

Attuazione dell'articolo 11 della legge 24 giugno 2009, n. 77

# MICROZONAZIONE SISMICA

## Verifiche liquefazione

Regione Emilia-Romagna

Comune di Besenzone



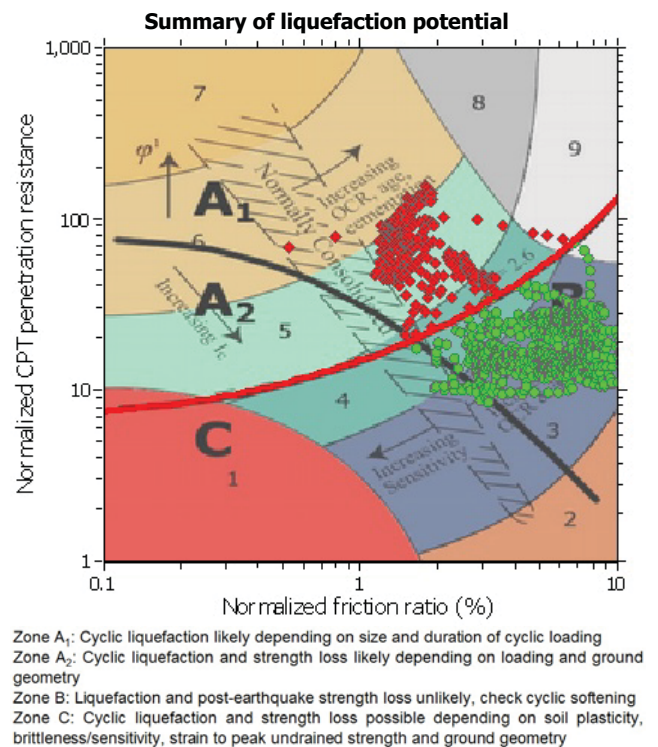
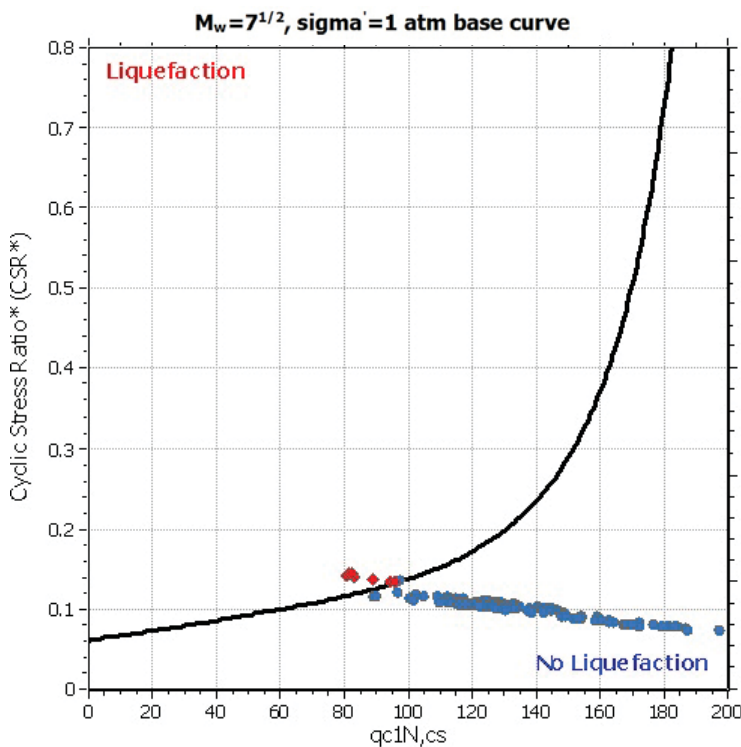
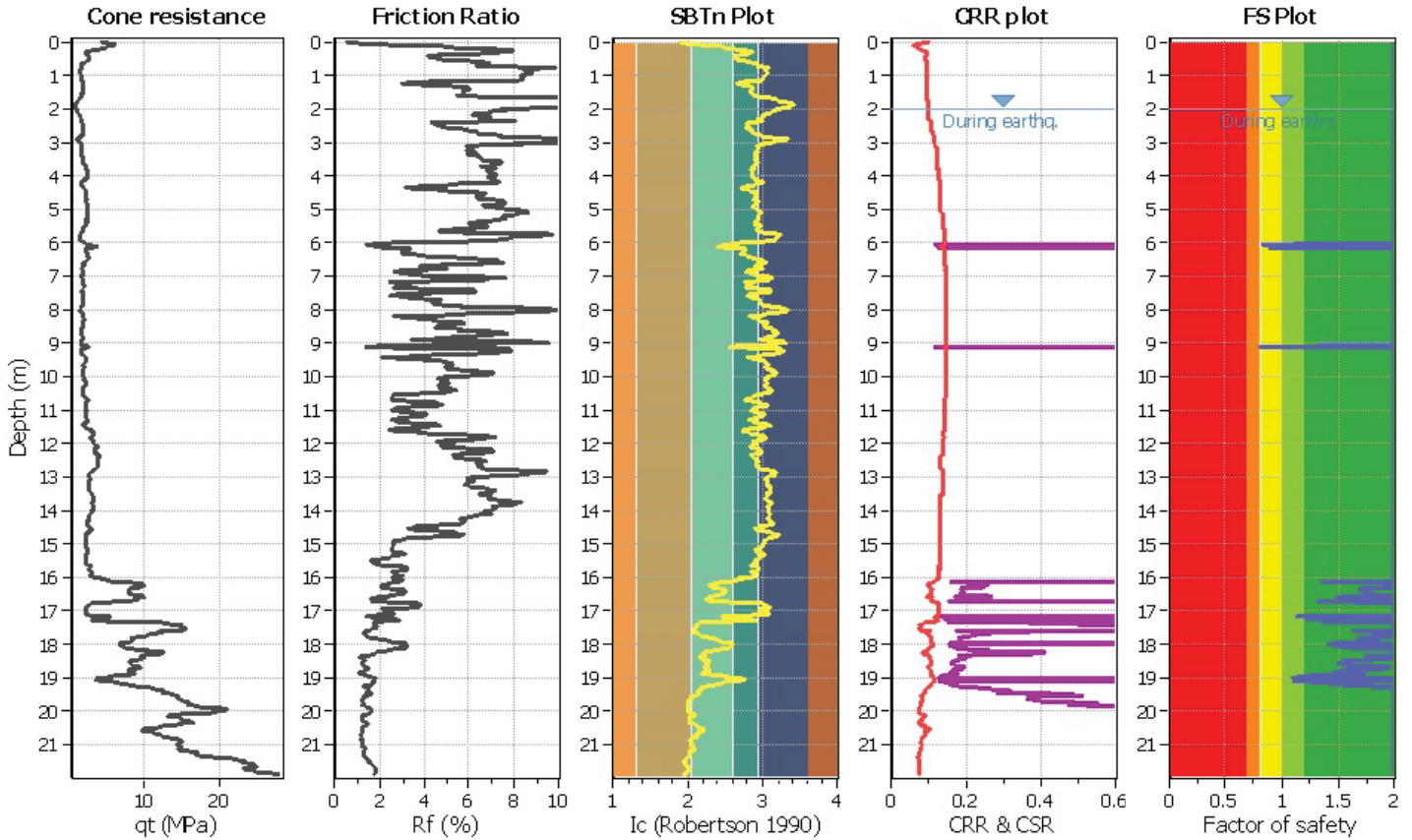
Regione	Soggetto realizzatore	Data
REGIONE EMILIA-ROMAGNA	Dr.Geol. Gabriele Corbelli	Maggio 2018
		Allegato : 1

**LIQUEFACTION ANALYSIS REPORT**

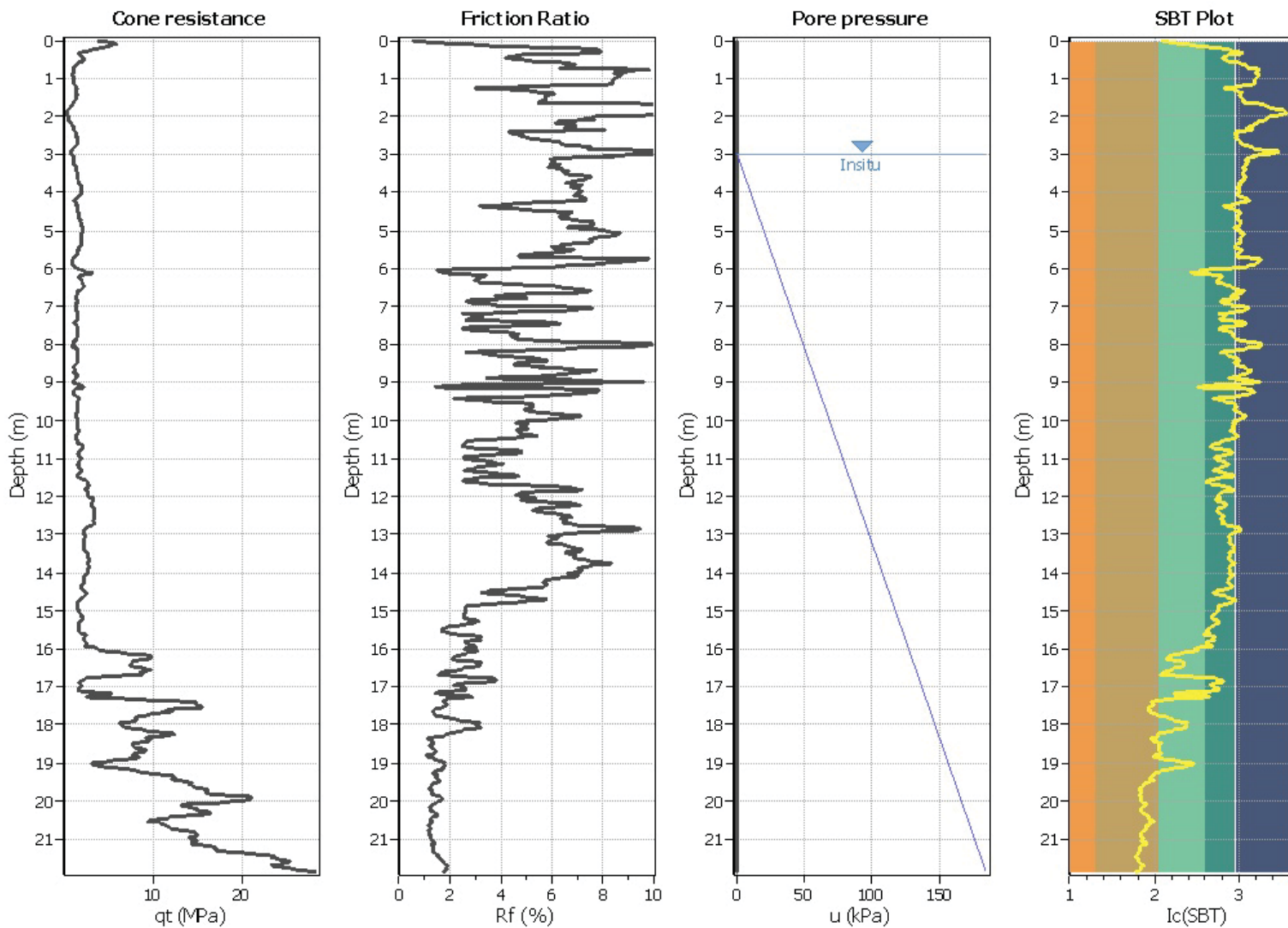
**Project title : Studio di Microzonazione Sismica - Besenzone    Location :**  
**CPT file : 180040E506**

**Input parameters and analysis data**

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	20.00 m
Earthquake magnitude $M_w$ :	5.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	$K_\sigma$ applied:	Yes		



### CPT basic interpretation plo



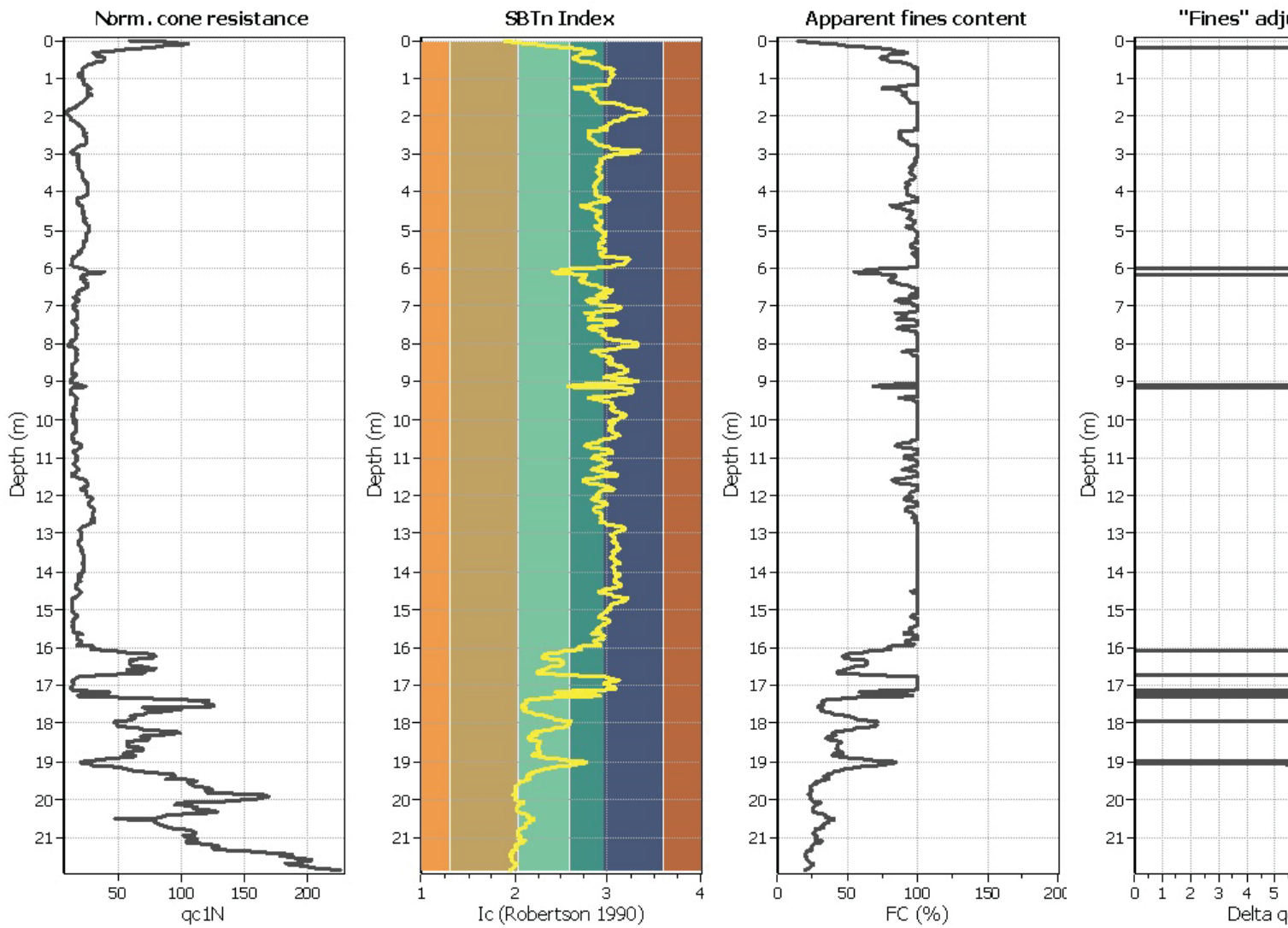
**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_{\sigma}$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

**SBT legend**

- 1. Sensitive fine grai
- 2. Organic material
- 3. Clay to silty clay

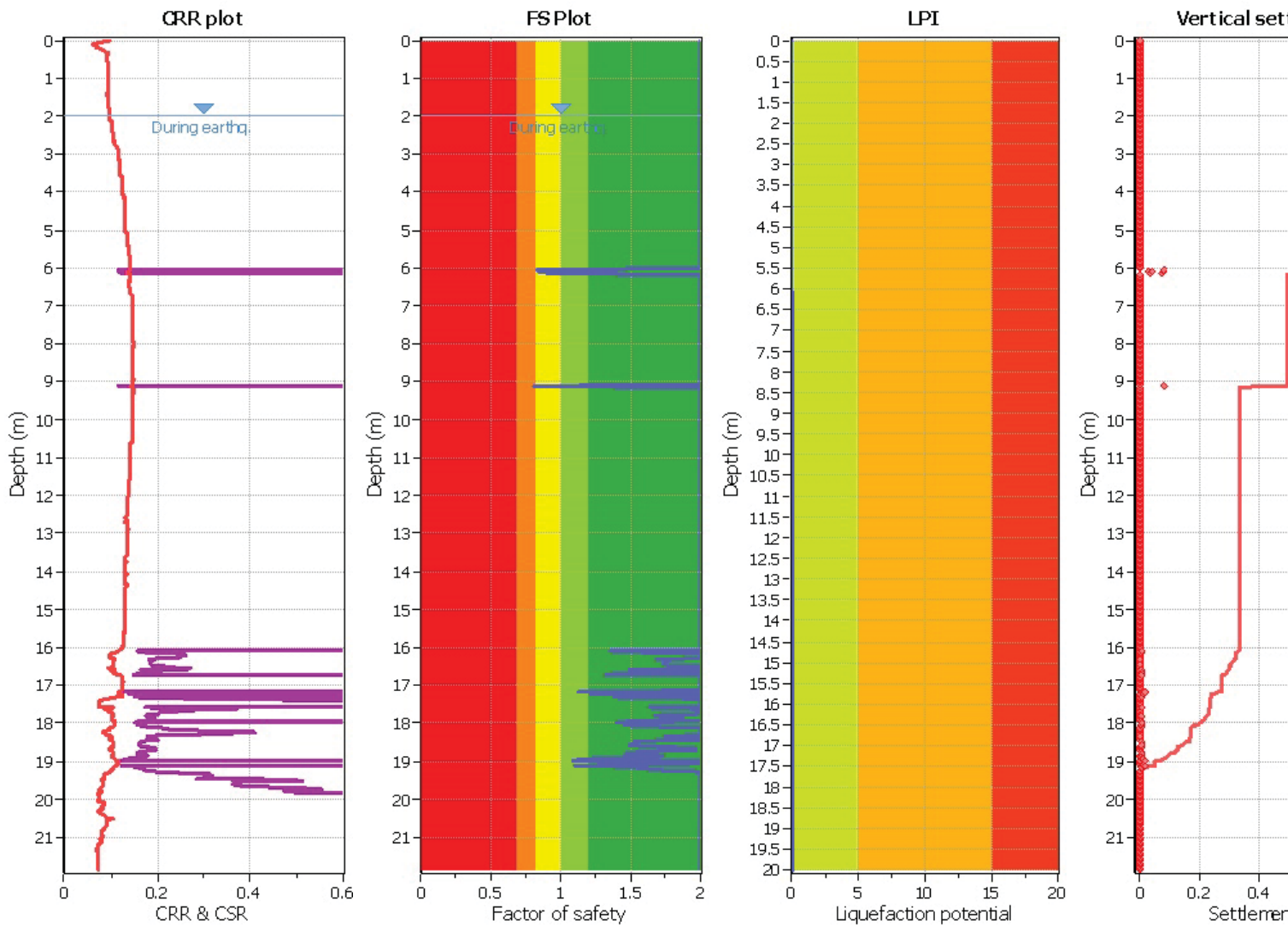
## Liquefaction analysis overall plots (intermediate)



### Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>v</sub> applied:	Yes
Earthquake magnitude M <sub>w</sub> :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

### Liquefaction analysis overall plot



**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (earthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on I <sub>c</sub> value	I <sub>c</sub> cut-off value:	2.60	K <sub>s</sub> applied:	Yes
Earthquake magnitude M <sub>w</sub> :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

**F.S. color scheme**

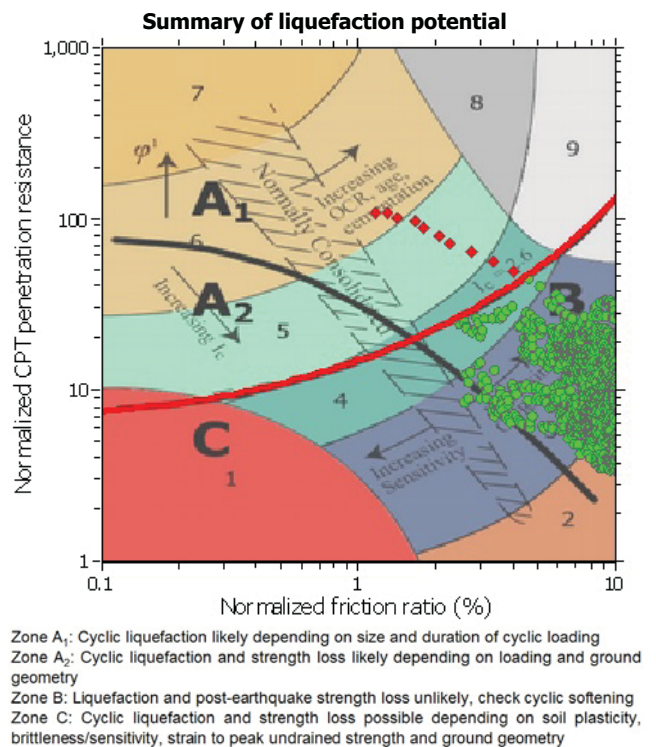
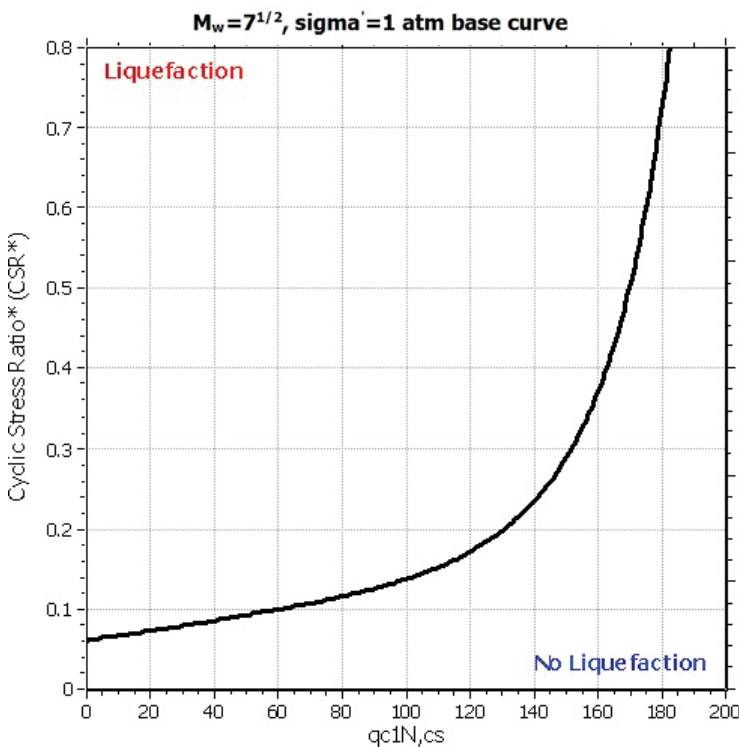
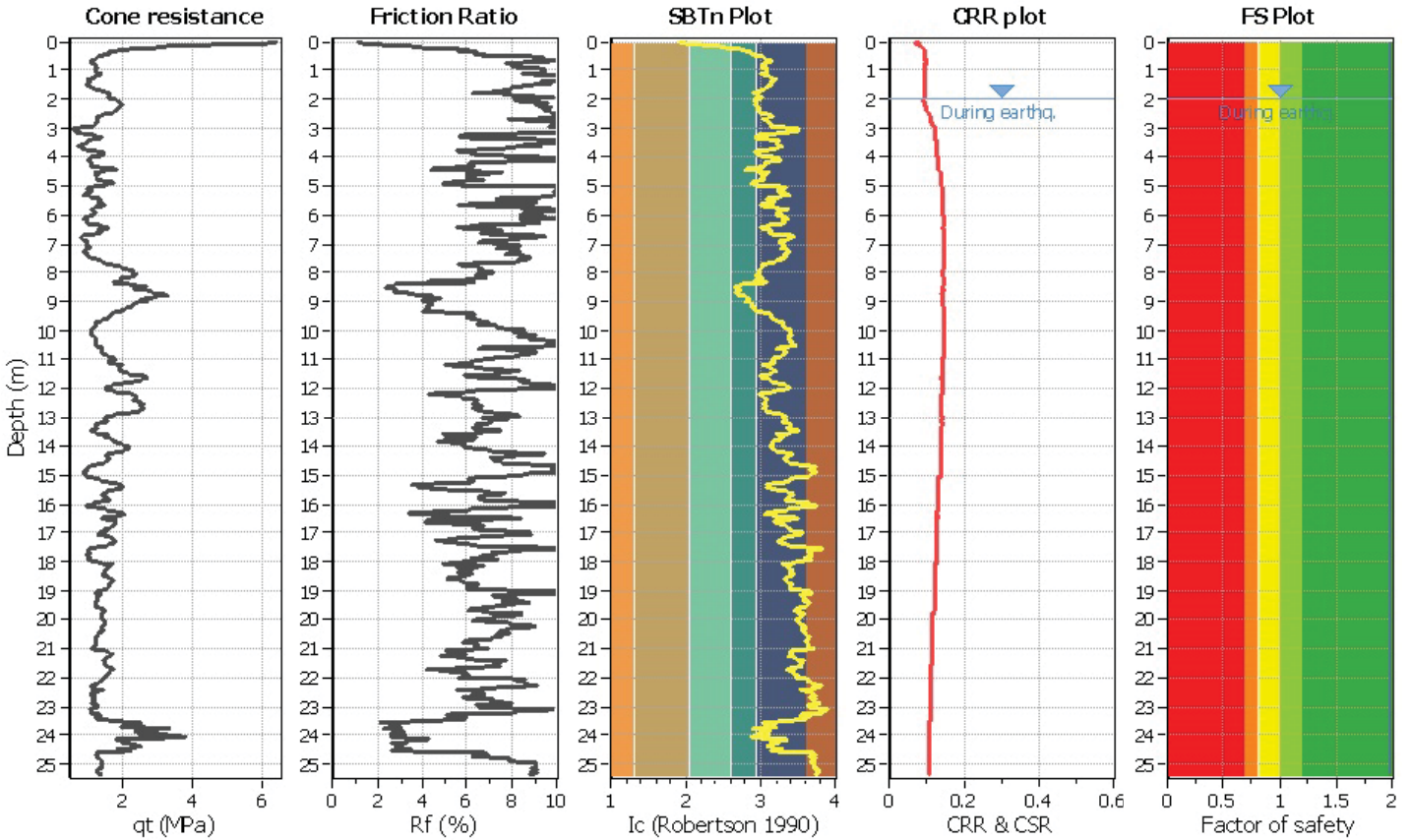
- Almost certain it will not liquefy
- Very likely to liquefy
- Liquefaction and non-linear soil behavior likely
- Unlike to liquefy
- Almost certain it will not liquefy

**LIQUEFACTION ANALYSIS REPORT**

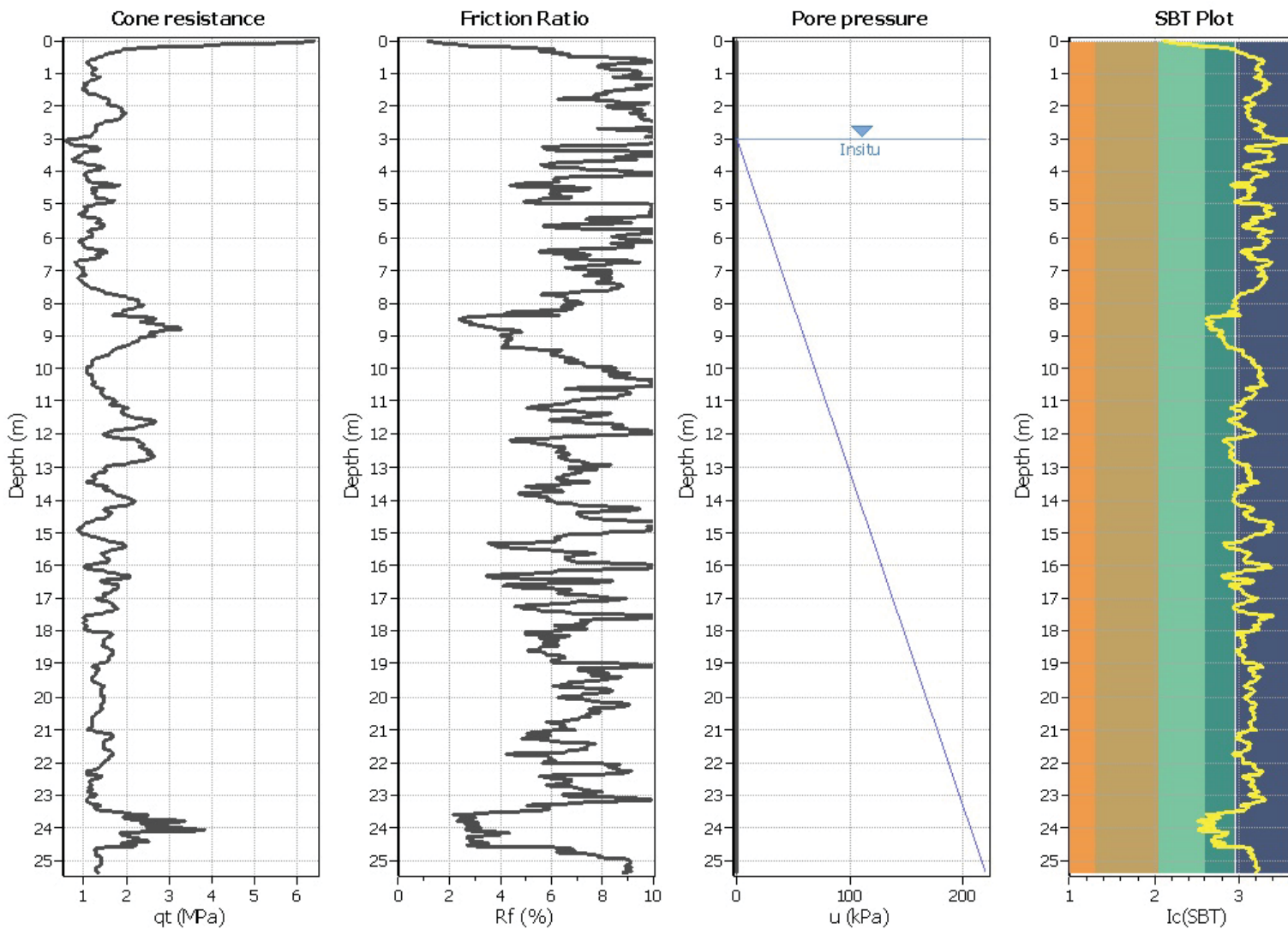
**Project title : Studio di Microzonazione Sismica - Besenzone    Location :**  
**CPT file : 180040E507**

**Input parameters and analysis data**

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	20.00 m
Earthquake magnitude $M_w$ :	5.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	$K_\sigma$ applied:	Yes		



### CPT basic interpretation plo



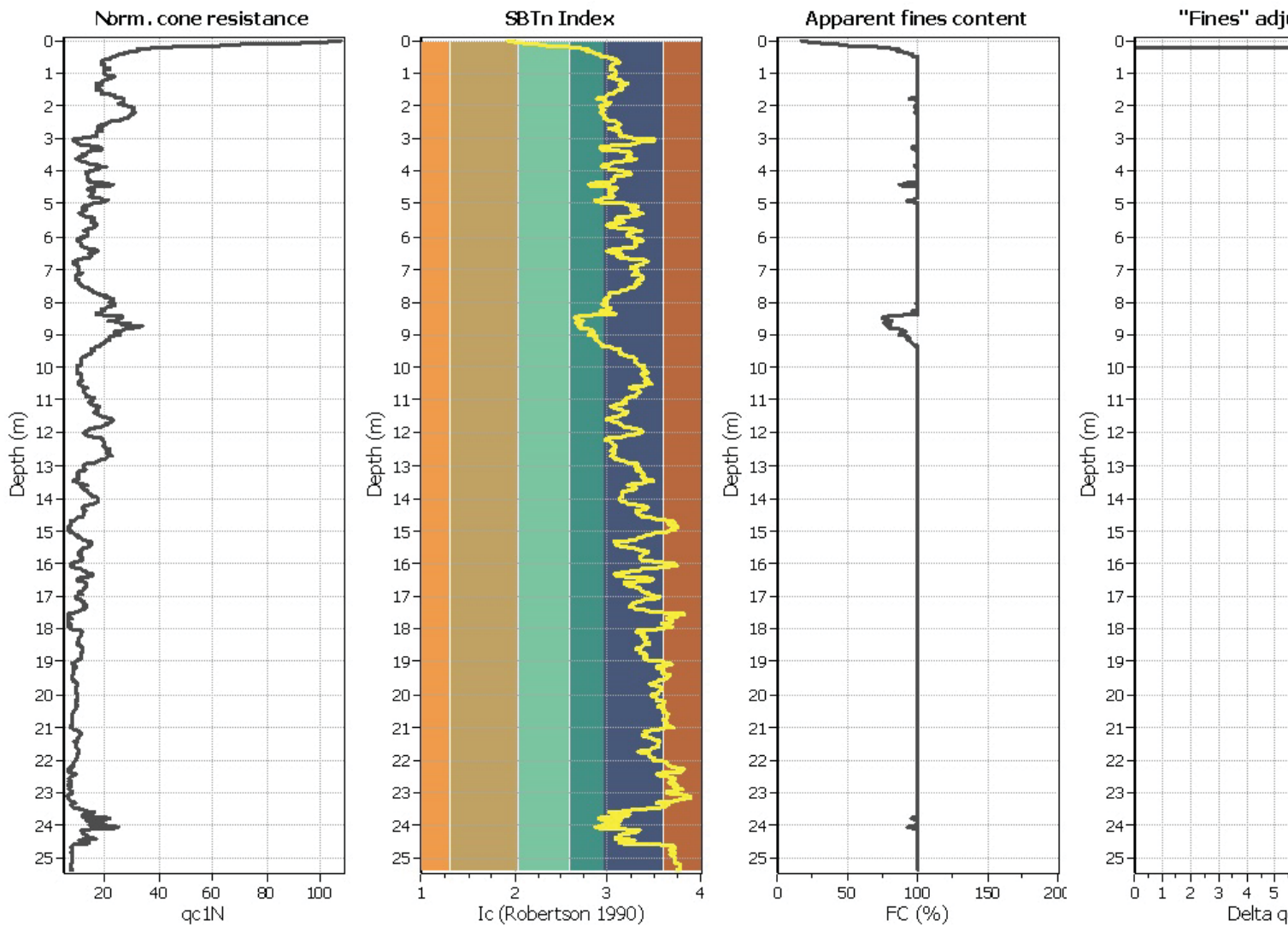
**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_v$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

**SBT legend**

- 1. Sensitive fine grai
- 2. Organic material
- 3. Clay to silty clay

### Liquefaction analysis overall plots (interme

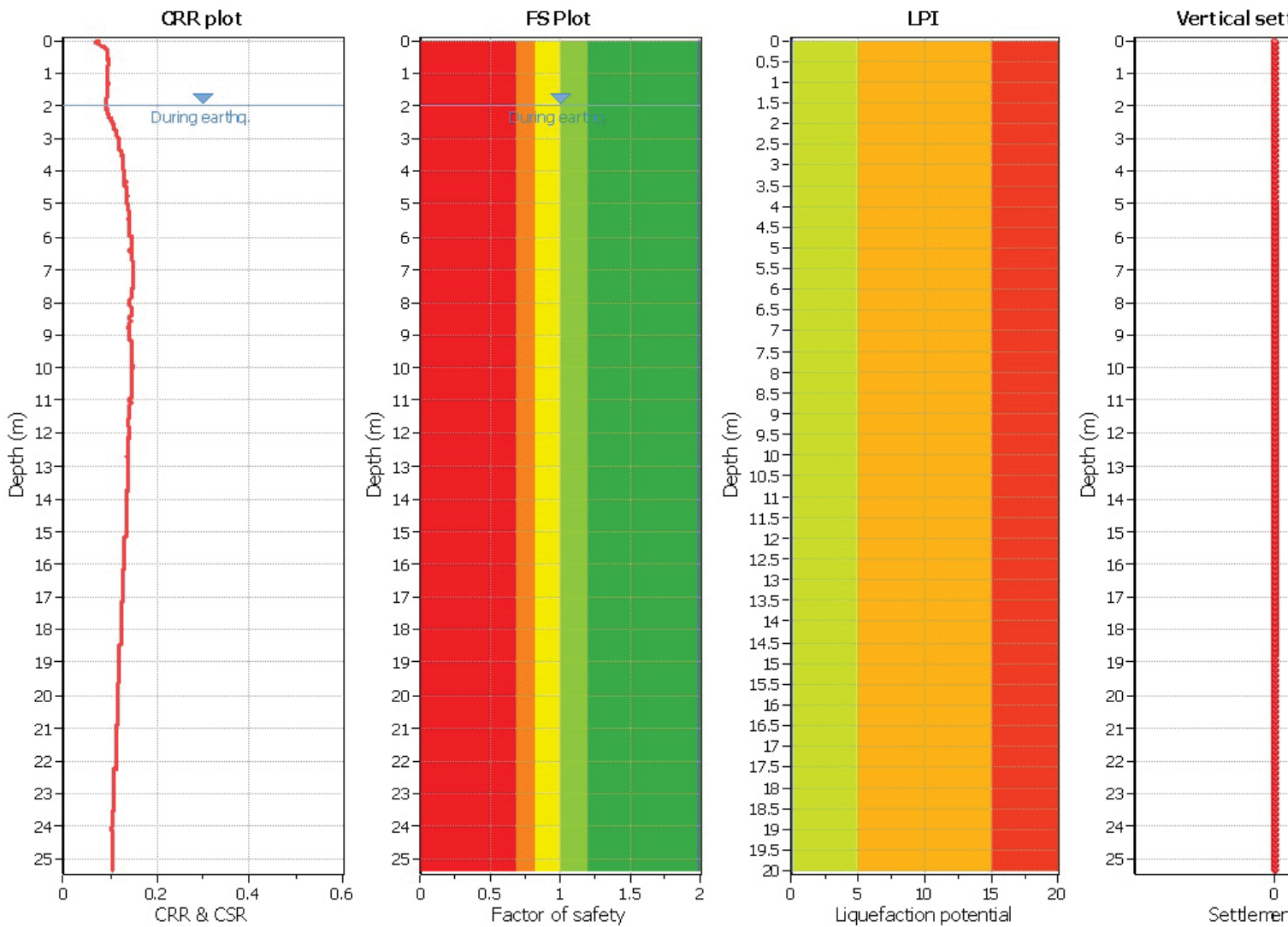


**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_v$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m



### Liquefaction analysis overall plot



**Input parameters and analysis data**

Analysis method: B&I (2014)  
 Fines correction method: B&I (2014)  
 Points to test: Based on I<sub>c</sub> value  
 Earthquake magnitude M<sub>w</sub>: 5.50  
 Peak ground acceleration: 0.19  
 Depth to water table (insitu): 3.00 m

Depth to GWT (erthq.): 2.00 m  
 Average results interval: 3  
 I<sub>c</sub> cut-off value: 2.60  
 Unit weight calculation: Based on SBT  
 Use fill: No  
 Fill height: N/A

Fill weight: N/A  
 Transition detect. applied: No  
 K<sub>σ</sub> applied: Yes  
 Clay like behavior applied: Sands only  
 Limit depth applied: Yes  
 Limit depth: 20.00 m

**F.S. color scheme**

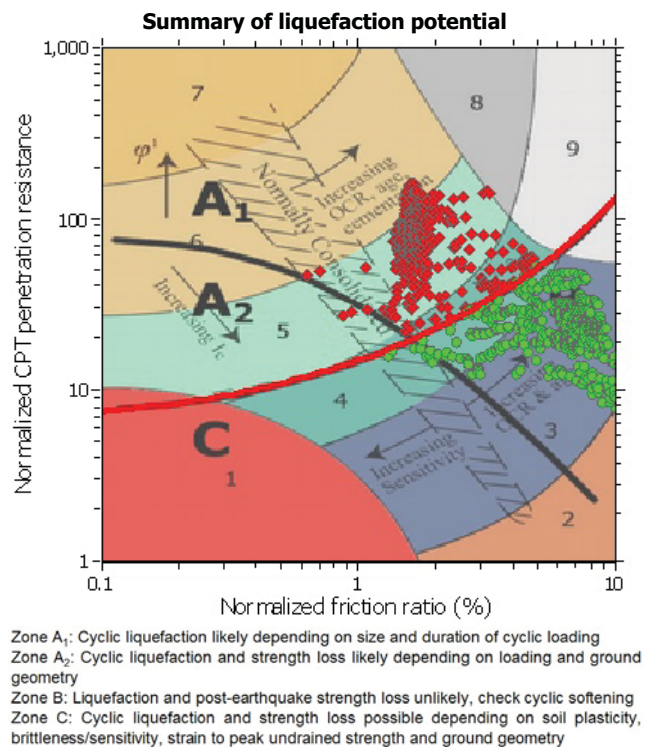
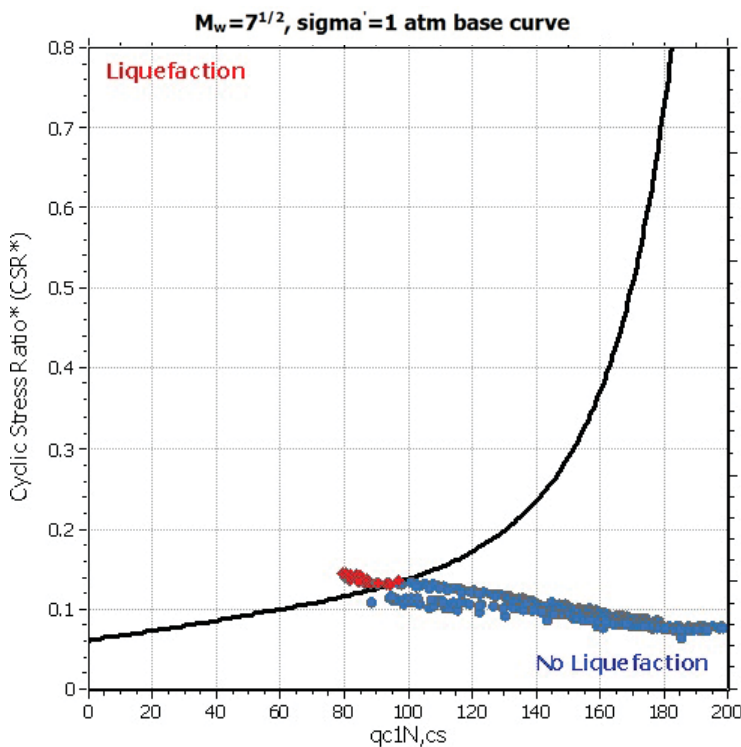
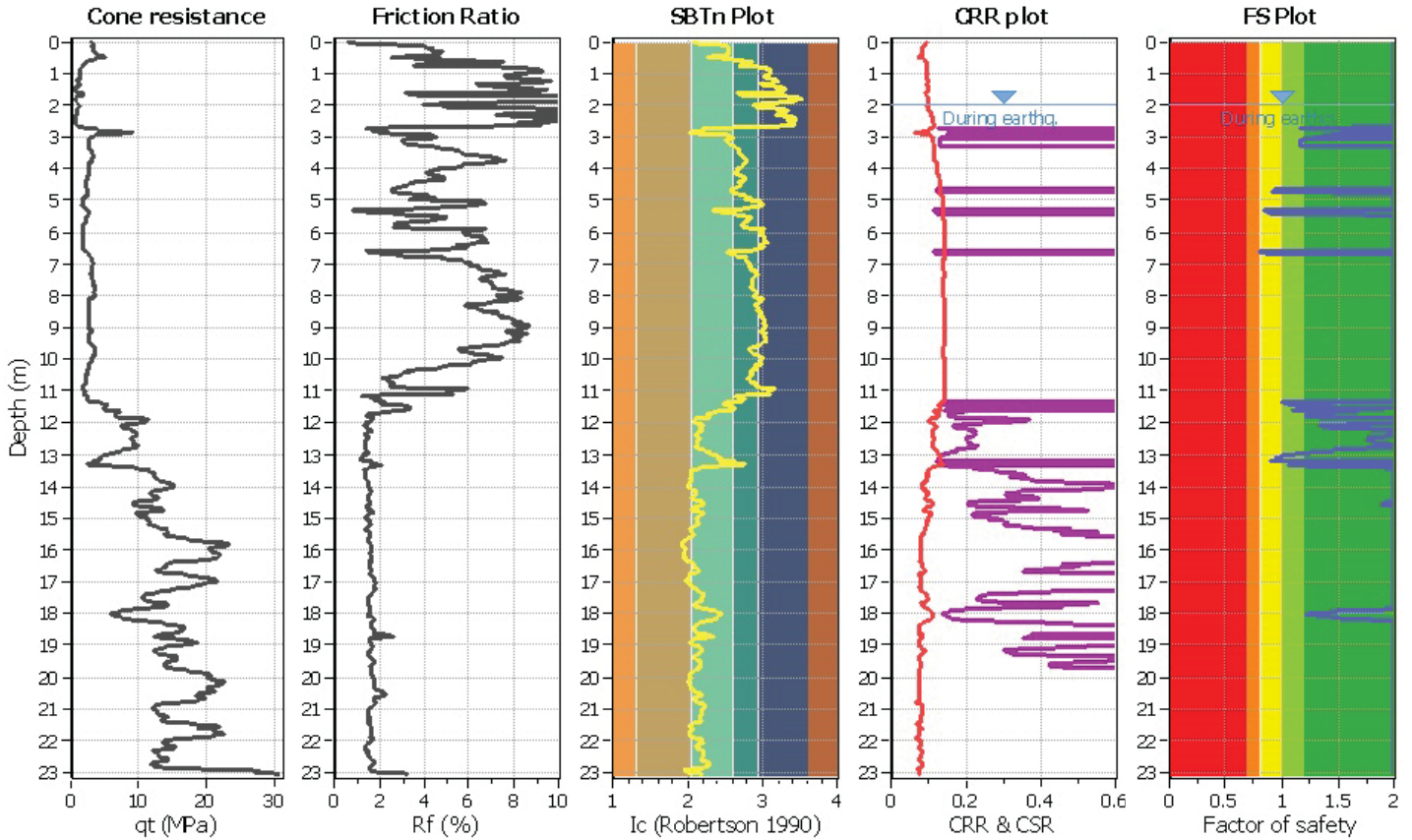
- Almost certain it w
- Very likely to lique
- Liquefaction and n
- Unlike to liquefy
- Almost certain it w

