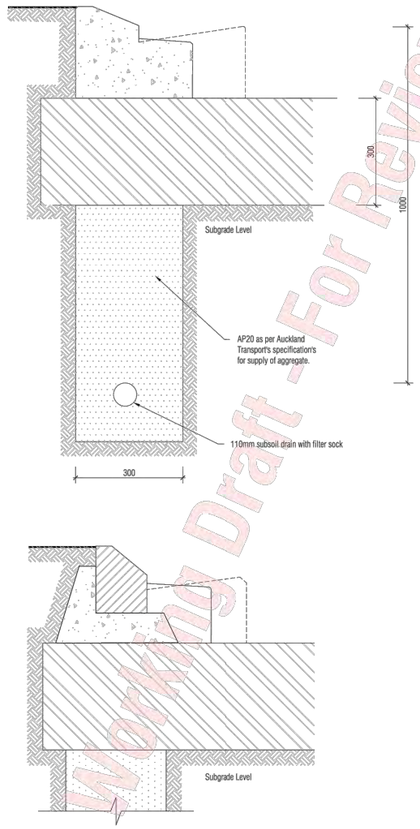


NOTES:

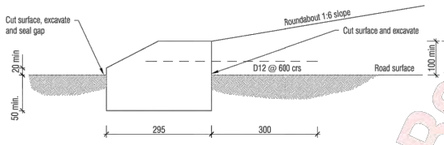
1. 25 MPa fibre reinforced concrete for slip-form.

Working Draft - For Review

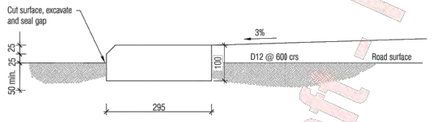
IS0006

Transport Design Manual | Standard Engineering Details

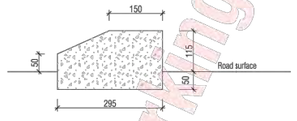
Review 1	TDM TECHNICAL STANDARDS	Date: Document in Review
DATE: February 14, 2020	Mountable kerb & nib For traffic islands	SED No. IS0006 / Version A



TYPE 11 STANDARD KERB PROFILE FOR ROUNDABOUTS (CENTRE ISLAND - NO OVERRUN)



KERB PROFILE FOR OVER-RUN APRONS



SECTION THROUGH TRAFFIC ISLAND KERB INLAID ON ROAD SURFACE

NOTES:

1. 25MPa Concrete with 4Kg/m3 of Brown Oxide no over-run
2. 25 MPa fibre reinforced concrete for slip-form.
3. Splitter islands or pedestrian refuge islands shall be c 50mm below finished road surface. Any over-excavatio shall be backfilled, compacted and resurfaced to matc adjacent surface.
4. Concrete apron to roundabouts. Where roundabout will not be infilled with concrete, a concrete apron 1m wide must be constructed behind the kerb.
5. Where required concrete infill to islands/roundabouts shall be 100mm thick, 20MPa concrete with exposed aggregate.

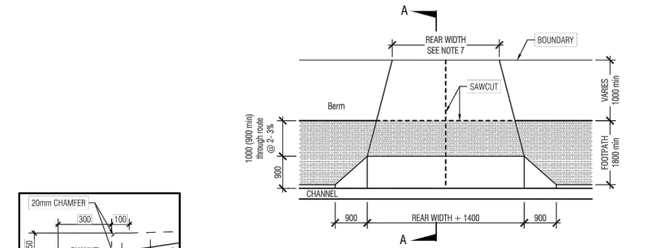
Working Draft - For Review

IS0007

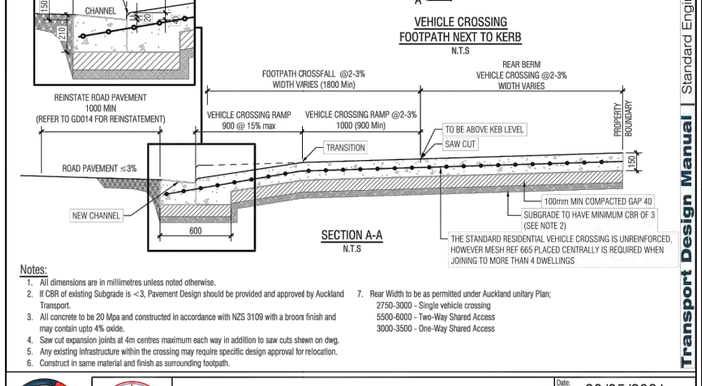
Transport Design Manual | Standard Engineering Details

Review 1	TDM TECHNICAL STANDARDS	Date: Document in Review
DATE: February 14, 2020	Roundabout and traffic Island slip-formed kerbs	SED No. IS0007 / Version A

PERSPECTIVE VIEW
N.T.S



VEHICLE CROSSING
FOOTPATH NEXT TO KERB
N.T.S



SECTION A-A
N.T.S

Notes:

1. All dimensions are in millimetres unless noted otherwise.
2. If CBR of existing Subgrade is <3, Pavement Design should be provided and approved by Auckland Transport.
3. All concrete to be 20 Mpa and constructed in accordance with NZS 3109 with a broom finish and may contain upto 4% oxide.
4. Saw cut expansion joints at 4m centres maximum each way in addition to saw cuts shewn on dwg.
5. Any existing infrastructure within the crossing may require specific design approval for relocation.
6. Construct in same material and finish as surrounding footpath.
7. Rear Width to be as permitted under Auckland unitary Plan;
   2750-3000 - Single vehicle crossing
   5500-6000 - Two-Way Shared Access
   3000-3500 - One-Way Shared Access

VX0102

Transport Design Manual | Standard Engineering Details

	TDM TECHNICAL STANDARDS	Date: 20/05/2021
CHIEF ENGINEER APPROVED	Residential Vehicle Crossing (Sheet 2 of 4)	SED No. VX0102 / Version B

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

Rev	Description	By	Date
A	DRAFT	SP	02/2025

	By	Date
Survey	--	--/----
Design	--	--/----
Drawn	SP	11/2024
Checked	JP/LC	02/2025

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Project
SUNFIELD DEVELOPMENT ARDMORE, AUCKLAND MASTERPLANNING FOR SUNFIELD DEVELOPMENTS LIMITED

Title
ROADING STANDARD DETAILS SHEET 8

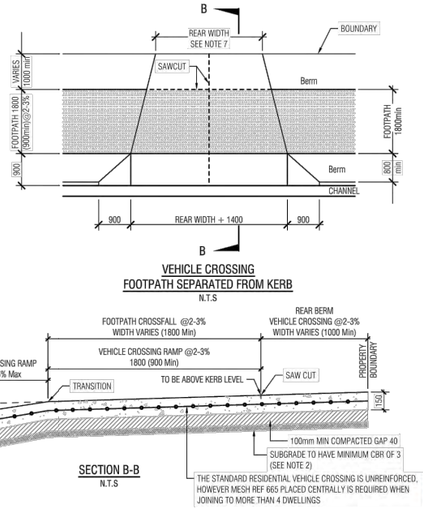
Project no.	215010
Scale	N.T.S
Cad file	215010-M-C800.DWG
Drawing no.	M-C800-7 Rev A

DRAFT FOR REVIEW

DATE: 9/11/25 FILEPATH: F:\MAVEN\PROJECTS\215010 - SUNFIELD\DWG\3-PRODUCTION\MASTER PLANNING\215010-M-C800.DWG

VX0103

PERSPECTIVE VIEW
N.T.S



VEHICLE CROSSING
FOOTPATH SEPARATED FROM KERB
N.T.S

SECTION B-B
N.T.S

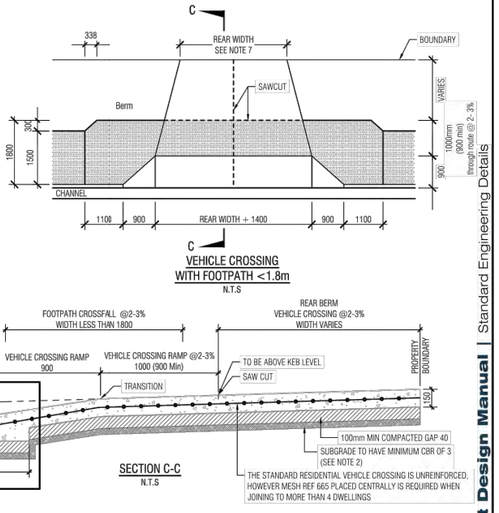
Notes:

1. All dimensions are in millimetres unless noted otherwise.
2. If CBR of existing Subgrade is <3, Pavement Design should be provided and approved by Auckland Transport.
3. All concrete to be 20 Mpa and constructed in accordance with NZS 3109 with a broom finish and may contain upto 4% oxide.
4. Saw cut expansion joints at 4m centres maximum each way in addition to saw cuts shown on dwg.
5. Any existing infrastructure within the crossing may require specific design approval for relocation.
6. Construct in same material and finish as surrounding footpath.
7. Rear Width to be as permitted under Auckland unitary Plan;
   2750-3000 - Single vehicle crossing
   5500-6000 - Two-Way Shared Access
   3000-3500 - One-Way Shared Access

	TDM TECHNICAL STANDARDS Residential Vehicle Crossing (Sheet 3 of 4)	Date: 20/05/2021 SED No. VX0103	Version B

VX0104

PERSPECTIVE VIEW
N.T.S



VEHICLE CROSSING
WITH FOOTPATH <1.8m
N.T.S

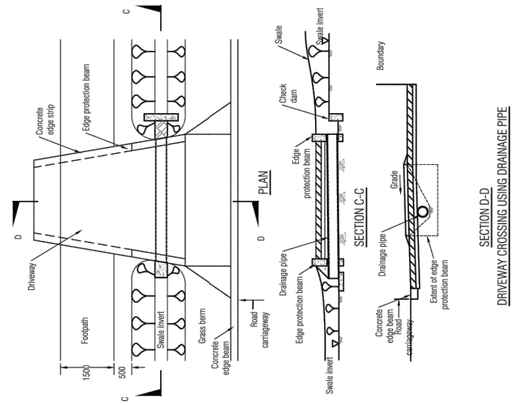
SECTION C-C
N.T.S

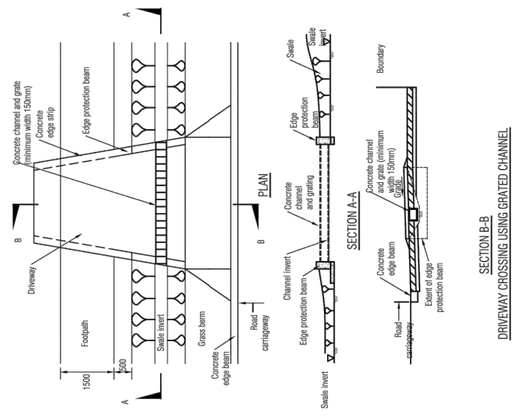
Notes:

1. All dimensions are in millimetres unless noted otherwise.
2. If CBR of existing Subgrade is <3, Pavement Design should be provided and approved by Auckland Transport.
3. All concrete to be 20 Mpa and constructed in accordance with NZS 3109 with a broom finish and may contain upto 4% oxide.
4. Saw cut expansion joints at 4m centres maximum each way in addition to saw cuts shown on dwg.
5. Any existing infrastructure within the crossing may require specific design approval for relocation..
6. Construct in same material and finish as surrounding footpath.
7. Rear Width to be as permitted under Auckland unitary Plan;
   2750-3000 - Single vehicle crossing
   5500-6000 - Two-Way Shared Access
   3000-3500 - One-Way Shared Access

	TDM TECHNICAL STANDARDS Residential Vehicle Crossing (Sheet 4 of 4)	Date: 20/05/2021 SED No. VX0104	Version B

VX0105





Note: this drawing is for indicative purpose only and use only as a guide. Site specific designs will be required.

	TDM TECHNICAL STANDARDS Typical driveway crossing through a swale	Date: 20/05/2021 SED No. VX0105	Version A

Transport Design Manual | Standard Engineering Details

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

Rev	Description	By	Date
A	DRAFT	SP	02/2025

	By	Date
Survey	--	--/----
Design	--	--/----
Drawn	SP	11/2024
Checked	JP/LC	02/2025

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Project
SUNFIELD DEVELOPMENT
ARDMORE, AUCKLAND
MASTERPLANNING
FOR SUNFIELD
DEVELOPMENTS LIMITED

Title
ROADING
STANDARD DETAILS
SHEET 9

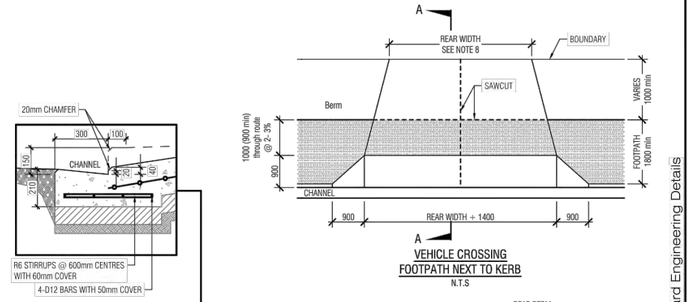
Project no.	215010		
Scale	N.T.S		
Cad file	215010-M-C800.DWG		
Drawing no.	M-C800-8	Rev	A

DRAFT FOR REVIEW

DATE: 8/11/25 FILE PATH: F:\MAVEN\PROJECTS\215010 SUNFIELD\03-PRODUCTION\MASTER PLANNING\215010-M-C800.DWG

VX0202

PERSPECTIVE VIEW
N.T.S



SECTION A-A
N.T.S

VEHICLE CROSSING
FOOTPATH NEXT TO KERB
N.T.S

Notes:

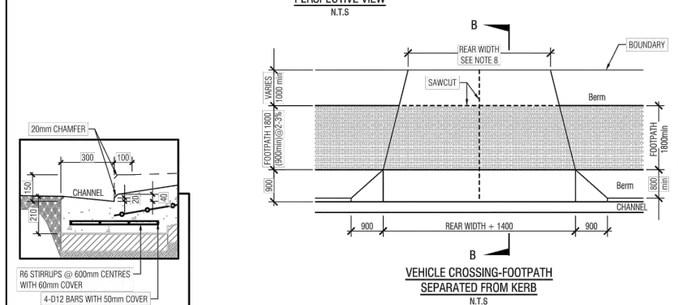
1. All dimensions are in millimetres unless noted otherwise.
2. If CBR of existing Subgrade is <3, Pavement Design should be provided and approved by Auckland Transport.
3. All concrete to be 20 Mpa and constructed in accordance with NZS 3109 with a broom finish and may contain upto 4% oxide.
4. Saw cut expansion joints at 4m centres maximum each way in addition to saw cuts shown on dwg.
5. Any existing infrastructure within the crossing may require specific design approval for relocation.
6. Construct in same material and finish as surrounding footpath.
7. Width of vehicle crossing to be designed by using tracking curves for intended large heavy vehicles.
8. Rear Width as permitted under Auckland Unitary Plan;
   COMMERCIAL USE;
   3700-4000 - Single vehicle crossing
   6000-7000 - Double vehicle crossing
   RESIDENTIAL USE;
   2750-3000 - Single vehicle crossing
   5500-6000 - Two-Way Shared Access
   3000-3500 - One-Way Shared Access

Transport Design Manual | Standard Engineering Details

	TDM TECHNICAL STANDARDS Commercial Vehicle Crossing (Sheet 2 of 4)	Date: 20/05/2021 SED No. VX0202	Version A

VX0203

PERSPECTIVE VIEW
N.T.S



SECTION B-B
N.T.S

VEHICLE CROSSING-FOOTPATH
SEPARATED FROM KERB
N.T.S

Notes:

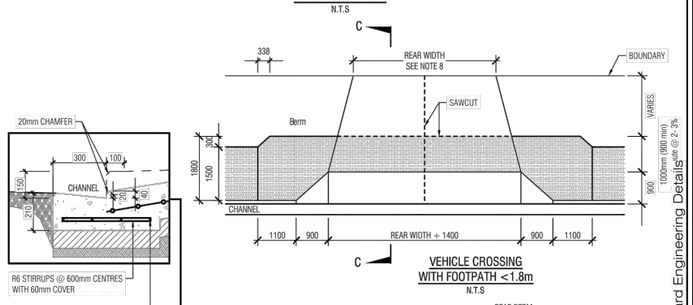
1. All dimensions are in millimetres unless noted otherwise.
2. If CBR of existing Subgrade is <3, Pavement Design should be provided and approved by Auckland Transport.
3. All concrete to be 20 Mpa and constructed in accordance with NZS 3109 with a broom finish and may contain upto 4% oxide.
4. Saw cut expansion joints at 4m centres maximum each way in addition to saw cuts shown on dwg.
5. Any existing infrastructure within the crossing may require specific design approval for relocation.
6. Construct in same material and finish as surrounding footpath.
7. Width of vehicle crossing to be designed by using tracking curves for intended large heavy vehicles.
8. Rear Width as permitted under Auckland Unitary Plan;
   COMMERCIAL USE;
   3700-4000 - Single vehicle crossing
   6000-7000 - Double vehicle crossing
   RESIDENTIAL USE;
   2750-3000 - Single vehicle crossing
   5500-6000 - Two-Way Shared Access
   3000-3500 - One-Way Shared Access

Transport Design Manual | Standard Engineering Details

	TDM TECHNICAL STANDARDS Commercial Vehicle Crossing (Sheet 3 of 4)	Date: 20/05/2021 SED No. VX0203	Version A

VX0204

PERSPECTIVE VIEW
N.T.S



SECTION C-C
N.T.S

VEHICLE CROSSING
WITH FOOTPATH <1.8m
N.T.S

Notes:

1. All dimensions are in millimetres unless noted otherwise.
2. If CBR of existing Subgrade is <3, Pavement Design should be provided and approved by Auckland Transport.
3. All concrete to be 20 Mpa and constructed in accordance with NZS 3109 with a broom finish and may contain upto 4% oxide.
4. Saw cut expansion joints at 4m centres maximum each way in addition to saw cuts shown on dwg.
5. Any existing infrastructure within the crossing may require specific design approval for relocation.
6. Construct in same material and finish as surrounding footpath.
7. Width of vehicle crossing to be designed by using tracking curves for intended large heavy vehicles.
8. Rear Width as permitted under Auckland Unitary Plan;
   COMMERCIAL USE;
   3700-4000 - Single vehicle crossing
   6000-7000 - Double vehicle crossing
   RESIDENTIAL USE;
   2750-3000 - Single vehicle crossing
   5500-6000 - Two-Way Shared Access
   3000-3500 - One-Way Shared Access

Transport Design Manual | Standard Engineering Details

	TDM TECHNICAL STANDARDS Commercial Vehicle Crossing (Sheet 4 of 4)	Date: 20/05/2021 SED No. VX0204	Version A

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

Rev	Description	By	Date
A	DRAFT	SP	02/2025

	By	Date
Survey	--	--/----
Design	--	--/----
Drawn	SP	11/2024
Checked	JP/LC	02/2025

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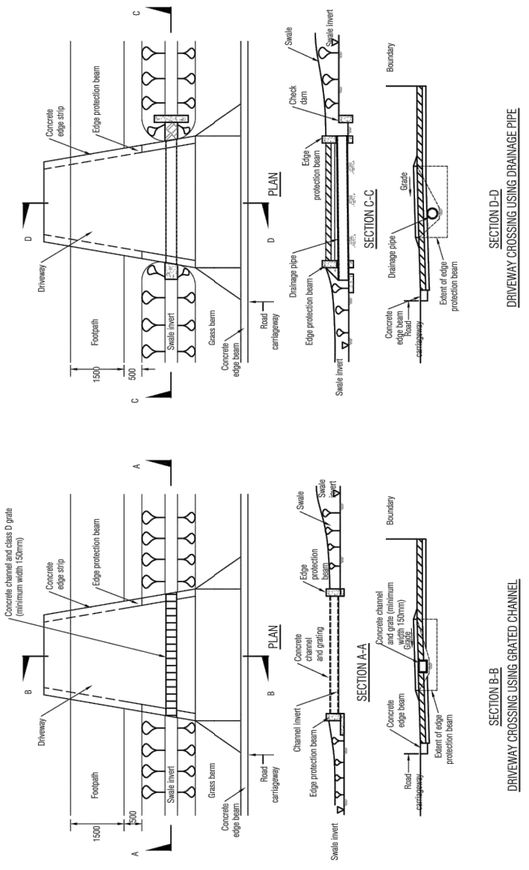
Project
SUNFIELD DEVELOPMENT ARDMORE, AUCKLAND MASTERPLANNING FOR SUNFIELD DEVELOPMENTS LIMITED

Title
ROADING STANDARD DETAILS SHEET 10

Project no.	215010
Scale	N.T.S
Cad file	215010-M-C800.DWG
Drawing no.	M-C800-9 Rev A

DRAFT FOR REVIEW

DATE: 9/11/25 FILEPATH: F:\MAVEN\PROJECTS\215010_SUNFIELD\04\3.PRODUCTION\MASTER PLANNING\215010-M-C800.DWG



Note: this drawing is for indicative purpose only and use only as a guide. Site specific designs will be required.

Transport Design Manual | Standard Engineering Details

VX0205

	TDM TECHNICAL STANDARDS Typical commercial driveway crossing through a swale	Date: 20/05/2021 SED No. VX0205	Version A

DRAFT FOR REVIEW

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

Rev	Description	By	Date
A	DRAFT	SP	02/2025

	By	Date
Survey	--	--/----
Design	--	--/----
Drawn	SP	11/2024
Checked	JP/LC	02/2025

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Project
SUNFIELD DEVELOPMENT ARDMORE, AUCKLAND MASTERPLANNING FOR SUNFIELD DEVELOPMENTS LIMITED

Title
ROADING STANDARD DETAILS SHEET 11

Project no.	215010		
Scale	N.T.S		
Cad file	215010-M-C800.DWG		
Drawing no.	M-C800-10	Rev	A

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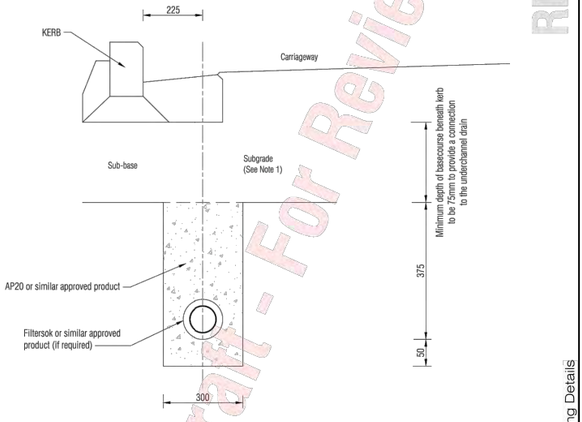
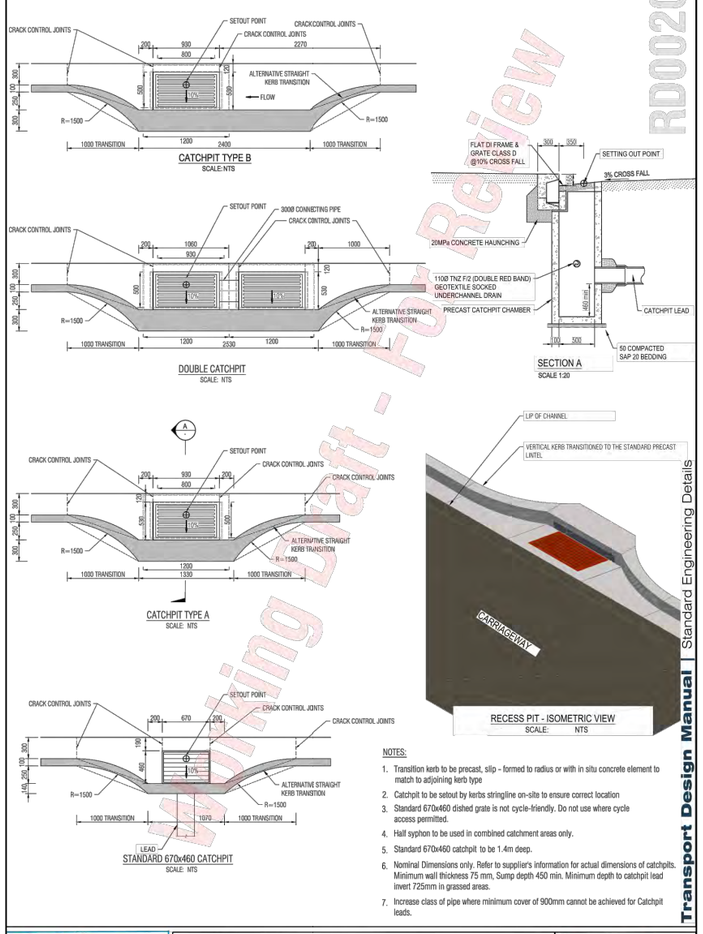


NOTES

1. Construct subsoil drain after stabilization of Subgrade. Subgrade must be level or fall towards subsoil drain
2. Underchannel Drains
   Shall be approved perfotated drain pipe of 100mm internal diameter unless specifid or scheduled otherwise. Subsoildrain pipes shall comply with the requirements of TNZ Specifications F/2. Trench backfill shall be approved AP20 material or similar. Trench backfil shall be approved 30/10 scoria or similar if a filter sock is provided. Depth below subgrade to be 375mm.
3. Sub-base material shall be laid with fall towards a downstream catchpit or other access chamber with connection invert level above the soffit level of the outlet pipe (or water level in a chamber with half-siphon traps)

Transport Design Manual | Standard Engineering Details

Review 1	TDM TECHNICAL STANDARDS Subsoil drain	Date: Document in Review	SED No. RD0010	Version A
DATE: February 14, 2020				

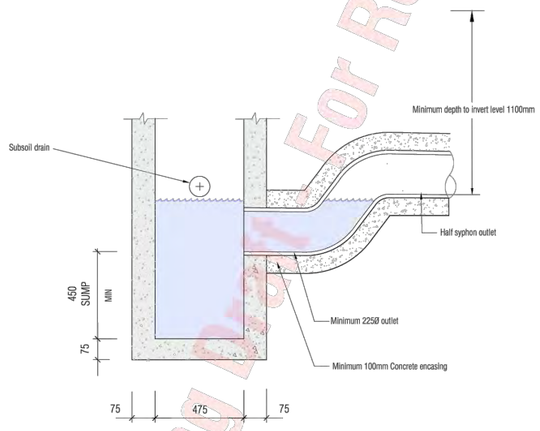


NOTES:

1. Transition kerb to be precast, slip - formed to radius or with in situ concrete element to match to adjoining kerb type
2. Catchpit to be setout by kerbs stringline on-site to ensure correct location
3. Standard 670x460 dished grate is not cycle-friendly. Do not use where cycle access permitted.
4. Half syphon to be used in combined catchment areas only.
5. Standard 670x460 catchpit to be 1.4m deep.
6. Nominal Dimensions only. Refer to supplier's information for actual dimensions of catchpits. Minimum wall thickness 75 mm, Sump depth 450 min. Minimum depth to catchpit lead invert 725mm in grassed areas.
7. Increase class of pipe where minimum cover of 900mm cannot be achieved for Catchpit leads.

Transport Design Manual | Standard Engineering Details

Review 1	TDM TECHNICAL STANDARDS Semi-recessed catch pit	Date: Document in Review	SED No. RD0020	Version A
DATE: February 14, 2020				



Transport Design Manual | Standard Engineering Details

Review 1	TDM TECHNICAL STANDARDS Catchpit with half syphon	Date: Document in Review	SED No. RD0021	Version A
DATE: February 14, 2020				

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

Rev	Description	By	Date
A	DRAFT	SP	02/2025

	By	Date
Survey	--	--/----
Design	--	--/----
Drawn	SP	11/2024
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Project
SUNFIELD DEVELOPMENT ARDMORE. AUCKLAND MASTERPLANNING FOR SUNFIELD DEVELOPMENTS LIMITED

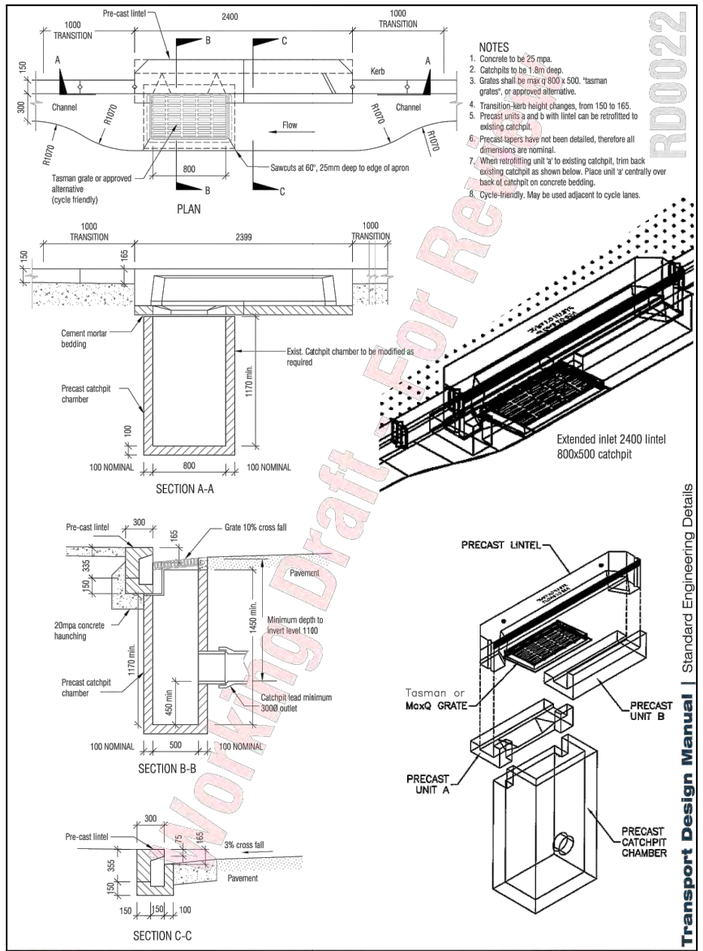
Title
ROADING DRAINAGE STANDARD DETAILS SHEET 1

Project no.	215010		
Scale	N.T.S		
Cad file	215010-M-C801.DWG		
Drawing no.	M-C801	Rev	A

DRAFT FOR REVIEW

Working Draft - For Review
RD0010
RD0020
RD0021

DATE: 6/11/25 FILE PATH: F:\MAVEN\PROJECTS\215010_SUNFIELDWG\4-PRODUCTION\MASTER PLANNING\215010-M-C801.DWG



NOTES

1. Concrete to be 25 mpa.
2. Catchpits to be 1.8m deep.
3. Grates shall be max q 800 x 500. "tasman grates", or approved alternative.
4. Transition kerb height changes, from 150 to 165.
5. Precast units a and b with lintel can be retrofitted to existing catchpit.
6. Precast tapers have not been detailed, therefore all dimensions are nominal.
7. When retrofitting unit 'a' to existing catchpit, trim back existing catchpit as shown below. Place unit 'a' centrally over back of catchpit on concrete bedding.
8. Cycle-friendly. May be used adjacent to cycle lanes.

Transport Design Manual | Standard Engineering Details

RD0022

Review 1

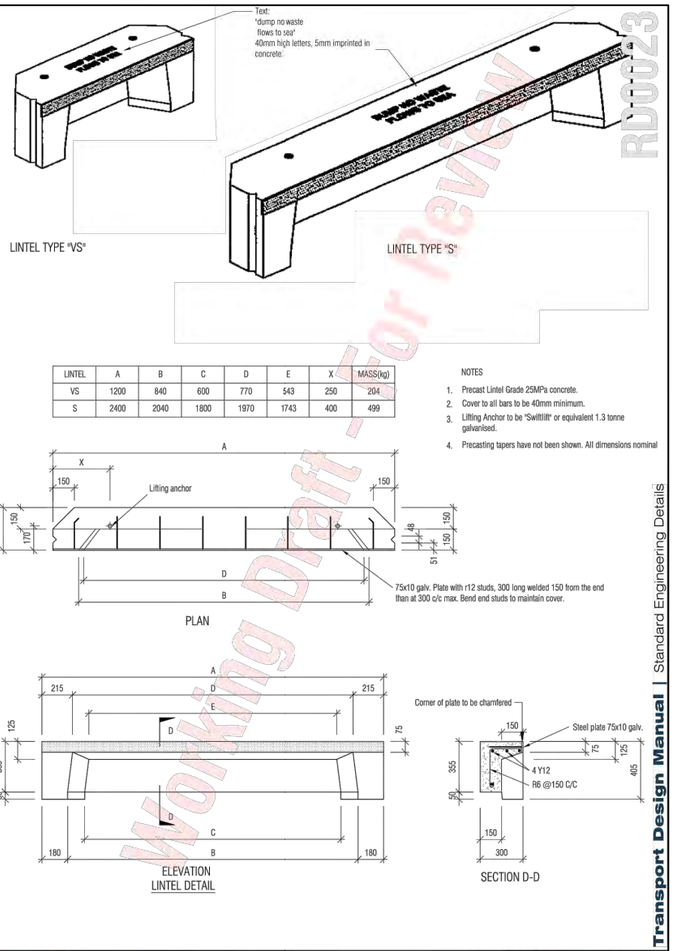
DATE: February 14, 2020

TDM TECHNICAL STANDARDS

Street catchpit 800 x 500

Date: Document in Review

SED No. RD0022 | Version A



LINTEL	A	B	C	D	E	X	MASS(kg)
VS	1200	840	600	770	543	250	204
S	2400	2040	1800	1970	1743	400	499

NOTES

1. Precast Lintel Grade 25MPa concrete.
2. Cover to all bars to be 40mm minimum.
3. Lifting Anchor to be "Swiftlift" or equivalent 1.3 tonne galvanised.
4. Precasting tapers have not been shown. All dimensions nominal

Transport Design Manual | Standard Engineering Details

RD0023

Review 1

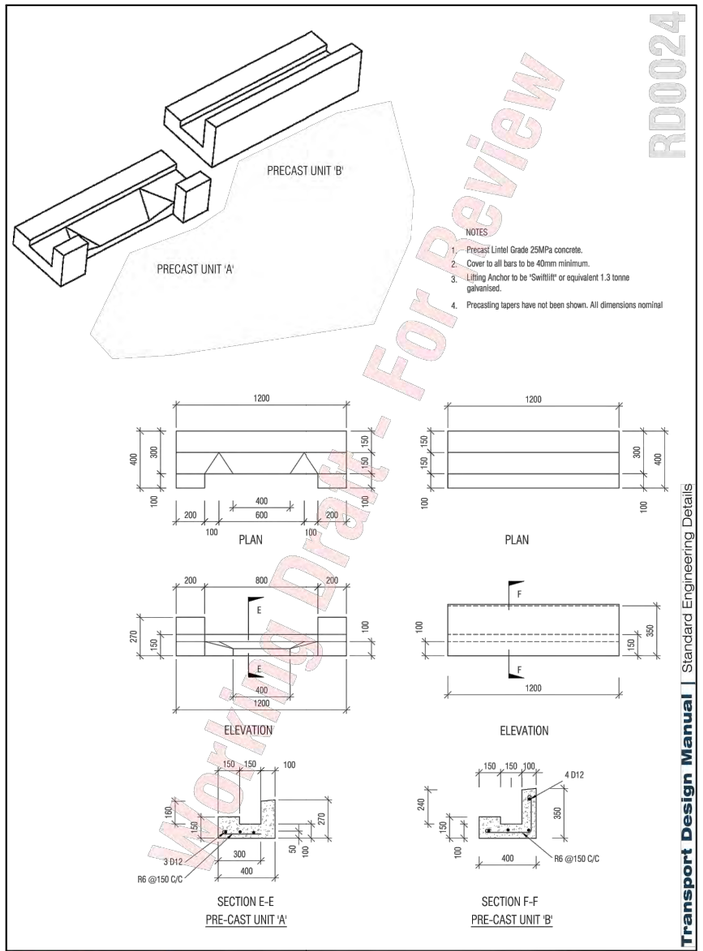
DATE: February 14, 2020

TDM TECHNICAL STANDARDS

Street catchpit 800 x 500 precast lintel details

Date: Document in Review

SED No. RD0023 | Version A



NOTES

1. Precast Lintel Grade 25MPa concrete.
2. Cover to all bars to be 40mm minimum.
3. Lifting Anchor to be "Swiftlift" or equivalent 1.3 tonne galvanised.
4. Precasting tapers have not been shown. All dimensions nominal

Transport Design Manual | Standard Engineering Details

RD0024

Review 1

DATE: February 14, 2020

TDM TECHNICAL STANDARDS

Street catchpit 800 x 500 precast unit details

Date: Document in Review

SED No. RD0024 | Version A

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

Rev	Description	By	Date
A	DRAFT	SP	02/2025

	By	Date
Survey	--	--/----
Design	--	--/----
Drawn	SP	11/2024
Checked	JP/LC	02/2025

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Project

SUNFIELD DEVELOPMENT ARDMORE. AUCKLAND MASTERPLANNING FOR SUNFIELD DEVELOPMENTS LIMITED

Title

ROADING DRAINAGE STANDARD DETAILS SHEET 2

Project no.	215010
Scale	N.T.S
Cad file	215010-M-C801.DWG
Drawing no.	M-C801-1 Rev A

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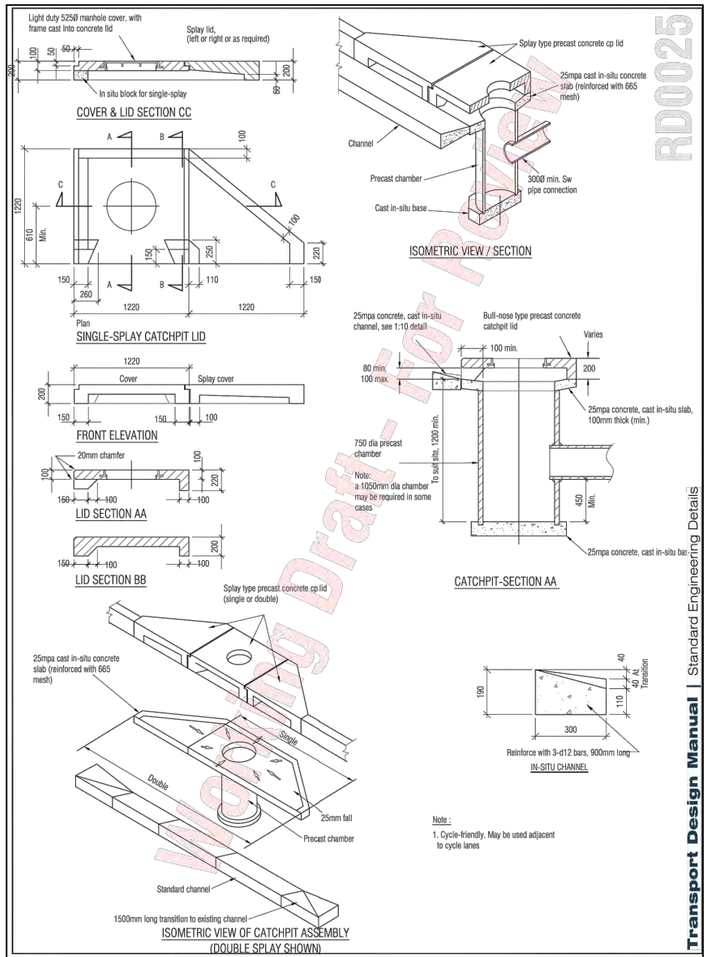
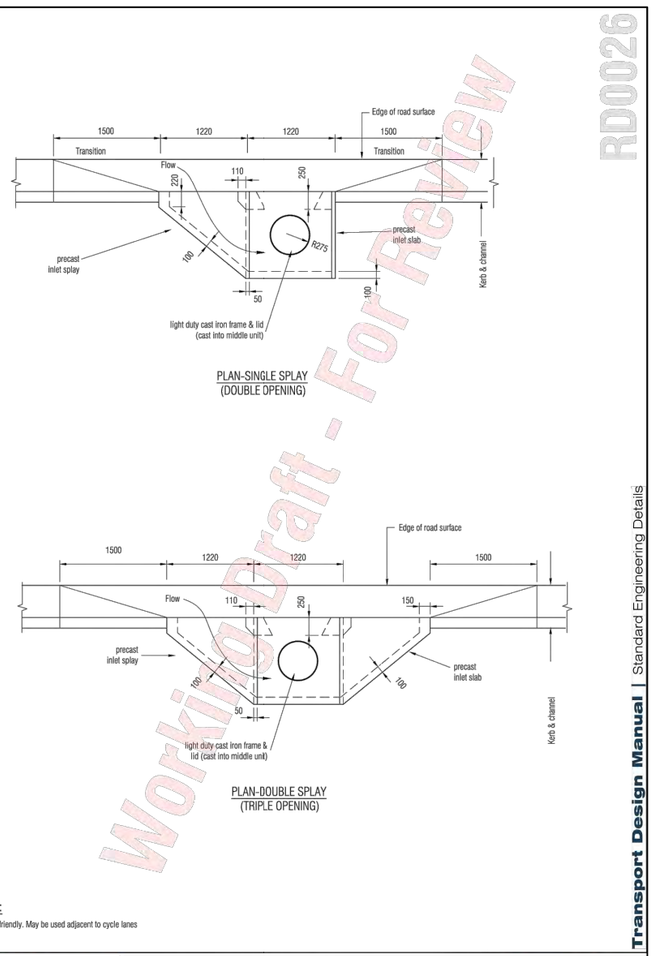
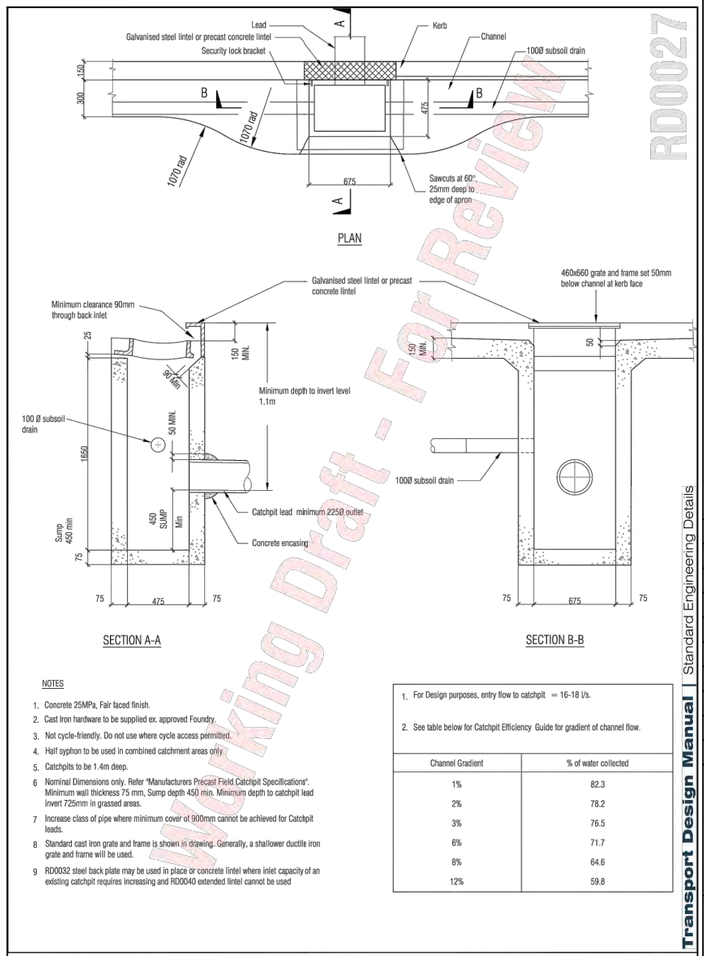
DATE: 8/11/25 FILE PATH: P:\MAVEN\PROJECTS\215010 SUNFIELDS\03-PRODUCTION\MASTER PLANNING\215010-M-C801.DWG

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.







Channel Gradient	% of water collected
1%	82.3
2%	78.2
3%	76.5
6%	71.7
8%	64.6
12%	59.8

Transport Design Manual | Standard Engineering Details

Review		TDM TECHNICAL STANDARDS	Date:	Document in Review
1		Splay catchpit	SED No. RD0025	Version A
DATE: February 14, 2020				

Review		TDM TECHNICAL STANDARDS	Date:	Document in Review
1		Splay catchpit details	SED No. RD0026	Version A
DATE: February 14, 2020				

Review		TDM TECHNICAL STANDARDS	Date:	Document in Review
1		Standard catchpit	SED No. RD0027	Version A
DATE: February 14, 2020				

RD0025 RD0026 RD0027
Working Draft - For Review

DRAFT FOR REVIEW

Rev	Description	By	Date
A	DRAFT	SP	02/2025

	By	Date
Survey	--	--/----
Design	--	--/----
Drawn	SP	11/2024
Checked	JP/LC	02/2025

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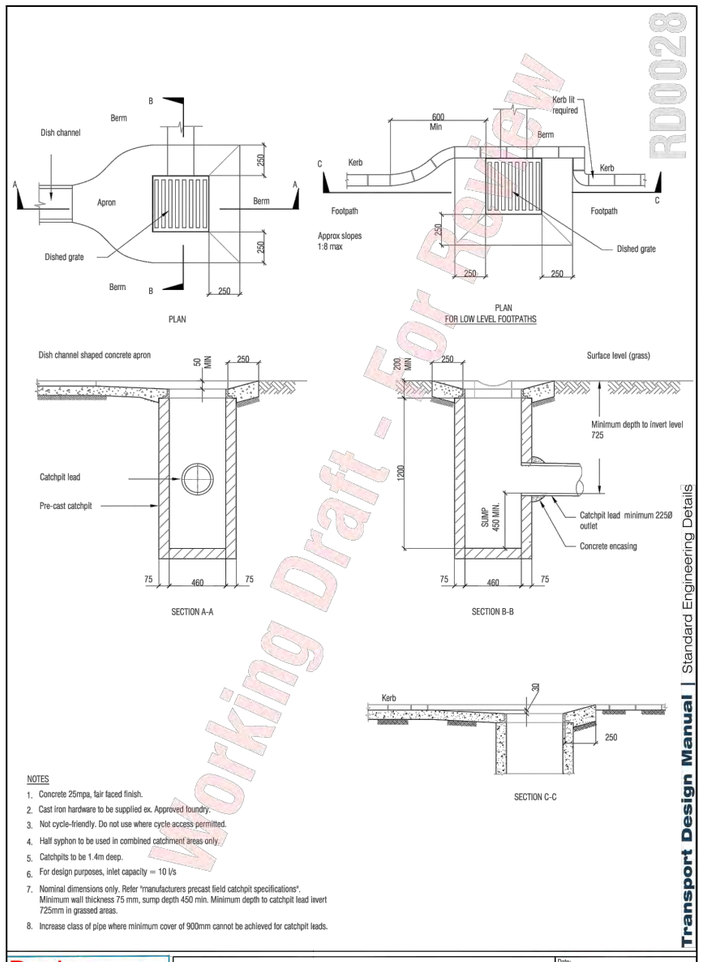
Project
SUNFIELD DEVELOPMENT
ARDMORE. AUCKLAND
MASTERPLANNING
FOR SUNFIELD
DEVELOPMENTS LIMITED

Title
ROADING DRAINAGE
STANDARD DETAILS
SHEET 3

Project no.	215010
Scale	N.T.S
Cad file	215010-M-C801.DWG
Drawing no.	M-C801-2 Rev A

DATE: 8/17/25 FILE PATH: F:\MAVEN\PROJECTS\215010 SUNFIELDING\3-PRODUCTION\MASTER PLANNING\215010-M-C801.DWG



NOTES

1. Concrete 25mpa, fair faced finish.
2. Cast iron hardware to be supplied ex. Approved foundry.
3. Not cycle-friendly. Do not use where cycle access permitted.
4. Hall syphon to be used in combined catchment areas only.
5. Catchpits to be 1.4m deep.
6. For design purposes, inlet capacity = 10 l/s
7. Nominal dimensions only. Refer 'manufacturers precast field catchpit specifications'. Minimum wall thickness 75 mm, sump depth 450 min. Minimum depth to catchpit lead invert 725mm in grassed areas.
8. Increase class of pipe where minimum cover of 900mm cannot be achieved for catchpit leads.

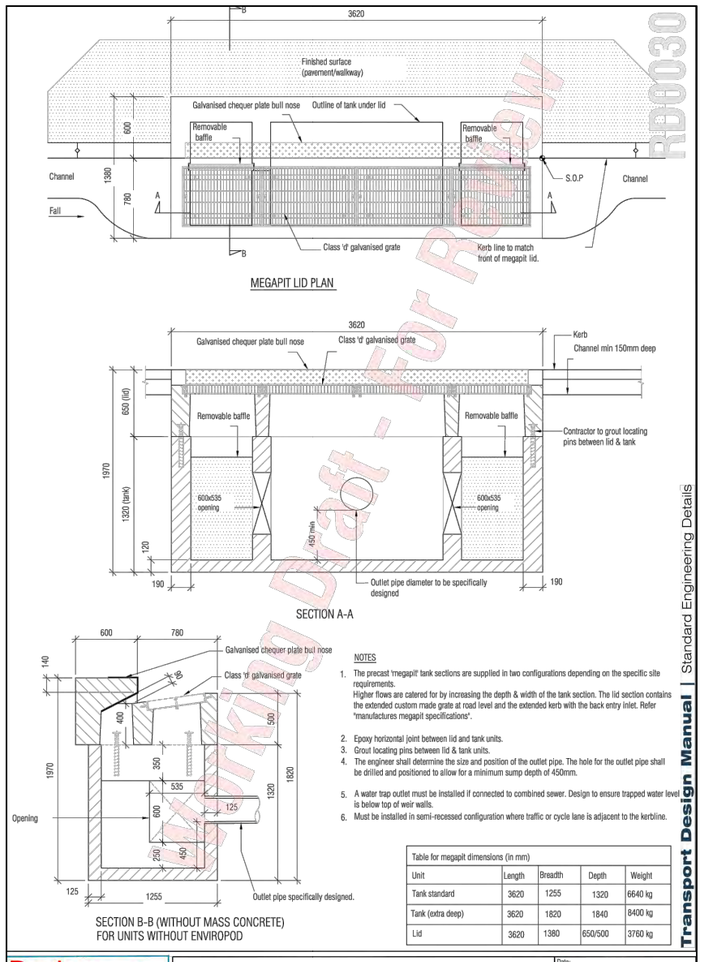
Transport Design Manual | Standard Engineering Details

RD0028

Review 1
DATE: February 14, 2020

TDM TECHNICAL STANDARDS
Field catchpit 440 x 440

Date: Document in Review
SED No. RD0028 | Version A



NOTES

1. The precast 'megapit' tank sections are supplied in two configurations depending on the specific site requirements.
   Higher flows are catered for by increasing the depth & width of the tank section. The lid section contains the extended custom made grate at road level and the extended kerb with the back entry inlet. Refer "manufactures megapit specifications".
2. Epoxy horizontal joint between lid and tank units.
3. Grout locating pins between lid & tank units.
4. The engineer shall determine the size and position of the outlet pipe. The hole for the outlet pipe shall be drilled and positioned to allow for a minimum sump depth of 450mm.
5. A water trap outlet must be installed if connected to combined sewer. Design to ensure trapped water level is below top of weir walls.
6. Must be installed in semi-recessed configuration where traffic or cycle lane is adjacent to the kerbline.

Table for megapit dimensions (in mm)

Unit	Length	Breadth	Depth	Weight
Tank standard	3620	1255	1320	6640 kg
Tank (extra deep)	3620	1820	1840	8400 kg
Lid	3620	1380	650/500	3760 kg

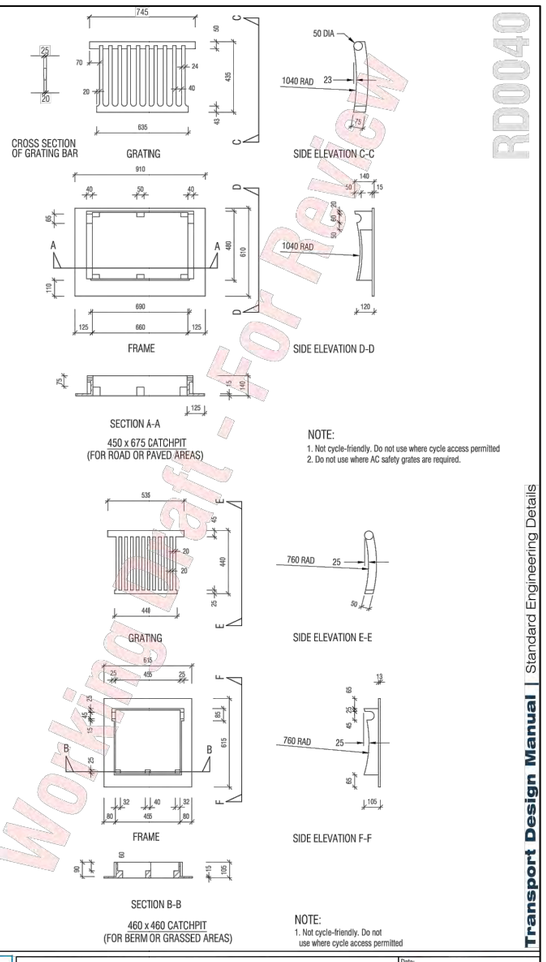
Transport Design Manual | Standard Engineering Details

RD0030

Review 1
DATE: February 14, 2020

TDM TECHNICAL STANDARDS
Megapit

Date: Document in Review
SED No. RD0030 | Version A



NOTE:
1. Not cycle-friendly. Do not use where cycle access permitted
2. Do not use where AC safety grates are required.

NOTE:
1. Not cycle-friendly. Do not use where cycle access permitted

Transport Design Manual | Standard Engineering Details

RD0040

Review 1
DATE: February 14, 2020

TDM TECHNICAL STANDARDS
Catchpit gratings and frames

Date: Document in Review
SED No. RD0040 | Version A

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

Rev	Description	By	Date
A	DRAFT	SP	02/2025

	By	Date
Survey	--	--/----
Design	--	--/----
Drawn	SP	11/2024
Checked	JP/LC	02/2025

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Project
SUNFIELD DEVELOPMENT ARDMORE. AUCKLAND MASTERPLANNING FOR SUNFIELD DEVELOPMENTS LIMITED

Title
ROADING DRAINAGE STANDARD DETAILS SHEET 4

Project no.	215010
Scale	N.T.S
Cad file	215010-M-C801.DWG
Drawing no.	M-C801-3 Rev A

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Working Draft - For Review

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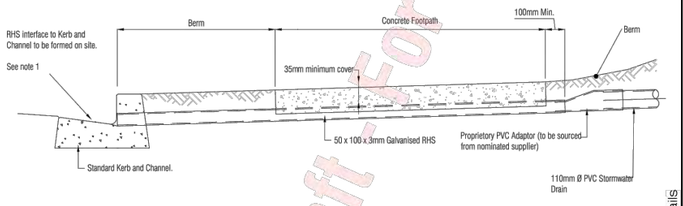
Working Draft - For Review

RD0060



TYPICAL CROSS SECTION

Scale: Not to Scale

NOTES
1. Invert of pipe may be up to 10mm below the invert of the road channel if exposed kerb face is less than 105mm in height.
2. All dimensions are in millimetres unless otherwise stated.
3. RHS - Rectangular Hollow Section
4. 35mm min.
5. Reinstatement width to be 500mm either side of the new pipe. Kerb cutout to be wide enough to ensure 50mm cover to the new stormwater pipe.
6. Existing kerb to be cut out to facilitate installation of new stormwater pipe and reinstated using epoxy mortar or similar approved to the satisfaction of AT asset manager.
7. A shallow inspection chamber is required at any change of direction between road boundary and outlet.

Transport Design Manual | Standard Engineering Details

Review 1	TDM TECHNICAL STANDARDS	Date: Document in Review
DATE: February 14, 2020	Kerb discharge	SED No. RD0060 / Version A

DRAFT FOR REVIEW

NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

Rev	Description	By	Date
A	DRAFT	SP	02/2025

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Survey	--	--/----
Design	--	--/----
Drawn	SP	11/2024
Checked	JP/LC	02/2025

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Project
SUNFIELD DEVELOPMENT ARDMORE. AUCKLAND MASTERPLANNING FOR SUNFIELD DEVELOPMENTS LIMITED

Title
ROADING DRAINAGE STANDARD DETAILS SHEET 5

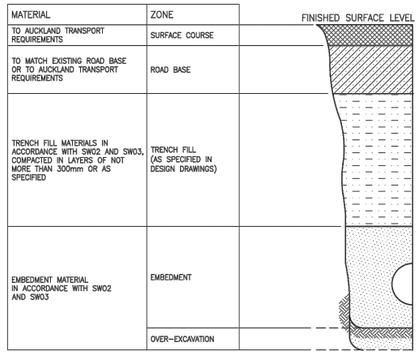
Project no.	215010
Scale	N.T.S
Cad file	215010-M-C801.DWG
Drawing no.	M-C801-4 Rev A

DATE: 8/11/25 | FILE PATH: F:\MAVEN\PROJECTS\215010 - SUNFIELDS\DWG\1-PRODUCTION\MASTER PLANNING\215010-M-C801.DWG

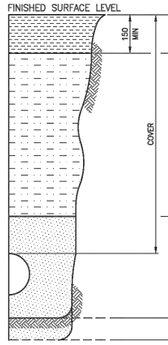
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. EMBEDMENT, TRENCH FILL AND COMPACTION SHALL MEET THE REQUIREMENT OF DESIGN DRAWINGS OR SPECIFICATIONS.
3. SIDES OF EXCAVATION SHALL BE KEPT VERTICAL TO AT LEAST 150mm ABOVE THE PIPE.

MATERIAL	ZONE
TO AUCKLAND TRANSPORT REQUIREMENTS	SURFACE COURSE
TO MATCH EXISTING ROAD BASE OR TO AUCKLAND TRANSPORT REQUIREMENTS	ROAD BASE
TRENCH FILL MATERIALS IN ACCORDANCE WITH SW02 AND SW03, COMPACTED IN LAYERS OF NOT MORE THAN 300mm OR AS SPECIFIED	TRENCH FILL (AS SPECIFIED IN DESIGN DRAWINGS)
EMBEDMENT MATERIAL IN ACCORDANCE WITH SW02 AND SW03	EMBEDMENT
	OVER-EXCAVATION



VEHICULAR LOADING (CARRIAGEWAY)



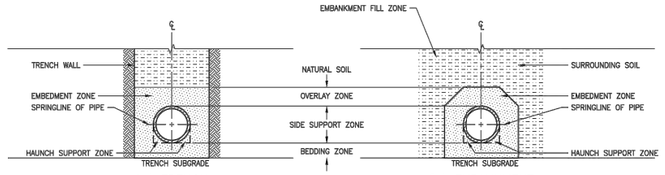
ZONE	MATERIAL
TOPSOIL OR PAVEMENT	ORIGINAL OR IMPORTED MATERIAL TO MATCH EXISTING
TRENCH FILL (AS SPECIFIED IN DESIGN DRAWINGS)	INORGANIC FILL MATERIAL PLACED IN LAYERS NOT MORE THAN 300mm OR AS SPECIFIED
EMBEDMENT	EMBEDMENT MATERIAL IN ACCORDANCE WITH SW02 AND SW03
OVER-EXCAVATION	

NO VEHICULAR LOADING (NON CARRIAGEWAY)
INCLUDES LOCATIONS WHERE OCCASIONAL VEHICLE LOADING OCCURS

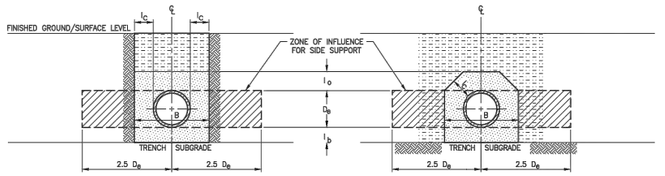
STORMWATER CODE OF PRACTICE STANDARD DETAILS	AUCKLAND COUNCIL	ENVIRONMENTAL-SW	ORIGINAL SCALE A3 SCALE: N.T.S.
REVISION: 3 REV DATE: 17 JANUARY 2022 CAD FILENAME: AC-STD-SW01.DWG	EMBEDMENT & TRENCHFILL TYPICAL ARRANGEMENT	Auckland Council	DRAWING SET SWCoP SHEET 1 OF 1 DRAWING No. SW01 REV 3

NOTES:

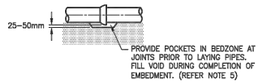
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH SW01.
2. FLEXIBLE PIPES INCLUDES PVC, GRP, PP AND PE.
3. PLACEMENT OF EMBEDMENT, TRENCHFILL, & COMPACTION SHALL MEET THE REQUIREMENTS OF DRAWINGS AND SPECIFICATIONS.
4. EXCAVATE OR COMPACT TRENCH FLOOR TO PROVIDE A FLAT FIRM BASE TO SUPPORT BEDDING MATERIAL AND MINIMISE PIPELINE SETTLEMENT. REPLACE EXCAVATED MATERIAL WITH SUITABLE GRANULAR MATERIAL FOR BEDDING.
5. ENSURE THAT THE BEDDING IS DEEP ENOUGH SO THAT PIPE JOINT PROJECTIONS (SOCKETS, FLANGES) DO NOT TOUCH THE TRENCH FLOOR (SEE DETAIL BELOW).
6. BEDDING MATERIALS SHALL BE GAP/SAP < 12.
7. THIS DRAWING IS BASED ON AS/NZS 2566 PART 2: 2002 "BURIED FLEXIBLE PIPELINES & INSTALLATION" AND REPRODUCED WITH THE PERMISSION OF STANDARDS NEW ZEALAND.



(a) TRENCH (b) EMBANKMENT



(a) TRENCH (b) EMBANKMENT



PIPE JOINT BEDDING POCKETS
FOR JOINT PROJECTIONS

MINIMUM EMBEDMENT ZONE DIMENSIONS

D_e (mm)	MINIMUM DIMENSION (mm)			
	l_b	l_c	l_o	$B=D_e+2l_c$
$75 \le D_e \le 150$	75	100	100	275 – 350
$150 < D_e \le 300$	100	150	150	450 – 600
$300 < D_e \le 450$	100	200	150	700 – 850
$450 < D_e \le 900$	150	300	150	1050 – 1500
$900 < D_e \le 1500$	150	350	200	1600 – 2200
$1500 < D_e \le 4000$	150	$0.25D_e$	300	2250 – 6000

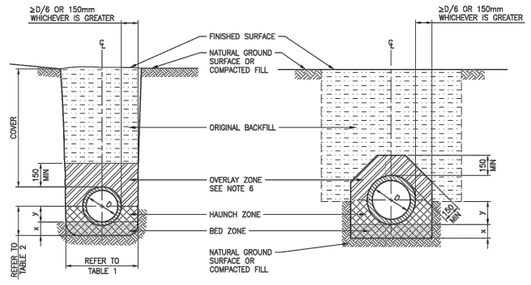
DEFINITIONS OF SYMBOLS USED:

- B TRENCH WIDTH
- D_e EXTERNAL DIAMETER OF PIPELINE.
- l_b DEPTH OF BEDDING UNDER BARREL OF PIPELINE.
- l_c MINIMUM DISTANCE BETWEEN SPRINGLINE OF PIPE AND PERMANENT SIDE OF TRENCH.
- l_o MINIMUM DEPTH OF COVER OVER SOFFIT OF PIPELINE.

STORMWATER CODE OF PRACTICE STANDARD DETAILS	AUCKLAND COUNCIL	ENVIRONMENTAL-SW	ORIGINAL SCALE A3 SCALE: N.T.S.
REVISION: 3 REV DATE: 17 JANUARY 2022 CAD FILENAME: AC-STD-SW02.DWG	PIPE EMBEDMENTS STANDARD EMBEDMENT FOR FLEXIBLE PIPES	Auckland Council	DRAWING SET SWCoP SHEET 1 OF 1 DRAWING No. SW02 REV 3

NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH SW01.
2. CONCRETE PIPE CLASS SHALL BE DESIGNED IN ACCORDANCE WITH AS/NZS 3725: 2007, USING H2 BEDDING, TO CONSTRUCTION OR FINAL CONDITION LOADINGS, WHICHEVER IS GREATER.
3. PLACEMENT OF EMBEDMENT, TRENCHFILL, & COMPACTION SHALL MEET THE REQUIREMENTS OF DRAWINGS AND SPECIFICATIONS.
4. EXCAVATE OR COMPACT TRENCH FLOOR TO PROVIDE A FLAT FIRM BASE TO SUPPORT BEDDING MATERIAL AND MINIMISE PIPELINE SETTLEMENT. REPLACE EXCAVATED MATERIAL WITH SUITABLE GRANULAR MATERIAL FOR BEDDING.
5. ENSURE BEDDING IS DEEP ENOUGH THAT PIPE JOINT PROJECTIONS (SOCKETS) DO NOT TOUCH TRENCH FLOOR (SEE DETAIL BELOW).
6. OVERLAY ZONE AGGREGATE TO BE IN ACCORDANCE WITH AS/NZS 3725:2007.
7. MATERIAL SHALL BE COMPACTED AS NECESSARY TO PREVENT EXCESSIVE SETTLEMENT IN THE GROUND SURFACE LEVEL OVER THE INSTALLED PIPE.
8. WHERE REQUIRED BY SITE CONDITIONS SPECIFIC DESIGN OF PIPE EMBEDMENT MAY BE REQUIRED. THIS SHOULD BE UNDERTAKEN IN ACCORDANCE WITH AS/NZS 3725: 2007 TO THE APPROVAL OF AUCKLAND COUNCIL.
9. EMBEDMENT FOR 'RIGID PIPES' OTHER THAN CONCRETE IS SUBJECT TO SPECIFIC DESIGN AND APPROVAL.



TRENCH CONDITION EMBANKMENT CONDITION

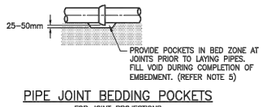
H2 TYPE BEDDING – CONCRETE PIPES

TABLE 1

MAXIMUM PERMISSIBLE TRENCH WIDTHS (IF TRENCH WIDER, USE EMBANKMENT CONDITION)															
NORMAL INTERNAL PIPE DIAMETER (mm)	150	225	300	375	450	525	600	675	750	825	900	975	1050	1200	>1200
MAXIMUM TRENCH WIDTH (mm)	600	600	700	800	900	1000	1100	1200	1300	1400	1500	1500	1600	1800	OD+700

TABLE 2

H2 SUPPORT TYPE	MINIMUM DEPTH (mm)	
	x BED ZONE (mm)	y HAUNCH ZONE (mm)
	100 IF D ≤ 1500 150 IF D > 1500	0.3D



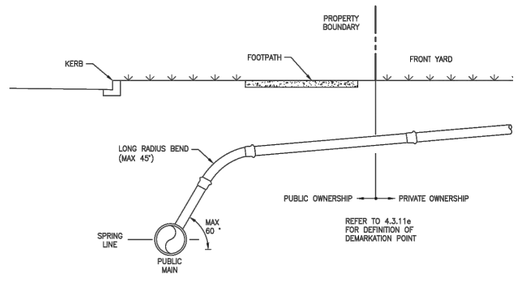
PIPE JOINT BEDDING POCKETS
FOR JOINT PROJECTIONS

STORMWATER CODE OF PRACTICE STANDARD DETAILS	AUCKLAND COUNCIL	ENVIRONMENTAL-SW	ORIGINAL SCALE A3 SCALE: N.T.S.
REVISION: 4 REV DATE: 18 DECEMBER 2023 CAD FILENAME: AC-STD-SW03_V4.0.DWG	PIPE EMBEDMENTS STANDARD EMBEDMENT FOR CONCRETE PIPES	Auckland Council	DRAWING SET SWCoP SHEET 1 OF 1 DRAWING No. SW03 REV 4

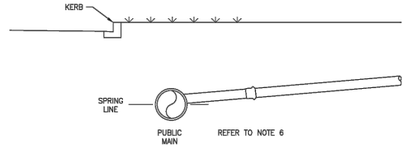
NOTES:

GENERAL NOTES:

1. REFER SWCoP SECTION 4.3.9.5 FOR MINIMUM PIPE DIAMETERS.
2. REFER SWCoP SECTION 4.3.11 FOR PUBLIC/PRIVATE DEMARKATION DEFINITIONS.
3. REFER SWCoP SECTION 4.3.12 FOR LATERAL CONNECTION REQUIREMENTS.
4. REFER SWCoP SECTION4.3.13 FOR CATCHPIT CONNECTIONS DETAILS.
5. A RODDING POINT OR CHAMBER SHALL BE PROVIDED ON THE PUBLIC OR PRIVATE SECTION OF THE LATERAL TO ALLOW CCTV ACCESS. WHERE THIS CANNOT BE PROVIDED, THE CONNECTION SHALL BE MADE AT A MANHOLE.
6. THE CENTRELINE OF THE LATERAL SHALL BE ABOVE THE SPRING LINE OF THE PUBLIC MAIN IT CONNECTS TO.
7. THE LATERAL CONNECTION SHALL BE FULLY SUPPORTED WITH COMPACTED BEDDING MATERIAL, WHICH SHALL EXTEND FROM THE BEDDING OF THE PUBLIC MAIN TO AT LEAST THE SPRING LINE OF THE LATERAL CONNECTION PIPE THROUGH ITS LENGTH UNTIL BEYOND THE TRENCH WALL OF THE PUBLIC MAIN.



LATERAL CONNECTION – DEEP PUBLIC MAIN
(SINGLE LOT CONNECTION SHOWN)



LATERAL CONNECTION – SHALLOW PUBLIC MAIN

NOTES FOR CONNECTION TO A PVC PUBLIC MAIN:

1. LATERAL CONNECTIONS SHALL BE CONSTRUCTED USING A REINFORCED MOULDED PVC SWEPT TEE OR Y–JUNCTION FITTING WHERE SUCH FITTINGS ARE NORMALLY AVAILABLE WITHIN THE LOCAL MARKET. SADDLE CONNECTIONS ARE PERMITTED ONLY WHEN SWEPT TEE OR Y–JUNCTIONS ARE UNAVAILABLE.

NOTES FOR CONNECTION TO A REINFORCED CONCRETE PUBLIC MAIN:

1. LATERAL CONNECTIONS SHALL BE CONSTRUCTED USING A FLANGED VITREOUS CLAY SADDLE INSERT APPROPRIATELY SIZED TO MATCH THE PUBLIC MAIN.
2. THE HOLE INTO THE EXISTING PUBLIC MAIN SHALL BE DRILLED.
3. THE SADDLE INSERT SHALL BE SEALED VIA EPOXY MORTAR TO THE PUBLIC MAIN.
4. THERE SHALL BE NO PROTRUSION OF THE SADDLE INSERT INSIDE THE BORE OF THE PUBLIC MAIN.

NOTES FOR CONNECTION TO A PE PUBLIC MAIN:

1. LATERAL CONNECTIONS SHALL BE CONSTRUCTED USING A JUNCTION CUT IN WITH ELECTROFUSION COUPLERS. ALTERNATIVELY A SADDLE MAY BE ELECTROFUSED ONTO THE PIPE. SPECIFIC APPROVAL FROM AUCKLAND COUNCIL IS REQUIRED TO SADDLE INTO A PE MAIN.
2. ELECTROFUSION FITTINGS SHALL BE SELECTED TO MATCH SDR AND RESIN OF HOST PIPE, AND SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION.

STORMWATER CODE OF PRACTICE STANDARD DETAILS	AUCKLAND COUNCIL	ENVIRONMENTAL-SW	ORIGINAL SCALE A3 SCALE: N.T.S.
REVISION: 4 REV DATE: 17 JANUARY 2022 CAD FILENAME: AC-STD-SW04.DWG	STORMWATER LATERAL CONNECTIONS DIRECT CONNECTIONS	Auckland Council	DRAWING SET SWCoP SHEET 1 OF 1 DRAWING No. SW04 REV 4

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

Rev	Description	By	Date
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	By	Date
Survey	--	--/----
Design	--	--/----
Drawn	SP	11/2024
Checked	JP/LC	02/2025

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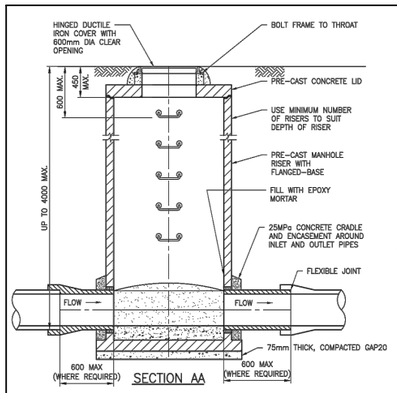
Project
SUNFIELD DEVELOPMENT
ARDMORE, AUCKLAND
MASTERPLANNING
FOR SUNFIELD
DEVELOPMENTS LIMITED

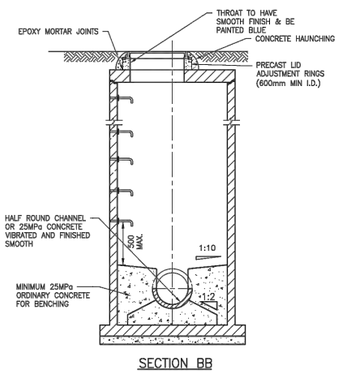
Title
STORMWATER
STANDARD DETAILS
SHEET 1

Project no.	215010		
Scale	N.T.S		
Cad file	215010-M-C802.DWG		
Drawing no.	M-C802	Rev	A

DRAFT FOR REVIEW

DATE: 6/1/25 FILEPATH: F:\MAVEN\PROJECTS\215010 SUNFIELDDWG\14-PRODUCTION\MASTER PLANNING\215010-M-C802.DWG





STANDARD MANHOLE UP TO 4.0m DEPTH TO INVERT – ELEVATION

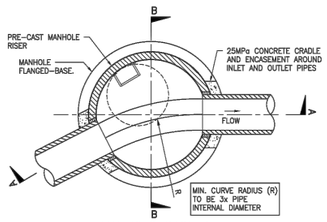
NOTES:

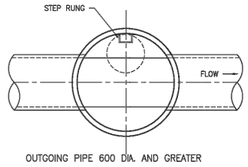
1. MANHOLES SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THIS DRAWING AND SECTION 4.3.10 OF THE SWCoP AND IN COMPLIANCE WITH MANUFACTURERS SPECIFICATION.
2. MANHOLE RISER DIAMETER IS TO ALLOW FOR A MINIMUM CURVE RADIUS BETWEEN THE INLET AND OUTLET PIPES OF THREE TIMES THE INTERNAL DIAMETER OF THE OUTLET PIPE.
3. PRECAST LID ADJUSTMENT RINGS TO BE INSTALLED TO MANUFACTURER'S SPECIFICATION.
4. FOR FLEXIBLE PIPELINES, UP TO 300mm DIA, ON GRADIENTS OF 10% AND GREATER, REQUIRED BENCHING DEPTHS WITHIN THE DOWNSTREAM MANHOLE CAN BE REDUCED, BY THE REDUCTION OF THE GRADIENT IMMEDIATELY OUTSIDE THE MANHOLE. THIS MAY BE ACHIEVED BY INSTALLING A MANUFACTURED, PRE-FORMED BEND WITH VERTICAL RADIUS MIN. 8x INSIDE PIPE DIAMETER.
5. MANHOLE COVERS ON ROADS SHALL BE ALIGNED SO THAT A VEHICLE STRIKING A HINGED COVER IN A PARTIALLY OPEN POSITION SHALL PUSH THAT COVER TOWARDS ITS CLOSED POSITION.
6. REFER SWCoP SECTION 4.3.10.10 FOR MANHOLE SAFETY GRILLE REQUIREMENTS AND DETAILS.

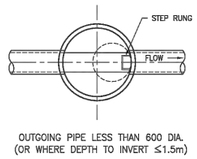
MINIMUM MANHOLE RISER DIAMETER

PIPE DIA.	DEFLECTION: 0°	15°	30°	45°	60°	75°
450	1050	1050	1050	1200	1500	2050
525	1050	1050	1050	1350	1800	2300
600	1050	1050	1200	1500	2050	SD*
750	1200	1200	1350	1800	SD	SD
825	1350	1350	1500	2050	SD	SD
900	1500	1500	1800	2300	SD	SD
1050	1800	1800	1800	SD	SD	SD

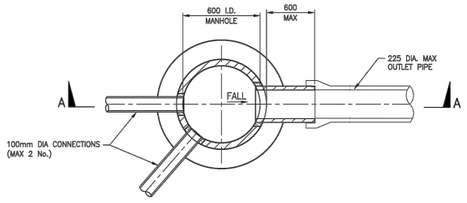
SD* Specific Design
>75° deflection requires specific design





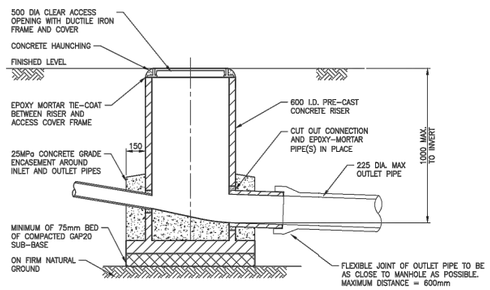


STORMWATER CODE OF PRACTICE STANDARD DETAILS REVISION: 4 REV DATE: 18 DECEMBER 2023 CAD FILENAME: AC-STD-SW05_V4.1.DWG	AUCKLAND COUNCIL STANDARD STORMWATER MANHOLE SUITABLE FOR UP TO 4.0m DEPTH TO INVERT	ENVIRONMENTAL-SW	ORIGINAL SCALE: A3 SCALE: N.T.S. DRAWING SET: SWCoP SHEET: 1 OF 1 DRAWING No.: SW05 REV: 4



NOTES:

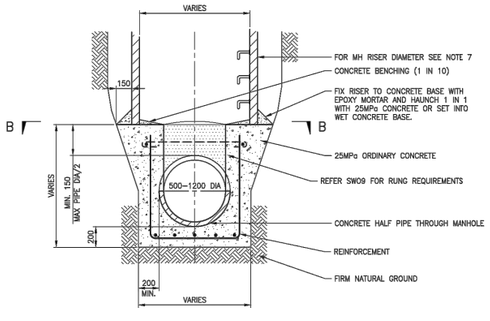
1. NON-ACCESS CHAMBER, SUITABLE FOR OUTLET INVERT DEPTH OF LESS THAN 1000mm.
2. MAXIMUM OUTLET PIPE DIAMETER SHALL BE 225mm.
3. MAXIMUM NUMBER OF CONNECTIONS SHALL BE TWO 100mm DIA INLET CONNECTIONS PER NON-ACCESS CHAMBER.
4. ADDITIONAL CONNECTIONS REQUIRE MANHOLE.
5. BENCHING ABOVE INVERT OF OUTLET PIPE WITHIN NON-ACCESS CHAMBERS IS NOT MANDATORY.
6. REFER SWCoP SECTION 4.3.10.10 FOR MANHOLE SAFETY GRILLE REQUIREMENTS AND DETAILS.

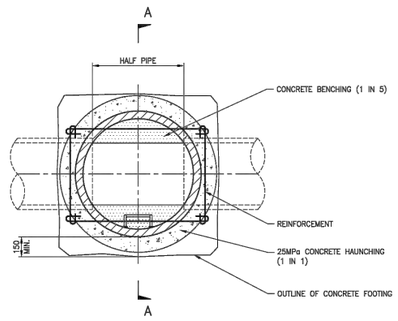


STORMWATER CODE OF PRACTICE STANDARD DETAILS REVISION: 4 REV DATE: 18 DECEMBER 2023 CAD FILENAME: AC-STD-SW06_V4.0.DWG	AUCKLAND COUNCIL STORMWATER MANHOLES – NON-ACCESS CHAMBER TYPICAL DETAIL (OUTLET INVERT DEPTH LESS THAN 1000mm)	ENVIRONMENTAL-SW	ORIGINAL SCALE: A3 SCALE: N.T.S. DRAWING SET: SWCoP SHEET: 1 OF 1 DRAWING No.: SW06 REV: 4

NOTES:

1. SPECIFIC DESIGN IS REQUIRED.
2. AUCKLAND COUNCIL APPROVAL REQUIRED FOR CAST IN-SITU MANHOLE BASES WHERE OUTLET PIPE DIAMETER IS LESS THAN 500mm
3. FOR PIPE DIAMETERS GREATER THAN 1200mm A FACTORY PRODUCED OFFTAKE MANHOLE WITH LOBSTER BACK BEND MAY BE AN ACCEPTABLE SOLUTION SUBJECT TO SPECIFIC DESIGN TO AUCKLAND COUNCIL APPROVAL.
4. FOR MANHOLE RISER DIAMETERS, SIZING SHALL BE IN ACCORDANCE WITH TABLE 1 OF DRAWING SW05 BASED ON DEFLECTION ANGLES.
5. REFER TO DRAWING SW09 IF 'RECESSED RUNGS' ARE REQUIRED IN THE CONCRETE BASE.
6. REINFORCEMENT IS SHOWN AS GENERAL ARRANGEMENT ONLY AND SHALL BE SPECIFICALLY DESIGNED FOR EACH APPLICATION.
7. MANHOLE RISER DIAMETER IS TO ALLOW FOR A MINIMUM CURVE RADIUS BETWEEN THE INLET AND OUTLET PIPES OF THREE TIMES THE INTERNAL DIAMETER OF THE OUTLET PIPE. (REFER SW05)

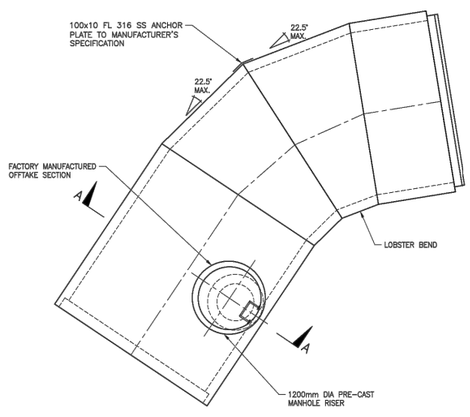


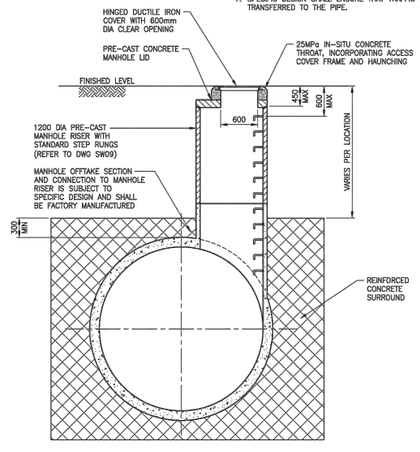


STORMWATER CODE OF PRACTICE STANDARD DETAILS REVISION: 3 REV DATE: 17 JANUARY 2022 CAD FILENAME: AC-STD-SW07.DWG	AUCKLAND COUNCIL STORMWATER MANHOLE WITH IN-SITU CONCRETE BASE – SUBJECT TO SPECIFIC DESIGN SUITABLE FOR MANHOLES UP TO 5m DEEP	ENVIRONMENTAL-SW	ORIGINAL SCALE: A3 SCALE: N.T.S. DRAWING SET: SWCoP SHEET: 1 OF 1 DRAWING No.: SW07 REV: 3

NOTES:

1. THIS DETAIL IS ONLY CONCEPTUAL. FINAL APPROVAL OF MANHOLE IS SUBJECT TO SPECIFIC DESIGN.
2. DETAILS SHOWN ON THIS PLAN ARE SUITABLE WHERE THE DIAMETER OF THE OUTLET PIPE IS 1200mm OR GREATER.
3. LOBSTER BENDS AND LOBSTER BEND UNITS INCORPORATING THE CONNECTION TO THE RISER MUST BE SPECIFICALLY DESIGNED AND FACTORY MANUFACTURED.
4. ALL LOBSTER BENDS AND PIPEWORK CONNECTIONS TO LOBSTER BENDS REQUIRE SPECIFIC DESIGN AND APPROVAL.
5. NO LOBSTER BENDS SHALL BE CONSTRUCTED ON SITE.
6. CONSIDERATION OF NECESSITY OF THRUST BLOCKS SHALL FORM PART OF THE SPECIFIC DESIGN ON LOBSTER BENDS.
7. SPECIFIC DESIGN SHALL ENSURE THAT TRAFFIC LOADING IS NOT TRANSFERRED TO THE PIPE.





STORMWATER CODE OF PRACTICE STANDARD DETAILS REVISION: 2 REV DATE: 1 NOVEMBER 2015 CAD FILENAME: AC-STD-SW08.DWG	AUCKLAND COUNCIL STORMWATER MANHOLE OFFTAKE – SUBJECT TO SPECIFIC DESIGN FOR PIPES 1200mm DIAMETER OR GREATER	ENVIRONMENTAL-SW	ORIGINAL SCALE: A3 SCALE: N.T.S. DRAWING SET: SWCoP SHEET: 1 OF 1 DRAWING No.: SW08 REV: 2

DRAFT FOR REVIEW

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

Rev	Description	By	Date
A	DRAFT	SP	02/2025

	By	Date
Survey	--	--/----
Design	--	--/----
Drawn	SP	11/2024
Checked	JP/LC	02/2025

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Project
SUNFIELD DEVELOPMENT ARDMORE, AUCKLAND MASTERPLANNING FOR SUNFIELD DEVELOPMENTS LIMITED

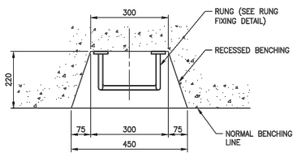
Title
STORMWATER STANDARD DETAILS SHEET 2

Project no.	215010		
Scale	N.T.S		
Cad file	215010-M-C802.DWG		
Drawing no.	M-C802-1	Rev	A

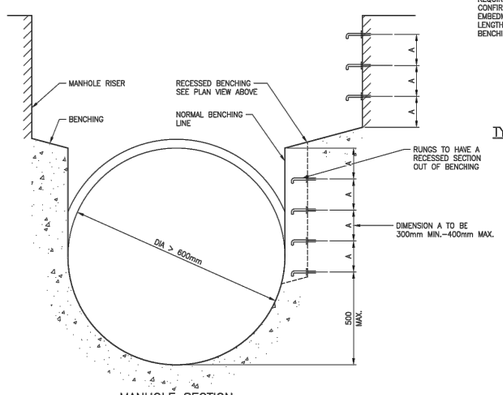
DATE: 6/11/25 FILEPATH: P:\MAVEN\PROJECTS\2015\10 SUNFIELD\DWG\3 PRODUCTION\MASTER PLANNING\2015\10-M-C802.DWG

NOTES:

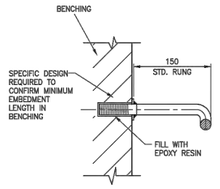
1. RECESSED RUNGS SHALL BE USED FOR PIPE DIAMETERS > 600mm.
2. RECESSED RUNGS SHALL BE LOCATED ON INSIDE CURVE OF BENCHING AND SHALL ALIGN WITH MANHOLE ACCESS RUNGS.
3. ALL STEELWORK SHALL BE 'HOT DIPPED GALVANISED' AFTER FABRICATION HAS BEEN COMPLETED, WITH A MINIMUM AVERAGE COATING WEIGHT OF ZINC=610g/sqm TO AS/NZS 4680-2006.
4. STEEL PARTS WITH THREADS THAT ARE CENTRIFUGED AFTER THE GALVANISATION TO MAINTAIN THE THREADING SHALL HAVE A MINIMUM AVERAGE COATING MASS FOR THOSE PARTS IS 390g/m².
5. BELOW RL 4.00m OR IN SEVERE EXPOSURE CONDITIONS, PE COATED HOT DIPPED GALVANISED STEEL OR PE COATED 316 STAINLESS STEEL RUNGS SHALL BE USED.
6. STAINLESS STEEL RUNGS MAY BE 16mm DIA SUBJECT TO AUCKLAND COUNCIL APPROVAL.
7. OTHER RUNG SYSTEMS MAY BE UTILISED SUBJECT TO AUCKLAND COUNCIL APPROVAL.
8. ALL MATERIALS TO BE USED AND INSTALLED AS PER MANUFACTURERS SPECIFICATIONS.



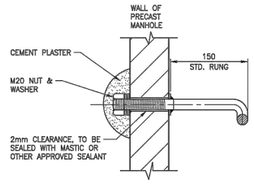
PLAN – RECESSED RUNG DETAIL



MANHOLE SECTION RECESSED RUNGS

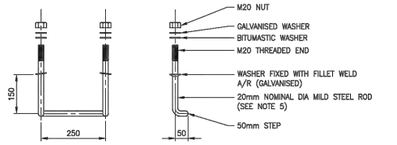


TYPICAL SECTION RUNG CONNECTION BY EPOXY RESIN
(FOR RECESSED STEPS AND RETRO ONLY)



TYPICAL SECTION RUNG CONNECTION BY NUT

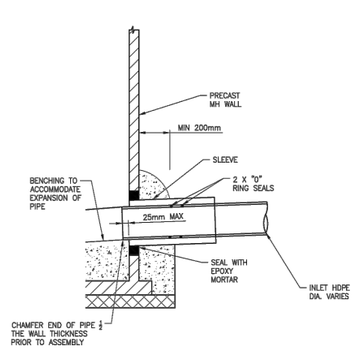
RUNG CONNECTIONS



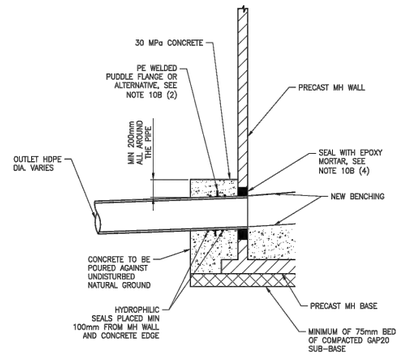
PLAN SIDE ELEVATION

TYPICAL RUNG ASSEMBLY

STORMWATER CODE OF PRACTICE STANDARD DETAILS REVISION: 3 REV DATE: 17 JANUARY 2022 CAD FILENAME: AC-STD-SW09.DWG	AUCKLAND COUNCIL STORMWATER MANHOLE ACCESS RECESSED RUNGS AND GENERAL ACCESS RUNGS DETAILS	ENVIRONMENTAL-SW	ORIGINAL SCALE: N.T.S. A3 DRAWING SET: SWCoP SHEET: 1 OF 1 DRAWING No.: SW09 REV: 3



HDPE SLIDING JOINT (DOWNSTREAM)



RESTRAINED JOINT (UPSTREAM)

10A: SLIDING JOINT NOTES

1. THE SLIDING SLEEVE IS TO BE MADE OF PVC, FRP OR VITRIFIED CLAY AND THE EXTERIOR SURFACE OF THE SLEEVE SHALL BE PRE-TREATED TO ALLOW CONCRETE TO BOND.
2. THE PE PIPE SHALL BE ALLOWED TO COOL DOWN FOR A PERIOD OF 24HRS PRIOR TO INSTALLATION OF THE SLIDING JOINT.
3. SPECIFIC DESIGN AND APPROVAL IS REQUIRED FOR PE PIPES GREATER THAN DN450.

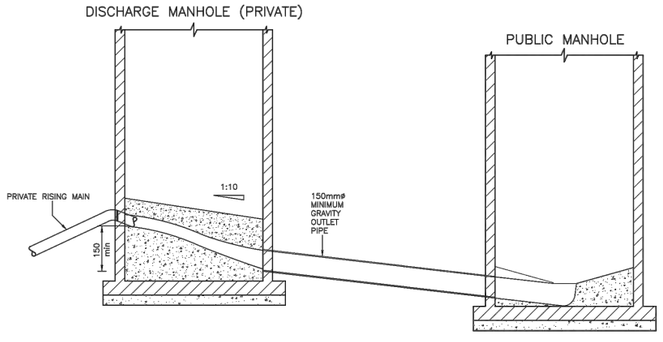
10B: RESTRAINED JOINT NOTES

1. THE CONCRETE CAST AROUND THE PUDDLE FLANGE SHALL BE AT LEAST 150mm BETWEEN THE OUTSIDE FACE OF THE PUDDLE FLANGE AND THE OUTSIDE OF THE CONCRETE BLOCK.
2. AN ELECTROFUSION COUPLER OR PE FLEX RESTRAINT FITTING (GEORGE FISCHER OR SIMILAR APPROVED) CAN BE USED INSTEAD OF THE PUDDLE FLANGE PROVIDED THAT THE 150mm MIN DISTANCE BETWEEN THE OUTSIDE END OF COUPLER/RESTRAINT FITTING AND THE OUTSIDE FACE OF CONCRETE IS MAINTAINED.
3. SPECIFIC DESIGN AND APPROVAL FOR PE PIPES GREATER THAN DN450.
4. THE GAP BETWEEN MH WALL AND PIPE SHALL BE A MIN. OF 30mm TO ALLOW FOR EPOXY MORTAR TO FILL THE VOID.

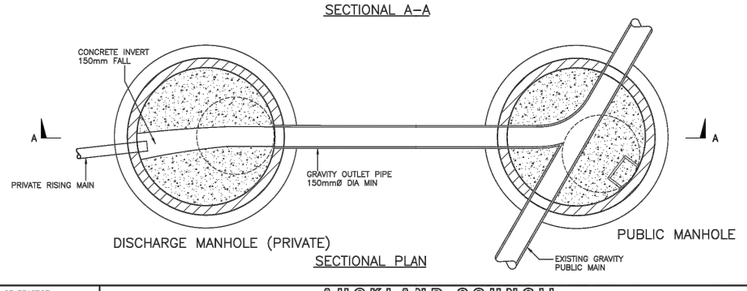
STORMWATER CODE OF PRACTICE STANDARD DETAILS REVISION: 4 REV DATE: 18 DECEMBER 2023 CAD FILENAME: AC-STD-SW10 V4.1.DWG	AUCKLAND COUNCIL STORMWATER MANHOLE–PE PIPE JOINT (FOR PE PIPES LESS THAN DN450)	ENVIRONMENTAL-SW	ORIGINAL SCALE: N.T.S. A3 DRAWING SET: SWCoP SHEET: 1 OF 1 DRAWING No.: SW10 REV: 4

NOTES:

1. ALL CONCRETE TO BE 25MPa.
2. A SINGLE PRIVATE CONNECTION TO A PUBLIC MAIN CAN BE MADE VIA A PRIVATE NON ACCESS CHAMBER WITH A 150mm MIN. GRAVITY PIPE FEED TO THE PUBLIC MAIN OR MANHOLE.
3. MANHOLE COVER AND STEP IRON LOCATION TO BE DETERMINED IN ACCORDANCE WITH SW05.
4. DISCHARGE MANHOLE SHALL ALWAYS REMAIN IN PRIVATE OWNERSHIP.
5. OWNERSHIP OF PIPELINE DOWNSTREAM OF DISCHARGE MANHOLE TO BE DETERMINED IN ACCORDANCE WITH SECTION 4.3.11 OF THE SWCoP.



SECTIONAL A–A

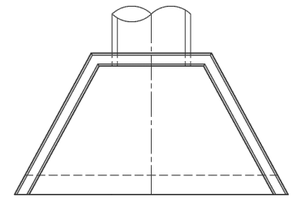


SECTIONAL PLAN

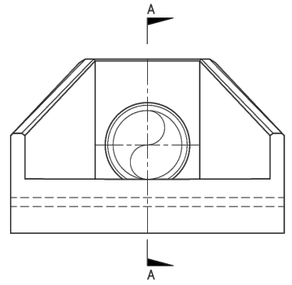
STORMWATER CODE OF PRACTICE STANDARD DETAILS REVISION: 3 REV DATE: 17 JANUARY 2022 CAD FILENAME: AC-STD-SW11.DWG	AUCKLAND COUNCIL RISING MAIN CONNECTION PRIVATE	ENVIRONMENTAL-SW	ORIGINAL SCALE: N.T.S. A3 DRAWING SET: SWCoP SHEET: 1 OF 1 DRAWING No.: SW11 REV: 3

NOTES:

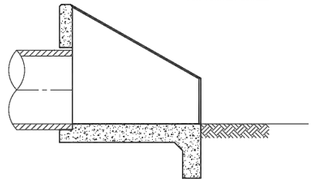
1. THIS DRAWING IS INTENDED TO PROVIDE AN OVERVIEW OF A TYPICAL CONFIGURATION FOR INLET/OUTLET STRUCTURES. WHERE STANDARD PRE-CAST PRODUCTS ARE NOT SUITABLE, SPECIFIC DESIGN IS REQUIRED.
2. DESIGN OF PRE-CAST INLET/OUTLET STRUCTURES SHALL INCLUDE ASSESSMENT OF THE STRUCTURE LOCATION AND THE VISIBILITY OF THE STRUCTURE. IT MAY BE NECESSARY TO SPECIFICALLY DESIGN THE STRUCTURE AND USE BASALT ROCKS EMBEDDED IN CONCRETE OR APPROVED ALTERNATIVE IN HIGH VISIBILITY AREAS.
3. FOR OUTLET STRUCTURES, SPECIFIC DESIGN OF SCOUR PREVENTION AND ENERGY DISSIPATION WILL BE REQUIRED IN ACCORDANCE WITH AUCKLAND COUNCIL TECHNICAL REPORT TR2013/018. ENERGY DISSIPATORS MAY INCLUDE BAFFLES, ROCK RIP-RAP OR RENO MATTRESSES (OR GABIONS).
4. FOR INLET STRUCTURES, SPECIFIC DESIGN OF SCOUR PREVENTION MEASURES SHALL BE REQUIRED IN ACCORDANCE WITH AUCKLAND COUNCIL TECHNICAL REPORT TR2013/018.
5. ALL CONCRETE SHALL BE ORDINARY GRADE 40MPa.
6. THERE SHALL BE AT LEAST TWO BARS OF REINFORCING (WHETHER MESH OR MILD STEEL BARS), OVER THE TOP OF THE PIPE.
7. ALL REINFORCING BARS SHALL BE "GRADE 500E" AND MESH SHALL BE "GRADE 500L".
8. THE ENGINEER SHALL ENSURE THE STRUCTURE IS PLACED ON ADEQUATE FOUNDATION MATERIAL.
9. FENCING AROUND INLET/OUTLET STRUCTURES IS REQUIRED UNLESS IT CAN BE DEMONSTRATED THAT HUMAN ACCESS TO THE INLET/OUTLET STRUCTURE IS UNLIKELY AND/OR THE HEIGHT OF THE STRUCTURE IS LESS THAN 1.0m. FENCING SHALL BE IN ACCORDANCE WITH DRAWING SW20.
10. INLETS TO THE STORMWATER NETWORK SHALL BE FITTED WITH A SAFETY GRILLE. THE GRILLE SHALL BE SPECIFICALLY DESIGNED AND REQUIRES AUCKLAND COUNCIL APPROVAL FOR CULVERT INLETS, A RISK ASSESSMENT SHOULD BE COMPLETED TO DECIDE WHETHER A SAFETY GRILLE IS REQUIRED. SEE SECTION 4.3.9.9 FOR FURTHER DETAILS.



PLAN



FRONT ELEVATION



SECTION AA

STORMWATER CODE OF PRACTICE STANDARD DETAILS REVISION: 3 REV DATE: 17 JANUARY 2022 CAD FILENAME: AC-STD-SW19.DWG	AUCKLAND COUNCIL STORMWATER INLET/OUTLET STRUCTURES TYPICAL CONFIGURATION	ENVIRONMENTAL-SW	ORIGINAL SCALE: N.T.S. A3 DRAWING SET: SWCoP SHEET: 1 OF 1 DRAWING No.: SW19 REV: 3

DRAFT FOR REVIEW

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

Rev	Description	By	Date
A	DRAFT	SP	02/2025

	By	Date
Survey	--	--/----
Design	--	--/----
Drawn	SP	11/2024
Checked	JP/LC	02/2025

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Project
SUNFIELD DEVELOPMENT ARDMORE, AUCKLAND MASTERPLANNING FOR SUNFIELD DEVELOPMENTS LIMITED

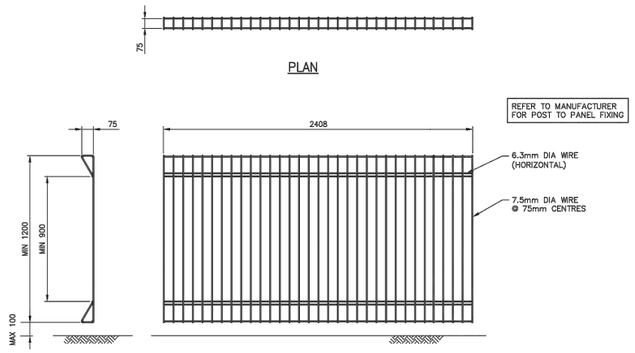
Title
STORMWATER STANDARD DETAILS SHEET 3

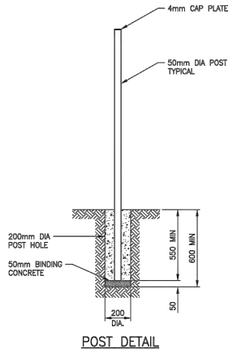
Project no.	215010		
Scale	N.T.S		
Cad file	215010-M-C802.DWG		
Drawing no.	M-C802-2	Rev	A

DATE: 6/11/25 FILEPATH: J:\MAVEN\PROJECTS\2015\10 SUNFIELDS\03 PRODUCTION\MASTER PLANNING\215010-M-C802.DWG

NOTES:

1. FENCE PANELS SHALL BE HOT DIPPED GALVANISED AND POWDER COATED BLACK.
2. FENCE PANELS SHALL NOT HAVE MORE THAN 100mm GAP FROM GROUND LEVEL TO INSTALLED PANEL.
3. POSTS SHALL BE 50mm DIA HOT DIPPED GALVANISED PIPE AND POWDER COATED BLACK.
4. POSTS SHALL BE INSTALLED VERTICAL.

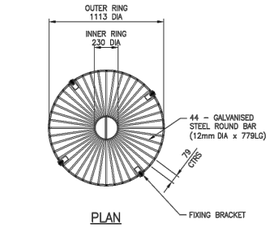


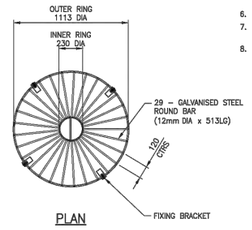


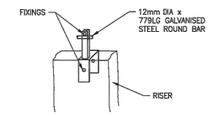
STORMWATER CODE OF PRACTICE STANDARD DETAILS REVISION: 3 REV DATE: 17 JANUARY 2022 CAD FILENAME: AC-STD-SW20.DWG	AUCKLAND COUNCIL STORMWATER INLET/OUTLET STRUCTURES STANDARD SAFETY FENCE DETAIL	ENVIRONMENTAL-SW	ORIGINAL SCALE A3 SCALE: N.T.S. DRAWING SET SWCoP 1 OF 1 DRAWING No. SW20 REV 3

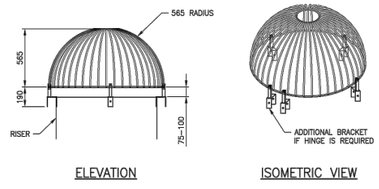
NOTES:

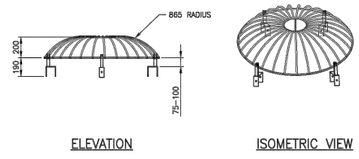
1. THE SCRUFFY DOME GRILLE PROVIDES A DEBRIS SCREEN. TYPICAL LOCATIONS FOR SCRUFFY DOMES INCLUDE PARKS, WETLANDS AND OVERLAND FLOW PATHS.
2. LOCKABLE HINGED VERSIONS ARE AVAILABLE AND MAY BE SPECIFIED WHERE NEEDED.
3. A MINIMUM OF 450mm SUMP DEPTH SHALL BE PROVIDED IN THE MANHOLE.
4. THERE SHALL BE NO SCRUFFY DOME GRILLES IN FOOTPATHS, DRIVEWAYS OR ROADWAYS.
5. SCRUFFY DOME BRACKETS SHALL BE BOLTED TO THE RISER WITH GALVANISED STEEL BOLTS (CLEAR OF RISER REINFORCING).
6. PAINTING MAY BE REQUIRED IN CERTAIN LOCATIONS.
7. FOR SCRUFFY DOMES ON RISERS GREATER THAN 1050mm DIA, SPECIFIC DESIGN IS REQUIRED.
8. SCRUFFY DOMES IN PONDS AND WETLANDS MUST BE HINGED AND LOCKABLE. OUTLET RISER MUST BE LOCATED SUCH AS TO FACILITATE EASY AND SAFE ACCESS FOR CLEARING AND MAINTENANCE DURING STORM EVENTS.







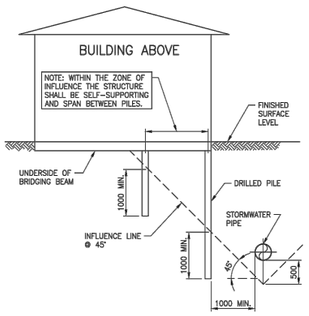


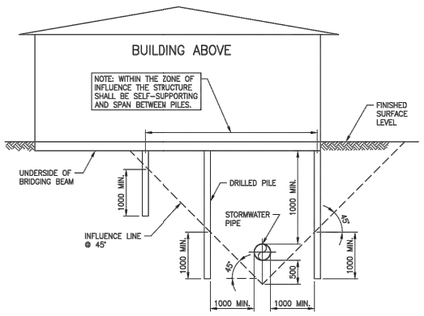


STORMWATER CODE OF PRACTICE STANDARD DETAILS REVISION: 3 REV DATE: 17 JANUARY 2022 CAD FILENAME: AC-STD-SW21.DWG	AUCKLAND COUNCIL DEBRIS CONTROL SCREEN FOR 1050 DIA RISER SCRUFFY DOME TYPICAL DETAIL	ENVIRONMENTAL-SW	ORIGINAL SCALE A3 SCALE: N.T.S. DRAWING SET SWCoP 1 OF 1 DRAWING No. SW21 REV 3

GENERAL NOTES:

1. THE INFORMATION ON THIS PAGE IS INTENDED TO SHOW EXAMPLES OF TYPICAL SCENARIOS AND SHALL BE USED FOR GENERAL GUIDANCE PURPOSES ONLY. SIGNIFICANT VARIATIONS ON A SITE-BY-SITE BASIS ARE TO BE EXPECTED AND IT IS IN NO WAY IMPLIED THAT MEETING ANY OF THESE REQUIREMENTS WILL GUARANTEE APPROVAL.
2. WHERE CONSTRUCTION WORKS ARE PROPOSED IN THE VICINITY OF EXISTING PUBLIC STORMWATER ASSETS, ANY NECESSARY MEASURES TO PROTECT SUCH ASSETS SHALL BE IMPLEMENTED, IN ACCORDANCE WITH SECTION 4.3.23 OF THE SWCoP.
3. REQUIREMENTS FOR FOUNDATION DESIGN, ETC. APPLY TO BOTH SIDES OF THE PIPE.
4. NO DRIVEN PILES ARE PERMITTED WITHIN 10m OF BRICK STORMWATER STRUCTURES, OR WITHIN 5m OF ALL OTHER STORMWATER STRUCTURES.
5. SPECIFIC APPROVAL IS REQUIRED FROM AUCKLAND COUNCIL FOR DRIVEN PILES IN PARTIALLY DRILLED HOLES, WITHIN THE 5m–10m ZONE.
6. PILES THAT MAY BE REQUIRED TO RESIST HORIZONTAL FORCES WILL REQUIRE SPECIFIC DESIGN.
7. PILE/FOOTING LOCATION POINT MUST BE BELOW 45° "ZONE OF INFLUENCE".
8. ALL MANHOLES SHALL HAVE 24 HOURS UNOBSTRUCTED ACCESS.
9. MANHOLES IN BASEMENTS, OR IN LOCATIONS WHERE SUFFICIENT CLEARANCE IS UNAVAILABLE, ARE NOT PERMITTED.
10. ALL PIPE 'WORK OVER' WILL REQUIRE SPECIFIC APPROVAL BY AUCKLAND COUNCIL.
11. REFER TO SECTION 4.3.23 OF THE SWCOP FOR PIPE 'WORK OVER' REQUIREMENTS.
12. FOR MANHOLES GREATER THAN 4m DEEP OR LARGER THAN 1200mm DIA. SPECIFIC DESIGN (INCLUDING CLEARANCE REQUIREMENTS) IS REQUIRED.
13. SPECIFIC APPROVAL FROM COUNCIL IS REQUIRED FOR WORKS WITHIN 10 METERS OF A RISING MAIN.
14. WORKS OVER RISING MAIN IS NOT ALLOWED.



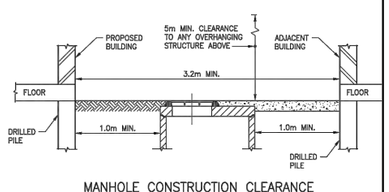


'WORKS CLOSE' NOTES:

1. OUTSIDE ZONE OF INFLUENCE, NORMAL FOUNDATION REQUIREMENTS APPLY.
2. SPECIFIC APPROVAL IS REQUIRED FROM AUCKLAND COUNCIL IF WORKS ARE ADJACENT TO PIPES LARGER THAN 375mm INTERNAL DIAMETER, OR GREATER THAN 2.0m DEEP.
3. BUILDING SHALL BE OUTSIDE ALL OVERLAND FLOW PATHS AND FLOODPLAINS. SEE SECTION 4.3.5.6 AND 4.3.5.7 OF THE SWCoP FOR FURTHER DETAILS.
4. PILES SHALL BE CONSTRUCTED TO A DEPTH OF 1.0m BELOW INFLUENCE LINE.

'WORKS OVER' NOTES:

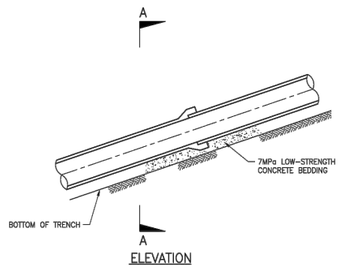
1. OUTSIDE ZONE OF INFLUENCE, NORMAL FOUNDATION REQUIREMENTS APPLY.
2. THE DETAIL APPLIES TO STORMWATER PIPES ≤ 375mm NOMINAL DIAMETER AND ≤ 2.0m DEPTH TO INVERT.
3. WORKS OVER PIPES LARGER THAN 375mm NOMINAL DIAMETER IS NOT ALLOWED.
4. PILES SHALL BE CONSTRUCTED TO A DEPTH OF 1.0m BELOW INFLUENCE LINE.
5. BRIDGING IS NOT ALLOWED OVER PIPES WHERE CLEAR VERTICAL SEPARATION DISTANCE FROM TOP OF PIPE TO UNDERSIDE OF BRIDGING BEAM IS LESS THAN 1.0m.



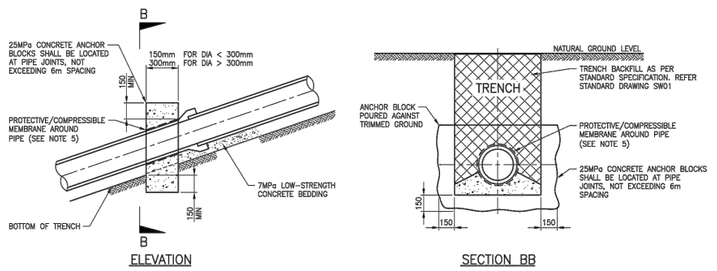
STORMWATER CODE OF PRACTICE STANDARD DETAILS REVISION: 3 REV DATE: 17 JANUARY 2022 CAD FILENAME: AC-STD-SW22.DWG	AUCKLAND COUNCIL STORMWATER PIPE AND MANHOLE CONSTRUCTION CLEARANCE REQUIREMENTS MANHOLES NEAR WORKS AND WORKS CLOSE TO, OR OVER, PIPES	ENVIRONMENTAL-SW	ORIGINAL SCALE A3 SCALE: N.T.S. DRAWING SET SWCoP 1 OF 1 DRAWING No. SW22 REV 3

NOTES:

1. USE LOW-STRENGTH CONCRETE (7MPa) BEDDING FOR PIPES ON GRADIENTS BETWEEN 10% AND 20%.
2. USE ANCHOR BLOCKS FOR PIPES ON GRADIENTS STEEPER THAN 20% (1 IN 5).
3. SPECIFIC DESIGN AND SPACING MAY BE NEEDED FOR PIPES ON GRADIENTS >30% OR WHERE GROUNDWATER IS CONSIDERED SIGNIFICANT.
4. ANCHOR BLOCK TO BE CONSTRUCTED ON LOWER SIDE OF JOINT.
5. PIPE SHALL BE WRAPPED FOR LENGTH OF THE ANCHOR BLOCK AT THE CONCRETE INTERFACE. WRAPPING SHALL BE COMPRESSIBLE MATERIAL, (e.g. DENSO TAPE OR POLYETHYLENE FILM).
6. WHERE PIPES ARE EMBEDDED IN LOW-STRENGTH CONCRETE, A TRANSVERSE EXPANSION JOINT SHALL BE PROVIDED AT EACH JOINT.
7. FOR FLEXIBLE PIPELINES, UP TO 300mm DIA, ON GRADIENTS OF 10% AND GREATER, REQUIRED BENCHING DEPTHS WITHIN THE DOWNSTREAM MANHOLE CAN BE REDUCED, BY THE REDUCTION OF THE GRADIENT IMMEDIATELY OUTSIDE THE MANHOLE. THIS MAY BE ACHIEVED BY INSTALLING A MANUFACTURED, PRE-FORMED BEND WITH VERTICAL RADIUS MIN. 8x INSIDE PIPE DIAMETER.



BEDDING FOR PIPES ON GRADIENTS BETWEEN 10% AND 20%



ANCHOR BLOCKS FOR PIPES ON GRADIENT > 20%

STORMWATER CODE OF PRACTICE STANDARD DETAILS REVISION: 4 REV DATE: 18 DECEMBER 2023 CAD FILENAME: AC-STD-SW23_V4.0.DWG	AUCKLAND COUNCIL STORMWATER LINES STEEP GRADIENTS, WATERSTOPS AND ANCHOR BLOCKS	ENVIRONMENTAL-SW	ORIGINAL SCALE A3 SCALE: N.T.S. DRAWING SET SWCoP 1 OF 1 DRAWING No. SW23 REV 4

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

Rev	Description	By	Date
A	DRAFT	SP	02/2025

	By	Date
Survey	--	--/----
Design	--	--/----
Drawn	SP	11/2024
Checked	JP/LC	02/2025

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Project
SUNFIELD DEVELOPMENT ARDMORE, AUCKLAND MASTERPLANNING FOR SUNFIELD DEVELOPMENTS LIMITED

Title
STORMWATER STANDARD DETAILS SHEET 4

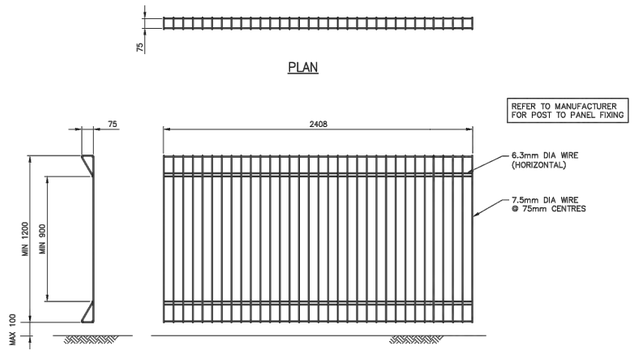
Project no.	215010		
Scale	N.T.S		
Cad file	215010-M-C802.DWG		
Drawing no.	M-C802-3	Rev	A

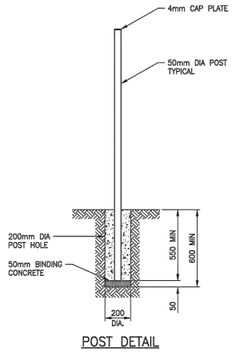
DRAFT FOR REVIEW

DATE: 8/11/25 FILE PATH: P:\MAVEN\PROJECTS\2010\0 SUNFIELDS\03\PRODUCTION\MASTERPLANNING\2010\0-M-C802.DWG

NOTES:

1. FENCE PANELS SHALL BE HOT DIPPED GALVANISED AND POWDER COATED BLACK.
2. FENCE PANELS SHALL NOT HAVE MORE THAN 100mm GAP FROM GROUND LEVEL TO INSTALLED PANEL.
3. POSTS SHALL BE 50mm DIA HOT DIPPED GALVANISED PIPE AND POWDER COATED BLACK.
4. POSTS SHALL BE INSTALLED VERTICAL.

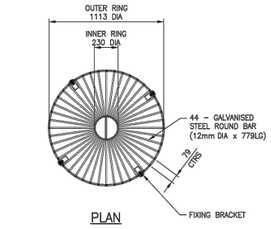


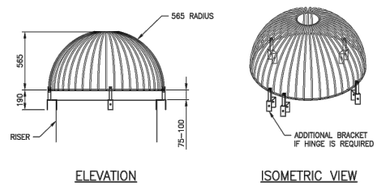


STORMWATER CODE OF PRACTICE STANDARD DETAILS REVISION: 3 REV DATE: 17 JANUARY 2022 CAD FILENAME: AC-STD-SW20.DWG	AUCKLAND COUNCIL STORMWATER INLET/OUTLET STRUCTURES STANDARD SAFETY FENCE DETAIL	ENVIRONMENTAL-SW	ORIGINAL SCALE A3 SCALE: N.T.S. DRAWING SET SWCoP SHEET 1 OF 1 DRAWING No. SW20 REV 3

NOTES:

1. THE SCRUFFY DOME GRILLE PROVIDES A DEBRIS SCREEN. TYPICAL LOCATIONS FOR SCRUFFY DOMES INCLUDE PARKS, WETLANDS AND OVERLAND FLOW PATHS.
2. LOCKABLE HINGED VERSIONS ARE AVAILABLE AND MAY BE SPECIFIED WHERE NEEDED.
3. A MINIMUM OF 450mm SUMP DEPTH SHALL BE PROVIDED IN THE MANHOLE.
4. THERE SHALL BE NO SCRUFFY DOME GRILLES IN FOOTPATHS, DRIVEWAYS OR ROADWAYS.
5. SCRUFFY DOME BRACKETS SHALL BE BOLTED TO THE RISER WITH GALVANISED STEEL BOLTS (CLEAR OF RISER REINFORCING).
6. PAINTING MAY BE REQUIRED IN CERTAIN LOCATIONS.
7. FOR SCRUFFY DOMES ON RISERS GREATER THAN 1050mm DIA, SPECIFIC DESIGN IS REQUIRED.
8. SCRUFFY DOMES IN PONDS AND WETLANDS MUST BE HINGED AND LOCKABLE. OUTLET RISER MUST BE LOCATED SUCH AS TO FACILITATE EASY AND SAFE ACCESS FOR CLEARING AND MAINTENANCE DURING STORM EVENTS.





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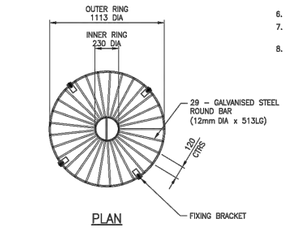

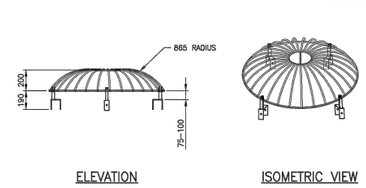

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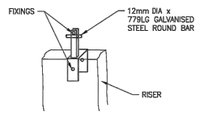
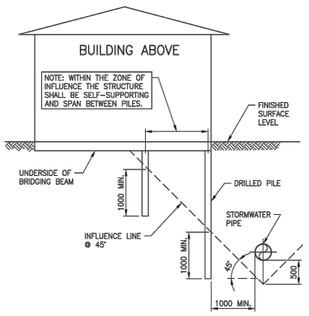
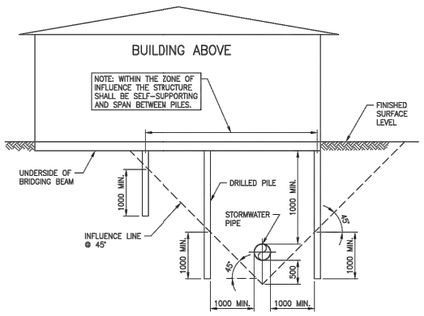


STORMWATER CODE OF PRACTICE STANDARD DETAILS REVISION: 3 REV DATE: 17 JANUARY 2022 CAD FILENAME: AC-STD-SW21.DWG	AUCKLAND COUNCIL DEBRIS CONTROL SCREEN FOR 1050 DIA RISER SCRUFFY DOME TYPICAL DETAIL	ENVIRONMENTAL-SW	ORIGINAL SCALE A3 SCALE: N.T.S. DRAWING SET SWCoP SHEET 1 OF 1 DRAWING No. SW21 REV 3

GENERAL NOTES:

1. THE INFORMATION ON THIS PAGE IS INTENDED TO SHOW EXAMPLES OF TYPICAL SCENARIOS AND SHALL BE USED FOR GENERAL GUIDANCE PURPOSES ONLY. SIGNIFICANT VARIATIONS ON A SITE-BY-SITE BASIS ARE TO BE EXPECTED AND IT IS IN NO WAY IMPLIED THAT MEETING ANY OF THESE REQUIREMENTS WILL GUARANTEE APPROVAL.
2. WHERE CONSTRUCTION WORKS ARE PROPOSED IN THE VICINITY OF EXISTING PUBLIC STORMWATER ASSETS, ANY NECESSARY MEASURES TO PROTECT SUCH ASSETS SHALL BE IMPLEMENTED, IN ACCORDANCE WITH SECTION 4.3.23 OF THE SWCoP.
3. REQUIREMENTS FOR FOUNDATION DESIGN, ETC. APPLY TO BOTH SIDES OF THE PIPE.
4. NO DRIVEN PILES ARE PERMITTED WITHIN 10m OF BRICK STORMWATER STRUCTURES, OR WITHIN 5m OF ALL OTHER STORMWATER STRUCTURES.
5. SPECIFIC APPROVAL IS REQUIRED FROM AUCKLAND COUNCIL FOR DRIVEN PILES IN PARTIALLY DRILLED HOLES, WITHIN THE 5m–10m ZONE.
6. PILES THAT MAY BE REQUIRED TO RESIST HORIZONTAL FORCES WILL REQUIRE SPECIFIC DESIGN.
7. PILE/FOOTING LOCATION POINT MUST BE BELOW 45° "ZONE OF INFLUENCE".
8. ALL MANHOLES SHALL HAVE 24 HOURS UNOBSTRUCTED ACCESS.
9. MANHOLES IN BASEMENTS, OR IN LOCATIONS WHERE SUFFICIENT CLEARANCE IS UNAVAILABLE, ARE NOT PERMITTED.
10. ALL PIPE 'WORK OVER' WILL REQUIRE SPECIFIC APPROVAL BY AUCKLAND COUNCIL.
11. REFER TO SECTION 4.3.23 OF THE SWCOP FOR PIPE 'WORK OVER' REQUIREMENTS.
12. FOR MANHOLES GREATER THAN 4m DEEP OR LARGER THAN 1200mm DIA. SPECIFIC DESIGN (INCLUDING CLEARANCE REQUIREMENTS) IS REQUIRED.
13. SPECIFIC APPROVAL FROM COUNCIL IS REQUIRED FOR WORKS WITHIN 10 METERS OF A RISING MAIN.
14. WORKS OVER RISING MAIN IS NOT ALLOWED.



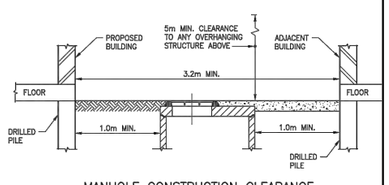


'WORKS CLOSE' NOTES:

1. OUTSIDE ZONE OF INFLUENCE, NORMAL FOUNDATION REQUIREMENTS APPLY.
2. SPECIFIC APPROVAL IS REQUIRED FROM AUCKLAND COUNCIL IF WORKS ARE ADJACENT TO PIPES LARGER THAN 375mm INTERNAL DIAMETER, OR GREATER THAN 2.0m DEEP.
3. BUILDING SHALL BE OUTSIDE ALL OVERLAND FLOW PATHS AND FLOODPLAINS. SEE SECTION 4.3.5.6 AND 4.3.5.7 OF THE SWCoP FOR FURTHER DETAILS.
4. PILES SHALL BE CONSTRUCTED TO A DEPTH OF 1.0m BELOW INFLUENCE LINE.

'WORKS OVER' NOTES:

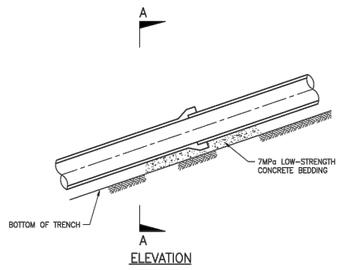
1. OUTSIDE ZONE OF INFLUENCE, NORMAL FOUNDATION REQUIREMENTS APPLY.
2. THE DETAIL APPLIES TO STORMWATER PIPES ≤ 375mm NOMINAL DIAMETER AND ≤ 2.0m DEPTH TO INVERT.
3. WORKS OVER PIPES LARGER THAN 375mm NOMINAL DIAMETER IS NOT ALLOWED.
4. PILES SHALL BE CONSTRUCTED TO A DEPTH OF 1.0m BELOW INFLUENCE LINE.
5. BRIDGING IS NOT ALLOWED OVER PIPES WHERE CLEAR VERTICAL SEPARATION DISTANCE FROM TOP OF PIPE TO UNDERSIDE OF BRIDGING BEAM IS LESS THAN 1.0m.



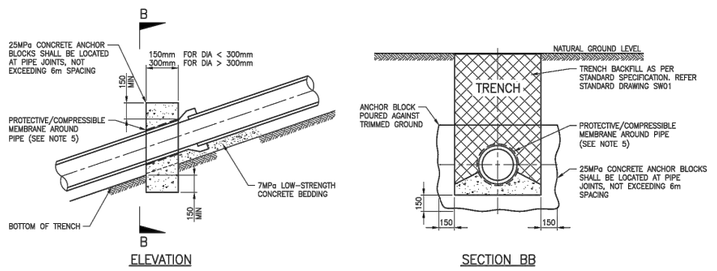
STORMWATER CODE OF PRACTICE STANDARD DETAILS REVISION: 3 REV DATE: 17 JANUARY 2022 CAD FILENAME: AC-STD-SW22.DWG	AUCKLAND COUNCIL STORMWATER PIPE AND MANHOLE CONSTRUCTION CLEARANCE REQUIREMENTS MANHOLES NEAR WORKS AND WORKS CLOSE TO, OR OVER, PIPES	ENVIRONMENTAL-SW	ORIGINAL SCALE A3 SCALE: N.T.S. DRAWING SET SWCoP SHEET 1 OF 1 DRAWING No. SW22 REV 3

NOTES:

1. USE LOW-STRENGTH CONCRETE (7MPa) BEDDING FOR PIPES ON GRADIENTS BETWEEN 10% AND 20%.
2. USE ANCHOR BLOCKS FOR PIPES ON GRADIENTS STEEPER THAN 20% (1 IN 5).
3. SPECIFIC DESIGN AND SPACING MAY BE NEEDED FOR PIPES ON GRADIENTS >30% OR WHERE GROUNDWATER IS CONSIDERED SIGNIFICANT.
4. ANCHOR BLOCK TO BE CONSTRUCTED ON LOWER SIDE OF JOINT.
5. PIPE SHALL BE WRAPPED FOR LENGTH OF THE ANCHOR BLOCK AT THE CONCRETE INTERFACE. WRAPPING SHALL BE COMPRESSIBLE MATERIAL, (e.g. DENSO TAPE OR POLYETHYLENE FILM).
6. WHERE PIPES ARE EMBEDDED IN LOW-STRENGTH CONCRETE, A TRANSVERSE EXPANSION JOINT SHALL BE PROVIDED AT EACH JOINT.
7. FOR FLEXIBLE PIPELINES, UP TO 300mm DIA, ON GRADIENTS OF 10% AND GREATER, REQUIRED BENCHING DEPTHS WITHIN THE DOWNSTREAM MANHOLE CAN BE REDUCED, BY THE REDUCTION OF THE GRADIENT IMMEDIATELY OUTSIDE THE MANHOLE. THIS MAY BE ACHIEVED BY INSTALLING A MANUFACTURED, PRE-FORMED BEND WITH VERTICAL RADIUS MIN. 8x INSIDE PIPE DIAMETER.



BEDDING FOR PIPES ON GRADIENTS BETWEEN 10% AND 20%



ANCHOR BLOCKS FOR PIPES ON GRADIENT > 20%

STORMWATER CODE OF PRACTICE STANDARD DETAILS REVISION: 4 REV DATE: 18 DECEMBER 2023 CAD FILENAME: AC-STD-SW23_V4.0.DWG	AUCKLAND COUNCIL STORMWATER LINES STEEP GRADIENTS, WATERSTOPS AND ANCHOR BLOCKS	ENVIRONMENTAL-SW	ORIGINAL SCALE A3 SCALE: N.T.S. DRAWING SET SWCoP SHEET 1 OF 1 DRAWING No. SW23 REV 4

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

Rev	Description	By	Date
A	DRAFT	SP	02/2025

	By	Date
Survey	--	--/----
Design	--	--/----
Drawn	SP	11/2024
Checked	JP/LC	02/2025

Maven Associates
09 571 0050
info@maven.co.nz
www.maven.co.nz
5 Owens Road, Epsom
Auckland 1023

Project
SUNFIELD DEVELOPMENT ARDMORE, AUCKLAND MASTERPLANNING FOR SUNFIELD DEVELOPMENTS LIMITED

Title
STORMWATER STANDARD DETAILS SHEET 5

Project no.	215010		
Scale	N.T.S		
Cad file	215010-M-C802.DWG		
Drawing no.	M-C802-4	Rev	A

DRAFT FOR REVIEW

DATE: 8/11/25 FILE PATH: P:\MAVEN\PROJECTS\2015\10 SUNFIELDS\13-PRODUCTION\MASTER PLANNING\2015\10-M-C802.DWG

Drawing set for Chapter 17 - Road Drainage

Gutter Flow as a function of road slope S

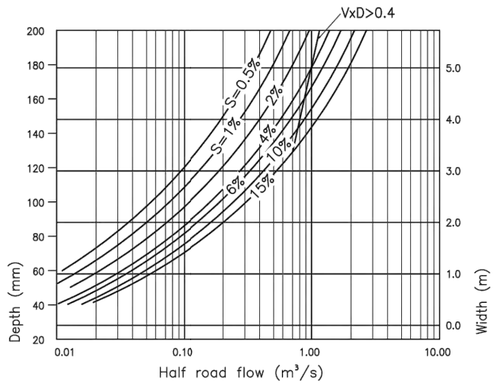


Chart 1: Kerb and Gutter Flow Using Izzard's Equation
Source: QUDM (1992)

Based on 3% road crossfall.
Barrier kerb type 1 (450mm),
n_p =0.015
ng=0.013

Charts have been sourced from the 'Queensland Urban Drainage Manual' and 'Max Q'.

REVISION	BY	DATE

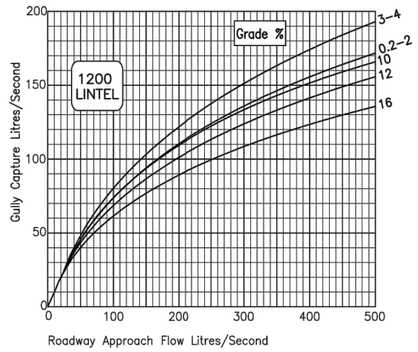
AUCKLAND TRANSPORT CODE OF PRACTICE

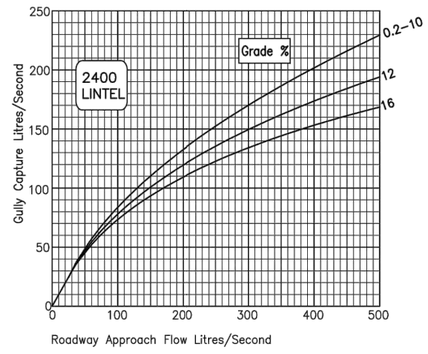
TITLE: STORMWATER INLET PITS DESIGN CHART 1

SCALE: N.T.S.
DRAWING No. RD001
VERSION

Drawing set for Chapter 17 - Road Drainage

TASMAN / MANNING GRATE *
BARRIER KERB - 3% CROSSFALL





INLETS ON GRADE

* Tasman Grate to be used. Graph taken from Manning's Grate test results. Tasman Grate performance very similar.

Charts have been sourced from the 'Queensland Urban Drainage Manual' and 'Max Q'.

REVISION	BY	DATE

AUCKLAND TRANSPORT CODE OF PRACTICE

TITLE: STORMWATER INLET PITS DESIGN CHART 2 INLET CAPTURE

SCALE: N.T.S.
DRAWING No. RD002
VERSION

DRAFT FOR REVIEW

NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

Rev	Description	By	Date
A	DRAFT	SP	02/2025

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Survey	--	--/----
Design	--	--/----
Drawn	SP	11/2024
Checked	JP/LC	02/2025

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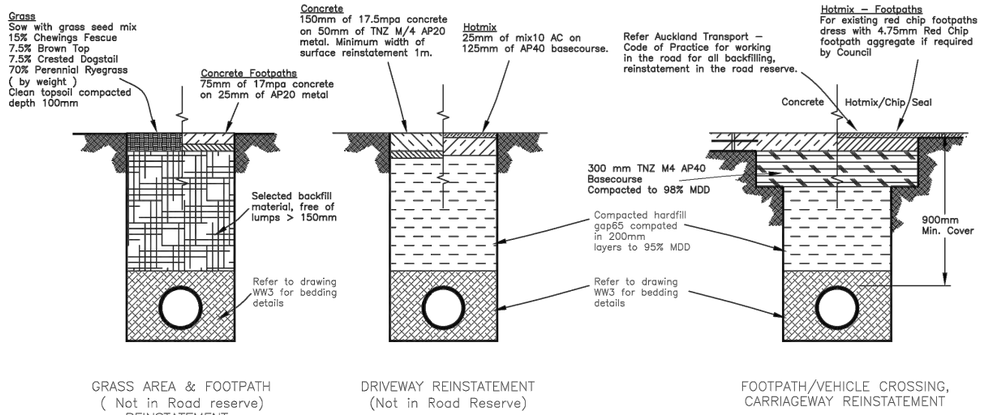
Project
SUNFIELD DEVELOPMENT ARDMORE, AUCKLAND MASTERPLANNING FOR SUNFIELD DEVELOPMENTS LIMITED

Title
STORMWATER STANDARD DETAILS SHEET 6

Project no.	215010
Scale	N.T.S
Cad file	215010-M-C802.DWG
Drawing no.	M-C802-5 Rev A

DATE 9/11/25 FILEPATH: F:\MAVEN\PROJECTS\215010_SUNFIELD\DWG\3-PRODUCTION\MASTER PLANNING\215010-M-C802.DWG



GRASS AREA & FOOTPATH
(Not in Road reserve)
REINSTATEMENT

DRIVEWAY REINSTATEMENT
(Not in Road Reserve)

FOOTPATH/VEHICLE CROSSING,
CARRIAGEWAY REINSTATEMENT

NOTES

1. All trench surface reinstatement within the road reserve shall comply with Auckland Transport requirements.
   The details shown are typical expectations for reinstatements.
2. Backfill shall be compacted in 200mm layers to obtain maximum density as described in Watercare's Construction Standards.
3. Where concrete or other stabilized layers exist in the roadway, the trench shall be reinstated with similar material or as directed by the roading engineer.

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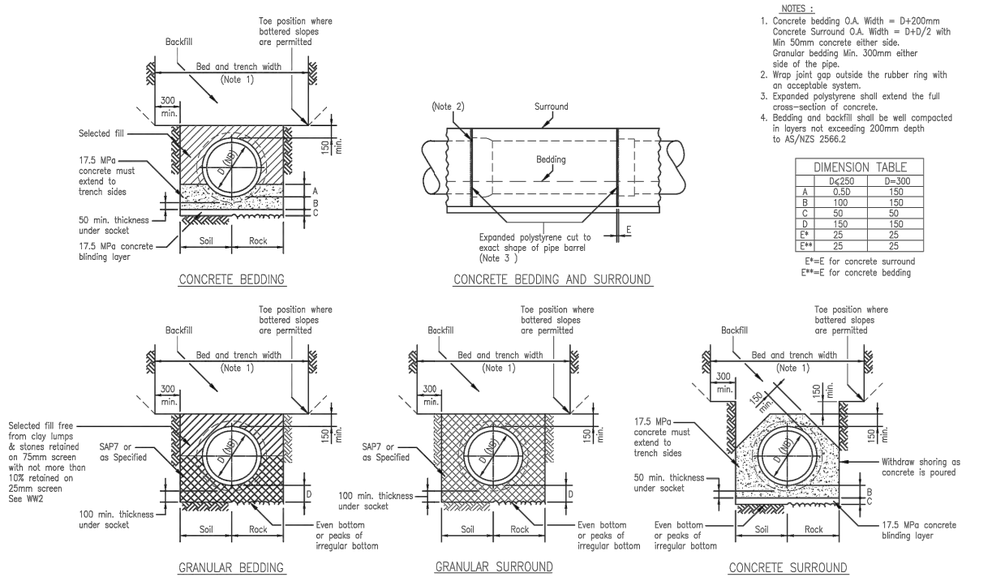
TYPICAL TRENCH REINSTATEMENT
DETAILS FOR WASTEWATER

SCALE:	N.T.S.
ISSUE DATE:	06–03–2017
DWG No.	2010070.001C
REFERENCE No.	WW 2



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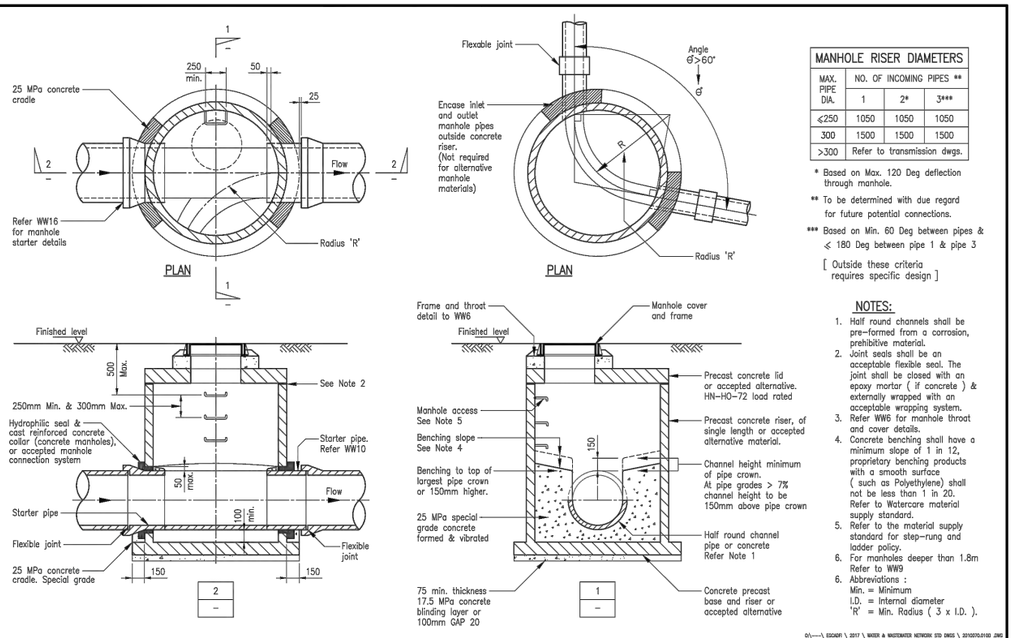
BEDDING DETAILS

SCALE:	N.T.S.
ISSUE DATE:	23–01–2017
DWG No.	2010070.005C
REFERENCE No.	WW 3



NOTES:

1. Half round channels shall be pre–formed from a corrosion, prehibitive material.
2. Joint seals shall be an acceptable flexible seal. The joint shall be closed with an epoxy mortar (if concrete) & externally wrapped with an acceptable wrapping system.
3. Refer WW6 for manhole throat and cover details.
4. Concrete benching shall have a minimum slope of 1 in 12, proprietary benching products with a smooth surface (such as Polyethylene) shall not be less than 1 in 20. Refer to Watercare material supply standard.
5. Refer to the material supply standard for step–rung and ladder policy.
6. For manholes deeper than 1.8m Refer to WW9
6. Abbreviations :
   Min. = Minimum
   I.D. = Internal diameter
   'R' = Min. Radius (3 x I.D.).

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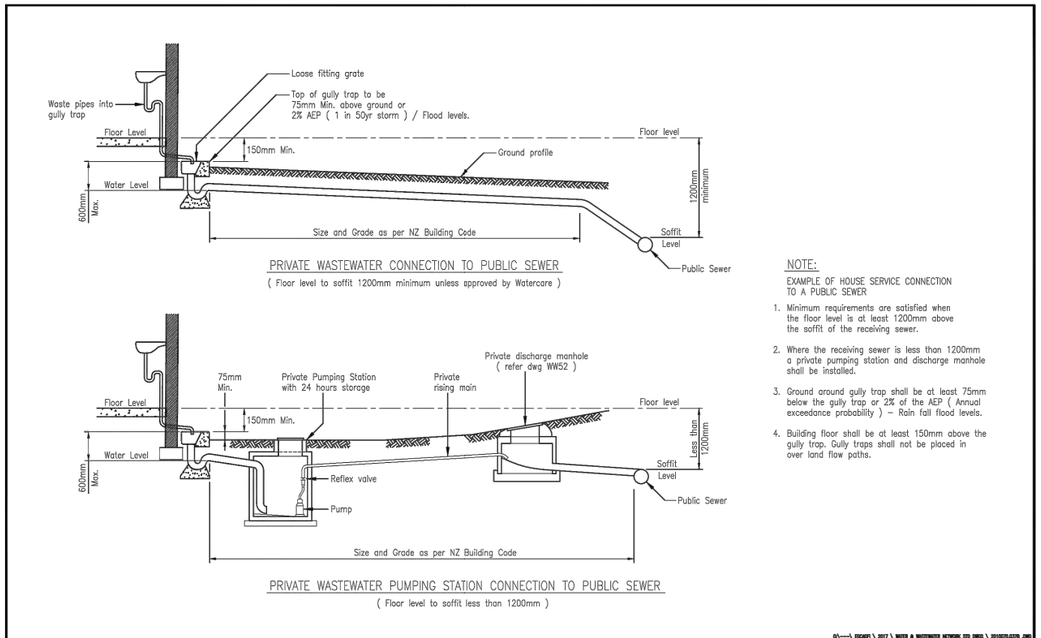
MANHOLE GENERAL DETAILS AND LAYOUT
FOR MANHOLES UP TO 1.8m DEEP

SCALE:	N.T.S.
ISSUE DATE:	13–07–2018
DWG No.	2010070.010D
REFERENCE No.	WW 5



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PRIVATE CONNECTIONS
MINIMUM FLOOR LEVEL TO SOFFIT OF WASTEWATER

SCALE:	N.T.S.
ISSUE DATE:	23–01–2017
DWG No.	2010070.037B
REFERENCE No.	WW 17

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

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A	DRAFT	SP	02/2025

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Design	--	--/----
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Checked	JP/LC	02/2025

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Project
SUNFIELD DEVELOPMENT ARDMORE, AUCKLAND MASTERPLANNING FOR SUNFIELD DEVELOPMENTS LIMITED

Title
WASTEWATER STANDARD DETAILS SHEET 1

Project no.	215010
Scale	N.T.S
Cad file	215010-M-C803.DWG
Drawing no.	M-C803
Rev	A

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DATE: 01/25 FILEPATH: P:\MAVEN\PROJECTS\215010 - SUNFIELD\WS3-PRODUCTION\MASTER PLANNING\215010-M-C803.DWG

GENERAL CONSTRUCTION NOTES

STANDARDS RELATING TO WORKS

Works shall to be carried out to the requirements of the Health & Safety at work in Employment Act 2015

Works shall be completed to Watercare Construction Standards.

MANUFACTURERS SPECIFICATIONS

Materials shall be installed to the Manufacturers requirements unless otherwise specified.

WELDING & FIXINGS

All steelwork shall be be workshop fabricated.

Steelwork and fixings shall be hot–dip galvanised to AS/NZS 4680 unless otherwise stated.

A Nickel anti–seize free of copper , lead , sulphides , chlorides & carbons (graphite) shall be used on bolts.

REINFORCING STEEL

Reinforcing shall be centrally placed with the specified minimum cover.

Bends shall be cold formed.

JOINT SEALS

Flanges : Per WSL Material Standard.

Manhole Joints : Concrete manhole with flexable joint seal such as rubber or butyl.
All joints must be externally wrapped with an accepted tape wrapped system.
Alternative materials to suppliers' specifications.

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Watercare	GENERAL CONSTRUCTION NOTES	SCALE:	N.T.S.
		ISSUE DATE:	13–07–2018
		DWG No.	2010070.002D
		REFERENCE No.	WW 1

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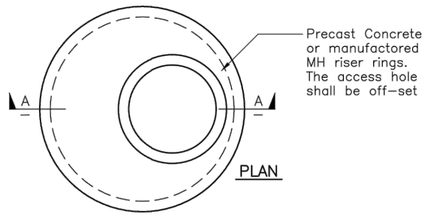

TYPICAL SECTION A–A THROUGH MANHOLE

NOTES:

1. Lid supplied to HN–HO–72 loading and compliance certified.
2. When the throat depth is greater than 450mm, a new manhole riser is required with a new adjustment ring.
3. Refer drawing WW9 for manholes deeper than 1.8m
4. Refer drawing WW7 for sloping ground.
5. Refer drawing WW5 for manhole details.
6. Approved Safety Grille below access manhole cover.
7. Manhole covers in the road shall be constructed so that the cover hinge is facing the oncoming traffic. (Refer Fig 1)
8. For all other covers the orientation should be so that the cover hinge is at 90 degrees from the ladder, Either side. (Refer Fig 2)

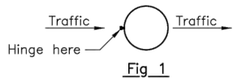

Fig 1

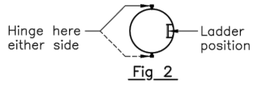

Fig 2

0:\---\ EGCADFI \ 2017 \ WATER & WASTEWATER NETWORK STD DWGS \ 2010070.029C .DWG

Watercare	TYPICAL MANHOLE THROAT AND COVER DETAILS	SCALE:	N.T.S.
		ISSUE DATE:	13–07–2018
		DWG No.	2010070.029C
		REFERENCE No.	WW 6

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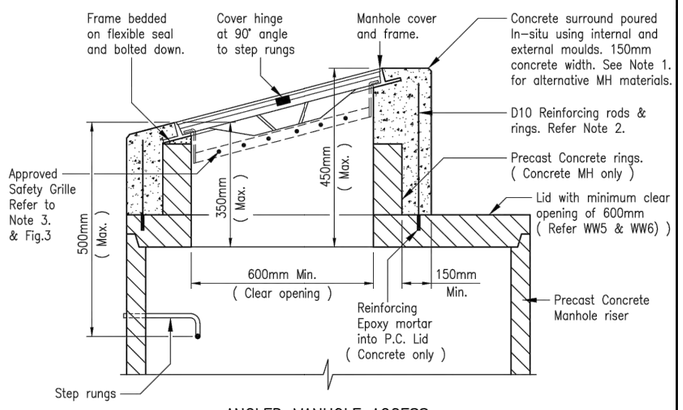
Fig.3



ANGLED MANHOLE ACCESS

NOTES :

1. MH material other than concrete cut to suit on–site.
2. D10 vertical reinf. rods & horizontal rings to be spaced at 300mm max. crs.
3. Approved Safety Grille below access manhole cover.
4. Manhole covers in road shall be constructed so that the cover hinge is facing the oncoming traffic. (Refer Fig.1)
5. For all other covers the orientation shall be so that the cover hinge is at 90 degrees from the ladder, either side. (Refer Fig.2)
6. See Fig.3 for safety grilles. Type and position must be considered for angled installation.

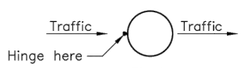


Fig.1

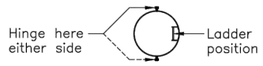


Fig.2

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Watercare	ANGLED MANHOLE ACCESS DETAILS	SCALE:	N.T.S.
		ISSUE DATE:	13–07–2018
		DWG No.	2010070.033D
		REFERENCE No.	WW 7

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NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

Rev	Description	By	Date
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Checked	JP/LC	02/2025

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Project
SUNFIELD DEVELOPMENT ARDMORE, AUCKLAND MASTERPLANNING FOR SUNFIELD DEVELOPMENTS LIMITED

Title
WASTEWATER STANDARD DETAILS SHEET 2

Project no.	215010		
Scale	N.T.S		
Cad file	215010-M-C803.DWG		
Drawing no.	M-C803-1	Rev	A

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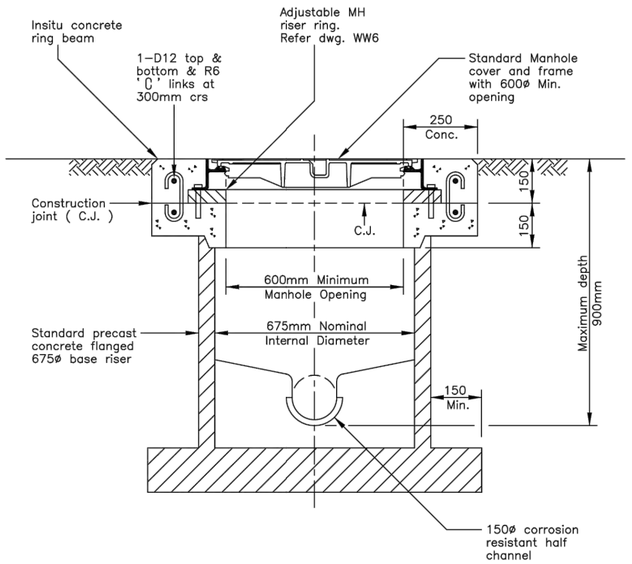
DATE 9/1/25 FILE PATH: F:\MAVEN\PROJECTS\215010 SUNFIELD\DWGS\PRODUCTION\MASTER PLANNING\215010-M-C803.DWG



Notes:

1. Only to be used as terminating manhole on level Residential sites with more than two 100ø House connections.
2. This drawing to be read with WW5 and WW6

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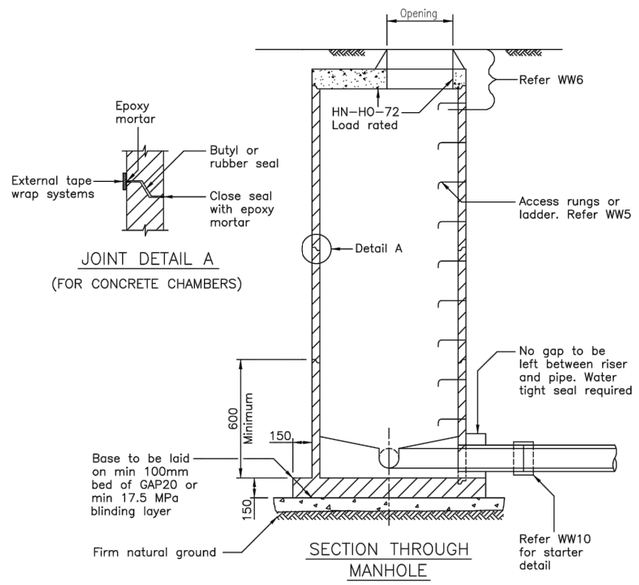
TERMINATING MANHOLE DETAIL
675mm NOMINAL DIAMETER

SCALE:	N.T.S.
ISSUE DATE:	06–03–2017
DWG No.	2010070.009C
REFERENCE No.	WW 8



JOINT DETAIL A
(FOR CONCRETE CHAMBERS)

SECTION THROUGH MANHOLE

Notes:

1. Refer to WW5 for general details.
2. Channel through manhole to be lined.
3. All manhole openings must be cut.
4. For droppers refer to WW13
5. The manhole diameter shall be increased to minimum internal 1200mm for all manholes greater than 3.0 metres deep.
6. For manholes > 6.0 meters deep the minimum internal diameter shall be 1500mm.
7. Refer WW6 for manhole throat and cover details.
8. Manholes greater than 6m deep must be installed with landing platforms. Refer drawing in (Transmission drawing set)

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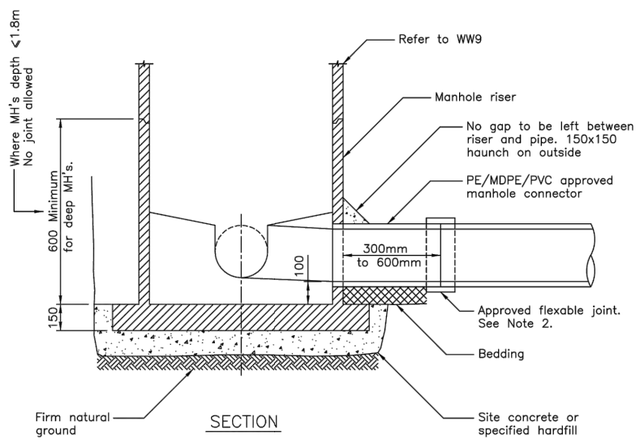
MANHOLES > 1.8m DEEP

SCALE:	N.T.S.
ISSUE DATE:	13–03–2017
DWG No.	2010070.012D
REFERENCE No.	WW 9



SECTION

Notes:

1. This drawing shall be read with WW5.
2. For PE pipe connections to a concrete manhole refer to WW11 and WW12 for acceptable solutions.
3. Detail may differ for accepted proprietary manhole systems other than concrete.

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MANHOLE CONNECTION & STARTER DETAIL

SCALE:	N.T.S.
ISSUE DATE:	06–03–2017
DWG No.	2010070.013D
REFERENCE No.	WW 10

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

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Project
SUNFIELD DEVELOPMENT ARDMORE, AUCKLAND MASTERPLANNING FOR SUNFIELD DEVELOPMENTS LIMITED

Title
WASTEWATER STANDARD DETAILS SHEET 3

Project no.	215010		
Scale	N.T.S		
Cad file	215010-M-C803.DWG		
Drawing no.	M-C803-2	Rev	A

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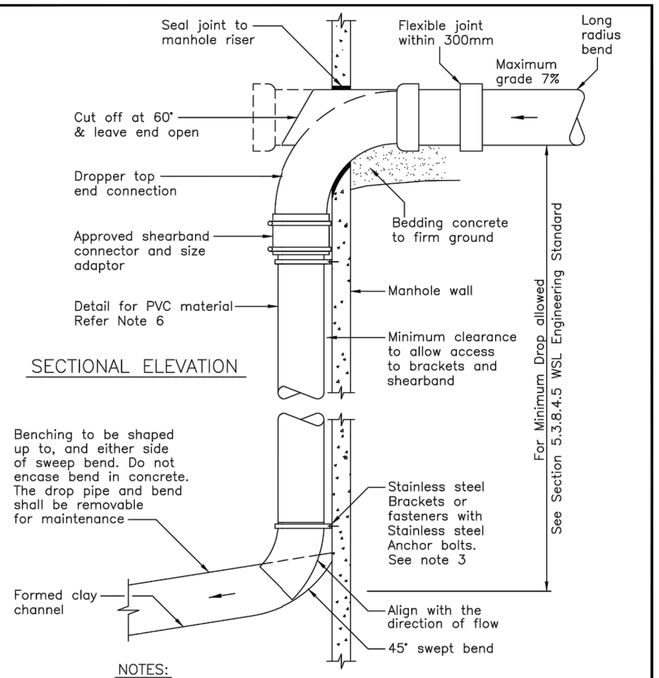
DATE 9/11/25 FILE PATH: F:\MAVEN\PROJECTS\215010 SUNFIELD\DWG\3-PRODUCTION\MASTER PLANNING\215010-M-C803.DWG



NOTES:

1. Specific approval is required from Watercare for all internal drop connections to existing manholes. Considerations include space available in the existing manhole and number of existing internal drop connections.
2. Internal drop shall be clear of Manhole rungs/ladders.
3. 100ø to 300ø PVC drop pipe held in place by Stainless steel brackets or fasteners with M10 Stainless steel anchor bolts every 600 mm.
4. Specific design is required where the incoming grade exceeds 7%, high velocity or where deep manholes make plunge-droppers unsuitable.
5. The minium clear diameter in the manhole shall be 1m. Vertical droppers are not allowed in manholes under 1200mm diameter.
6. This detail is suitable for GRP. For PE, joints shall be butt-welded. The PE top end connections shall be fabricated to fit over the incoming pipe with an O-ring seal.

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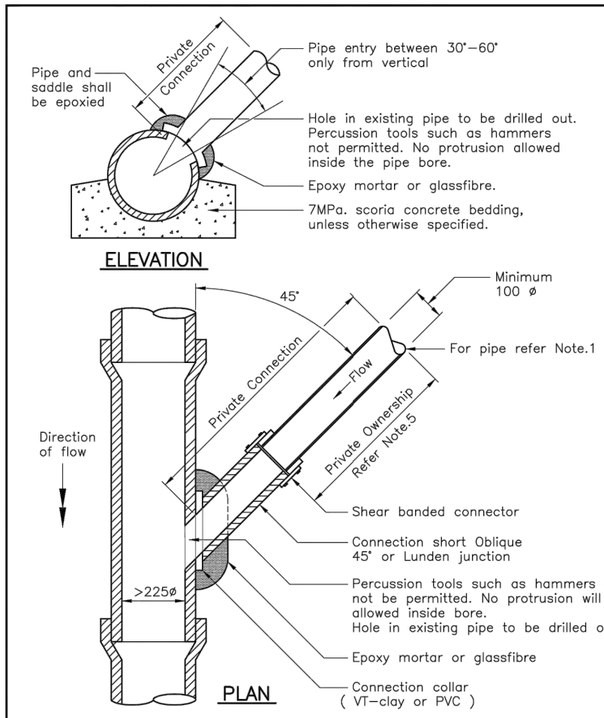
INTERNAL MANHOLE PLUNGE-DROP PIPE

SCALE:	N.T.S.
ISSUE DATE:	06-03-2017
DWG No.	2010070.018C
REFERENCE No.	WW 13



NOTES:

1. Applies to concrete, VT-clay, or PVC pipe saddle connections only. For other materials refer WW15.
2. The maximum lateral pipe size shall be less than half of the main.
3. For pipe lateral to main ratio outside the above parameters, refer to WW15, or a manhole shall be constructed where approved.
4. If the existing sewer pipe has PE or CIPP liner, specific design & approval required from Watercare.
5. Refer to Watercare Point-of-Supply Policy.

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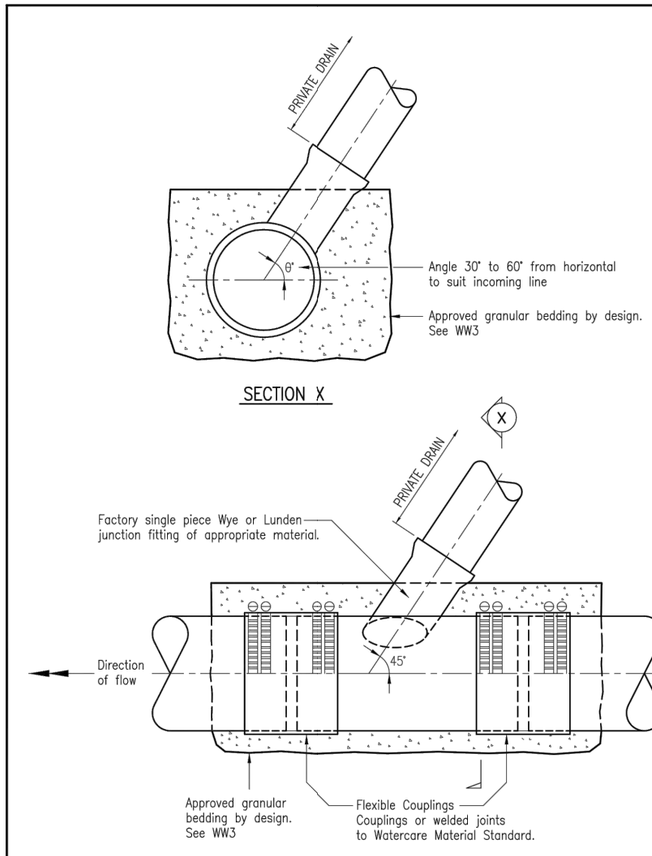
SADDLE CONNECTIONS TO GRAVITY PUBLIC WASTEWATER

SCALE:	N.T.S.
ISSUE DATE:	13-07-2018
DWG No.	2010070.036C
REFERENCE No.	WW 14



NOTES:

1. For saddle connections refer WW14
2. Refer to Watercare Point-of-Supply policy

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IN-LINE SERVICES CONNECTIONS TO PUBLIC GRAVITY WASTEWATER

SCALE:	N.T.S.
ISSUE DATE:	17-11-2017
DWG No.	2010070.038A
REFERENCE No.	WW 15

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NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

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Project

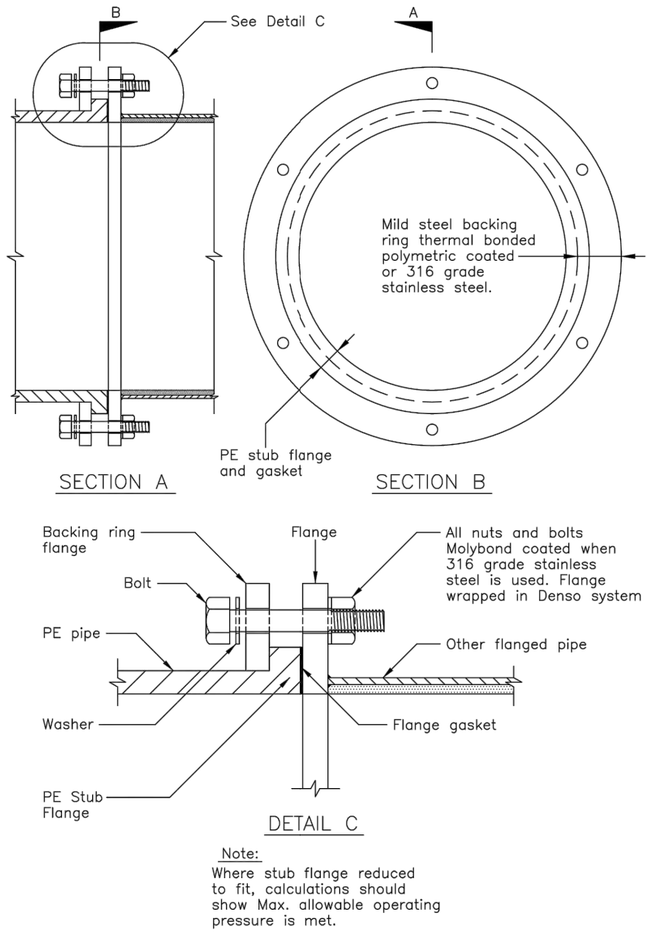
SUNFIELD DEVELOPMENT ARDMORE, AUCKLAND MASTERPLANNING FOR SUNFIELD DEVELOPMENTS LIMITED

Title

WASTEWATER STANDARD DETAILS SHEET 4

Project no.	215010		
Scale	N.T.S		
Cad file	215010-M-C803.DWG		
Drawing no.	M-C803-3	Rev	A

DATE: 8/11/25 FILE PATH: P:\MAVEN\PROJECTS\215010 SUNFIELD\04 PRODUCTION\MASTER PLANNING\215010-M-C803.DWG



Note:
Where stub flange reduced to fit, calculations should show Max. allowable operating pressure is met.

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FLANGE CONNECTION DETAIL
PE MAIN TO OTHER
FOR PRESSURE SYSTEMS

SCALE:	N.T.S.
ISSUE DATE:	13–03–2017
DWG No.	2010070.052B
REFERENCE No.	WW 25

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NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

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Survey	--	--/----
Design	--	--/----
Drawn	SP	11/2024
Checked	JP/LC	02/2025

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Project
SUNFIELD DEVELOPMENT ARDMORE, AUCKLAND MASTERPLANNING FOR SUNFIELD DEVELOPMENTS LIMITED

Title
WASTEWATER STANDARD DETAILS SHEET 5

Project no.	215010		
Scale	N.T.S		
Cad file	215010-M-C803.DWG		
Drawing no.	M-C803-4	Rev	A

DATE 8/11/25 FILEPATH F:\MAVEN\PROJECTS\215010 - SUNFIELD\DWG\3-PRODUCTION\MASTER PLANNING\215010-M-C803.DWG

GENERAL CONSTRUCTION NOTES

STANDARDS RELATING TO WORKS

Works shall to be carried out to the requirements of the Health & Safety at work in Employment Act 2015

Works shall be completed to Watercare Construction Standards.

MANUFACTURERS SPECIFICATIONS

Materials shall be installed to the Manufacturers requirements unless otherwise specified.

WELDING & FIXINGS

All steelwork shall be be workshop fabricated.

Steelwork and fixings shall be hot-dip galvanised to AS/NZS 4680 unless otherwise stated.

A Nickel anti-seize free of copper , lead , sulphides , chlorides & carbons (graphite) shall be used on bolts.

REINFORCING STEEL

Reinforcing shall be centrally placed with the specified minimum cover.

Bends shall be cold formed.

JOINT SEALS

Couplings & Flanges : Per WSL Material Standard.

Concrete joints around pipe penetrations through chambers shall be made with a suitable hydrophilic sealant to the manufacturer's requirements. Concrete repair shall be reinforced and box-cast to prevent cracking from sealant forces.

0:\---\ EGCADFI \ 2017 \ WATER & WASTEWATER NETWORK STD DWGS \ 2010069.002D .DWG

Watercare	GENERAL CONSTRUCTION NOTES	SCALE:	N.T.S.
		ISSUE DATE:	13-07-2018
		DWG No.	2010069.002D
		REFERENCE No.	WS 1

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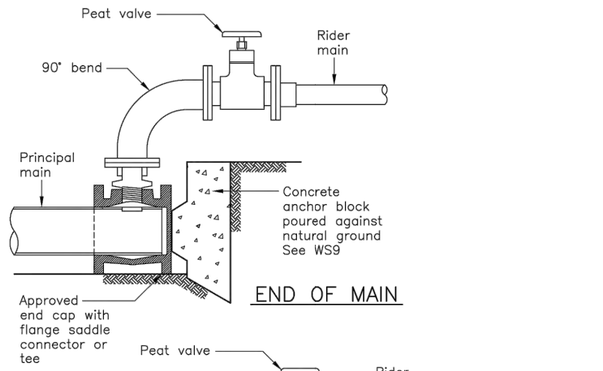
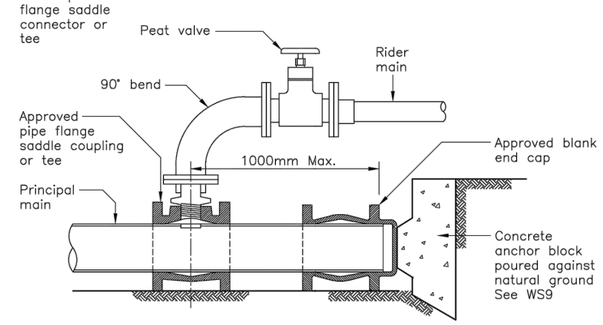
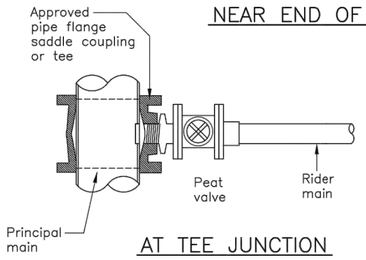


END OF MAIN



NEAR END OF MAIN



AT TEE JUNCTION

Notes

1. Tapping saddles are only allowed on principal mains up to DN300mm. A reducing Tee shall be used for 300mm and over.

0:\---\ EGCADFI \ 2017 \ WATER & WASTEWATER NETWORK STD DWGS \ 2010069.036C .DWG

Watercare	RIDER MAIN ALTERNATIVE CONNECTION	SCALE:	N.T.S.
		ISSUE DATE:	13-07-2018
		DWG No.	2010069.036C
		REFERENCE No.	WS 5

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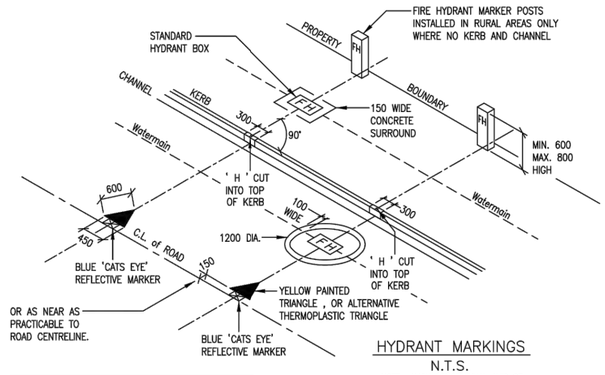


HYDRANT MARKINGS

N.T.S.

NOTE: ALIGN LONGITUDINAL AXIS OF HYDRANT BOX WITH WATERMAIN

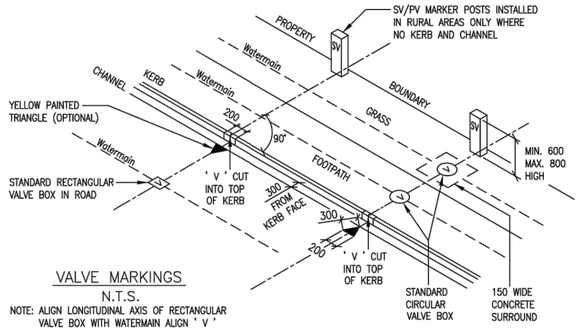
NOTES

PAINT USED FOR ALL MARKINGS AND CI/DI LIDS SHALL BE TRANSIT "ROAD MARKING PAINT" AS FOLLOWS:-

HYDRANTS - YELLOW
PROTECTIVE PAINTS LTD.- WAY CODE: 880-403
OR - RESENE M7-W ;
(ALTERNATIVE OPTION THERMOPLASTIC TRIANGLE)

VALVES (PV, SV, AV"s) - WHITE

SPECIAL CONTROL VALVES (SHUT) - RED
RESENE RED OXIDE - VINYL ETCH
ADHESION PRIMER



VALVE MARKINGS

N.T.S.

NOTE: ALIGN LONGITUDINAL AXIS OF RECTANGULAR VALVE BOX WITH WATERMAIN ALIGN ' V ' WITH WATERMAIN AS SHOWN

0:\---\ EGCADFI \ 2017 \ WATER & WASTEWATER NETWORK STD DWGS \ 2010069.006B .DWG

Watercare	VALVE AND HYDRANT MARKINGS	SCALE:	N.T.S.
		ISSUE DATE:	10-02-2017
		DWG No.	2010069.006B
		REFERENCE No.	WS 7

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DRAFT FOR REVIEW

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

Rev	Description	By	Date
A	DRAFT	SP	02/2025

	By	Date
Survey	--	--/----
Design	--	--/----
Drawn	SP	11/2024
Checked	JP/LC	02/2025

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Project

SUNFIELD DEVELOPMENT ARDMORE, AUCKLAND MASTERPLANNING FOR SUNFIELD DEVELOPMENTS LIMITED

Title

WATER MAIN STANDARD DETAILS SHEET 1

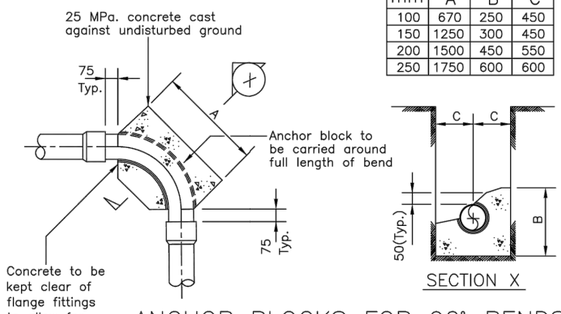
Project no.	215010
Scale	N.T.S
Cad file	215010-M-C804.DWG
Drawing no.	M-C804 Rev A

DATE 9/1/25 FILEPATH: F:\MAVEN\PROJECTS\215010 SUNFIELD\DWGS\PRODUCTION\MASTER PLANNING\215010-M-C804.DWG

Notes :

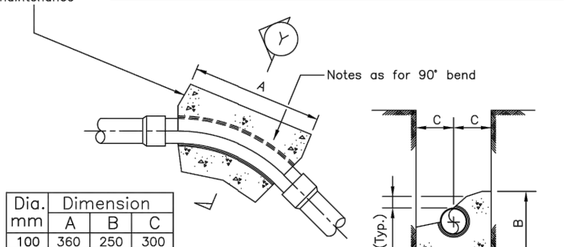
1. Thrust block dimensions are based on firm soil conditions.
2. The dimensions to be increased or decreased for variation in soil conditions.
3. Allowable bearing stress used – 100KPa.
4. As built locations to be obtained prior to backfill.
5. Protective membrane (Polythene) between concrete & pipe.
6. 75mm clearance between fittings/flanges and concrete casting.
7. All fittings to be wrapped with a suitable wrapping system.

Dia. mm	Dimension A	B	C
100	670	250	450
150	1250	300	450
200	1500	450	550
250	1750	600	600

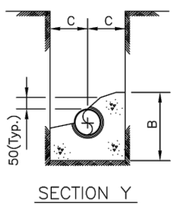


SECTION X

ANCHOR BLOCKS FOR 90° BENDS



Dia. mm	Dimension A	B	C
100	360	250	300
150	680	300	400
200	800	450	500
250	1000	600	600



SECTION Y

ANCHOR BLOCKS FOR 45° BENDS

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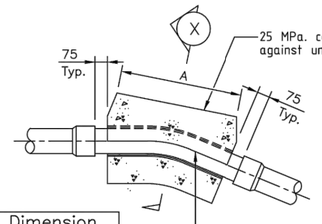
ANCHOR BLOCK DETAILS FOR 90° & 45° BENDS

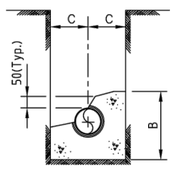
SCALE:	N.T.S.
ISSUE DATE:	10–02–2017
DWG No.	2010069.013B
REFERENCE No.	WS 8

Notes :

1. Thrust block dimensions are based on firm soil conditions.
2. The dimensions to be increased or decreased for variation in soil conditions.
3. Allowable bearing stress used - 100KPa.
4. As built locations to be obtained prior to backfill.
5. Protective membrane (Polythene) between concrete & pipe.
6. 75mm clearance between fittings/flanges and concrete casting.
7. All fittings to be wrapped with a suitable wrapping system.

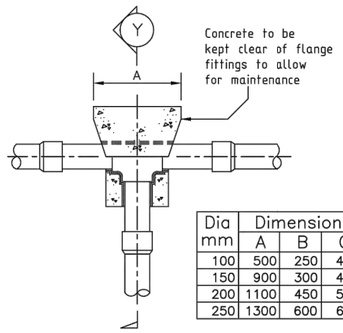


Dia mm	Dimension A	B	C
100	300	250	300
150	400	300	400
200	500	450	500
250	600	600	600

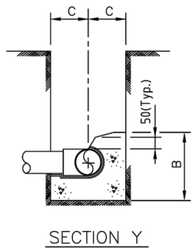


SECTION X

ANCHOR BLOCKS FOR 22½° & 11¼° BENDS



Dia mm	Dimension A	B	C
100	500	250	450
150	900	300	450
200	1100	450	550
250	1300	600	600



SECTION Y

ANCHOR BLOCKS TEE JUNCTION & END CAPS

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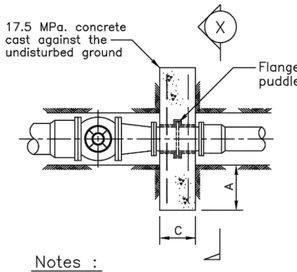
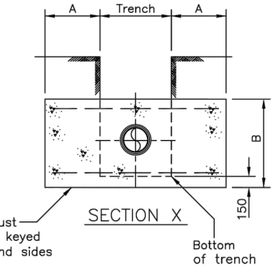
ANCHOR BLOCK DETAILS FOR 22½° & 11¼° BENDS AND TEE JUNCTION

SCALE:	N.T.S.
ISSUE DATE:	10–02–2017
DWG No.	2010069.014B
REFERENCE No.	WS 9





SECTION X

Notes :

1. Concrete thrust block dimensions are based on firm soil conditions.
2. The dimensions to be increased or decreased for variation in soil conditions.
3. Allowable bearing stress used - 100KPa.
4. As built locations to be obtained prior to backfill.
5. Protective membrane (Polythene) between concrete and pipe.
6. 75mm clearance between fittings/flanges and concrete casting.
7. All fittings to be wrapped with a suitable wrapping system.

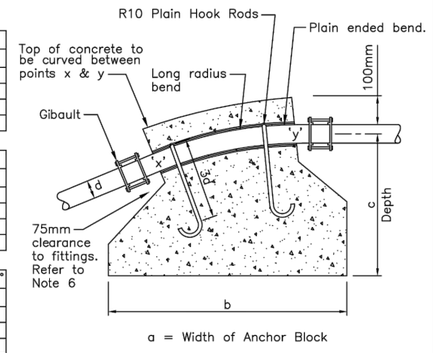
Reducer mm	Reducers A	B	C
100–150	250	350	300
100–200	500	350	300
150–200	250	500	300
150–250	500	500	300
200–250	250	600	300
200–300	400	700	300

ANCHOR BLOCKS AT REDUCERS

Pipe Dia	Vertical Bends–45° a	b	c
100mm	600	800	700
150mm	800	1000	800
200mm	1000	1200	800
250mm	1000	1600	1000

Pipe Dia	Vertical Bends–22.5° a	b	c
100mm	500	500	500
150mm	500	800	800
200mm	700	1000	800
250mm	800	1200	900

Pipe Dia	Vertical Bends–11.25° a	b	c
100mm	400	500	500
150mm	500	600	600
200mm	500	800	800
250mm	700	1000	800



VERTICAL SECTION

ANCHOR BLOCKS AT BENDS IN VERTICAL PLANE

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ANCHOR BLOCK DETAILS REDUCERS AND VERTICAL BENDS

SCALE:	N.T.S.
ISSUE DATE:	10–02–2017
DWG No.	2010069.015B
REFERENCE No.	WS 10

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

Rev	Description	By	Date
A	DRAFT	SP	02/2025

	By	Date
Survey	--	--/----
Design	--	--/----
Drawn	SP	11/2024
Checked	JP/LC	02/2025

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Project
SUNFIELD DEVELOPMENT ARDMORE, AUCKLAND MASTERPLANNING FOR SUNFIELD DEVELOPMENTS LIMITED

Title
WATER MAIN STANDARD DETAILS SHEET 2

Project no.	215010
Scale	N.T.S
Cad file	215010-M-C804.DWG
Drawing no.	M-C804-1 Rev A

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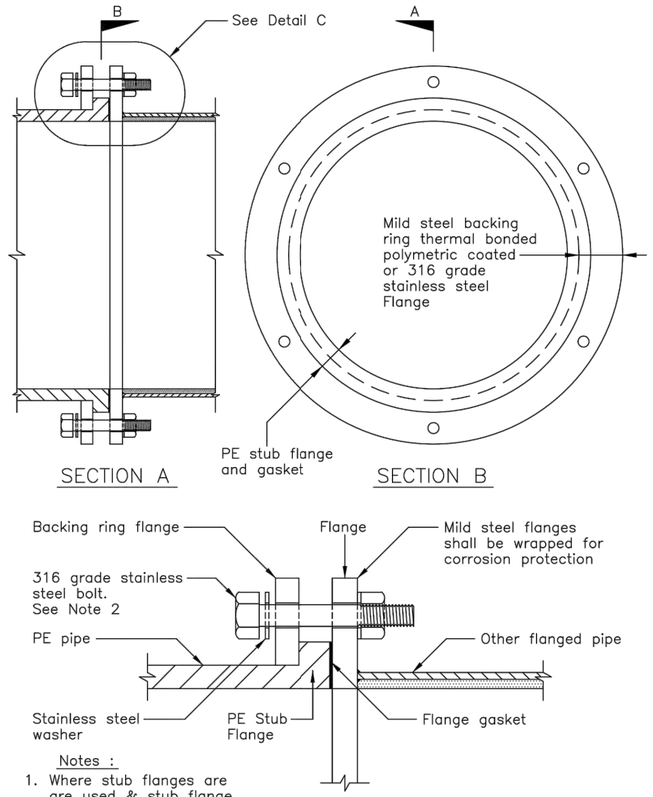
DATE: 8/1/25 FILEPATH: I:\MAVEN\PROJECTS\215010 SUNFIELD\DWG\1-PRODUCTION\MASTERPLANNING\215010-M-C804.DWG



Notes :

1. Where stub flanges are are used & stub flange machined to fit, calculations must show Max. allowable operating pressure is met.
2. When using mild steel flanges the stainless steel bolts must be isolated with an appropriate sleeve to prevent galvanic corrosion.

Notes continued :

3. Bolt assemblies must be to Watercare's mechanical construction standard.

0:\---\ EGCADFI \ 2017 \ WATER & WASTEWATER NETWORK STD DWGS \ 2010069.034B .DWG

Watercare	FLANGE CONNECTION DETAIL PE MAIN TO OTHER	SCALE:	N.T.S.
		ISSUE DATE:	10-02-2017
		DWG No.	2010069.034B
		REFERENCE No.	WS 11

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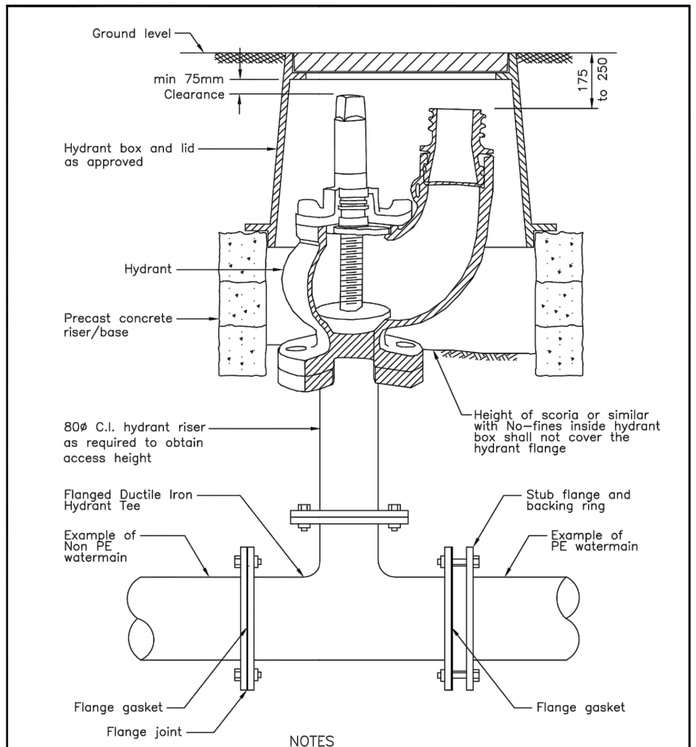

NOTES

1. The hydrant box shall be spaced to provide clear access to the valve spindle and outlet.
2. All flanges and fittings shall be wrapped with suitable corrosion protection wrapping to the manufacturers requirements. Refer WS11
3. Concrete support to be provided under hydrant Tee. Refer WS9. (The concrete overbear can be ignored)

0:\---\ EGCADFI \ 2017 \ WATER & WASTEWATER NETWORK STD DWGS \ 2010069.027A .DWG

Watercare	HYDRANT DETAIL	SCALE:	N.T.S.
		ISSUE DATE:	06-03-2017
		DWG No.	2010069.027A
		REFERENCE No.	WS 12

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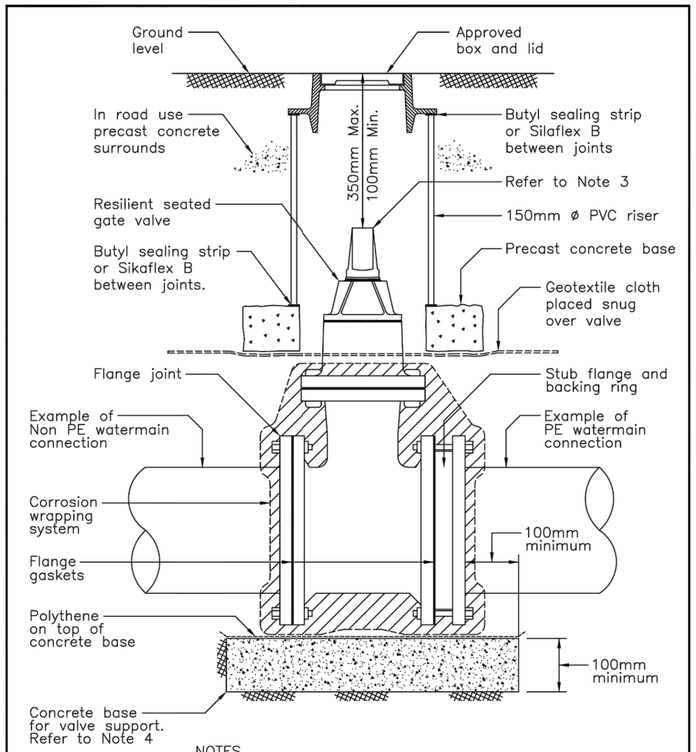

NOTES

1. The valve, including flanges shall be completely wrapped in approved corrosion protected wrapping system to the wrapping manufacturers requirements.
2. Refer WS11 for typical notes on flange bolting .
3. An extension spindle shall be incorperated as required to ensure the top of the spindle is no more than 350mm below the finished surface level.
4. For valves 150mm and greater the valve shall be supported on a in-situ cast concrete base of suitable dimension to prevent any loads transfered to the pipe.

0:\---\ EGCADFI \ 2017 \ WATER & WASTEWATER NETWORK STD DWGS \ 2010069.029B .DWG

Watercare	FLANGED SLUICE VALVE DETAIL	SCALE:	N.T.S.
		ISSUE DATE:	26-05-2017
		DWG No.	2010069.029B
		REFERENCE No.	WS 13

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NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

Rev	Description	By	Date
A	DRAFT	SP	02/2025

	By	Date
Survey	--	--/----
Design	--	--/----
Drawn	SP	11/2024
Checked	JP/LC	02/2025

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Project

SUNFIELD DEVELOPMENT ARDMORE, AUCKLAND MASTERPLANNING FOR SUNFIELD DEVELOPMENTS LIMITED

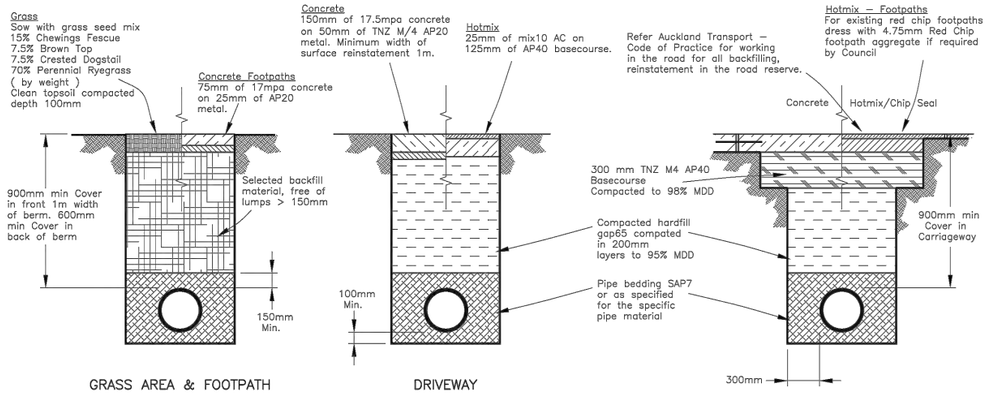
Title

WATER MAIN STANDARD DETAILS SHEET 3

Project no.	215010		
Scale	N.T.S		
Cad file	215010-M-C804.DWG		
Drawing no.	M-C804-2	Rev	A

DATE: 6/11/25 FILE PATH: P:\MAVEN\PROJECTS\2015\10 SUNFIELDS\03-PRODUCTION\MASTER PLANNING\215010-M-C804.DWG

NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.



GRASS AREA & FOOTPATH REINSTATEMENT

DRIVEWAY REINSTATEMENT

FOOTPATH/VEHICLE CROSSING, CARRIAGEWAY REINSTATEMENT

NOTES
1. Trench reinstatement within the road reserve shall comply with the Auckland Transport requirements.
2. Backfill is to be compacted in 200mm, layers to obtain maximum density, as per standard specifications.
3. Where concrete or other stabilized layers exist in the roadway, the trench shall be reinstated with similar material or as directed by the roading engineer.
4. Minimum cover in carriageway for watermains 900mm. 900mm cover in front 1m of berm and Minimum 600mm in the back of berm.
5. Fill shall be clean, Non-contaminated material. Recycled material is not acceptable.
6. Pipe bedding shall be compacted to AS/NZS 2566.2 clause 5.6.3 for compaction control.
7. Alternative embedment details by specific design for pipe at steep grades, inadequate trench foundation and erosion is not covered by this drawing.

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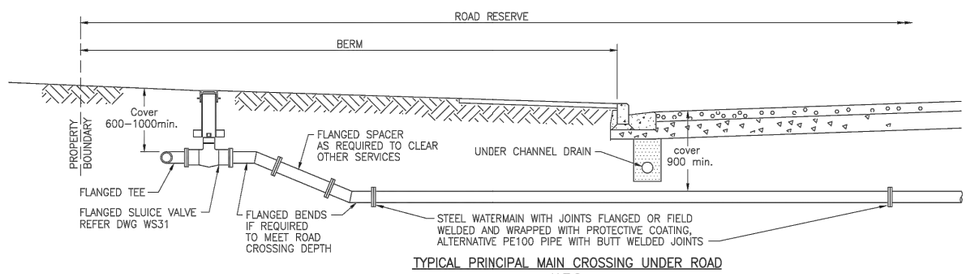
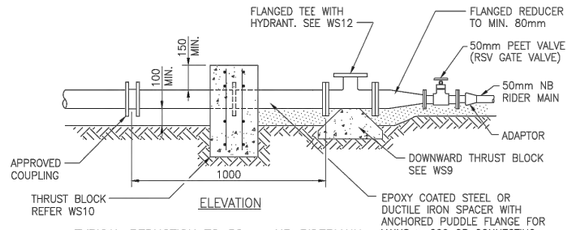
TYPICAL TRENCH REINSTATEMENT AND BEDDING DETAILS FOR WATER SUPPLY

SCALE:	N.T.S.
ISSUE DATE:	28-09-2017
DWG No.	2010069.001D
REFERENCE No.	WS 2



TYPICAL PRINCIPAL MAIN CROSSING UNDER ROAD
N.T.S.



TYPICAL REDUCTION TO 50mm NB RIDERMAIN
SEE NOTE 1 N.T.S.

NOTES
1. FOR AN ALTERNATIVE RIDERMAIN CONNECTION SEE WS5.
2. PIPE AND BENDS TO BE SUPPORTED AN CORROSION PROTECTED.
3. ALL SPECIAL FITTINGS INCLUDING TEES AND BENDS TO BE FLANGED DUCTILE IRON OR AN ACCEPTED PROPRIETARY ALTERNATIVE.

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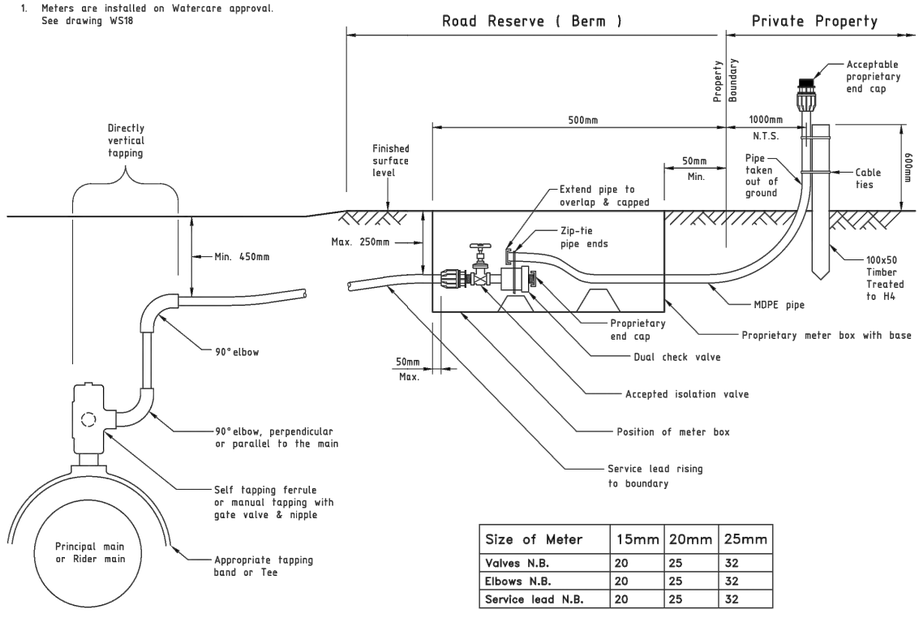
ROAD CROSSING DETAILS AND PRINCIPAL MAIN TO RIDER MAIN CONNECTIONS

SCALE:	N.T.S.
ISSUE DATE:	13-07-2018
DWG No.	2010069.004C
REFERENCE No.	WS 4

Note
1. Meters are installed on Watercare approval. See drawing WS18

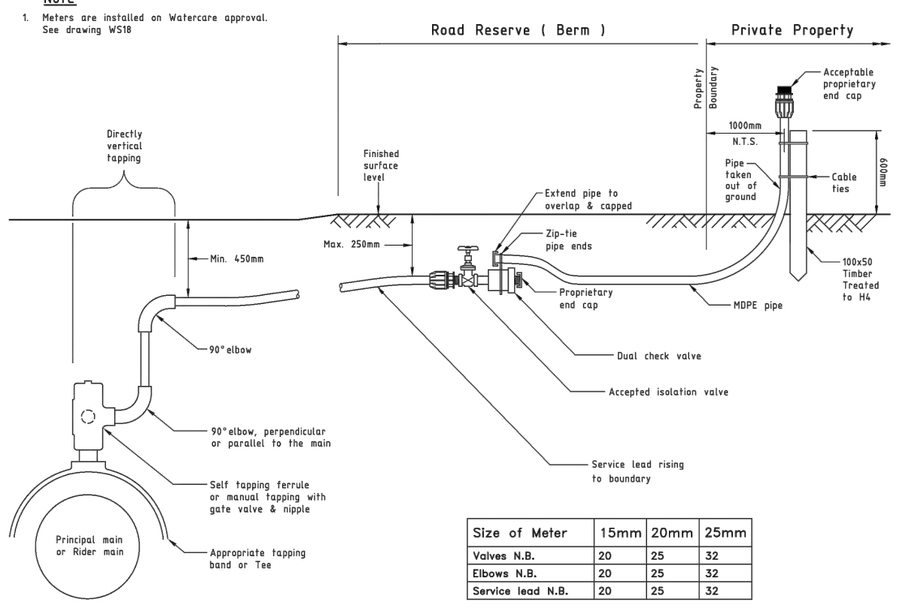


Size of Meter	15mm	20mm	25mm
Valves N.B.	20	25	32
Elbows N.B.	20	25	32
Service lead N.B.	20	25	32

PROPERTY (LOT) SERVICE LEAD CONNECTION IN FOOTPATHS & DRIVEWAYS

SCALE:	N.T.S.
ISSUE DATE:	13-07-2018
DWG No.	2010069.011D
REFERENCE No.	WS 16

Note
1. Meters are installed on Watercare approval. See drawing WS18



Size of Meter	15mm	20mm	25mm
Valves N.B.	20	25	32
Elbows N.B.	20	25	32
Service lead N.B.	20	25	32

PROPERTY (LOT) SERVICE LEAD CONNECTION IN BERM/SOFT SURFACES

SCALE:	N.T.S.
ISSUE DATE:	13-07-2018
DWG No.	2010069.046
REFERENCE No.	WS 17

DRAFT FOR REVIEW

Rev	Description	By	Date
A	DRAFT	SP	02/2025

	By	Date
Survey	--	--/----
Design	--	--/----
Drawn	SP	11/2024
Checked	JP/LC	02/2025

Maven Associates
09 571 0050
info@maven.co.nz
www.maven.co.nz
5 Owens Road, Epsom
Auckland 1023

Project
SUNFIELD DEVELOPMENT
ARDMORE, AUCKLAND
MASTERPLANNING
FOR SUNFIELD
DEVELOPMENTS LIMITED

Title
WATER MAIN
STANDARD DETAILS
SHEET 4

Project no.	215010
Scale	N.T.S
Cad file	215010-M-C804.DWG
Drawing no.	M-C804-3 Rev A

DATE 9:11:25 FILEPATH: P:\MAVEN\PROJECTS\215010 SUNFIELD\DWGS\PRODUCTION\MASTER PLANNING\215010-M-C804.DWG

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Watercare

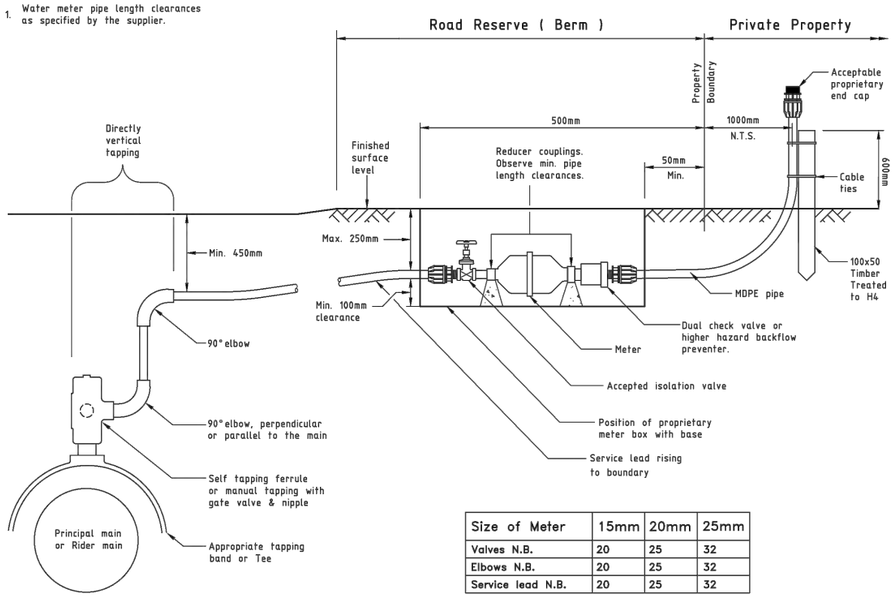
DOMESTIC WATER METER CONNECTION
15mm, 20mm & 25mm DIAMETER

SCALE: N.T.S.
ISSUE DATE: 13-07-2018
DWG No. 2010069.012D
REFERENCE No. WS 18

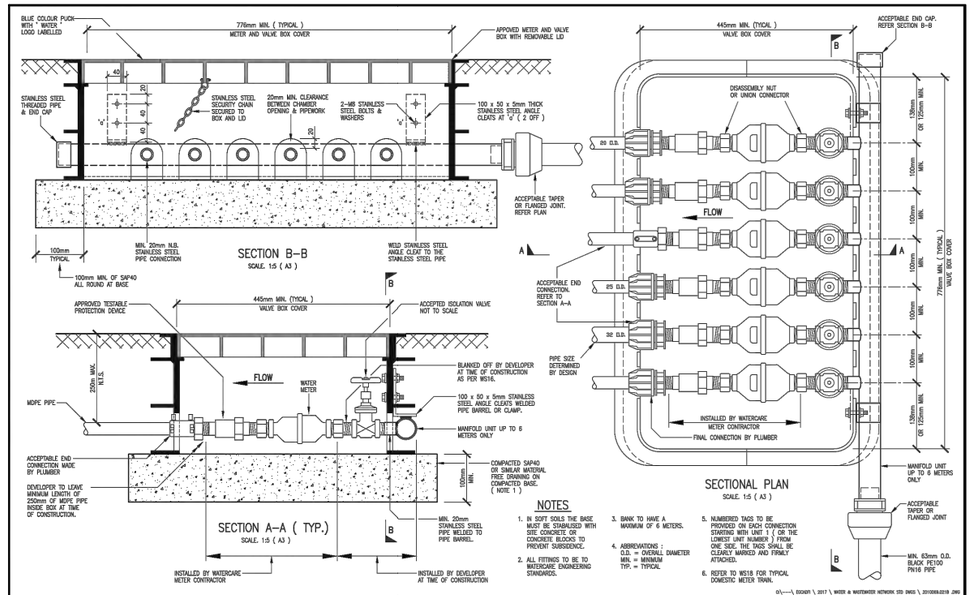
O:\---_ESCKDY_2017_WATER & WASTEWATER NETWORK STD DWGS_2010069.012D.DWG

Note

1. Water meter pipe length clearances as specified by the supplier.



Size of Meter	15mm	20mm	25mm
Valves N.B.	20	25	32
Elbows N.B.	20	25	32
Service lead N.B.	20	25	32



NOTES

1. IN SOFT SOILS THE BASE MUST BE STABILISED WITH SITE CONCRETE OR CONCRETE BLOCKS TO PREVENT SUBSIDENCE.
2. ALL FITTINGS TO BE TO WATERCARE ENGINEERING STANDARDS.
3. BANK TO HAVE A MAXIMUM OF 6 METERS.
4. ABBREVIATIONS : O.D. = OVERALL DIAMETER MIN. = MINIMUM TYP. = TYPICAL
5. NUMBERED TAGS TO BE PROVIDED ON EACH CONNECTION STARTING WITH UNIT 1 (OR THE LOWEST UNIT NUMBER) FROM ONE SIDE. THE TAGS SHALL BE CLEARLY MARKED AND FIRMLY ATTACHED.
6. REFER TO W518 FOR TYPICAL DOMESTIC METER TRAIN.

Watercare

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MANIFOLD METER BANK
LESS THAN 50mmØ

SCALE: 1:5 & N.T.S. (A3)
ISSUE DATE: 13-07-2018
DWG No. 2010069.021B
REFERENCE No. WS 22

O:\---_ESCKDY_2017_WATER & WASTEWATER NETWORK STD DWGS_2010069.021B.DWG

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.

Rev	Description	By	Date
A	DRAFT	SP	02/2025

	By	Date
Survey	--	--/----
Design	--	--/----
Drawn	SP	11/2024
Checked	JP/LC	02/2025

Maven Associates
09 571 0050
info@maven.co.nz
www.maven.co.nz
5 Owens Road, Epsom
Auckland 1023

Project
SUNFIELD DEVELOPMENT ARDMORE, AUCKLAND MASTERPLANNING FOR SUNFIELD DEVELOPMENTS LIMITED

Title
WATER MAIN STANDARD DETAILS SHEET 5

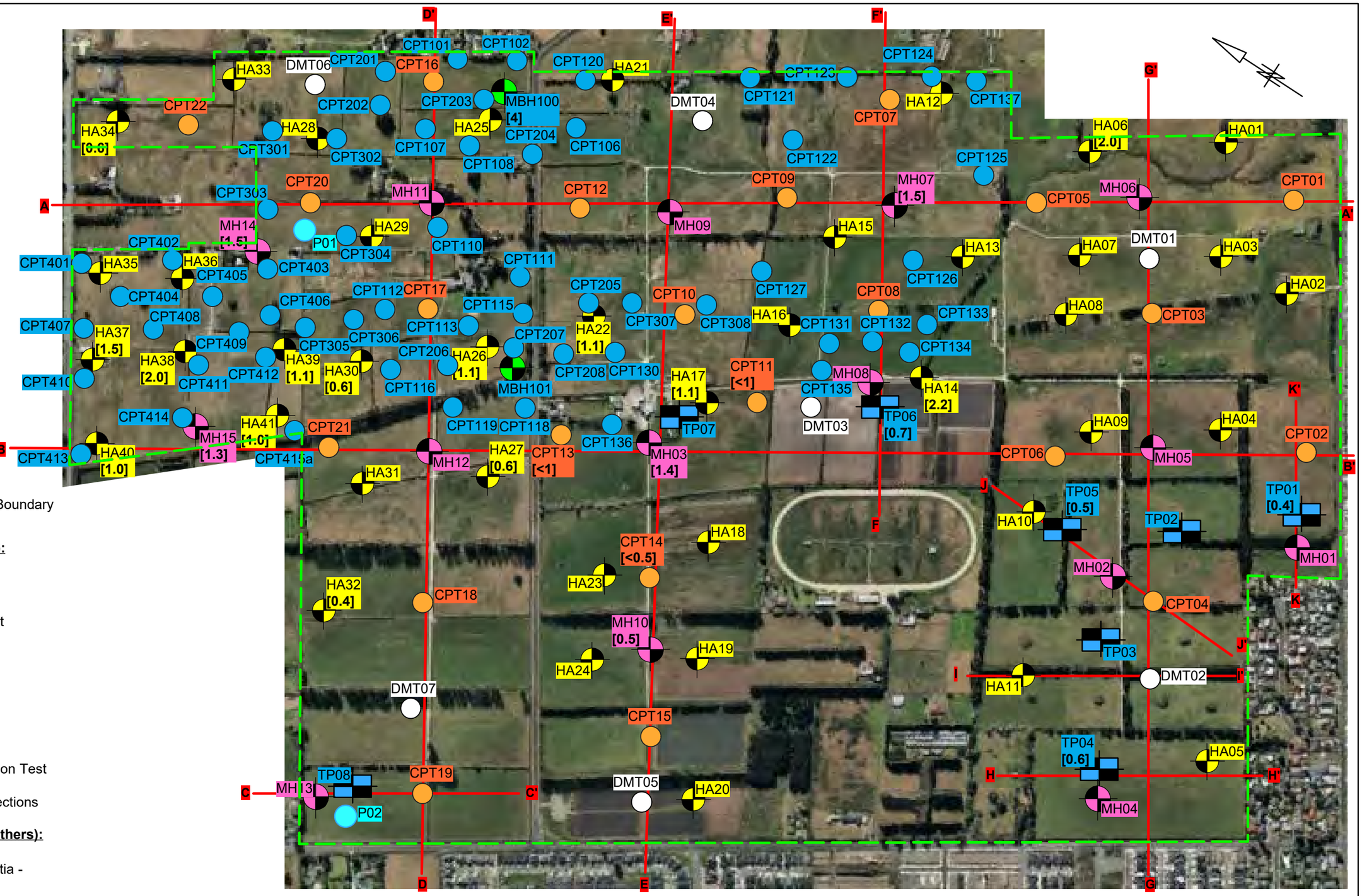
Project no.	215010
Scale	N.T.S
Cad file	215010-M-C804.DWG
Drawing no.	M-C804-4 Rev A

DRAFT FOR REVIEW

DATE: 8/11/25 FILEPATH: F:\MAVEN\PROJECTS\215010 SUNFIELD\DWGS\PRODUCTION\MASTER PLANNING\215010-M-C804.DWG

APPENDIX B

LDE LIMITED DRAWINGS



General:

Sunfield Landholding Boundary

Geotechnical Testing (LDE):

- Machine Borehole
- Cone Penetration Test
- Dilatometer Test
- Hand Auger Borehole
- Test Pit
- Falling Head Percolation Test
- Geotechnical Cross Sections

Geotechnical Testing (By Others):

- Machine Borehole (Initia - 2022)
- Cone Penetration Test (Initia - 2022)

revision	description	drawn	approved	date

0 135.0 270.0 405.0
Horizontal Scale (metres)
0 135.0 270.0 405.0
Vertical Scale (metres)

drawn	JM
approved	KM
date	29.07.25
scale	1:6750
original size	A3

LDE

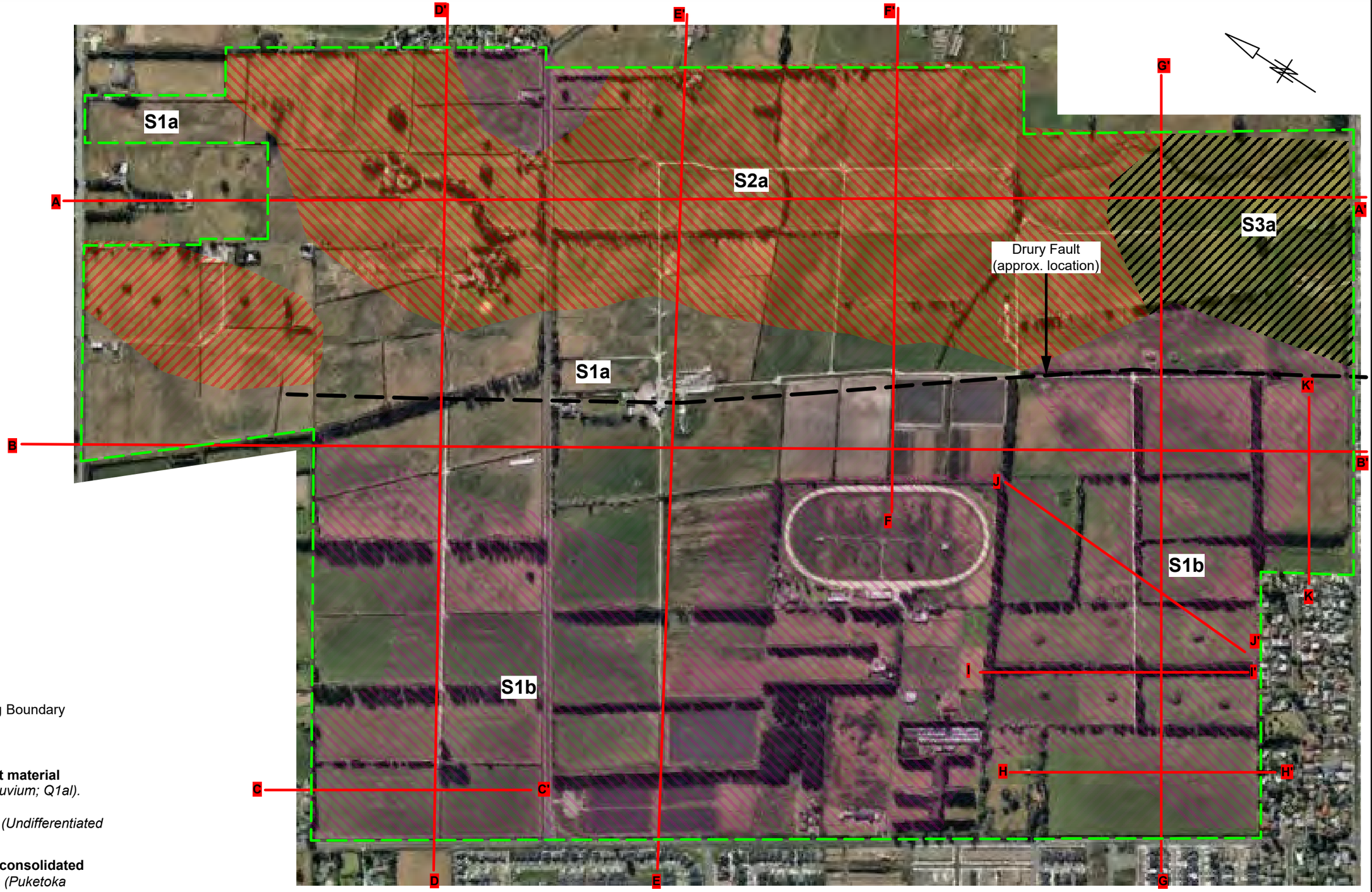
client: SUNFIELD DEVELOPMENTS LIMITED

project: SUNFIELD LANDHOLDING, ARDMORE

title: GEOTECHNICAL INVESTIGATION PLAN

project no: J01627 figure no: 1.1

Template revision: 1:1000 (10/12/14)



General:

Sunfield Landholding Boundary

Geological Units:

S1a - Zone 1: Crust material *(Undifferentiated Alluvium; Q1al).*

S1b - Zone 1: Peat *(Undifferentiated Alluvium; Q1al)*

S2a - Zone 2: Overconsolidated Clays/Silts (Upper) *(Puketoka Formation; Pup)*

S3a - Zone 2: Residual Clays/Silts *(East Coast Bays Formation; Mwe)*

revision	description	drawn	approved	date

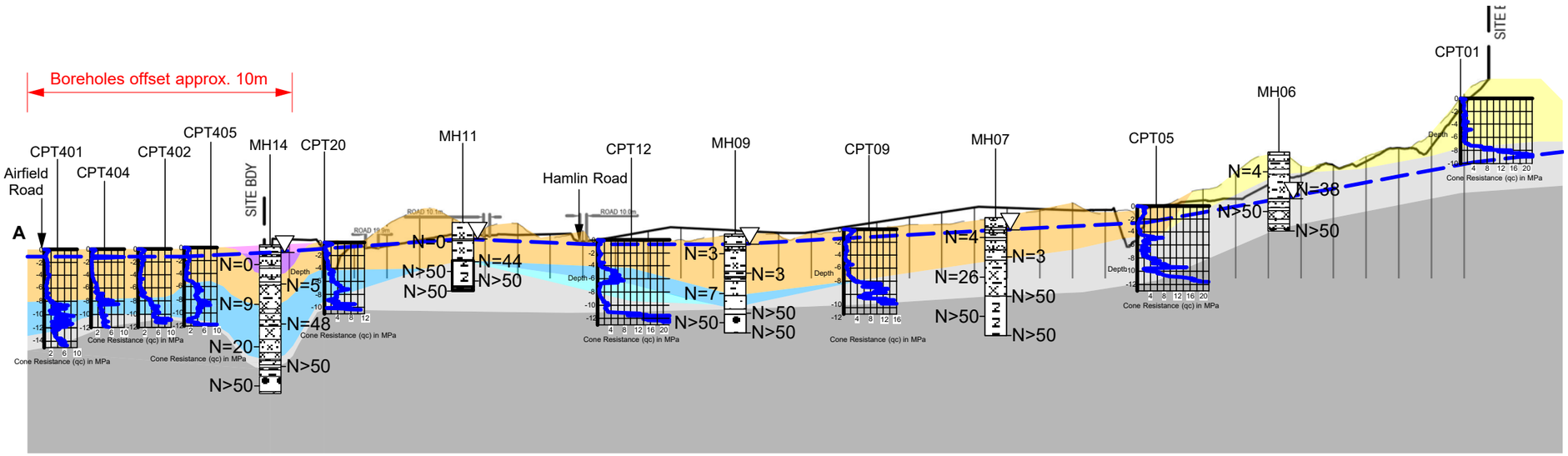
0 135.0 270.0 405.0
Horizontal Scale (metres)
0 135.0 270.0 405.0
Vertical Scale (metres)

drawn	JM
approved	KM
date	29.07.25
scale	1:6750
original size	A3

LDE

client: SUNFIELD DEVELOPMENTS LIMITED
project: SUNFIELD LANDHOLDING, ARDMORE
title: STUDY AREA GEOLOGY PLAN
project no: J01627
figure no: 1.2

Template revision: 1:1000 (10/12/14)



Legend and/or Notes:

- **S1a - Zone 1: Crust material** *(Undifferentiated Alluvium; Q1al)*
- **S1b - Zone 1: Peat** *(Undifferentiated Alluvium; Q1al)*
- **S2a - Zone 2: Overconsolidated Clays/Silts (Upper)** *(Puketoka Formation; Pup)*
- **S2b - Zone 1: Normally Consolidated Clays** *(Puketoka Formation; Pup)*
- **S2c - Zone 1: Loose Sands/Dilatant Silts** *(Puketoka Formation; Pup)*
- **S2d - Zone 1: Overconsolidated Clays/Silts (Lower)** *(Puketoka Formation; Pup)*
- **S3a - Zone 2: Residual Clays/Silts** *(East Coast Bays Formation; Mwe)*
- **S3b - Zone 2: Transitional Clays/Silts** *(East Coast Bays Formation; Mwe)*
- **S3c - Zone 2: Bedrock** *(East Coast Bays Formation; Mwe)*
- **Existing Ground Level**
- **Proposed Finished Ground Level**
- **Groundwater Table**

revision	description	drawn	approved	date

0 120.0 240.0 360.0 480.0
Horizontal Scale (metres)
0 12.0 24.0 36.0 48.0
Vertical Scale (metres)

drawn	**JM**
approved	***KM***
date	**11.07.25**
scale	**1:8000**
original size	**A3**

LDE LAND DEVELOPMENT & ENGINEERING

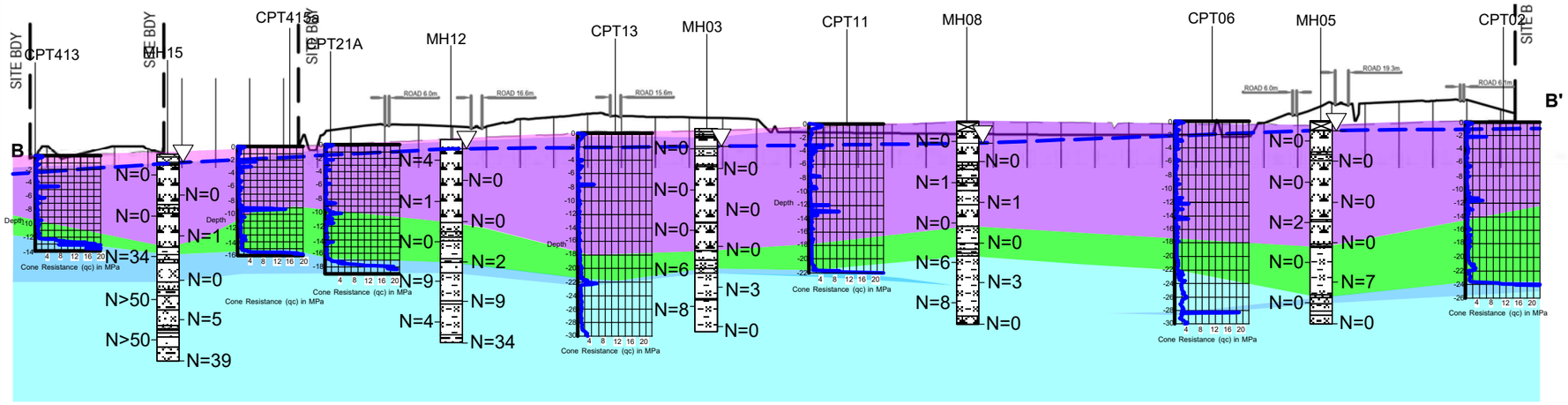
client: **SUNFIELD DEVELOPMENTS LIMITED**

project: **SUNFIELD LANDHOLDING, ARDMORE**

title: **CROSS SECTION AA'**

project no: **J01627** figure no: **2.1**

Template revision: 1:2000 (10/12/14)



Legend and/or Notes:

- **S1a - Zone 1: Crust material** *(Undifferentiated Alluvium; Q1al)*
- **S1b - Zone 1: Peat** *(Undifferentiated Alluvium; Q1al)*
- **S2a - Zone 2: Overconsolidated Clays/Silts (Upper)** *(Puketoka Formation; Pup)*
- **S2b - Zone 1: Normally Consolidated Clays** *(Puketoka Formation; Pup)*
- **S2c - Zone 1: Loose Sands/Dilatant Silts** *(Puketoka Formation; Pup)*
- **S2d - Zone 1: Overconsolidated Clays/Silts (Lower)** *(Puketoka Formation; Pup)*
- **S3a - Zone 2: Residual Clays/Silts** *(East Coast Bays Formation; Mwe)*
- **S3b - Zone 2: Transitional Clays/Silts** *(East Coast Bays Formation; Mwe)*
- **S3c - Zone 2: Bedrock** *(East Coast Bays Formation; Mwe)*
- **Existing Ground Level**
- **Proposed Finished Ground Level**
- **Groundwater Table**

revision	description	drawn	approved	date

0 120.0 240.0 360.0 480.0
Horizontal Scale (metres)
0 12.0 24.0 36.0 48.0
Vertical Scale (metres)

drawn	JM
approved	KM
date	11.07.25
scale	1:8000
original size	A3

LDE LAND DEVELOPMENT & ENGINEERING

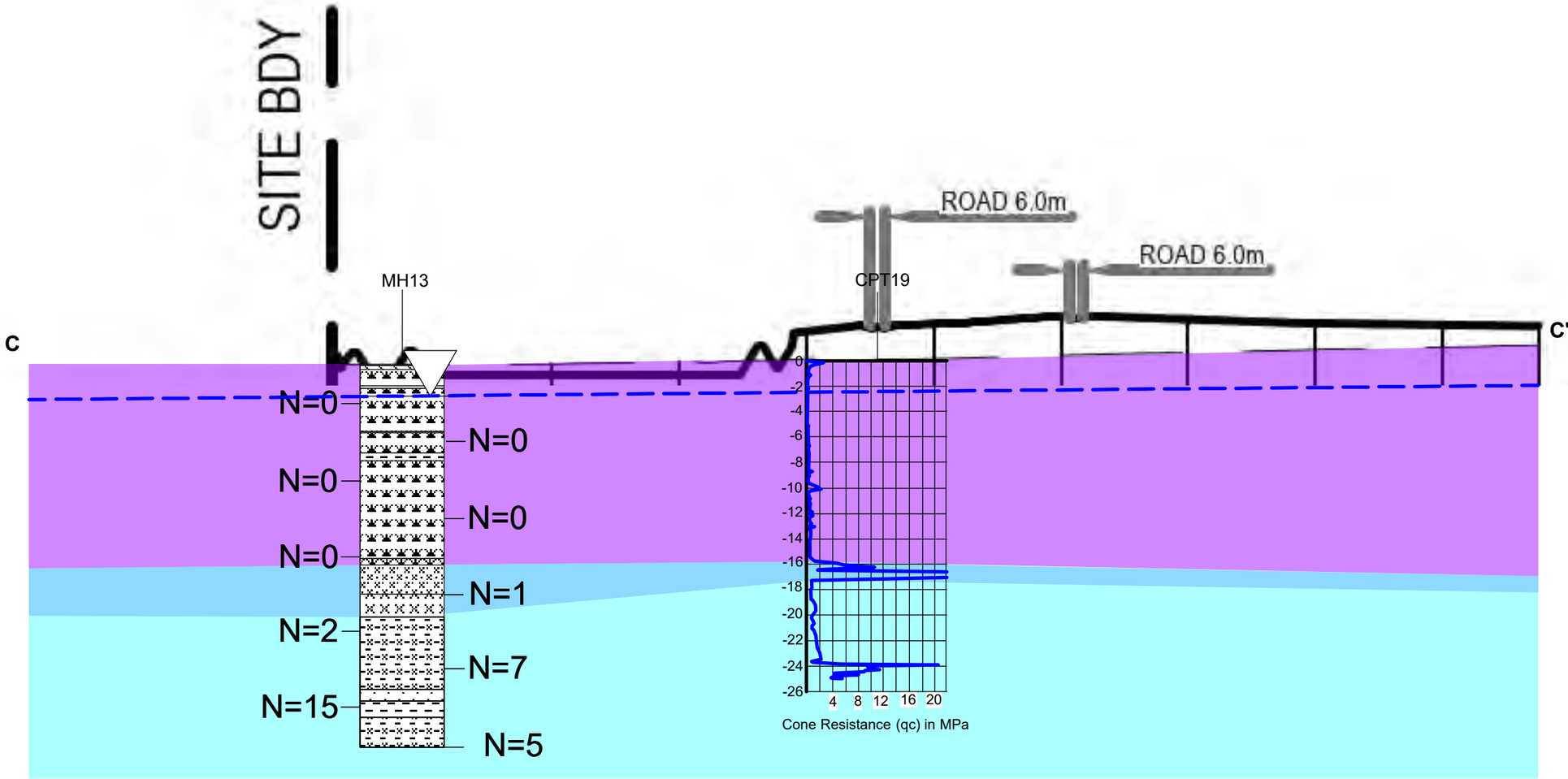
client: **SUNFIELD DEVELOPMENTS LIMITED**

project: **SUNFIELD LANDHOLDING, ARDMORE**

title: **CROSS SECTION BB'**

project no: **J01627** figure no: **2.2**

Template revision: 1:2000 (10/12/14)



Legend and/or Notes:

- **S1a - Zone 1: Crust material** *(Undifferentiated Alluvium; Q1al)*
- **S1b - Zone 1: Peat** *(Undifferentiated Alluvium; Q1al)*
- **S2a - Zone 2: Overconsolidated Clays/Silts (Upper)** *(Puketoka Formation; Pup)*
- **S2b - Zone 1: Normally Consolidated Clays** *(Puketoka Formation; Pup)*
- **S2c - Zone 1: Loose Sands/Dilatant Silts** *(Puketoka Formation; Pup)*
- **S2d - Zone 1: Overconsolidated Clays/Silts (Lower)** *(Puketoka Formation; Pup)*
- **S3a - Zone 2: Residual Clays/Silts** *(East Coast Bays Formation; Mwe)*
- **S3b - Zone 2: Transitional Clays/Silts** *(East Coast Bays Formation; Mwe)*
- **S3c - Zone 2: Bedrock** *(East Coast Bays Formation; Mwe)*
- **Existing Ground Level**
- **Proposed Finished Ground Level**
- **Groundwater Table**

revision	description	drawn	approved	date

0 30.0 60.0 90.0 120.0
Horizontal Scale (metres)
0 6.0 12.0 18.0 24.0
Vertical Scale (metres)

drawn	JM
approved	KM
date	11.07.25
scale	1:2000
original size	A3

LDE LAND DEVELOPMENT & ENGINEERING

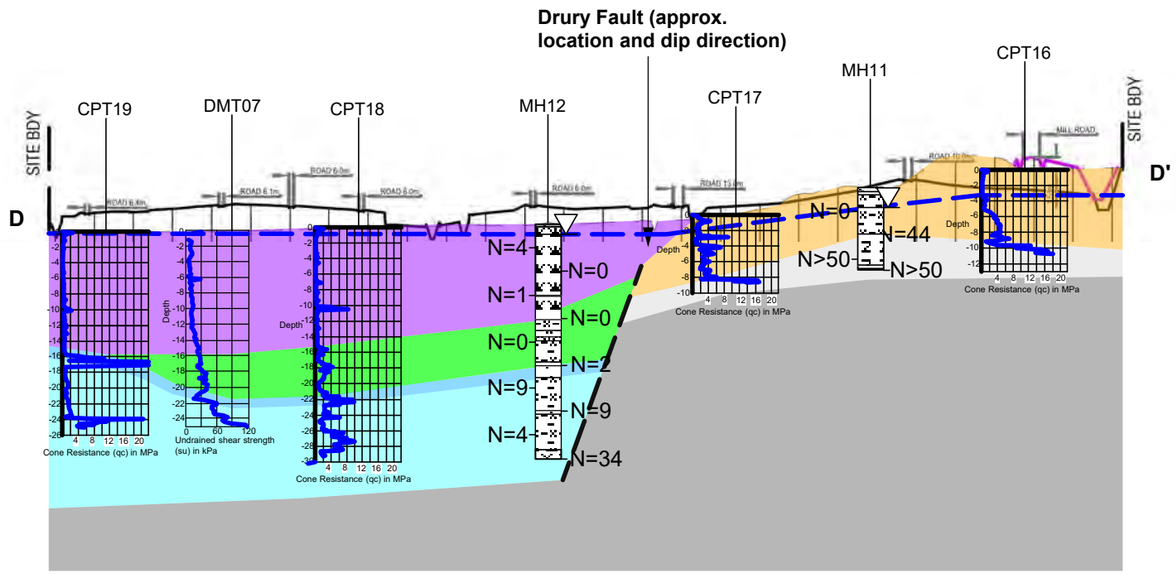
client: **SUNFIELD DEVELOPMENTS LIMITED**

project: **SUNFIELD LANDHOLDING, ARDMORE**

title: **CROSS SECTION CC'**

project no: **J01627** figure no: **2.3**

Template revision: 1:2000 (10/12/14)



Legend and/or Notes:

- **S1a - Zone 1: Crust material** *(Undifferentiated Alluvium; Q1al)*
- **S1b - Zone 1: Peat** *(Undifferentiated Alluvium; Q1al)*
- **S2a - Zone 2: Overconsolidated Clays/Silts (Upper)** *(Puketoka Formation; Pup)*
- **S2b - Zone 1: Normally Consolidated Clays** *(Puketoka Formation; Pup)*
- **S2c - Zone 1: Loose Sands/Dilatant Silts** *(Puketoka Formation; Pup)*
- **S2d - Zone 1: Overconsolidated Clays/Silts (Lower)** *(Puketoka Formation; Pup)*
- **S3a - Zone 2: Residual Clays/Silts** *(East Coast Bays Formation; Mwe)*
- **S3b - Zone 2: Transitional Clays/Silts** *(East Coast Bays Formation; Mwe)*
- **S3c - Zone 2: Bedrock** *(East Coast Bays Formation; Mwe)*
- **Existing Ground Level**
- **Proposed Finished Ground Level**
- **Groundwater Table**

revision	description	drawn	approved	date

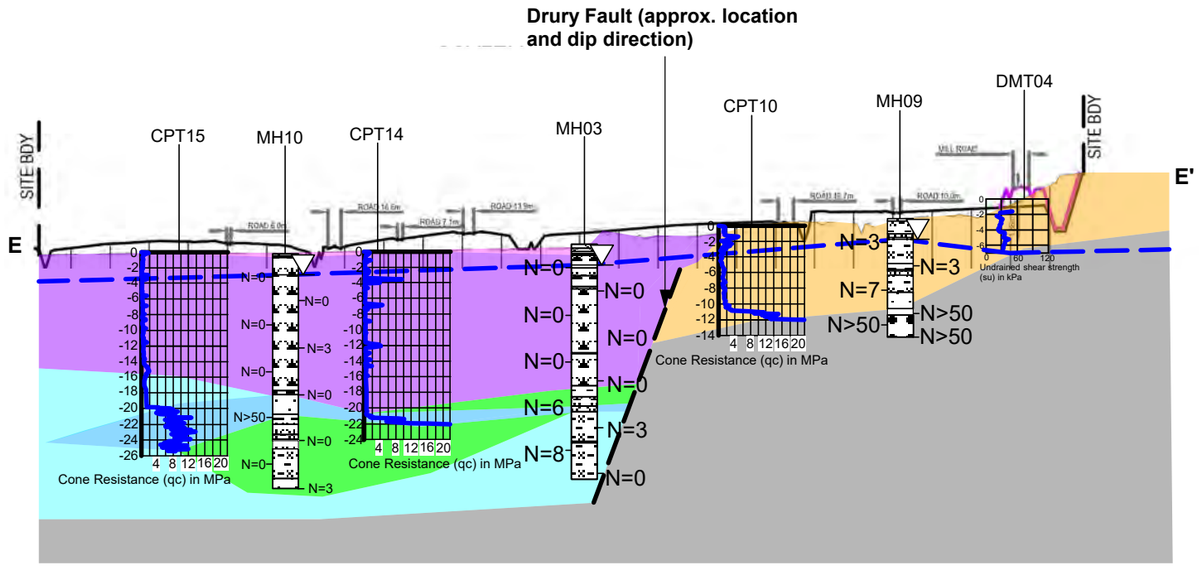
0 120.0 240.0 360.0 480.0
Horizontal Scale (metres)
0 12.0 24.0 36.0 48.0
Vertical Scale (metres)

drawn	JM
approved	KM
date	11.07.25
scale	1:8000
original size	A3

LDE LAND DEVELOPMENT & ENGINEERING

client: **SUNFIELD DEVELOPMENTS LIMITED**
project: **SUNFIELD LANDHOLDING, ARDMORE**
title: **CROSS SECTION DD'**
project no: **J01627** figure no: **2.4**

Template revision: 1:2000 (10/12/14)



Legend and/or Notes:

- **S1a - Zone 1: Crust material** *(Undifferentiated Alluvium; Q1al)*
- **S1b - Zone 1: Peat** *(Undifferentiated Alluvium; Q1al)*
- **S2a - Zone 2: Overconsolidated Clays/Silts (Upper)** *(Puketoka Formation; Pup)*
- **S2b - Zone 1: Normally Consolidated Clays** *(Puketoka Formation; Pup)*
- **S2c - Zone 1: Loose Sands/Dilatant Silts** *(Puketoka Formation; Pup)*
- **S2d - Zone 1: Overconsolidated Clays/Silts (Lower)** *(Puketoka Formation; Pup)*
- **S3a - Zone 2: Residual Clays/Silts** *(East Coast Bays Formation; Mwe)*
- **S3b - Zone 2: Transitional Clays/Silts** *(East Coast Bays Formation; Mwe)*
- **S3c - Zone 2: Bedrock** *(East Coast Bays Formation; Mwe)*
- **Existing Ground Level**
- **Proposed Finished Ground Level**
- **Groundwater Table**

revision	description	drawn	approved	date

0 120.0 240.0 360.0 480.0
Horizontal Scale (metres)
0 12.0 24.0 36.0 48.0
Vertical Scale (metres)

drawn	**JM**
approved	***KM***
date	**11.07.25**
scale	**1:8000**
original size	**A3**

LDE LAND DEVELOPMENT & ENGINEERING

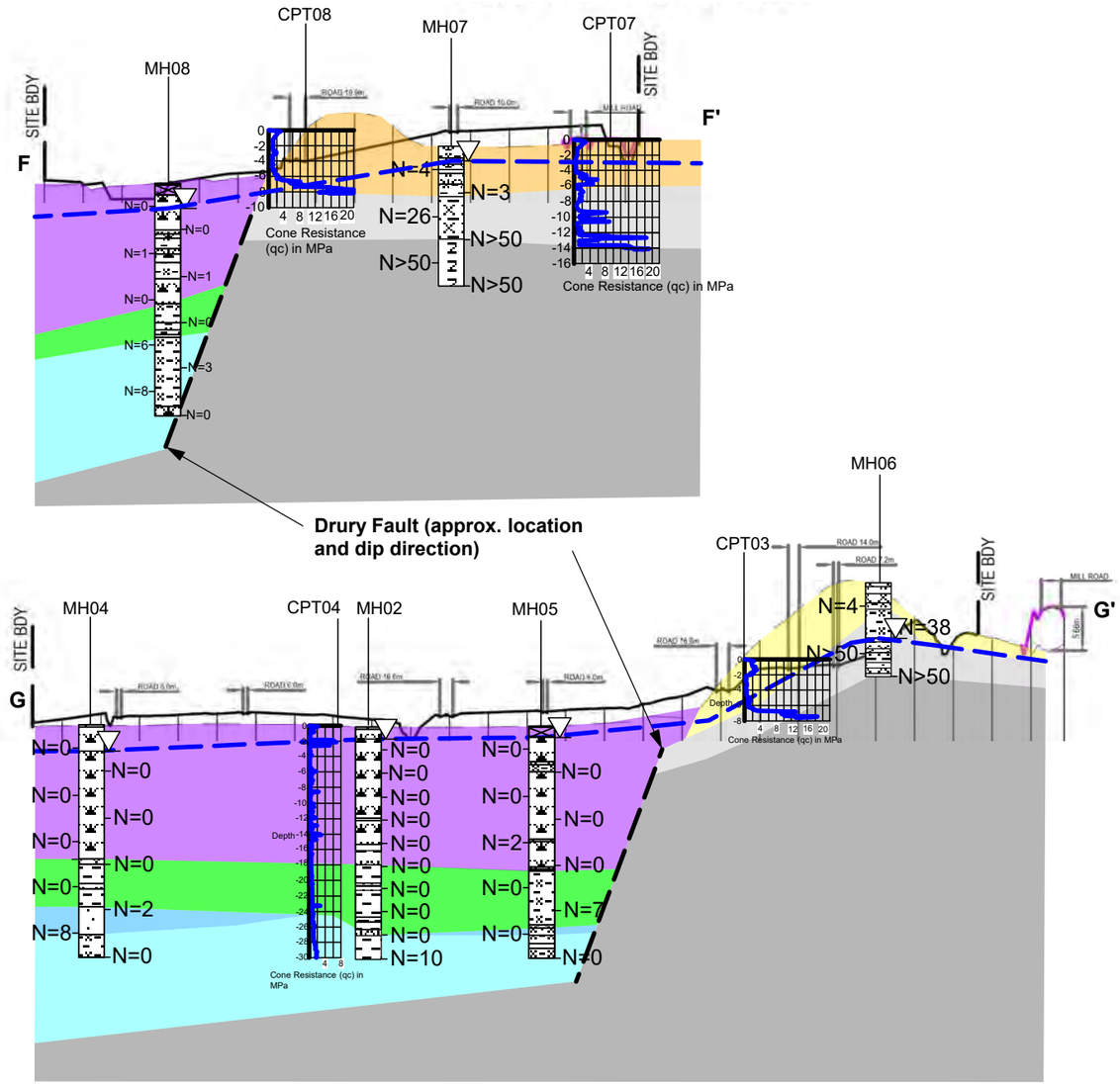
client: **SUNFIELD DEVELOPMENTS LIMITED**

project: **SUNFIELD LANDHOLDING, ARDMORE**

title: **CROSS SECTION EE'**

project no: **J01627** figure no: **2.5**

Template revision: 1:2000 (10/12/14)



Legend and/or Notes:

- **S1a - Zone 1: Crust material** *(Undifferentiated Alluvium; Q1al)*
- **S1b - Zone 1: Peat** *(Undifferentiated Alluvium; Q1al)*
- **S2a - Zone 2: Overconsolidated Clays/Silts (Upper)** *(Puketoka Formation; Pup)*
- **S2b - Zone 1: Normally Consolidated Clays** *(Puketoka Formation; Pup)*
- **S2c - Zone 1: Loose Sands/Dilatant Silts** *(Puketoka Formation; Pup)*
- **S2d - Zone 1: Overconsolidated Clays/Silts (Lower)** *(Puketoka Formation; Pup)*
- **S3a - Zone 2: Residual Clays/Silts** *(East Coast Bays Formation; Mwe)*
- **S3b - Zone 2: Transitional Clays/Silts** *(East Coast Bays Formation; Mwe)*
- **S3c - Zone 2: Bedrock** *(East Coast Bays Formation; Mwe)*
- **Existing Ground Level**
- **Proposed Finished Ground Level**
- **Groundwater Table**

revision	description	drawn	approved	date

0 120.0 240.0 360.0 480.0
Horizontal Scale (metres)
0 12.0 24.0 36.0 48.0
Vertical Scale (metres)

drawn	JM
approved	KM
date	11.07.25
scale	1:8000
original size	A3

LDE LAND DEVELOPMENT & ENGINEERING

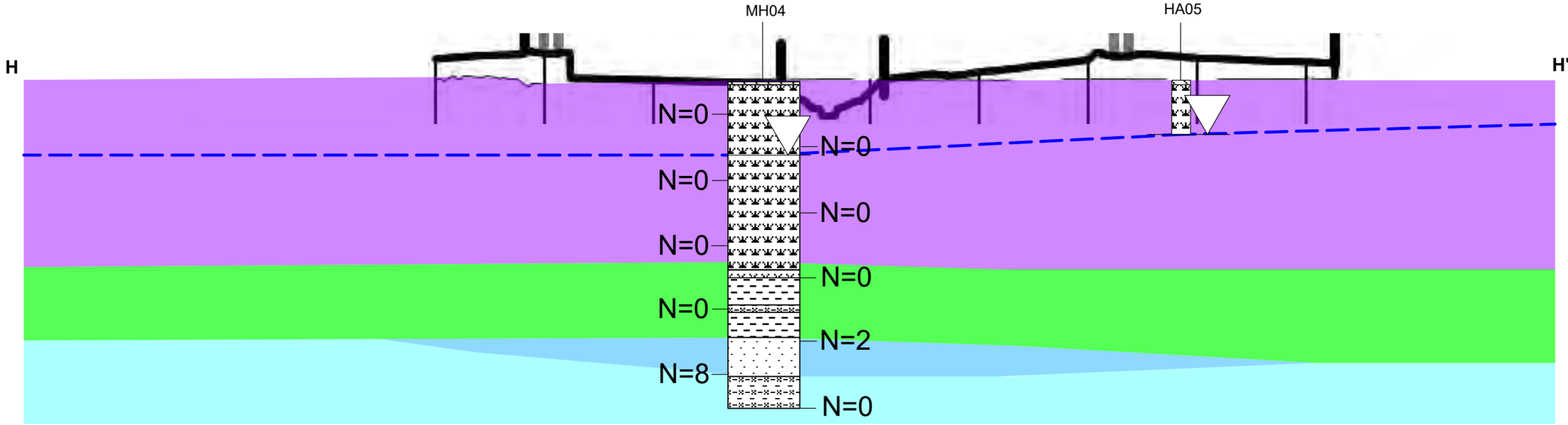
client: **SUNFIELD DEVELOPMENTS LIMITED**

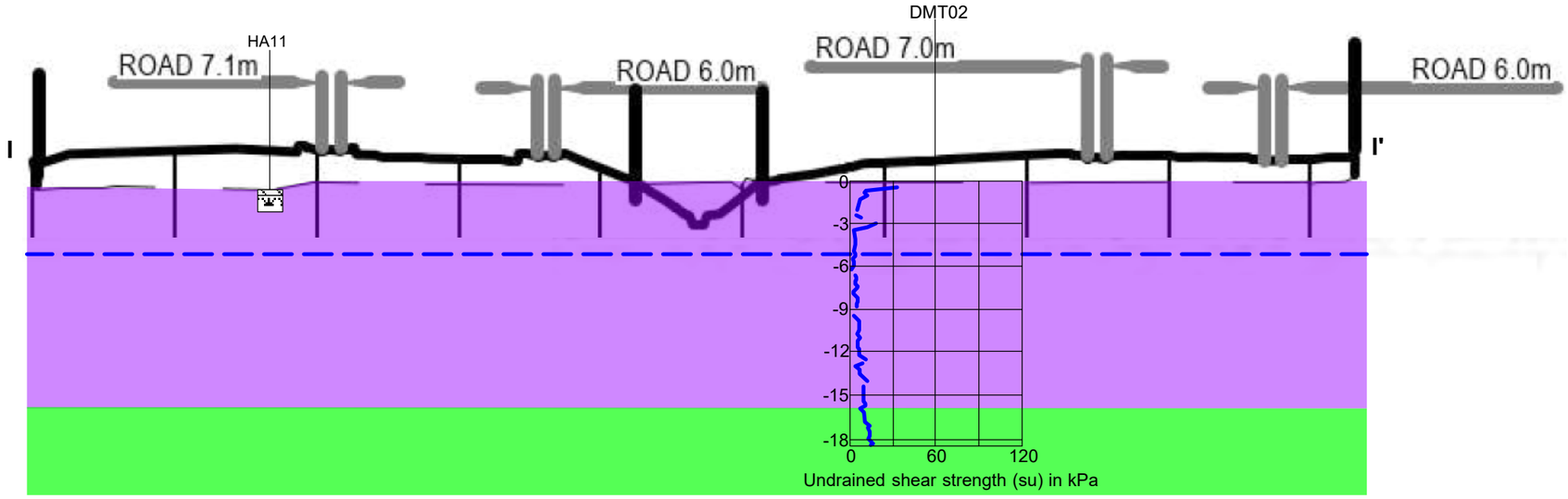
project: **SUNFIELD LANDHOLDING, ARDMORE**

title: **CROSS SECTION FF' & GG'**

project no: **J01627** figure no: **2.6**

Template revision: 1:2000 (10/12/14)





Legend and/or Notes:

- **S1a - Zone 1: Crust material** *(Undifferentiated Alluvium; Q1al)*
- **S1b - Zone 1: Peat** *(Undifferentiated Alluvium; Q1al)*
- **S2a - Zone 2: Overconsolidated Clays/Silts (Upper)** *(Puketoka Formation; Pup)*
- **S2b - Zone 1: Normally Consolidated Clays** *(Puketoka Formation; Pup)*
- **S2c - Zone 1: Loose Sands/Dilatant Silts** *(Puketoka Formation; Pup)*
- **S2d - Zone 1: Overconsolidated Clays/Silts (Lower)** *(Puketoka Formation; Pup)*
- **S3a - Zone 2: Residual Clays/Silts** *(East Coast Bays Formation; Mwe)*
- **S3b - Zone 2: Transitional Clays/Silts** *(East Coast Bays Formation; Mwe)*
- **S3c - Zone 2: Bedrock** *(East Coast Bays Formation; Mwe)*
- **Existing Ground Level**
- **Proposed Finished Ground Level**
- **Groundwater Table**

revision	description	drawn	approved	date

0 30.0 60.0 90.0 120.0
Horizontal Scale (metres)
0 6.0 12.0 18.0 24.0
Vertical Scale (metres)

drawn	JM
approved	KM
date	11.07.25
scale	1:2000
original size	A3

LDE LAND DEVELOPMENT & ENGINEERING

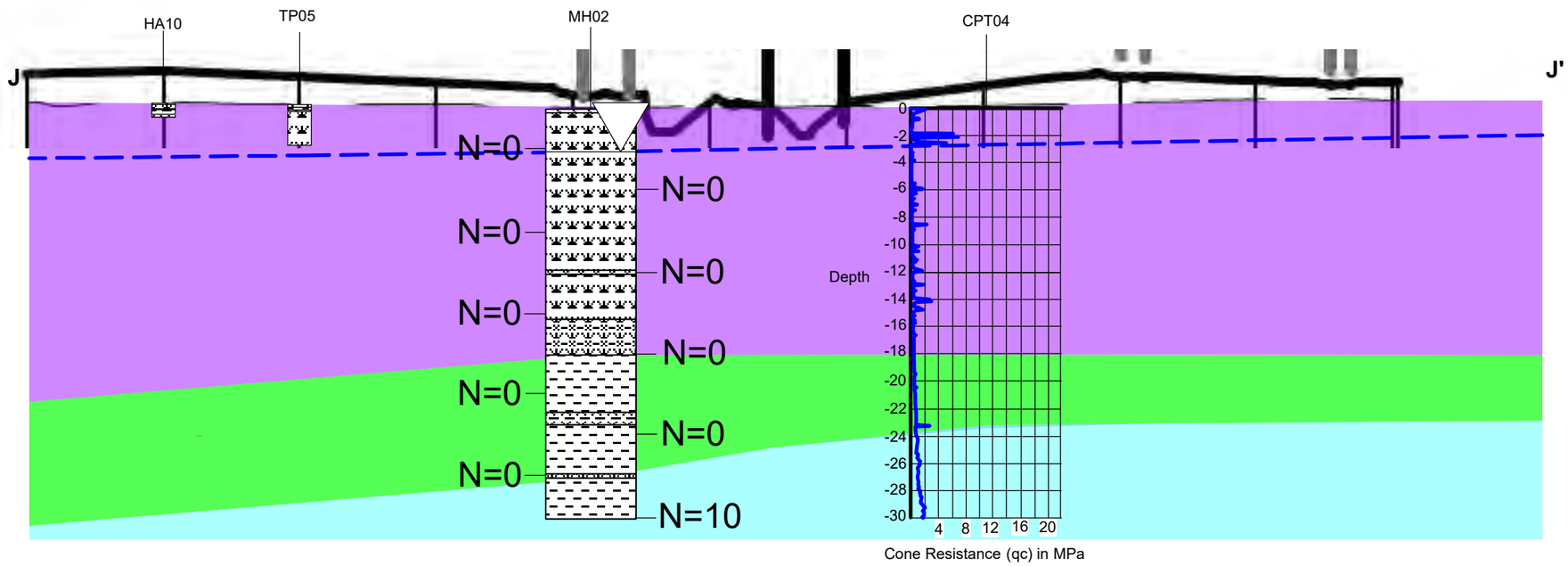
client: SUNFIELD DEVELOPMENTS LIMITED

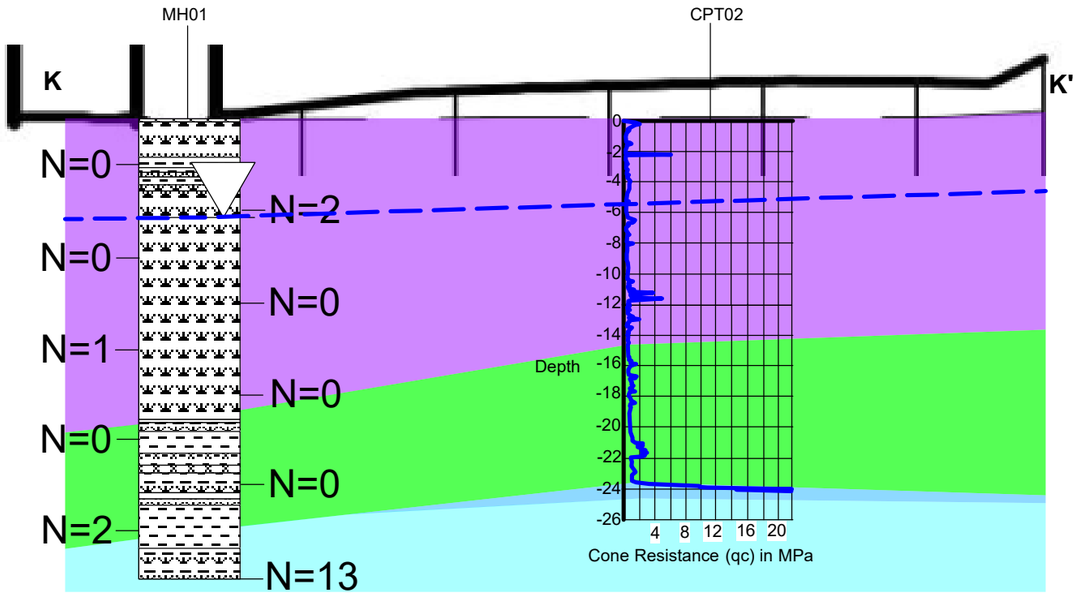
project: SUNFIELD LANDHOLDING, ARDMORE

title: CROSS SECTION HH' & II'

project no: J01627 figure no: 2.7

Template revision: 1:2000 (10/12/14)





Legend and/or Notes:

- **S1a - Zone 1: Crust material** *(Undifferentiated Alluvium; Q1al)*
- **S1b - Zone 1: Peat** *(Undifferentiated Alluvium; Q1al)*
- **S2a - Zone 2: Overconsolidated Clays/Silts (Upper)** *(Puketoka Formation; Pup)*
- **S2b - Zone 1: Normally Consolidated Clays** *(Puketoka Formation; Pup)*
- **S2c - Zone 1: Loose Sands/Dilatant Silts** *(Puketoka Formation; Pup)*
- **S2d - Zone 1: Overconsolidated Clays/Silts (Lower)** *(Puketoka Formation; Pup)*
- **S3a - Zone 2: Residual Clays/Silts** *(East Coast Bays Formation; Mwe)*
- **S3b - Zone 2: Transitional Clays/Silts** *(East Coast Bays Formation; Mwe)*
- **S3c - Zone 2: Bedrock** *(East Coast Bays Formation; Mwe)*
- **Existing Ground Level**
- **Proposed Finished Ground Level**
- **Groundwater Table**

revision	description	drawn	approved	date

0 30.0 60.0 90.0 120.0
Horizontal Scale (metres)
0 6.0 12.0 18.0 24.0
Vertical Scale (metres)

drawn	JM
approved	KM
date	11.07.25
scale	1:2000
original size	A3

LDE LAND DEVELOPMENT & ENGINEERING

client: **SUNFIELD DEVELOPMENTS LIMITED**

project: **SUNFIELD LANDHOLDING, ARDMORE**

title: **CROSS SECTION JJ' & KK'**

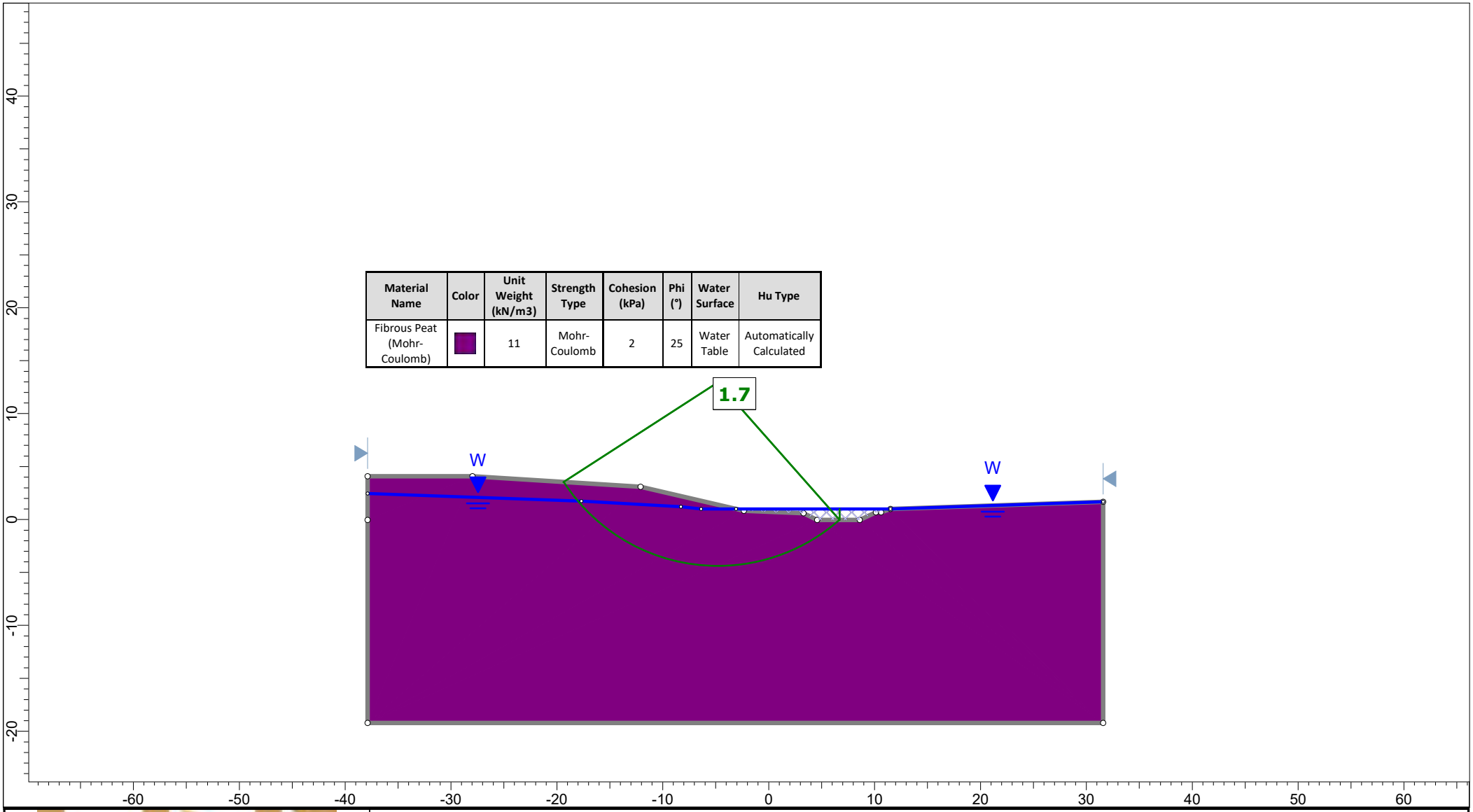
project no: **J01627** figure no: **2.8**

Template revision: 1:2000 (10/12/14)

APPENDIX C

SLOPE STABILITY ANALYSIS OUTPUTS

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type
Fibrous Peat (Mohr-Coulomb)		11	Mohr-Coulomb	2	25	Water Table	Automatically Calculated

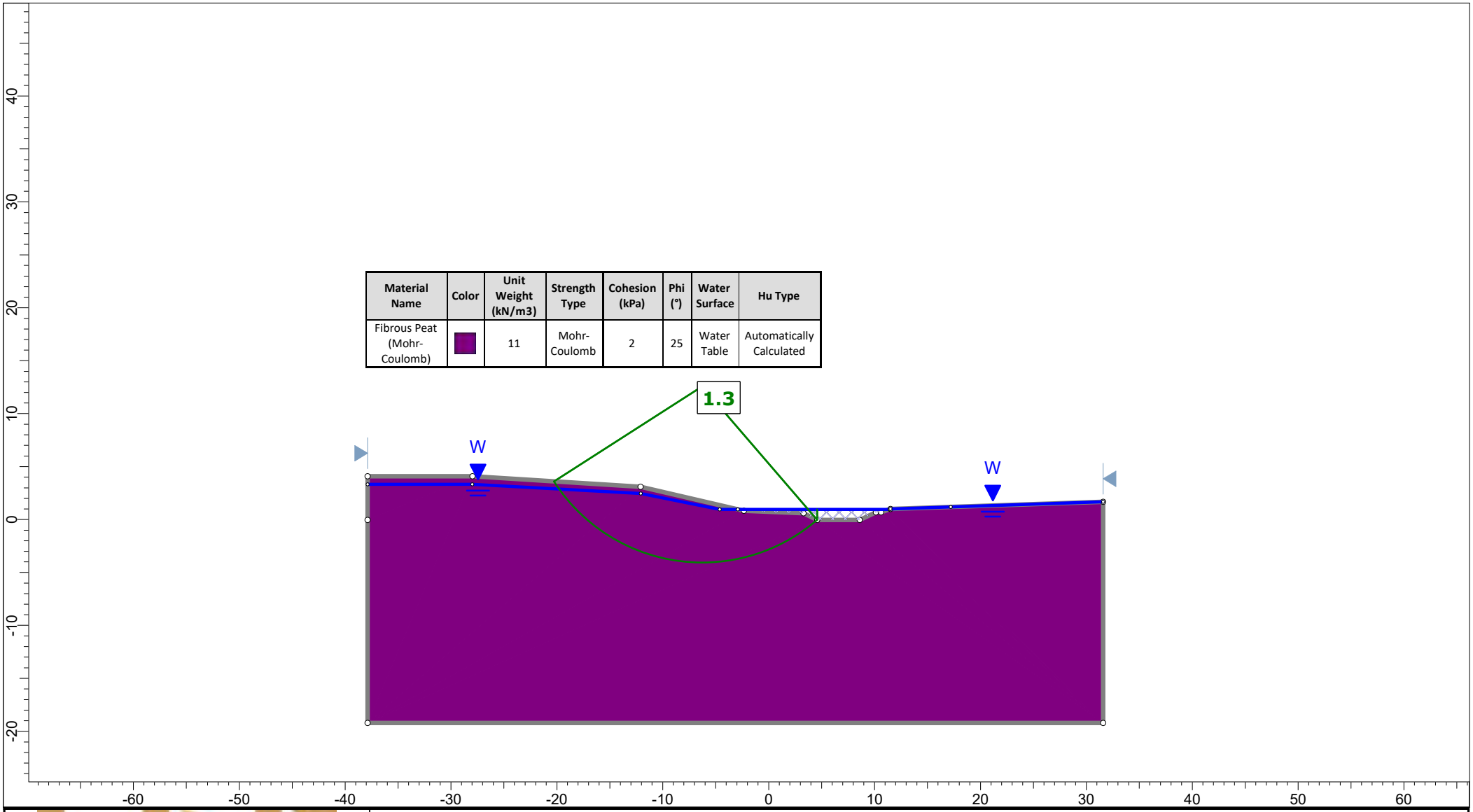


engineers • scientists

SLIDEINTERPRET 9.028

Analysis Description	Existing Groundwater		
Cross Section	Typical Channel Section	Case No. 1	Project J01627 - Sunfield Landholding
Drawn By	JM	F.O.S Filter <1.5	Company LDE Limited
Date	29/07/2025	Scale 1:500	File Name J01627-Specialist Software Models-Slope Stability Analyses-636534 (ID 636534).slmd

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type
Fibrous Peat (Mohr-Coulomb)		11	Mohr-Coulomb	2	25	Water Table	Automatically Calculated



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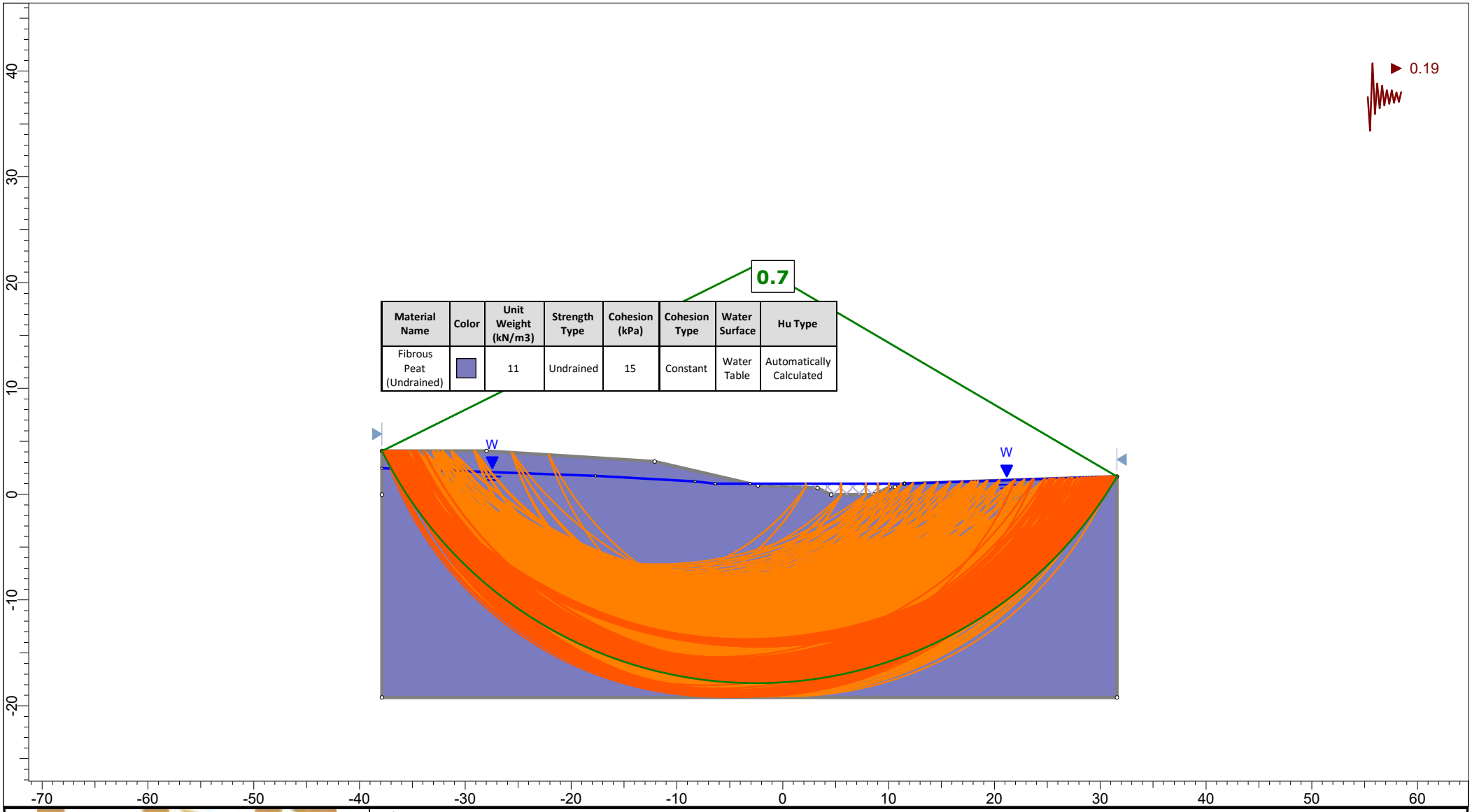
Analysis Description	Elevated Groundwater		
Cross Section	Typical Channel Section	Case No. 2	Project J01627 - Sunfield Landholding
Drawn By	JM	F.O.S Filter <1.3	Company LDE Limited
Date	29/07/2025	Scale 1:500	File Name J01627-Specialist Software Models-Slope Stability Analyses-636534 (ID 636534).slmd



Analysis Description	Existing Groundwater - Seismic		
Cross Section Typical Channel Section	Case No. 3	Project	J01627 - Sunfield Landholding, Ardmore
Drawn By JM	F.O.S Filter <1.0	Company	LDE Limited
Date 31/07/2025	Scale 1:500	*File Name*	J01627-Specialist Software Models-Slope Stability Analyses-636534 (ID 636534).slmd

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APPENDIX D

LIQUEFACTION ANALYSIS OUTPUTS

CPT ID#	Cyclic Softening Assessed (Y/N)	Liquefaction Scenario / Result						Surcharge Loads Applied (kPa)	
		Case 1 - SLS - Earthworks Surcharge Only			Case 2 - ULS - Earthworks Surcharge Only				
		Thickness of Non-Liquefiable Crust (m)	Potential Vertical Settlements within Liquefiable Layers (mm)	LSN	Thickness of Non-Liquefiable Crust (m)	Potential Vertical Settlements within Liquefiable Layers (mm)	LSN	Earthworks	End Use
CPT01	N	No Liquefaction Calculated		0	4.7	10	<5	-52.5	12
CPT02	Y	No Liquefaction Calculated		0	1.4	<5	<5	37	12
CPT03	Y	No Liquefaction Calculated		0	5.3	<5	<5	-52.5	12
CPT04A	Y	No Liquefaction Calculated		0	1.6	15	<5	18.5	20
CPT05	N	No Liquefaction Calculated		0	3.7	70	15	0	12
CPT06	Y	-	<5[1]	<5	2.1	10	<5	0	12
CPT07	N	No Liquefaction Calculated		0	4.4	50	5	37	20
CPT08	N	No Liquefaction Calculated		0	-	<5[1]	<5	-87.5	40
CPT09A	N	No Liquefaction Calculated		0	1.3	30	5	37	40
CPT10	N	No Liquefaction Calculated		0	1.7	20	5	9.25	40
CPT11	Y	No Liquefaction Calculated		0	3.5	<5	<5	18.5	15
CPT12	N	No Liquefaction Calculated		0	2.0	25	<5	37	20
CPT13A	Y	No Liquefaction Calculated		0	2.6	50	10	18.5	12
CPT14	Y	-	<5[1]	<5	3.8	<5	<5	18.5	12
CPT15	Y	No Liquefaction Calculated		0	2.2	10	<5	37	12
CPT16	N	No Liquefaction Calculated		0	5.2	60	15	-52.5	40
CPT17	N	No Liquefaction Calculated		0	1.8	40	10	0	40
CPT18	Y	No Liquefaction Calculated		0	2.3	0	0	18.5	12
CPT19A	Y	No Liquefaction Calculated		0	2.5	70	15	37	12
CPT20	N	No Liquefaction Calculated		0	2.1	50	10	18.5	40
CPT21A	Y	No Liquefaction Calculated		0	2.2	<5	<5	37	12
CPT22	Y	No Liquefaction Calculated		0	5.0	65	10	18.5	15
CPT101	N	No Liquefaction Calculated		0	4.3	10	<5	-52.5	40
CPT102	N	-	10[1]	<5	3.0	75	35	-35	40
CPT106	N	No Liquefaction Calculated		0	2.7	30	5	0	20
CPT107	N	No Liquefaction Calculated		0	5.1	30	10	-52.5	40
CPT108	N	No Liquefaction Calculated		0	7.7	<5	<5	-35	40
CPT110	N	No Liquefaction Calculated		0	3.5	15	<5	9.25	40
CPT111	N	No Liquefaction Calculated		0	1.2	10	5	0	40
CPT112	N	No Liquefaction Calculated		0	5.0	20	5	-8.75	40
CPT113	N	No Liquefaction Calculated		0	3.7	15	<5	-8.75	40
CPT115	Y	No Liquefaction Calculated		0	2.2	10	<5	-8.75	12
CPT116	Y	No Liquefaction Calculated		0	5.1	<5	0	37	15
CPT118	Y	No Liquefaction Calculated		0	2.9	5	<5	37	12
CPT119	Y	No Liquefaction Calculated		0	2.4	<5	<5	37	12
CPT120	N	No Liquefaction Calculated		0	1.3	20	<5	18.5	20
CPT121	N	No Liquefaction Calculated		0	5.3	20	<5	18.5	20
CPT122	N	No Liquefaction Calculated		0	8.6	10	<5	27.75	20
CPT123	N	No Liquefaction Calculated		0	1.0	150	30	37	20
CPT124	N	No Liquefaction Calculated		0	7.2	<5	<5	18.5	20
CPT125	N	No Liquefaction Calculated		0	2.2	15	<5	0	40
CPT126	N	No Liquefaction Calculated		0	No Liquefaction Calculated		0	-96.25	40
CPT127	N	No Liquefaction Calculated		0	3.2	20	<5	0	40
CPT130	Y	No Liquefaction Calculated		0	3.1	25	<5	37	15
CPT131	Y	8.0	90	15	1.1	430	105	0	15
CPT132	N	No Liquefaction Calculated		0	5.9	10	<5	-17.5	40
CPT133	N	No Liquefaction Calculated		0	-	5[1]	<5	0	40
CPT134	Y	No Liquefaction Calculated		0	No Liquefaction Calculated		0	0	12
CPT135	Y	No Liquefaction Calculated		0	6.2	<5	<5	18.5	12
CPT136	Y	No Liquefaction Calculated		0	3.7	5	<5	37	12
CPT137	N	No Liquefaction Calculated		0	4.9	20	<5	-17.5	40
CPT201	N	No Liquefaction Calculated		0	6.3	45	10	-52.5	40
CPT202	N	No Liquefaction Calculated		0	4.1	70	25	-52.5	40
CPT203	N	-	<5[1]	<5	3.4	10	<5	-35	40
CPT204	N	No Liquefaction Calculated		0	4.7	45	15	-35	40
CPT205	N	No Liquefaction Calculated		0	2.1	15	<5	37	40
CPT206	Y	-	20[1]	<5	1.4	30	65	18.5	12
CPT207	Y	No Liquefaction Calculated		0	2.5	5	<5	18.5	12
CPT208	Y	No Liquefaction Calculated		0	3.6	5	<5	37	15
CPT301	N	No Liquefaction Calculated		0	3.0	20	<5	37	15
CPT302	N	No Liquefaction Calculated		0	3.1	15	35	-35	40
CPT303	N	No Liquefaction Calculated		0	2.2	25	<5	27.75	15
CPT304	N	No Liquefaction Calculated		0	2.6	80	15	0	40
CPT305	N	No Liquefaction Calculated		0	6.0	50	5	18.5	40
CPT306	N	No Liquefaction Calculated		0	4.1	40	5	18.5	40
CPT307	Y	-	<5[1]	<5	2.6	25	<5	18.5	15
CPT308	N	No Liquefaction Calculated		0	2.5	80	15	0	40
CPT401	N	No Liquefaction Calculated		0	5.3	40	5	18.5	25
CPT402	N	No Liquefaction Calculated		0	3.3	80	10	9.25	25
CPT403	Y	No Liquefaction Calculated		0	3.4	80	10	18.5	15
CPT404	N	No Liquefaction Calculated		0	5.0	60	10	55.5	15
CPT405	N	No Liquefaction Calculated		0	3.1	45	5	37	40
CPT406	N	No Liquefaction Calculated		0	4.7	30	<5	37	40
CPT407	Y	No Liquefaction Calculated		0	5.6	20	<5	37	25
CPT408	N	No Liquefaction Calculated		0	5.4	30	<5	37	25
CPT409	N	No Liquefaction Calculated		0	3.9	60	10	37	25
CPT410	Y	No Liquefaction Calculated		0	2.6	5	<5	37	15
CPT411	Y	No Liquefaction Calculated		0	3.7	25	<5	37	15
CPT412	Y	No Liquefaction Calculated		0	1.3	30	<5	37	15
CPT413	Y	No Liquefaction Calculated		0	5.2	0	0	0	15
CPT414	Y	-	<5[1]	<5	3.9	15	<5	37	15
CPT415A	Y	-	<5[1]	<5	2.5	25	<5	37	15

1. Vertical settlement may be discounted as liquefaction FoS is greater than 1

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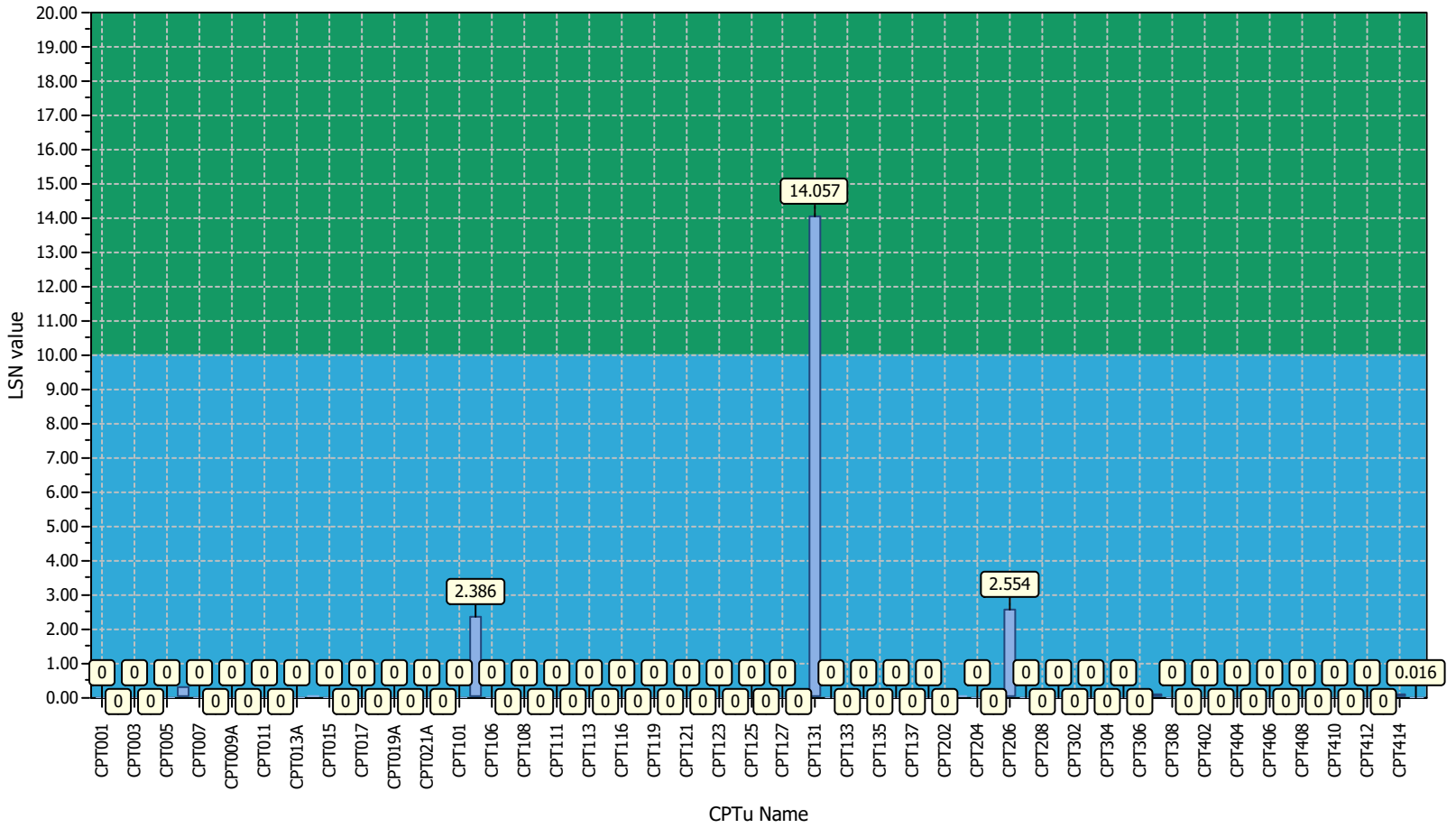
Project title : Sunfield Landholding

Location :

Overall Liquefaction Severity Number report



LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Basic statistics

Total CPT number: 82

99% little liquefaction

1% minor liquefaction

0% moderate liquefaction

0% moderate to major liquefaction

0% major liquefaction

0% severe liquefaction

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http://www.geologismiki.gr

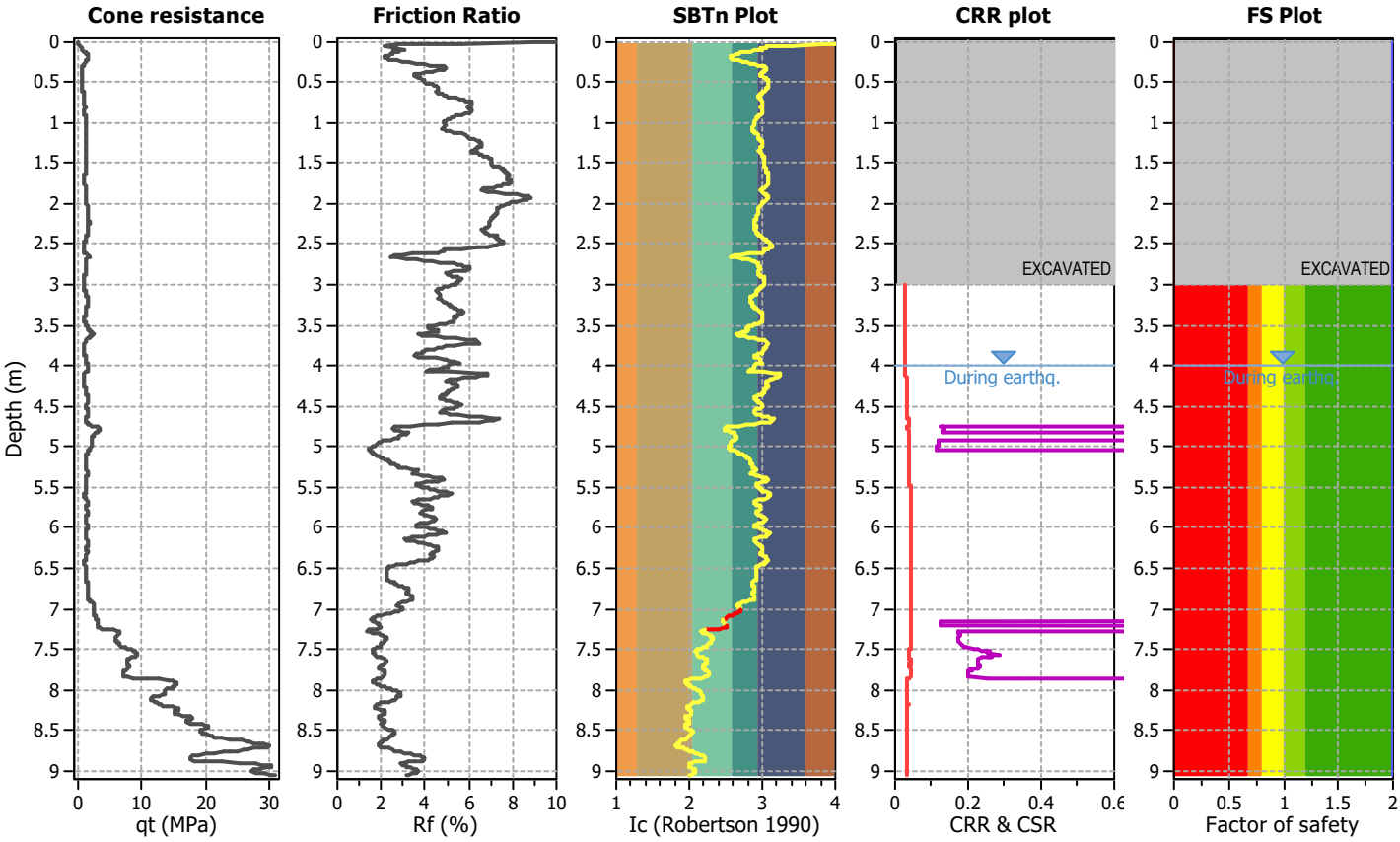
LIQUEFACTION ANALYSIS REPORT

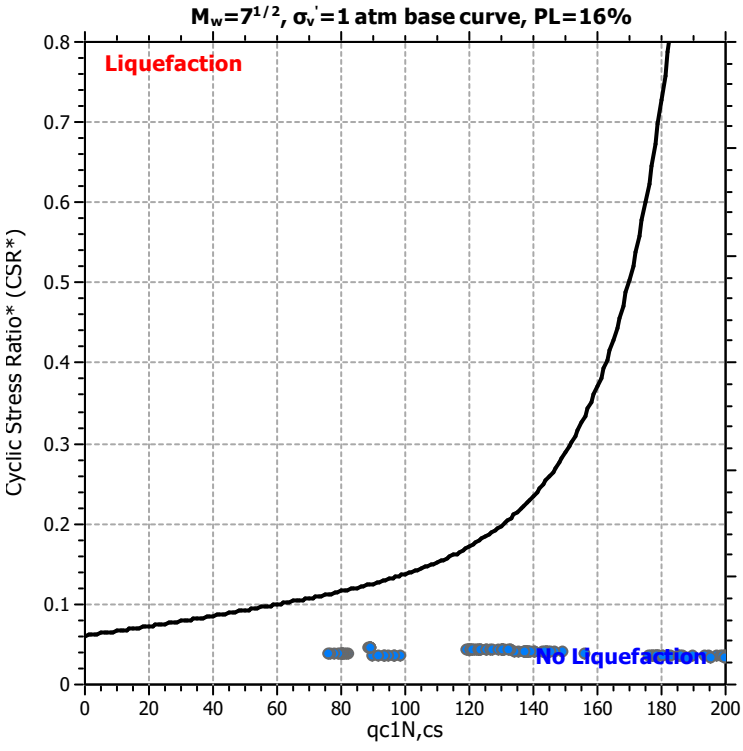
Project title : Sunfield Landholding **Location :**

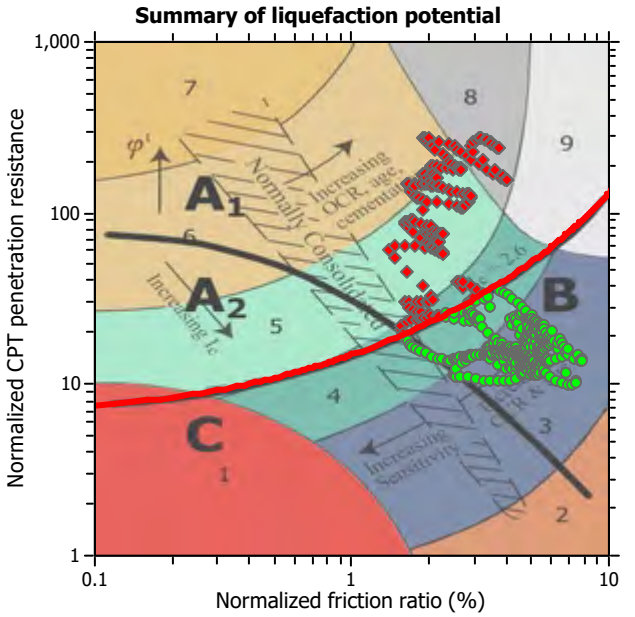
CPT file : CPT001

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	4.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	4.00 m	Excavation depth:	3.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

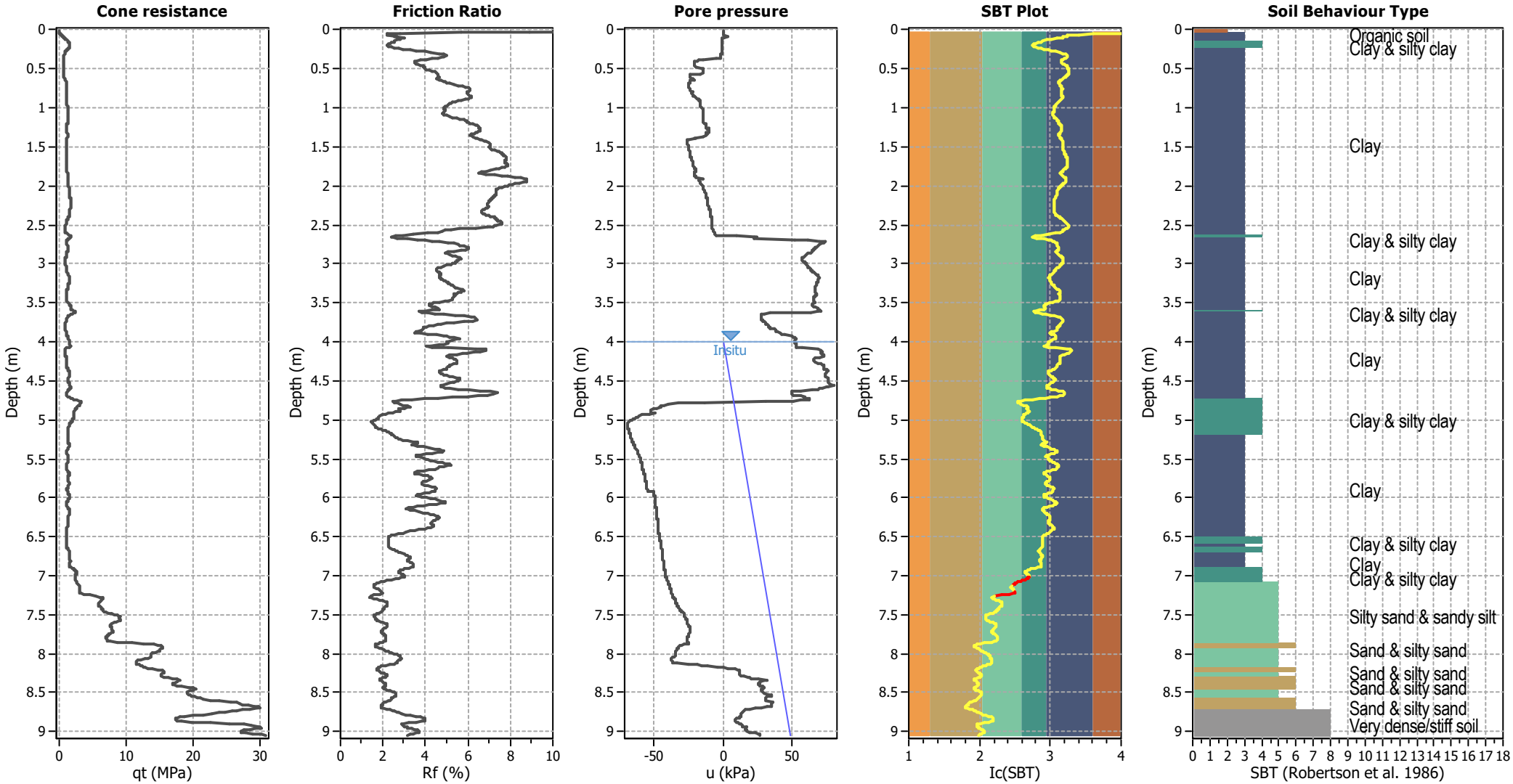






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



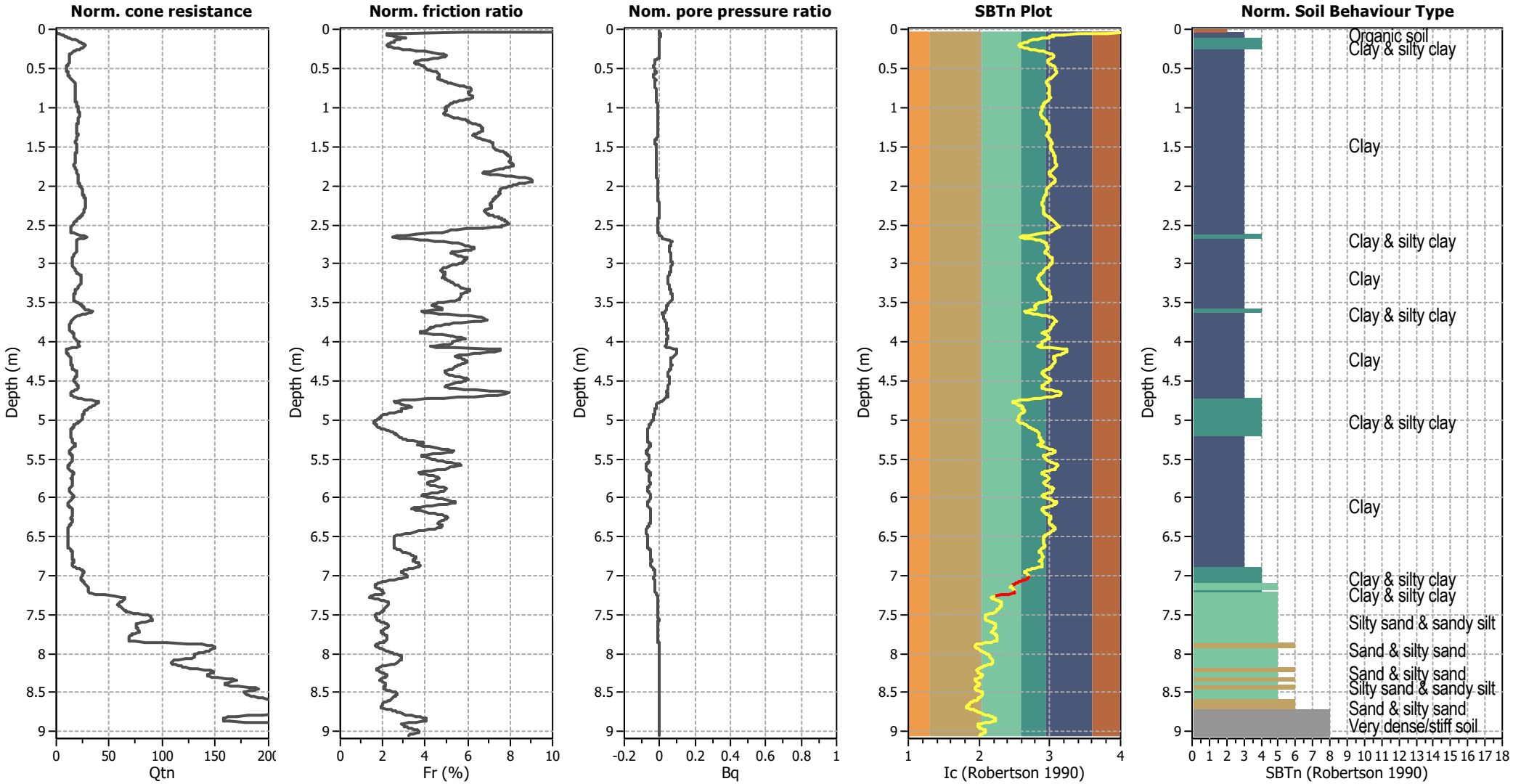
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



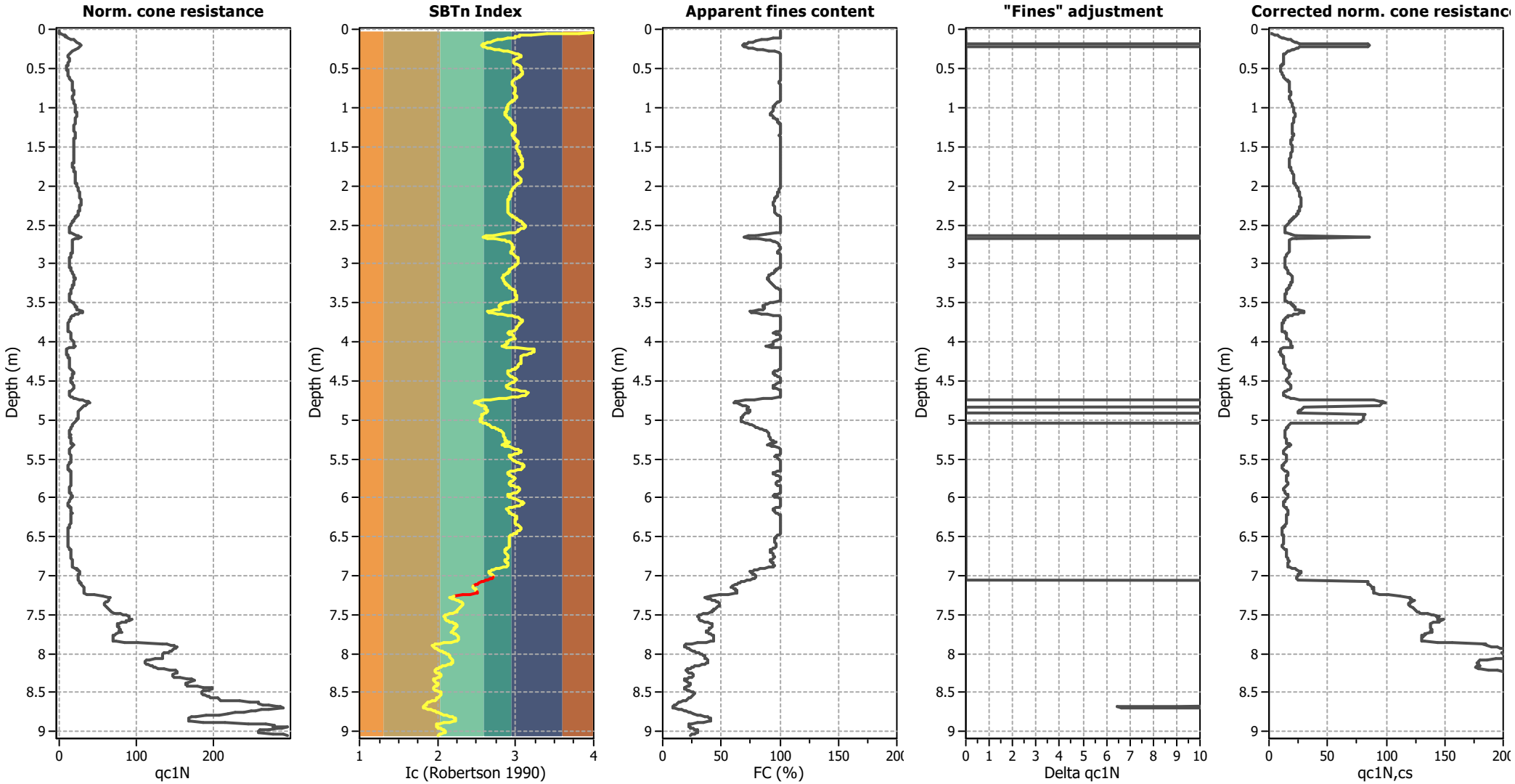
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

SBTn legend

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

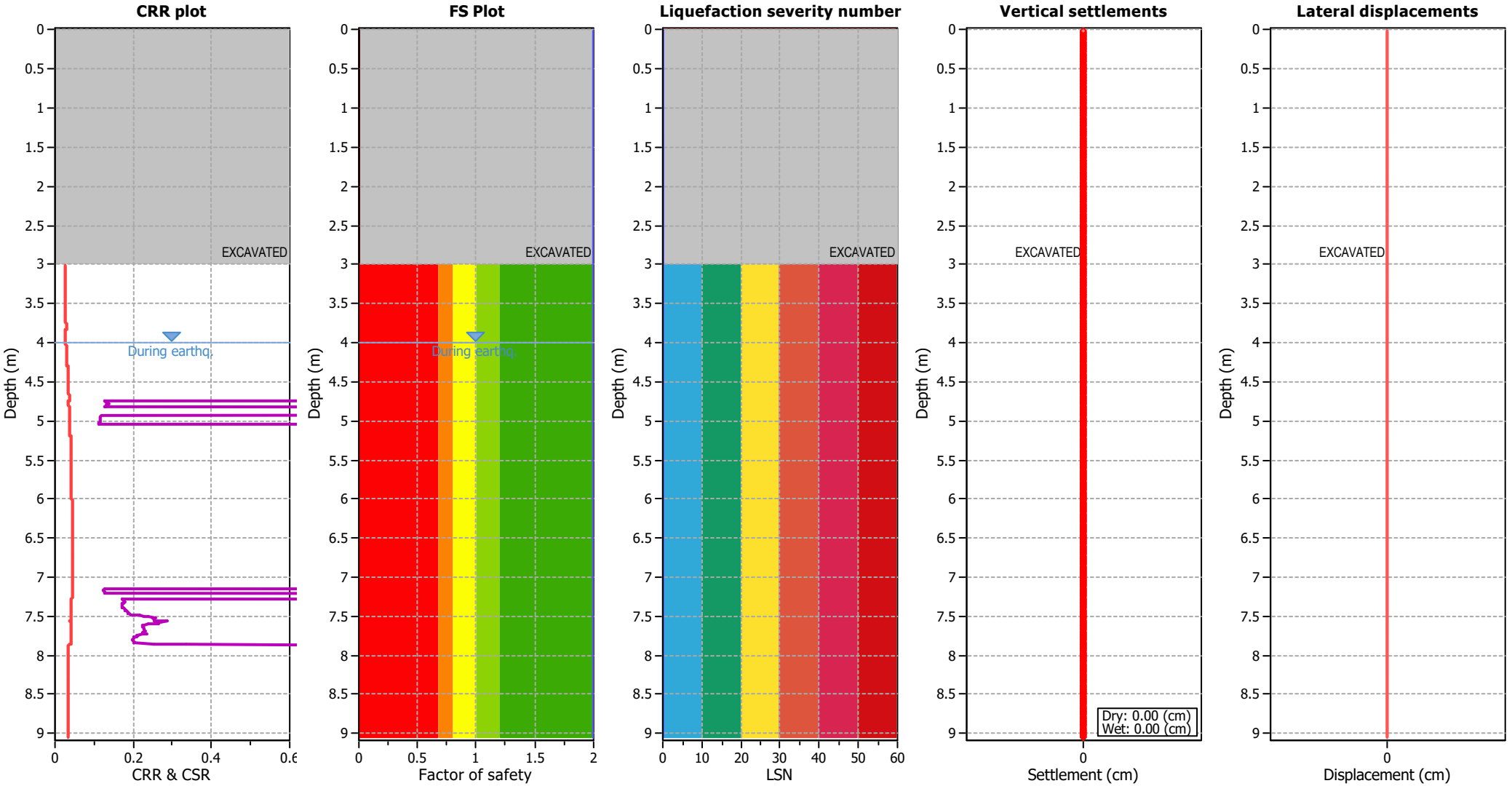
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

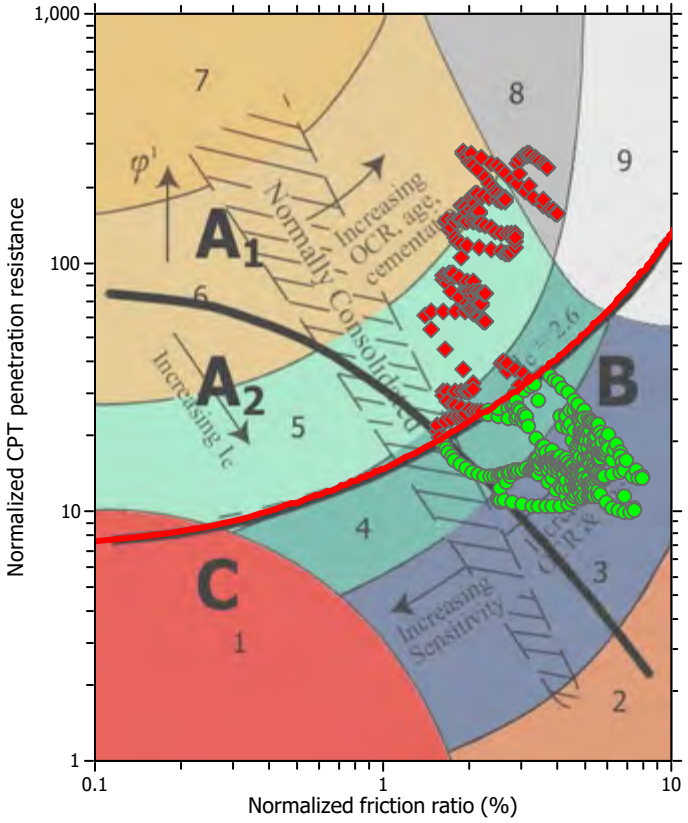
F.S. color scheme

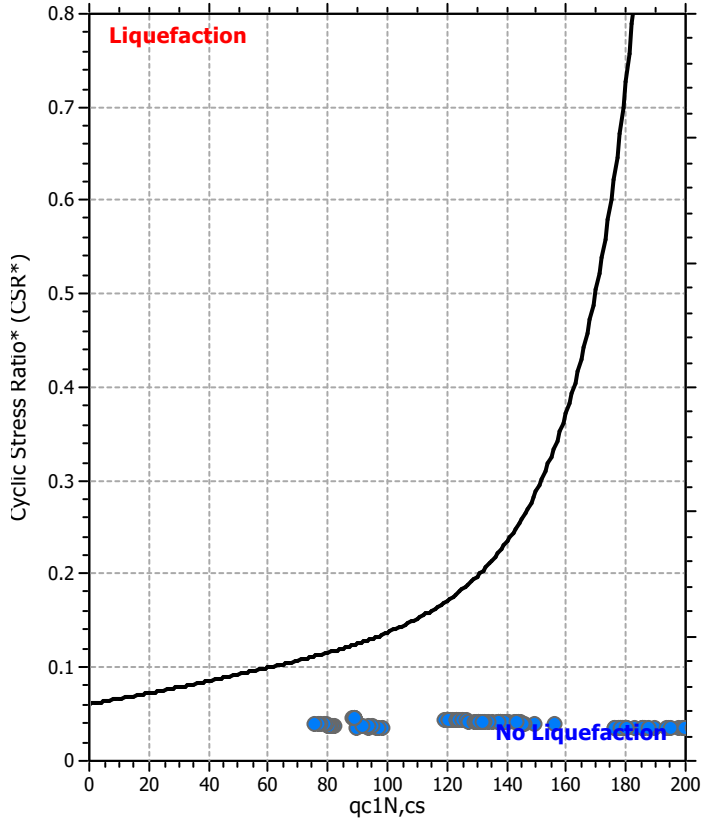
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

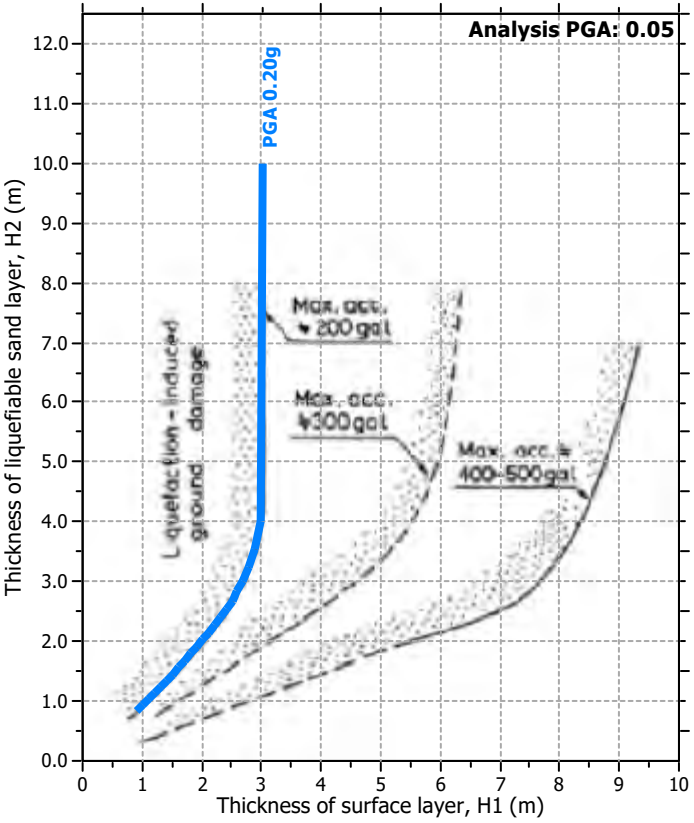
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



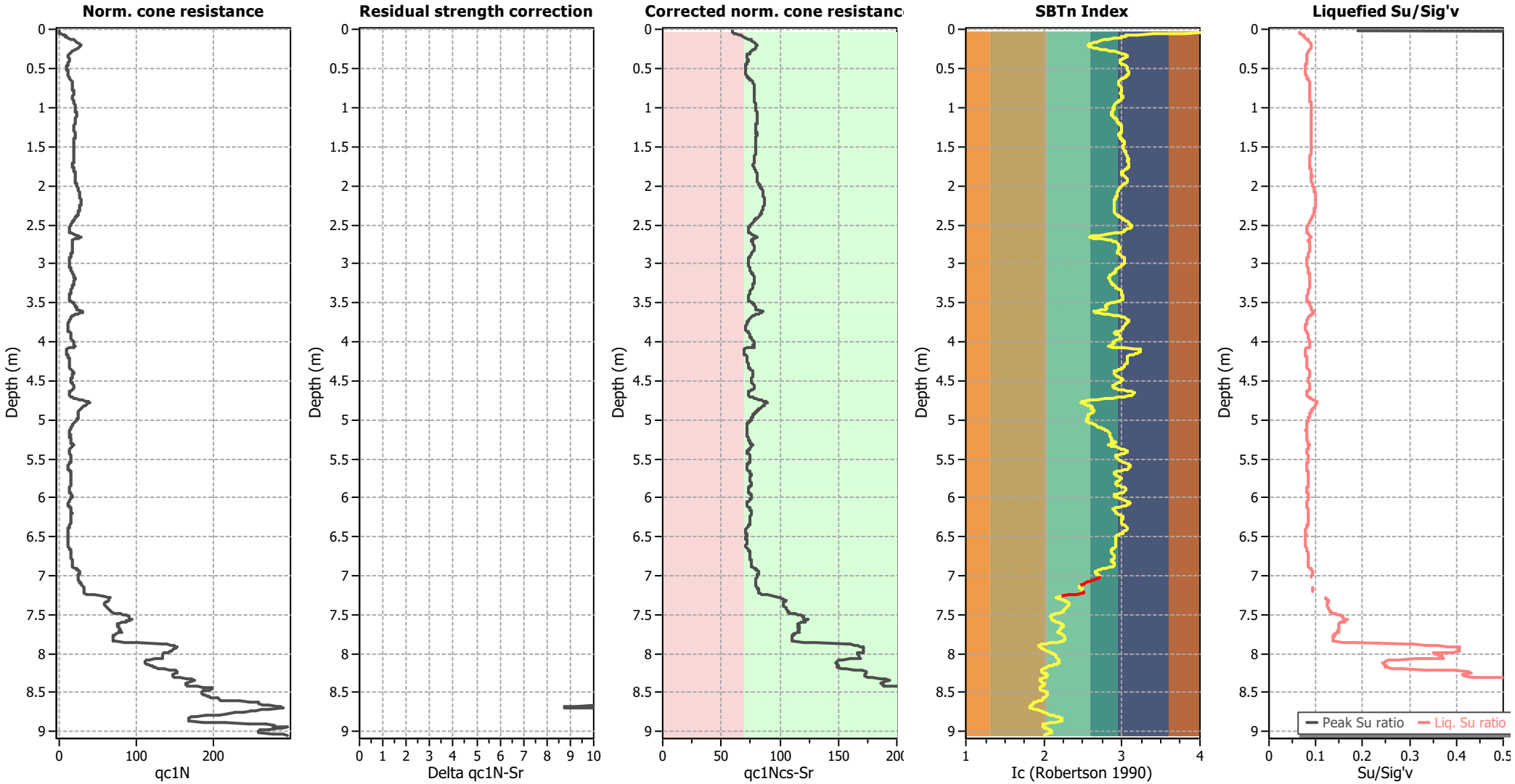




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

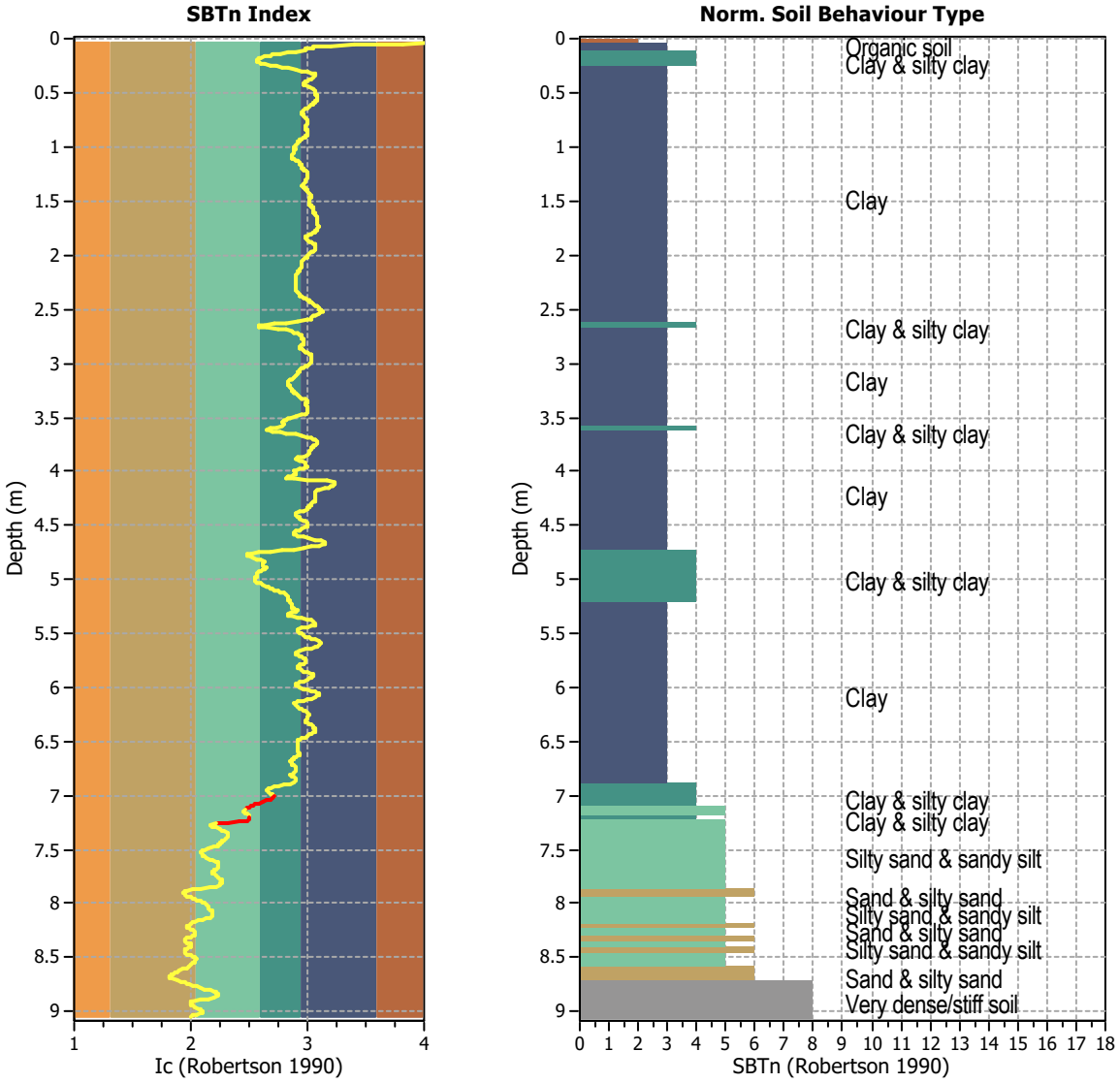
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

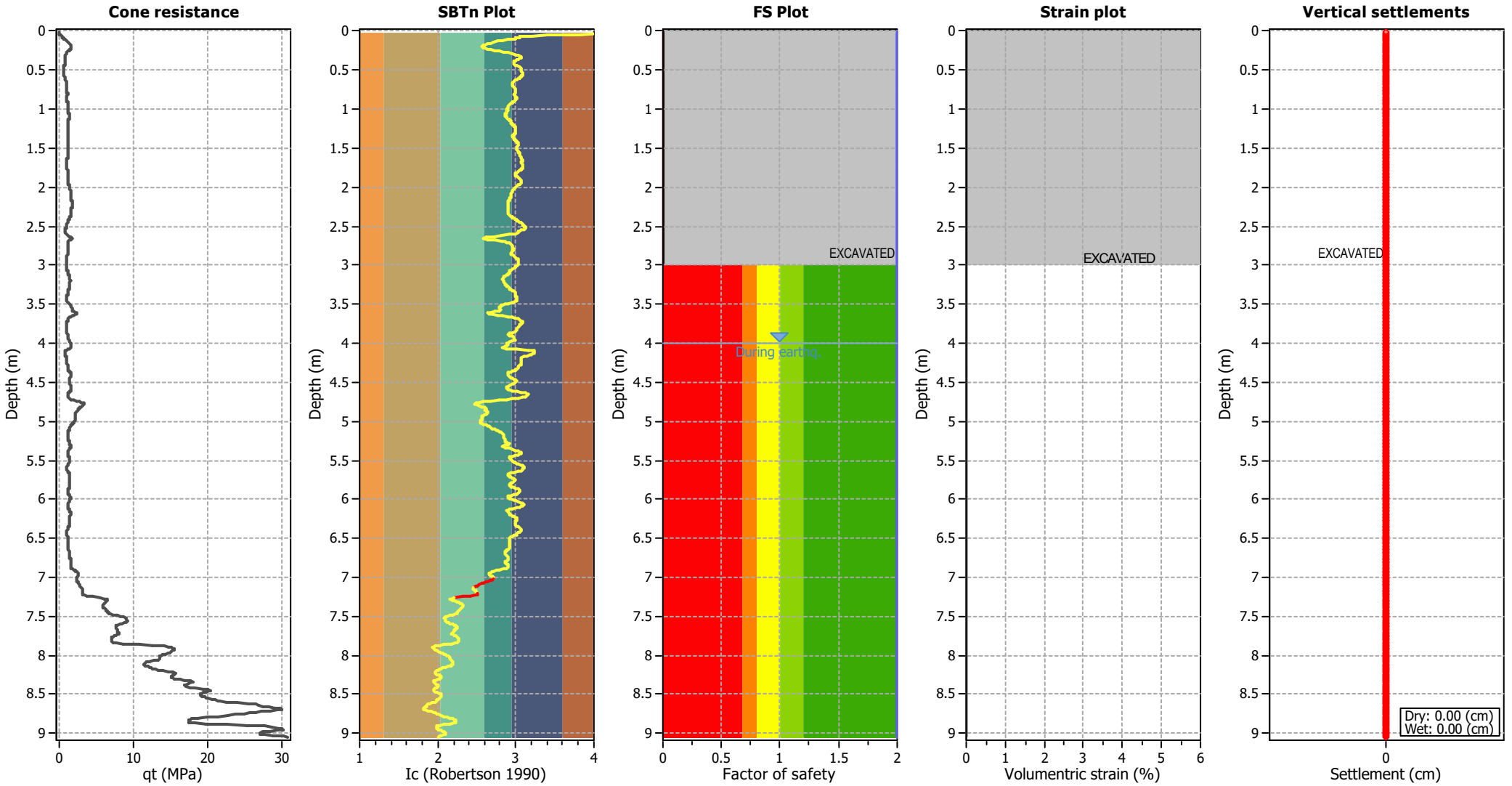
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	905
I_c maximum check value:	3.00	Total points excluded:	19
I_c change ratio value:	0.0100	Exclusion percentage:	2.10%
Minimum number of points in layer:	4	Number of layers detected:	2

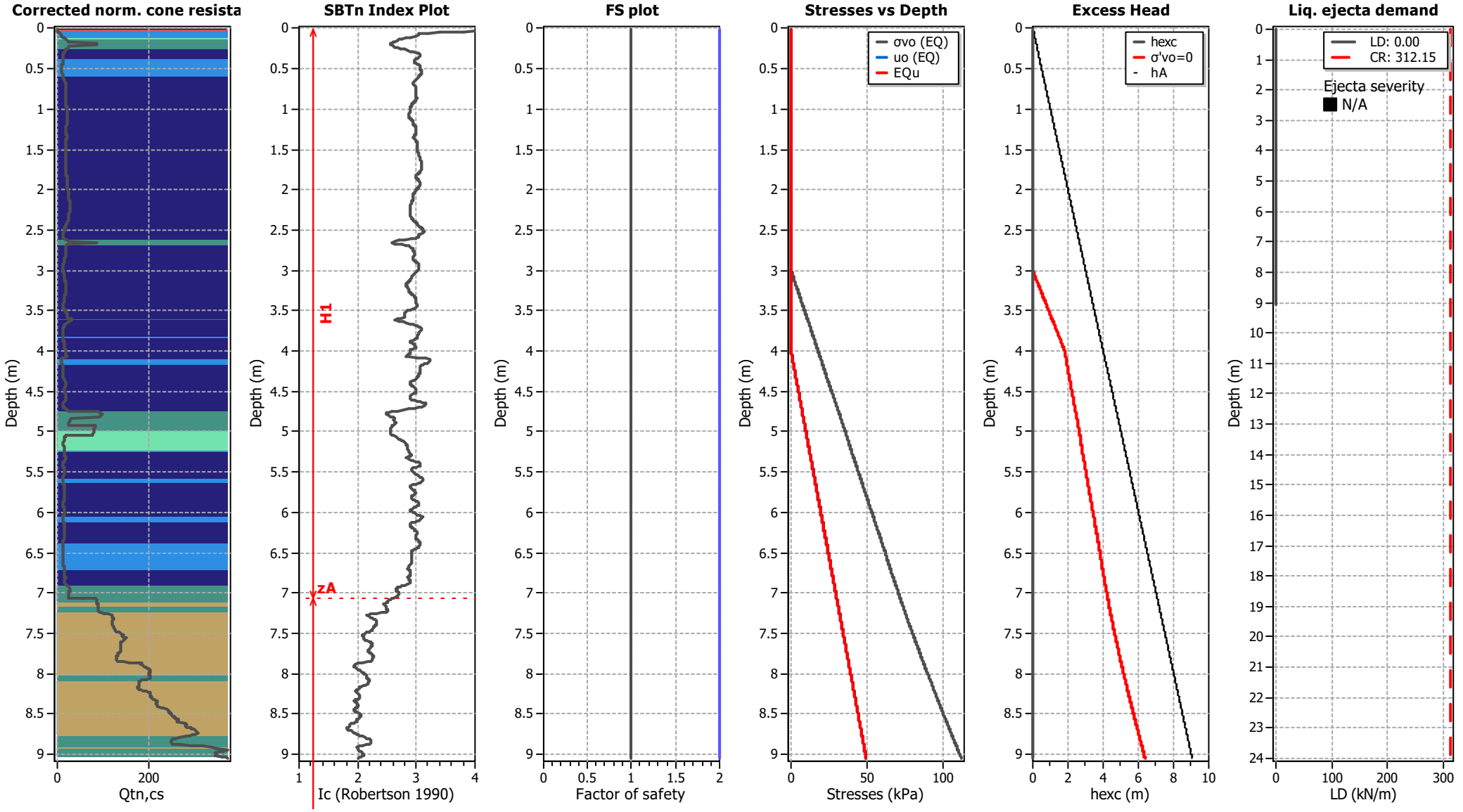
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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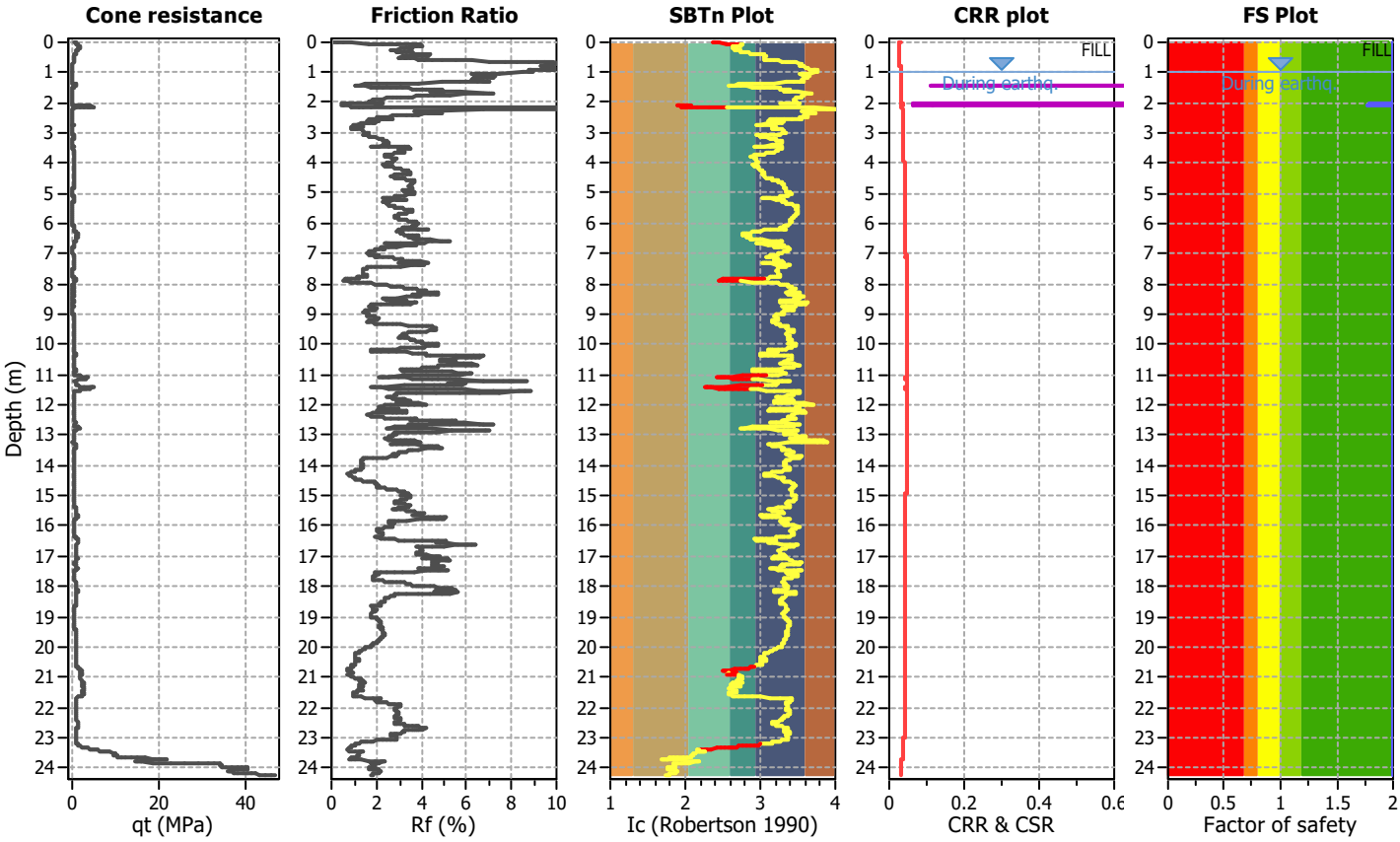
LIQUEFACTION ANALYSIS REPORT

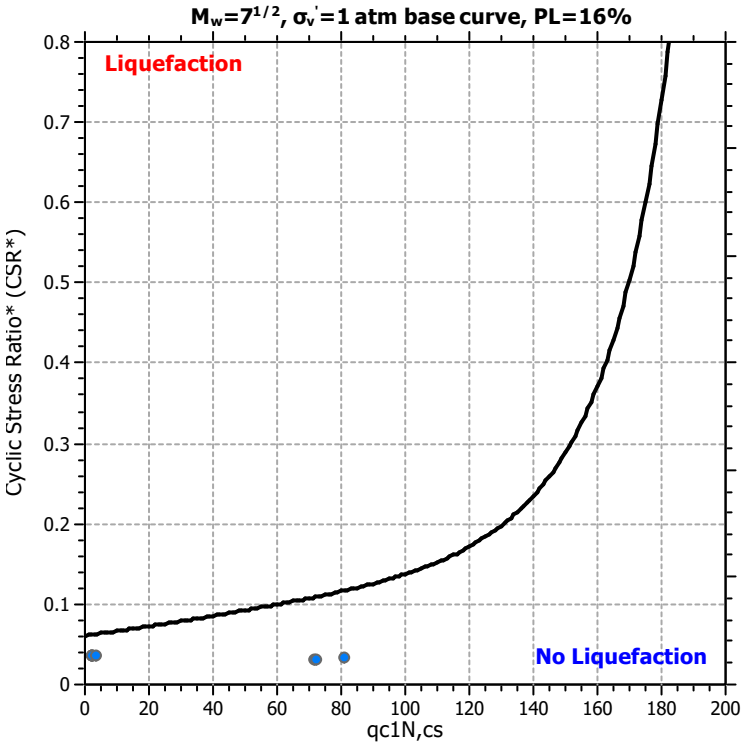
Project title : Sunfield Landholding **Location :**

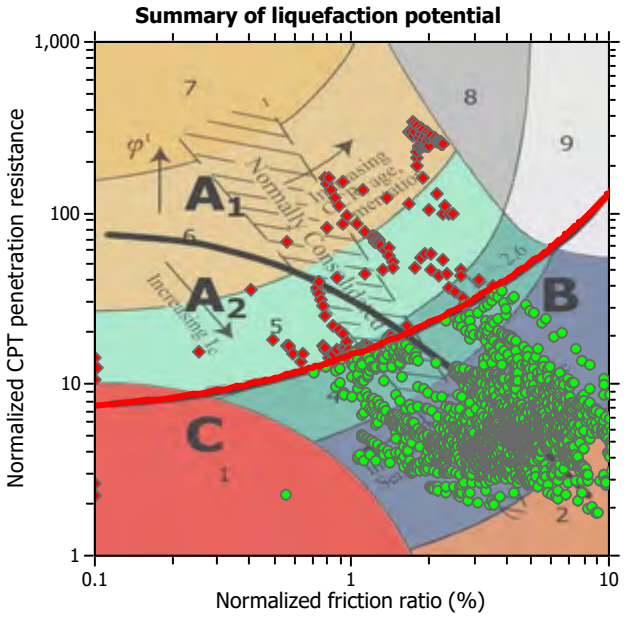
CPT file : CPT002

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	37.00 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

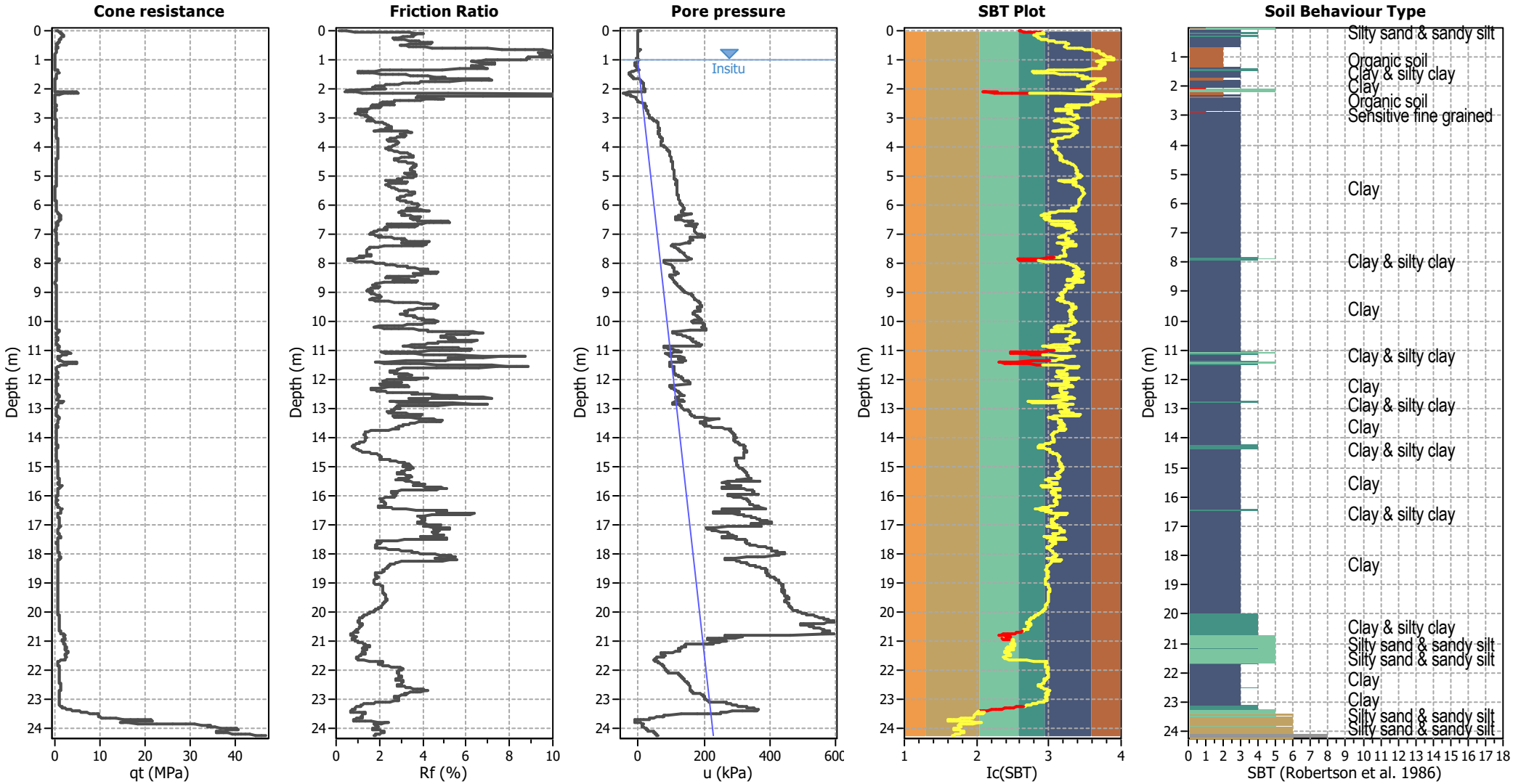






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



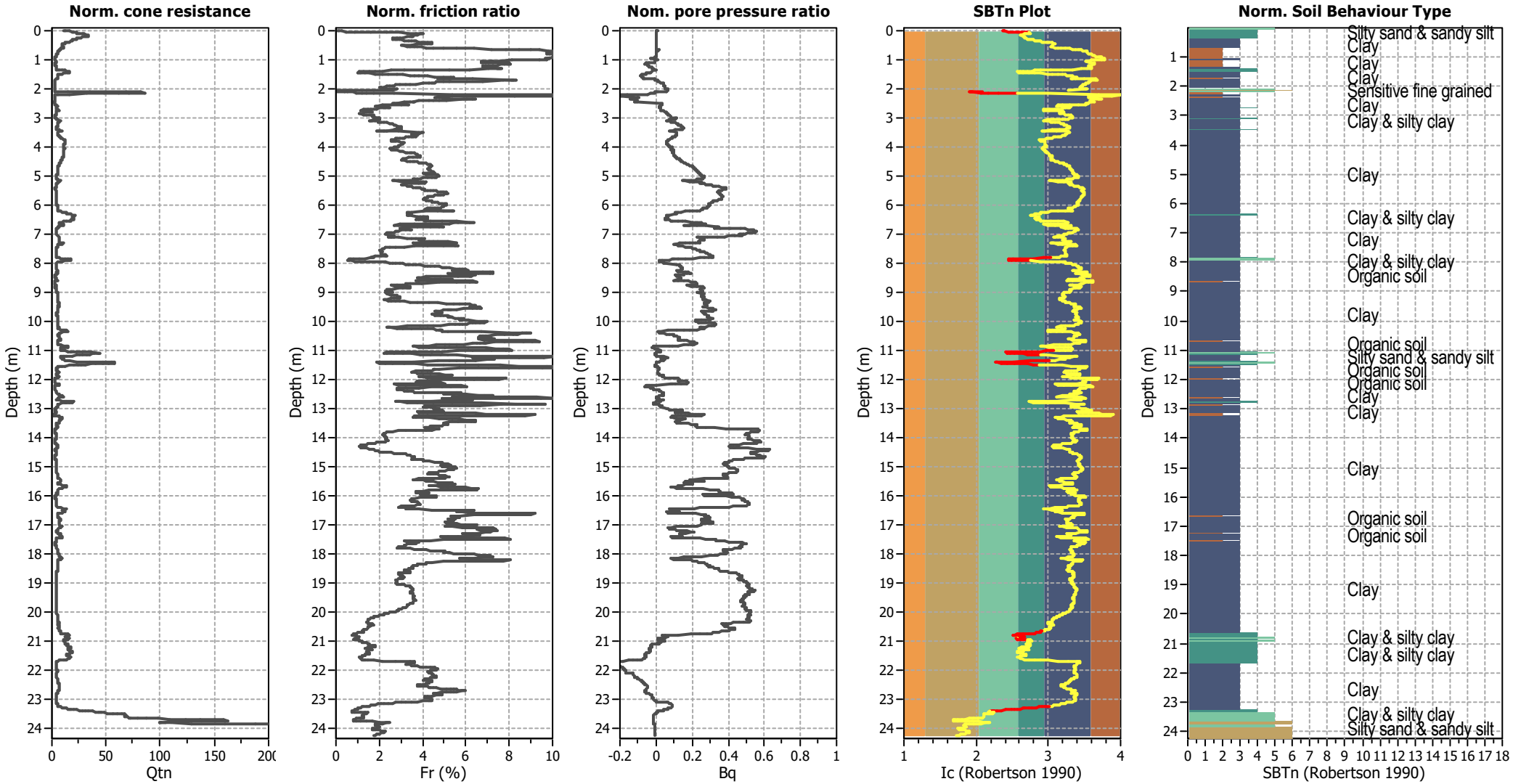
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



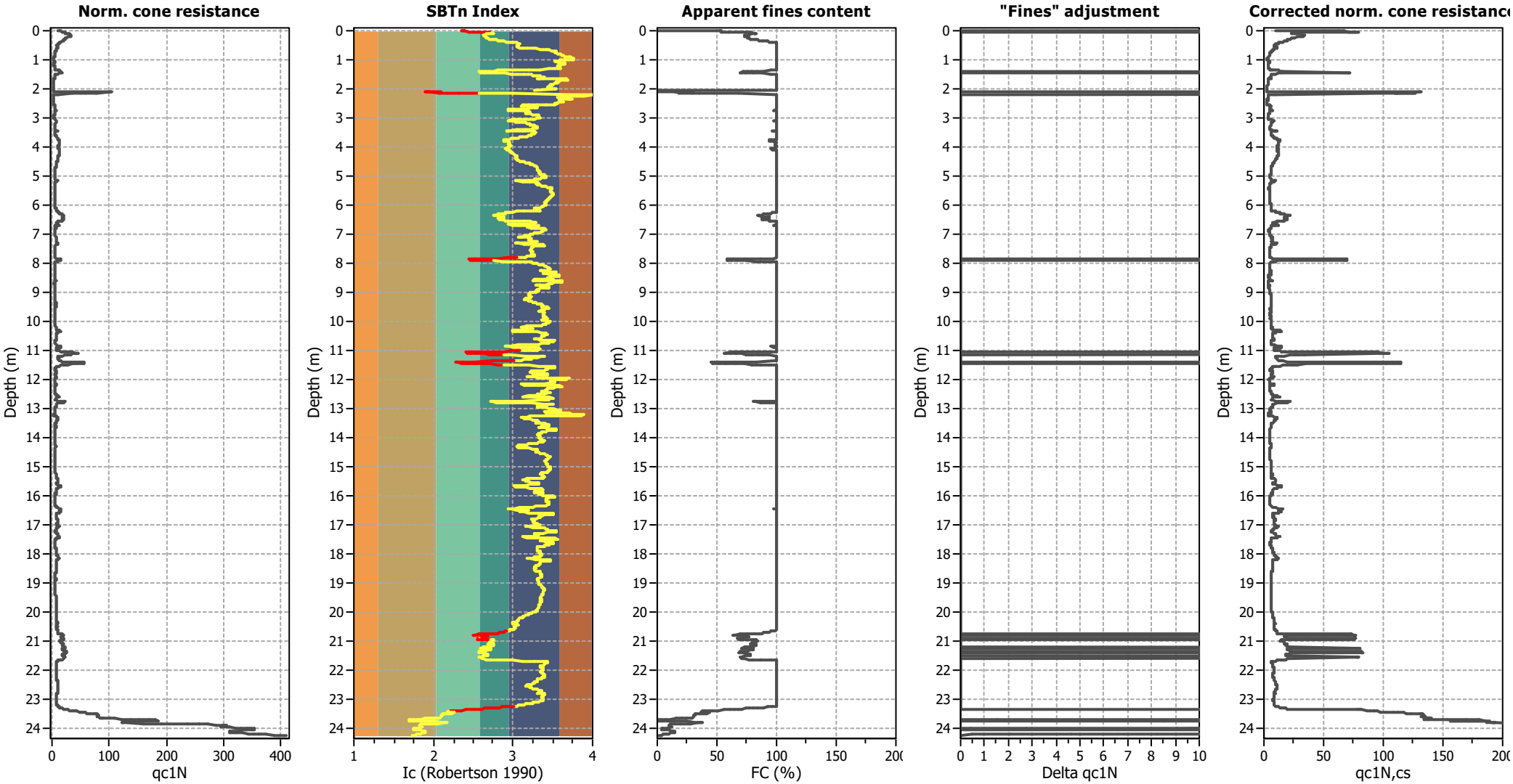
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

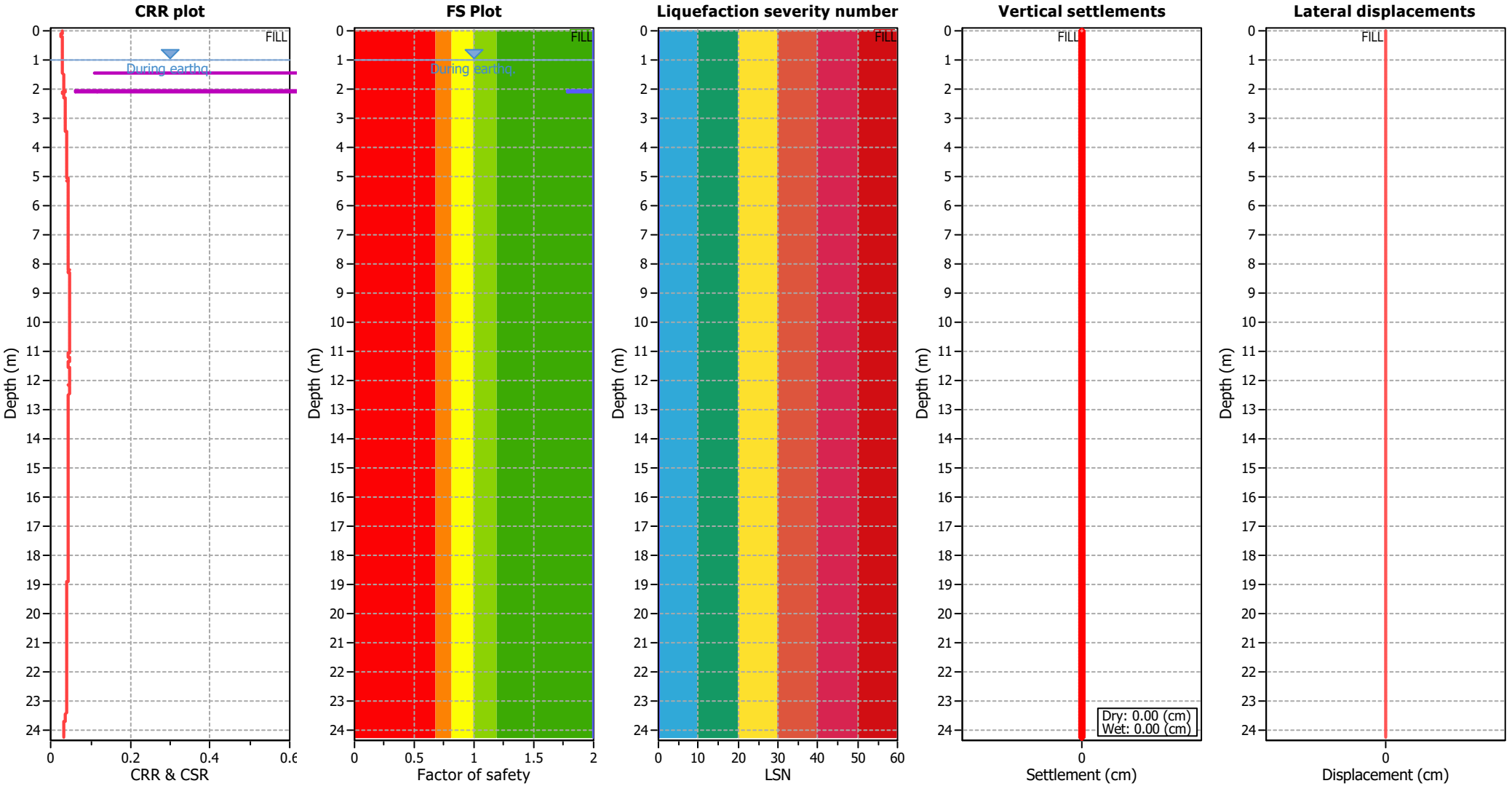
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

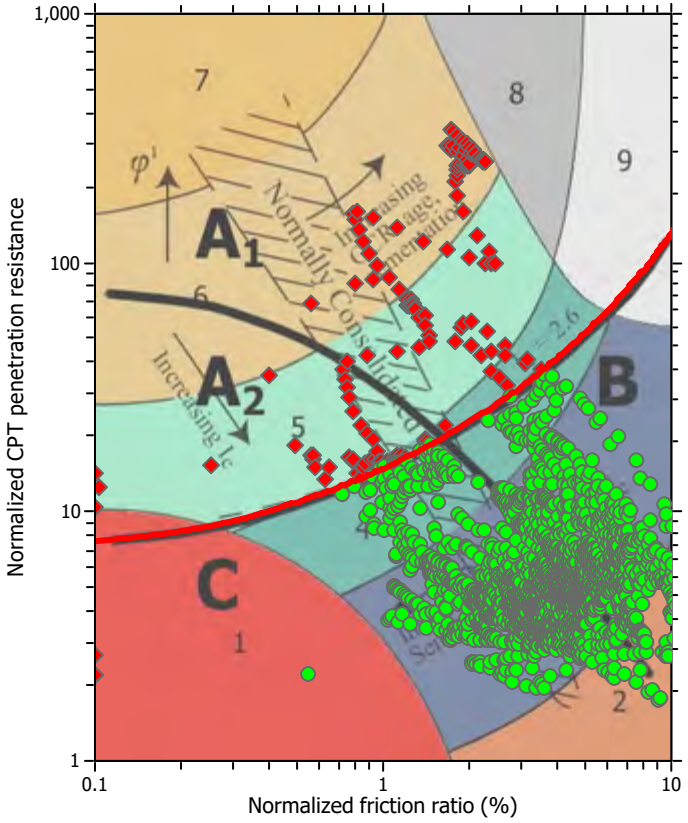
F.S. color scheme

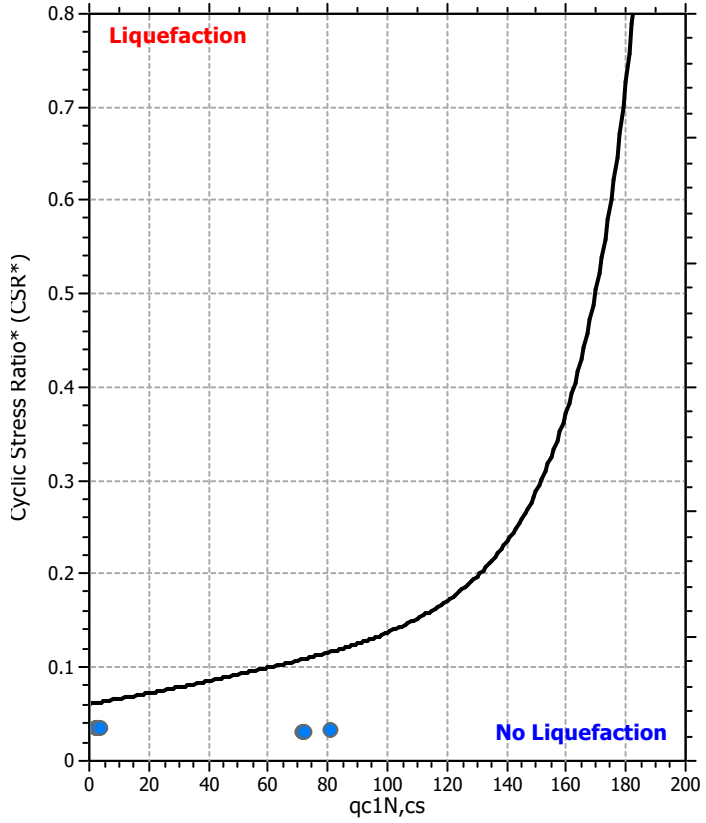
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

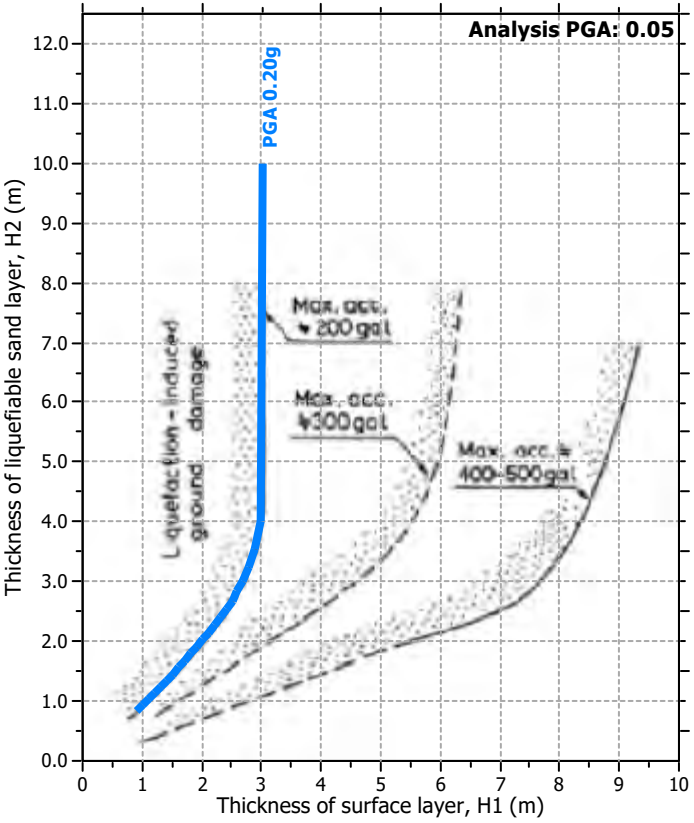
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



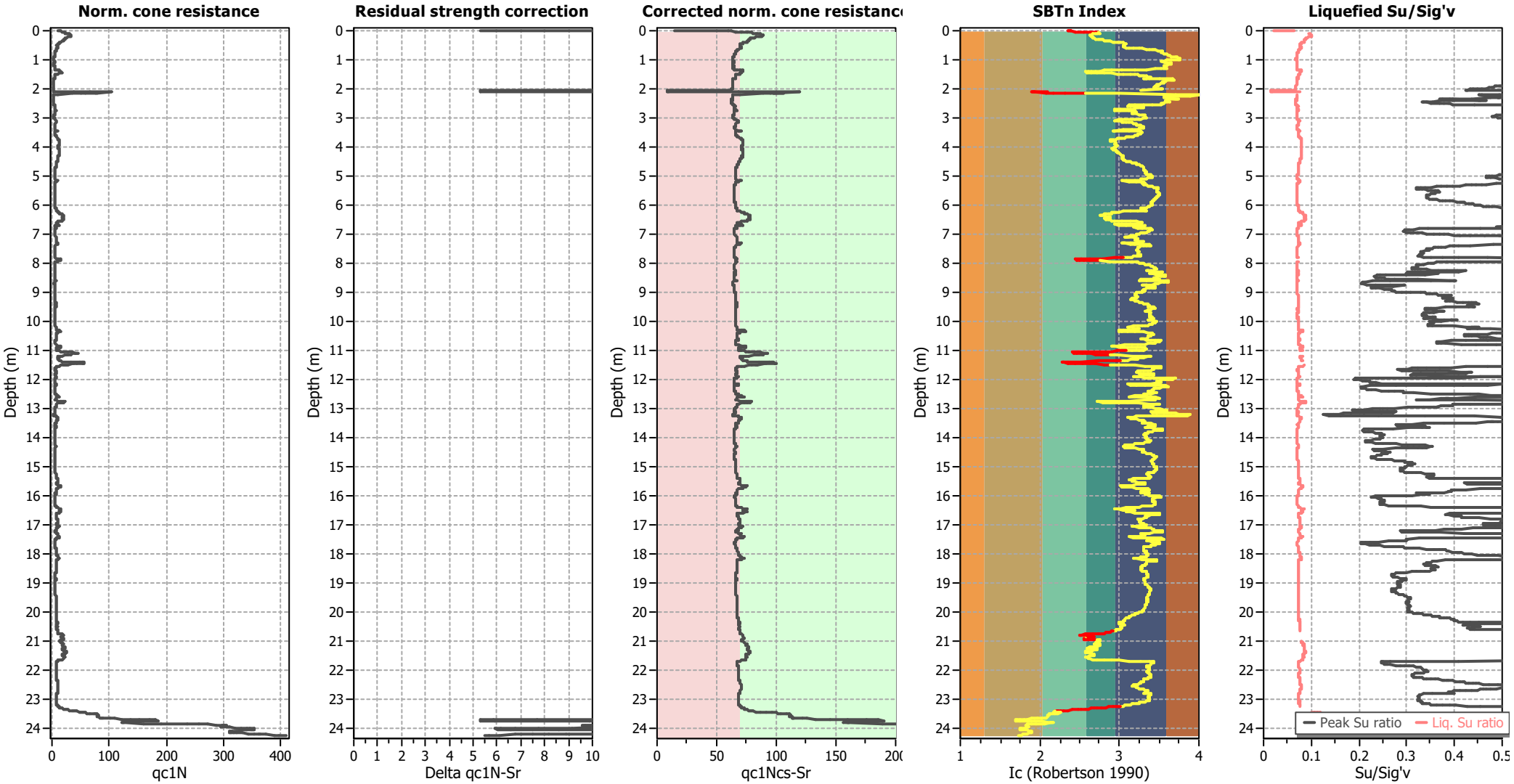




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

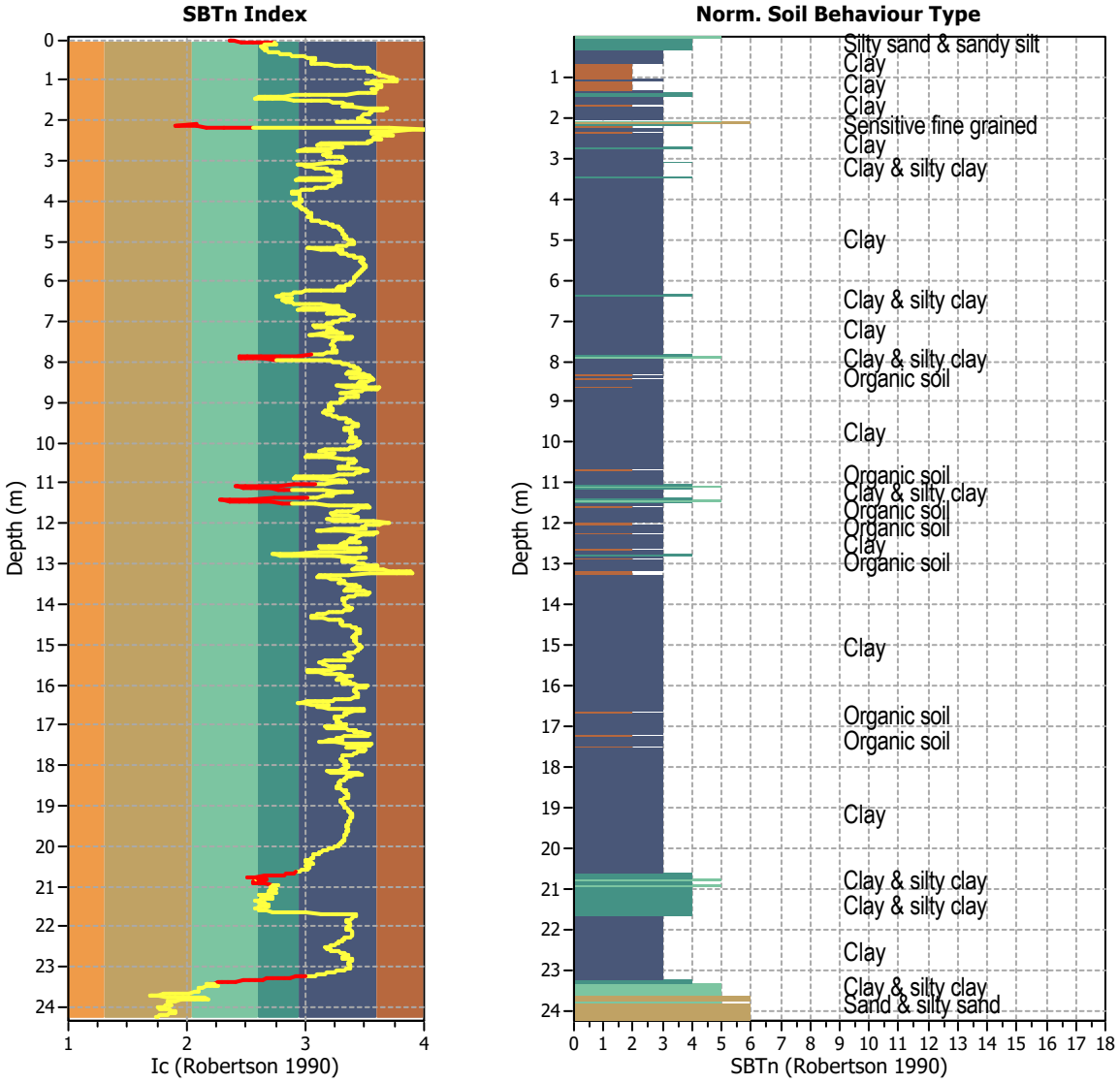
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

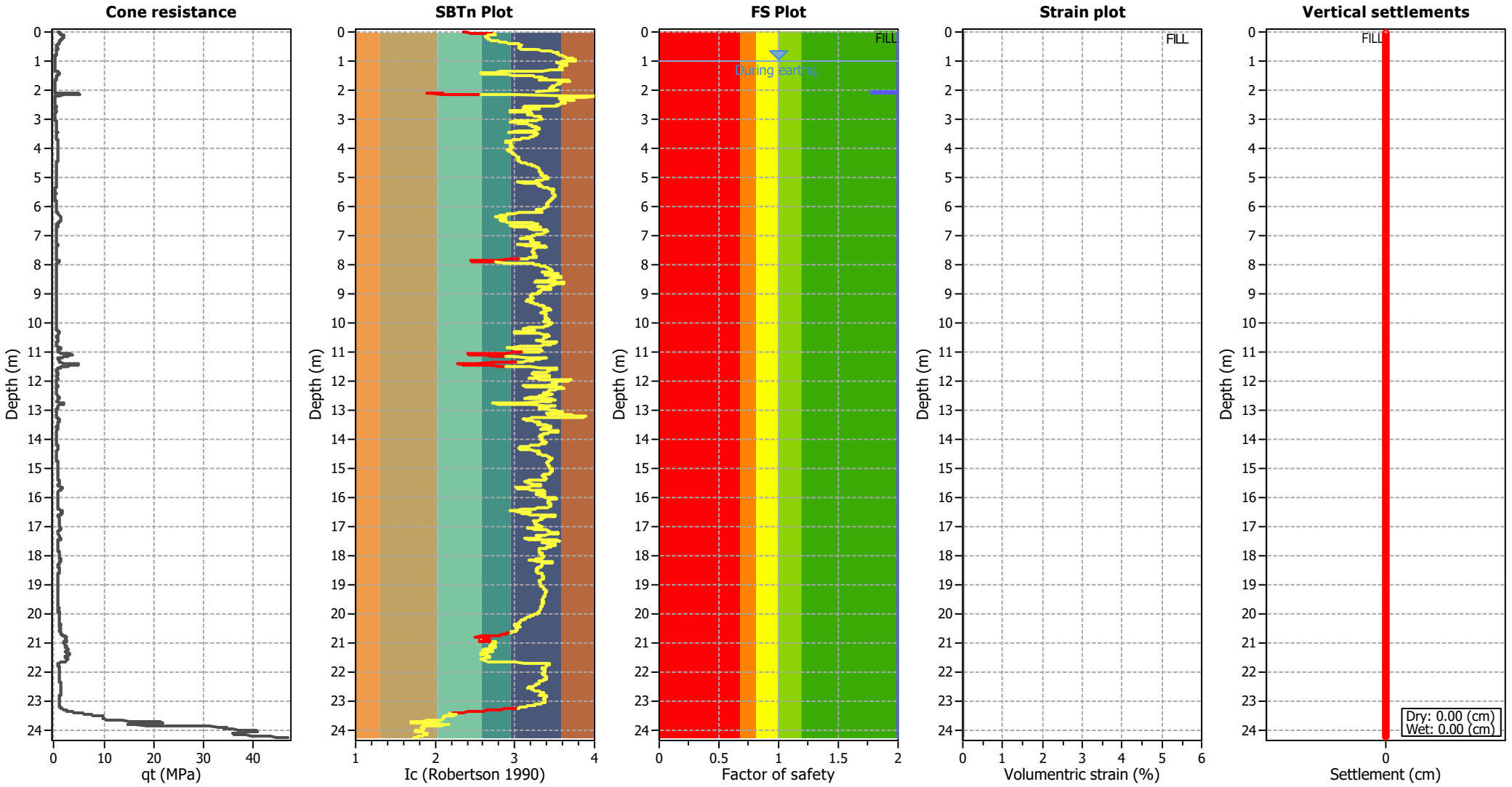
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	2424
I_c maximum check value:	3.00	Total points excluded:	111
I_c change ratio value:	0.0100	Exclusion percentage:	4.58%
Minimum number of points in layer:	4	Number of layers detected:	13

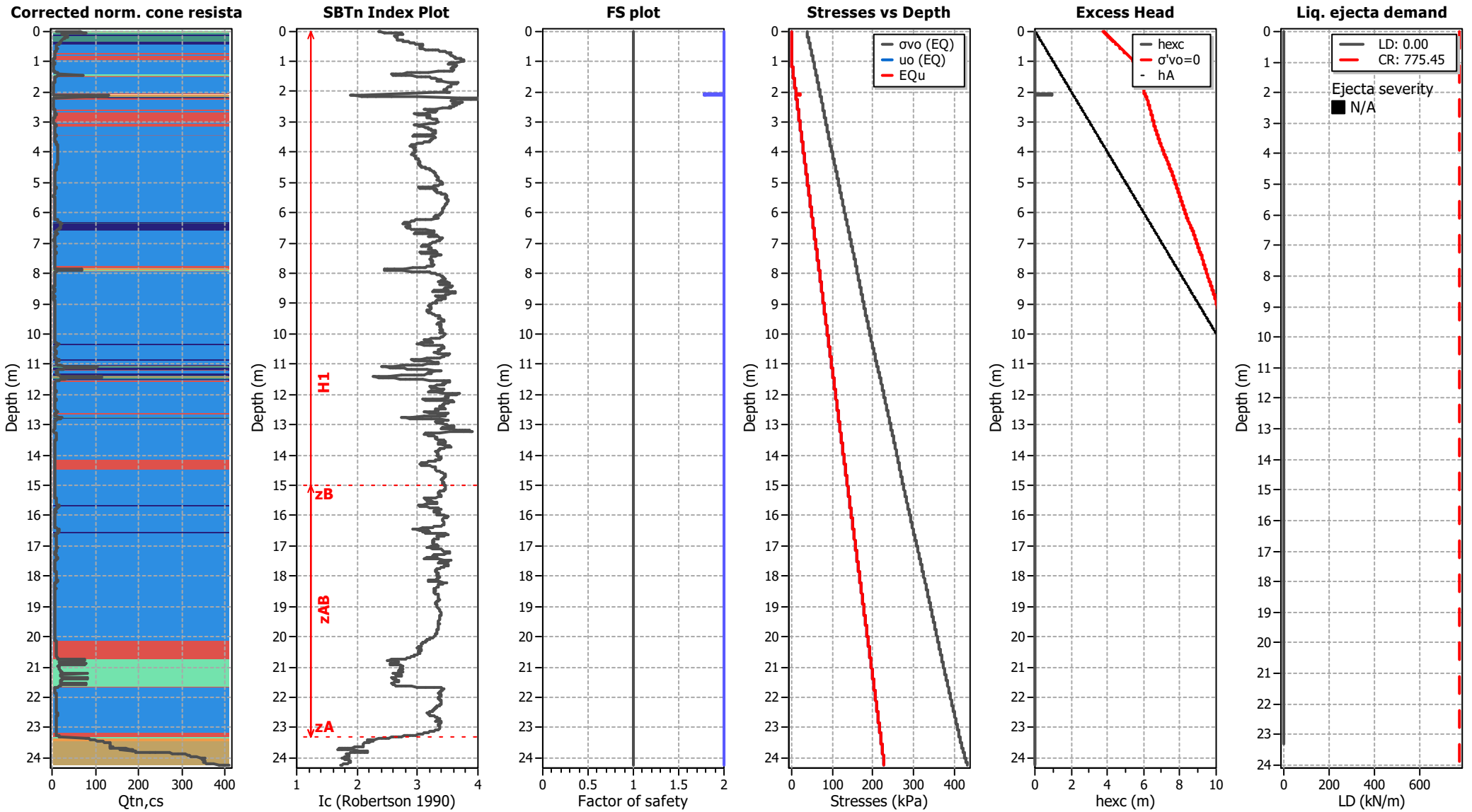
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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Merarhias 56
http://www.geologismiki.gr

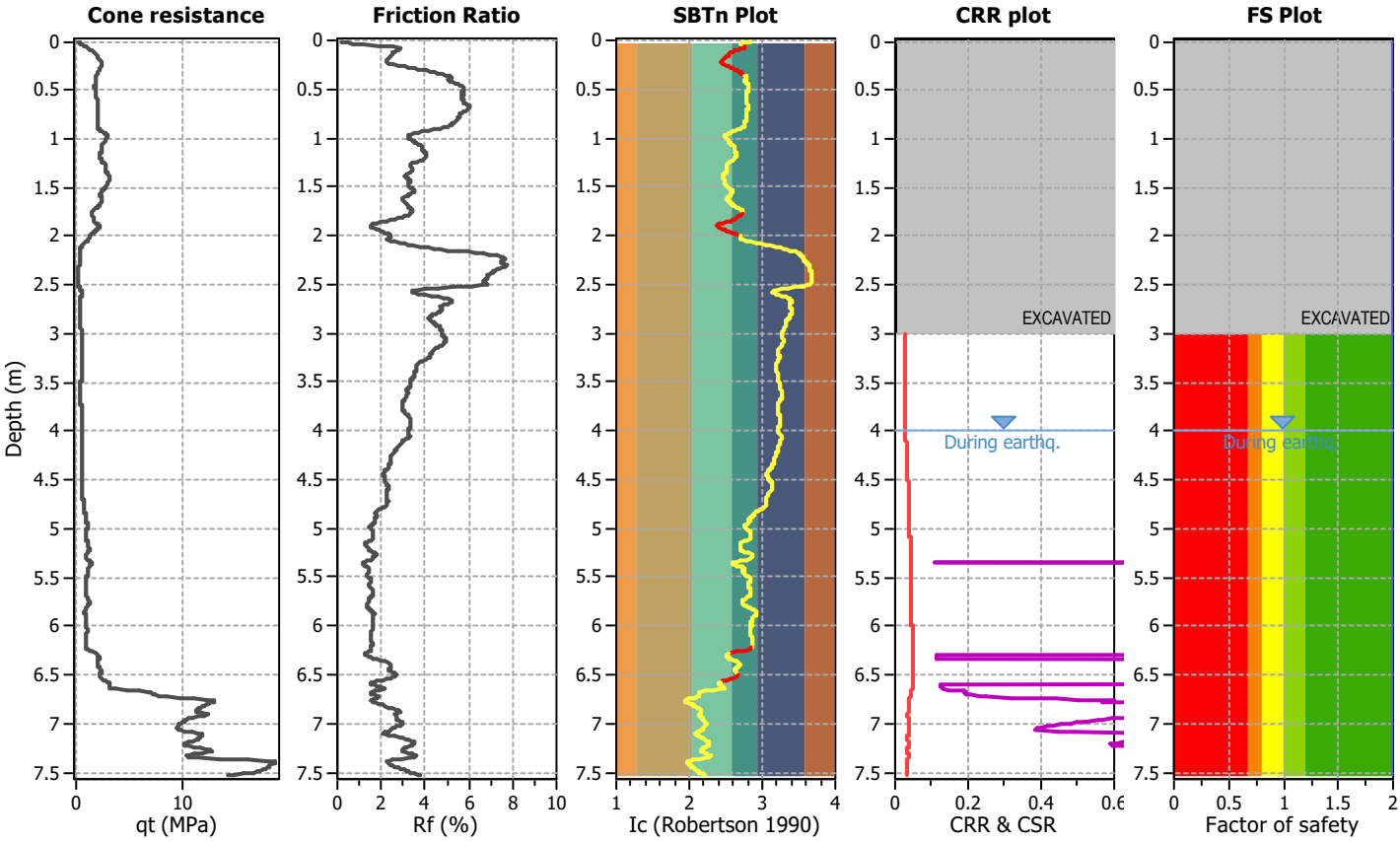
LIQUEFACTION ANALYSIS REPORT

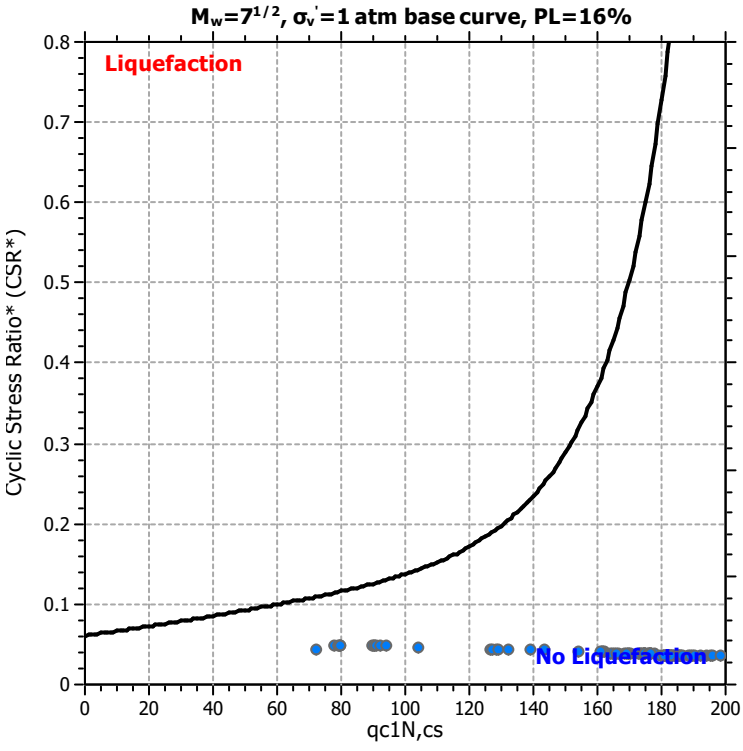
Project title : Sunfield Landholding **Location :**

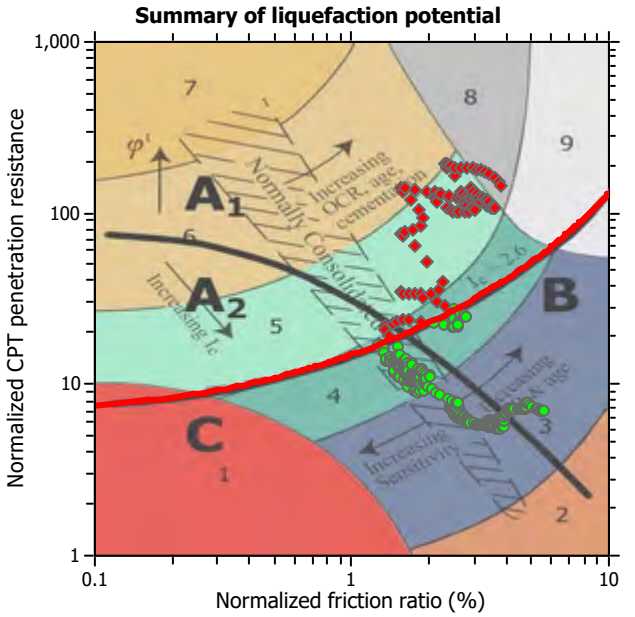
CPT file : CPT003

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	4.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	4.00 m	Excavation depth:	3.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

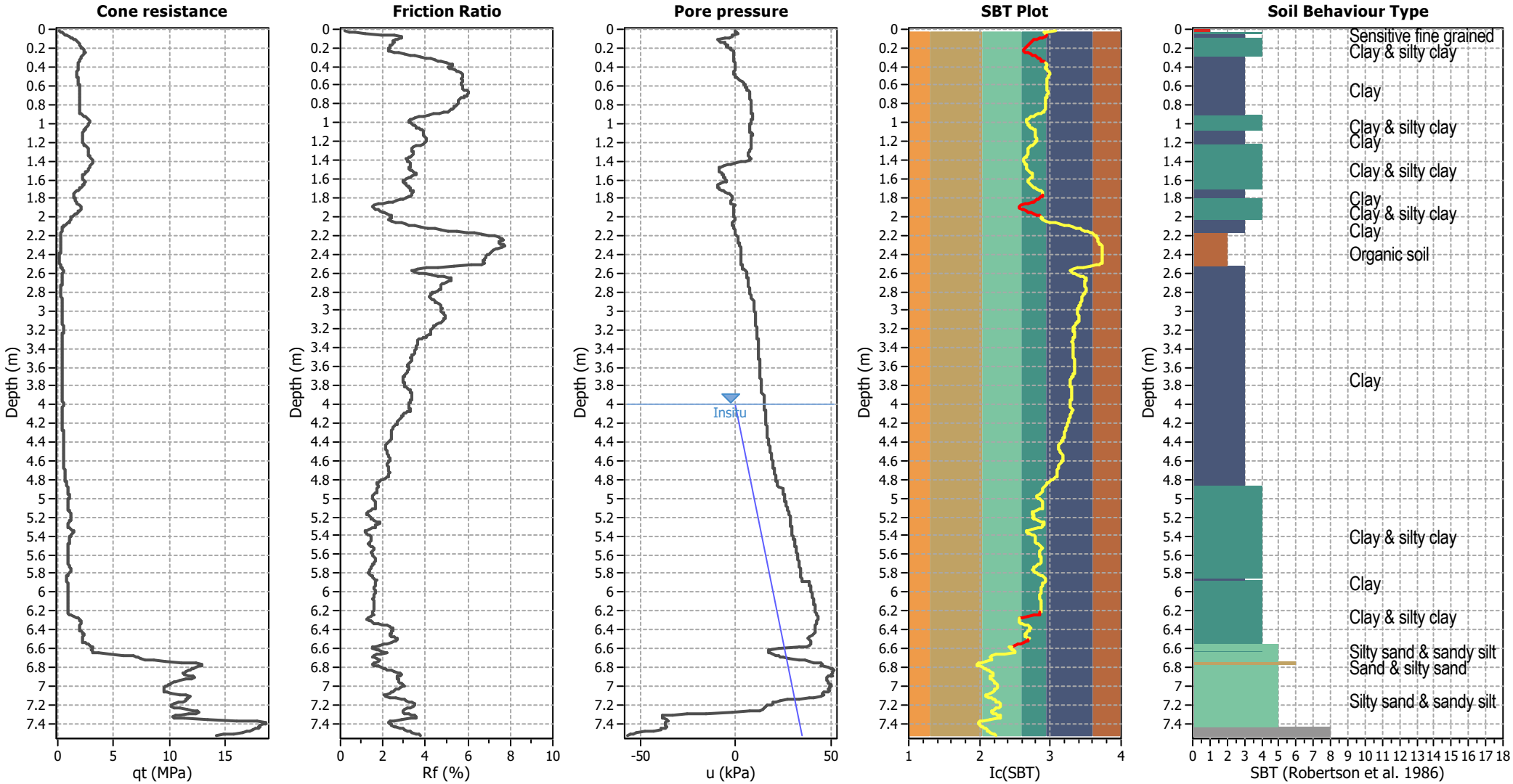






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



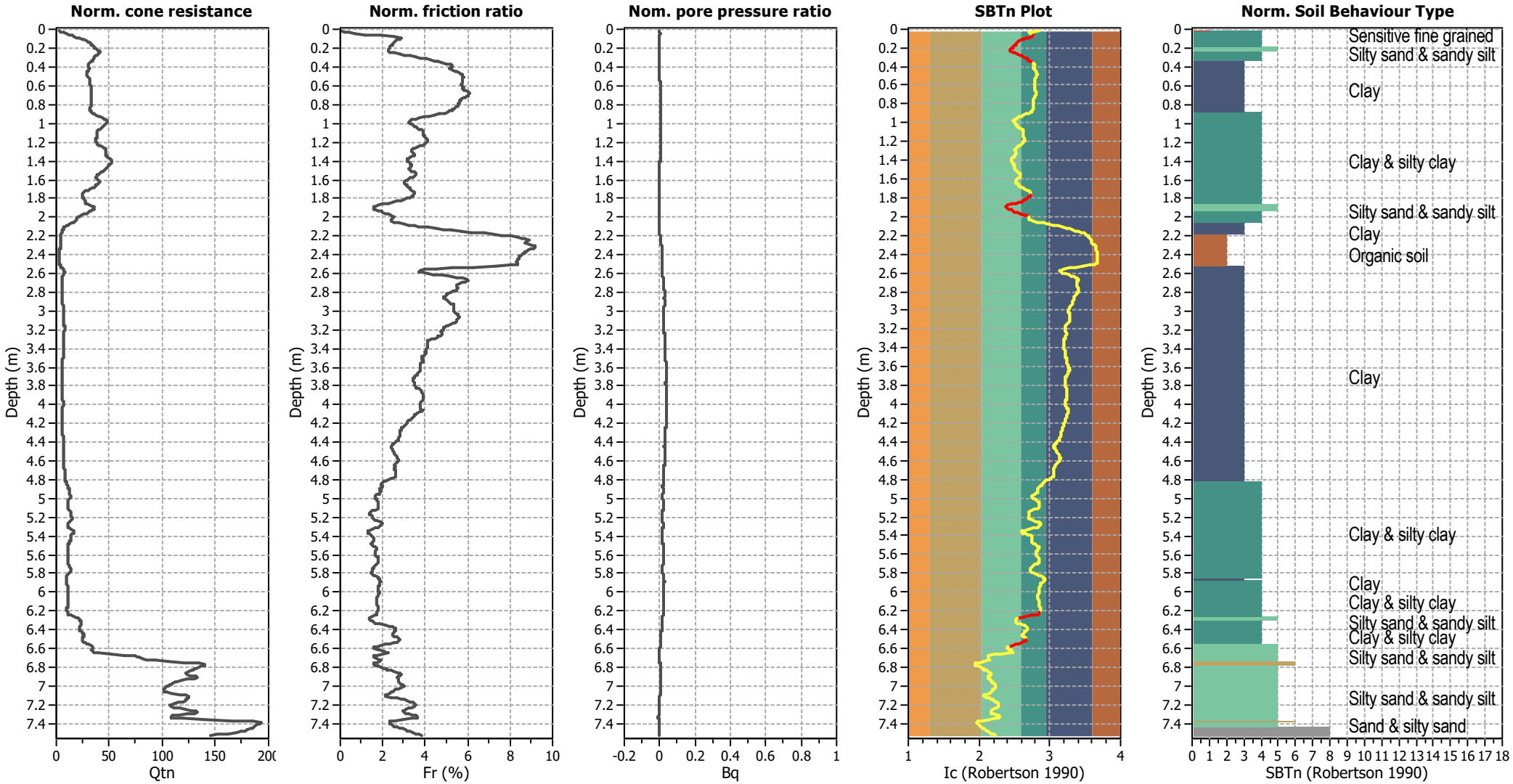
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



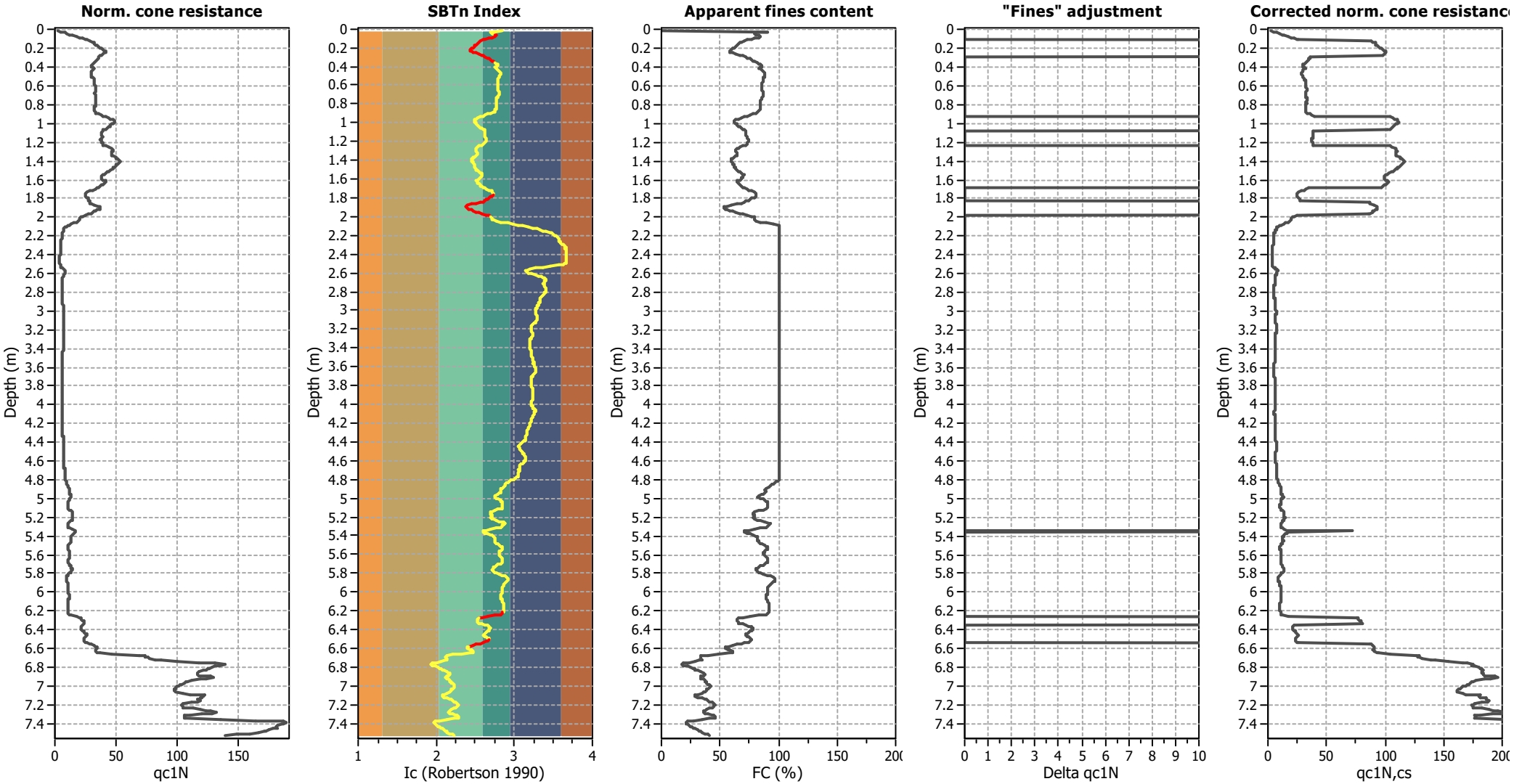
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

SBTn legend

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

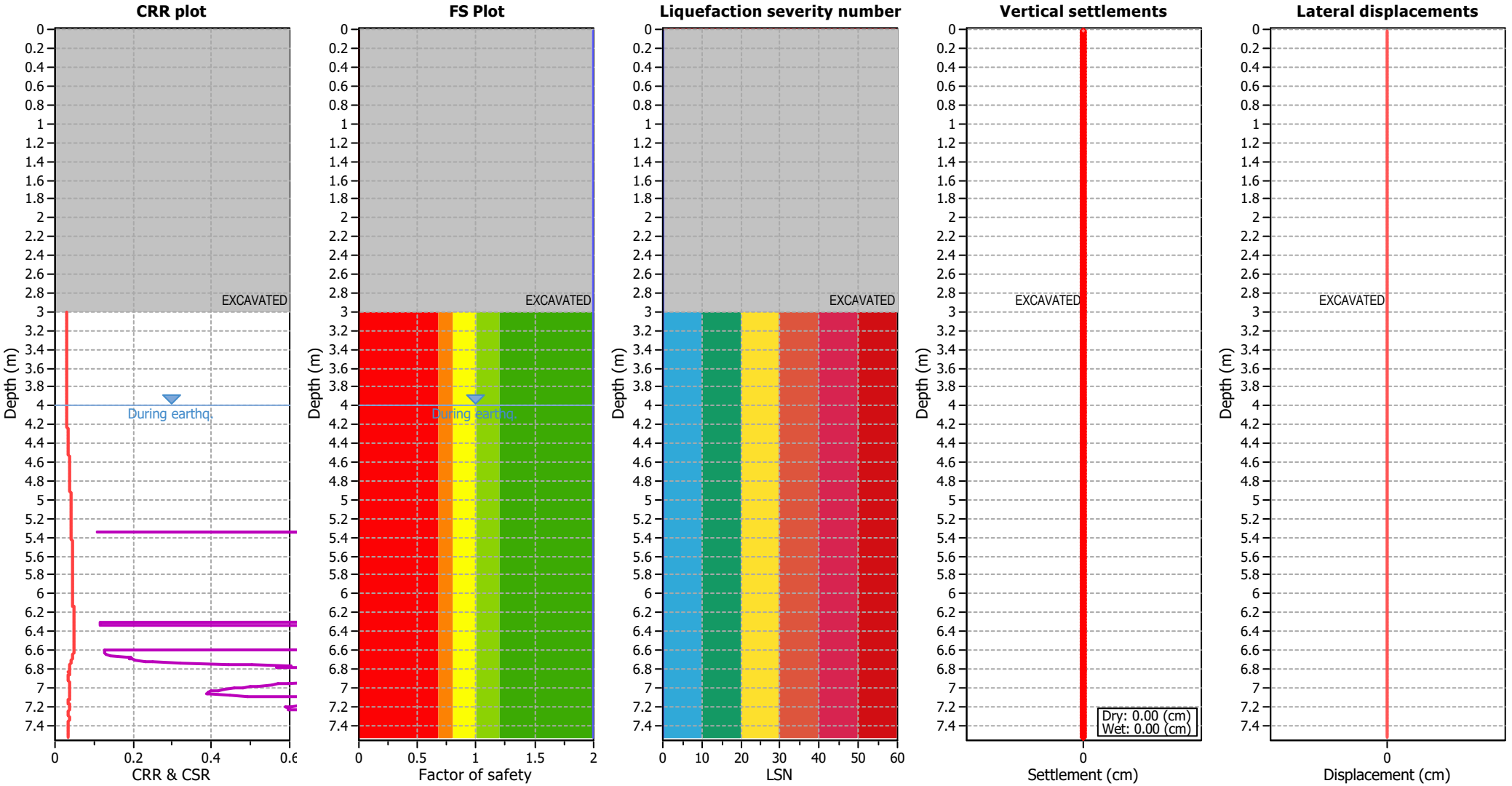
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 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

LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
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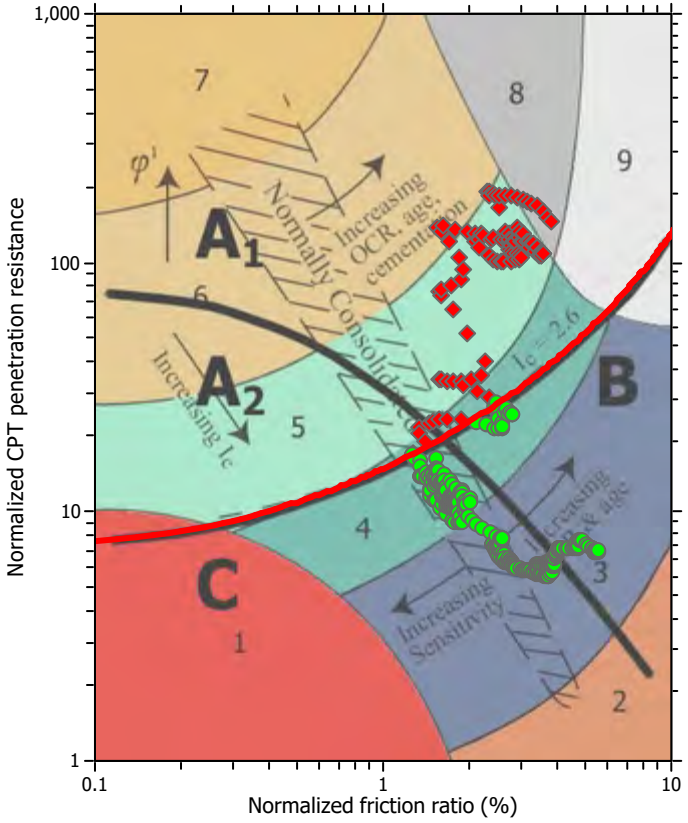
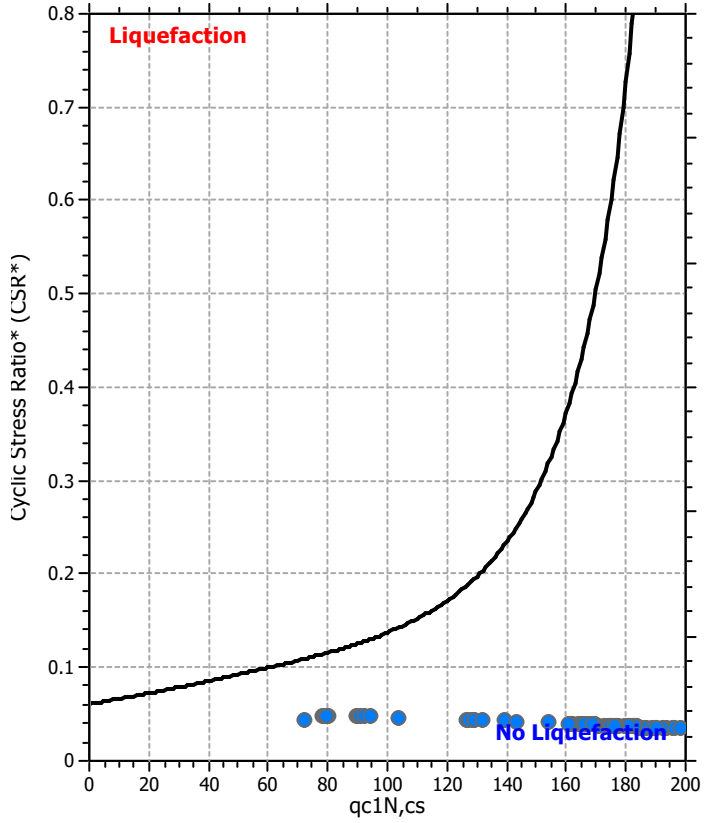
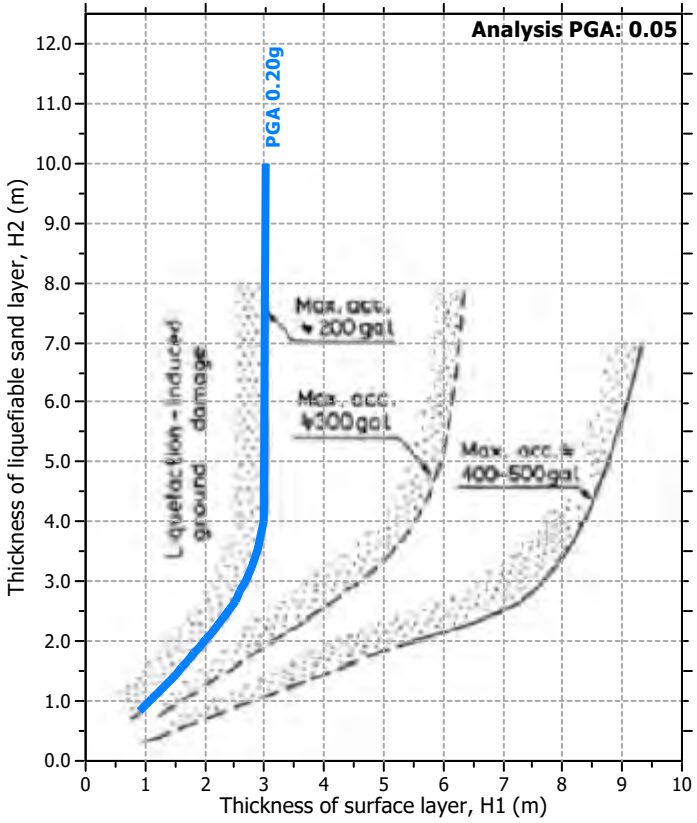
Liquefaction analysis summary plots



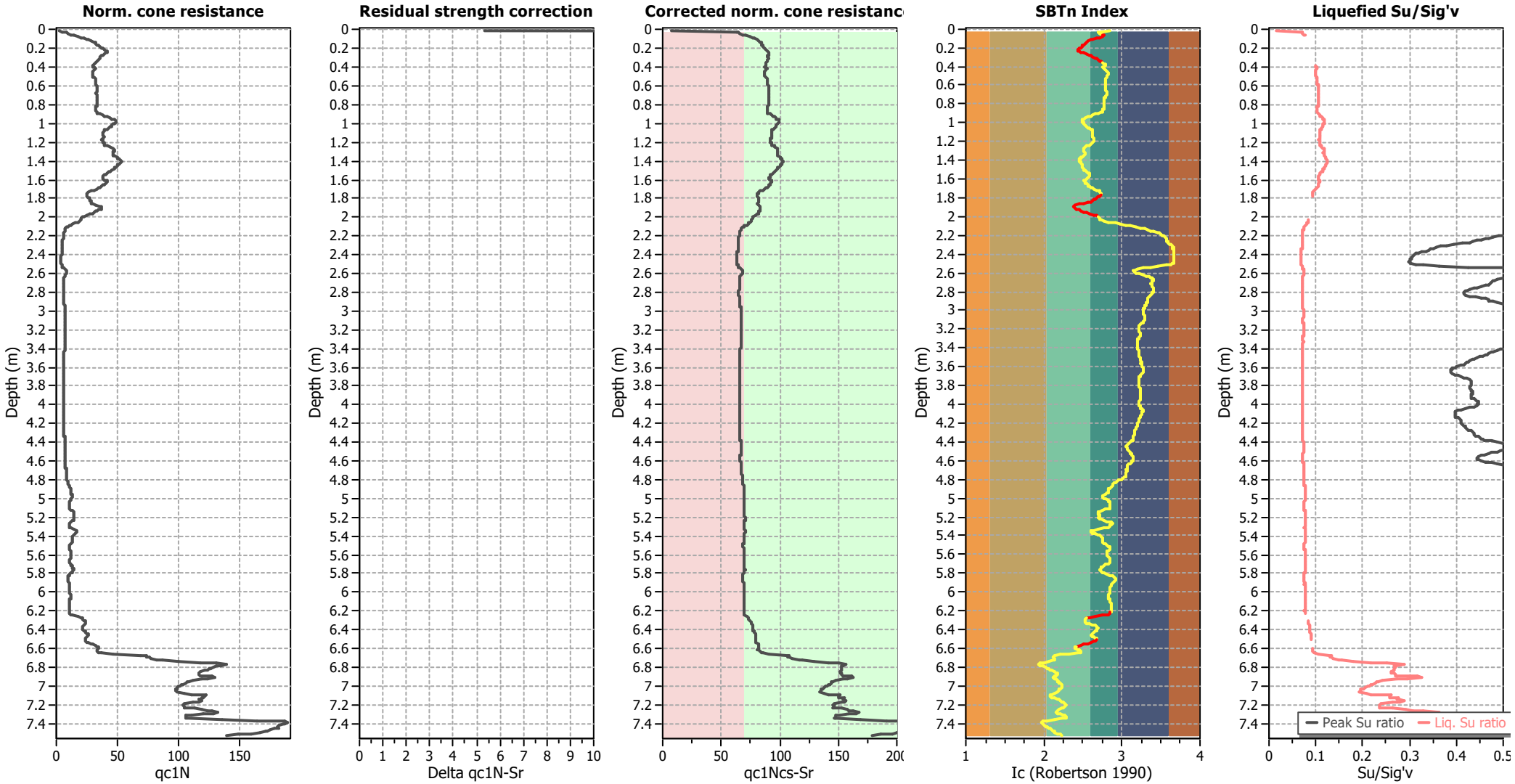




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

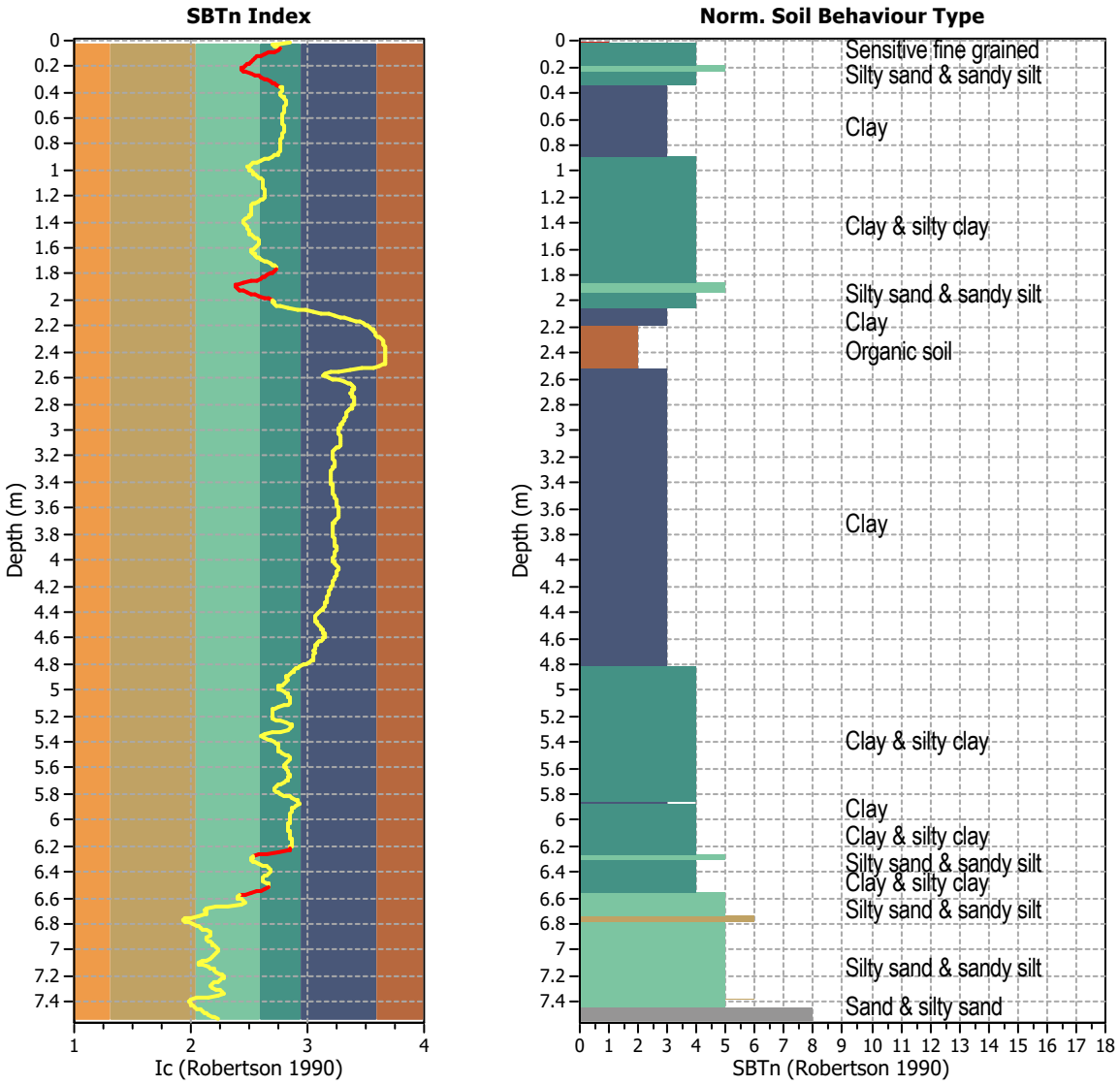
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

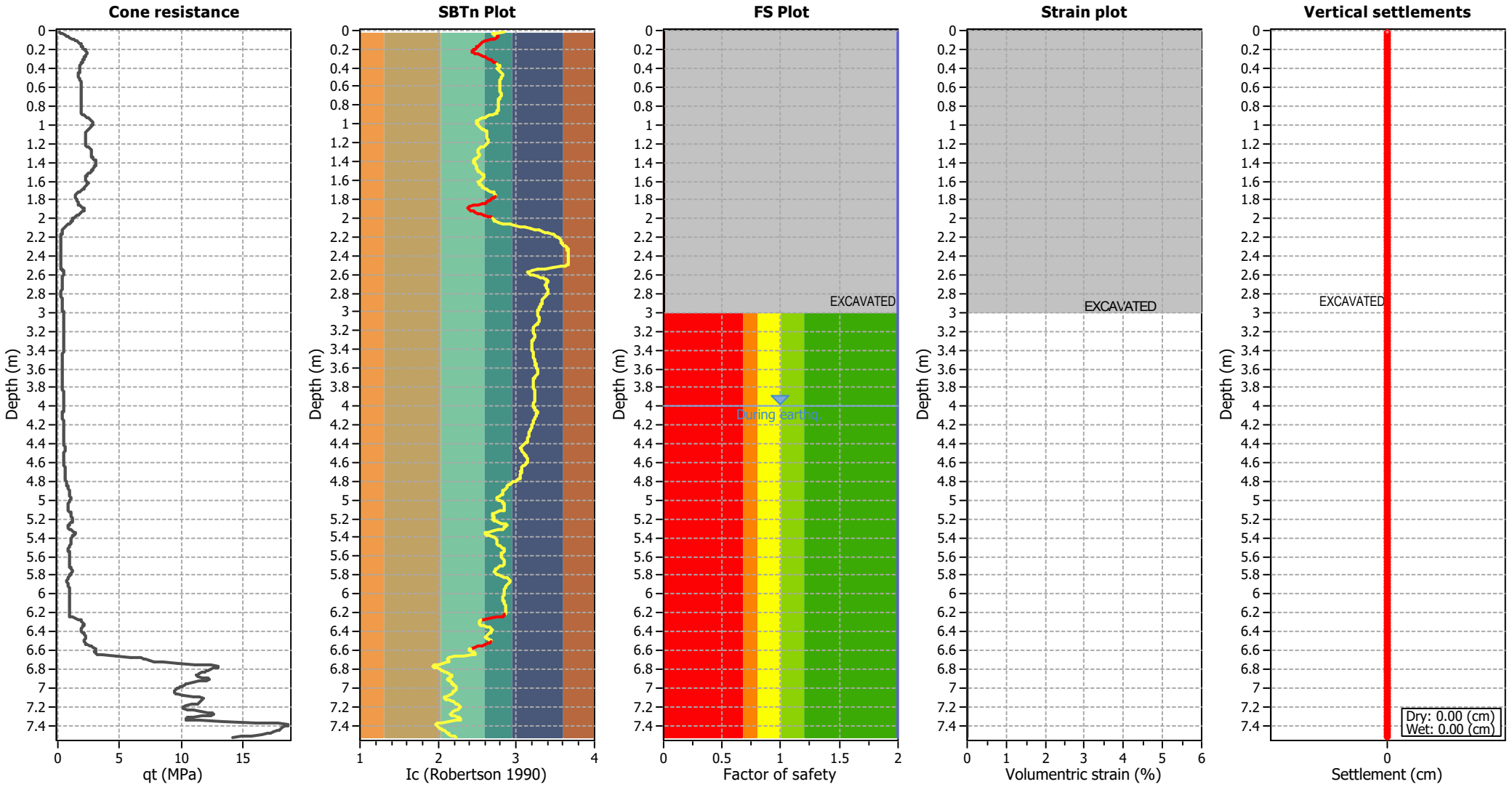
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	753
I_c maximum check value:	3.00	Total points excluded:	70
I_c change ratio value:	0.0100	Exclusion percentage:	9.30%
Minimum number of points in layer:	4	Number of layers detected:	6

