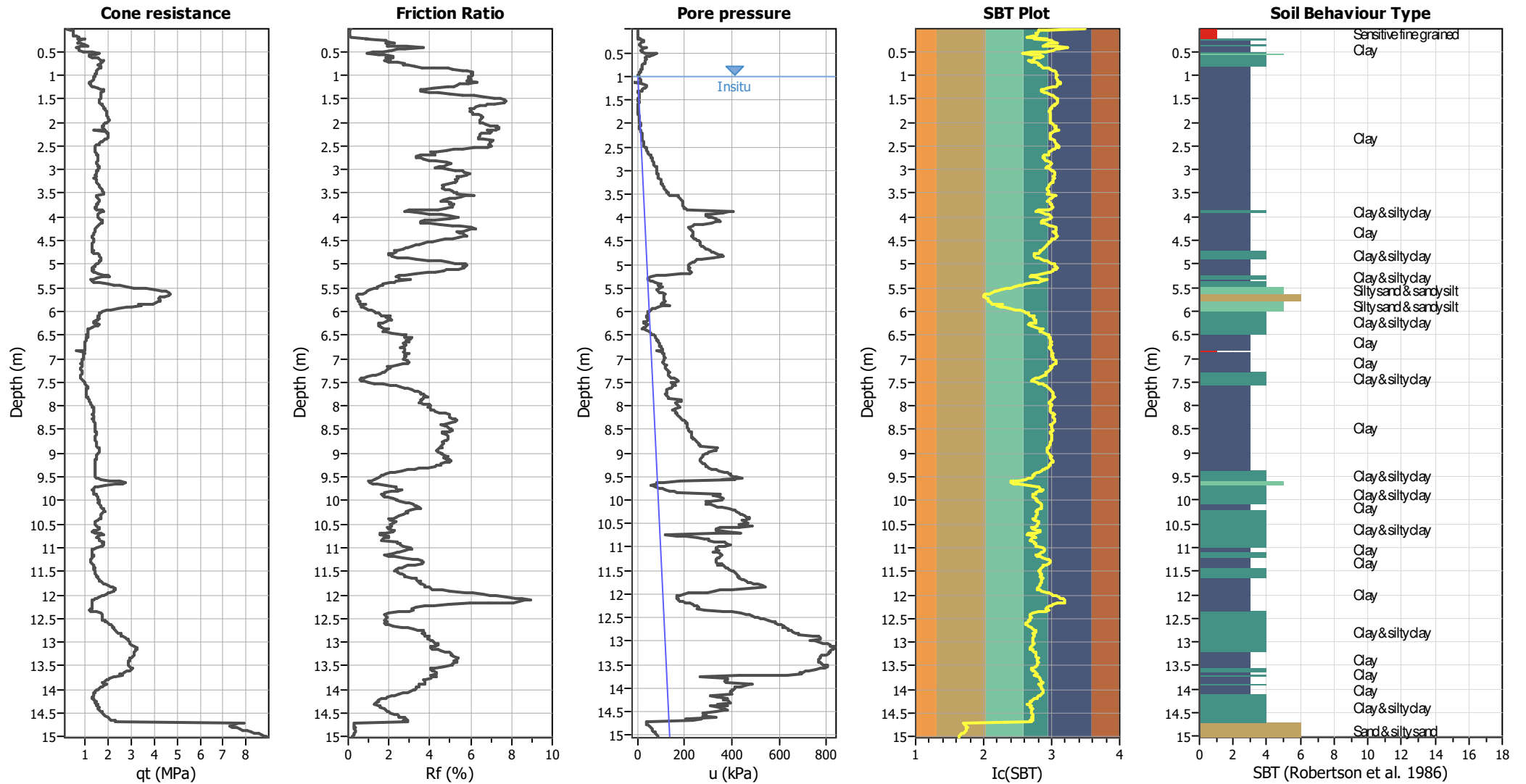
CPT file : CPTU 26 Via del mare (Sala di Cesenatico)

Input parameters and analysis data

Analysis method:	I&B (2008)	G.W.T. (in-situ):	1.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	I&B (2008)	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:	1	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.32	Unit weight calculation:	Based on SBT	K_G applied:	Yes		



CPT basic interpretation plots



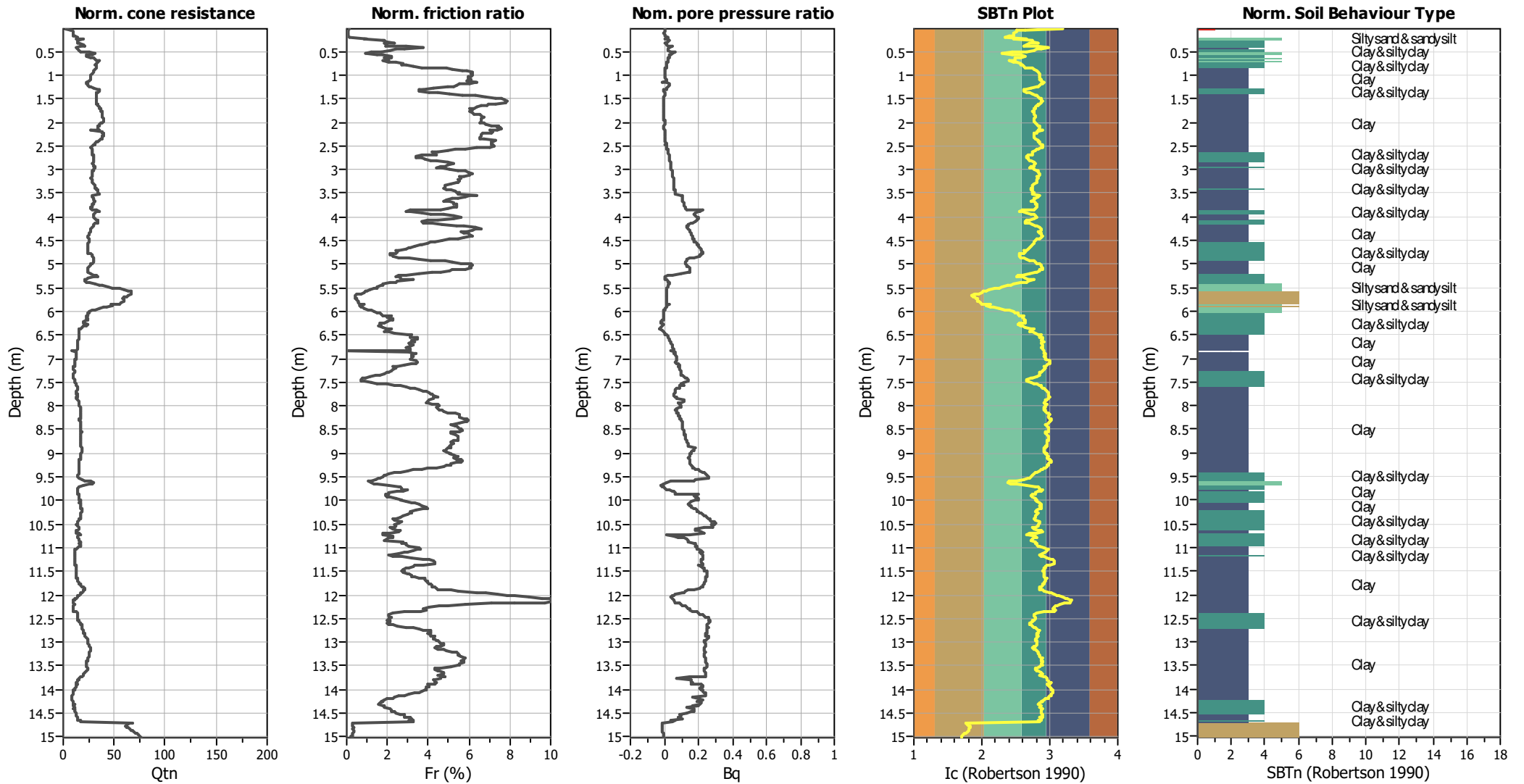
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.32	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

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

CPT basic interpretation plots (normalized)



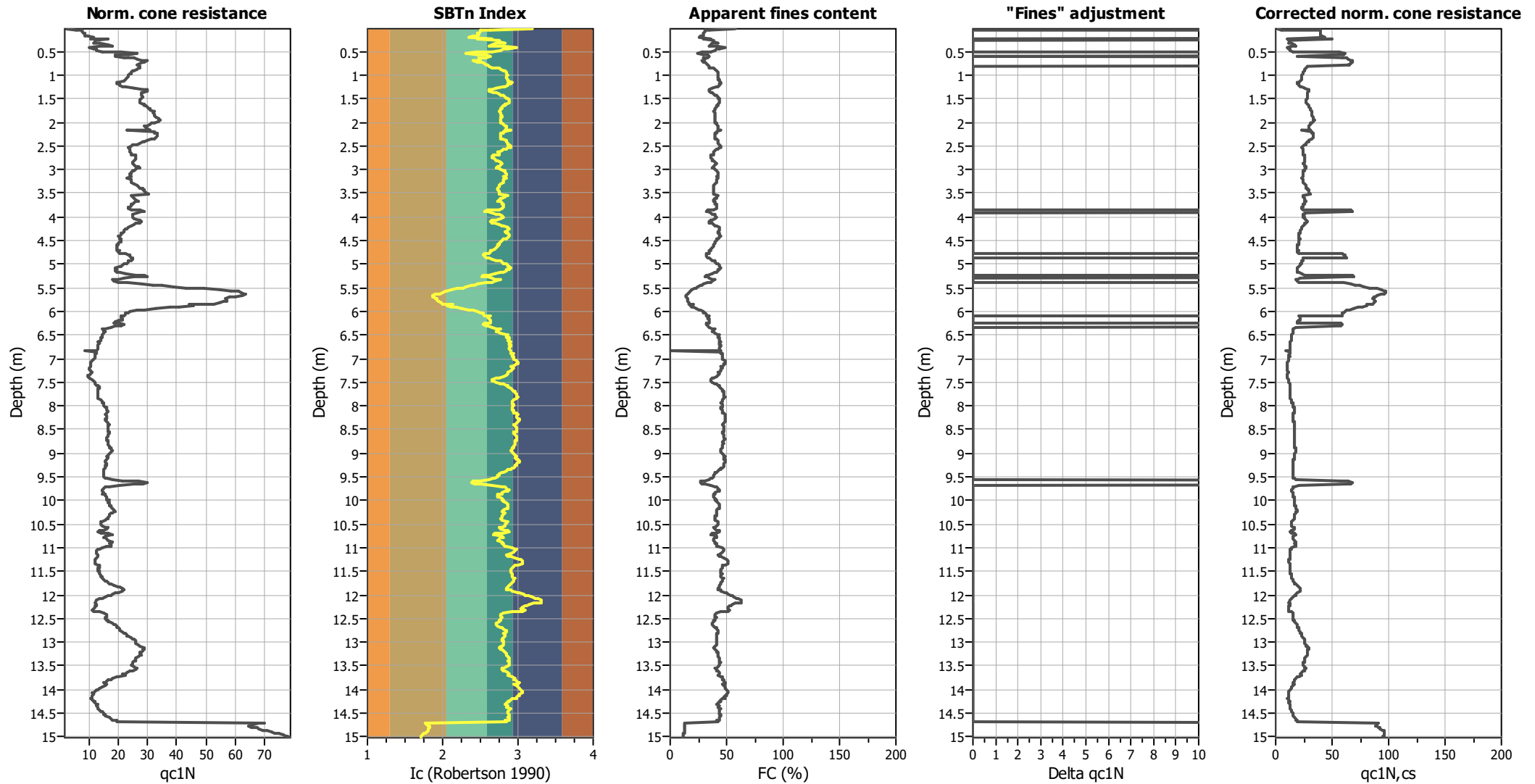
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.32	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