**LIQUEFACTION ANALYSIS REPORT**

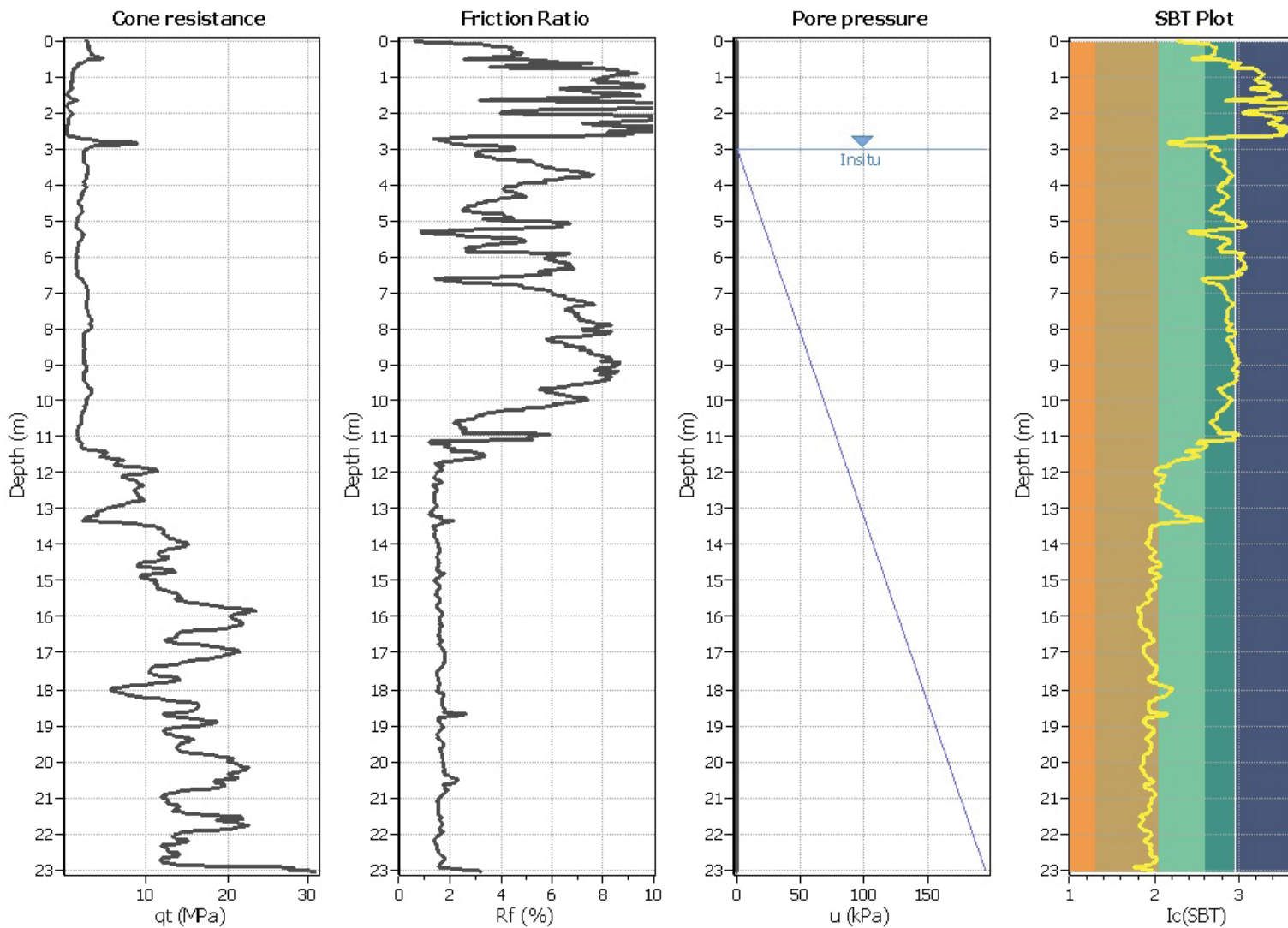
**Project title : Studio di Microzonazione Sismica - Besenzone    Location :**  
**CPT file : 180040E508**

**Input parameters and analysis data**

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	20.00 m
Earthquake magnitude $M_w$ :	5.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	$K_\sigma$ applied:	Yes		



### CPT basic interpretation plo



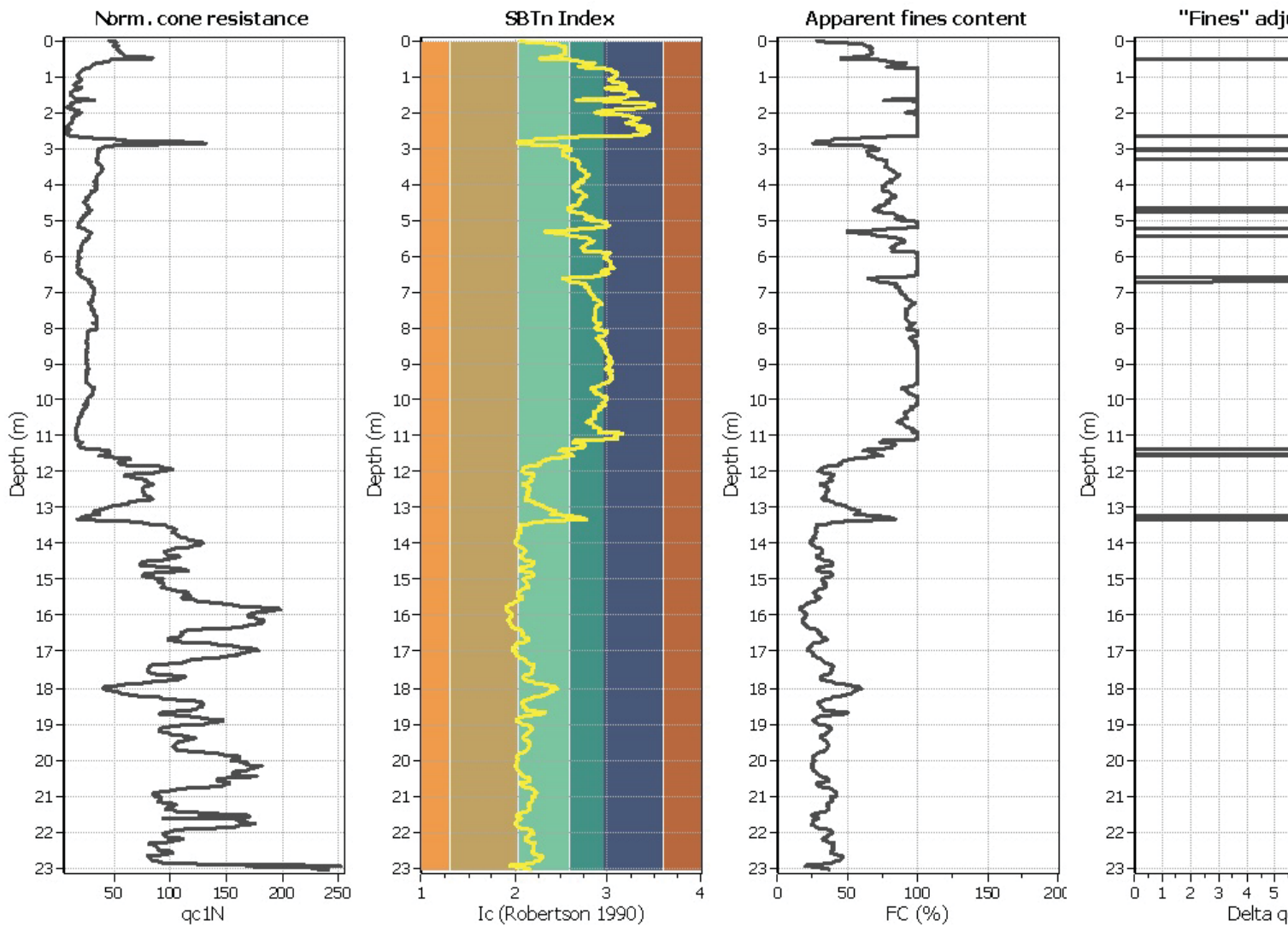
**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_{\sigma}$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

**SBT legend**

	1. Sensitive fine grain soil
	2. Organic material
	3. Clay to silty clay

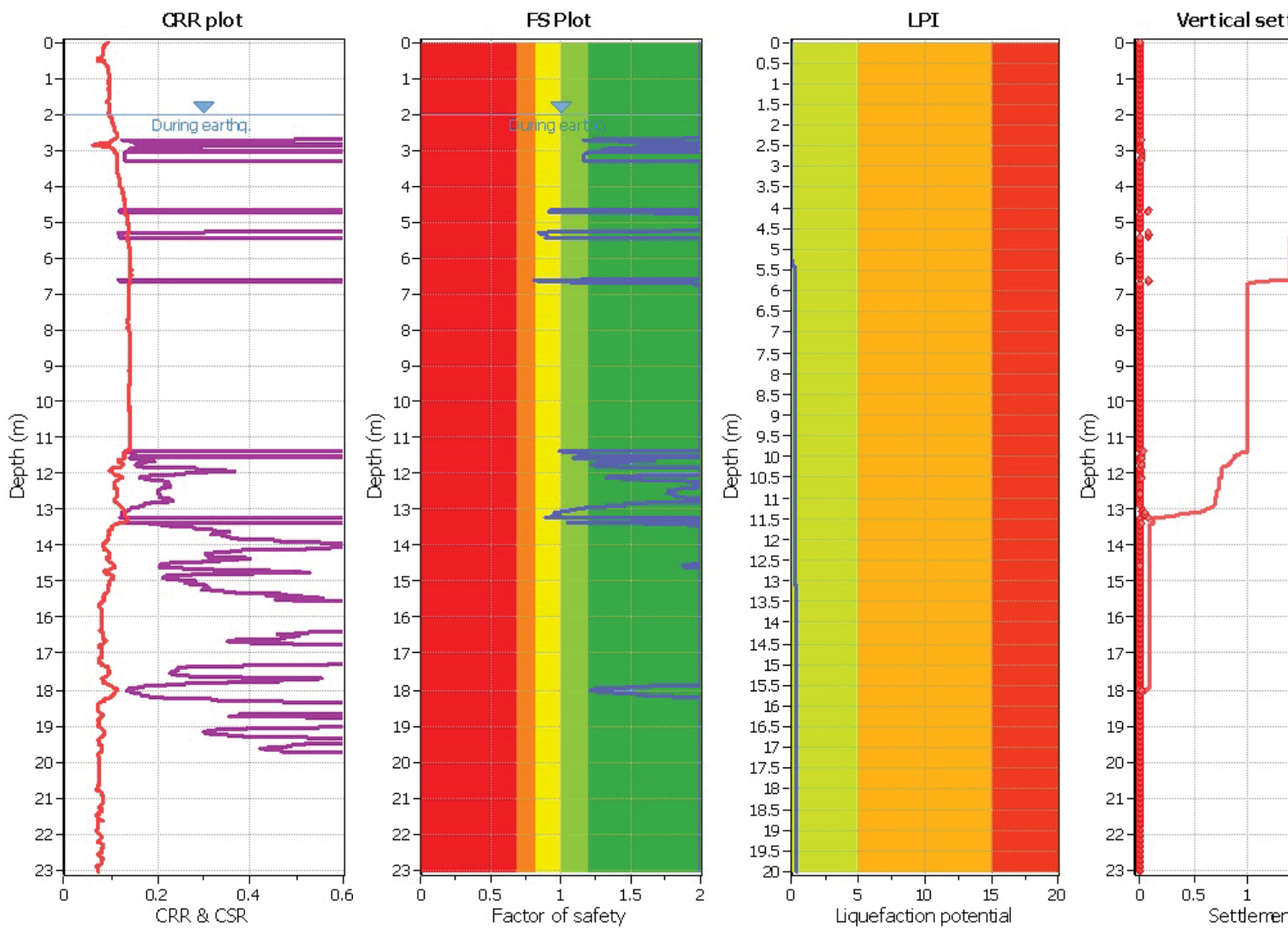
### Liquefaction analysis overall plots (intermediate)



**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GW (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>v</sub> applied:	Yes
Earthquake magnitude M <sub>w</sub> :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

### Liquefaction analysis overall plot



**Input parameters and analysis data**

Analysis method: B&I (2014)  
 Fines correction method: B&I (2014)  
 Points to test: Based on I<sub>c</sub> value  
 Earthquake magnitude M<sub>w</sub>: 5.50  
 Peak ground acceleration: 0.19  
 Depth to water table (insitu): 3.00 m

Depth to GWT (erthq.): 2.00 m  
 Average results interval: 3  
 I<sub>c</sub> cut-off value: 2.60  
 Unit weight calculation: Based on SBT  
 Use fill: No  
 Fill height: N/A

Fill weight: N/A  
 Transition detect. applied: No  
 K<sub>σ</sub> applied: Yes  
 Clay like behavior applied: Sands only  
 Limit depth applied: Yes  
 Limit depth: 20.00 m

**F.S. color scheme**

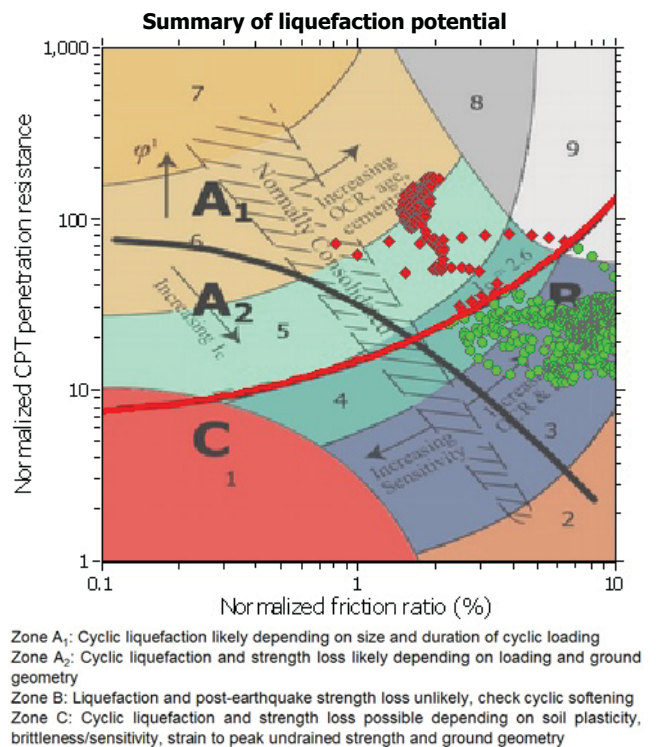
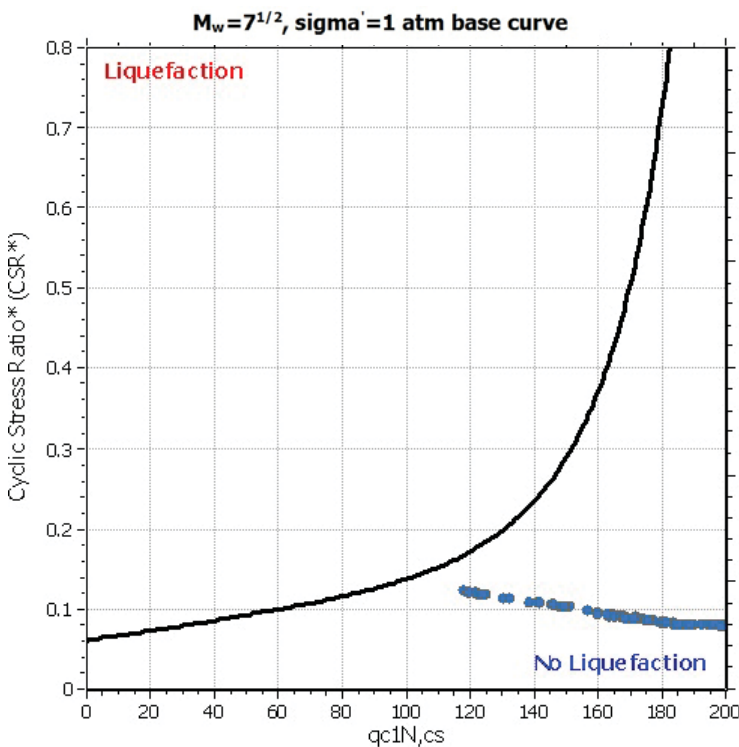
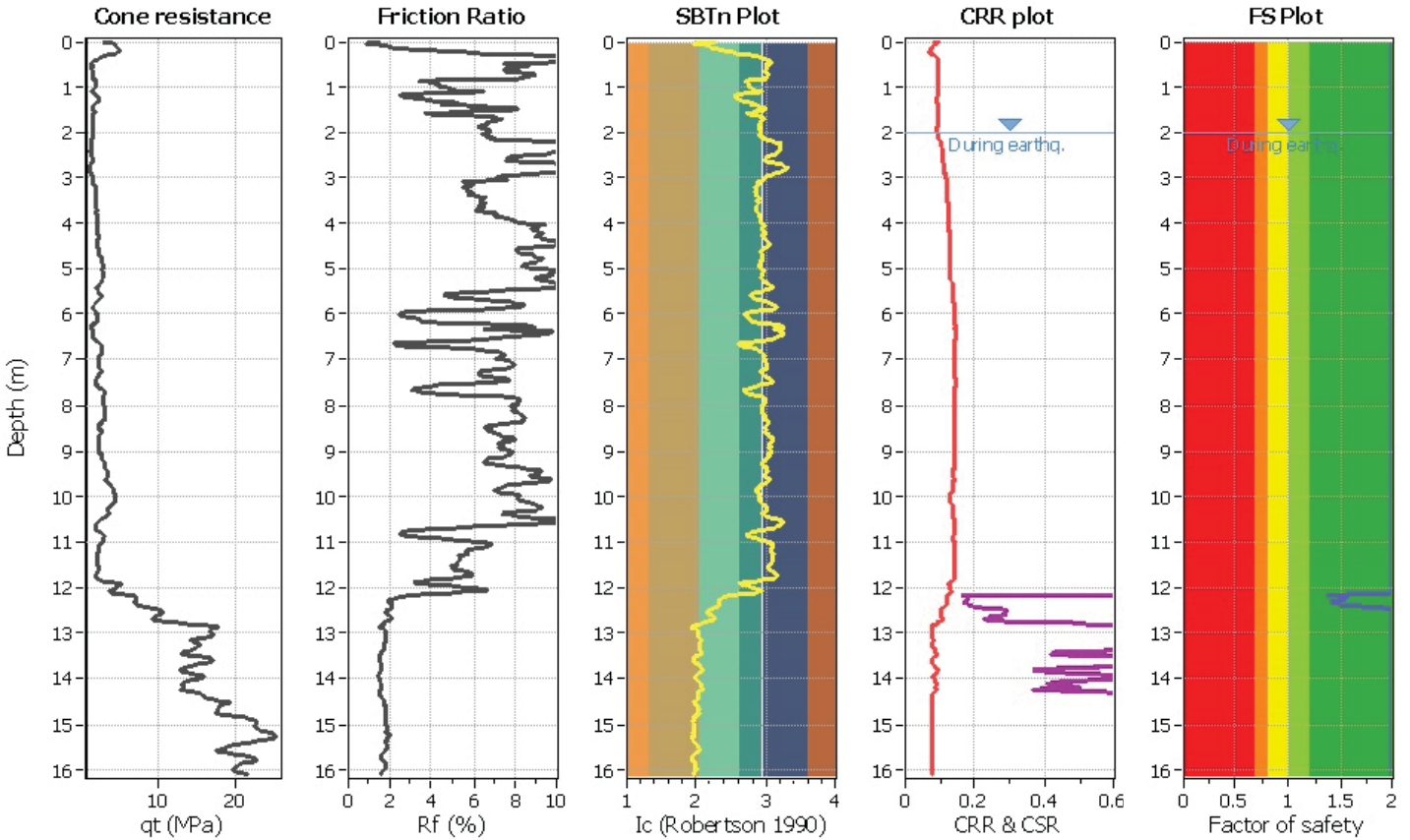
- Red: Almost certain it will liquefy
- Orange: Very likely to liquefy
- Yellow: Liquefaction and no
- Light Green: Unlike to liquefy
- Dark Green: Almost certain it will not liquefy

**LIQUEFACTION ANALYSIS REPORT**

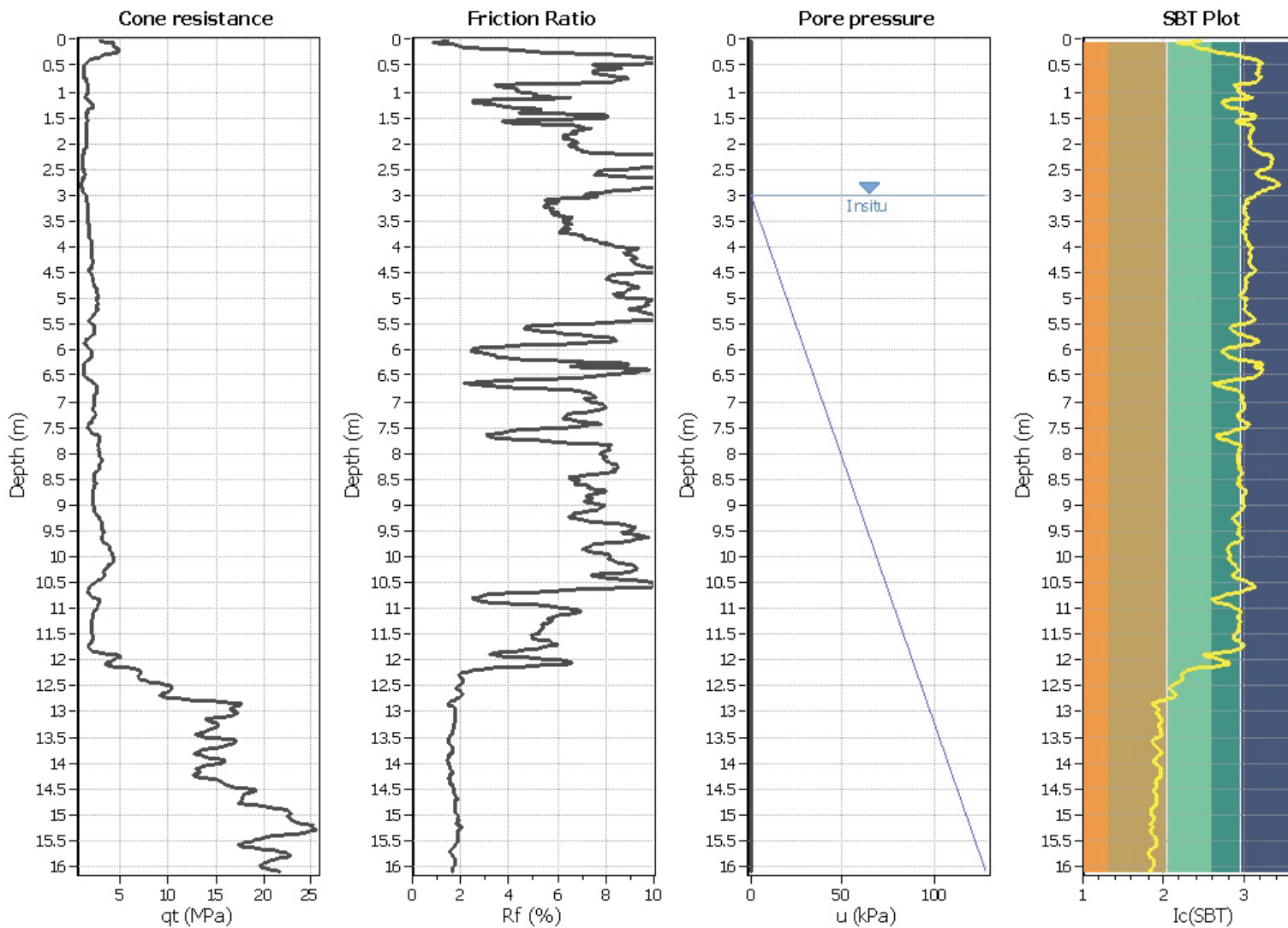
**Project title : Studio di Microzonazione Sismica - Besenzone    Location :**  
**CPT file : 180040E509**

**Input parameters and analysis data**

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	20.00 m
Earthquake magnitude $M_w$ :	5.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	$K_\sigma$ applied:	Yes		



### CPT basic interpretation plo



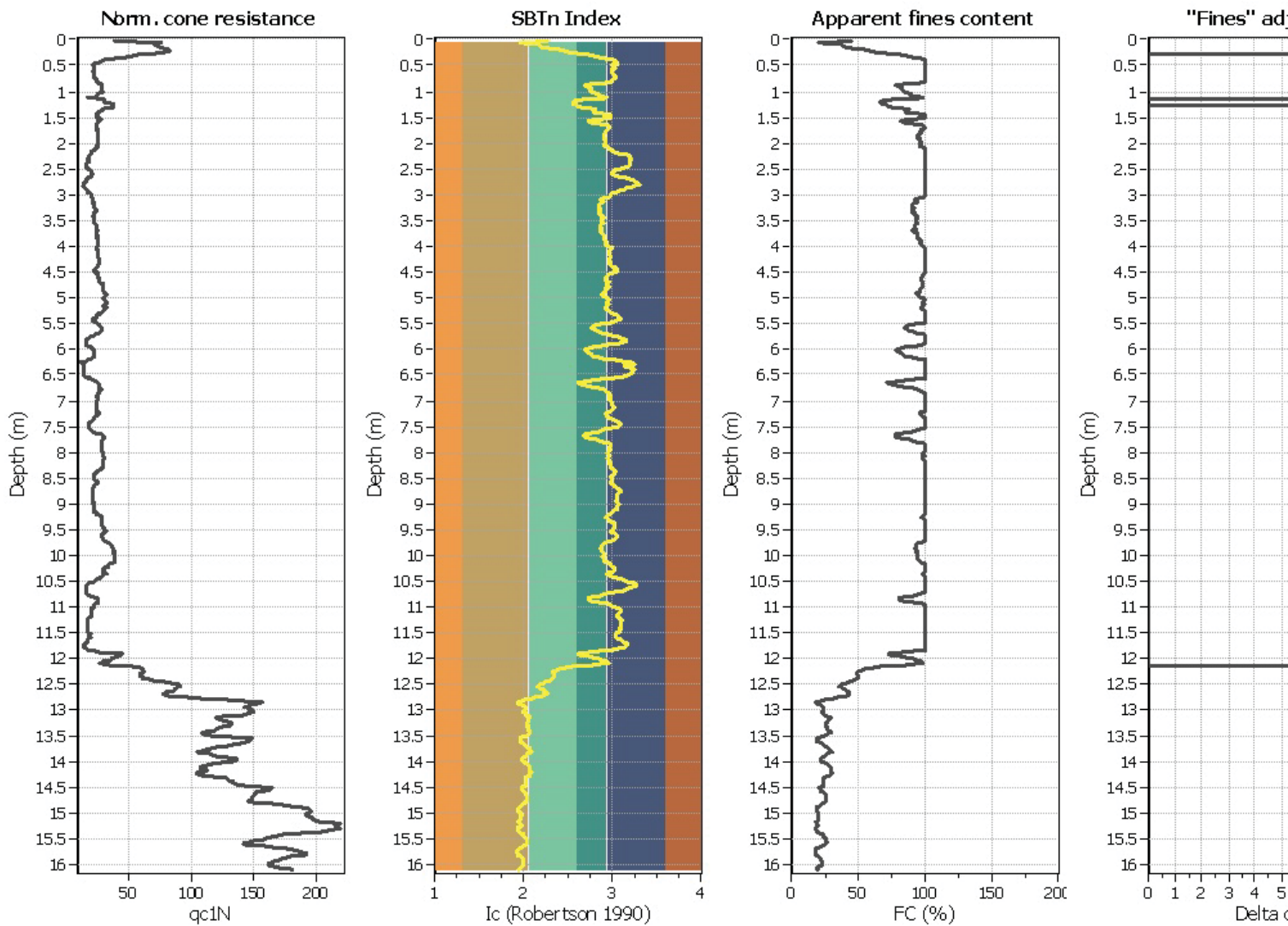
#### Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_p$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

#### SBT legend

- 1. Sensitive fine grain
- 2. Organic material
- 3. Clay to silty clay

### Liquefaction analysis overall plots (intermediate)

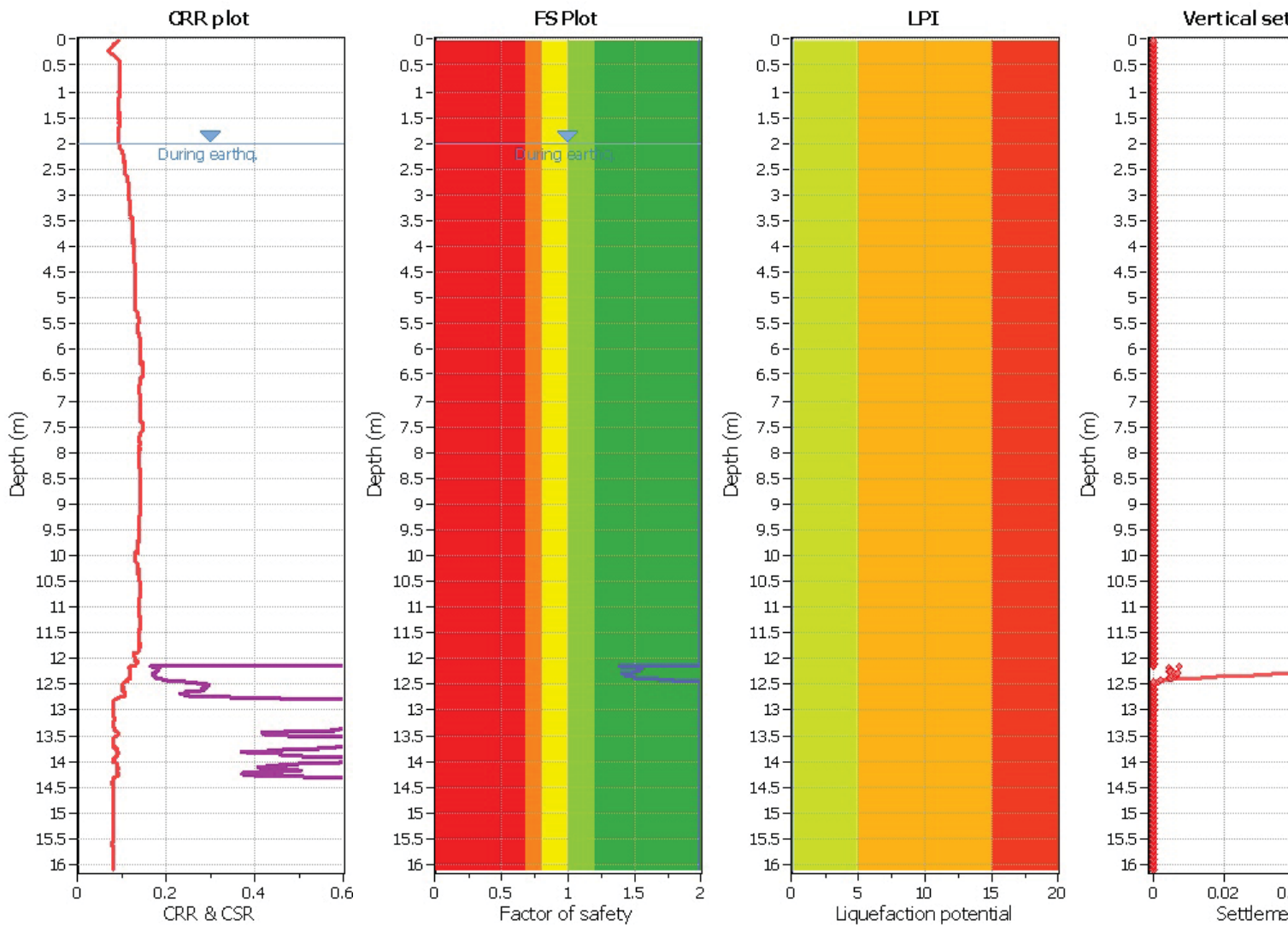


**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>s</sub> applied:	Yes
Earthquake magnitude M <sub>w</sub> :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m



### Liquefaction analysis overall plot



**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_s$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

**F.S. color scheme**

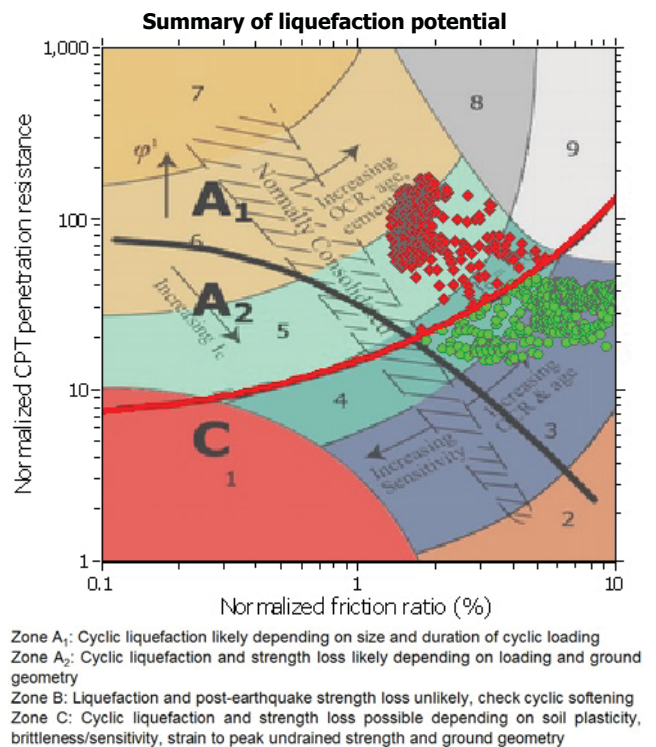
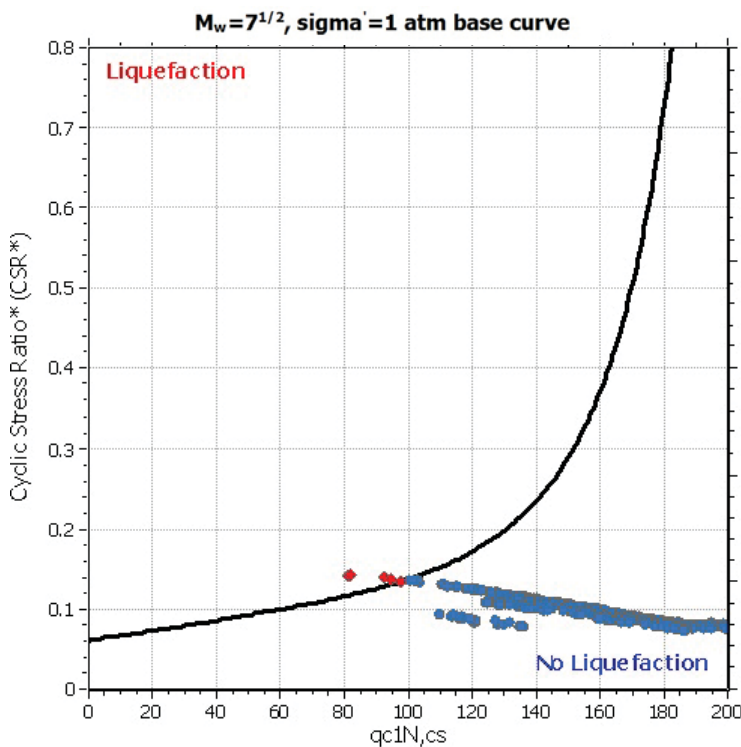
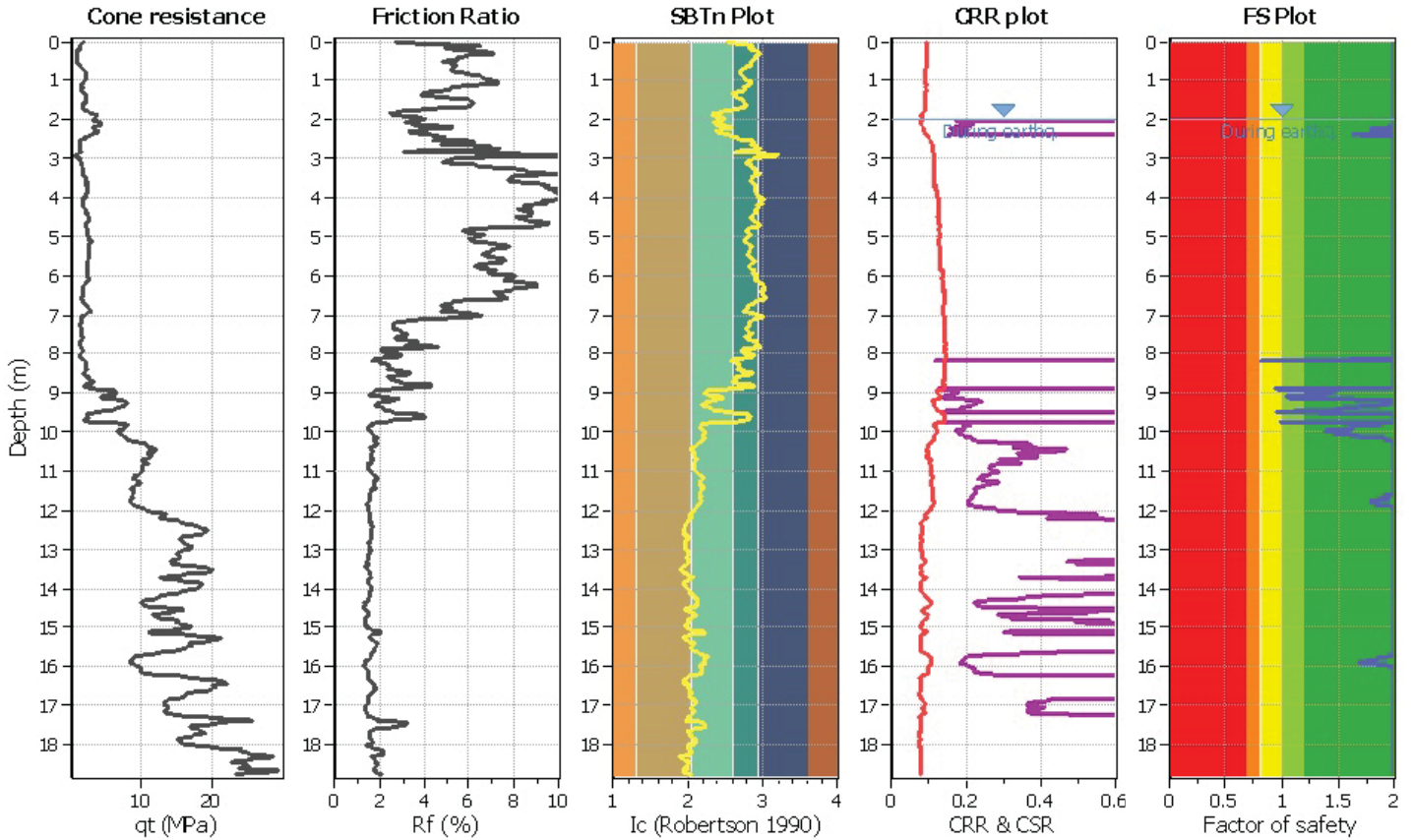
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no flow
- Unlike to liquefy
- Almost certain it will not liquefy

**LIQUEFACTION ANALYSIS REPORT**

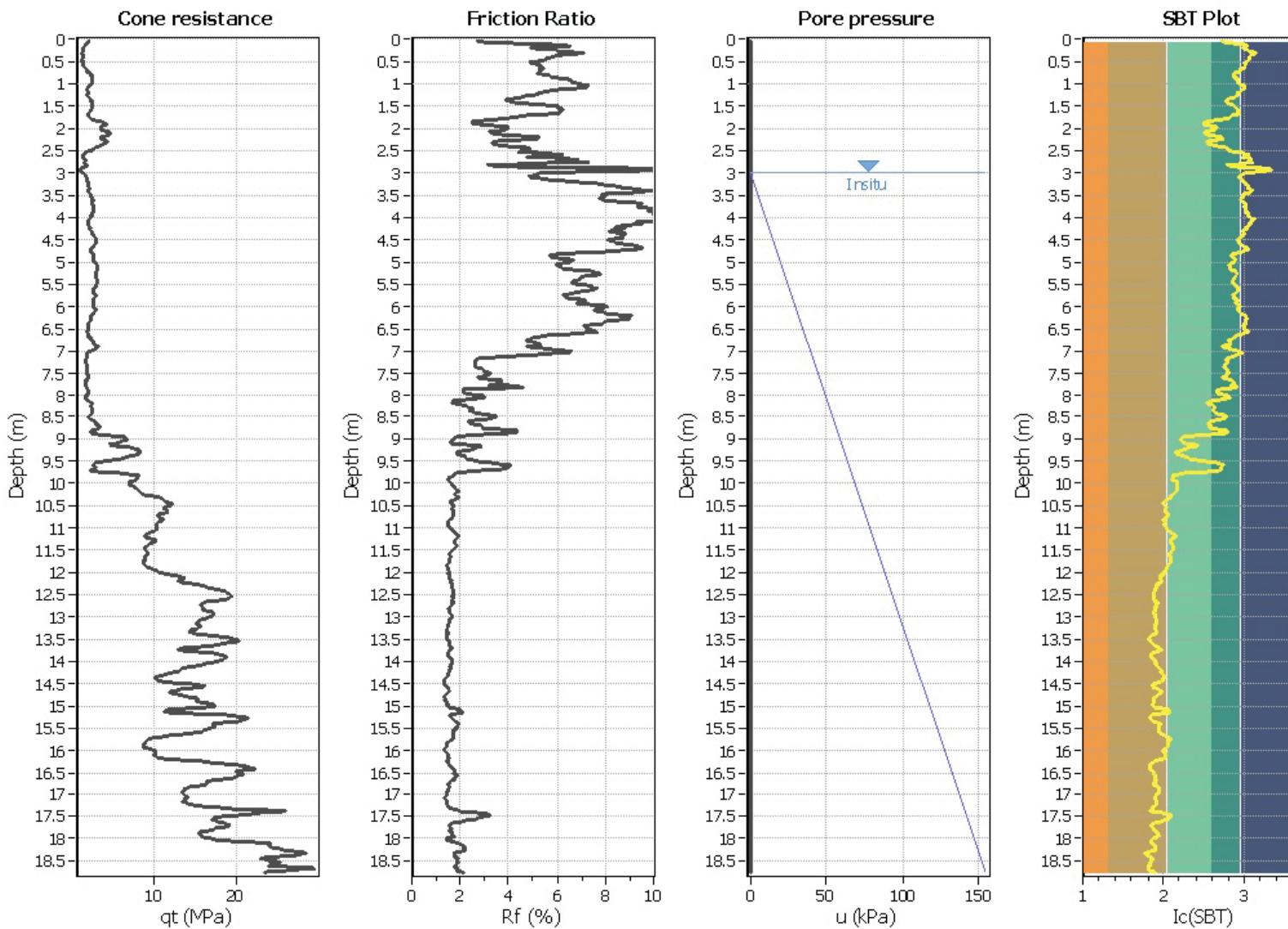
**Project title : Studio di Microzonazione Sismica - Besenzone    Location :**  
**CPT file : 180040E512**