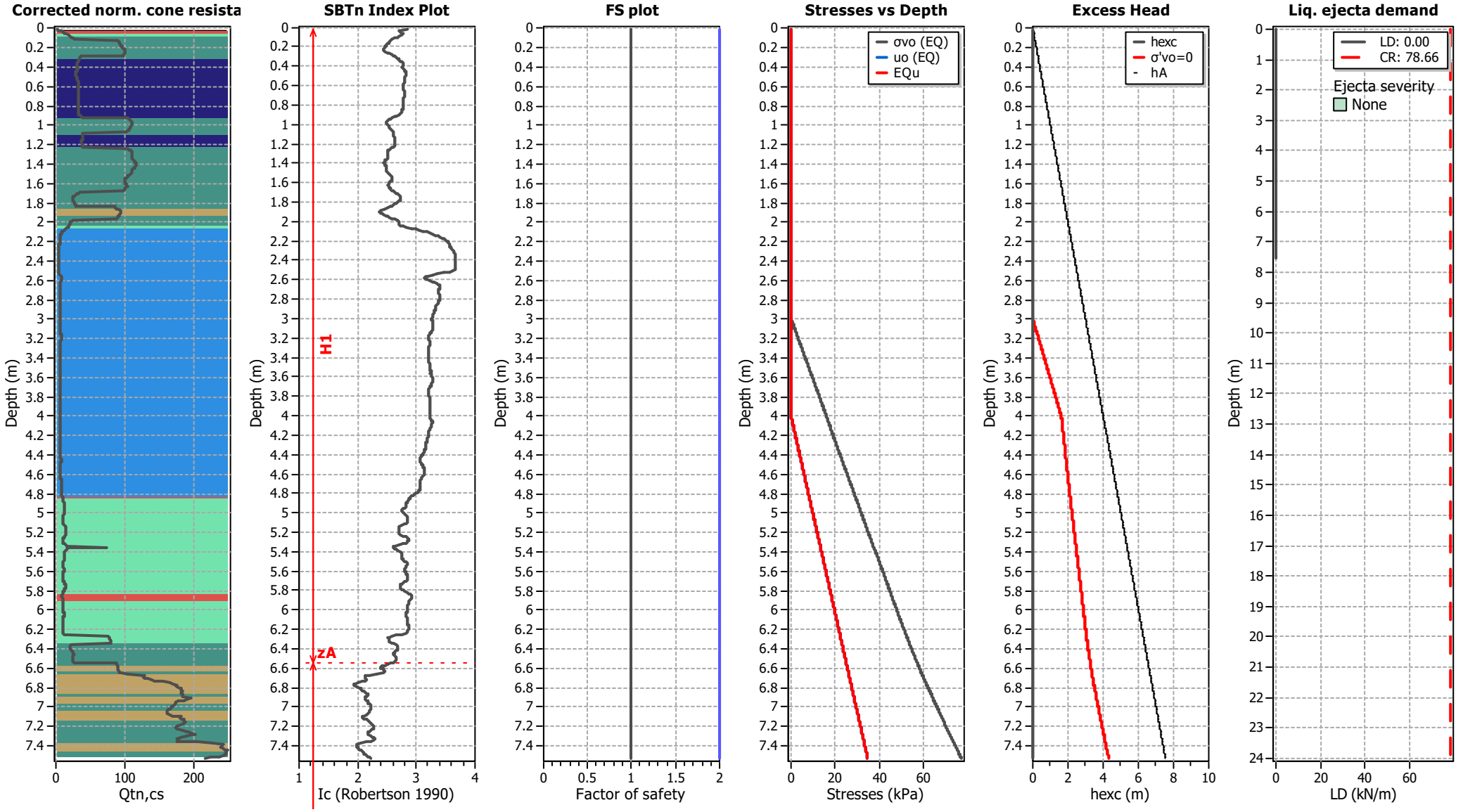
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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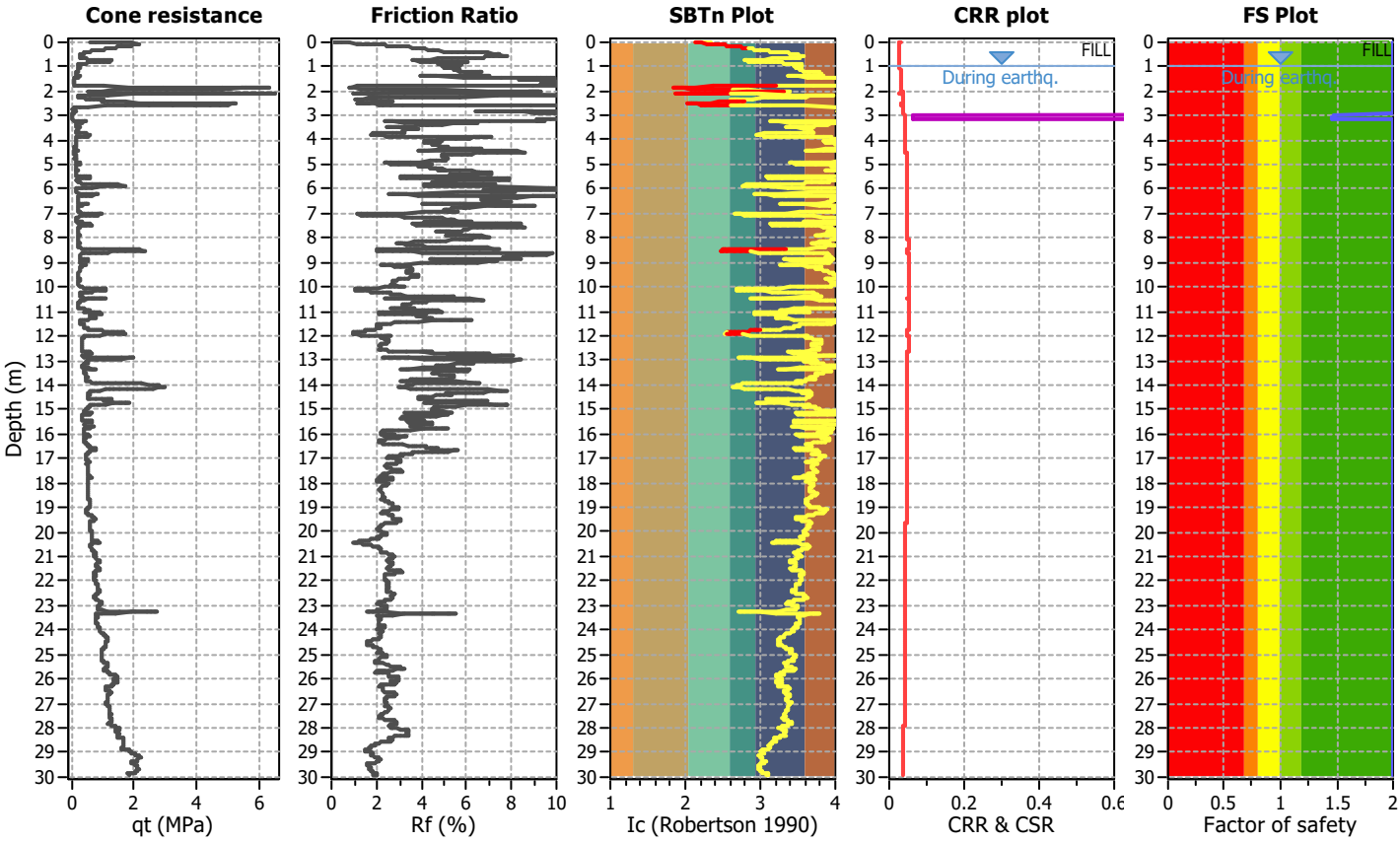
LIQUEFACTION ANALYSIS REPORT

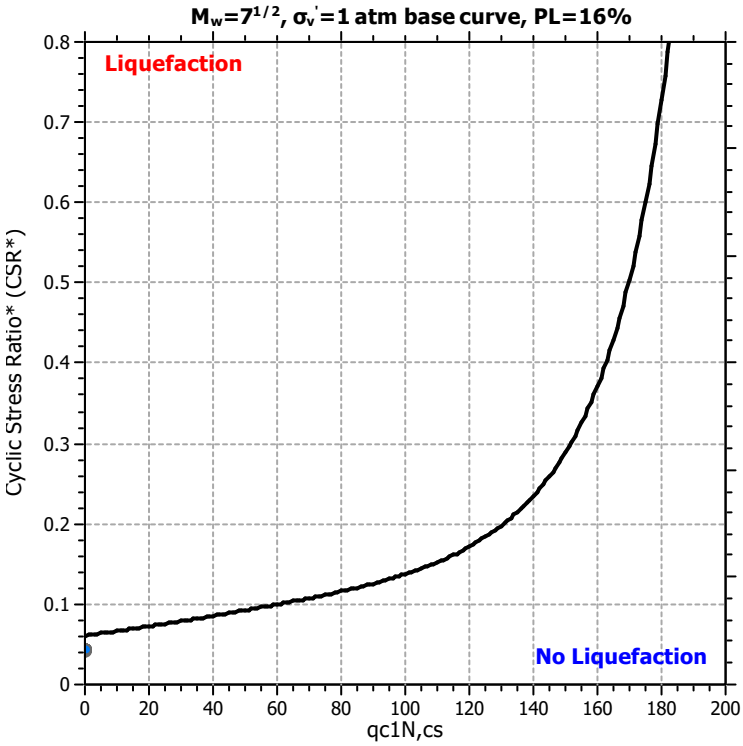
Project title : Sunfield Landholding **Location :**

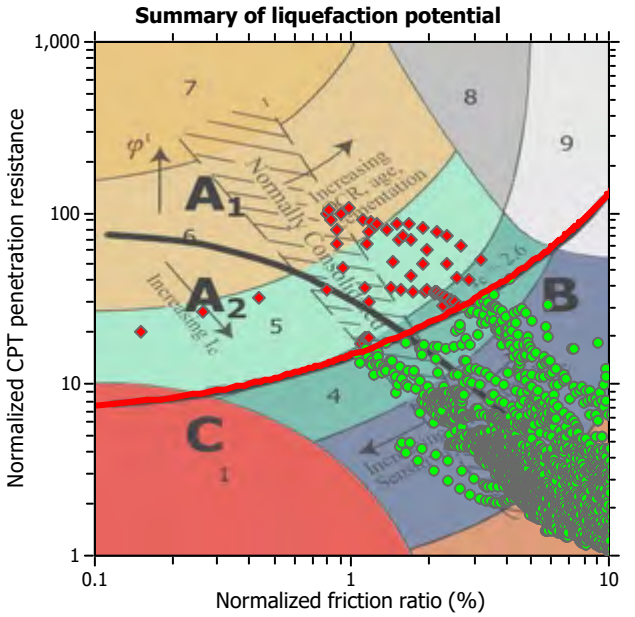
CPT file : CPT004

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	18.50 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

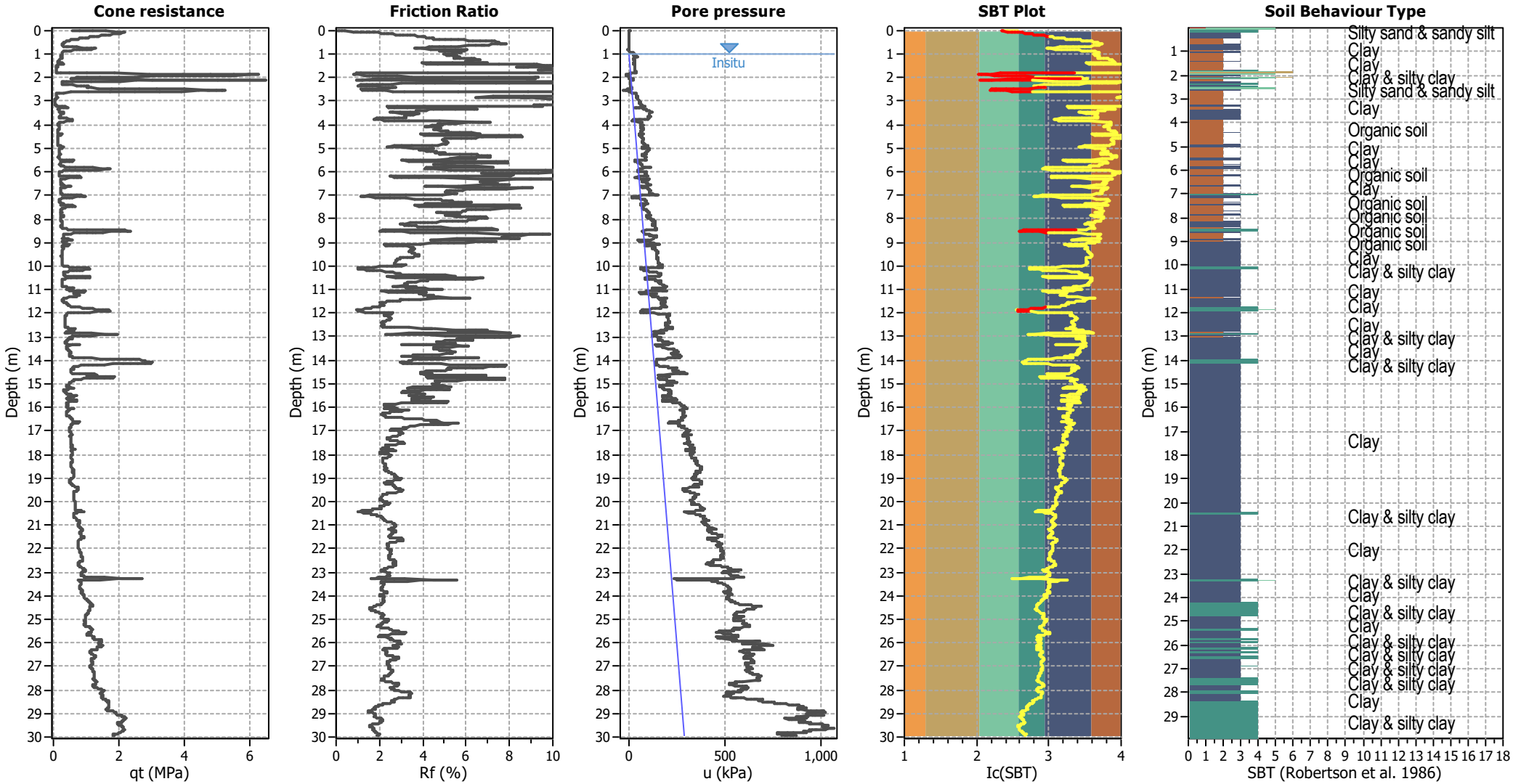






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



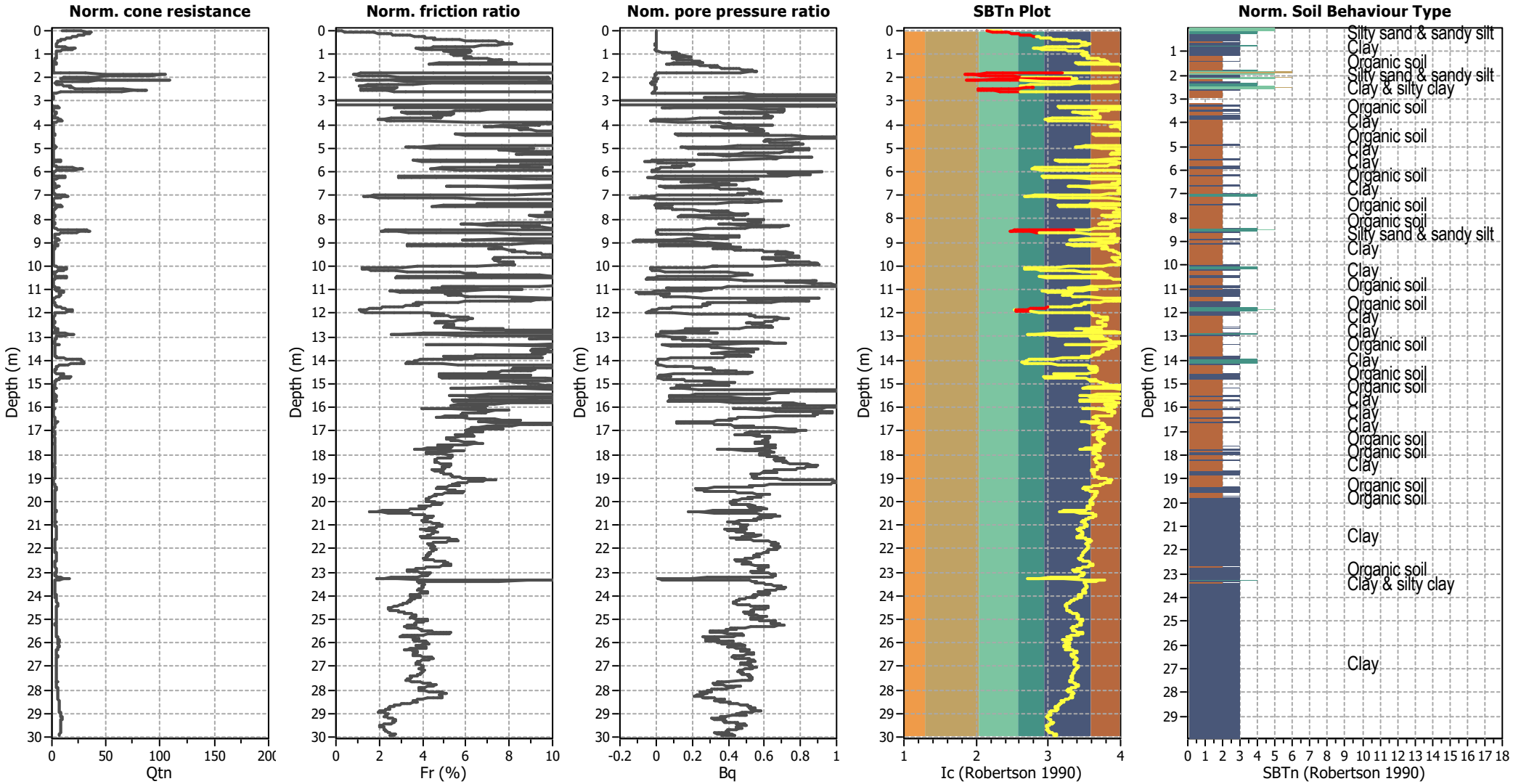
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
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SBTn legend

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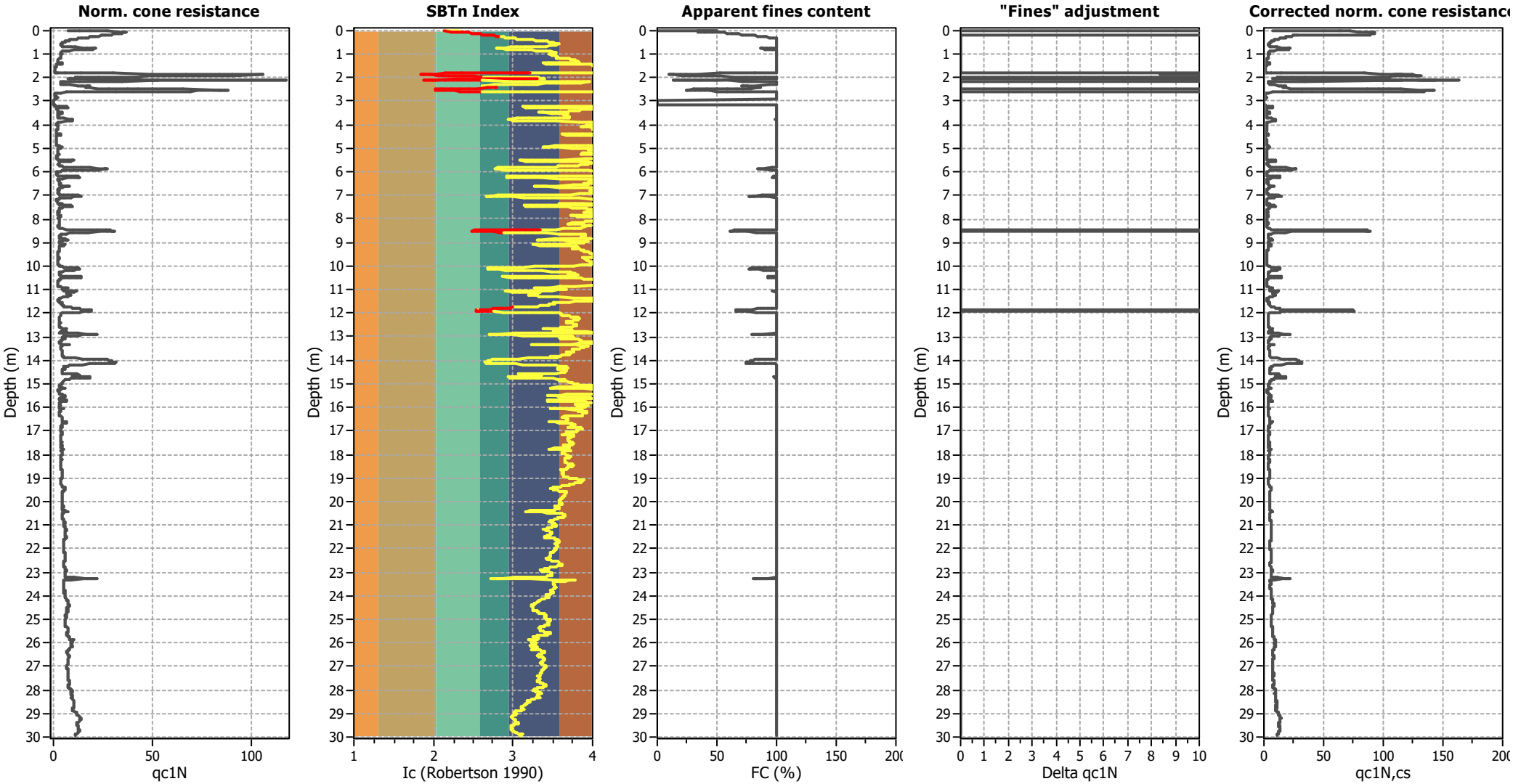
9. Very stiff fine grained

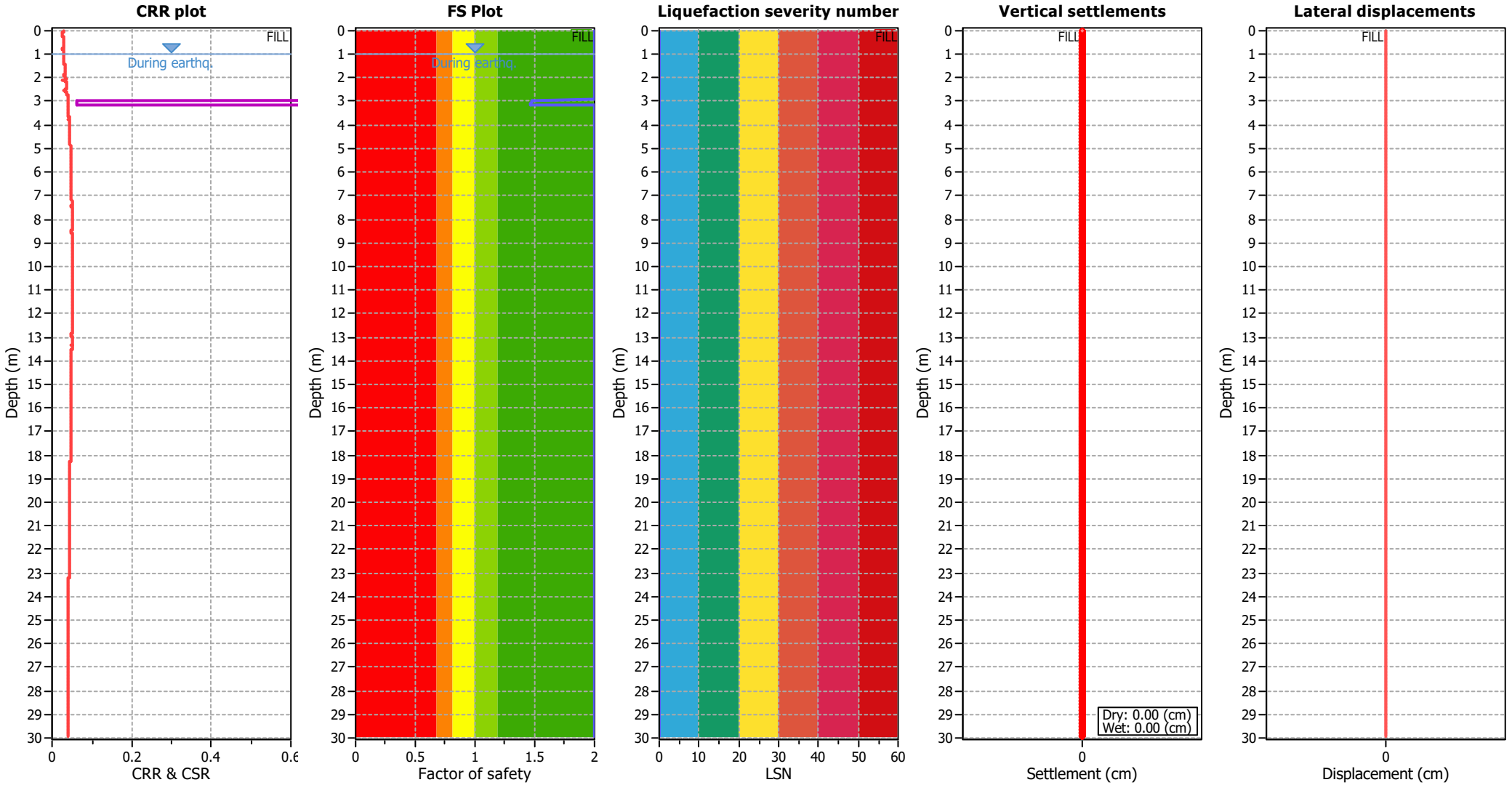
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
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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

LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
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- Minor expression of liquefaction
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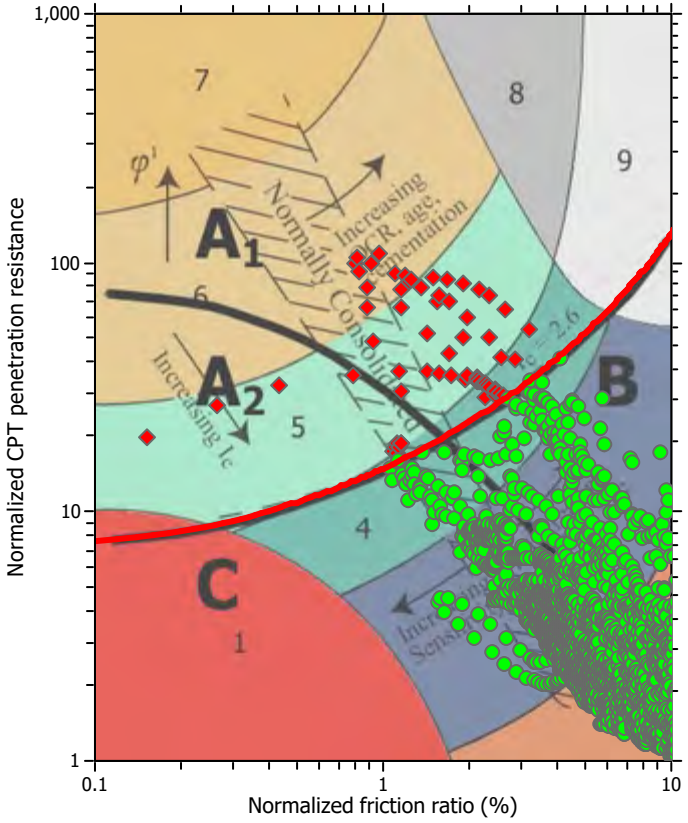
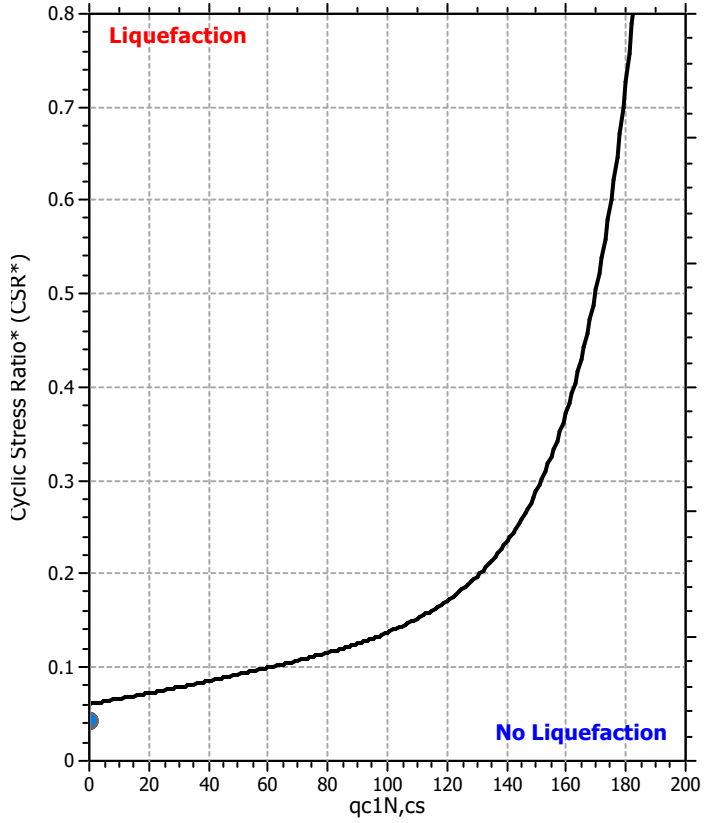
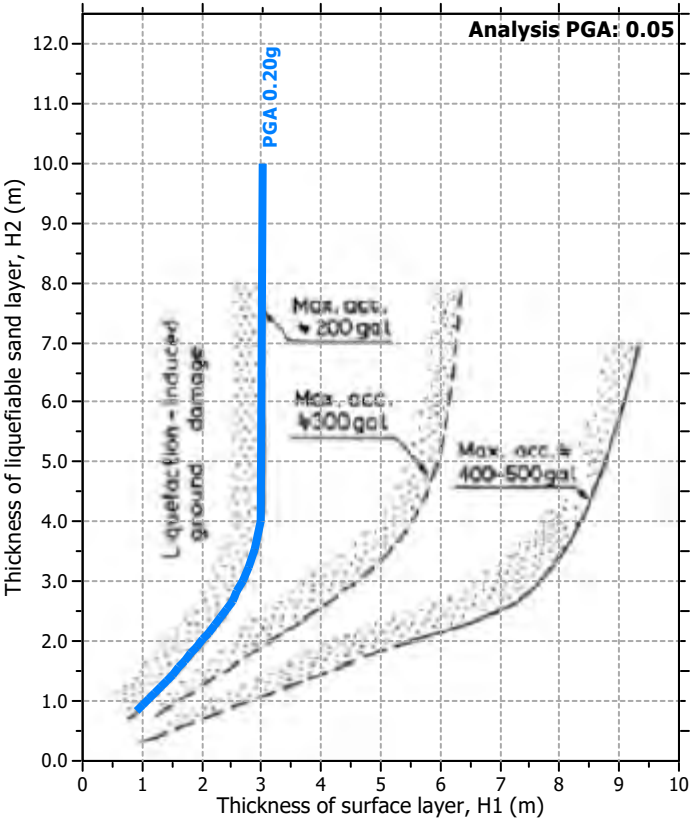
Liquefaction analysis summary plots



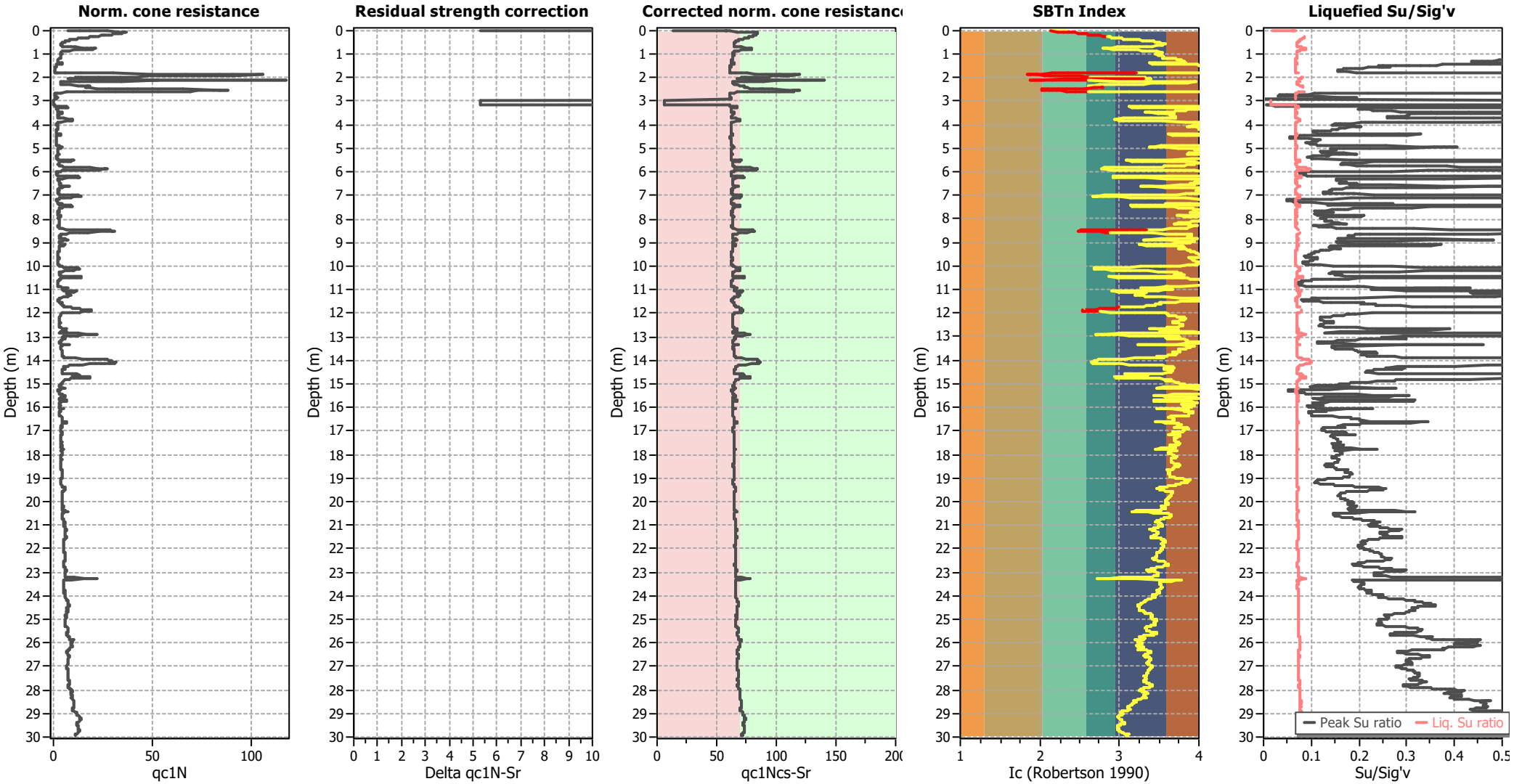




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

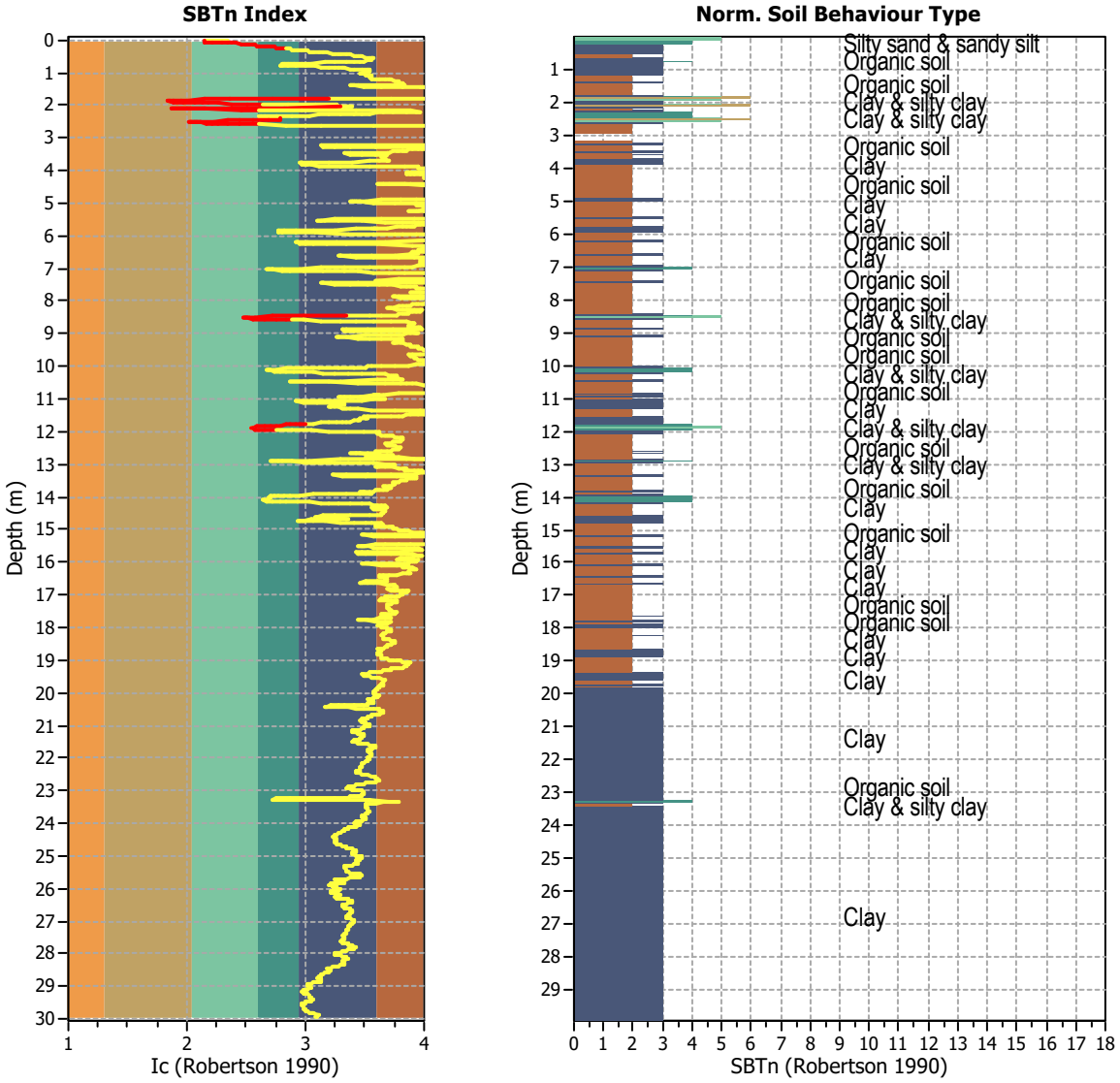
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



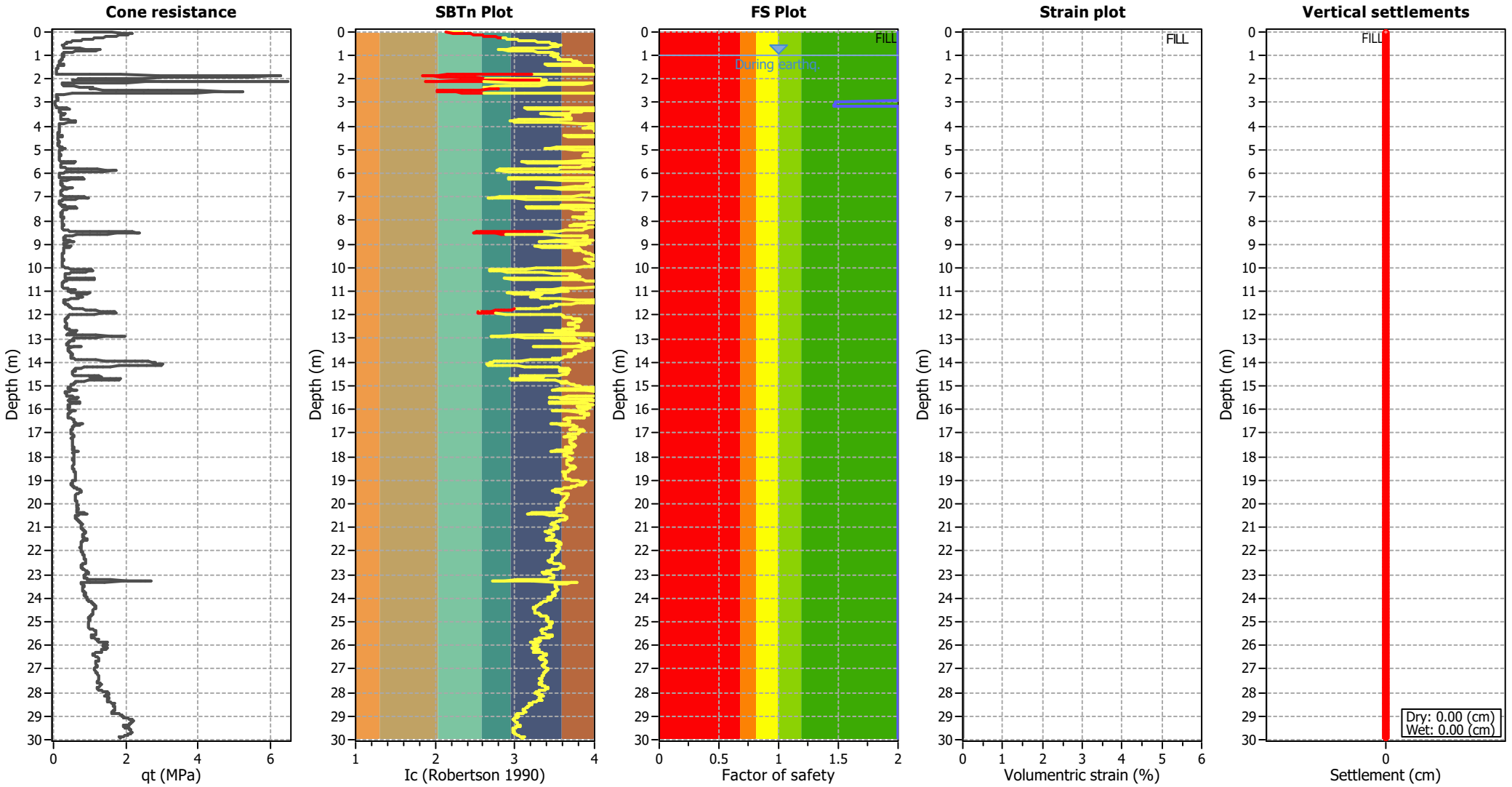
Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	2993
Total points excluded:	103
Exclusion percentage:	3.44%
Number of layers detected:	11

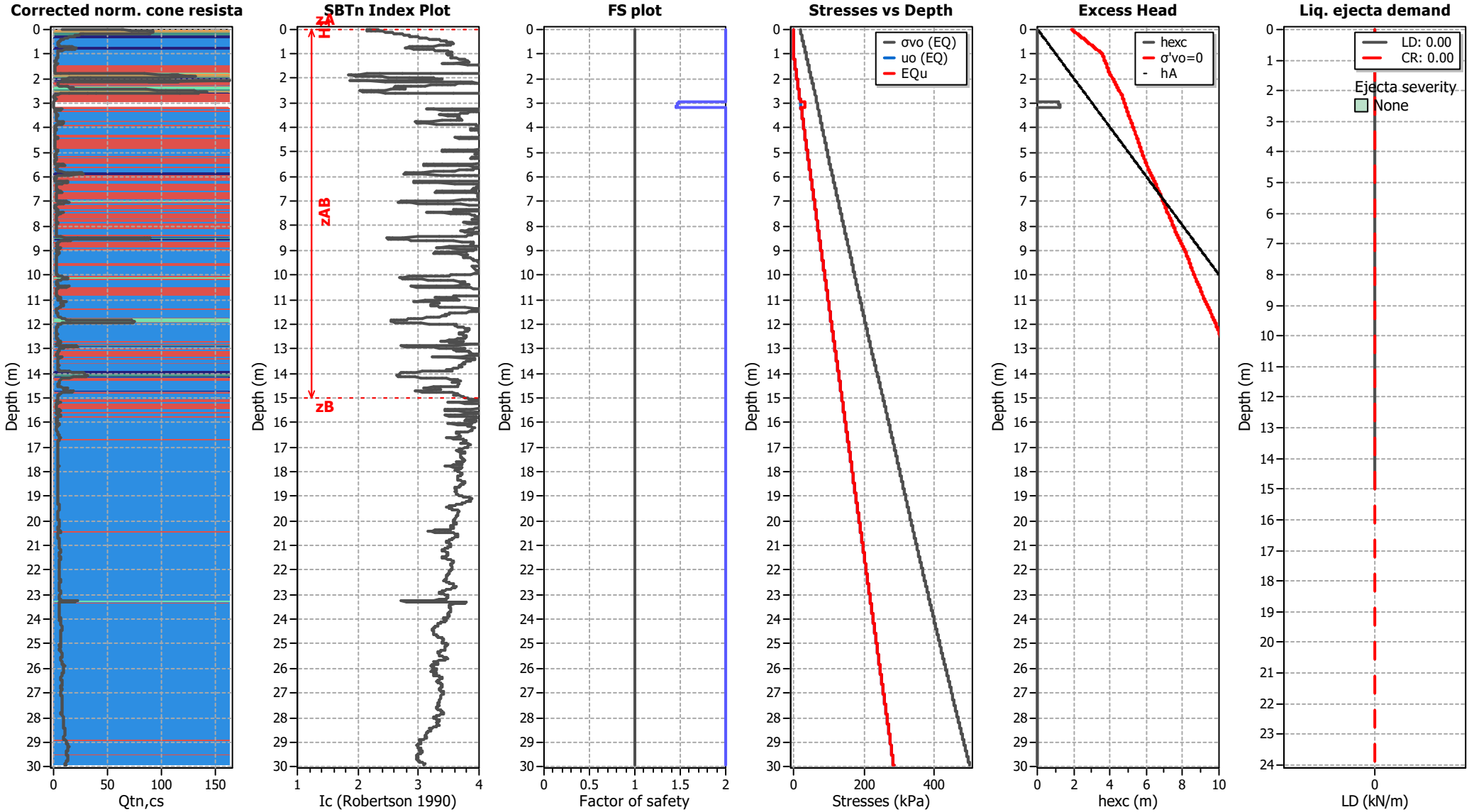
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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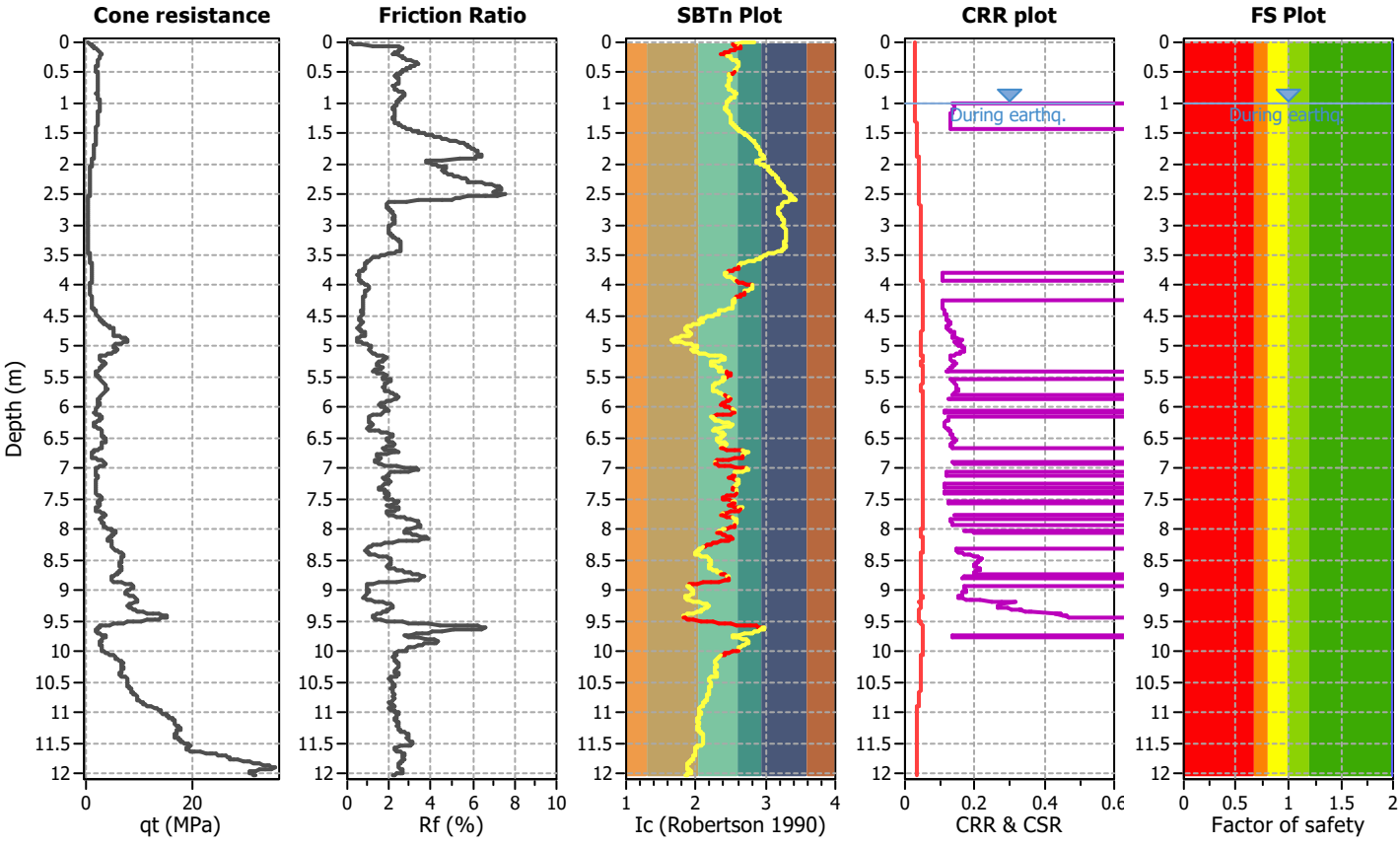
LIQUEFACTION ANALYSIS REPORT

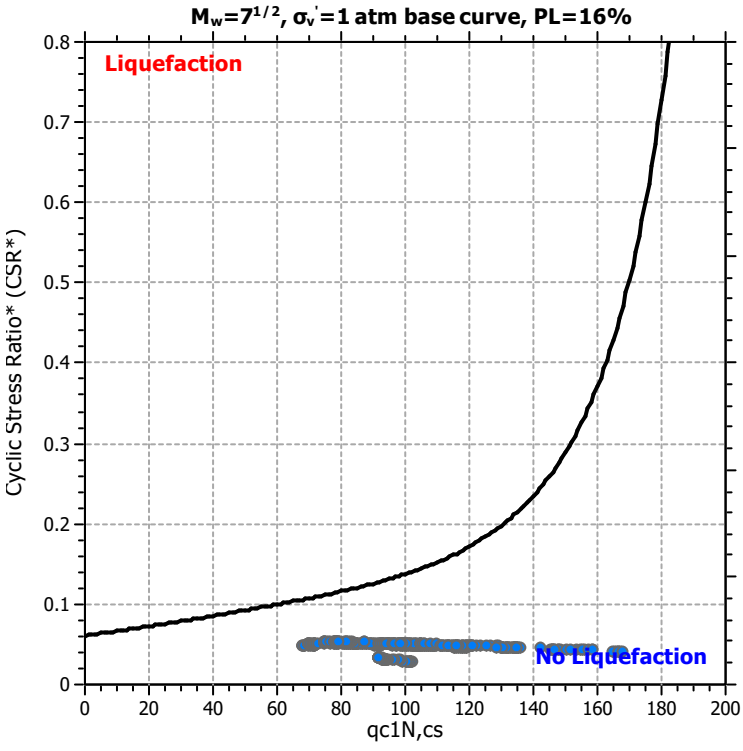
Project title : Sunfield Landholding **Location :**

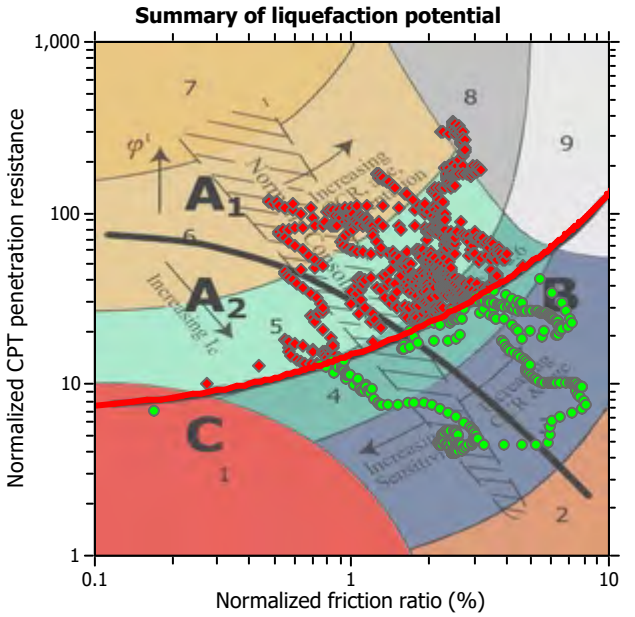
CPT file : CPT005

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.00 m	Excavation depth:	0.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		







Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
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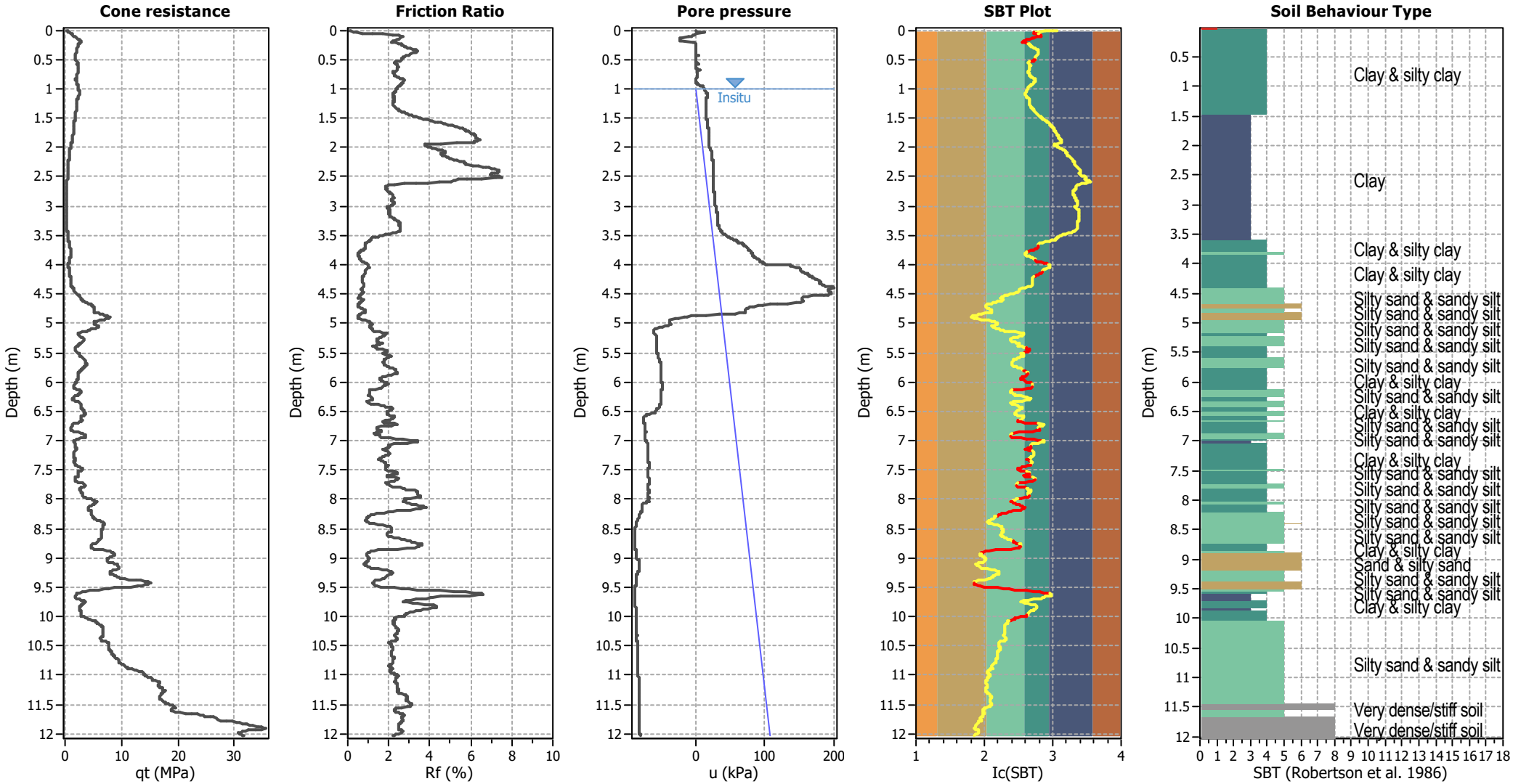
CPT basic interpretation plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBT legend

1. Sensitive fine grained
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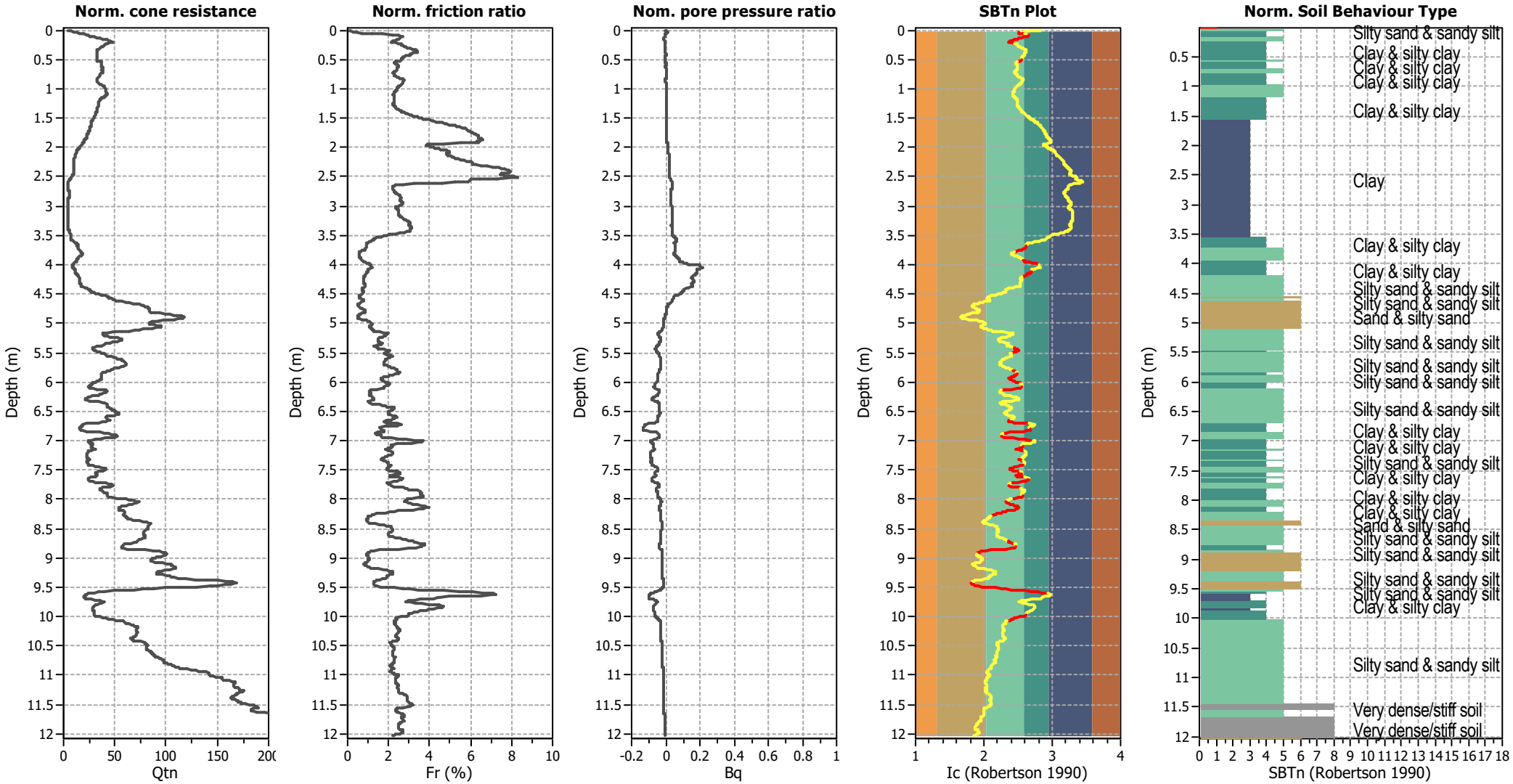
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
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SBTn legend

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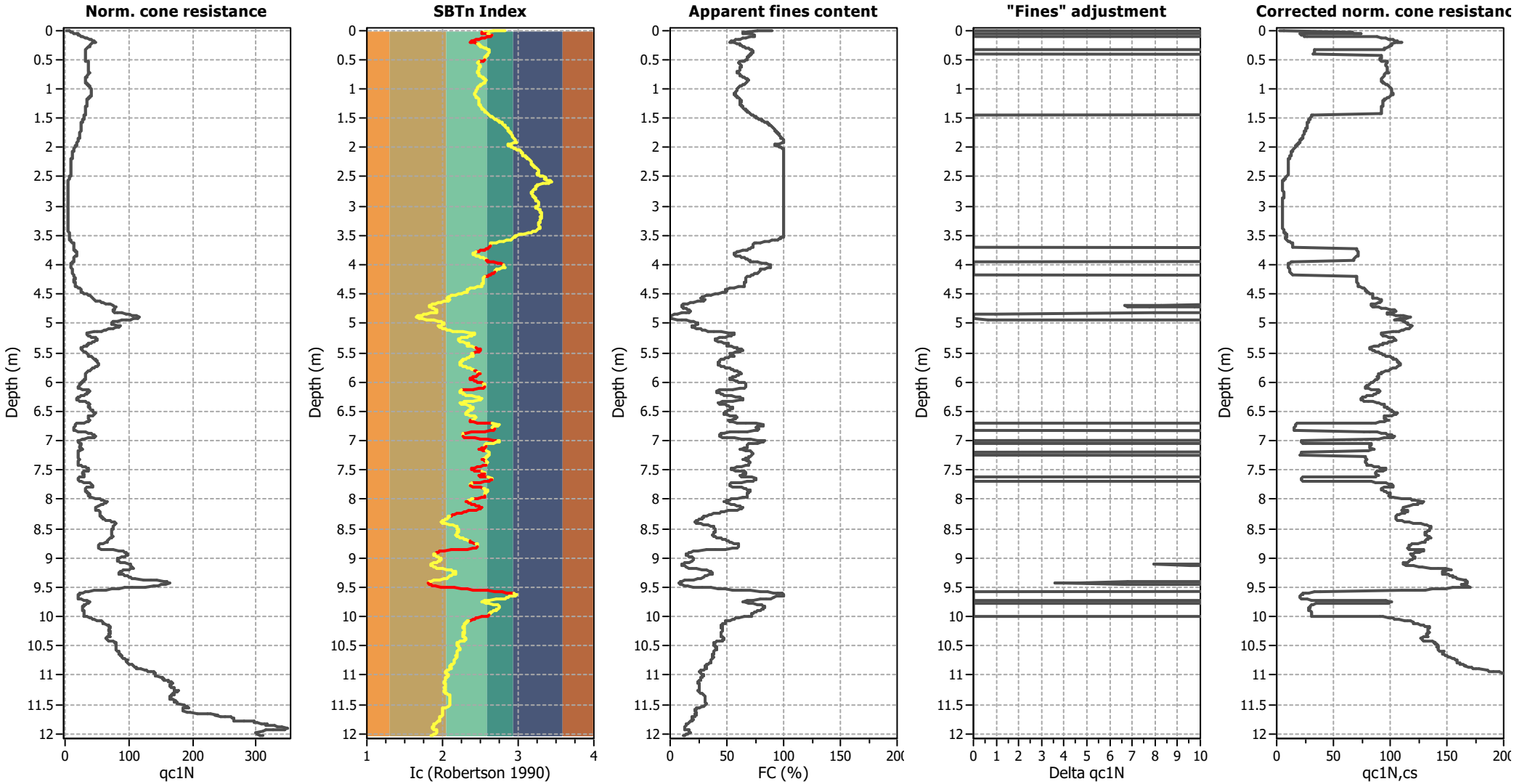
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

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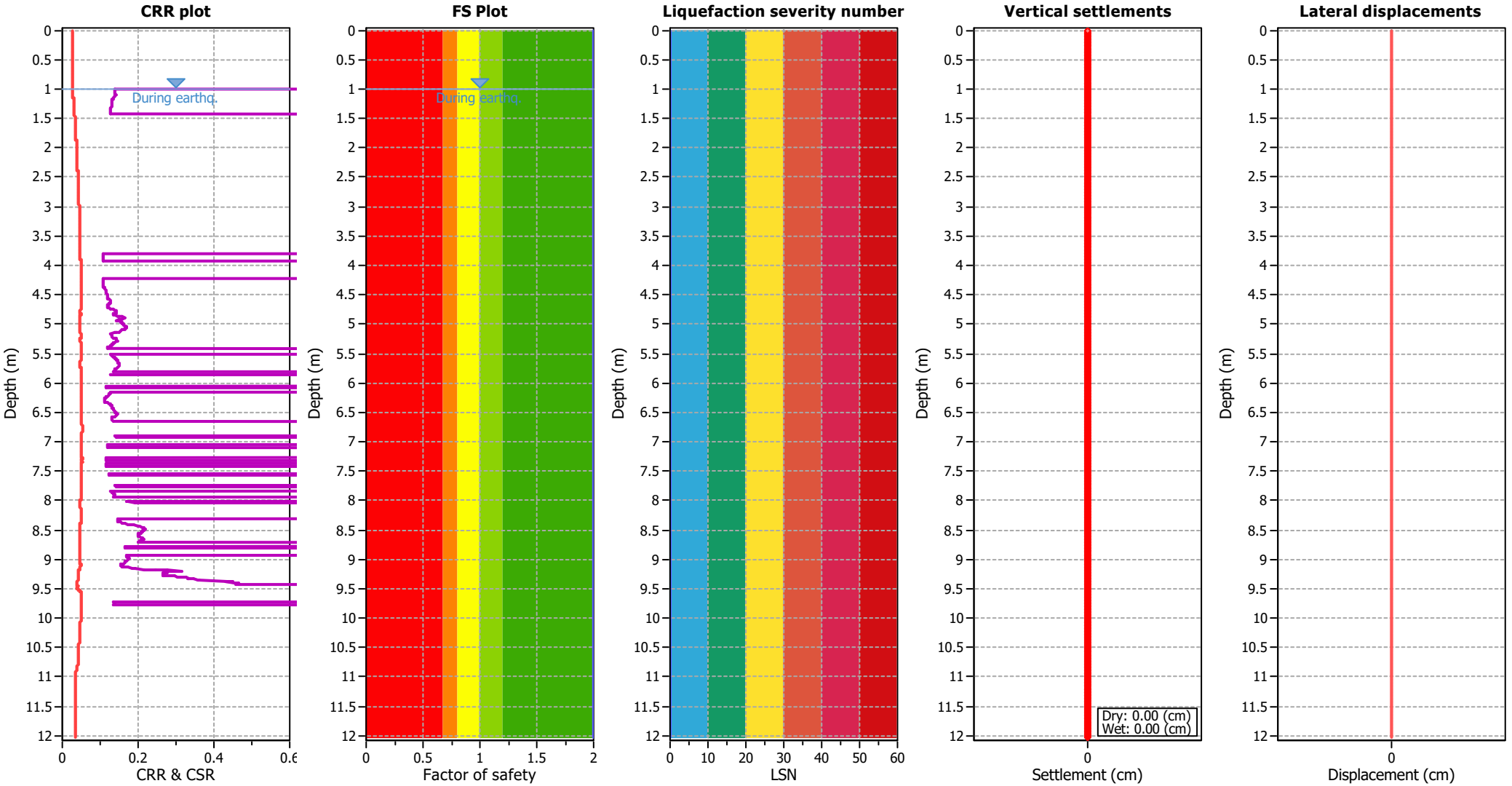
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
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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

LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
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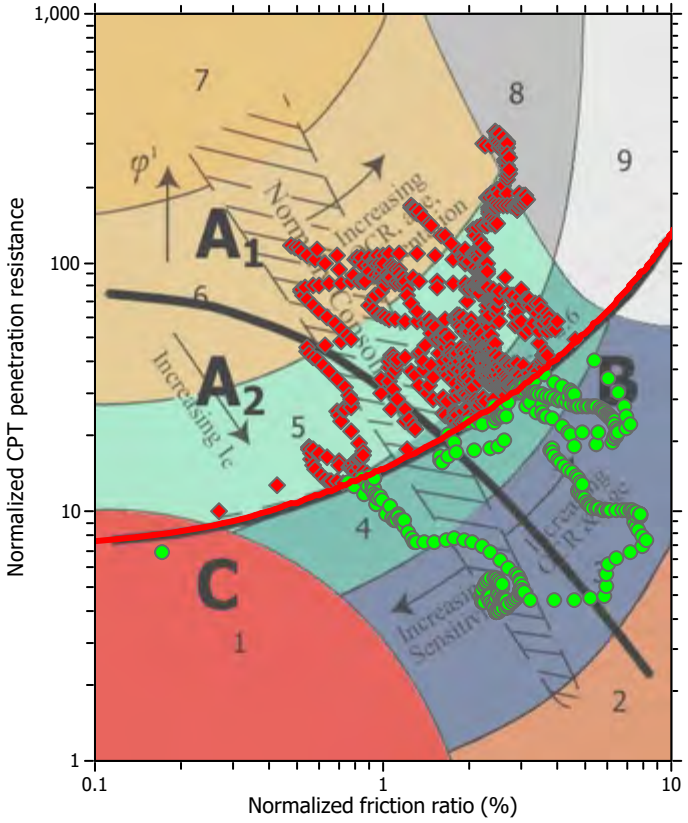
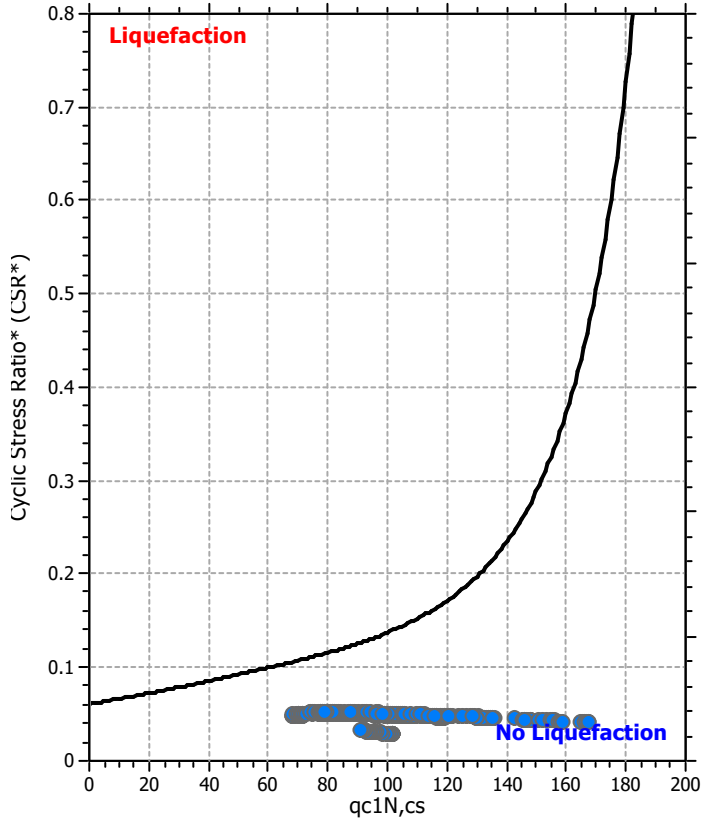
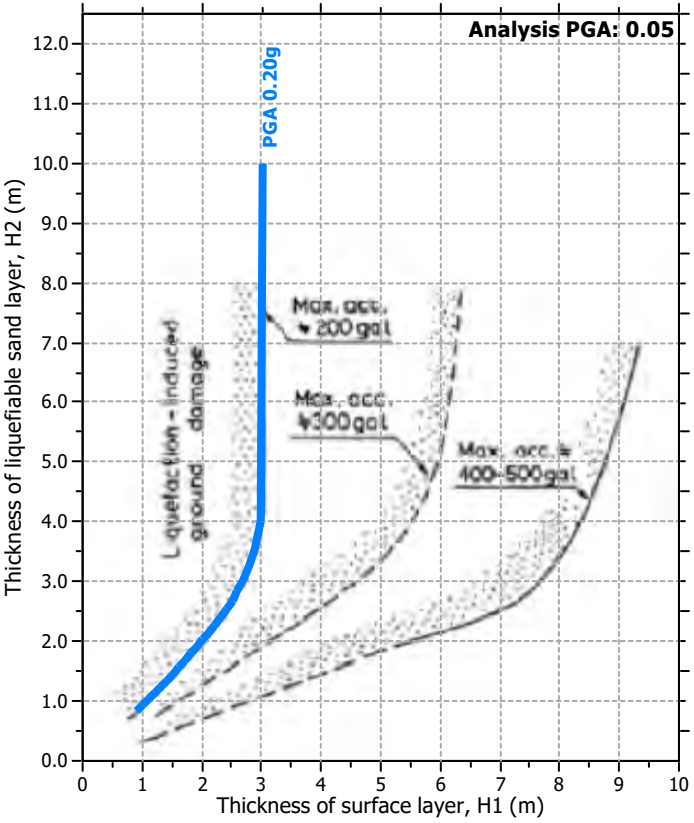
Liquefaction analysis summary plots







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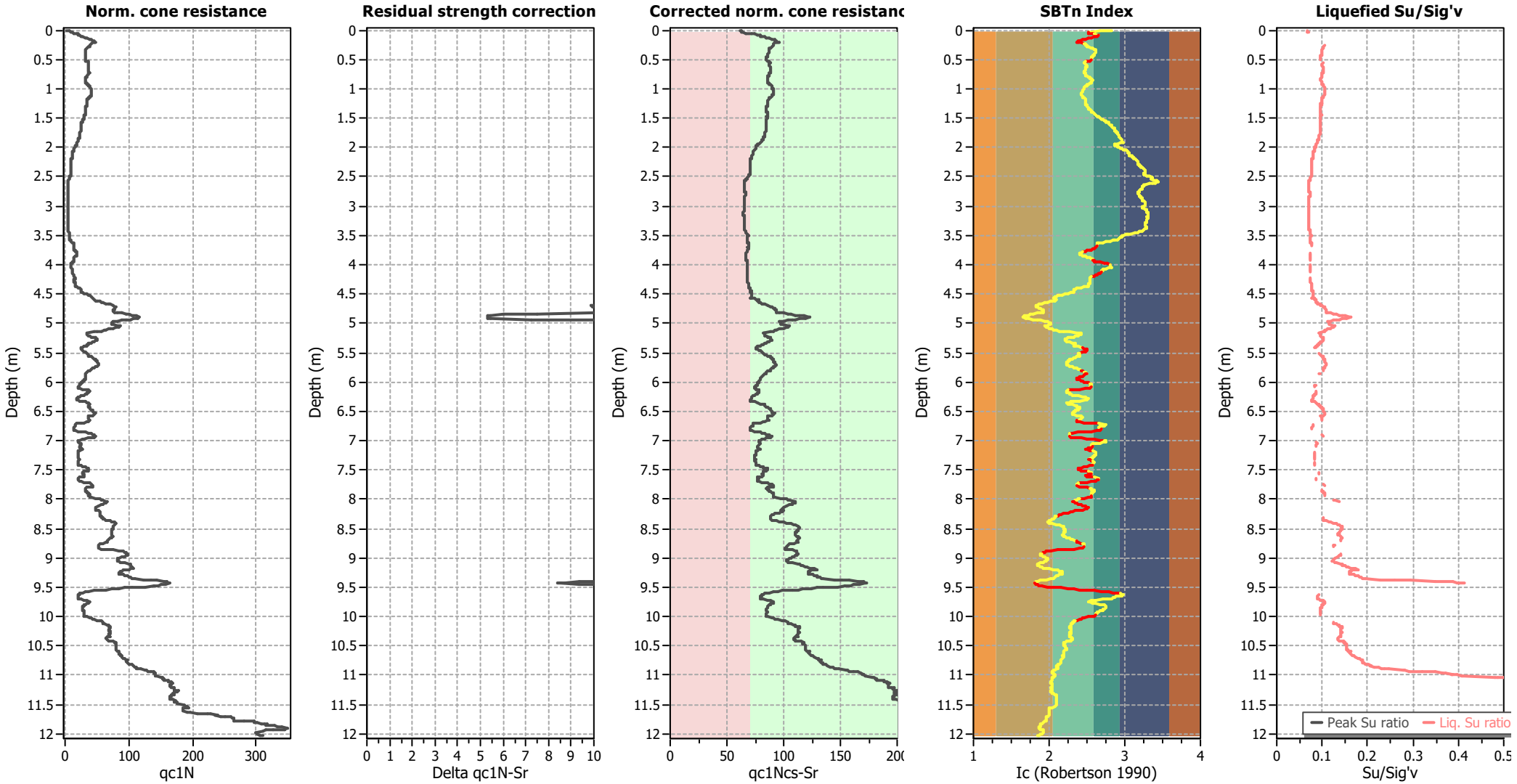
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
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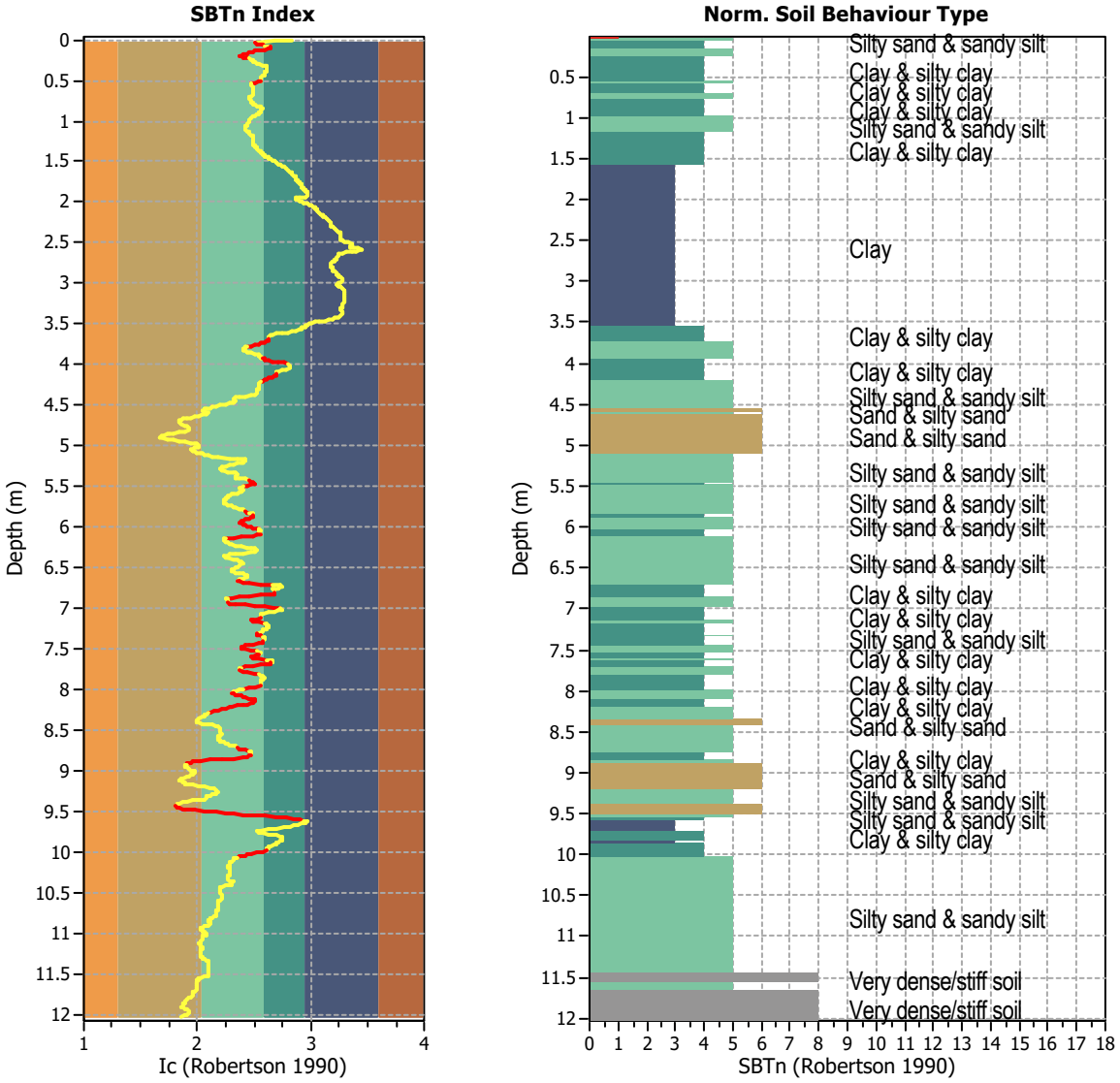
TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



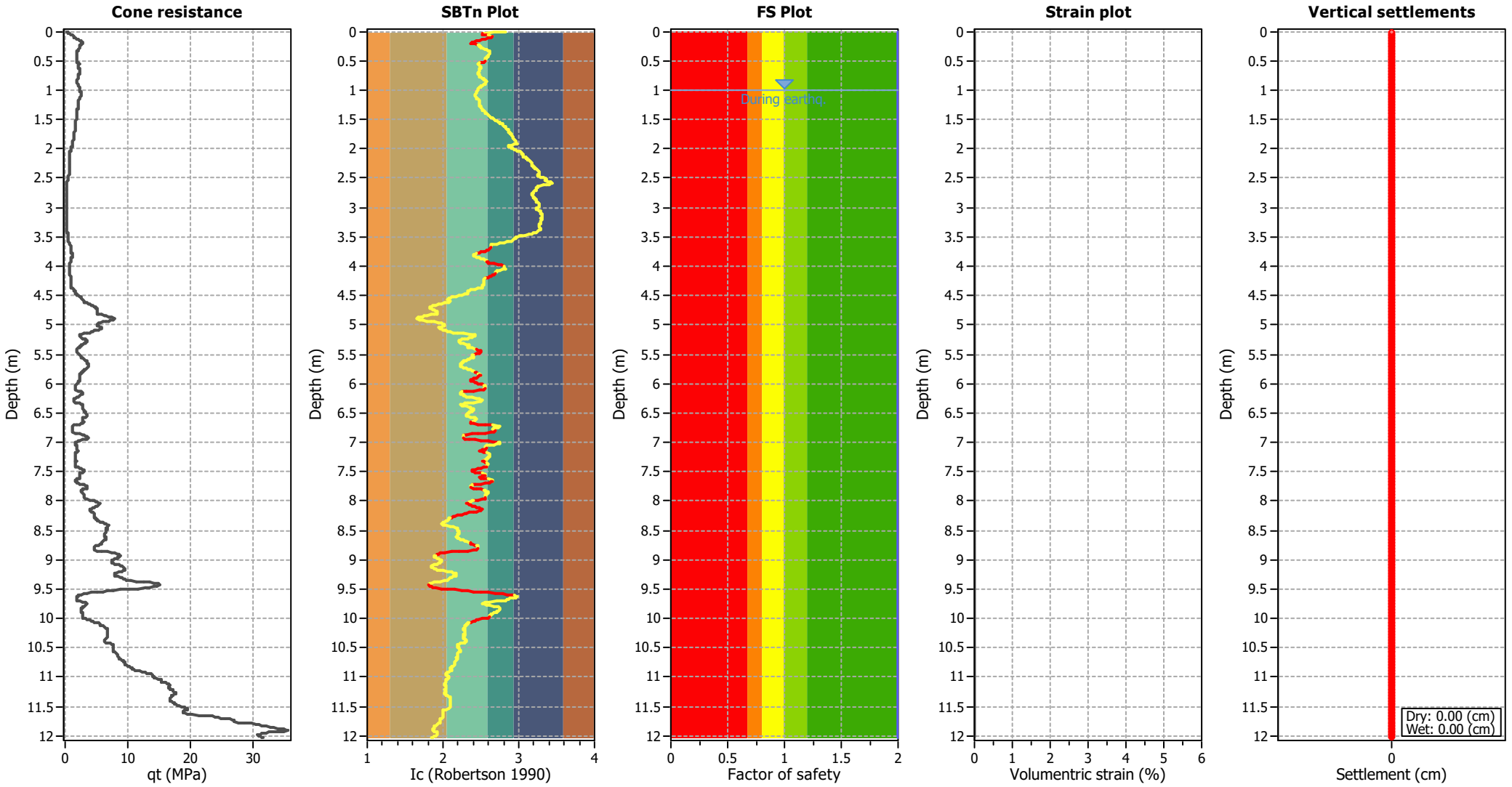
Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	1203
Total points excluded:	240
Exclusion percentage:	19.95%
Number of layers detected:	32

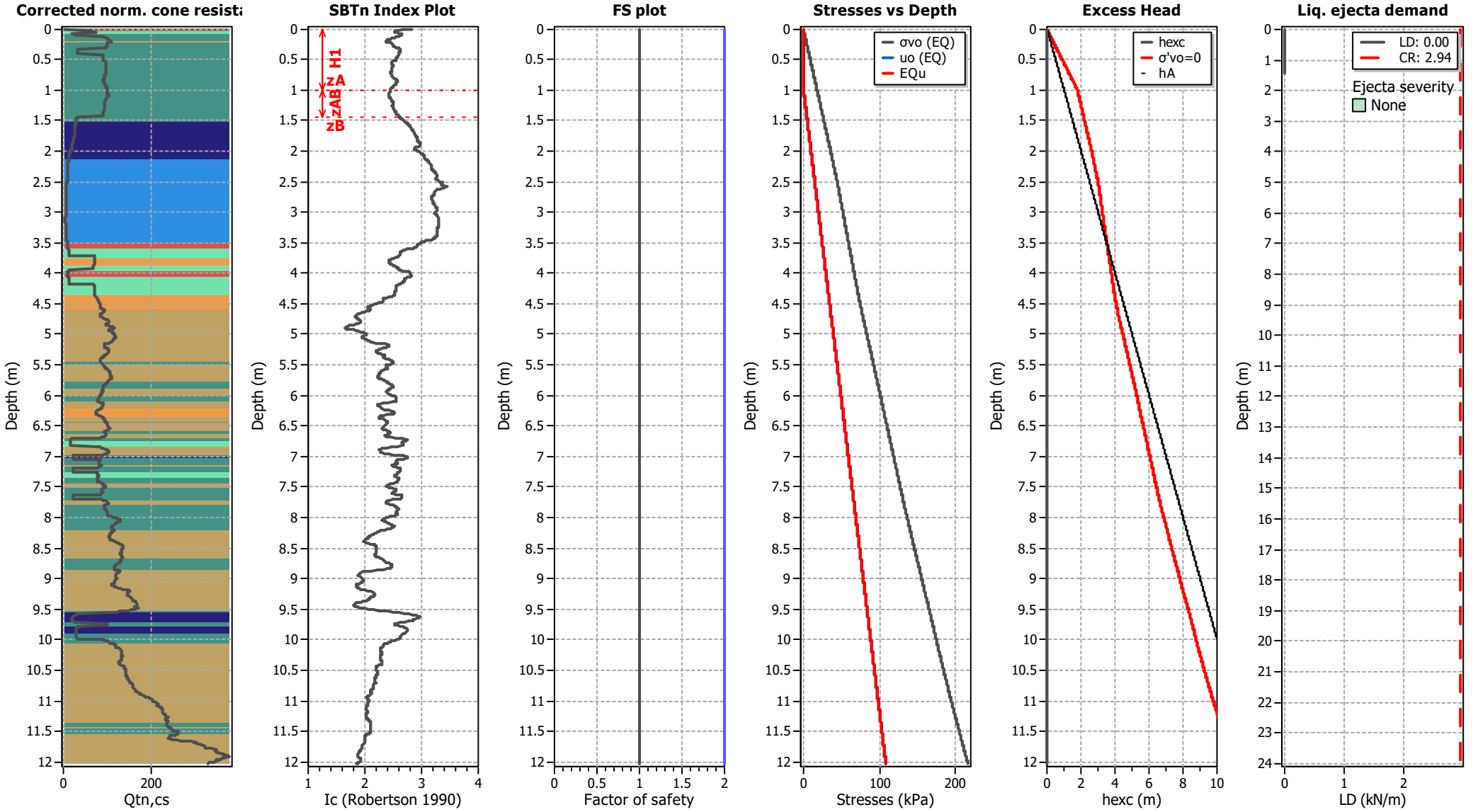
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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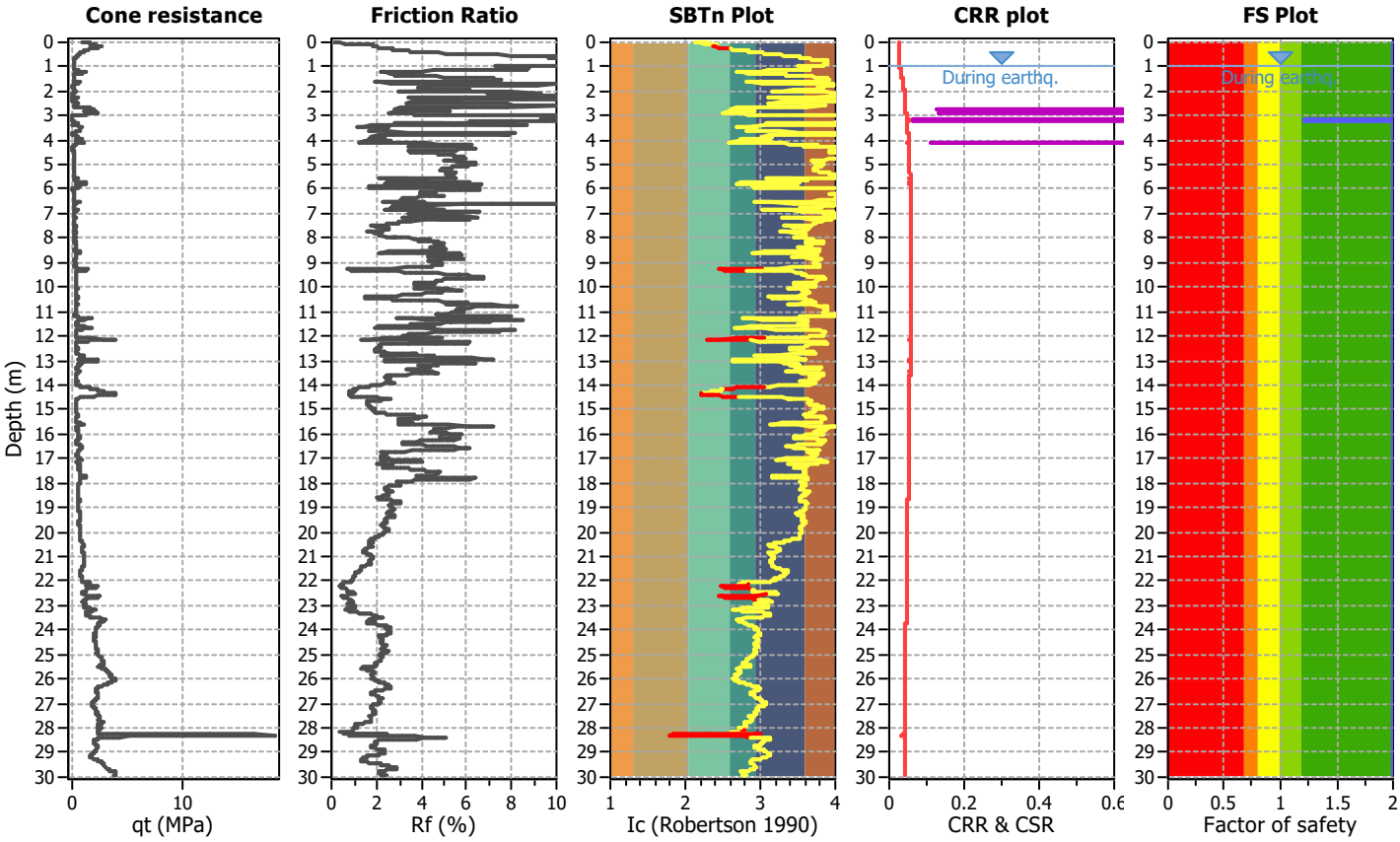
LIQUEFACTION ANALYSIS REPORT

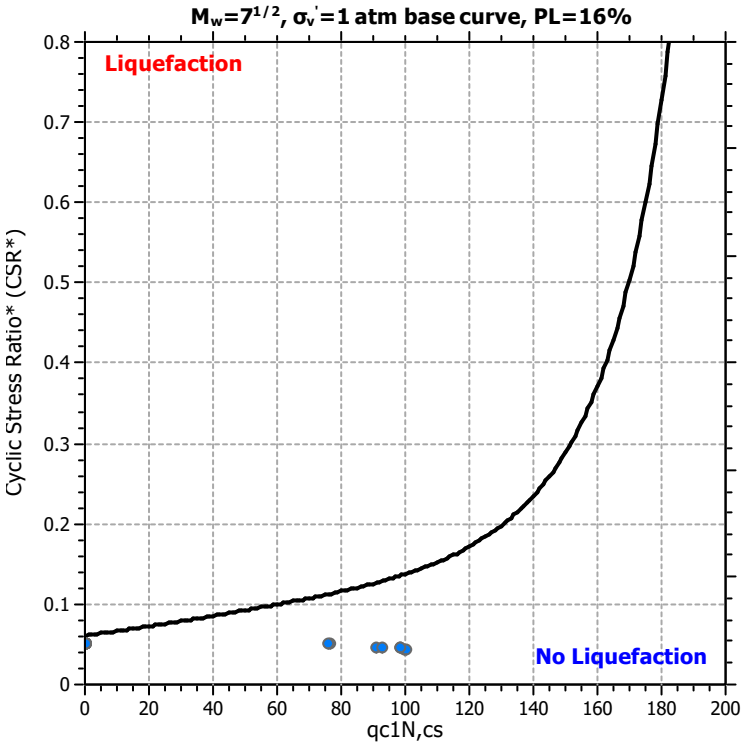
Project title : Sunfield Landholding **Location :**

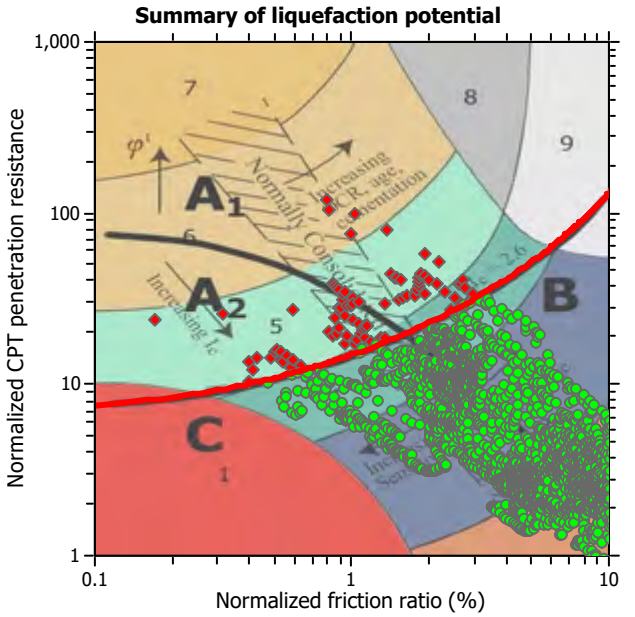
CPT file : CPT006

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.00 m	Excavation depth:	0.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

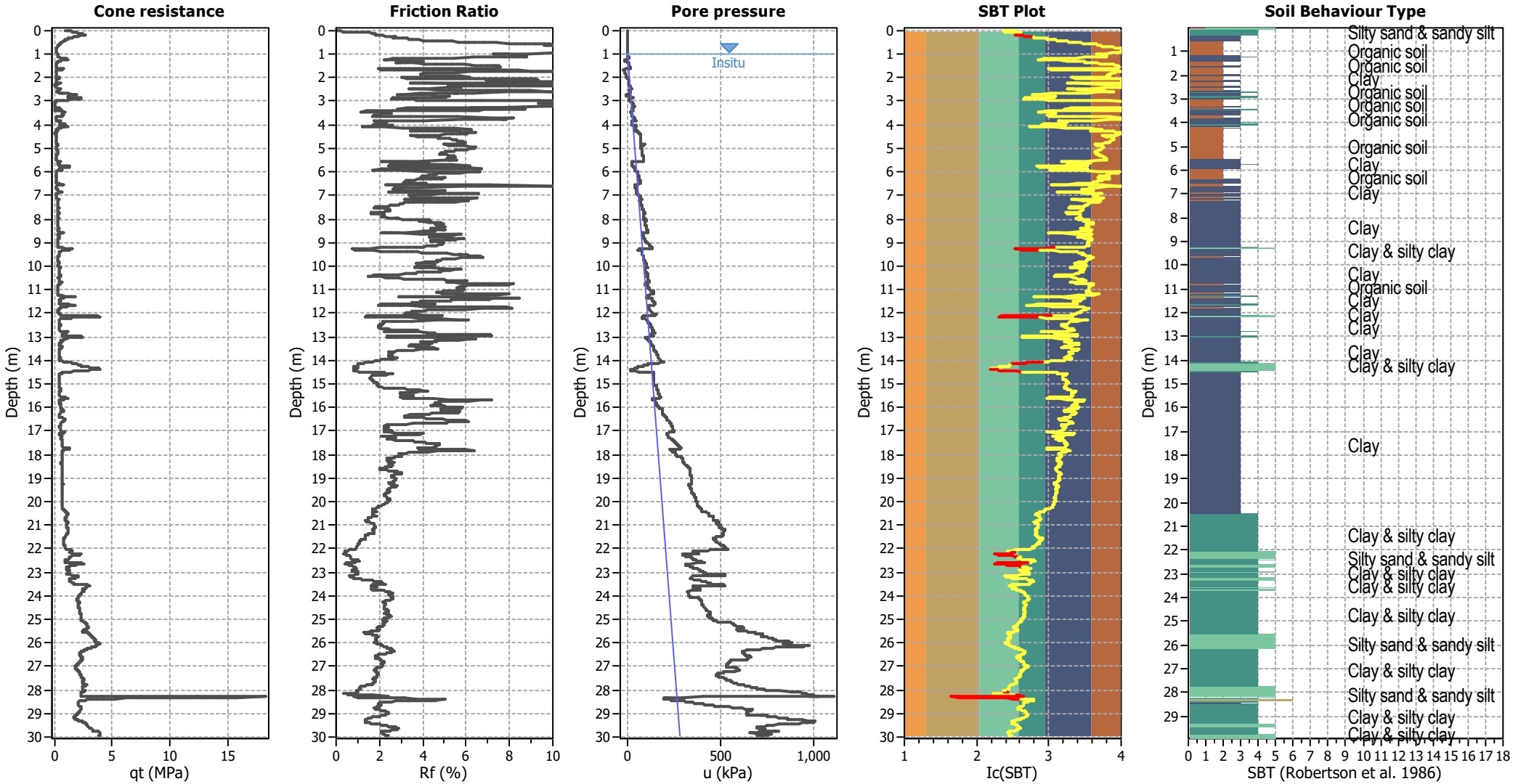






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



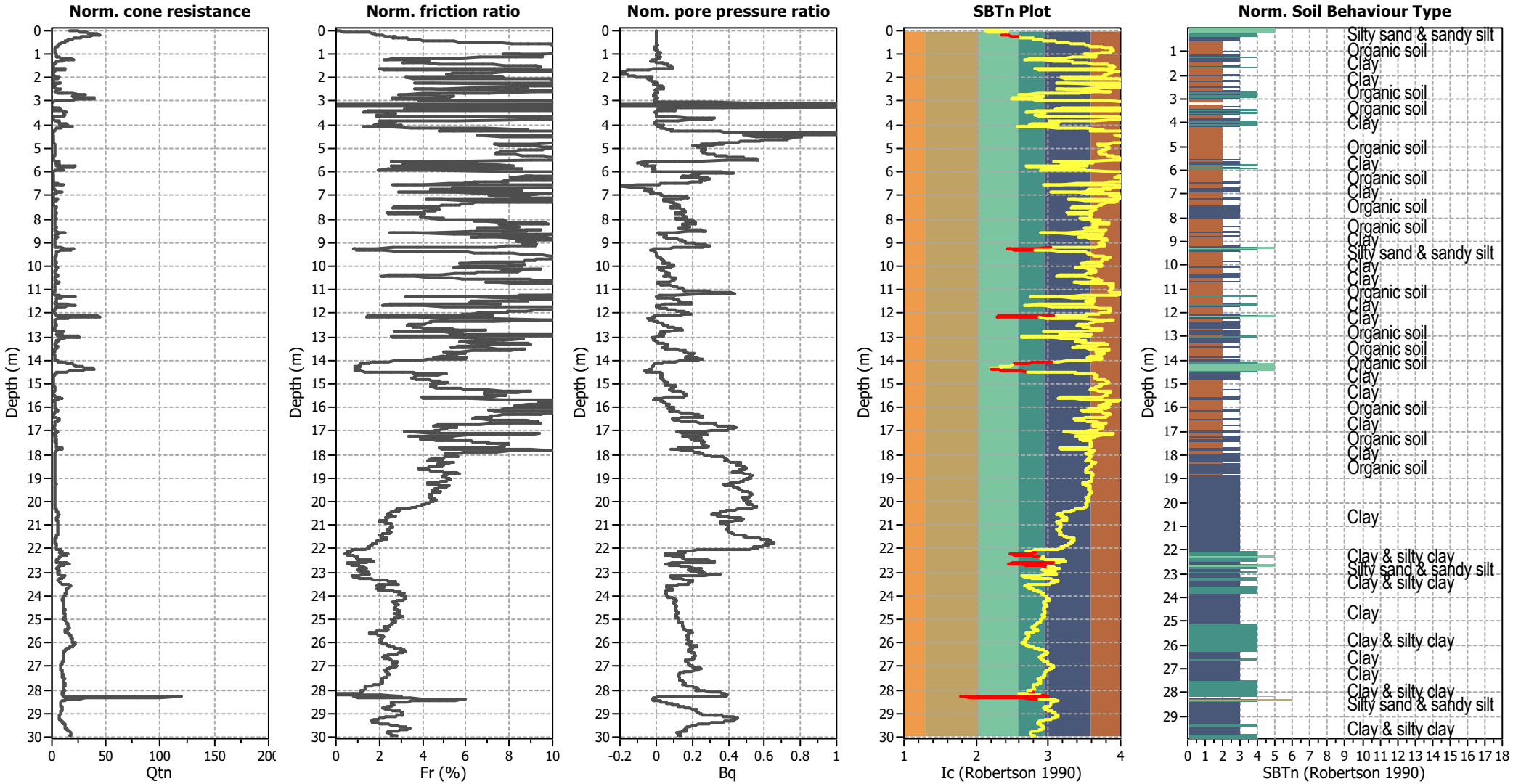
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



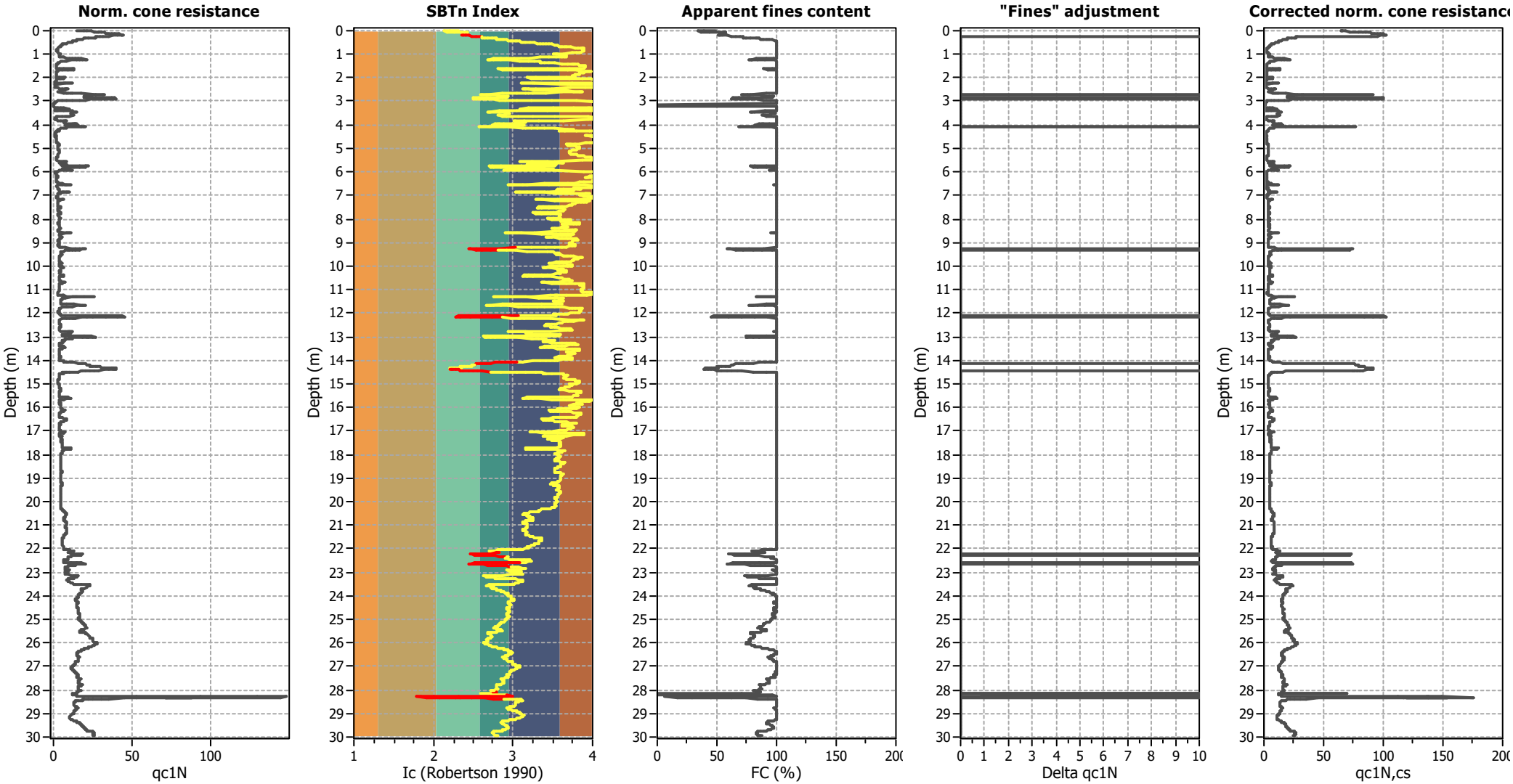
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBTn legend

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

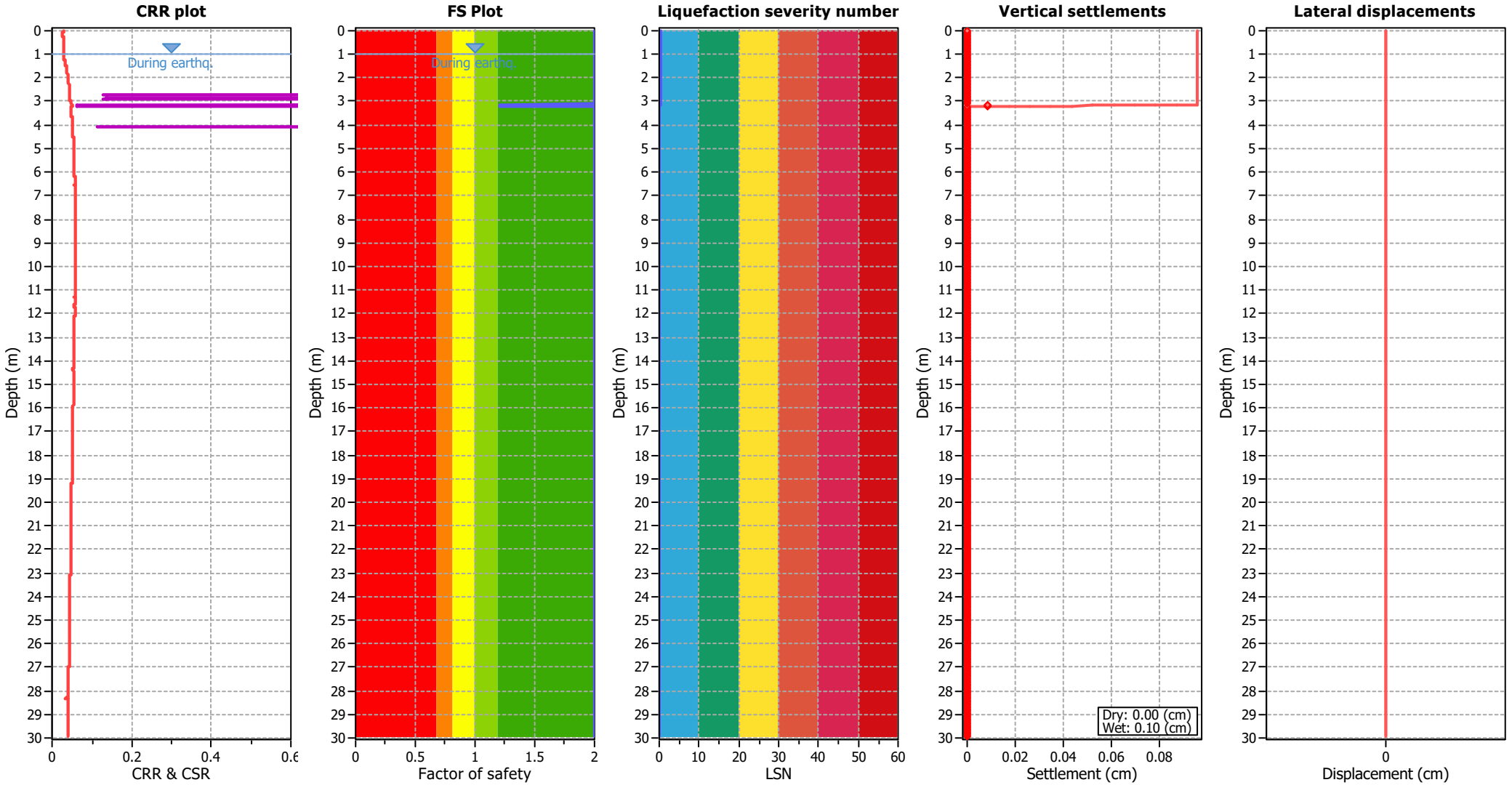
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

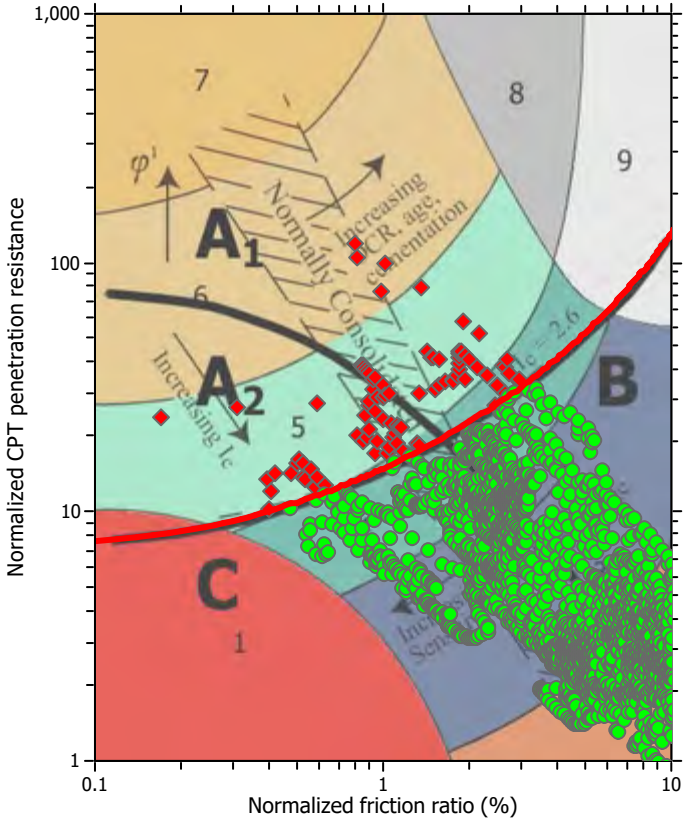
F.S. color scheme

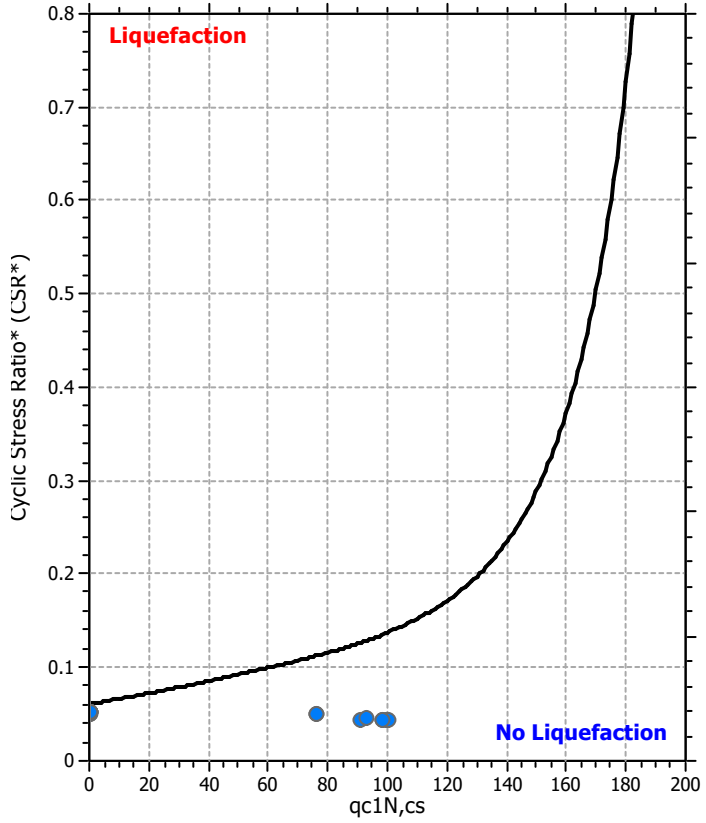
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

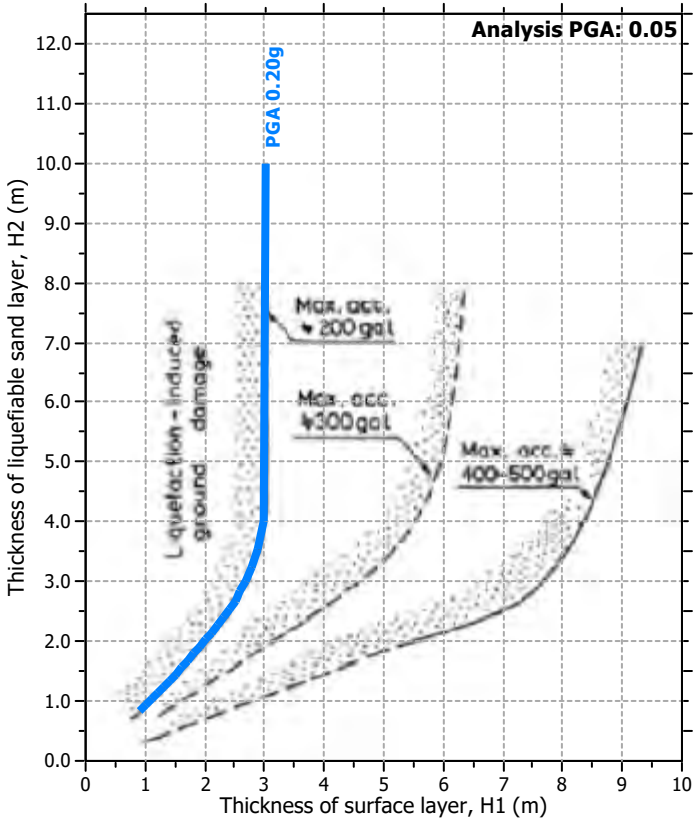
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



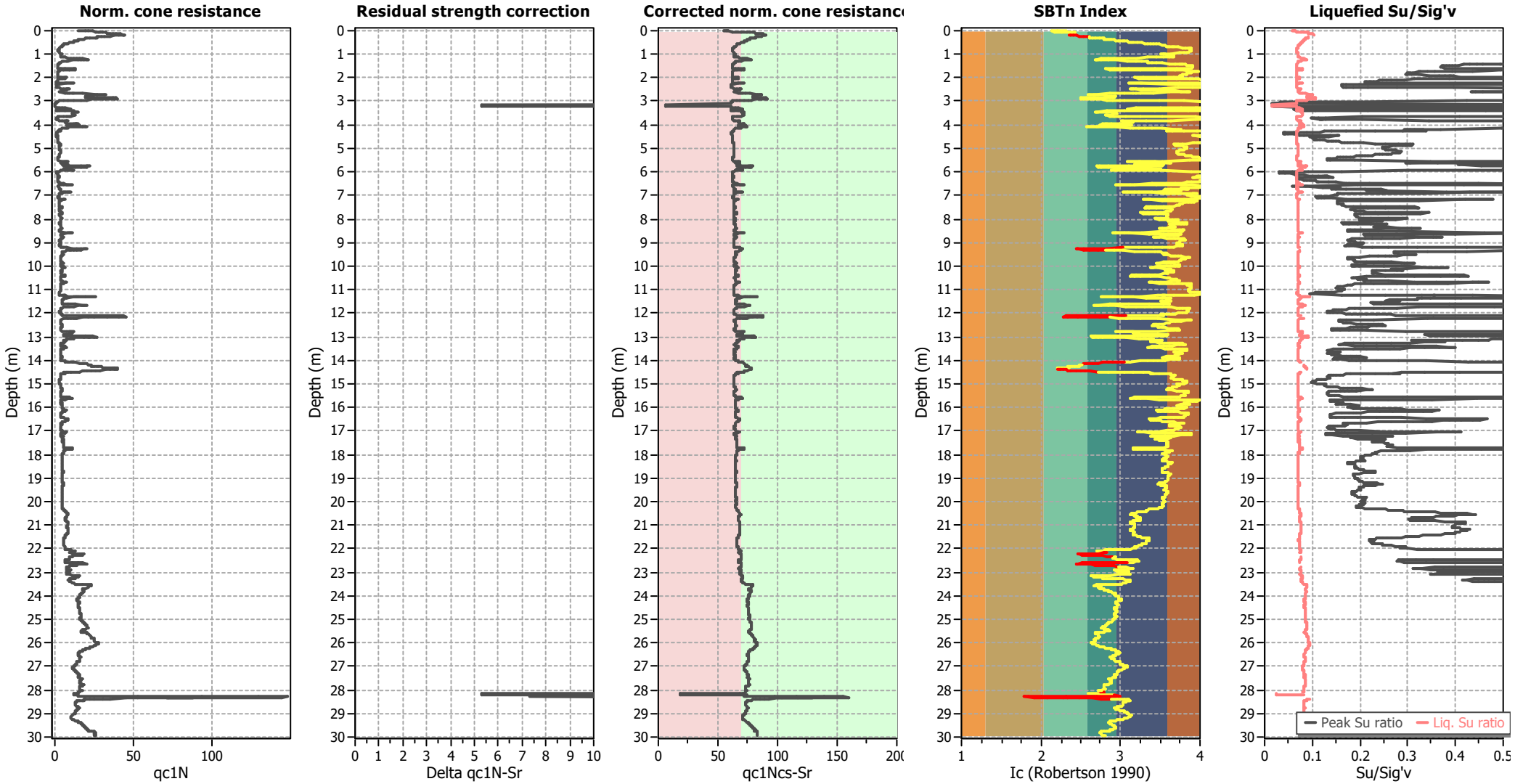




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

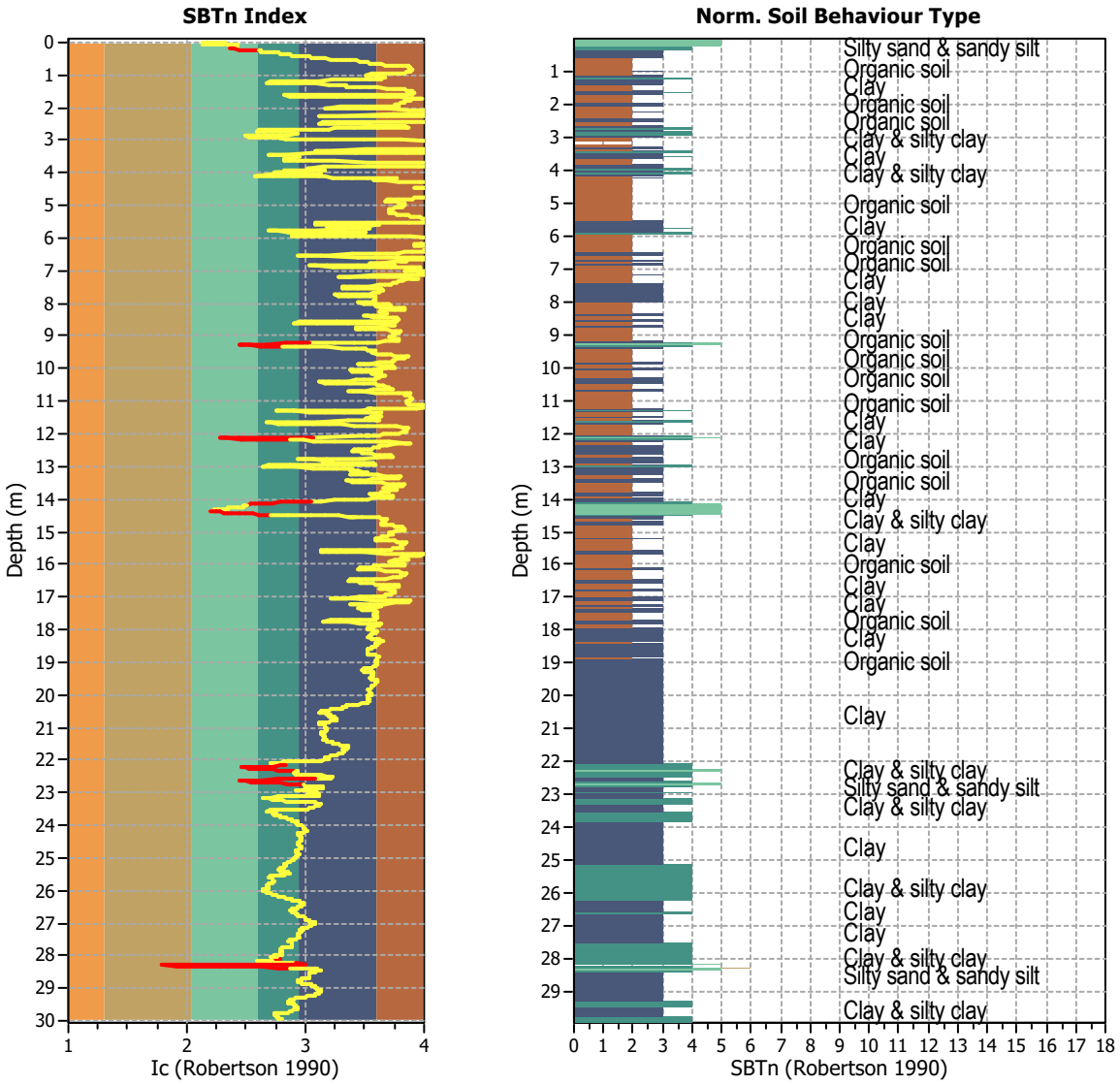
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

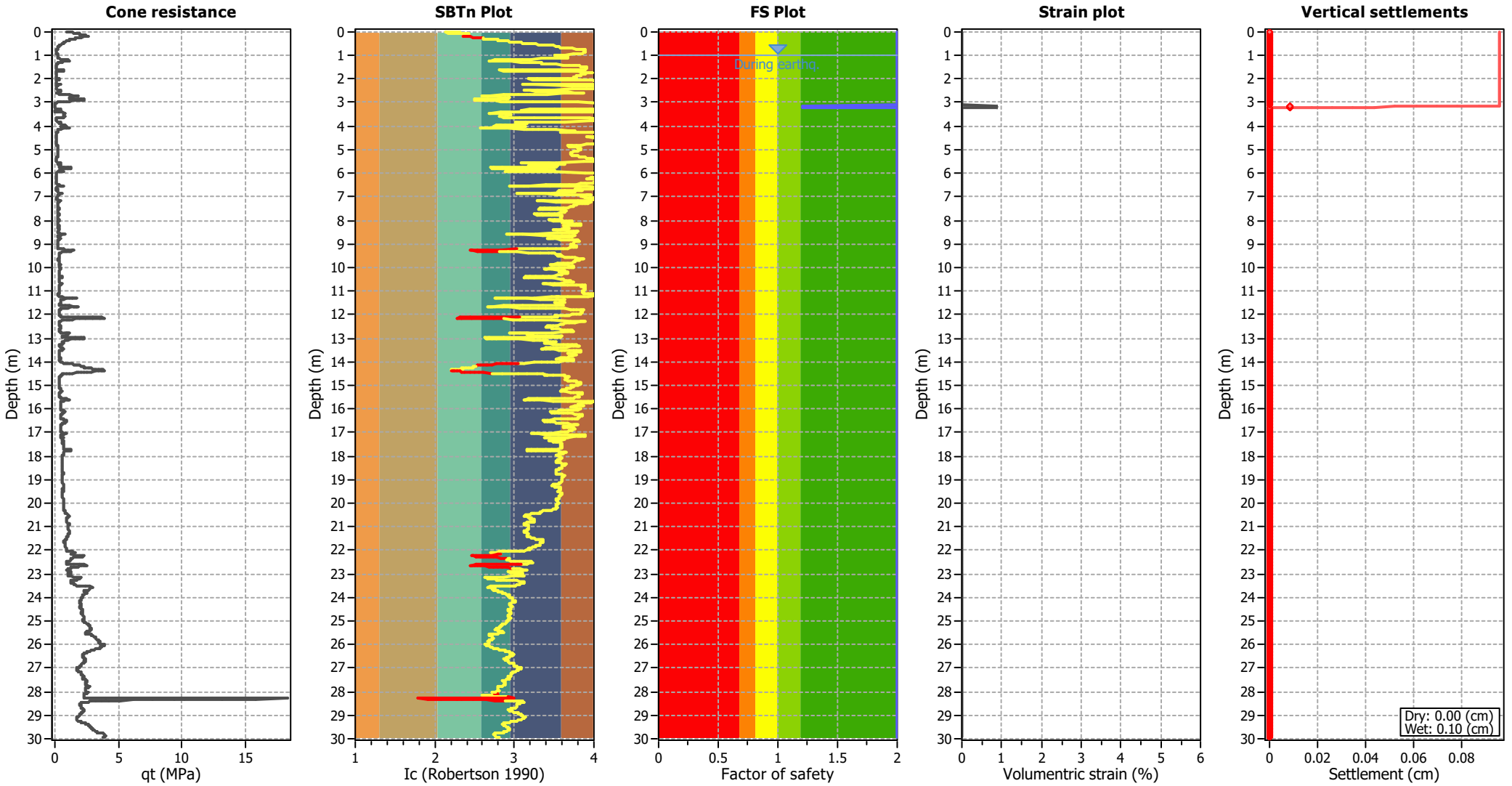
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	2993
I_c maximum check value:	3.00	Total points excluded:	118
I_c change ratio value:	0.0100	Exclusion percentage:	3.94%
Minimum number of points in layer:	4	Number of layers detected:	14

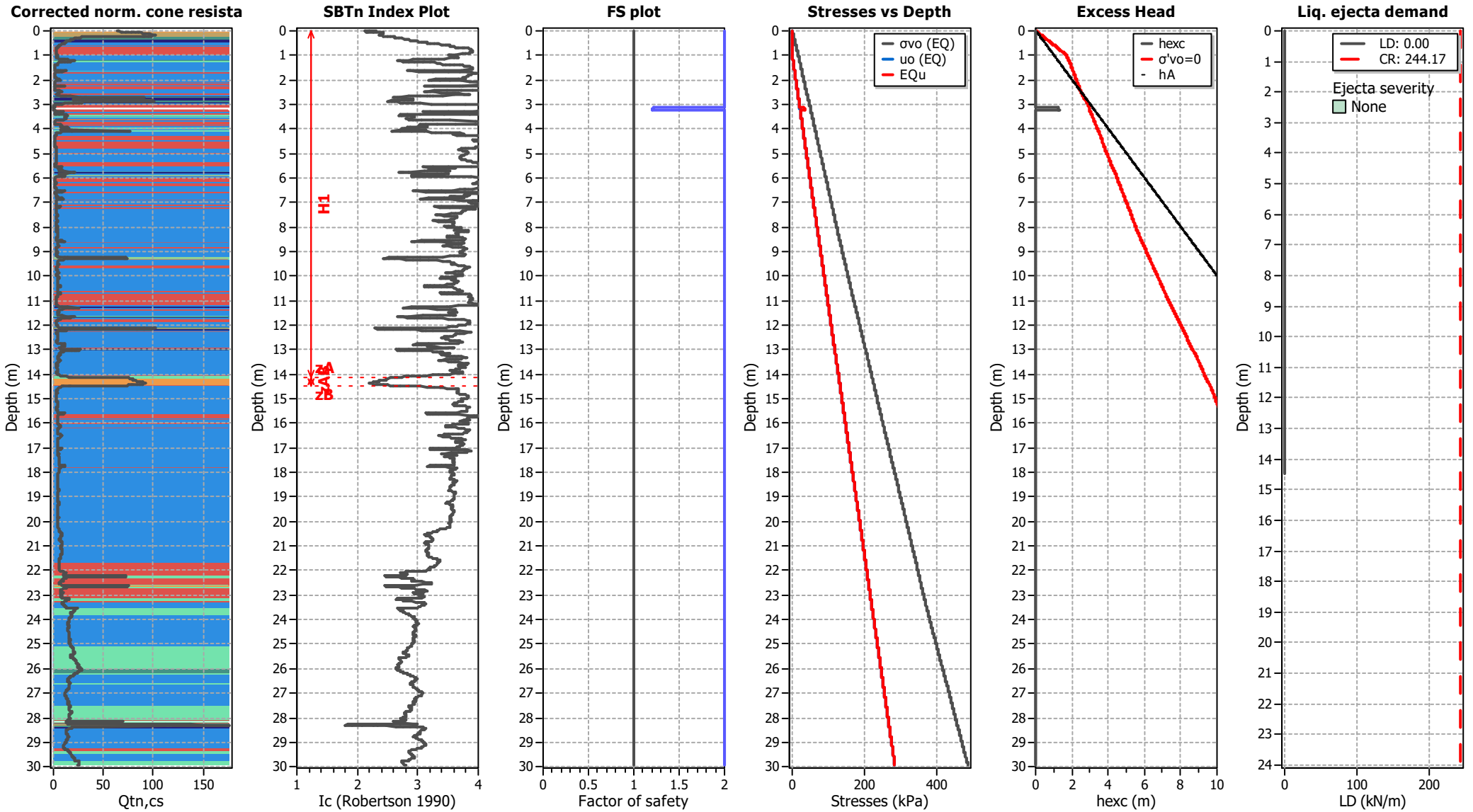
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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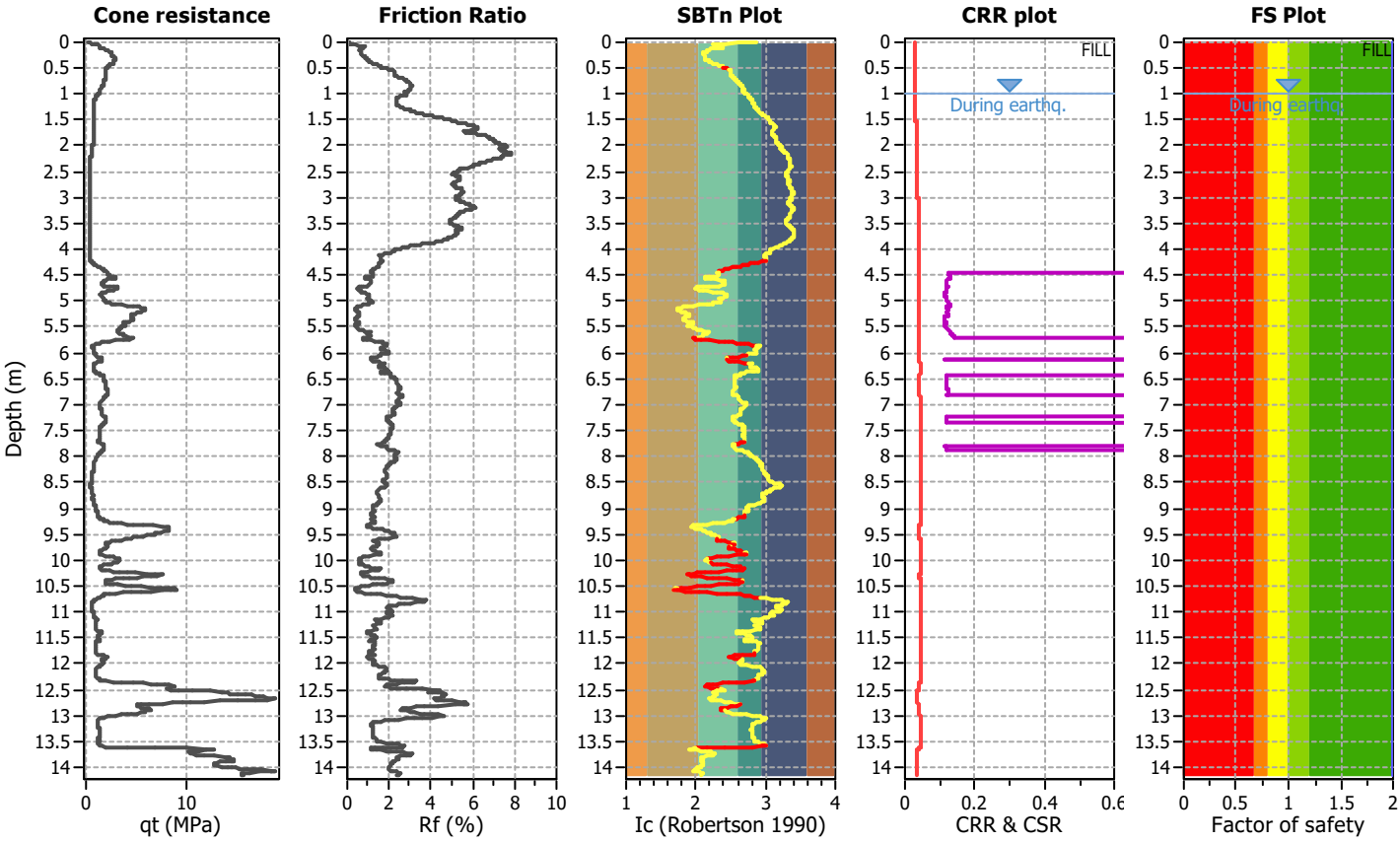
LIQUEFACTION ANALYSIS REPORT

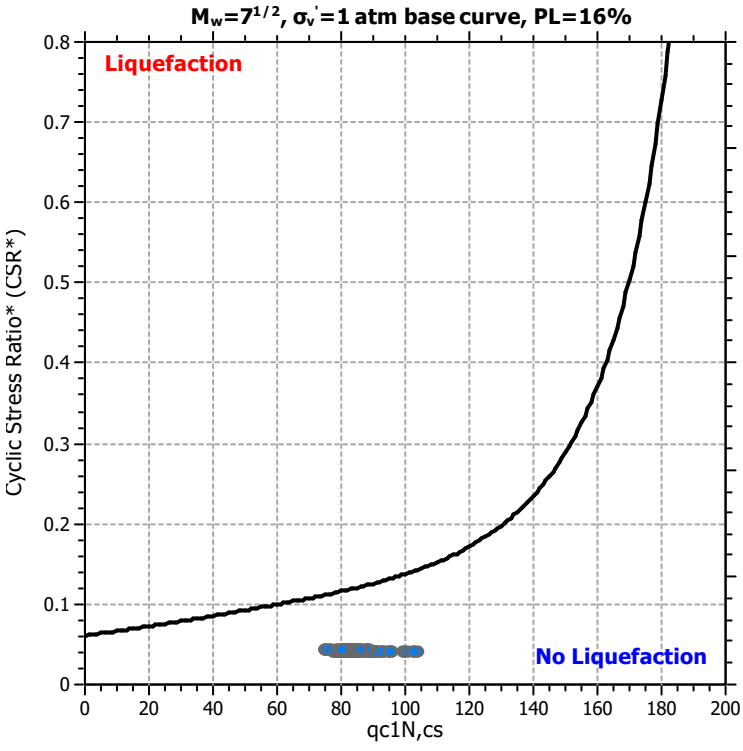
Project title : Sunfield Landholding **Location :**

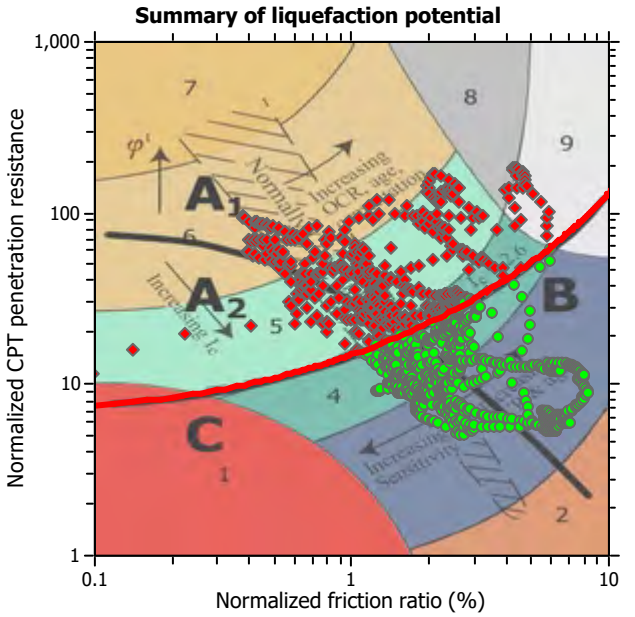
CPT file : CPT007

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	37.00 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

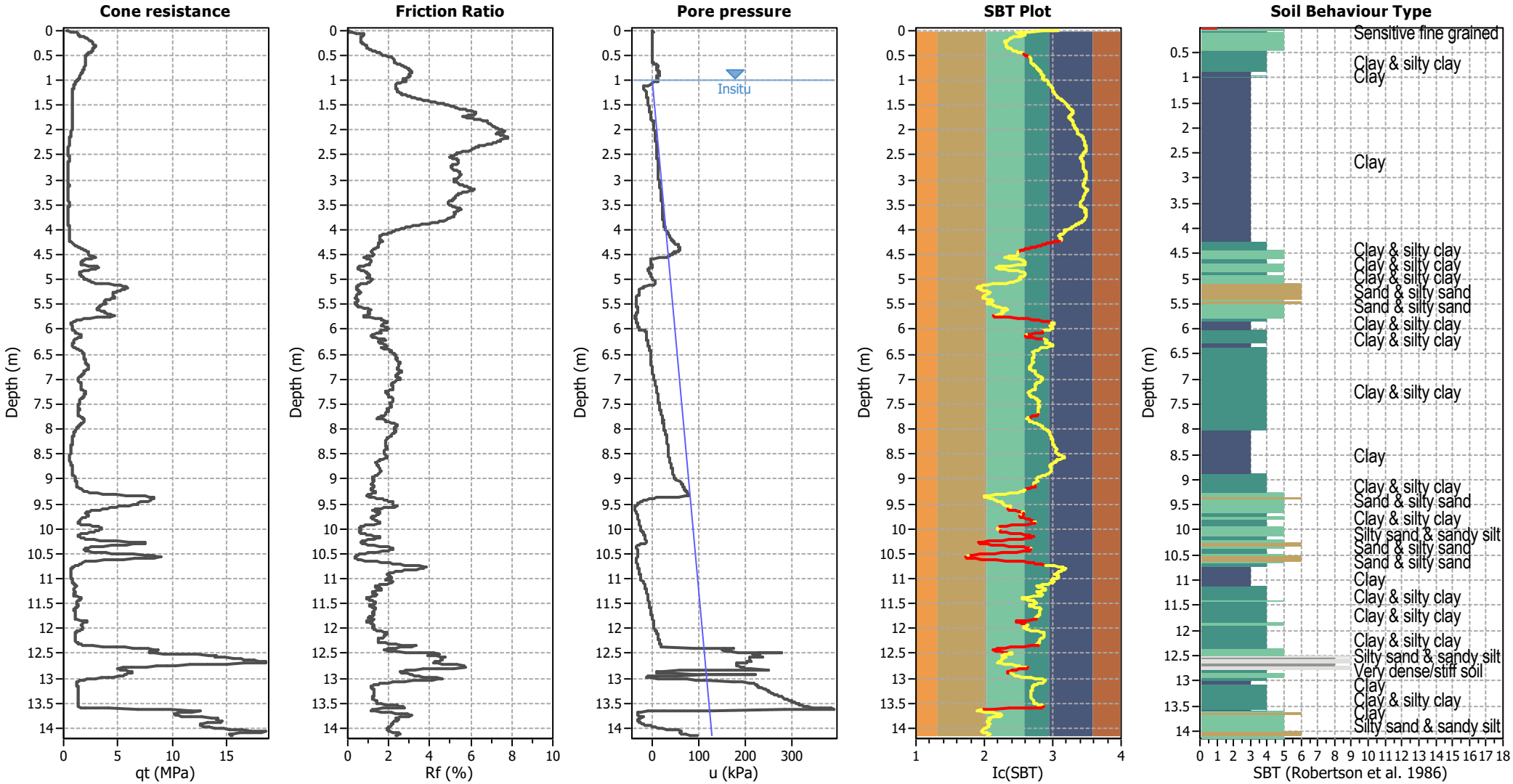






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



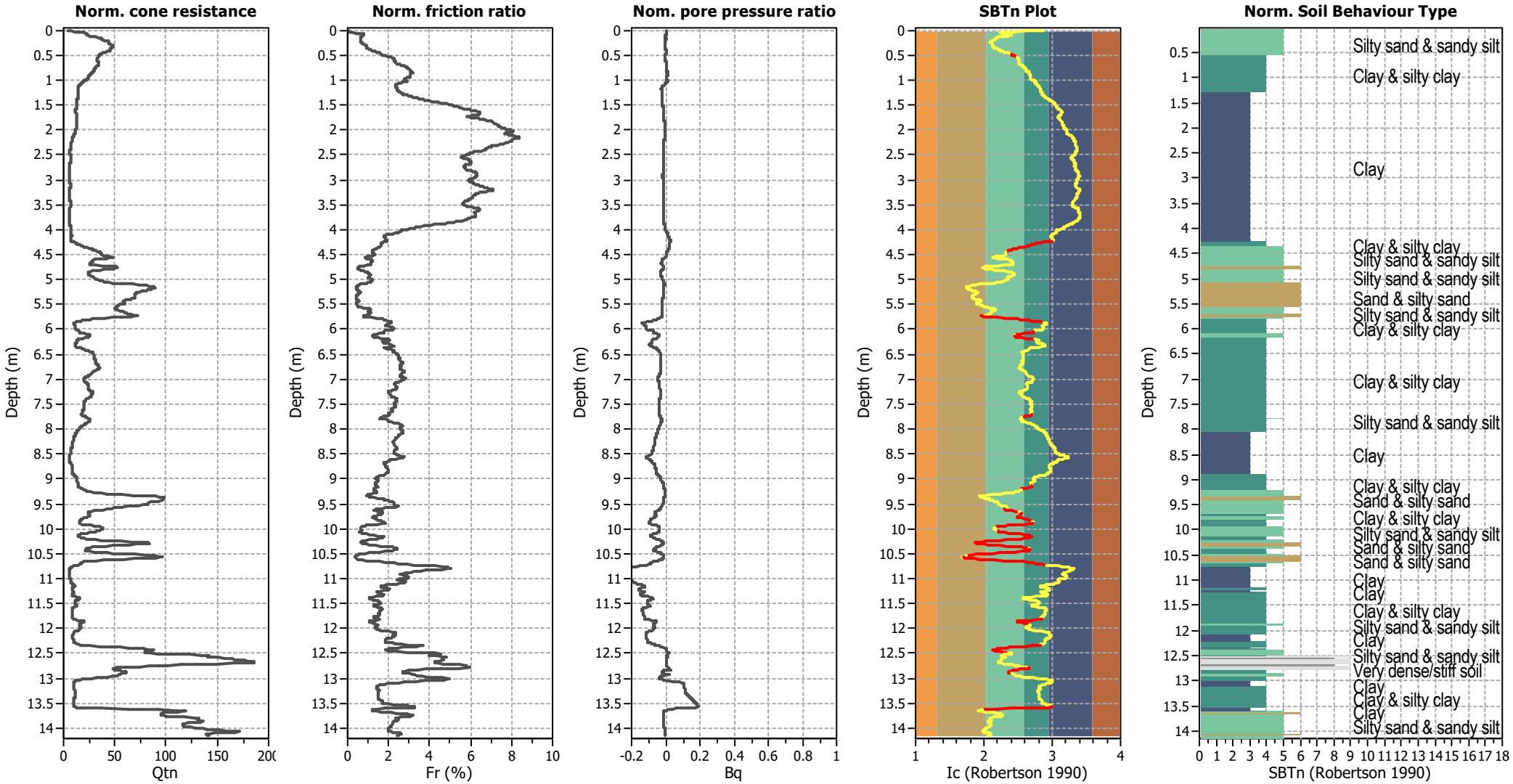
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



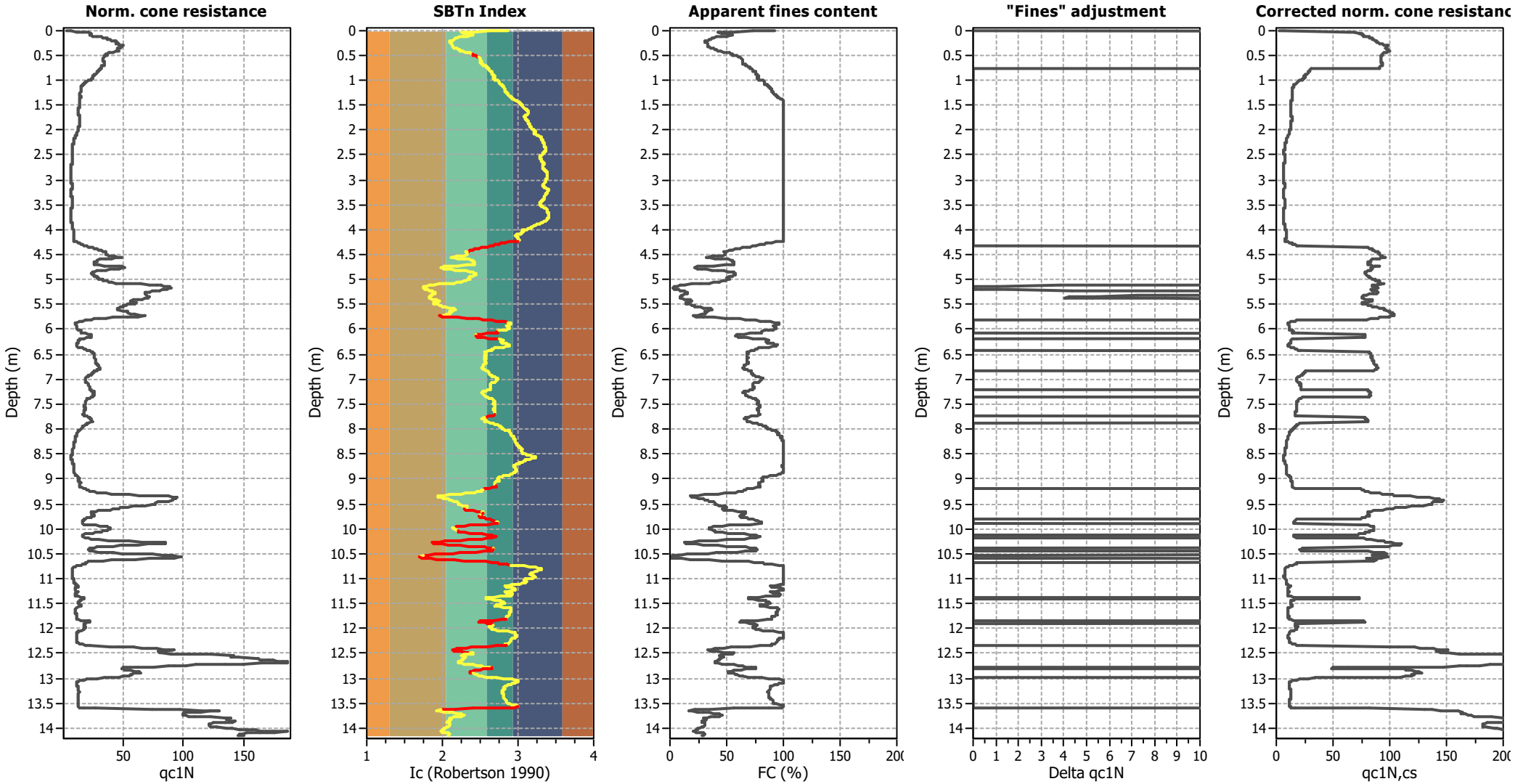
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

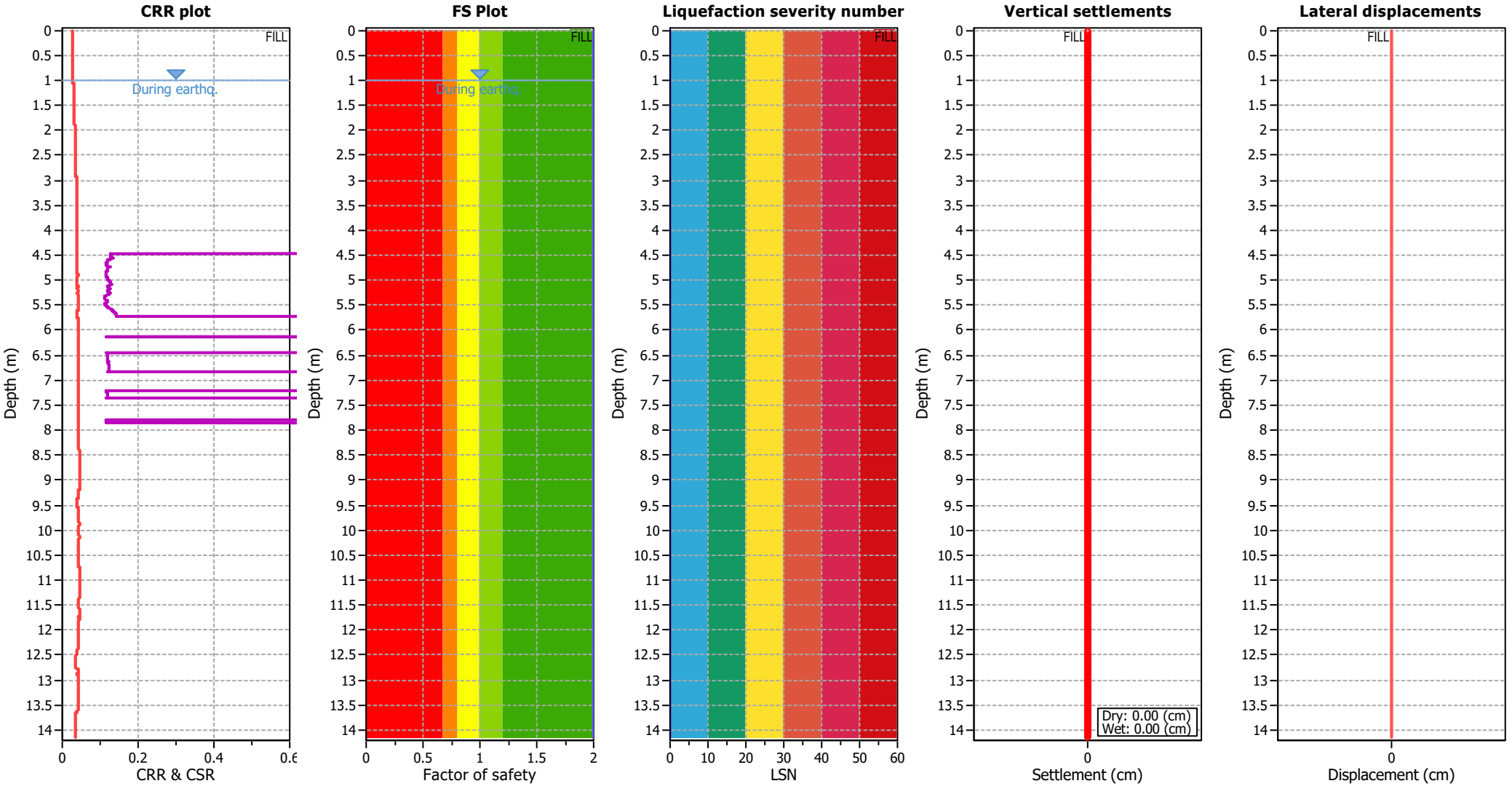
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

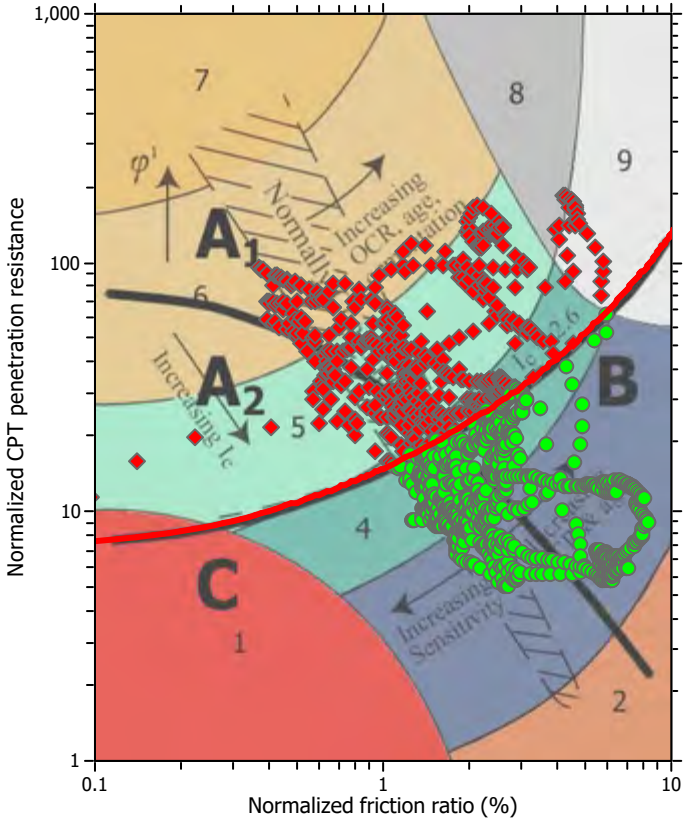
F.S. color scheme

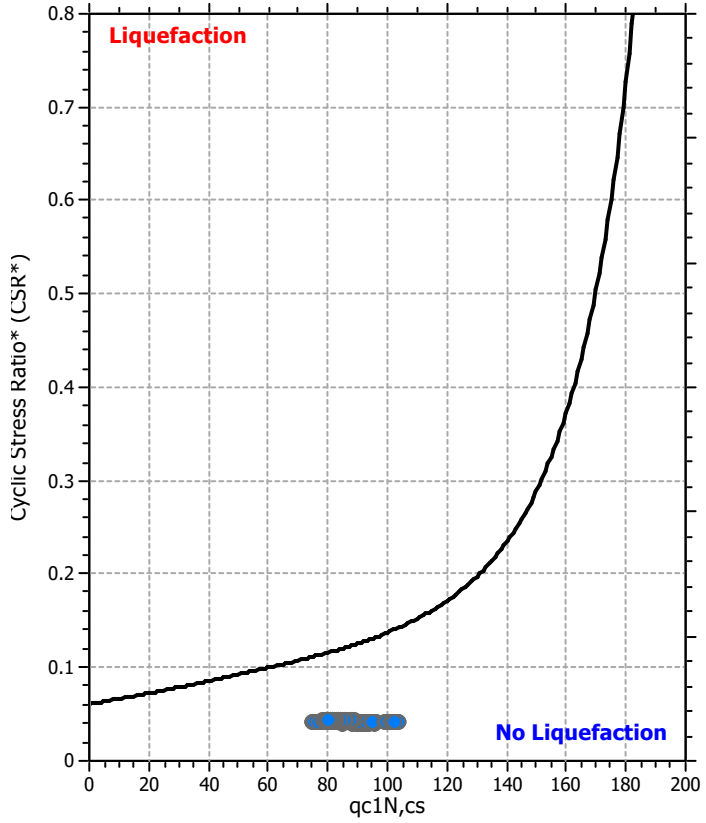
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

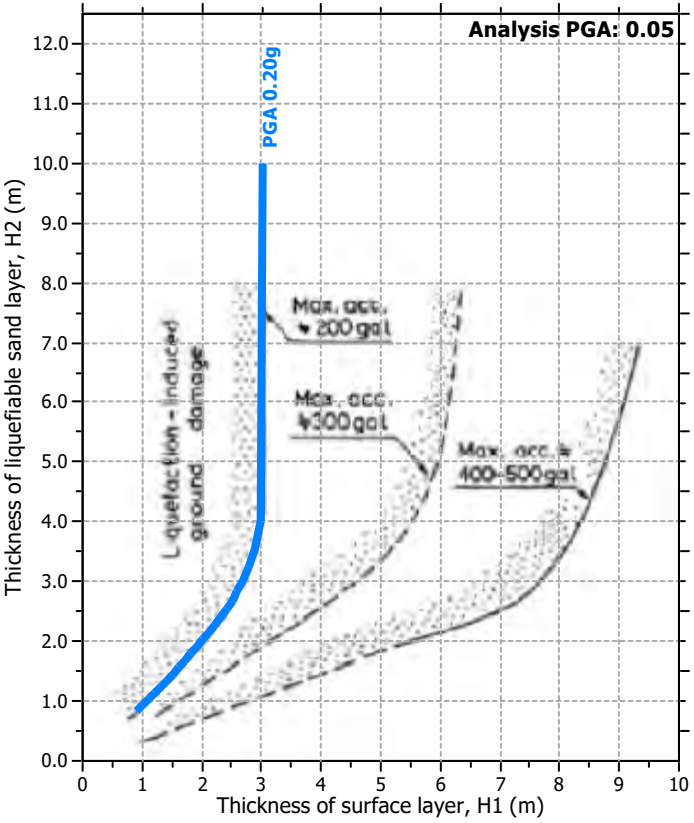
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



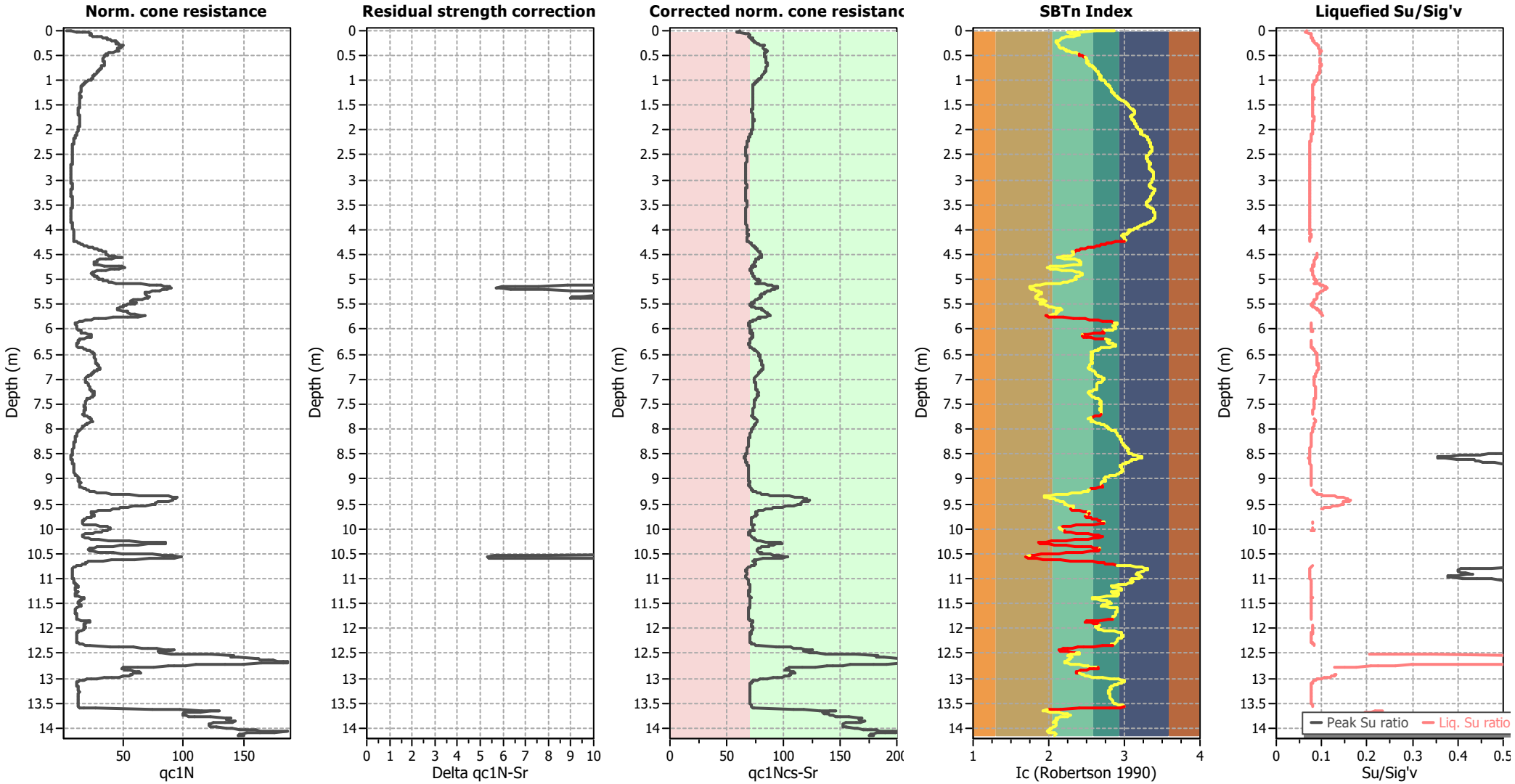




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

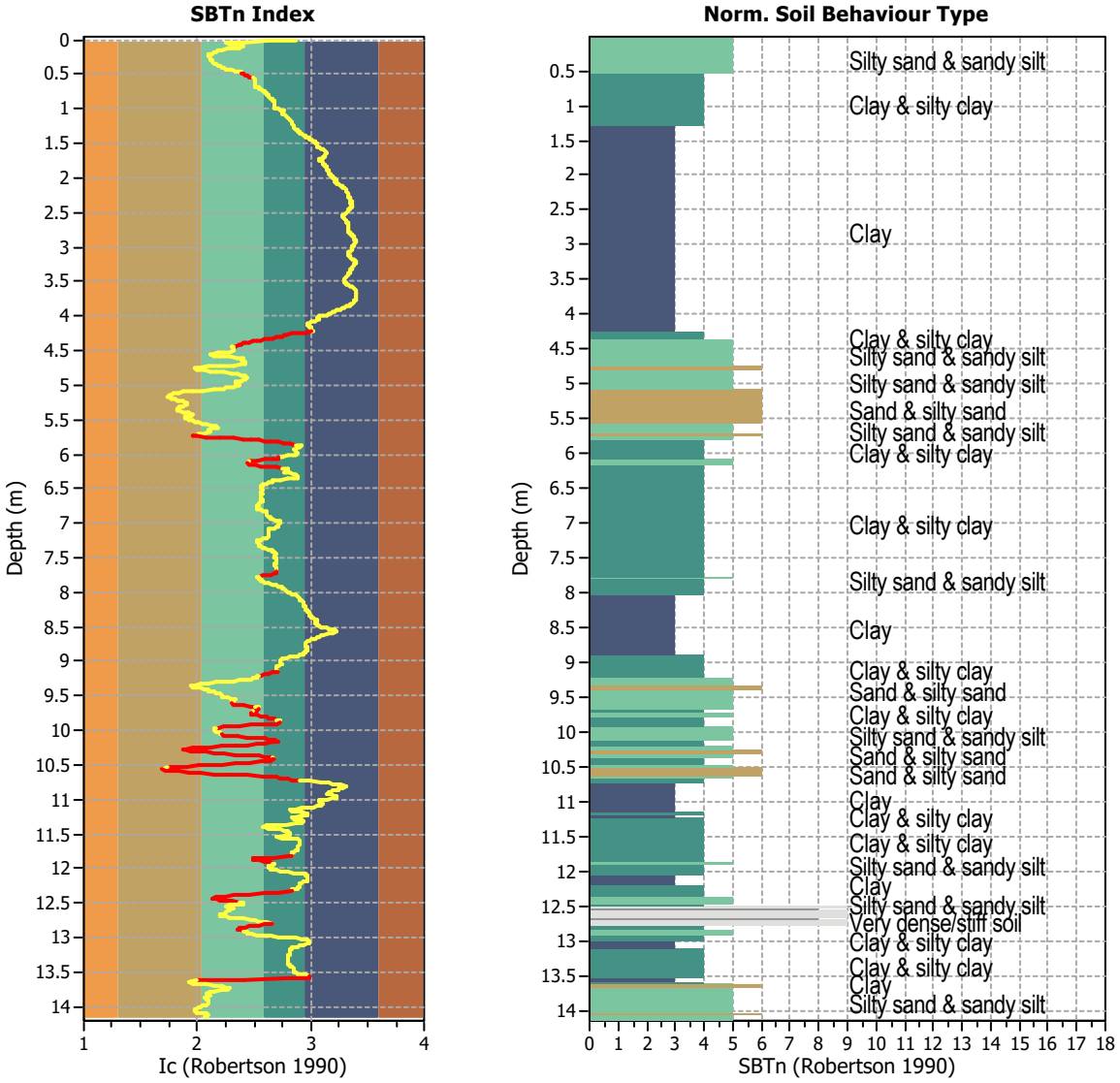
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

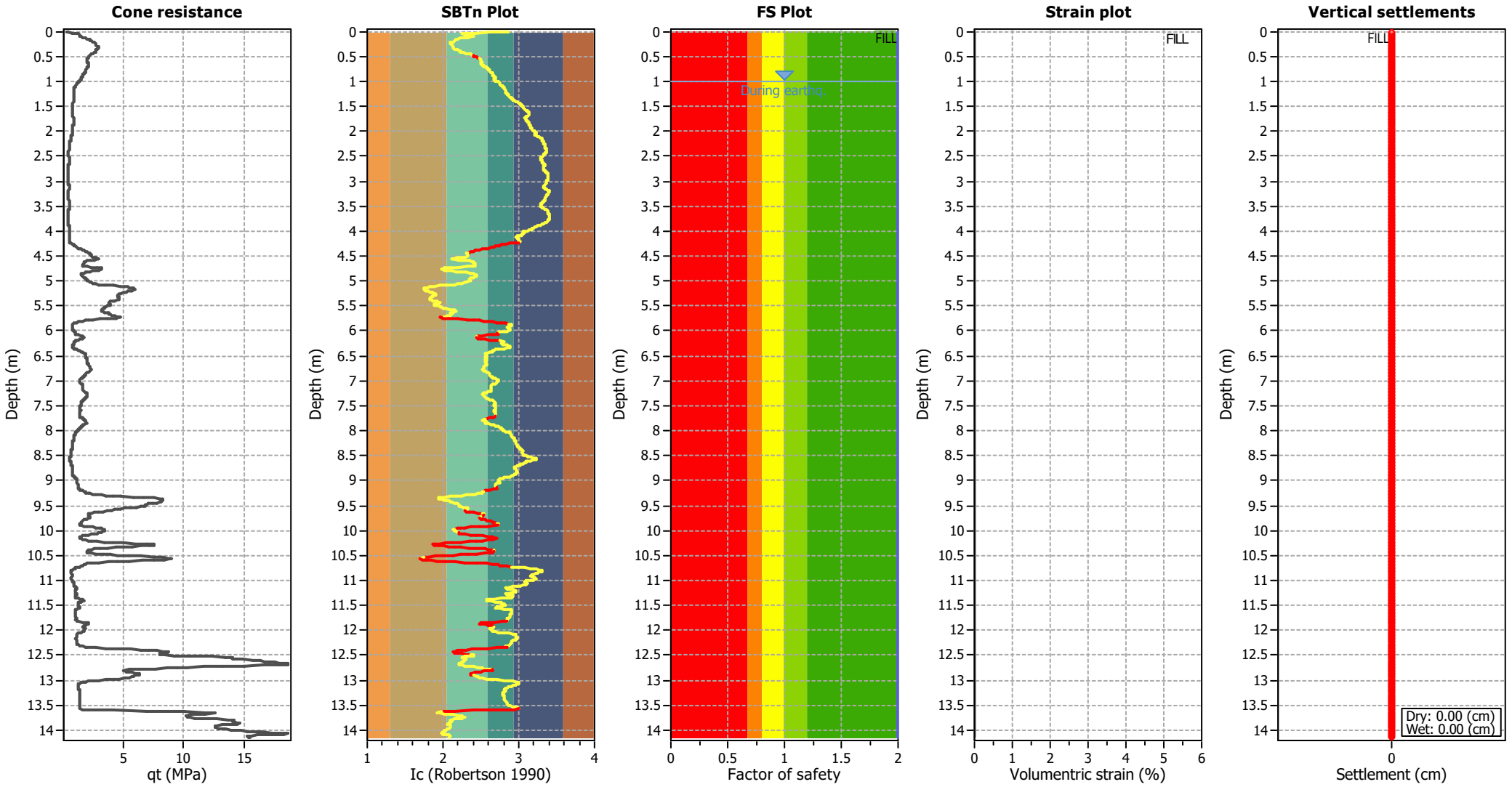
The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties	
I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics	
Total points in CPT file:	1415
Total points excluded:	222
Exclusion percentage:	15.69%
Number of layers detected:	23

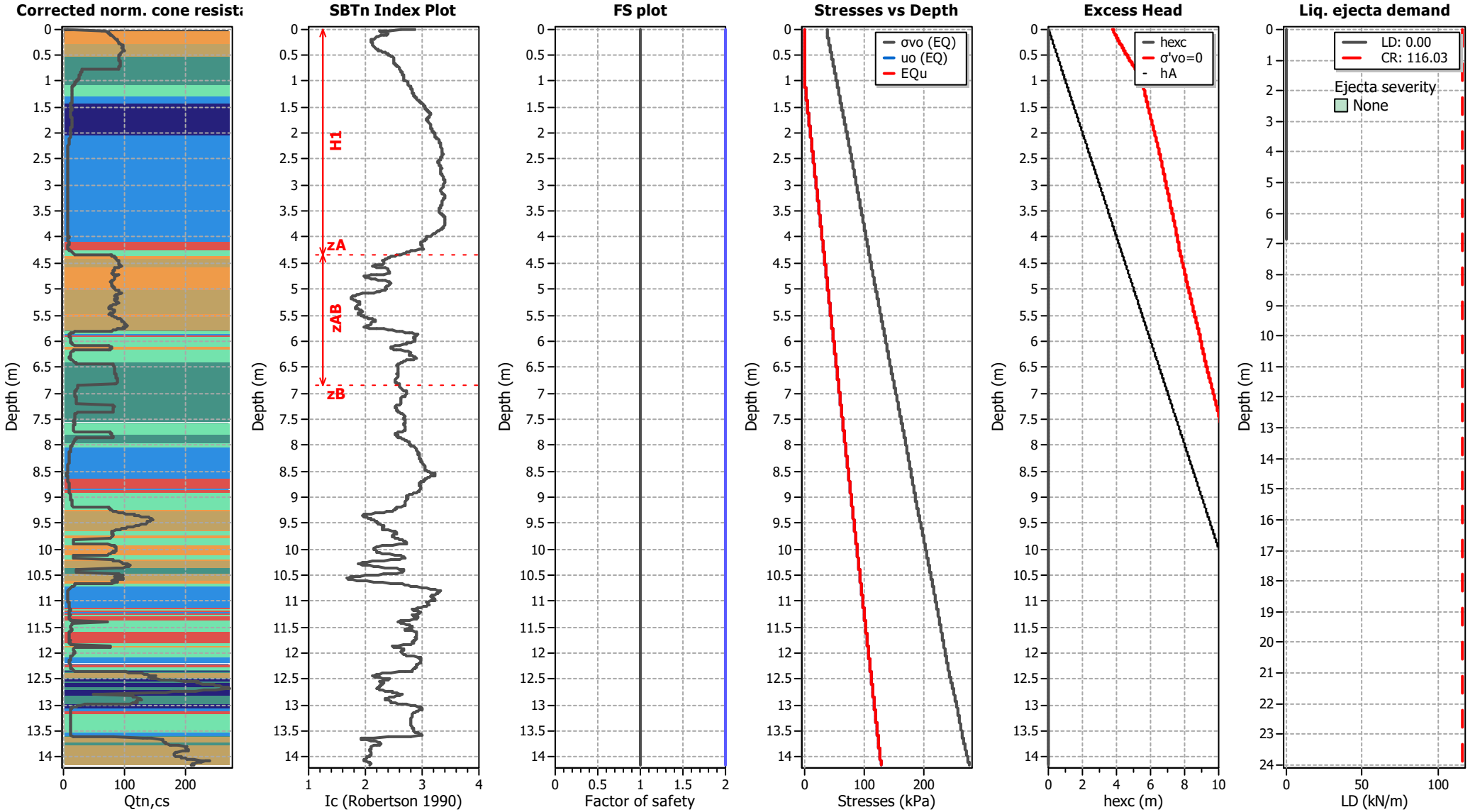
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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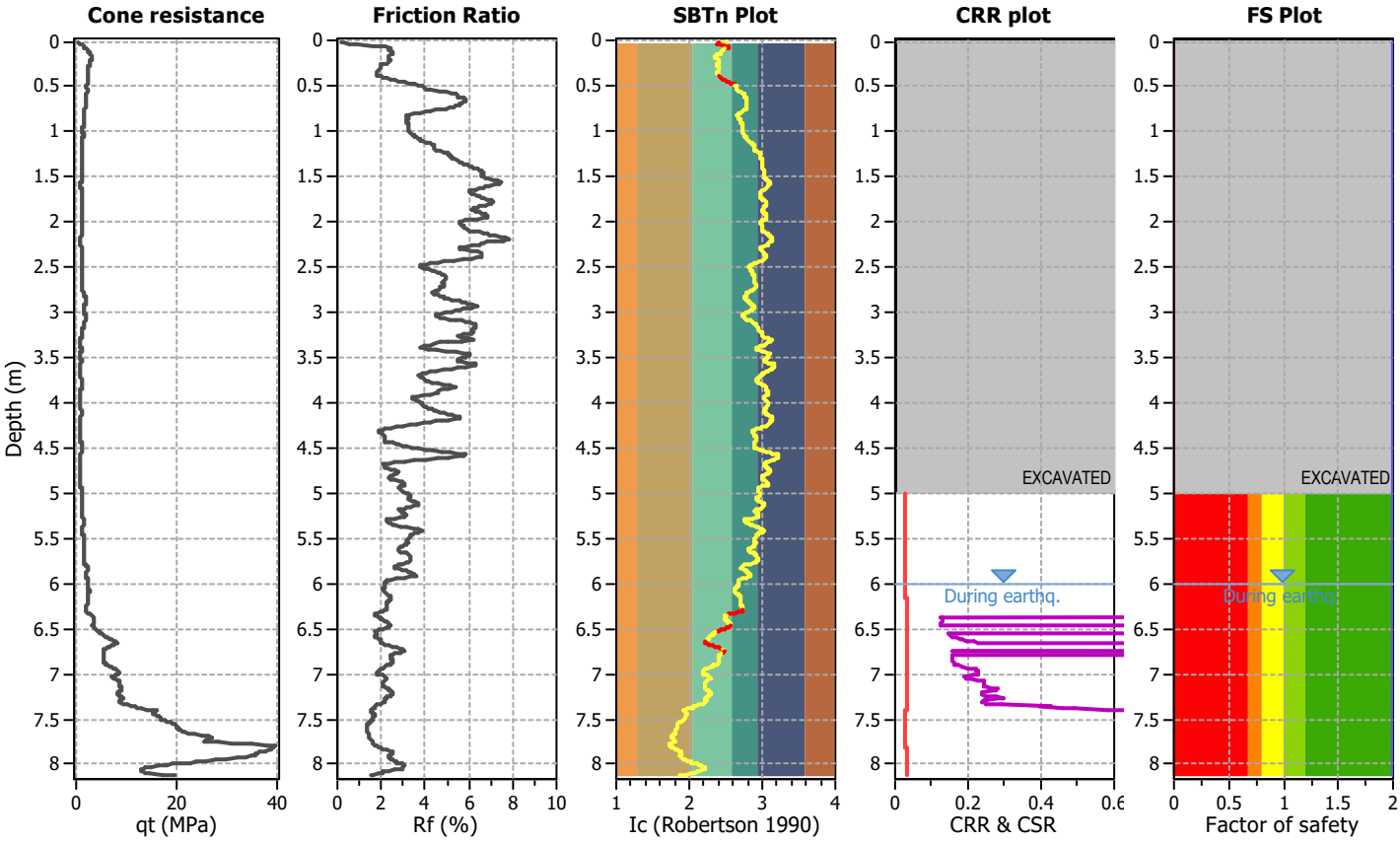
LIQUEFACTION ANALYSIS REPORT

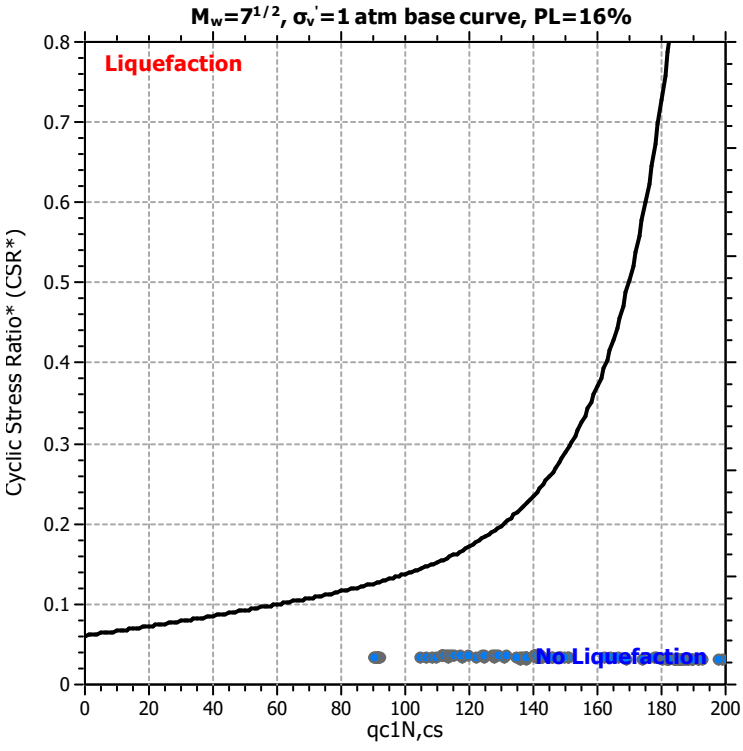
Project title : Sunfield Landholding **Location :**

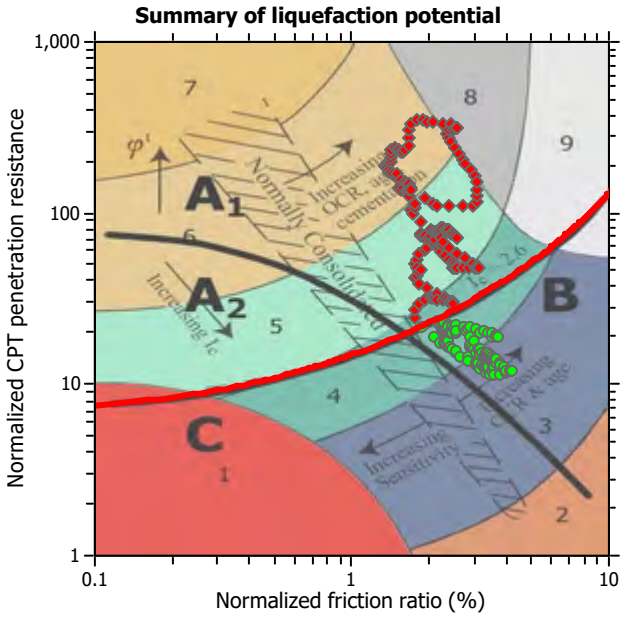
CPT file : CPT008

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	6.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	6.00 m	Excavation depth:	5.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

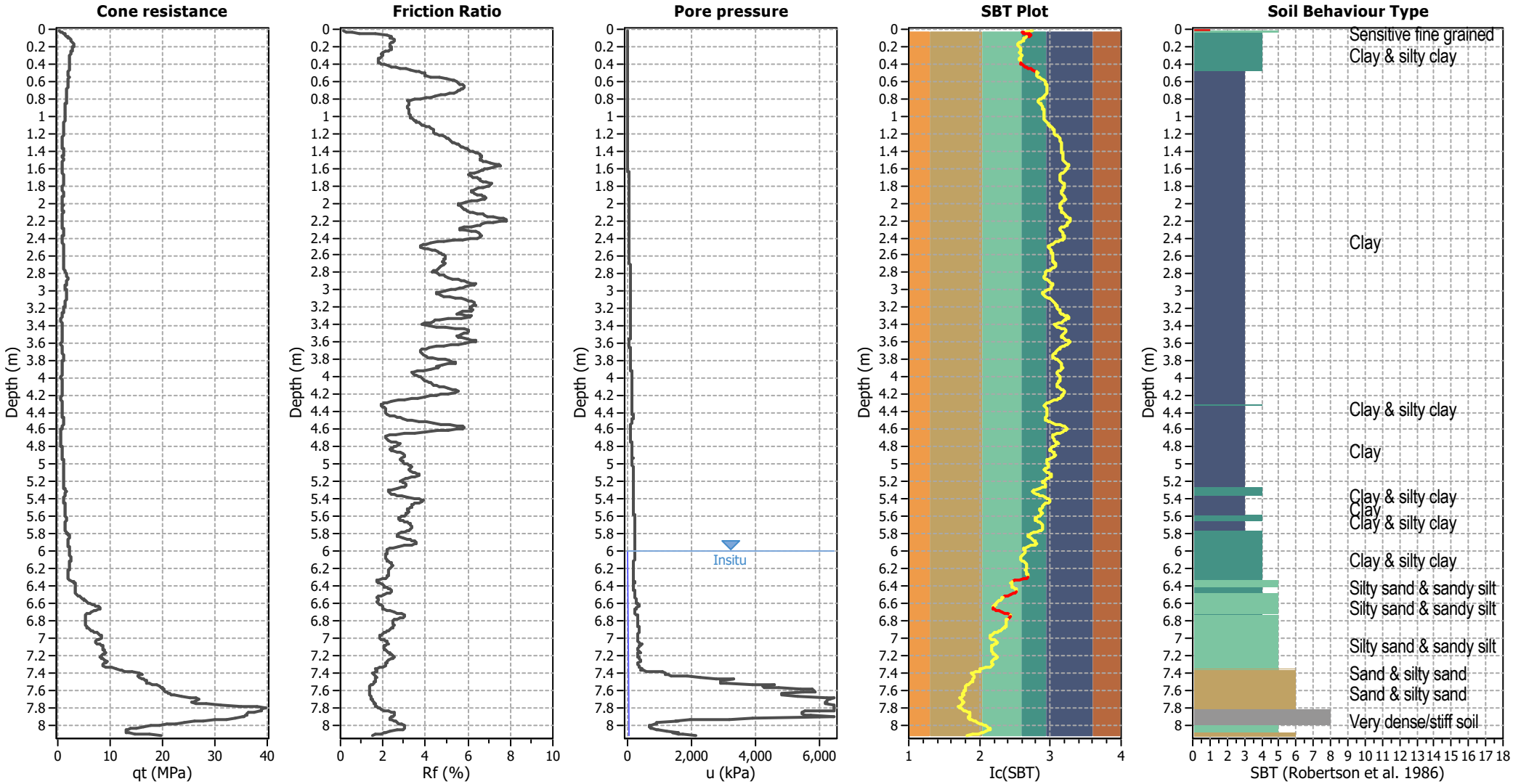






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



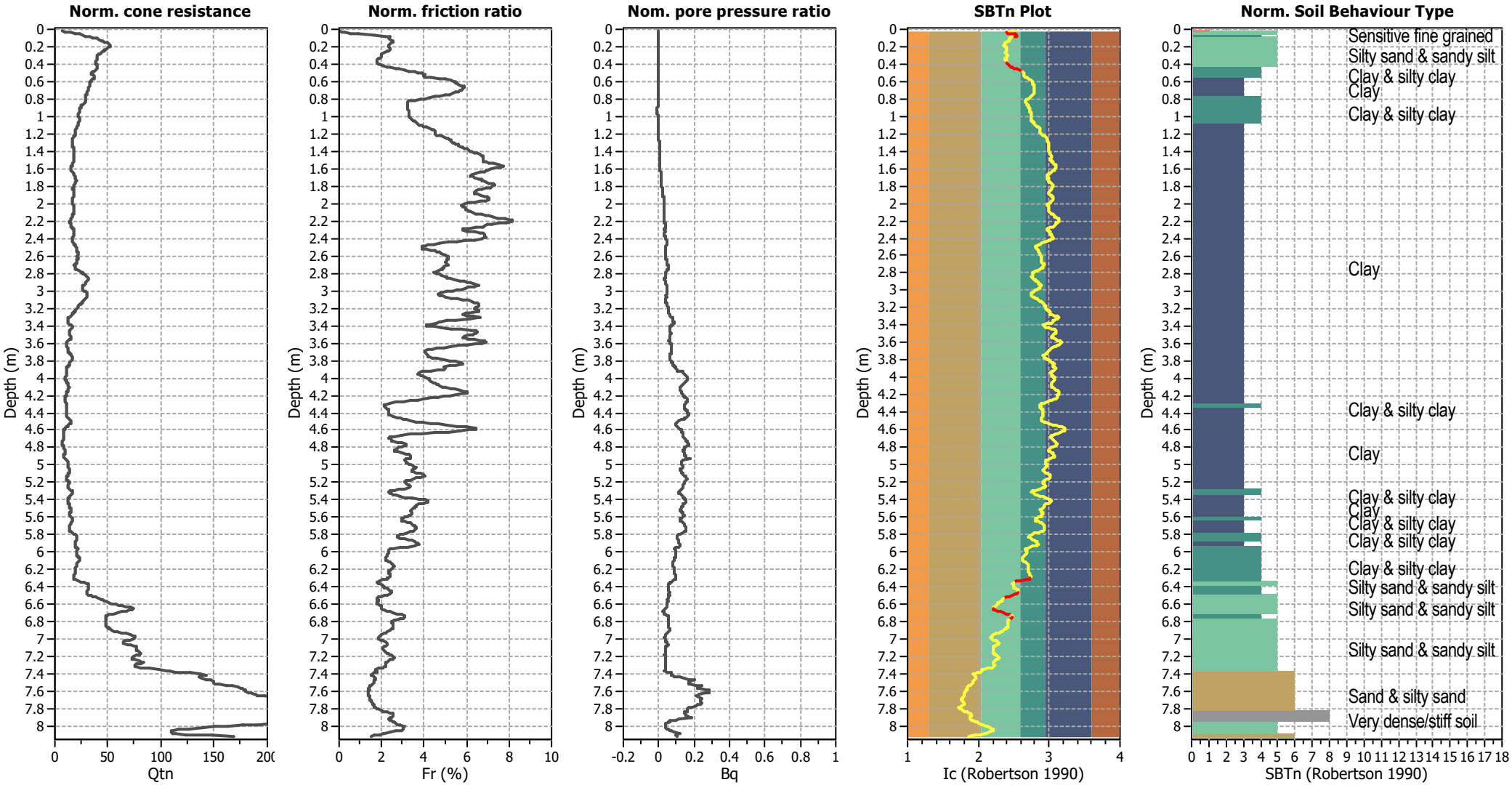
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	6.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	6.00 m	Excavation depth:	5.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



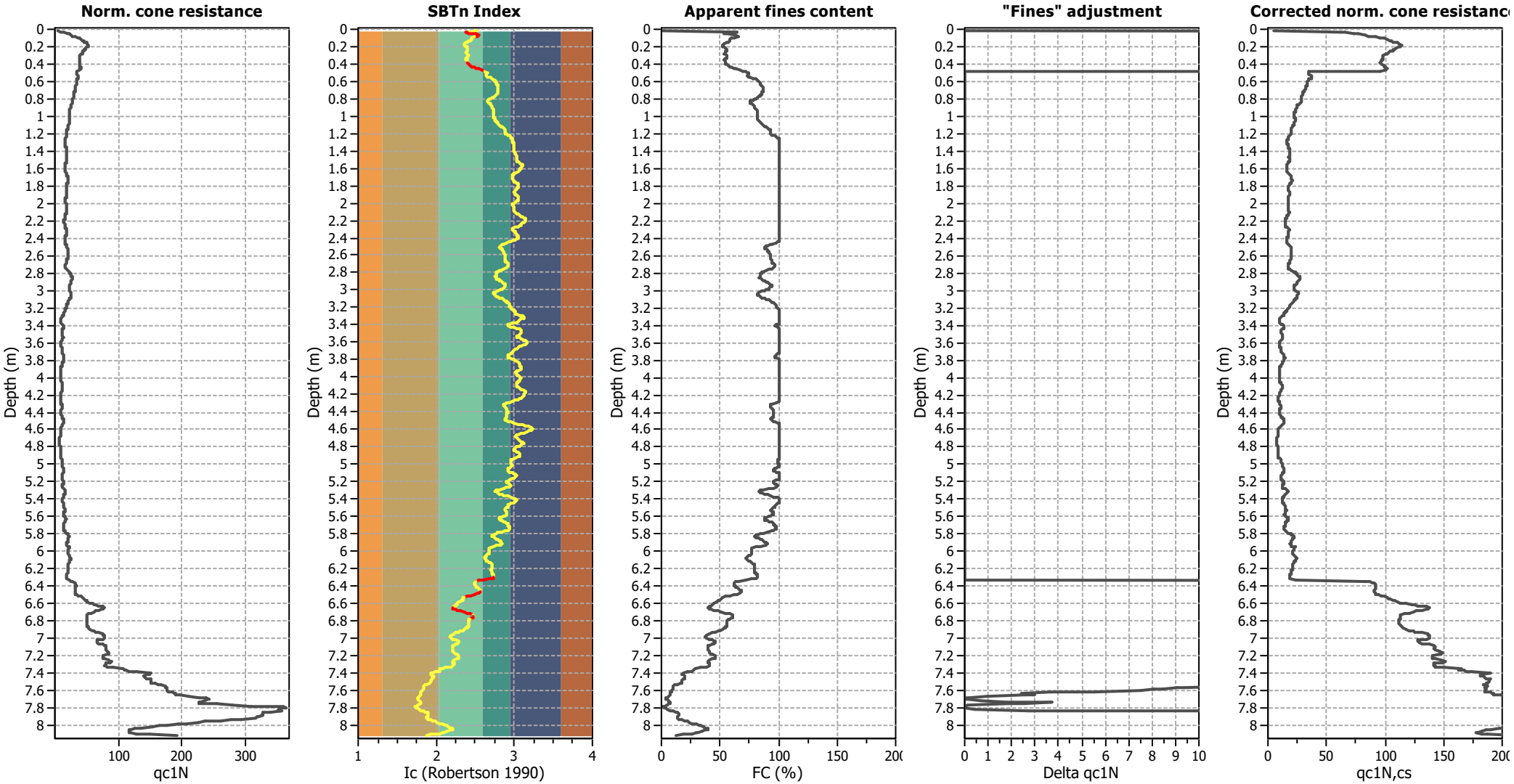
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	6.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	6.00 m	Excavation depth:	5.00 m	Limit depth:	10.00 m

SBTn legend

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

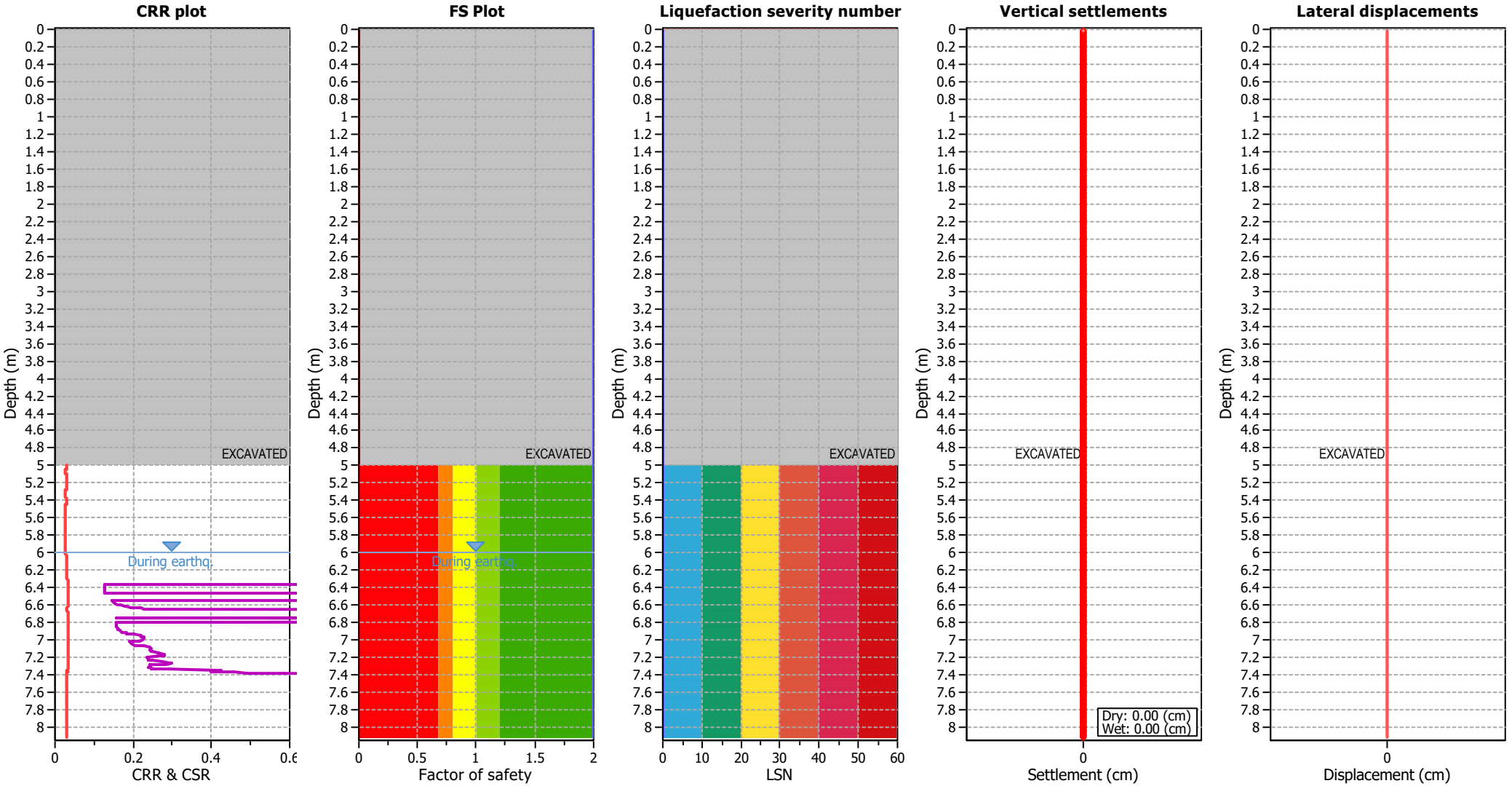
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	6.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	6.00 m	Excavation depth:	5.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	6.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	6.00 m	Excavation depth:	5.00 m	Limit depth:	10.00 m

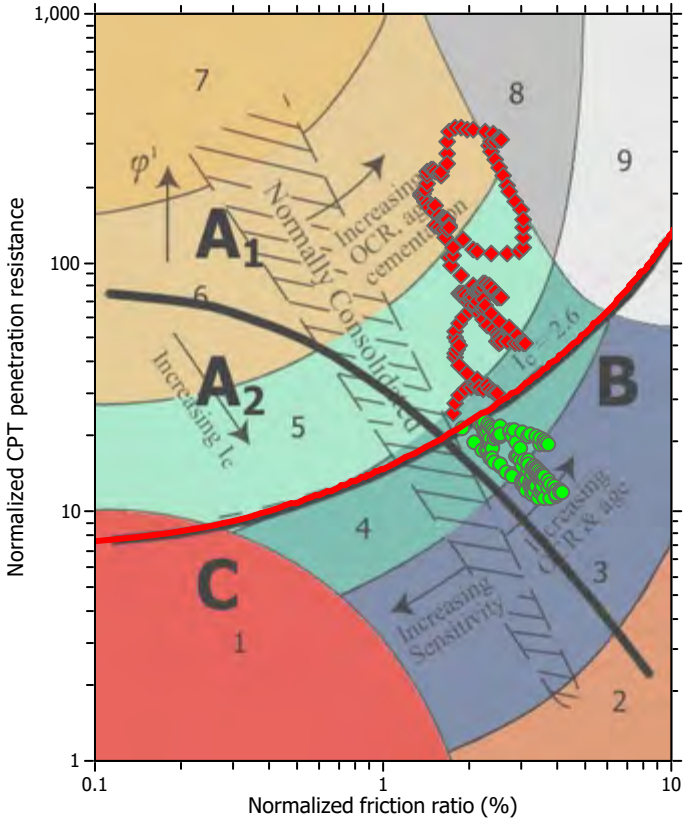
F.S. color scheme

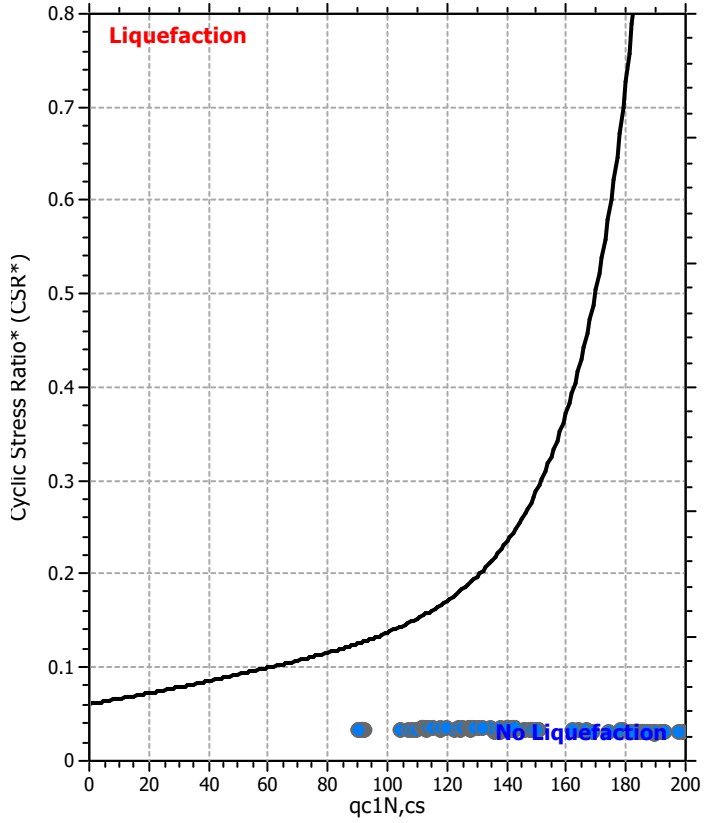
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

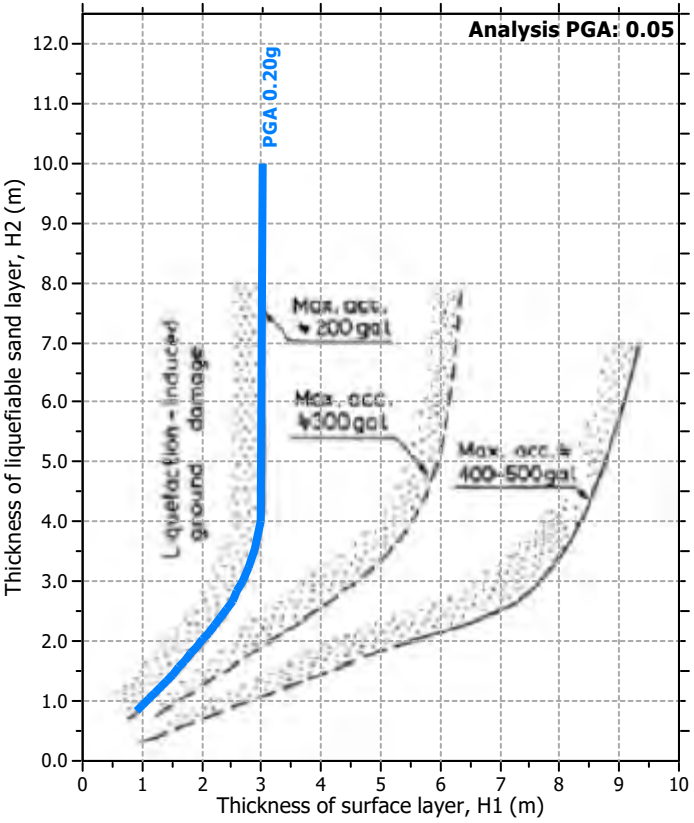
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



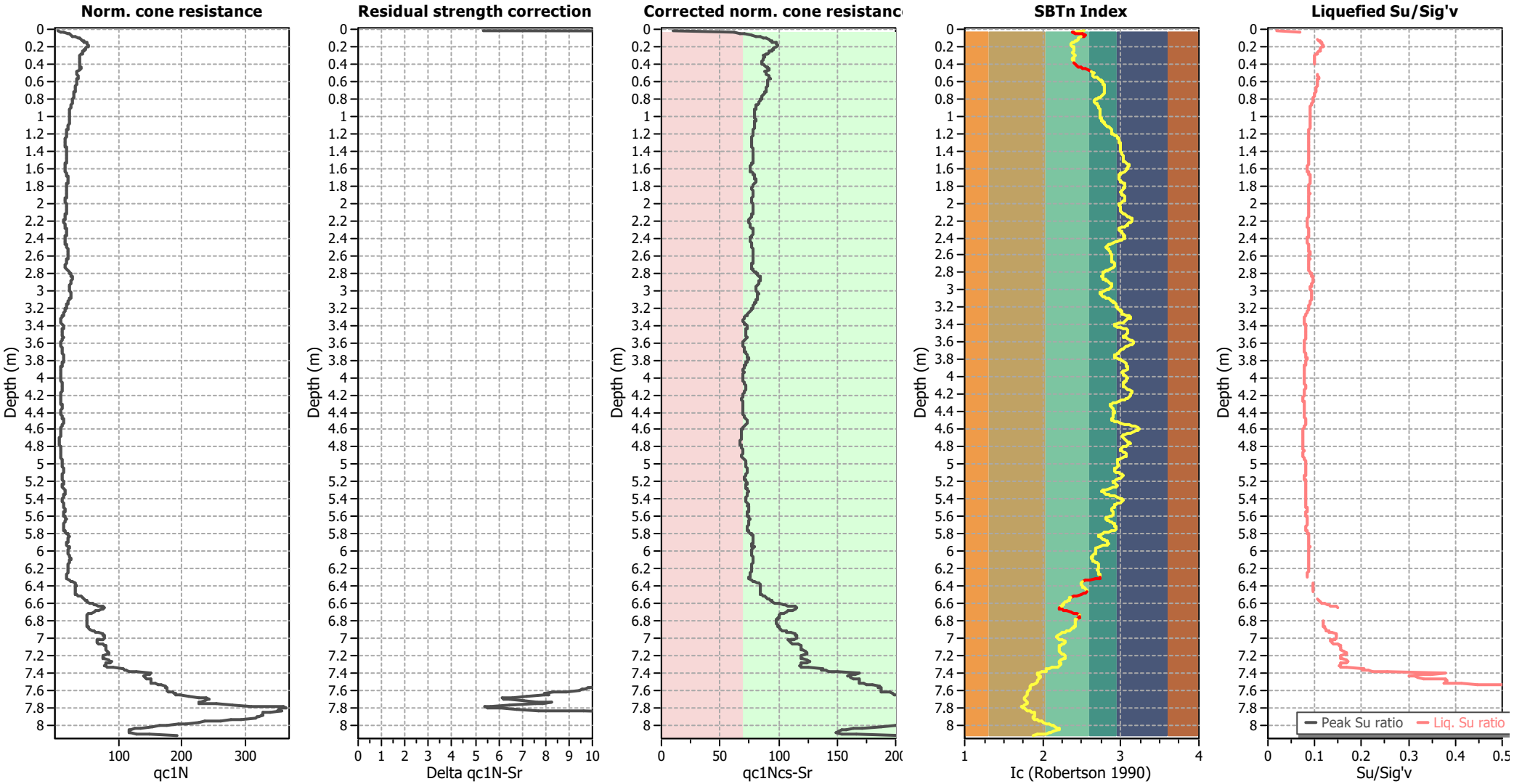




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	6.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	6.00 m	Excavation depth:	5.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

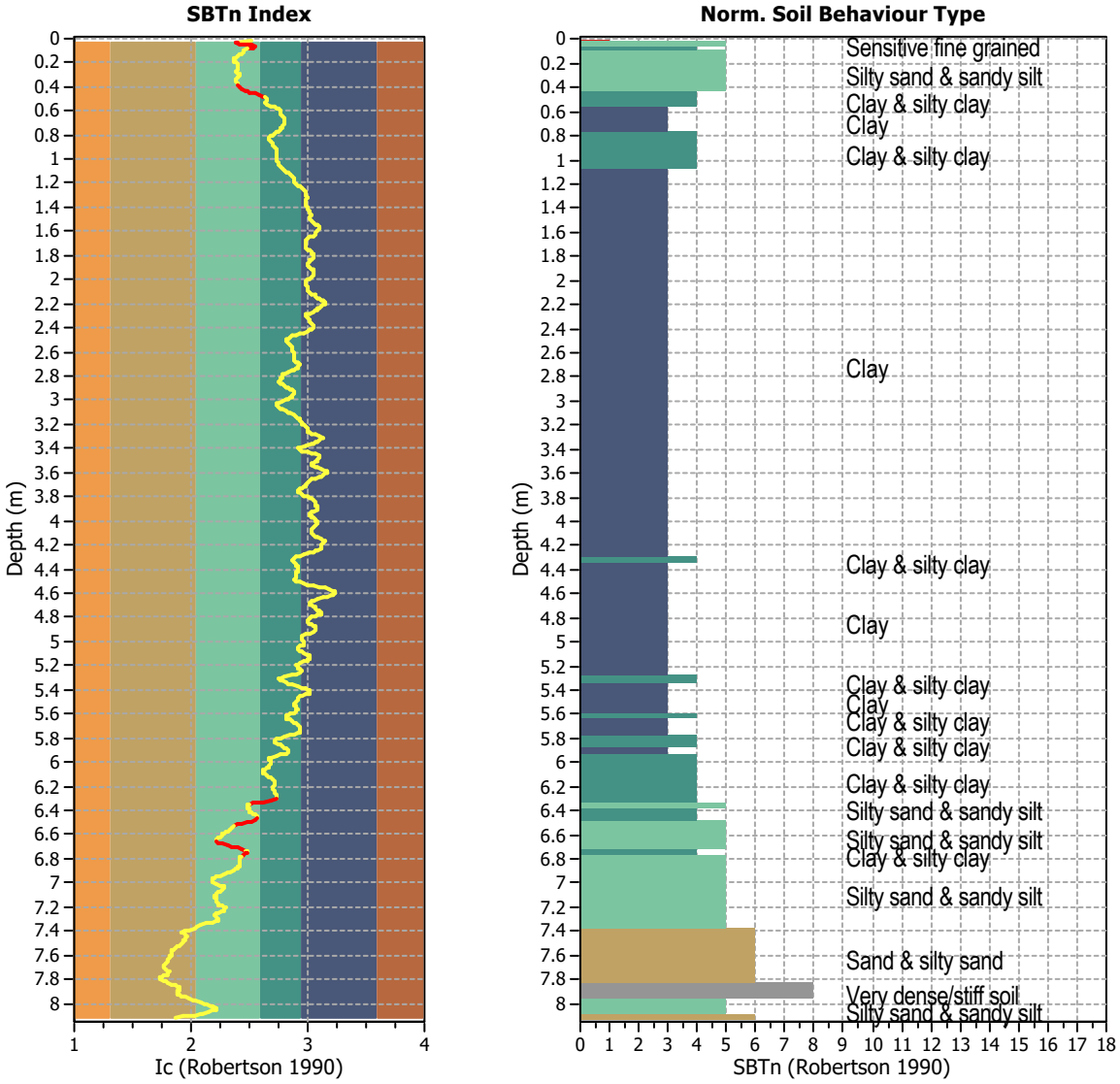
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	6.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	6.00 m	Excavation depth:	5.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

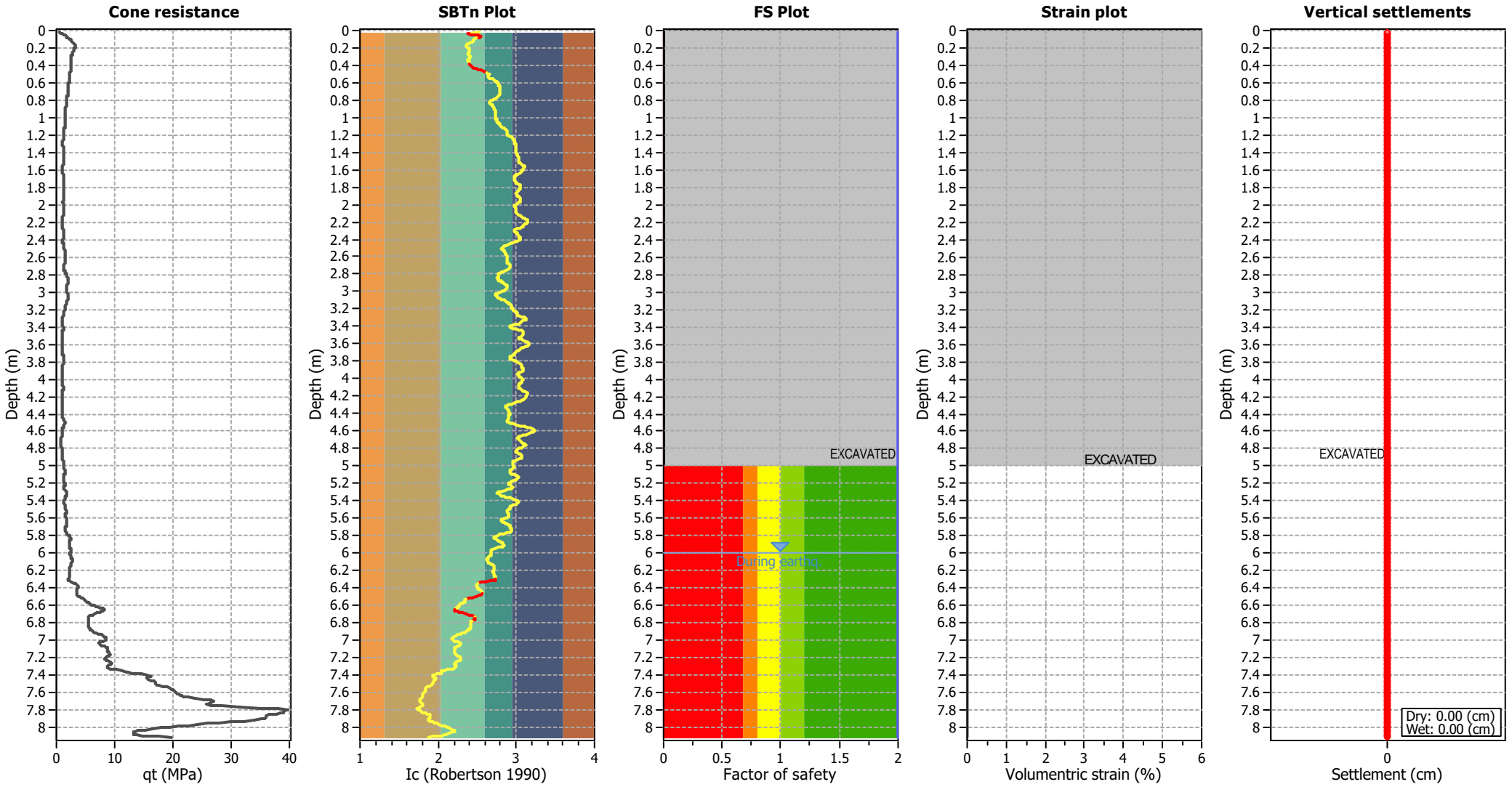
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	812
I_c maximum check value:	3.00	Total points excluded:	46
I_c change ratio value:	0.0100	Exclusion percentage:	5.67%
Minimum number of points in layer:	4	Number of layers detected:	7

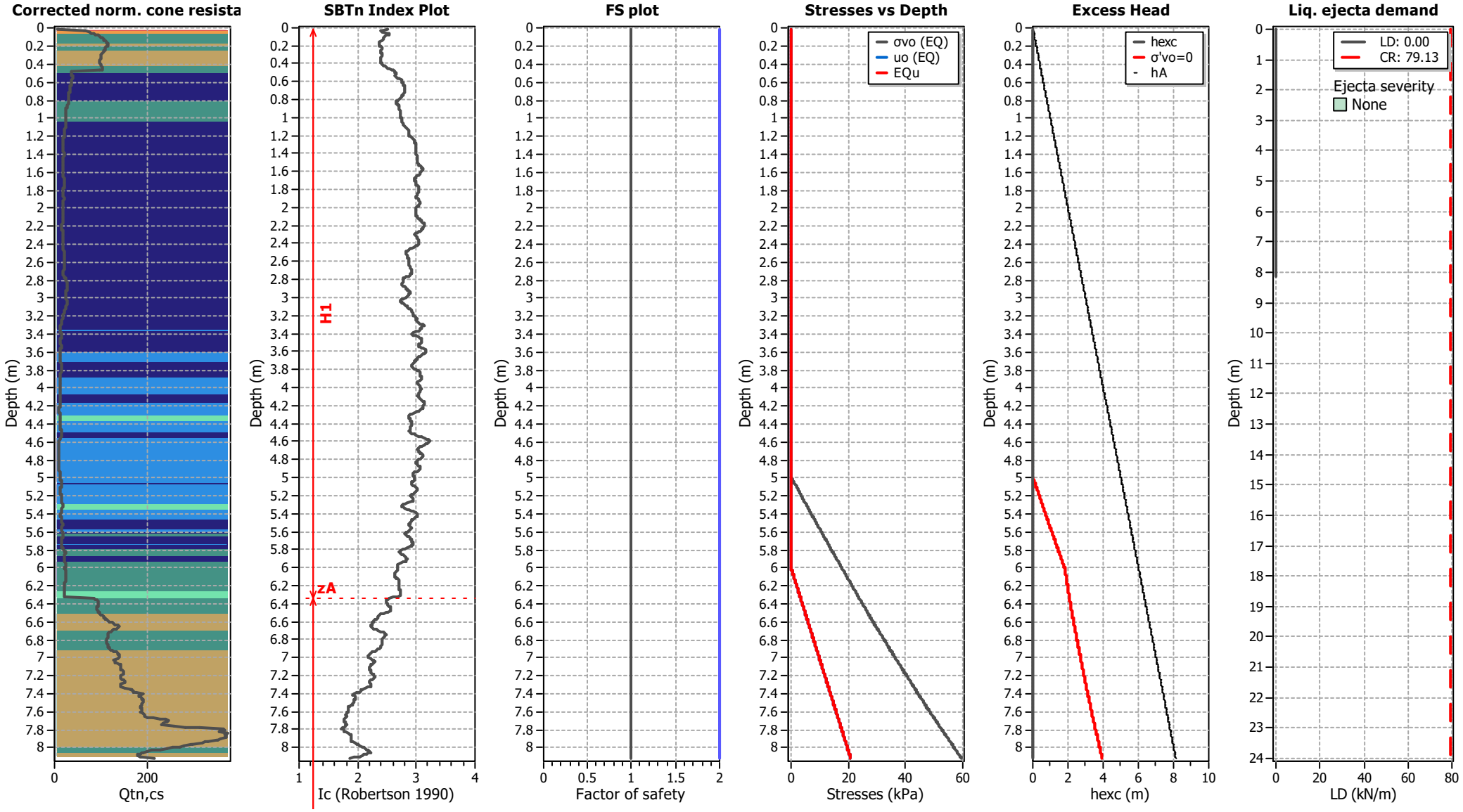
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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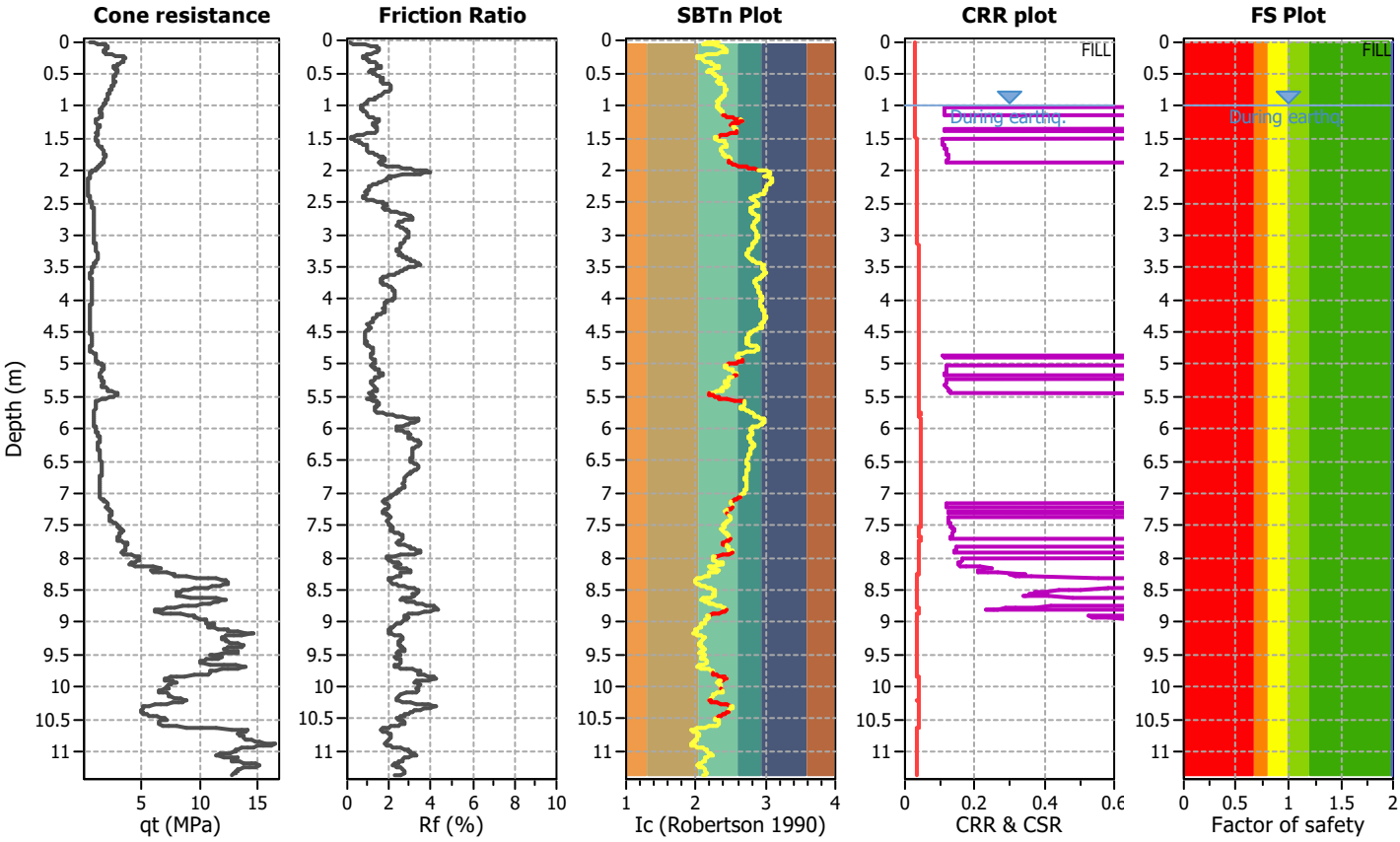
LIQUEFACTION ANALYSIS REPORT

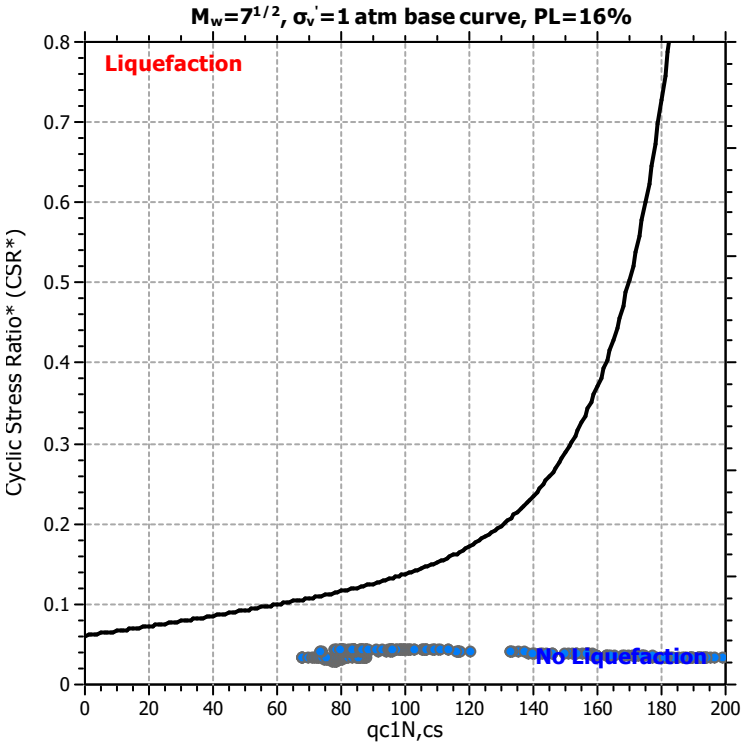
Project title : Sunfield Landholding **Location :**

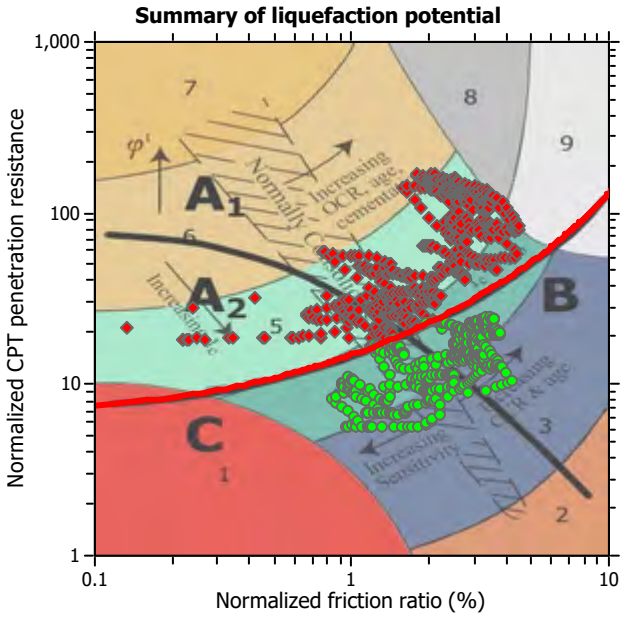
CPT file : CPT009A

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	37.00 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

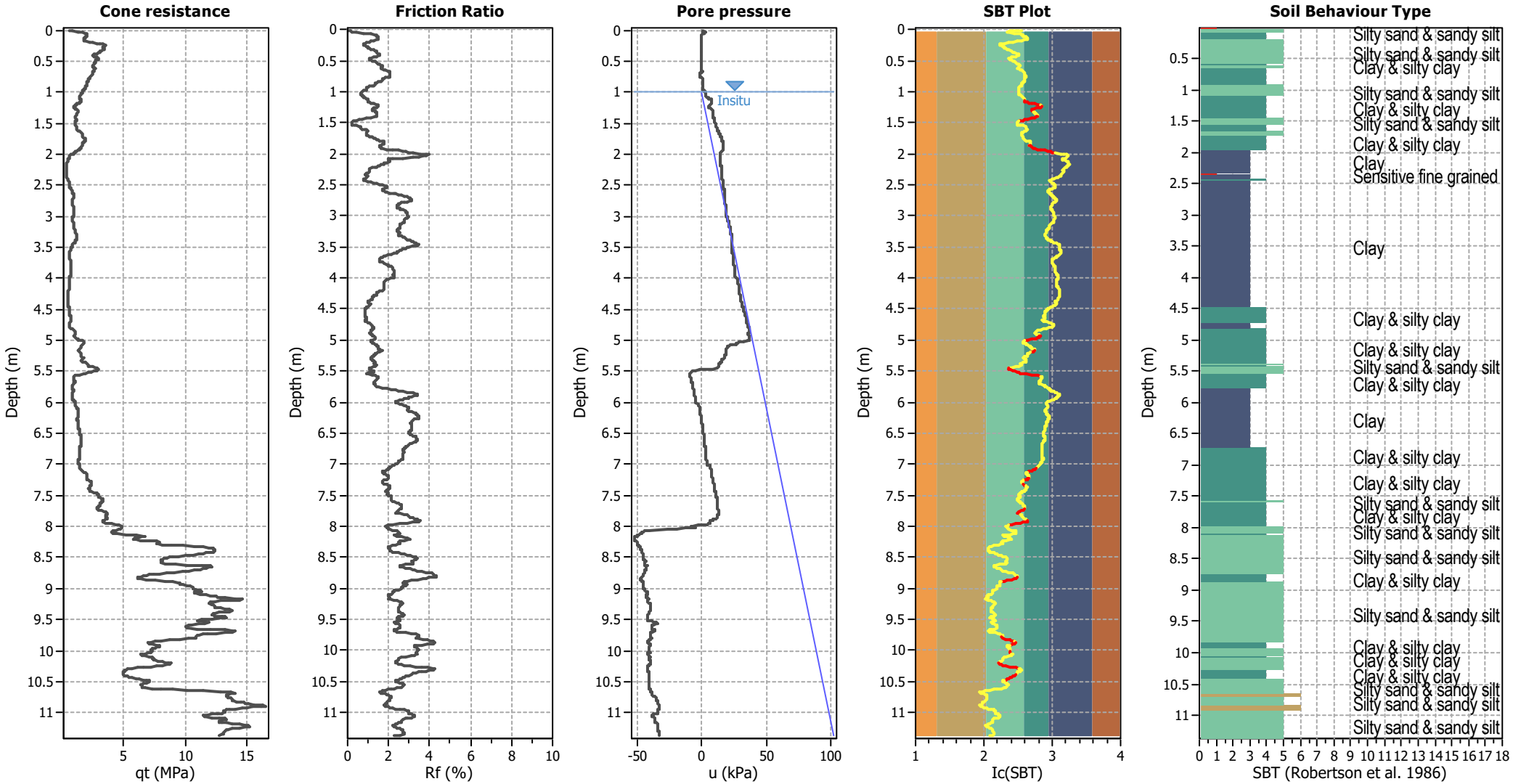






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



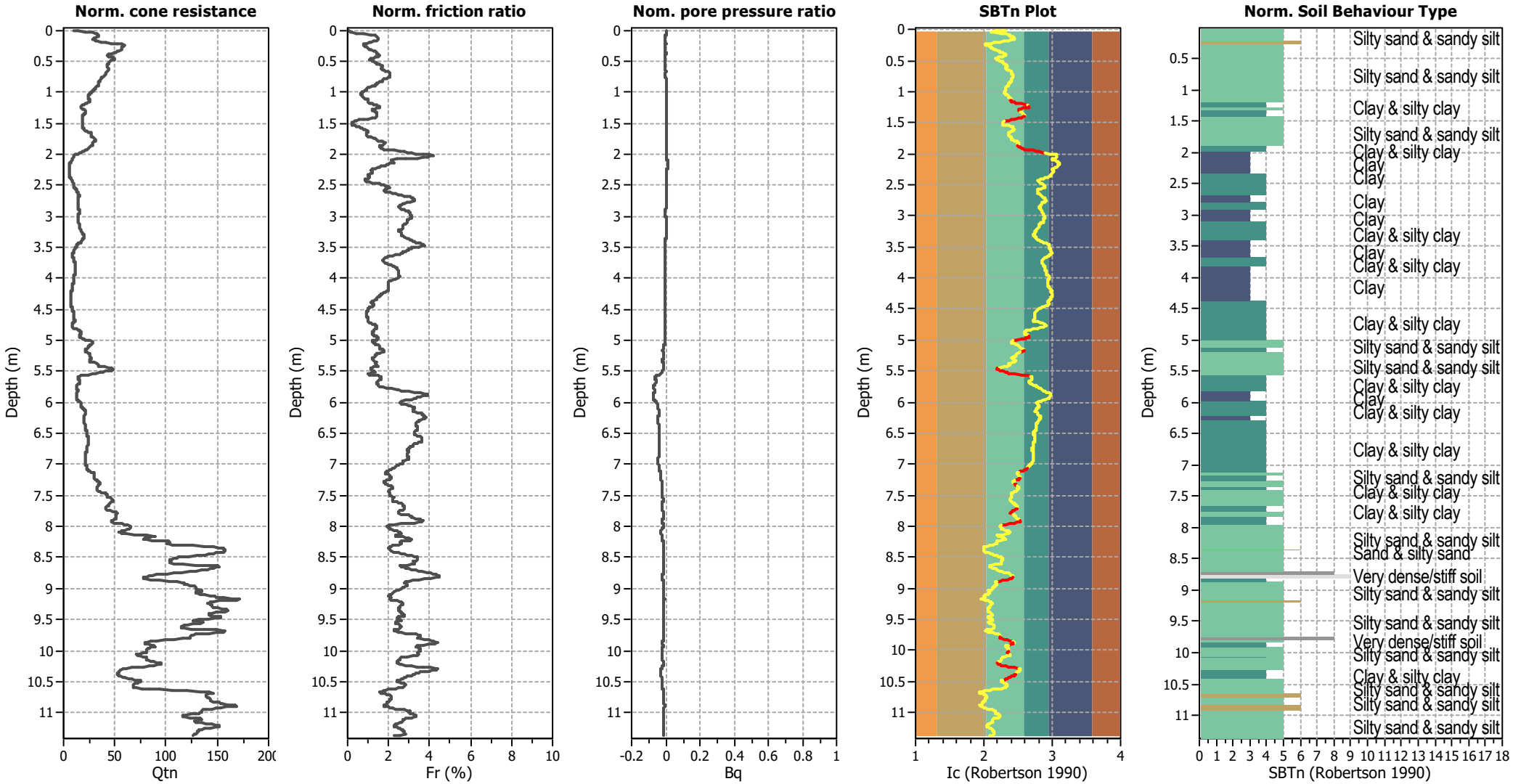
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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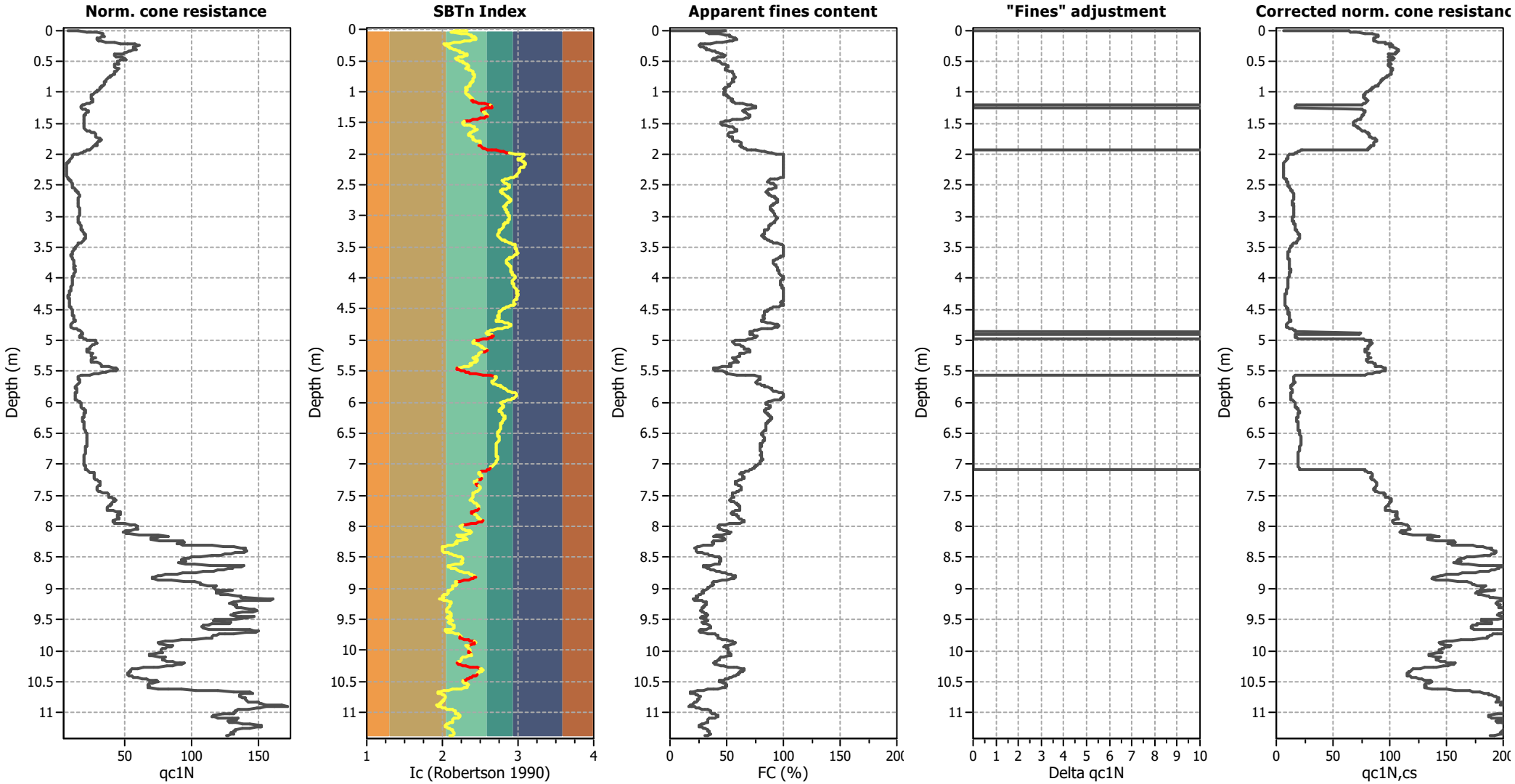
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

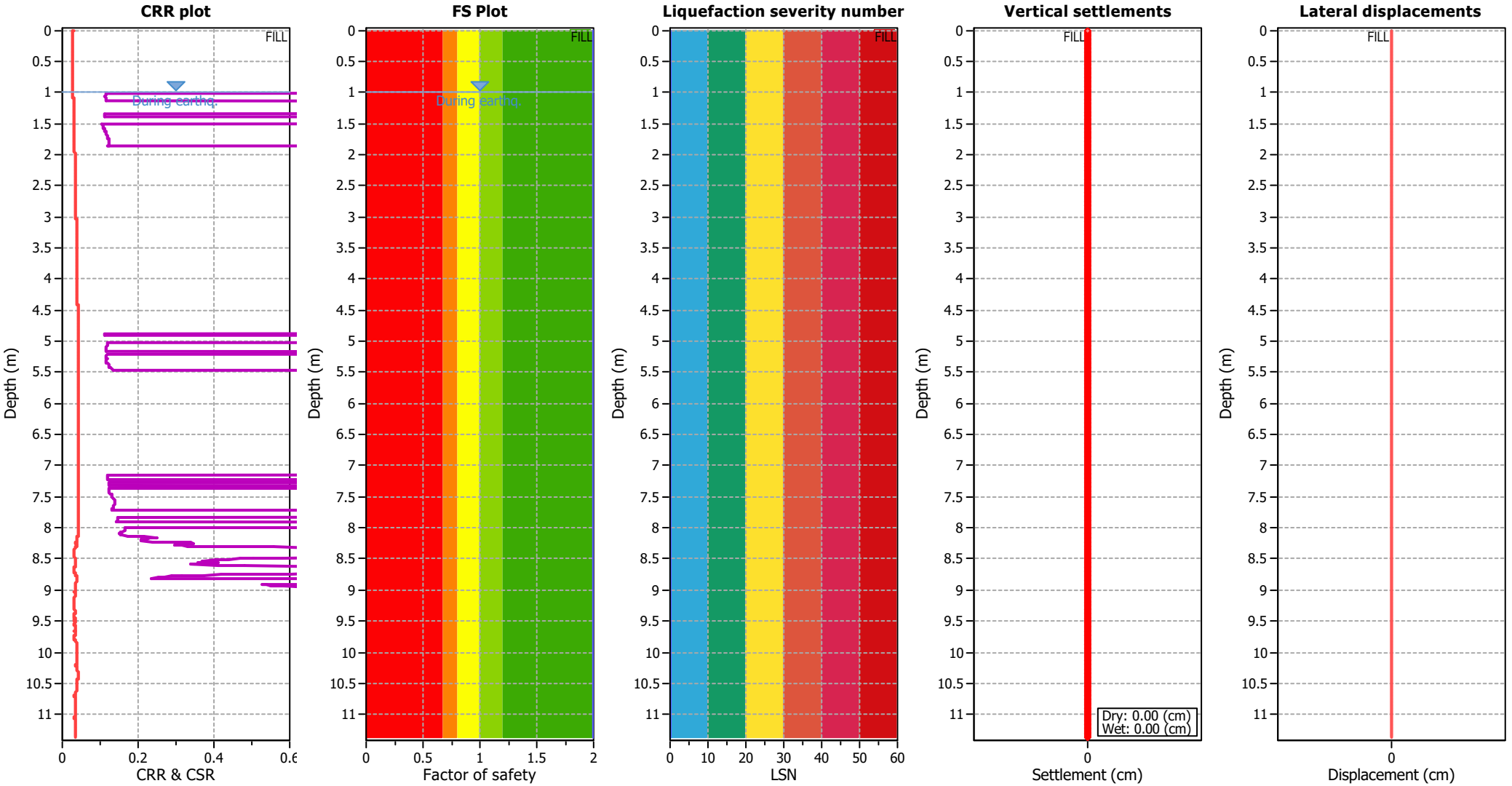
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

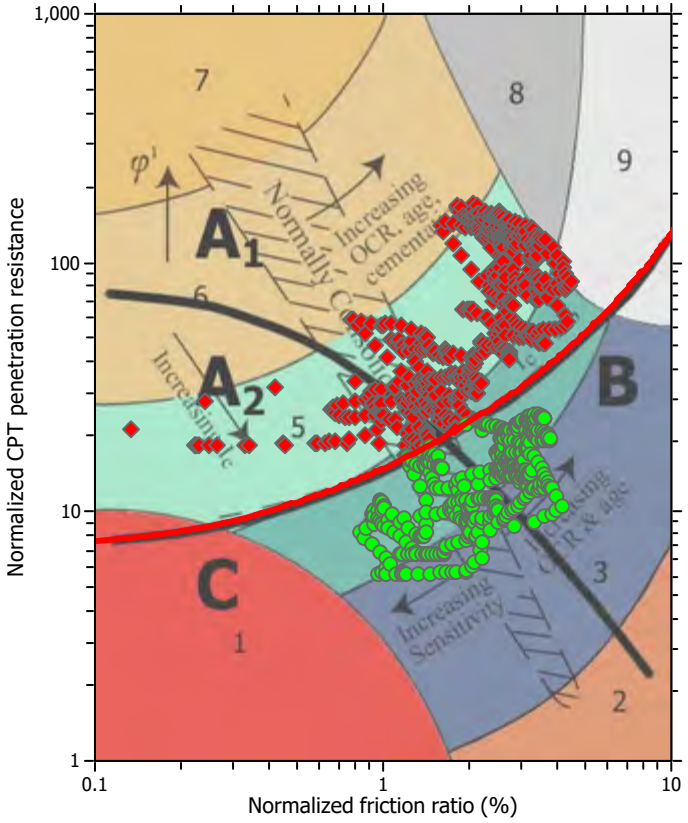
F.S. color scheme

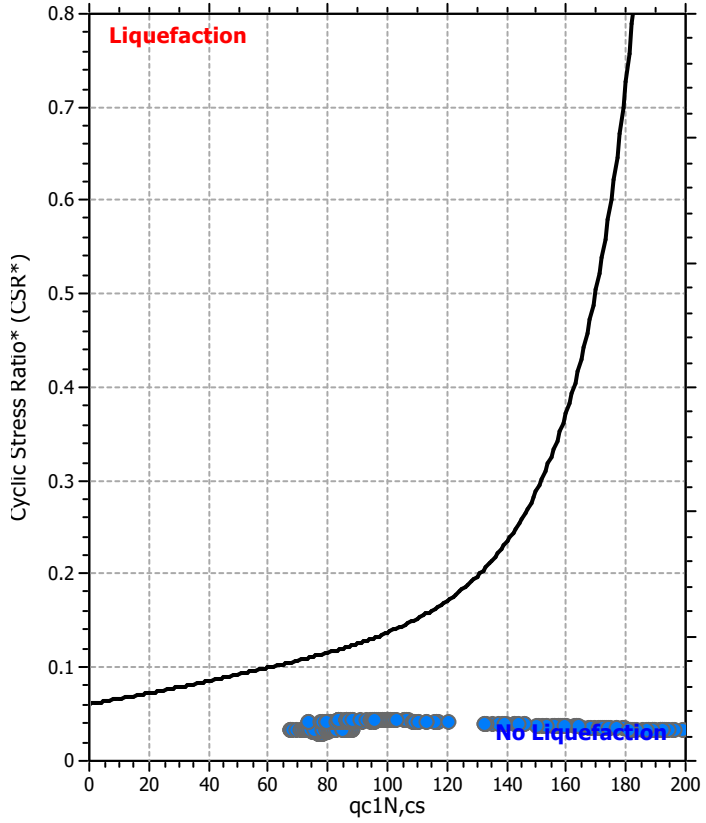
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

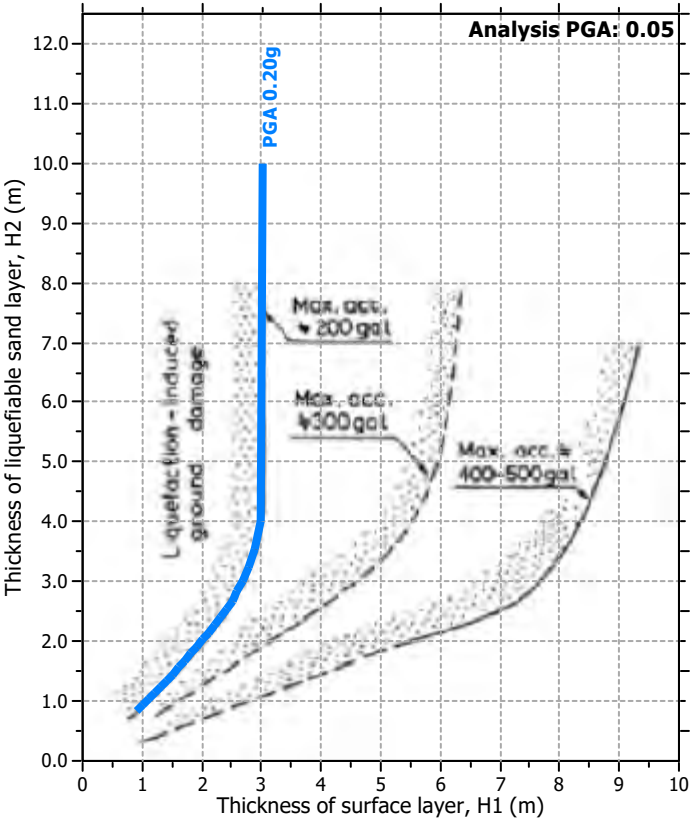
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



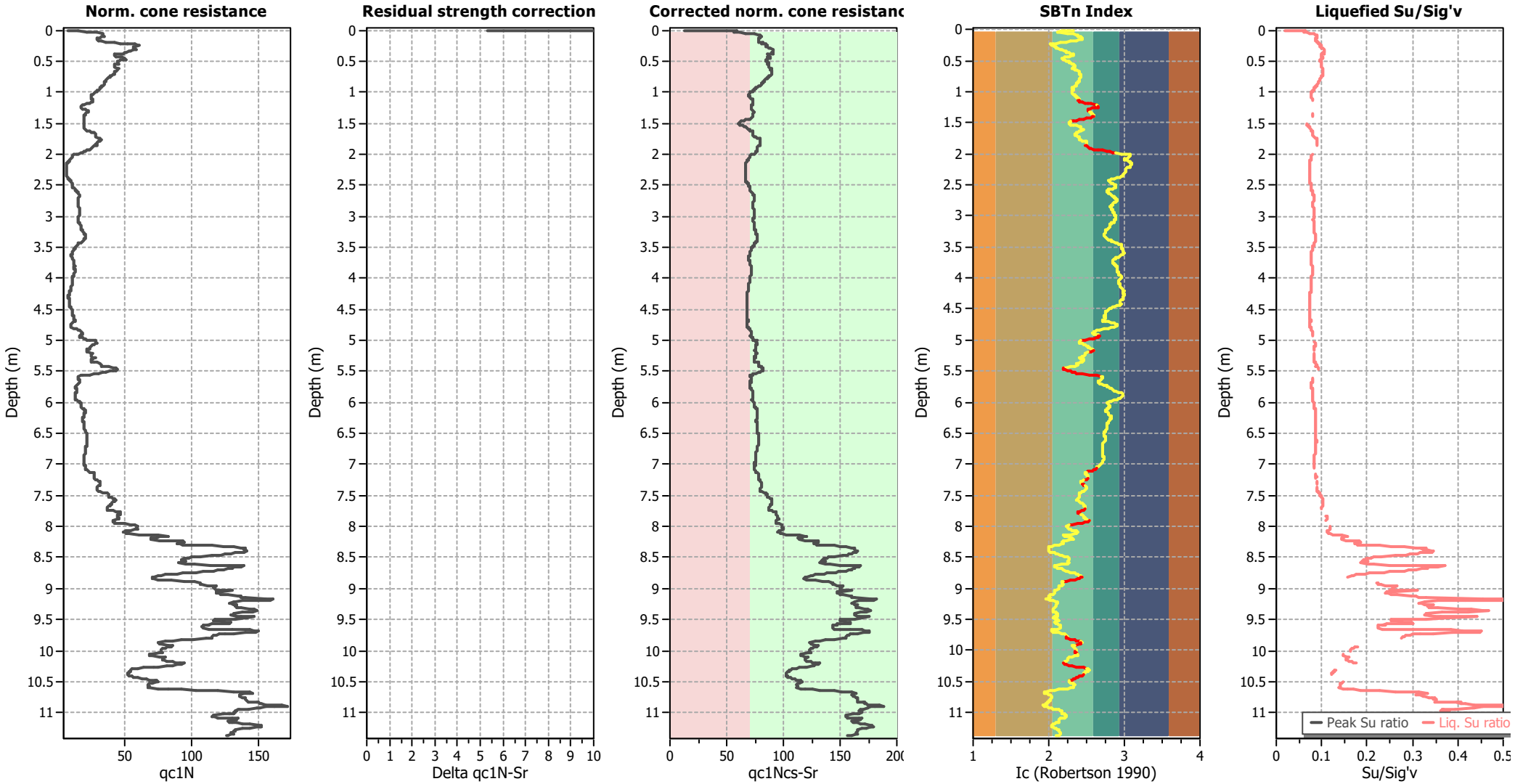




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

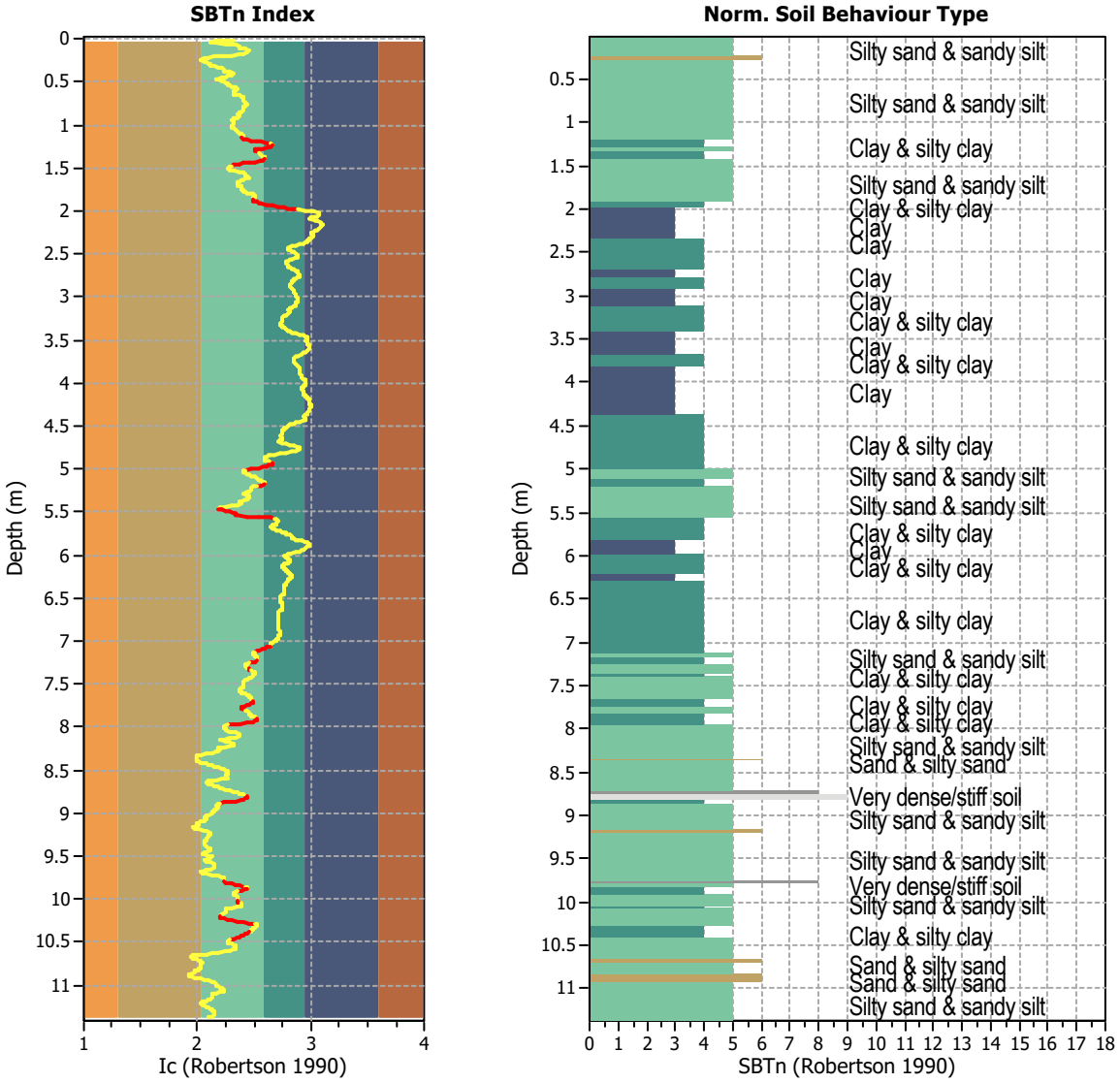
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

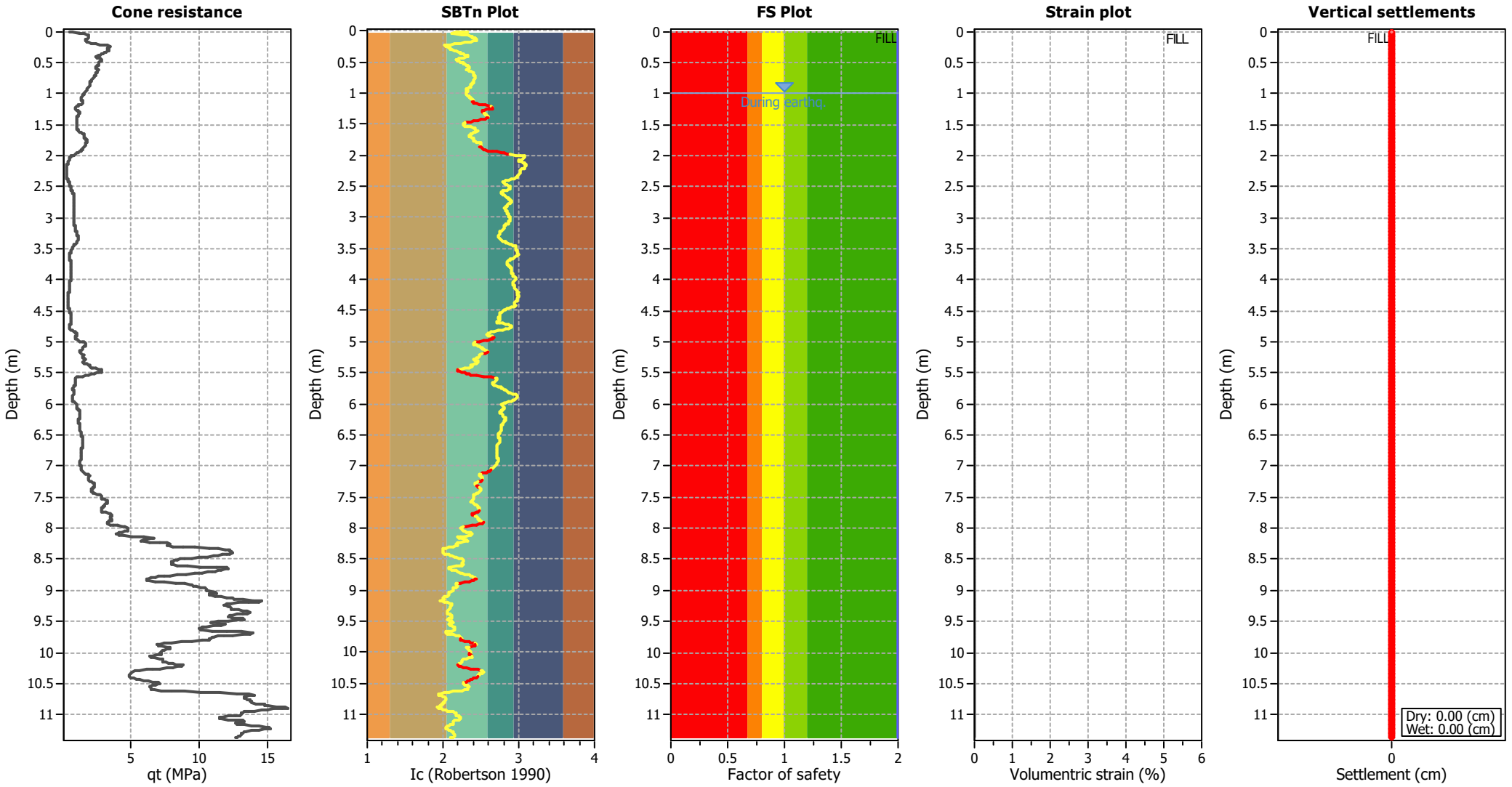
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	1137
I_c maximum check value:	3.00	Total points excluded:	150
I_c change ratio value:	0.0100	Exclusion percentage:	13.19%
Minimum number of points in layer:	4	Number of layers detected:	20

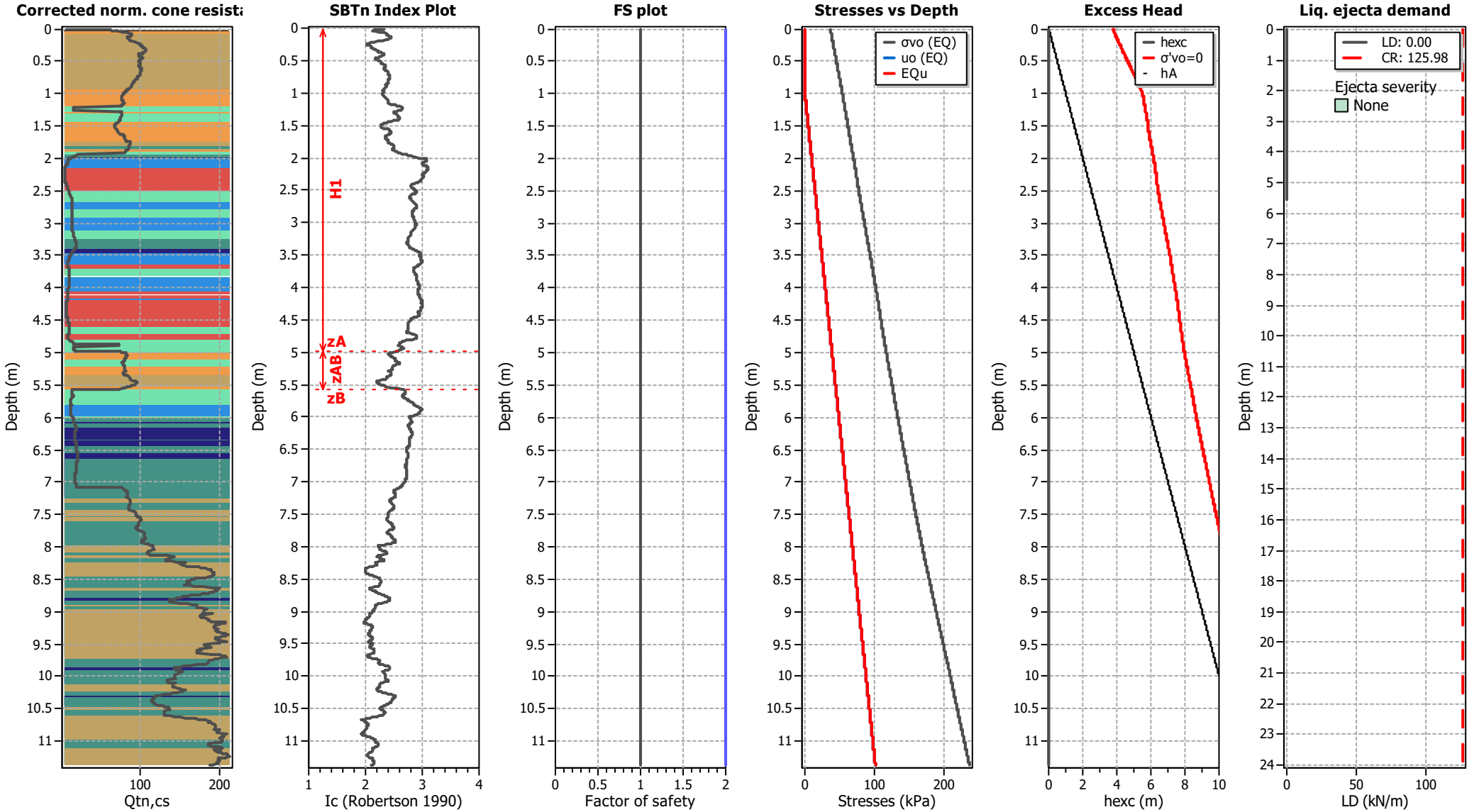
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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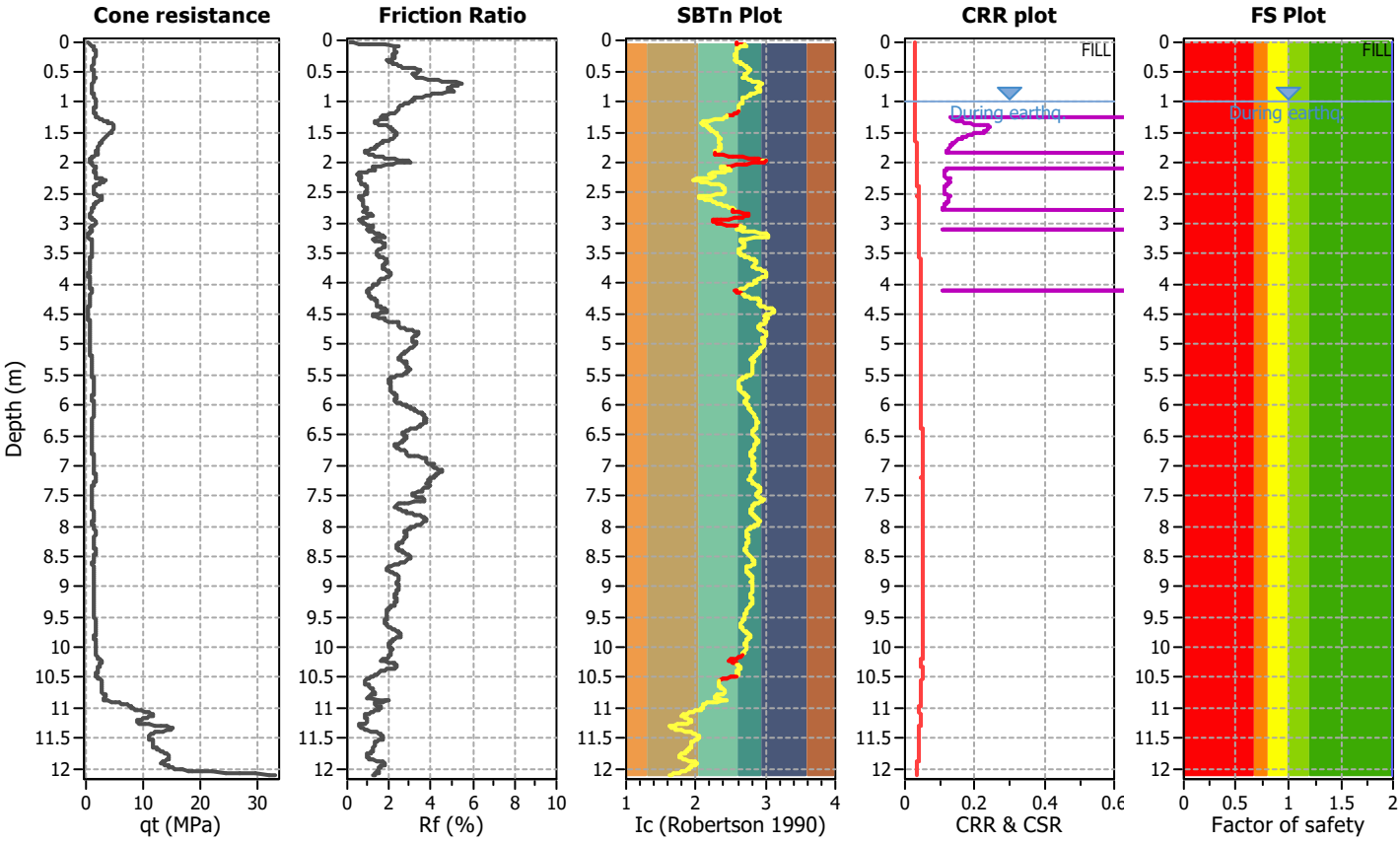
LIQUEFACTION ANALYSIS REPORT

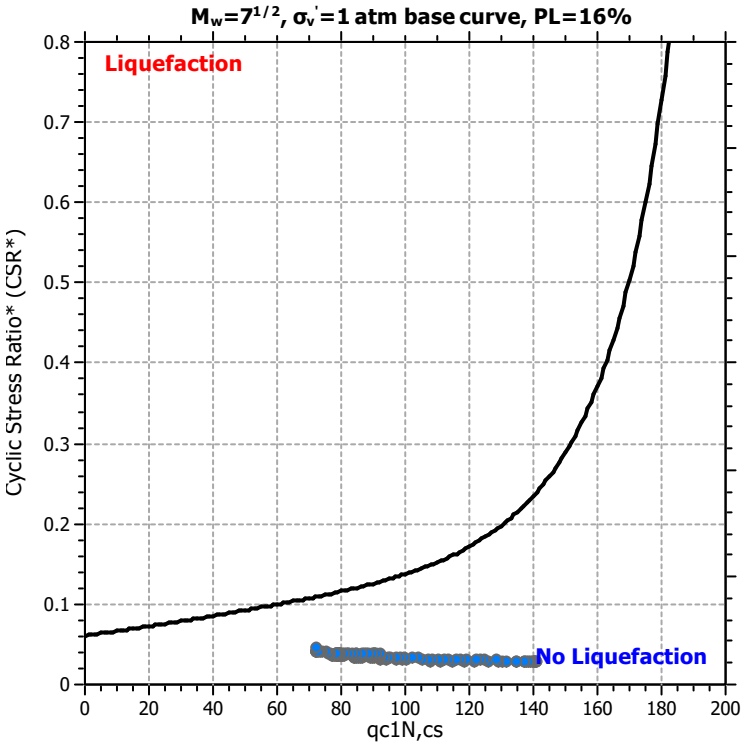
Project title : Sunfield Landholding **Location :**

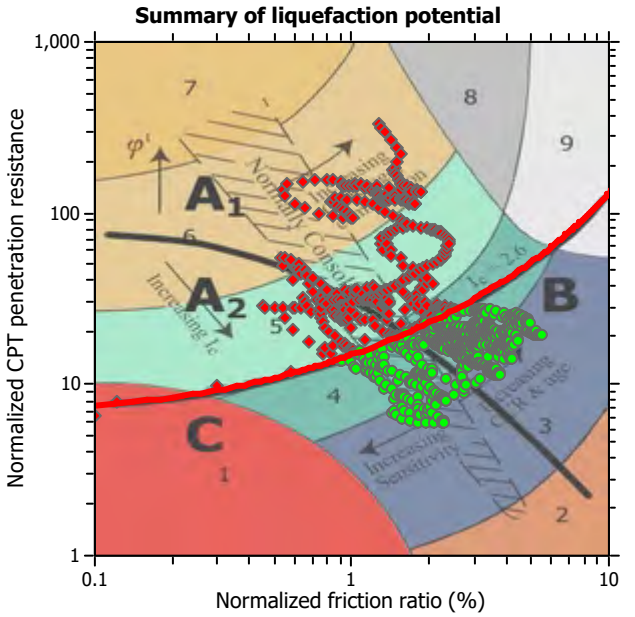
CPT file : CPT010

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	9.25 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

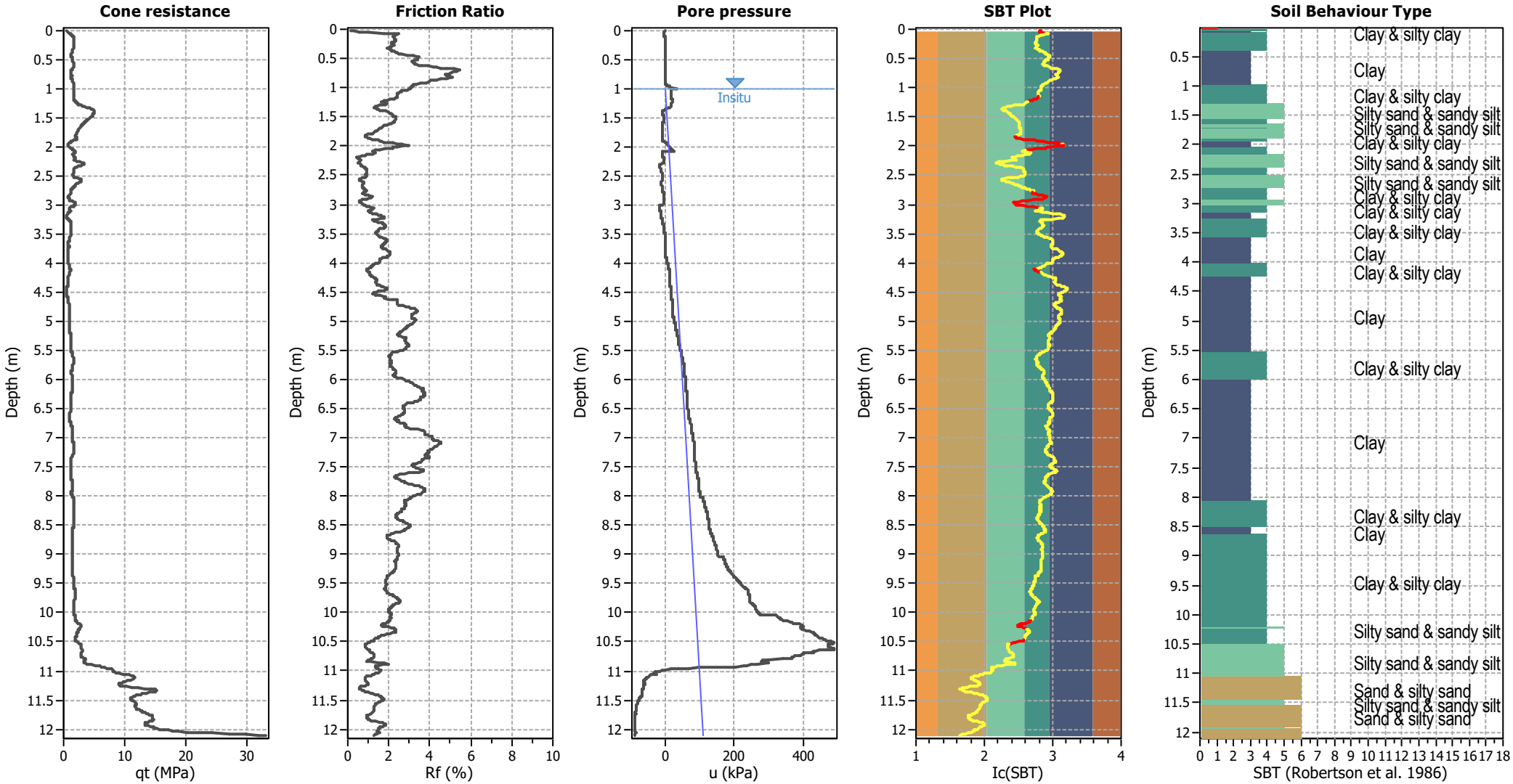






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



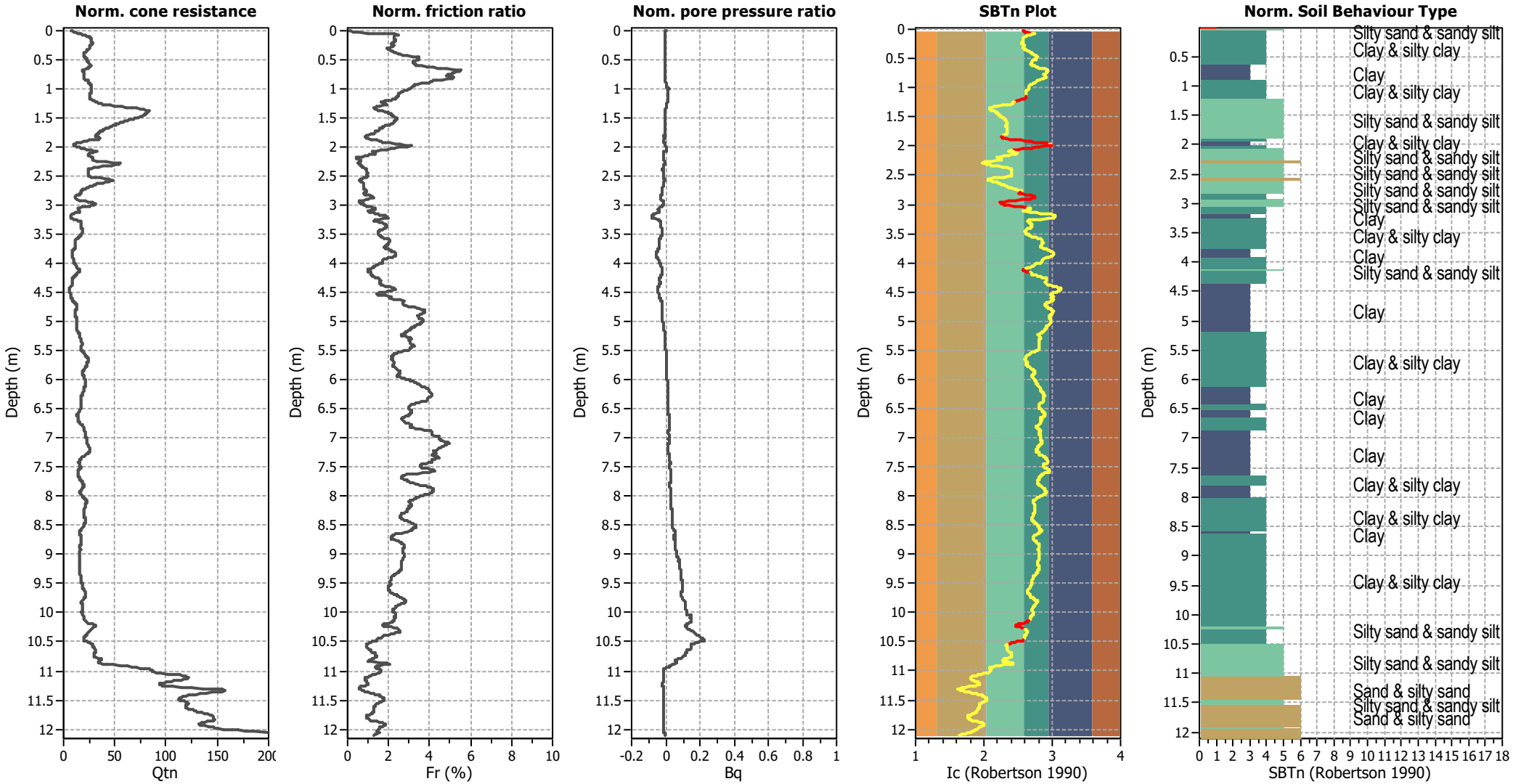
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	9.25 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



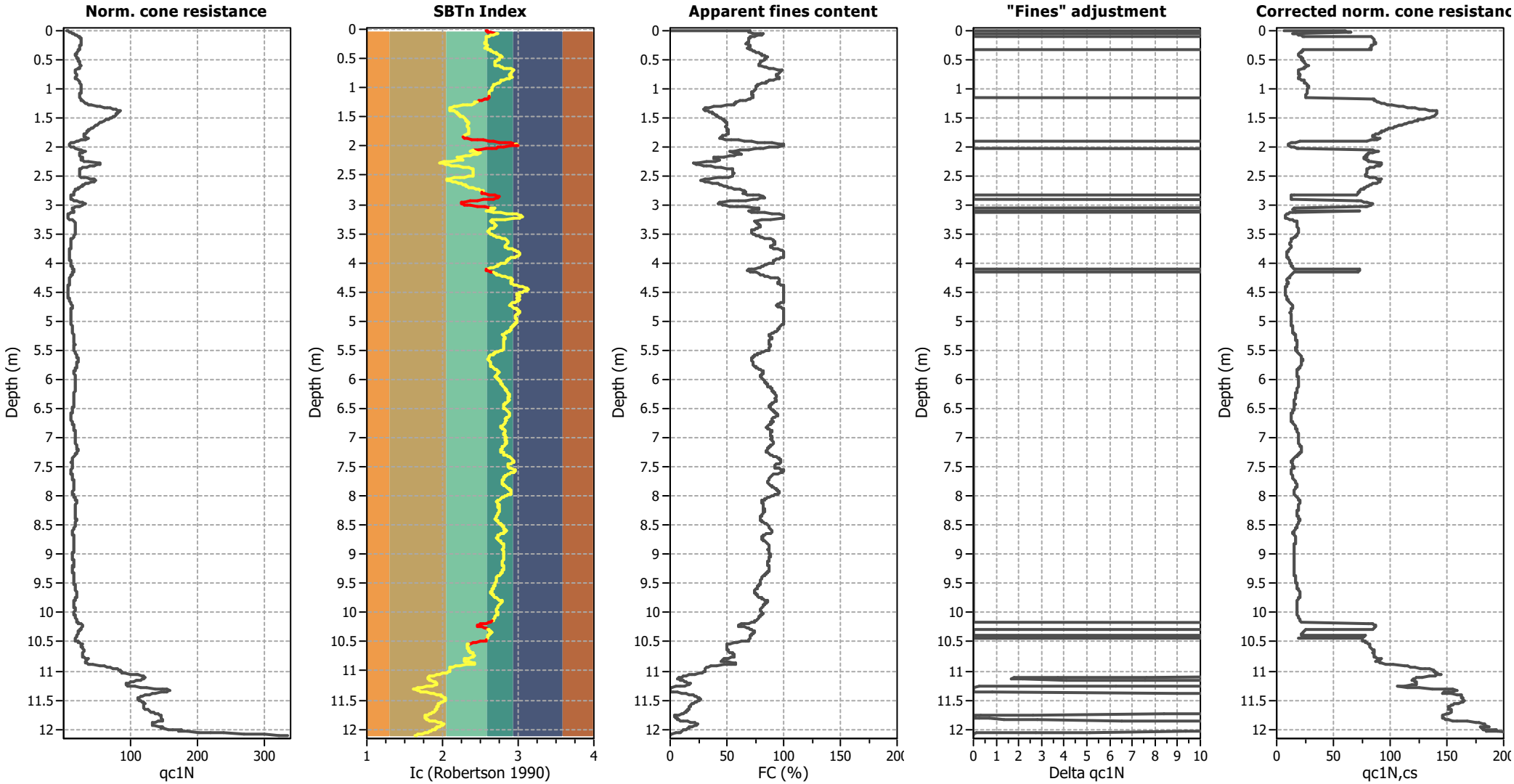
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	9.25 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

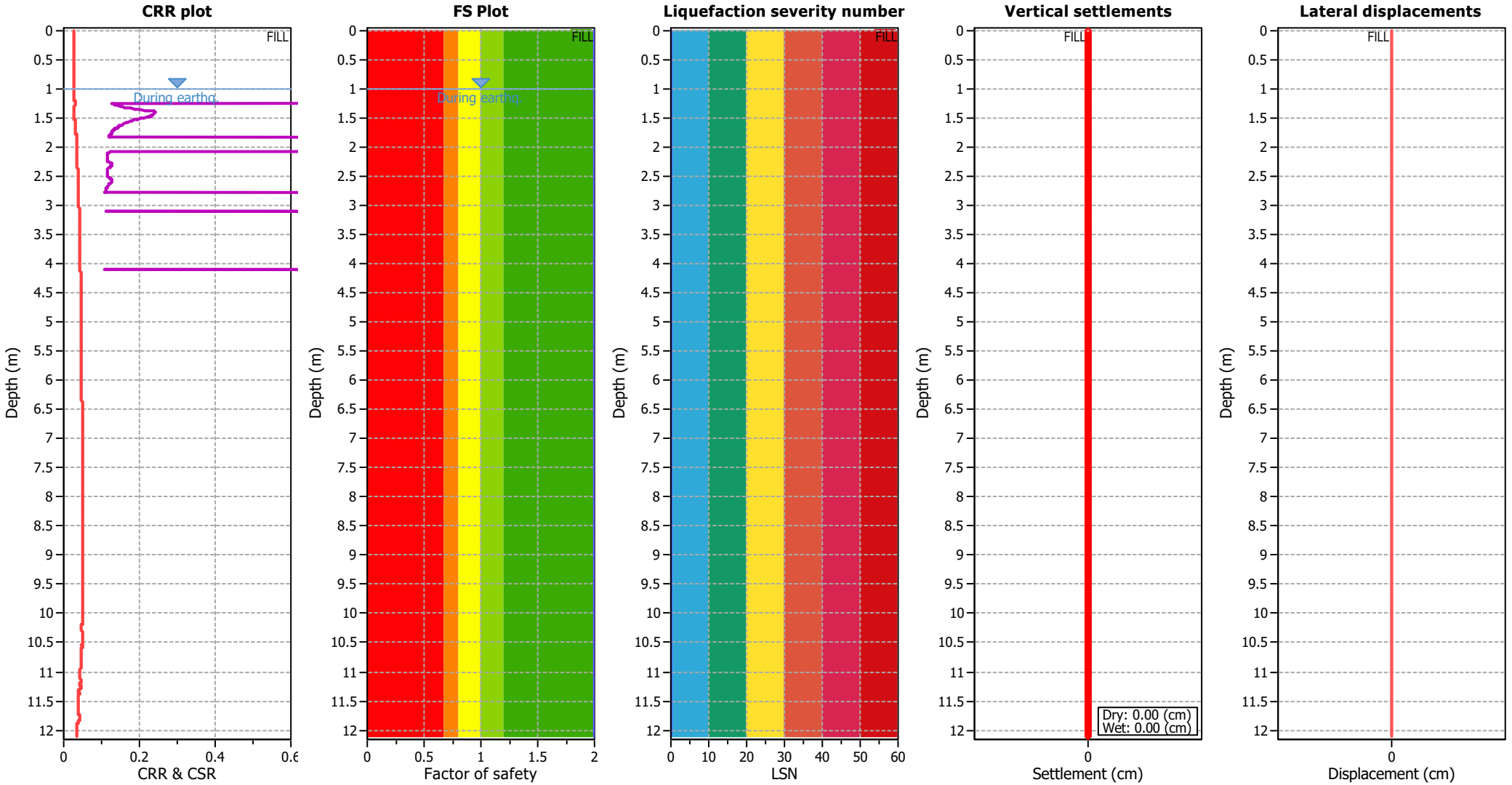
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	9.25 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	9.25 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

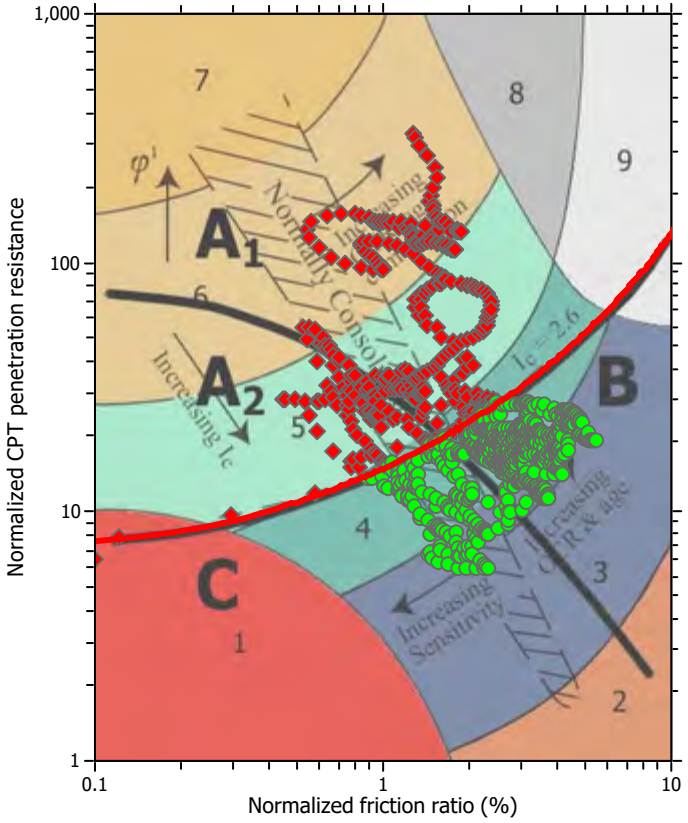
F.S. color scheme

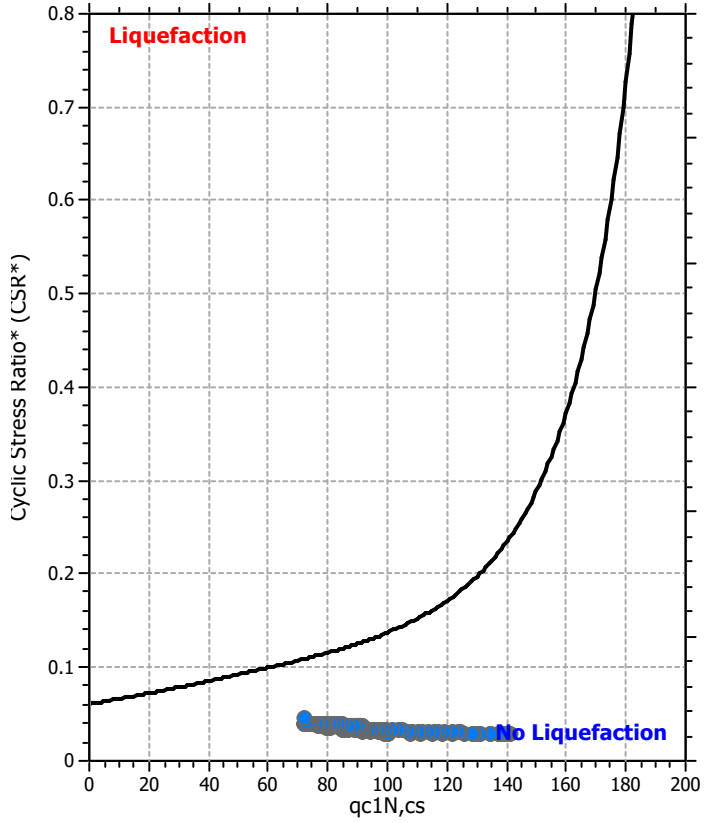
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

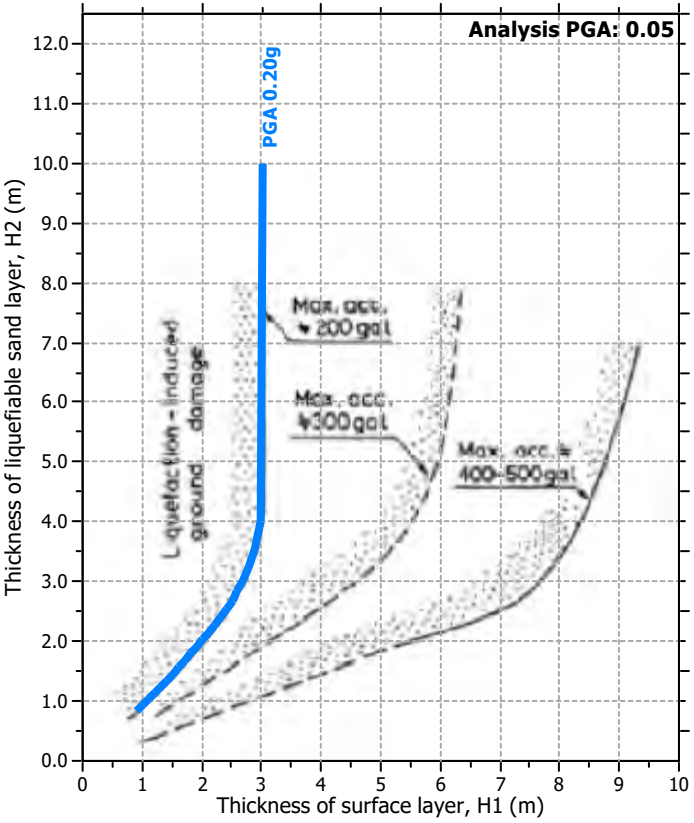
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots







Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	9.25 kN/m³
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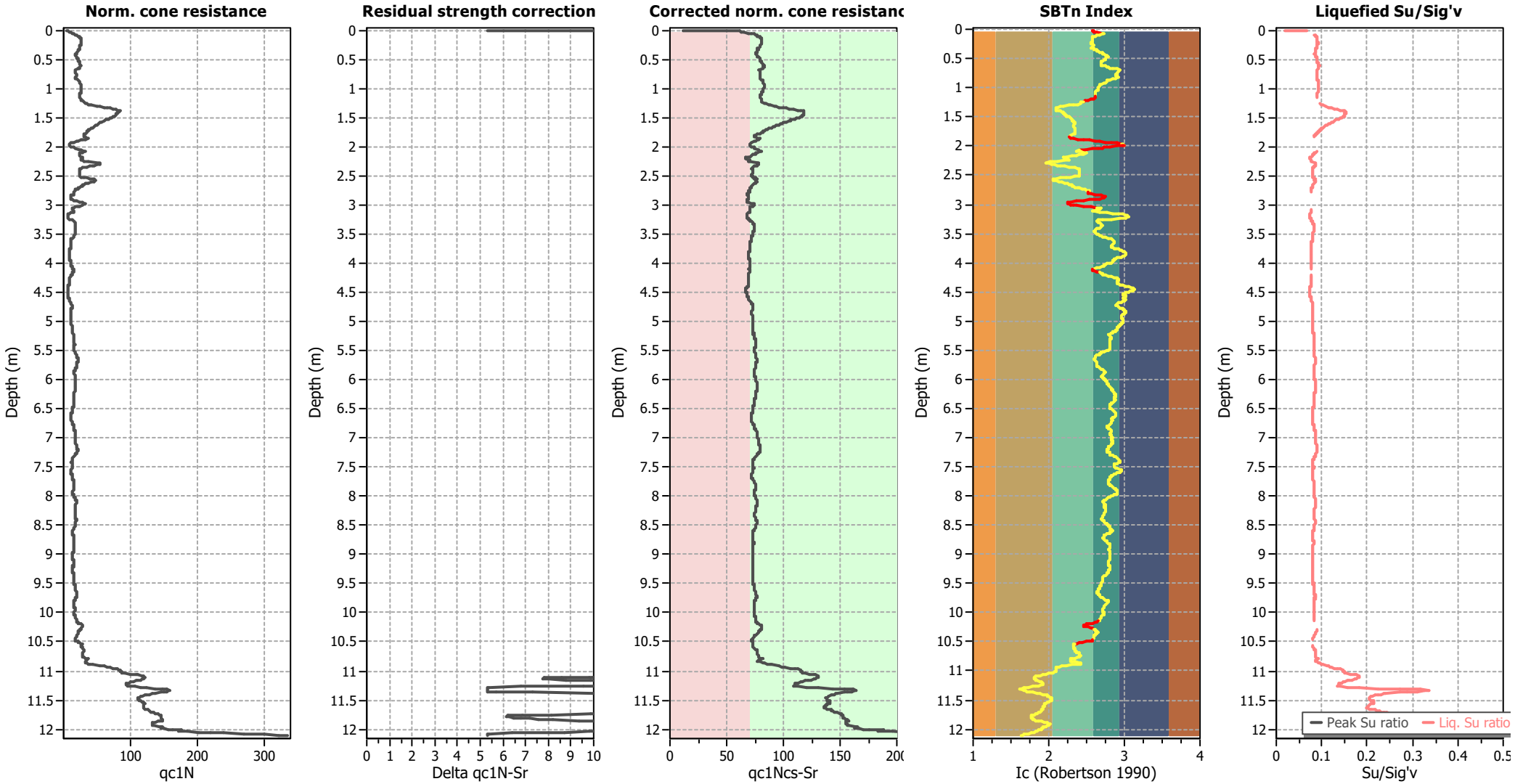
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

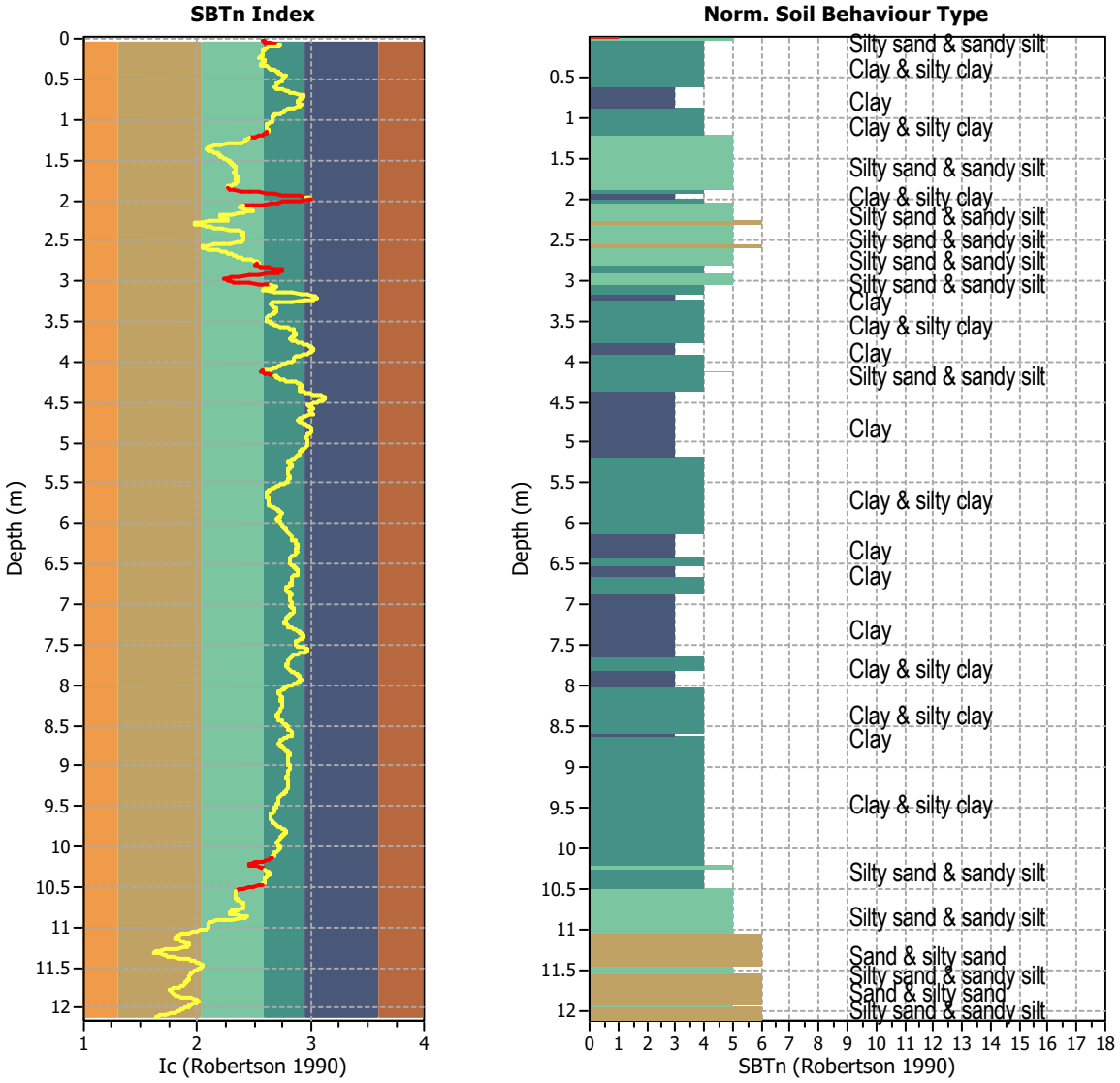
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	9.25 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

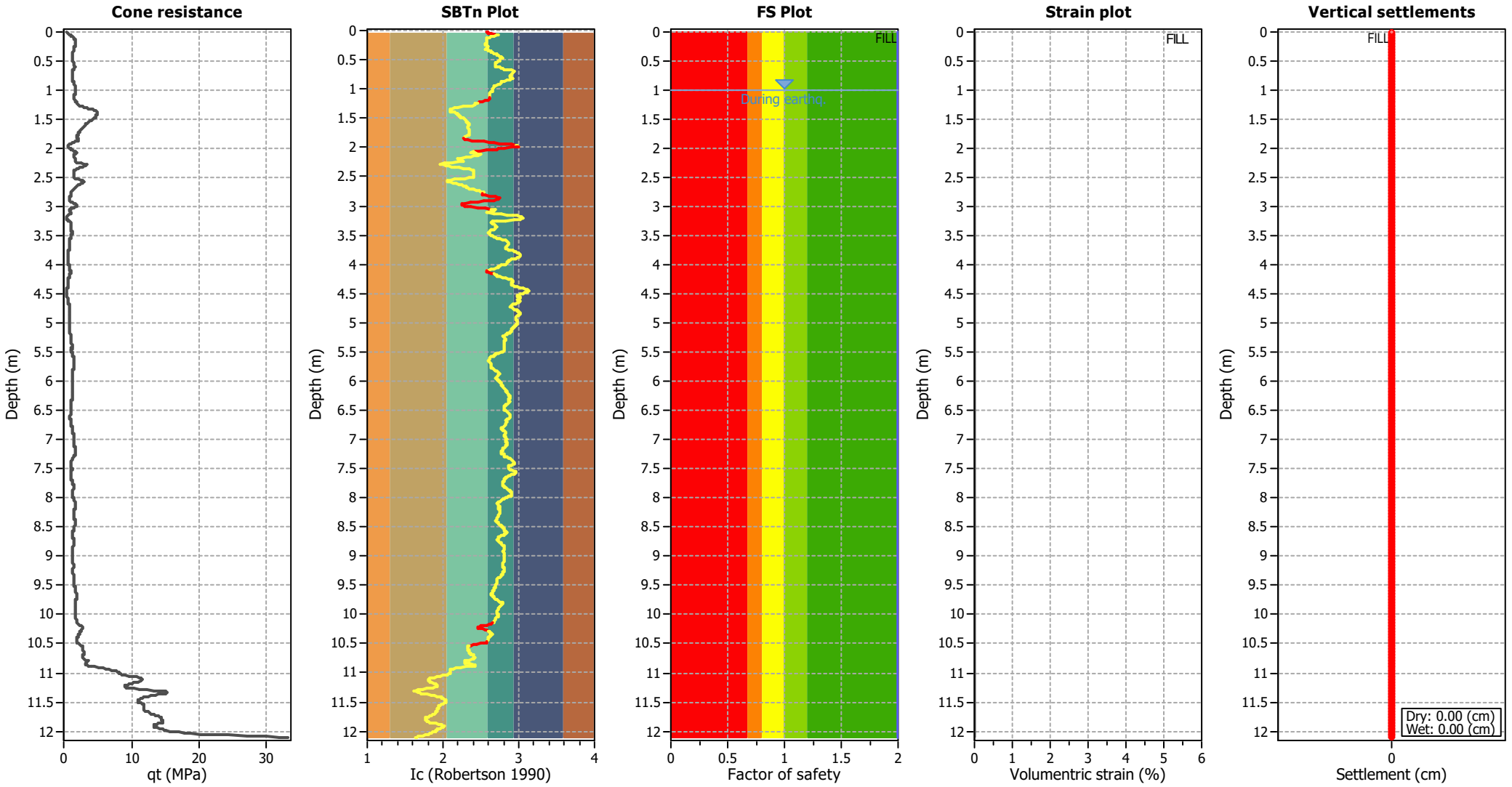
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	1211
I_c maximum check value:	3.00	Total points excluded:	94
I_c change ratio value:	0.0100	Exclusion percentage:	7.76%
Minimum number of points in layer:	4	Number of layers detected:	11

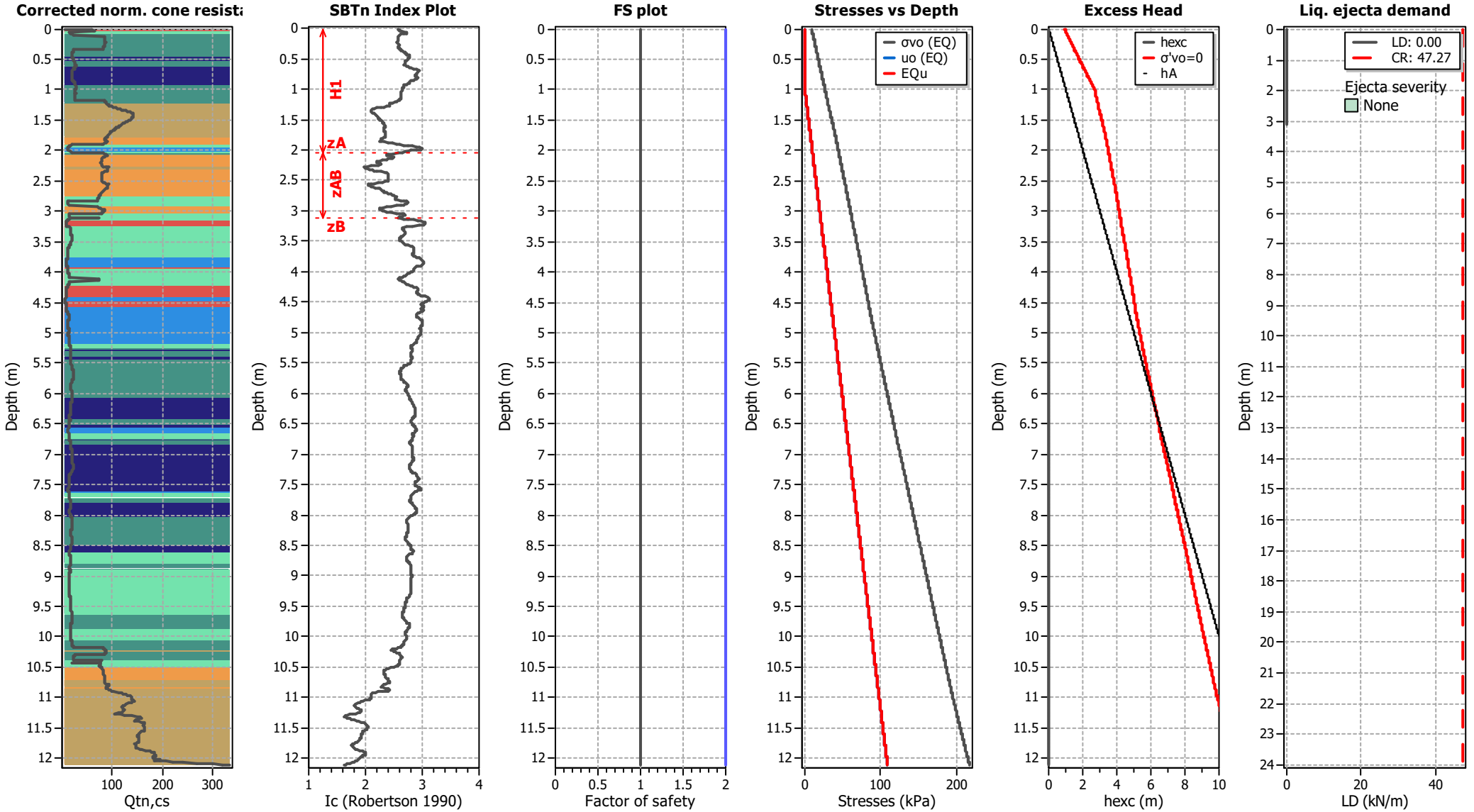
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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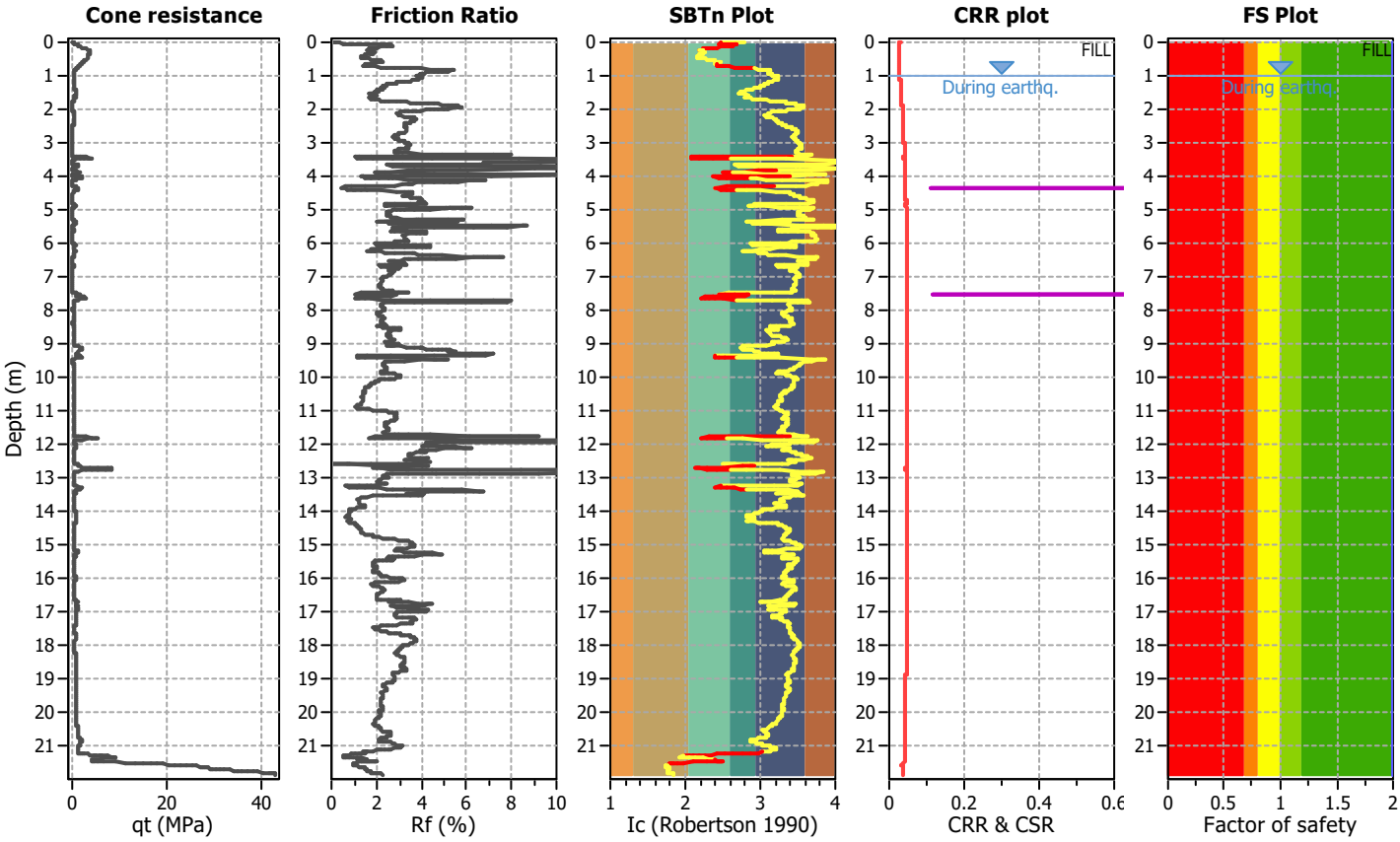
LIQUEFACTION ANALYSIS REPORT

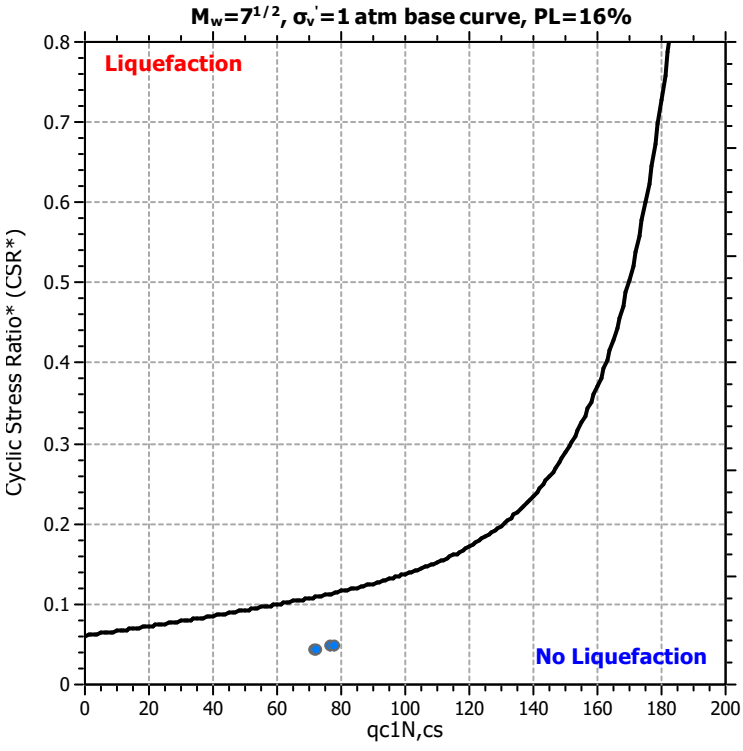
Project title : Sunfield Landholding **Location :**

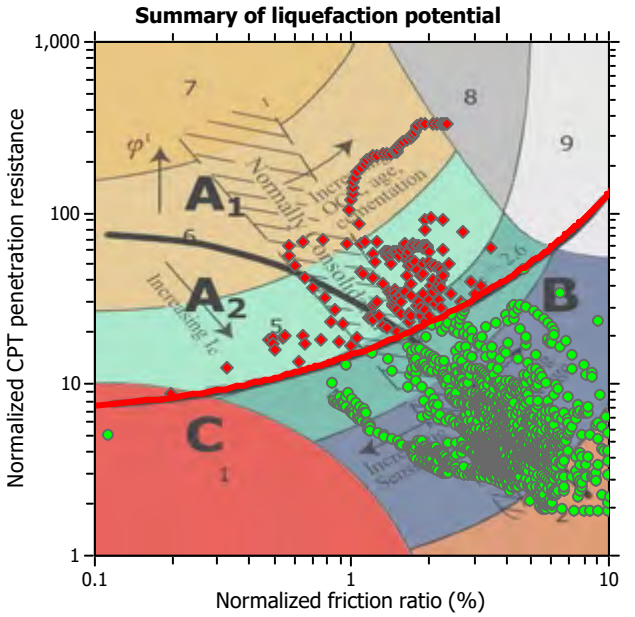
CPT file : CPT011

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	18.50 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

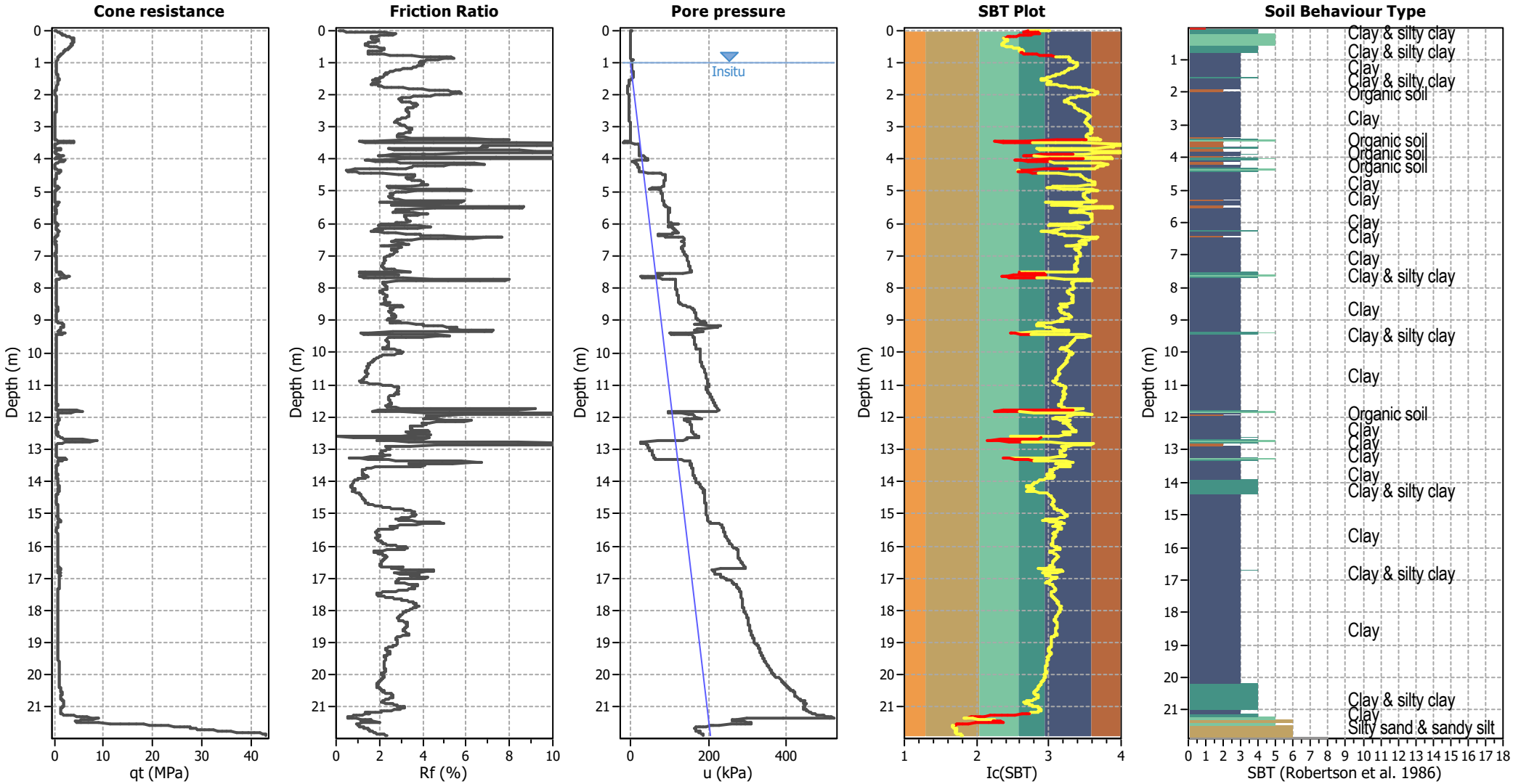






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



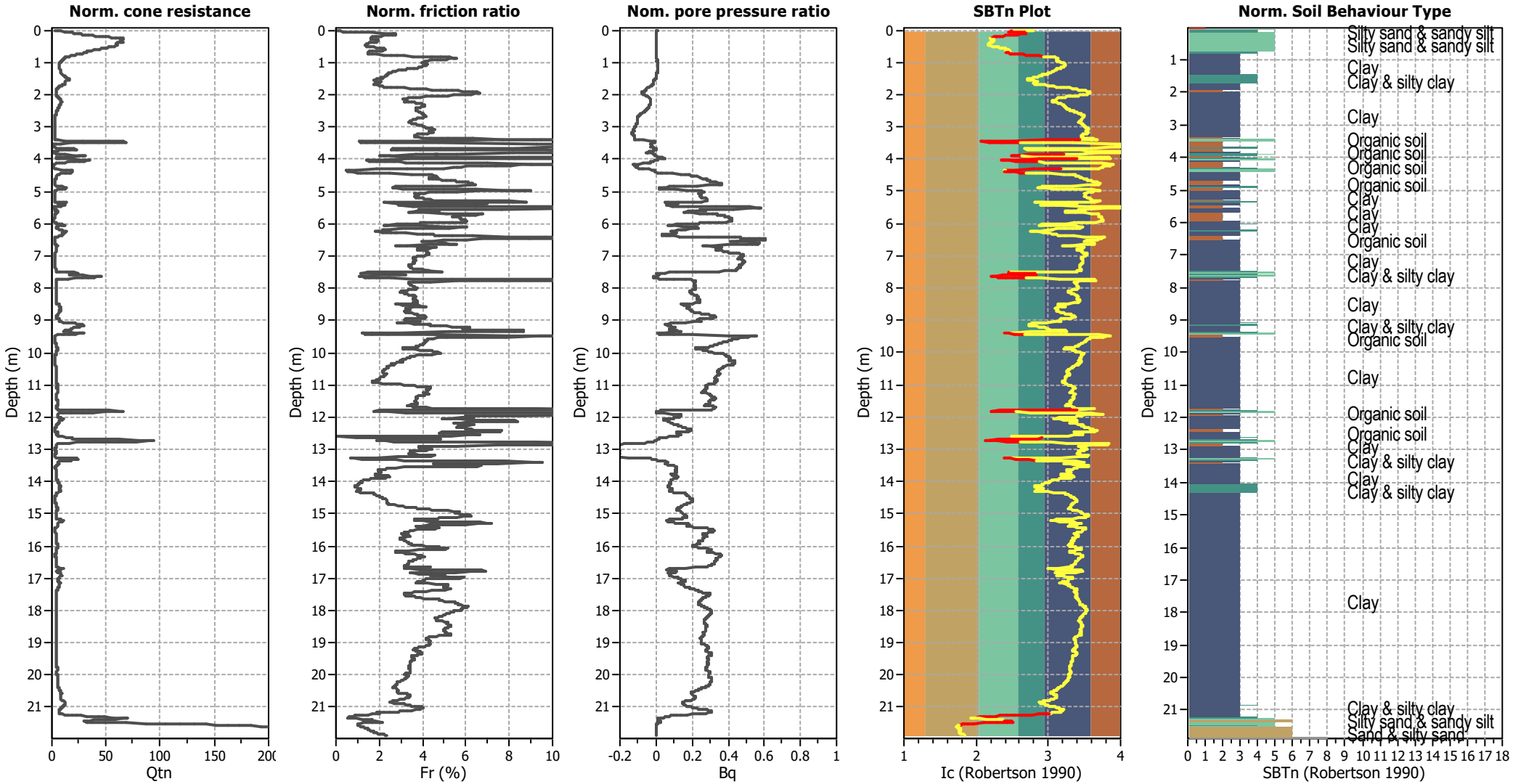
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



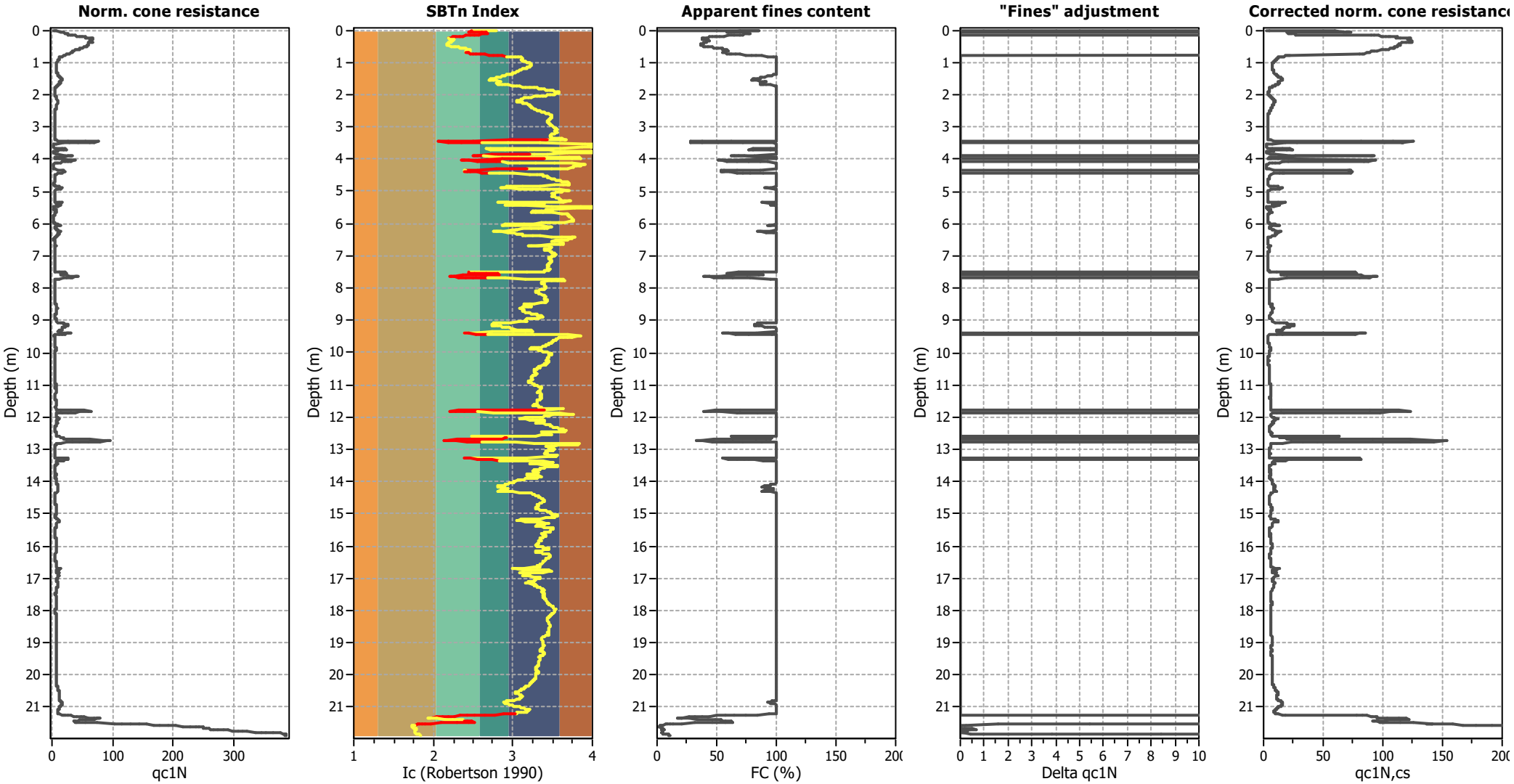
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

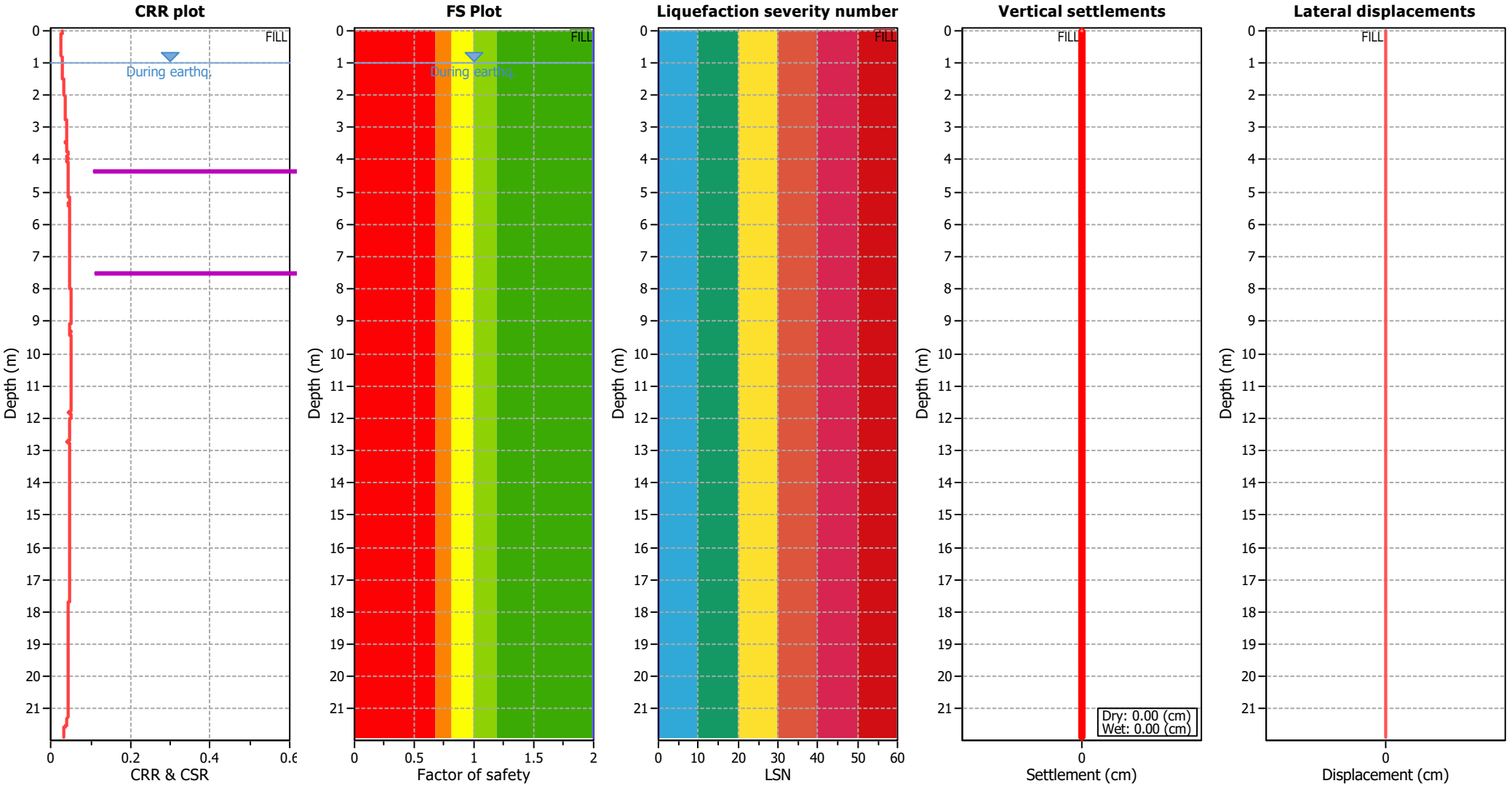
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

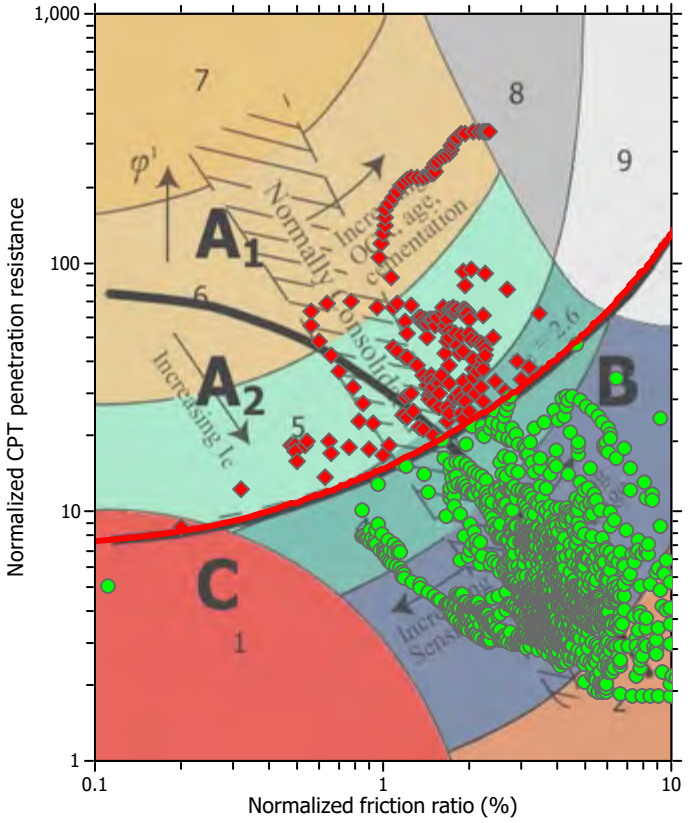
F.S. color scheme

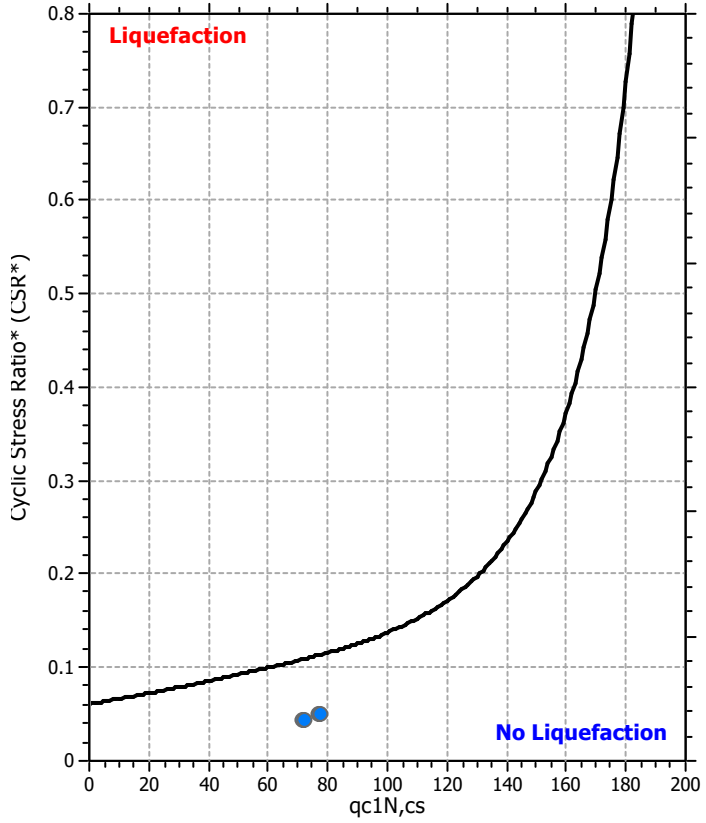
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

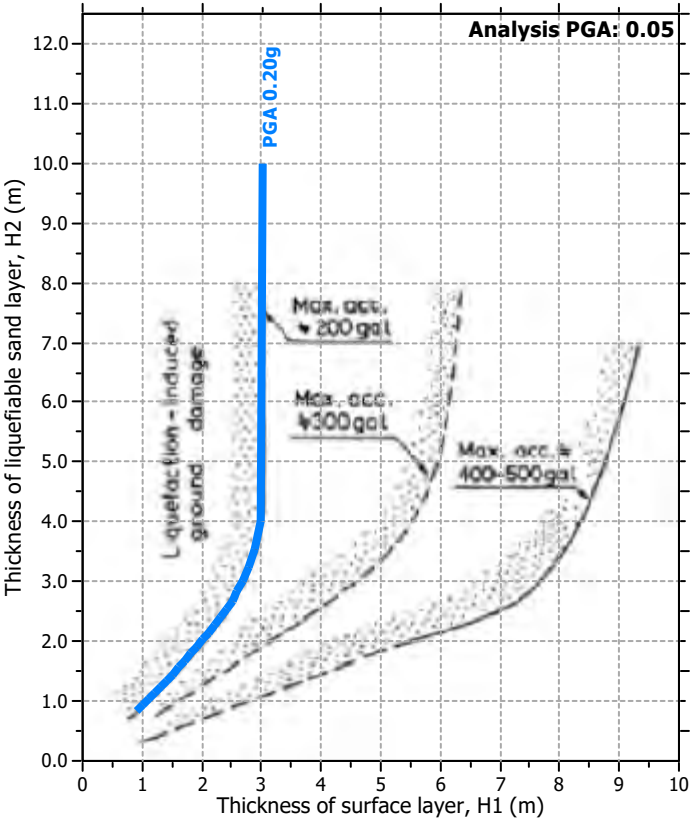
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



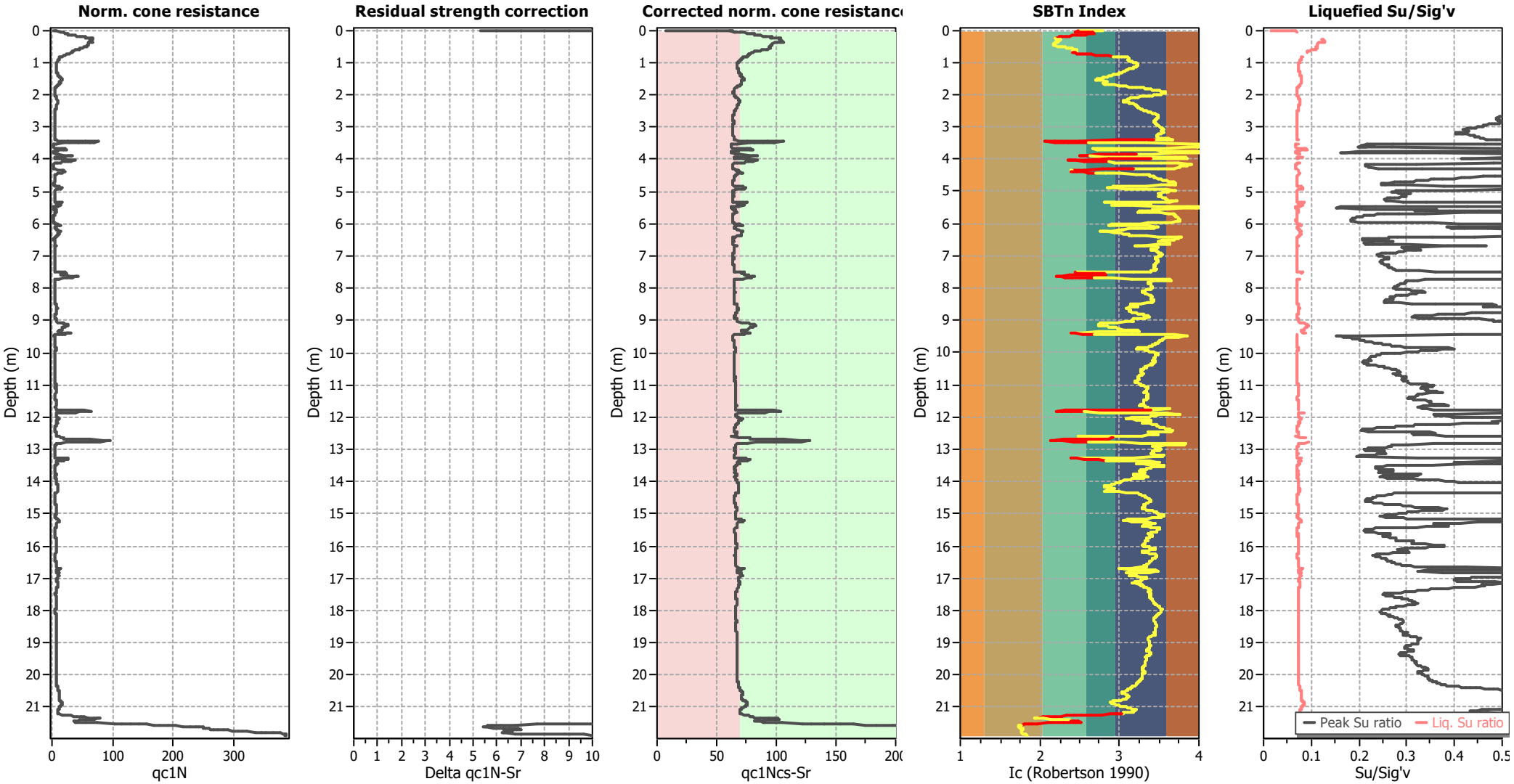




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

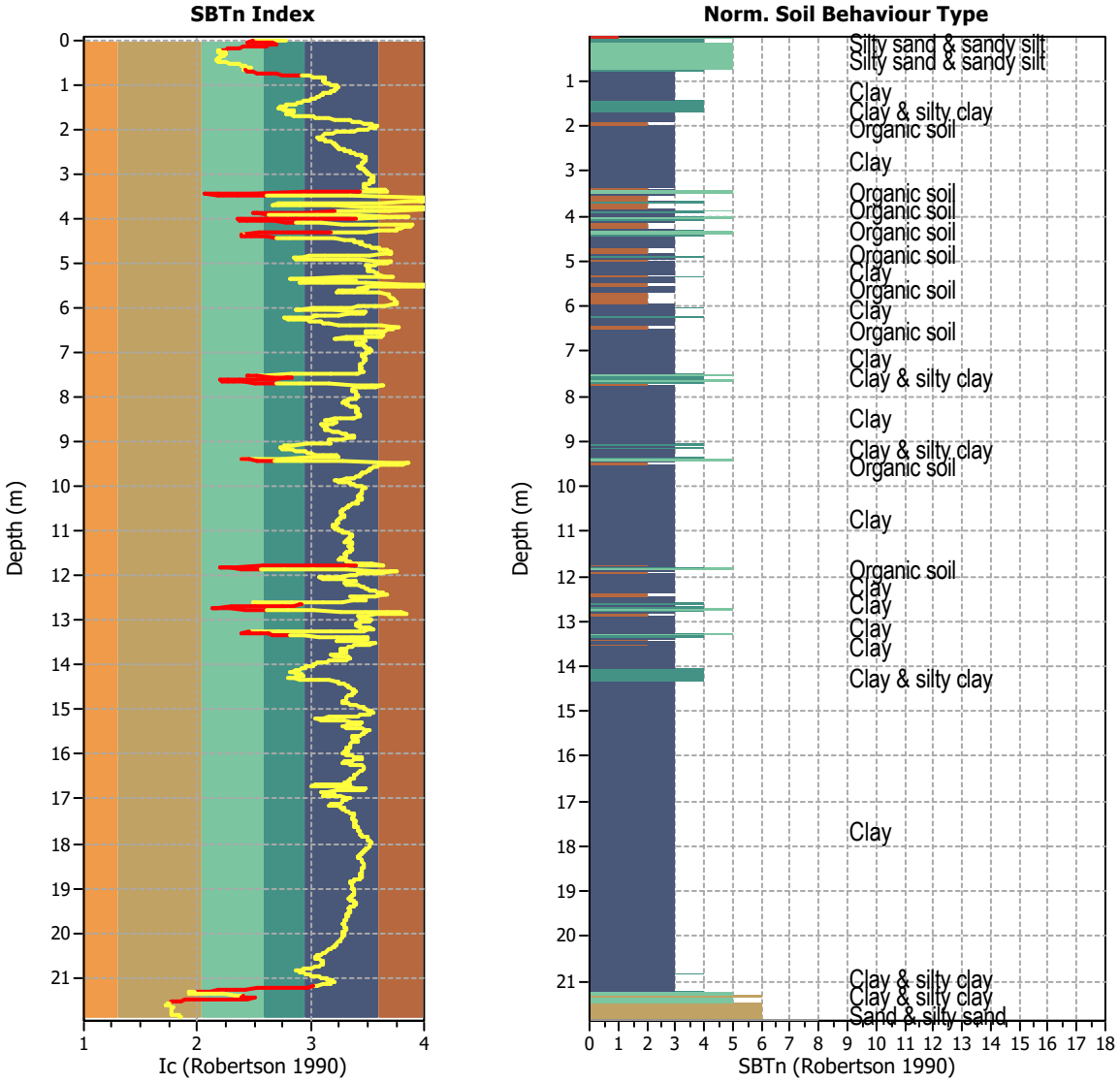
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



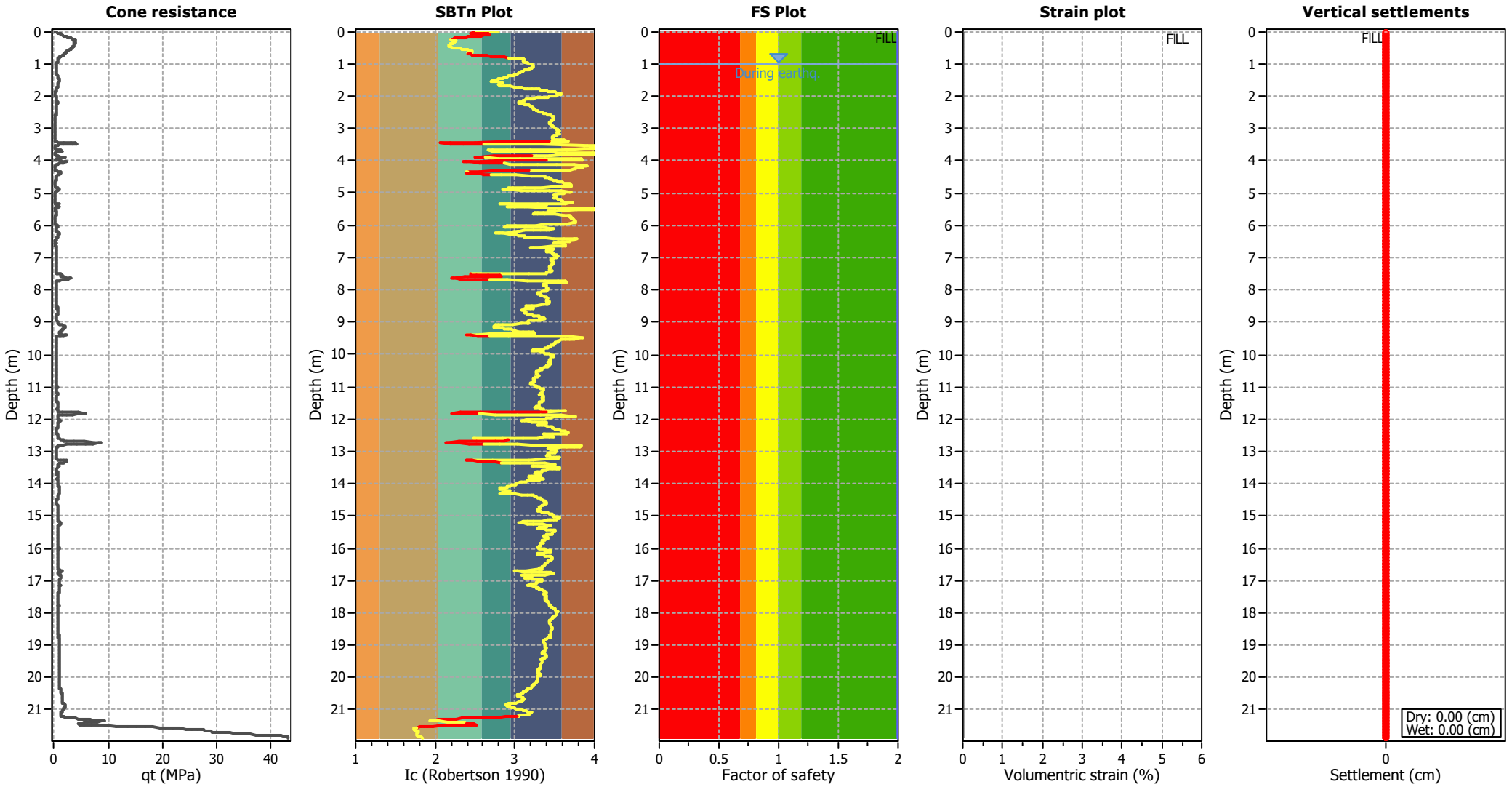
Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	2188
Total points excluded:	161
Exclusion percentage:	7.36%
Number of layers detected:	23

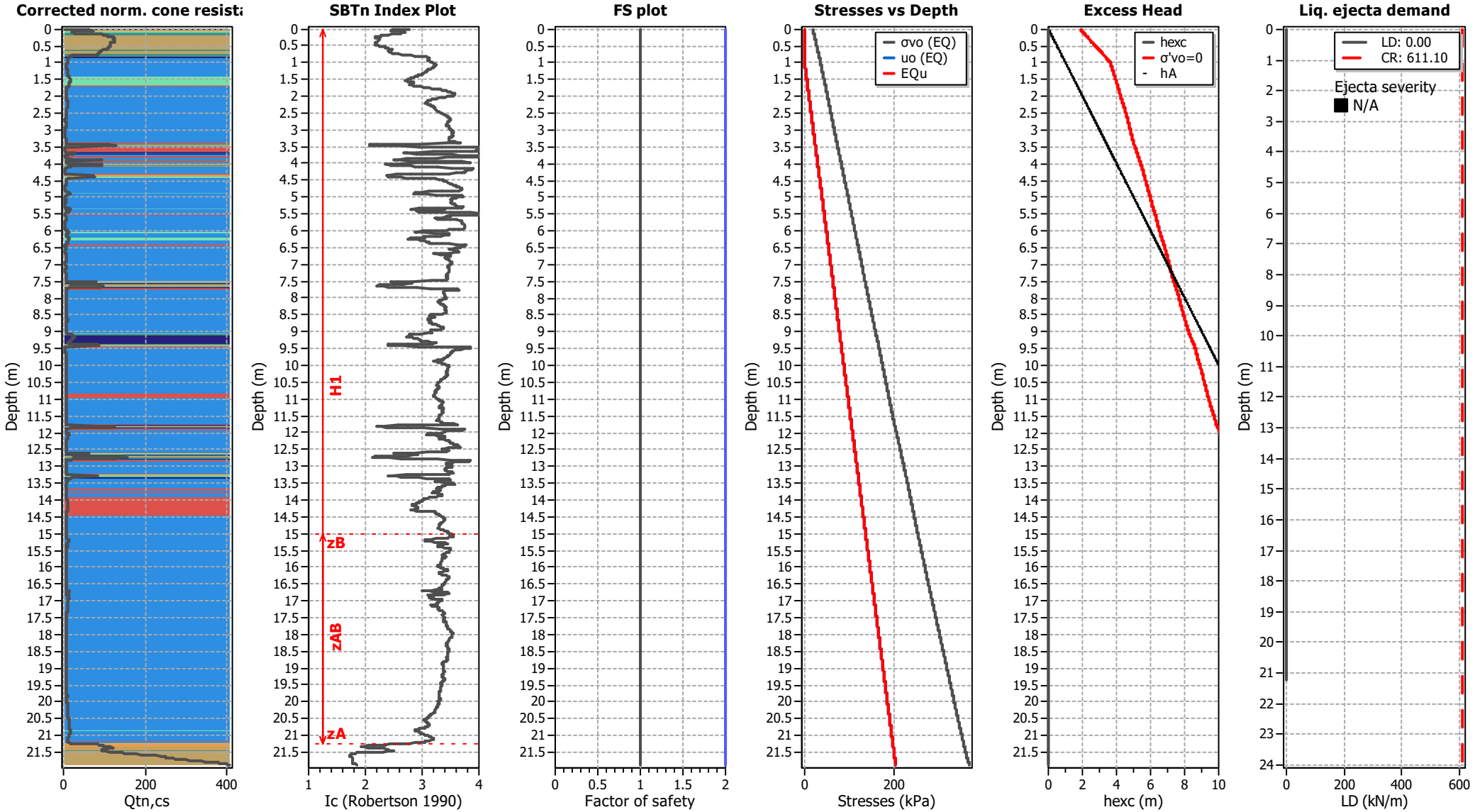
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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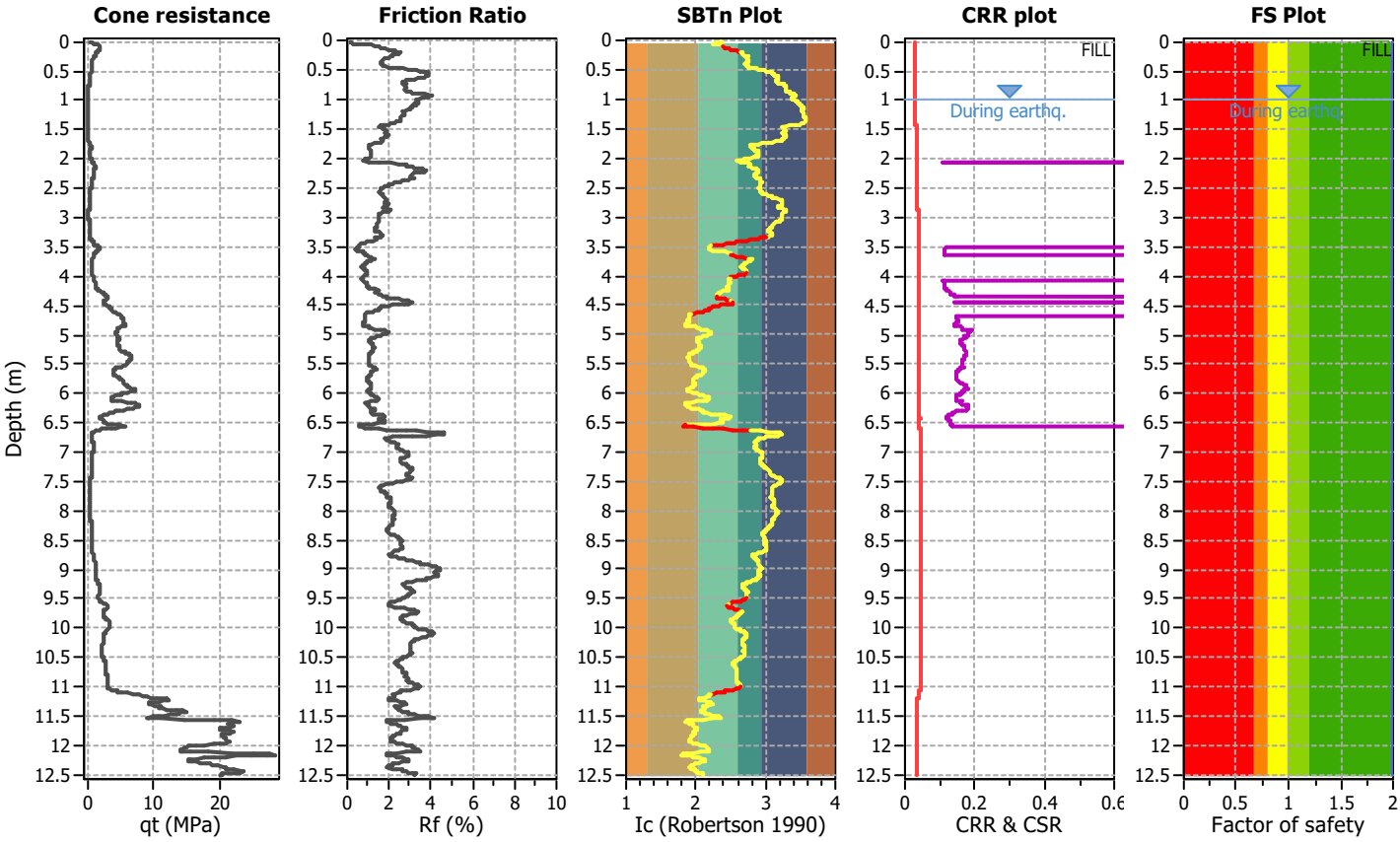
LIQUEFACTION ANALYSIS REPORT

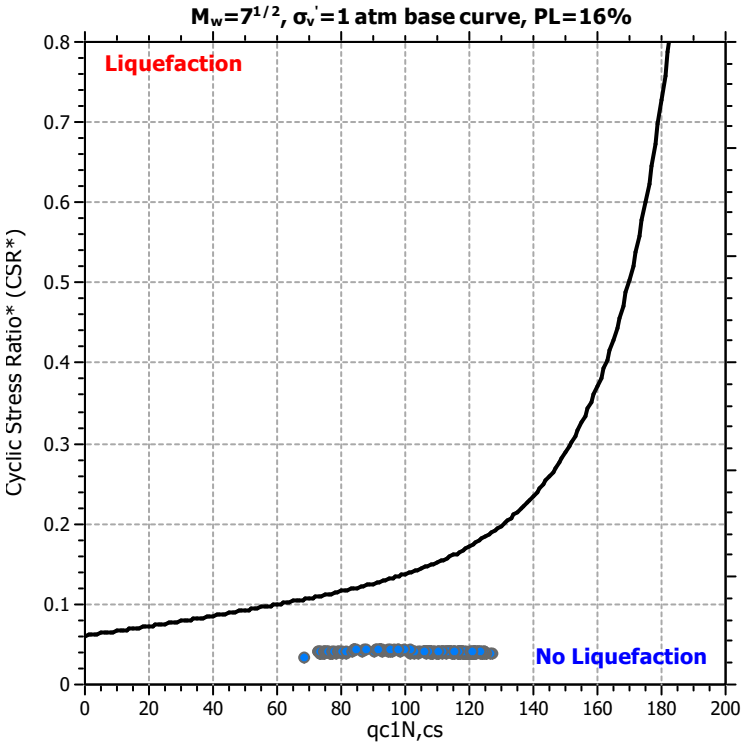
Project title : Sunfield Landholding **Location :**

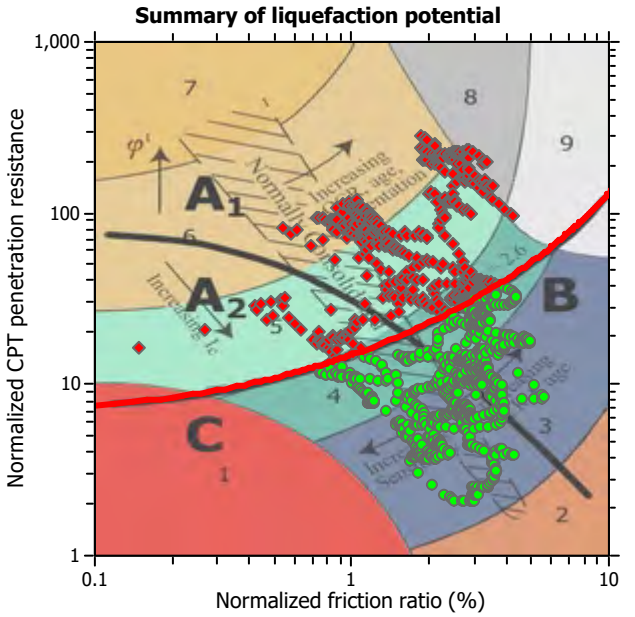
CPT file : CPT012

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	37.00 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

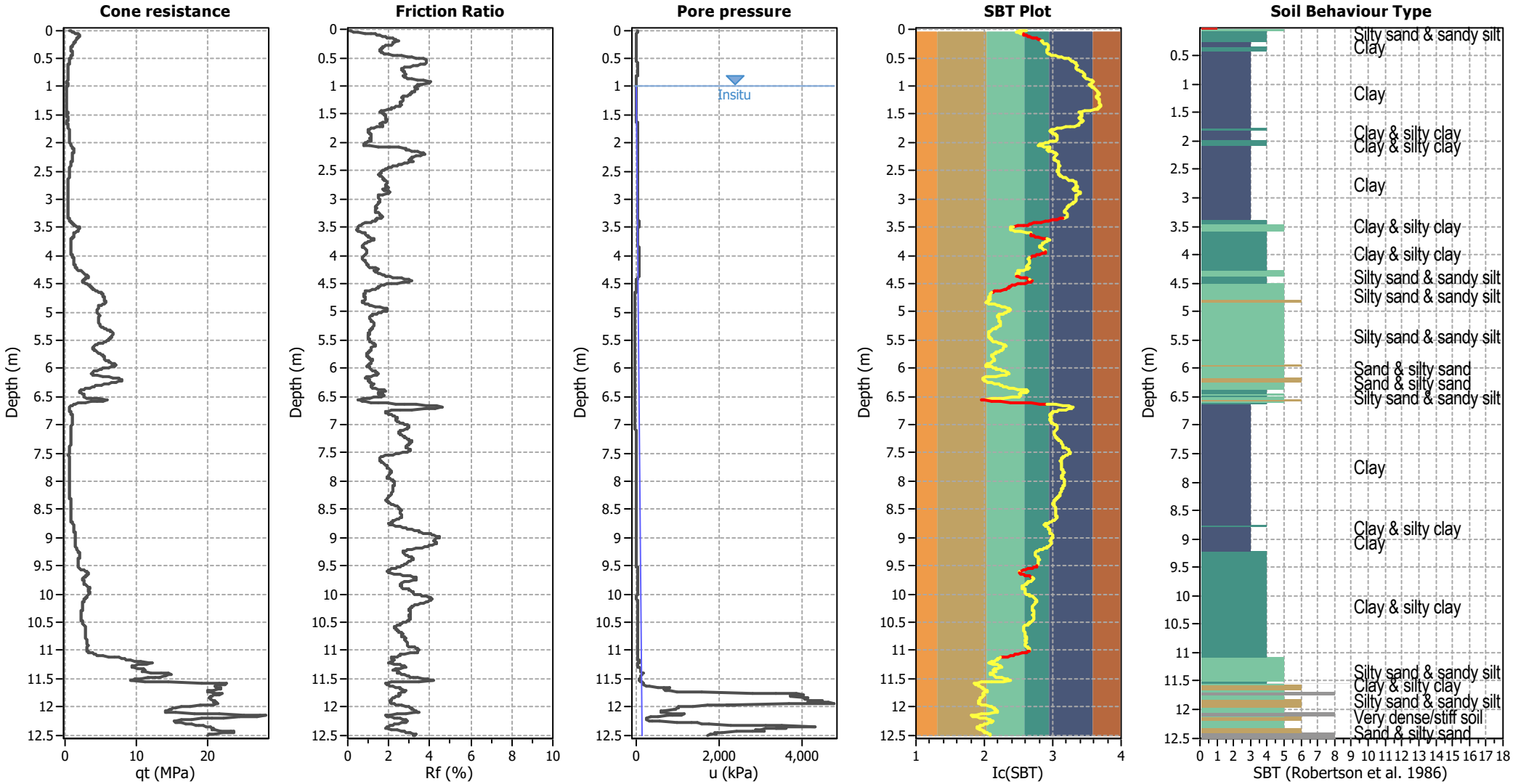






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



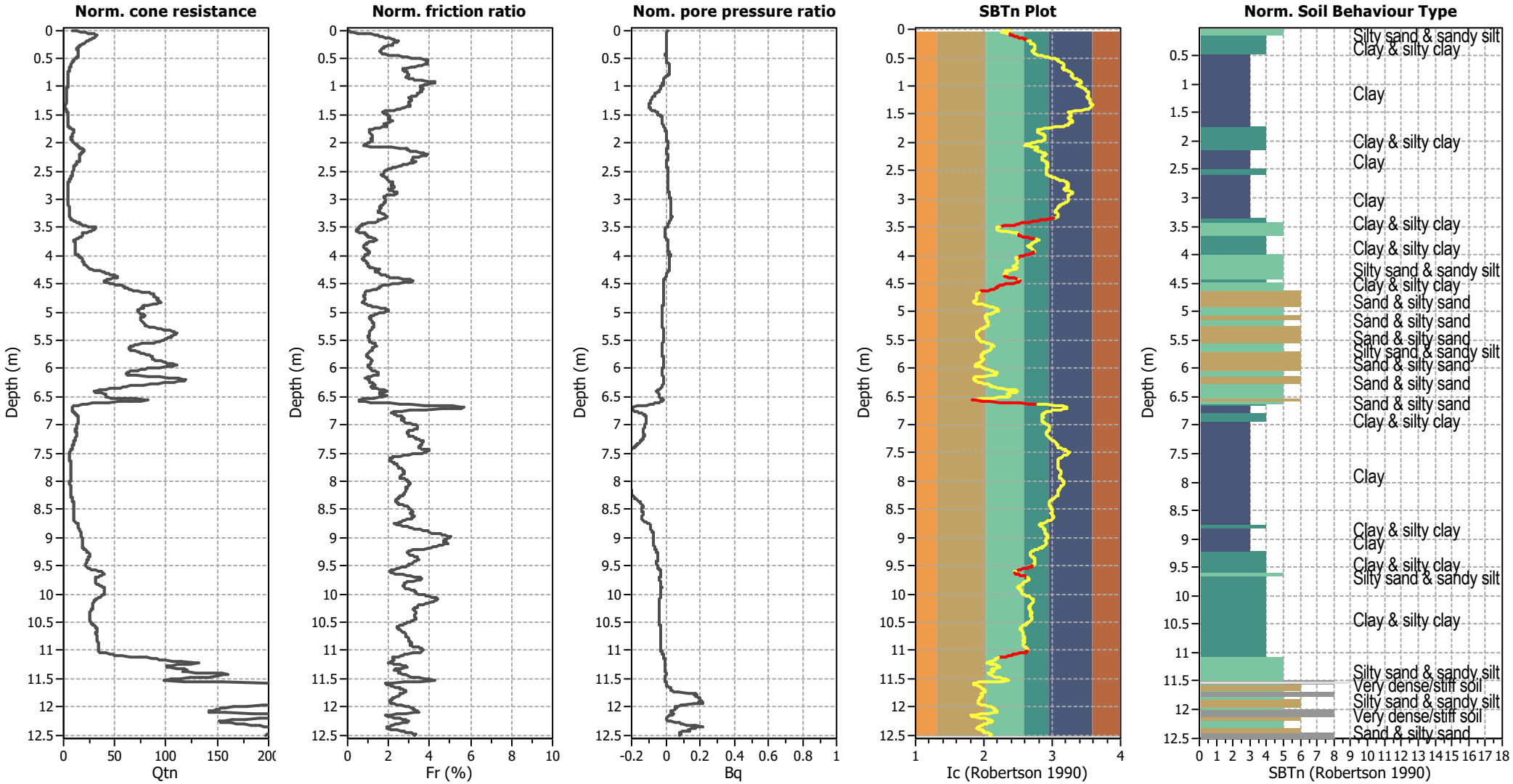
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



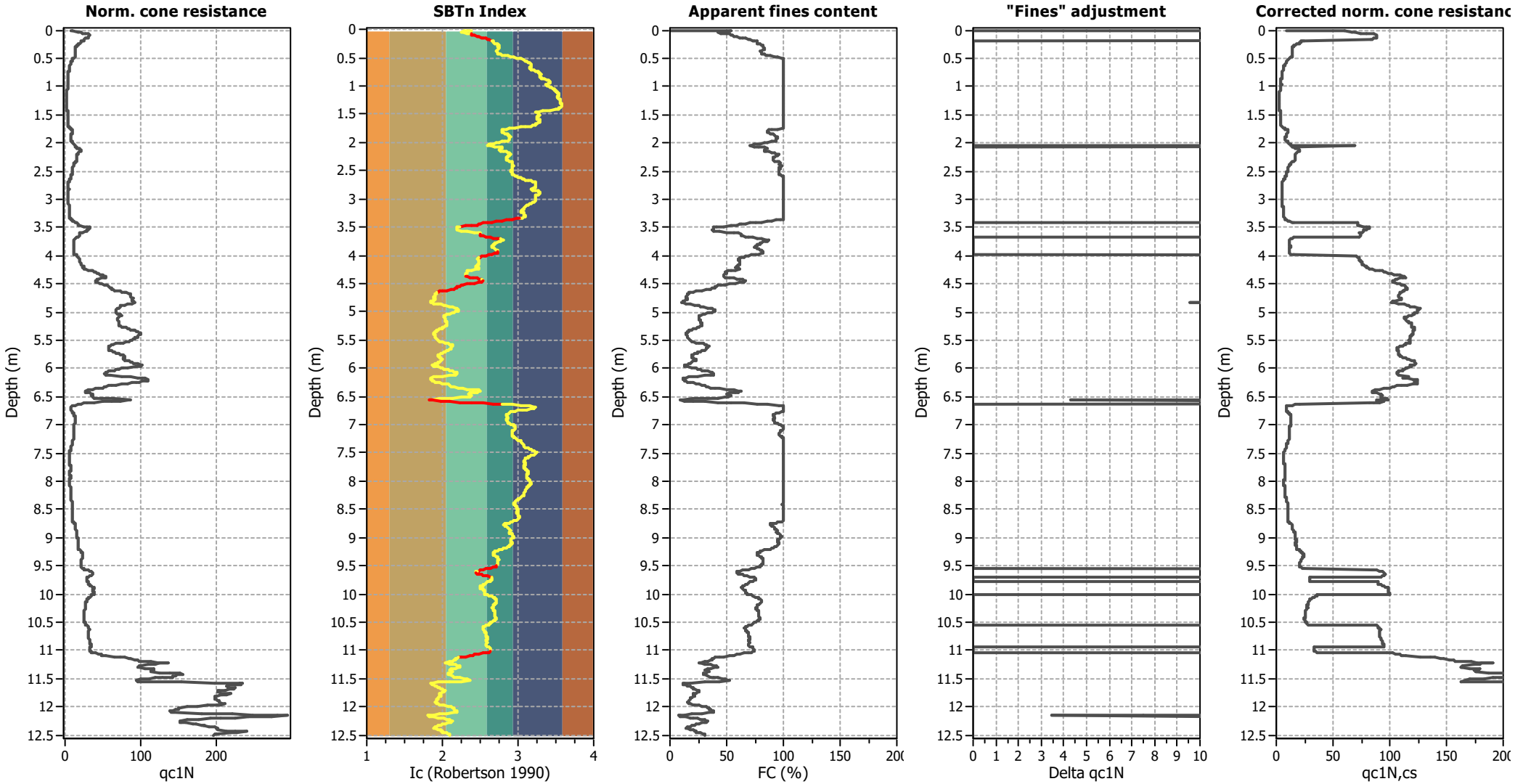
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

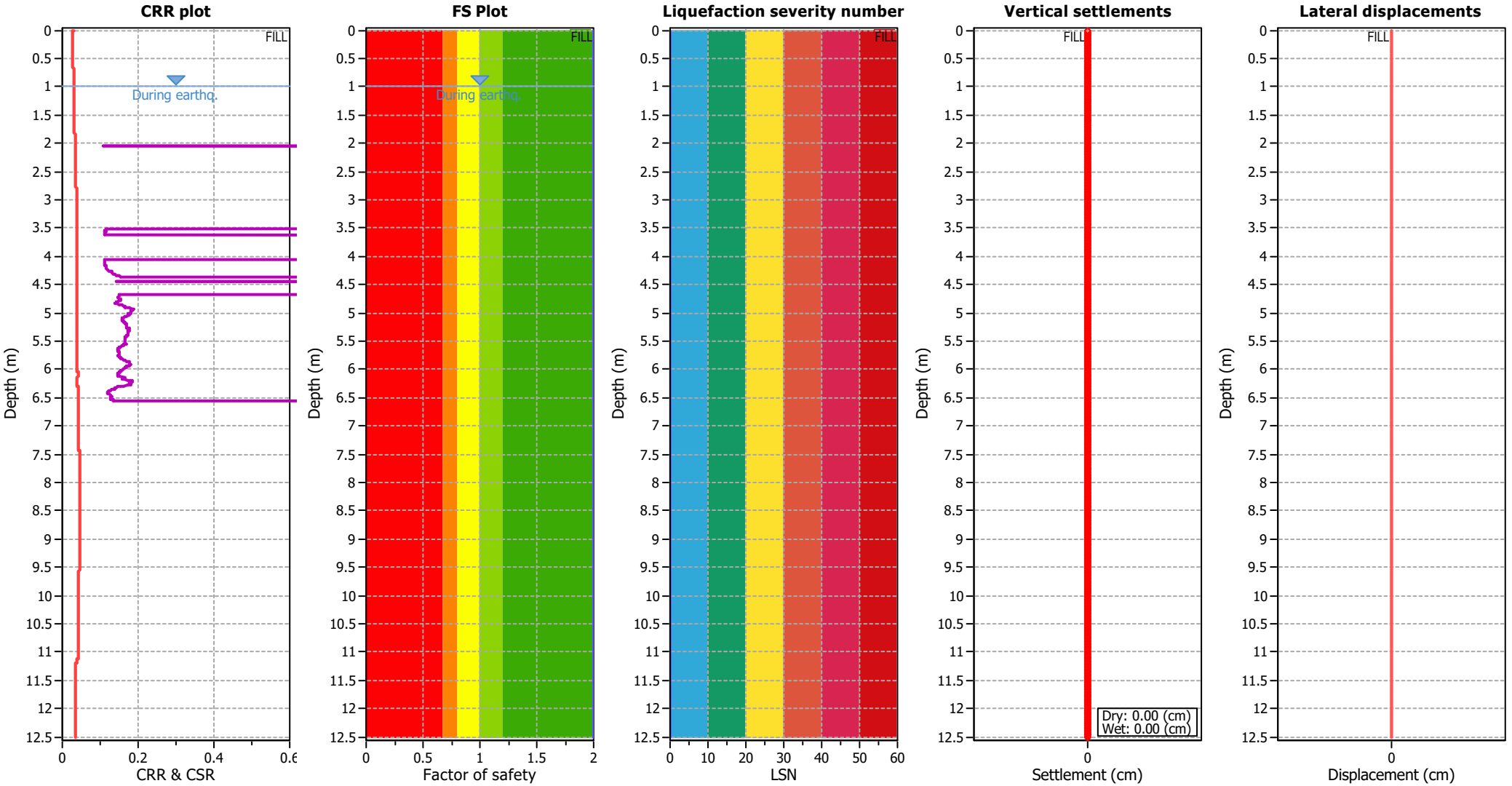
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

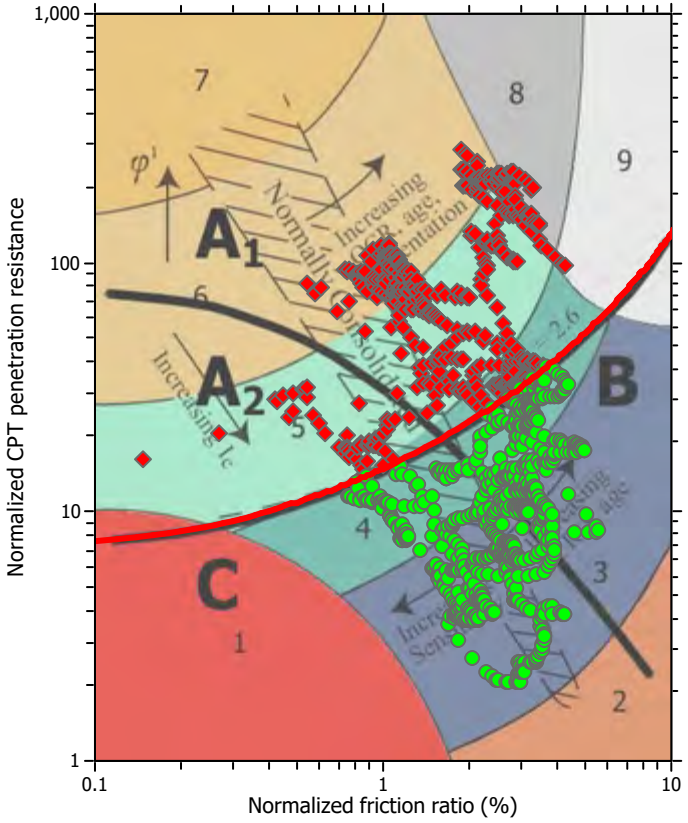
F.S. color scheme

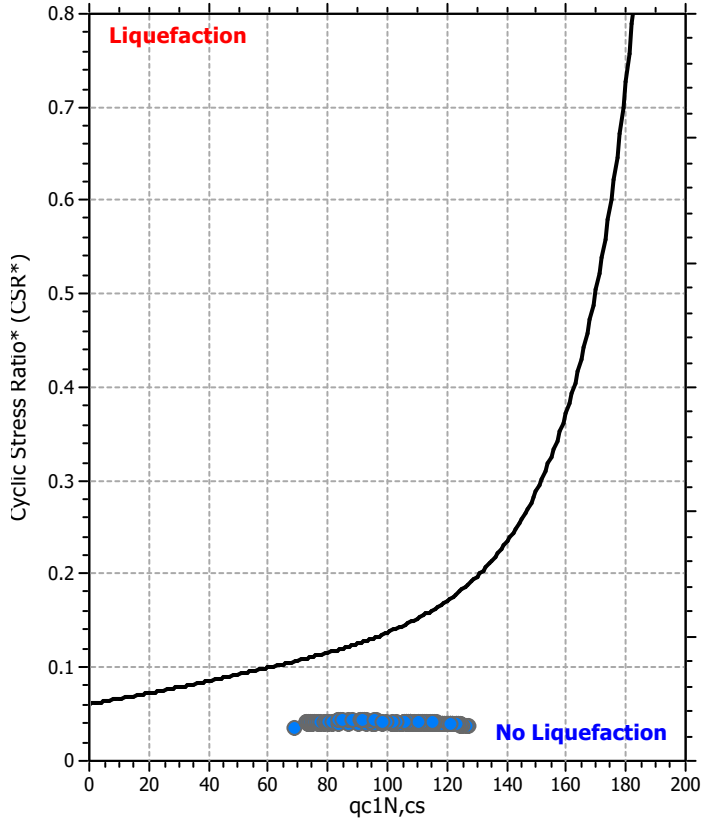
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

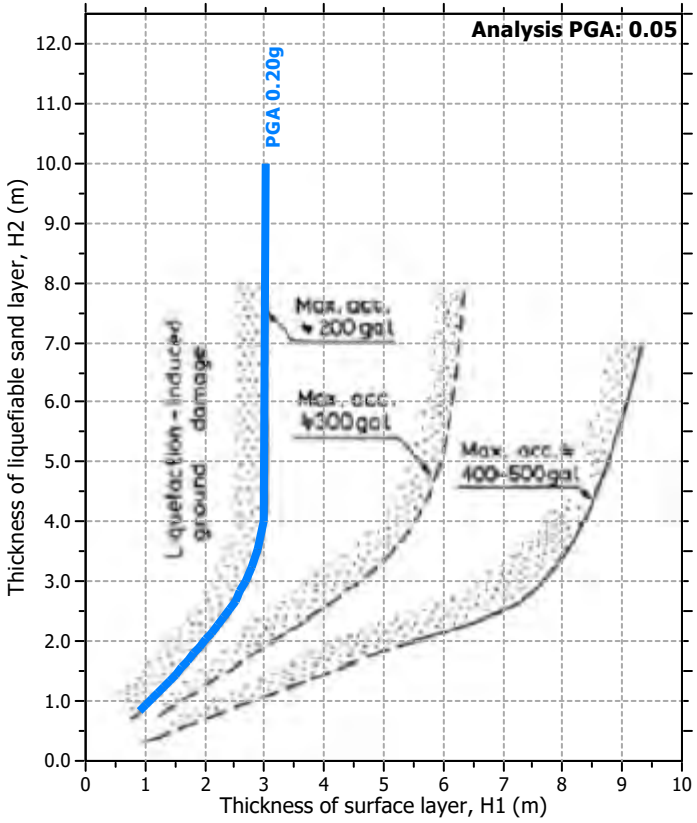
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



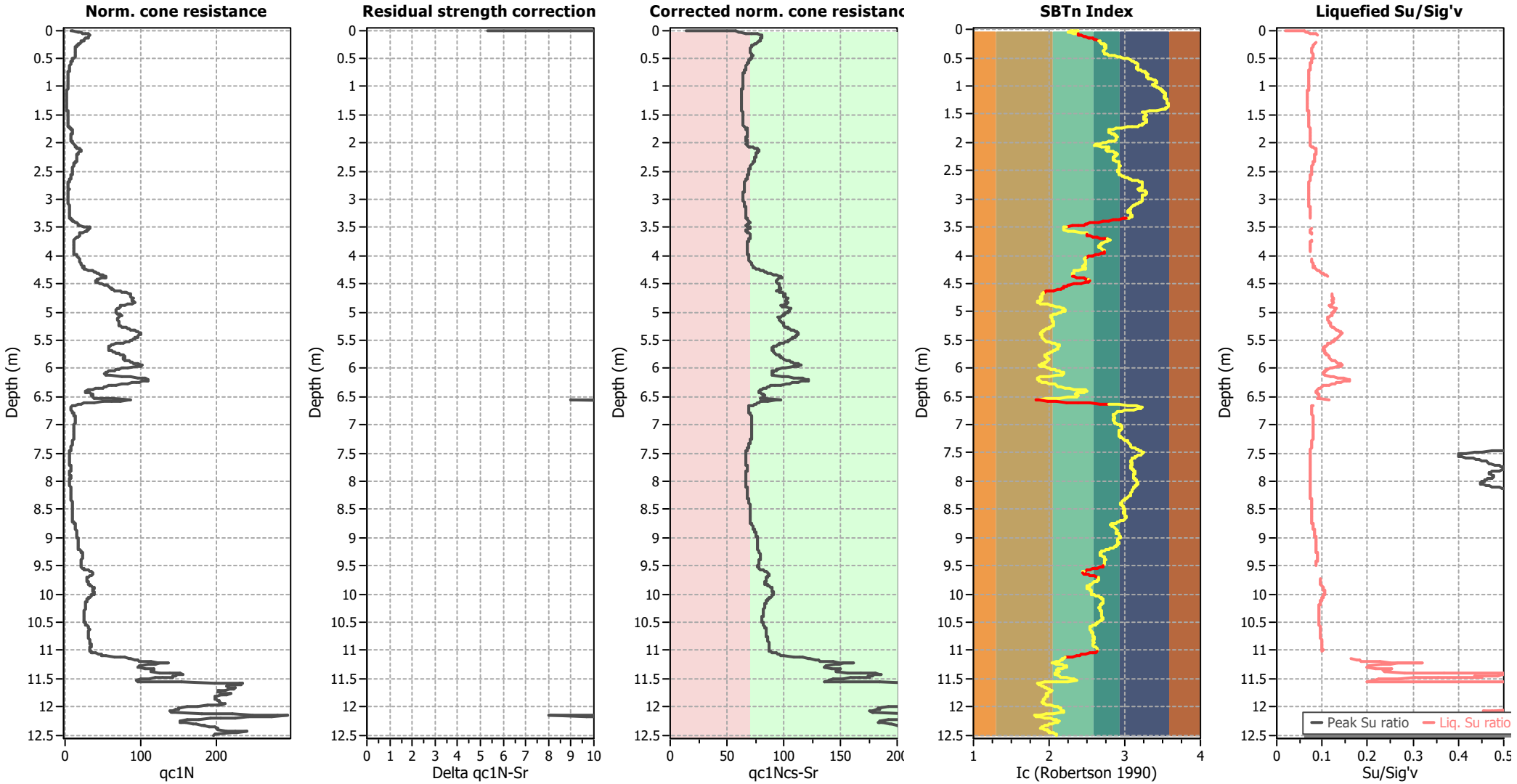




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

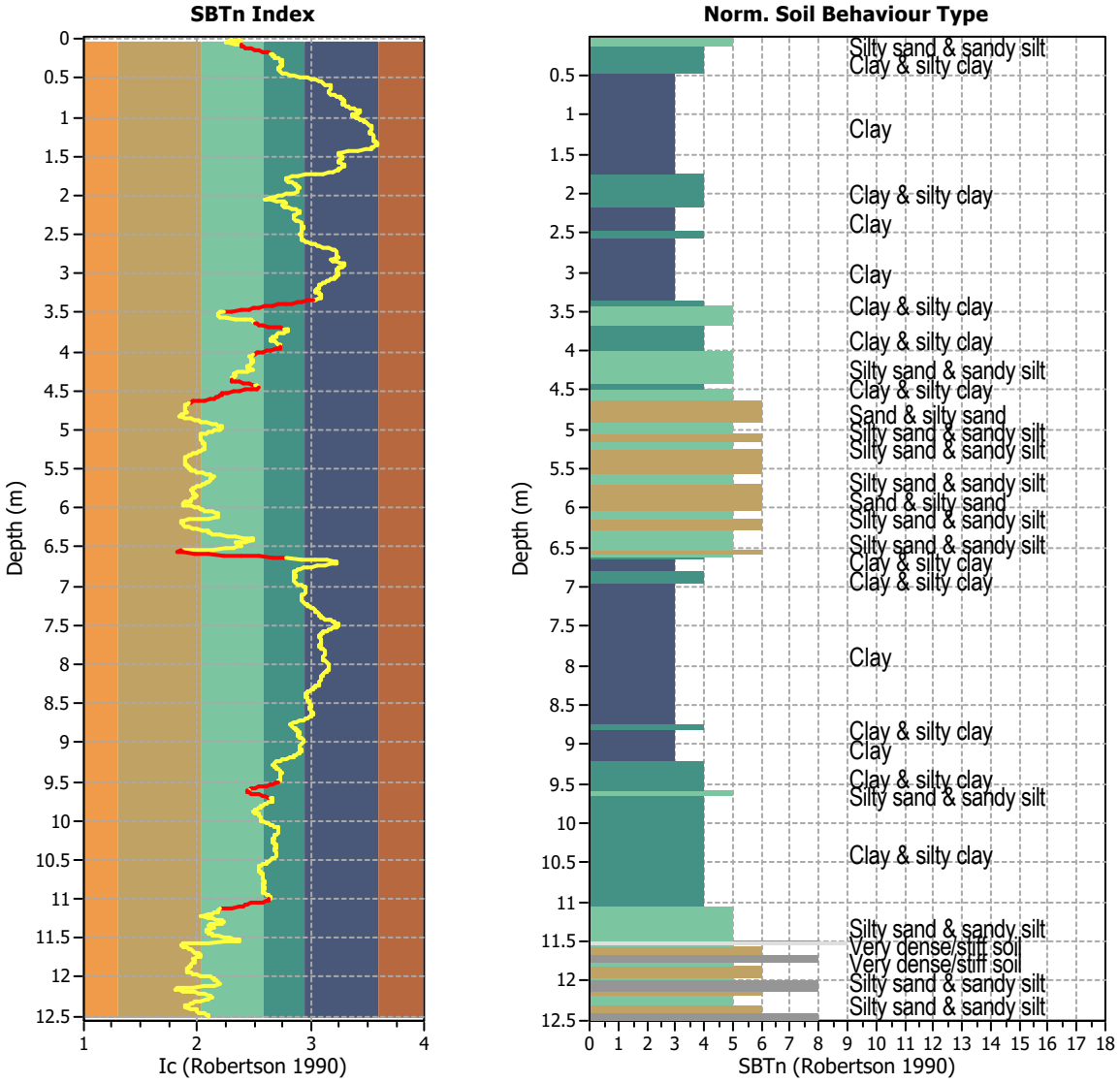
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

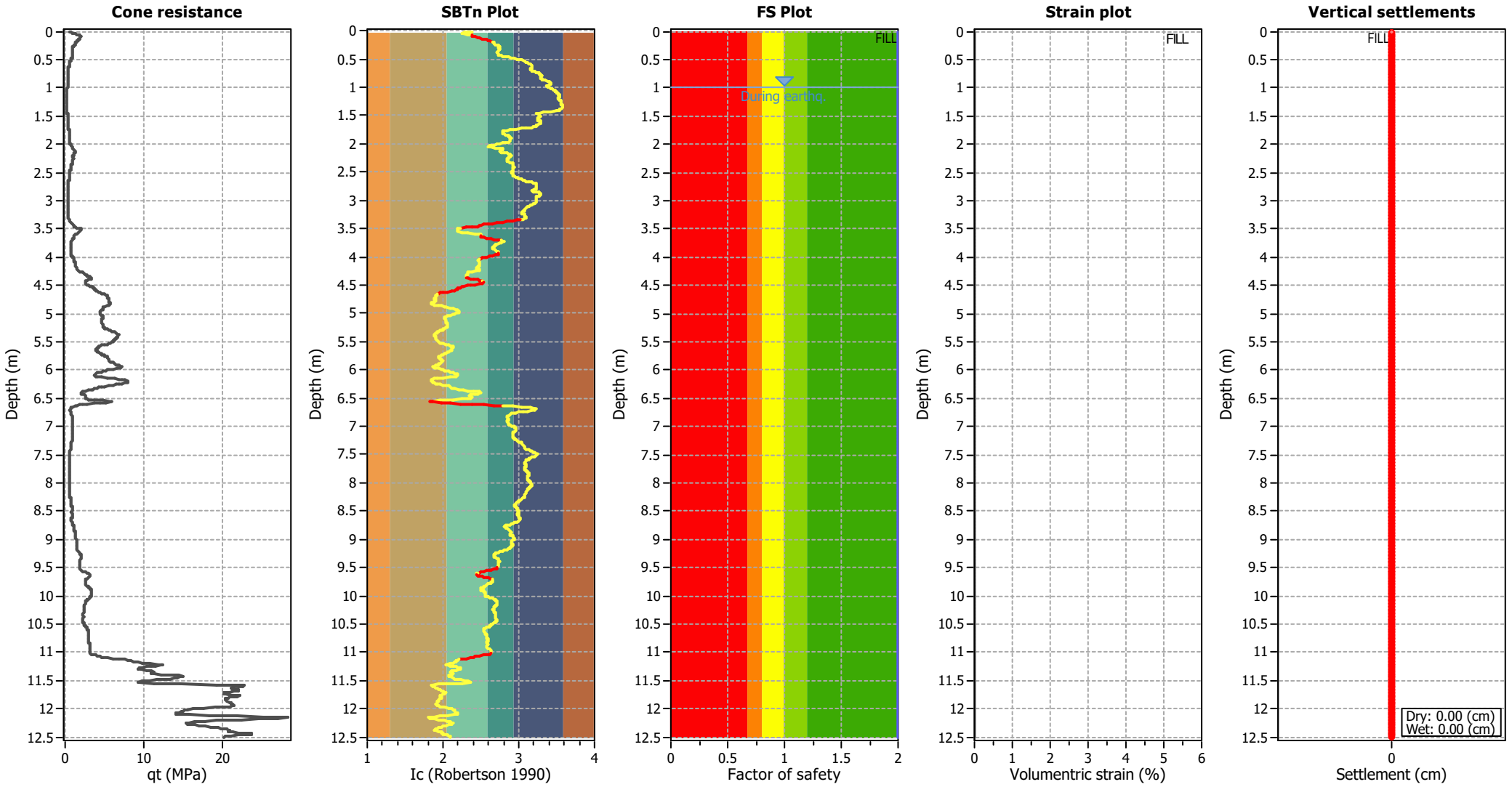
The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties	
I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics	
Total points in CPT file:	1251
Total points excluded:	122
Exclusion percentage:	9.75%
Number of layers detected:	10

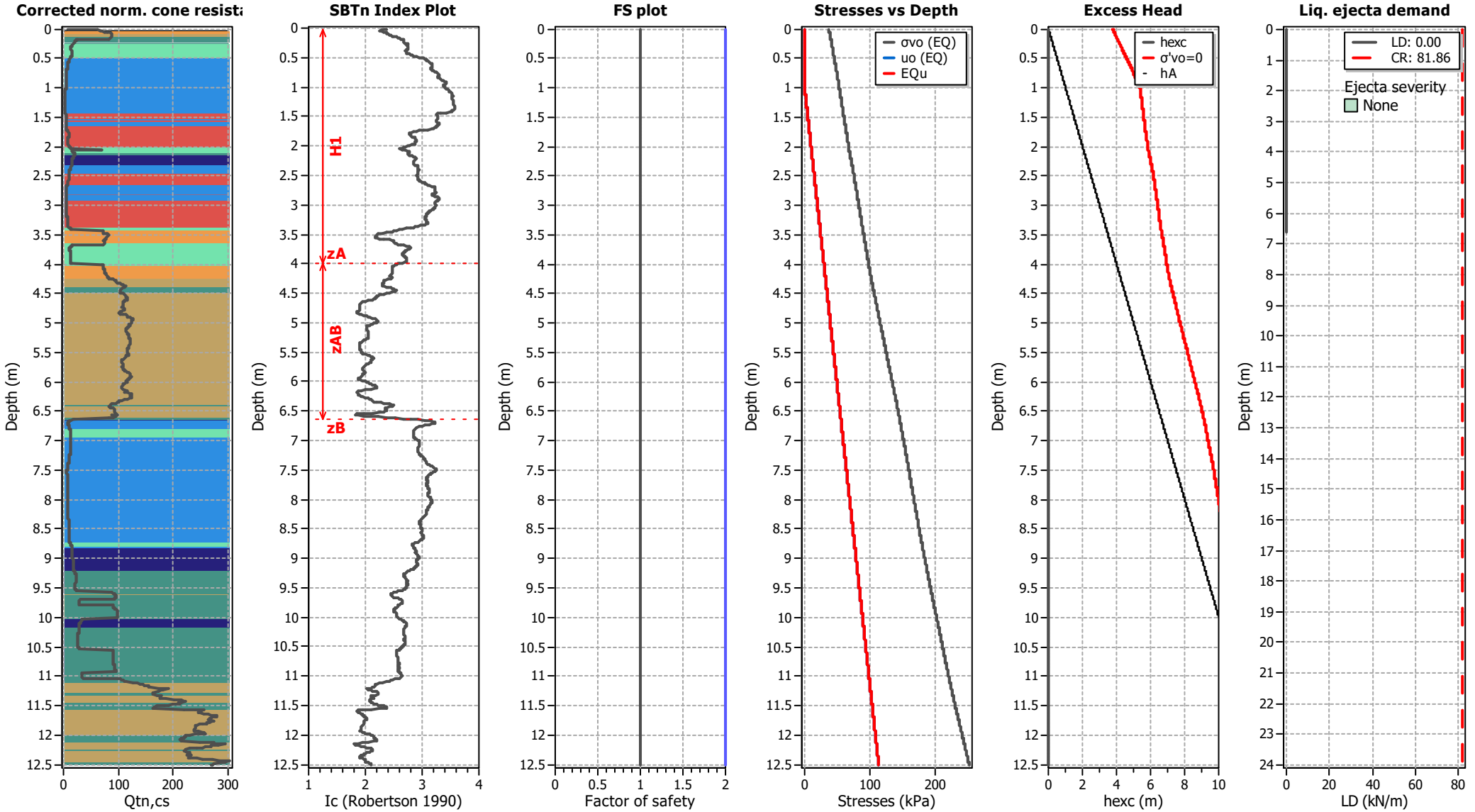
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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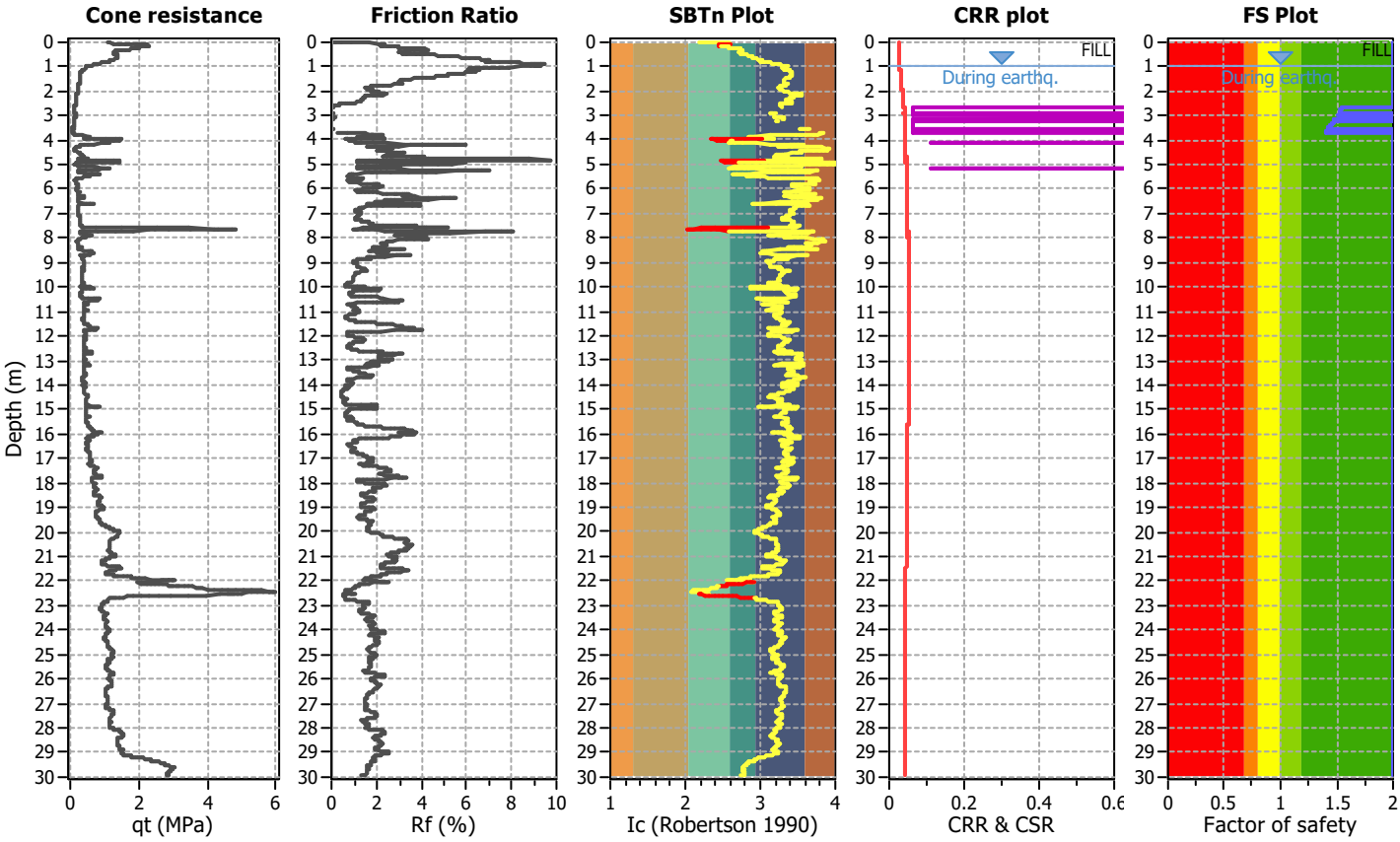
LIQUEFACTION ANALYSIS REPORT

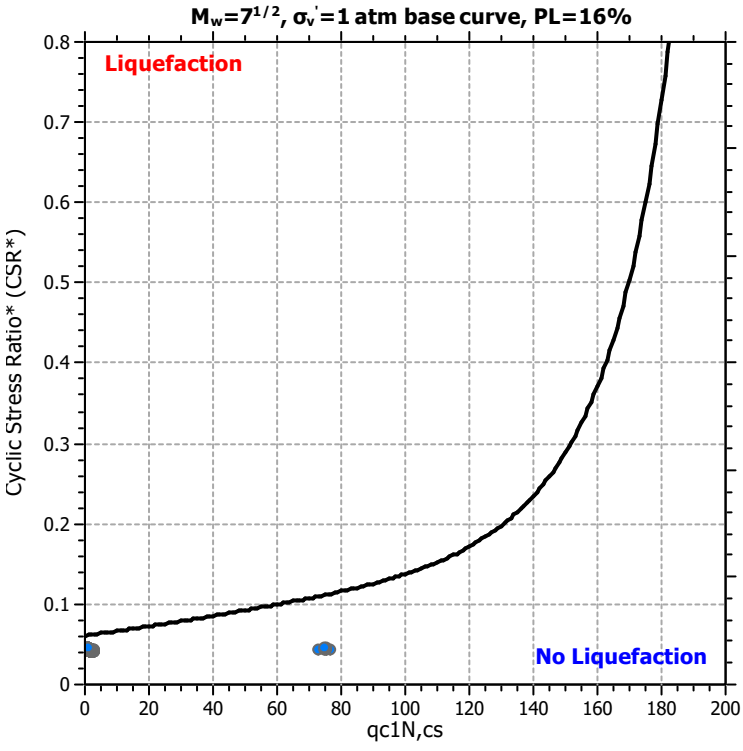
Project title : Sunfield Landholding **Location :**

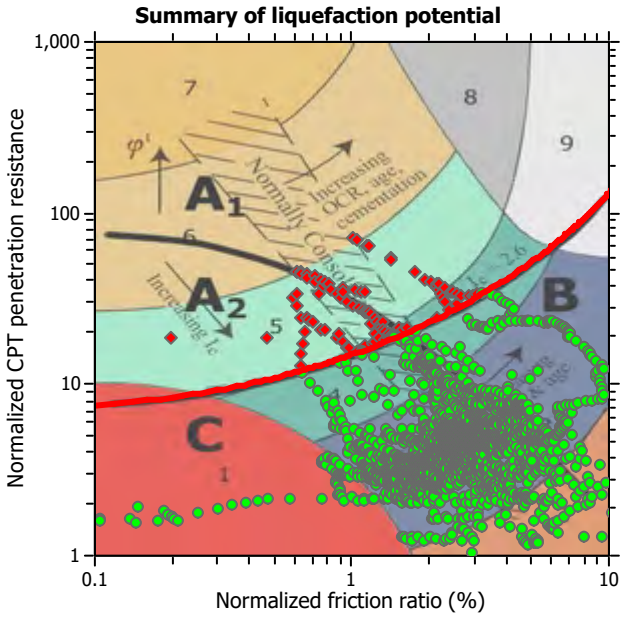
CPT file : CPT013A

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	18.50 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