SBTn 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

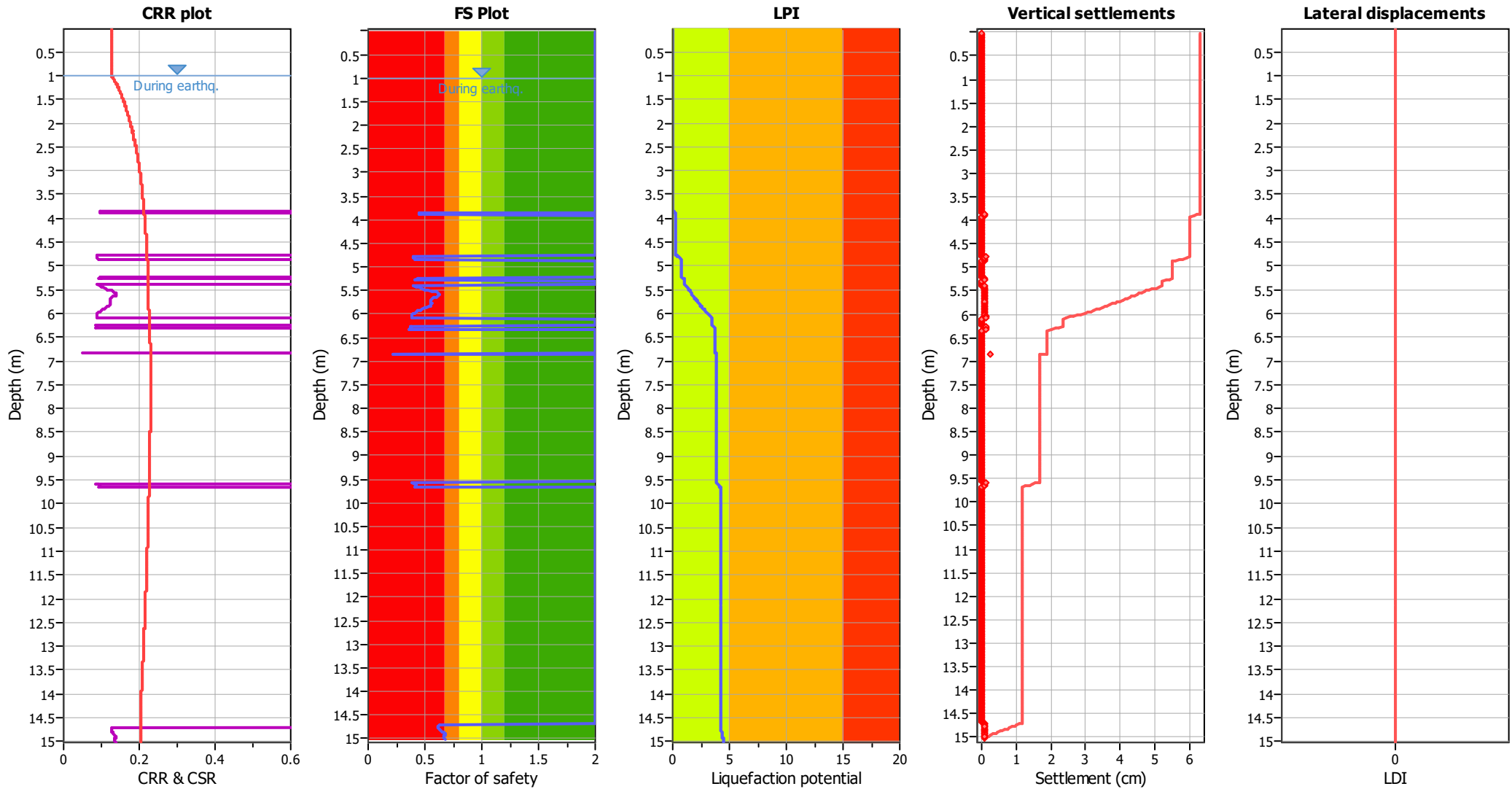
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.32	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.32	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

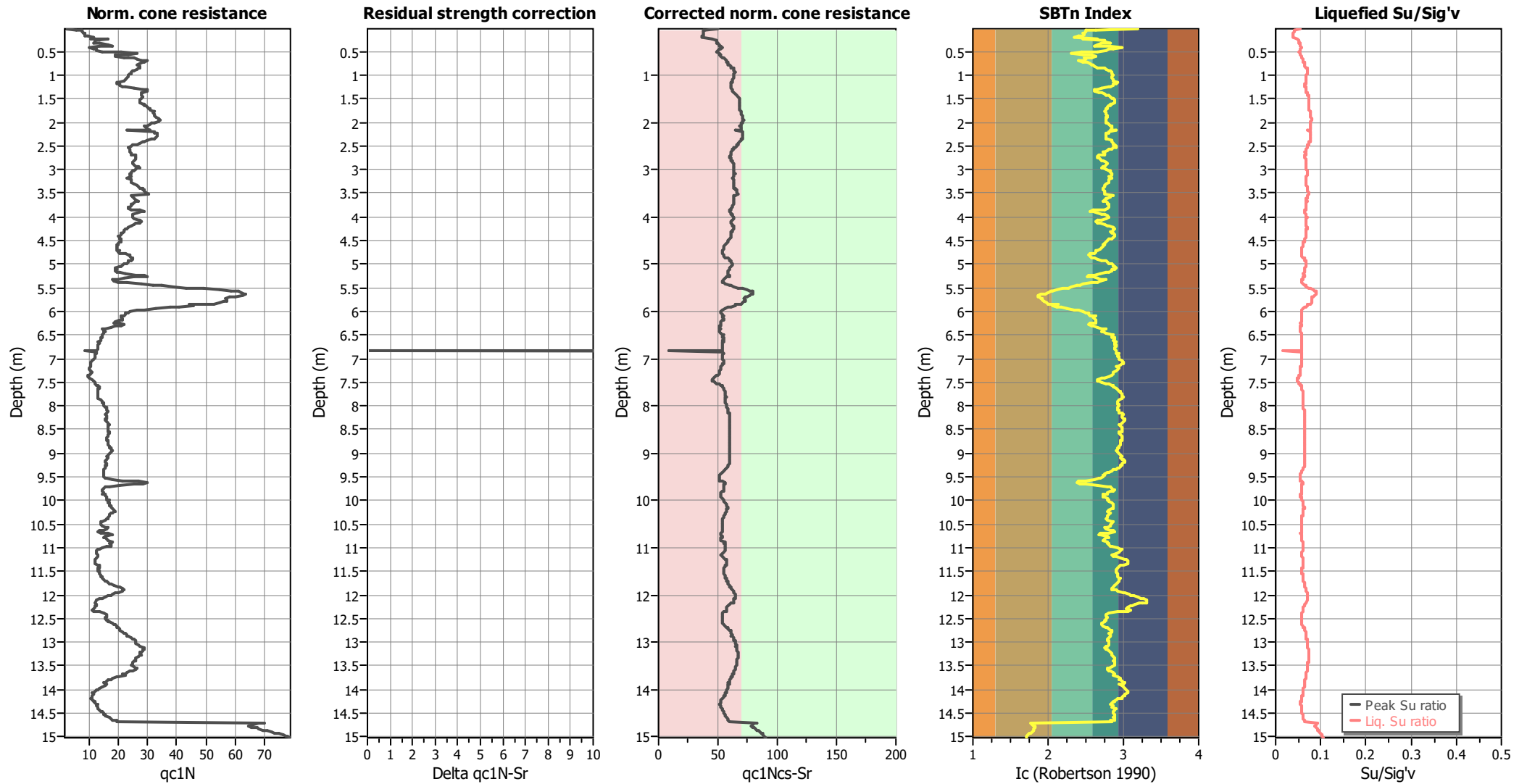
F.S. color scheme

- 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

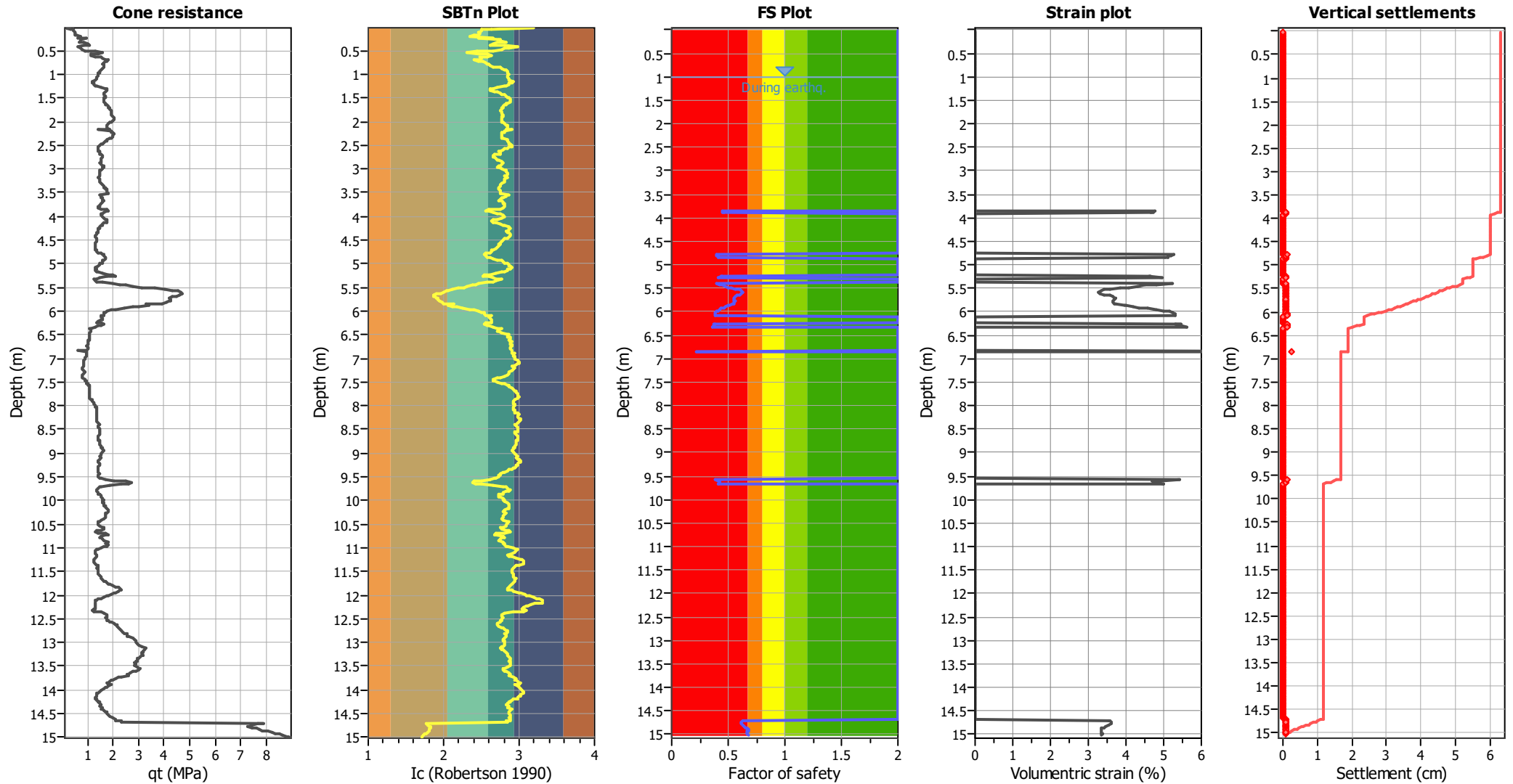
Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.32	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