**Input parameters and analysis data**

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	20.00 m
Earthquake magnitude $M_w$ :	5.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	$K_\sigma$ applied:	Yes		



### CPT basic interpretation plo



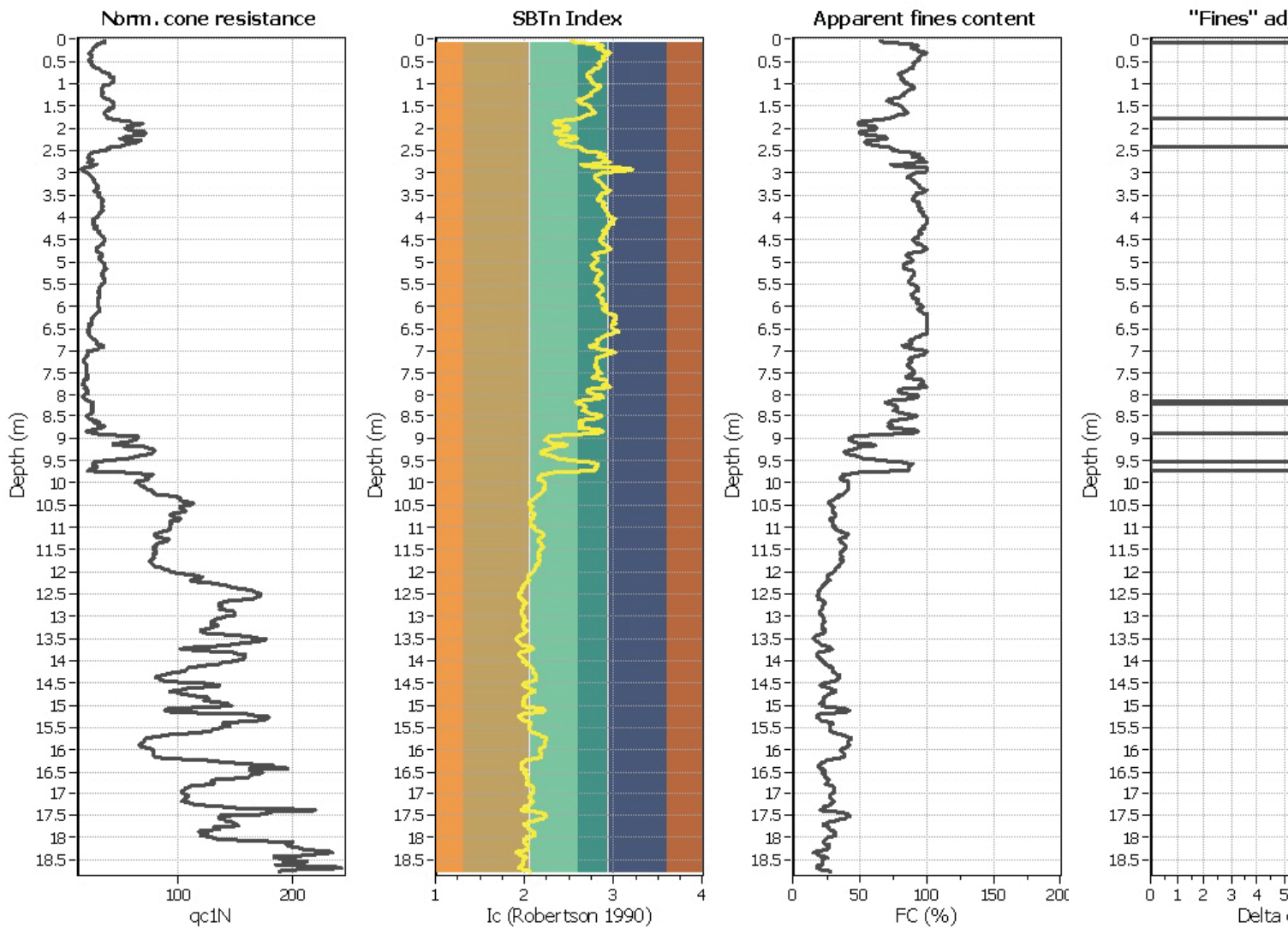
#### Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_{\sigma}$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

#### SBT legend

- 1. Sensitive fine grai
- 2. Organic material
- 3. Clay to silty clay

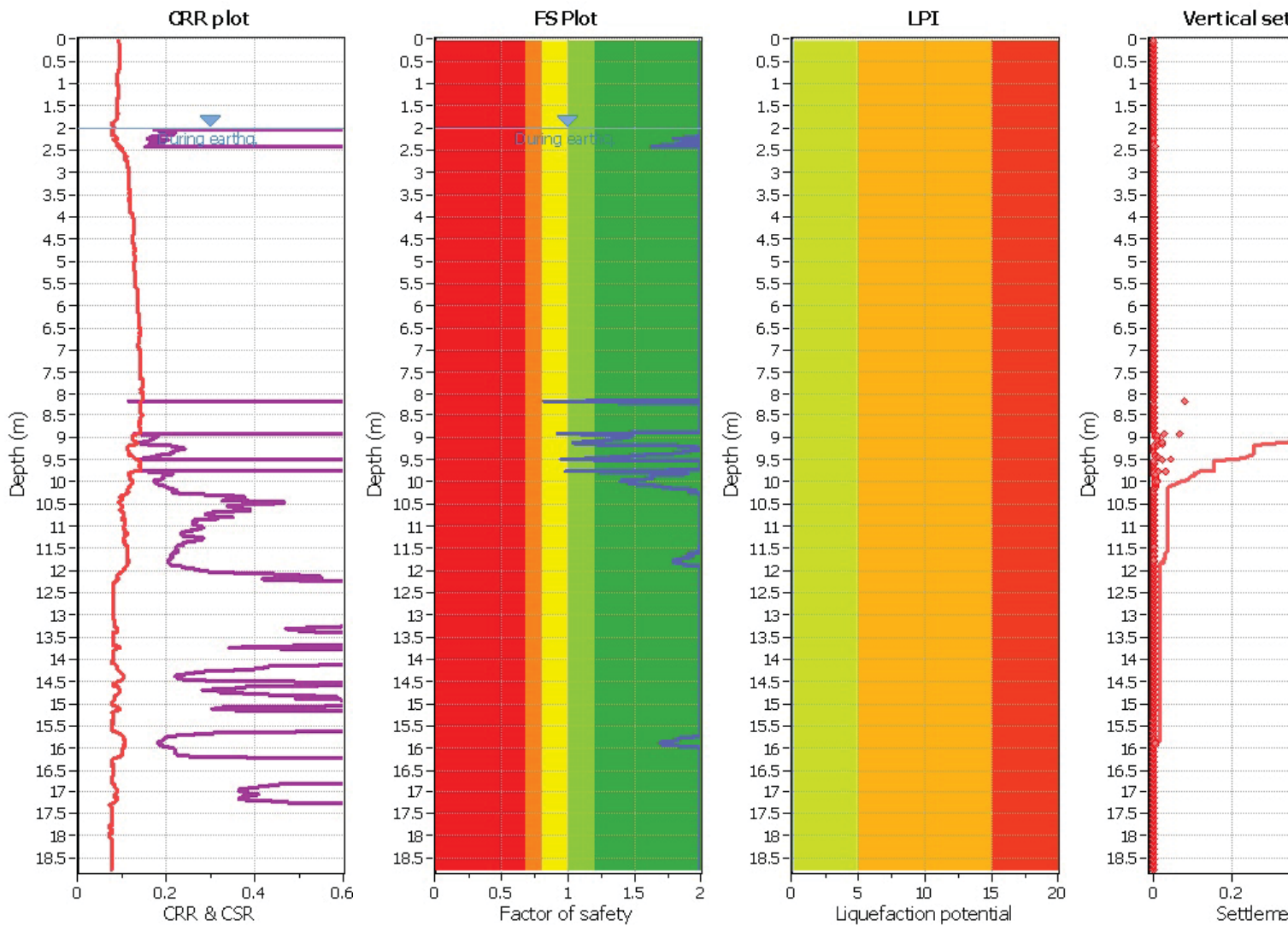
### Liquefaction analysis overall plots (intermediate)



**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>s</sub> applied:	Yes
Earthquake magnitude M <sub>w</sub> :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

### Liquefaction analysis overall plot



**Input parameters and analysis data**

Analysis method: B&I (2014)  
 Fines correction method: B&I (2014)  
 Points to test: Based on I<sub>c</sub> value  
 Earthquake magnitude M<sub>w</sub>: 5.50  
 Peak ground acceleration: 0.19  
 Depth to water table (insitu): 3.00 m

Depth to GWT (erthq.): 2.00 m  
 Average results interval: 3  
 I<sub>c</sub> cut-off value: 2.60  
 Unit weight calculation: Based on SBT  
 Use fill: No  
 Fill height: N/A

Fill weight: N/A  
 Transition detect. applied: No  
 K<sub>σ</sub> applied: Yes  
 Clay like behavior applied: Sands only  
 Limit depth applied: Yes  
 Limit depth: 20.00 m

**F.S. color scheme**

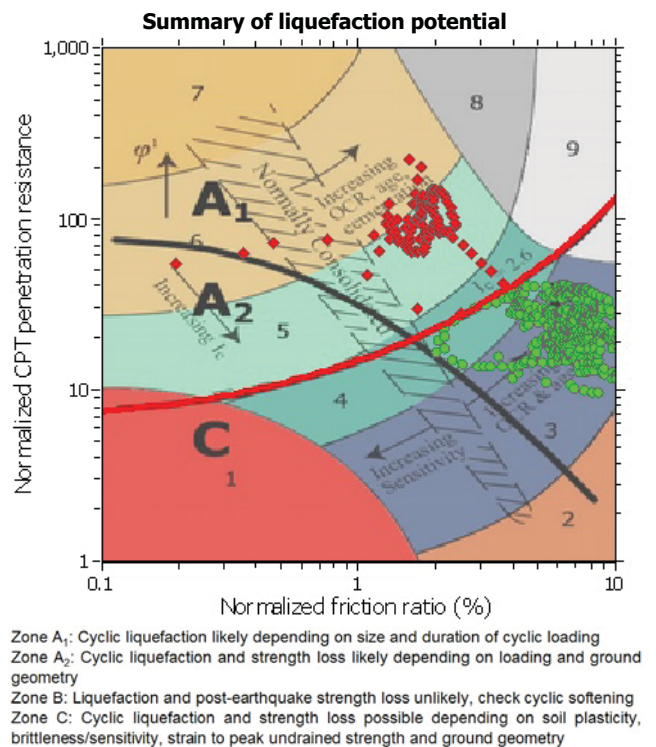
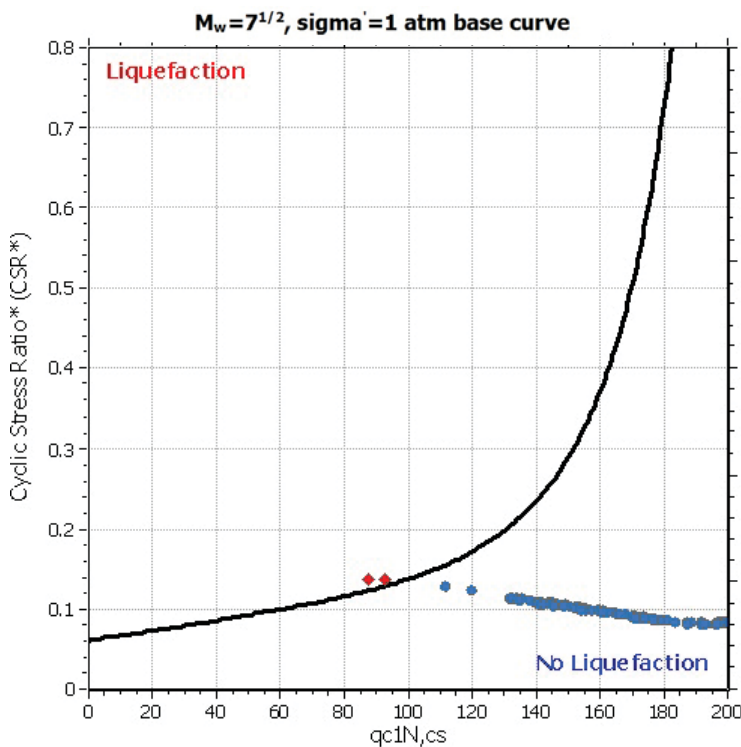
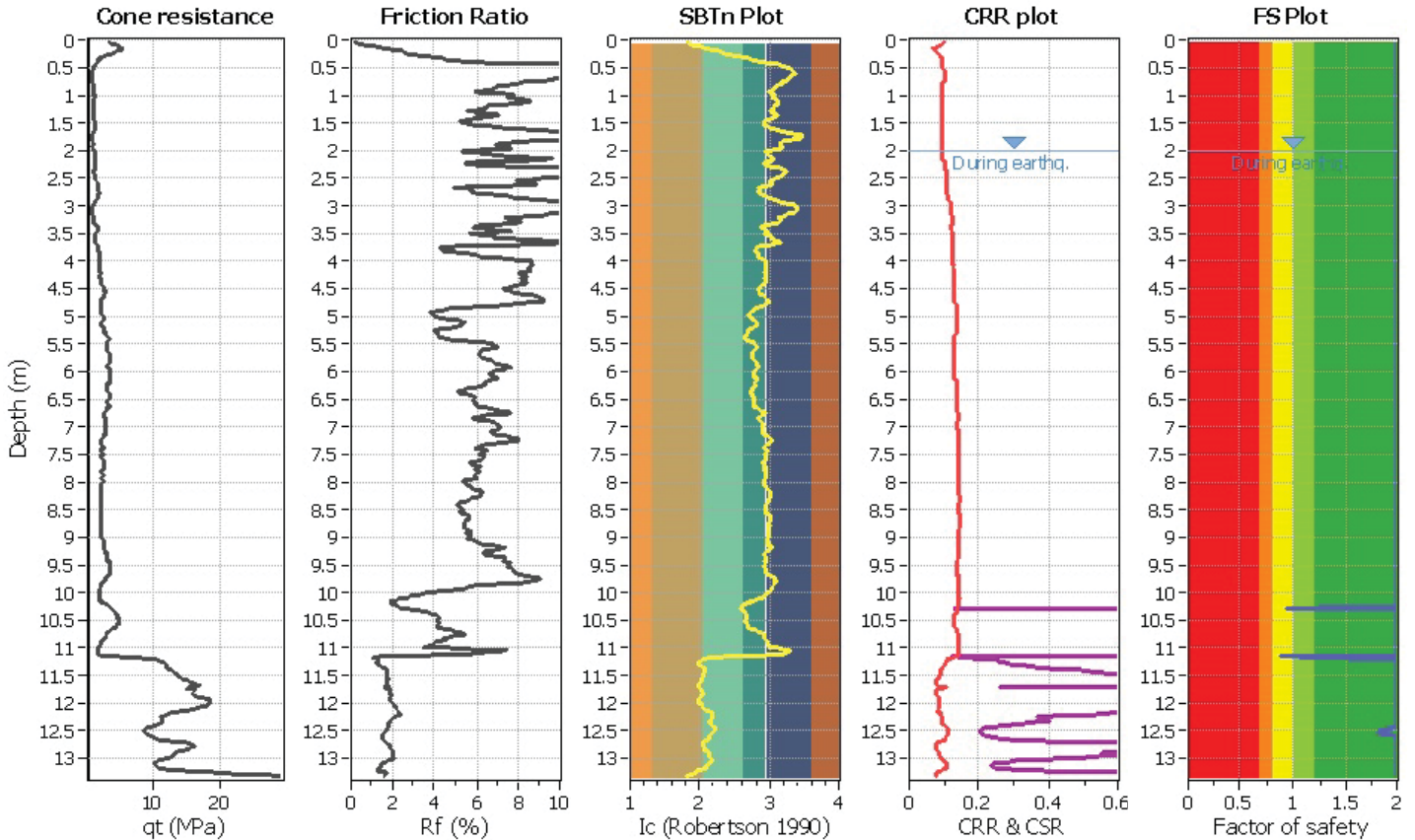
- Red: Almost certain it will liquefy
- Orange: Very likely to liquefy
- Yellow: Liquefaction and no
- Light Green: Unlike to liquefy
- Dark Green: Almost certain it will not liquefy

**LIQUEFACTION ANALYSIS REPORT**

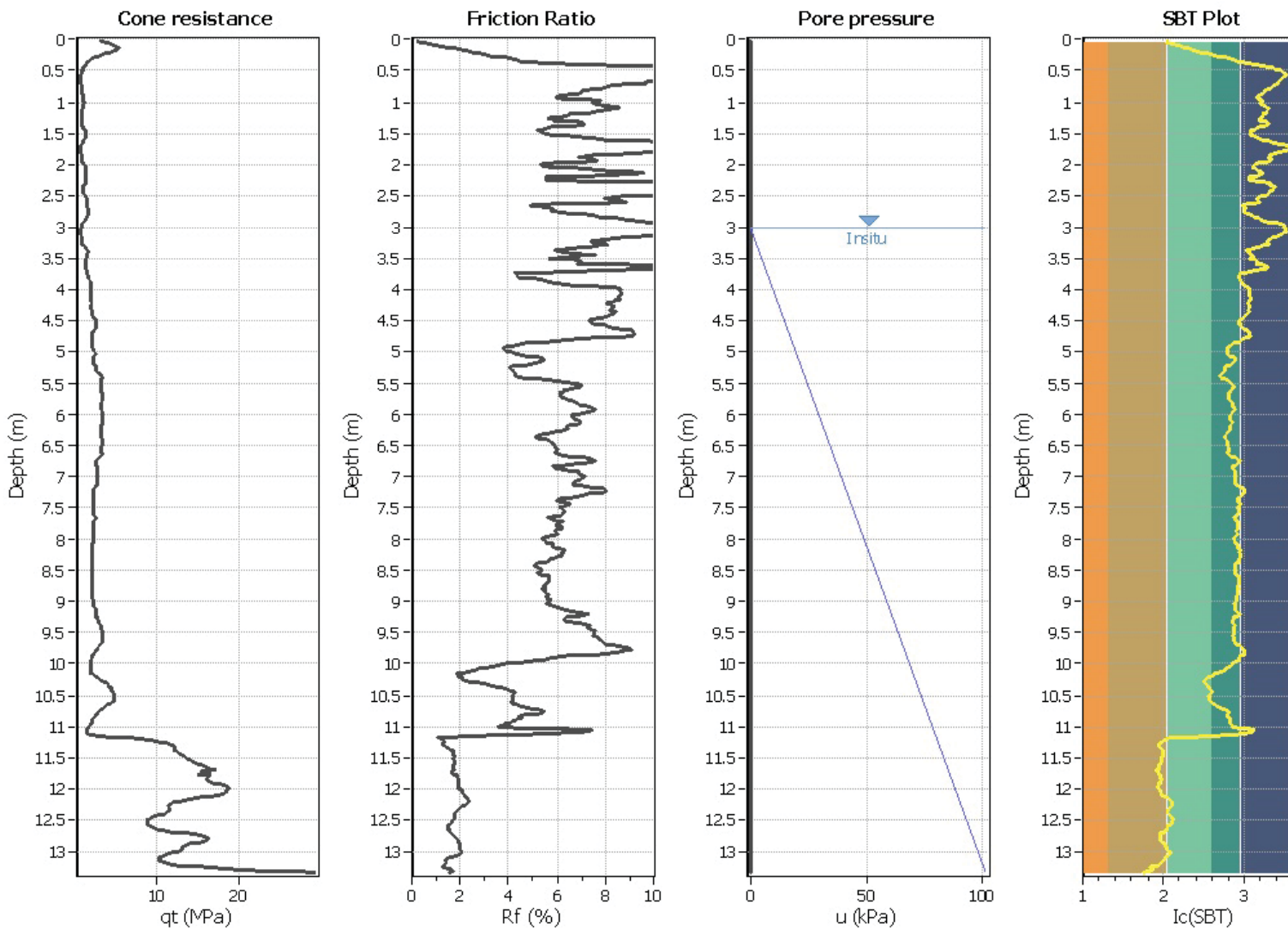
**Project title : Studio di Microzonazione Sismica - Besenzone    Location :**  
**CPT file : 180040E513**

**Input parameters and analysis data**

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	20.00 m
Earthquake magnitude $M_w$ :	5.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	$K_\sigma$ applied:	Yes		



### CPT basic interpretation plo



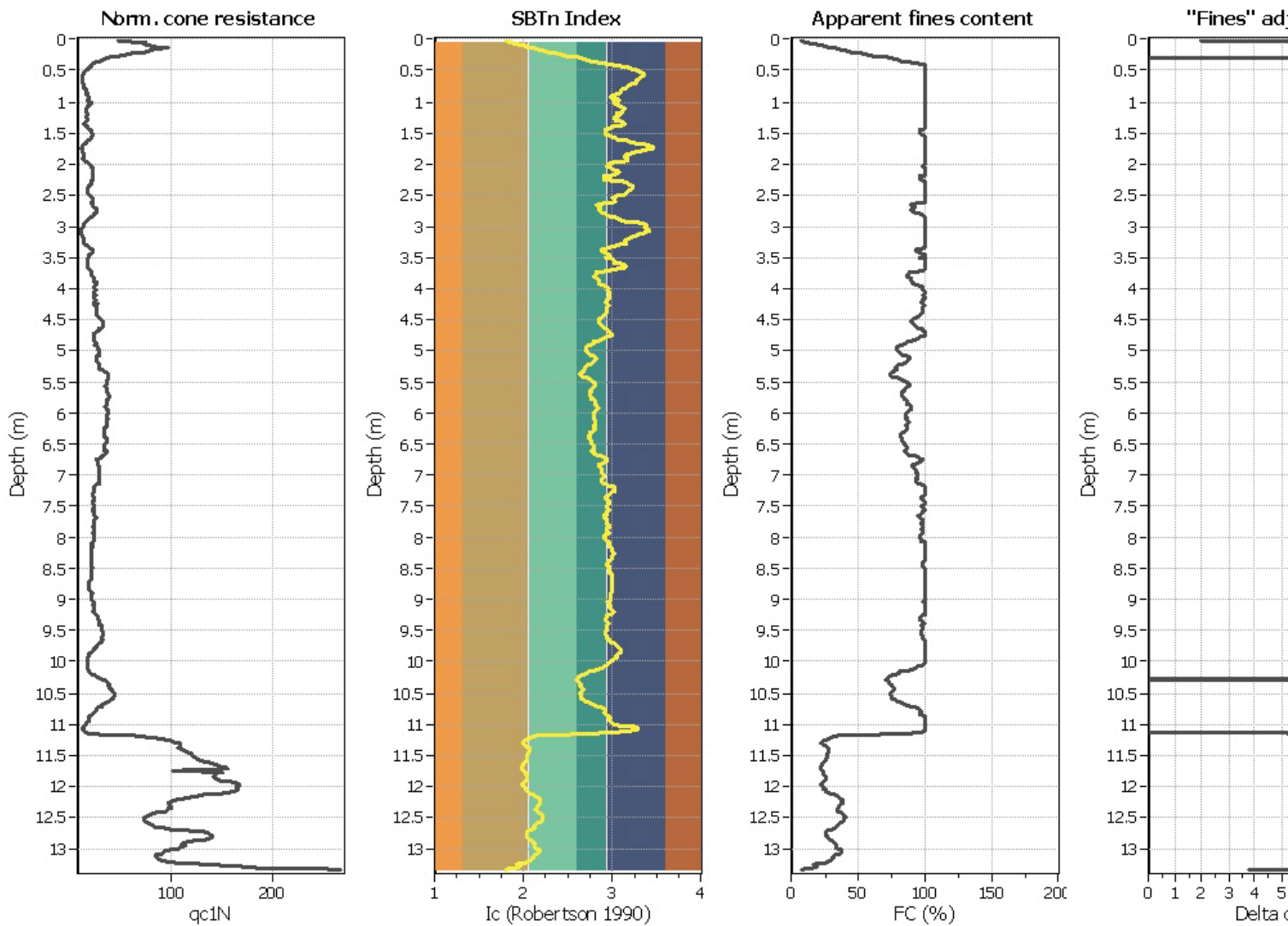
#### Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_p$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

**SBT legend**

	1. Sensitive fine grain
	2. Organic material
	3. Clay to silty clay

### Liquefaction analysis overall plots (intermediate)

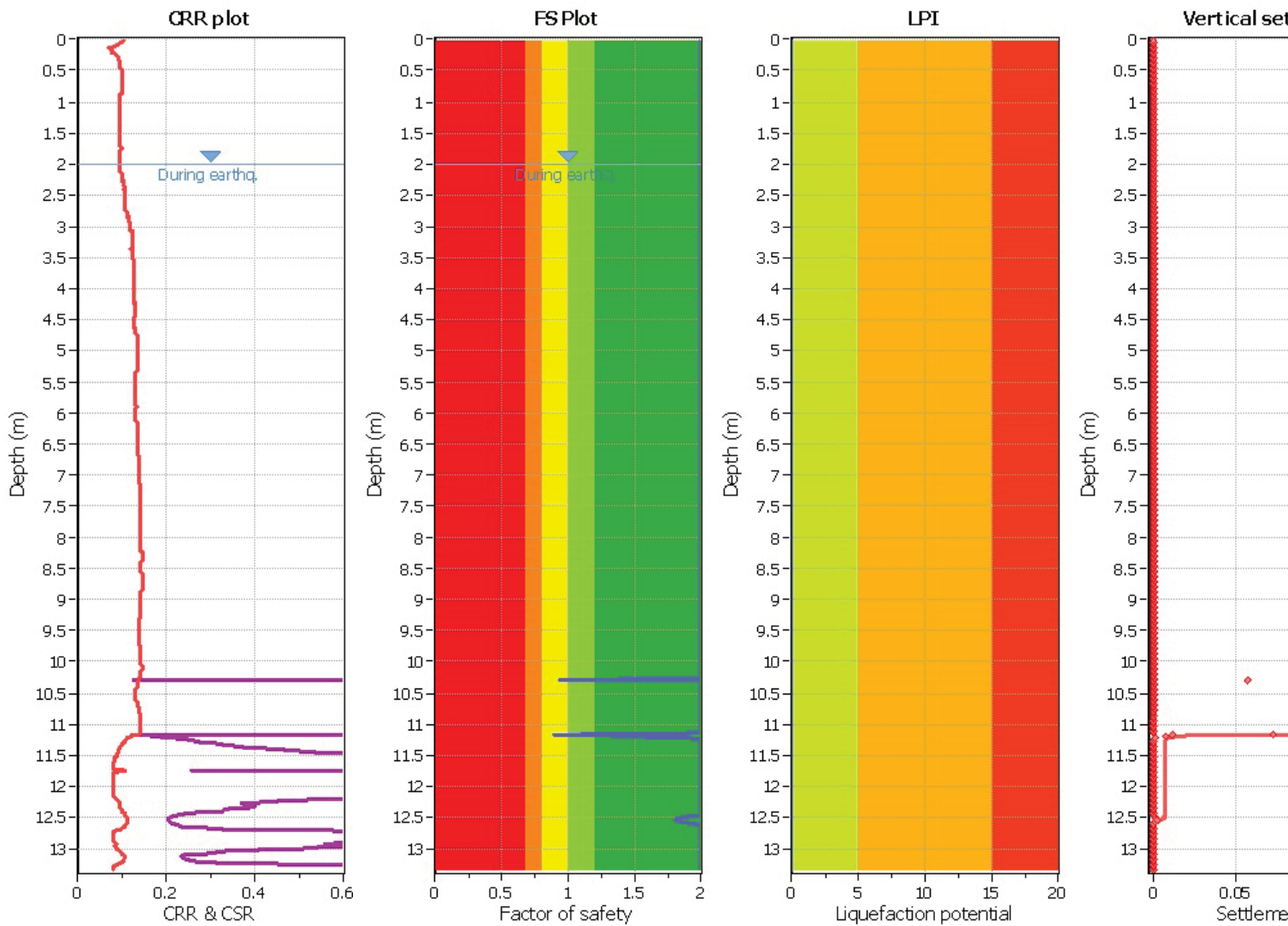


**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>s</sub> applied:	Yes
Earthquake magnitude M <sub>w</sub> :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m



### Liquefaction analysis overall plot



**Input parameters and analysis data**

Analysis method: B&I (2014)  
 Fines correction method: B&I (2014)  
 Points to test: Based on I<sub>c</sub> value  
 Earthquake magnitude M<sub>w</sub>: 5.50  
 Peak ground acceleration: 0.19  
 Depth to water table (insitu): 3.00 m

Depth to GWT (erthq.): 2.00 m  
 Average results interval: 3  
 I<sub>c</sub> cut-off value: 2.60  
 Unit weight calculation: Based on SBT  
 Use fill: No  
 Fill height: N/A

Fill weight: N/A  
 Transition detect. applied: No  
 K<sub>σ</sub> applied: Yes  
 Clay like behavior applied: Sands only  
 Limit depth applied: Yes  
 Limit depth: 20.00 m

**F.S. color scheme**

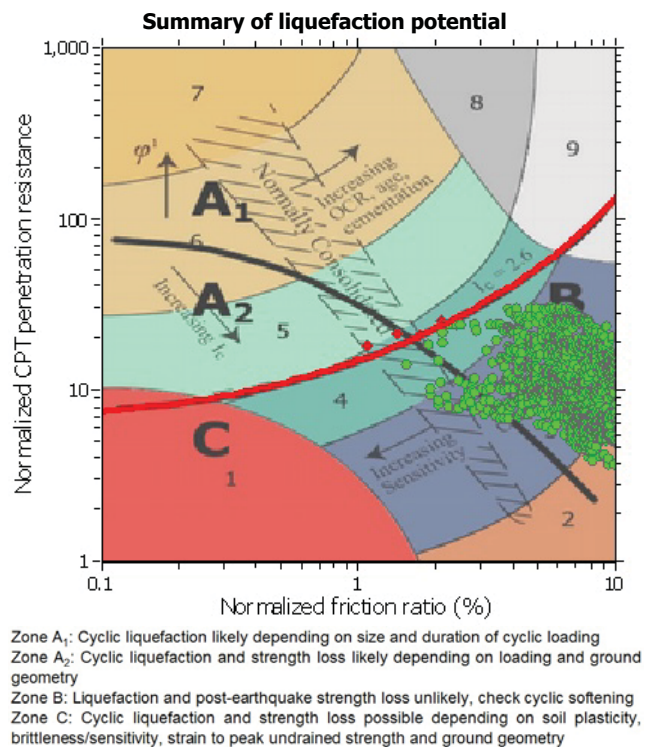
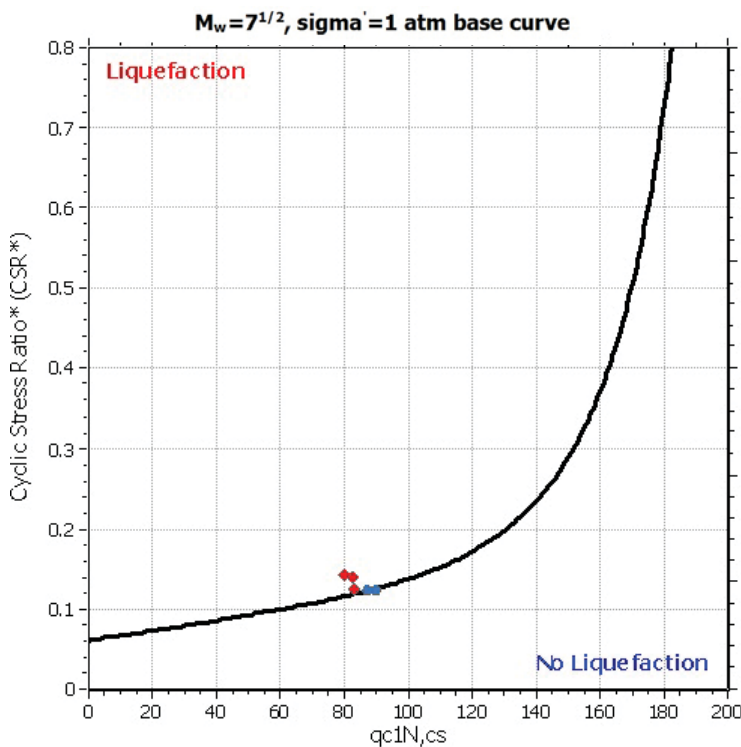
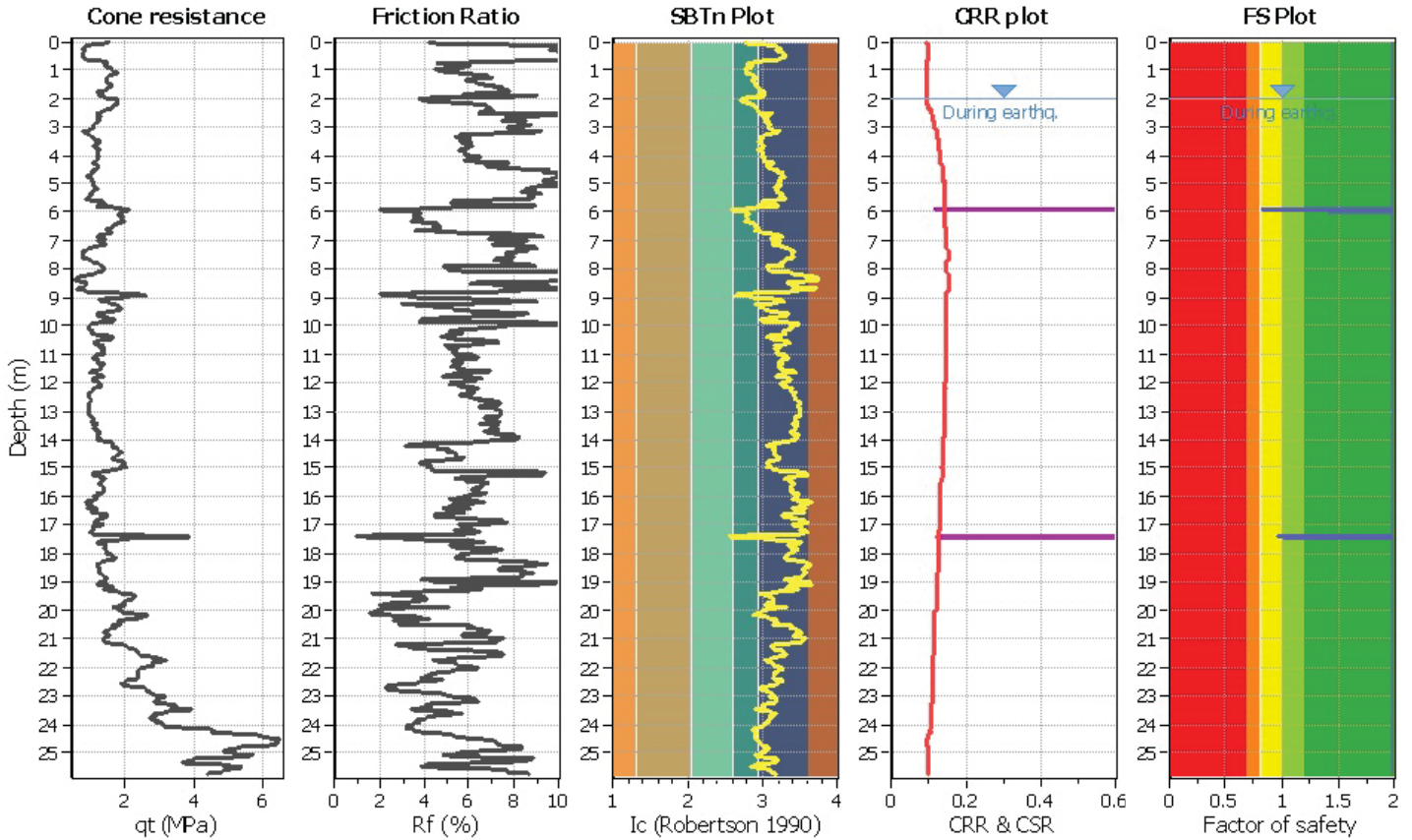
- Red: Almost certain it will liquefy
- Orange: Very likely to liquefy
- Yellow: Liquefaction and no flow
- Light Green: Unlike to liquefy
- Dark Green: Almost certain it will not liquefy

**LIQUEFACTION ANALYSIS REPORT**

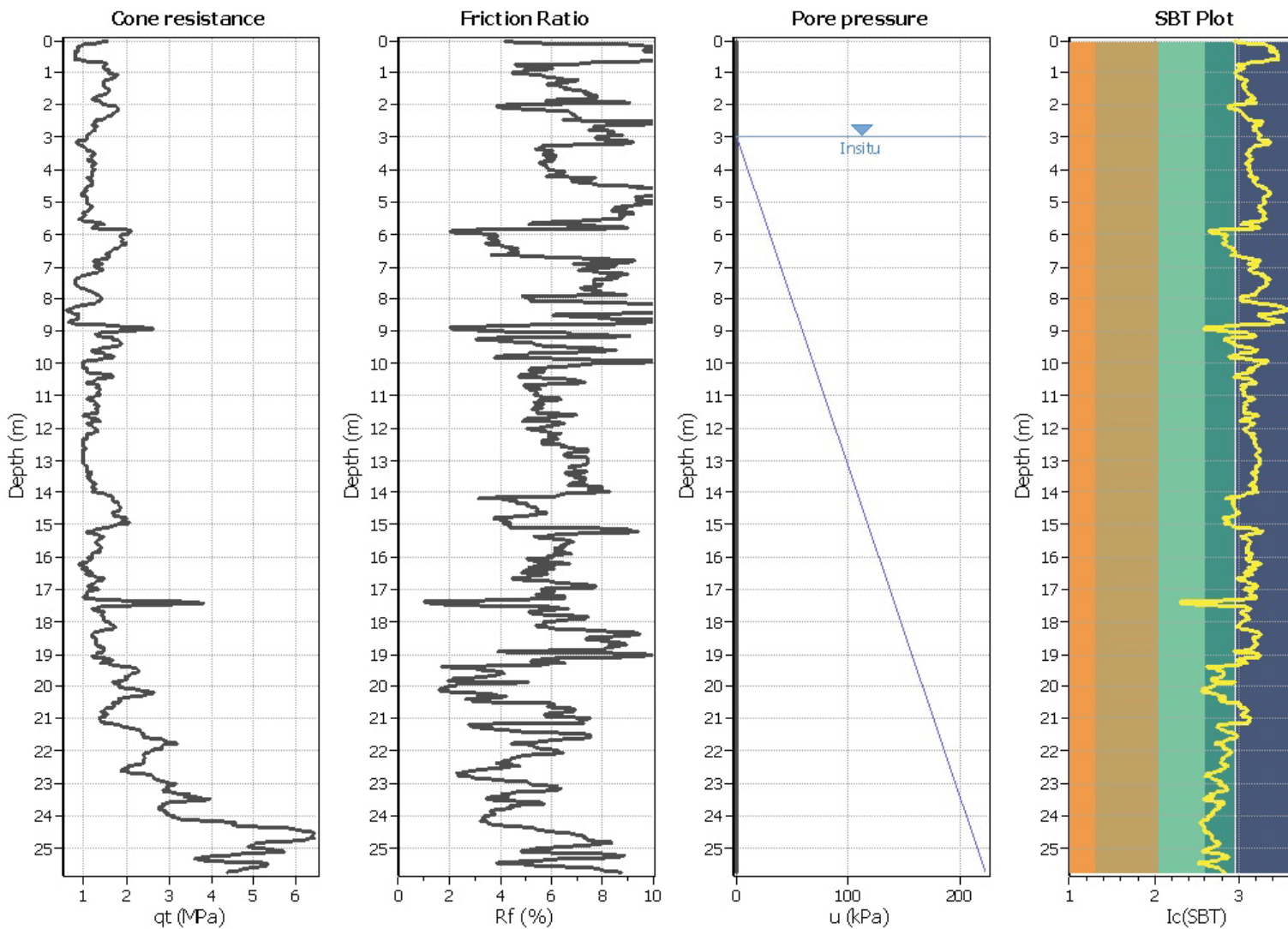
**Project title : Studio di Microzonazione Sismica - Besenzone    Location :**  
**CPT file : 180040E514**

**Input parameters and analysis data**

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	20.00 m
Earthquake magnitude $M_w$ :	5.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	$K_\sigma$ applied:	Yes		



### CPT basic interpretation plo



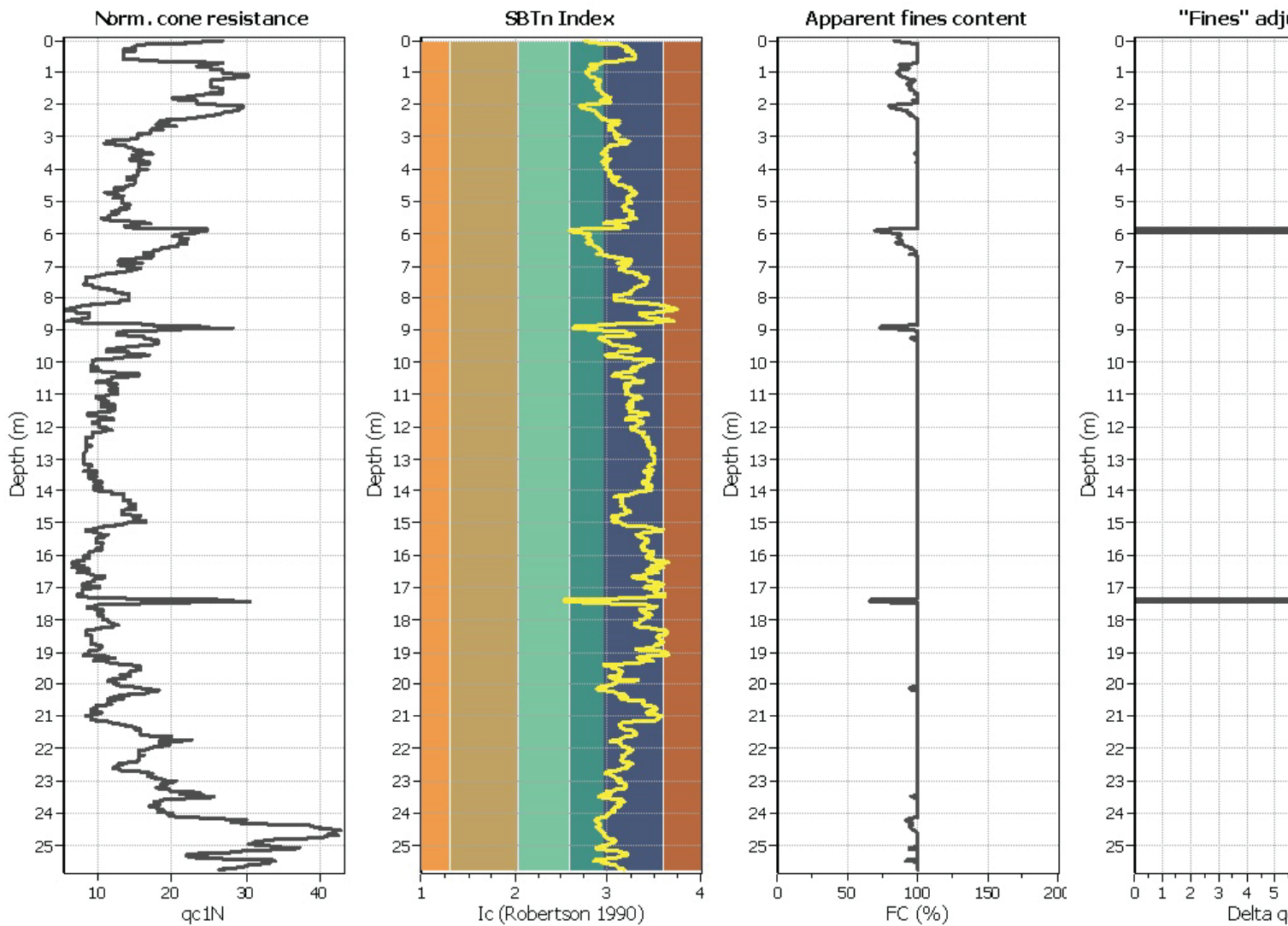
**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_v$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