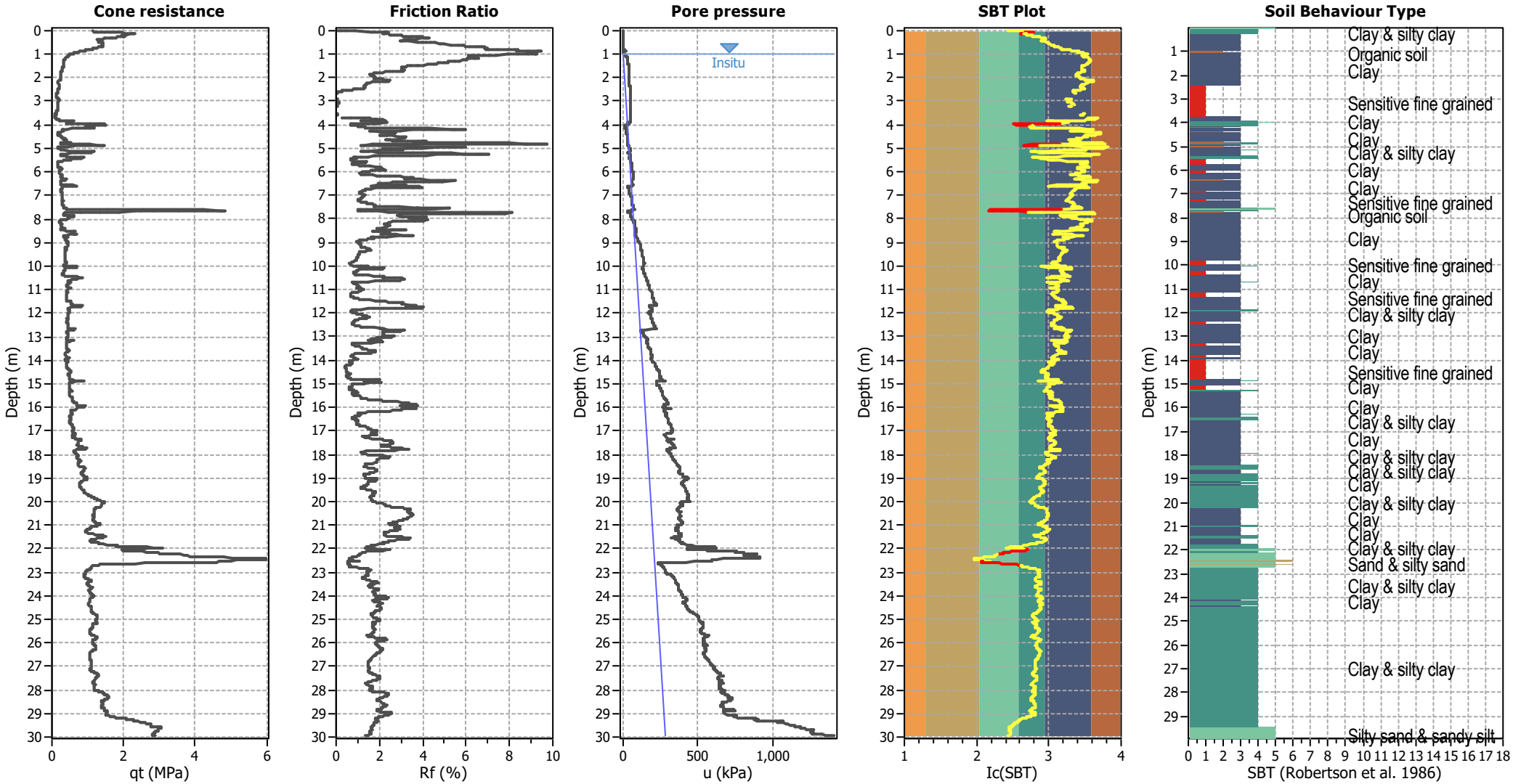






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



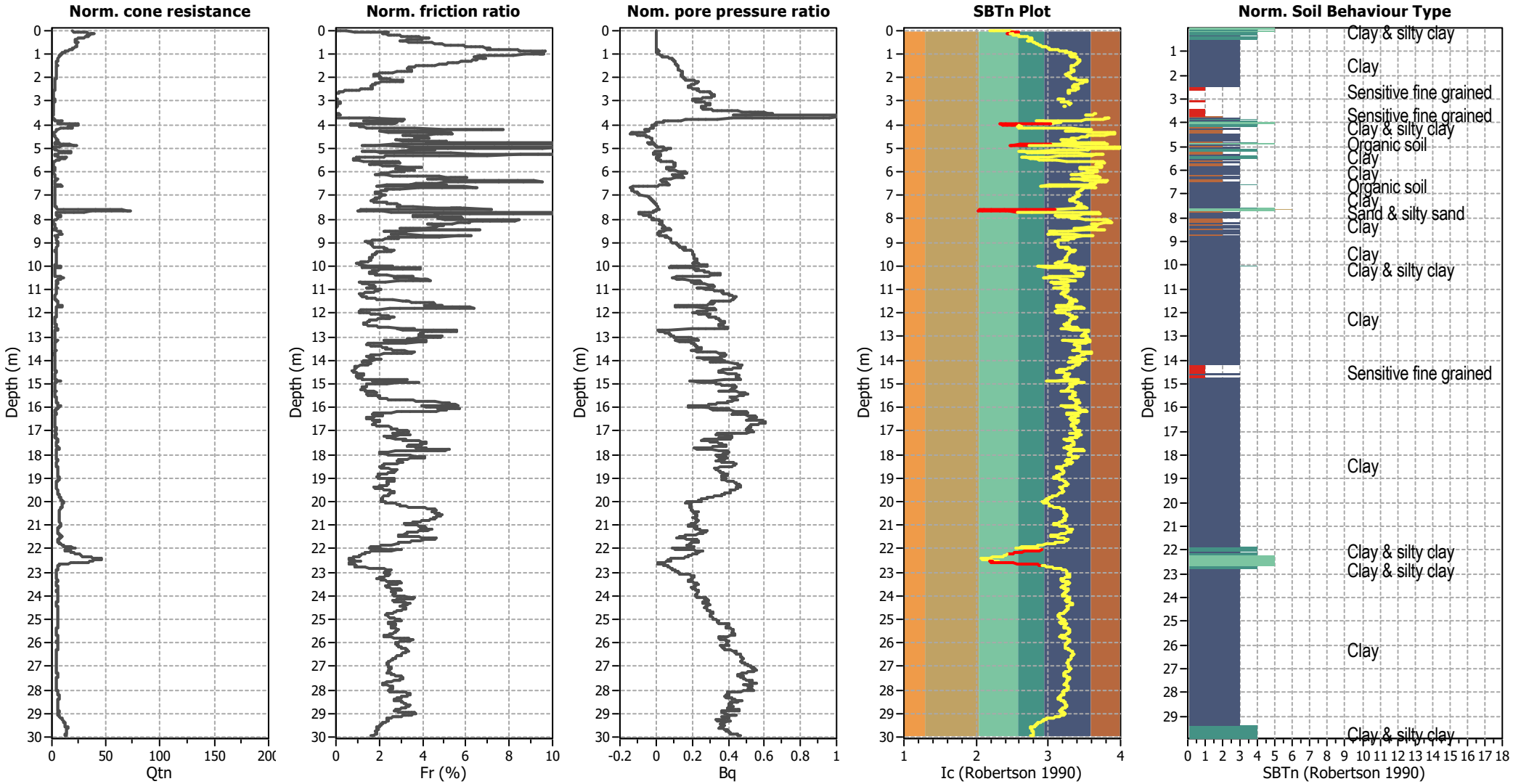
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



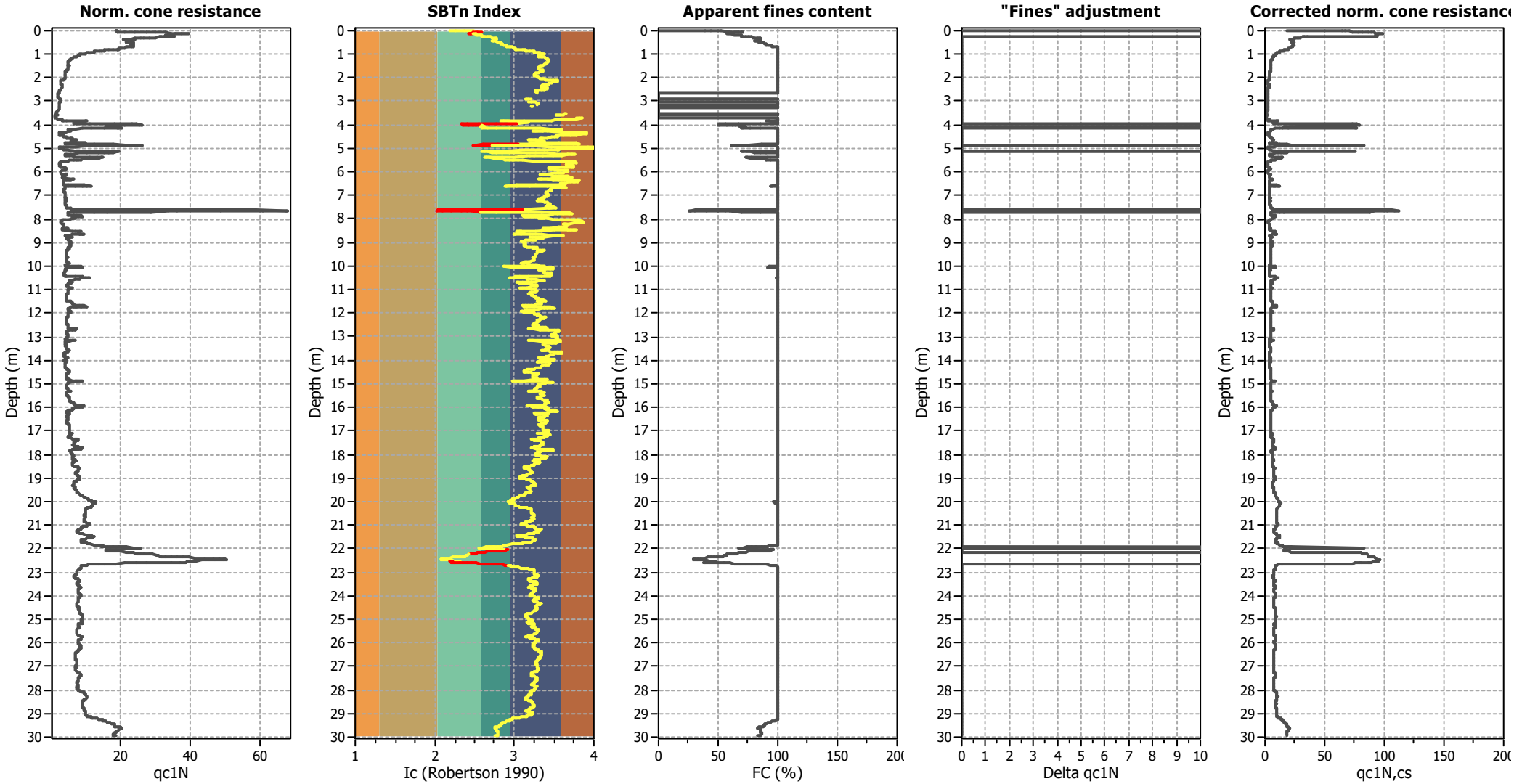
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

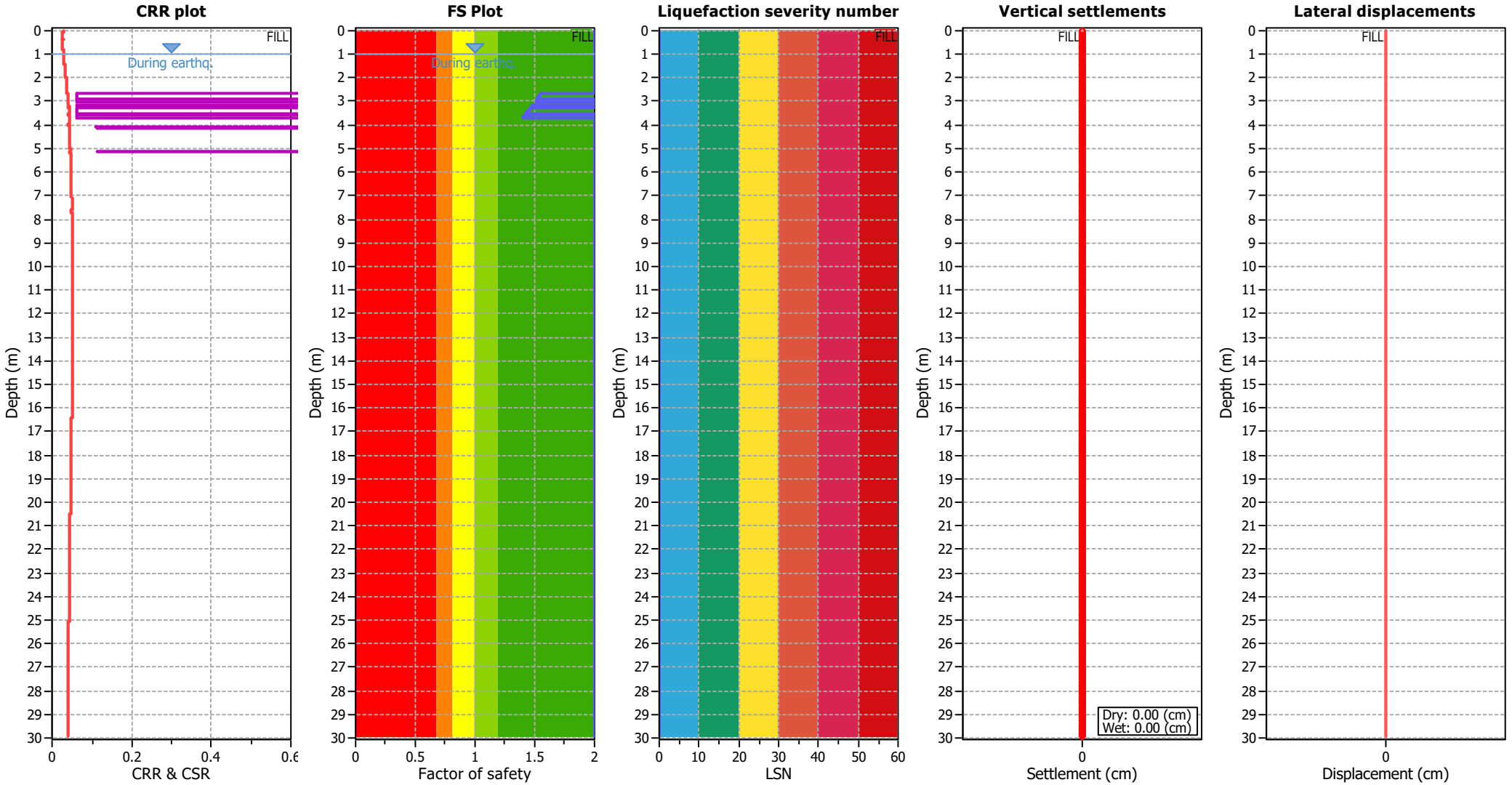
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

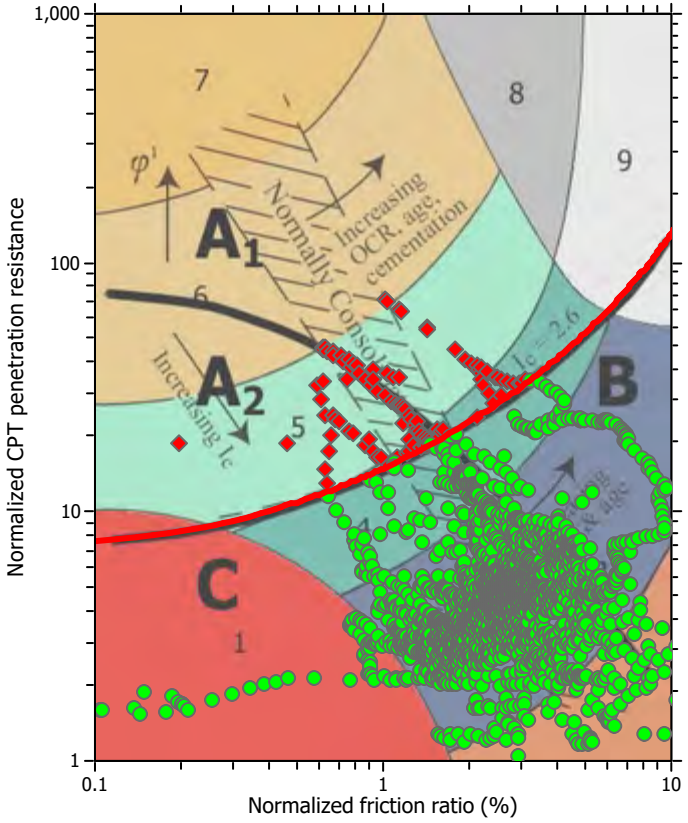
F.S. color scheme

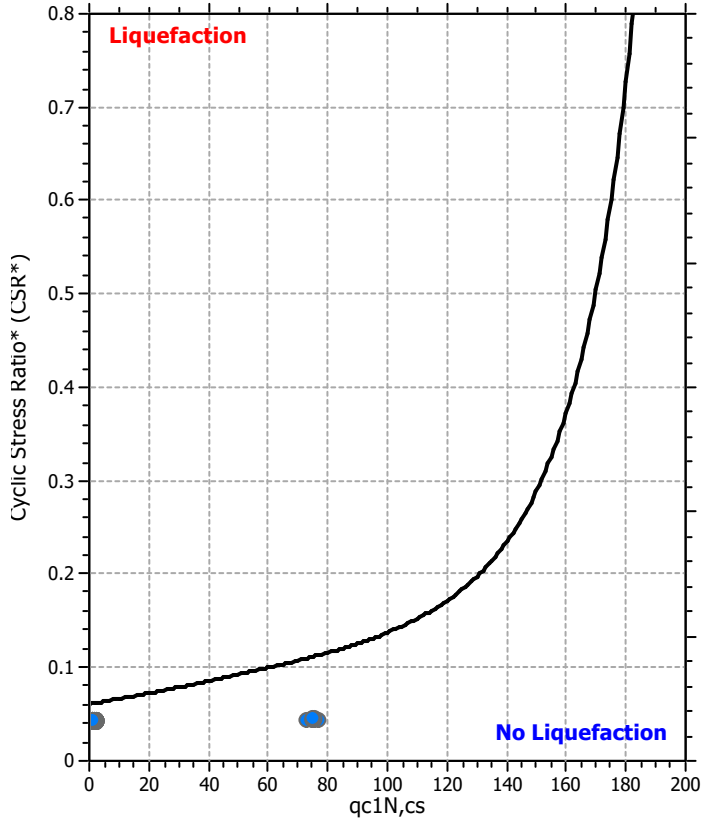
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

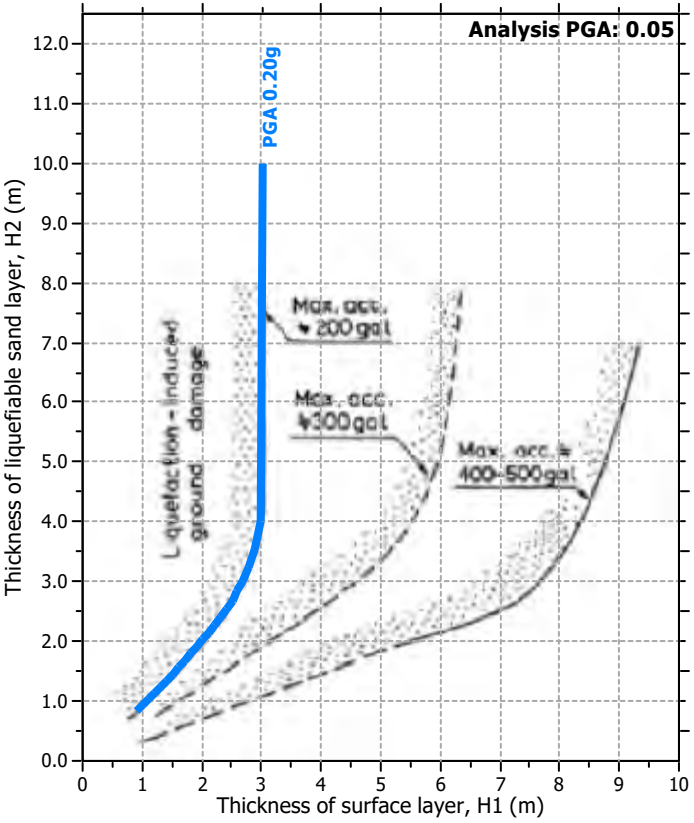
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



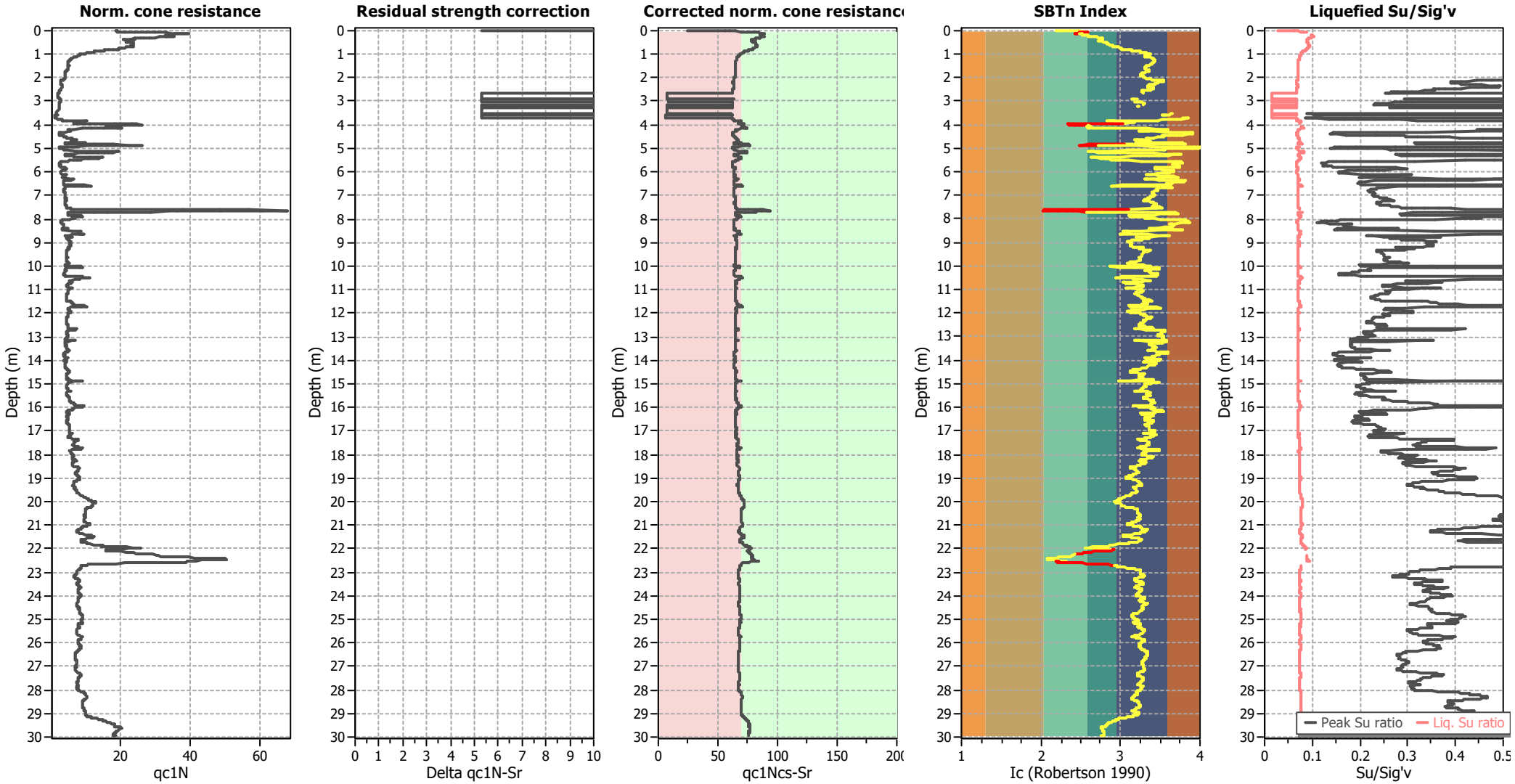




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

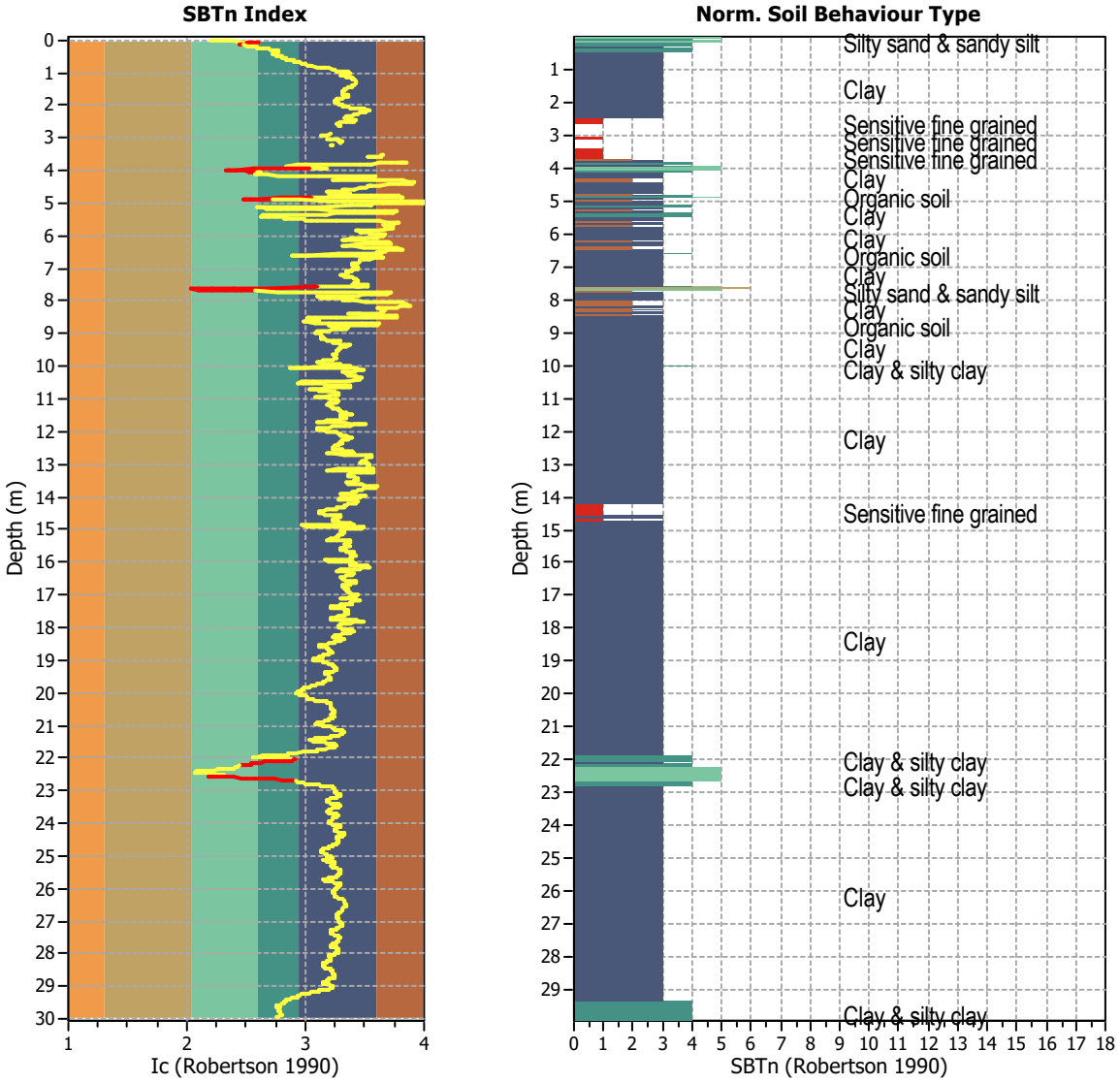
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

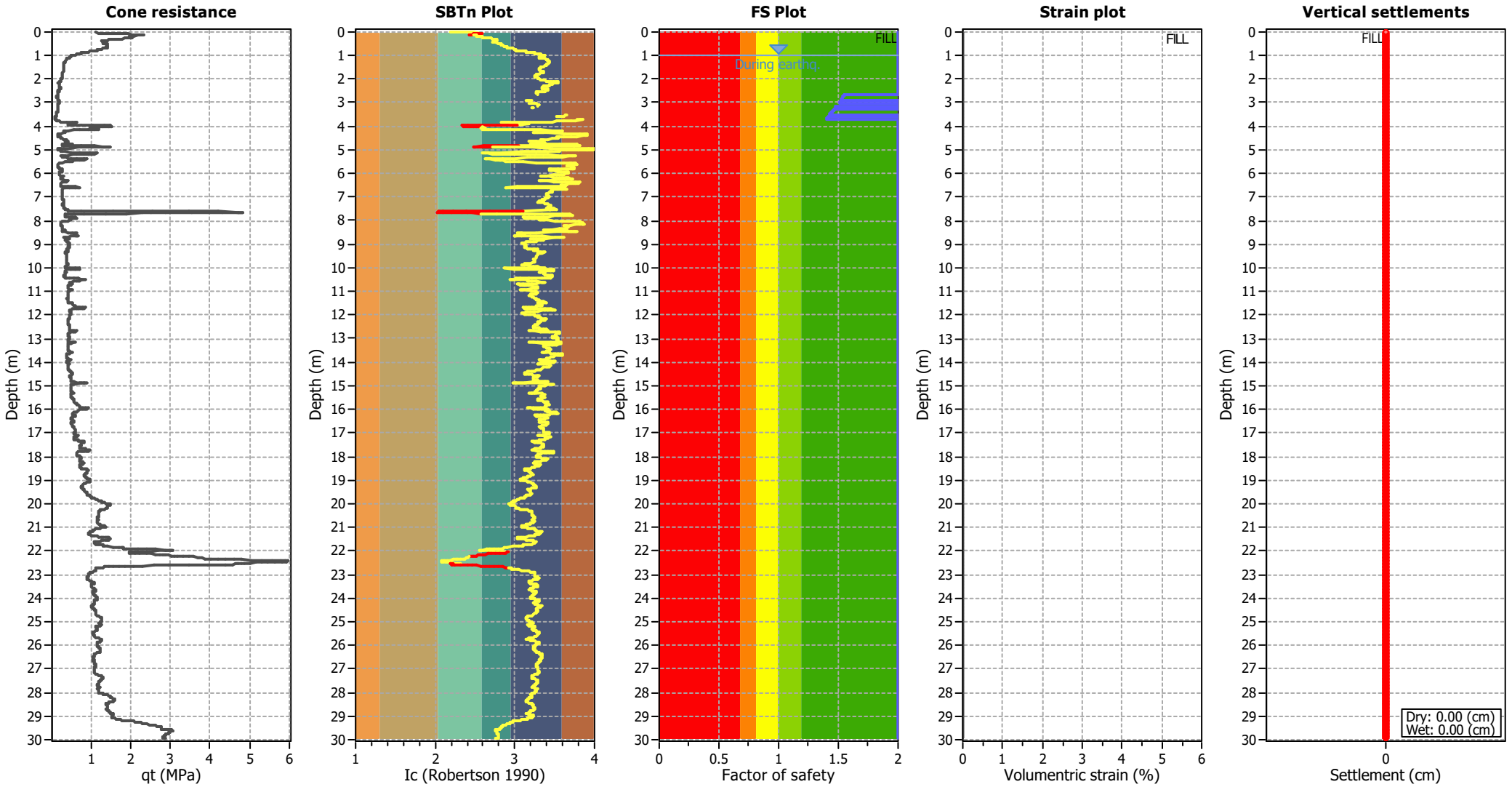
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	2993
I_c maximum check value:	3.00	Total points excluded:	84
I_c change ratio value:	0.0100	Exclusion percentage:	2.81%
Minimum number of points in layer:	4	Number of layers detected:	10

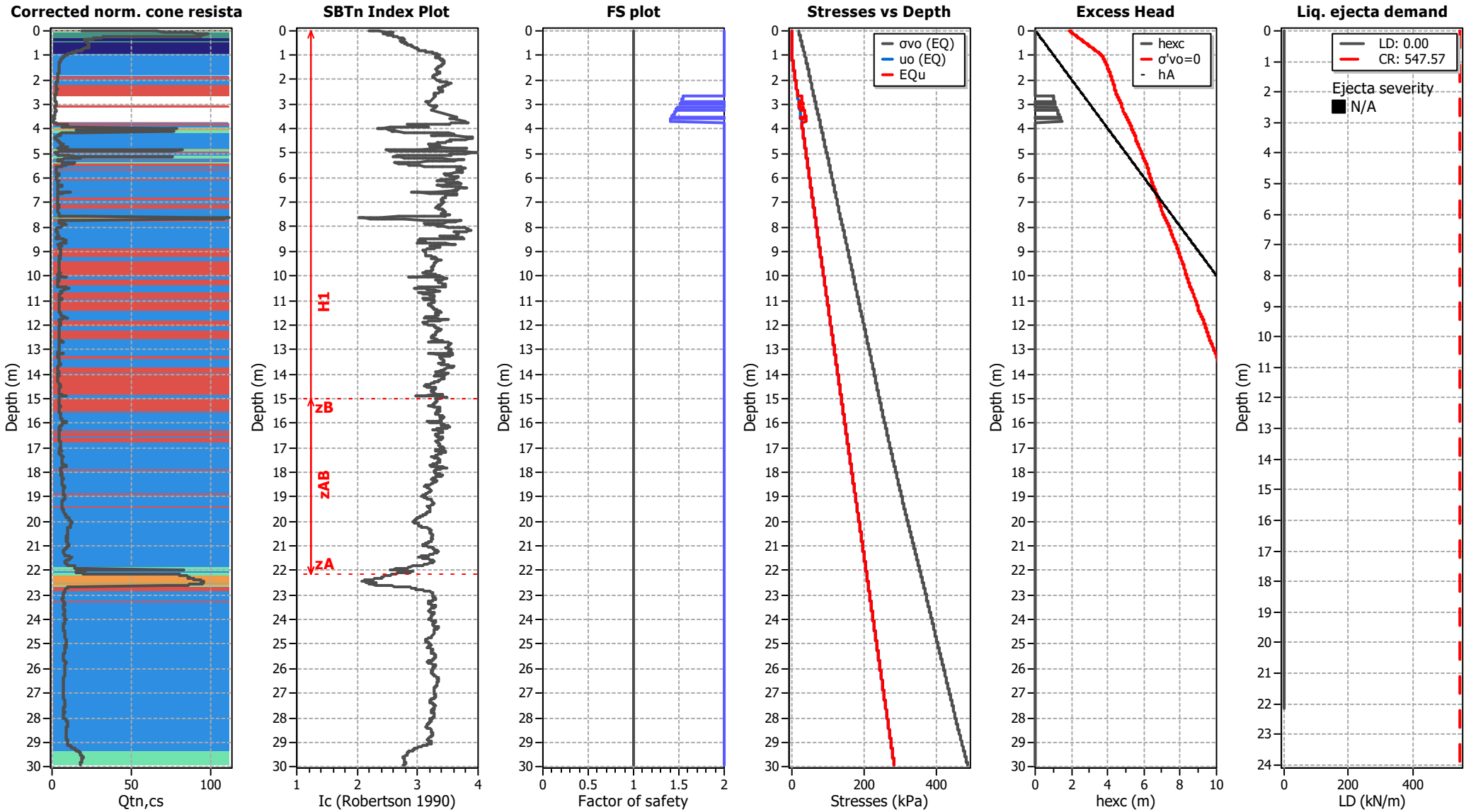
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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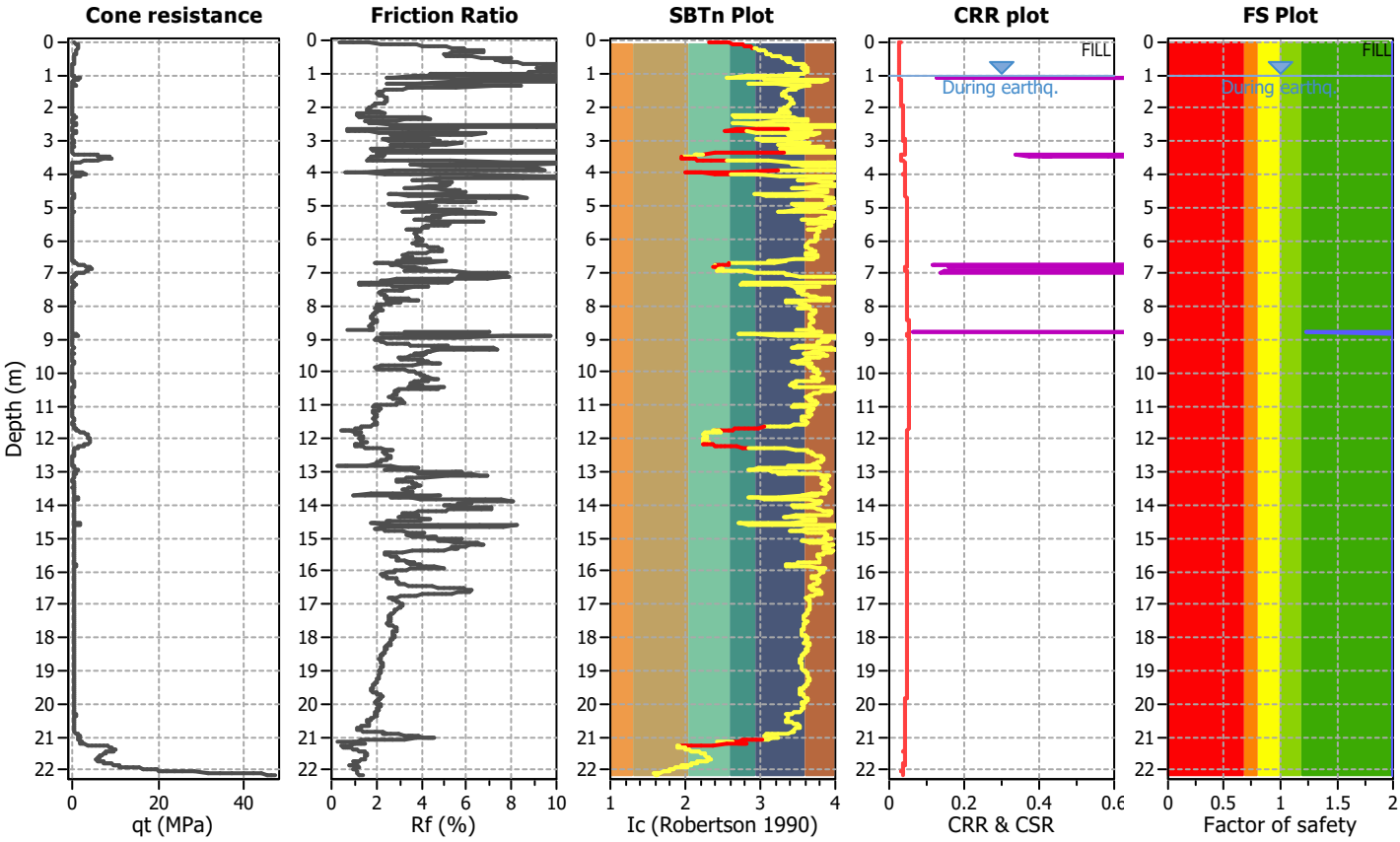
LIQUEFACTION ANALYSIS REPORT

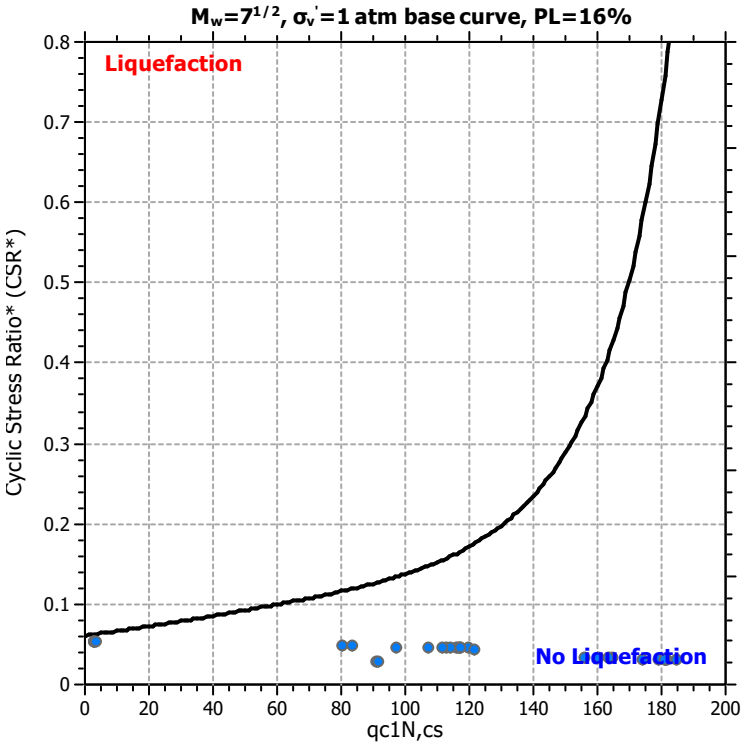
Project title : Sunfield Landholding **Location :**

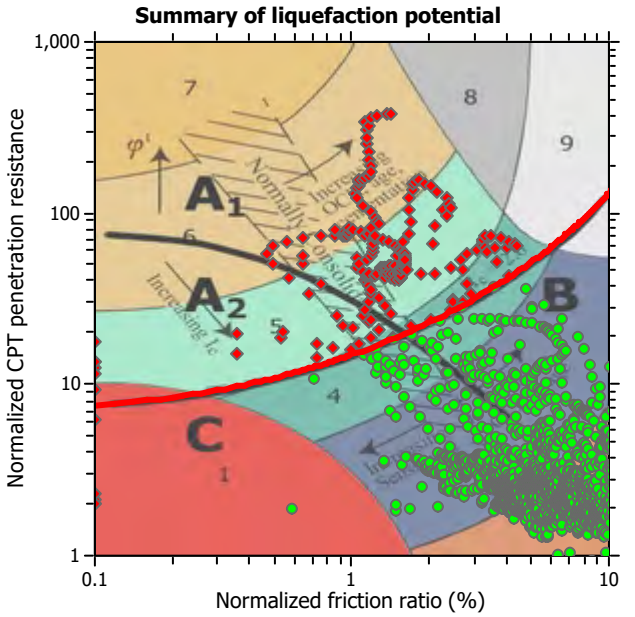
CPT file : CPT014

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	18.50 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

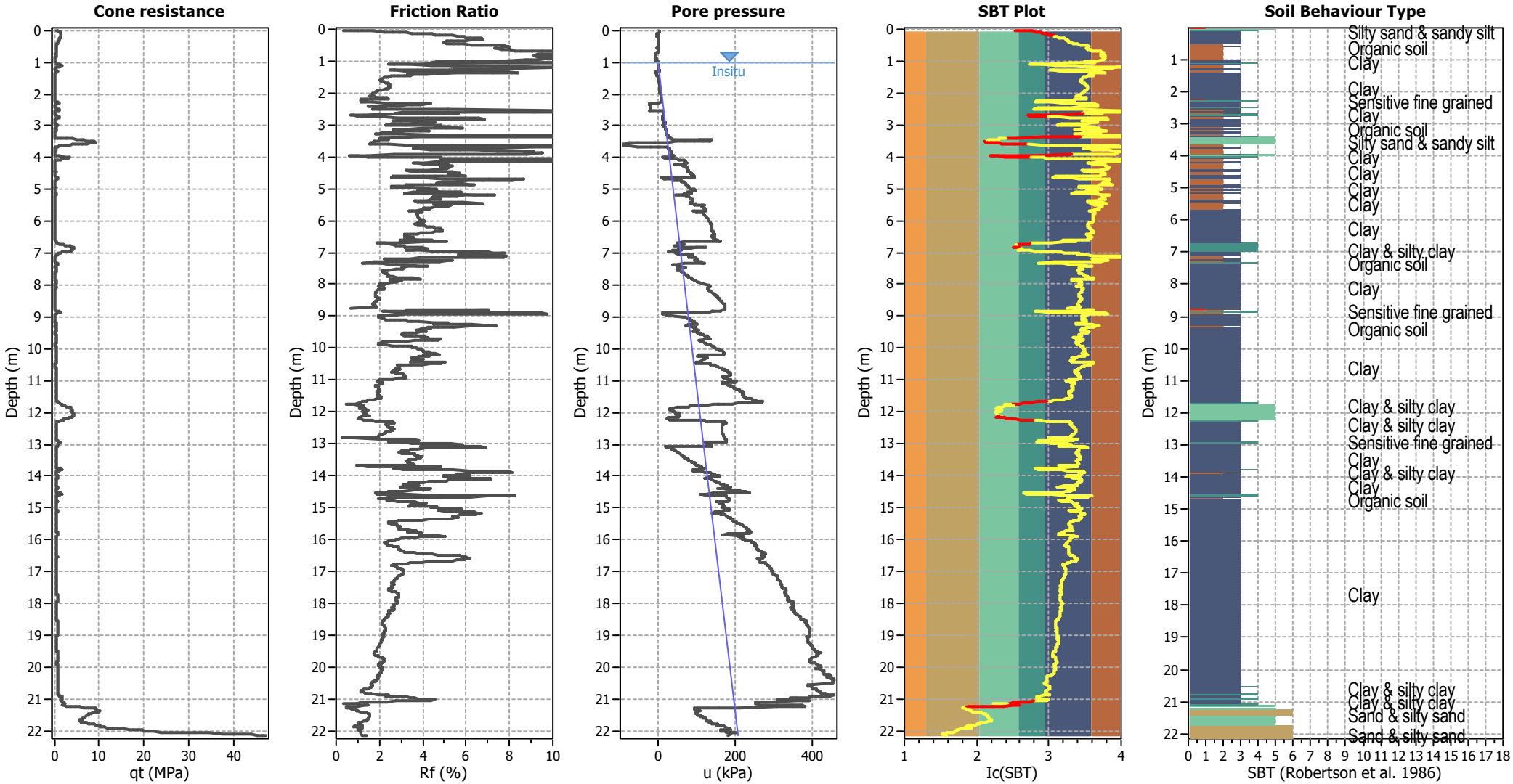






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



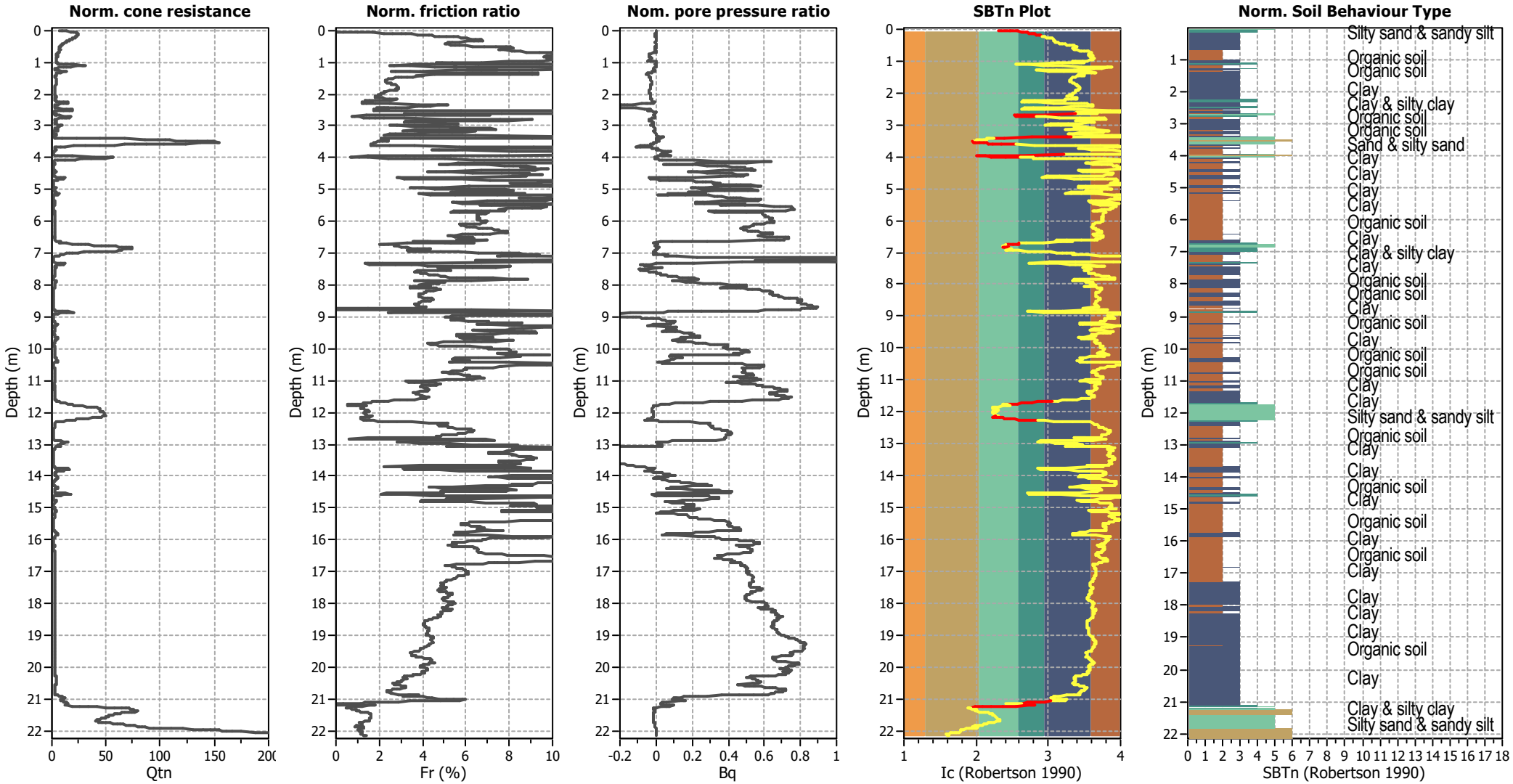
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



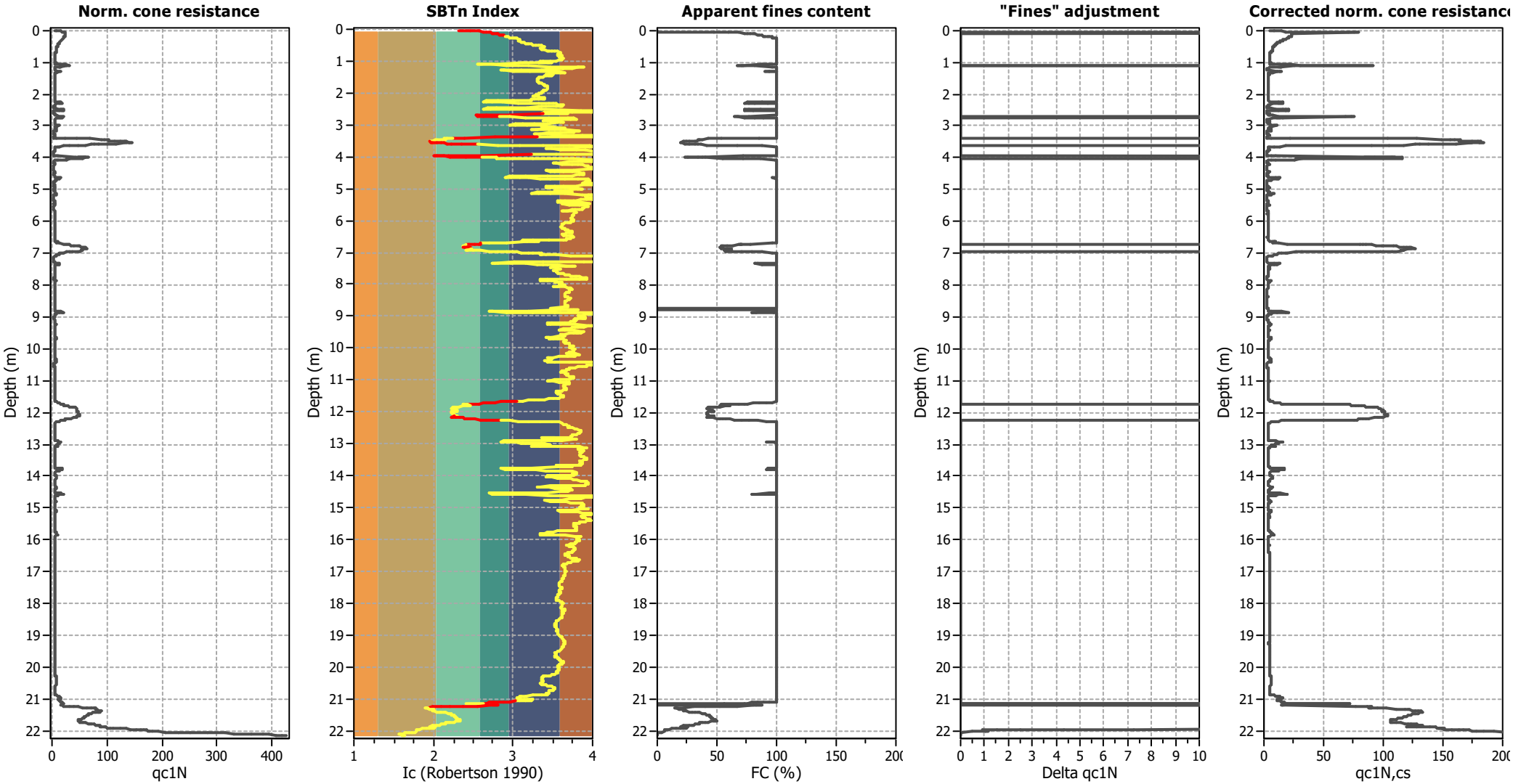
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

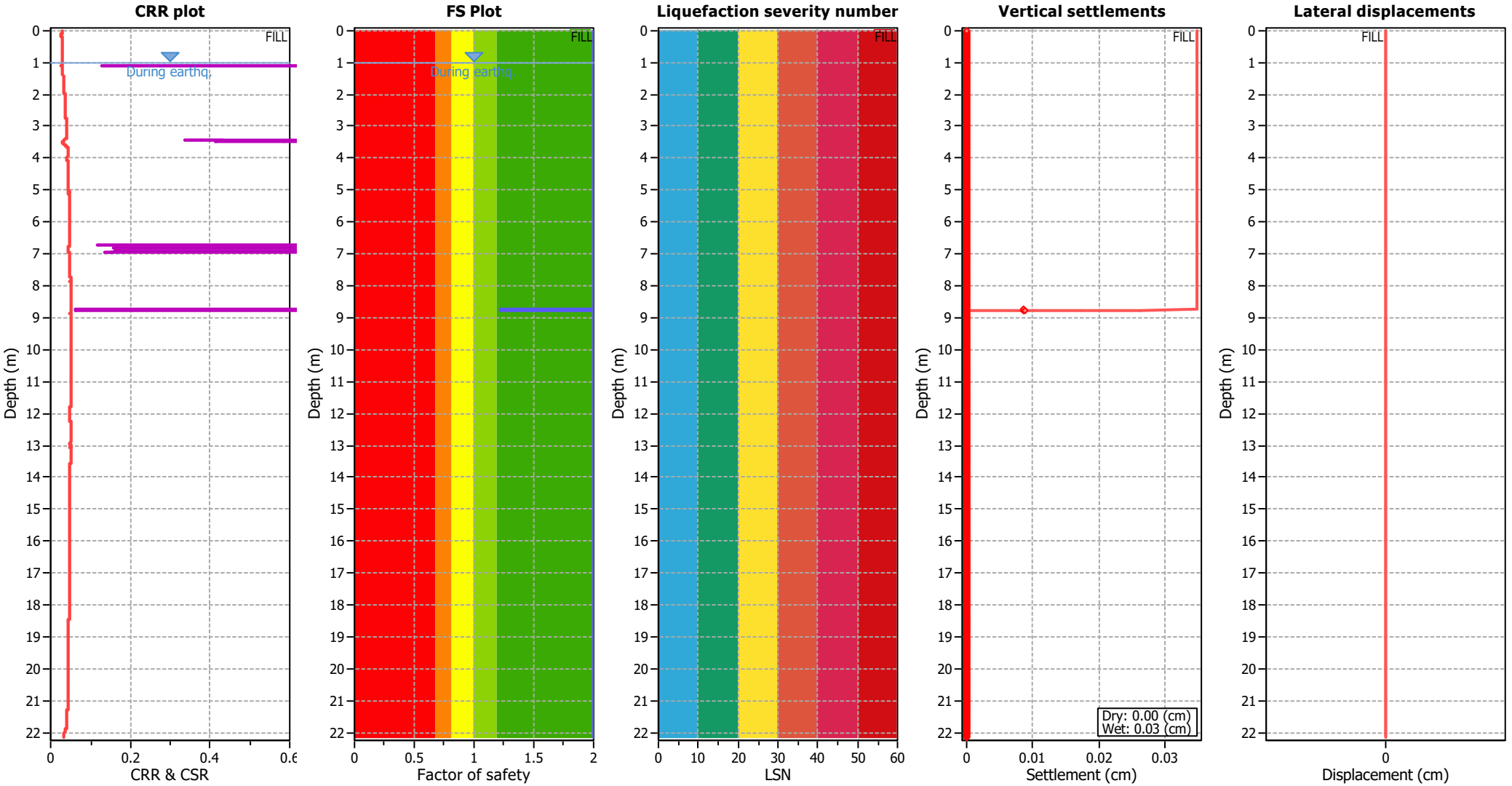
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

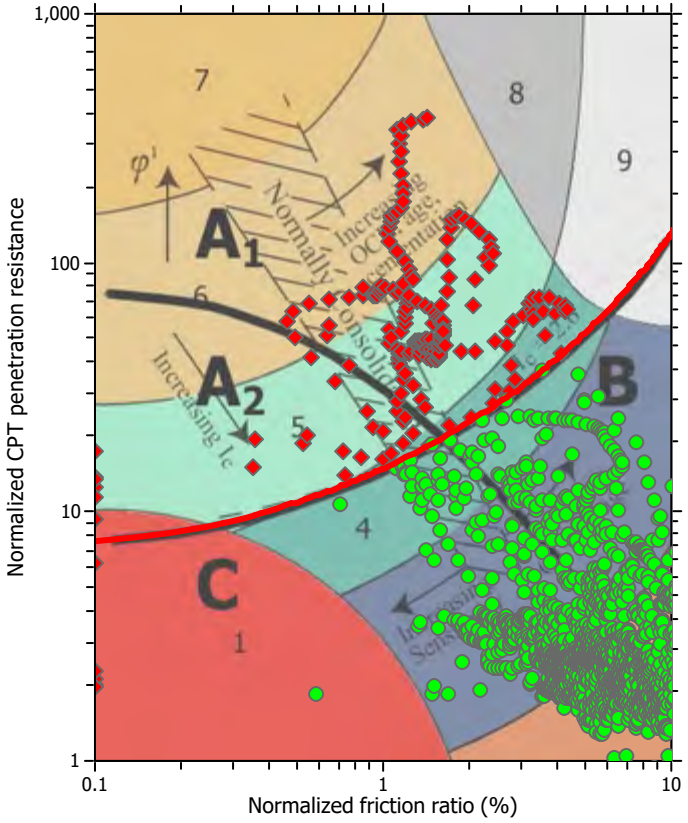
F.S. color scheme

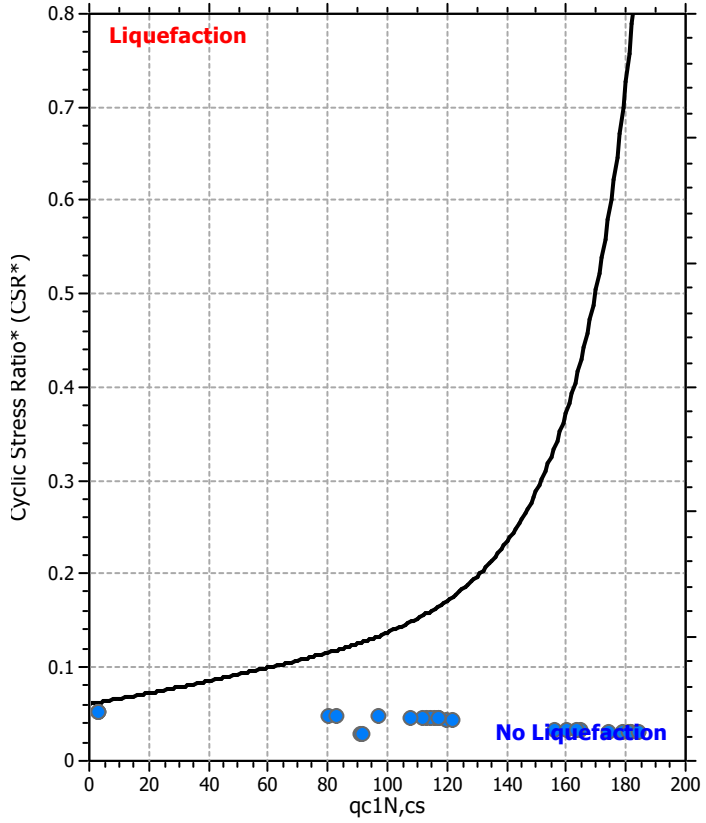
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

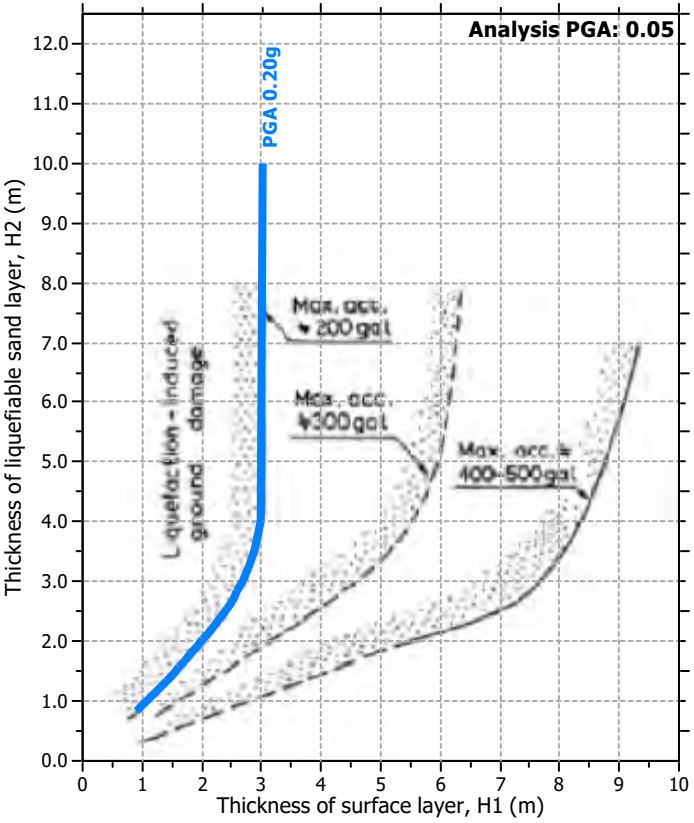
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



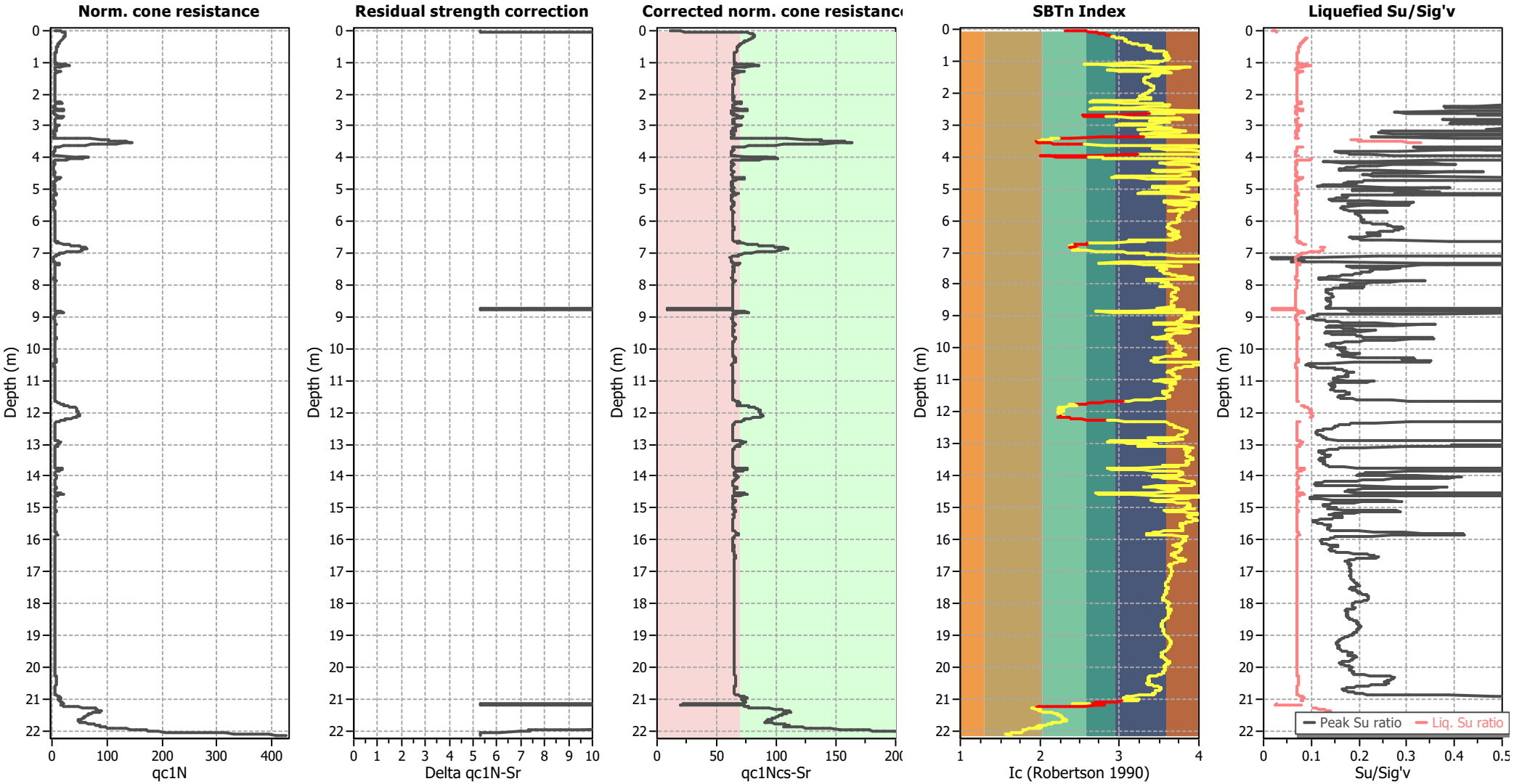




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

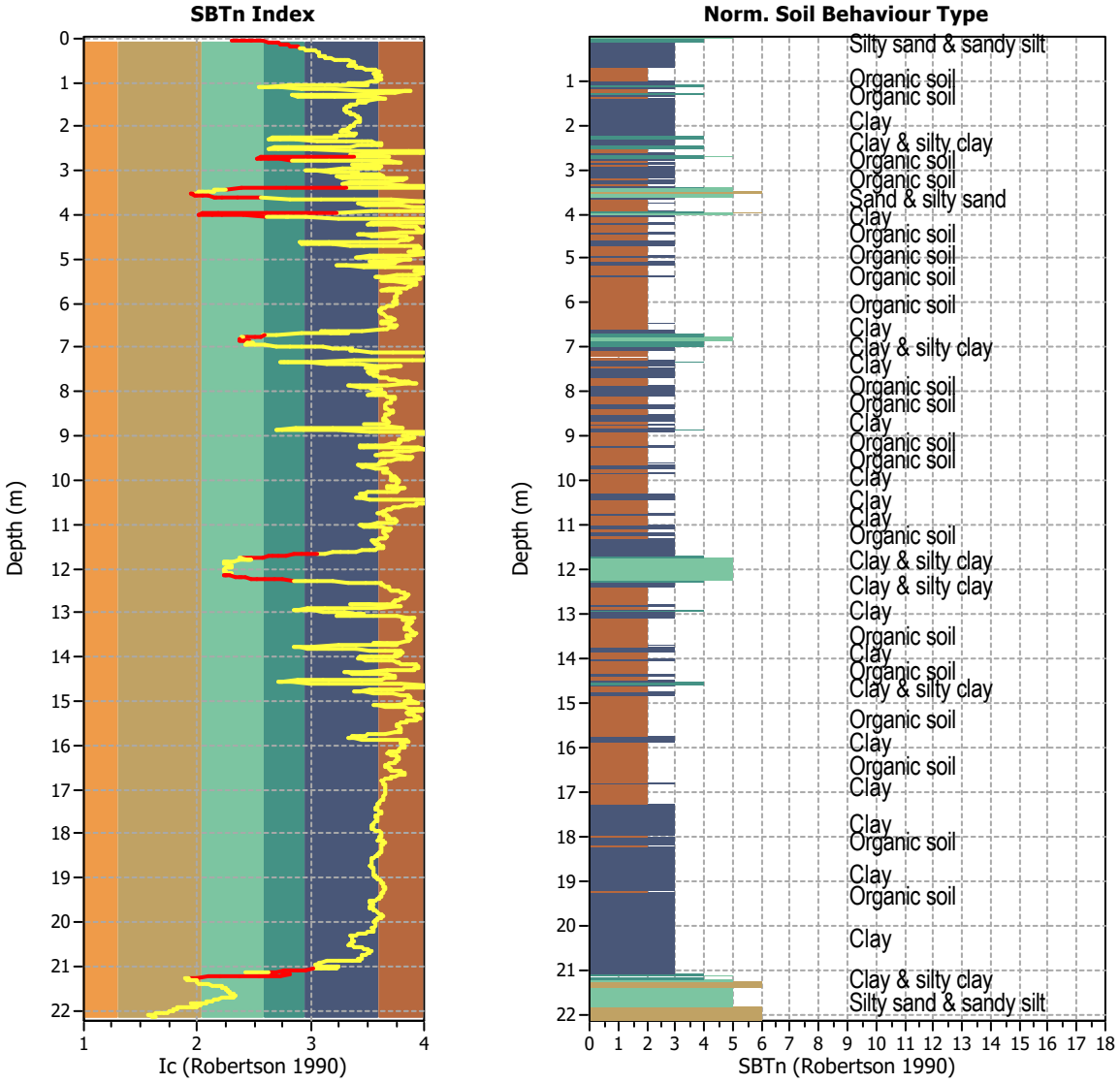
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

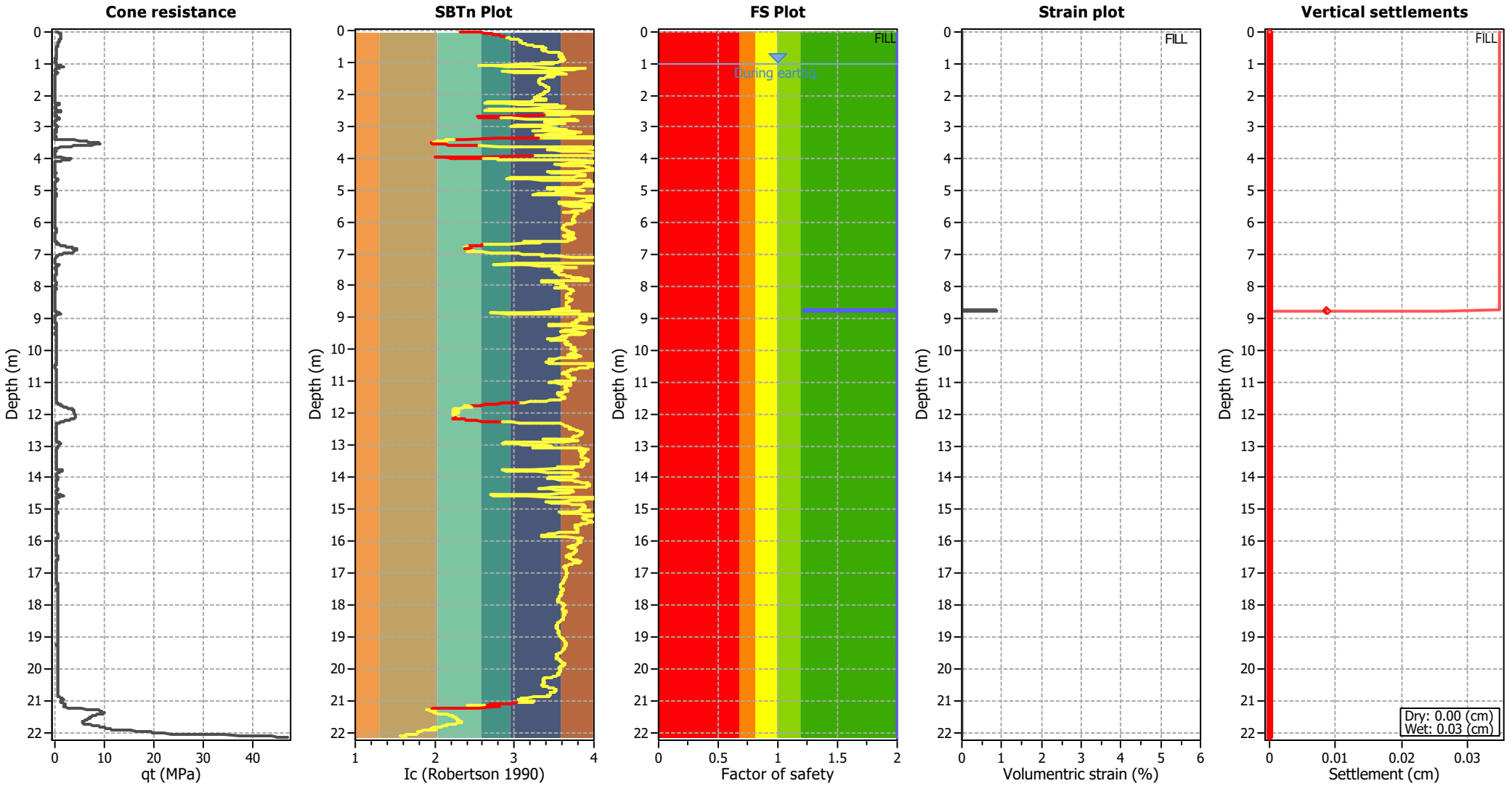
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	2215
I_c maximum check value:	3.00	Total points excluded:	107
I_c change ratio value:	0.0100	Exclusion percentage:	4.83%
Minimum number of points in layer:	4	Number of layers detected:	13

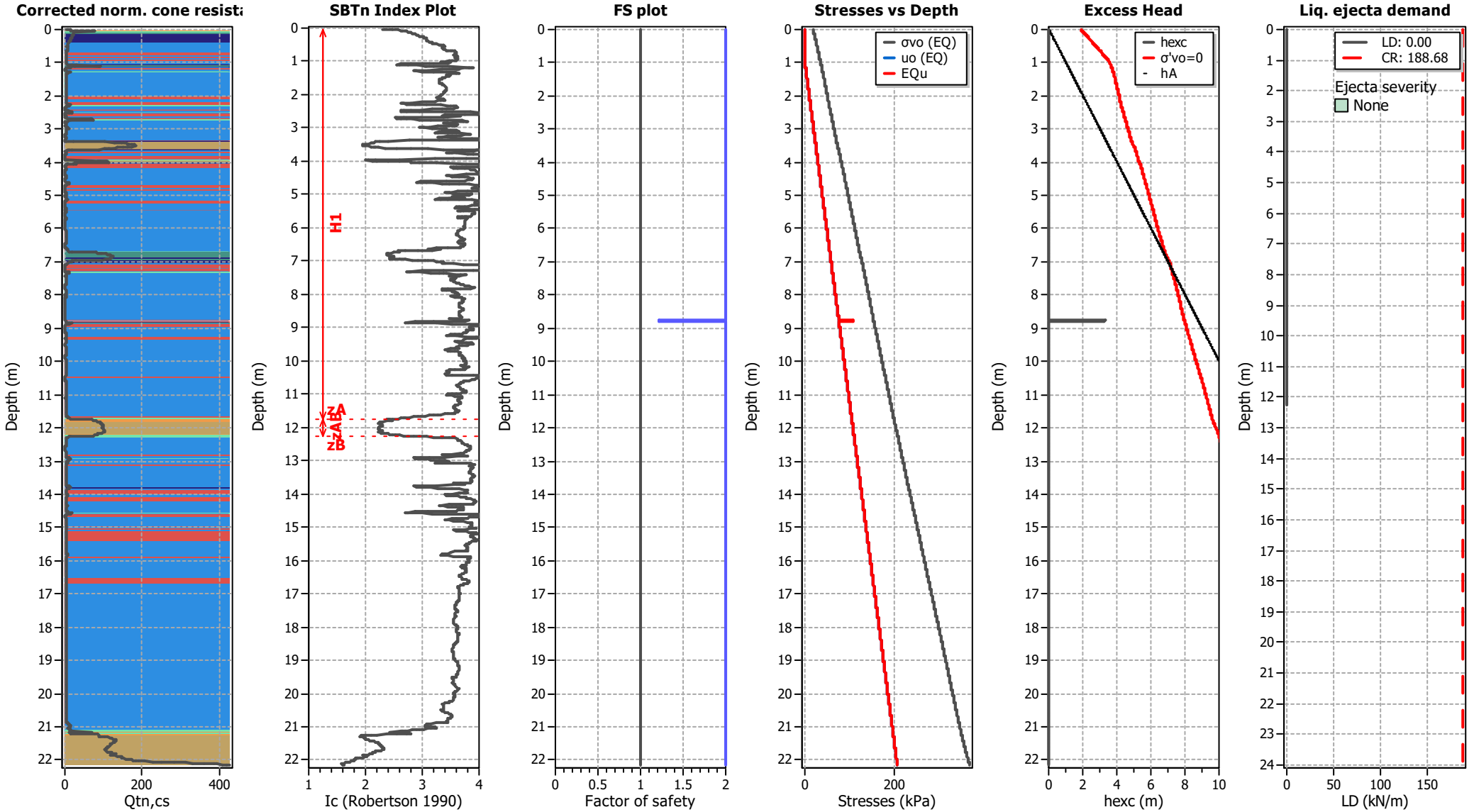
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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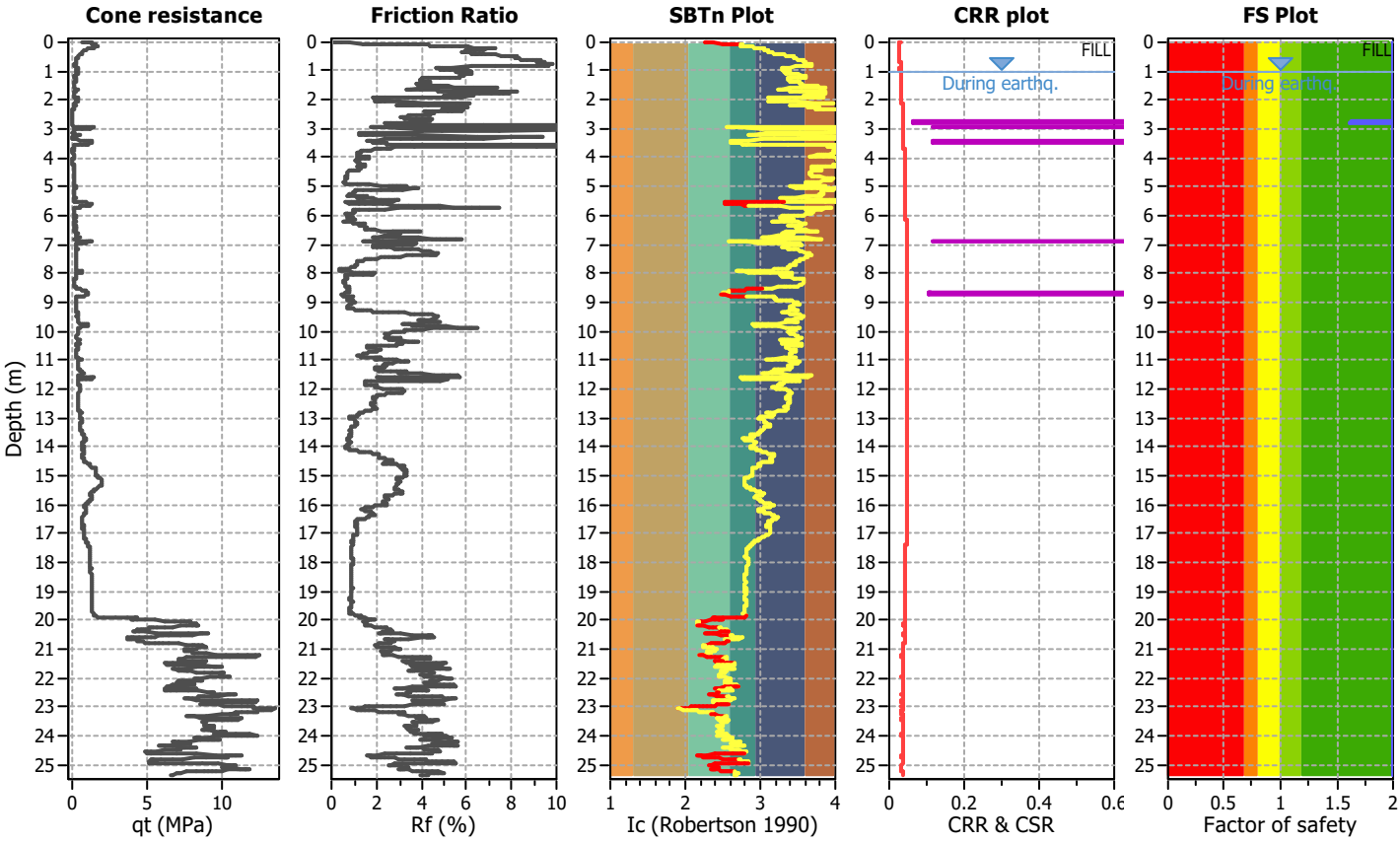
LIQUEFACTION ANALYSIS REPORT

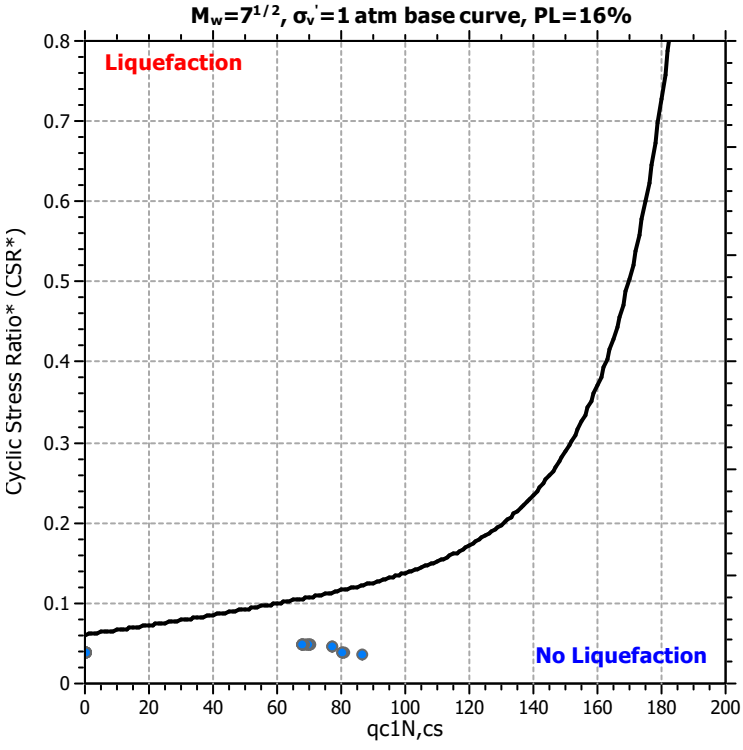
Project title : Sunfield Landholding **Location :**

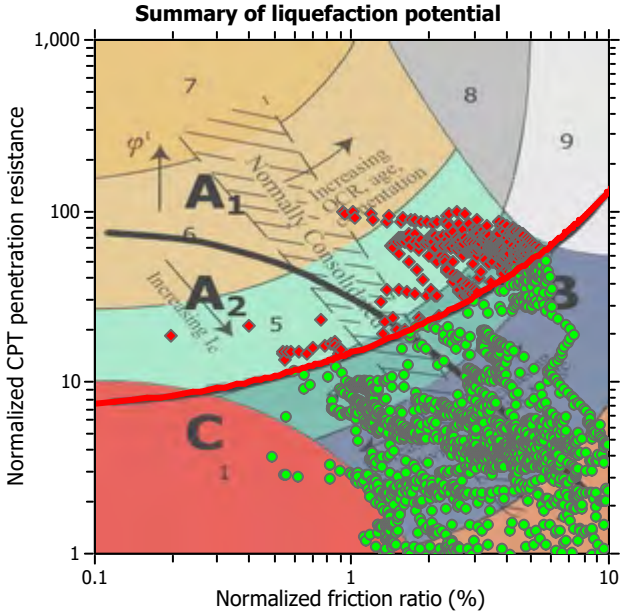
CPT file : CPT015

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	37.00 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

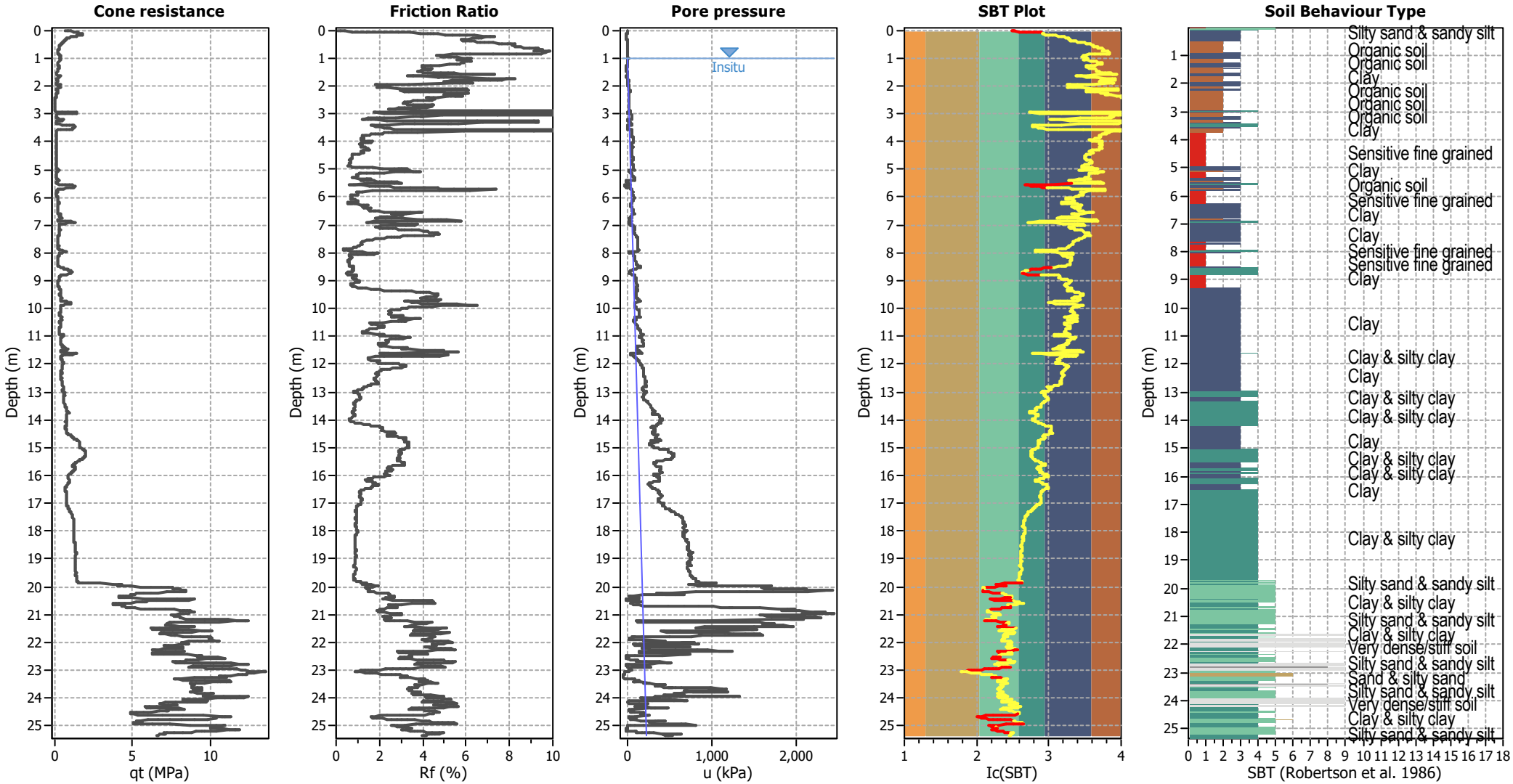






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



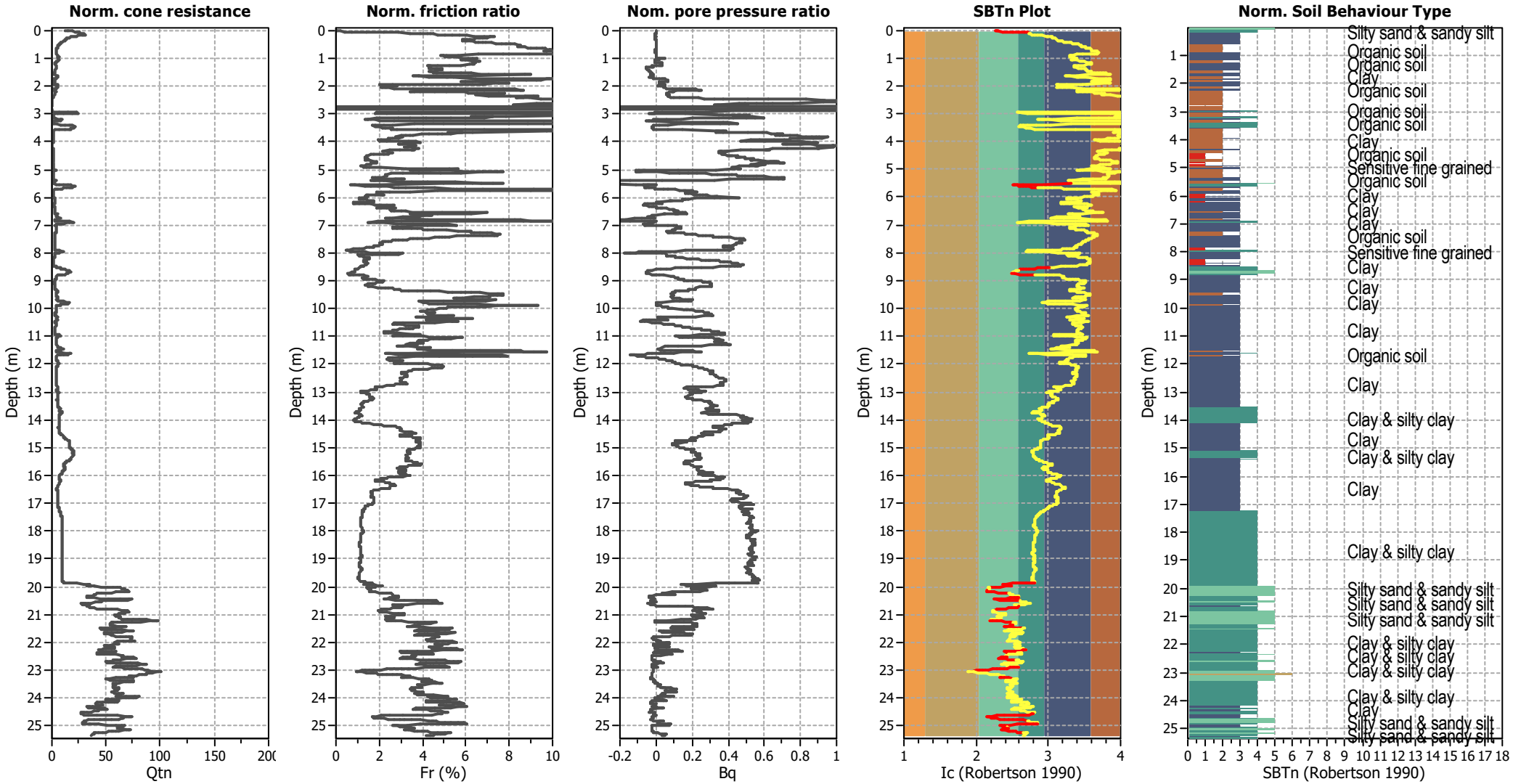
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



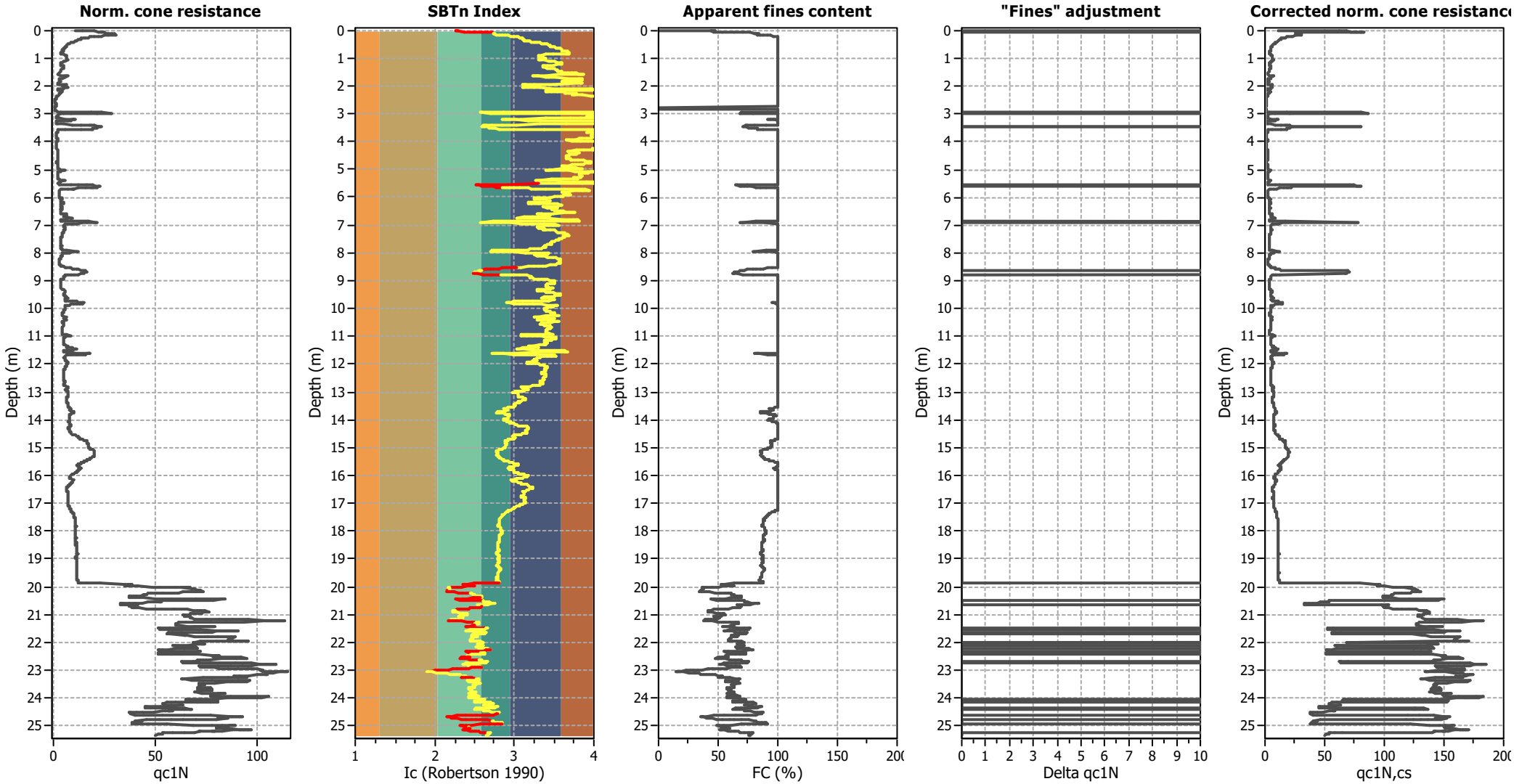
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

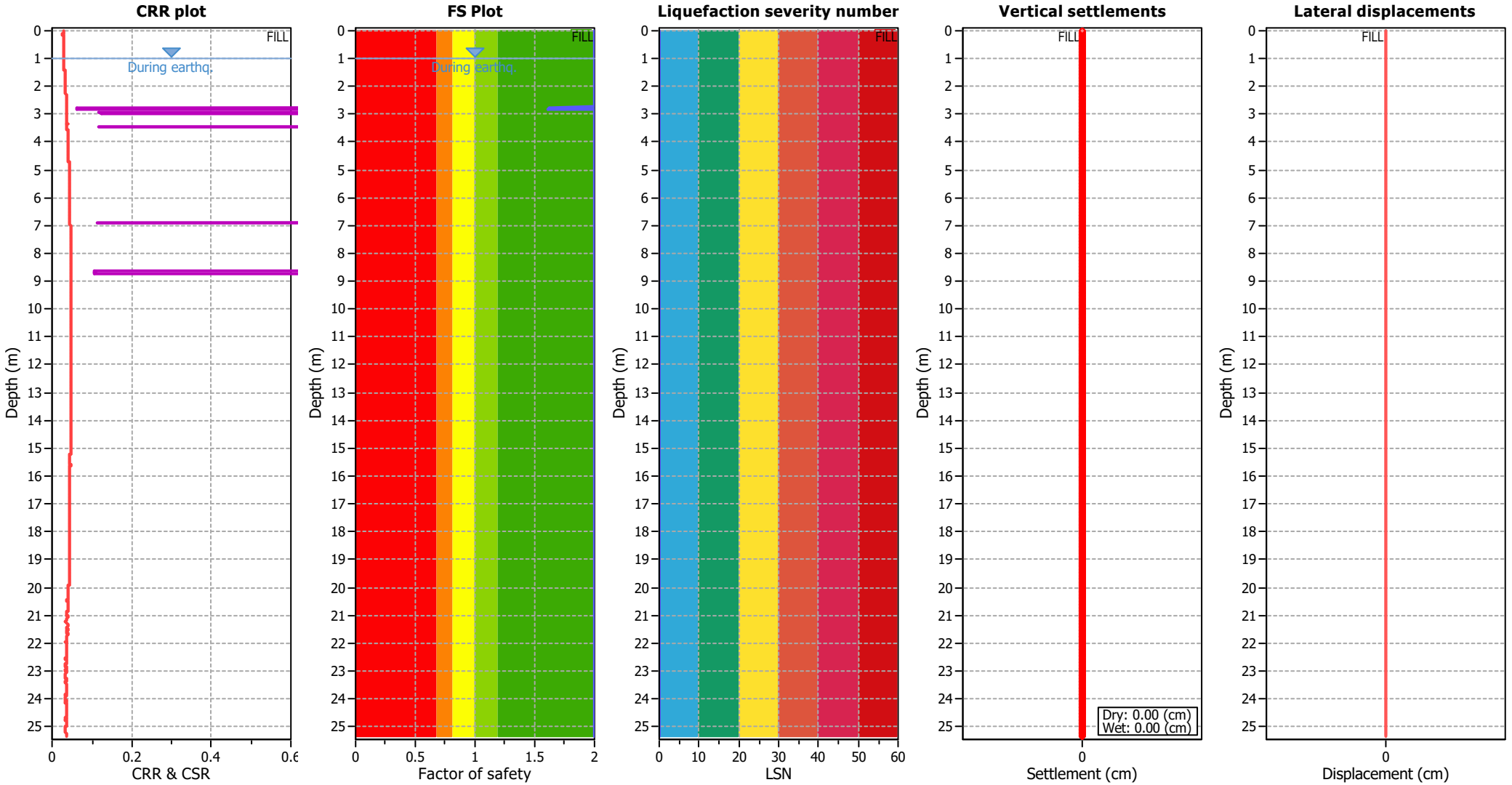
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

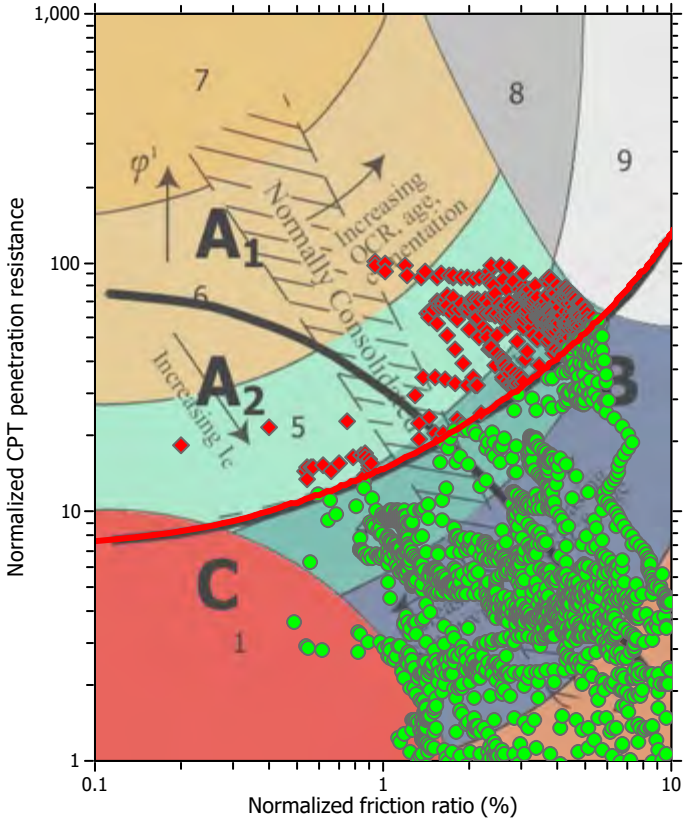
F.S. color scheme

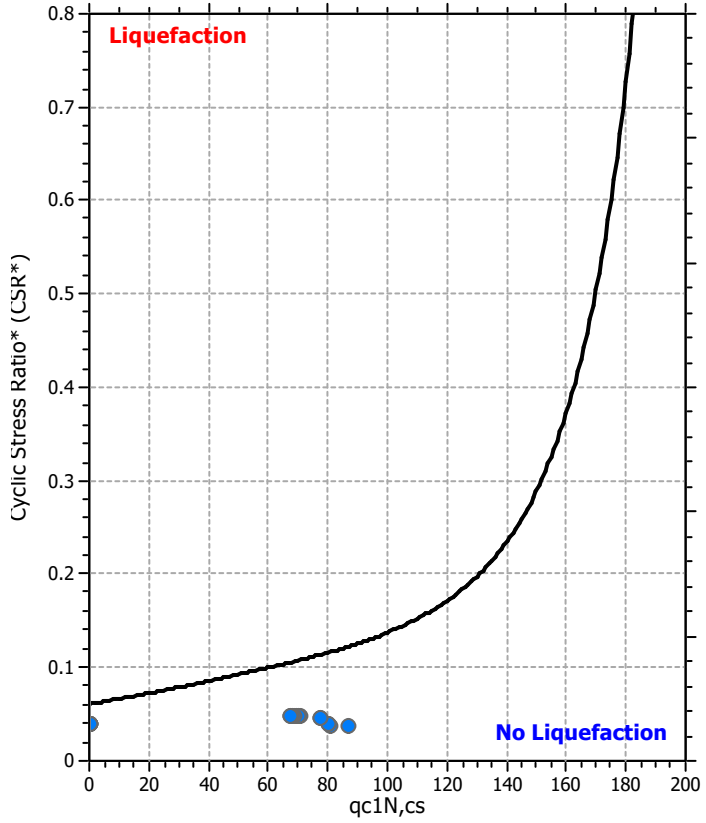
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

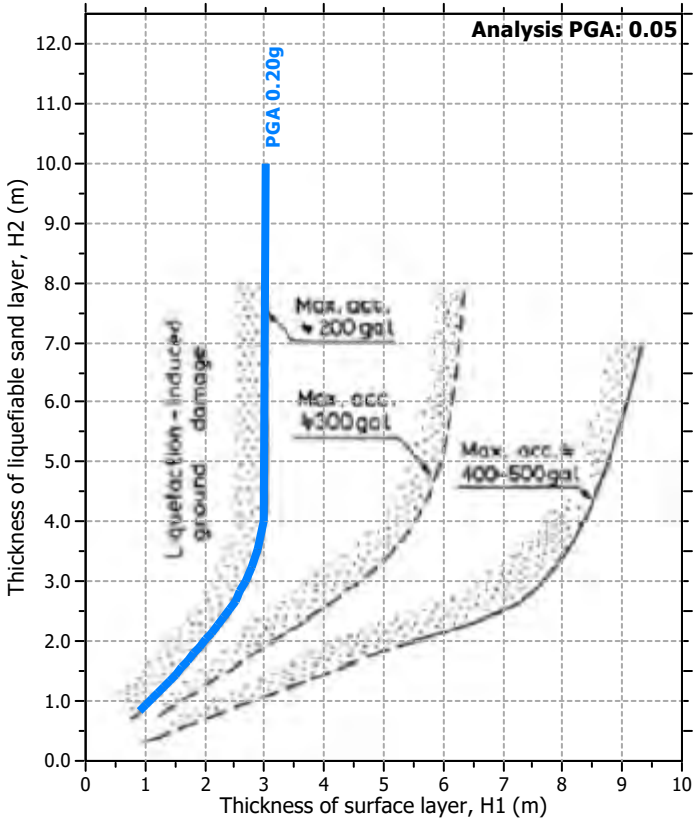
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



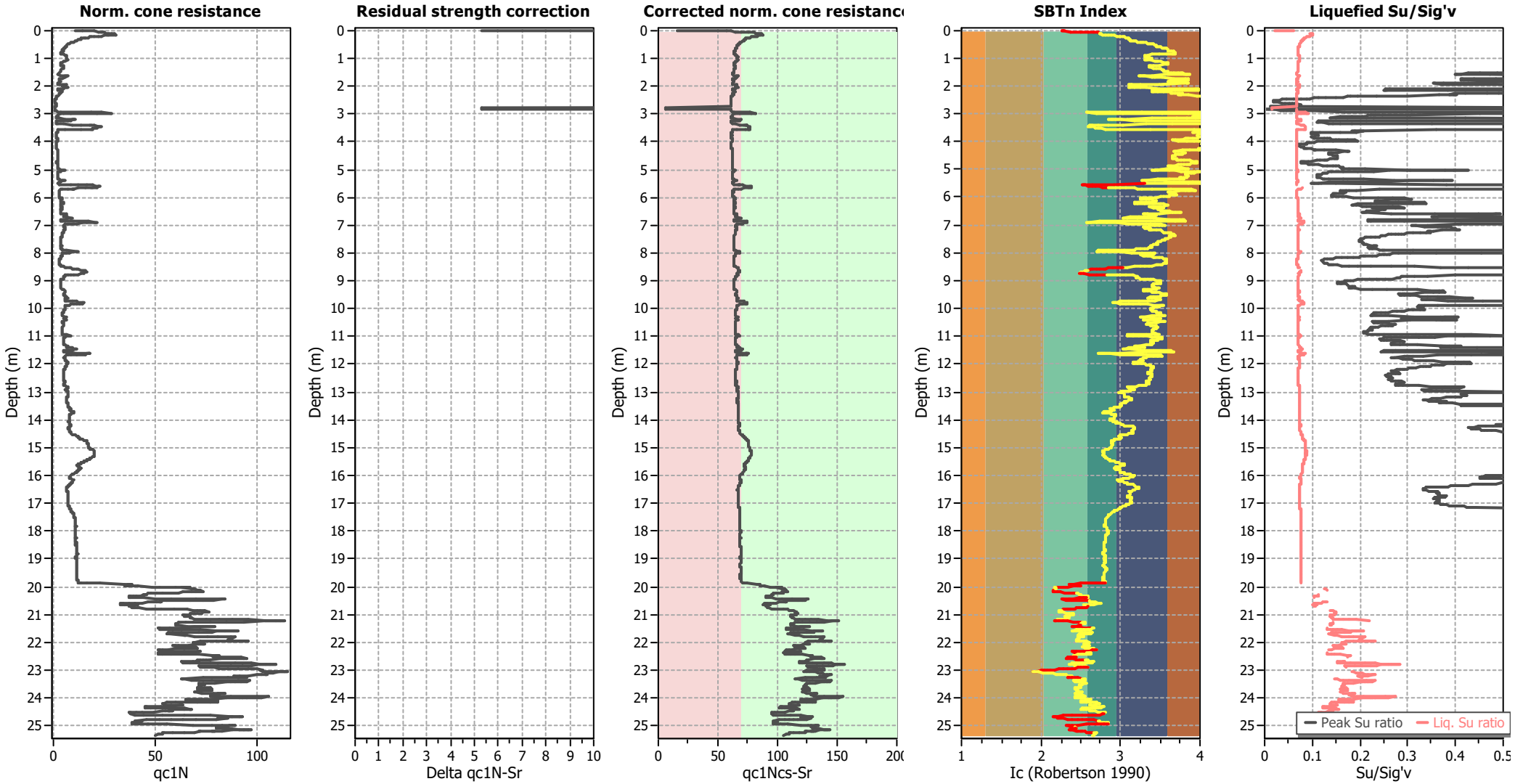




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

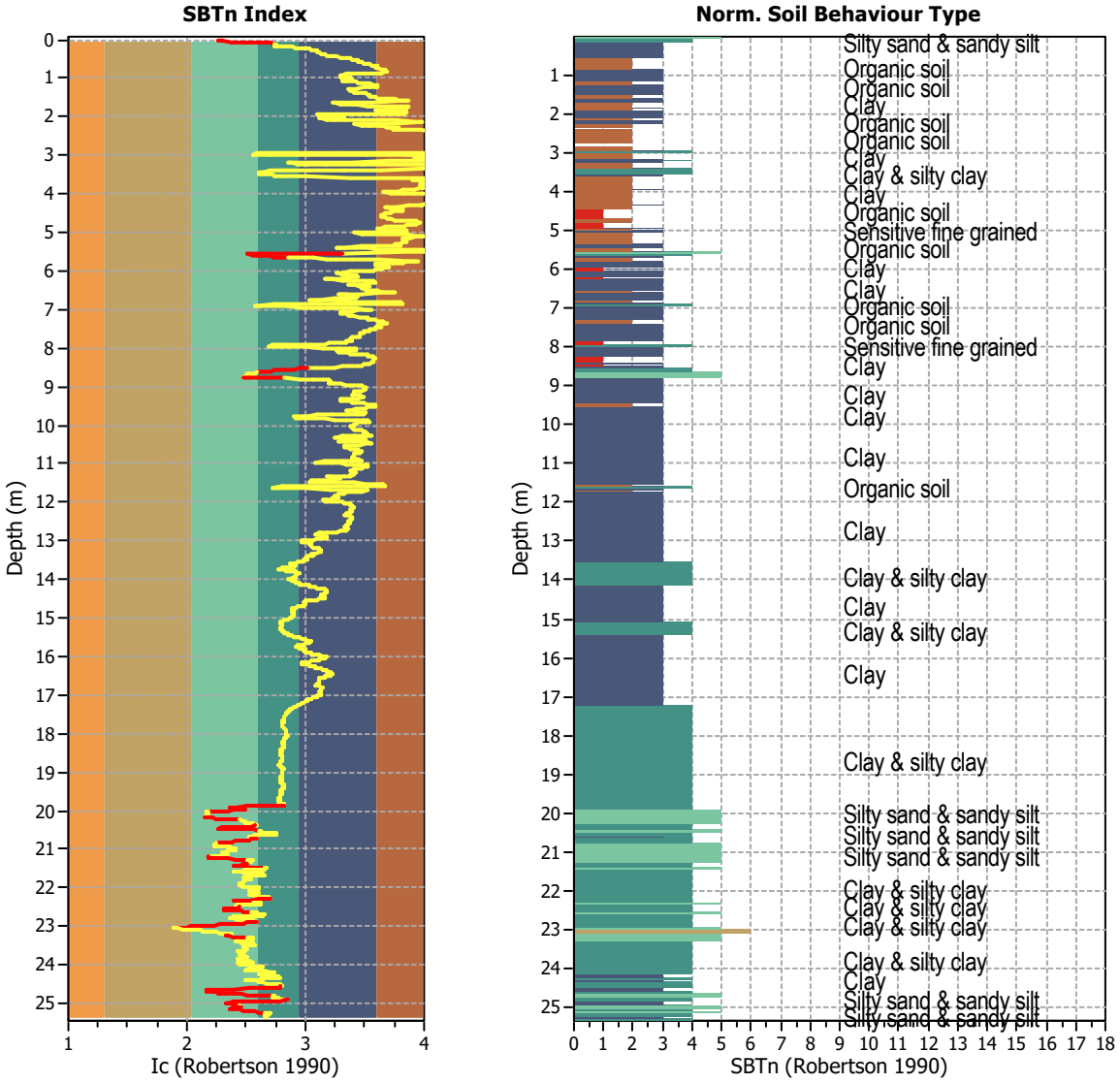
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

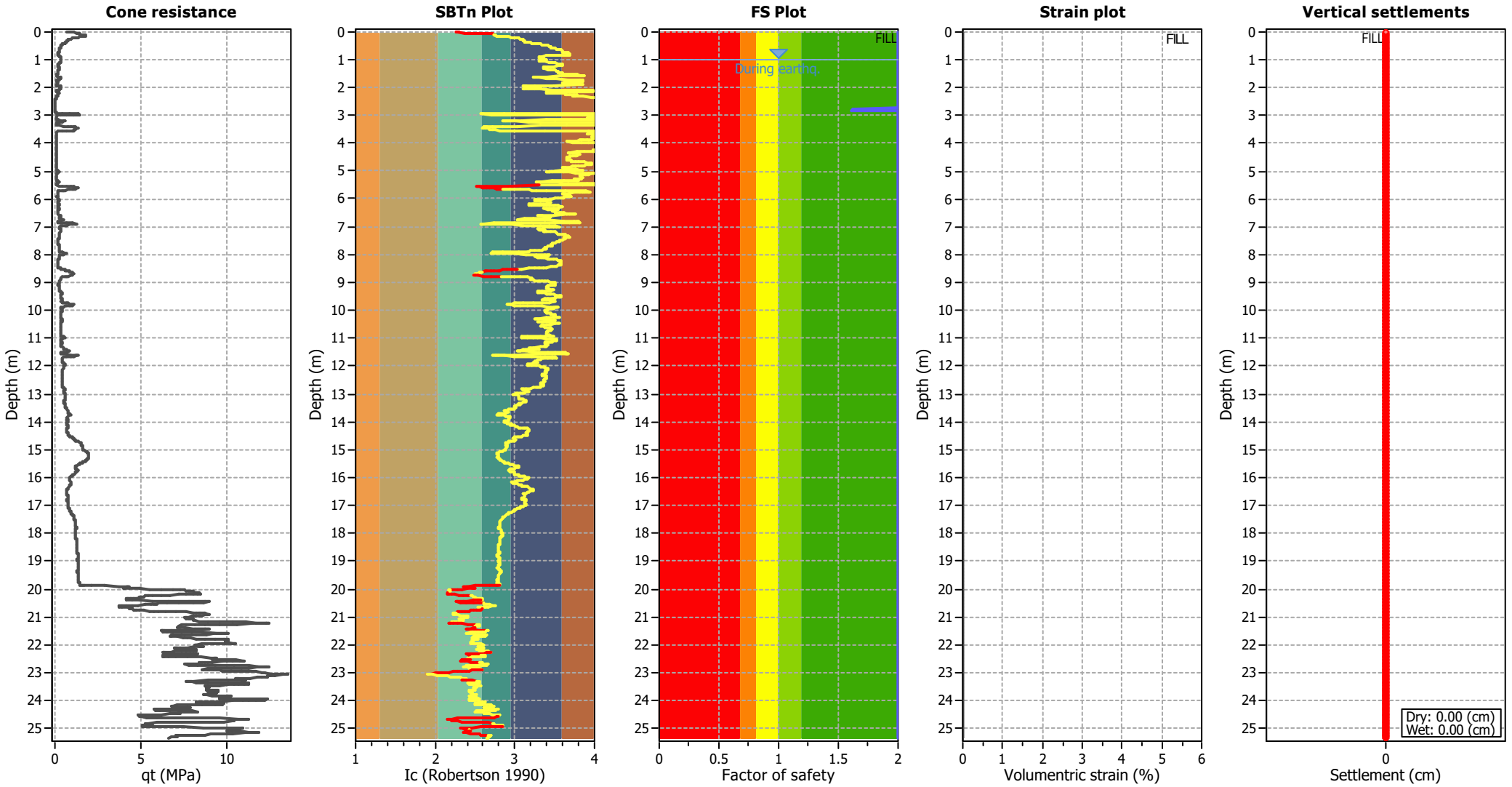
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	2535
I_c maximum check value:	3.00	Total points excluded:	230
I_c change ratio value:	0.0100	Exclusion percentage:	9.07%
Minimum number of points in layer:	4	Number of layers detected:	27

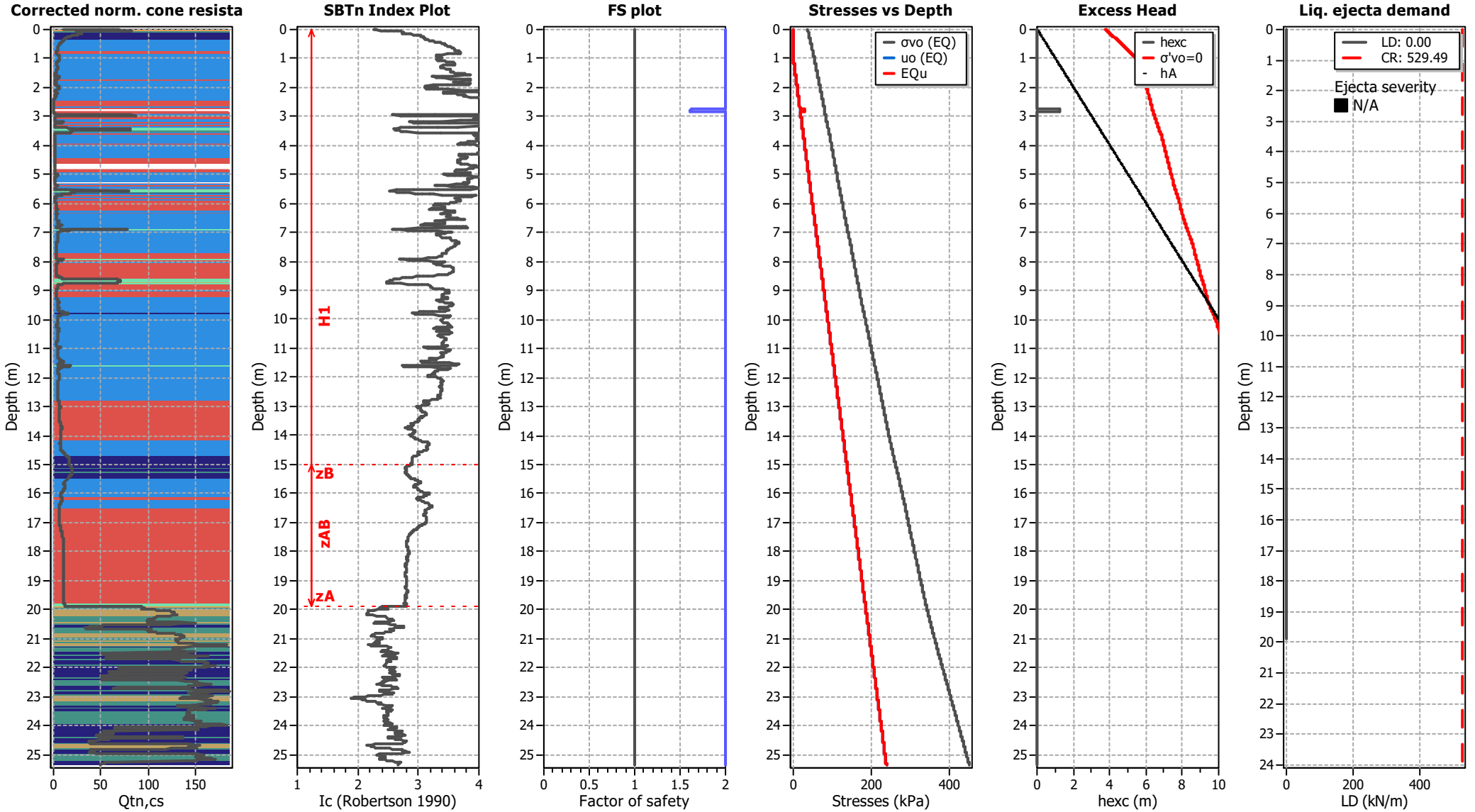
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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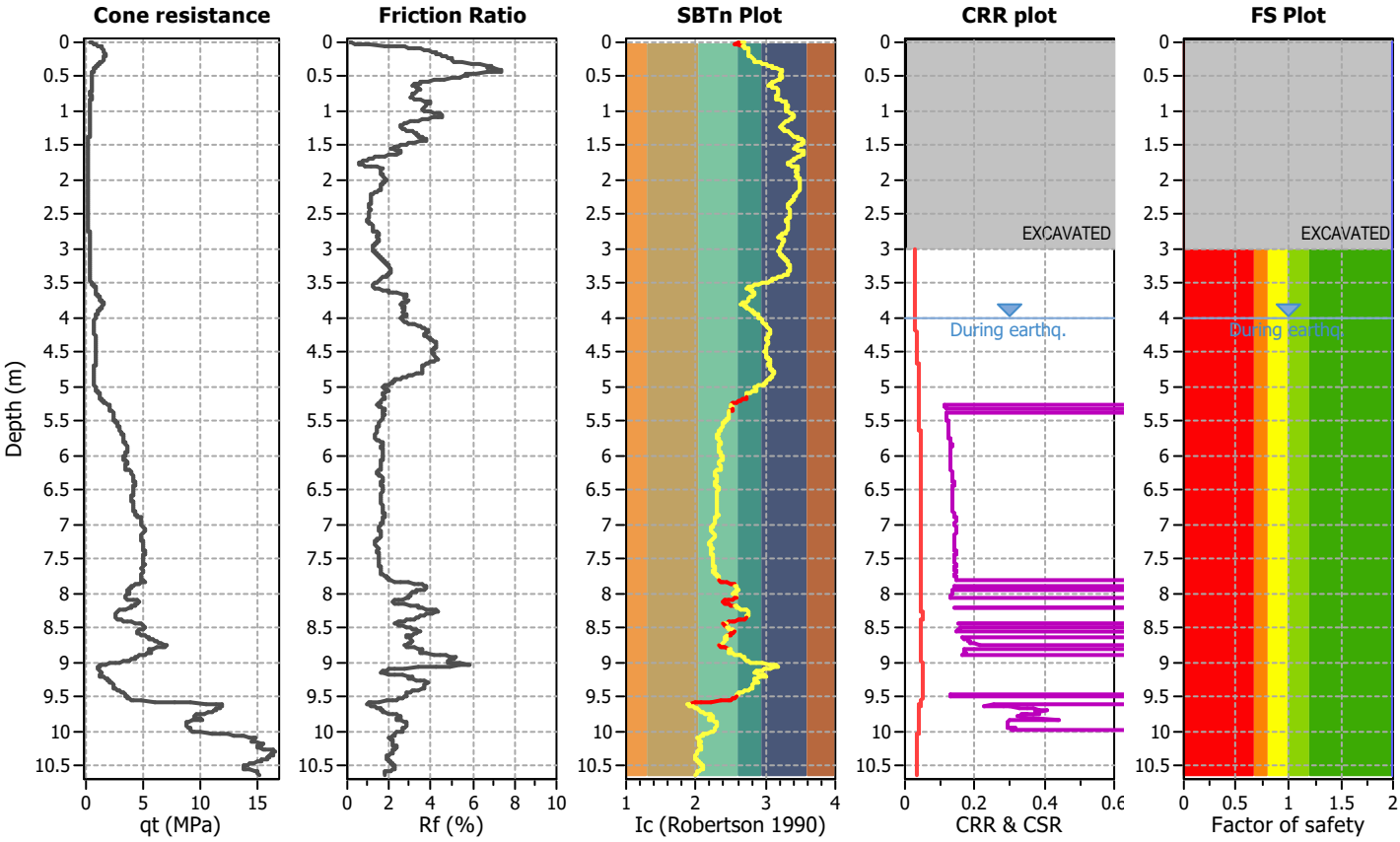
LIQUEFACTION ANALYSIS REPORT

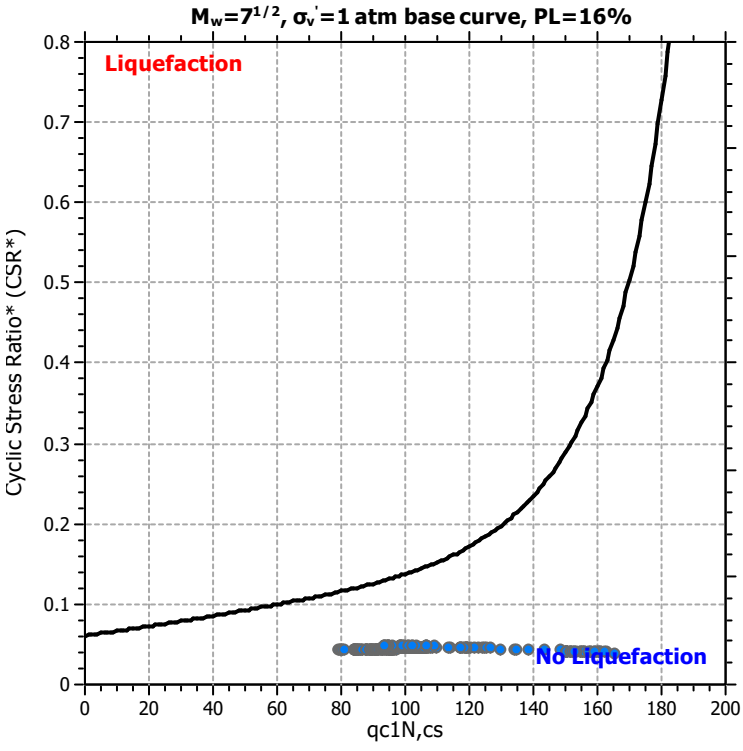
Project title : Sunfield Landholding **Location :**

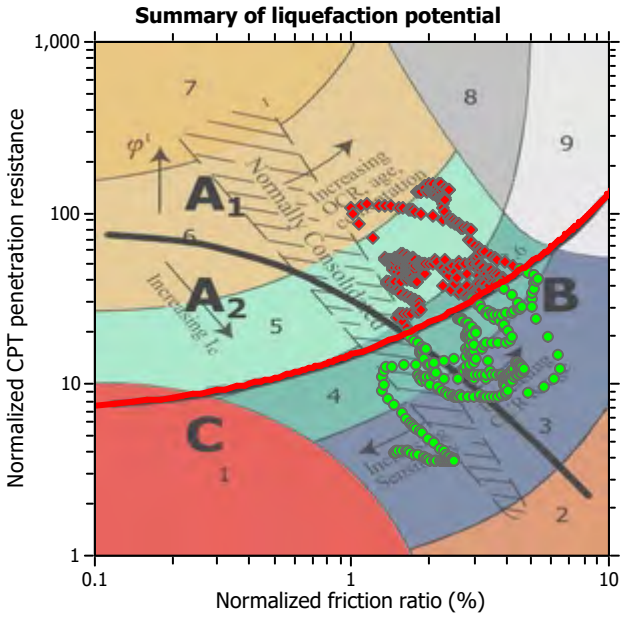
CPT file : CPT016

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	4.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	4.00 m	Excavation depth:	3.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

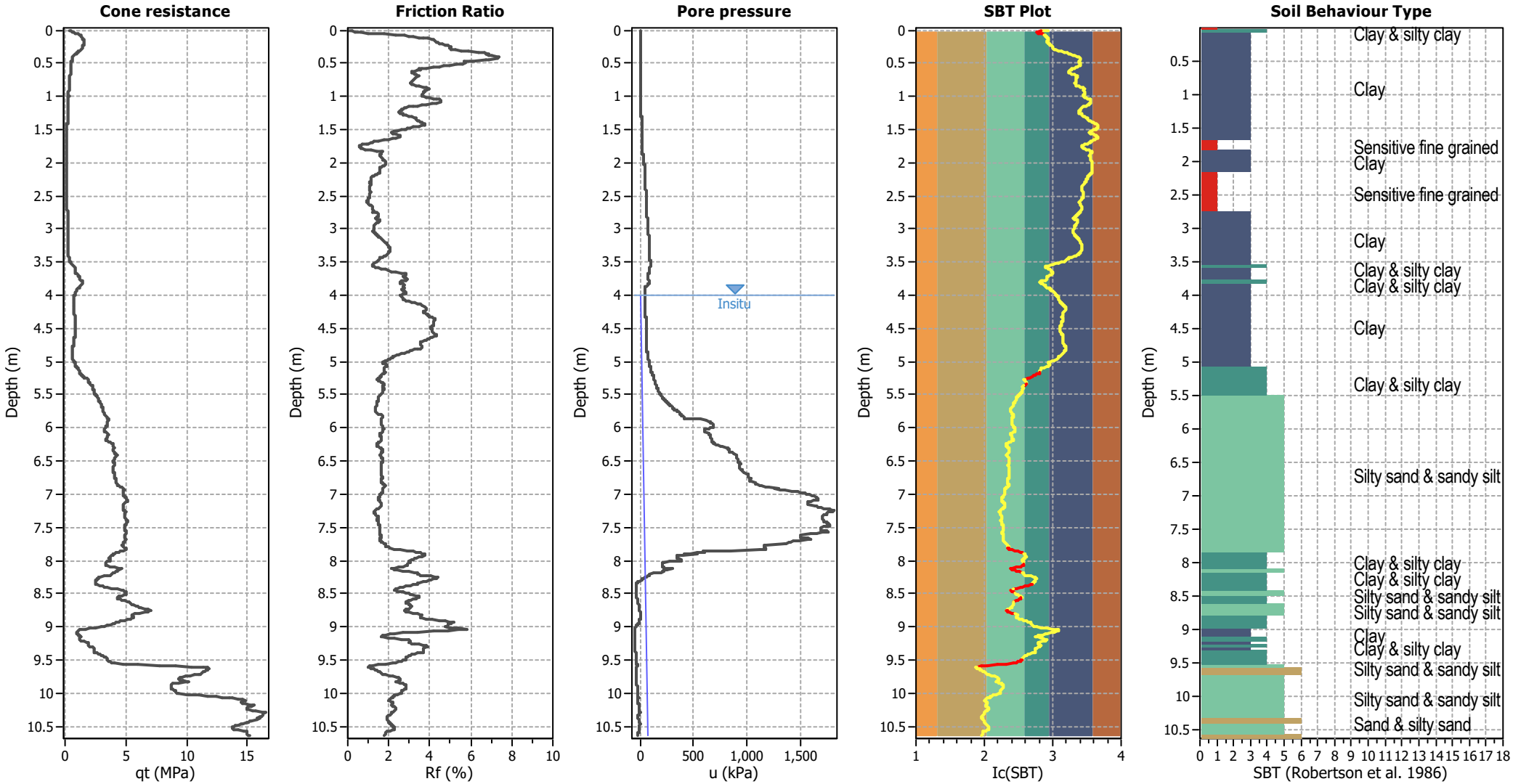






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



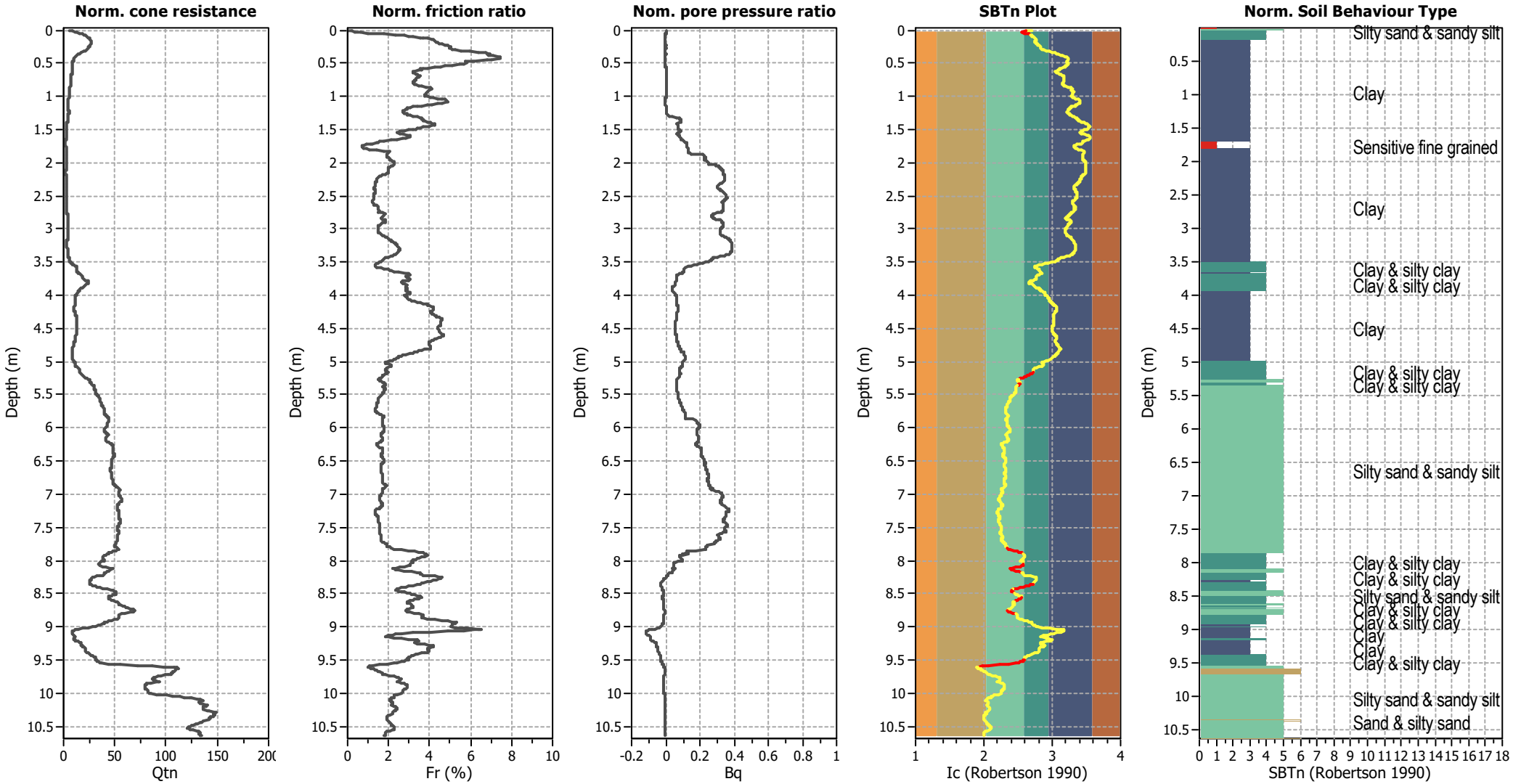
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



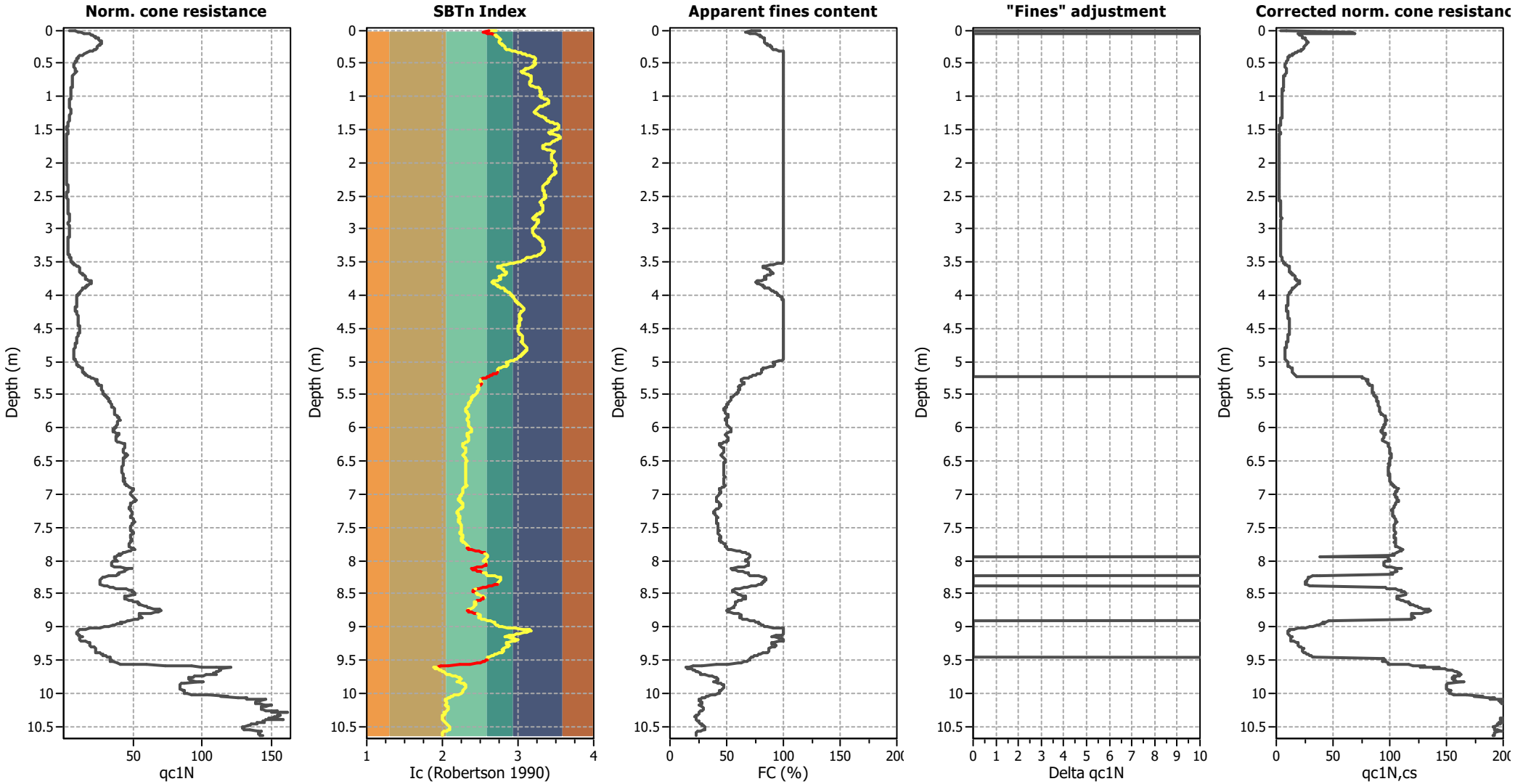
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

SBTn legend

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

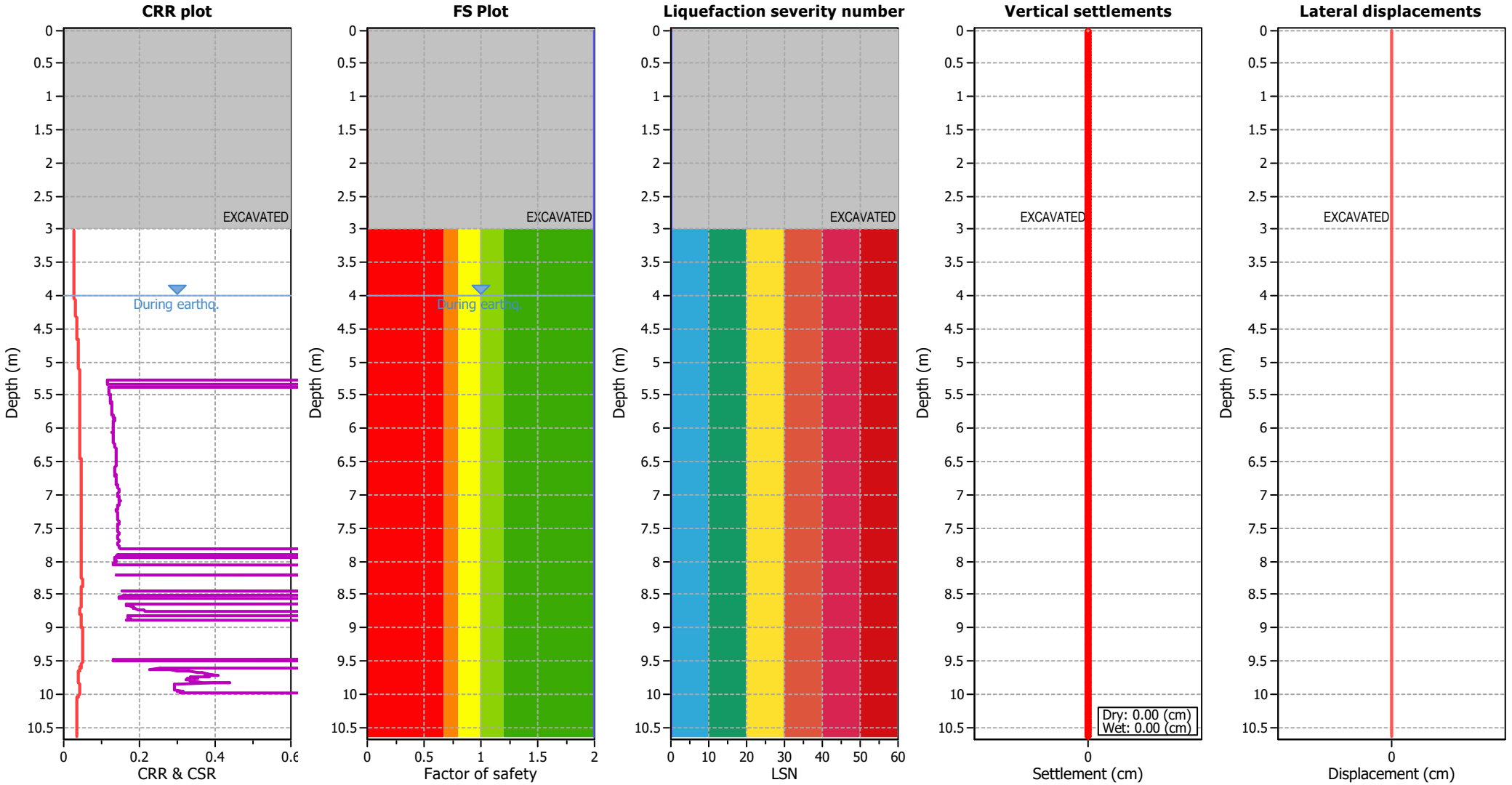
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

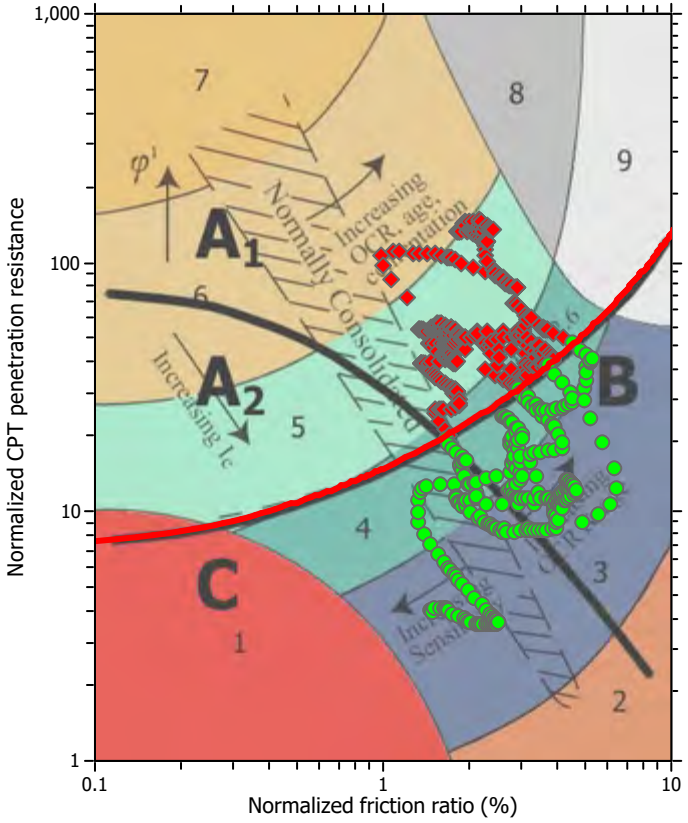
F.S. color scheme

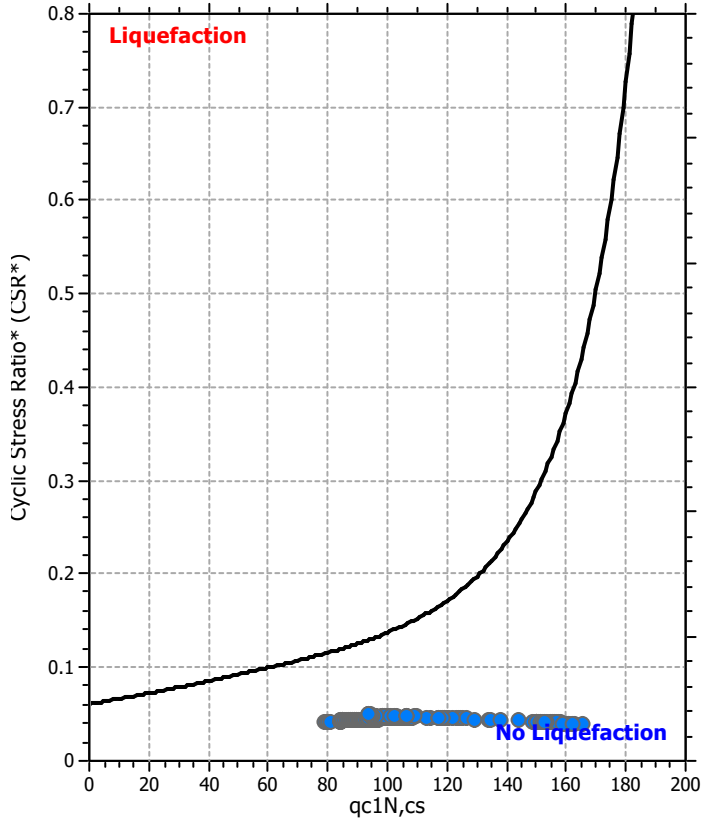
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

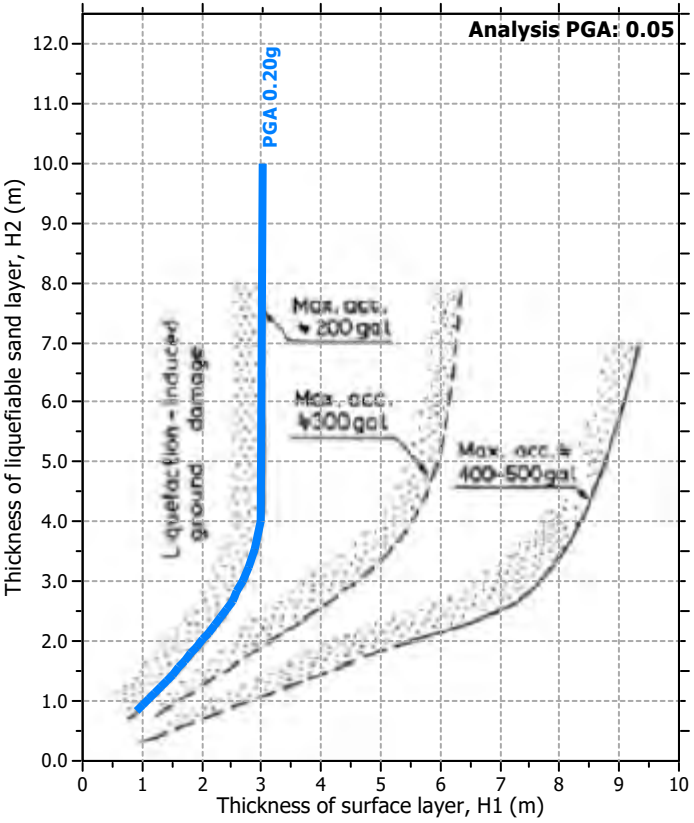
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



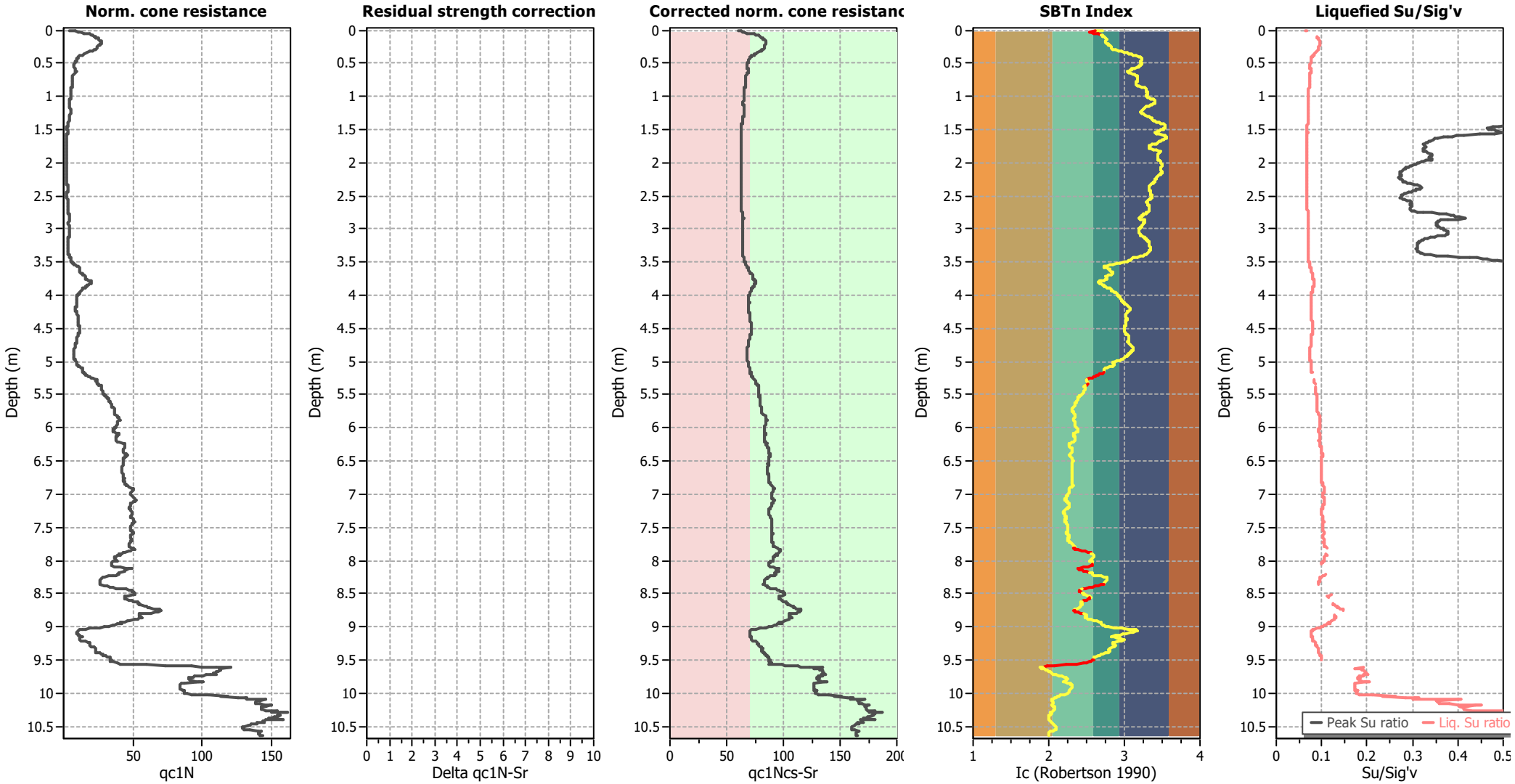




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

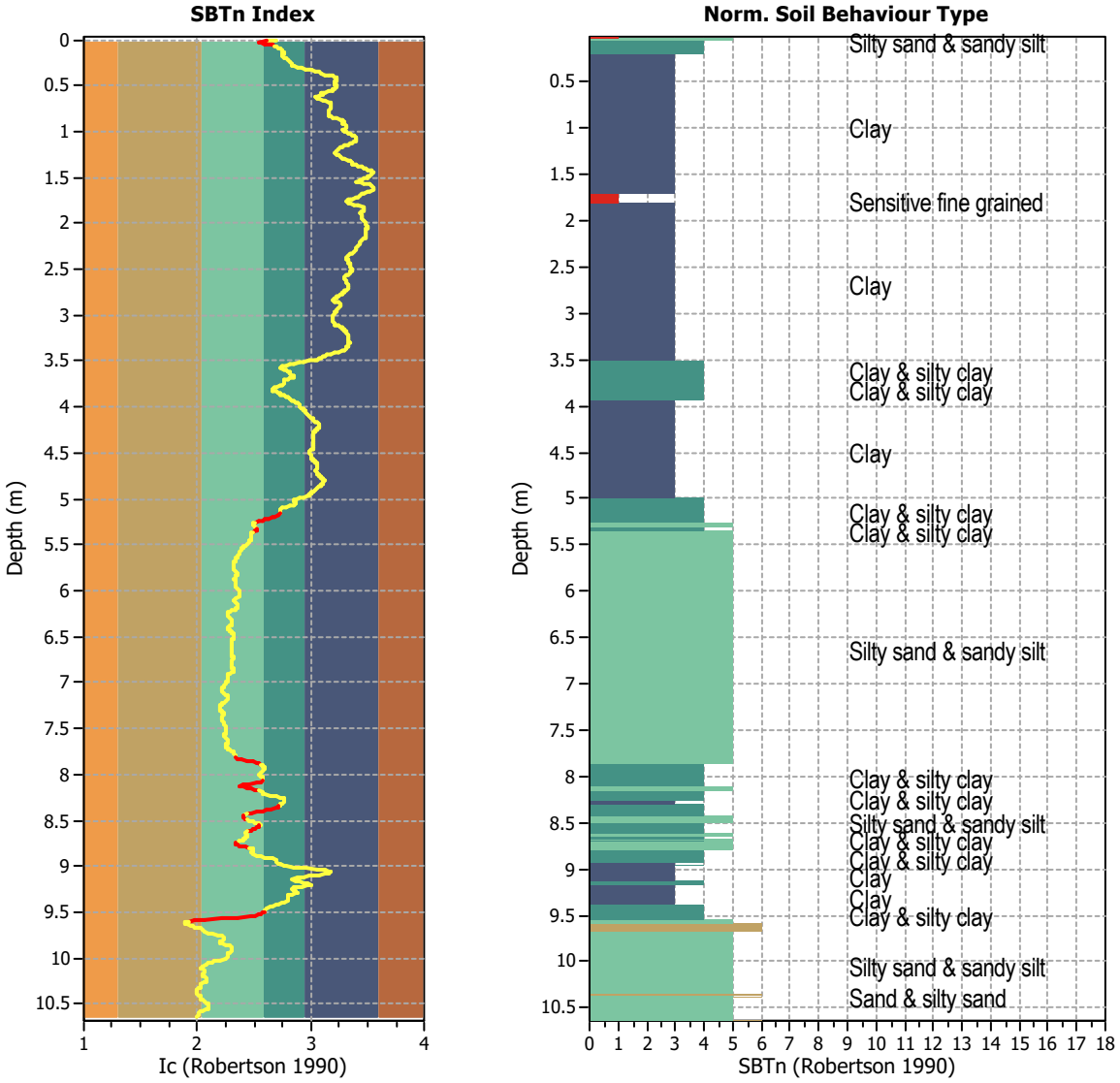
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

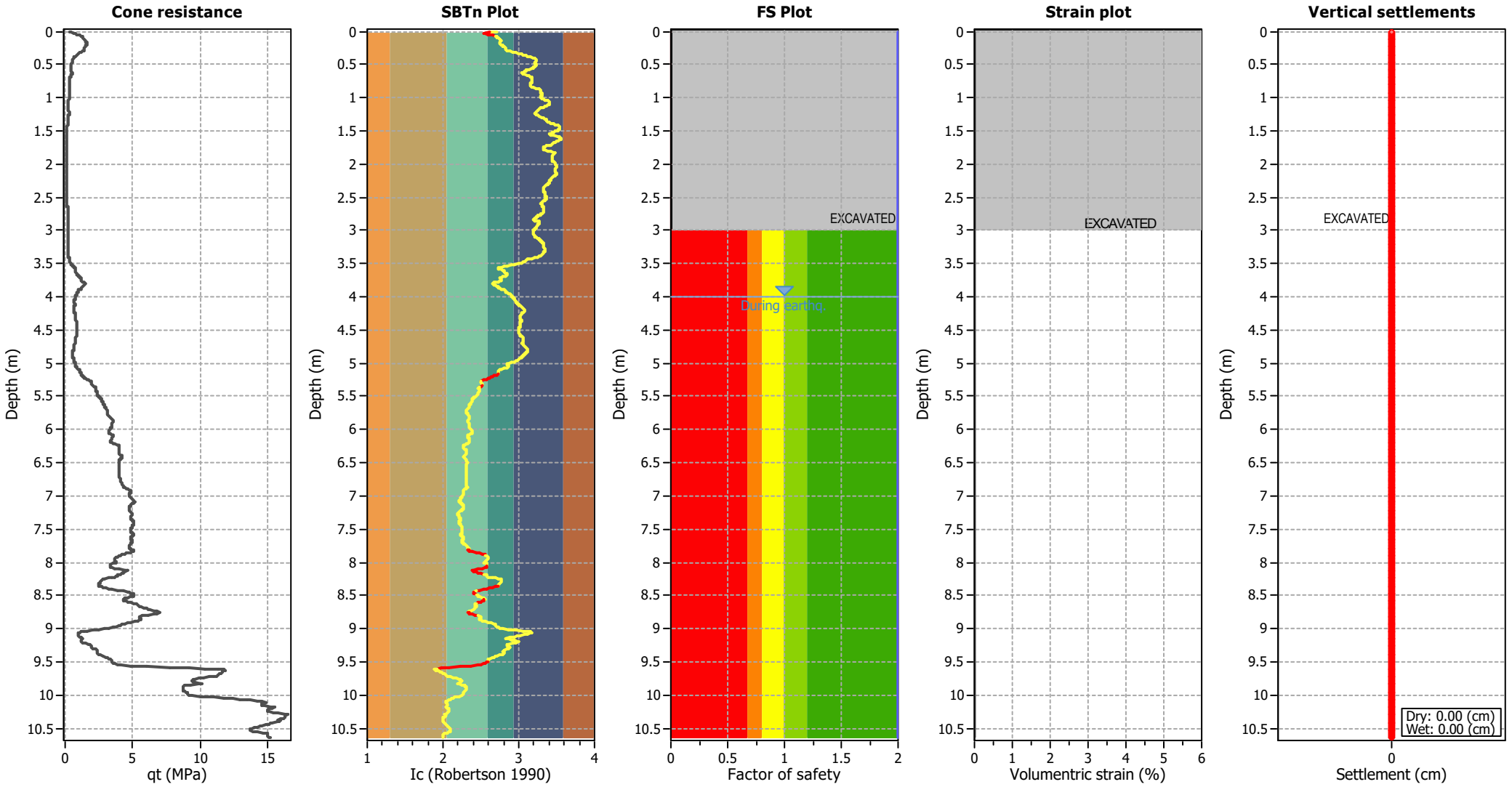
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	1064
I_c maximum check value:	3.00	Total points excluded:	81
I_c change ratio value:	0.0100	Exclusion percentage:	7.61%
Minimum number of points in layer:	4	Number of layers detected:	11

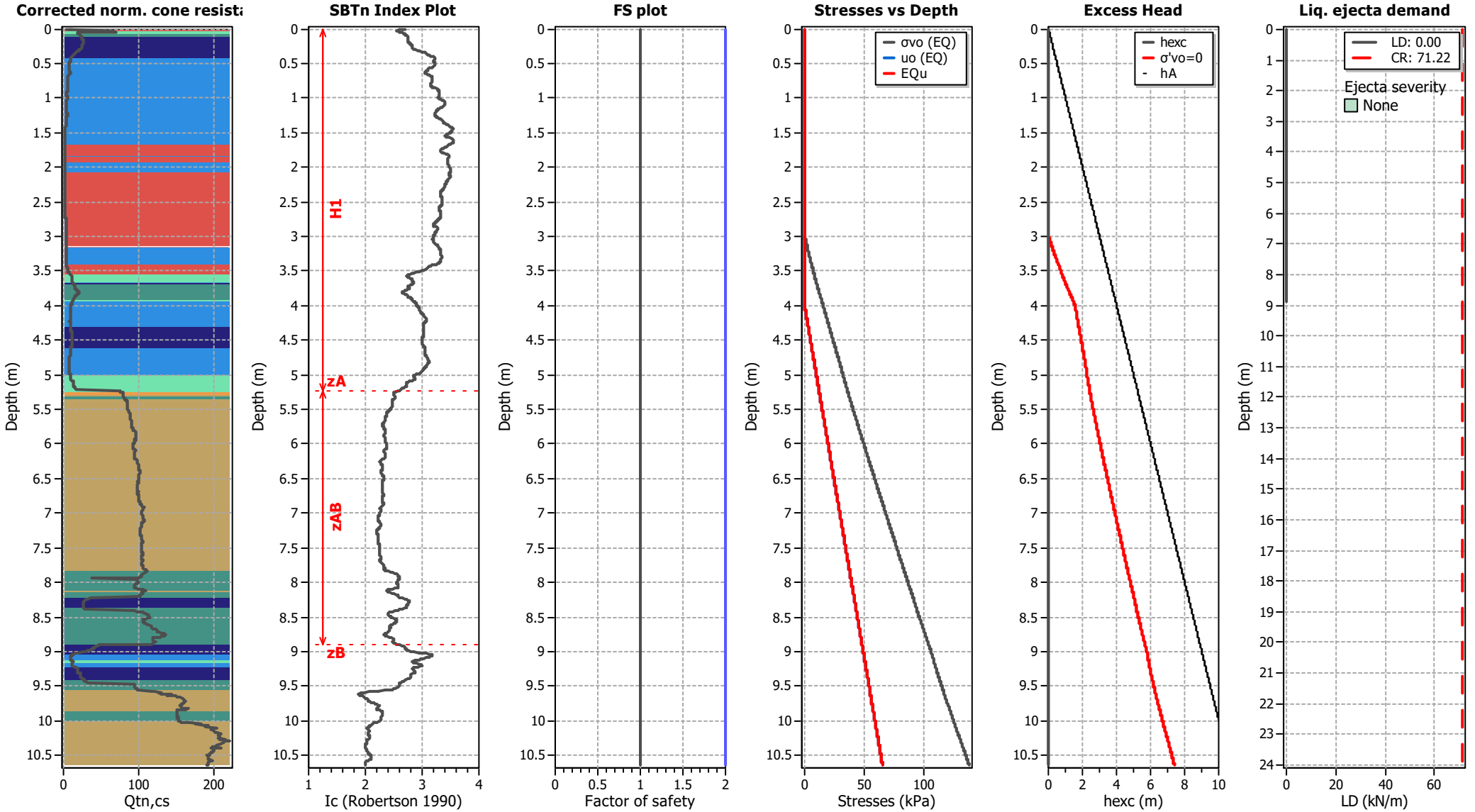
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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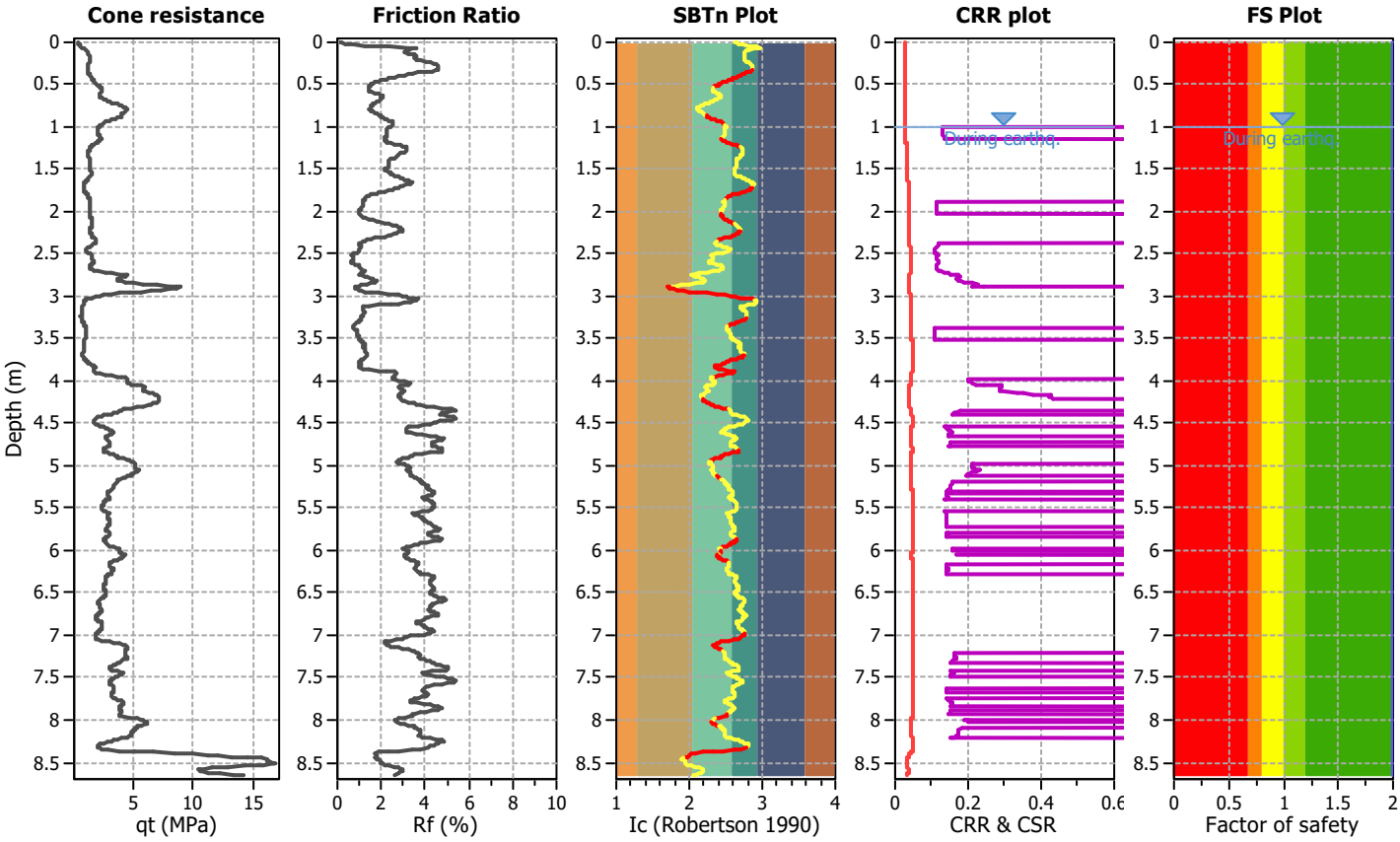
LIQUEFACTION ANALYSIS REPORT

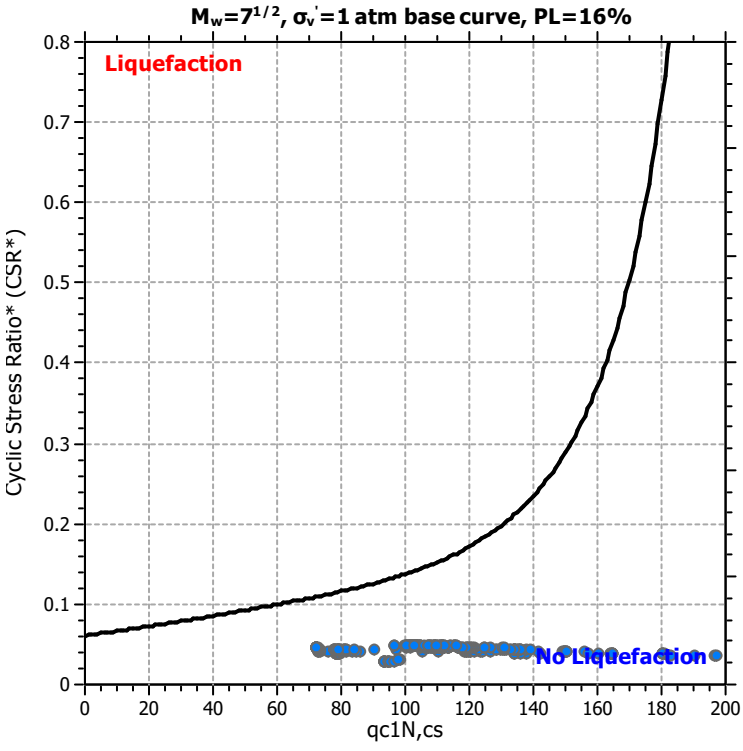
Project title : Sunfield Landholding **Location :**

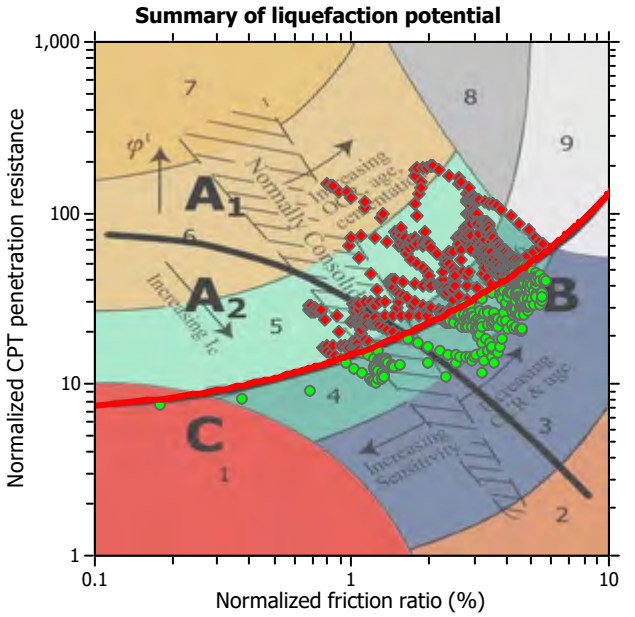
CPT file : CPT017

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.00 m	Excavation depth:	0.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

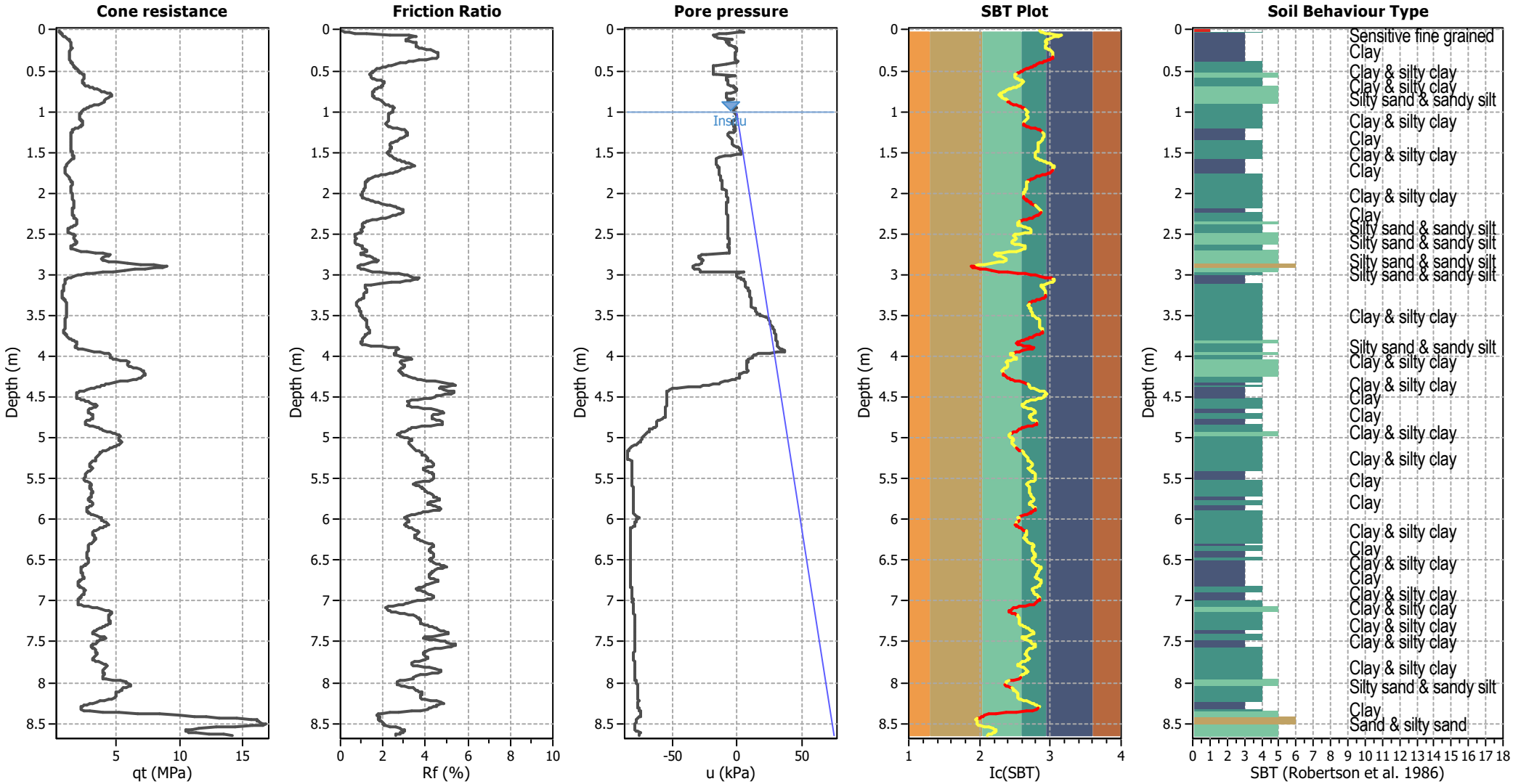






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



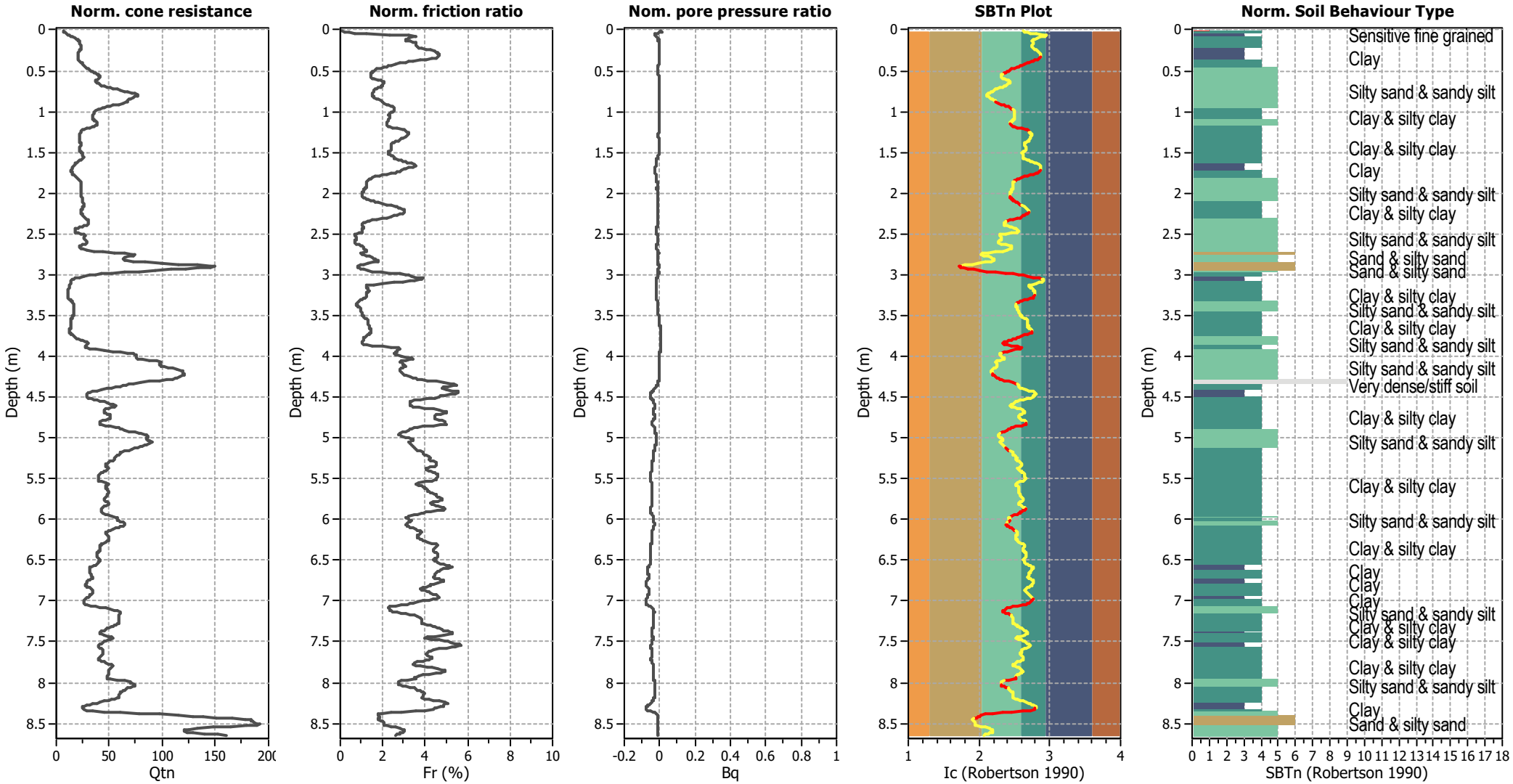
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



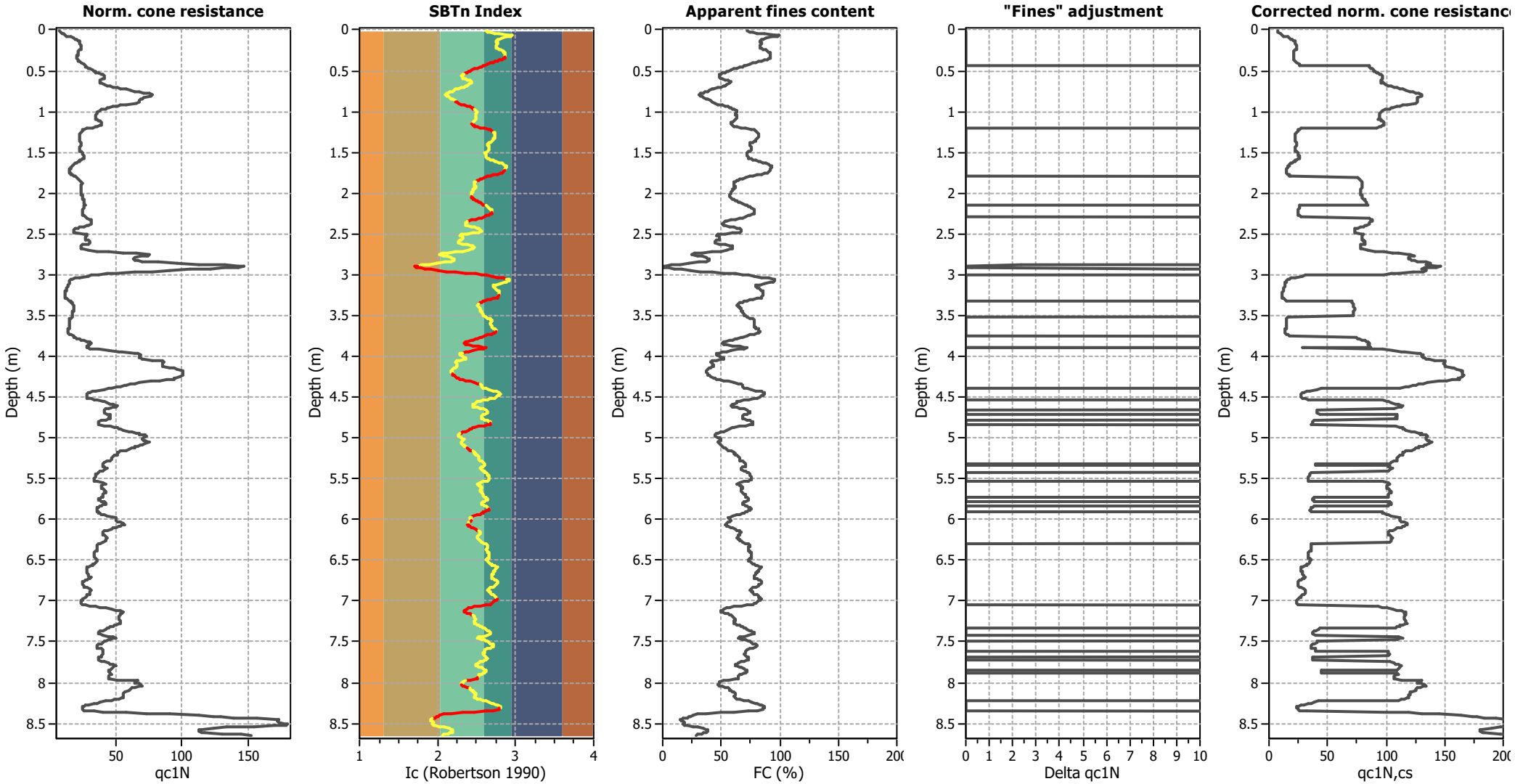
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBTn legend

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

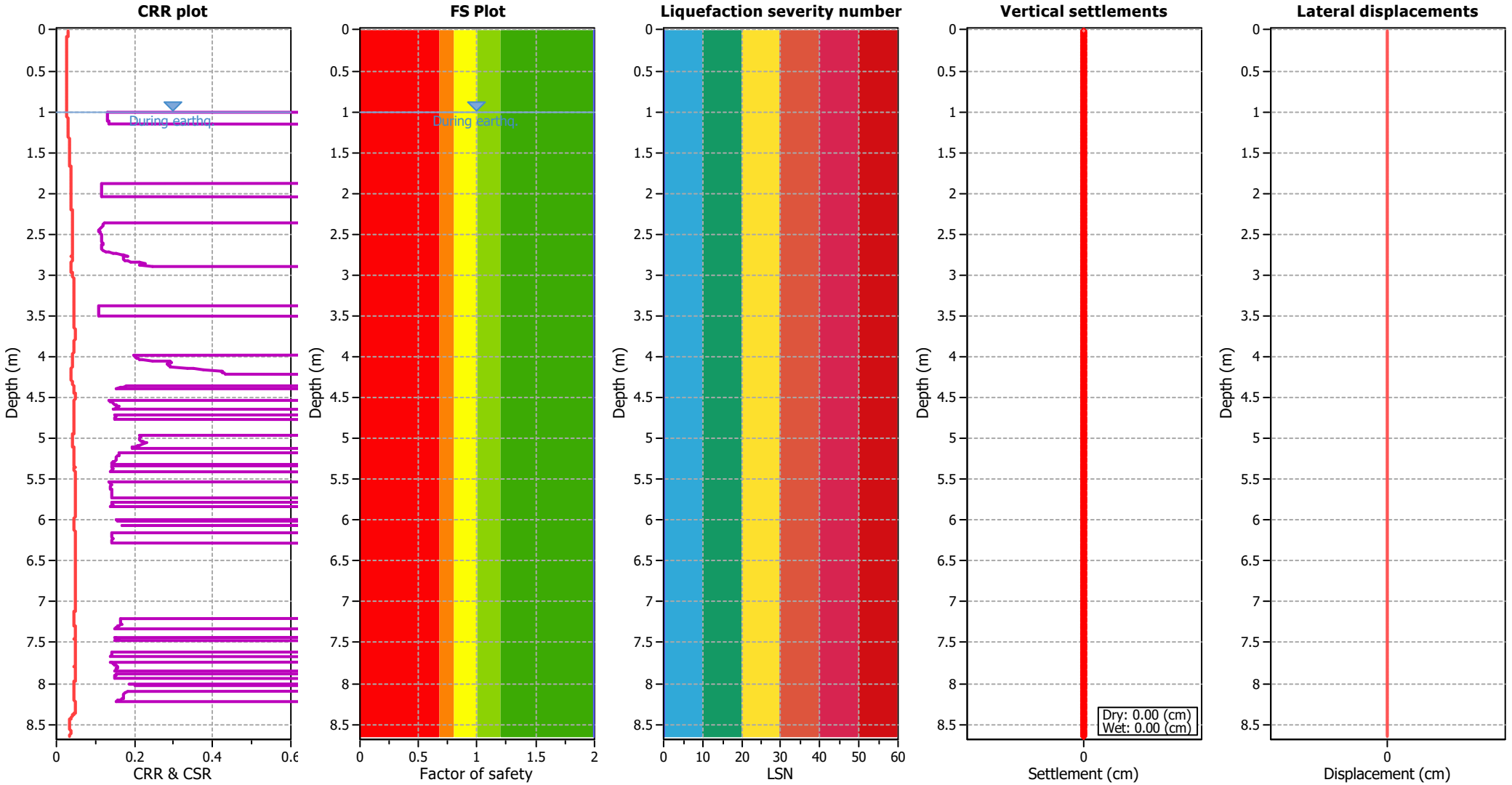
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

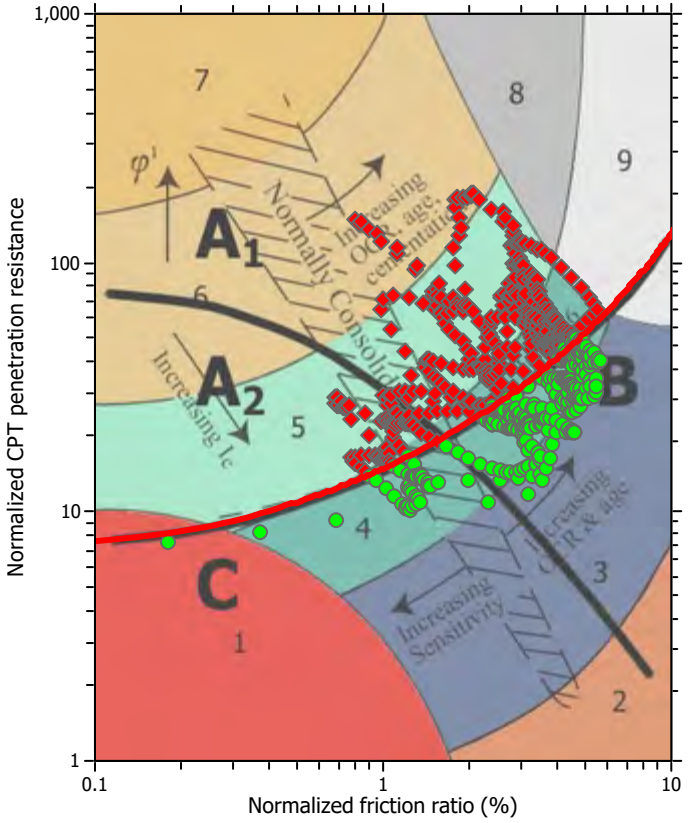
F.S. color scheme

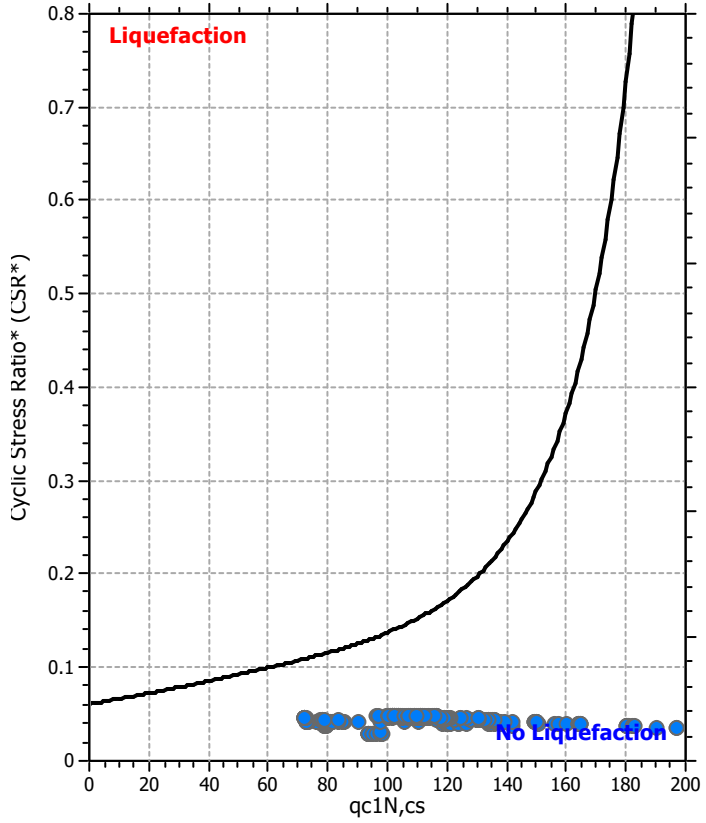
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

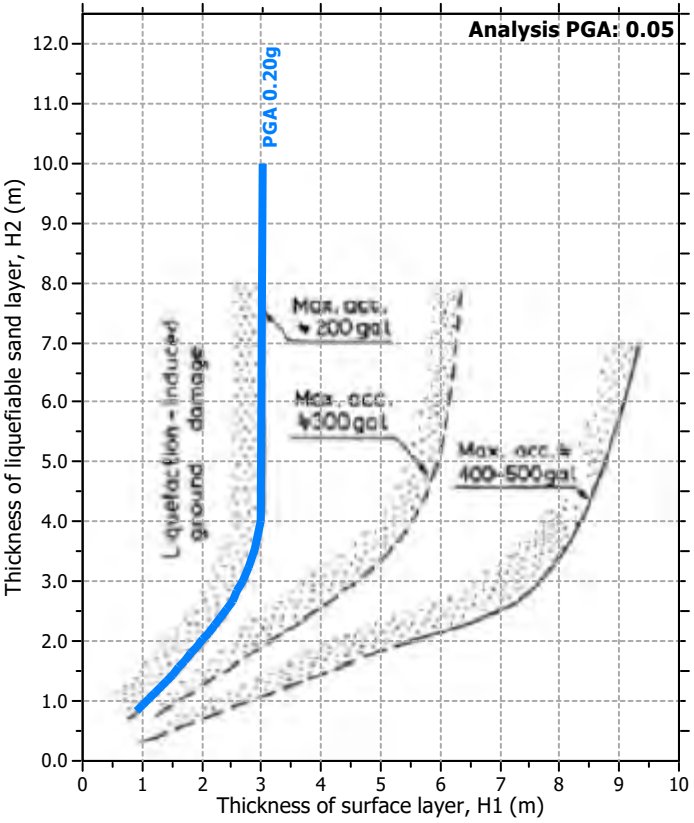
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



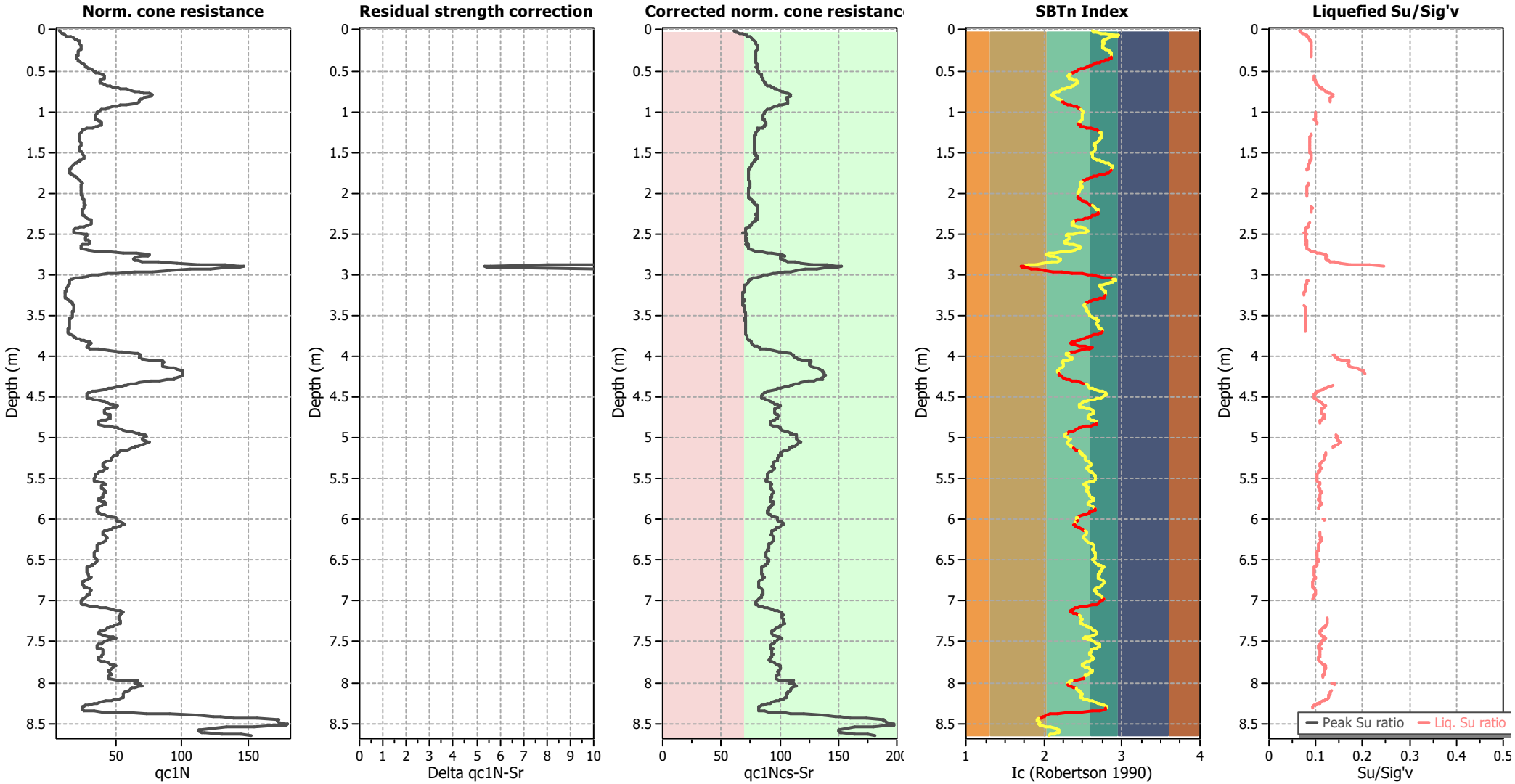




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

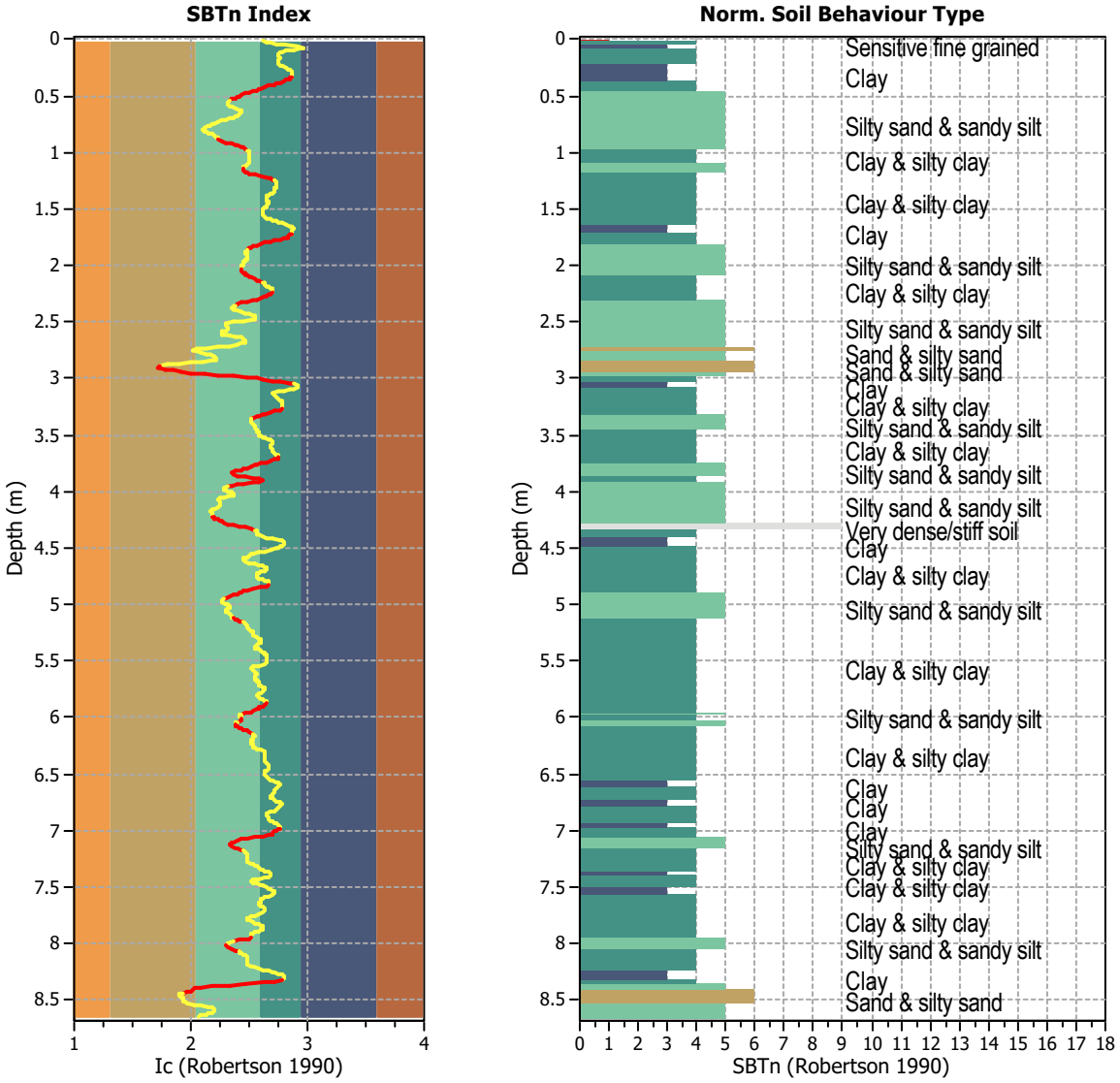
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

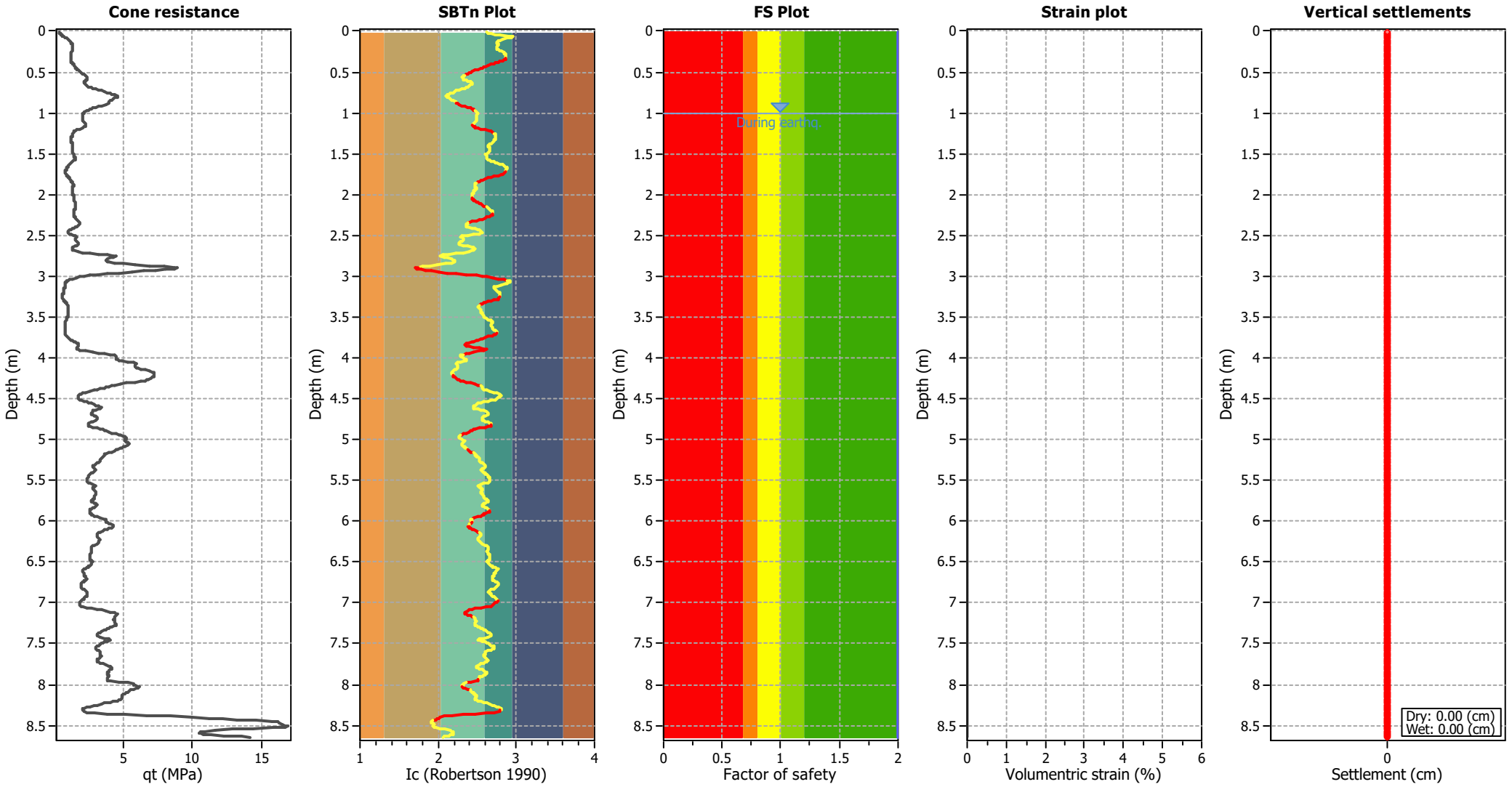
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	865
I_c maximum check value:	3.00	Total points excluded:	241
I_c change ratio value:	0.0100	Exclusion percentage:	27.86%
Minimum number of points in layer:	4	Number of layers detected:	22

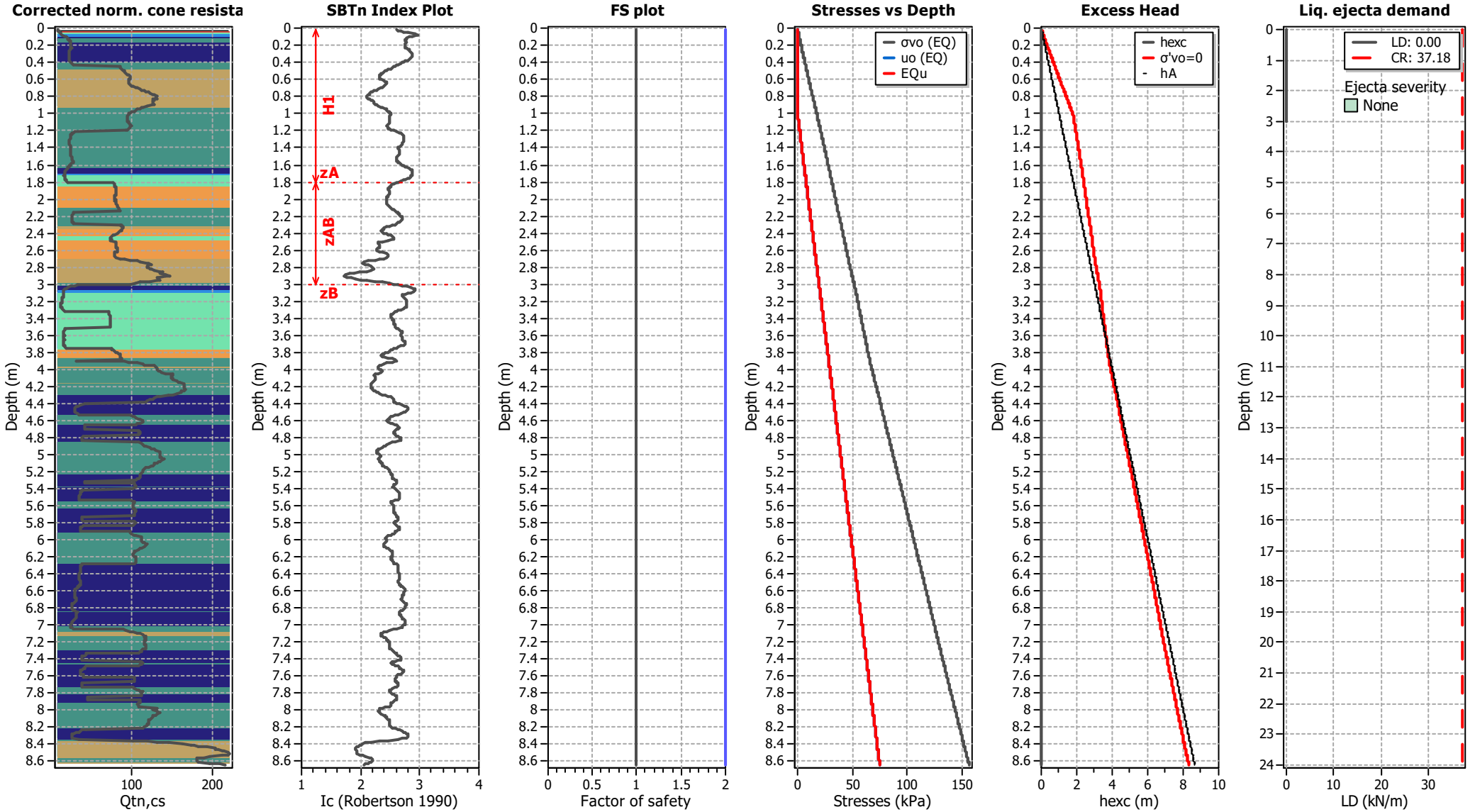
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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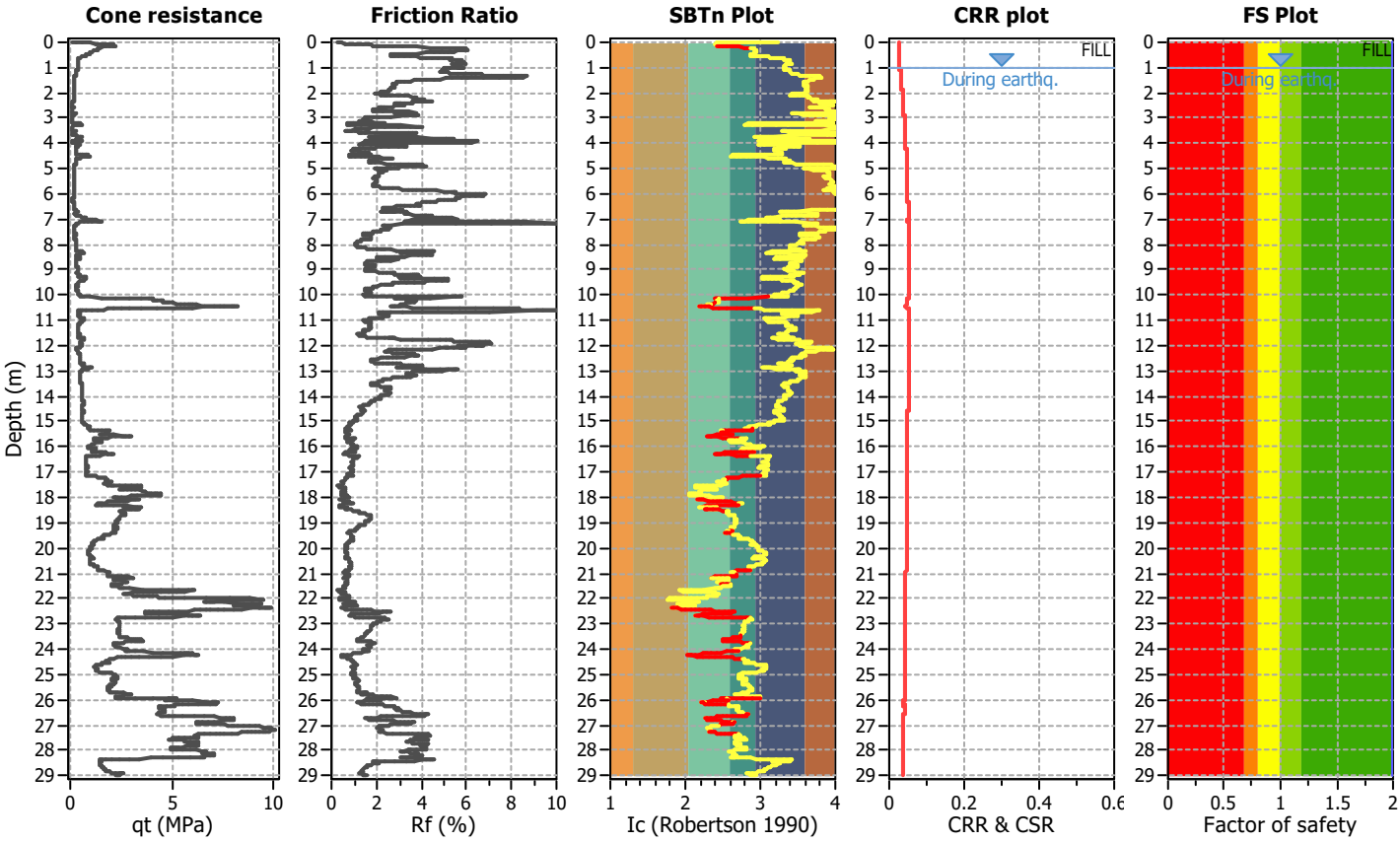
LIQUEFACTION ANALYSIS REPORT

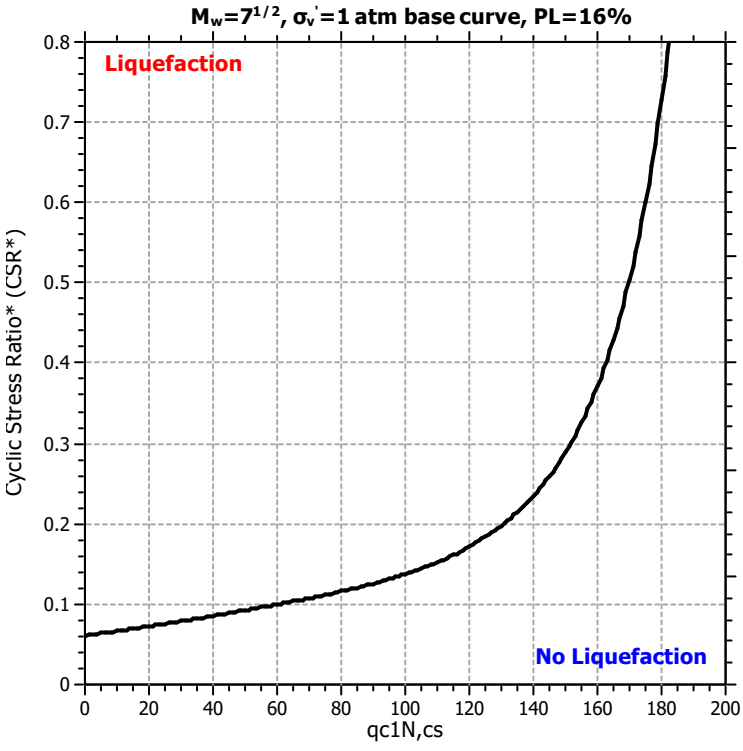
Project title : Sunfield Landholding **Location :**

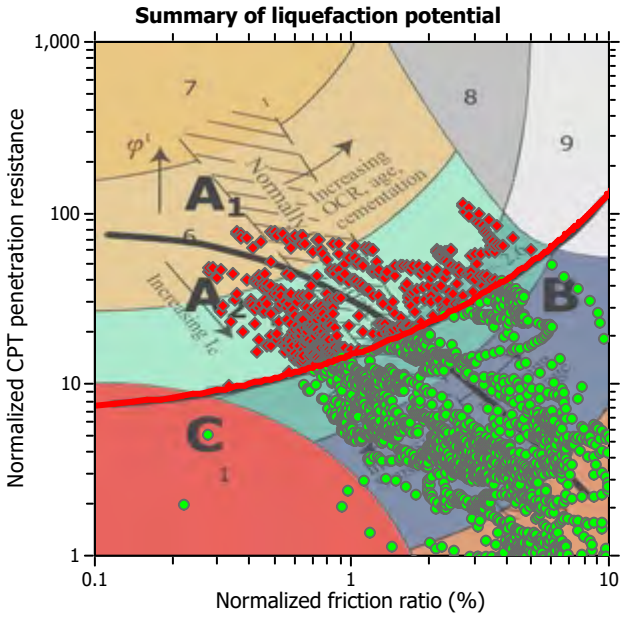
CPT file : CPT018

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	18.50 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

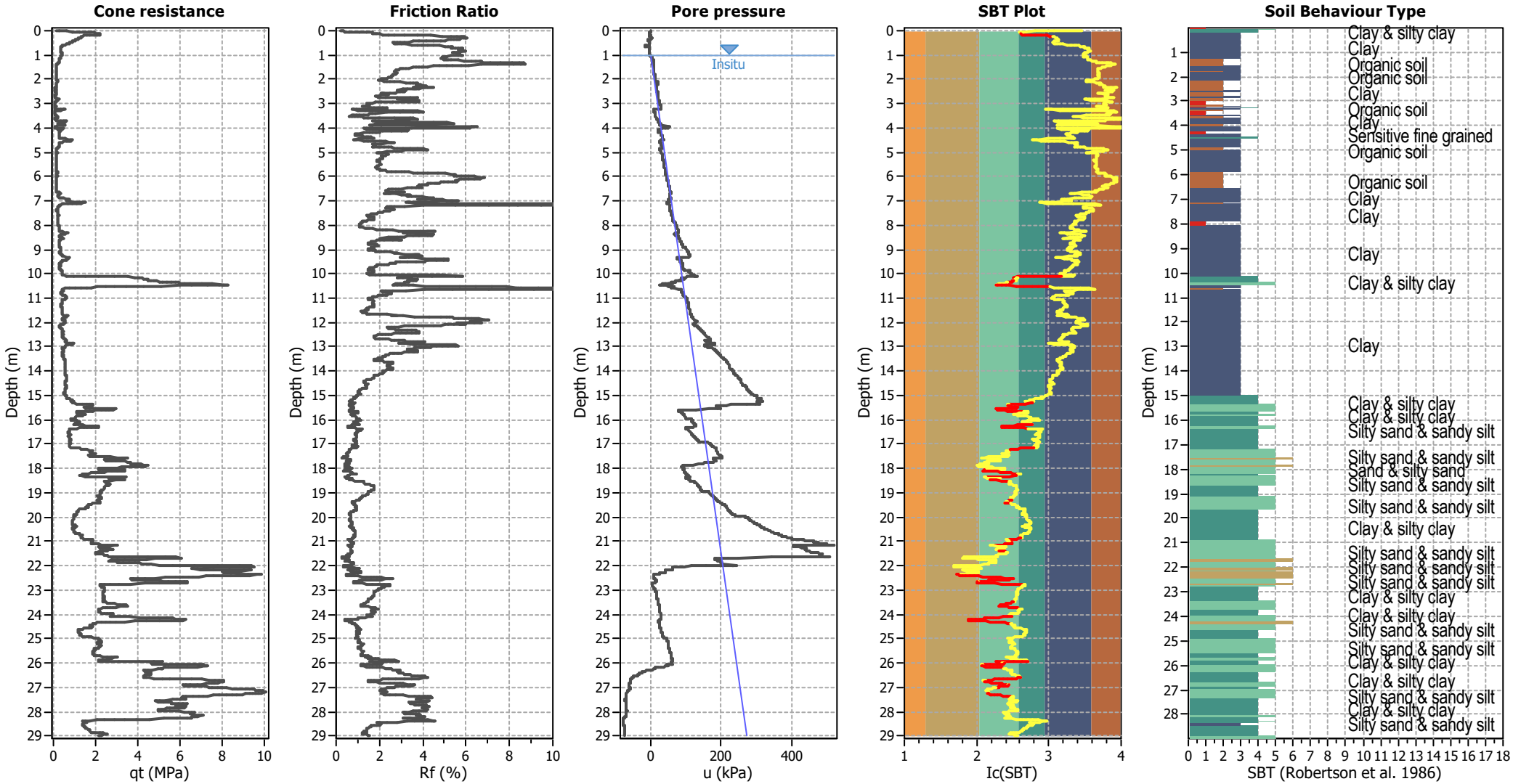






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



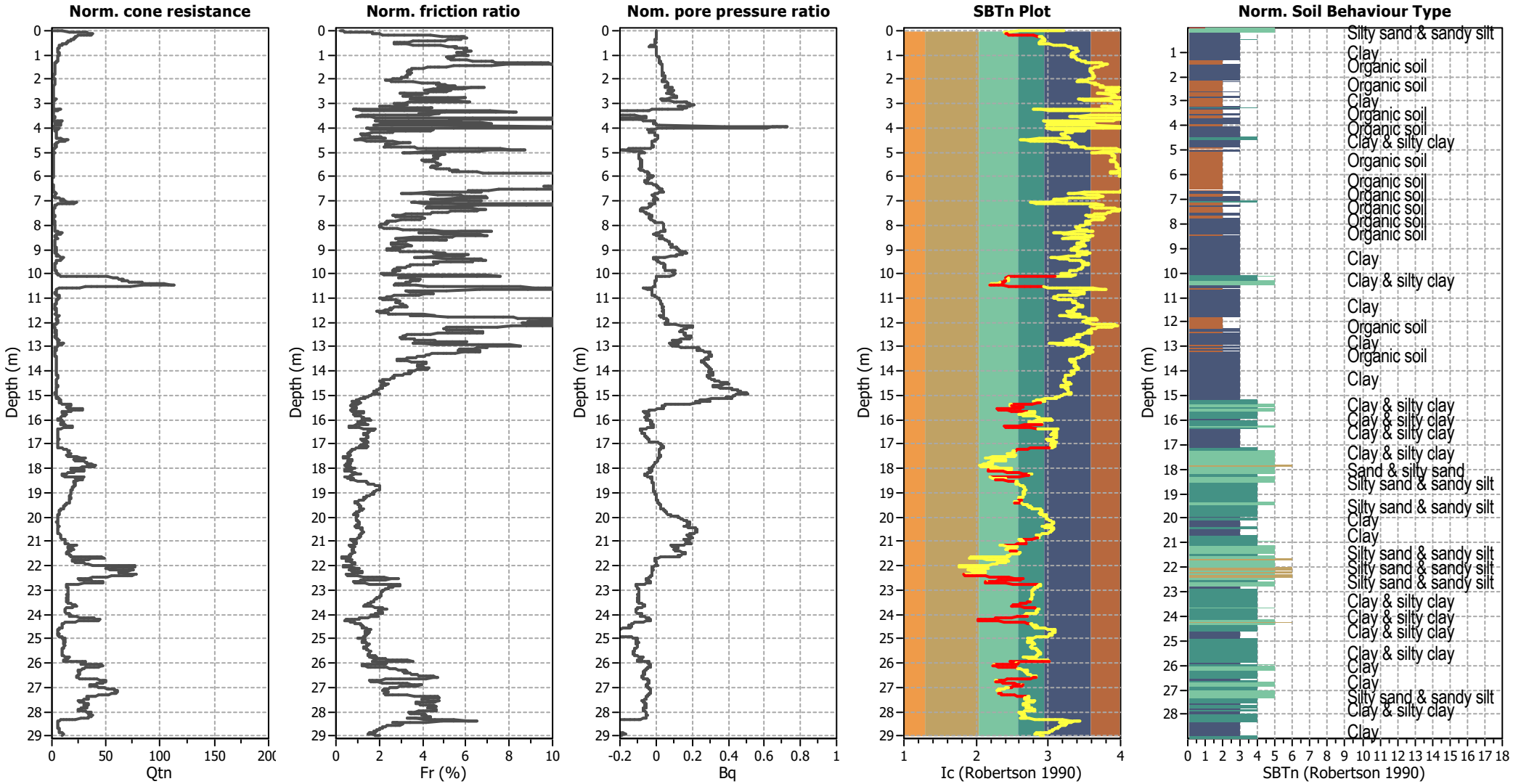
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



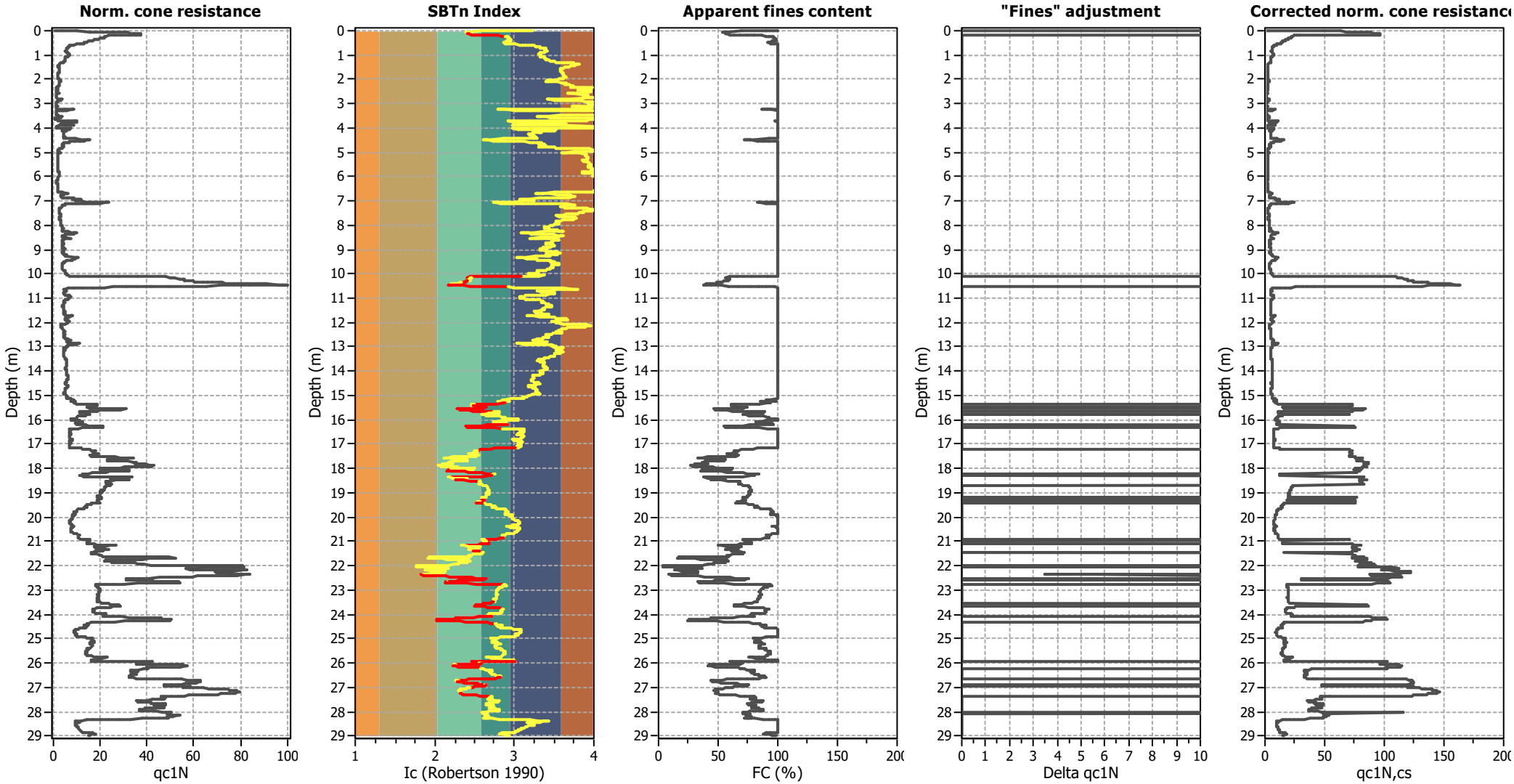
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

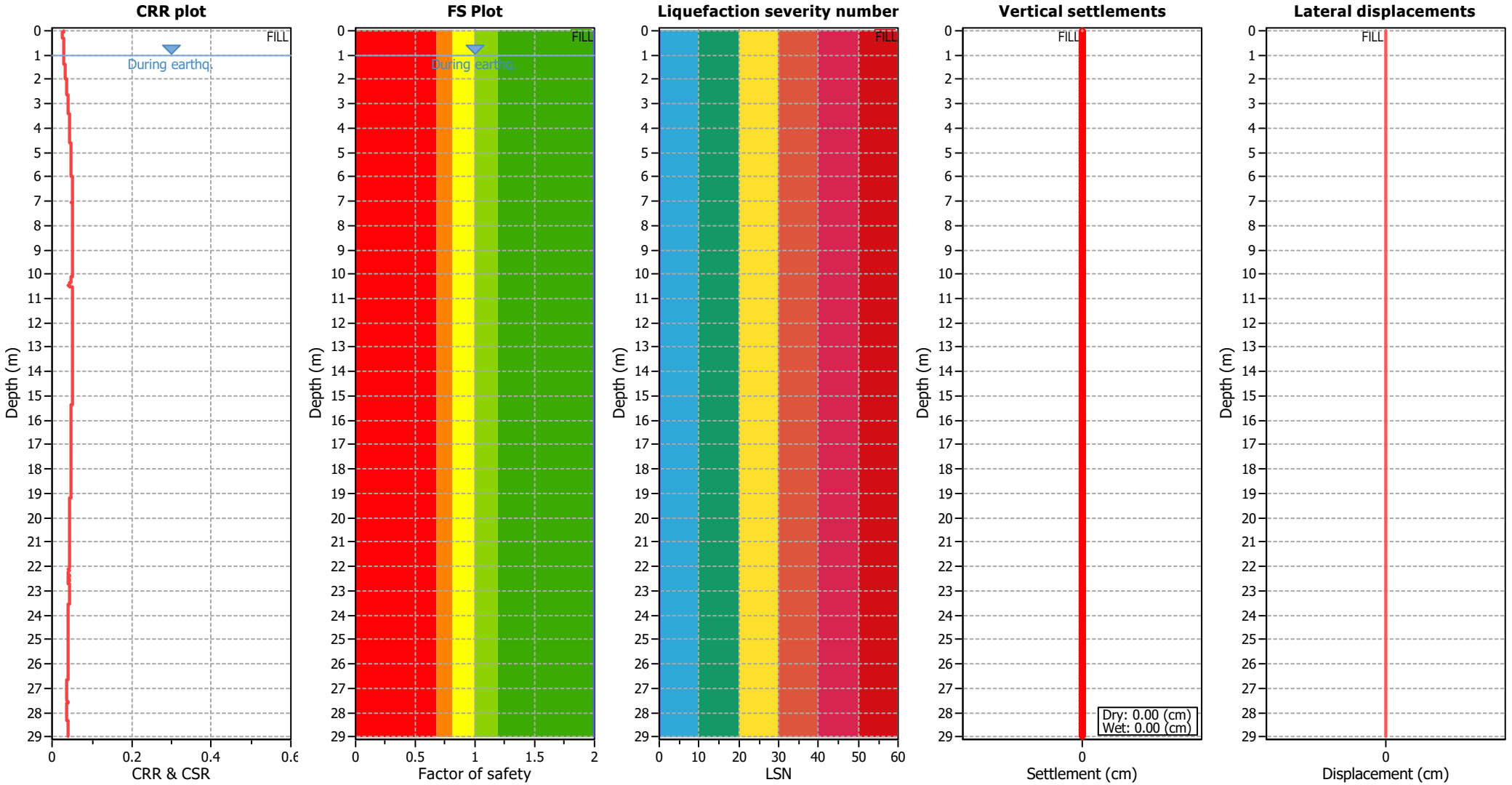
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

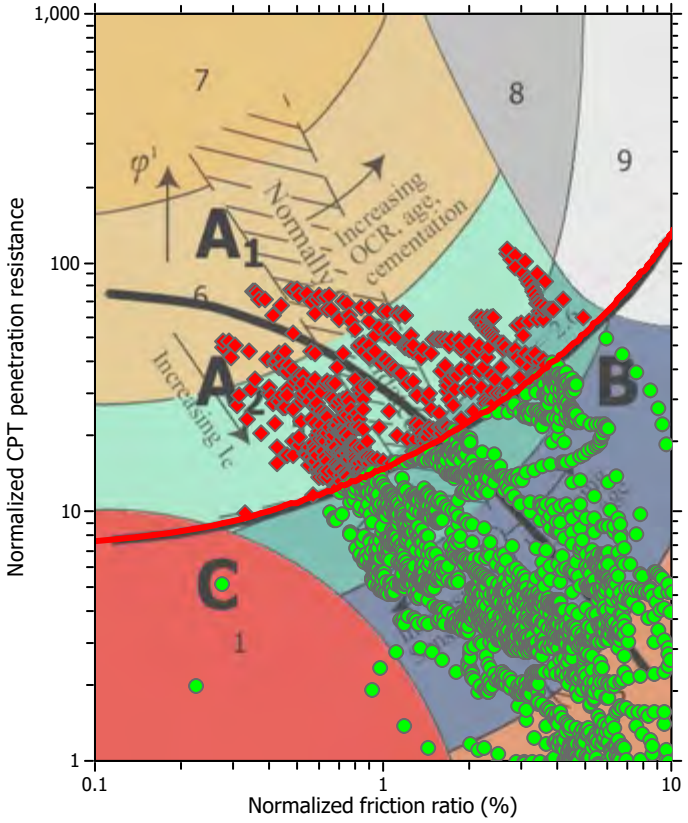
F.S. color scheme

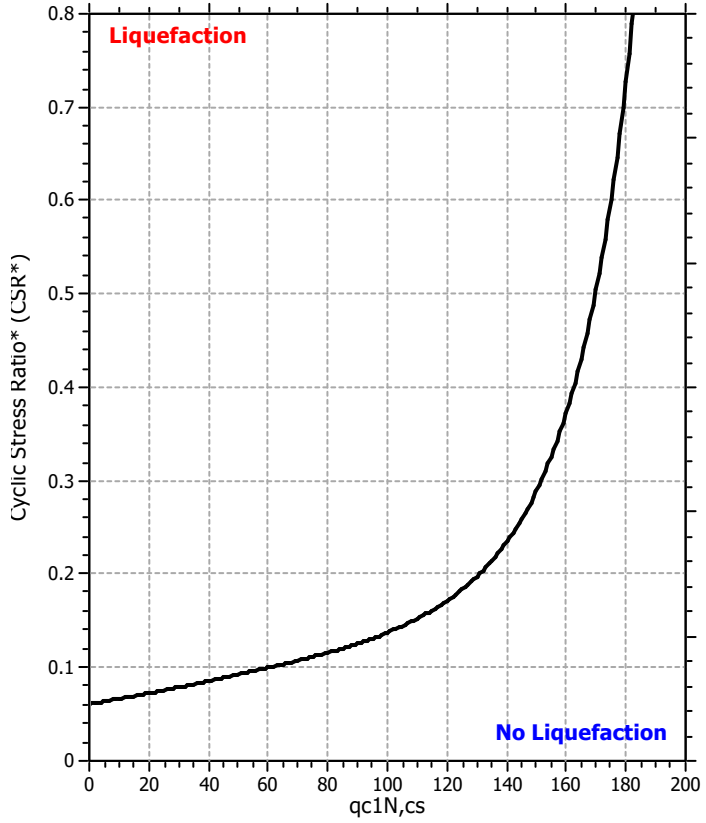
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

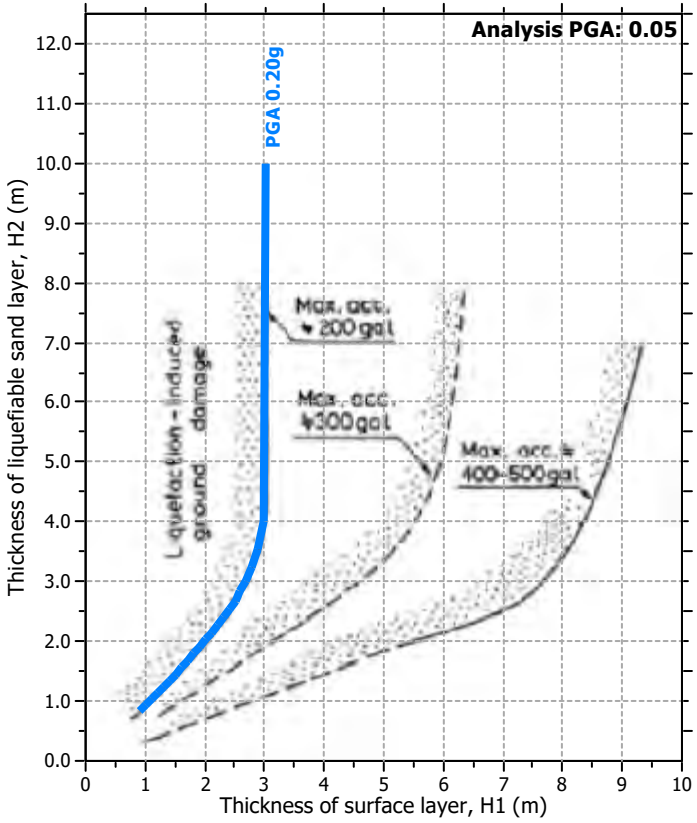
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



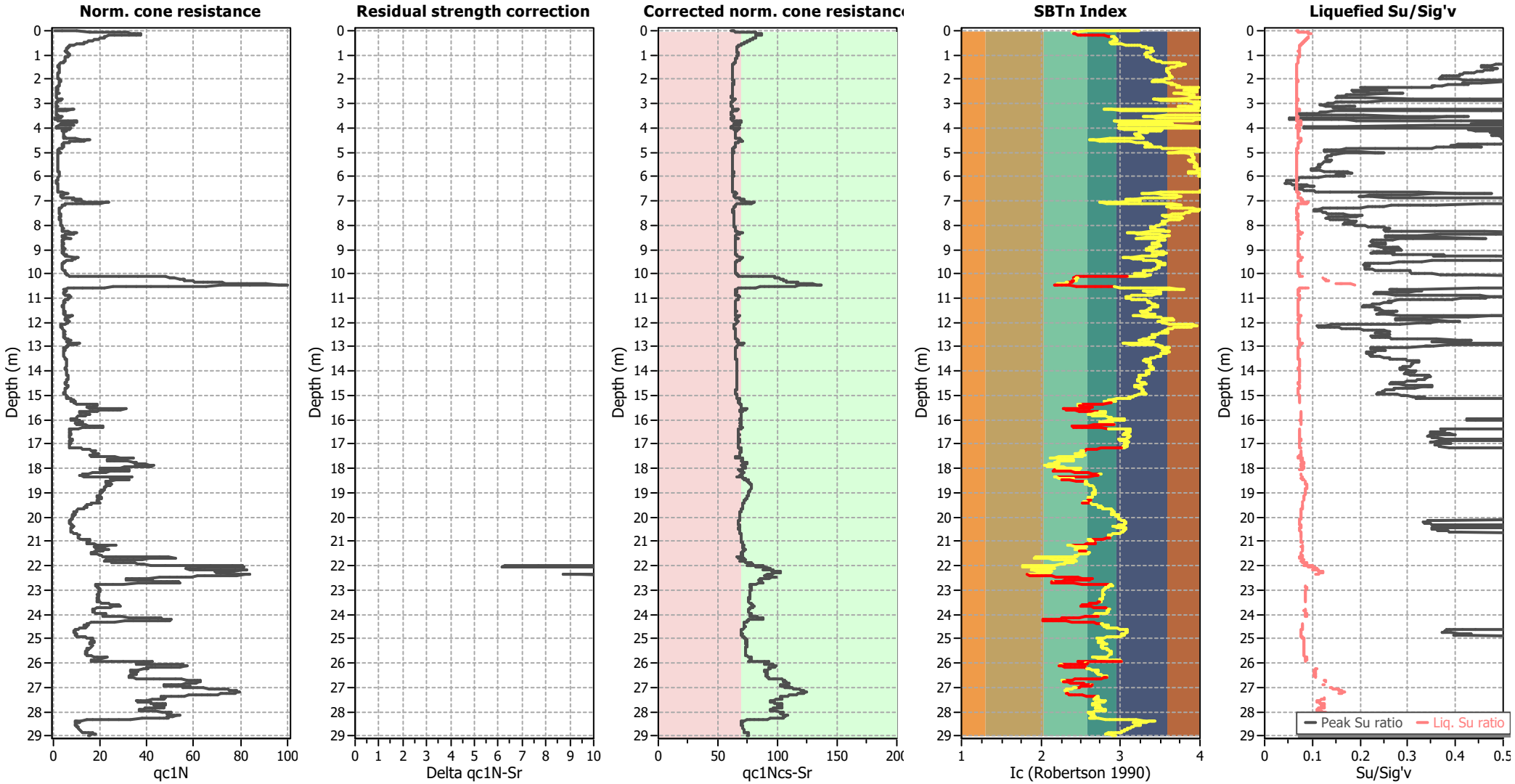




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

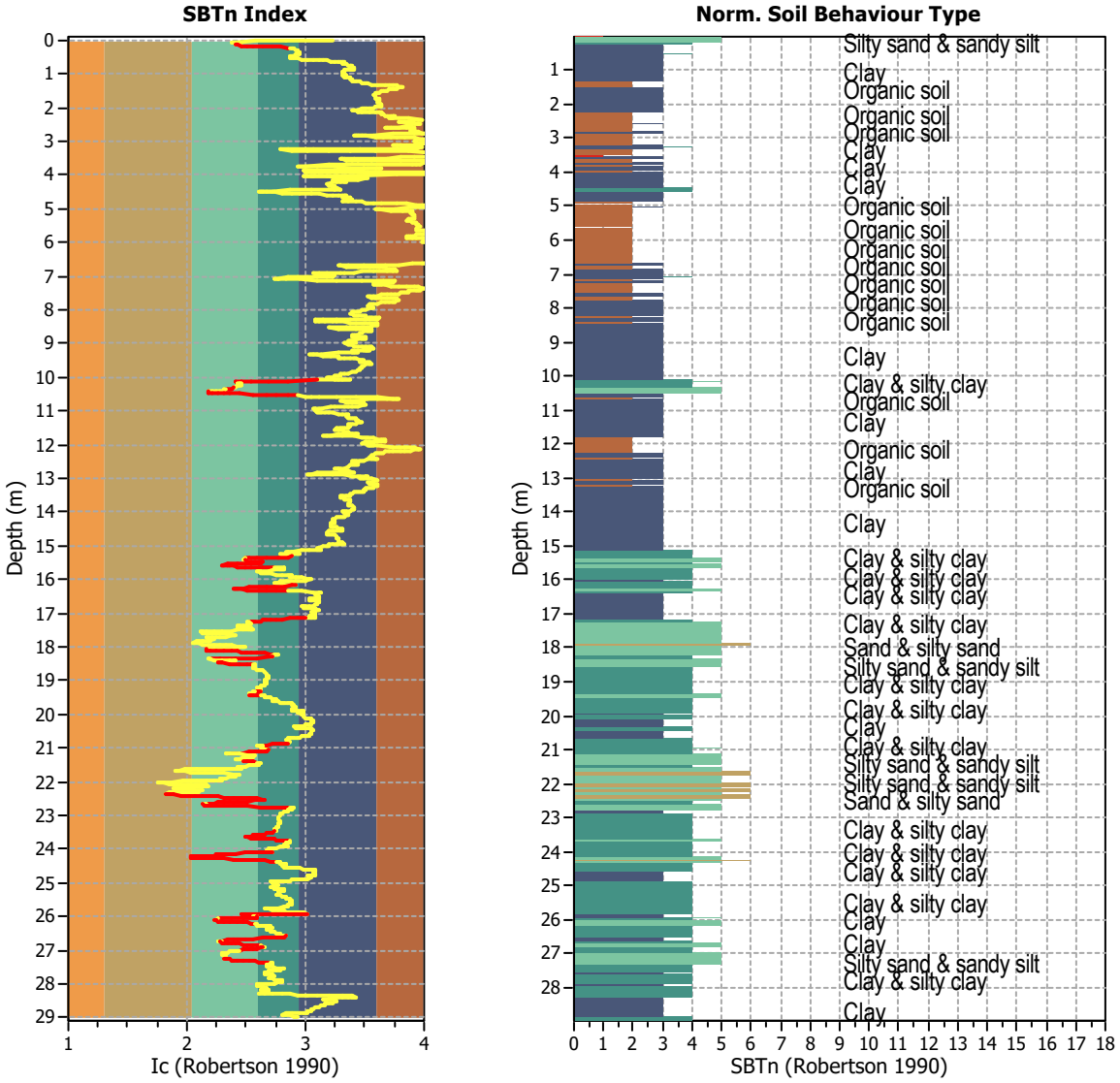
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



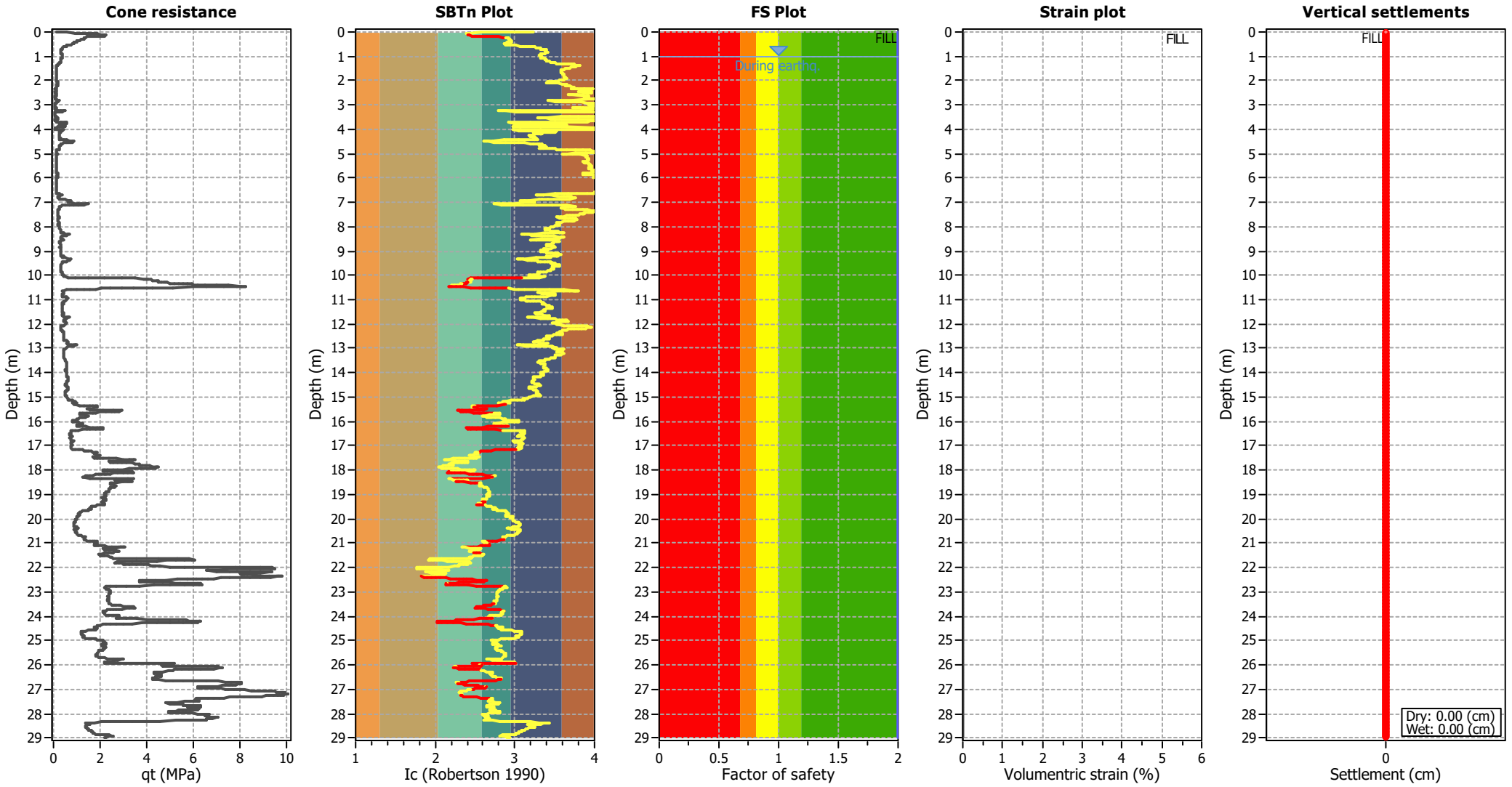
Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	2898
Total points excluded:	351
Exclusion percentage:	12.11%
Number of layers detected:	35

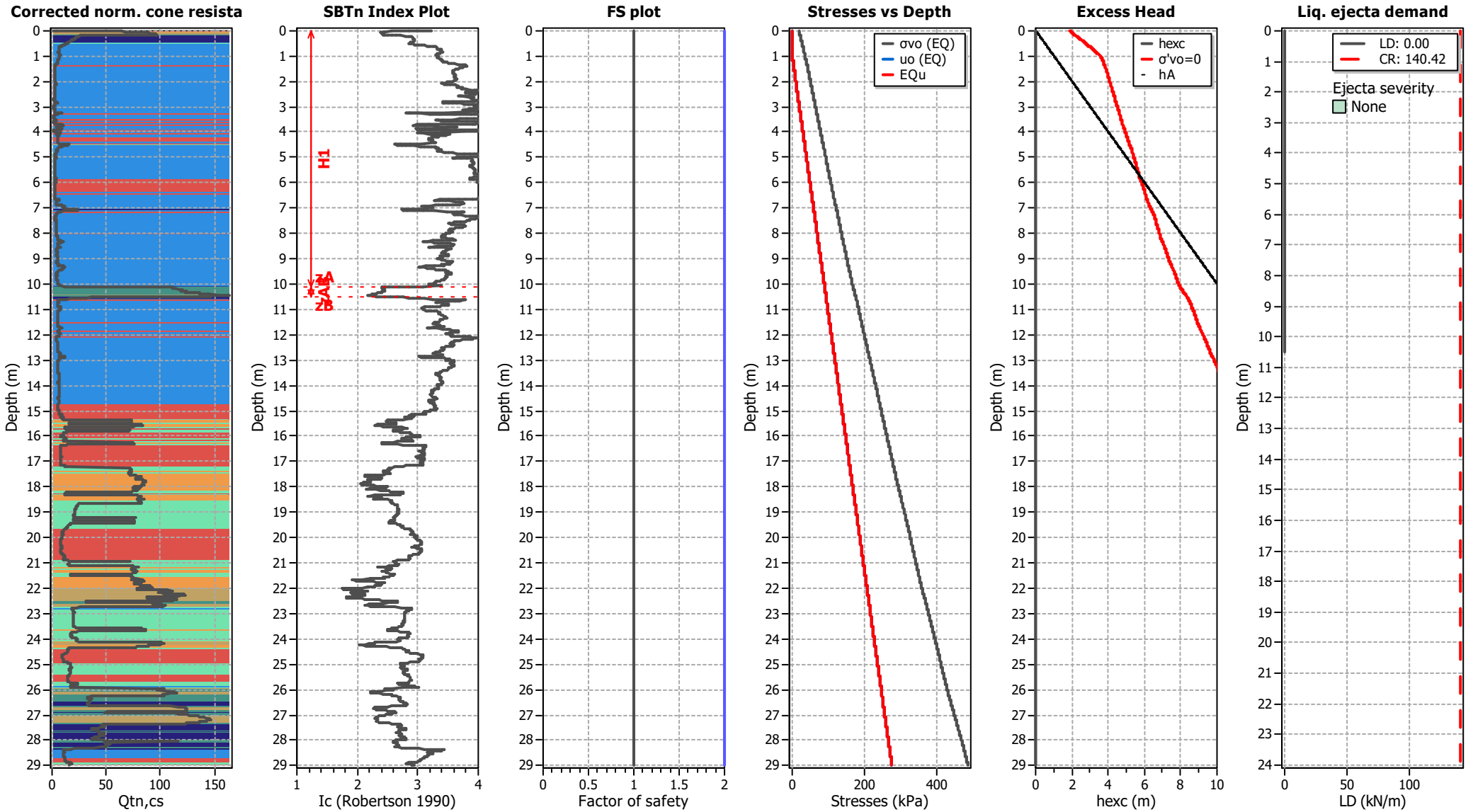
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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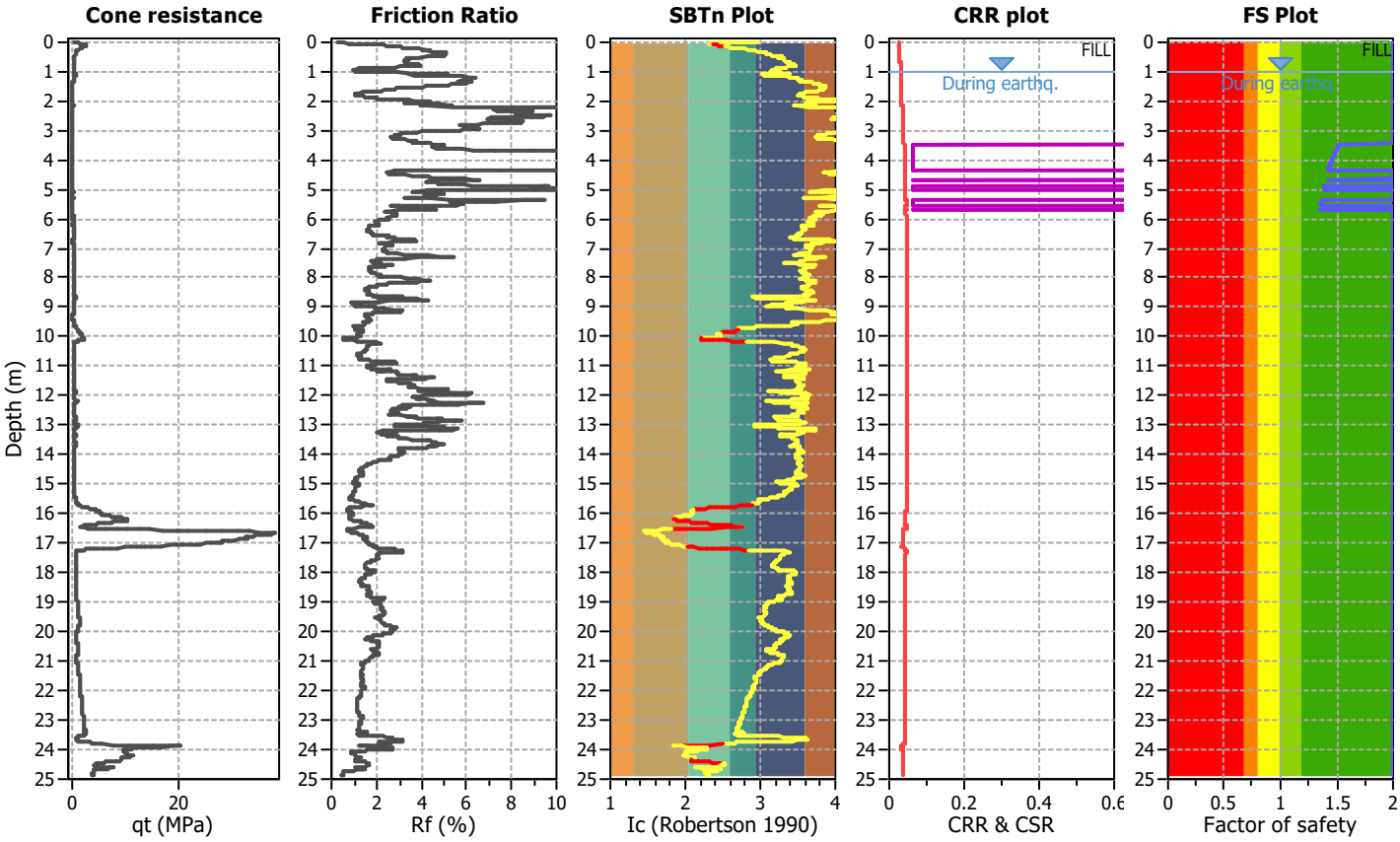
LIQUEFACTION ANALYSIS REPORT

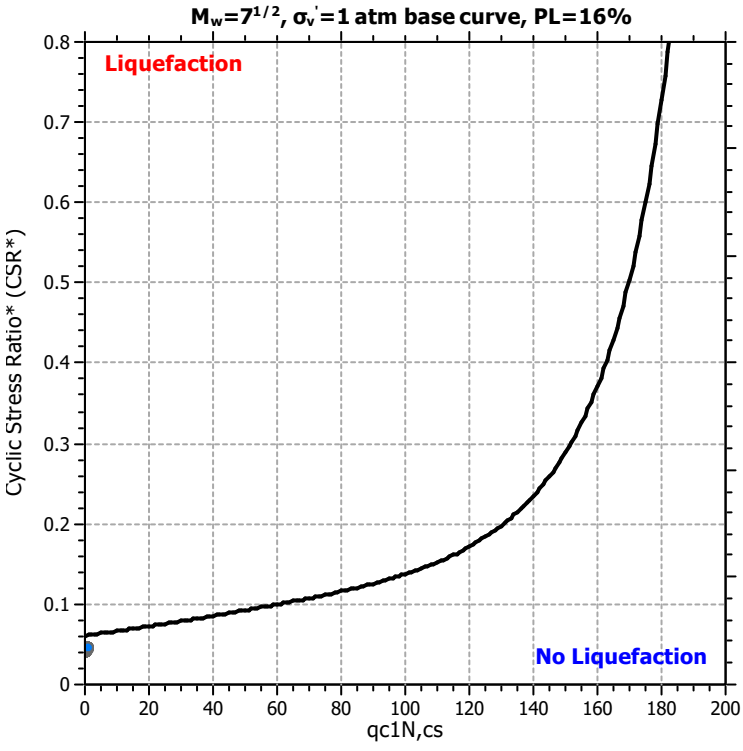
Project title : Sunfield Landholding **Location :**

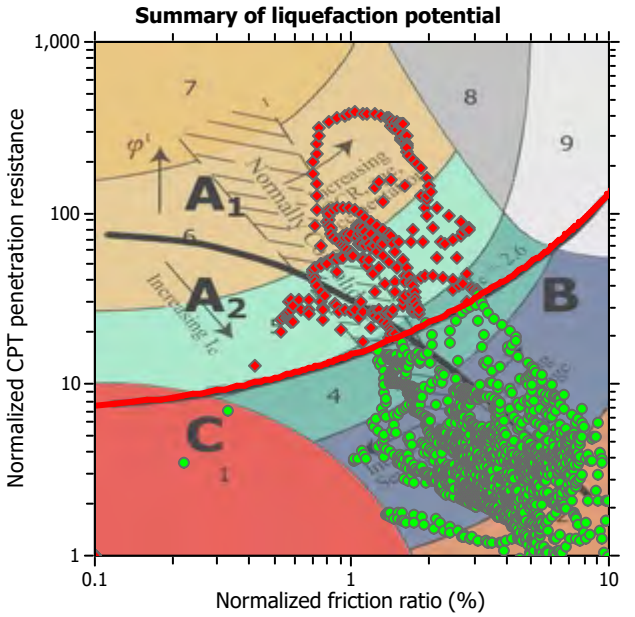
CPT file : CPT019A

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	37.00 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

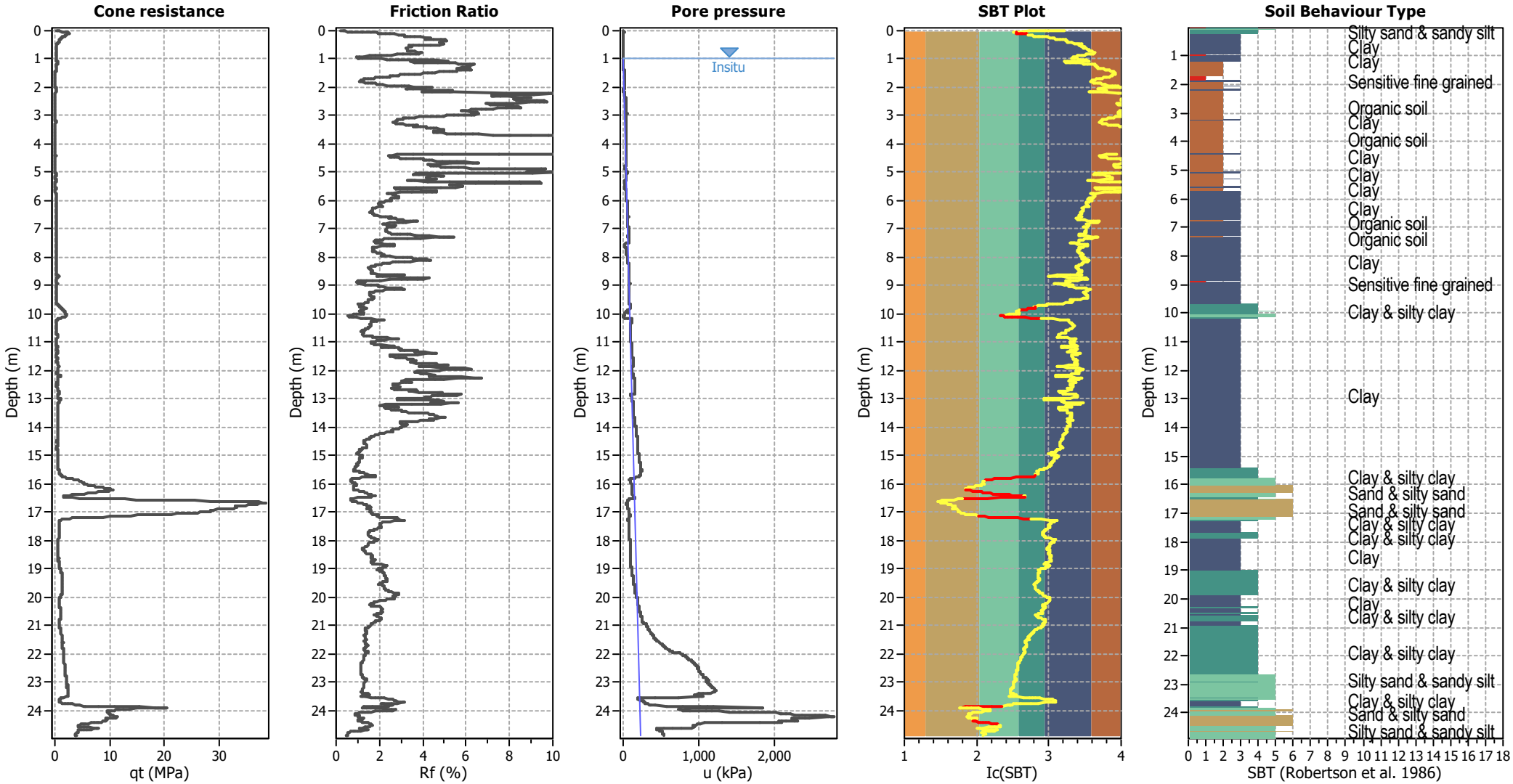






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



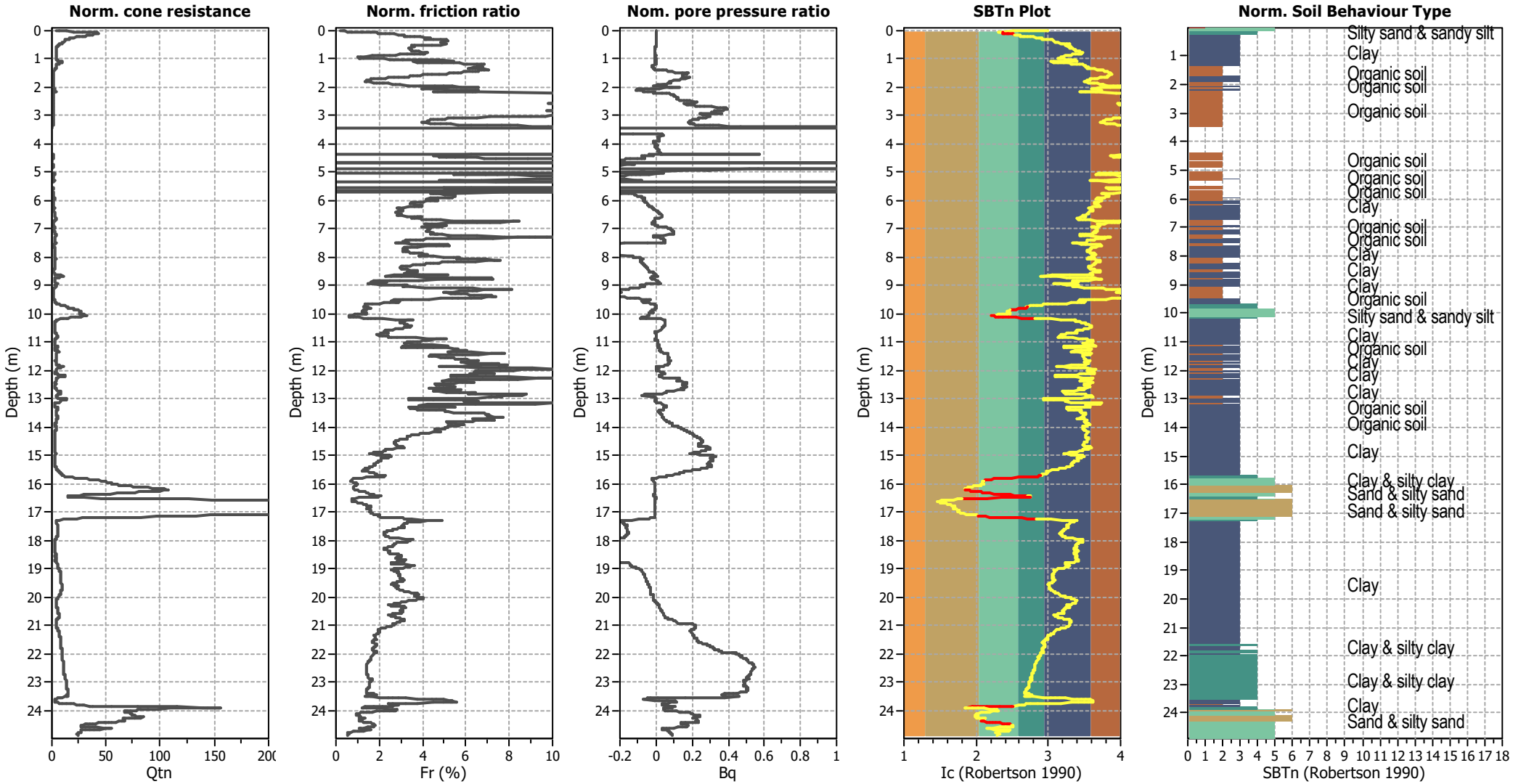
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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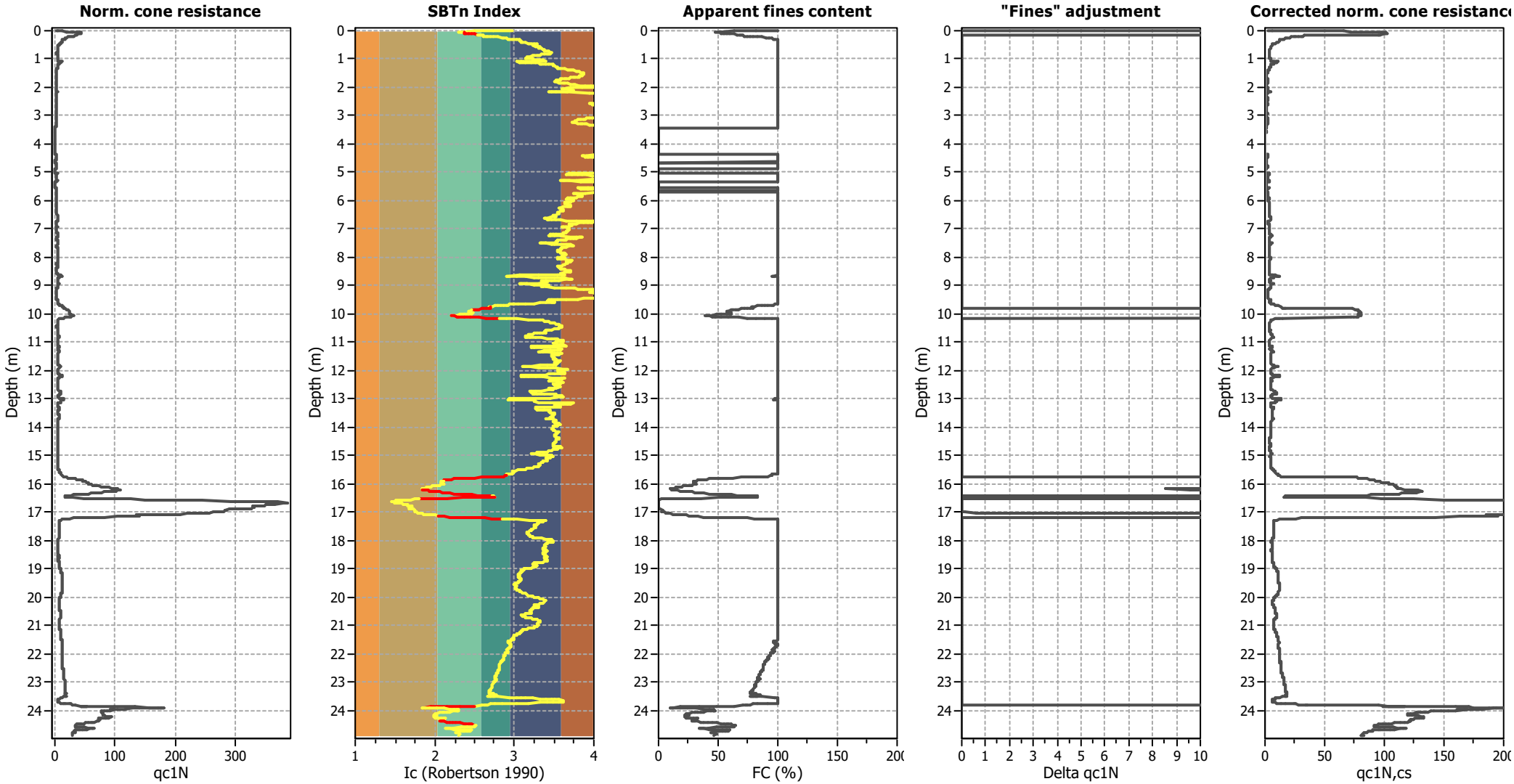
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

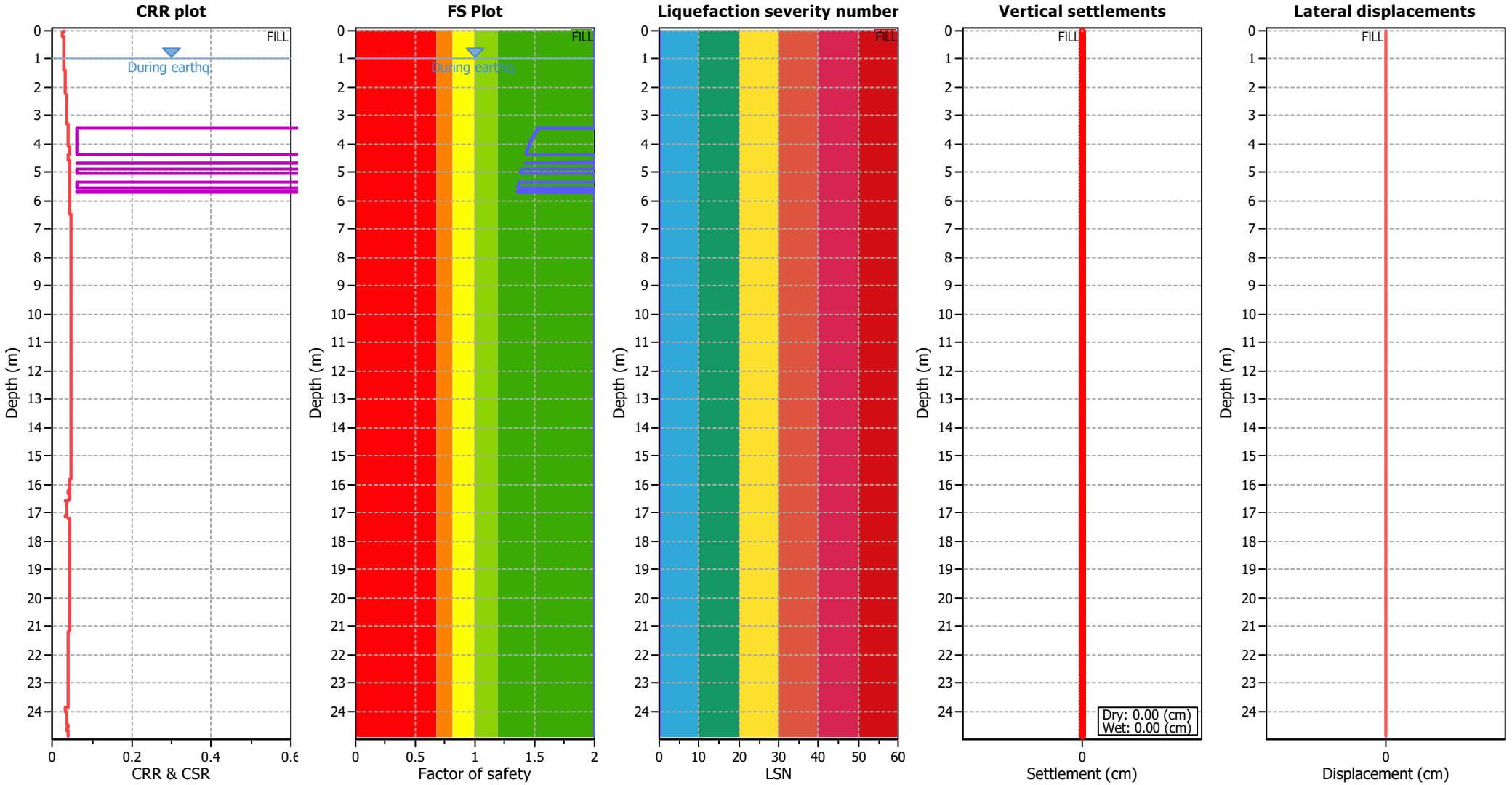
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 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

LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
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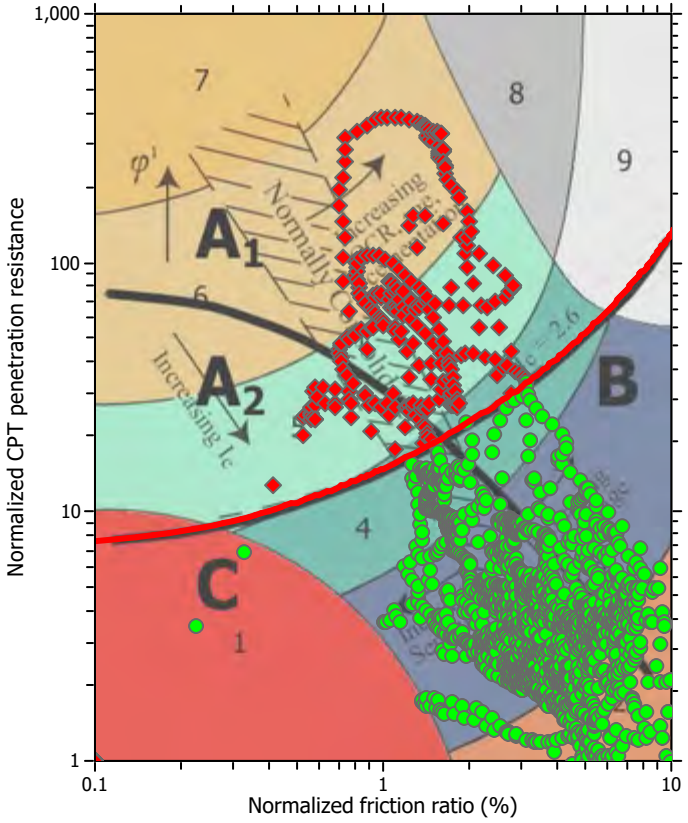
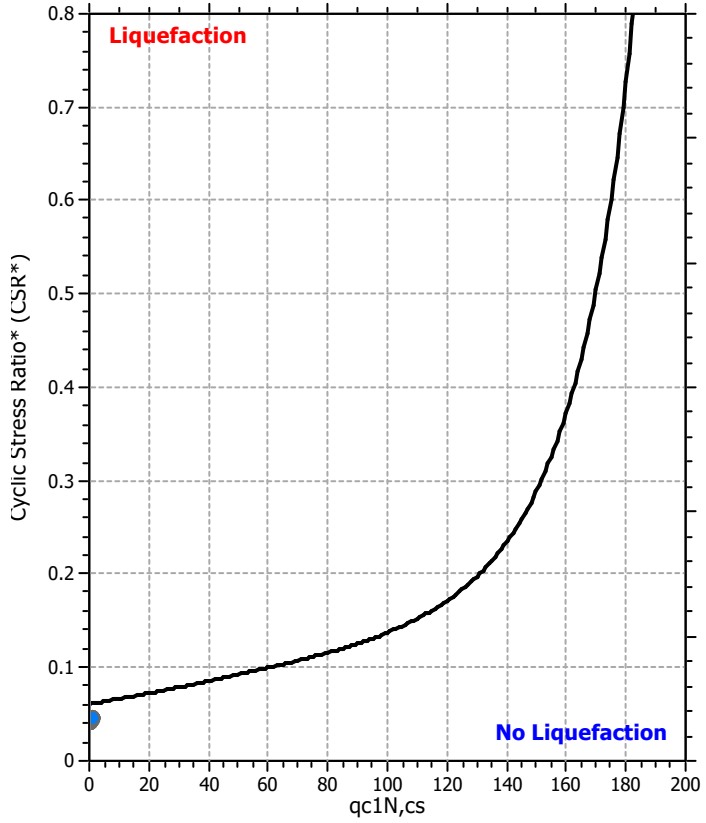
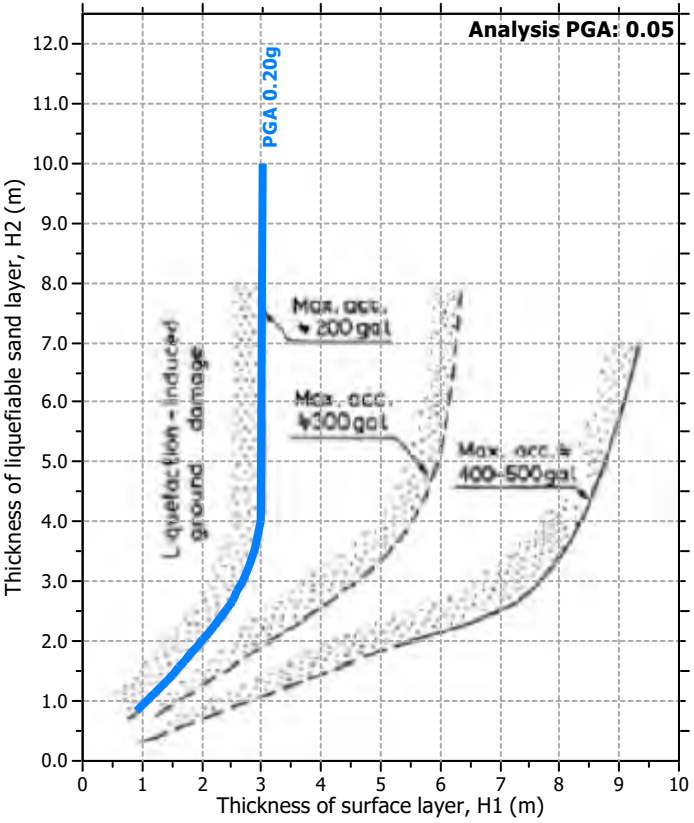
Liquefaction analysis summary plots



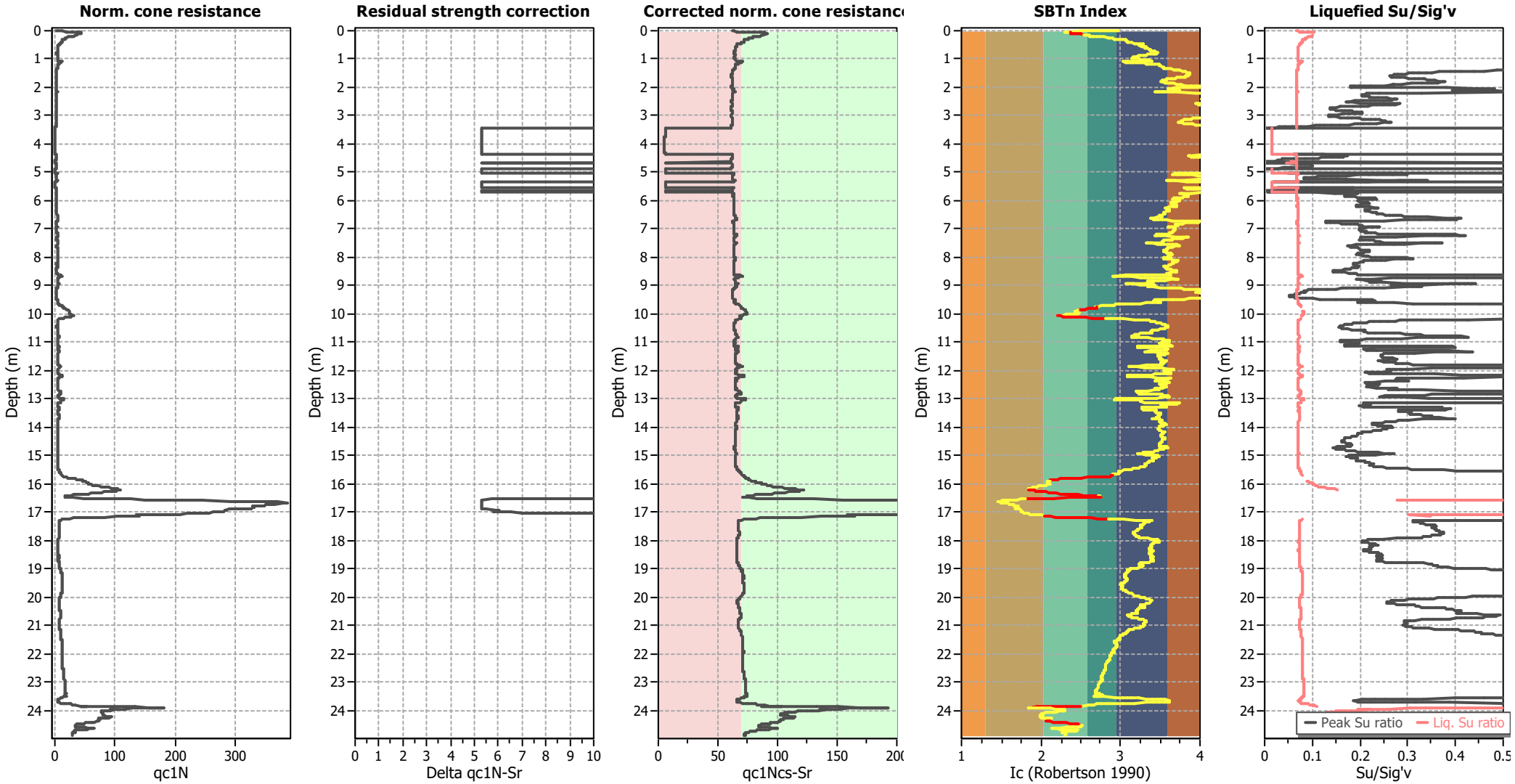




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

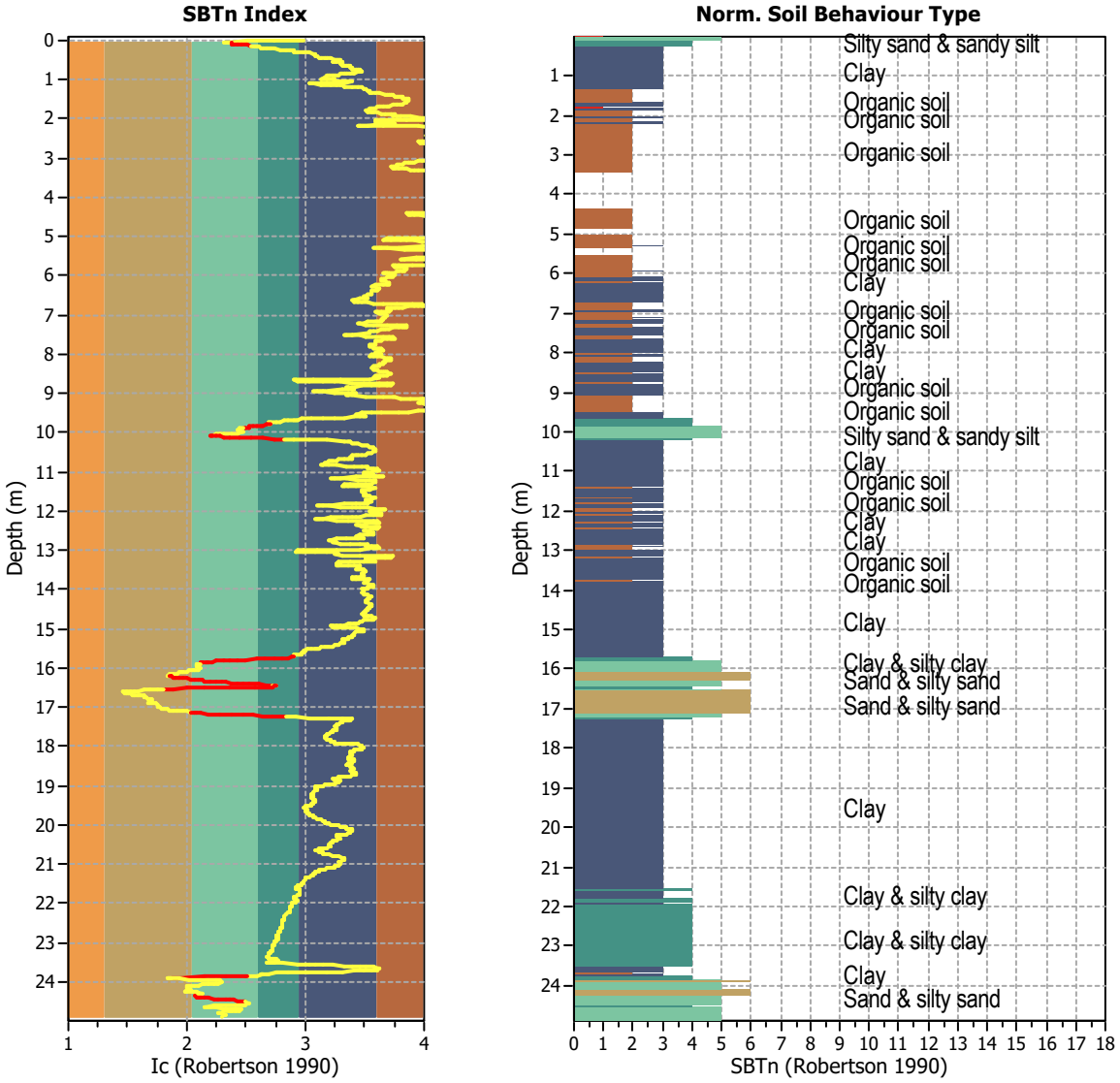
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

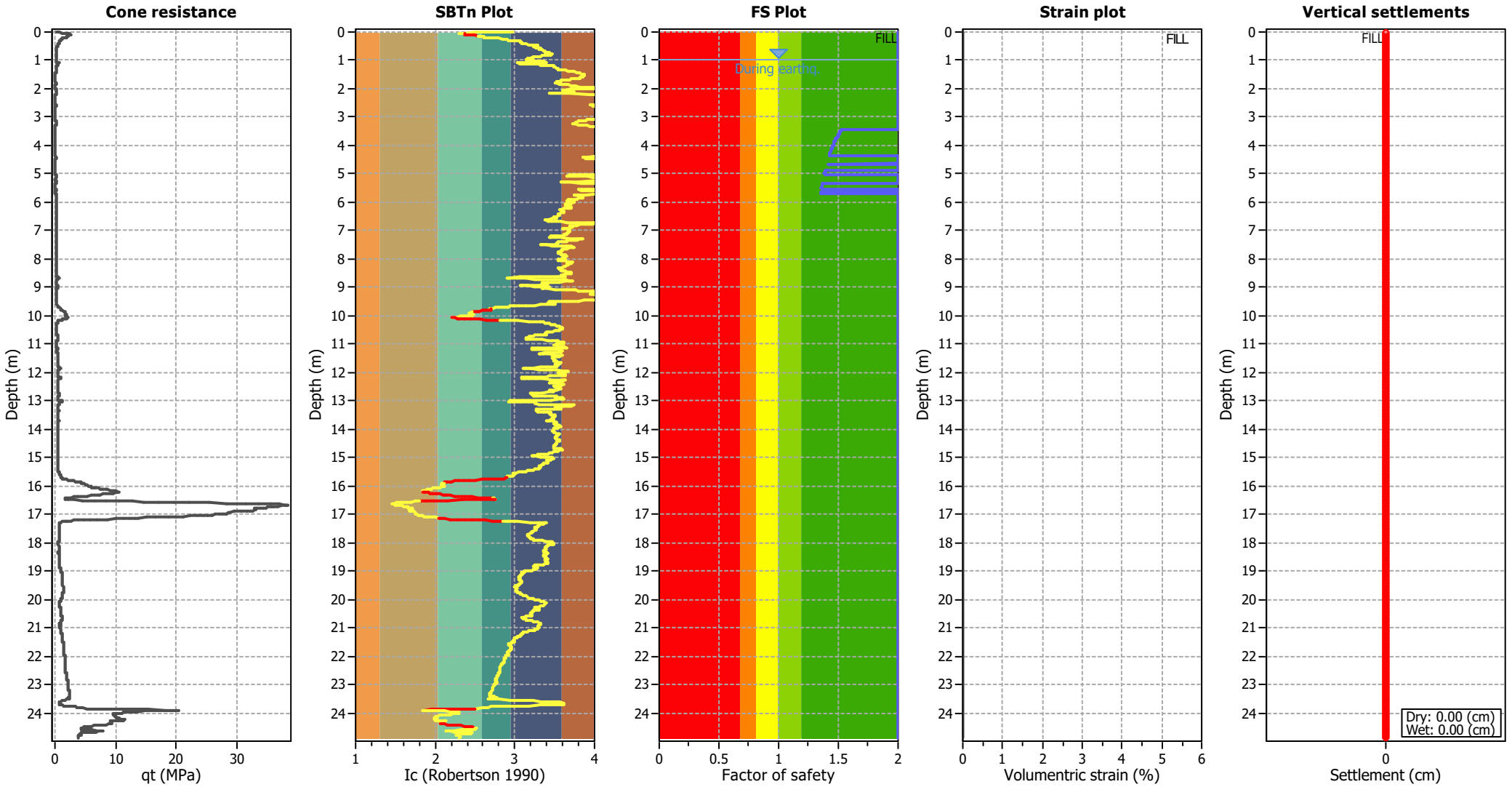
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	2489
I_c maximum check value:	3.00	Total points excluded:	118
I_c change ratio value:	0.0100	Exclusion percentage:	4.74%
Minimum number of points in layer:	4	Number of layers detected:	9

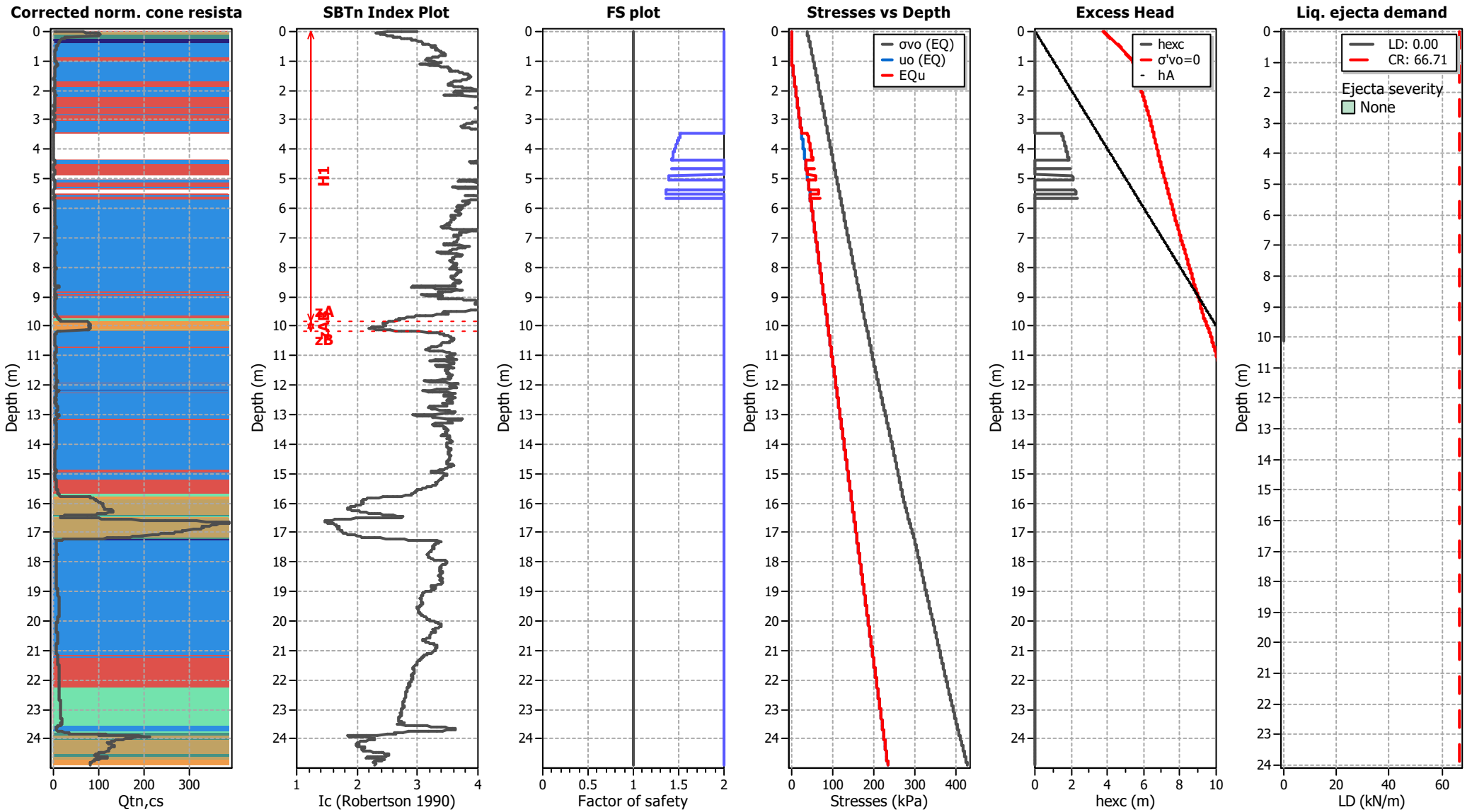
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



GeoLogismiki
Geotechnical Engineers
Merarhias 56
http://www.geologismiki.gr

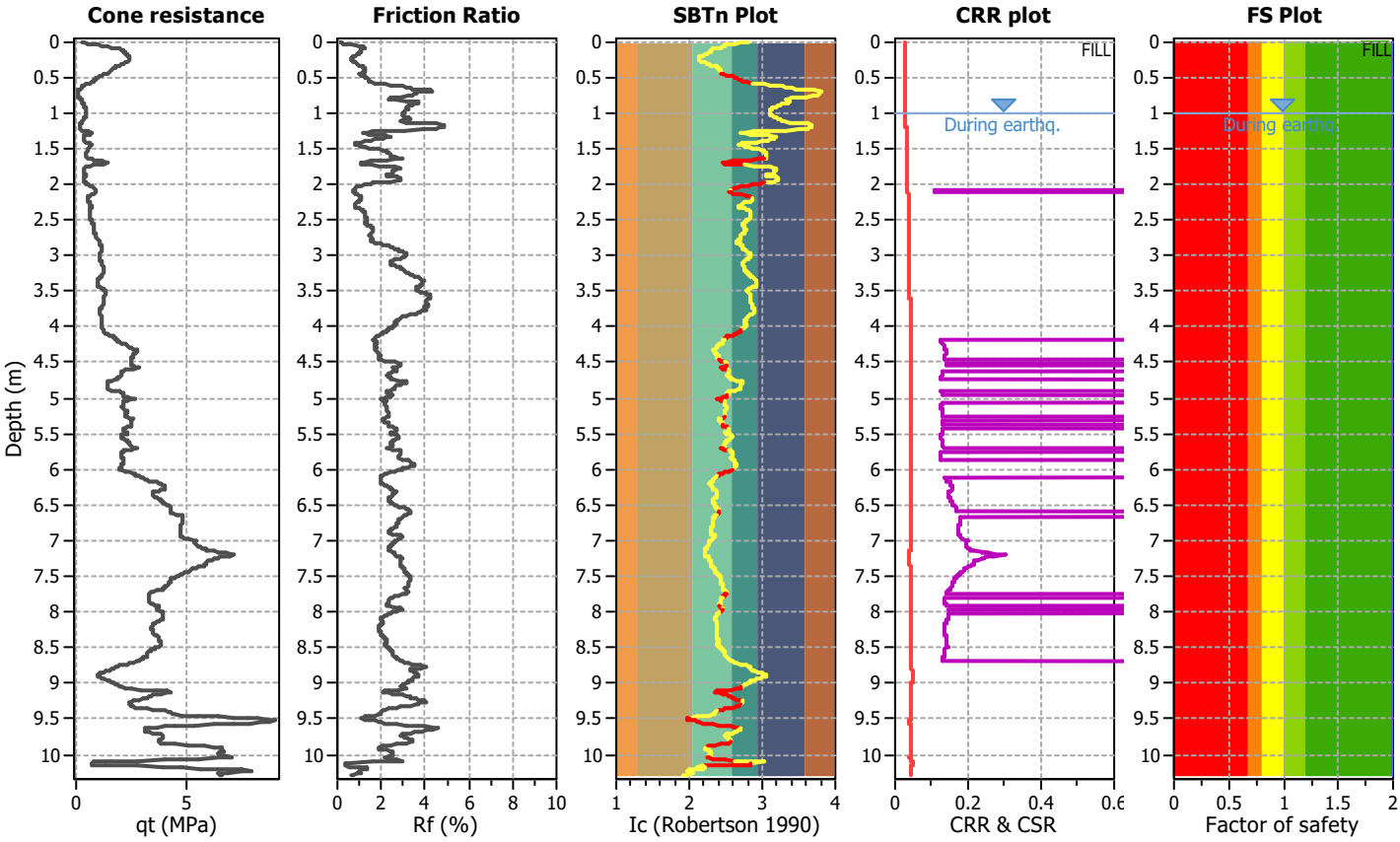
LIQUEFACTION ANALYSIS REPORT

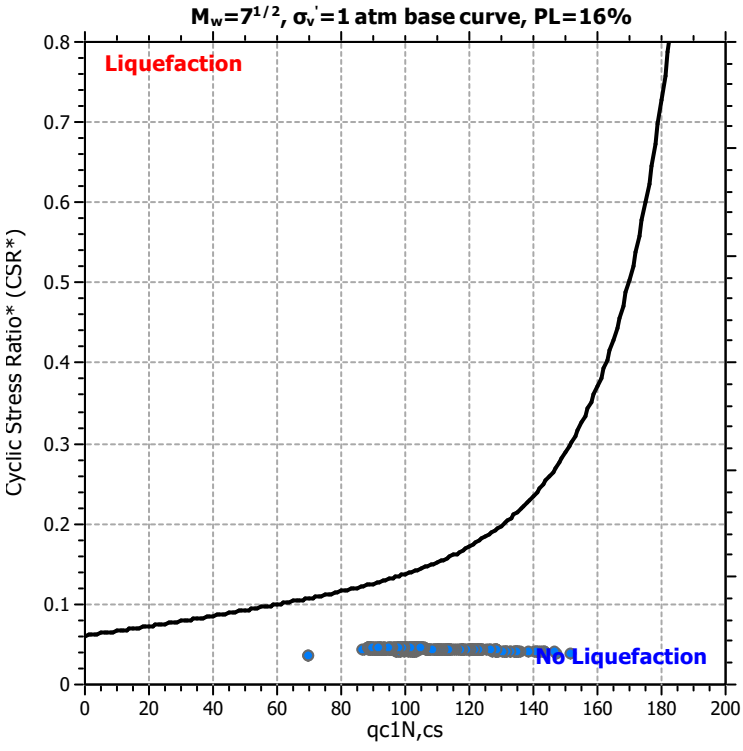
Project title : Sunfield Landholding **Location :**

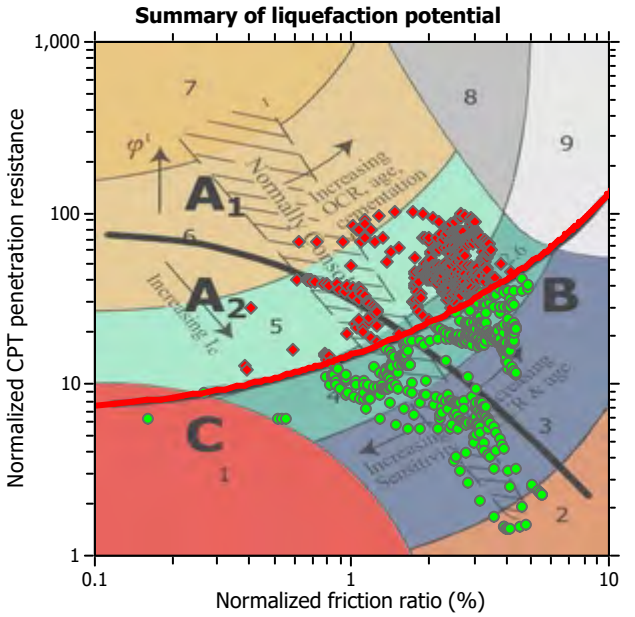
CPT file : CPT020

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	18.50 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

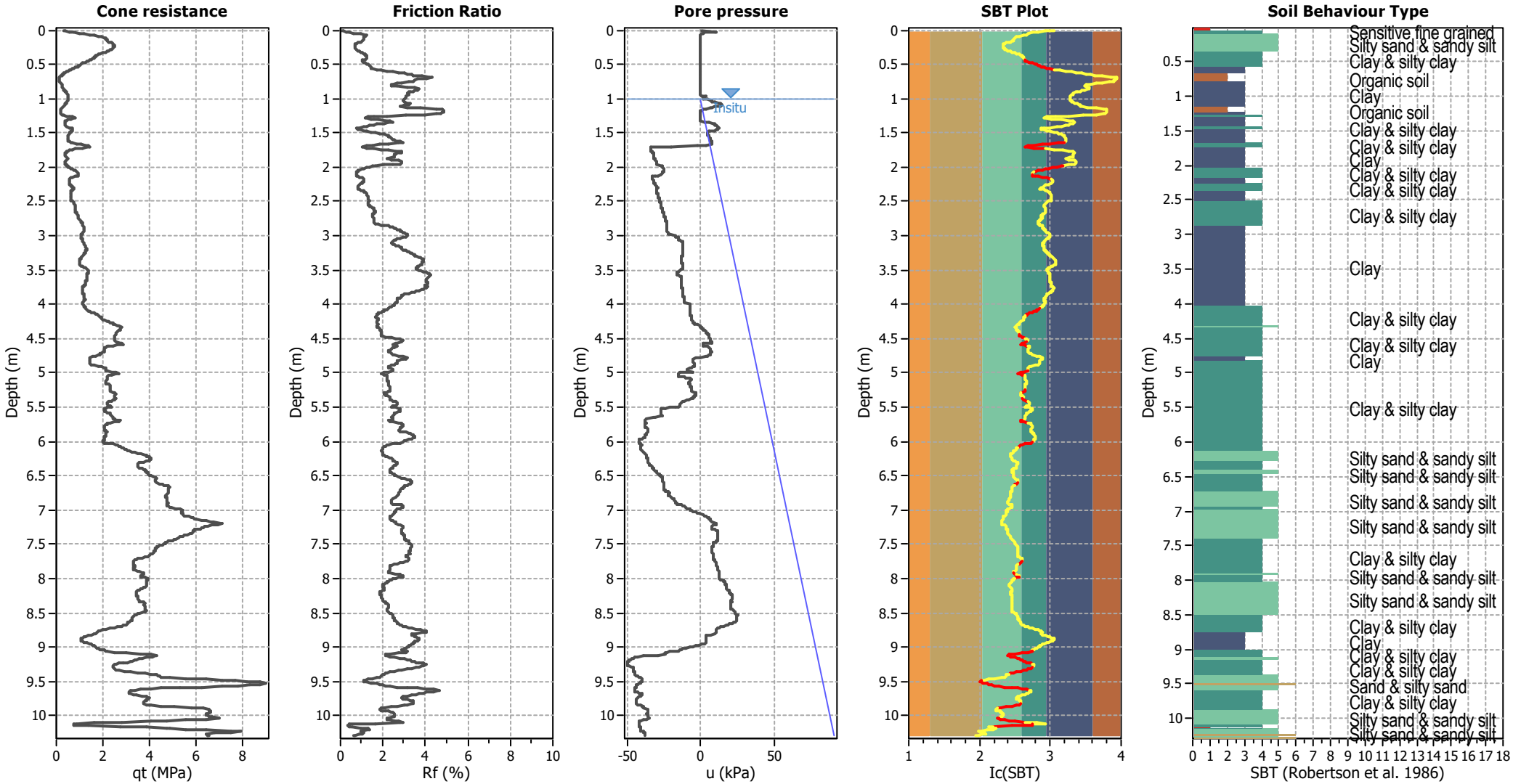






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



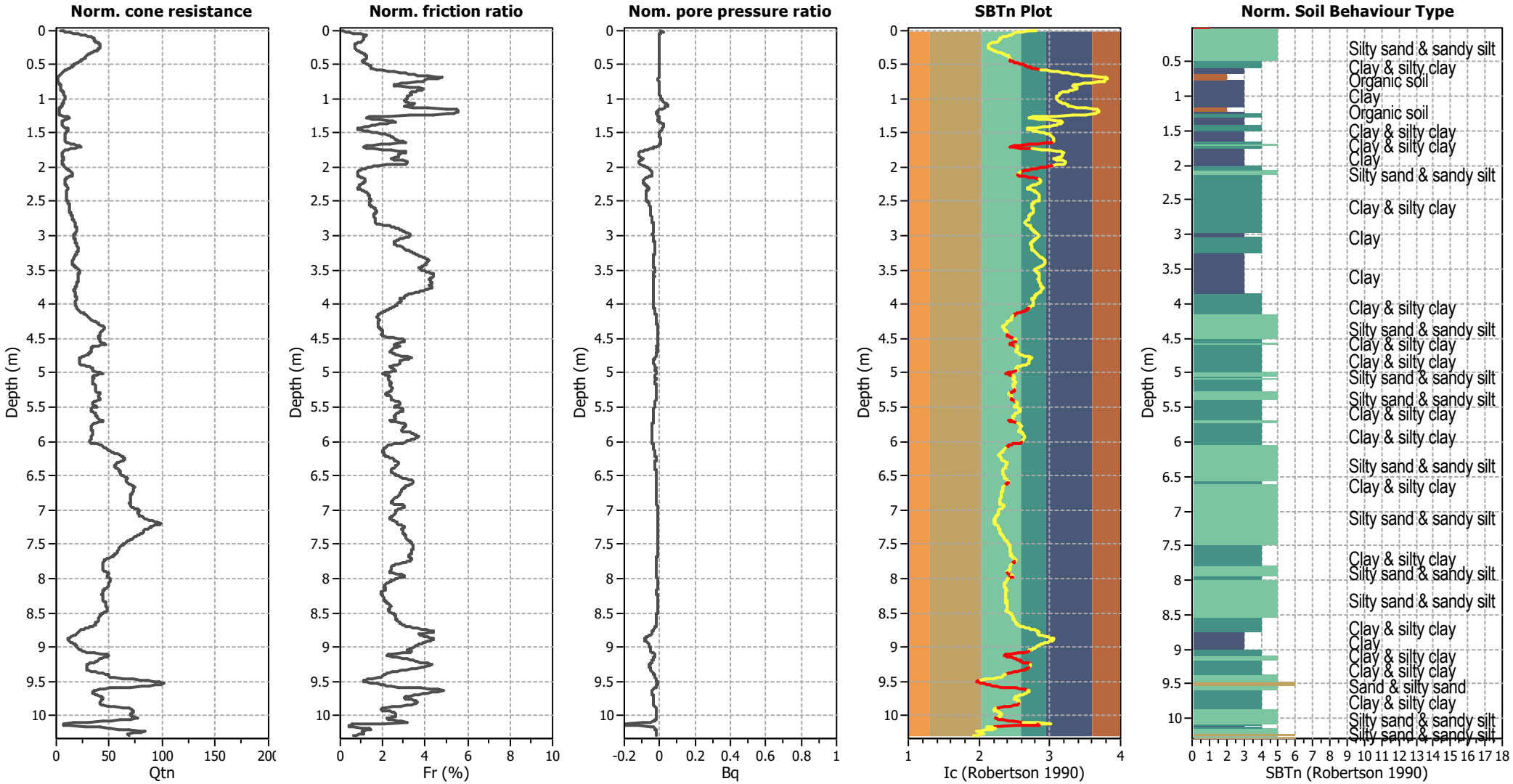
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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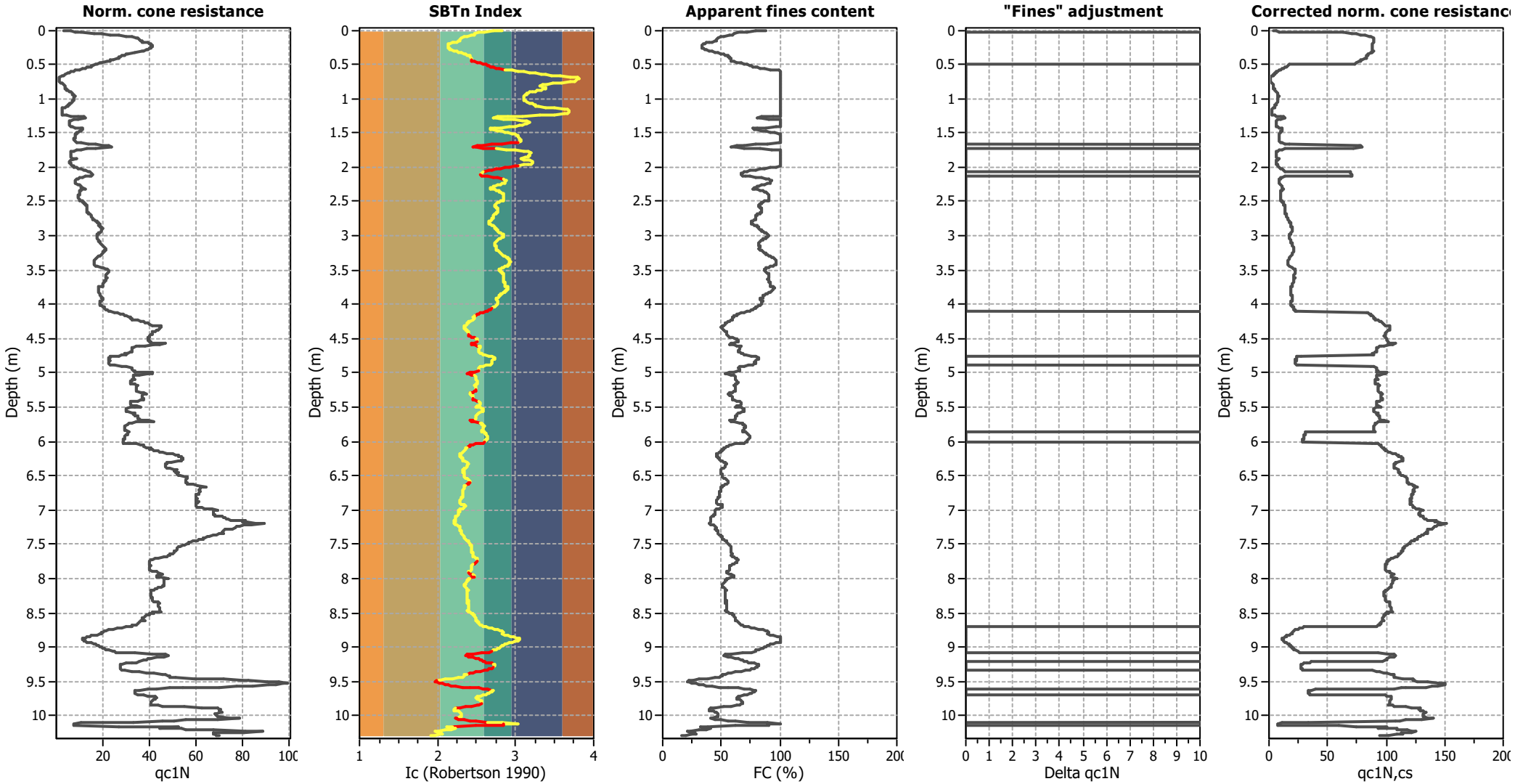
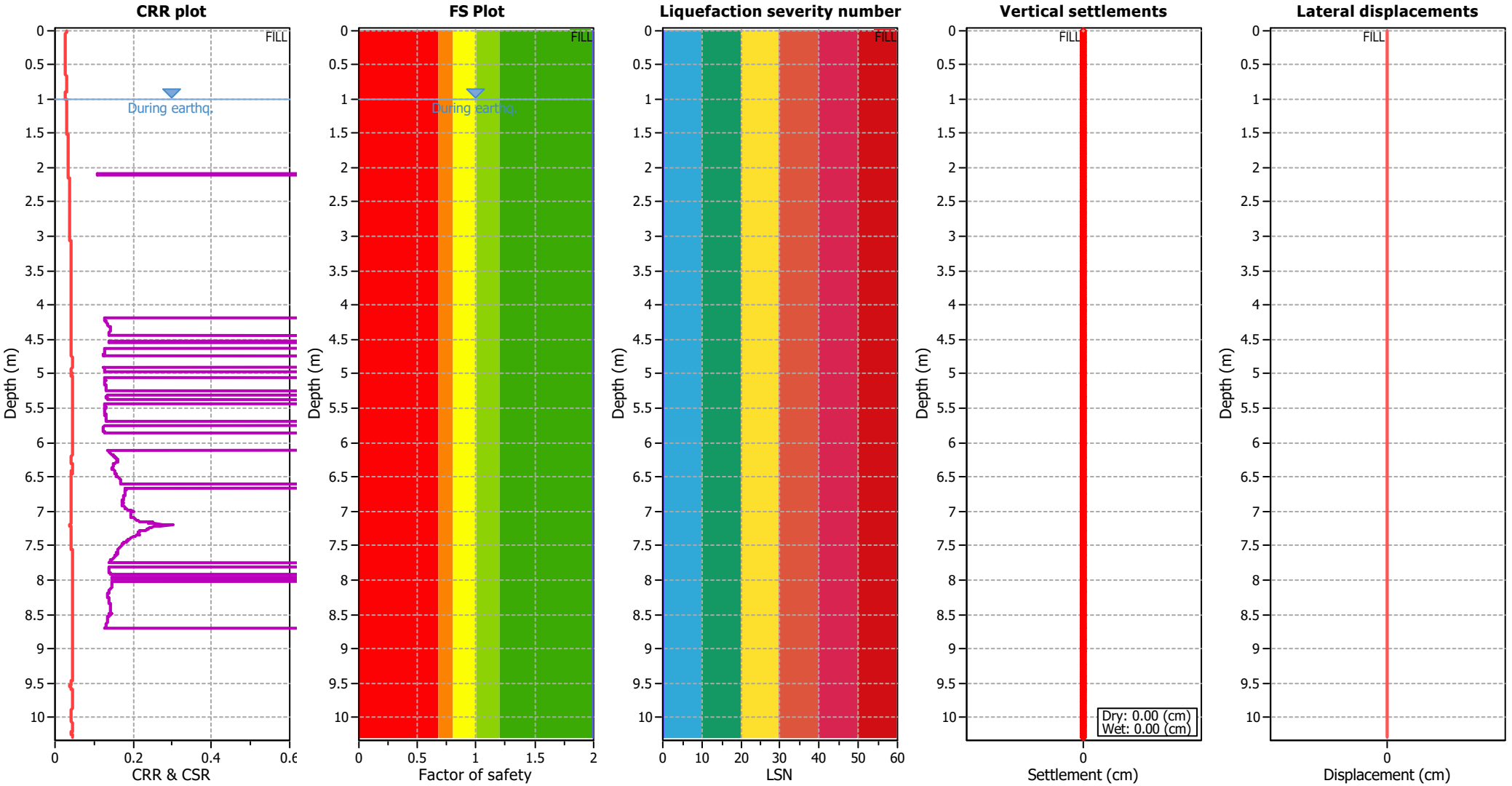
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

F.S. color scheme

- Almost certain it will liquefy
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- Liquefaction and no liq. are equally likely
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LSN color scheme

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- Major expression of liquefaction
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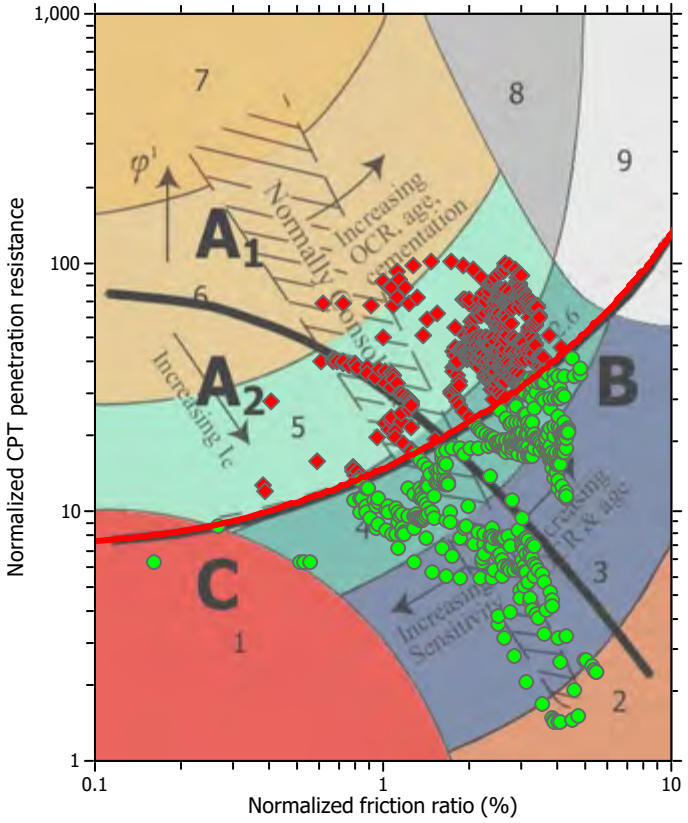
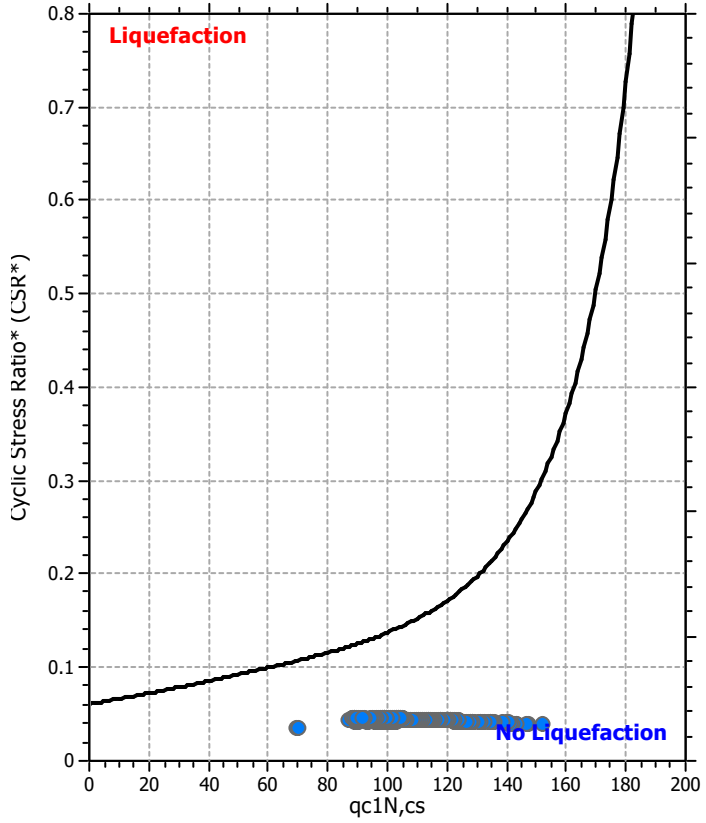
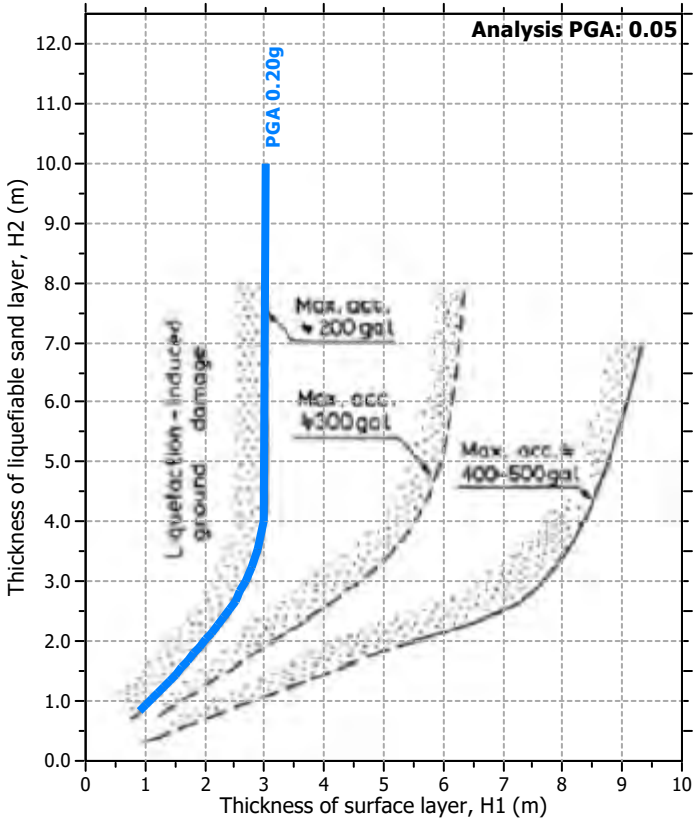
Liquefaction analysis summary plots







Input parameters and analysis data

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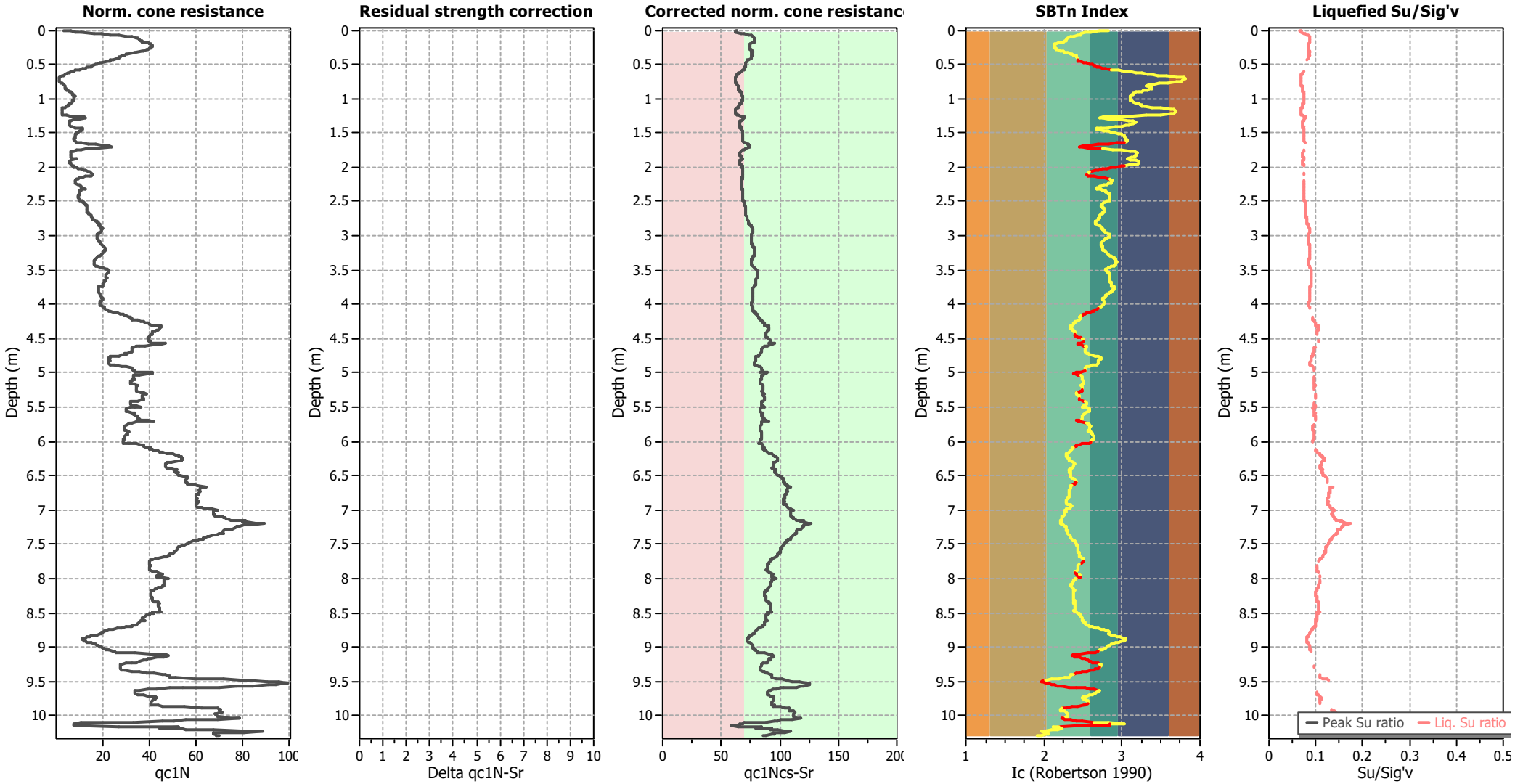
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
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Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

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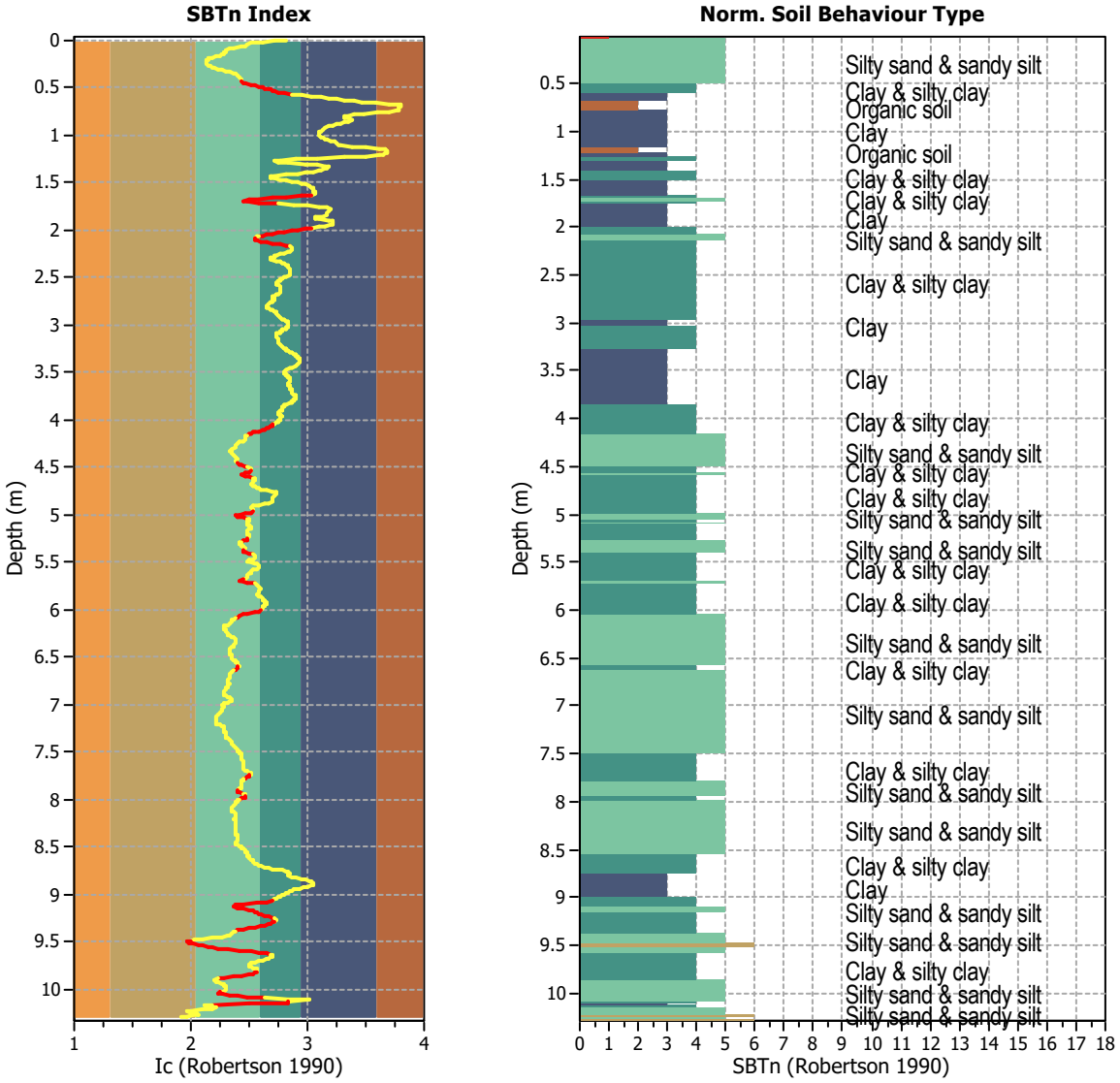
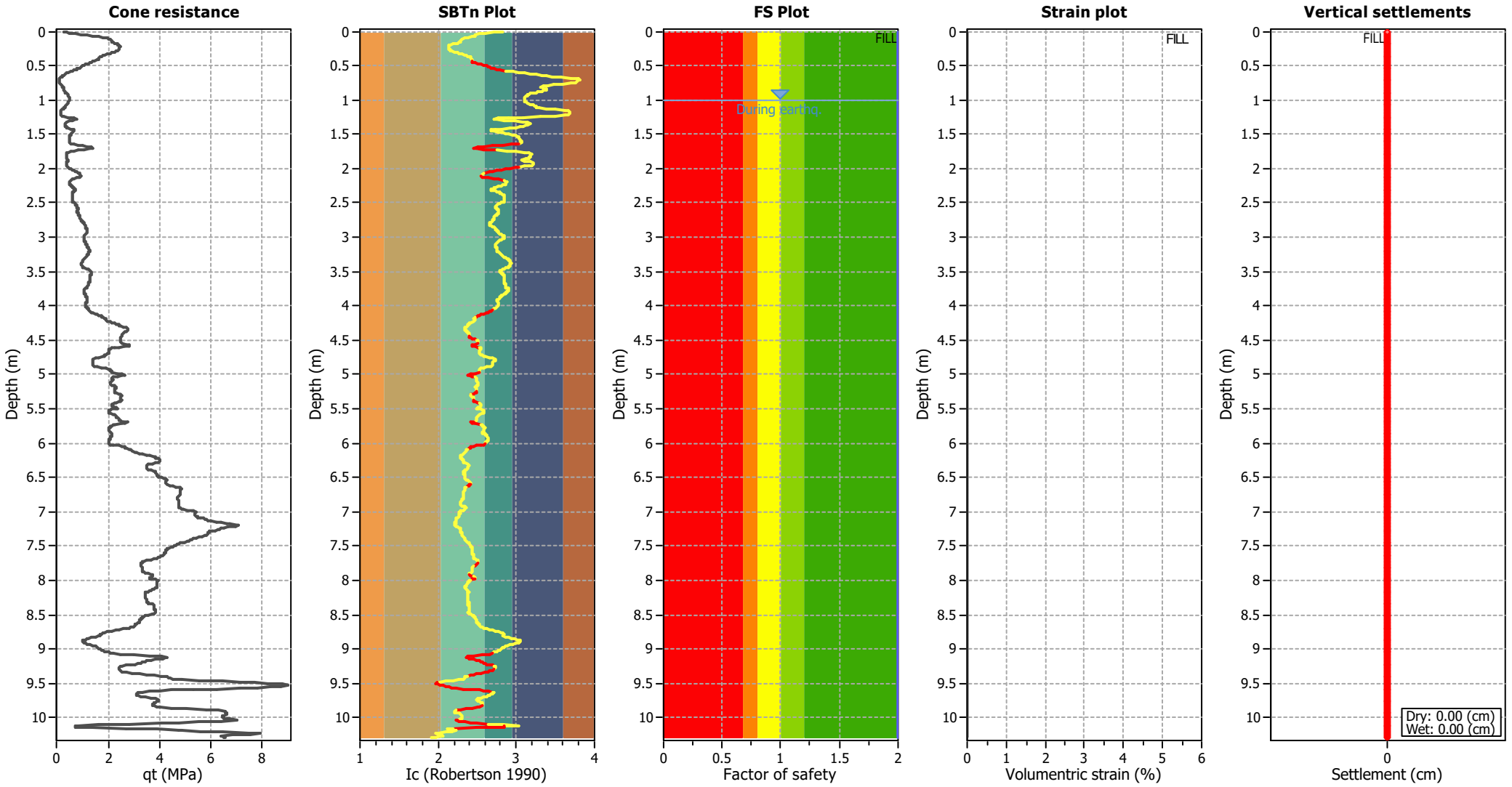
The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	1029
I_c maximum check value:	3.00	Total points excluded:	190
I_c change ratio value:	0.0100	Exclusion percentage:	18.46%
Minimum number of points in layer:	4	Number of layers detected:	26

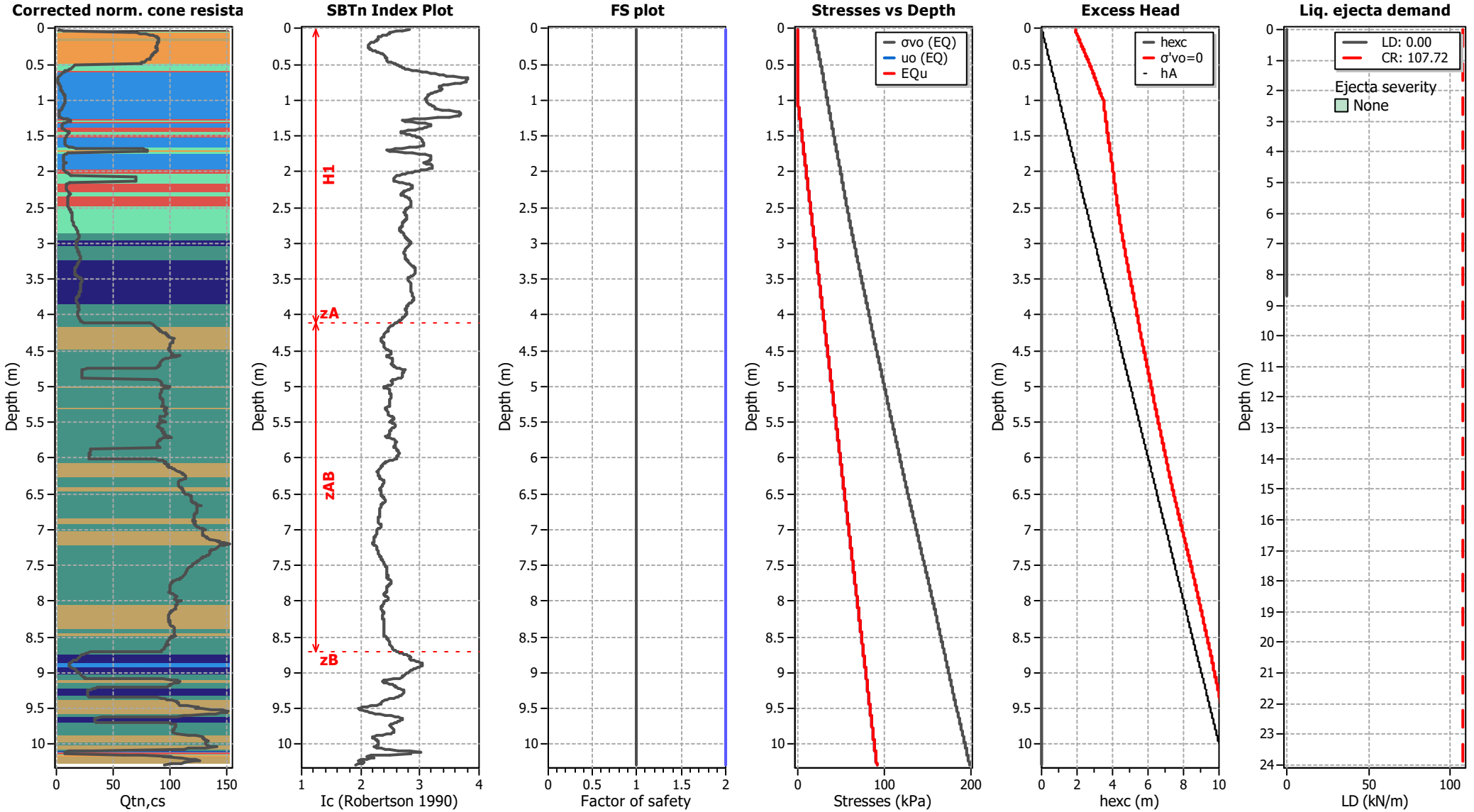
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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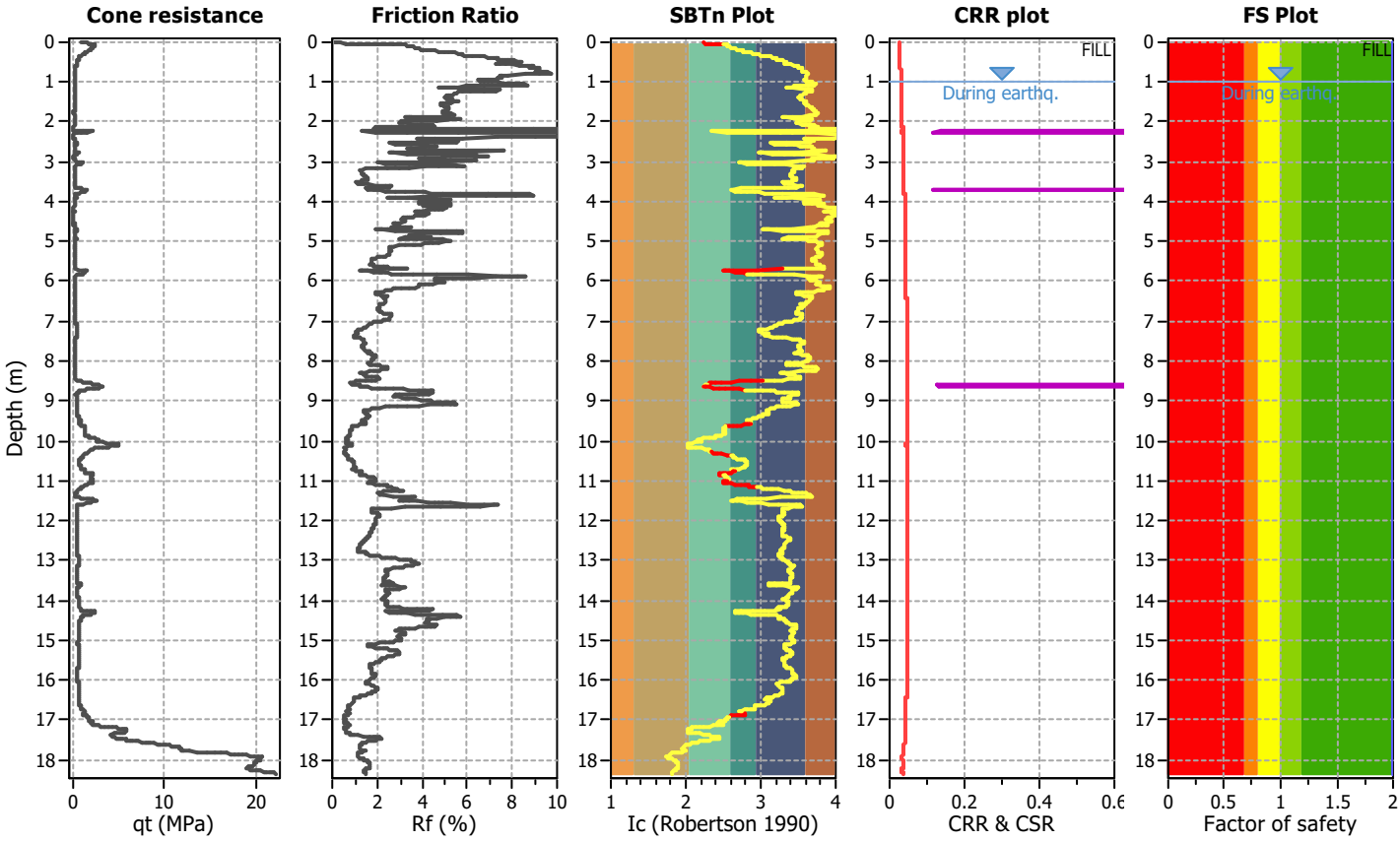
LIQUEFACTION ANALYSIS REPORT

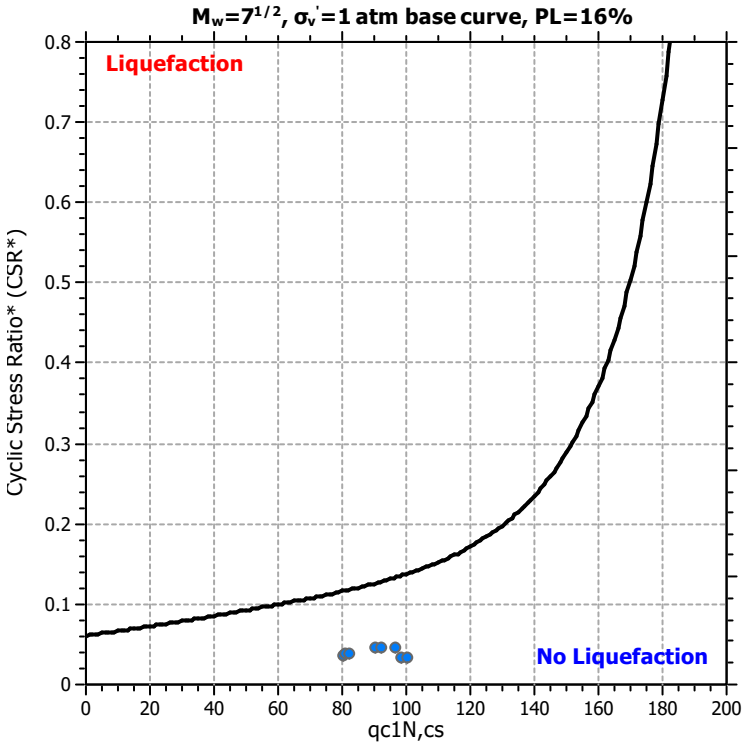
Project title : Sunfield Landholding **Location :**

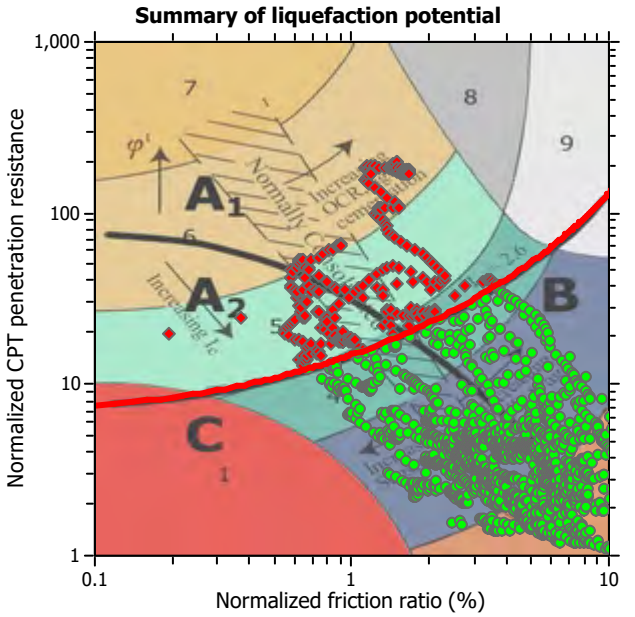
CPT file : CPT021A

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	37.00 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

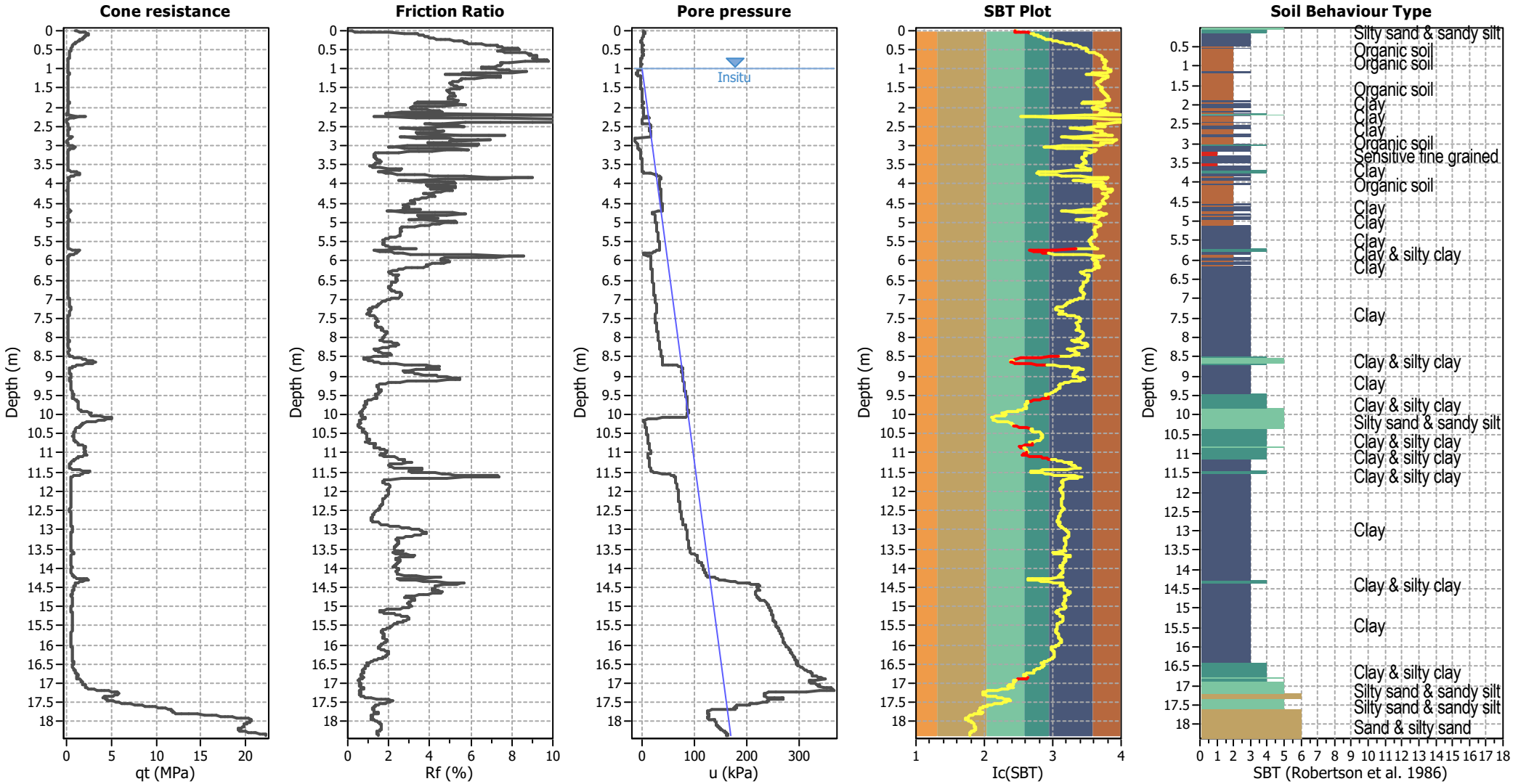






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



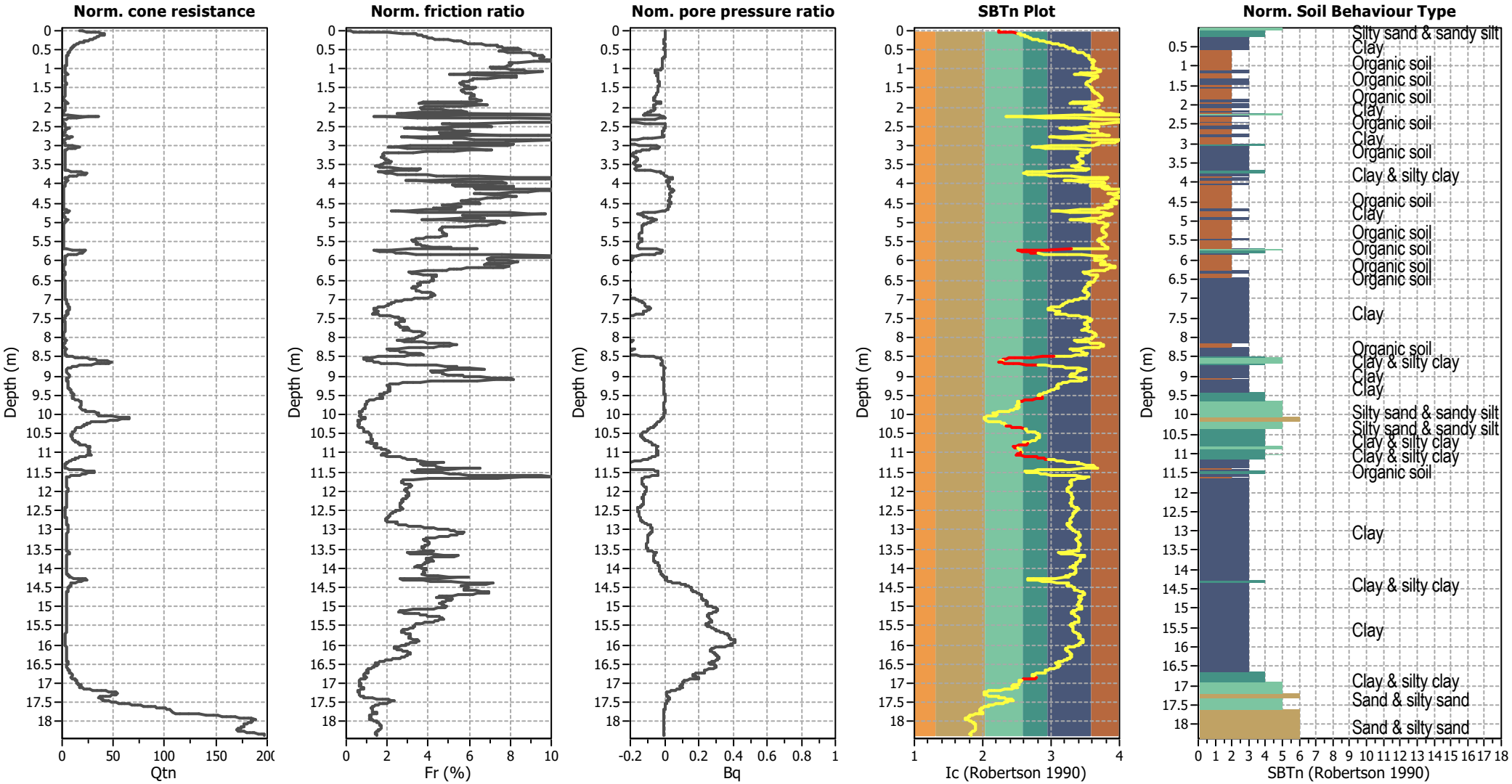
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
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SBTn legend

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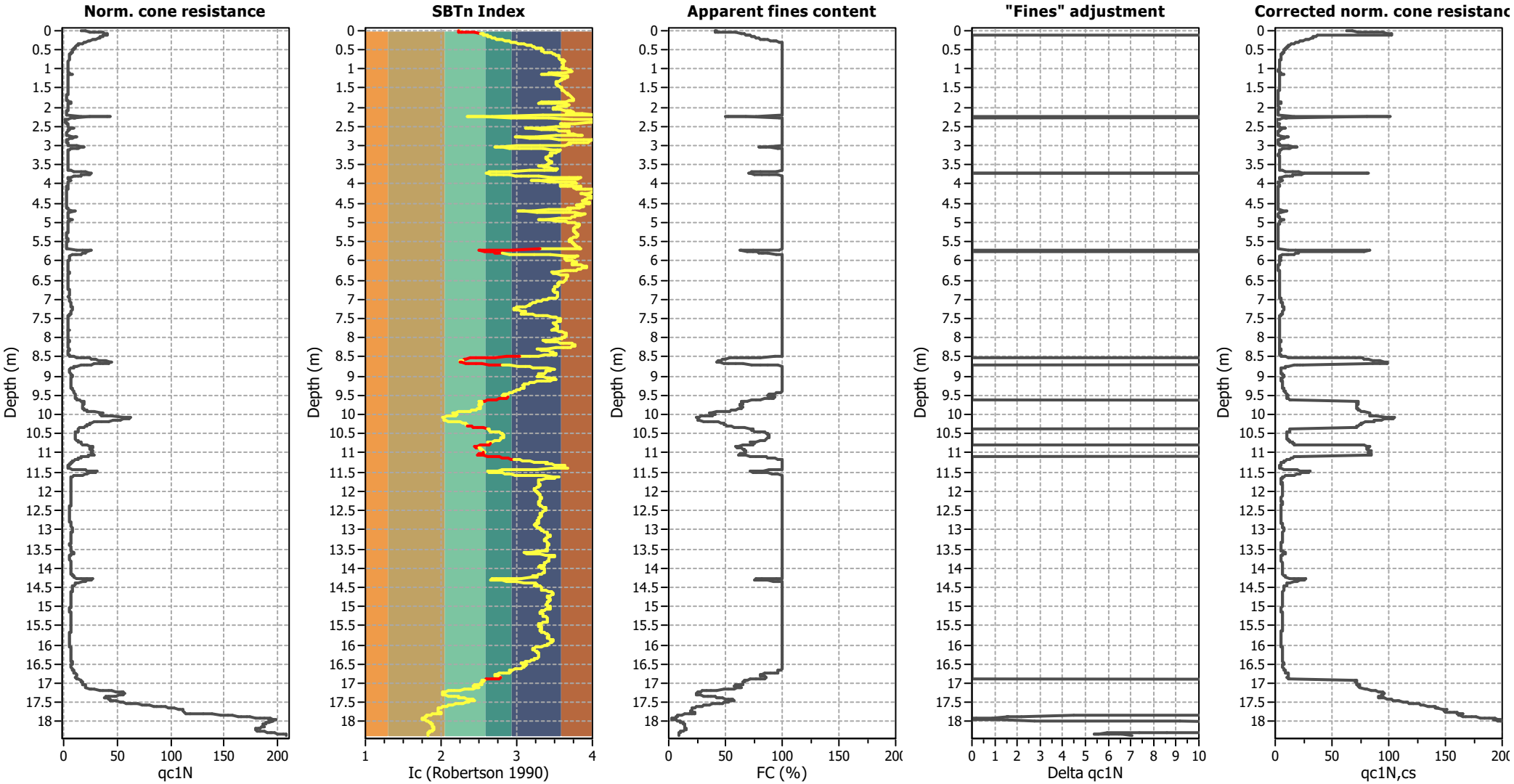
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
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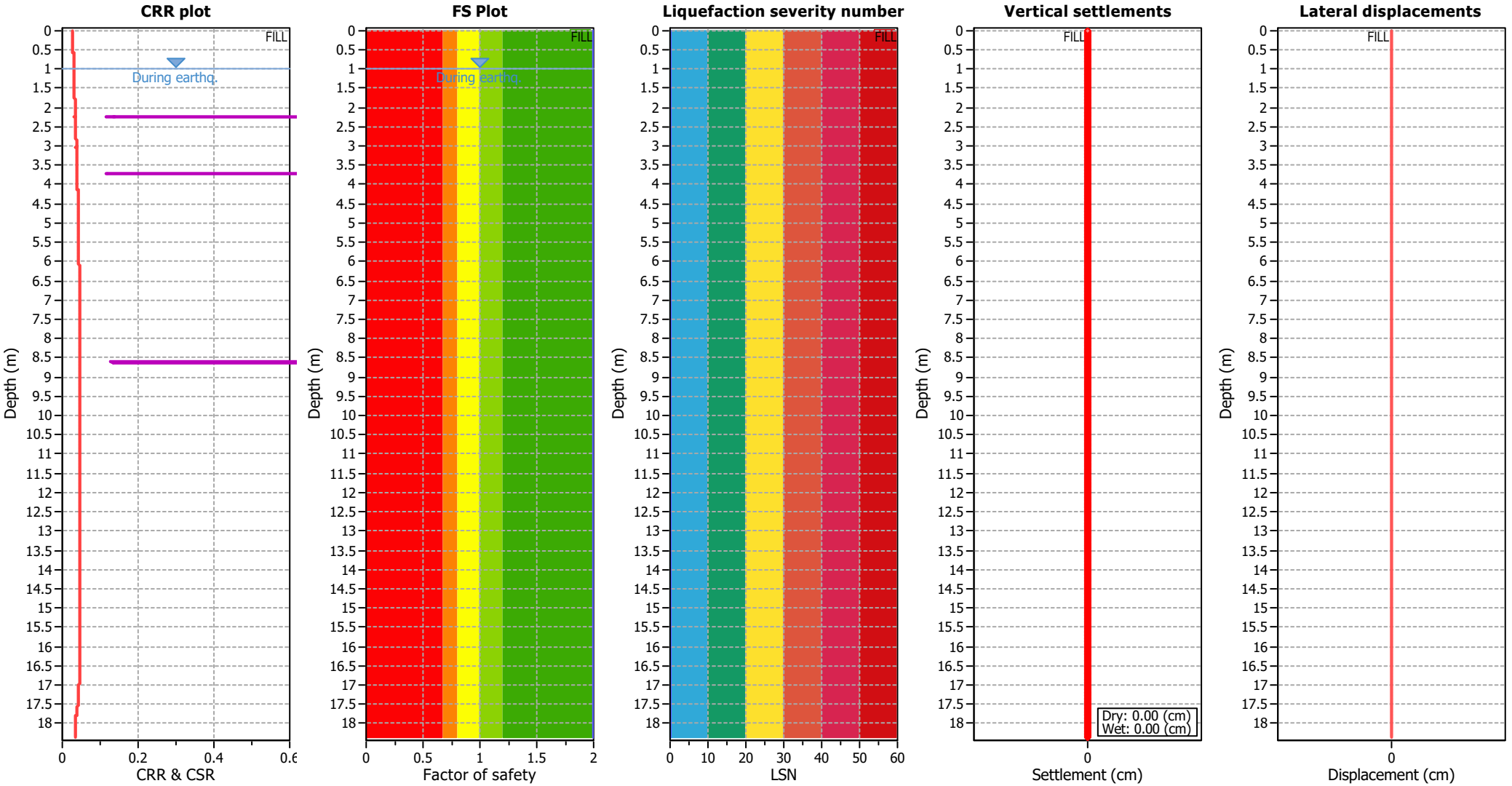
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
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Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
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Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
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F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
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- Severe damage
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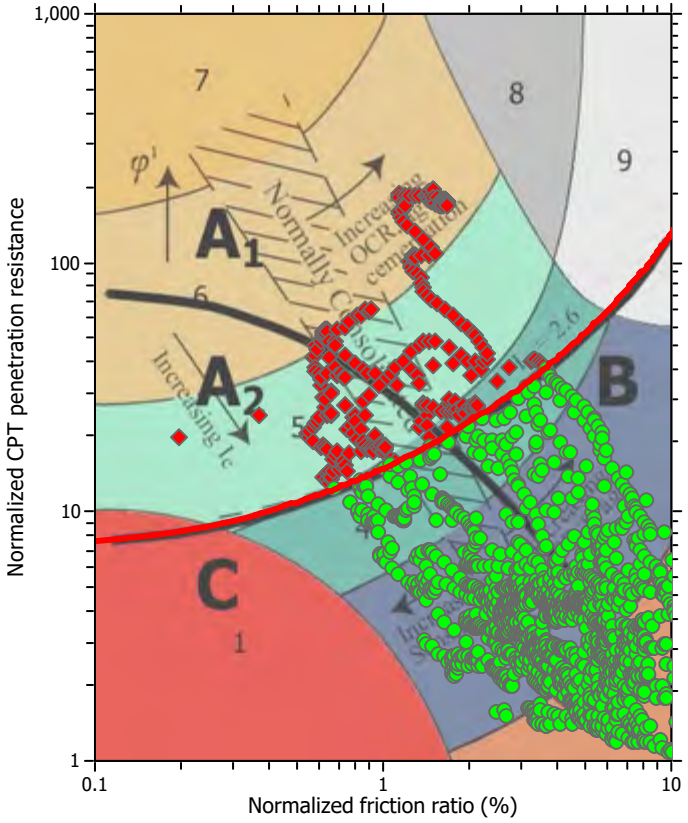
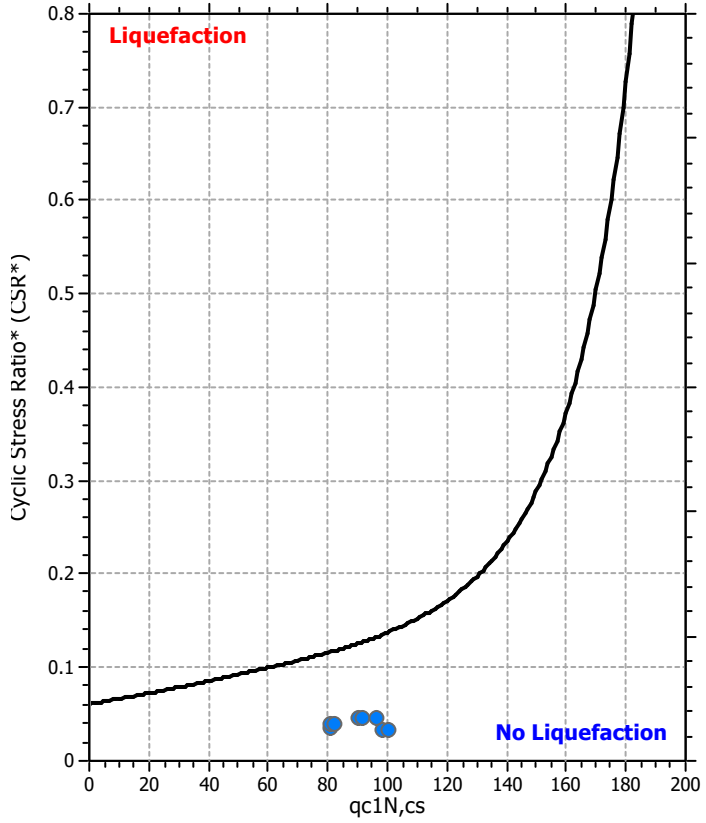
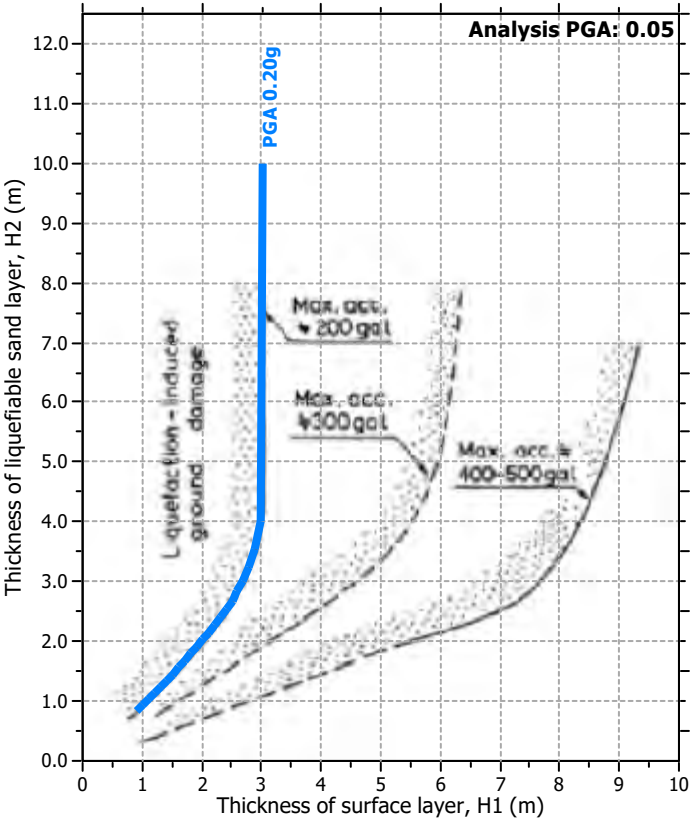
Liquefaction analysis summary plots



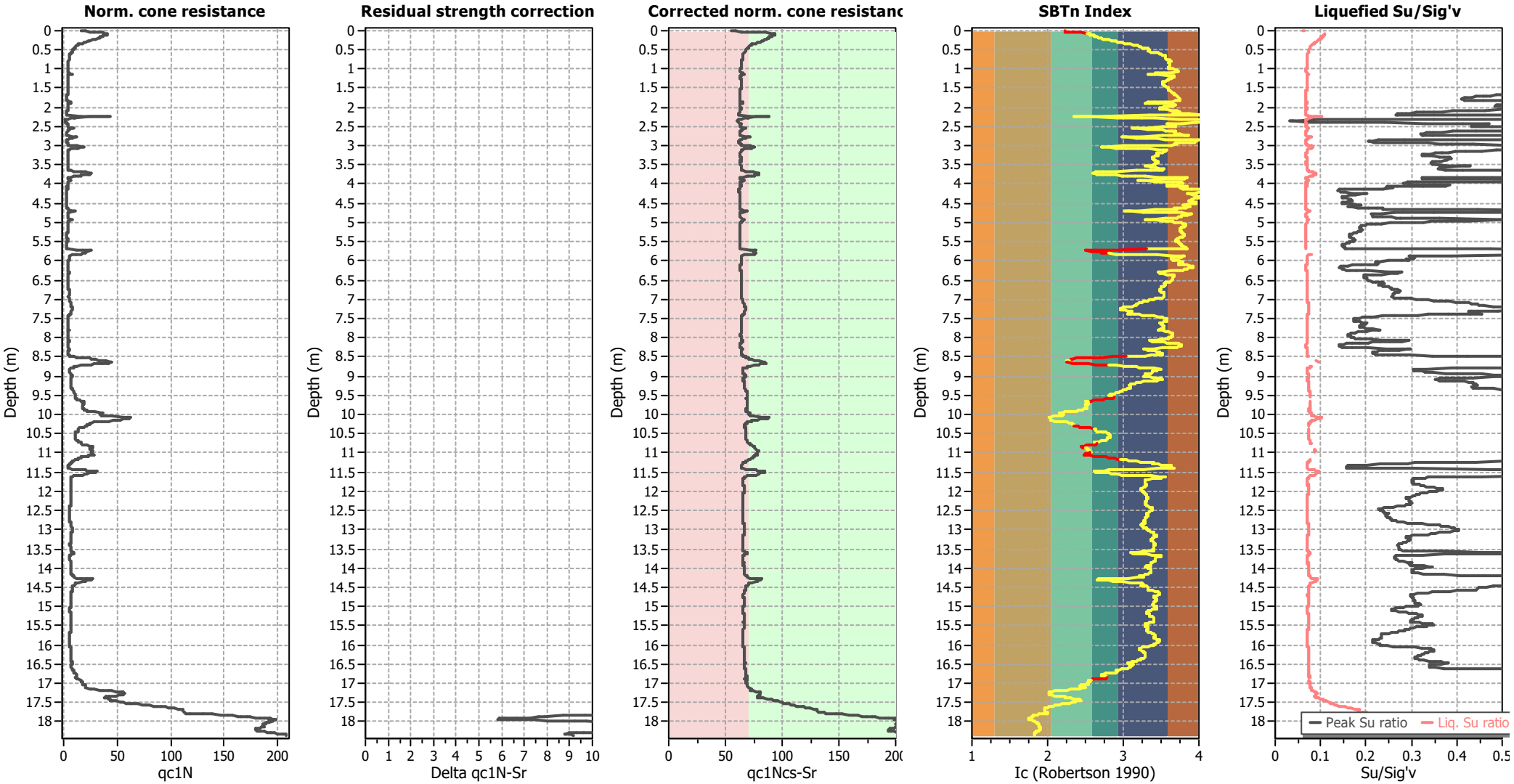




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

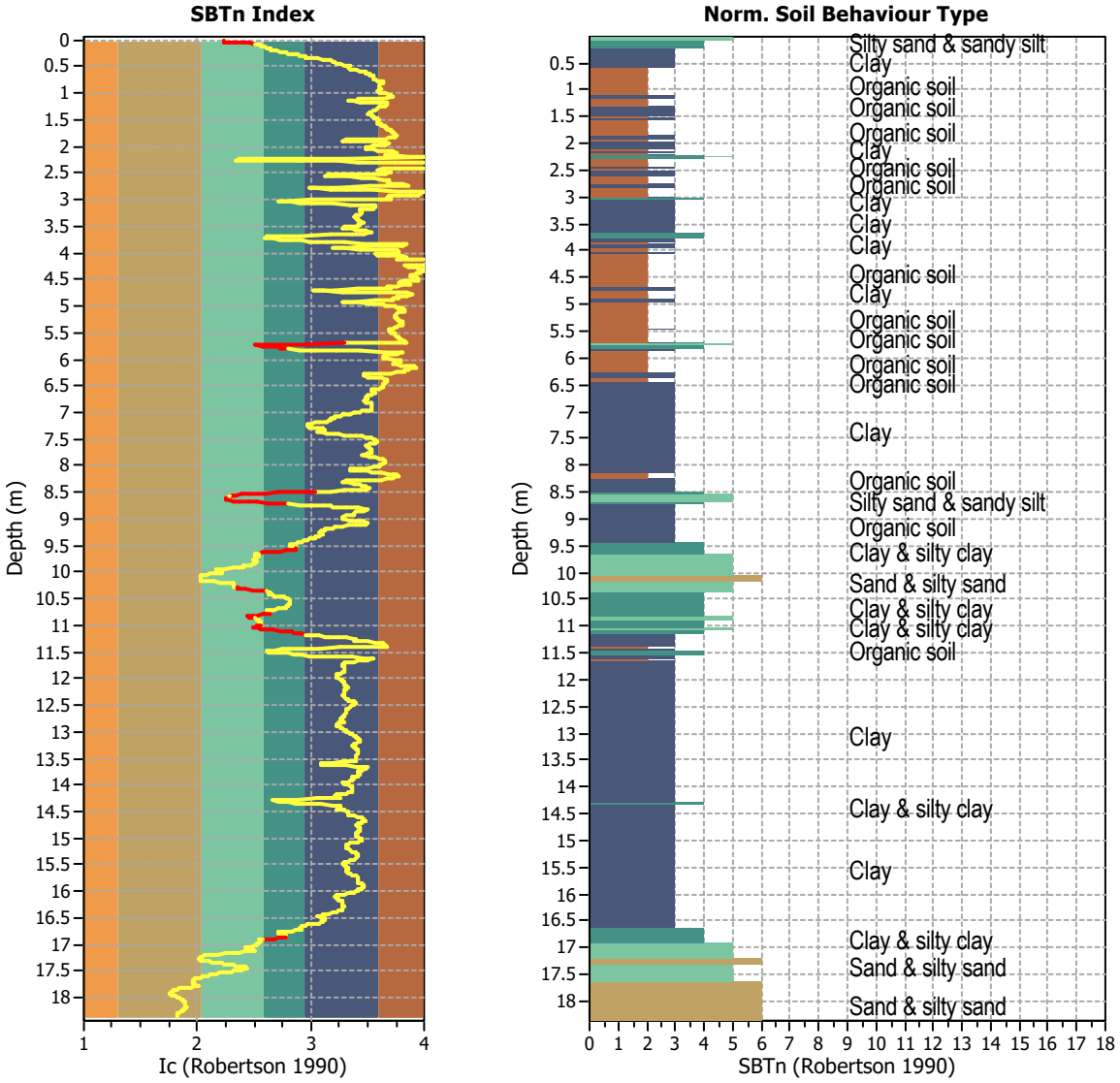
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



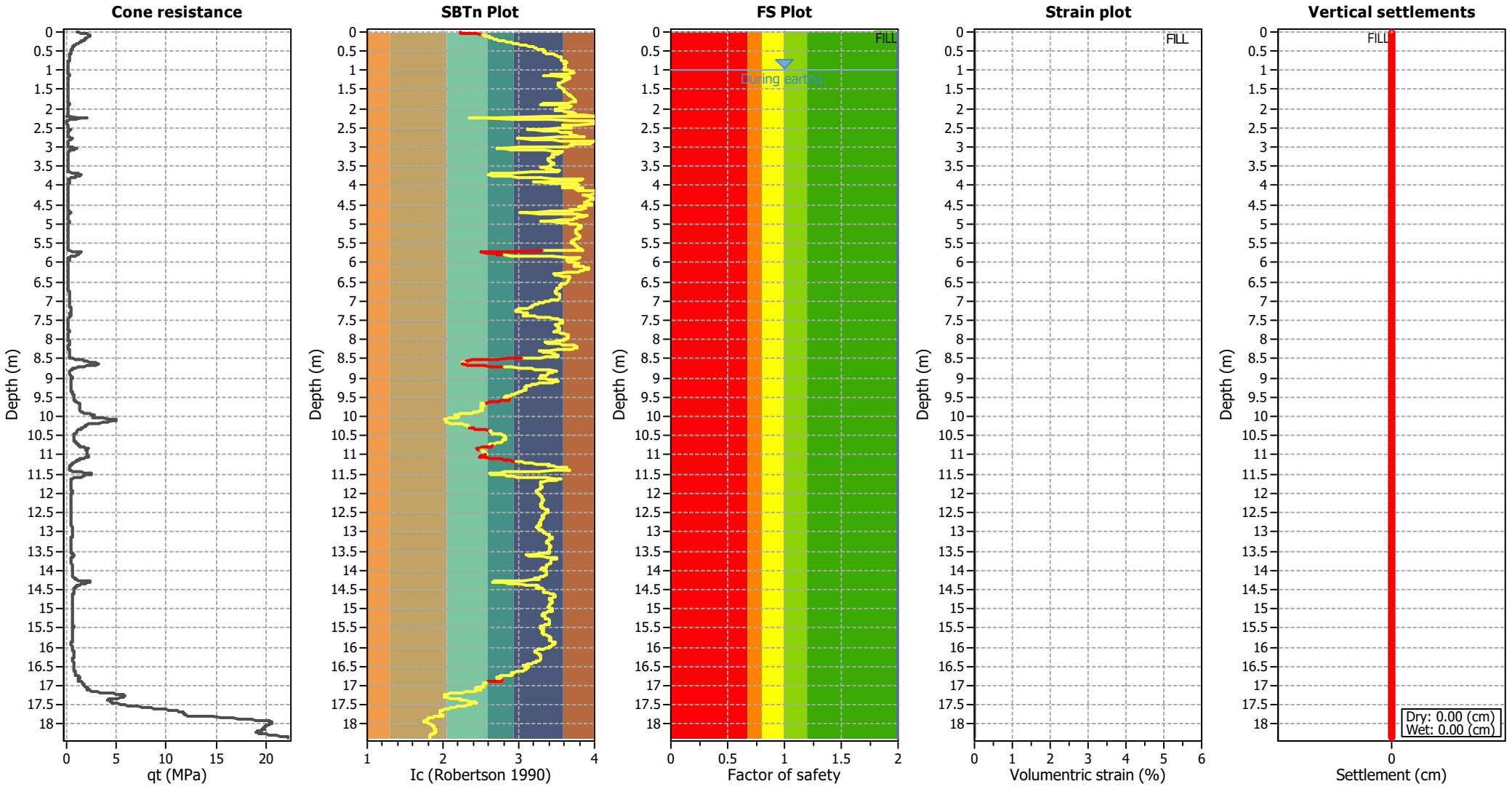
Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	1836
Total points excluded:	95
Exclusion percentage:	5.17%
Number of layers detected:	12

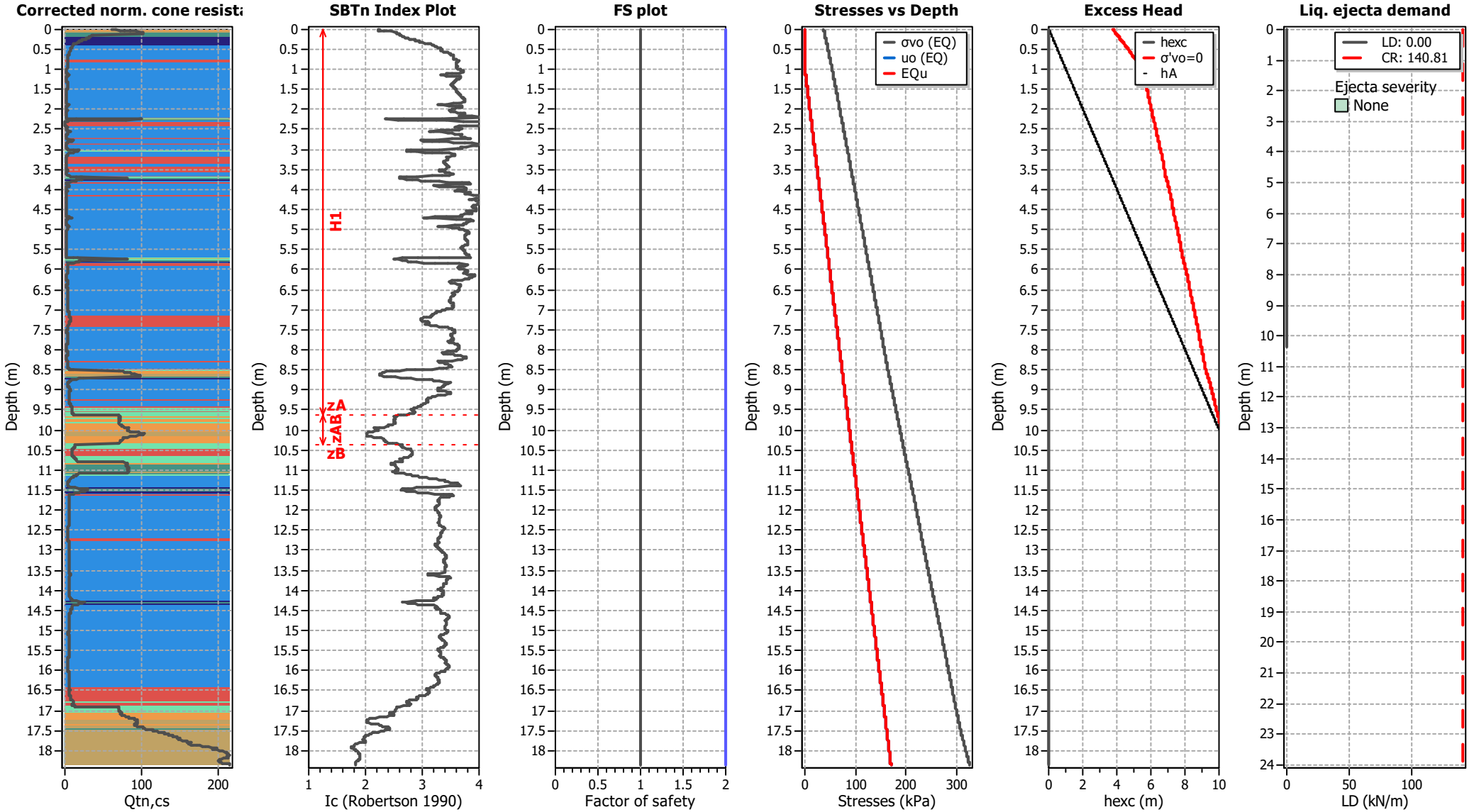
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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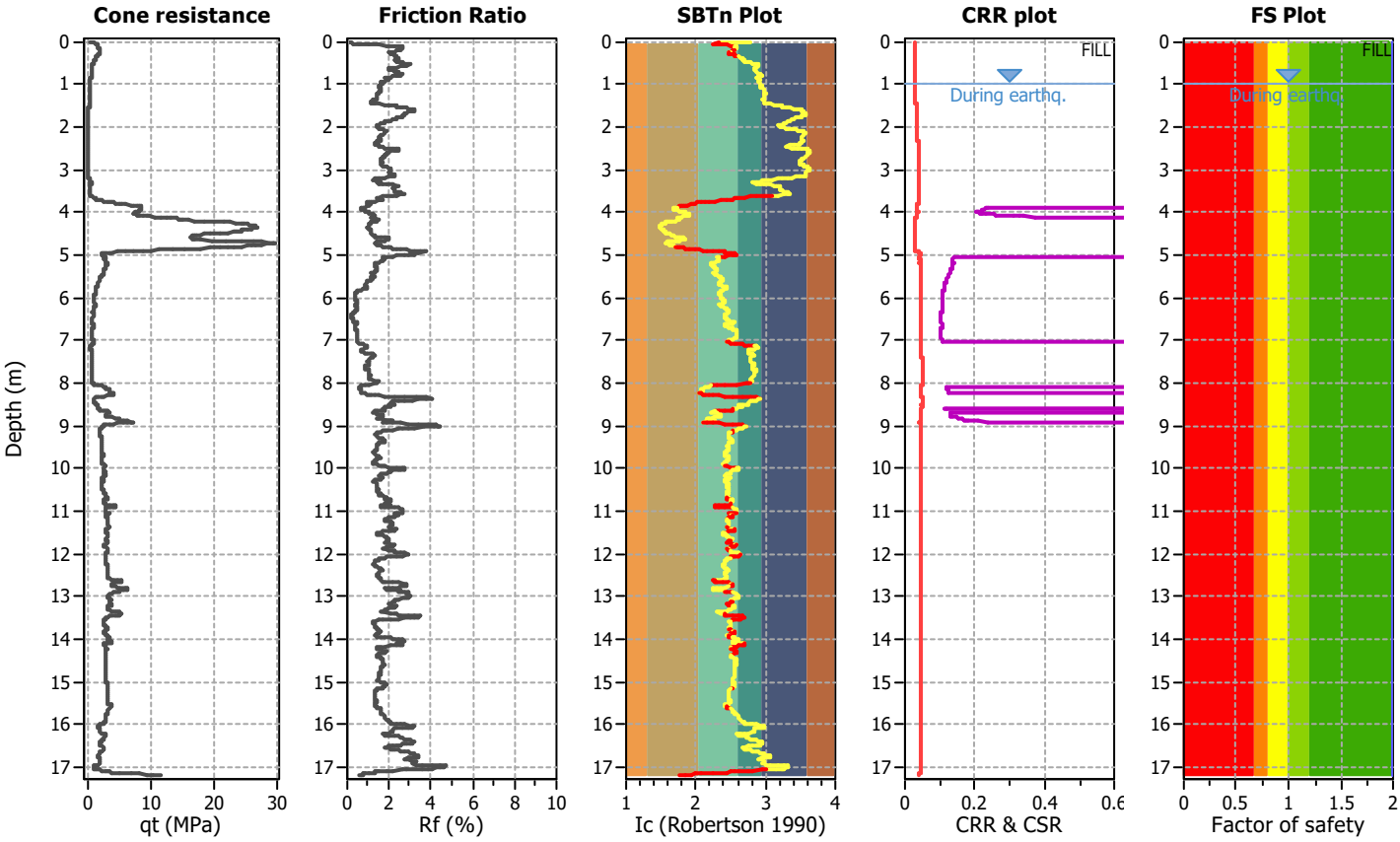
LIQUEFACTION ANALYSIS REPORT

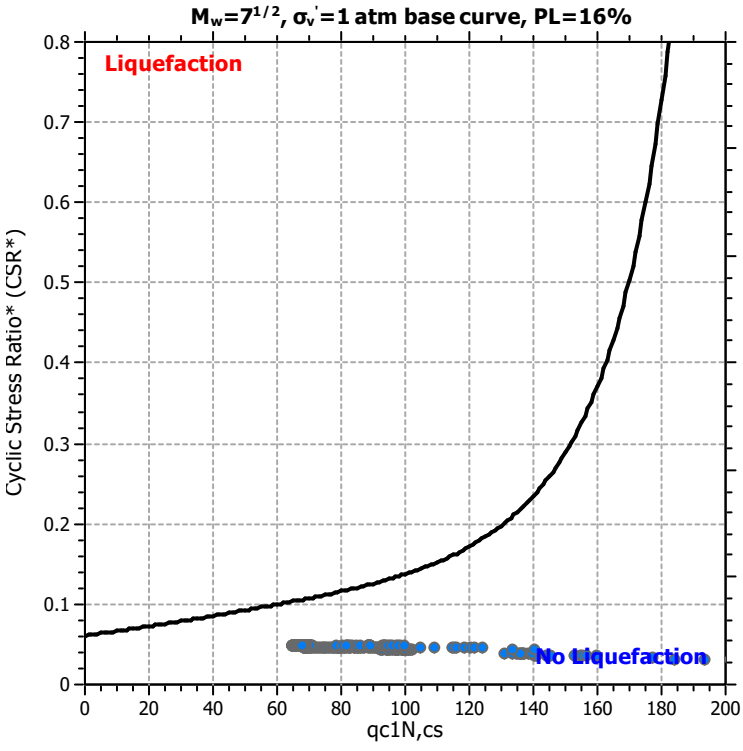
Project title : Sunfield Landholding **Location :**

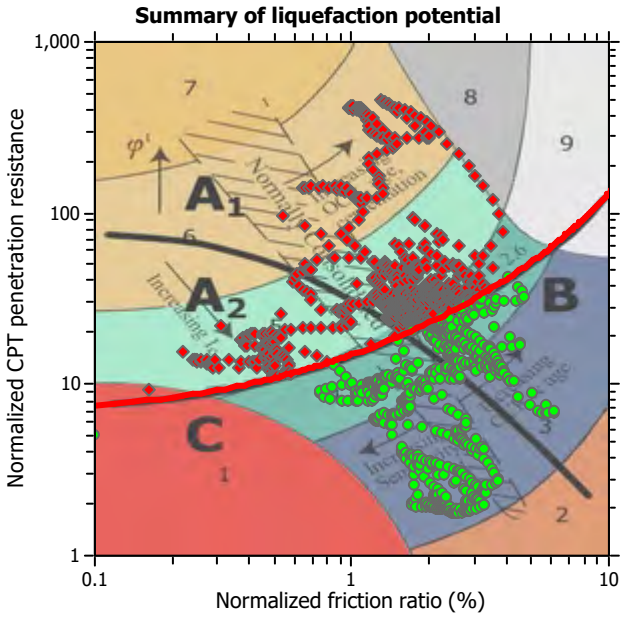
CPT file : CPT022

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	18.50 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		







Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
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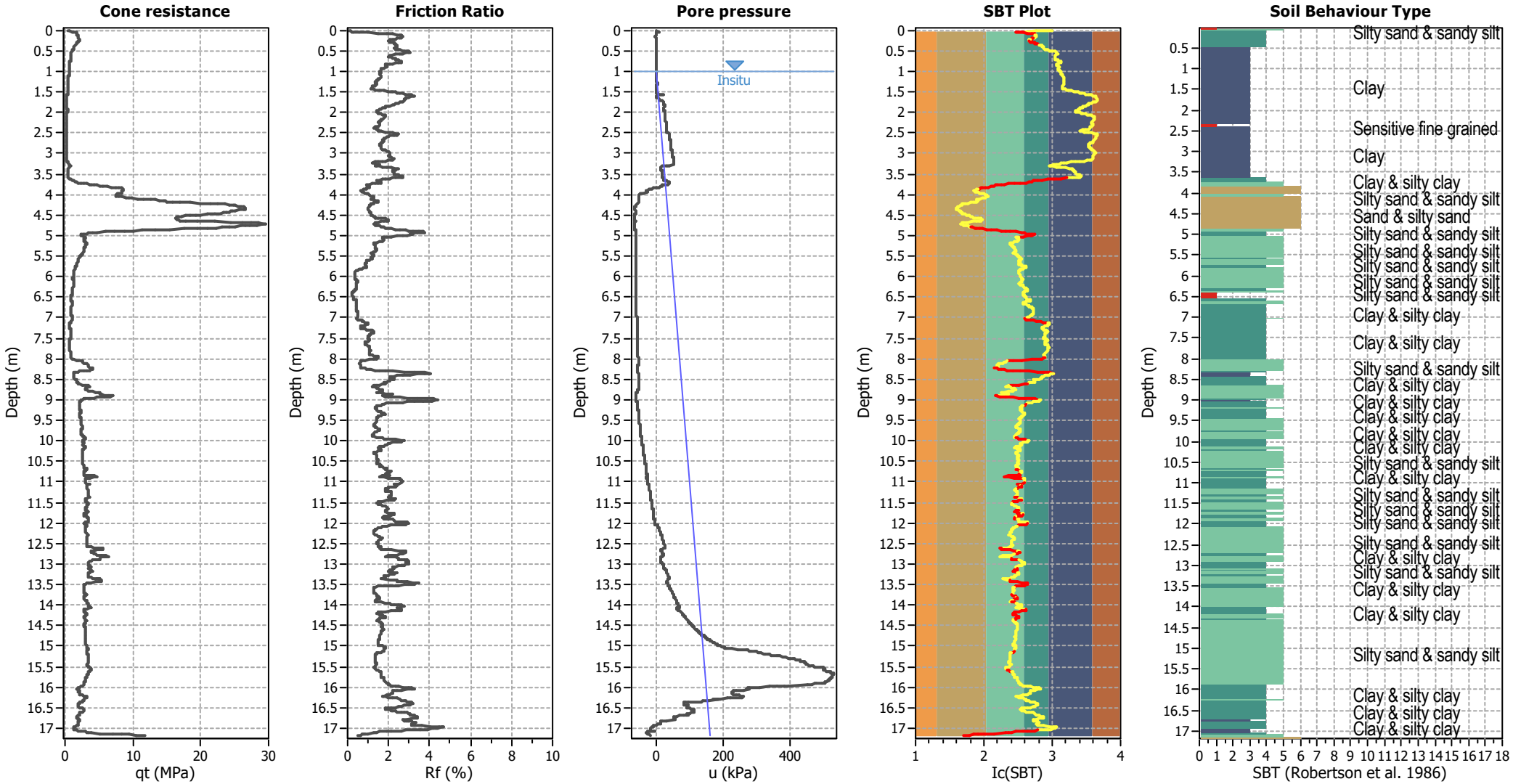
CPT basic interpretation plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

1. Sensitive fine grained
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5. Silty sand to sandy silt
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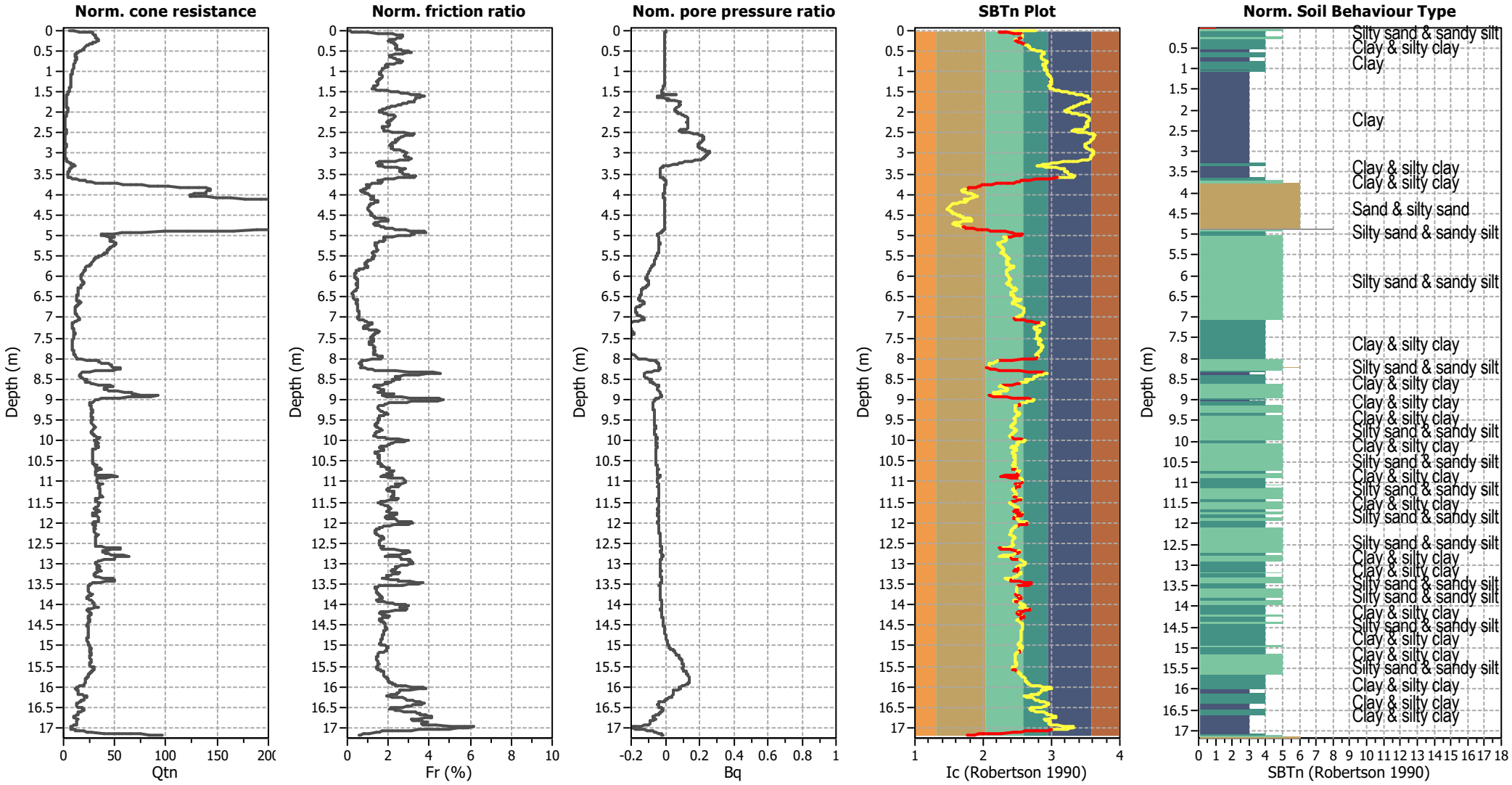
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



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Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
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SBTn legend

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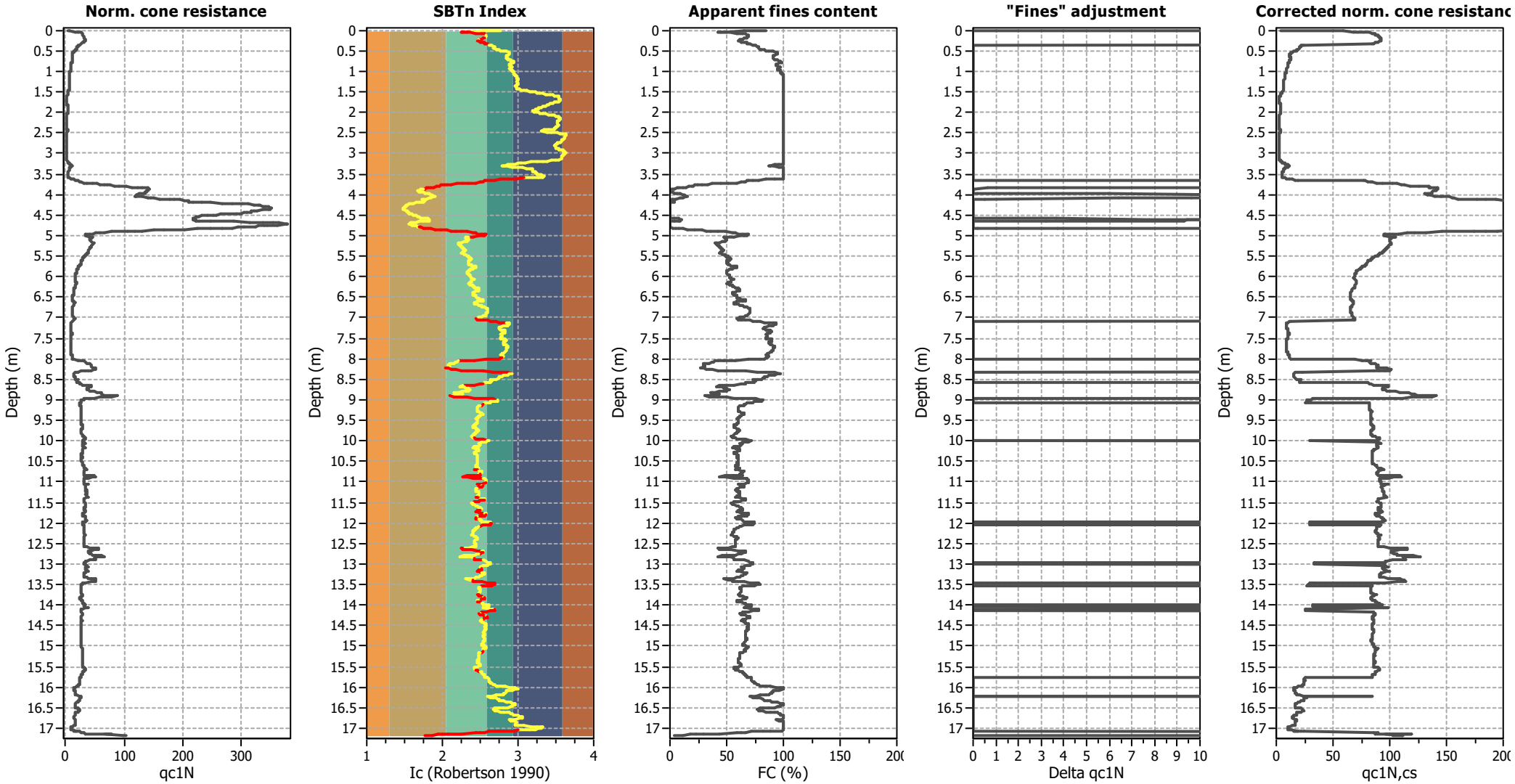
Liquefaction analysis overall plots (intermediate results)



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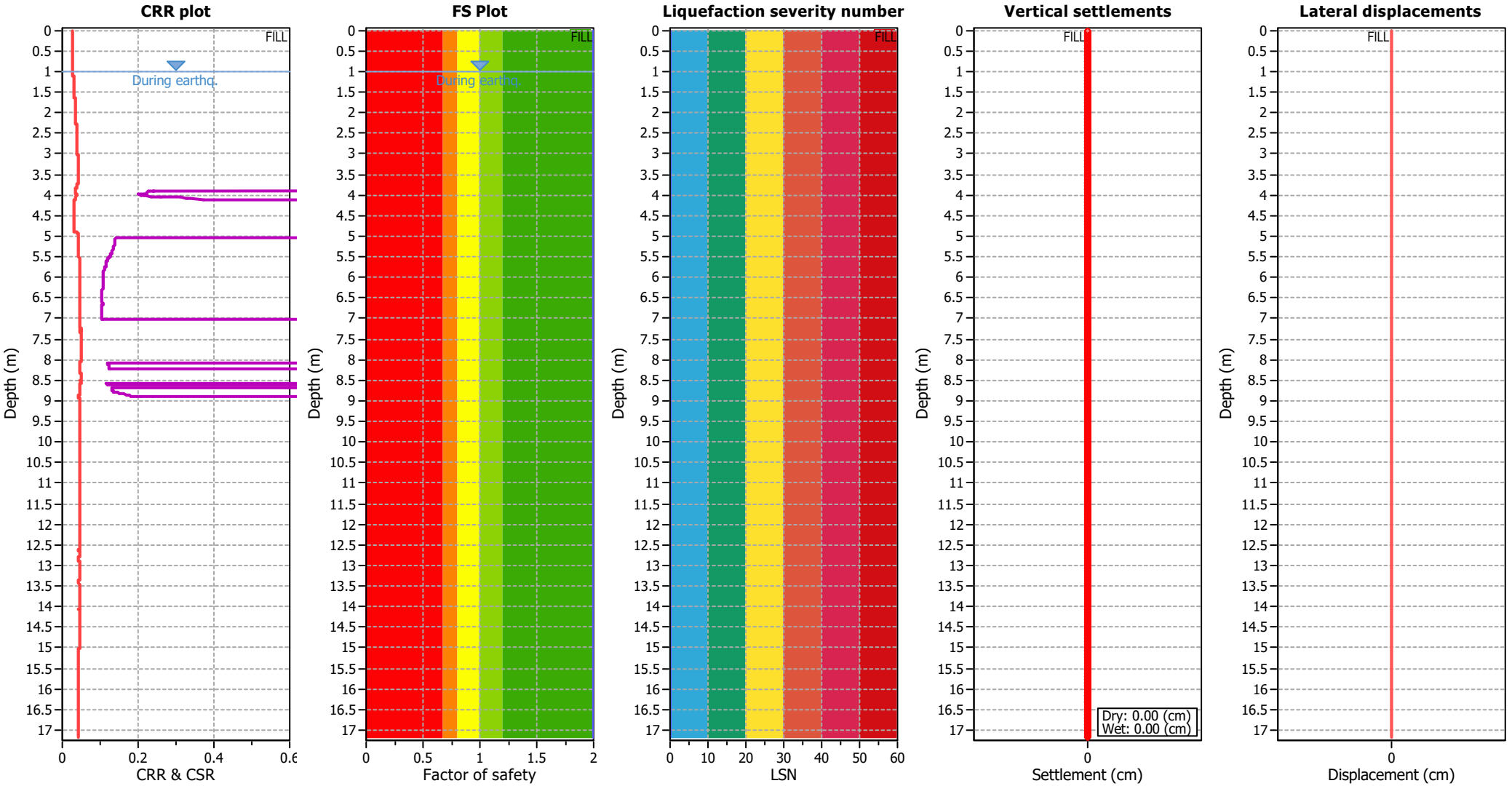
Liquefaction analysis overall plots