- qt: Total cone resistance (cone resistance q_c corrected for pore water effects)
- I_c: Soil Behaviour Type Index
- FS: Calculated Factor of Safety against liquefaction
- Volumetric strain: Post-liquefaction volumetric strain

LIQUEFACTION ANALYSIS REPORT

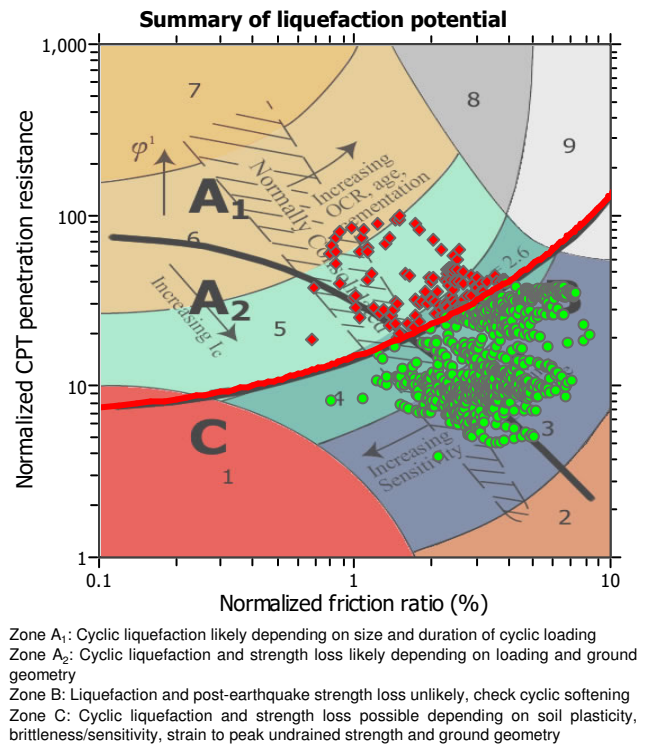
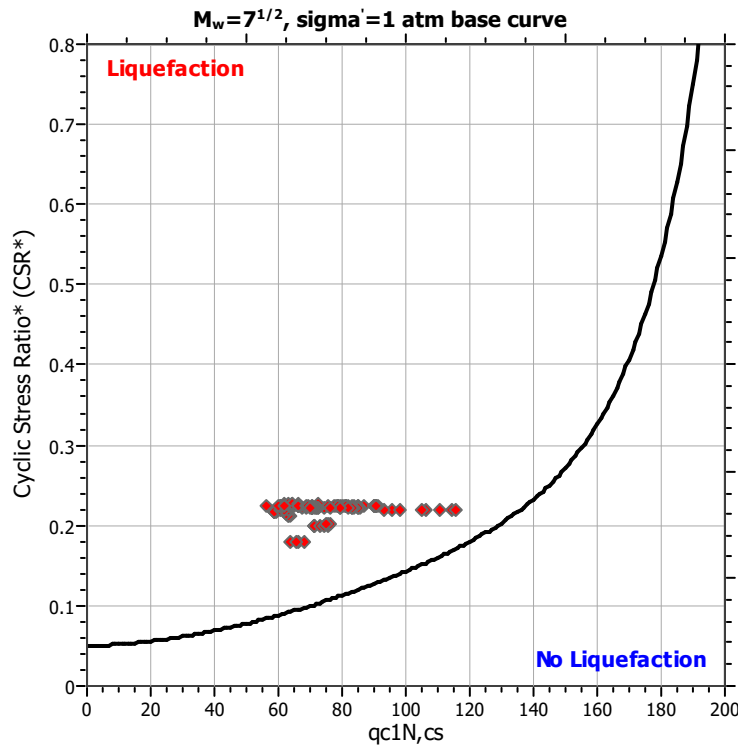
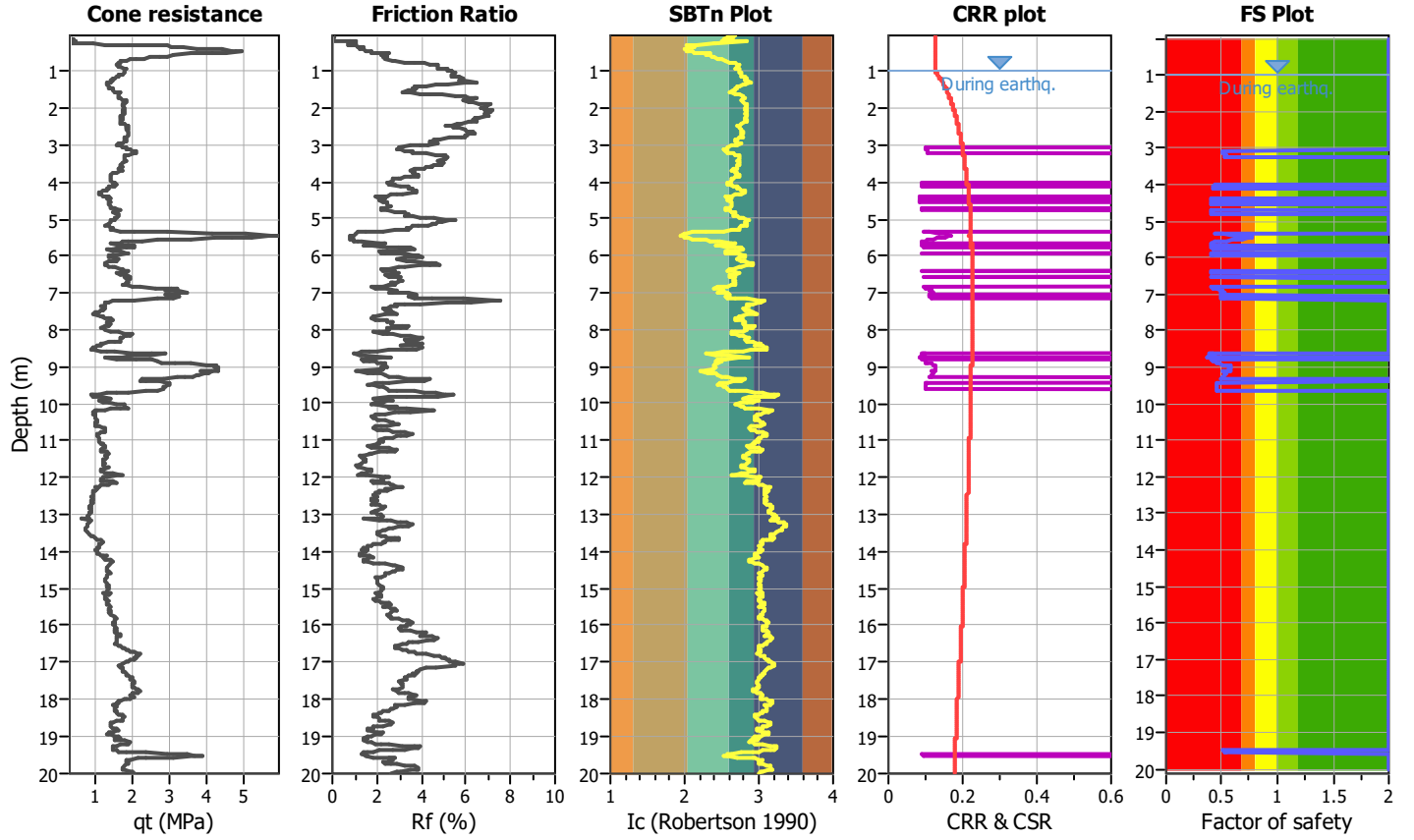
Project title :

Location :

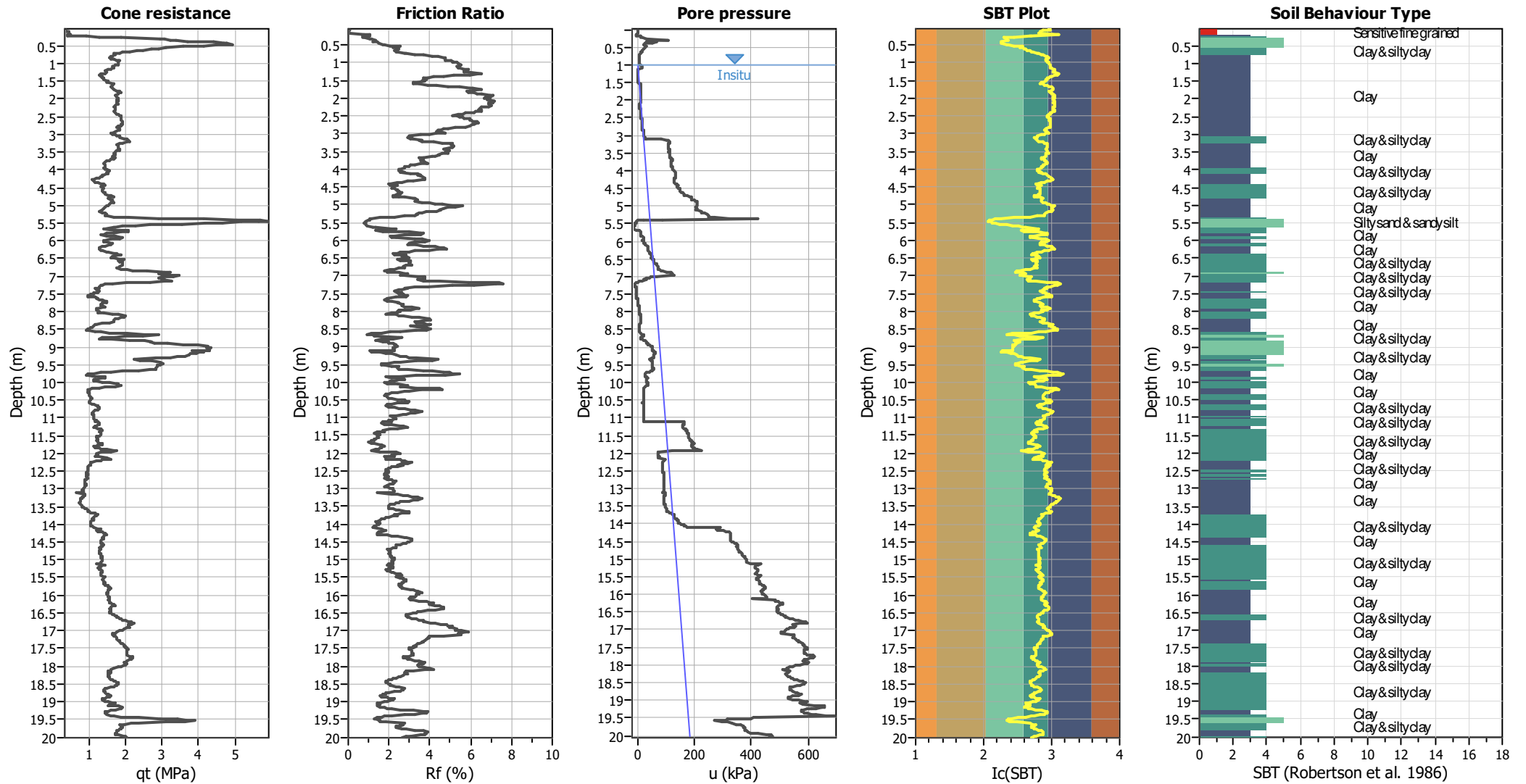
CPT file : CPTU 31 Via Viona (S. Mauro Pascoli)