**SBT legend**

- 1. Sensitive fine grai
- 2. Organic material
- 3. Clay to silty clay

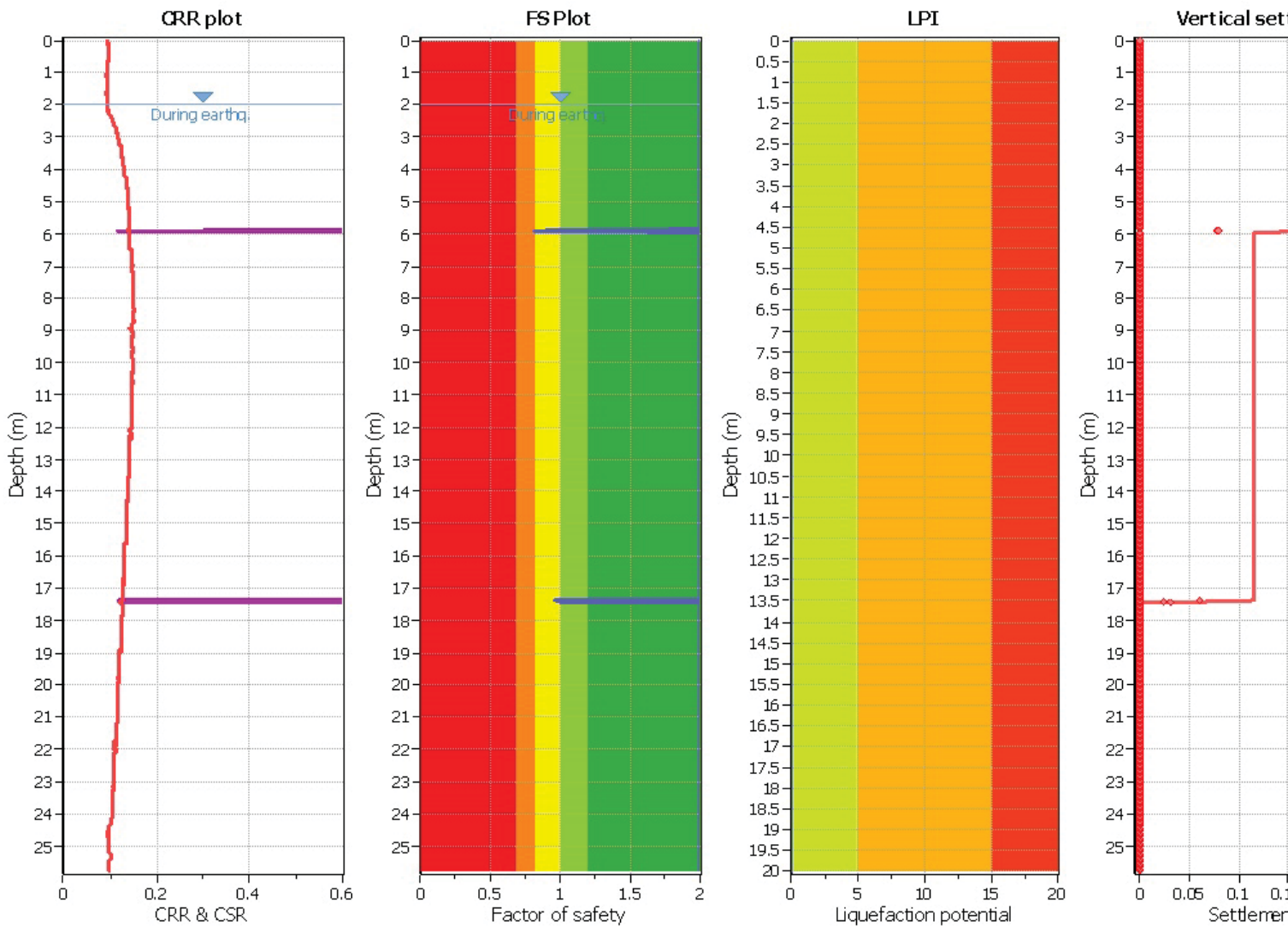
### Liquefaction analysis overall plots (intermediate)



**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_v$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

### Liquefaction analysis overall plot



**Input parameters and analysis data**

Analysis method: B&I (2014)  
 Fines correction method: B&I (2014)  
 Points to test: Based on I<sub>c</sub> value  
 Earthquake magnitude M<sub>w</sub>: 5.50  
 Peak ground acceleration: 0.19  
 Depth to water table (insitu): 3.00 m

Depth to GWT (earthq.): 2.00 m  
 Average results interval: 3  
 I<sub>c</sub> cut-off value: 2.60  
 Unit weight calculation: Based on SBT  
 Use fill: No  
 Fill height: N/A

Fill weight: N/A  
 Transition detect. applied: No  
 K<sub>σ</sub> applied: Yes  
 Clay like behavior applied: Sands only  
 Limit depth applied: Yes  
 Limit depth: 20.00 m

**F.S. color scheme**

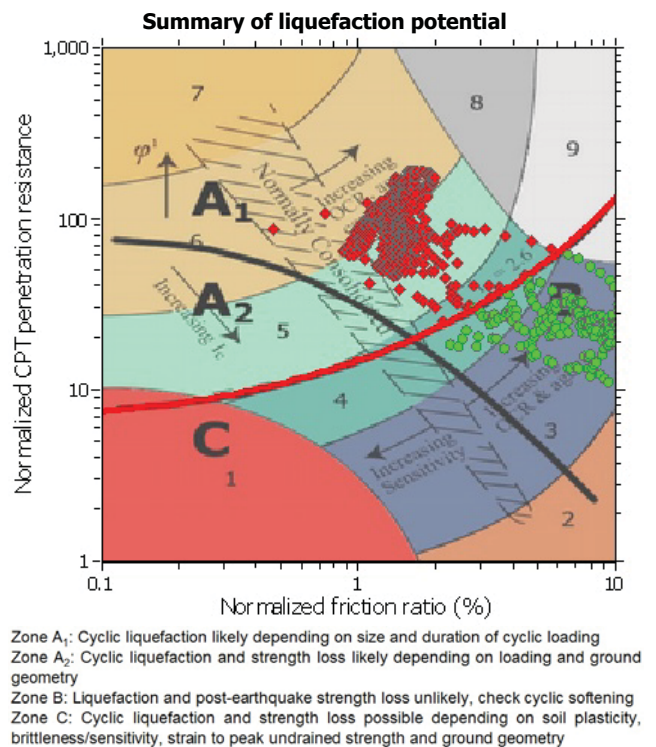
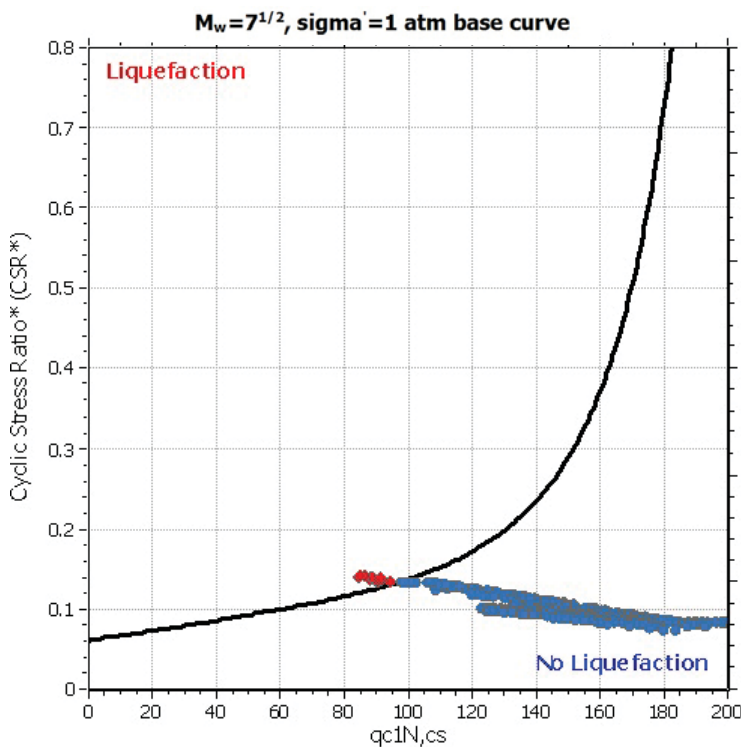
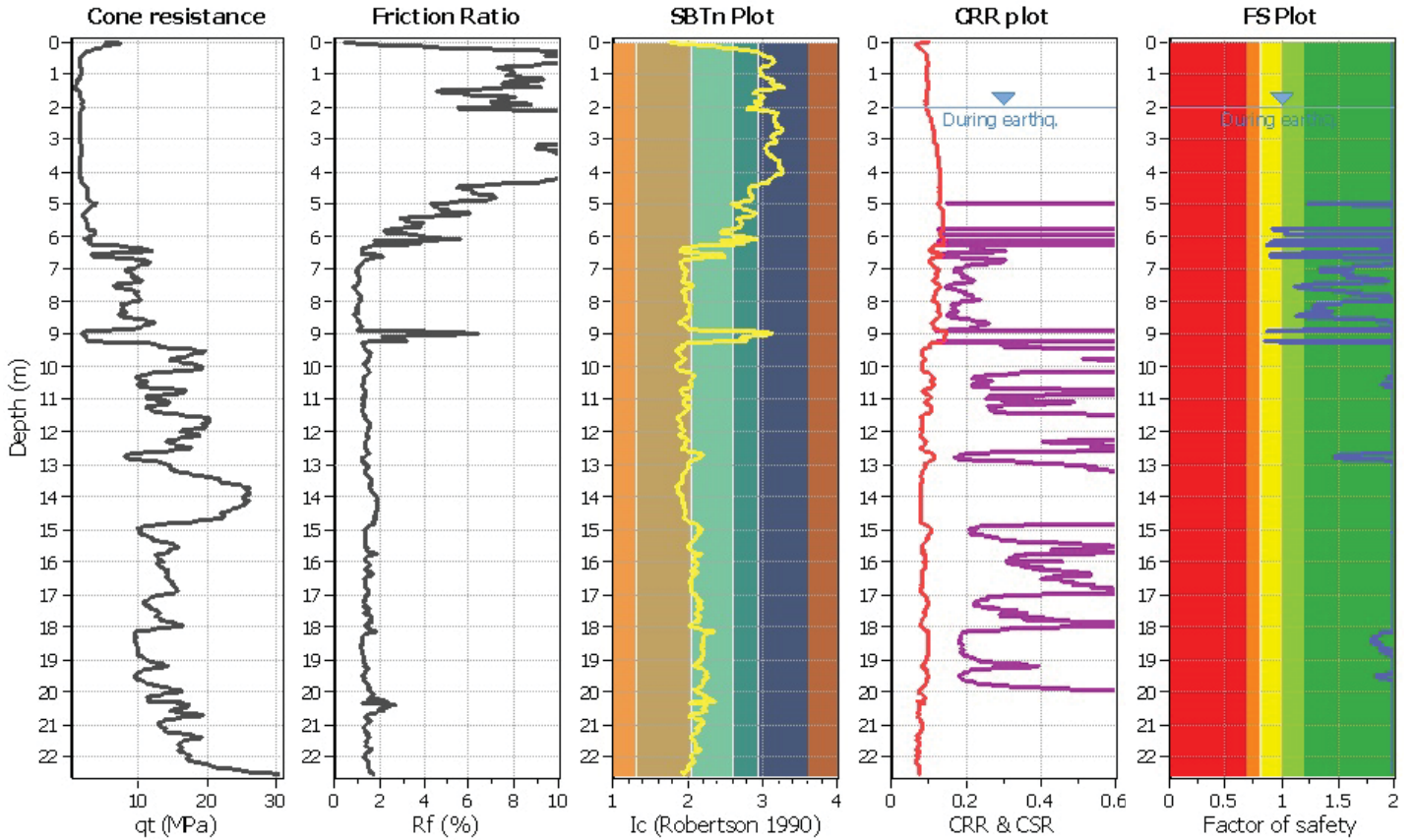
- Red: Almost certain it will liquefy
- Orange: Very likely to liquefy
- Yellow: Liquefaction and no flow
- Light Green: Unlike to liquefy
- Dark Green: Almost certain it will not liquefy

**LIQUEFACTION ANALYSIS REPORT**

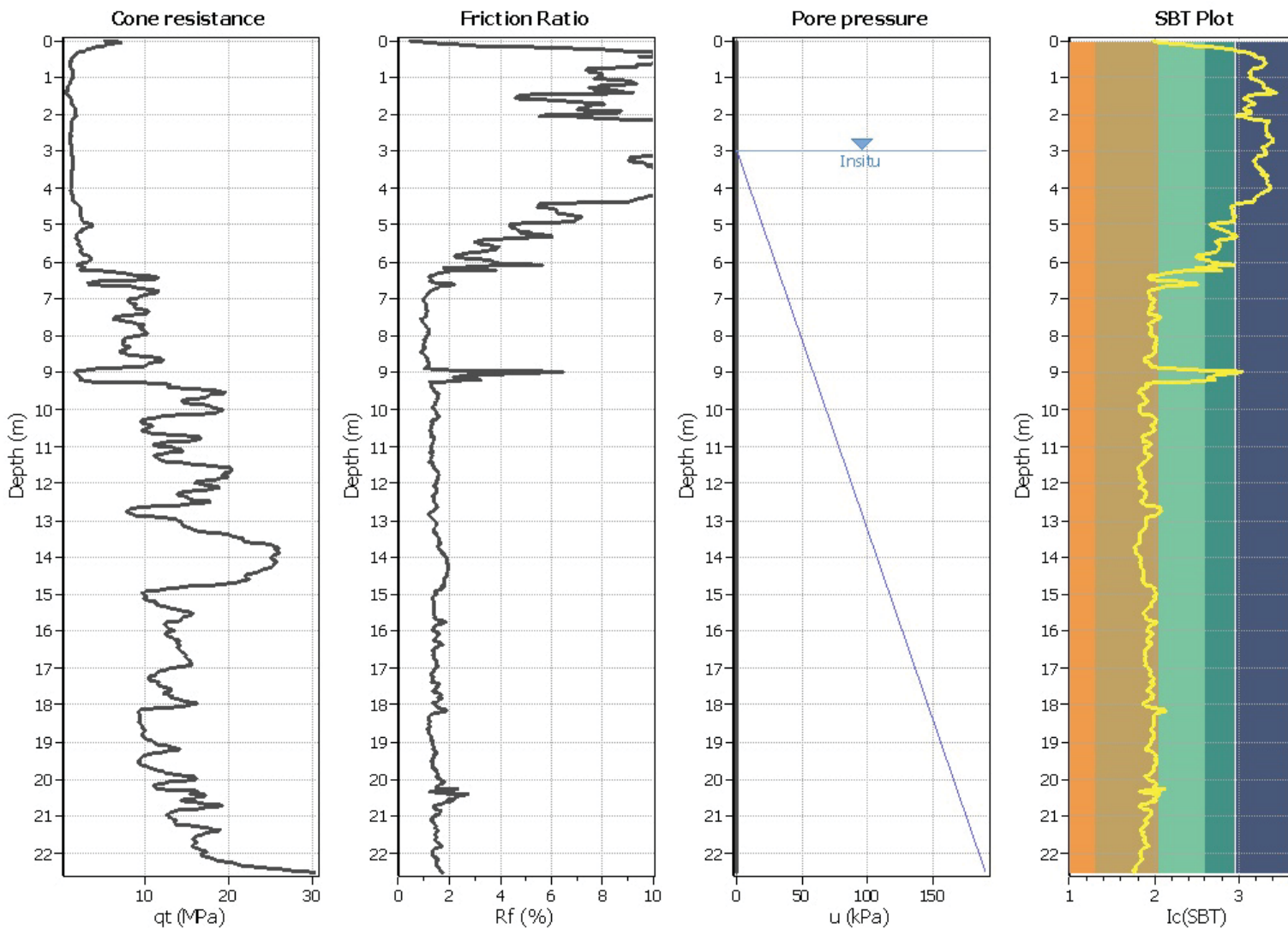
**Project title : Studio di Microzonazione Sismica - Besenzone    Location :**  
**CPT file : 180040E515**

**Input parameters and analysis data**

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	20.00 m
Earthquake magnitude $M_w$ :	5.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	$K_\sigma$ applied:	Yes		



### CPT basic interpretation plo



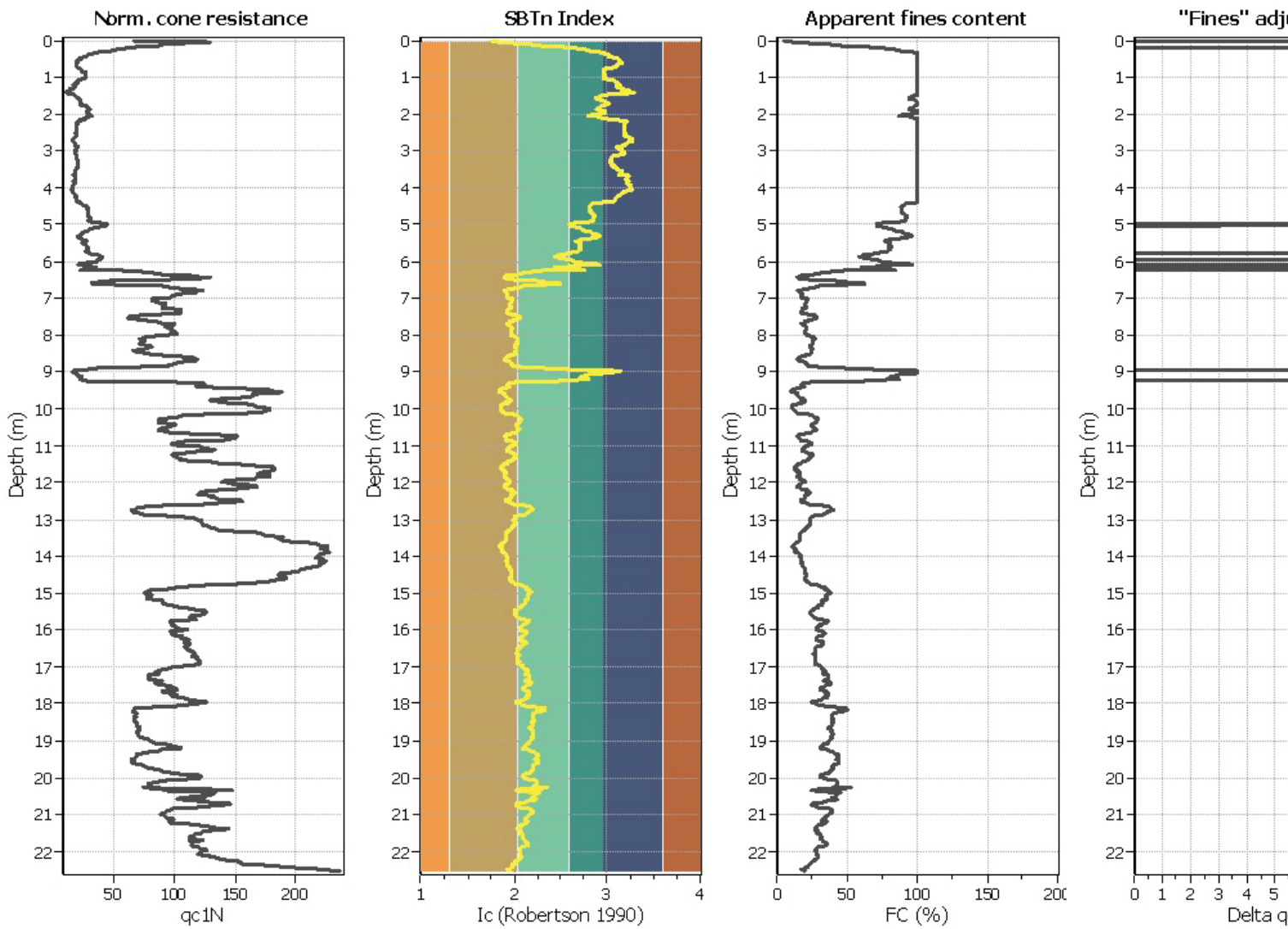
**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_{\sigma}$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

**SBT legend**

	1. Sensitive fine grain
	2. Organic material
	3. Clay to silty clay

## Liquefaction analysis overall plots (intermediate)

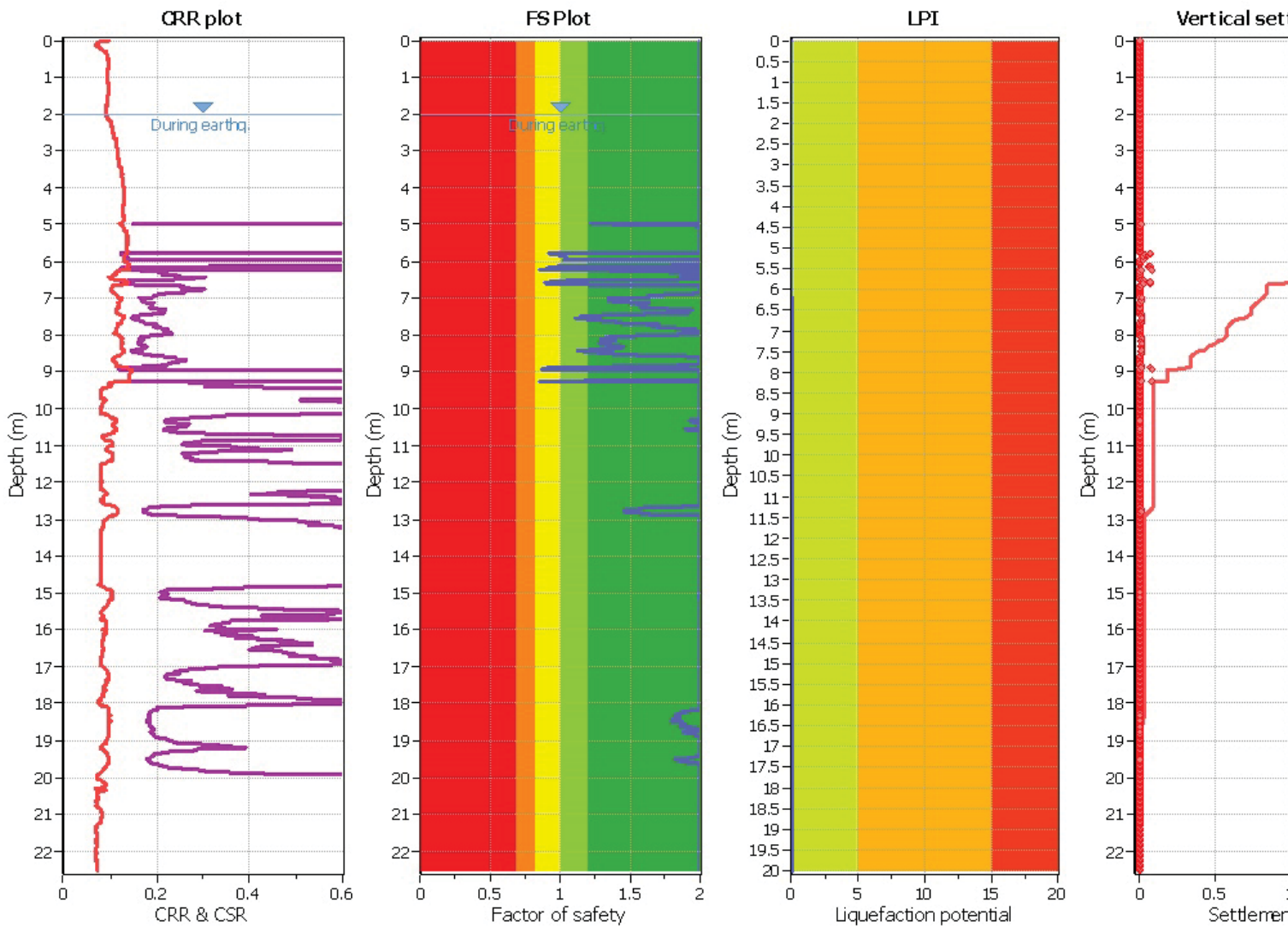


### Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>v</sub> applied:	Yes
Earthquake magnitude M <sub>w</sub> :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m



### Liquefaction analysis overall plot



**Input parameters and analysis data**

Analysis method: B&I (2014)  
 Fines correction method: B&I (2014)  
 Points to test: Based on I<sub>c</sub> value  
 Earthquake magnitude M<sub>w</sub>: 5.50  
 Peak ground acceleration: 0.19  
 Depth to water table (insitu): 3.00 m

Depth to GWT (erthq.): 2.00 m  
 Average results interval: 3  
 I<sub>c</sub> cut-off value: 2.60  
 Unit weight calculation: Based on SBT  
 Use fill: No  
 Fill height: N/A

Fill weight: N/A  
 Transition detect. applied: No  
 K<sub>σ</sub> applied: Yes  
 Clay like behavior applied: Sands only  
 Limit depth applied: Yes  
 Limit depth: 20.00 m

**F.S. color scheme**

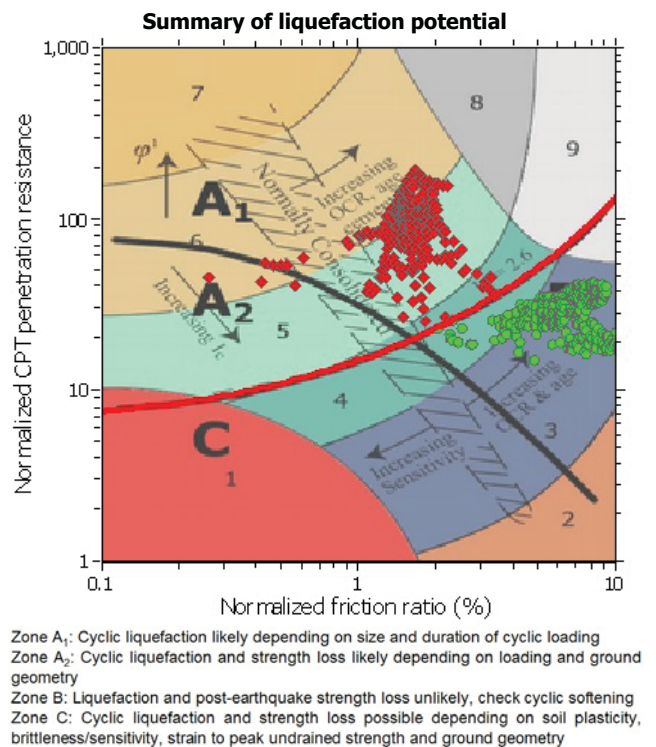
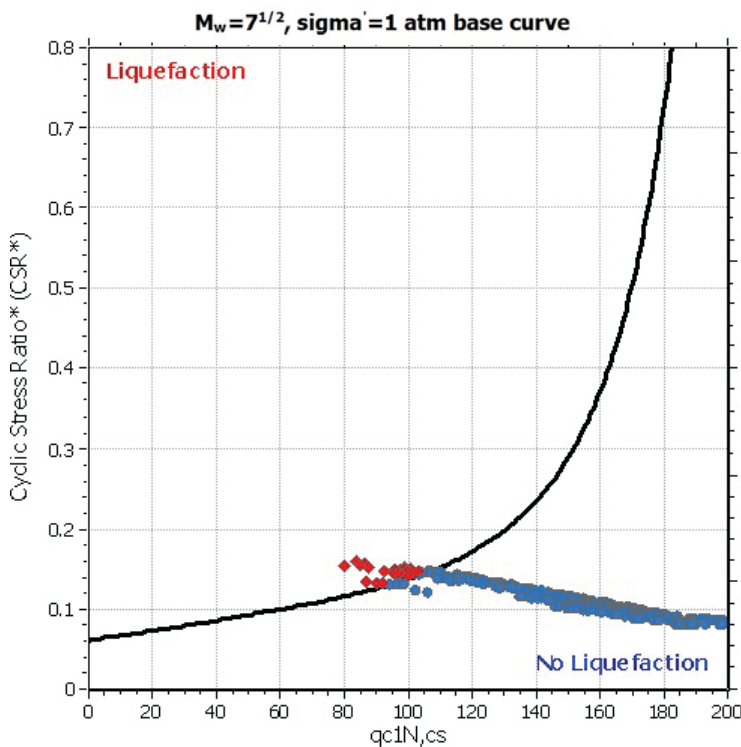
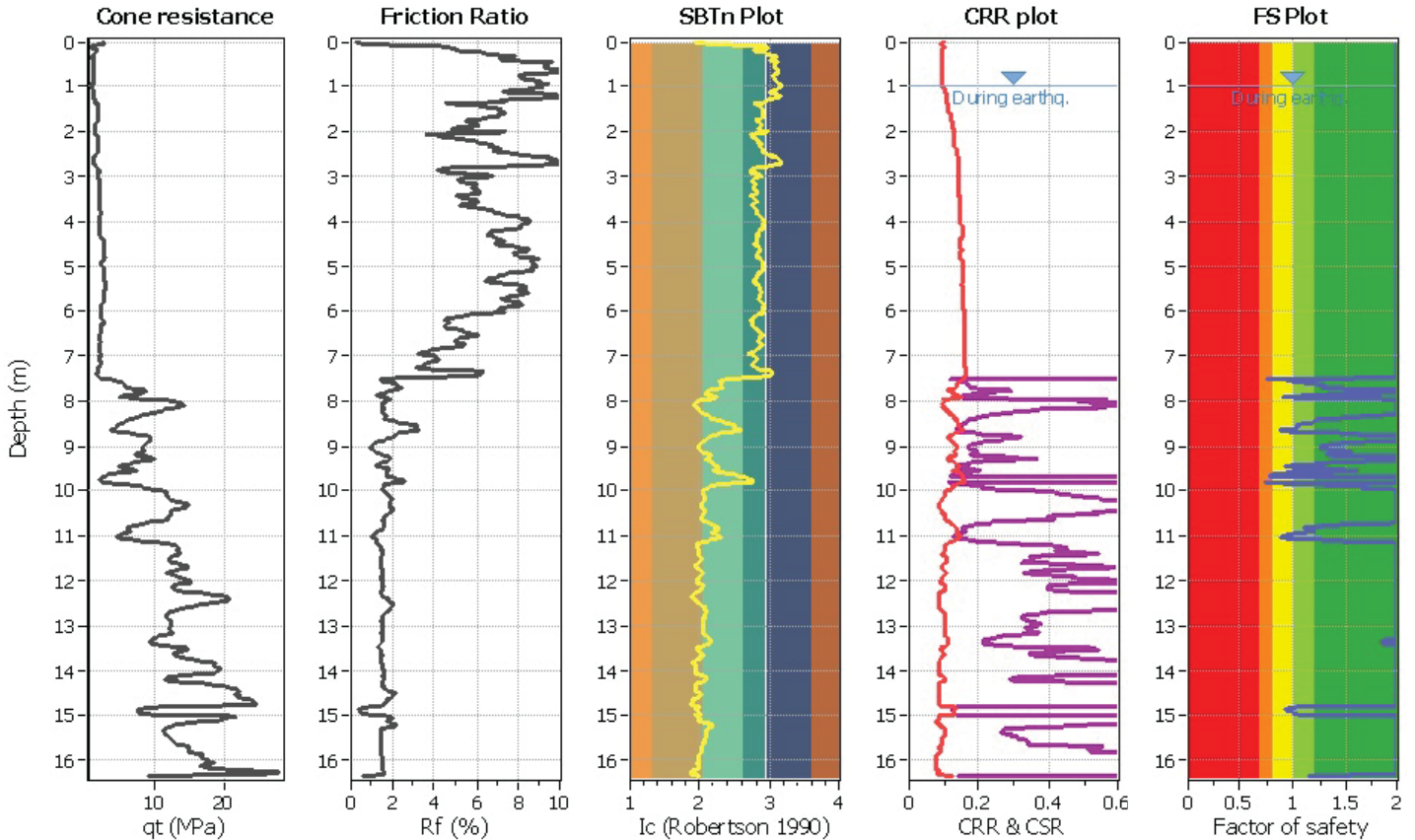
- Red: Almost certain it will liquefy
- Orange: Very likely to liquefy
- Yellow: Liquefaction and no
- Light Green: Unlike to liquefy
- Dark Green: Almost certain it will not liquefy

**LIQUEFACTION ANALYSIS REPORT**

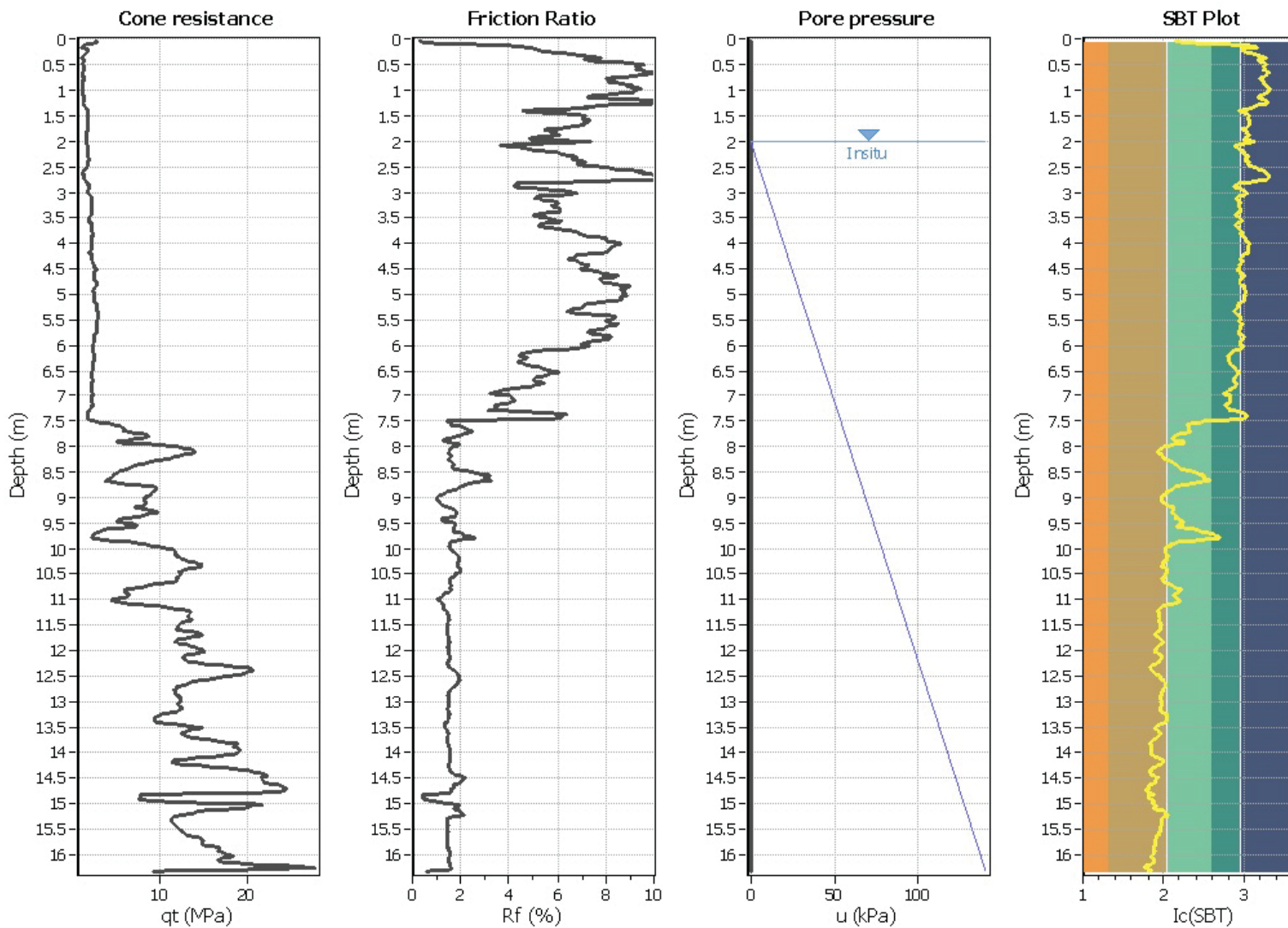
**Project title : Studio di Microzonazione Sismica - Besenzone    Location :**  
**CPT file : 180040E516**

**Input parameters and analysis data**

Analysis method:	B&I (2014)	G.W.T. (in-situ):	2.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.00 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	20.00 m
Earthquake magnitude $M_w$ :	5.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	$K_\sigma$ applied:	Yes		



### CPT basic interpretation plo



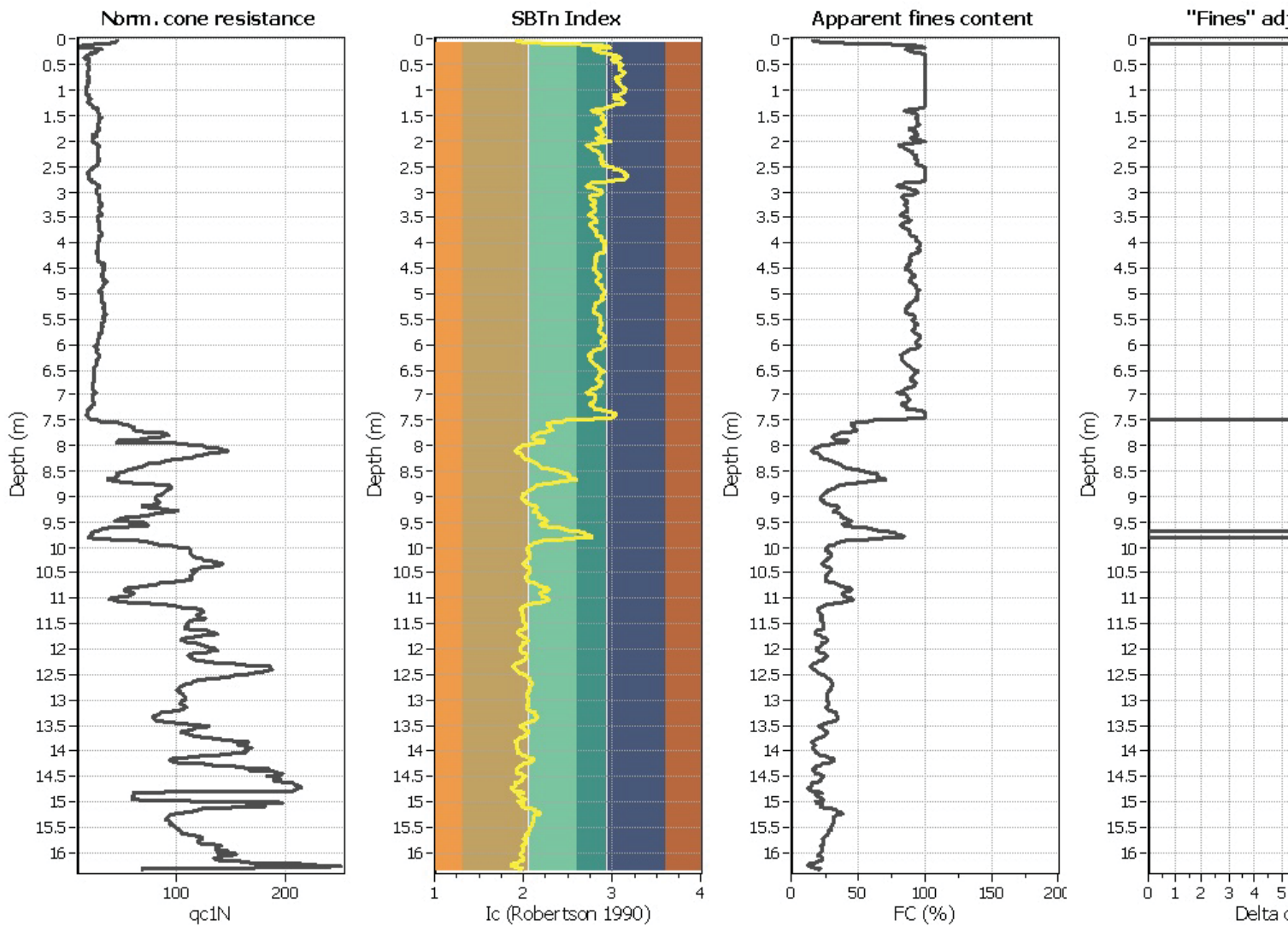
#### Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_p$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	2.00 m	Fill height:	N/A	Limit depth:	20.00 m

#### SBT legend

- 1. Sensitive fine grain
- 2. Organic material
- 3. Clay to silty clay

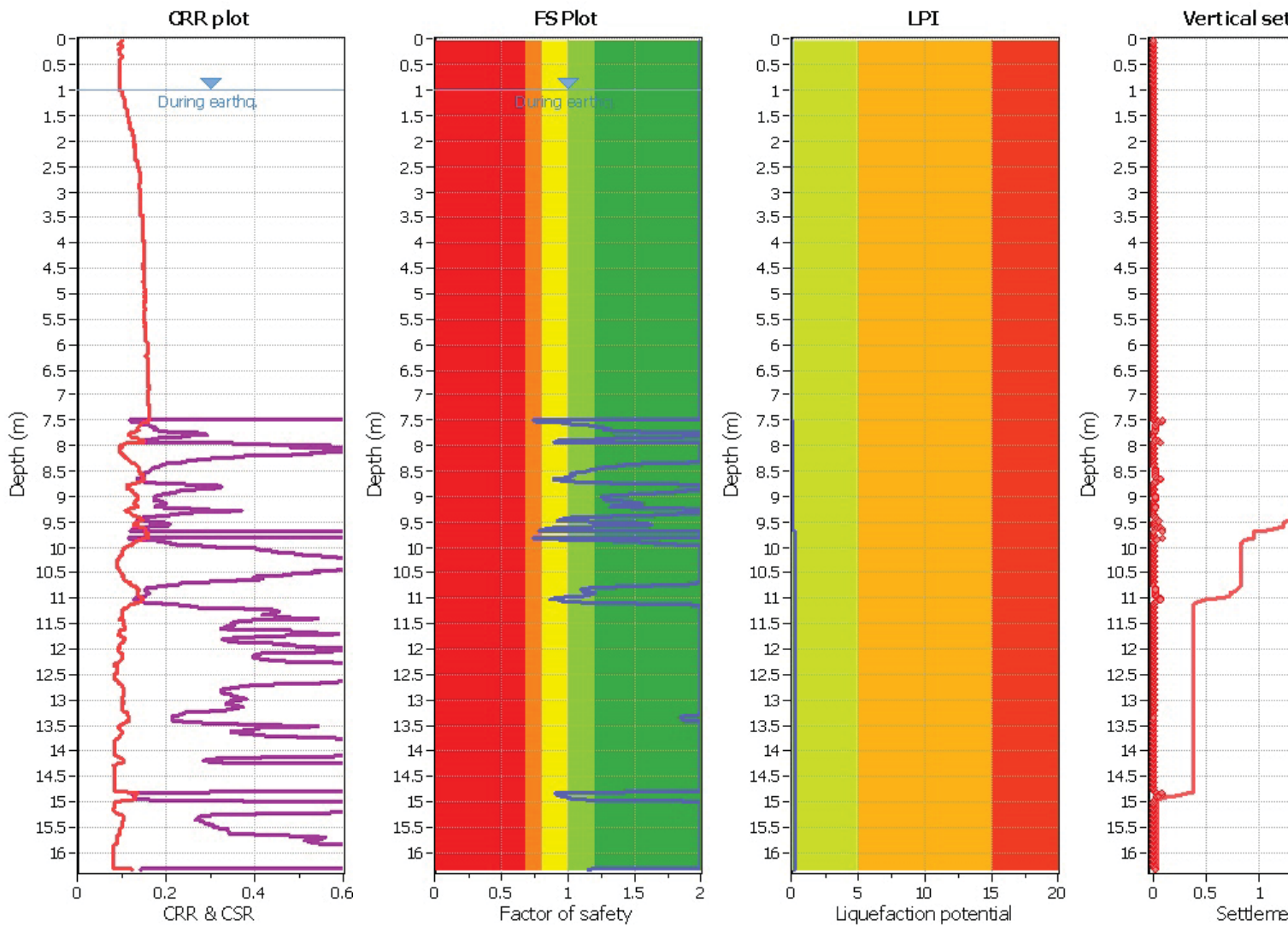
### Liquefaction analysis overall plots (intermediate)



**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>s</sub> applied:	Yes
Earthquake magnitude M <sub>w</sub> :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	2.00 m	Fill height:	N/A	Limit depth:	20.00 m

### Liquefaction analysis overall plot



**Input parameters and analysis data**

Analysis method: B&I (2014)  
 Fines correction method: B&I (2014)  
 Points to test: Based on I<sub>c</sub> value  
 Earthquake magnitude M<sub>w</sub>: 5.50  
 Peak ground acceleration: 0.19  
 Depth to water table (insitu): 2.00 m

Depth to GWT (erthq.): 1.00 m  
 Average results interval: 3  
 I<sub>c</sub> cut-off value: 2.60  
 Unit weight calculation: Based on SBT  
 Use fill: No  
 Fill height: N/A

Fill weight: N/A  
 Transition detect. applied: No  
 K<sub>σ</sub> applied: Yes  
 Clay like behavior applied: Sands only  
 Limit depth applied: Yes  
 Limit depth: 20.00 m