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- Almost certain it will liquefy
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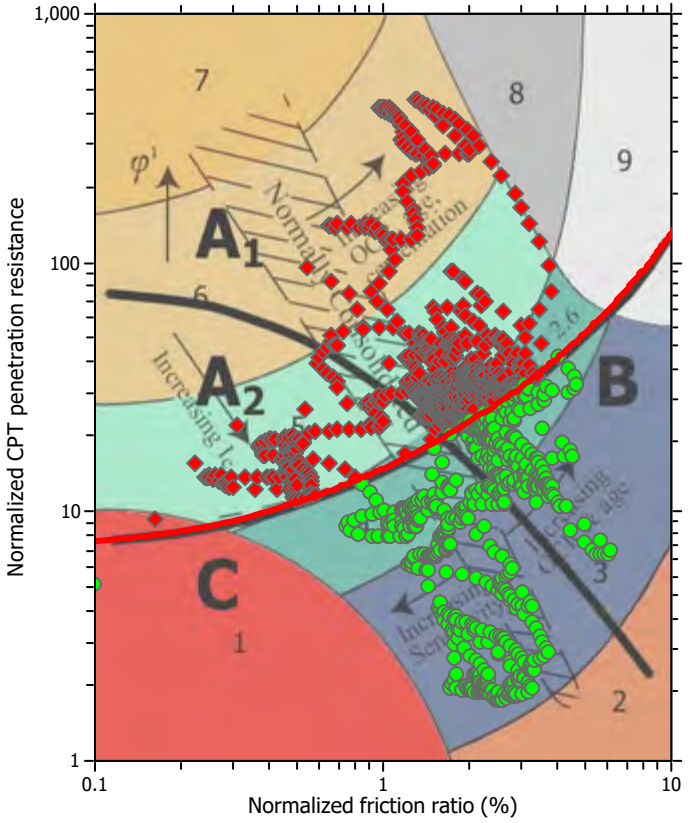
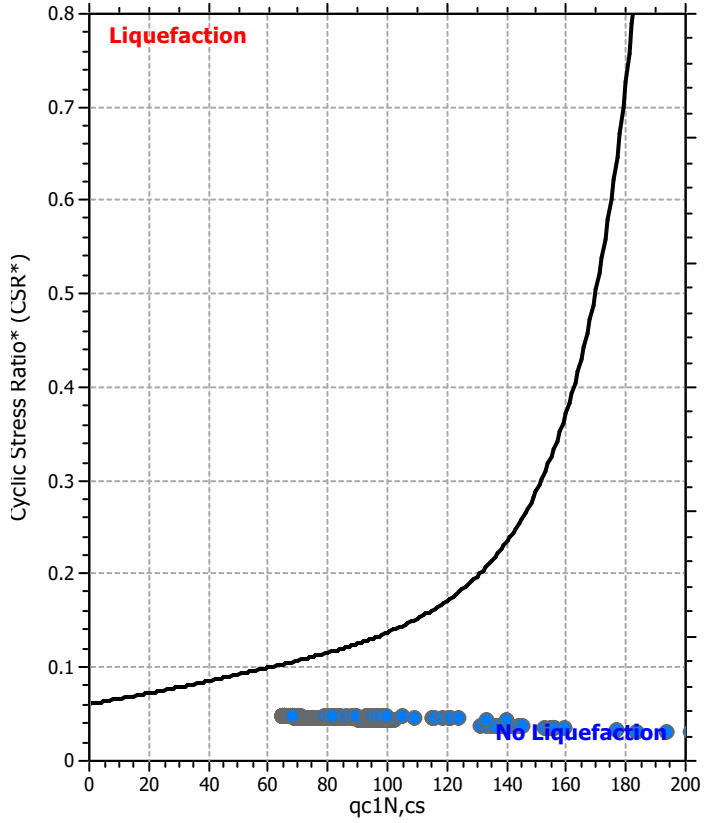
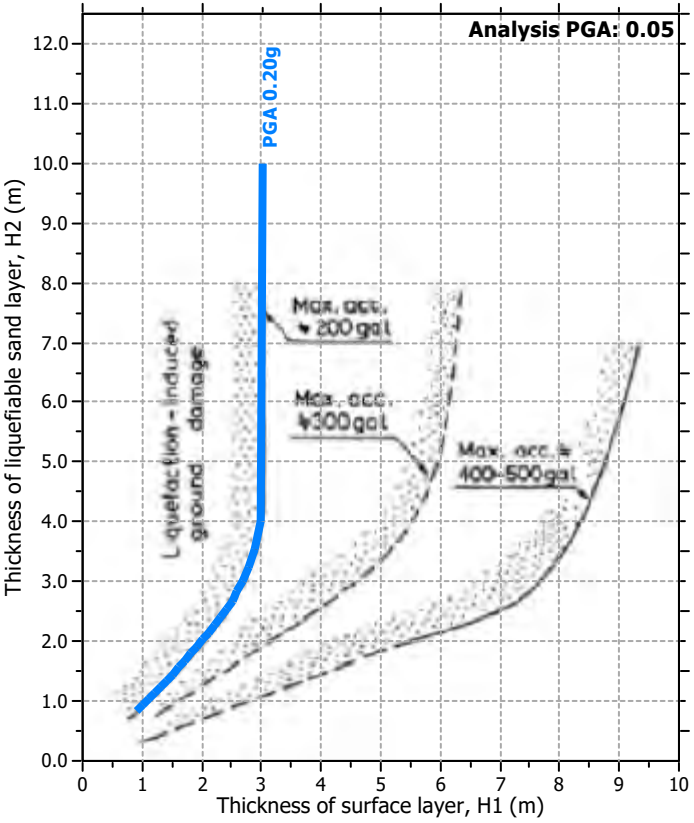
Liquefaction analysis summary plots







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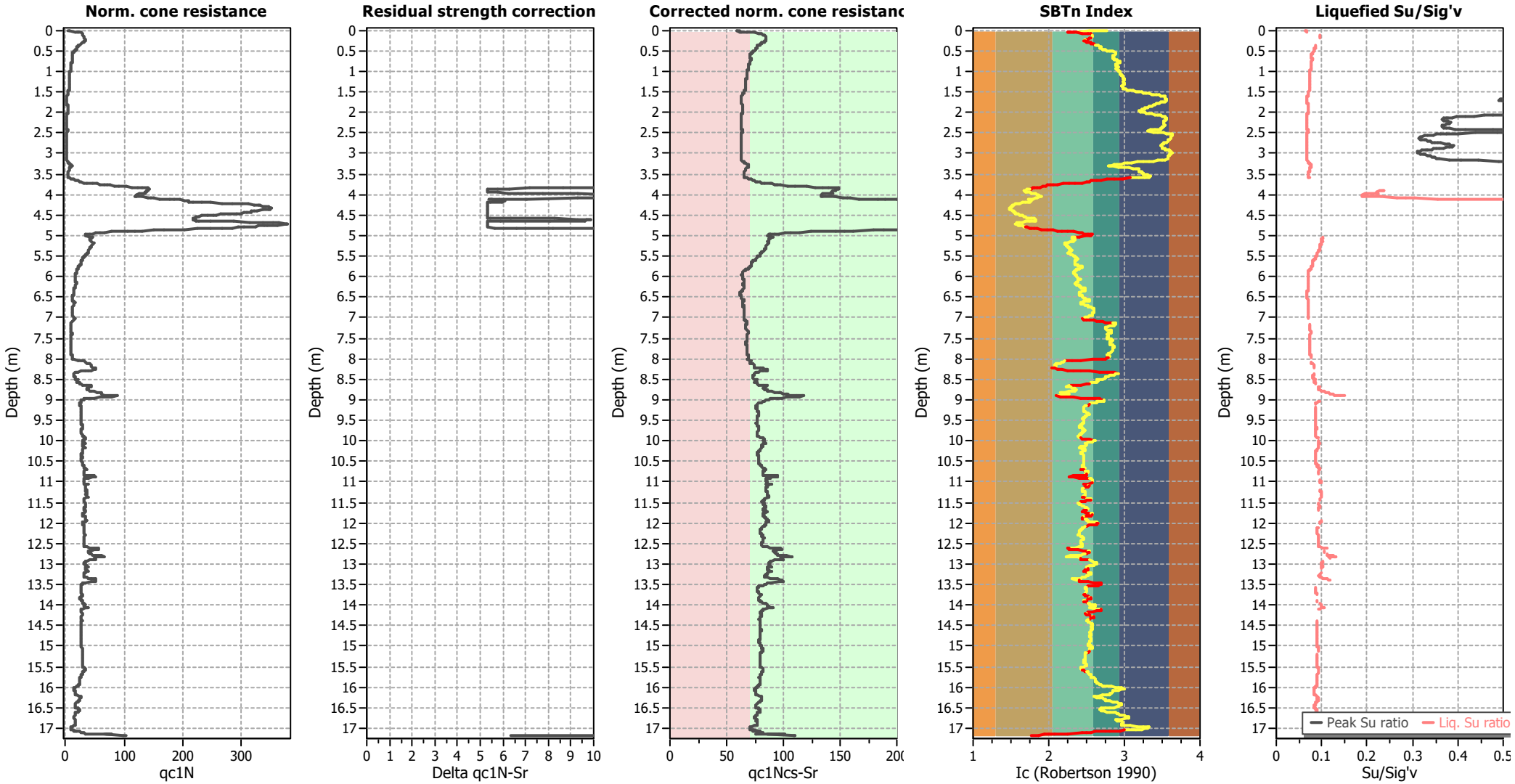

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TRANSITION LAYER DETECTION ALGORITHM REPORT
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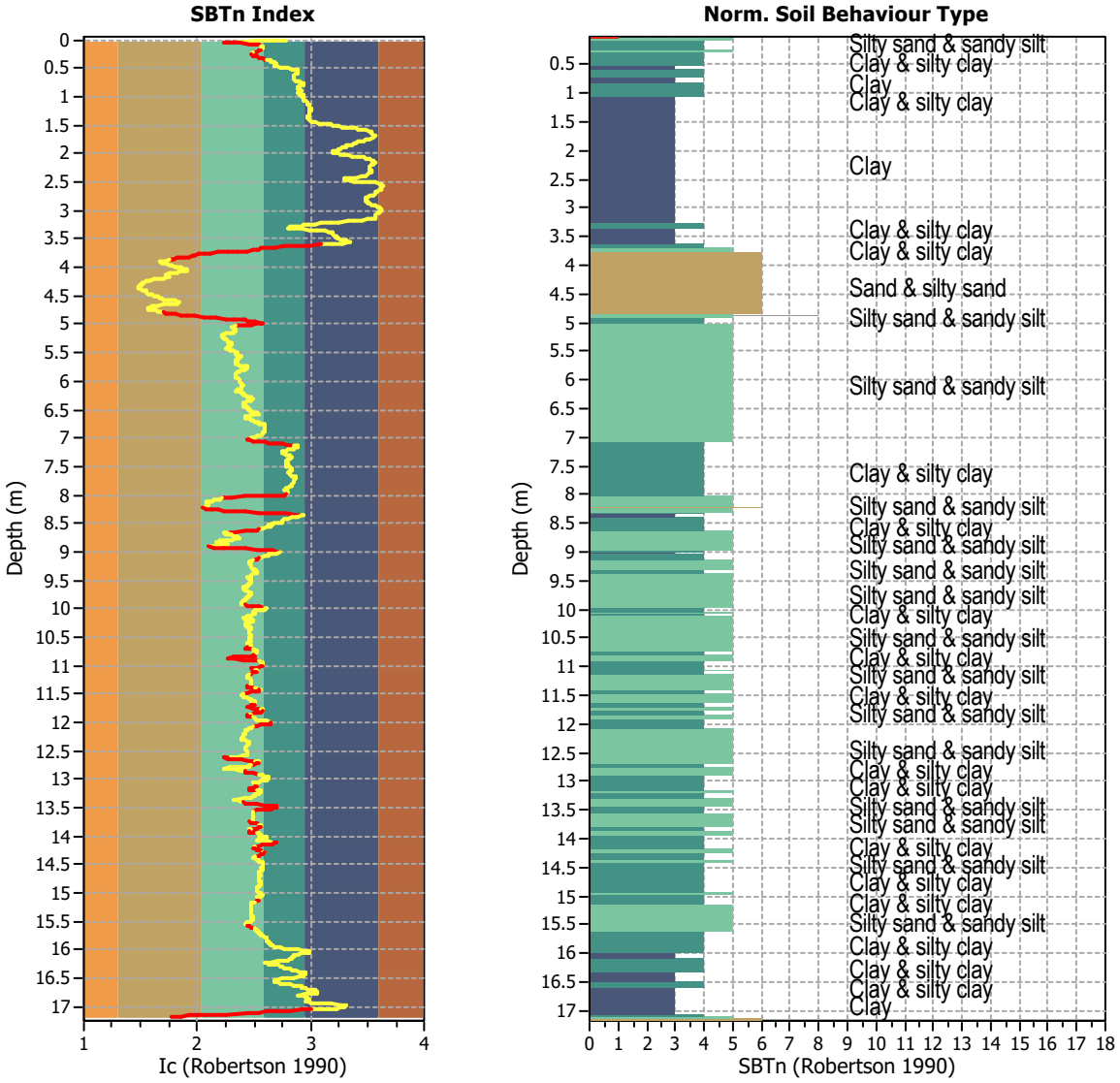
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



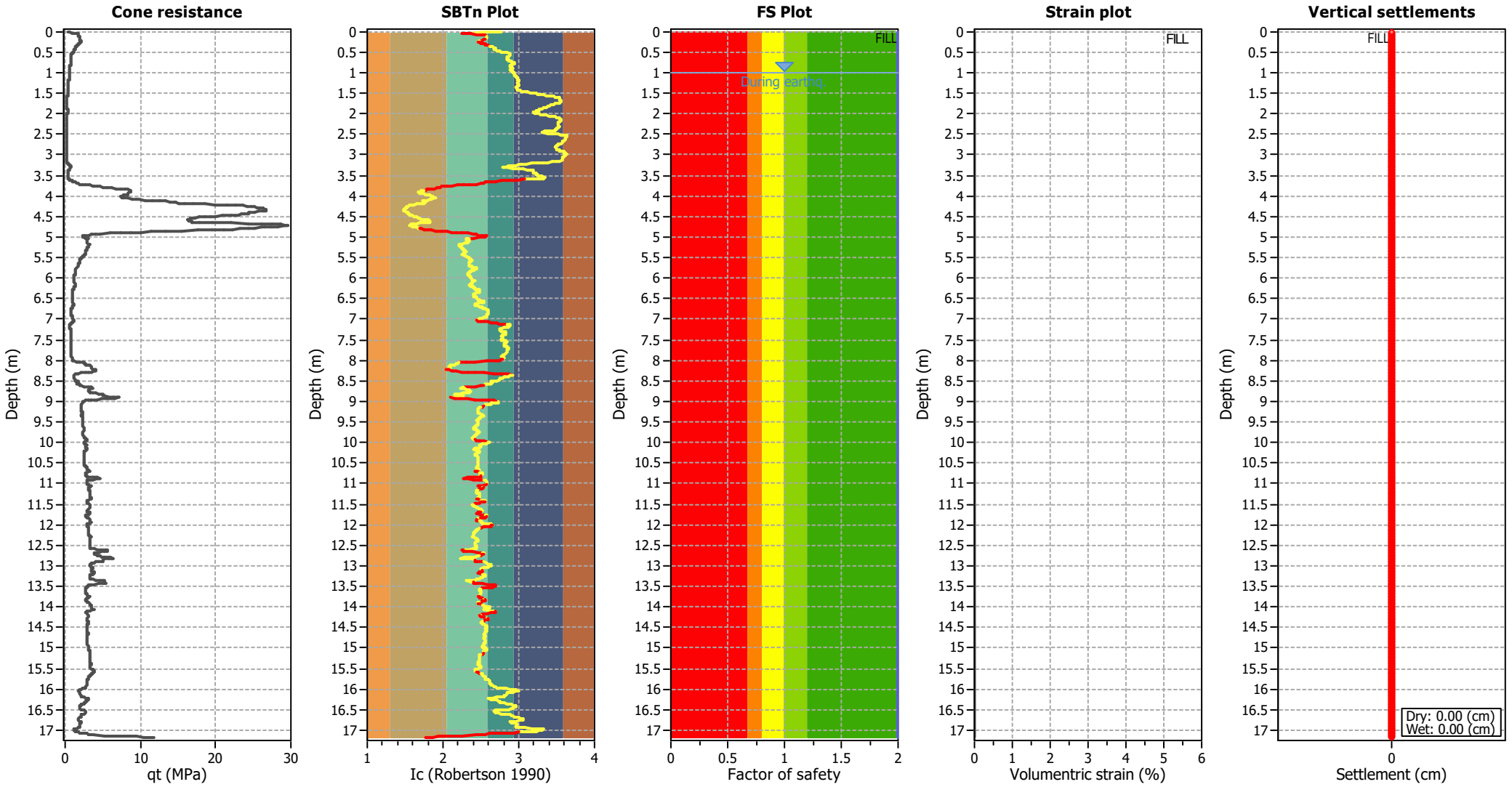
Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	1718
Total points excluded:	319
Exclusion percentage:	18.57%
Number of layers detected:	42

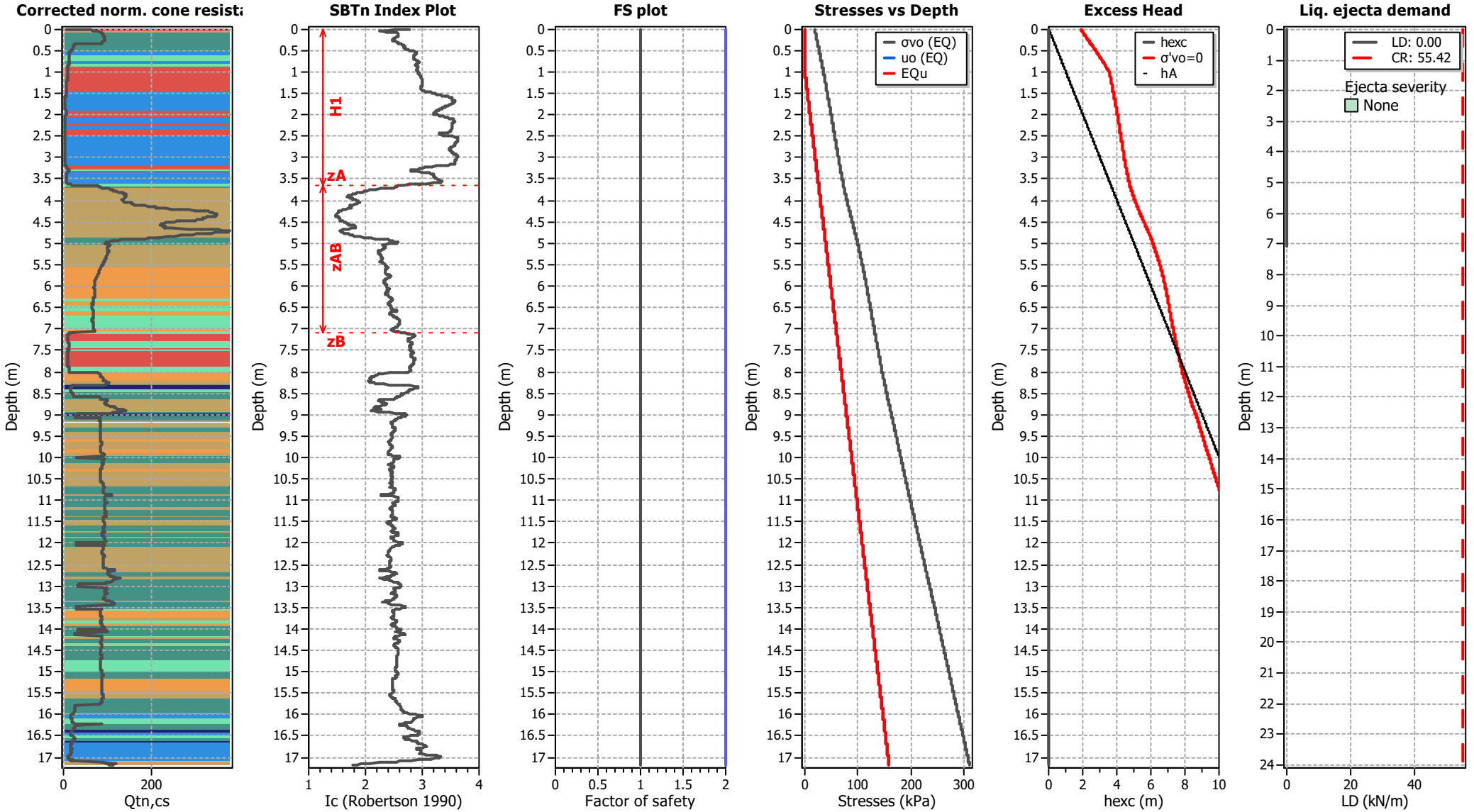
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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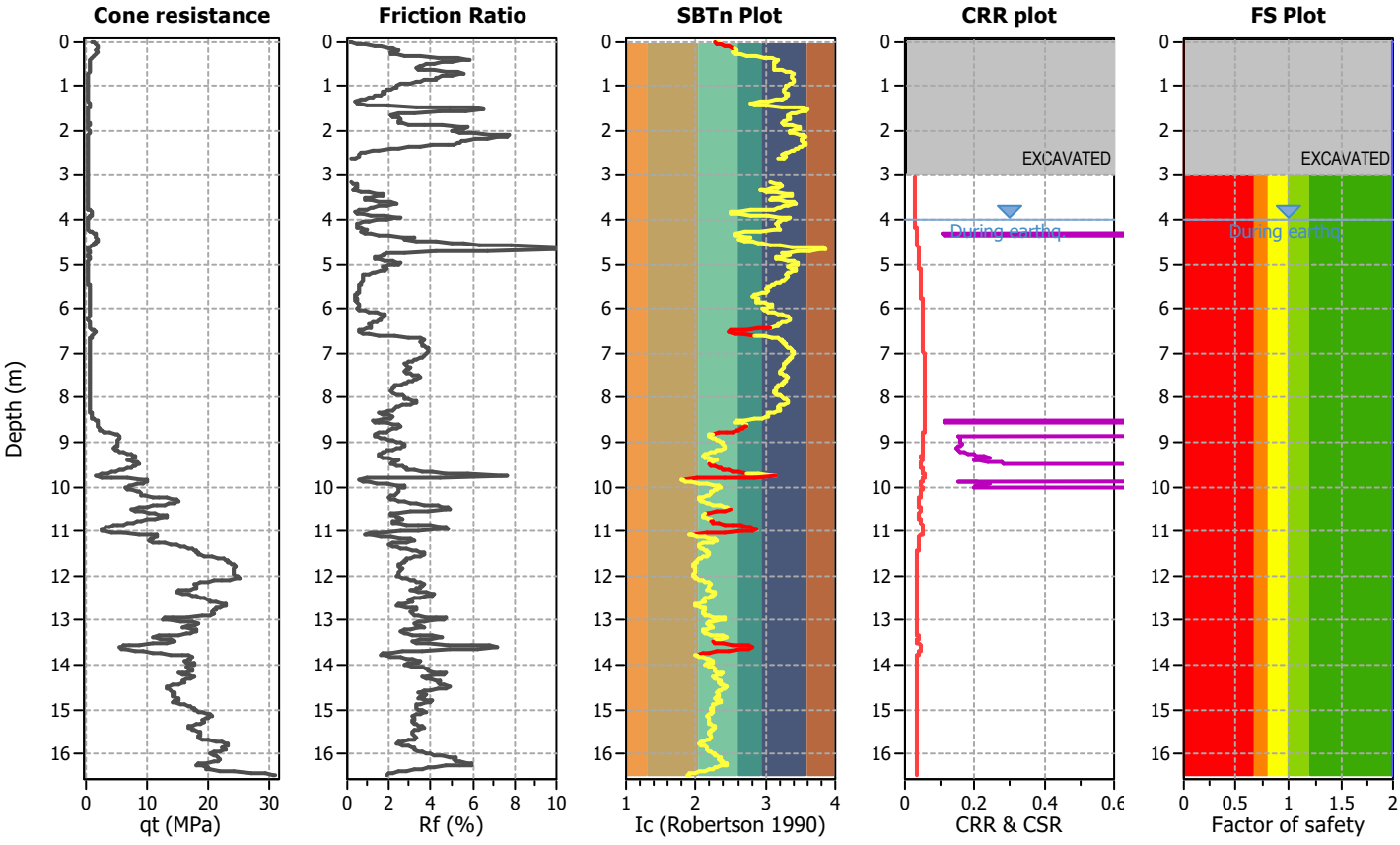
LIQUEFACTION ANALYSIS REPORT

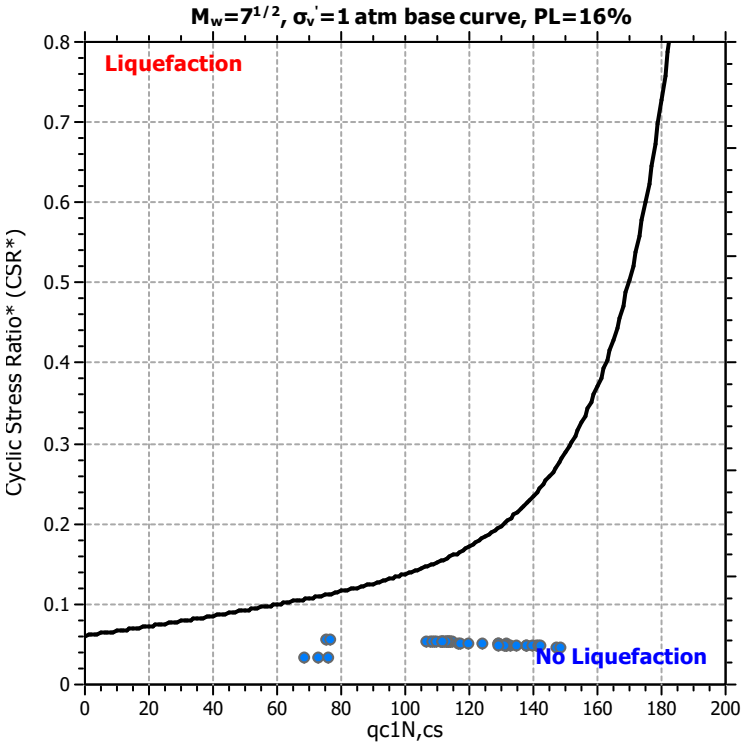
Project title : Sunfield Landholding **Location :**

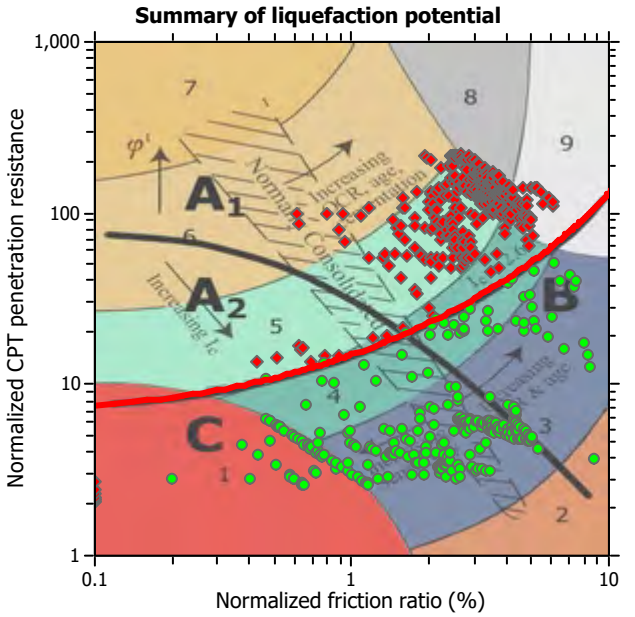
CPT file : CPT101

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	4.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	4.00 m	Excavation depth:	3.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

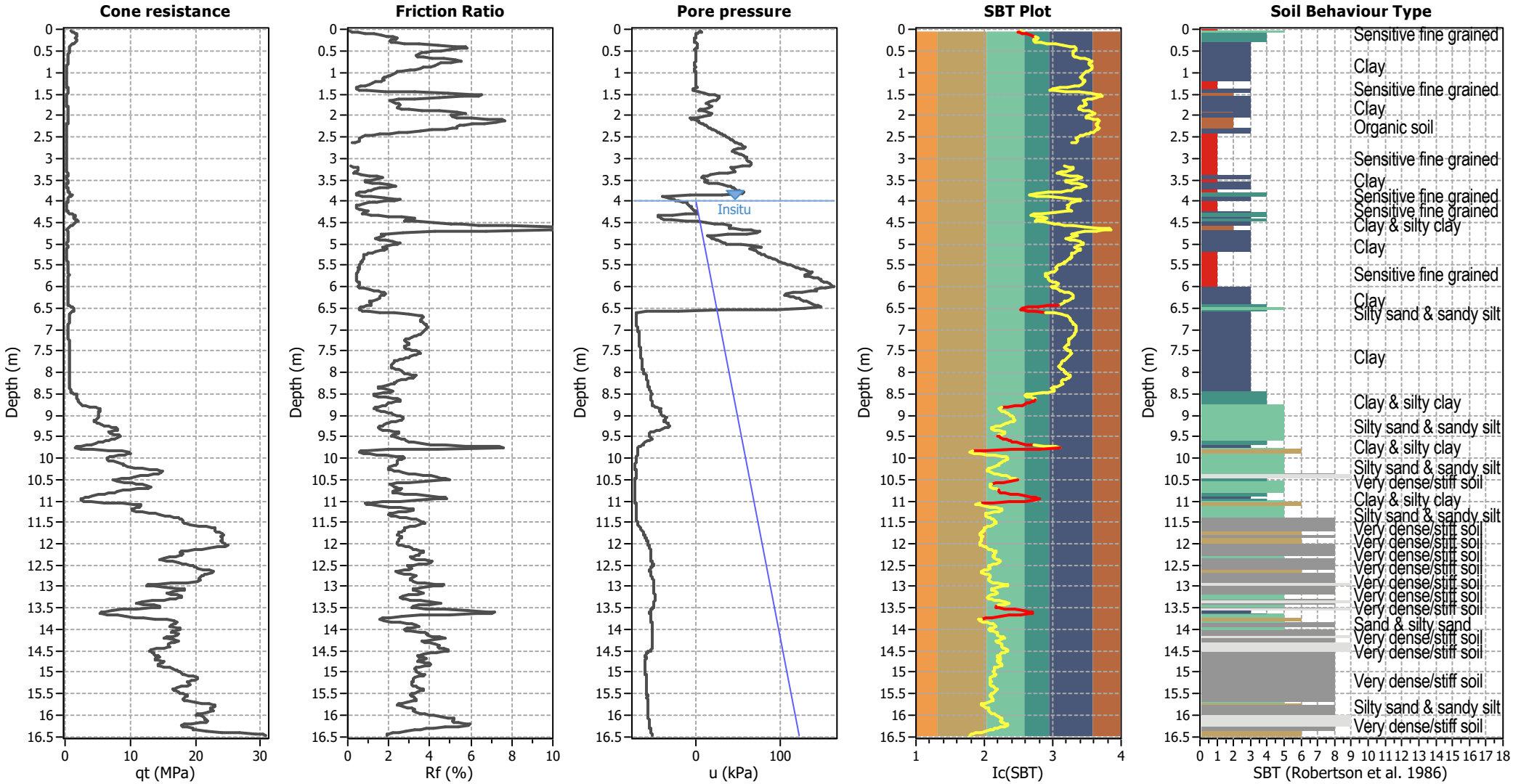






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



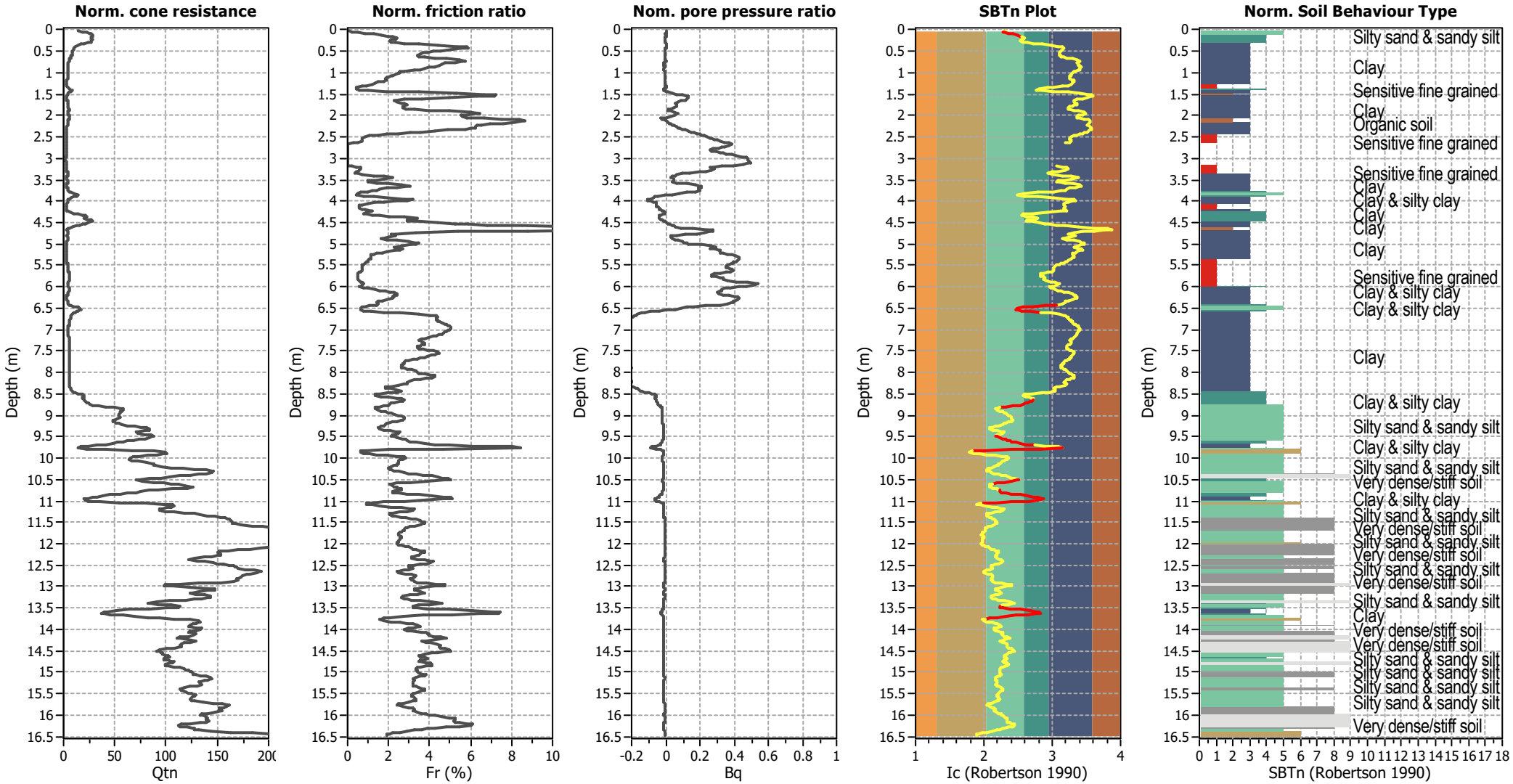
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



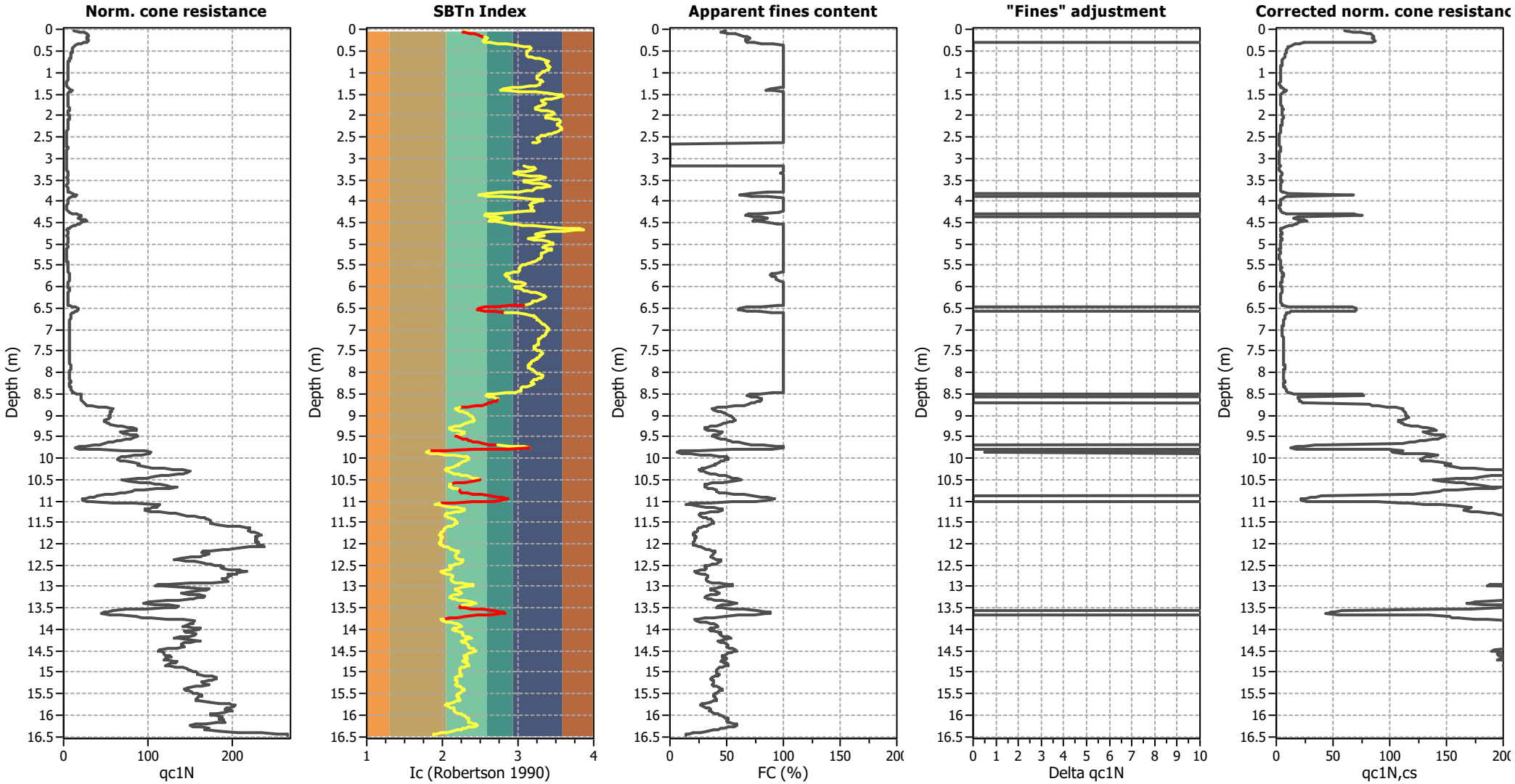
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

SBTn legend

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

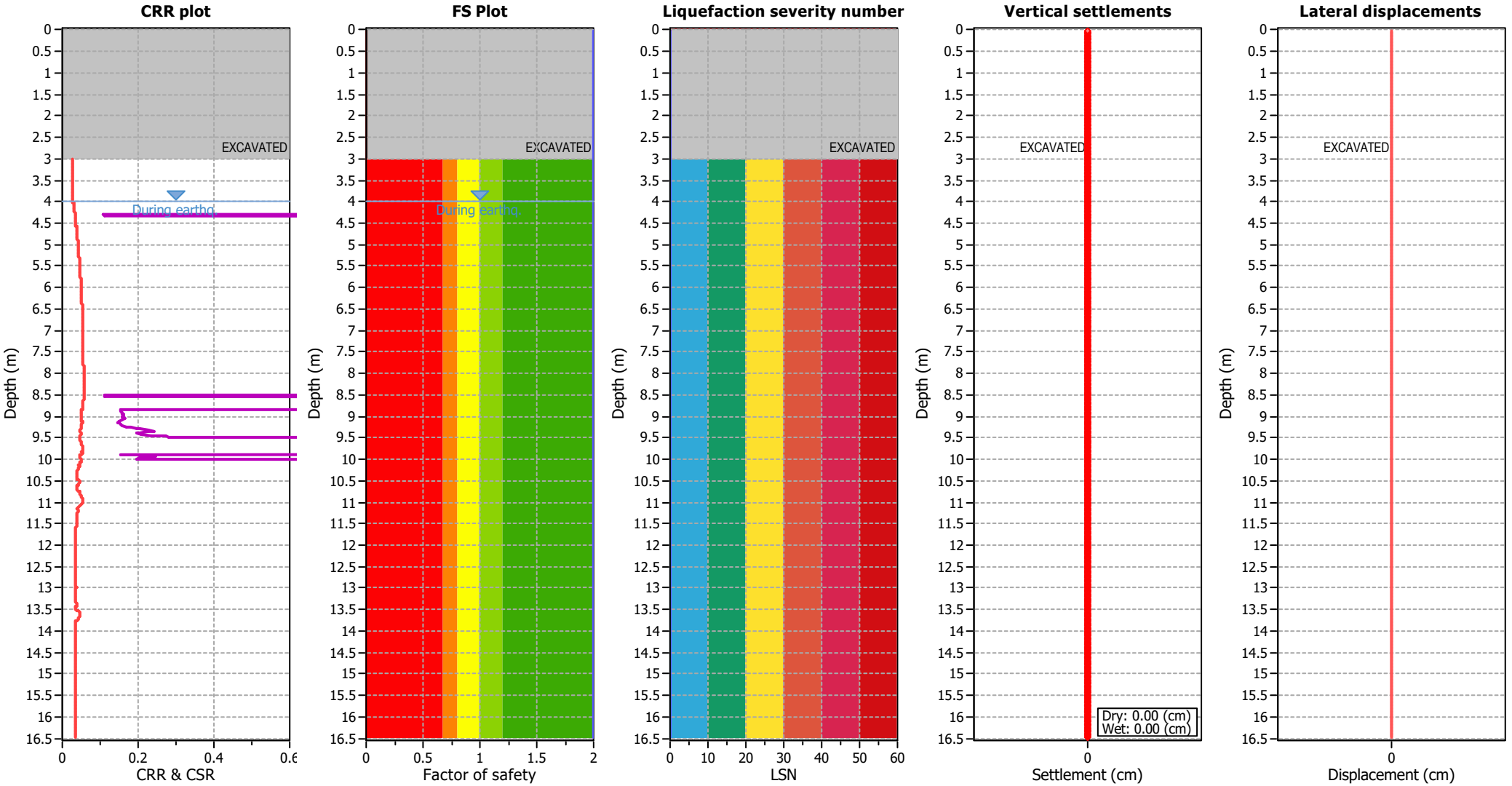
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

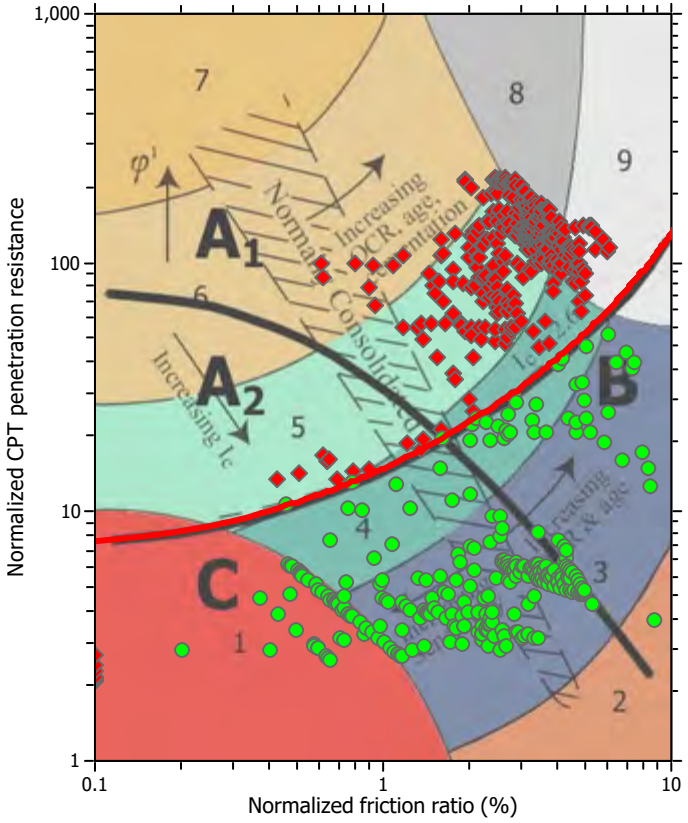
F.S. color scheme

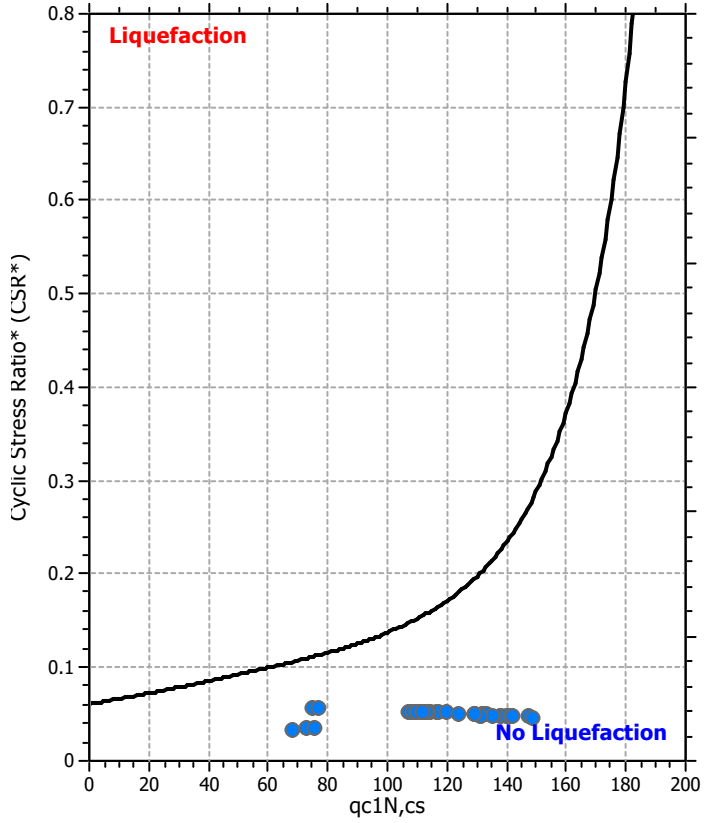
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

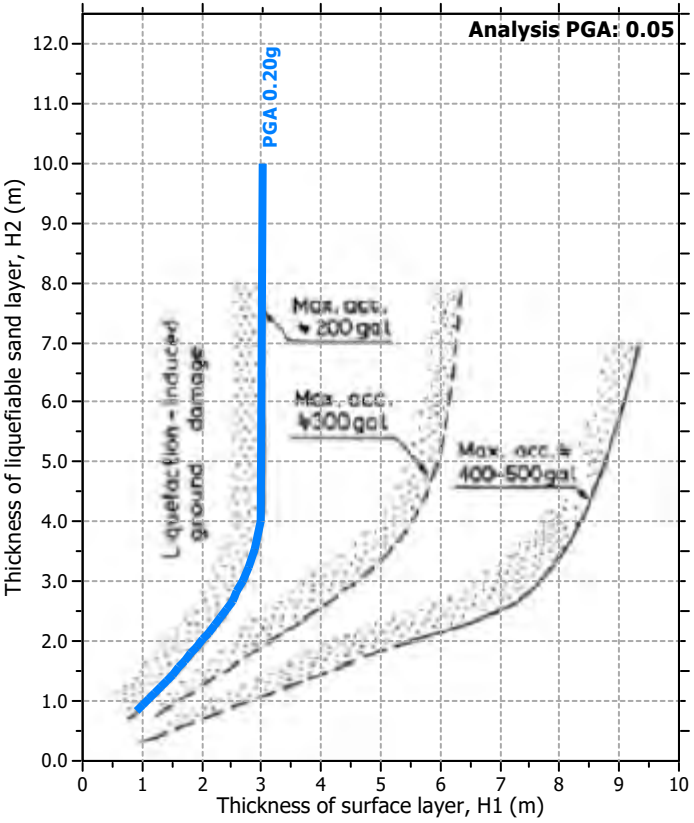
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



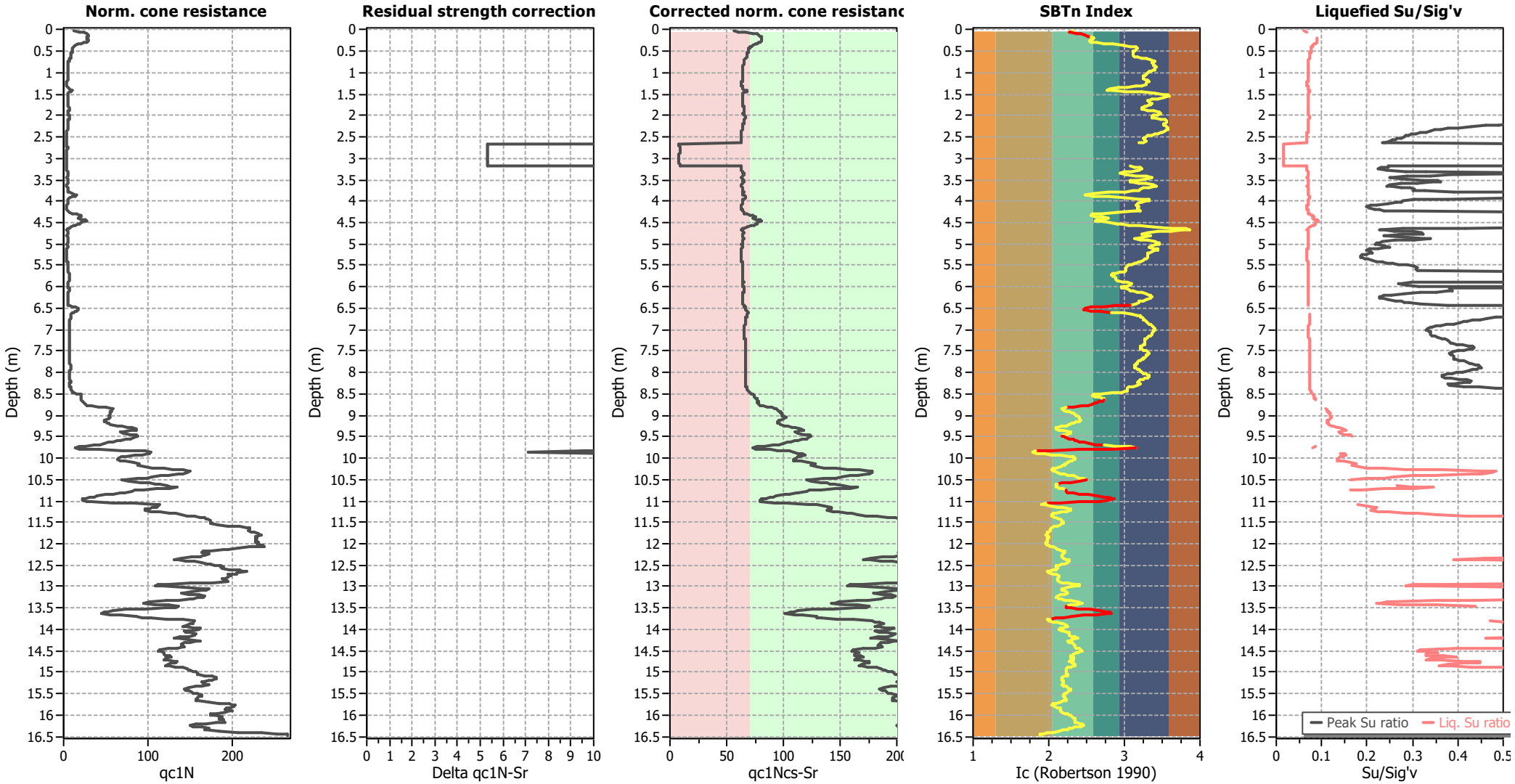




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

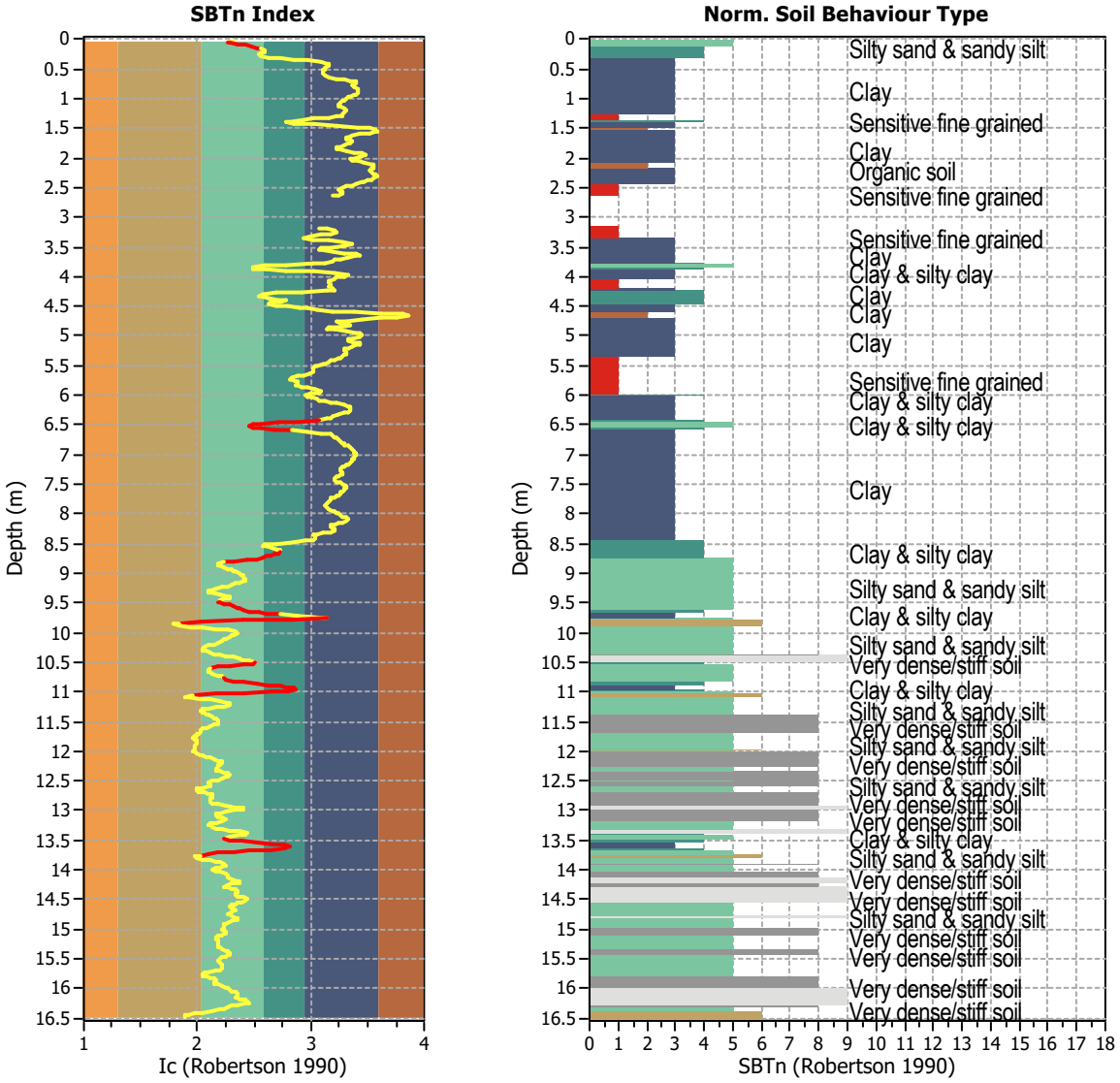
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



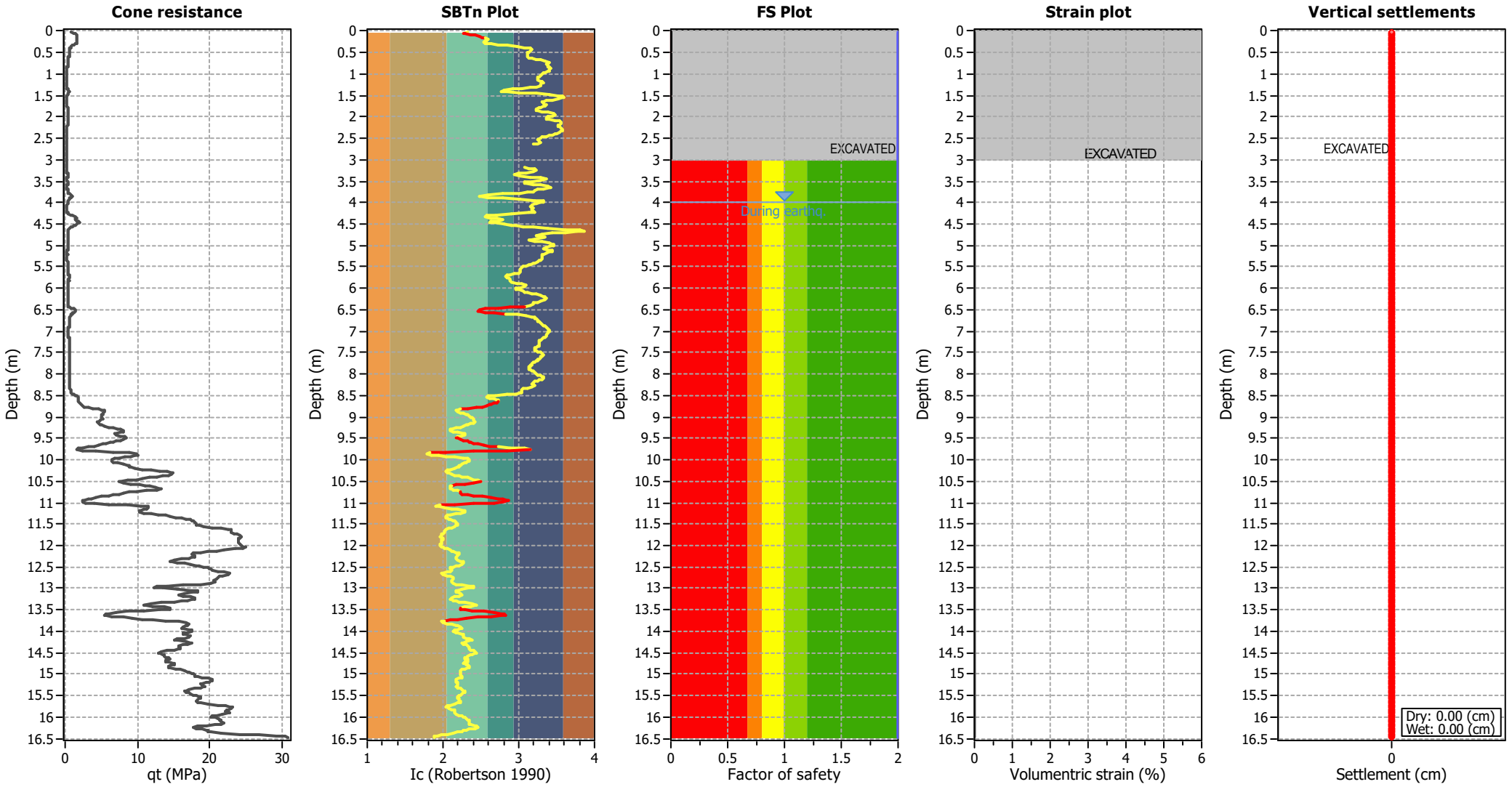
Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	824
Total points excluded:	83
Exclusion percentage:	10.07%
Number of layers detected:	11

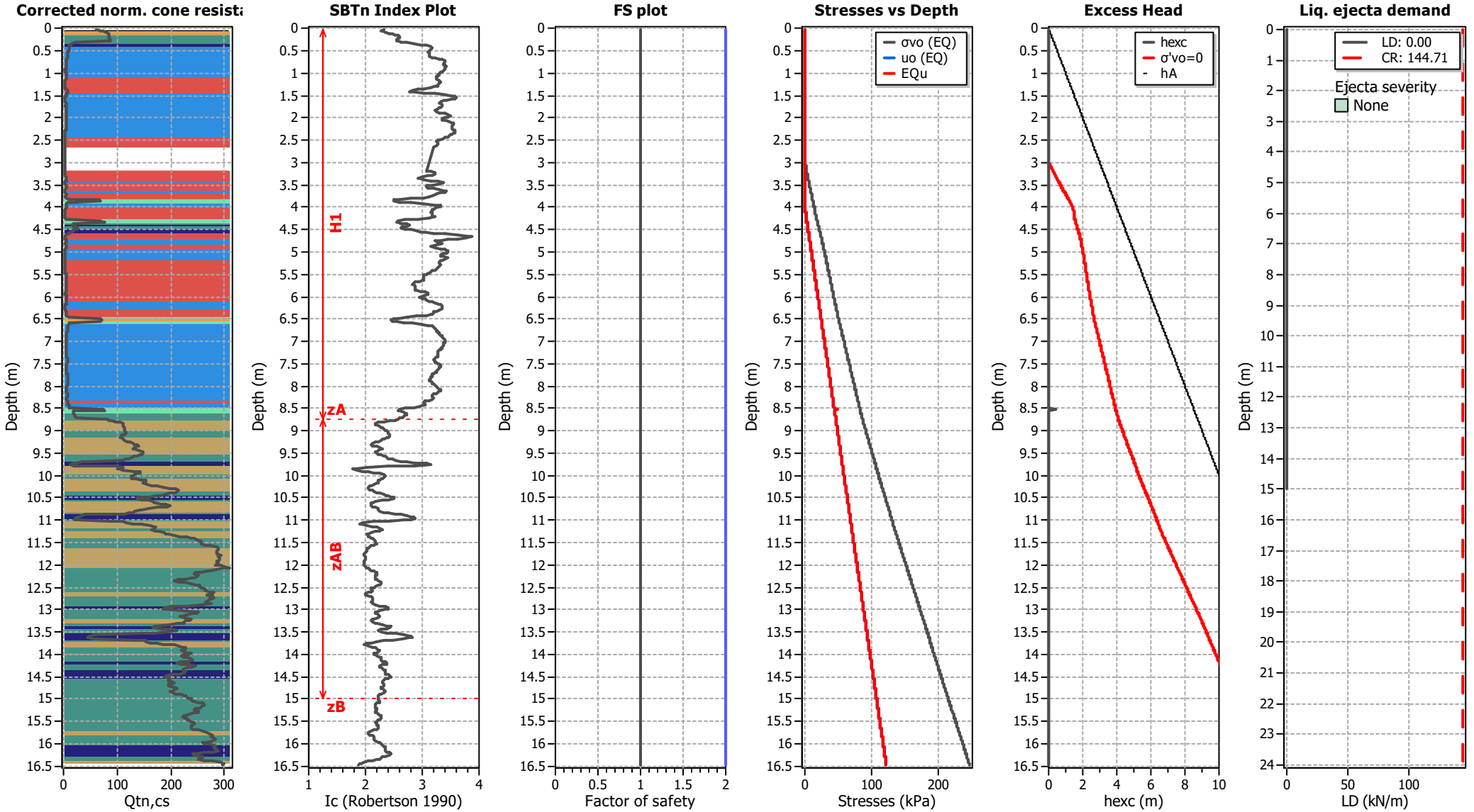
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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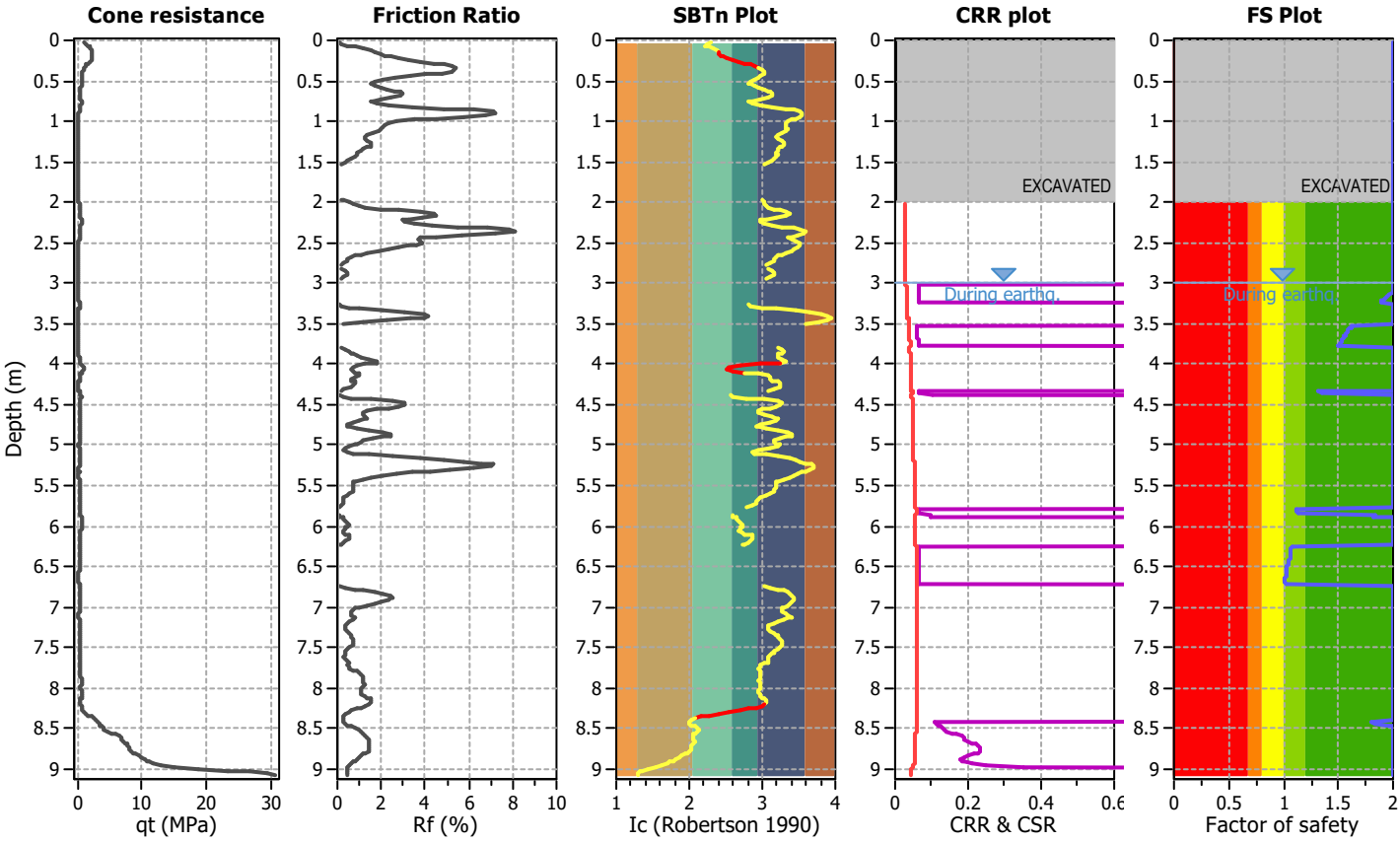
LIQUEFACTION ANALYSIS REPORT

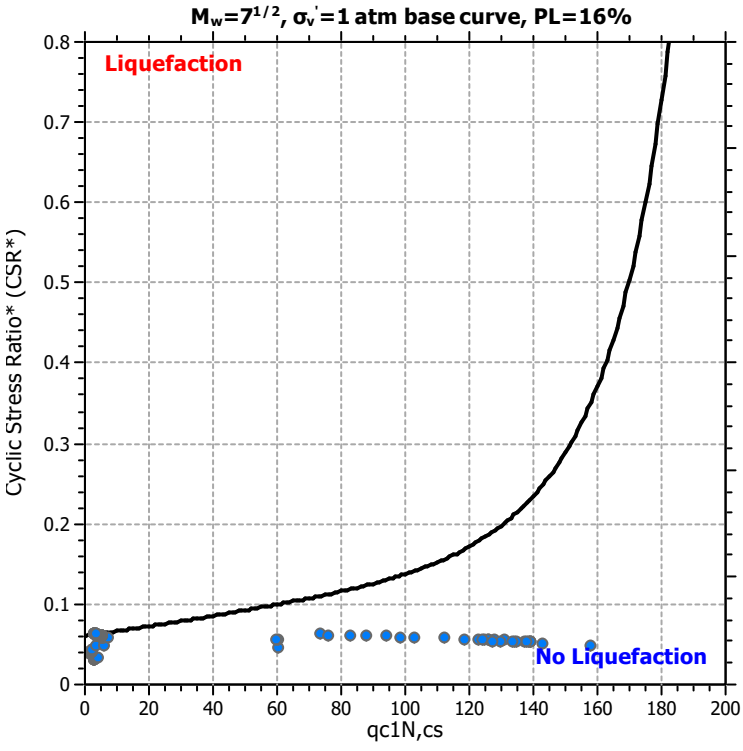
Project title : Sunfield Landholding **Location :**

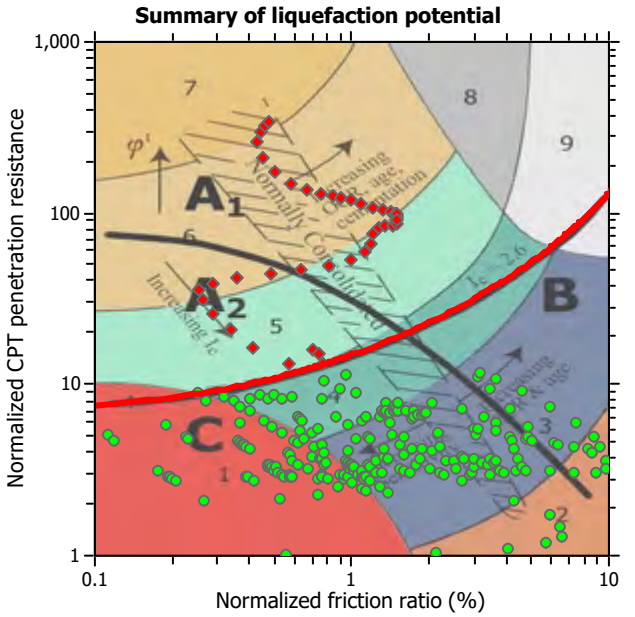
CPT file : CPT102

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.00 m	Excavation depth:	2.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

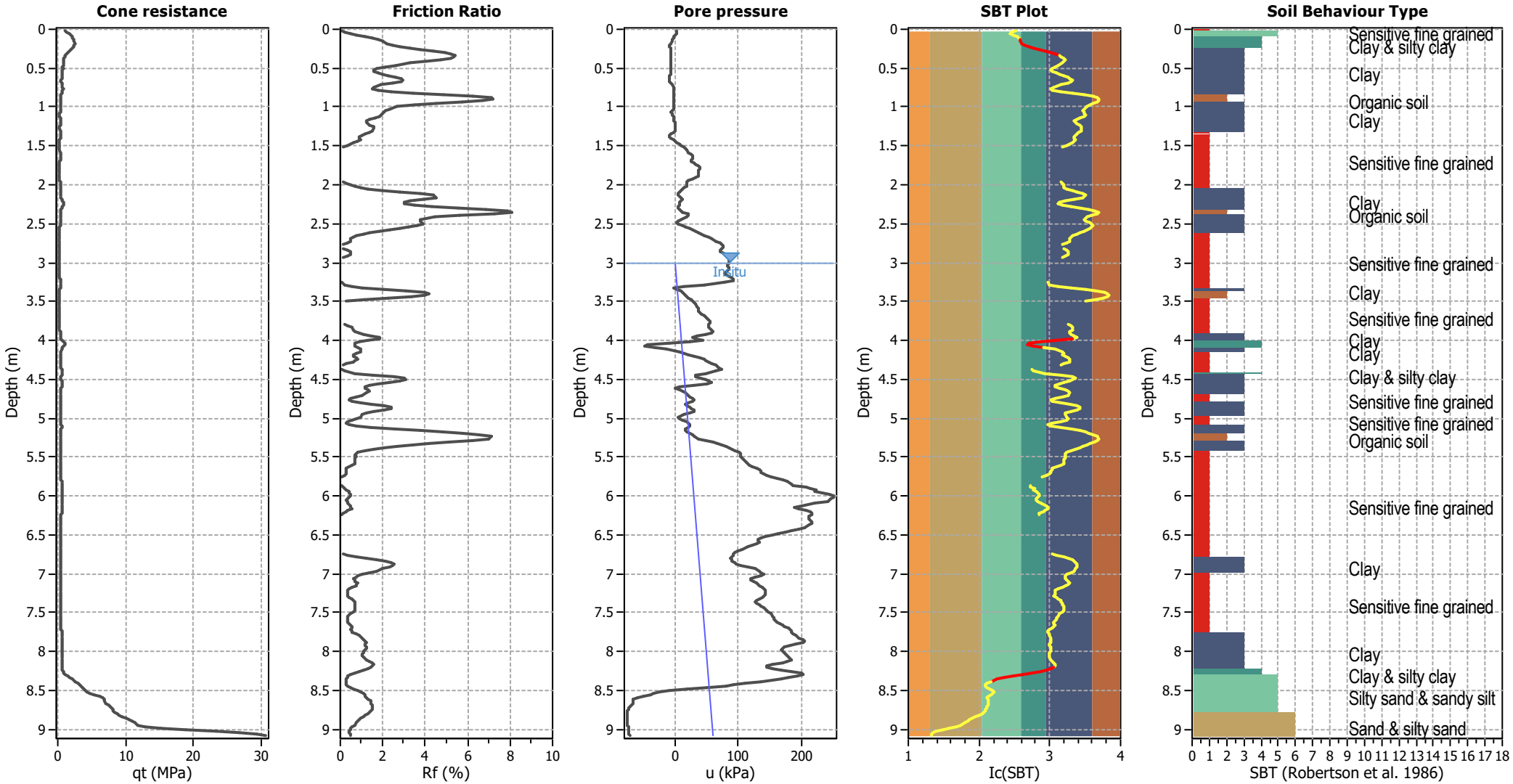






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



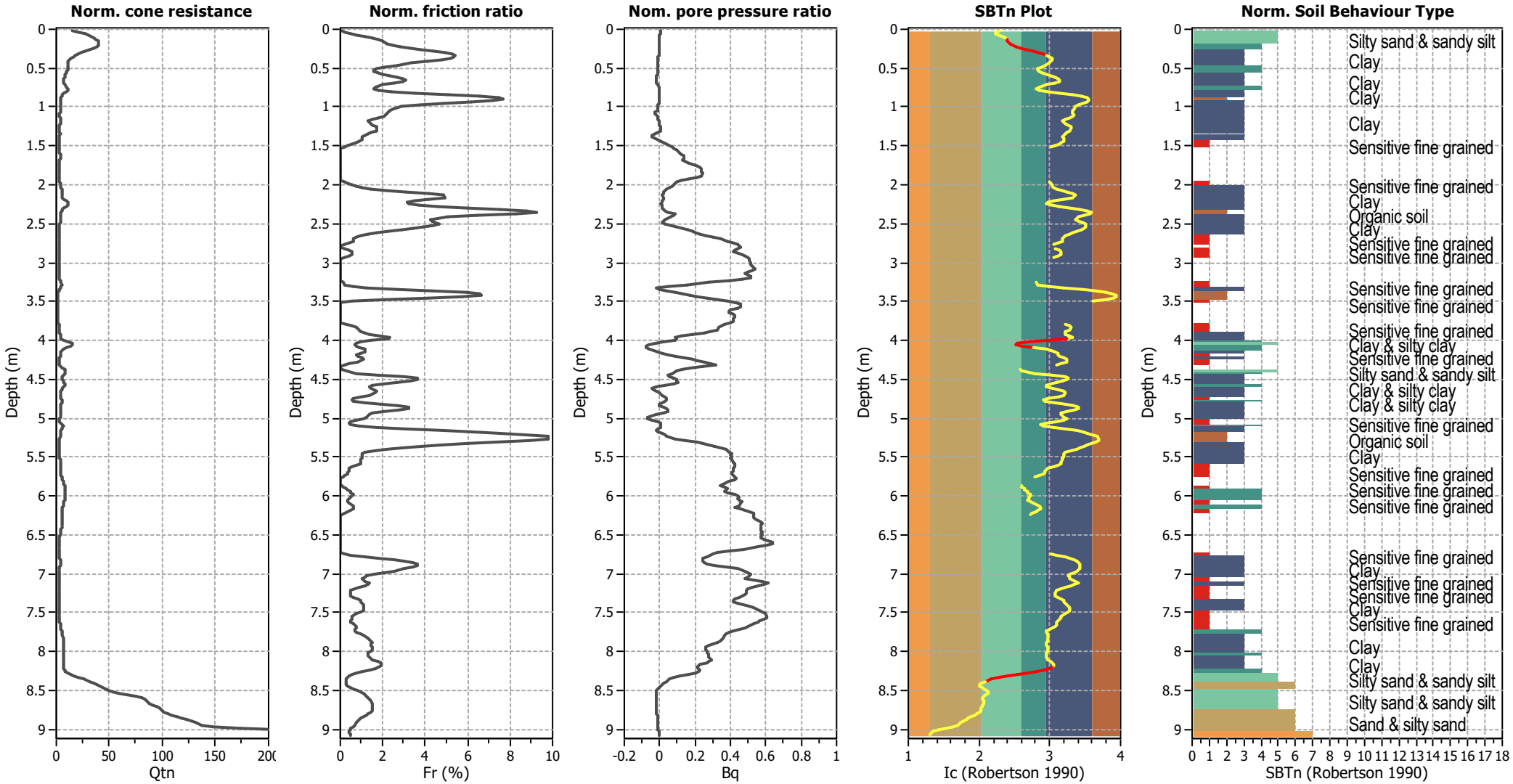
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



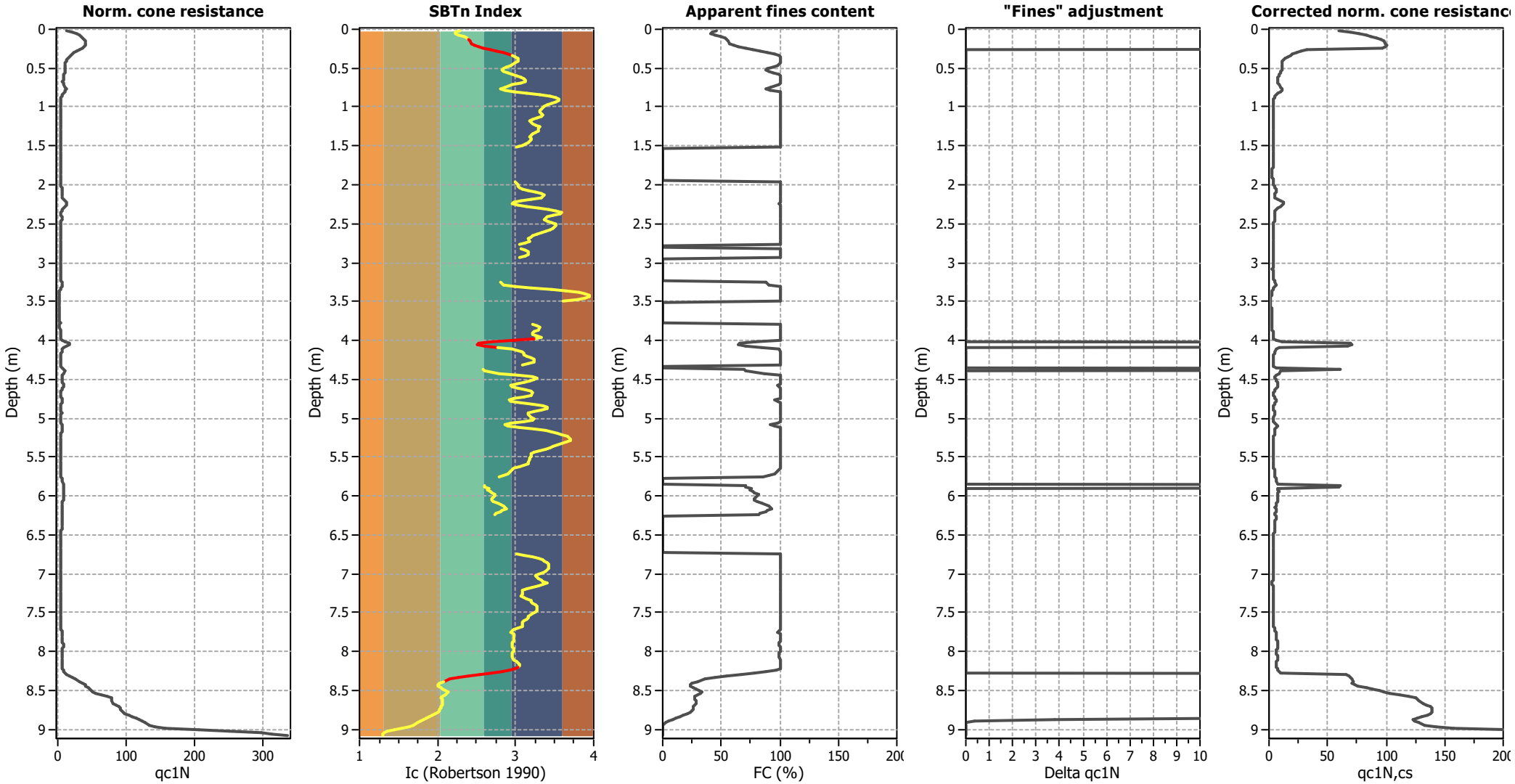
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

SBTn legend

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

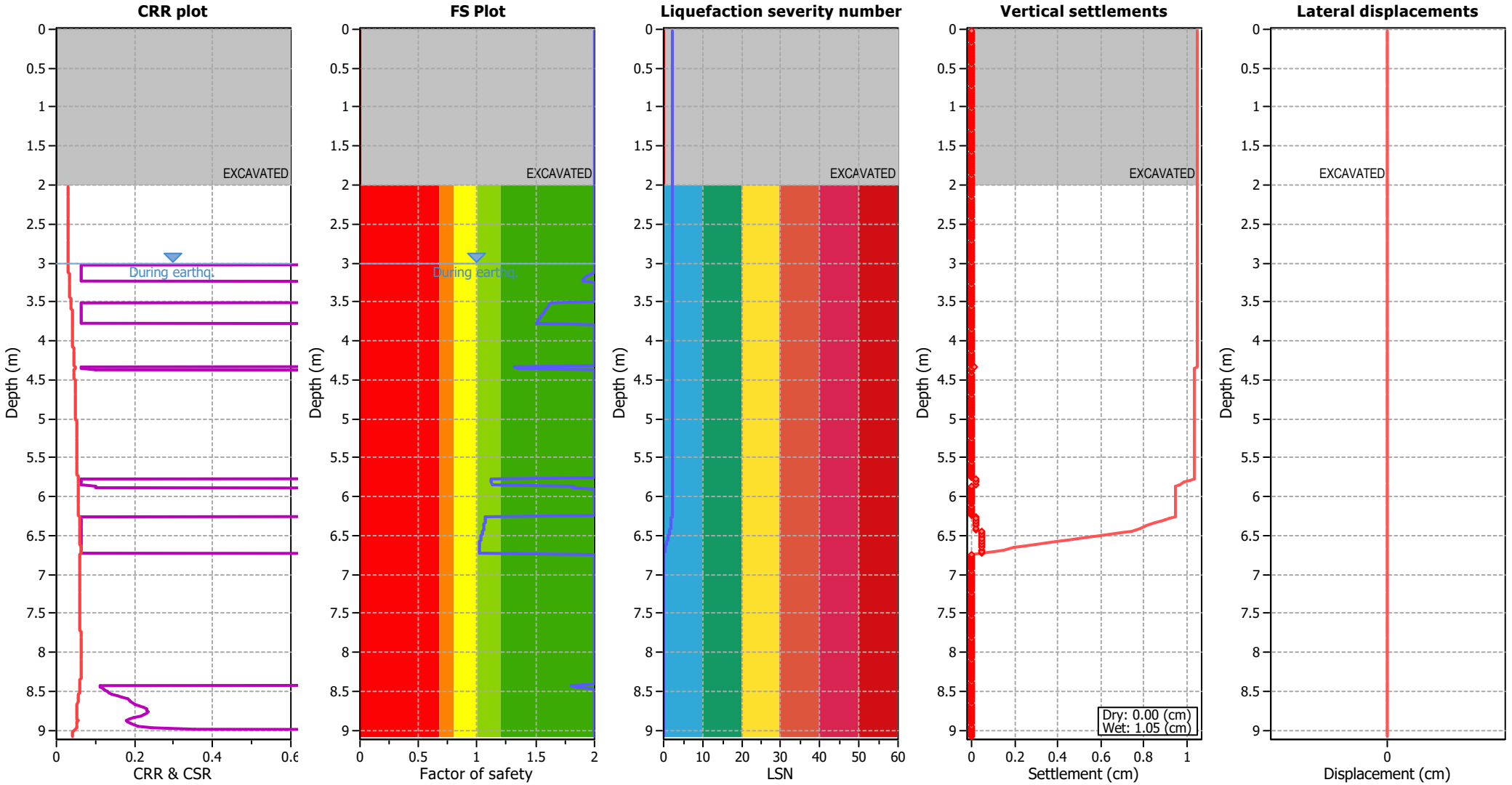
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

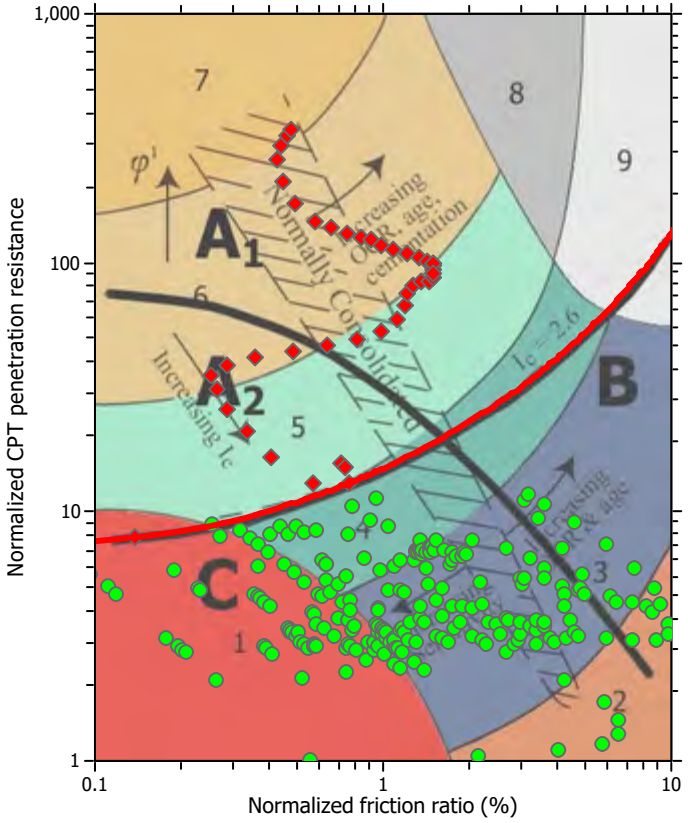
F.S. color scheme

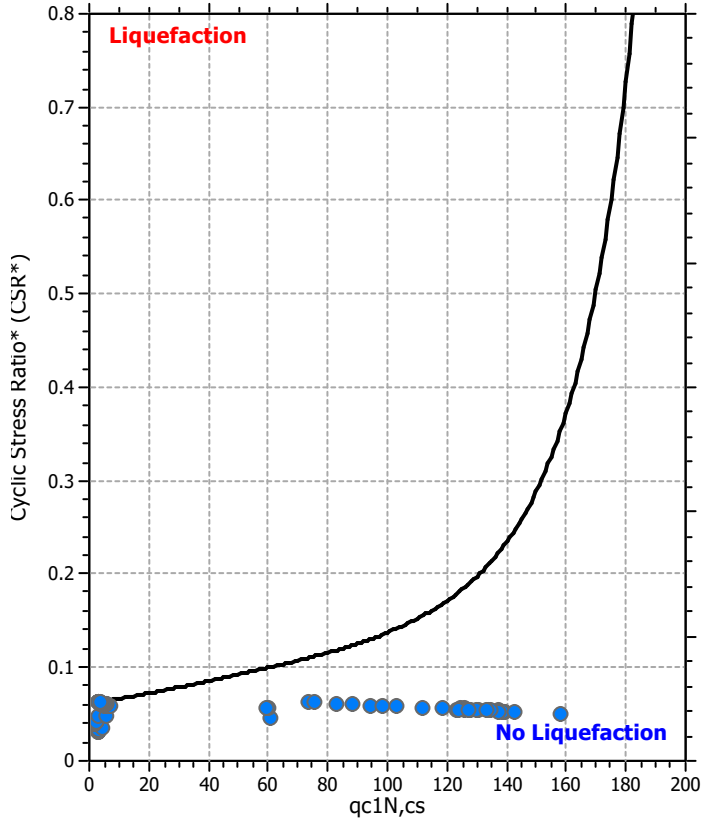
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

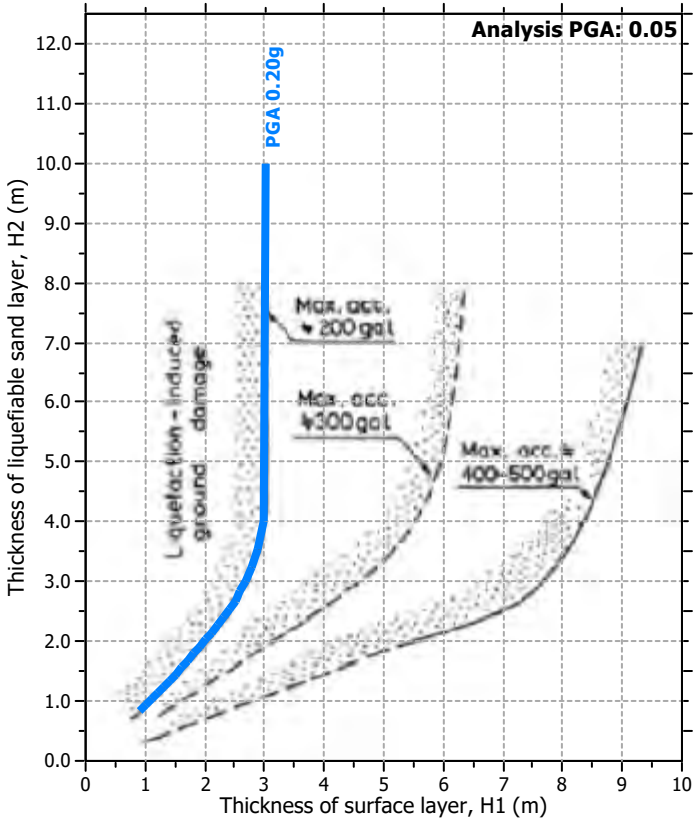
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



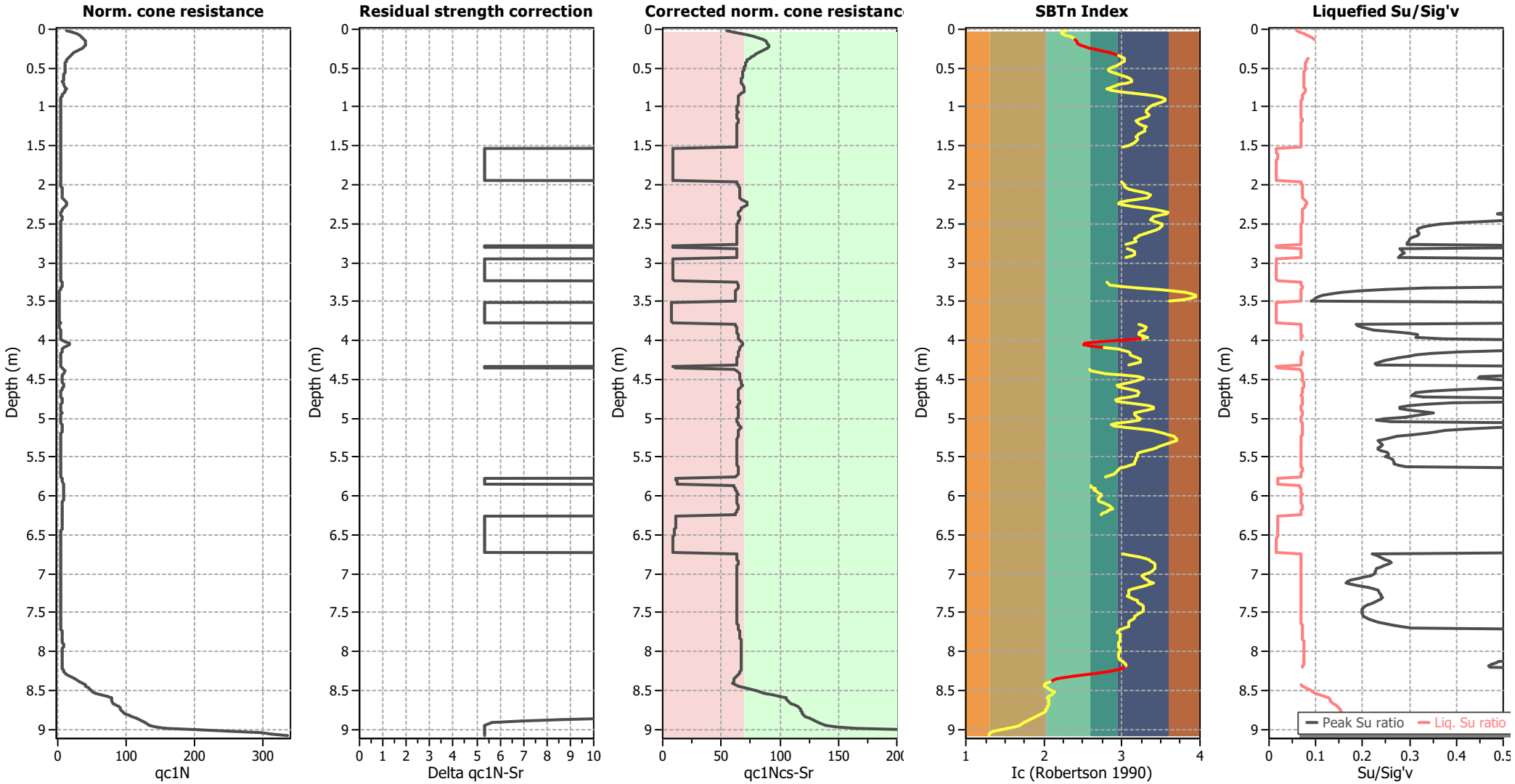




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

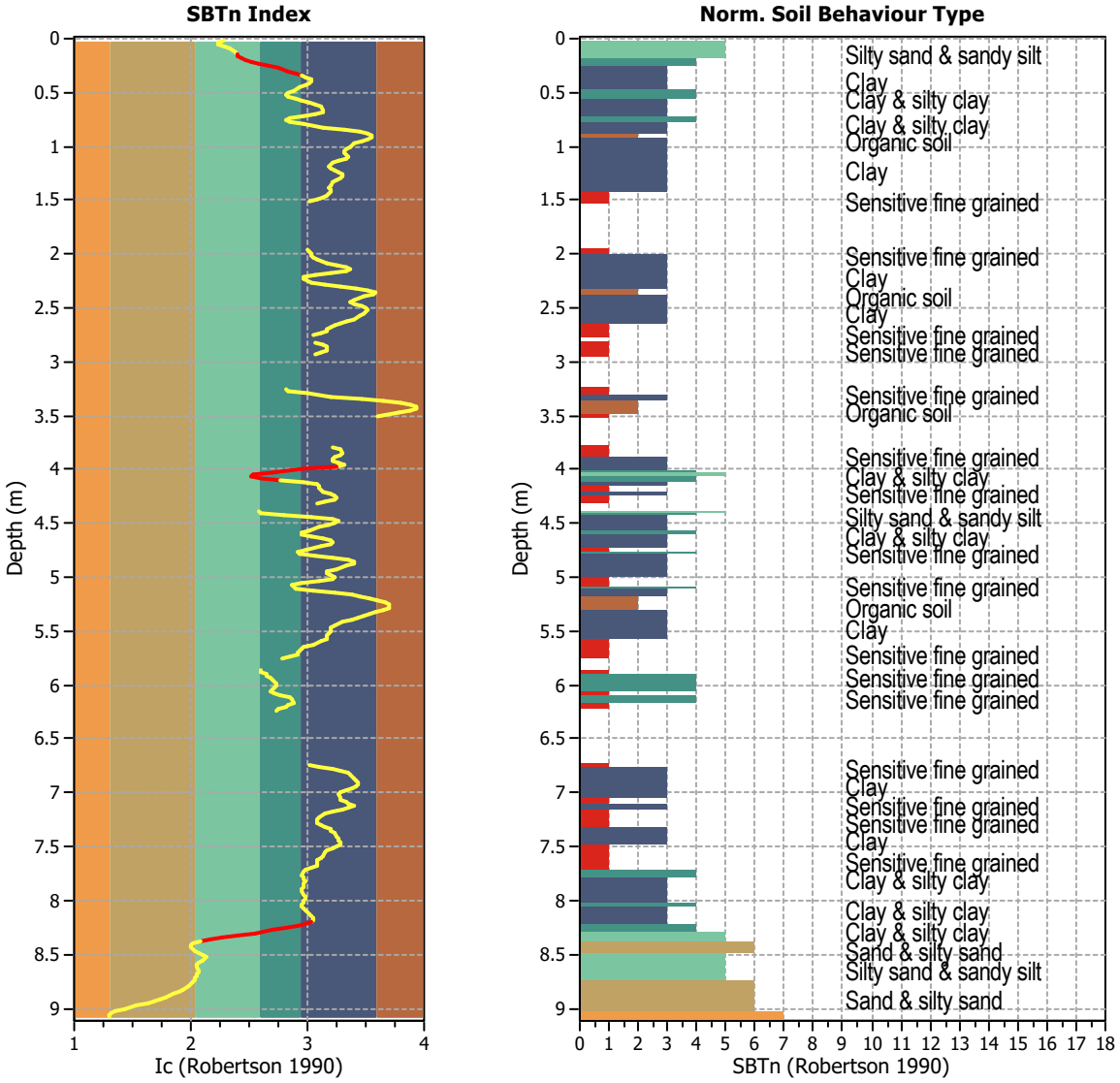
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



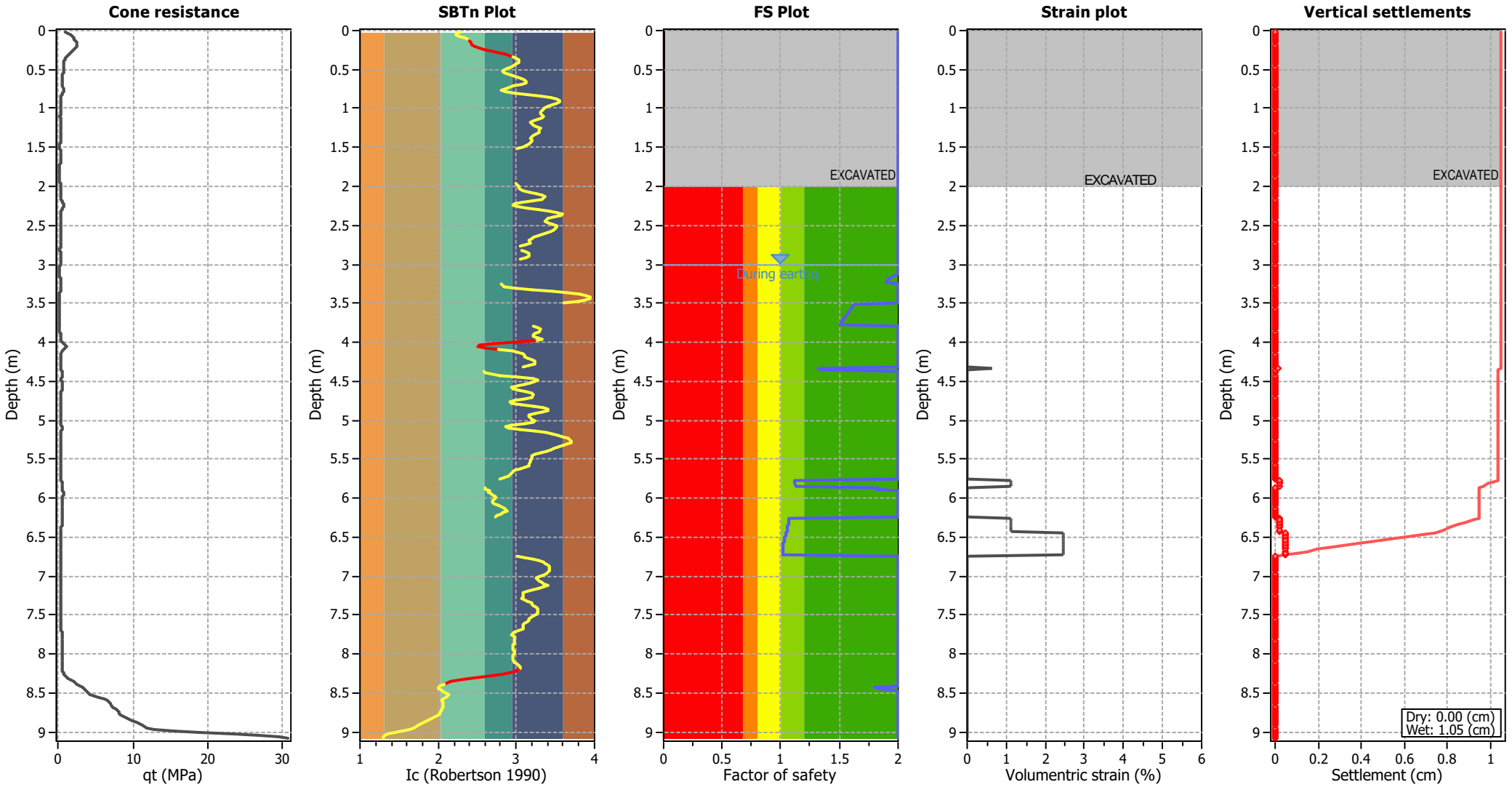
Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	454
Total points excluded:	29
Exclusion percentage:	6.39%
Number of layers detected:	4

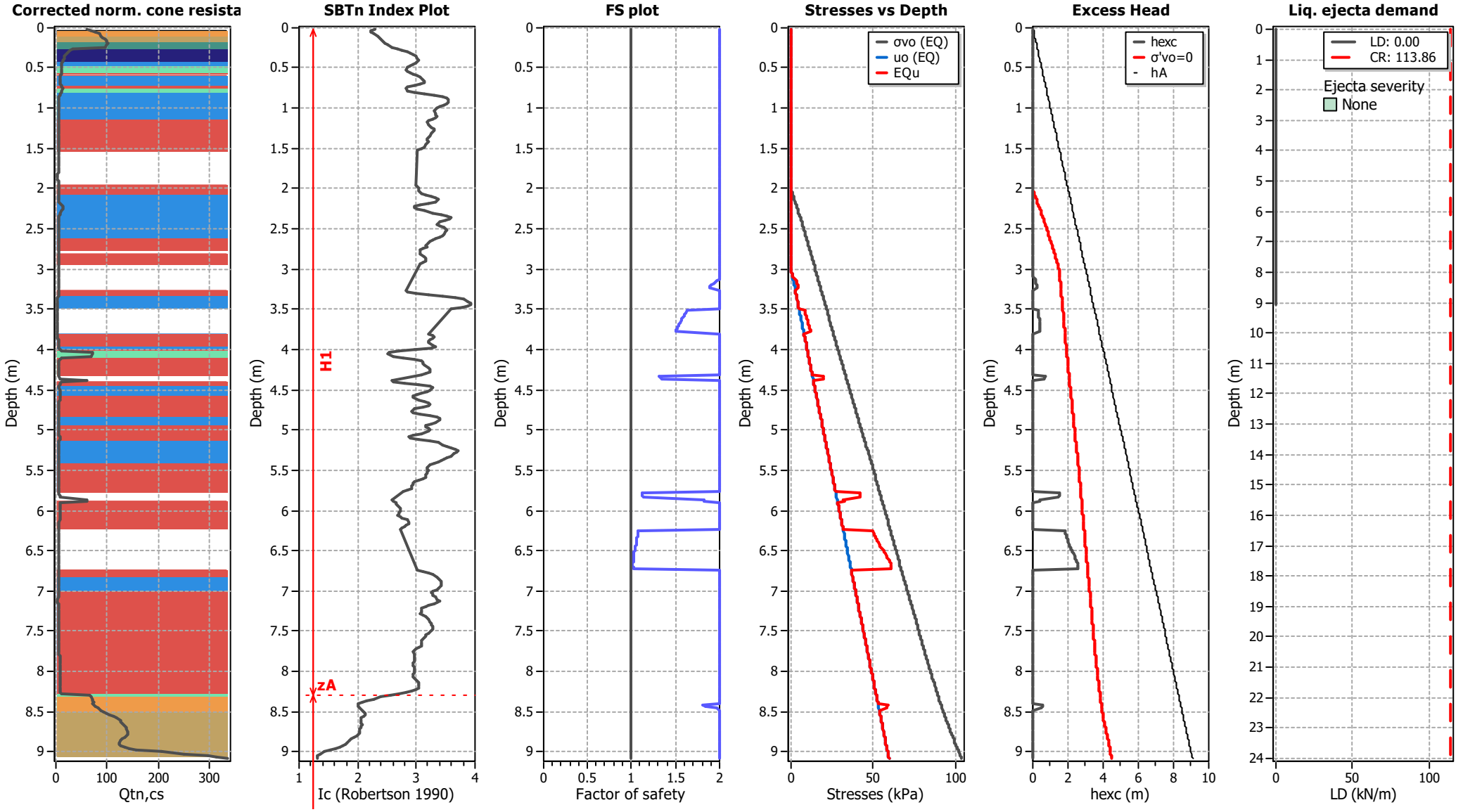
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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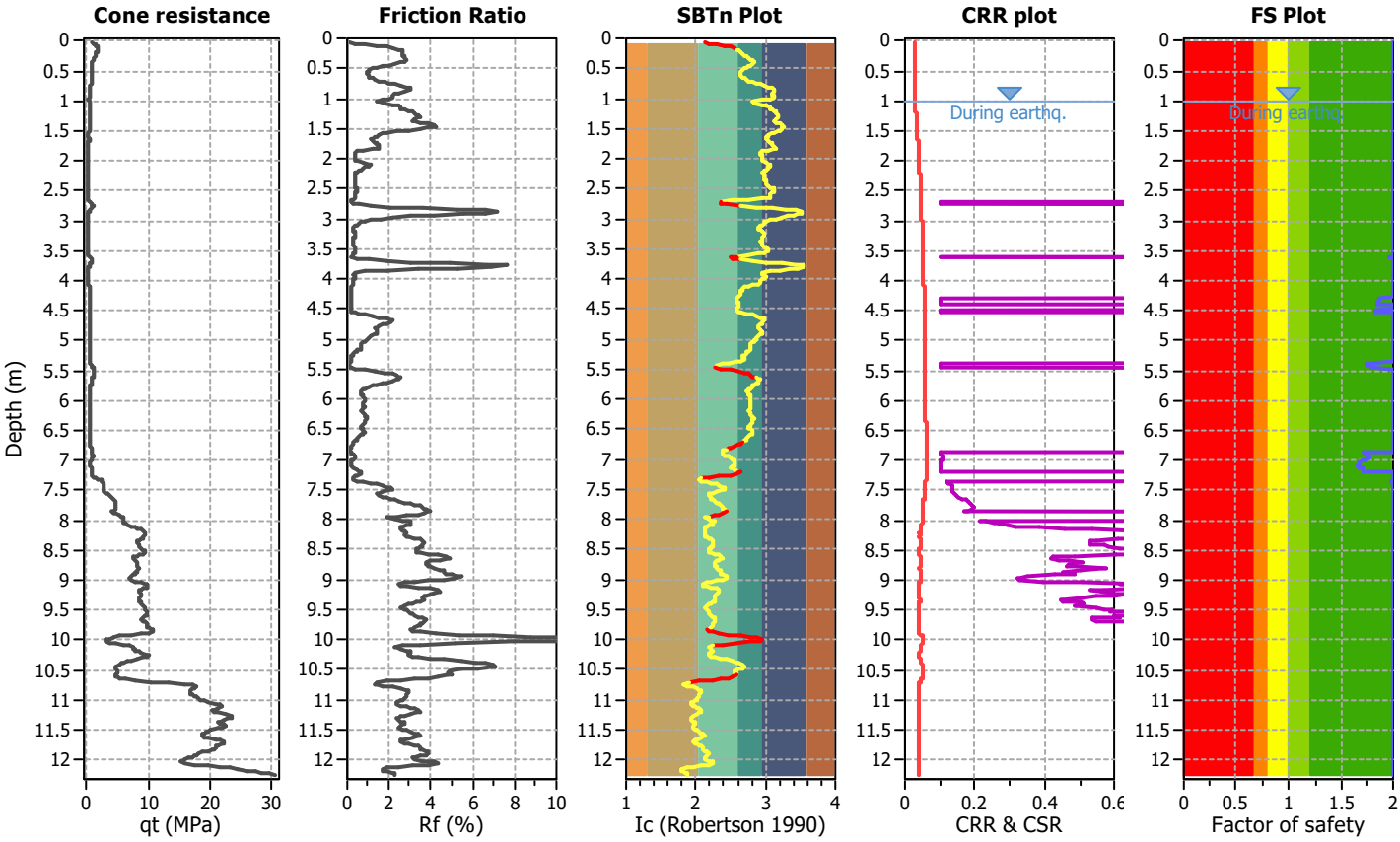
LIQUEFACTION ANALYSIS REPORT

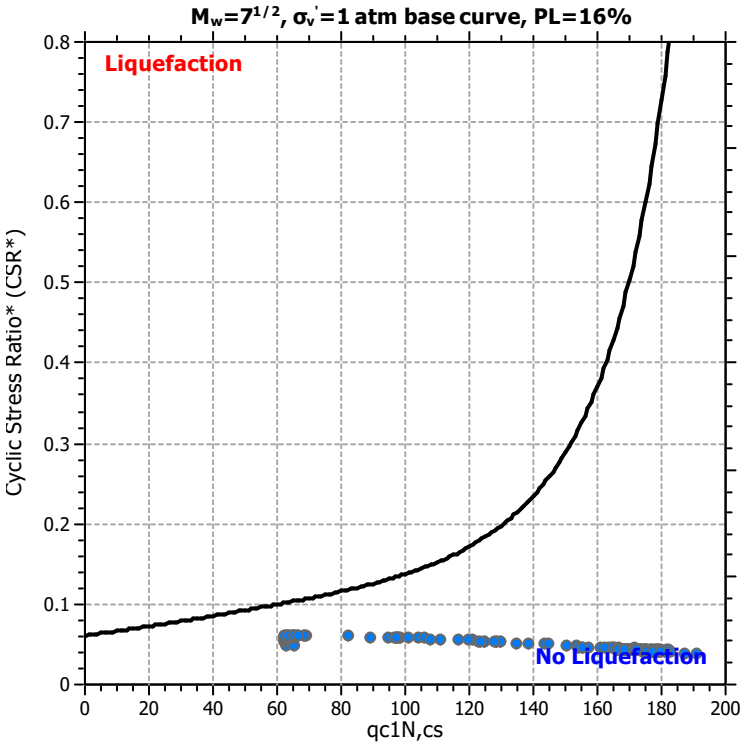
Project title : Sunfield Landholding **Location :**

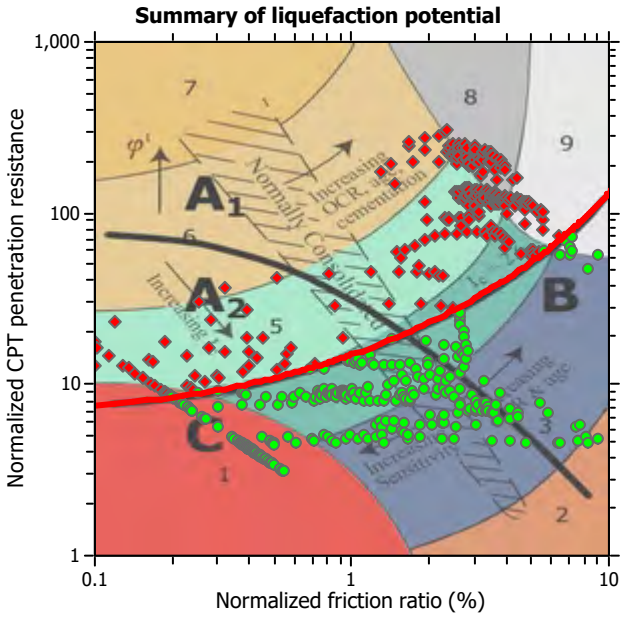
CPT file : CPT106

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.00 m	Excavation depth:	0.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

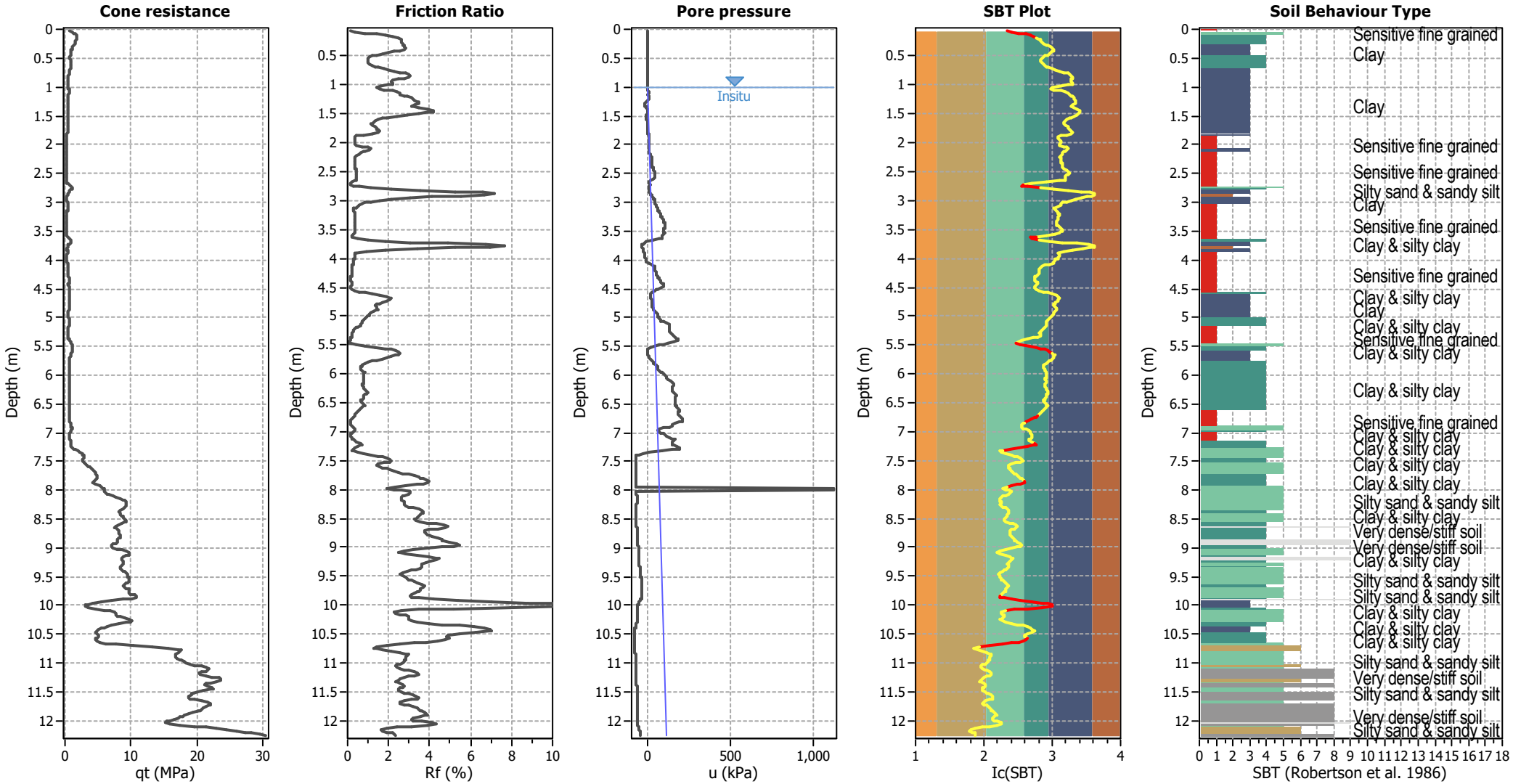






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



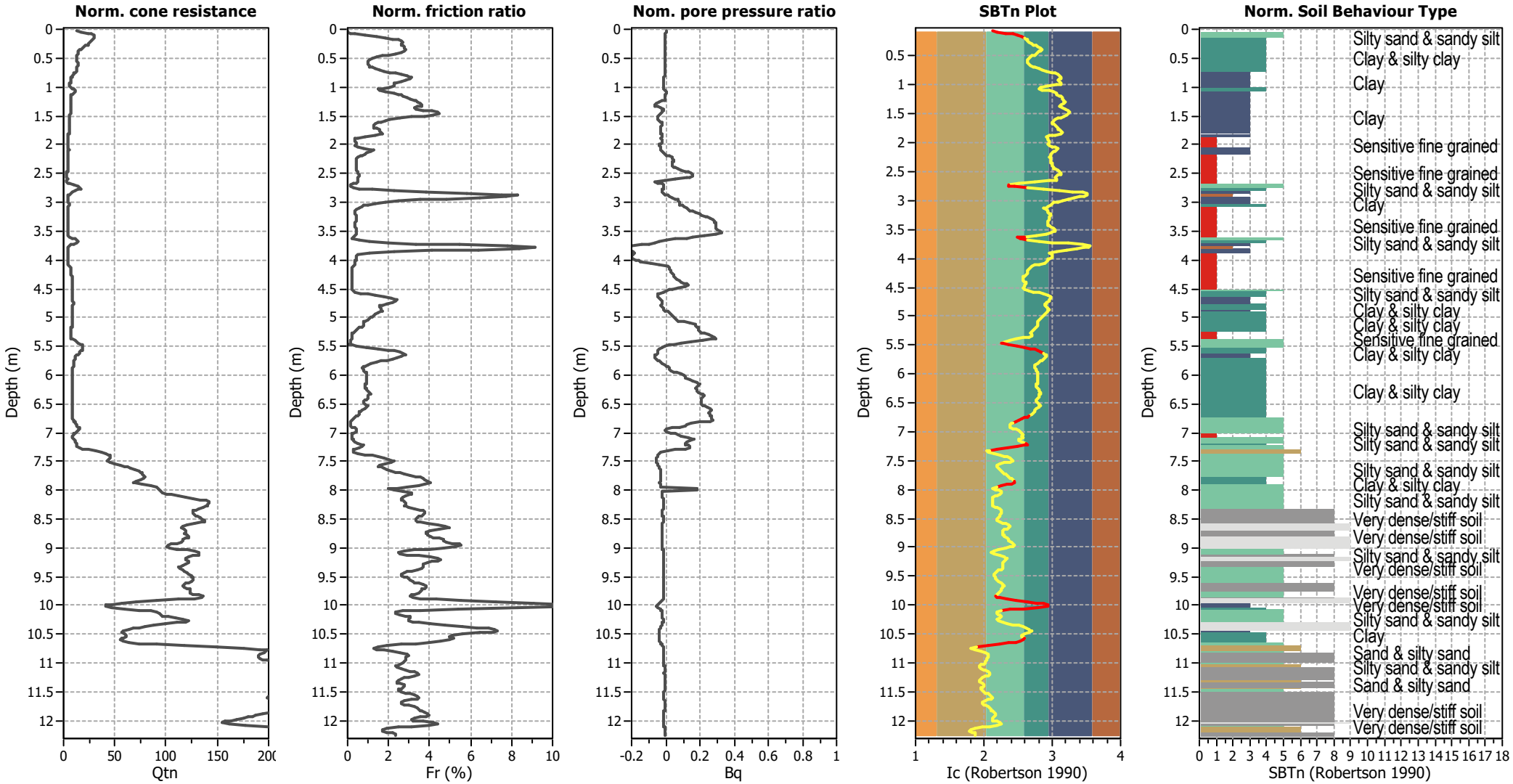
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



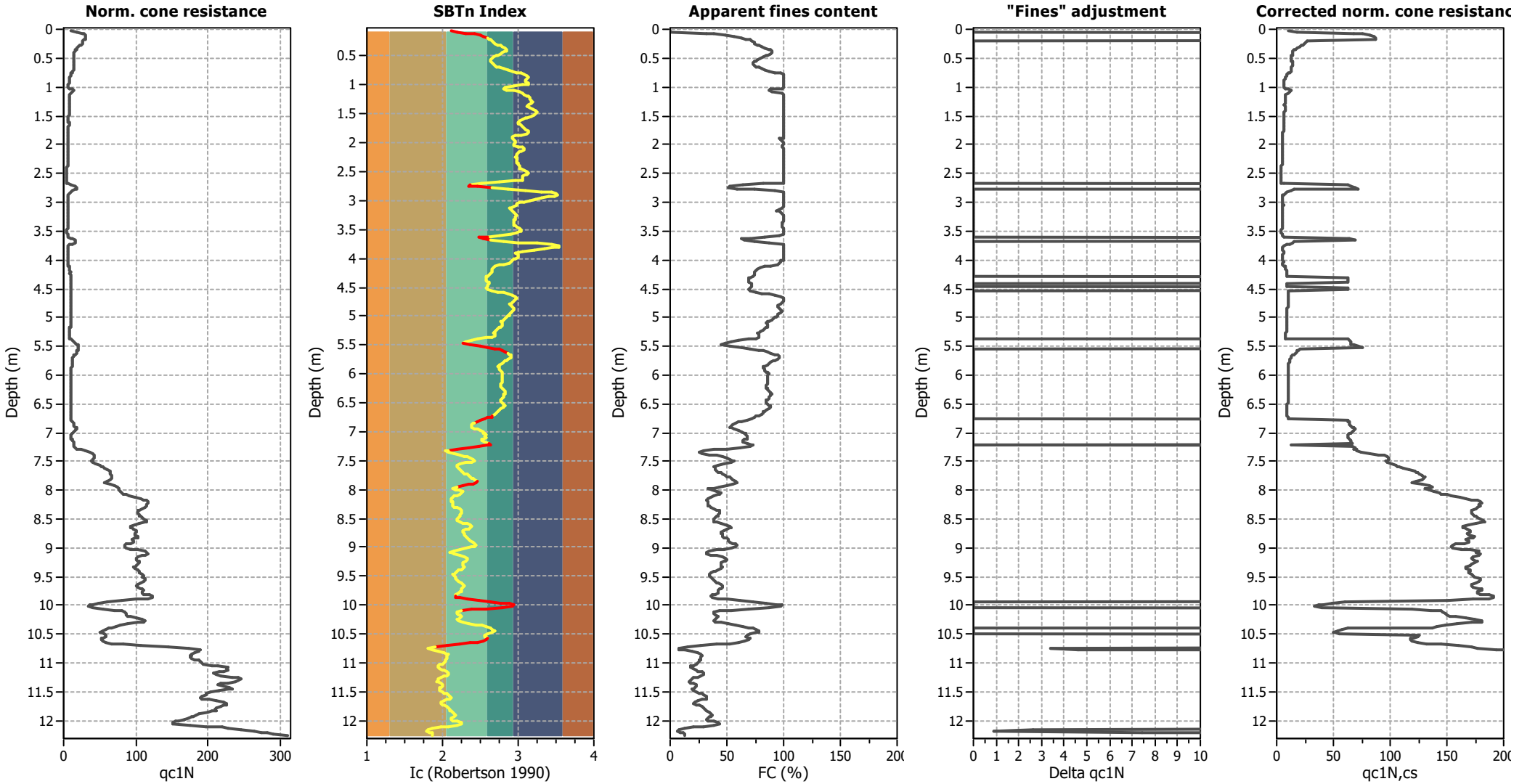
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBTn legend

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

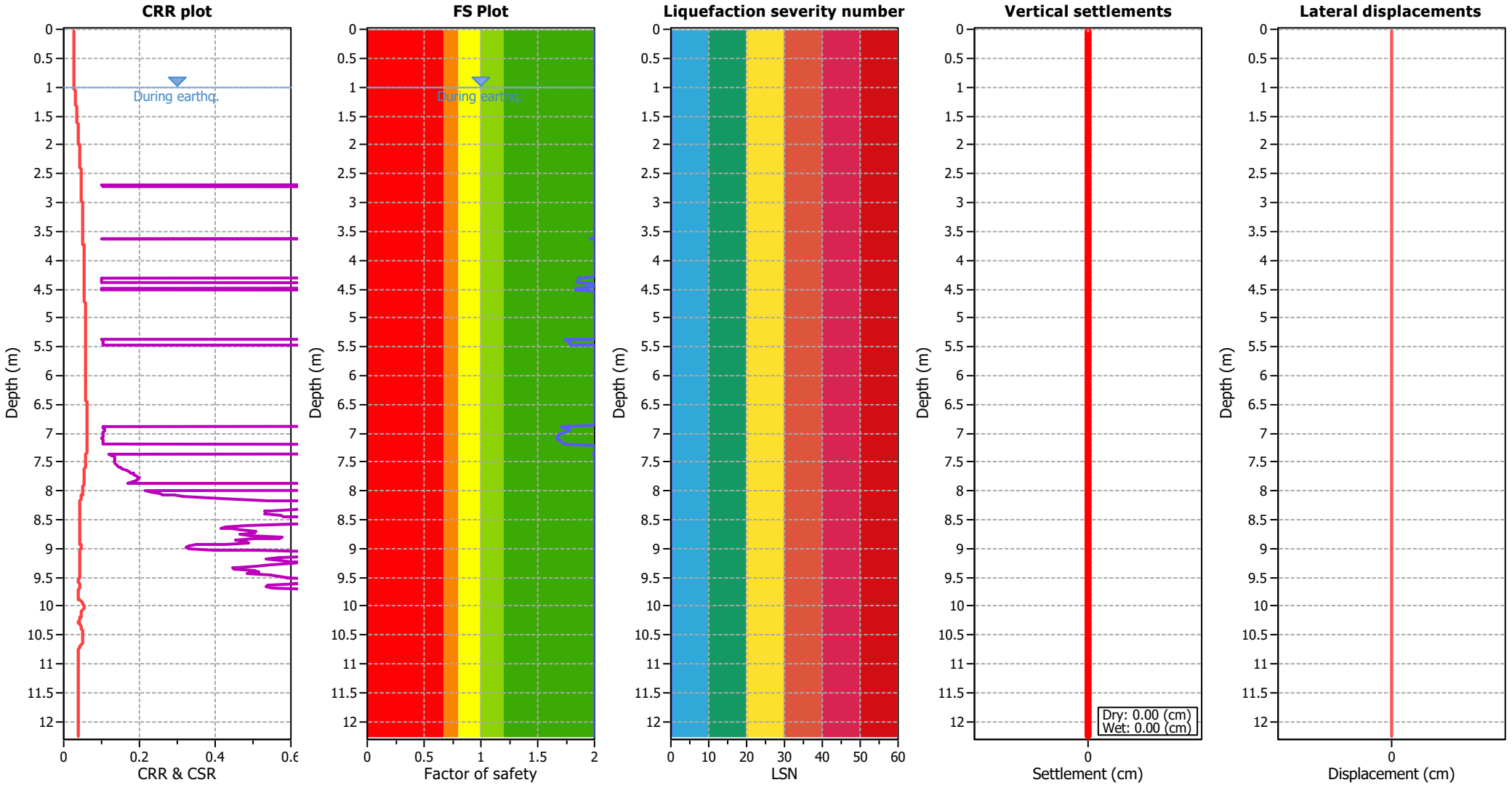
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

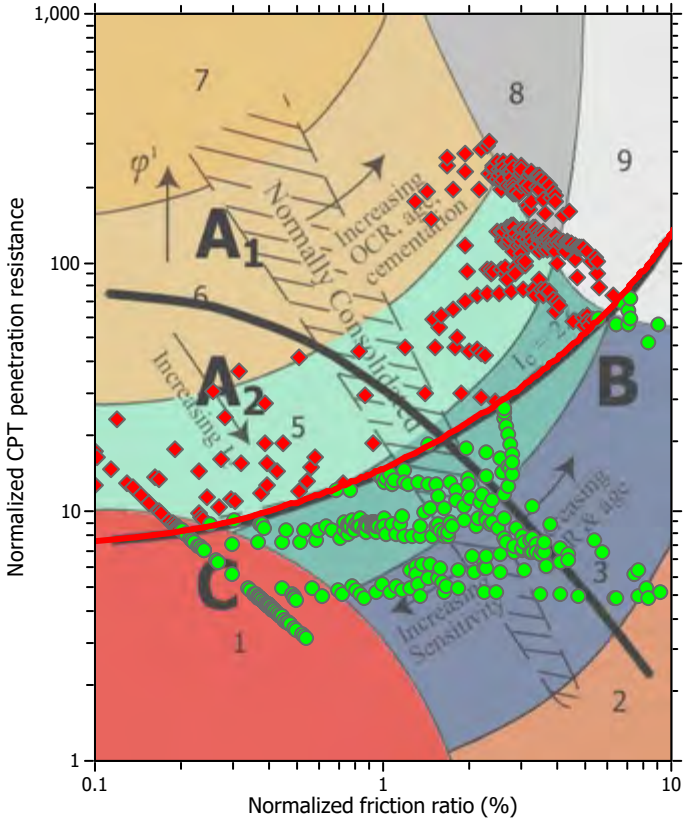
F.S. color scheme

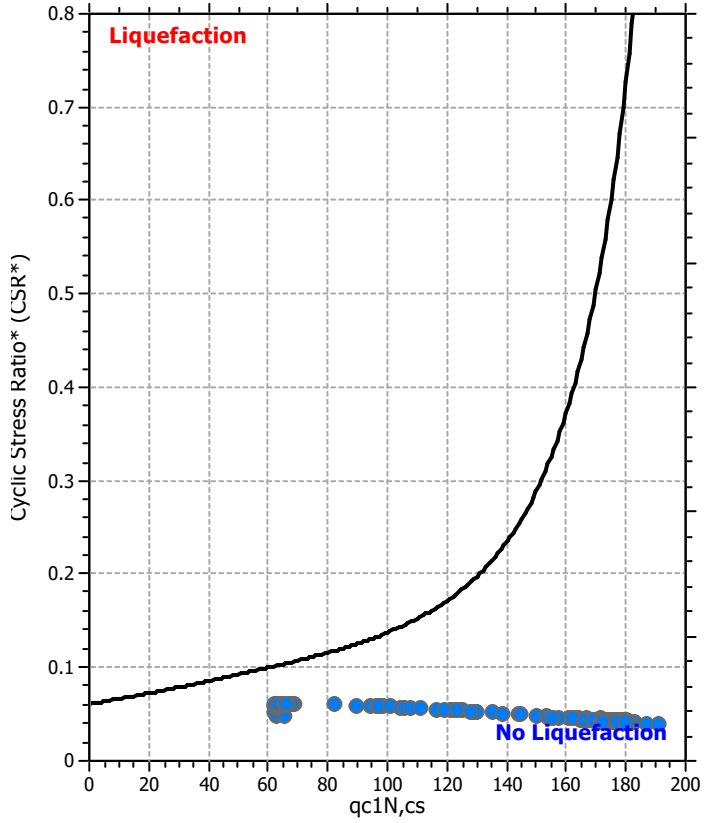
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

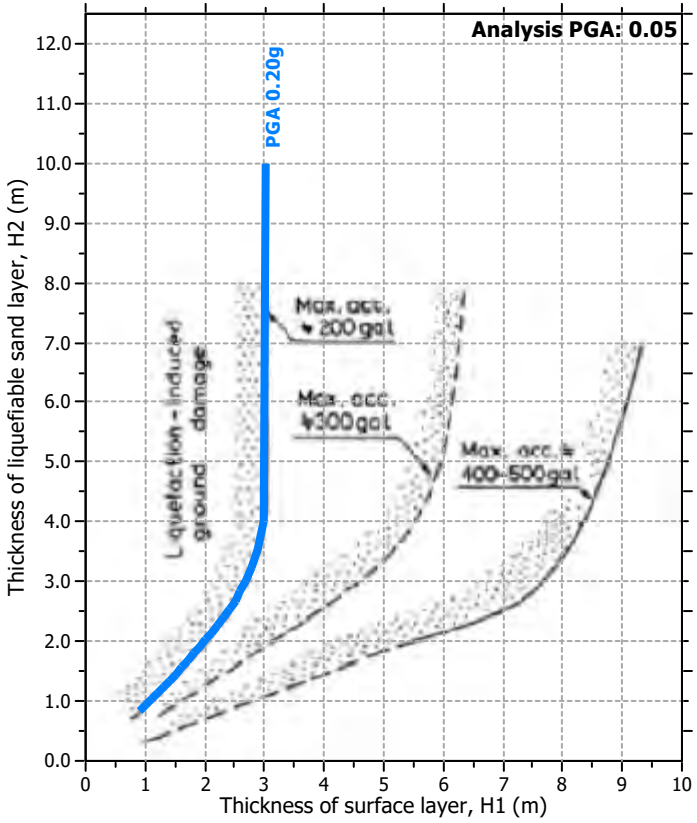
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



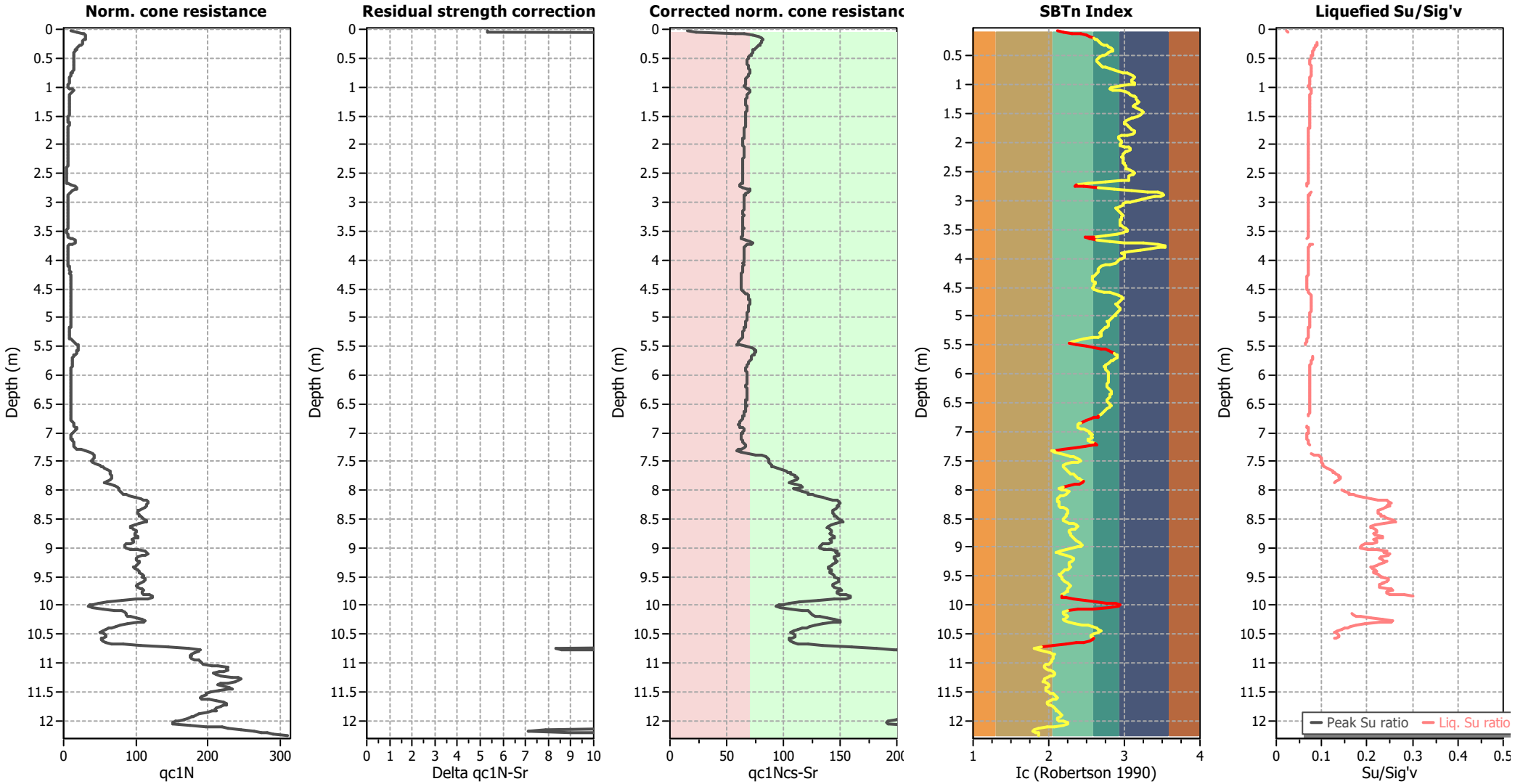




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

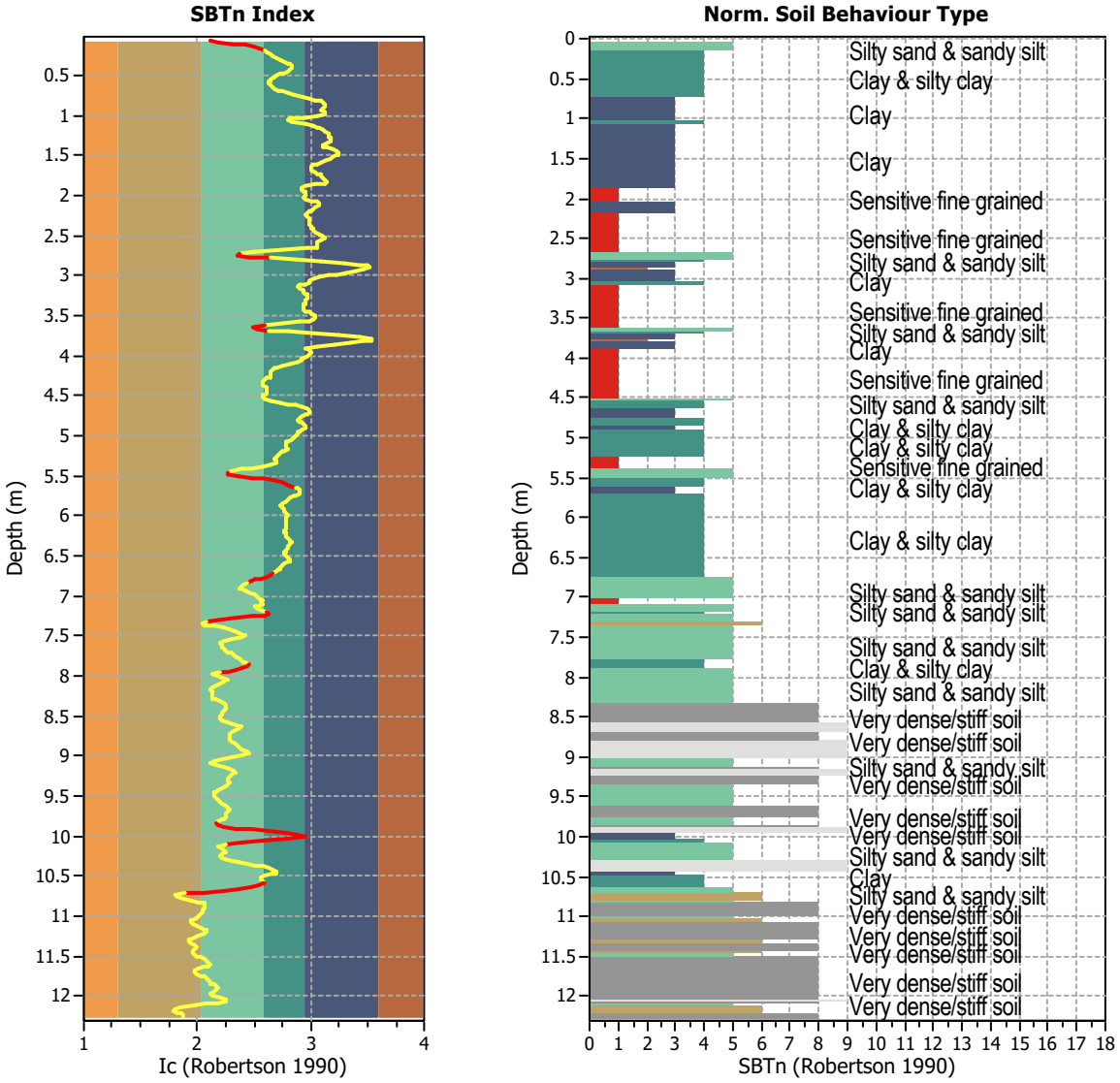
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

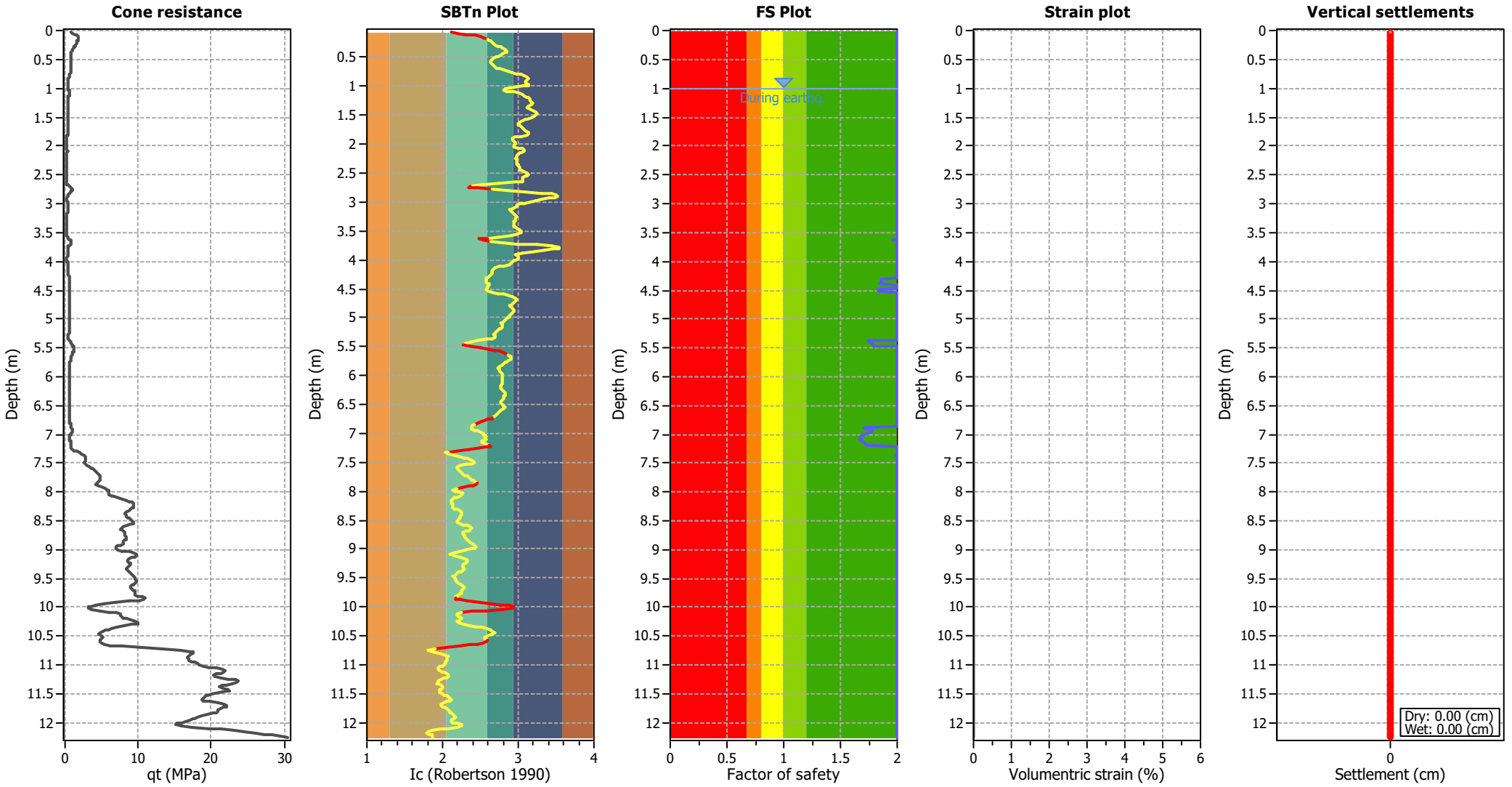
The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties	
I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics	
Total points in CPT file:	613
Total points excluded:	68
Exclusion percentage:	11.09%
Number of layers detected:	10

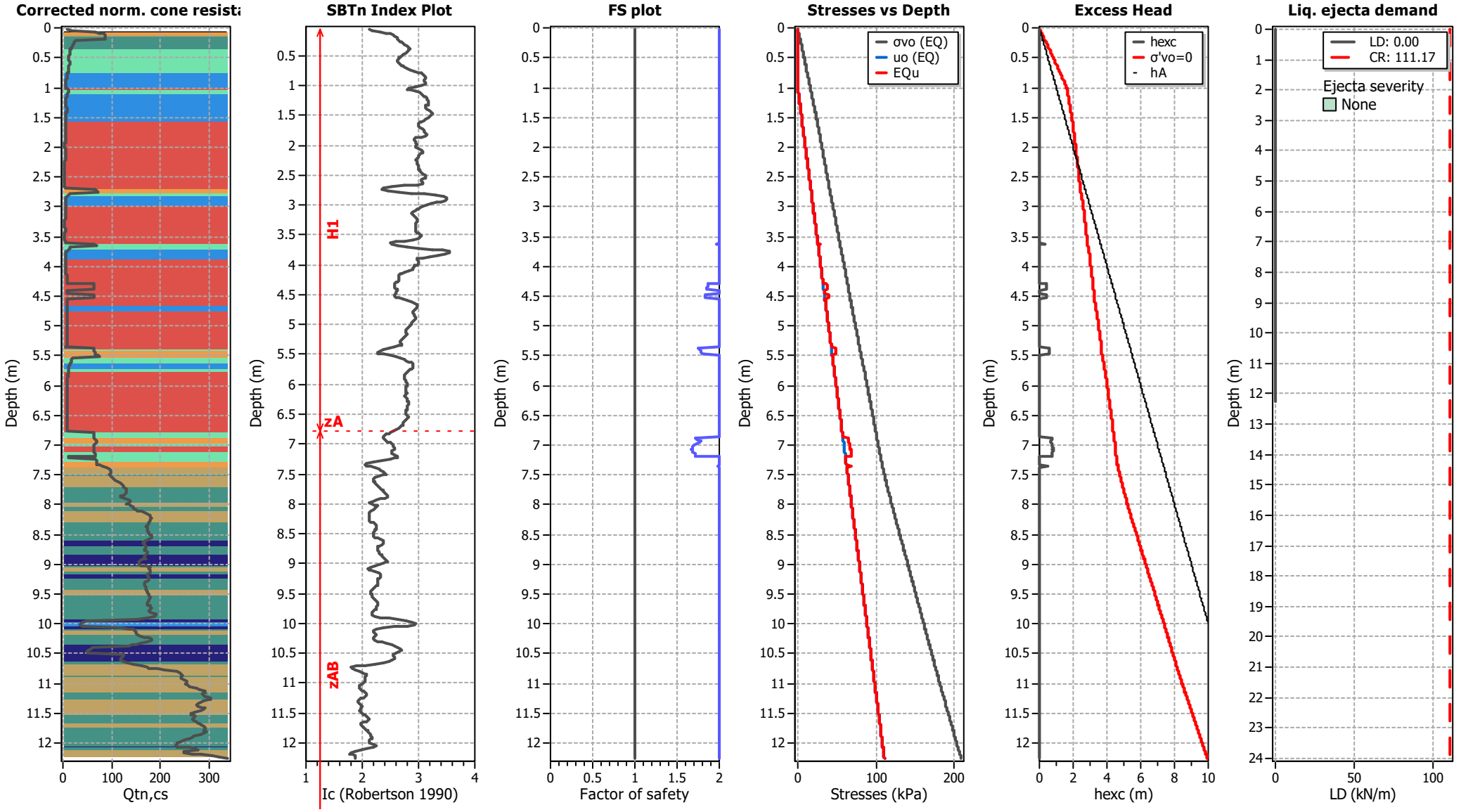
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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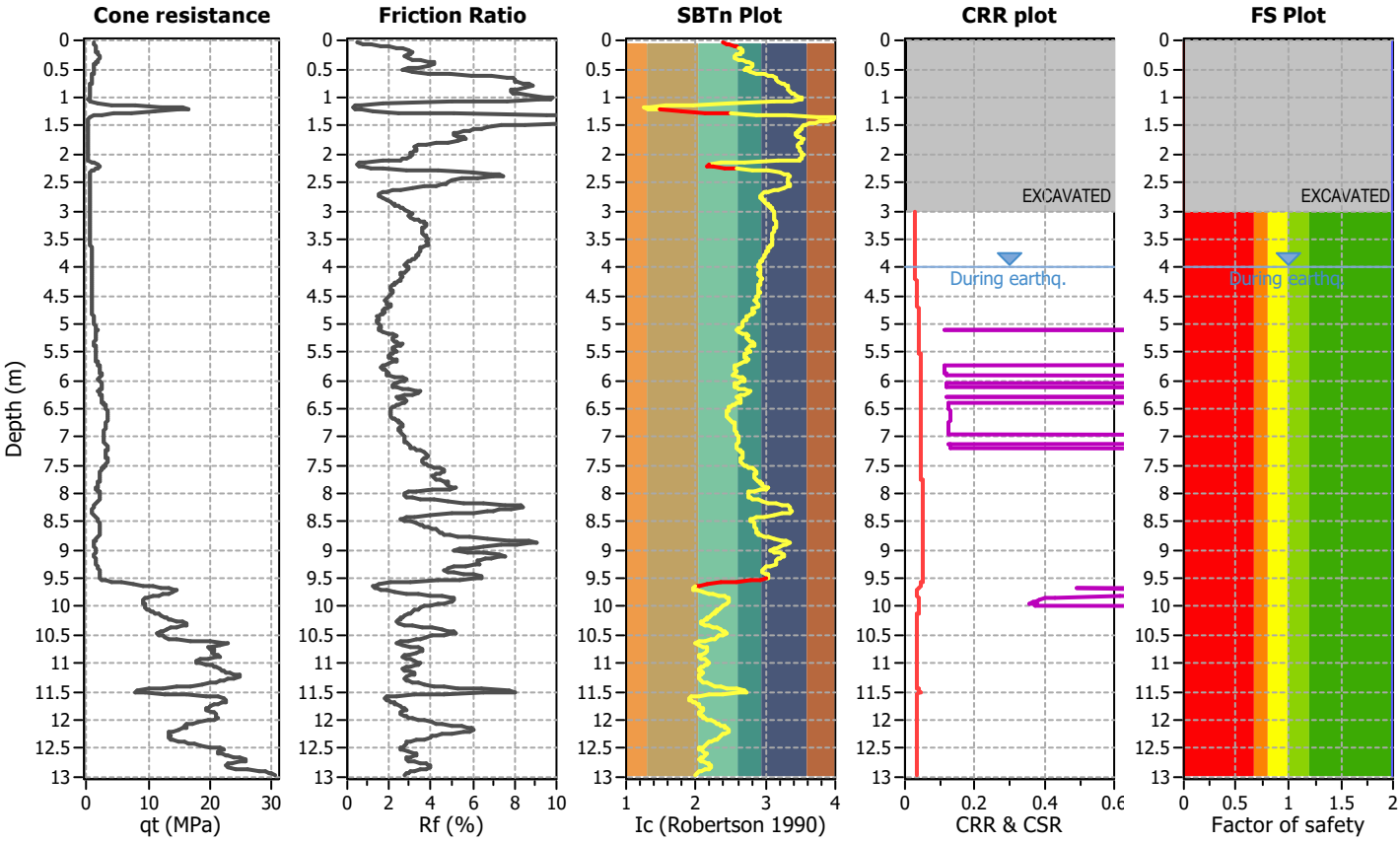
LIQUEFACTION ANALYSIS REPORT

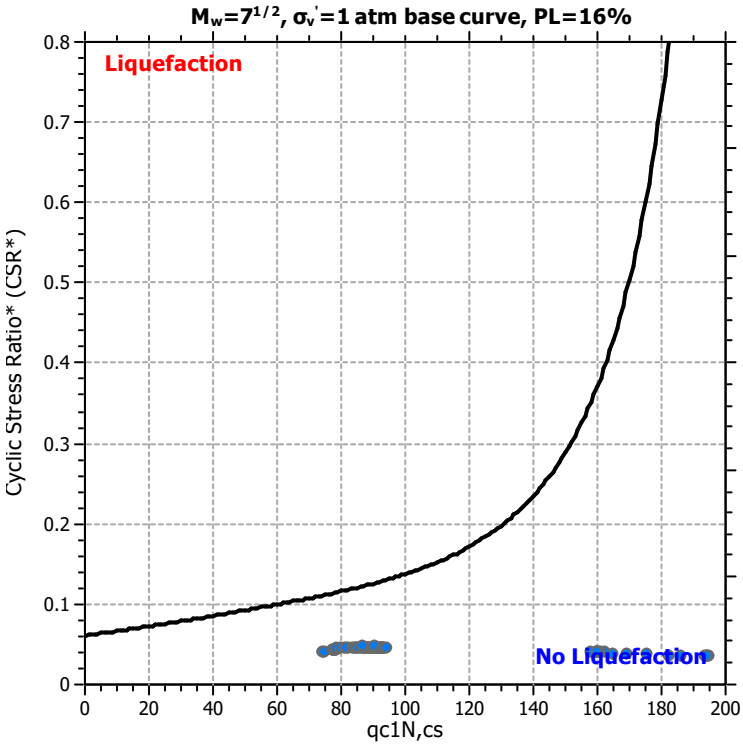
Project title : Sunfield Landholding **Location :**

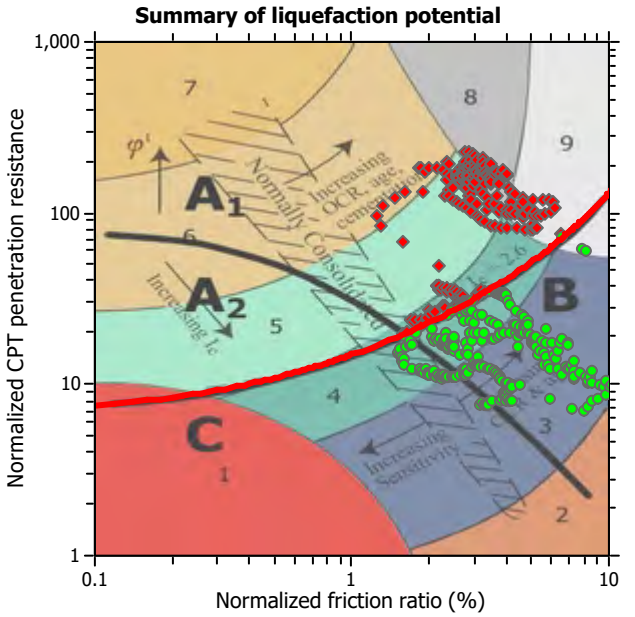
CPT file : CPT107

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	4.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	4.00 m	Excavation depth:	3.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

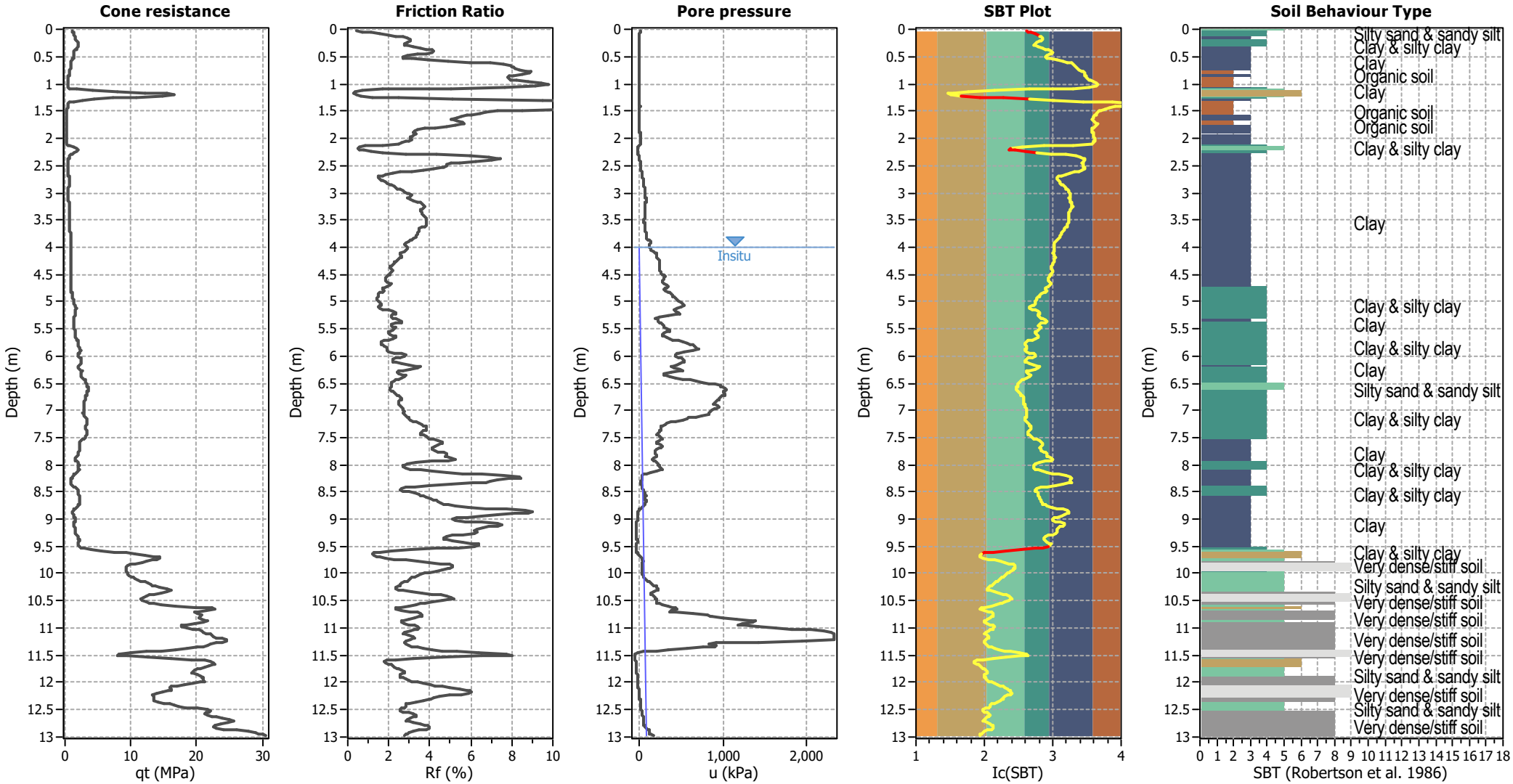






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



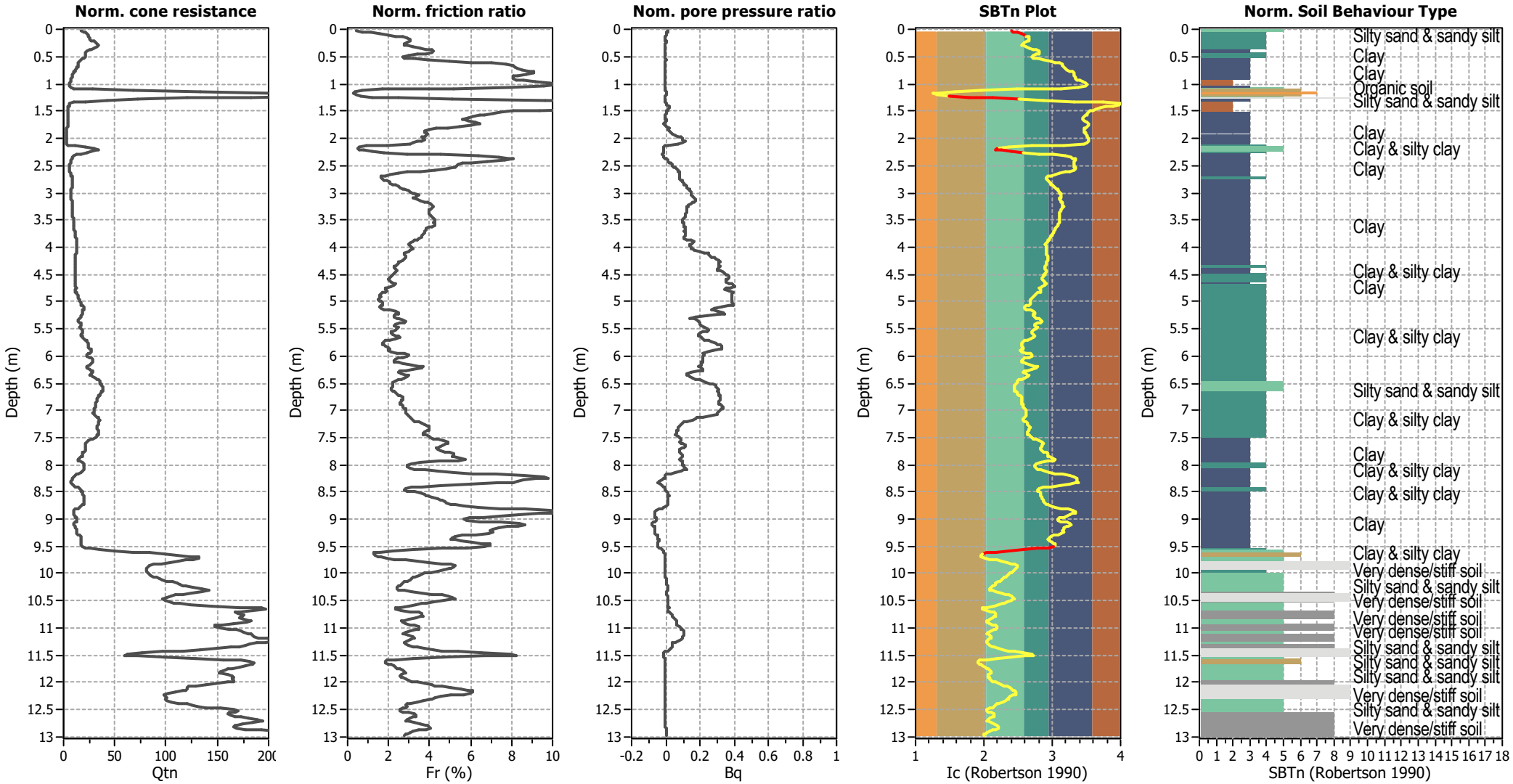
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



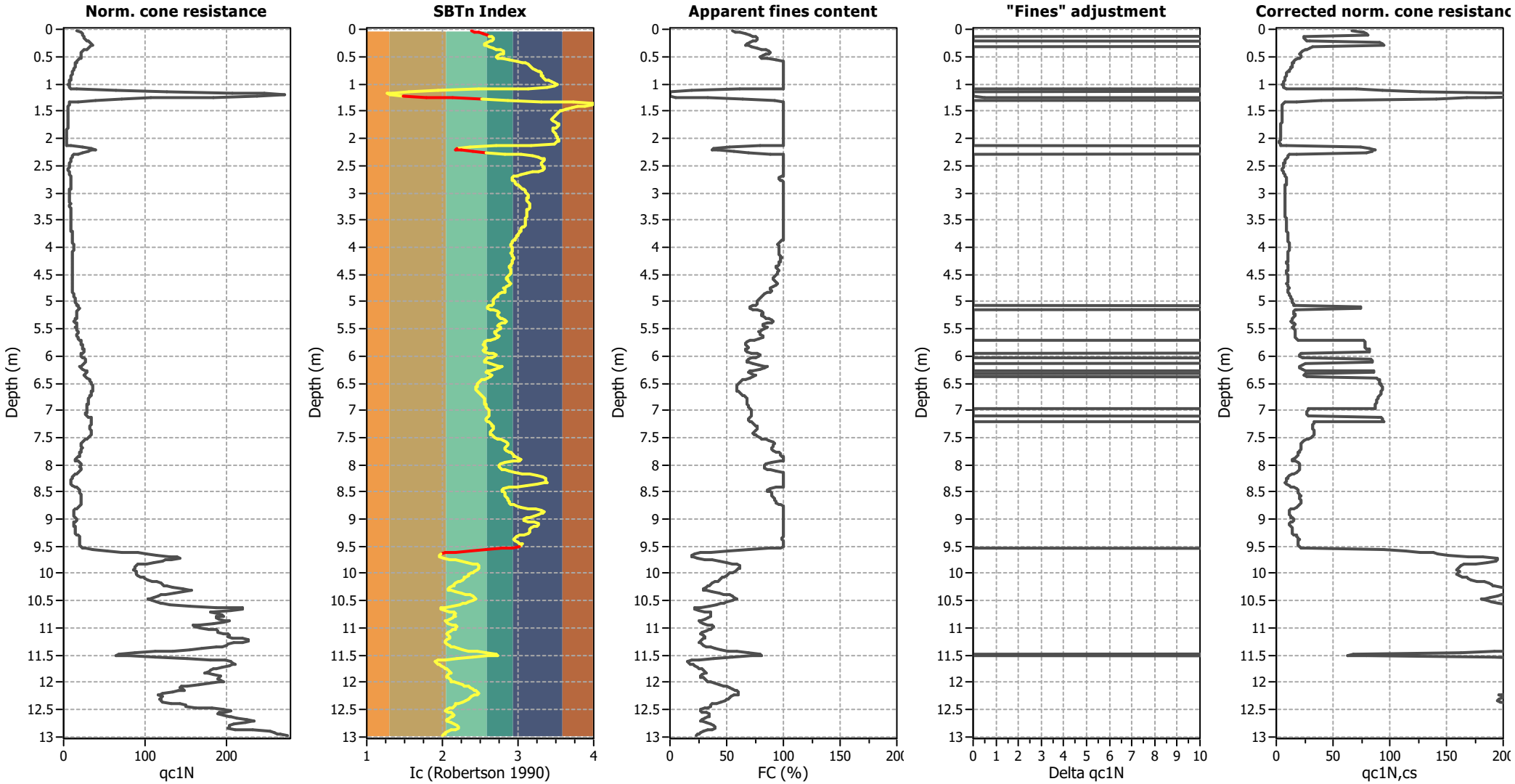
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

SBTn legend

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

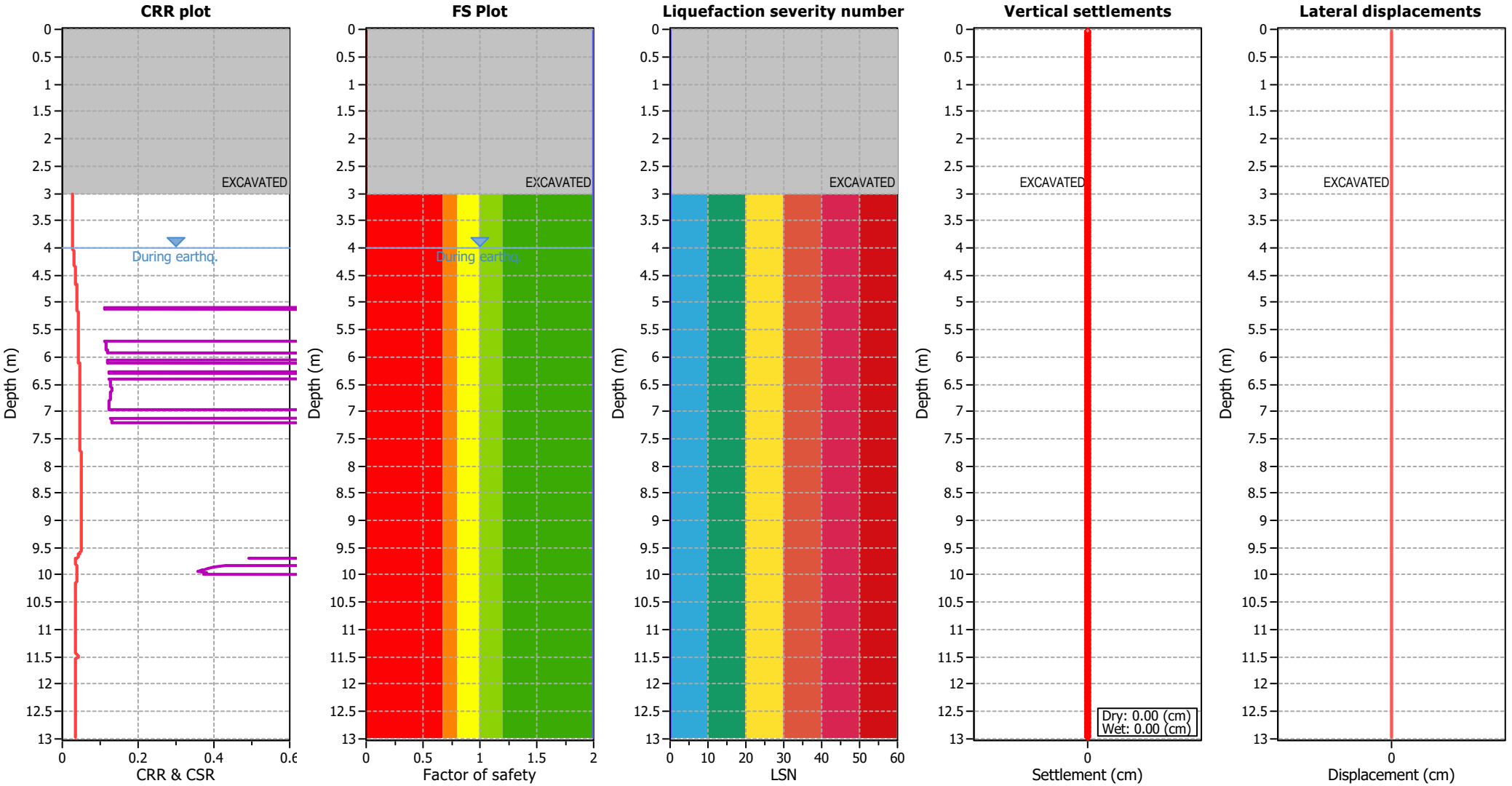
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

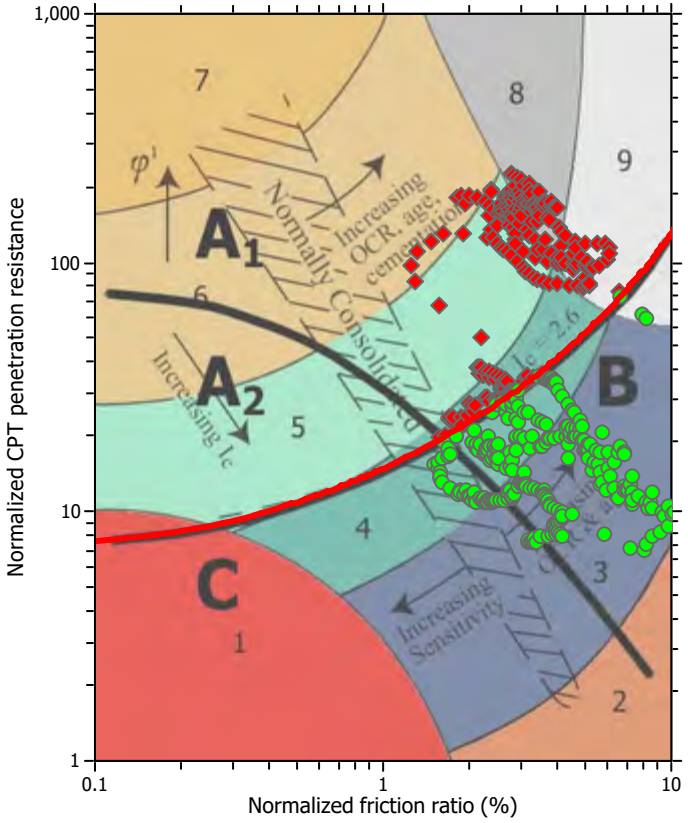
F.S. color scheme

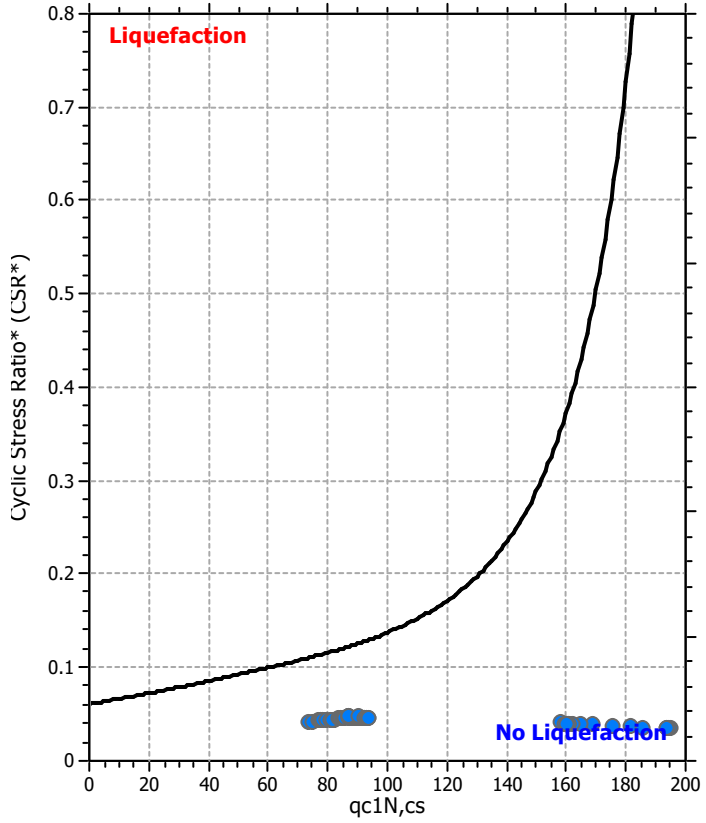
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

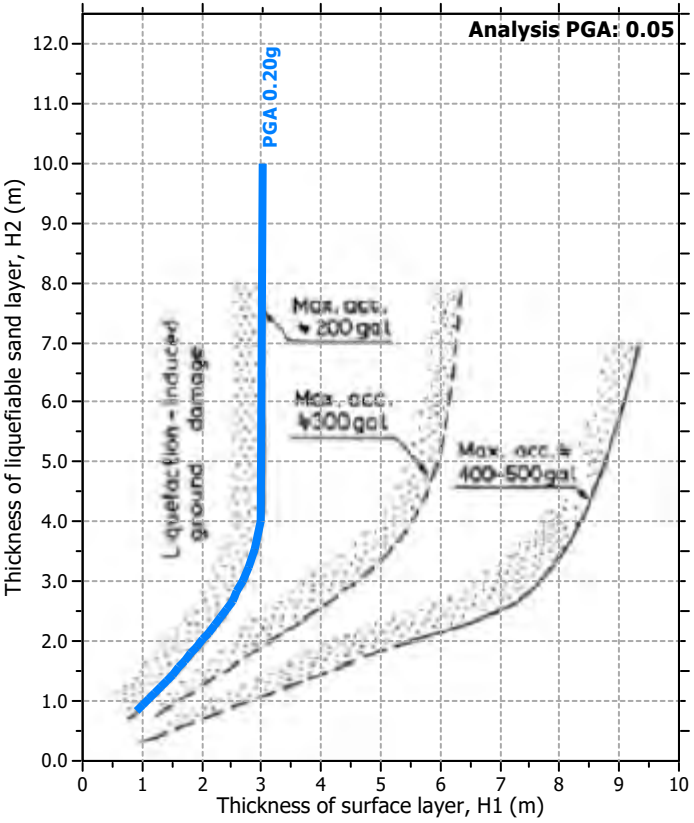
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



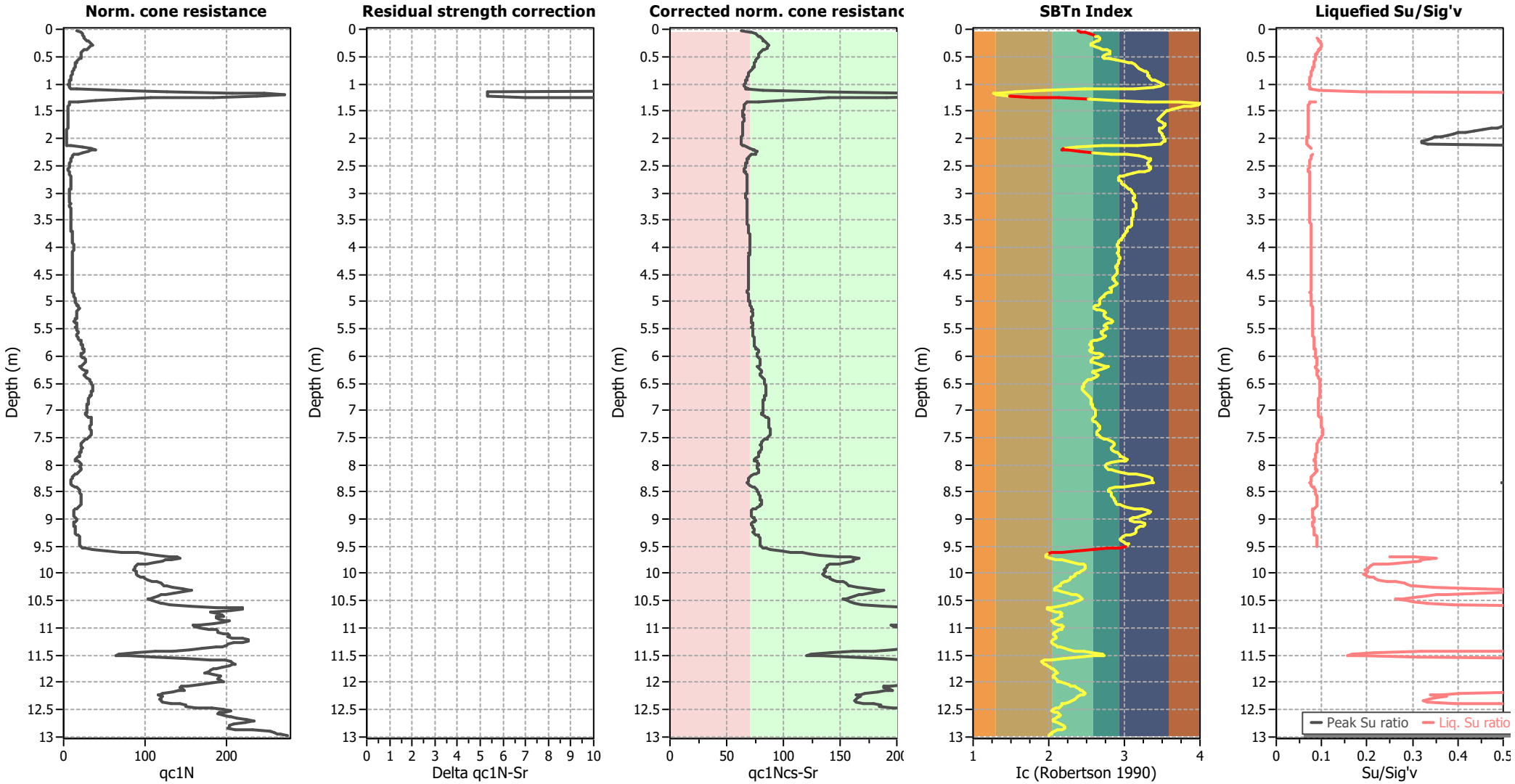




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

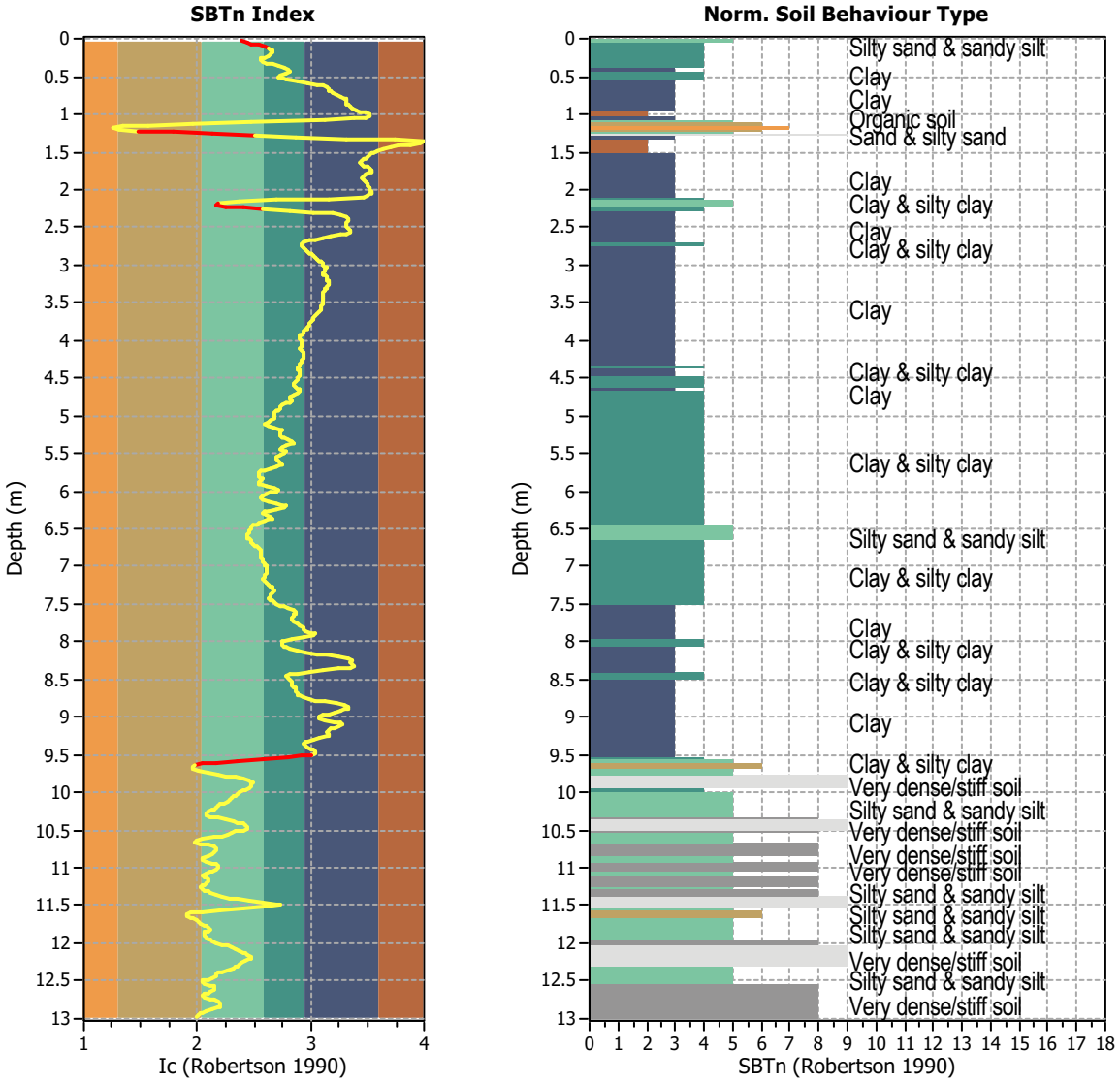
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

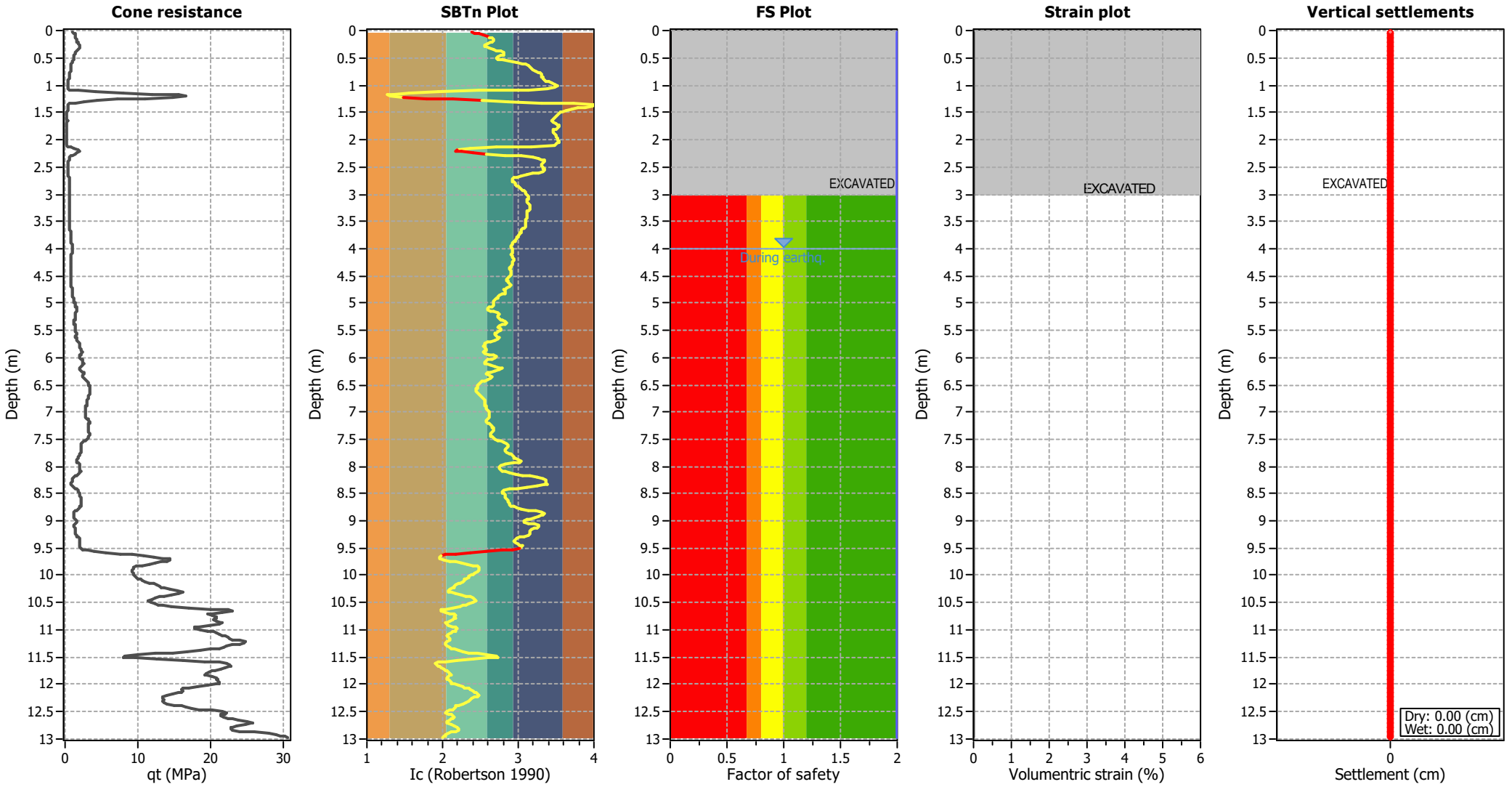
The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties	
I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics	
Total points in CPT file:	649
Total points excluded:	24
Exclusion percentage:	3.70%
Number of layers detected:	4

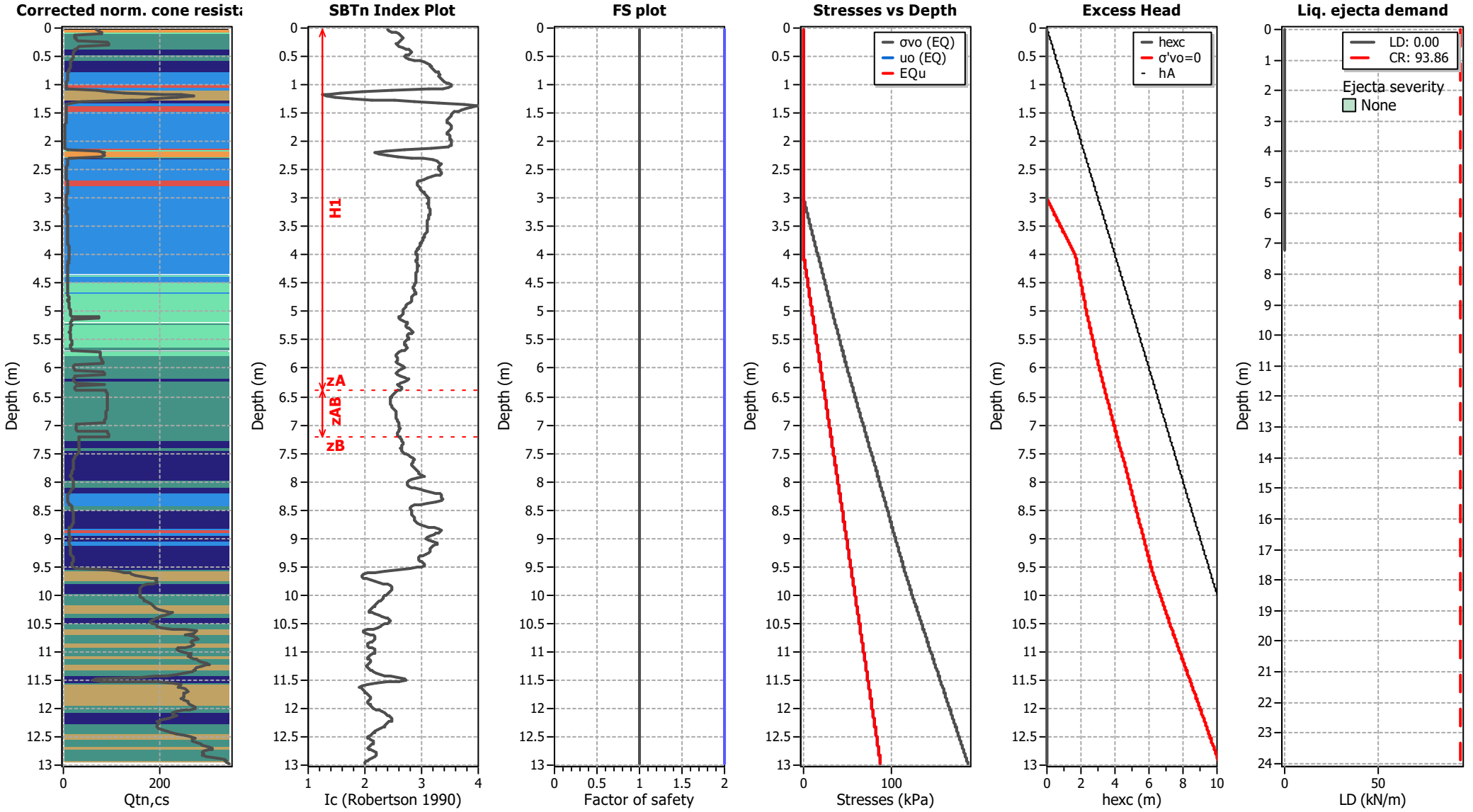
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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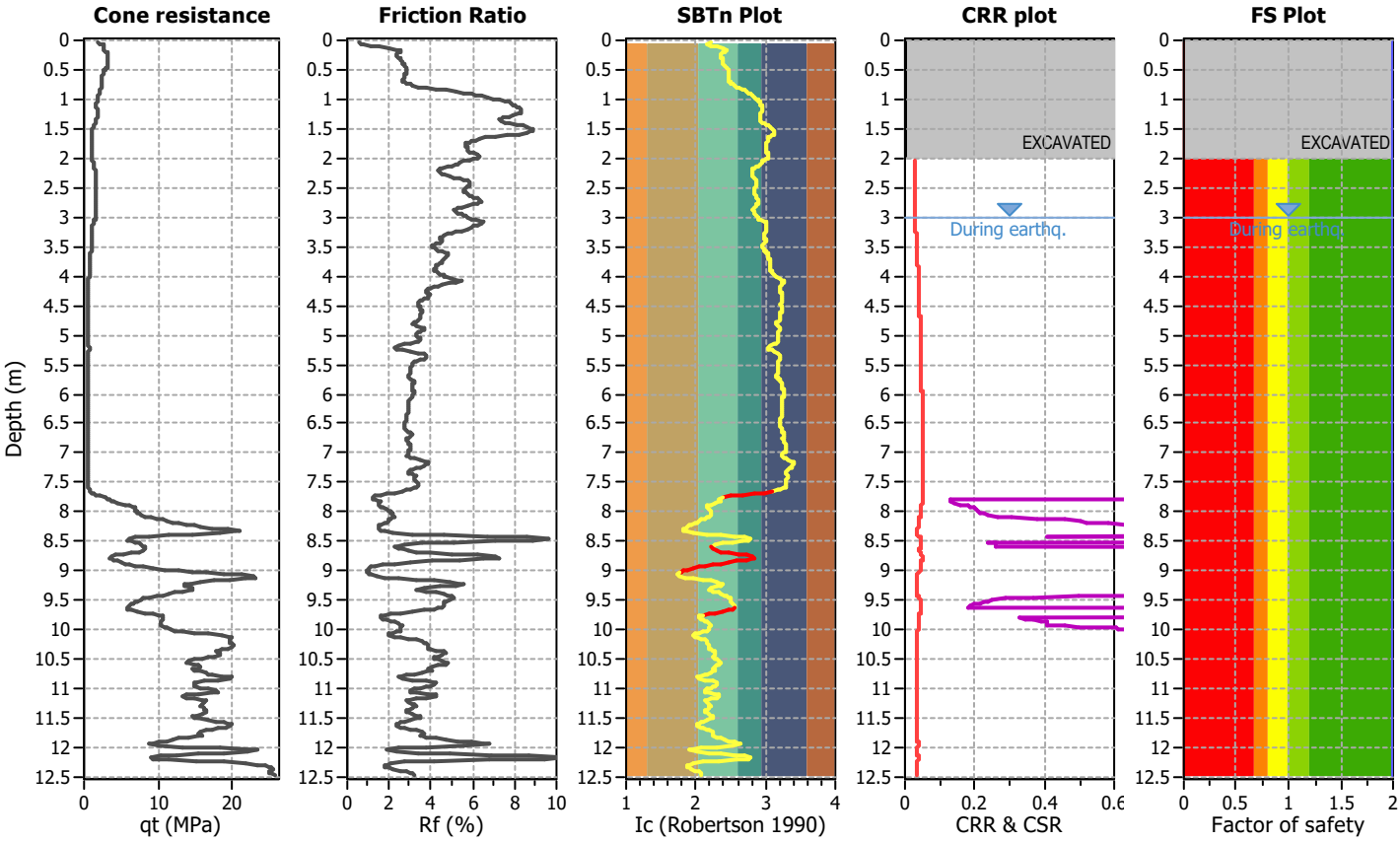
LIQUEFACTION ANALYSIS REPORT

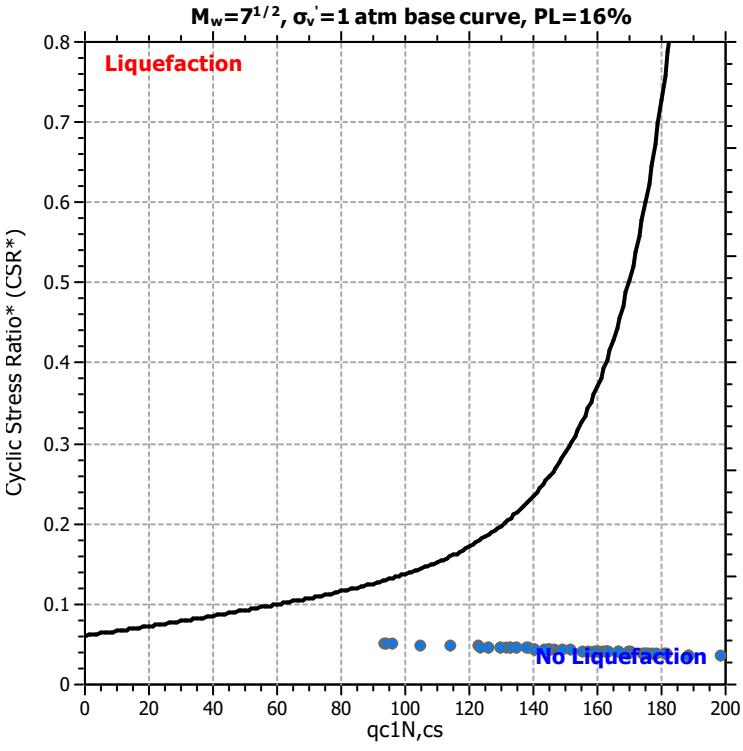
Project title : Sunfield Landholding **Location :**

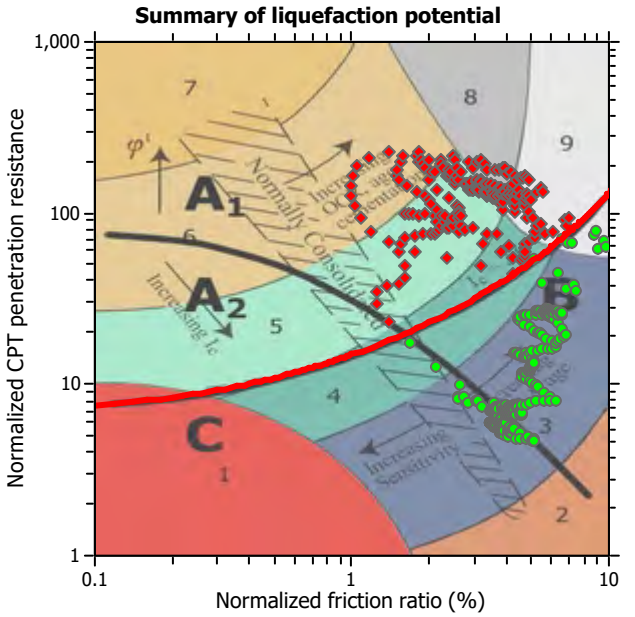
CPT file : CPT108

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.00 m	Excavation depth:	2.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

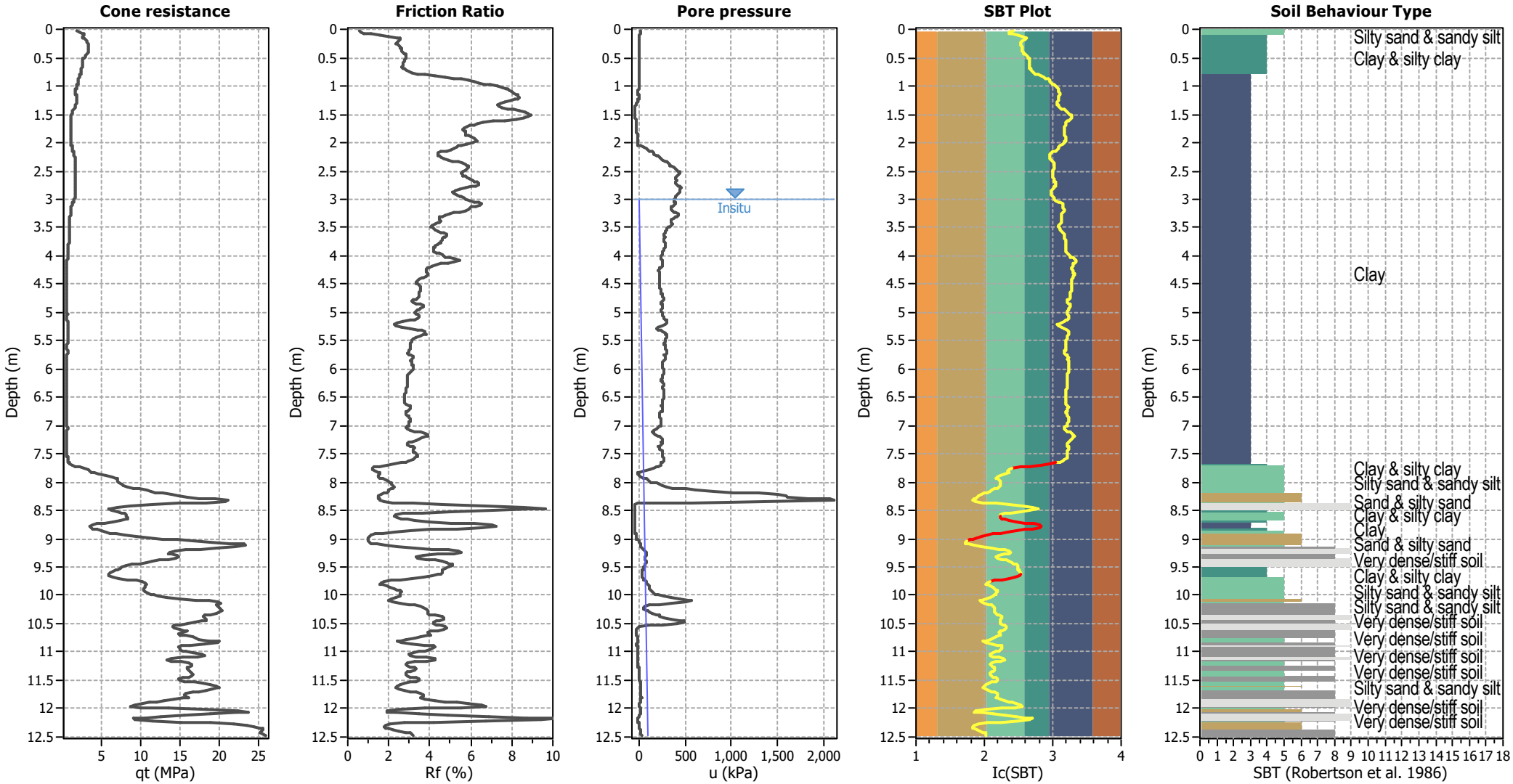






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



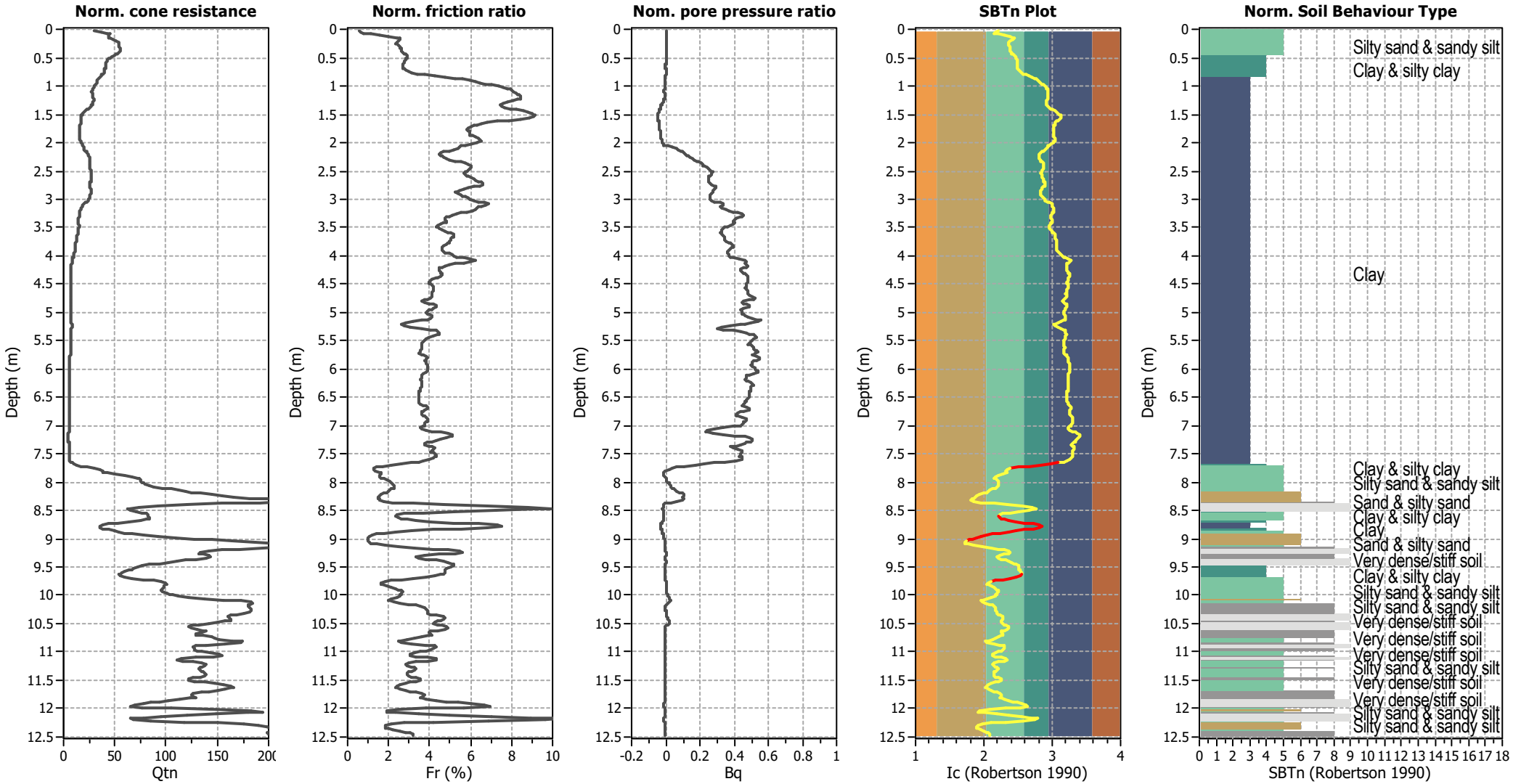
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



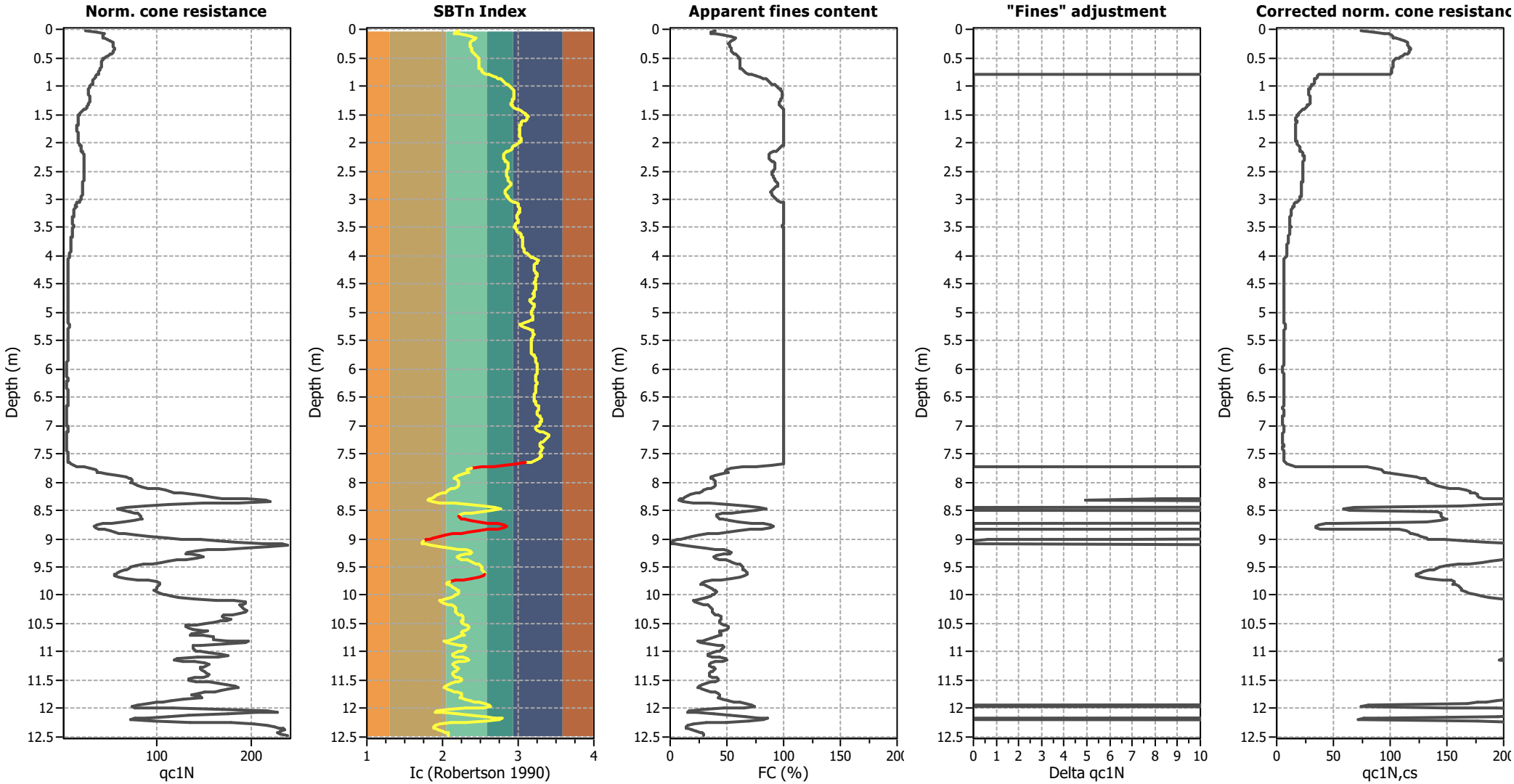
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

SBTn legend

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

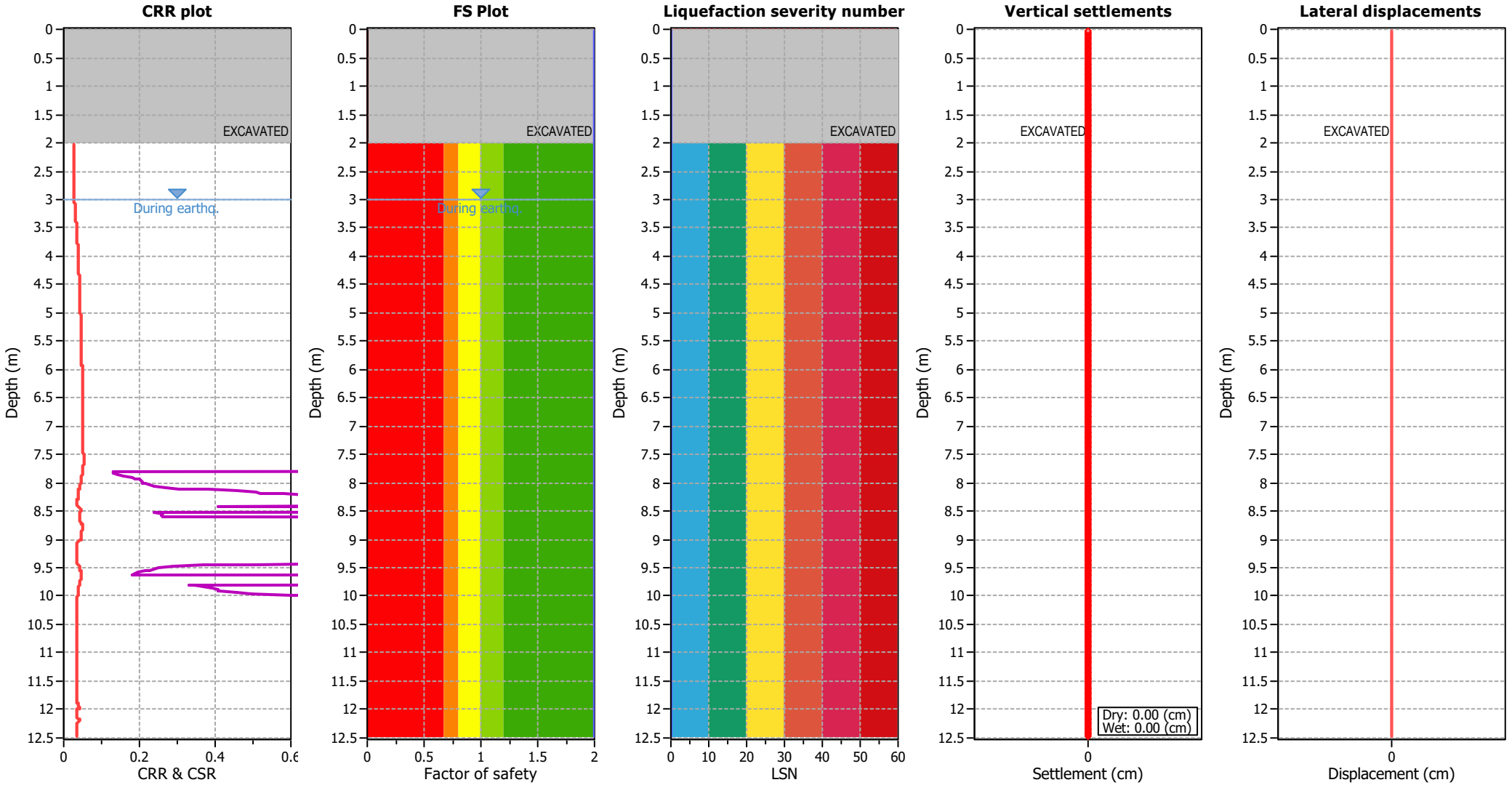
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

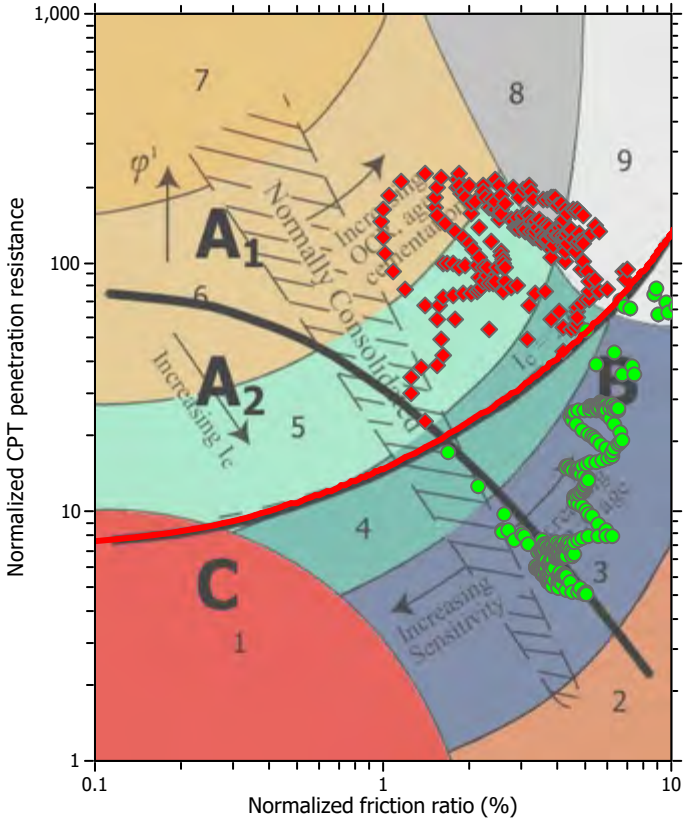
F.S. color scheme

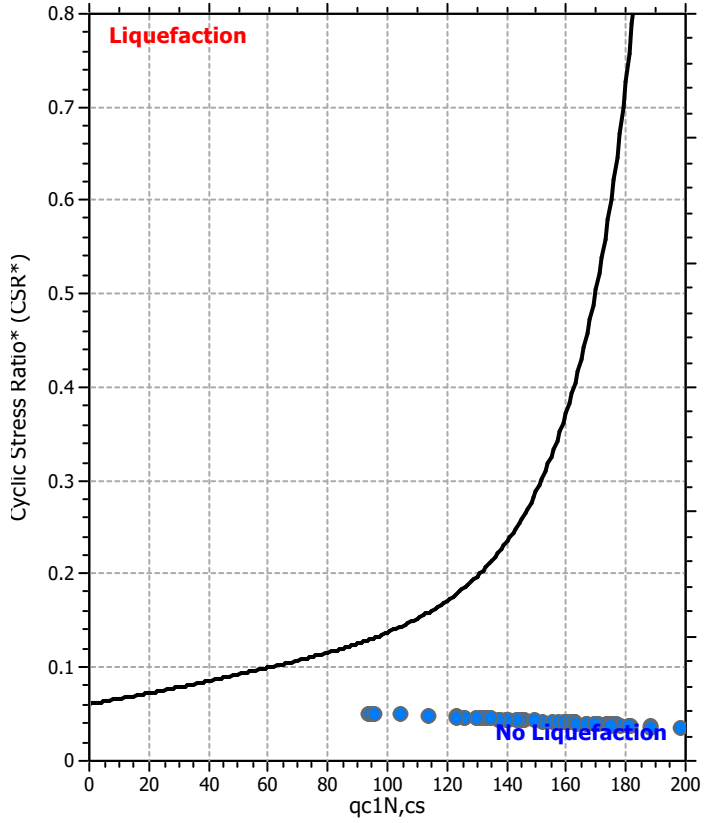
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

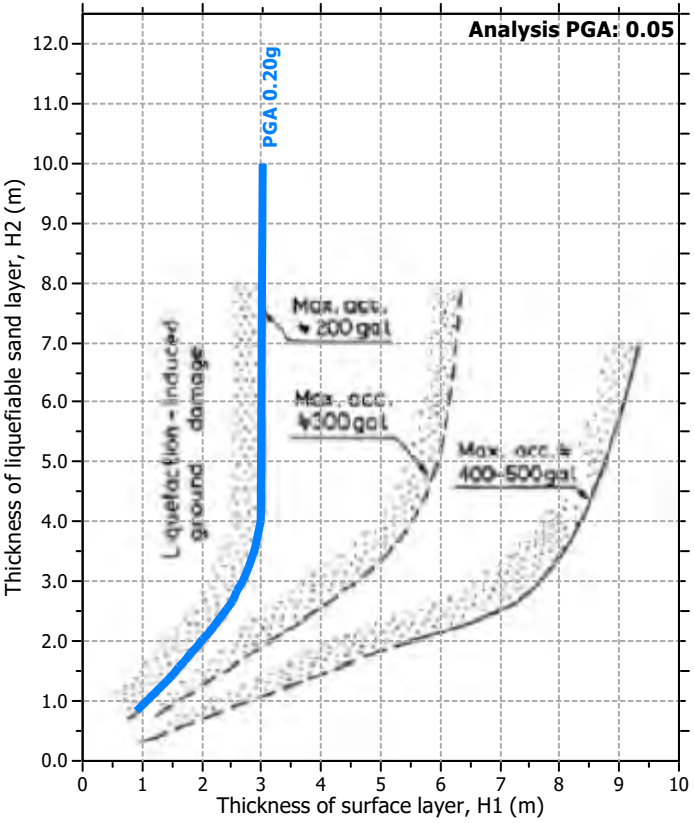
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots







Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
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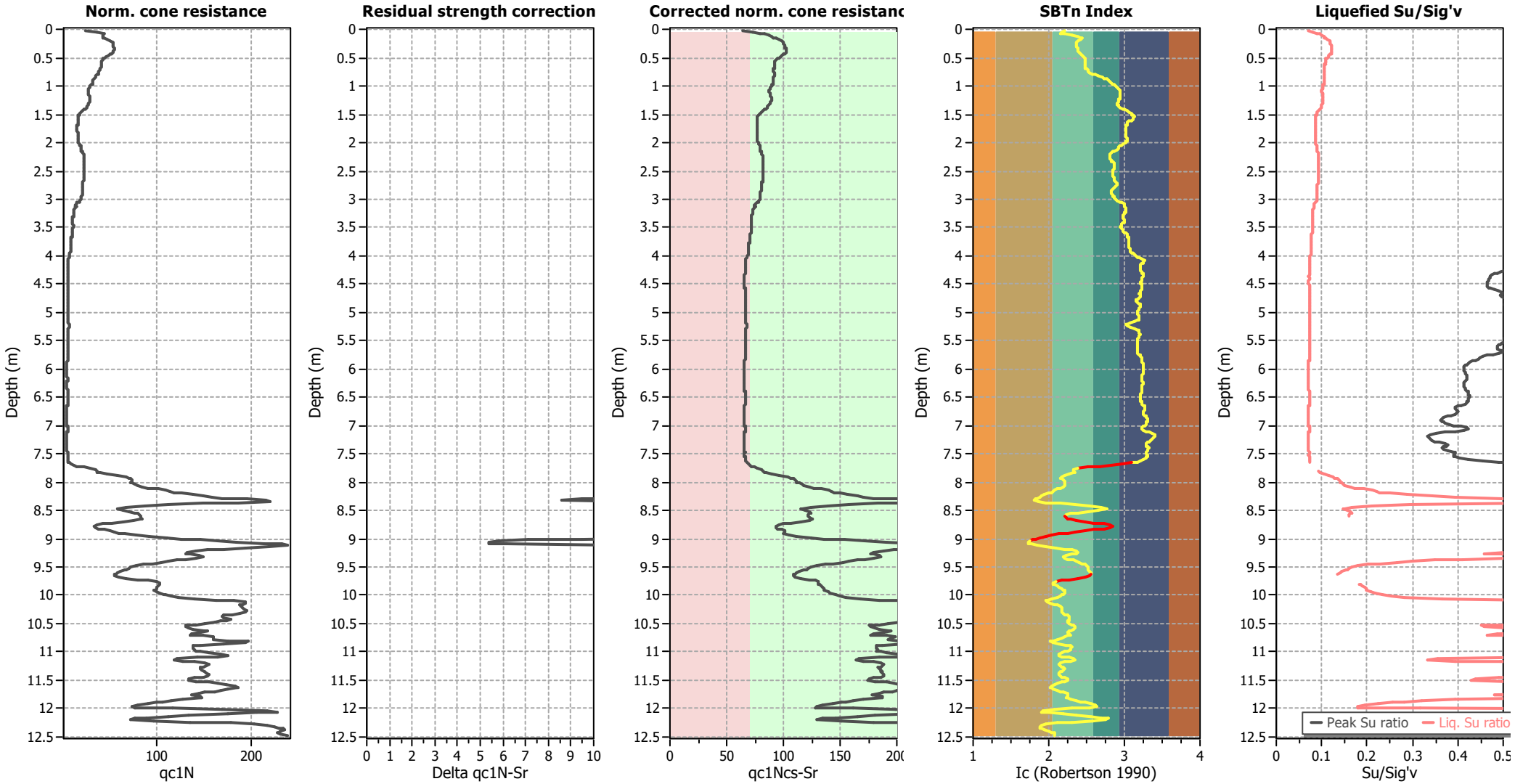
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

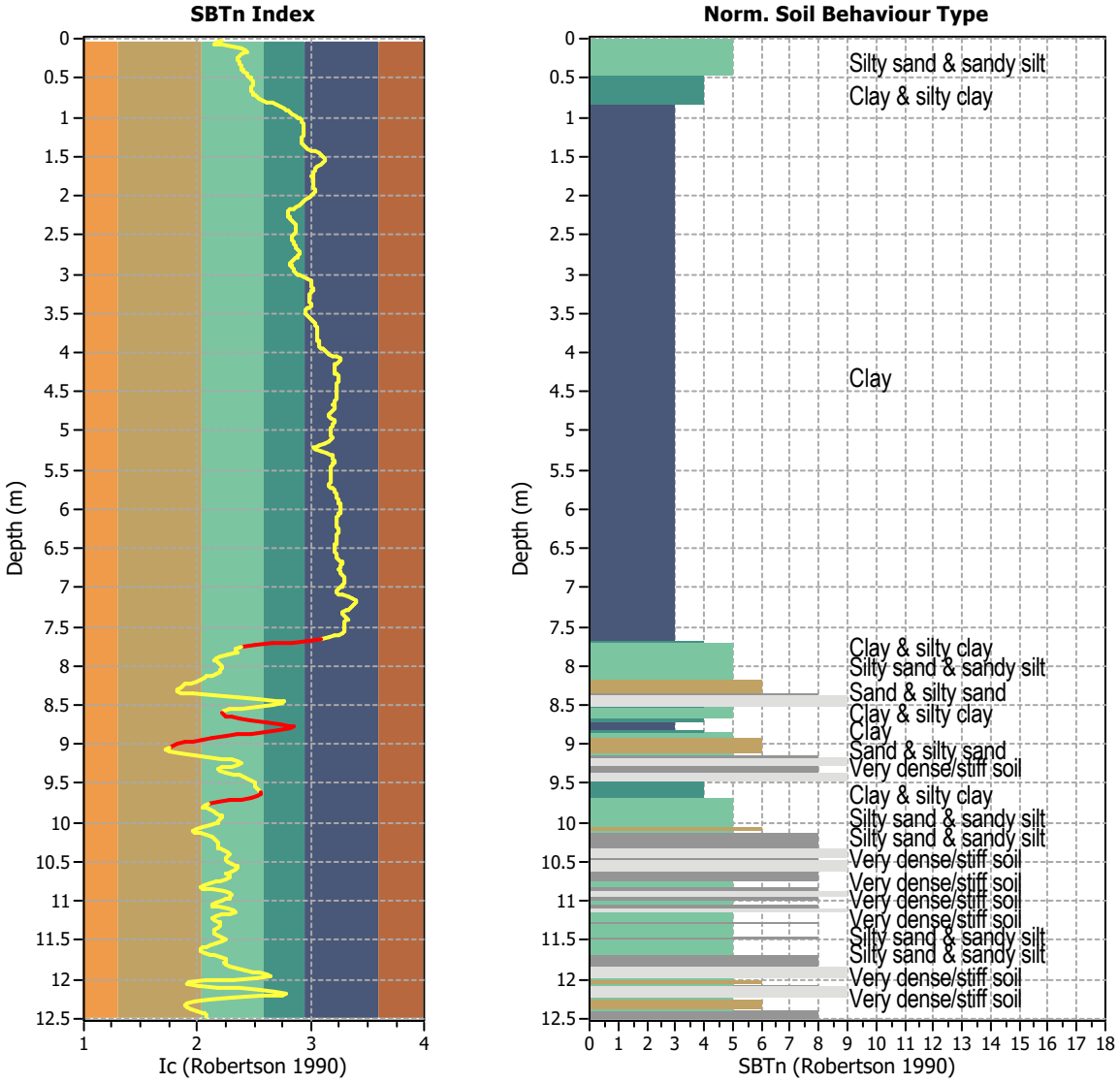
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

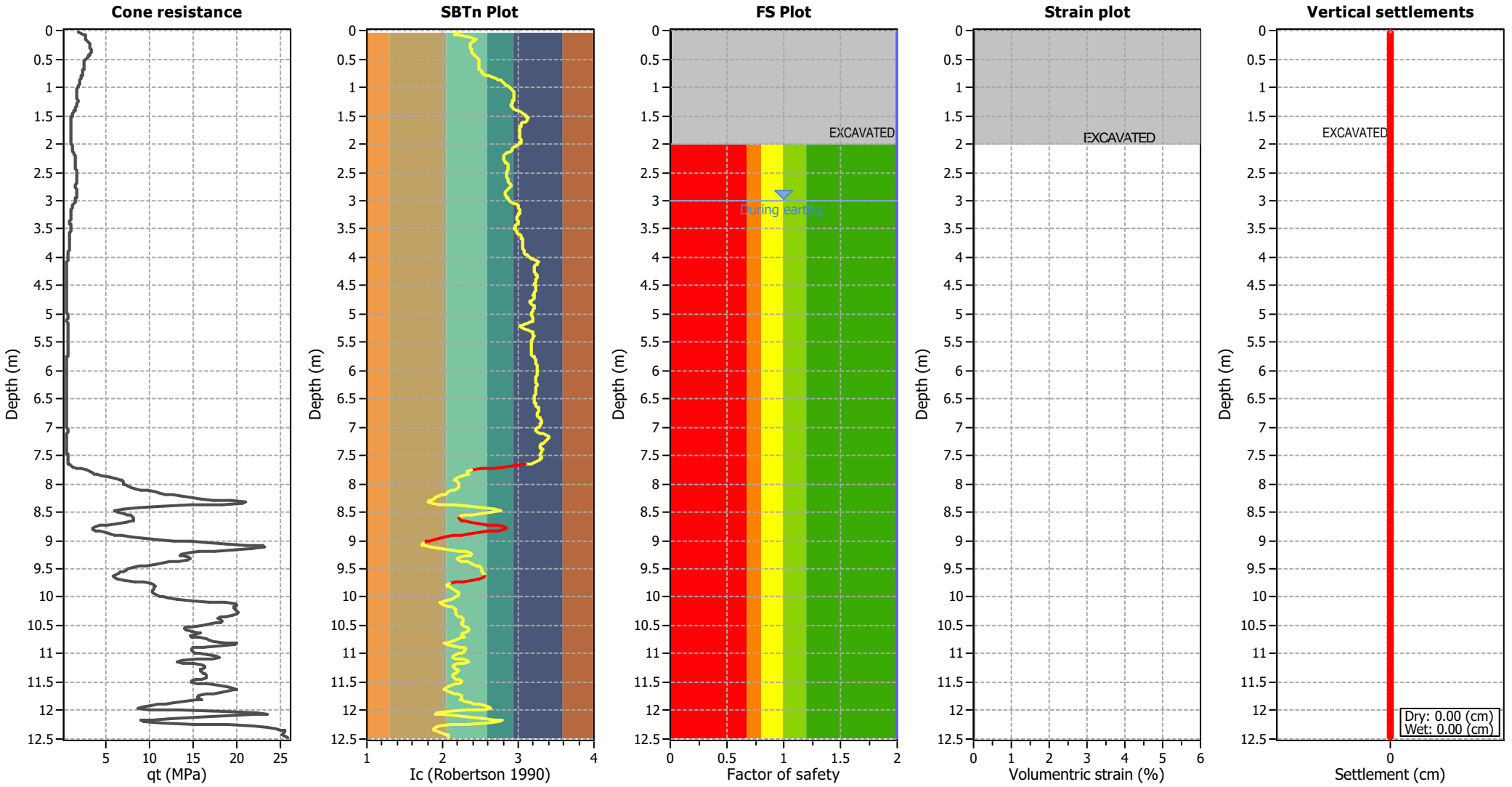
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	624
I_c maximum check value:	3.00	Total points excluded:	38
I_c change ratio value:	0.0100	Exclusion percentage:	6.09%
Minimum number of points in layer:	4	Number of layers detected:	4

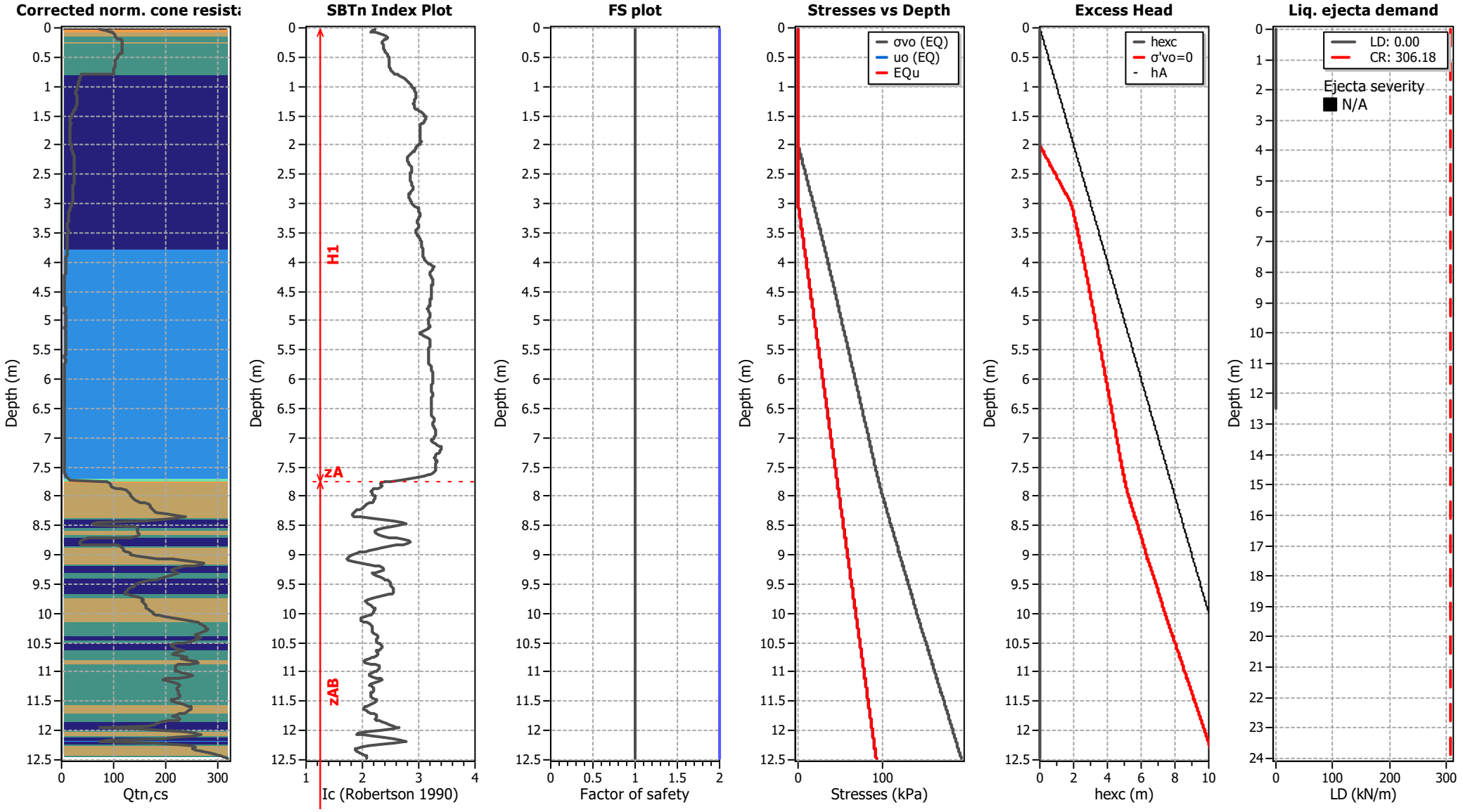
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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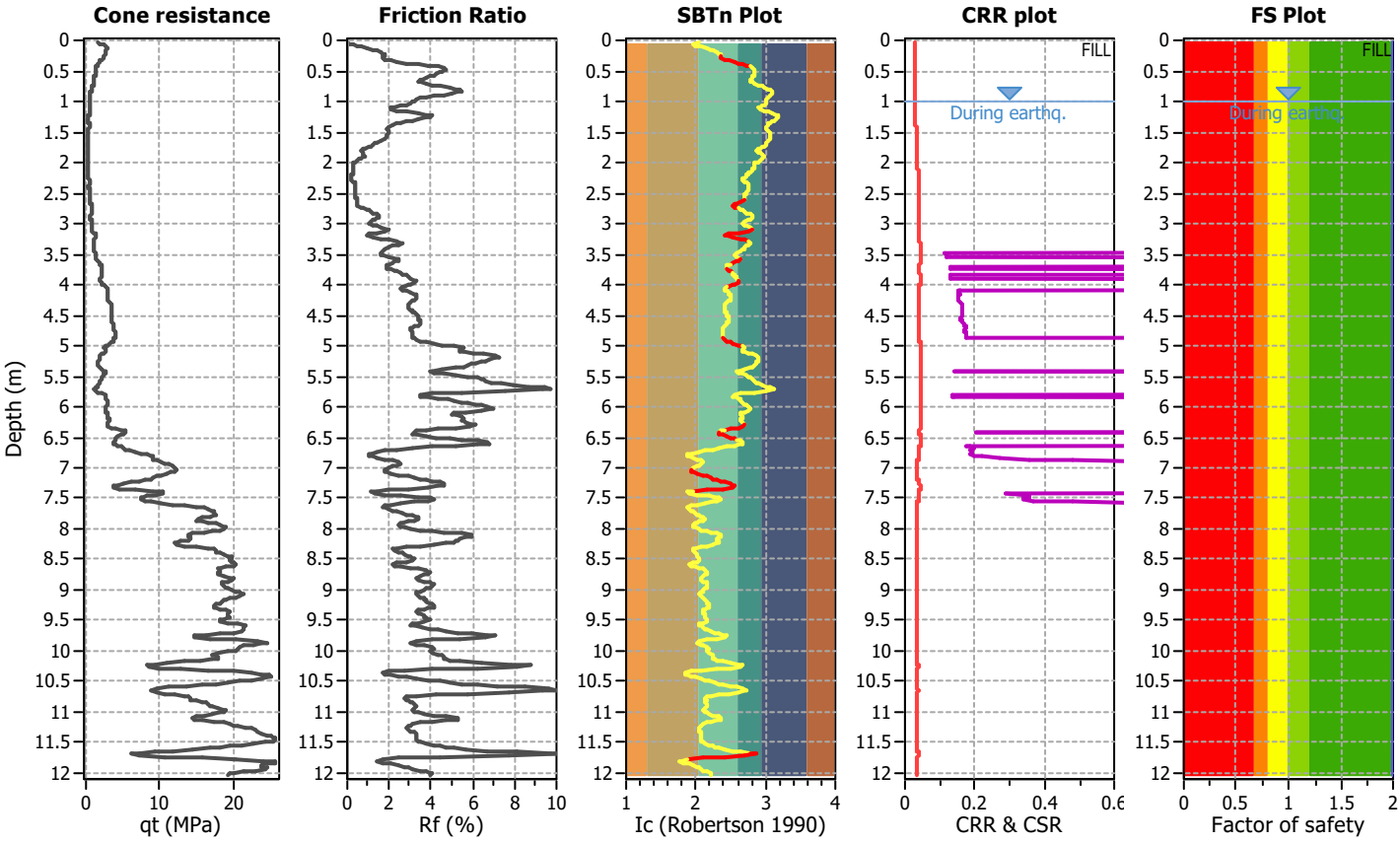
LIQUEFACTION ANALYSIS REPORT

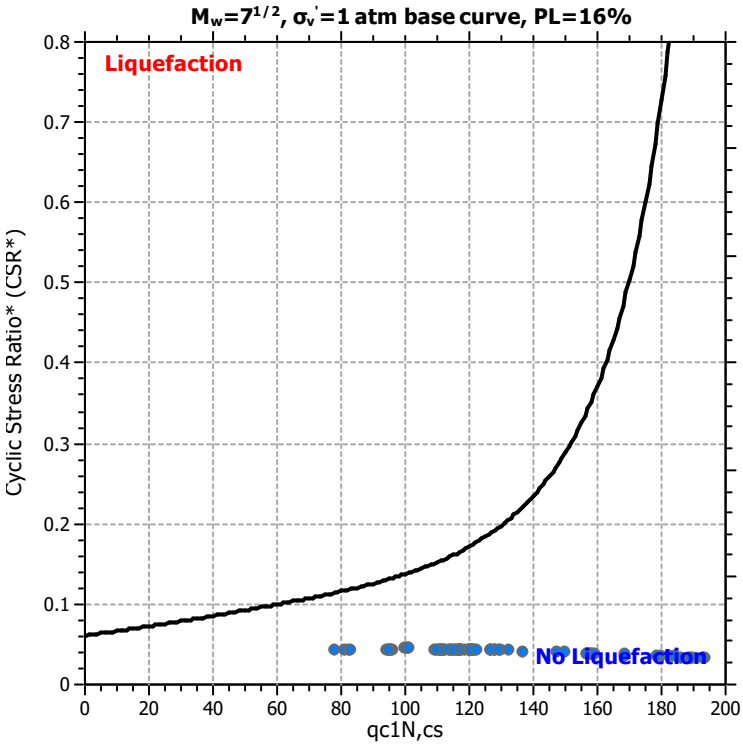
Project title : Sunfield Landholding **Location :**

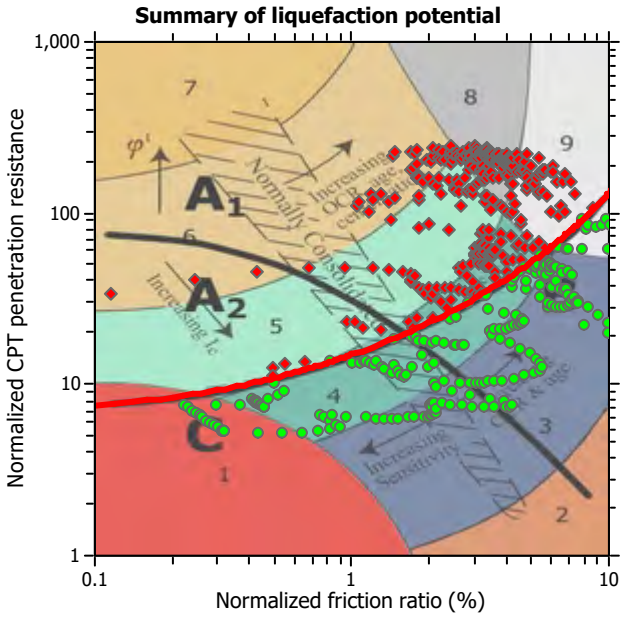
CPT file : CPT110

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	9.25 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

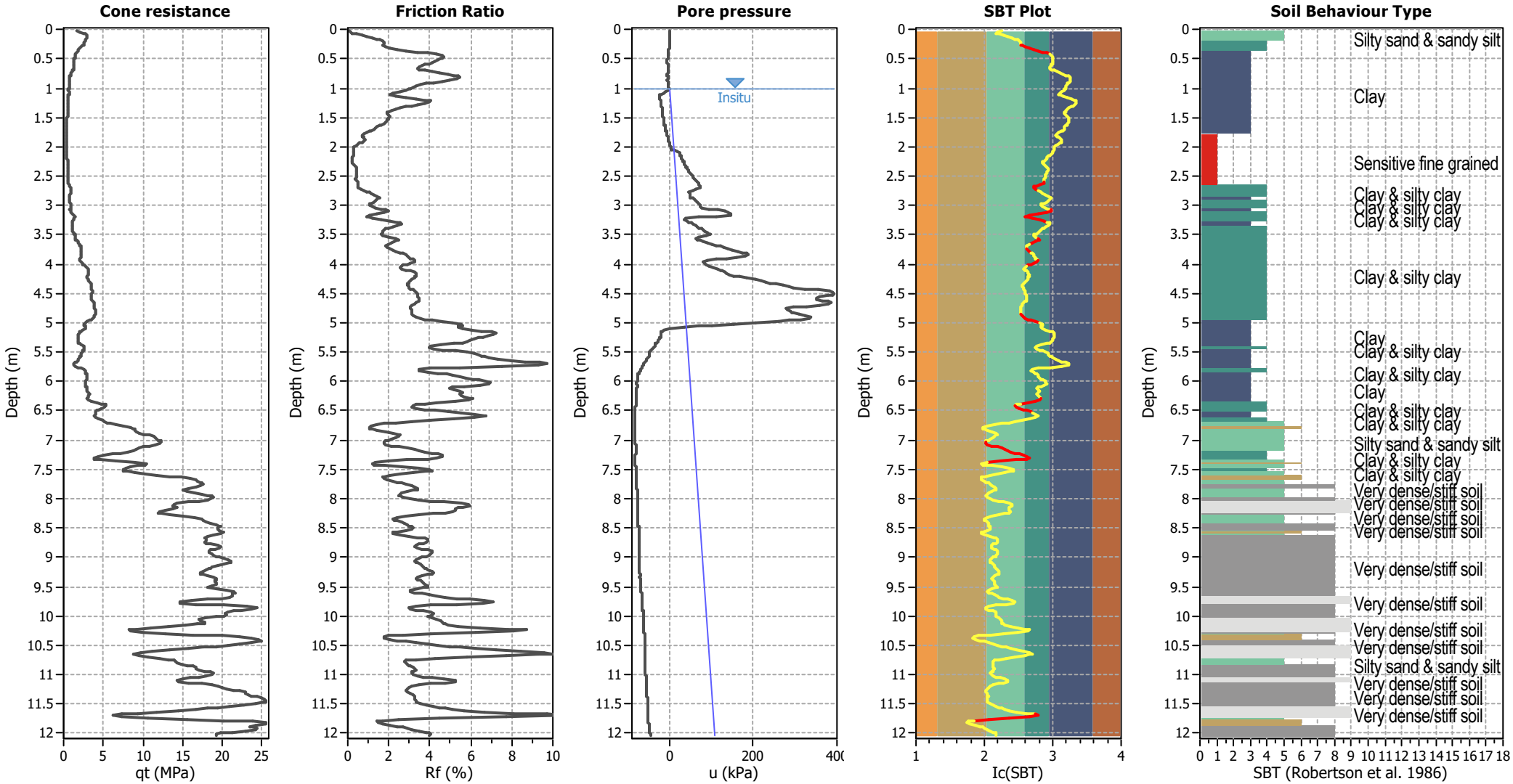






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



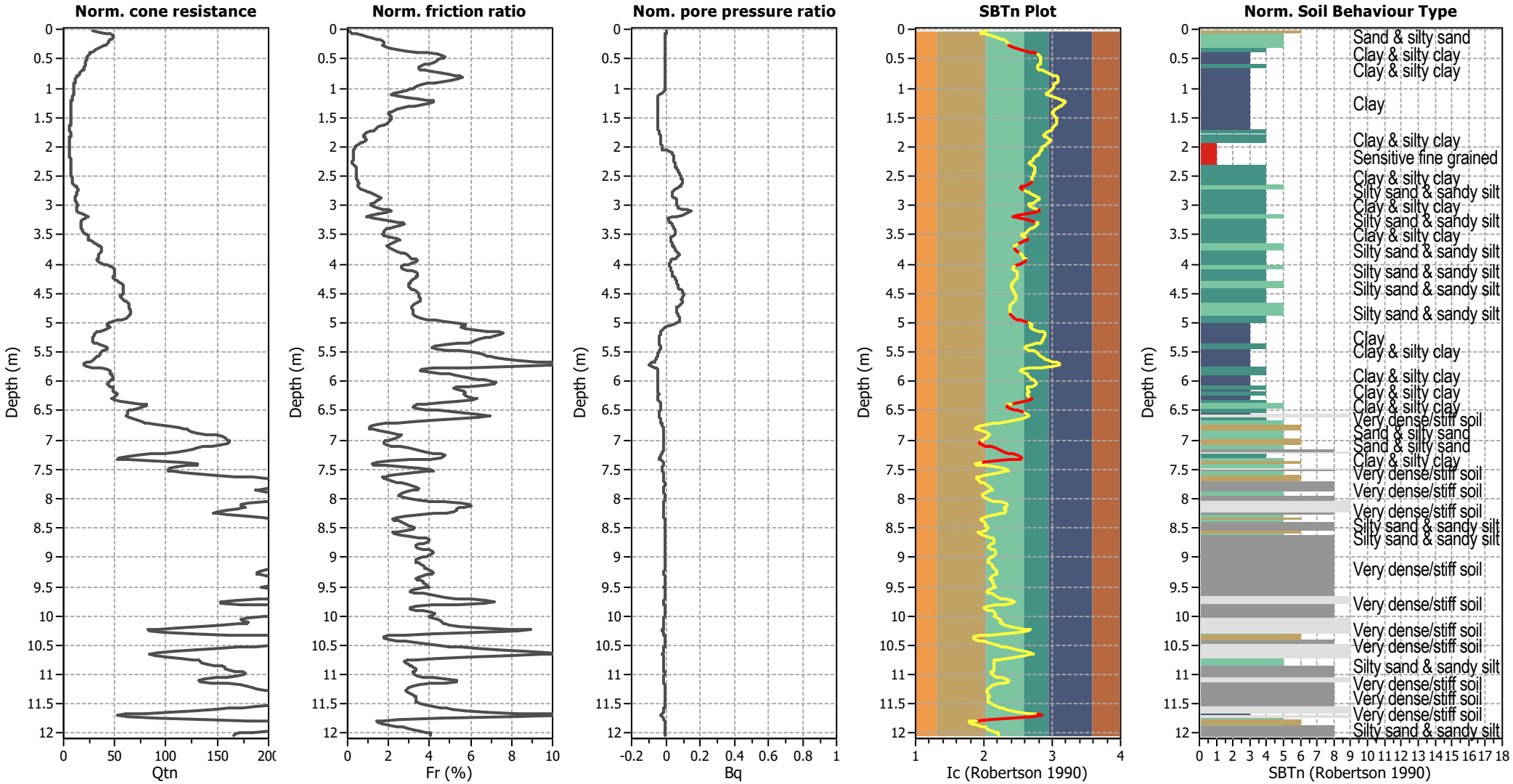
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	9.25 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



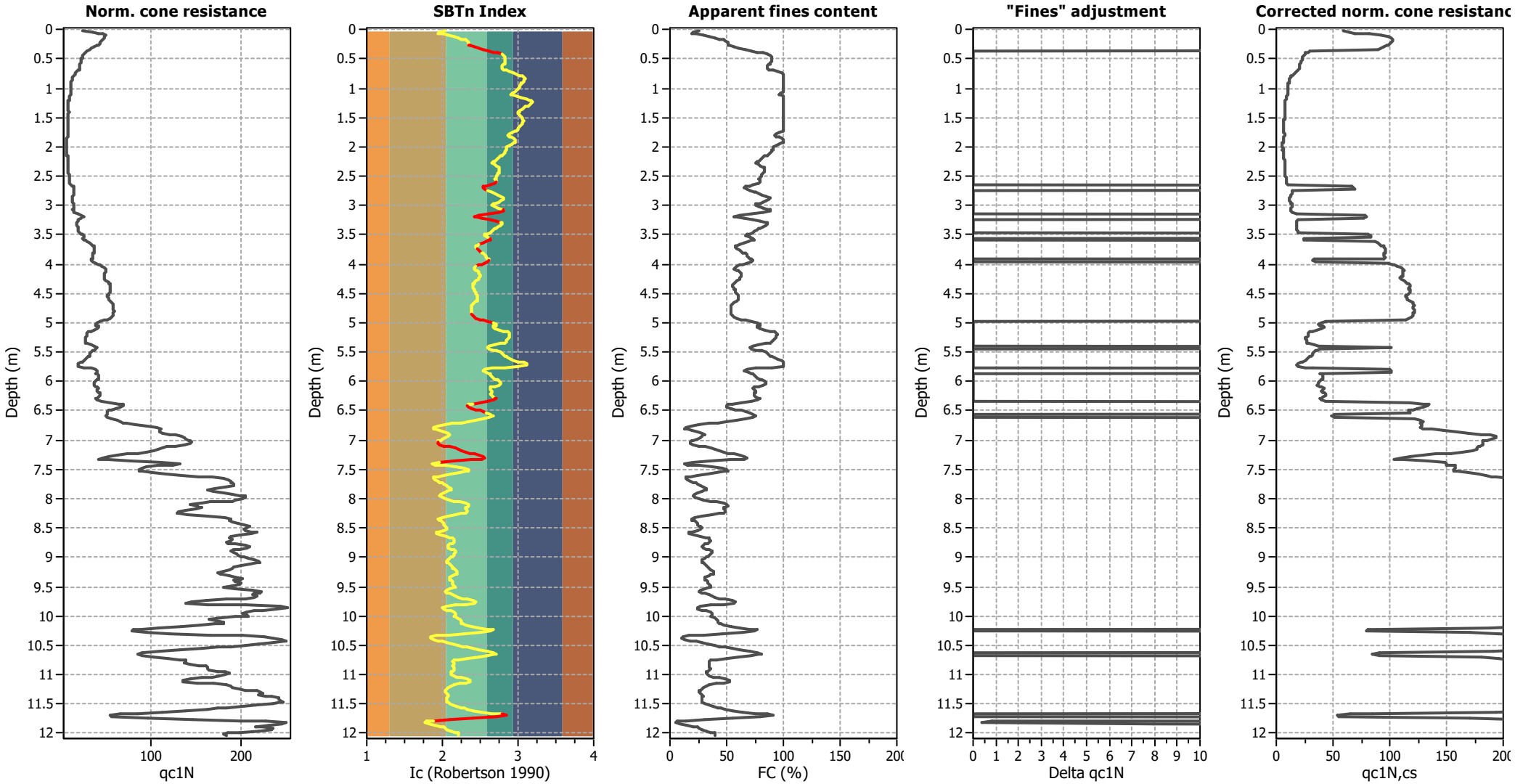
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	9.25 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

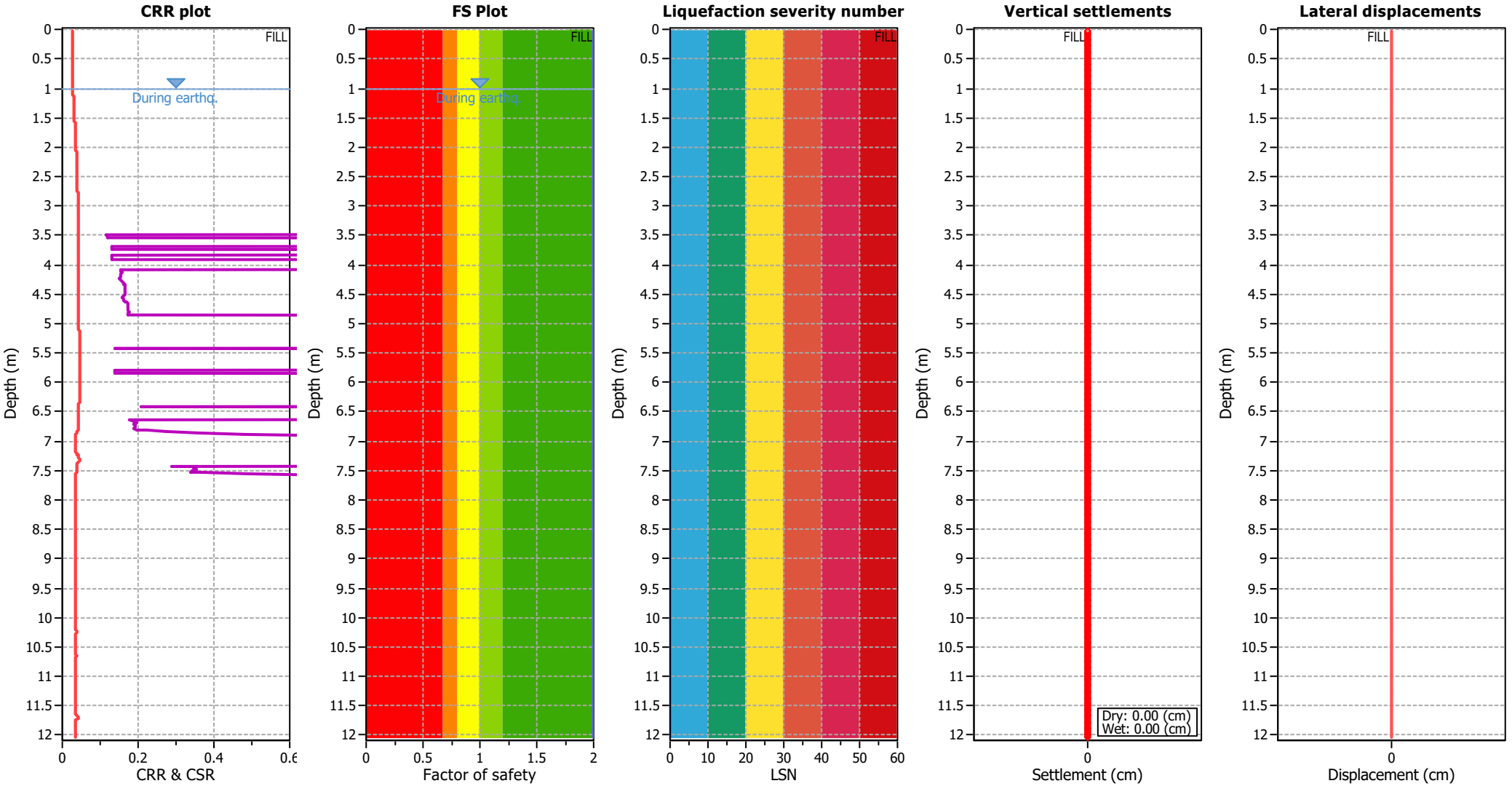
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	9.25 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	9.25 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

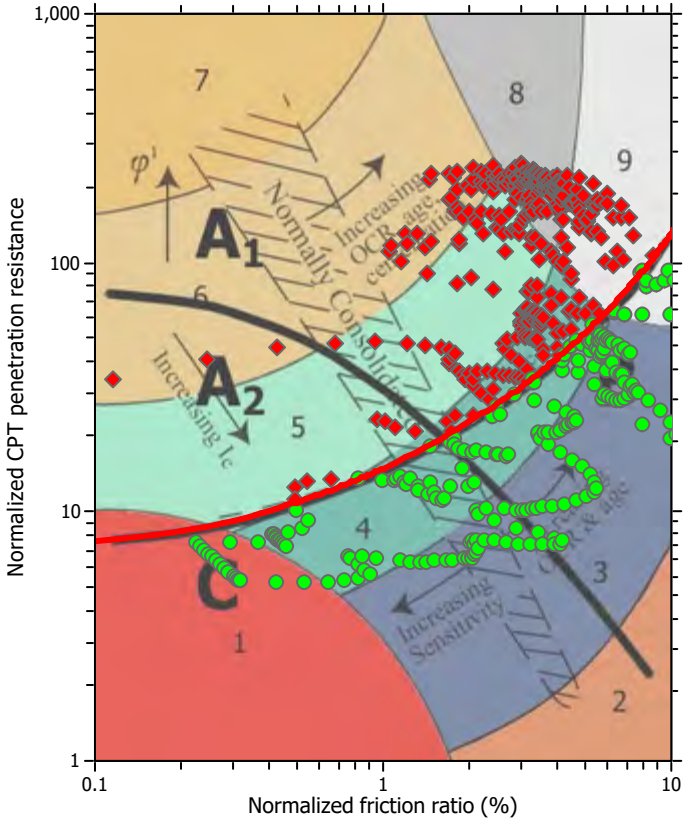
F.S. color scheme

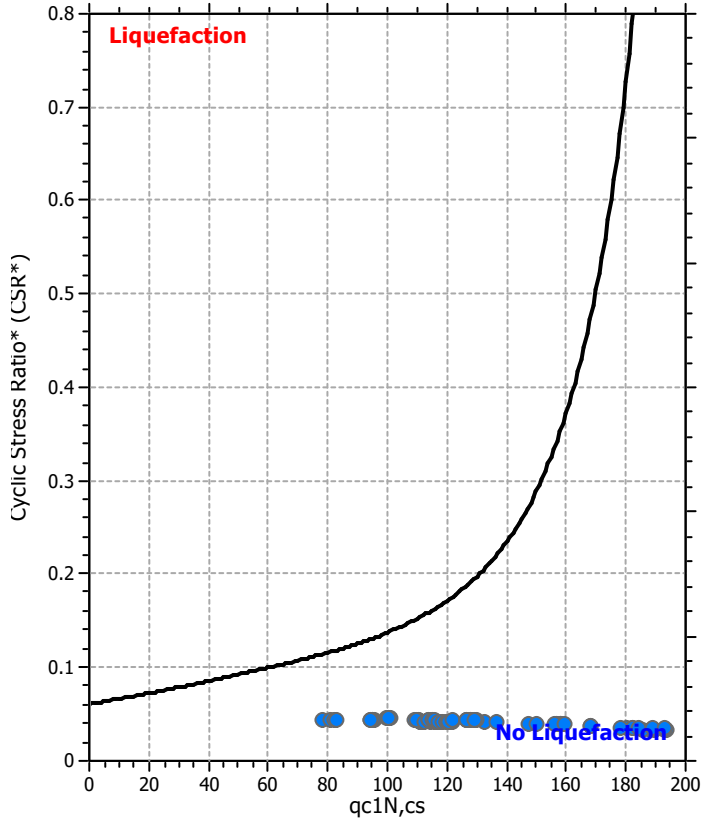
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

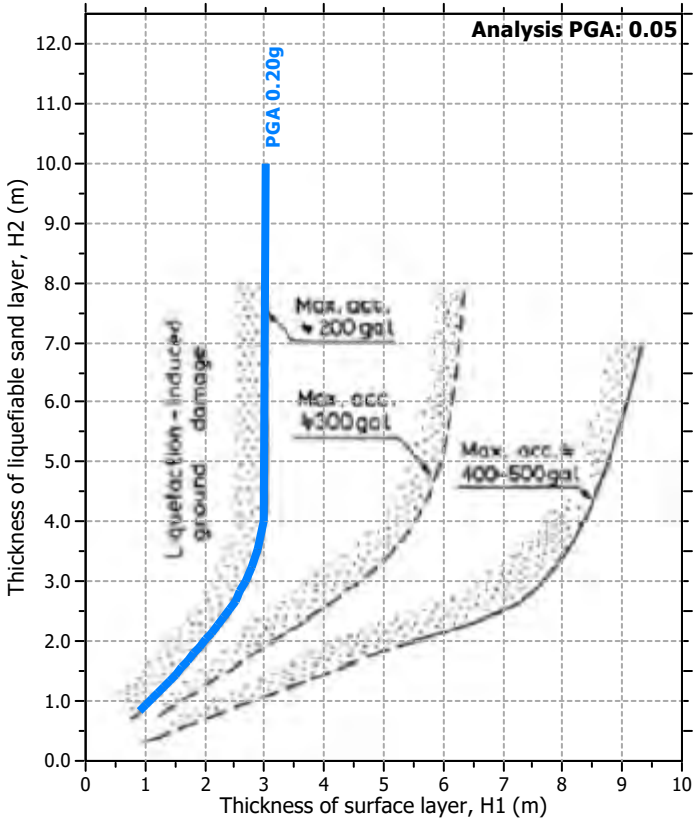
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



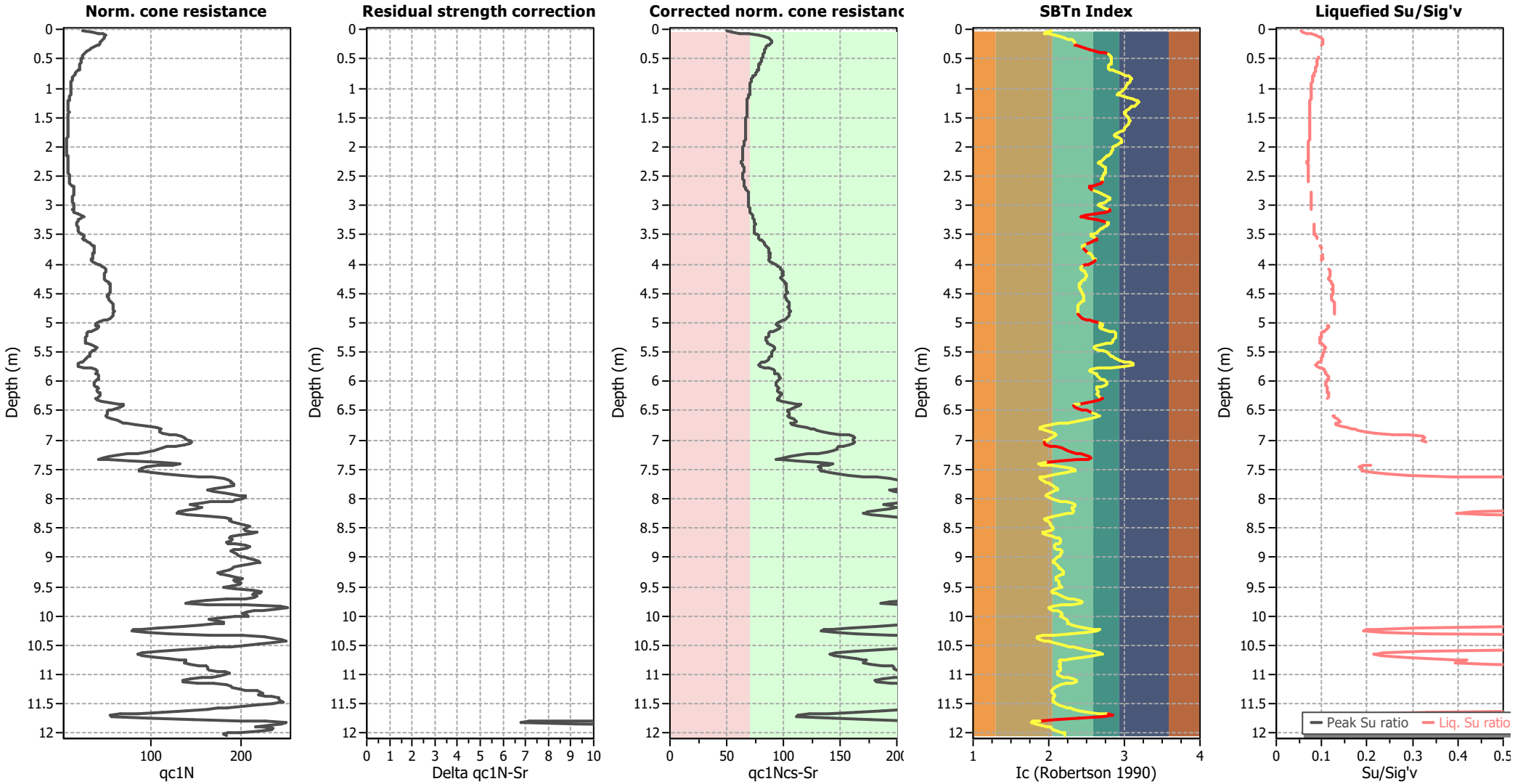




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	9.25 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

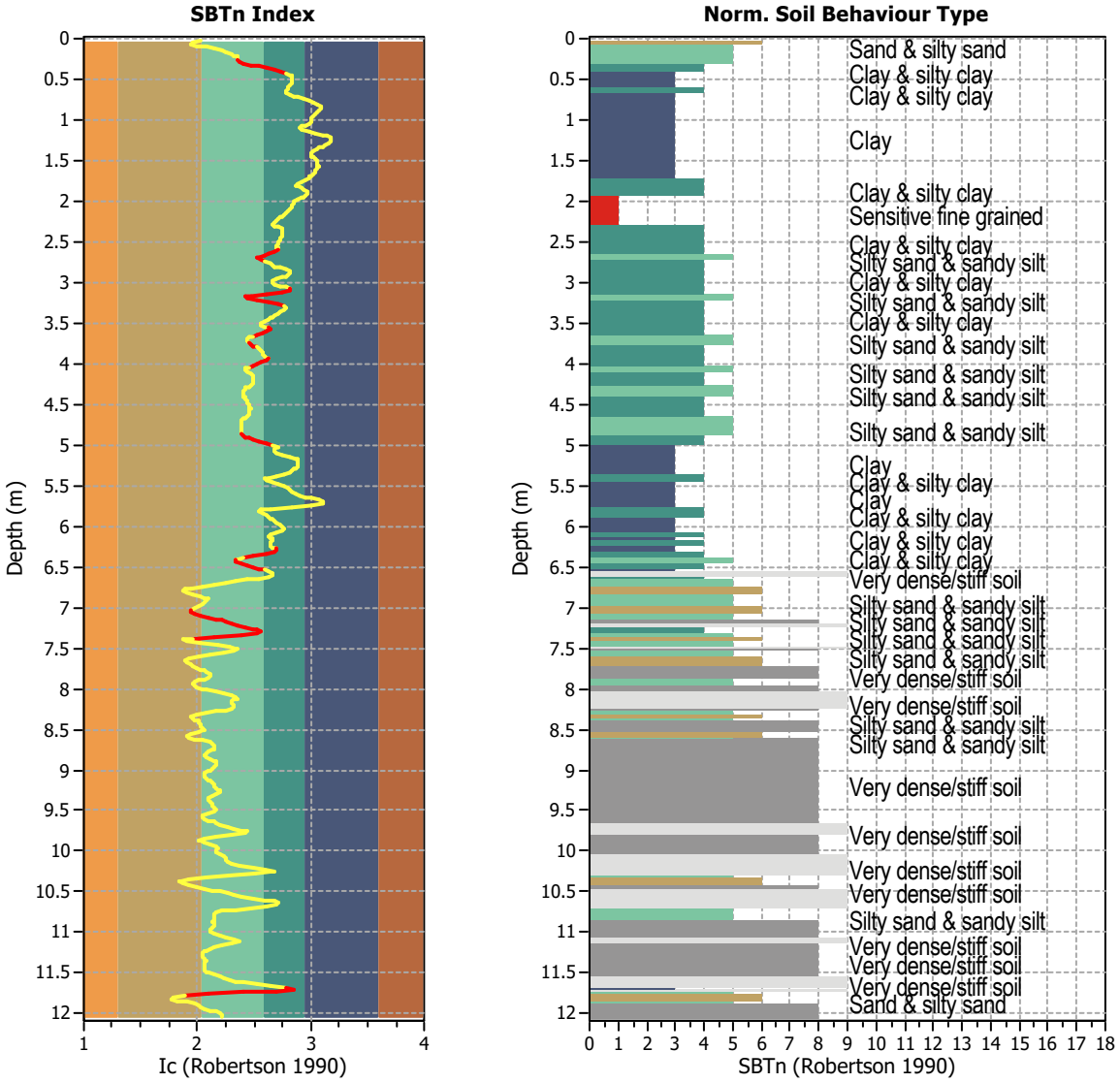
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	9.25 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



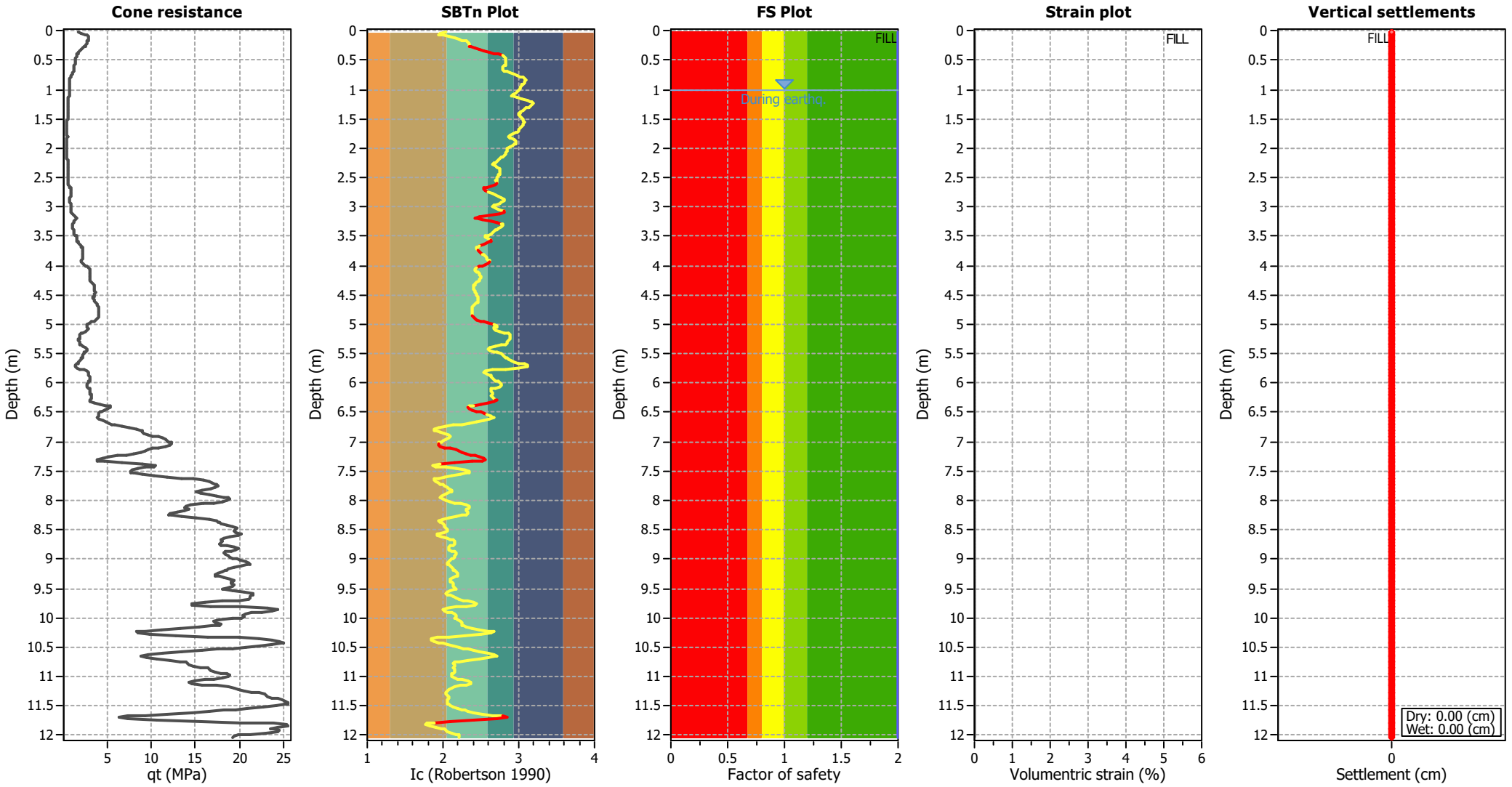
Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	602
Total points excluded:	91
Exclusion percentage:	15.12%
Number of layers detected:	14

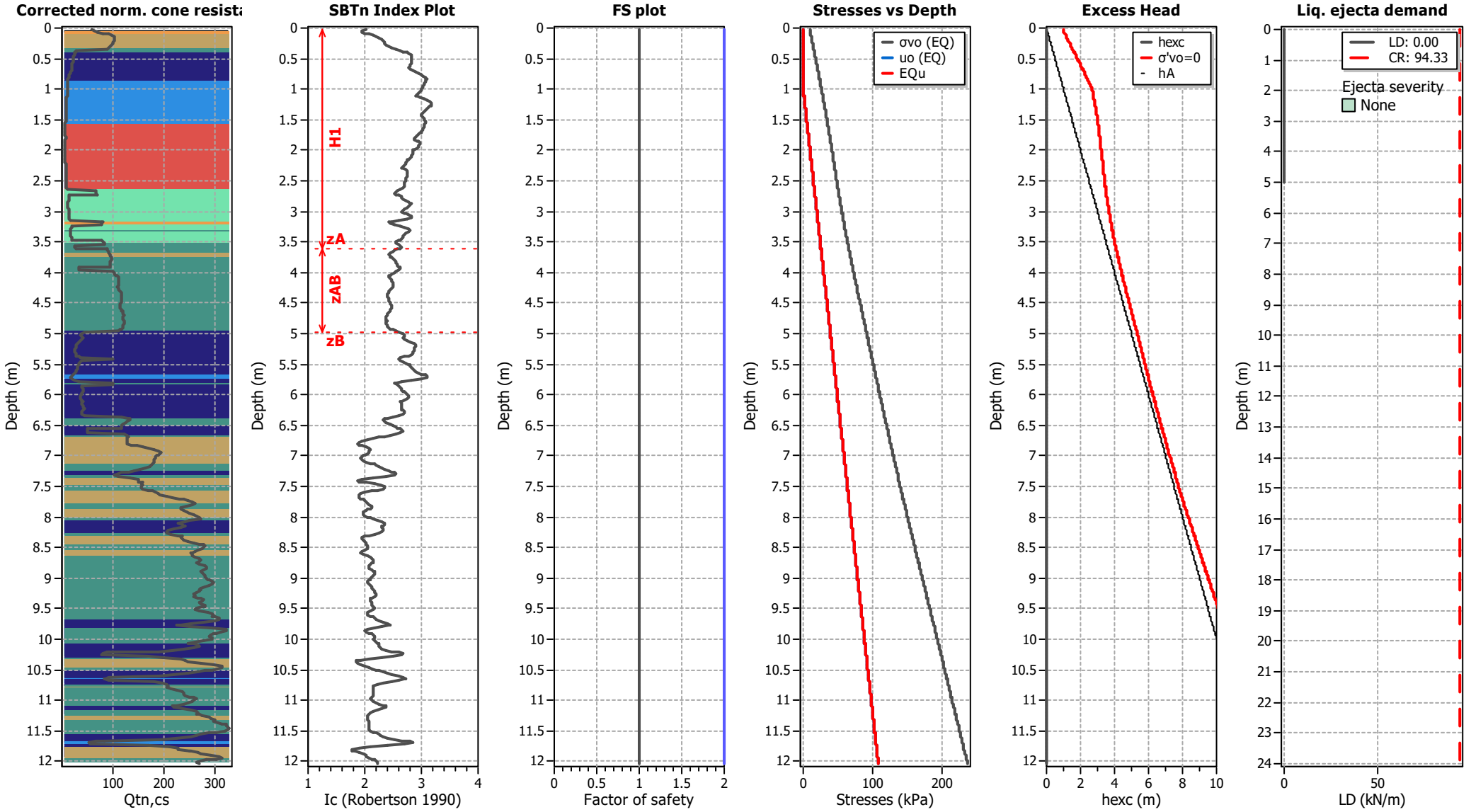
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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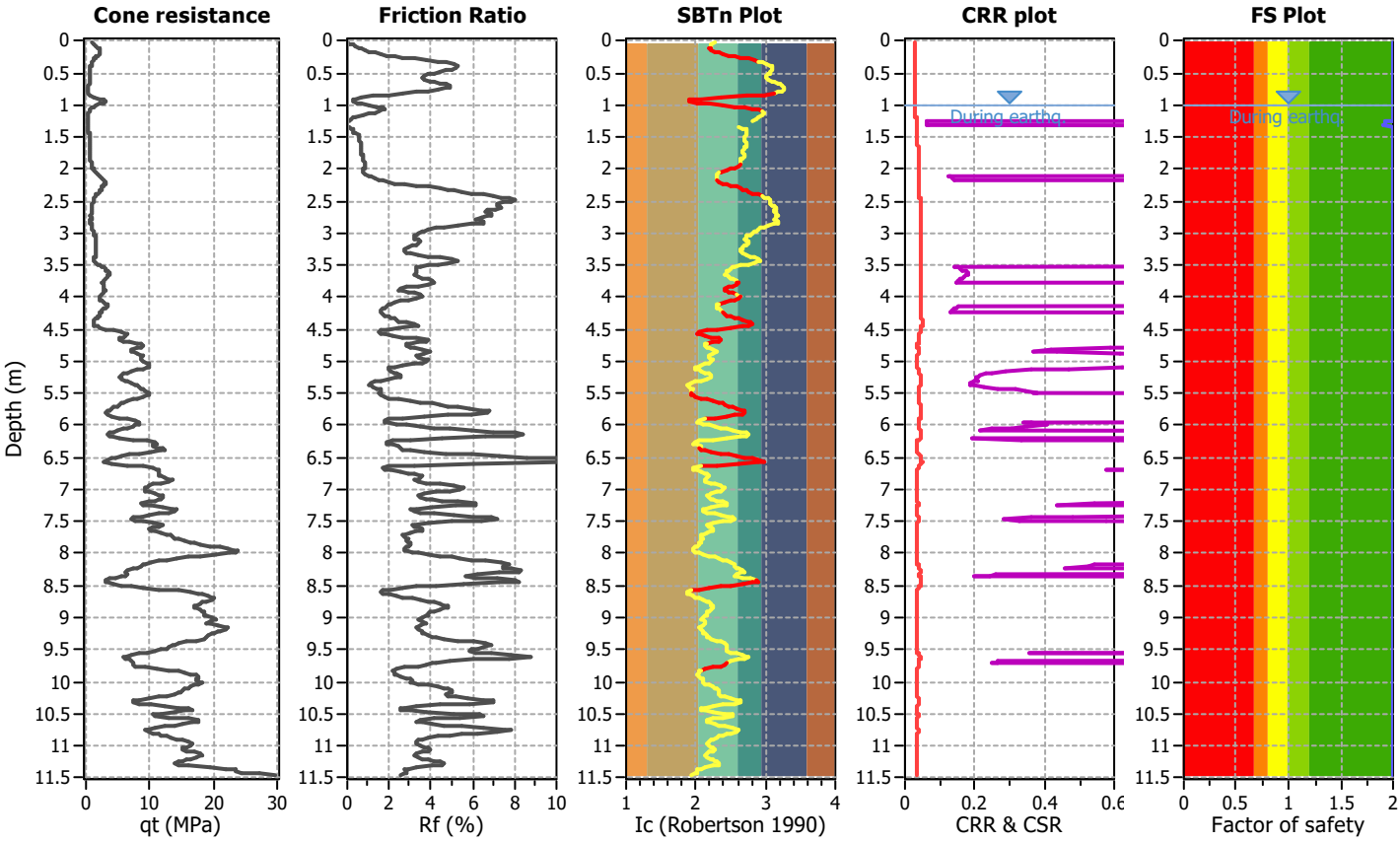
LIQUEFACTION ANALYSIS REPORT

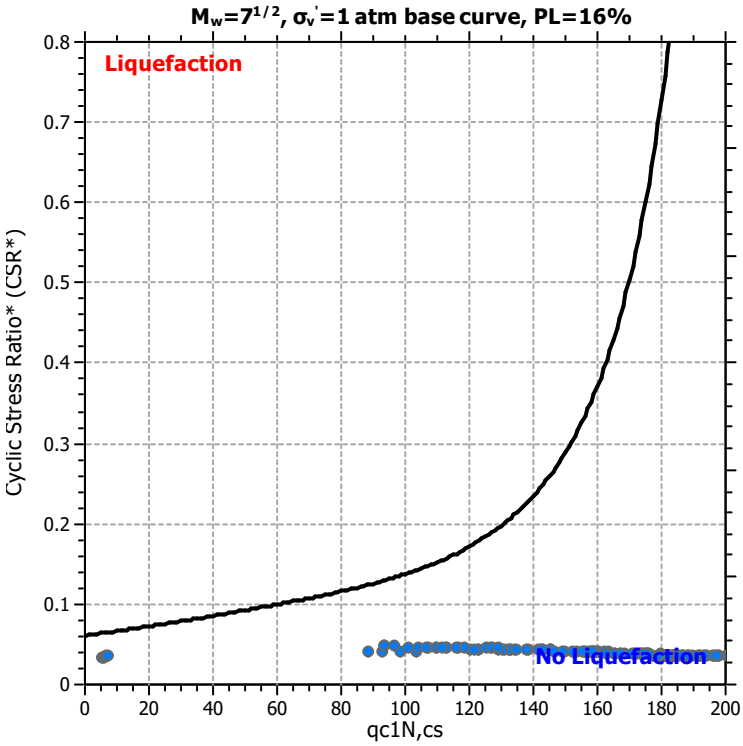
Project title : Sunfield Landholding **Location :**

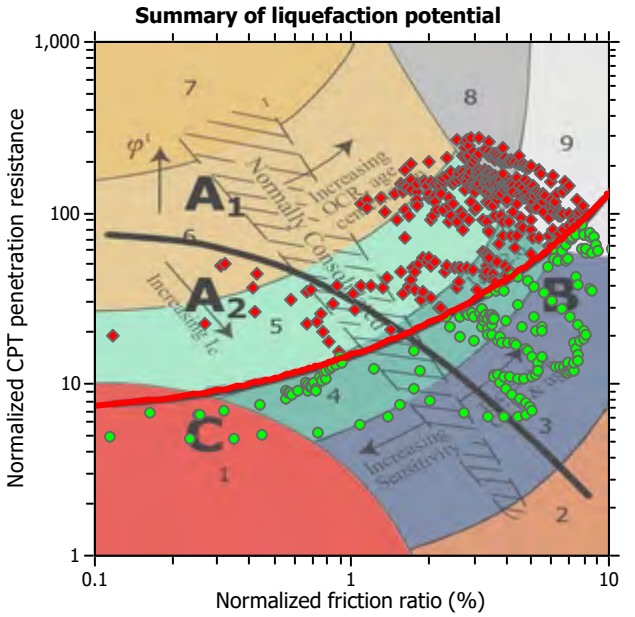
CPT file : CPT111

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.00 m	Excavation depth:	0.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

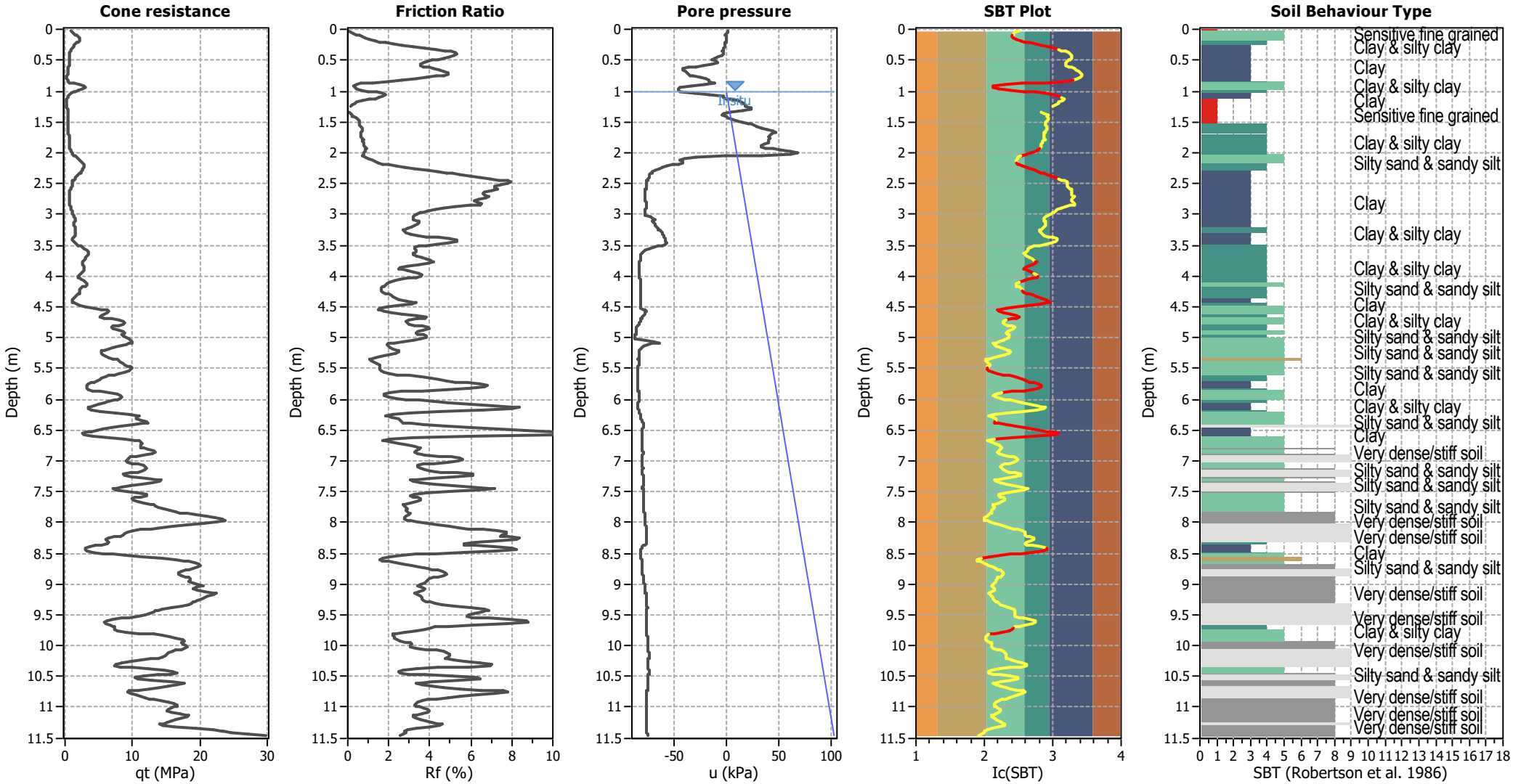






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



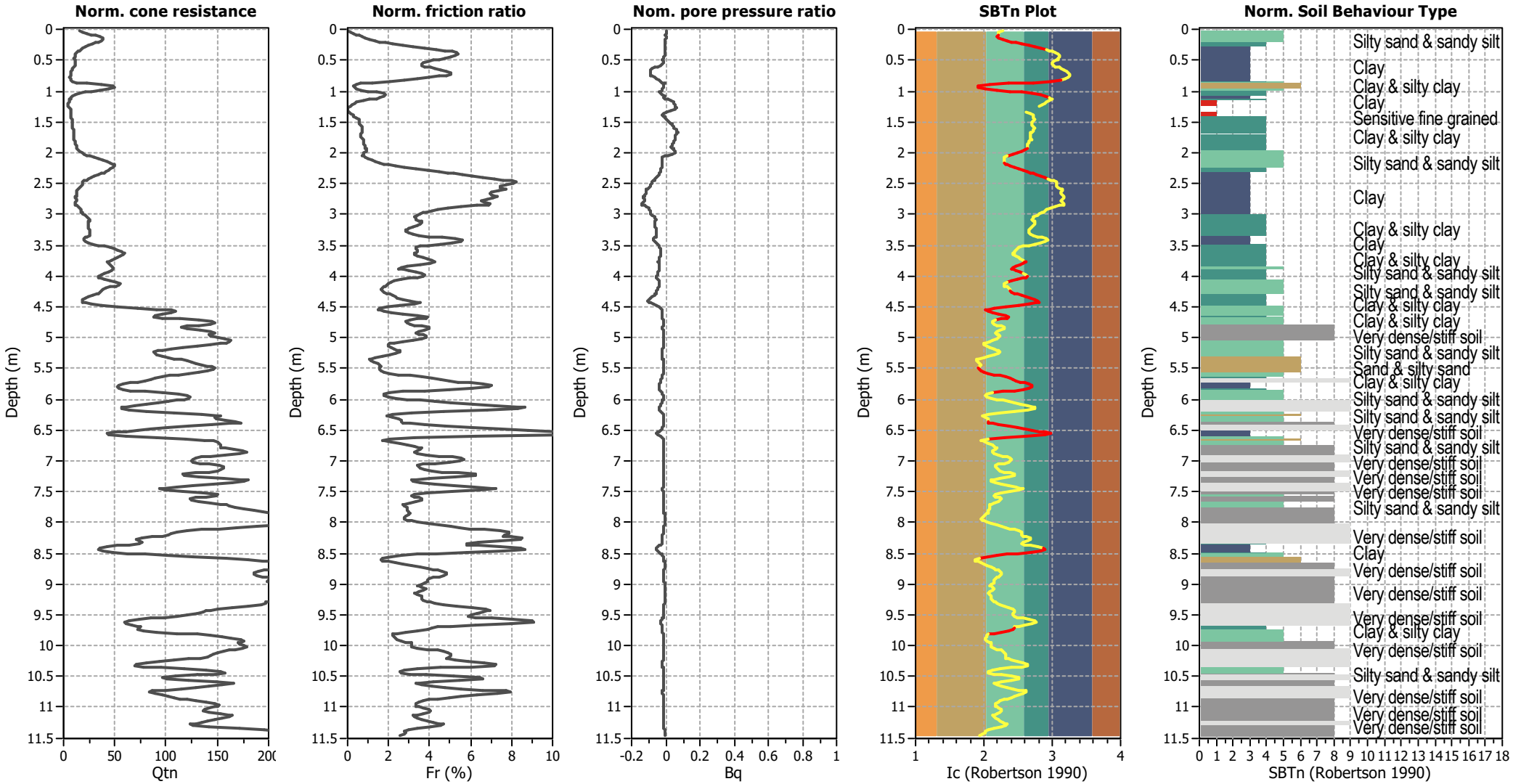
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



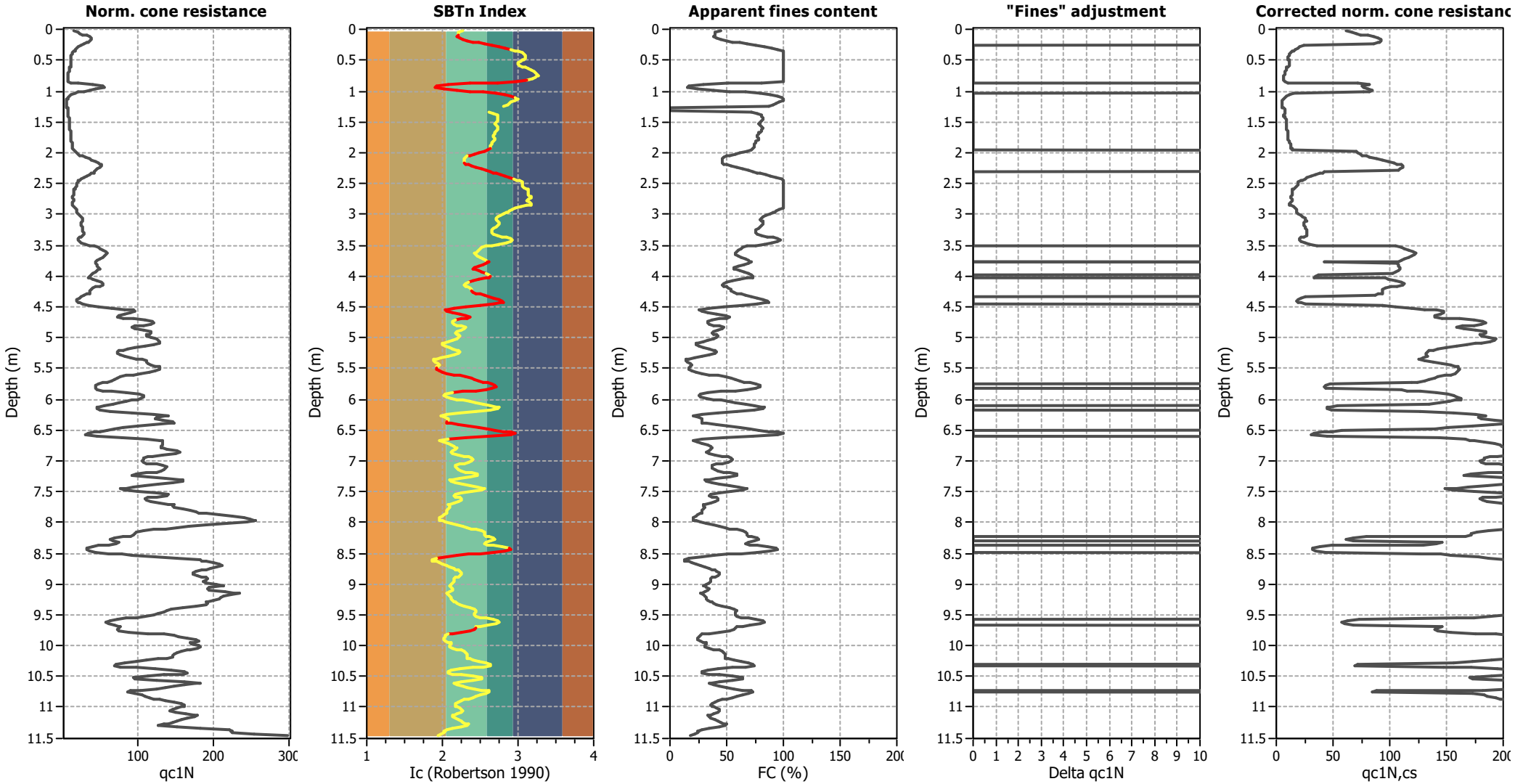
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBTn legend

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

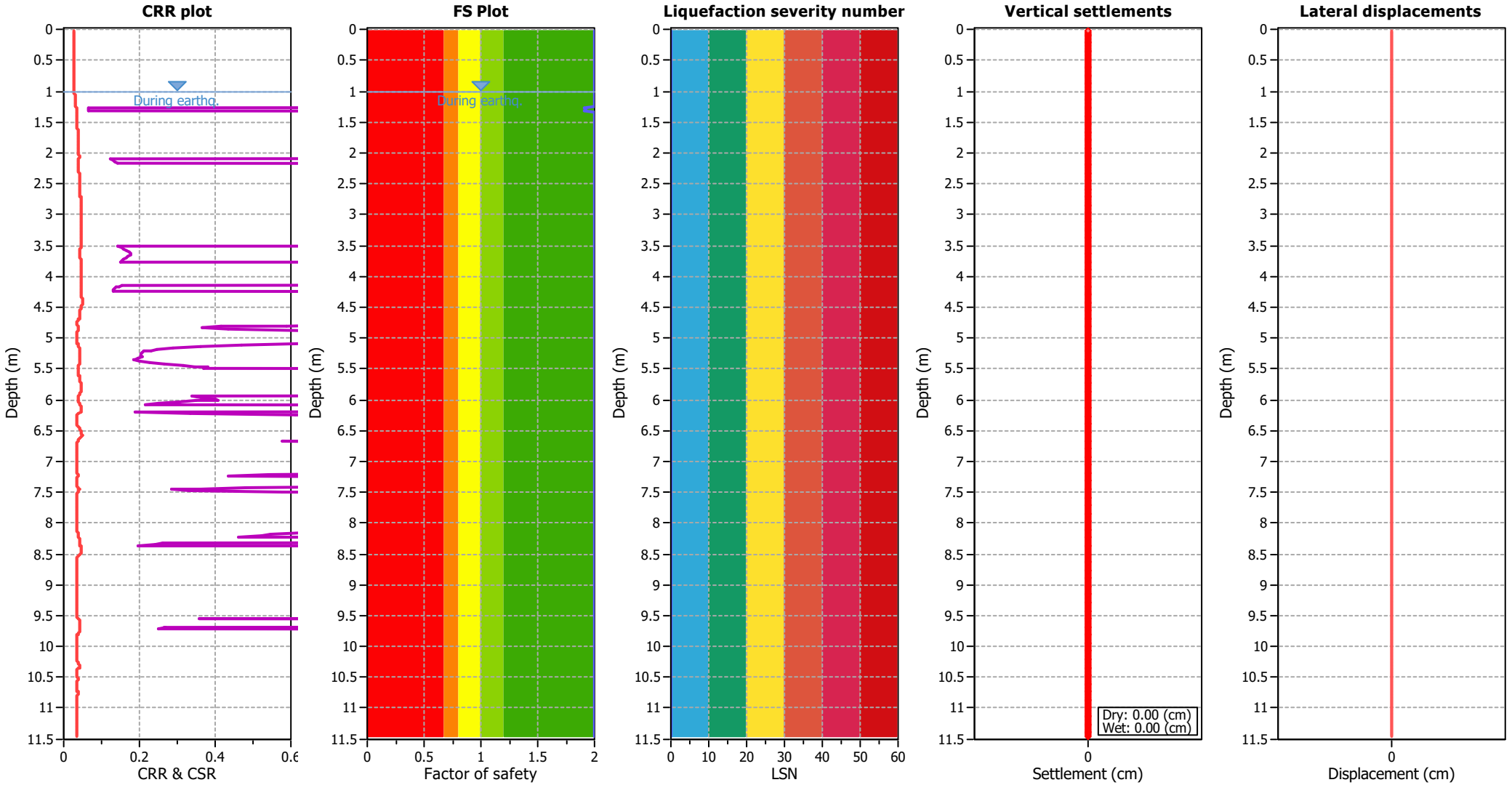
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

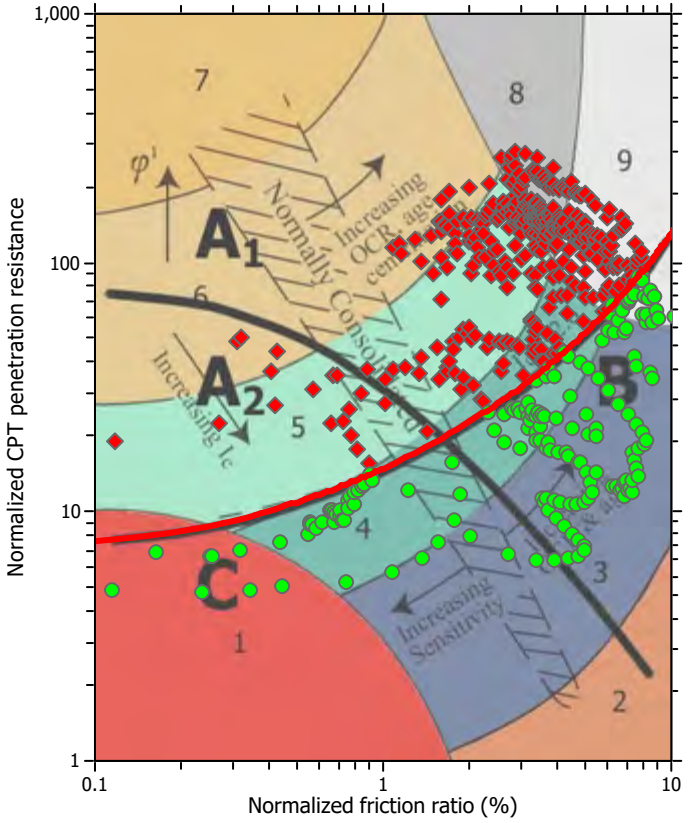
F.S. color scheme

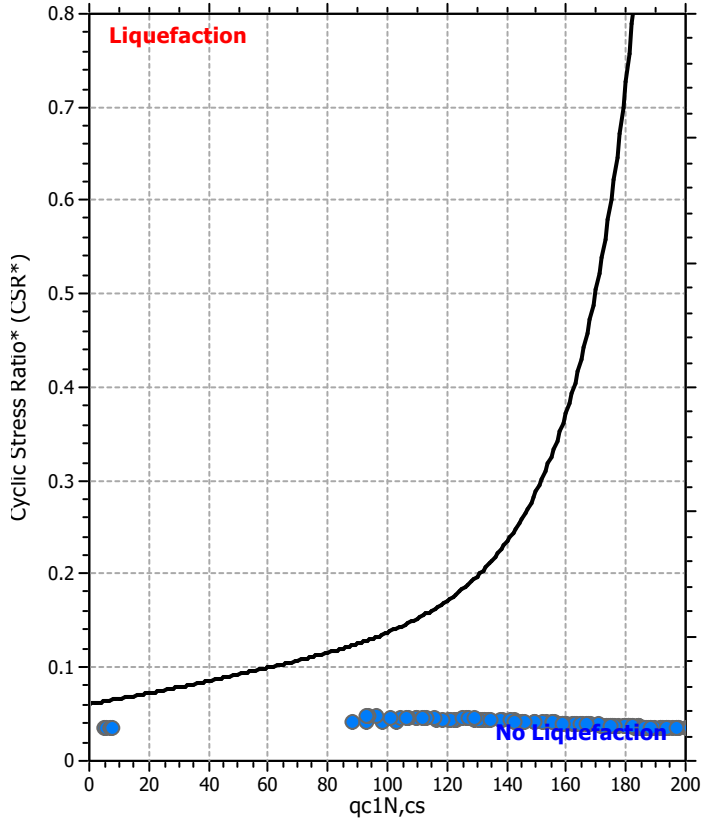
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

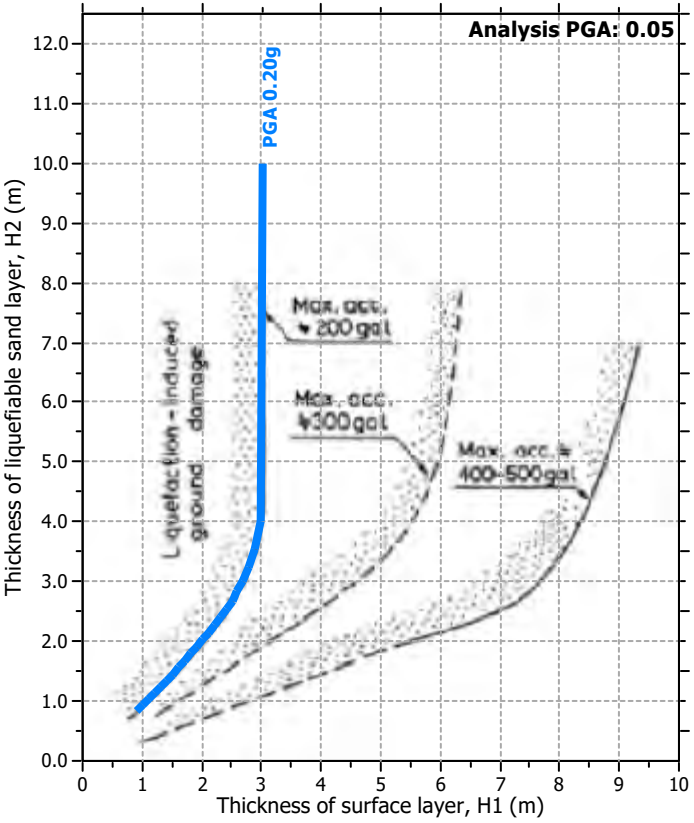
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



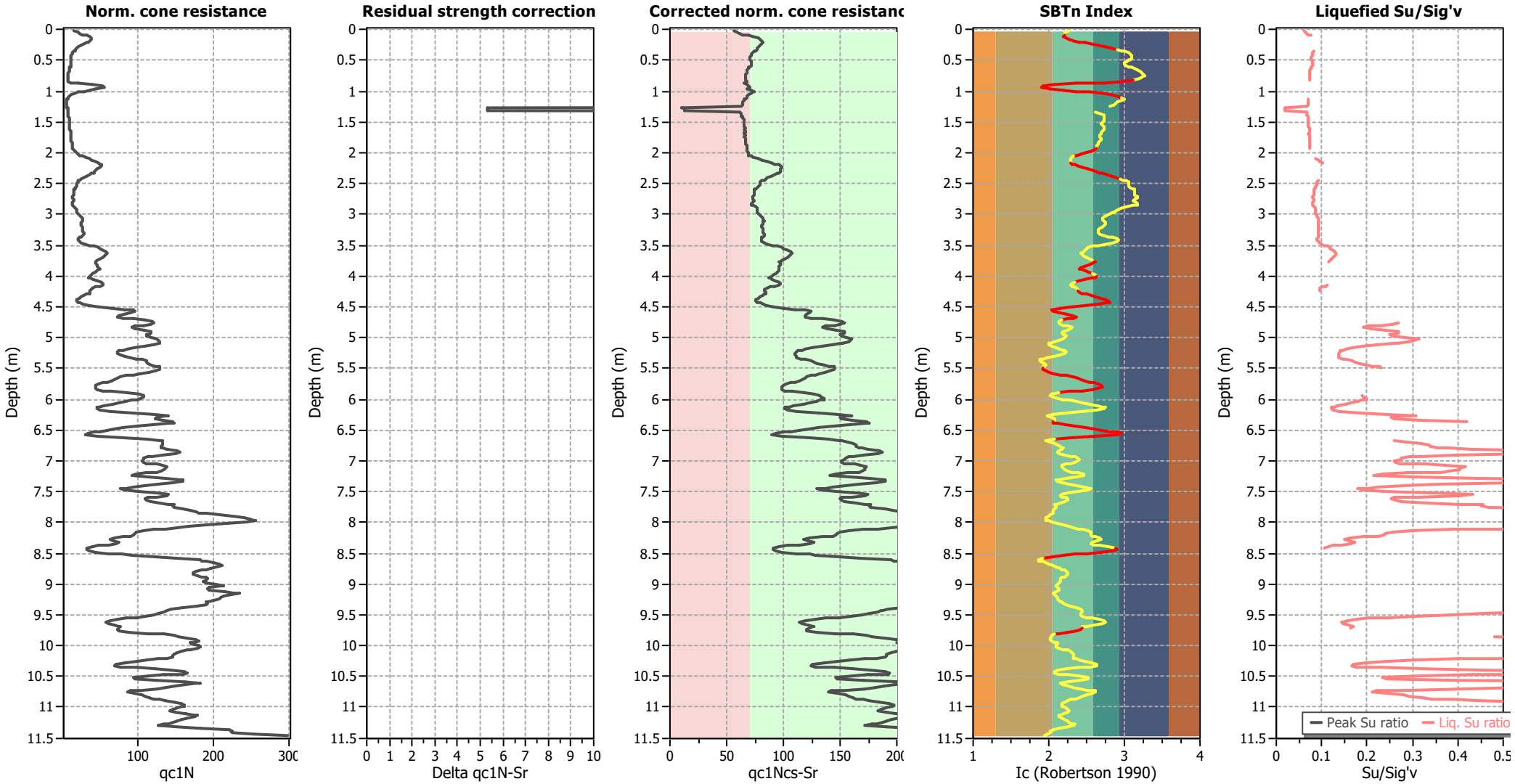




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

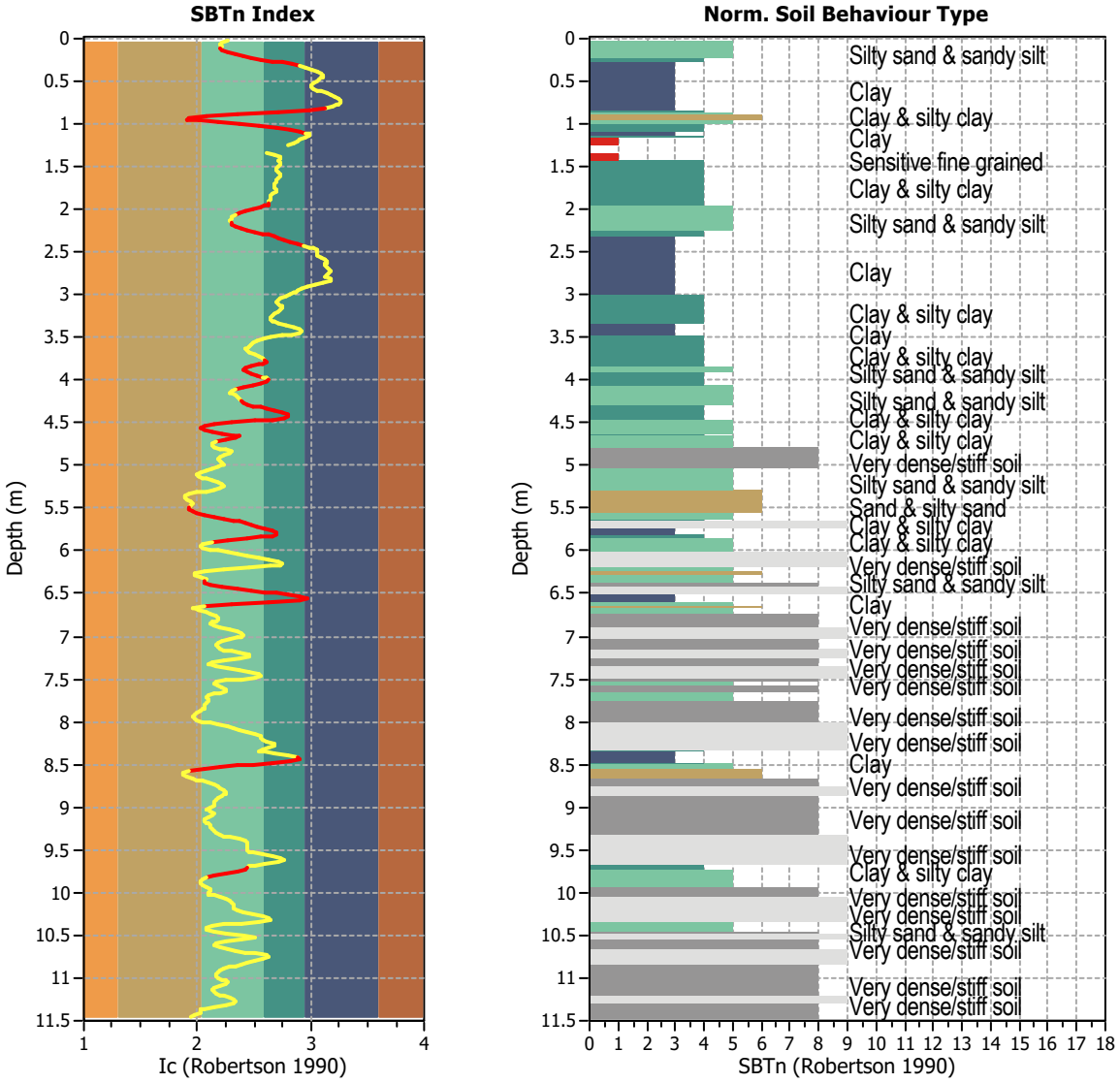
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

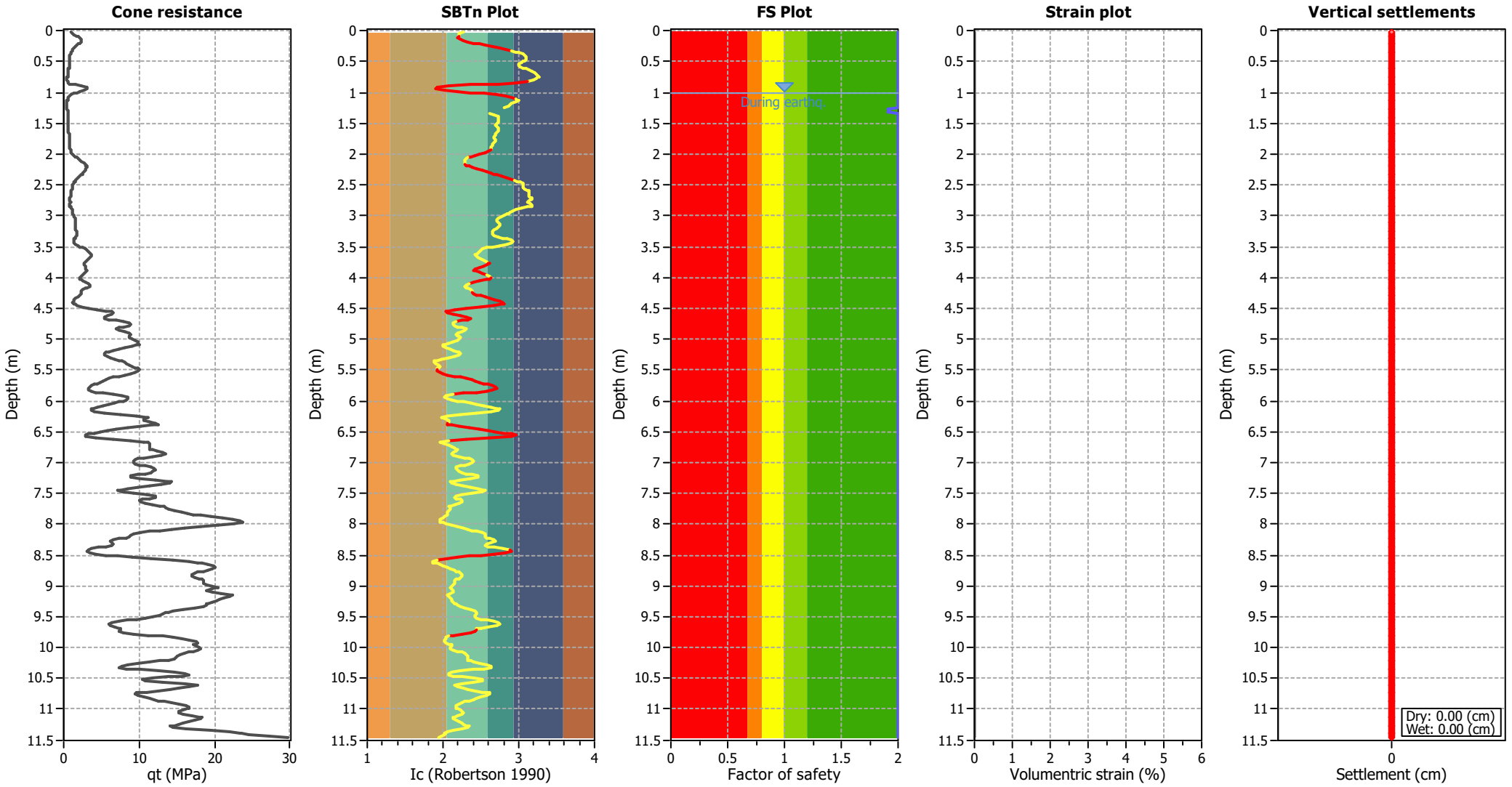
The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties	
I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics	
Total points in CPT file:	573
Total points excluded:	145
Exclusion percentage:	25.31%
Number of layers detected:	18

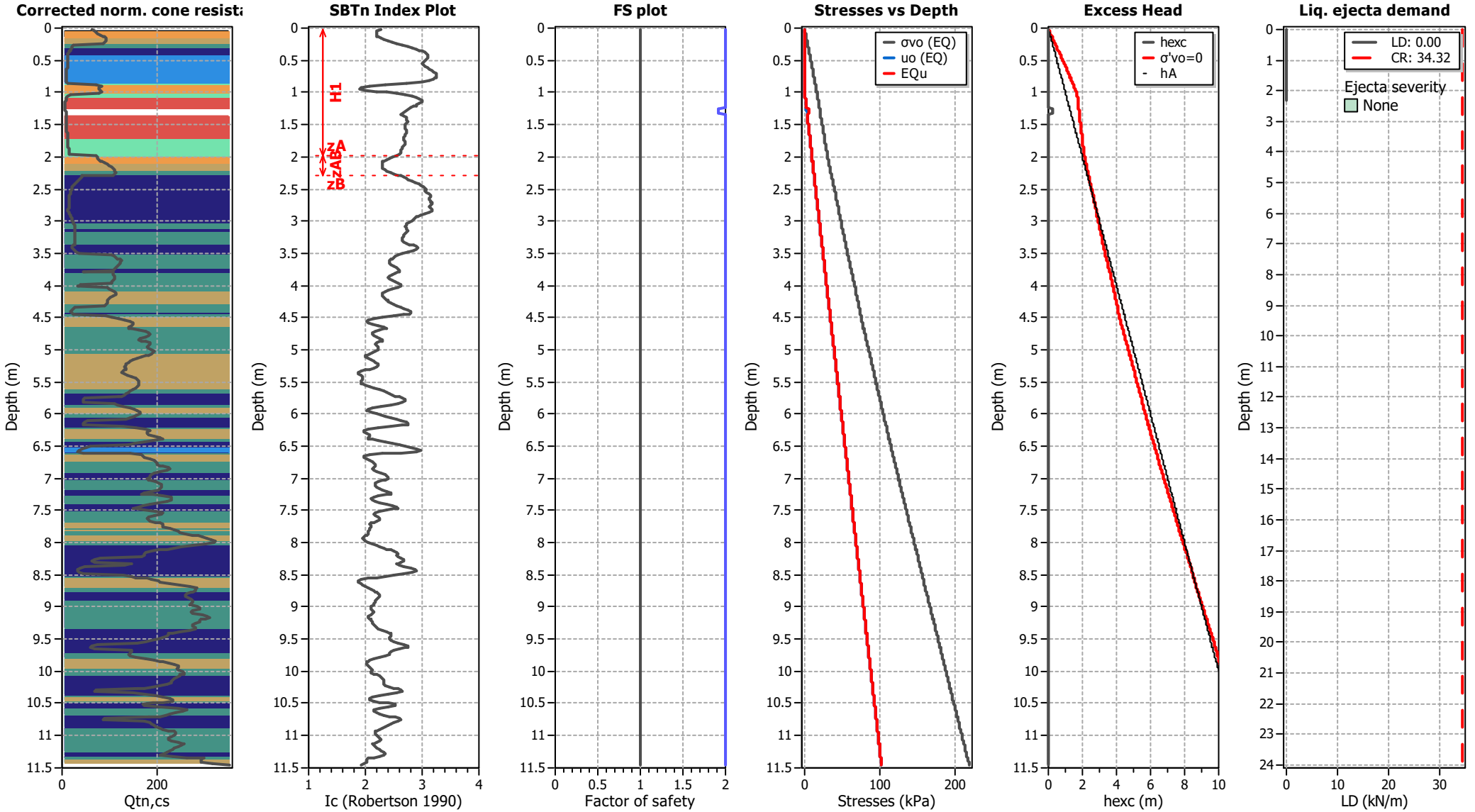
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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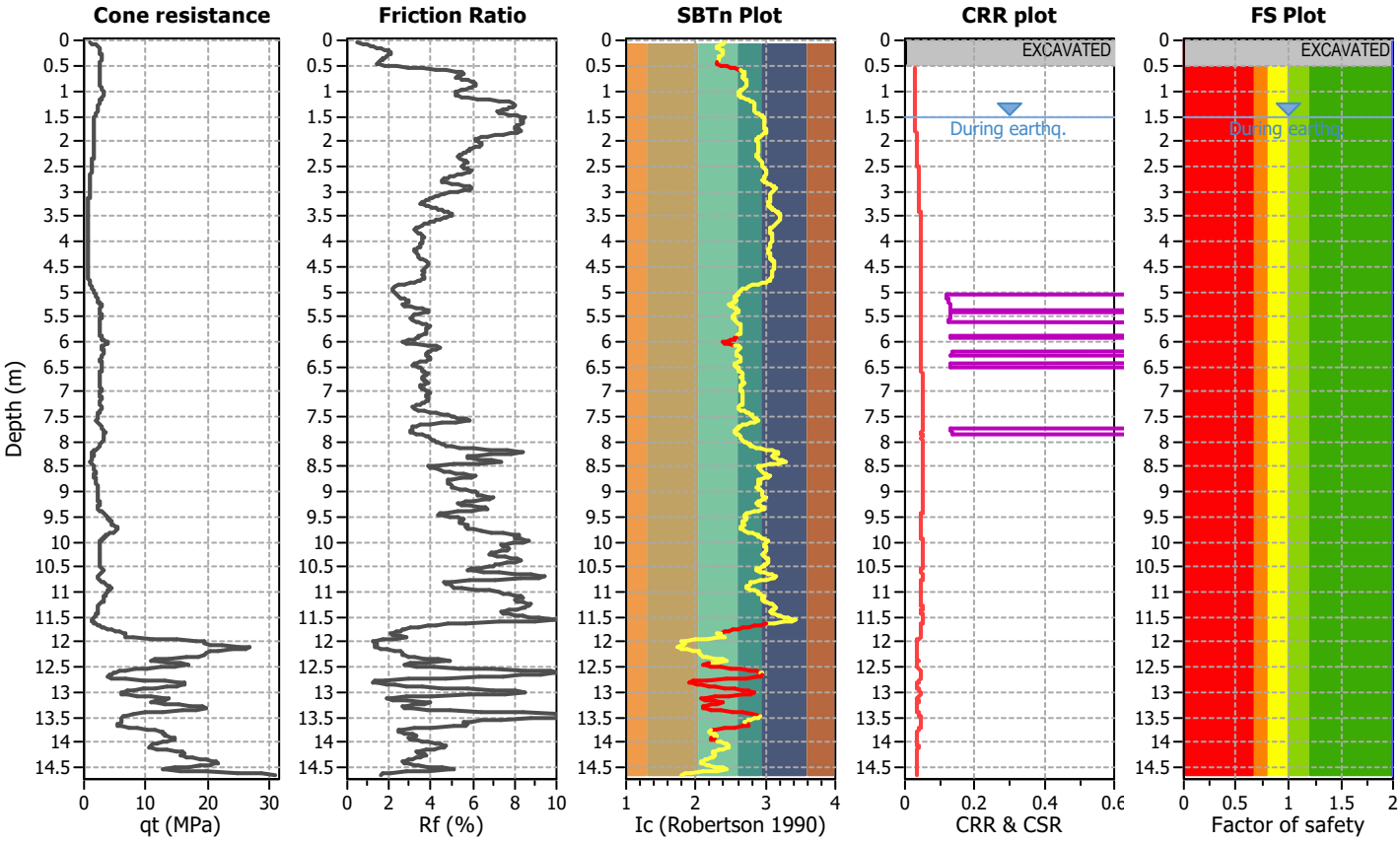
LIQUEFACTION ANALYSIS REPORT

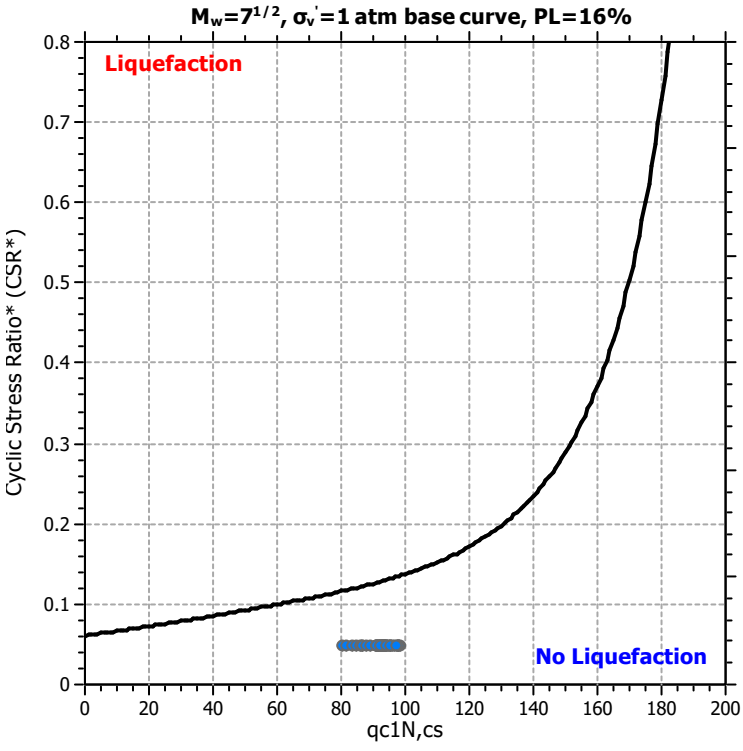
Project title : Sunfield Landholding **Location :**

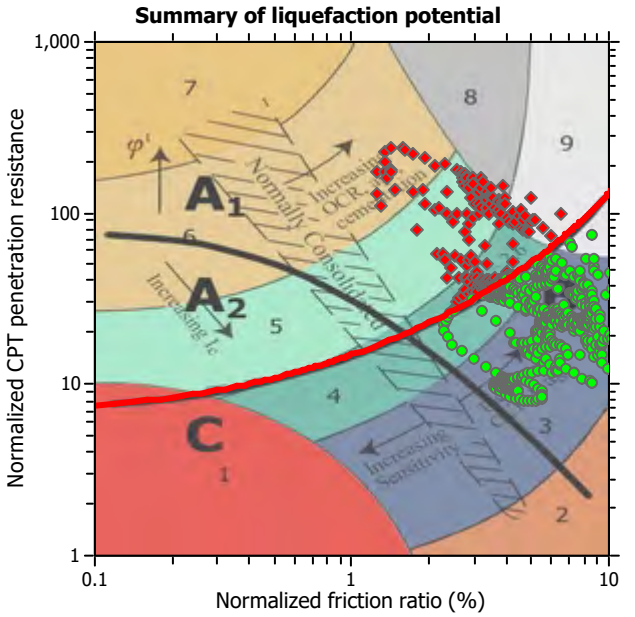
CPT file : CPT112

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.50 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.50 m	Excavation depth:	0.50 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

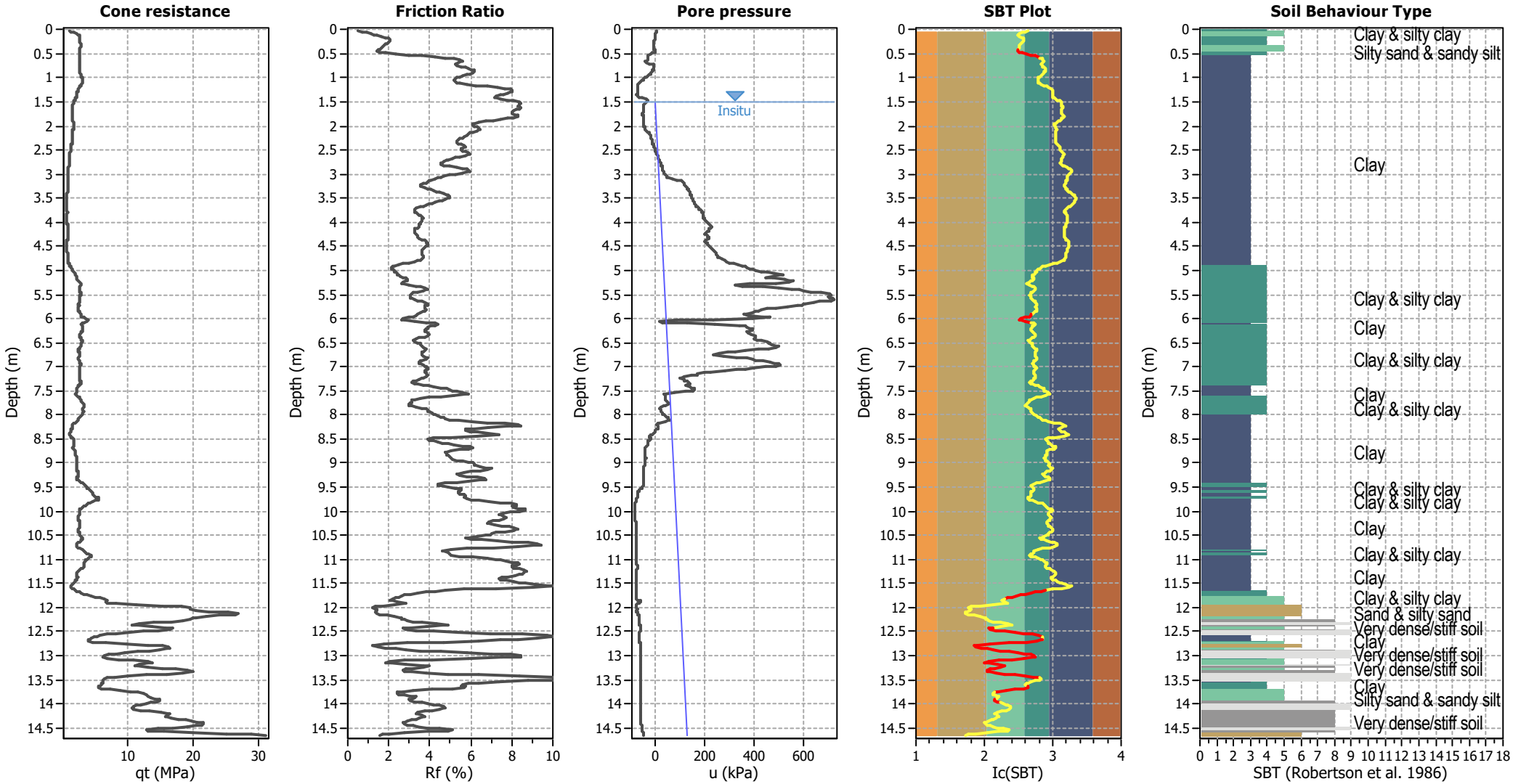






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



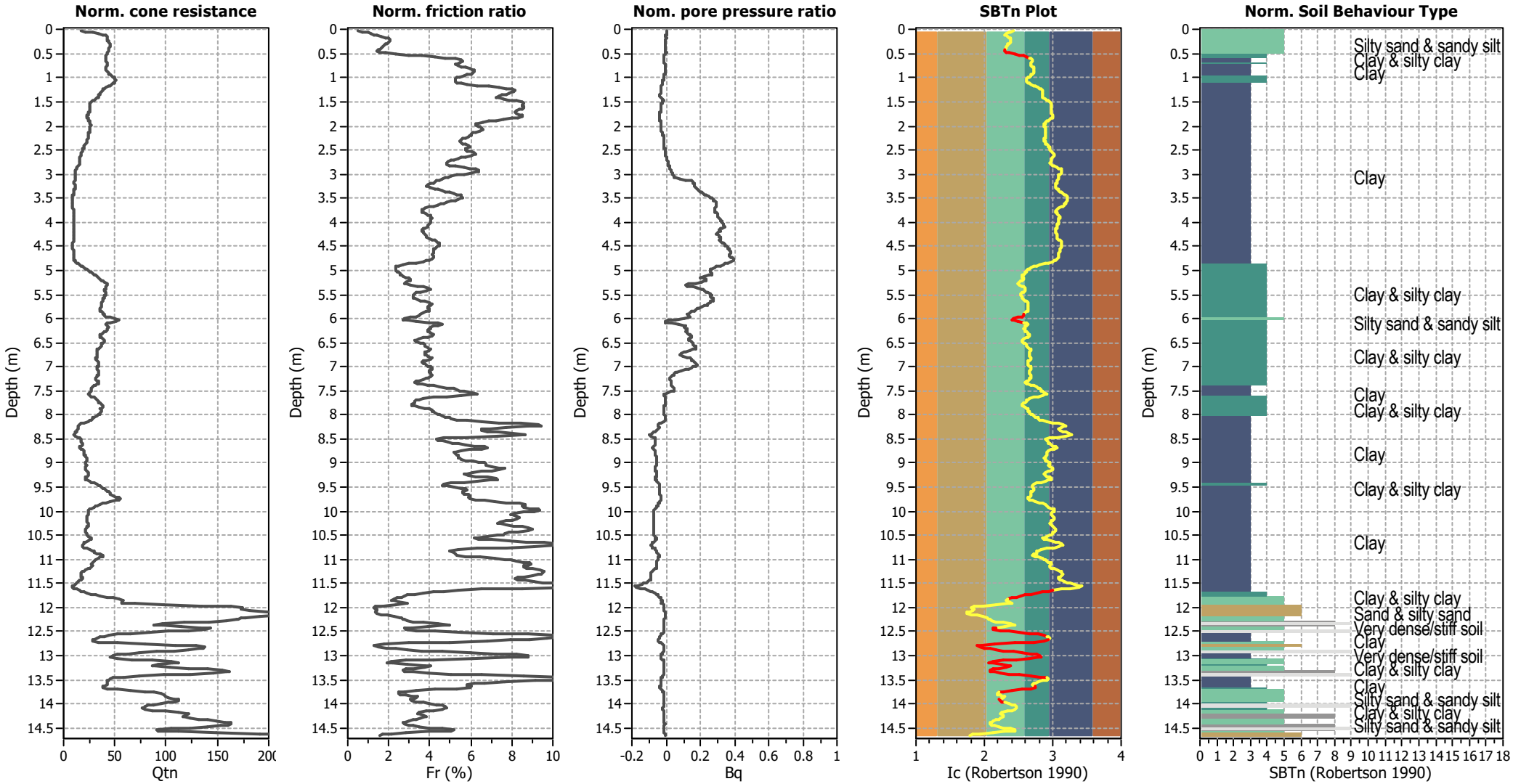
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.50 m	Excavation depth:	0.50 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



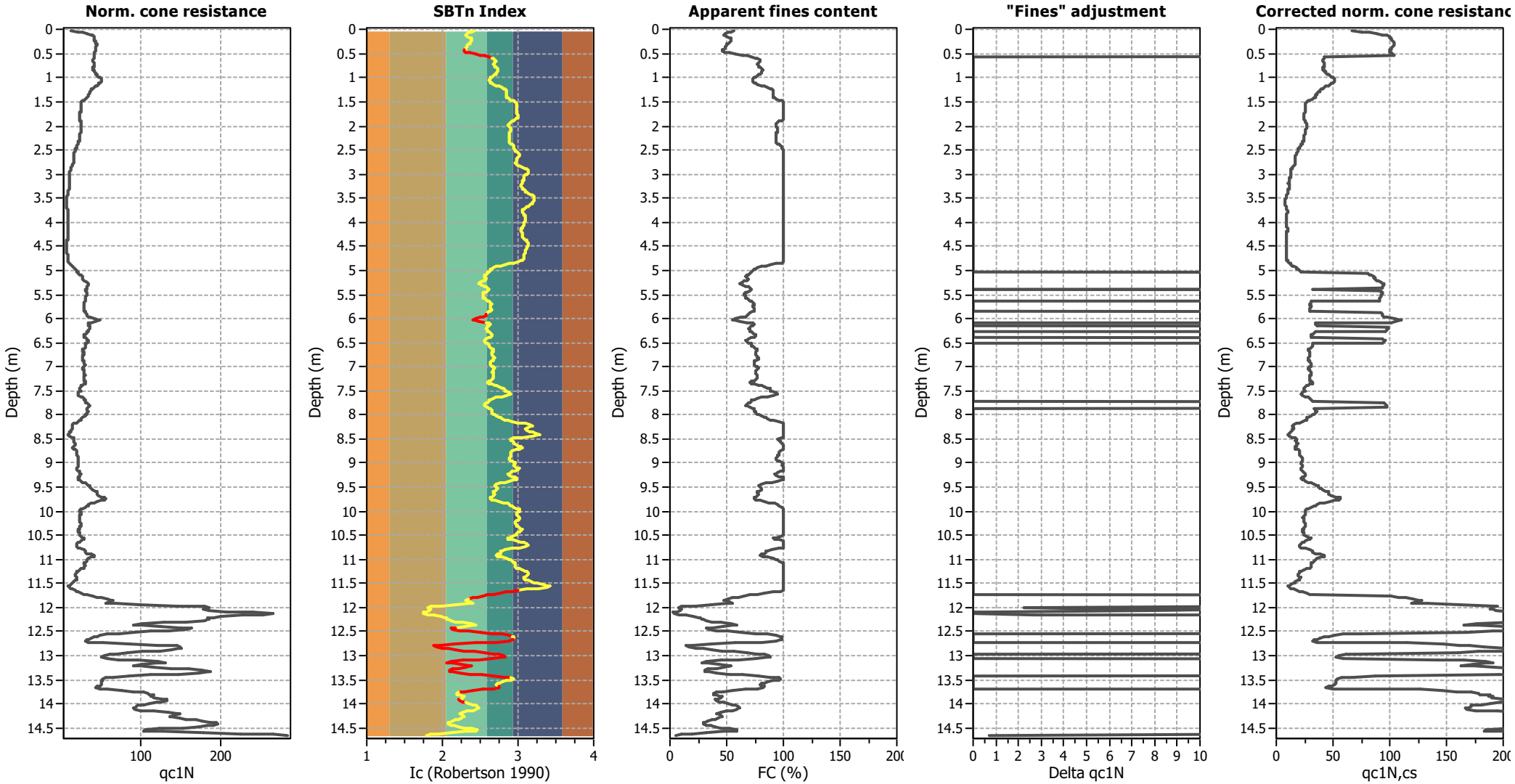
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.50 m	Excavation depth:	0.50 m	Limit depth:	10.00 m

SBTn legend

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

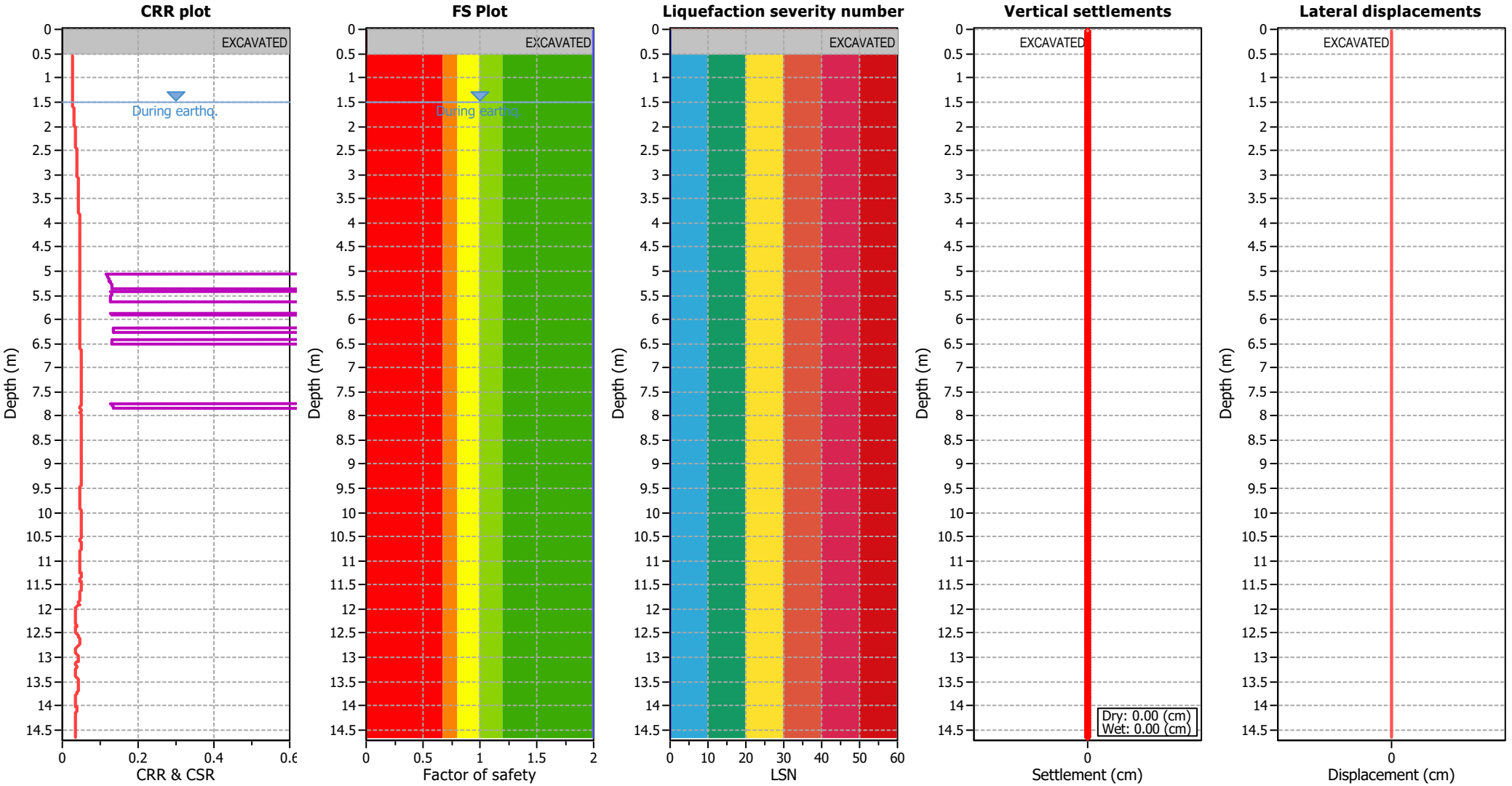
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.50 m	Excavation depth:	0.50 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
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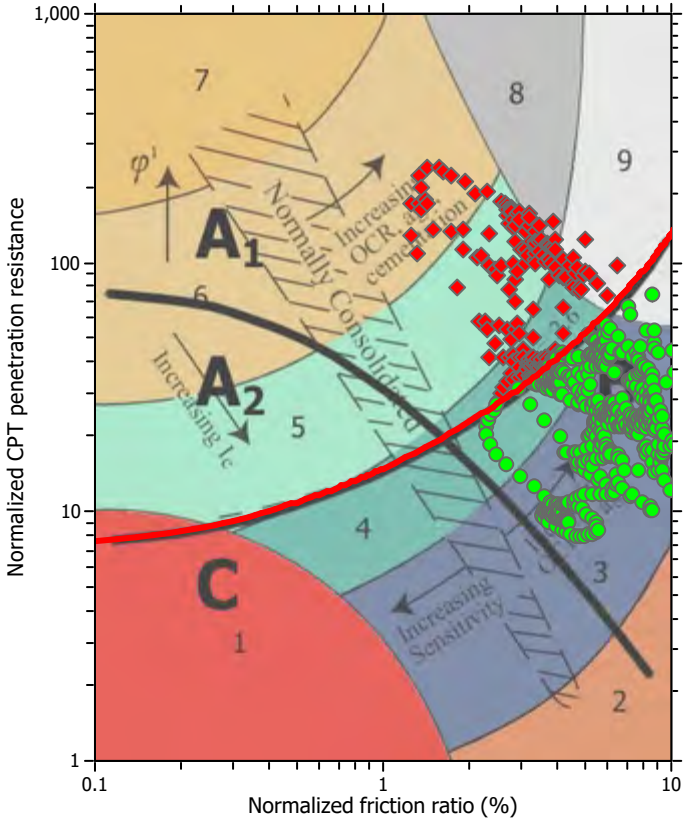
F.S. color scheme

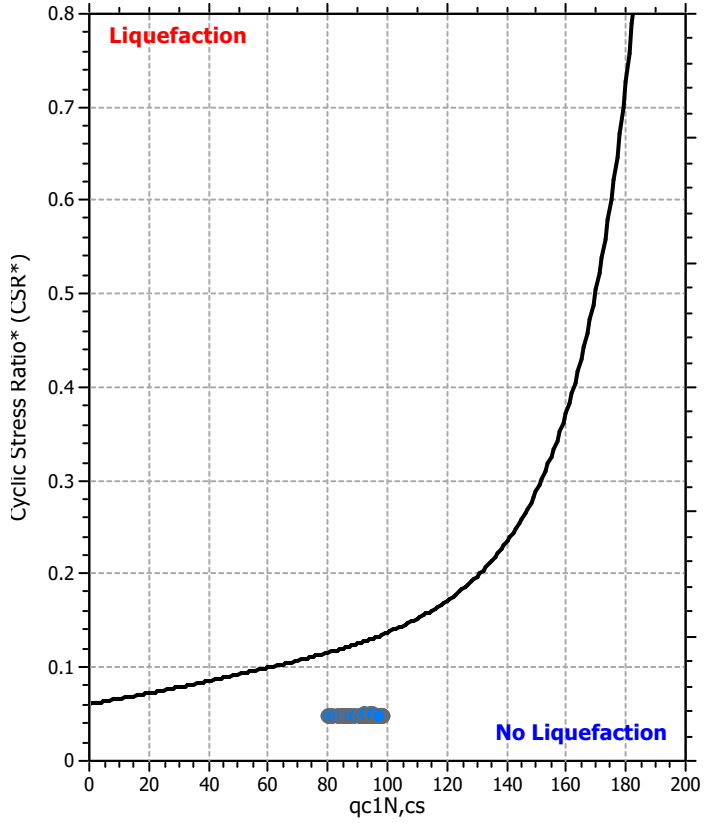
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

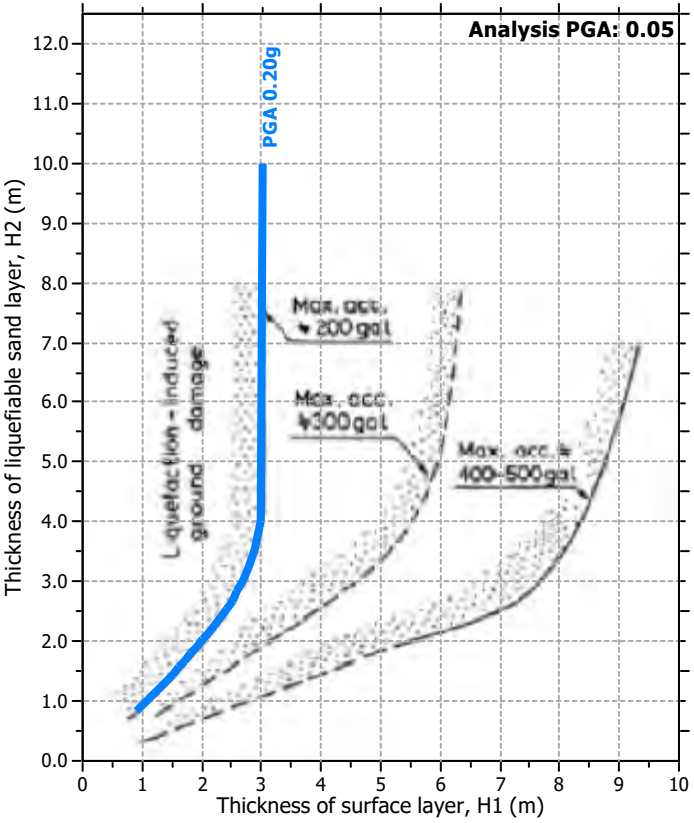
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



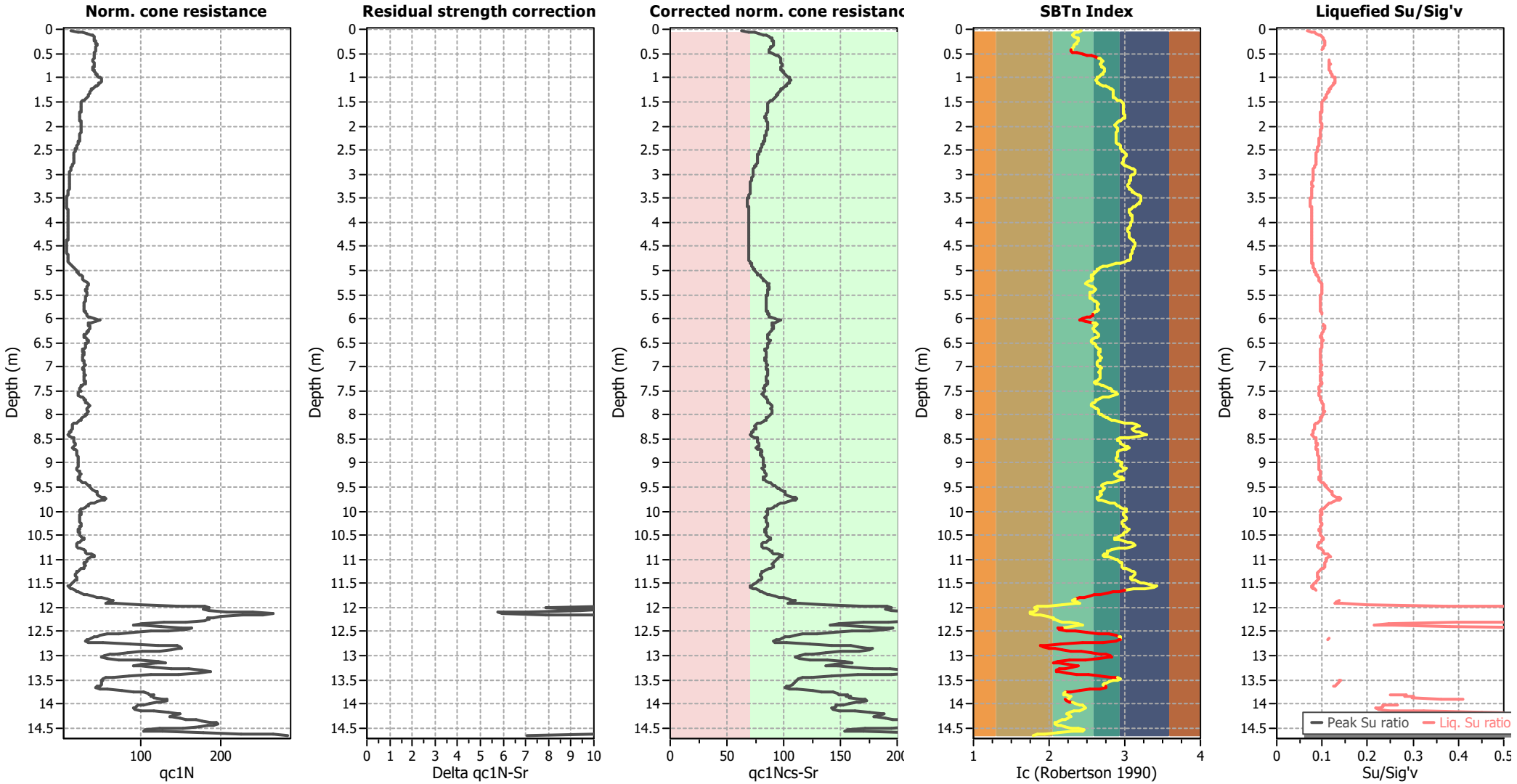




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.50 m	Excavation depth:	0.50 m	Limit depth:	10.00 m

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



Input parameters and analysis data

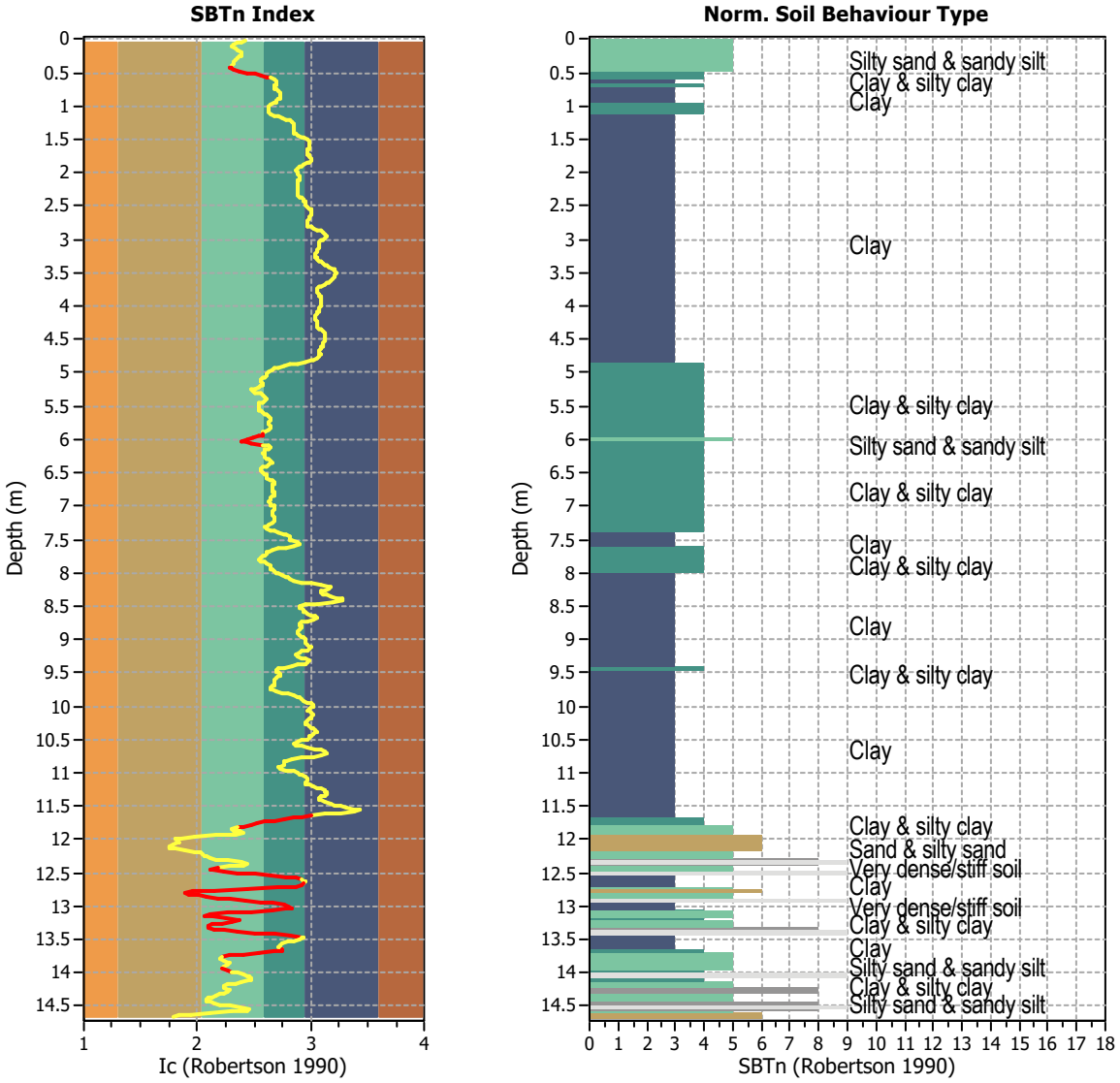
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.50 m	Excavation depth:	0.50 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

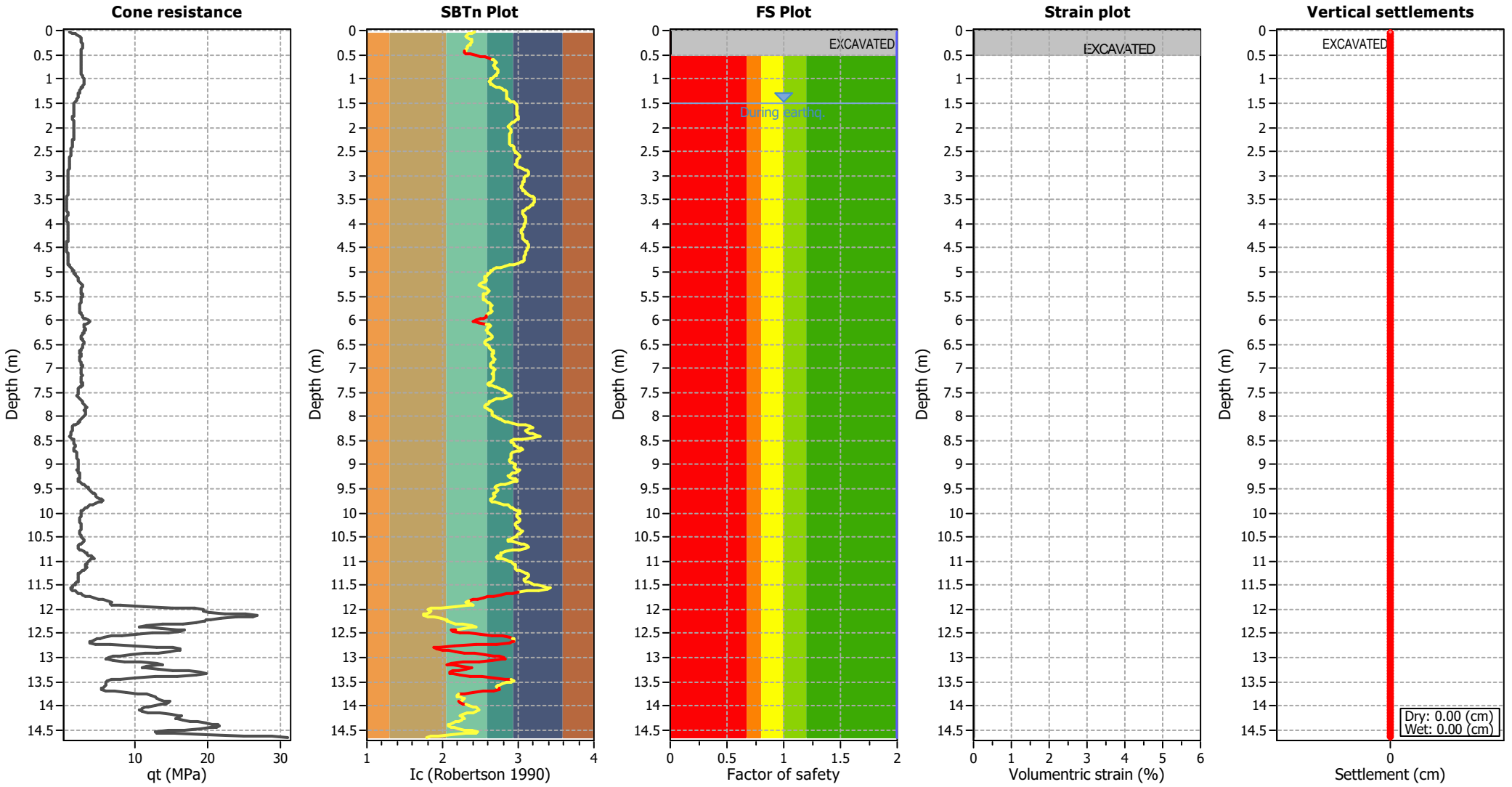
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	733
I_c maximum check value:	3.00	Total points excluded:	93
I_c change ratio value:	0.0100	Exclusion percentage:	12.69%
Minimum number of points in layer:	4	Number of layers detected:	13

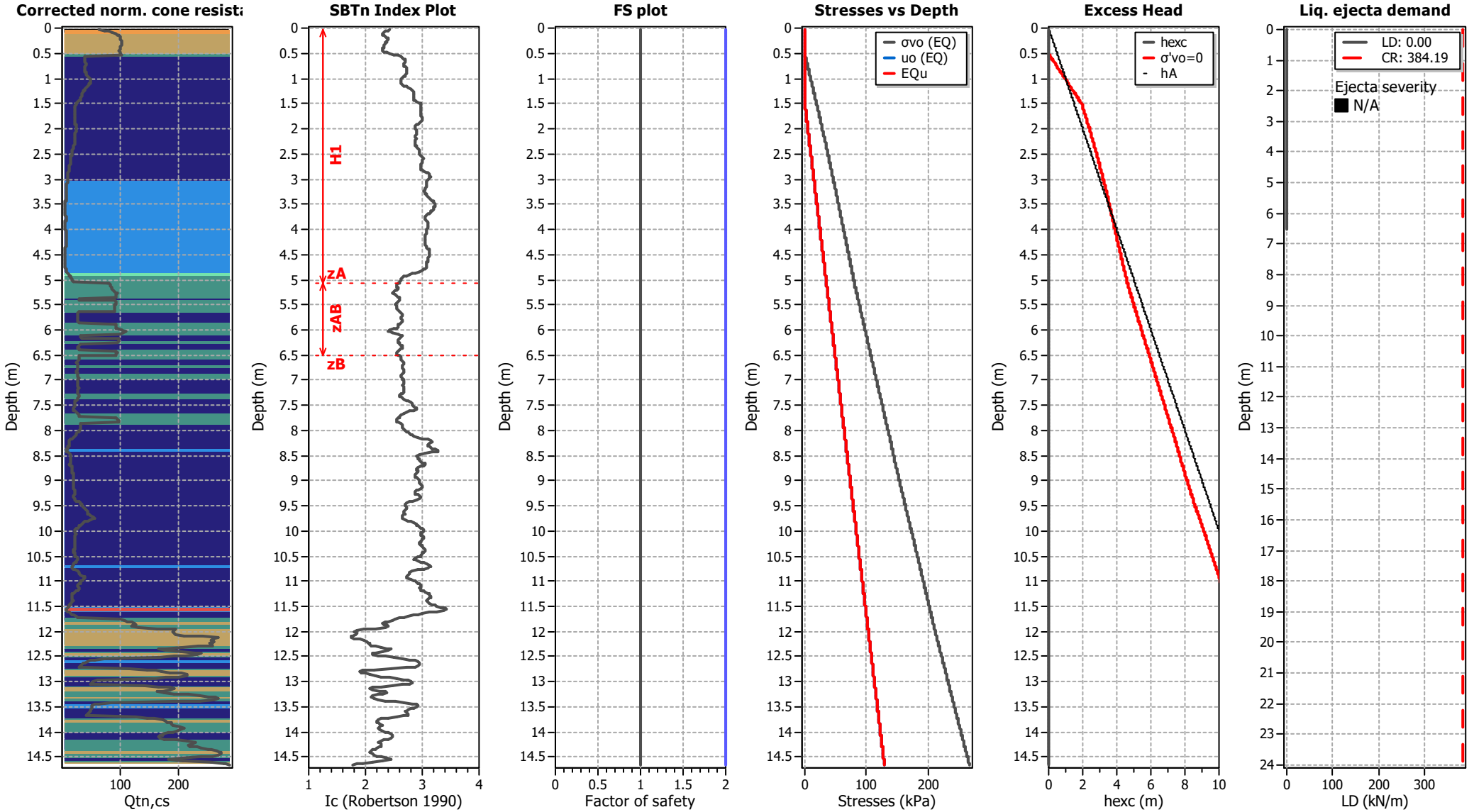
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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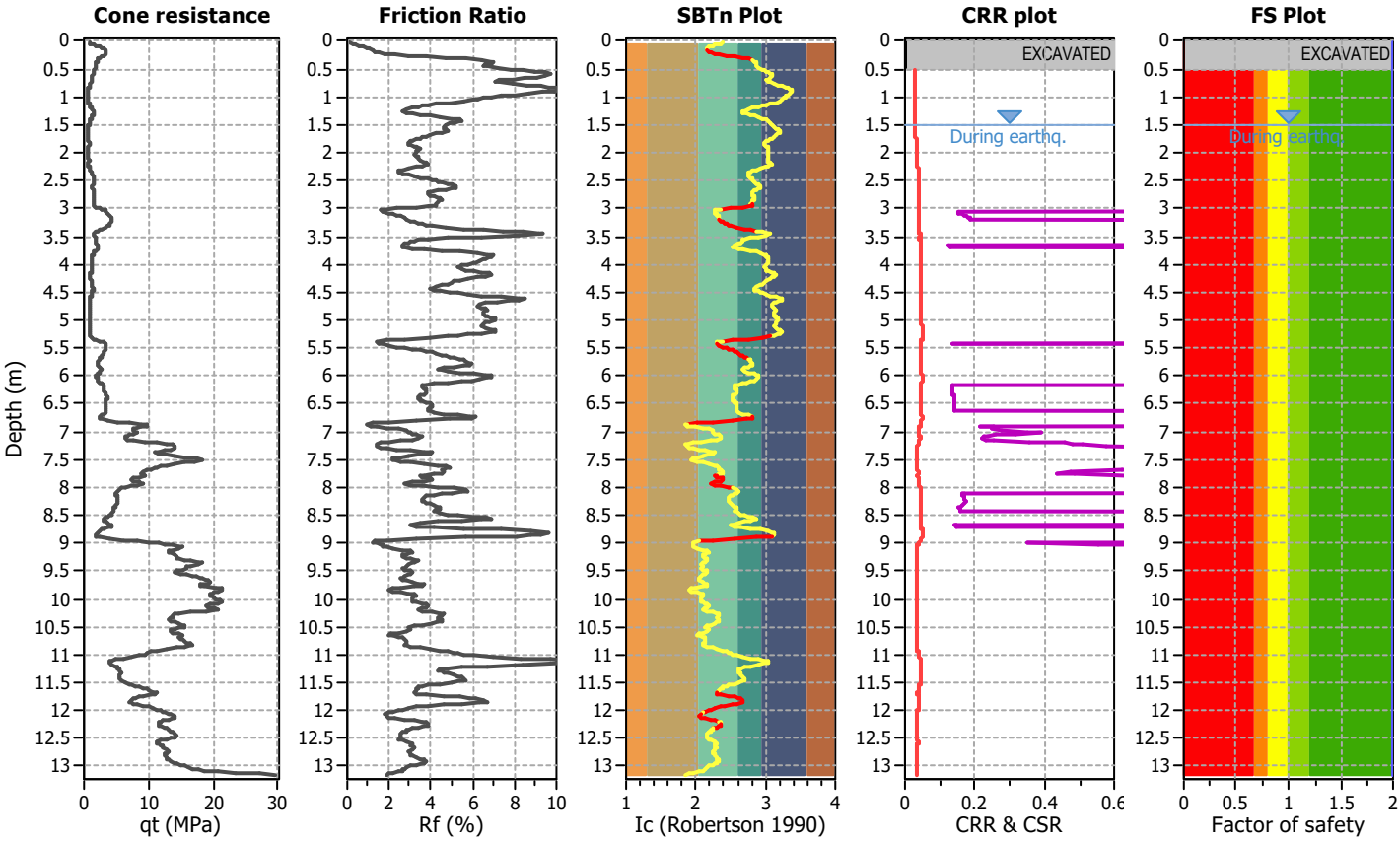
LIQUEFACTION ANALYSIS REPORT

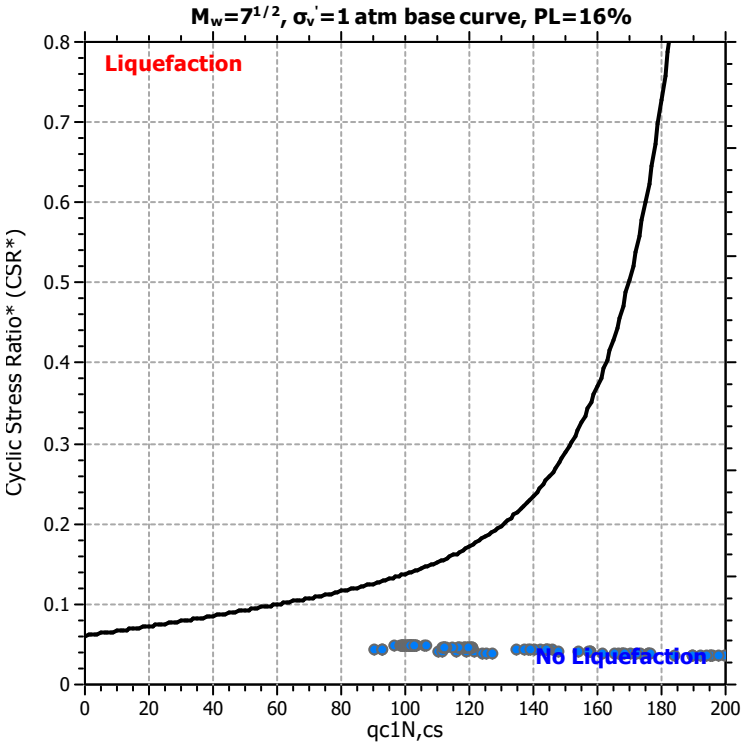
Project title : Sunfield Landholding **Location :**

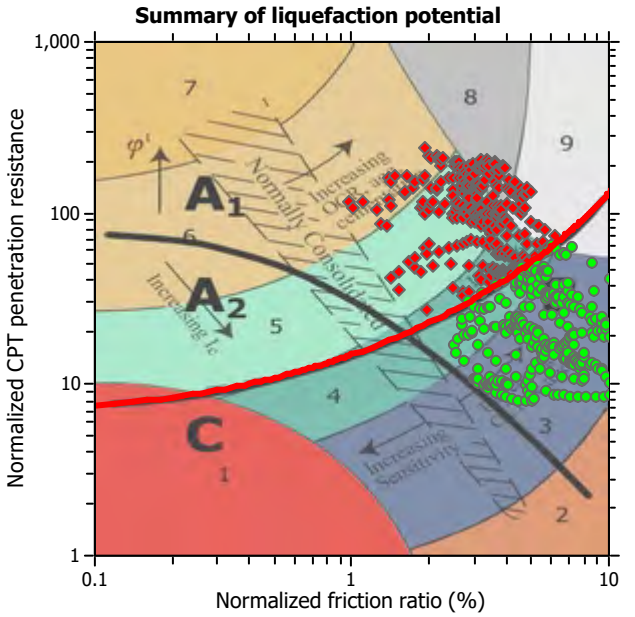
CPT file : CPT113

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.50 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.50 m	Excavation depth:	0.50 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

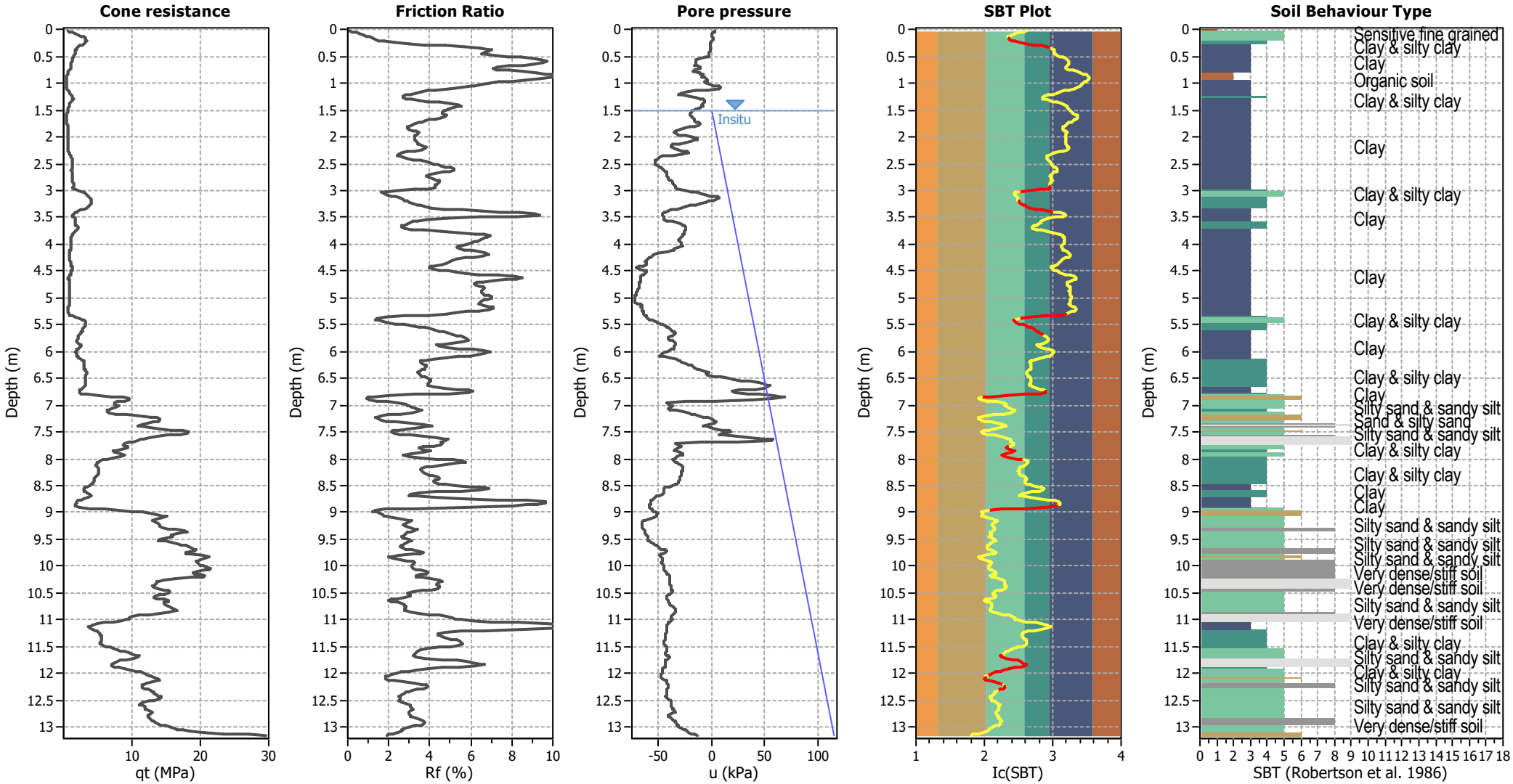






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



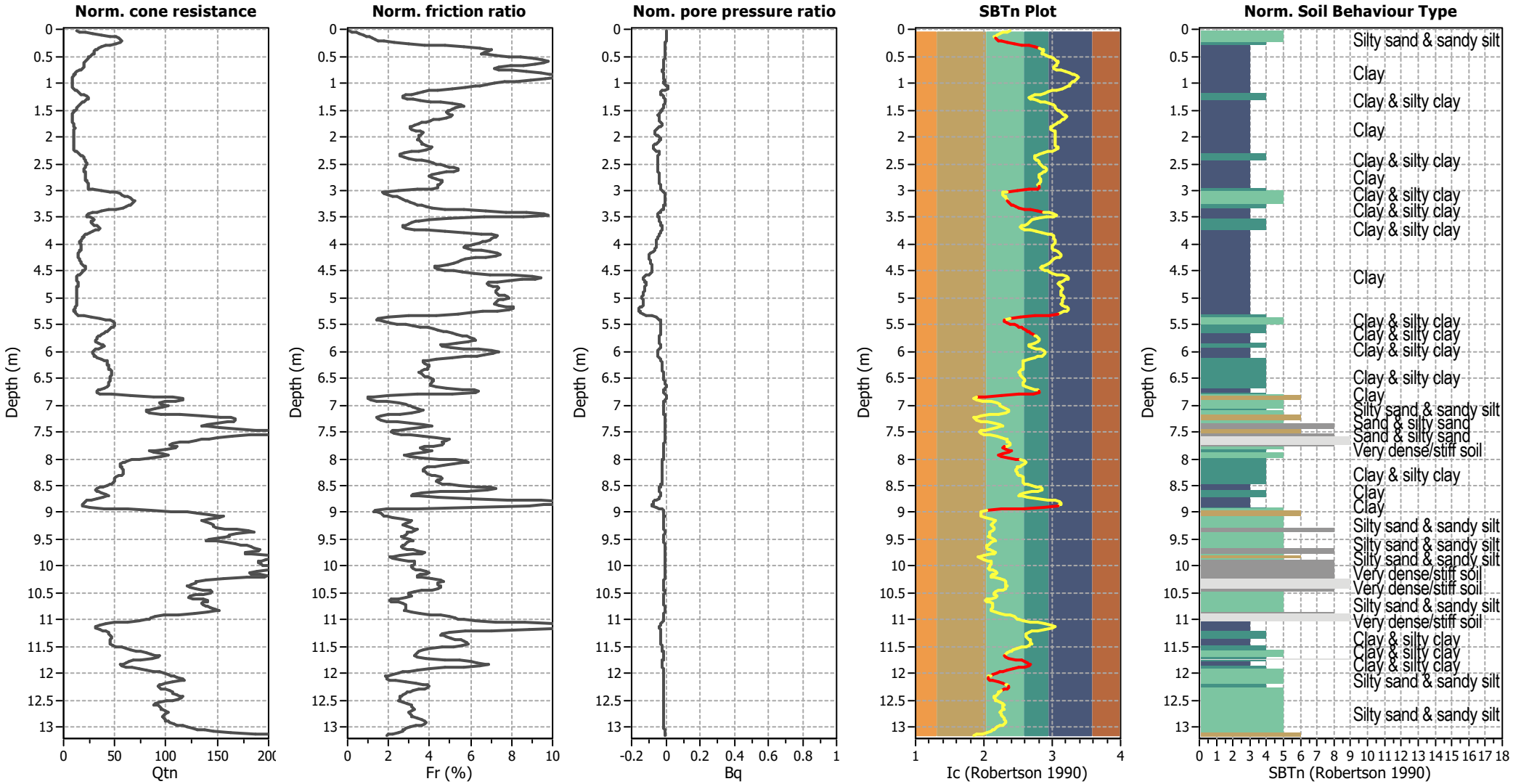
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.50 m	Excavation depth:	0.50 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.50 m	Excavation depth:	0.50 m	Limit depth:	10.00 m

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
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5. Silty sand to sandy silt
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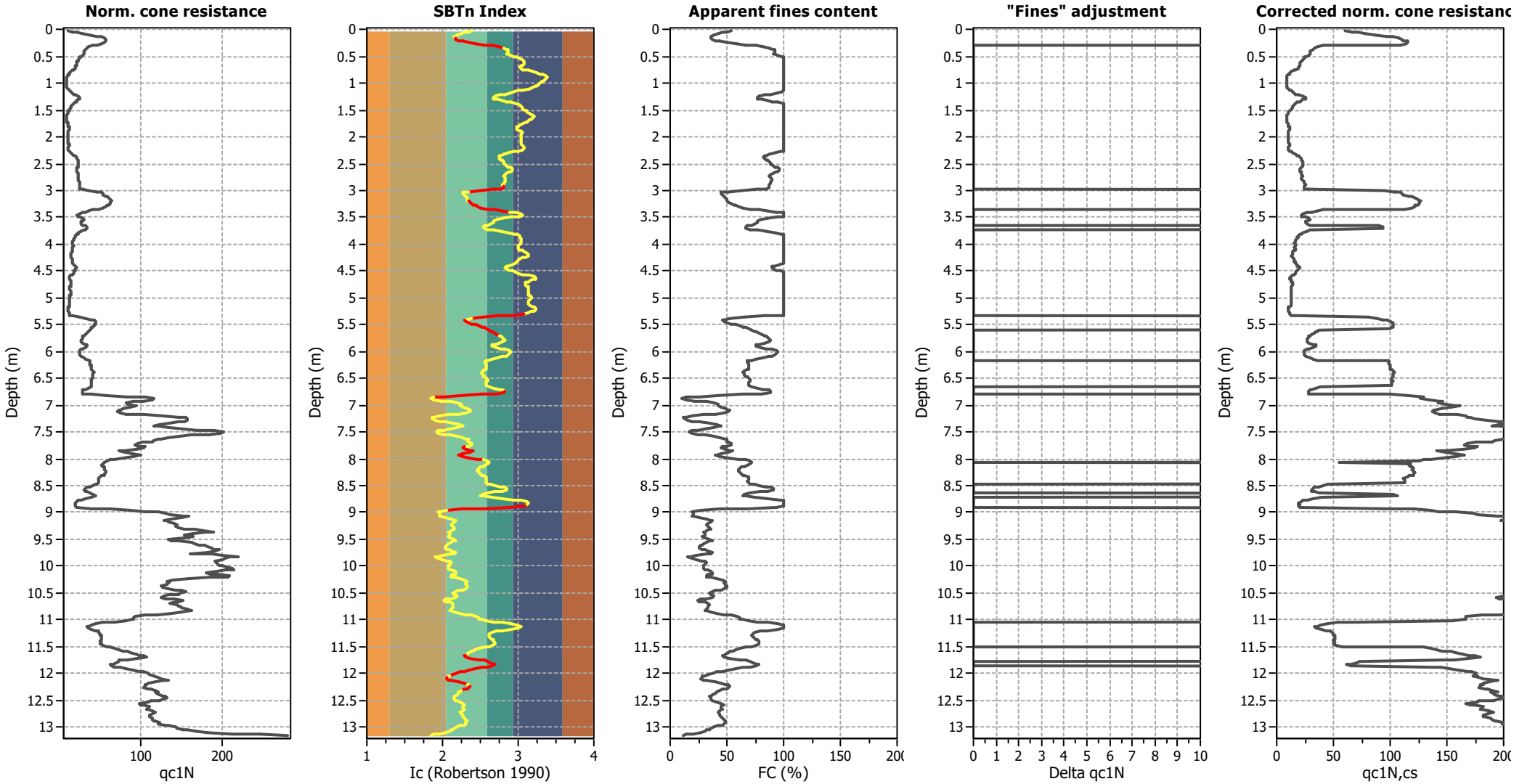
9. Very stiff fine grained

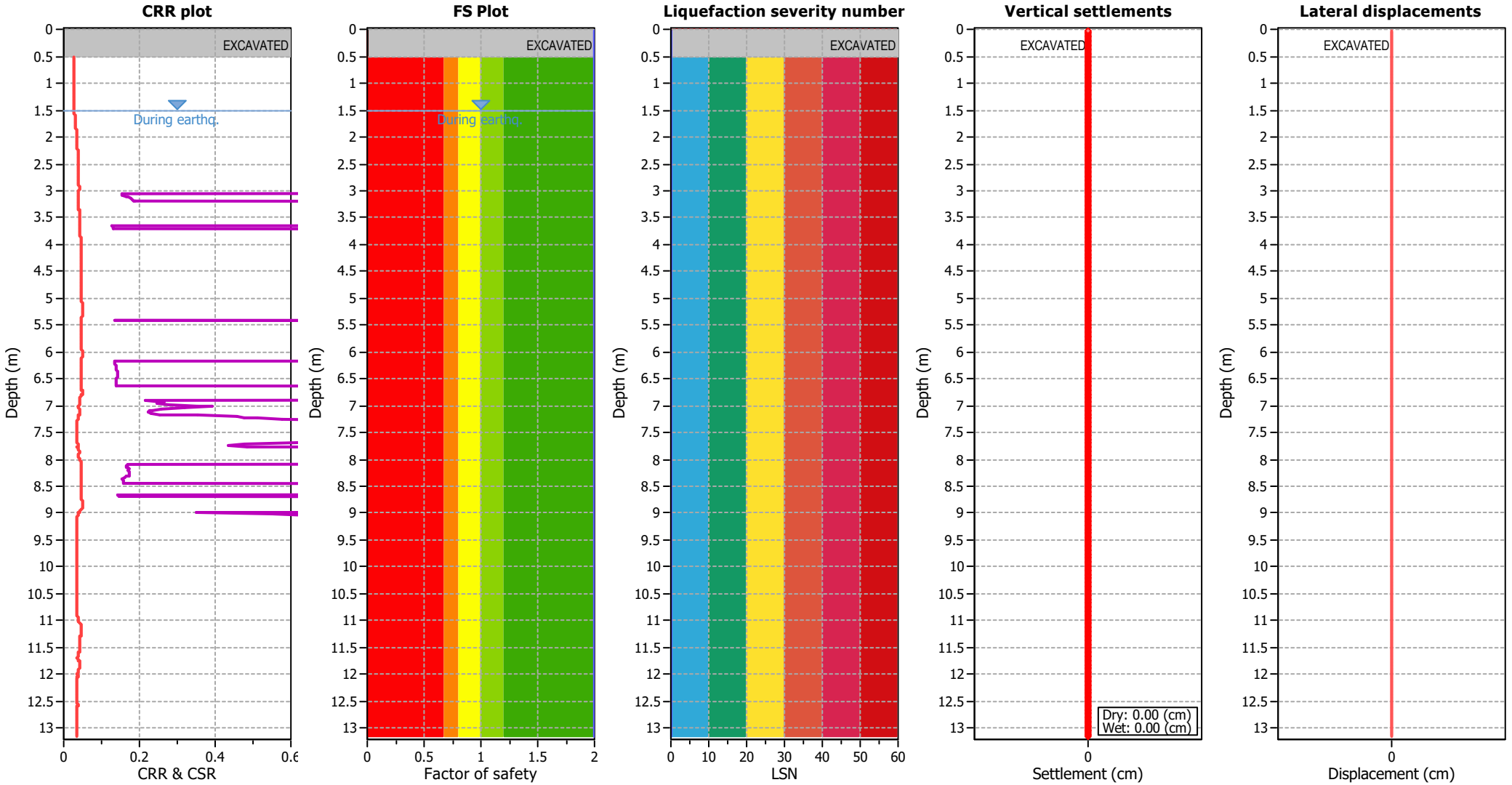
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.50 m	Excavation depth:	0.50 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.50 m	Footing load:	0.00 kPa
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Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
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Depth to water table (insitu):	1.50 m	Excavation depth:	0.50 m	Limit depth:	10.00 m

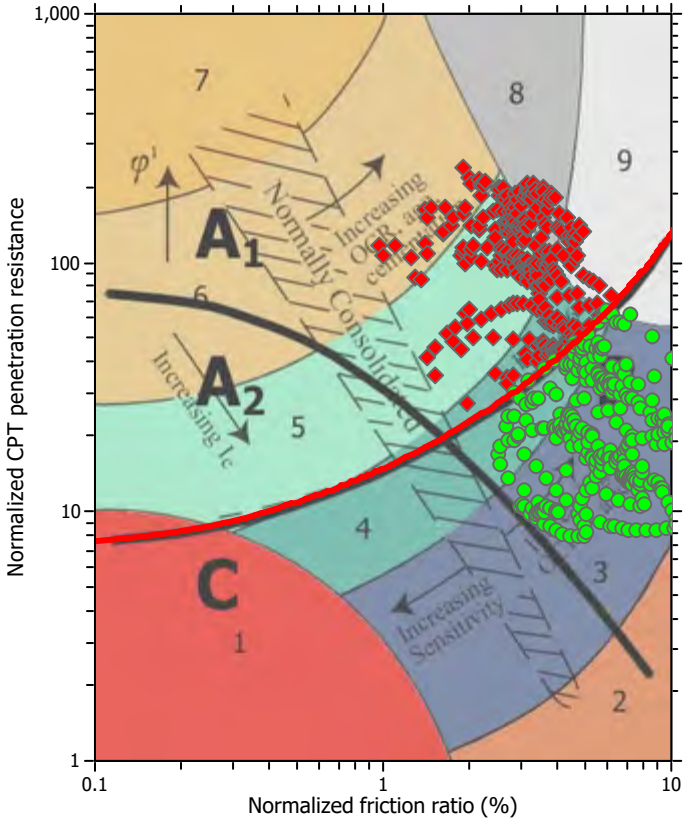
F.S. color scheme

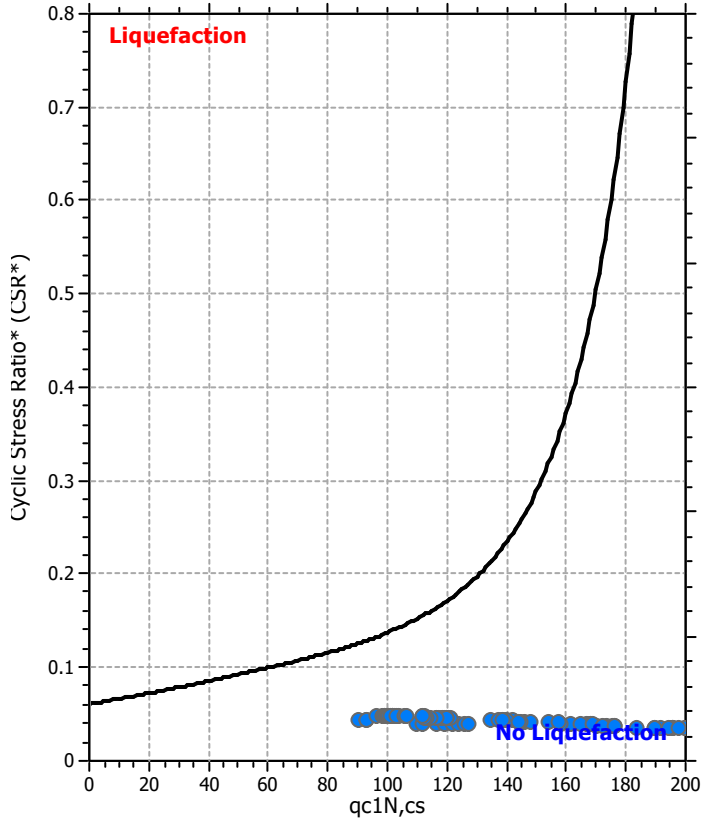
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

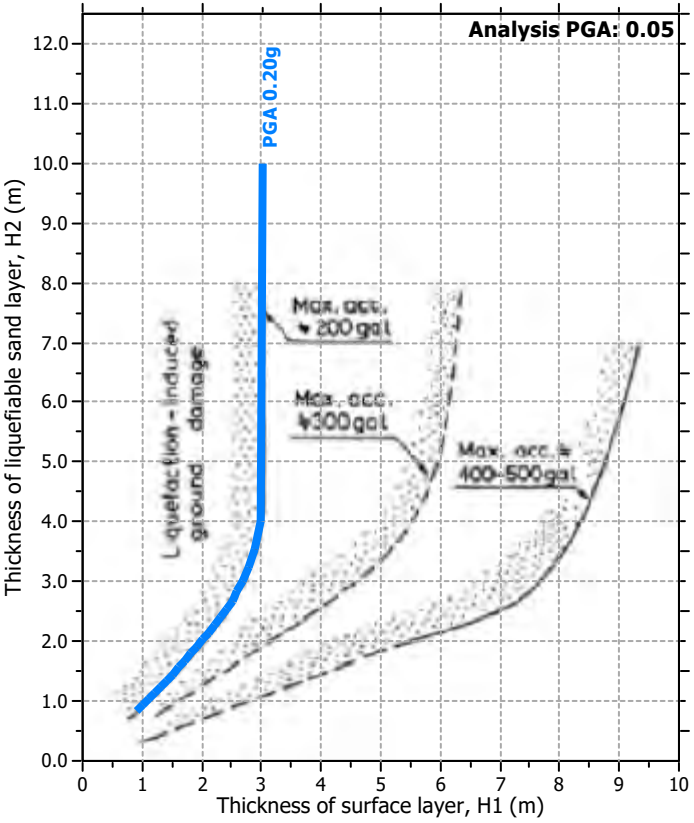
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



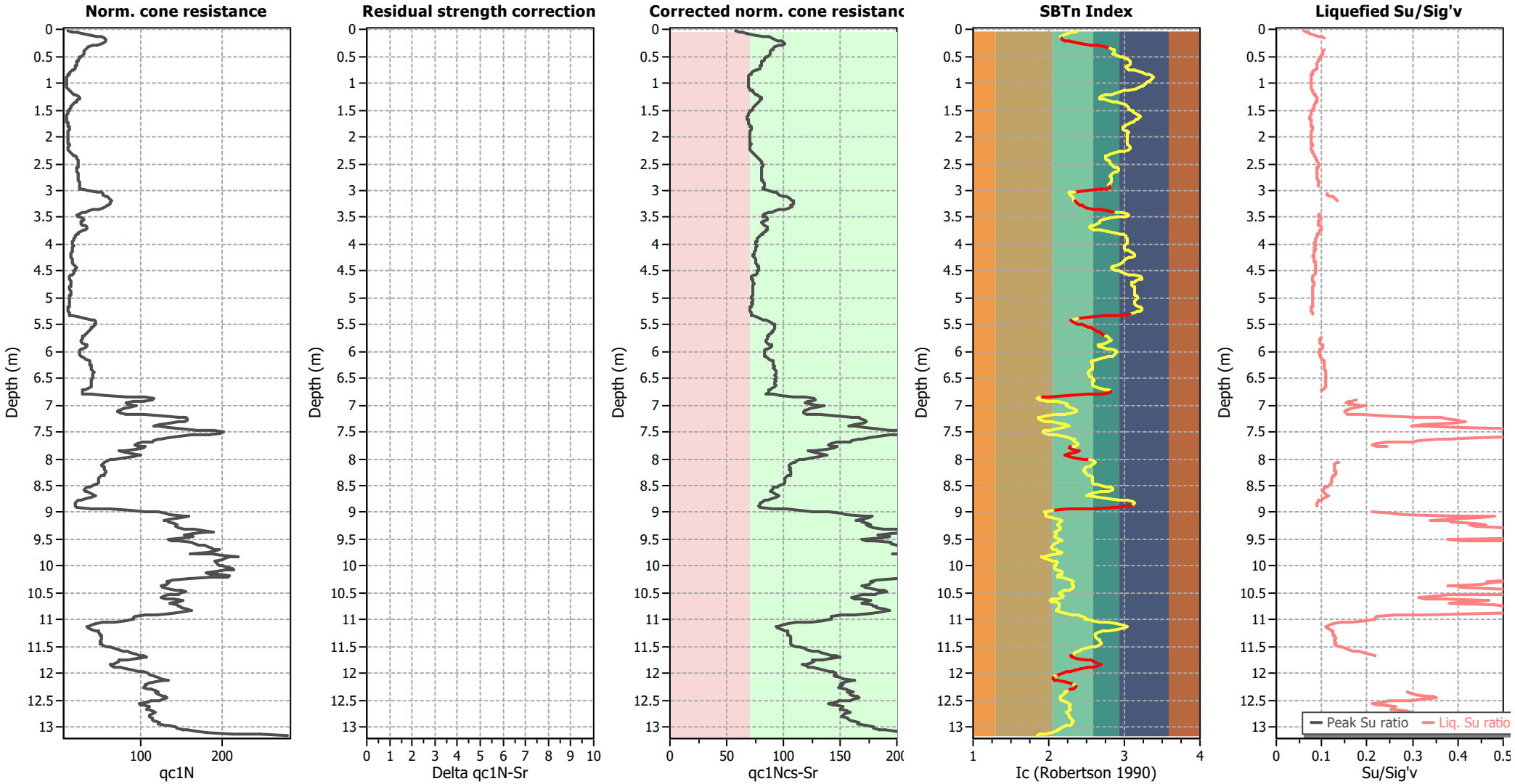




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.50 m	Excavation depth:	0.50 m	Limit depth:	10.00 m

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



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.50 m	Excavation depth:	0.50 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

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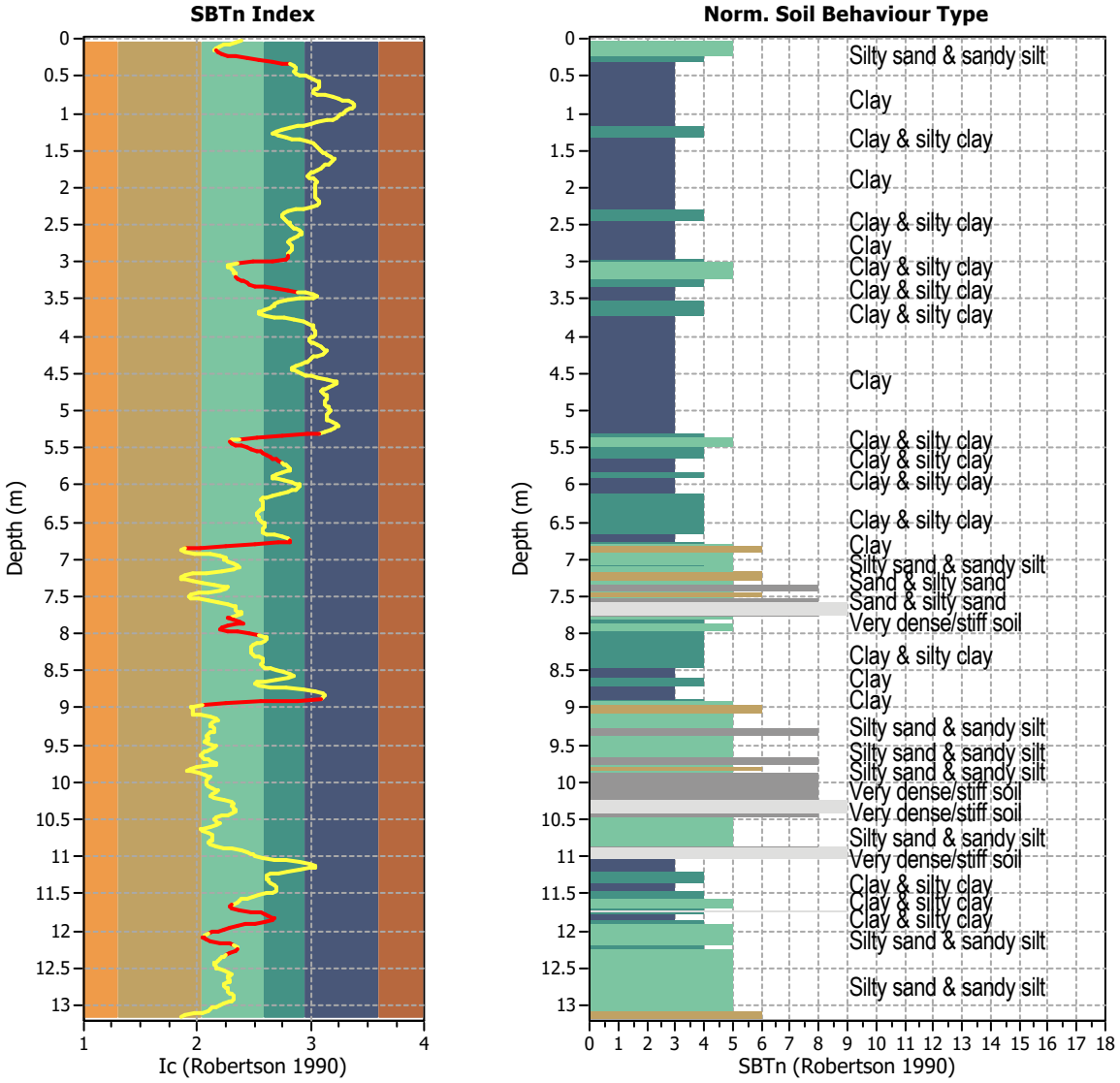


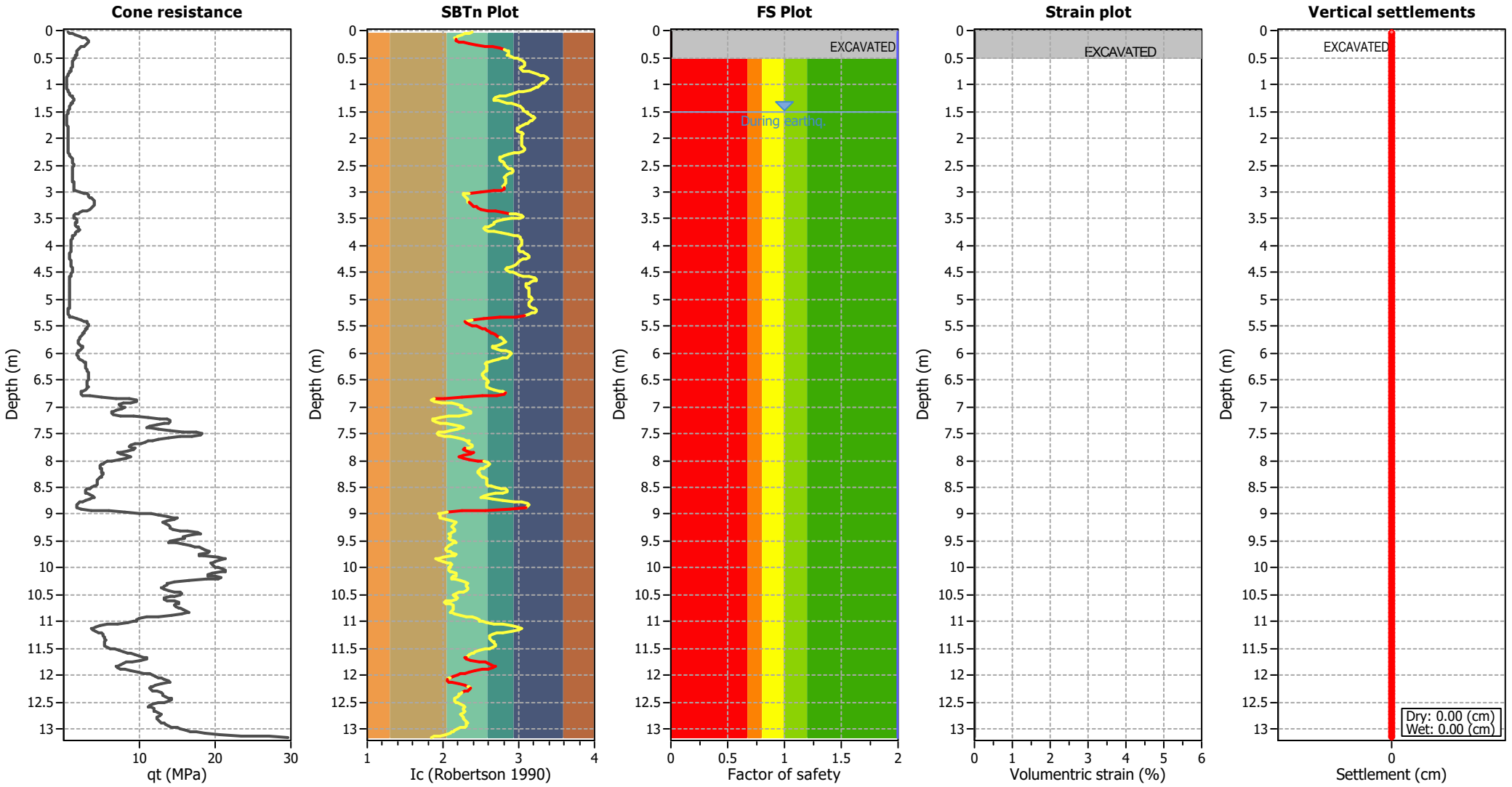
Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	658
Total points excluded:	105
Exclusion percentage:	15.96%
Number of layers detected:	14