Input parameters and analysis data

Analysis method:	I&B (2008)	G.W.T. (in-situ):	1.00 m	Use fill:	No	Clay like behavior	
Fines correction method:	I&B (2008)	G.W.T. (earthq.):	1.00 m	Fill height:	N/A	applied:	Sands only
Points to test:	Based on Ic value	Average results interval:	1	Fill weight:	N/A	Limit depth applied:	No
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	Limit depth:	N/A
Peak ground acceleration:	0.32	Unit weight calculation:	Based on SBT	K_G applied:	Yes	MSF method:	Method based



CPT basic interpretation plots



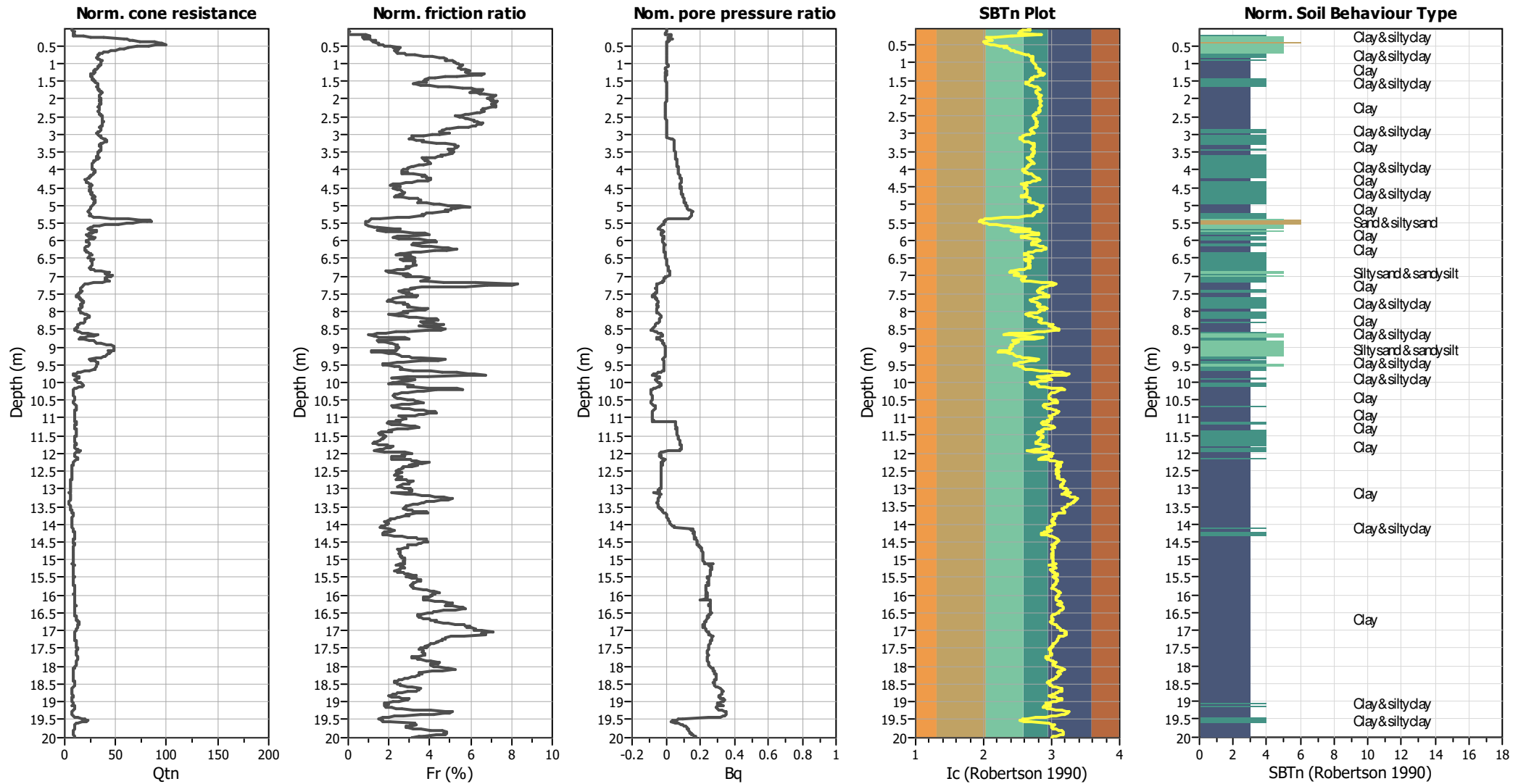
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.32	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

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

CPT basic interpretation plots (normalized)



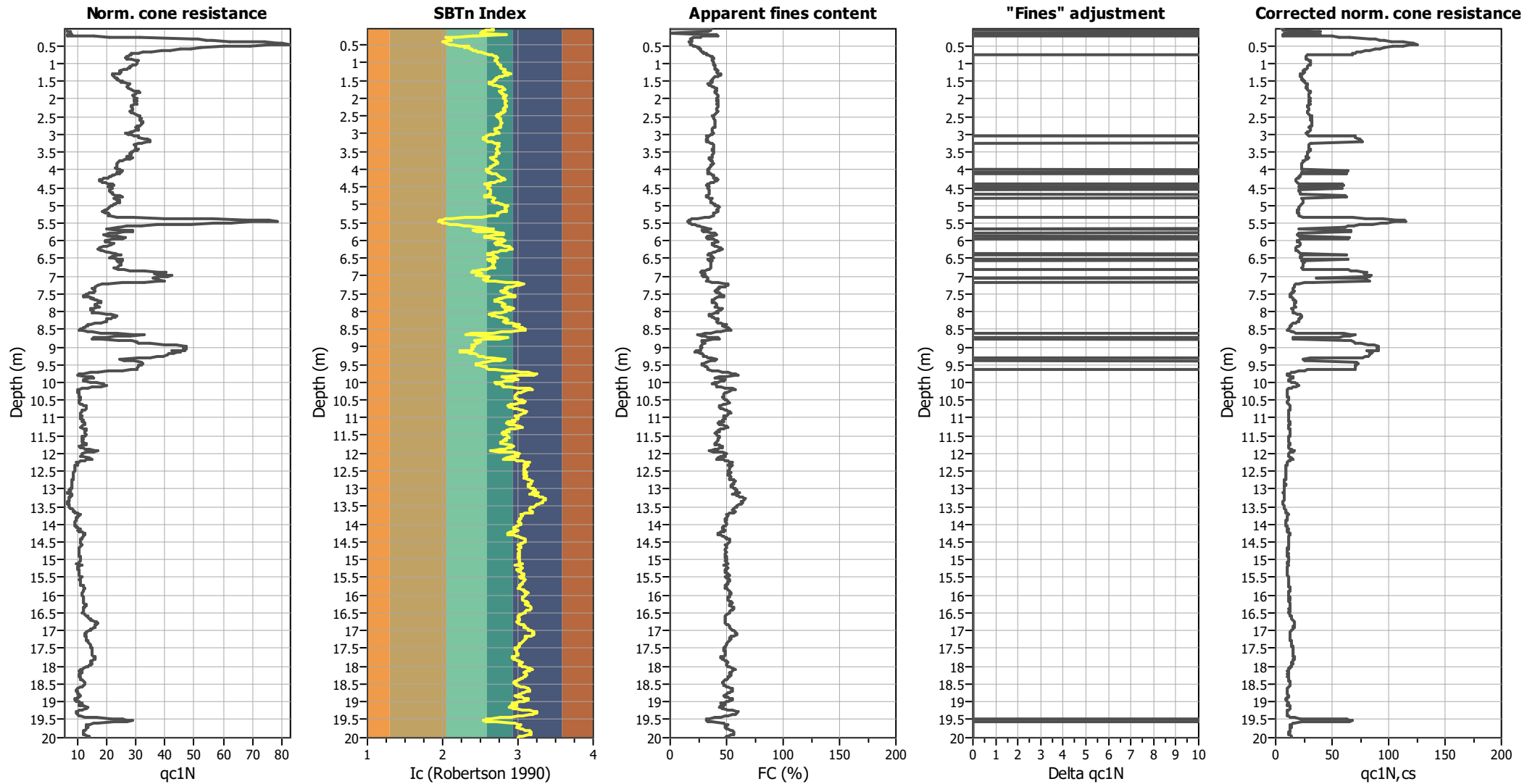
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.32	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