**F.S. color scheme**

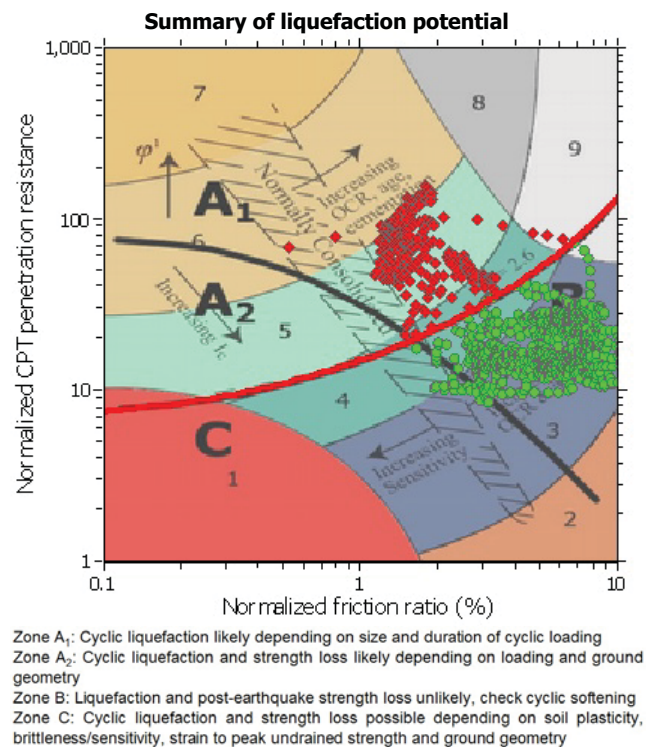
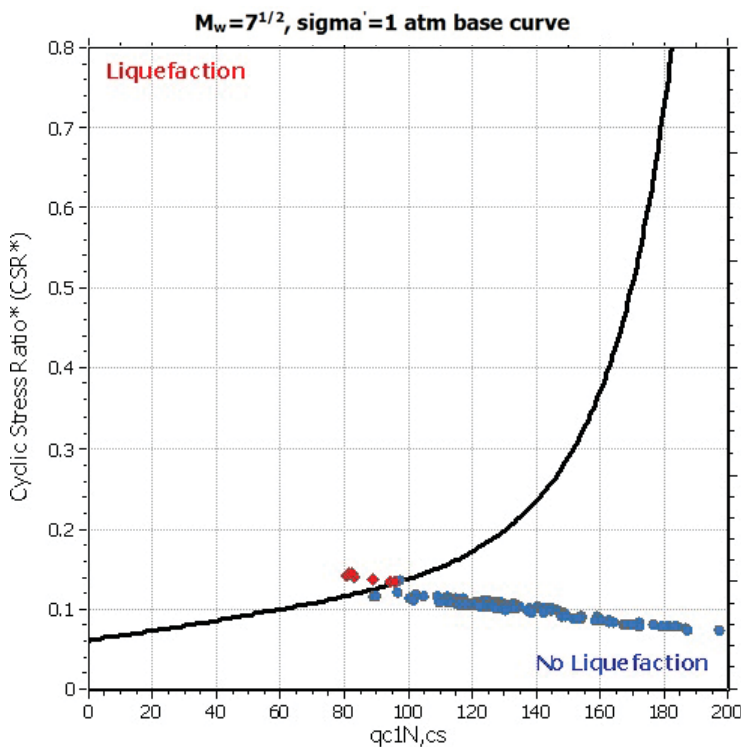
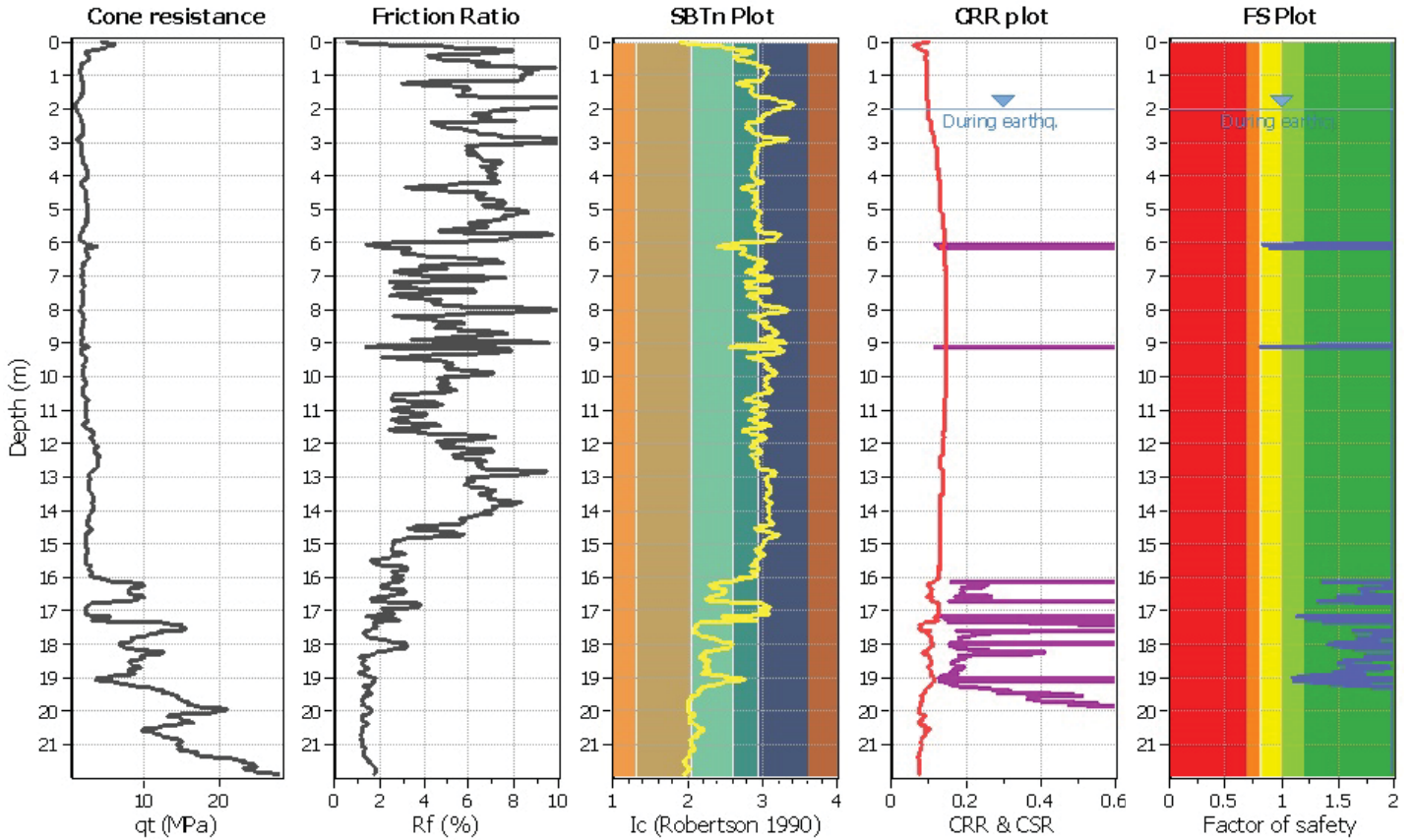
- Almost certain it w
- Very likely to lique
- Liquefaction and n
- Unlike to liquefy
- Almost certain it w

**LIQUEFACTION ANALYSIS REPORT**

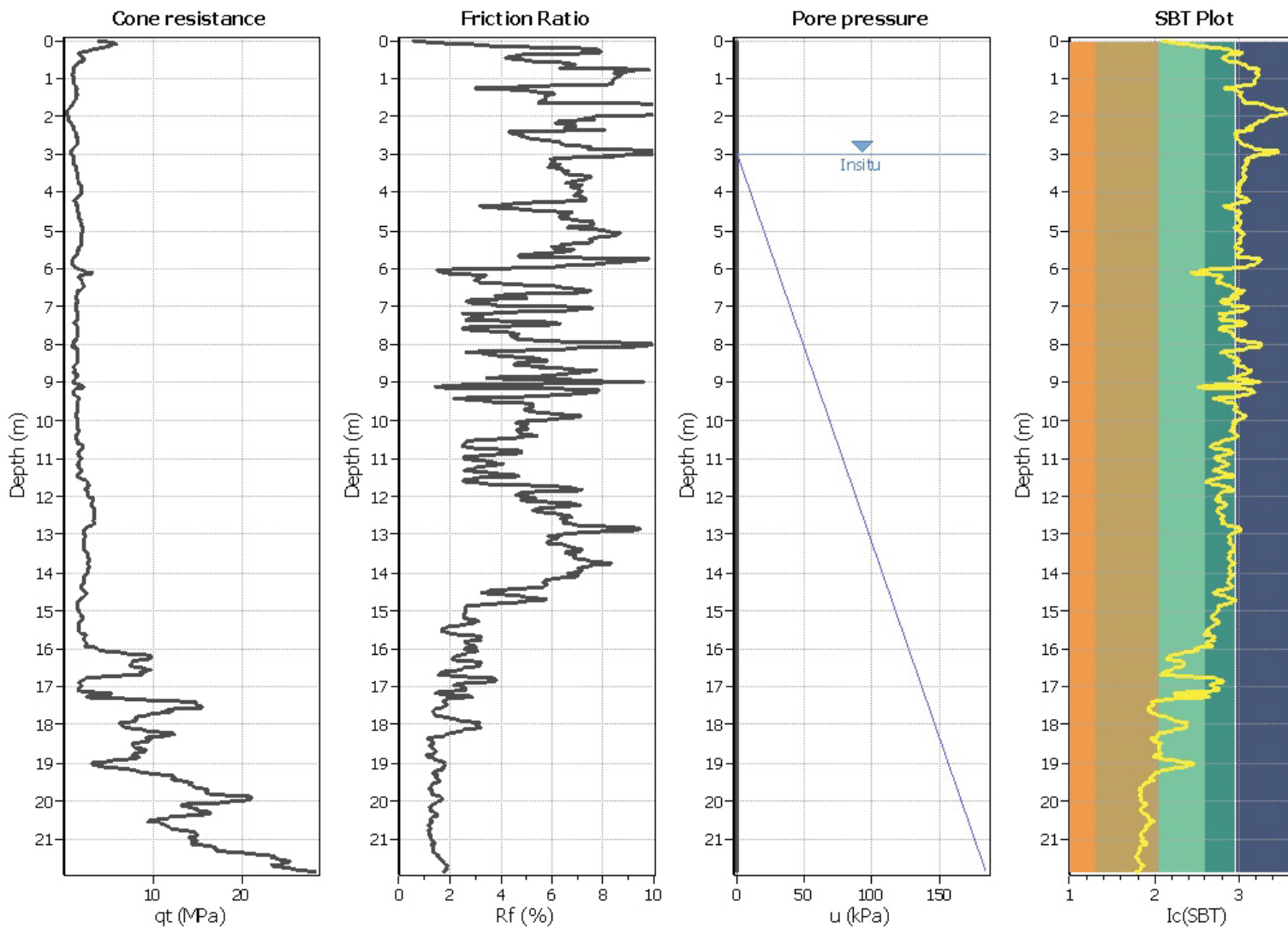
**Project title : Studio di Microzonazione Sismica - Besenzone    Location :**  
**CPT file : 180040E506**

**Input parameters and analysis data**

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	20.00 m
Earthquake magnitude $M_w$ :	5.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	$K_\sigma$ applied:	Yes		



### CPT basic interpretation plo



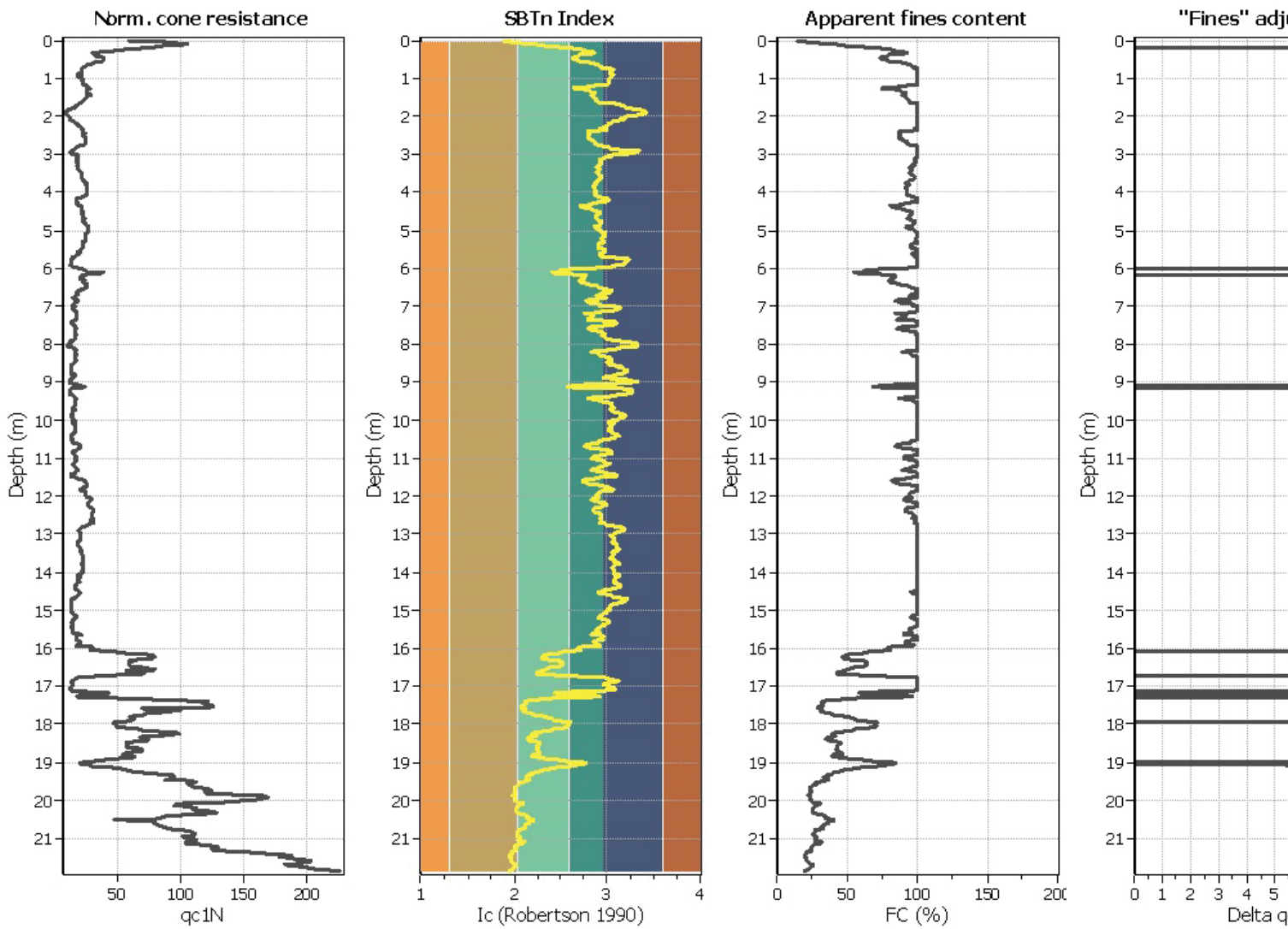
#### Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>v</sub> applied:	Yes
Earthquake magnitude M <sub>w</sub> :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

#### SBT legend

- 1. Sensitive fine grai
- 2. Organic material
- 3. Clay to silty clay

## Liquefaction analysis overall plots (intermediate)

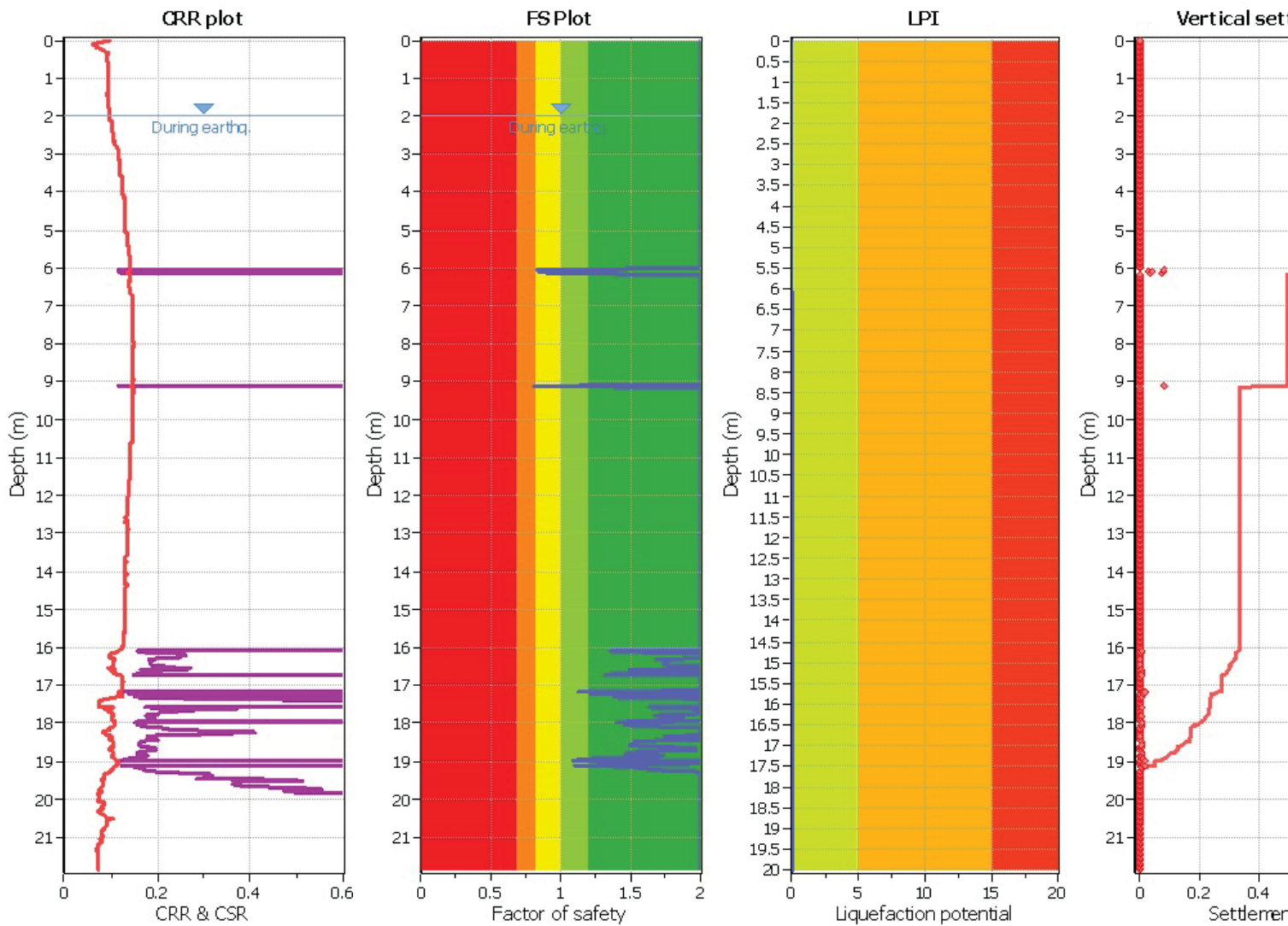


### Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>v</sub> applied:	Yes
Earthquake magnitude M <sub>w</sub> :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m



### Liquefaction analysis overall plot



**Input parameters and analysis data**

Analysis method: B&I (2014)  
 Fines correction method: B&I (2014)  
 Points to test: Based on I<sub>c</sub> value  
 Earthquake magnitude M<sub>w</sub>: 5.50  
 Peak ground acceleration: 0.19  
 Depth to water table (insitu): 3.00 m

Depth to GWT (earthq.): 2.00 m  
 Average results interval: 3  
 I<sub>c</sub> cut-off value: 2.60  
 Unit weight calculation: Based on SBT  
 Use fill: No  
 Fill height: N/A

Fill weight: N/A  
 Transition detect. applied: No  
 K<sub>σ</sub> applied: Yes  
 Clay like behavior applied: Sands only  
 Limit depth applied: Yes  
 Limit depth: 20.00 m

**F.S. color scheme**

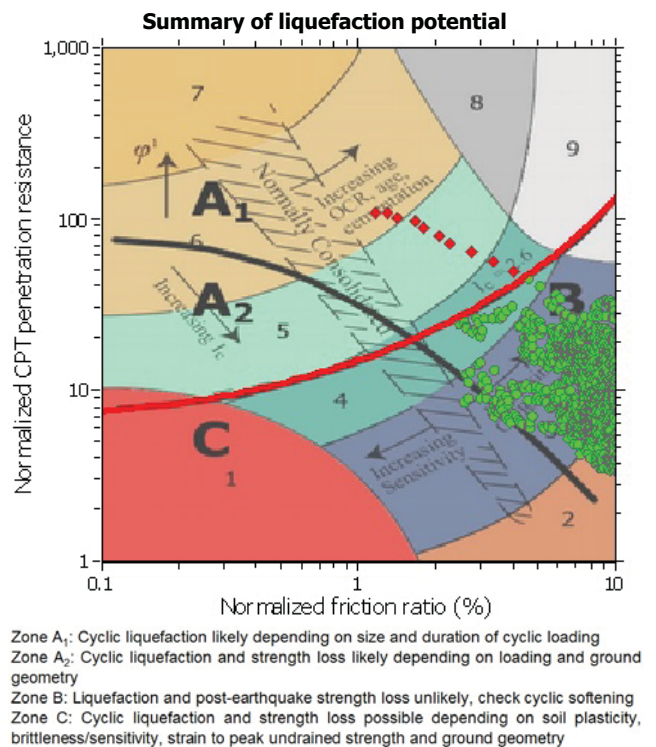
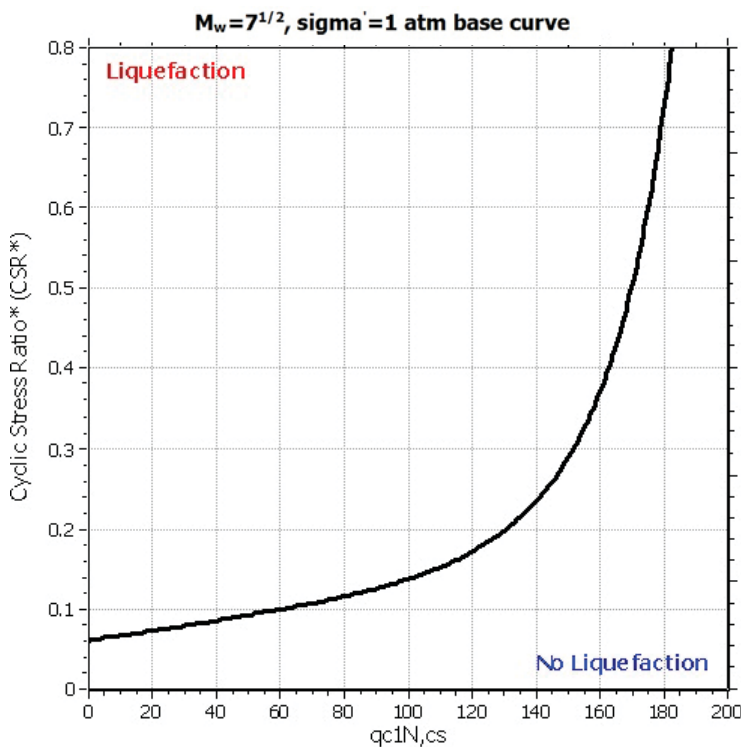
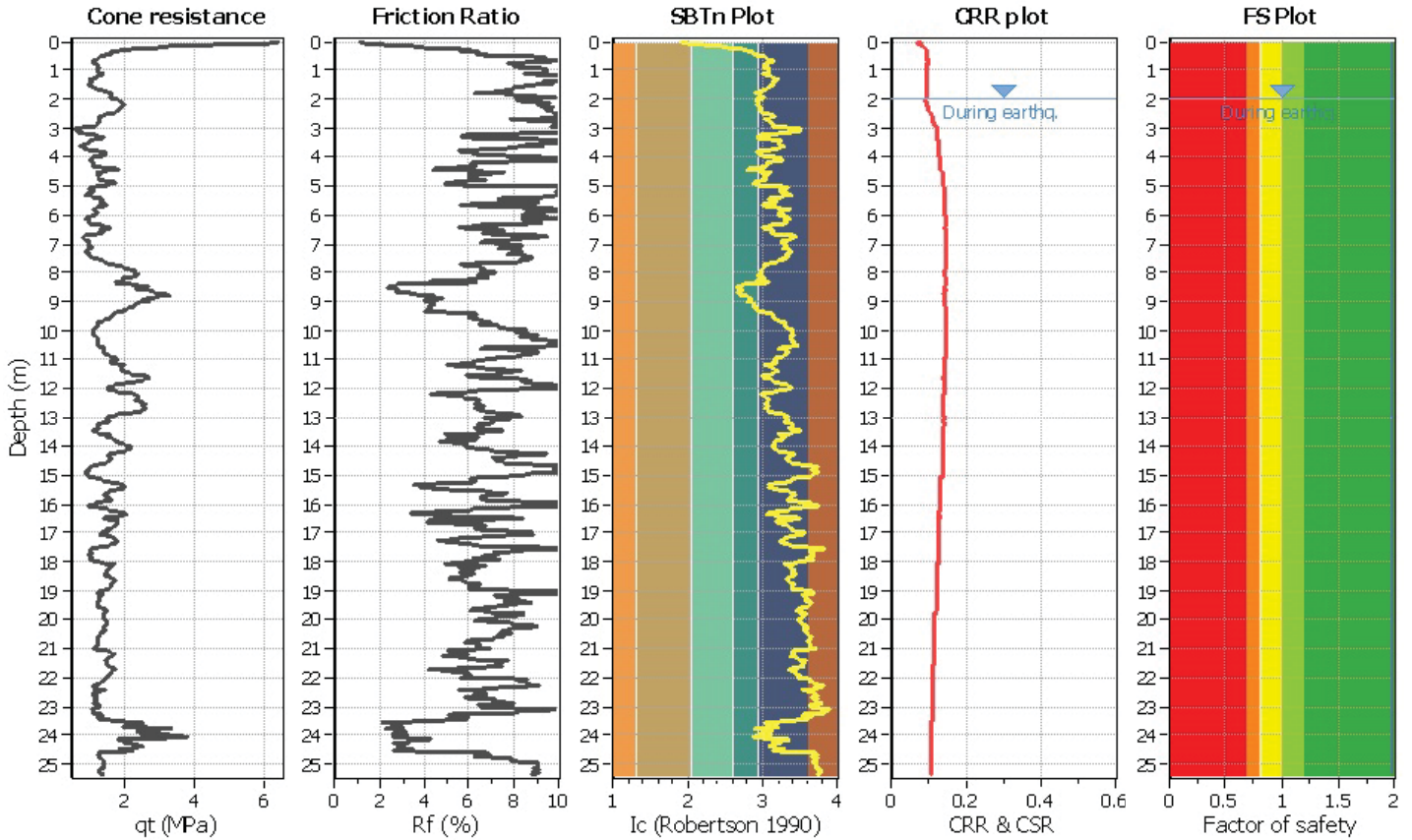
- Red: Almost certain it will liquefy
- Orange: Very likely to liquefy
- Yellow: Liquefaction and no
- Light Green: Unlike to liquefy
- Dark Green: Almost certain it will not liquefy

**LIQUEFACTION ANALYSIS REPORT**

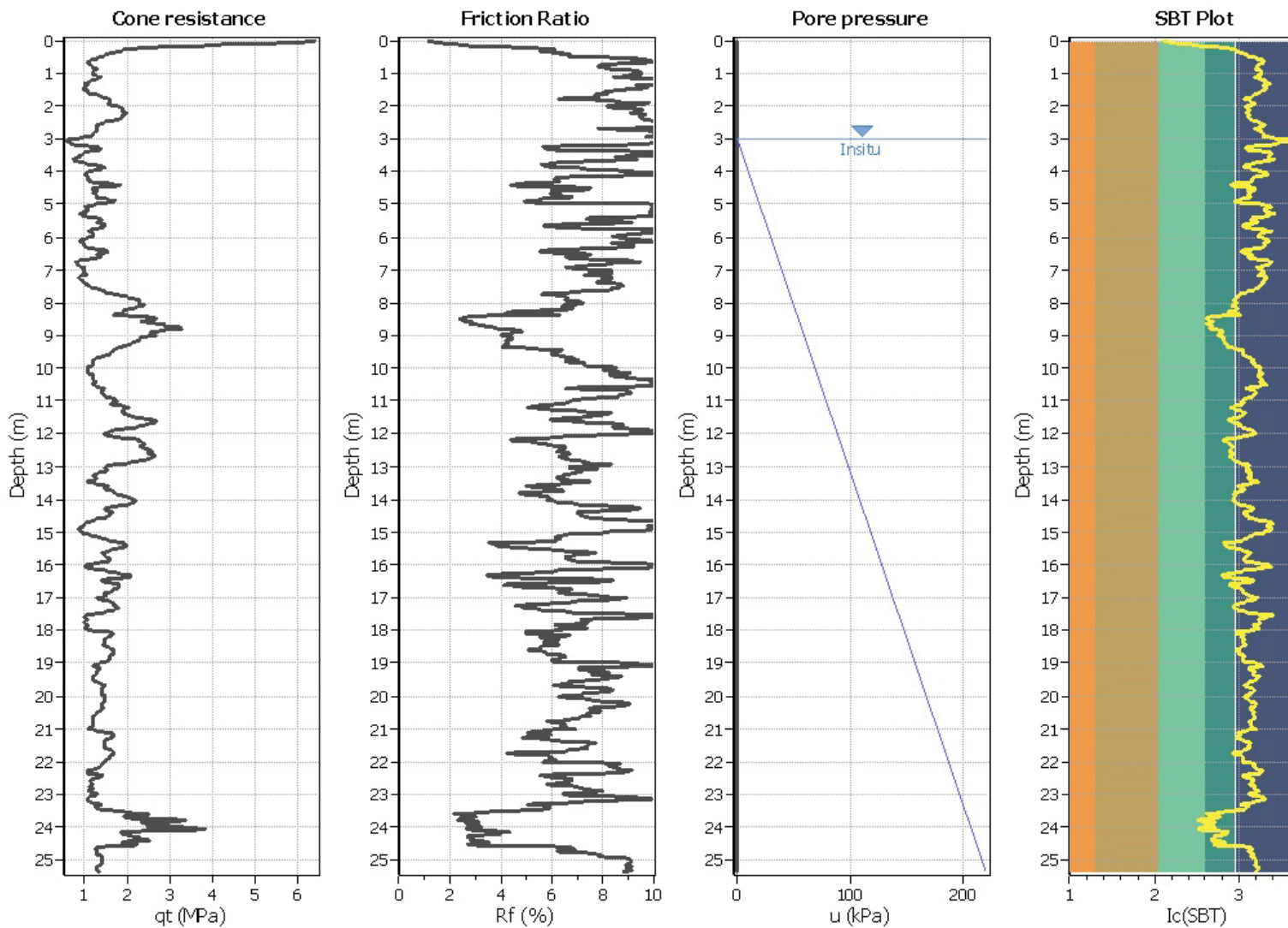
**Project title : Studio di Microzonazione Sismica - Besenzone    Location :**  
**CPT file : 180040E507**

**Input parameters and analysis data**

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	20.00 m
Earthquake magnitude $M_w$ :	5.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	$K_\sigma$ applied:	Yes		



### CPT basic interpretation plo



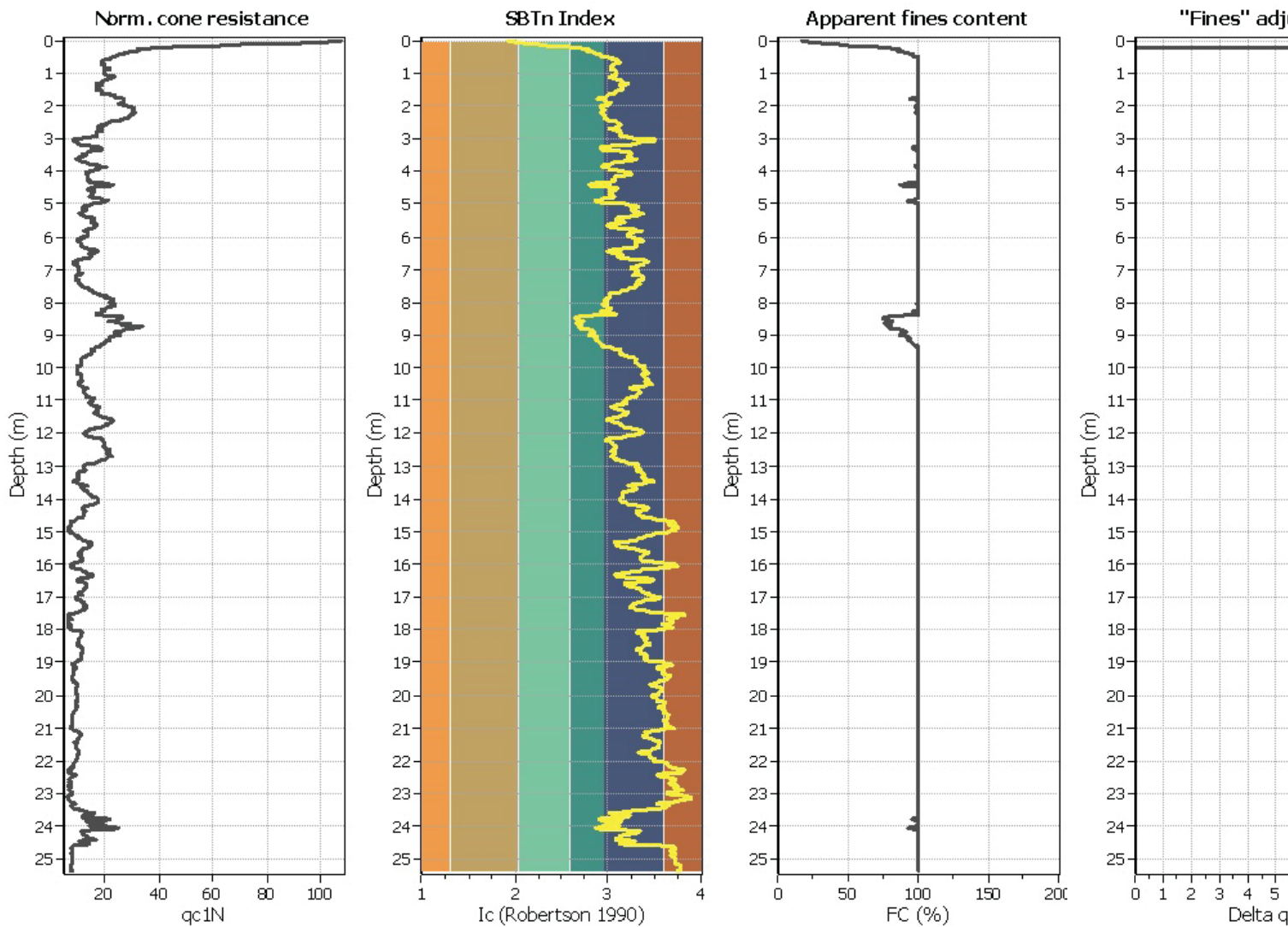
**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_v$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

**SBT legend**

- 1. Sensitive fine grai
- 2. Organic material
- 3. Clay to silty clay

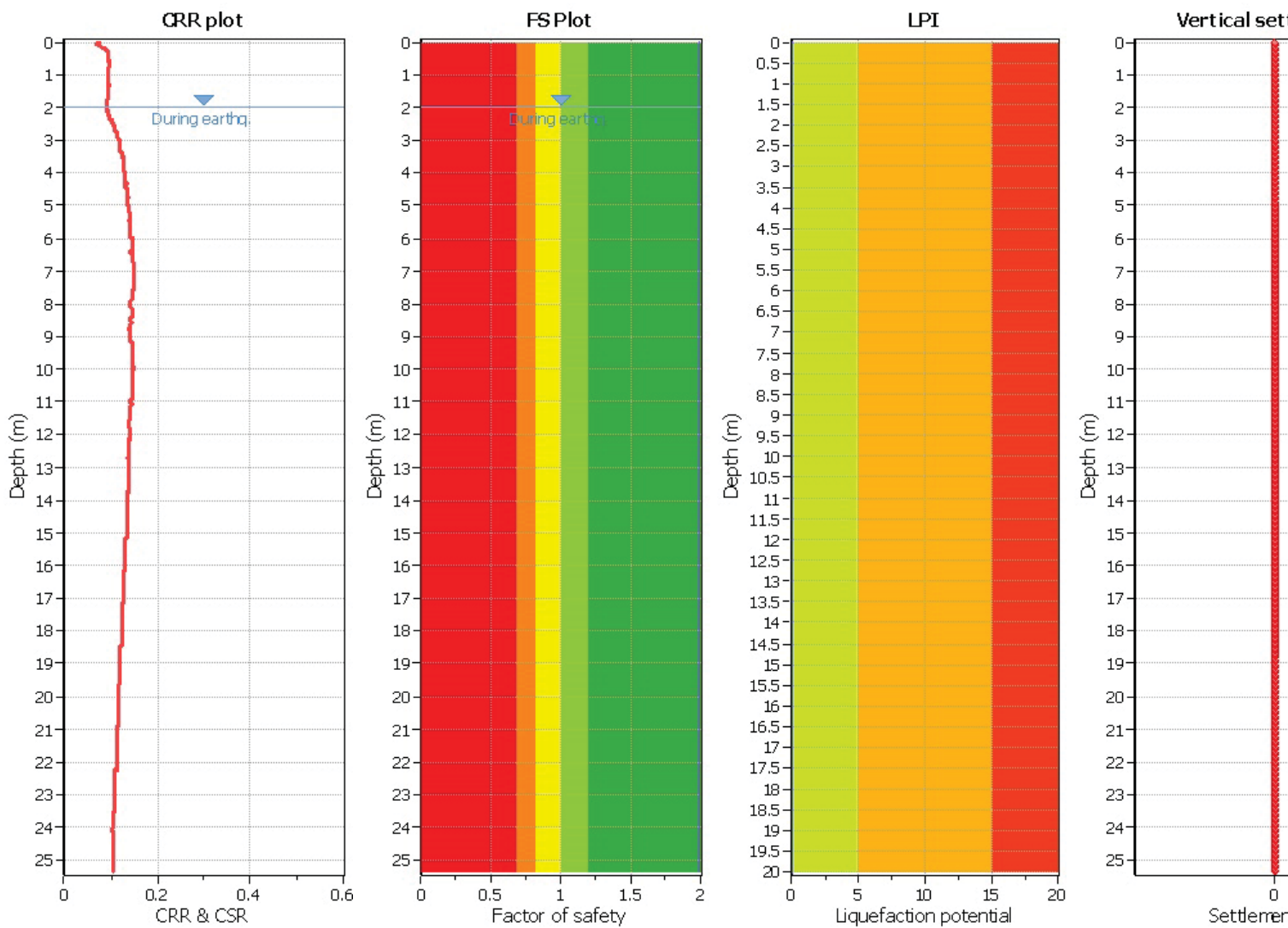
### Liquefaction analysis overall plots (intermediate)



**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>v</sub> applied:	Yes
Earthquake magnitude M <sub>w</sub> :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

### Liquefaction analysis overall plot



**Input parameters and analysis data**

Analysis method: B&I (2014)  
 Fines correction method: B&I (2014)  
 Points to test: Based on I<sub>c</sub> value  
 Earthquake magnitude M<sub>w</sub>: 5.50  
 Peak ground acceleration: 0.19  
 Depth to water table (insitu): 3.00 m

Depth to GWT (earthq.): 2.00 m  
 Average results interval: 3  
 I<sub>c</sub> cut-off value: 2.60  
 Unit weight calculation: Based on SBT  
 Use fill: No  
 Fill height: N/A

Fill weight: N/A  
 Transition detect. applied: No  
 K<sub>σ</sub> applied: Yes  
 Clay like behavior applied: Sands only  
 Limit depth applied: Yes  
 Limit depth: 20.00 m

**F.S. color scheme**

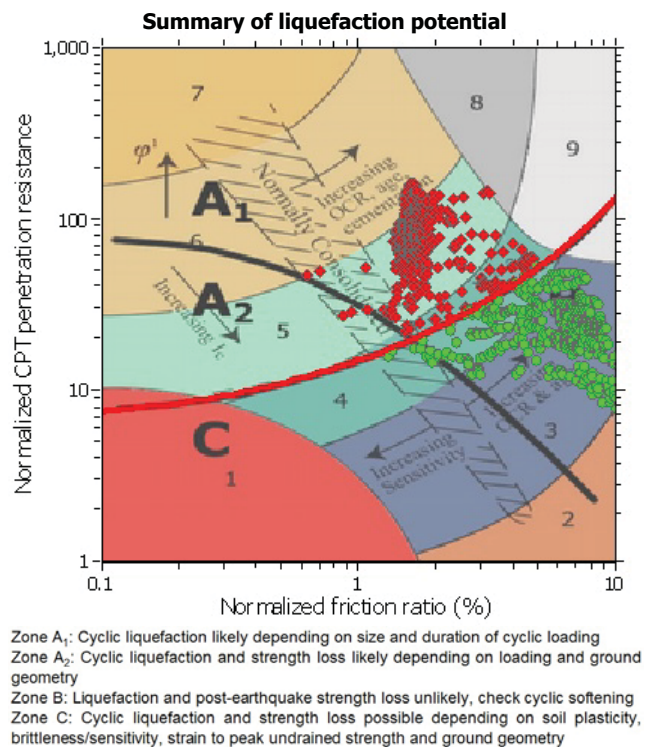
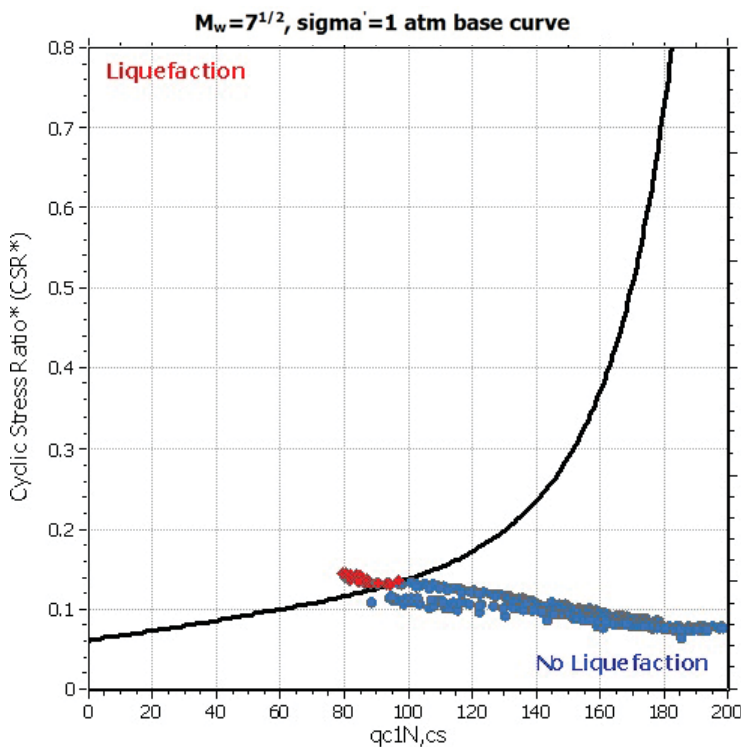
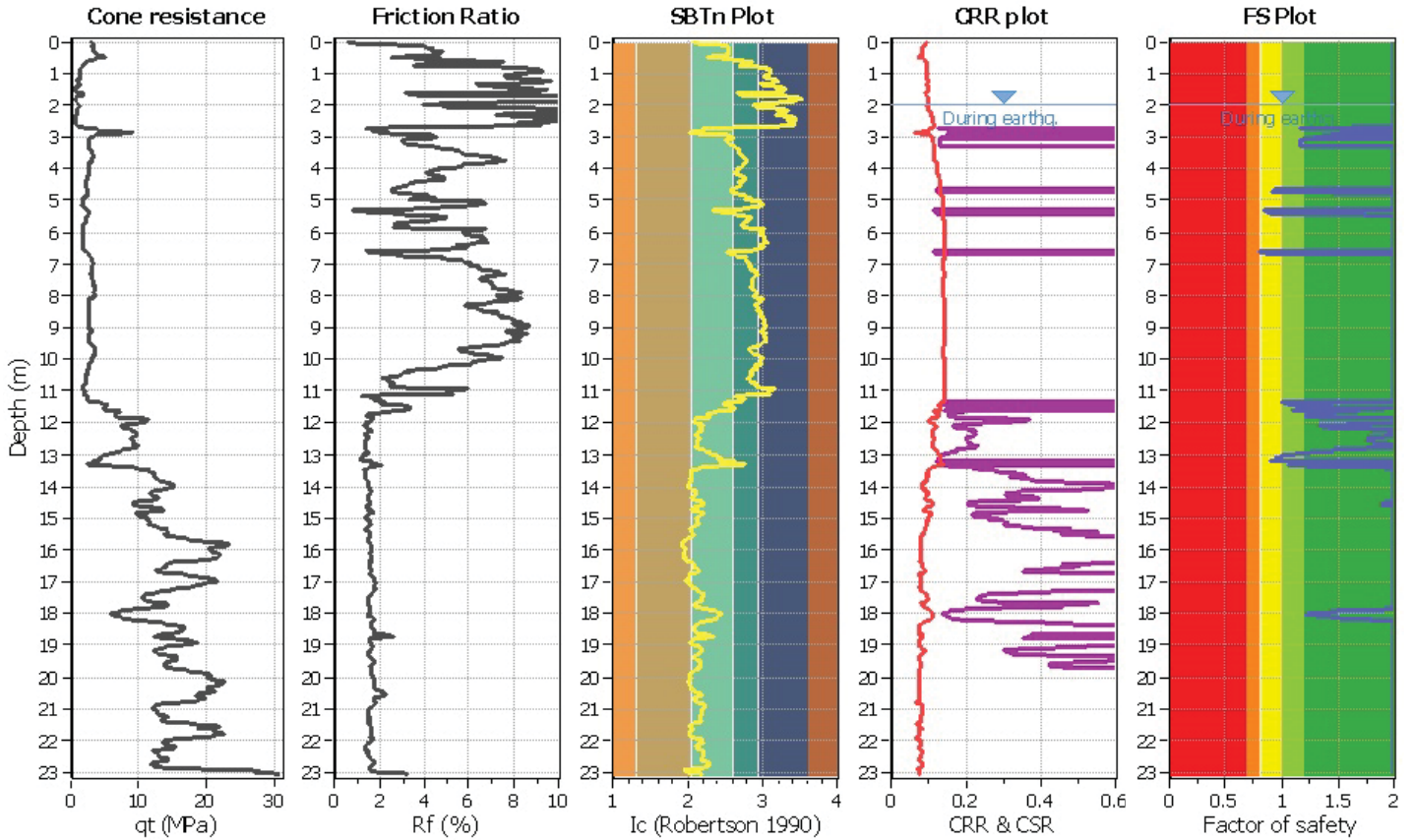
- Almost certain it w
- Very likely to lique
- Liquefaction and n
- Unlike to liquefy
- Almost certain it w