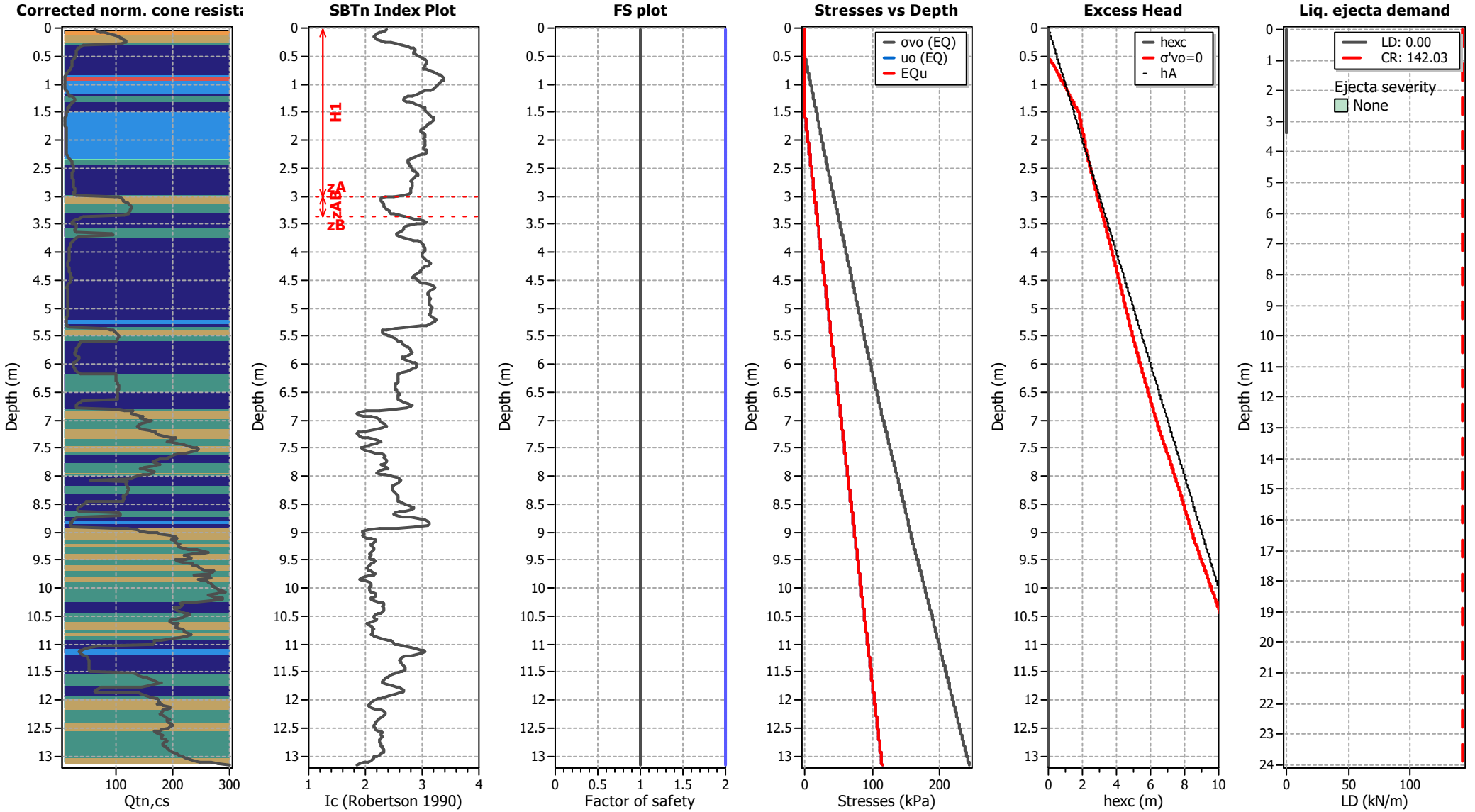
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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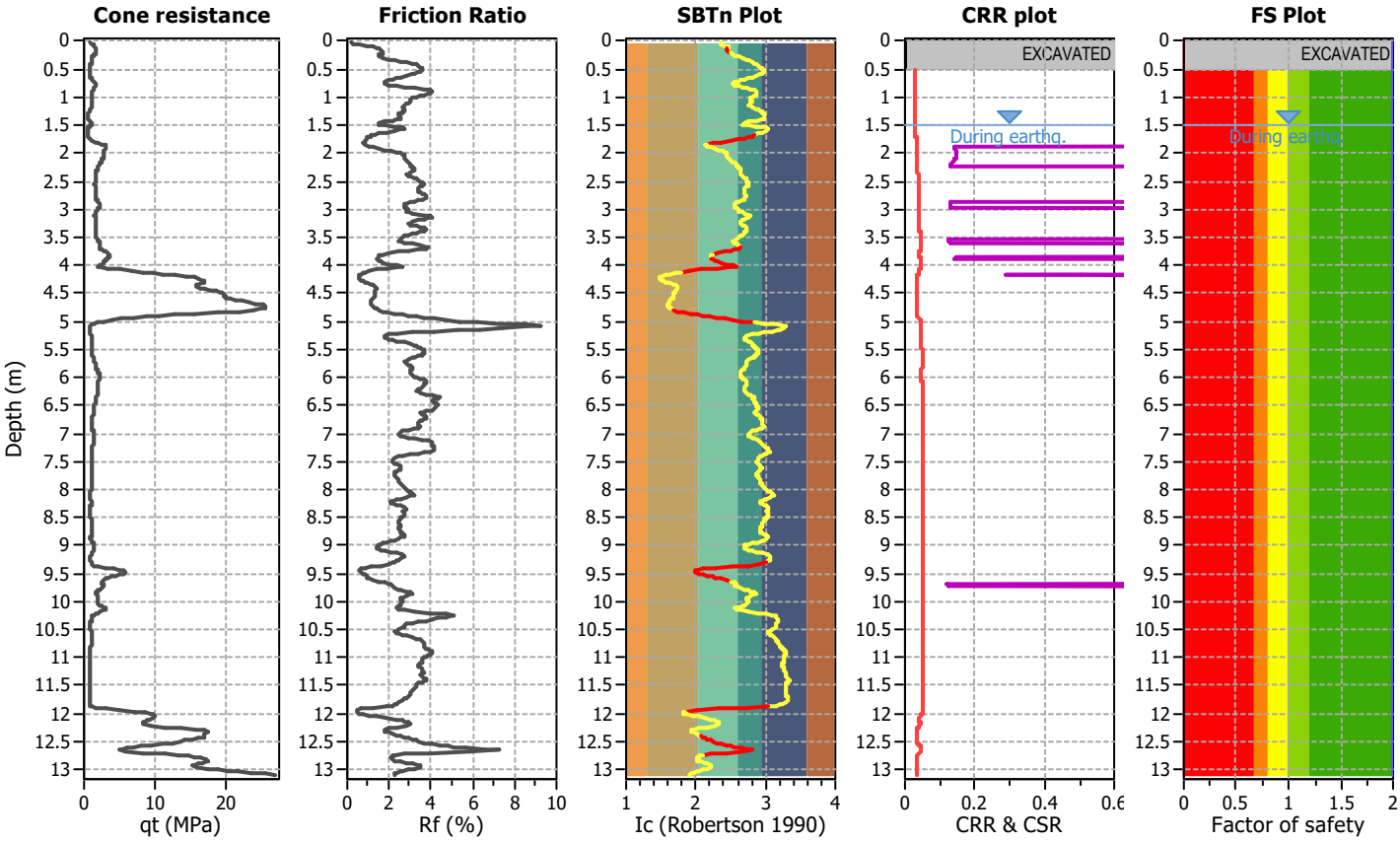
LIQUEFACTION ANALYSIS REPORT

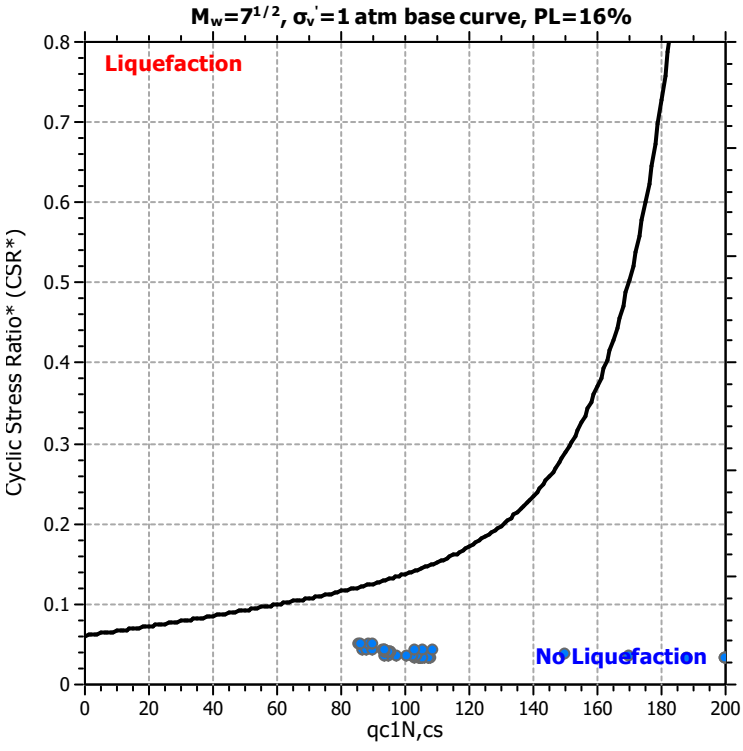
Project title : Sunfield Landholding **Location :**

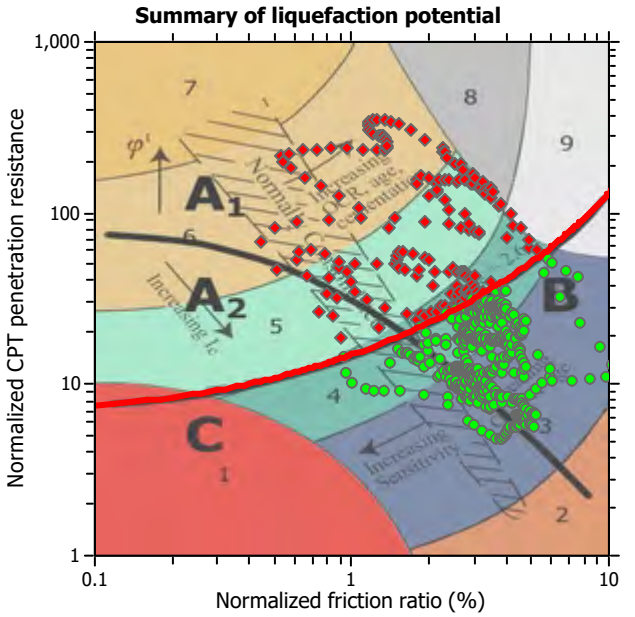
CPT file : CPT115

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.50 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.50 m	Excavation depth:	0.50 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

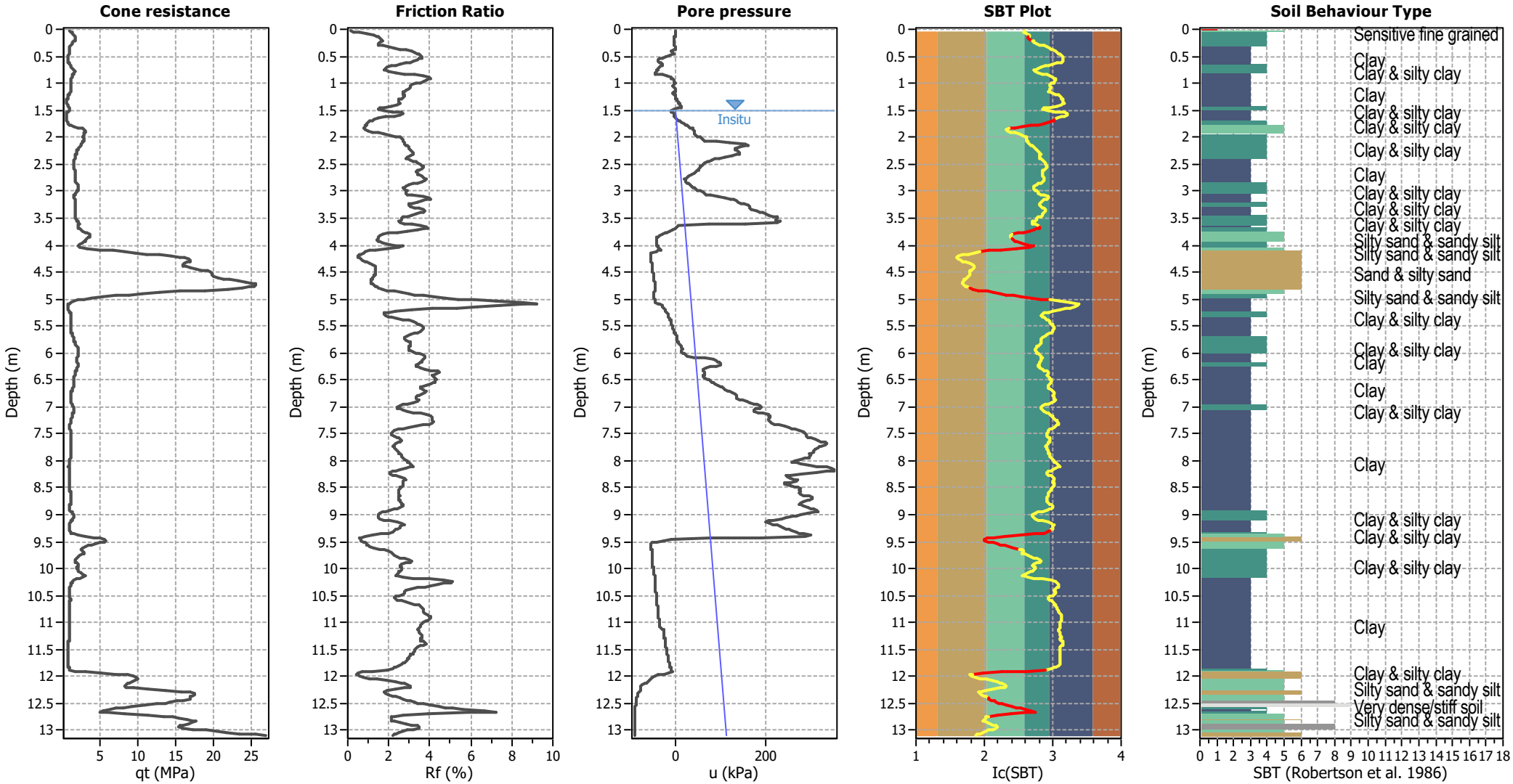






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



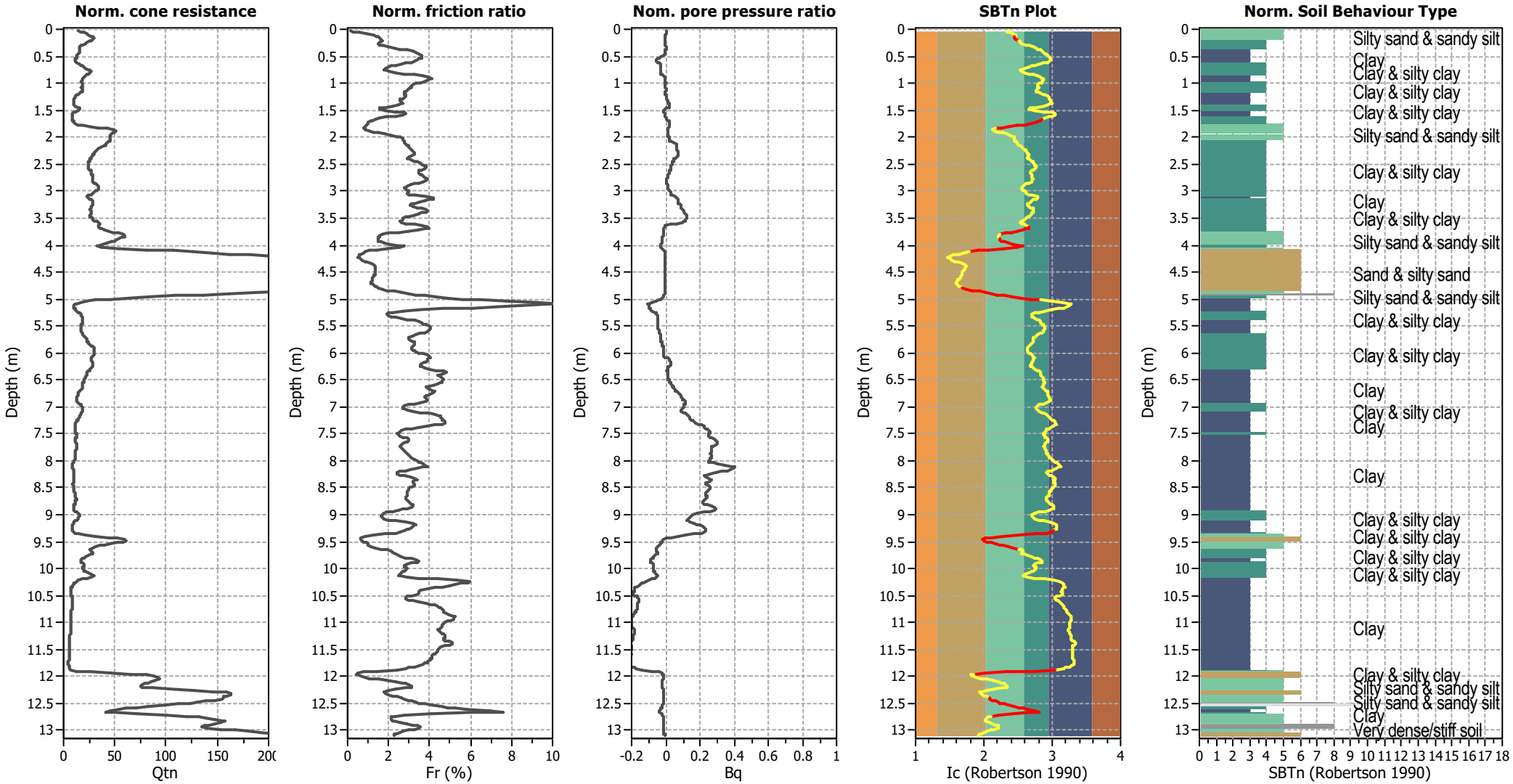
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.50 m	Excavation depth:	0.50 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



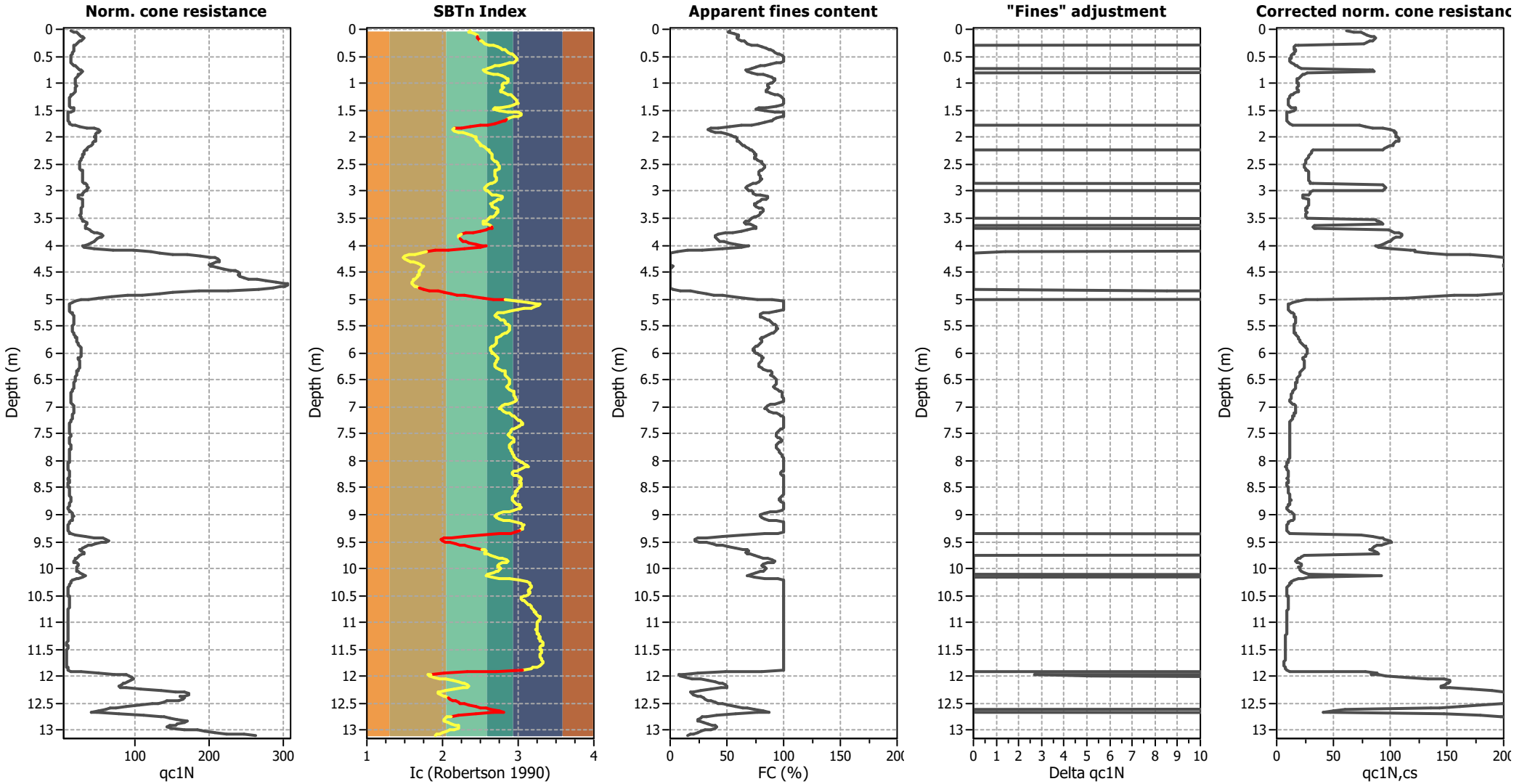
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.50 m	Excavation depth:	0.50 m	Limit depth:	10.00 m

SBTn legend

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

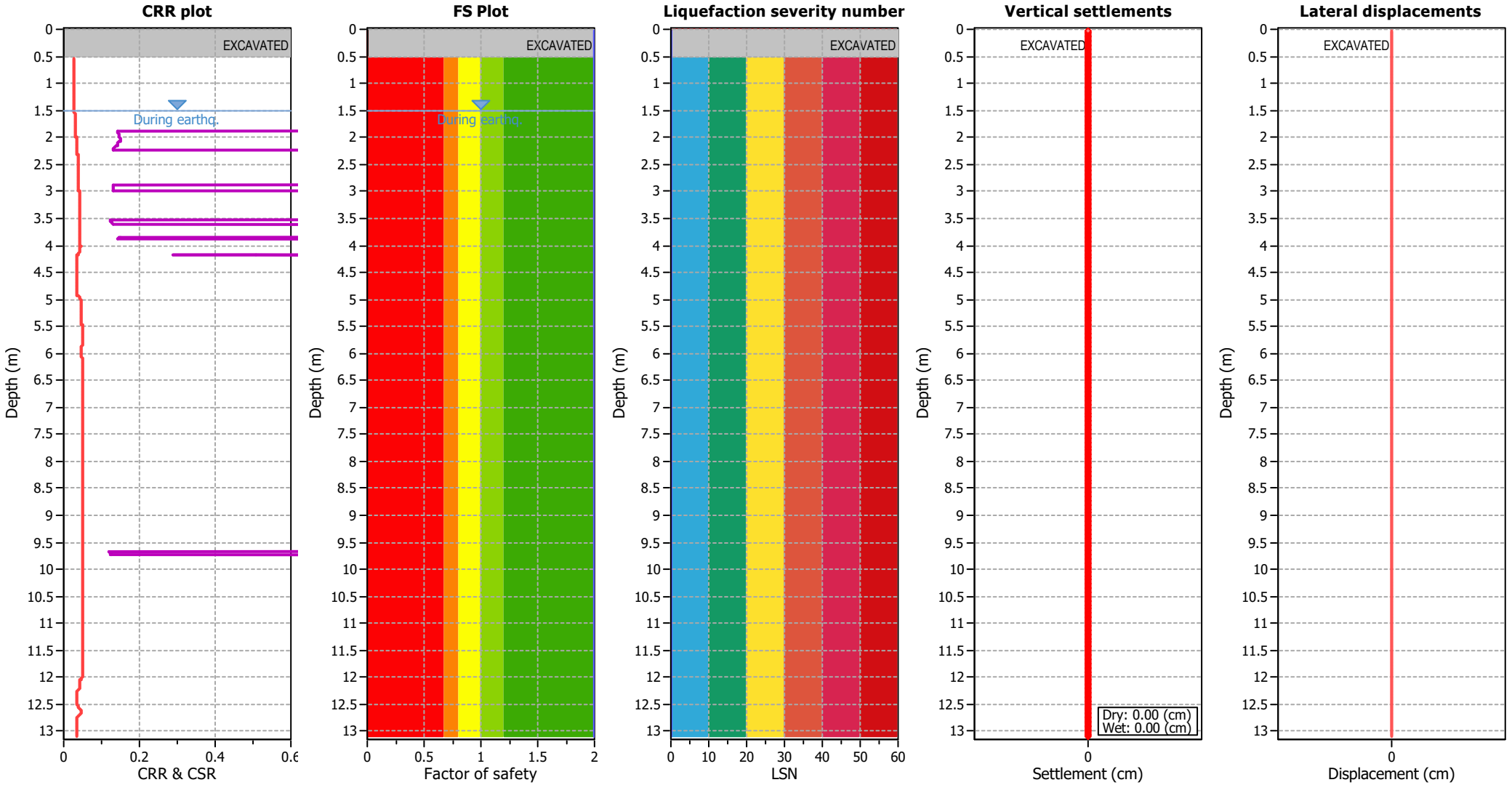
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.50 m	Excavation depth:	0.50 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.50 m	Excavation depth:	0.50 m	Limit depth:	10.00 m

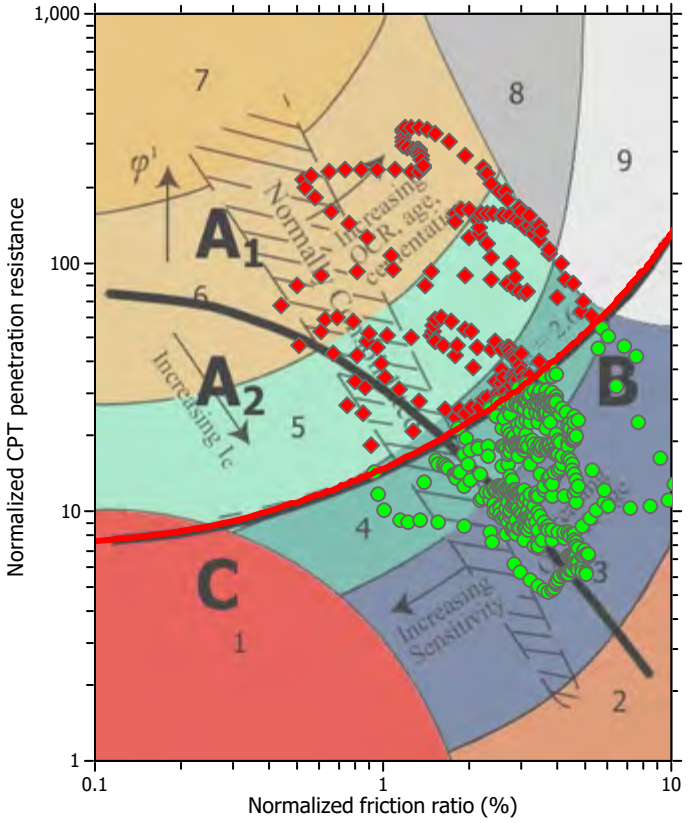
F.S. color scheme

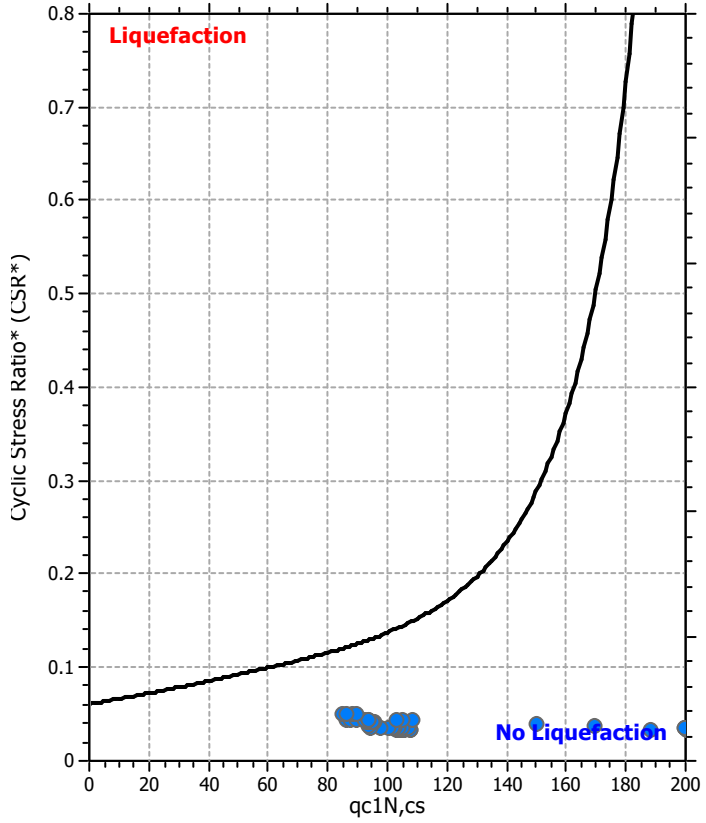
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

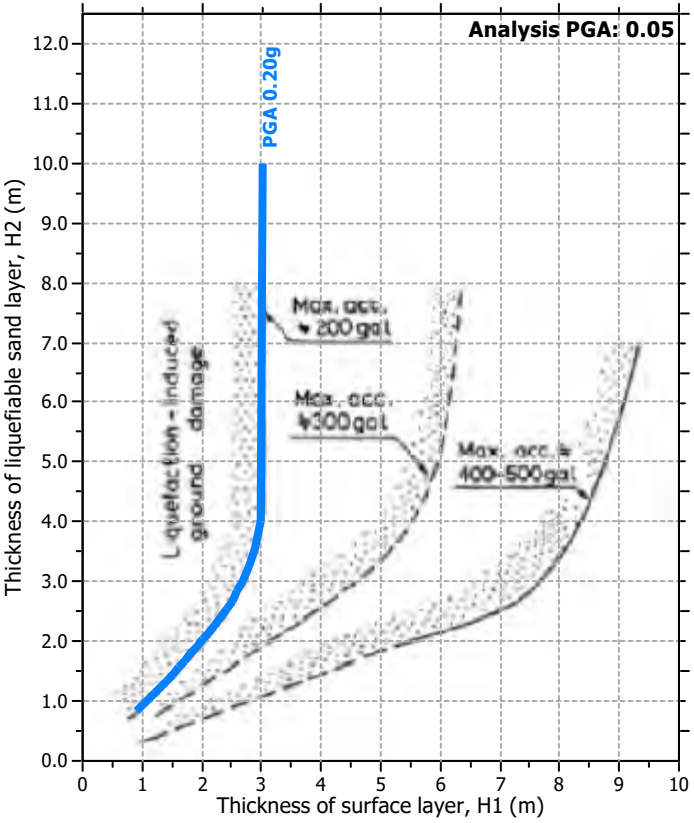
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



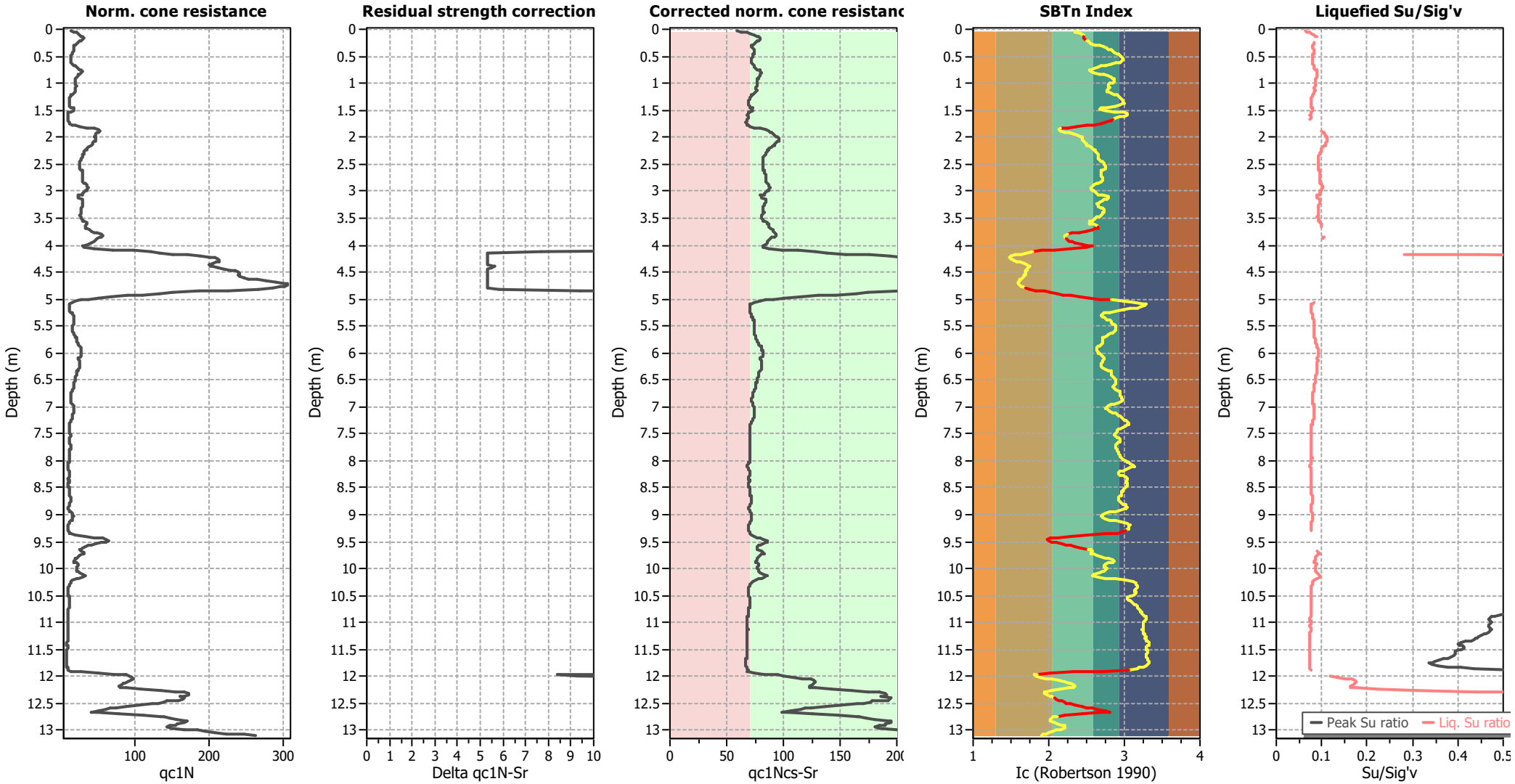




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.50 m	Excavation depth:	0.50 m	Limit depth:	10.00 m

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



Input parameters and analysis data

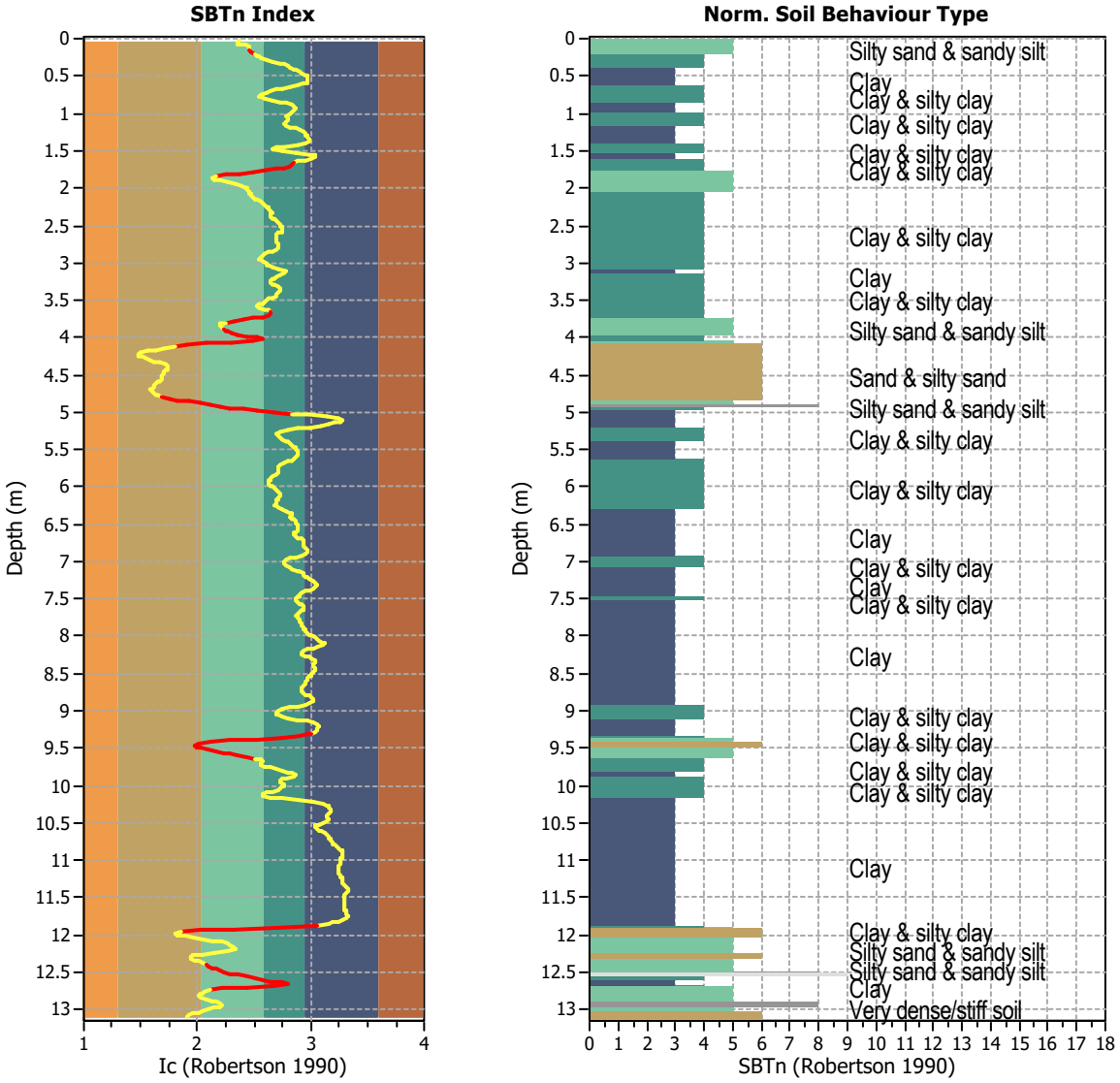
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.50 m	Excavation depth:	0.50 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

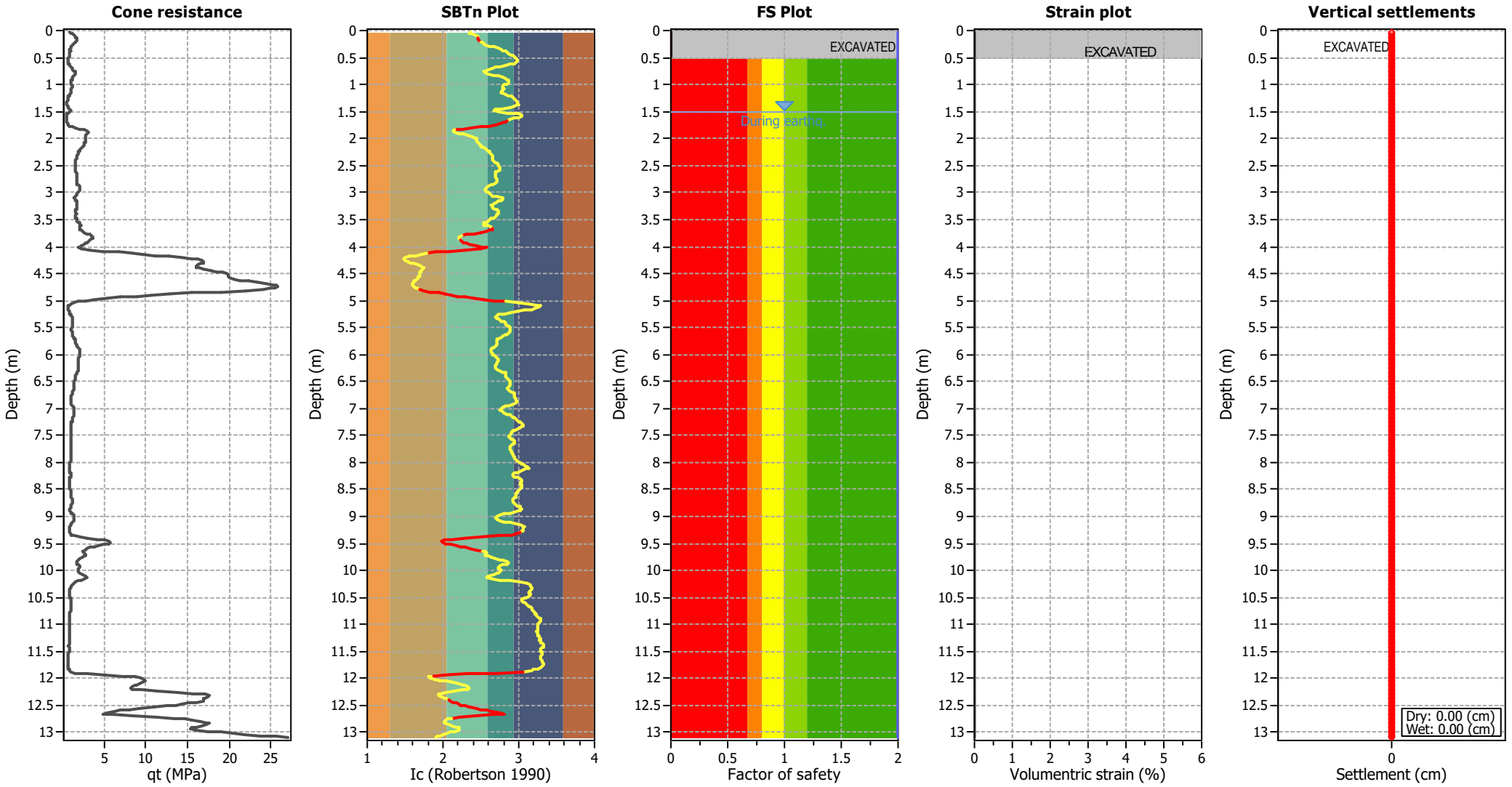
The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties	
I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics	
Total points in CPT file:	655
Total points excluded:	90
Exclusion percentage:	13.74%
Number of layers detected:	11

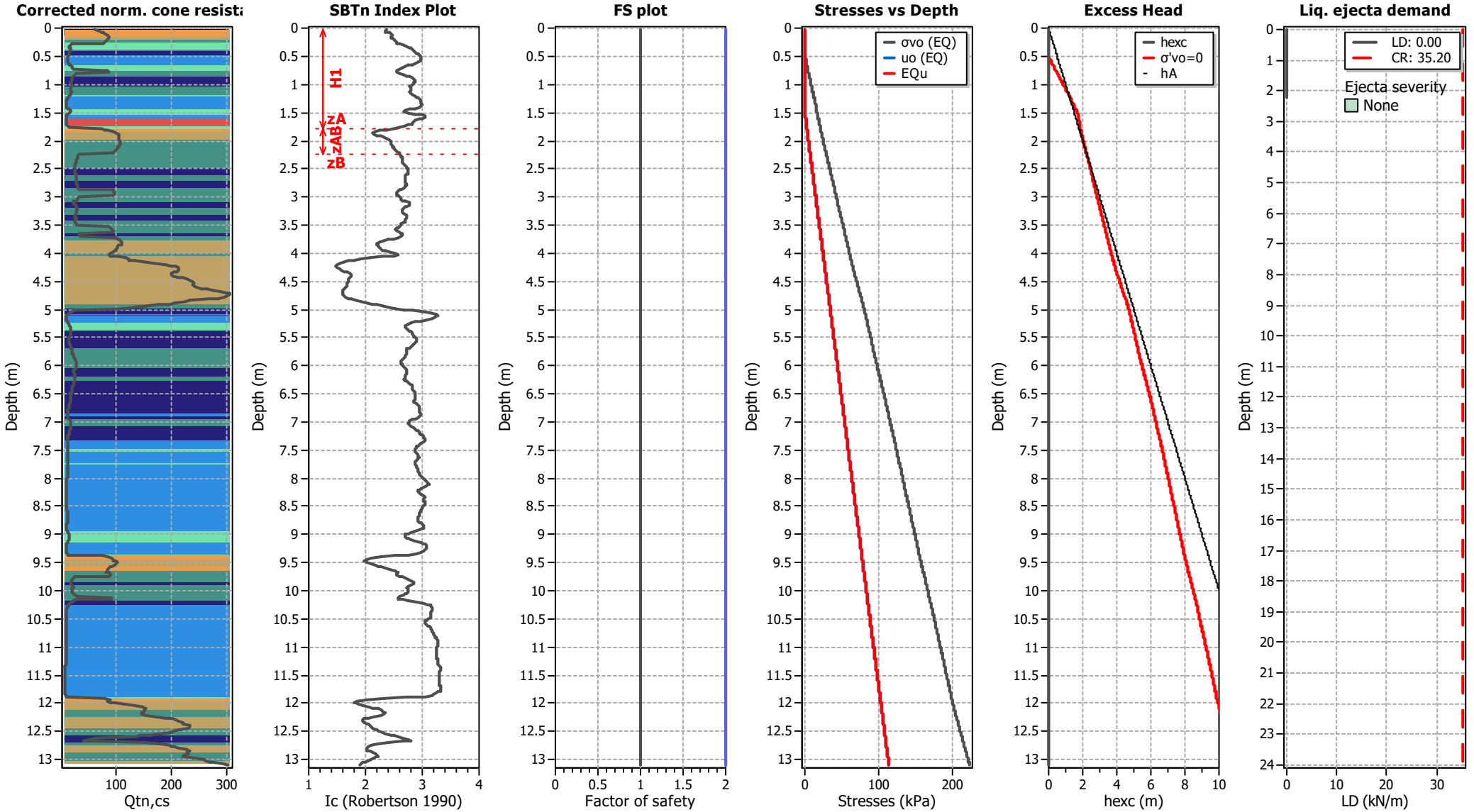
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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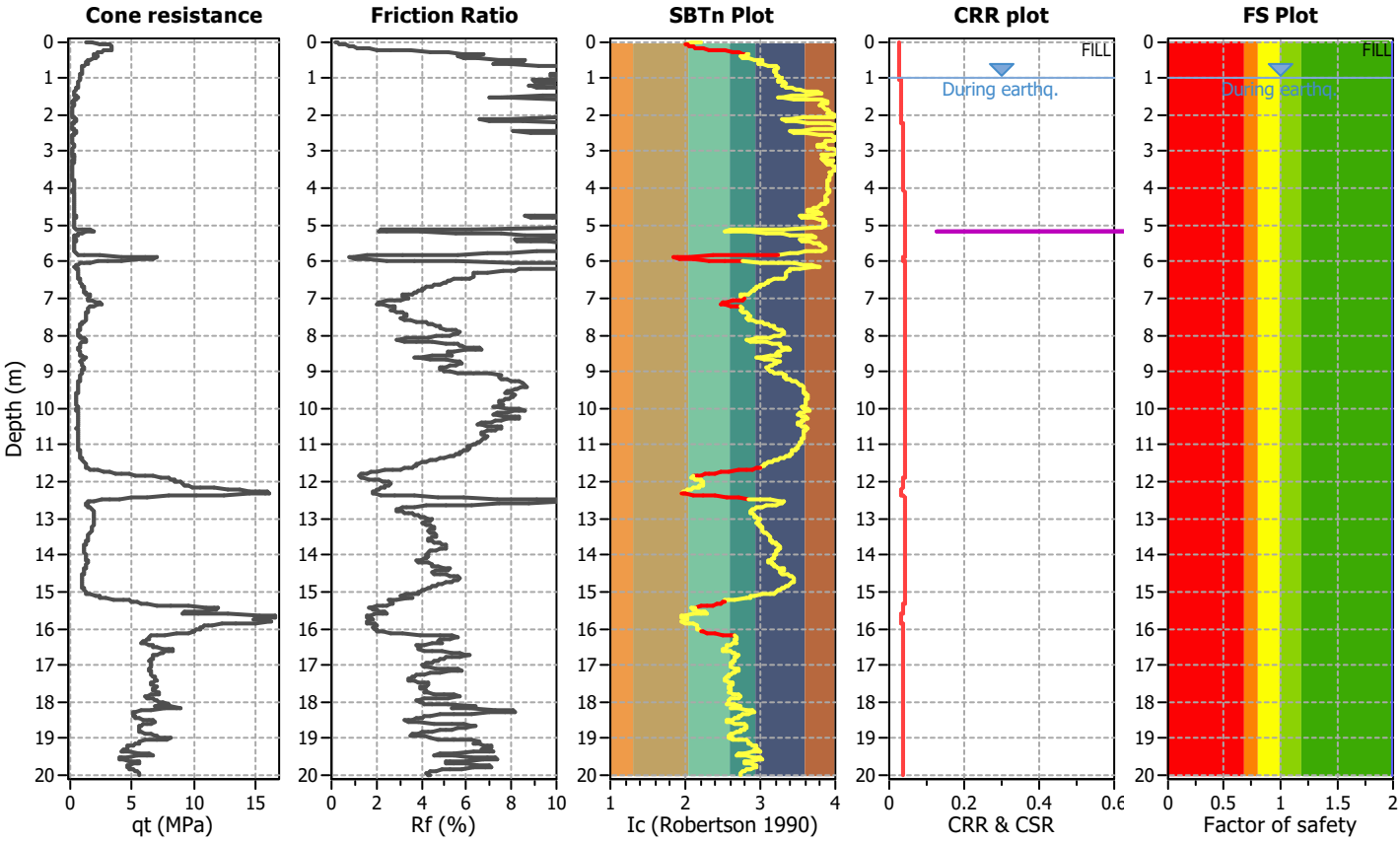
LIQUEFACTION ANALYSIS REPORT

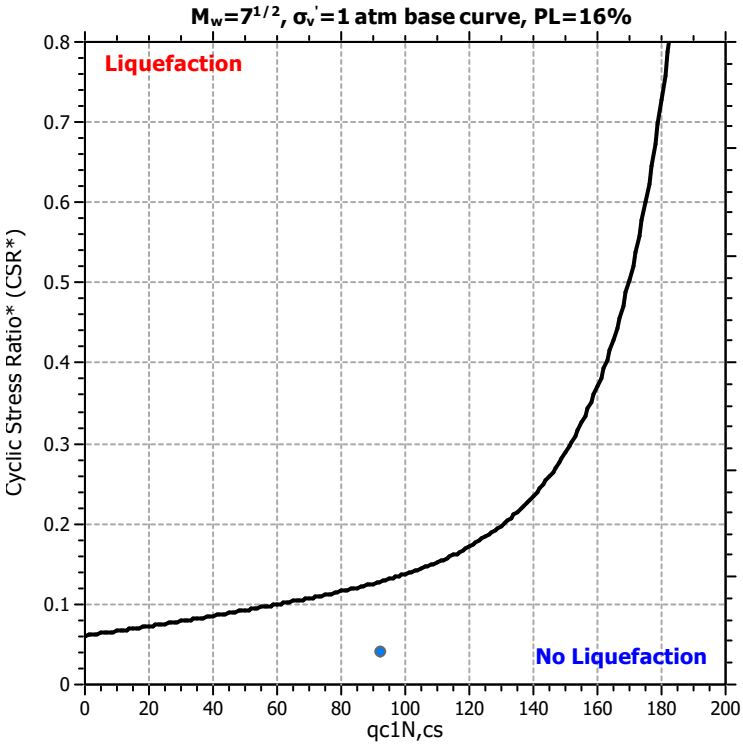
Project title : Sunfield Landholding **Location :**

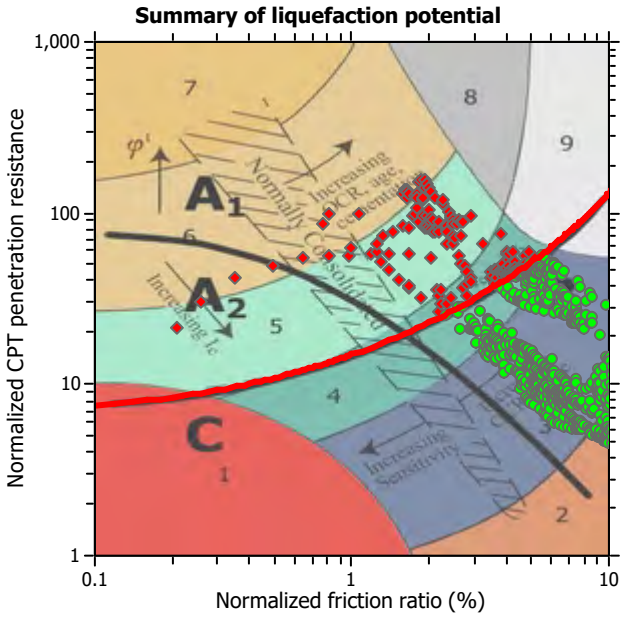
CPT file : CPT116

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	37.00 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

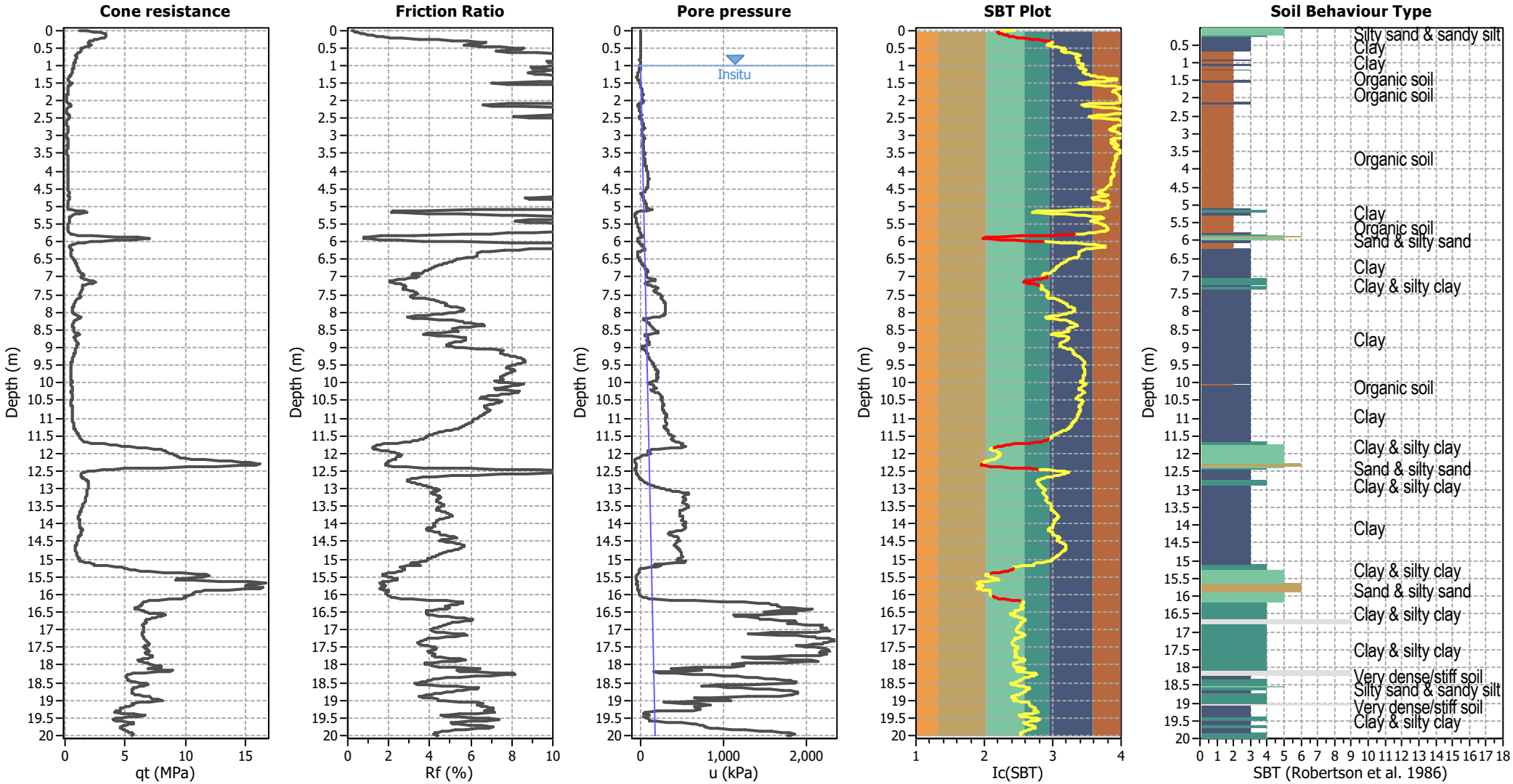






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



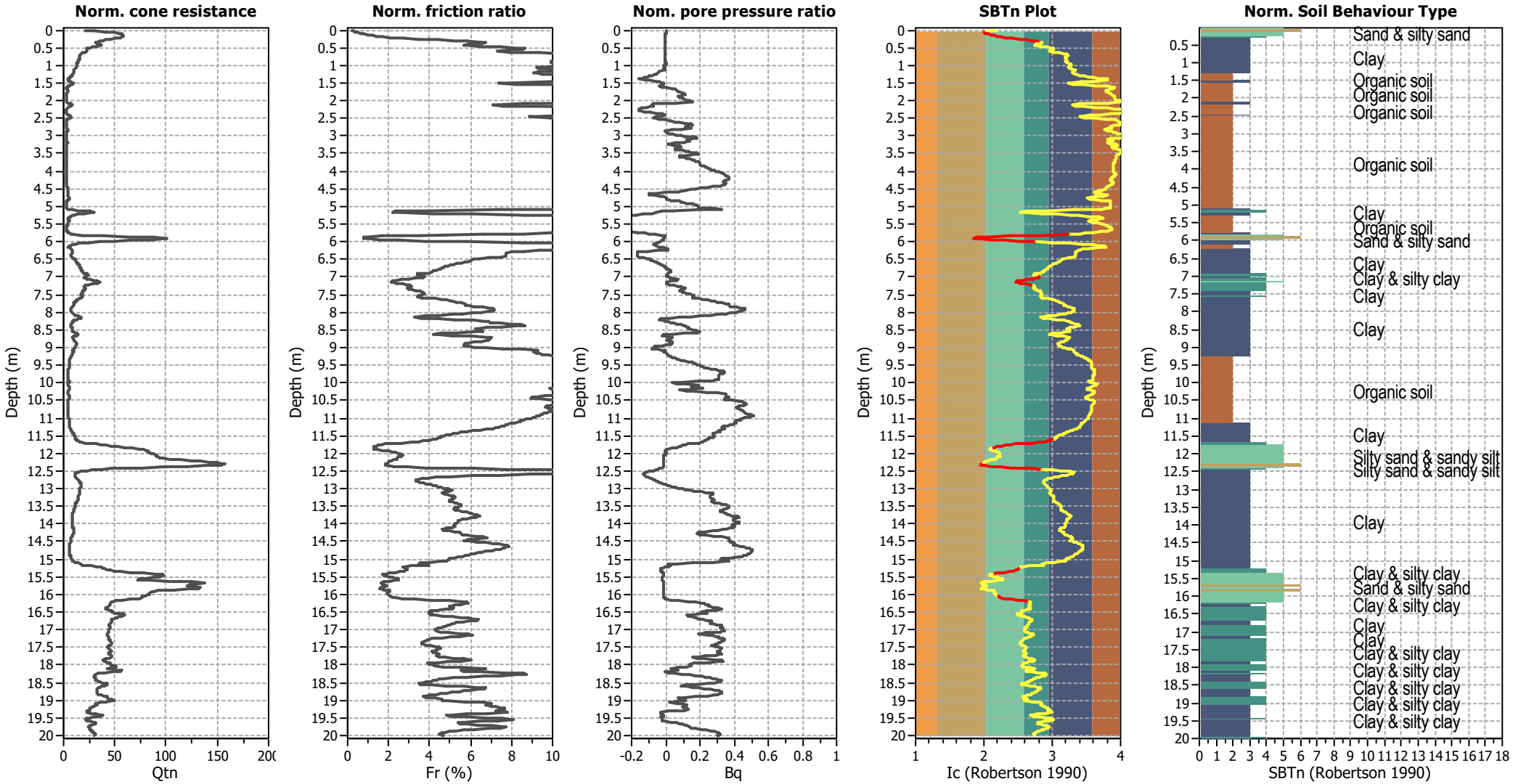
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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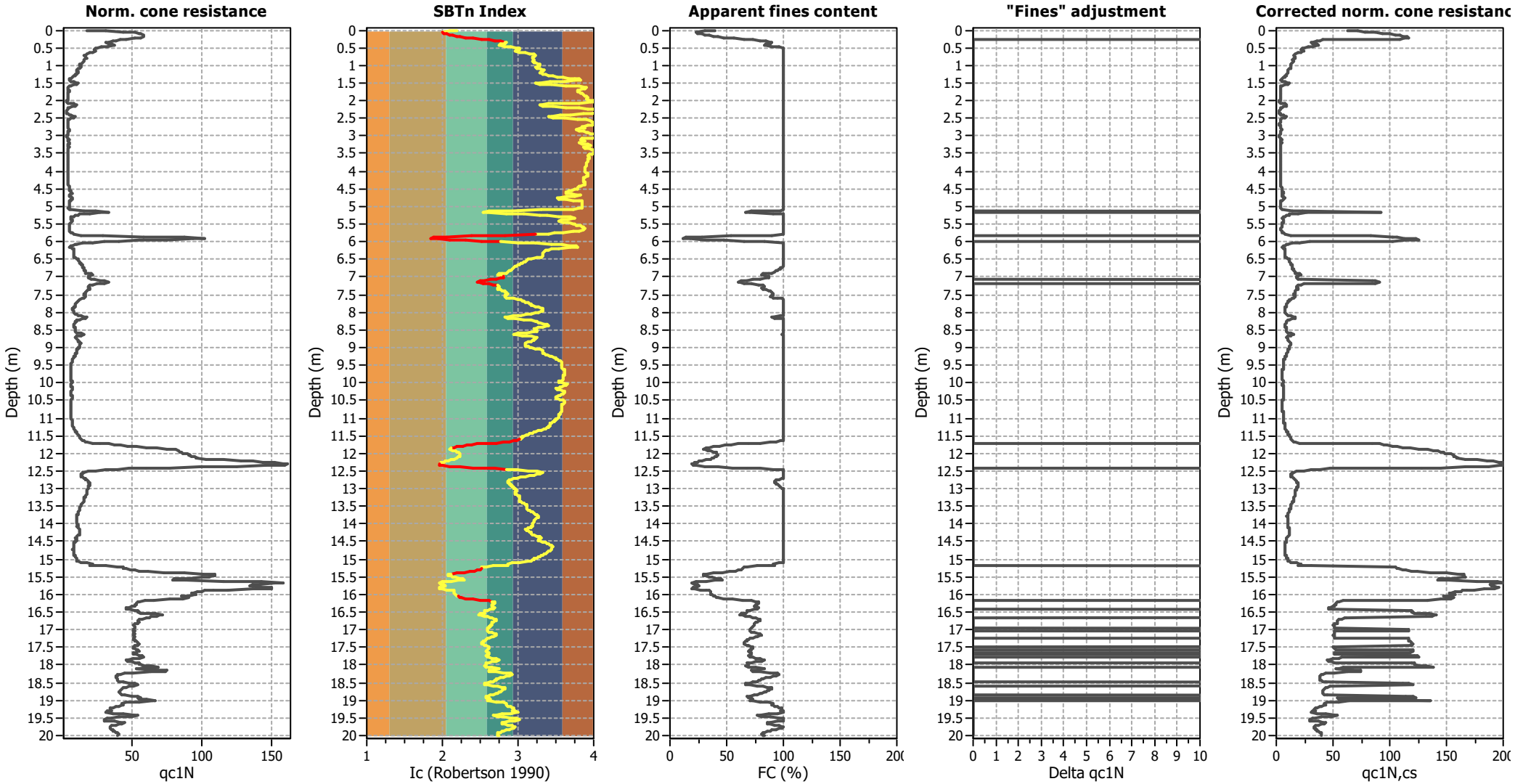
8. Very stiff sand to
9. Very stiff fine grained

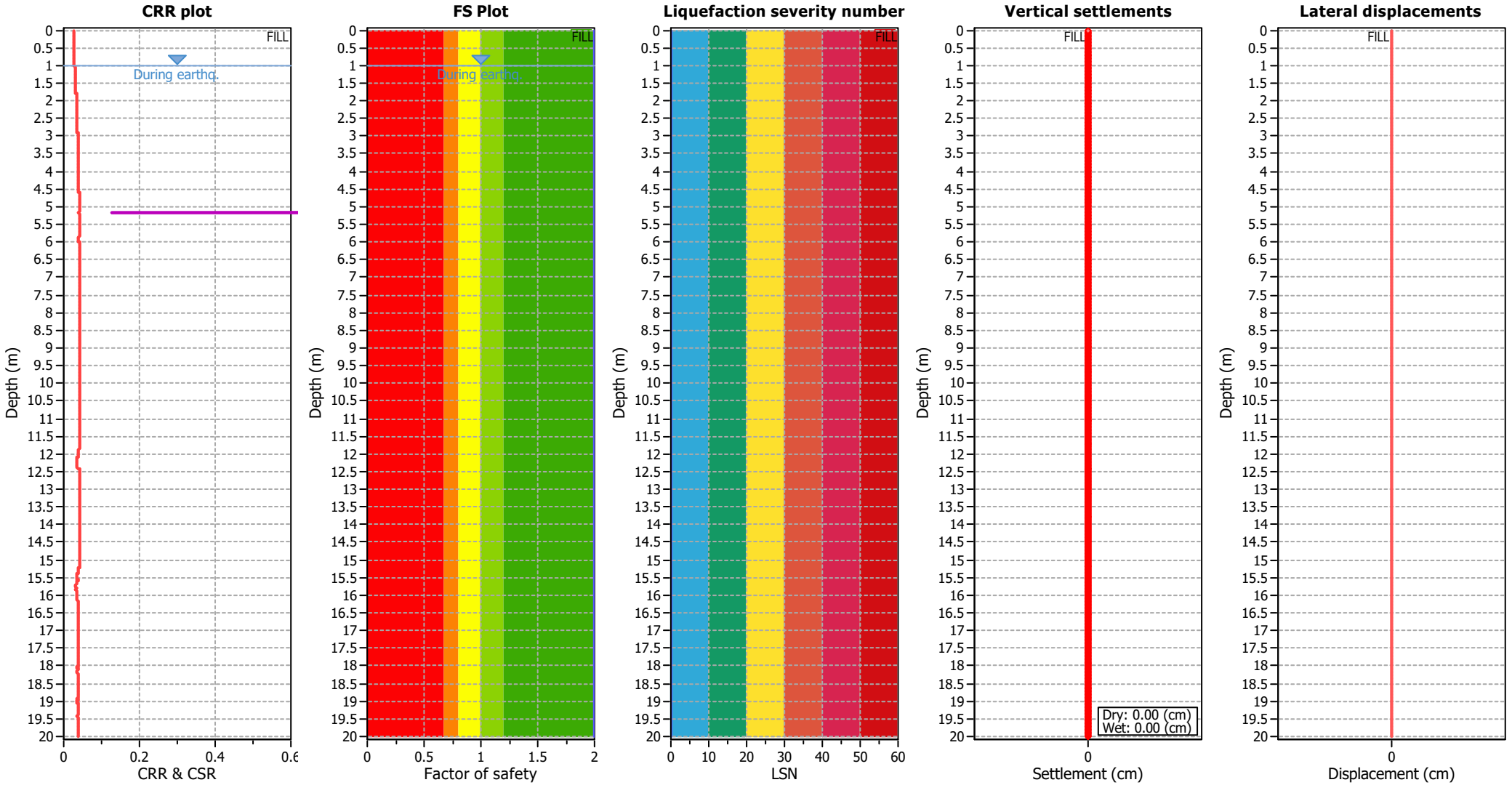
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
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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

LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
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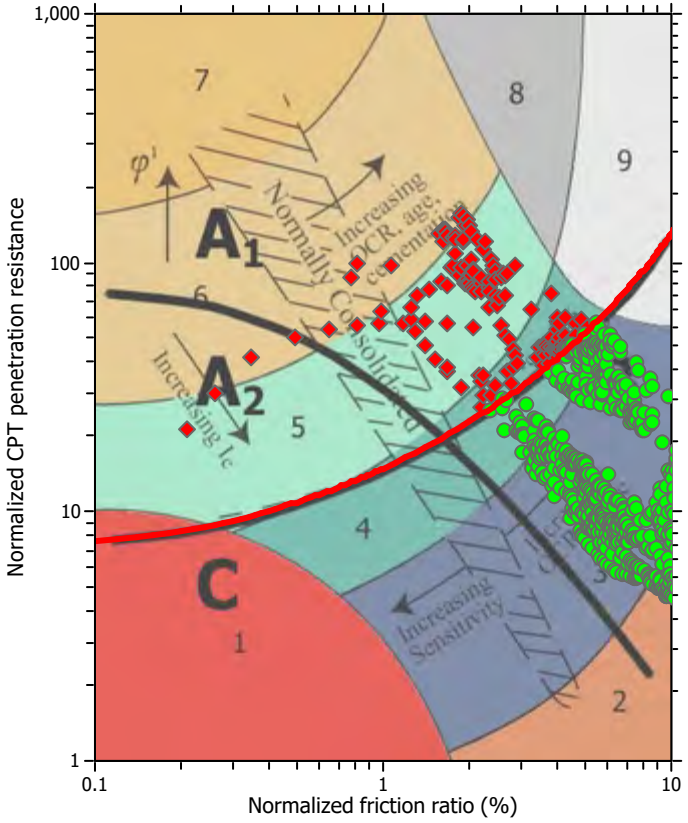
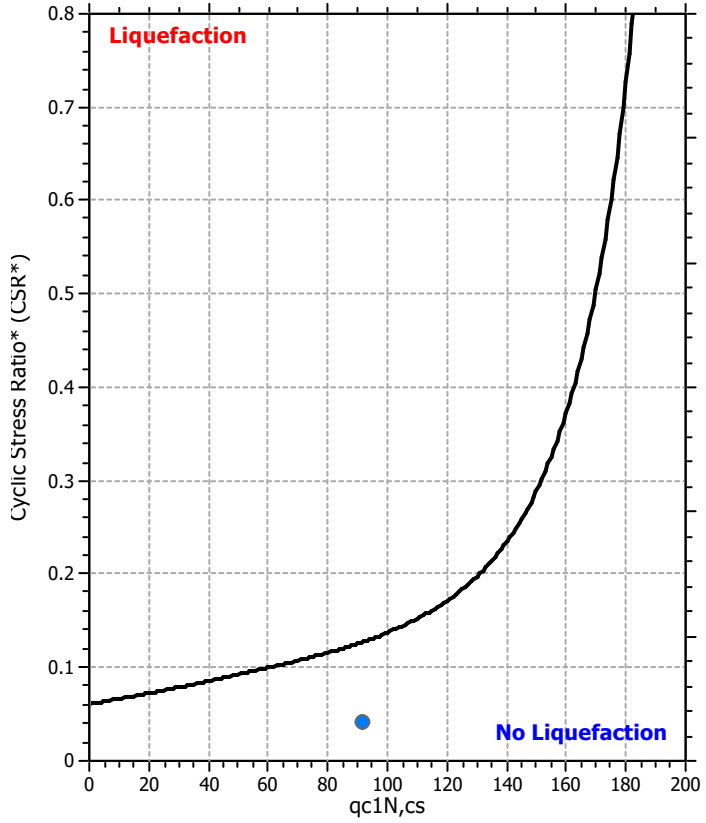
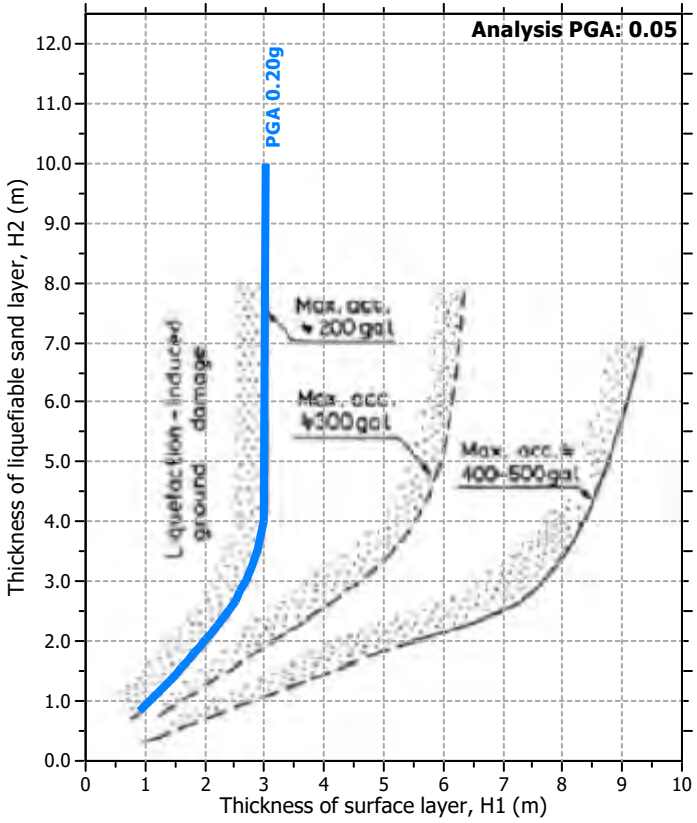
Liquefaction analysis summary plots







Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
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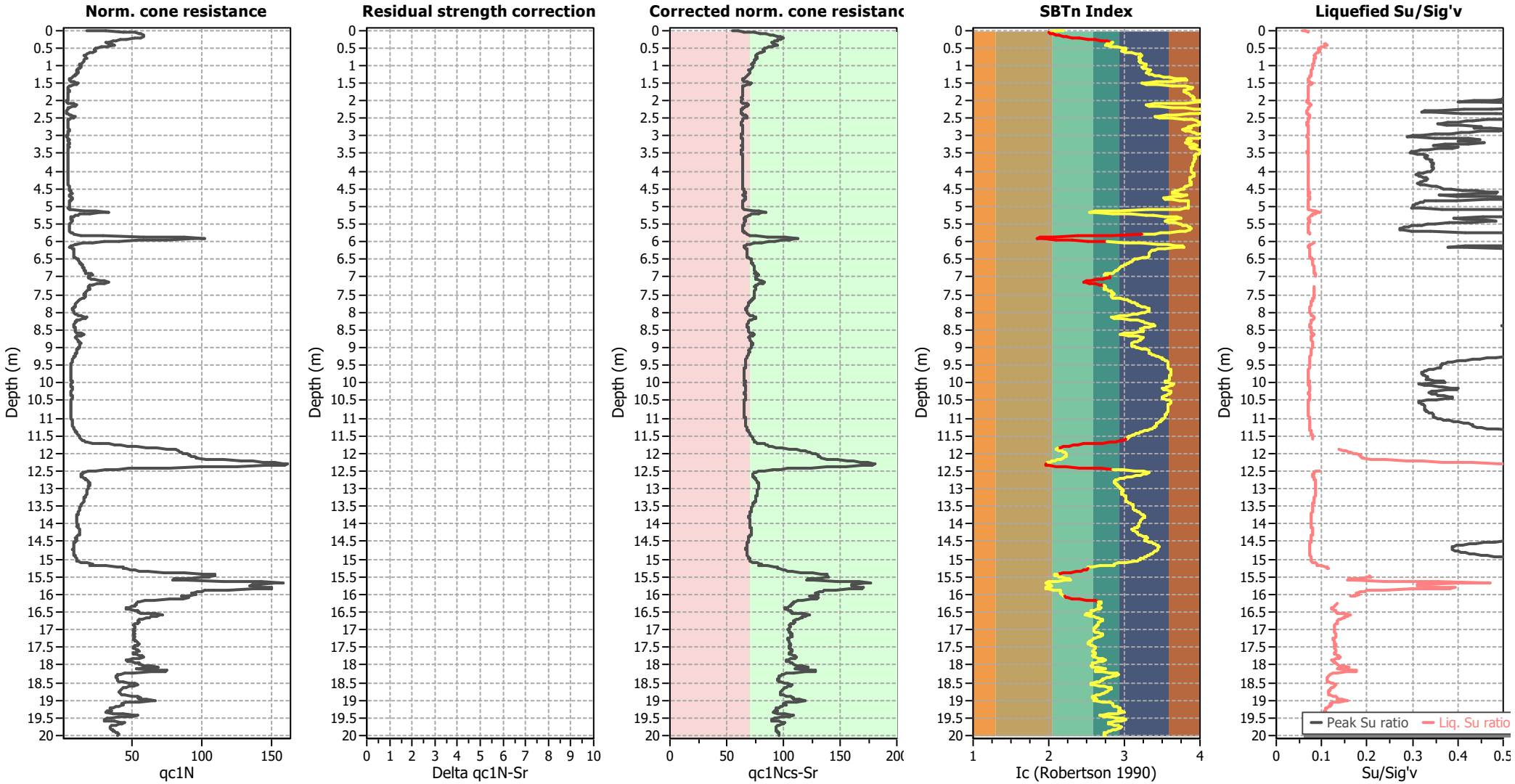
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

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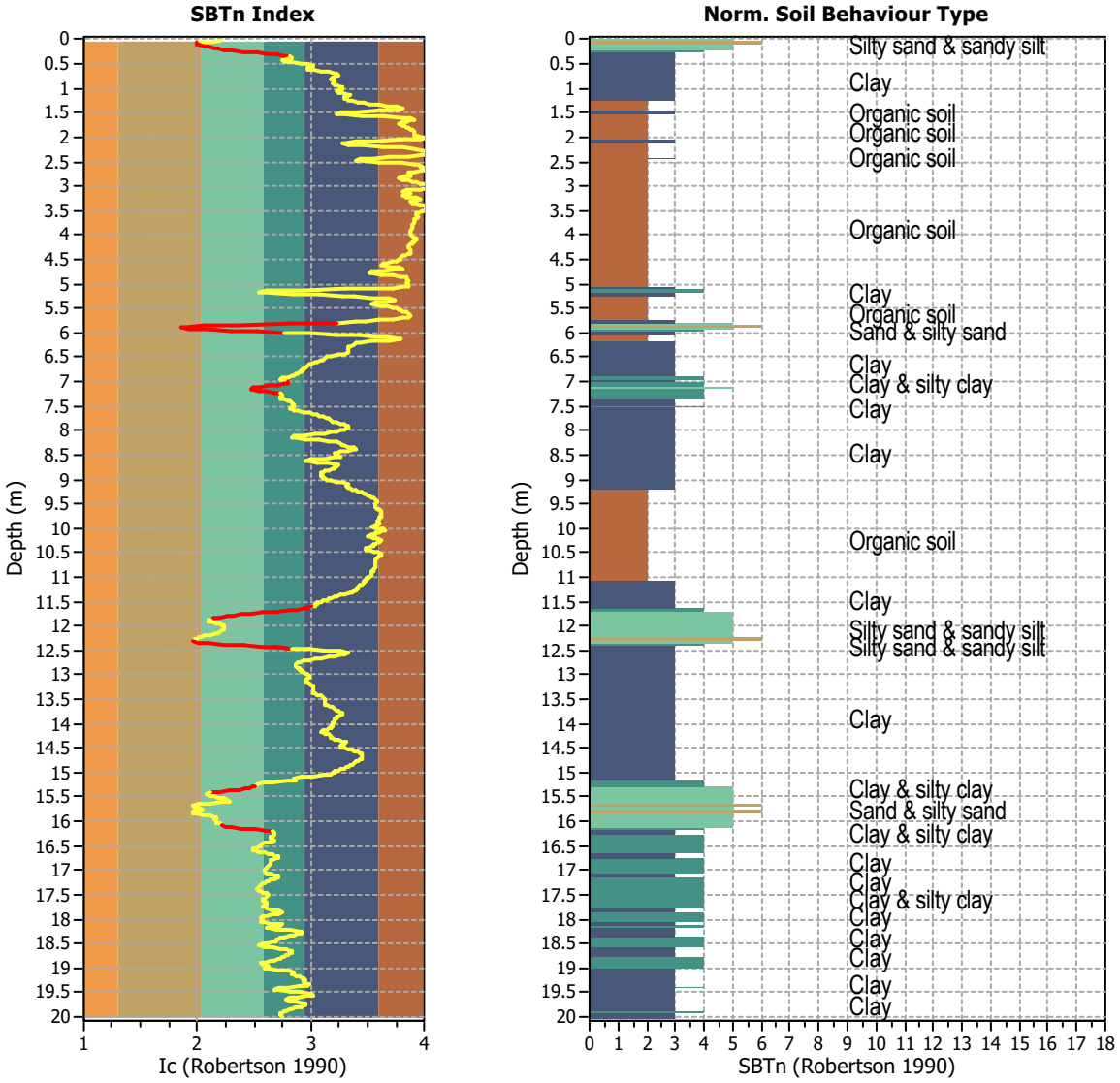
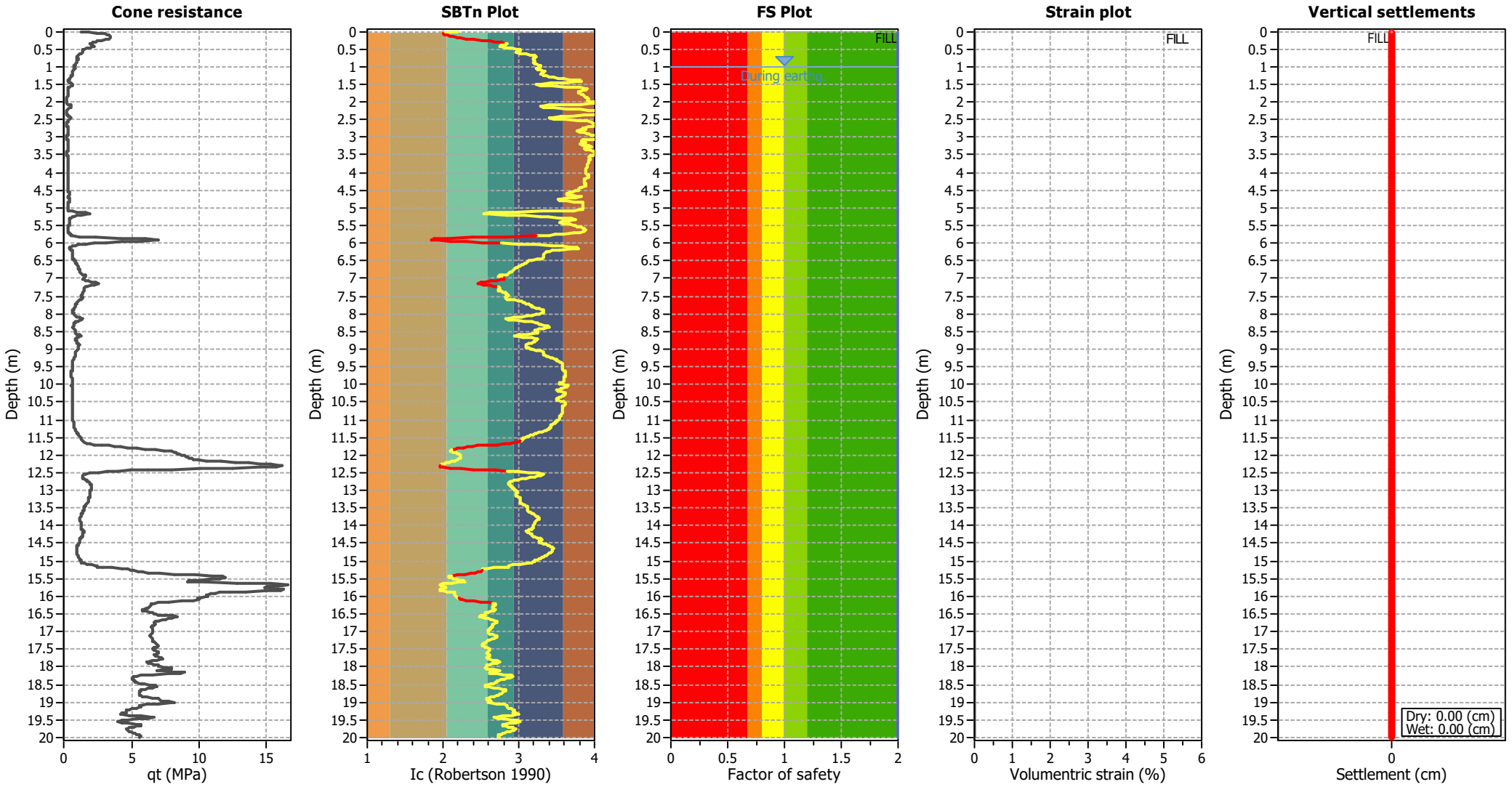


Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	1000
I_c maximum check value:	3.00	Total points excluded:	79
I_c change ratio value:	0.0100	Exclusion percentage:	7.90%
Minimum number of points in layer:	4	Number of layers detected:	9

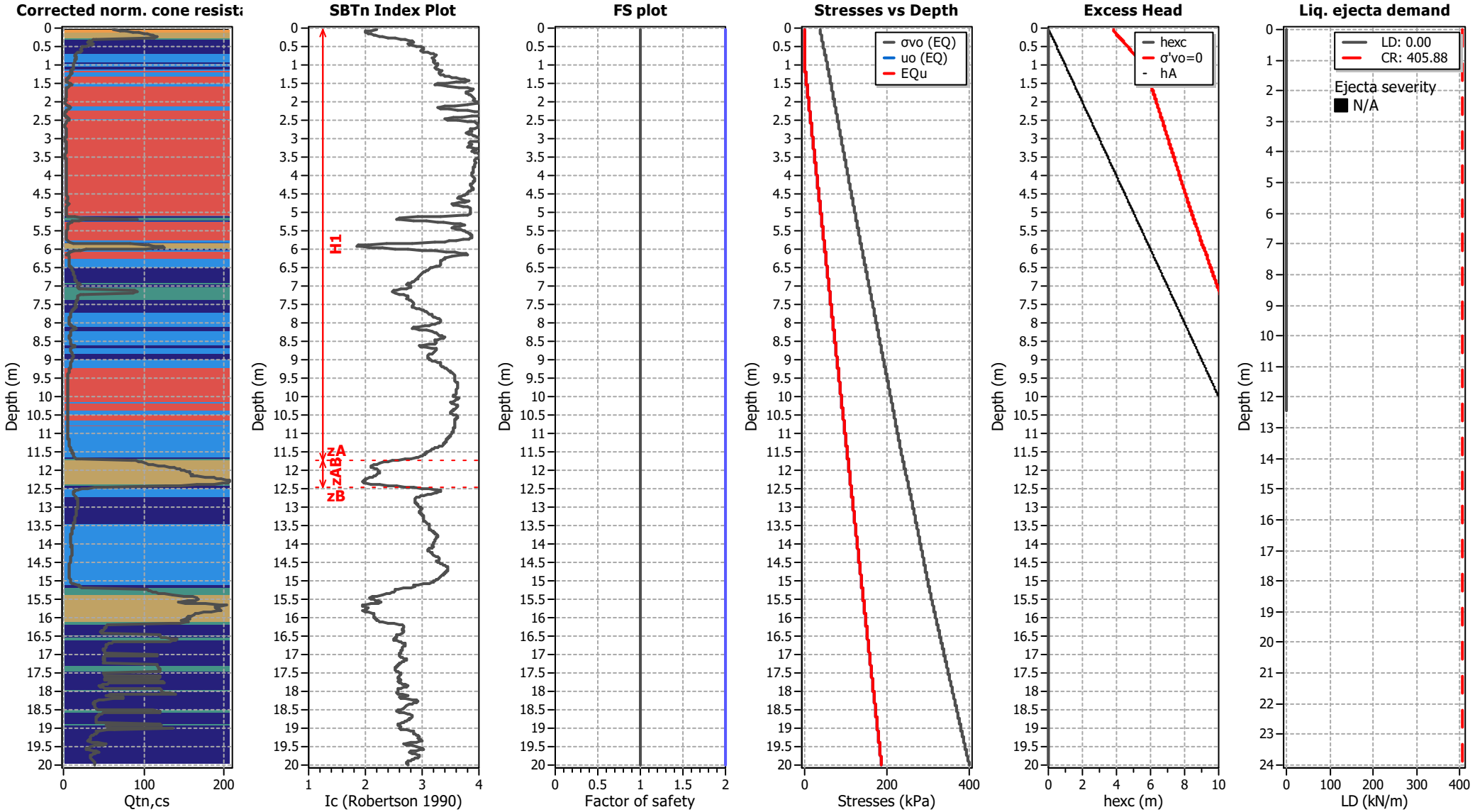
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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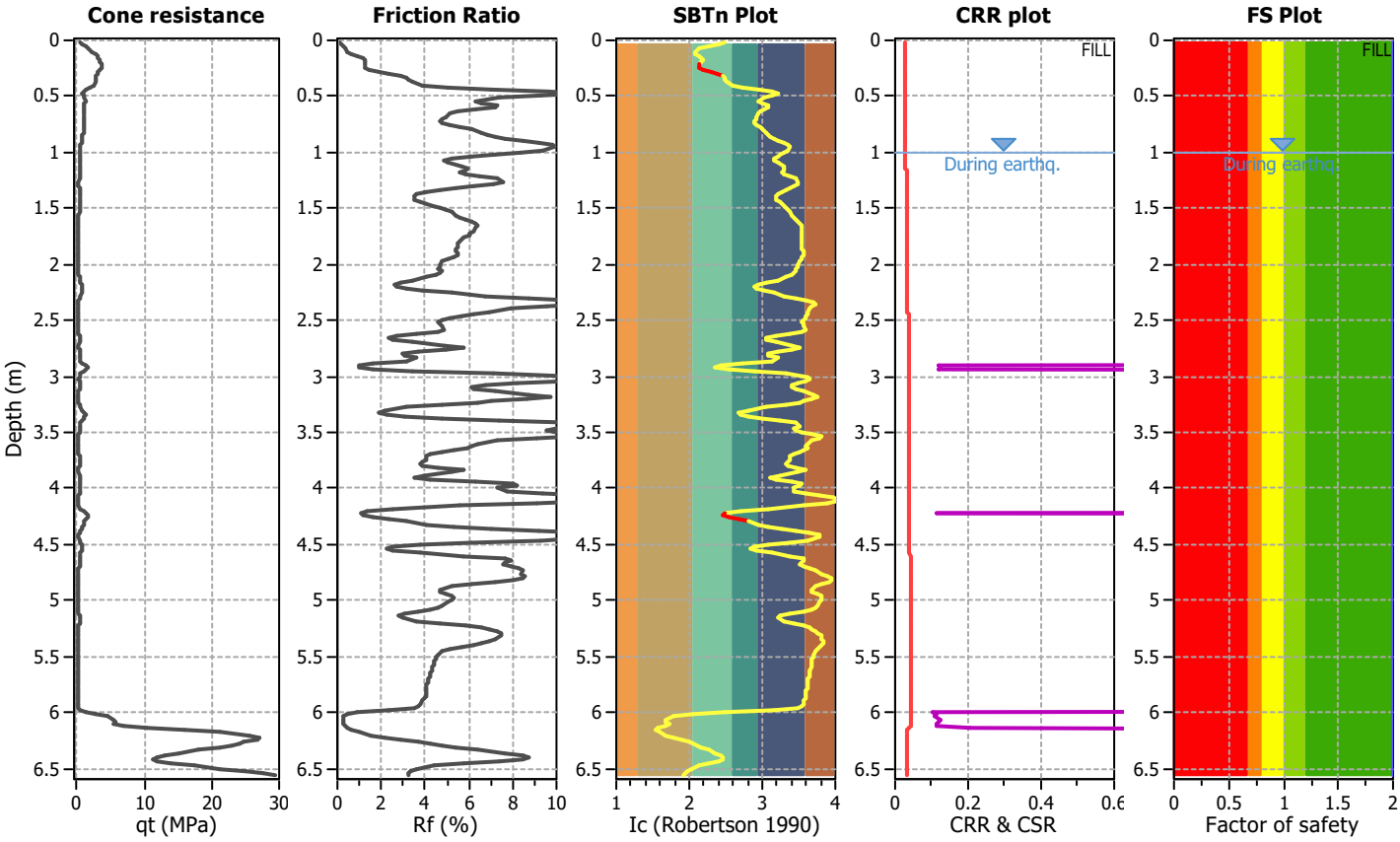
LIQUEFACTION ANALYSIS REPORT

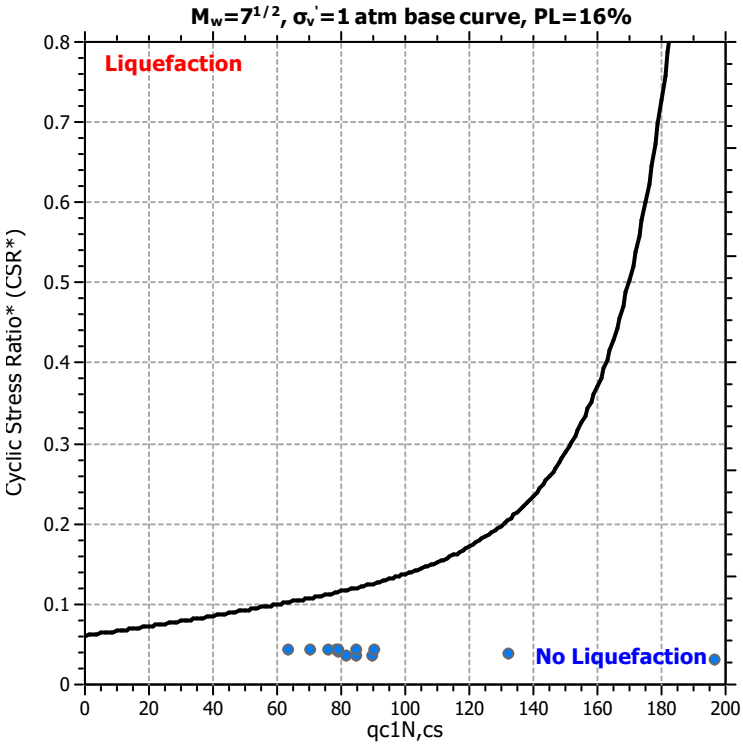
Project title : Sunfield Landholding **Location :**

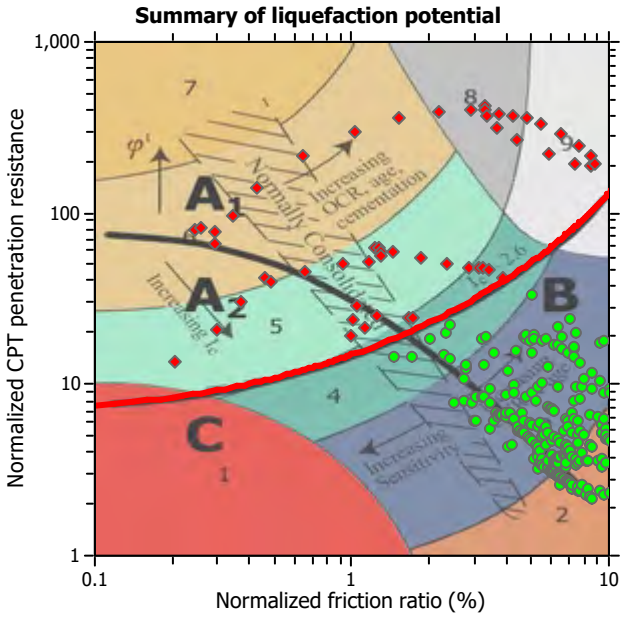
CPT file : CPT118

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	37.00 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

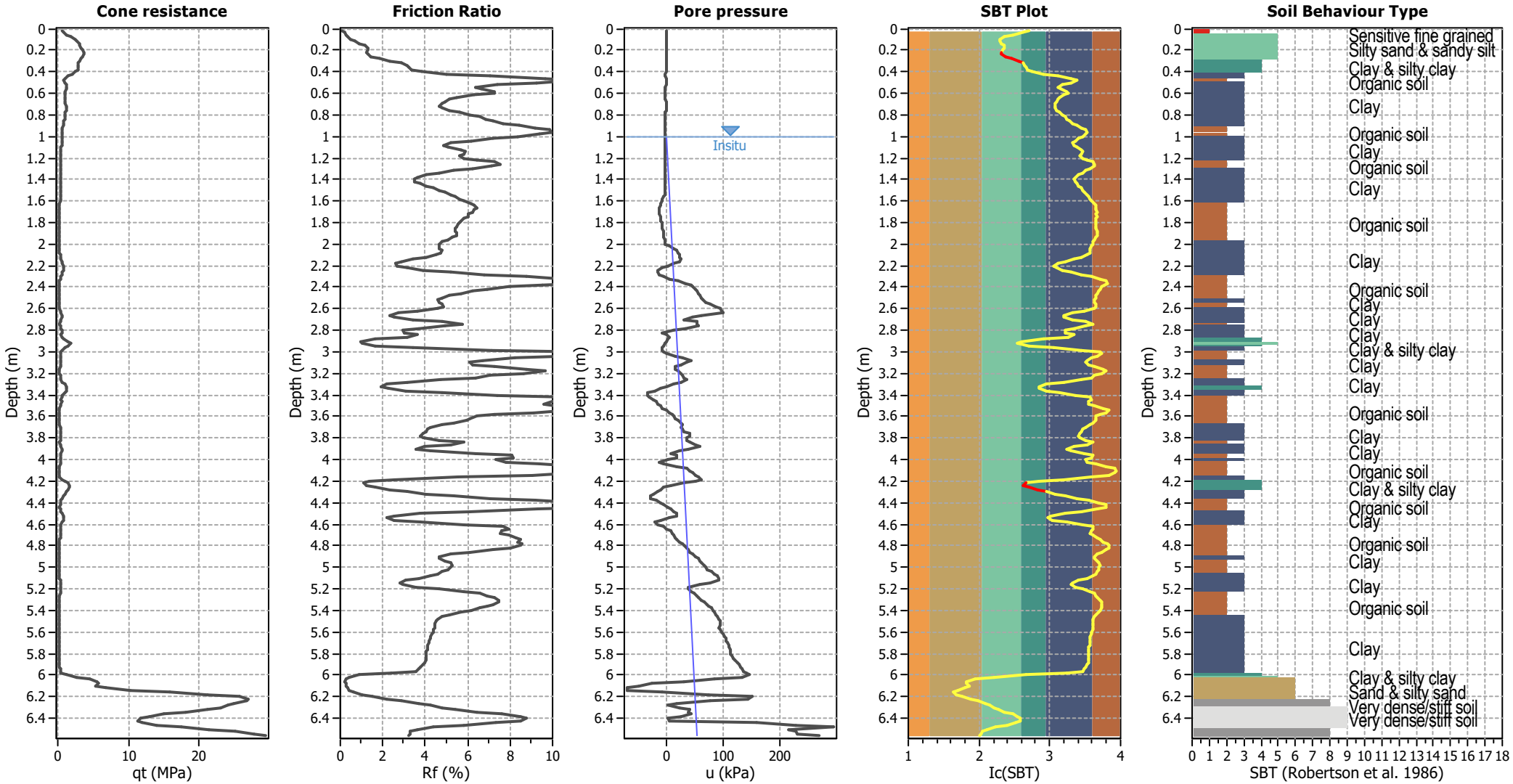






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



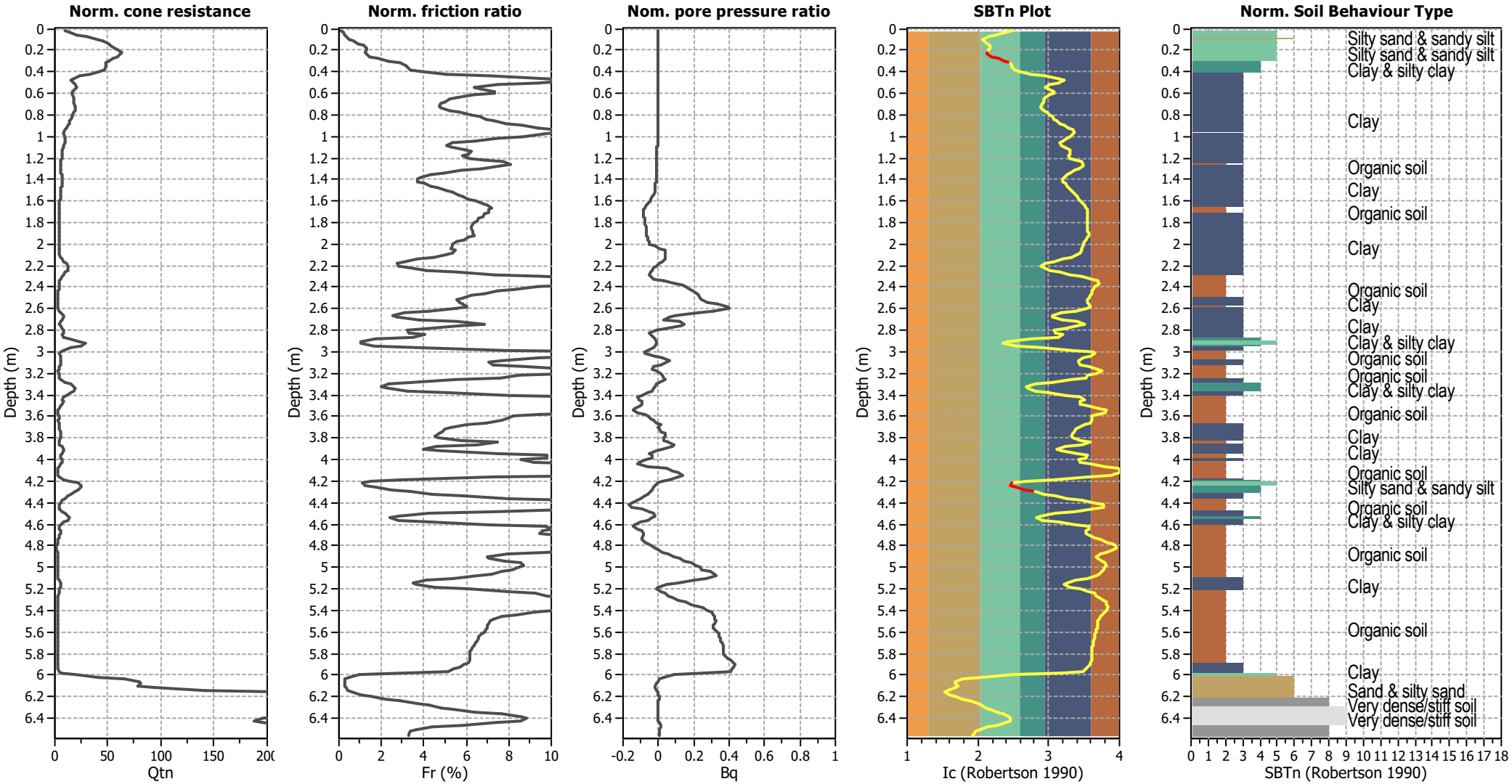
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



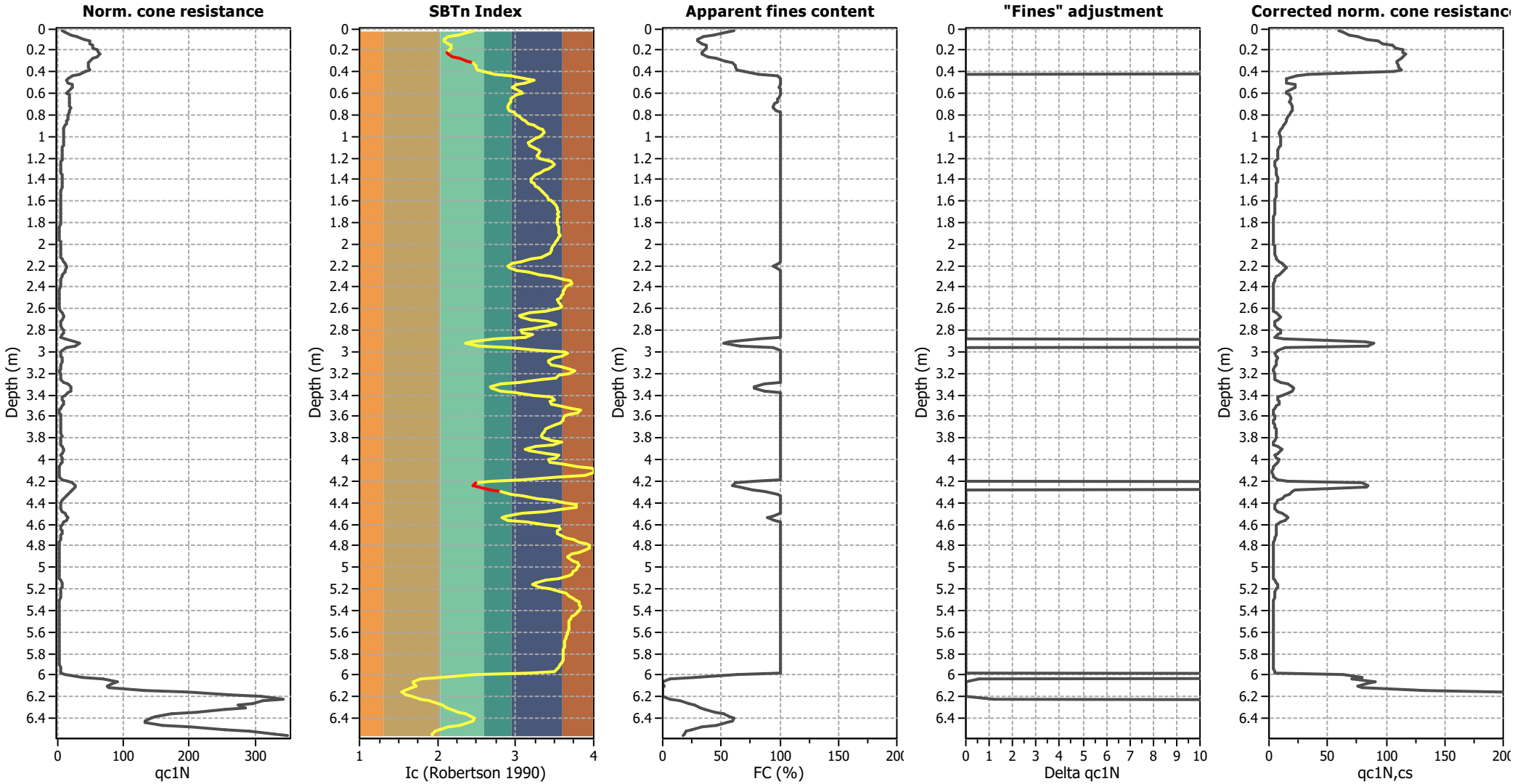
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

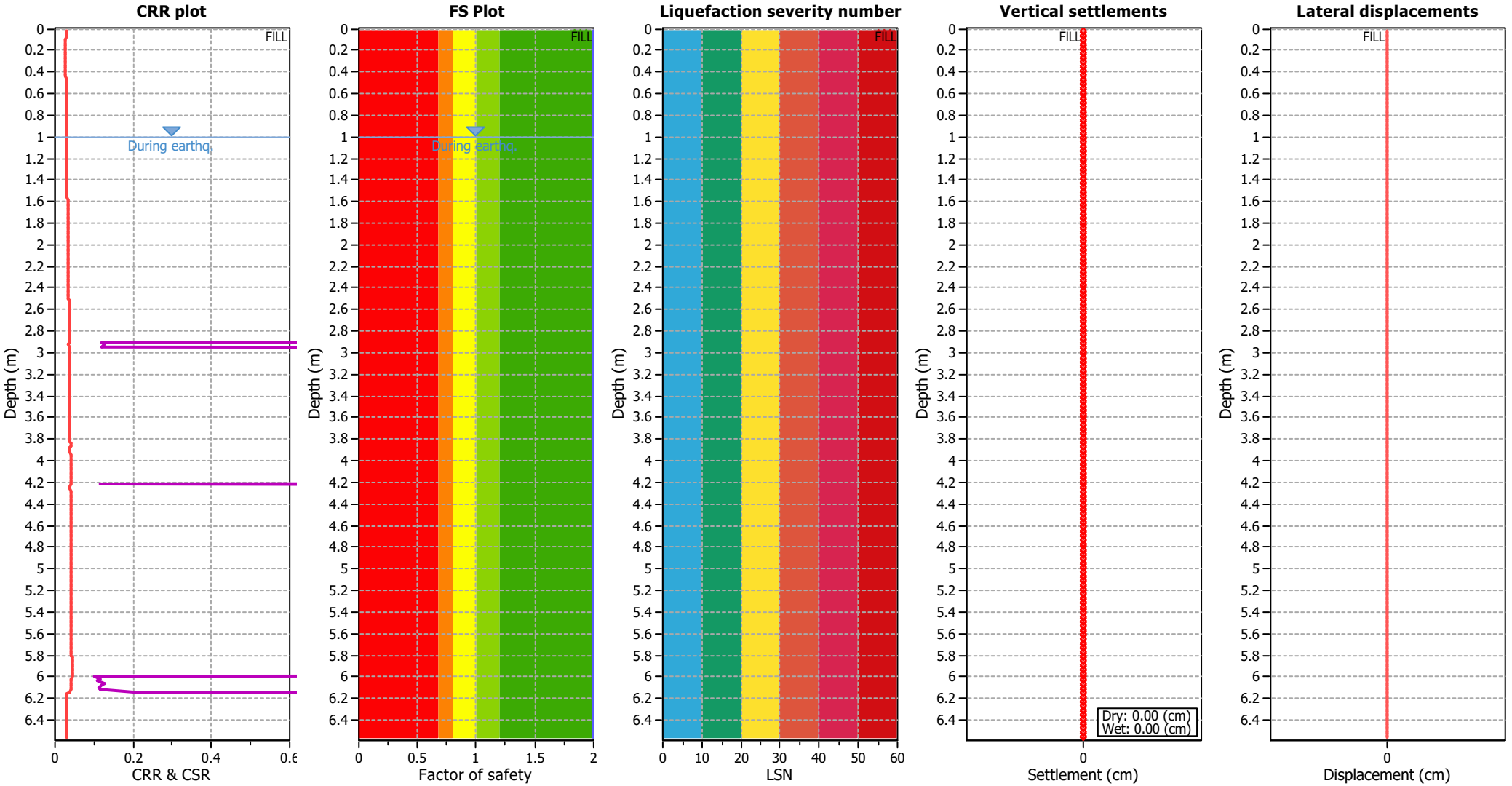
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

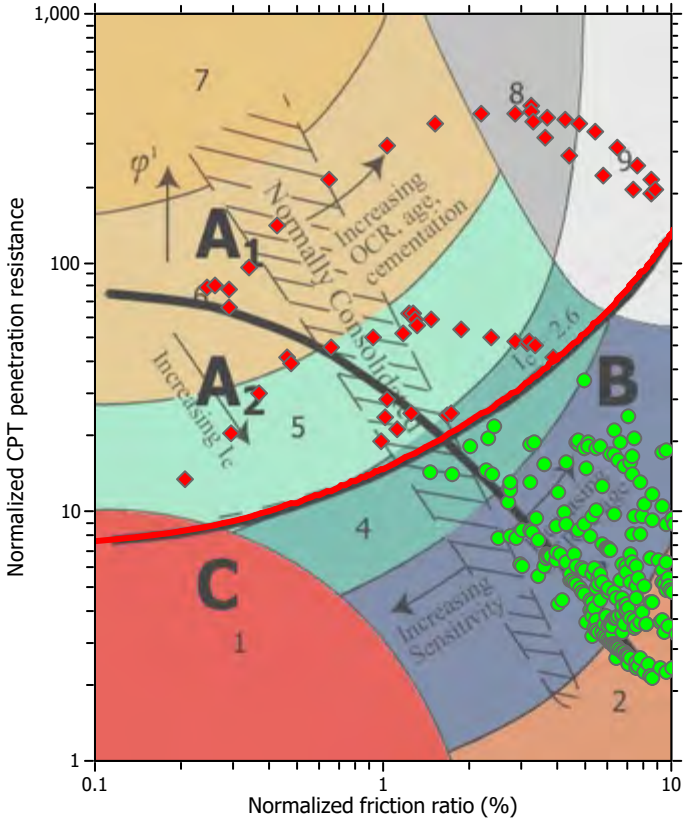
F.S. color scheme

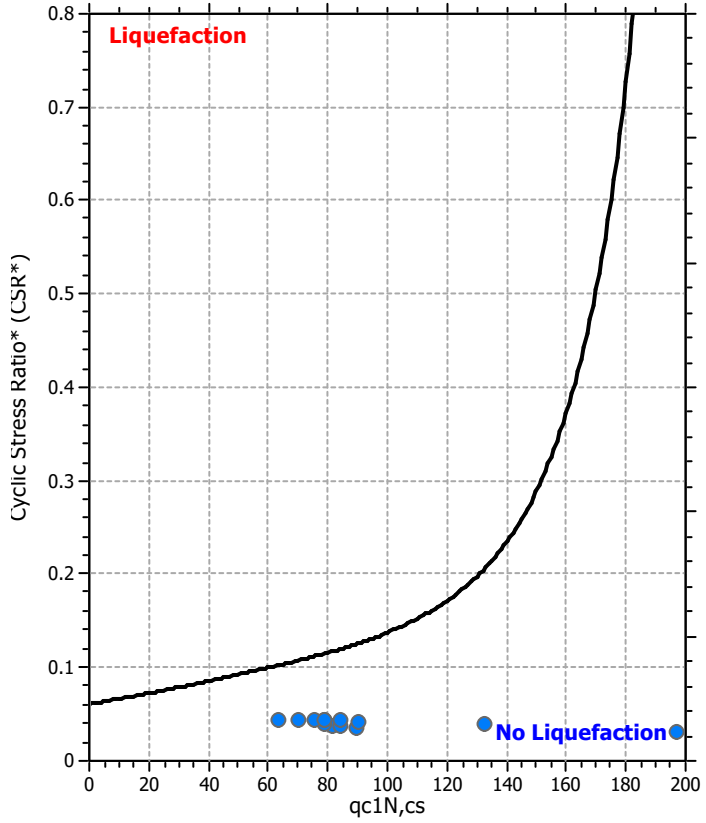
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

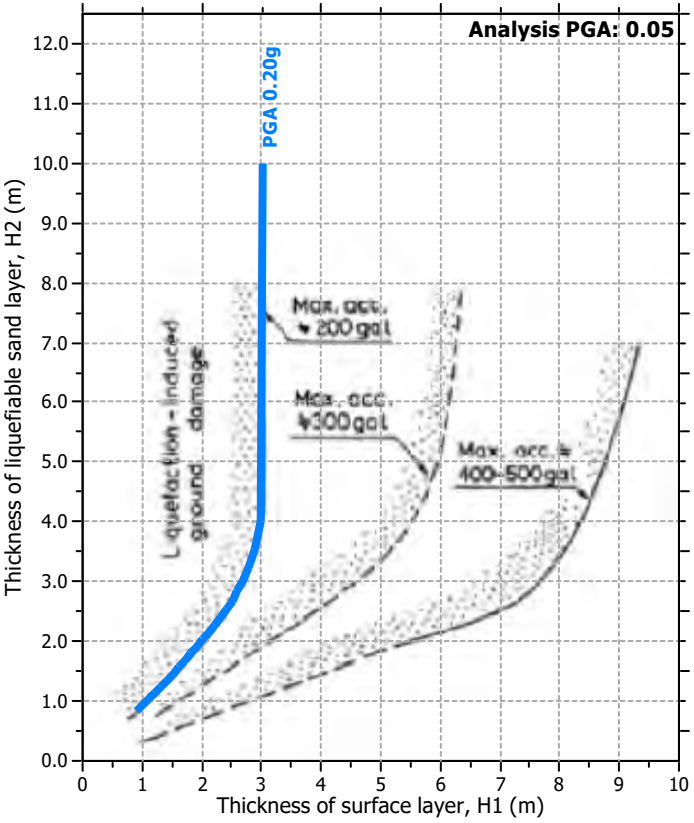
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



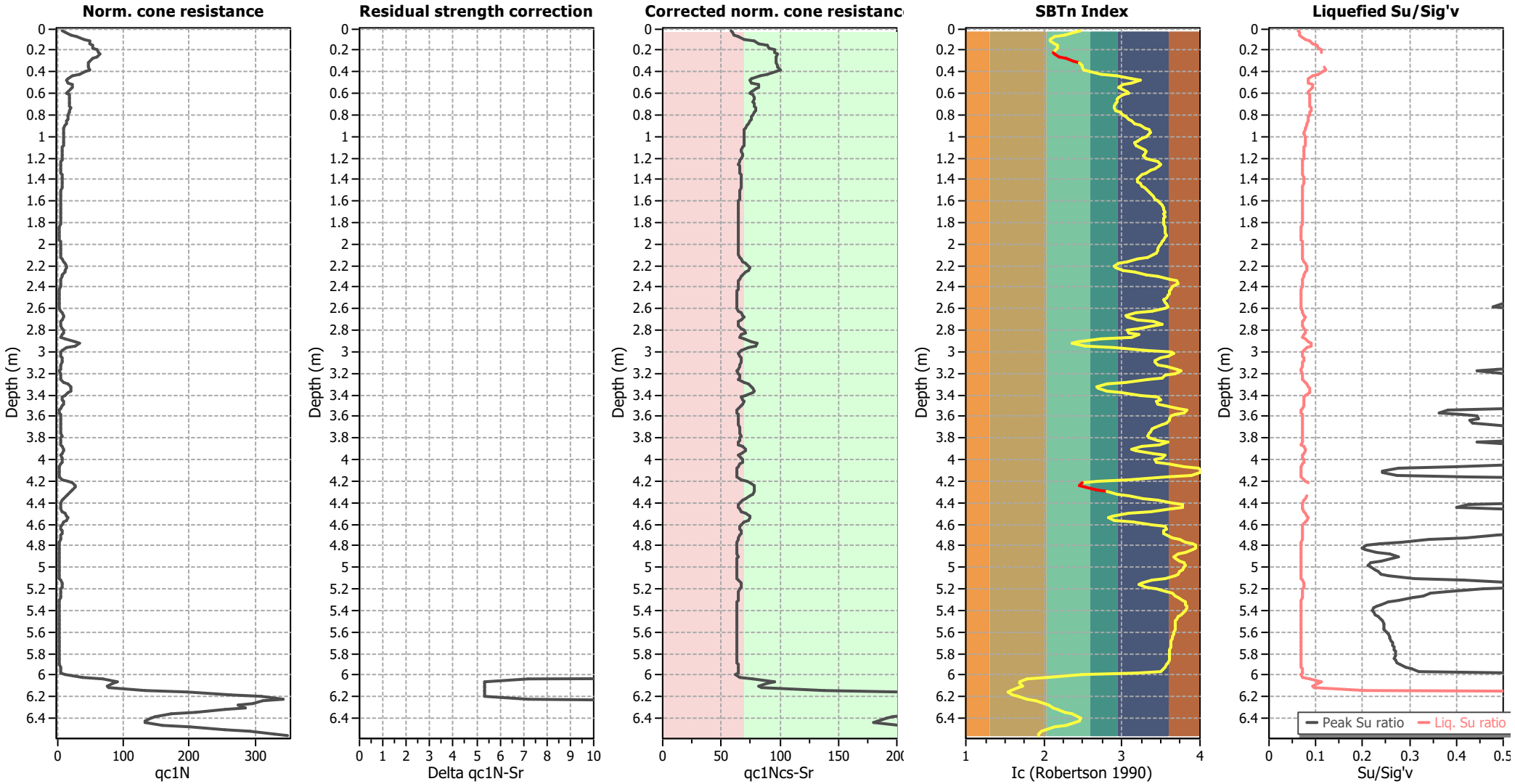




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

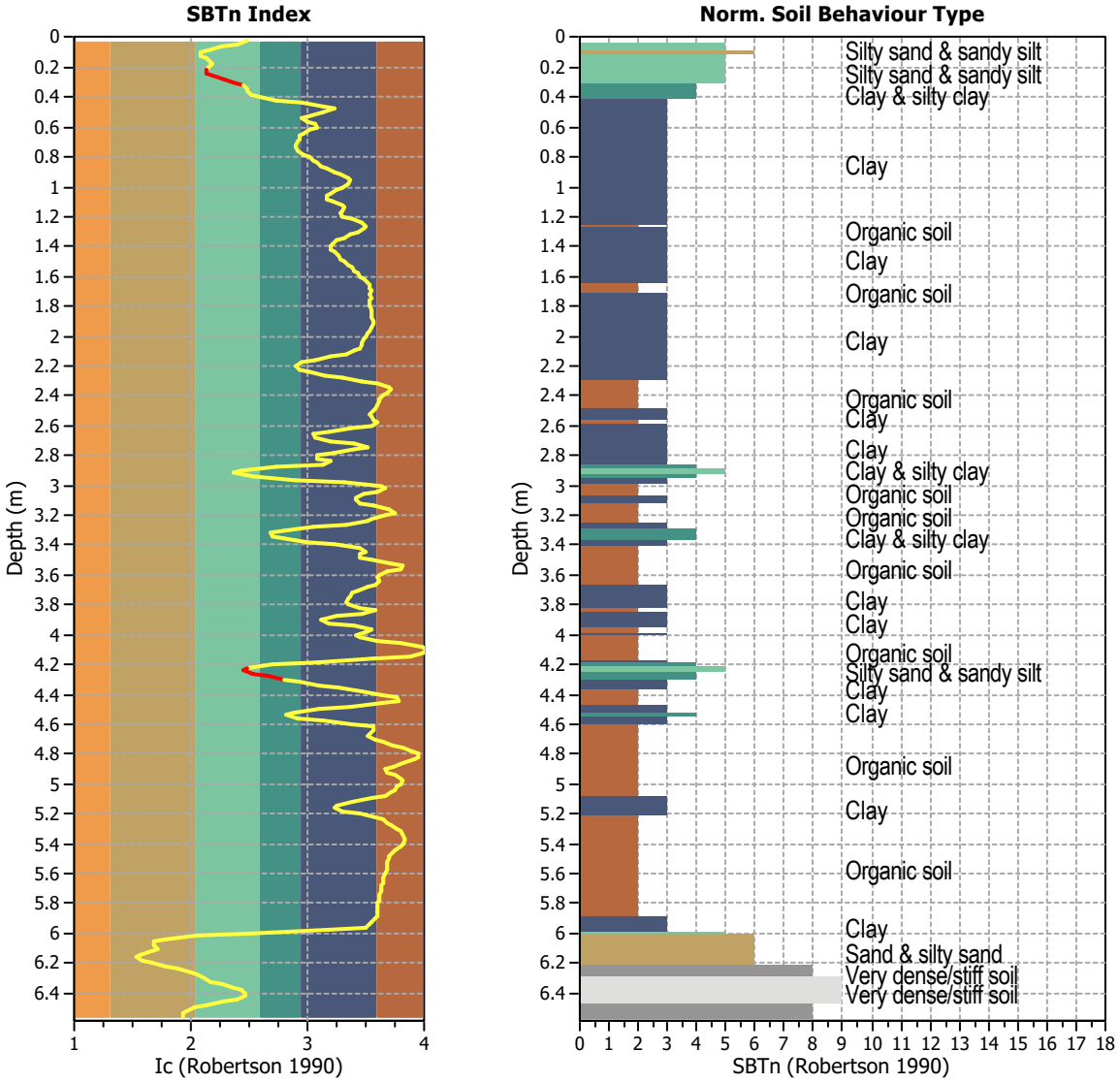
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

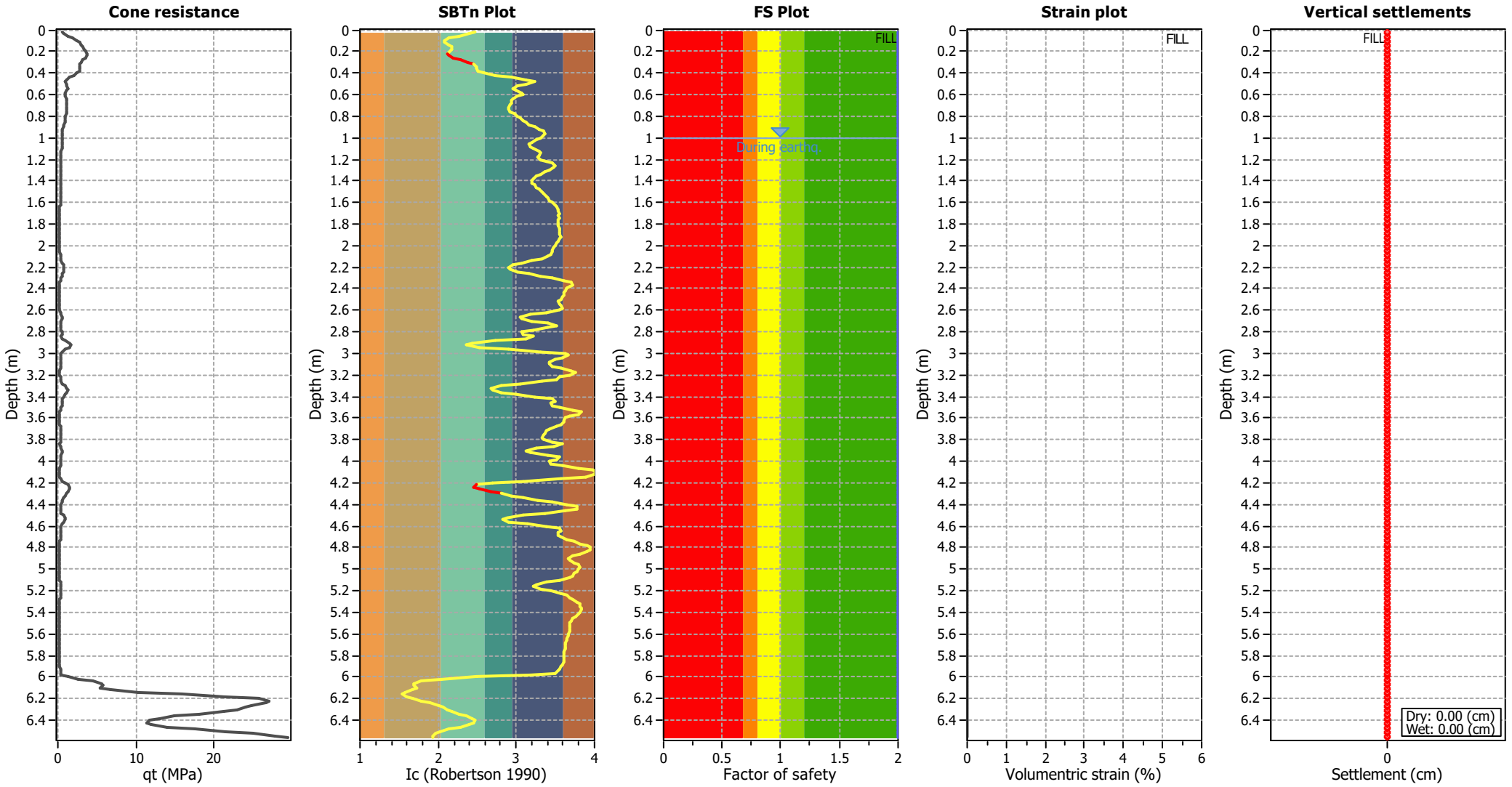
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	328
I_c maximum check value:	3.00	Total points excluded:	11
I_c change ratio value:	0.0100	Exclusion percentage:	3.35%
Minimum number of points in layer:	4	Number of layers detected:	2

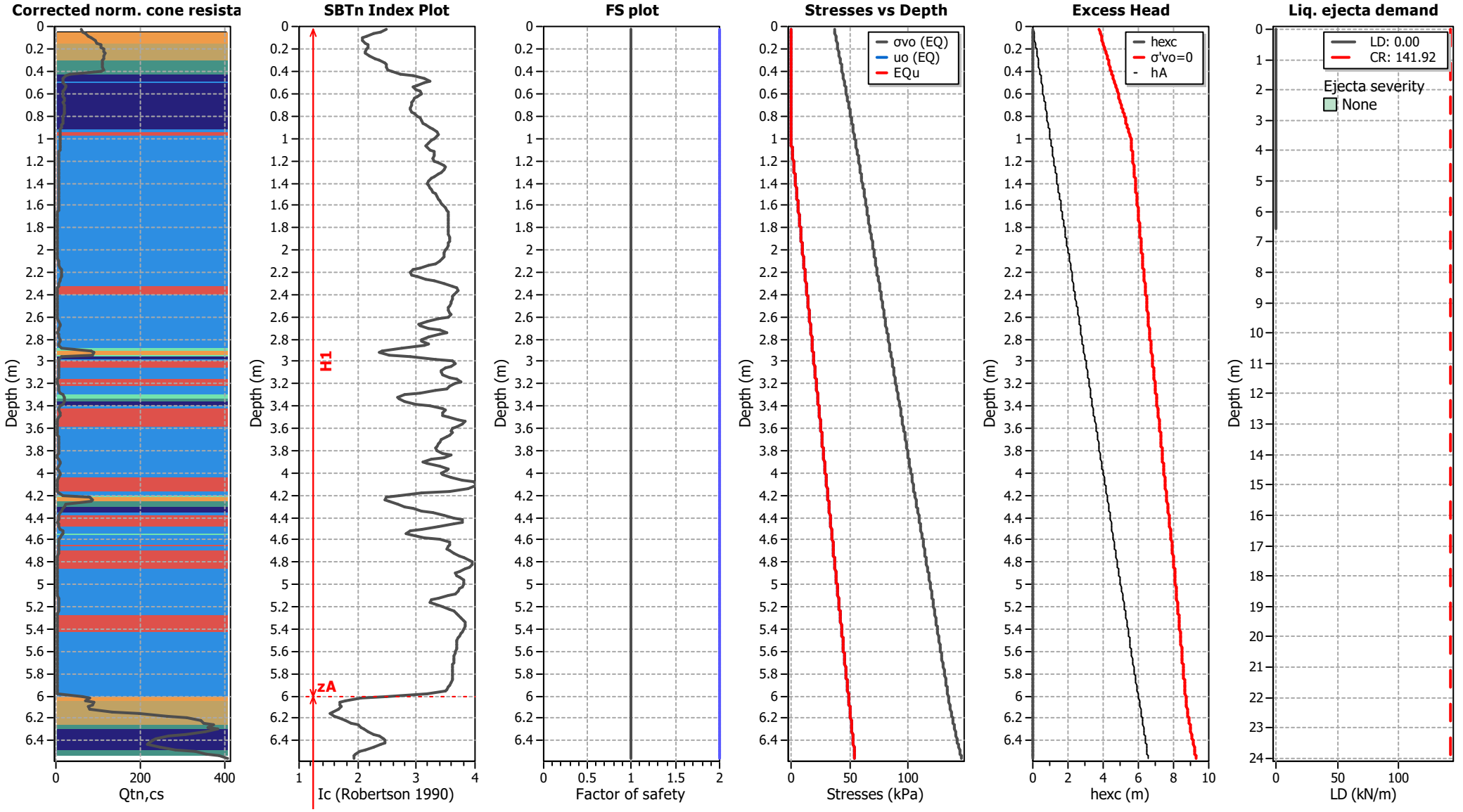
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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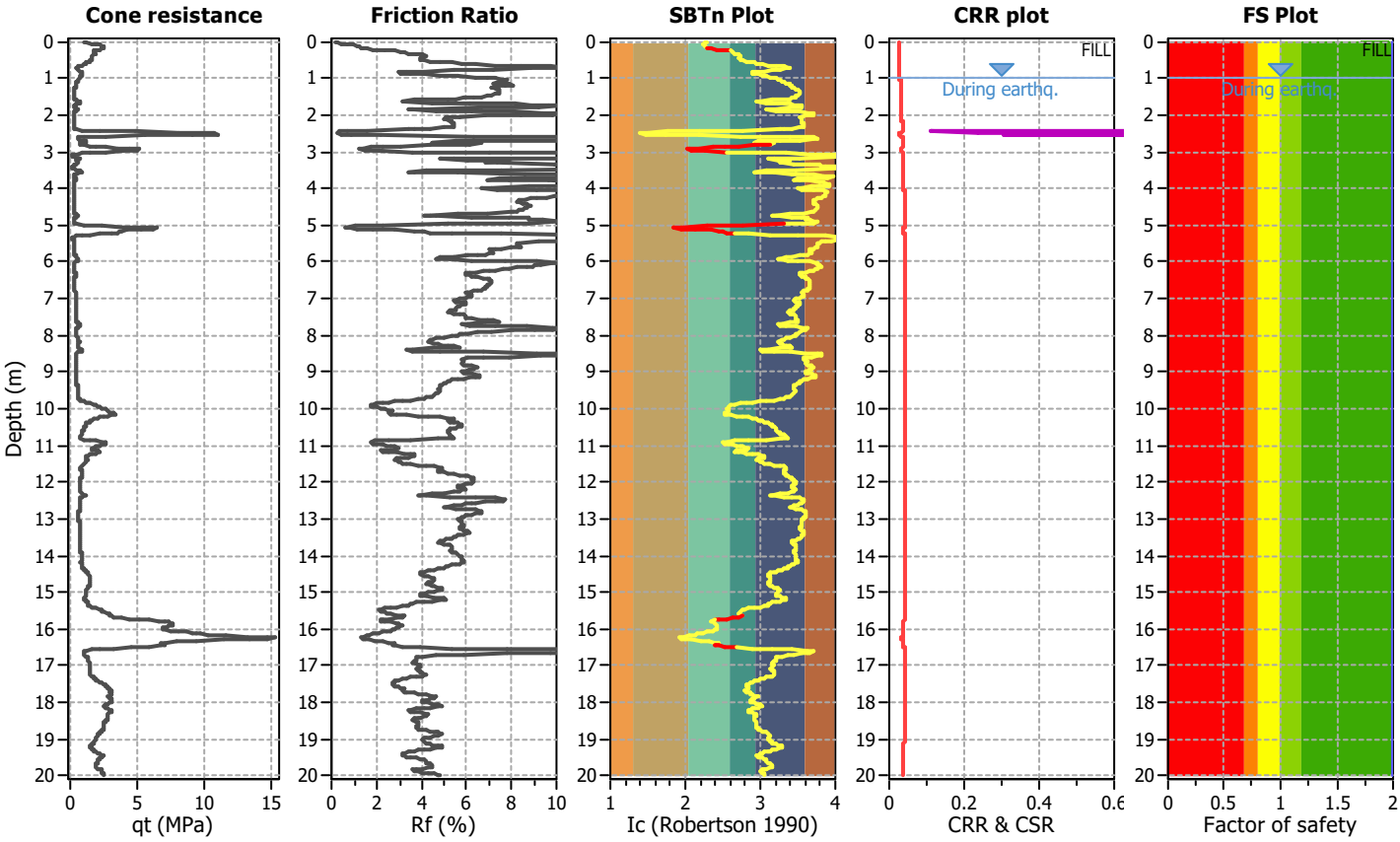
LIQUEFACTION ANALYSIS REPORT

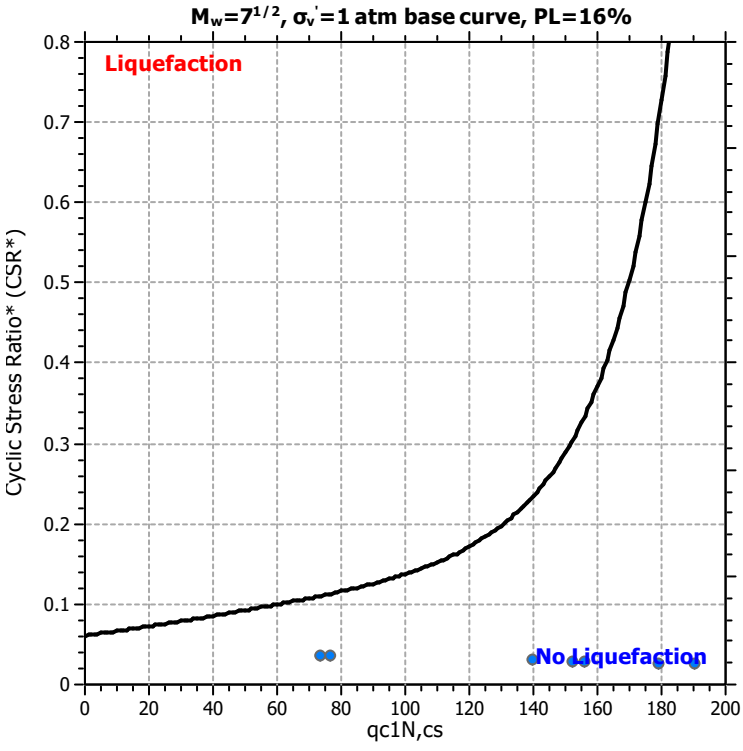
Project title : Sunfield Landholding **Location :**

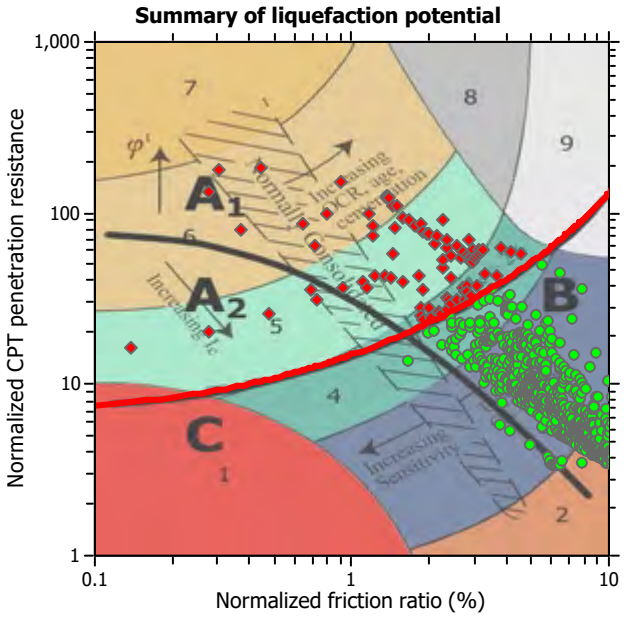
CPT file : CPT119

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	37.00 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

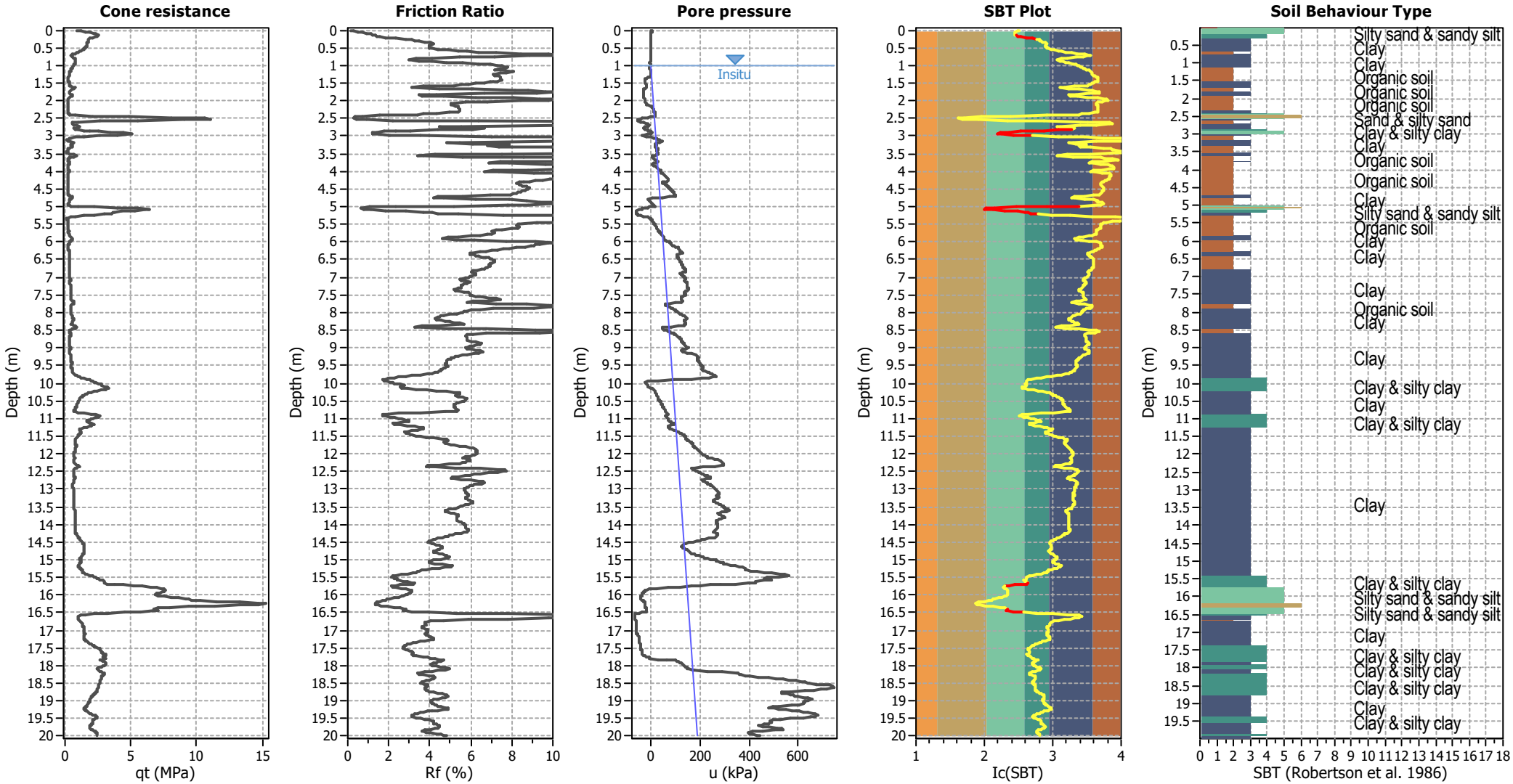






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



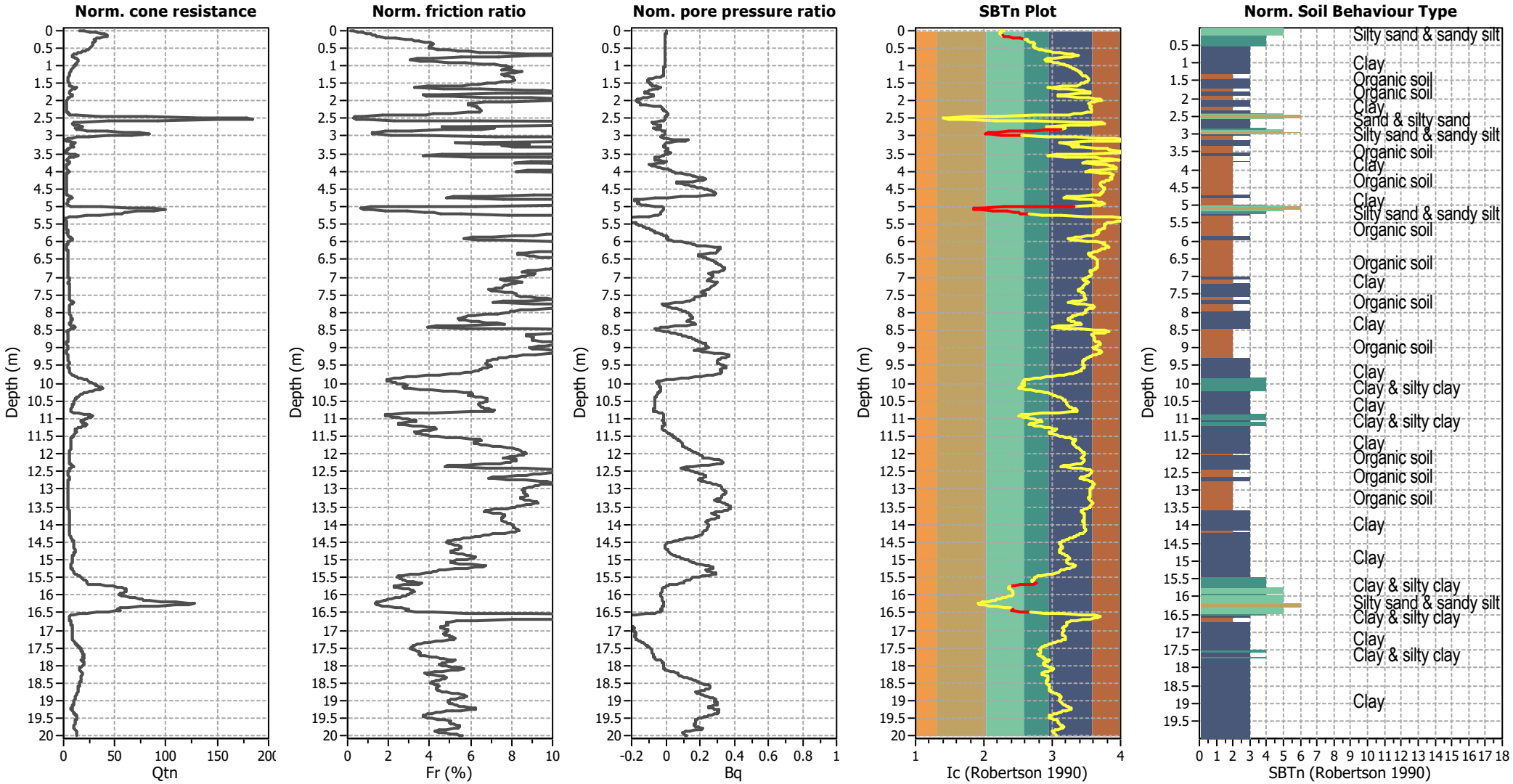
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



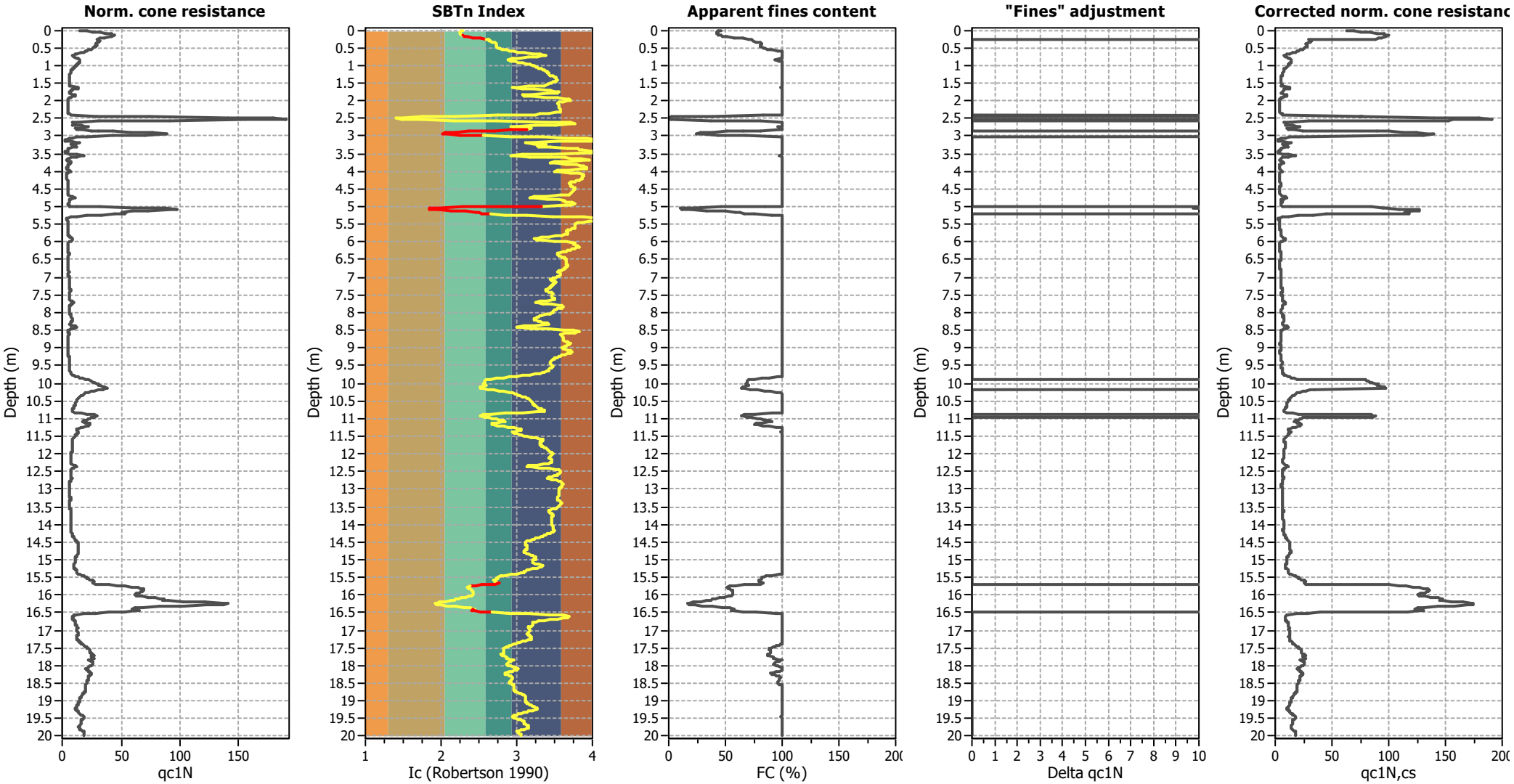
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

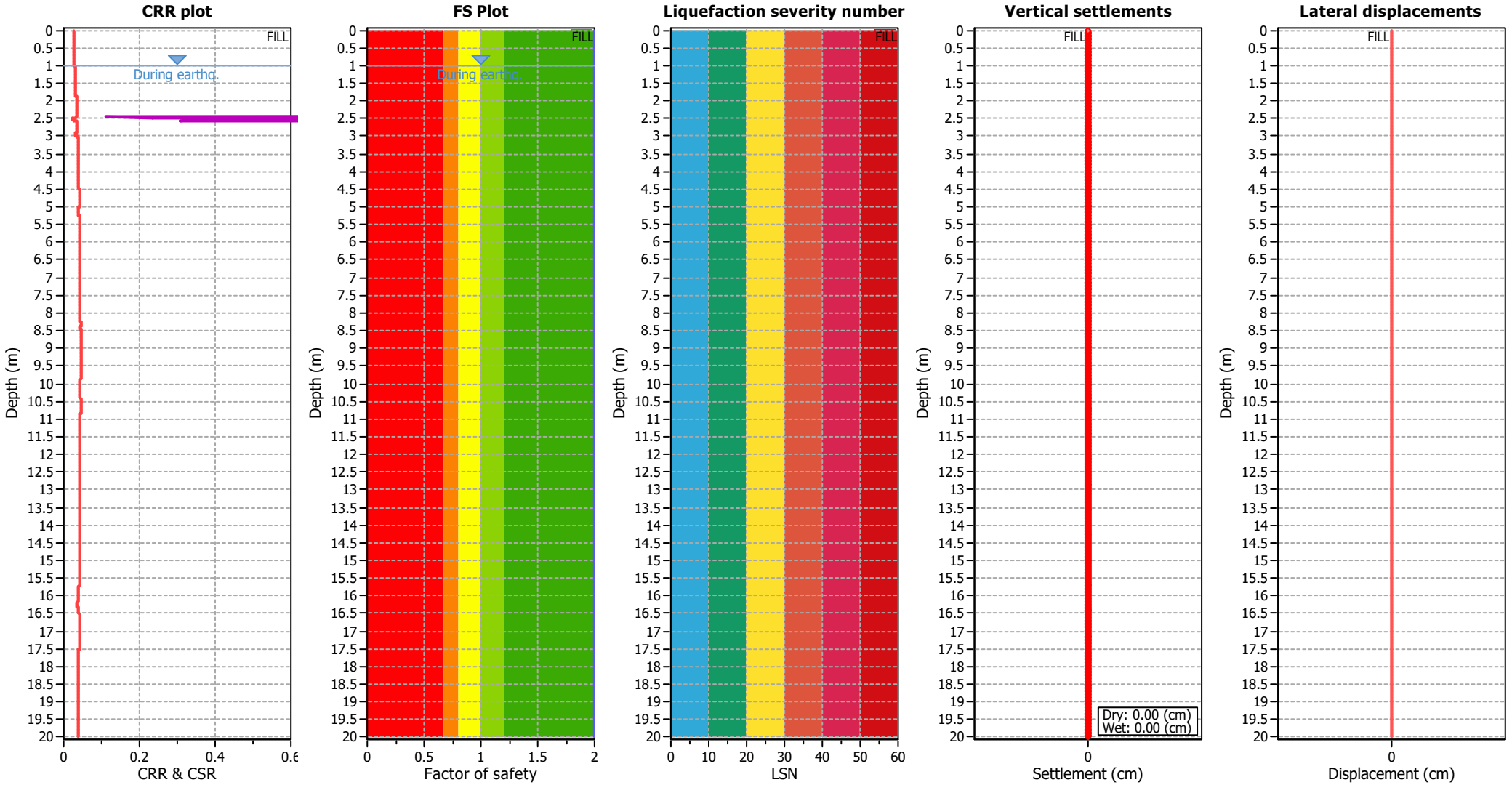
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

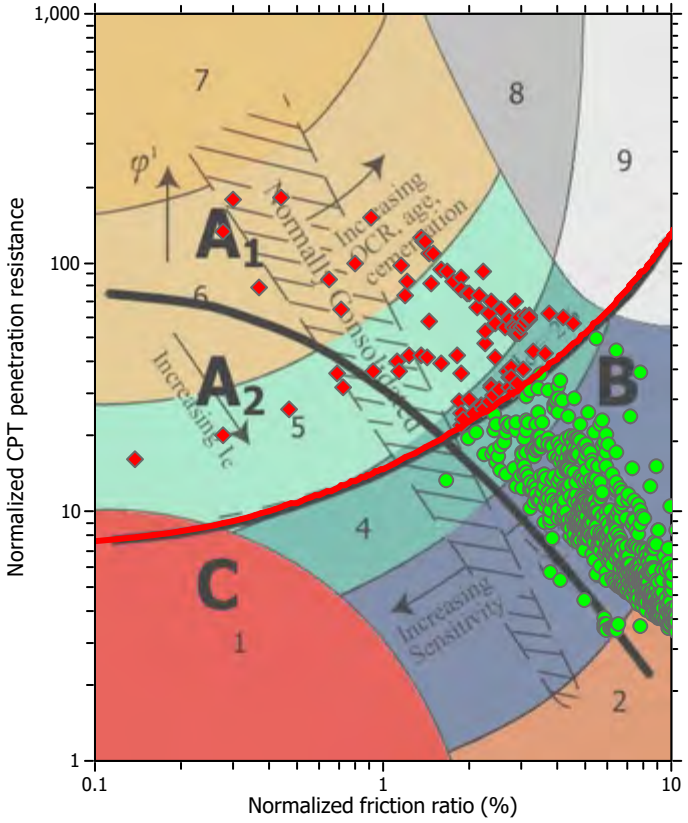
F.S. color scheme

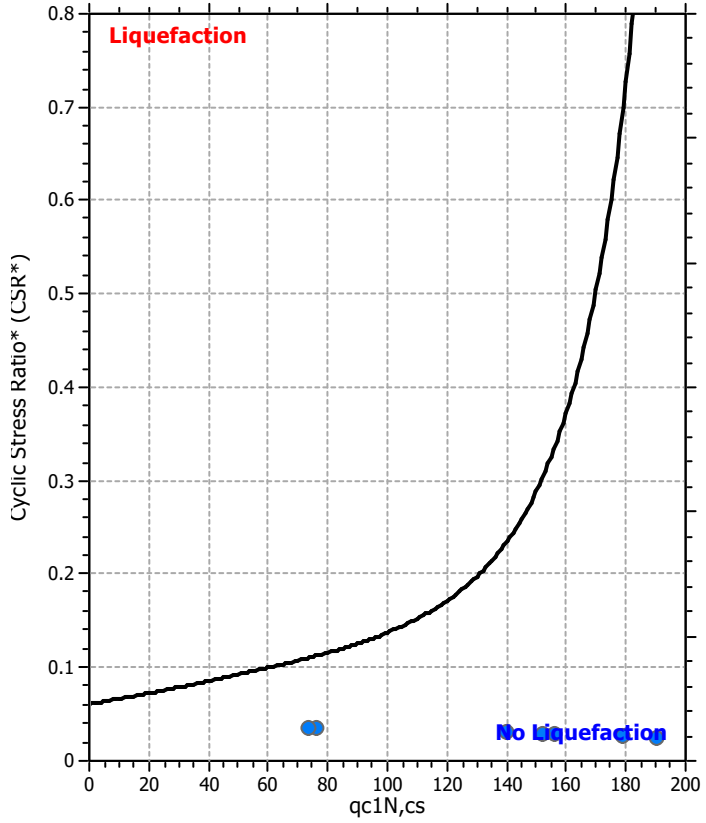
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

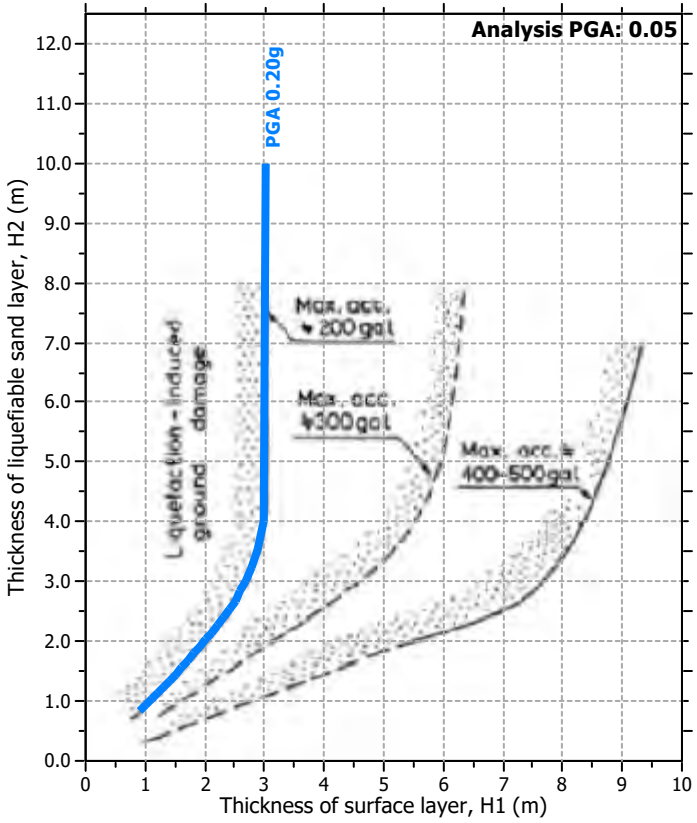
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



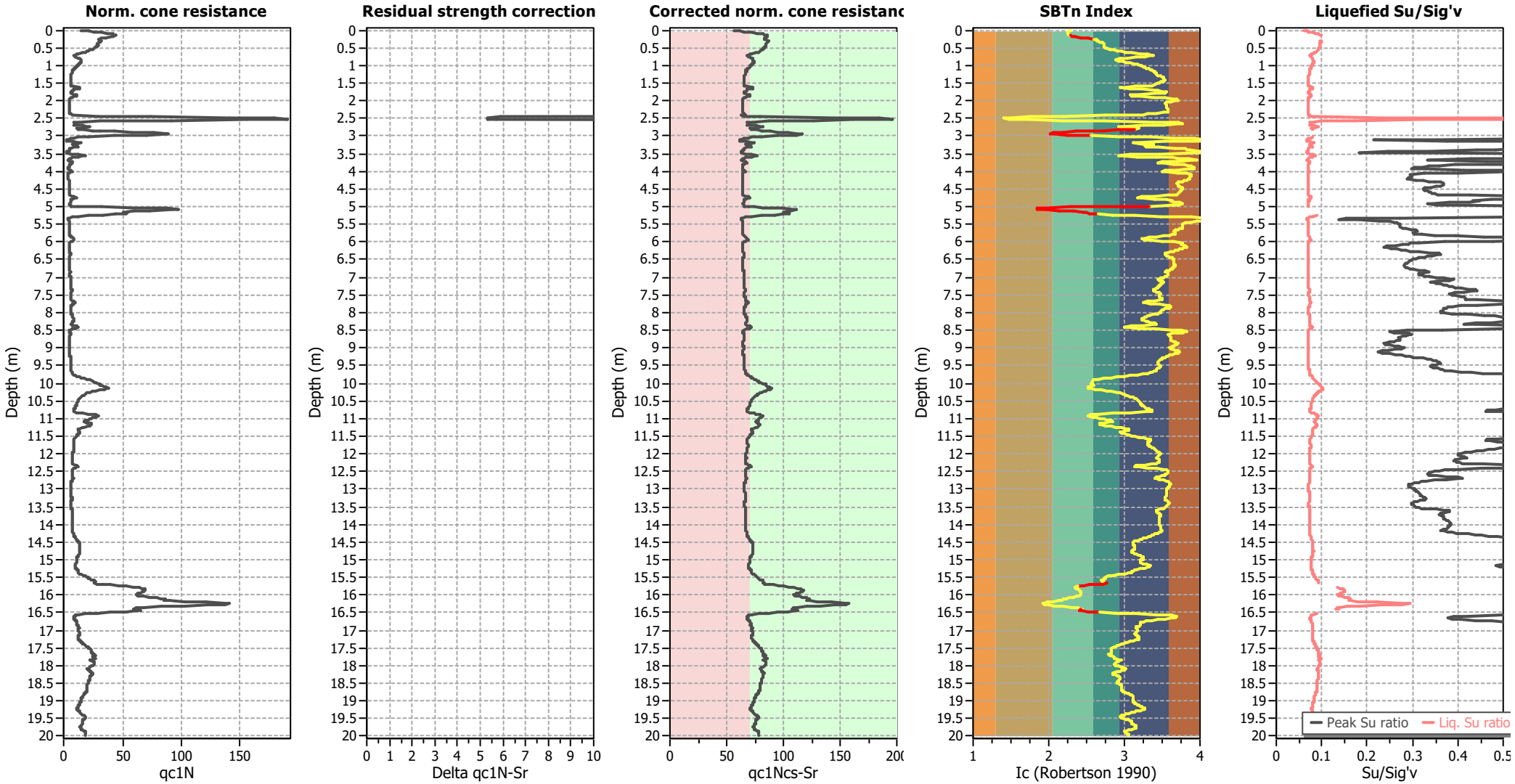




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

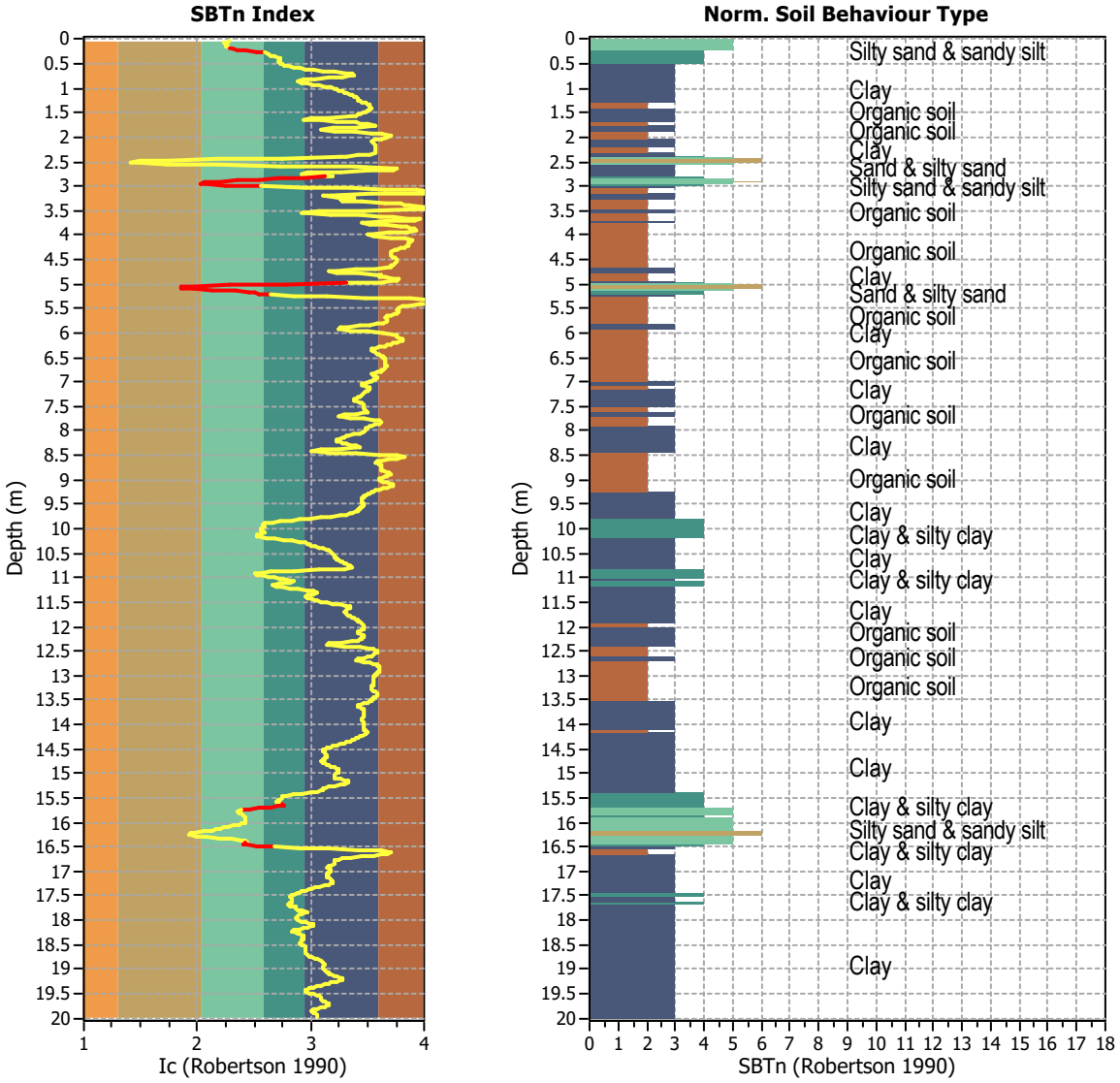
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

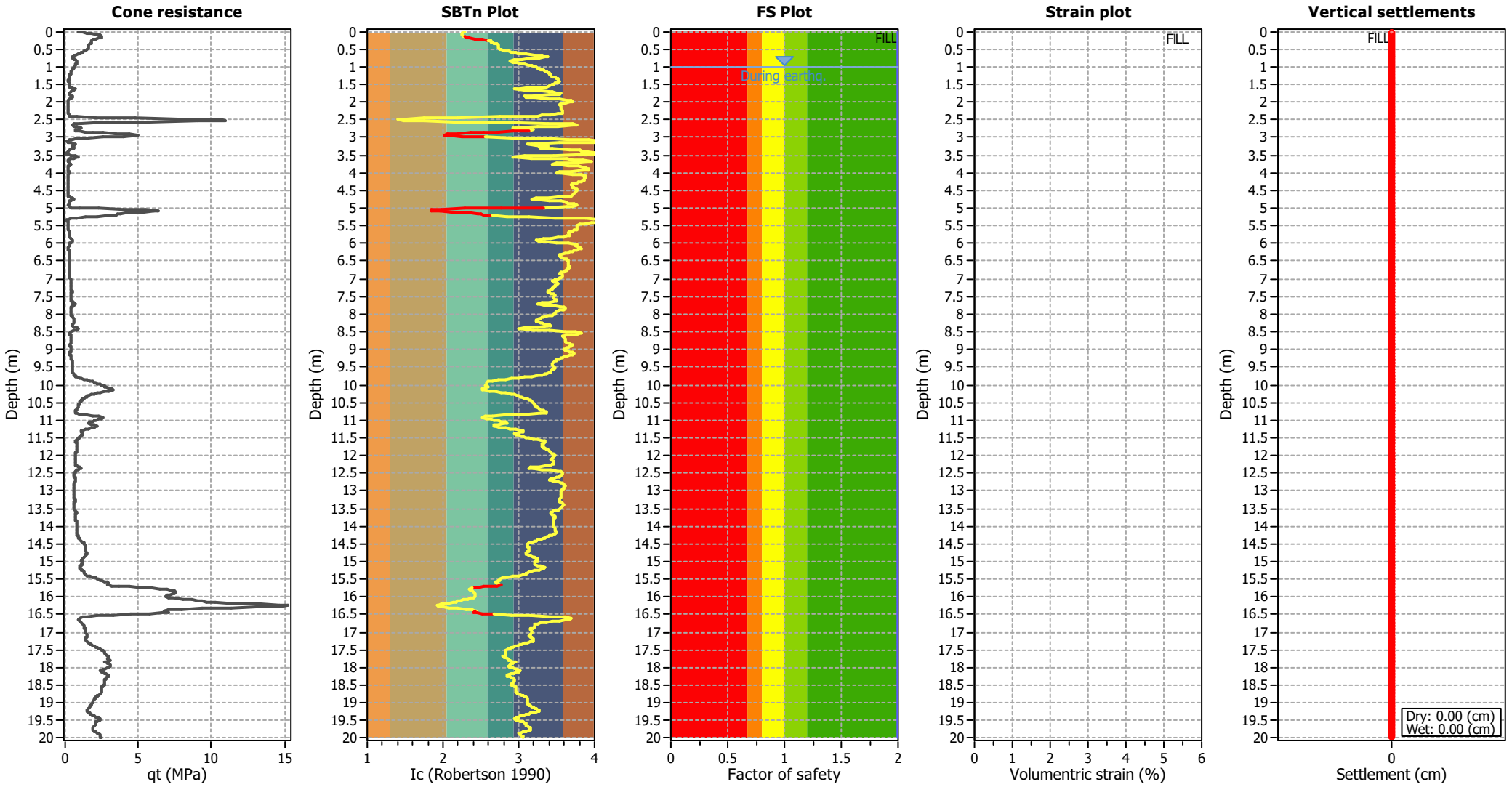
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	999
I_c maximum check value:	3.00	Total points excluded:	43
I_c change ratio value:	0.0100	Exclusion percentage:	4.30%
Minimum number of points in layer:	4	Number of layers detected:	7

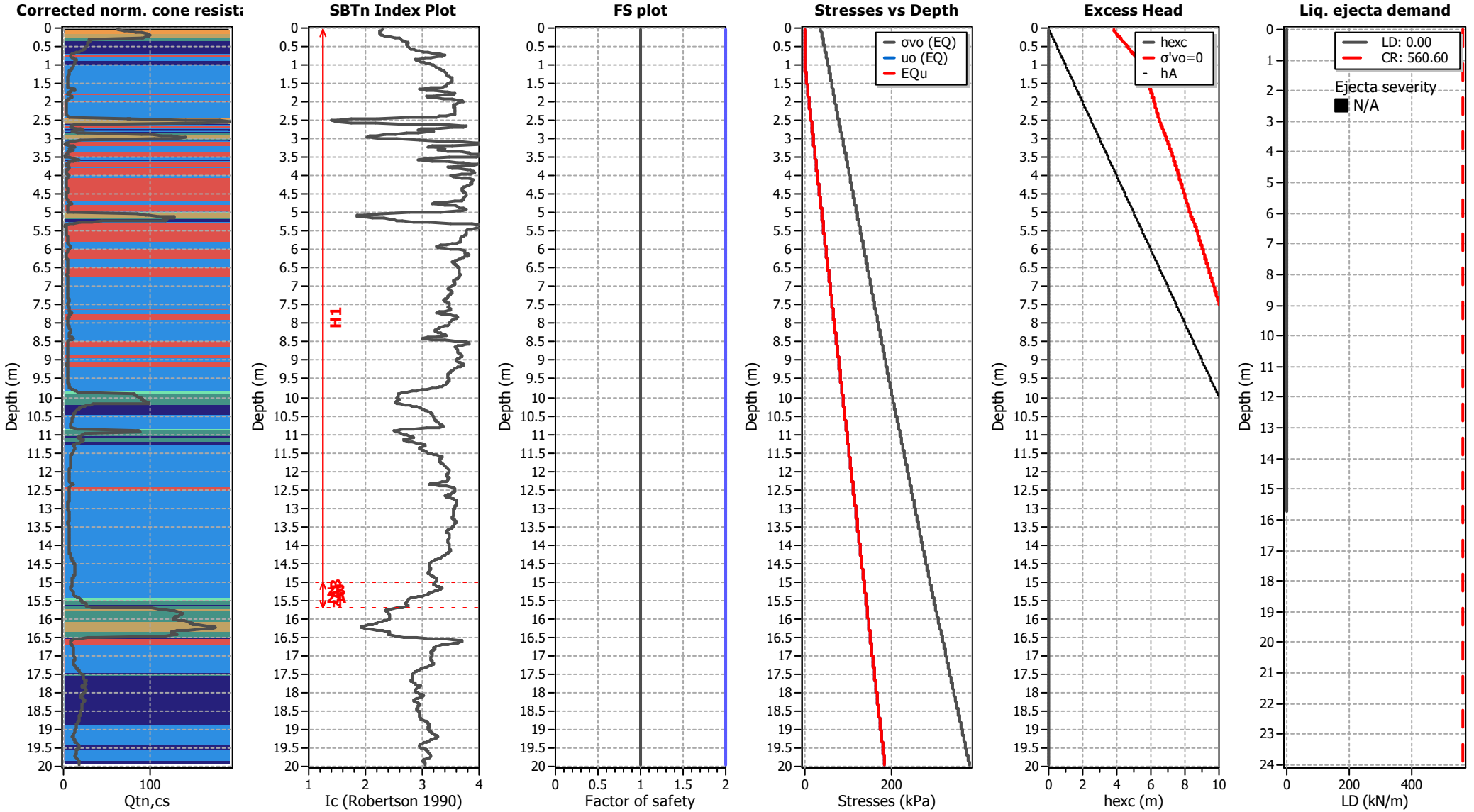
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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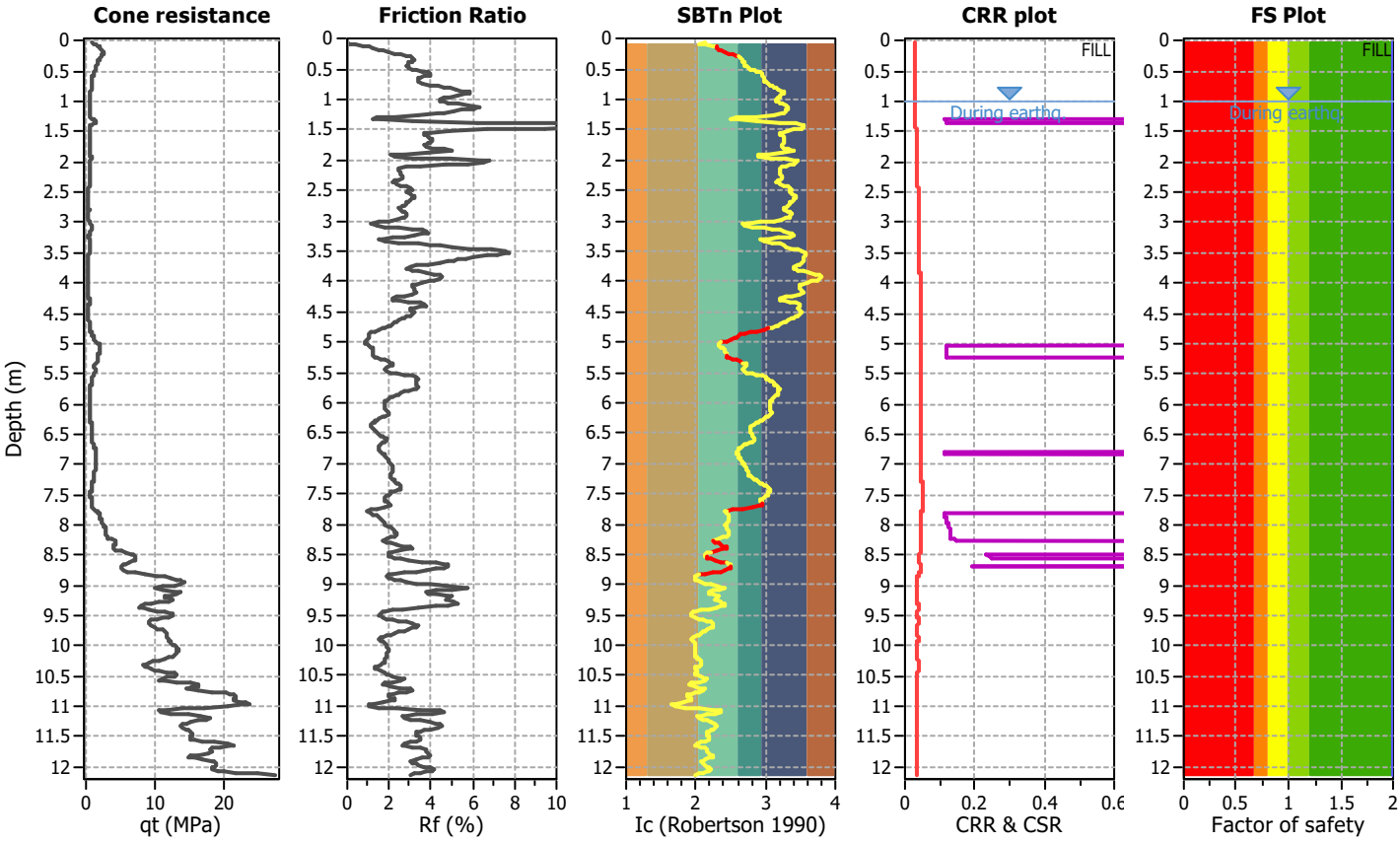
LIQUEFACTION ANALYSIS REPORT

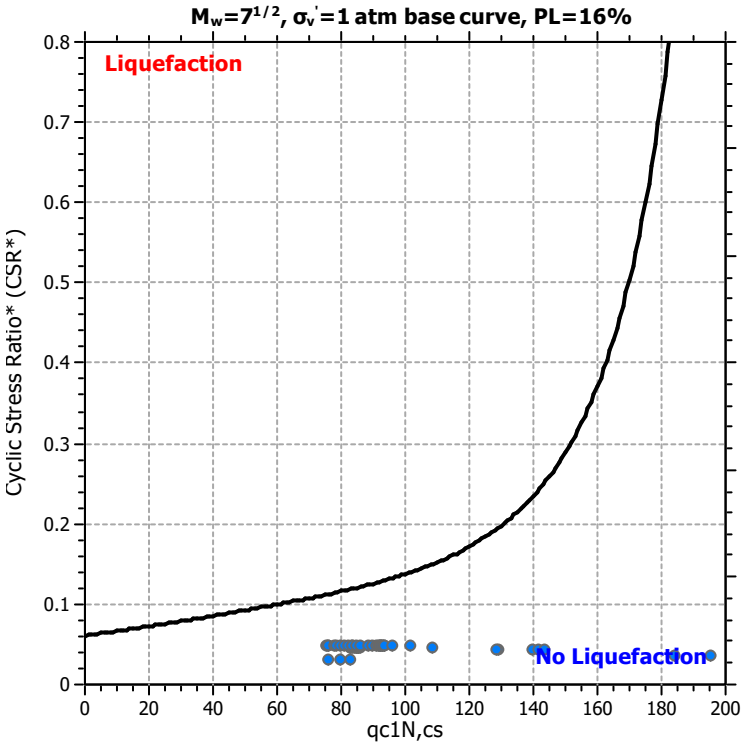
Project title : Sunfield Landholding **Location :**

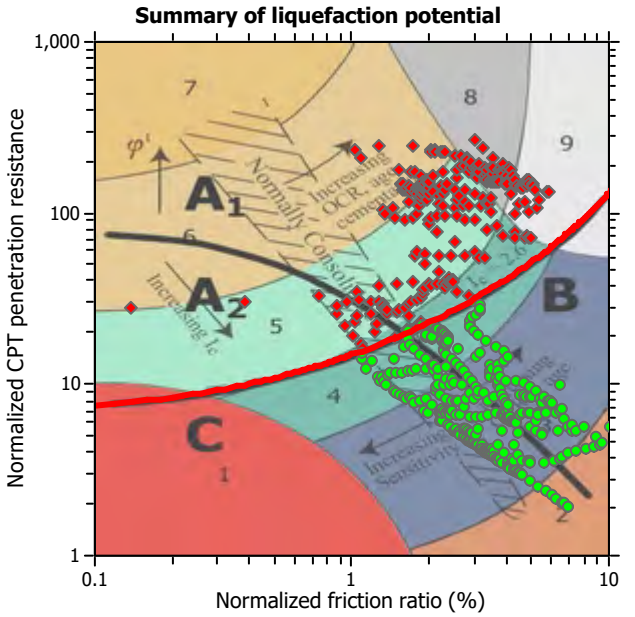
CPT file : CPT120

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	18.50 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

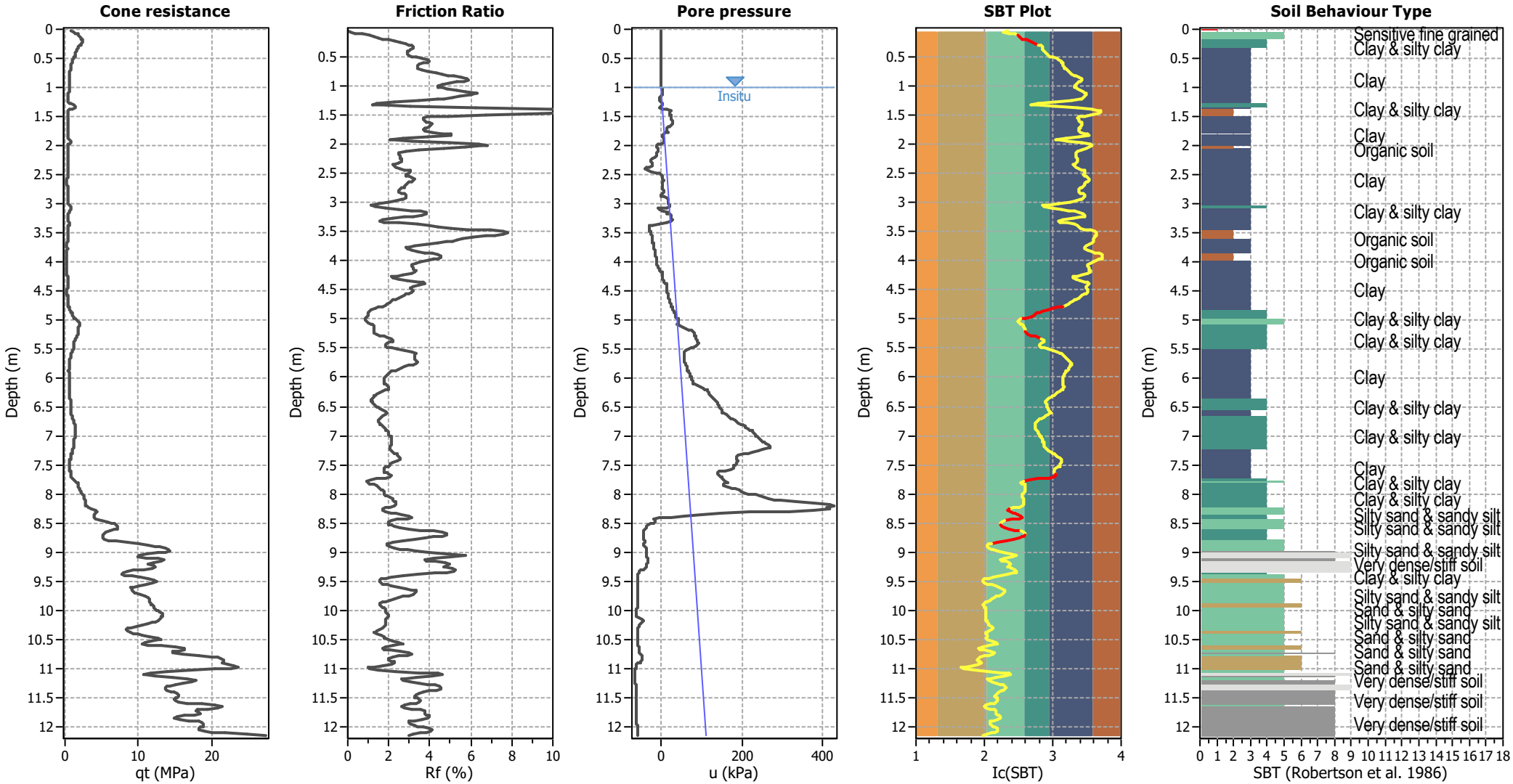






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



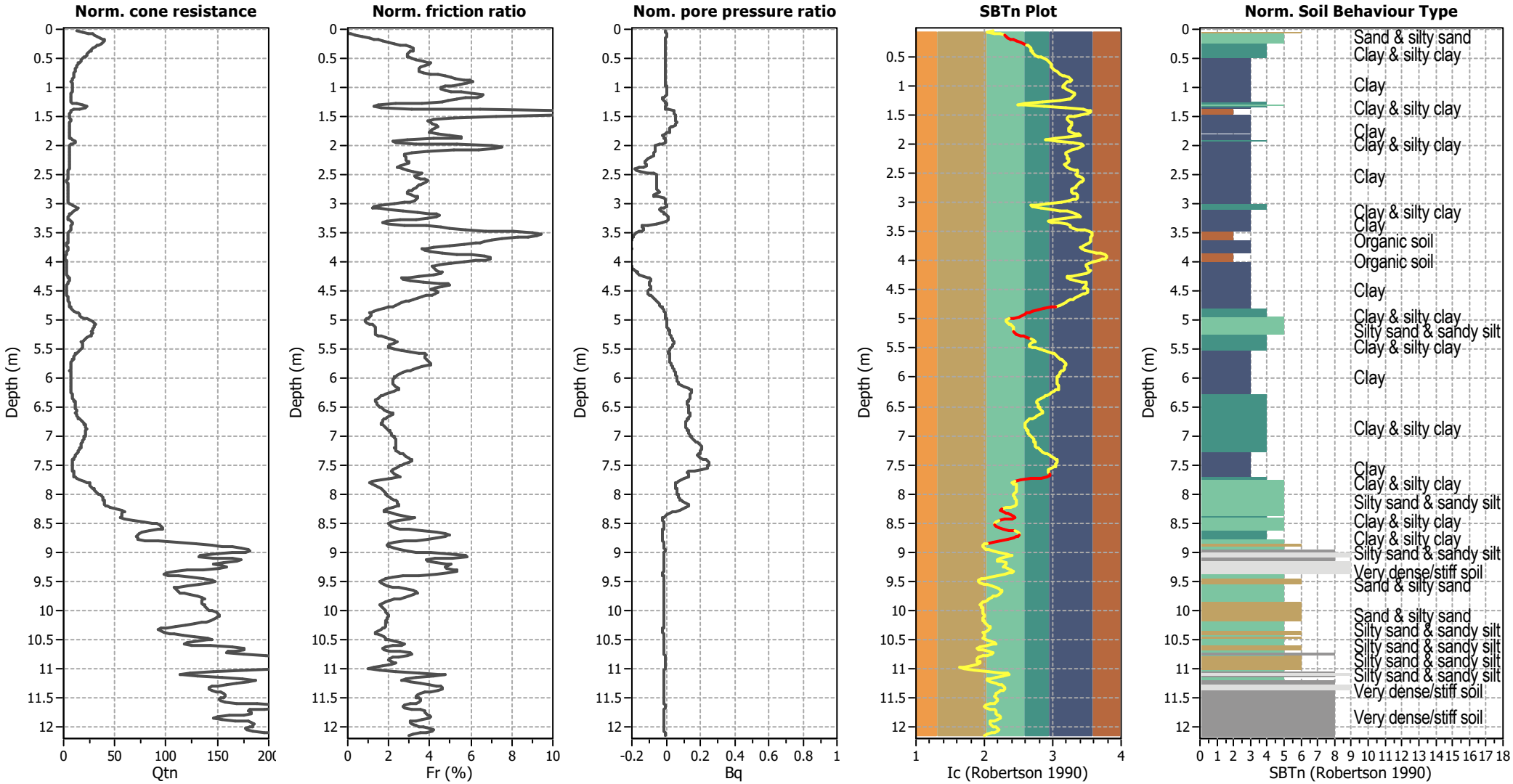
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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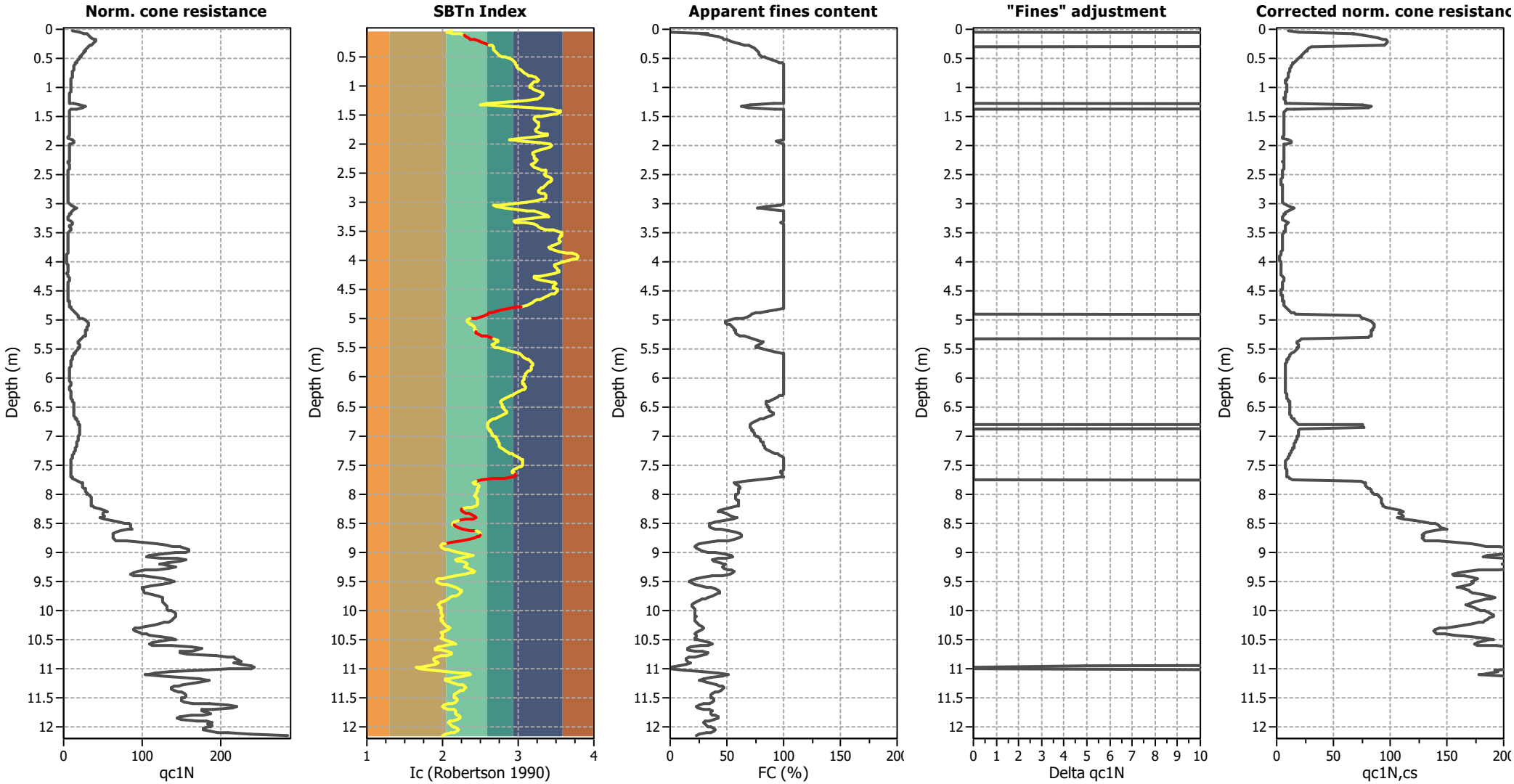
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

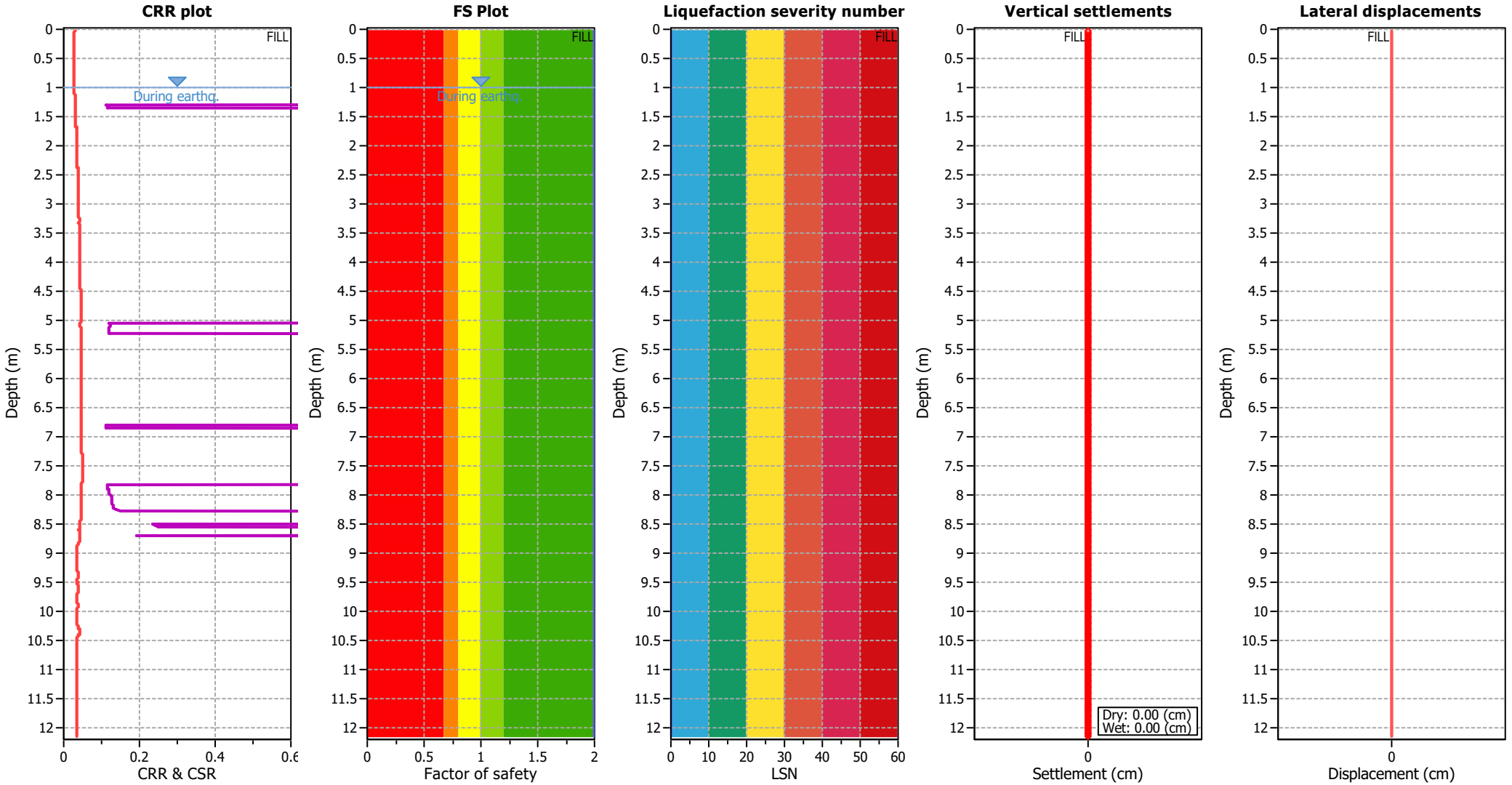
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 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

LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
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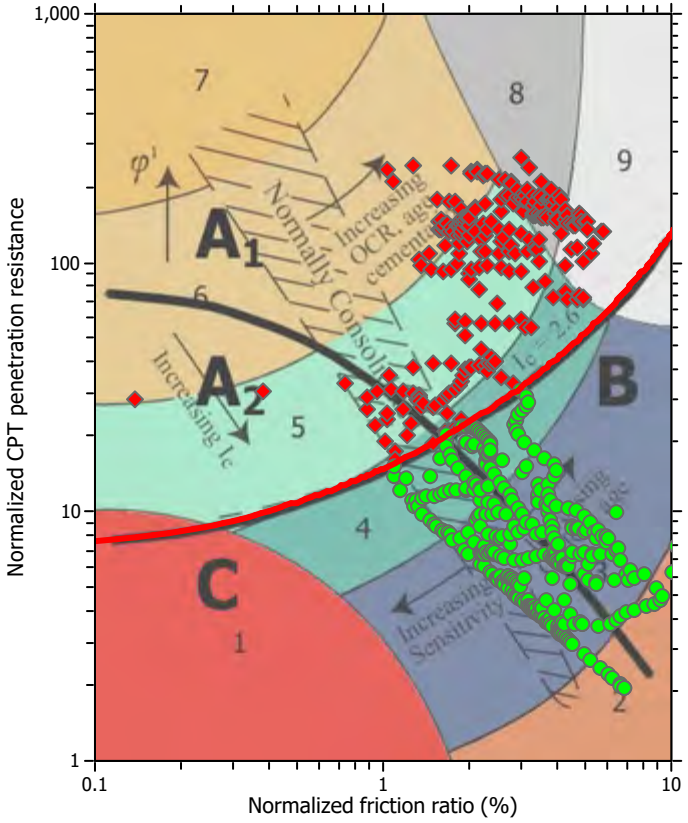
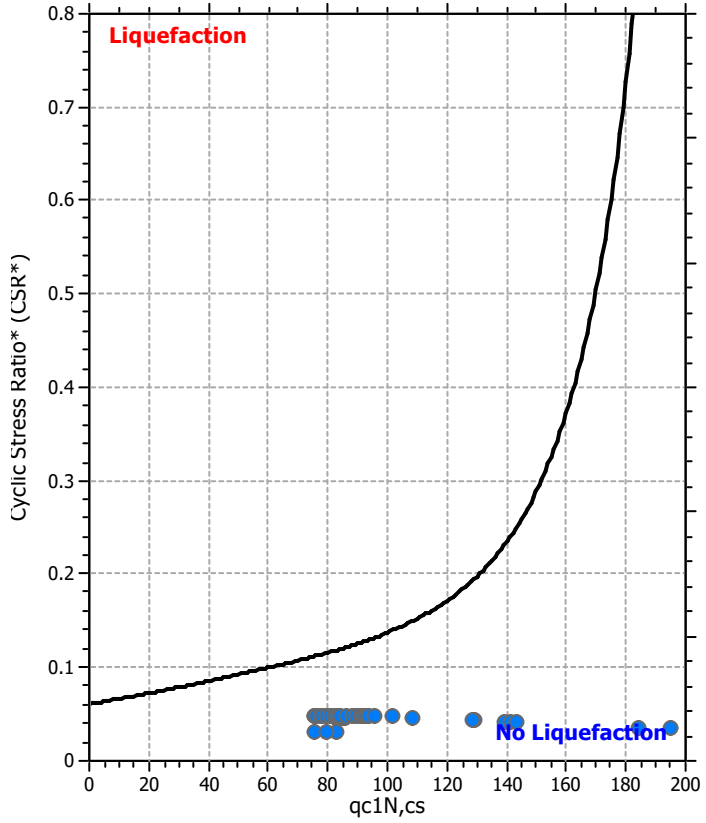
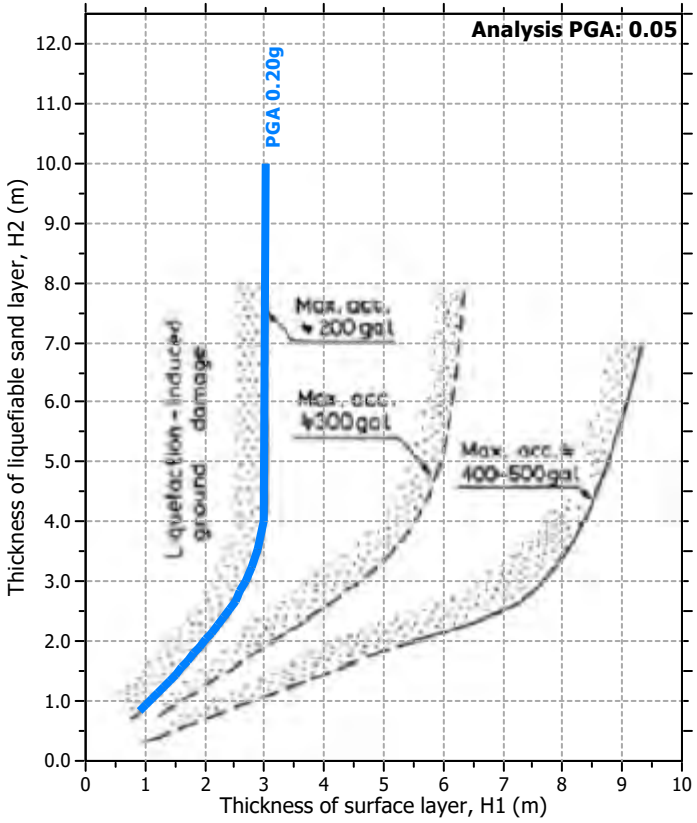
Liquefaction analysis summary plots



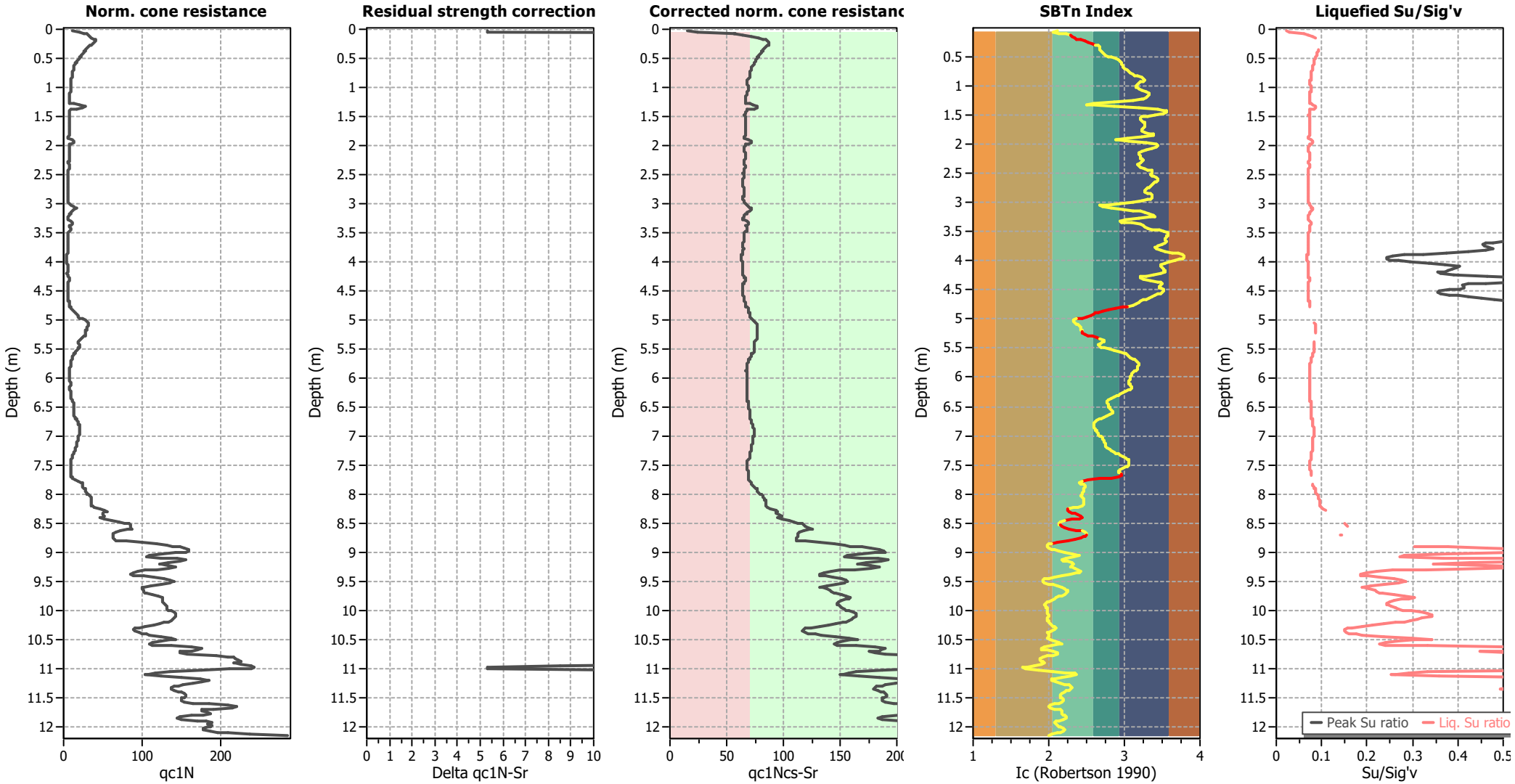




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

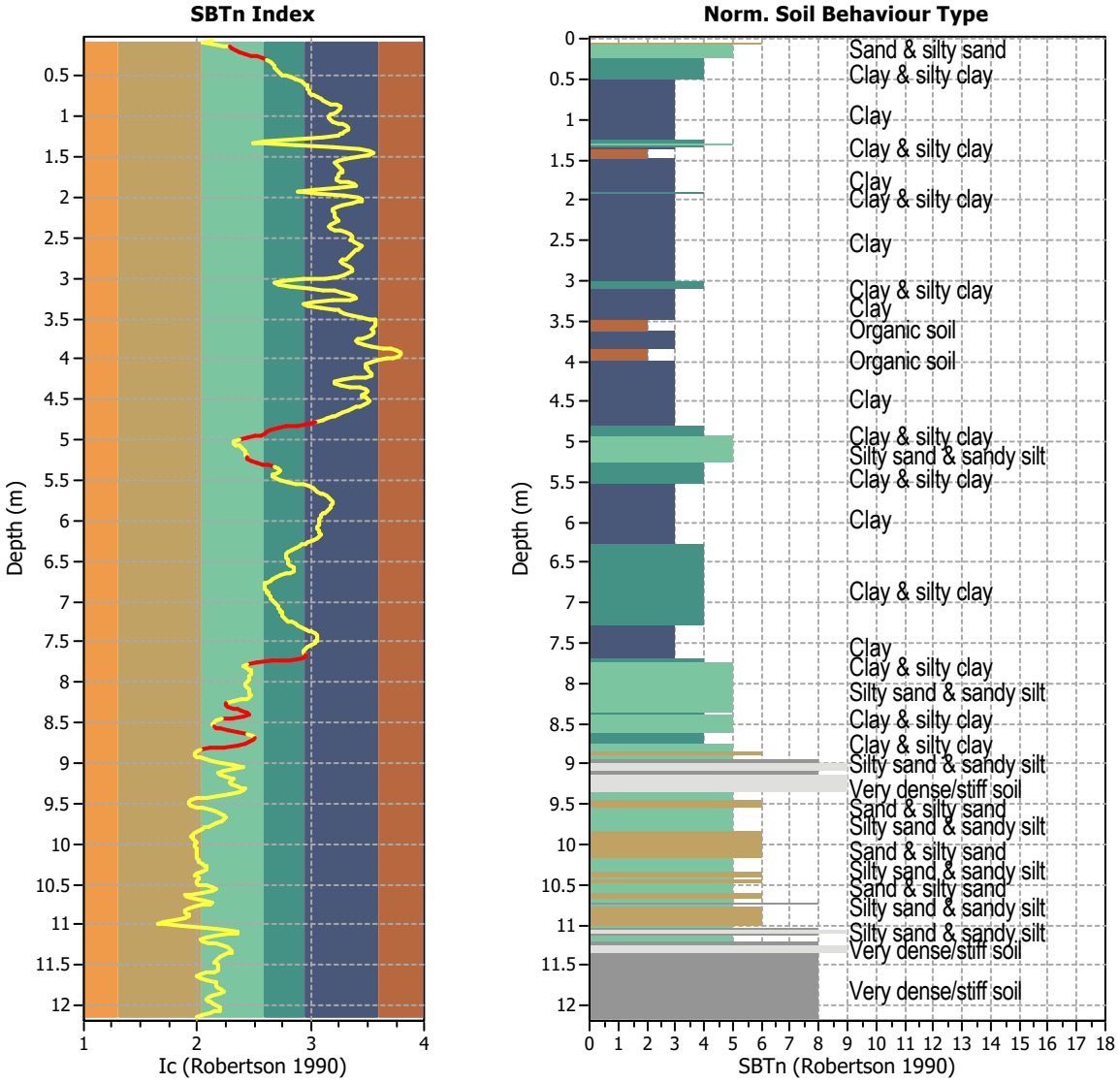
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



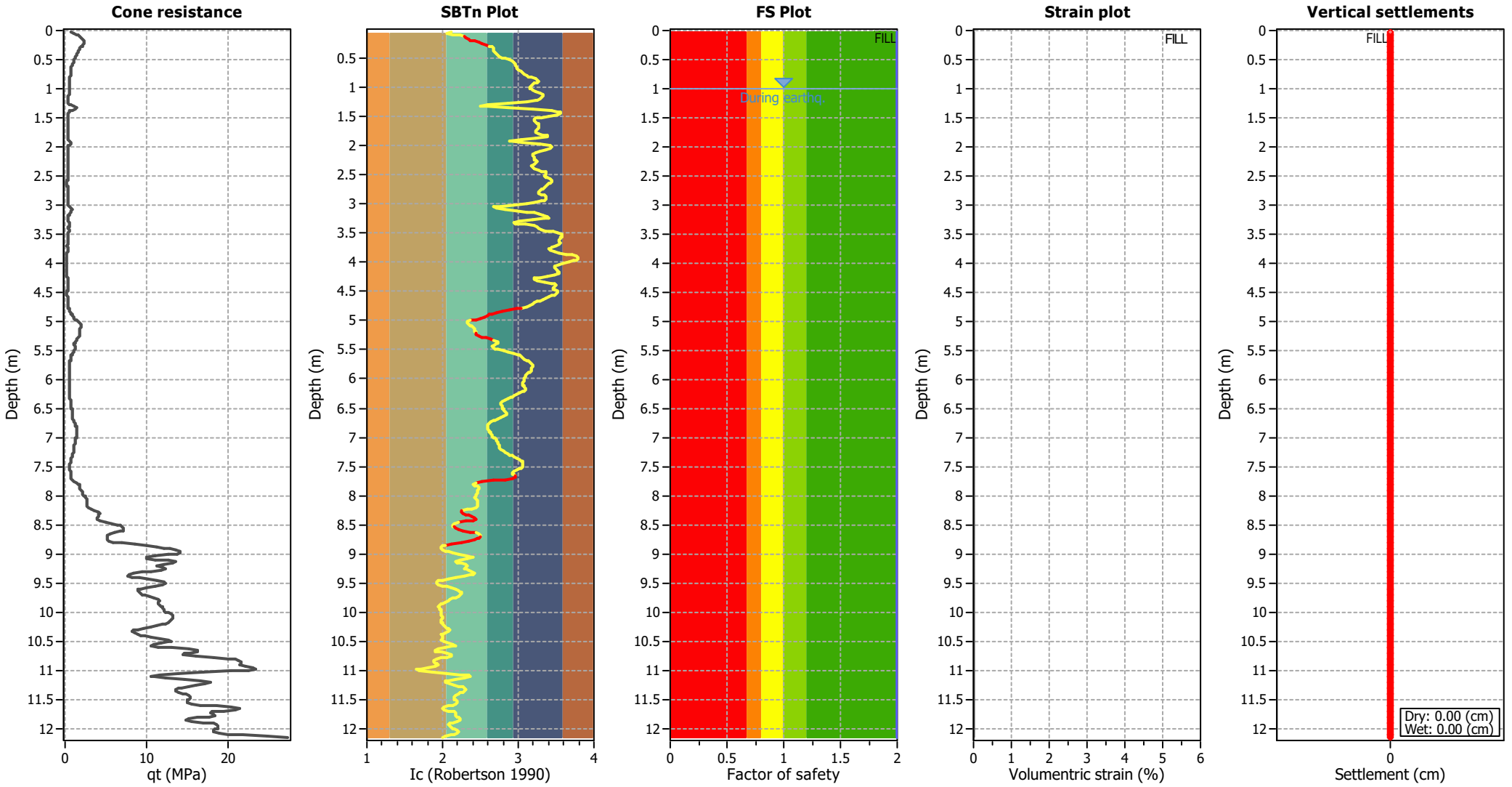
Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	607
Total points excluded:	60
Exclusion percentage:	9.88%
Number of layers detected:	8

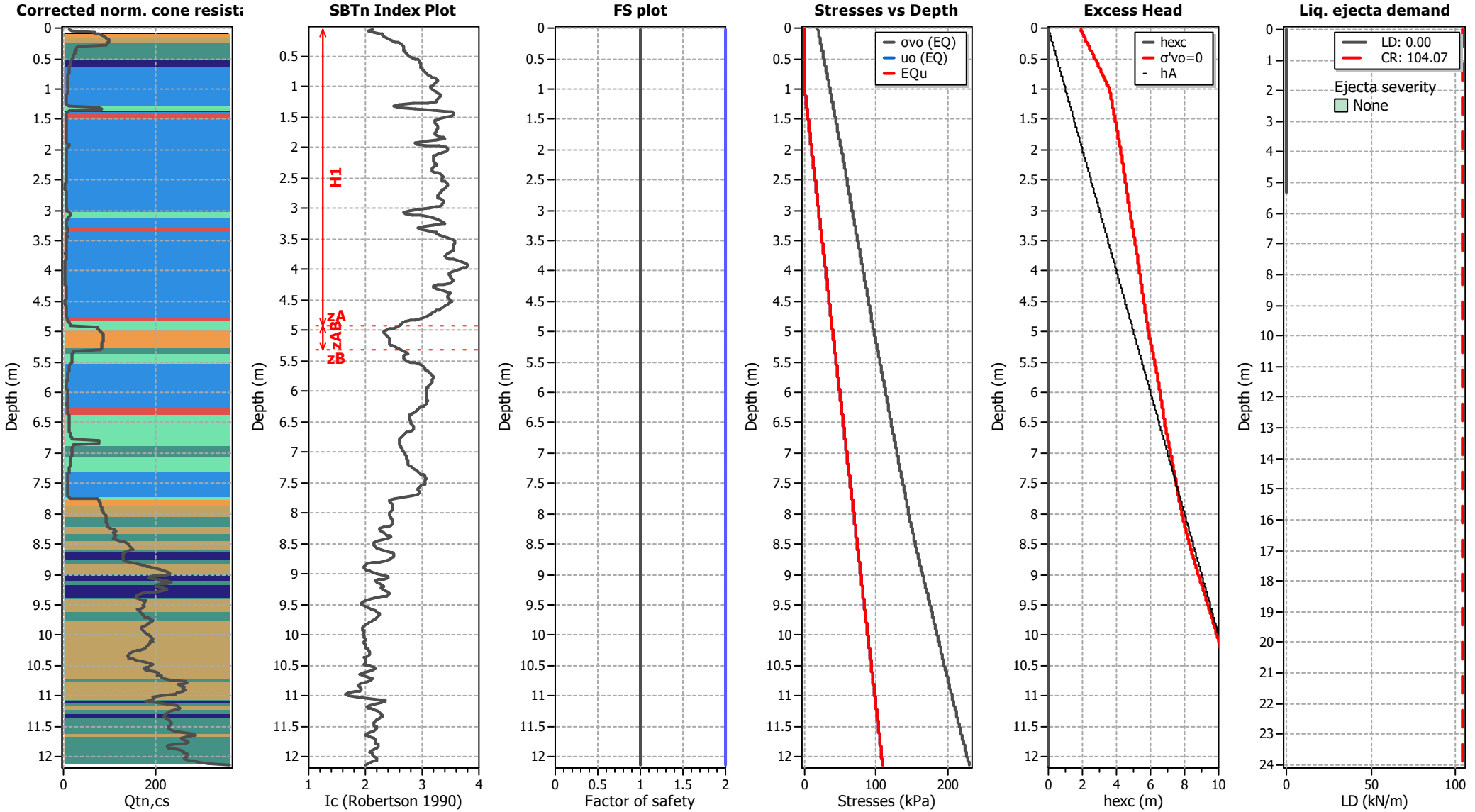
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



GeoLogismiki
Geotechnical Engineers
Merarhias 56
http://www.geologismiki.gr

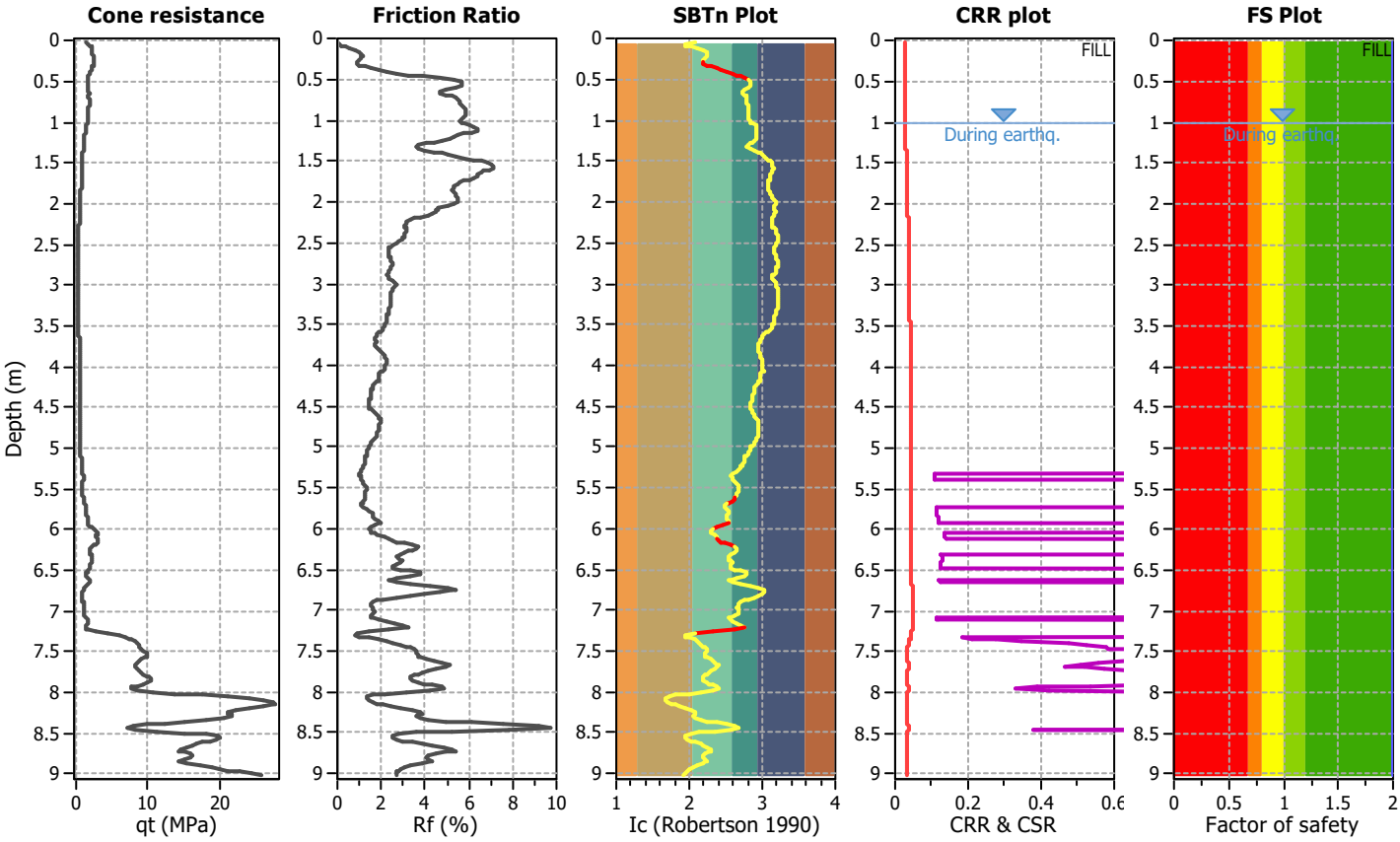
LIQUEFACTION ANALYSIS REPORT

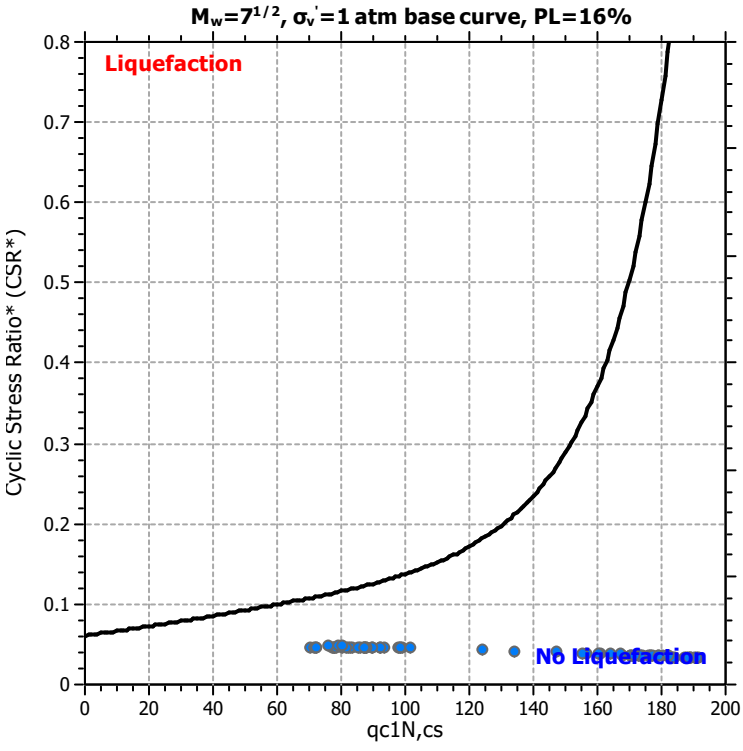
Project title : Sunfield Landholding **Location :**

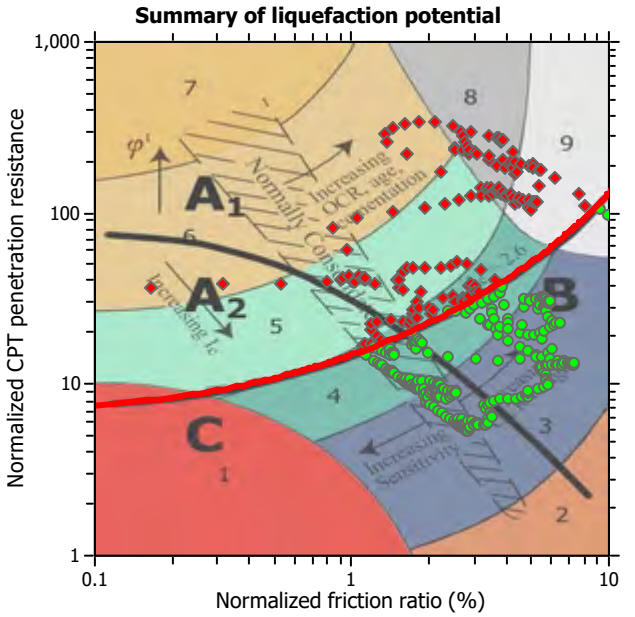
CPT file : CPT121

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	18.50 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

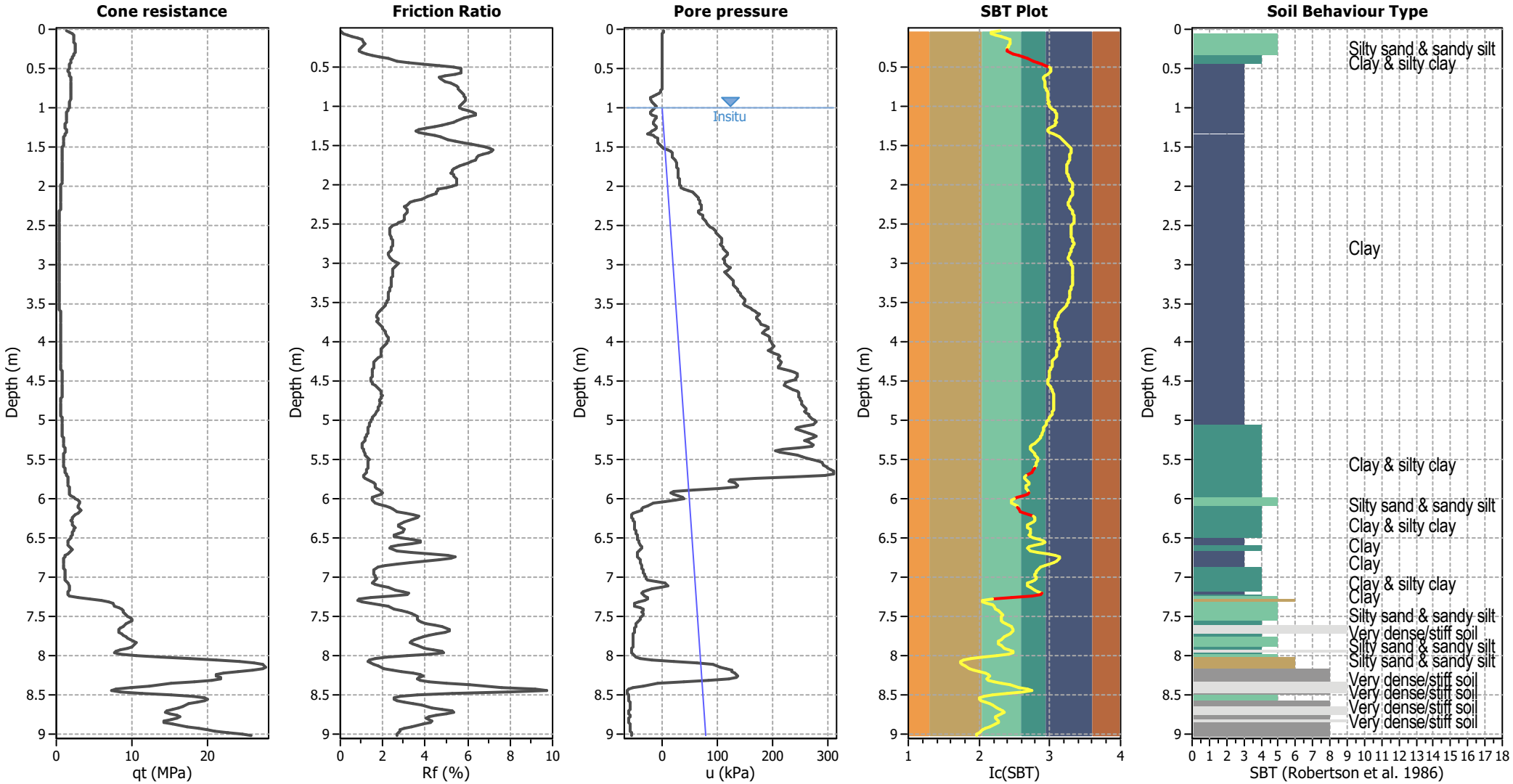






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



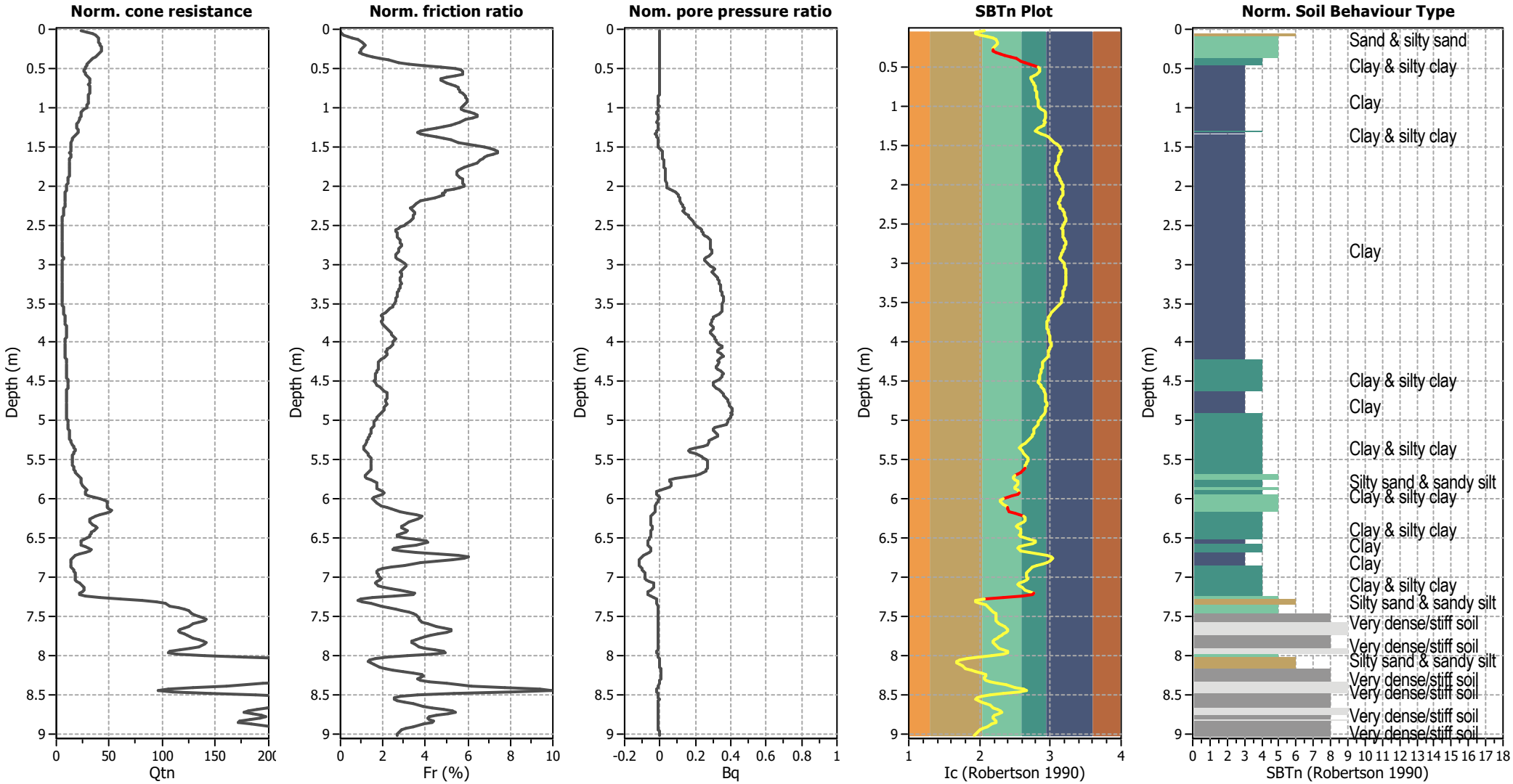
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
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Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
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SBTn legend

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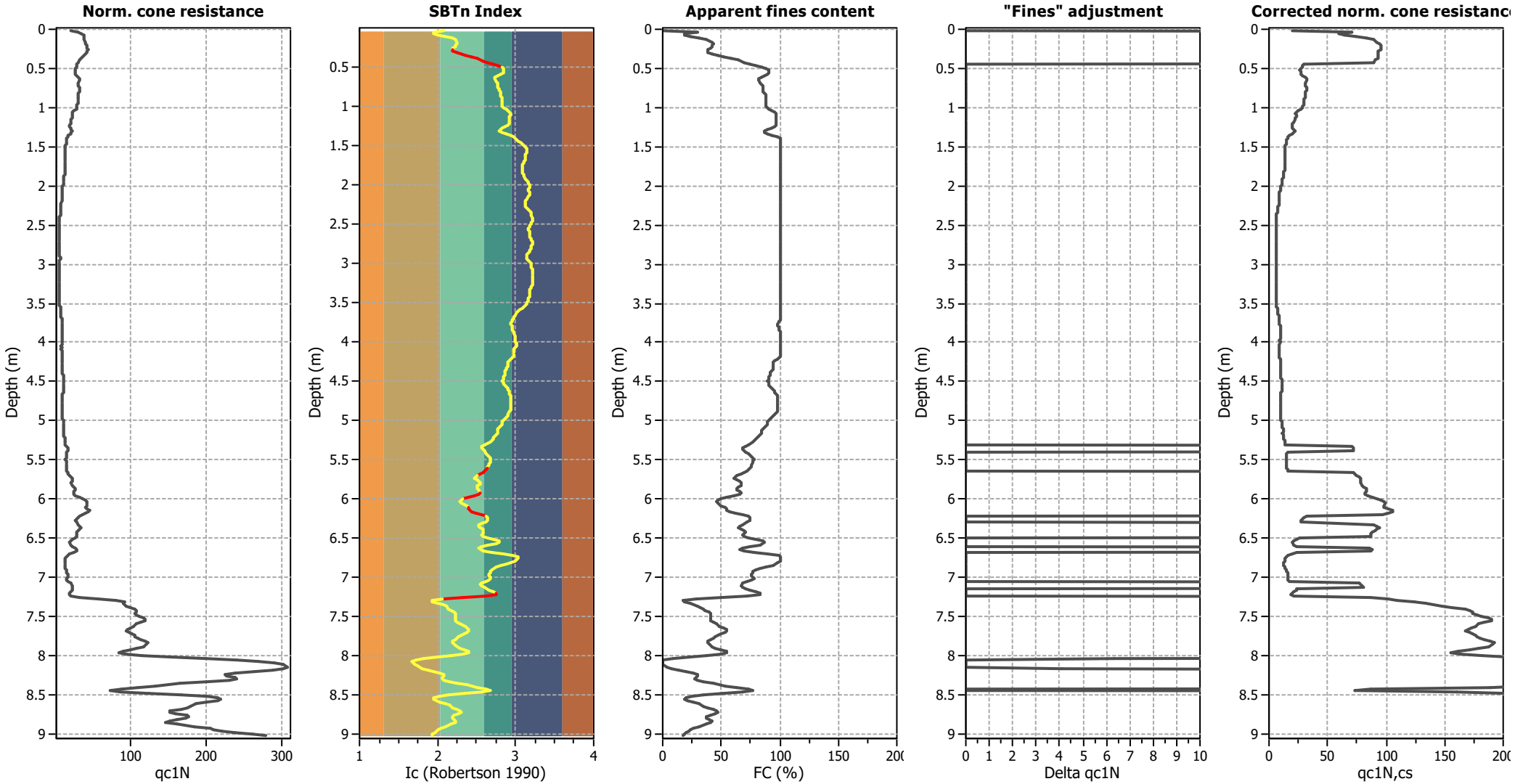
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
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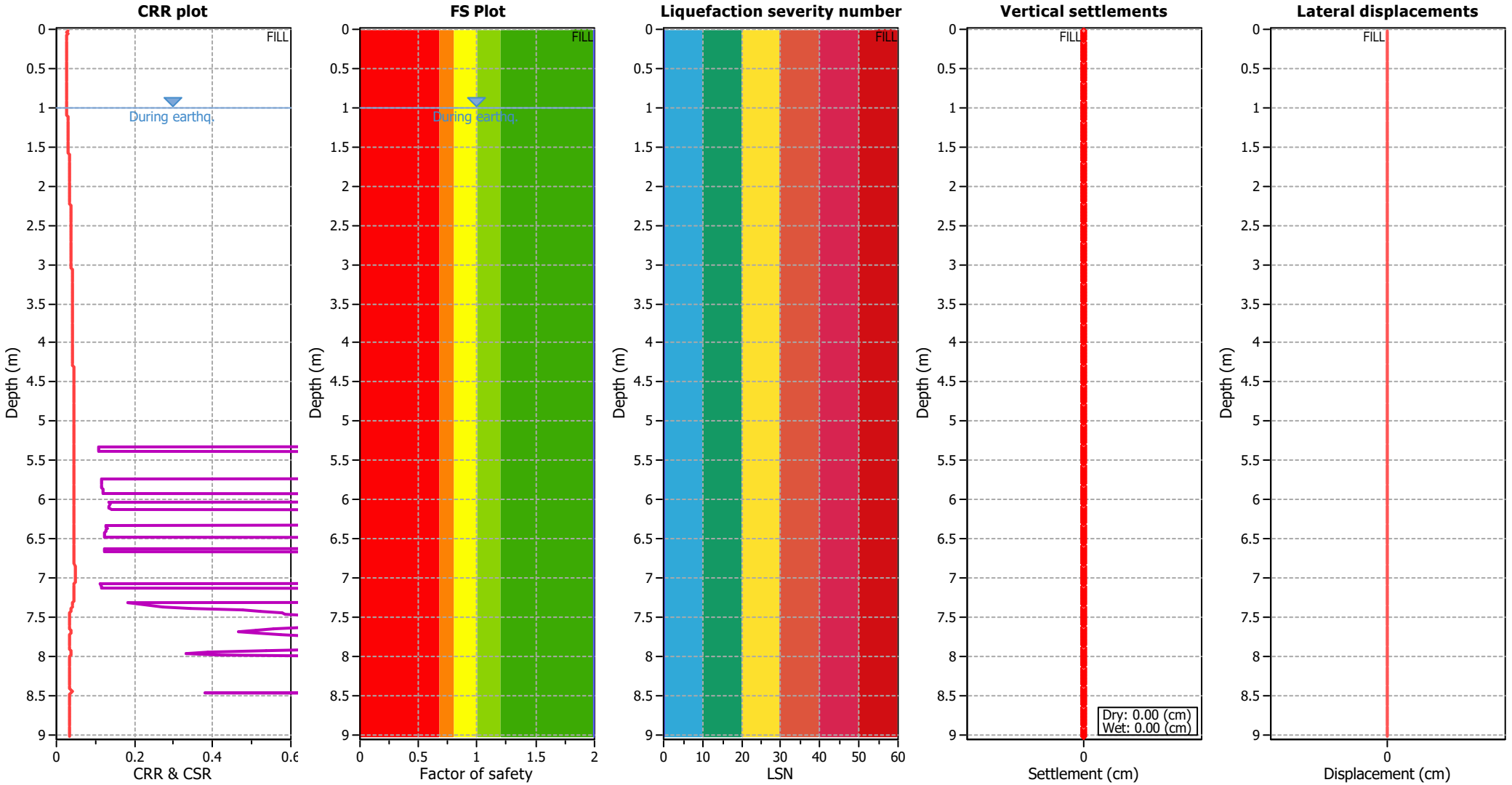
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
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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

LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
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- Minor expression of liquefaction
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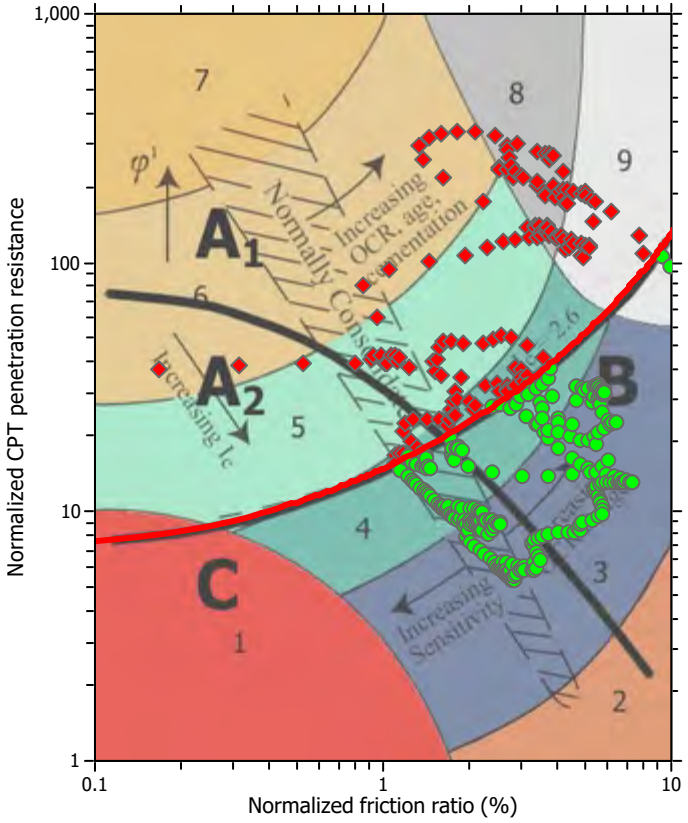
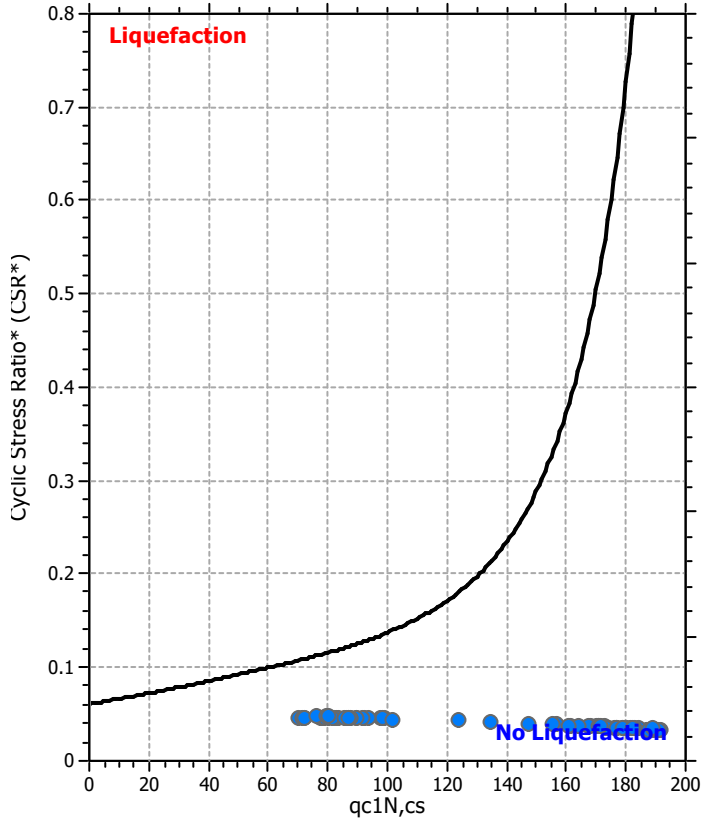
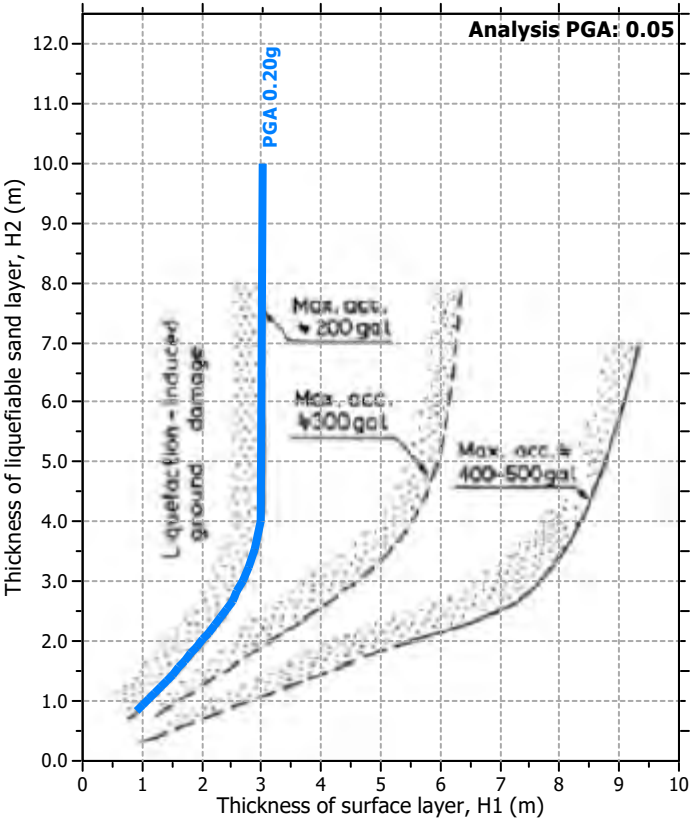
Liquefaction analysis summary plots







Input parameters and analysis data

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Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
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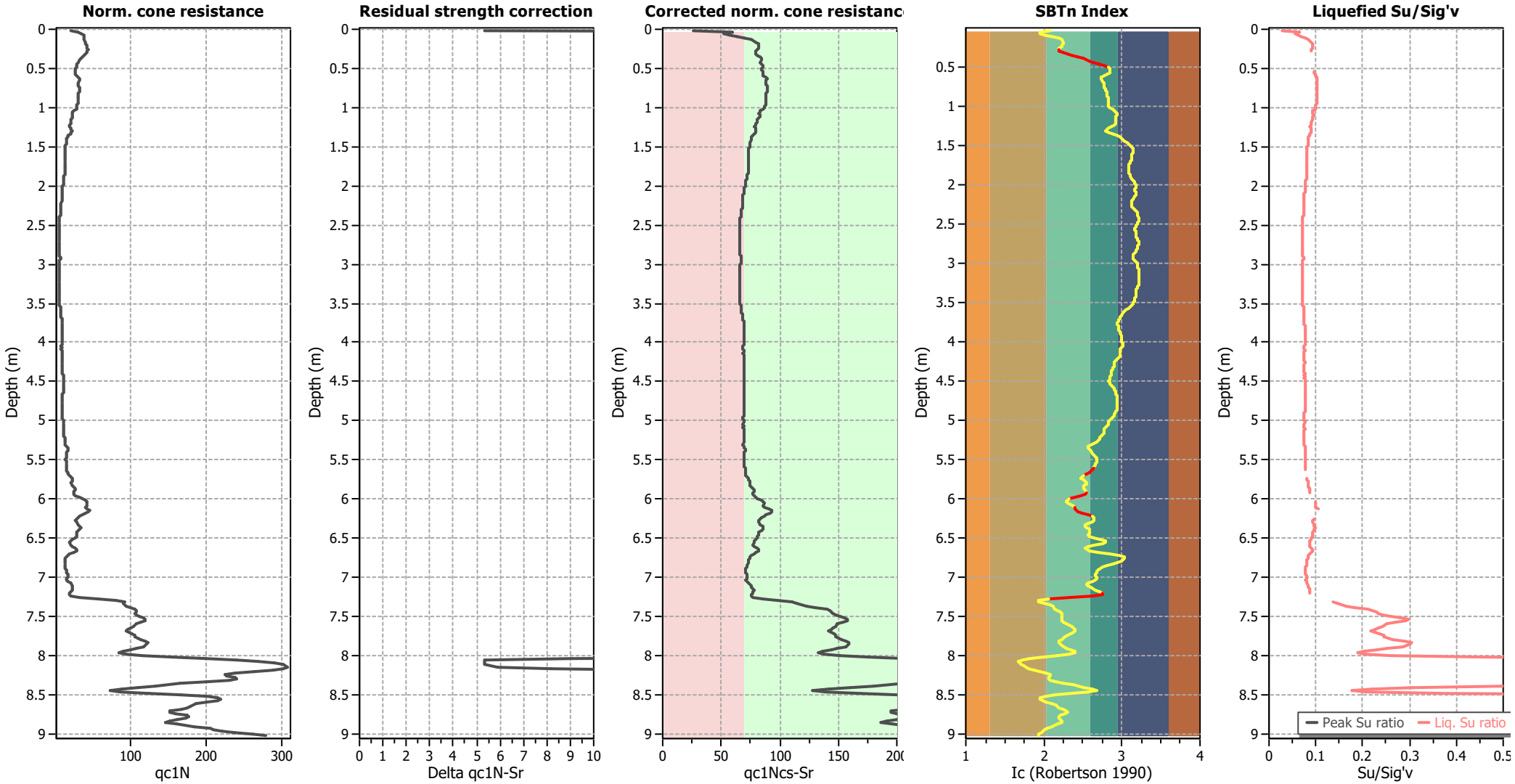
Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
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Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
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TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

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The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

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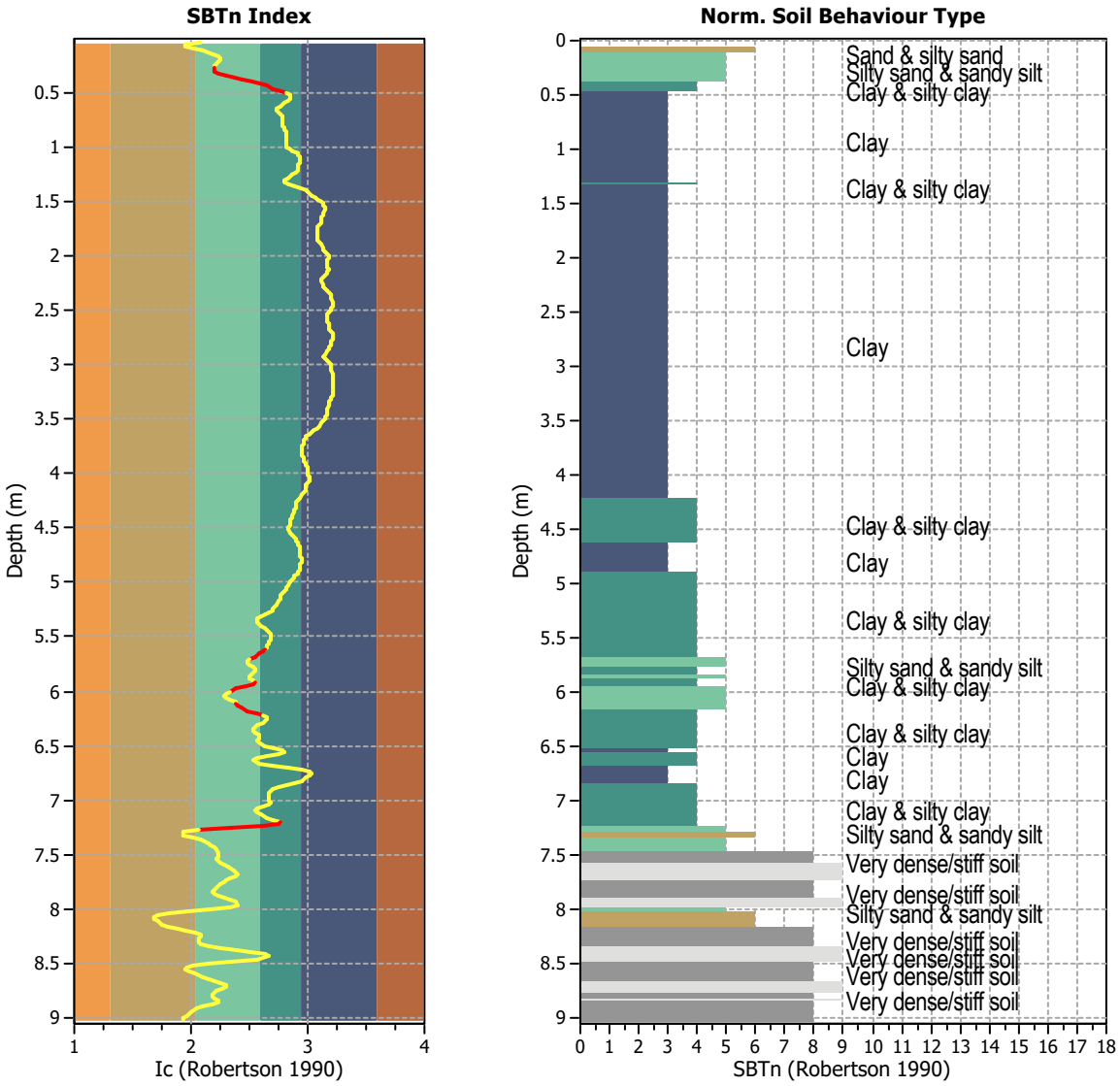
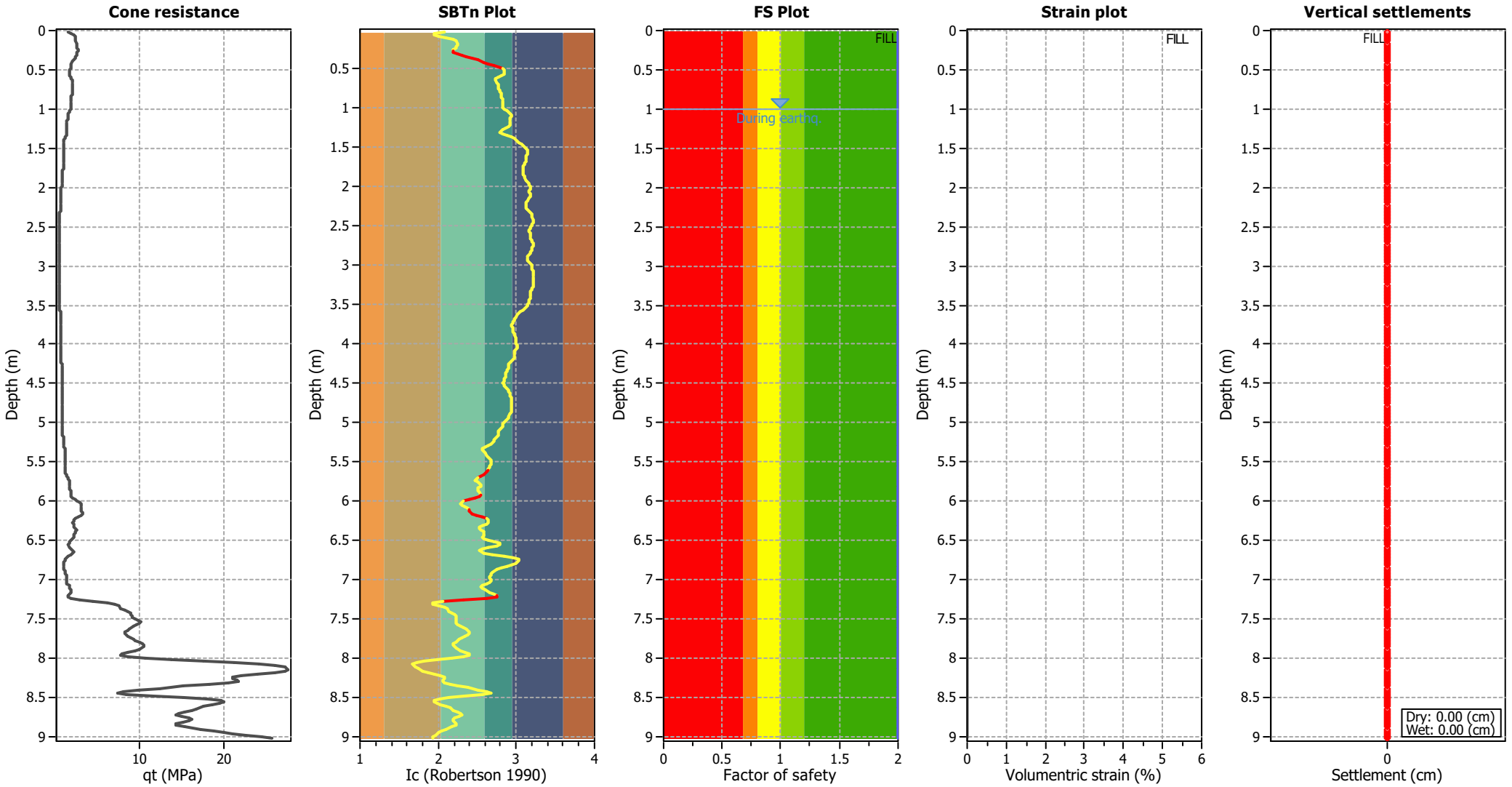


Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	451
I_c maximum check value:	3.00	Total points excluded:	33
I_c change ratio value:	0.0100	Exclusion percentage:	7.32%
Minimum number of points in layer:	4	Number of layers detected:	5

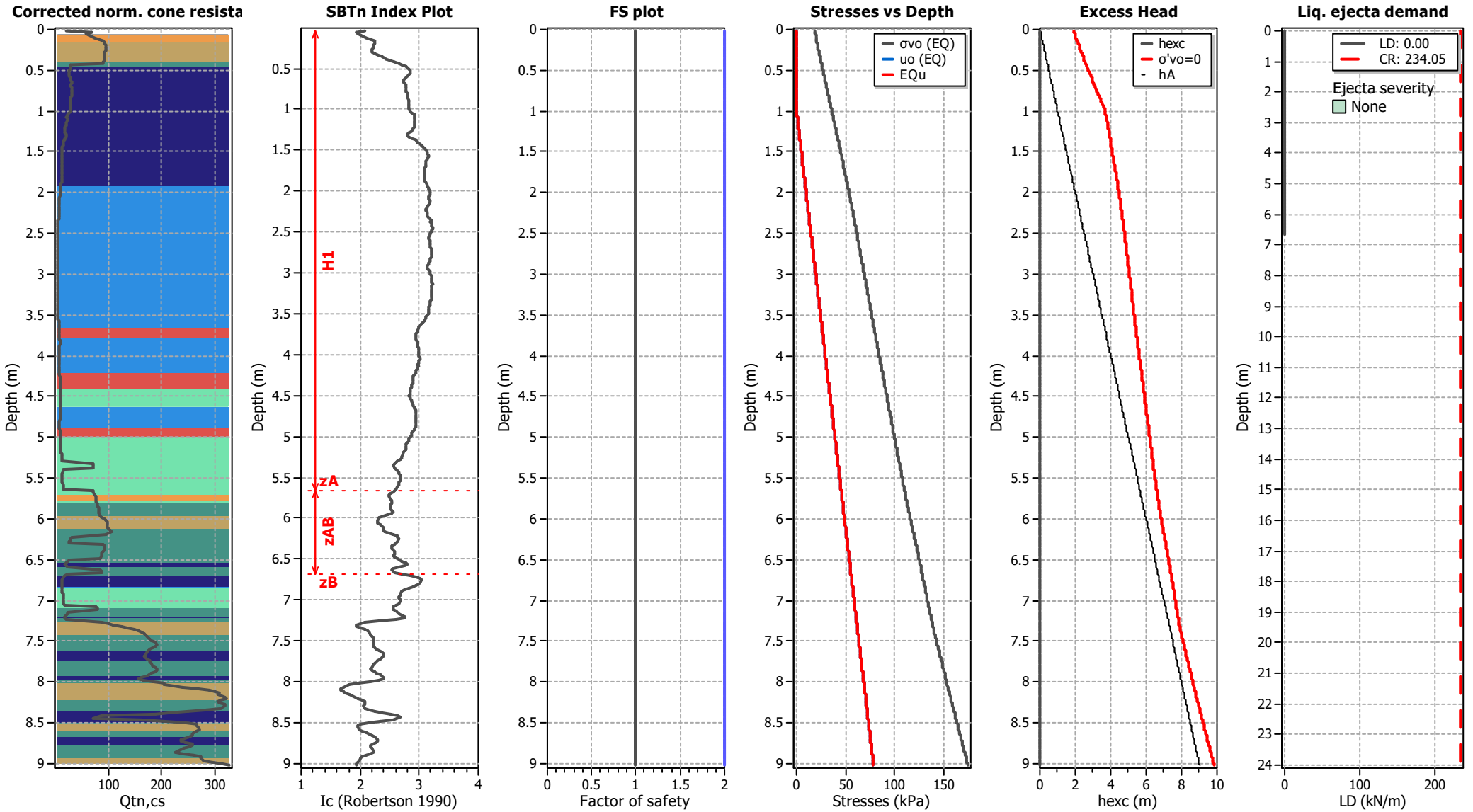
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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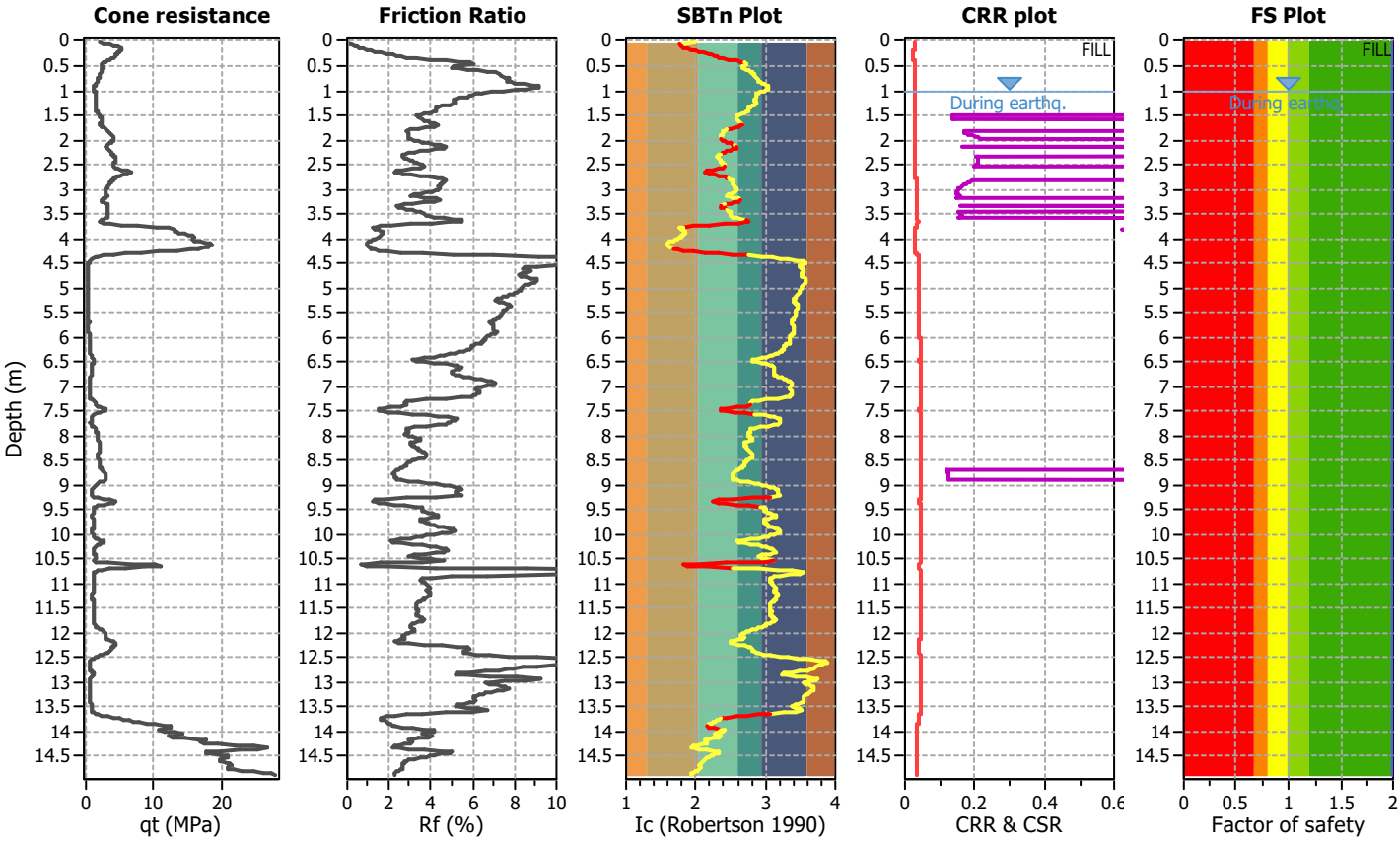
LIQUEFACTION ANALYSIS REPORT

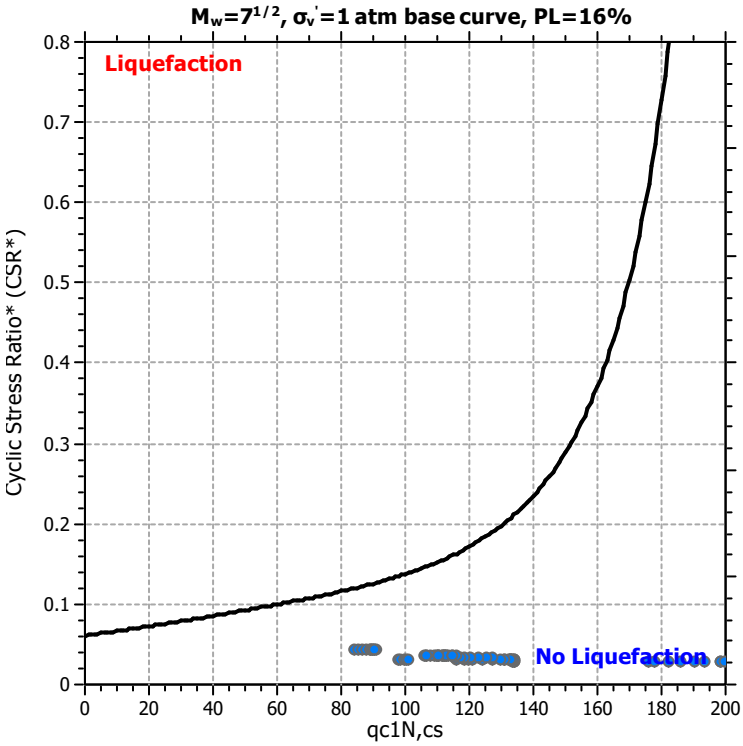
Project title : Sunfield Landholding **Location :**

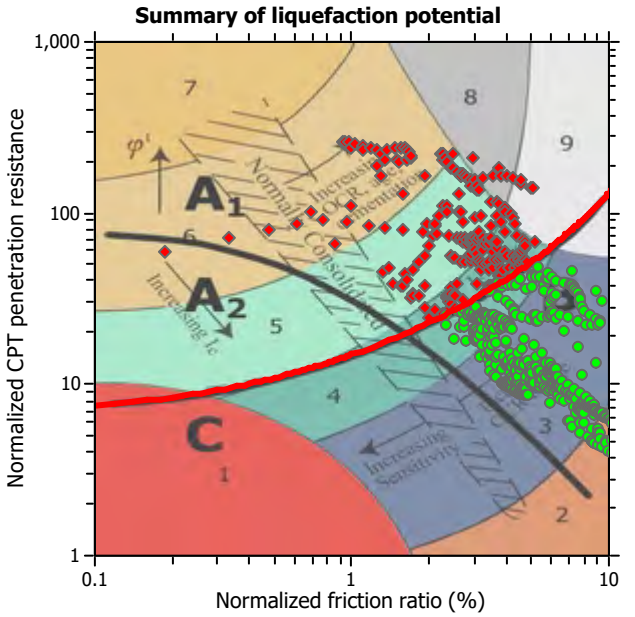
CPT file : CPT122

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	27.75 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

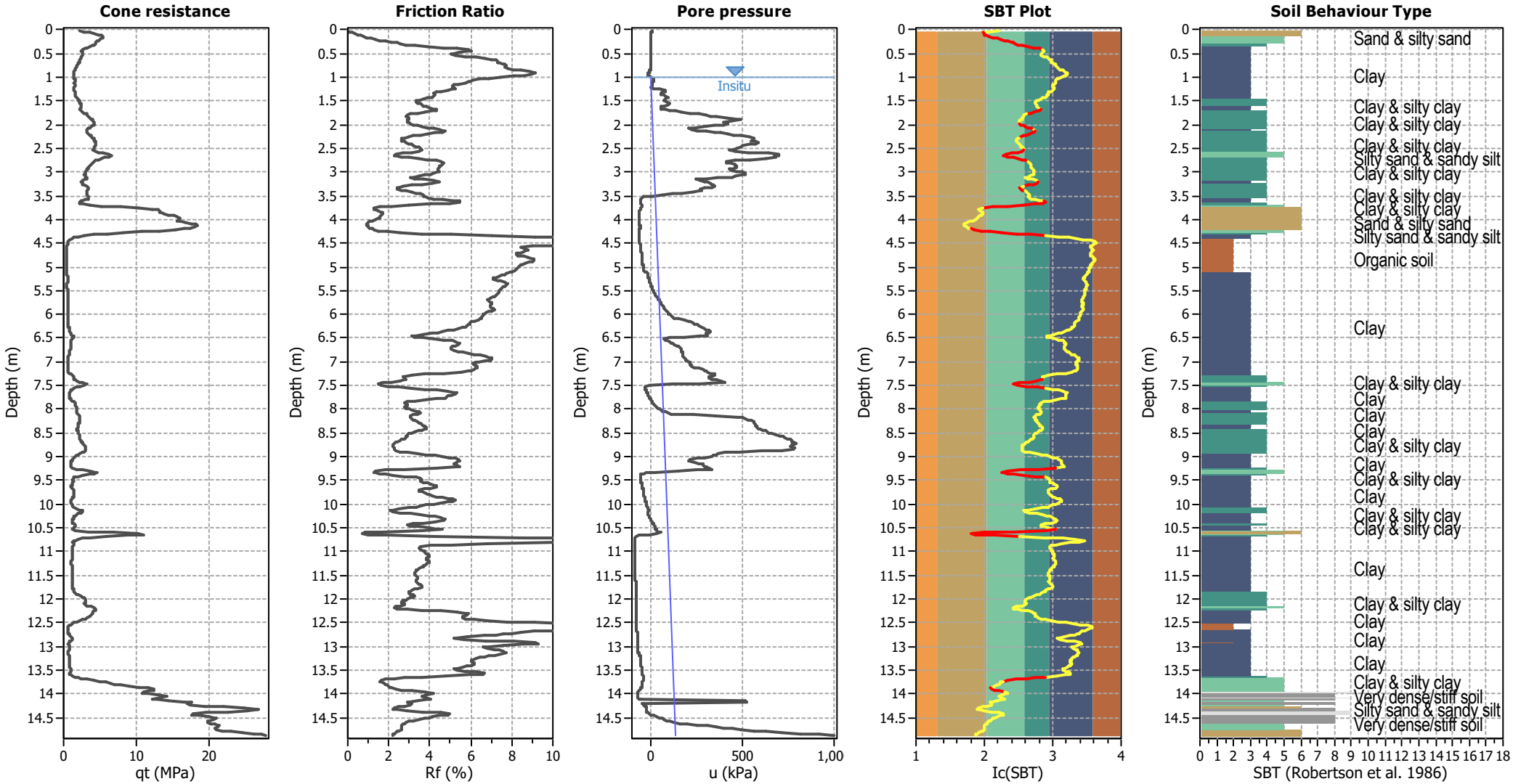






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



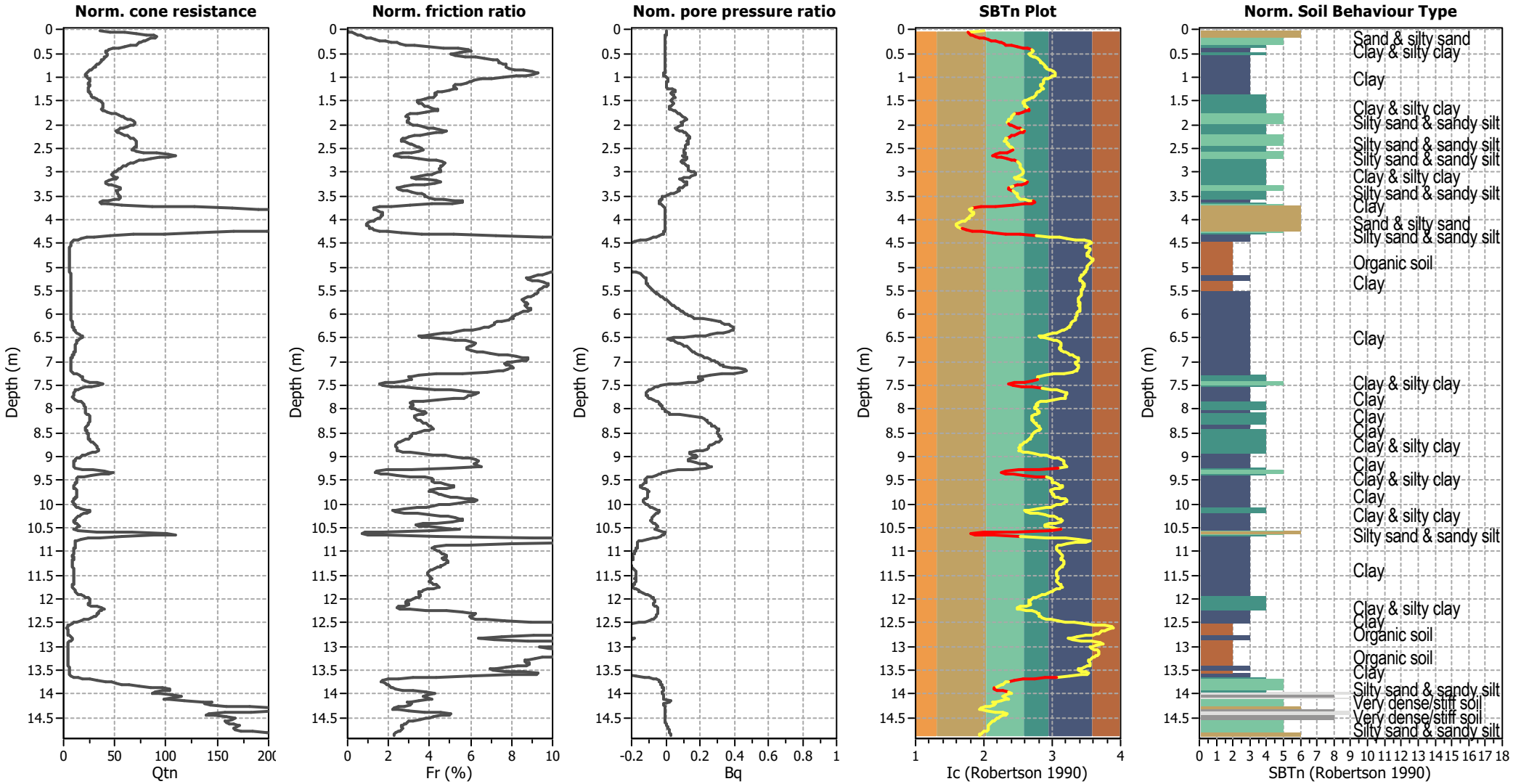
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	27.75 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



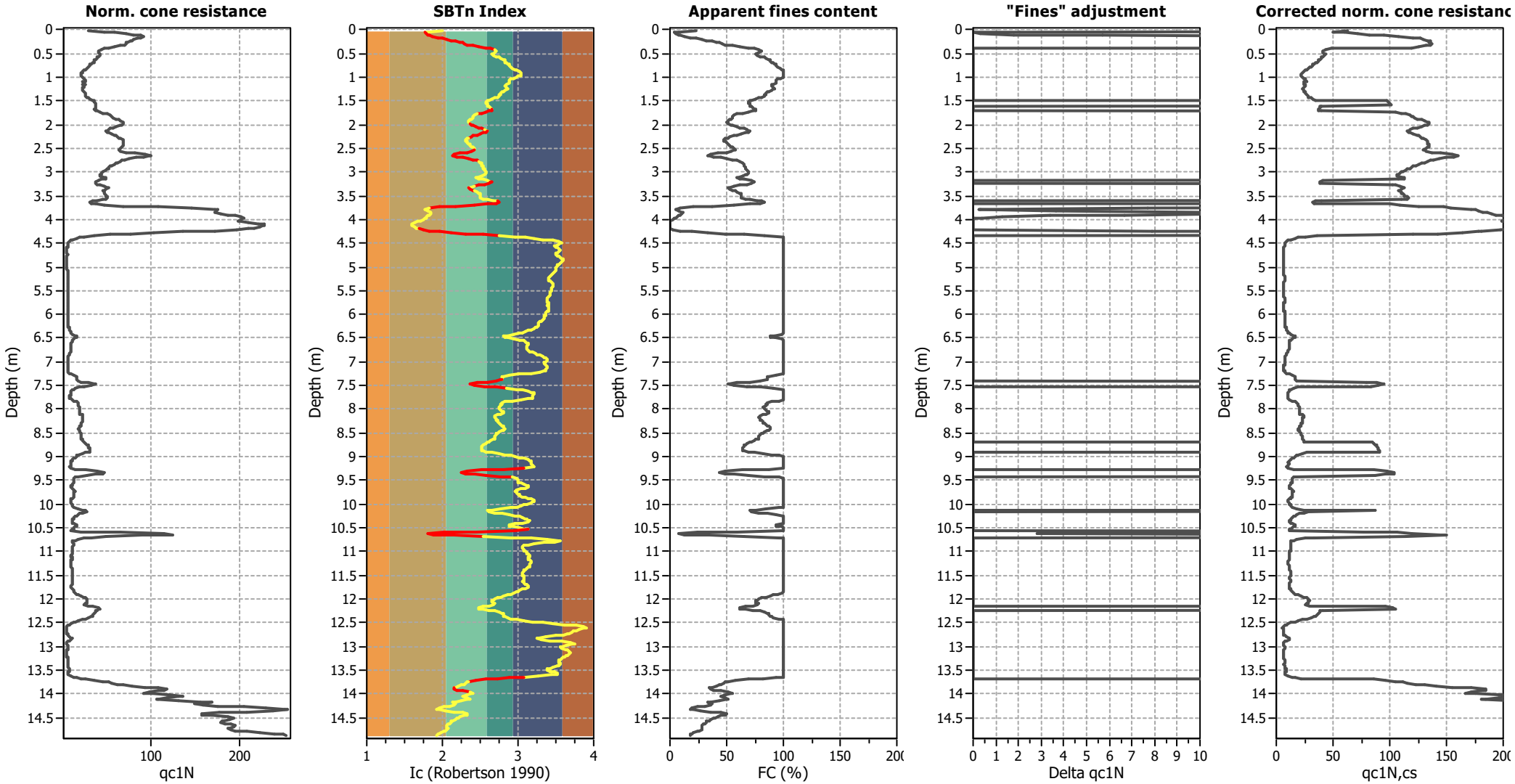
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	27.75 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

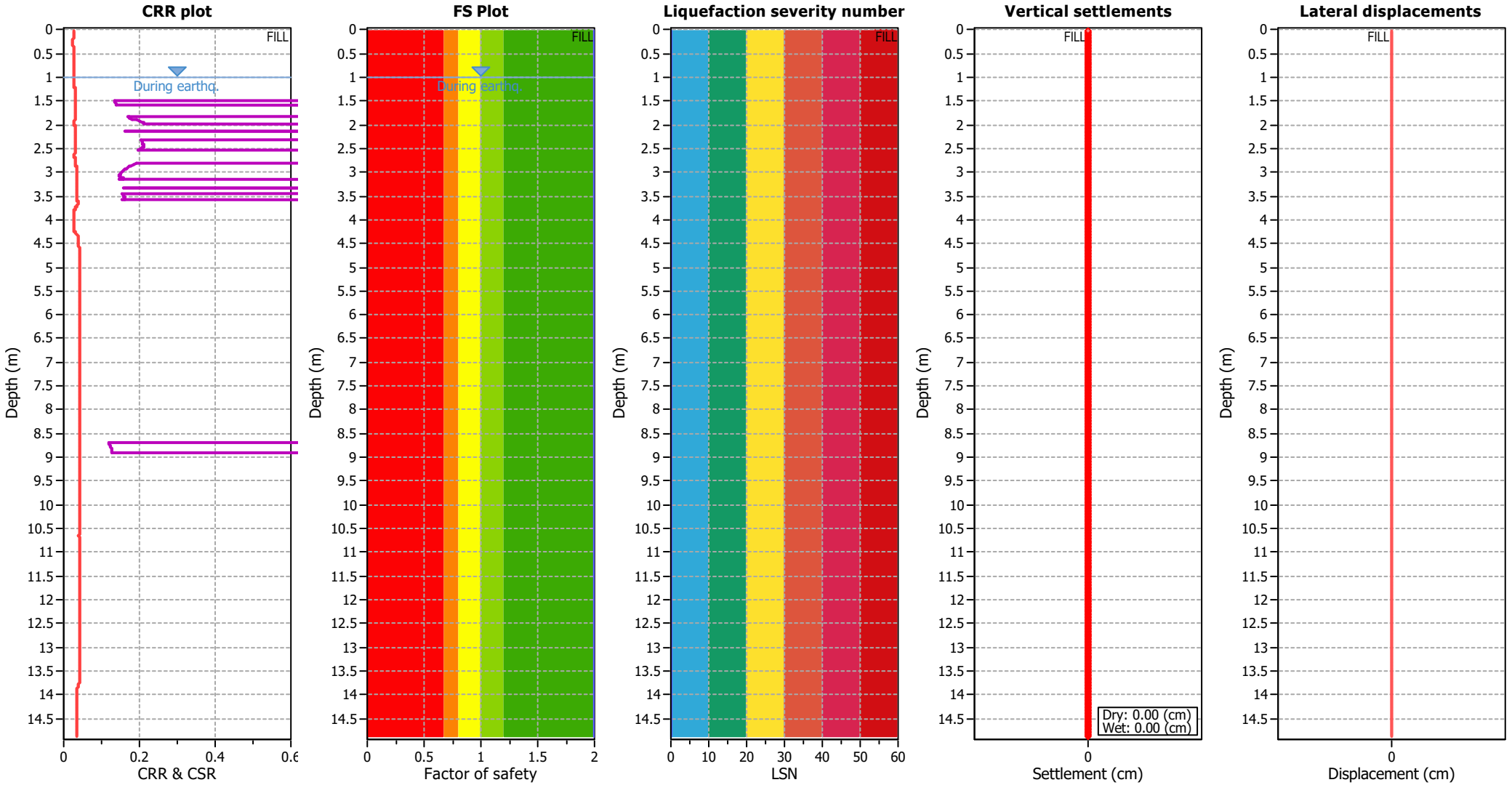
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	27.75 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	27.75 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 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

LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
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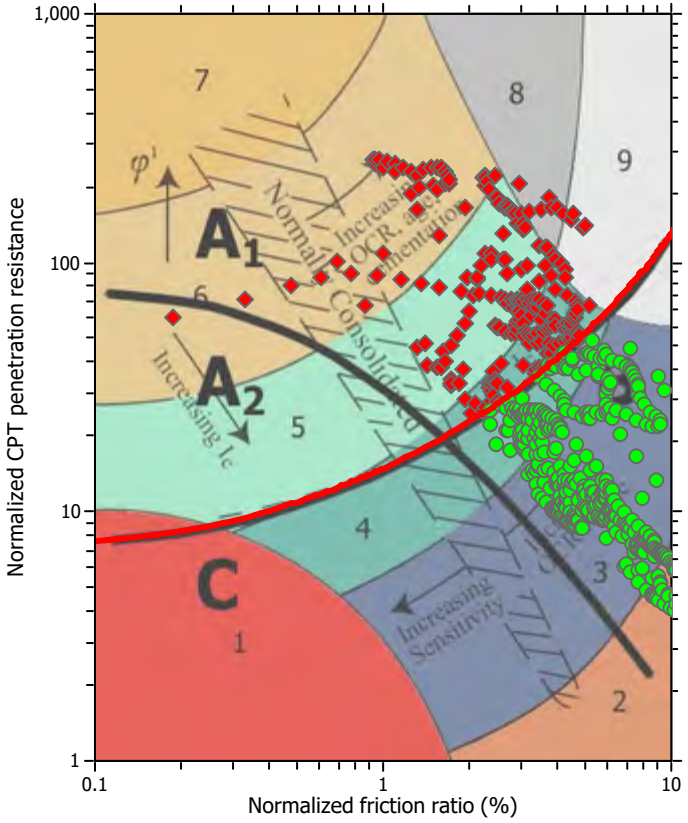
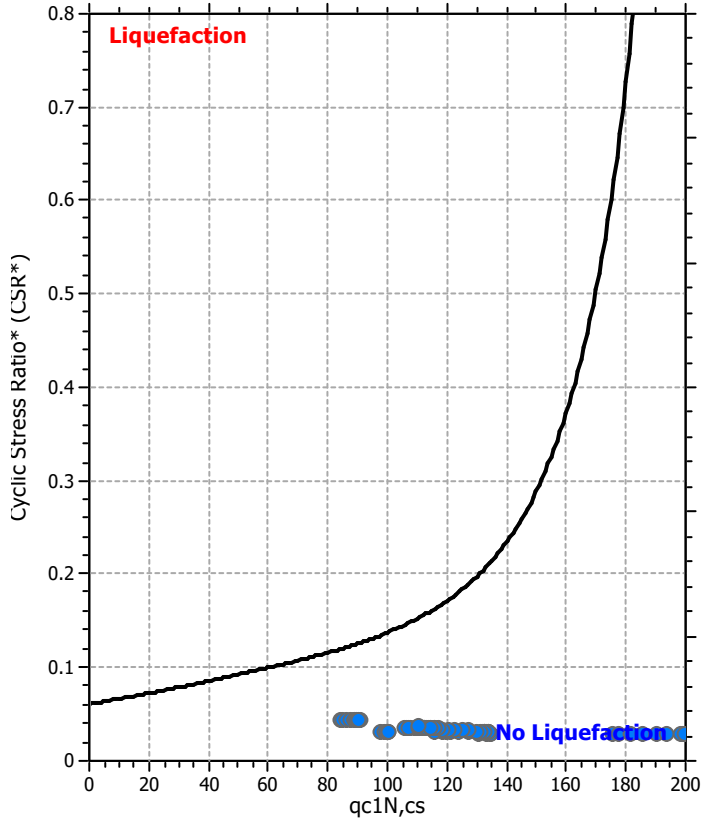
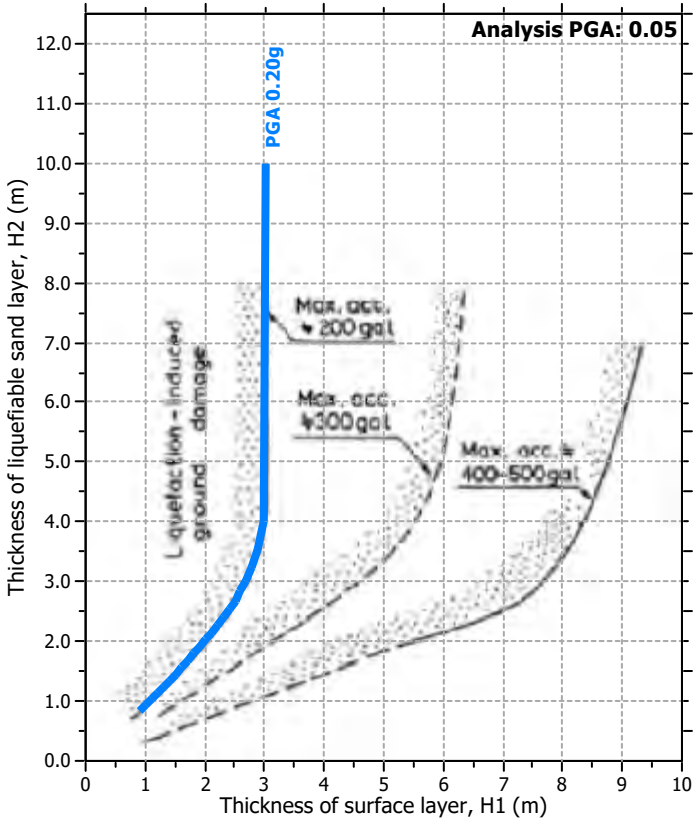
Liquefaction analysis summary plots



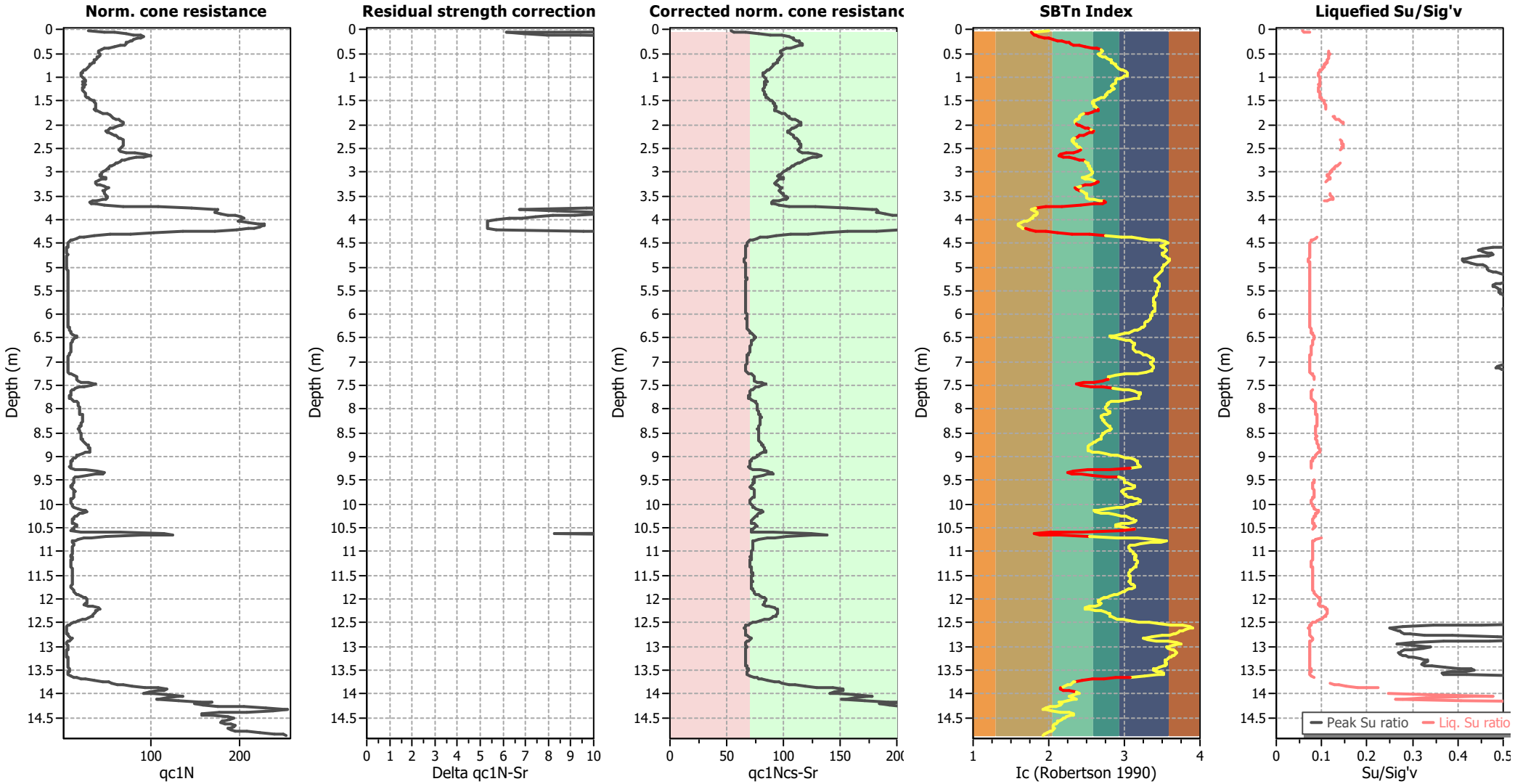




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	27.75 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

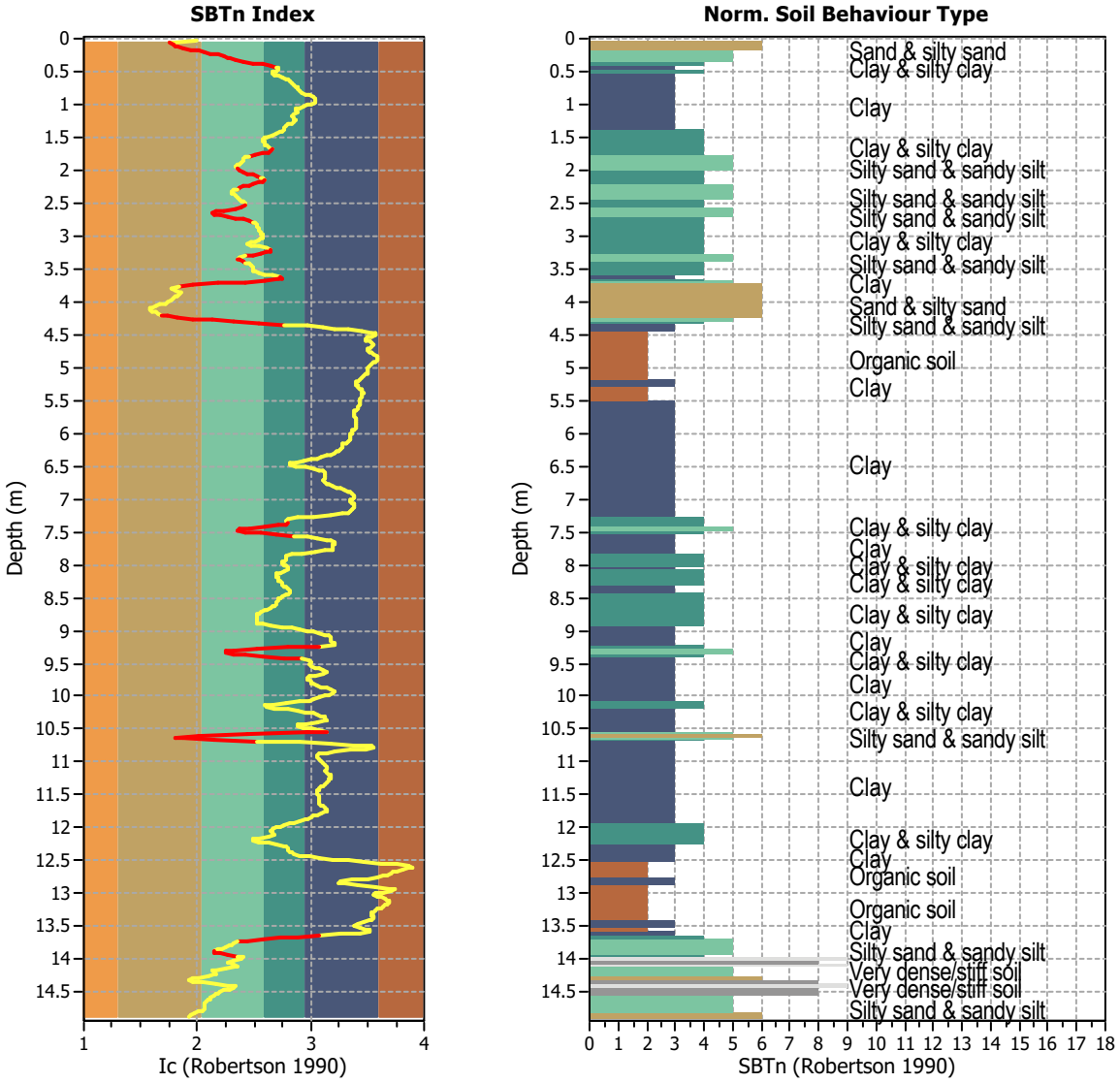
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	27.75 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

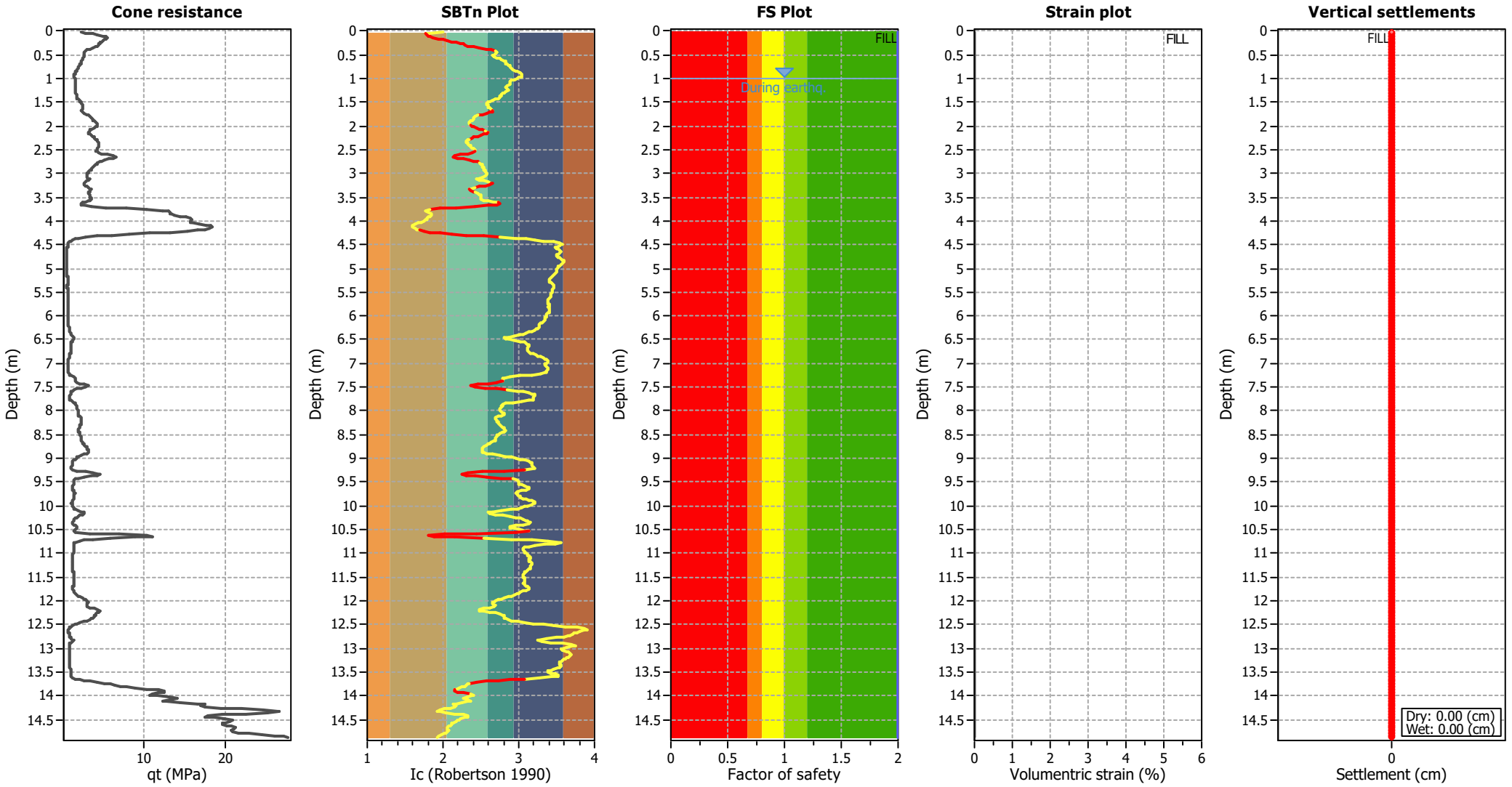
The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties	
I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics	
Total points in CPT file:	744
Total points excluded:	122
Exclusion percentage:	16.40%
Number of layers detected:	18

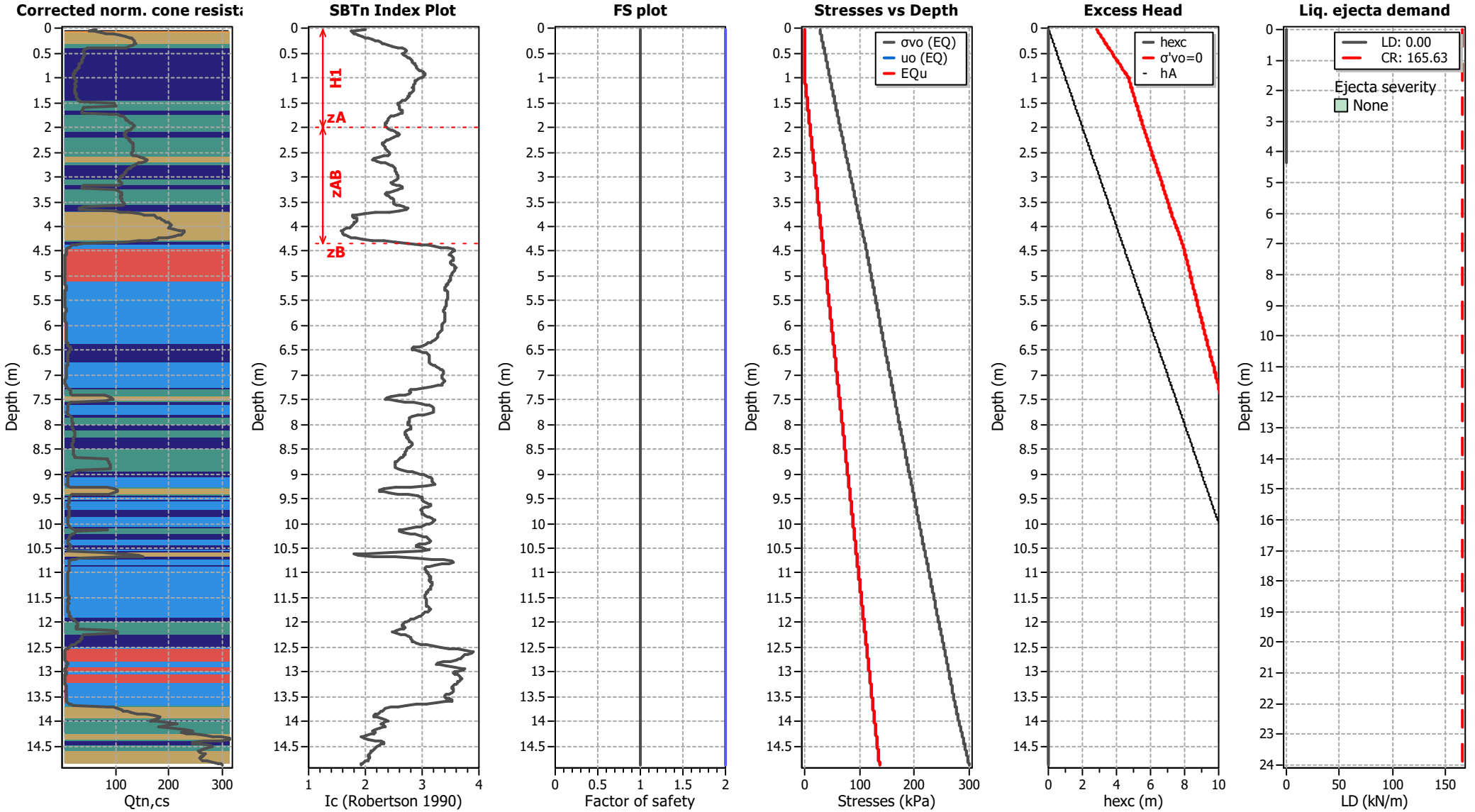
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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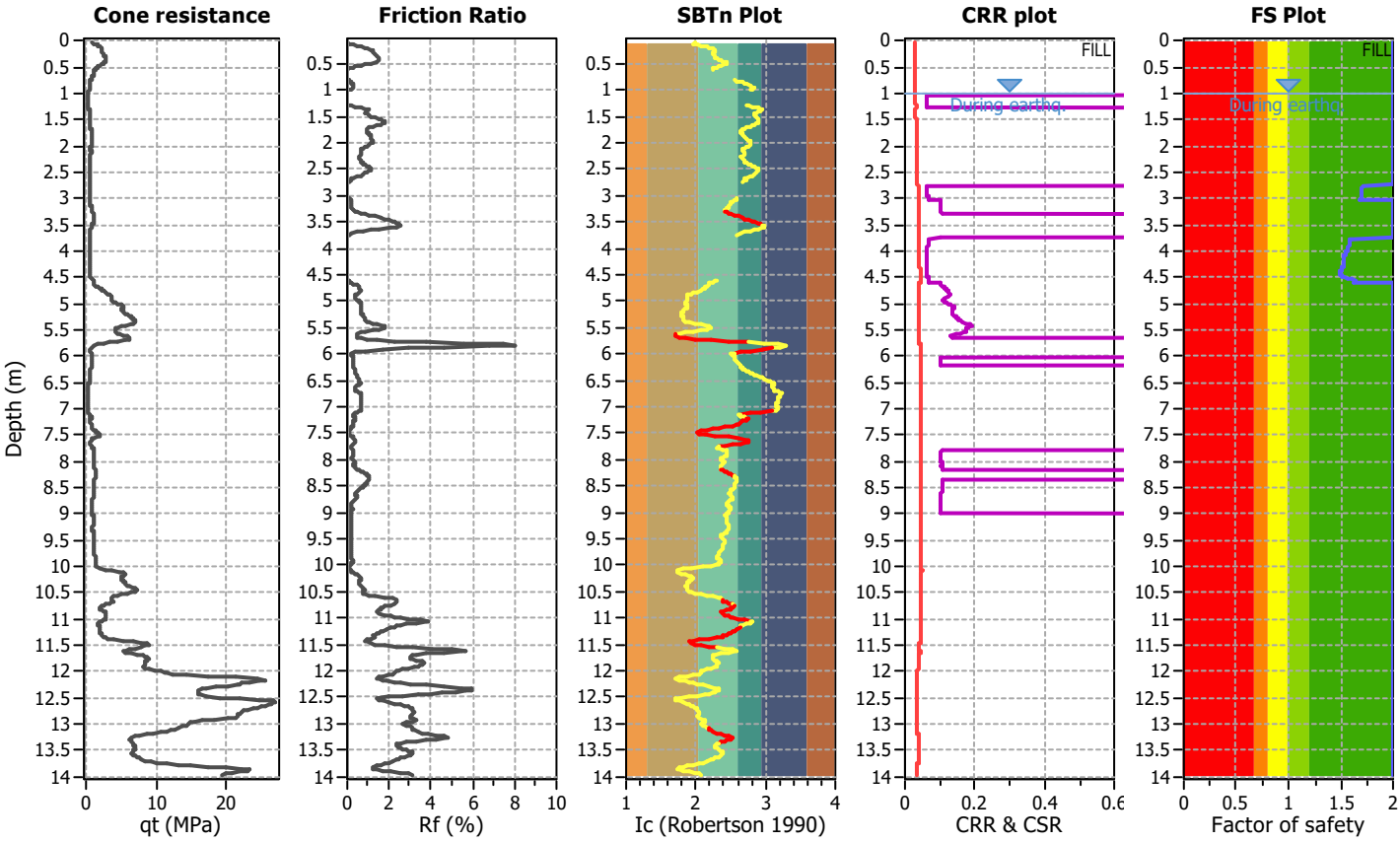
LIQUEFACTION ANALYSIS REPORT

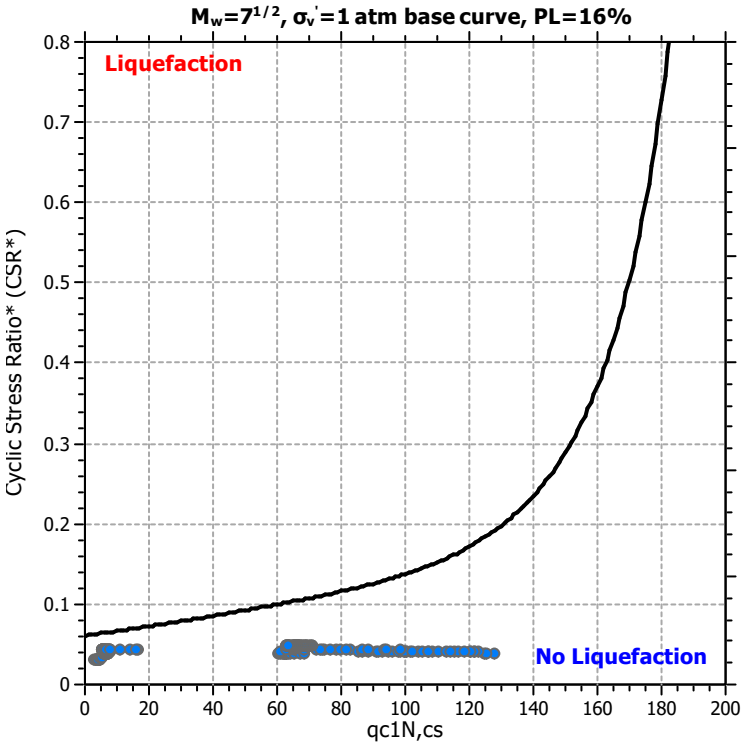
Project title : Sunfield Landholding **Location :**

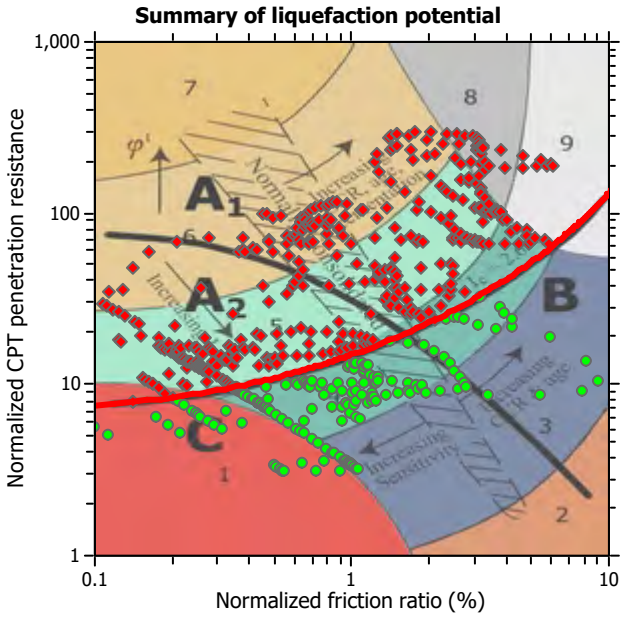
CPT file : CPT123

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	37.00 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		







Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
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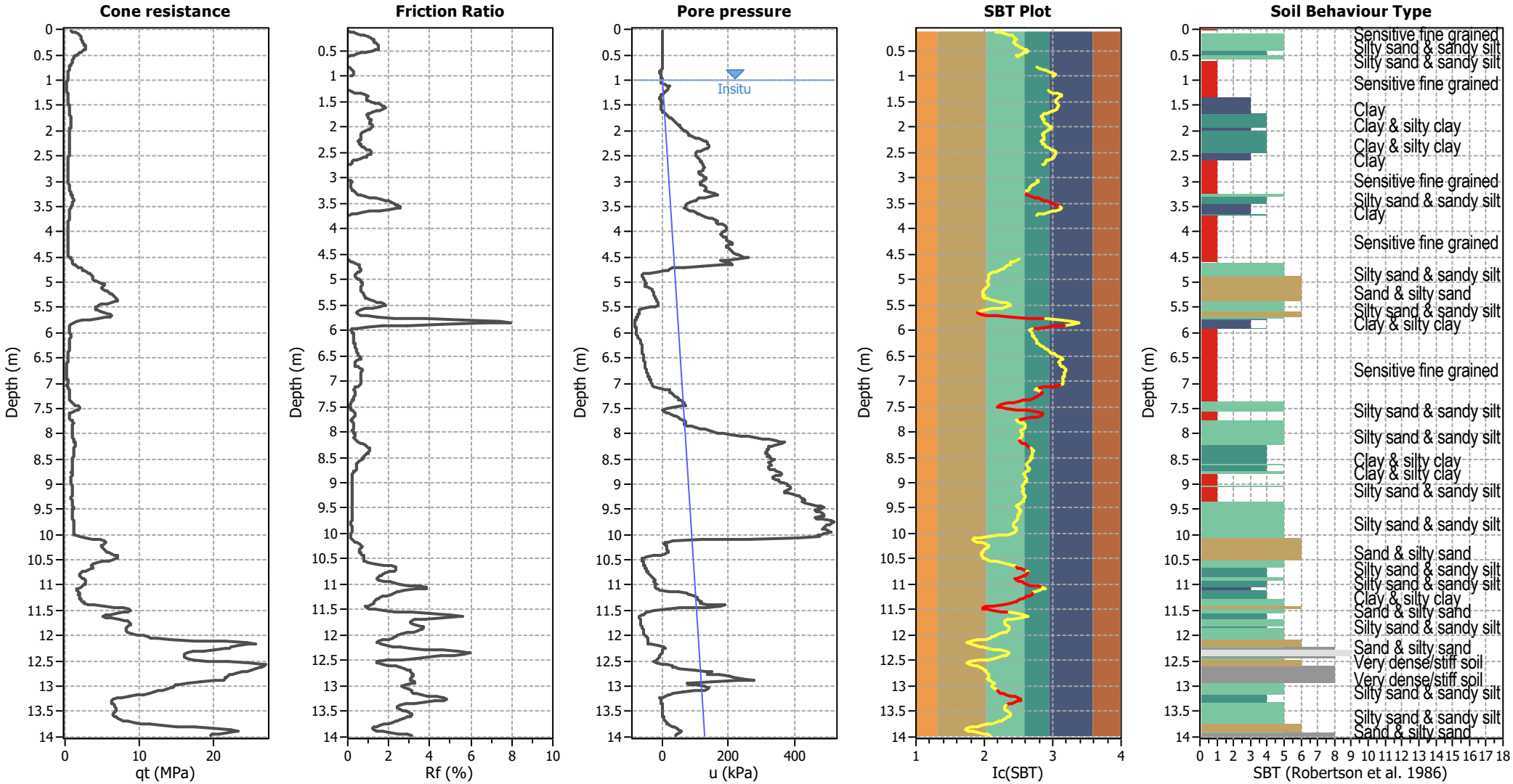
CPT basic interpretation plots



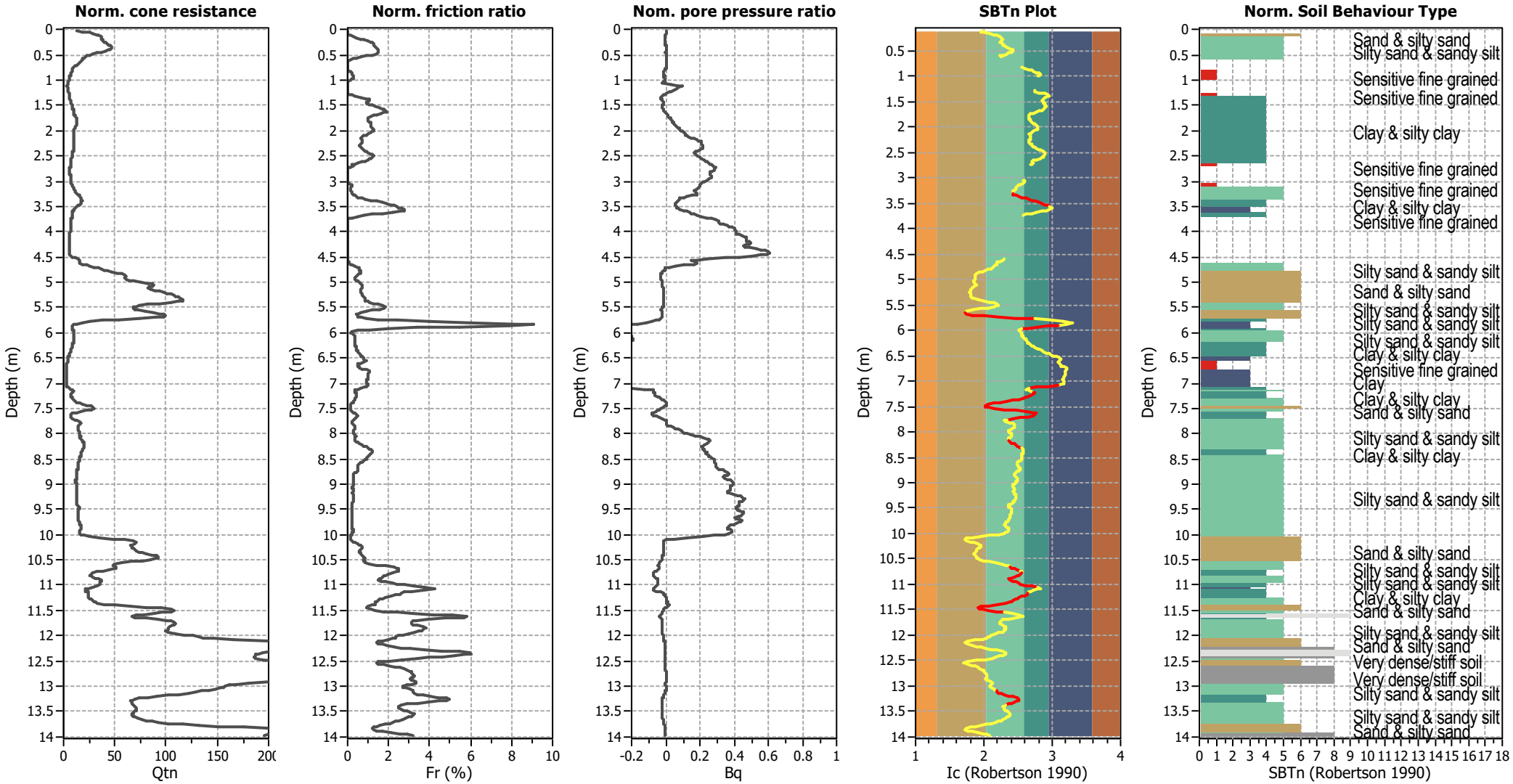
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

1. Sensitive fine grained
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3. Clay to silty clay
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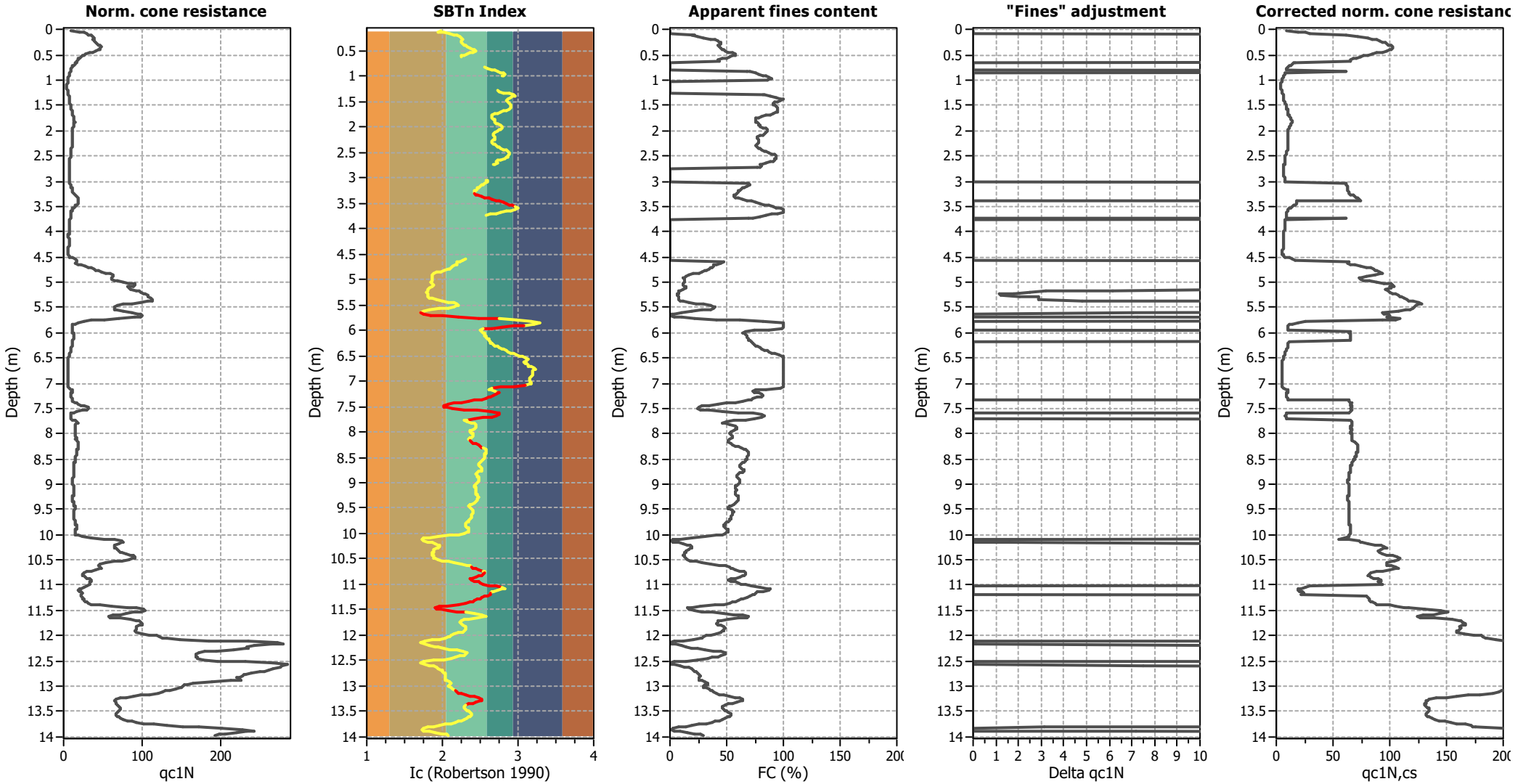
9. Very stiff fine grained

Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
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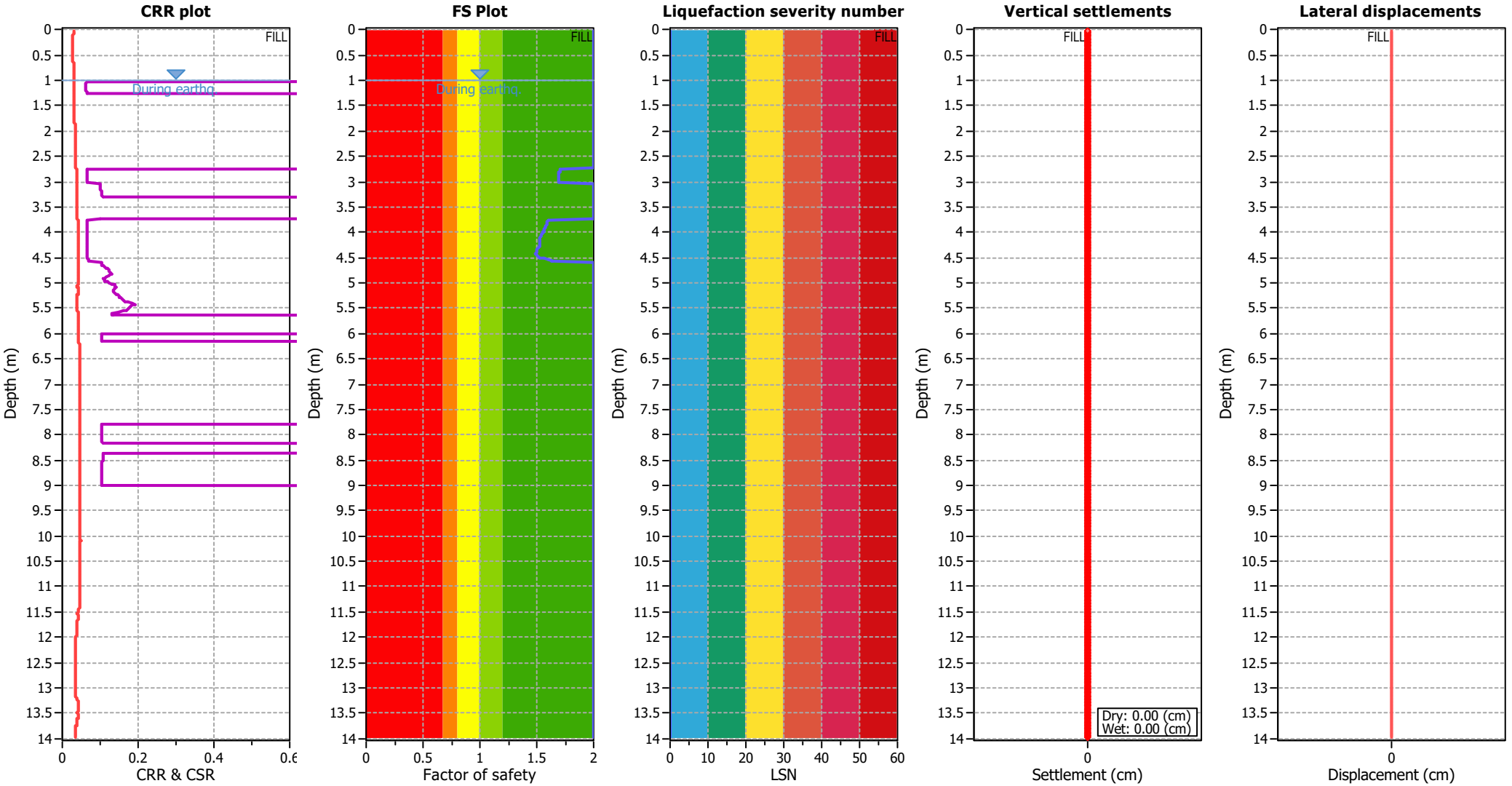
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

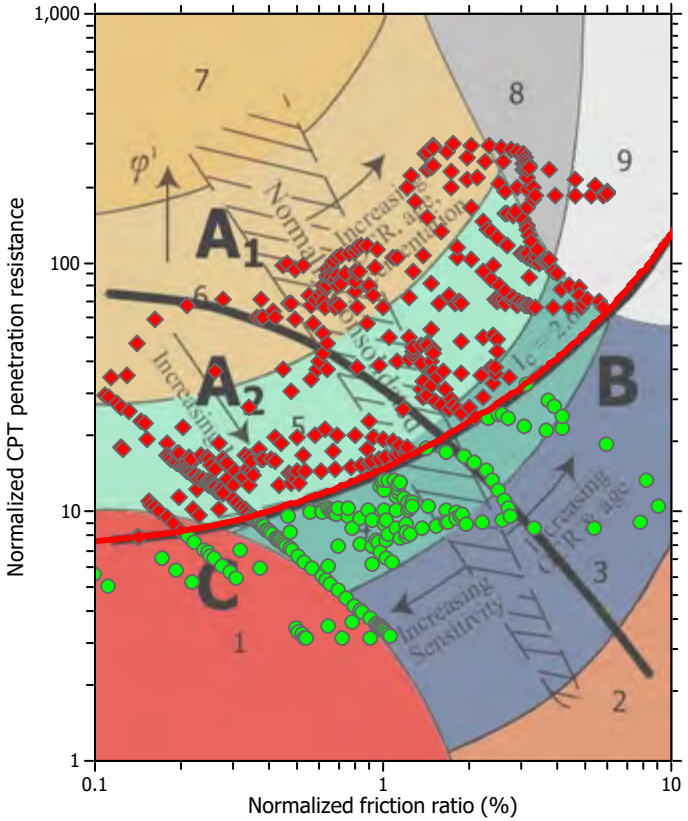
F.S. color scheme

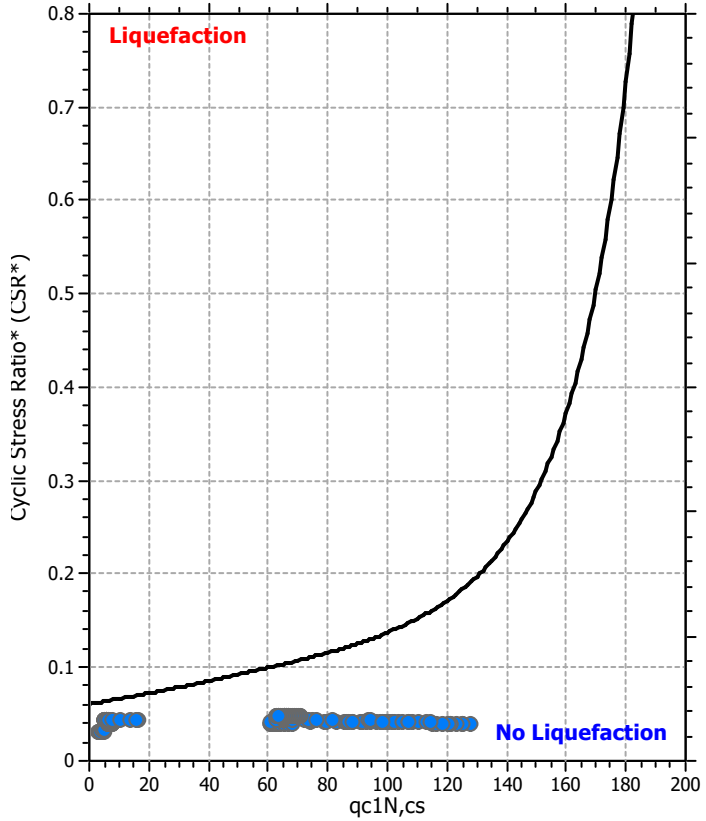
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

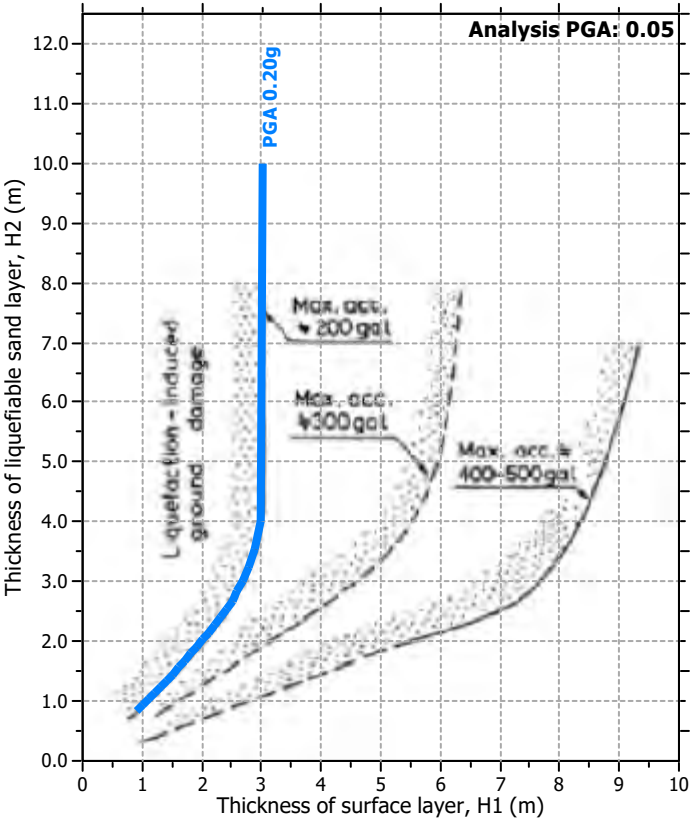
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots







Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
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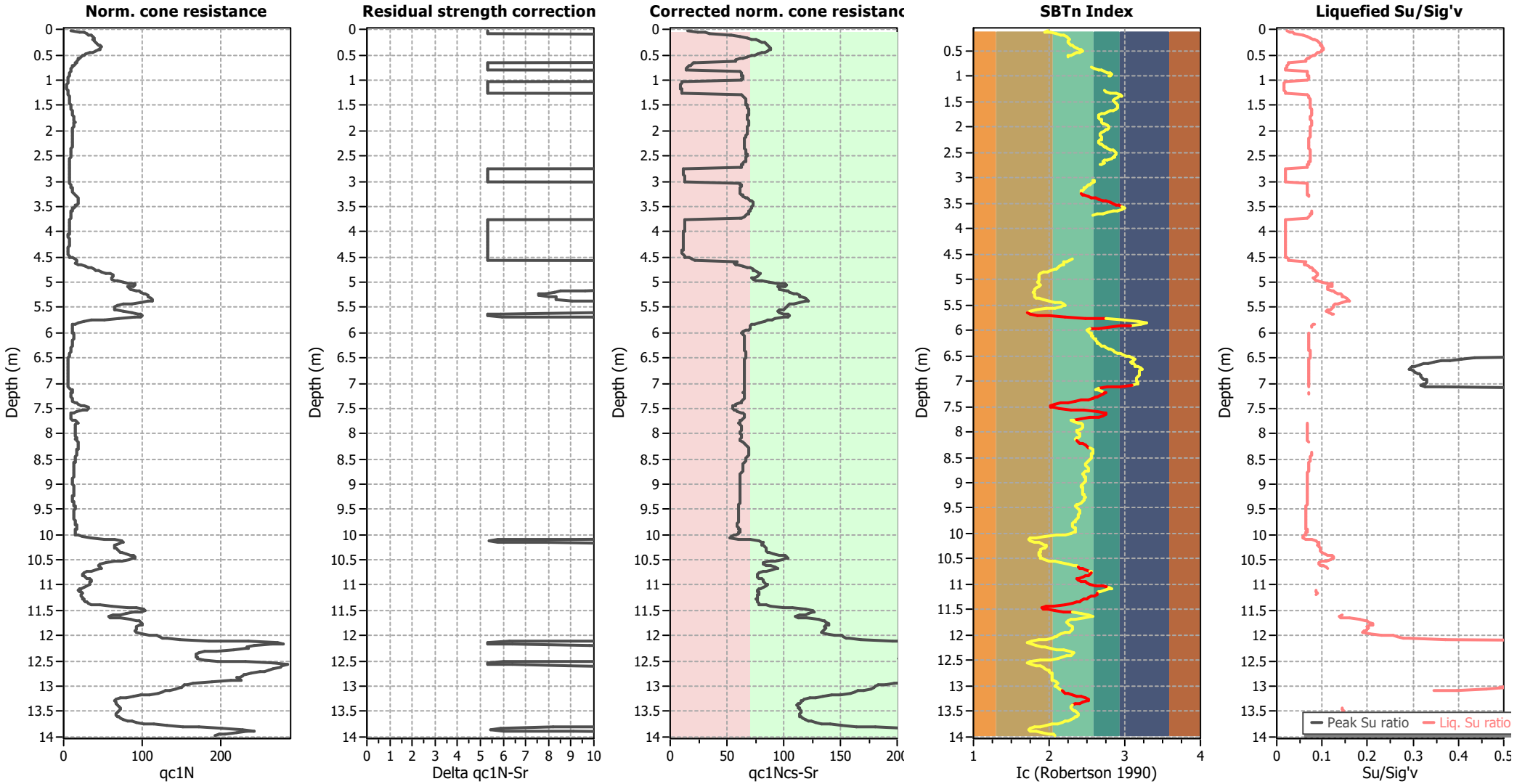
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

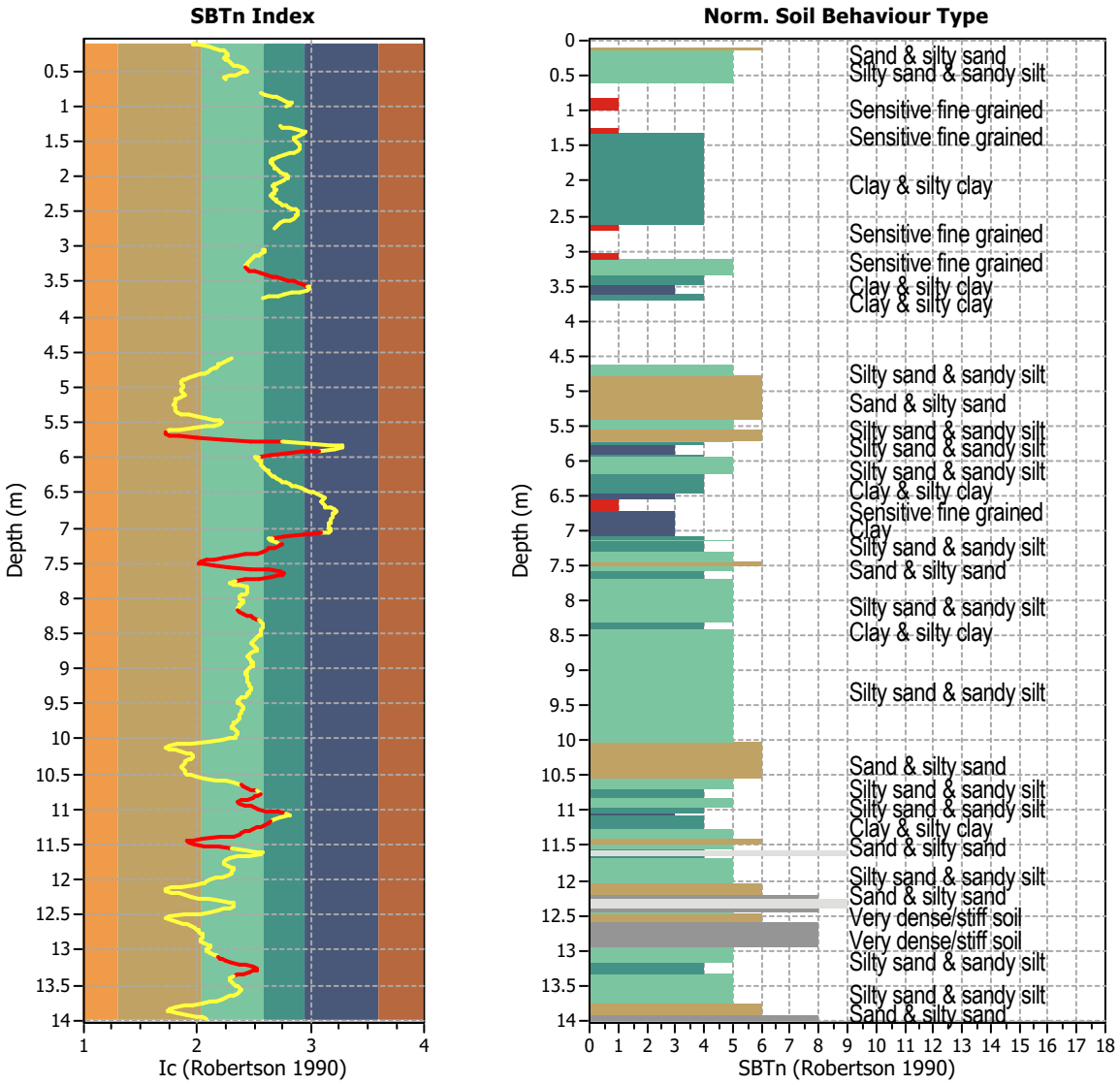
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



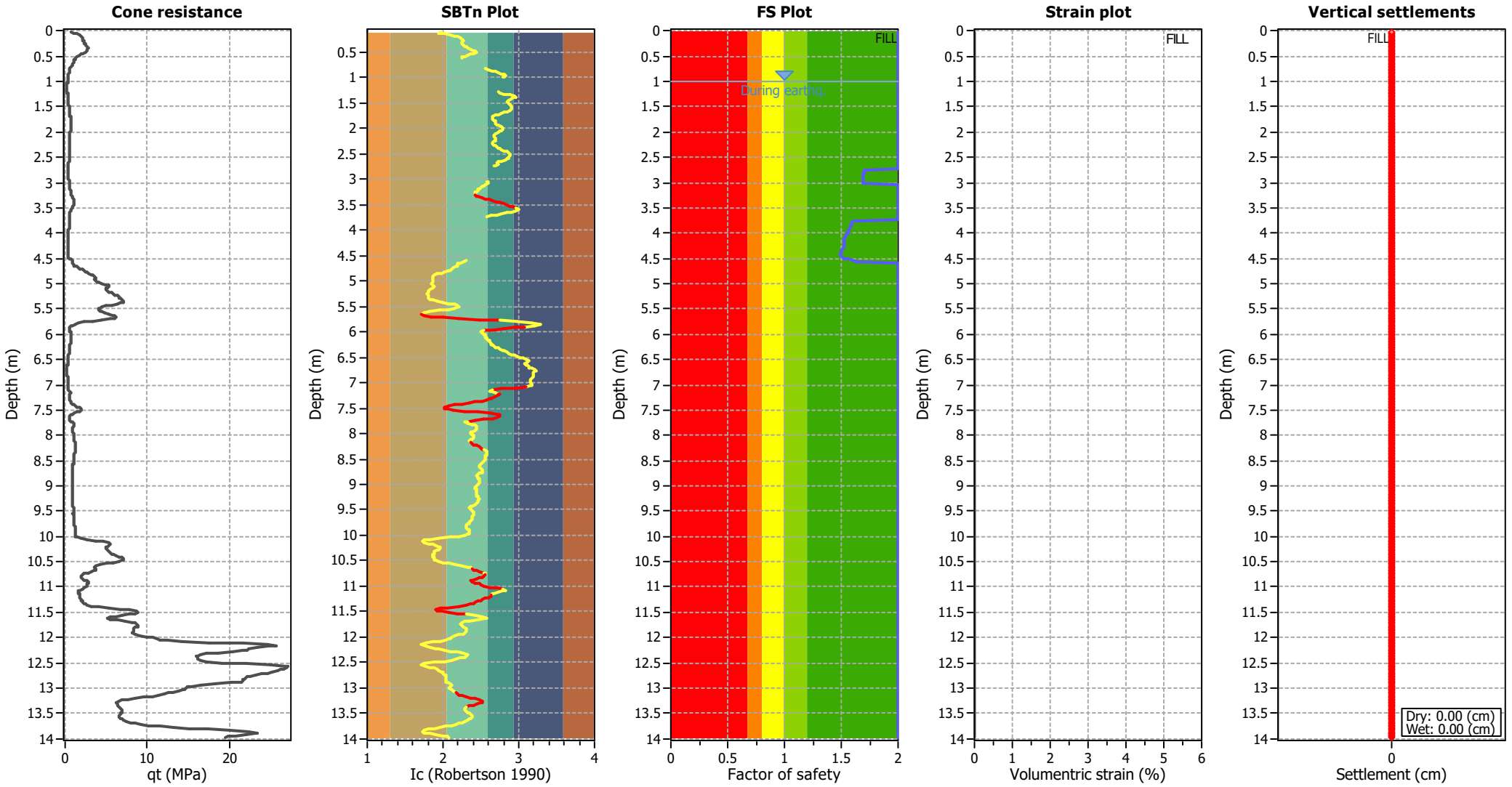
Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	699
Total points excluded:	122
Exclusion percentage:	17.45%
Number of layers detected:	15

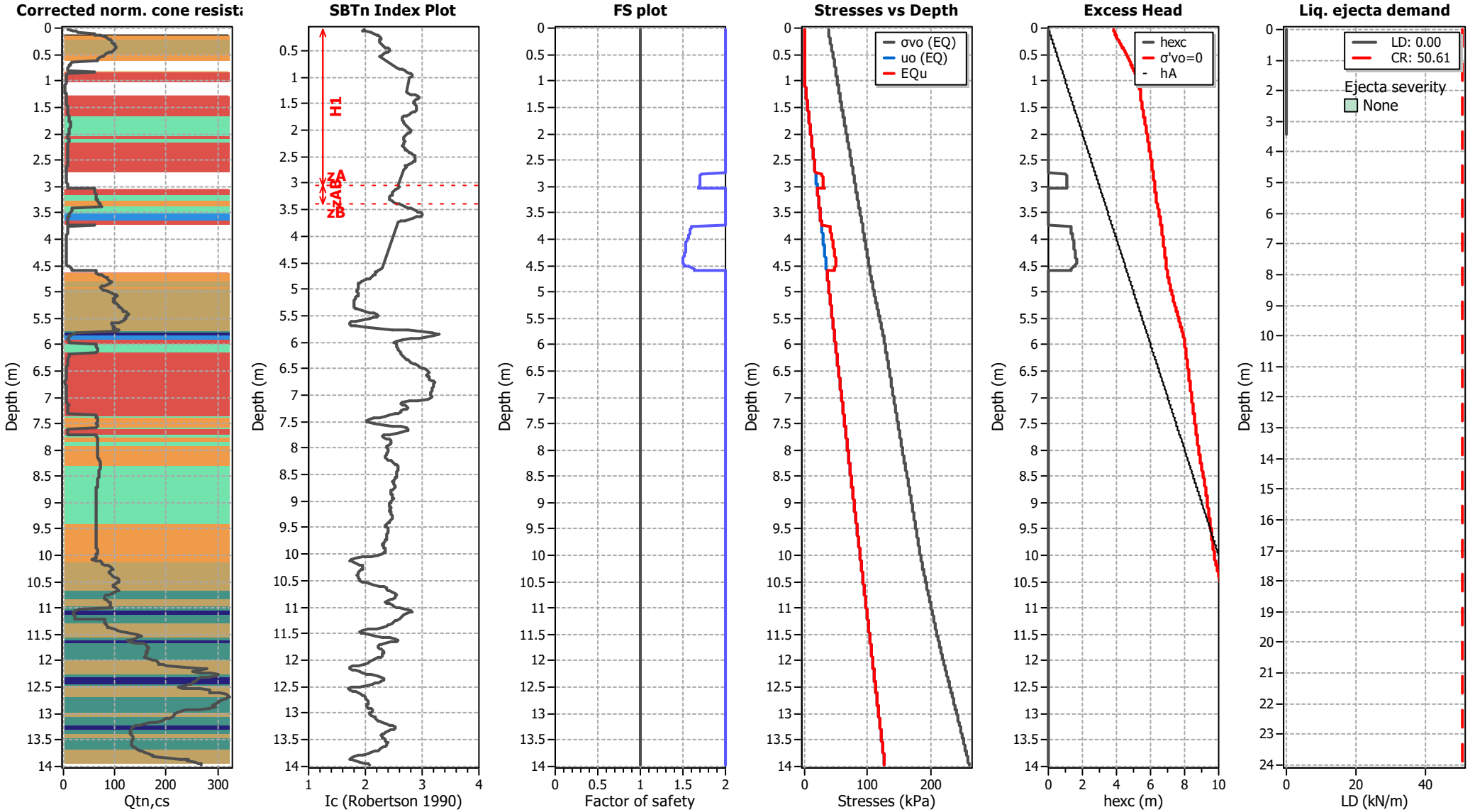
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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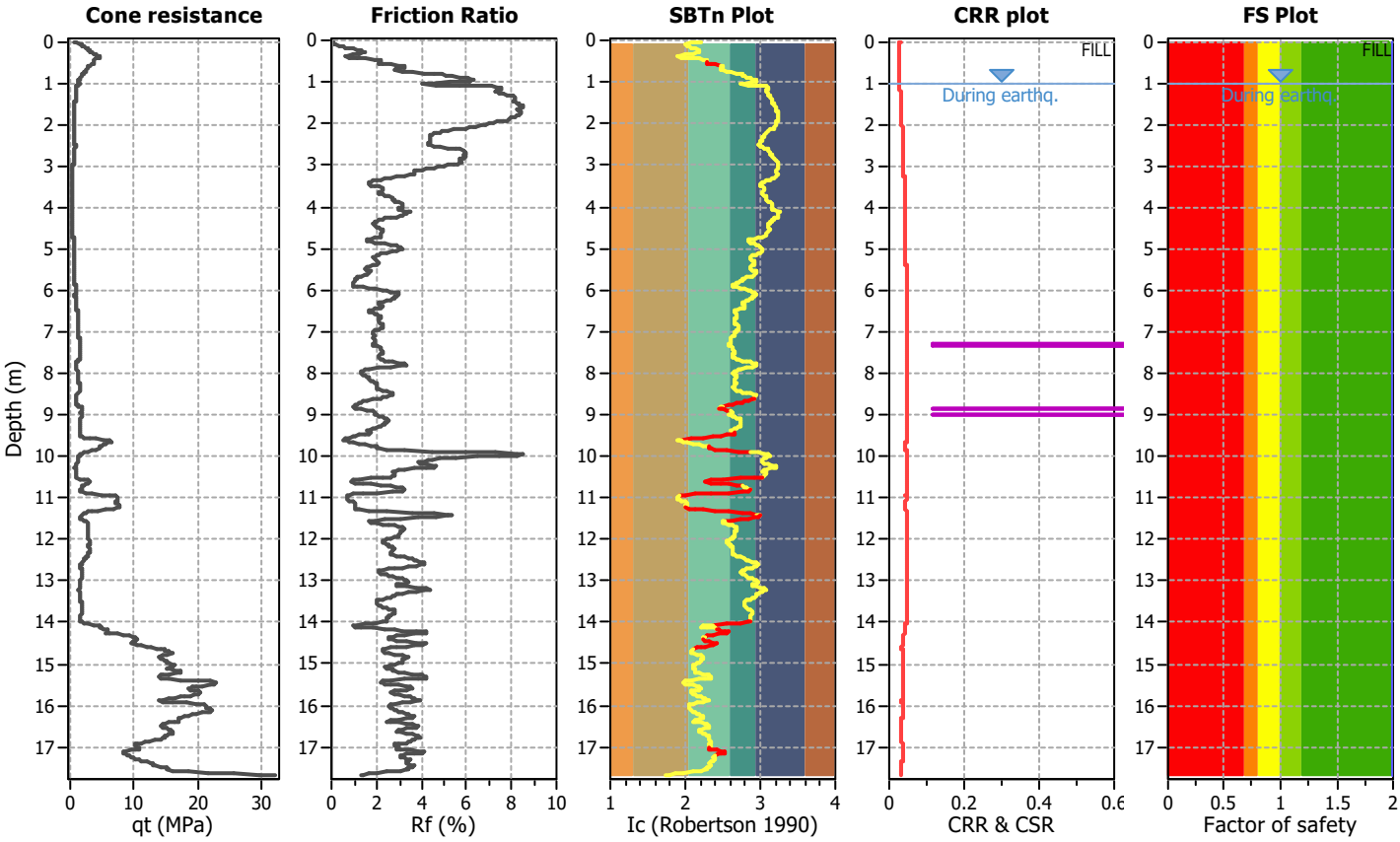
LIQUEFACTION ANALYSIS REPORT

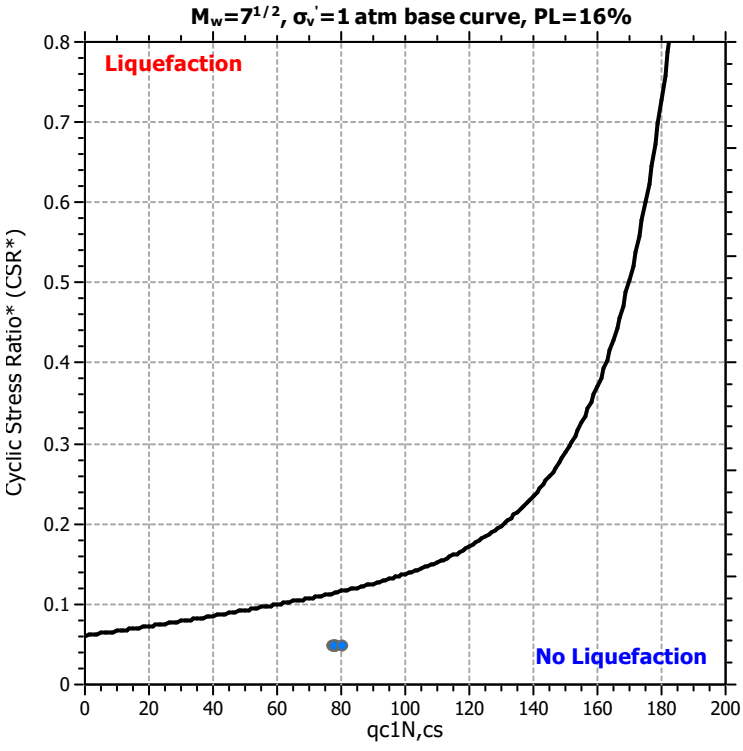
Project title : Sunfield Landholding **Location :**

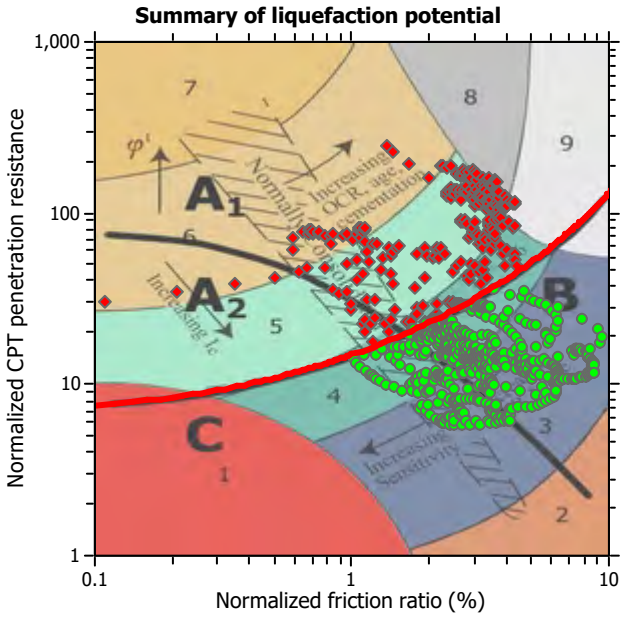
CPT file : CPT124

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	18.50 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

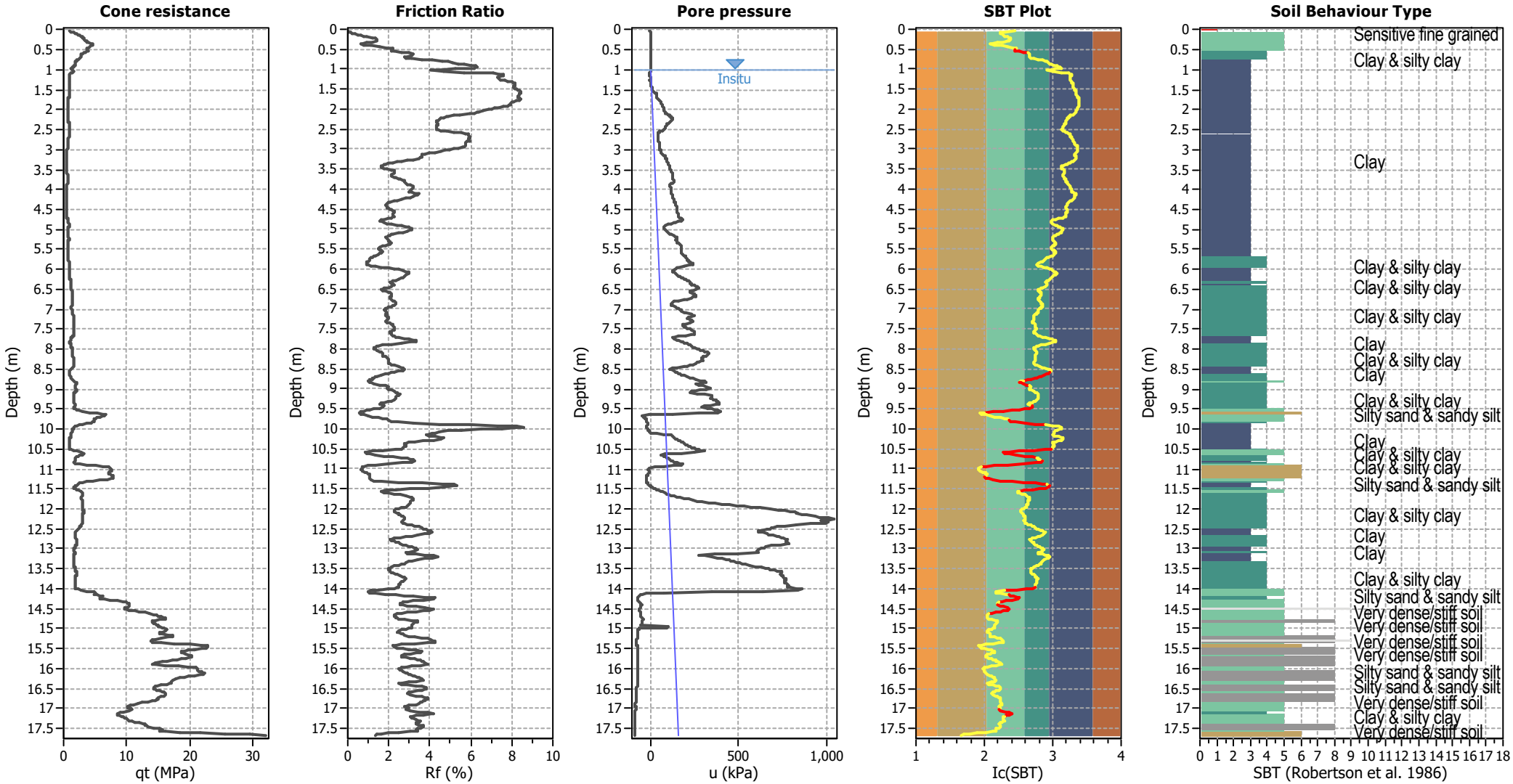






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



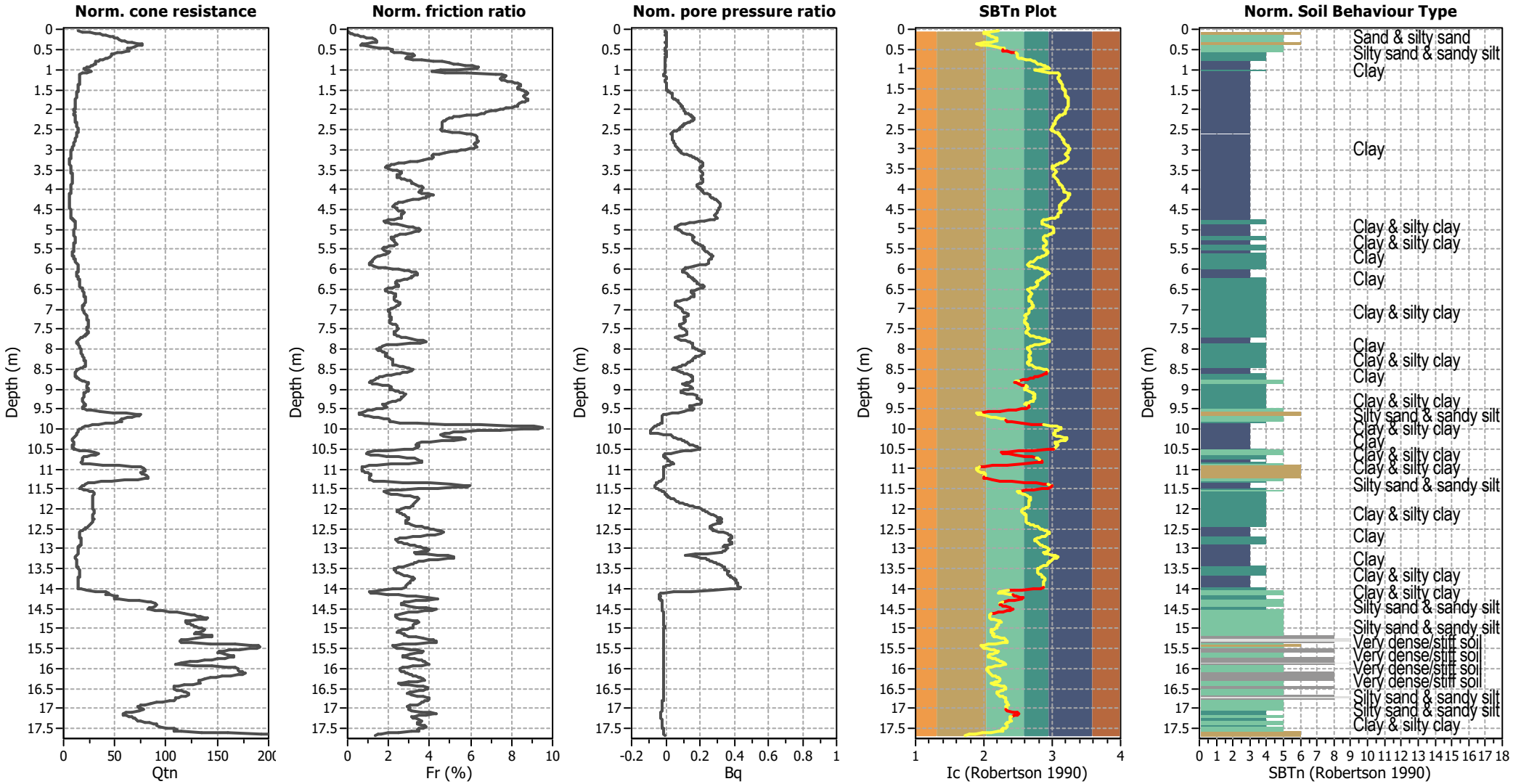
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



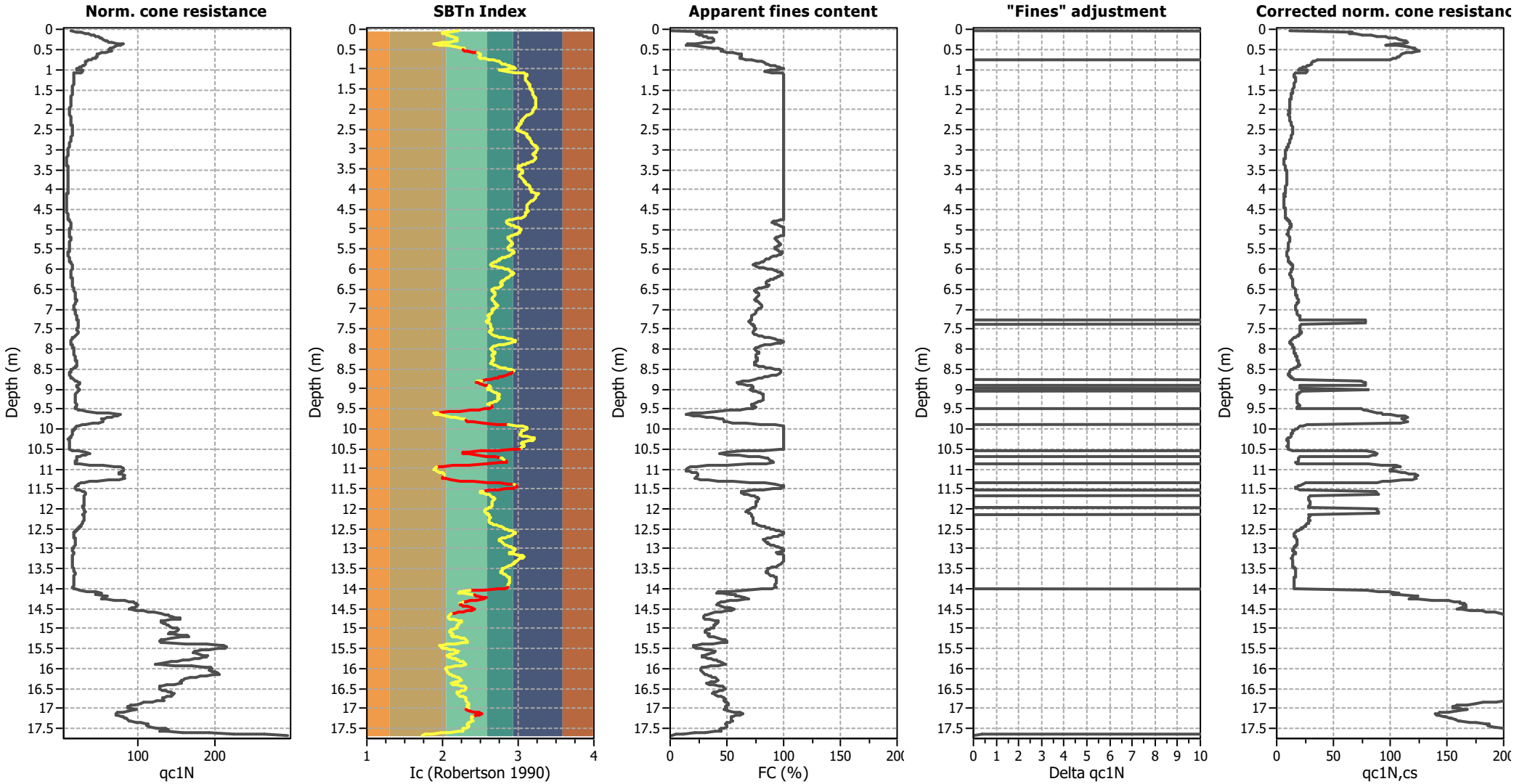
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

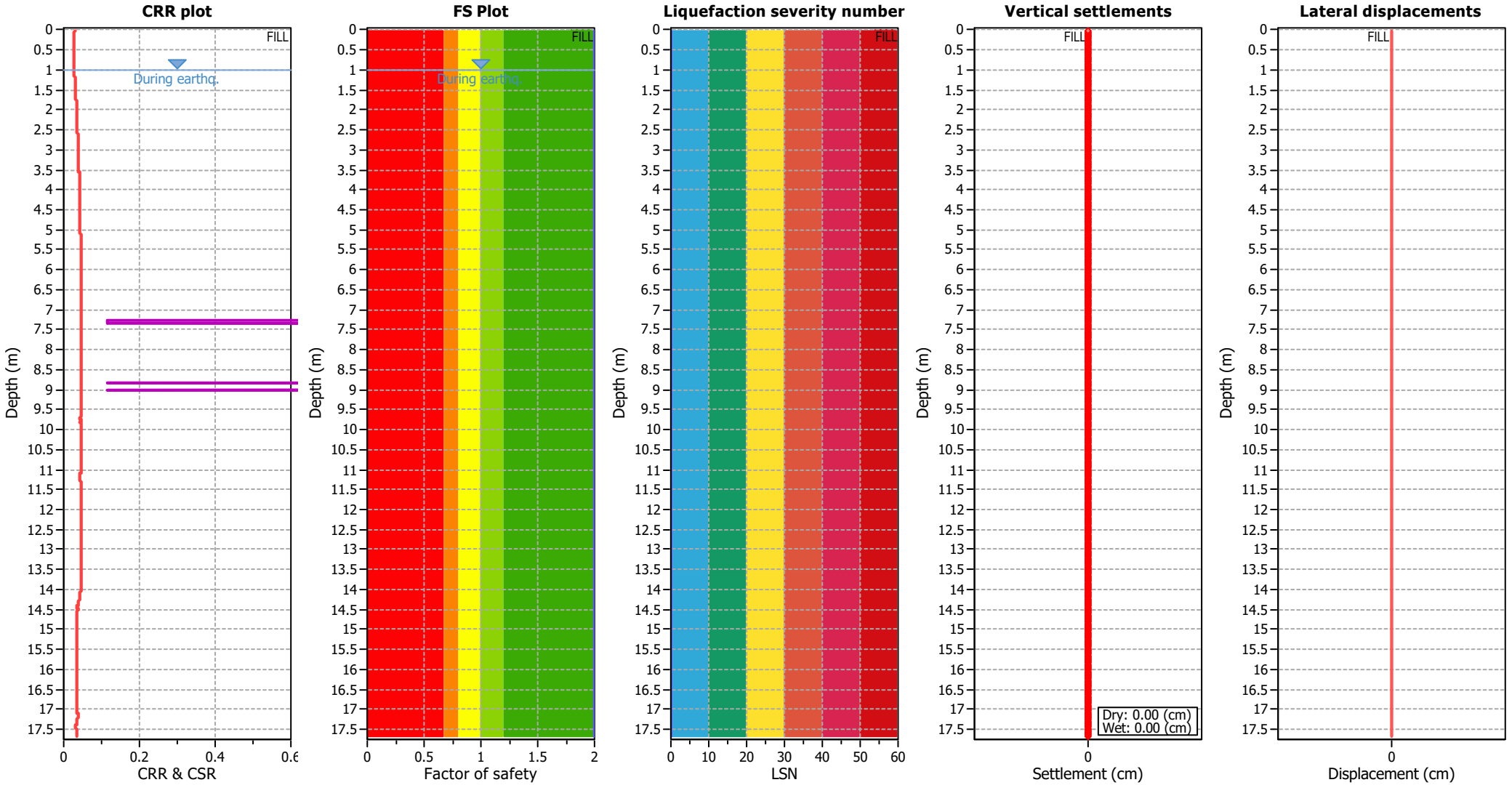
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

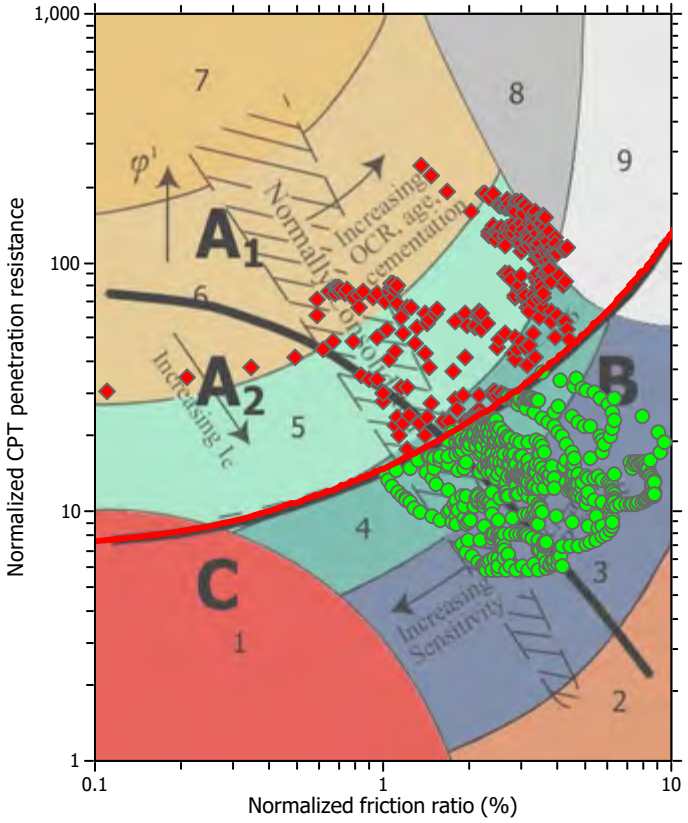
F.S. color scheme

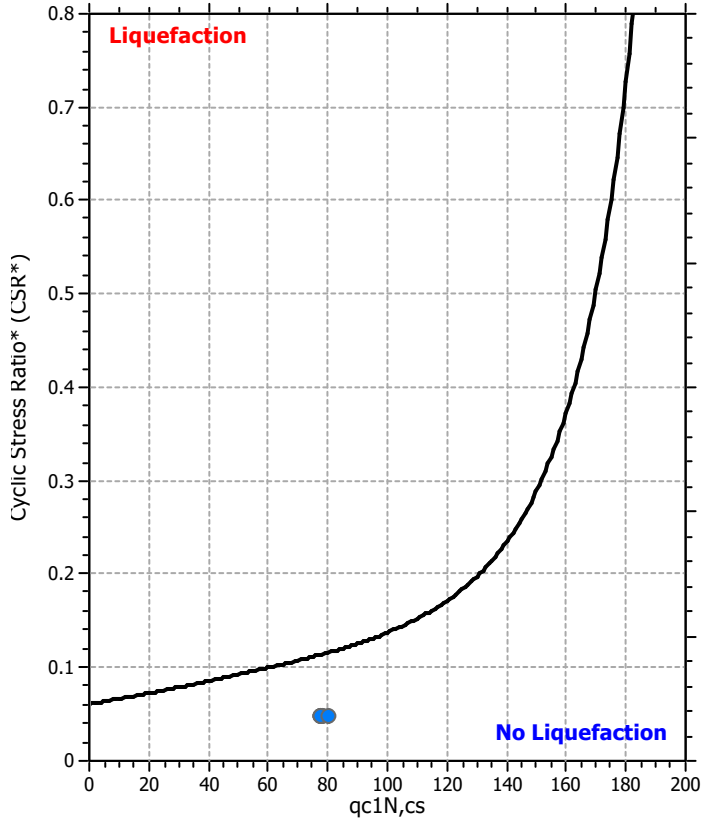
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

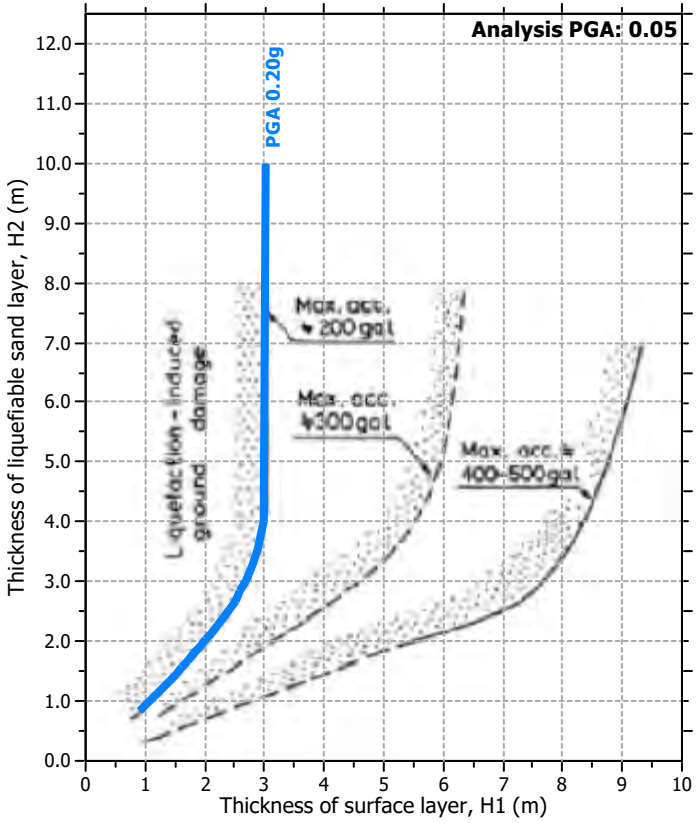
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



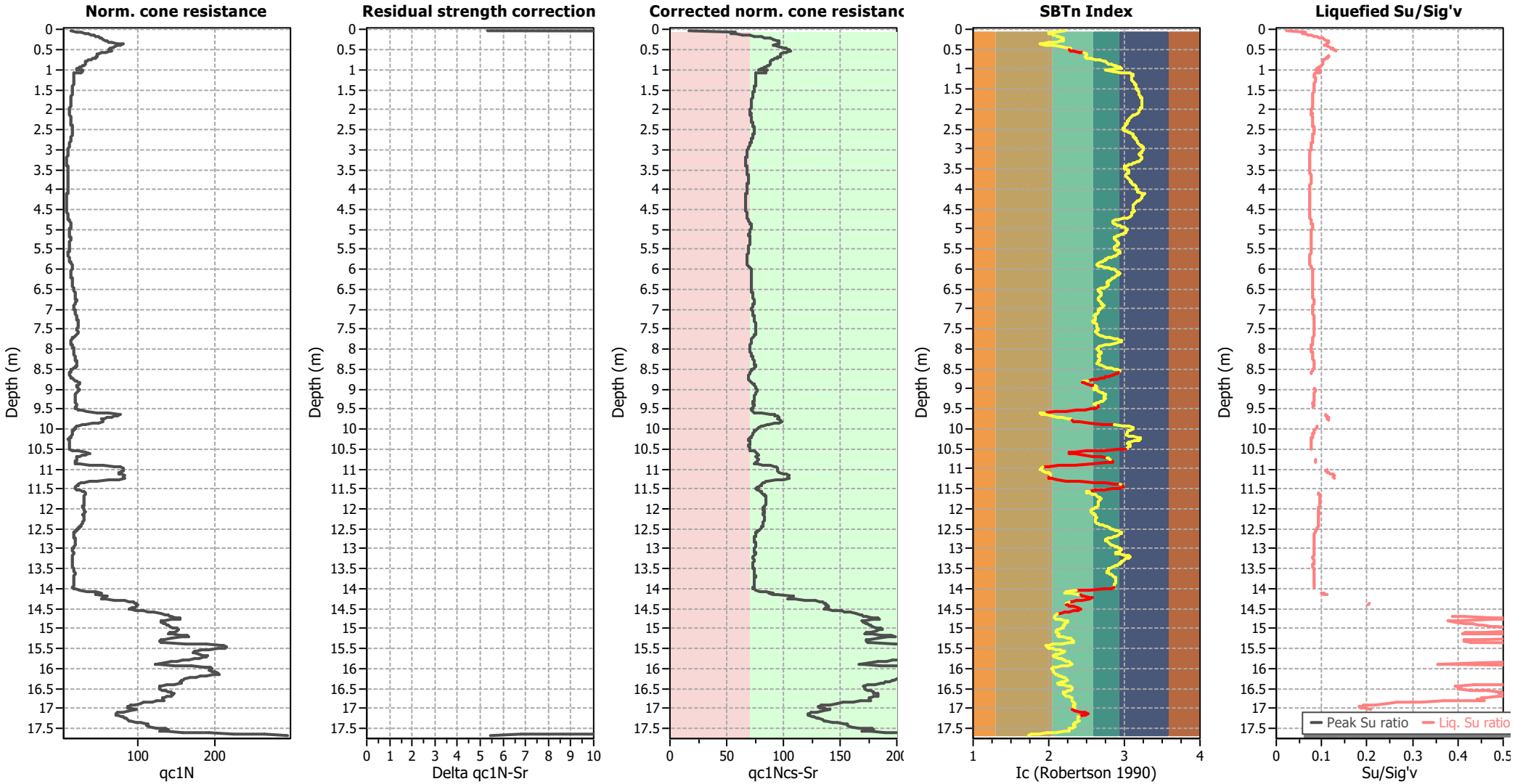




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

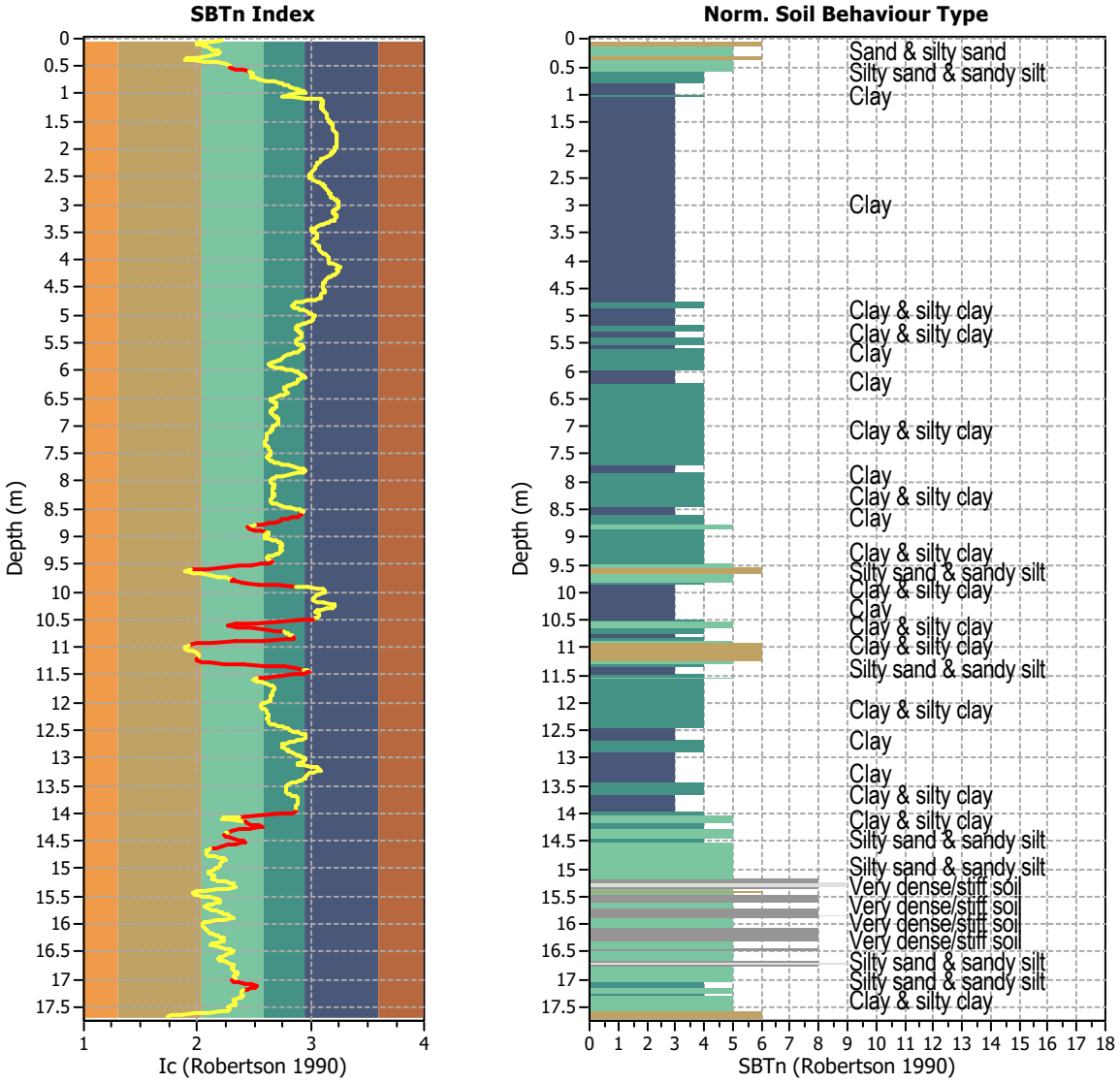
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

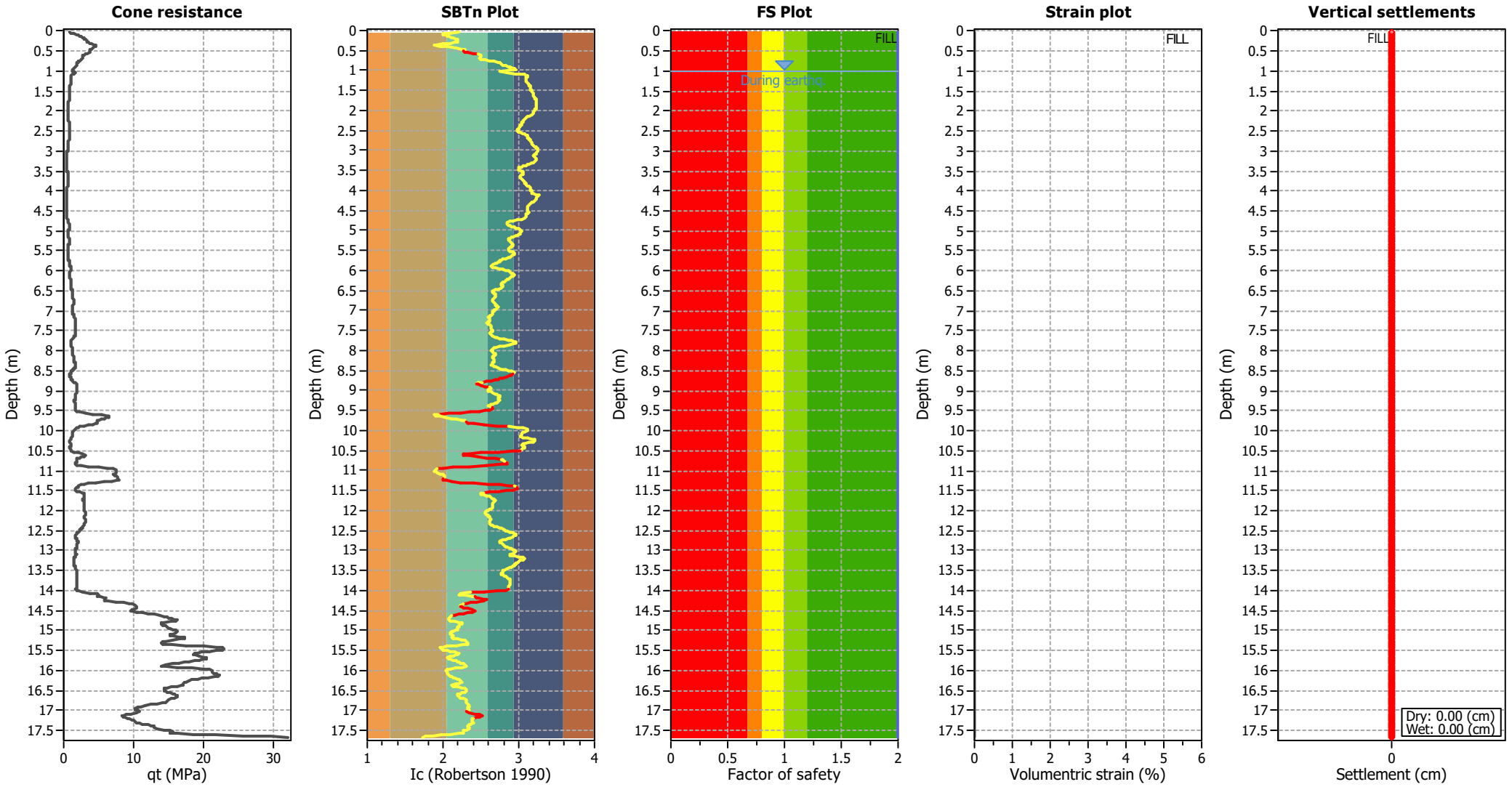
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	884
I_c maximum check value:	3.00	Total points excluded:	114
I_c change ratio value:	0.0100	Exclusion percentage:	12.90%
Minimum number of points in layer:	4	Number of layers detected:	17

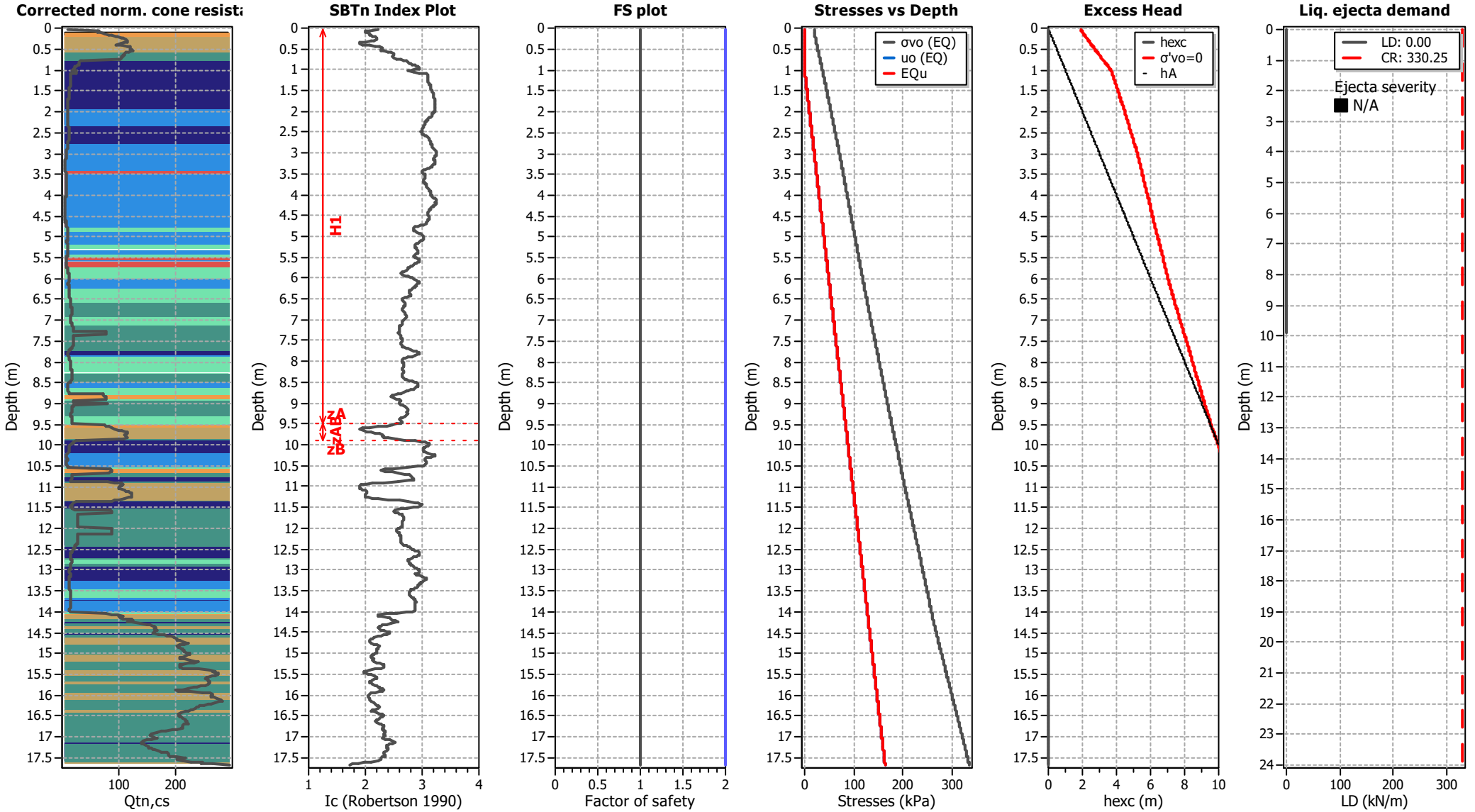
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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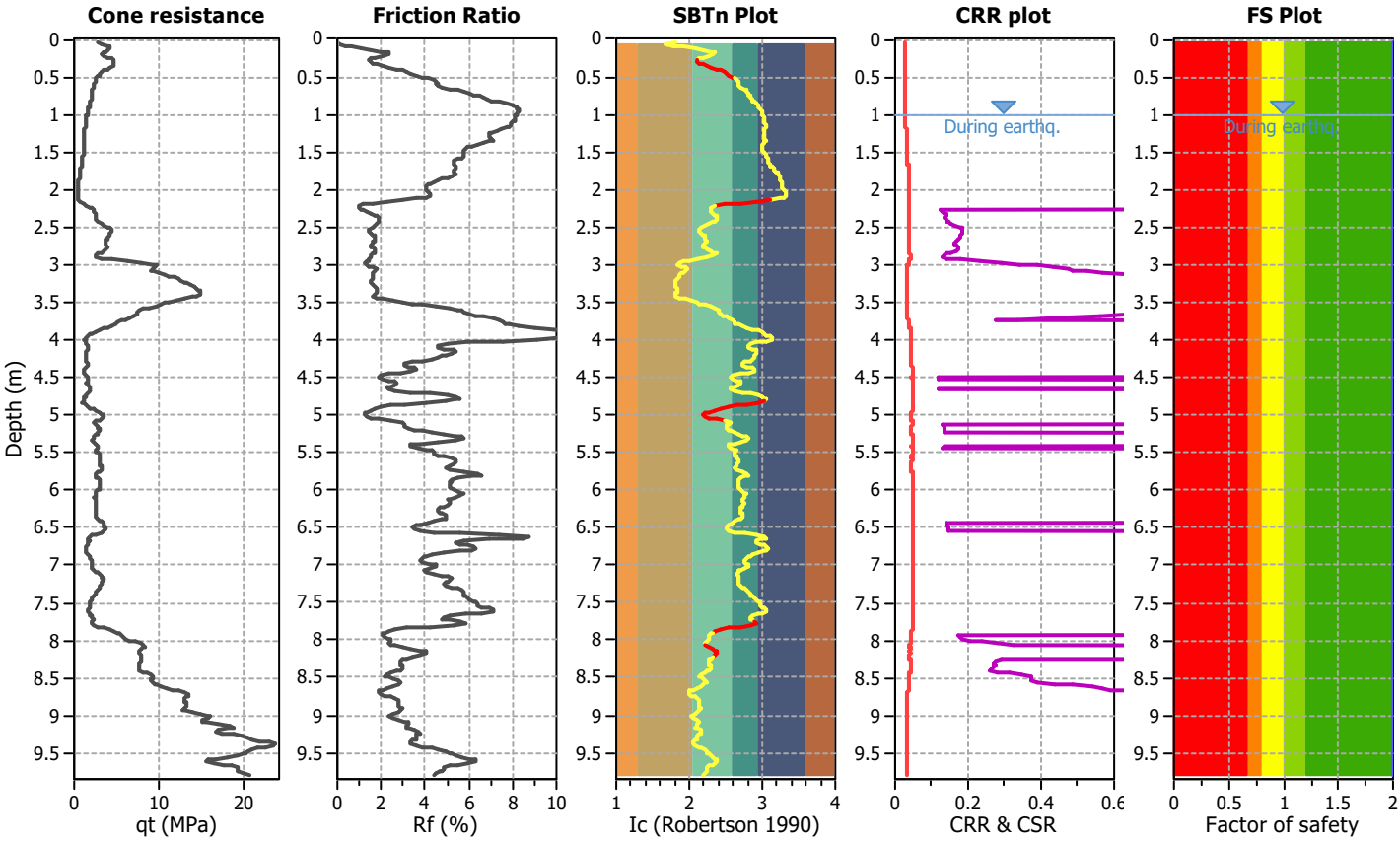
LIQUEFACTION ANALYSIS REPORT

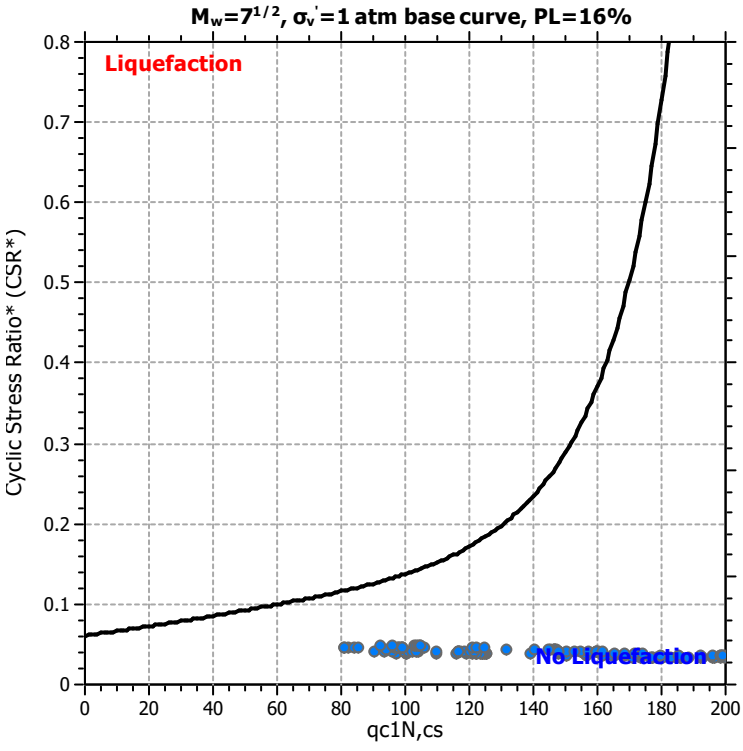
Project title : Sunfield Landholding **Location :**

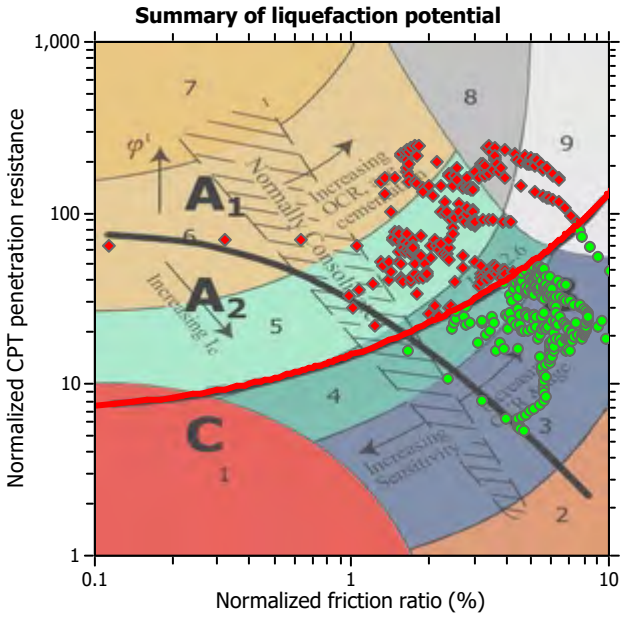
CPT file : CPT125

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.00 m	Excavation depth:	0.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