SBTn 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

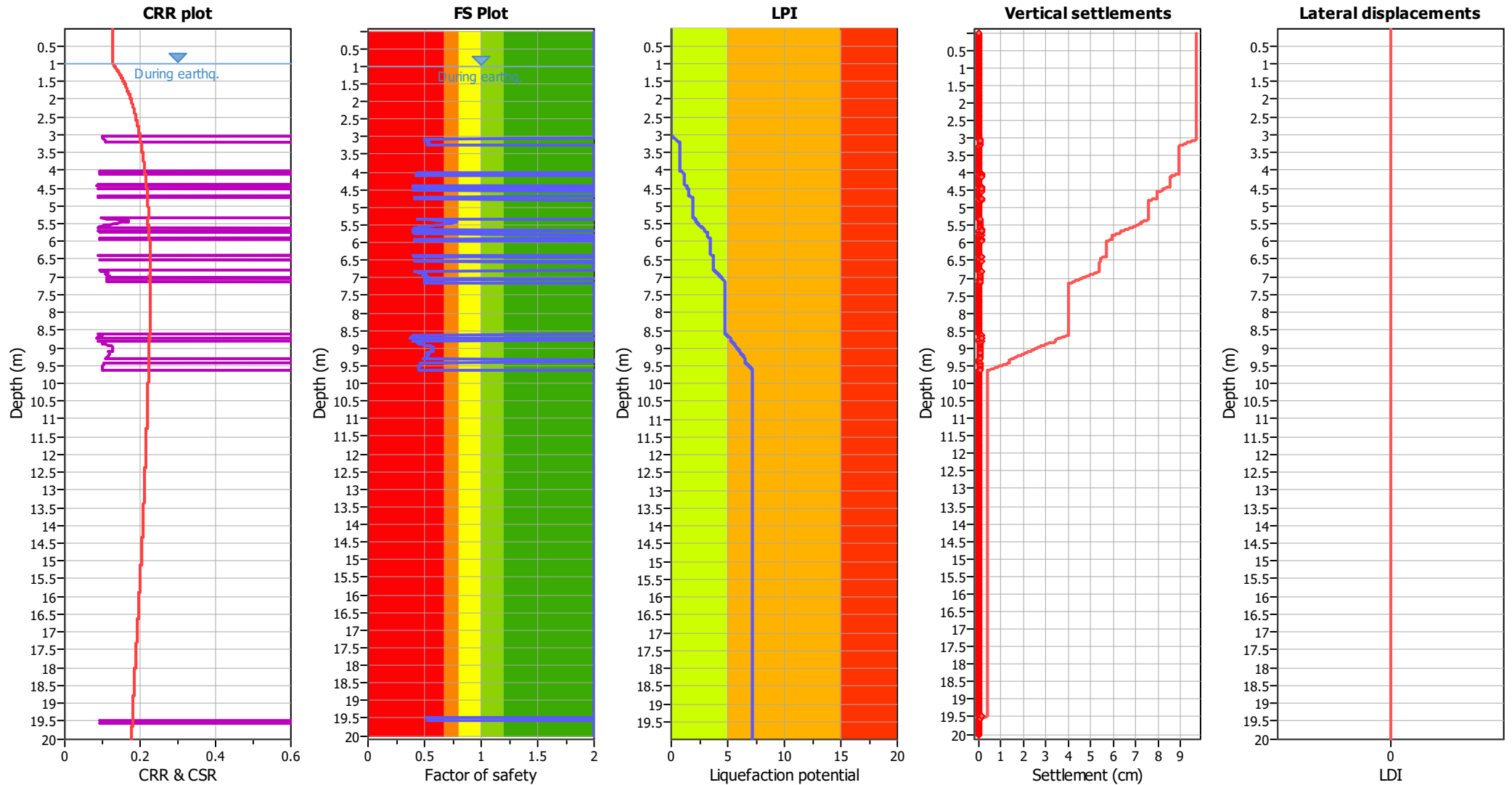
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.32	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (earthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.32	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

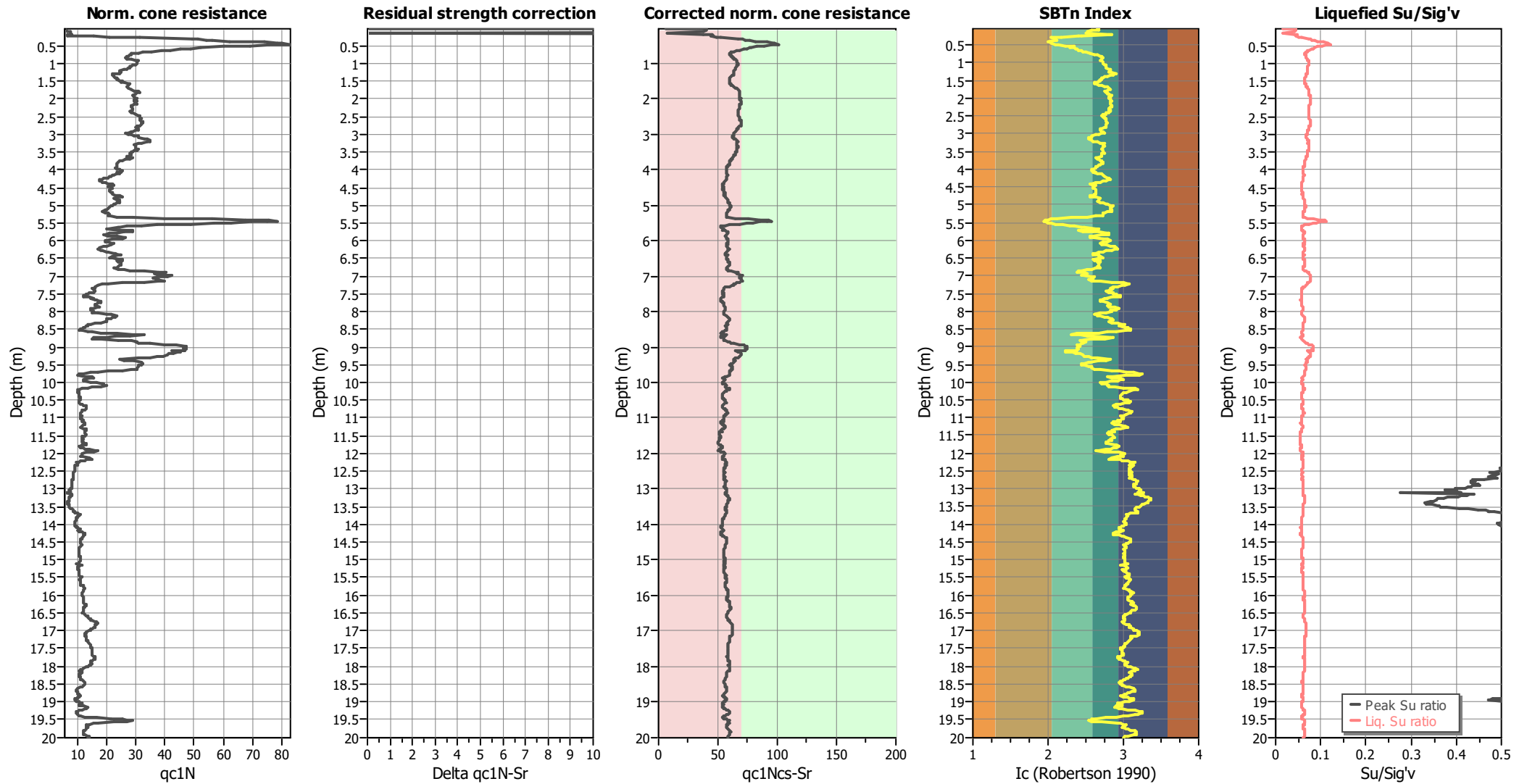
F.S. color scheme

- 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

Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.32	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

:: Post-earthquake settlement due to soil liquefaction ::											
Depth (m)	q _{c1N,cs}	FS	e _v (%)	DF	Settlement (cm)	Depth (m)	q _{c1N,cs}	FS	e _v (%)	DF	Settlement (cm)
1.00	30.34	2.00	0.00	1.00	0.00	1.02	30.40	2.00	0.00	1.00	0.00
1.04	30.20	2.00	0.00	1.00	0.00	1.06	29.16	2.00	0.00	1.00	0.00
1.08	28.45	2.00	0.00	1.00	0.00	1.10	27.92	2.00	0.00	1.00	0.00
1.12	28.04	2.00	0.00	1.00	0.00	1.14	27.67	2.00	0.00	1.00	0.00
1.16	27.09	2.00	0.00	1.00	0.00	1.18	25.80	2.00	0.00	1.00	0.00
1.20	24.62	2.00	0.00	1.00	0.00	1.22	24.49	2.00	0.00	1.00	0.00
1.24	24.69	2.00	0.00	1.00	0.00	1.26	25.02	2.00	0.00	1.00	0.00
1.28	24.51	2.00	0.00	1.00	0.00	1.30	22.29	2.00	0.00	1.00	0.00
1.32	21.96	2.00	0.00	1.00	0.00	1.34	22.32	2.00	0.00	1.00	0.00
1.36	22.40	2.00	0.00	1.00	0.00	1.38	22.81	2.00	0.00	1.00	0.00
1.40	23.30	2.00	0.00	1.00	0.00	1.42	23.43	2.00	0.00	1.00	0.00
1.44	23.85	2.00	0.00	1.00	0.00	1.46	23.52	2.00	0.00	1.00	0.00
1.48	24.70	2.00	0.00	1.00	0.00	1.50	25.33	2.00	0.00	1.00	0.00
1.52	25.13	2.00	0.00	1.00	0.00	1.54	25.89	2.00	0.00	1.00	0.00
1.56	27.37	2.00	0.00	1.00	0.00	1.58	28.09	2.00	0.00	1.00	0.00
1.60	27.73	2.00	0.00	1.00	0.00	1.62	27.63	2.00	0.00	1.00	0.00
1.64	27.26	2.00	0.00	1.00	0.00	1.66	27.21	2.00	0.00	1.00	0.00
1.68	27.44	2.00	0.00	1.00	0.00	1.70	27.57	2.00	0.00	1.00	0.00
1.72	28.55	2.00	0.00	1.00	0.00	1.74	28.44	2.00	0.00	1.00	0.00
1.76	29.28	2.00	0.00	1.00	0.00	1.78	30.74	2.00	0.00	1.00	0.00
1.80	31.25	2.00	0.00	1.00	0.00	1.82	31.33	2.00	0.00	1.00	0.00
1.84	30.41	2.00	0.00	1.00	0.00	1.86	29.95	2.00	0.00	1.00	0.00
1.88	29.95	2.00	0.00	1.00	0.00	1.90	29.20	2.00	0.00	1.00	0.00
1.92	29.12	2.00	0.00	1.00	0.00	1.94	29.40	2.00	0.00	1.00	0.00
1.96	29.52	2.00	0.00	1.00	0.00	1.98	30.14	2.00	0.00	1.00	0.00
2.00	30.30	2.00	0.00	1.00	0.00	2.02	29.66	2.00	0.00	1.00	0.00
2.04	30.04	2.00	0.00	1.00	0.00	2.06	30.32	2.00	0.00	1.00	0.00
2.08	29.61	2.00	0.00	1.00	0.00	2.10	29.82	2.00	0.00	1.00	0.00
2.12	29.82	2.00	0.00	1.00	0.00	2.14	30.24	2.00	0.00	1.00	0.00
2.16	29.65	2.00	0.00	1.00	0.00	2.18	29.23	2.00	0.00	1.00	0.00
2.20	28.68	2.00	0.00	1.00	0.00	2.22	28.51	2.00	0.00	1.00	0.00
2.24	28.71	2.00	0.00	1.00	0.00	2.26	29.12	2.00	0.00	1.00	0.00
2.28	29.24	2.00	0.00	1.00	0.00	2.30	28.85	2.00	0.00	1.00	0.00
2.32	28.92	2.00	0.00	1.00	0.00	2.34	28.04	2.00	0.00	1.00	0.00
2.36	28.04	2.00	0.00	1.00	0.00	2.38	28.74	2.00	0.00	1.00	0.00
2.40	28.77	2.00	0.00	1.00	0.00	2.42	29.76	2.00	0.00	1.00	0.00
2.44	30.00	2.00	0.00	1.00	0.00	2.46	30.92	2.00	0.00	1.00	0.00
2.48	31.57	2.00	0.00	1.00	0.00	2.50	31.41	2.00	0.00	1.00	0.00
2.52	31.66	2.00	0.00	1.00	0.00	2.54	31.40	2.00	0.00	1.00	0.00
2.56	31.73	2.00	0.00	1.00	0.00	2.58	31.27	2.00	0.00	1.00	0.00
2.60	31.56	2.00	0.00	1.00	0.00	2.62	32.15	2.00	0.00	1.00	0.00
2.64	32.31	2.00	0.00	1.00	0.00	2.66	32.27	2.00	0.00	1.00	0.00
2.68	31.98	2.00	0.00	1.00	0.00	2.70	31.76	2.00	0.00	1.00	0.00
2.72	31.92	2.00	0.00	1.00	0.00	2.74	31.62	2.00	0.00	1.00	0.00
2.76	31.15	2.00	0.00	1.00	0.00	2.78	30.34	2.00	0.00	1.00	0.00
2.80	29.87	2.00	0.00	1.00	0.00	2.82	30.32	2.00	0.00	1.00	0.00
2.84	30.94	2.00	0.00	1.00	0.00	2.86	30.97	2.00	0.00	1.00	0.00
2.88	31.05	2.00	0.00	1.00	0.00	2.90	30.21	2.00	0.00	1.00	0.00