**LIQUEFACTION ANALYSIS REPORT**

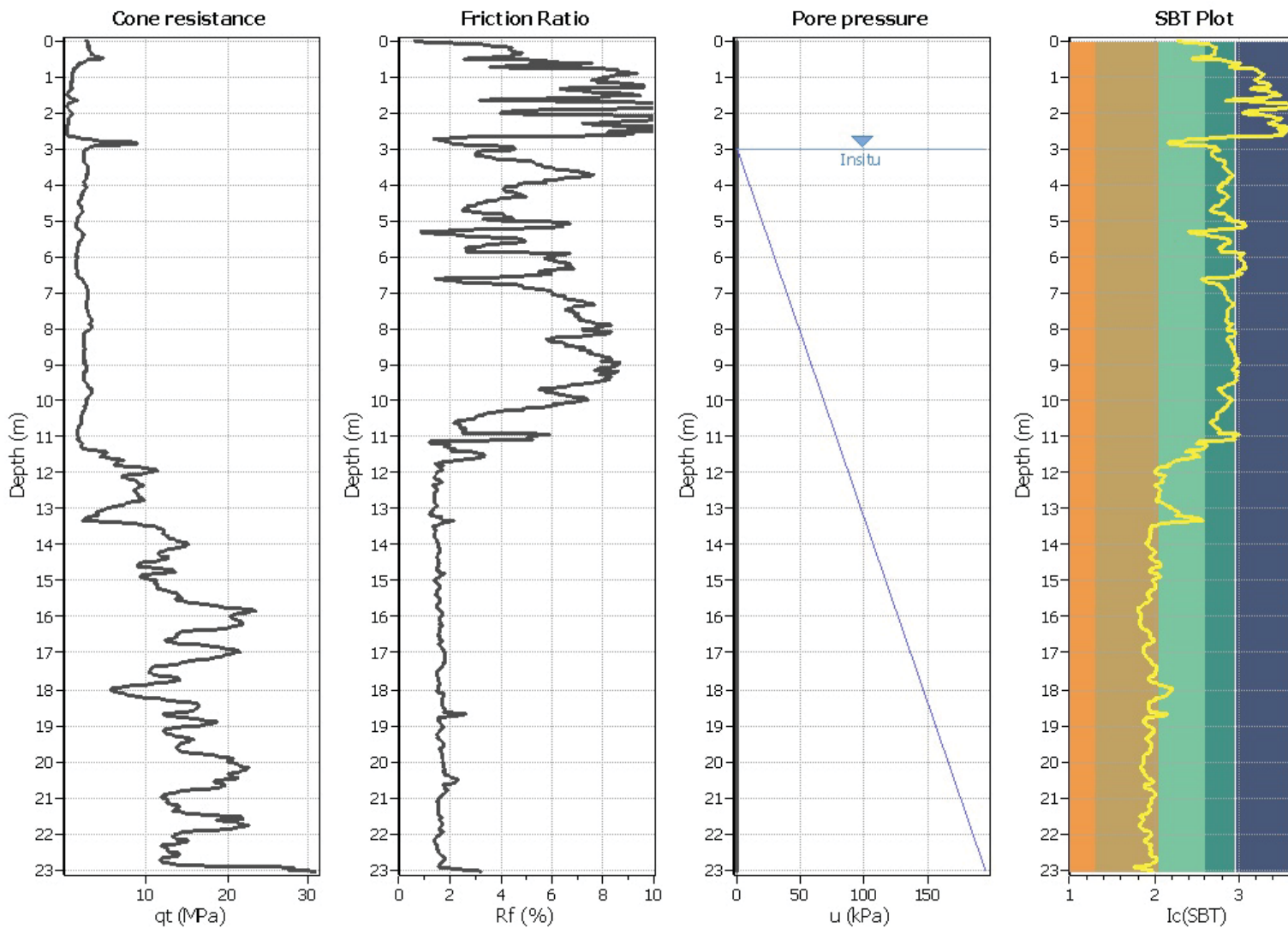
**Project title : Studio di Microzonazione Sismica - Besenzone    Location :**  
**CPT file : 180040E508**

**Input parameters and analysis data**

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	20.00 m
Earthquake magnitude $M_w$ :	5.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	$K_\sigma$ applied:	Yes		



### CPT basic interpretation plo



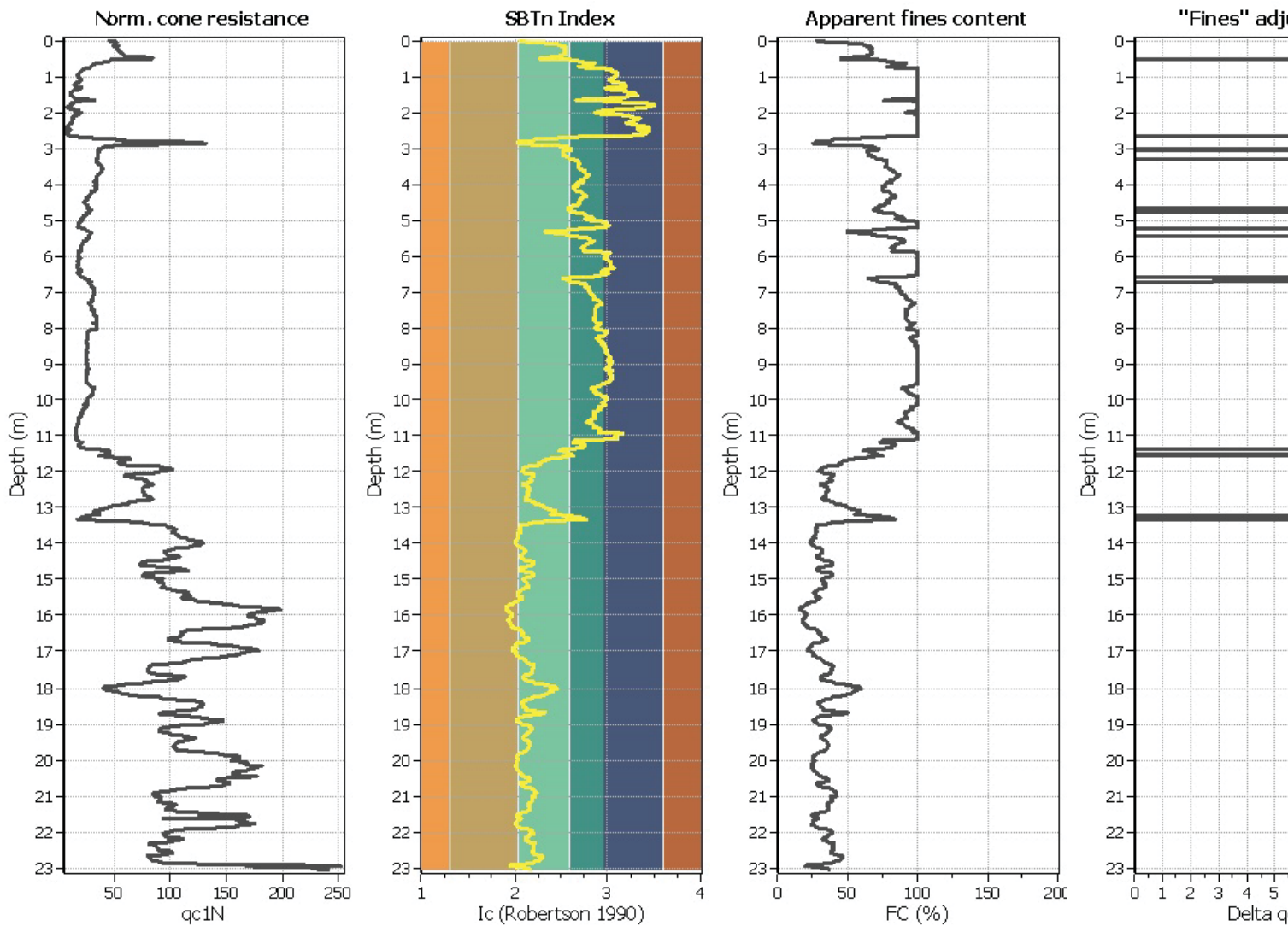
**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_{\sigma}$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

**SBT legend**

- 1. Sensitive fine grain
- 2. Organic material
- 3. Clay to silty clay

### Liquefaction analysis overall plots (interme

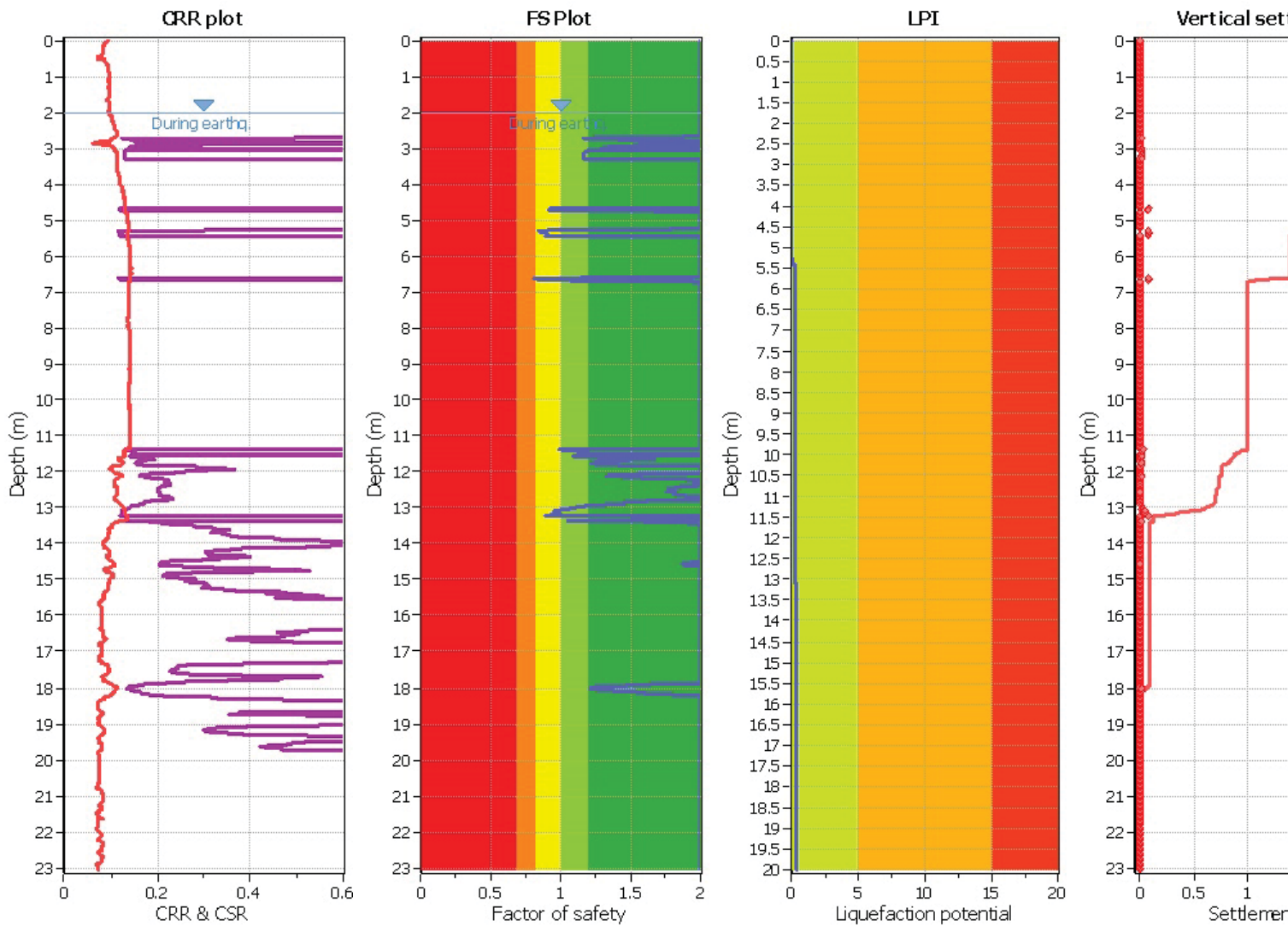


**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>v</sub> applied:	Yes
Earthquake magnitude M <sub>w</sub> :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m



### Liquefaction analysis overall plot



**Input parameters and analysis data**

Analysis method: B&I (2014)  
 Fines correction method: B&I (2014)  
 Points to test: Based on I<sub>c</sub> value  
 Earthquake magnitude M<sub>w</sub>: 5.50  
 Peak ground acceleration: 0.19  
 Depth to water table (insitu): 3.00 m

Depth to GWT (erthq.): 2.00 m  
 Average results interval: 3  
 I<sub>c</sub> cut-off value: 2.60  
 Unit weight calculation: Based on SBT  
 Use fill: No  
 Fill height: N/A

Fill weight: N/A  
 Transition detect. applied: No  
 K<sub>σ</sub> applied: Yes  
 Clay like behavior applied: Sands only  
 Limit depth applied: Yes  
 Limit depth: 20.00 m

**F.S. color scheme**

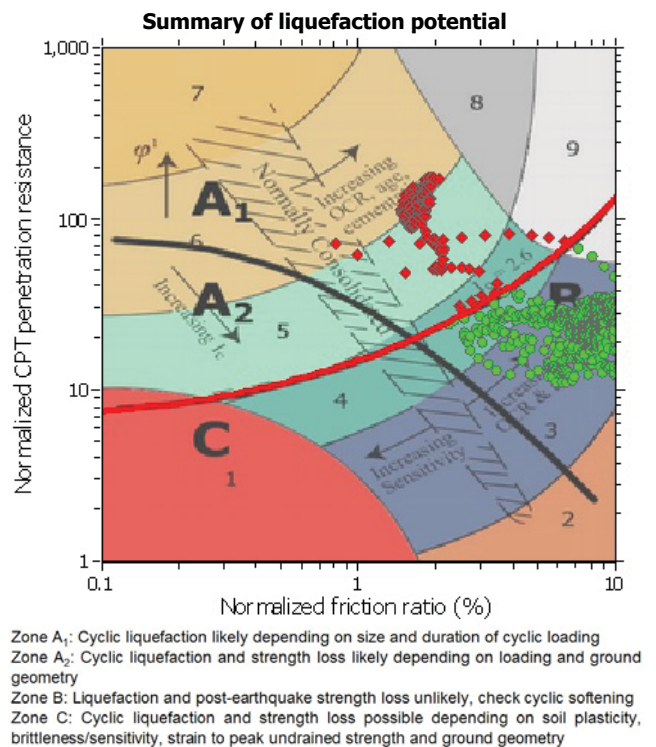
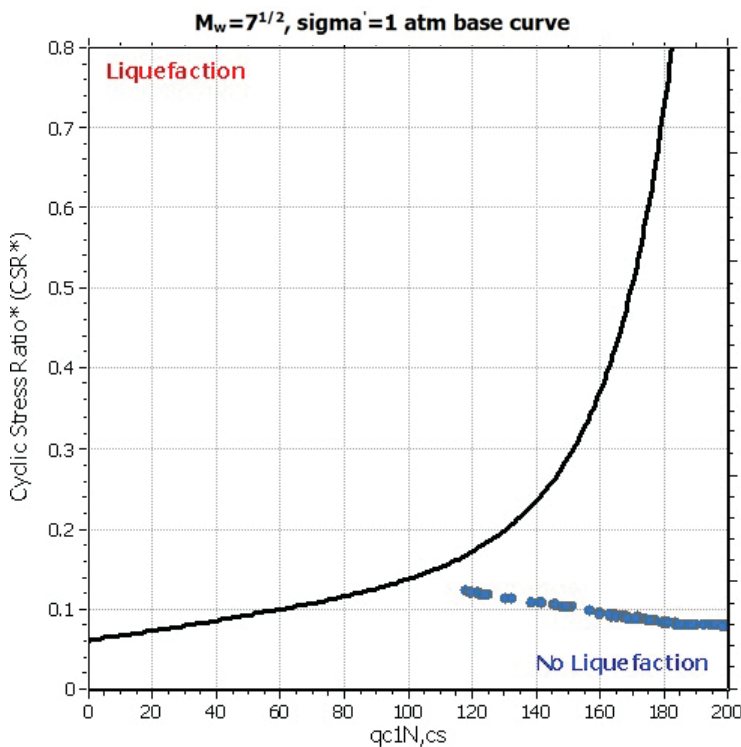
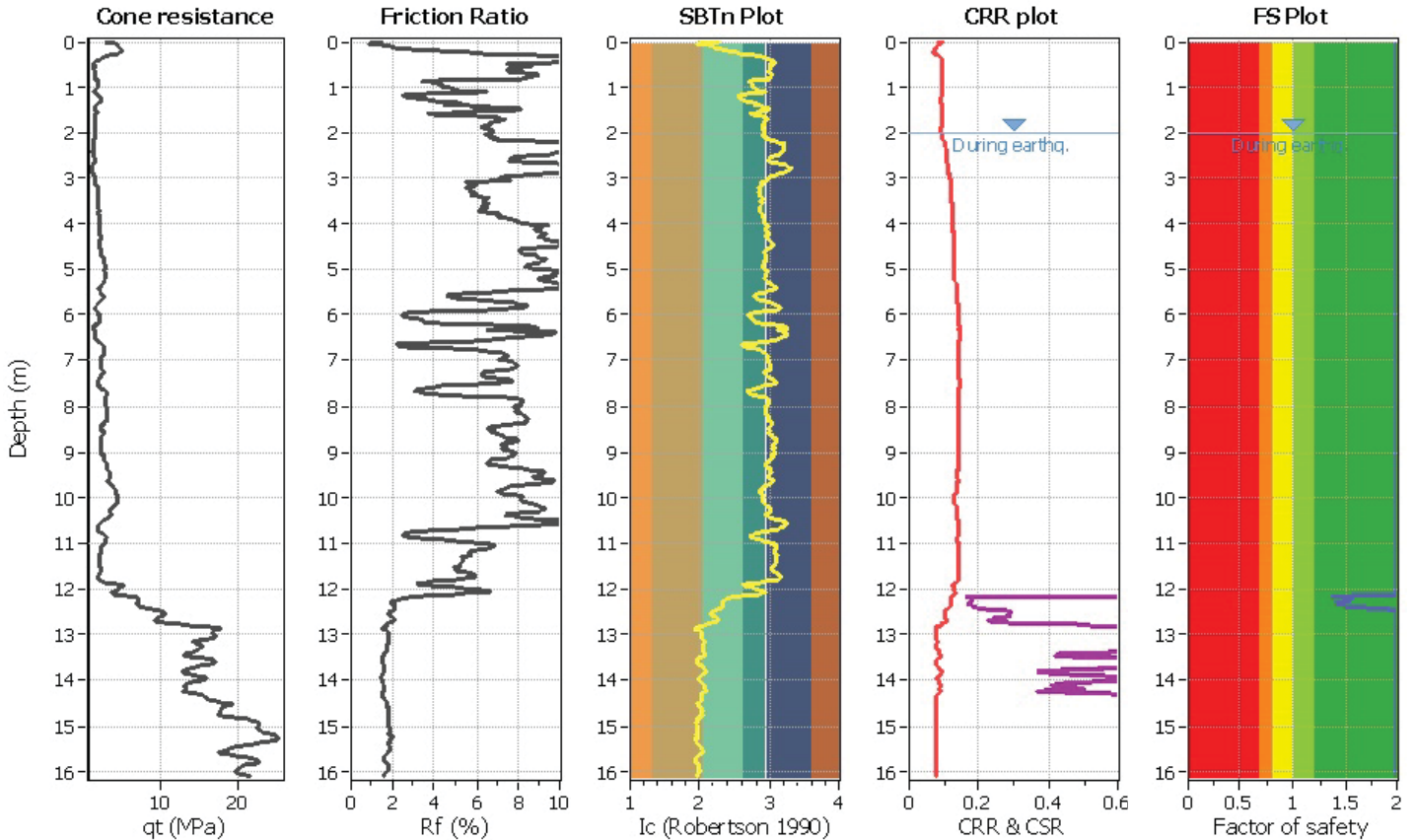
- Red: Almost certain it w
- Orange: Very likely to lique
- Yellow: Liquefaction and n
- Light Green: Unlike to liquefy
- Dark Green: Almost certain it w

**LIQUEFACTION ANALYSIS REPORT**

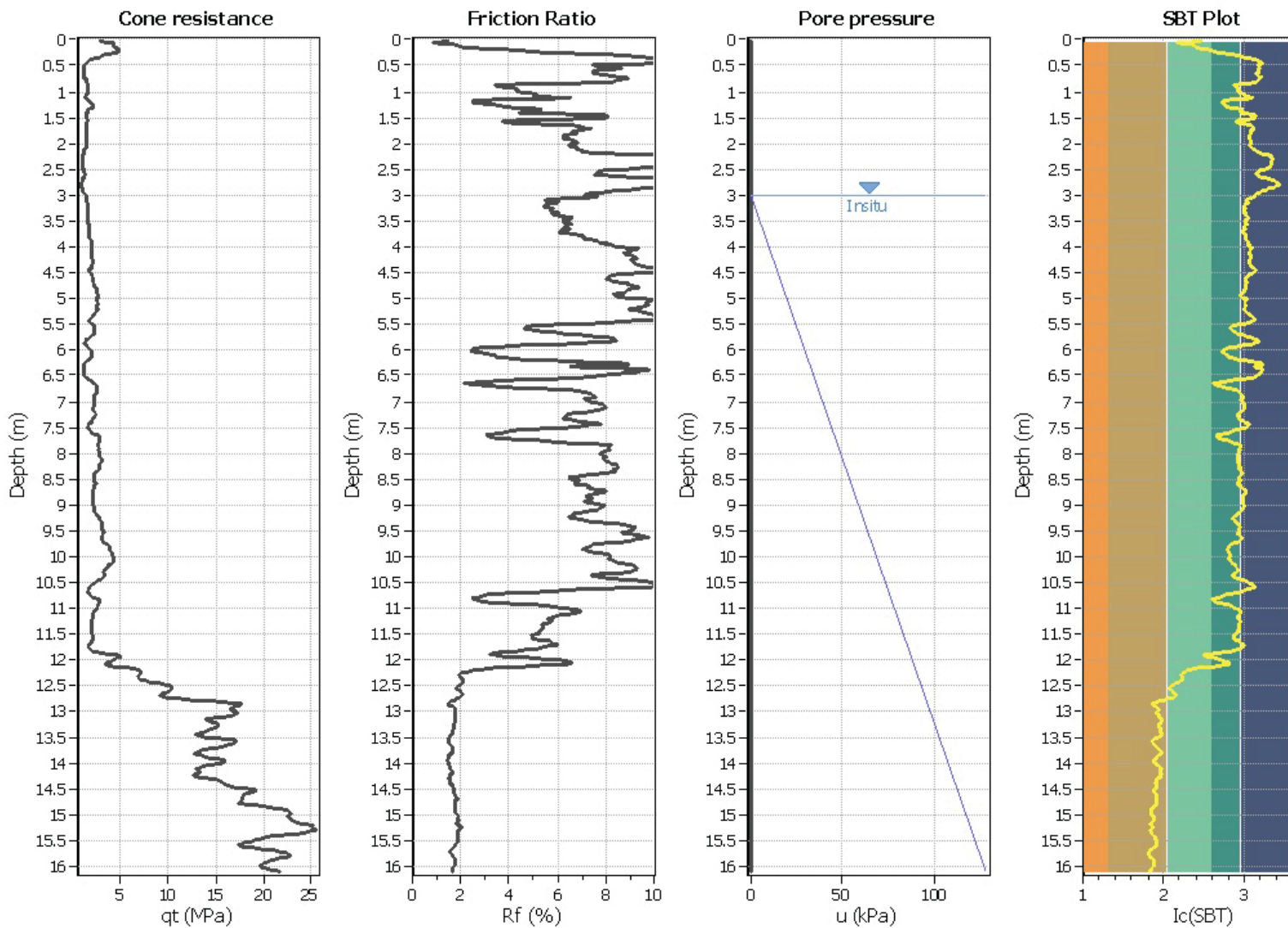
**Project title : Studio di Microzonazione Sismica - Besenzone    Location :**  
**CPT file : 180040E509**

**Input parameters and analysis data**

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	20.00 m
Earthquake magnitude $M_w$ :	5.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	$K_\sigma$ applied:	Yes		



### CPT basic interpretation plo



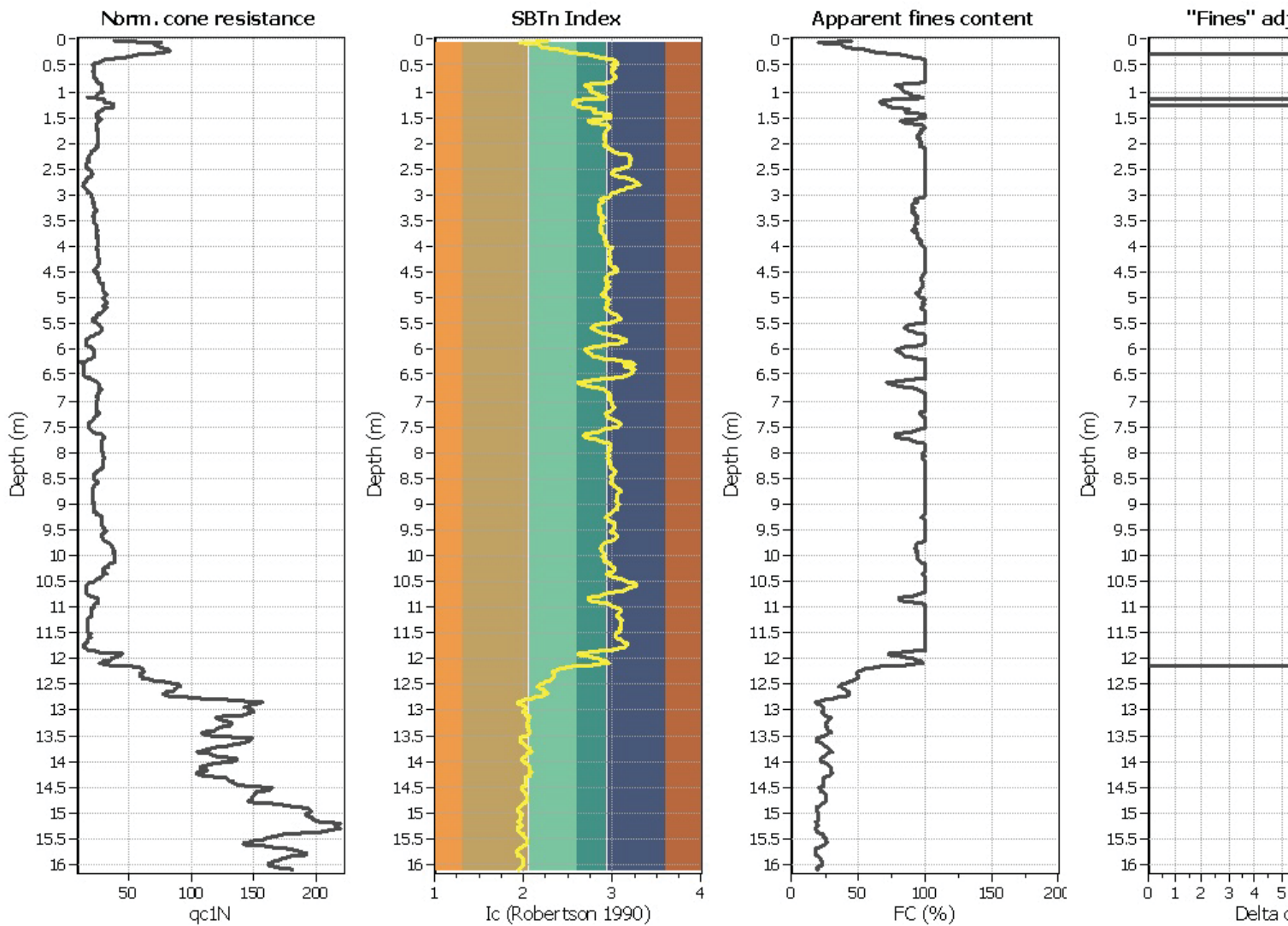
#### Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_{\sigma}$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

#### SBT legend

- 1. Sensitive fine grai
- 2. Organic material
- 3. Clay to silty clay

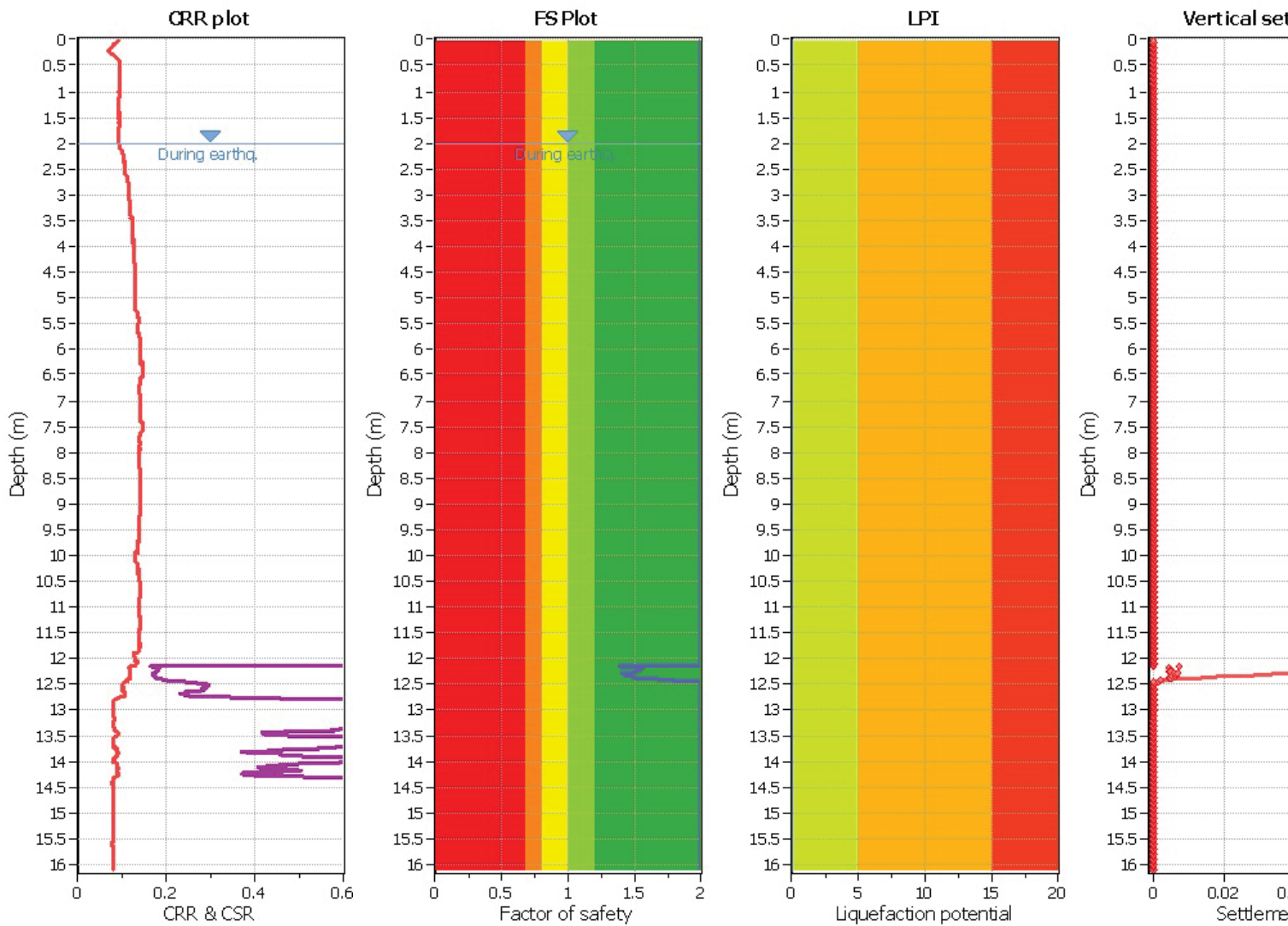
### Liquefaction analysis overall plots (intermediate)



**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>s</sub> applied:	Yes
Earthquake magnitude M <sub>w</sub> :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

### Liquefaction analysis overall plot



**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_{\sigma}$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

**F.S. color scheme**

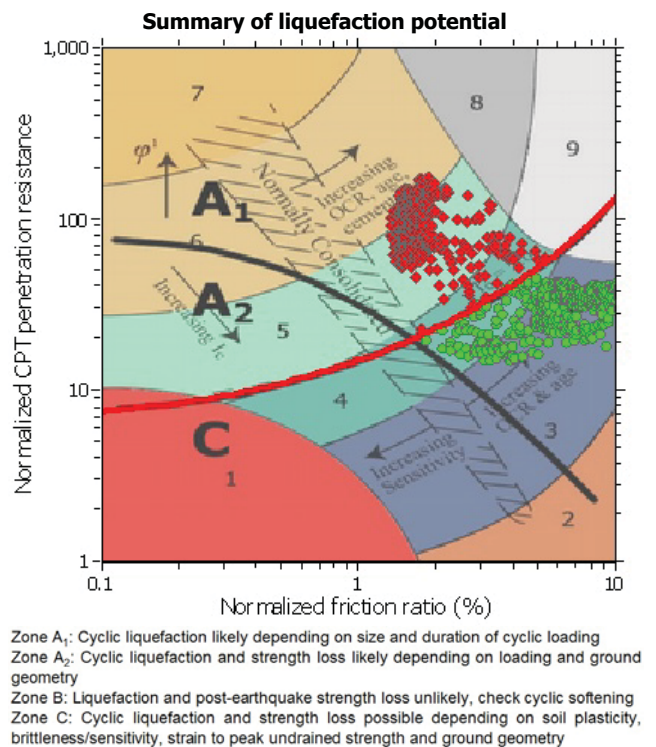
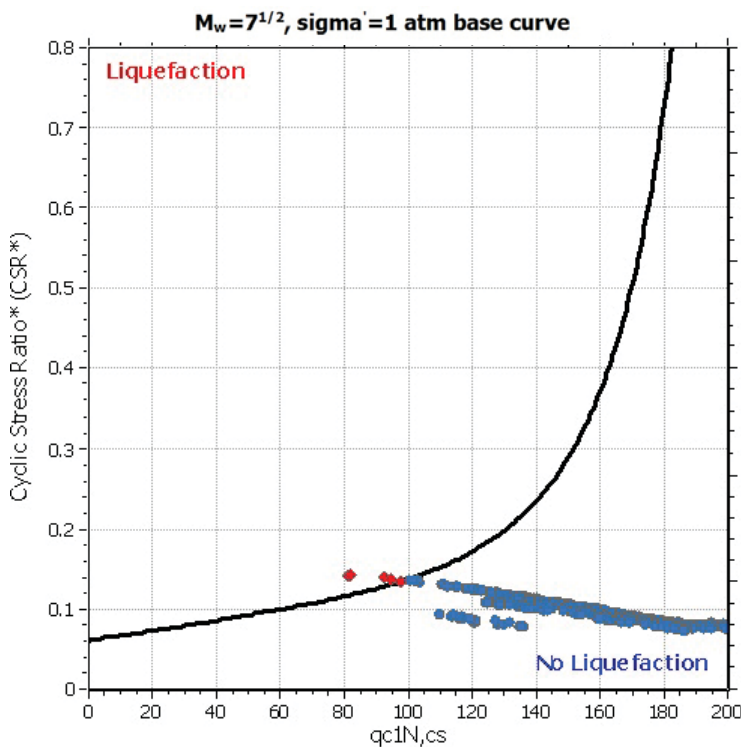
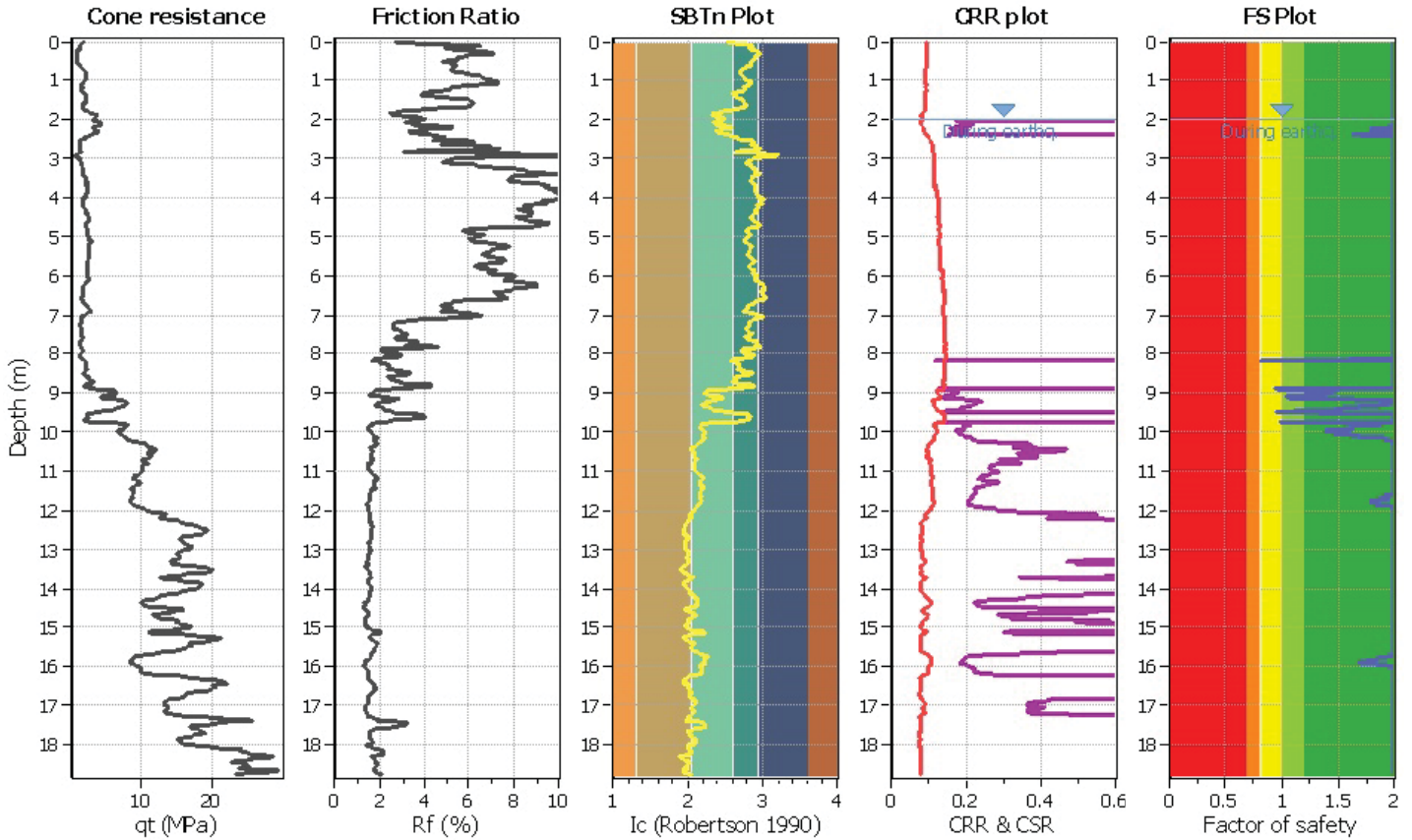
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no
- Unlike to liquefy
- Almost certain it will not liquefy

**LIQUEFACTION ANALYSIS REPORT**

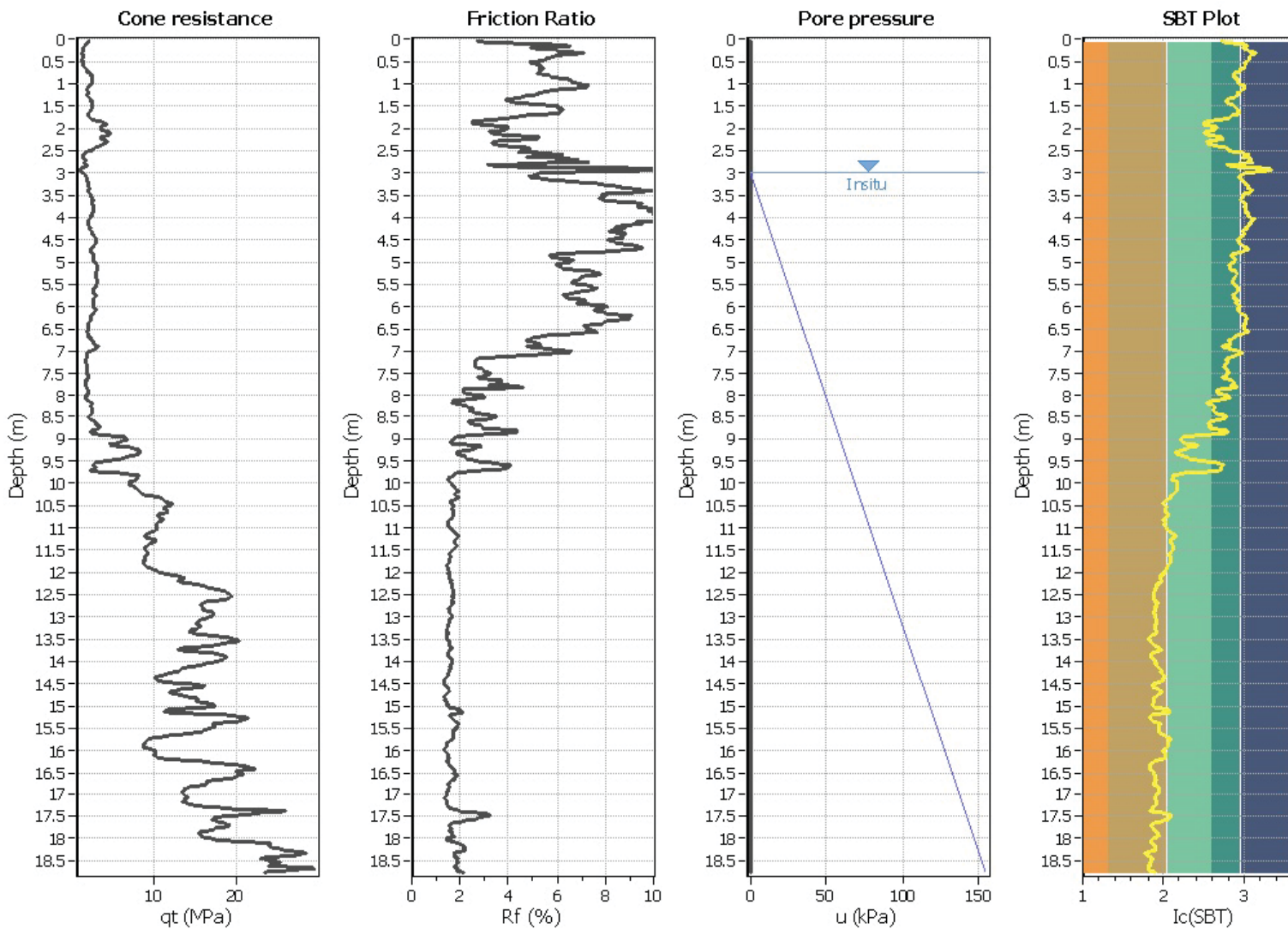
**Project title : Studio di Microzonazione Sismica - Besenzone    Location :**  
**CPT file : 180040E512**