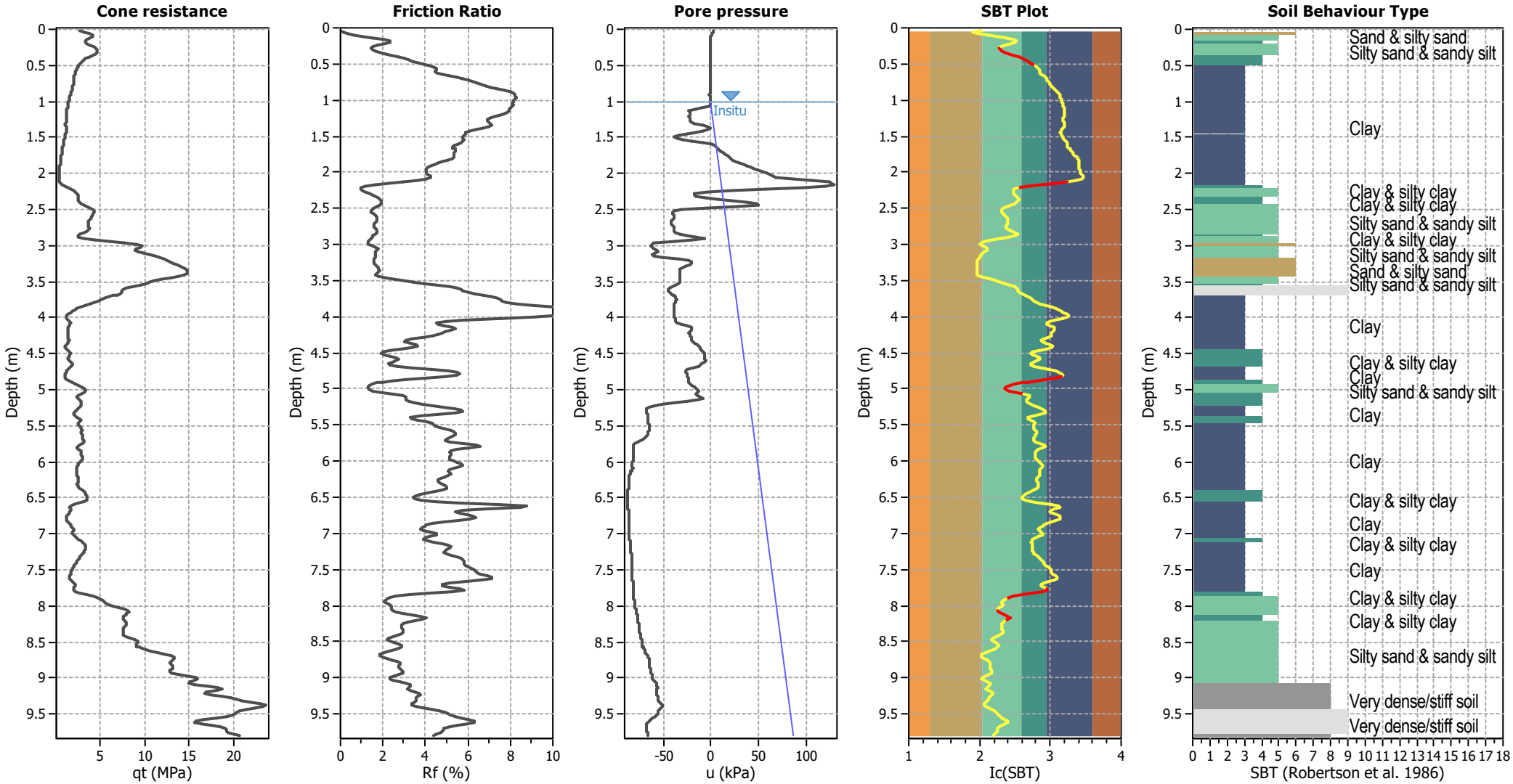






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



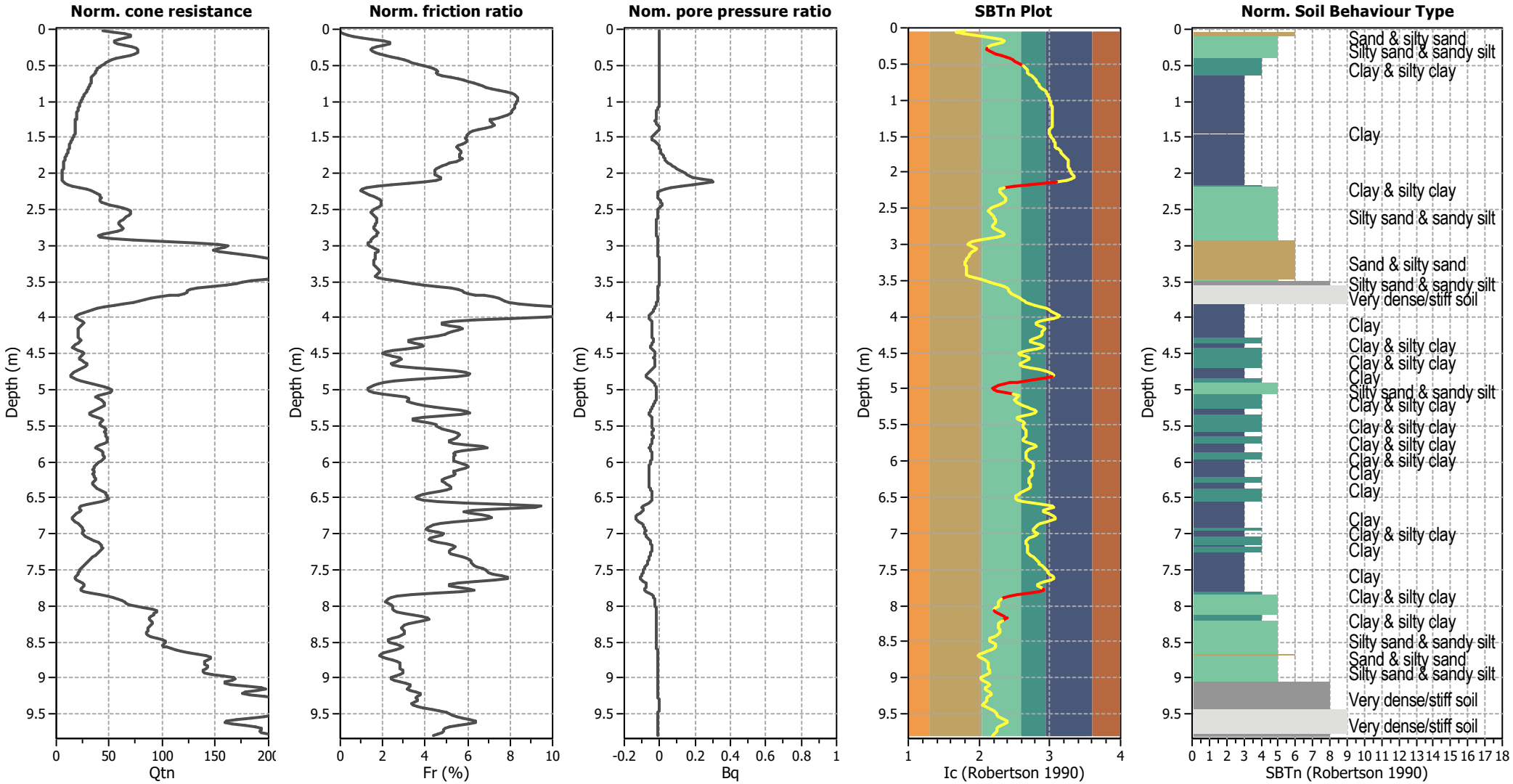
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



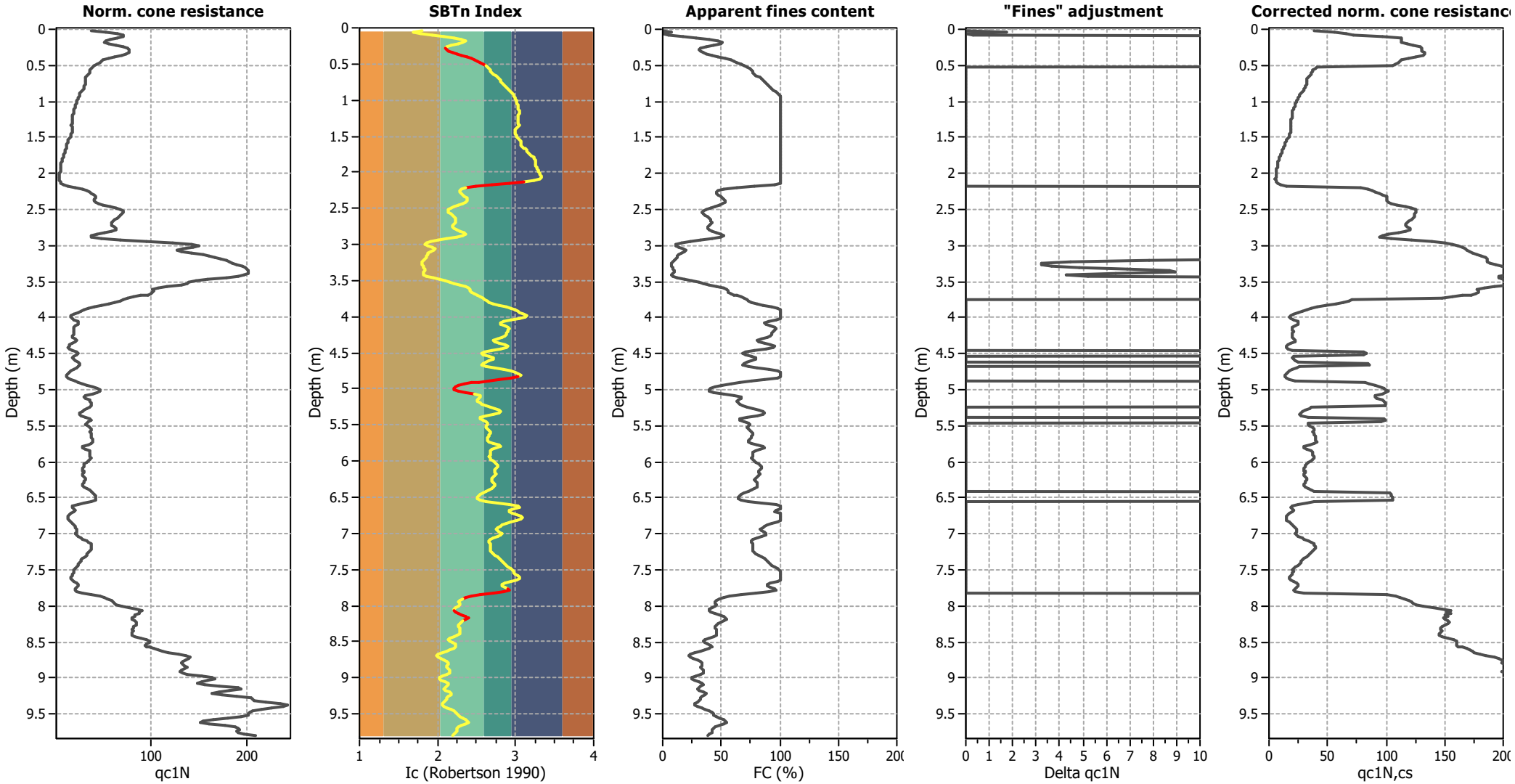
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBTn legend

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

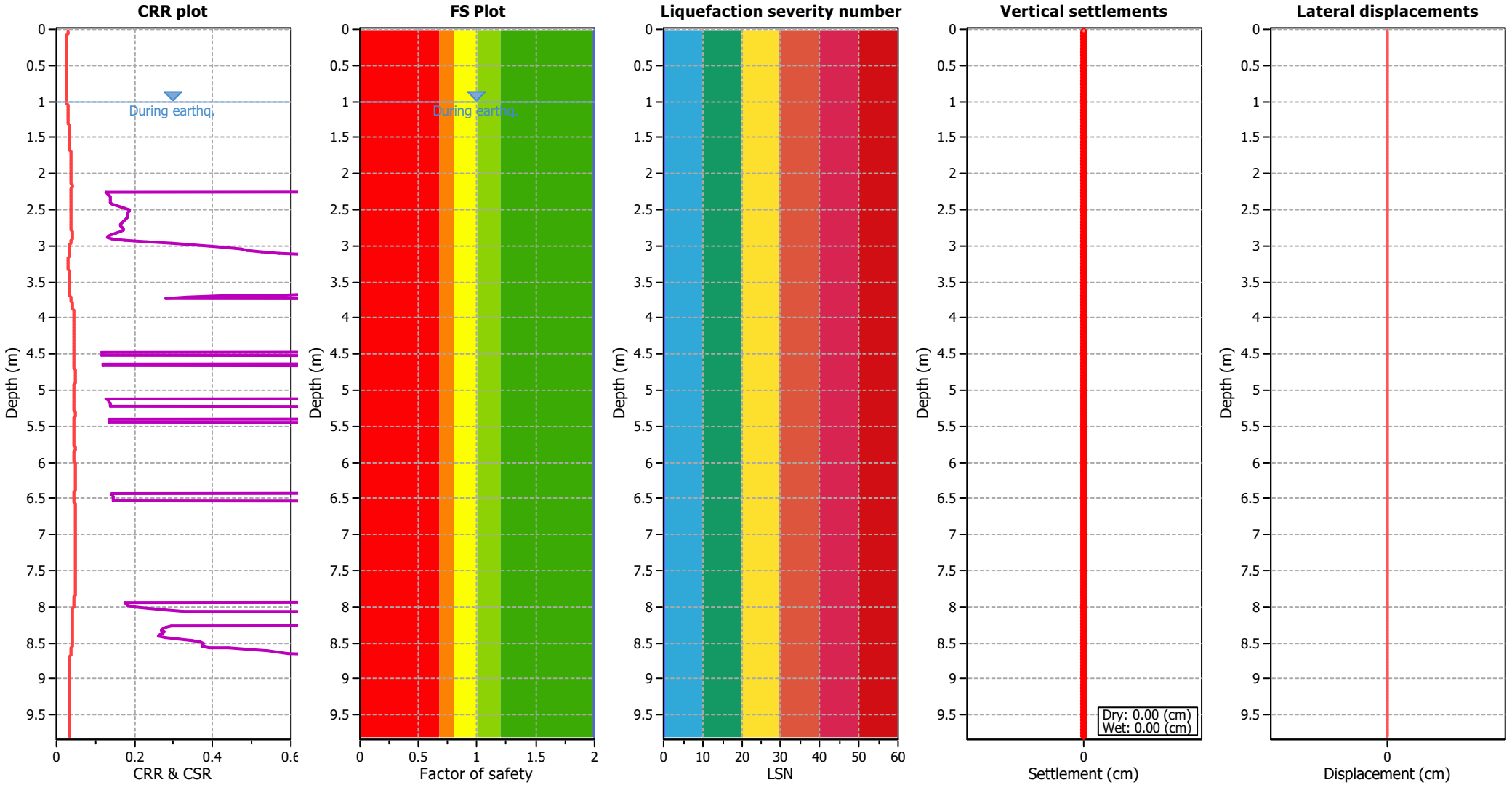
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

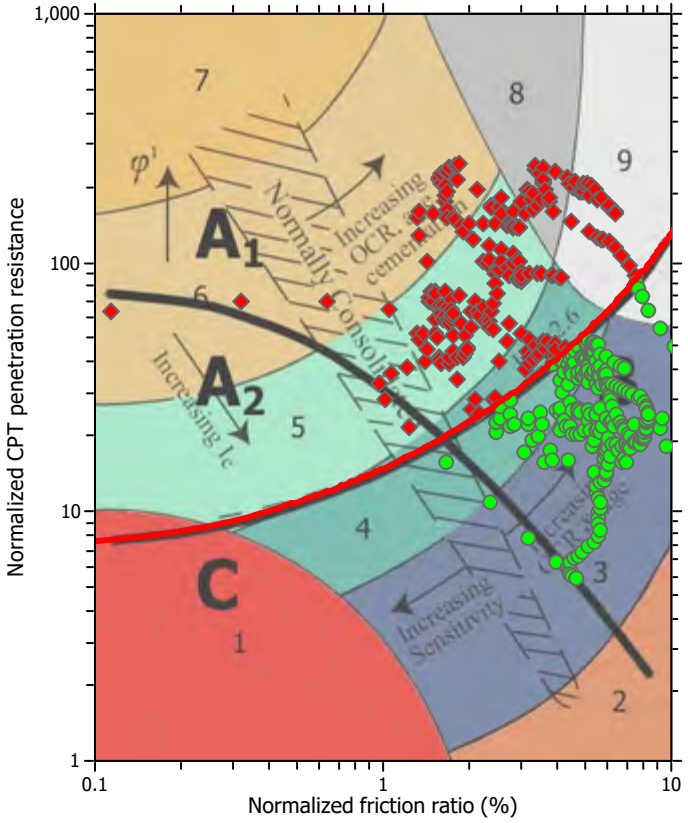
F.S. color scheme

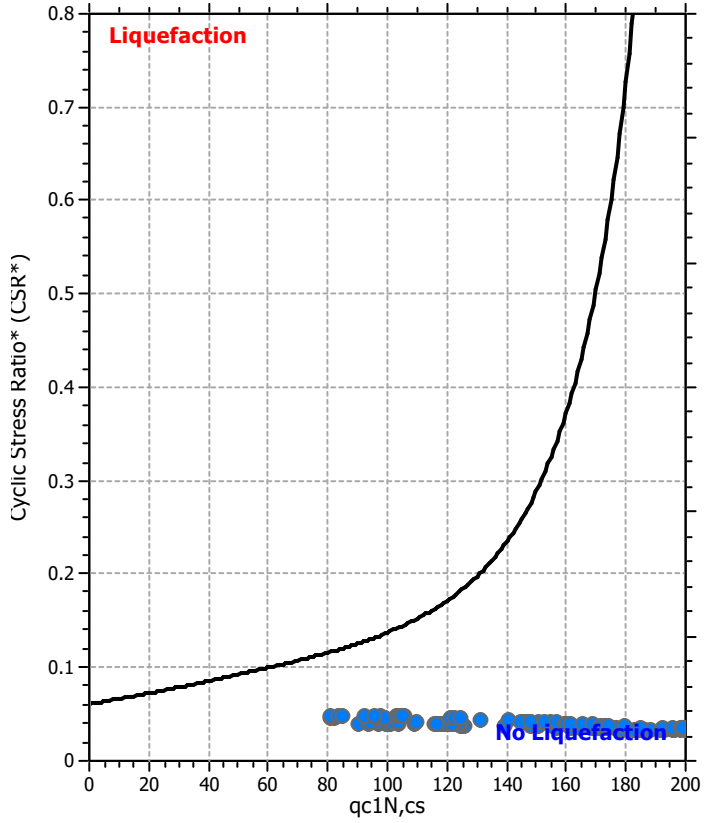
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

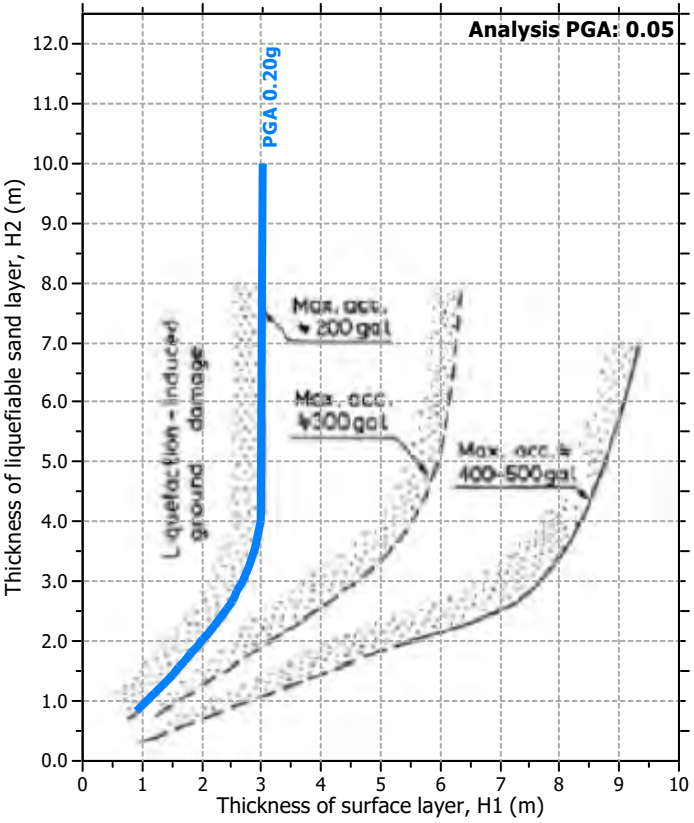
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



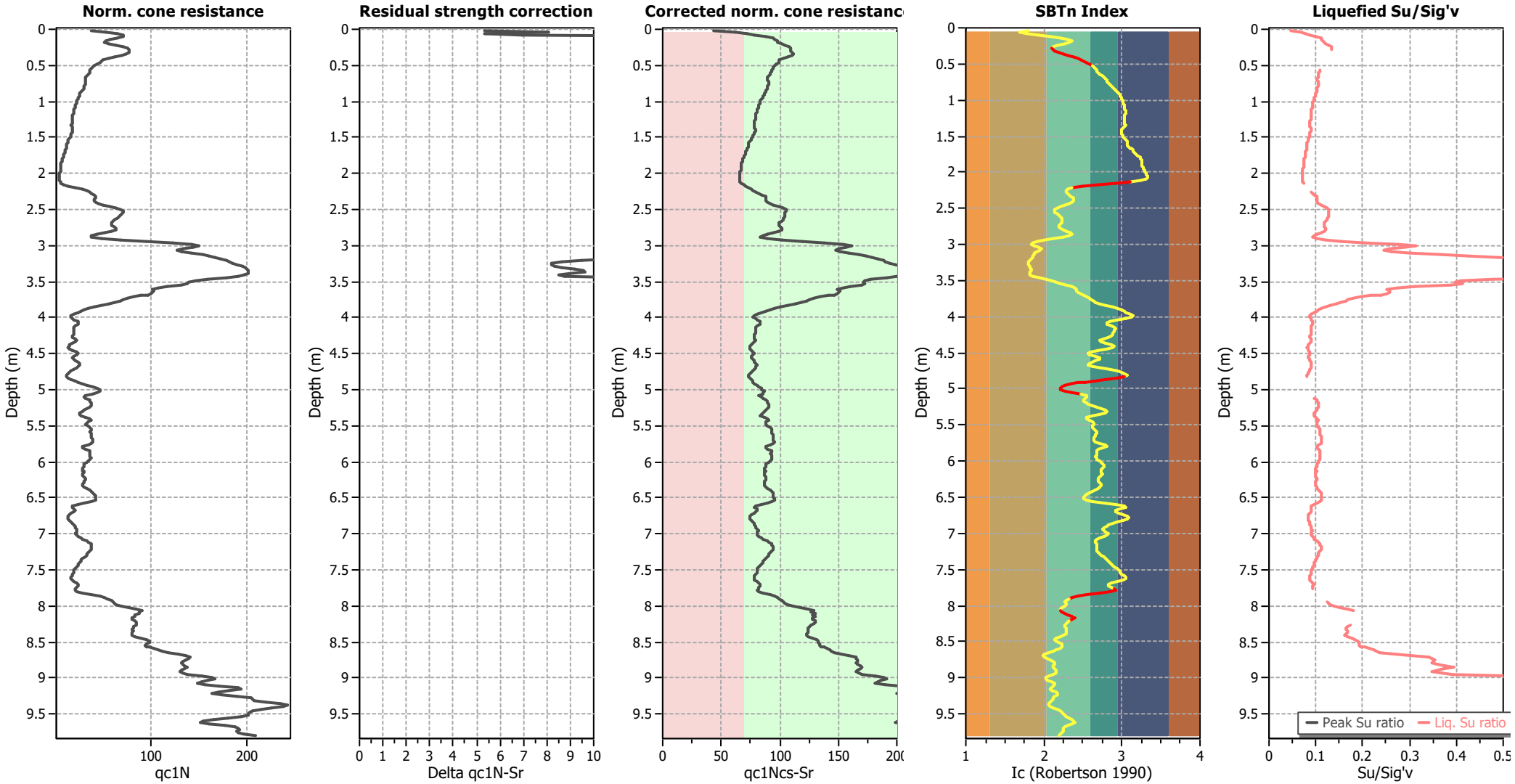




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

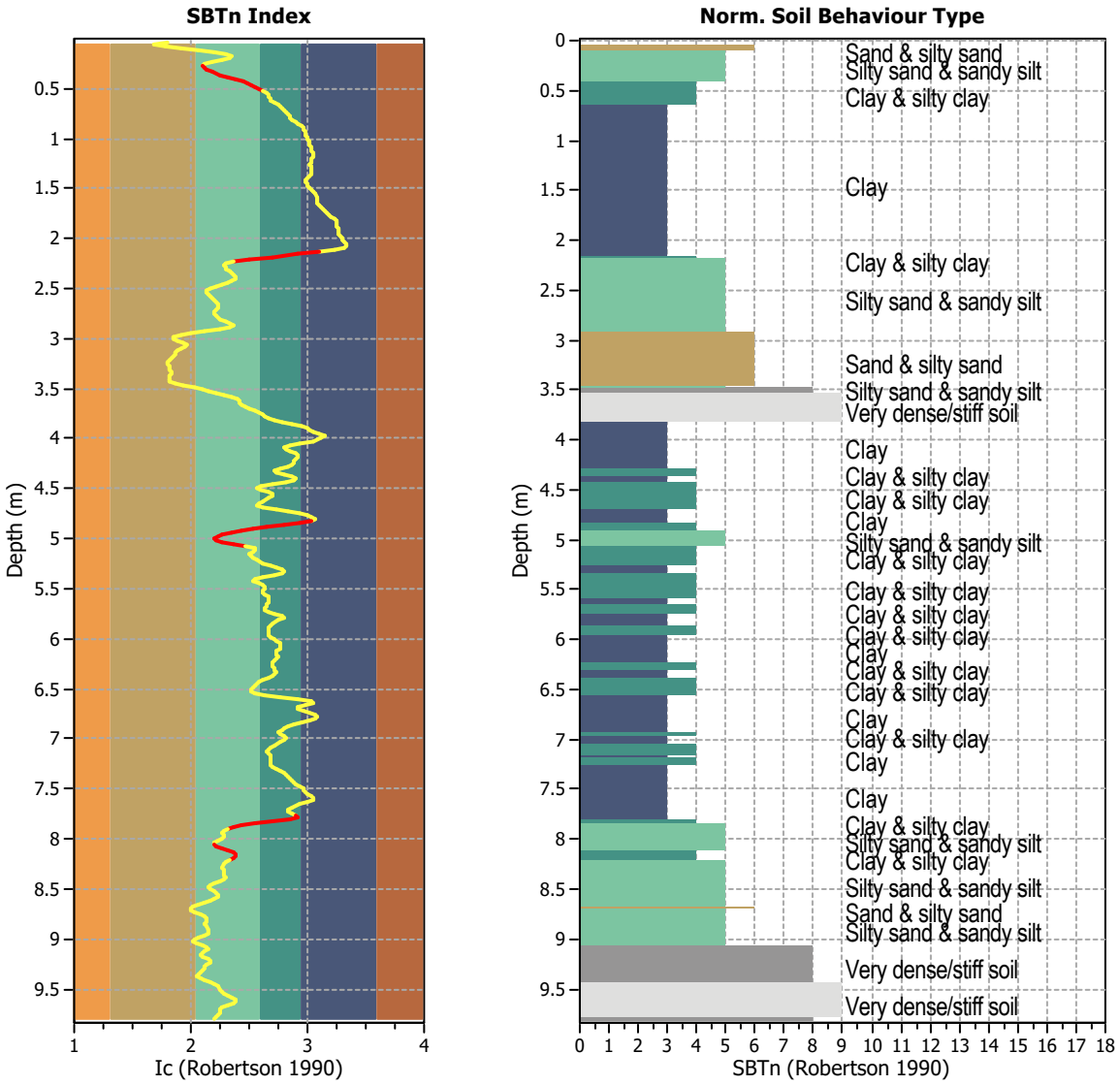
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

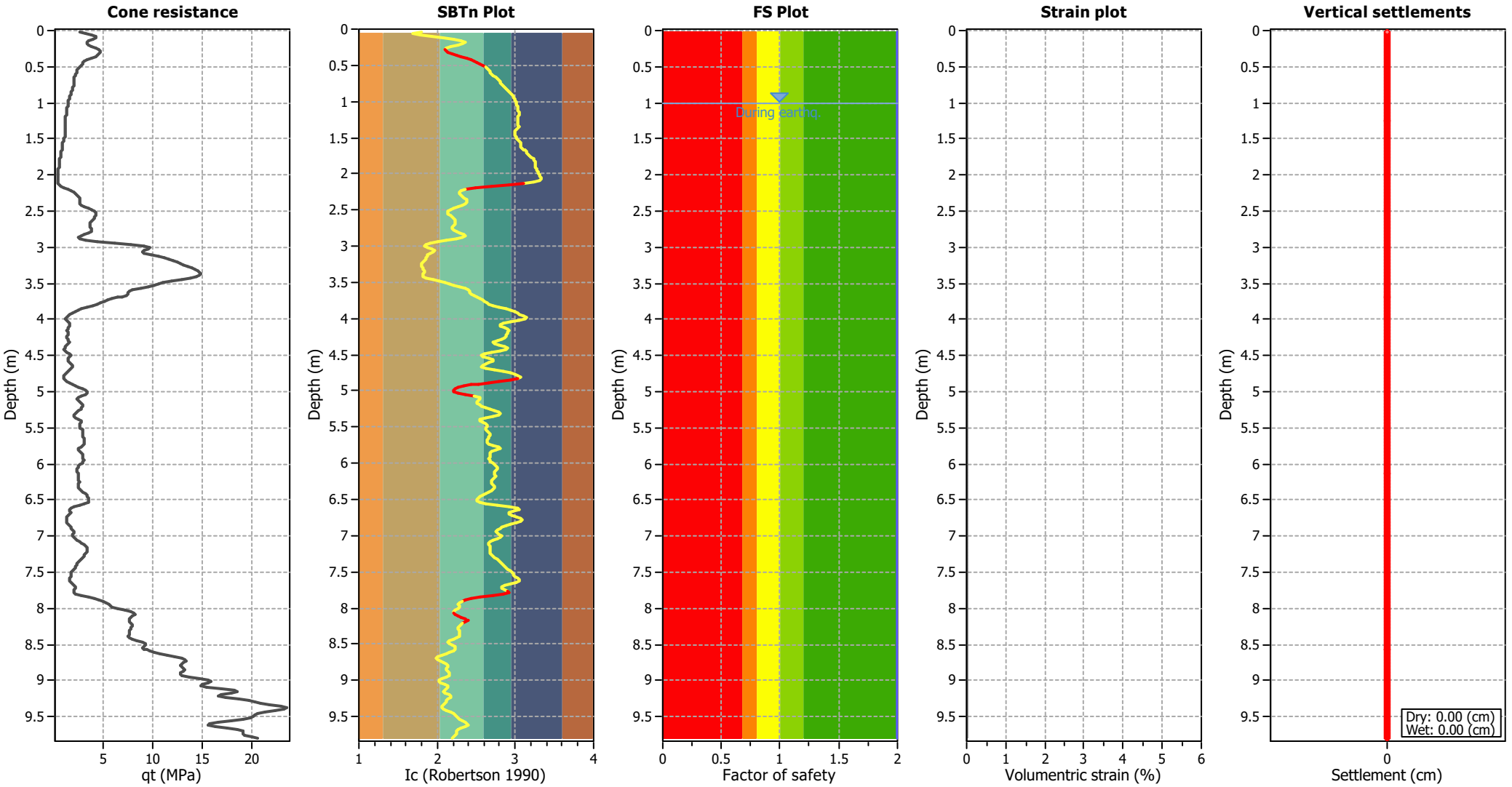
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	490
I_c maximum check value:	3.00	Total points excluded:	49
I_c change ratio value:	0.0100	Exclusion percentage:	10.00%
Minimum number of points in layer:	4	Number of layers detected:	7

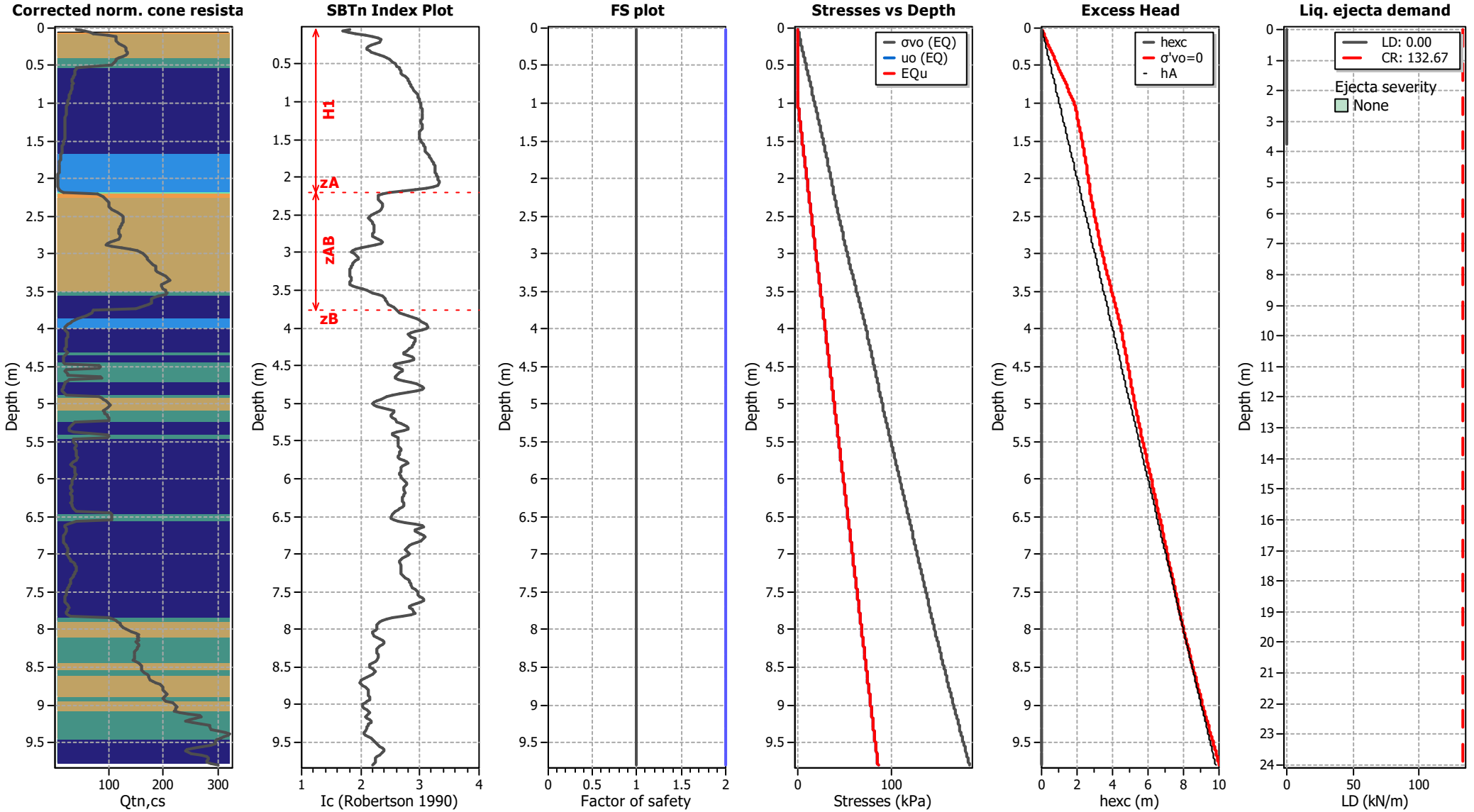
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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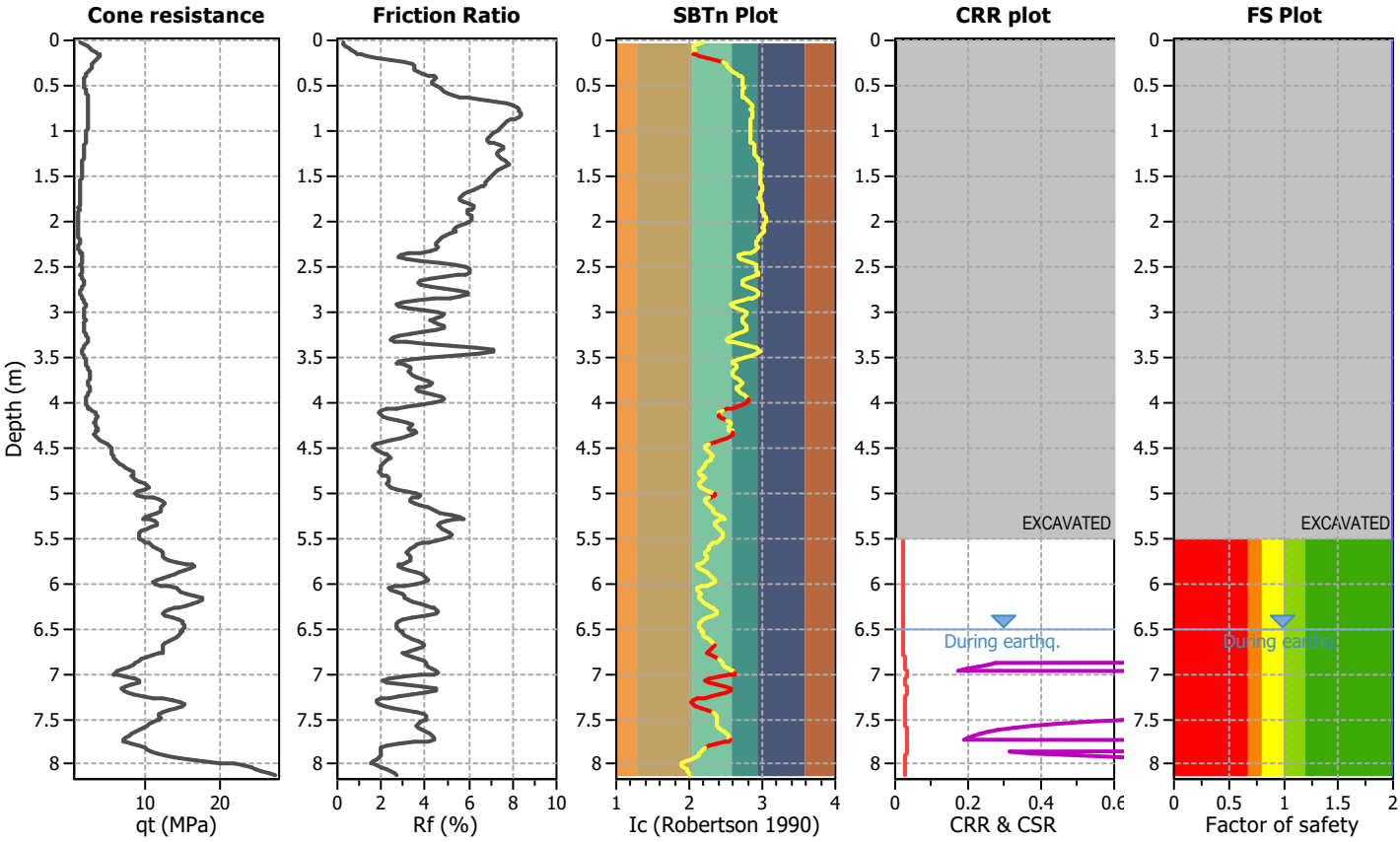
LIQUEFACTION ANALYSIS REPORT

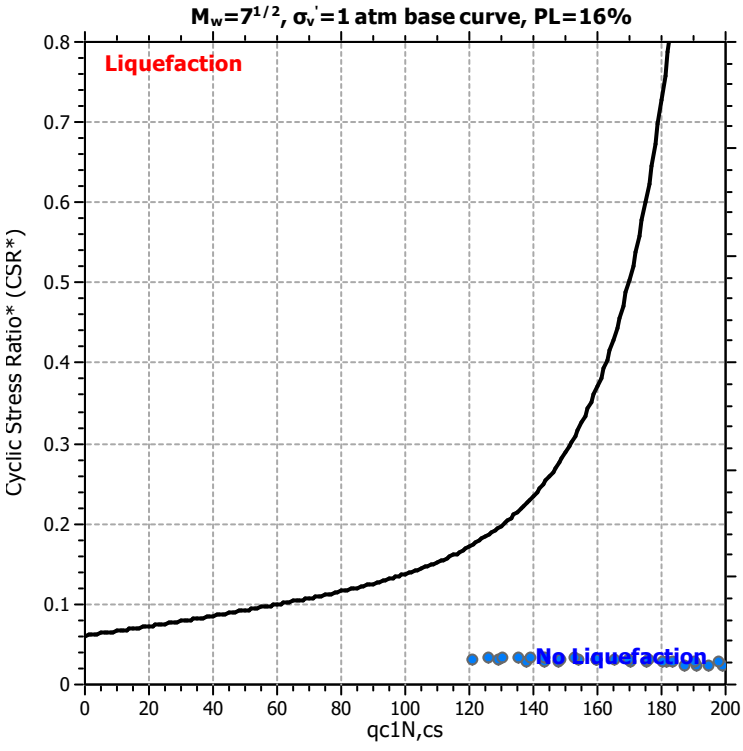
Project title : Sunfield Landholding **Location :**

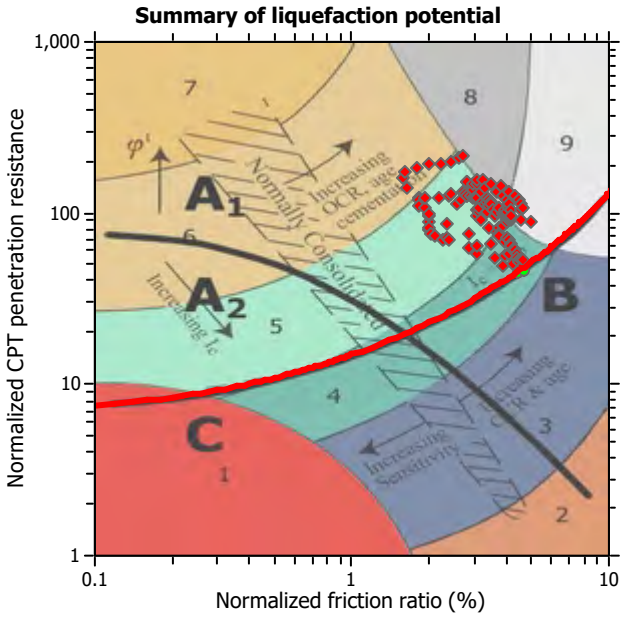
CPT file : CPT126

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	6.50 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	6.50 m	Excavation depth:	5.50 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

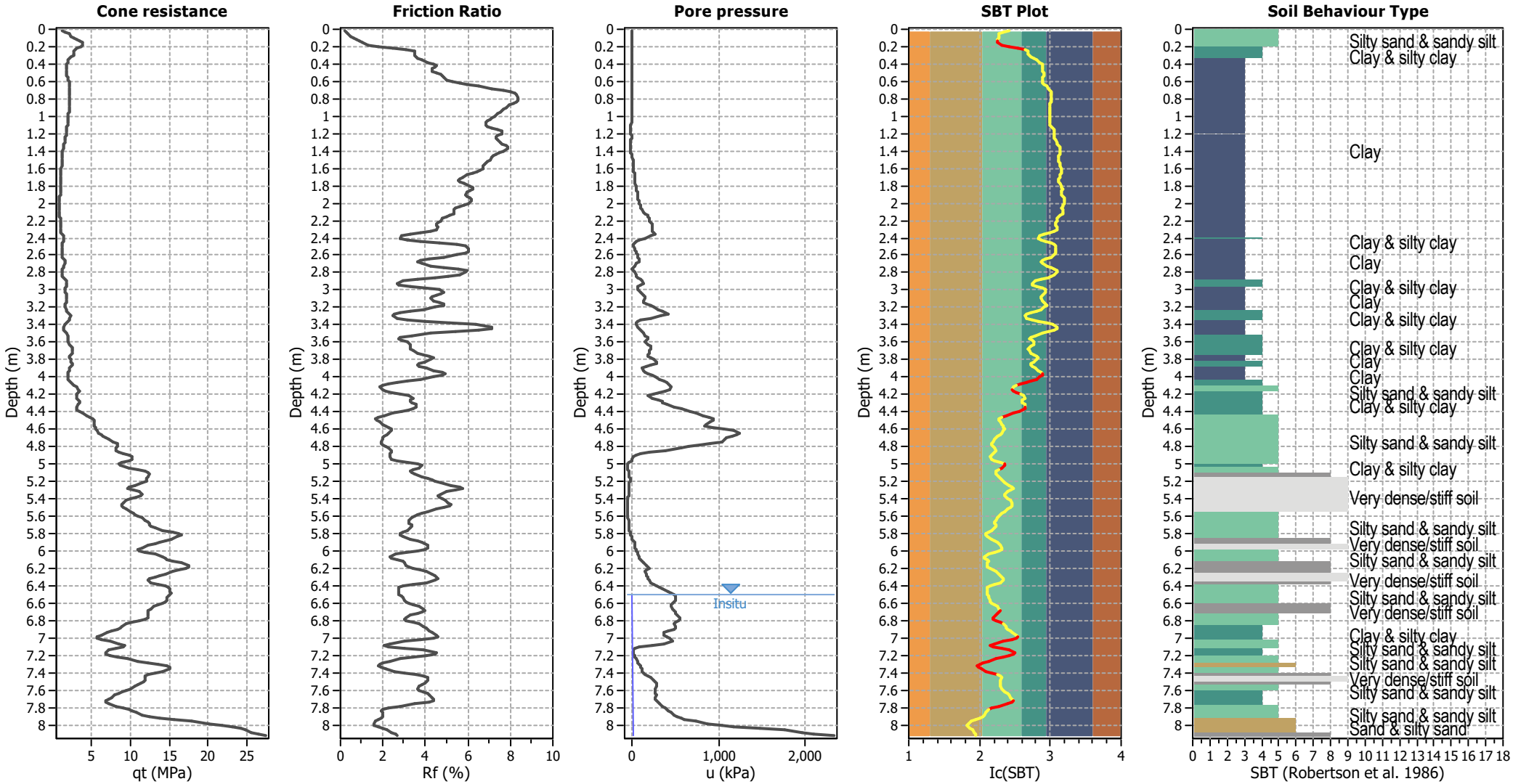






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



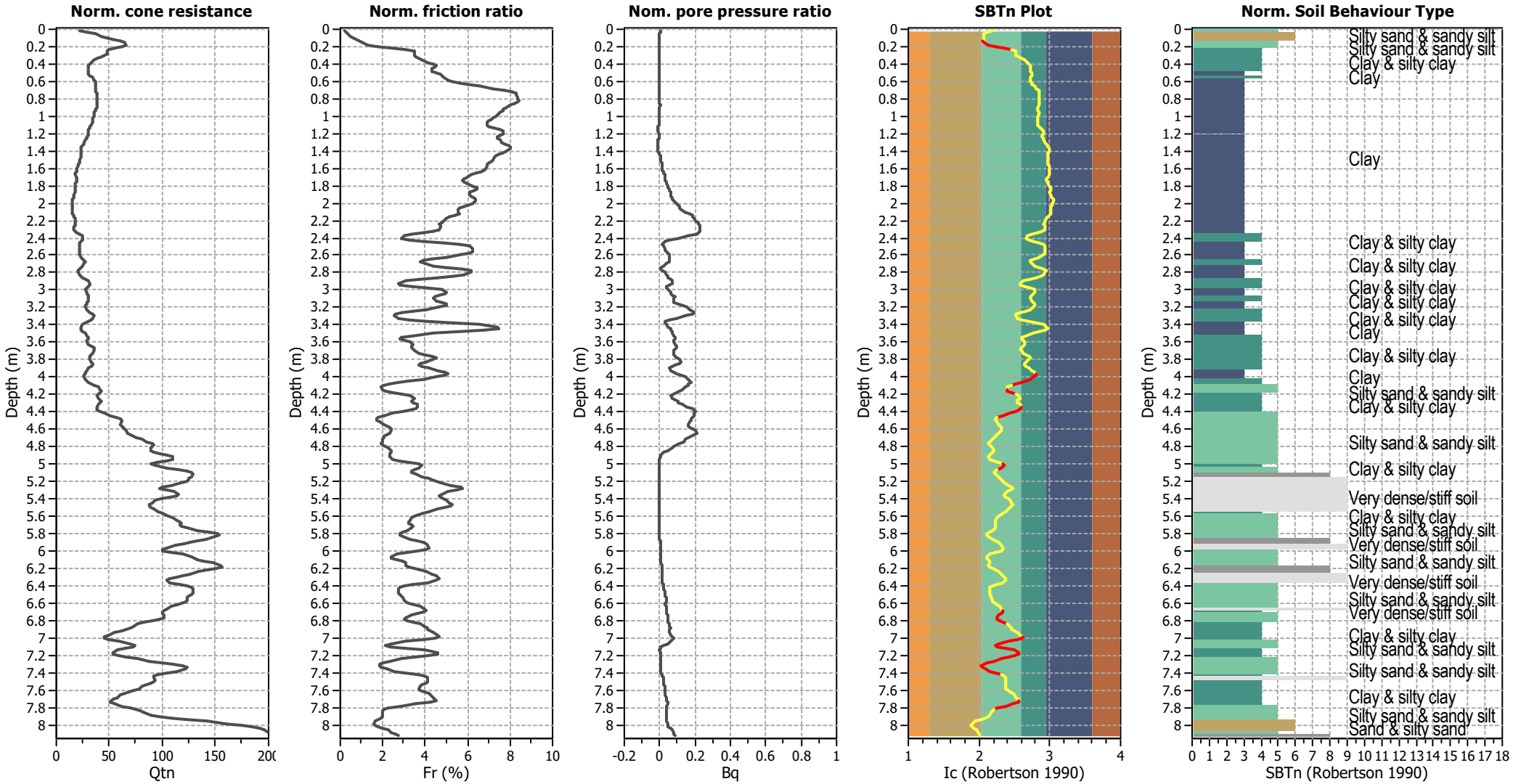
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	6.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	6.50 m	Excavation depth:	5.50 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



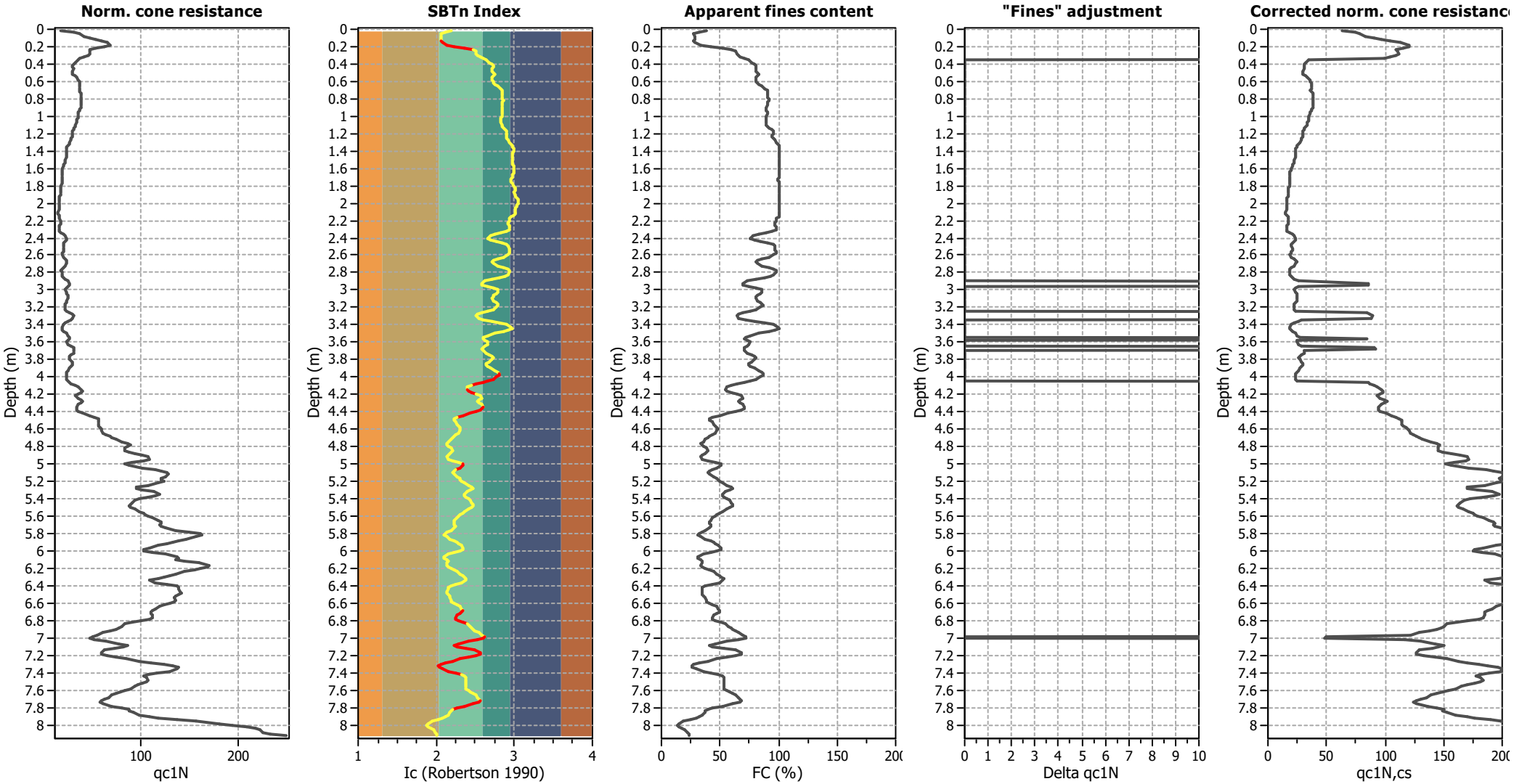
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	6.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	6.50 m	Excavation depth:	5.50 m	Limit depth:	10.00 m

SBTn legend

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

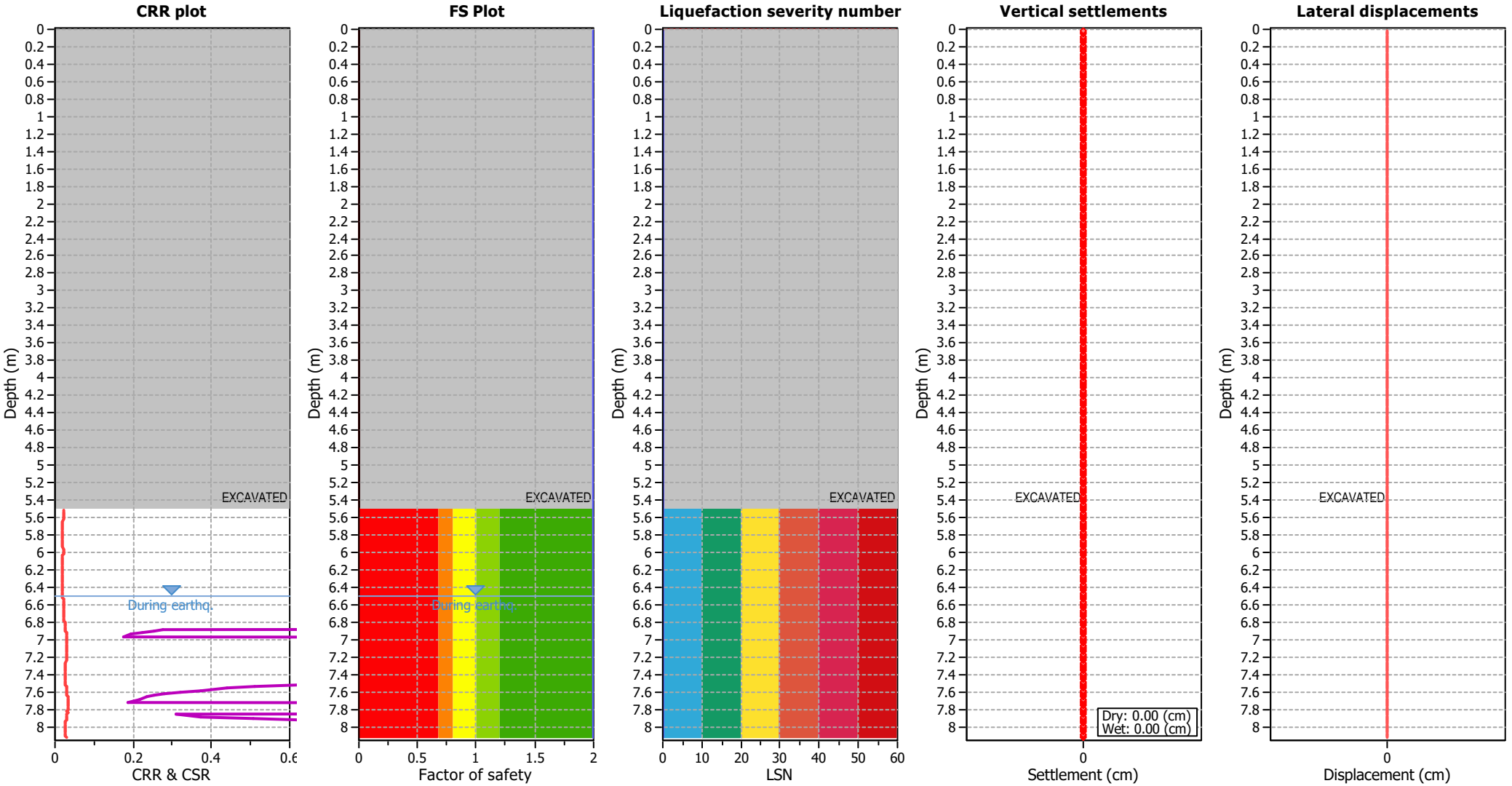
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	6.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	6.50 m	Excavation depth:	5.50 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	6.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	6.50 m	Excavation depth:	5.50 m	Limit depth:	10.00 m

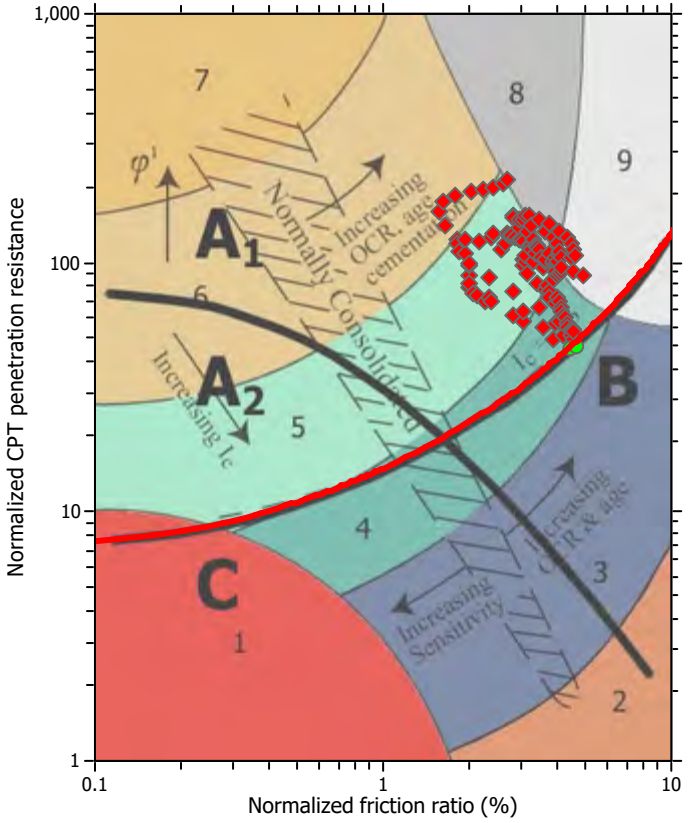
F.S. color scheme

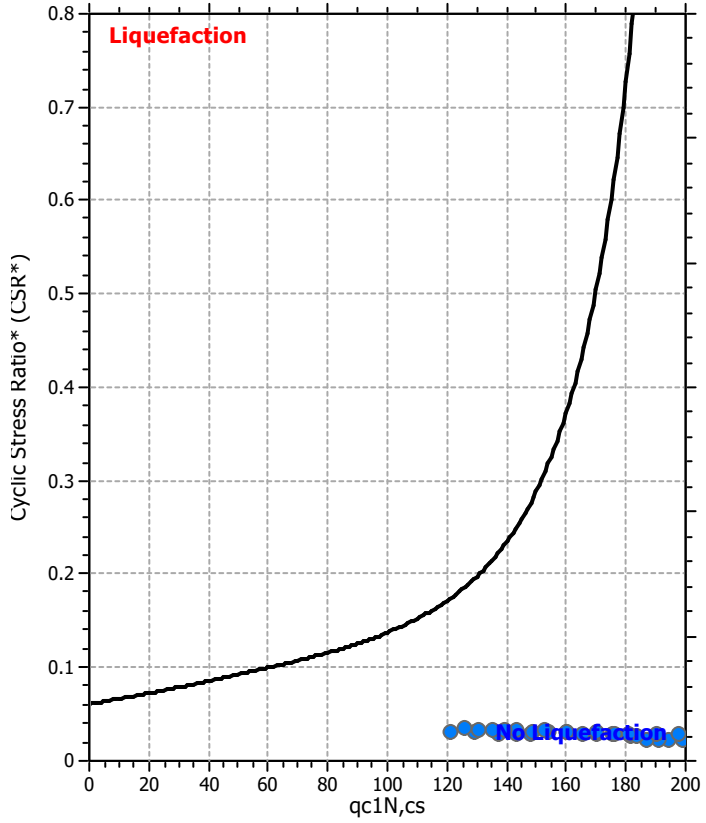
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

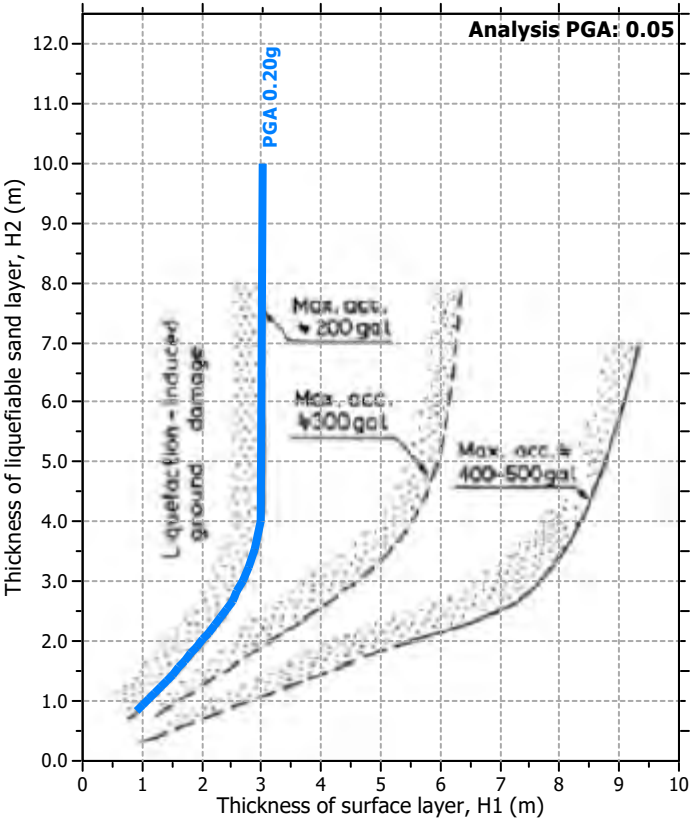
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



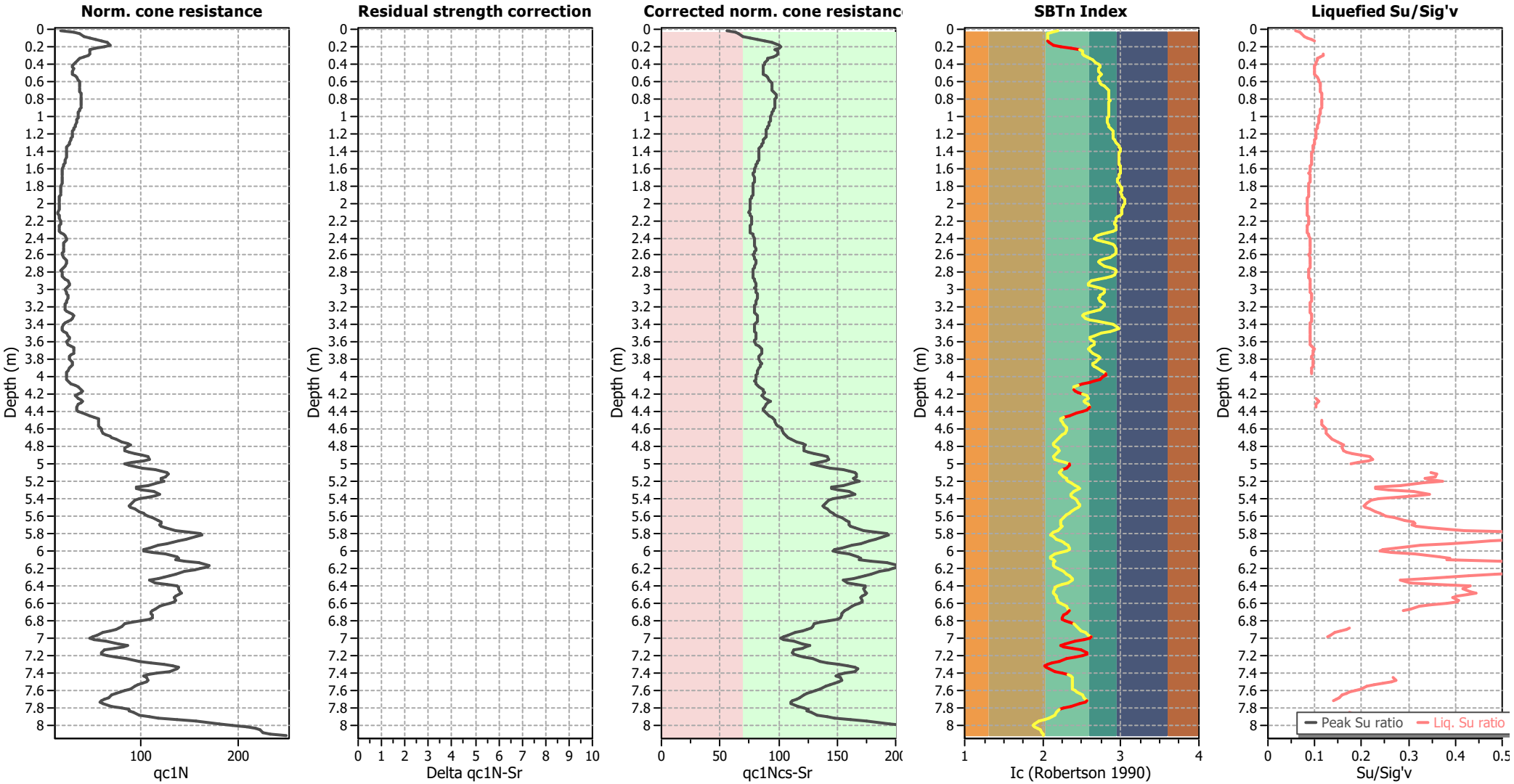




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	6.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	6.50 m	Excavation depth:	5.50 m	Limit depth:	10.00 m

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



Input parameters and analysis data

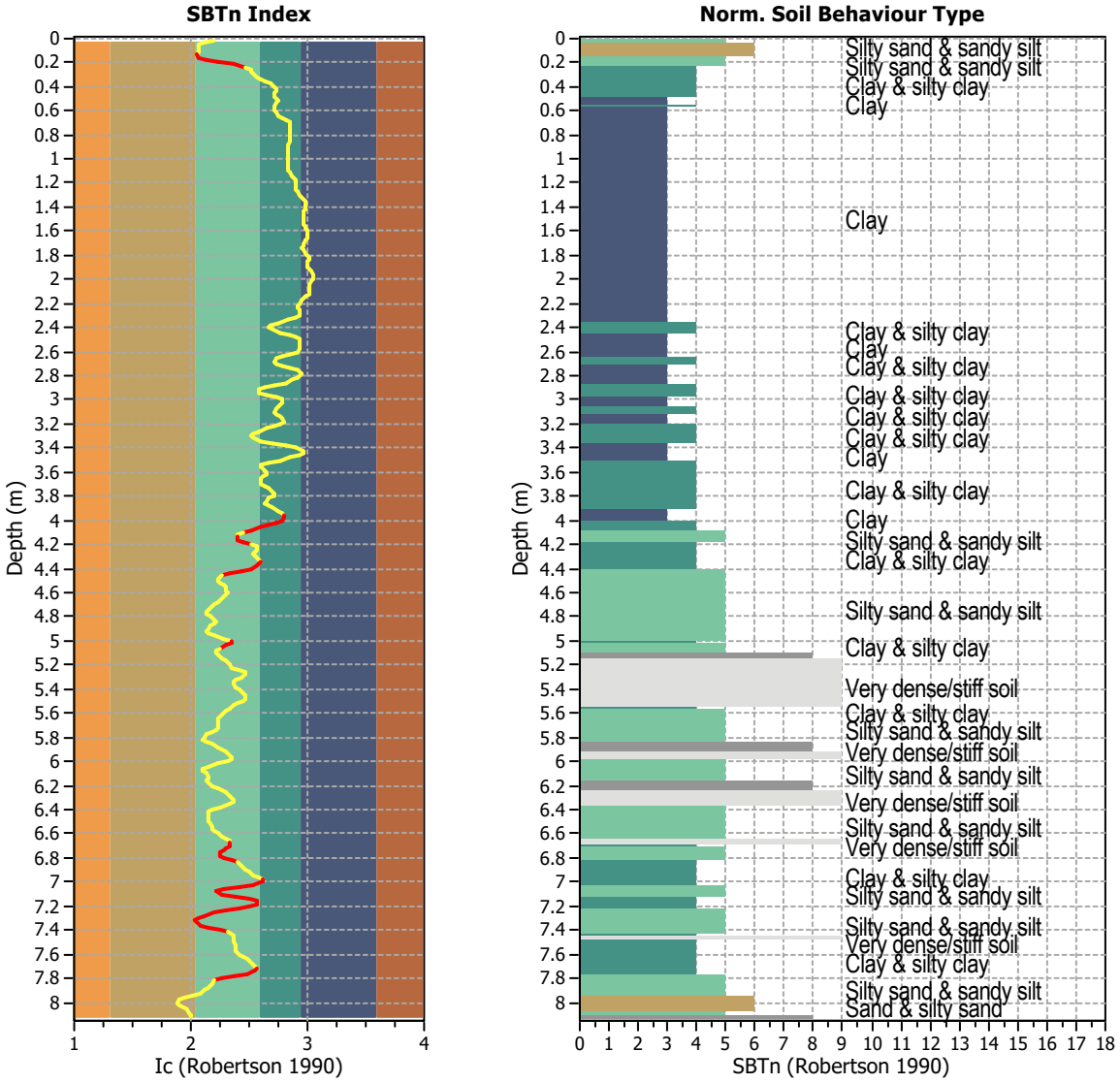
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	6.50 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	6.50 m	Excavation depth:	5.50 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

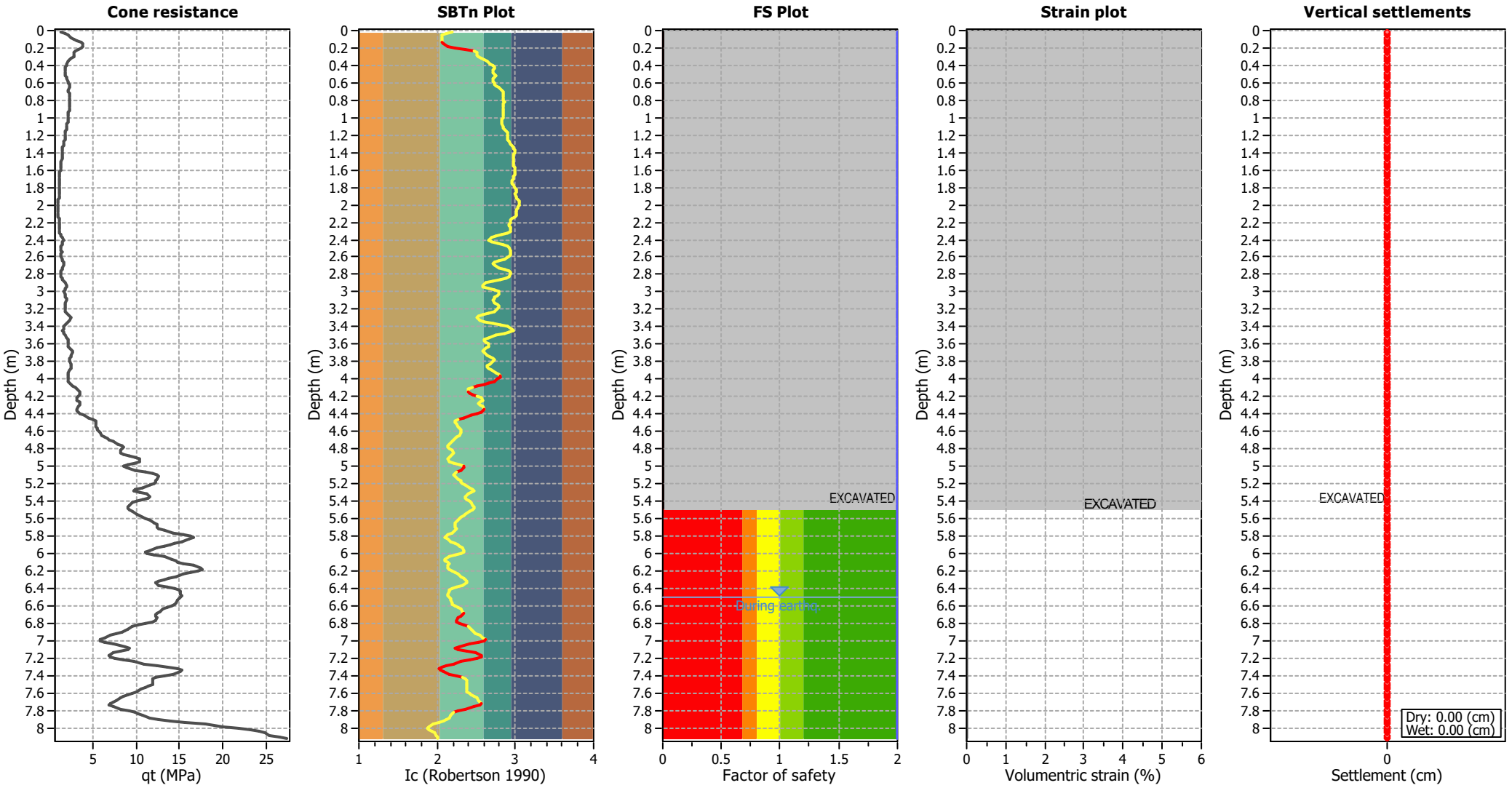
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	406
I_c maximum check value:	3.00	Total points excluded:	68
I_c change ratio value:	0.0100	Exclusion percentage:	16.75%
Minimum number of points in layer:	4	Number of layers detected:	12

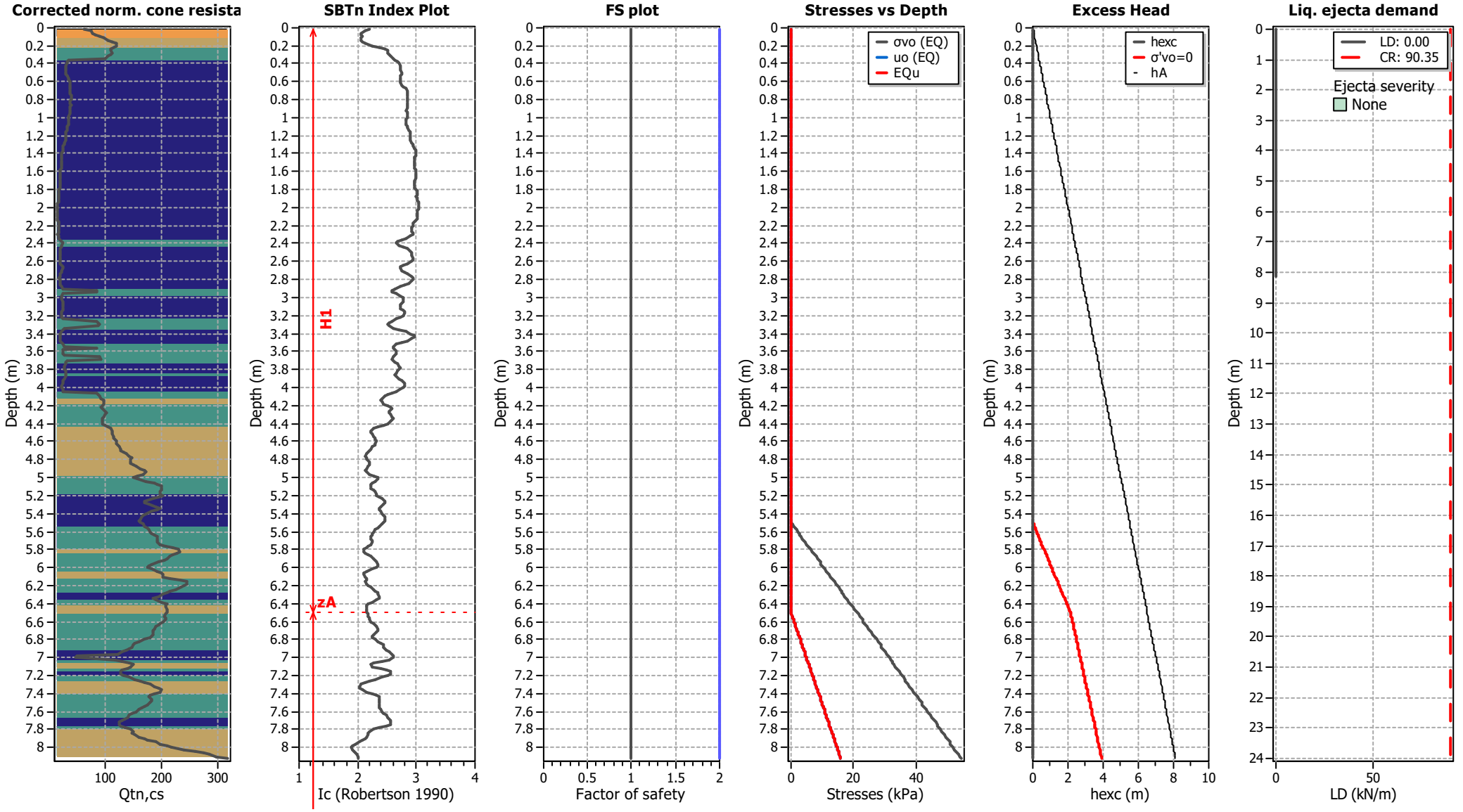
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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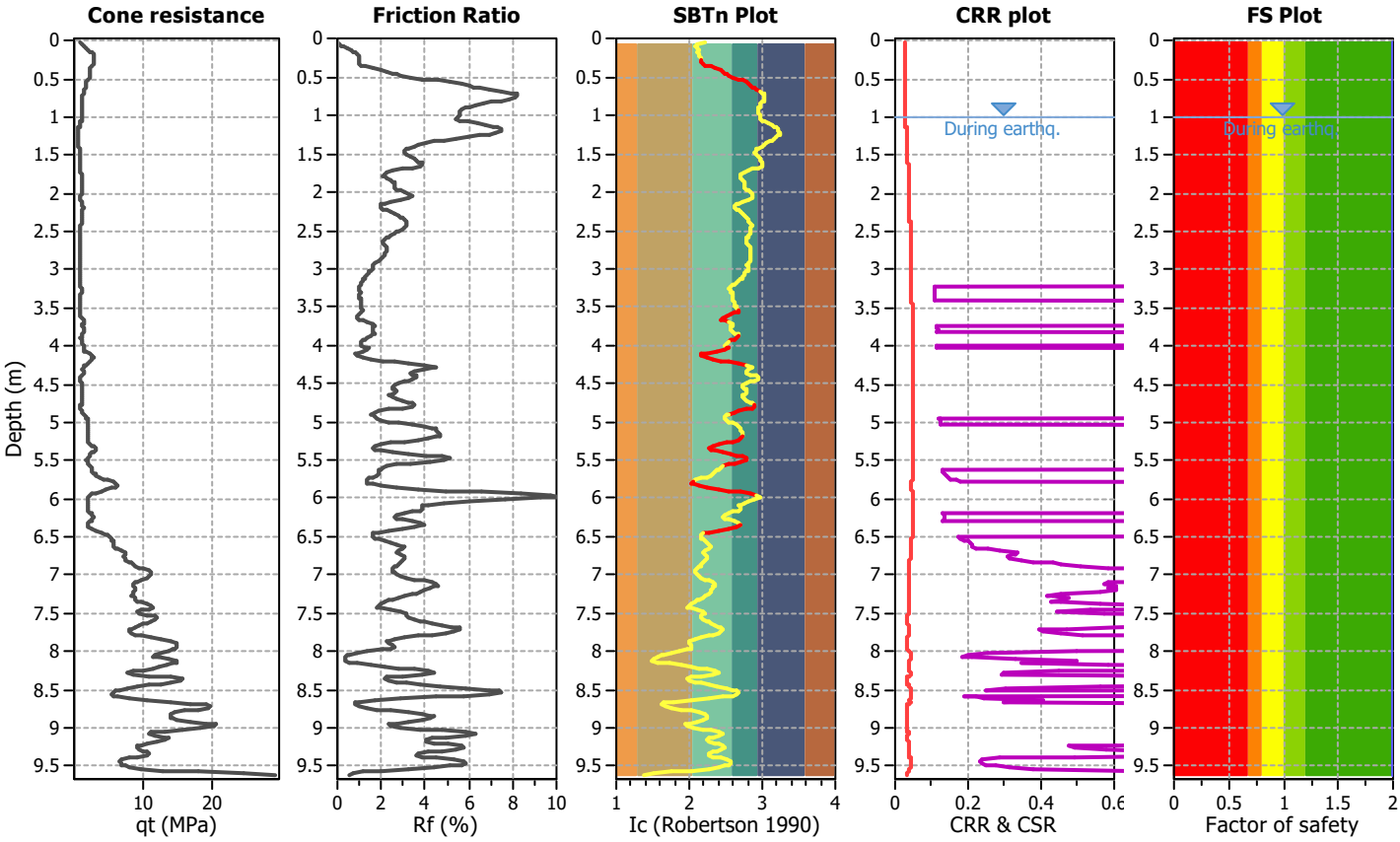
LIQUEFACTION ANALYSIS REPORT

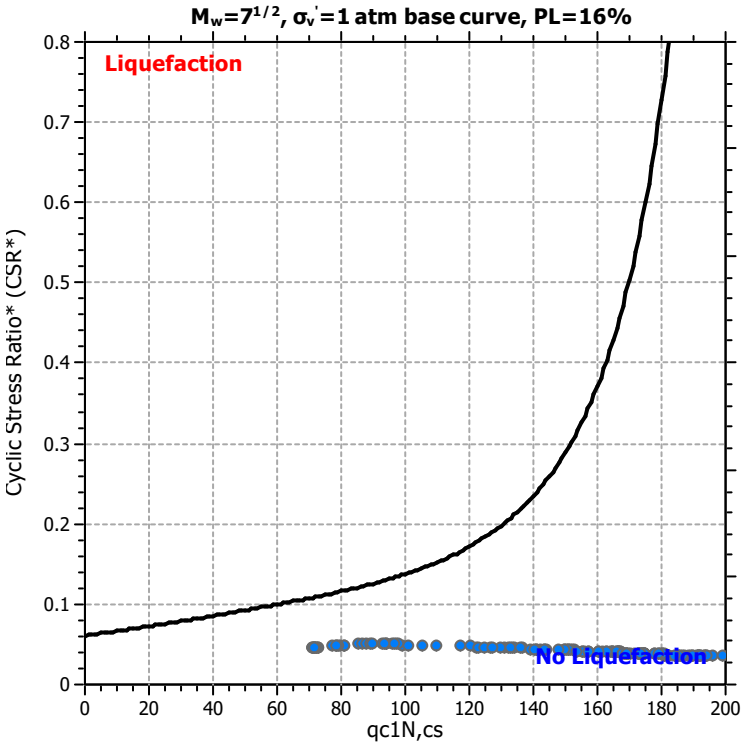
Project title : Sunfield Landholding **Location :**

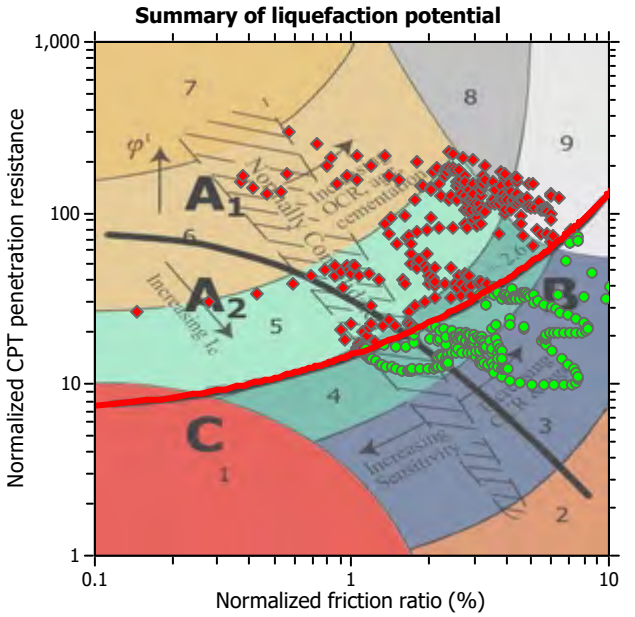
CPT file : CPT127

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.00 m	Excavation depth:	0.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

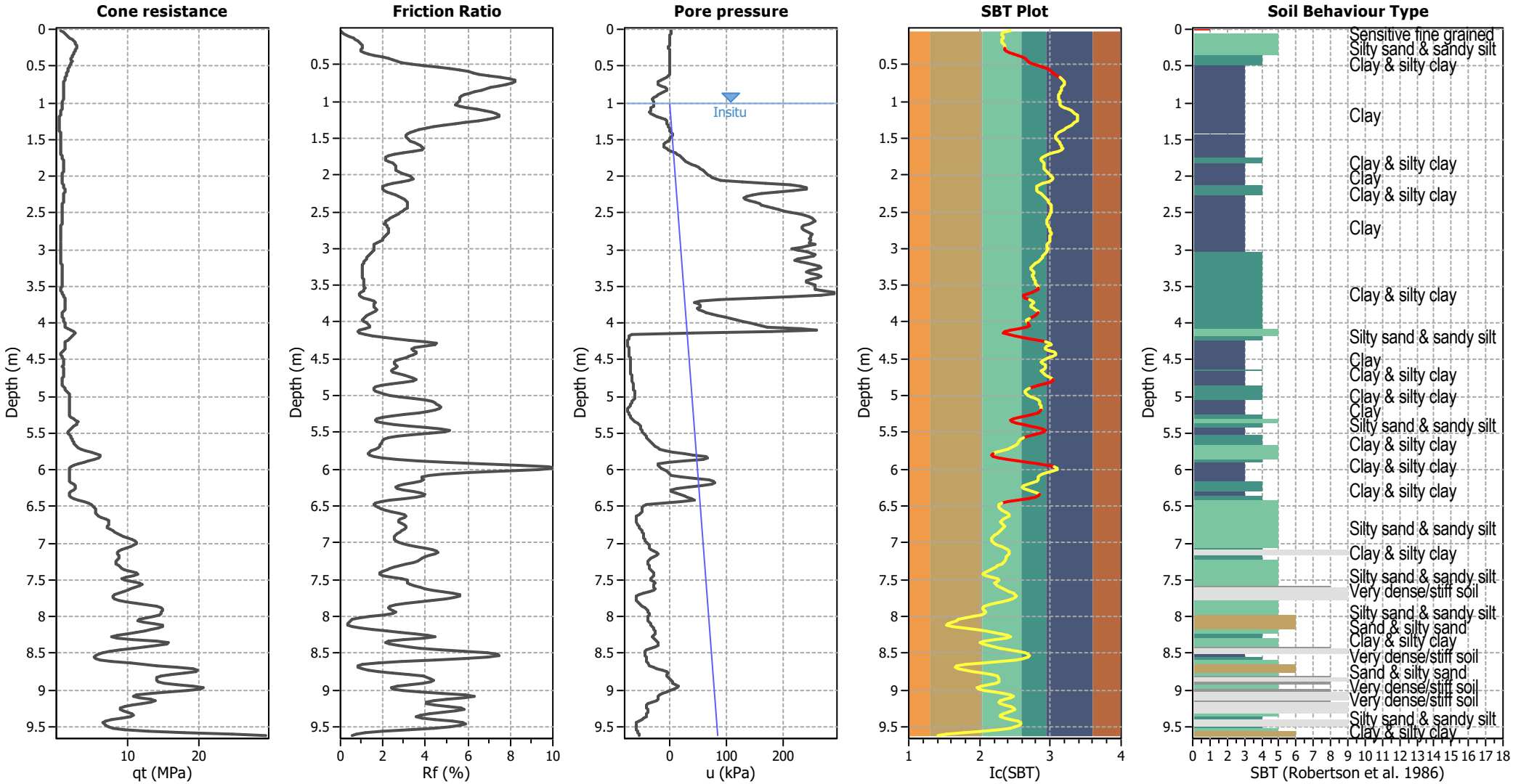






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



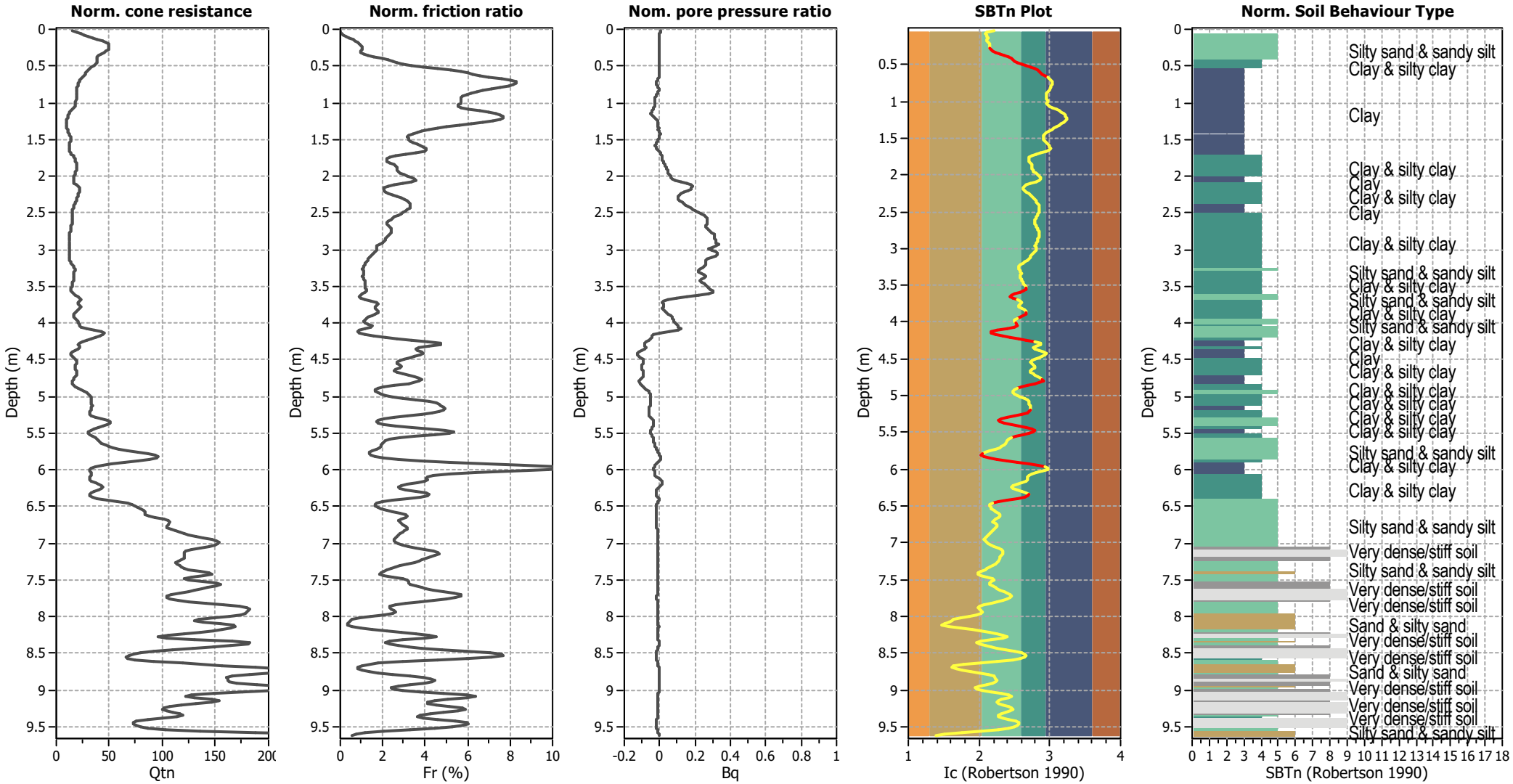
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBTn legend

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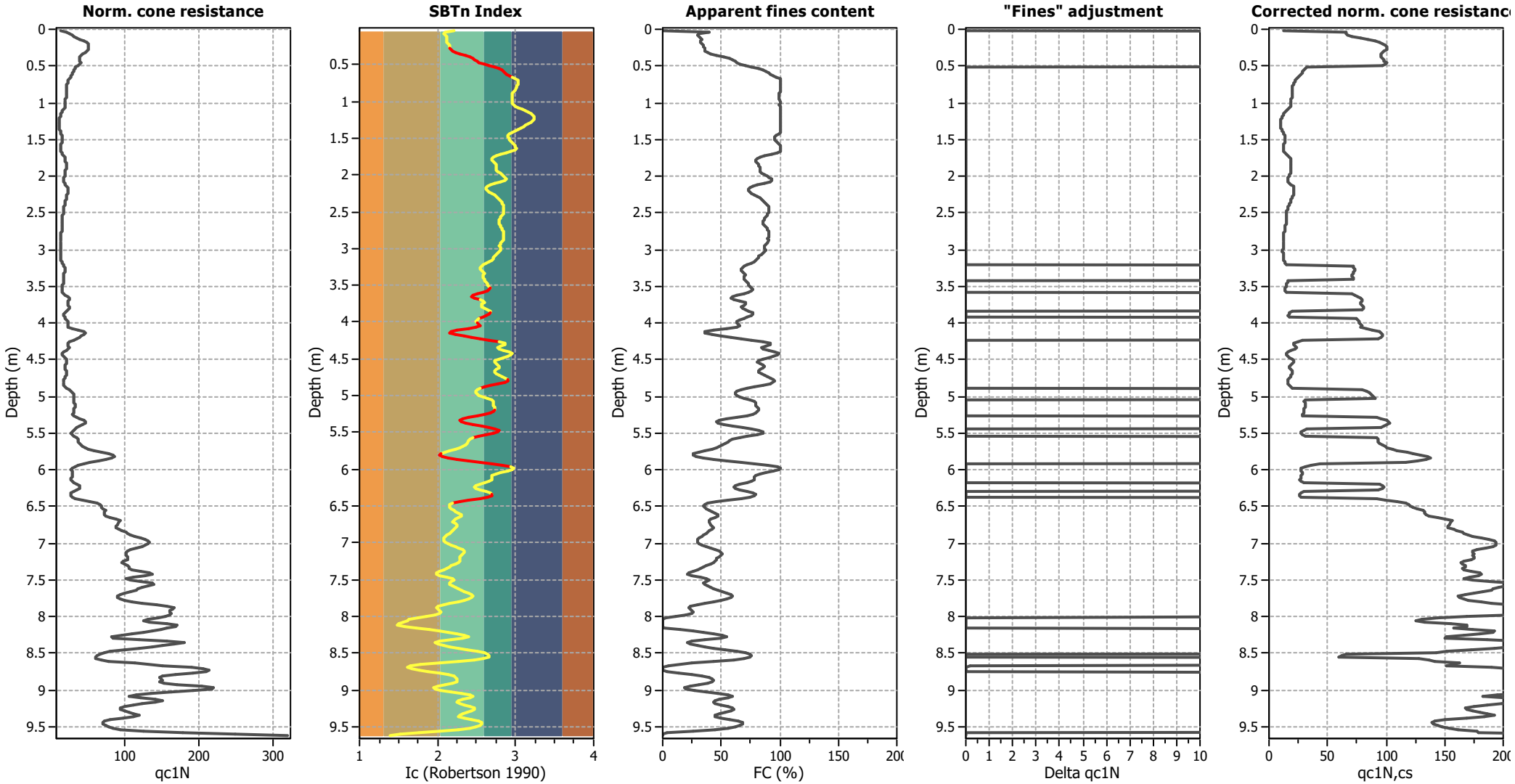
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

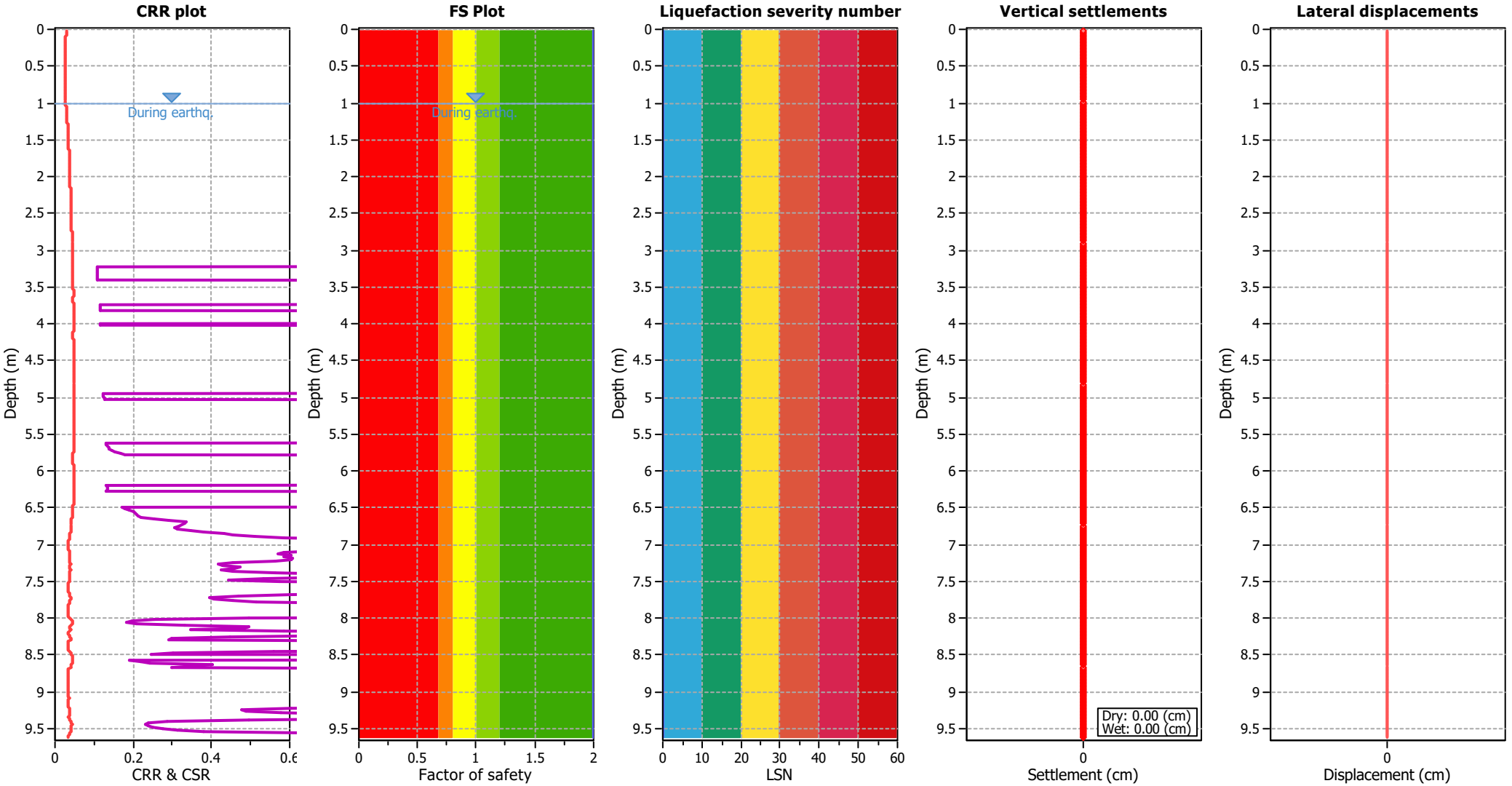
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

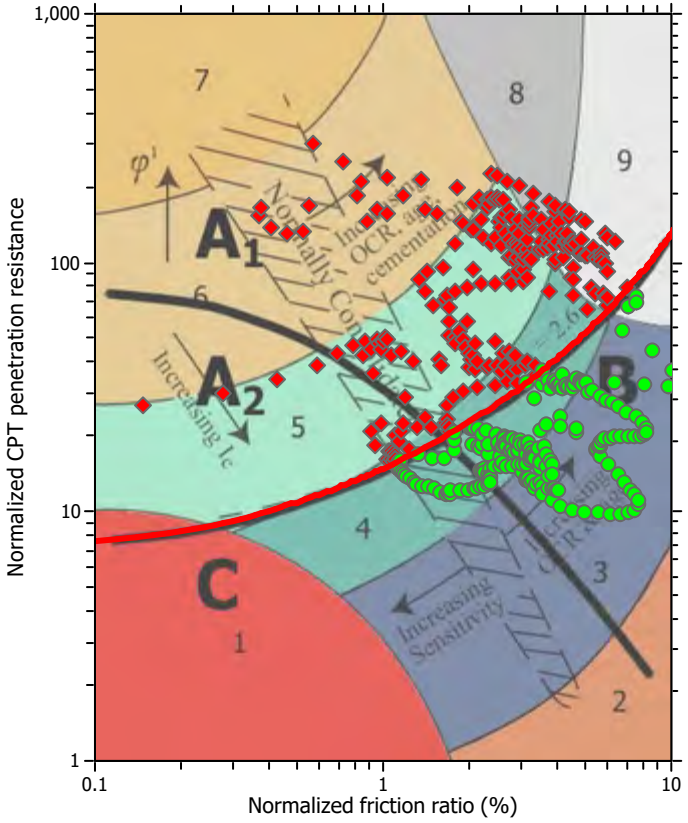
F.S. color scheme

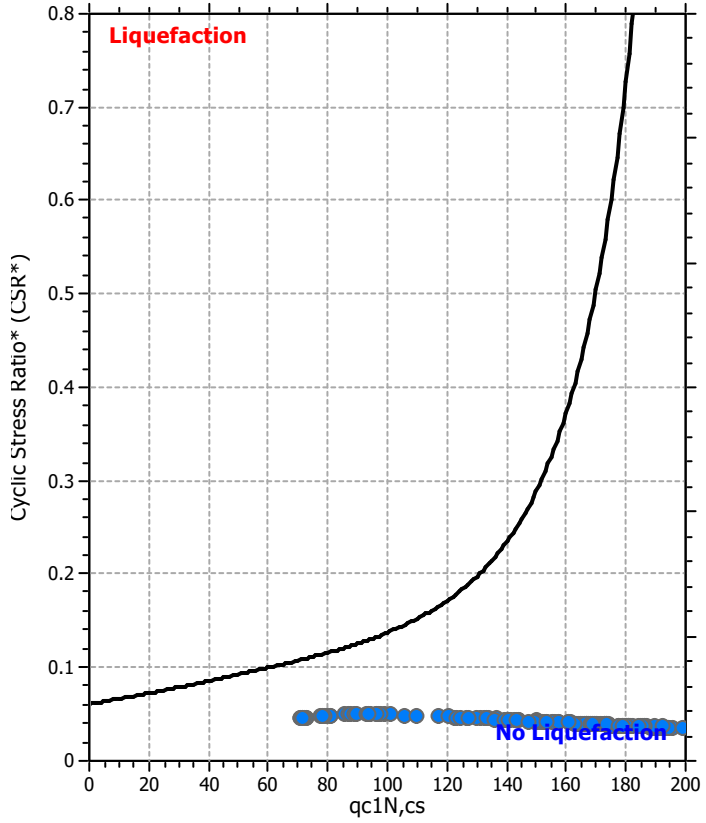
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

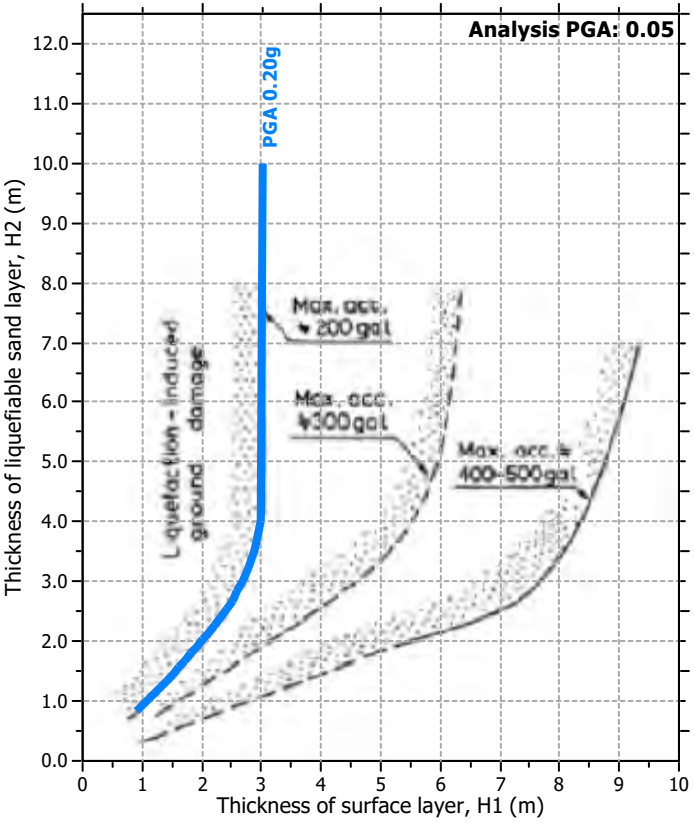
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



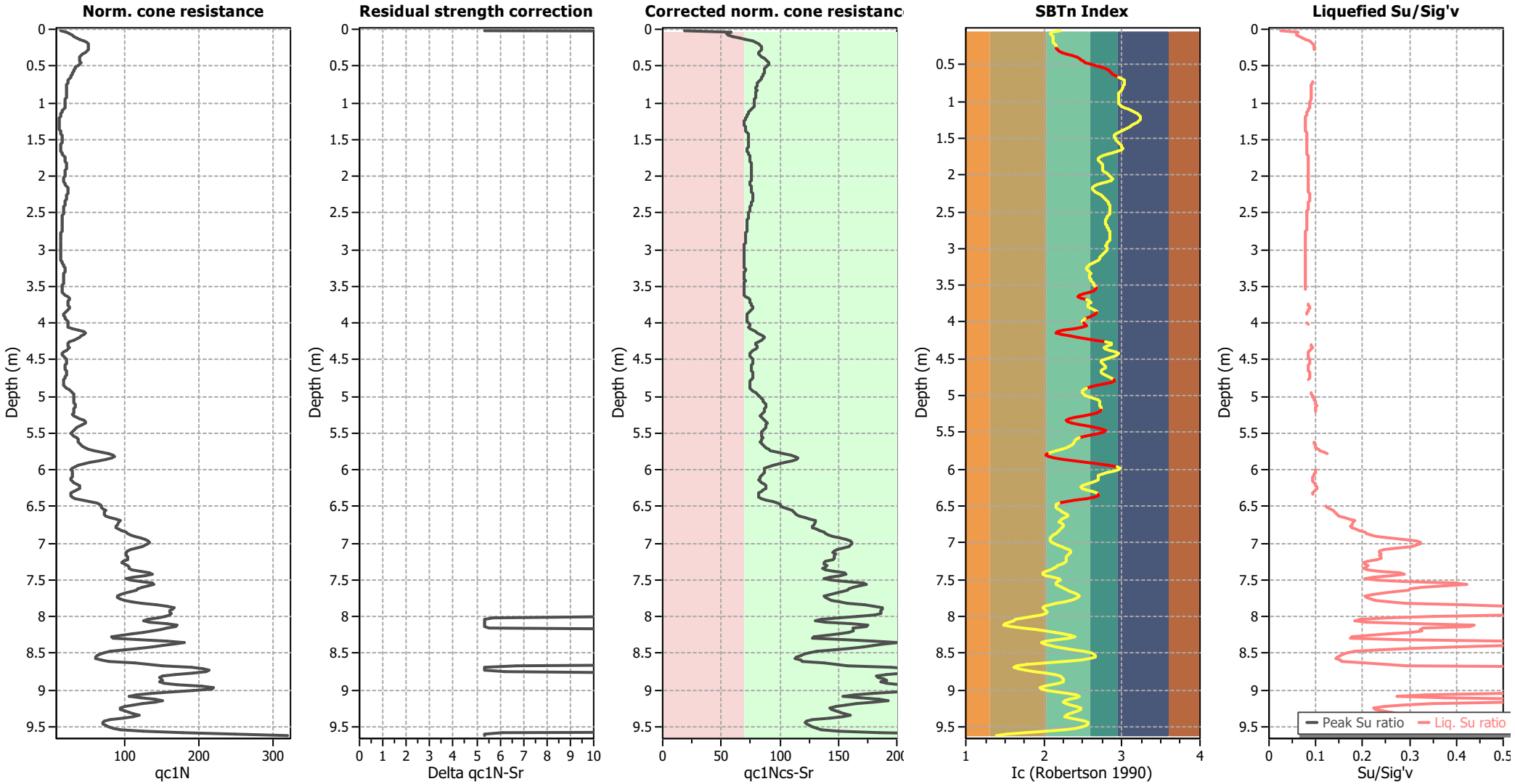




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

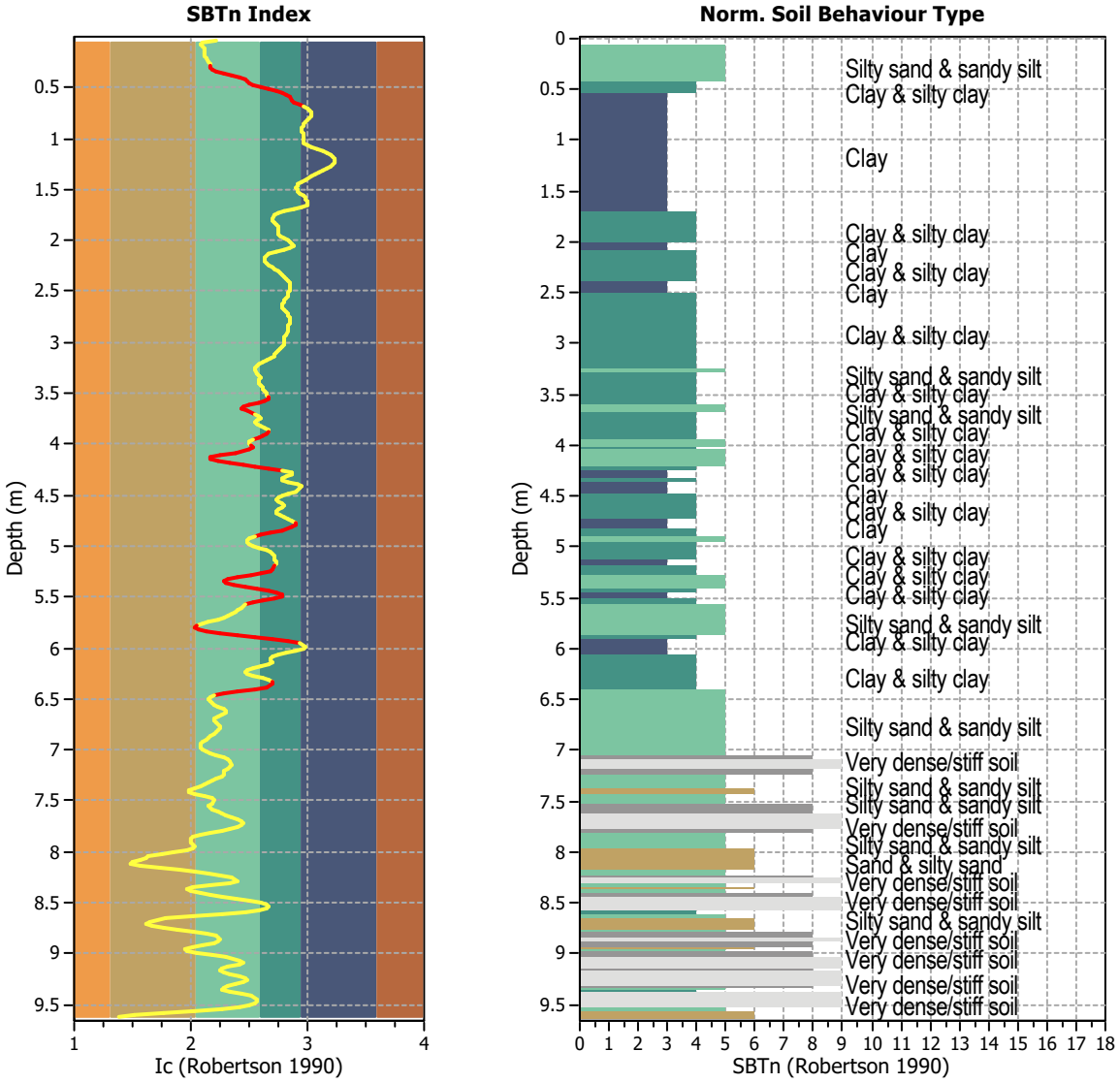
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



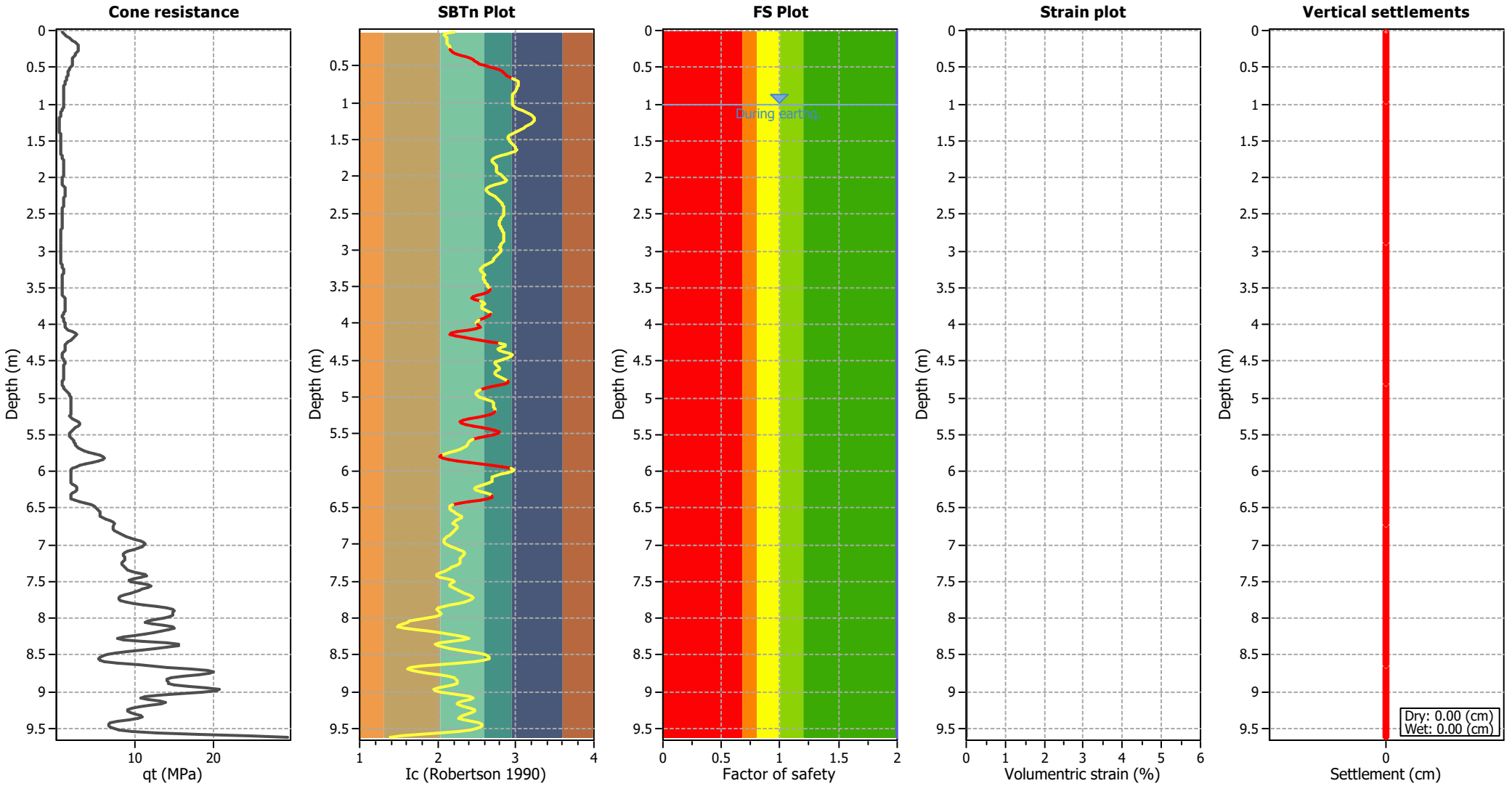
Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	481
Total points excluded:	92
Exclusion percentage:	19.13%
Number of layers detected:	12

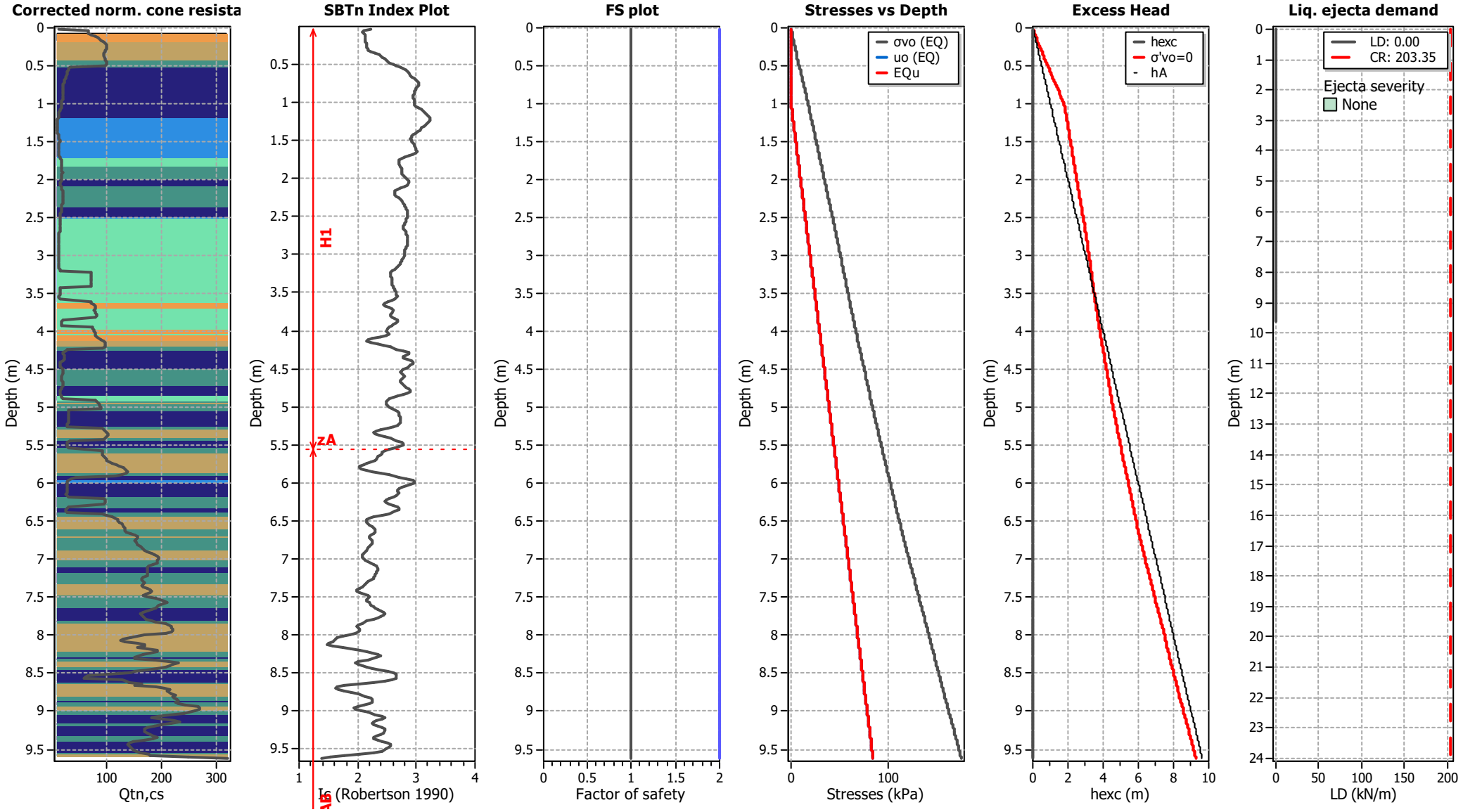
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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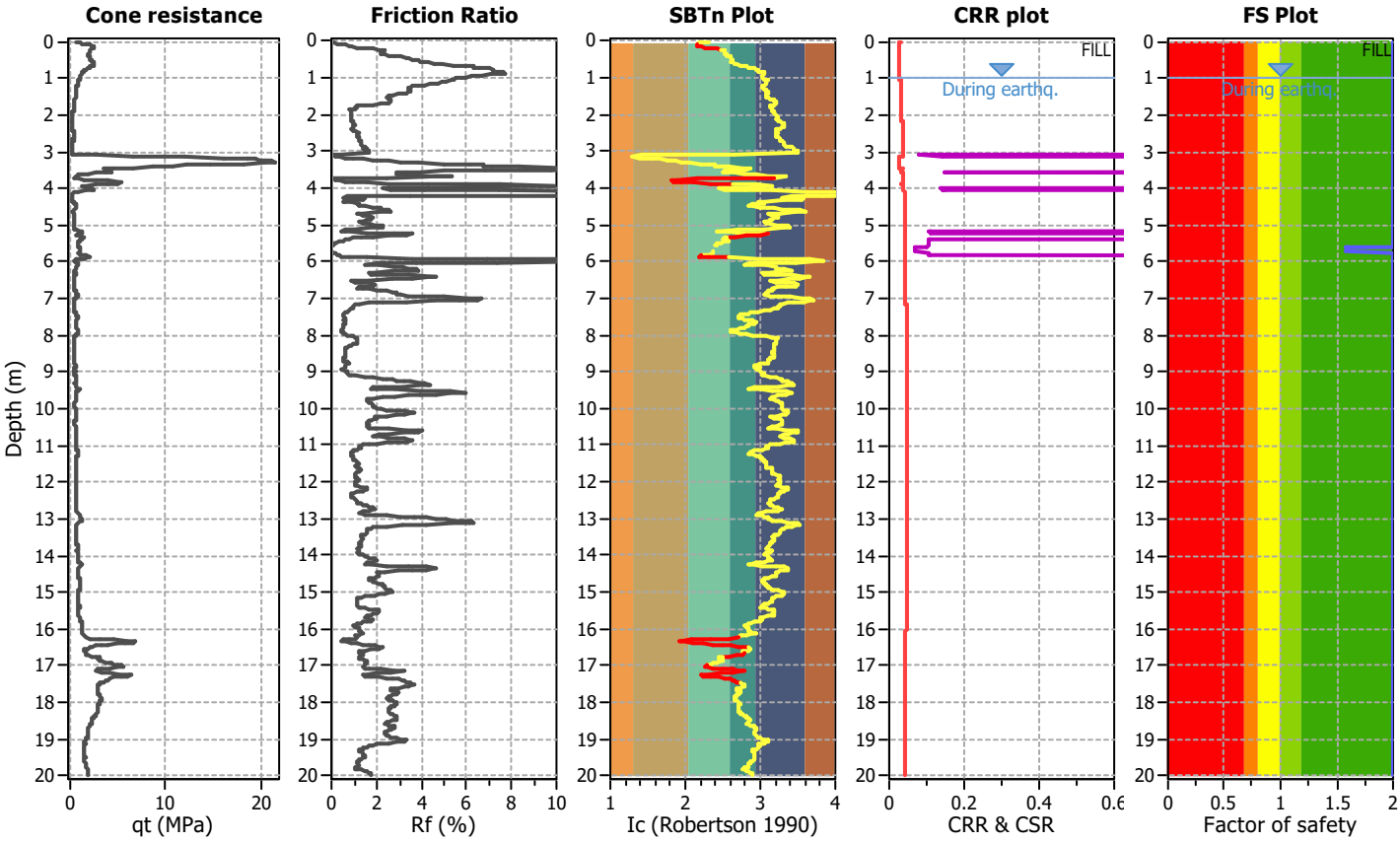
LIQUEFACTION ANALYSIS REPORT

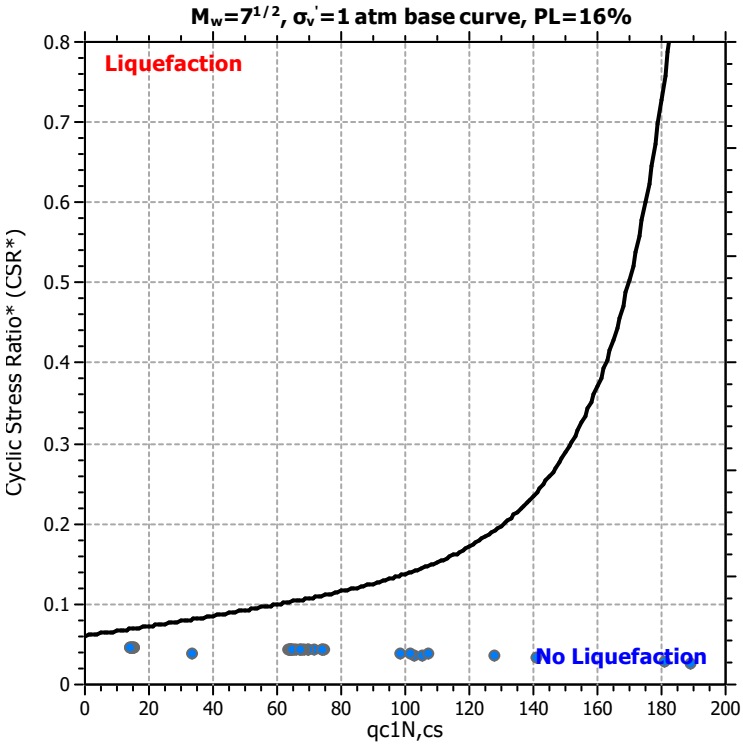
Project title : Sunfield Landholding **Location :**

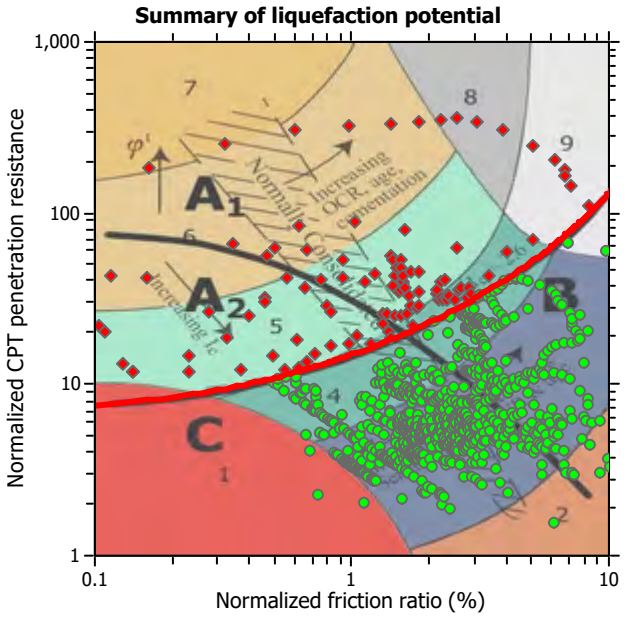
CPT file : CPT130

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	37.00 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

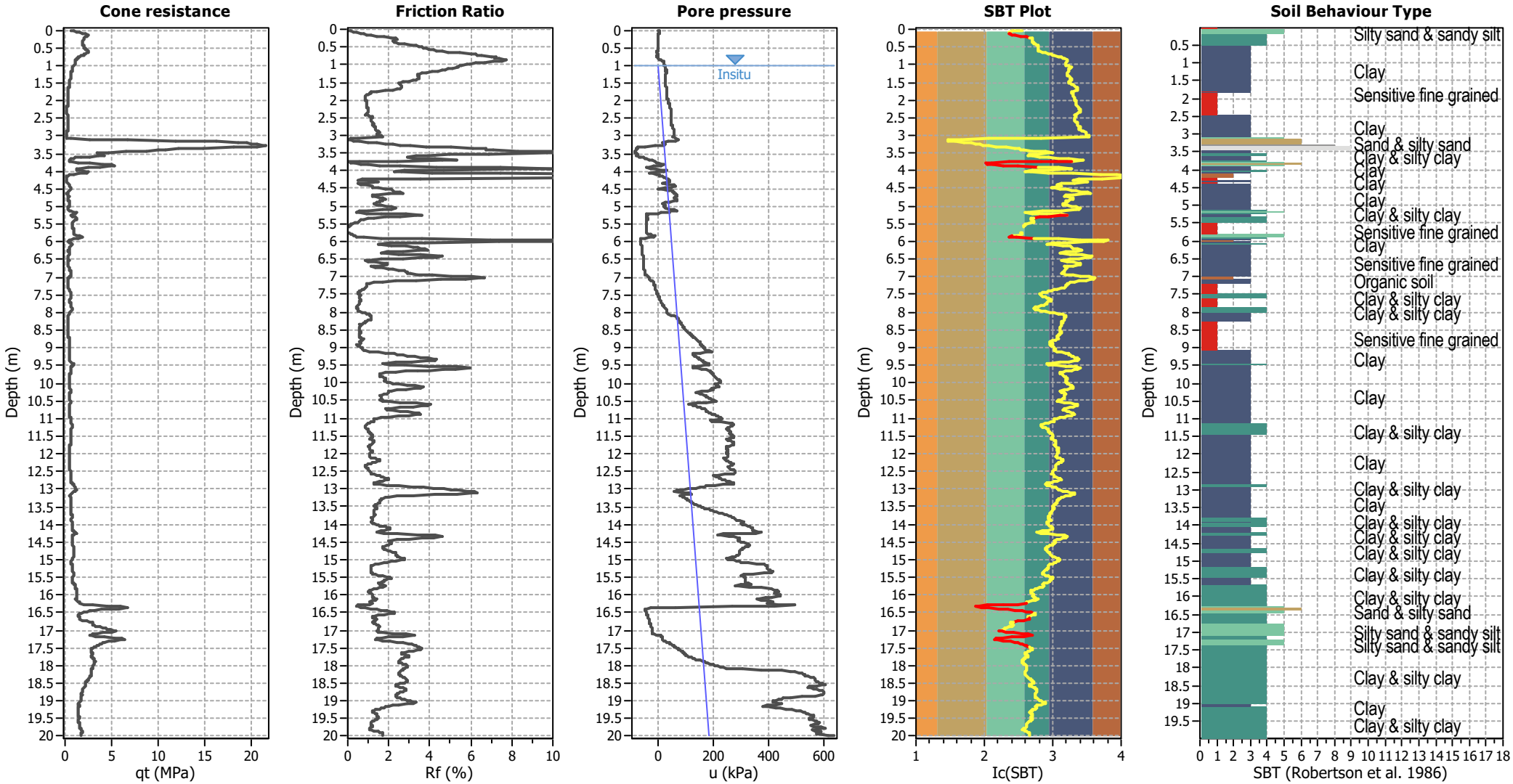






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



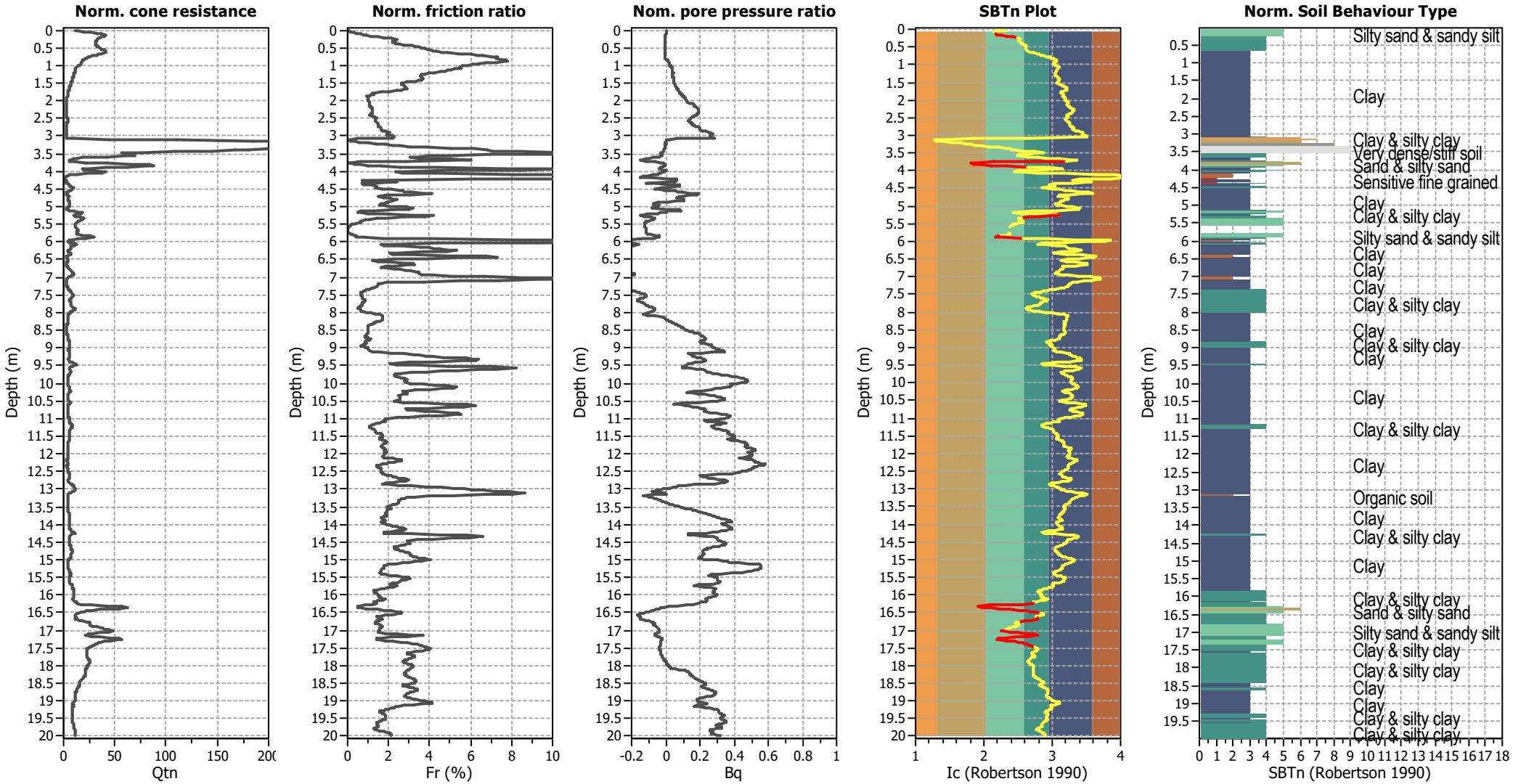
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



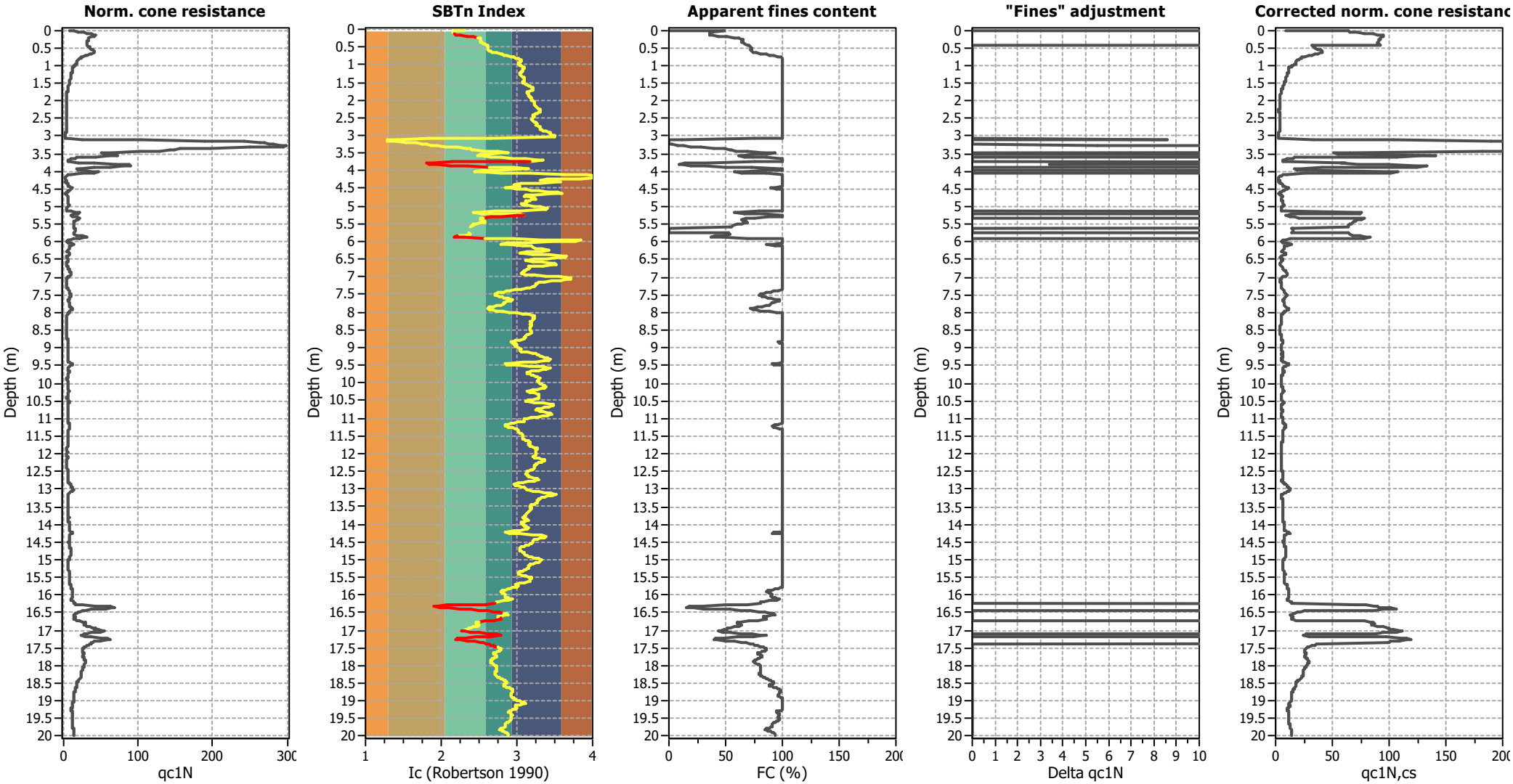
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

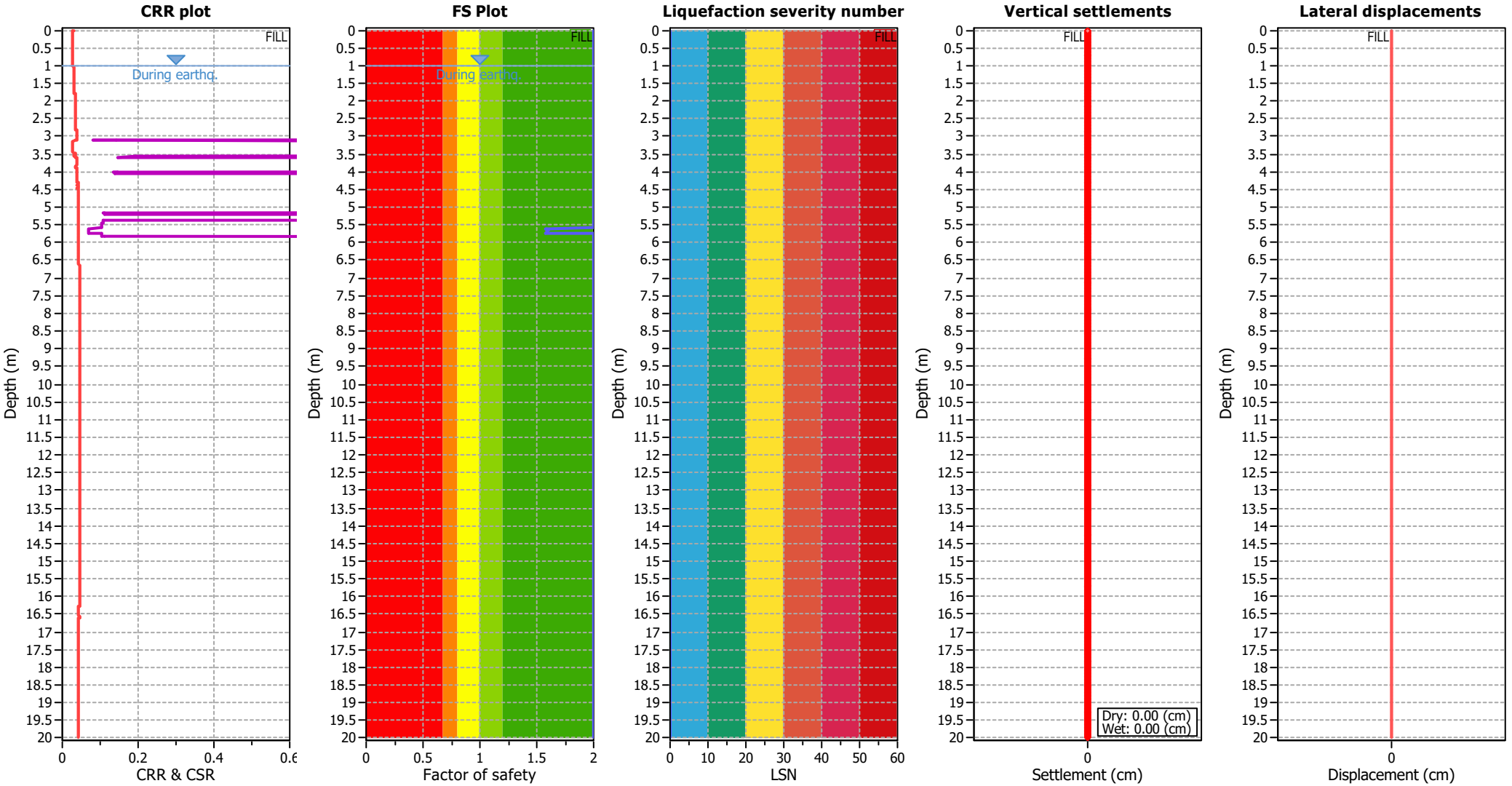
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

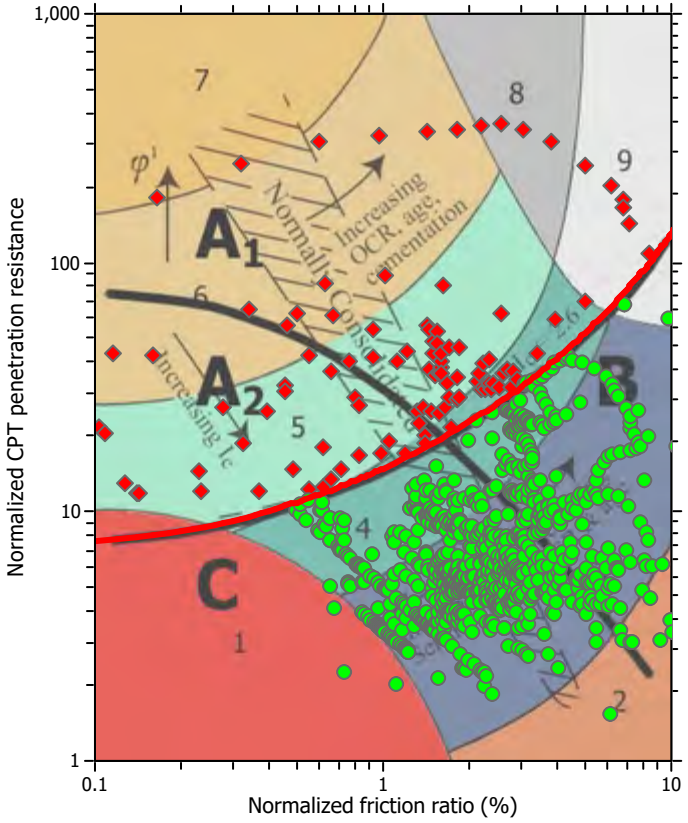
F.S. color scheme

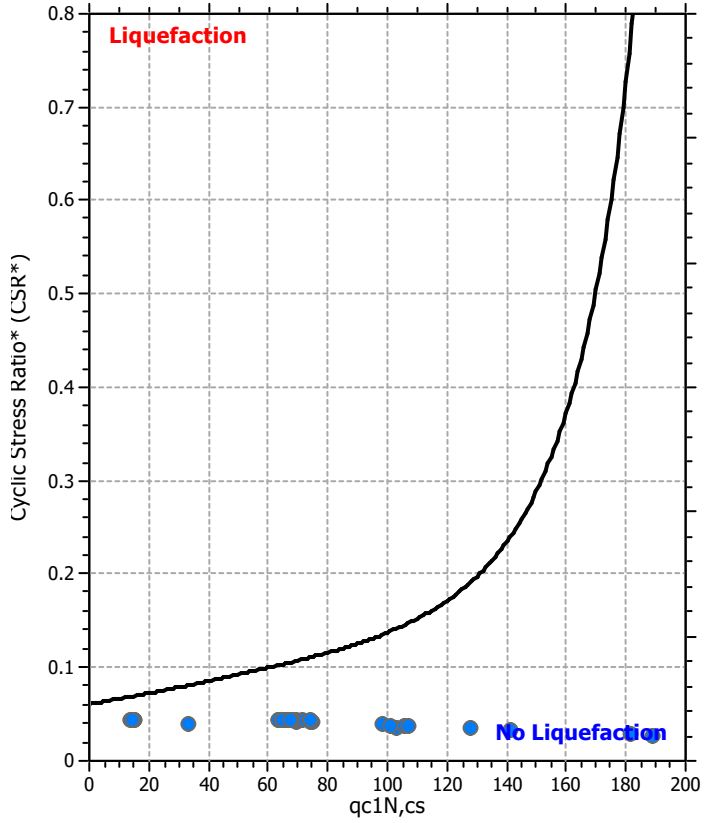
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

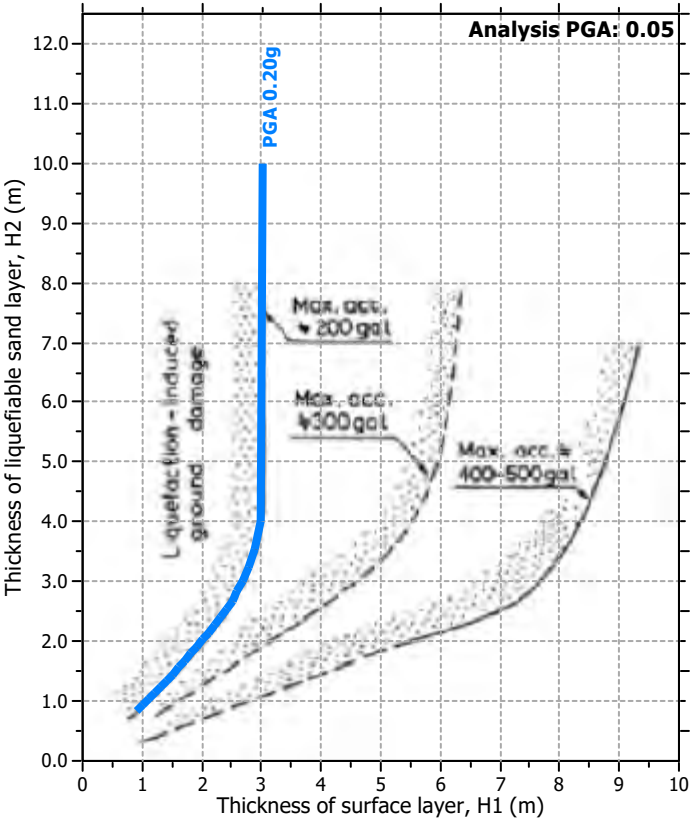
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



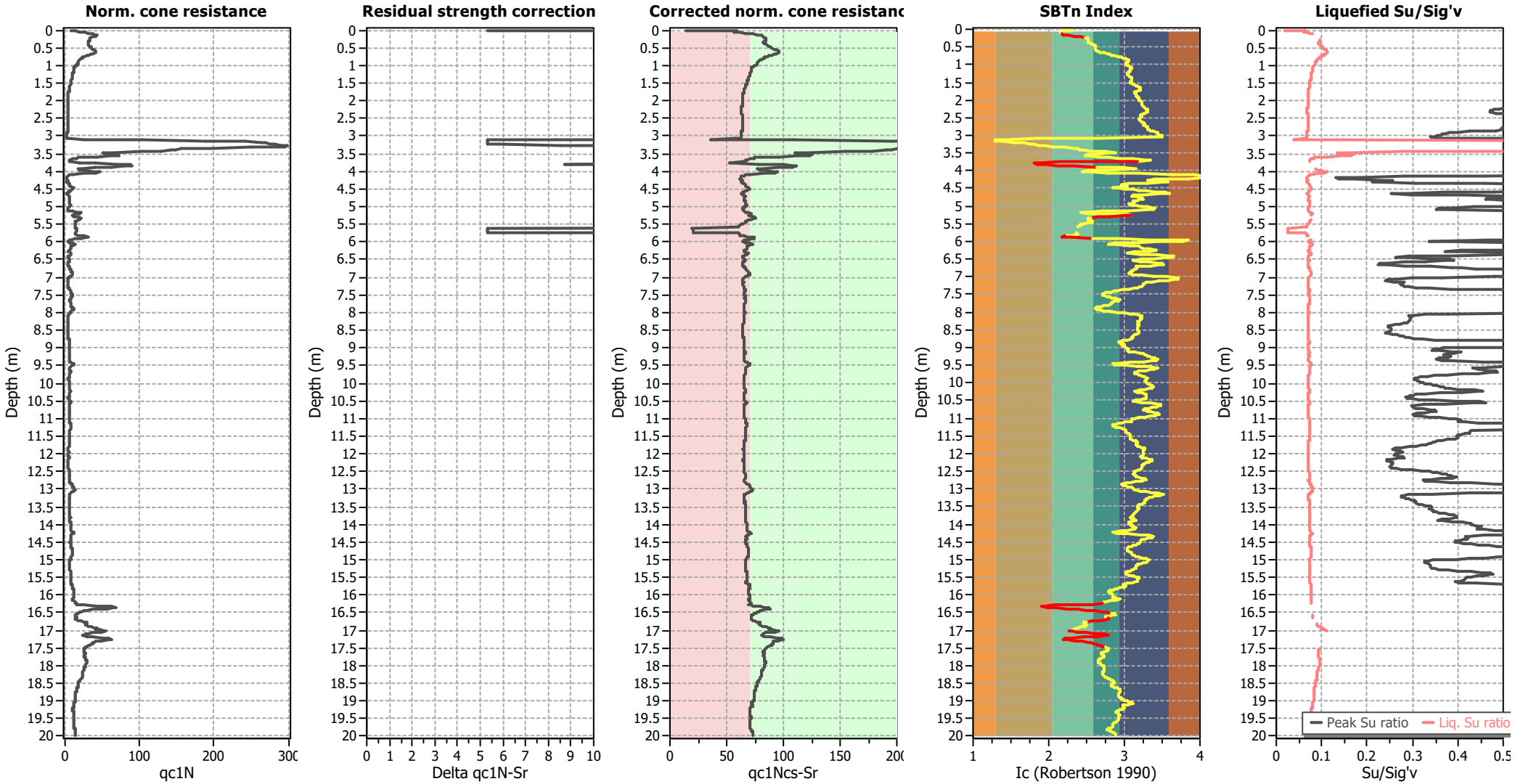




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

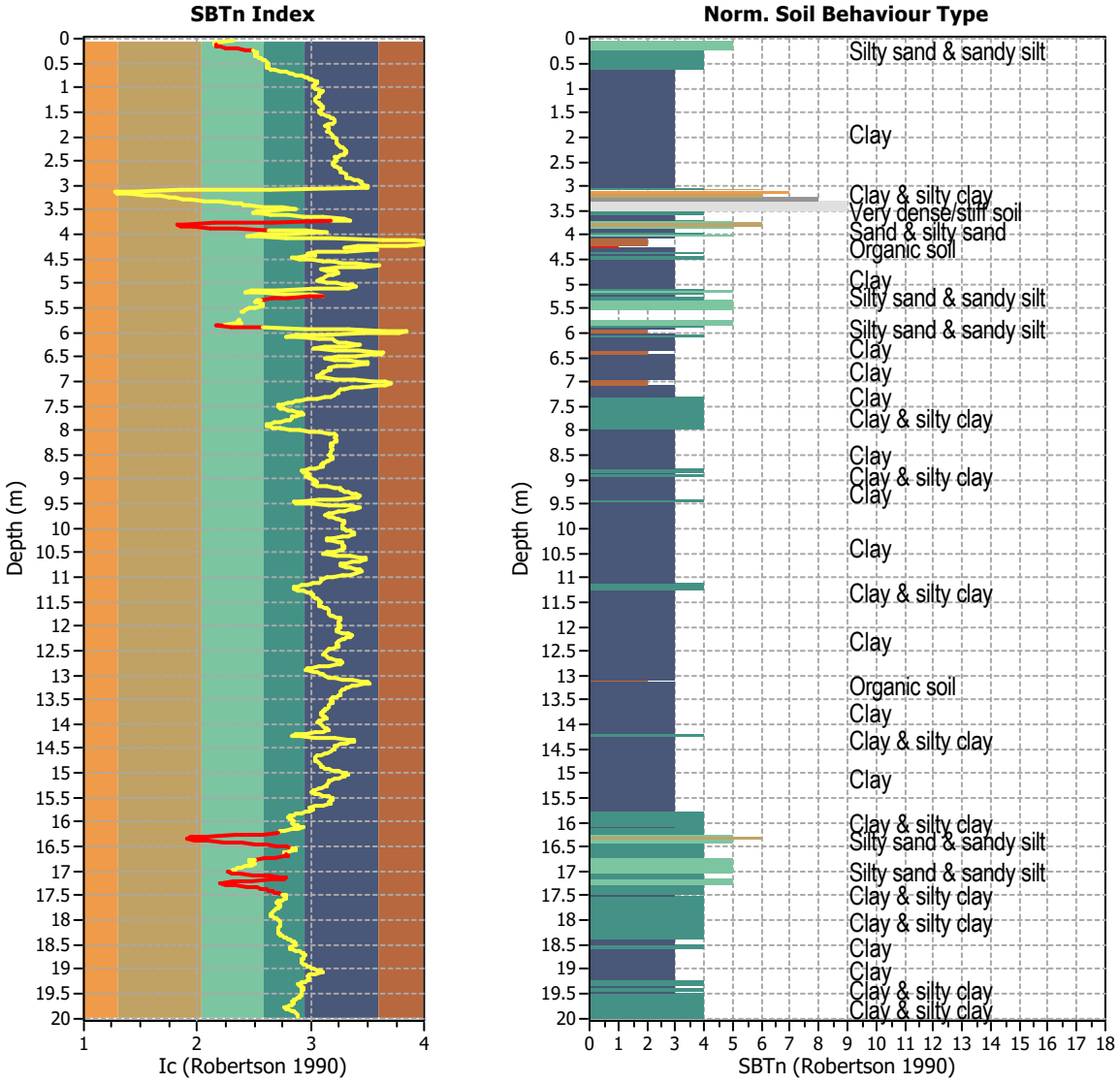
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

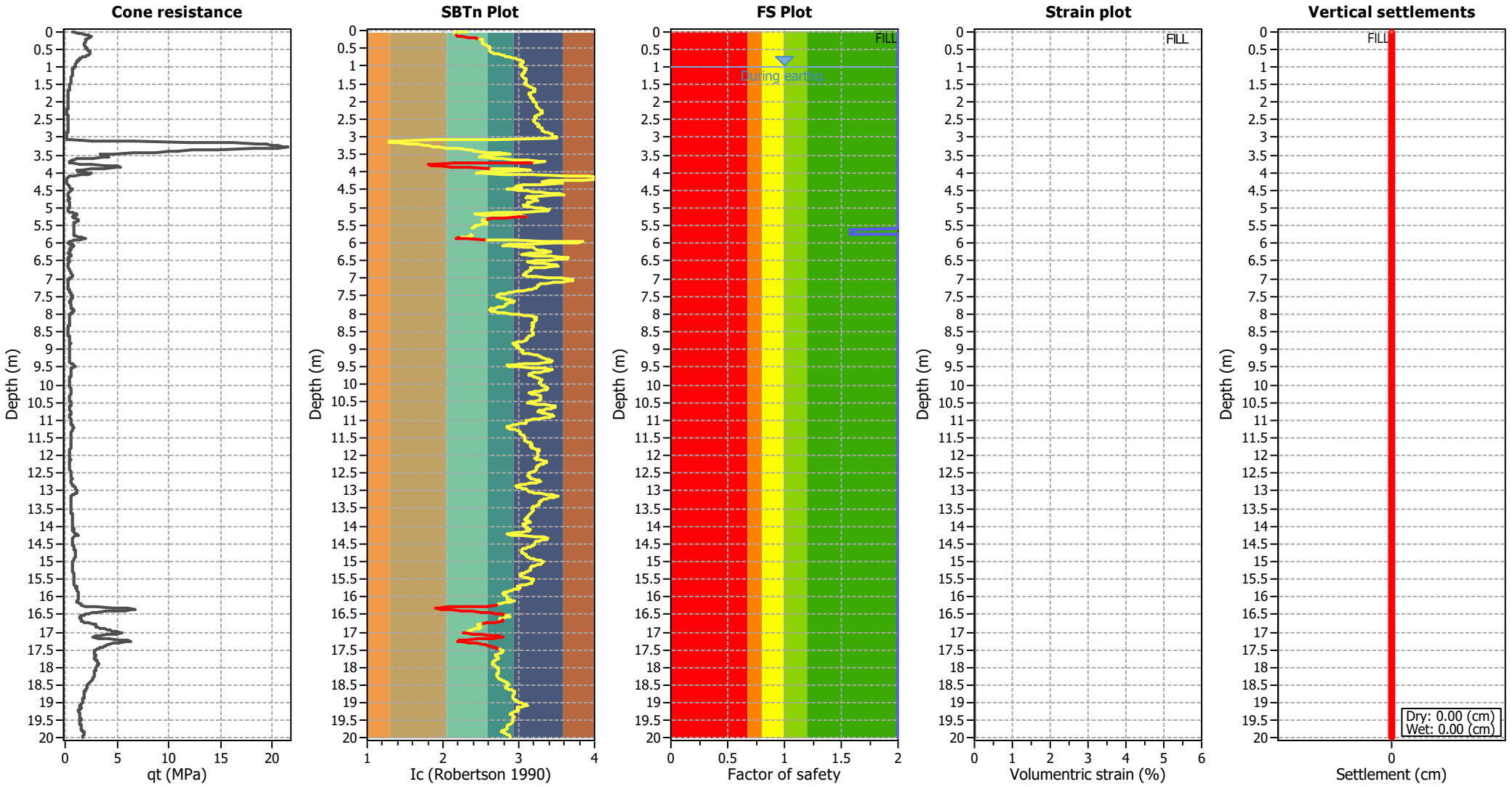
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	999
I_c maximum check value:	3.00	Total points excluded:	76
I_c change ratio value:	0.0100	Exclusion percentage:	7.61%
Minimum number of points in layer:	4	Number of layers detected:	11

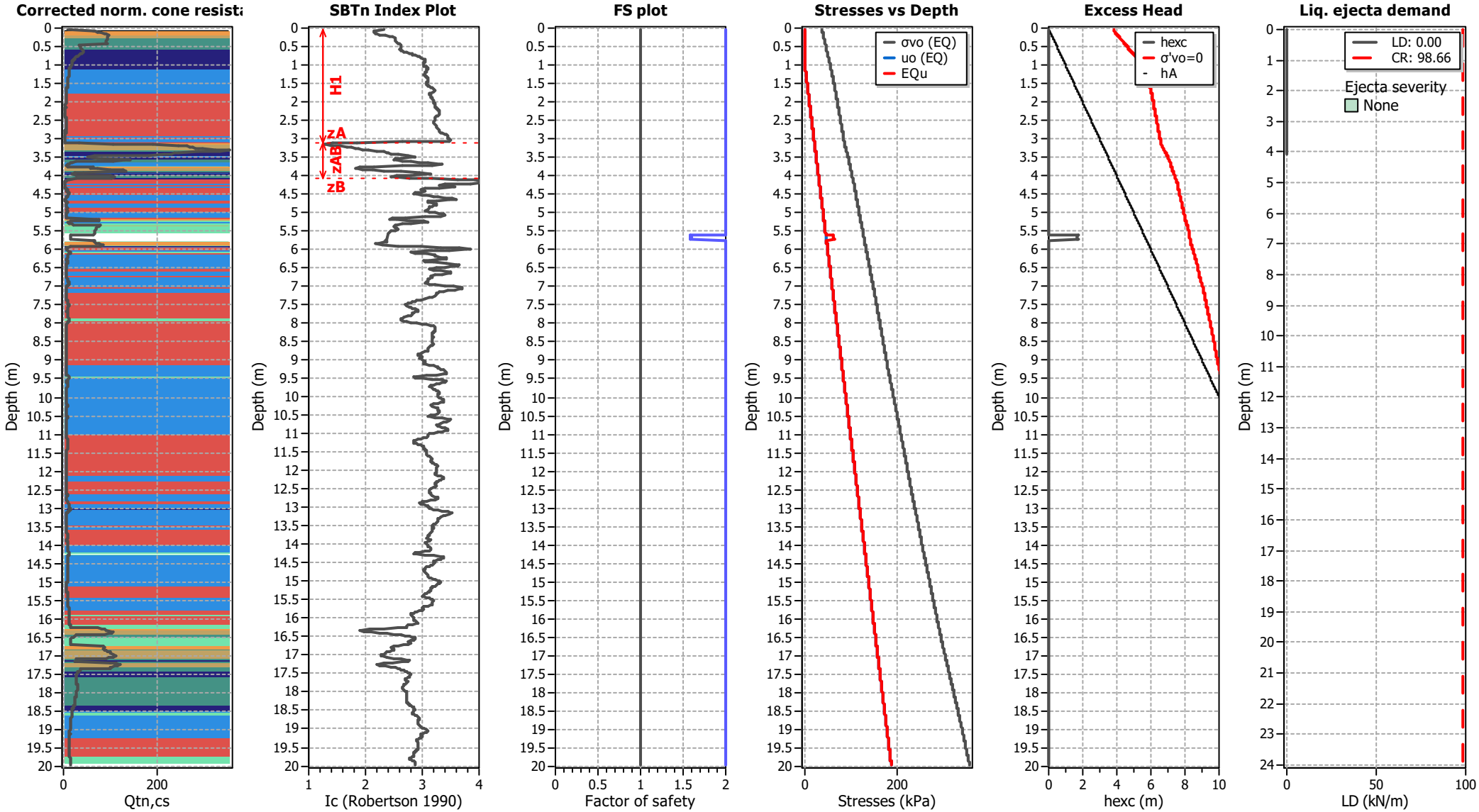
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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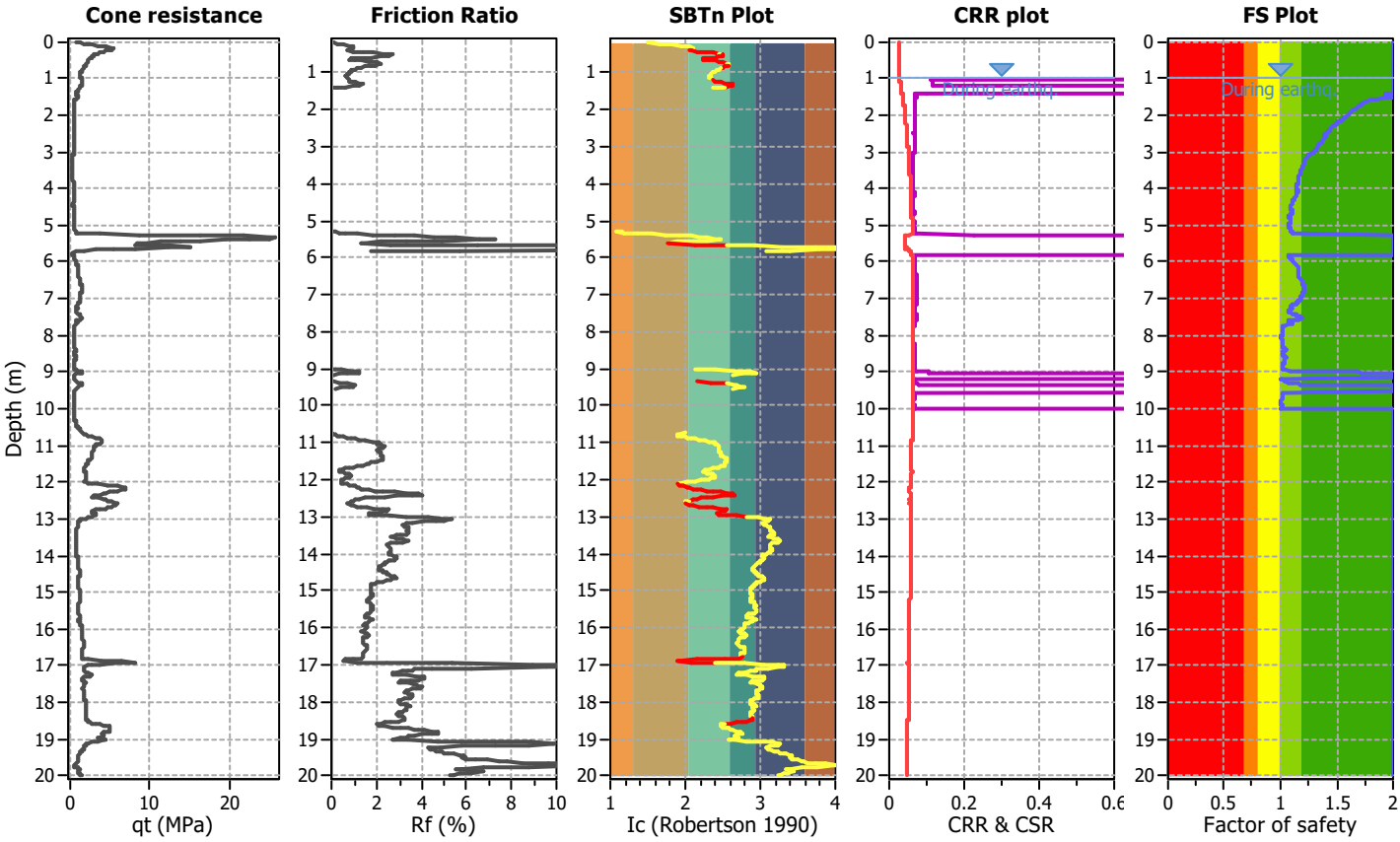
LIQUEFACTION ANALYSIS REPORT

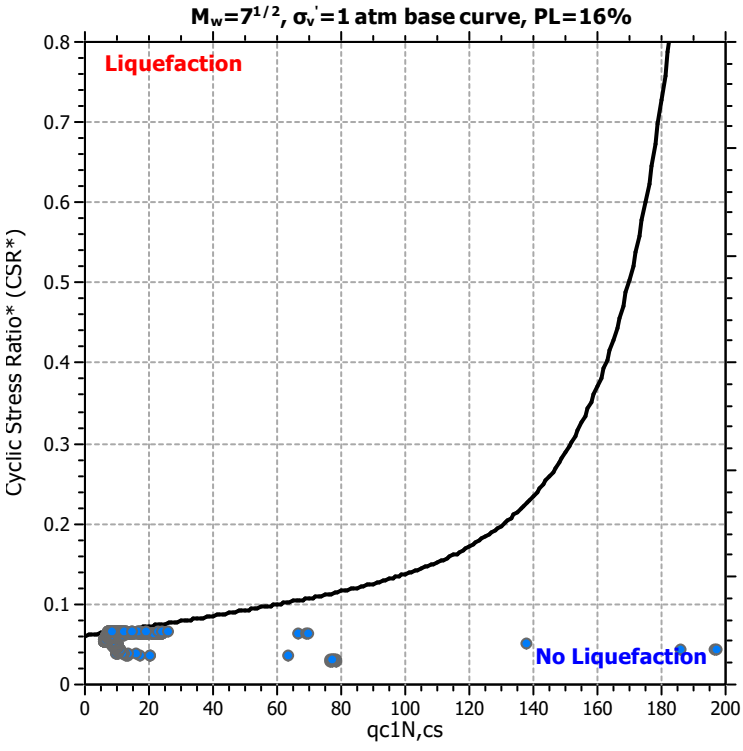
Project title : Sunfield Landholding **Location :**

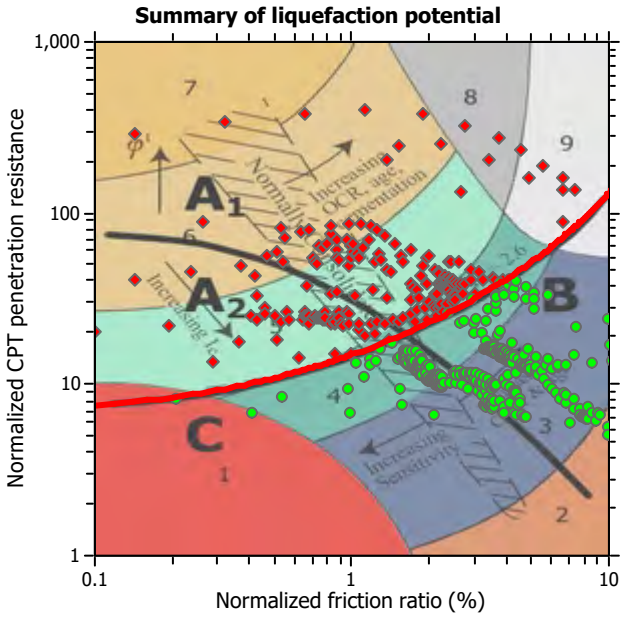
CPT file : CPT131

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.00 m	Excavation depth:	0.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

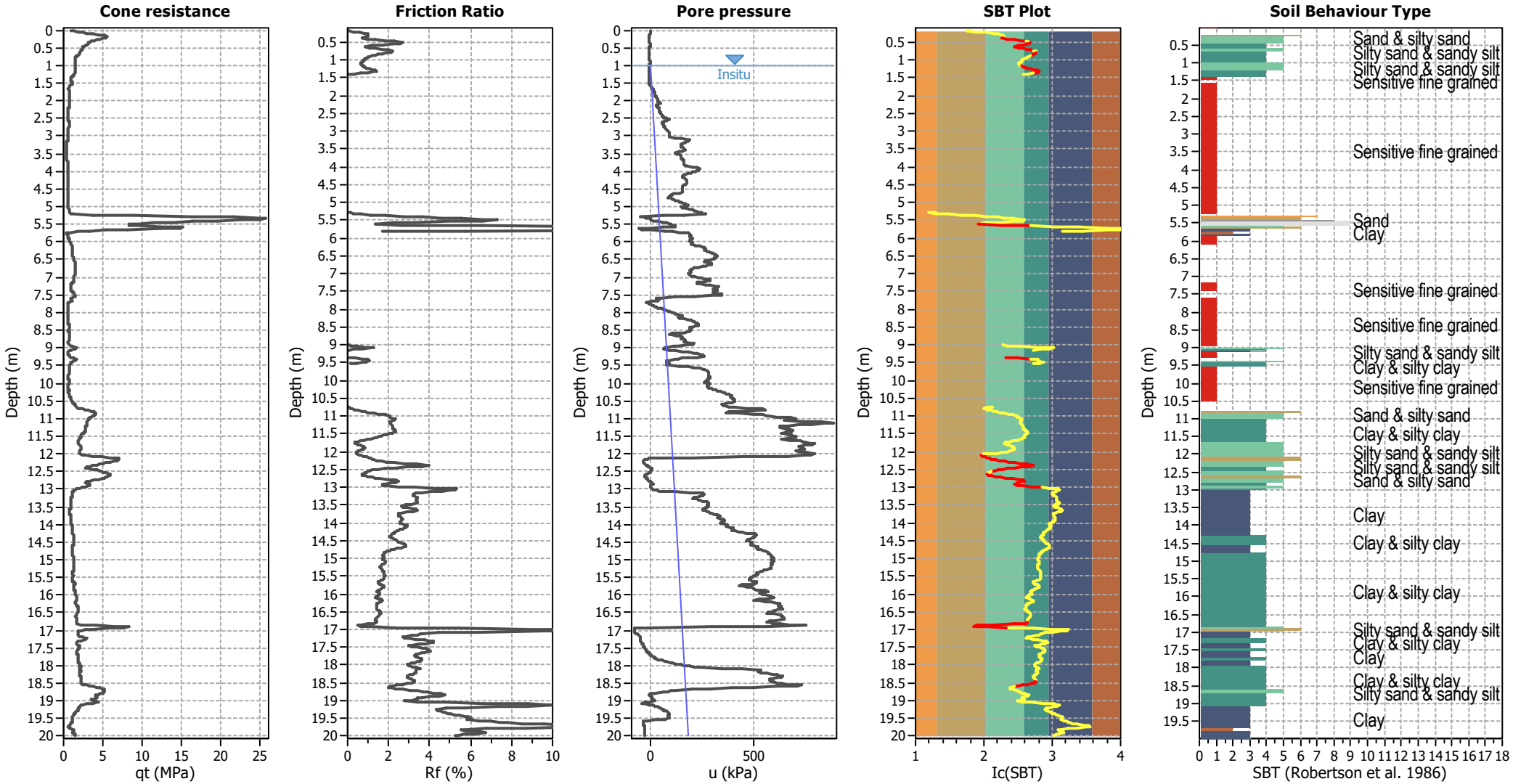






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



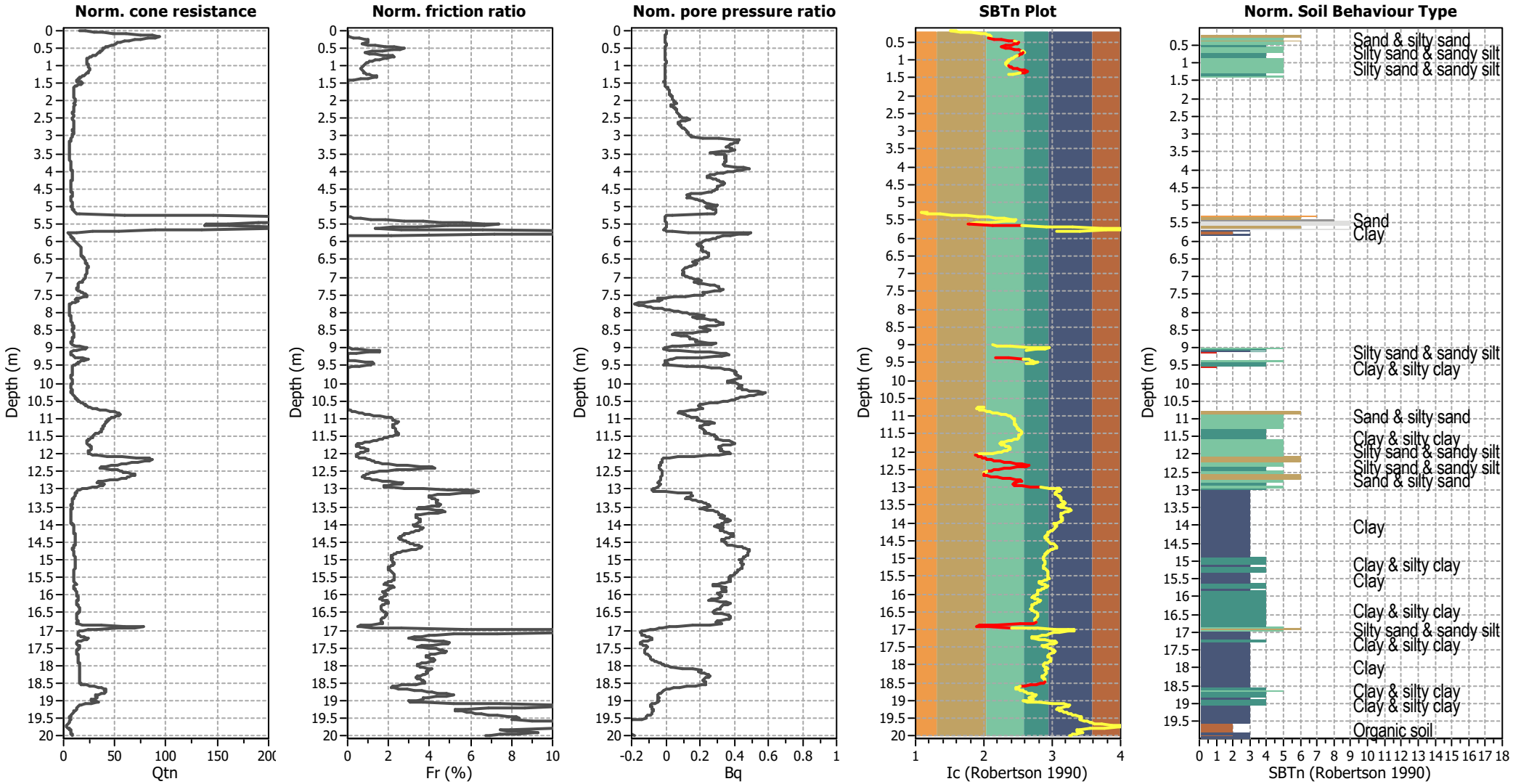
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



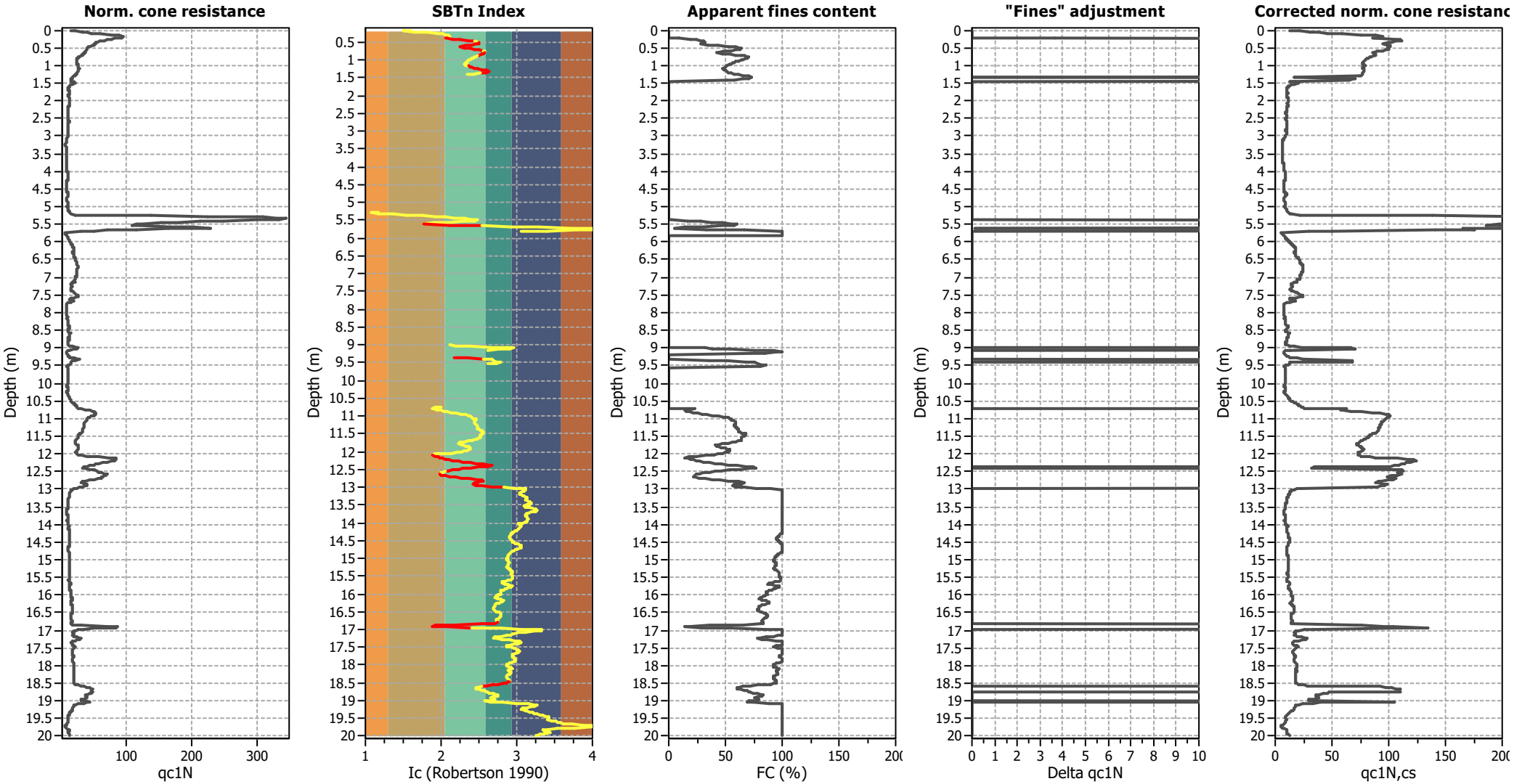
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBTn legend

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

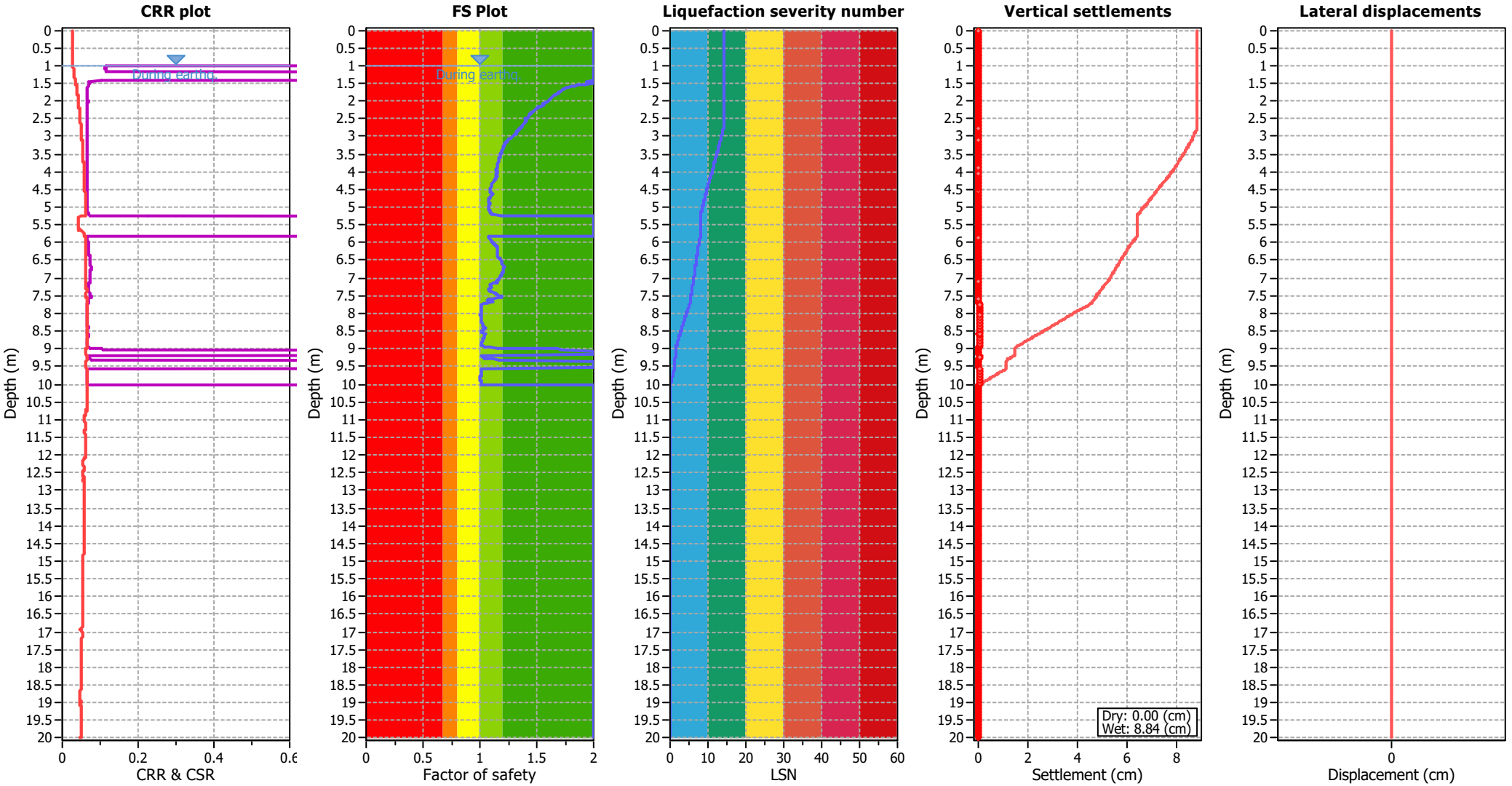
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

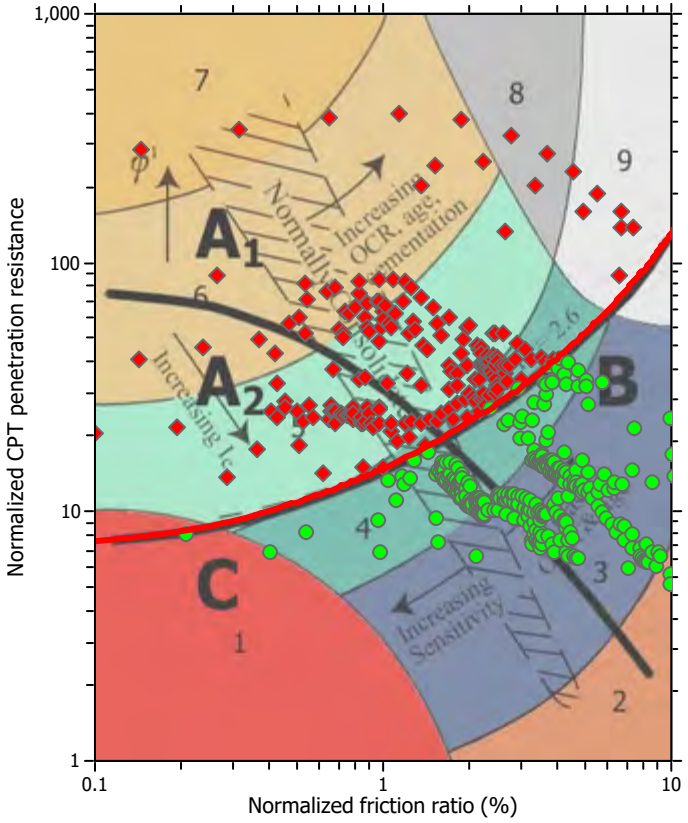
F.S. color scheme

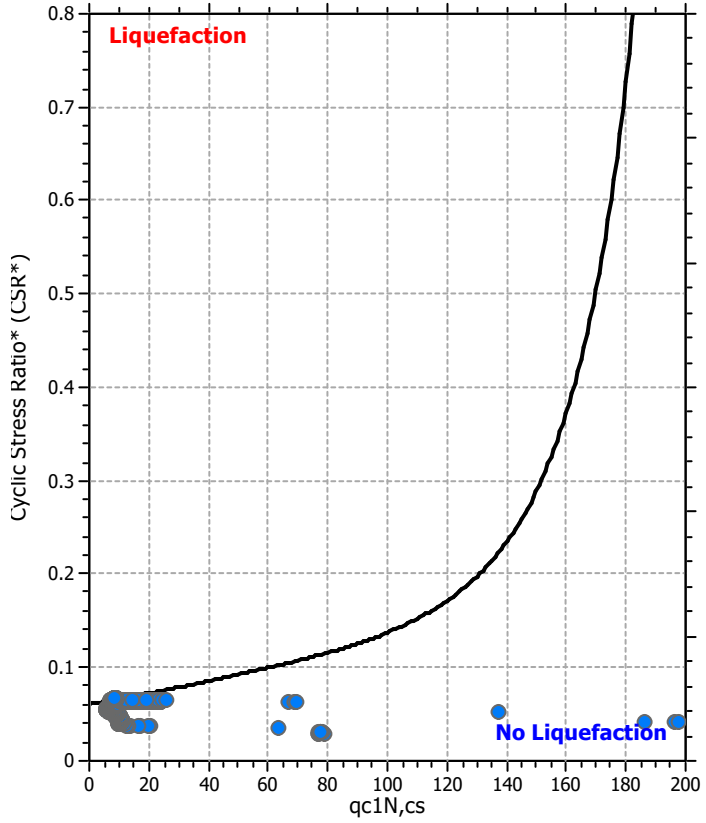
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

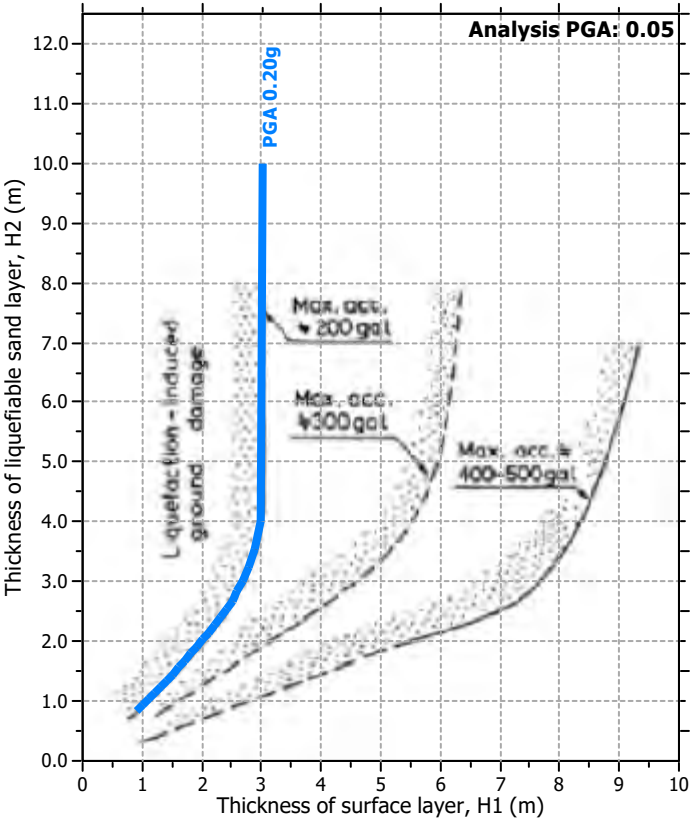
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



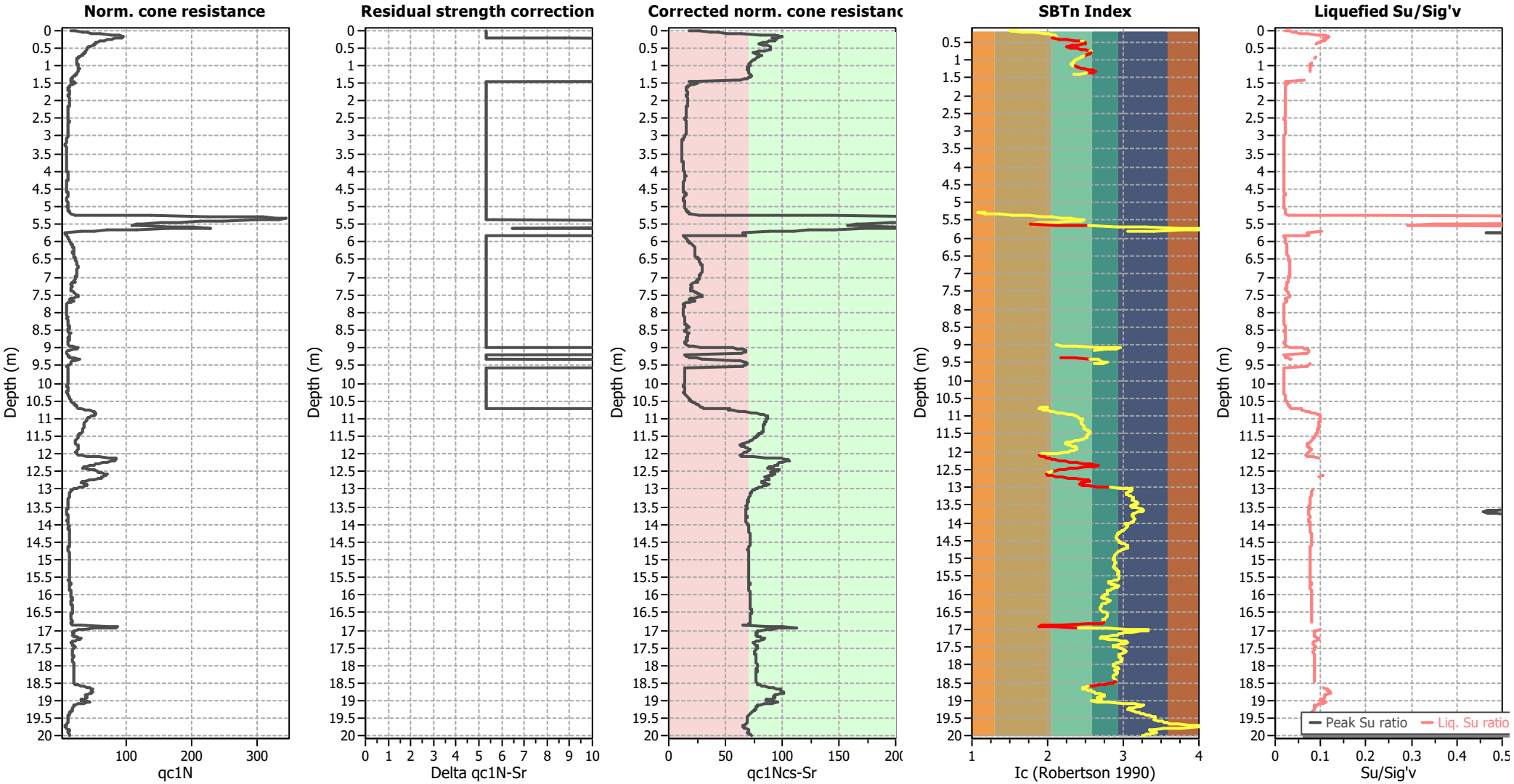




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

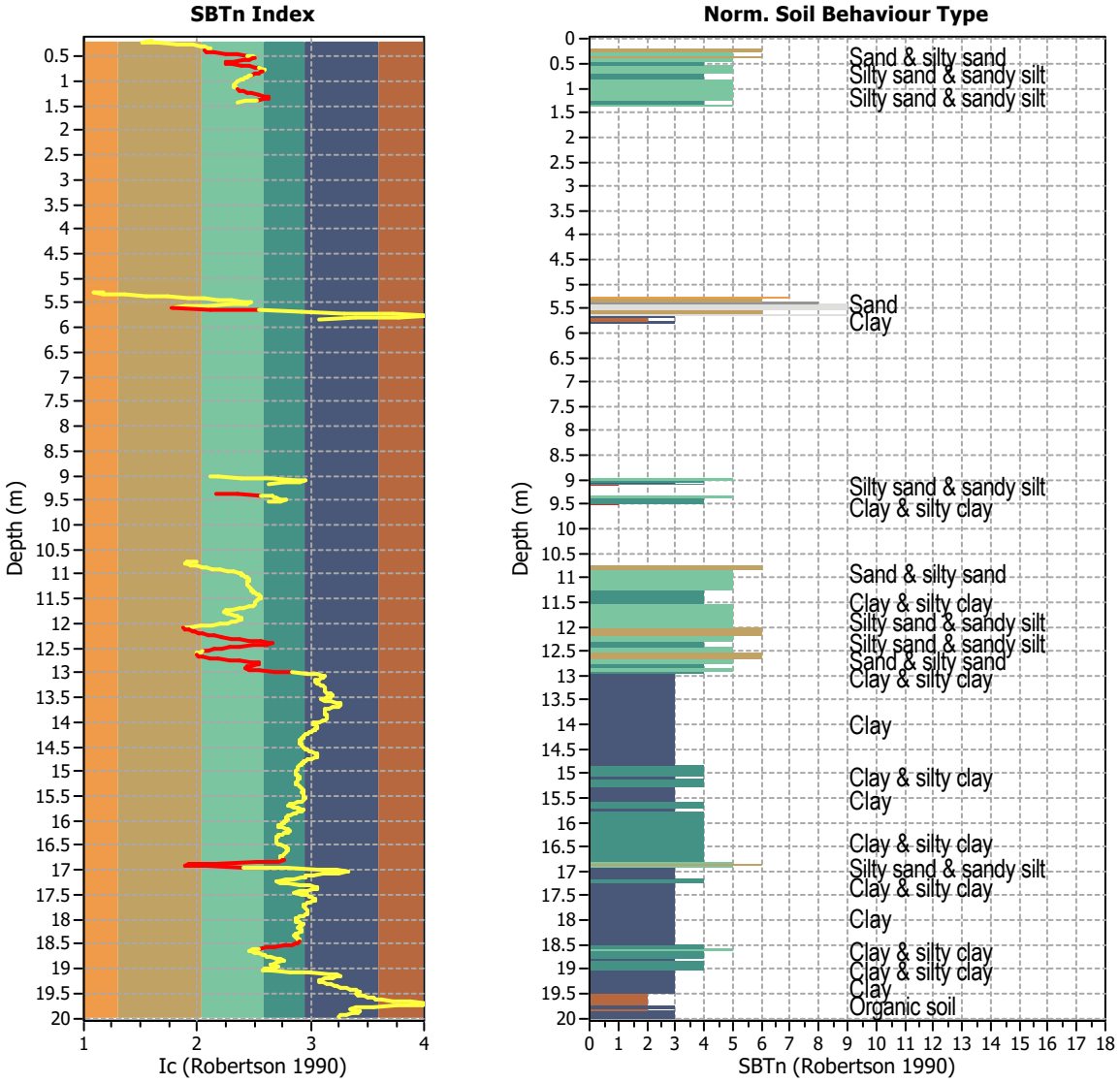
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

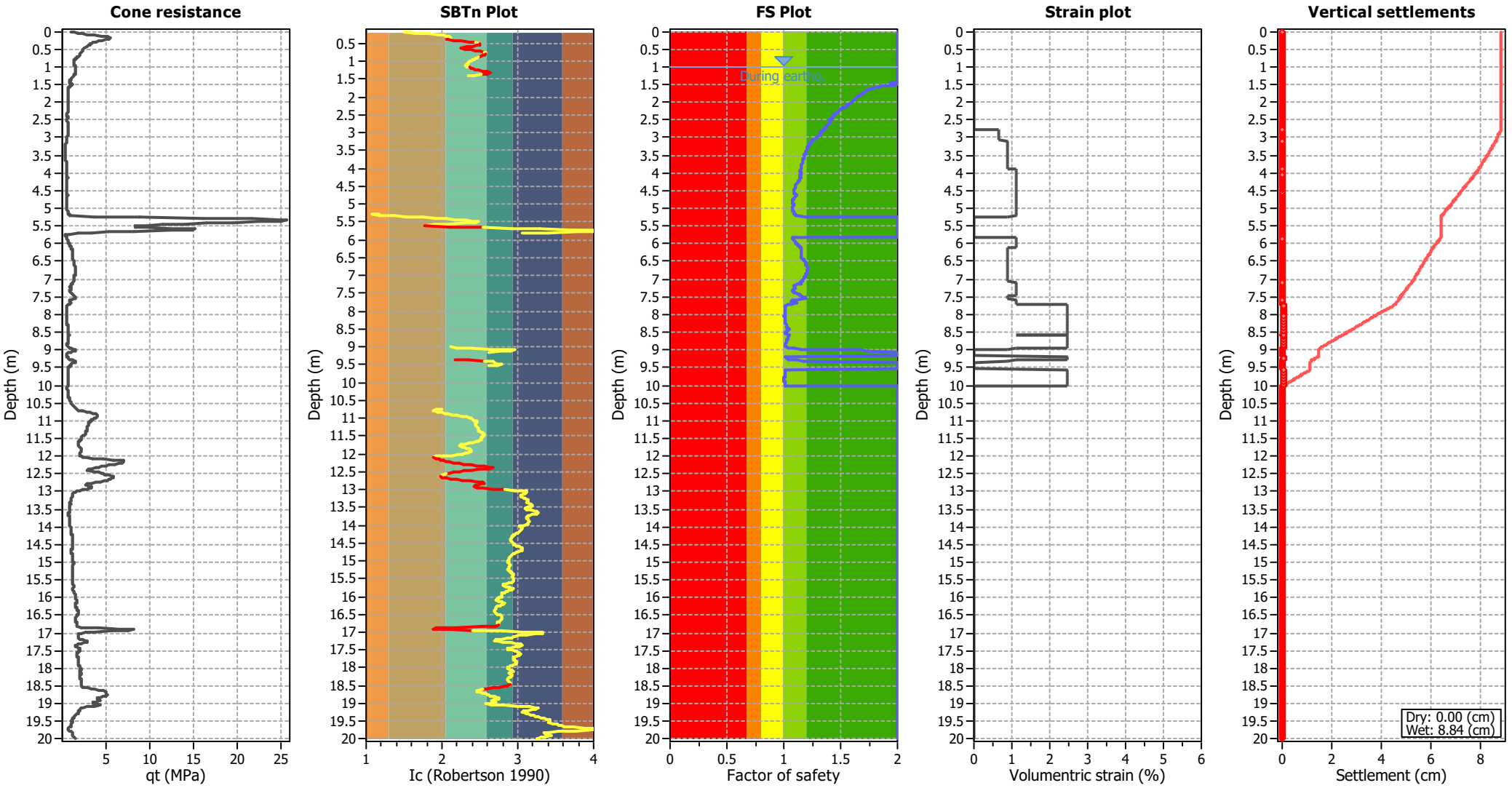
The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties	
I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics	
Total points in CPT file:	999
Total points excluded:	104
Exclusion percentage:	10.41%
Number of layers detected:	16

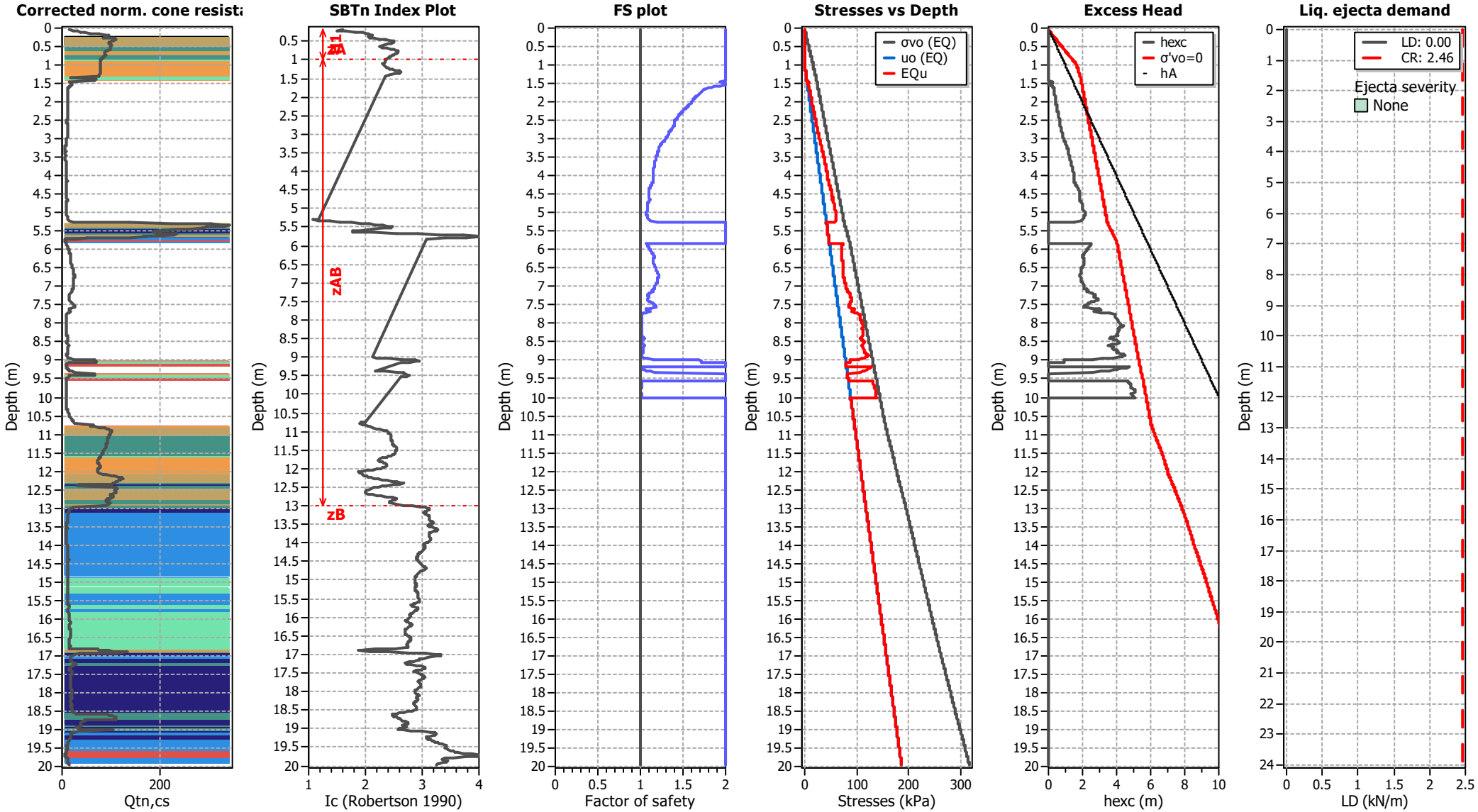
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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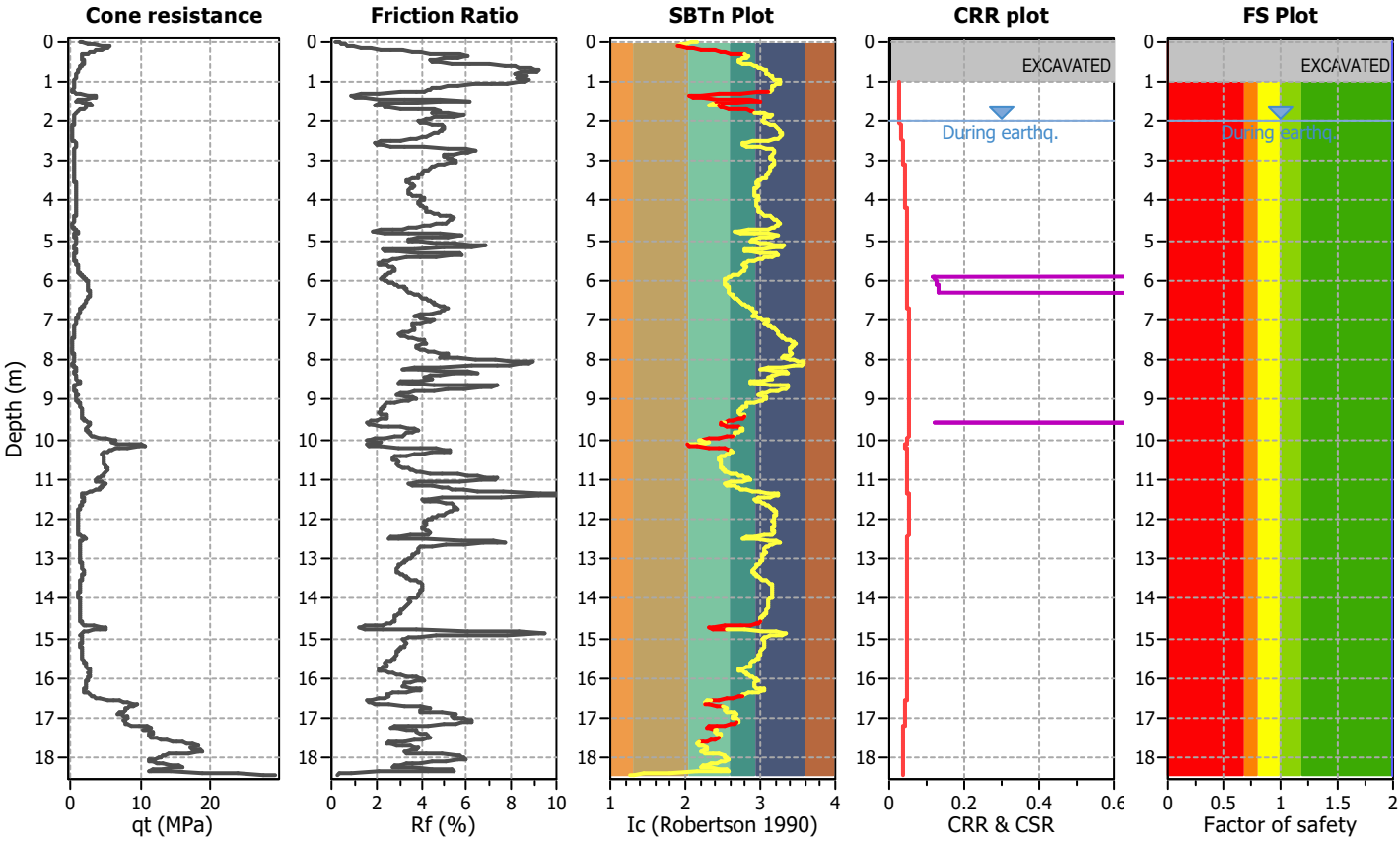
LIQUEFACTION ANALYSIS REPORT

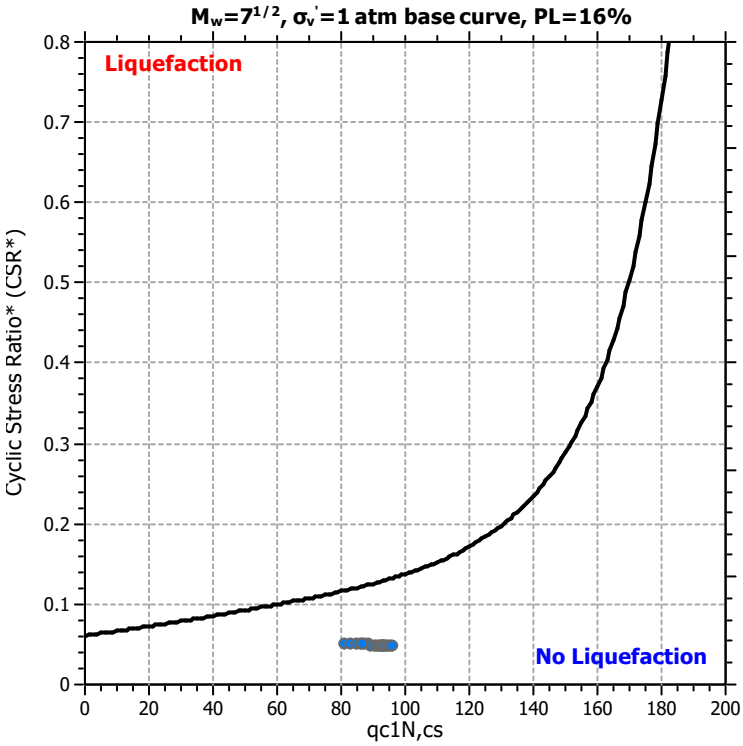
Project title : Sunfield Landholding **Location :**

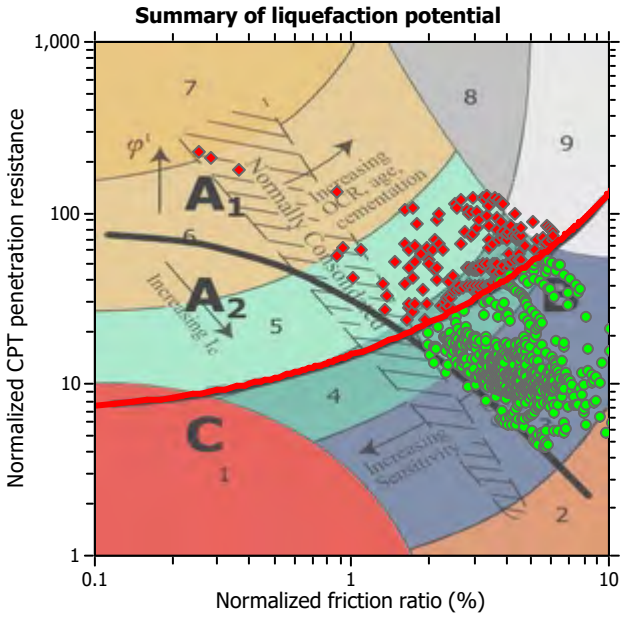
CPT file : CPT132

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	2.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Excavation depth:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

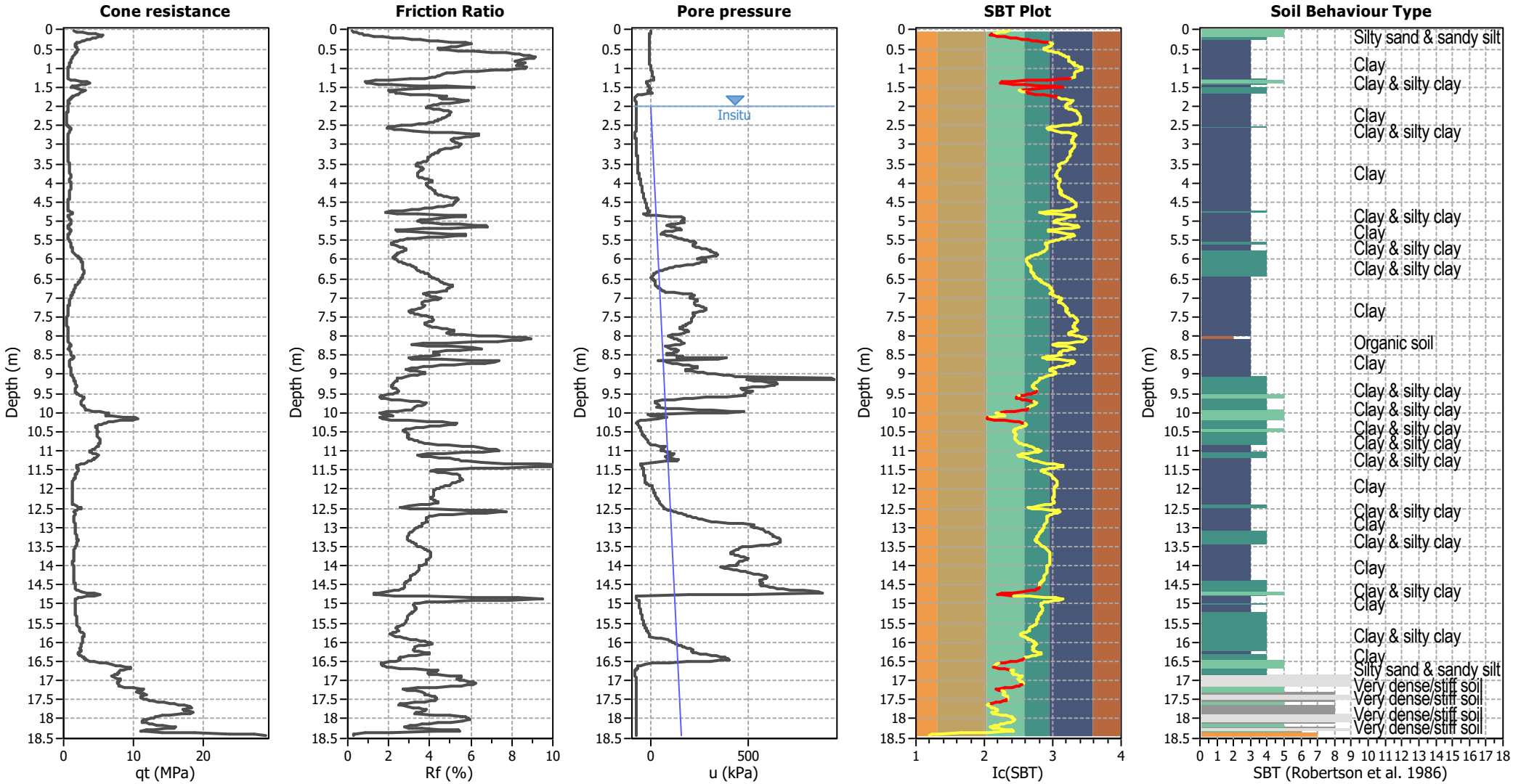






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



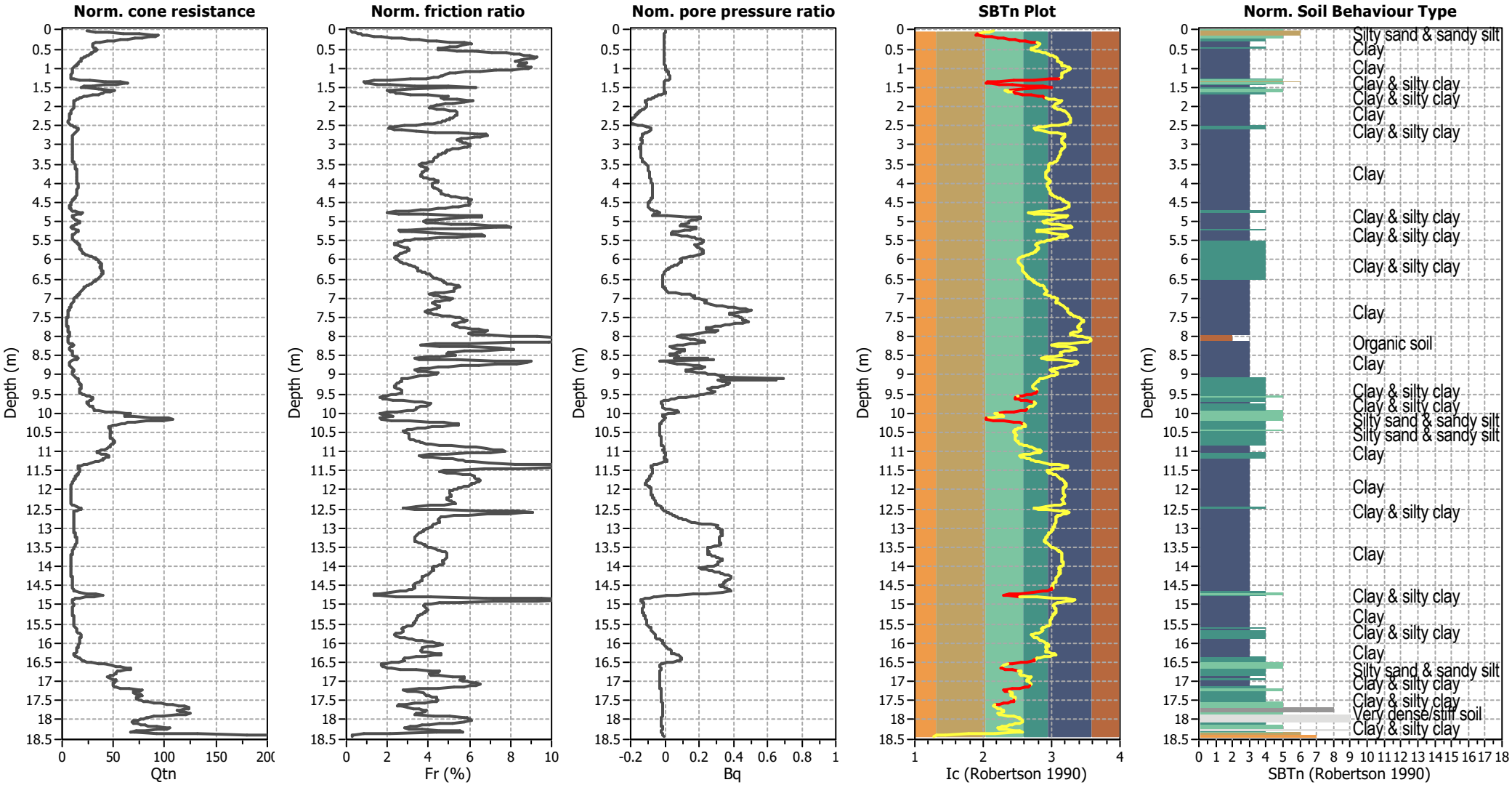
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	2.00 m	Excavation depth:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



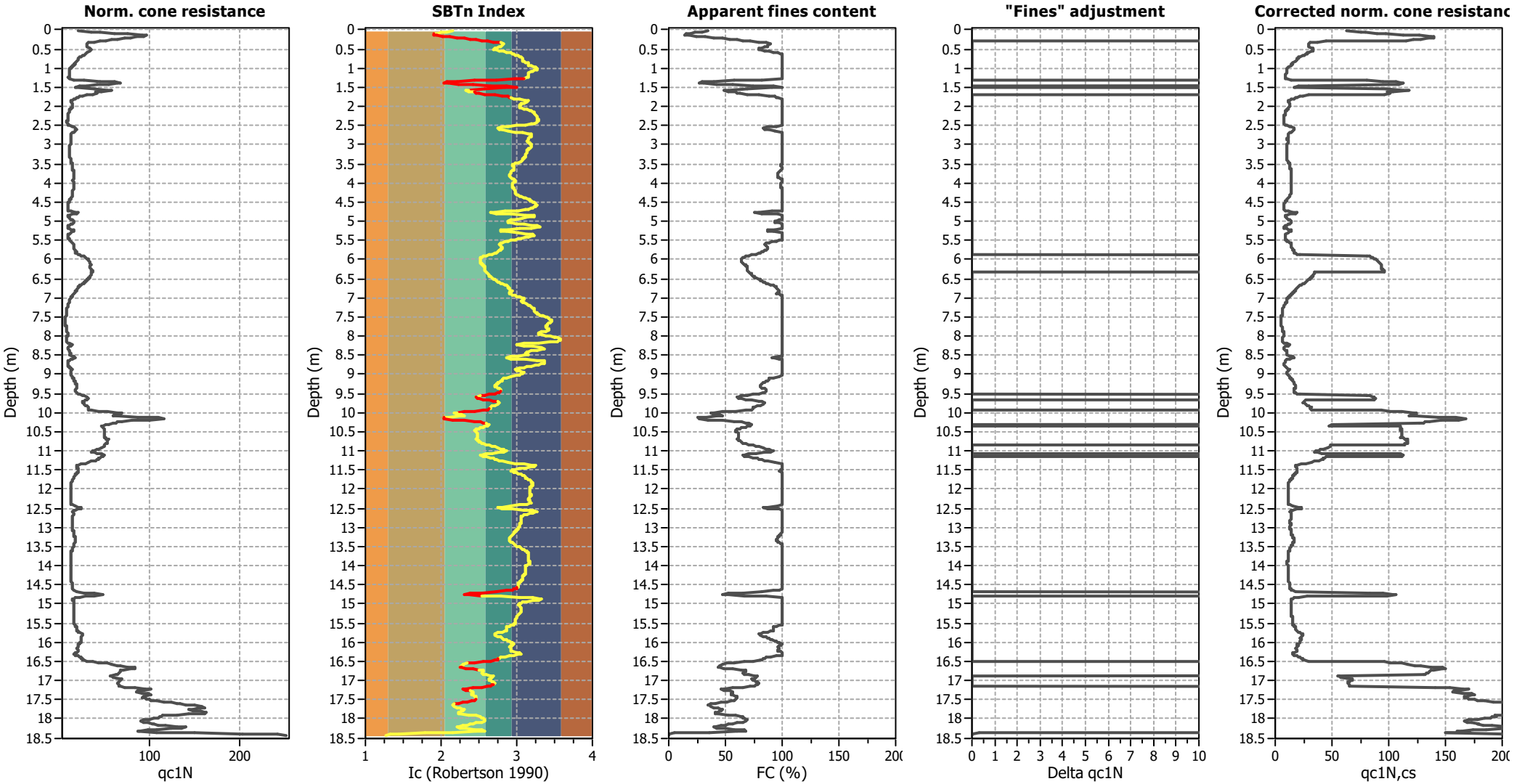
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	2.00 m	Excavation depth:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

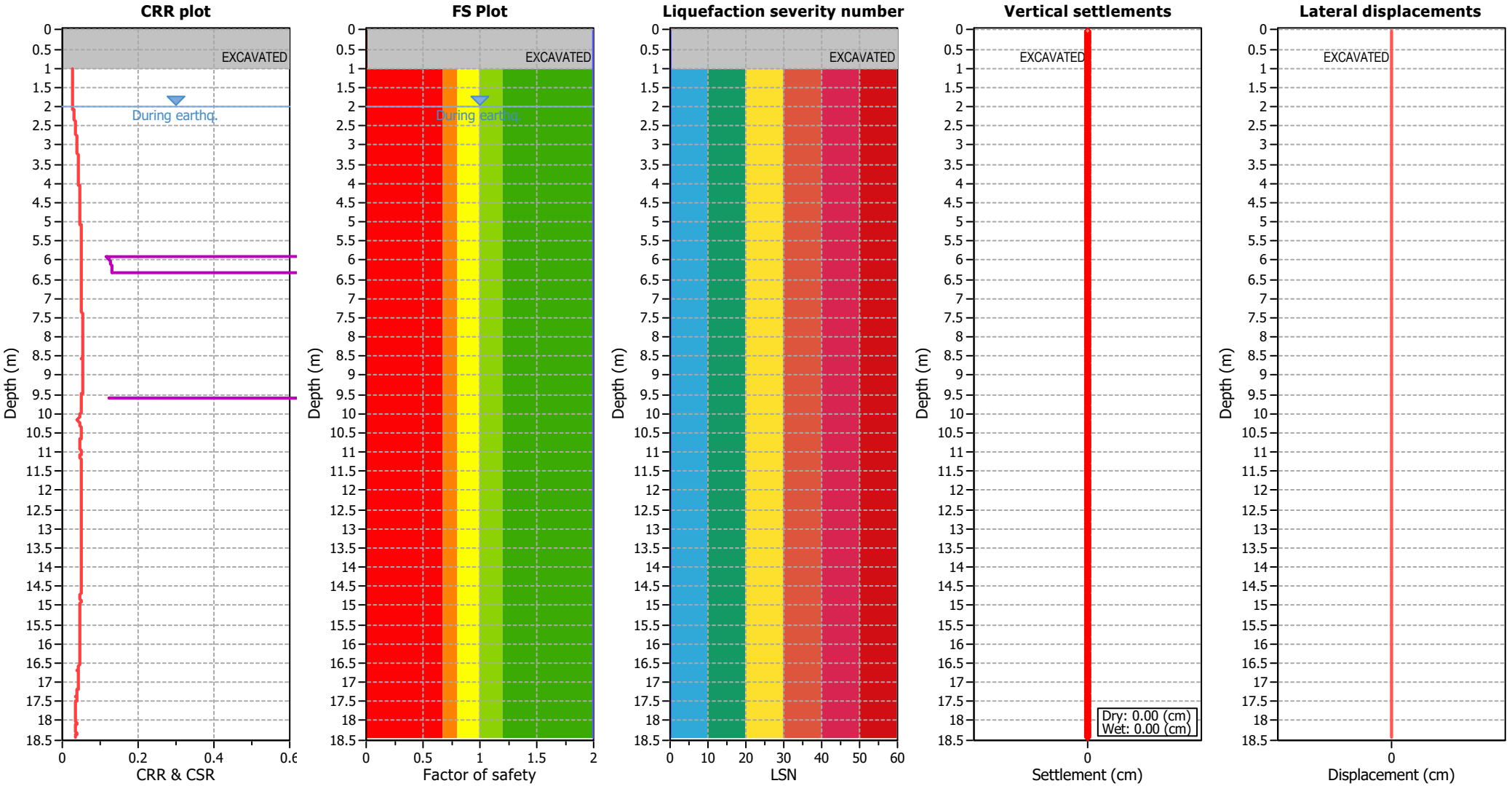
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	2.00 m	Excavation depth:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	2.00 m	Excavation depth:	1.00 m	Limit depth:	10.00 m

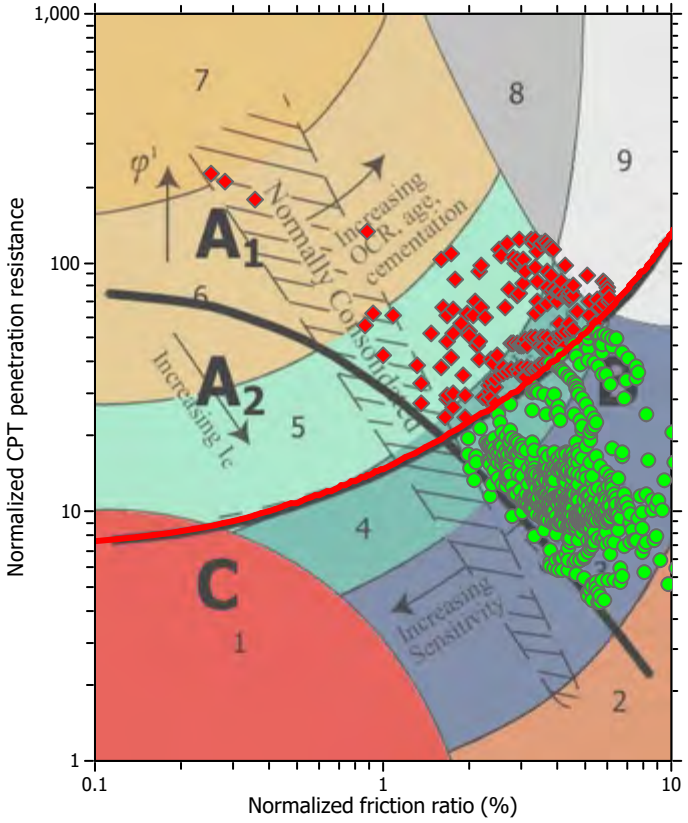
F.S. color scheme

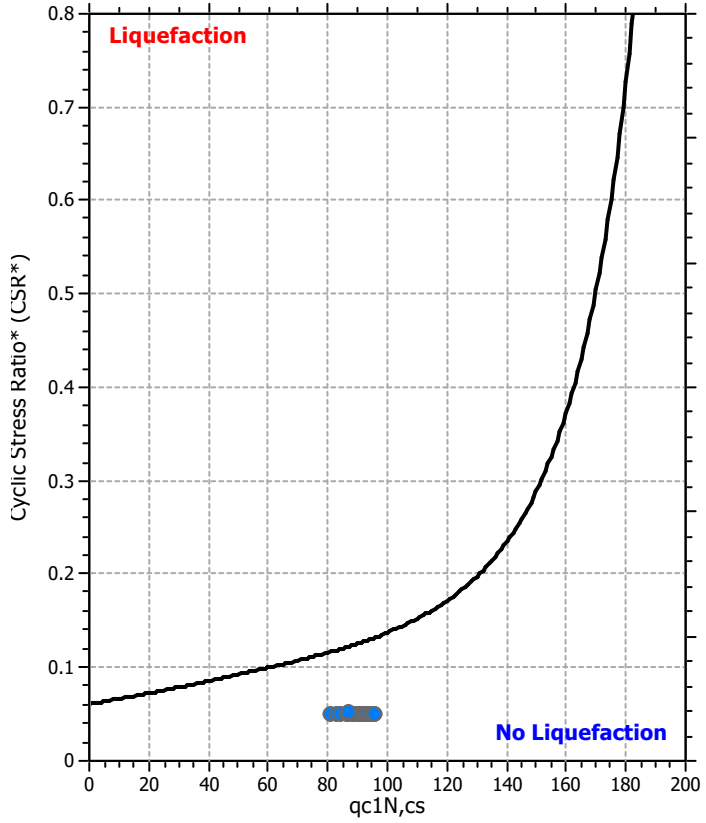
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

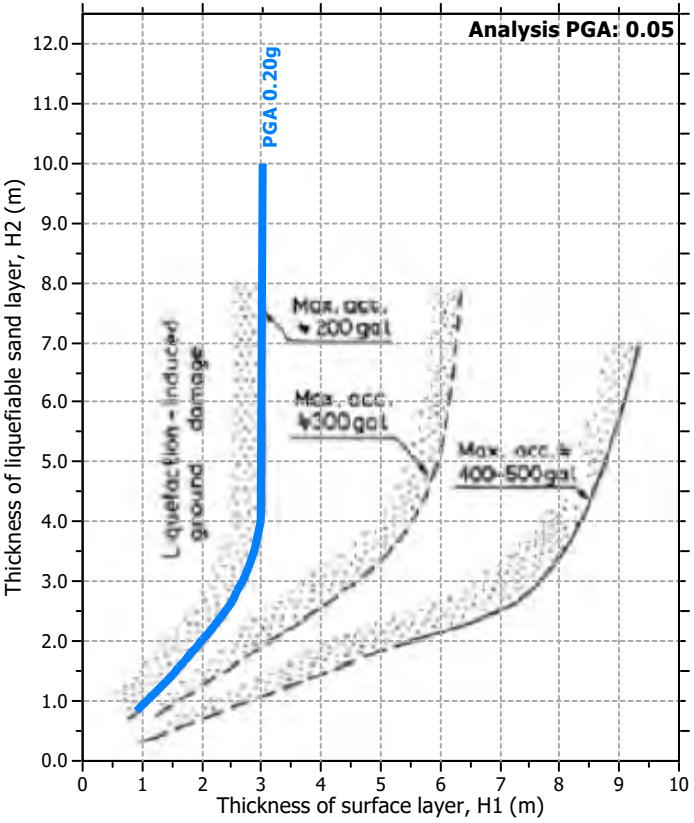
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



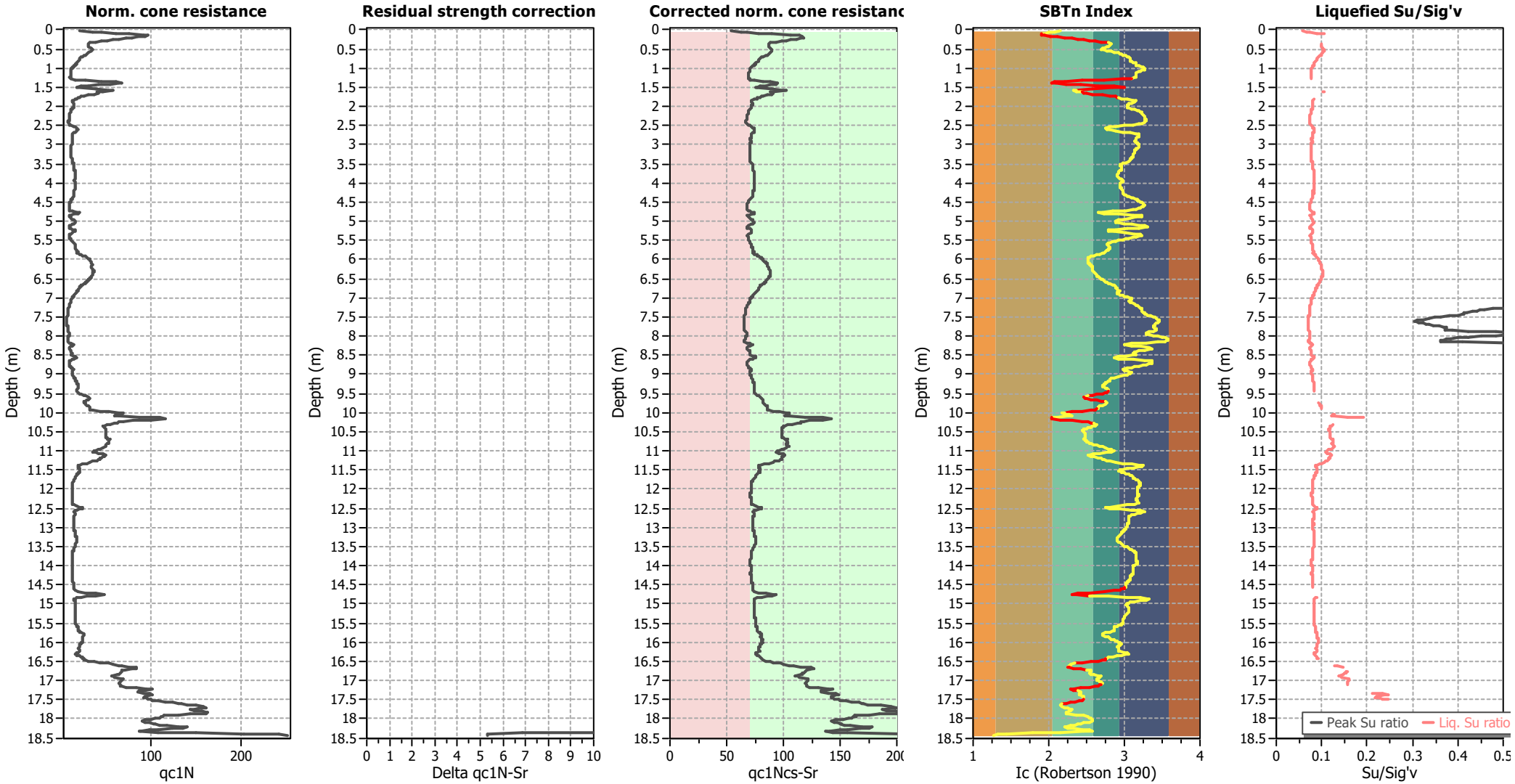




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	2.00 m	Excavation depth:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

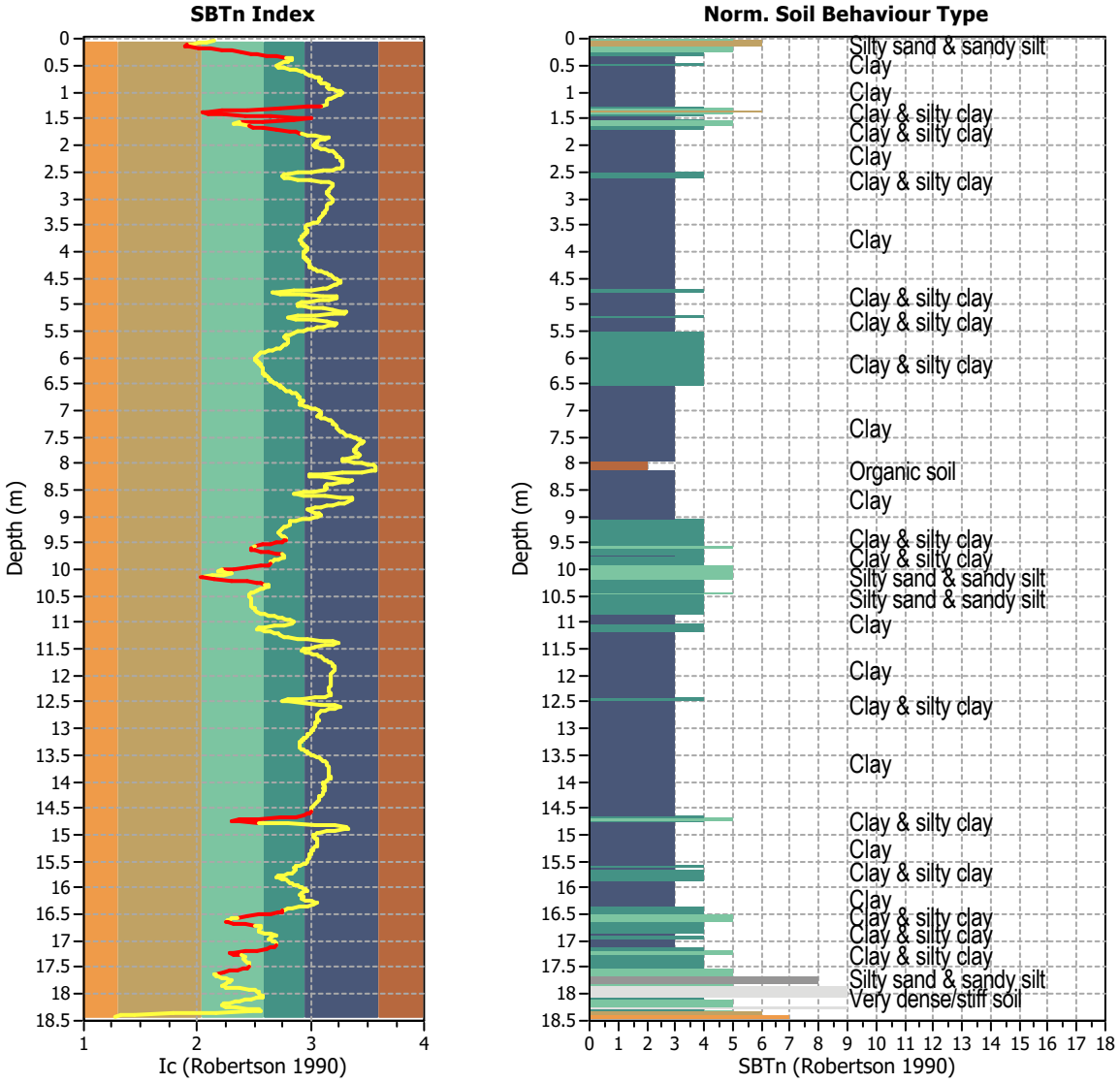
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	2.00 m	Excavation depth:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



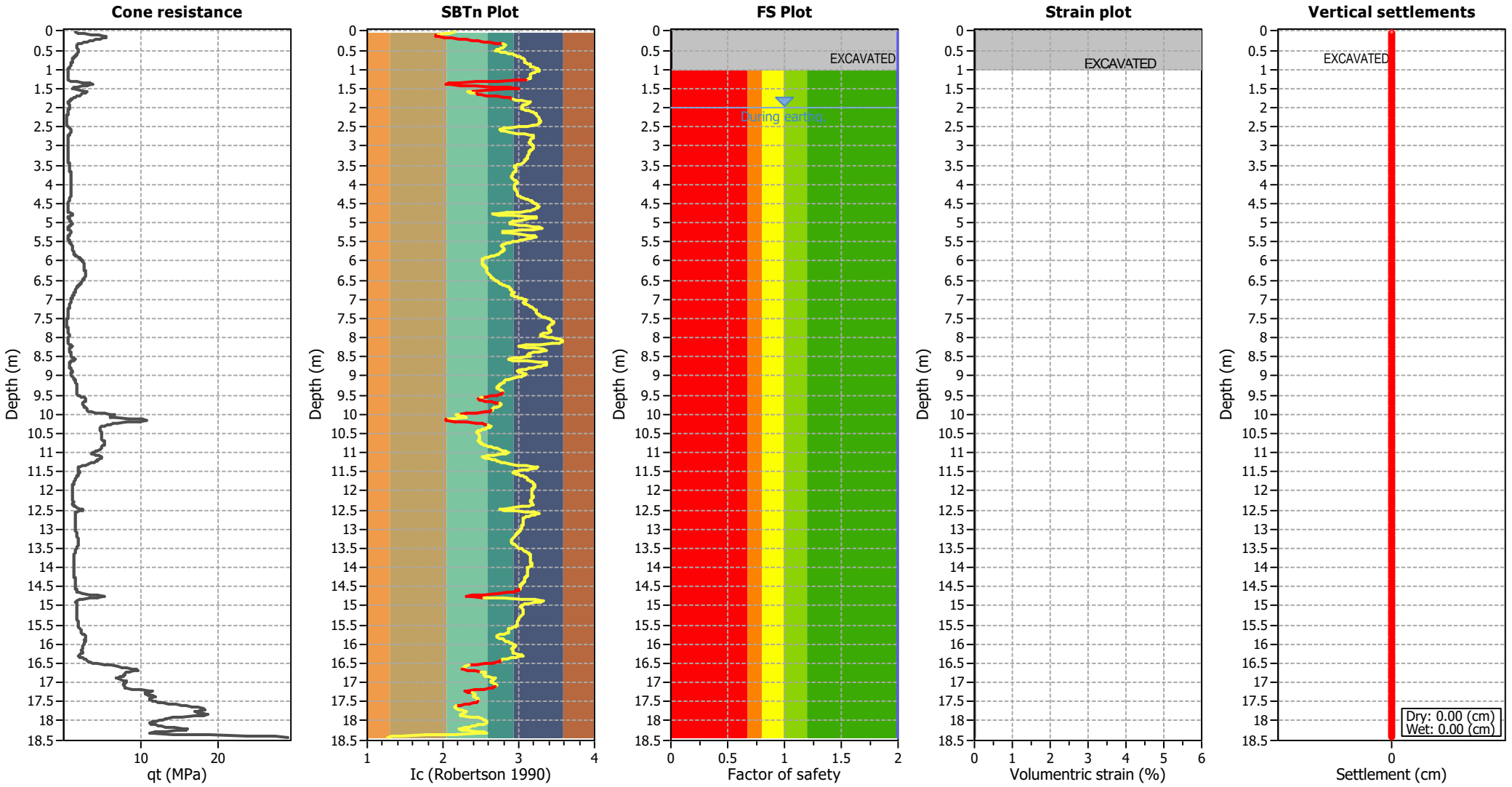
Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	922
Total points excluded:	110
Exclusion percentage:	11.93%
Number of layers detected:	16

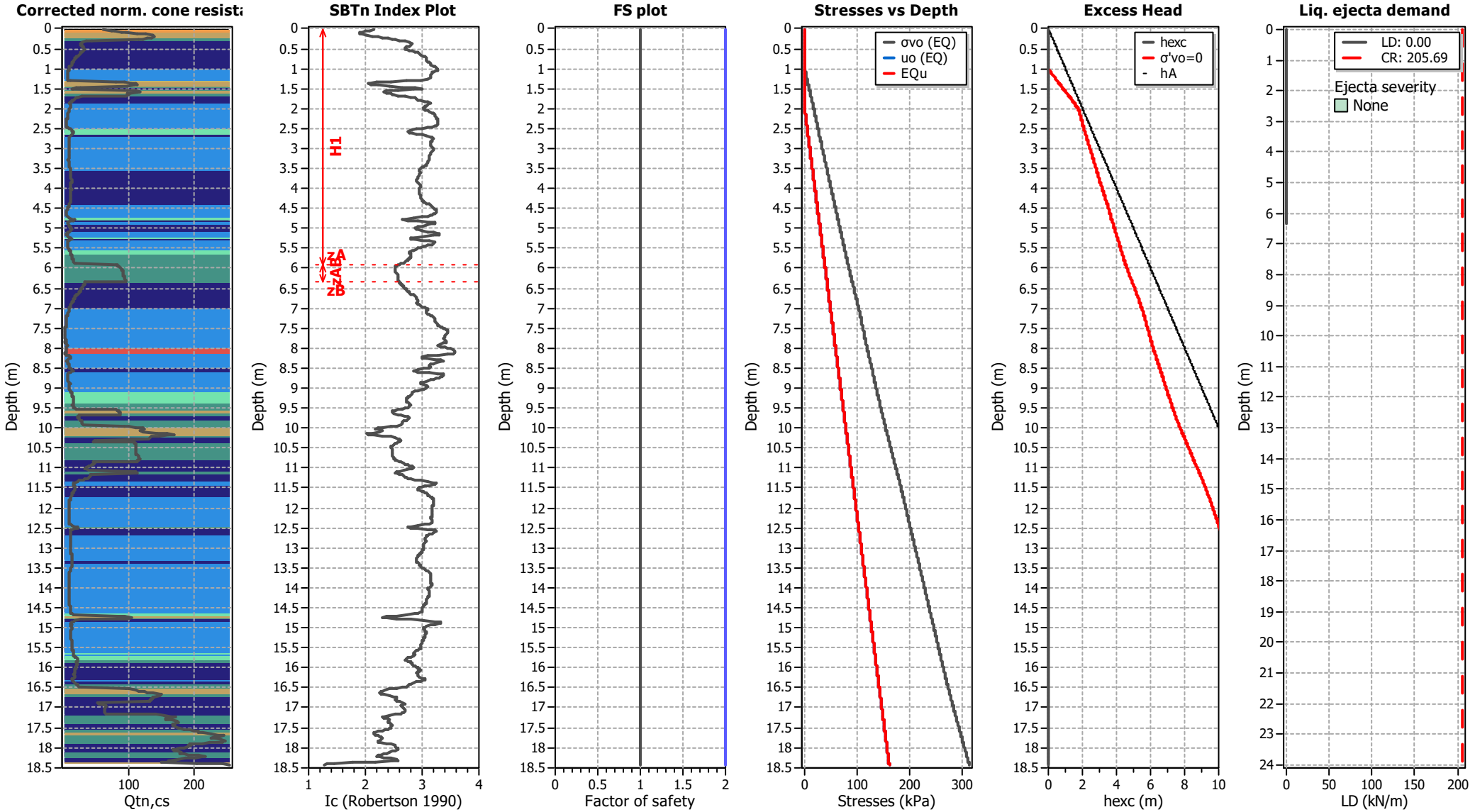
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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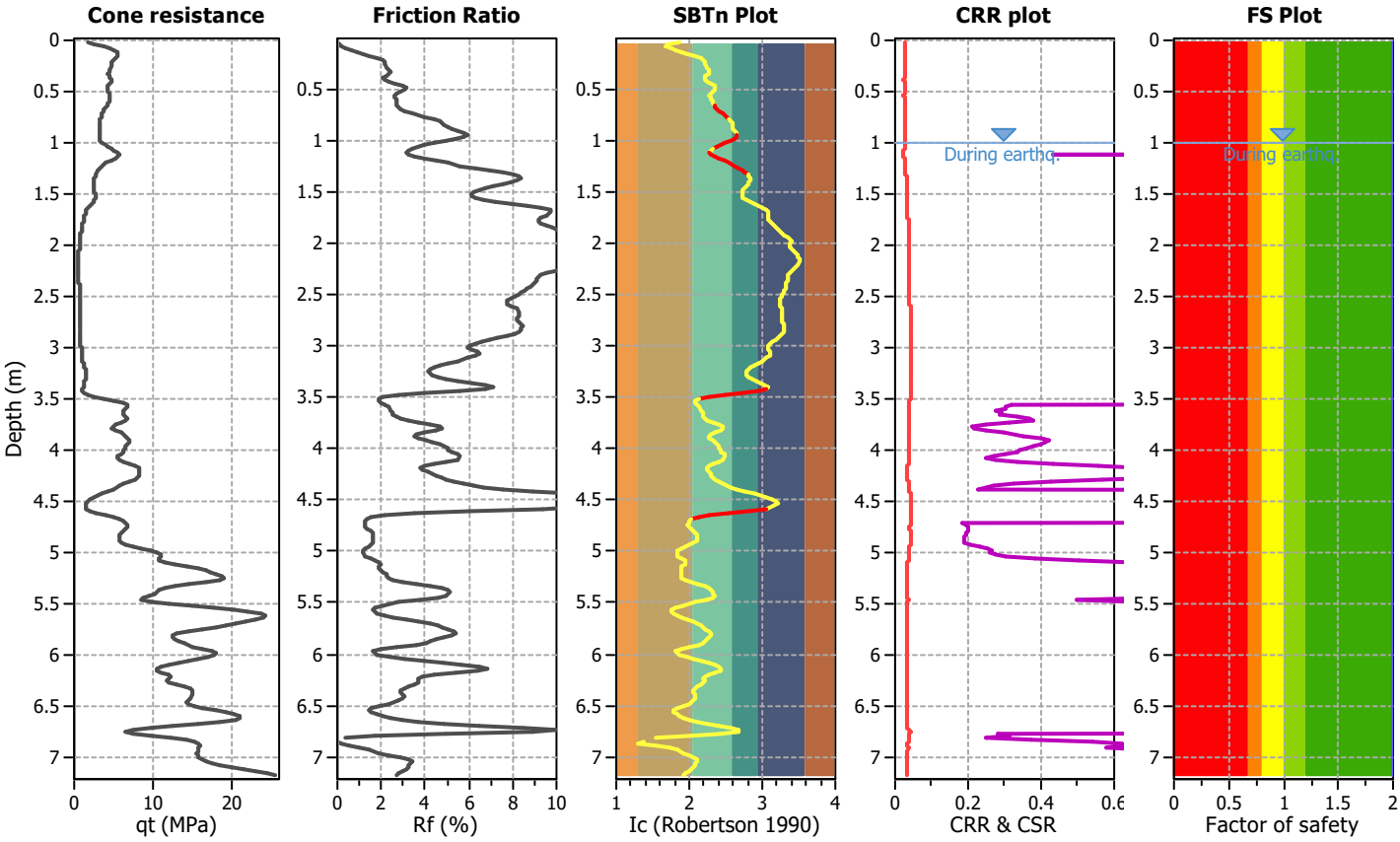
LIQUEFACTION ANALYSIS REPORT

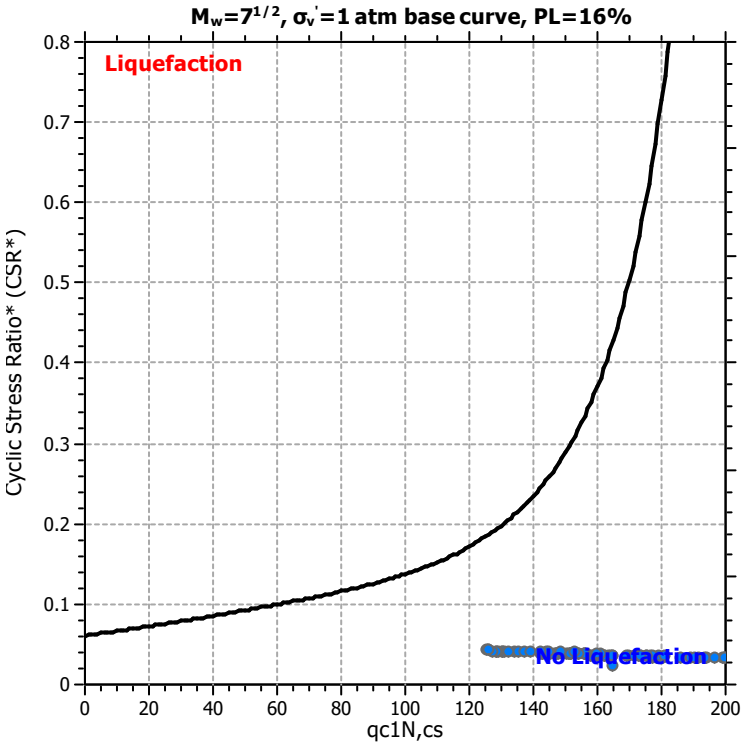
Project title : Sunfield Landholding **Location :**

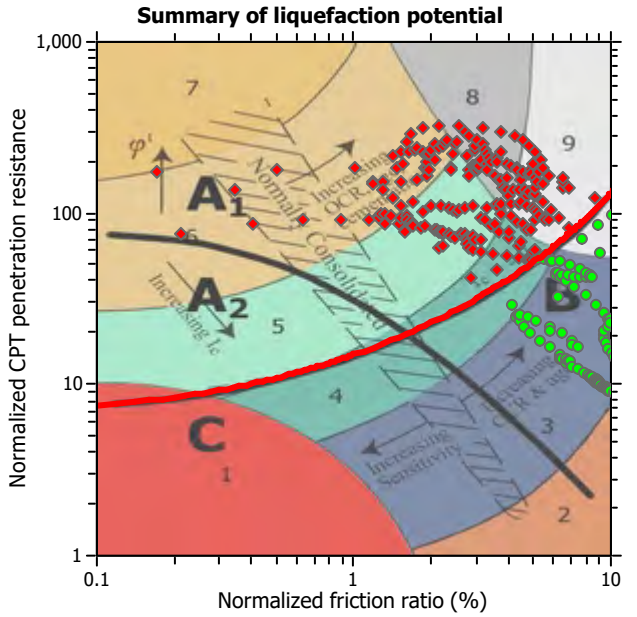
CPT file : CPT133

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.00 m	Excavation depth:	0.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

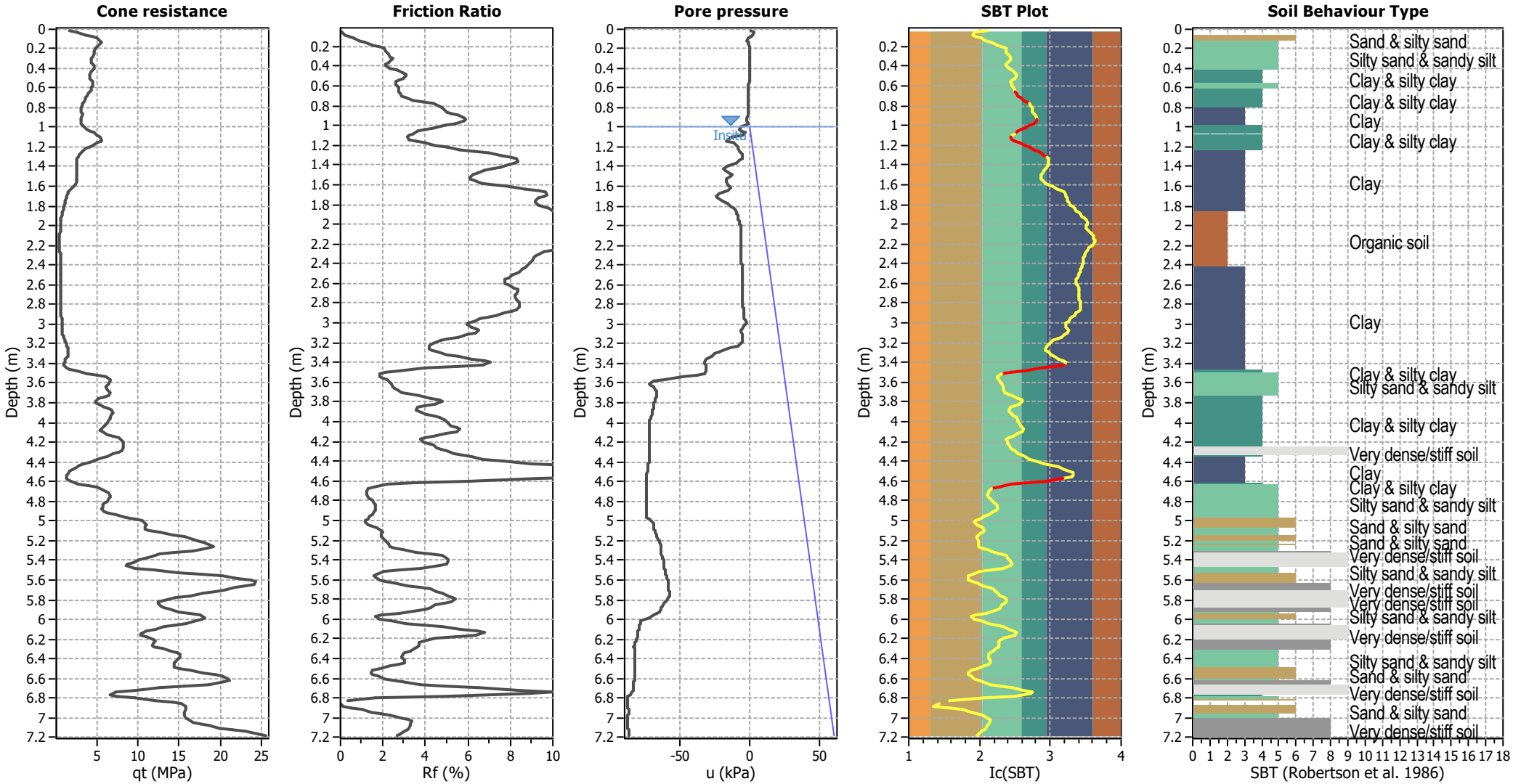






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



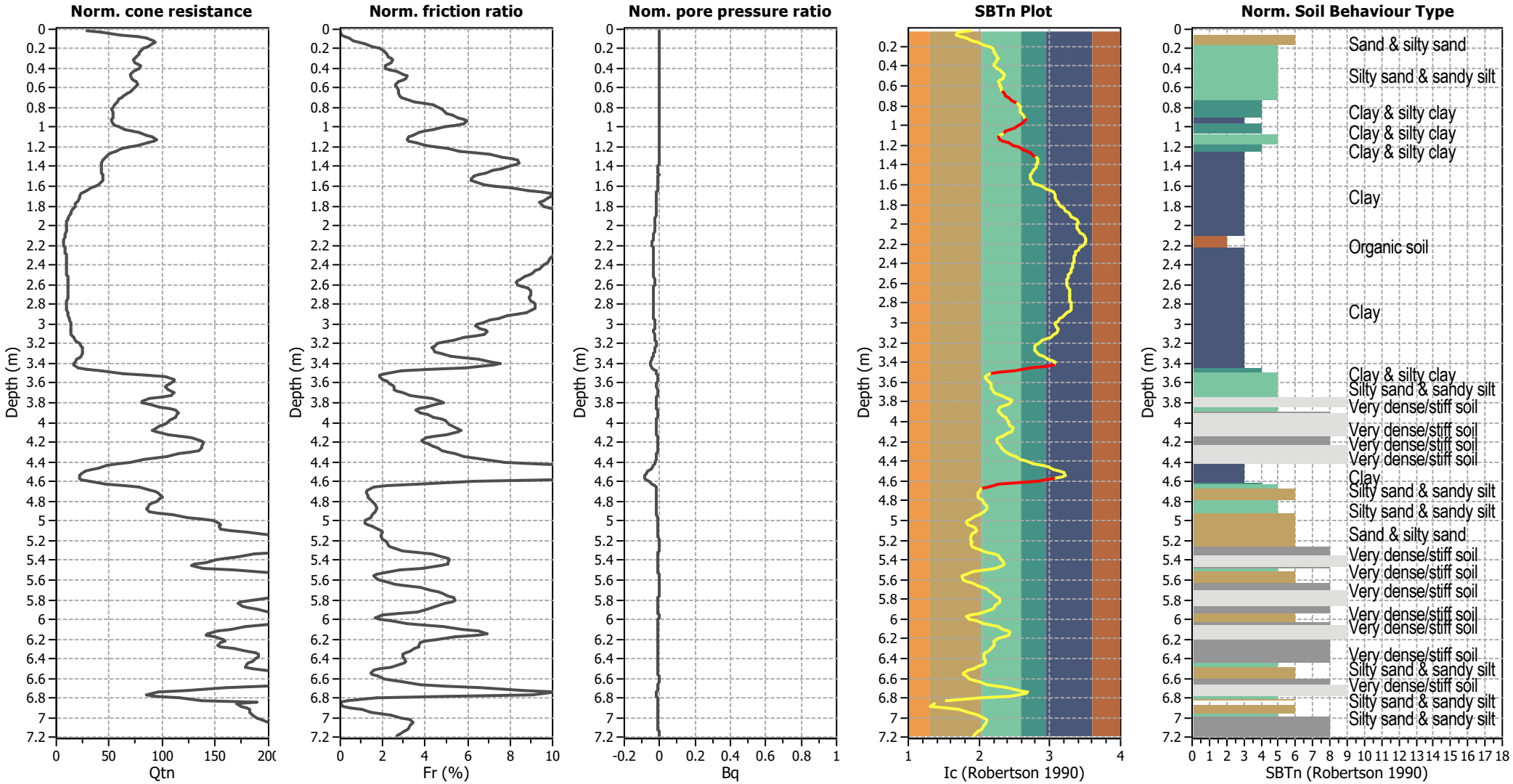
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



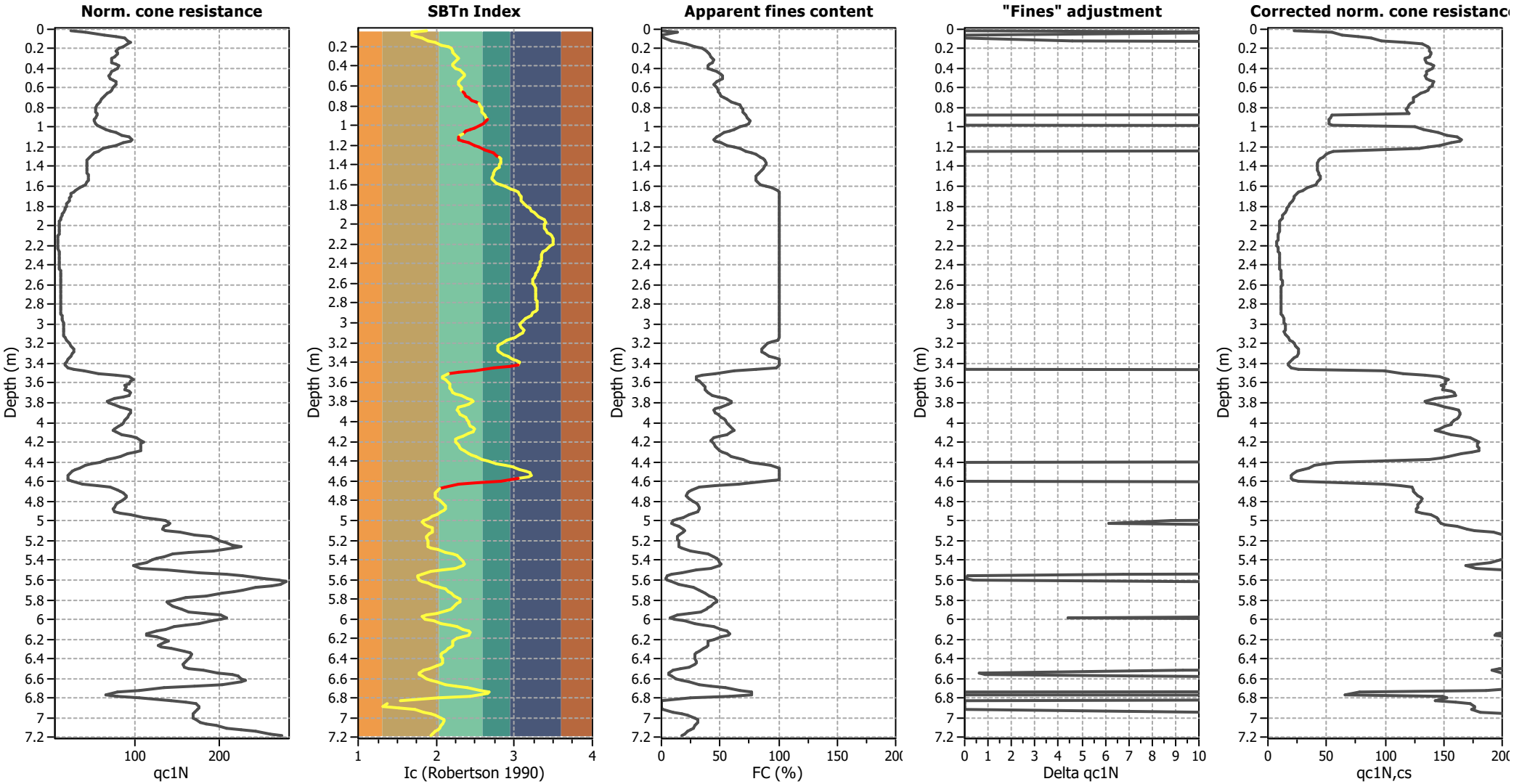
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBTn legend

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

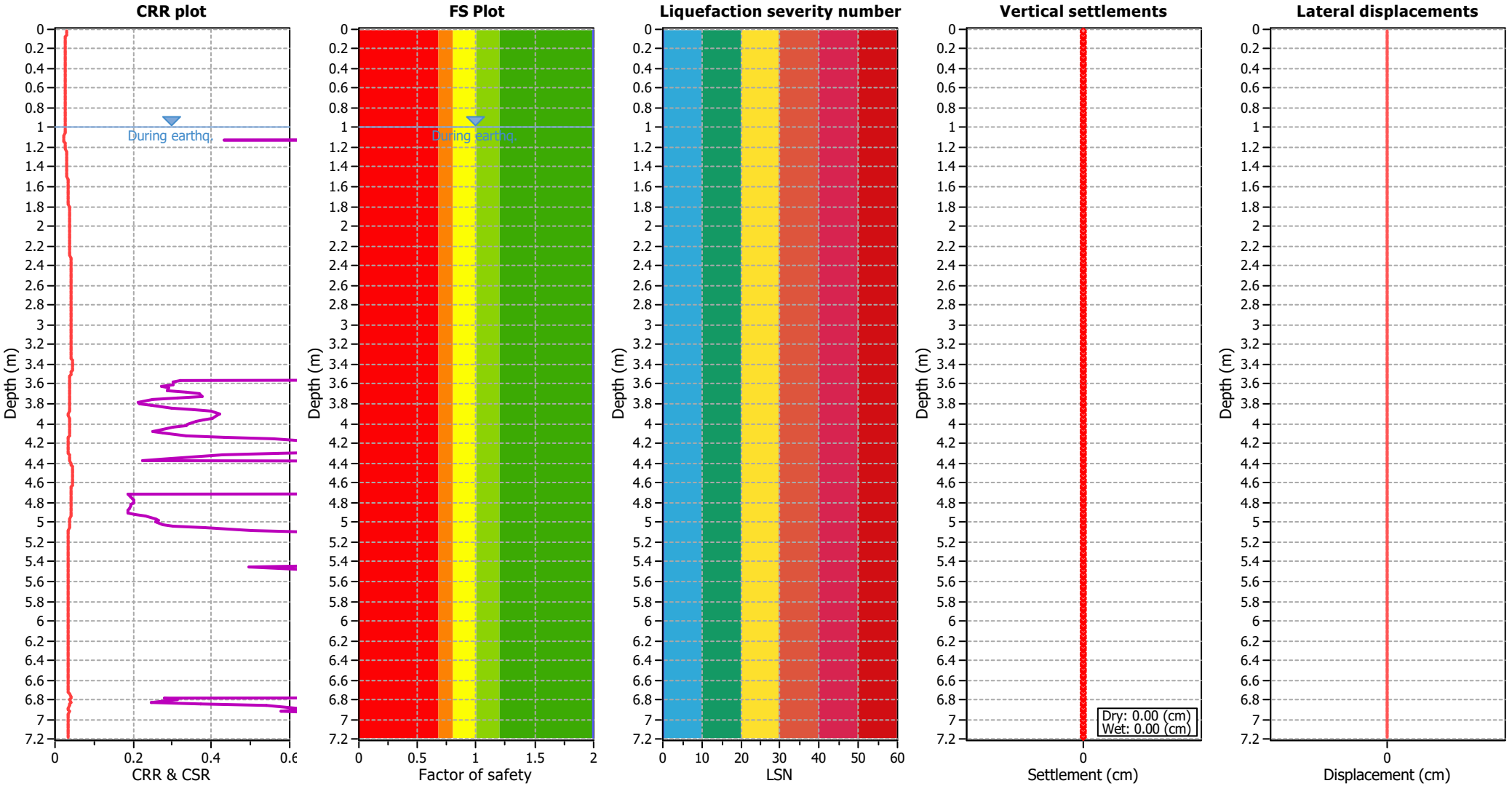
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

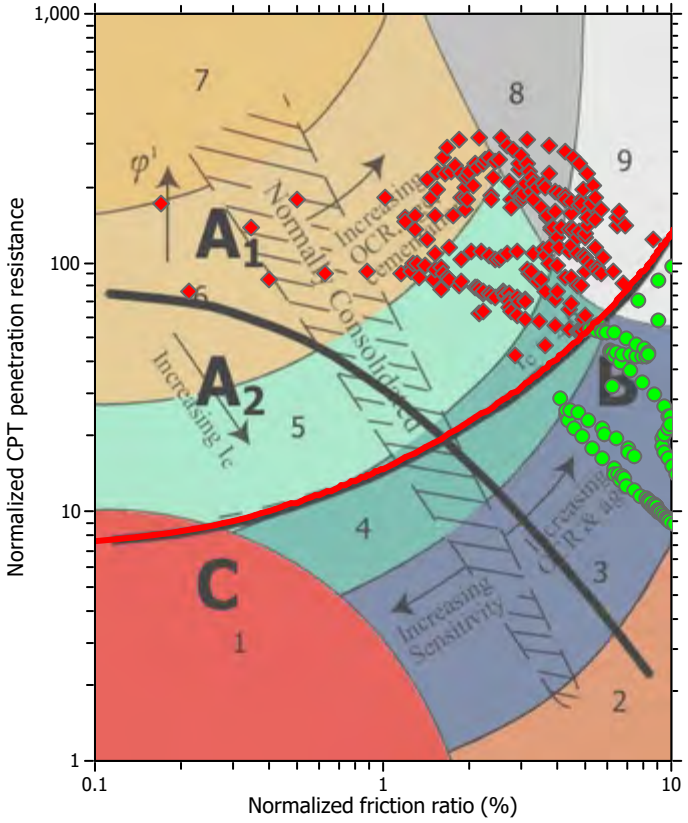
F.S. color scheme

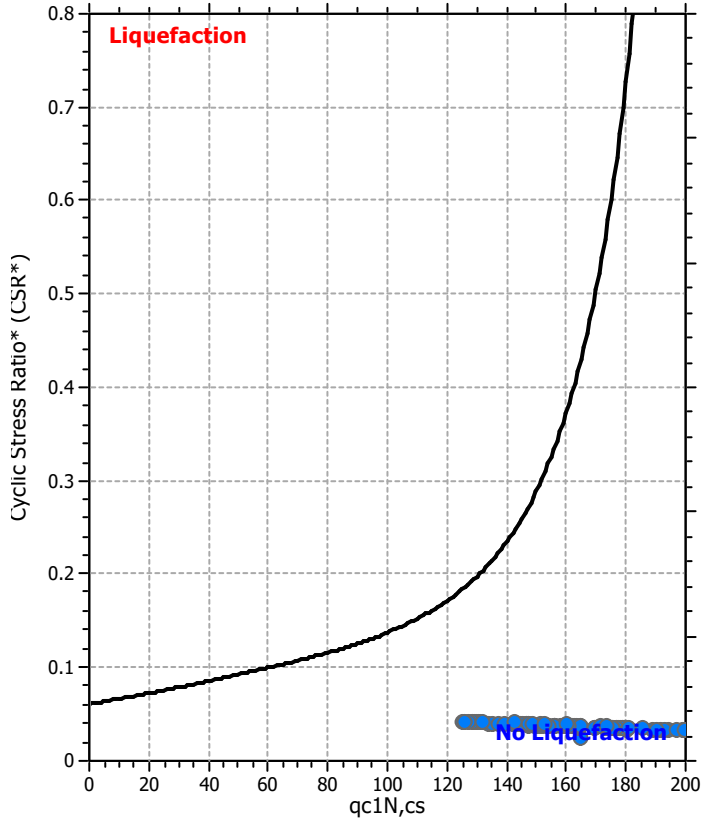
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

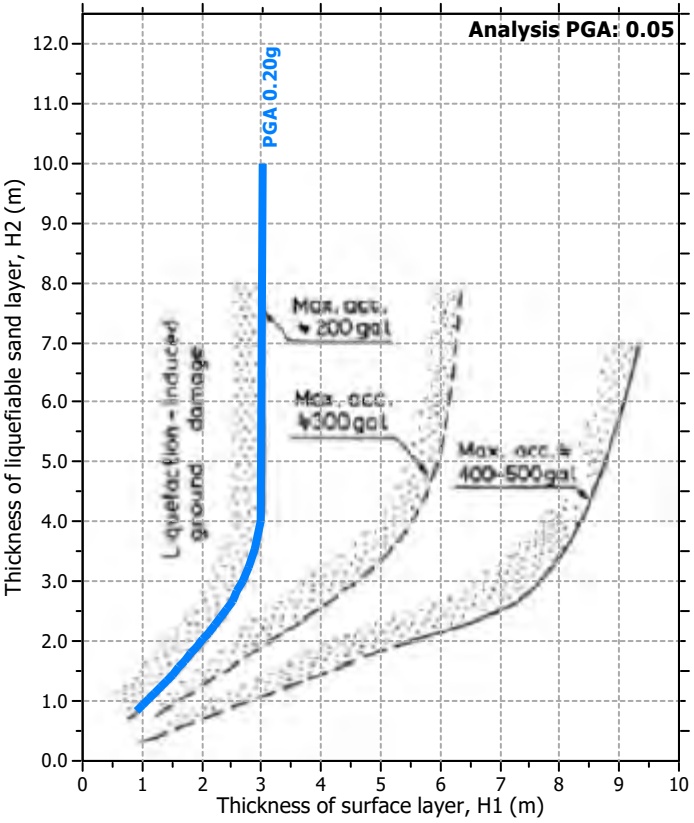
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



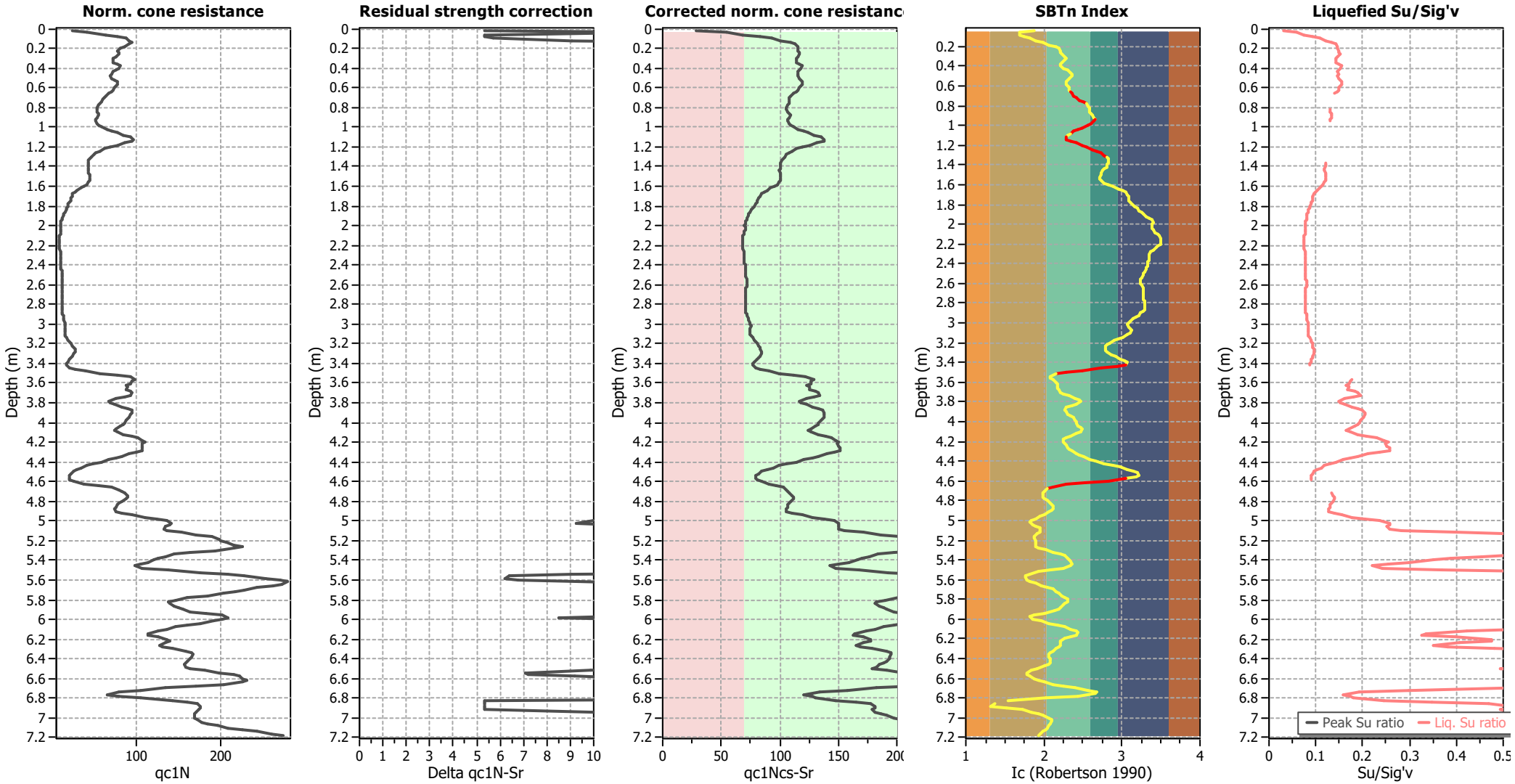




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

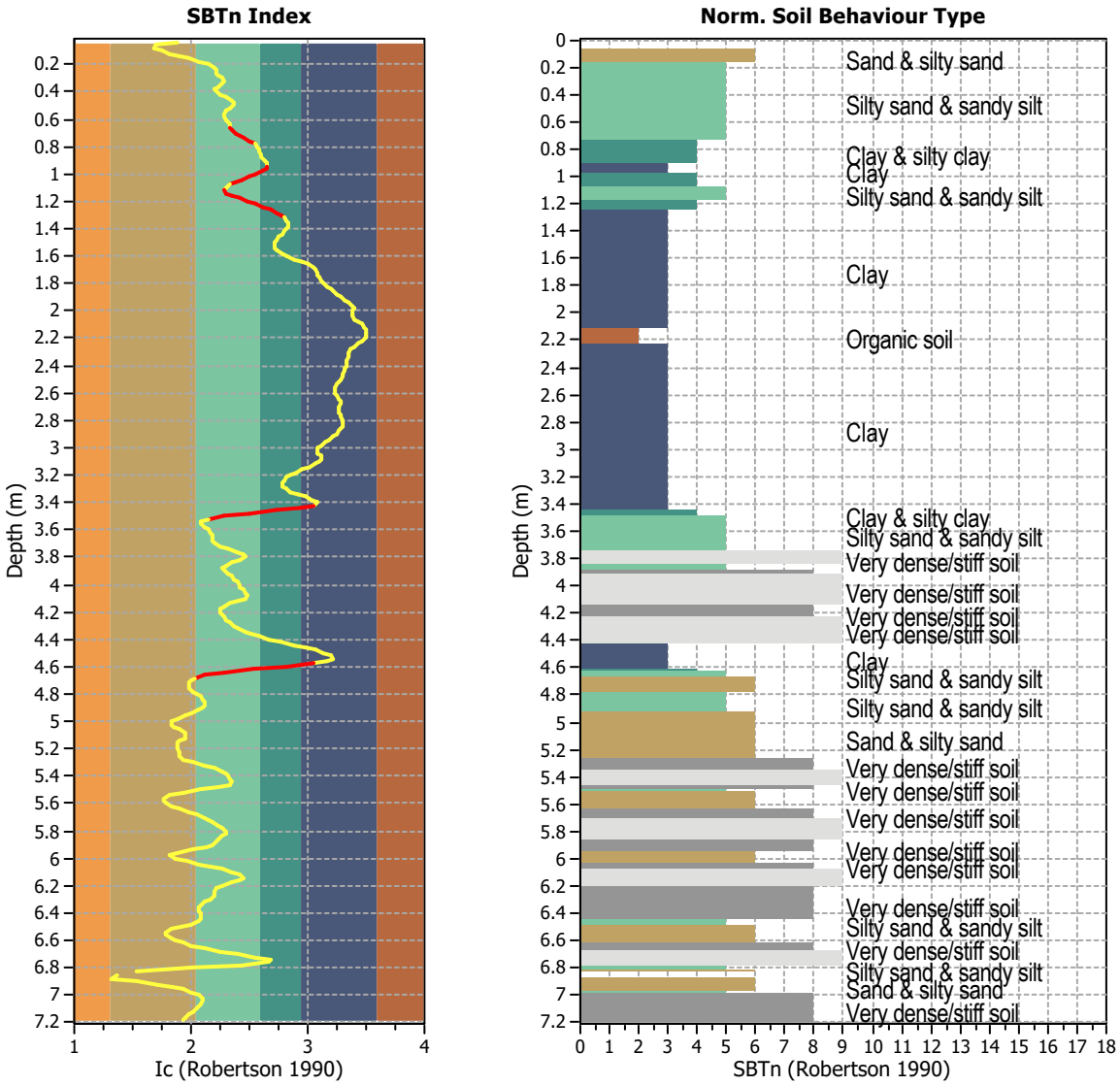
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

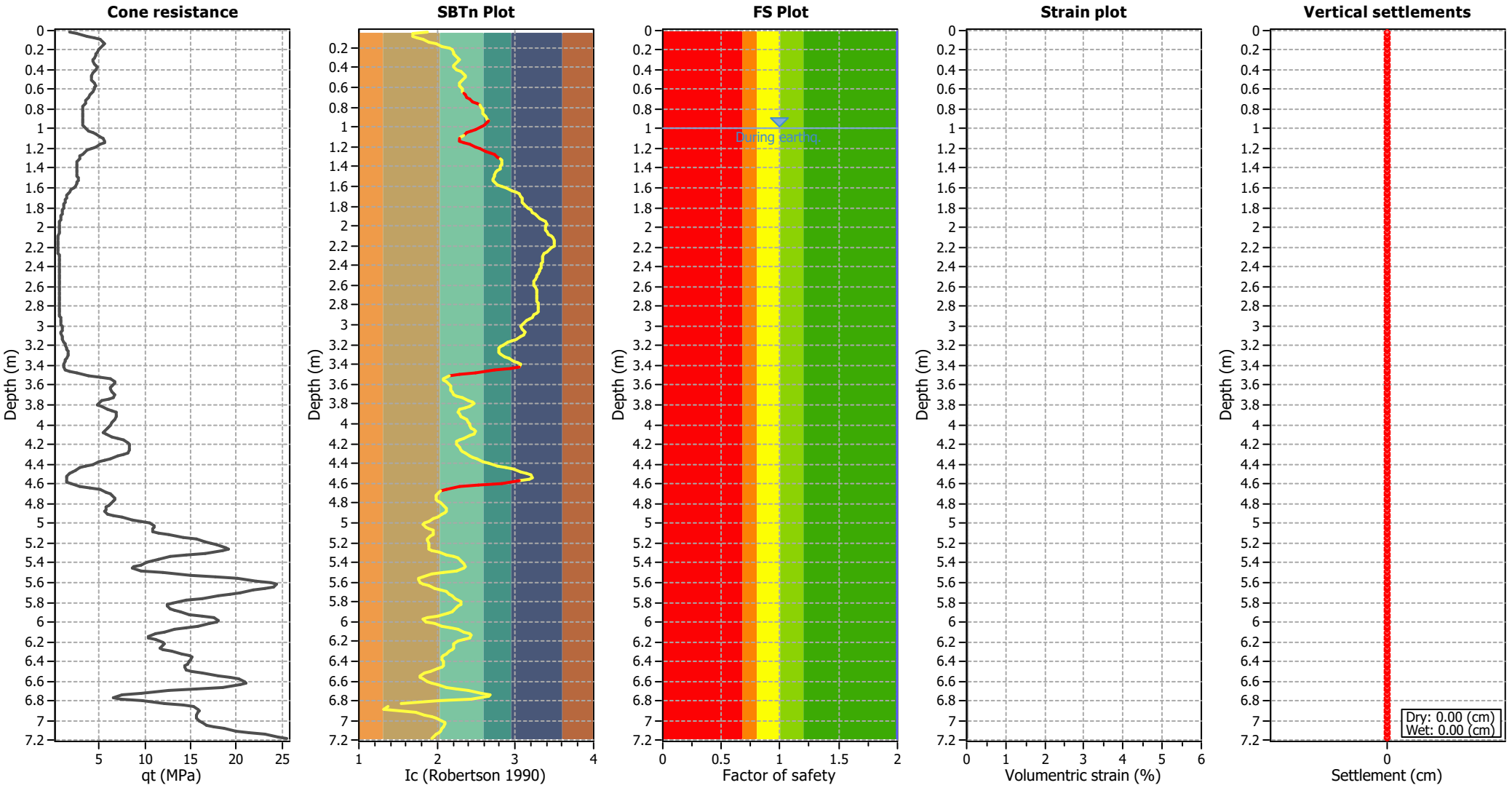
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	359
I_c maximum check value:	3.00	Total points excluded:	38
I_c change ratio value:	0.0100	Exclusion percentage:	10.58%
Minimum number of points in layer:	4	Number of layers detected:	5

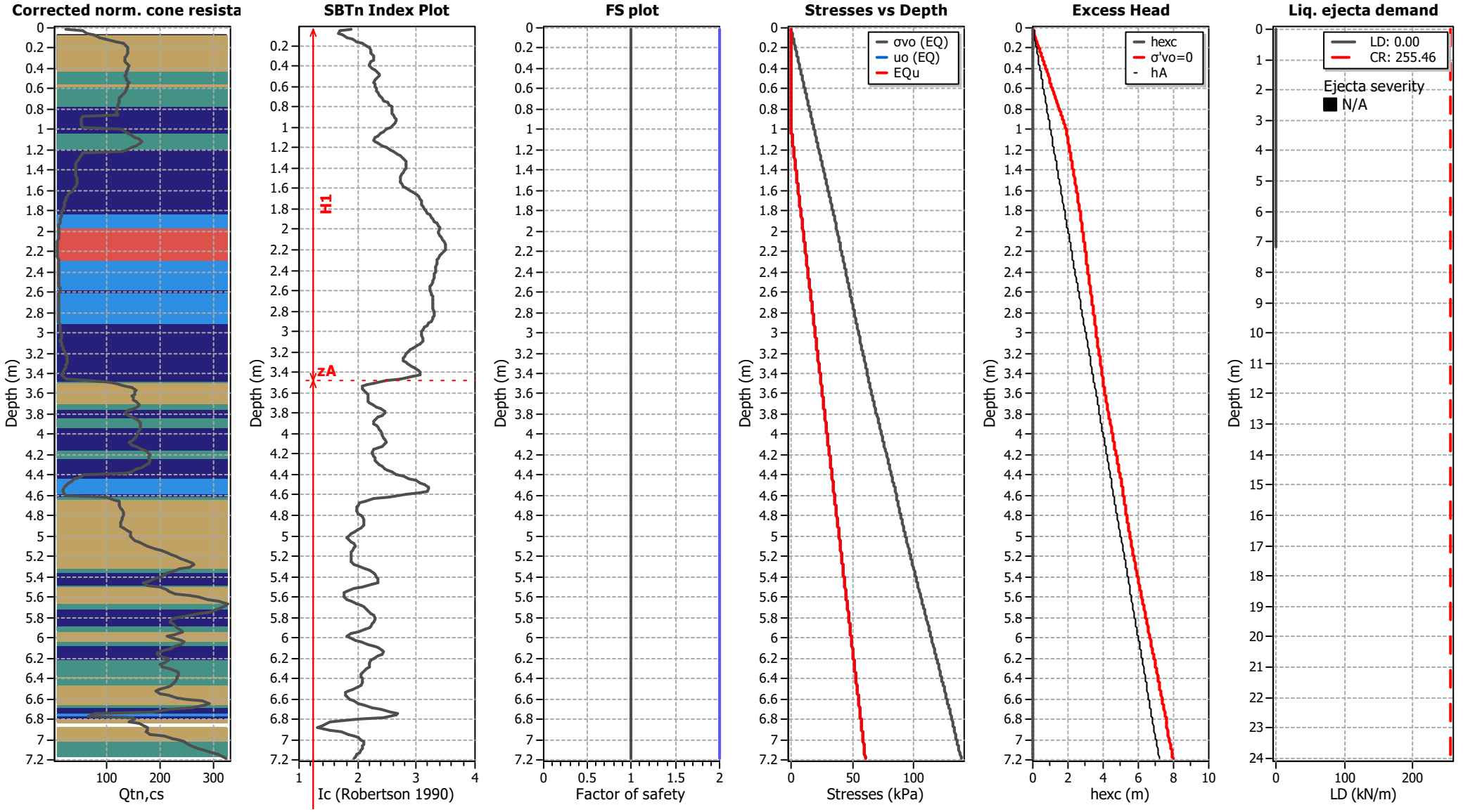
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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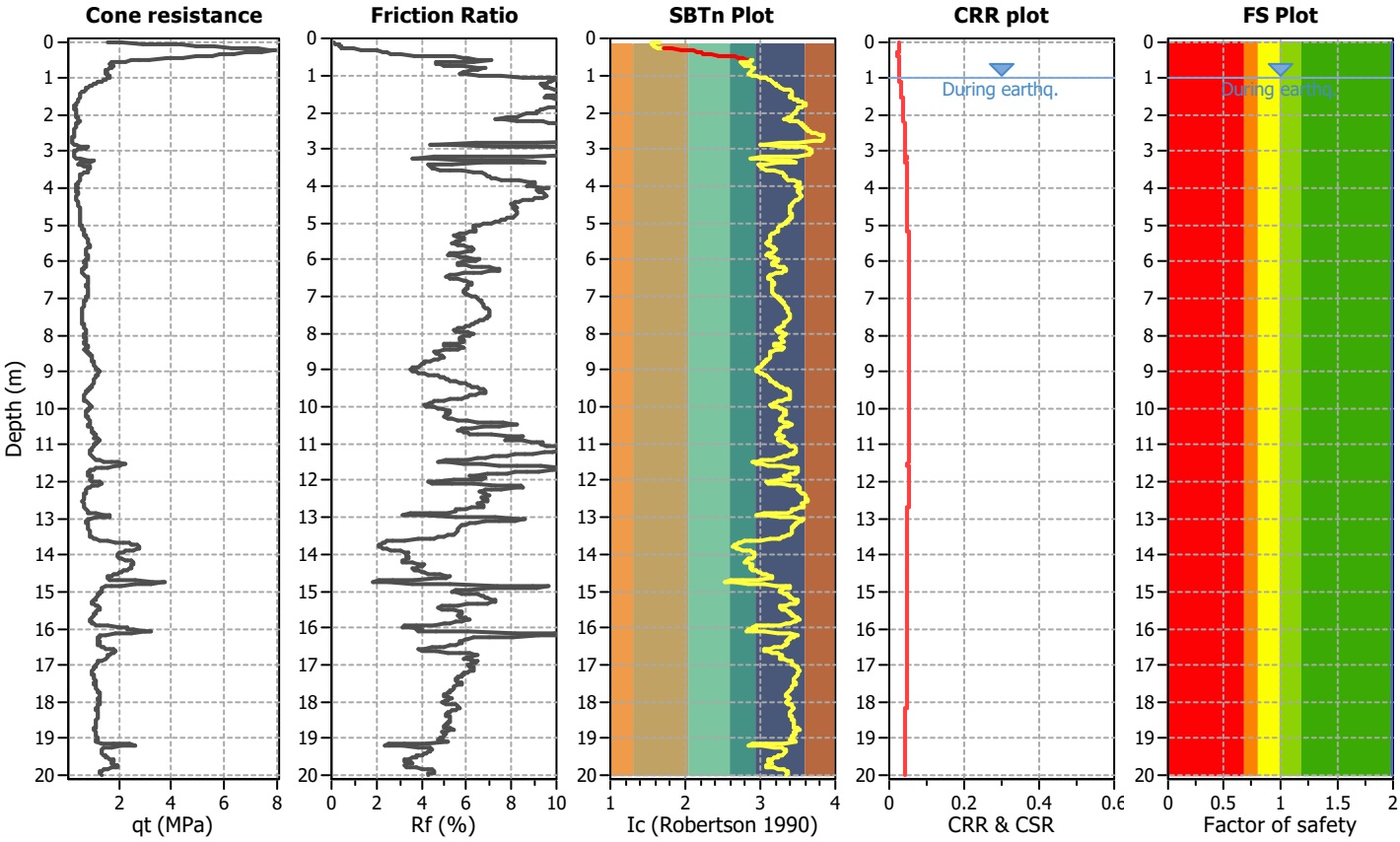
LIQUEFACTION ANALYSIS REPORT

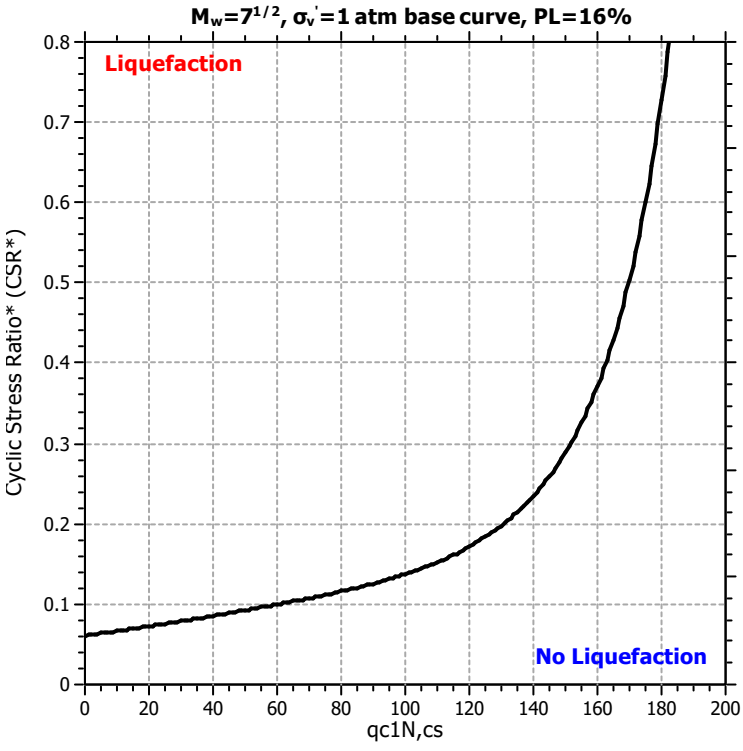
Project title : Sunfield Landholding **Location :**

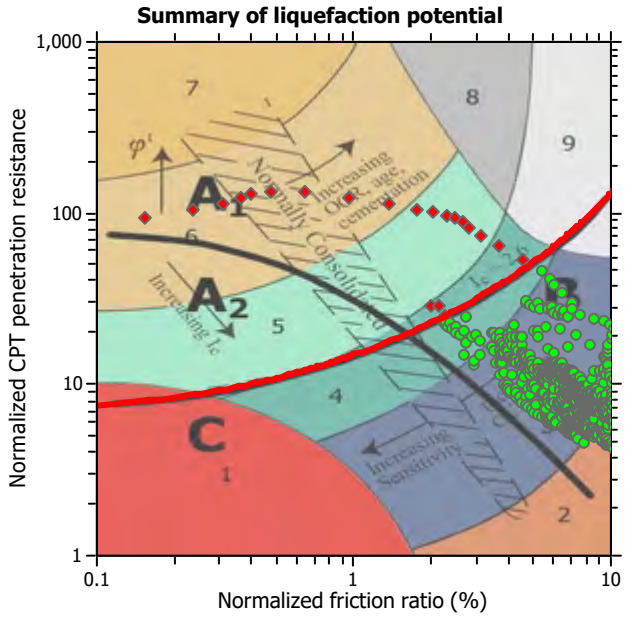
CPT file : CPT134

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.00 m	Excavation depth:	0.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

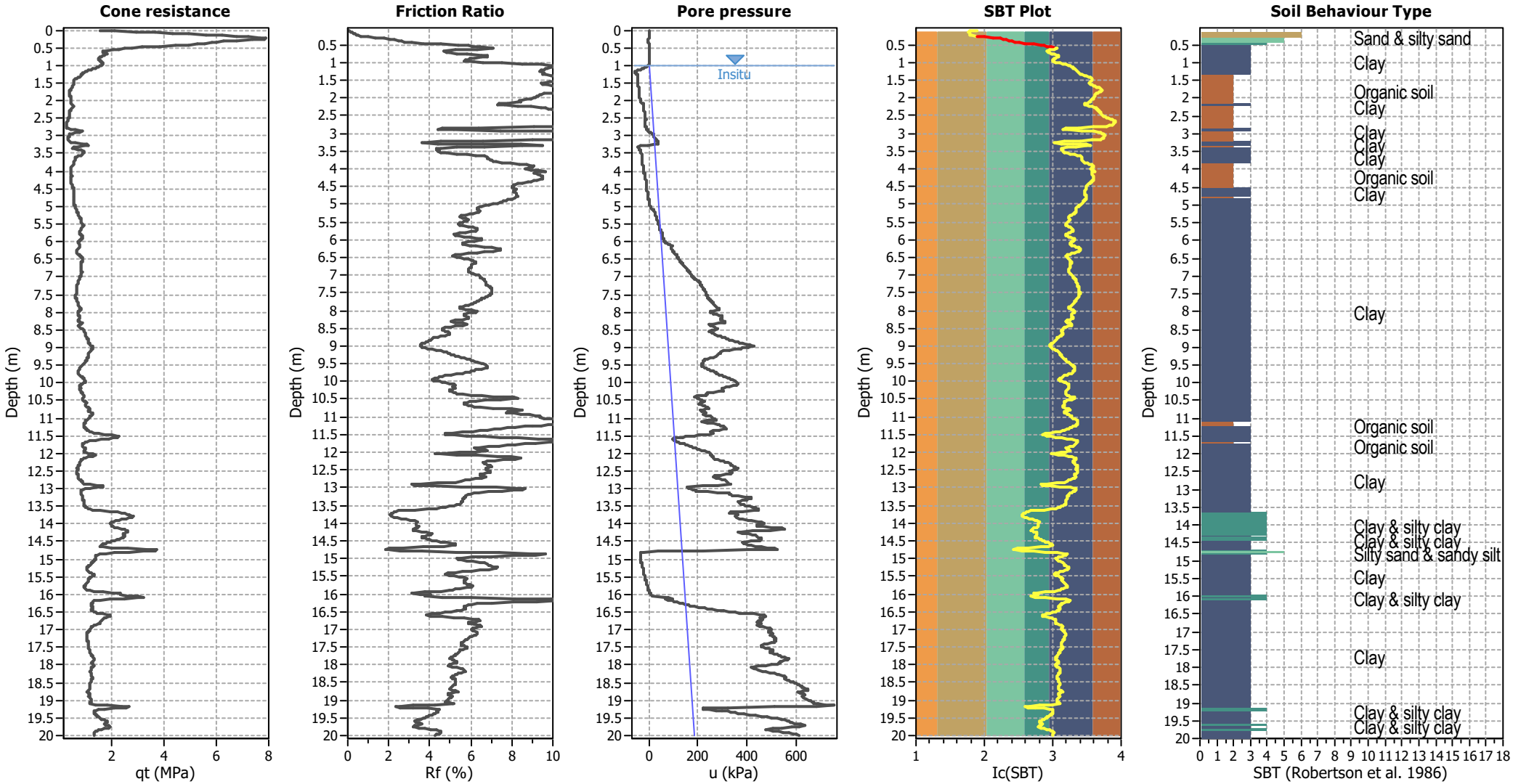






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



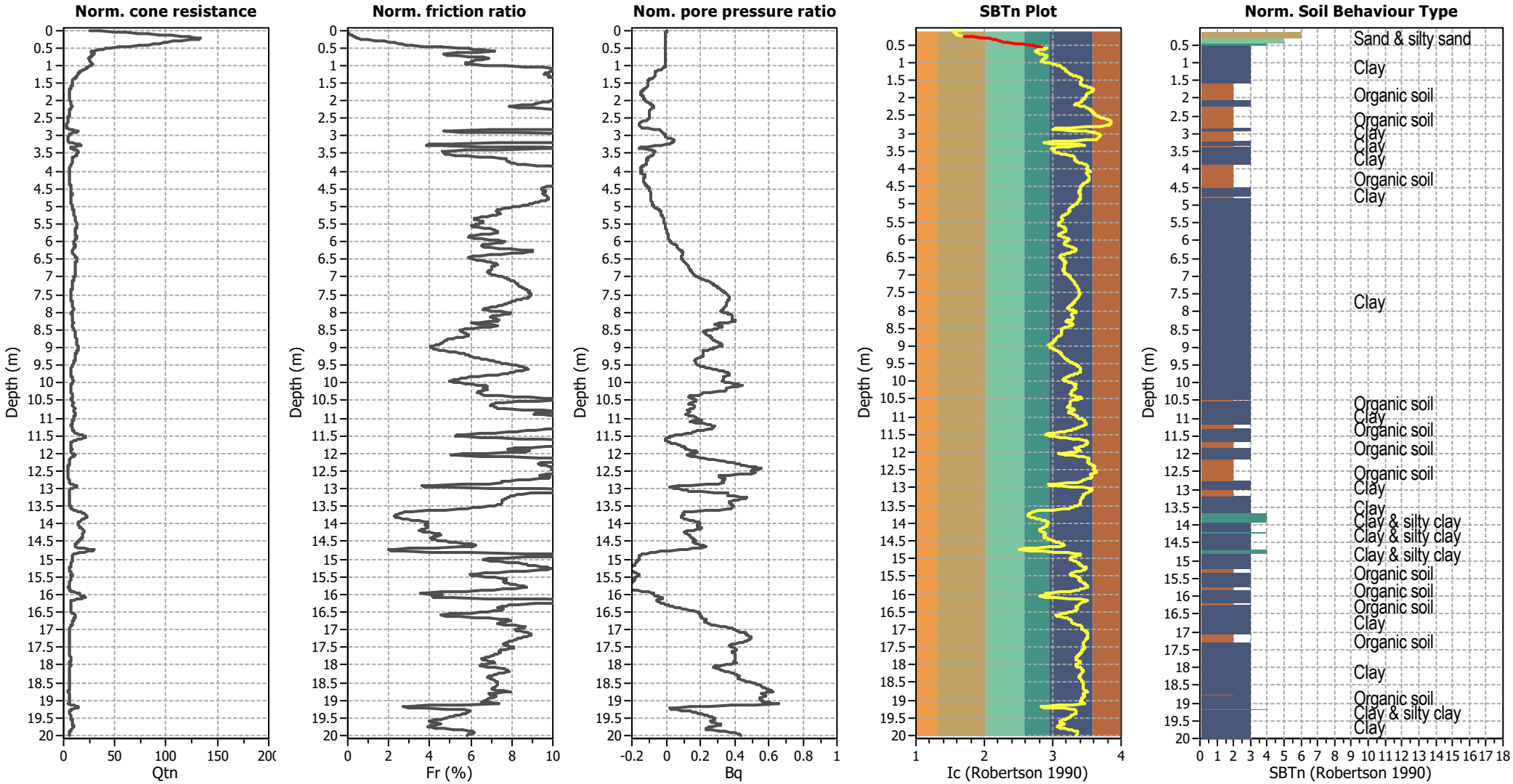
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBTn legend

1. Sensitive fine grained
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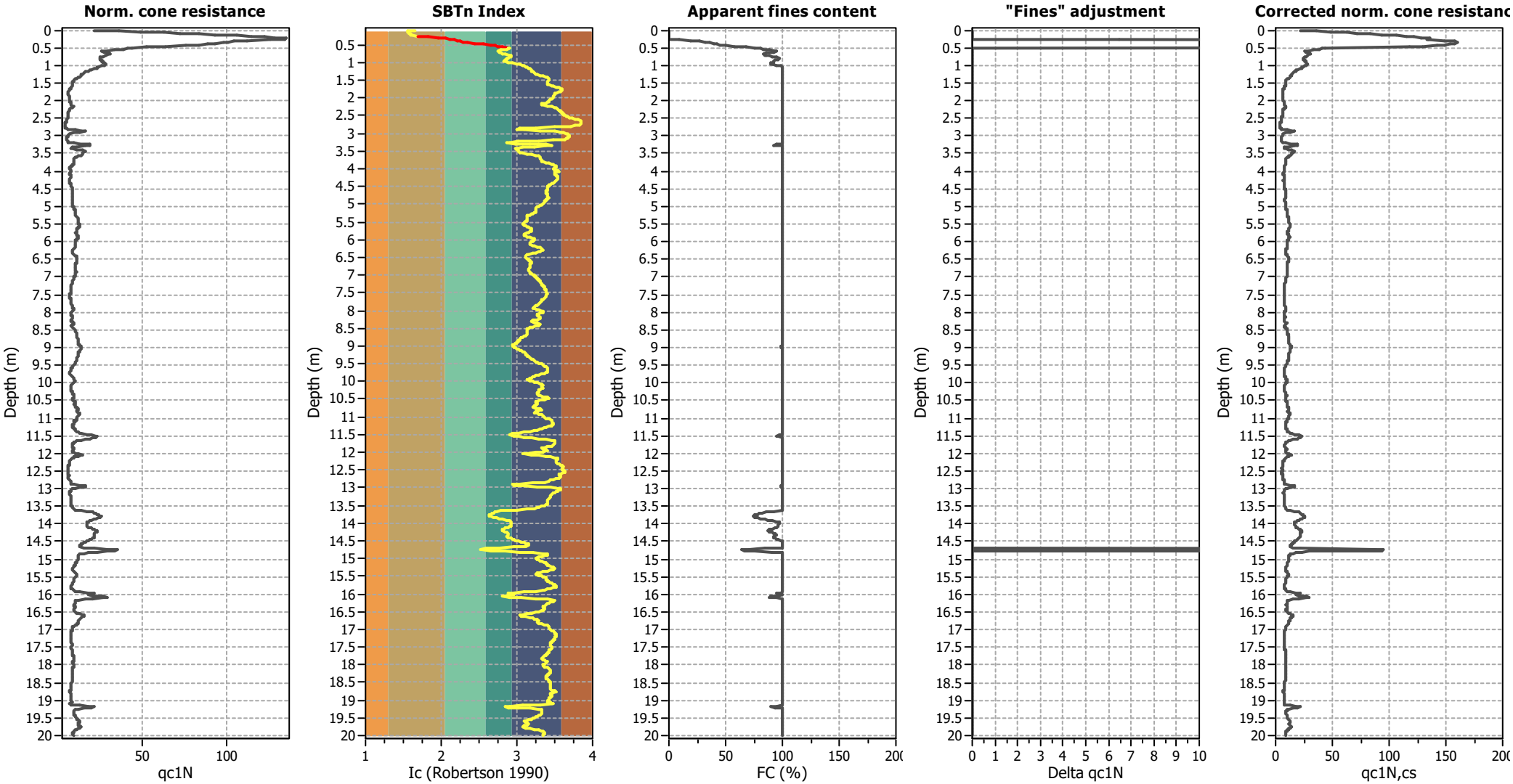
9. Very stiff fine grained

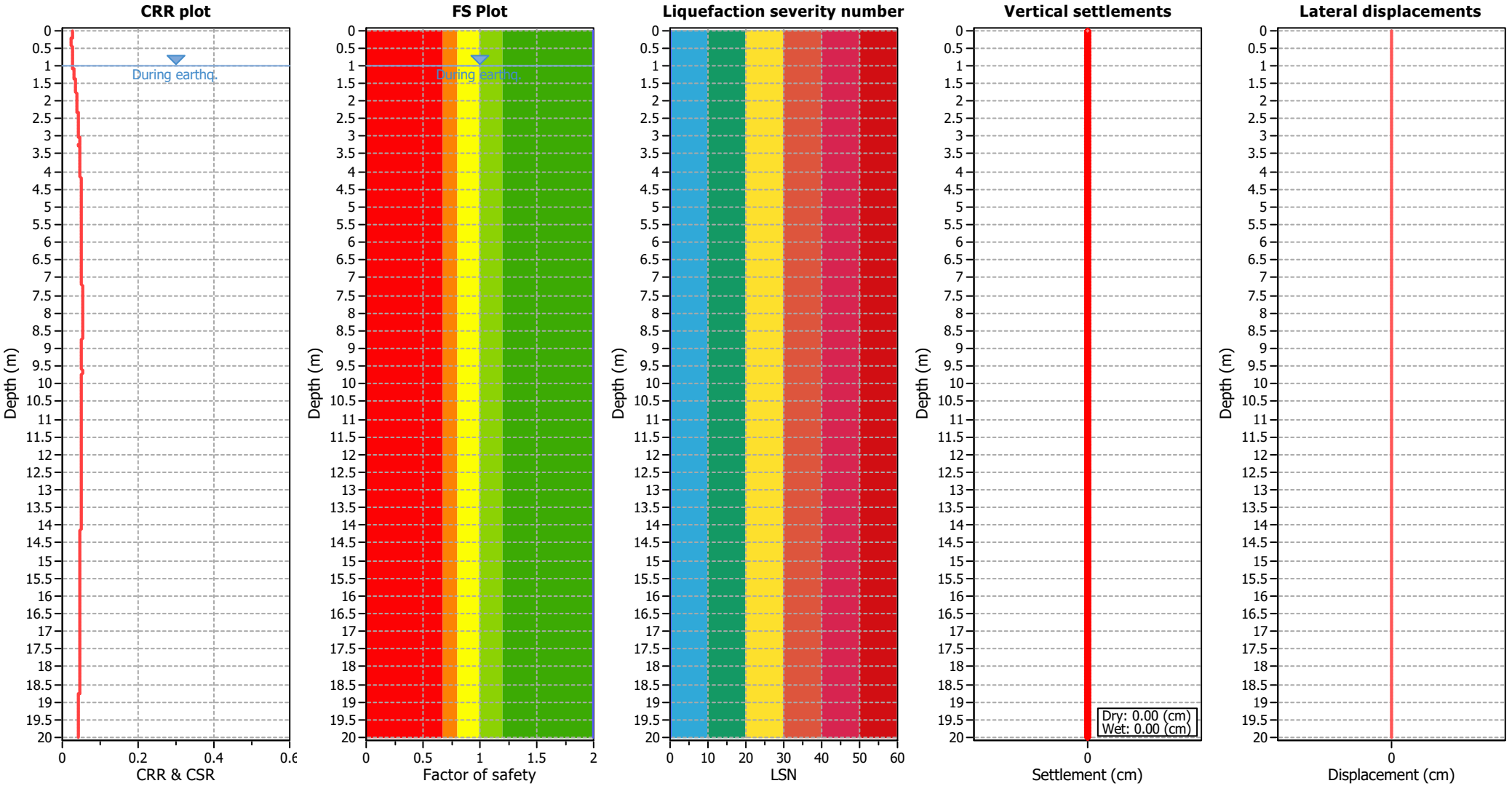
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

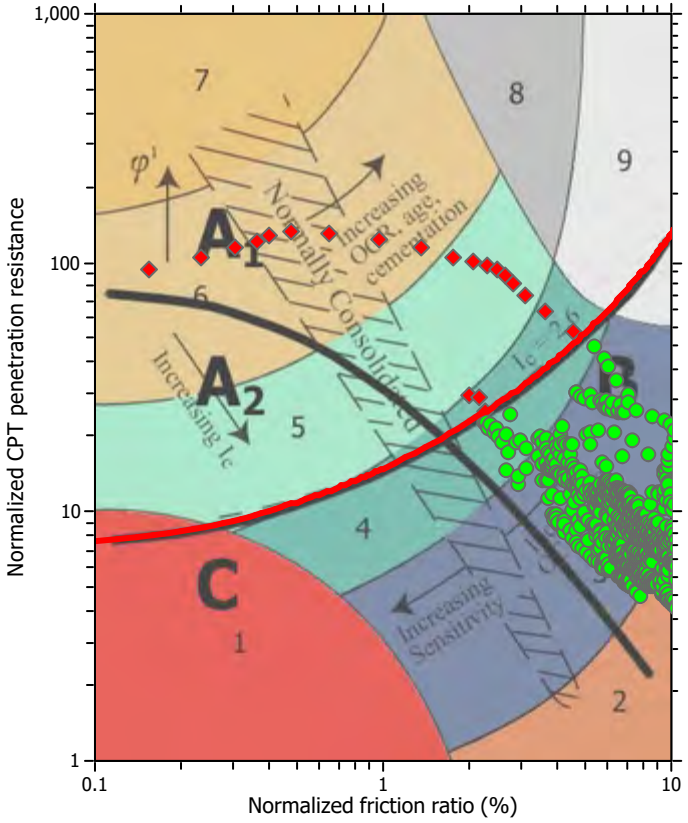
F.S. color scheme

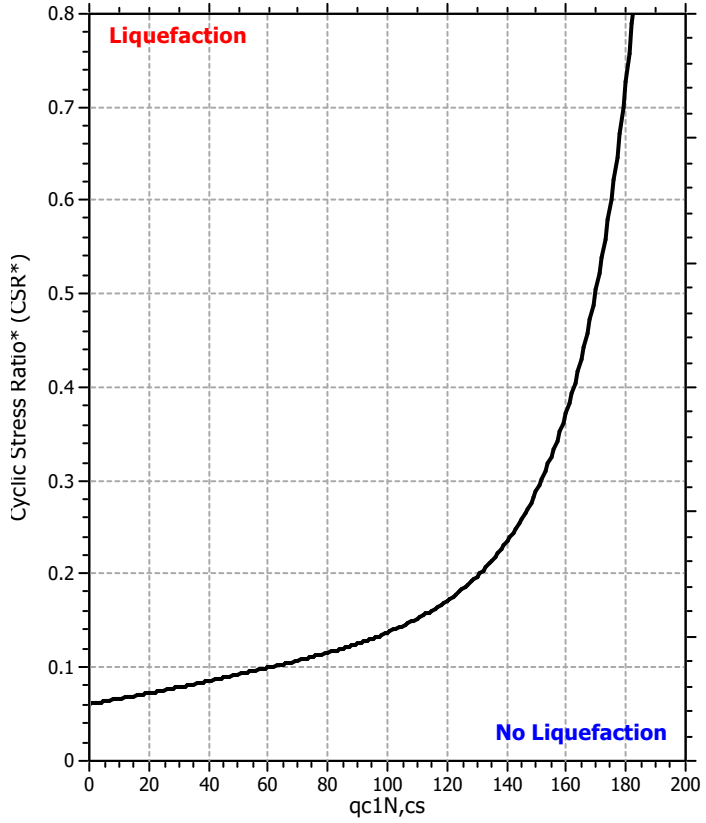
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

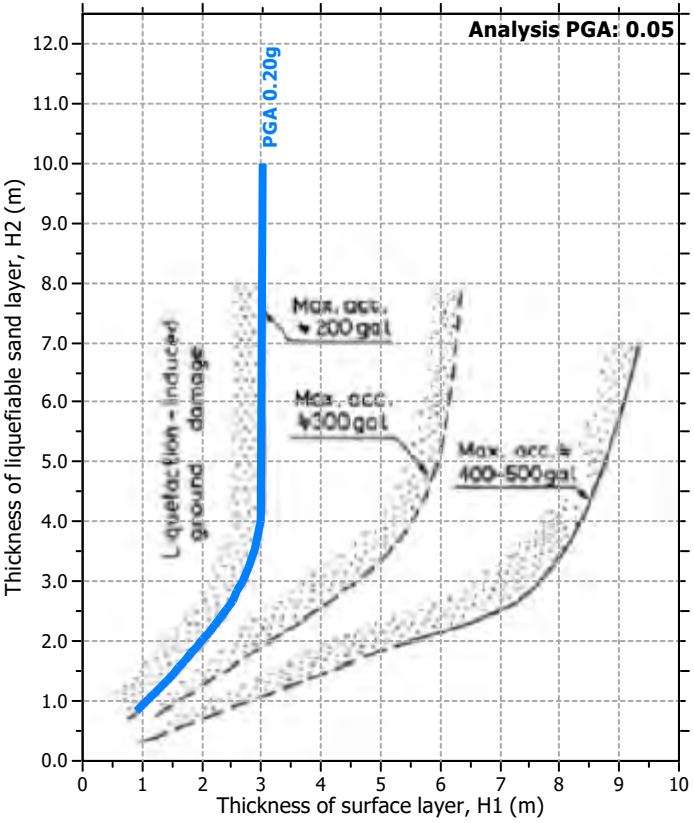
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



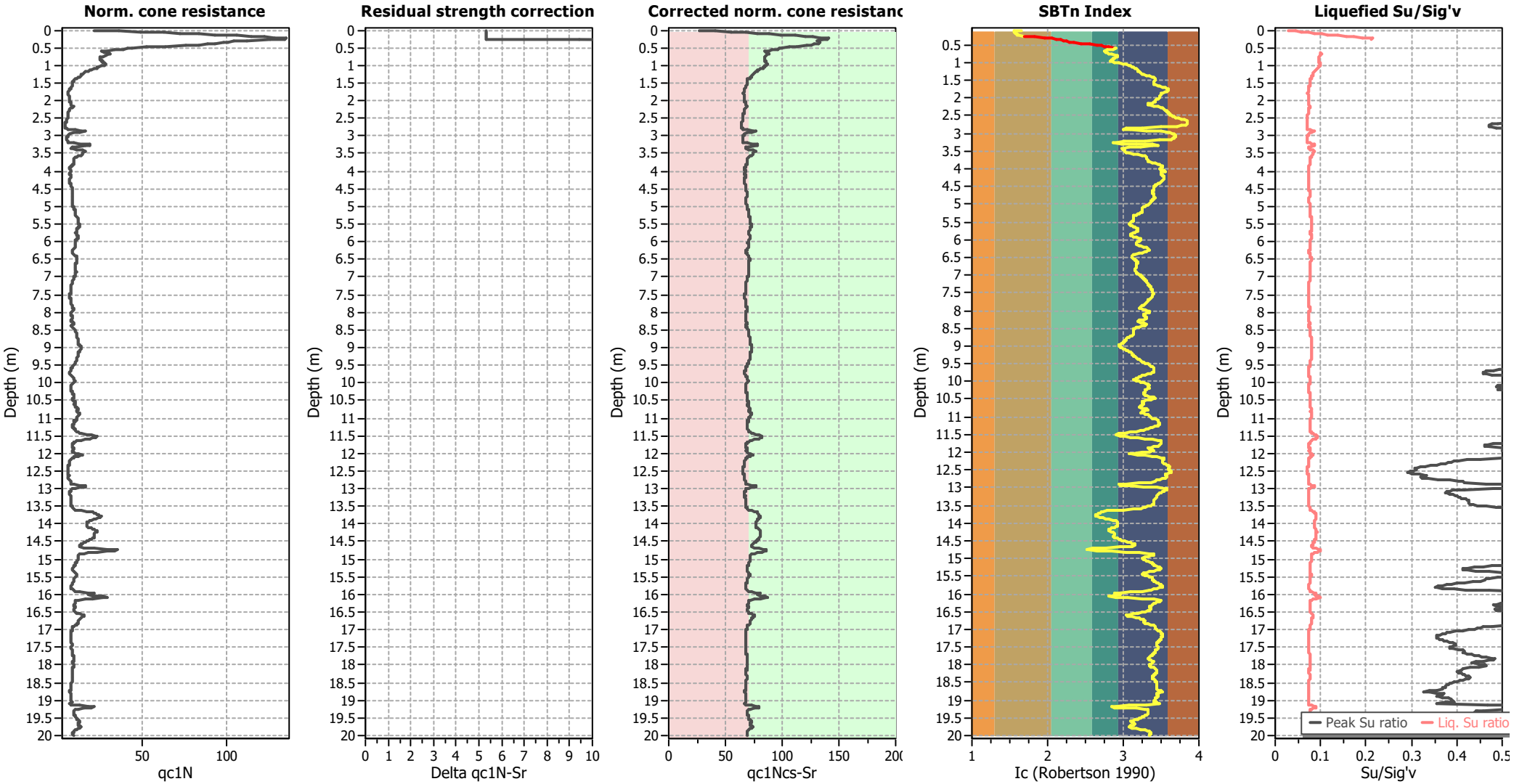




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

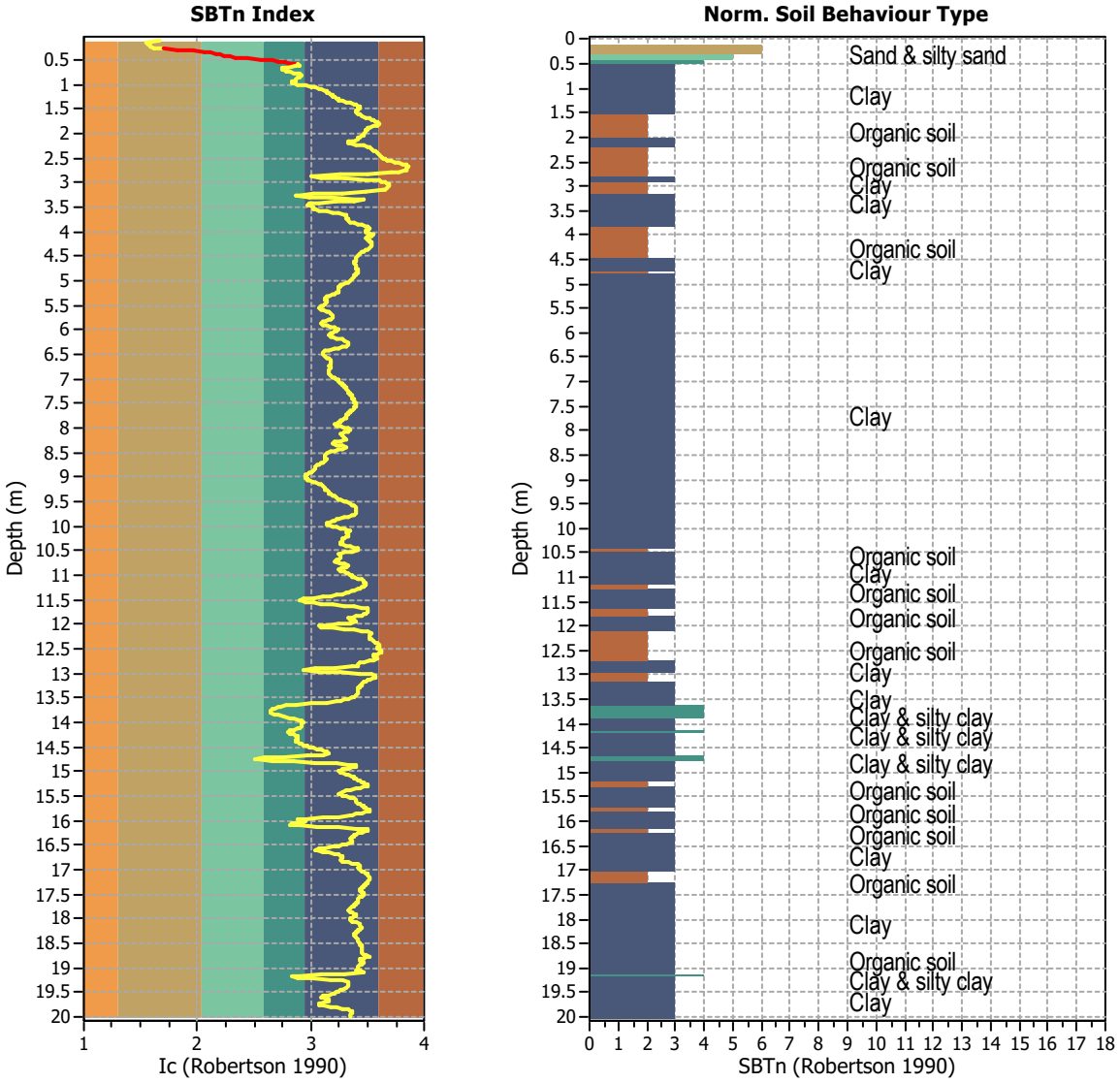
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

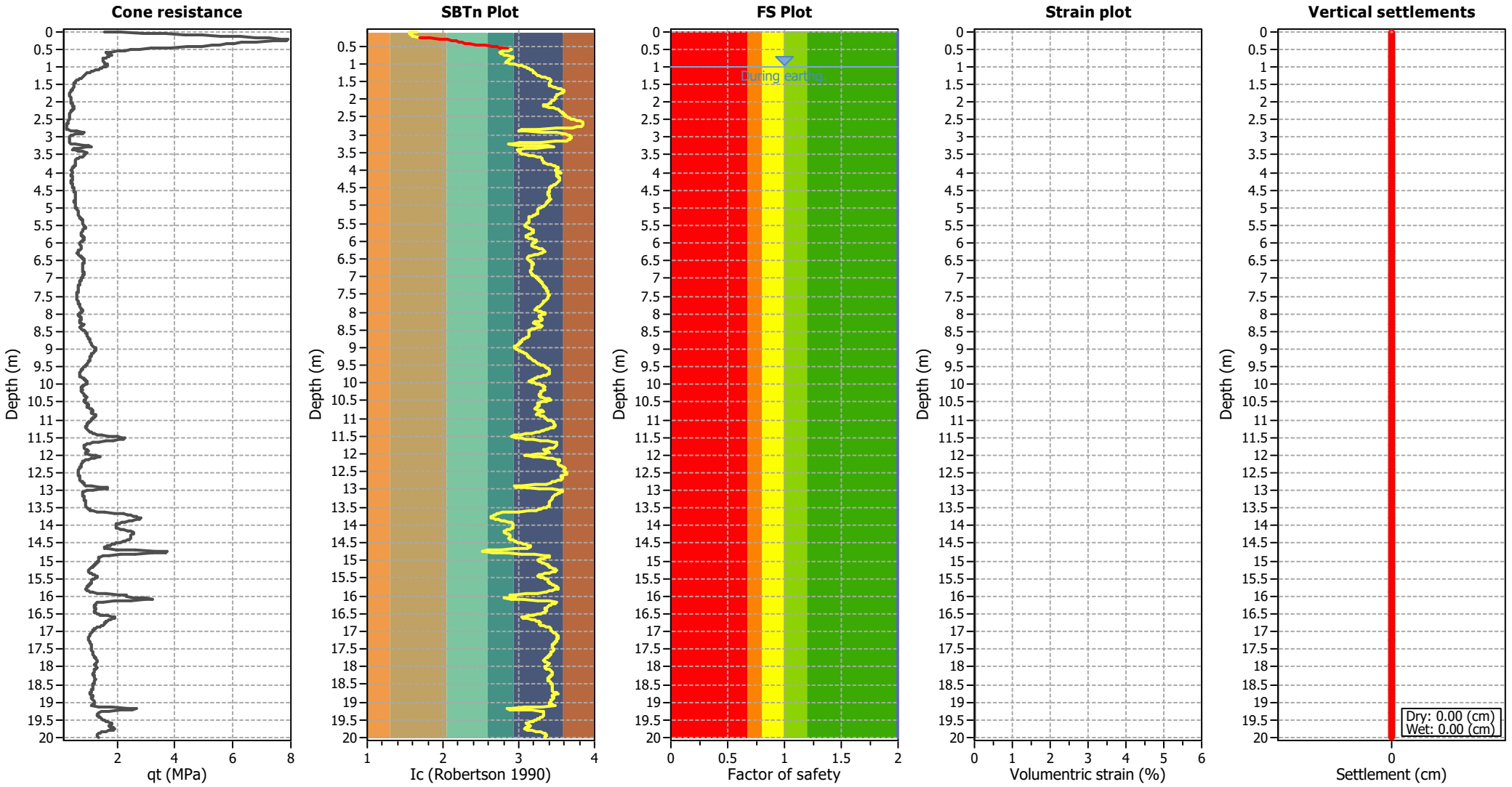
The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties	
I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics	
Total points in CPT file:	1000
Total points excluded:	17
Exclusion percentage:	1.70%
Number of layers detected:	1

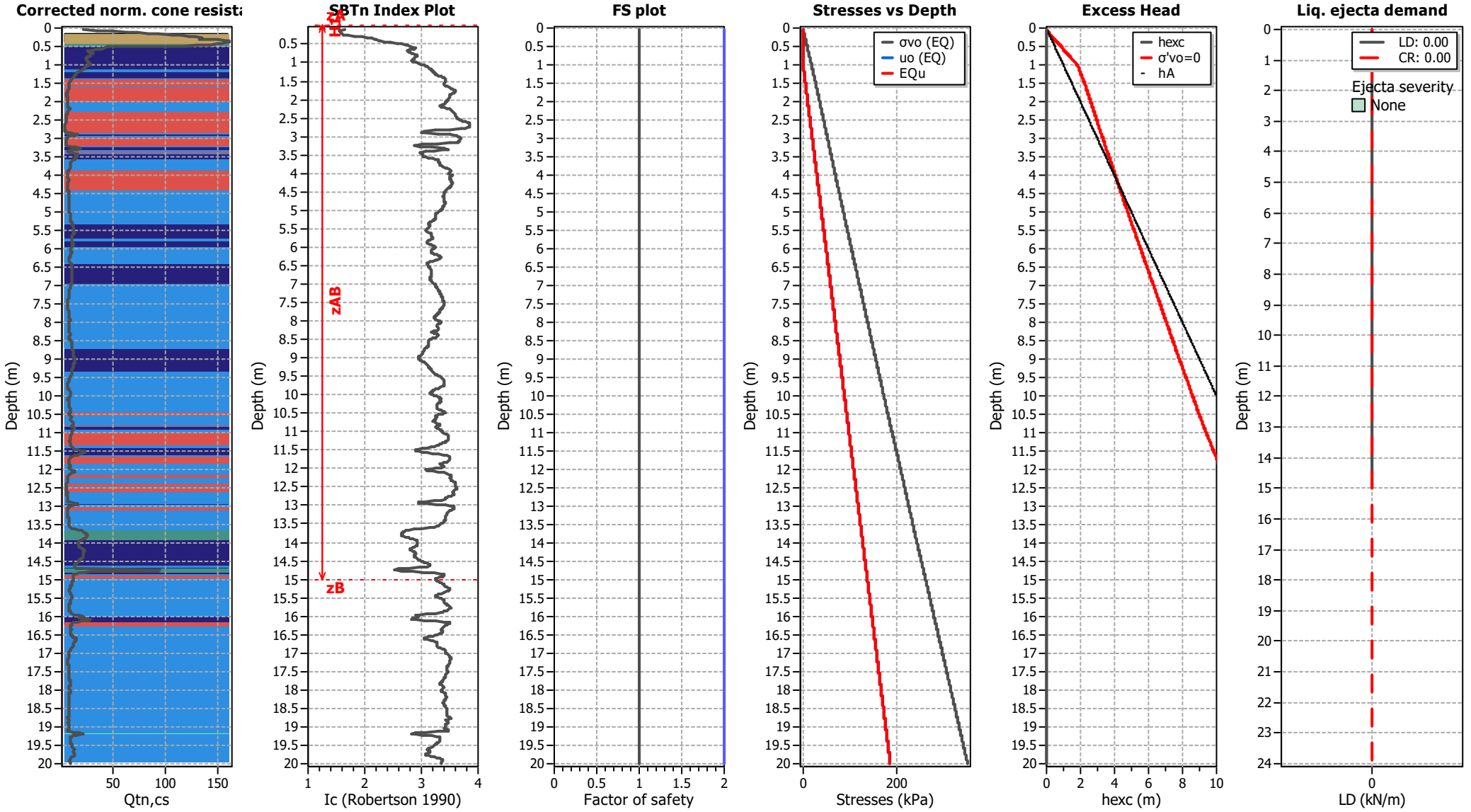
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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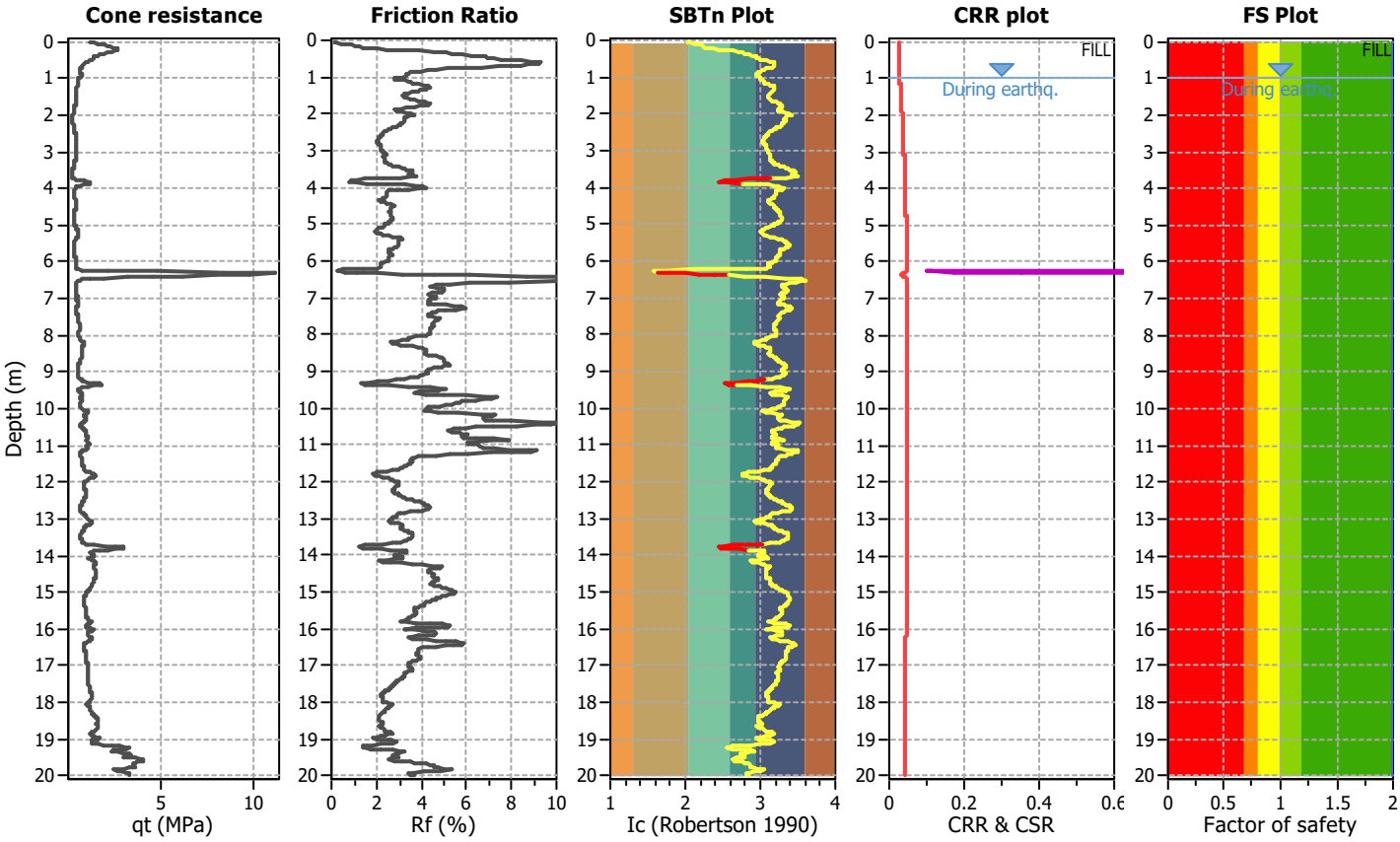
LIQUEFACTION ANALYSIS REPORT

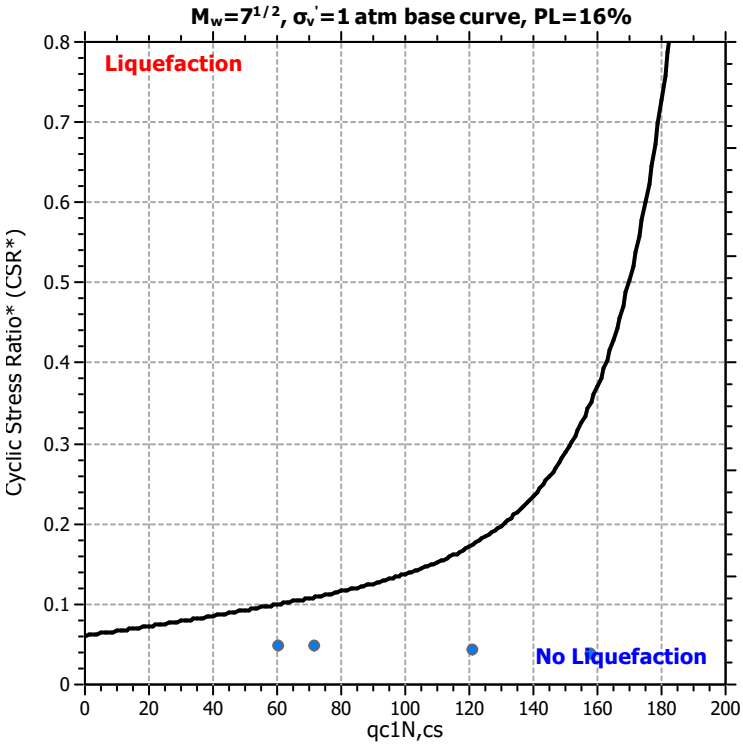
Project title : Sunfield Landholding **Location :**

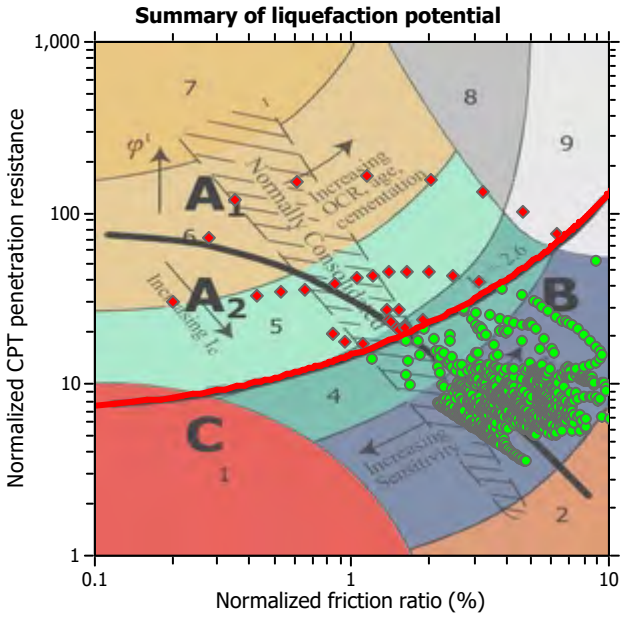
CPT file : CPT135

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	18.50 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		







Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
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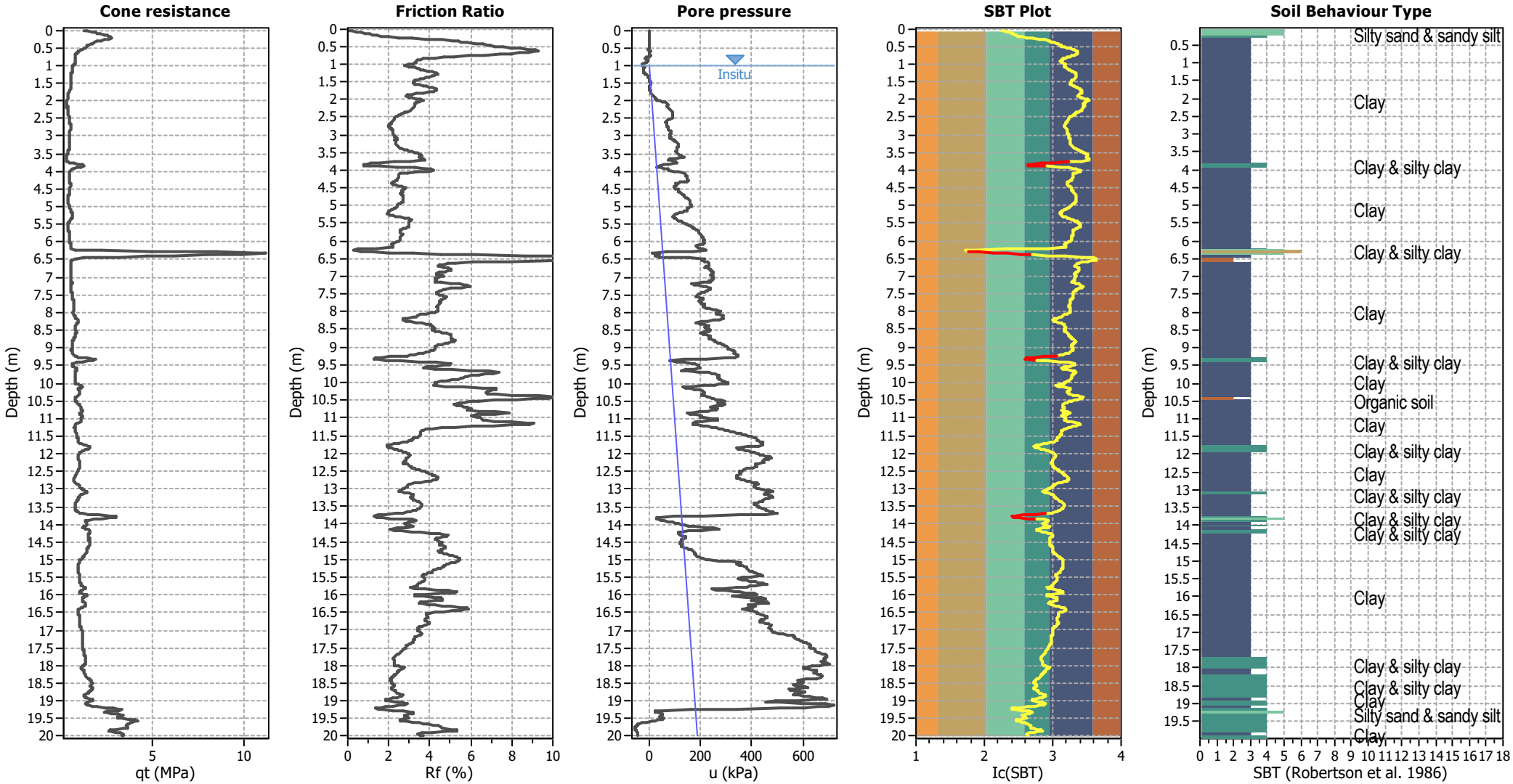
CPT basic interpretation plots



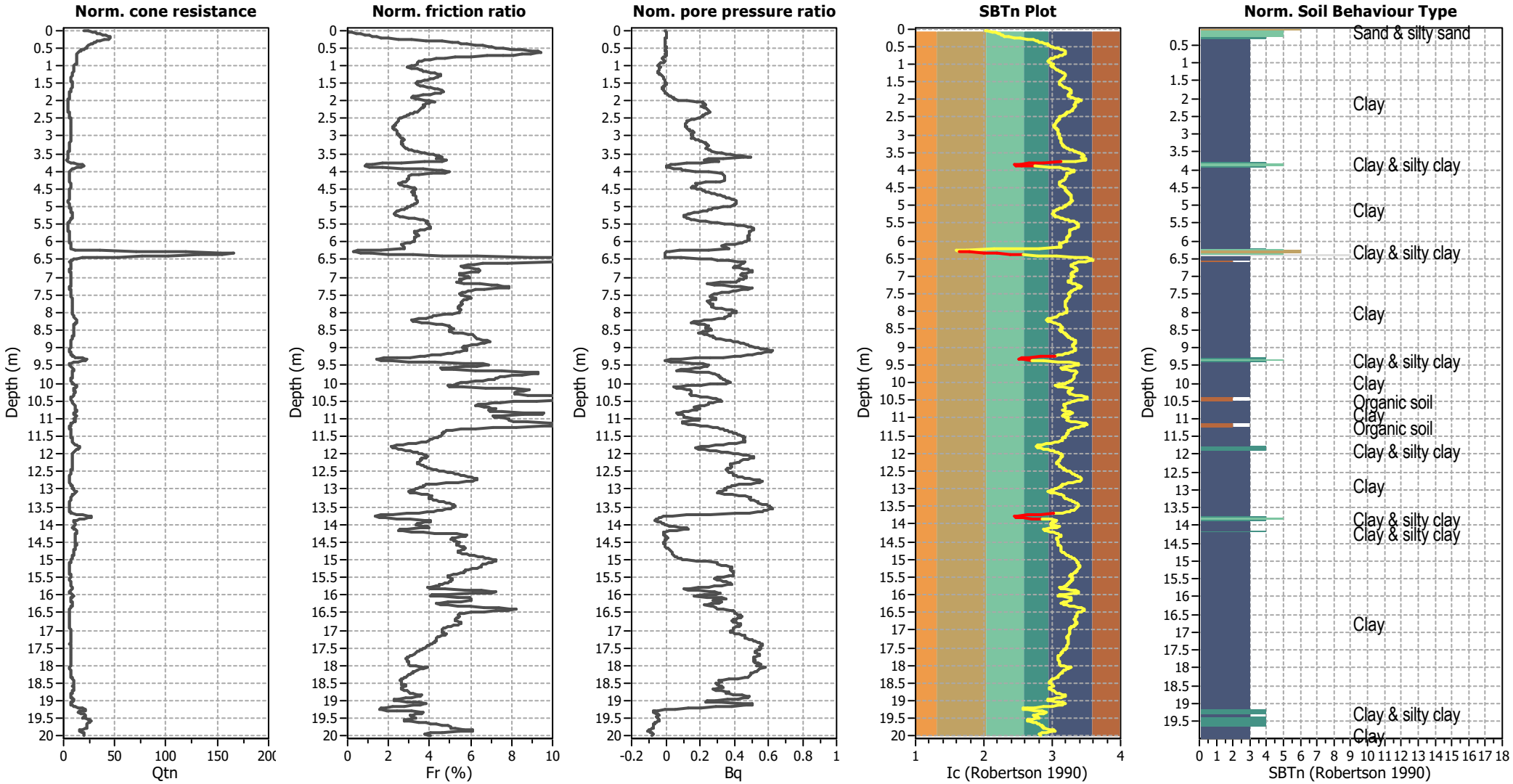
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



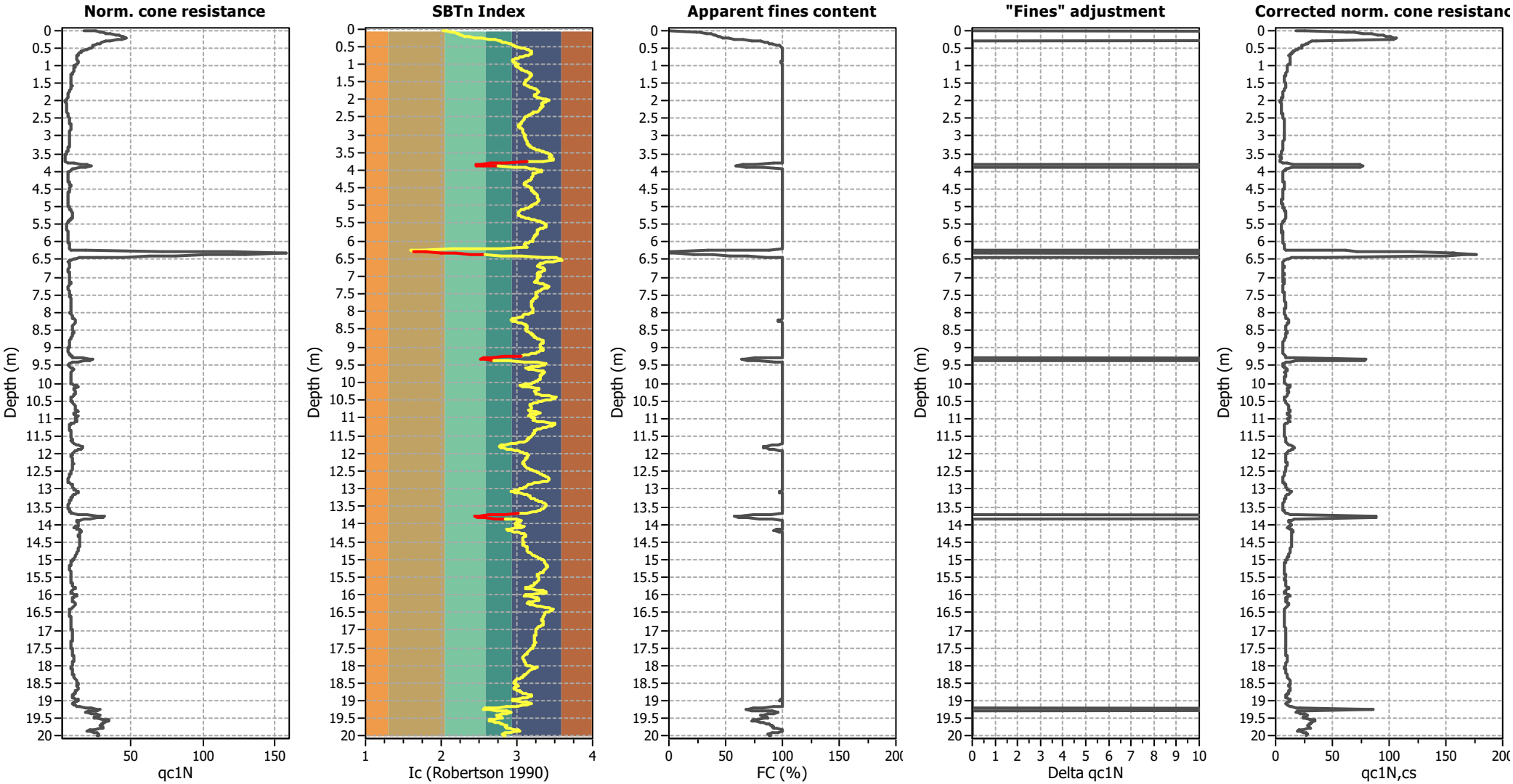
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

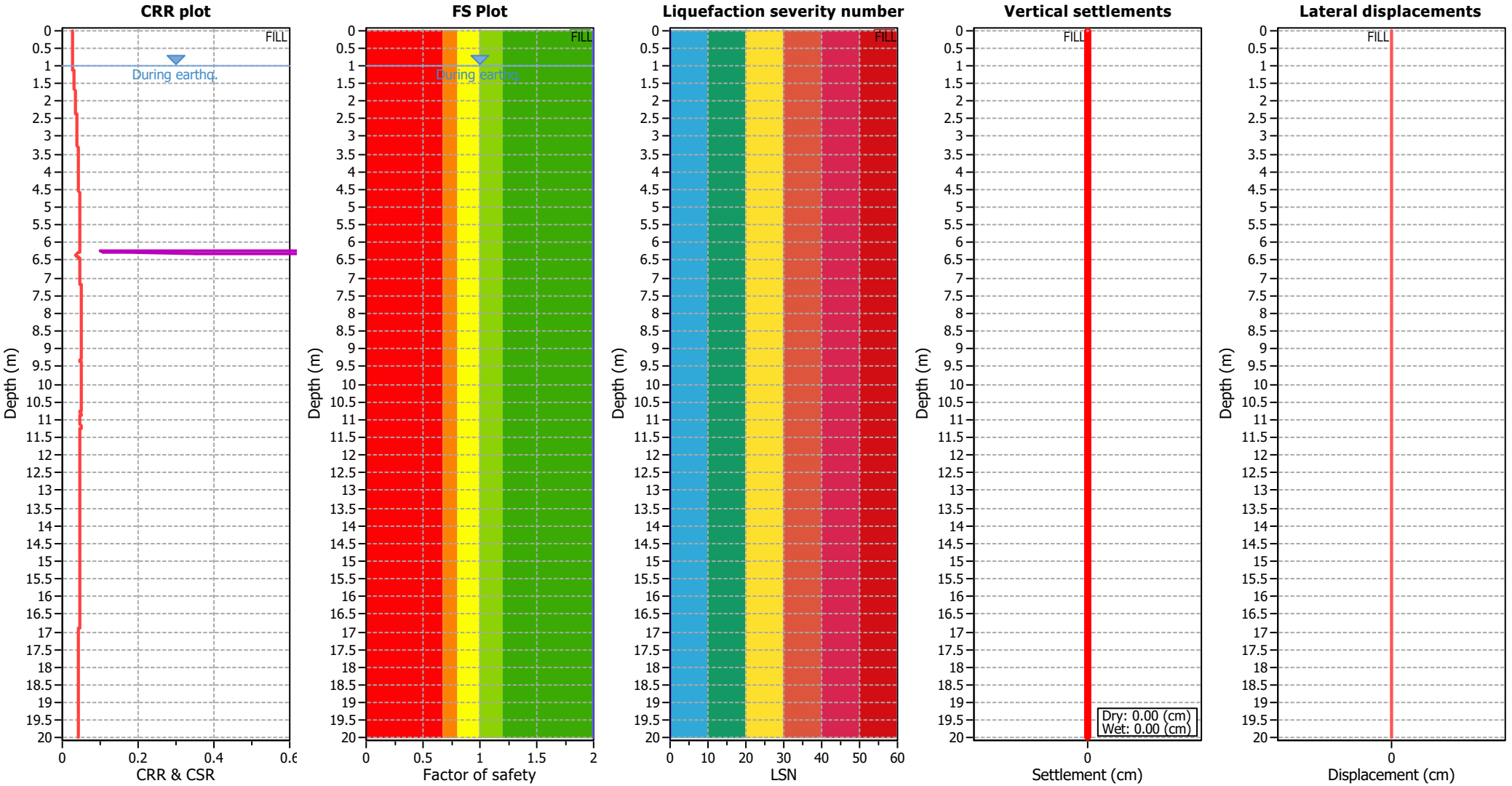
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

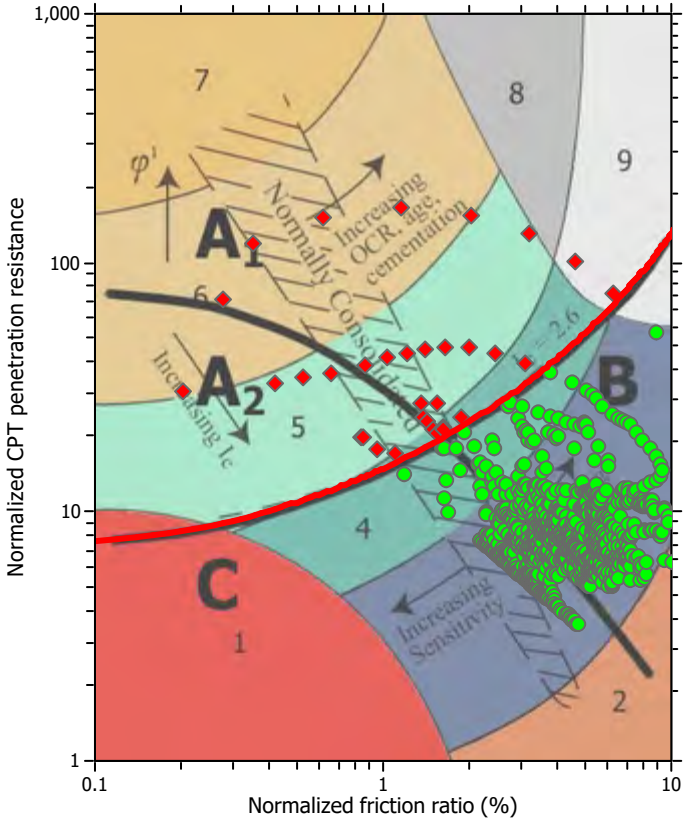
F.S. color scheme

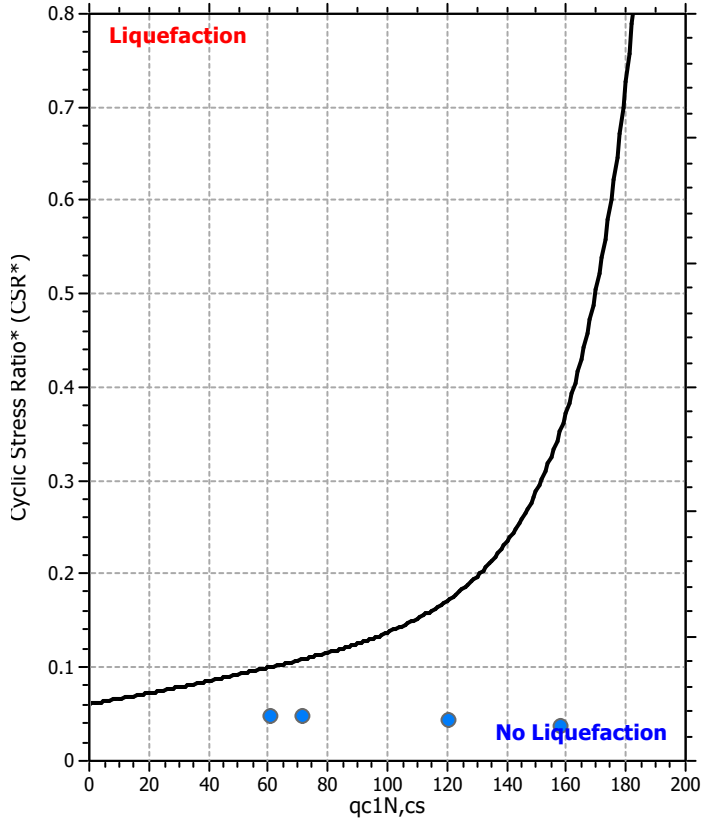
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

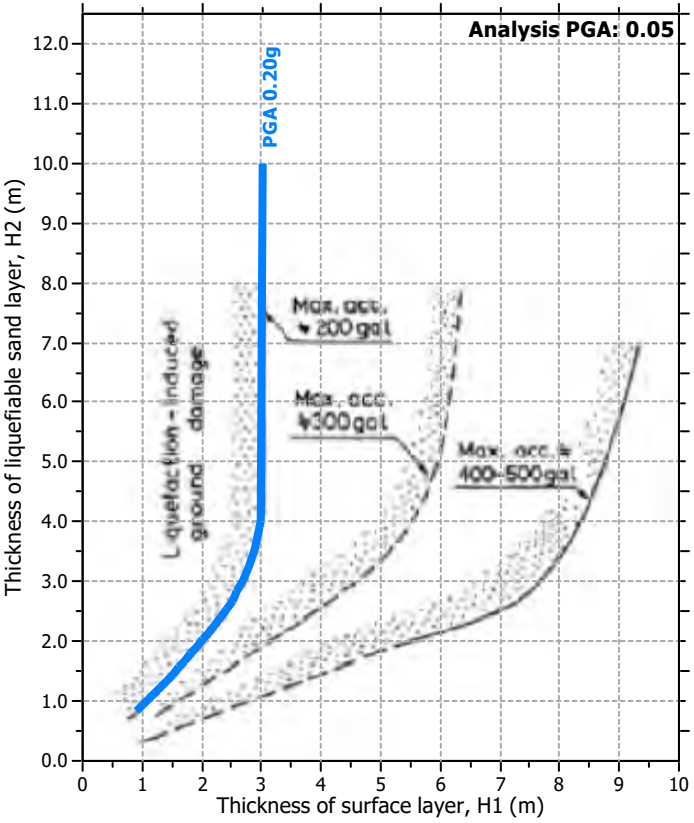
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



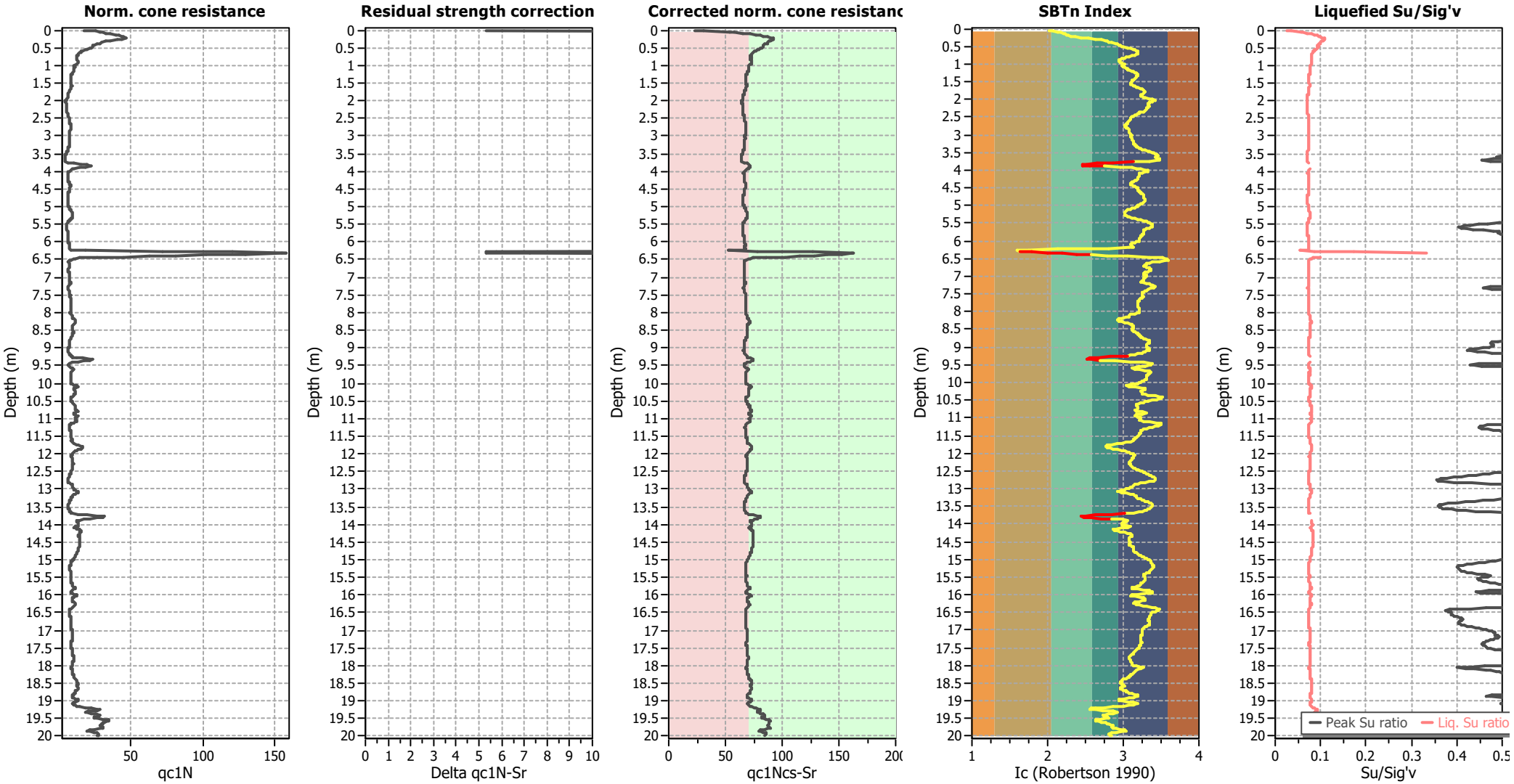




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

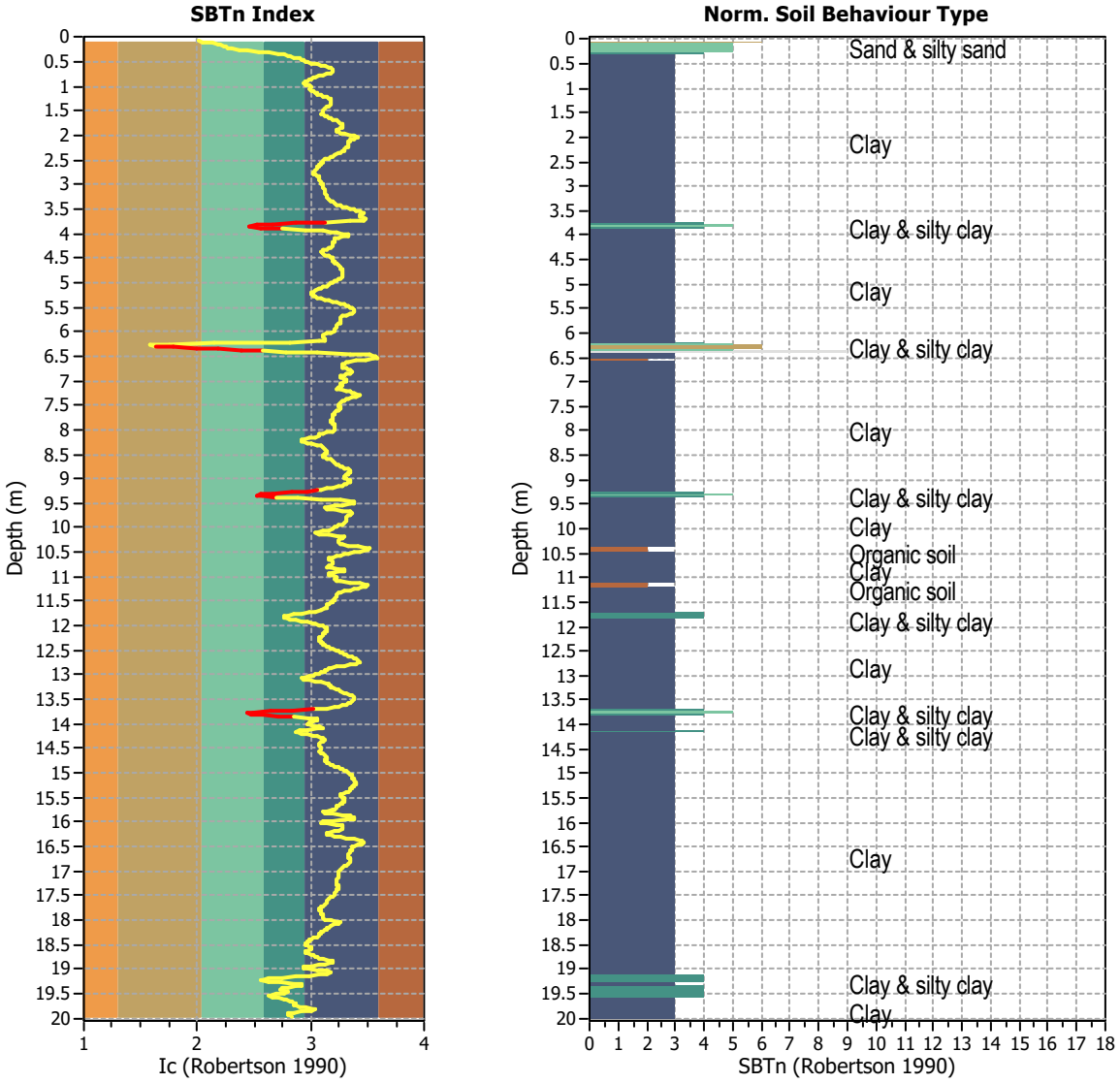
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

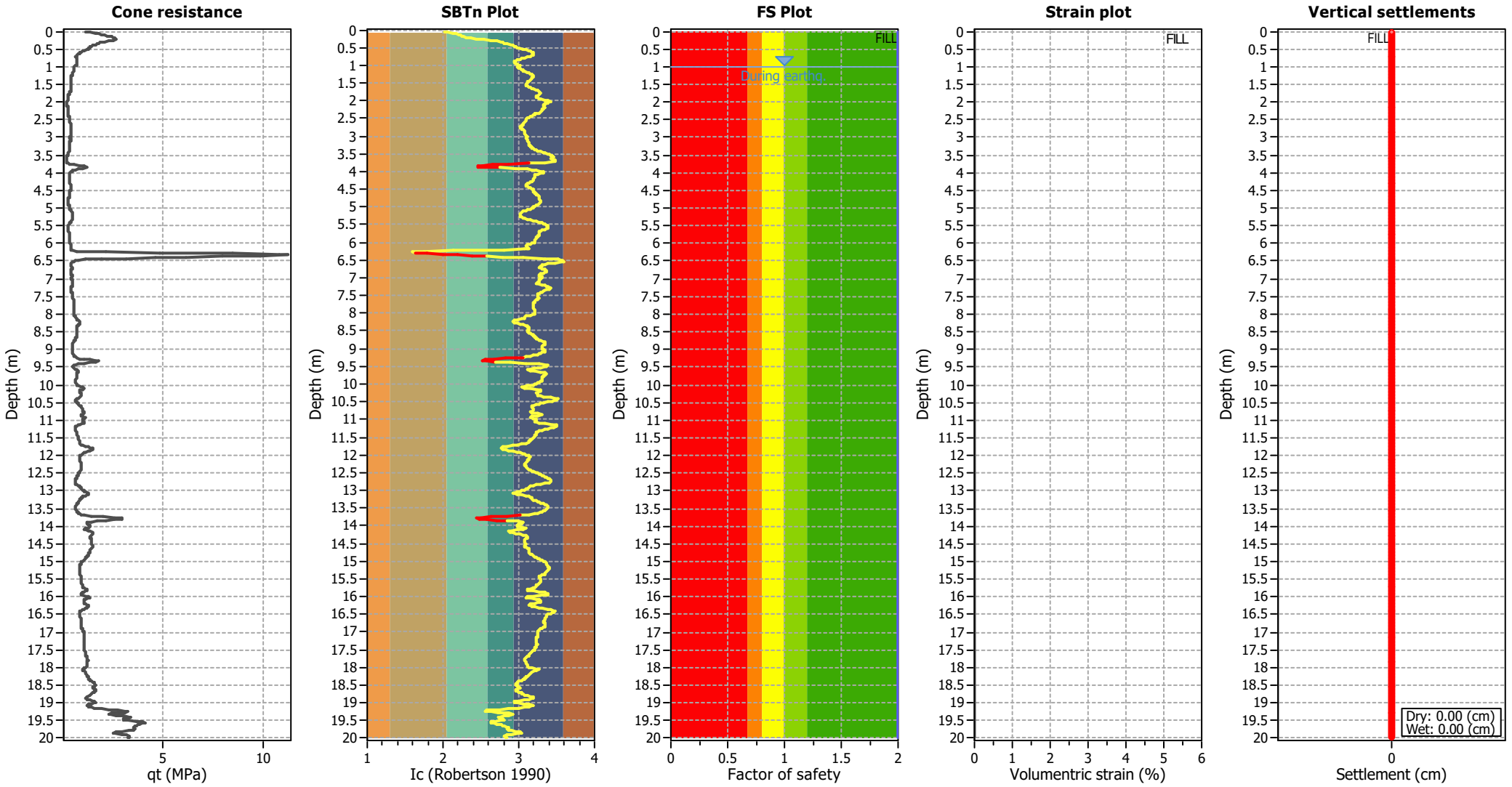
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	999
I_c maximum check value:	3.00	Total points excluded:	33
I_c change ratio value:	0.0100	Exclusion percentage:	3.30%
Minimum number of points in layer:	4	Number of layers detected:	7

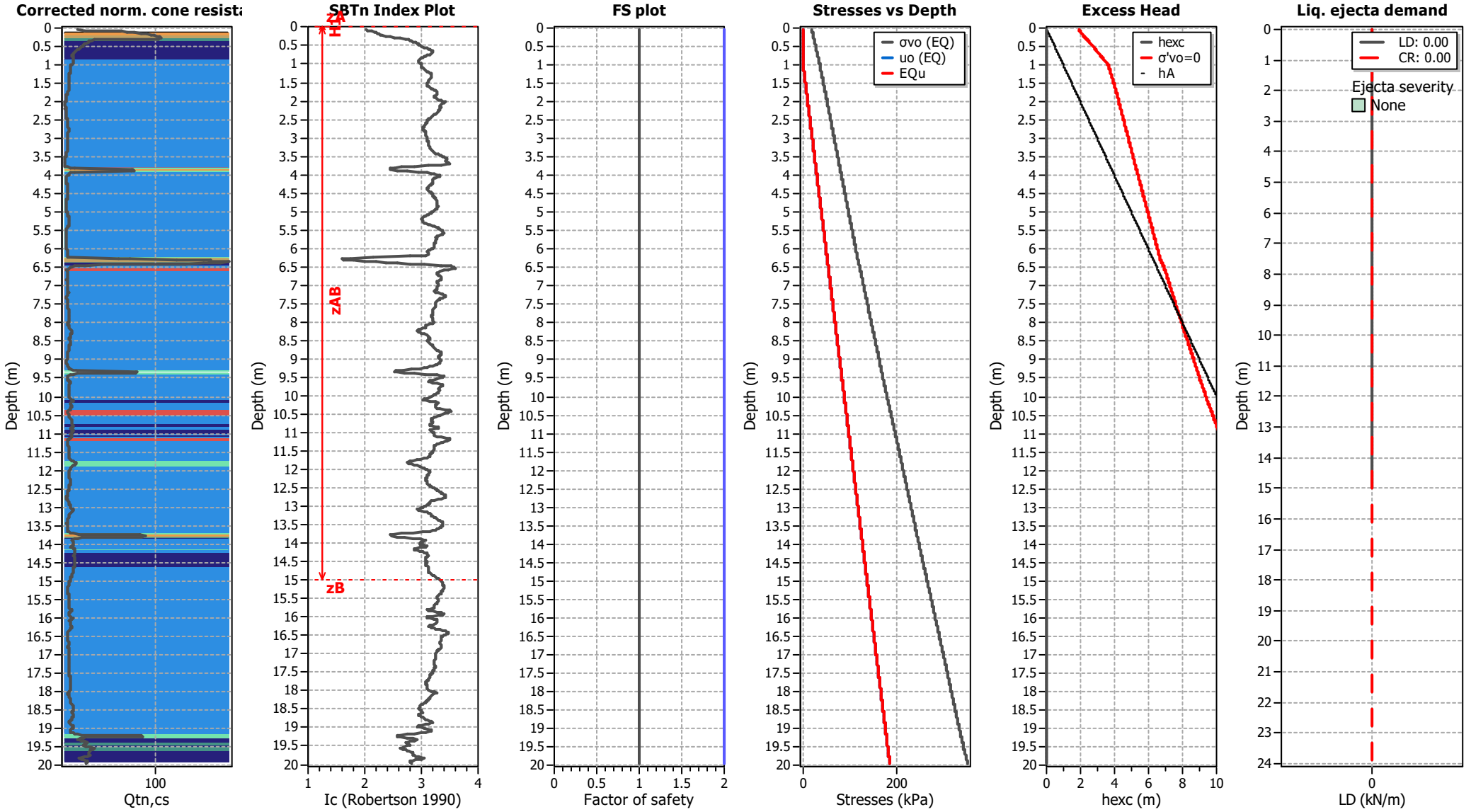
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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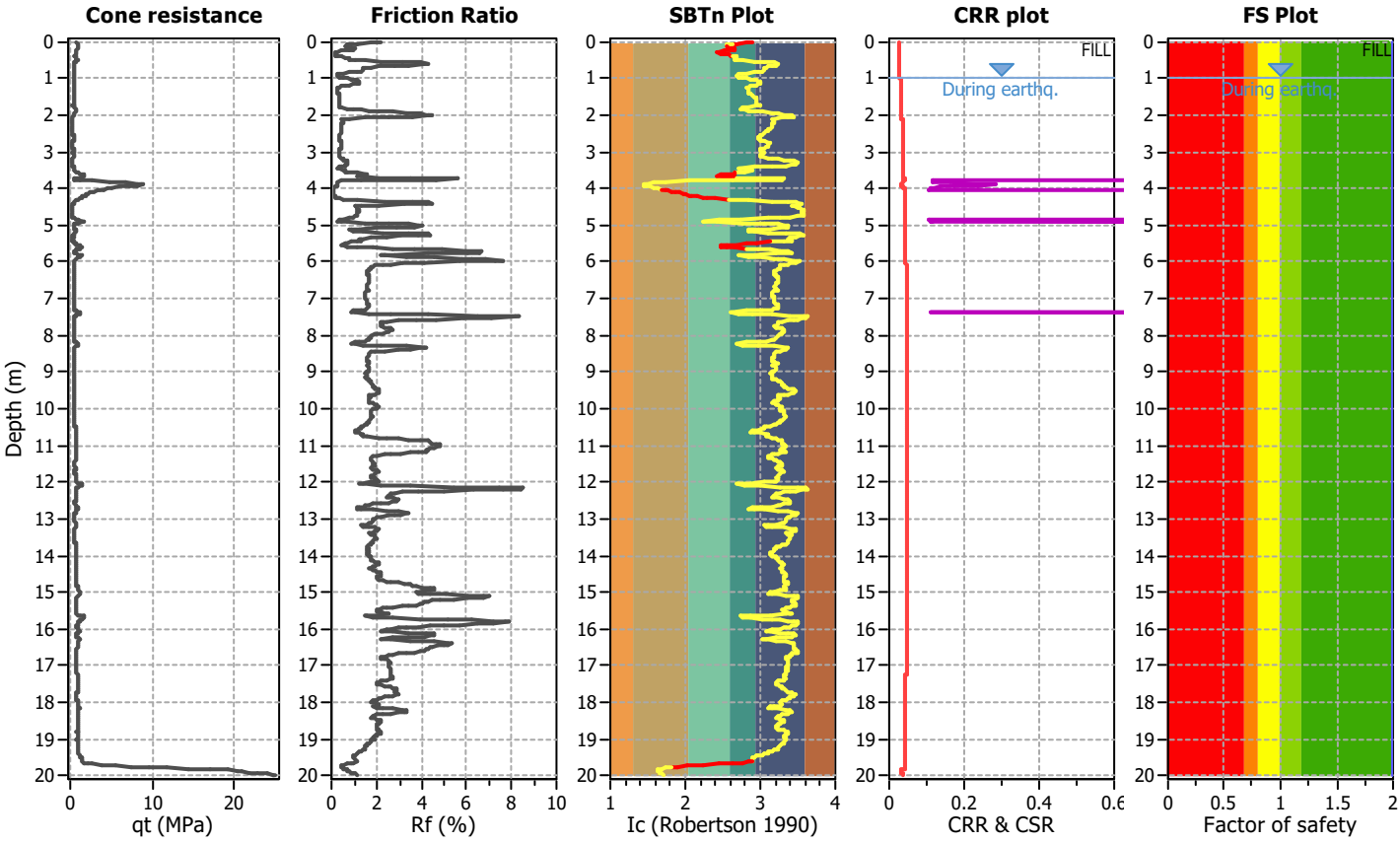
LIQUEFACTION ANALYSIS REPORT

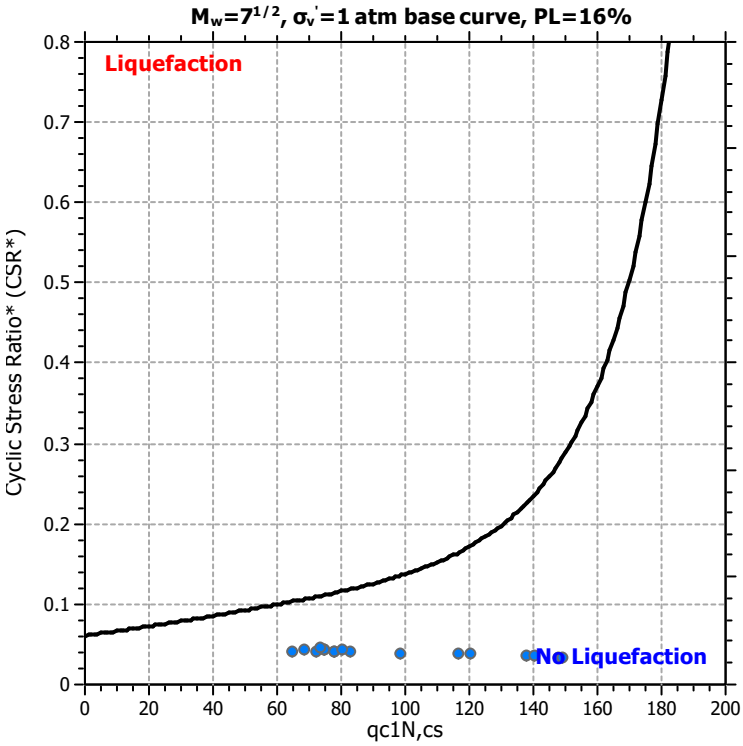
Project title : Sunfield Landholding **Location :**

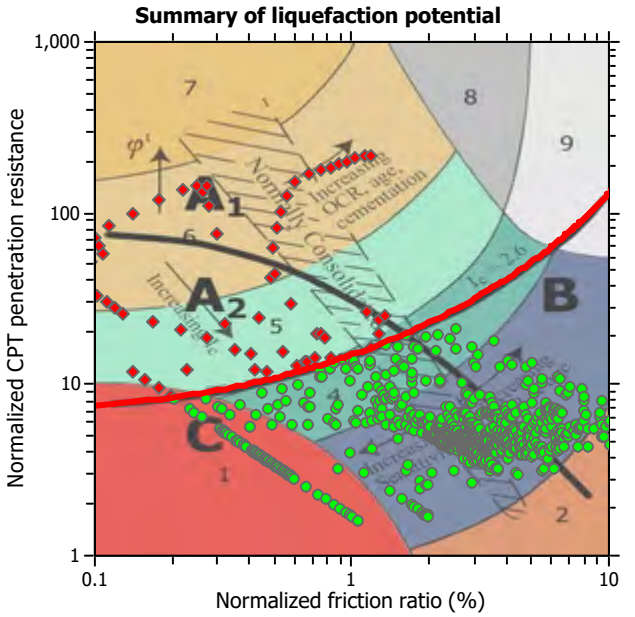
CPT file : CPT136

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	37.00 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

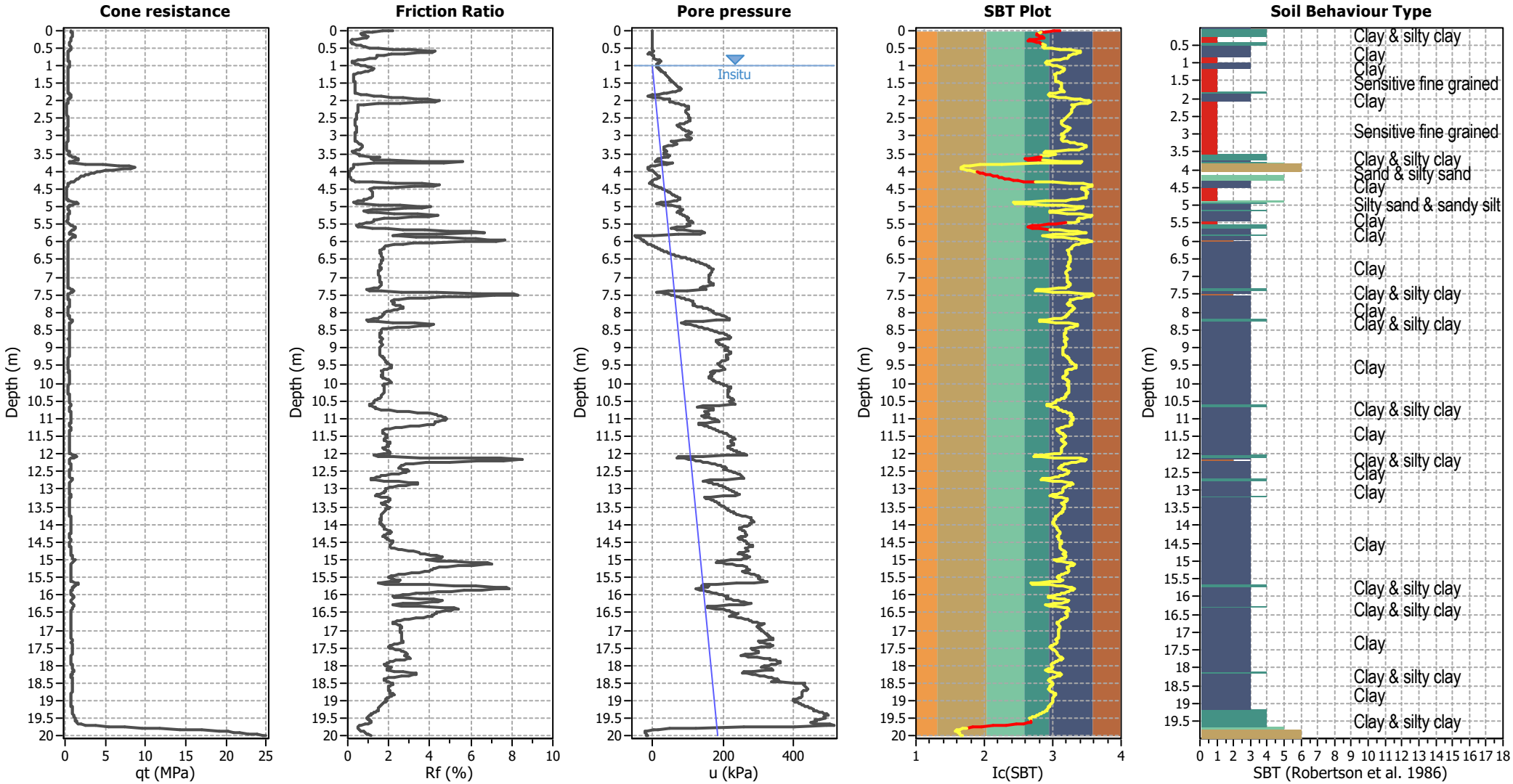






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



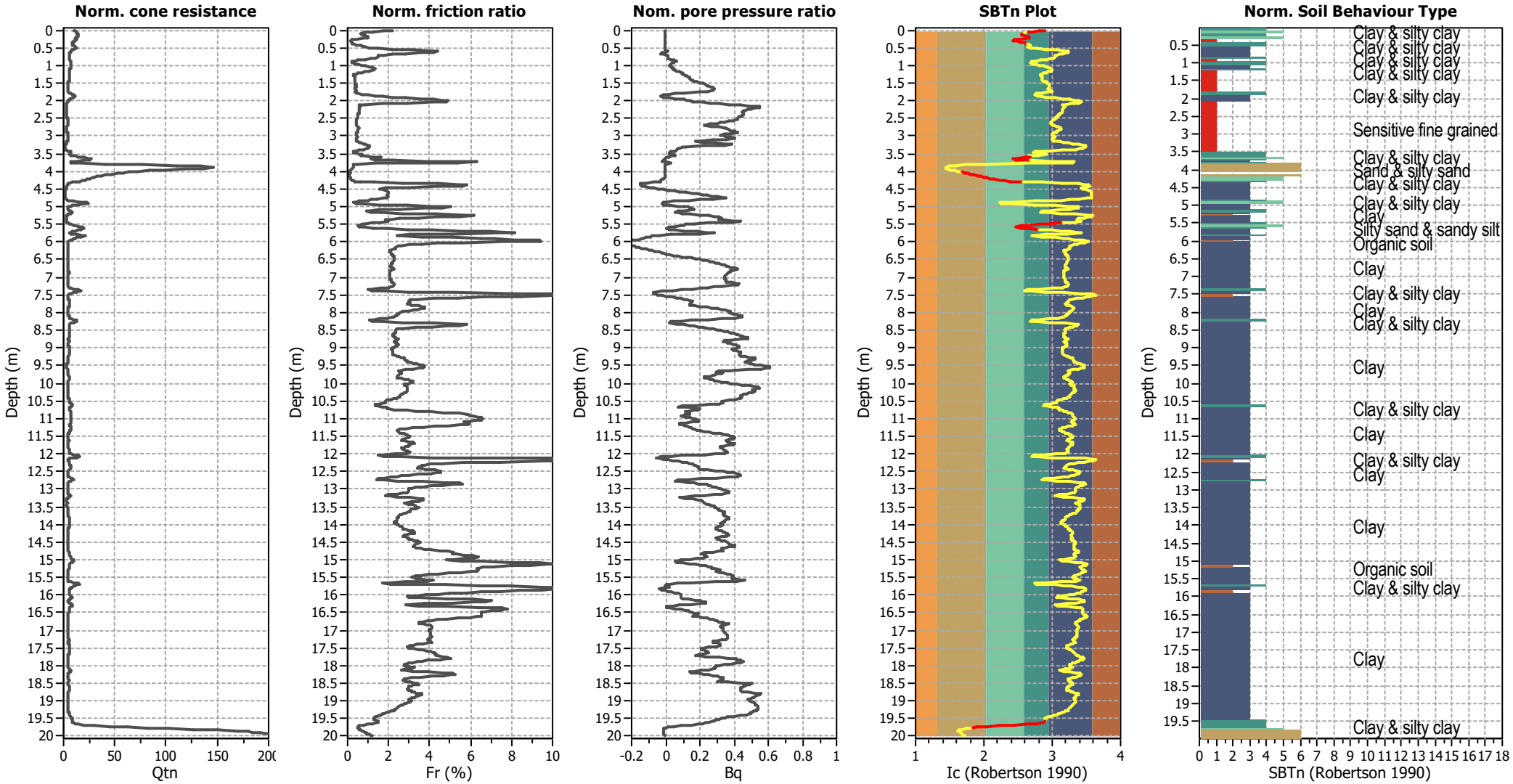
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
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7. Gravely sand to sand
8. Very stiff sand to
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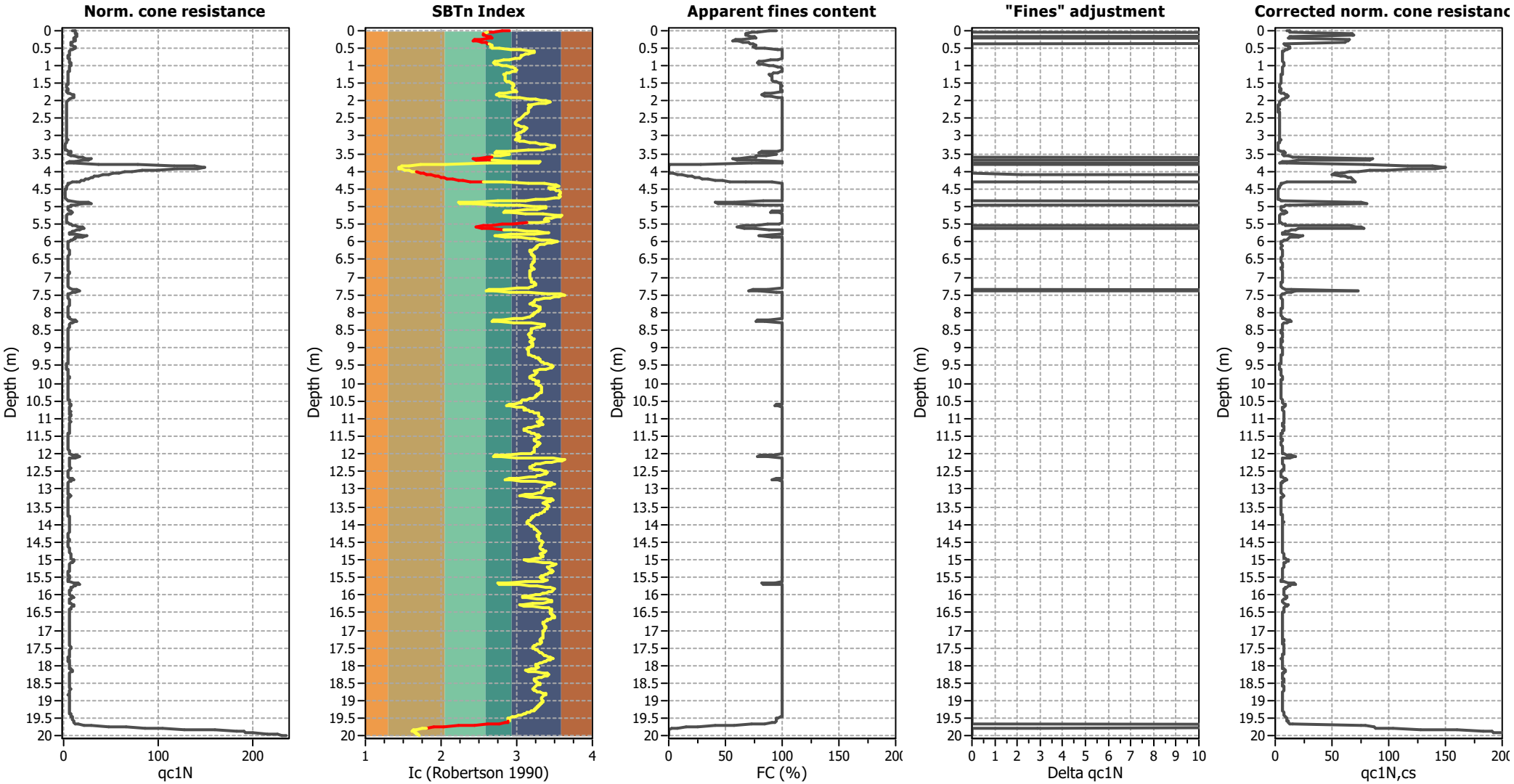
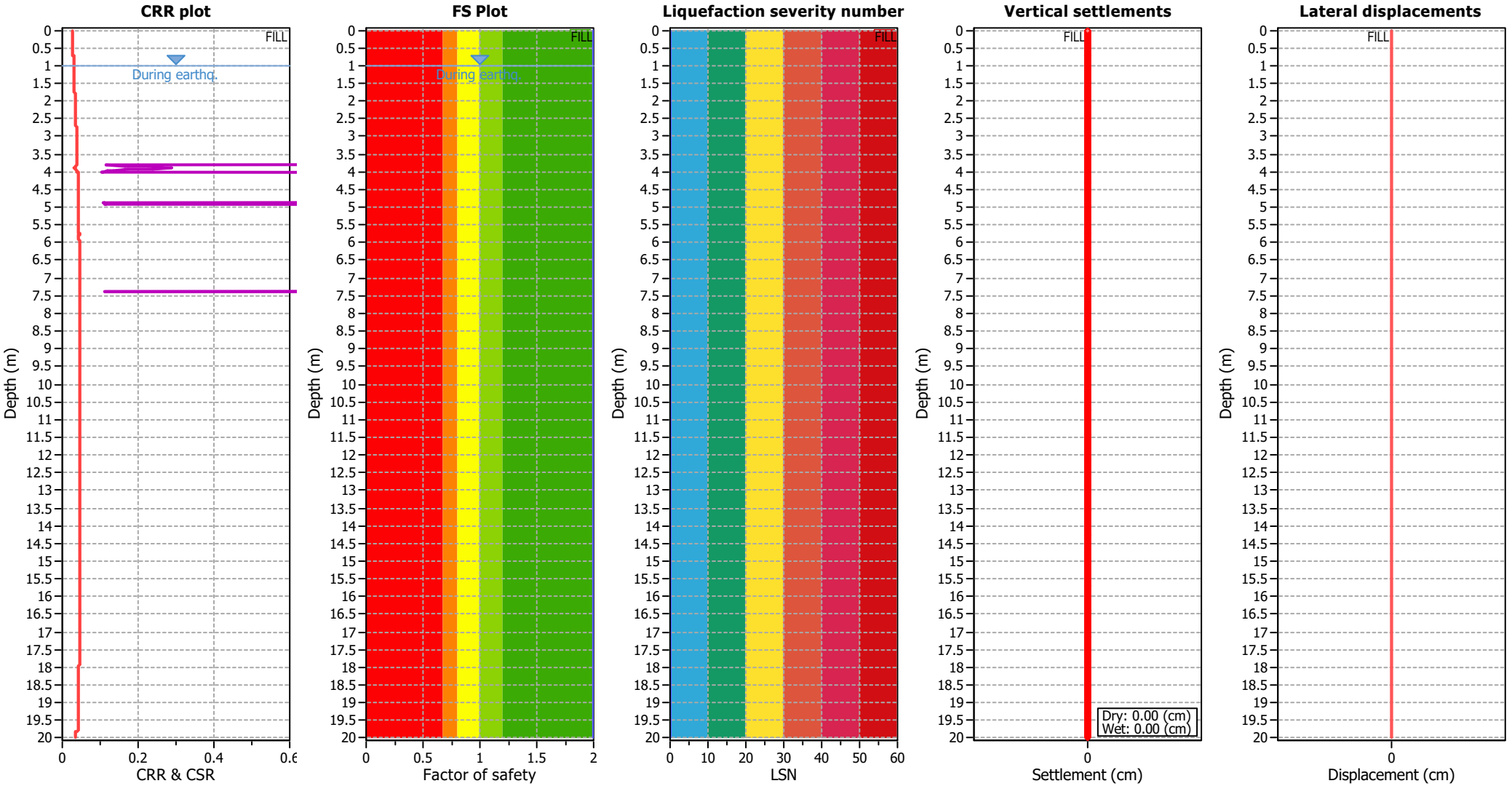
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 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

LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
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- Minor expression of liquefaction
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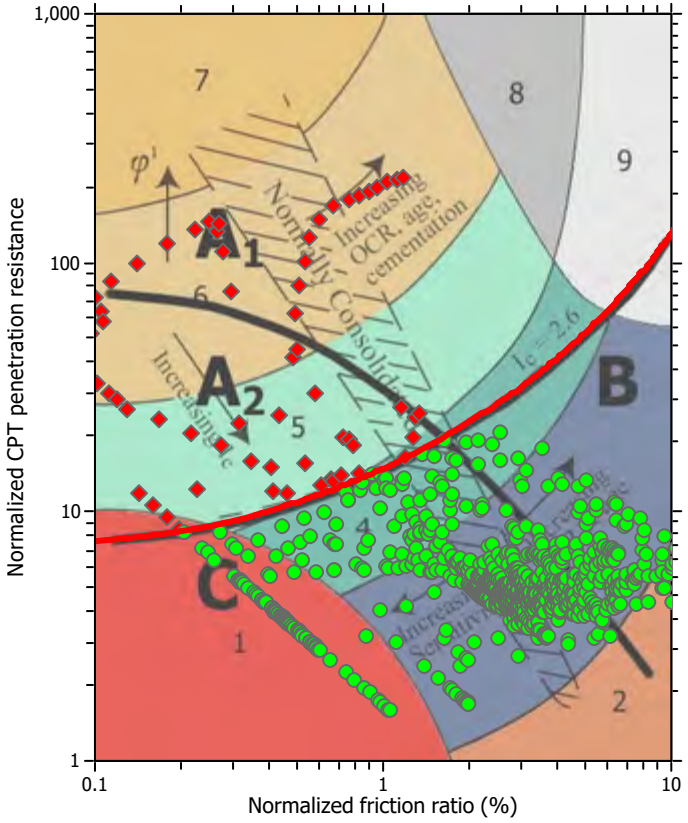
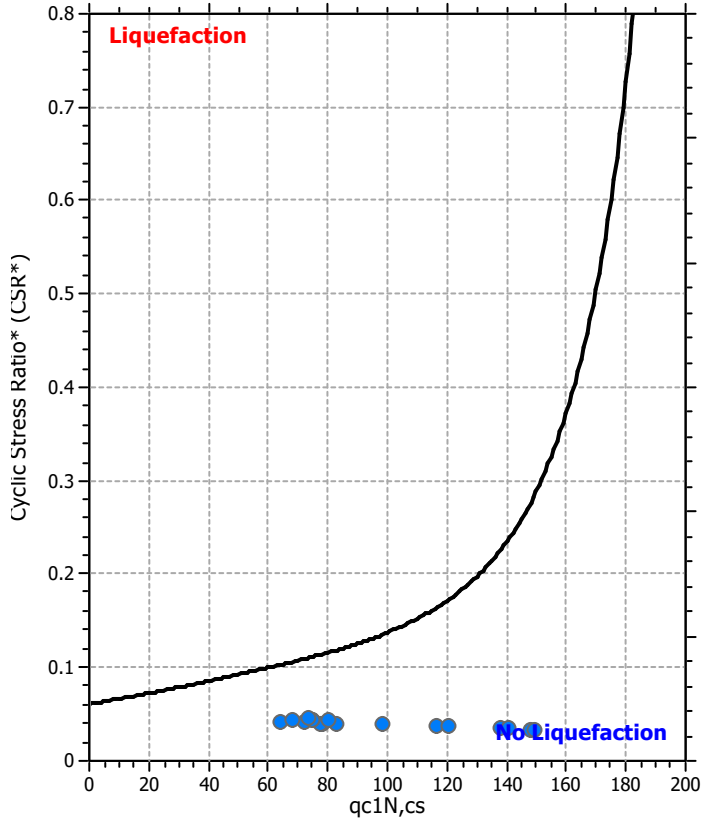
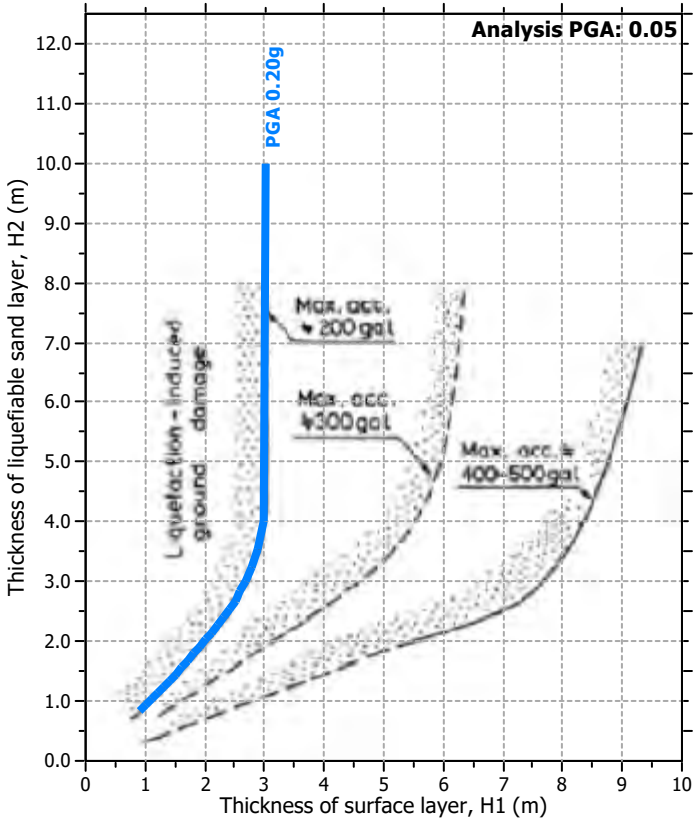
Liquefaction analysis summary plots



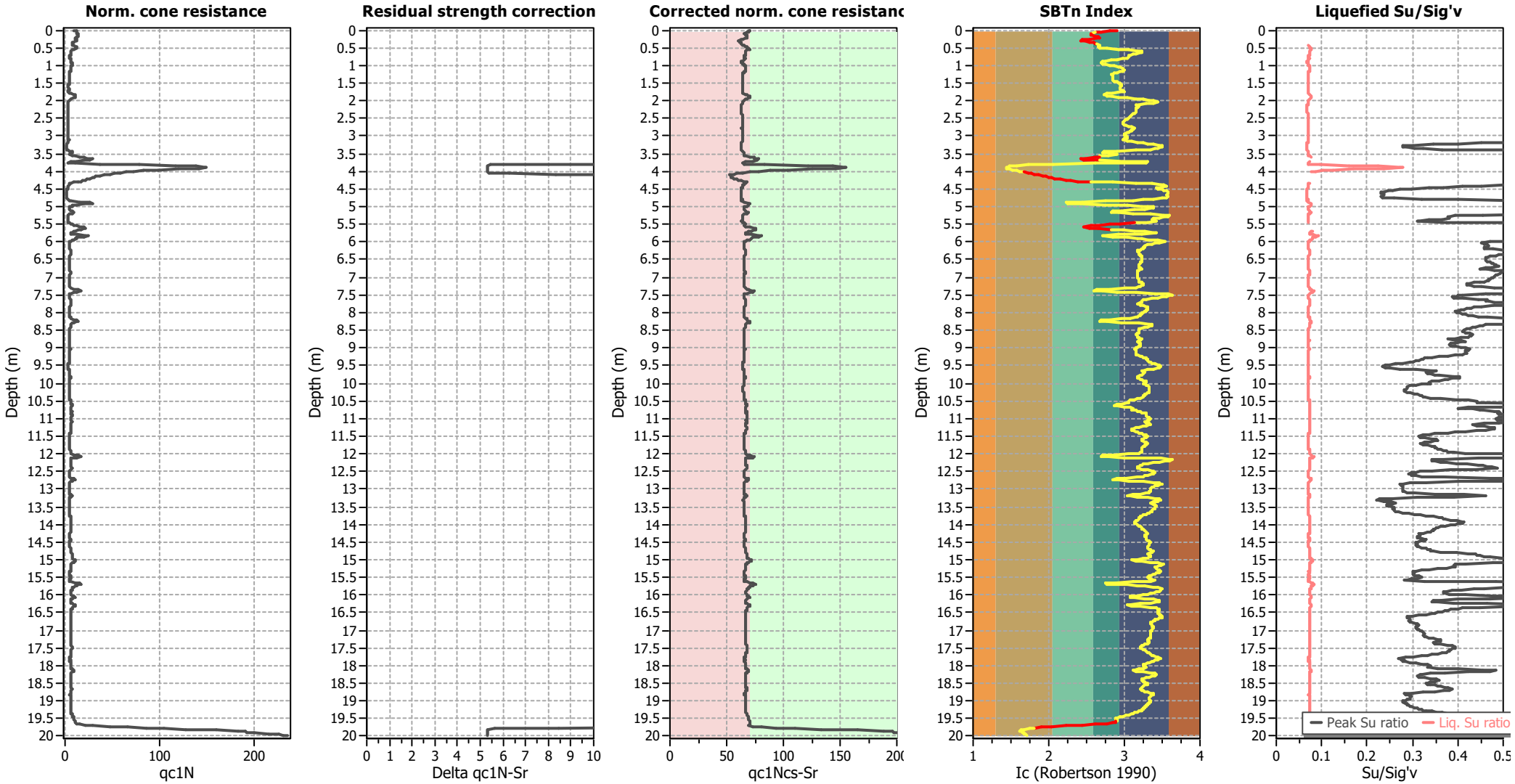




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

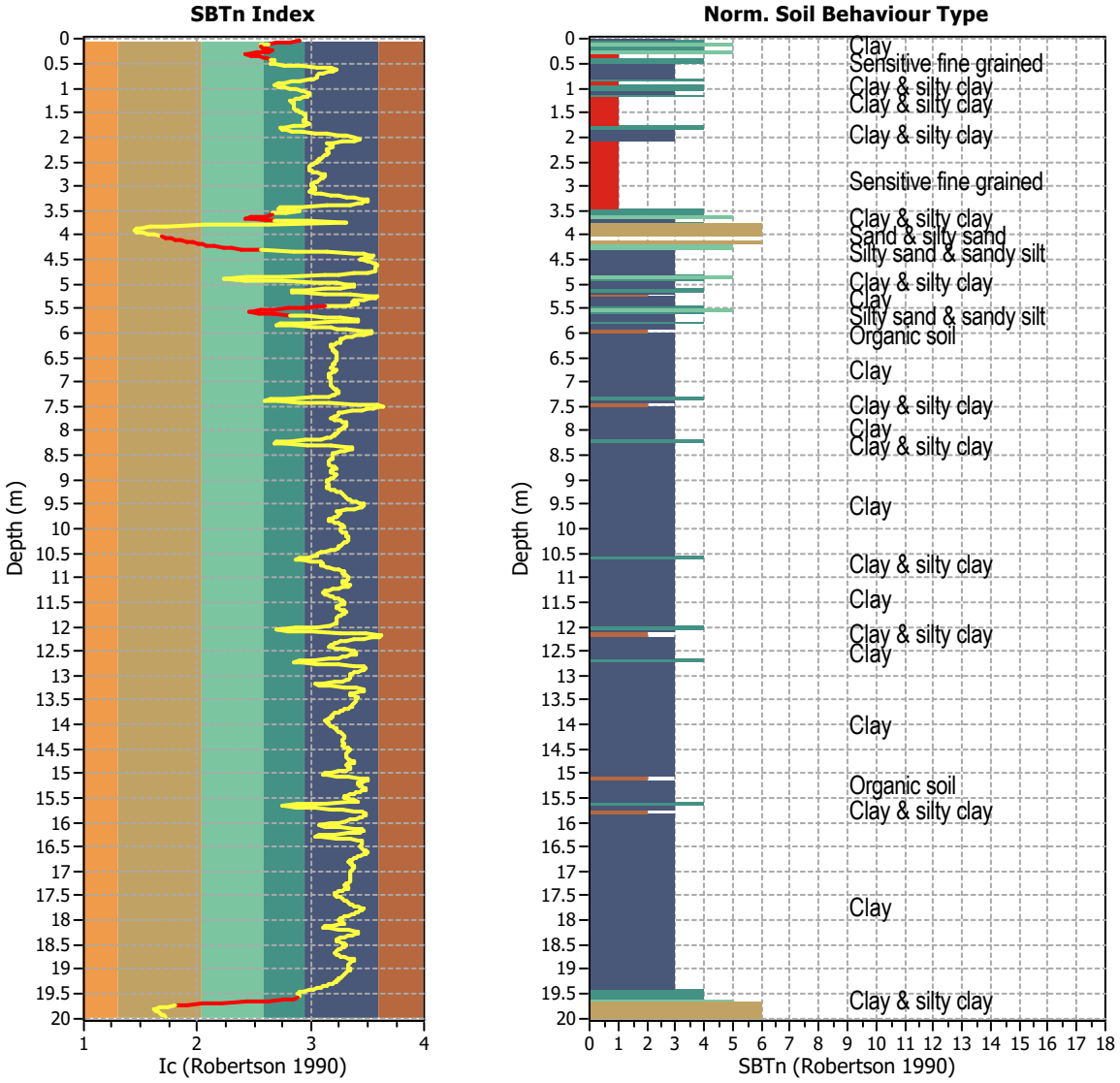
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

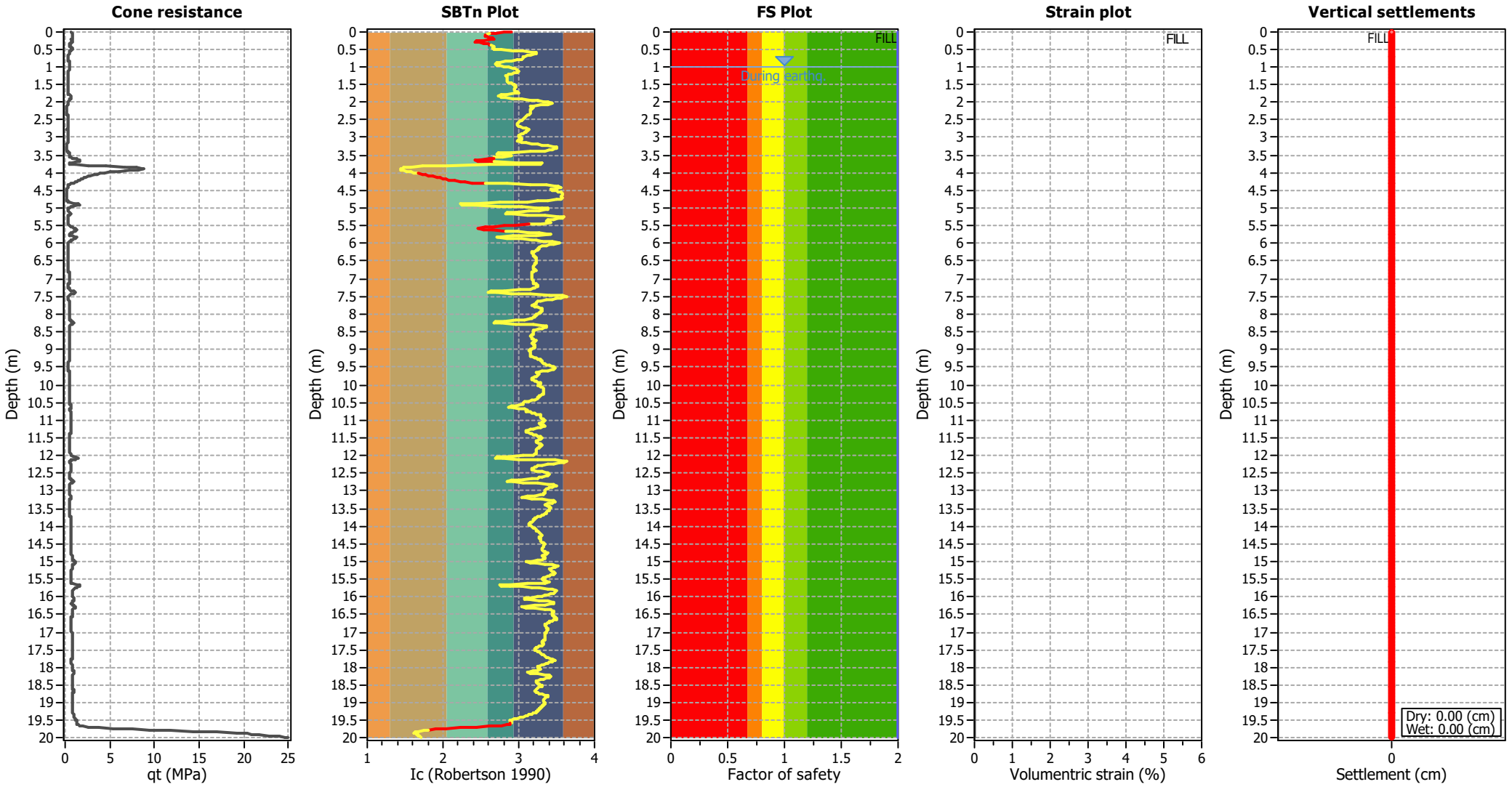
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	999
I_c maximum check value:	3.00	Total points excluded:	64
I_c change ratio value:	0.0100	Exclusion percentage:	6.41%
Minimum number of points in layer:	4	Number of layers detected:	10

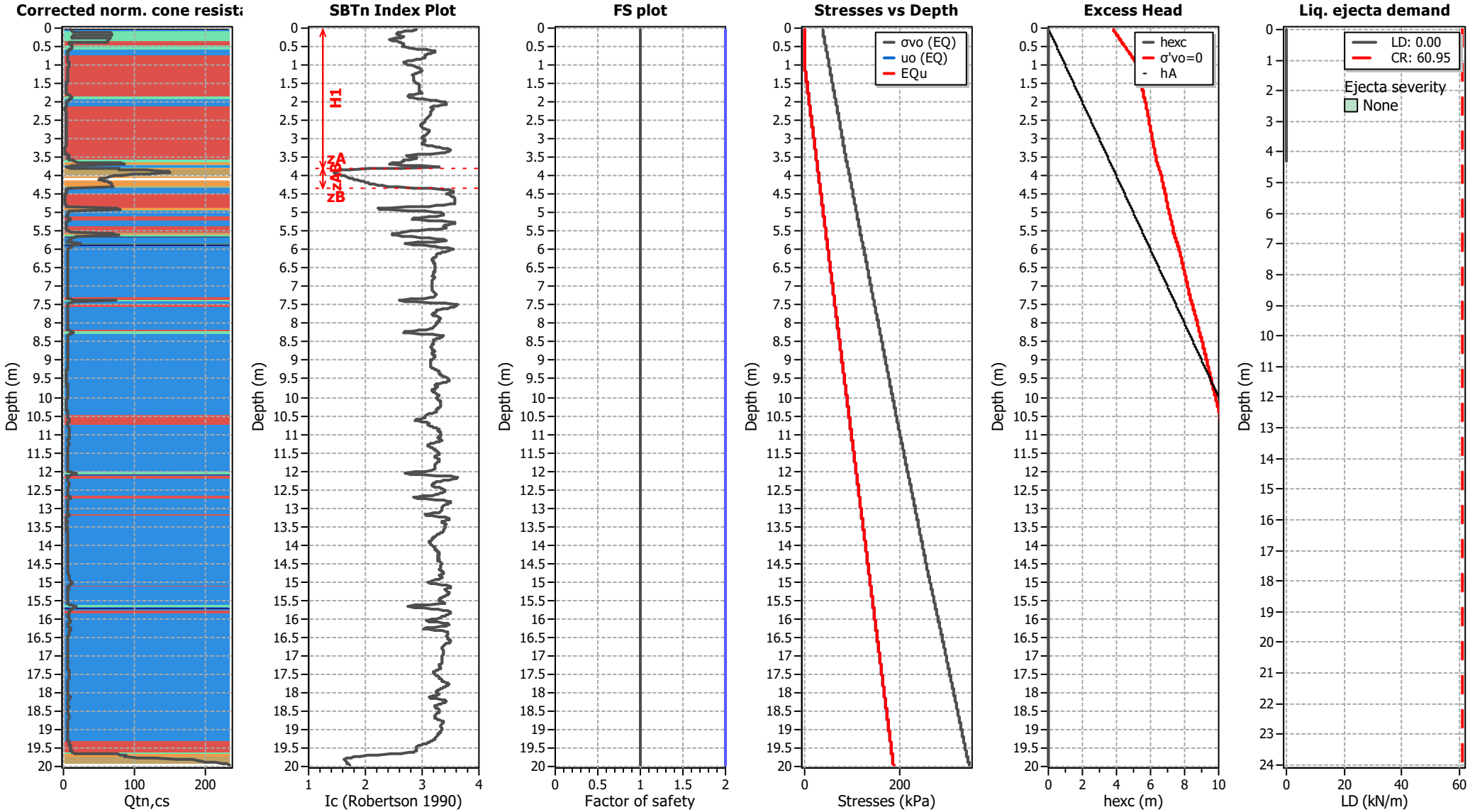
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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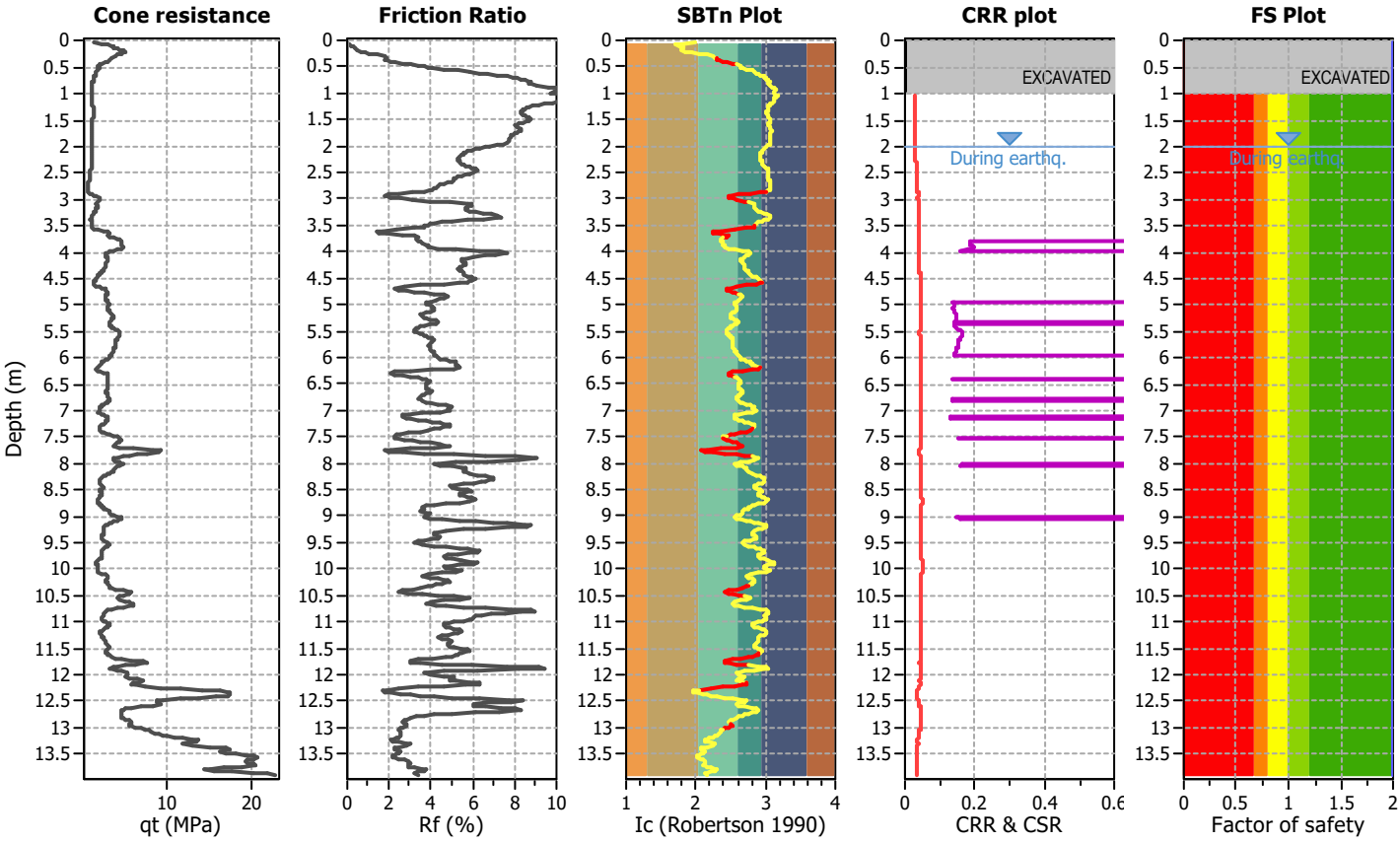
LIQUEFACTION ANALYSIS REPORT

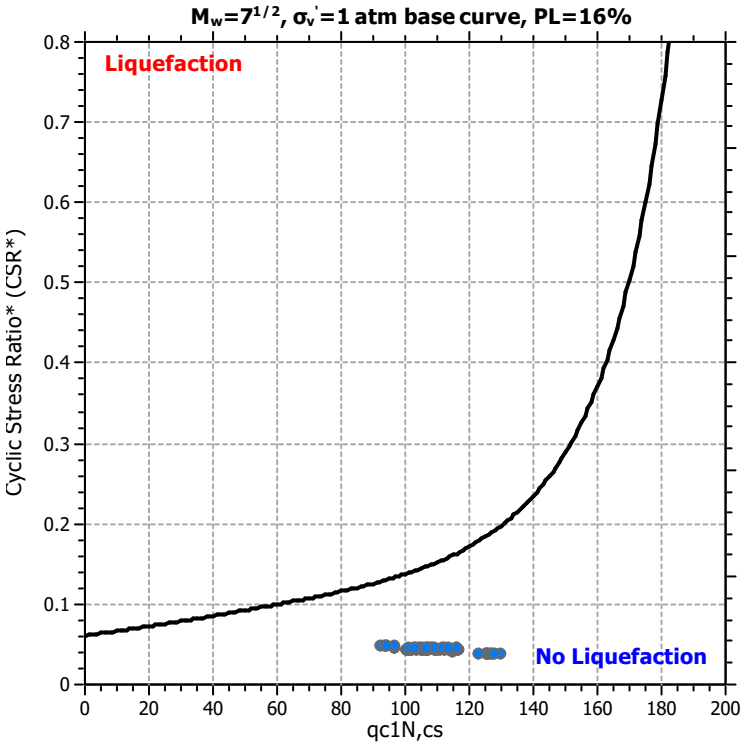
Project title : Sunfield Landholding **Location :**

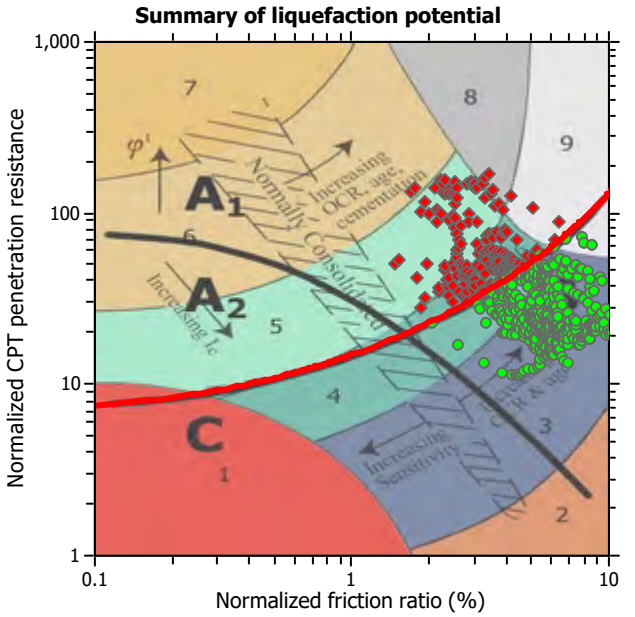
CPT file : CPT137

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	2.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Excavation depth:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

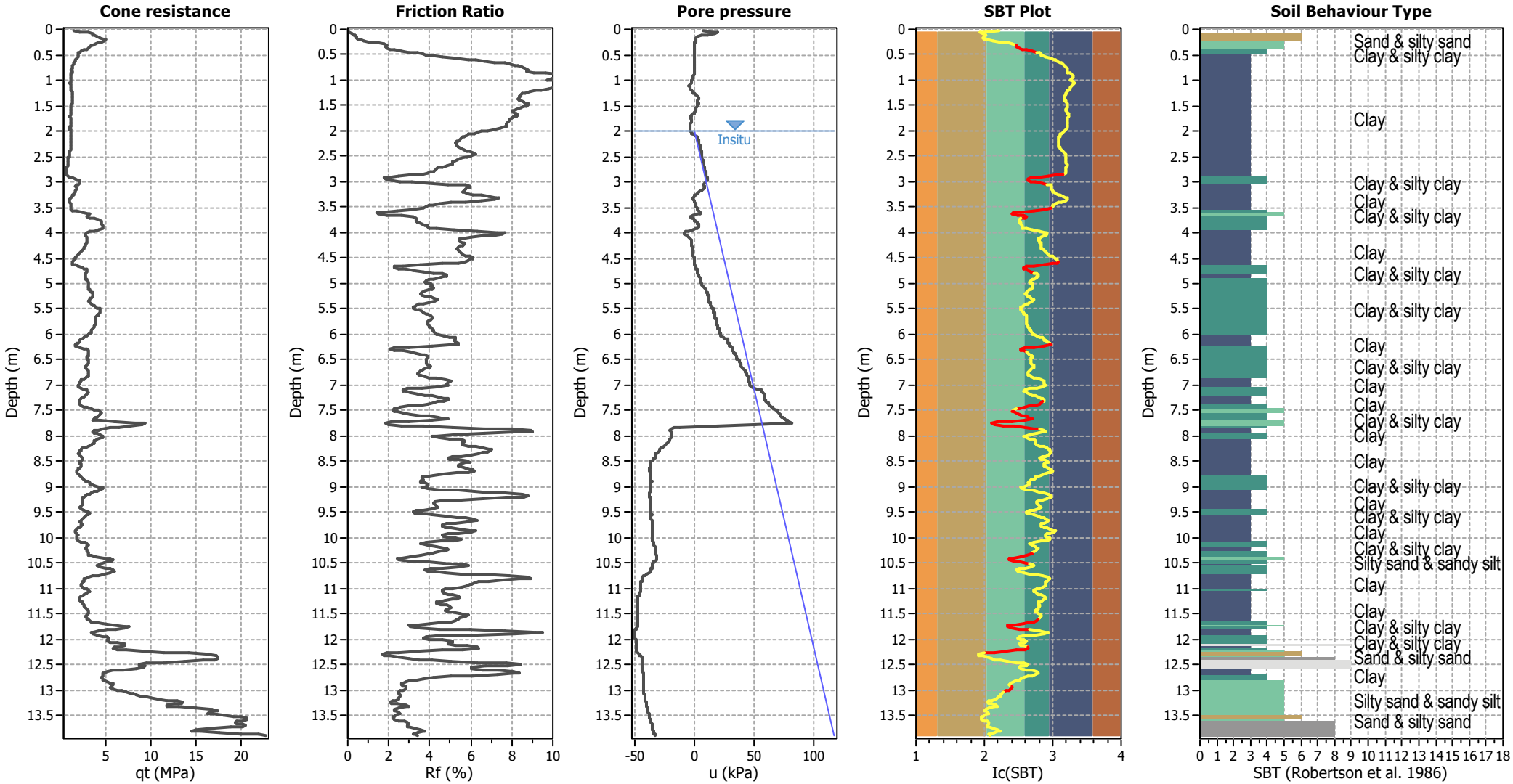






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



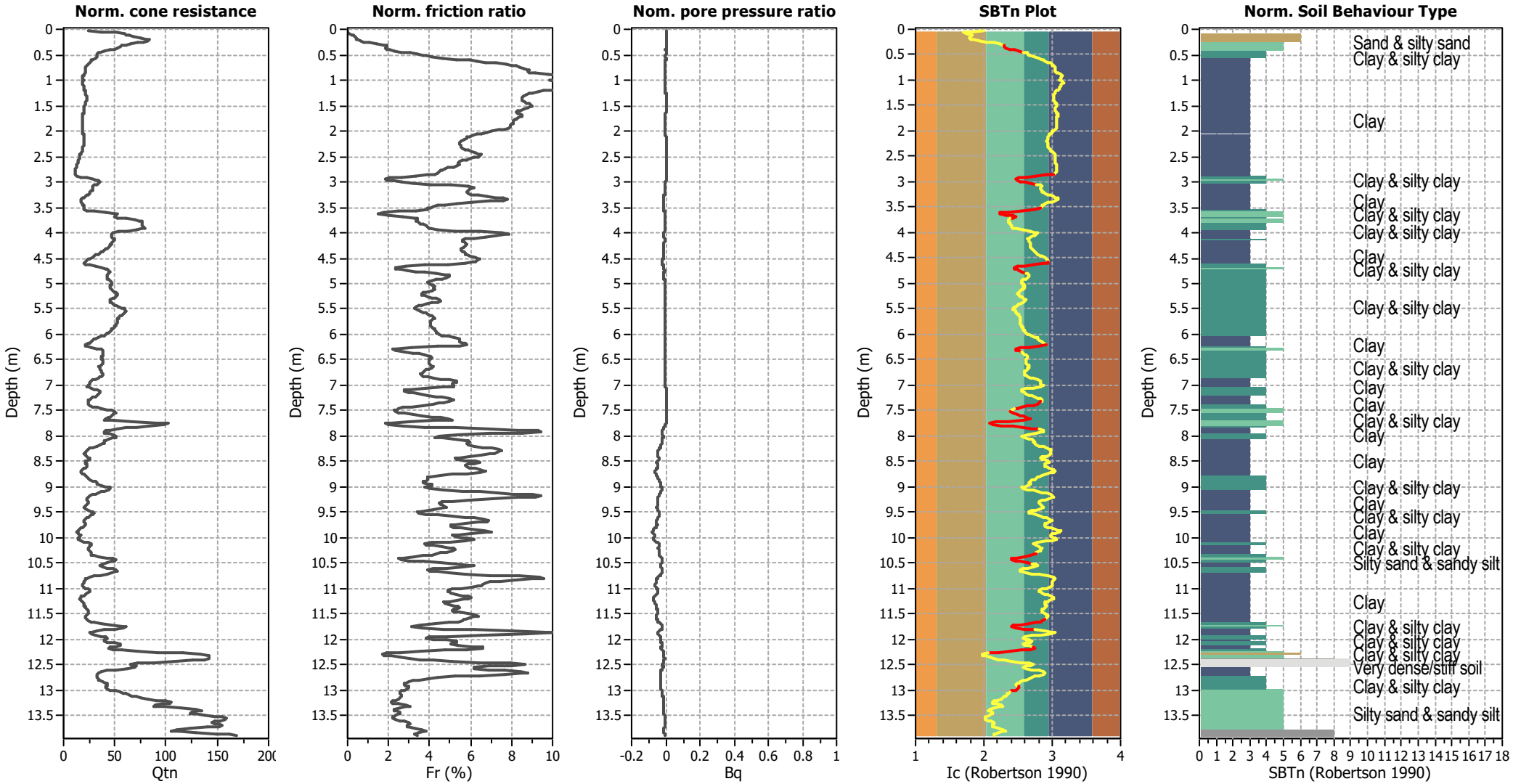
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	2.00 m	Excavation depth:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



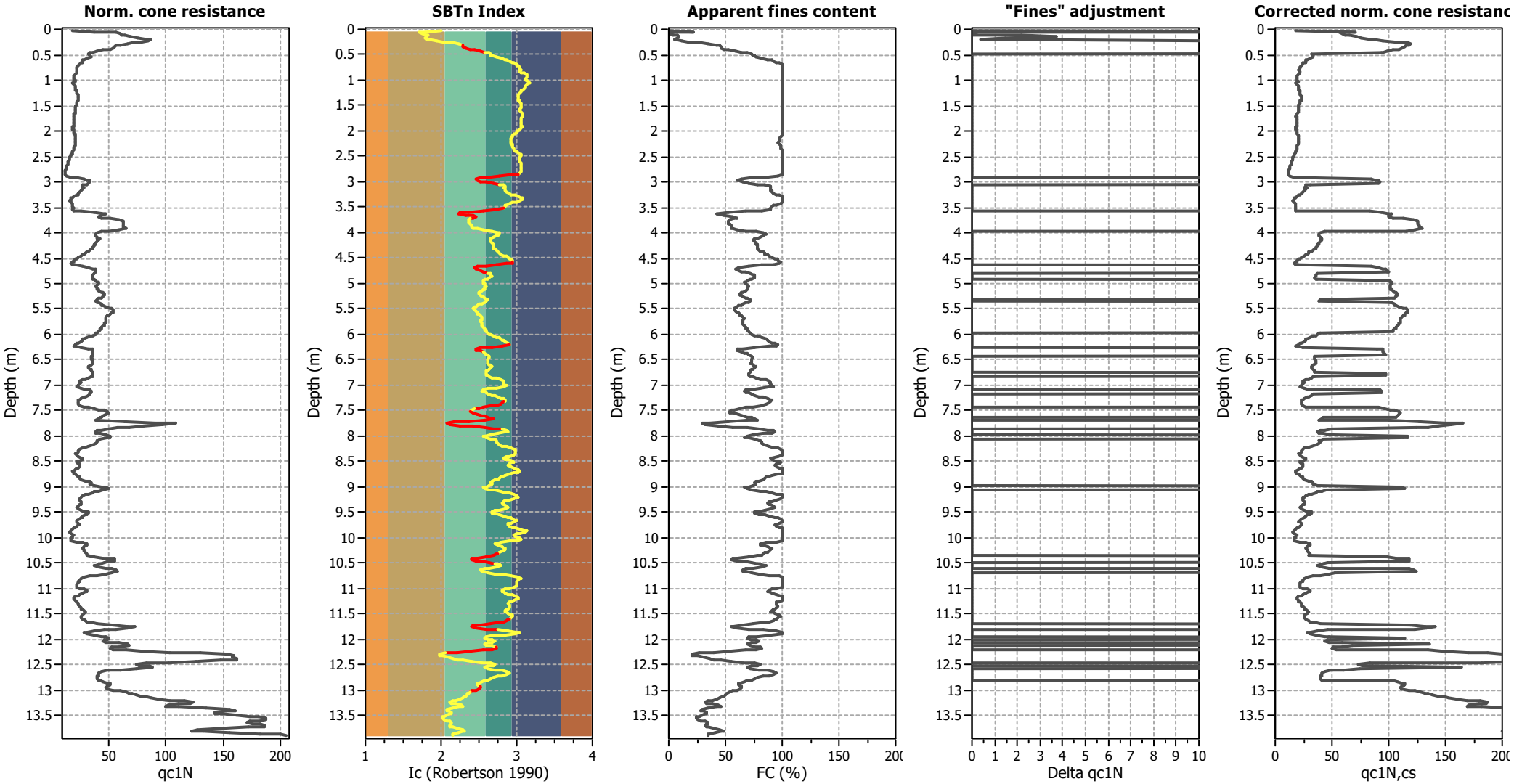
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	2.00 m	Excavation depth:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

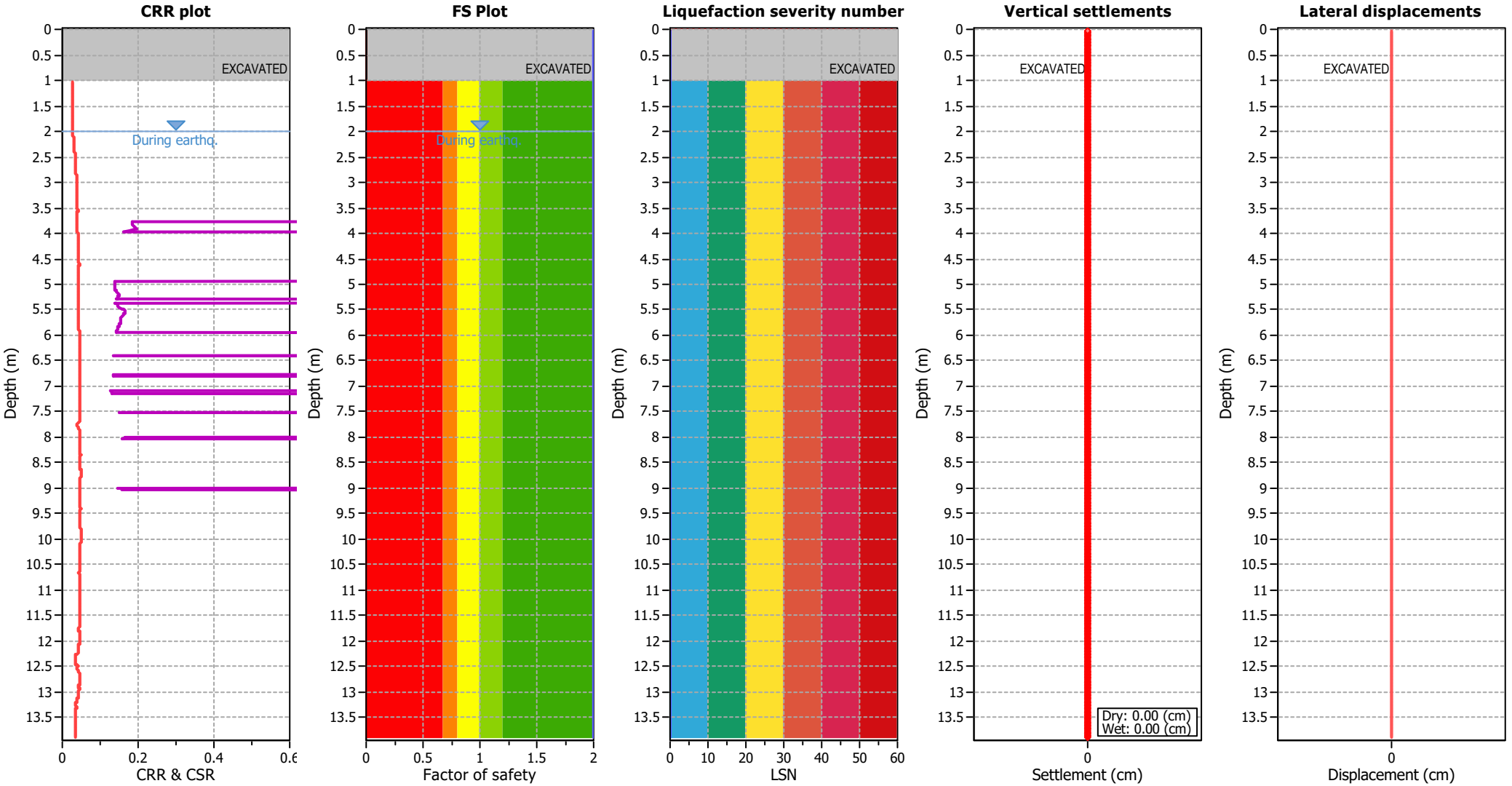
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	2.00 m	Excavation depth:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	2.00 m	Excavation depth:	1.00 m	Limit depth:	10.00 m

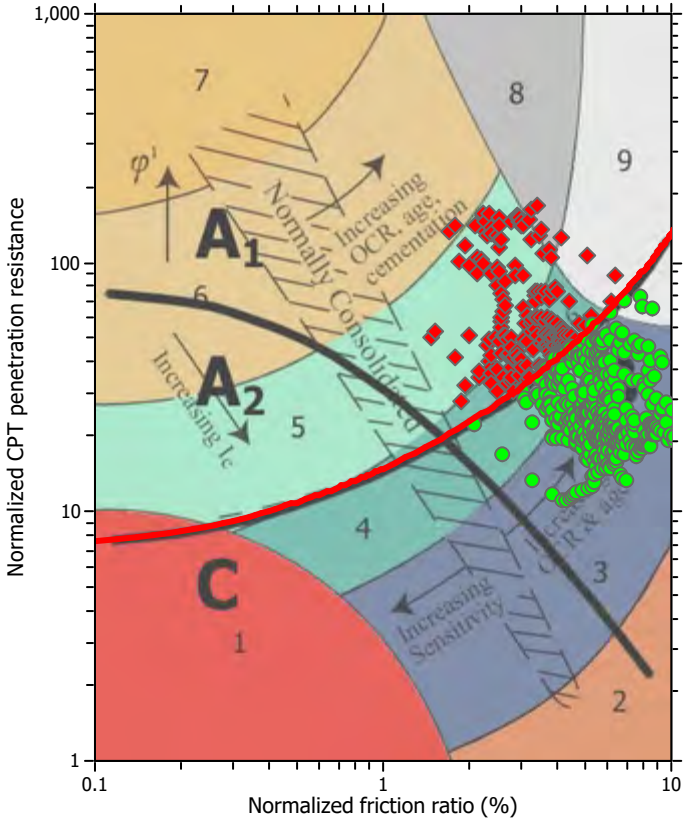
F.S. color scheme

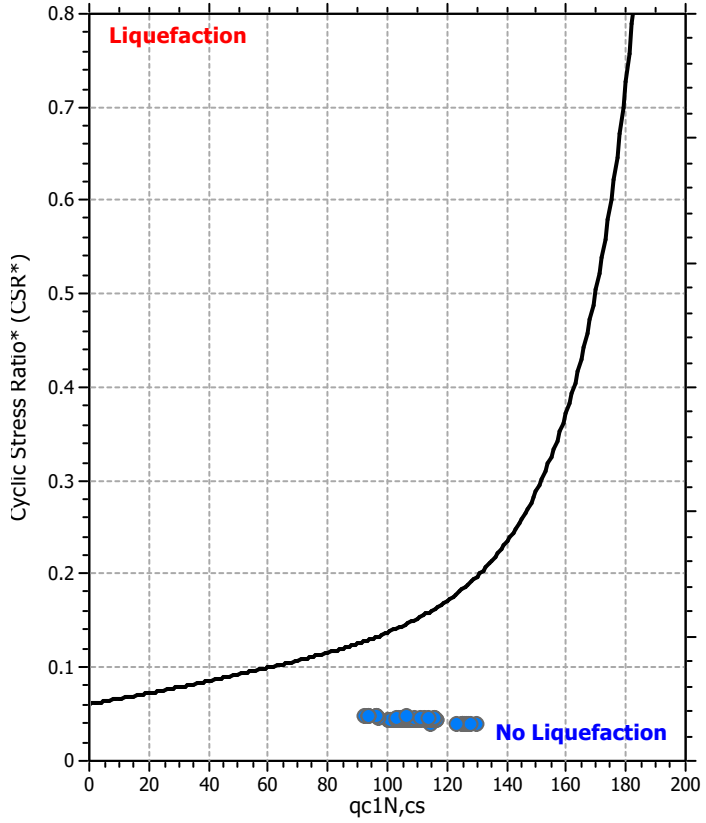
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

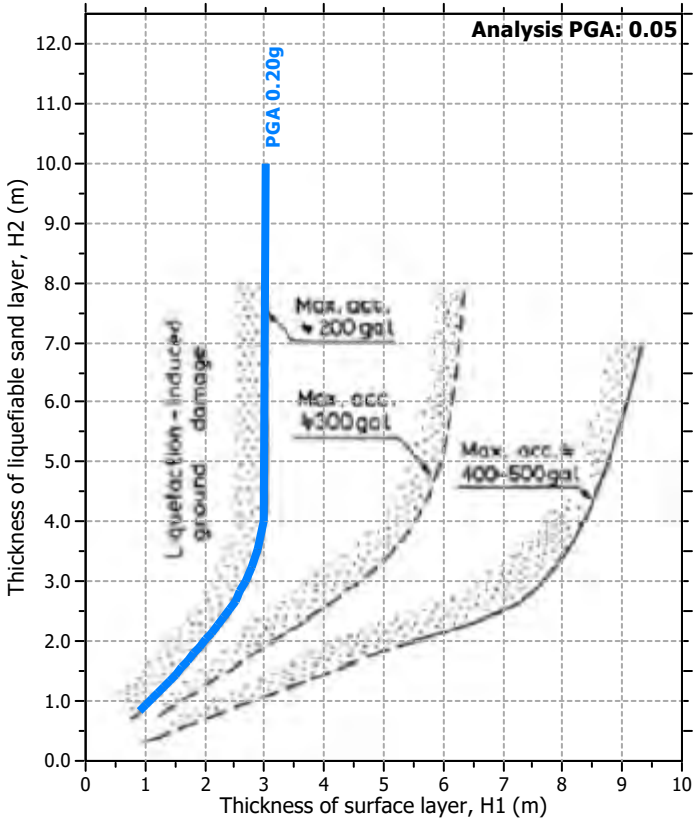
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



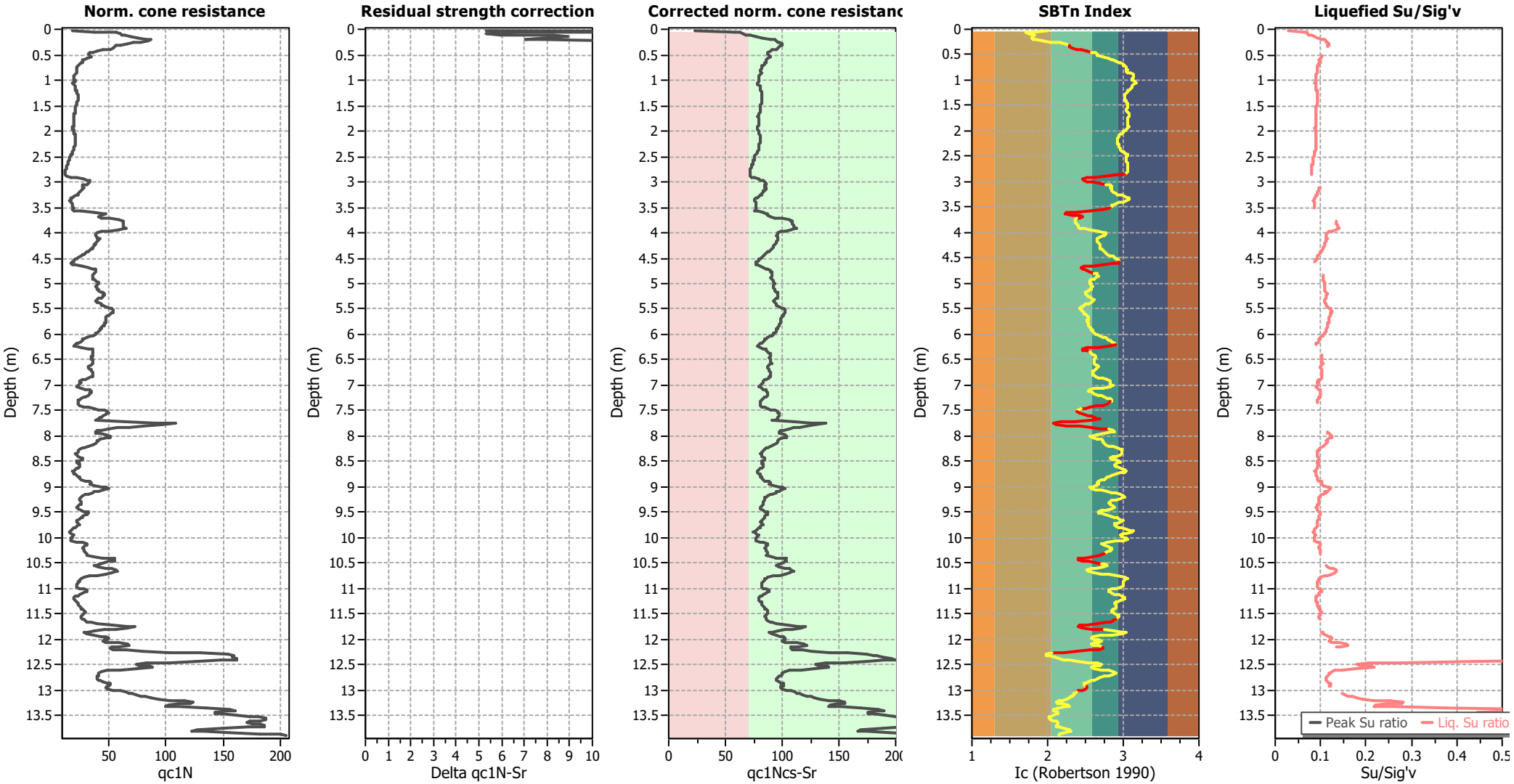




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	2.00 m	Excavation depth:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

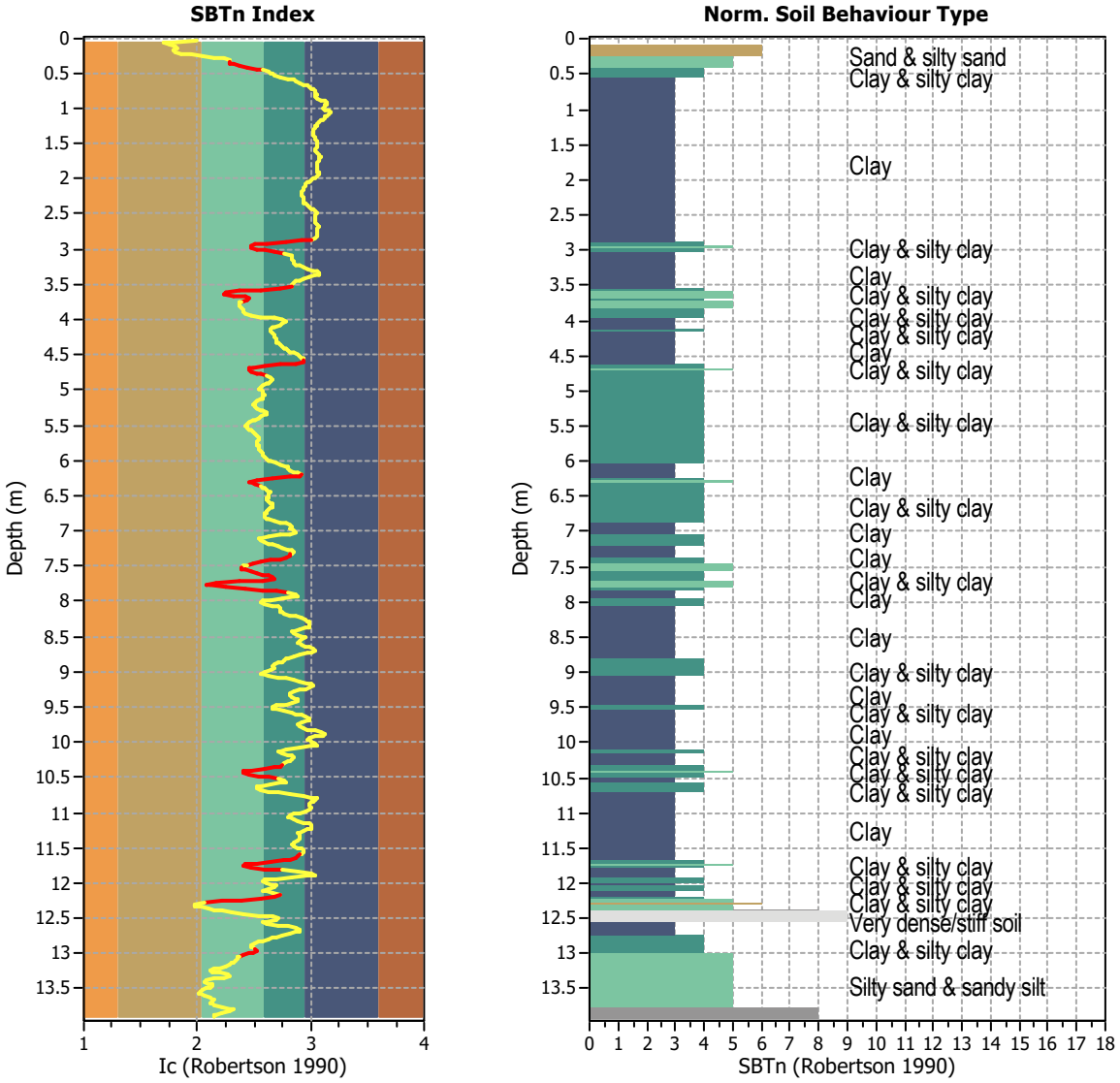
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	2.00 m	Excavation depth:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

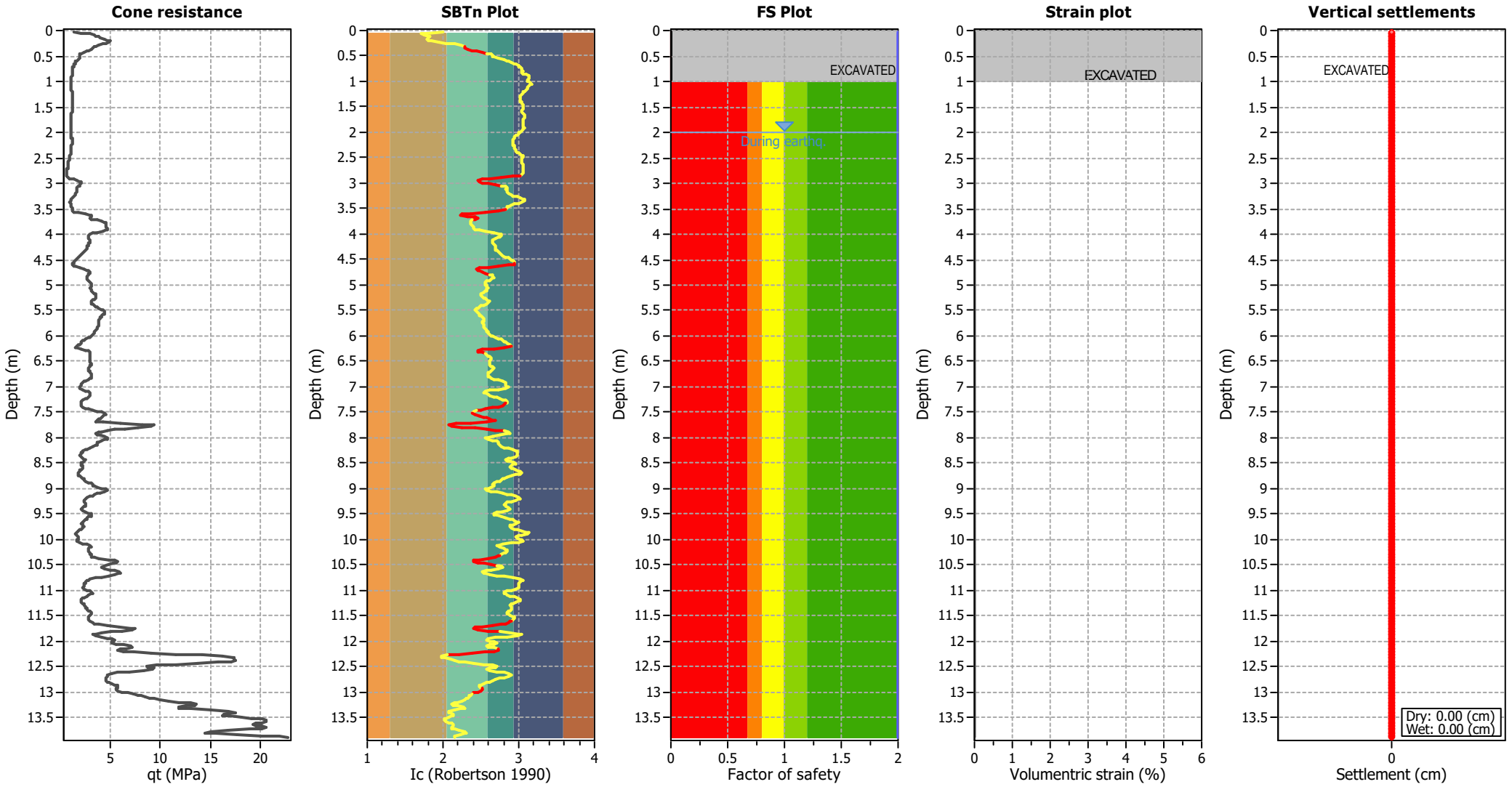
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	695
I_c maximum check value:	3.00	Total points excluded:	117
I_c change ratio value:	0.0100	Exclusion percentage:	16.83%
Minimum number of points in layer:	4	Number of layers detected:	20

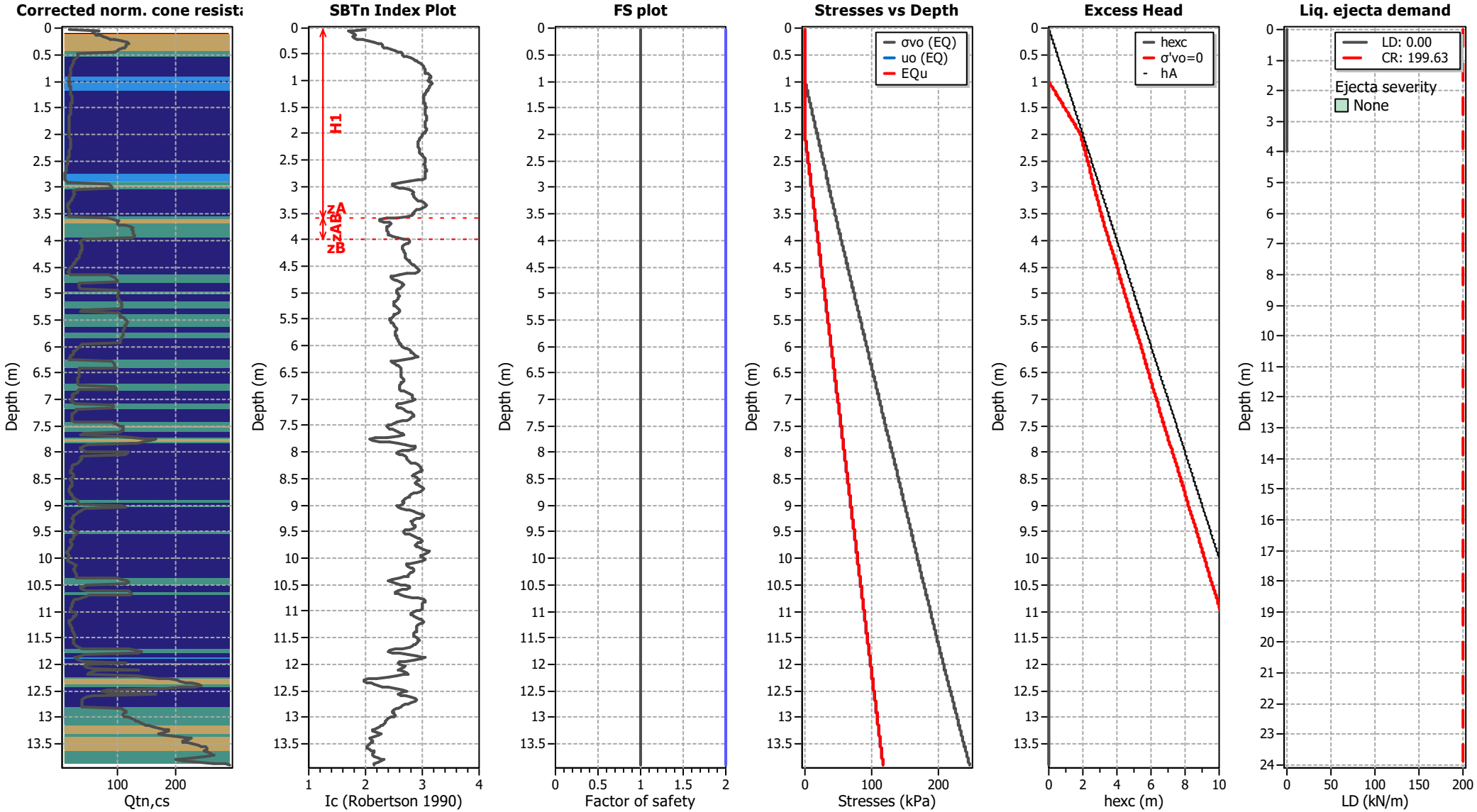
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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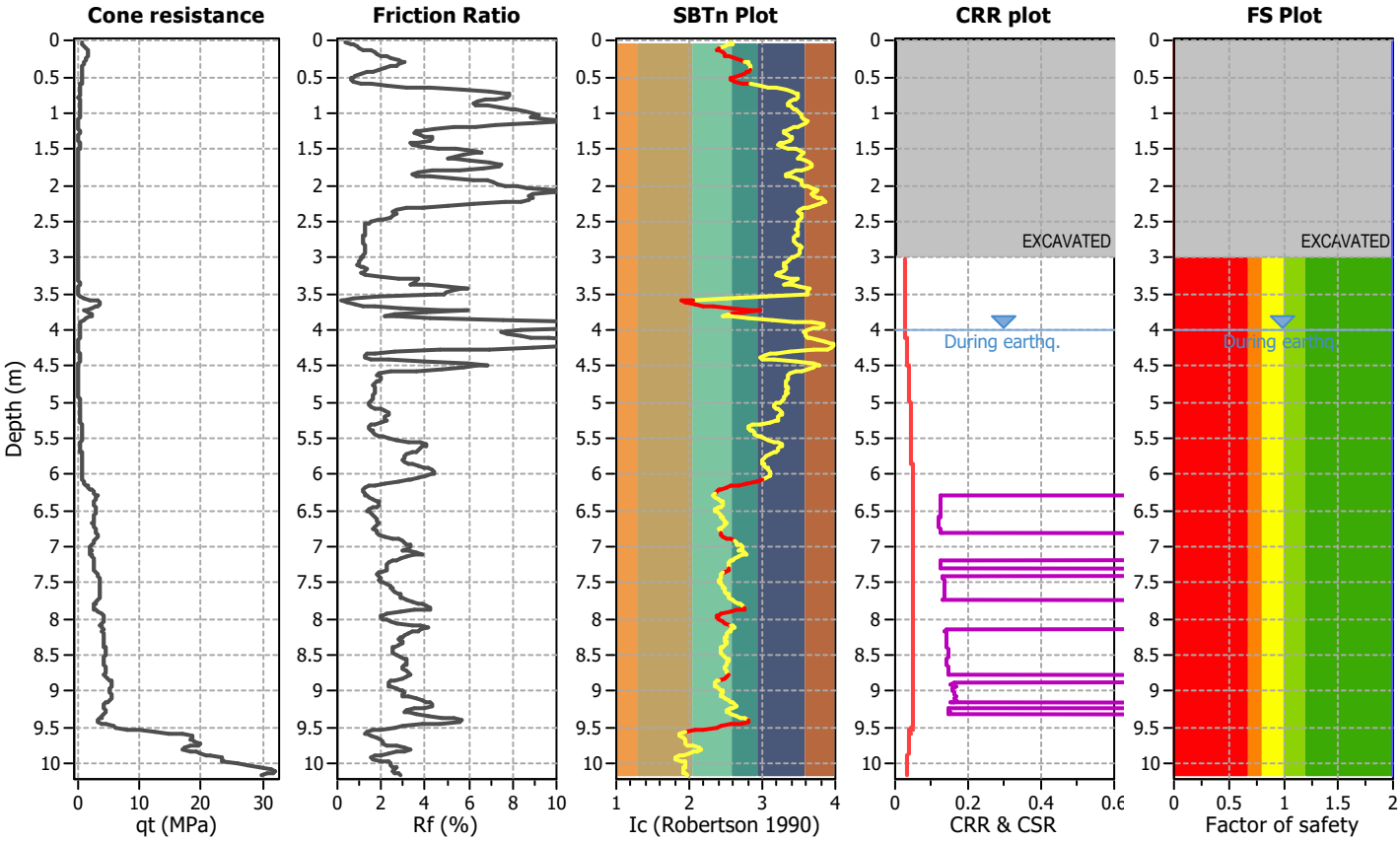
LIQUEFACTION ANALYSIS REPORT

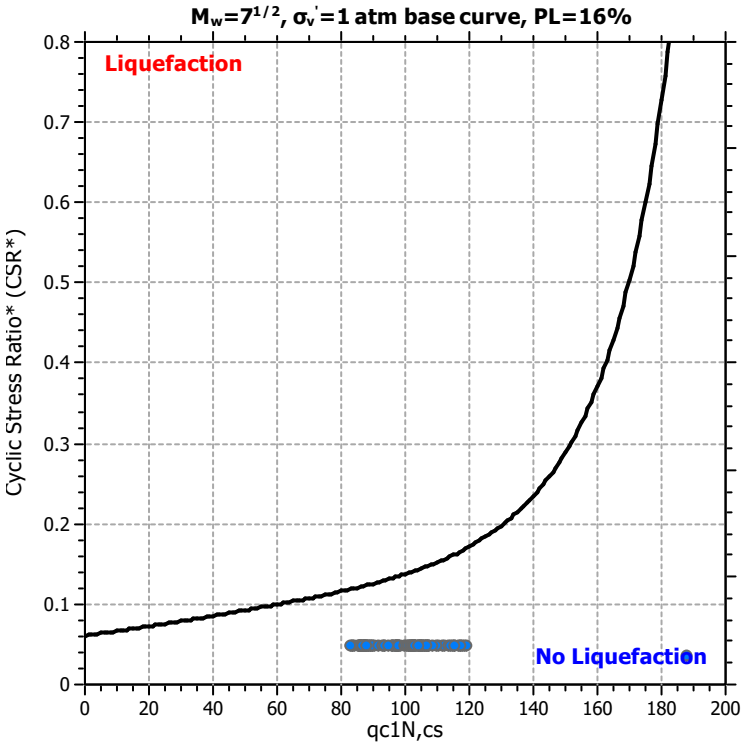
Project title : Sunfield Landholding **Location :**

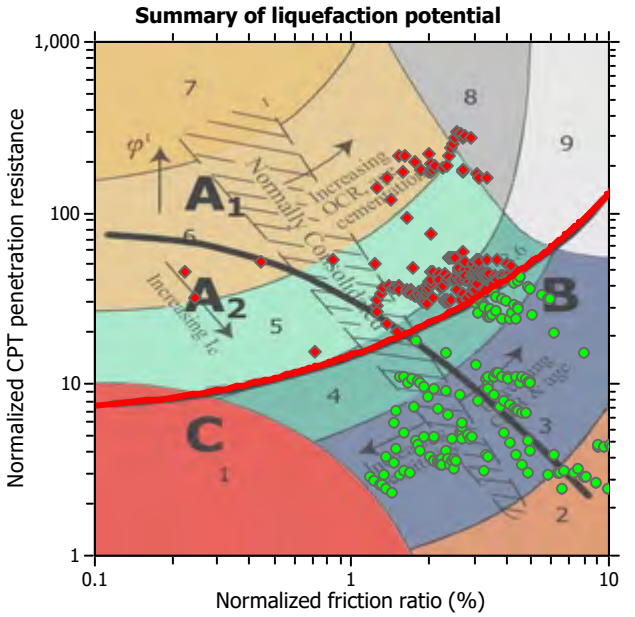
CPT file : CPT201

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	4.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	4.00 m	Excavation depth:	3.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

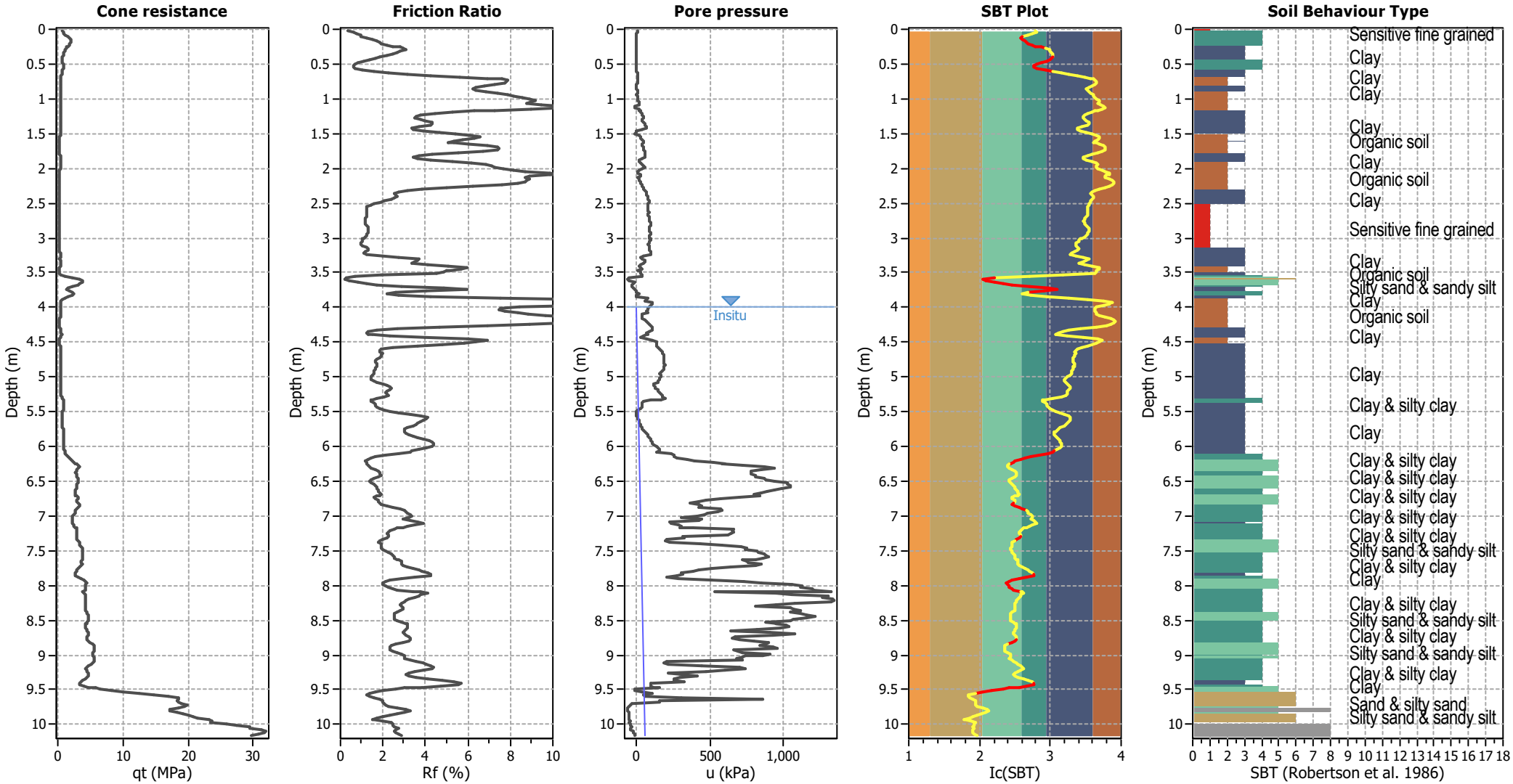






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



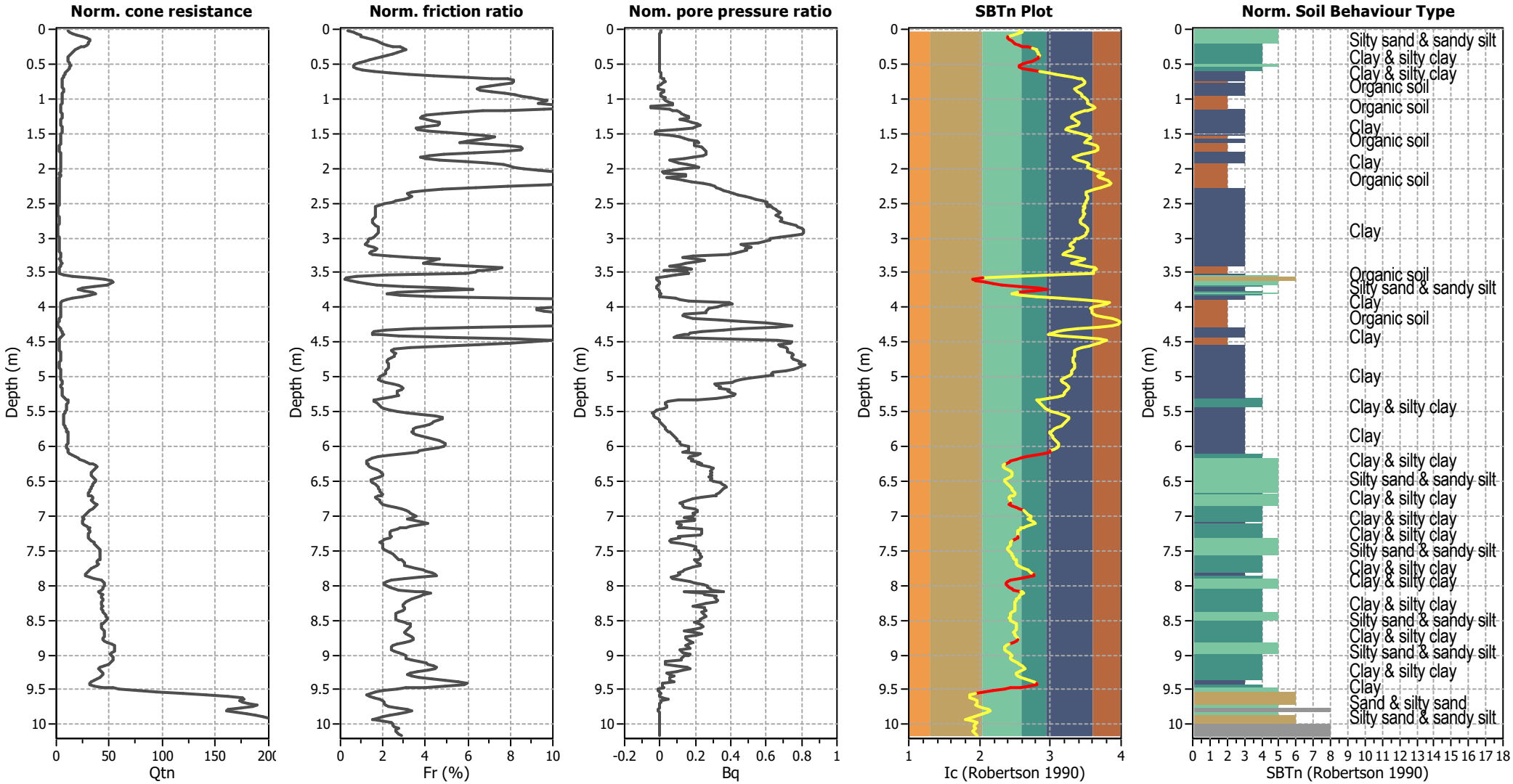
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

SBTn legend

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5. Silty sand to sandy silt
6. Clean sand to silty sand
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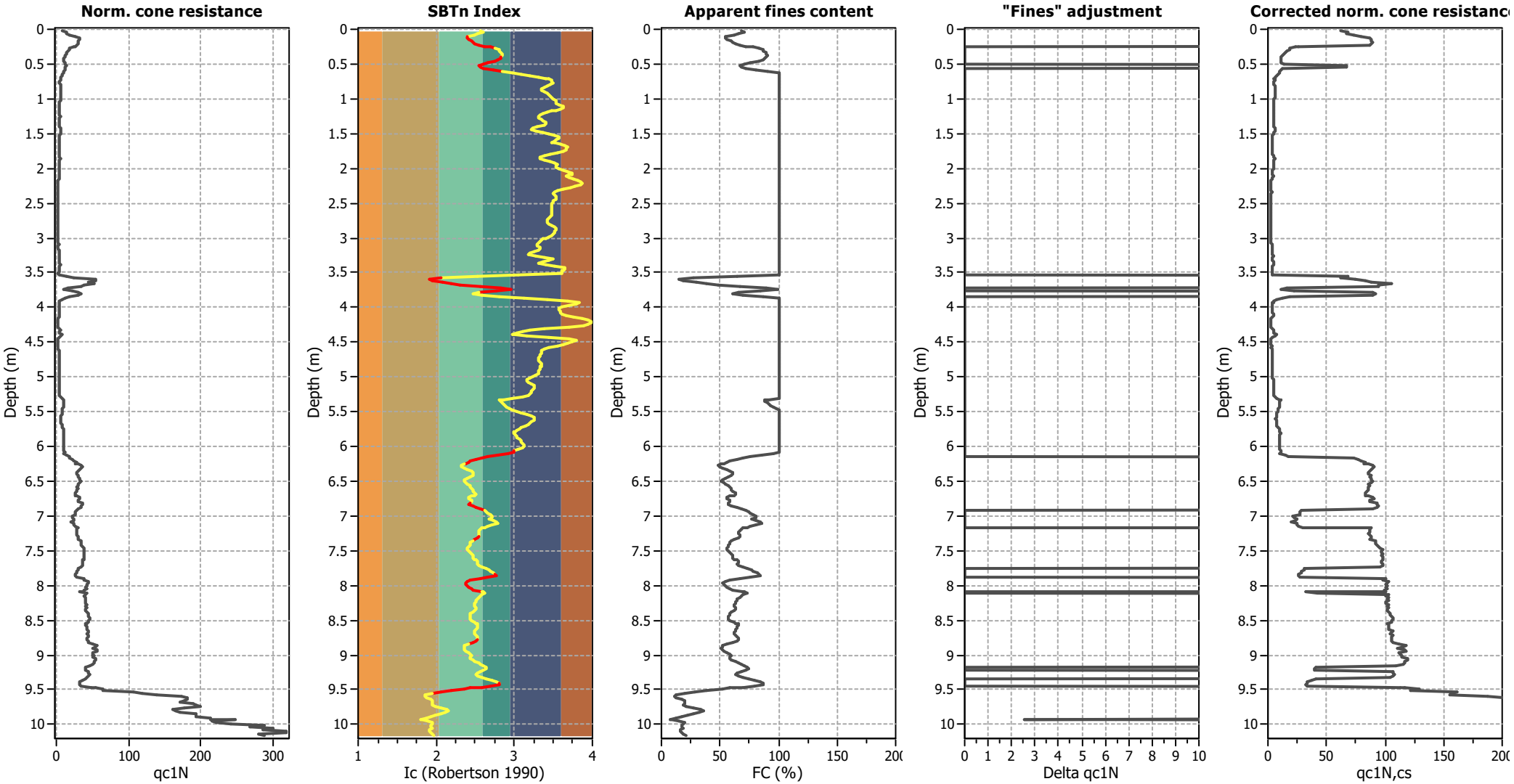
8. Very stiff sand to
9. Very stiff fine grained

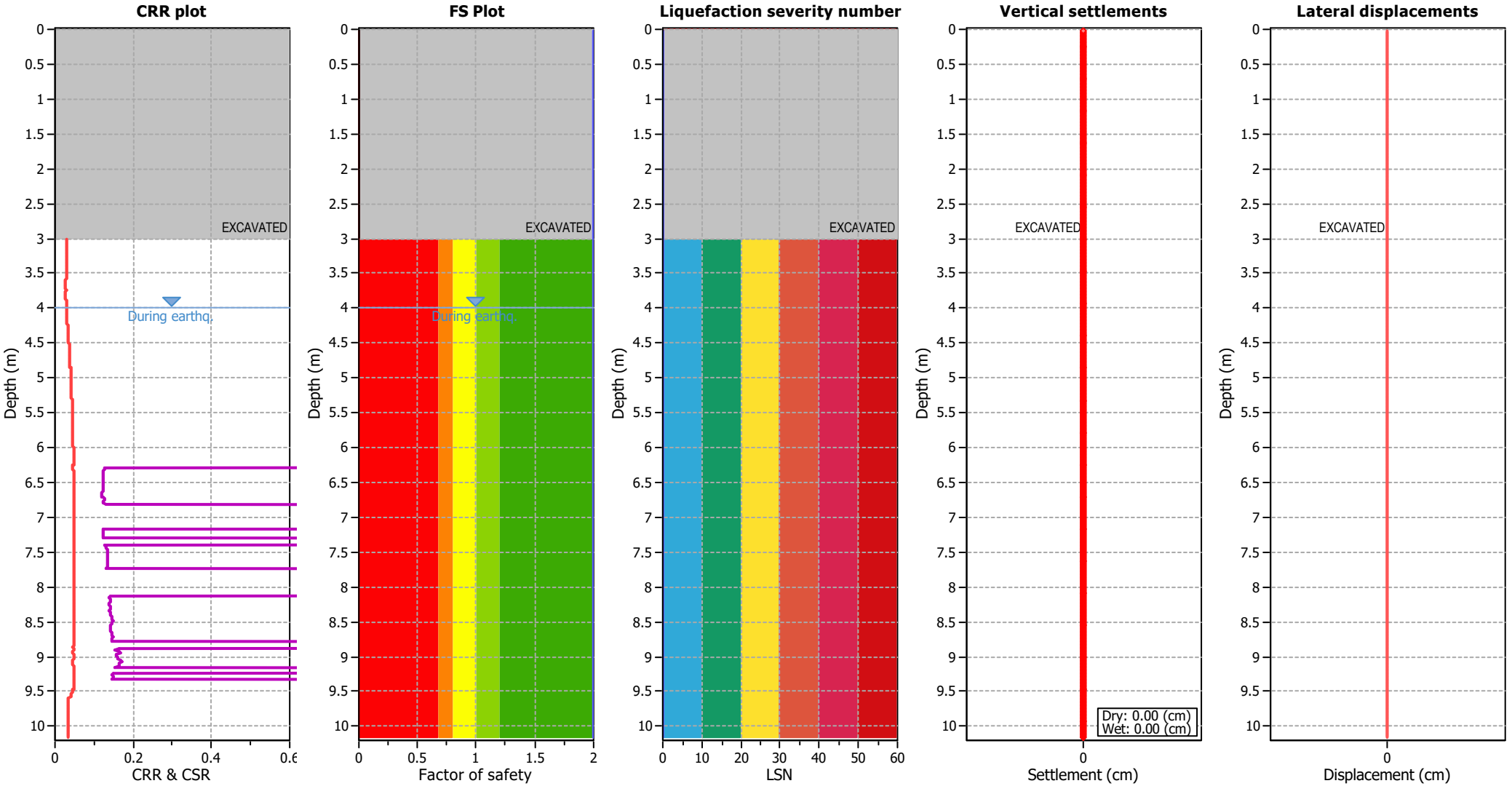
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

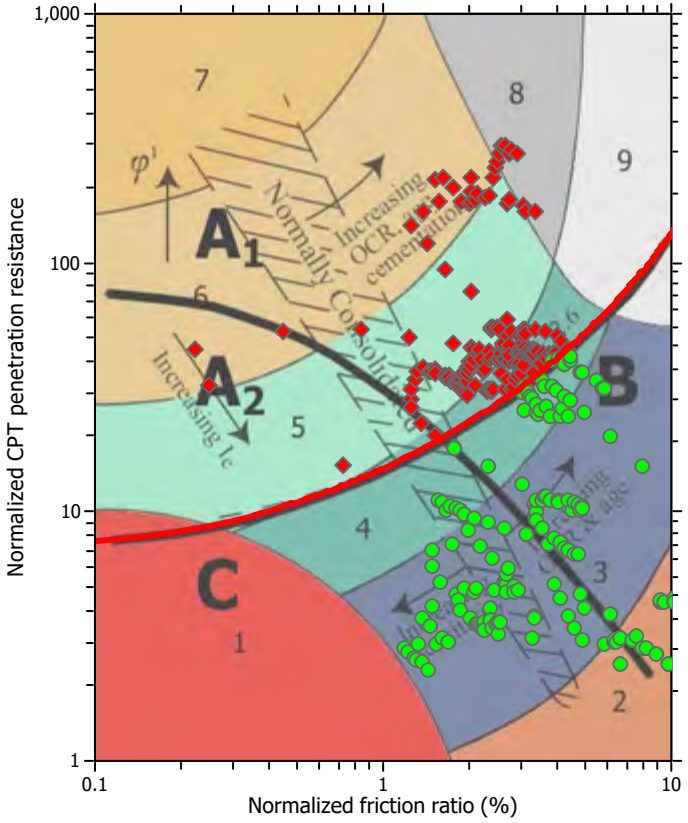
F.S. color scheme

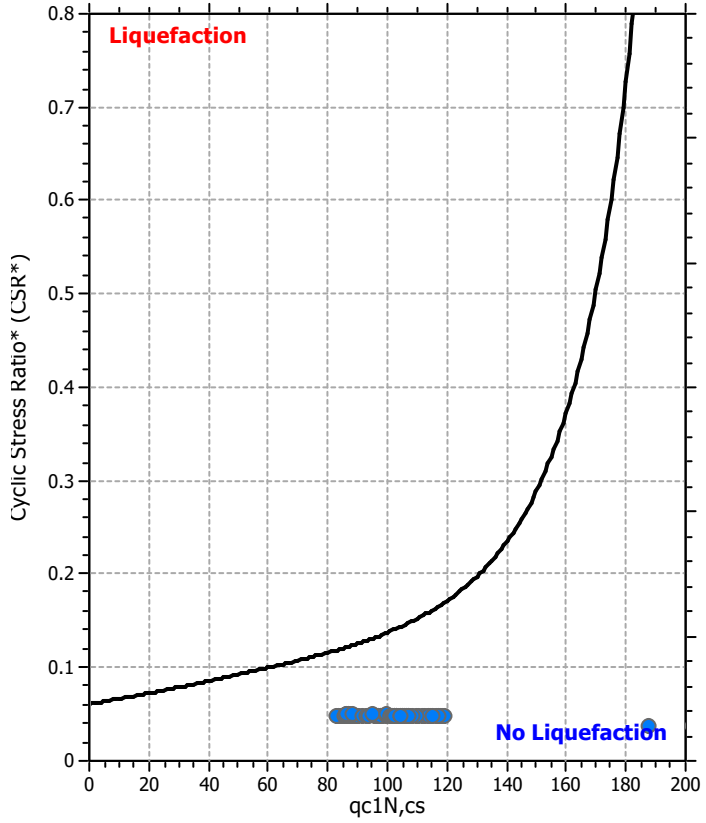
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

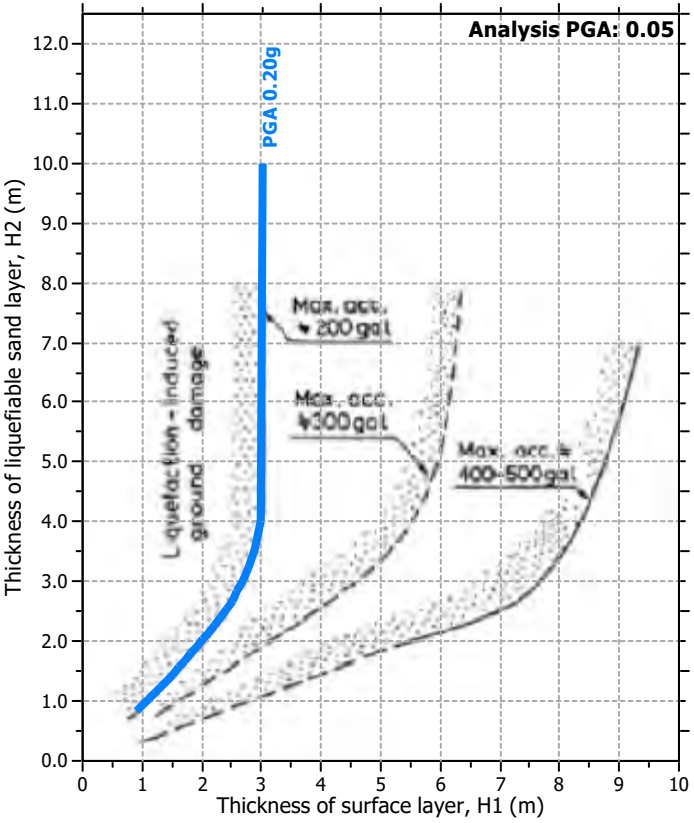
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



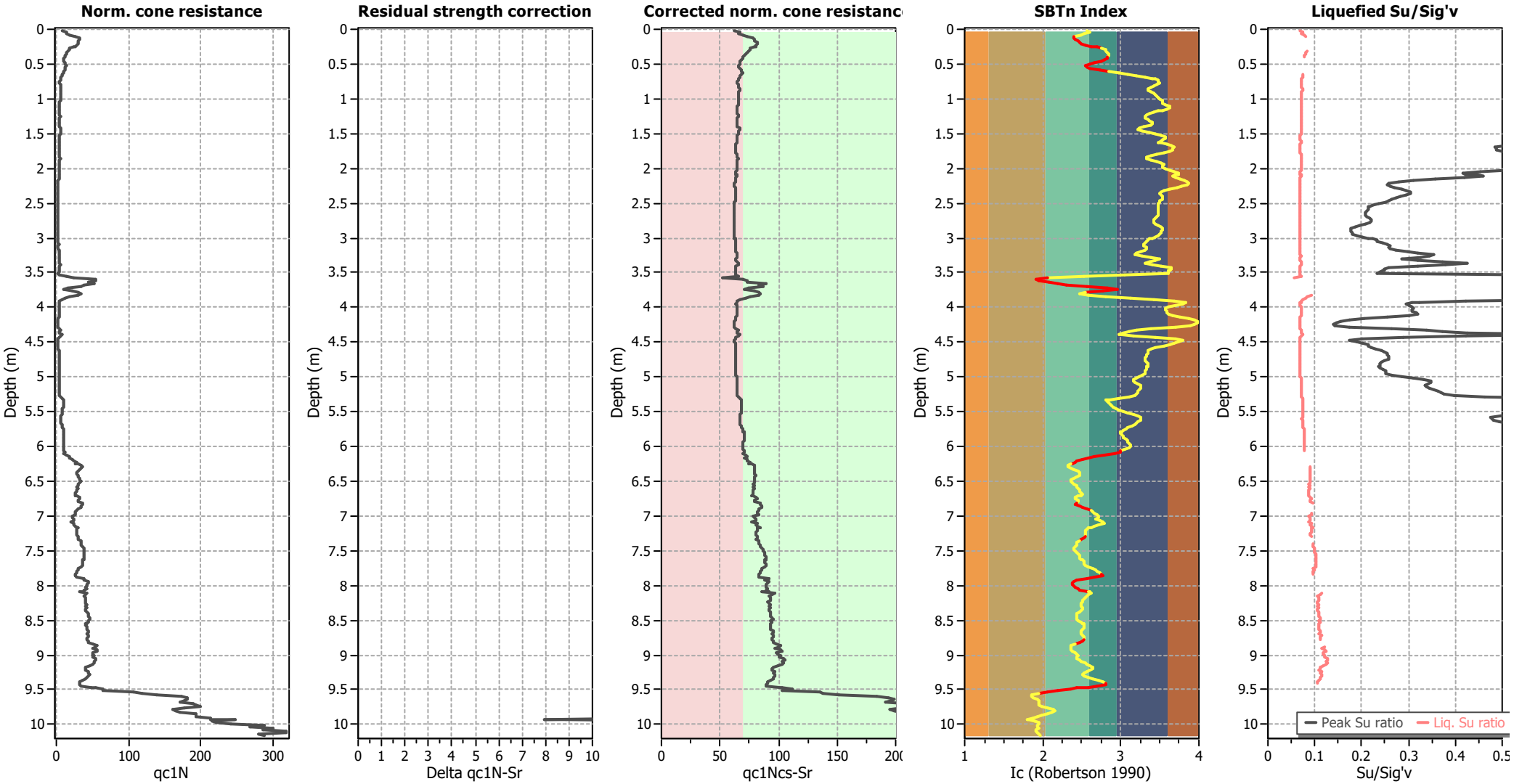




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

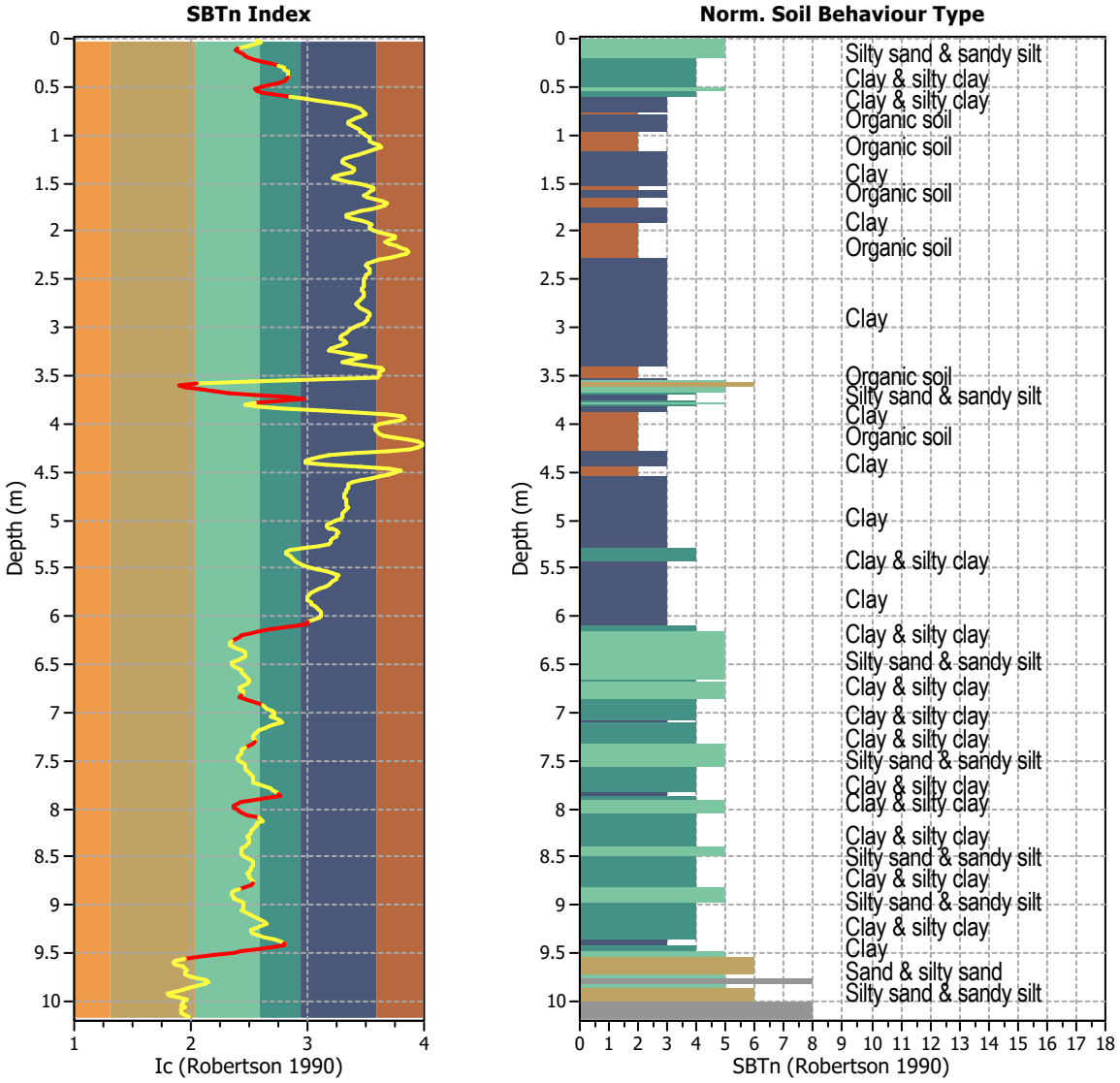
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

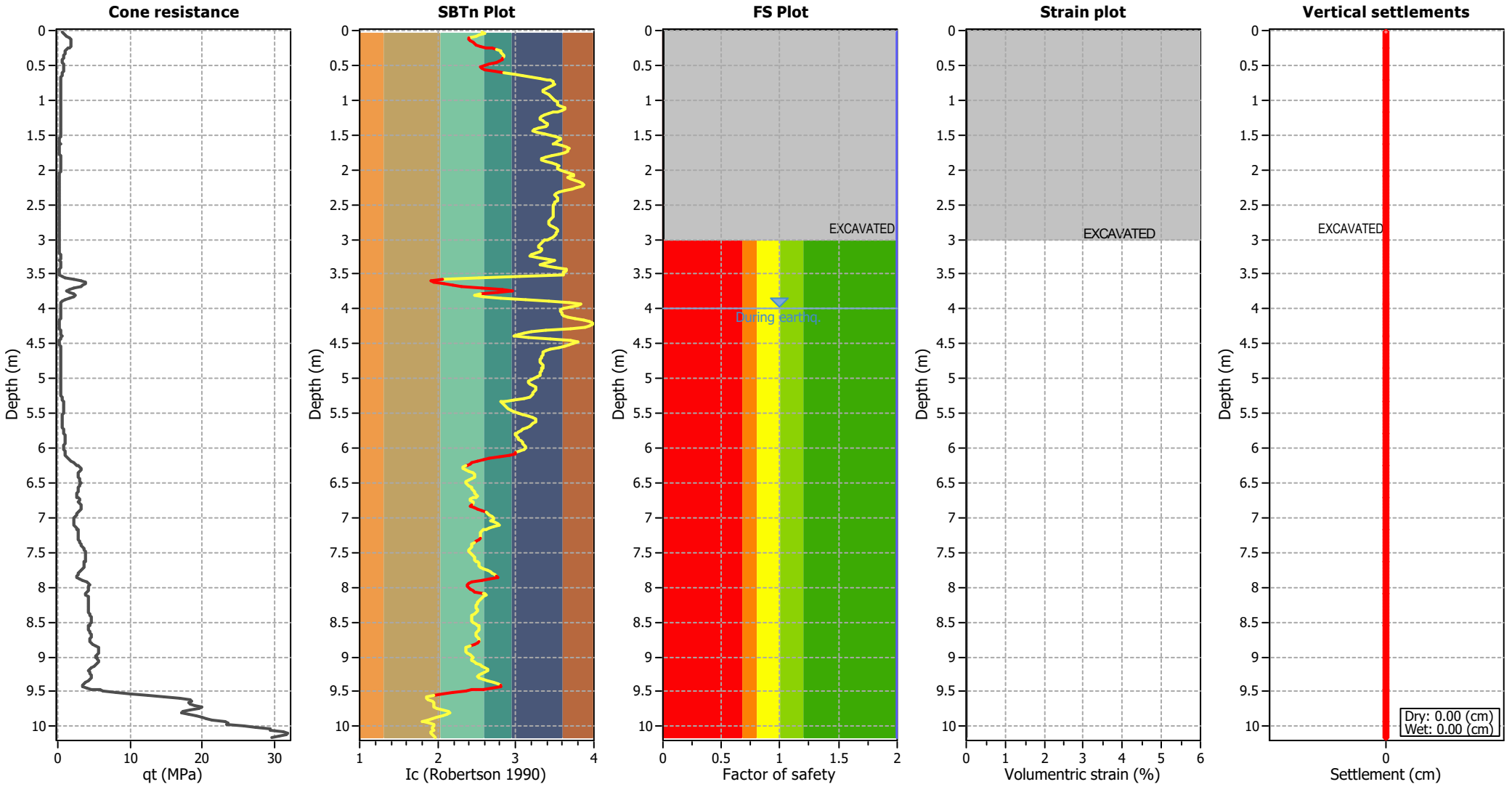
The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties	
I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics	
Total points in CPT file:	508
Total points excluded:	80
Exclusion percentage:	15.75%
Number of layers detected:	12

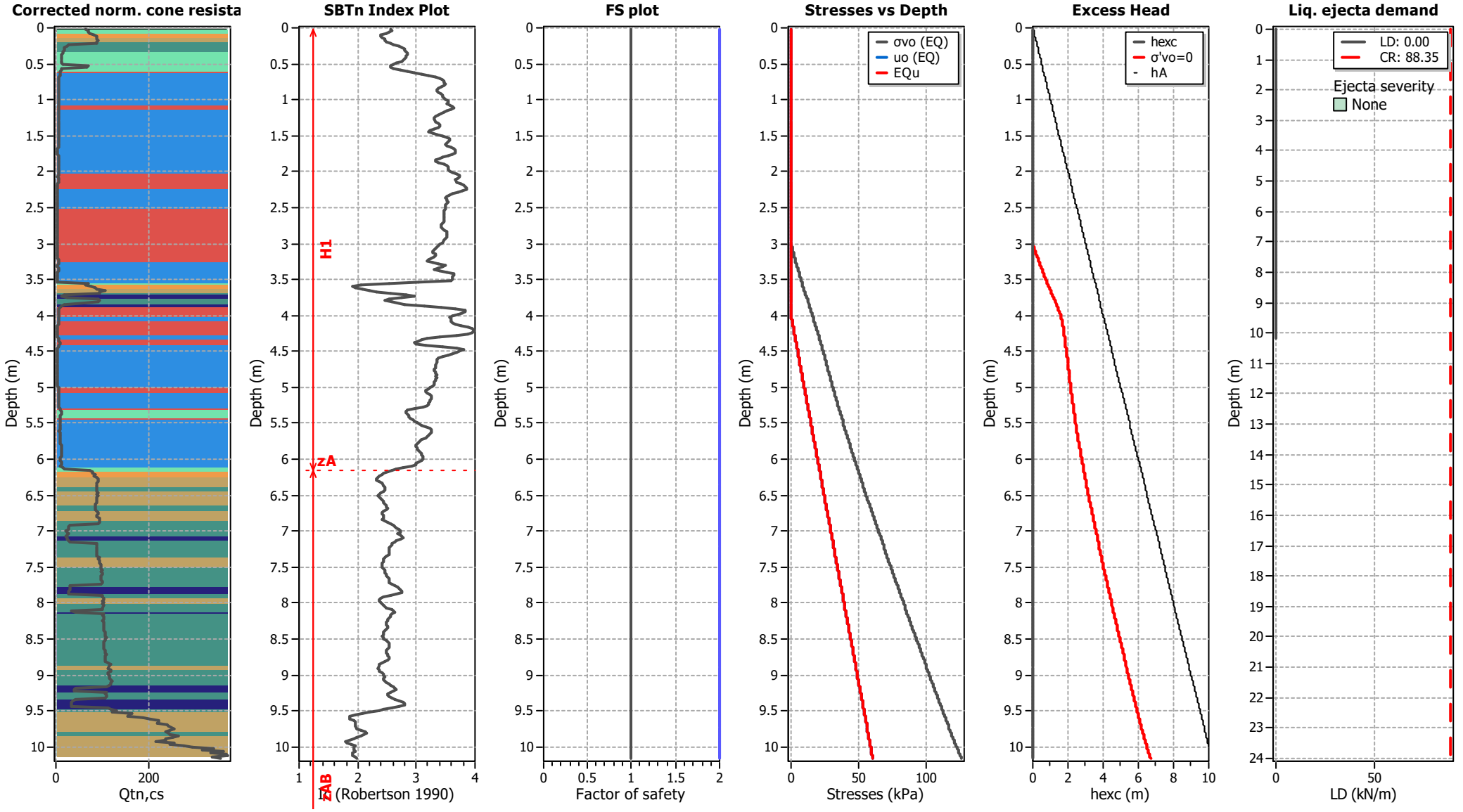
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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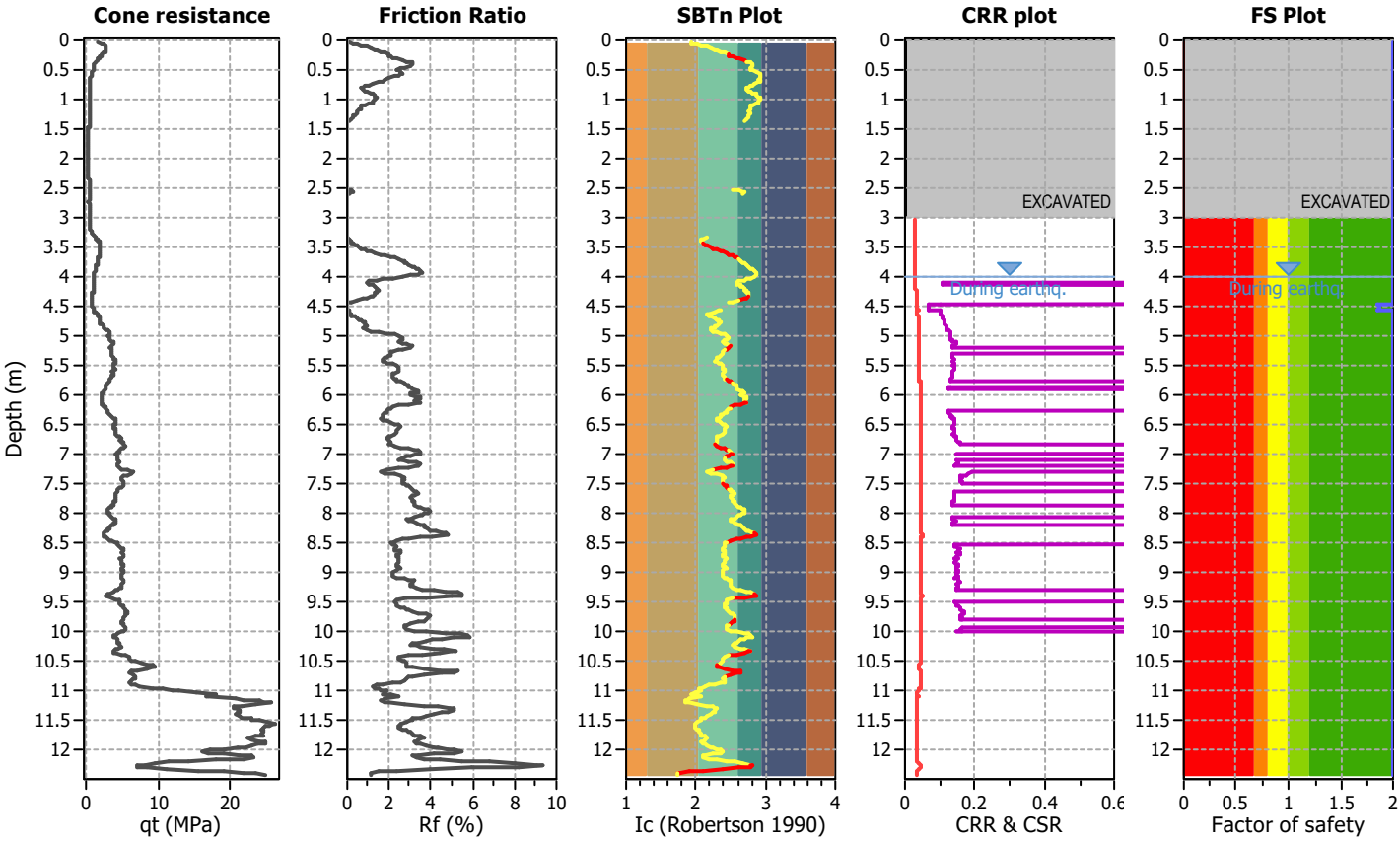
LIQUEFACTION ANALYSIS REPORT

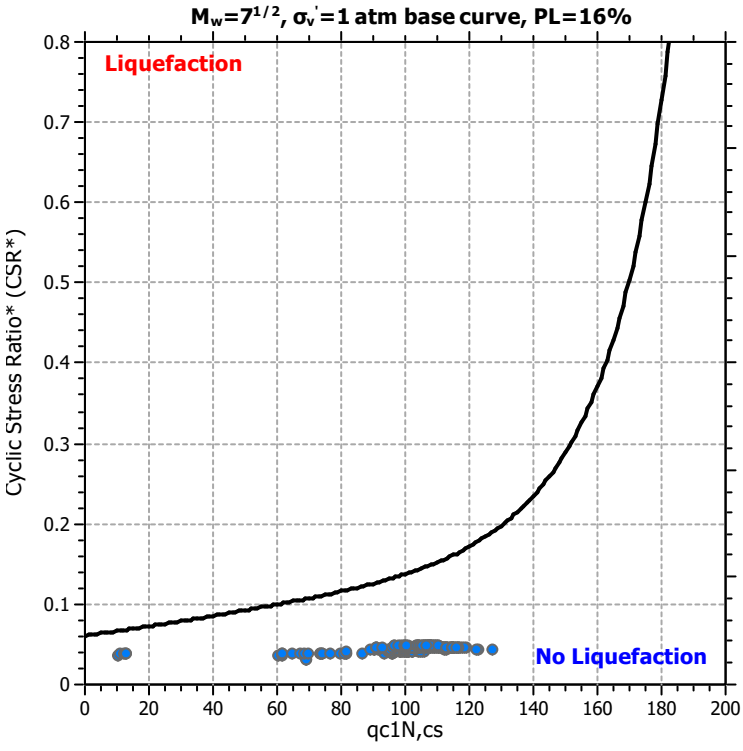
Project title : Sunfield Landholding **Location :**

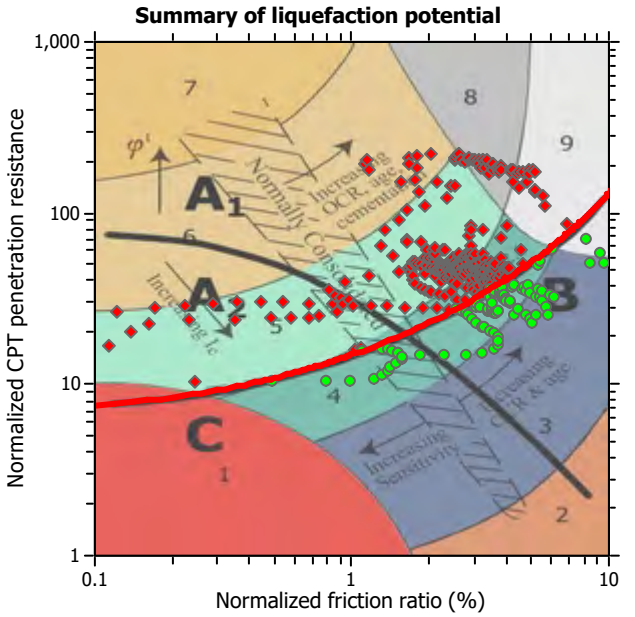
CPT file : CPT202

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	4.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	4.00 m	Excavation depth:	3.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

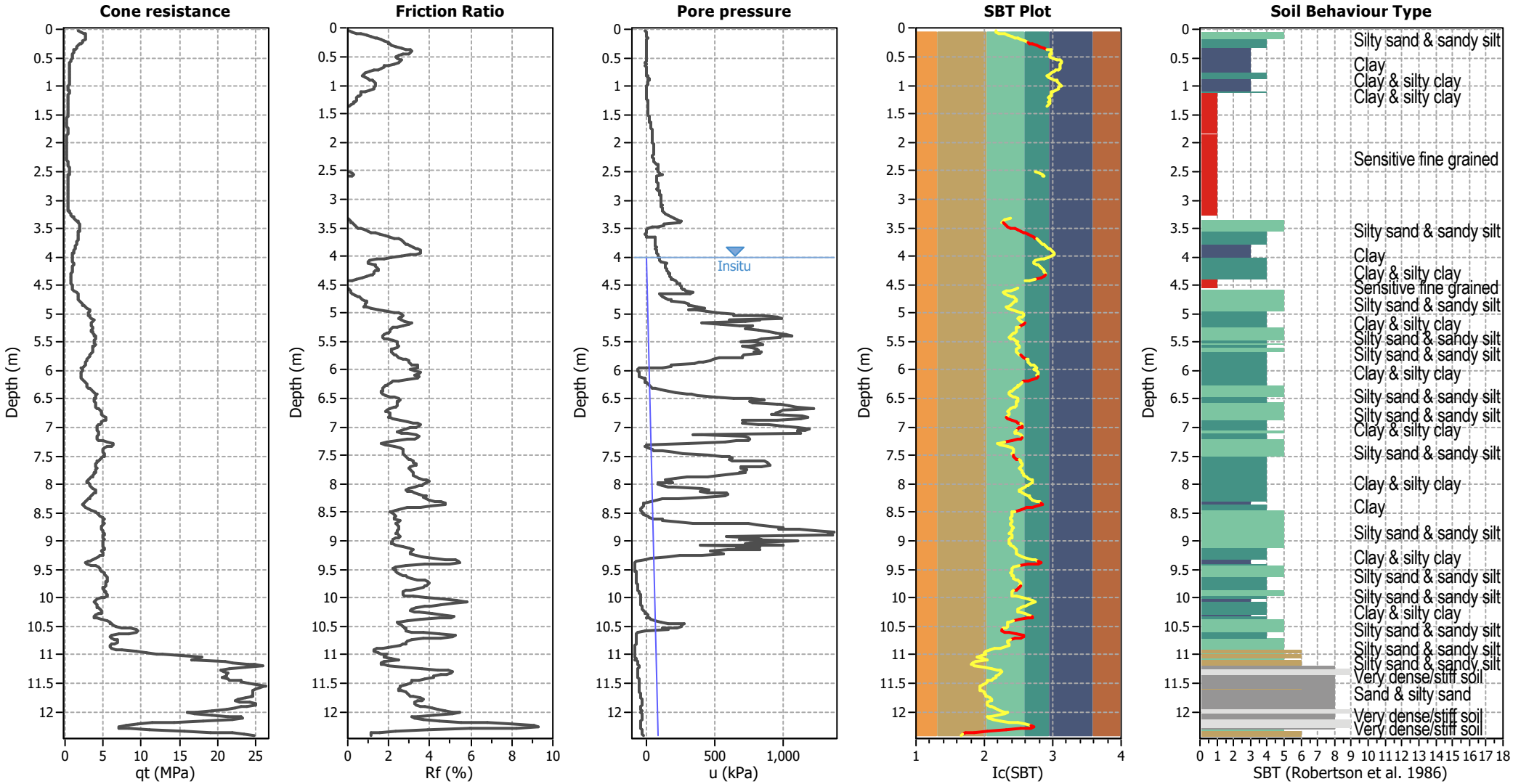






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



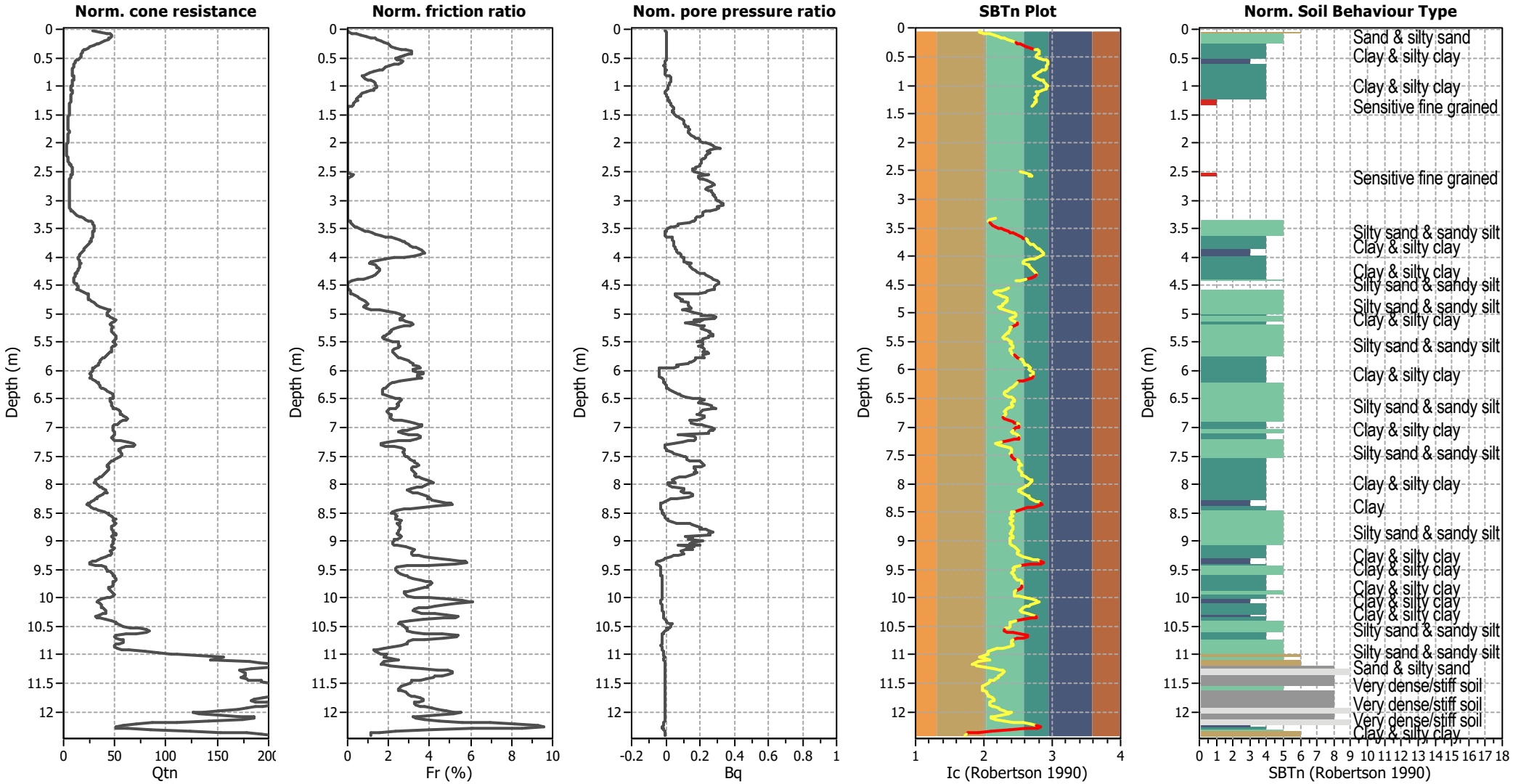
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

SBTn legend

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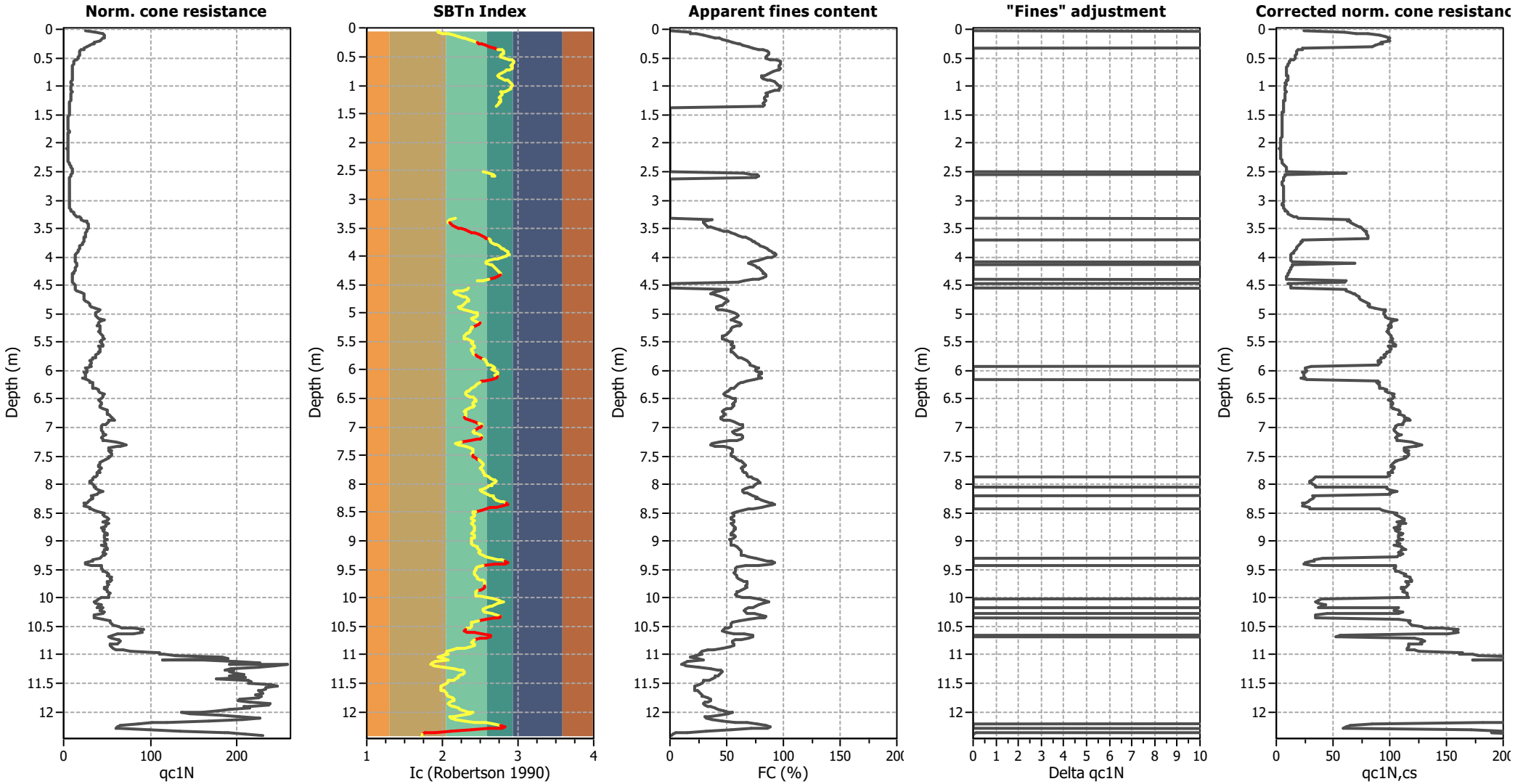
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

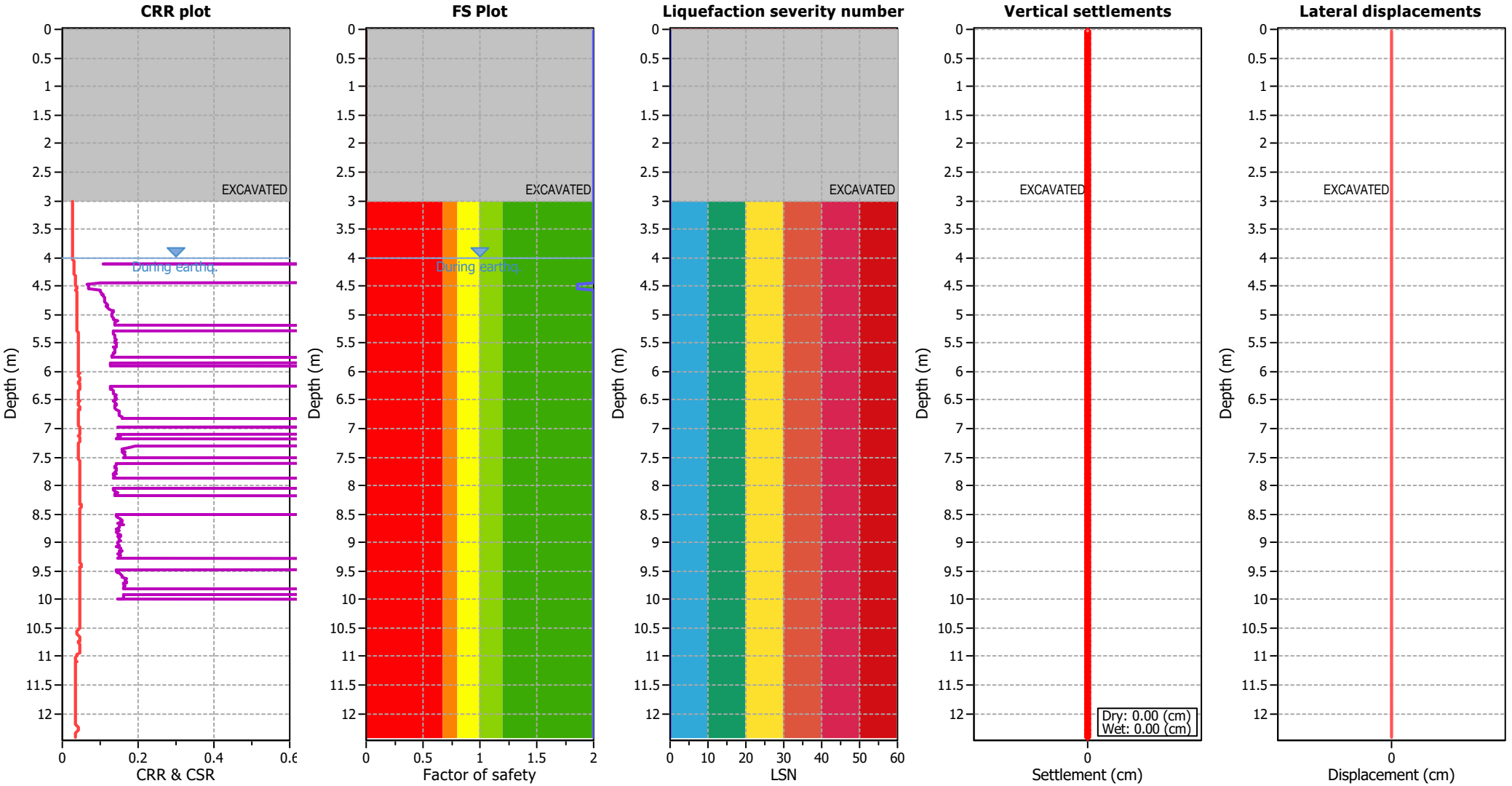
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 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

LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
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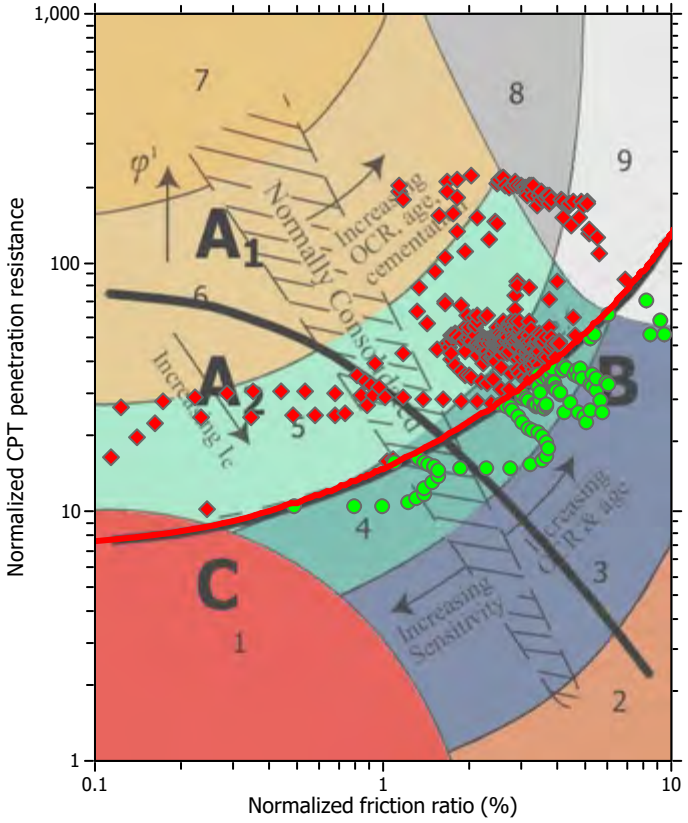
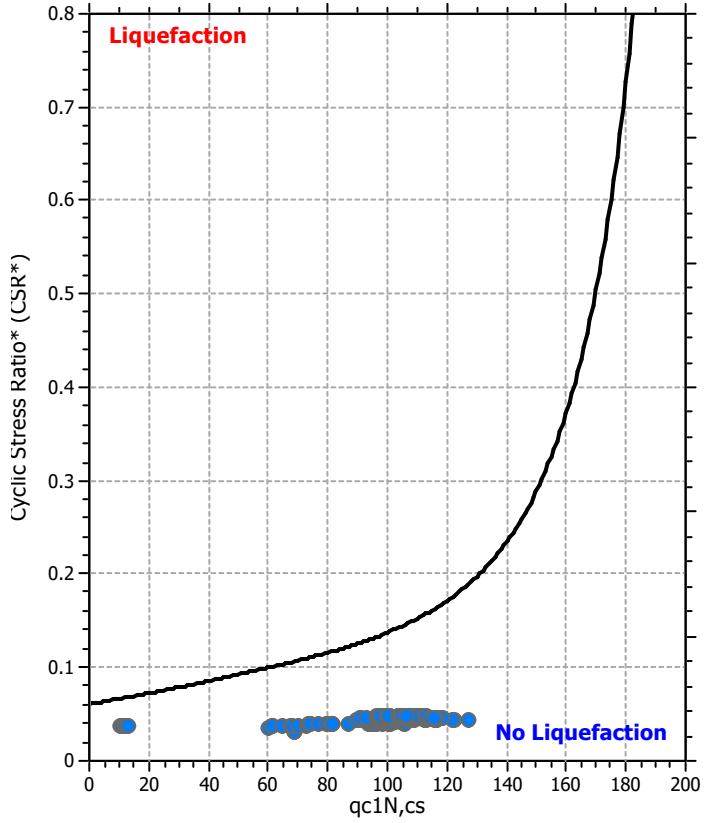
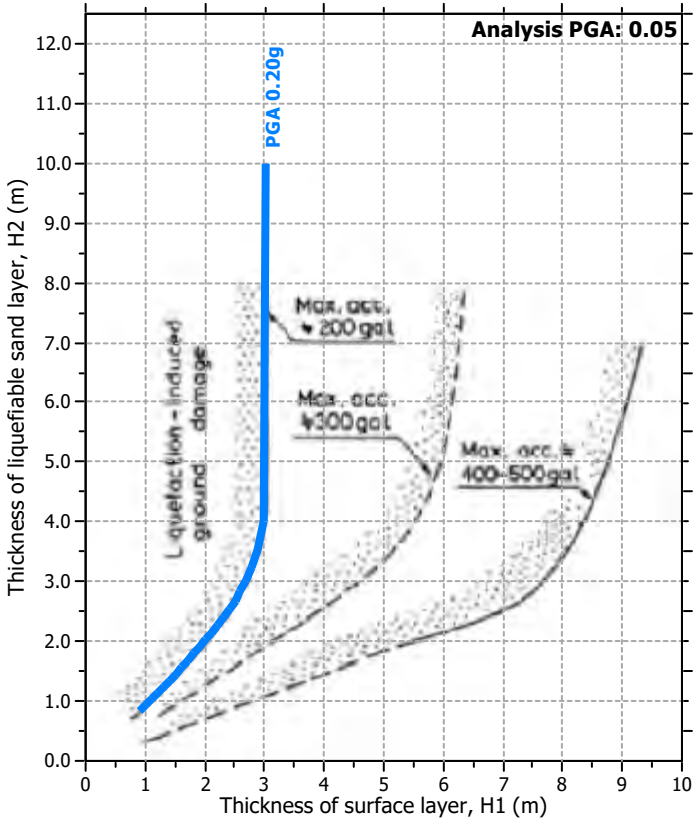
Liquefaction analysis summary plots



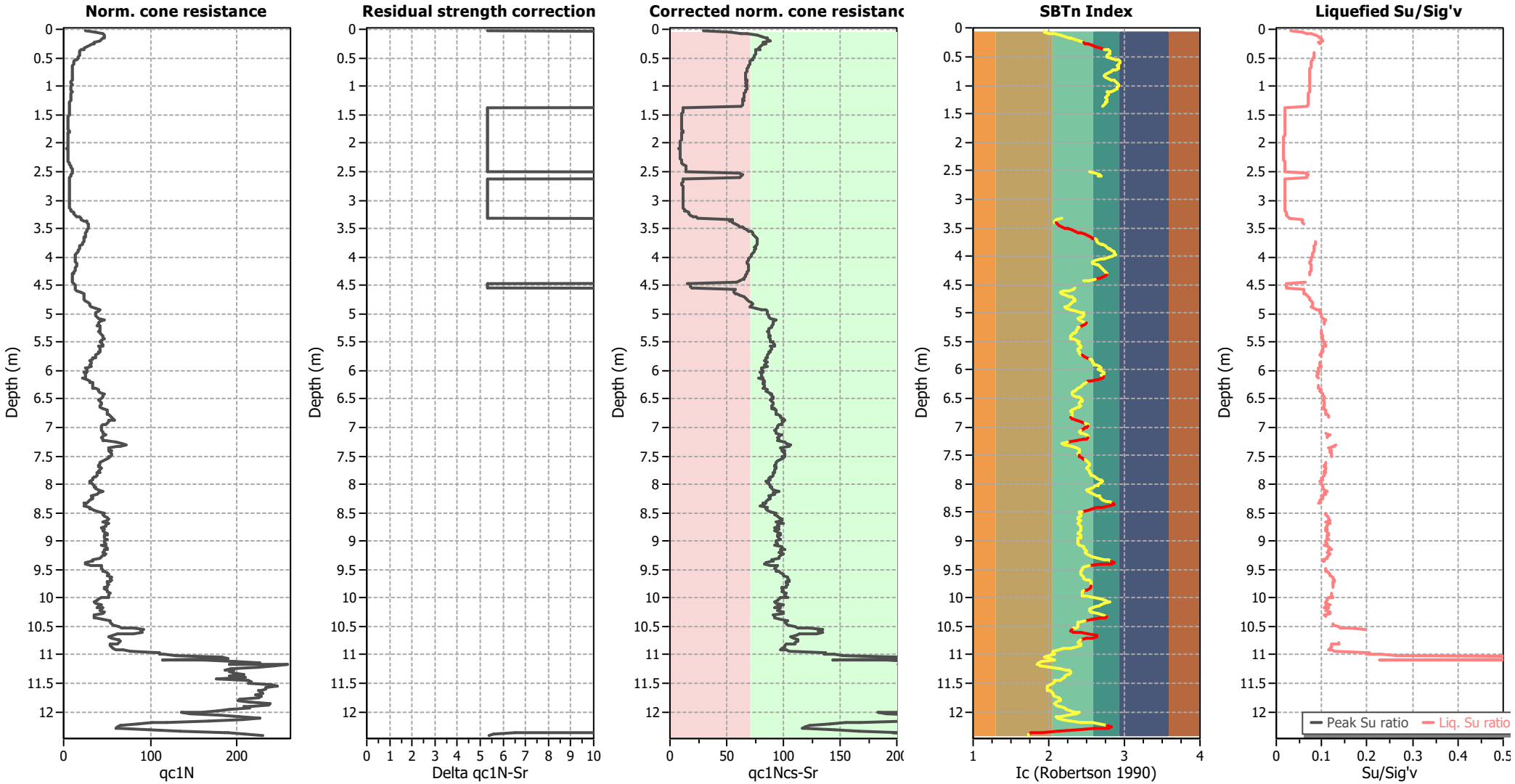




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

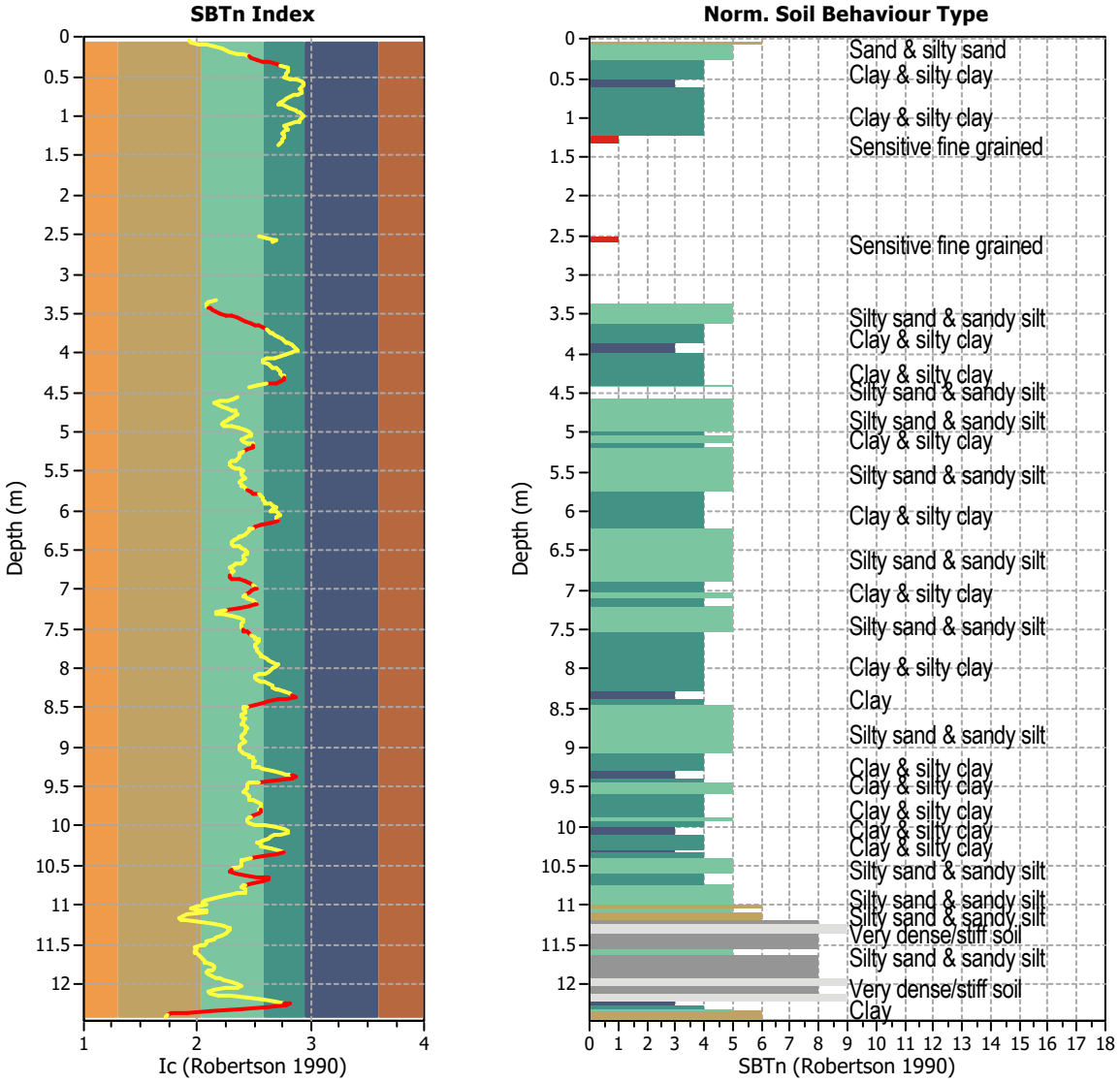
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	4.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	4.00 m	Excavation depth:	3.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

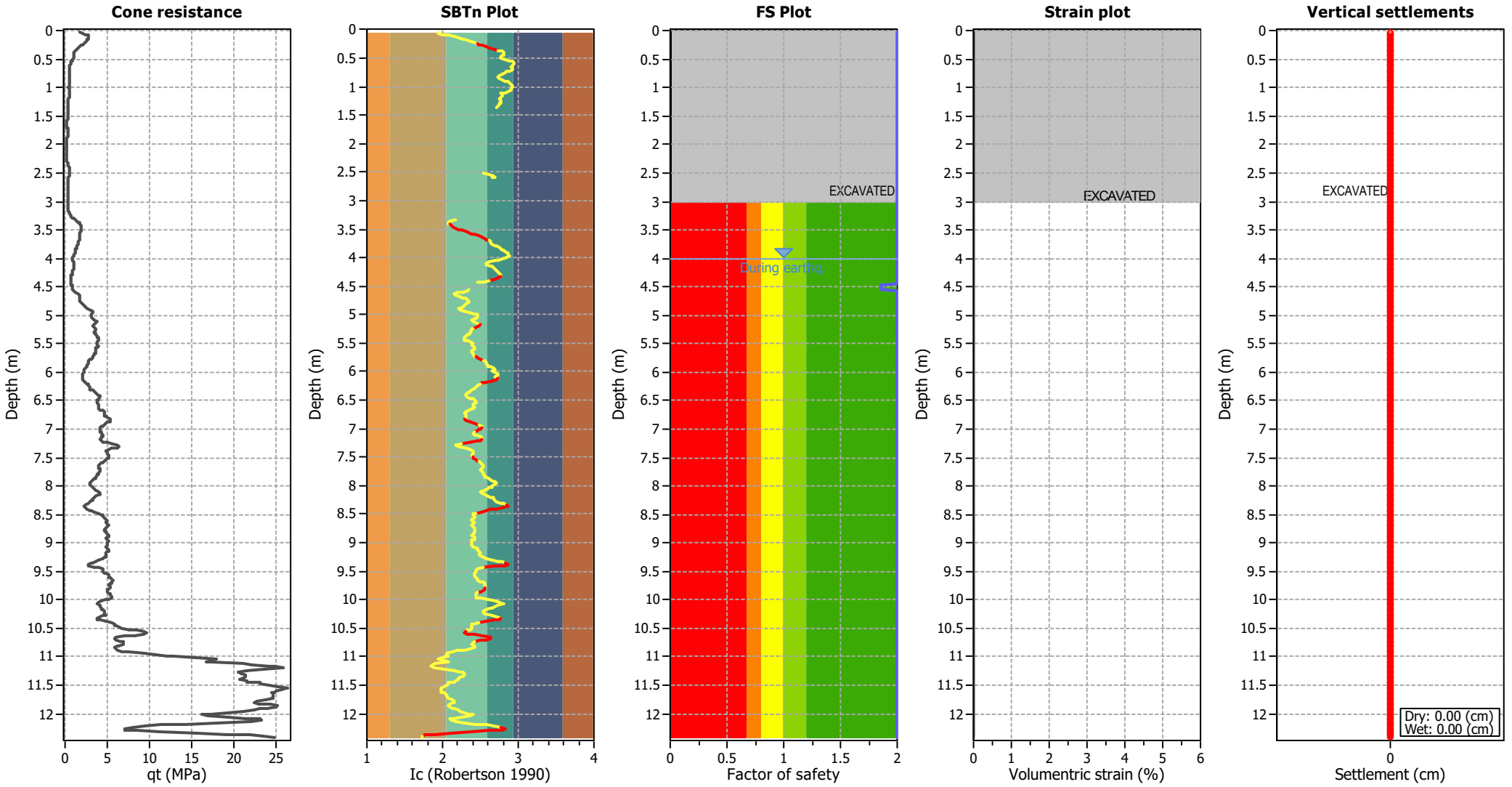
The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties	
I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics	
Total points in CPT file:	621
Total points excluded:	104
Exclusion percentage:	16.75%
Number of layers detected:	17

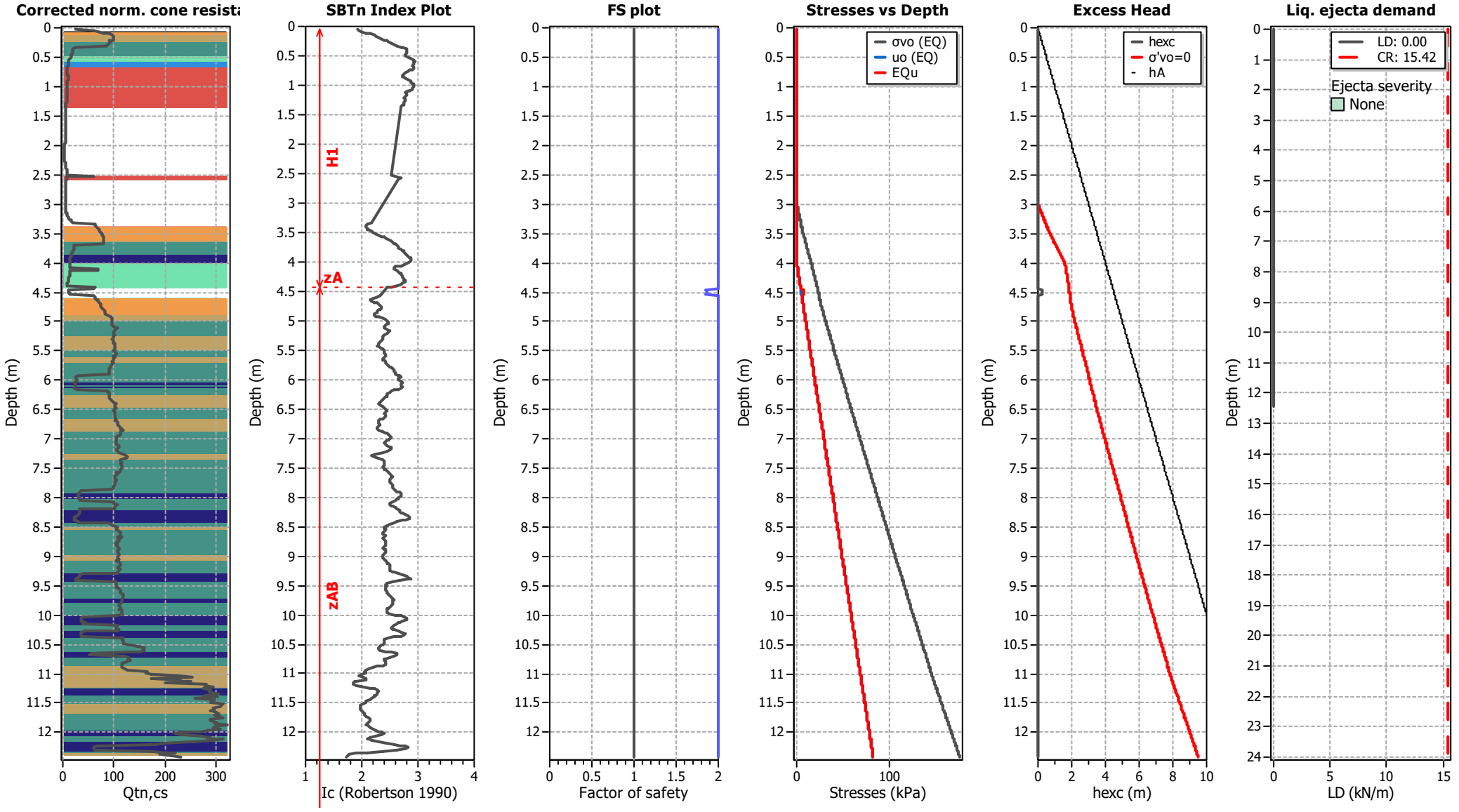
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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http://www.geologismiki.gr

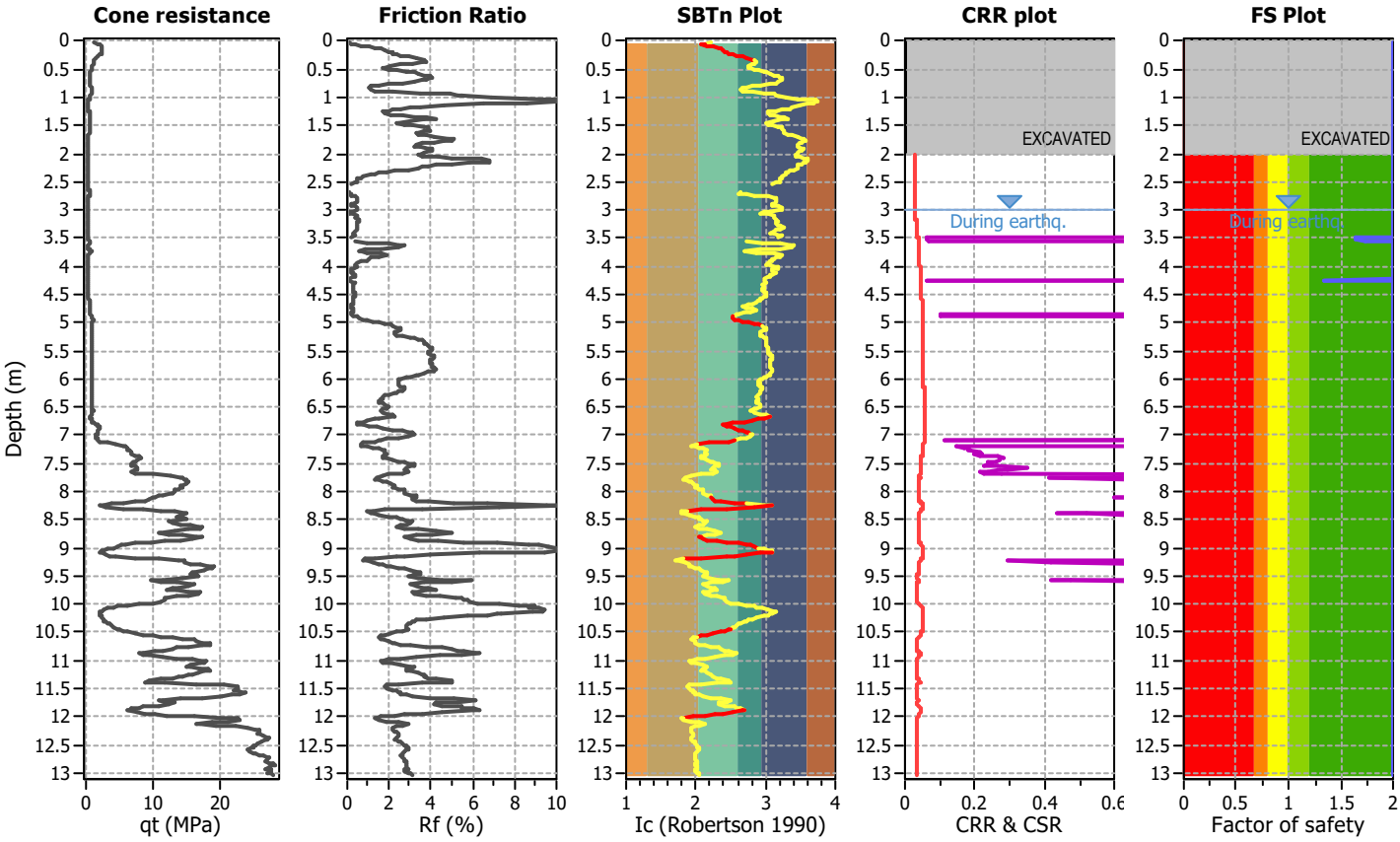
LIQUEFACTION ANALYSIS REPORT

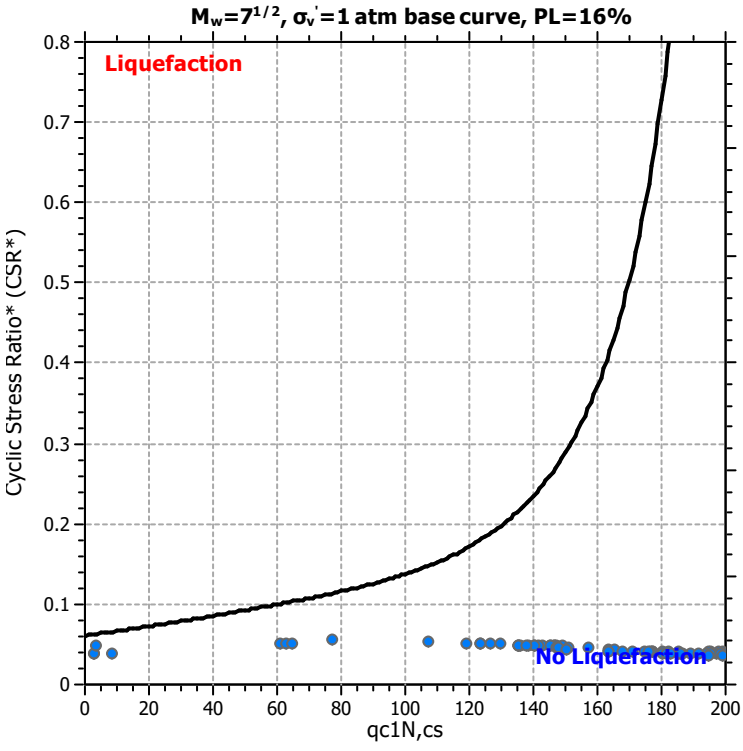
Project title : Sunfield Landholding **Location :**

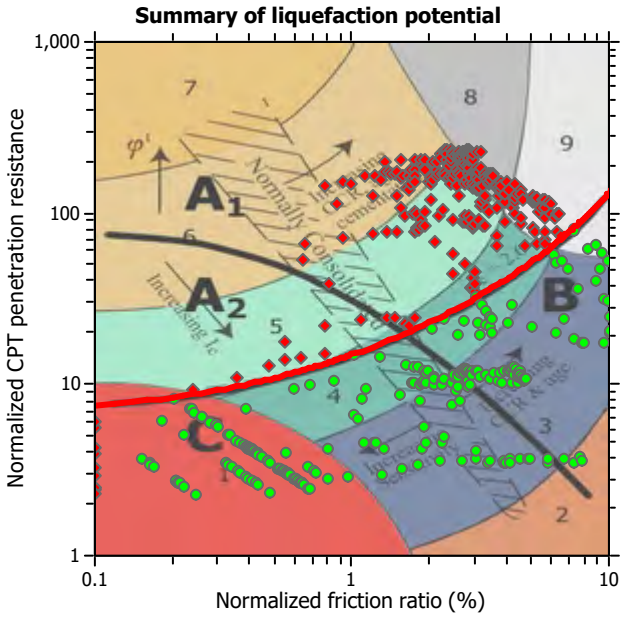
CPT file : CPT203

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.00 m	Excavation depth:	2.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

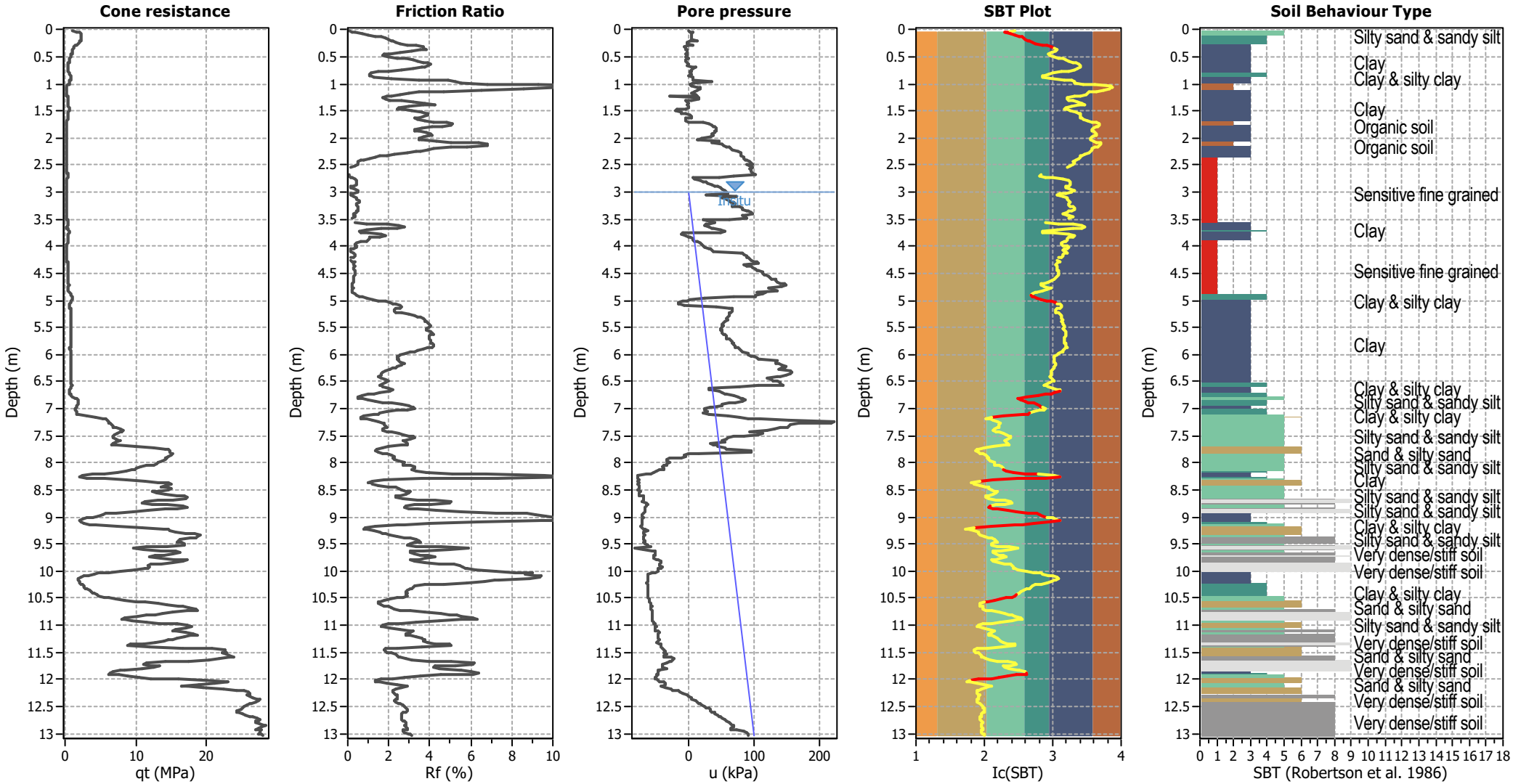






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



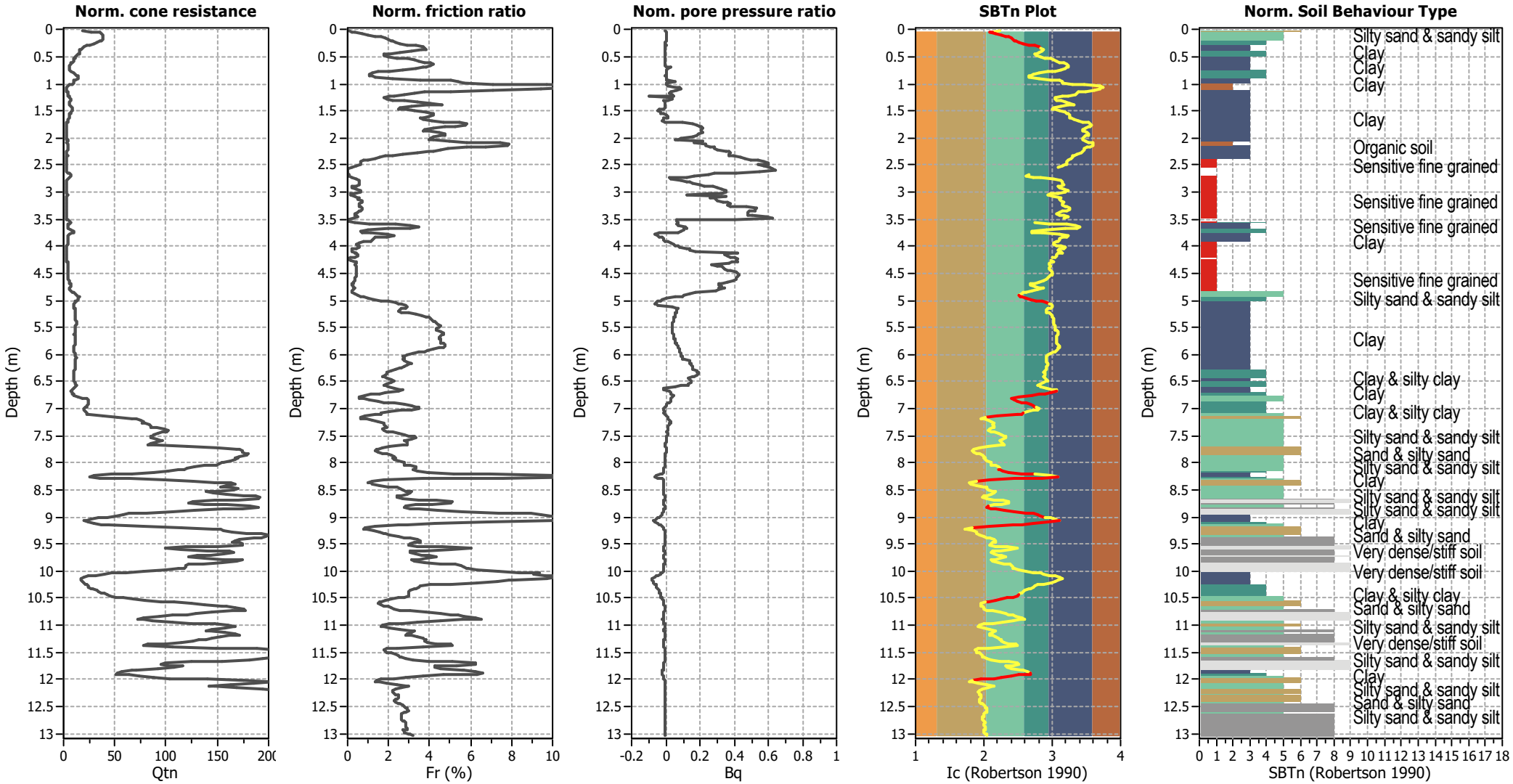
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
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SBTn legend

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6. Clean sand to silty sand
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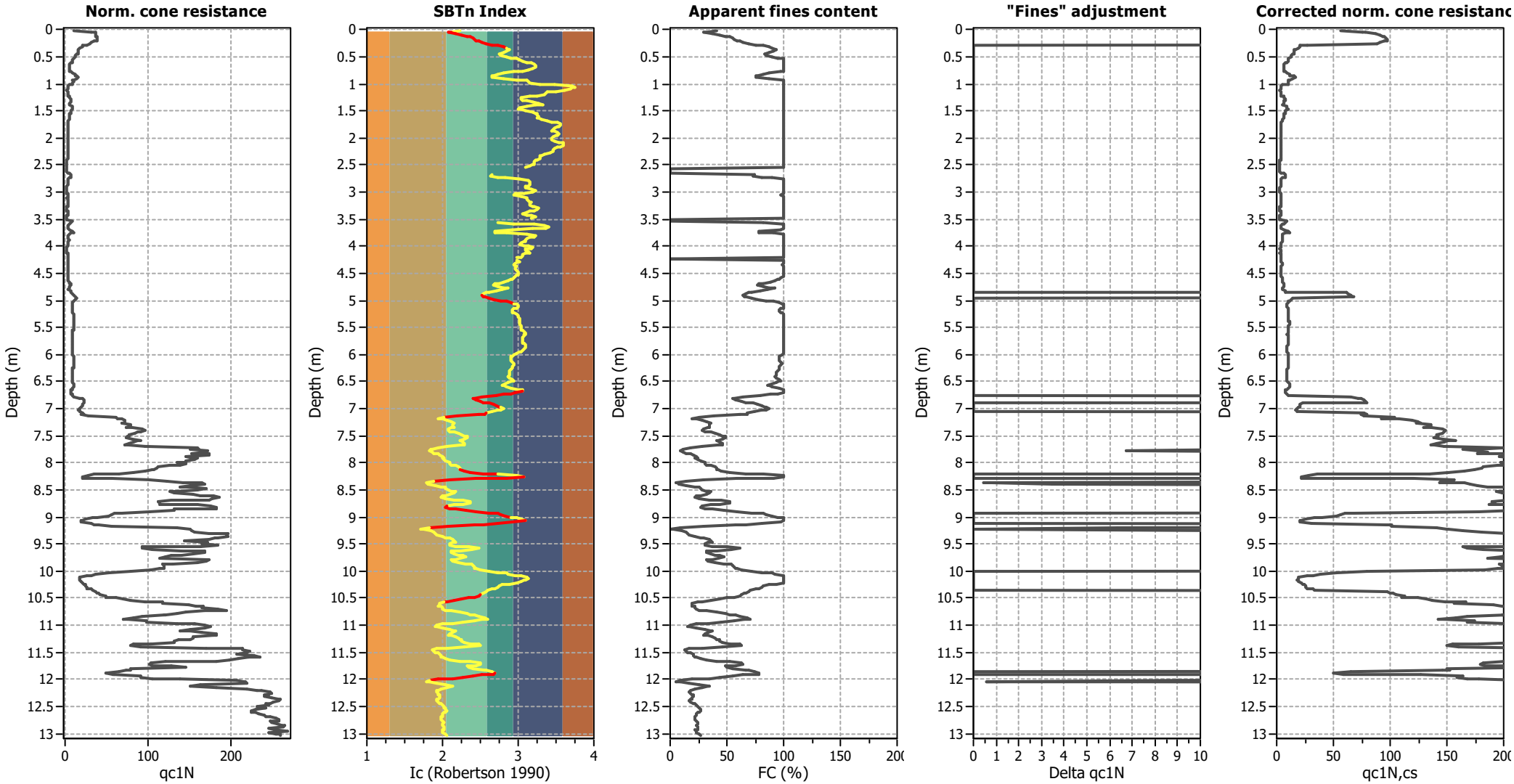
8. Very stiff sand to
9. Very stiff fine grained

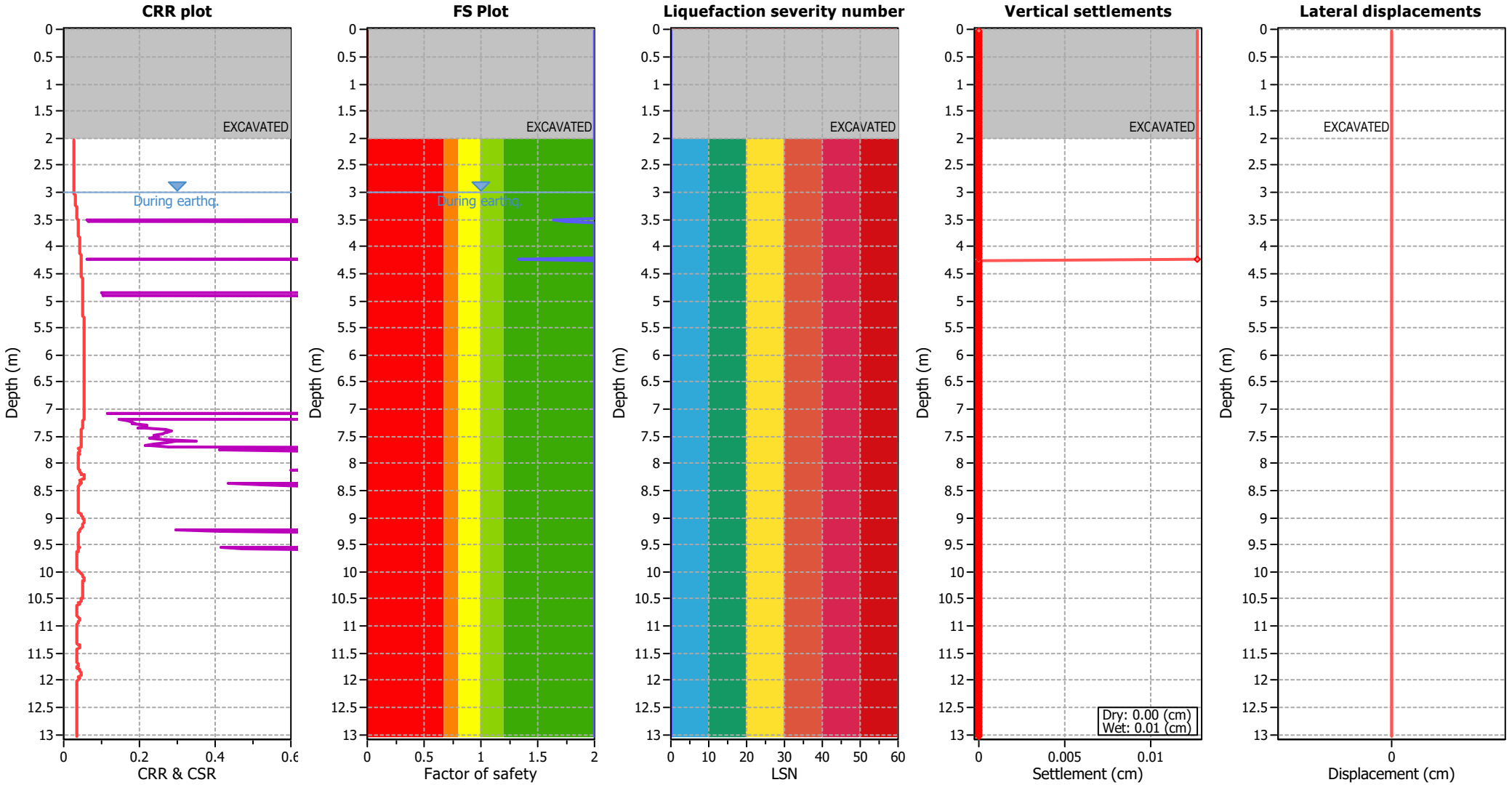
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 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

LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
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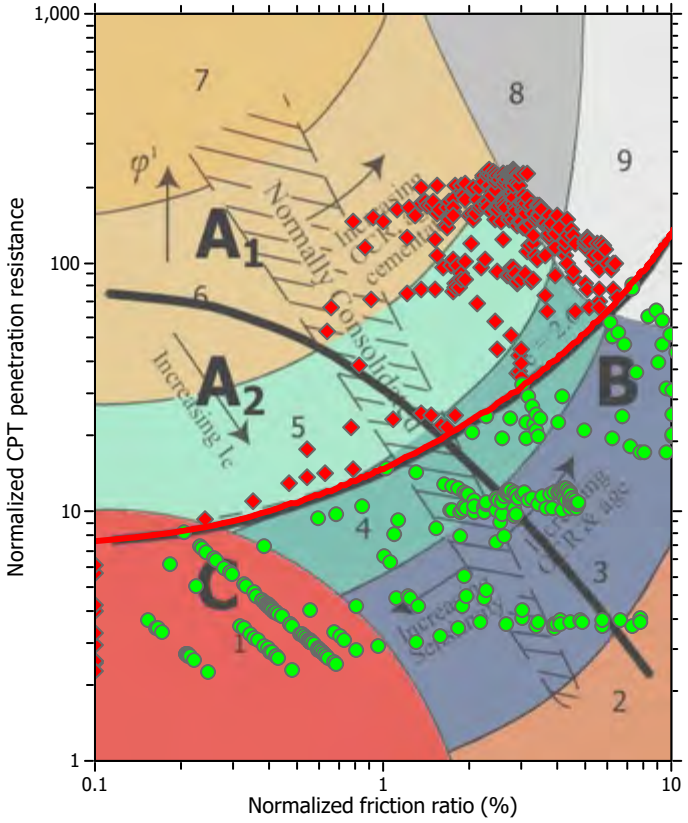
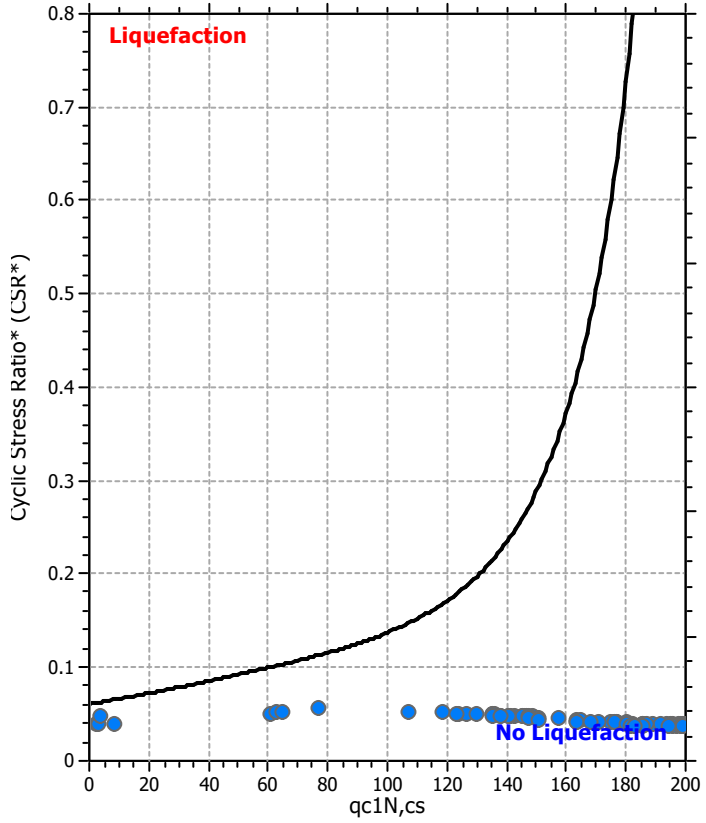
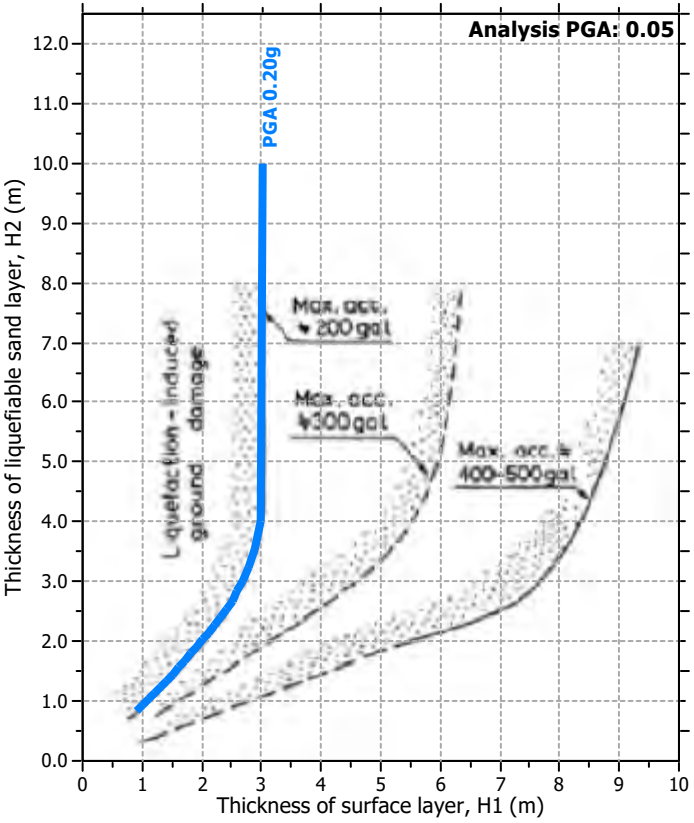
Liquefaction analysis summary plots







Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
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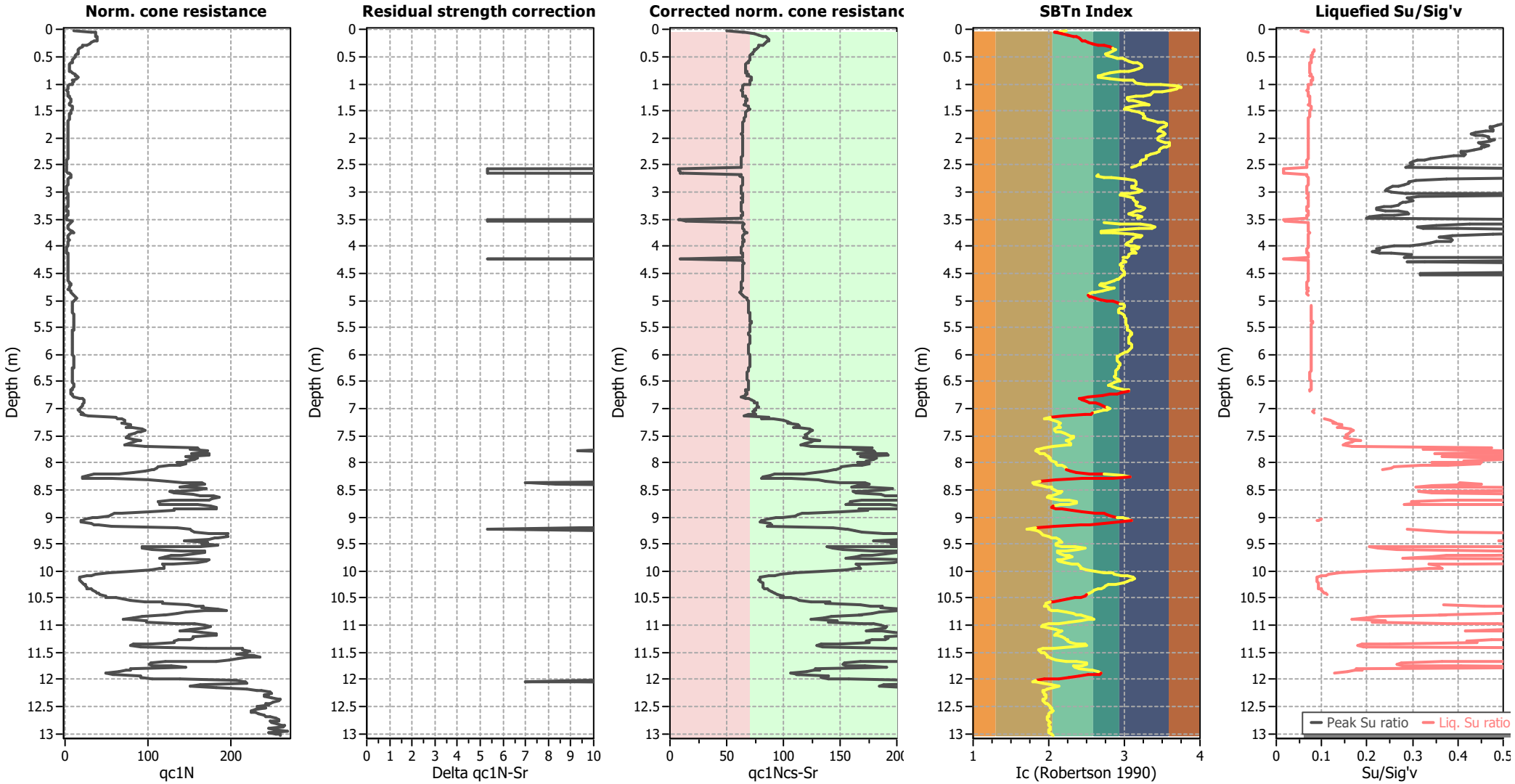
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
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TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

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The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

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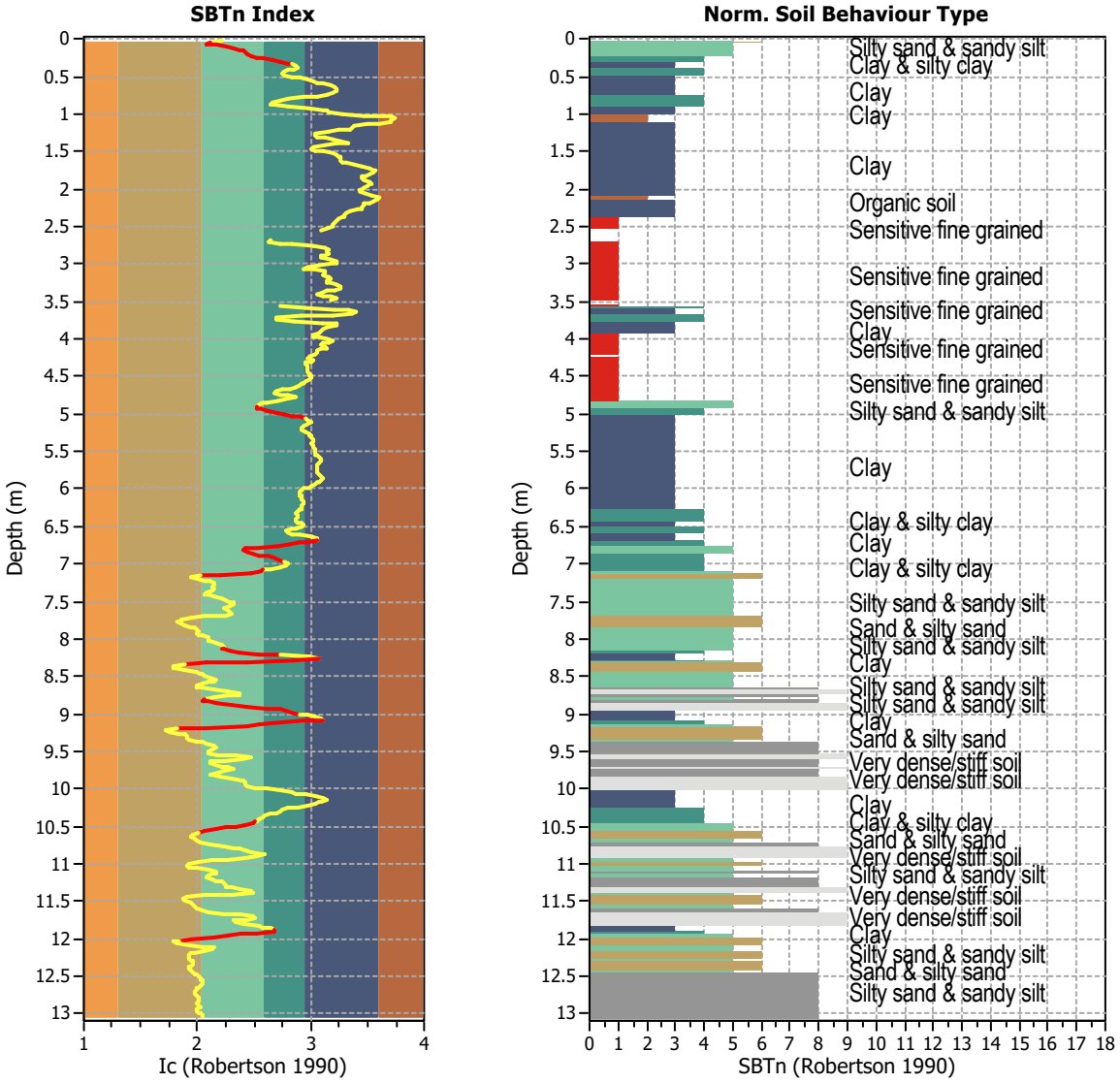


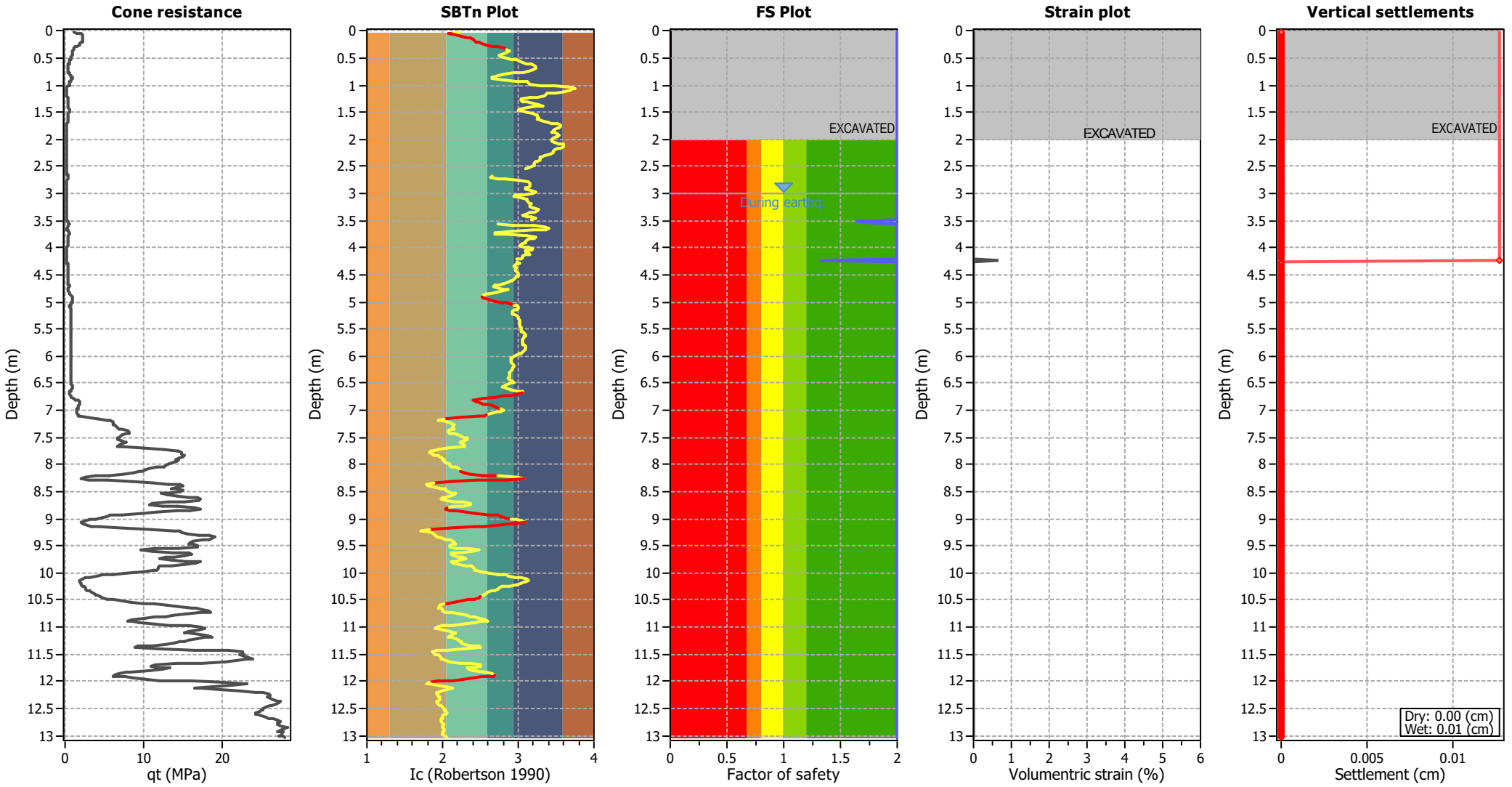
Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	652
Total points excluded:	91
Exclusion percentage:	13.96%
Number of layers detected:	11

Estimation of post-earthquake settlements



Abbreviations

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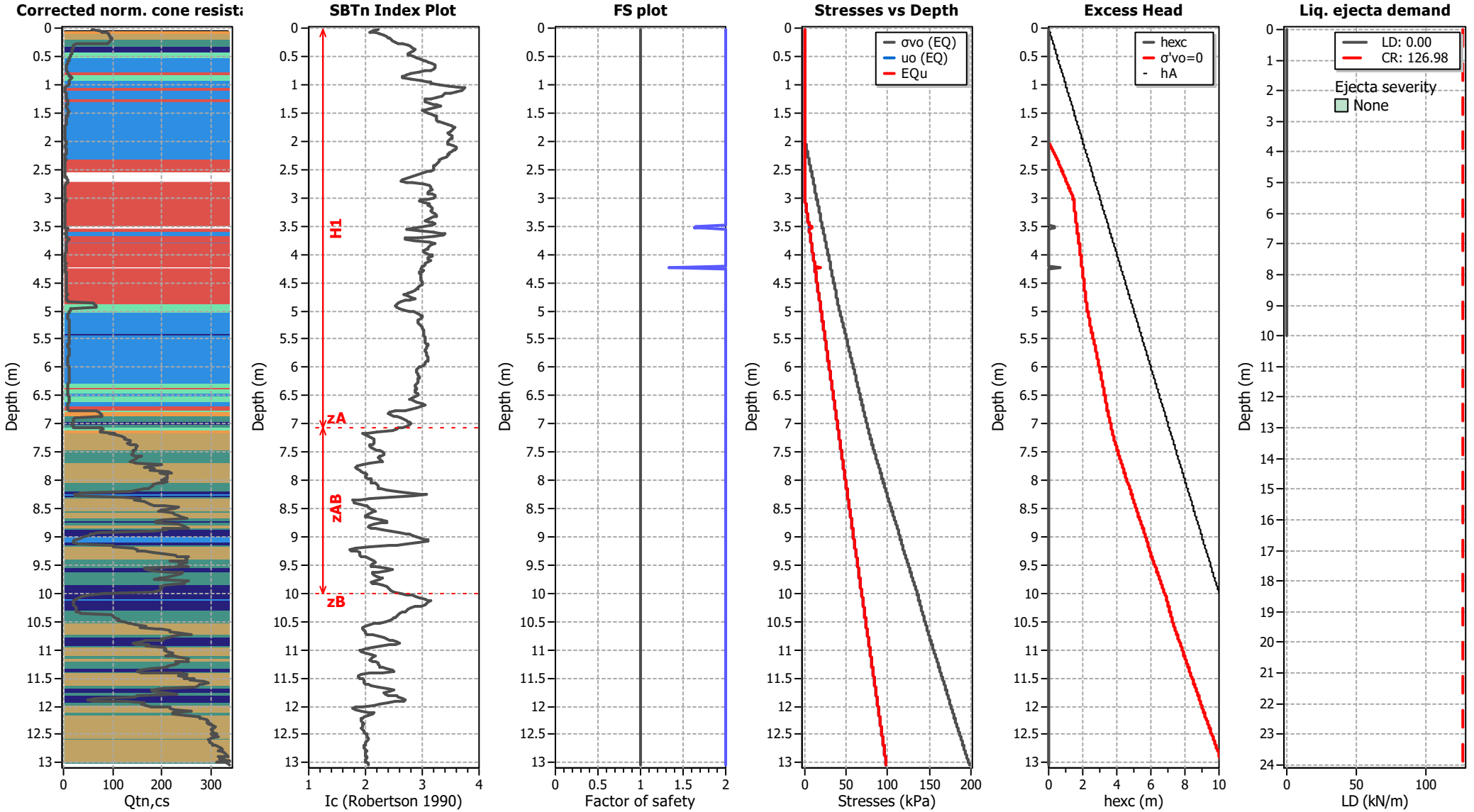
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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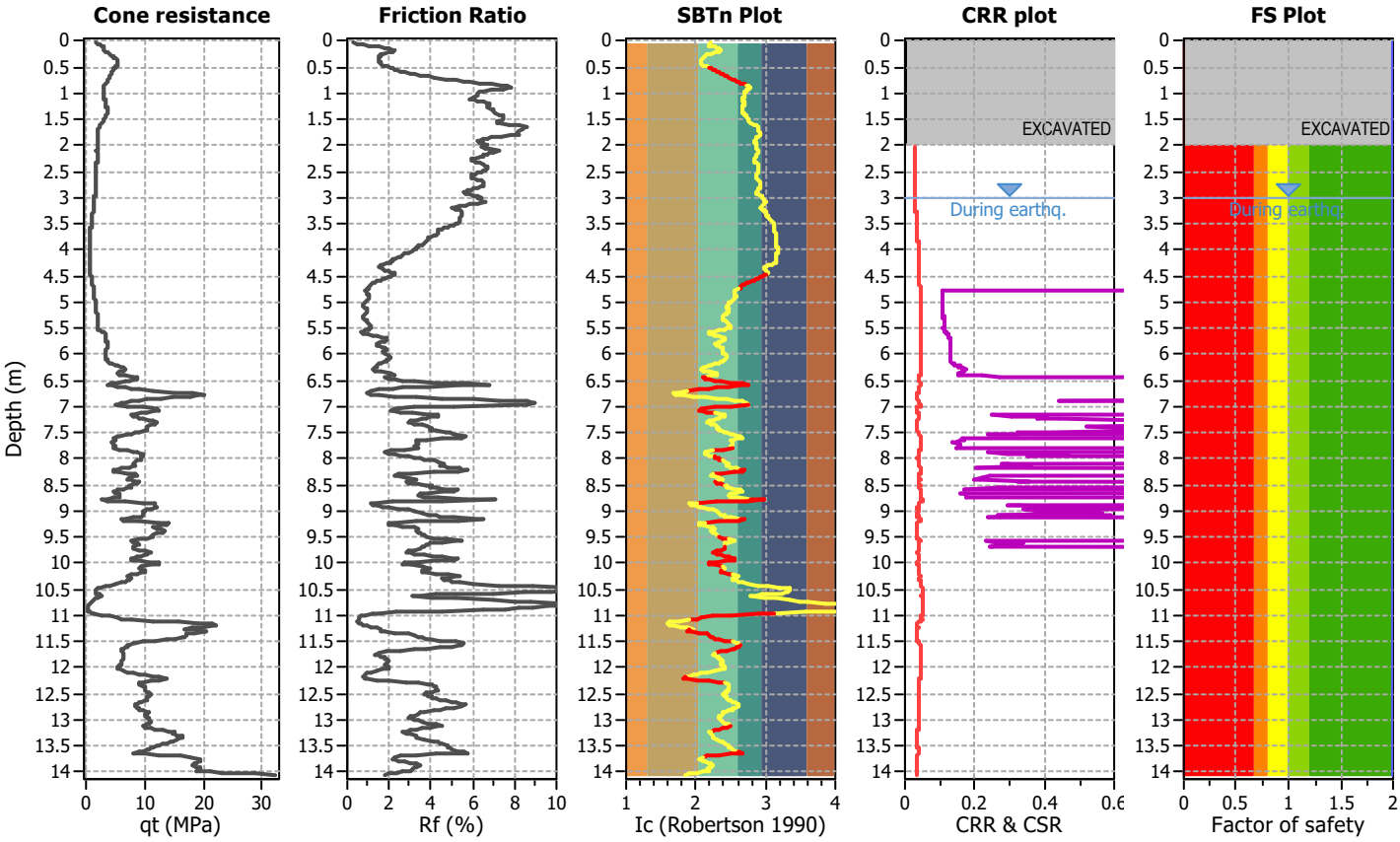
LIQUEFACTION ANALYSIS REPORT

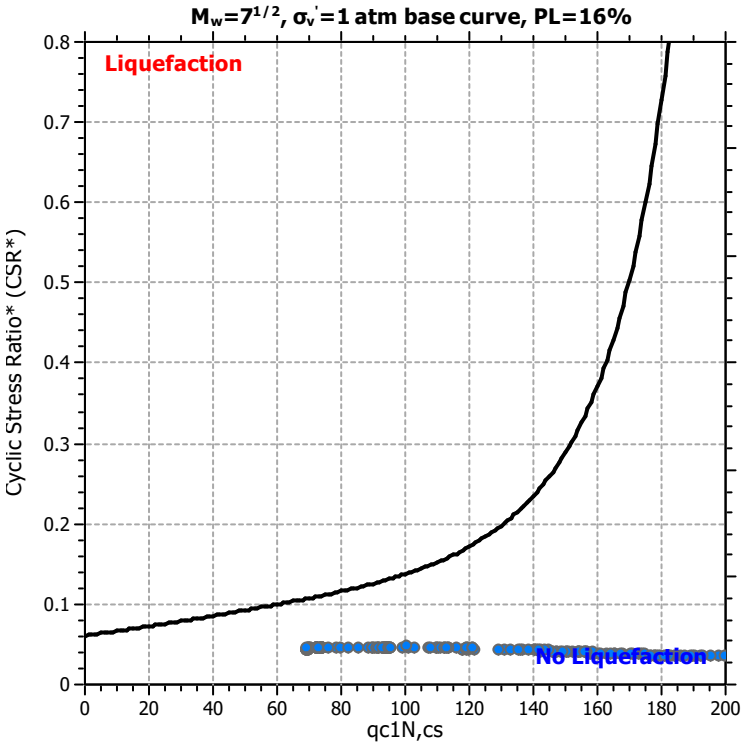
Project title : Sunfield Landholding **Location :**

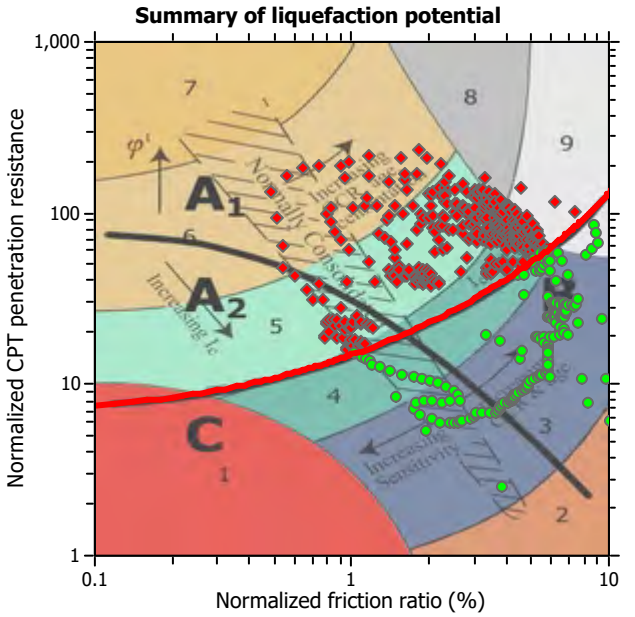
CPT file : CPT204

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.00 m	Excavation depth:	2.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

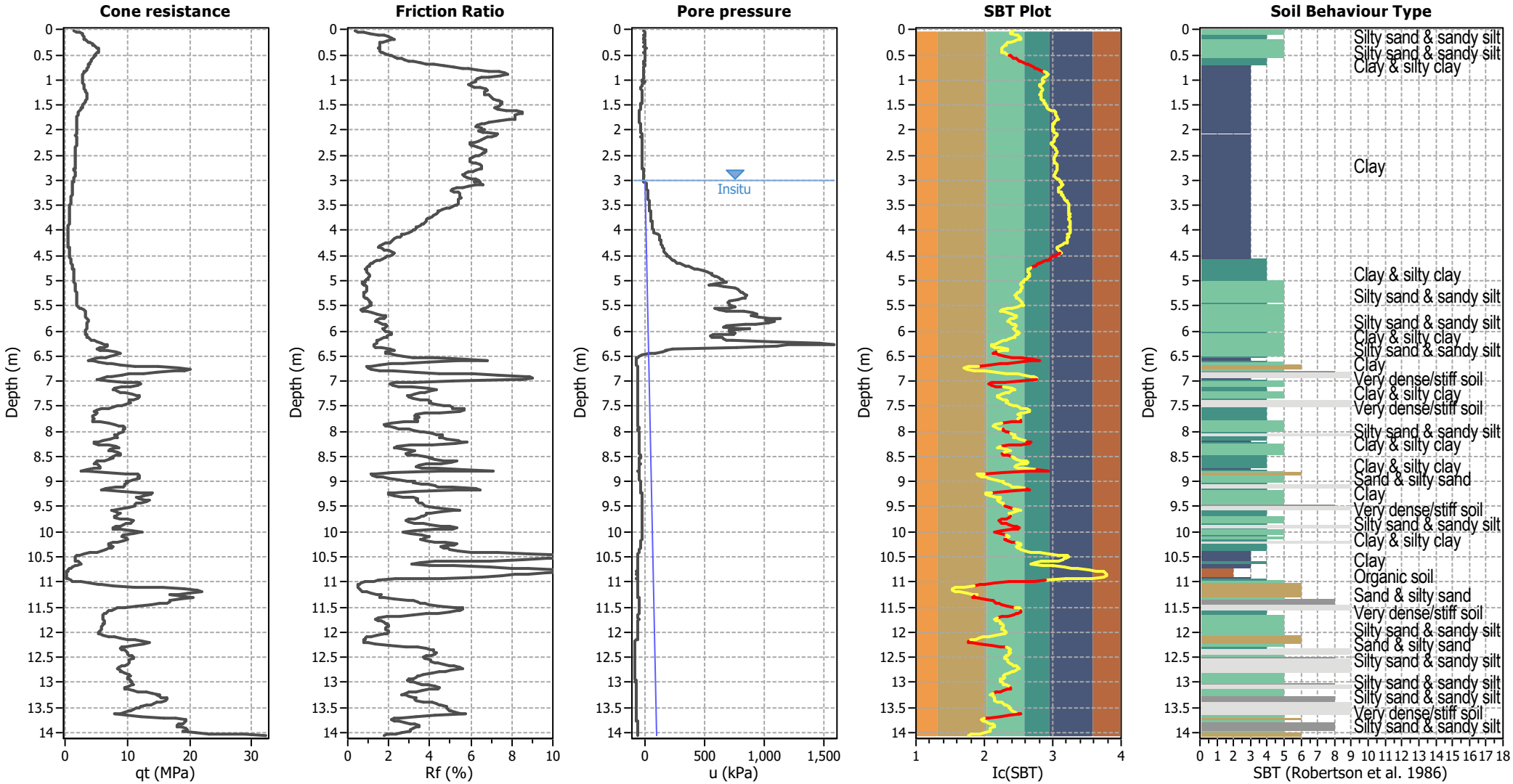






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



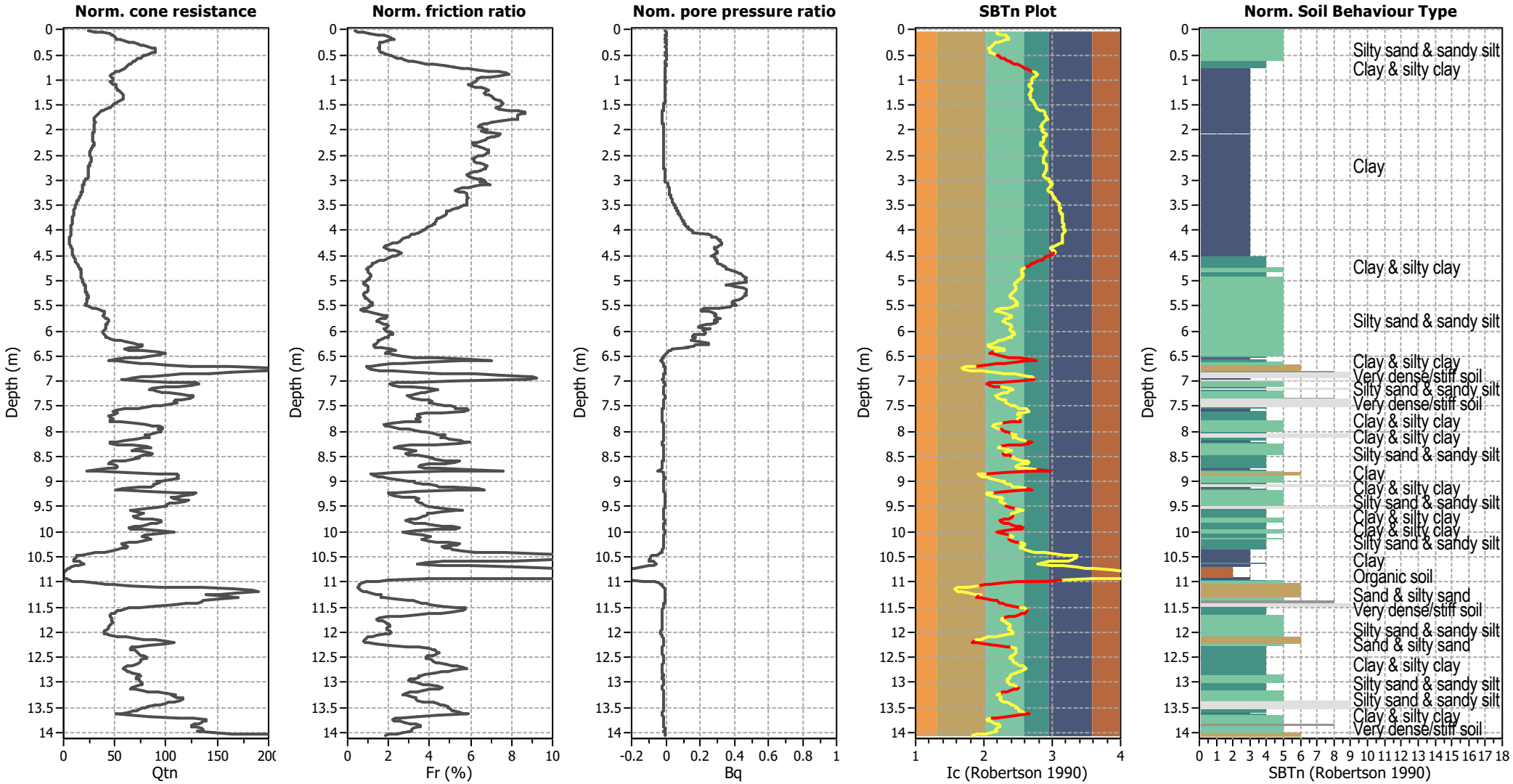
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
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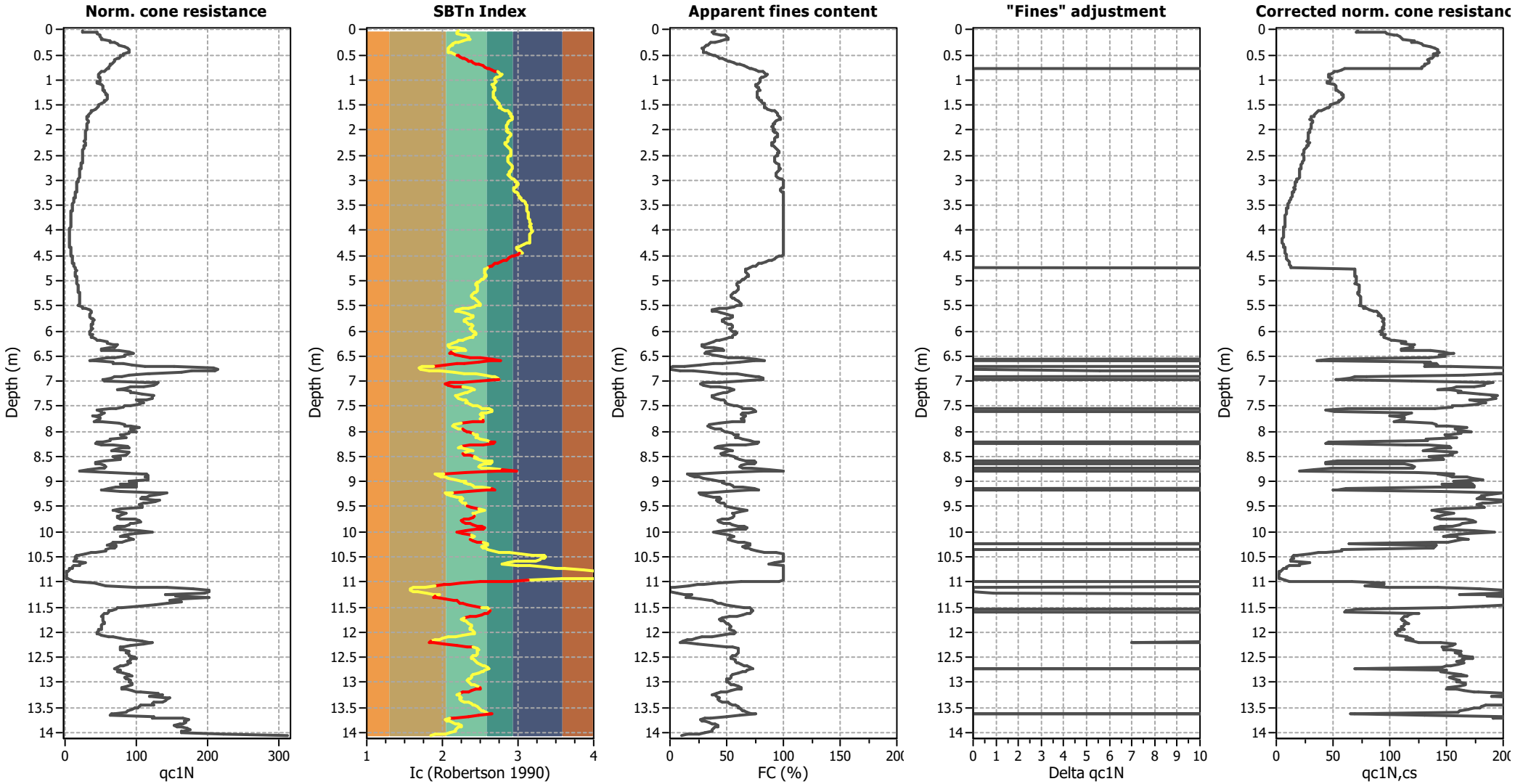
SBTn legend

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

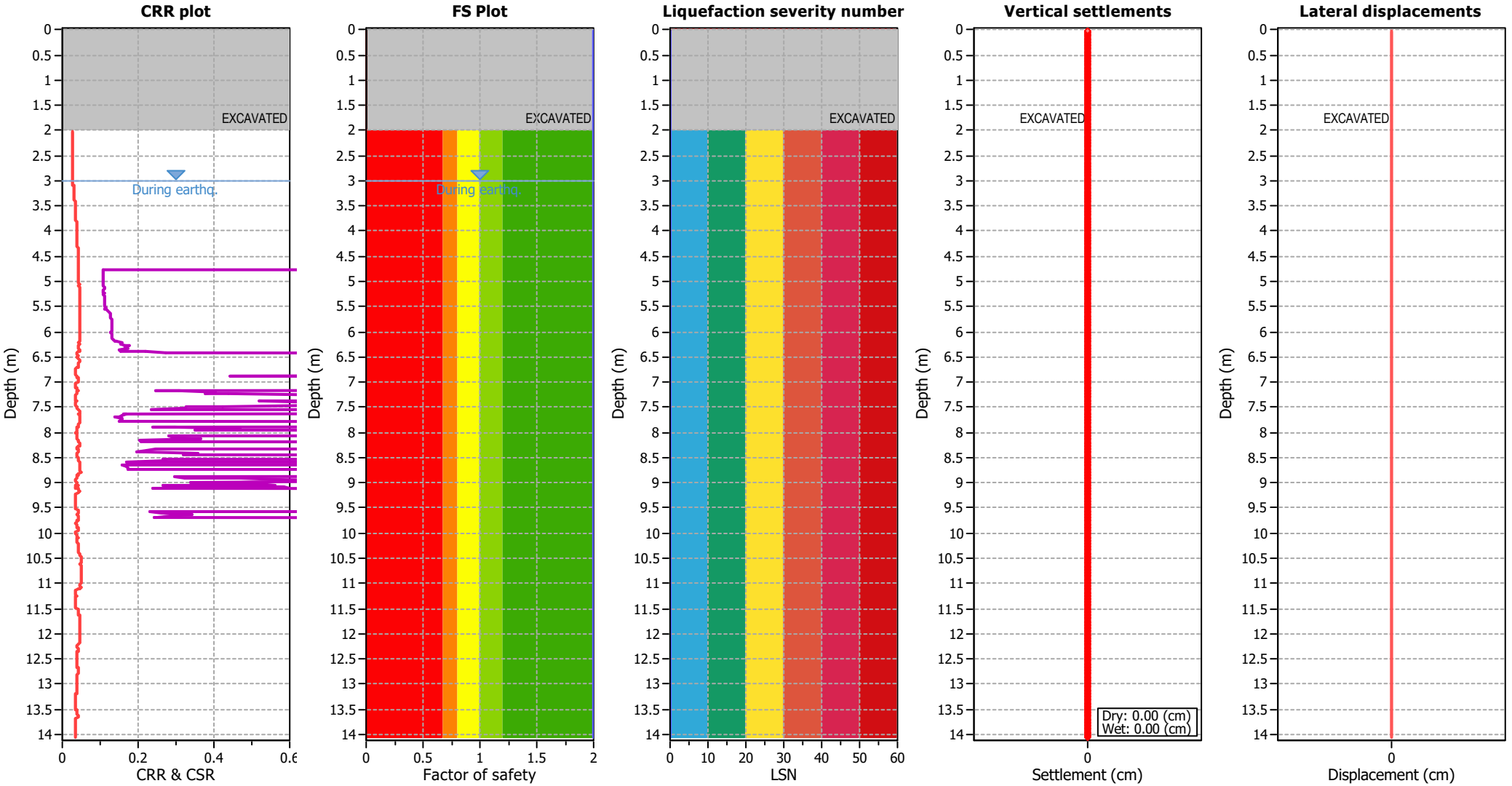
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 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

LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
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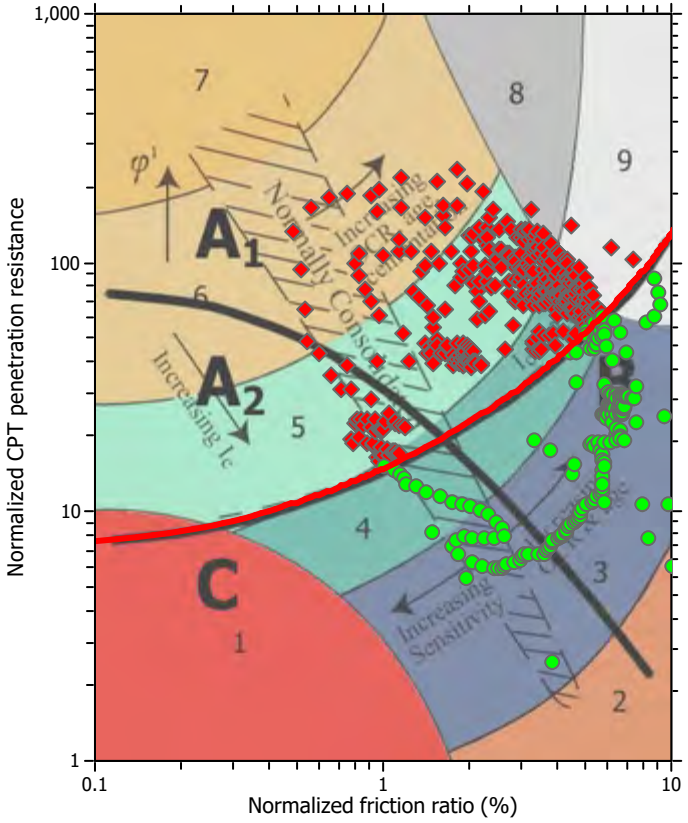
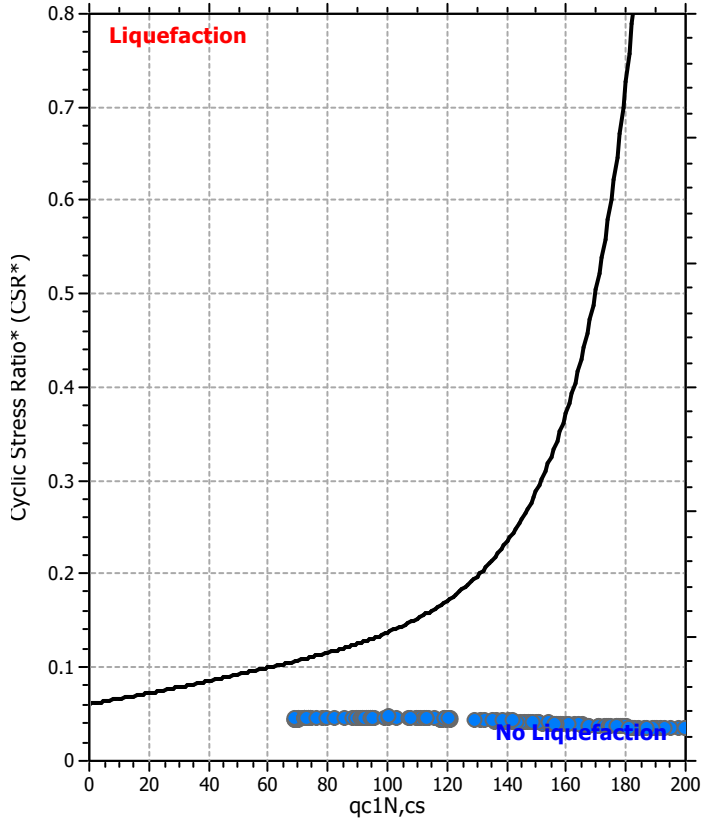
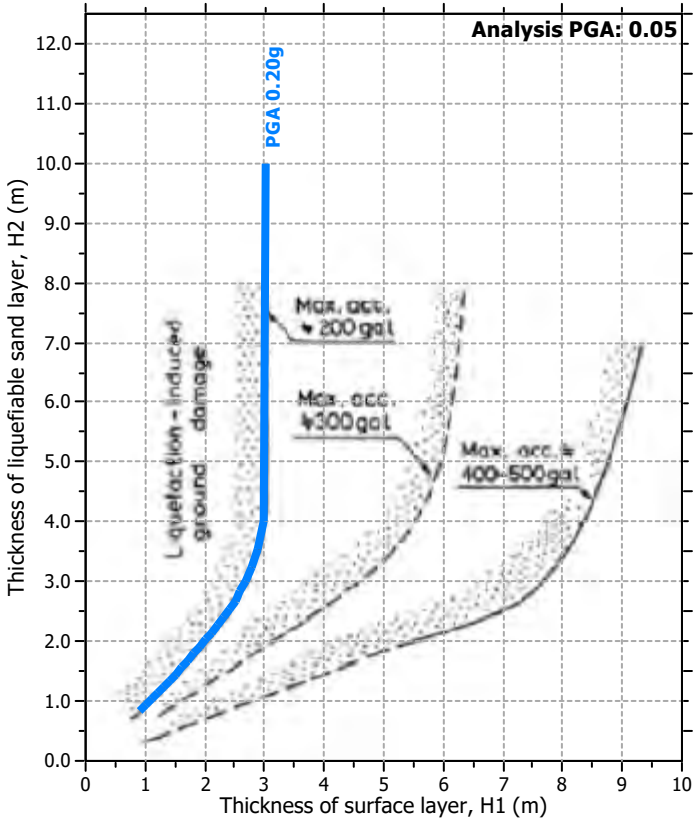
Liquefaction analysis summary plots



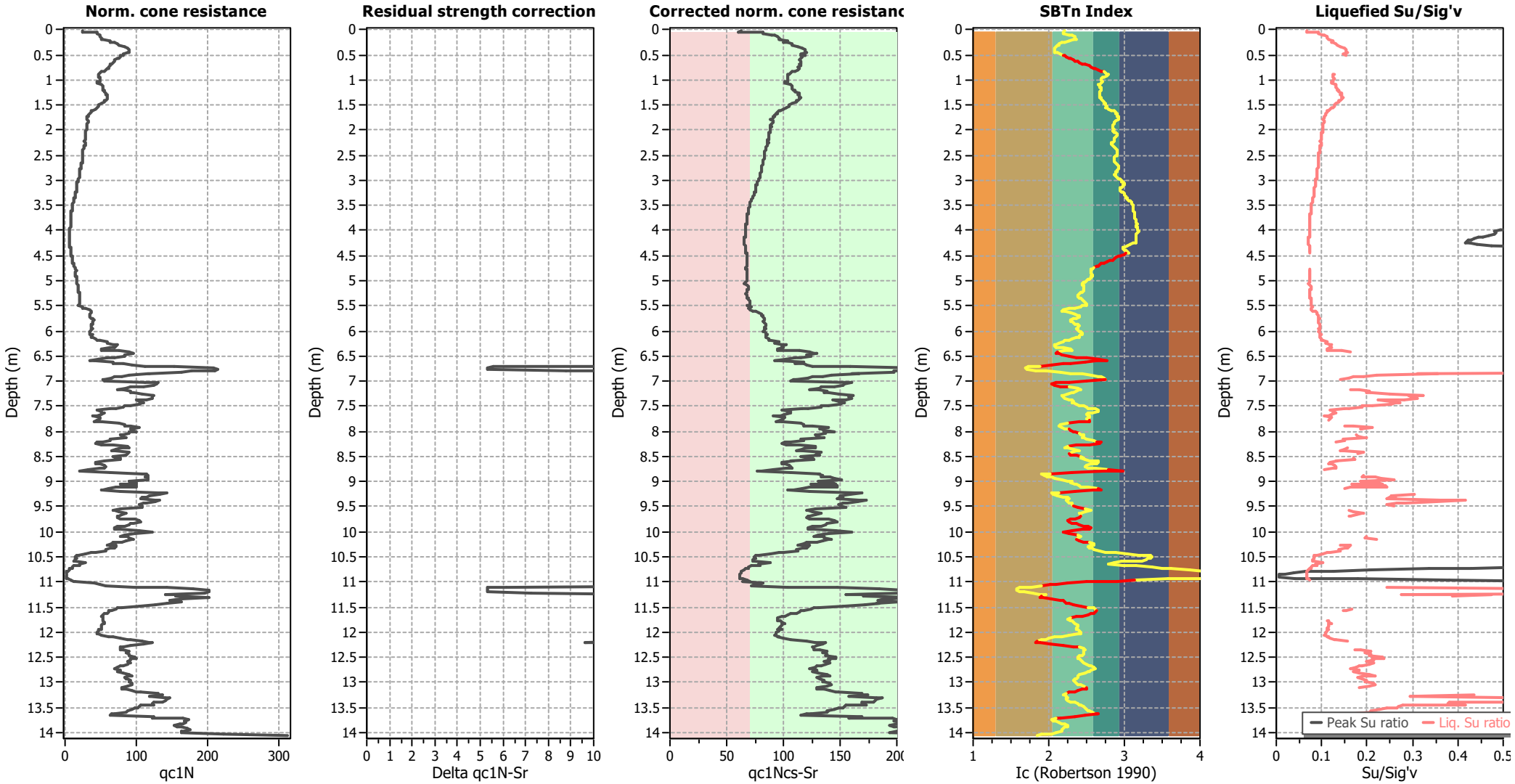




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

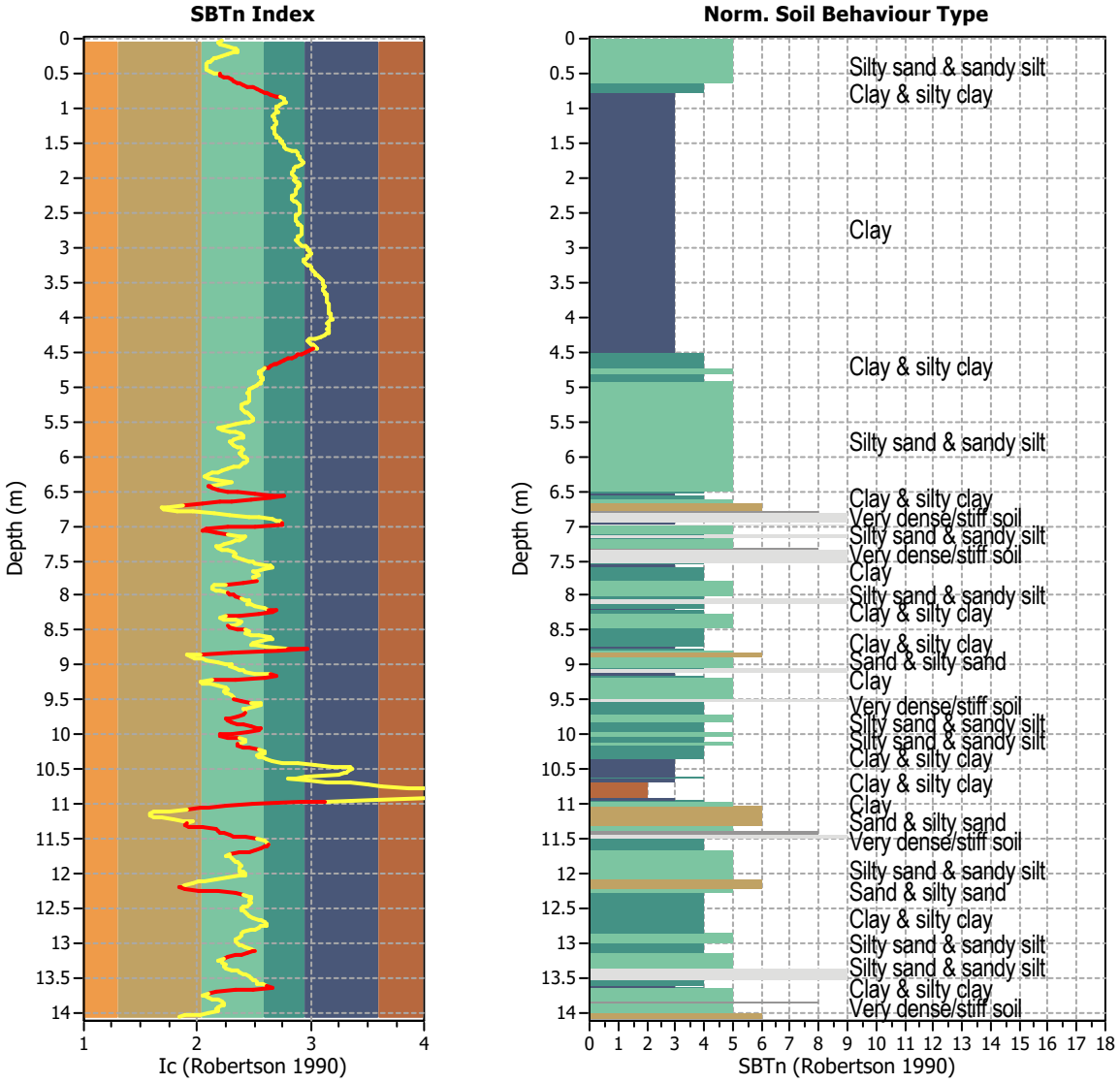
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

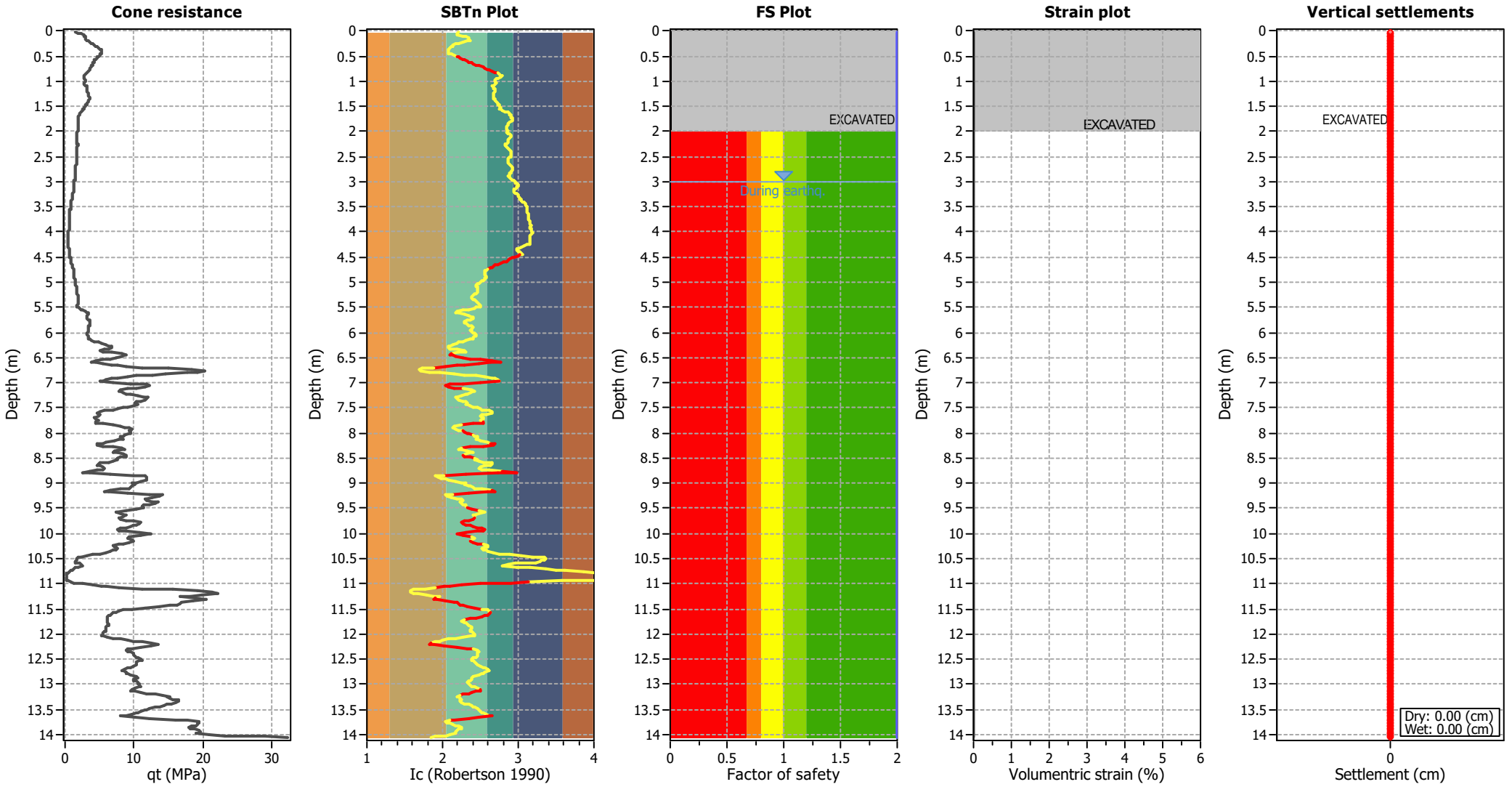
The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties	
I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics	
Total points in CPT file:	703
Total points excluded:	164
Exclusion percentage:	23.33%
Number of layers detected:	24

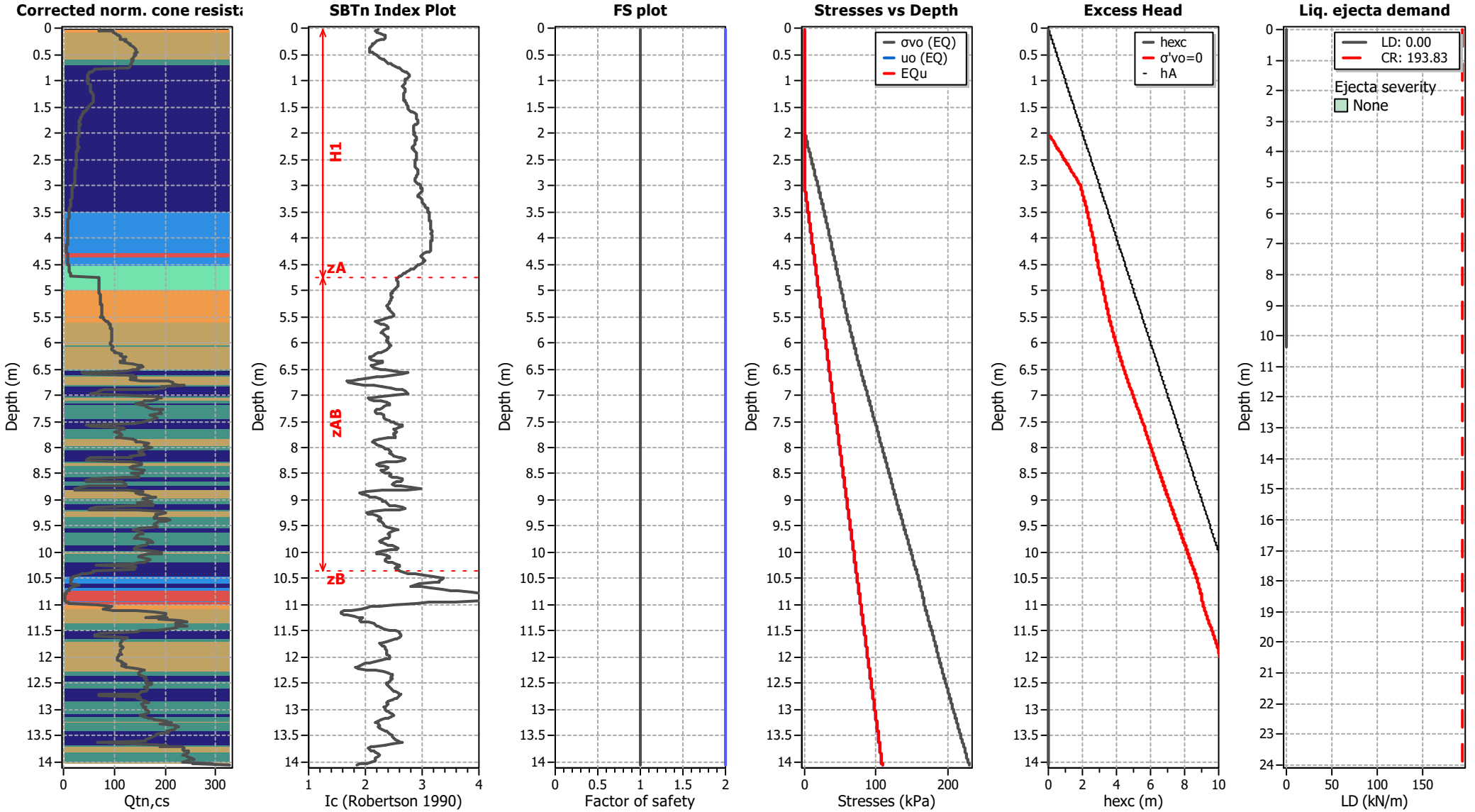
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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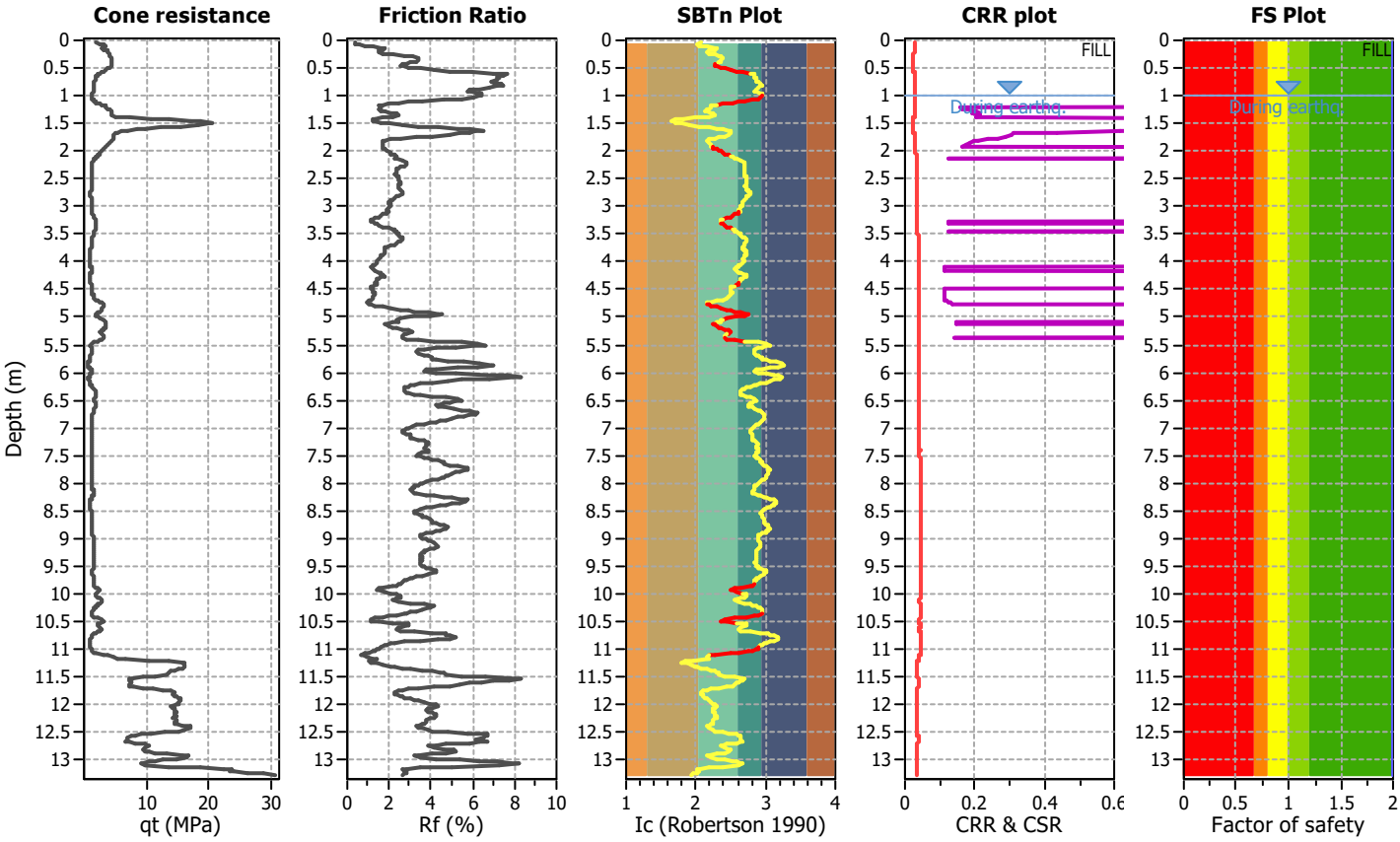
LIQUEFACTION ANALYSIS REPORT

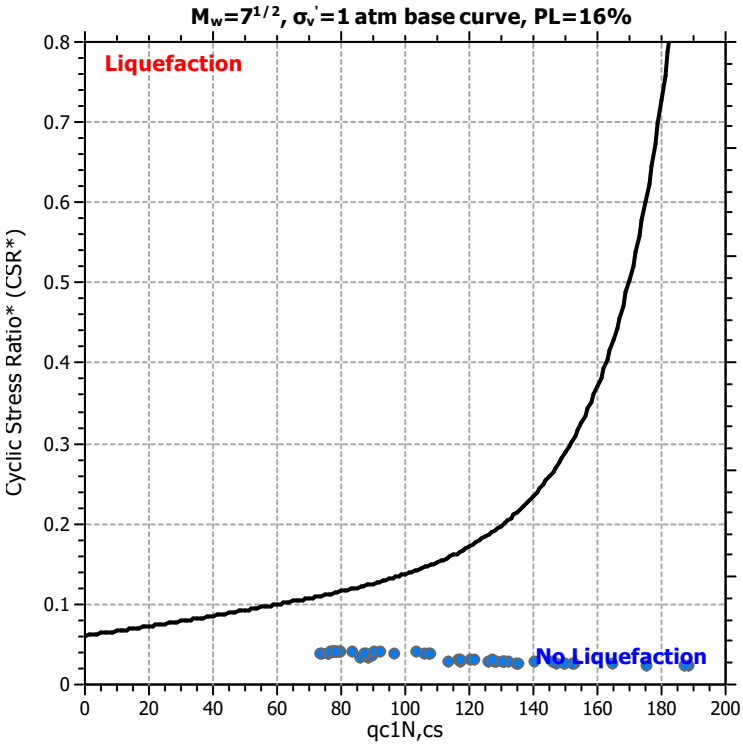
Project title : Sunfield Landholding **Location :**

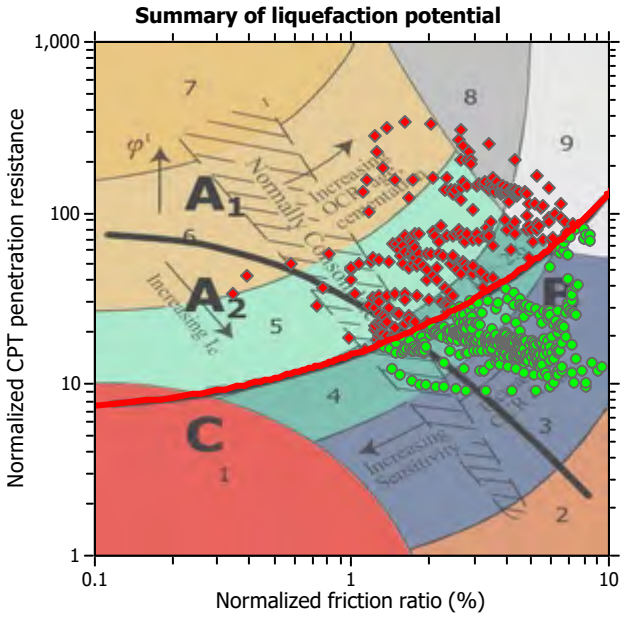
CPT file : CPT205

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	37.00 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

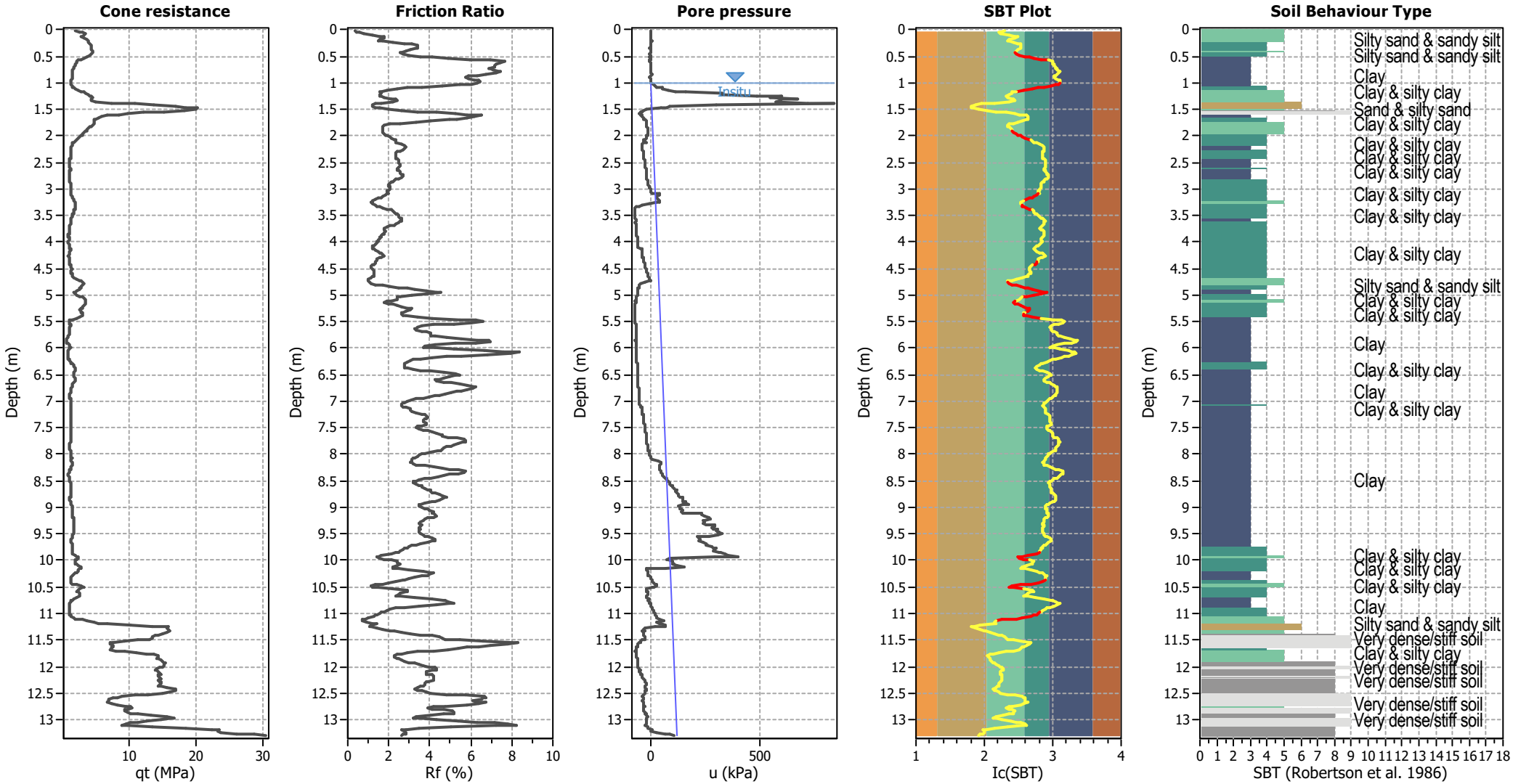






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



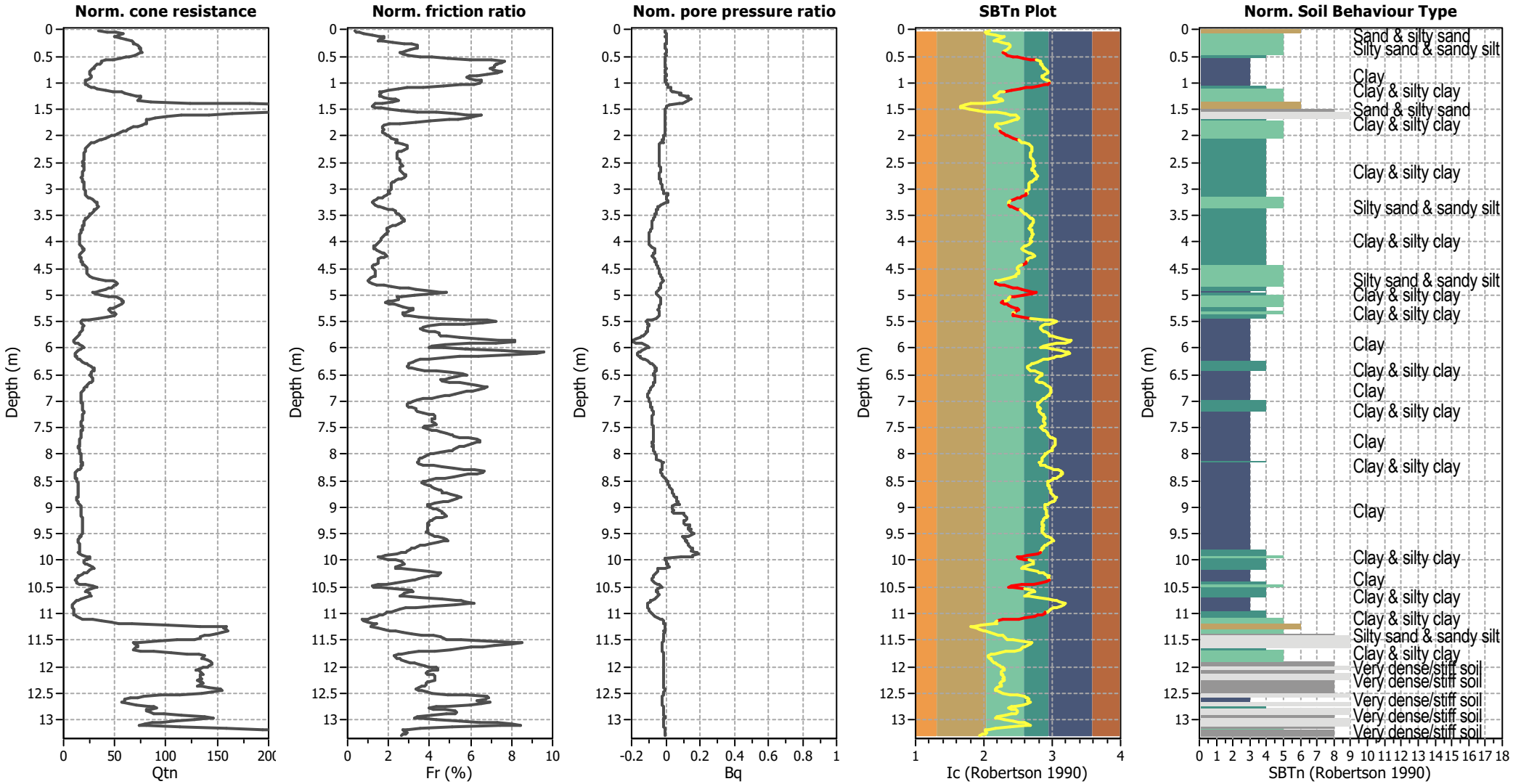
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
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Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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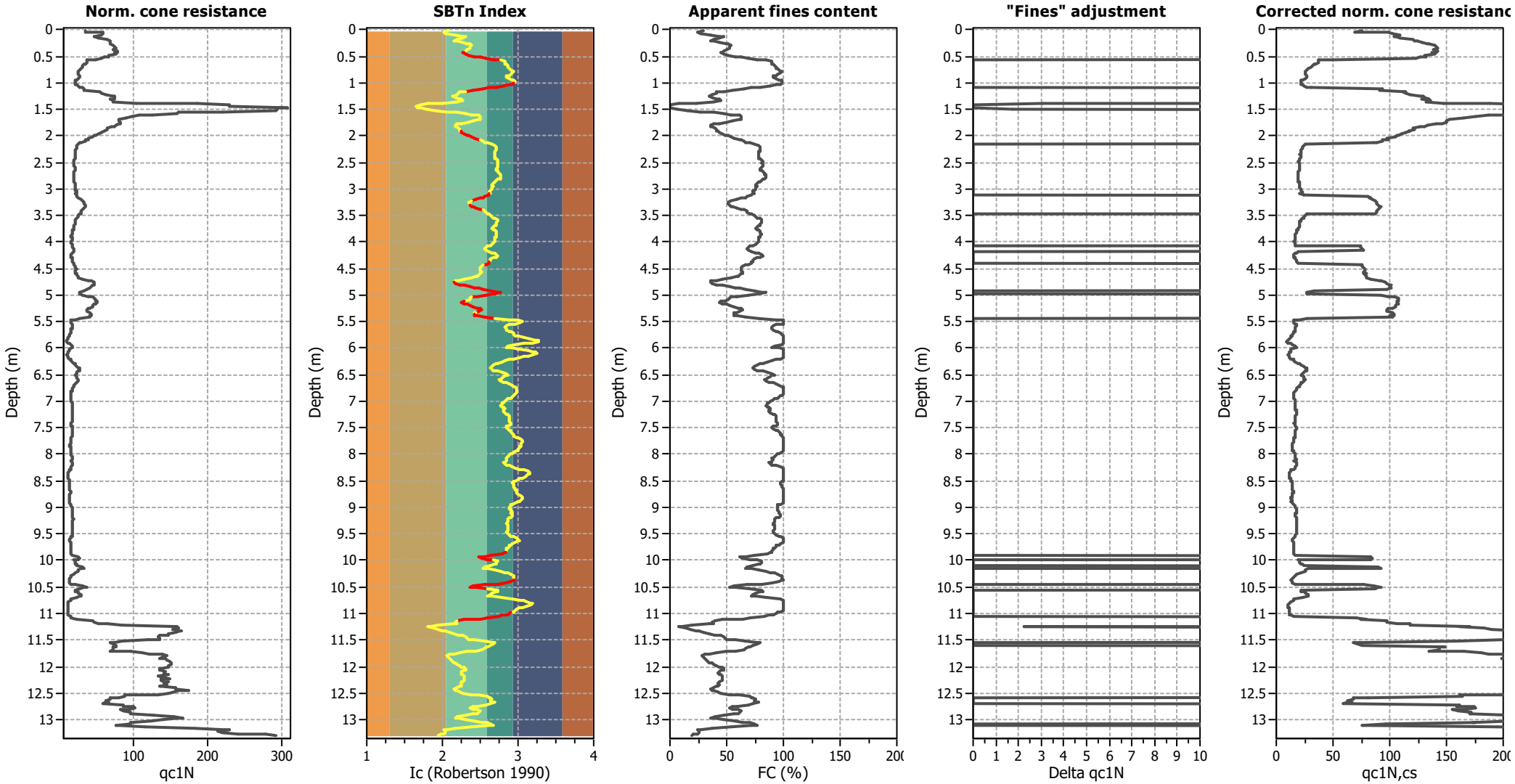
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
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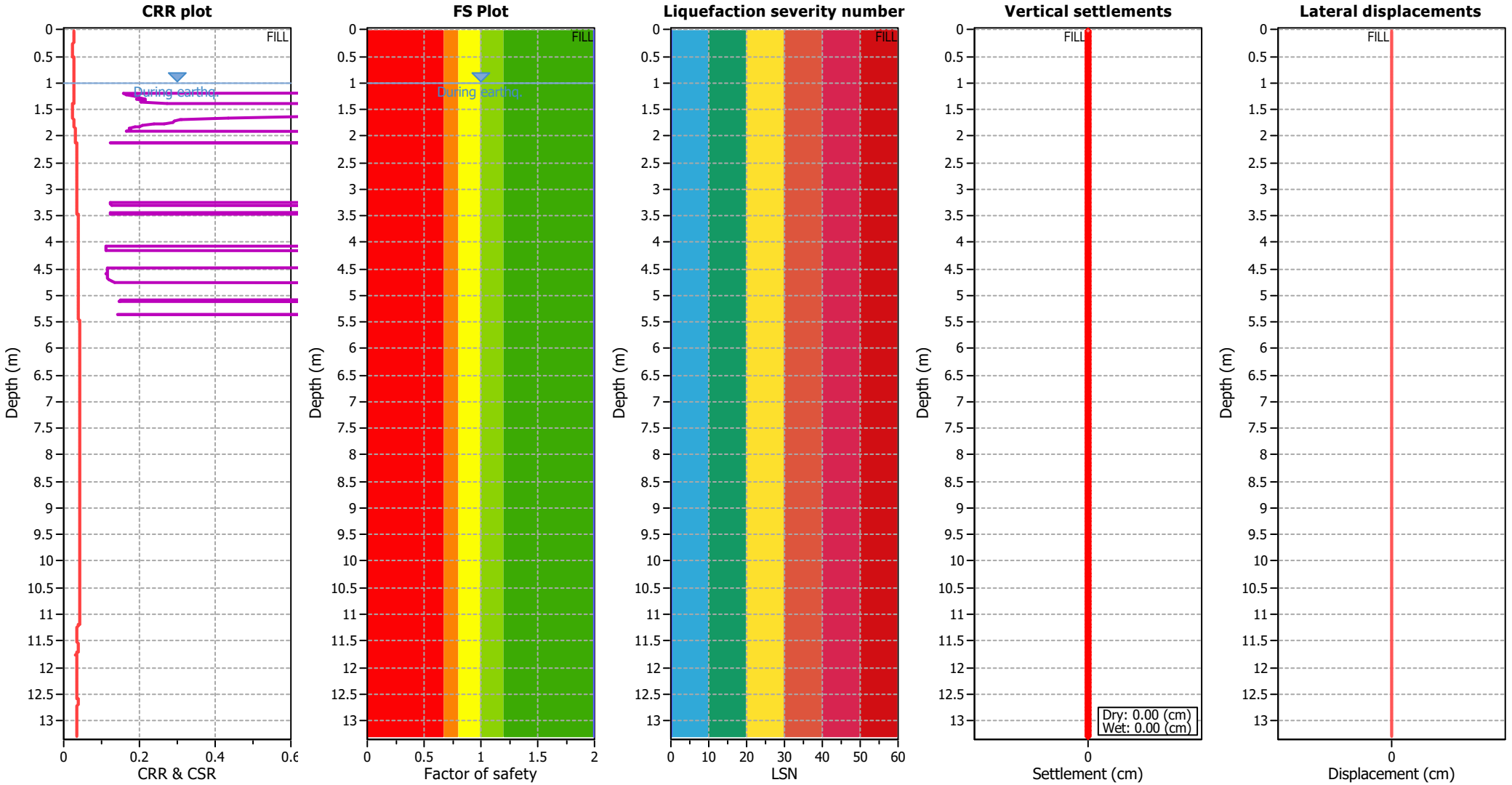
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

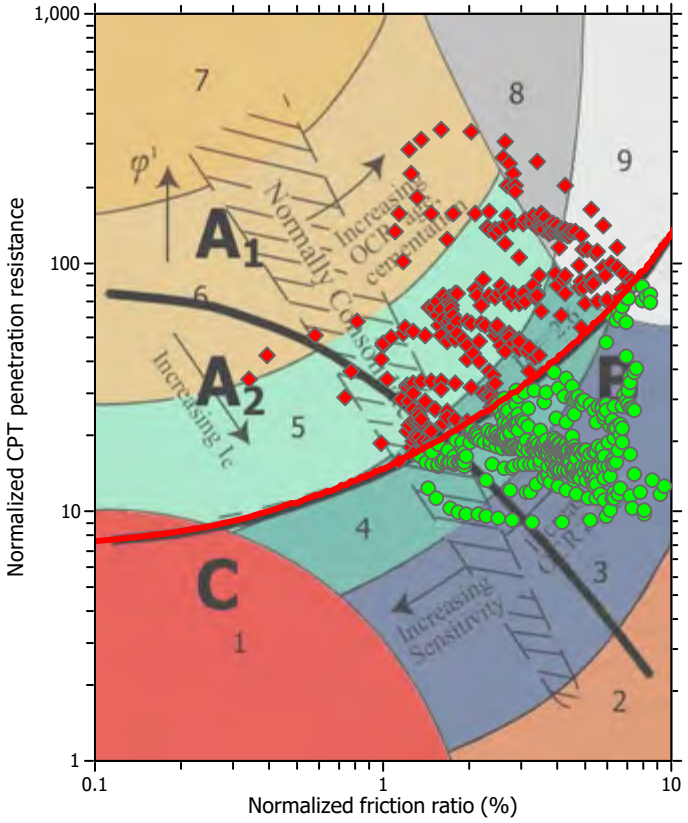
F.S. color scheme

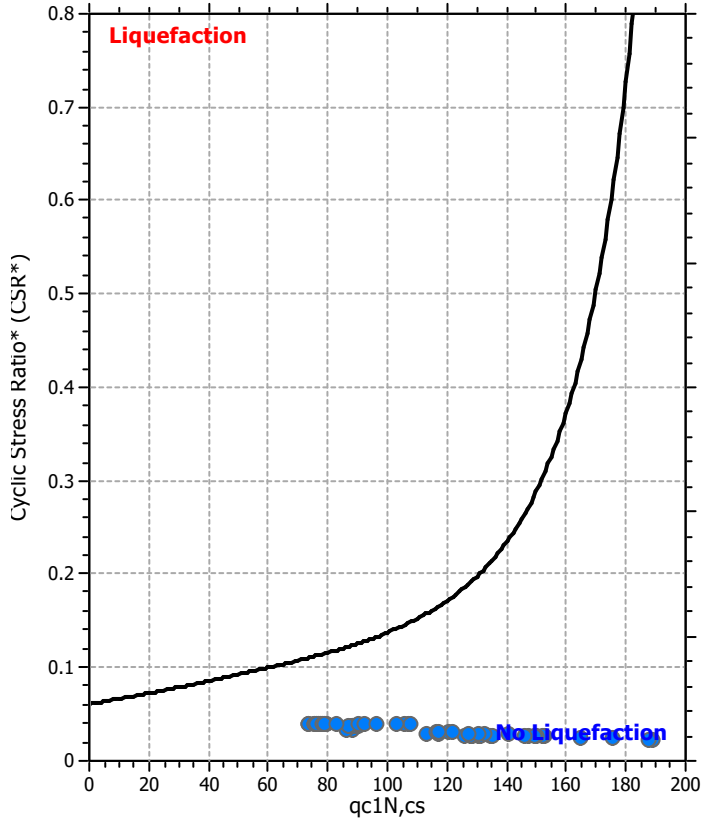
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

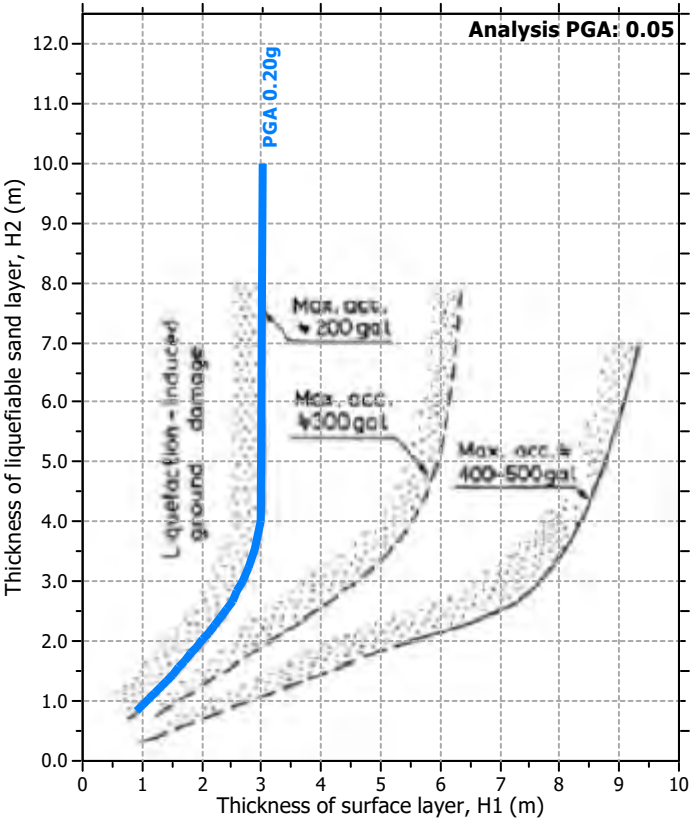
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots







Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
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Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
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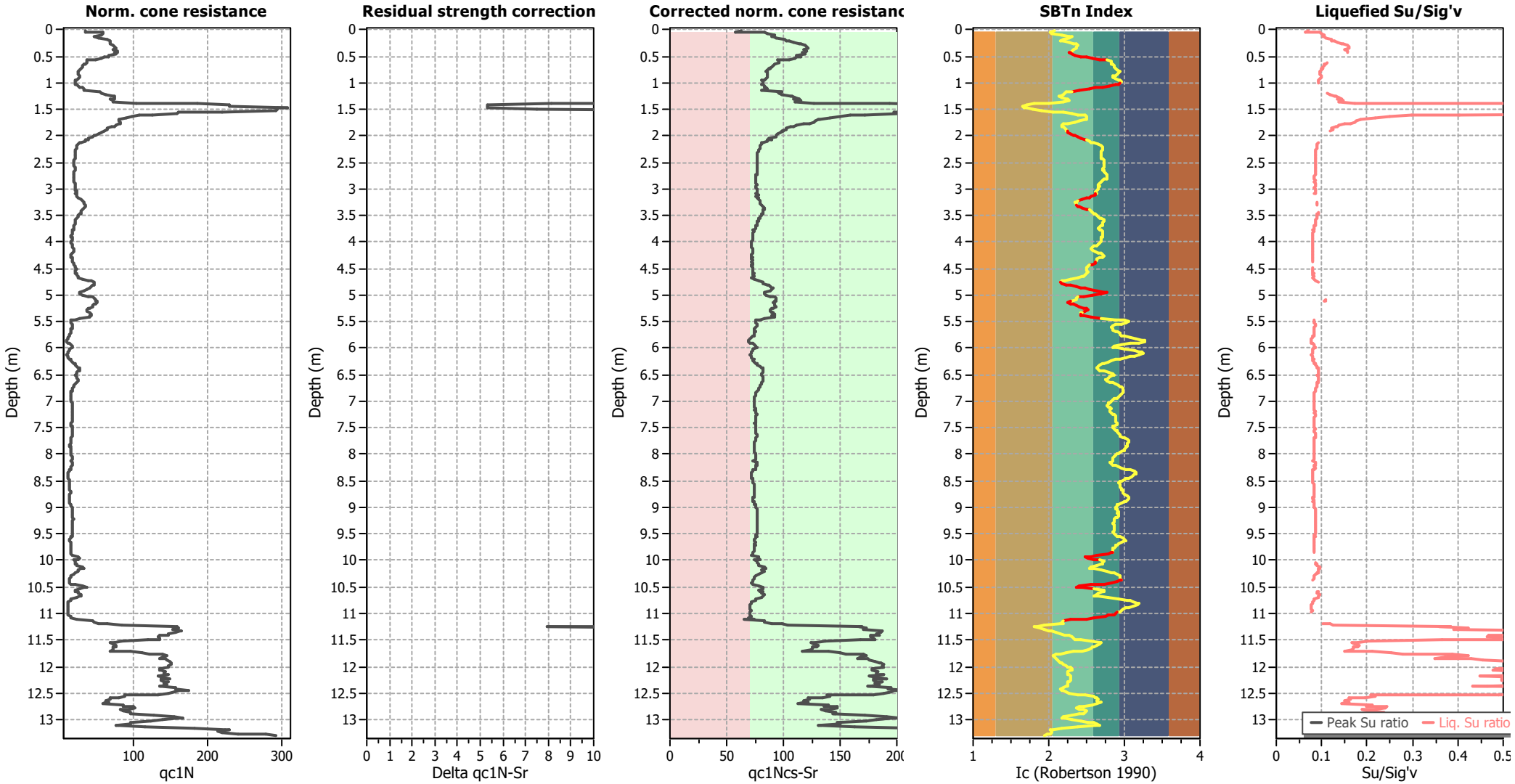
Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

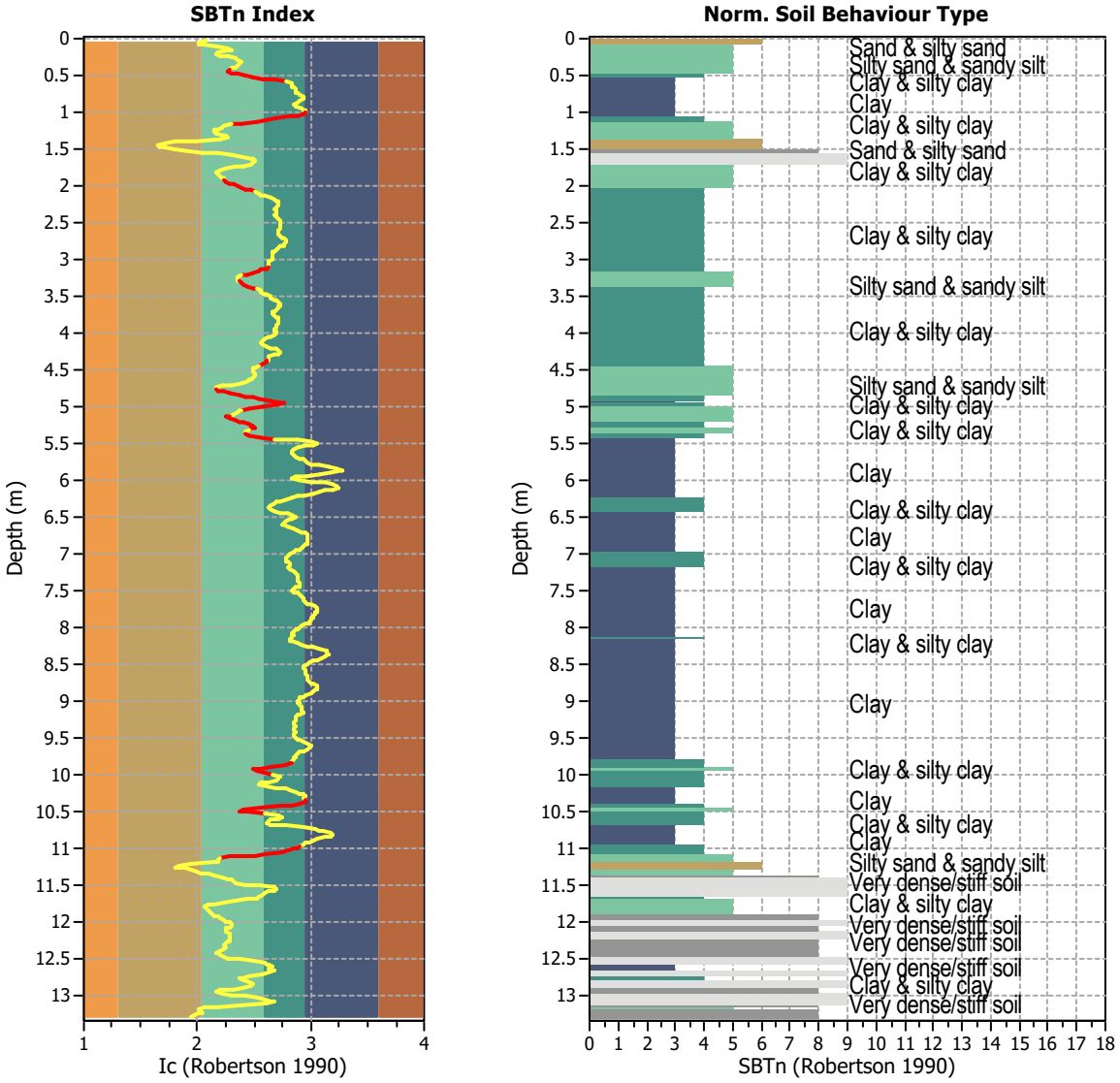
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

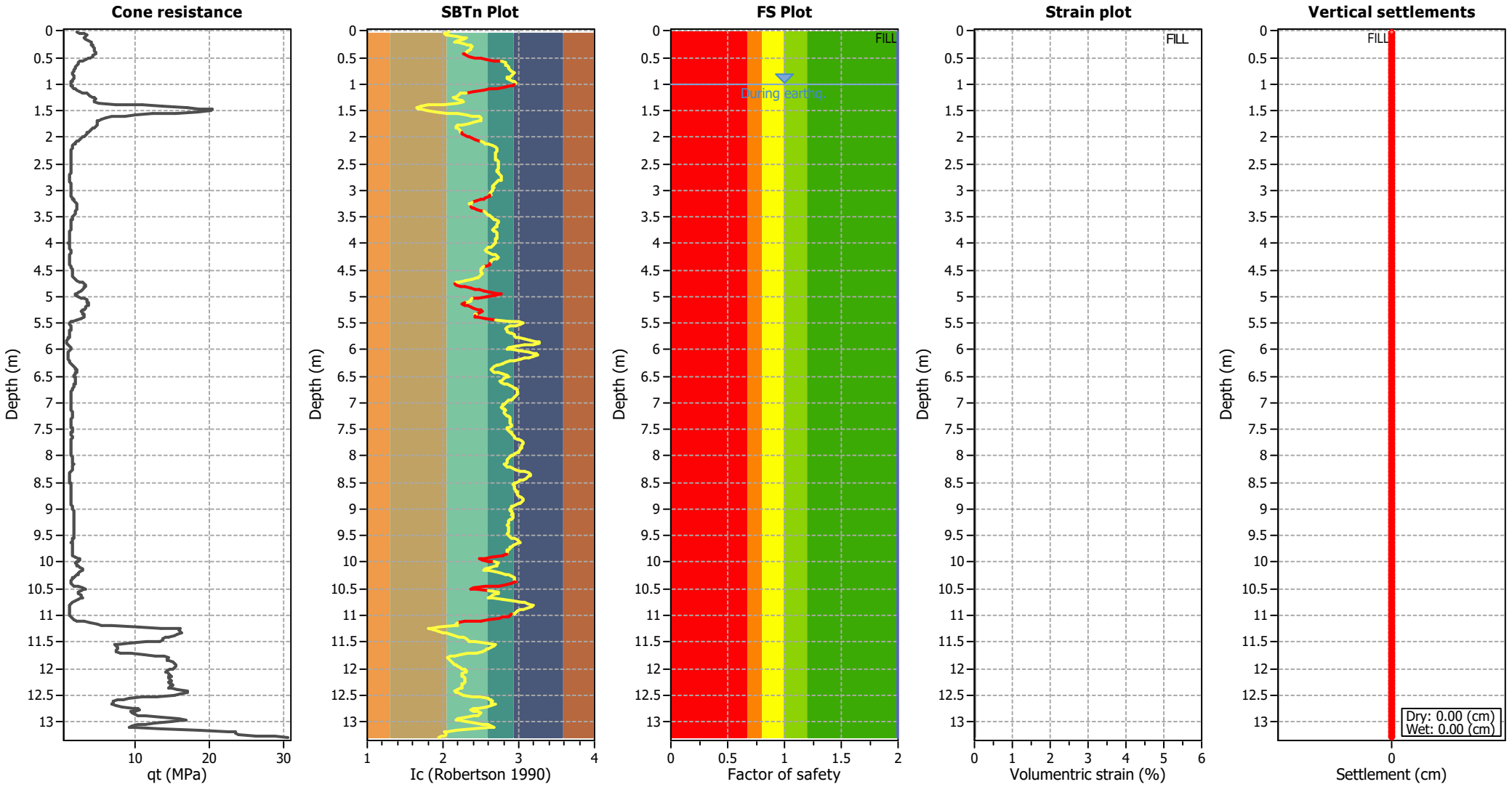
The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties	
I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics	
Total points in CPT file:	665
Total points excluded:	106
Exclusion percentage:	15.94%
Number of layers detected:	16

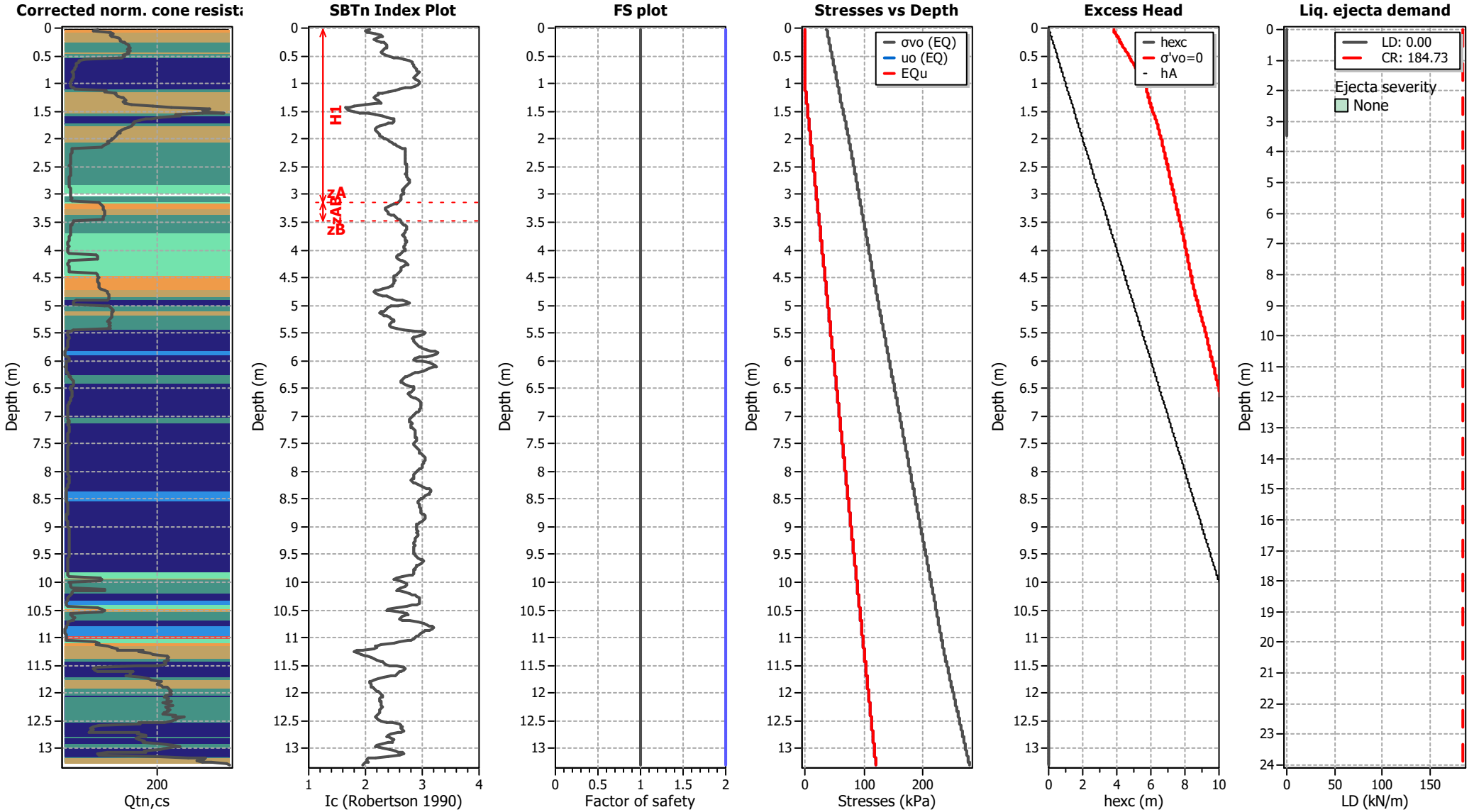
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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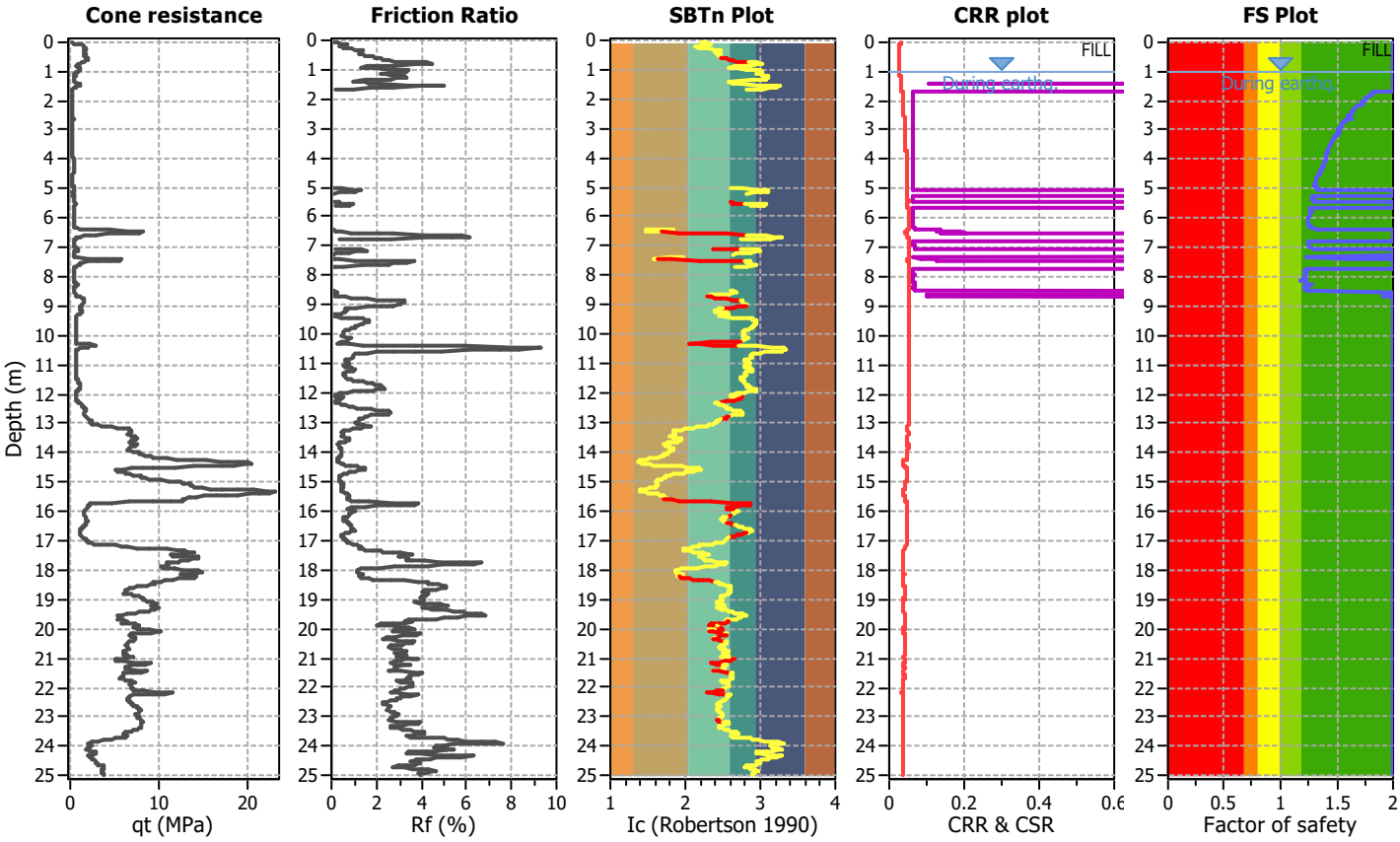
LIQUEFACTION ANALYSIS REPORT

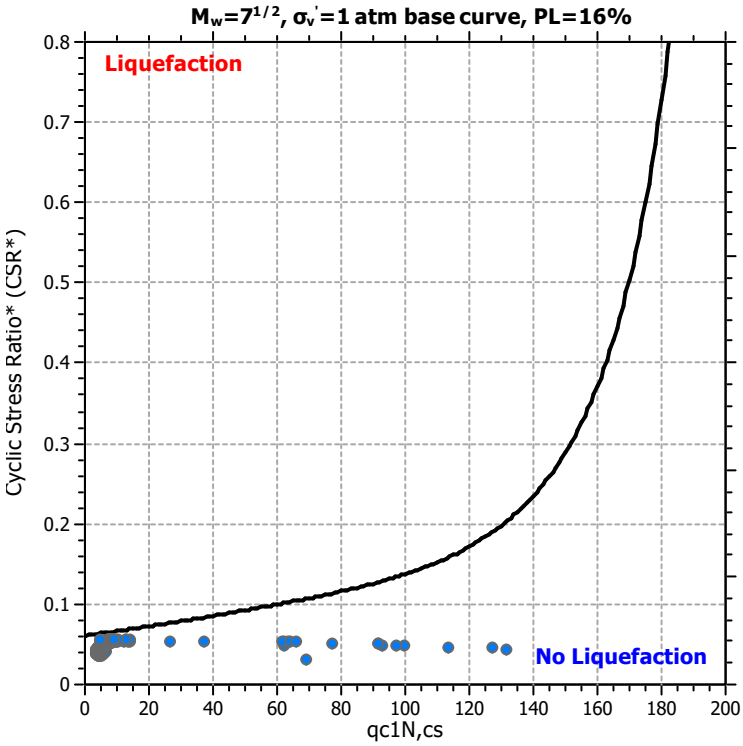
Project title : Sunfield Landholding **Location :**

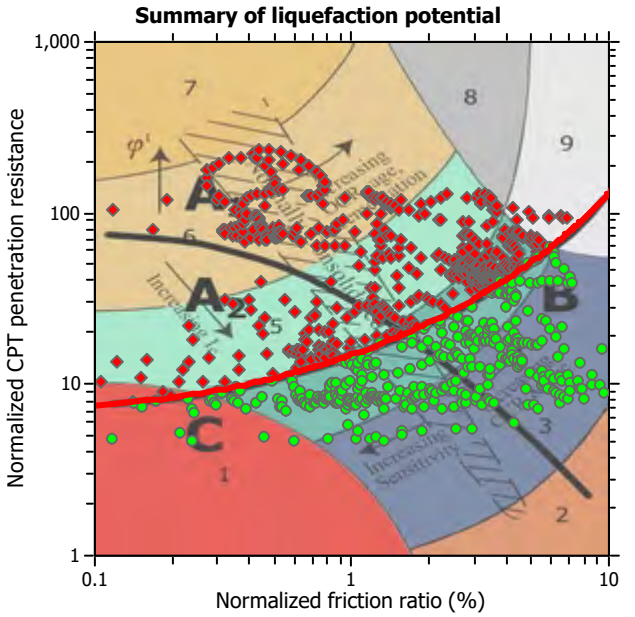
CPT file : CPT206

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	18.50 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

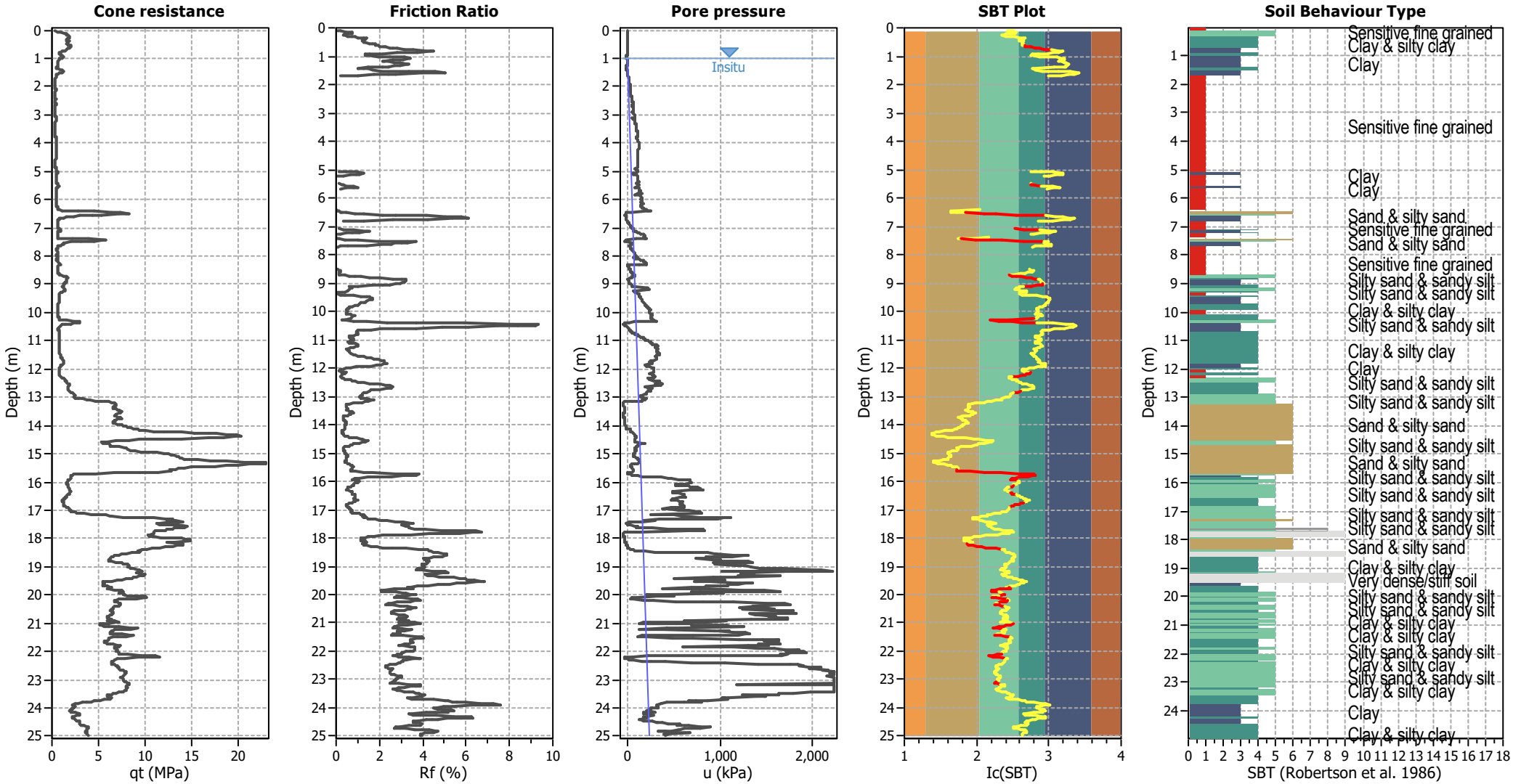






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



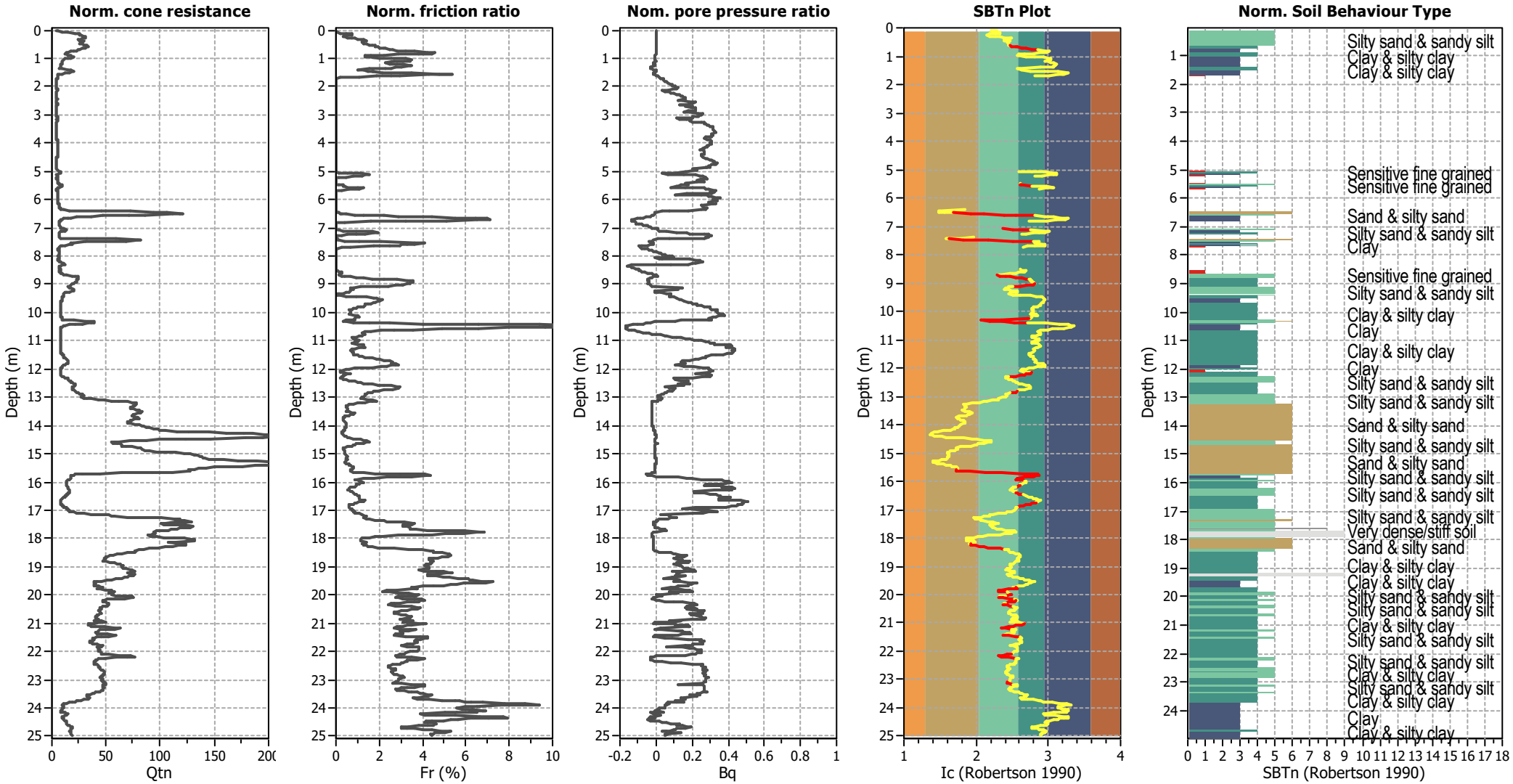
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



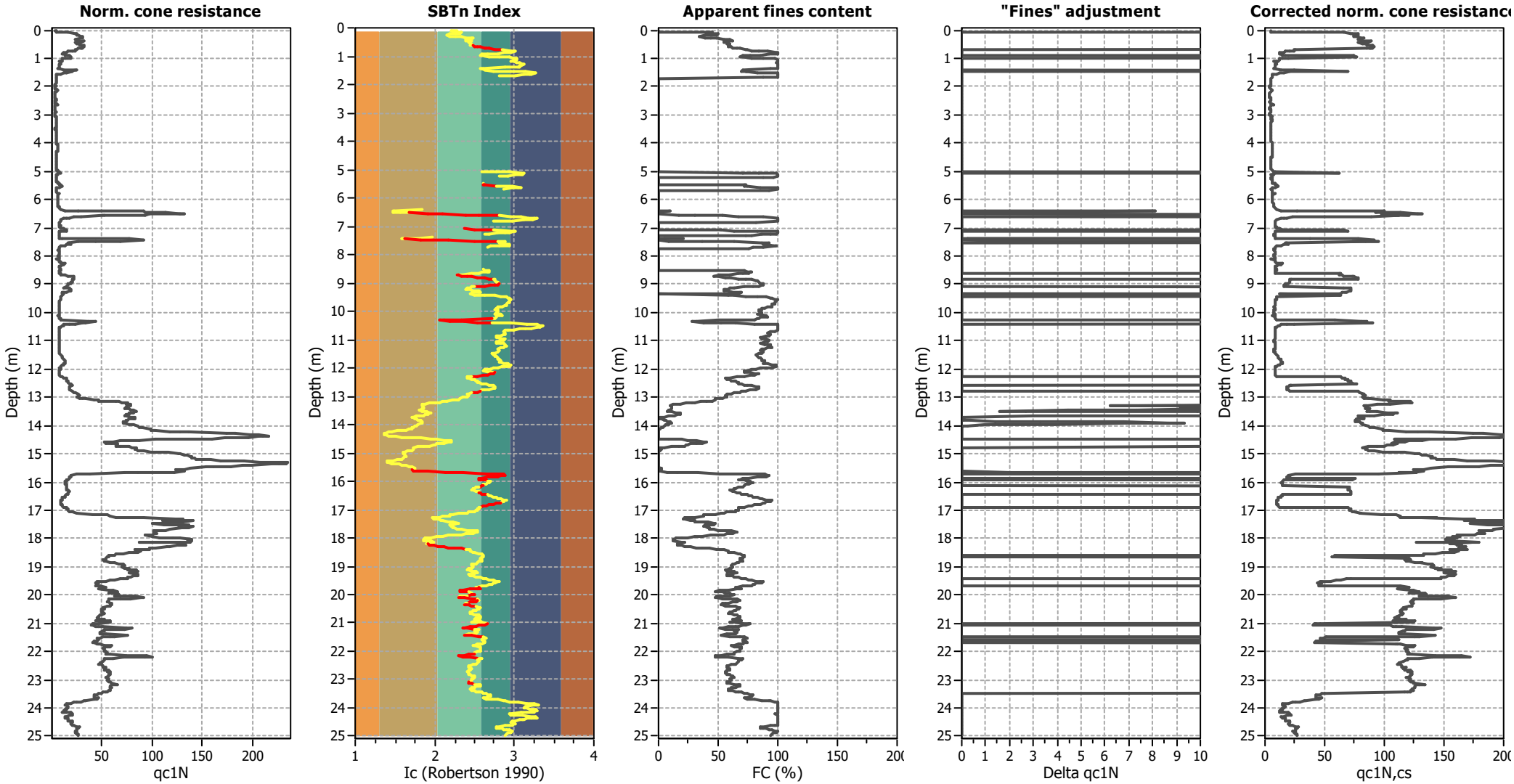
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

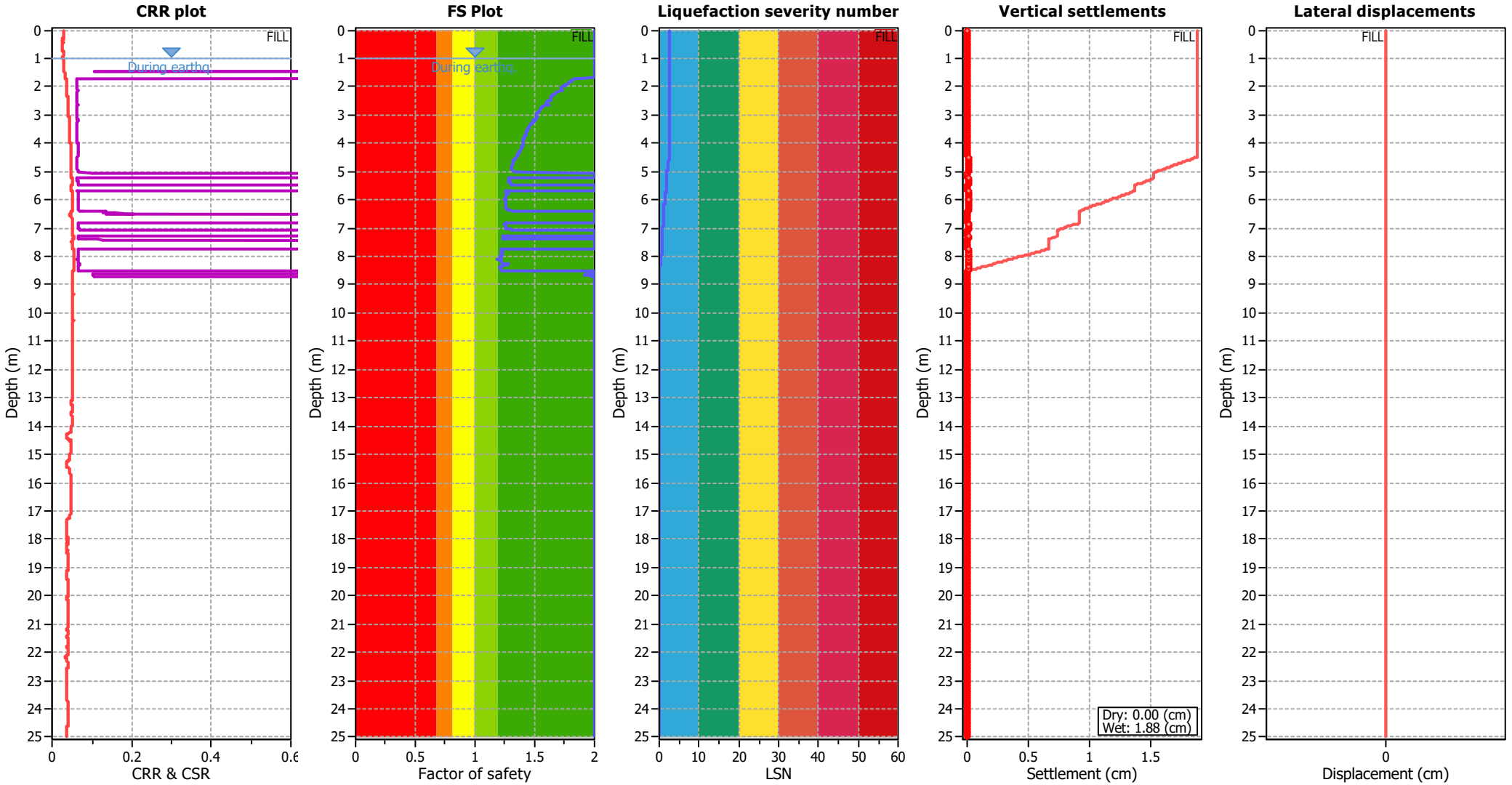
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

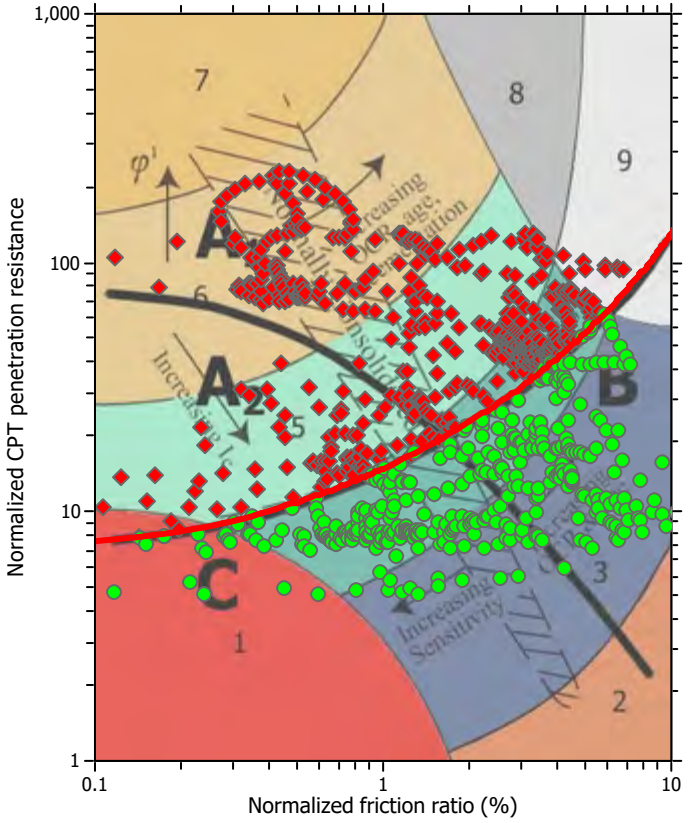
F.S. color scheme

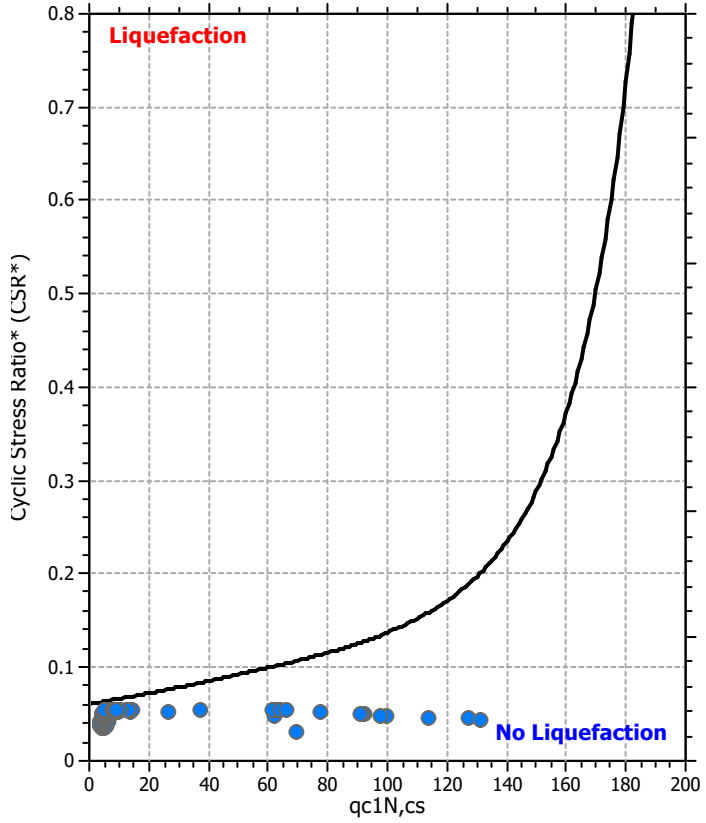
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

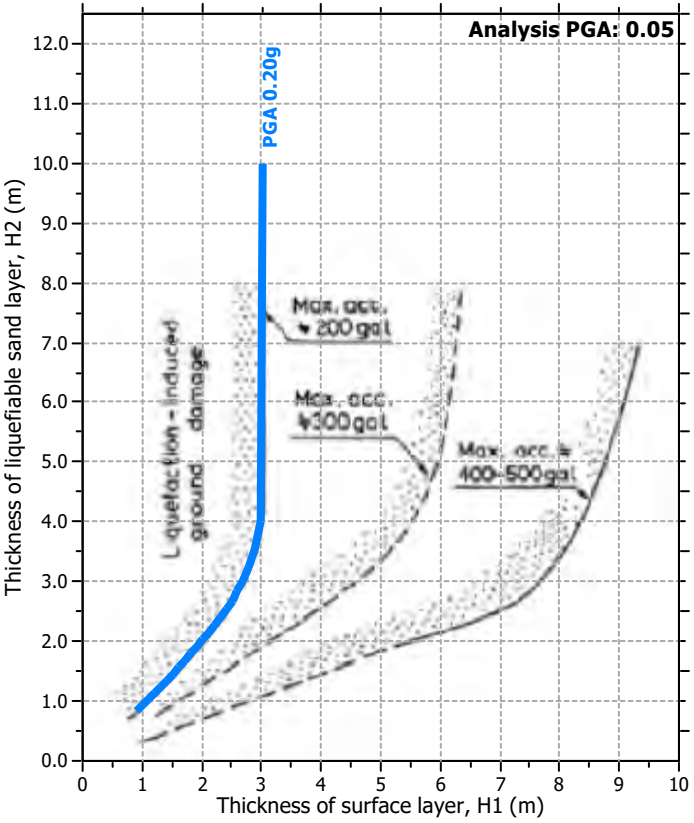
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



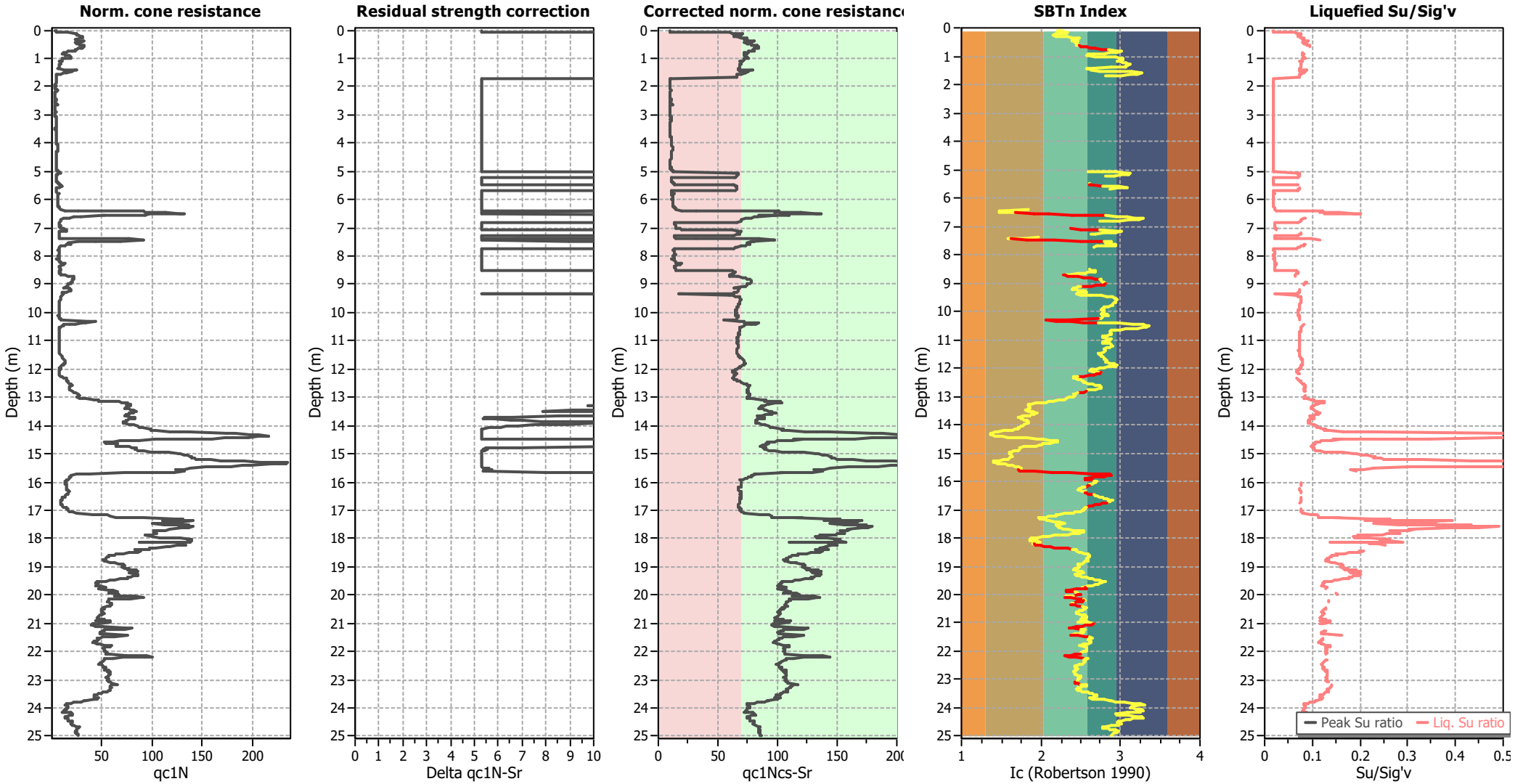




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

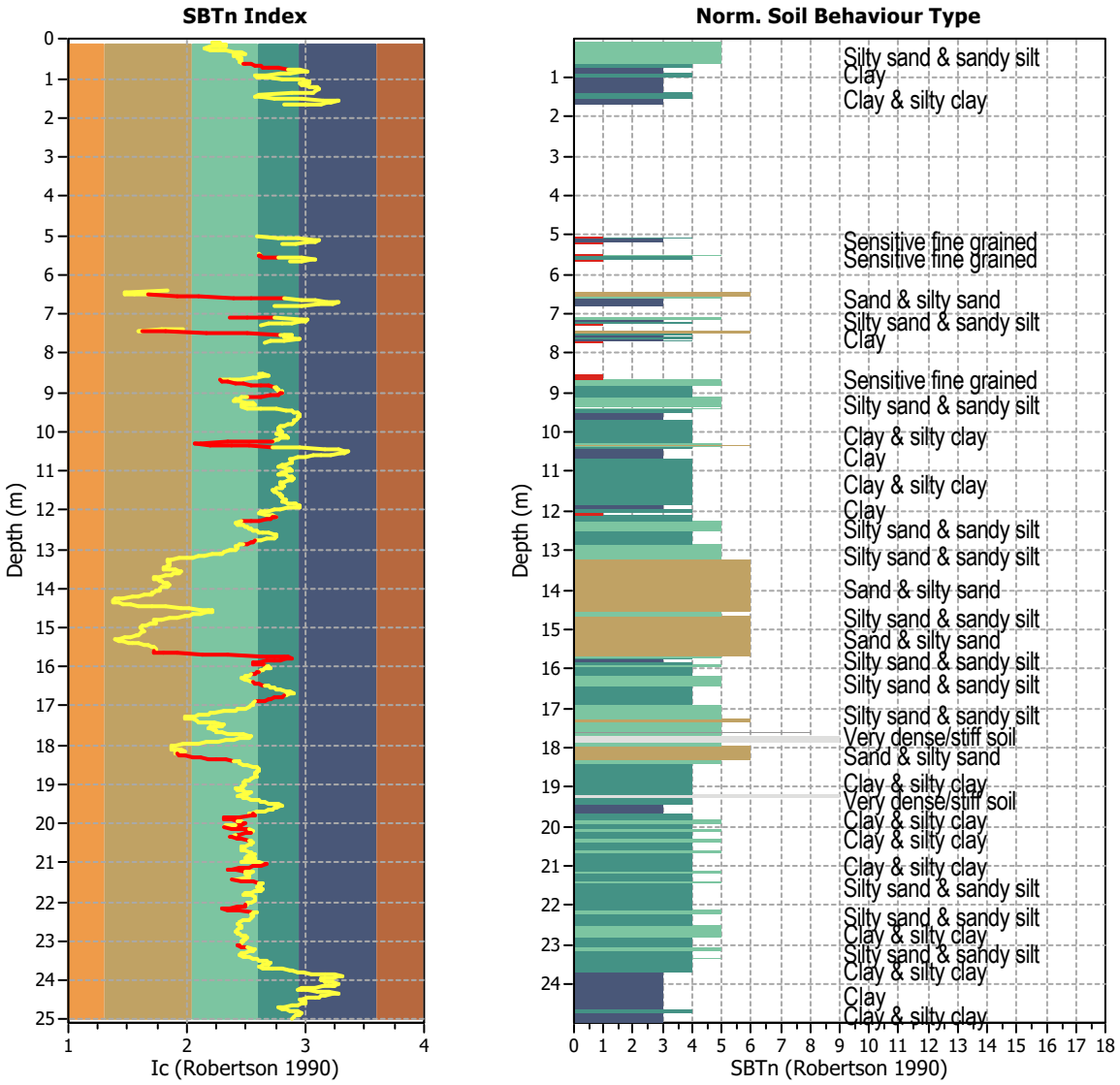
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

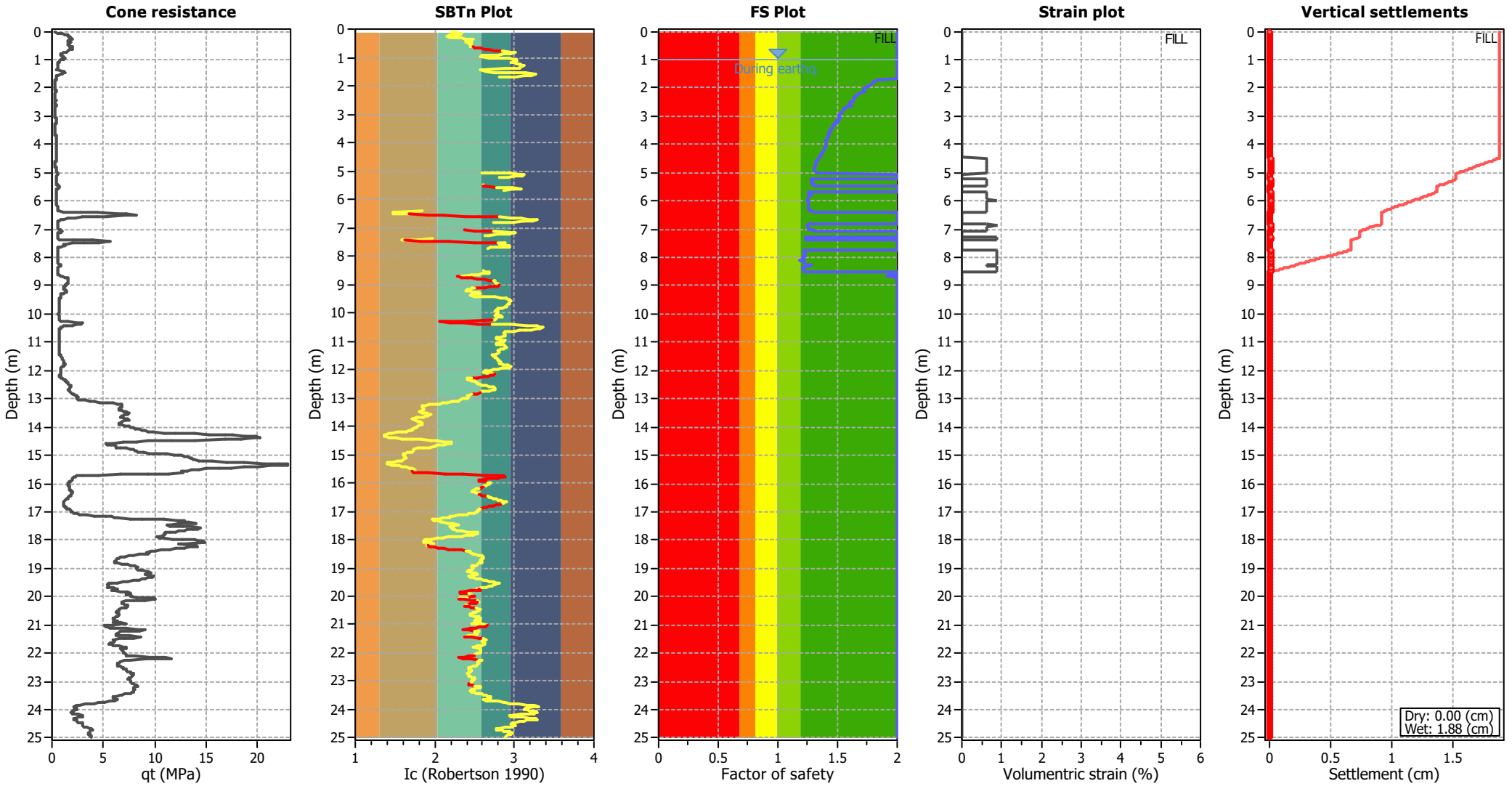
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	1249
I_c maximum check value:	3.00	Total points excluded:	172
I_c change ratio value:	0.0100	Exclusion percentage:	13.77%
Minimum number of points in layer:	4	Number of layers detected:	30

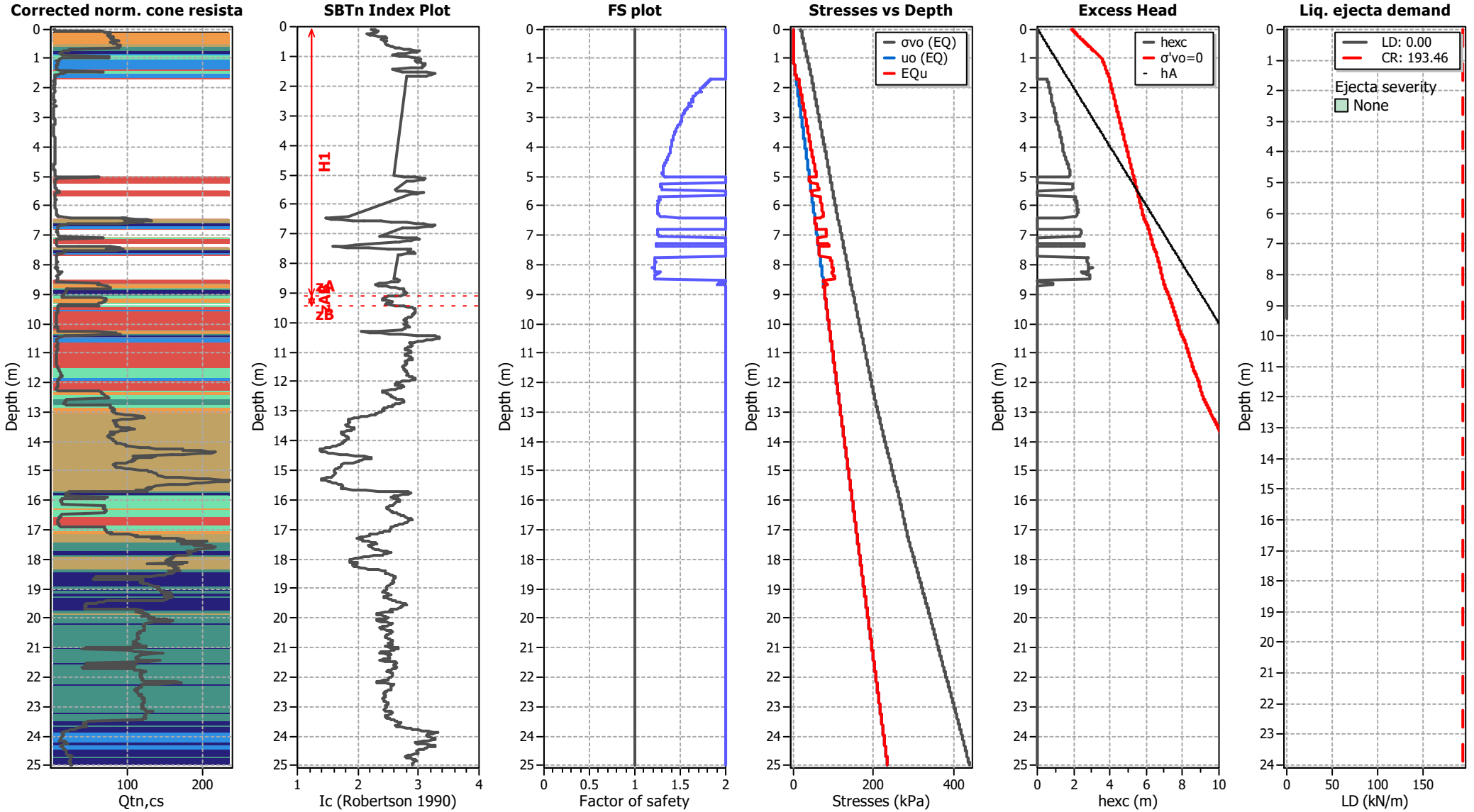
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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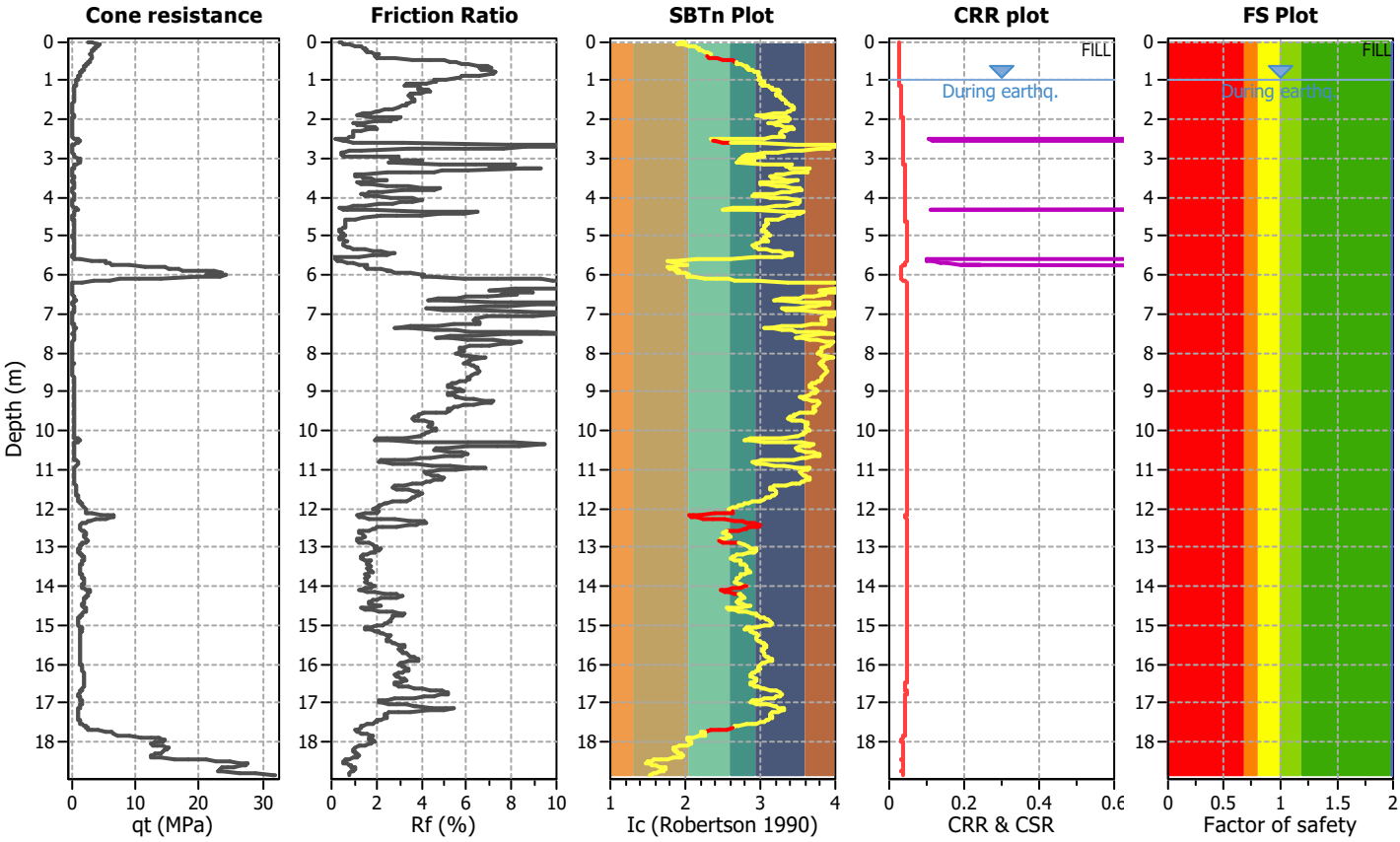
LIQUEFACTION ANALYSIS REPORT

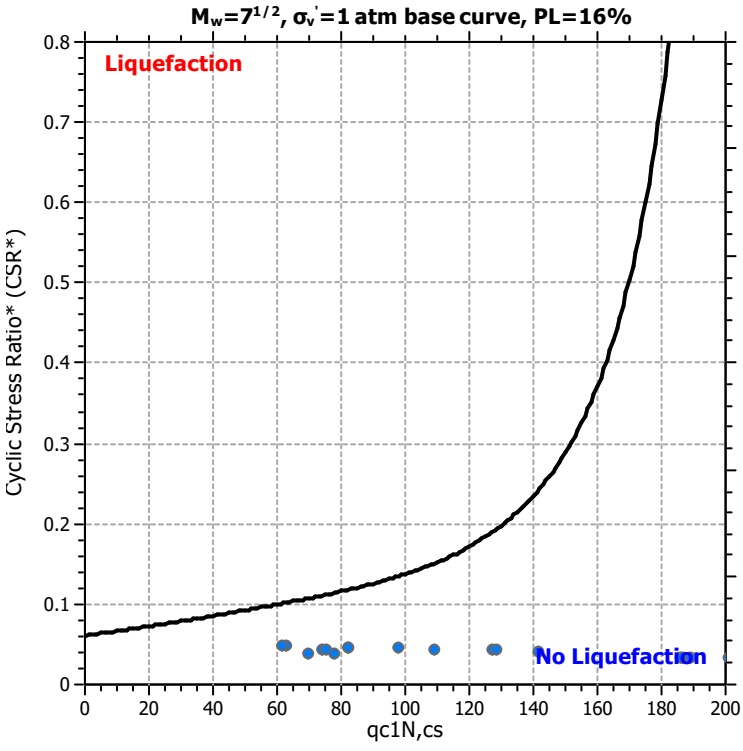
Project title : Sunfield Landholding **Location :**

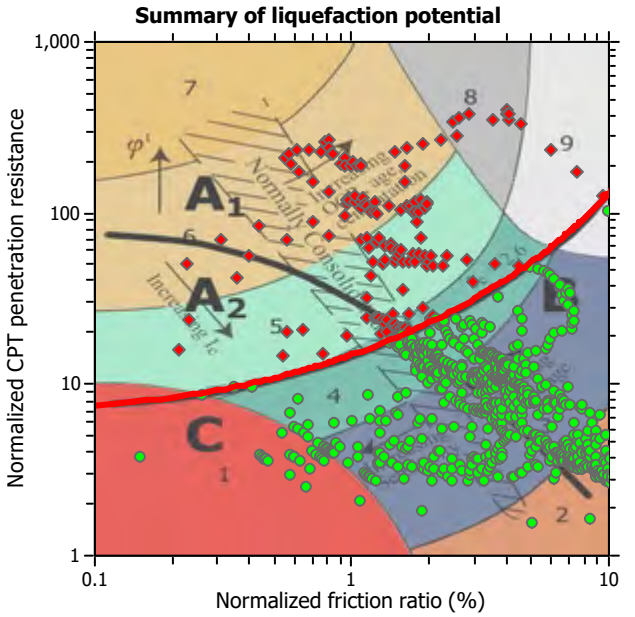
CPT file : CPT207

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	18.50 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

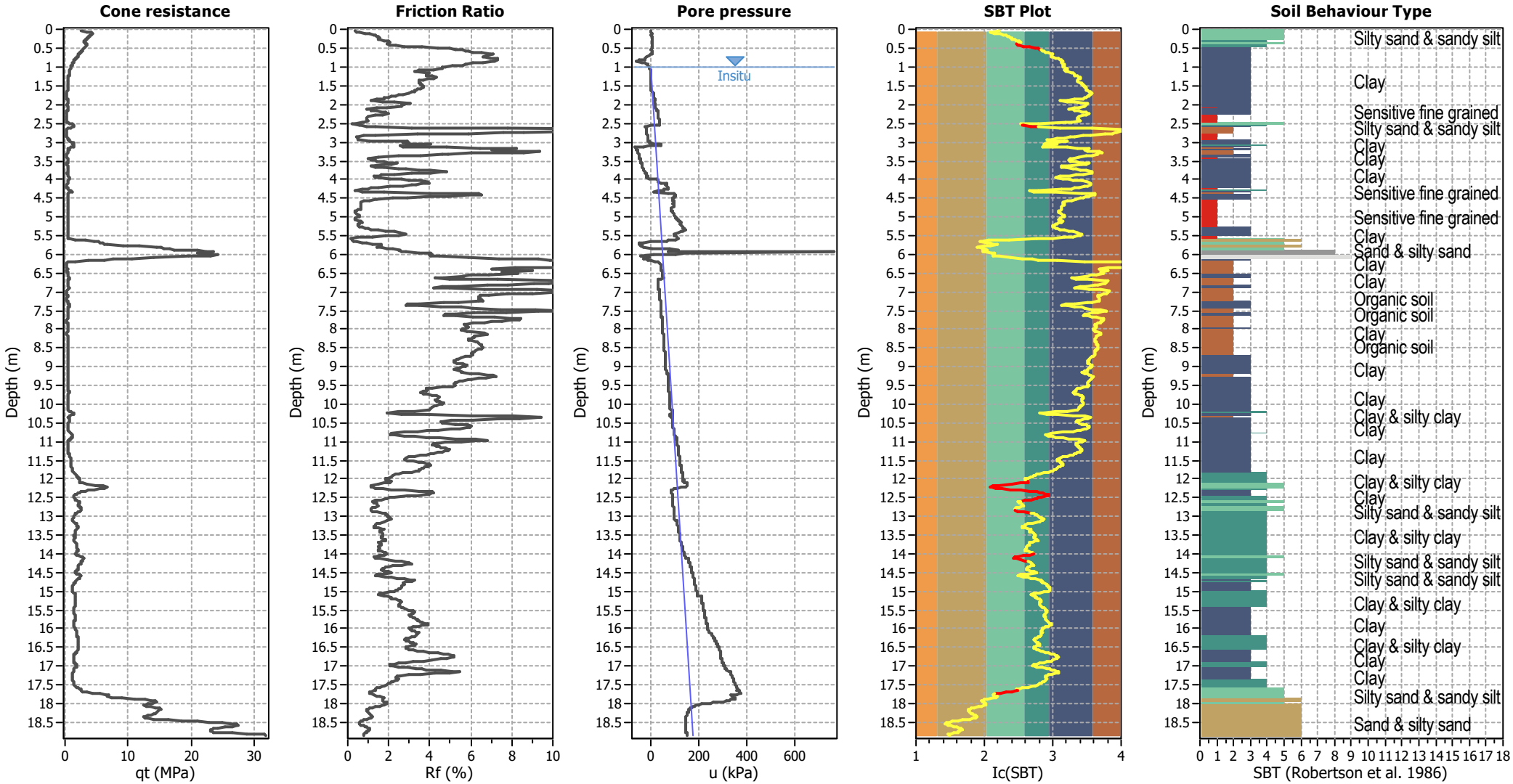






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



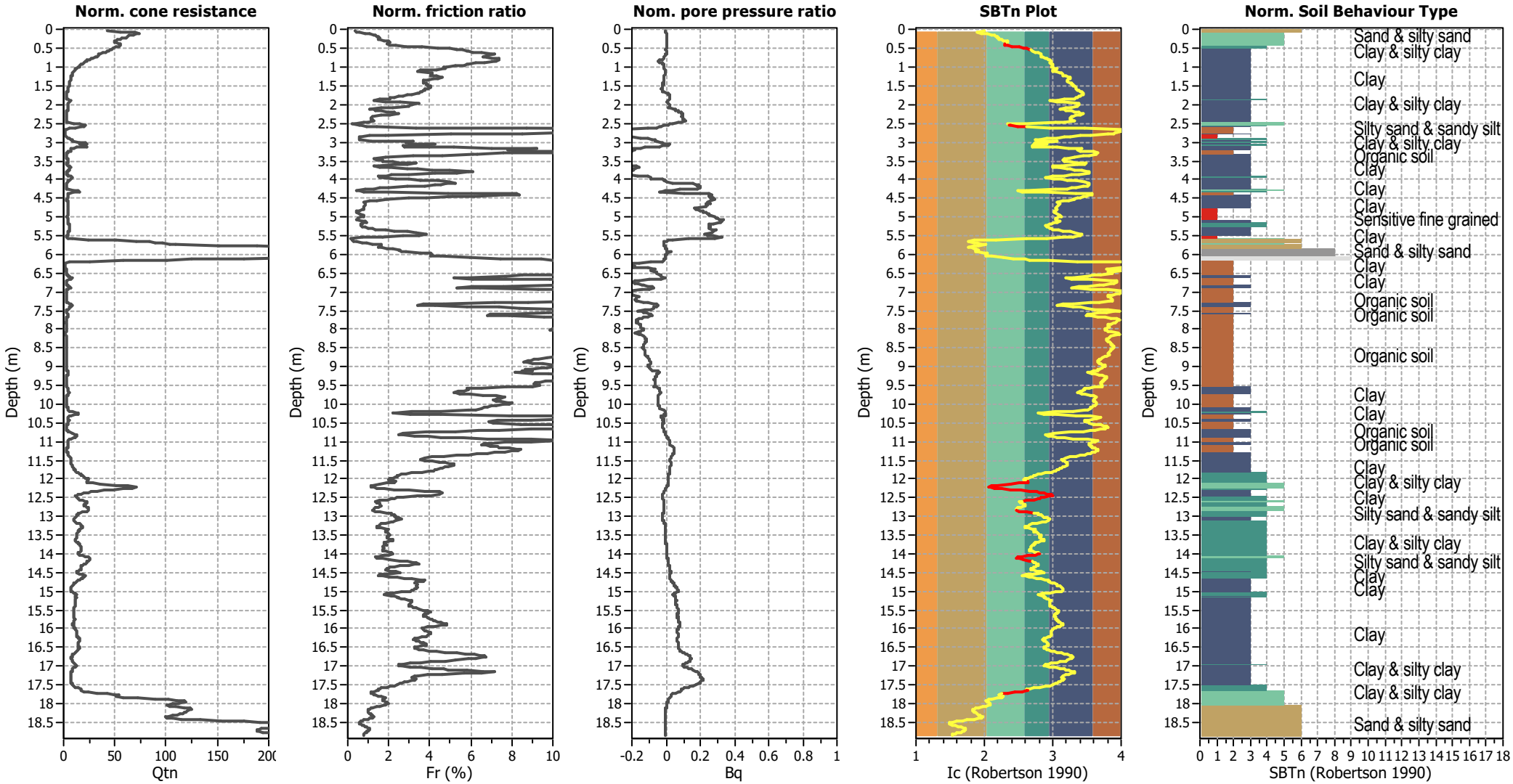
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



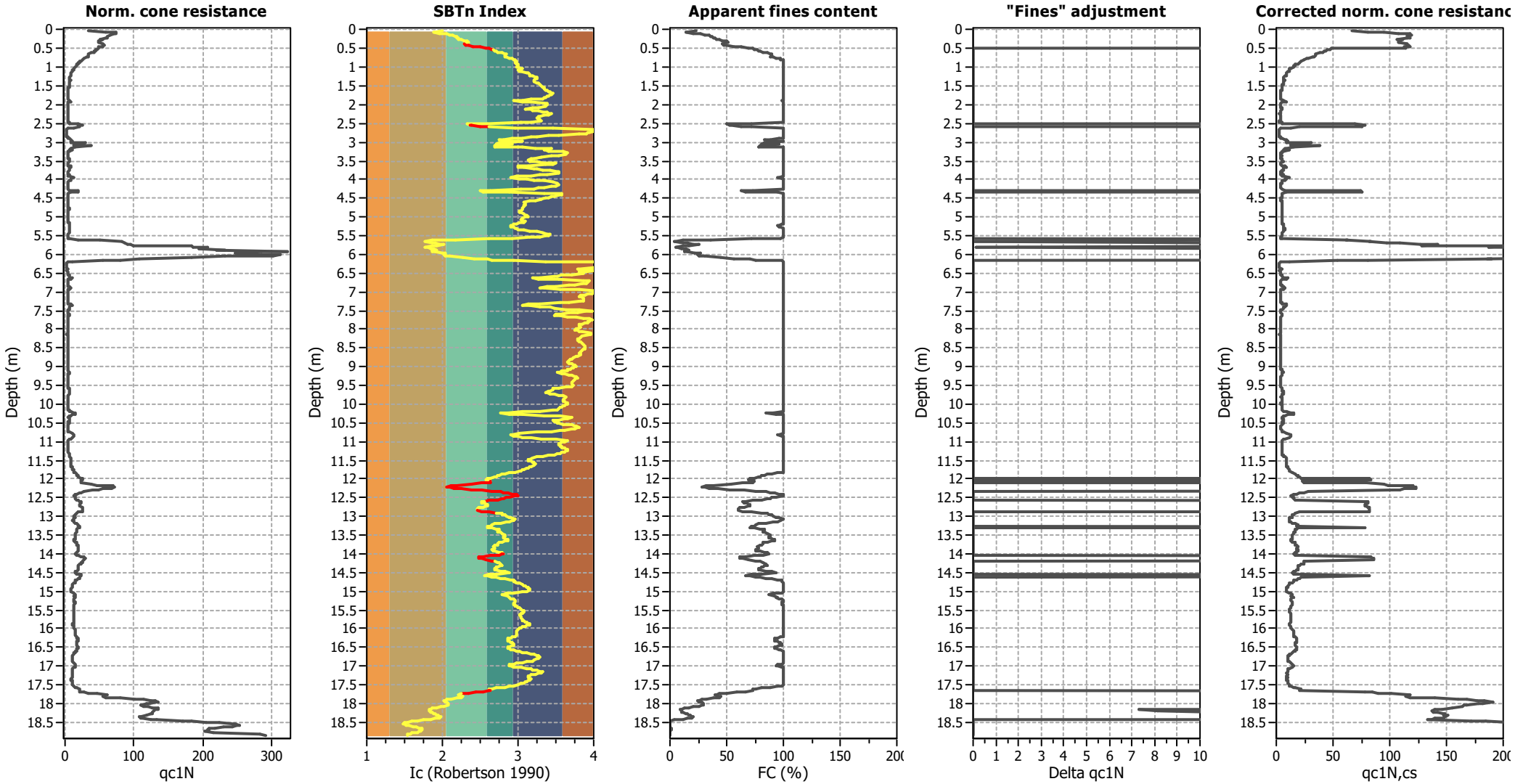
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

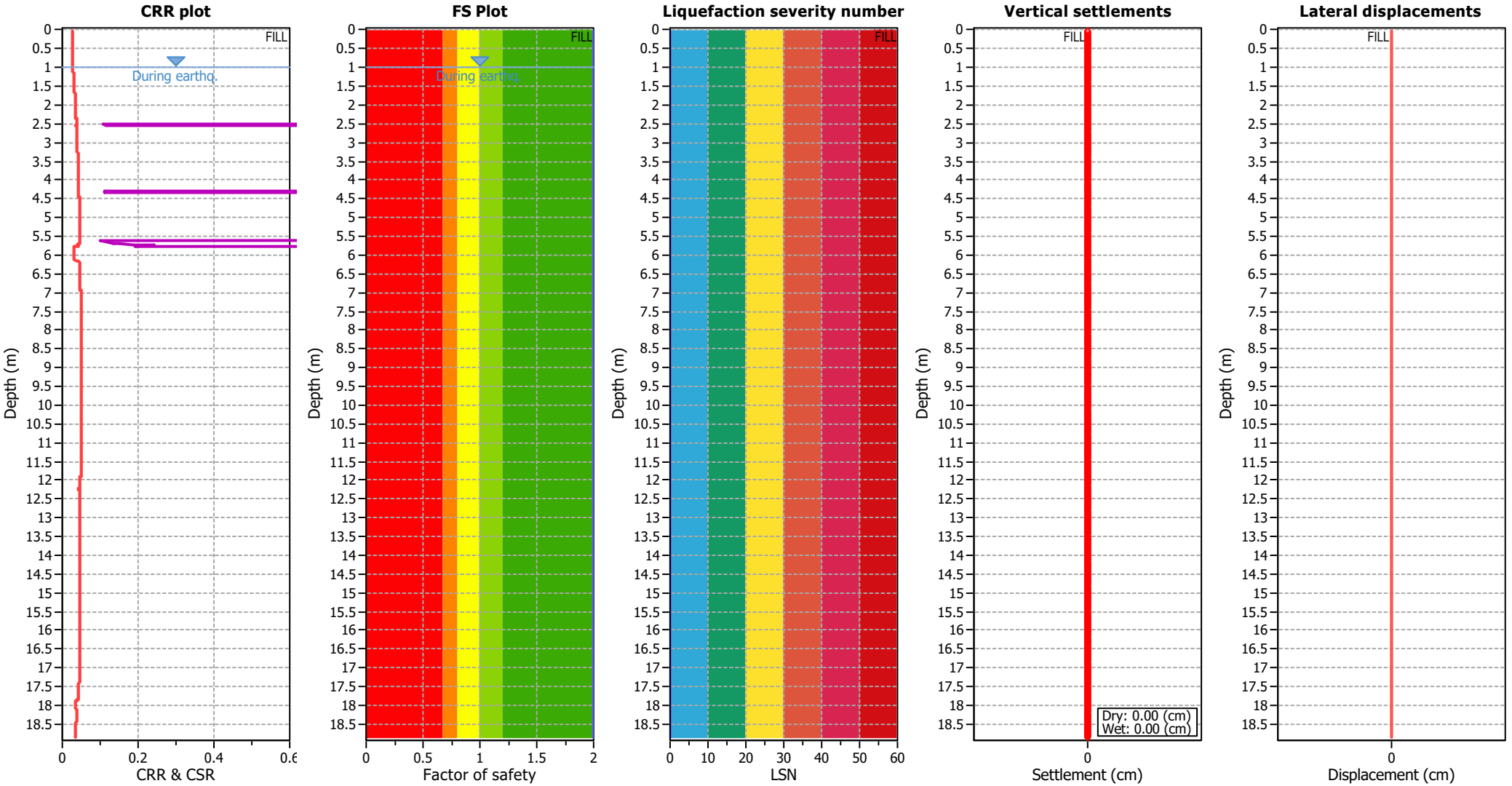
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

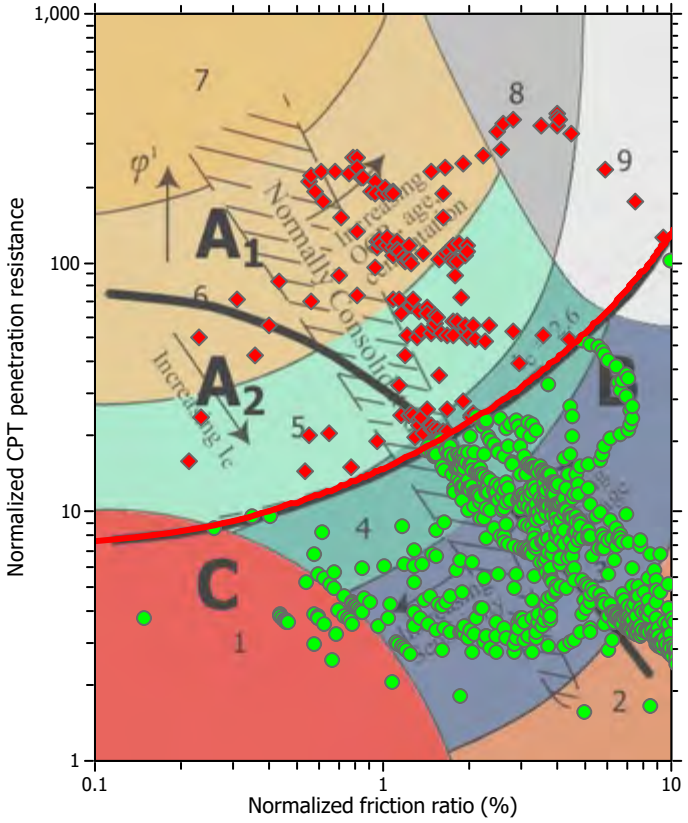
F.S. color scheme

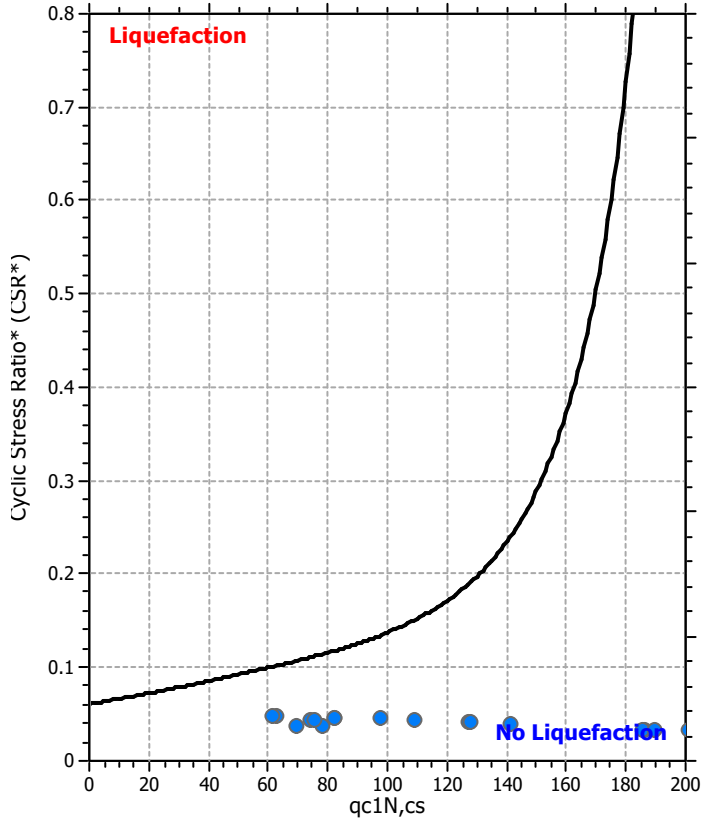
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

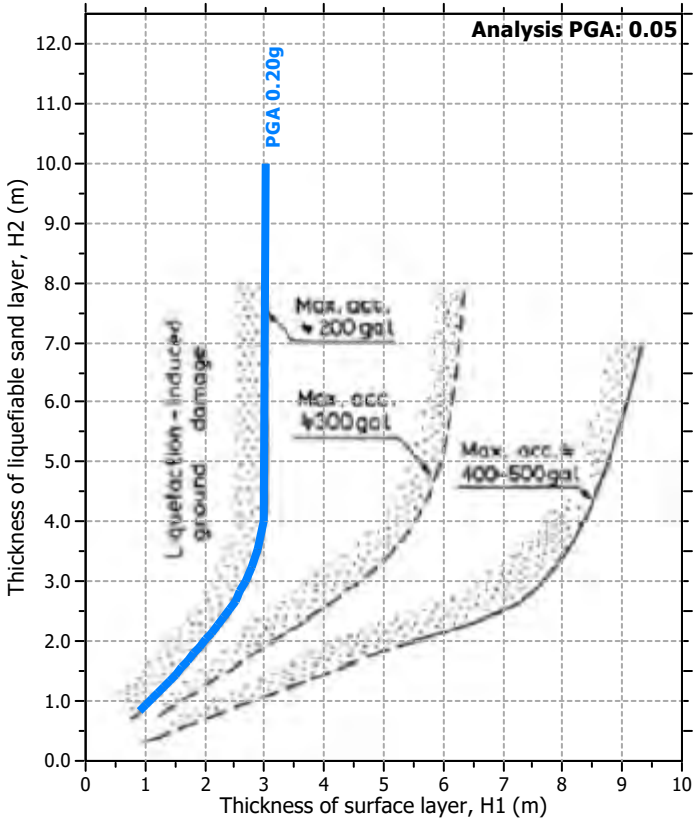
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



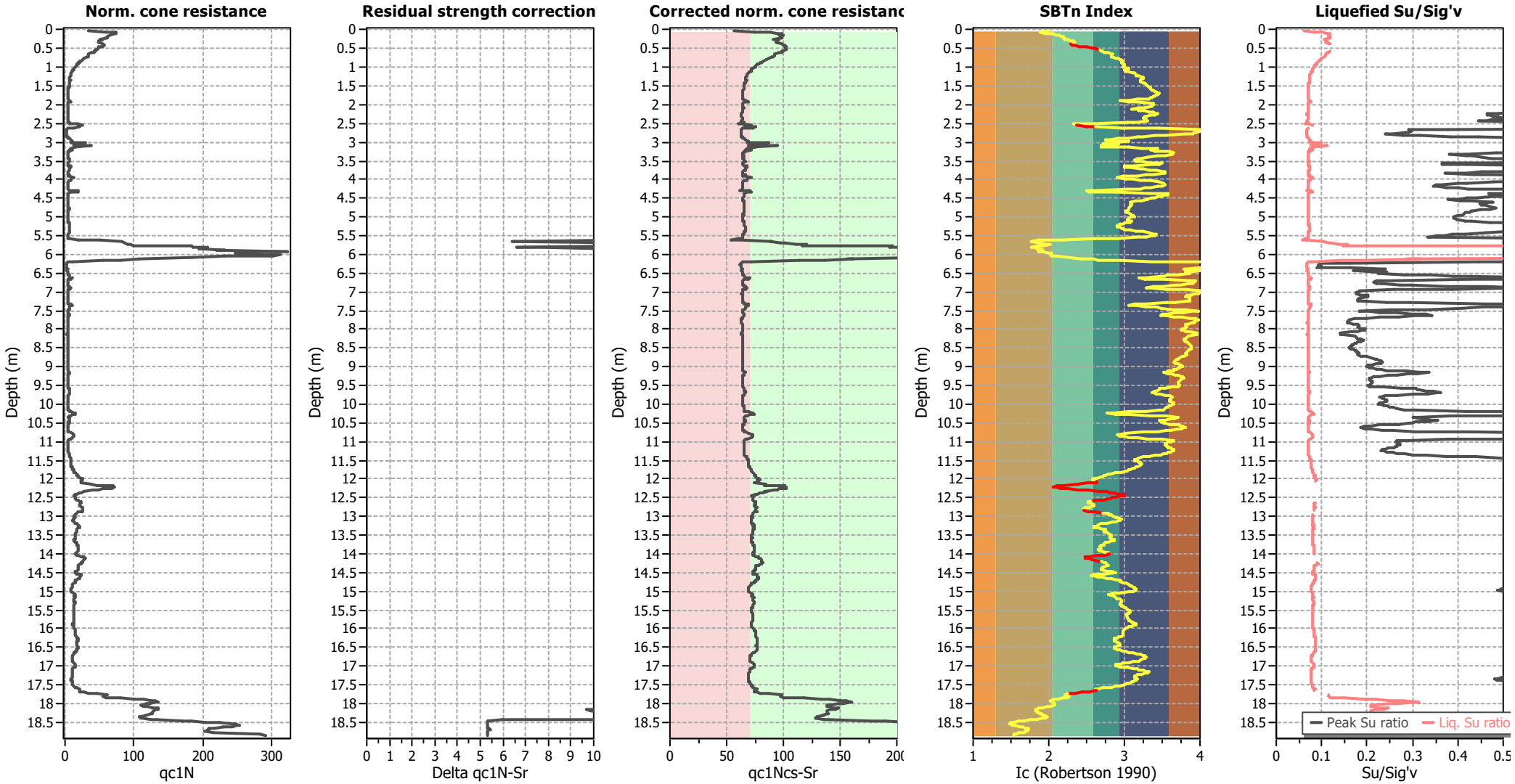




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

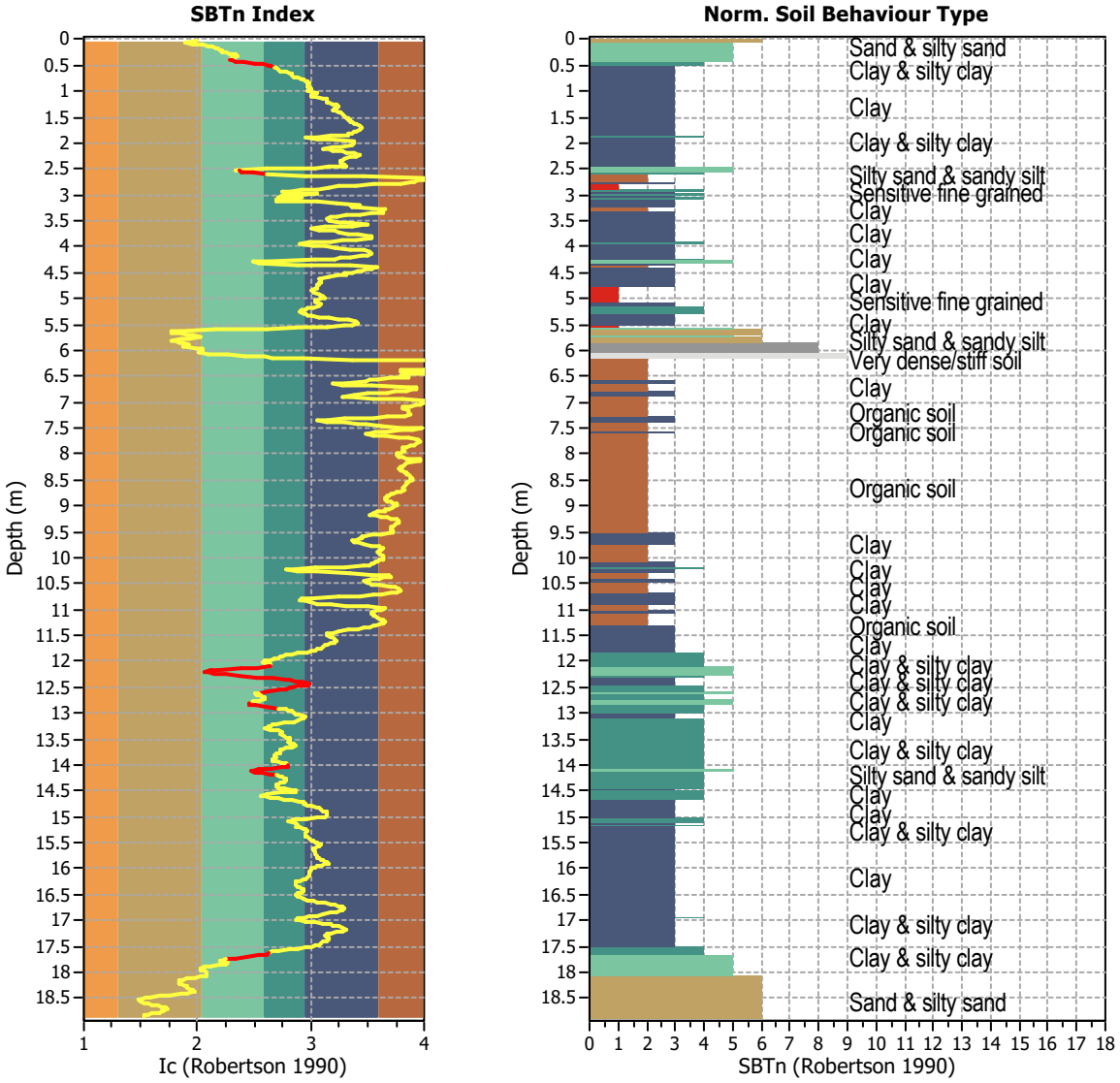
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

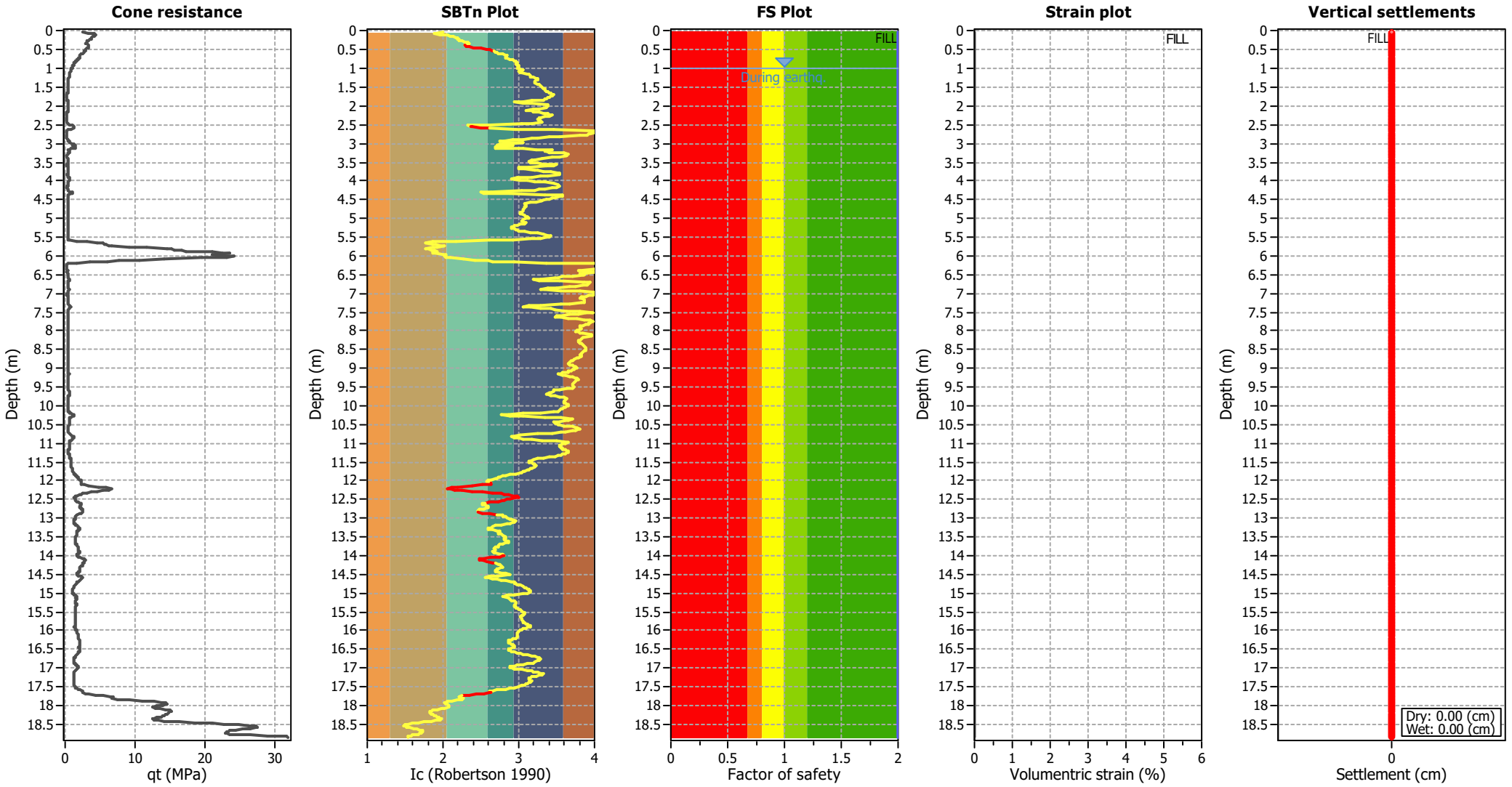
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	943
I_c maximum check value:	3.00	Total points excluded:	63
I_c change ratio value:	0.0100	Exclusion percentage:	6.68%
Minimum number of points in layer:	4	Number of layers detected:	9

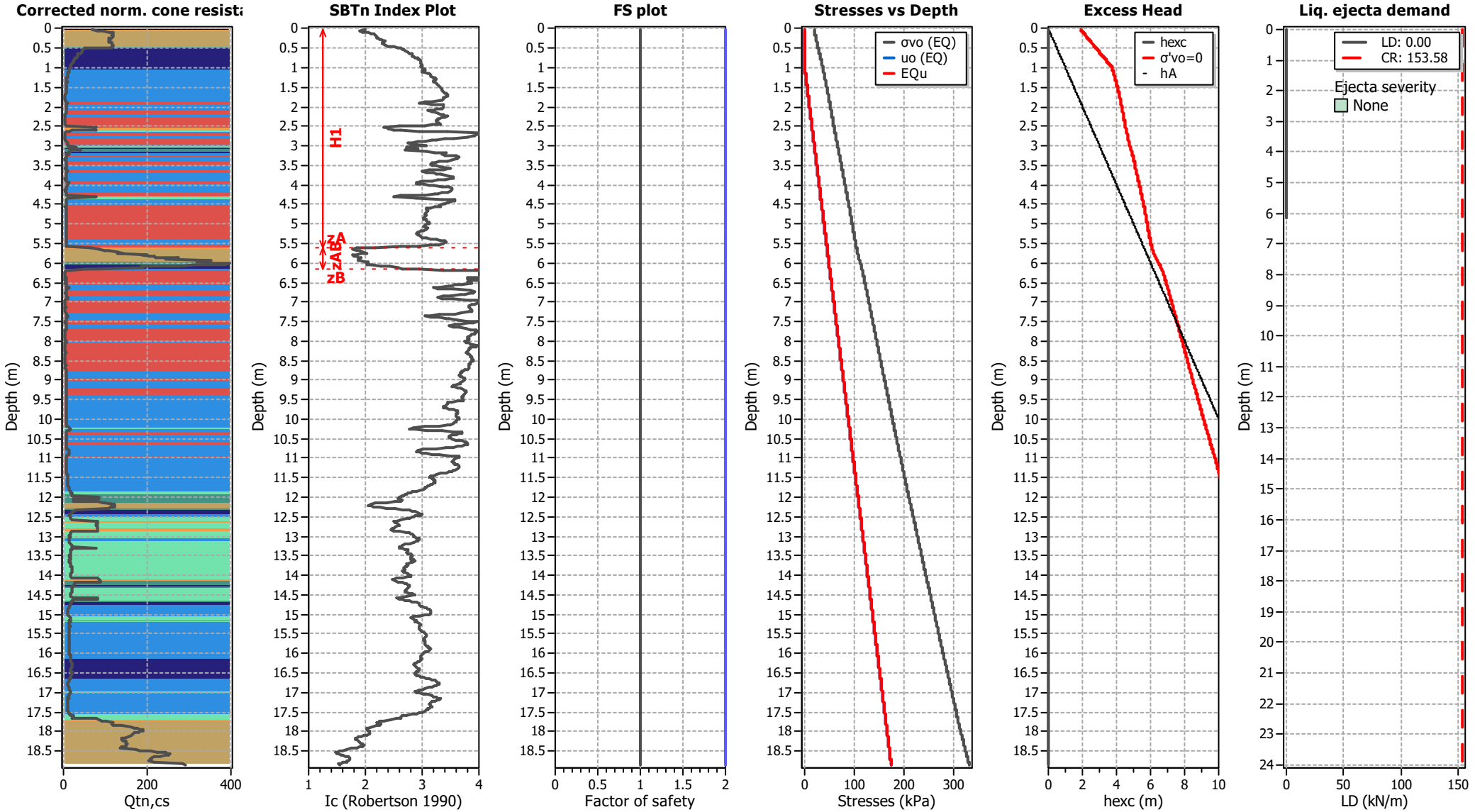
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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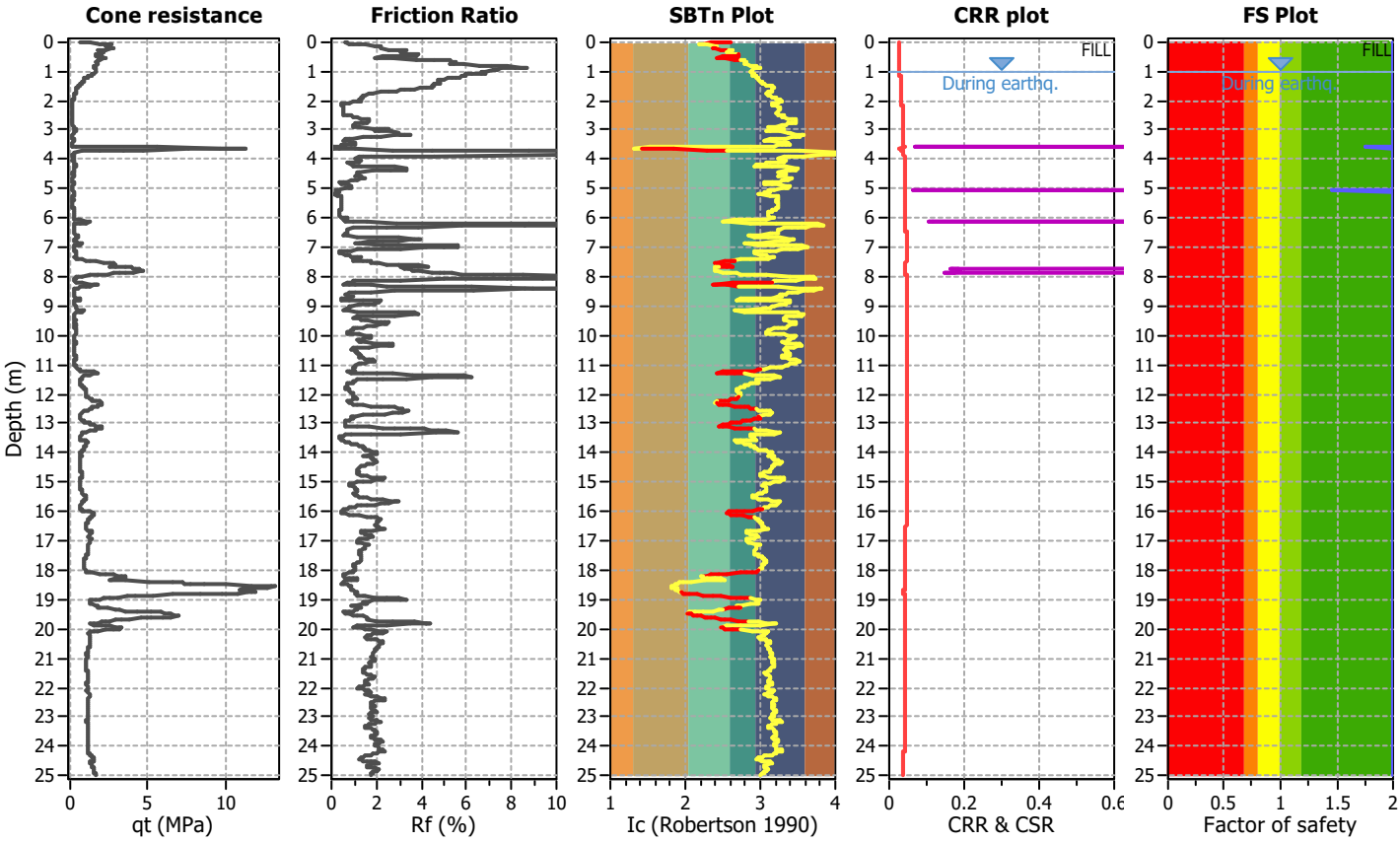
LIQUEFACTION ANALYSIS REPORT

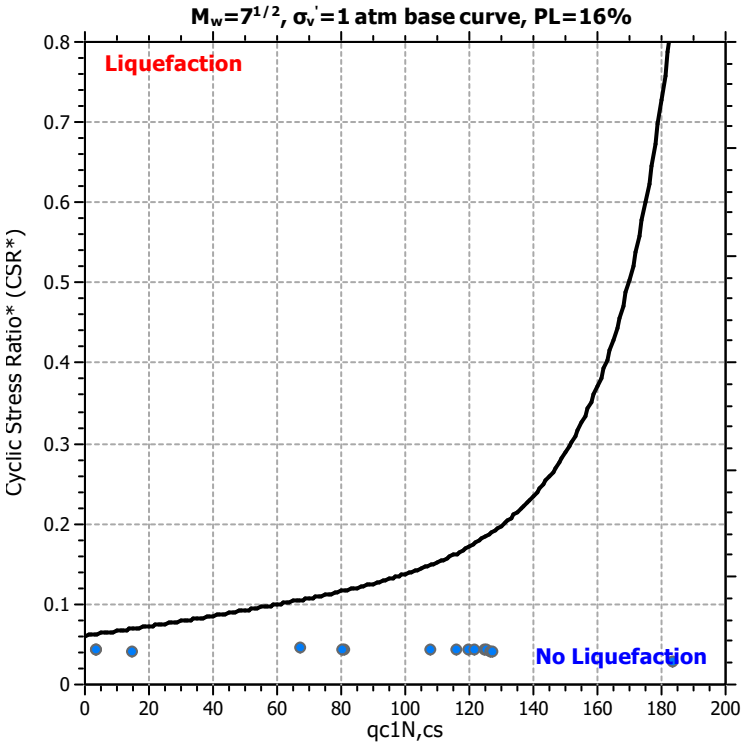
Project title : Sunfield Landholding **Location :**

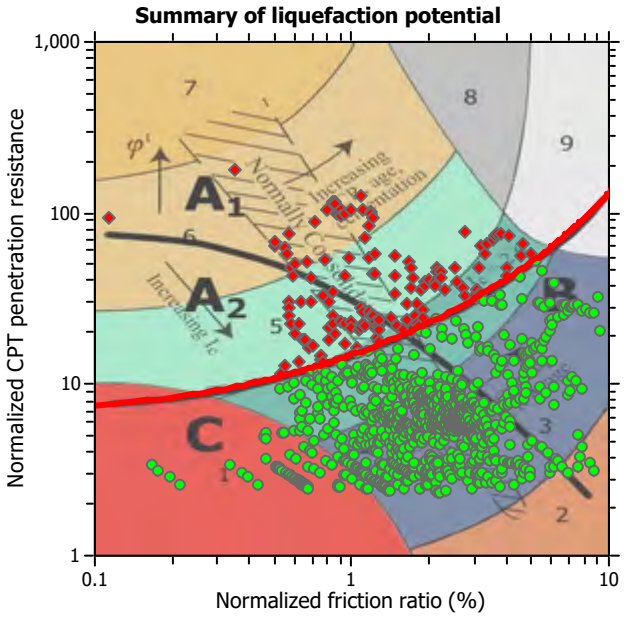
CPT file : CPT208

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	37.00 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

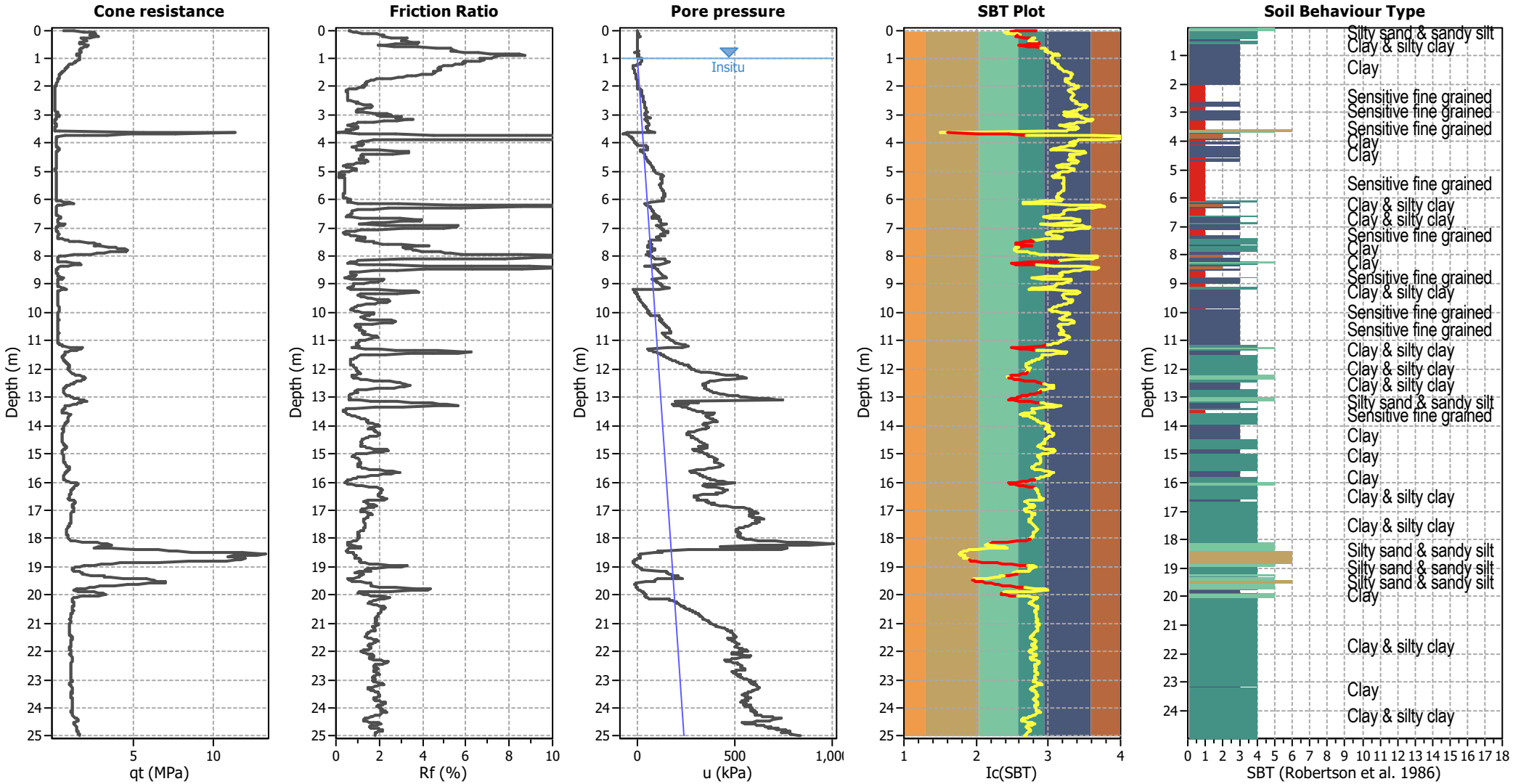






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



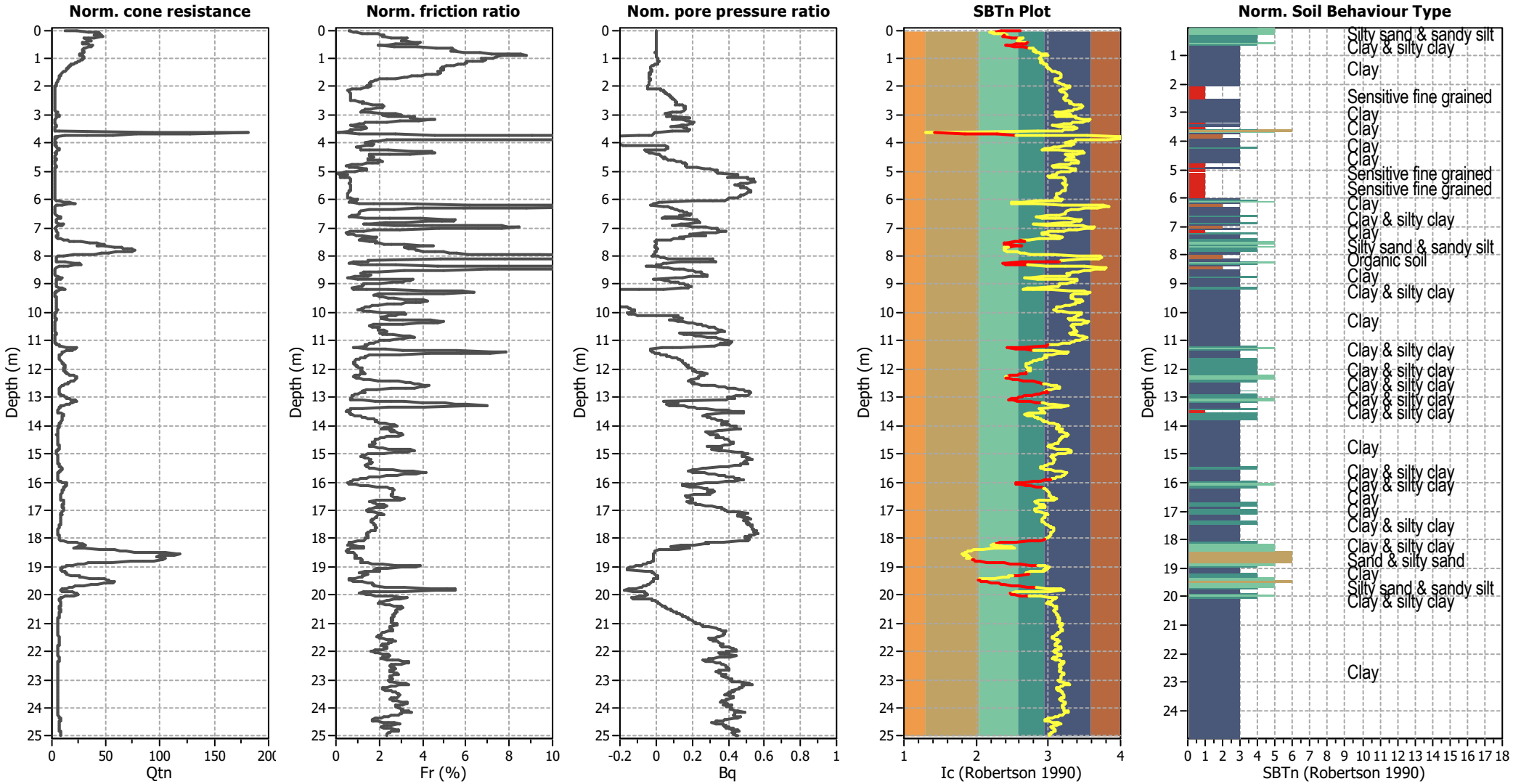
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



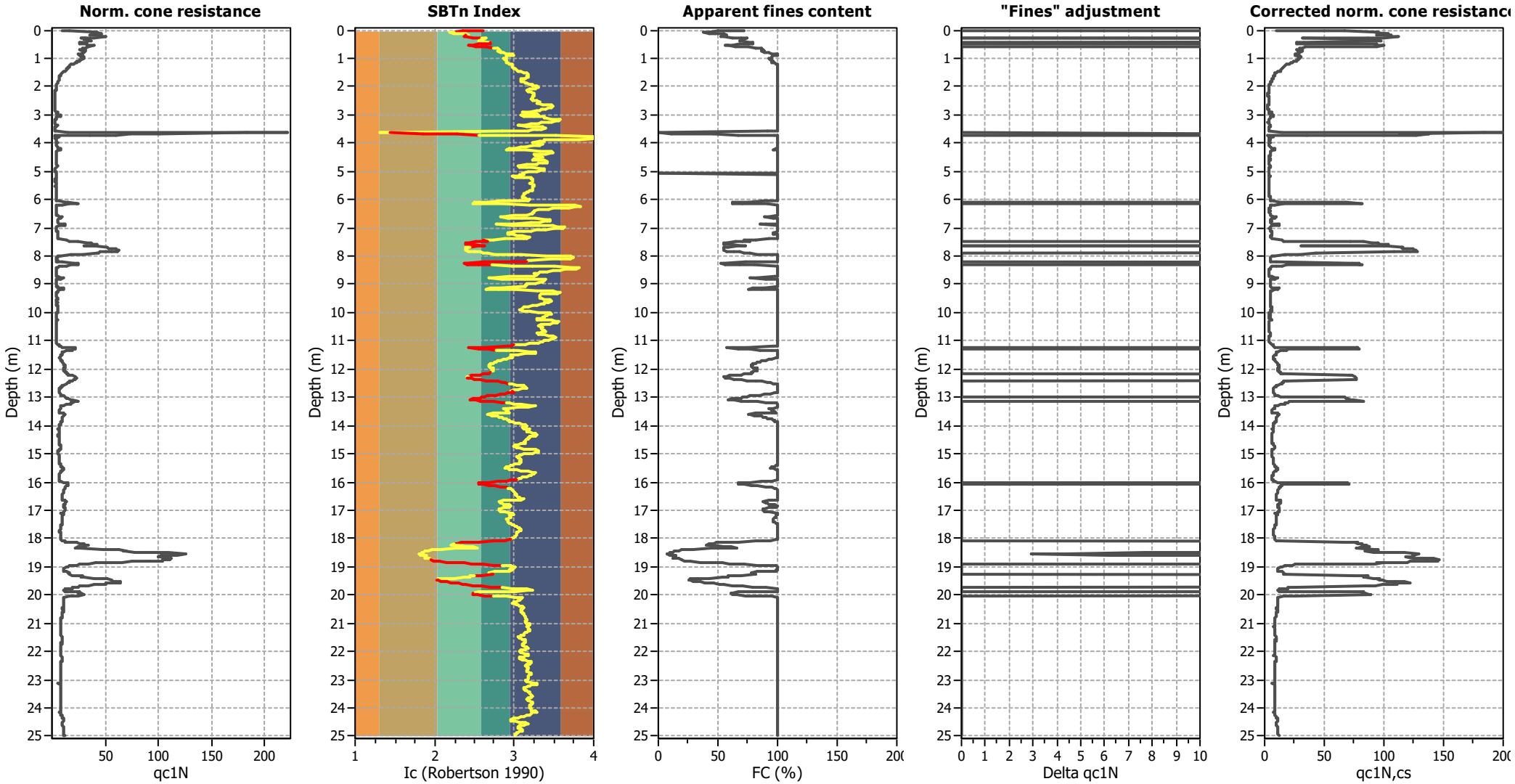
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

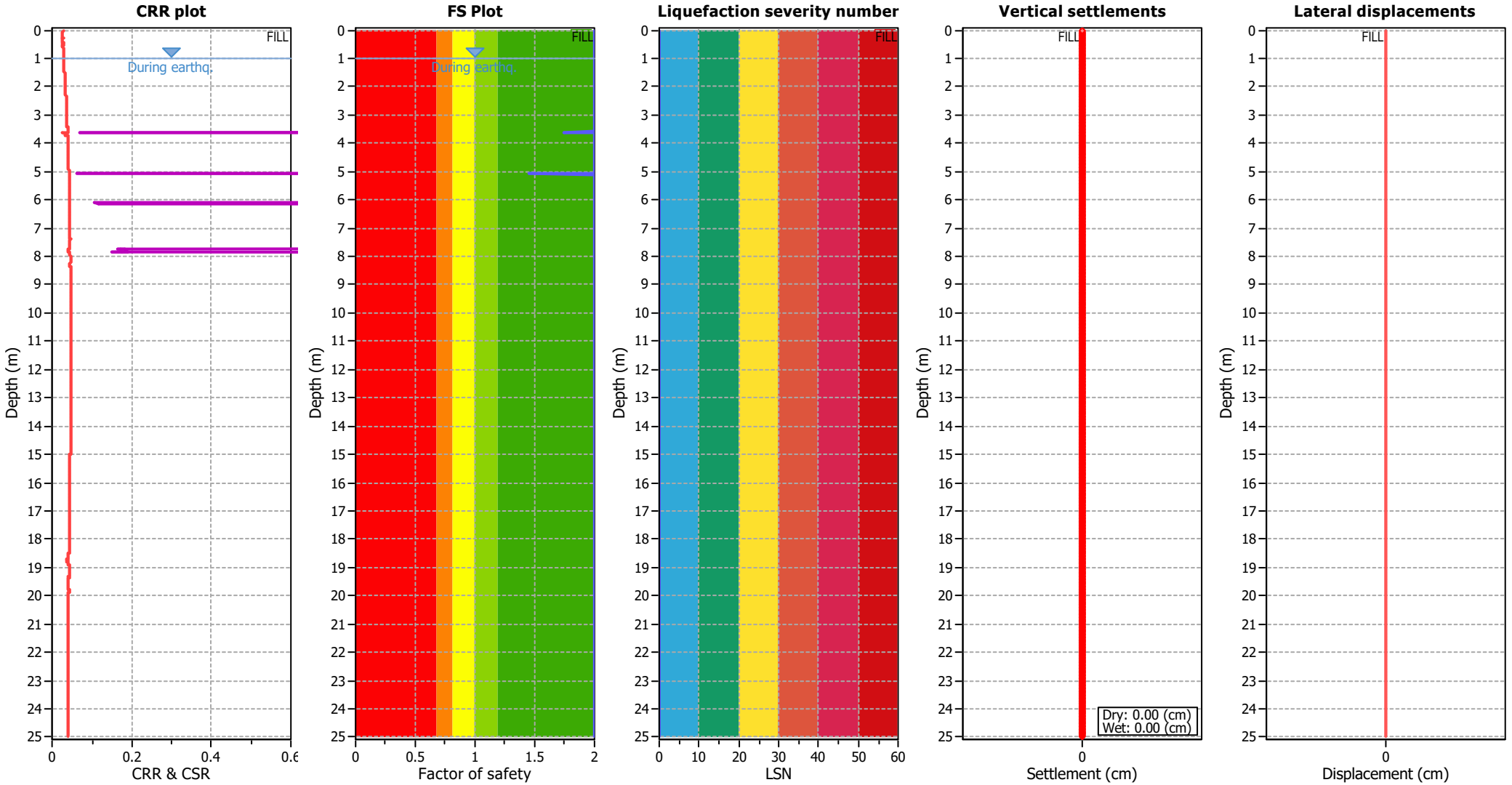
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

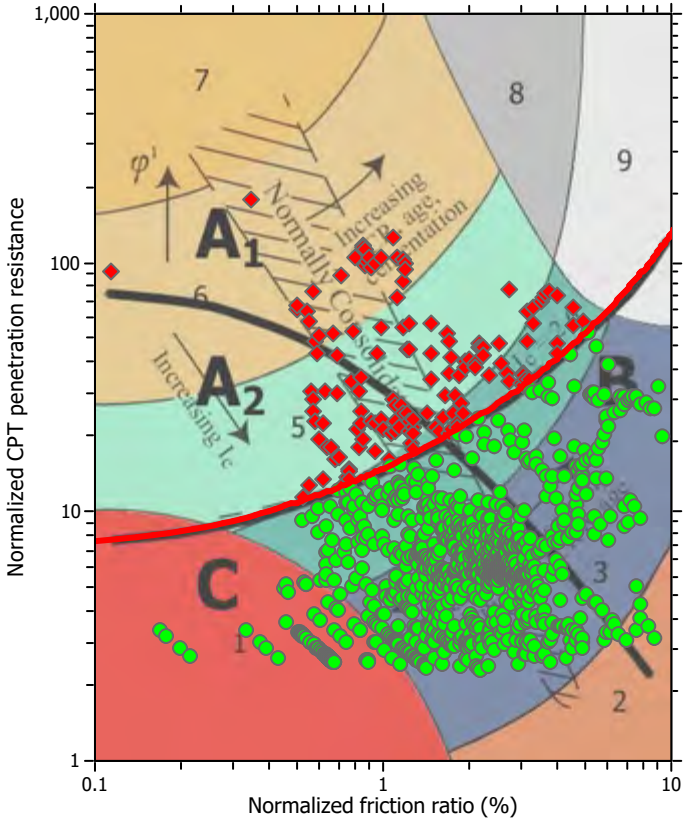
F.S. color scheme

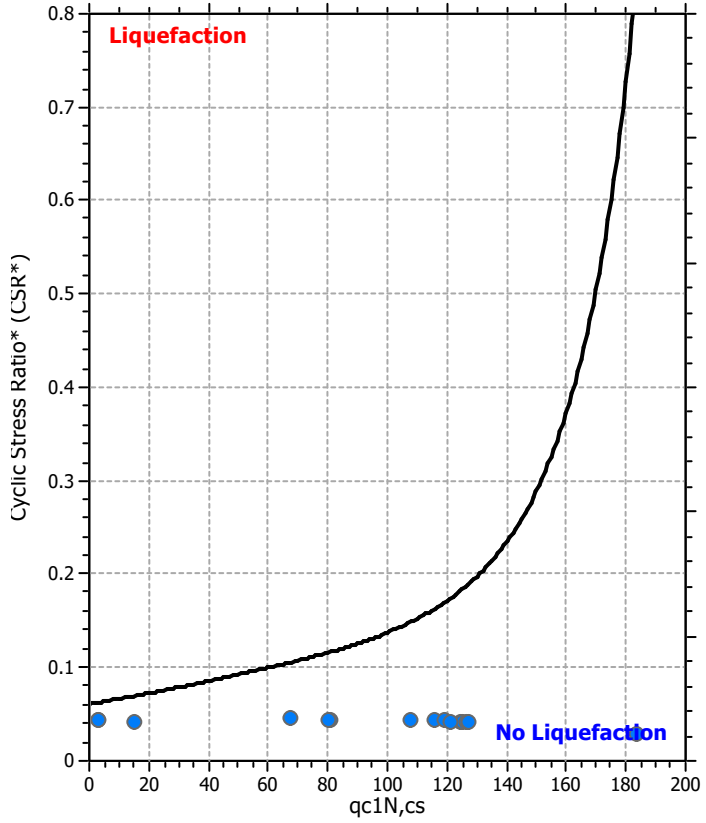
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

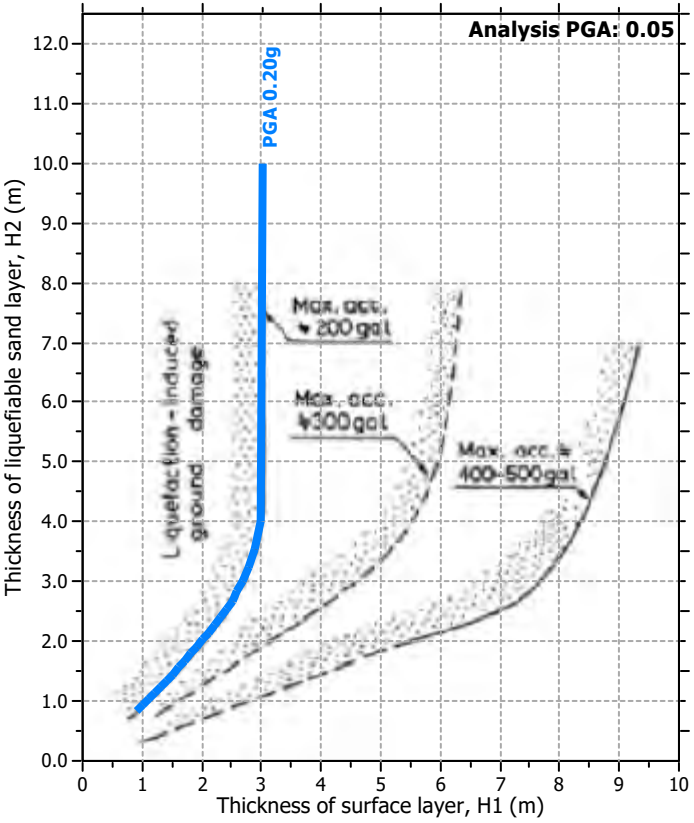
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



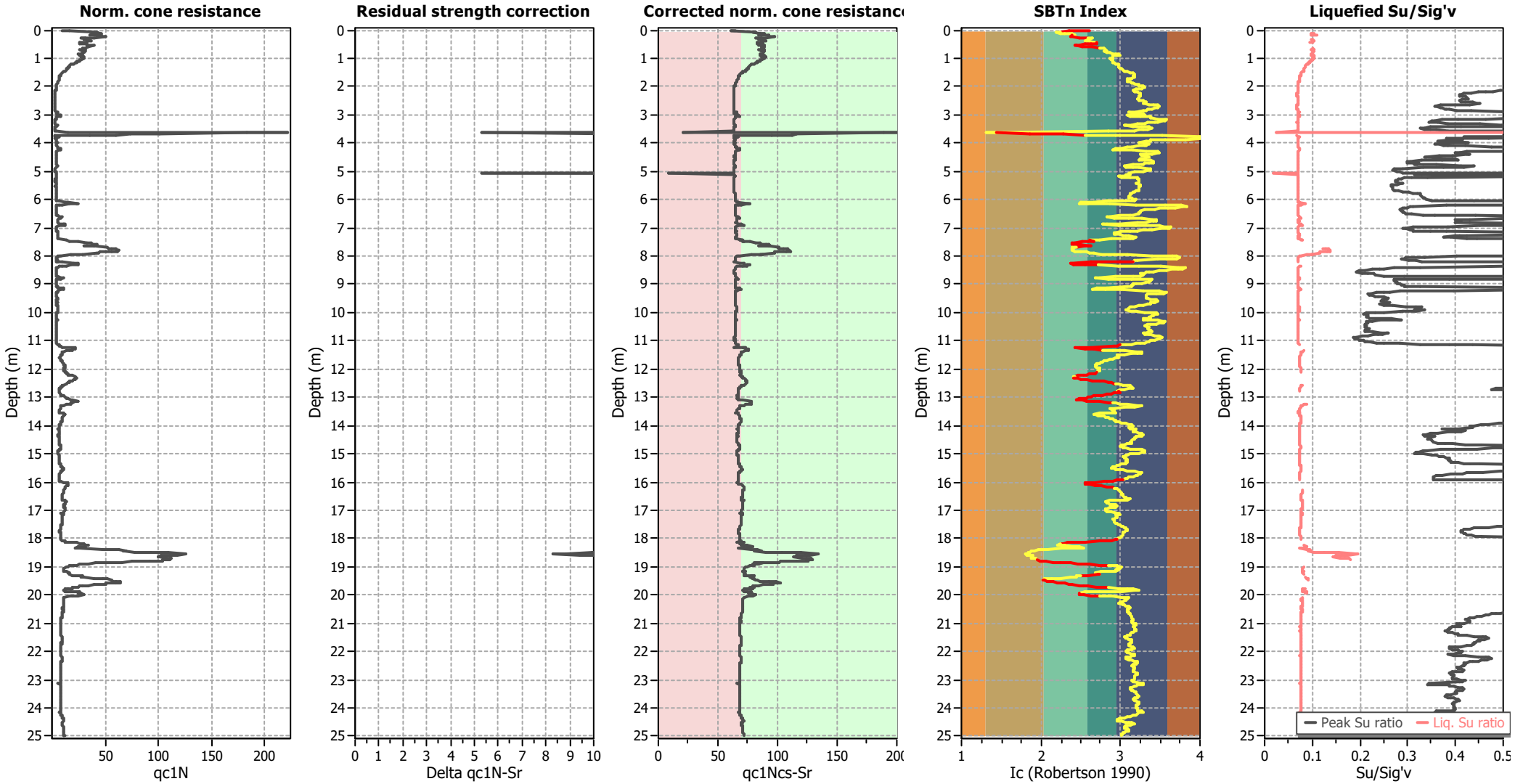




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

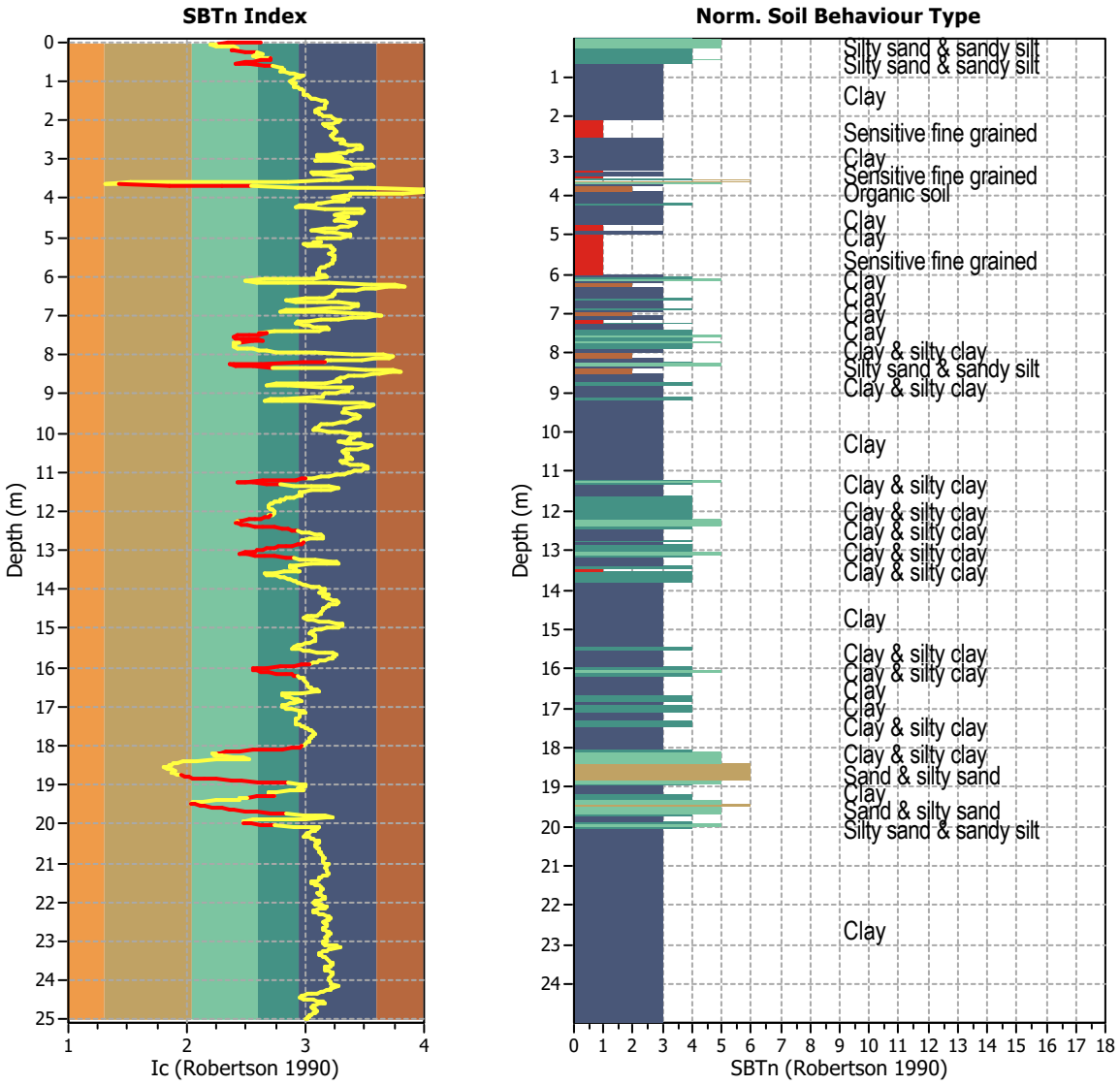
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

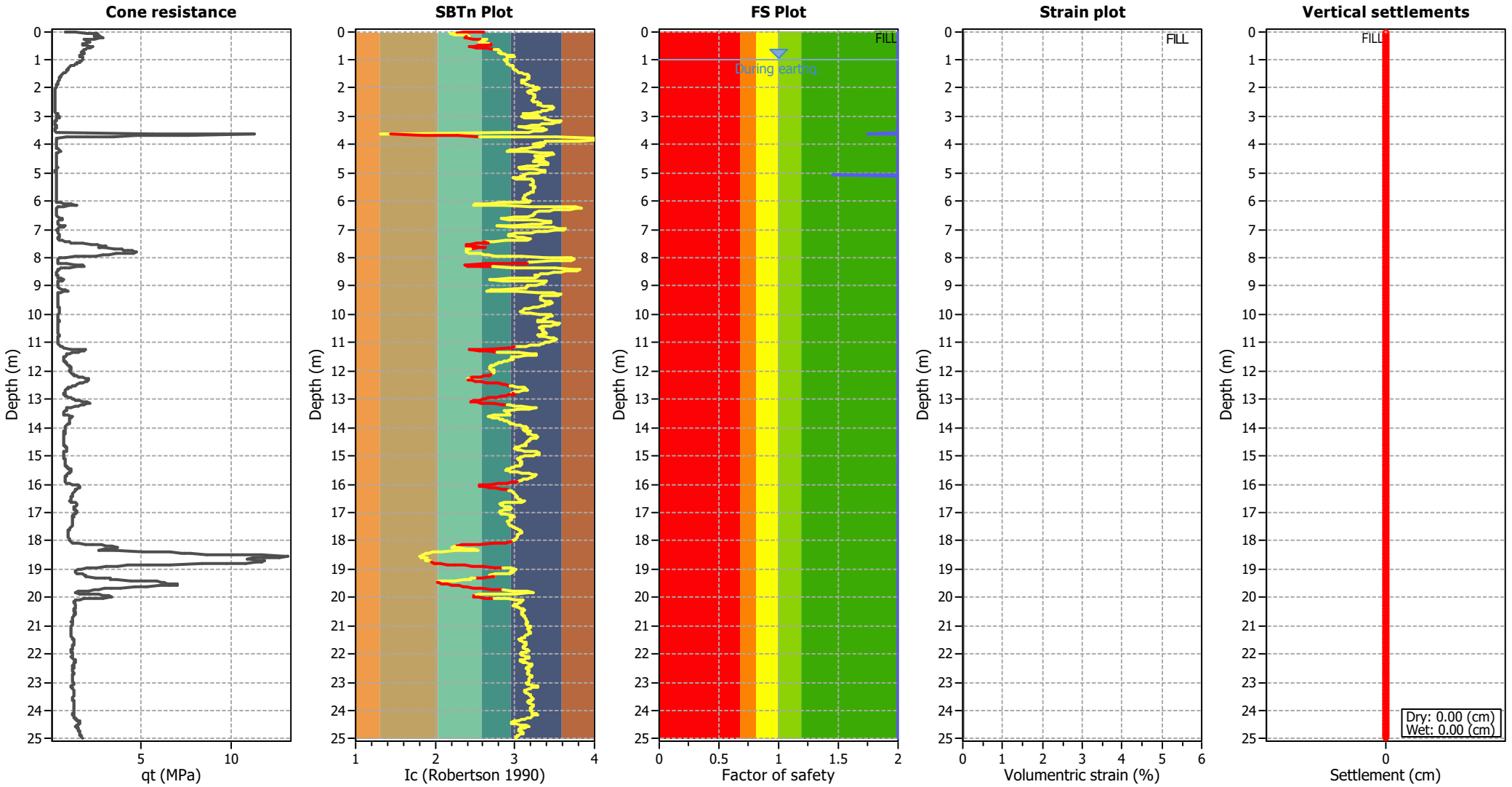
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	1249
I_c maximum check value:	3.00	Total points excluded:	162
I_c change ratio value:	0.0100	Exclusion percentage:	12.97%
Minimum number of points in layer:	4	Number of layers detected:	23