LIQUEFACTION ANALYSIS REPORT

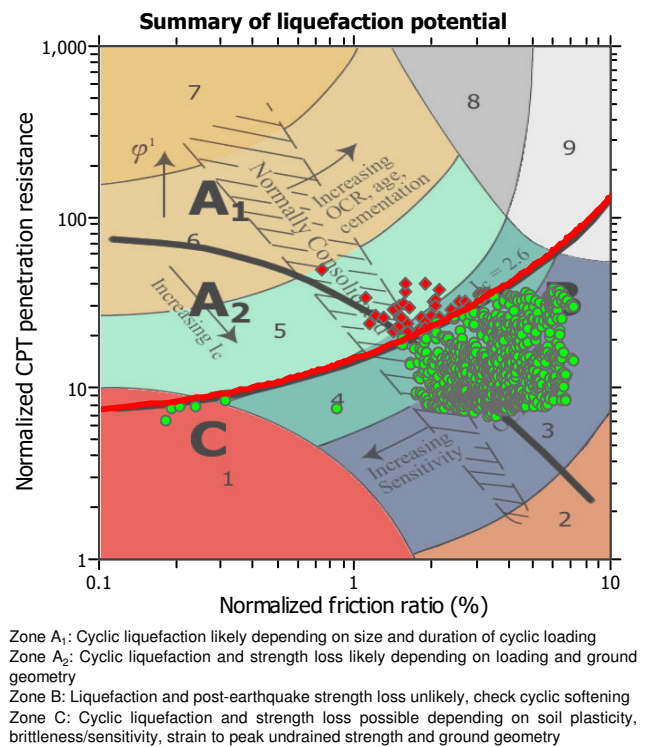
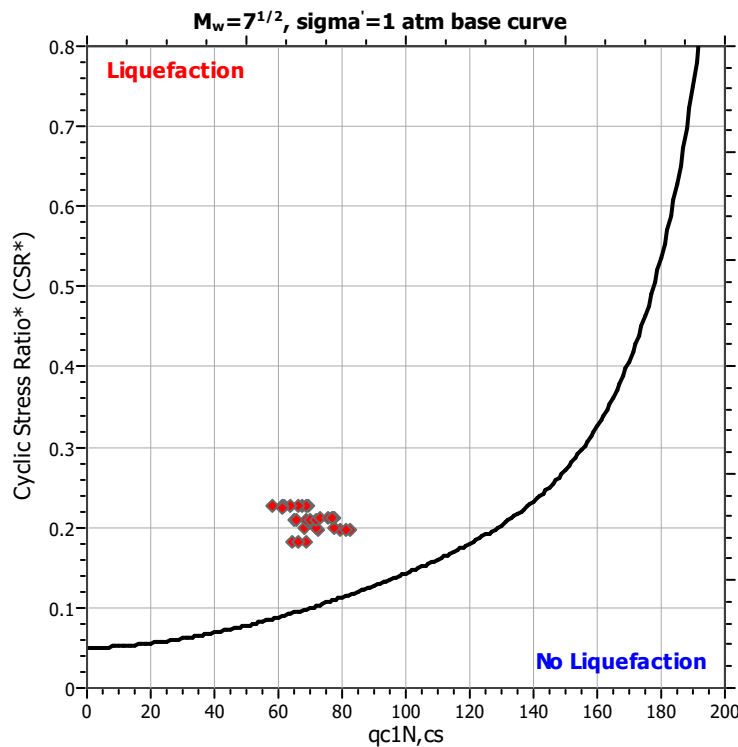
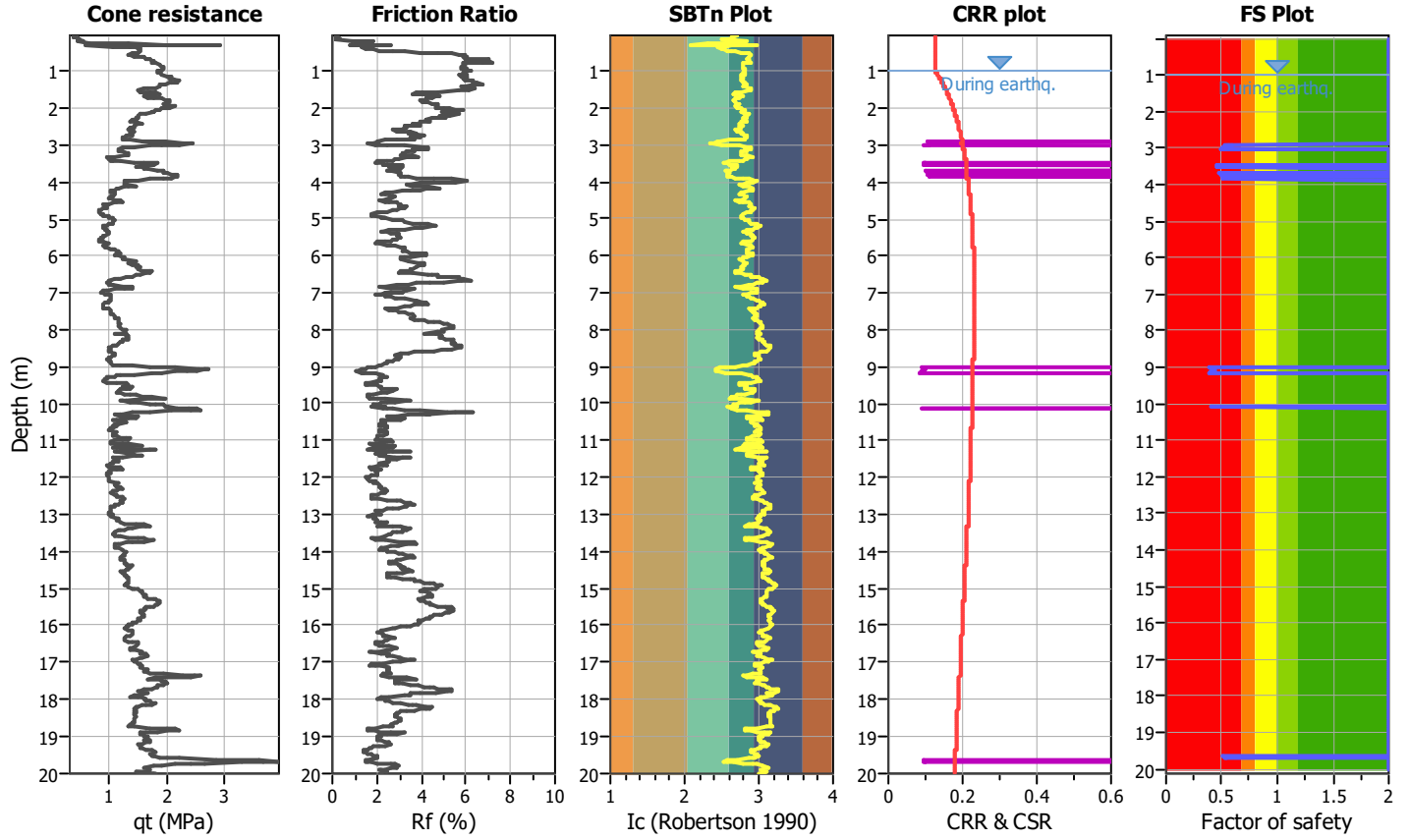
Project title :

Location :

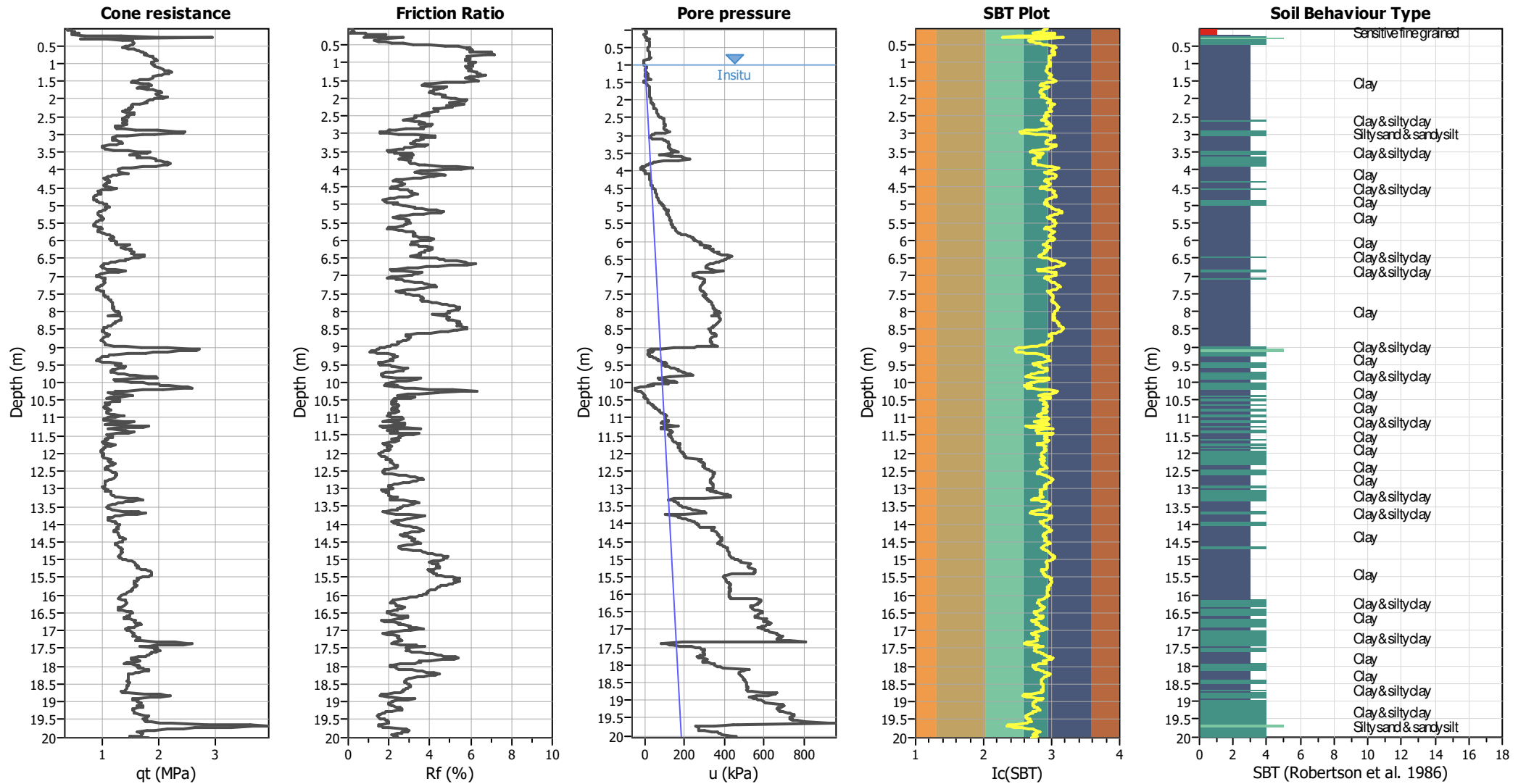
CPT file : CPTU 33 Via Donegallia - Bellaria Igea Marina (RN)