**Input parameters and analysis data**

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	20.00 m
Earthquake magnitude $M_w$ :	5.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	$K_\sigma$ applied:	Yes		



### CPT basic interpretation plo



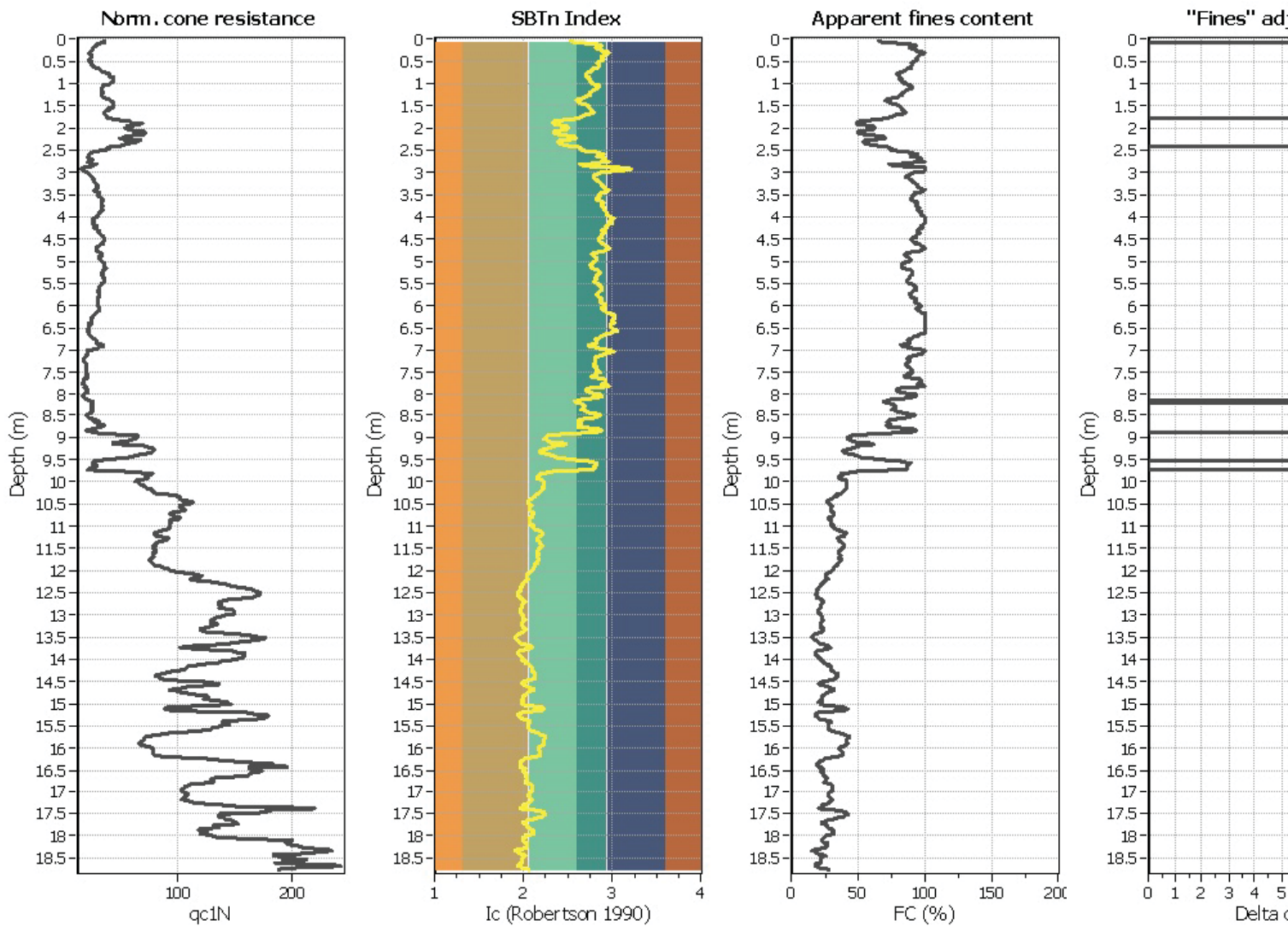
#### Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_{\sigma}$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

#### SBT legend

- 1. Sensitive fine grai
- 2. Organic material
- 3. Clay to silty clay

### Liquefaction analysis overall plots (intermediate)

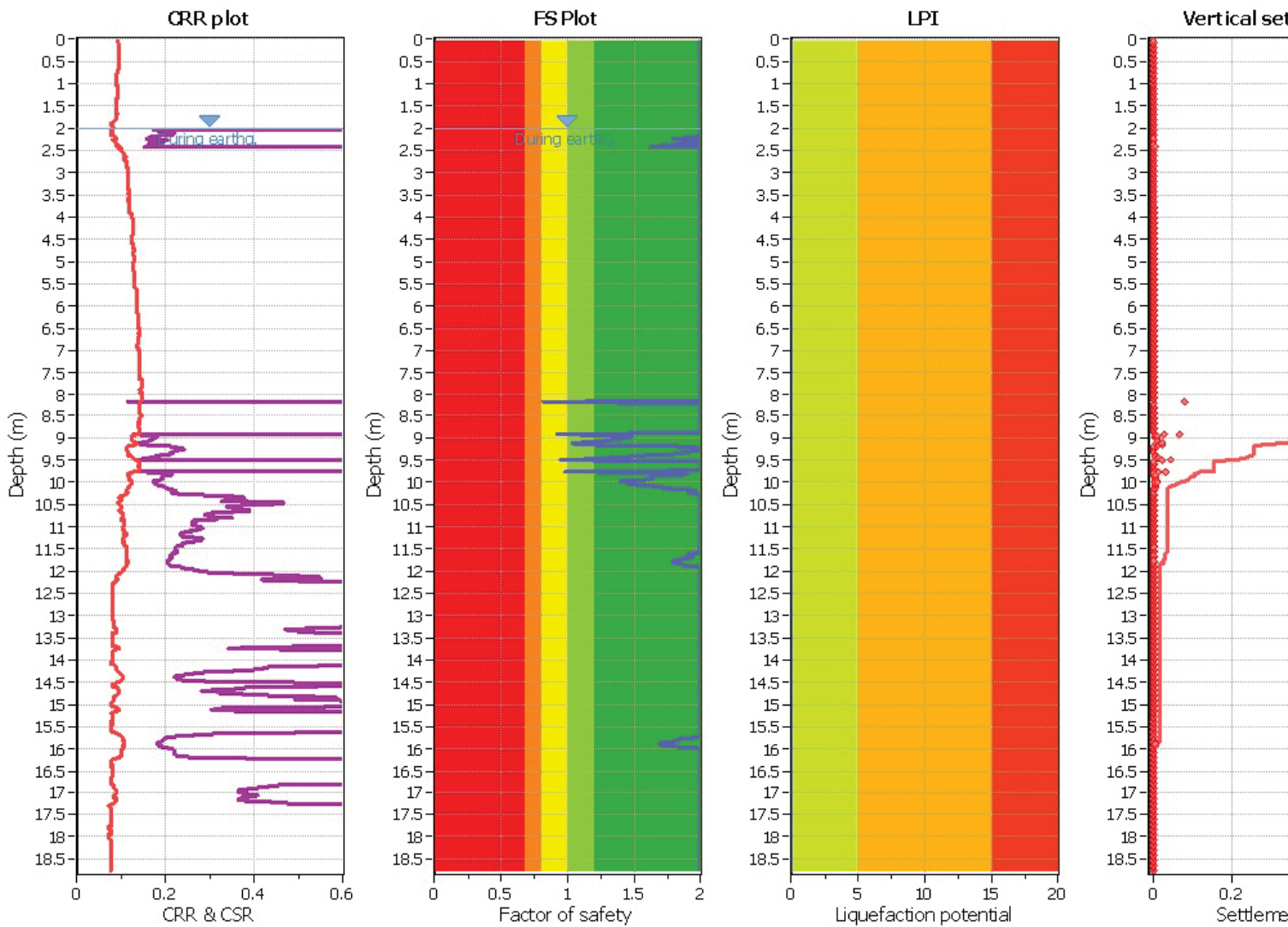


#### Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_s$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m



### Liquefaction analysis overall plot



**Input parameters and analysis data**

Analysis method: B&I (2014)  
 Fines correction method: B&I (2014)  
 Points to test: Based on I<sub>c</sub> value  
 Earthquake magnitude M<sub>w</sub>: 5.50  
 Peak ground acceleration: 0.19  
 Depth to water table (insitu): 3.00 m

Depth to GWT (erthq.): 2.00 m  
 Average results interval: 3  
 I<sub>c</sub> cut-off value: 2.60  
 Unit weight calculation: Based on SBT  
 Use fill: No  
 Fill height: N/A

Fill weight: N/A  
 Transition detect. applied: No  
 K<sub>σ</sub> applied: Yes  
 Clay like behavior applied: Sands only  
 Limit depth applied: Yes  
 Limit depth: 20.00 m

**F.S. color scheme**

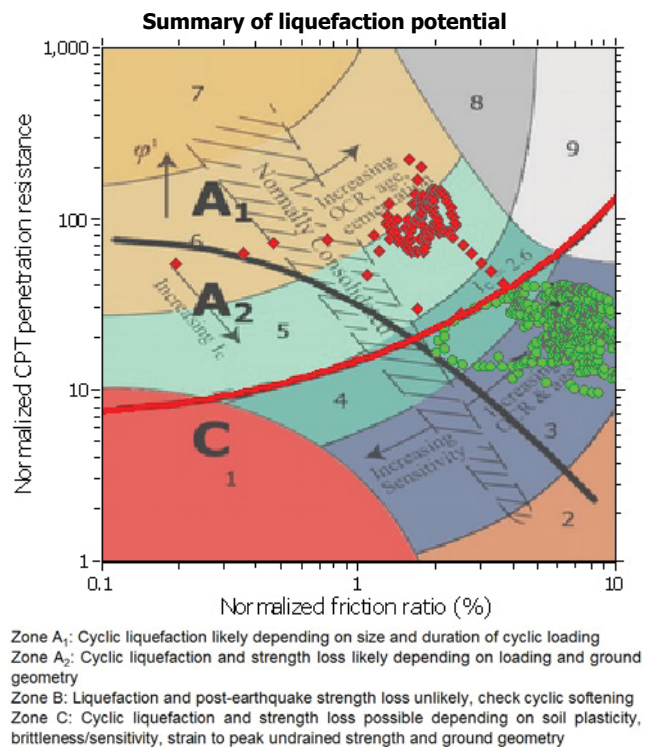
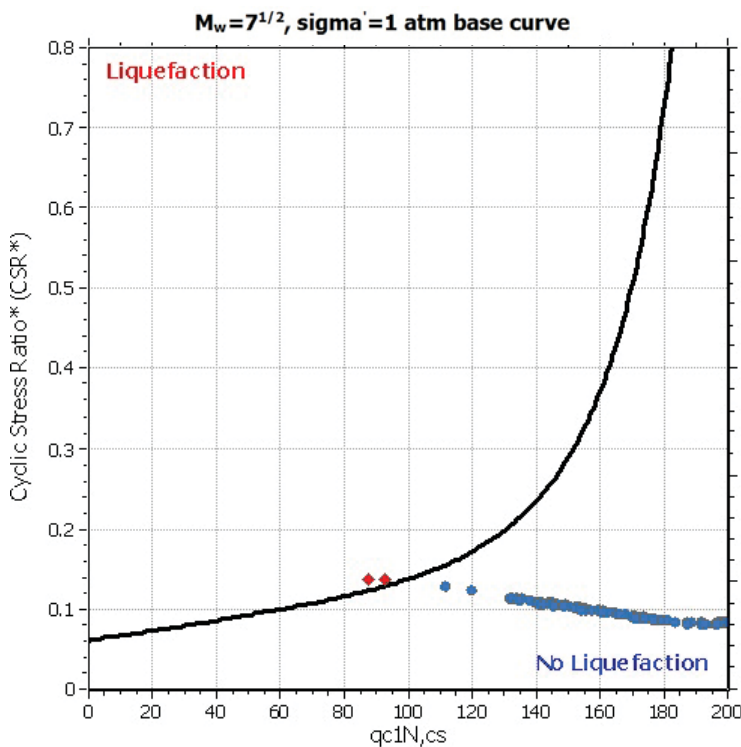
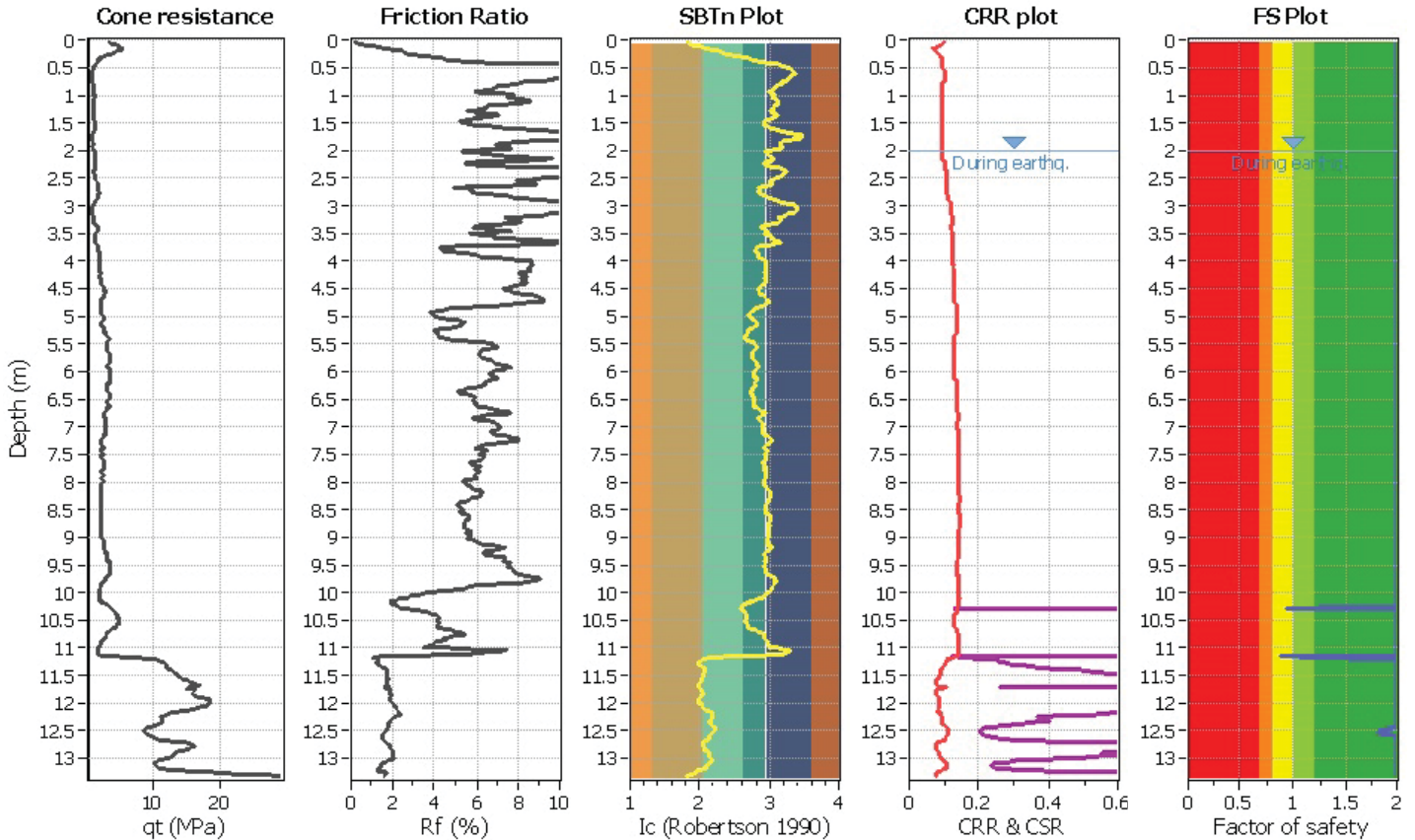
- Almost certain it w
- Very likely to lique
- Liquefaction and n
- Unlike to liquefy
- Almost certain it w

**LIQUEFACTION ANALYSIS REPORT**

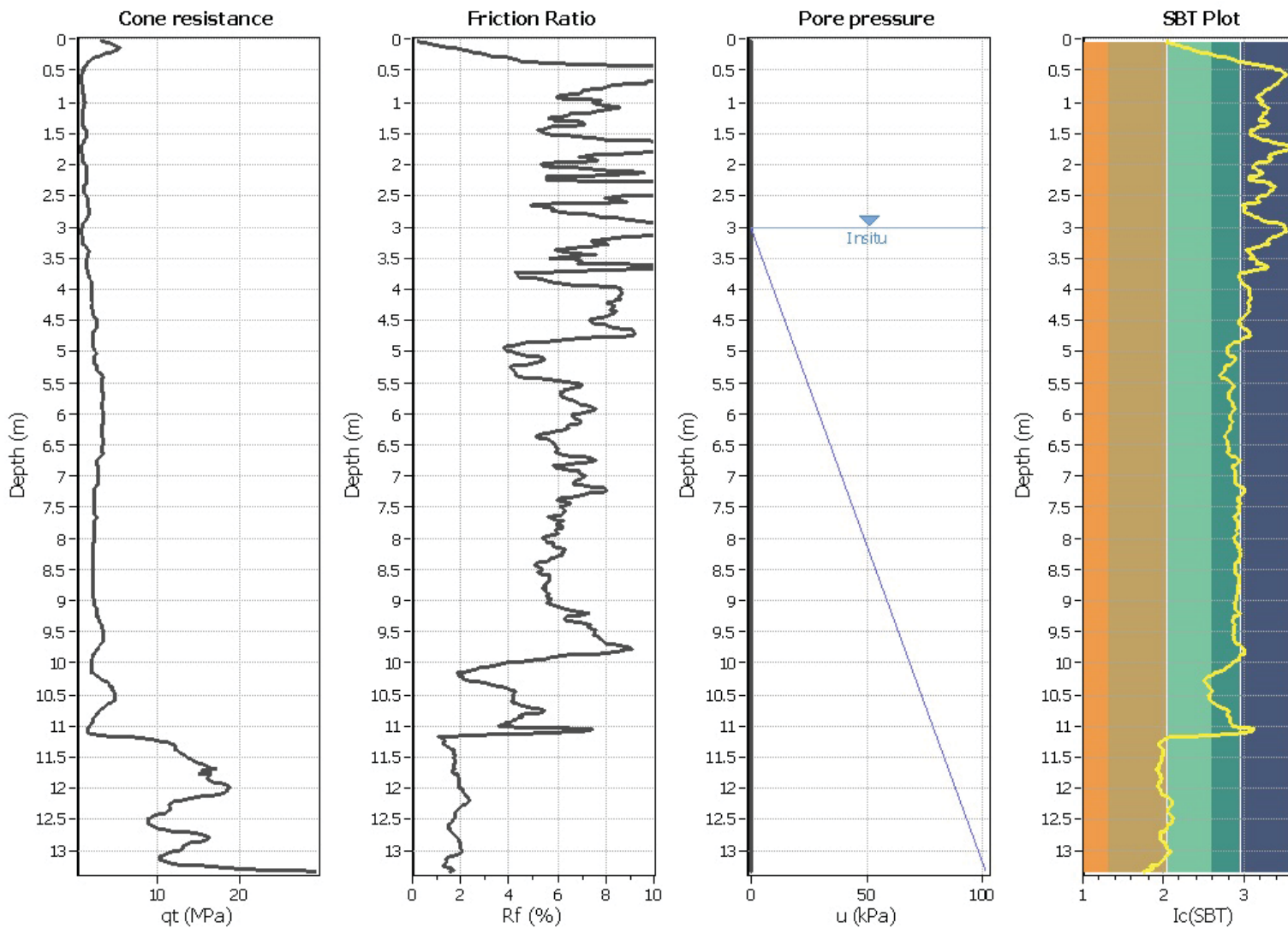
**Project title : Studio di Microzonazione Sismica - Besenzone    Location :**  
**CPT file : 180040E513**

**Input parameters and analysis data**

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	20.00 m
Earthquake magnitude $M_w$ :	5.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	$K_\sigma$ applied:	Yes		



### CPT basic interpretation plo



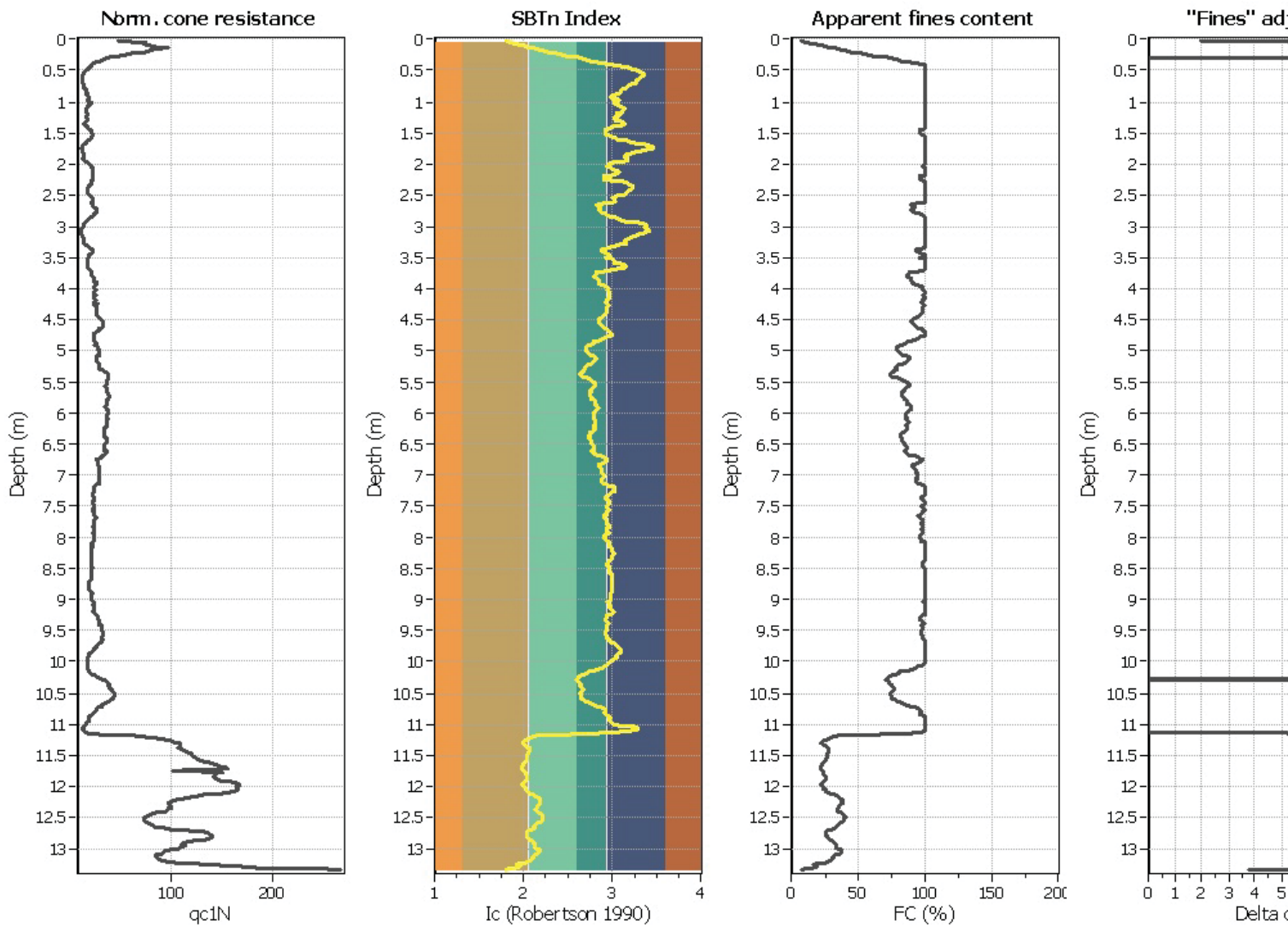
#### Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on $I_c$ value	$I_c$ cut-off value:	2.60	$K_g$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

#### SBT legend

- 1. Sensitive fine grain
- 2. Organic material
- 3. Clay to silty clay

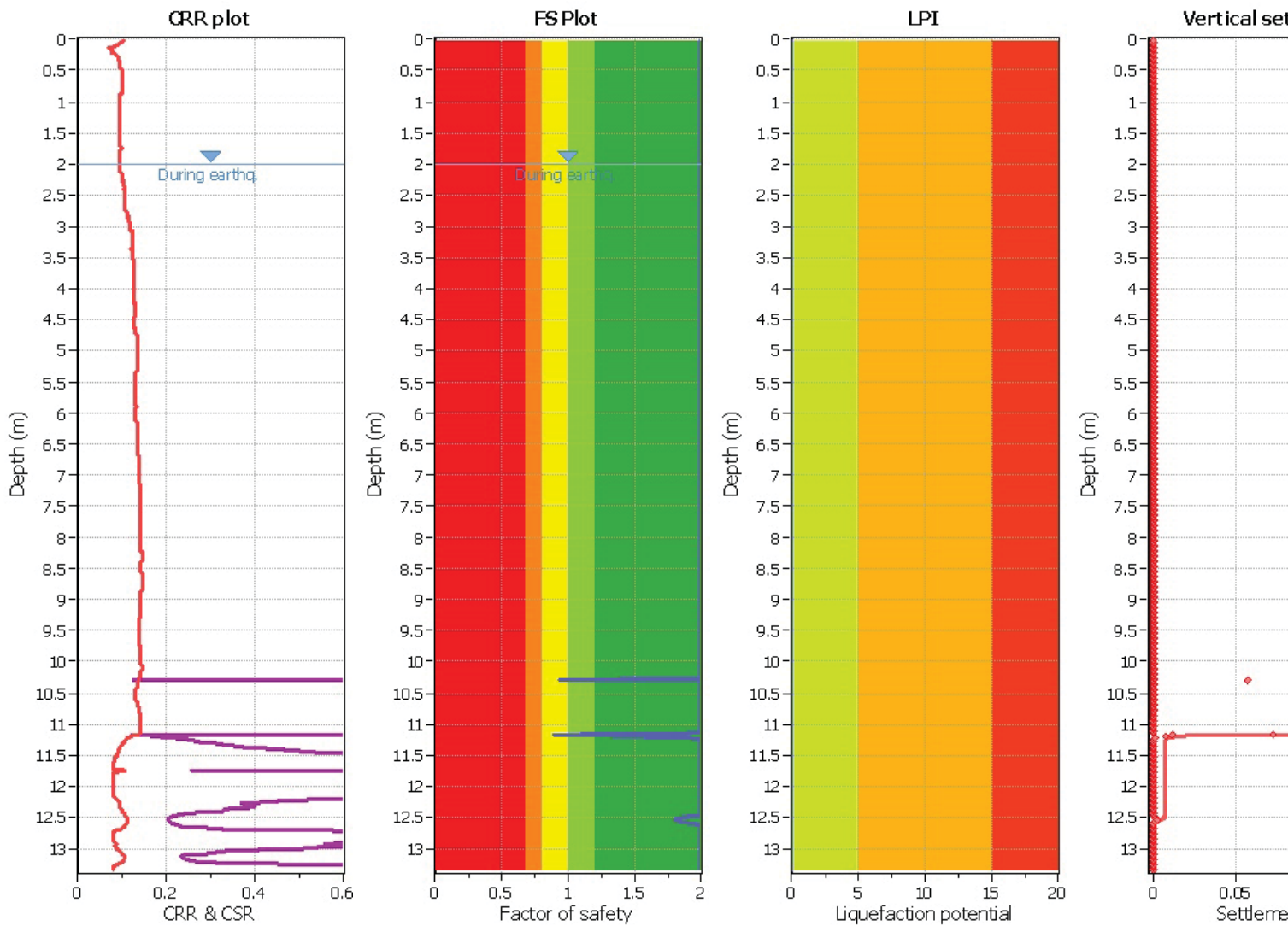
### Liquefaction analysis overall plots (intermediate)



**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>s</sub> applied:	Yes
Earthquake magnitude M <sub>w</sub> :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

### Liquefaction analysis overall plot



**Input parameters and analysis data**

Analysis method: B&I (2014)  
 Fines correction method: B&I (2014)  
 Points to test: Based on I<sub>c</sub> value  
 Earthquake magnitude M<sub>w</sub>: 5.50  
 Peak ground acceleration: 0.19  
 Depth to water table (insitu): 3.00 m

Depth to GWT (erthq.): 2.00 m  
 Average results interval: 3  
 I<sub>c</sub> cut-off value: 2.60  
 Unit weight calculation: Based on SBT  
 Use fill: No  
 Fill height: N/A

Fill weight: N/A  
 Transition detect. applied: No  
 K<sub>σ</sub> applied: Yes  
 Clay like behavior applied: Sands only  
 Limit depth applied: Yes  
 Limit depth: 20.00 m

**F.S. color scheme**

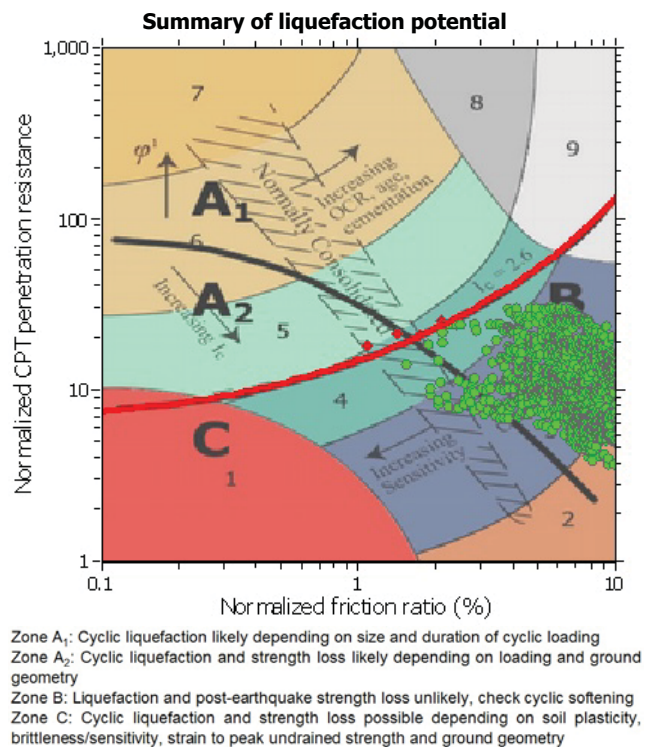
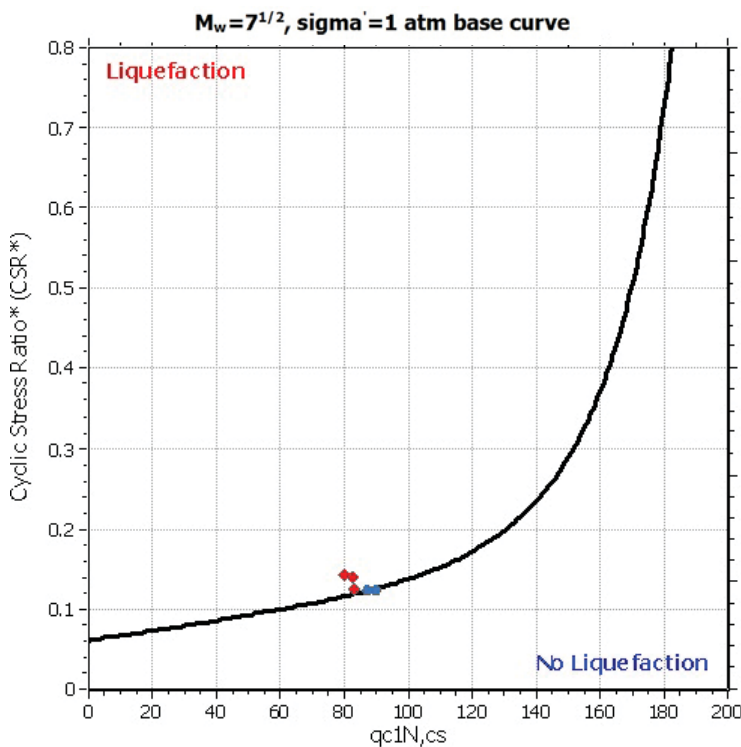
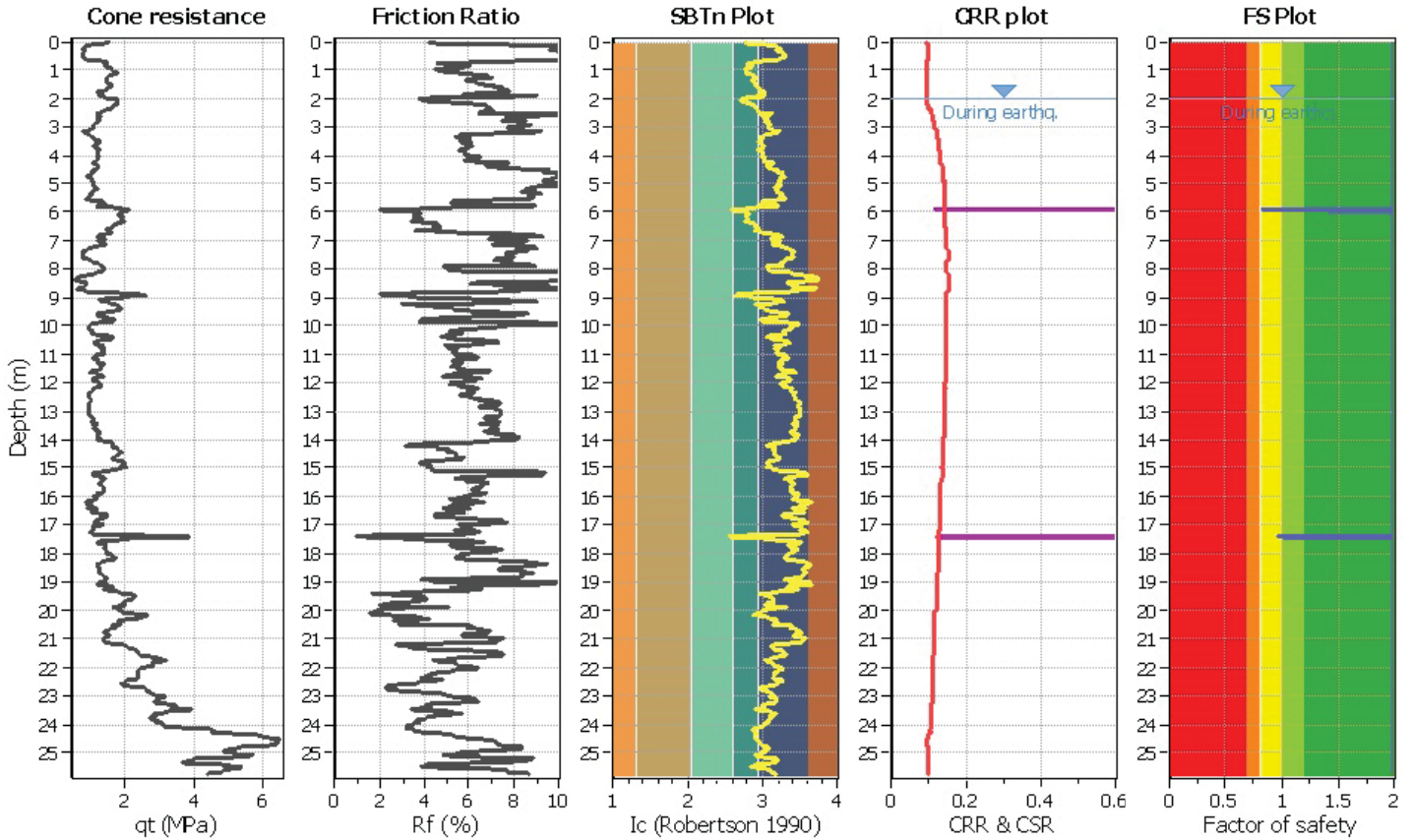
- Red: Almost certain it will liquefy
- Orange: Very likely to liquefy
- Yellow: Liquefaction and no flow
- Light Green: Unlike to liquefy
- Dark Green: Almost certain it will not liquefy

**LIQUEFACTION ANALYSIS REPORT**

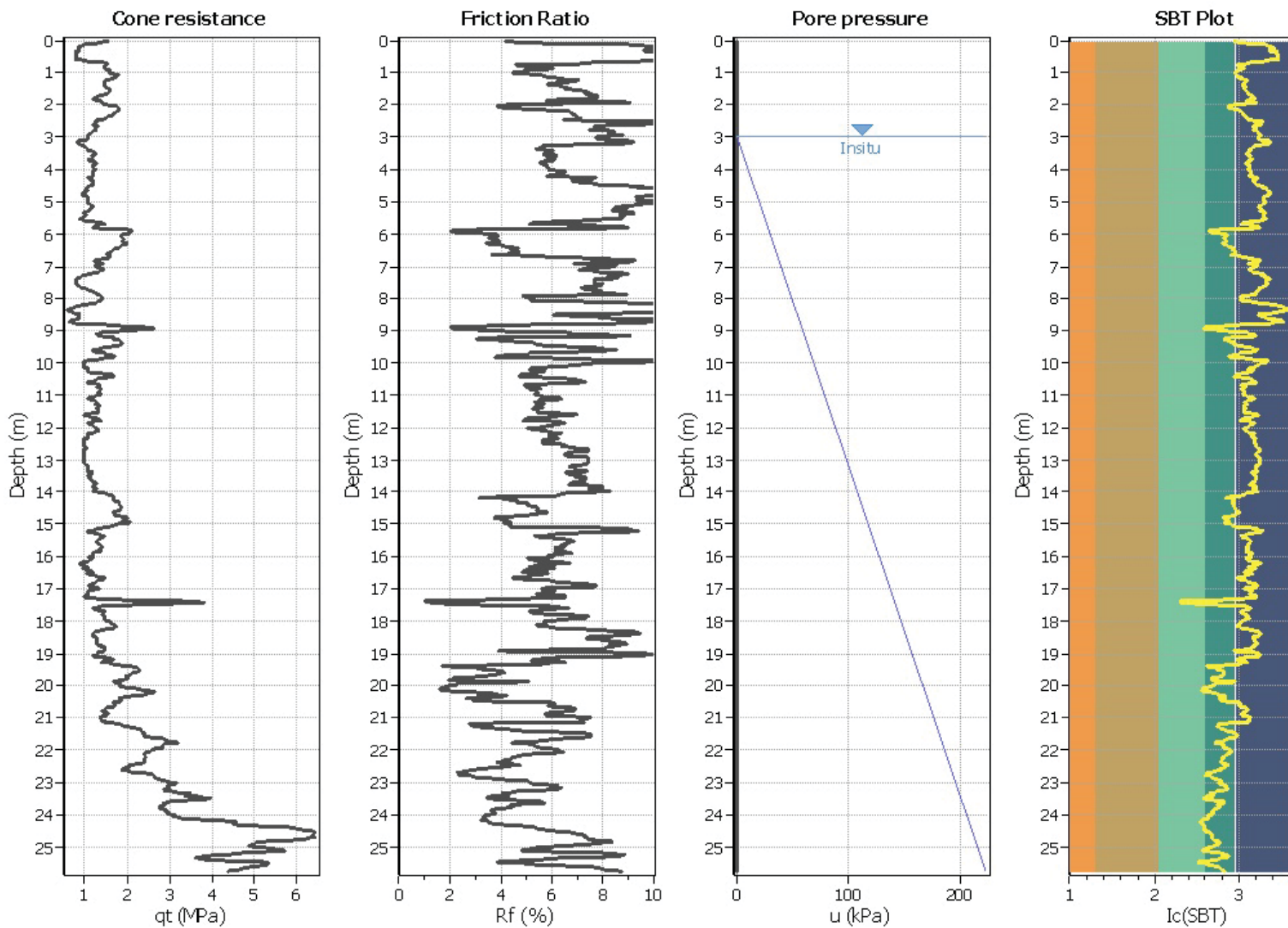
**Project title : Studio di Microzonazione Sismica - Besenzone    Location :**  
**CPT file : 180040E514**

**Input parameters and analysis data**

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	20.00 m
Earthquake magnitude $M_w$ :	5.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	$K_\sigma$ applied:	Yes		



### CPT basic interpretation plo



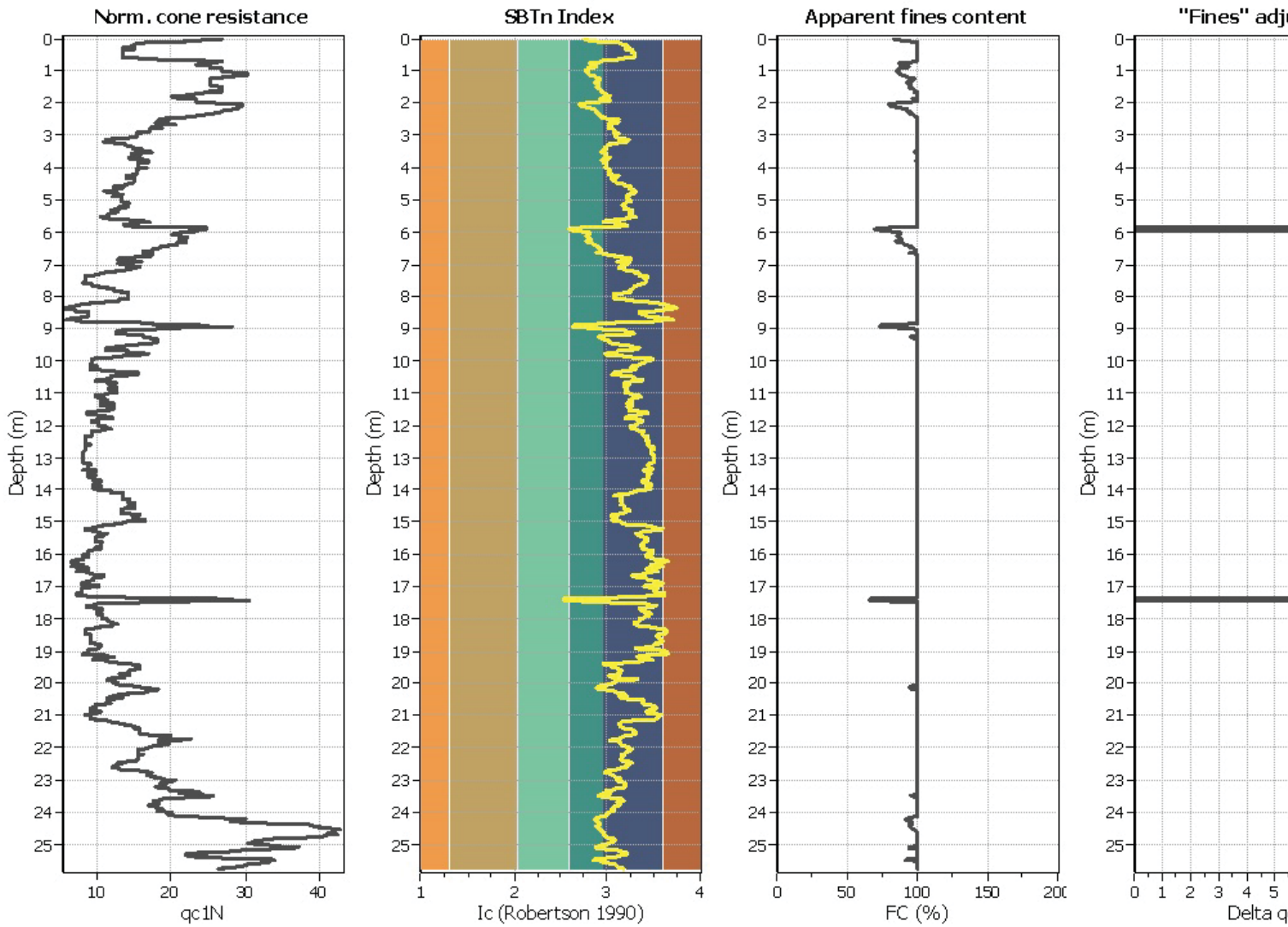
**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_v$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

**SBT legend**

- 1. Sensitive fine grai
- 2. Organic material
- 3. Clay to silty clay

### Liquefaction analysis overall plots (intermediate)

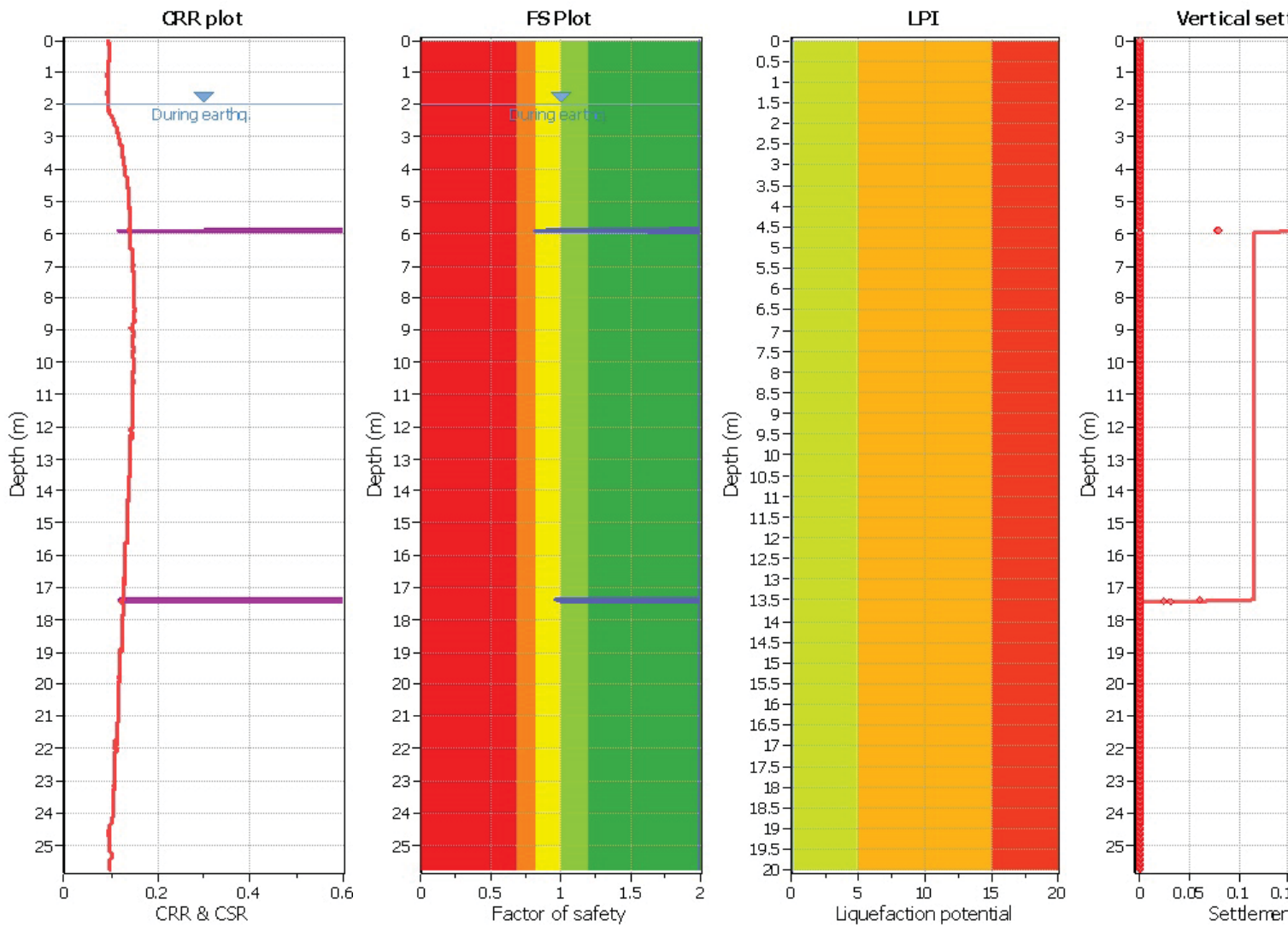


**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_v$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m



### Liquefaction analysis overall plot



**Input parameters and analysis data**

Analysis method: B&I (2014)  
 Fines correction method: B&I (2014)  
 Points to test: Based on I<sub>c</sub> value  
 Earthquake magnitude M<sub>w</sub>: 5.50  
 Peak ground acceleration: 0.19  
 Depth to water table (insitu): 3.00 m

Depth to GWT (earthq.): 2.00 m  
 Average results interval: 3  
 I<sub>c</sub> cut-off value: 2.60  
 Unit weight calculation: Based on SBT  
 Use fill: No  
 Fill height: N/A

Fill weight: N/A  
 Transition detect. applied: No  
 K<sub>σ</sub> applied: Yes  
 Clay like behavior applied: Sands only  
 Limit depth applied: Yes  
 Limit depth: 20.00 m

**F.S. color scheme**

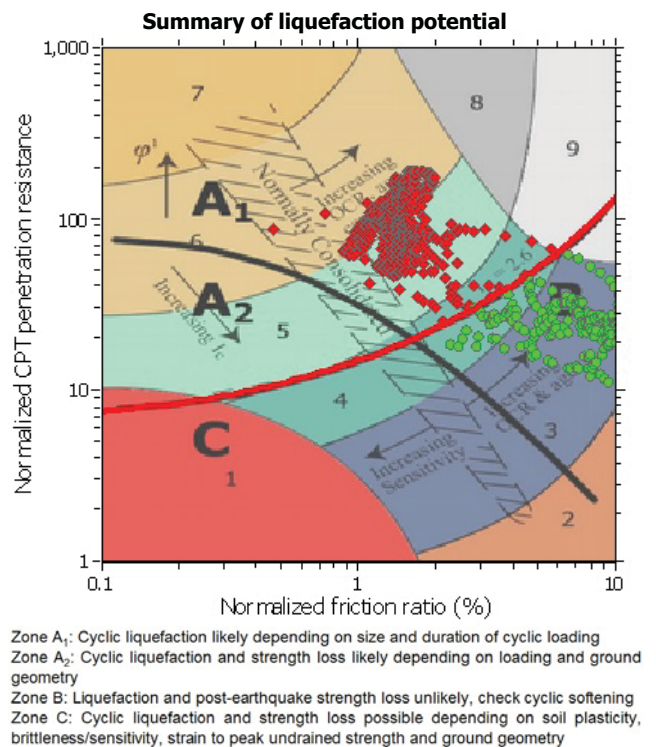
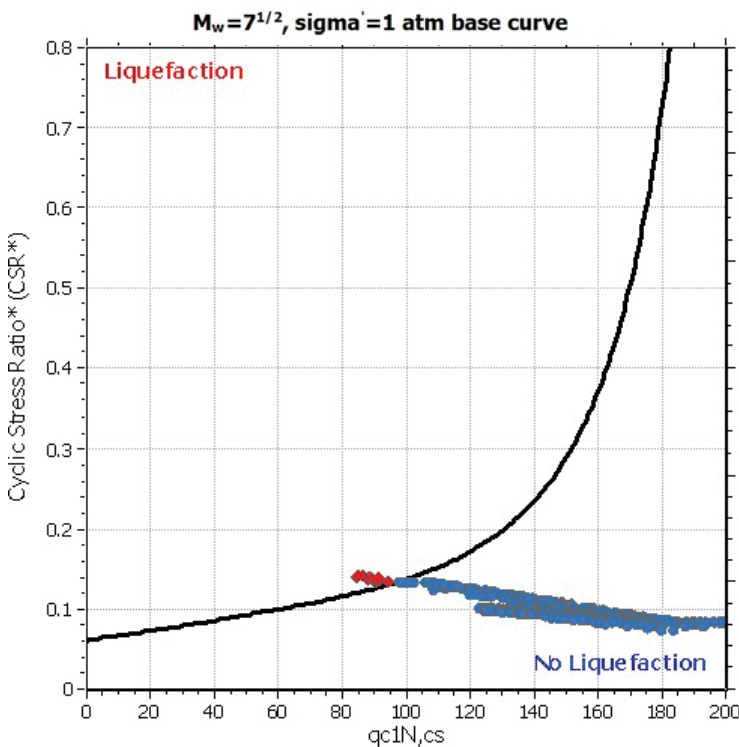
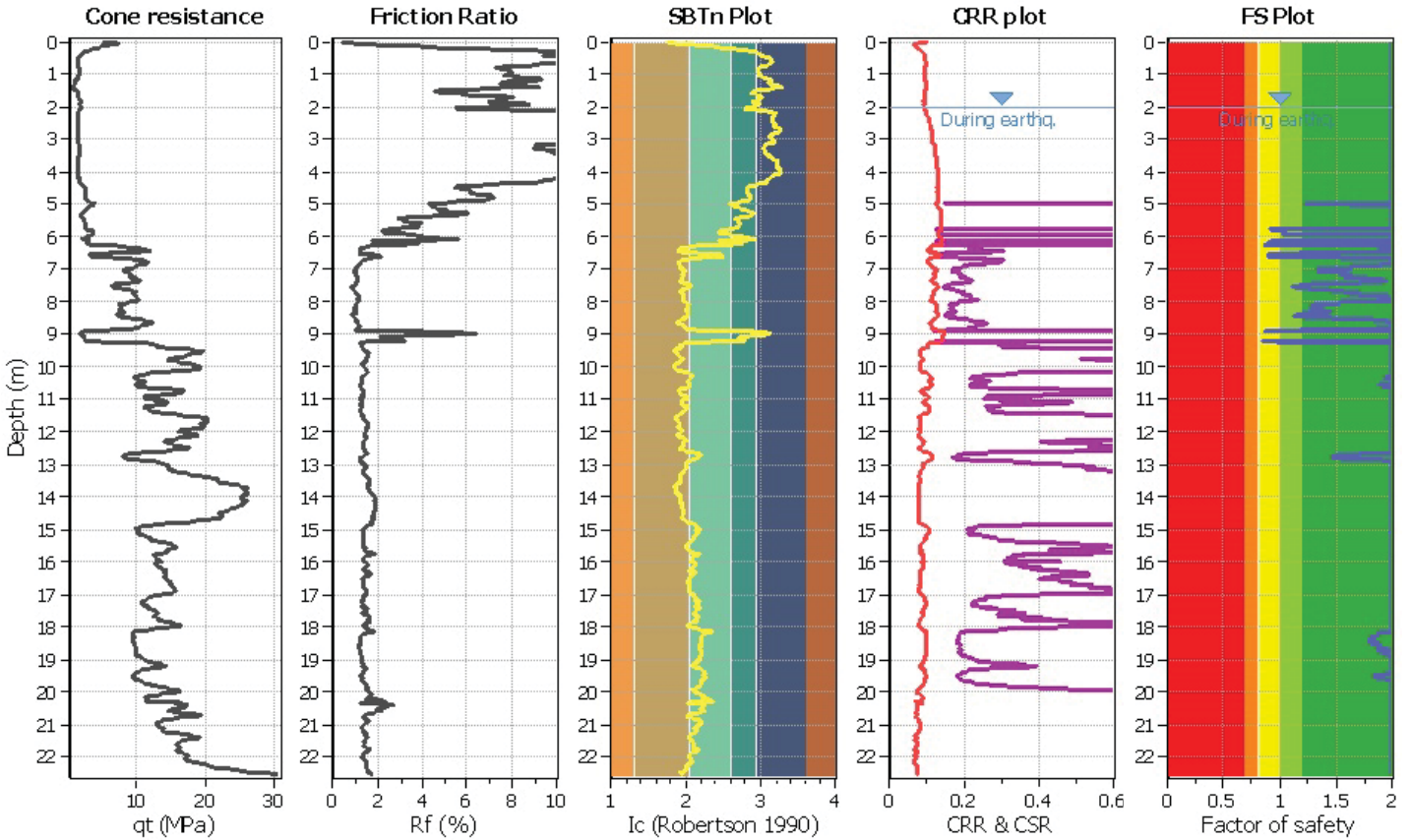
- Red: Almost certain it will liquefy
- Orange: Very likely to liquefy
- Yellow: Liquefaction and no flow
- Light Green: Unlike to liquefy
- Dark Green: Almost certain it will not liquefy

**LIQUEFACTION ANALYSIS REPORT**

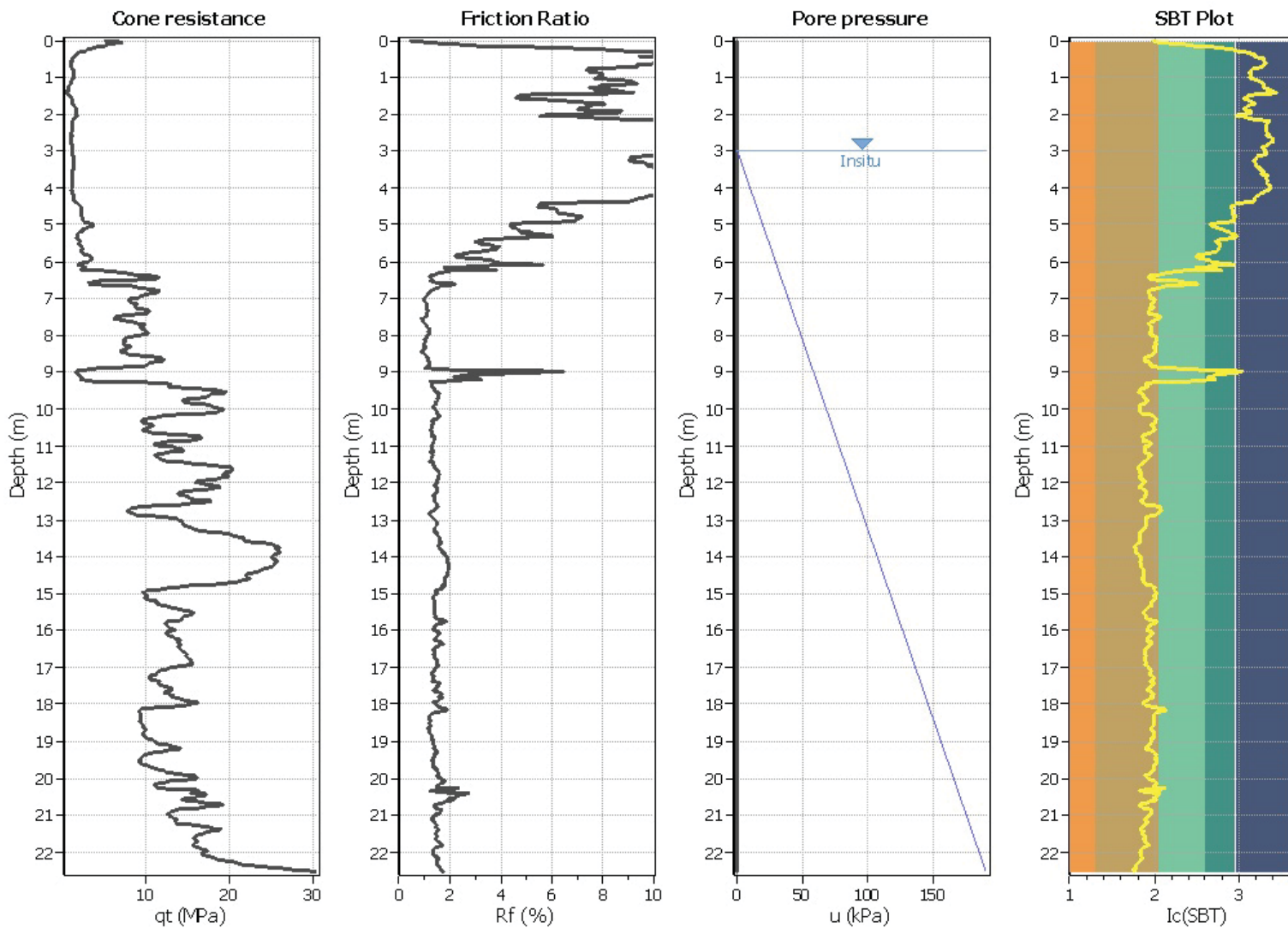
**Project title : Studio di Microzonazione Sismica - Besenzone    Location :**  
**CPT file : 180040E515**

**Input parameters and analysis data**

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	20.00 m
Earthquake magnitude $M_w$ :	5.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	$K_\sigma$ applied:	Yes		



### CPT basic interpretation plo



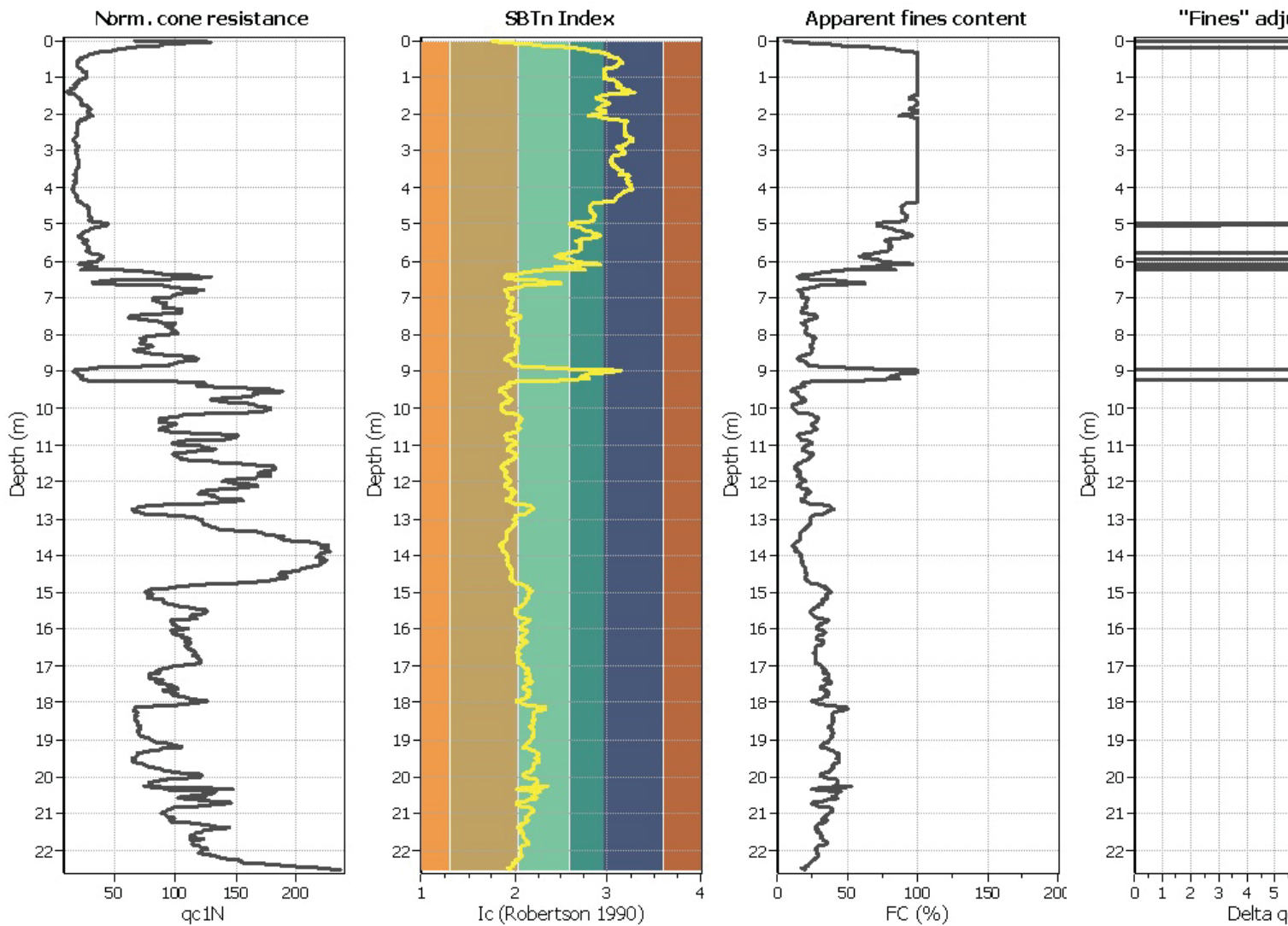
**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_{\sigma}$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

**SBT legend**

- 1. Sensitive fine grain
- 2. Organic material
- 3. Clay to silty clay

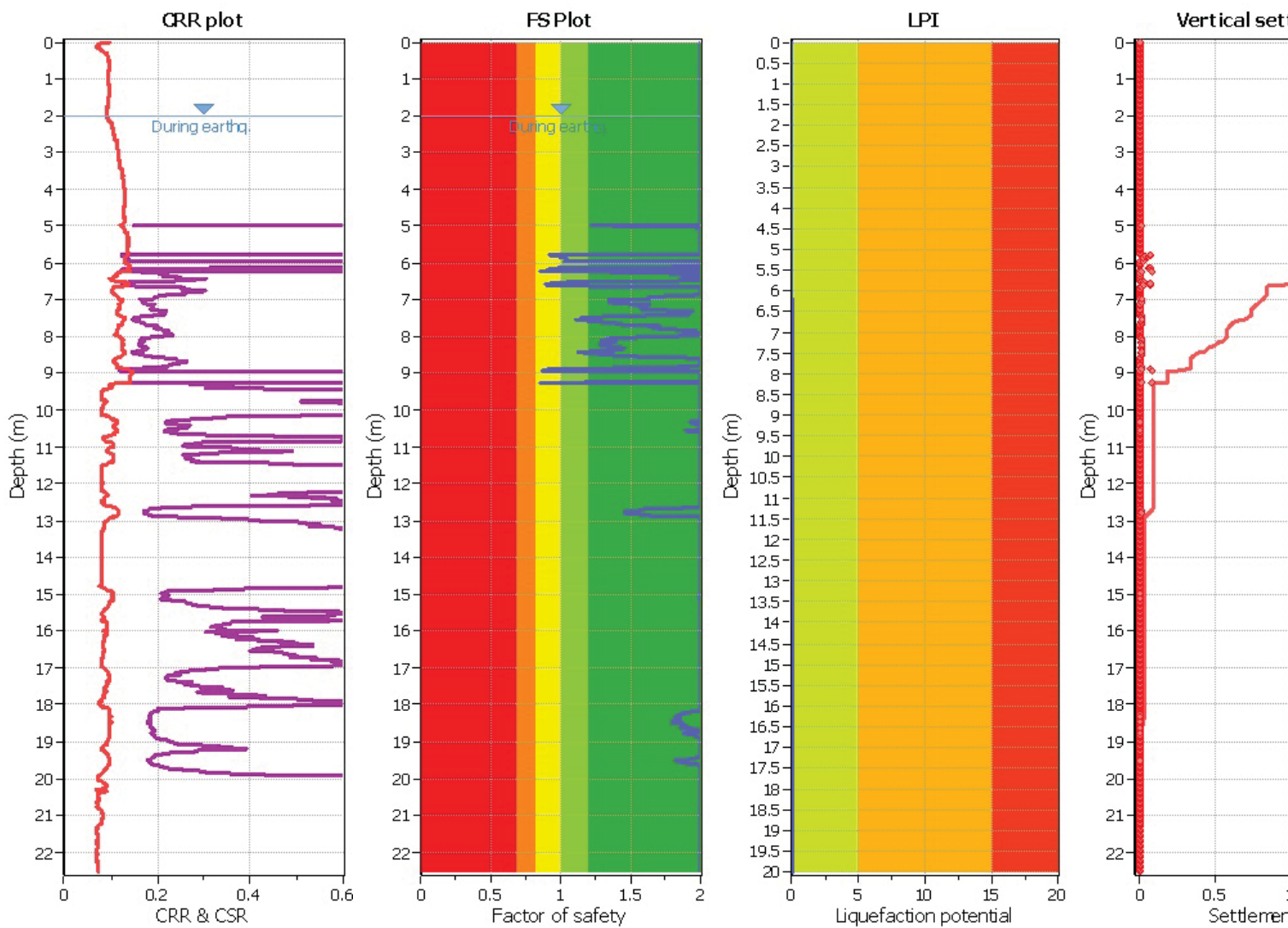
### Liquefaction analysis overall plots (intermediate)



**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>v</sub> applied:	Yes
Earthquake magnitude M <sub>w</sub> :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	20.00 m

### Liquefaction analysis overall plot



**Input parameters and analysis data**

Analysis method: B&I (2014)  
 Fines correction method: B&I (2014)  
 Points to test: Based on I<sub>c</sub> value  
 Earthquake magnitude M<sub>w</sub>: 5.50  
 Peak ground acceleration: 0.19  
 Depth to water table (insitu): 3.00 m

Depth to GWT (earthq.): 2.00 m  
 Average results interval: 3  
 I<sub>c</sub> cut-off value: 2.60  
 Unit weight calculation: Based on SBT  
 Use fill: No  
 Fill height: N/A

Fill weight: N/A  
 Transition detect. applied: No  
 K<sub>σ</sub> applied: Yes  
 Clay like behavior applied: Sands only  
 Limit depth applied: Yes  
 Limit depth: 20.00 m

**F.S. color scheme**

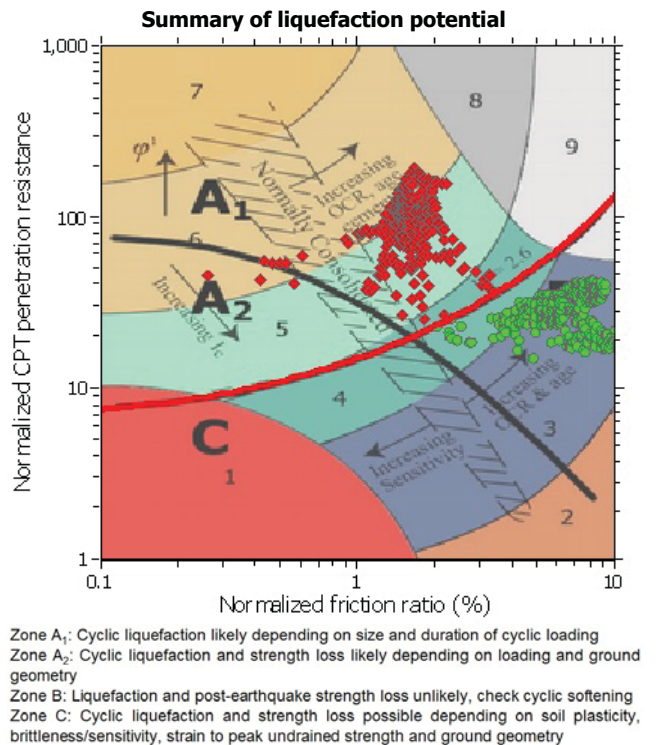
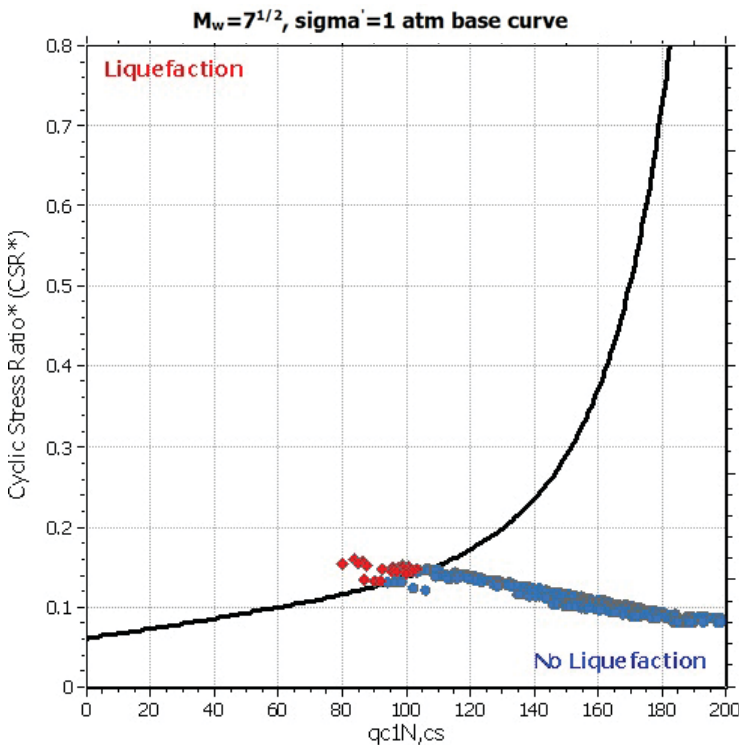
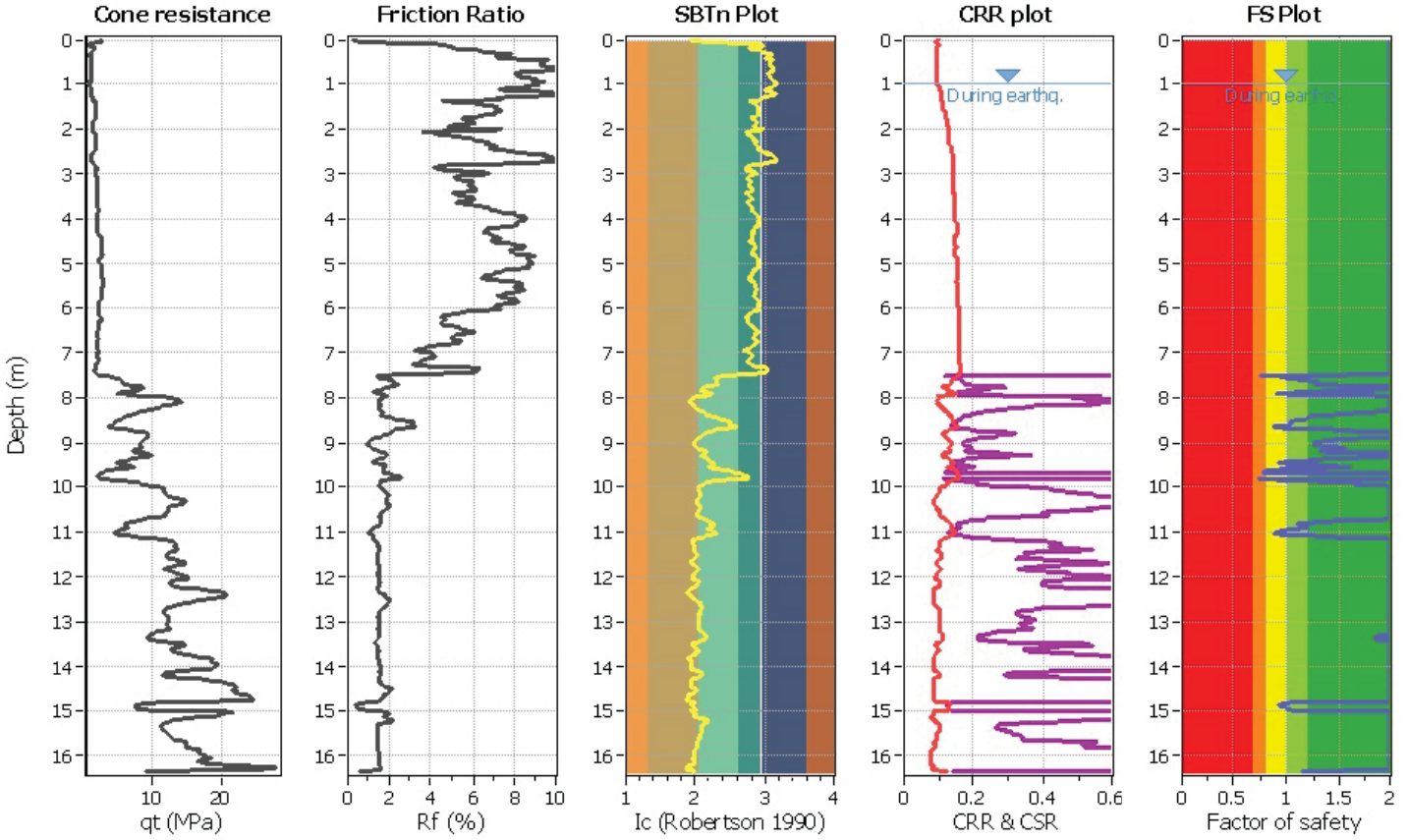
- Almost certain it w
- Very likely to lique
- Liquefaction and n
- Unlike to liquefy
- Almost certain it w

**LIQUEFACTION ANALYSIS REPORT**

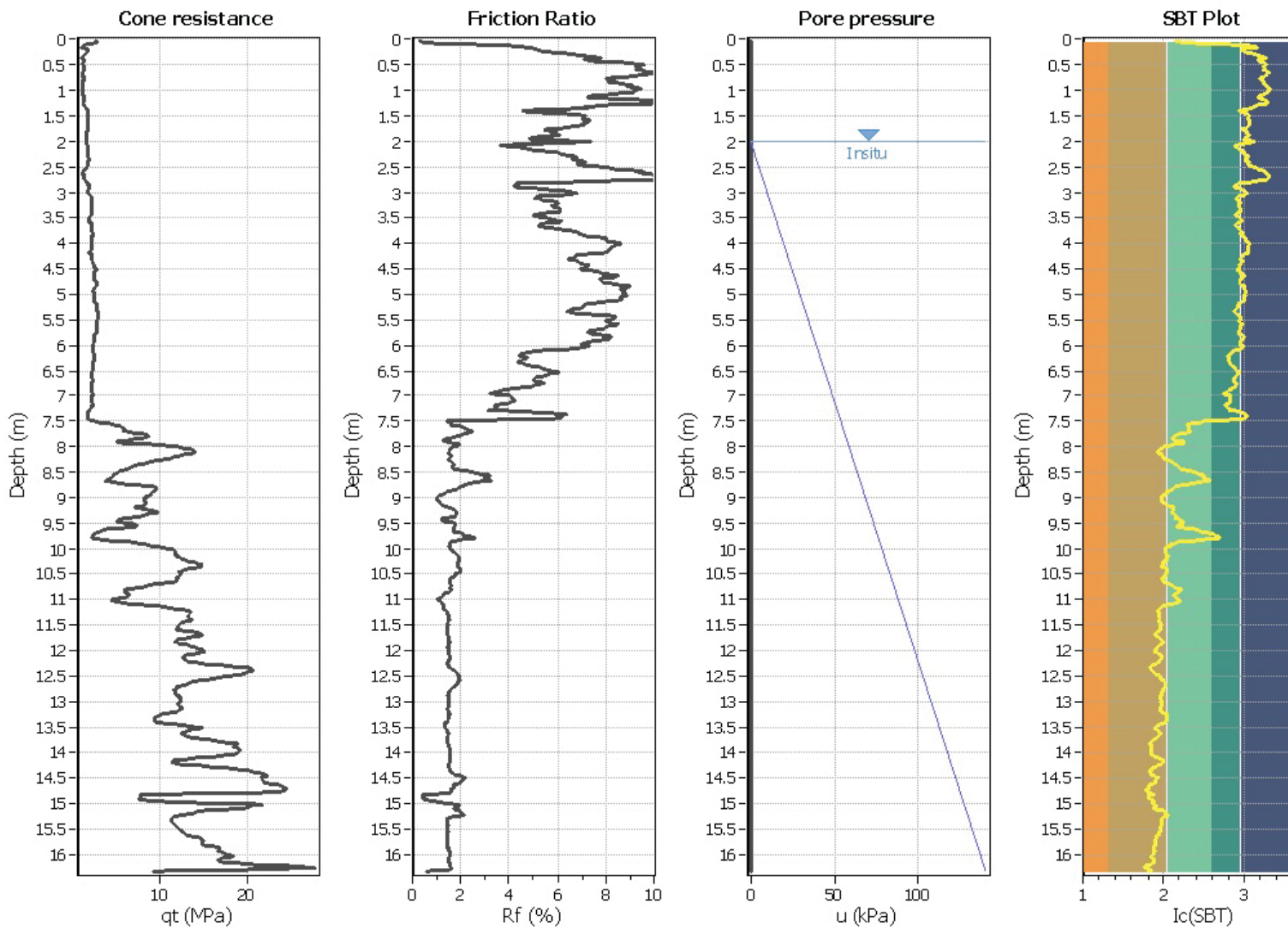
**Project title : Studio di Microzonazione Sismica - Besenzone    Location :**  
**CPT file : 180040E516**

**Input parameters and analysis data**

Analysis method:	B&I (2014)	G.W.T. (in-situ):	2.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.00 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	20.00 m
Earthquake magnitude $M_w$ :	5.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	$K_\sigma$ applied:	Yes		



### CPT basic interpretation plo



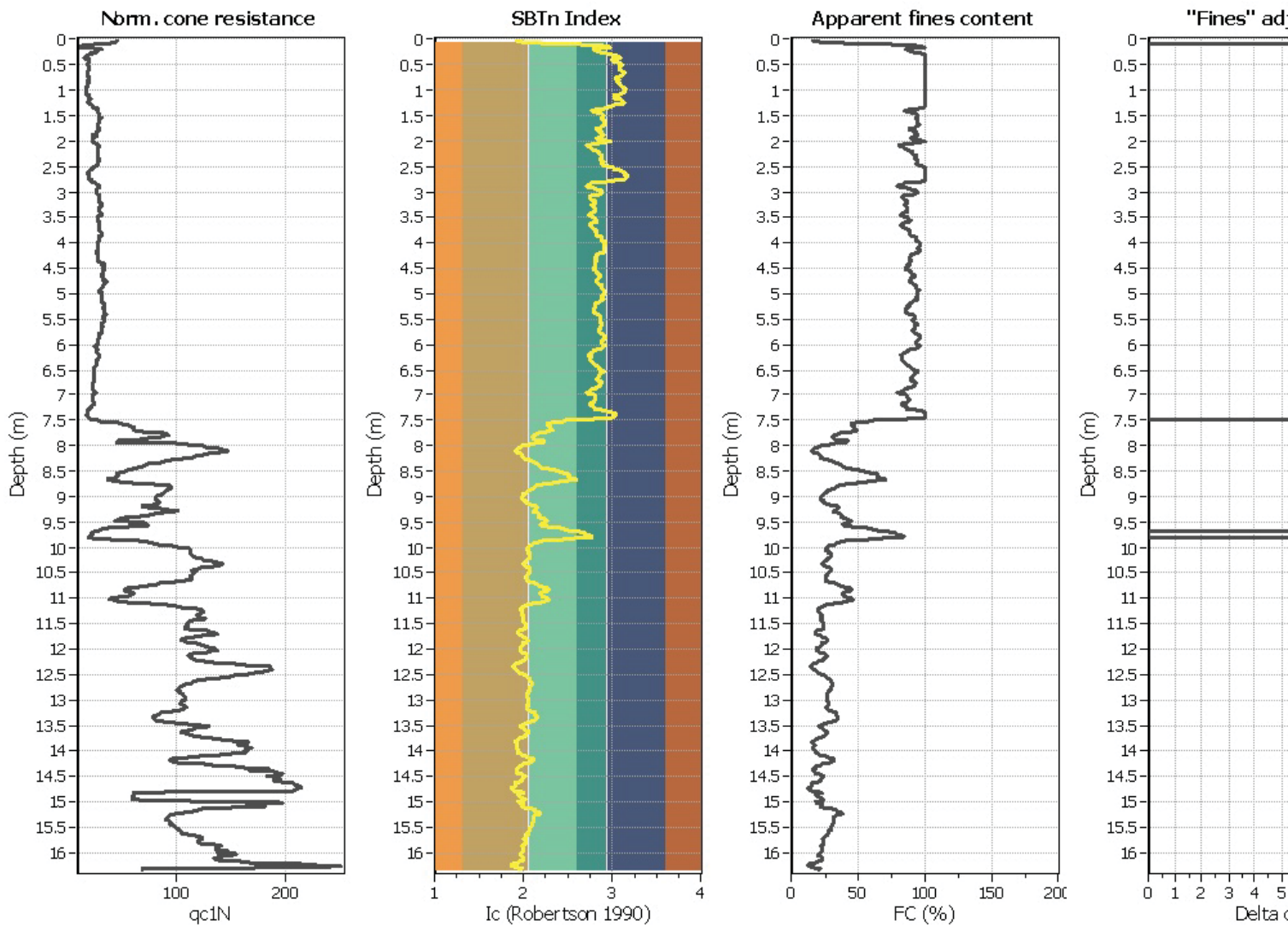
#### Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_v$ applied:	Yes
Earthquake magnitude $M_w$ :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	2.00 m	Fill height:	N/A	Limit depth:	20.00 m

#### SBT legend

- 1. Sensitive fine grain
- 2. Organic material
- 3. Clay to silty clay

### Liquefaction analysis overall plots (intermediate)

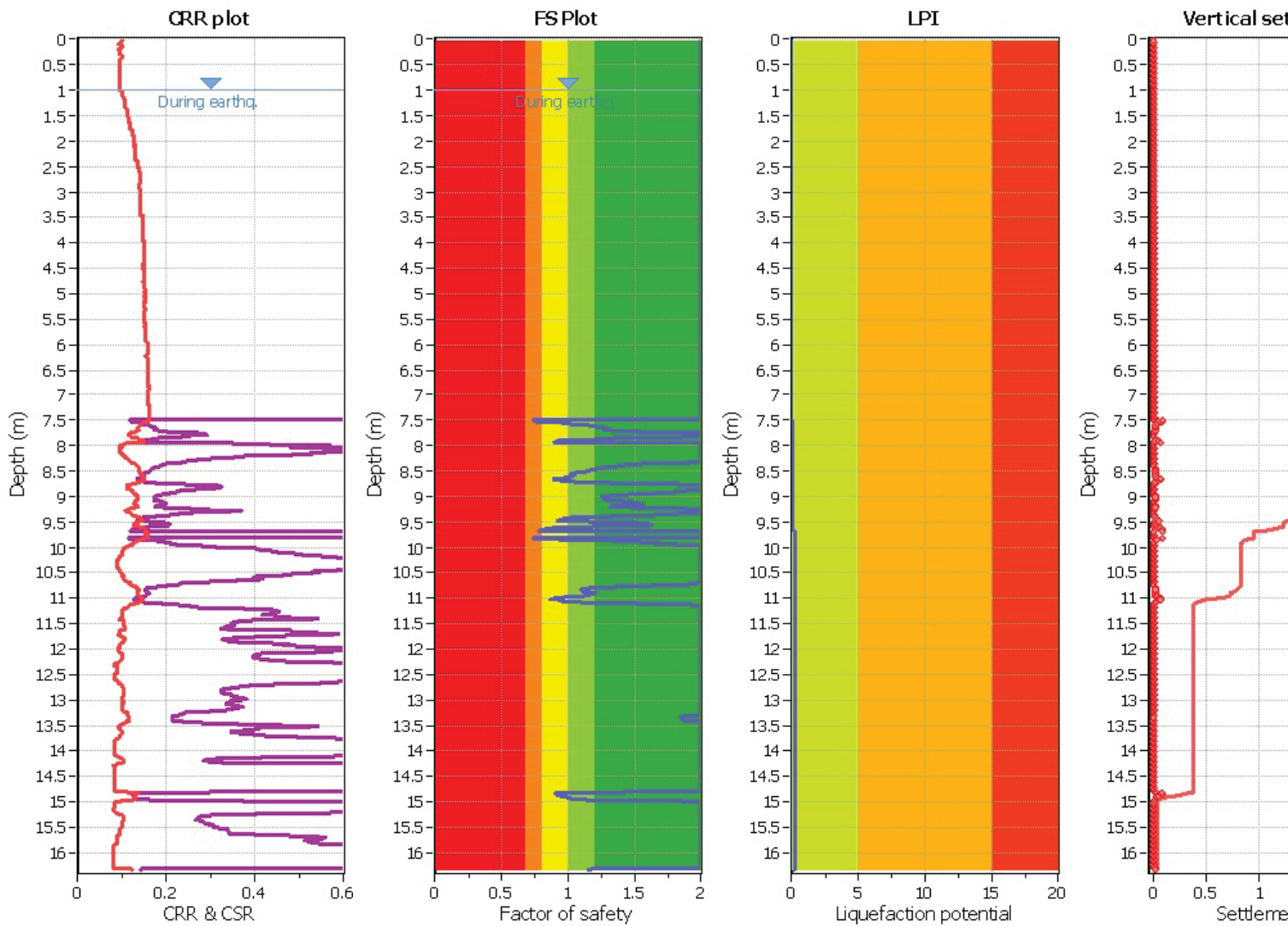


**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>s</sub> applied:	Yes
Earthquake magnitude M <sub>w</sub> :	5.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	2.00 m	Fill height:	N/A	Limit depth:	20.00 m



### Liquefaction analysis overall plot



**Input parameters and analysis data**

Analysis method: B&I (2014)  
 Fines correction method: B&I (2014)  
 Points to test: Based on  $I_c$  value  
 Earthquake magnitude  $M_w$ : 5.50  
 Peak ground acceleration: 0.19  
 Depth to water table (insitu): 2.00 m

Depth to GWT (earthq.): 1.00 m  
 Average results interval: 3  
 $I_c$  cut-off value: 2.60  
 Unit weight calculation: Based on SBT  
 Use fill: No  
 Fill height: N/A

Fill weight: N/A  
 Transition detect. applied: No  
 $K_{\sigma}$  applied: Yes  
 Clay like behavior applied: Sands only  
 Limit depth applied: Yes  
 Limit depth: 20.00 m

**F.S. color scheme**

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no
- Unlike to liquefy
- Almost certain it will not liquefy