Input parameters and analysis data

Analysis method:	I&B (2008)	G.W.T. (in-situ):	1.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	I&B (2008)	G.W.T. (earthq.):	1.00 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	1	Fill weight:	N/A	Limit depth:	20.00 m
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.32	Unit weight calculation:	Based on SBT	K_G applied:	Yes		



CPT basic interpretation plots



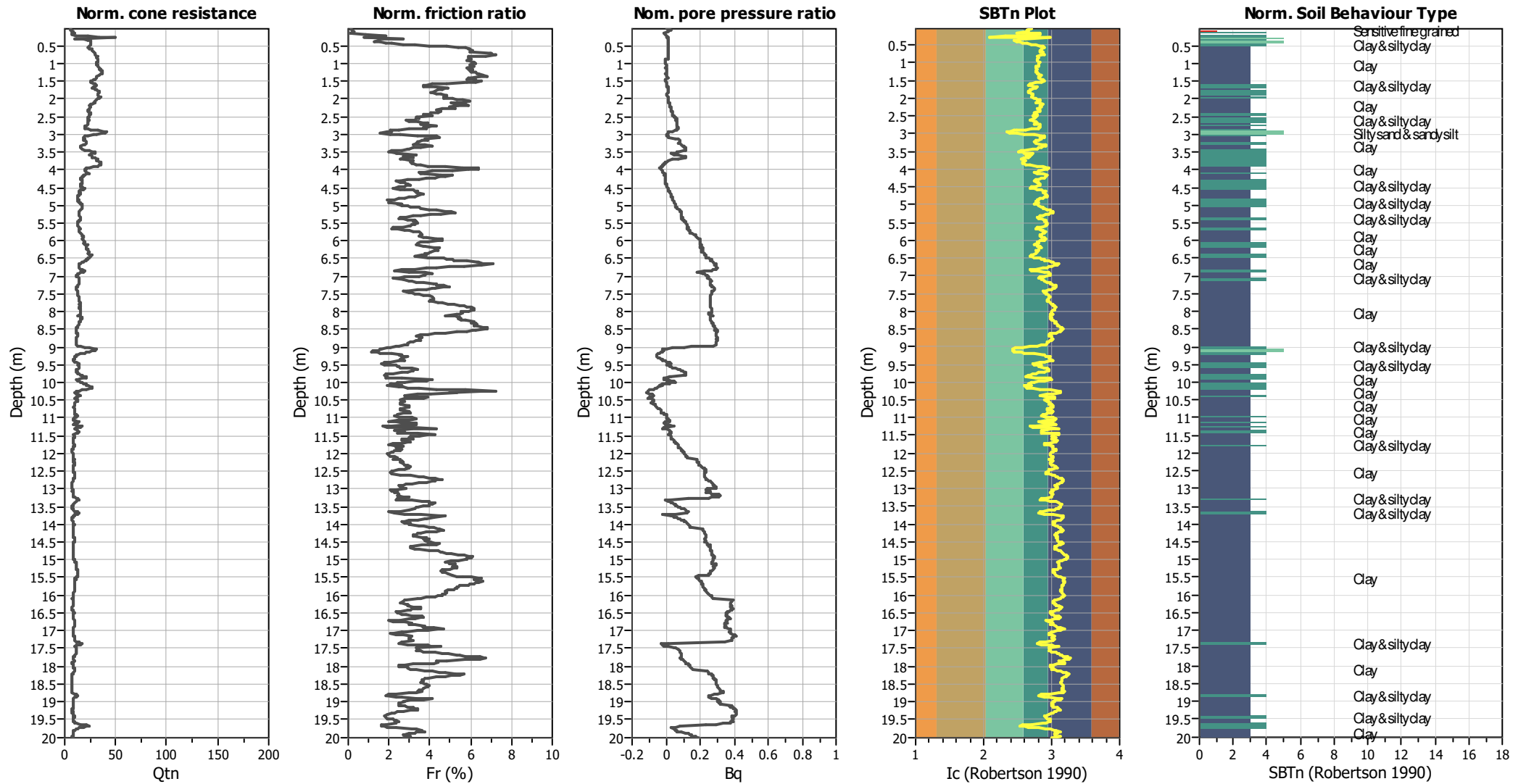
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K ₀ applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.32	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	20.00 m

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

CPT basic interpretation plots (normalized)



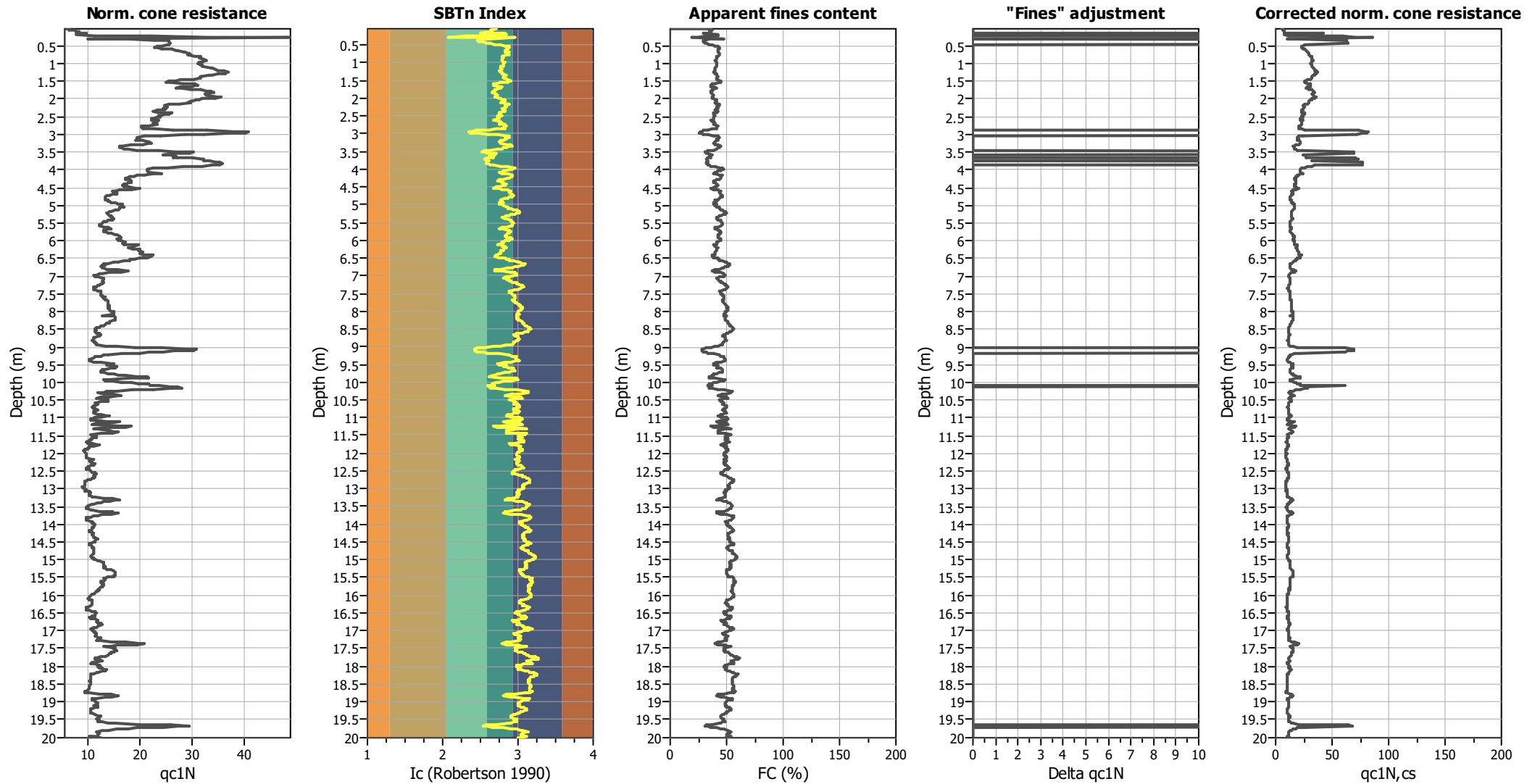
Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.32	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	20.00 m

SBTn 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

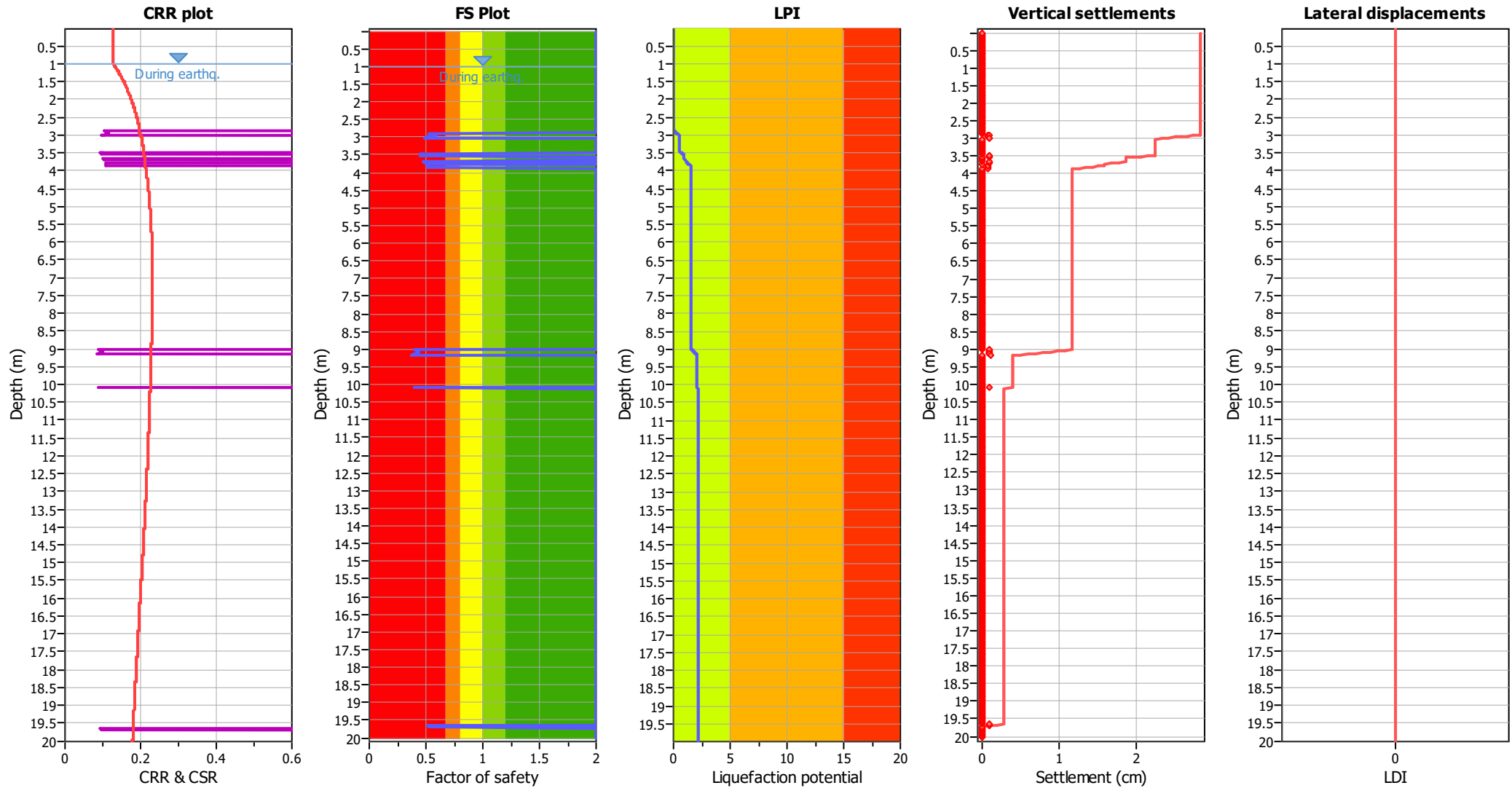
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.32	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	20.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_f applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.32	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	20.00 m

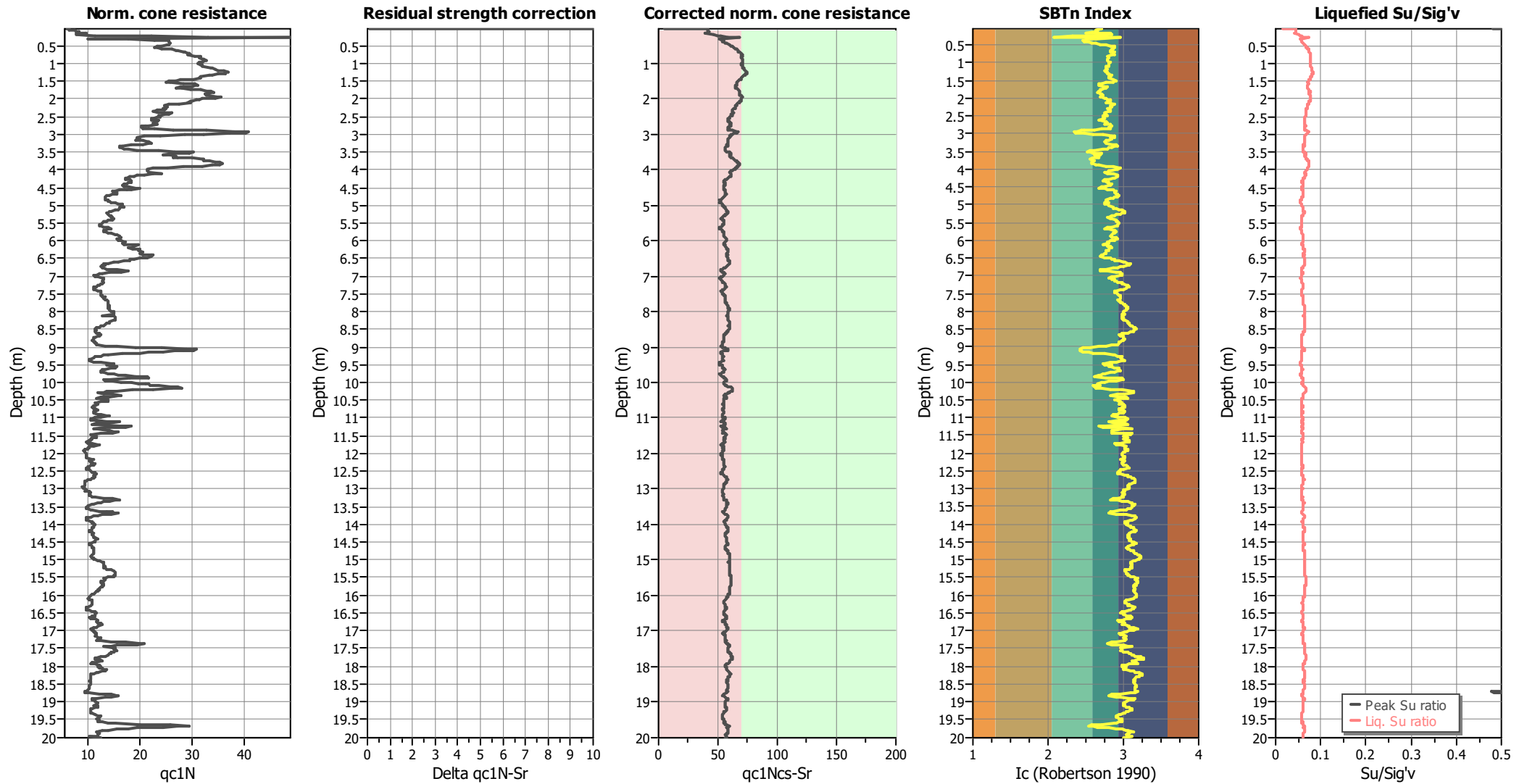
F.S. color scheme

- 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

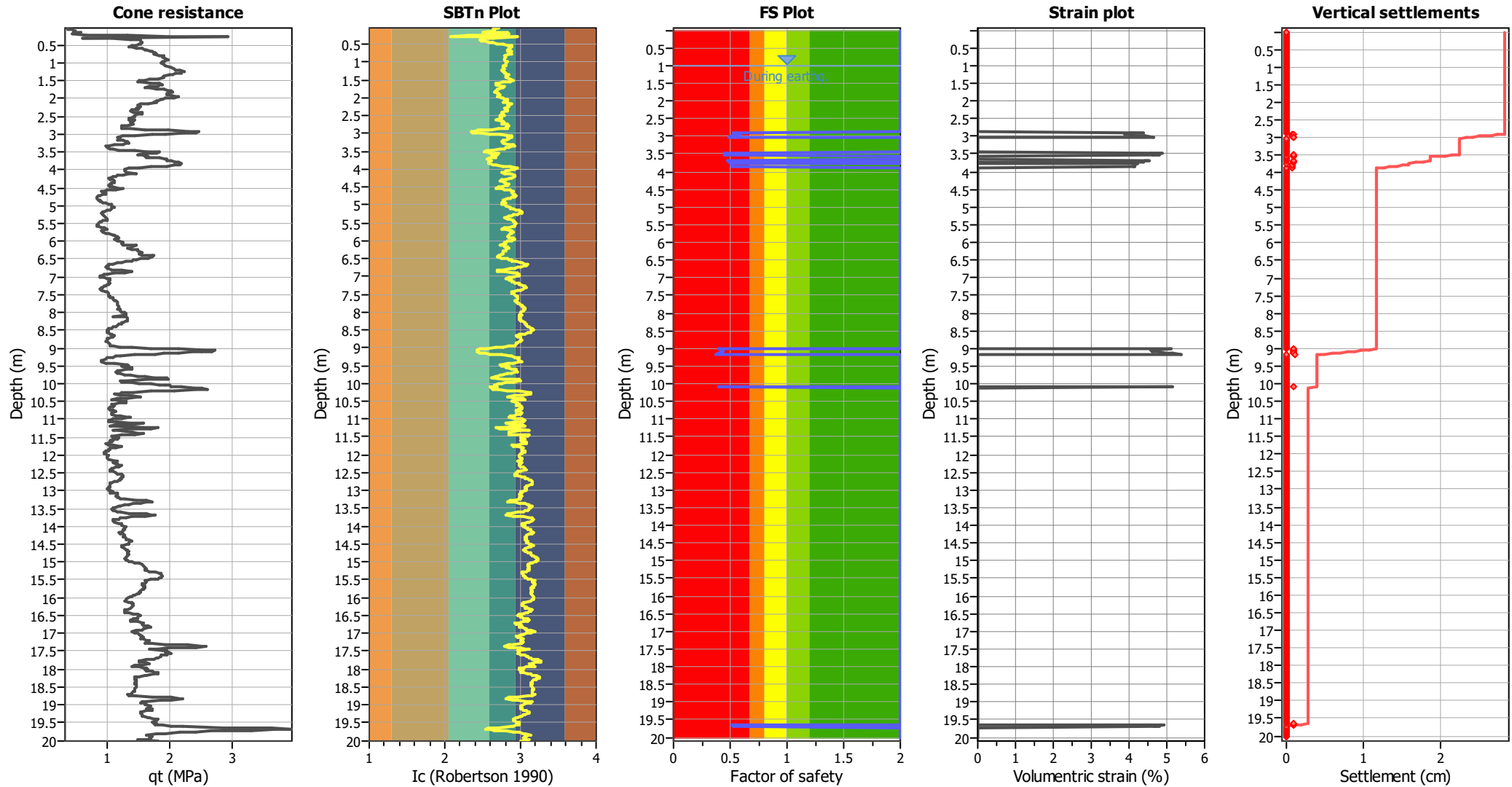
Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	I&B (2008)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	I&B (2008)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _q applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.32	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	20.00 m

Estimation of post-earthquake settlements



Abbreviations

- q_t : Total cone resistance (cone resistance q_c corrected for pore water effects)
- I_c : Soil Behaviour Type Index
- FS: Calculated Factor of Safety against liquefaction
- Volumetric strain: Post-liquefaction volumetric strain