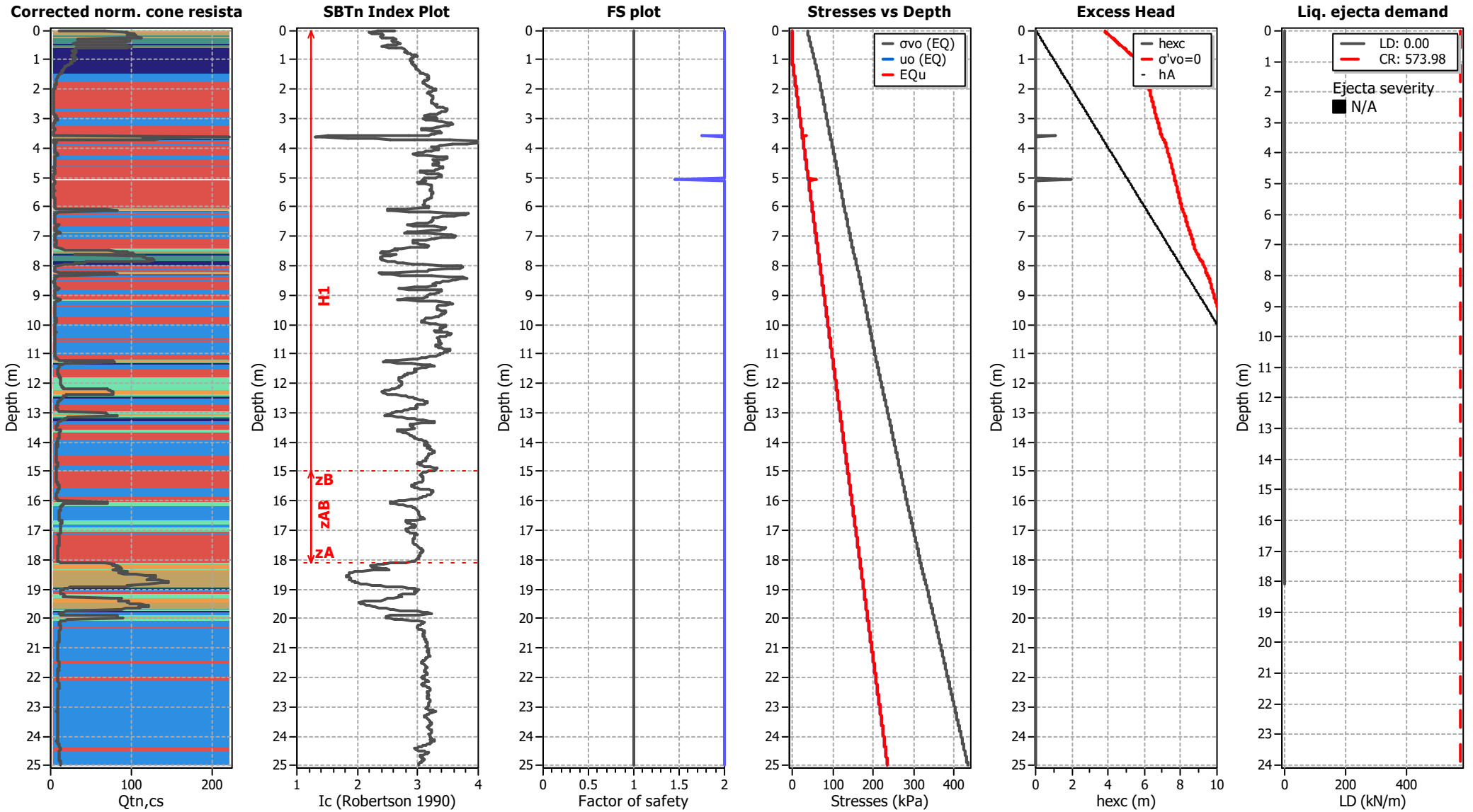
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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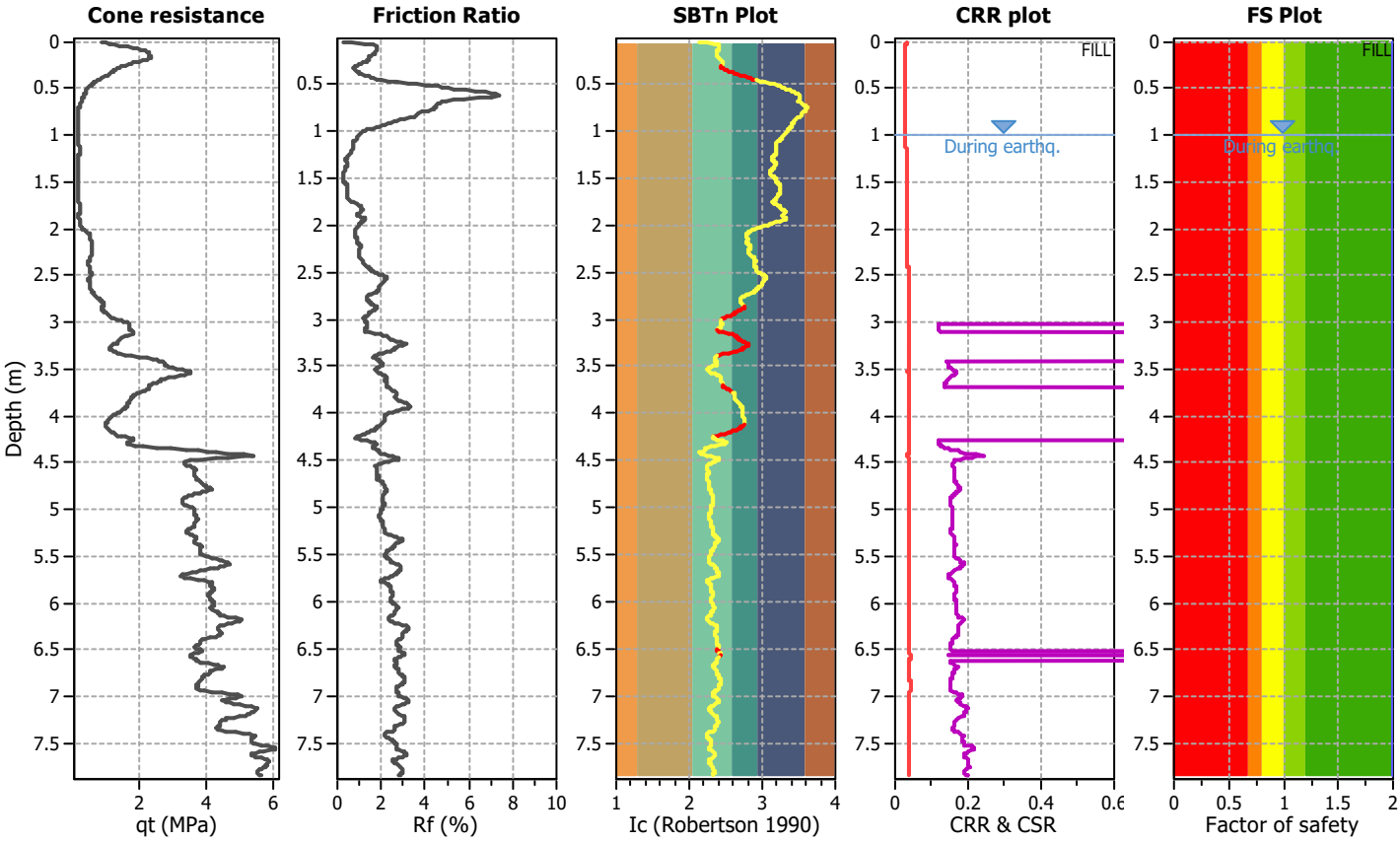
LIQUEFACTION ANALYSIS REPORT

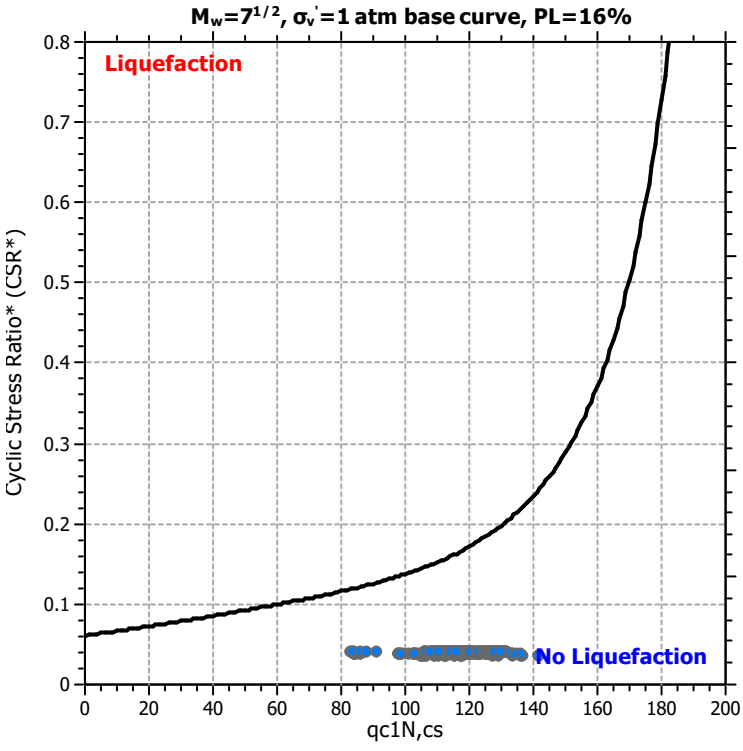
Project title : Sunfield Landholding **Location :**

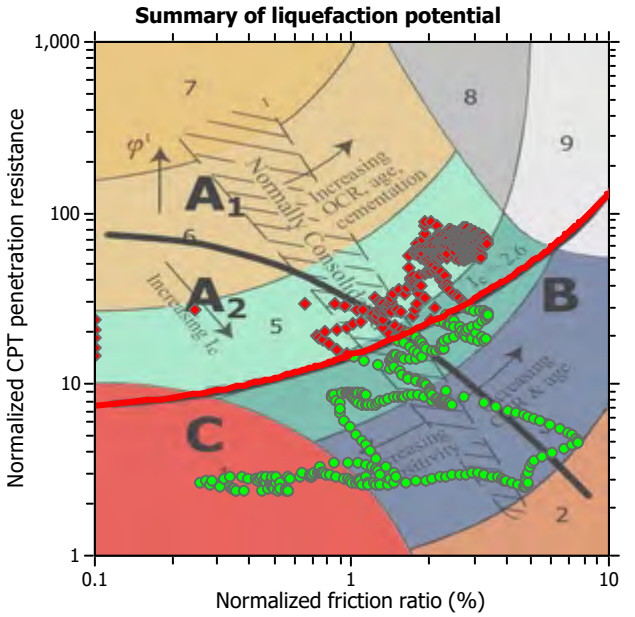
CPT file : CPT301

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	37.00 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

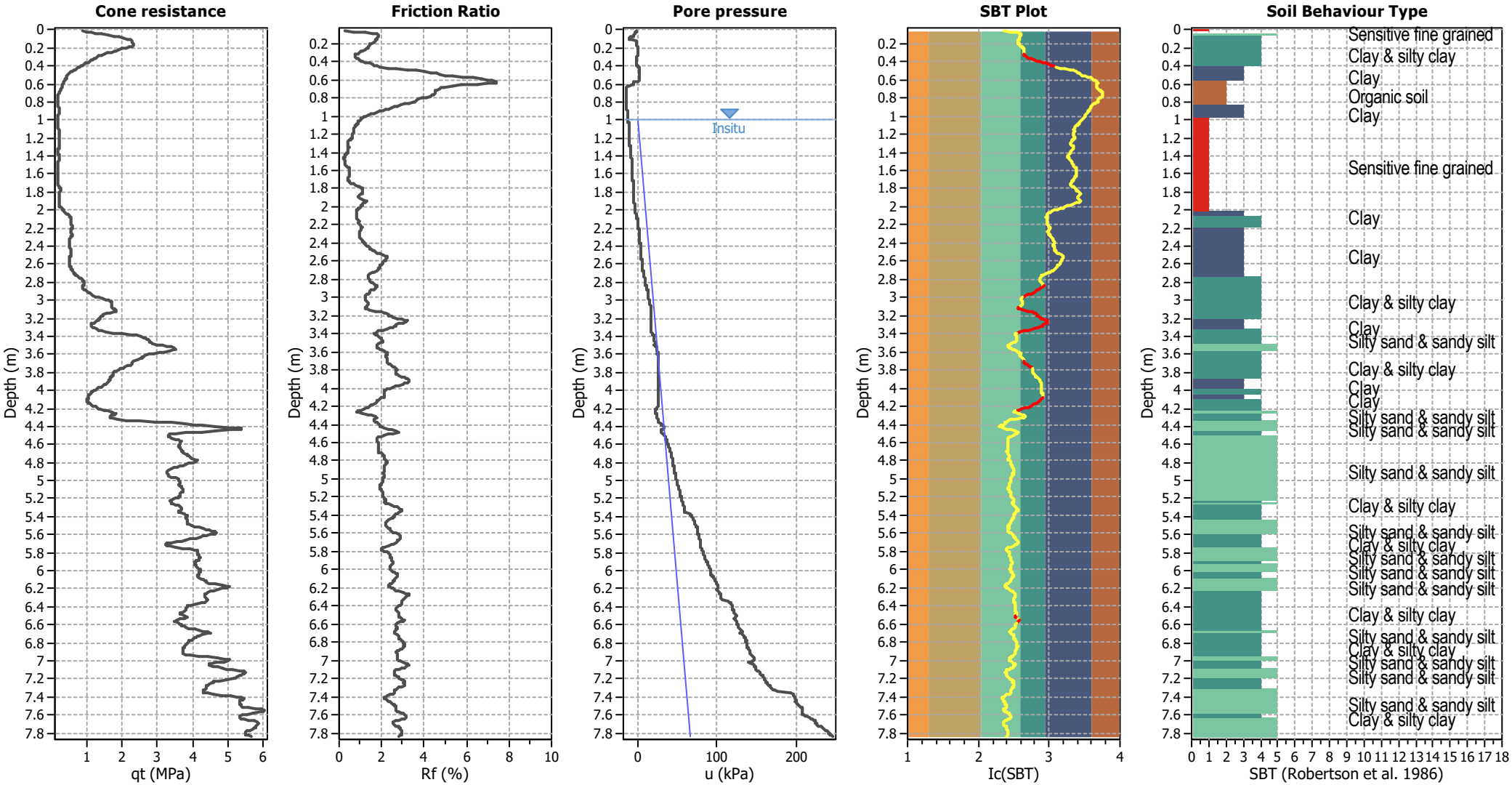






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



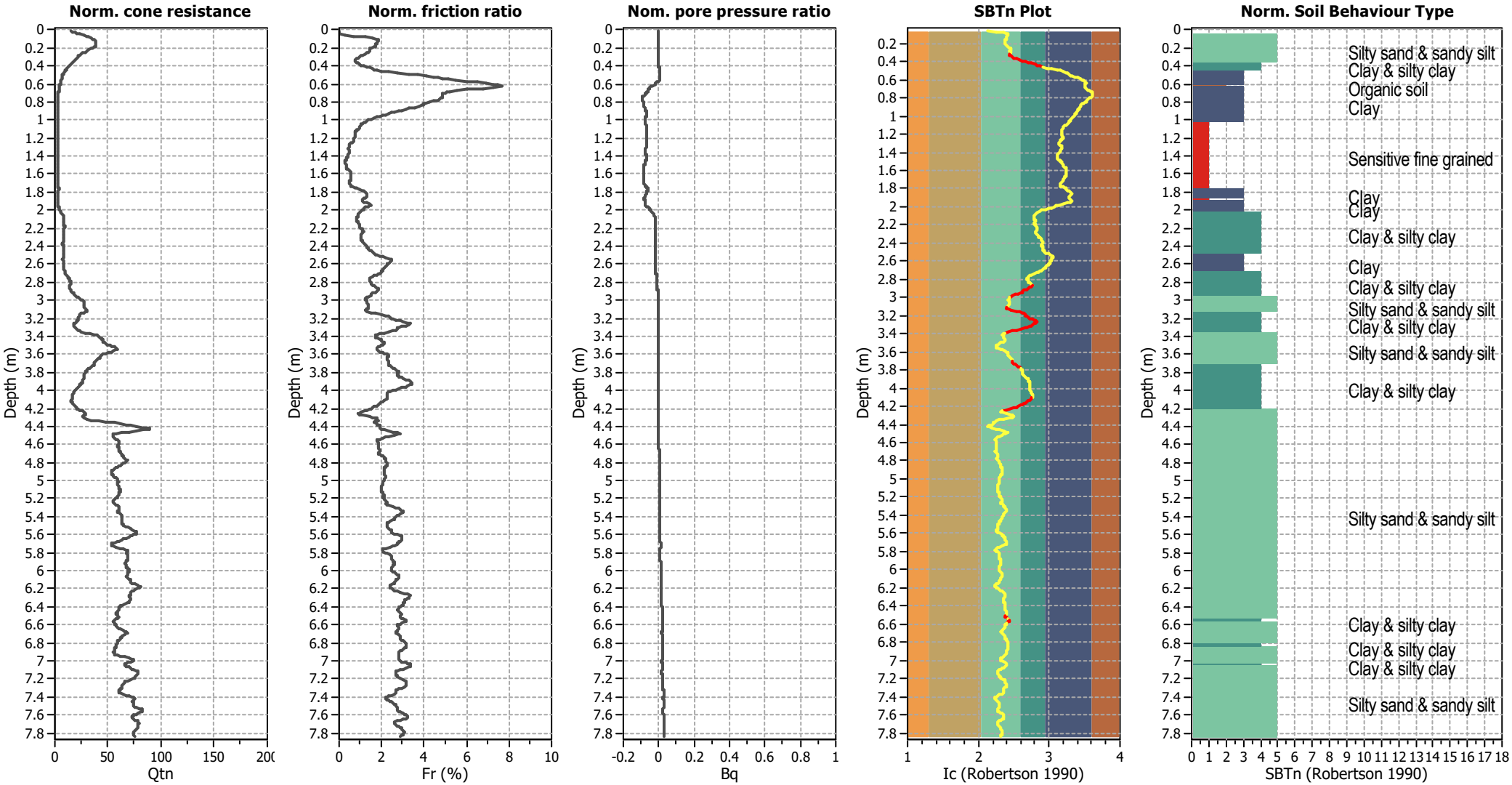
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



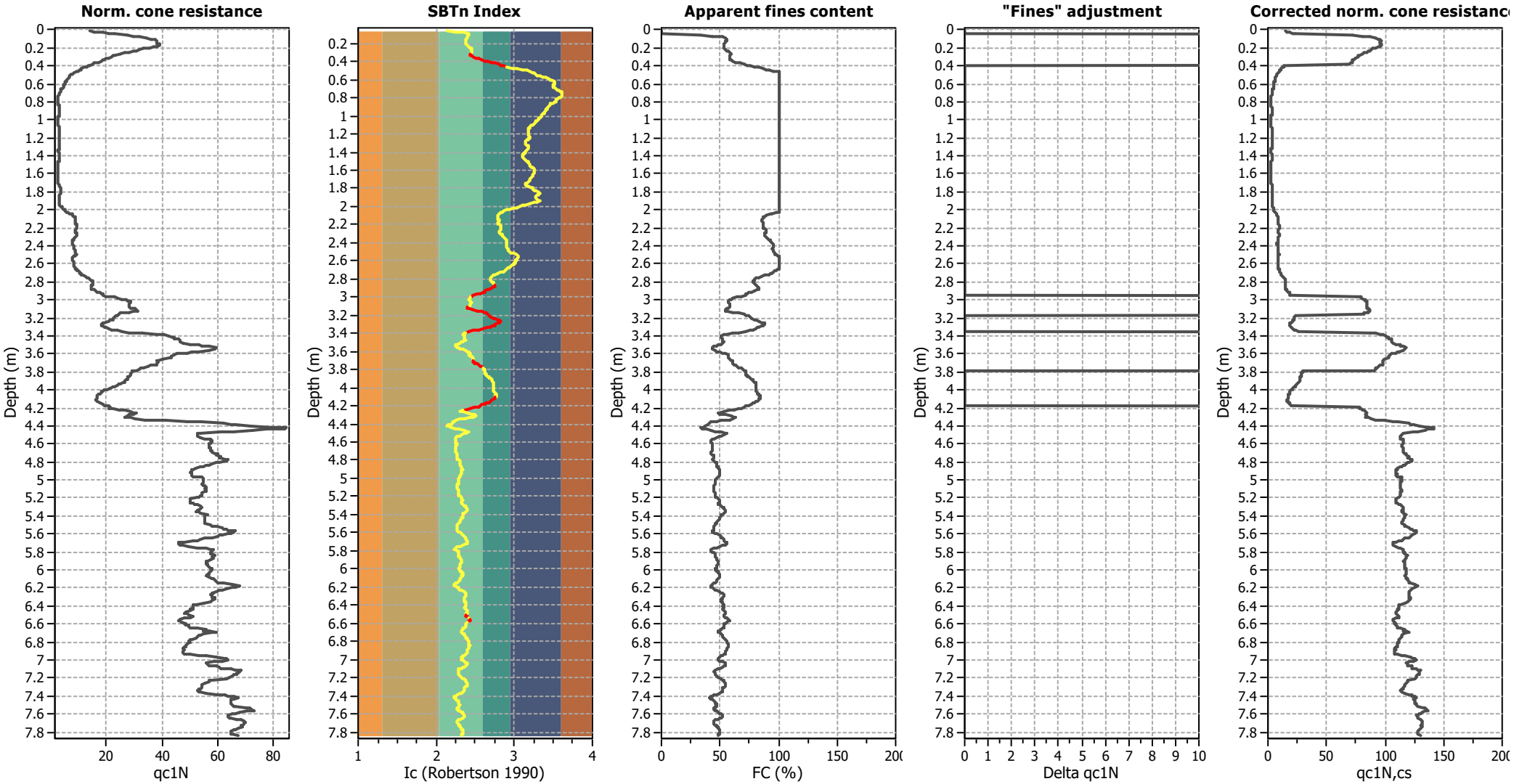
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

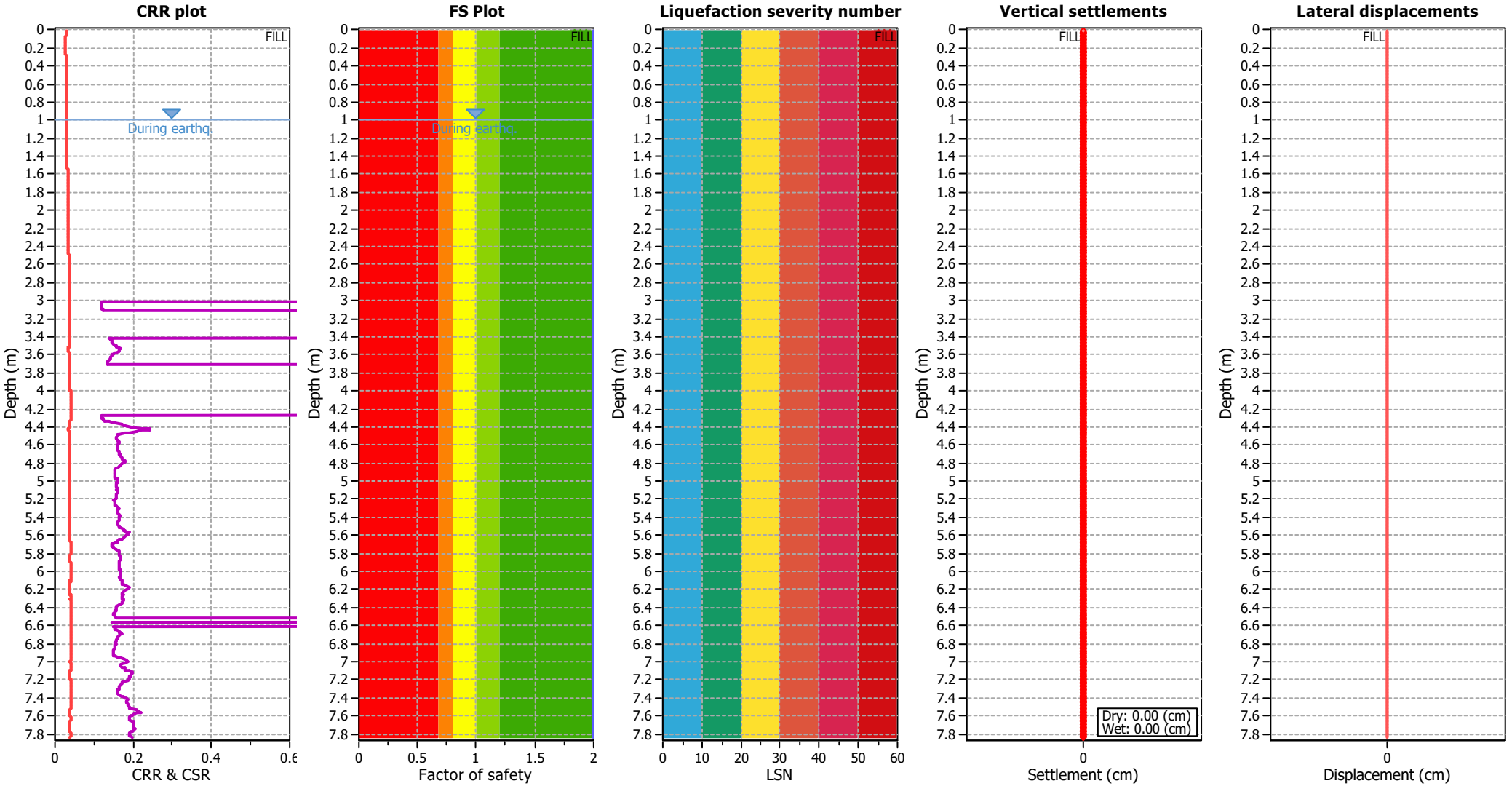
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

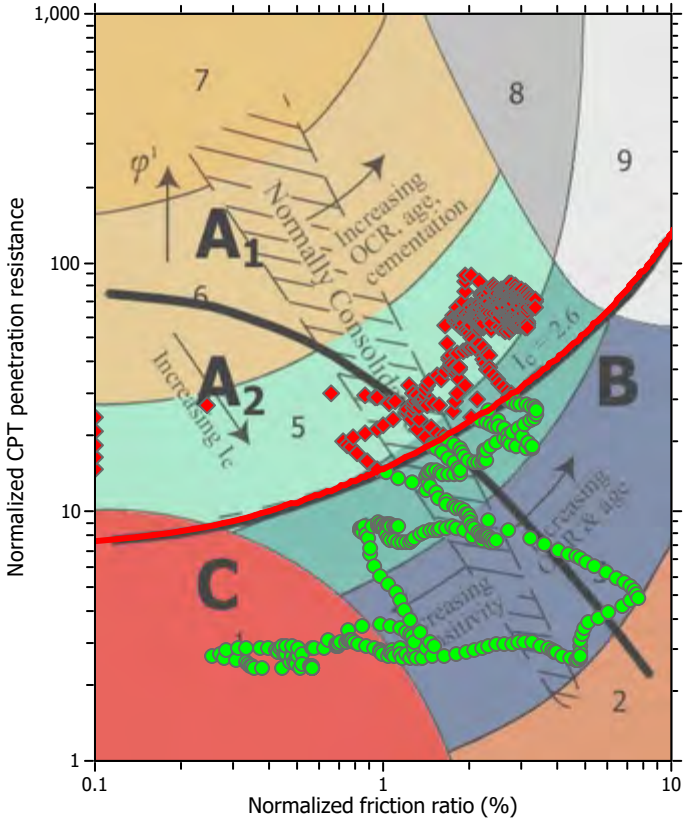
F.S. color scheme

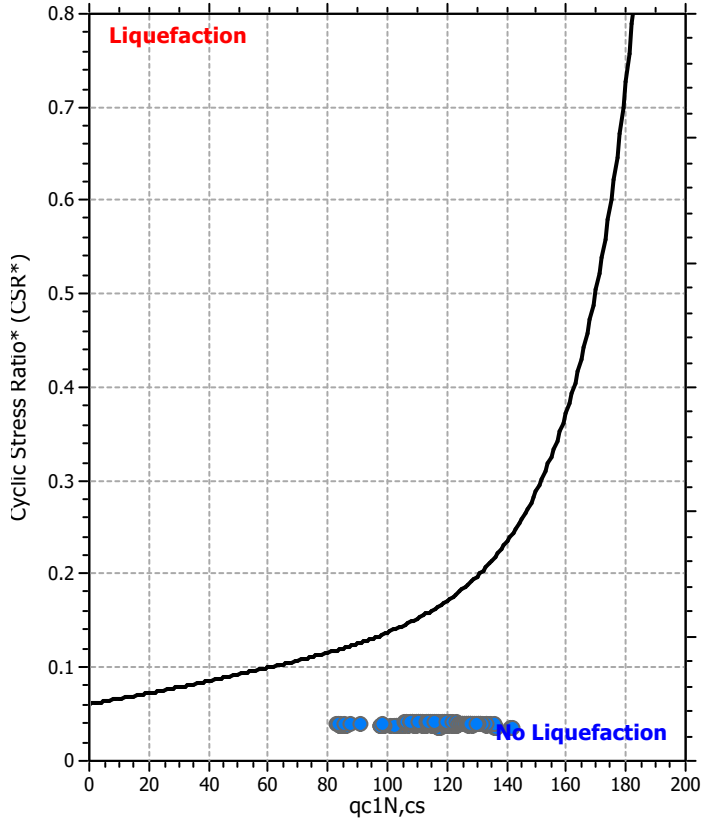
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

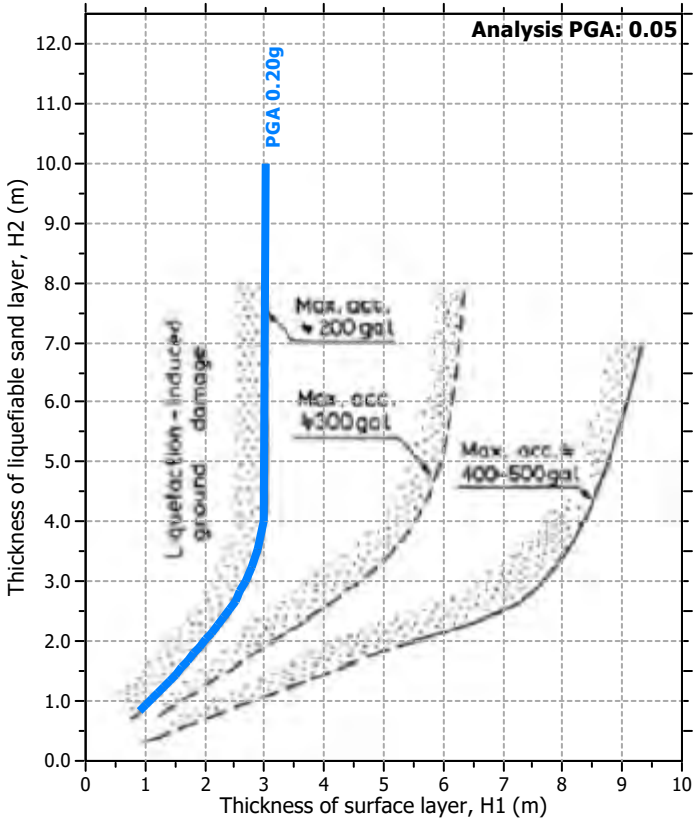
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



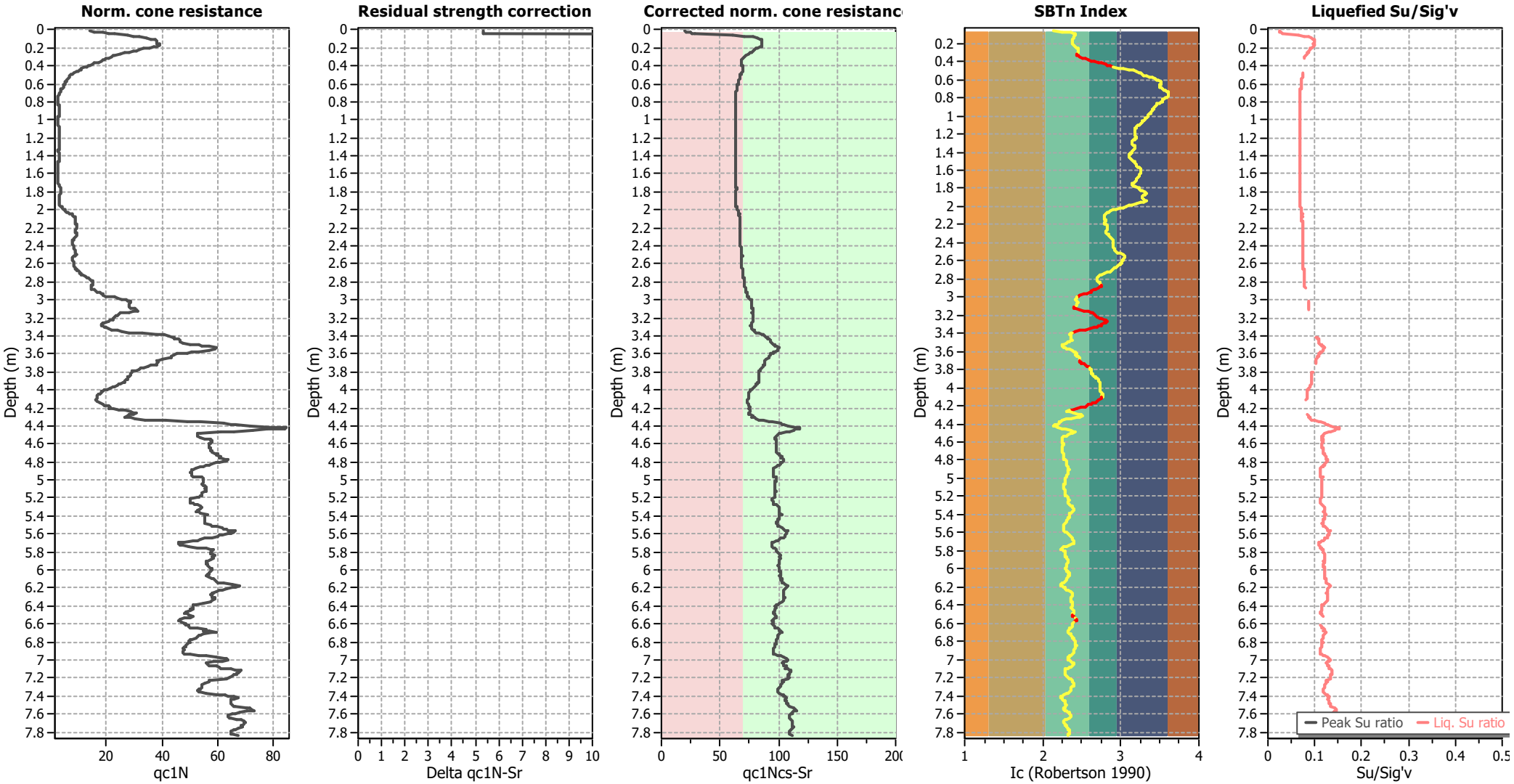




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

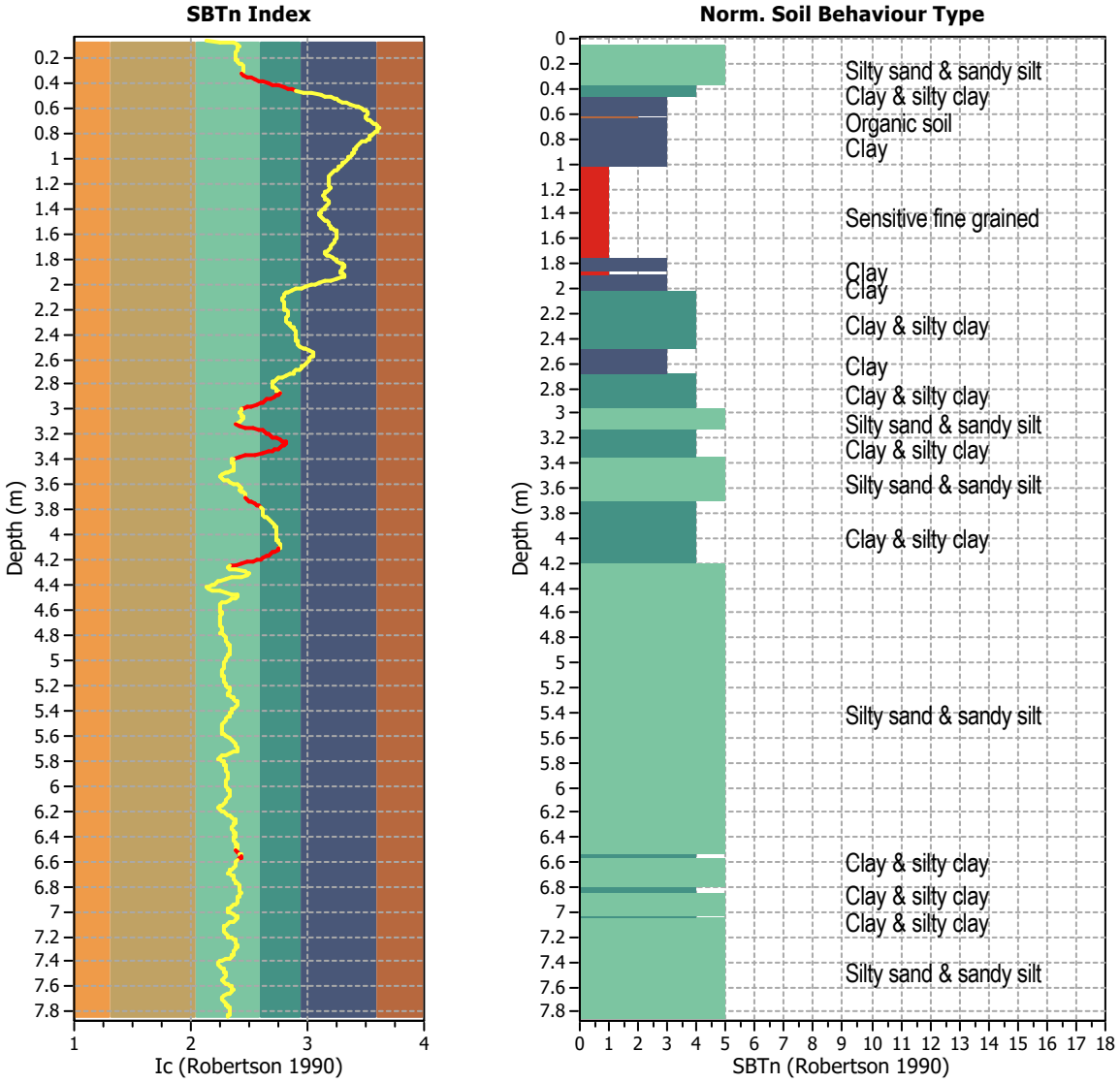
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	37.00 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

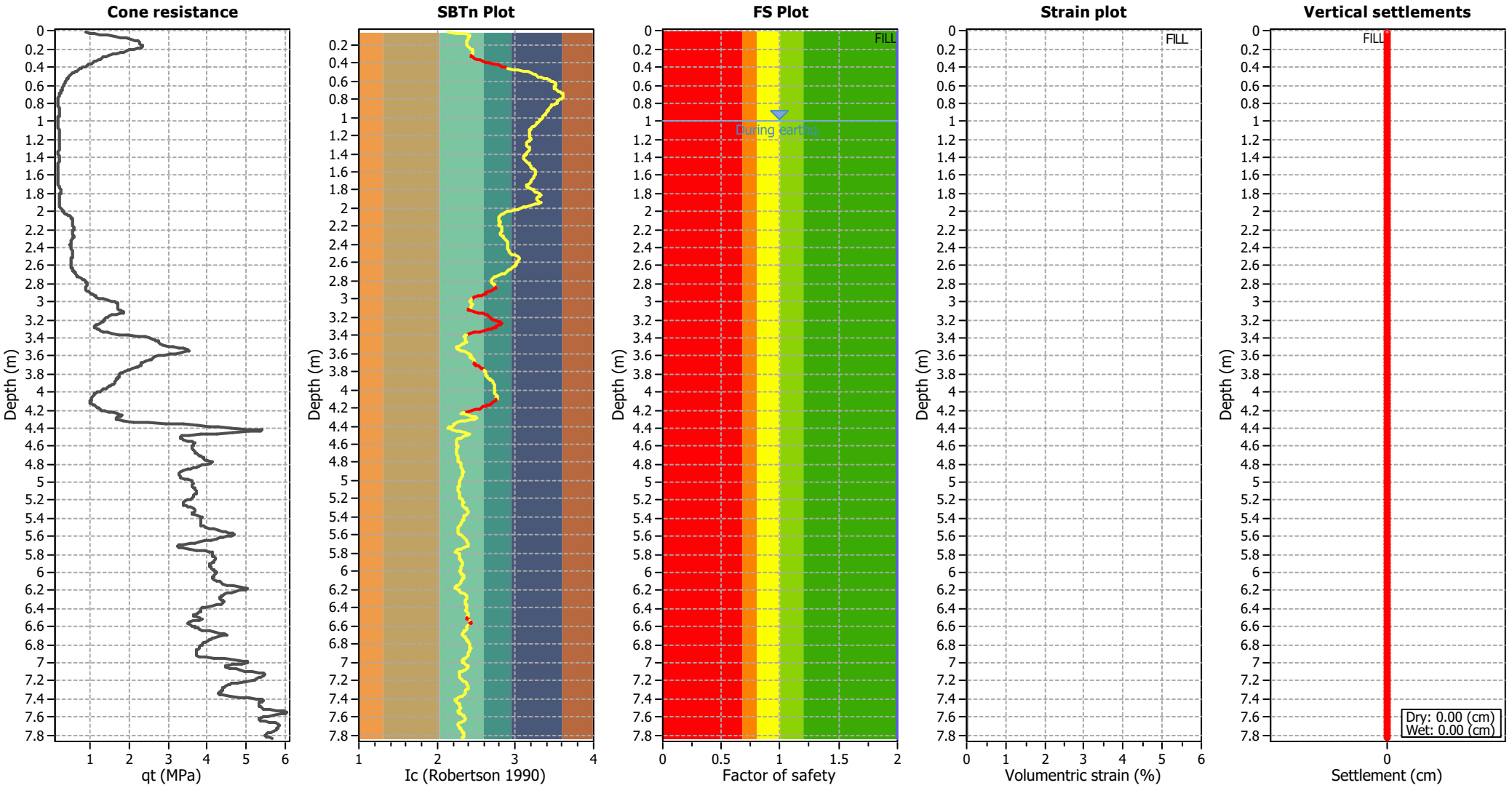
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	784
I_c maximum check value:	3.00	Total points excluded:	90
I_c change ratio value:	0.0100	Exclusion percentage:	11.48%
Minimum number of points in layer:	4	Number of layers detected:	8

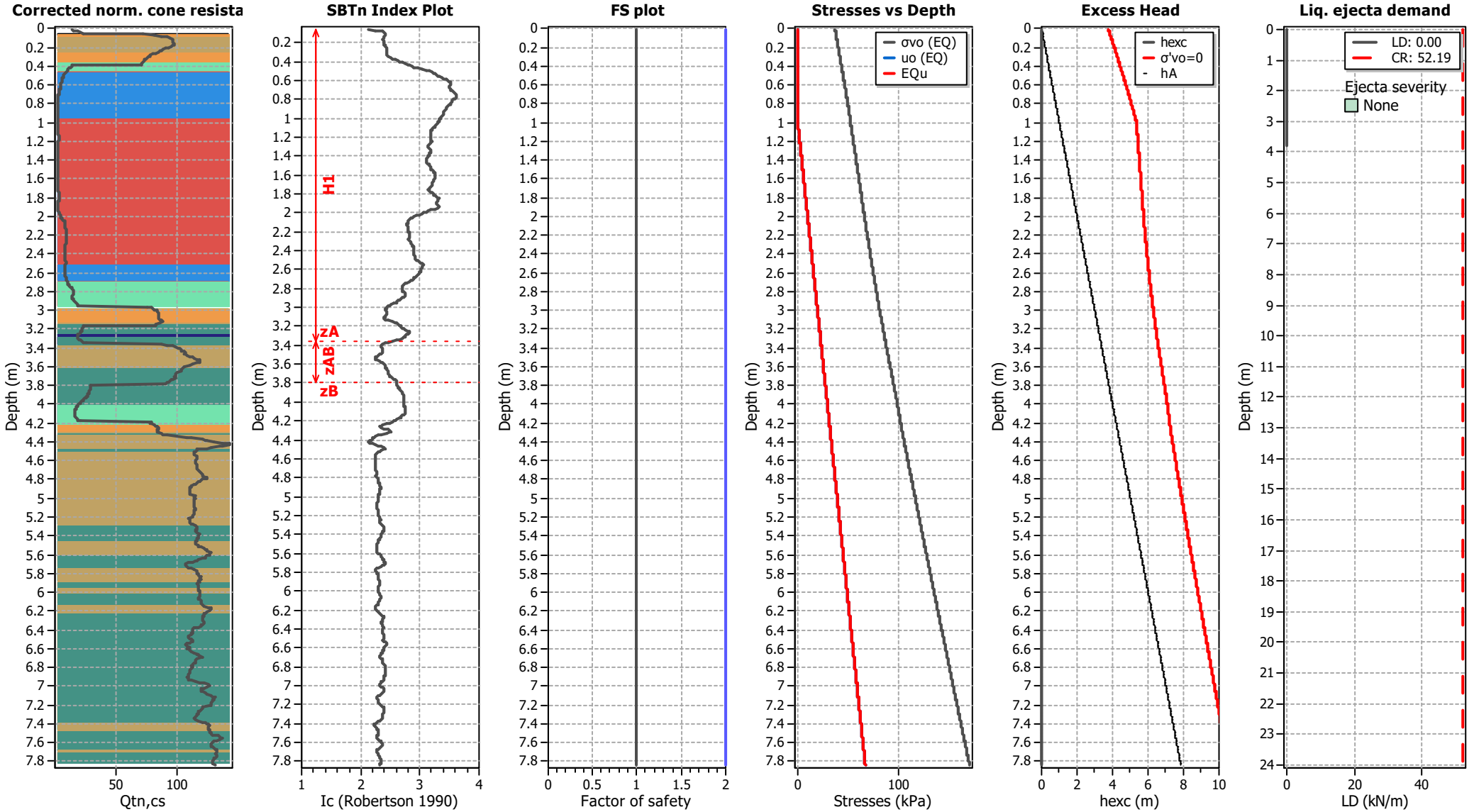
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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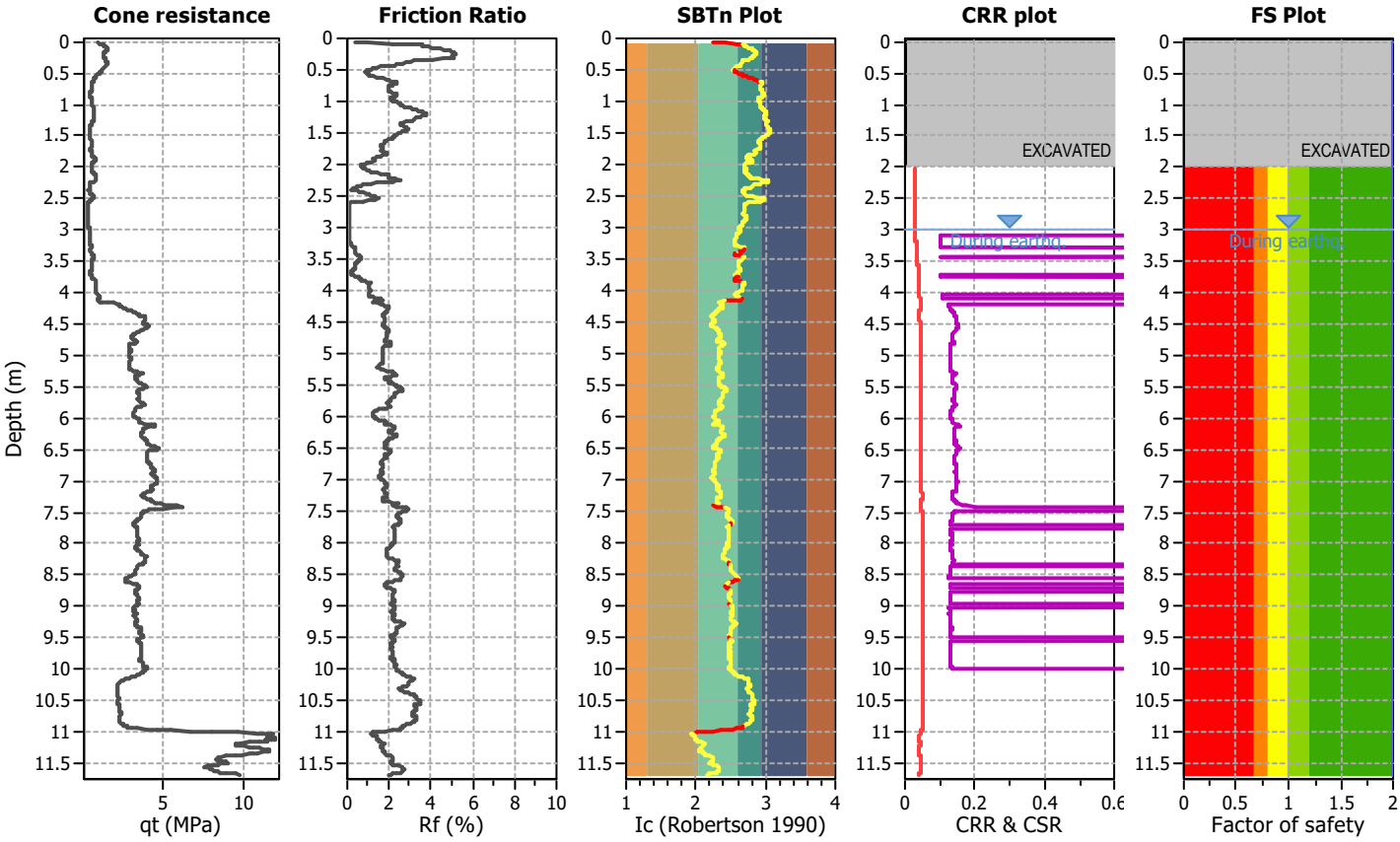
LIQUEFACTION ANALYSIS REPORT

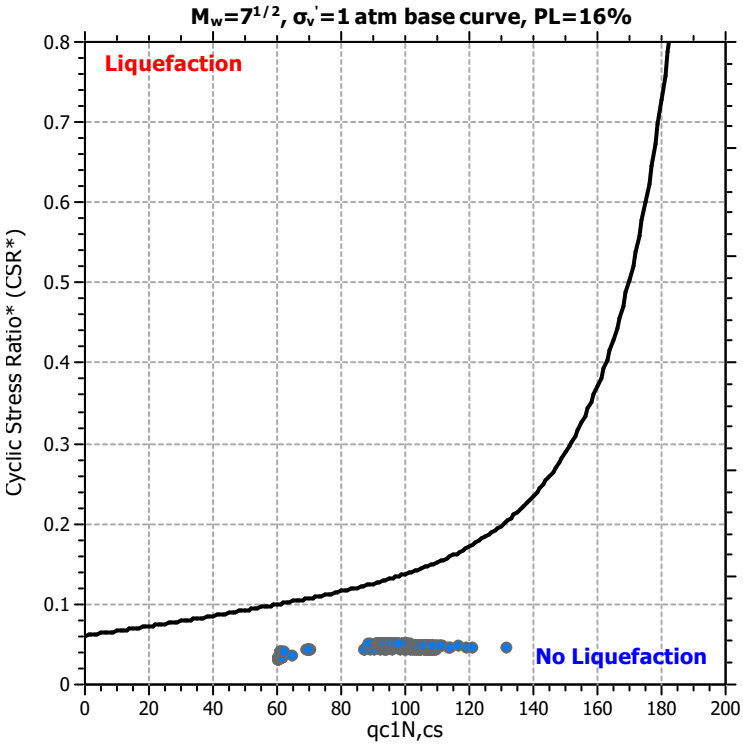
Project title : Sunfield Landholding **Location :**

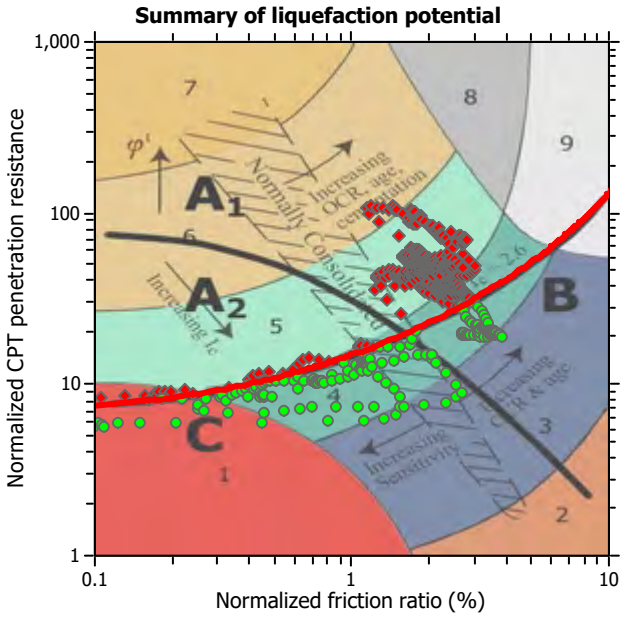
CPT file : CPT302

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.00 m	Excavation depth:	2.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

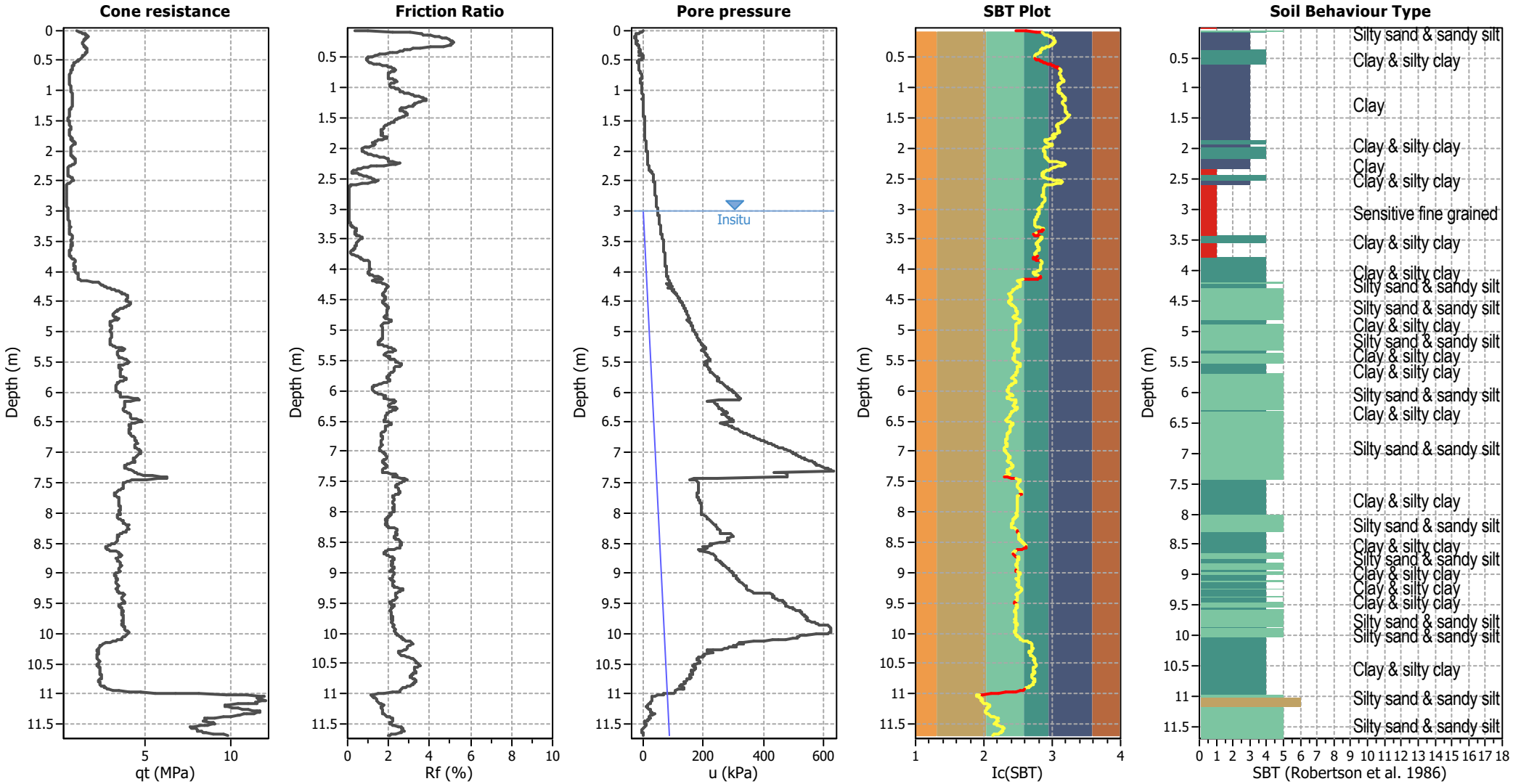






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



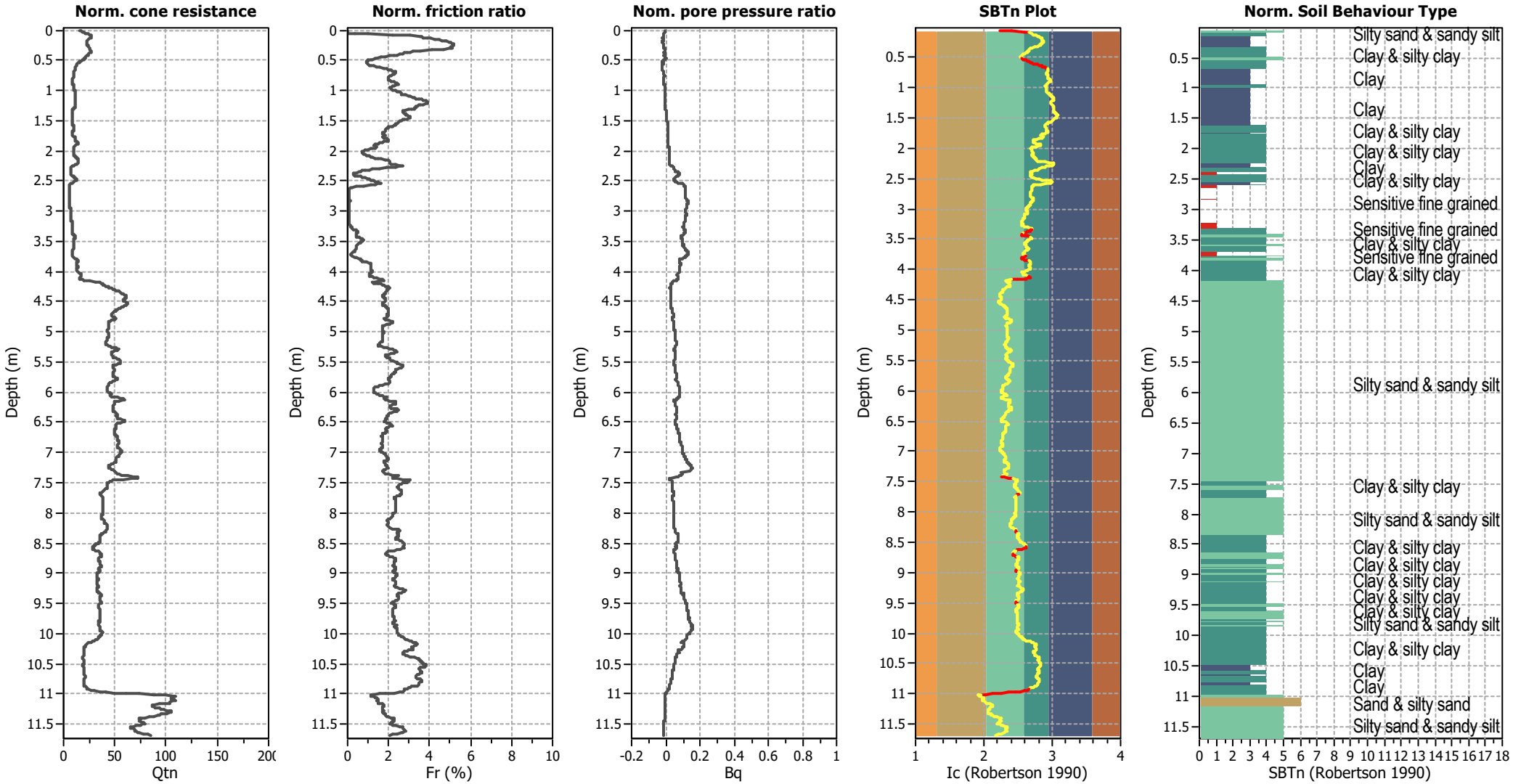
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



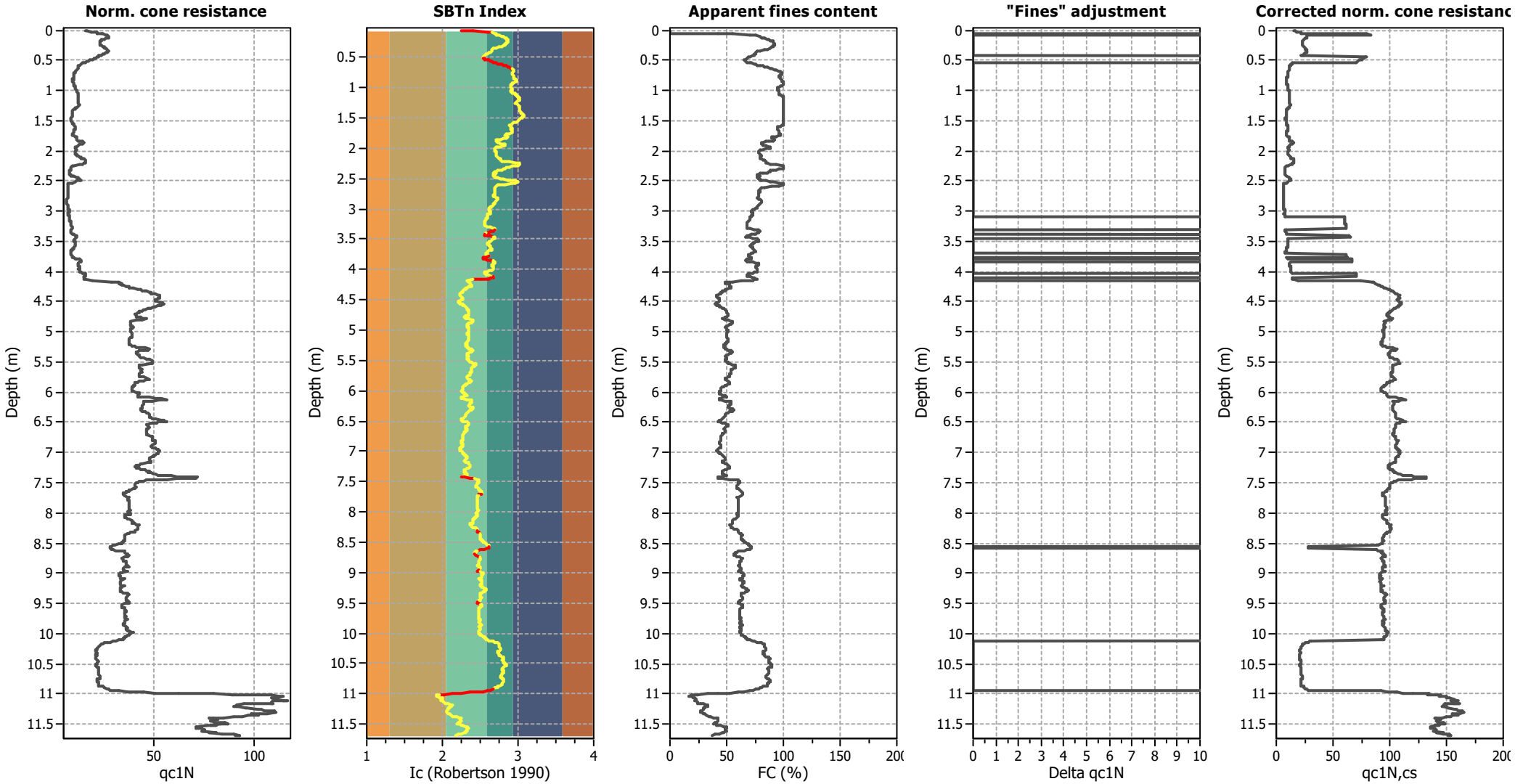
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

SBTn legend

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

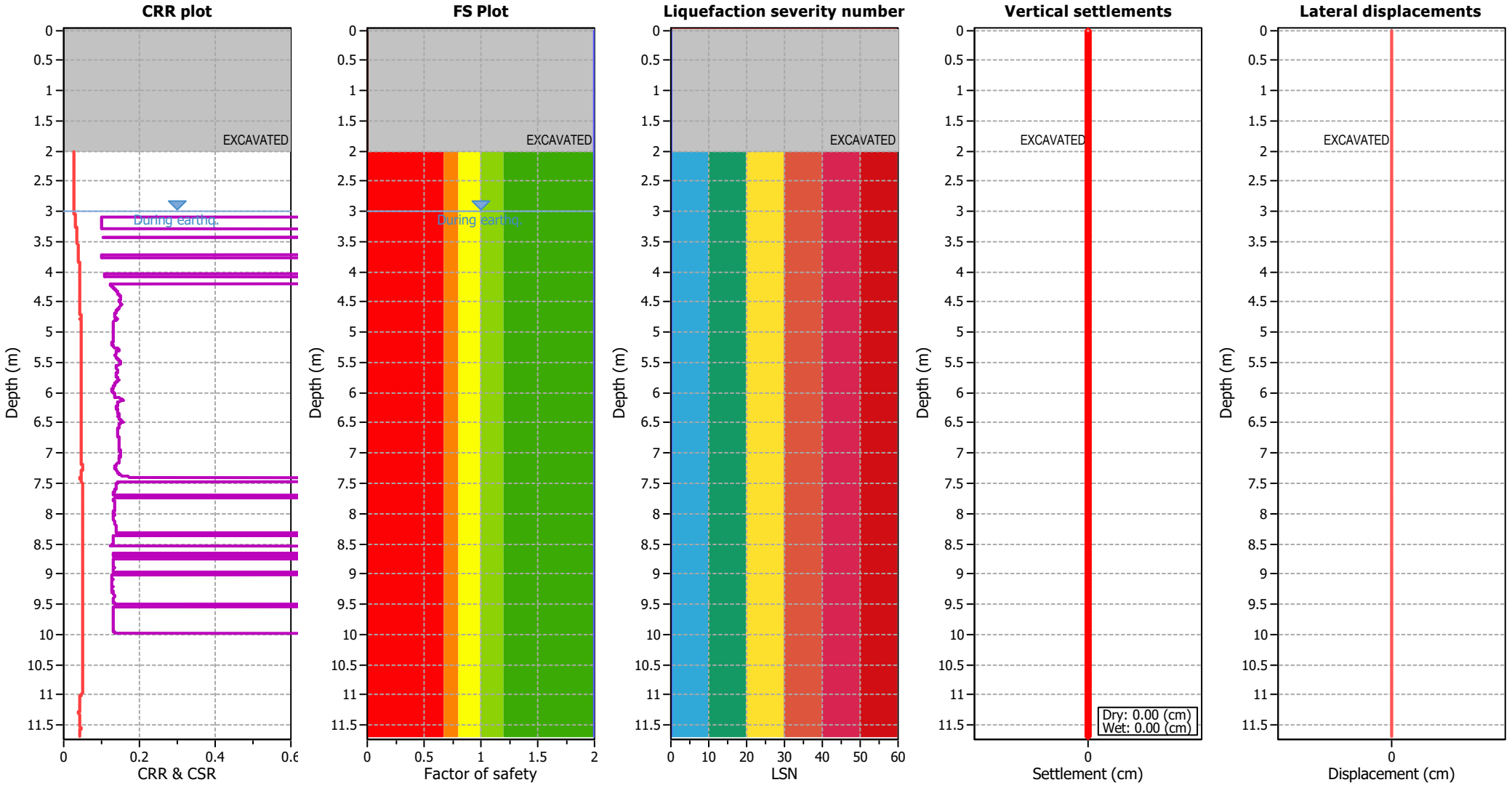
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

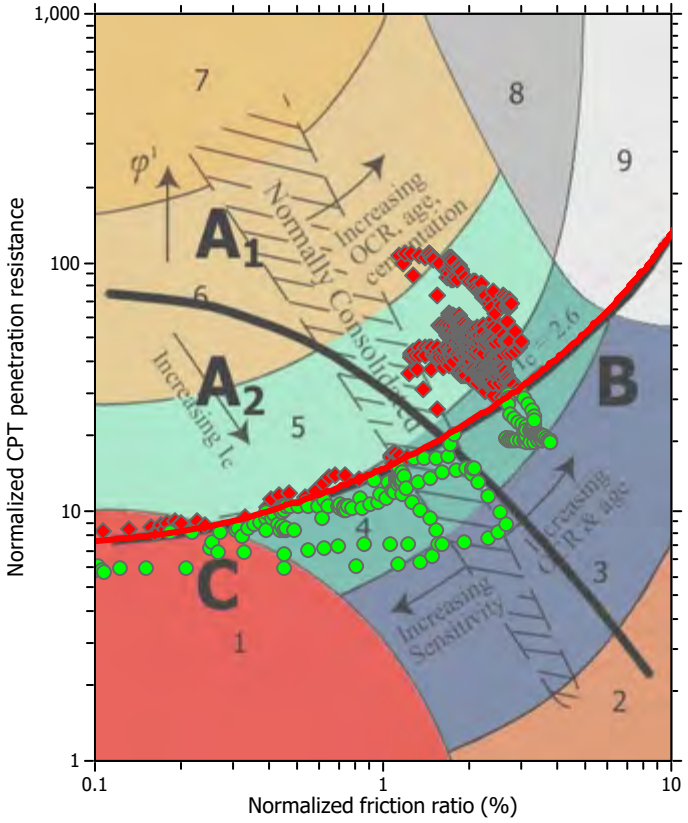
F.S. color scheme

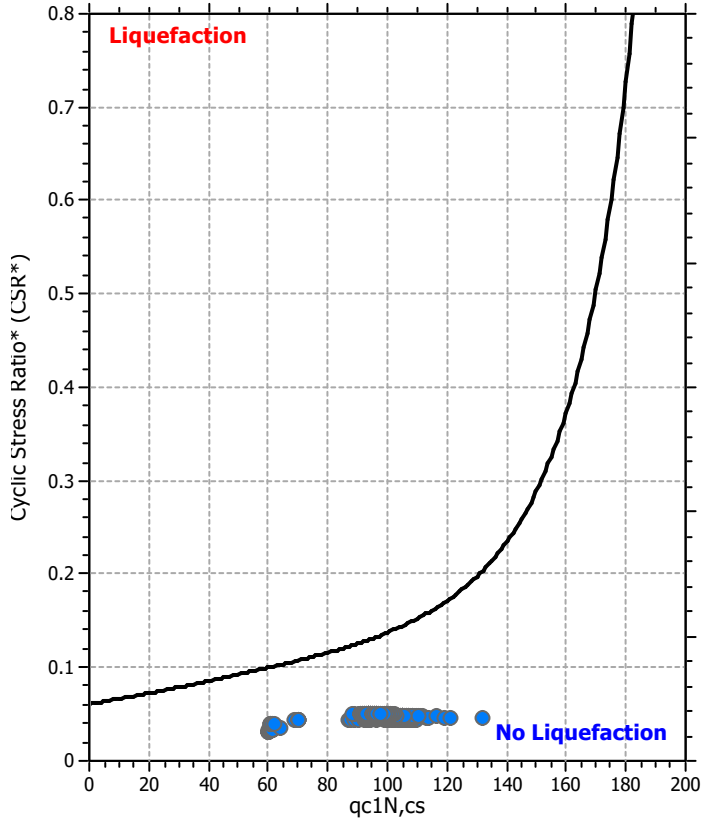
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

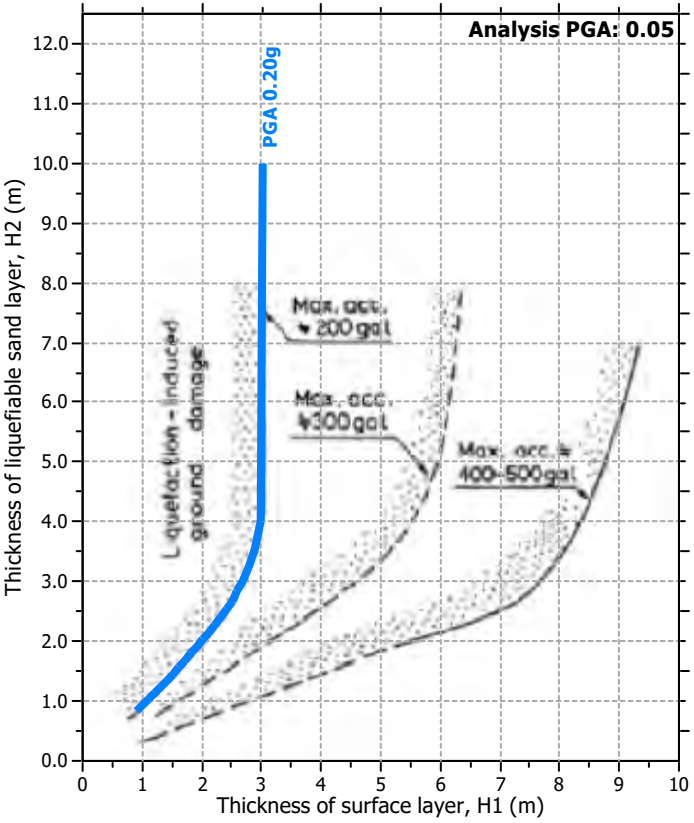
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



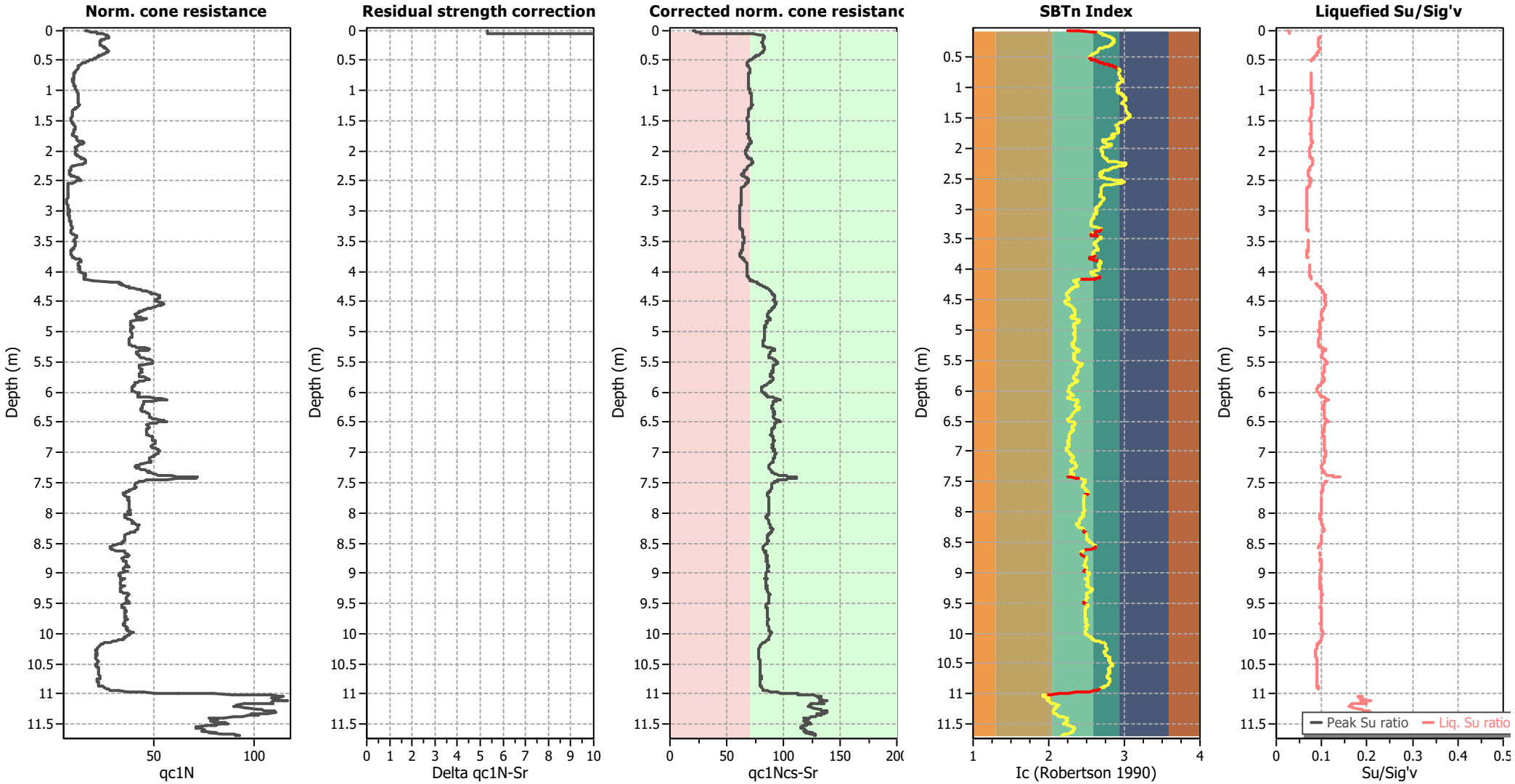




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

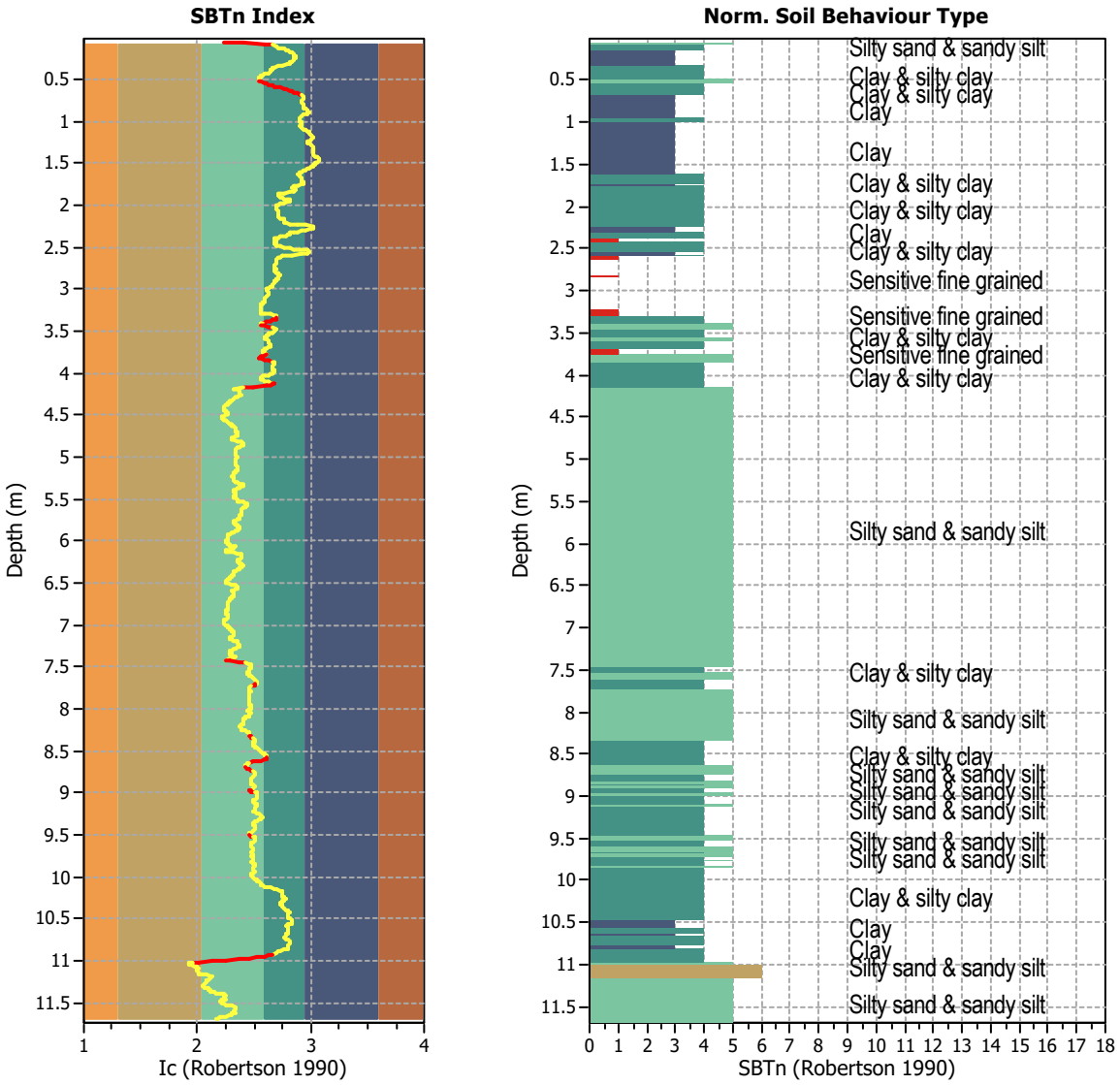
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Excavation depth:	2.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

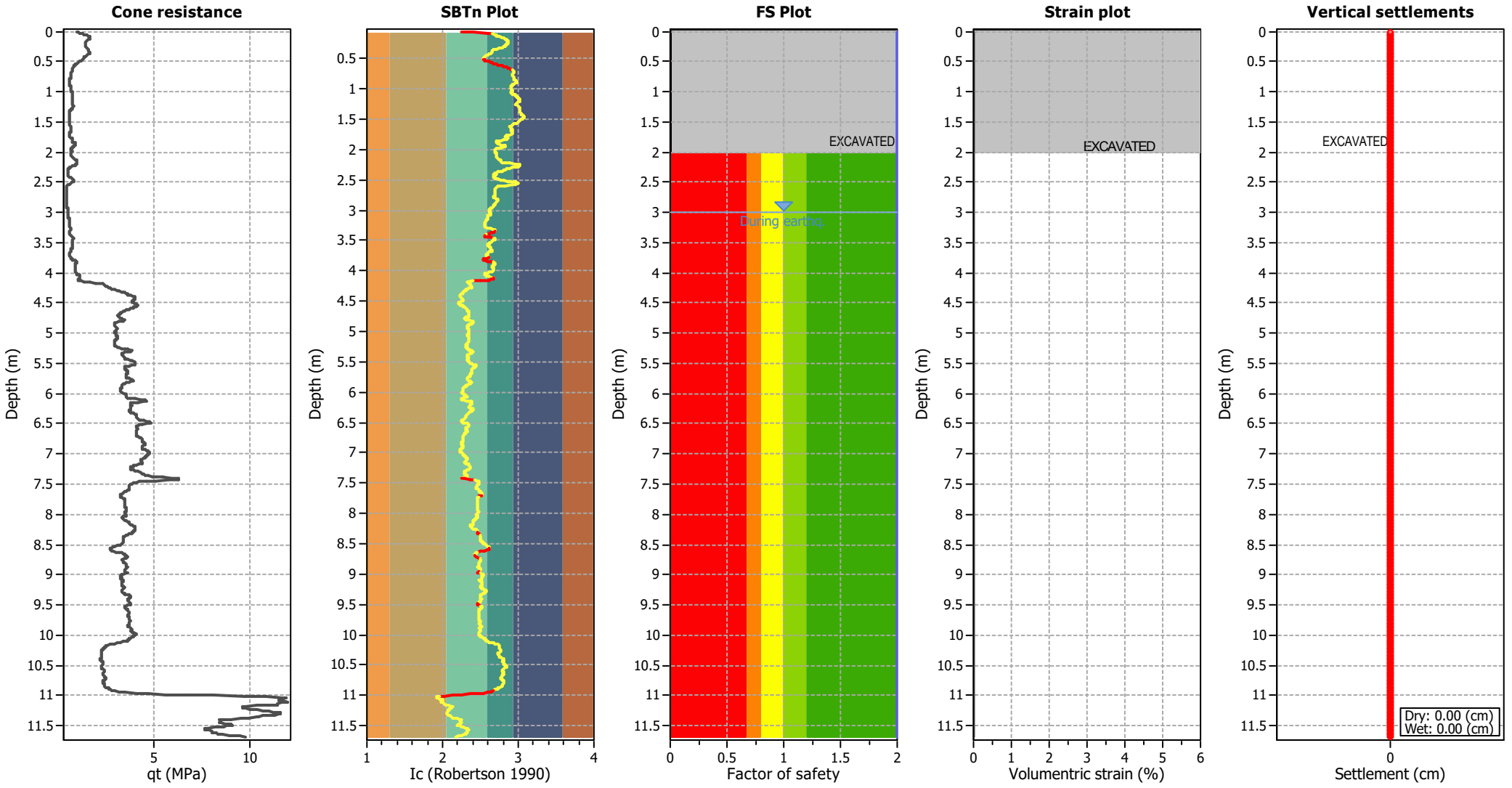
The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties	
I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics	
Total points in CPT file:	1169
Total points excluded:	96
Exclusion percentage:	8.21%
Number of layers detected:	15

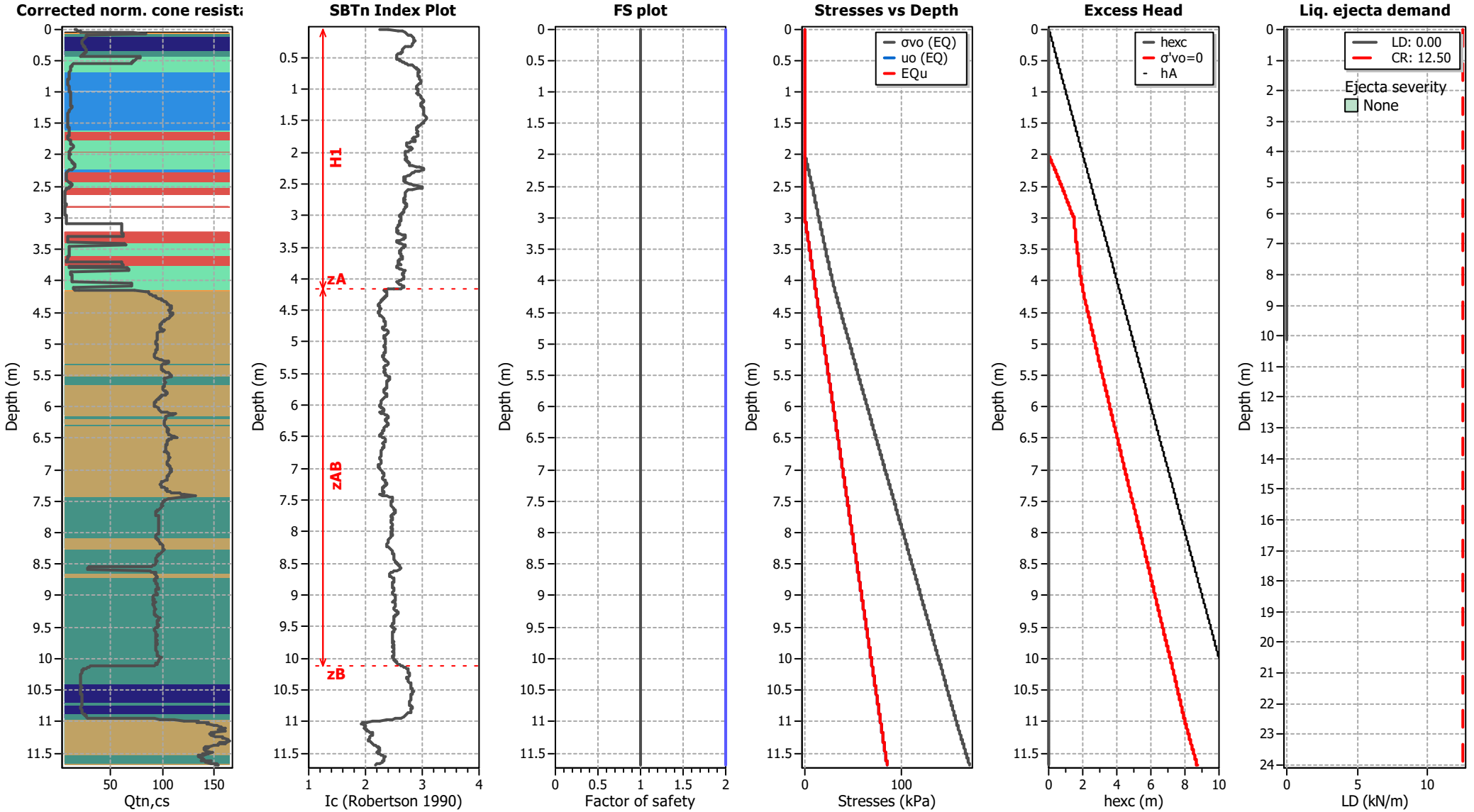
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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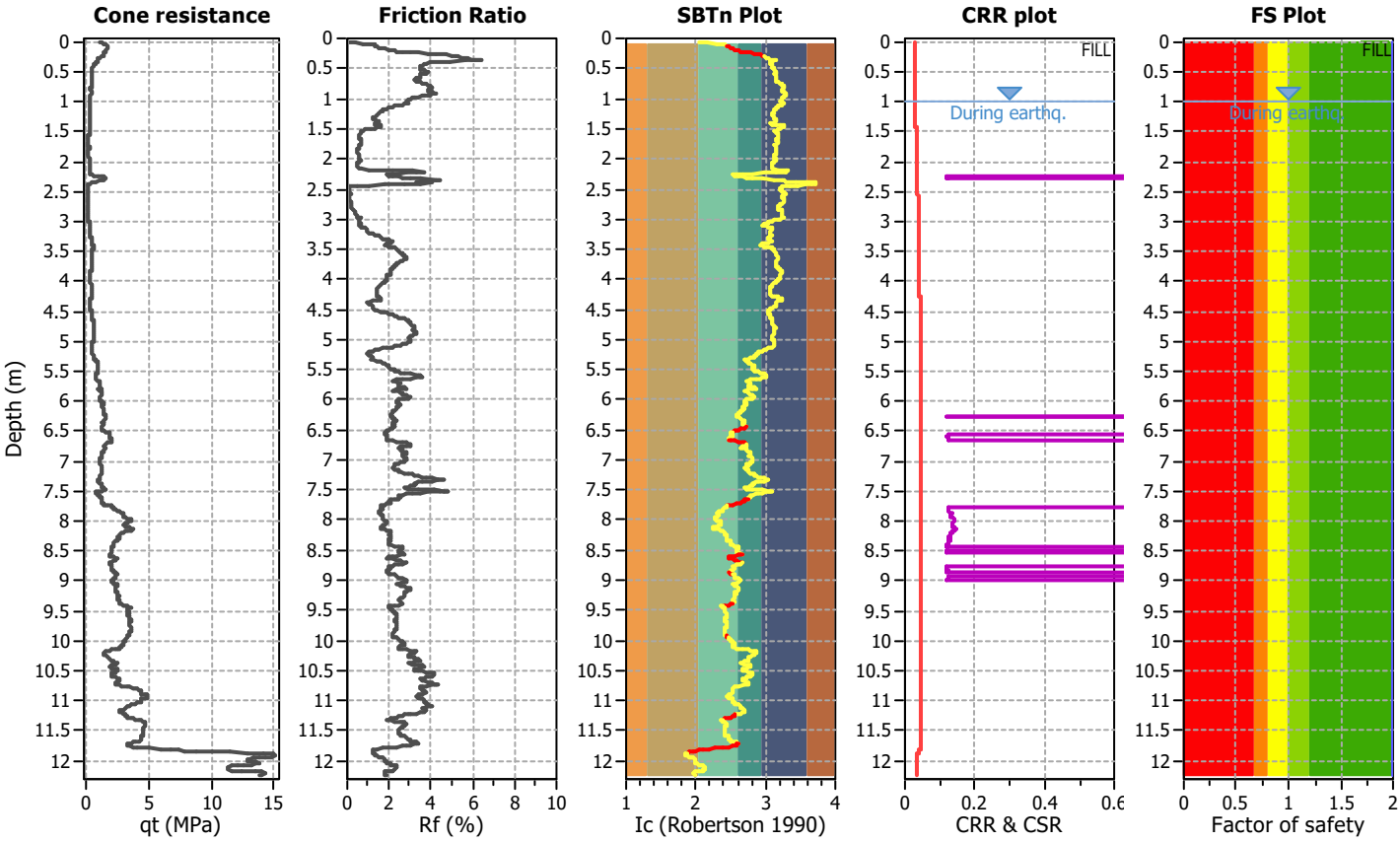
LIQUEFACTION ANALYSIS REPORT

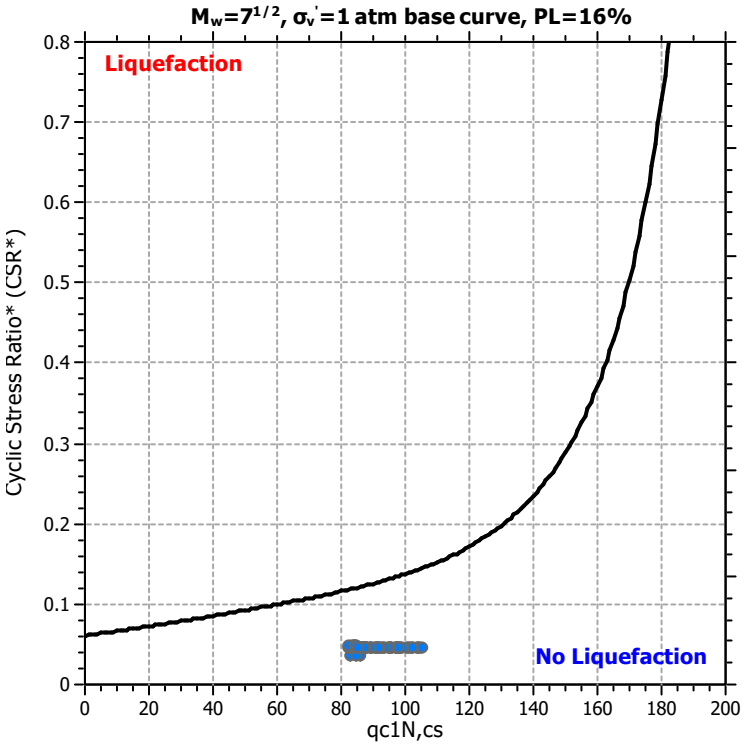
Project title : Sunfield Landholding **Location :**

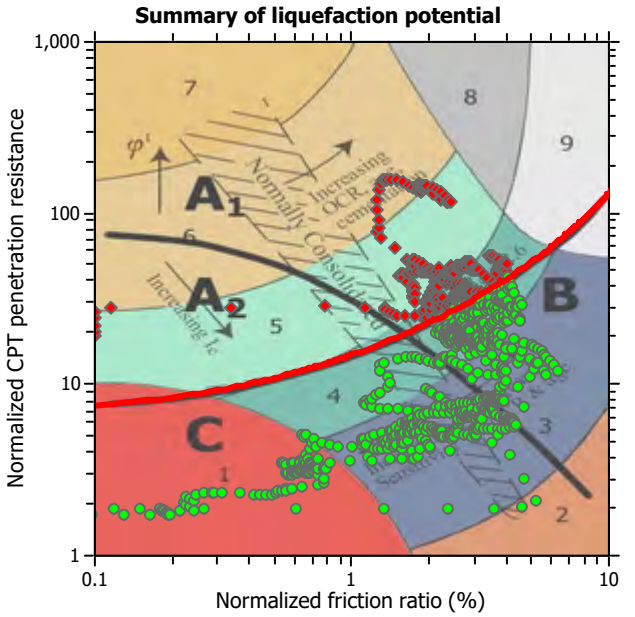
CPT file : CPT303

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	27.75 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

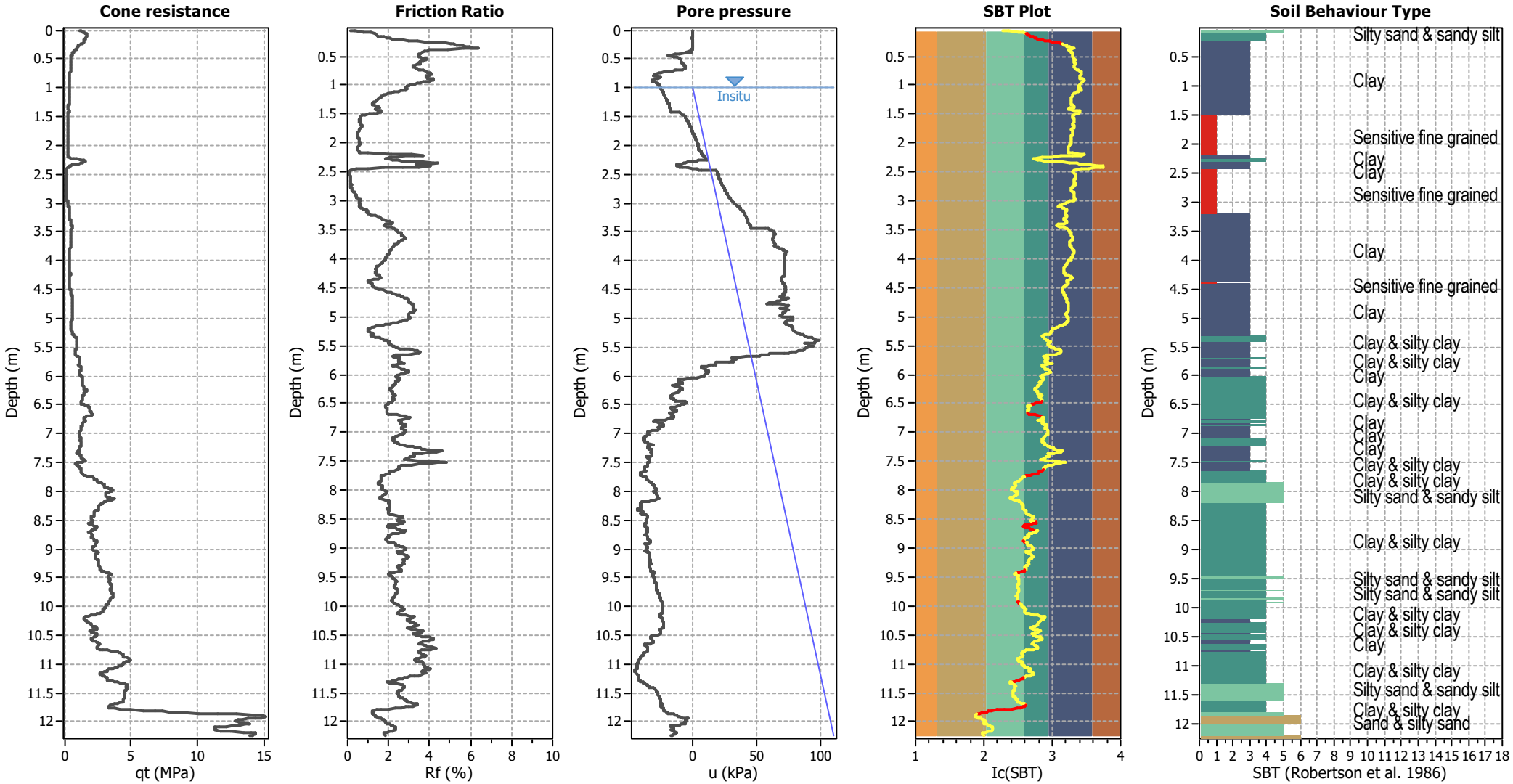






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



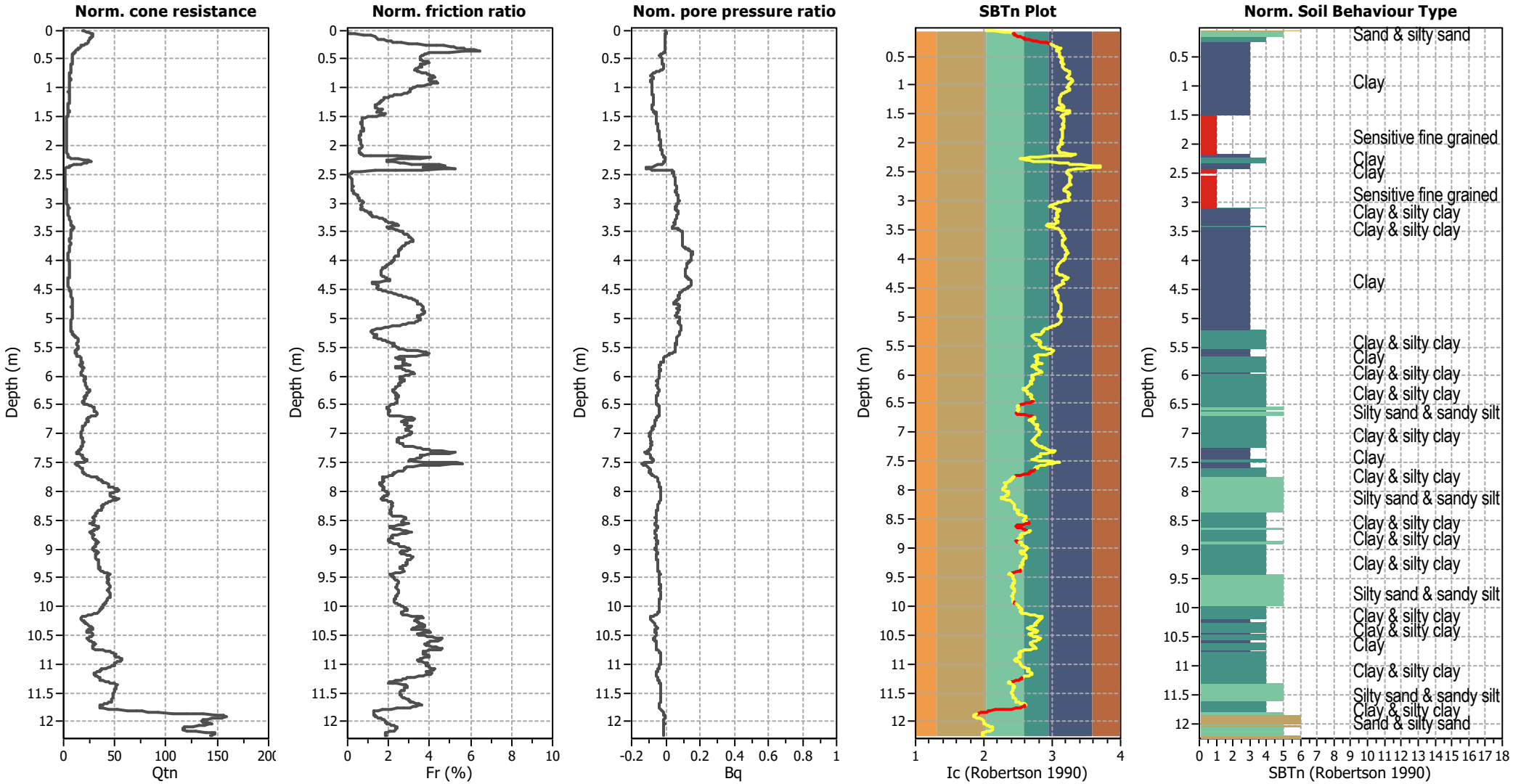
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	27.75 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



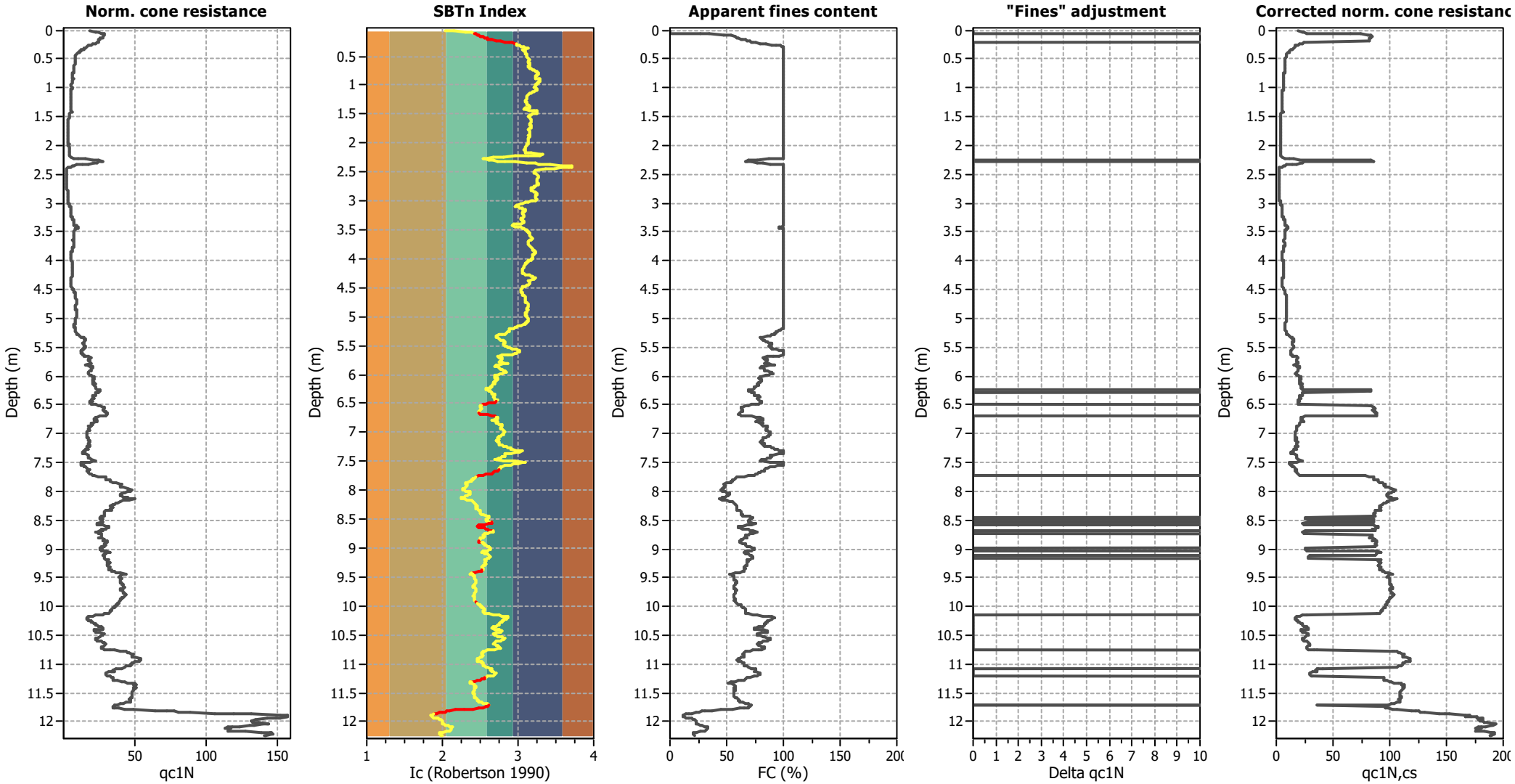
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	27.75 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

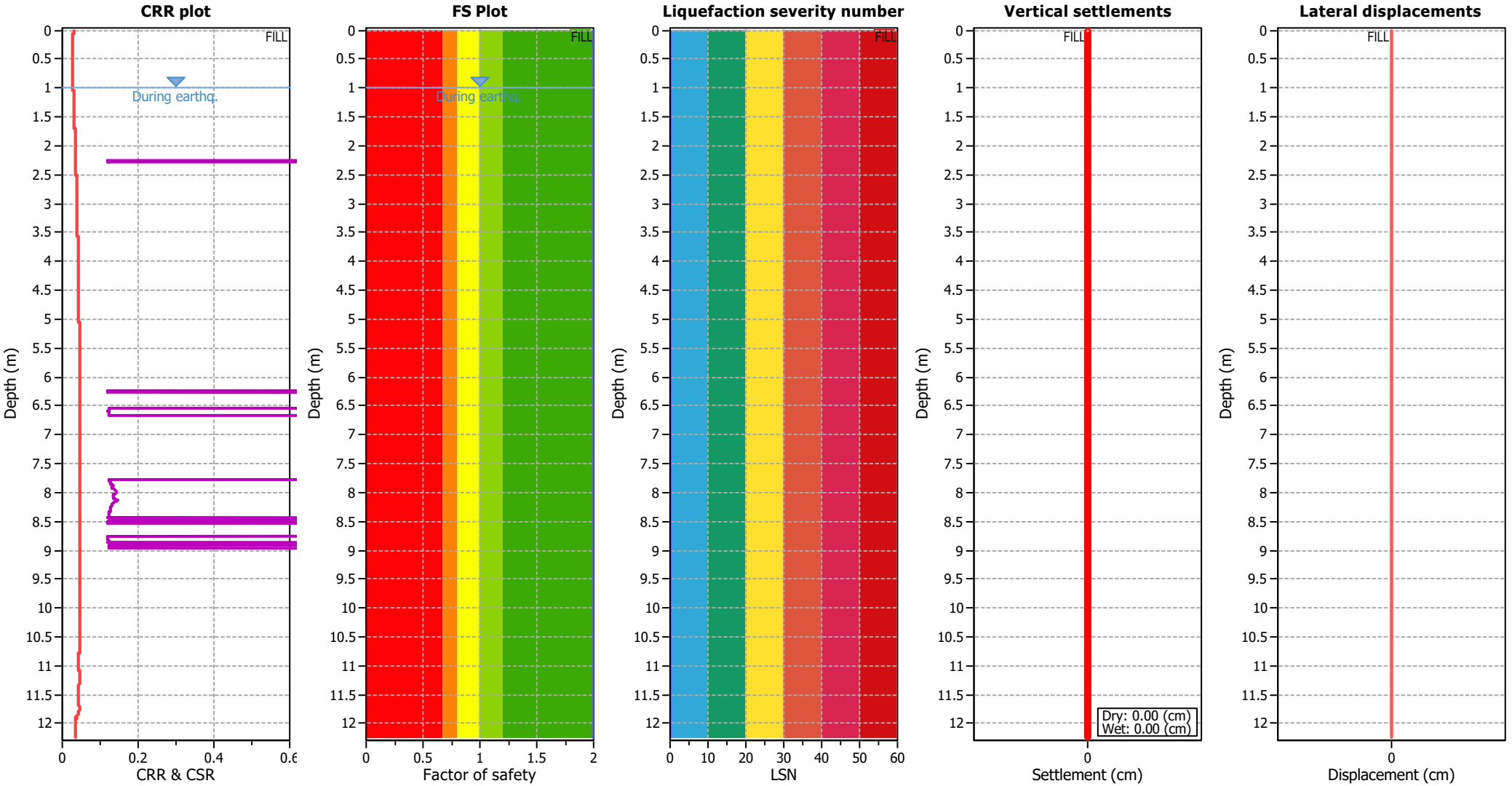
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	27.75 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	27.75 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

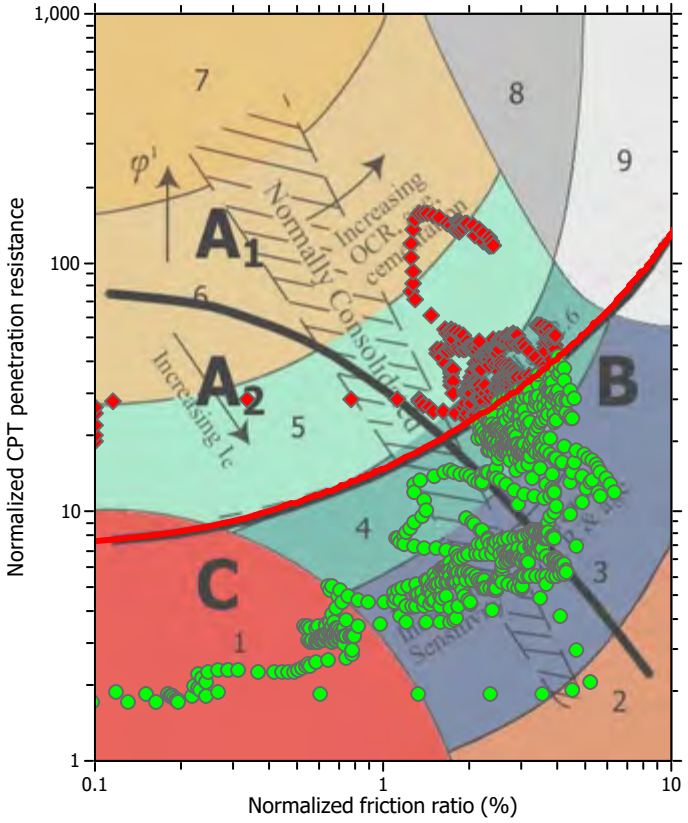
F.S. color scheme

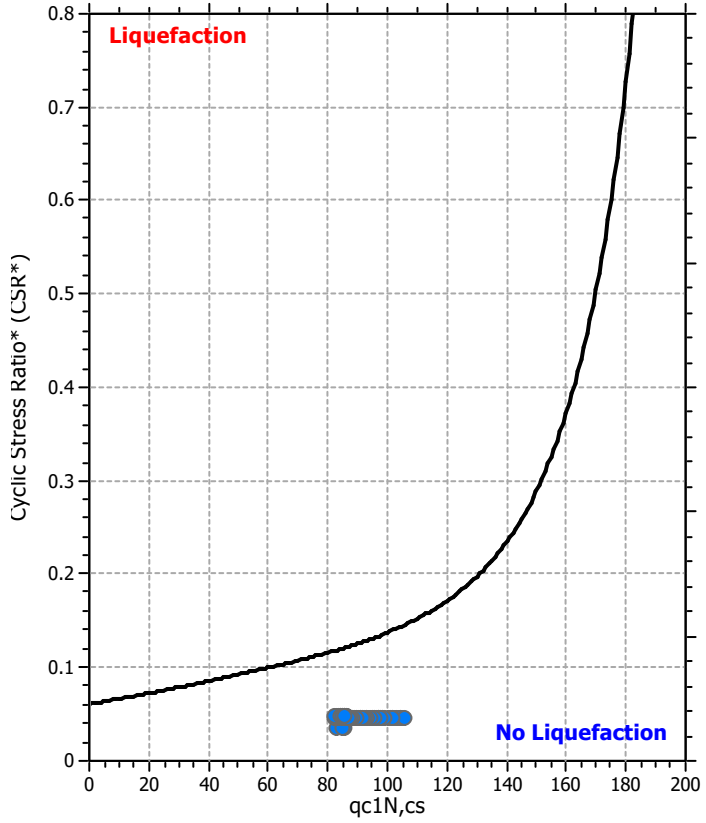
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

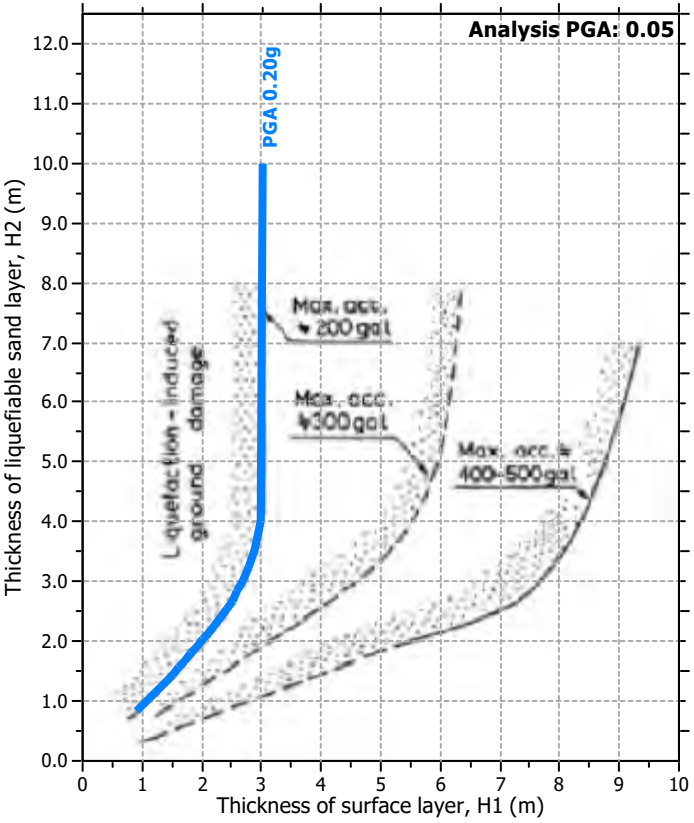
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



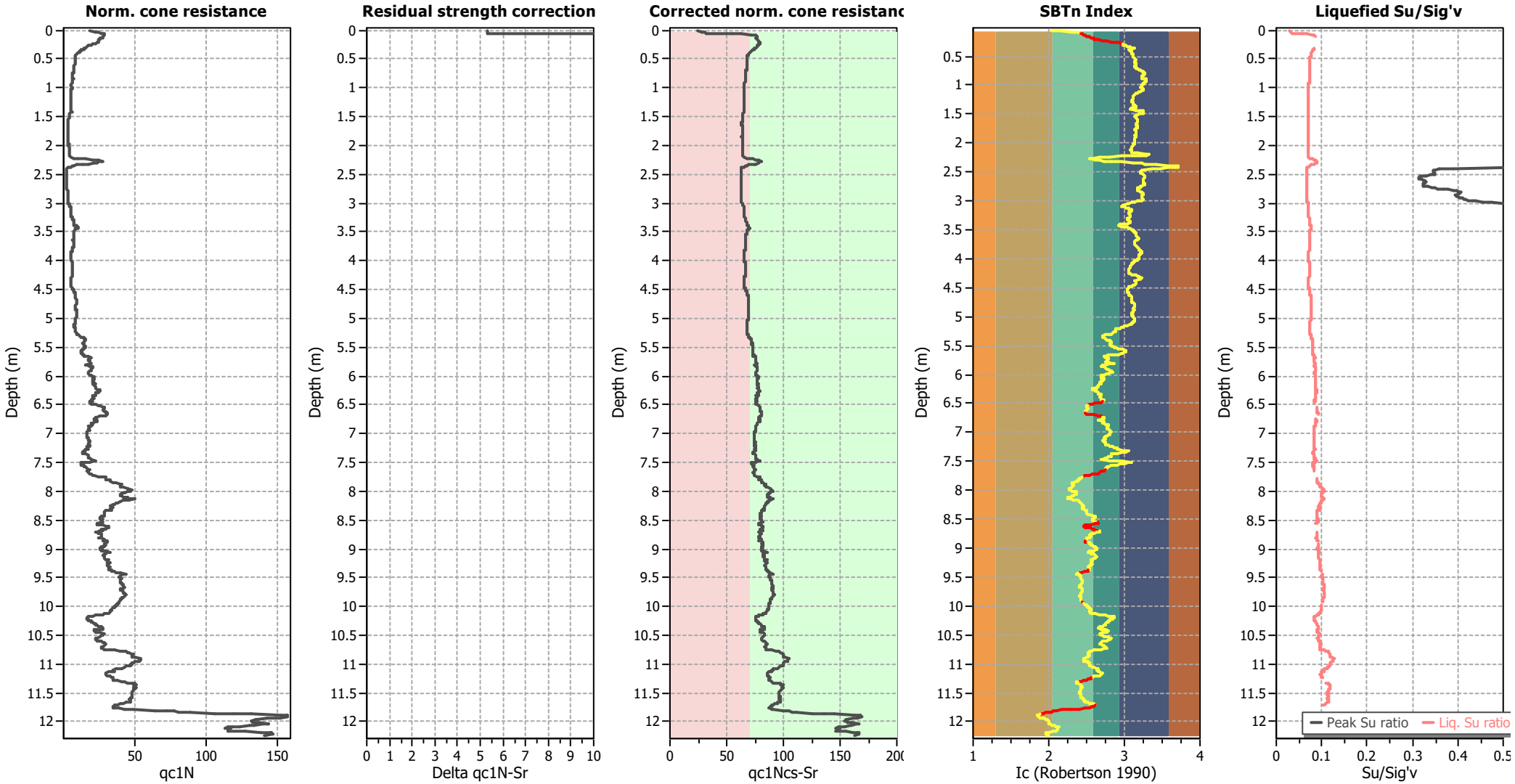




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	27.75 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

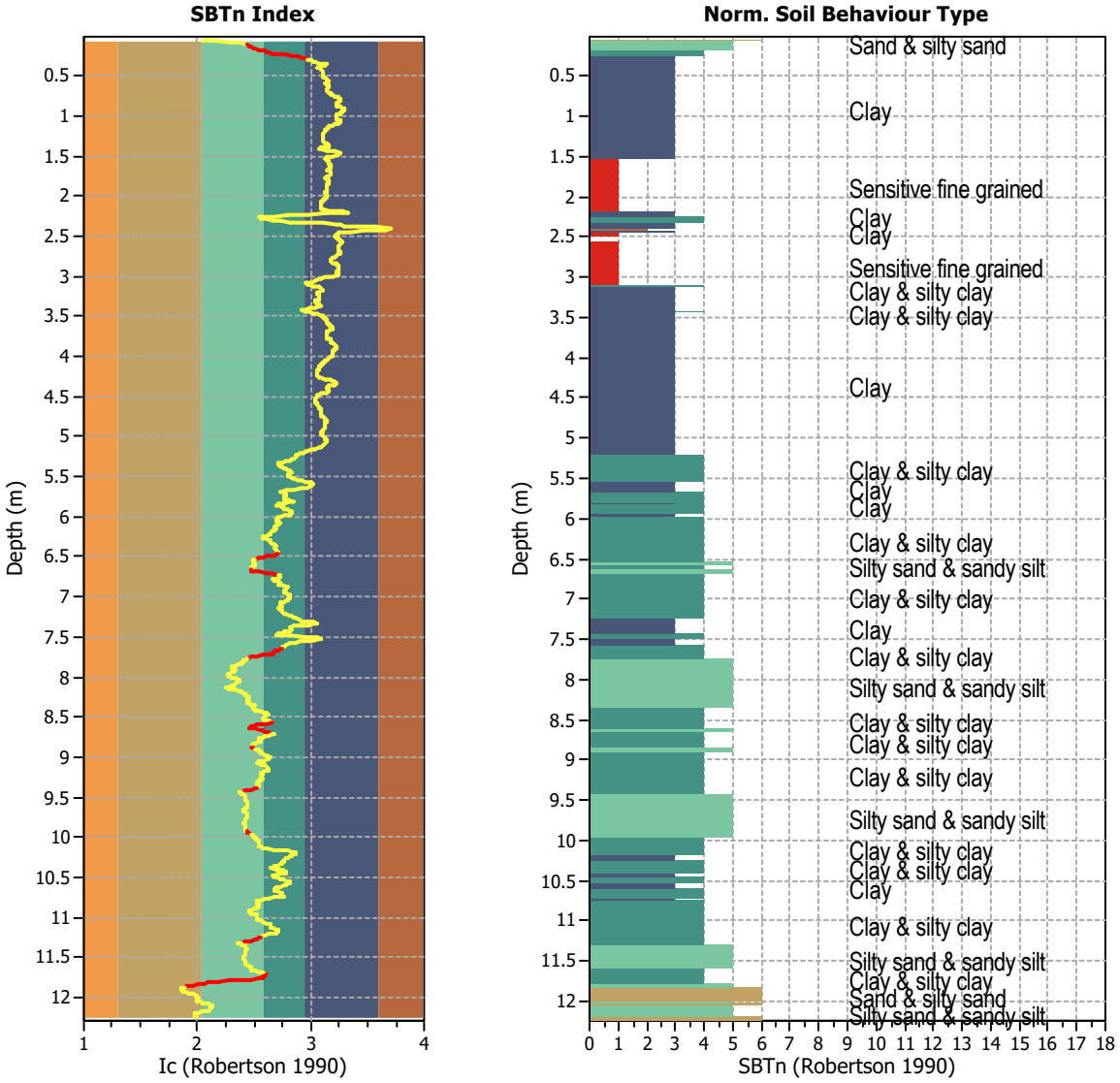
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	27.75 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



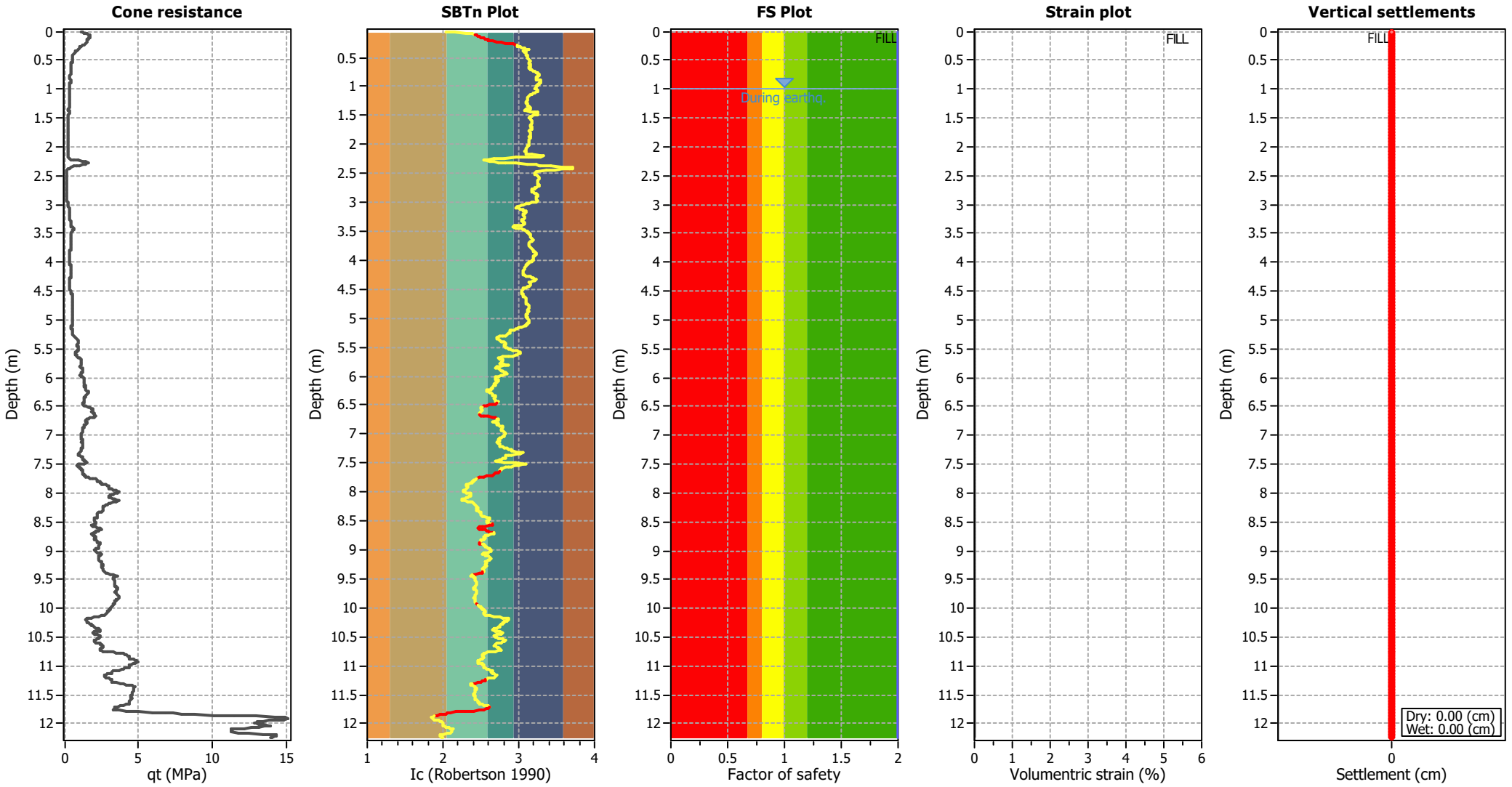
Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	1224
Total points excluded:	101
Exclusion percentage:	8.25%
Number of layers detected:	11

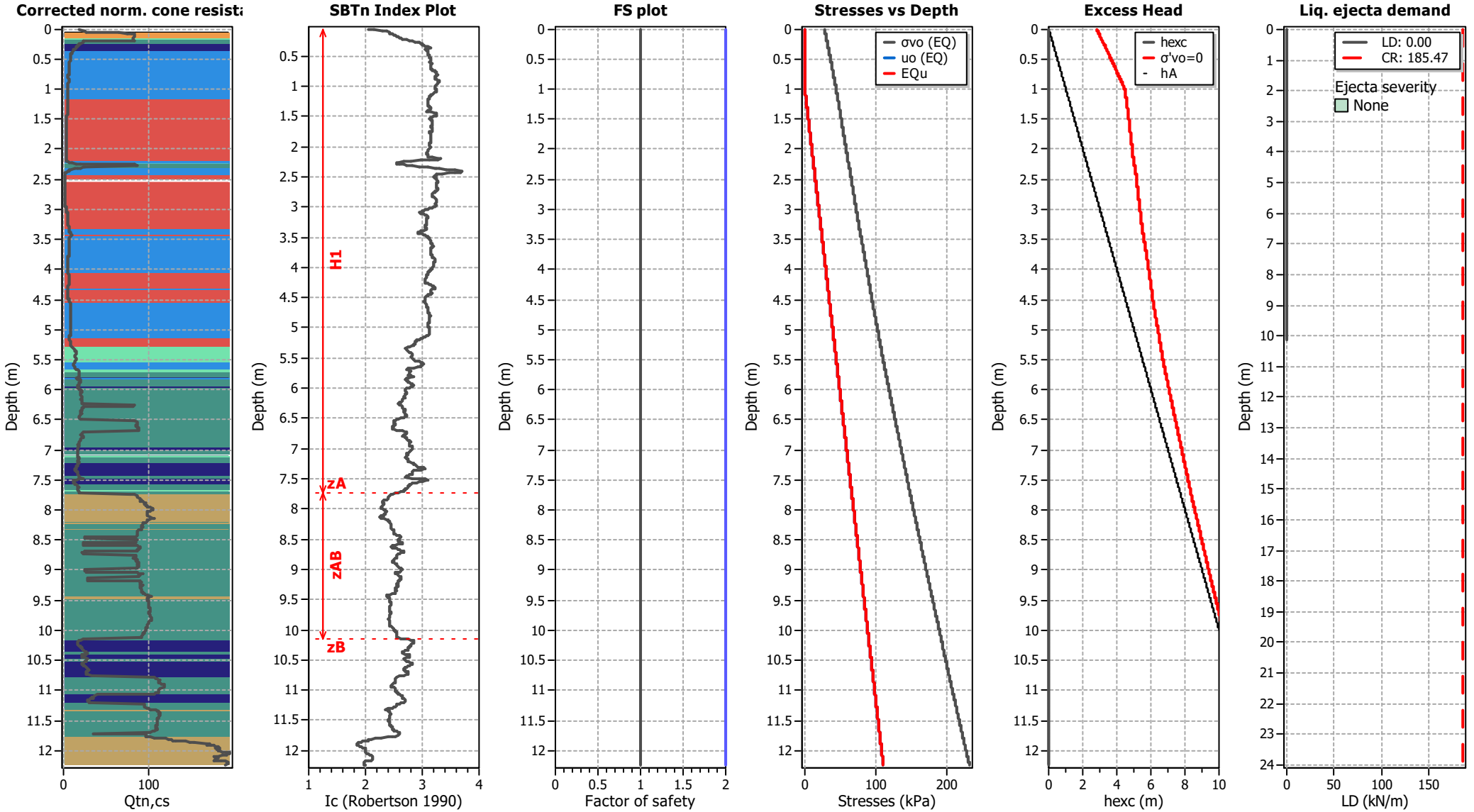
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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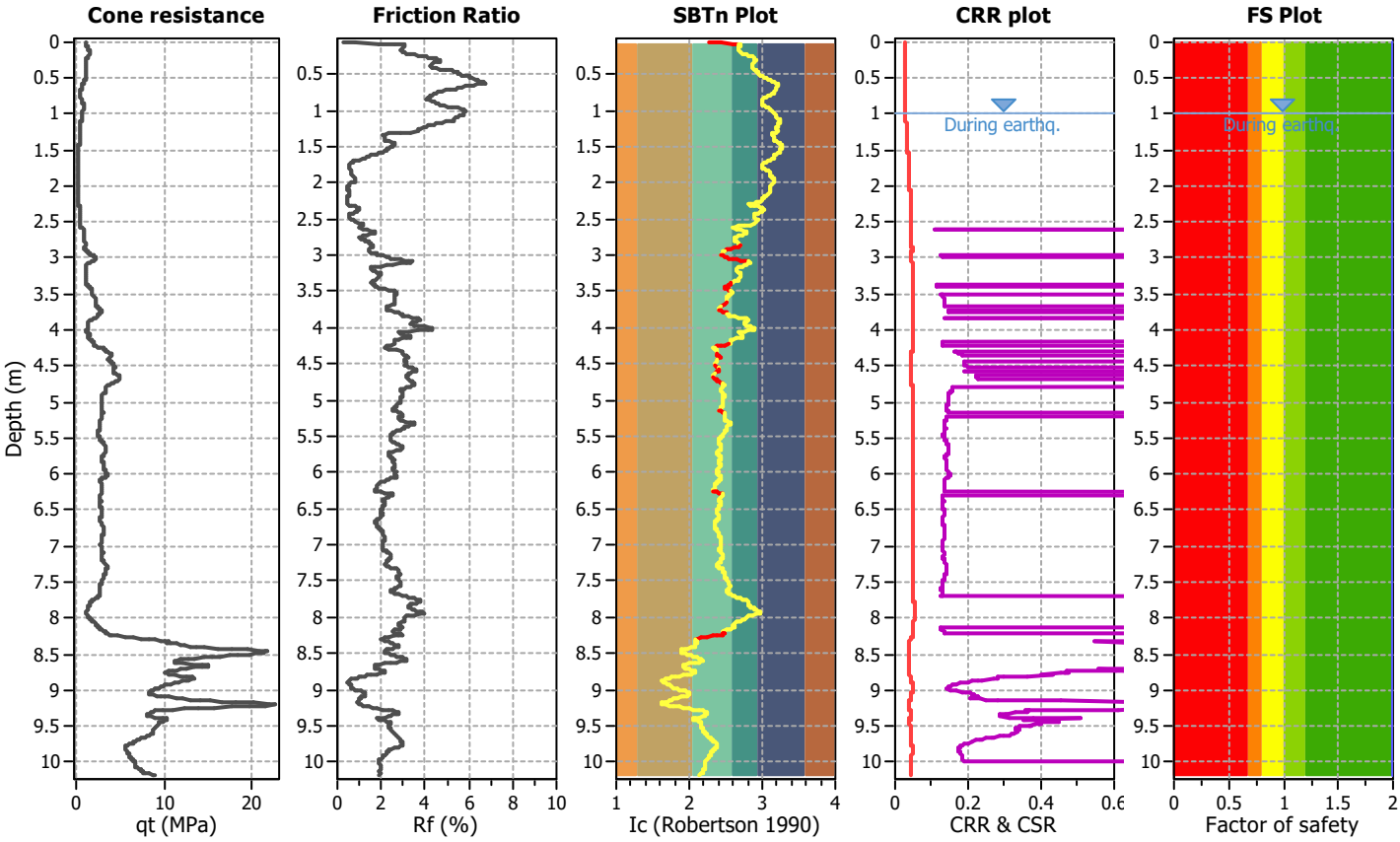
LIQUEFACTION ANALYSIS REPORT

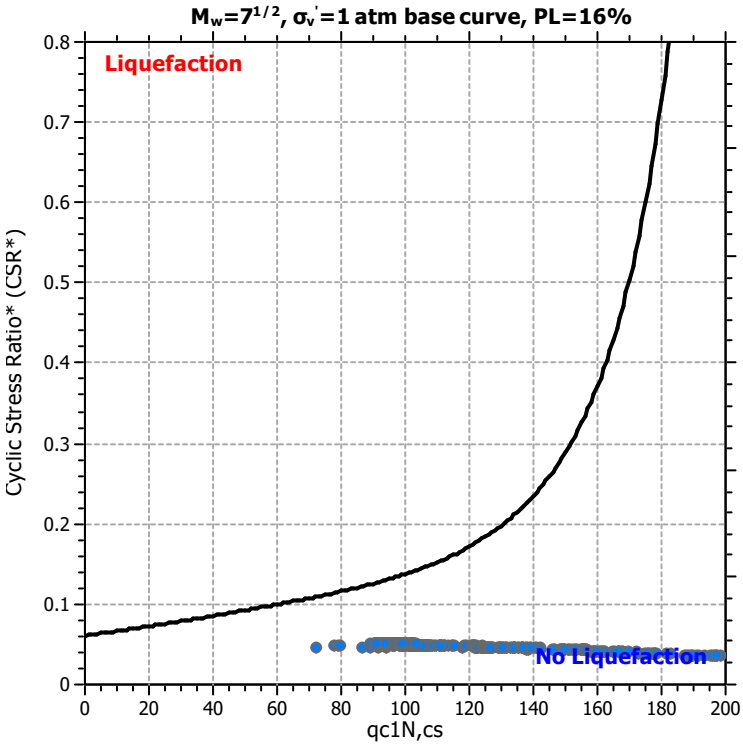
Project title : Sunfield Landholding **Location :**

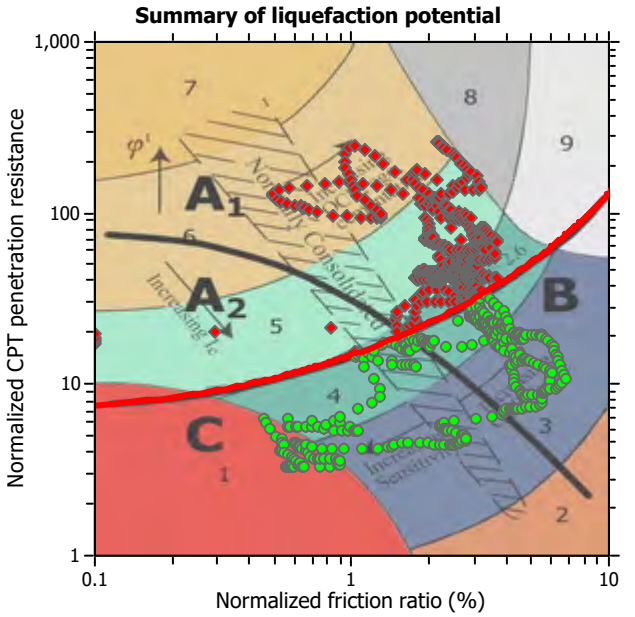
CPT file : CPT304

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.00 m	Excavation depth:	0.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

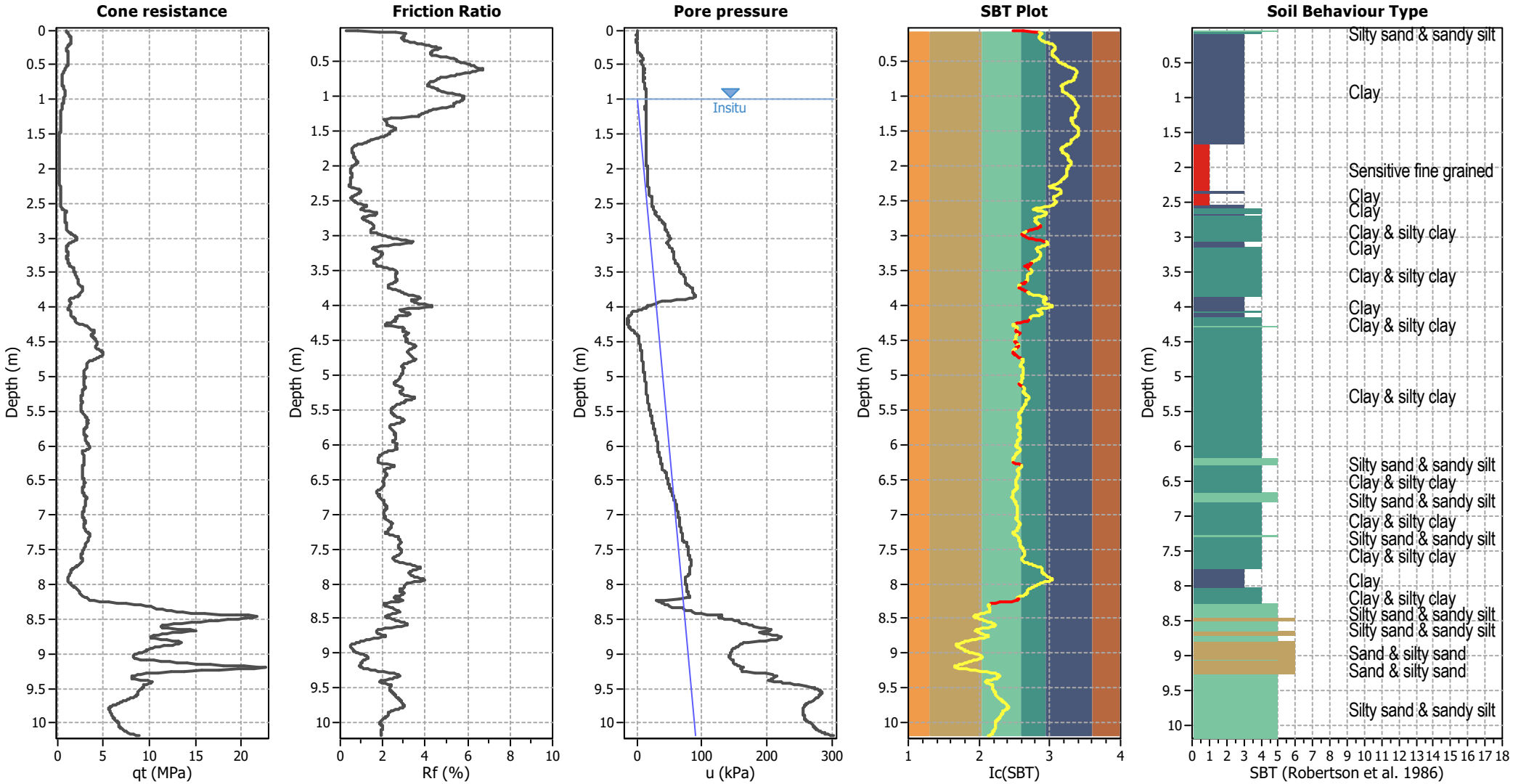






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



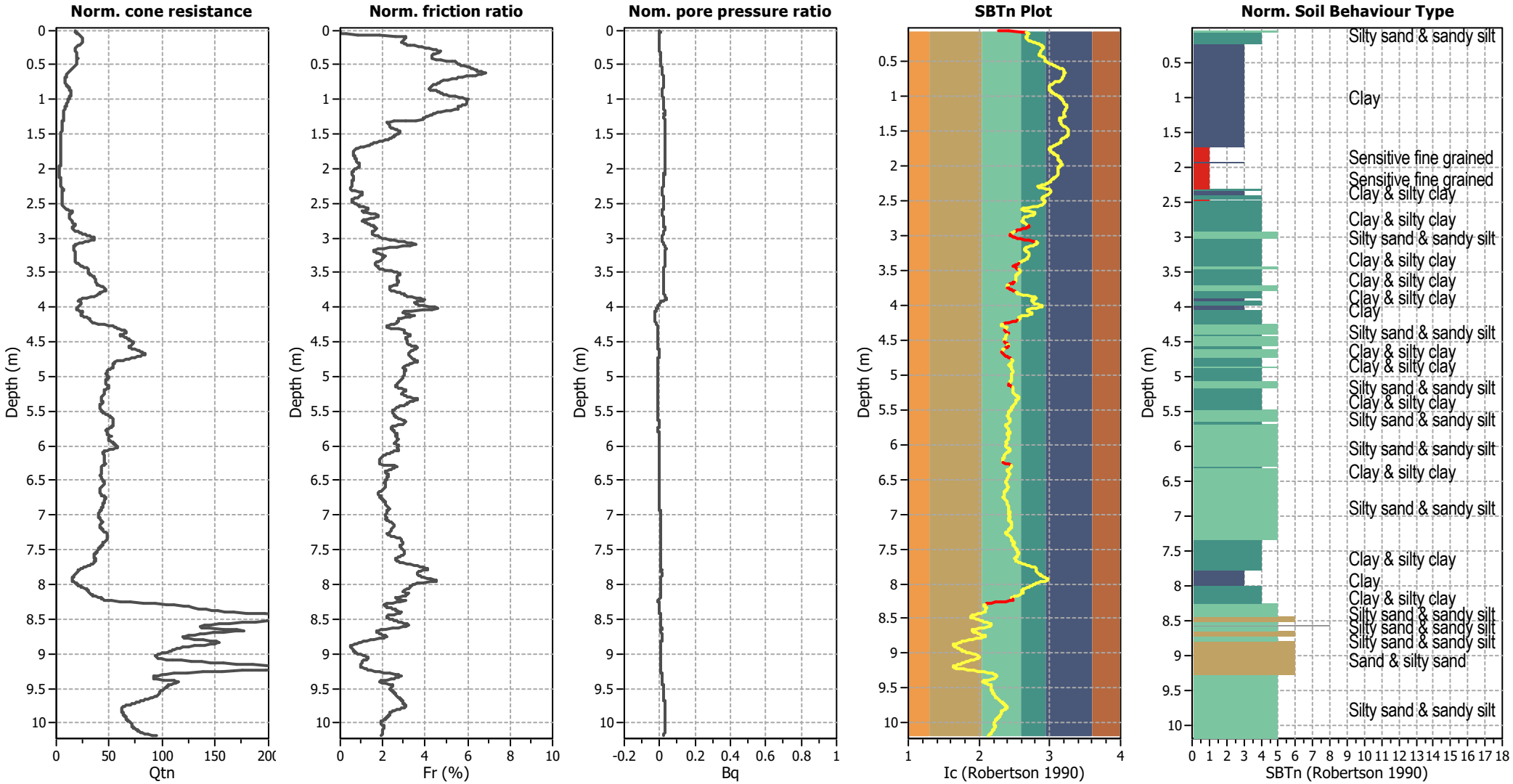
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



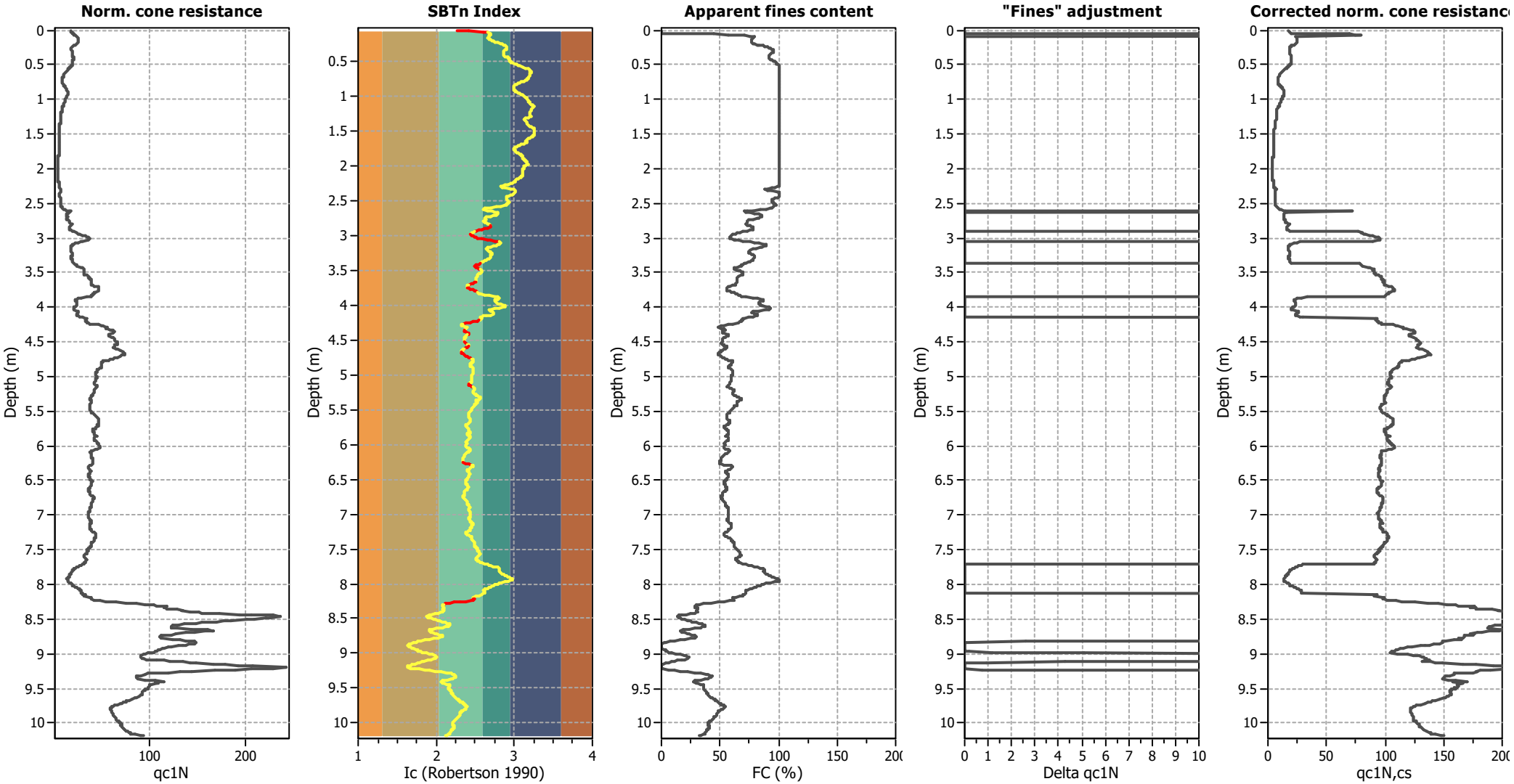
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBTn legend

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

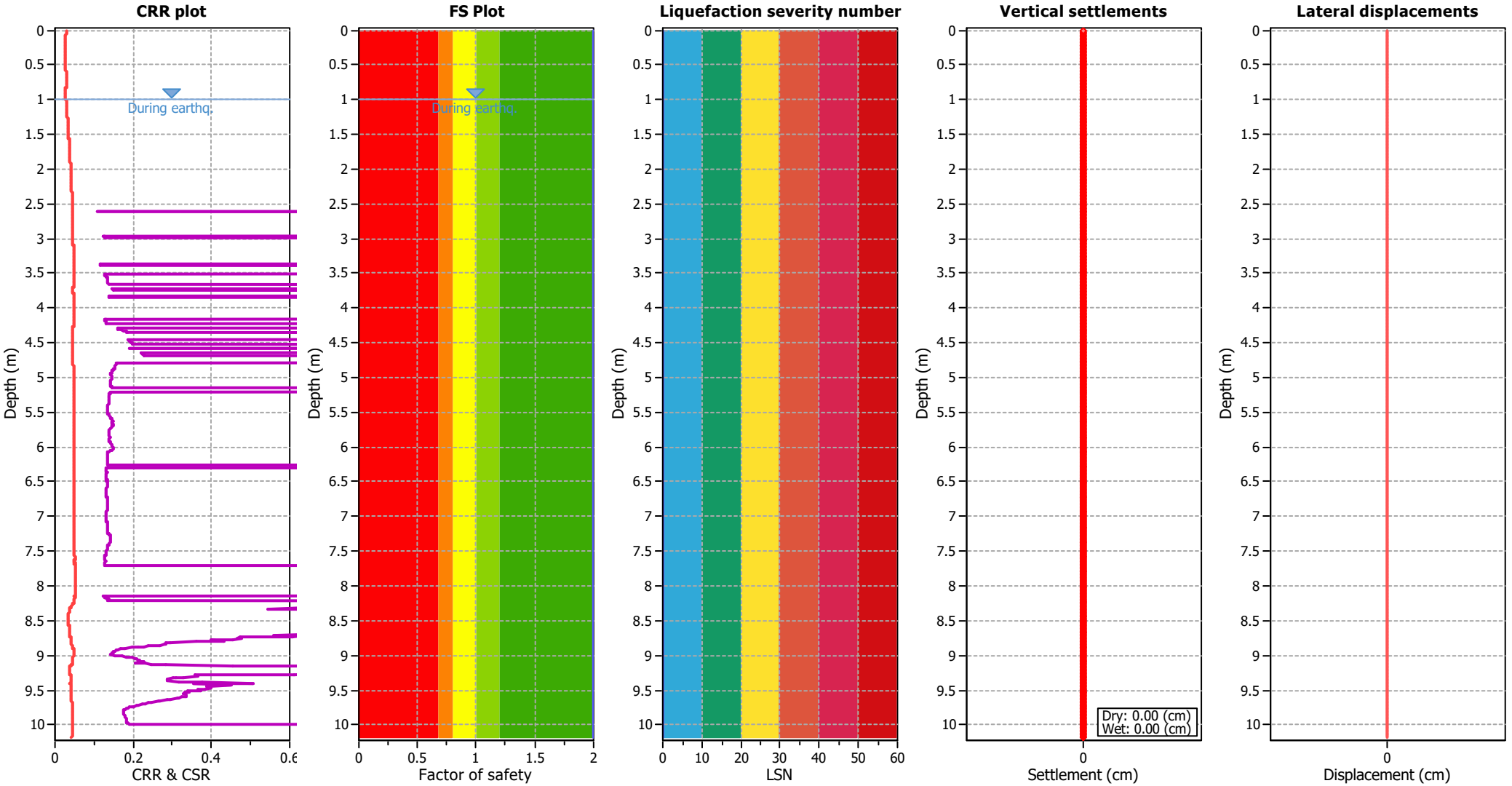
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

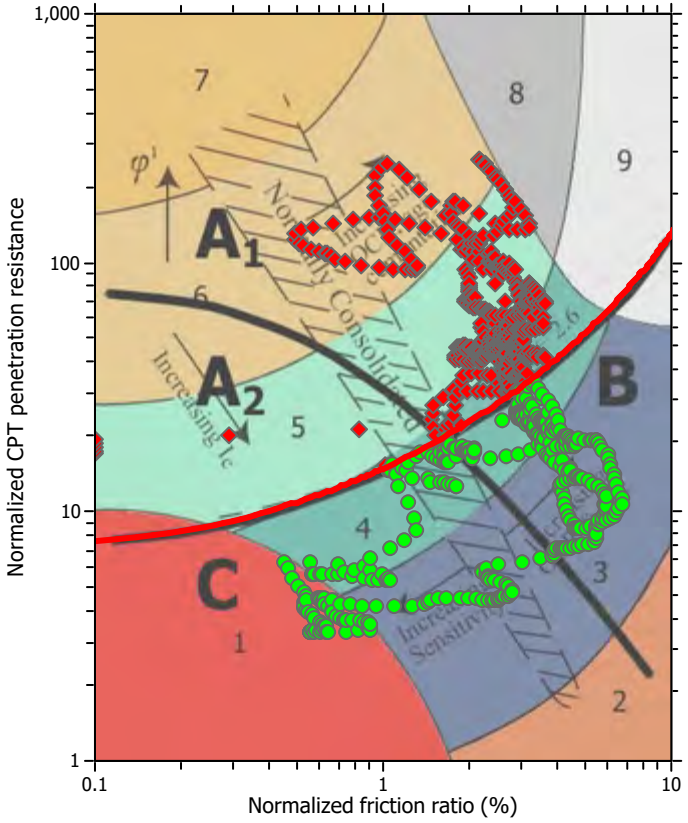
F.S. color scheme

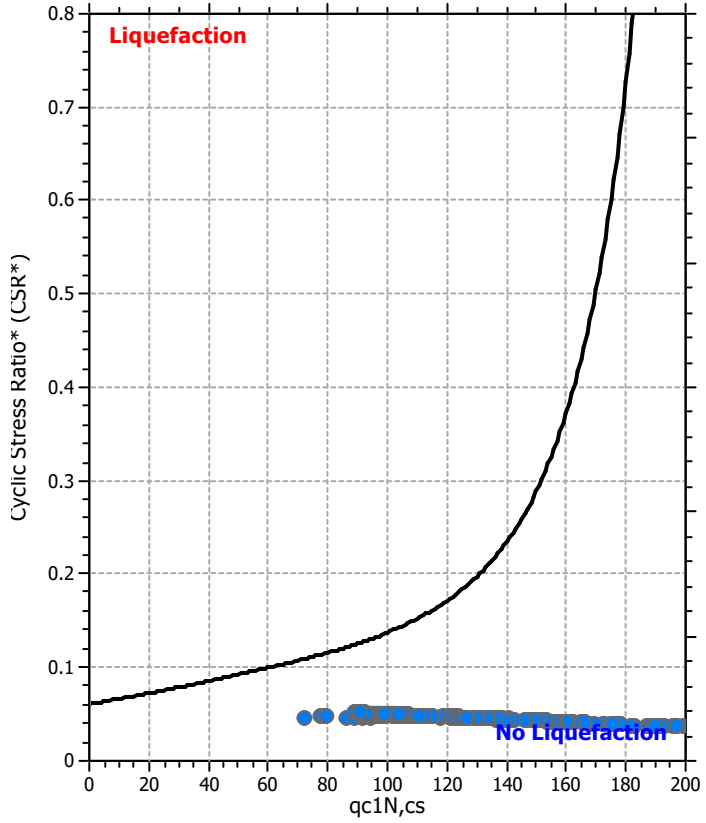
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

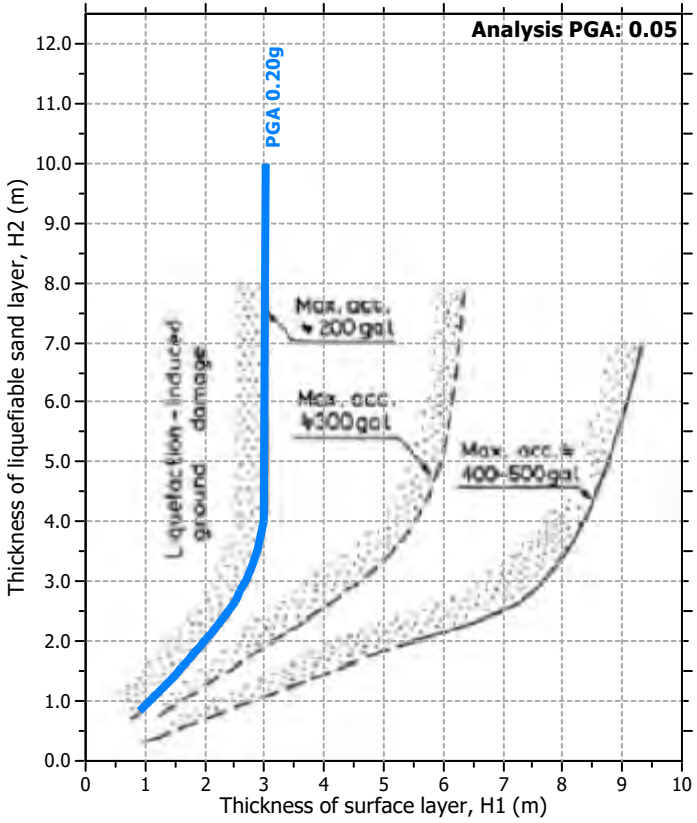
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



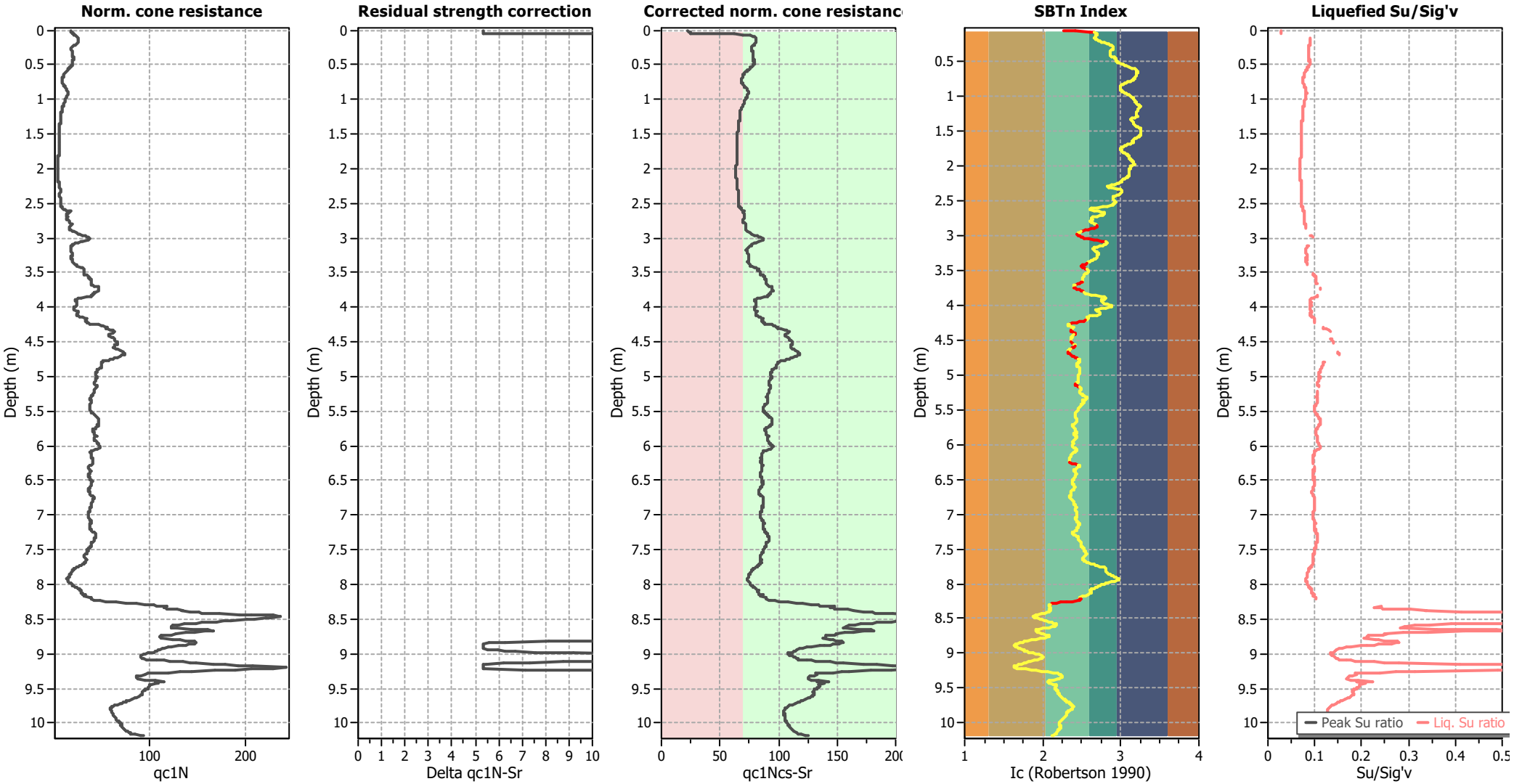




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

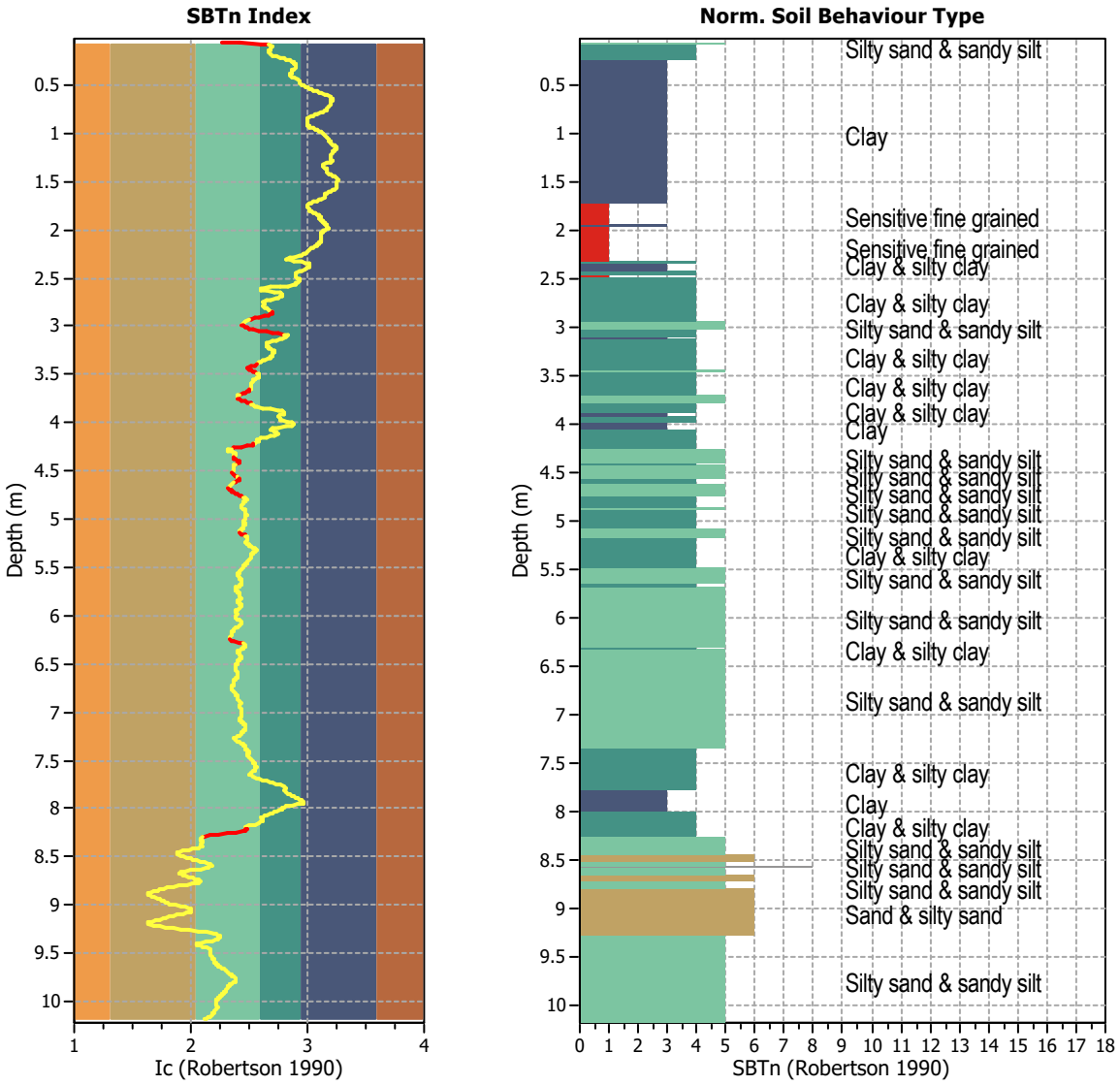
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

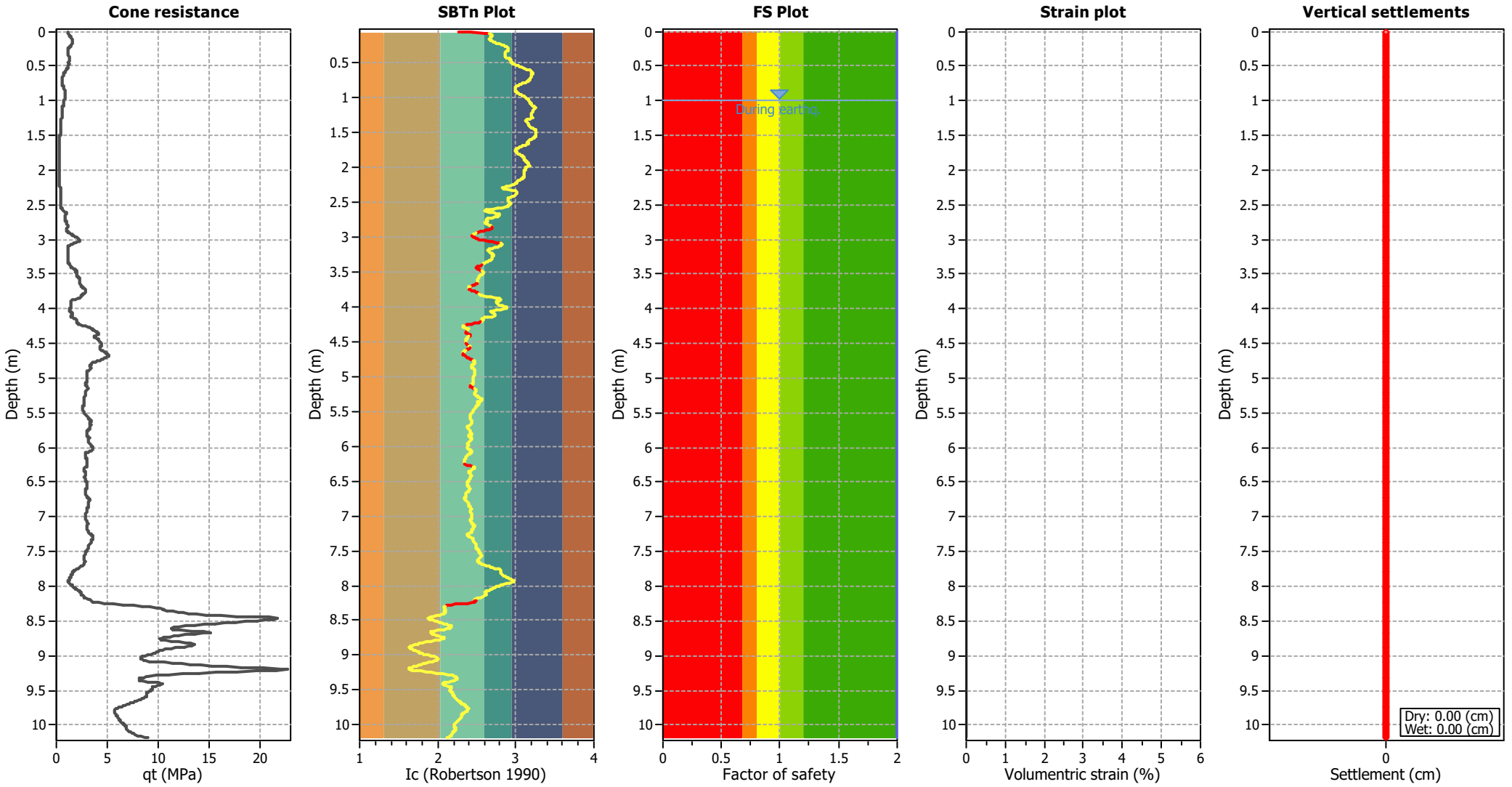
The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties	
I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics	
Total points in CPT file:	1018
Total points excluded:	103
Exclusion percentage:	10.12%
Number of layers detected:	16

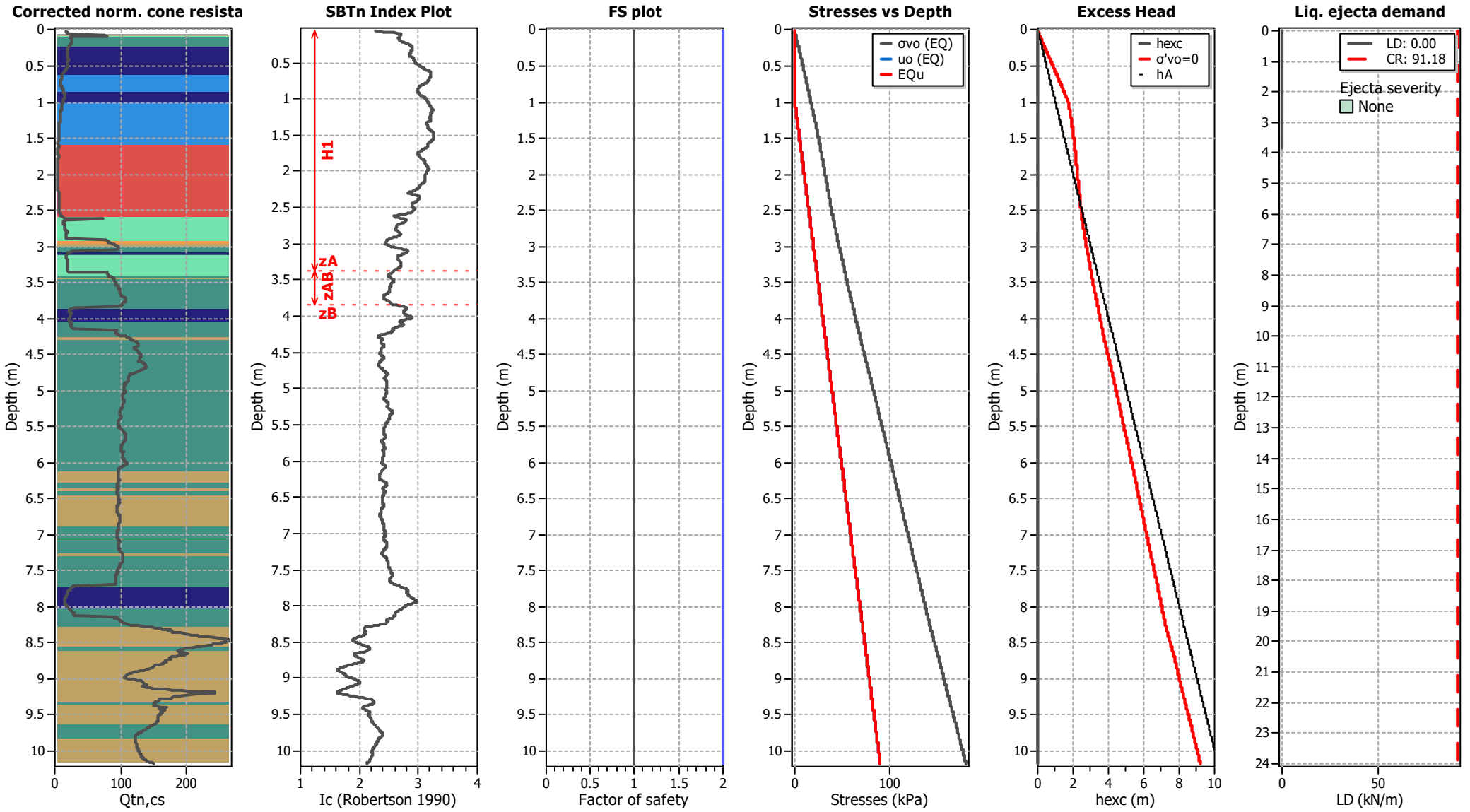
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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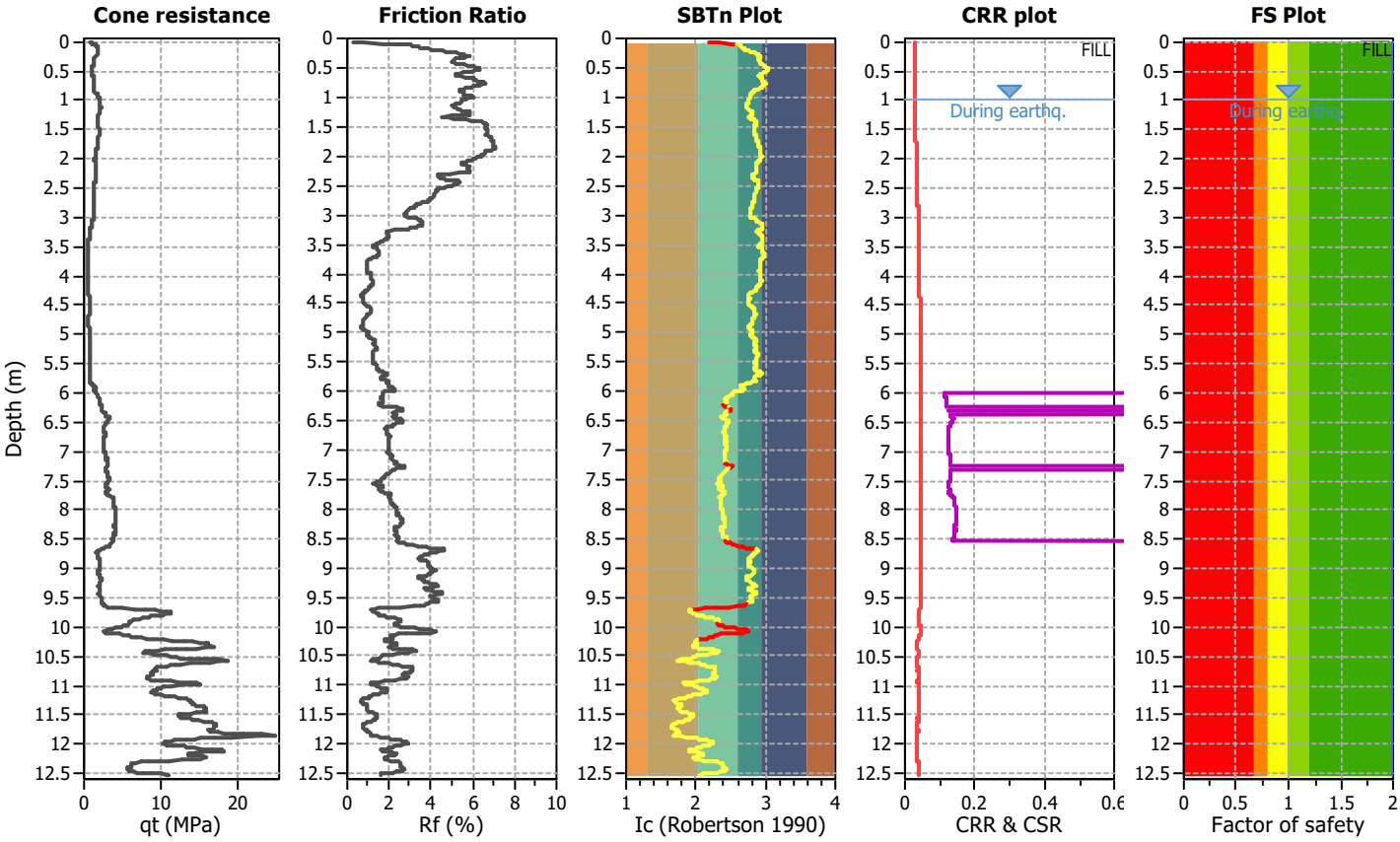
LIQUEFACTION ANALYSIS REPORT

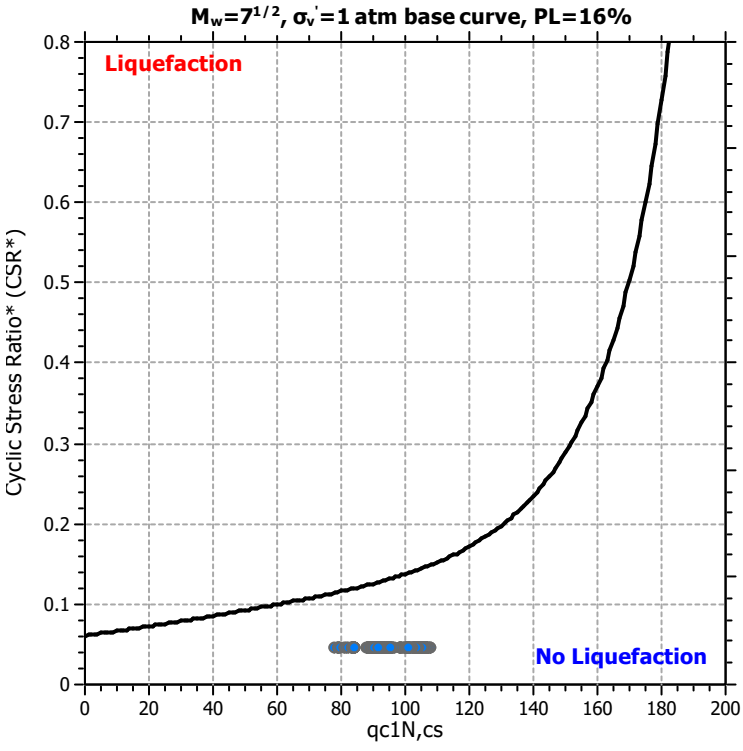
Project title : Sunfield Landholding **Location :**

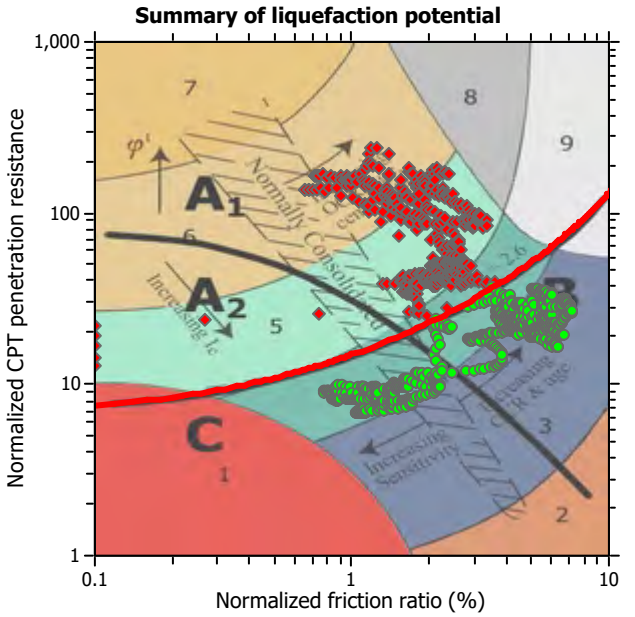
CPT file : CPT305

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	18.50 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

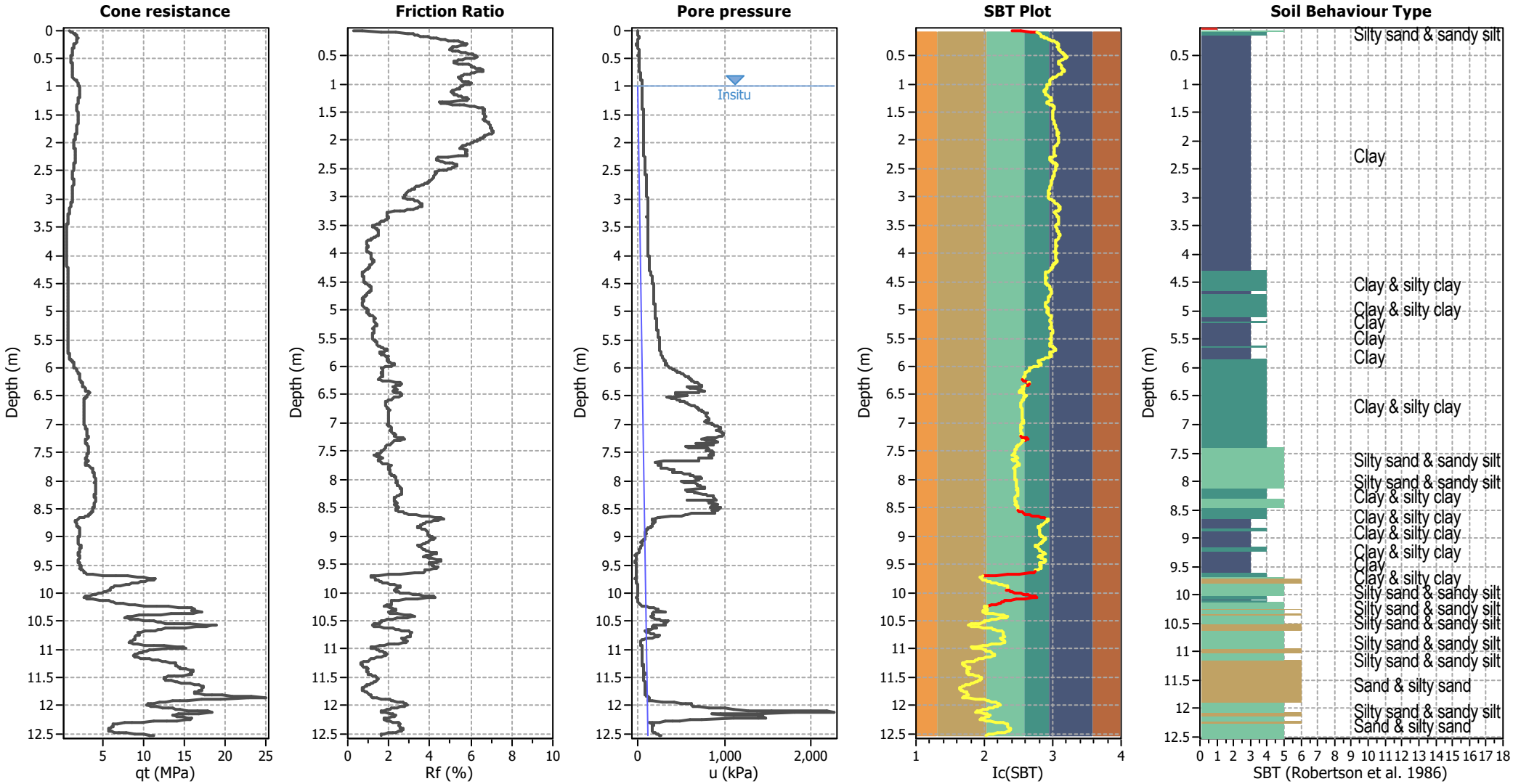






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



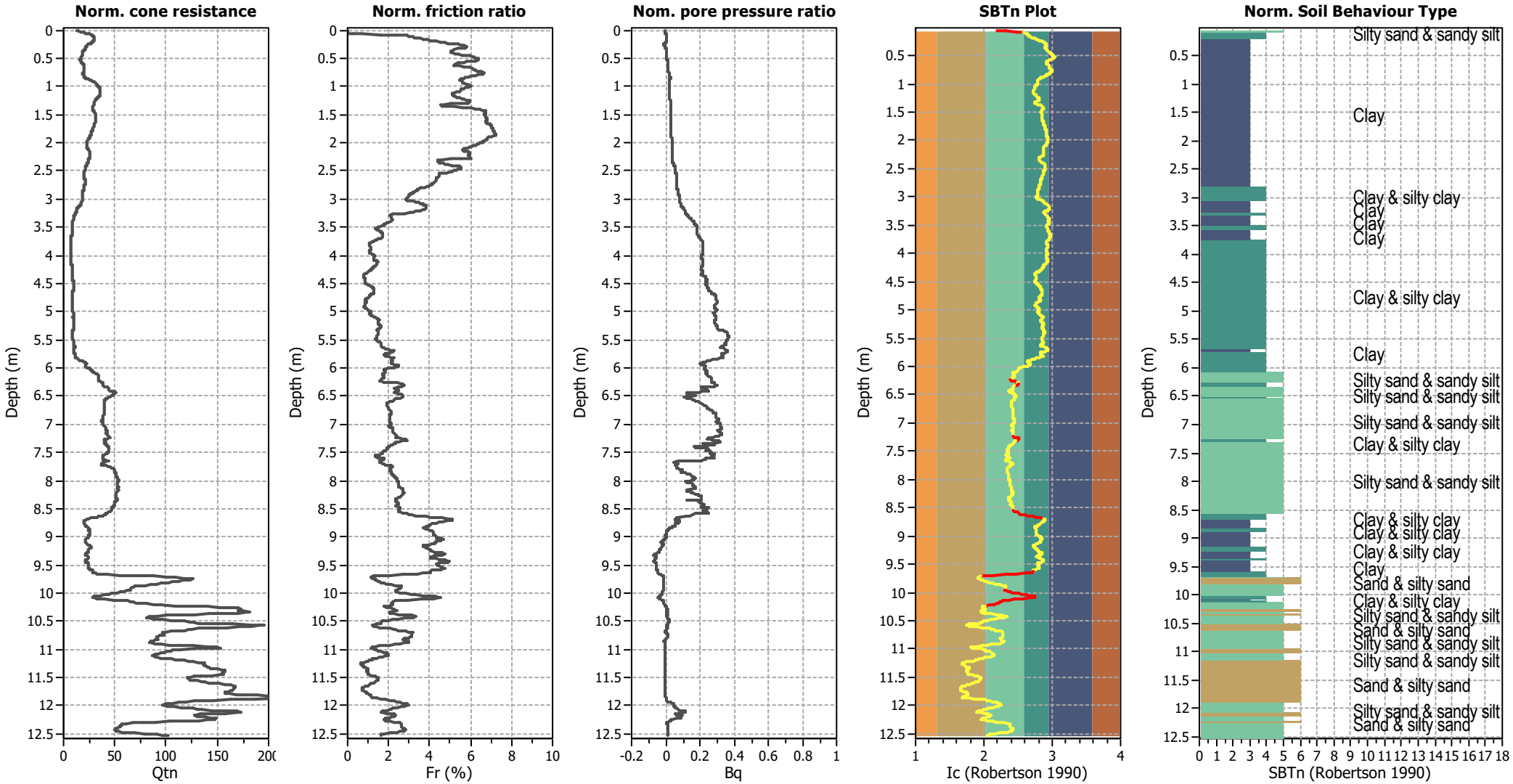
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



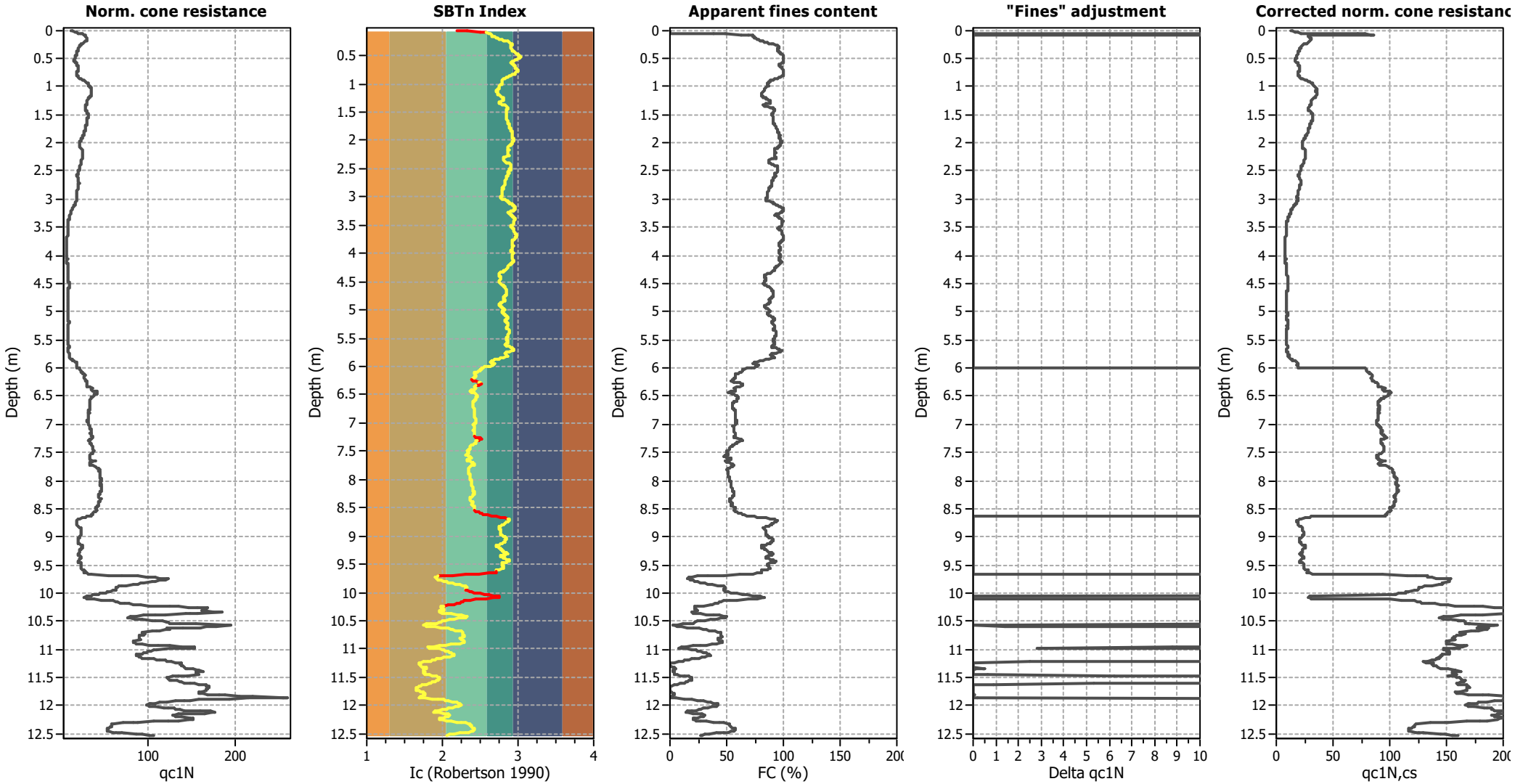
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

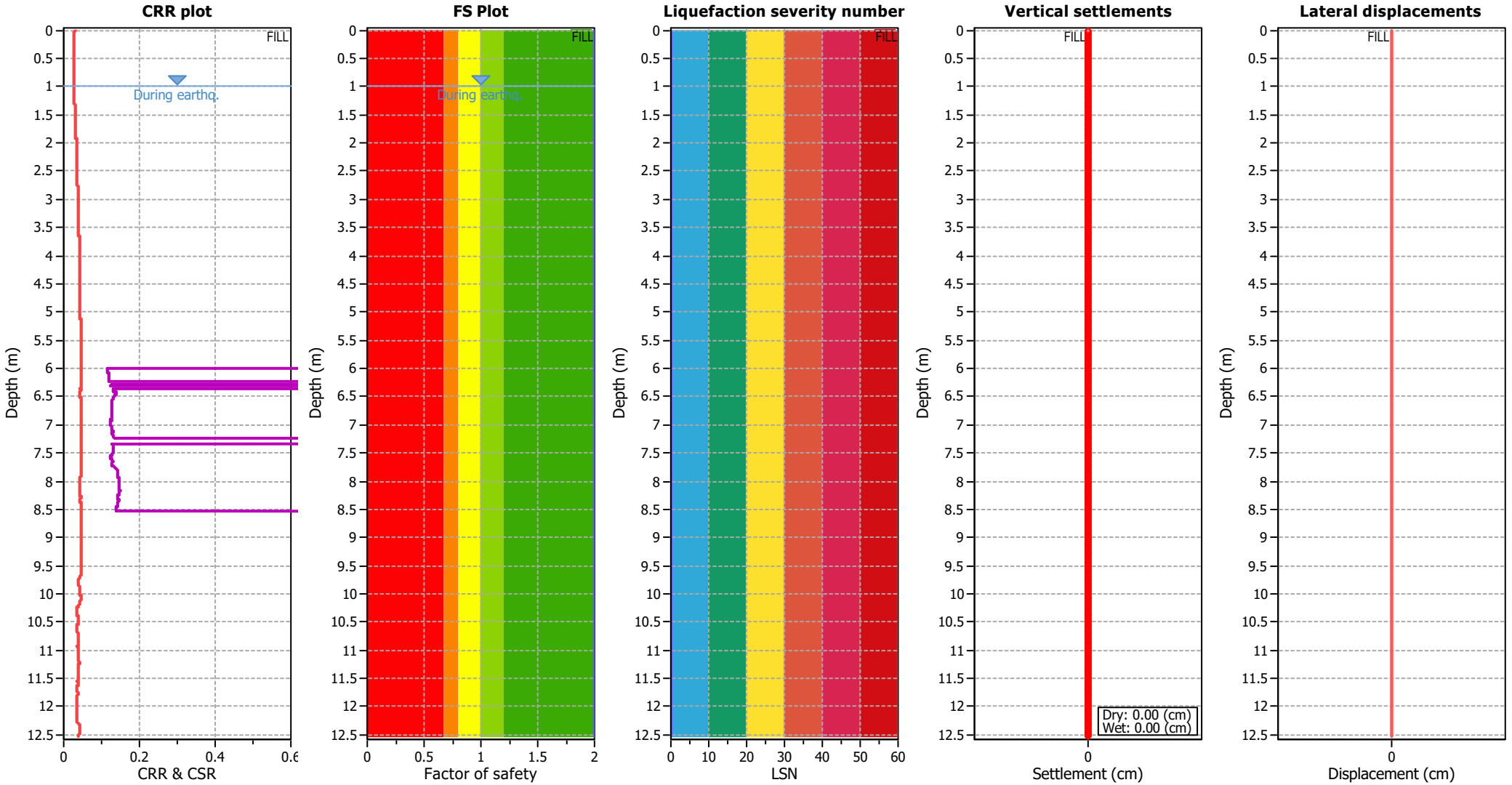
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

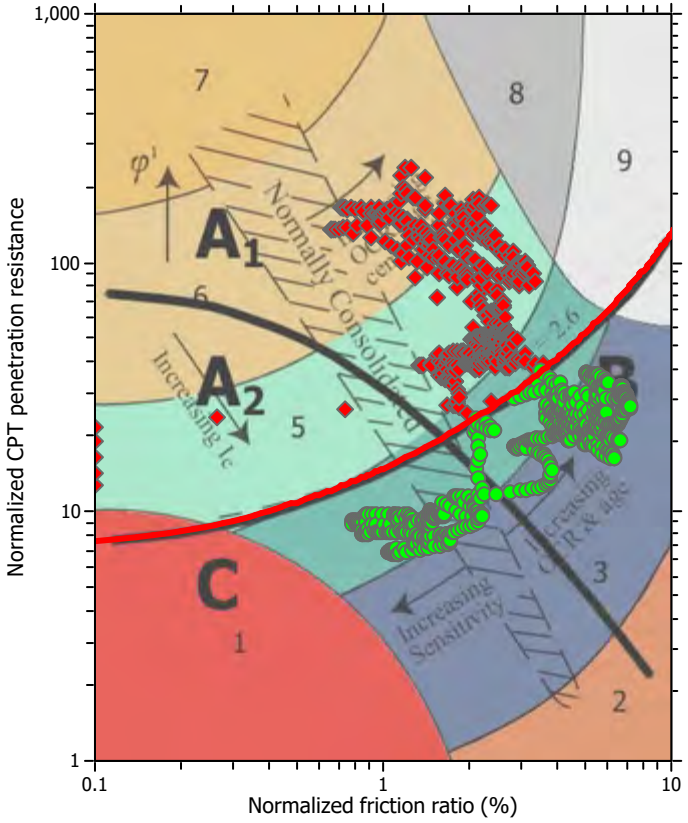
F.S. color scheme

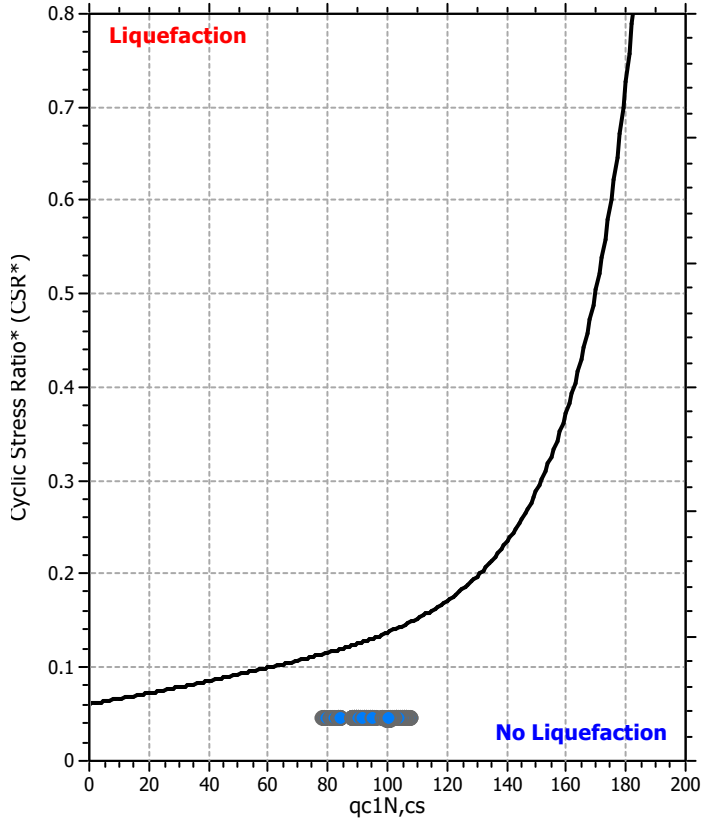
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

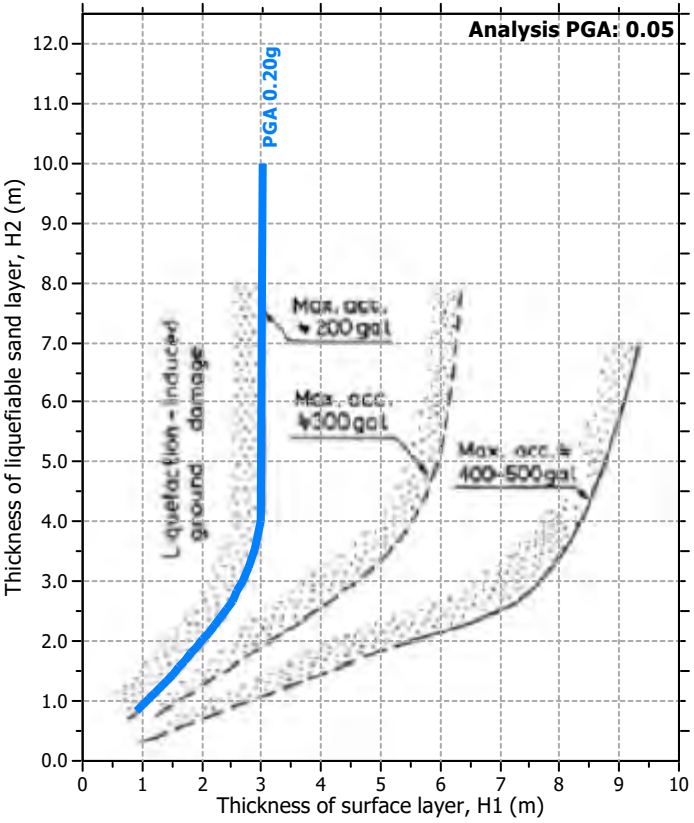
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



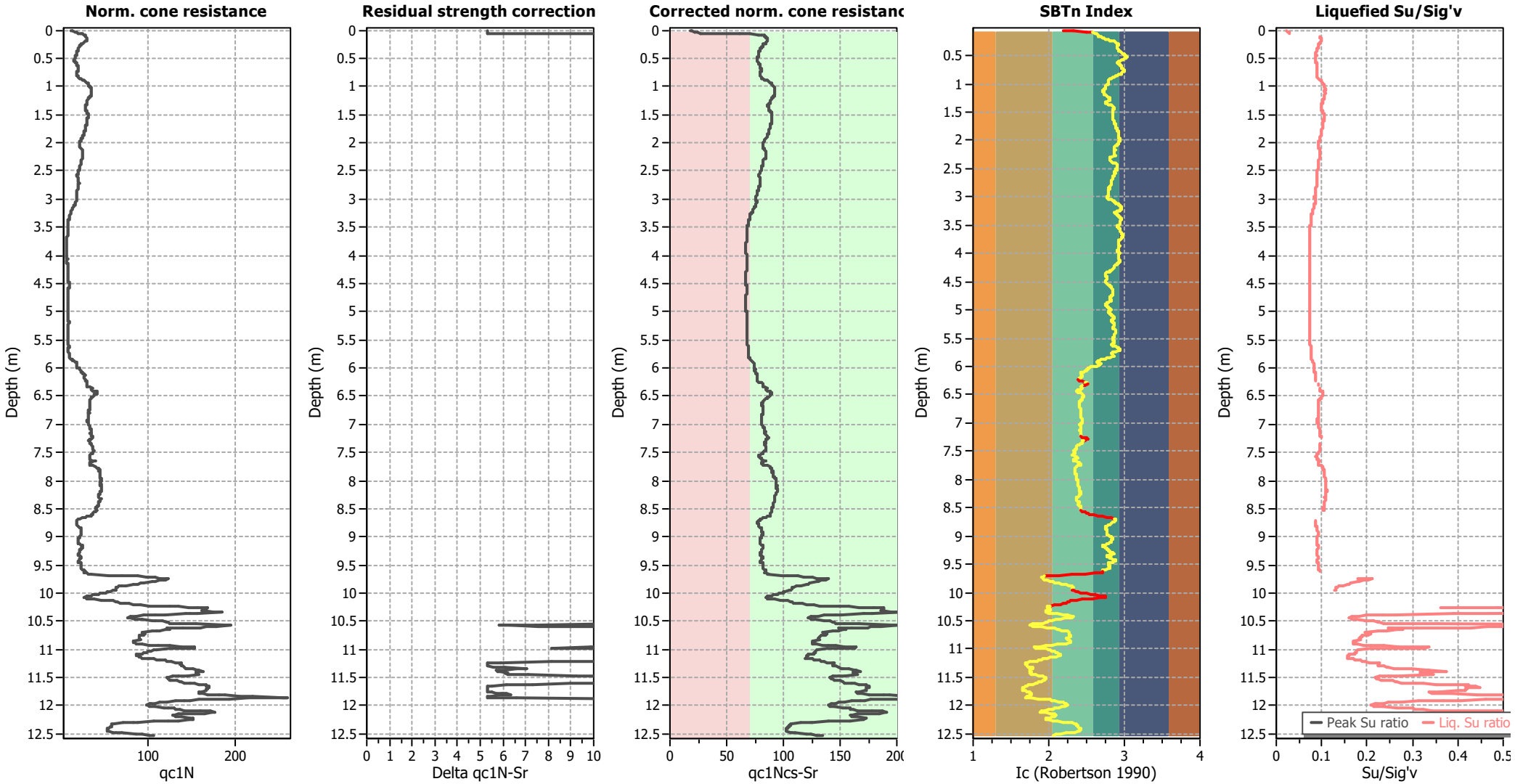




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

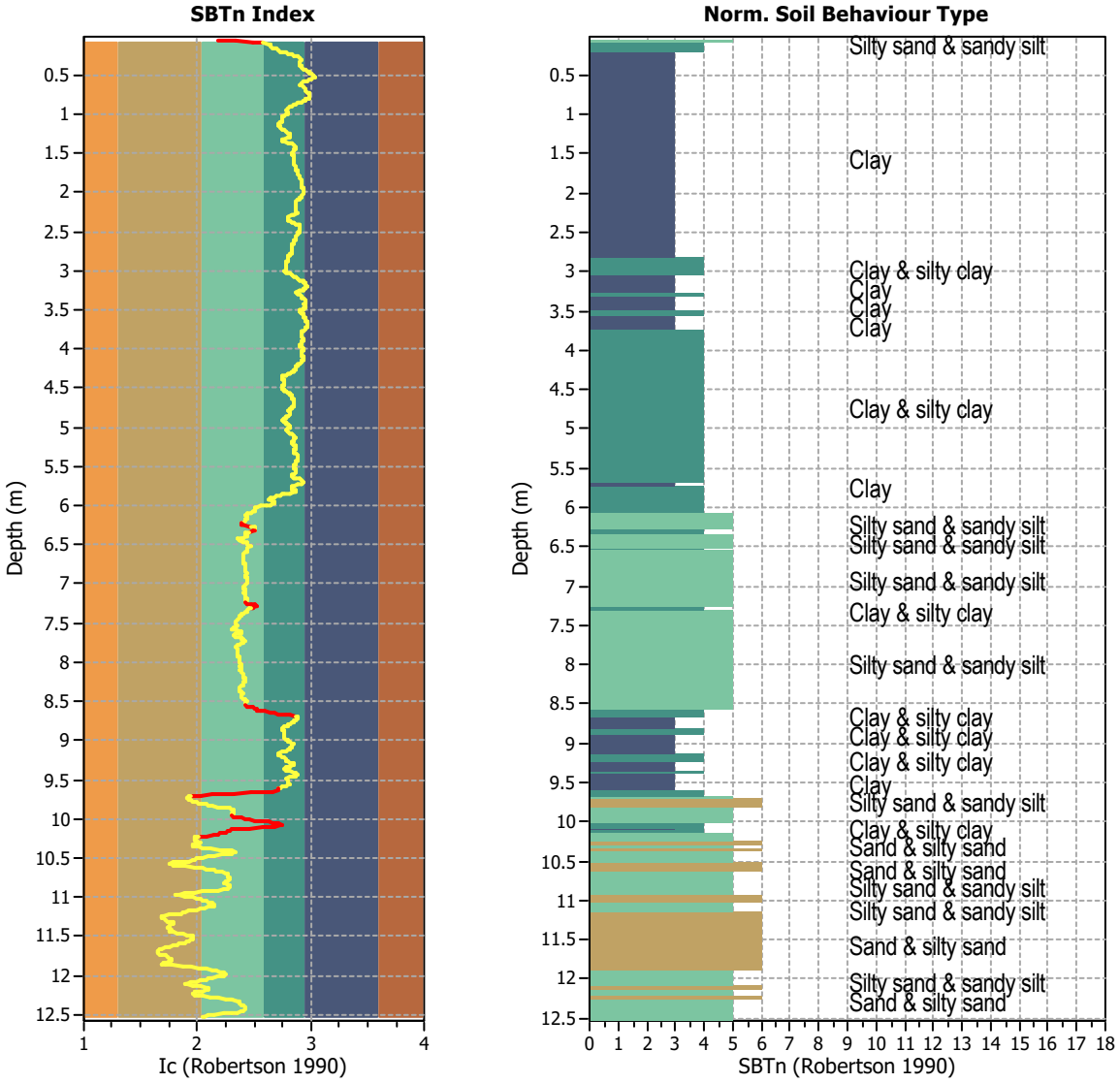
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

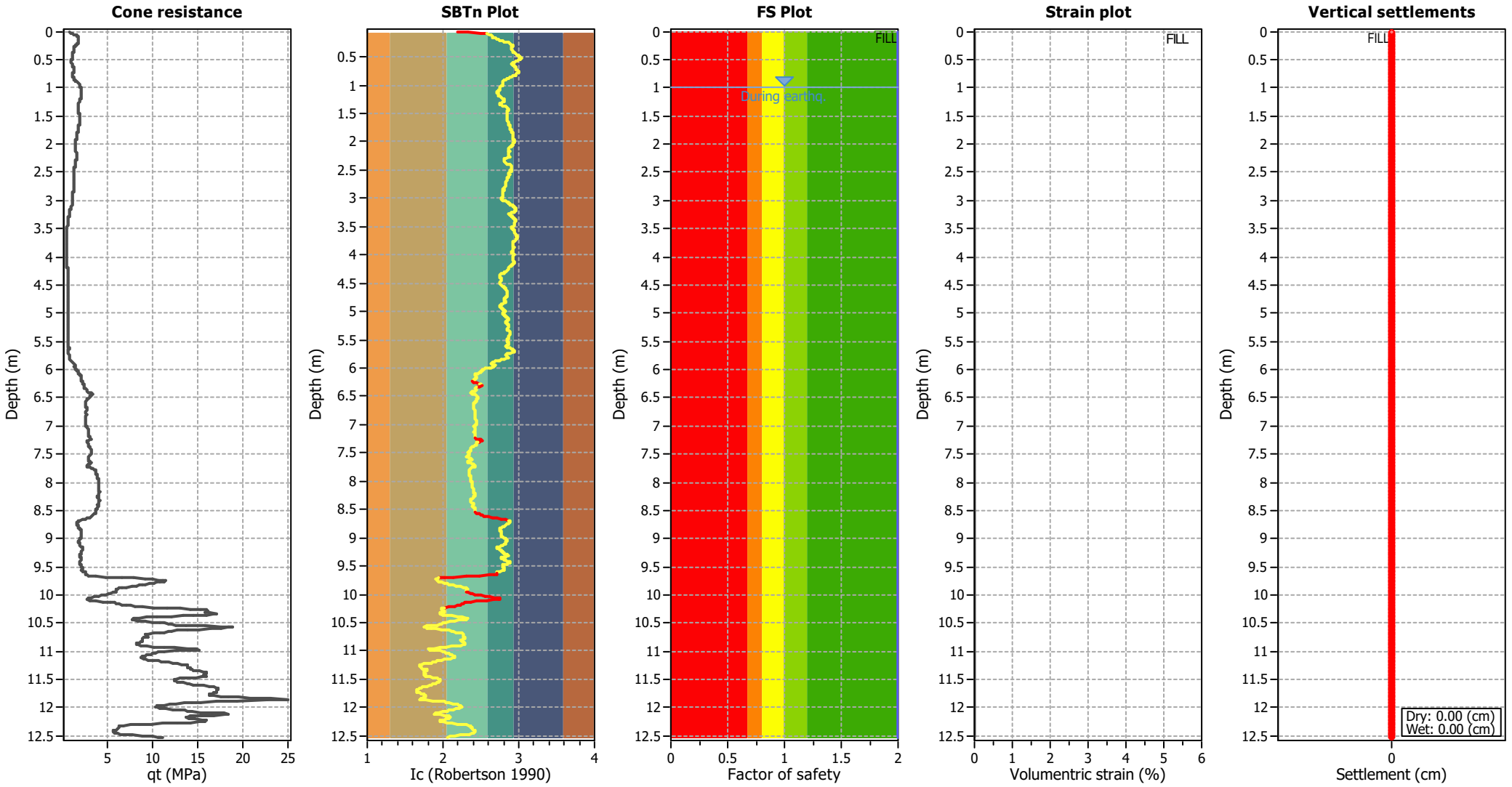
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	1253
I_c maximum check value:	3.00	Total points excluded:	78
I_c change ratio value:	0.0100	Exclusion percentage:	6.23%
Minimum number of points in layer:	4	Number of layers detected:	9

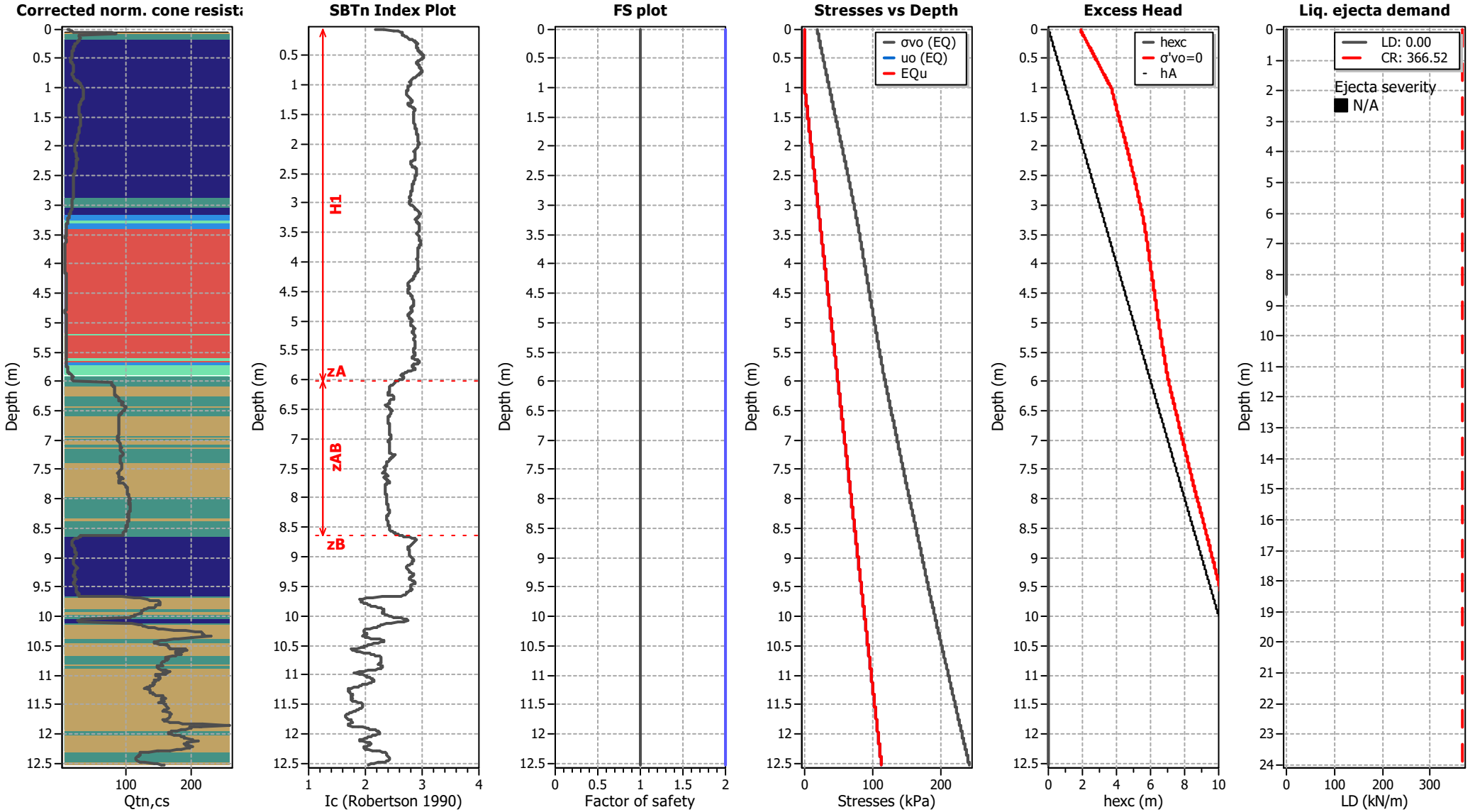
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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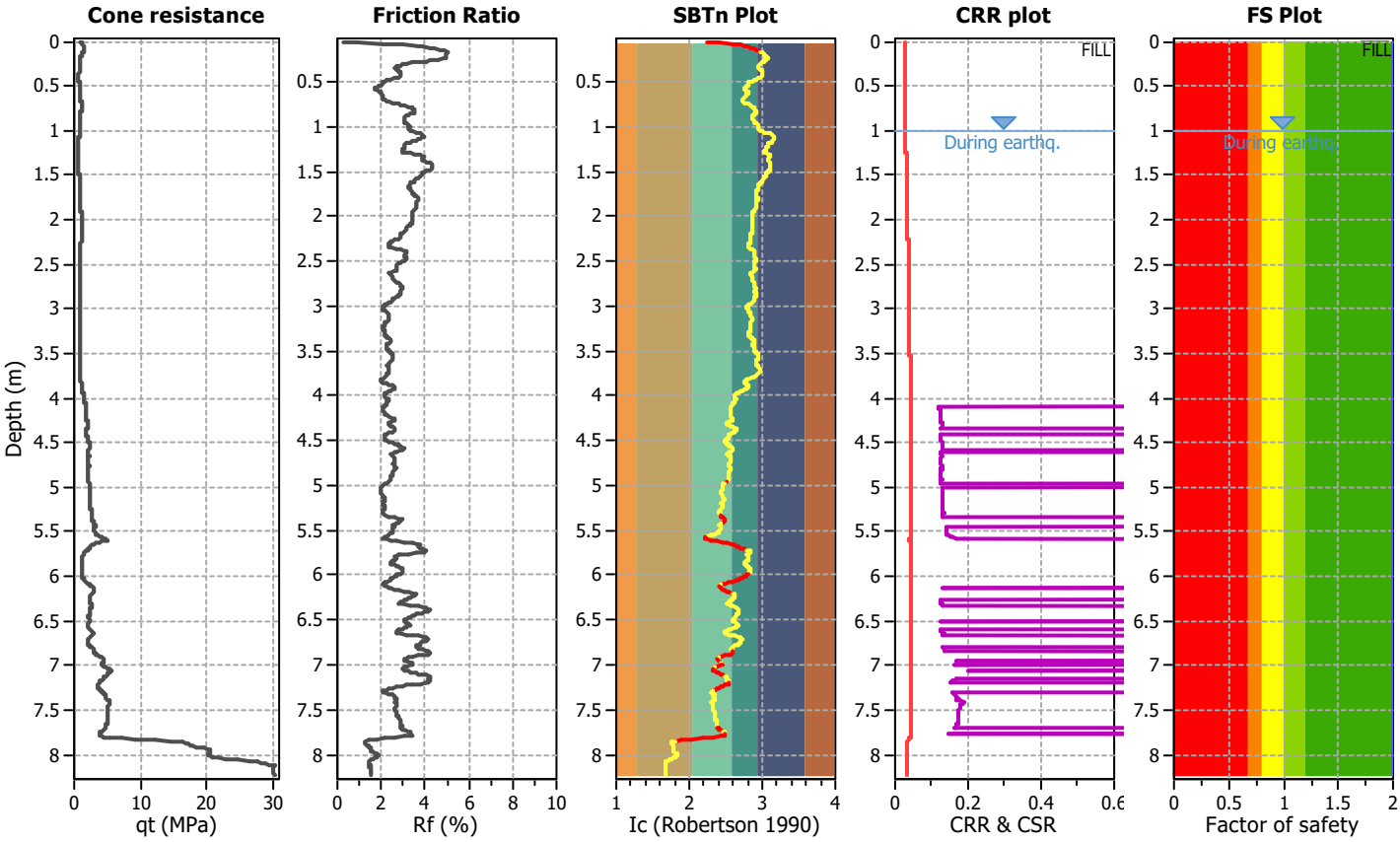
LIQUEFACTION ANALYSIS REPORT

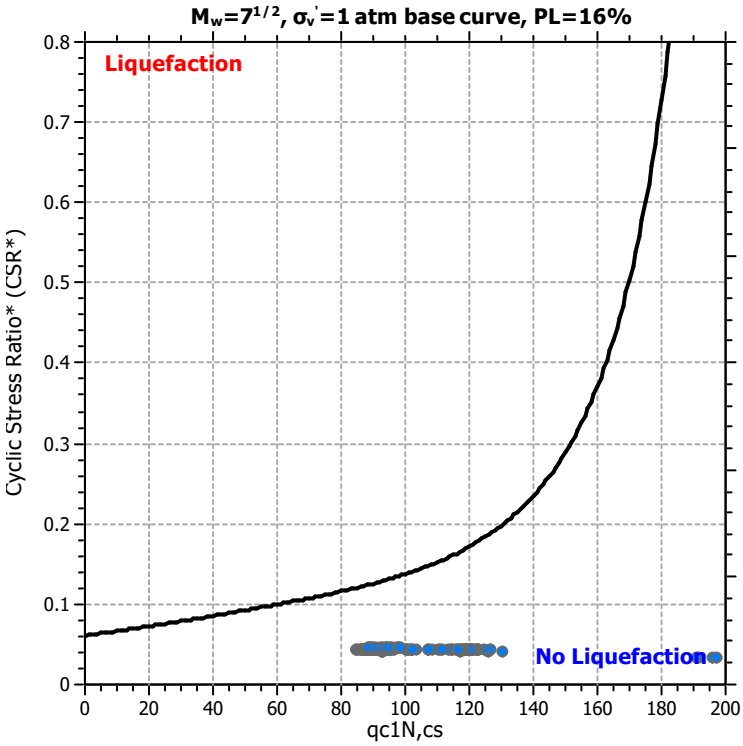
Project title : Sunfield Landholding **Location :**

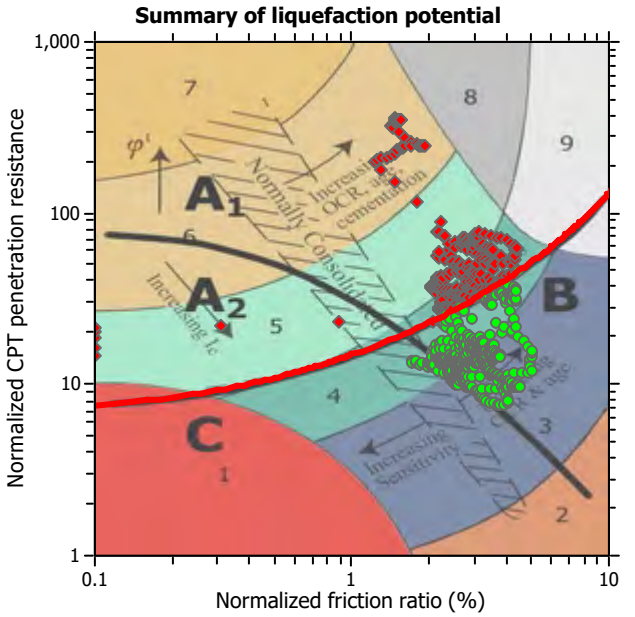
CPT file : CPT306

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	18.50 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

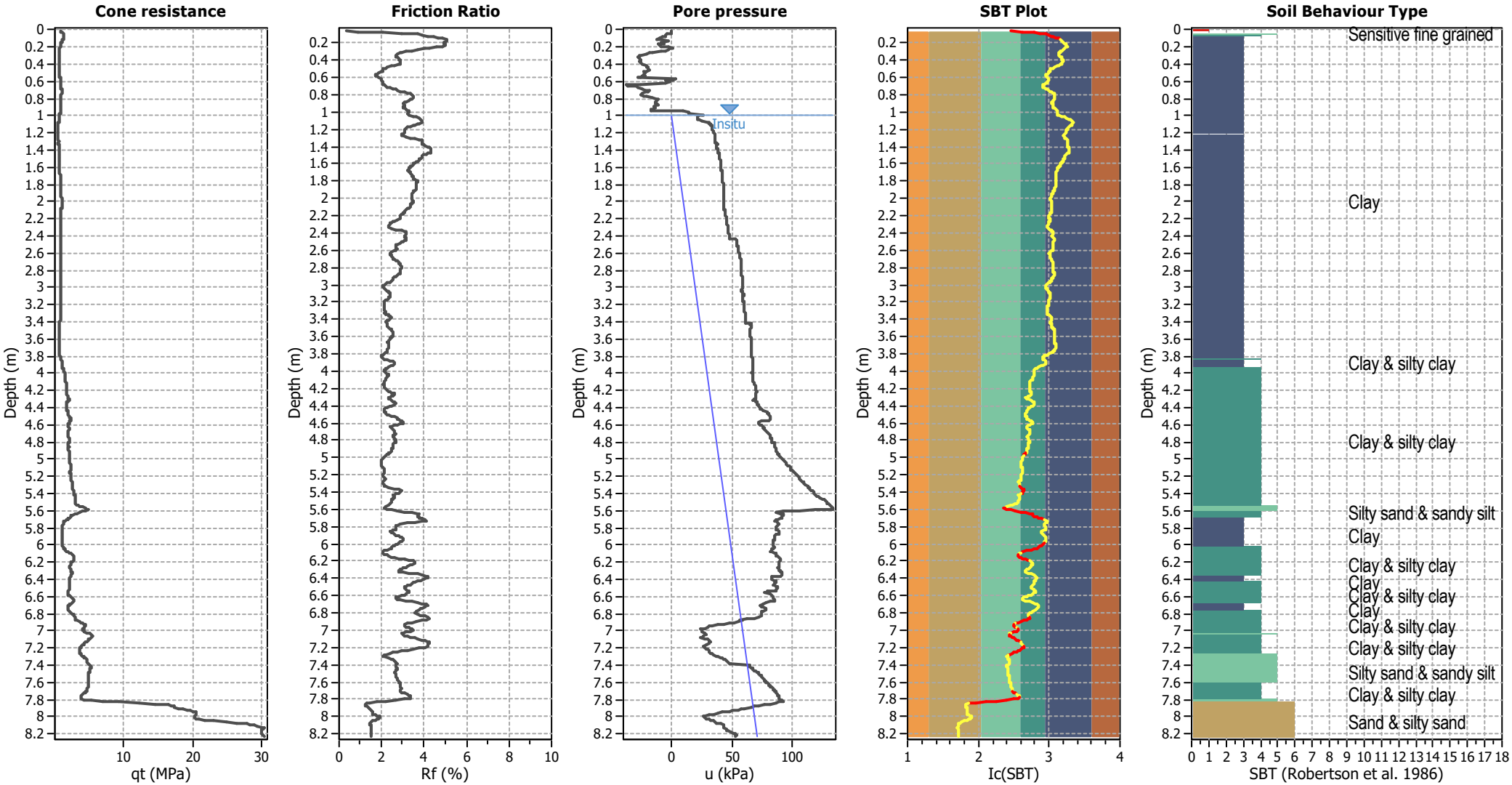






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



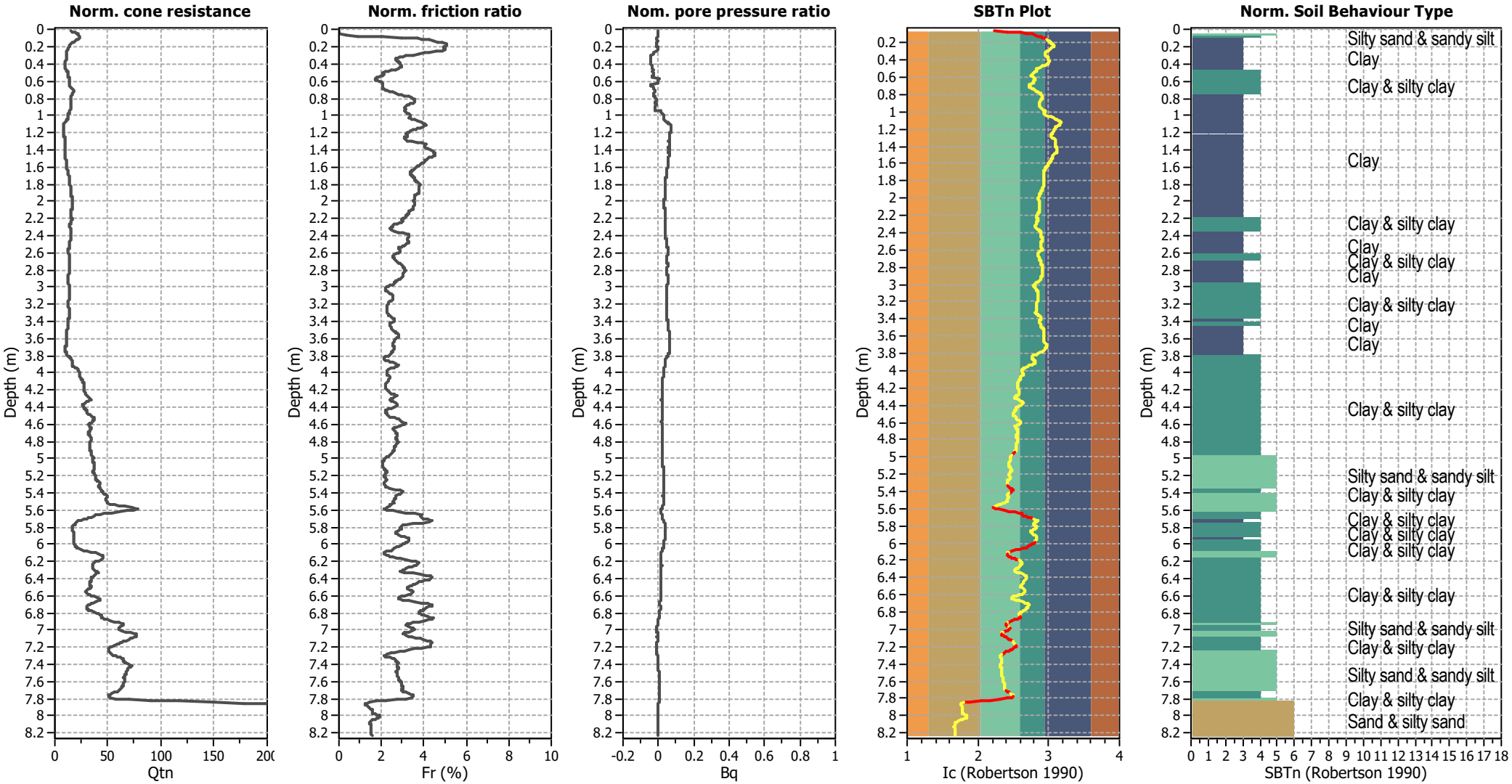
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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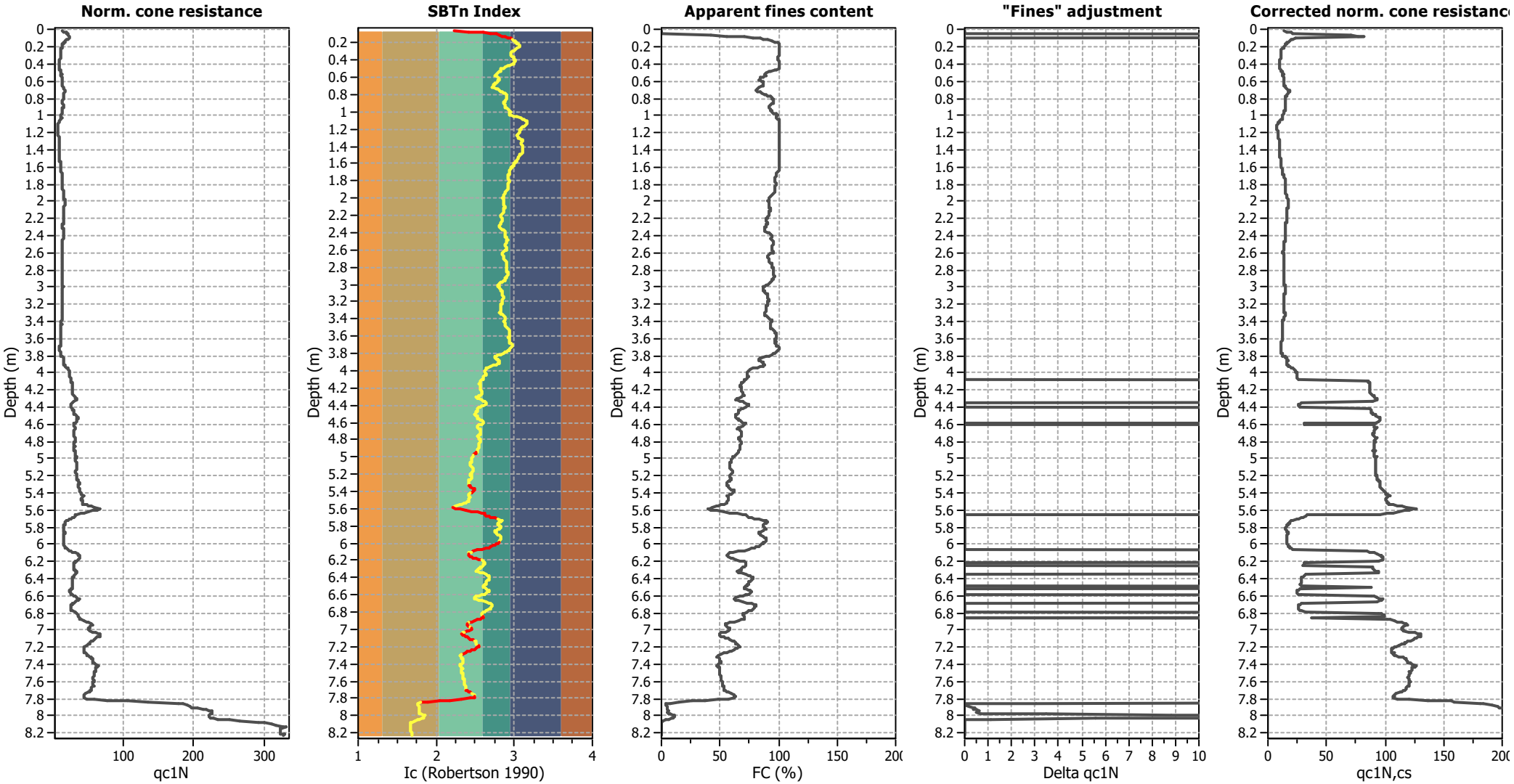
8. Very stiff sand to
9. Very stiff fine grained

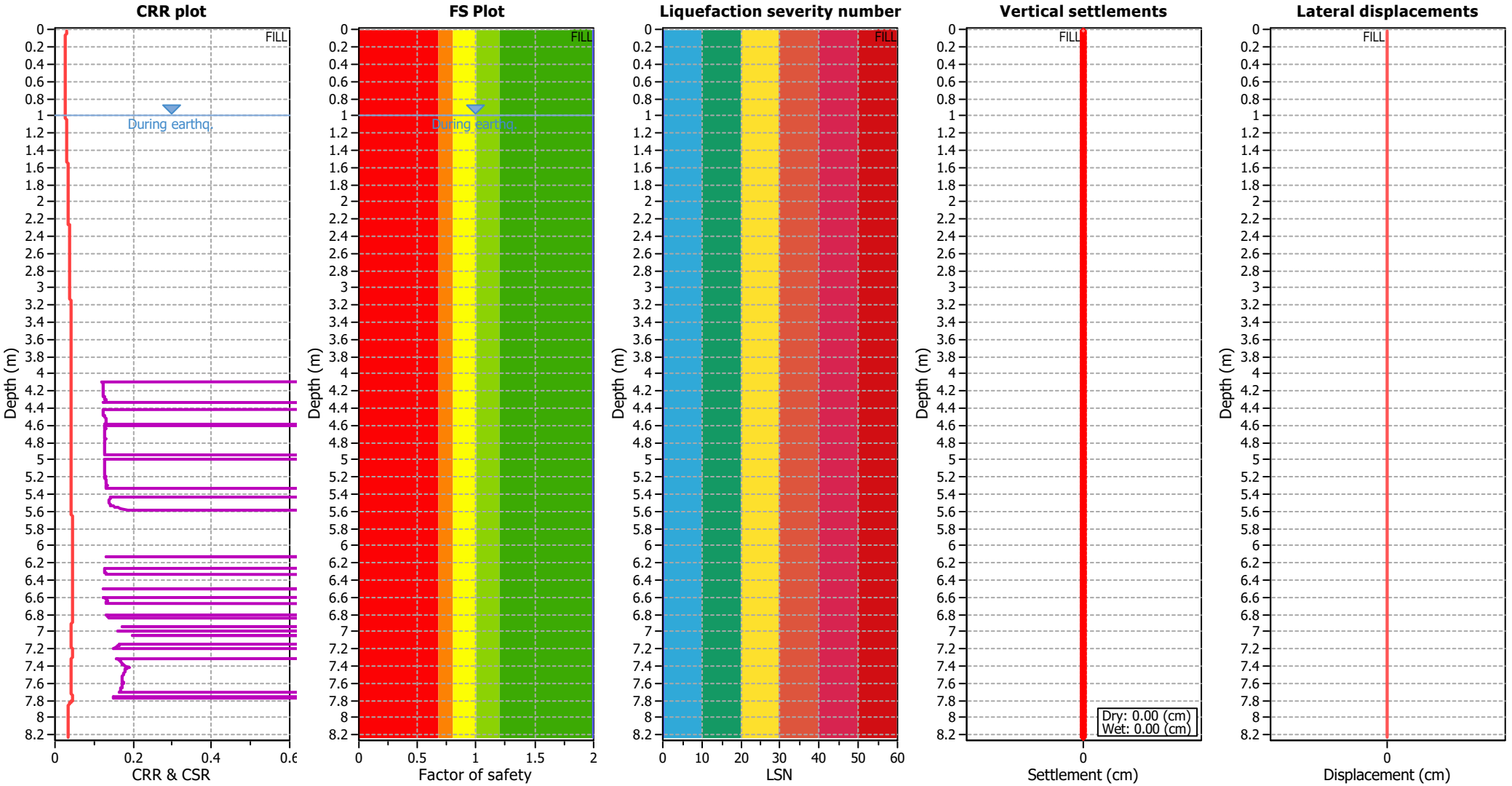
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

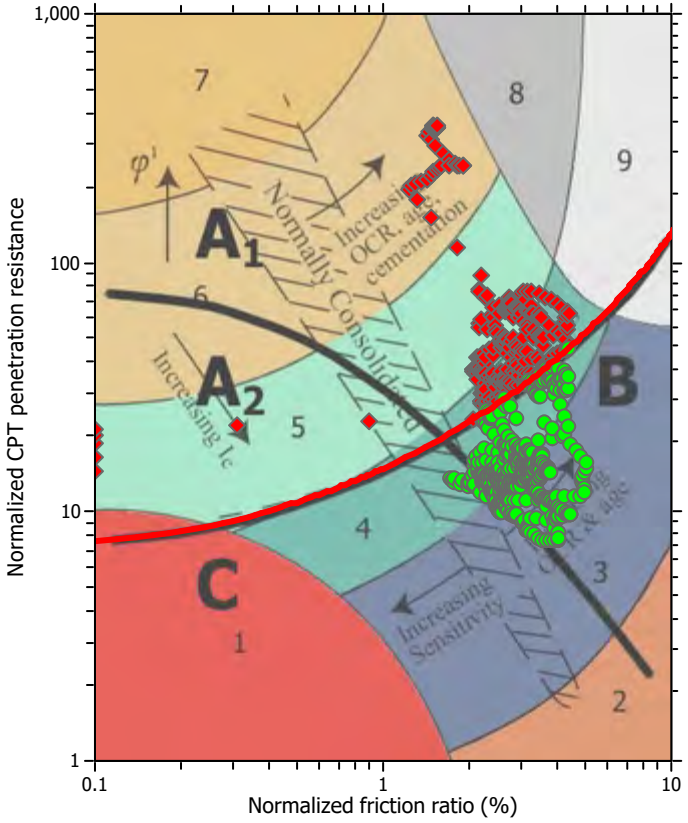
F.S. color scheme

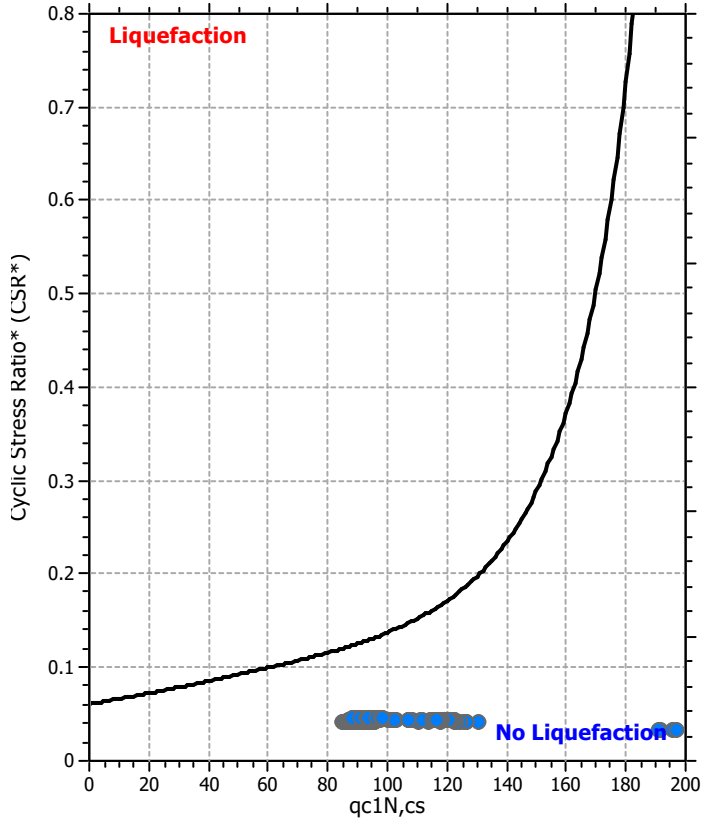
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

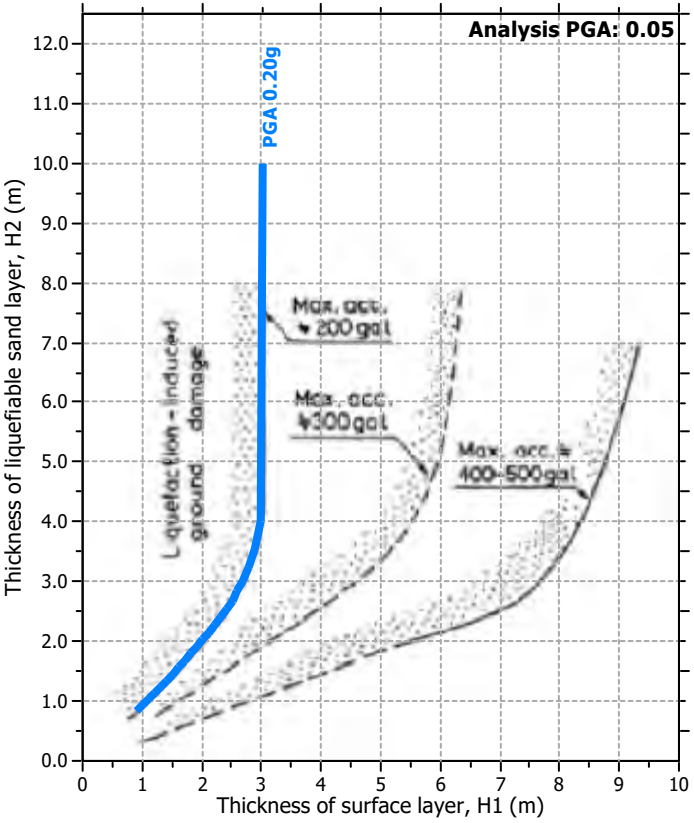
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



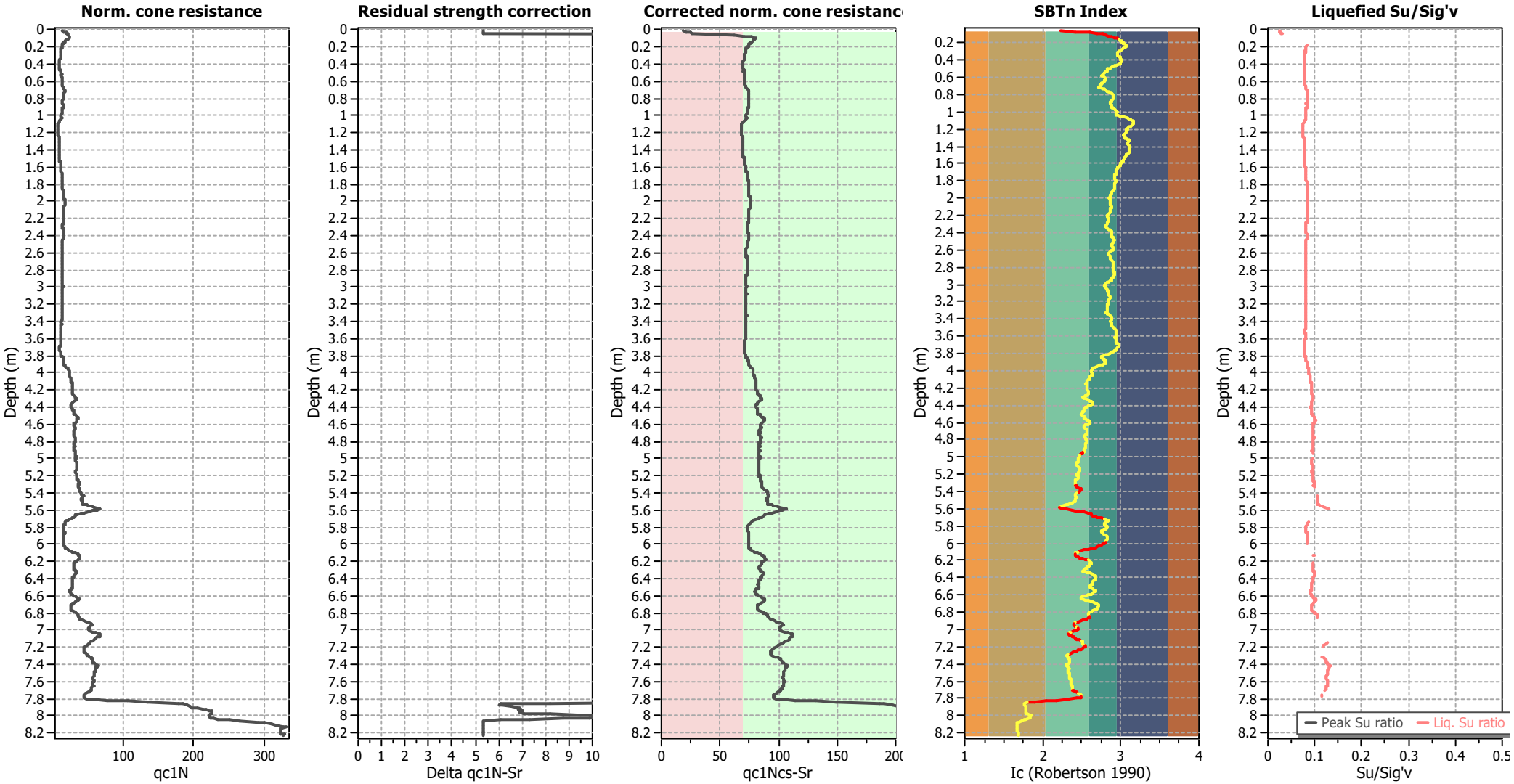




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

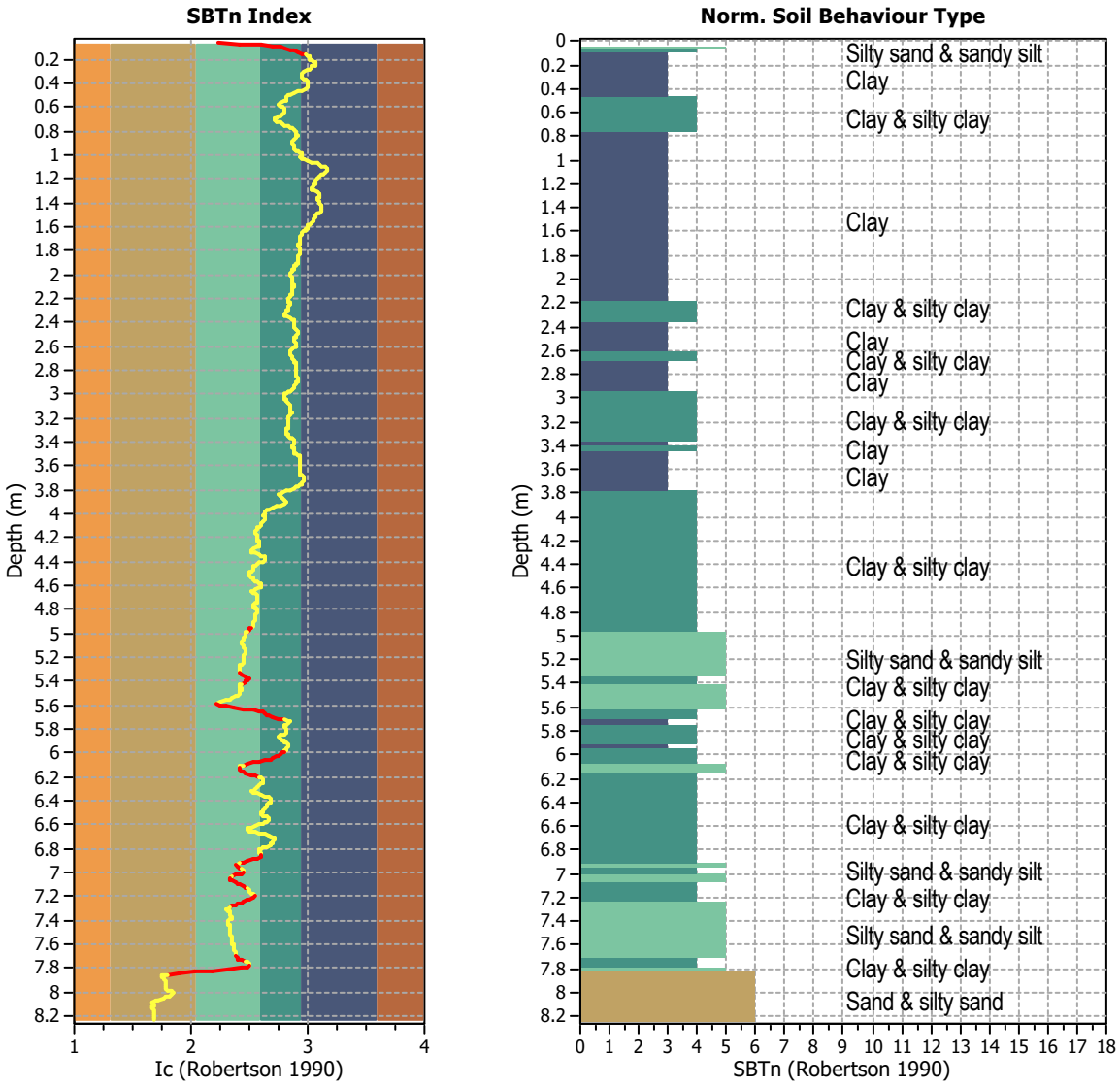
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

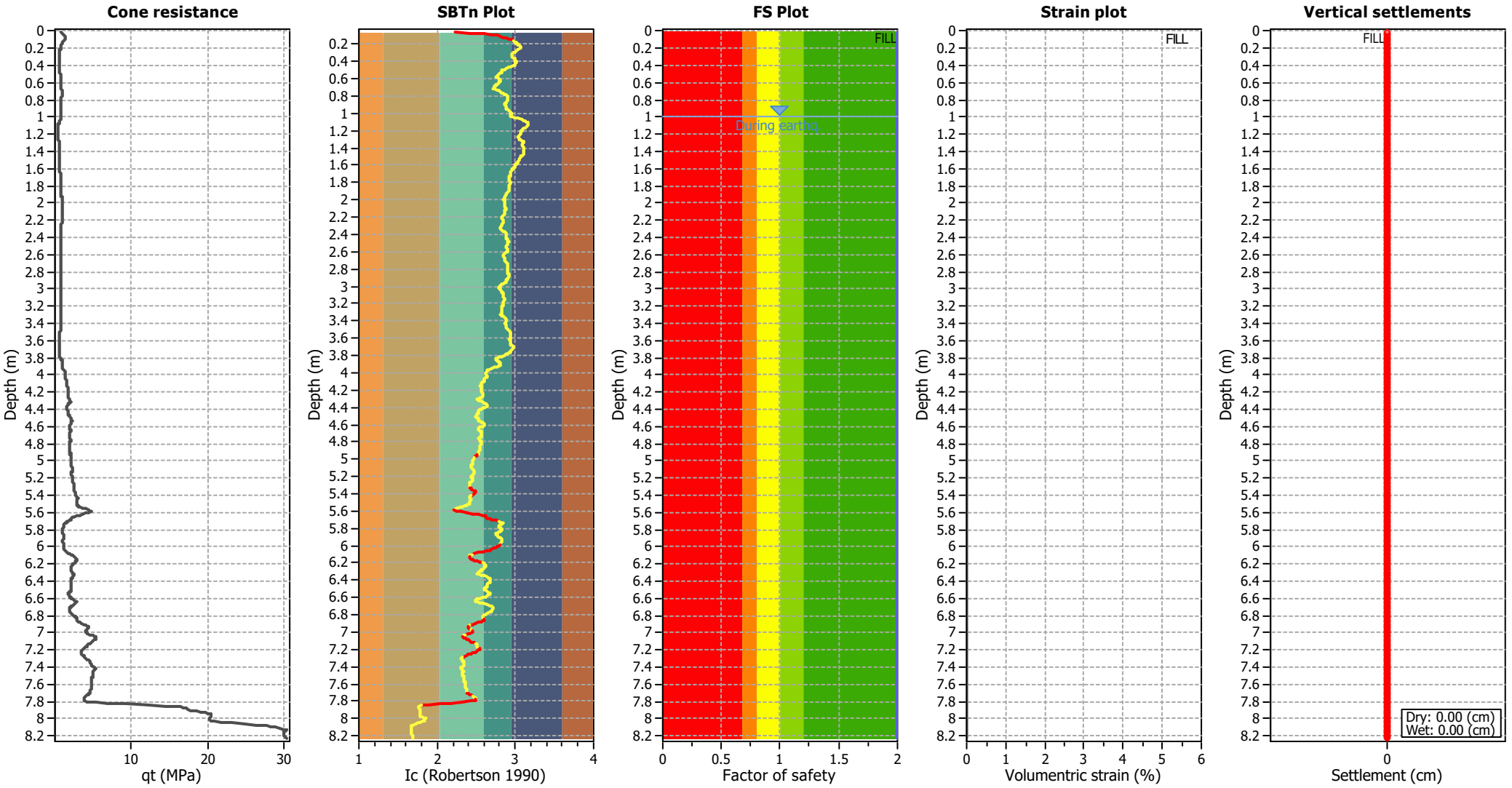
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	823
I_c maximum check value:	3.00	Total points excluded:	113
I_c change ratio value:	0.0100	Exclusion percentage:	13.73%
Minimum number of points in layer:	4	Number of layers detected:	14

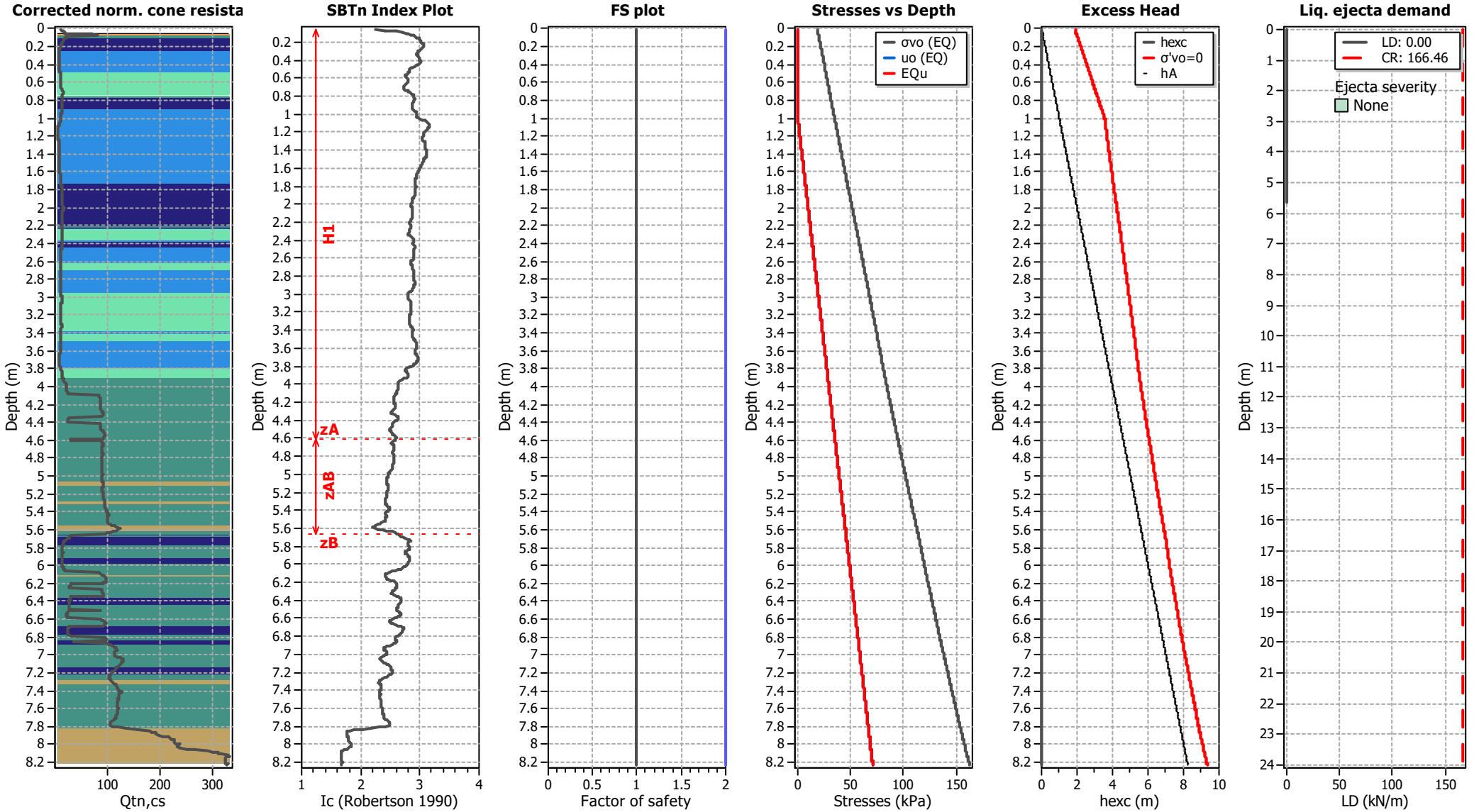
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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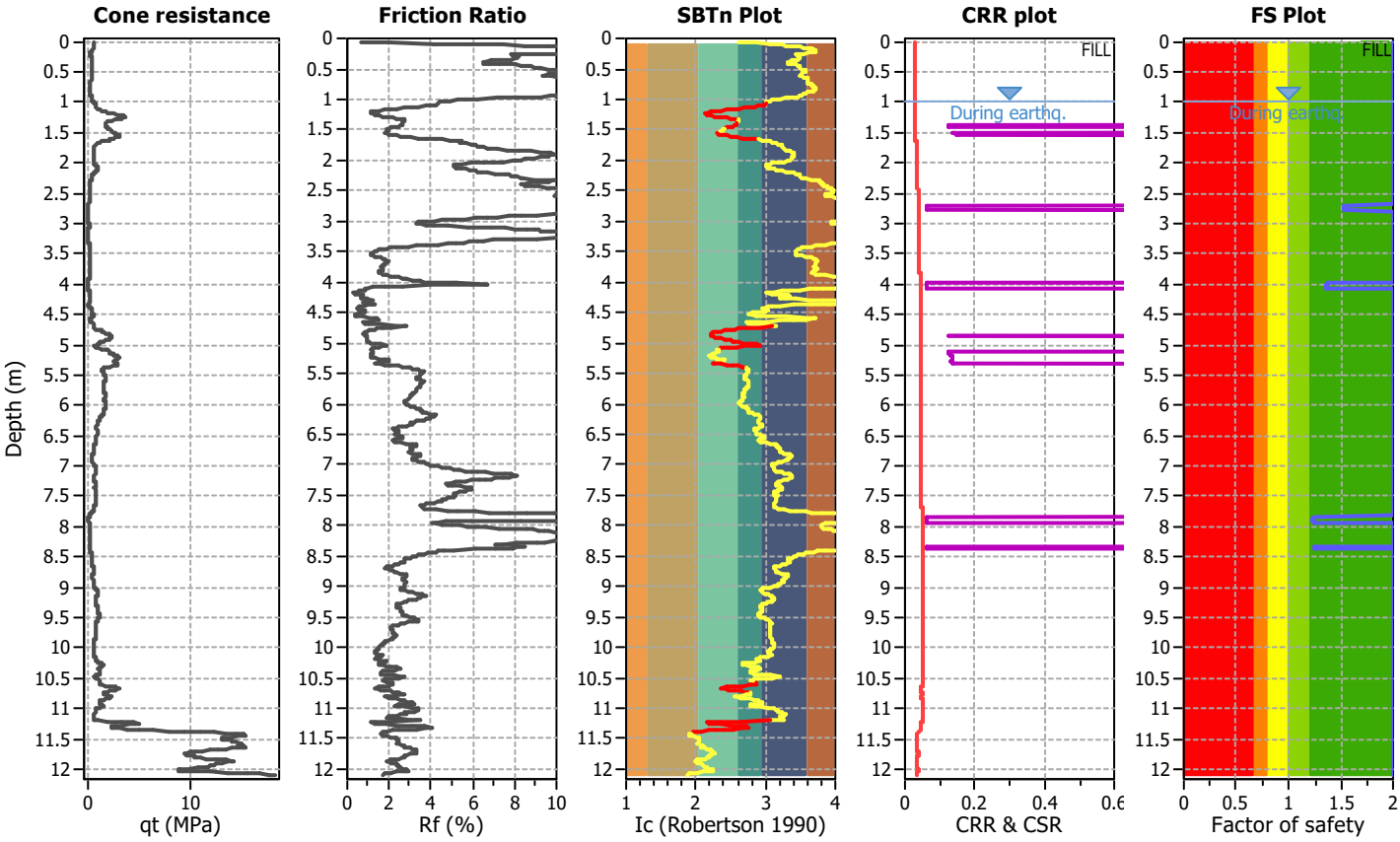
LIQUEFACTION ANALYSIS REPORT

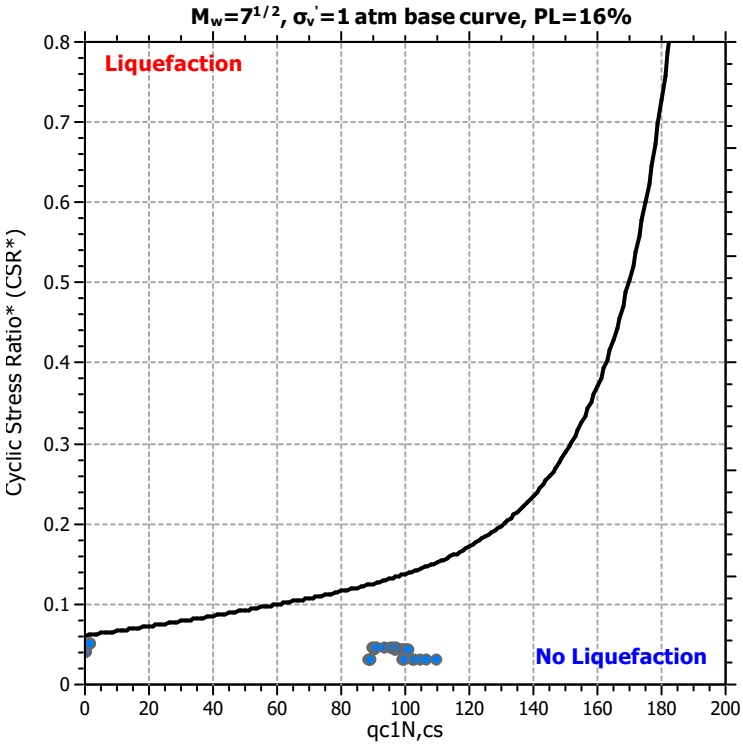
Project title : Sunfield Landholding **Location :**

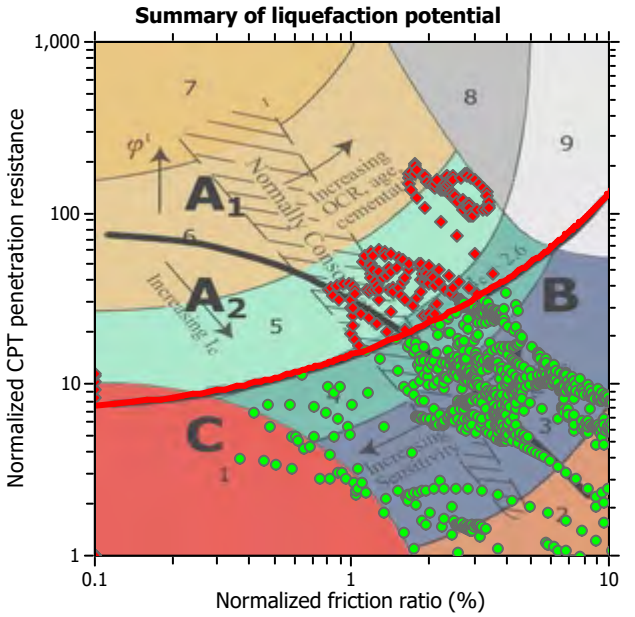
CPT file : CPT307

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	18.50 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

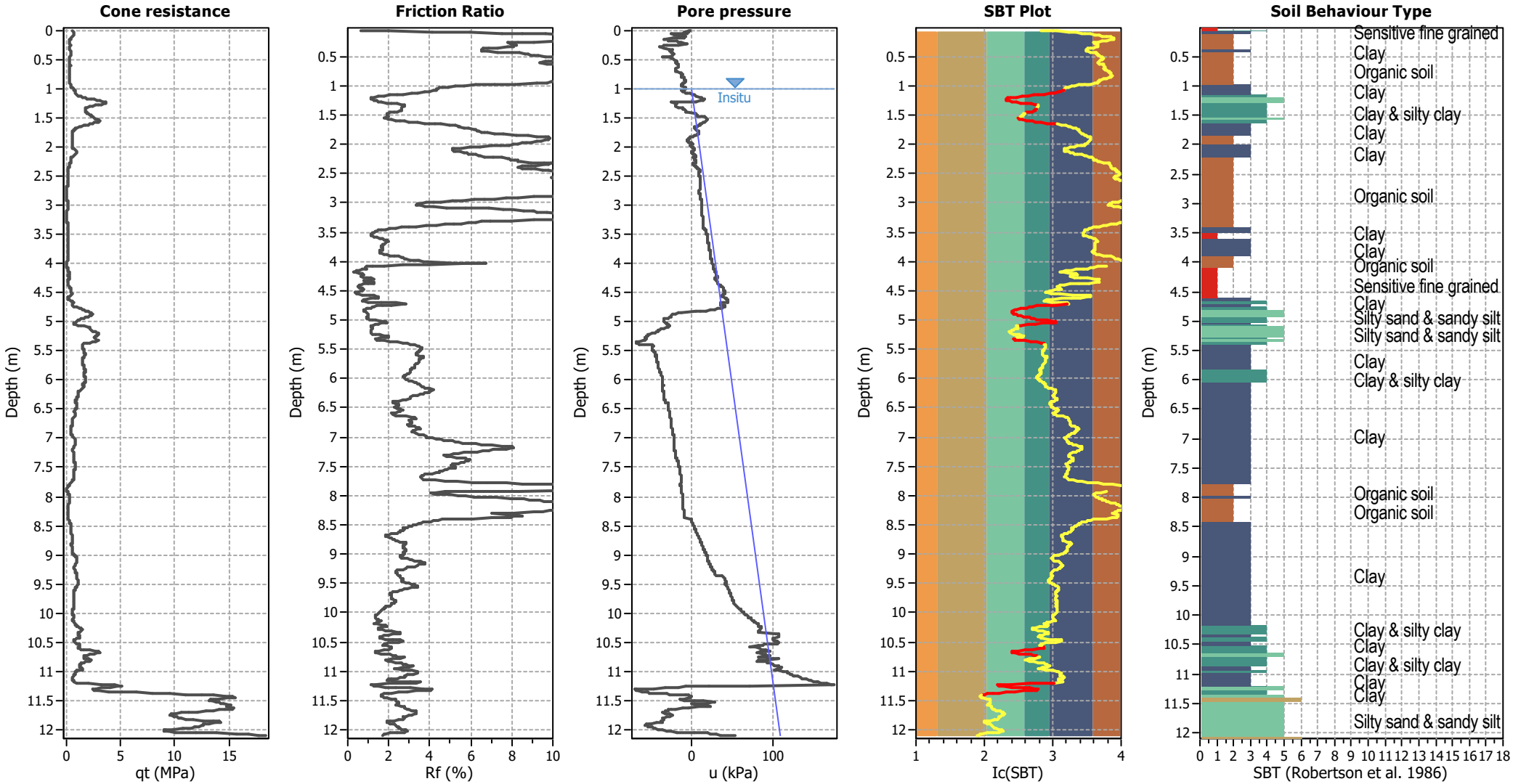






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



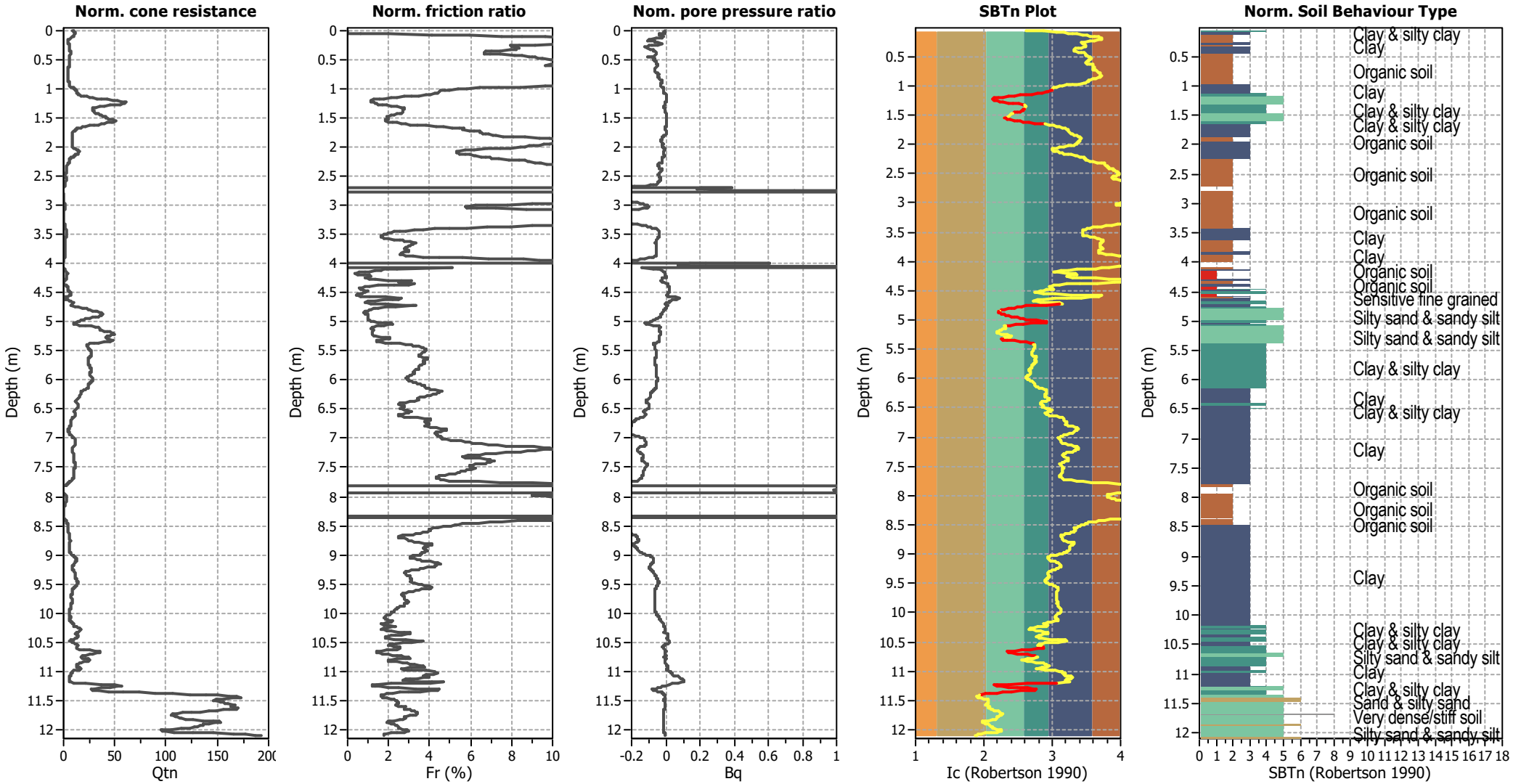
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



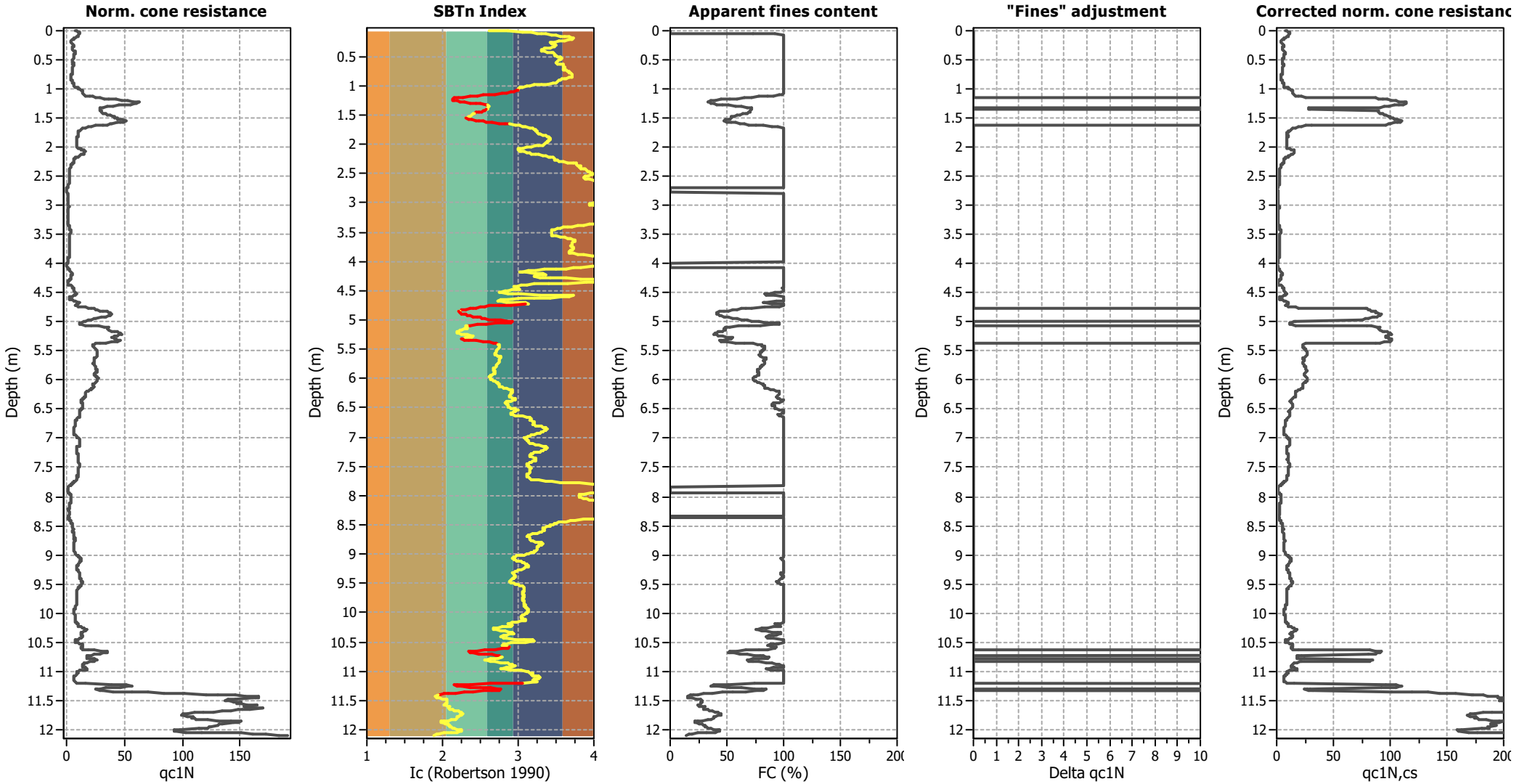
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

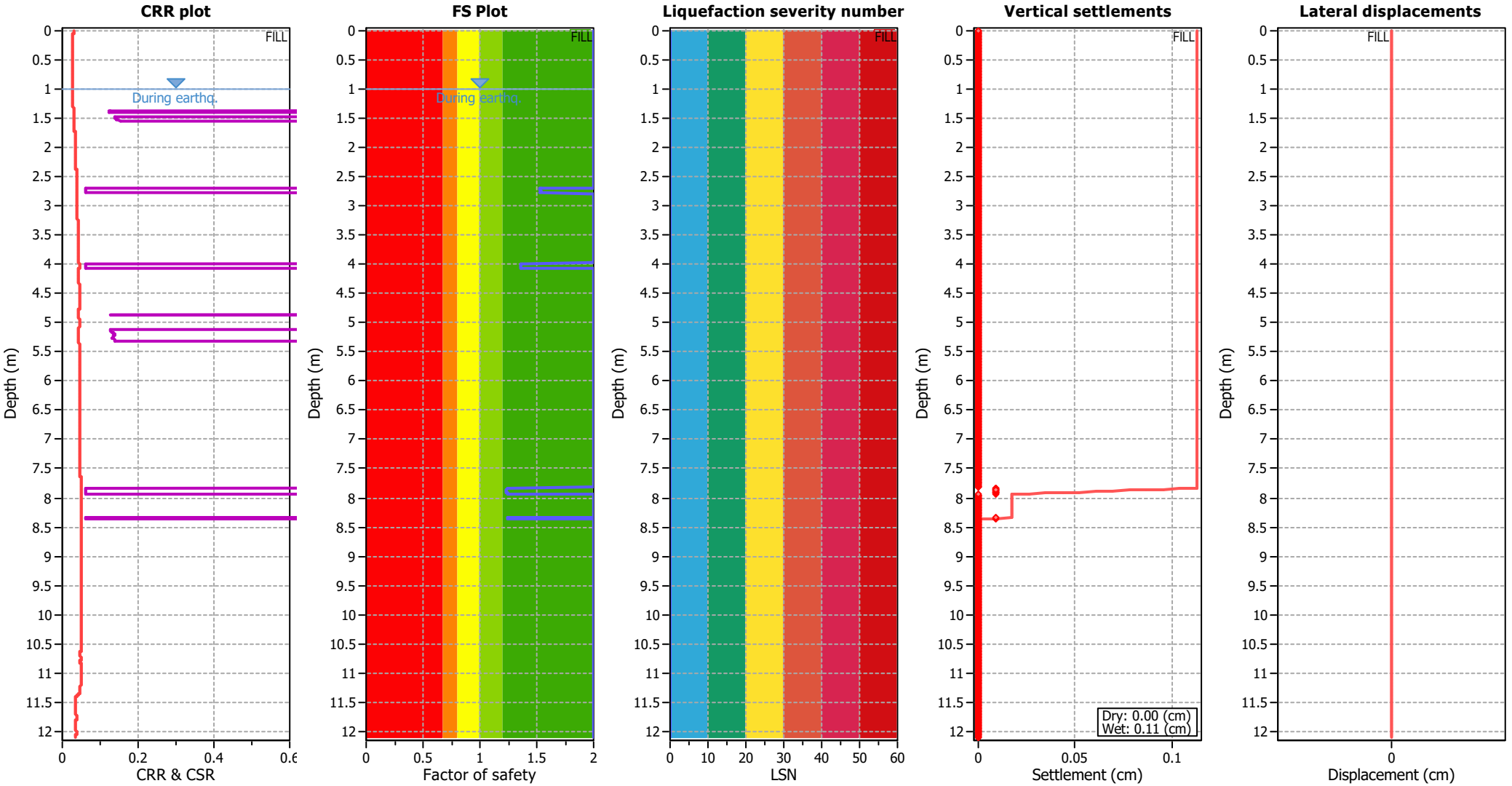
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

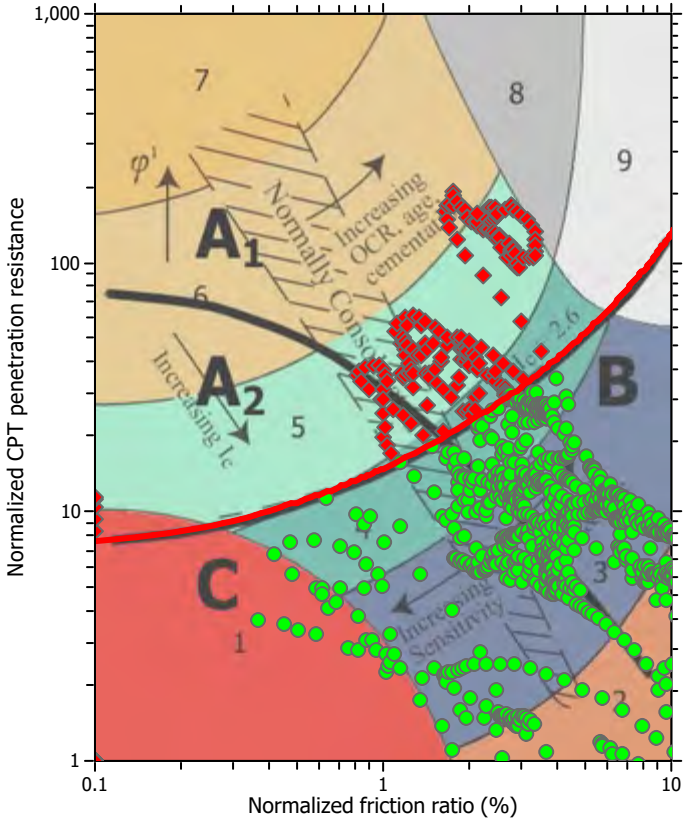
F.S. color scheme

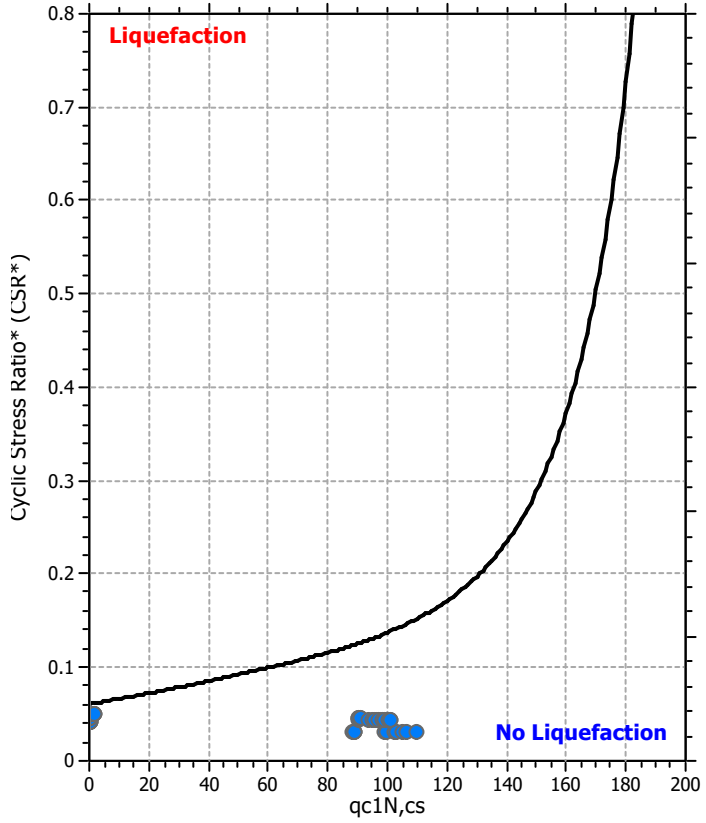
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

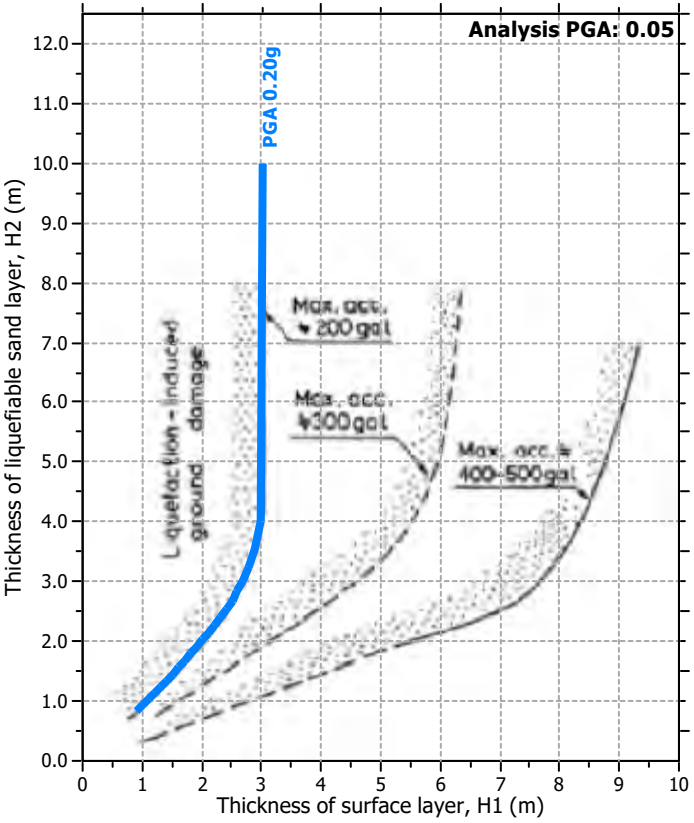
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



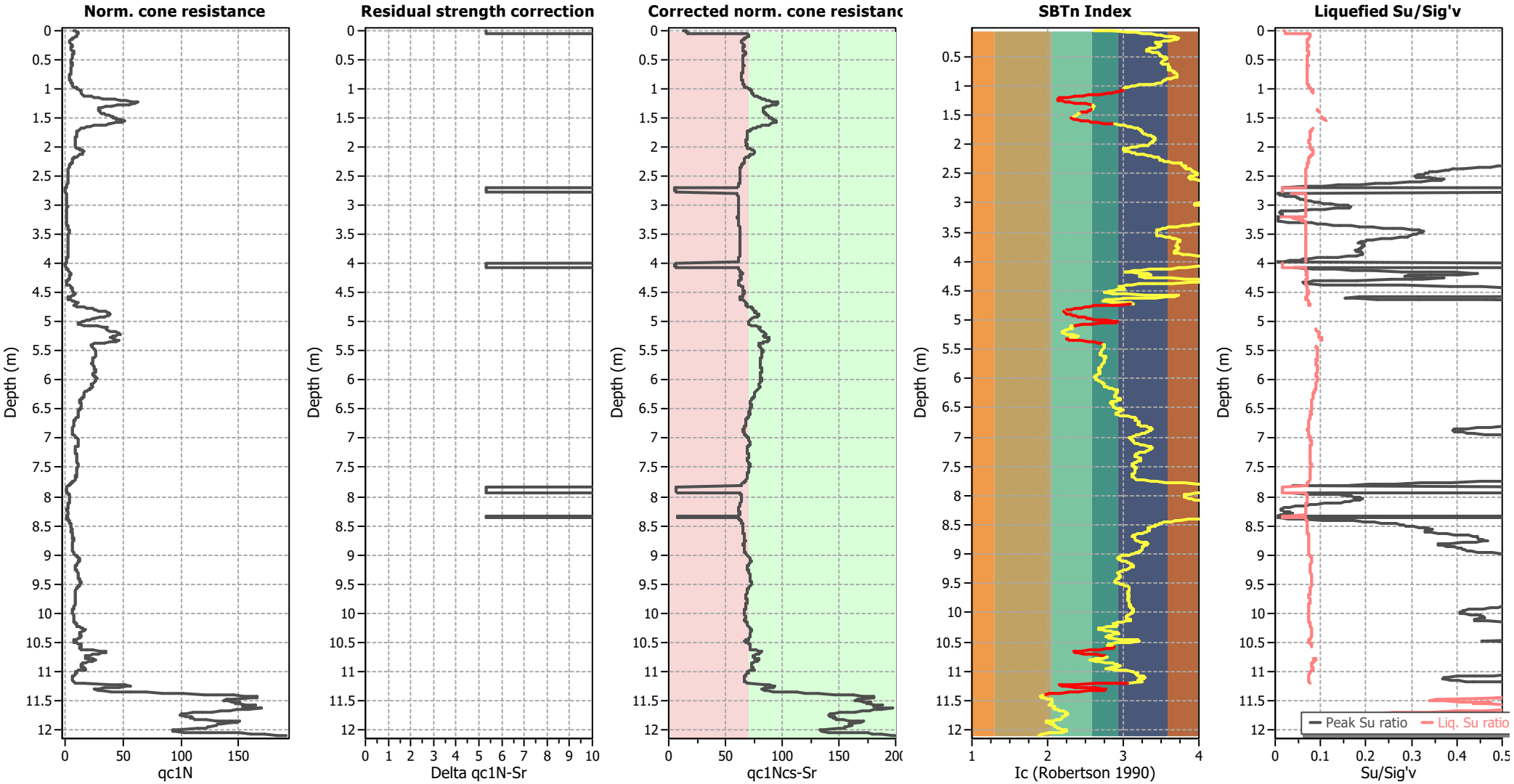




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

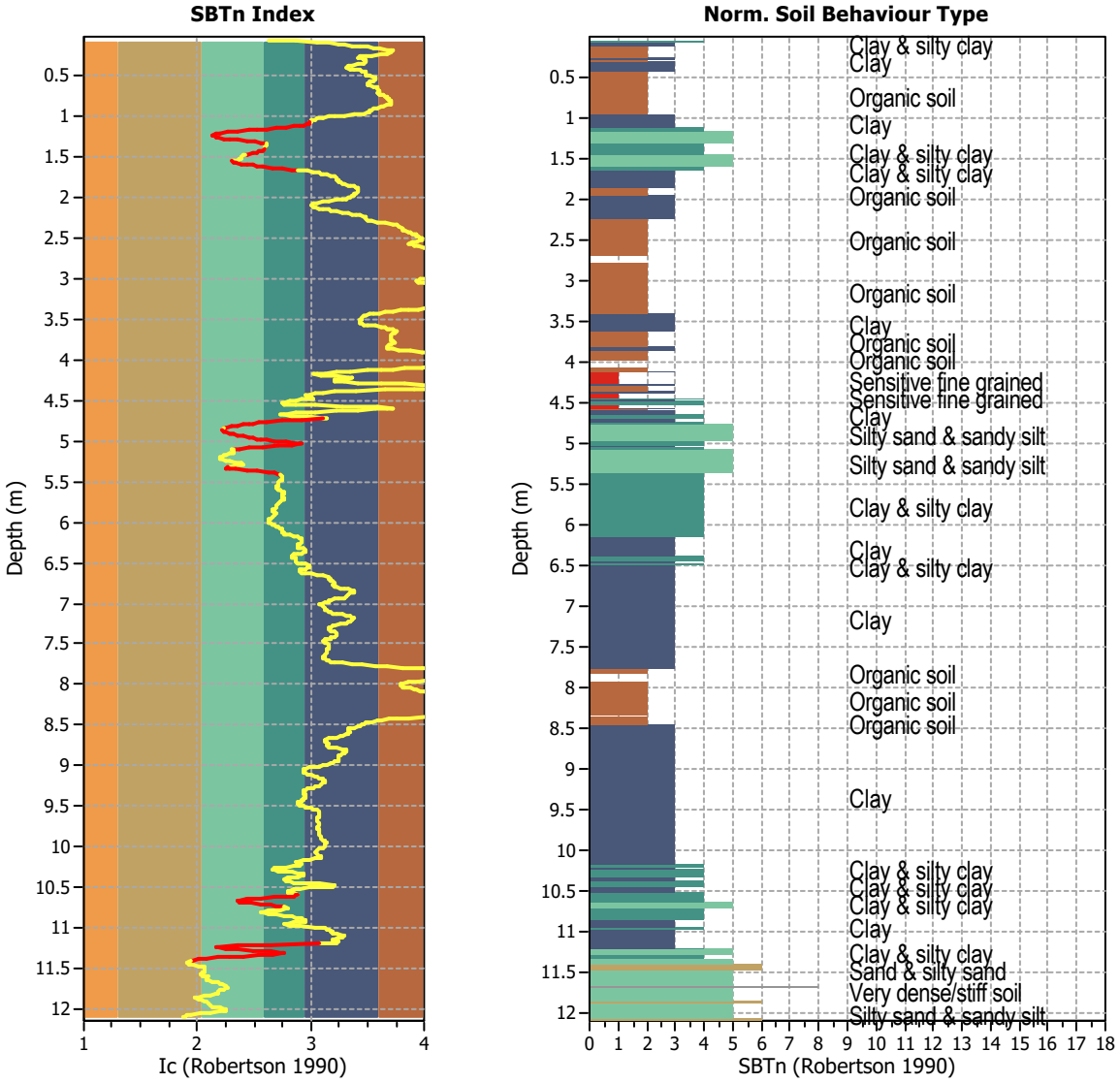
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

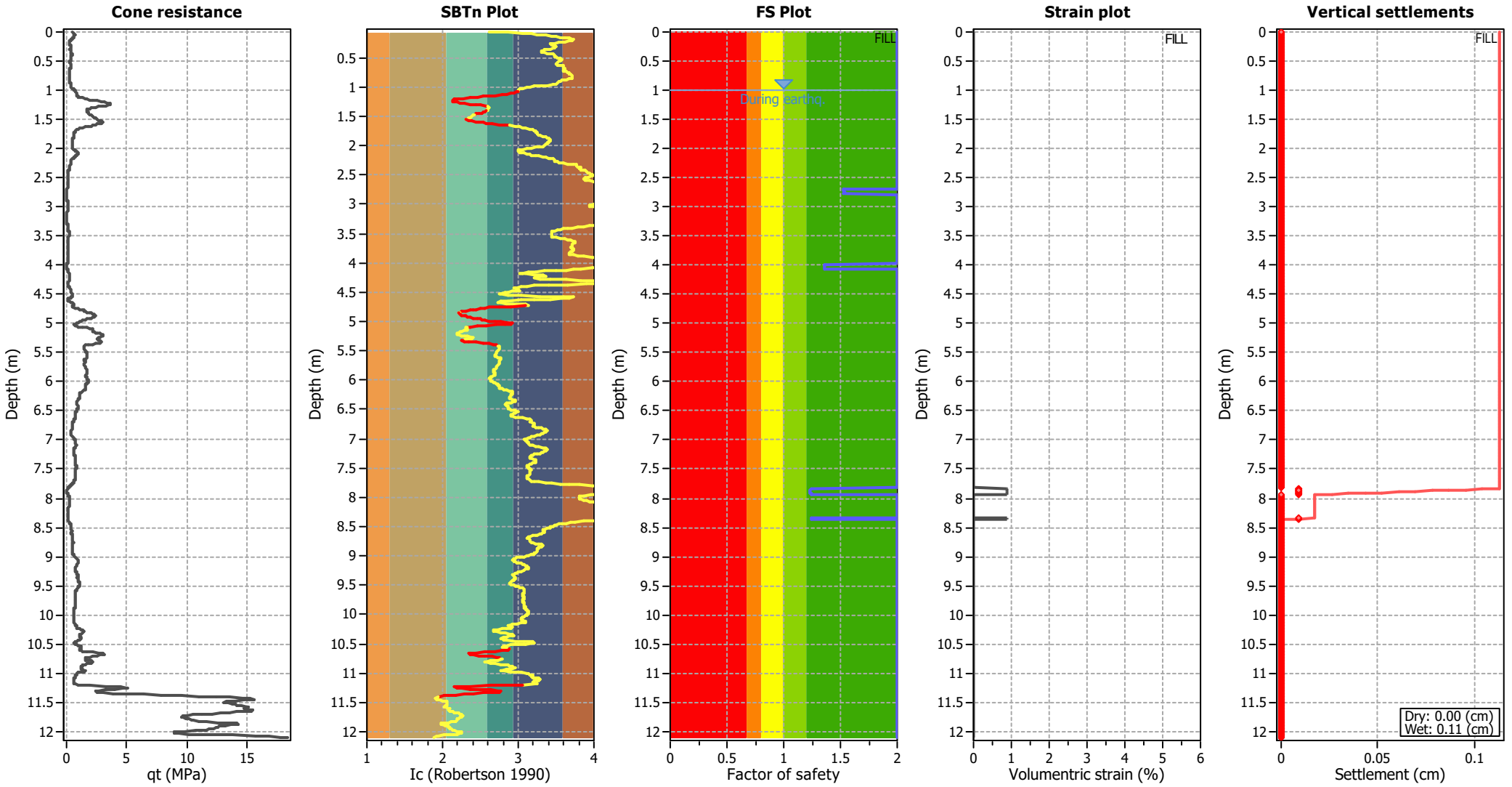
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	1210
I_c maximum check value:	3.00	Total points excluded:	137
I_c change ratio value:	0.0100	Exclusion percentage:	11.32%
Minimum number of points in layer:	4	Number of layers detected:	13

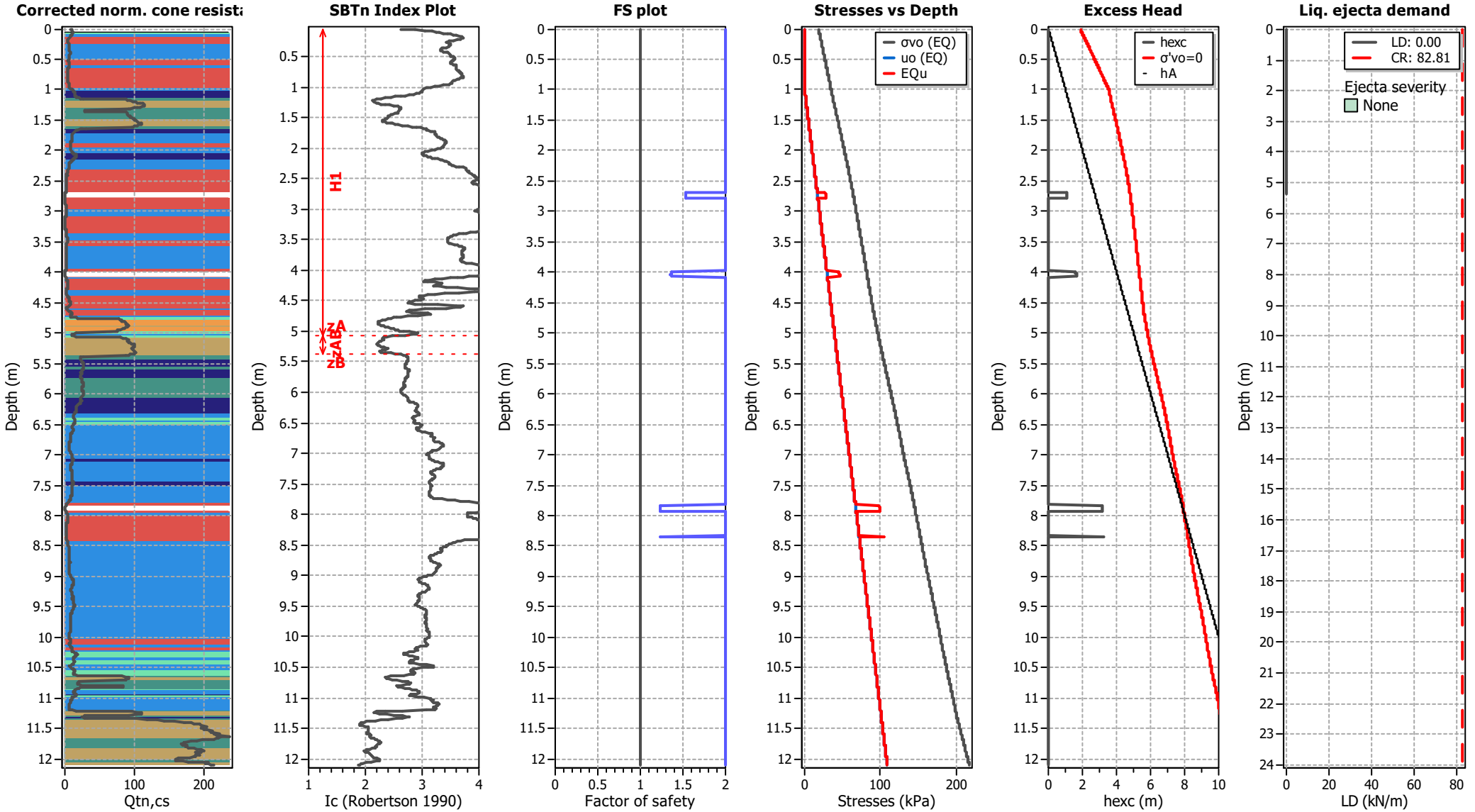
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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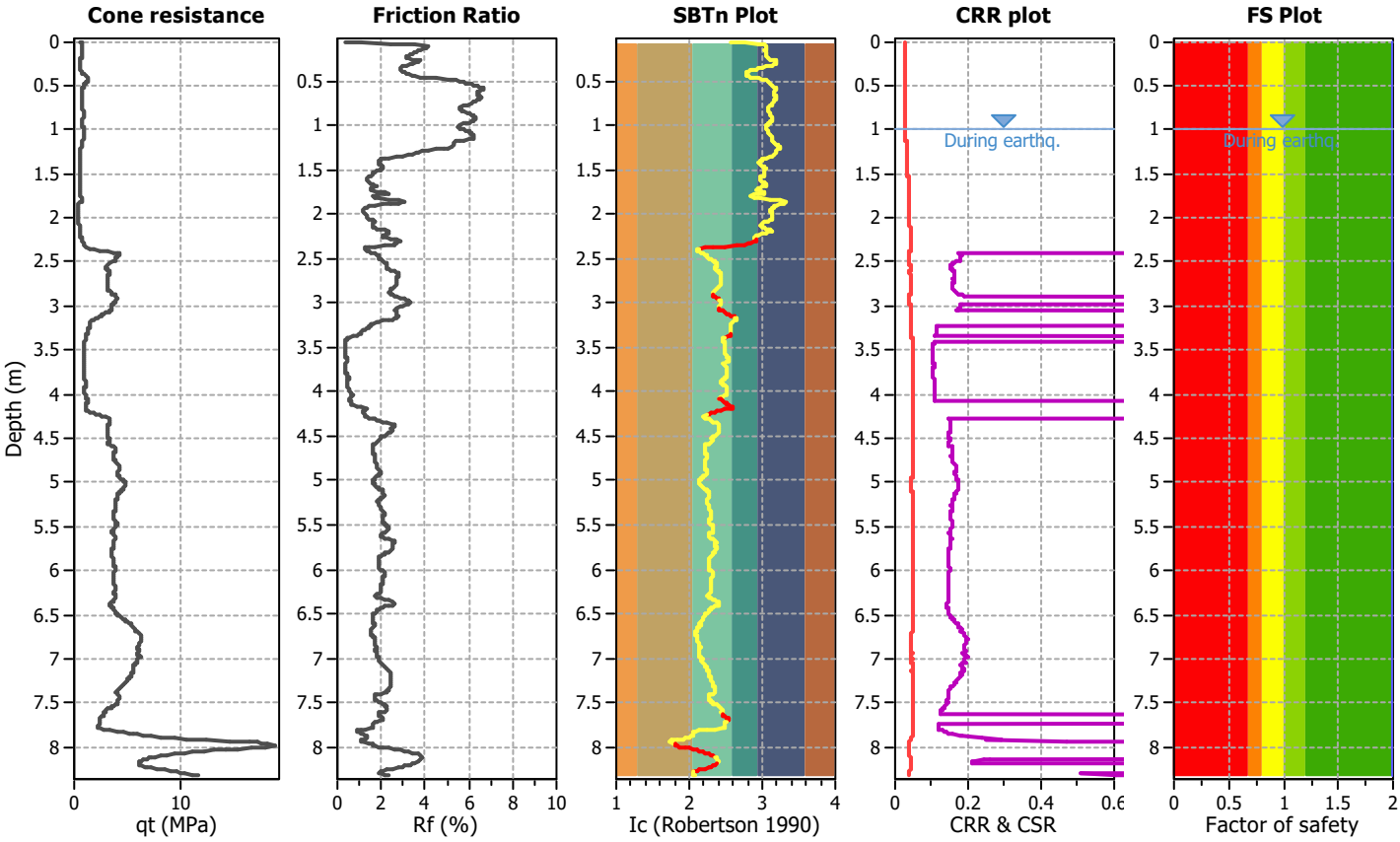
LIQUEFACTION ANALYSIS REPORT

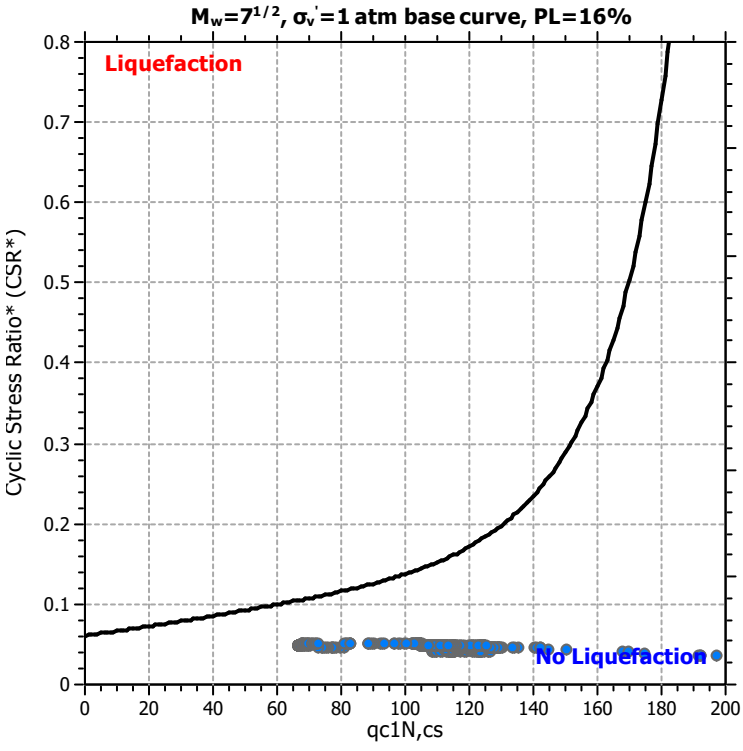
Project title : Sunfield Landholding **Location :**

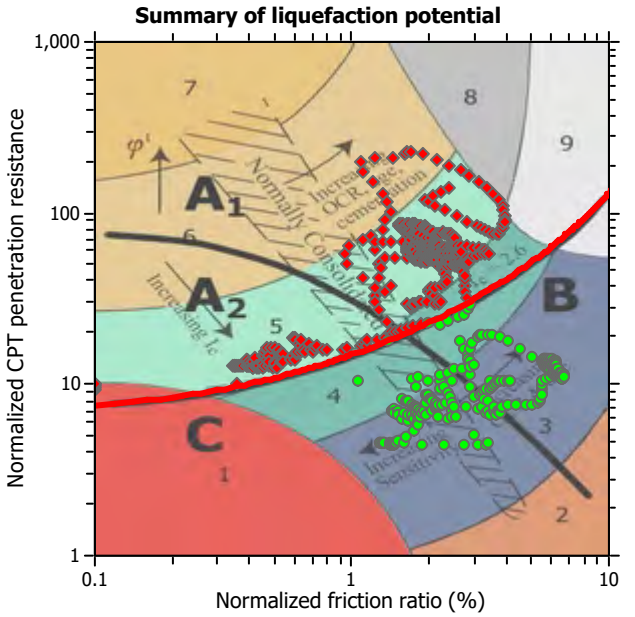
CPT file : CPT308

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Excavation:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.00 m	Excavation depth:	0.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	0.00 kPa	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

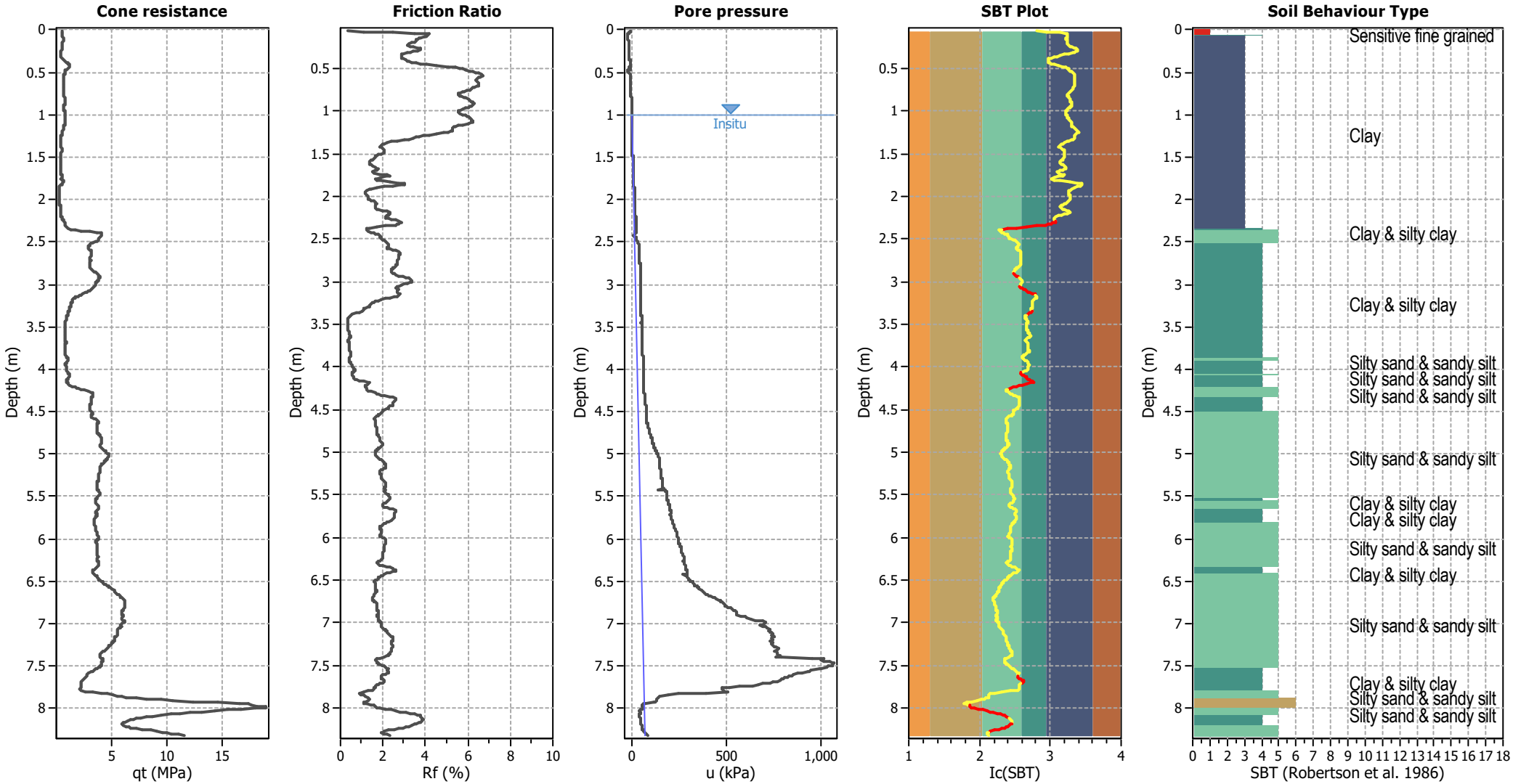






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



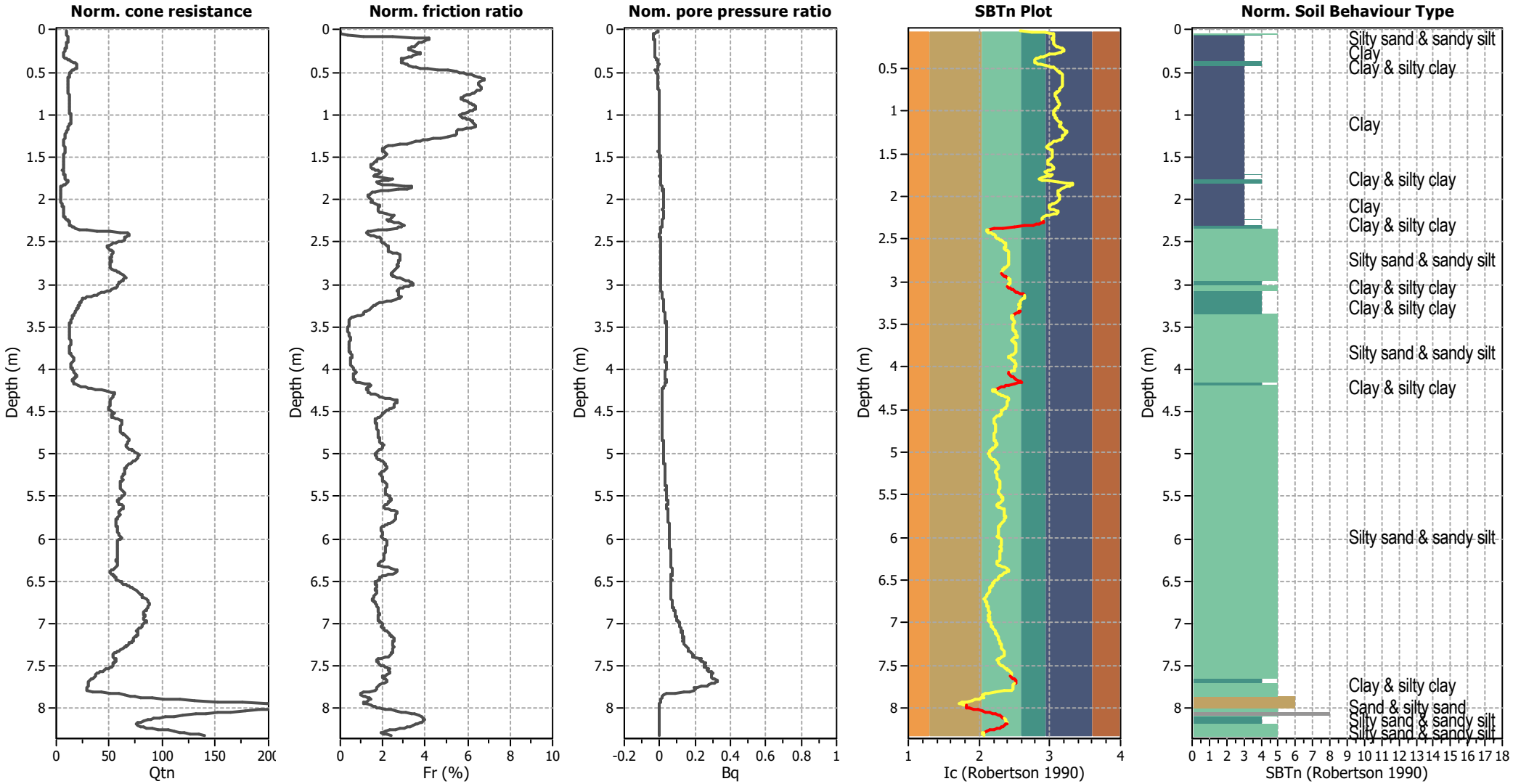
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

SBTn legend

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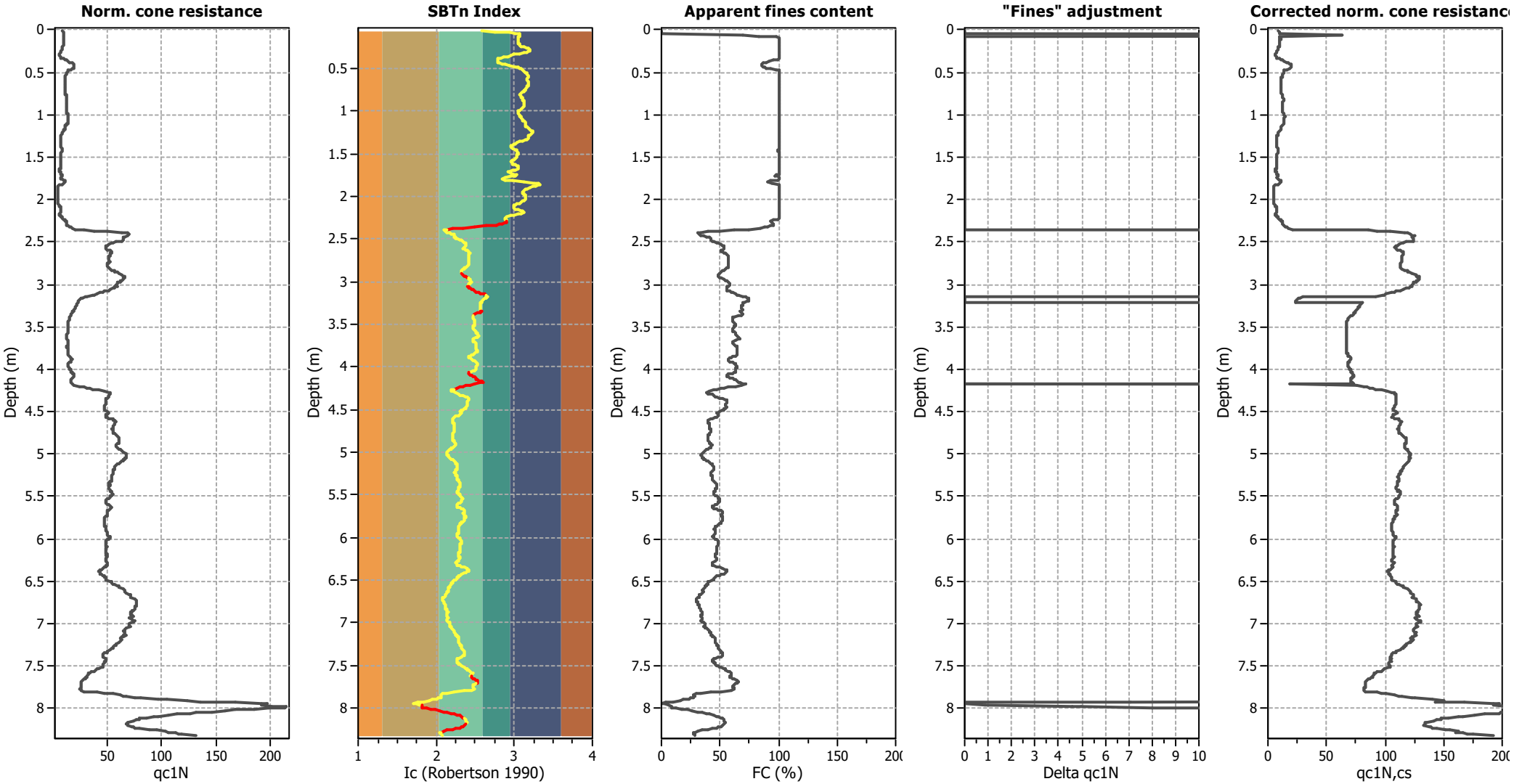
8. Very stiff sand to
9. Very stiff fine grained

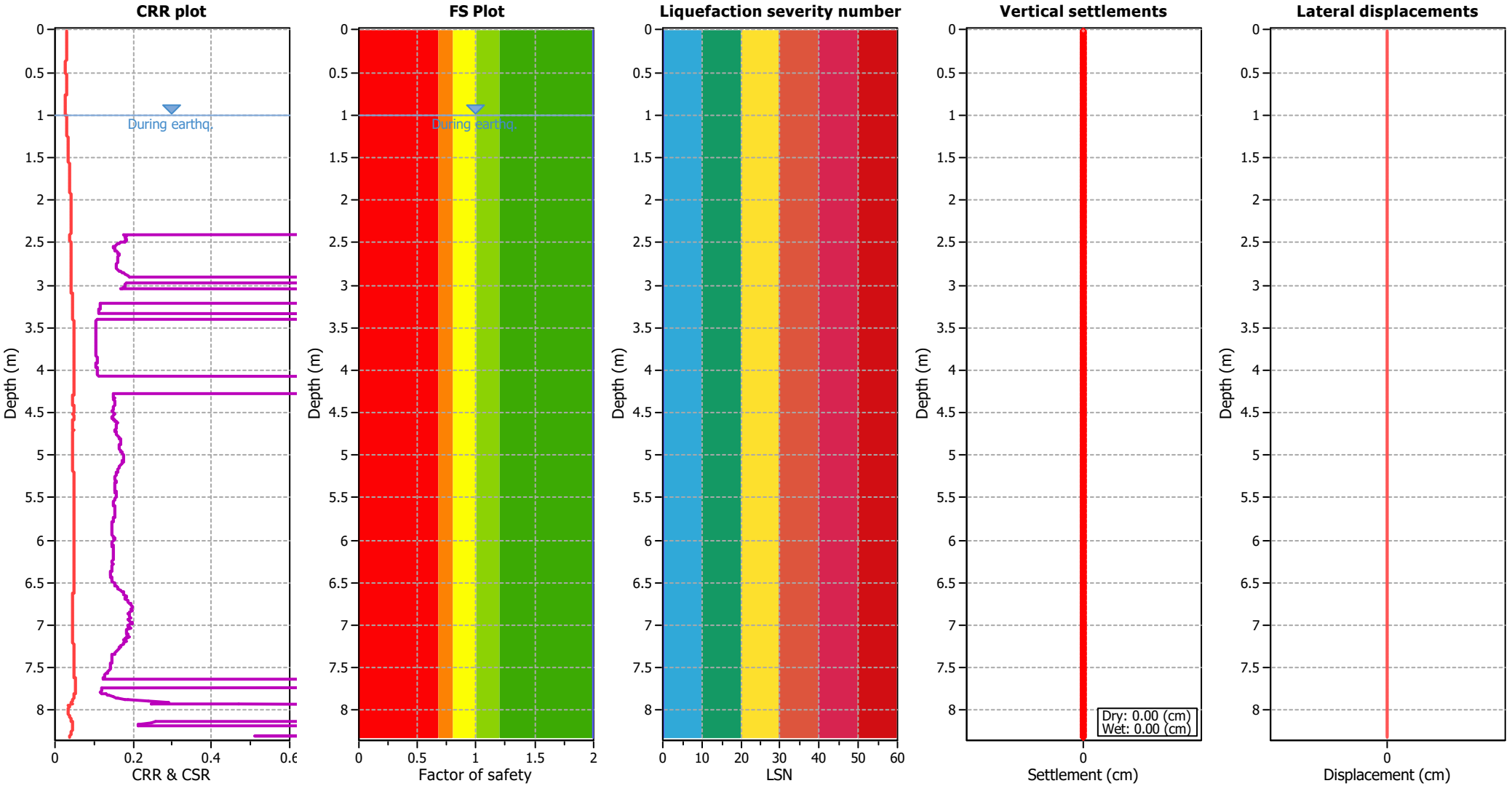
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

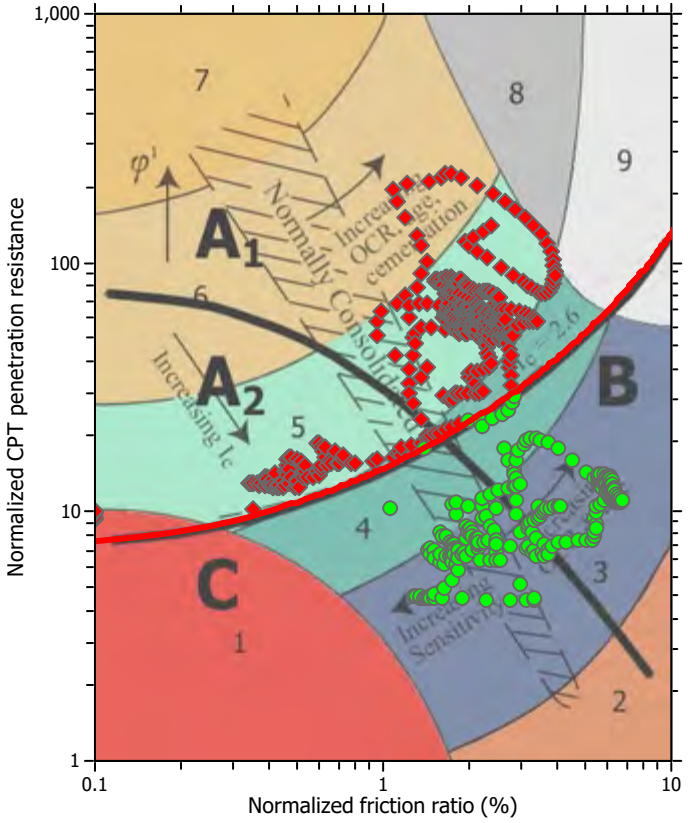
F.S. color scheme

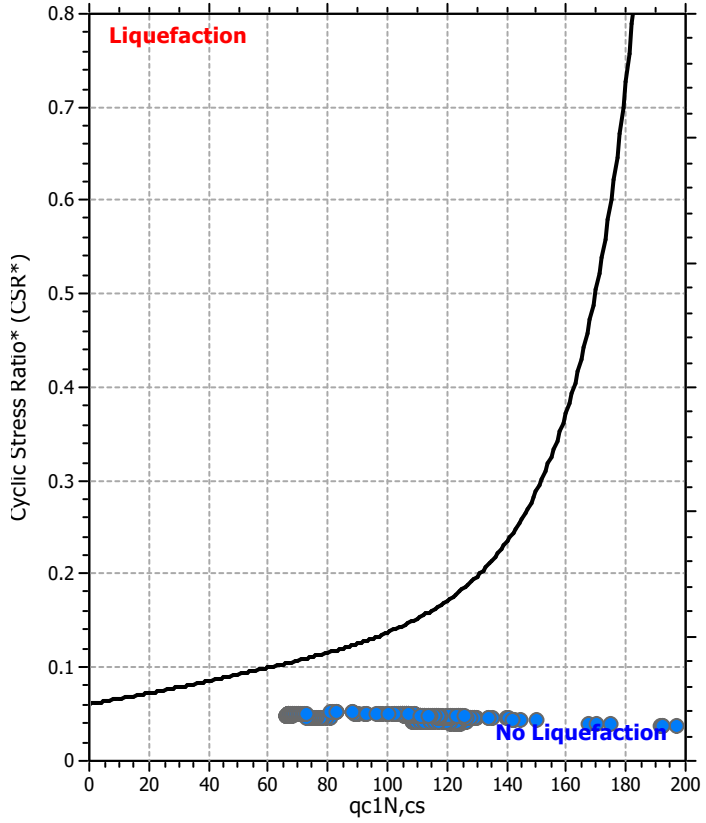
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

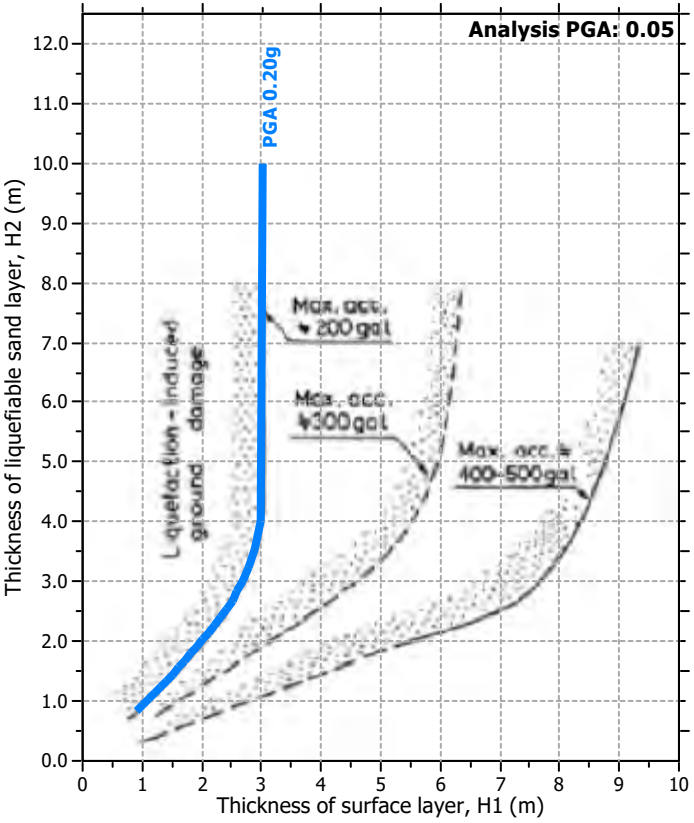
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots







Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
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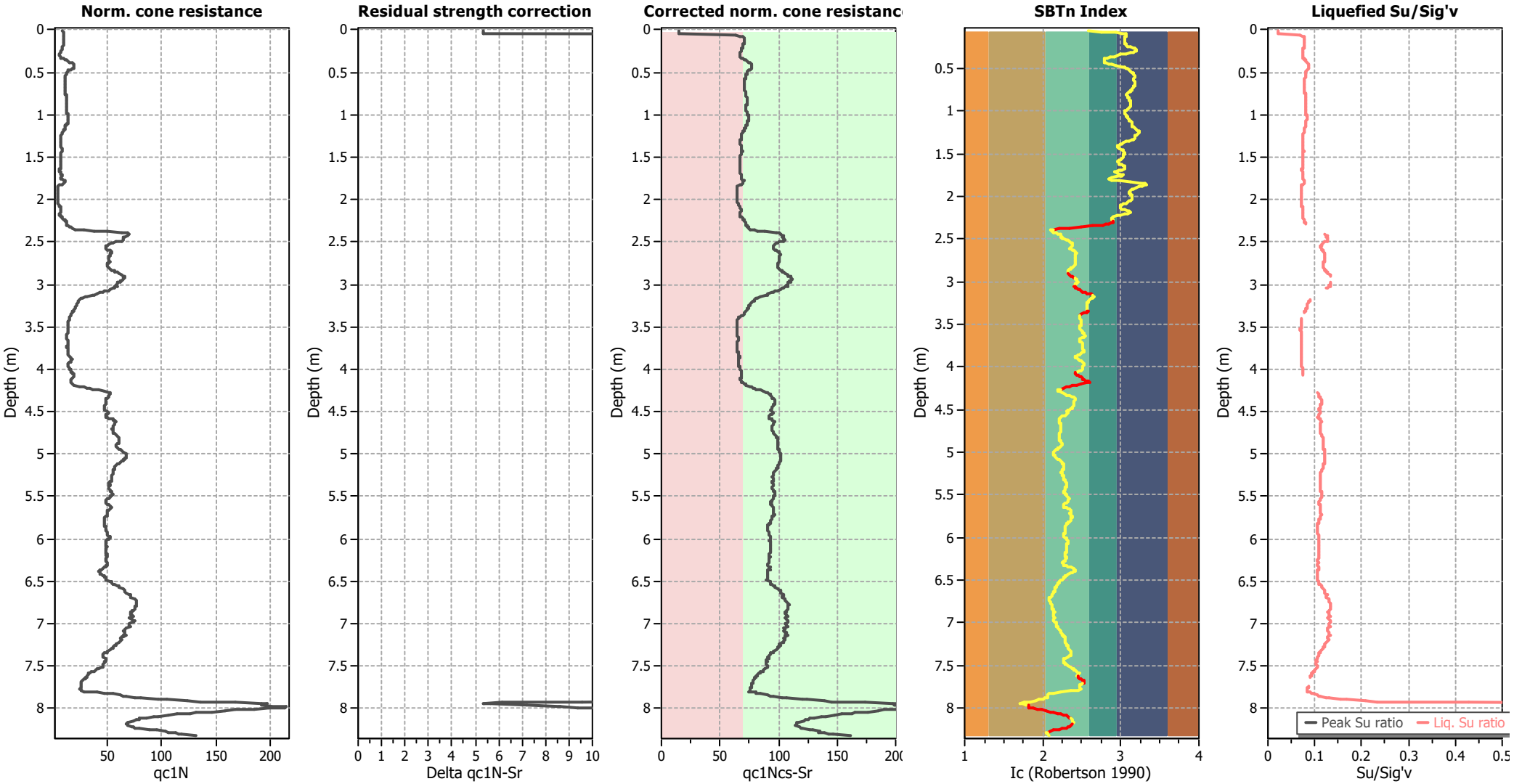
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

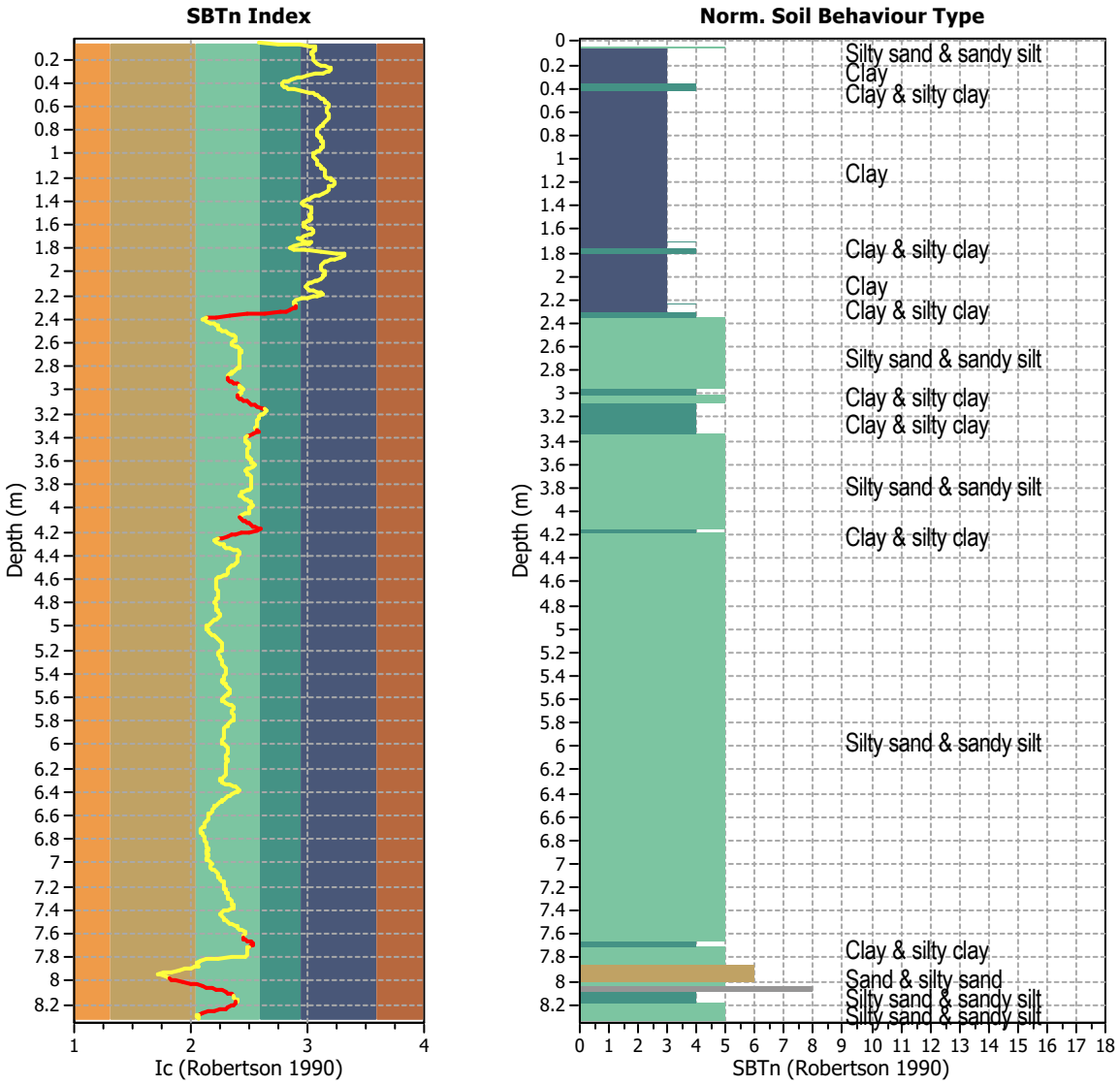
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Footing load:	0.00 kPa
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Excavation depth:	0.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

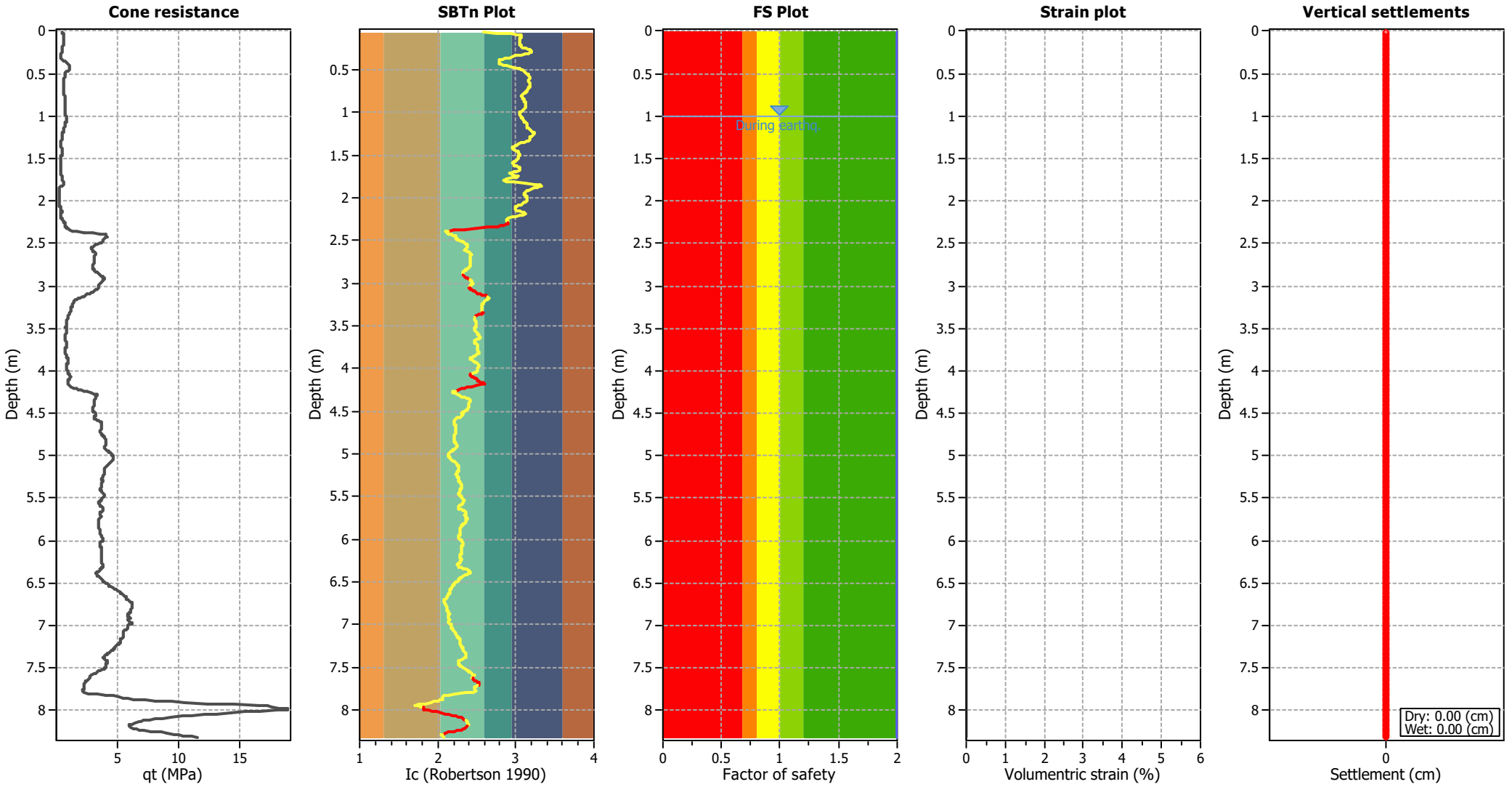
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	832
I_c maximum check value:	3.00	Total points excluded:	93
I_c change ratio value:	0.0100	Exclusion percentage:	11.18%
Minimum number of points in layer:	4	Number of layers detected:	10

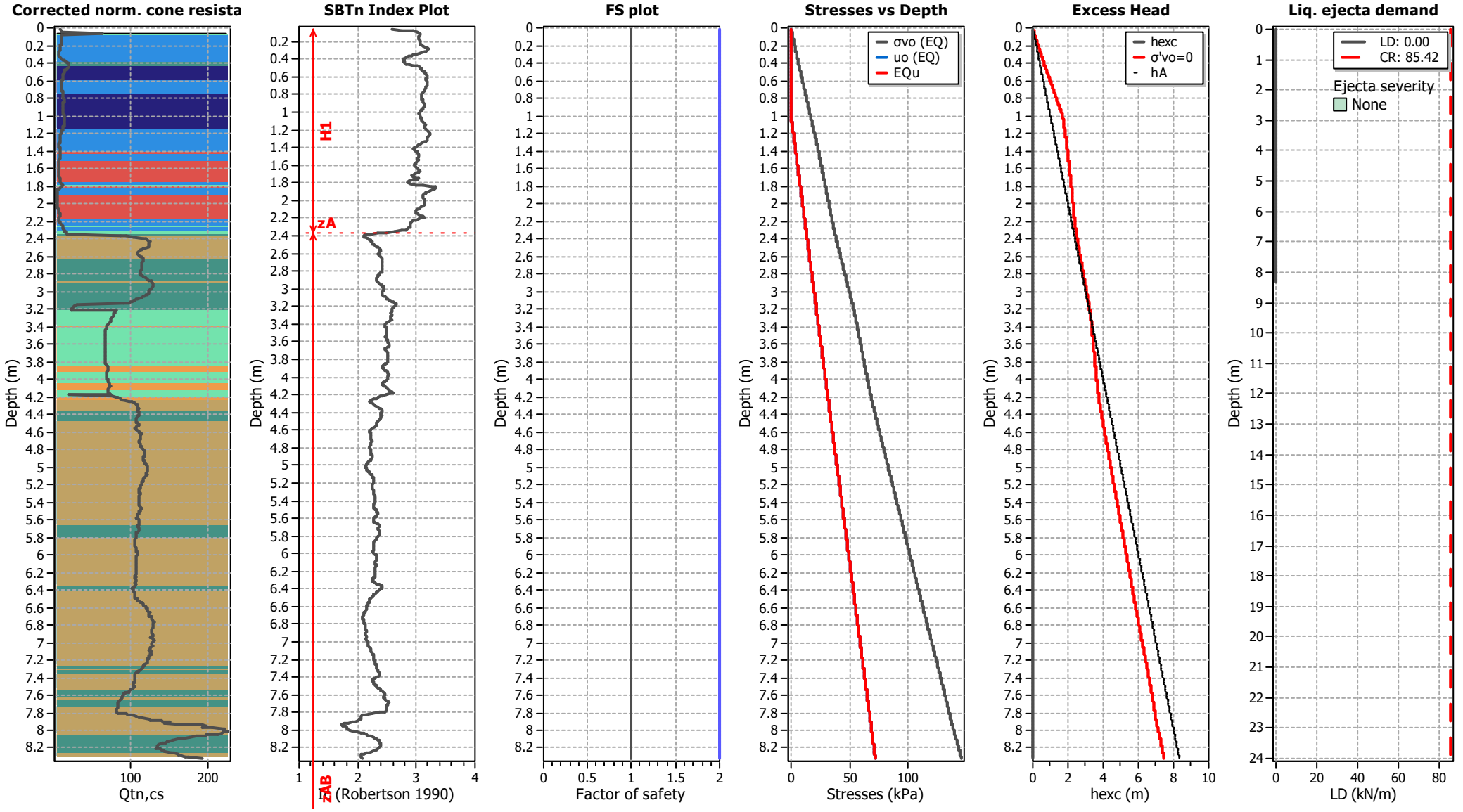
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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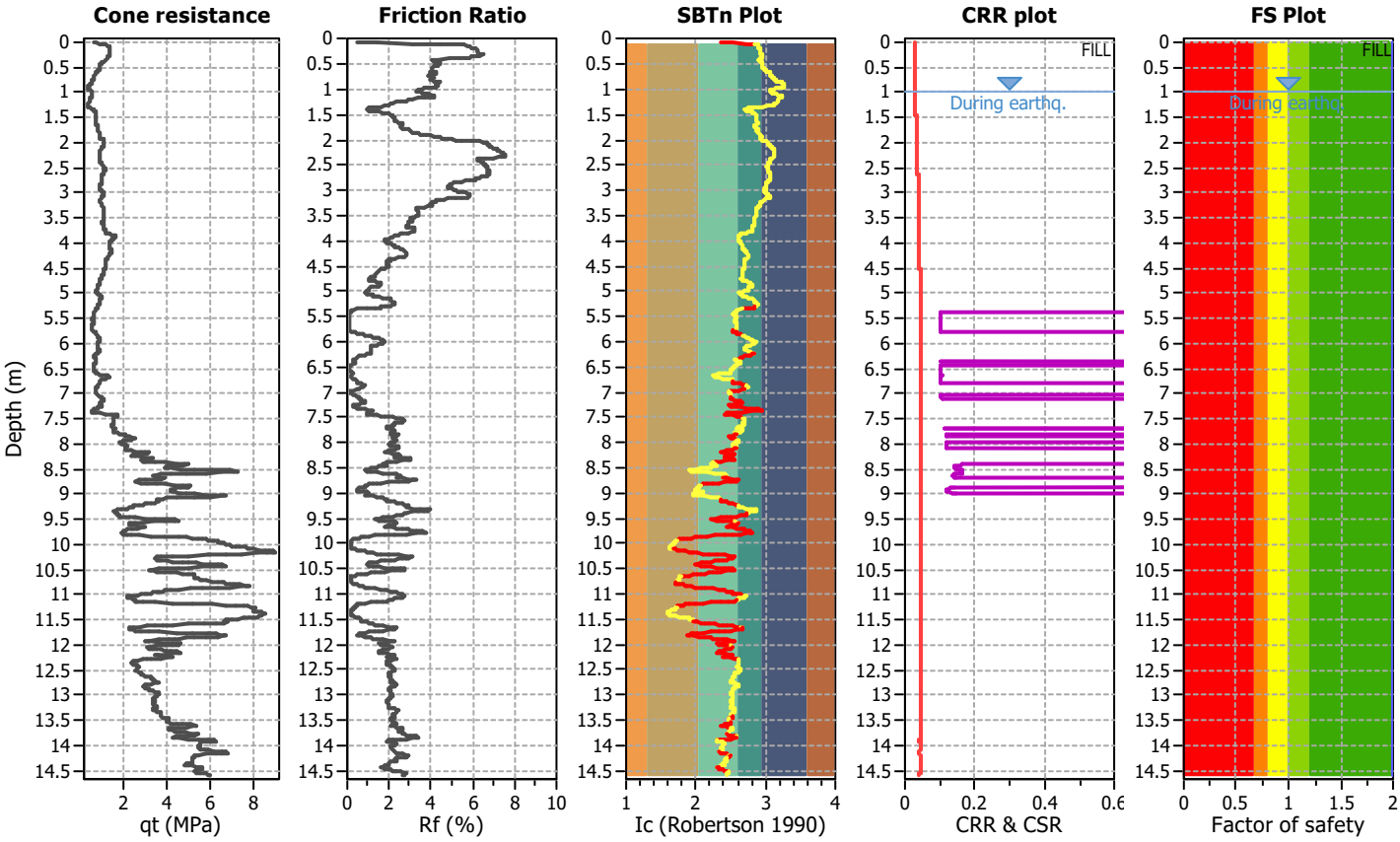
LIQUEFACTION ANALYSIS REPORT

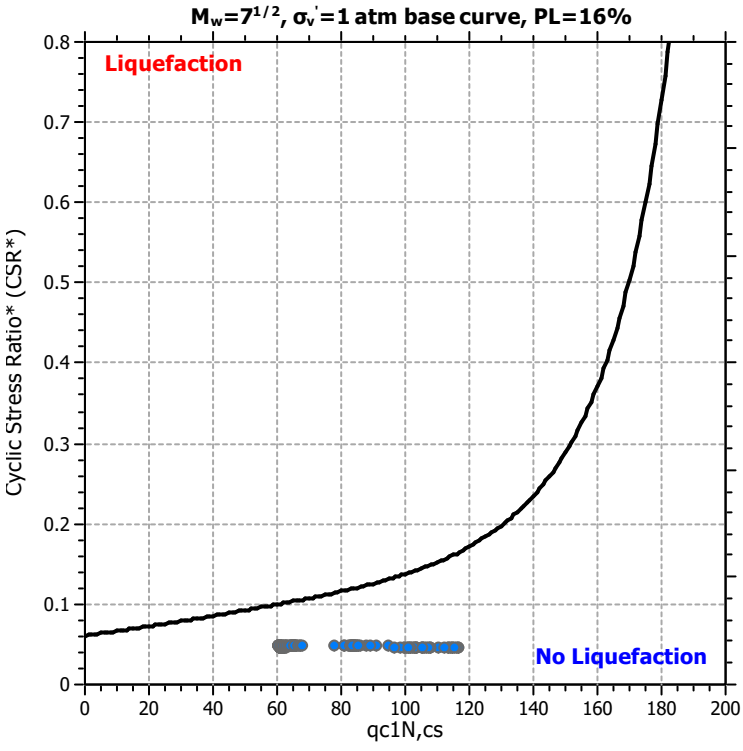
Project title : Sunfield Landholding **Location :**

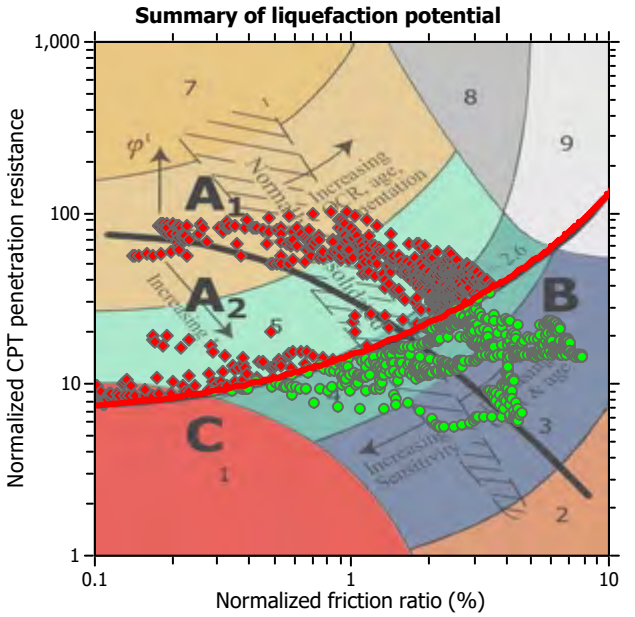
CPT file : CPT401

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	18.50 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

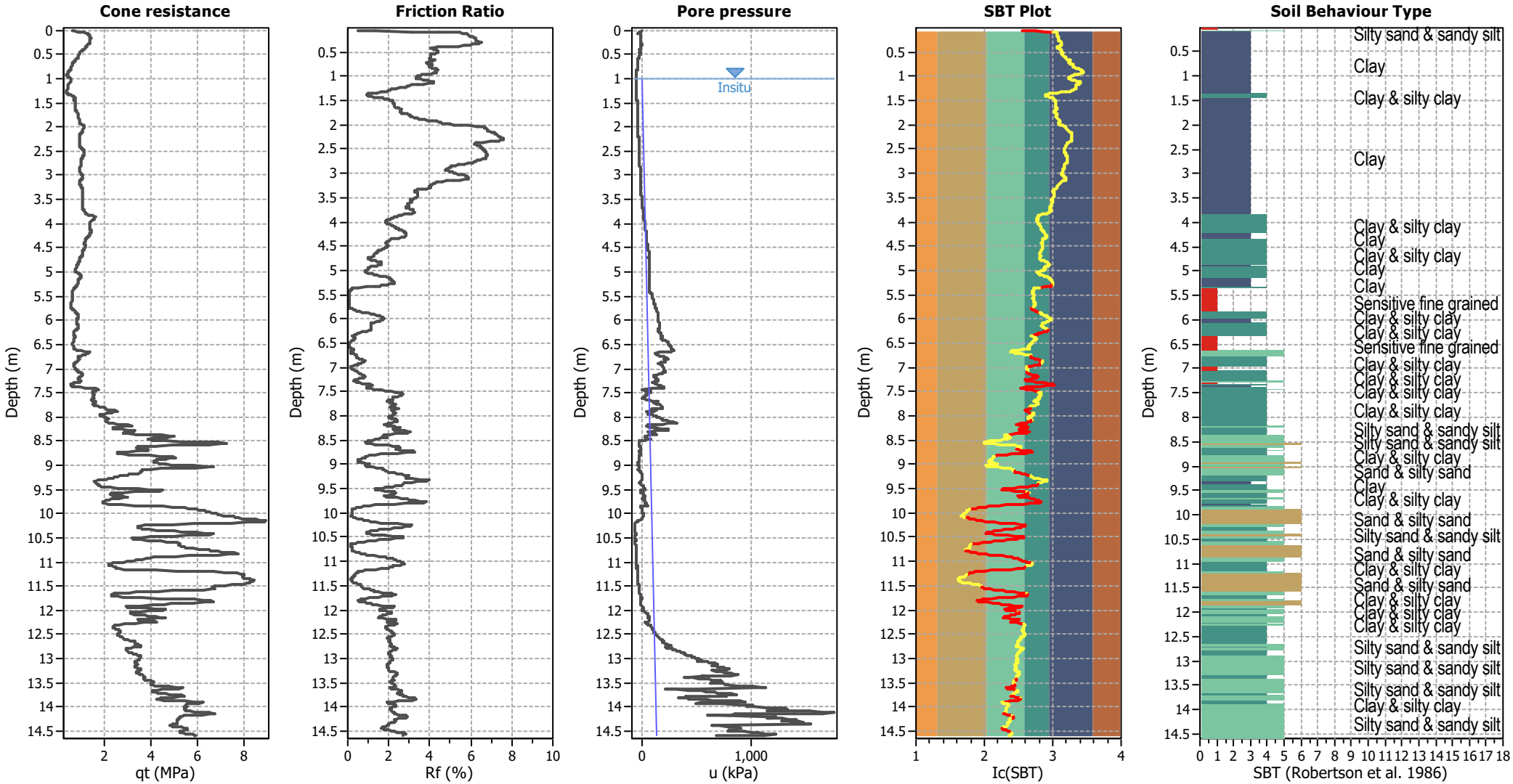






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



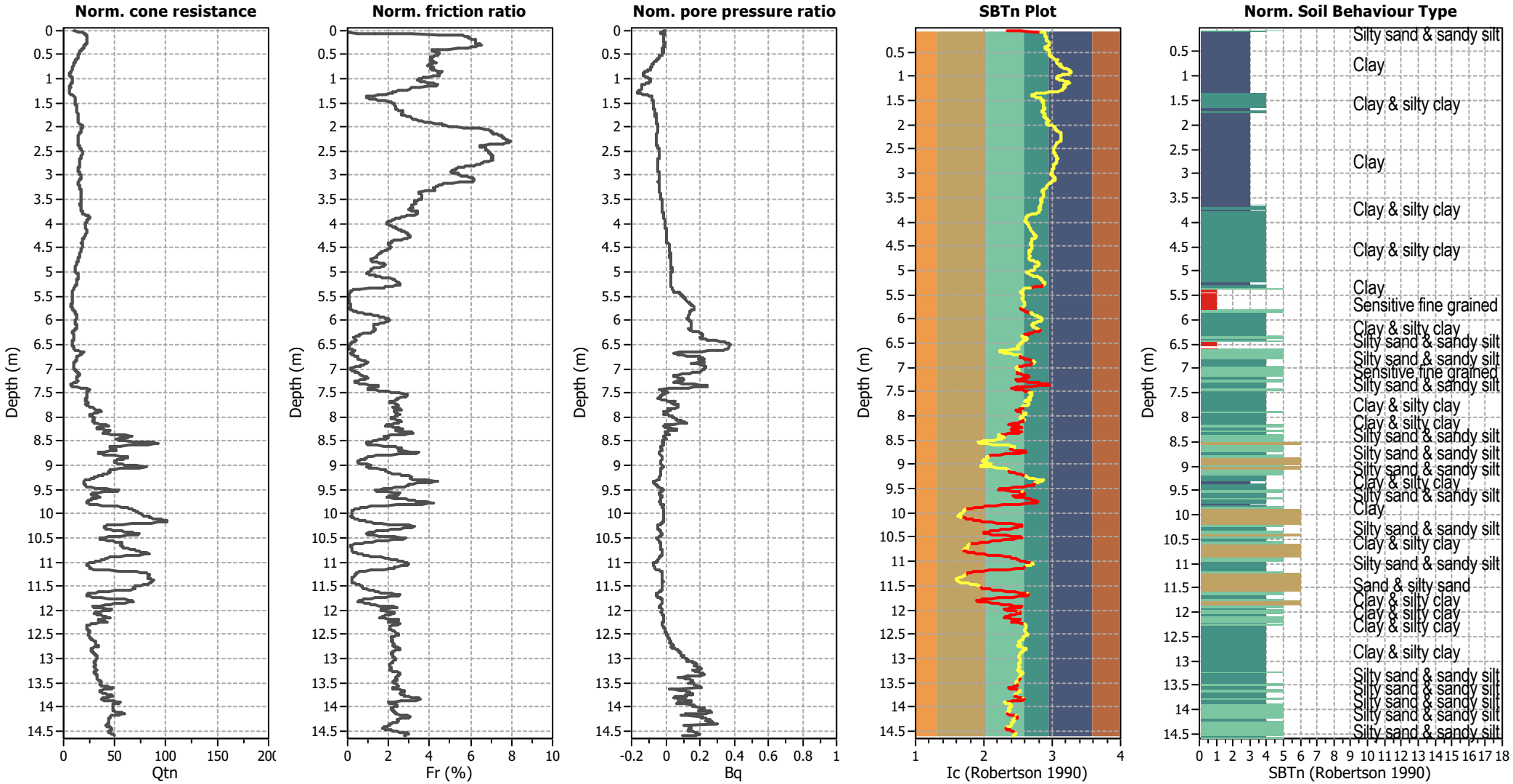
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



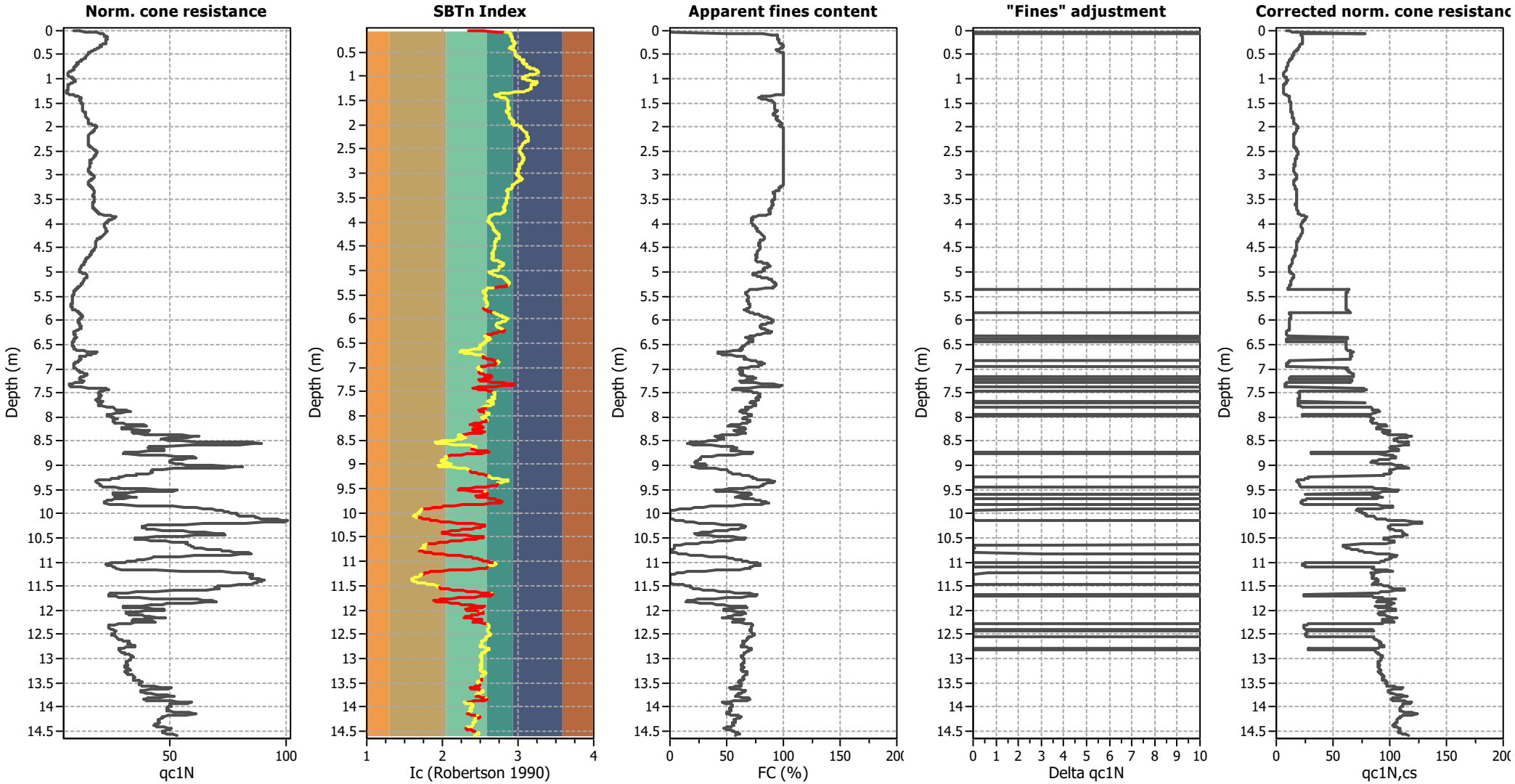
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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

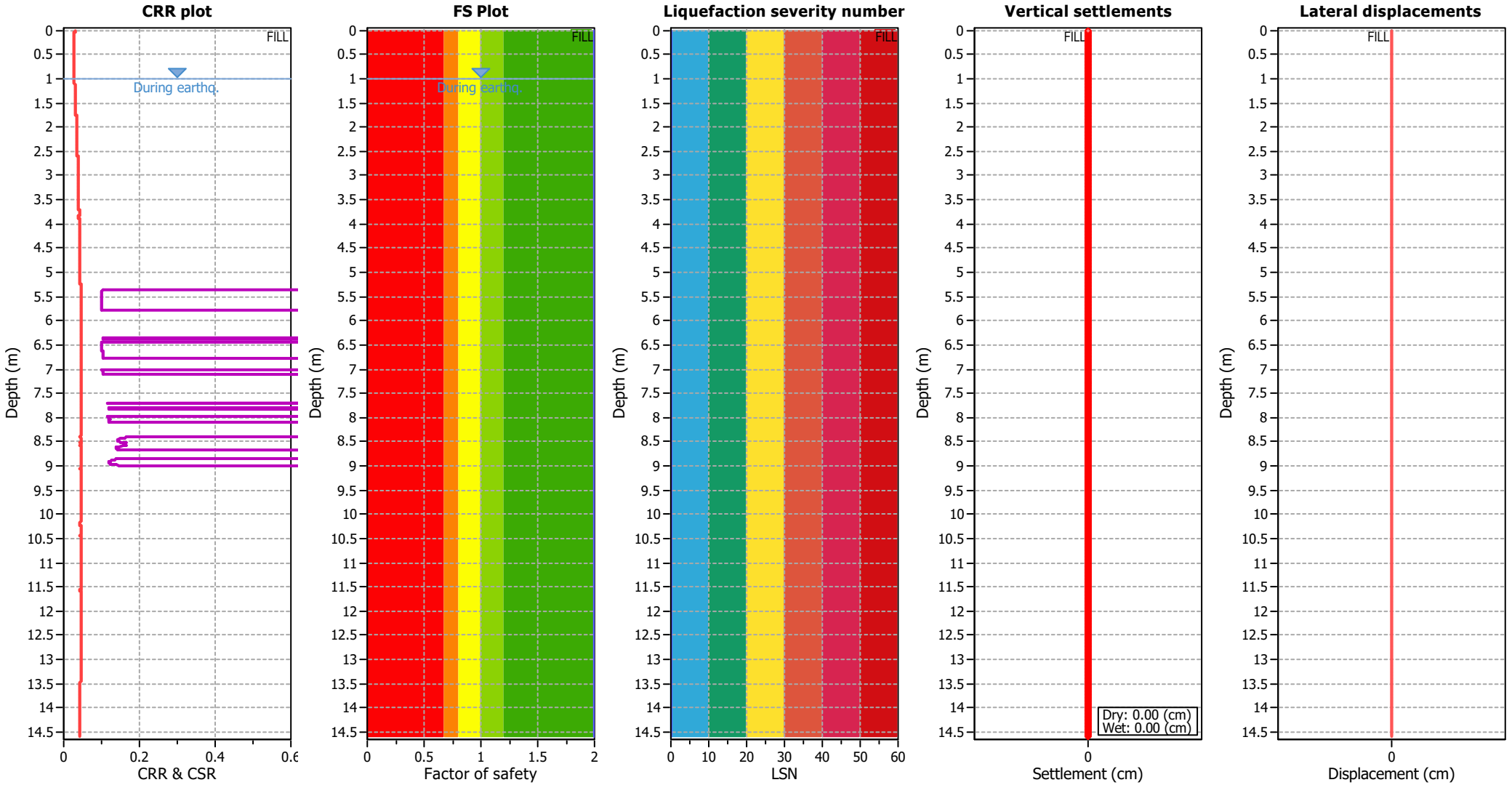
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

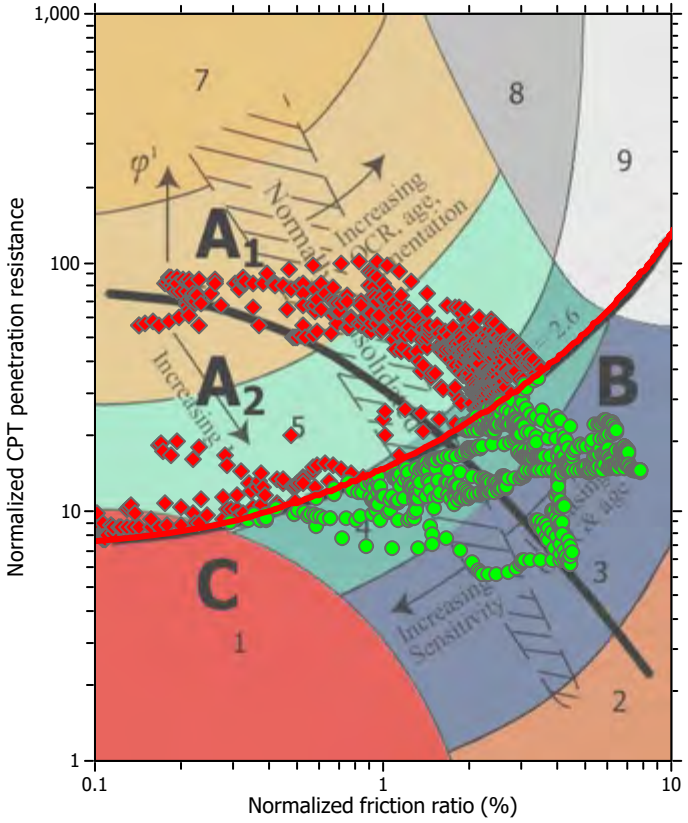
F.S. color scheme

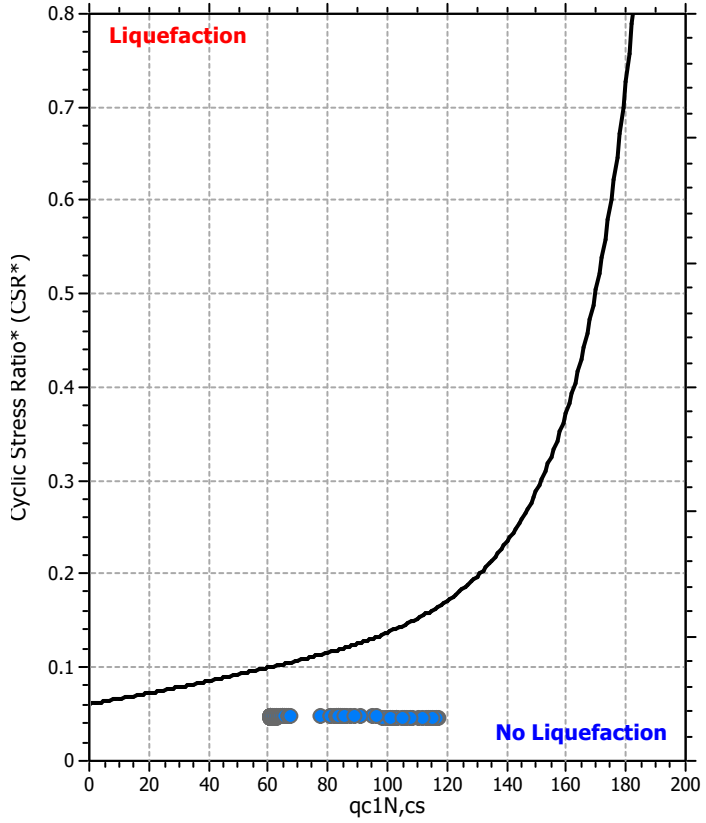
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

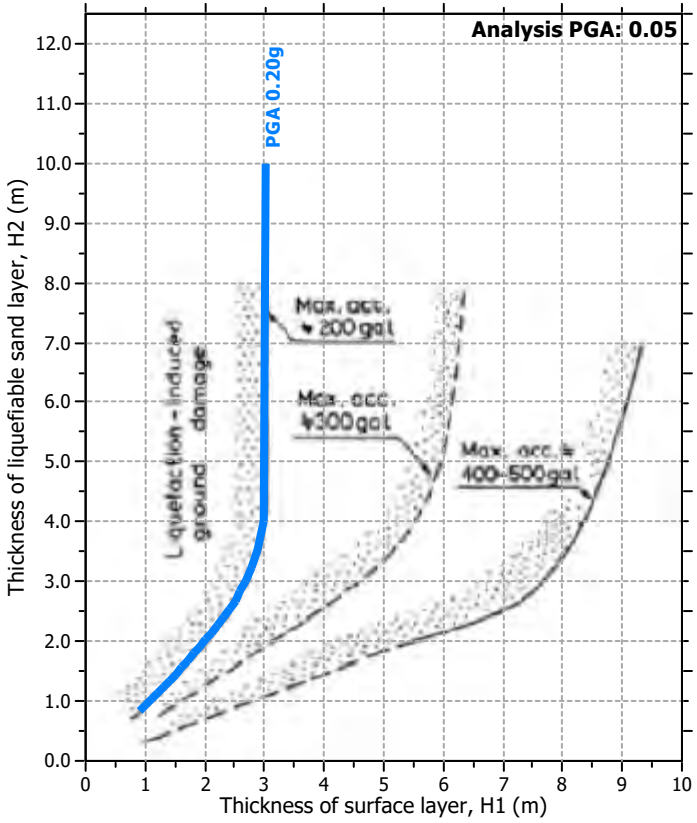
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



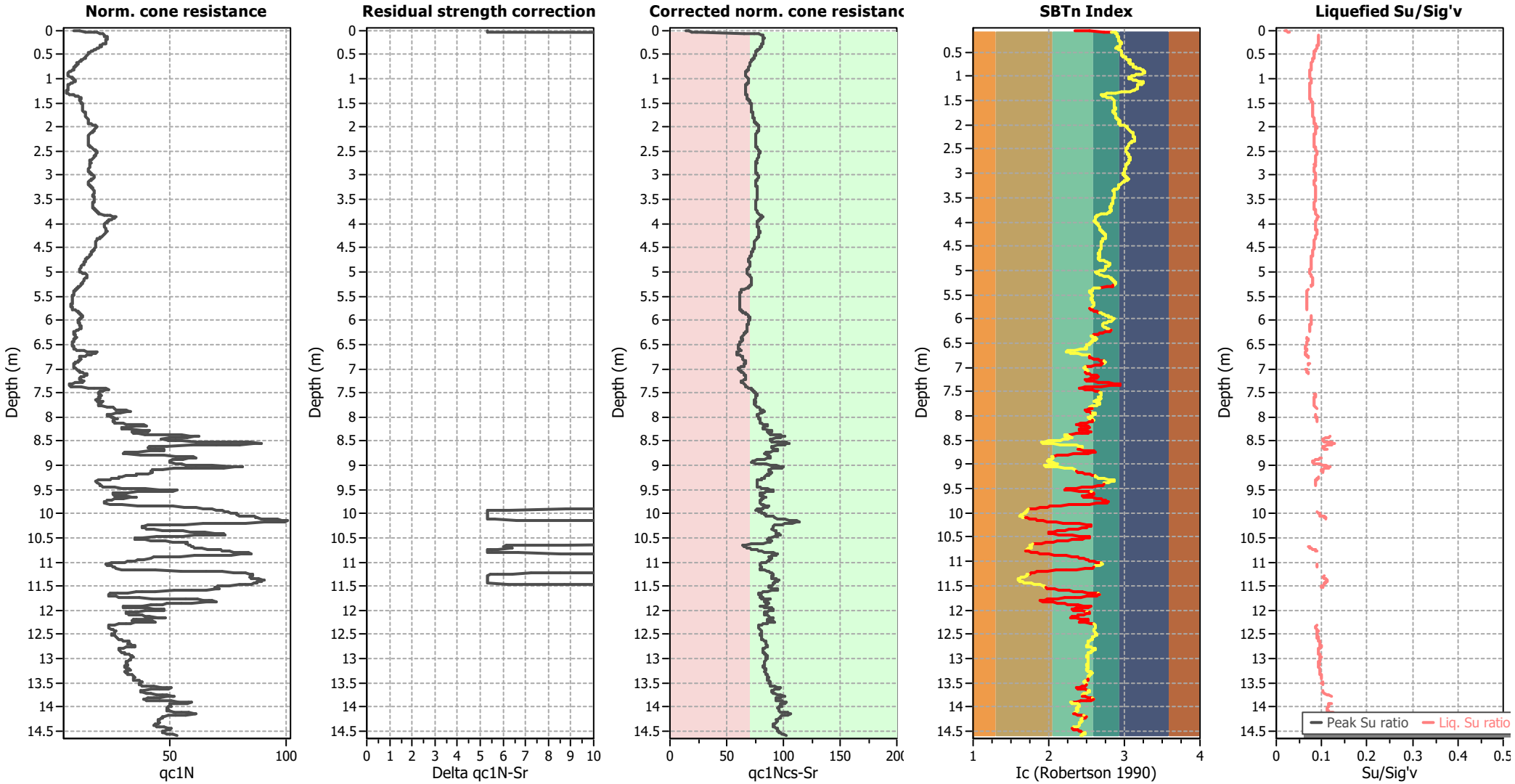




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

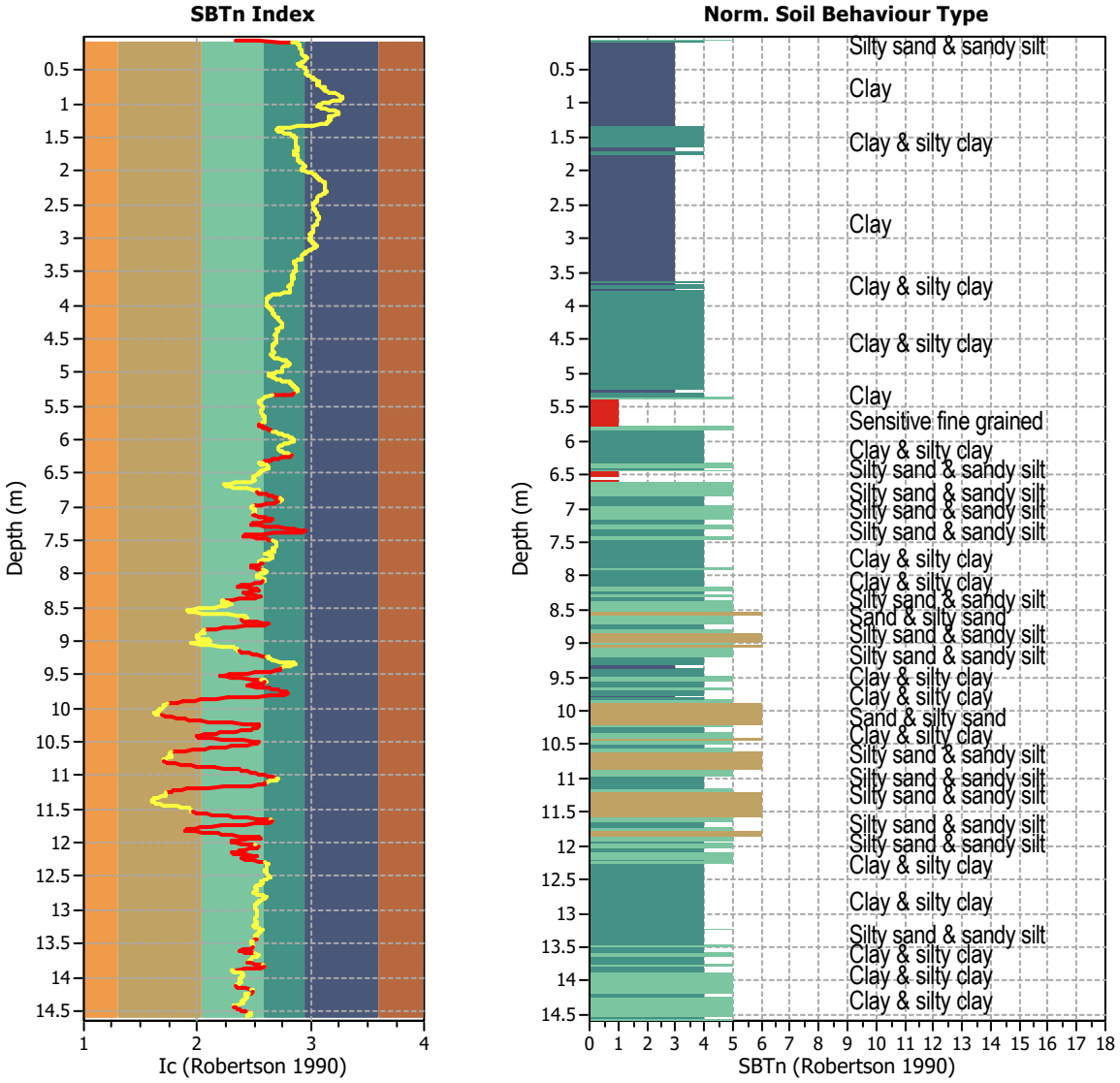
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

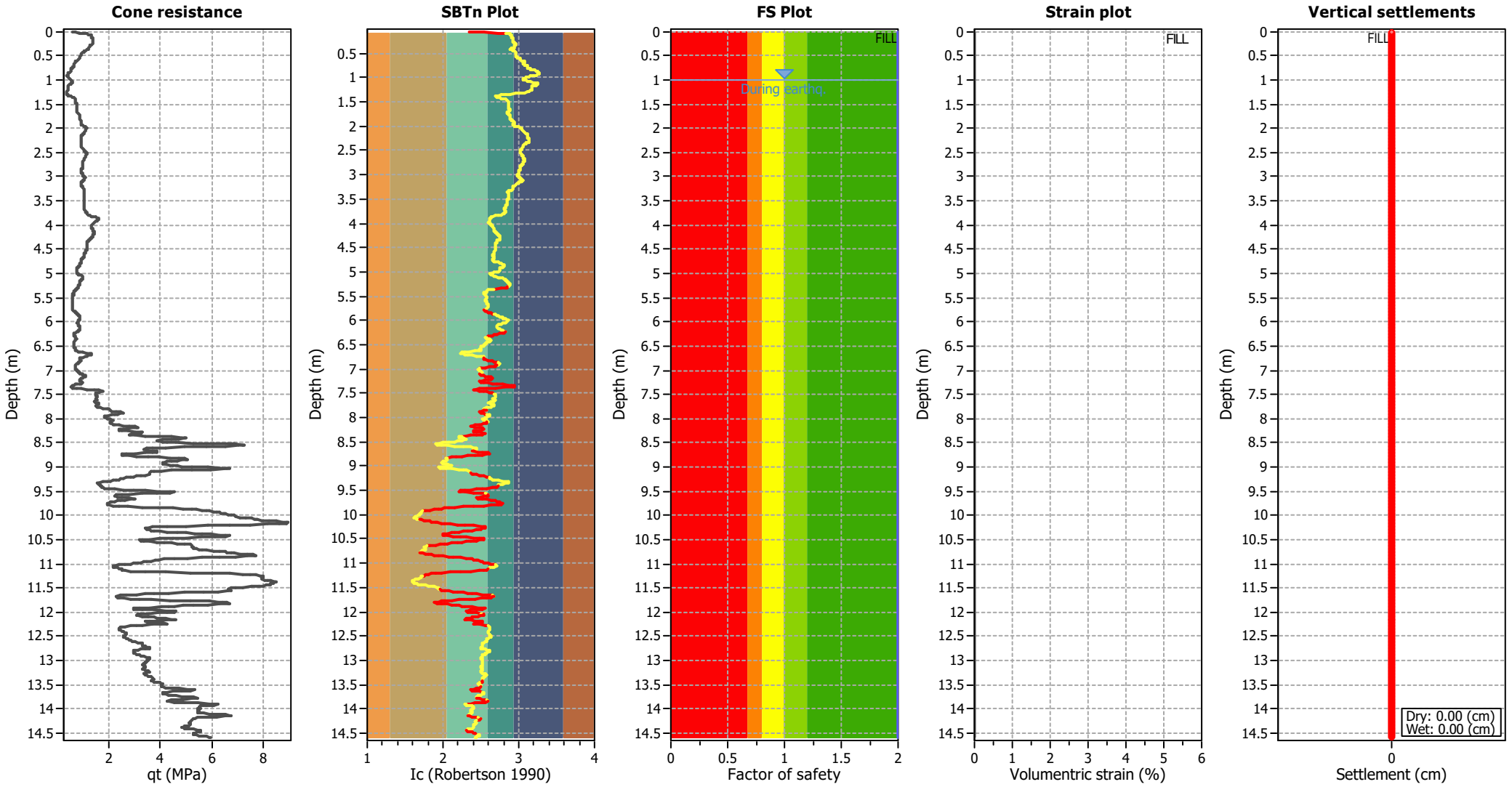
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	1459
I_c maximum check value:	3.00	Total points excluded:	439
I_c change ratio value:	0.0100	Exclusion percentage:	30.09%
Minimum number of points in layer:	4	Number of layers detected:	49

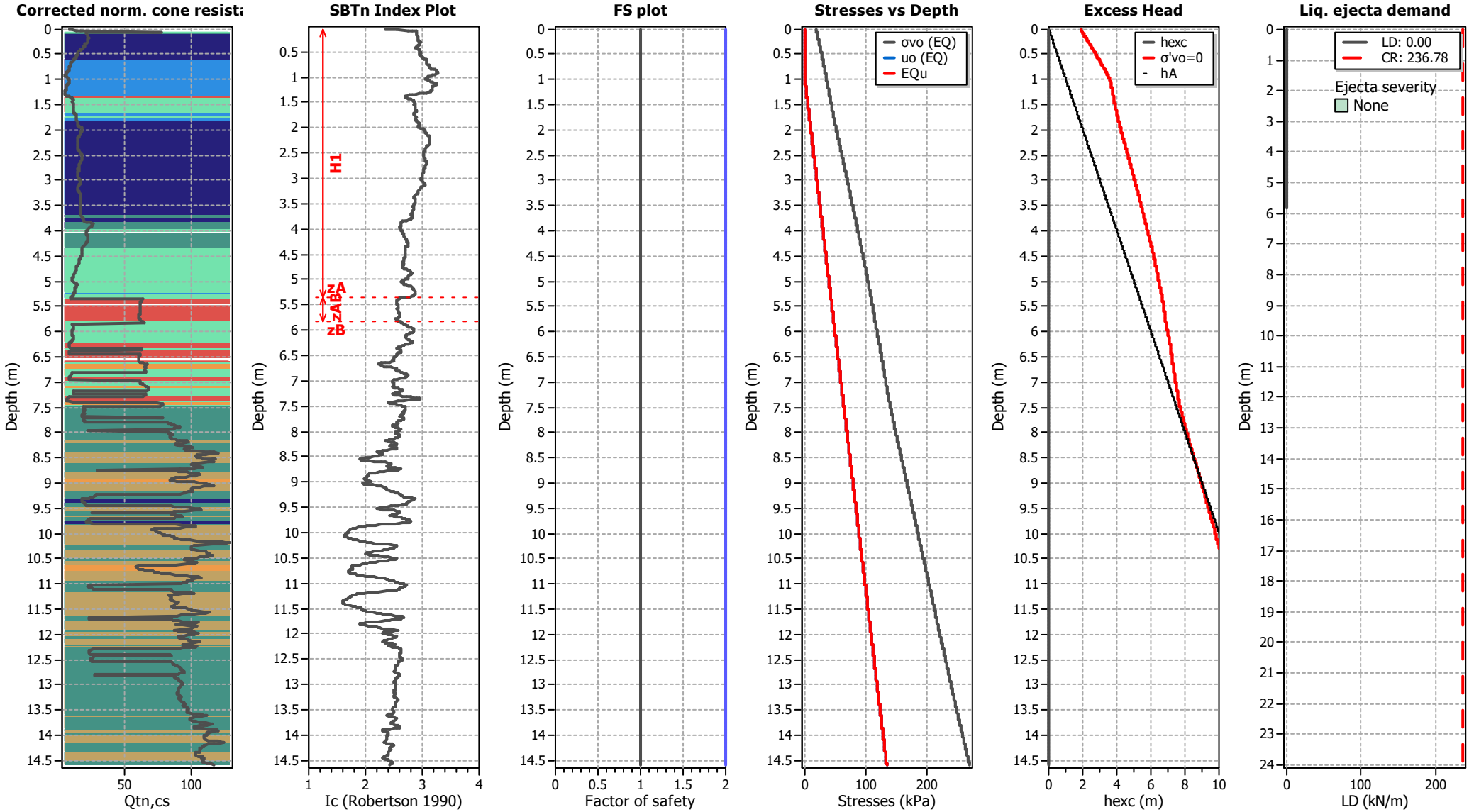
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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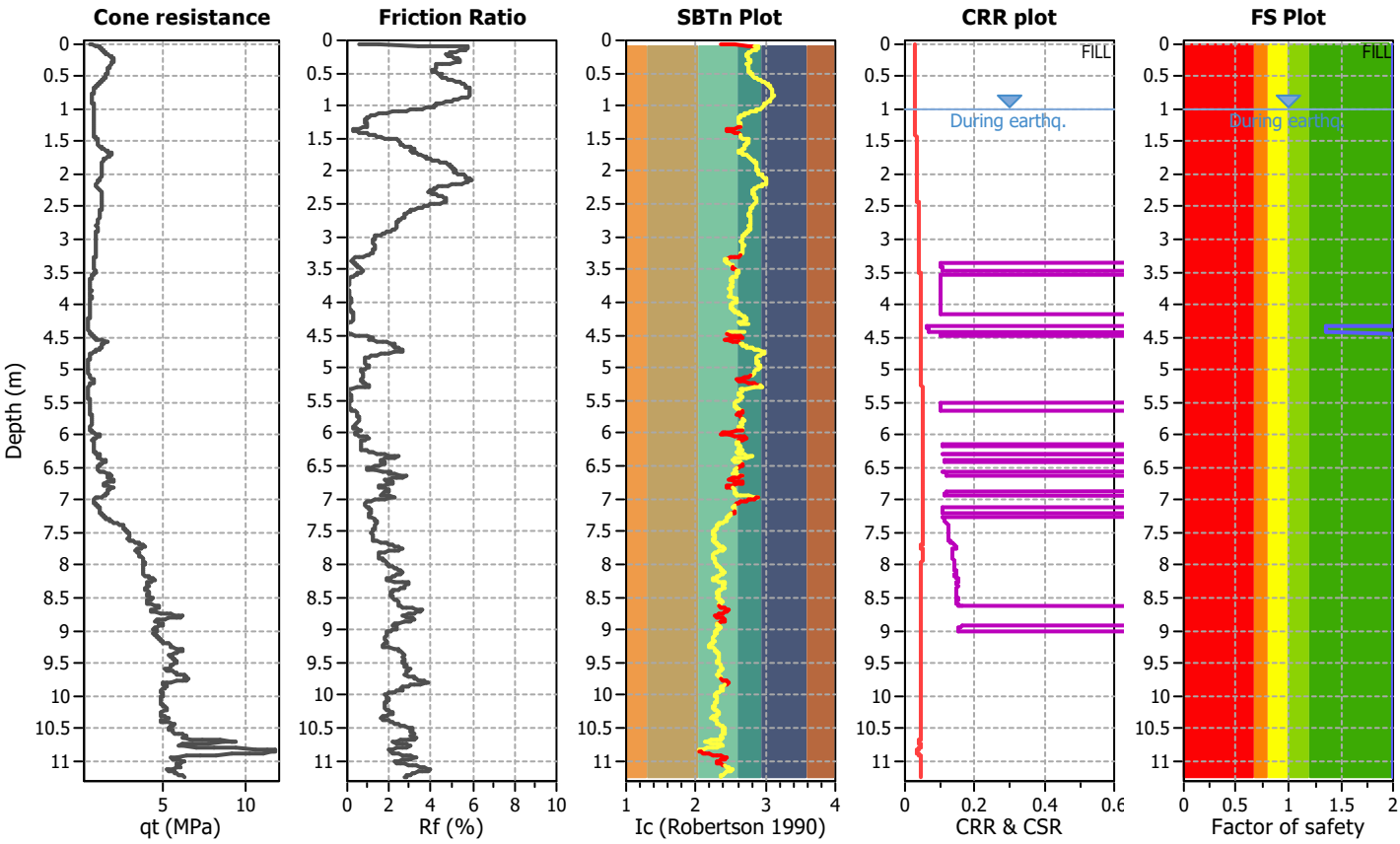
LIQUEFACTION ANALYSIS REPORT

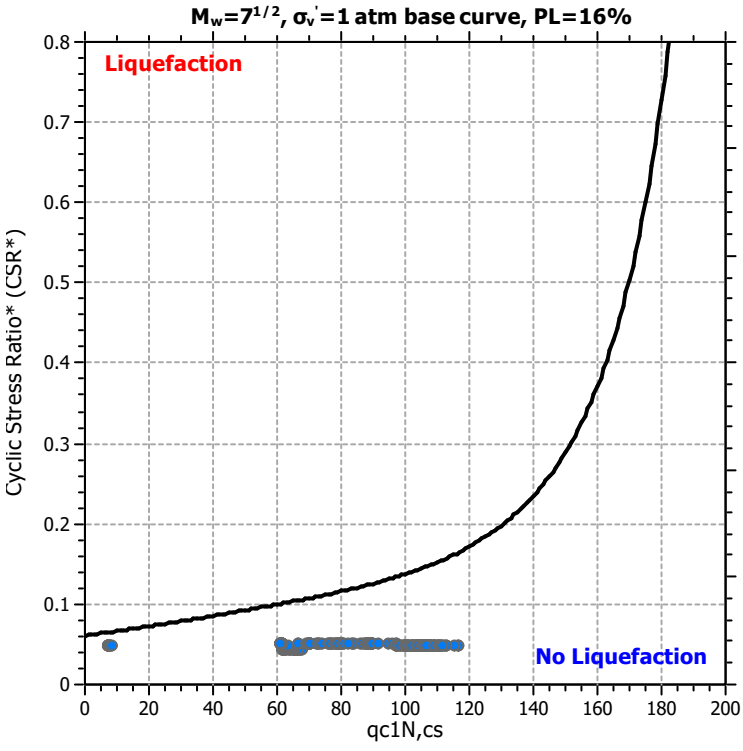
Project title : Sunfield Landholding **Location :**

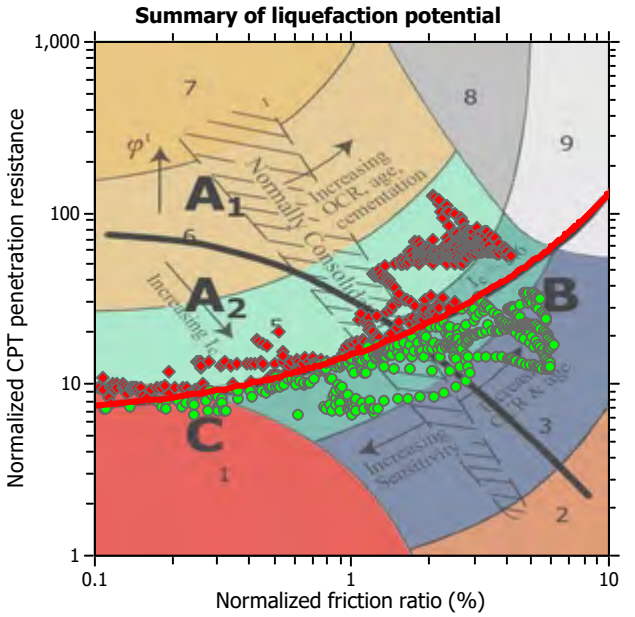
CPT file : CPT402

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	9.25 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

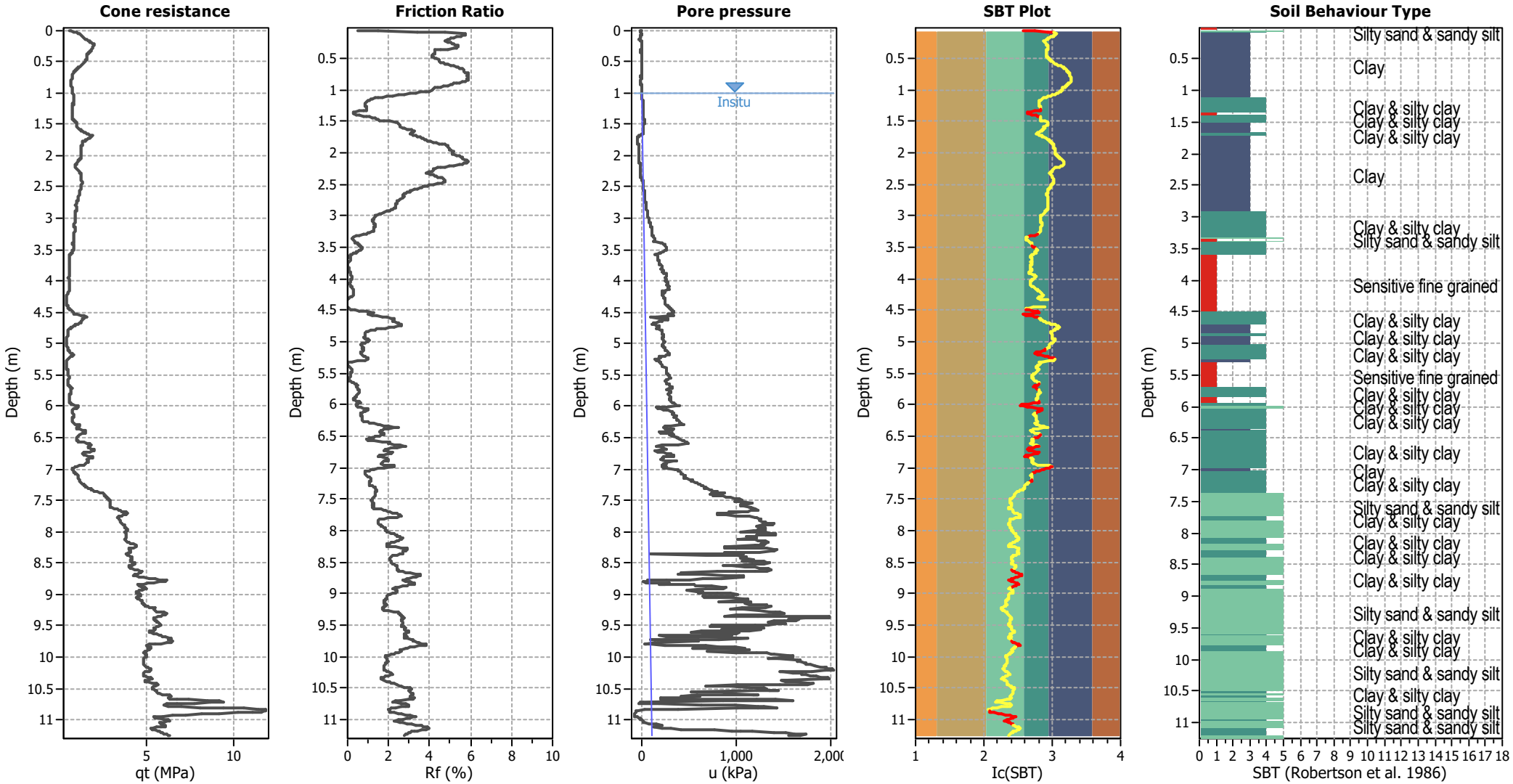






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



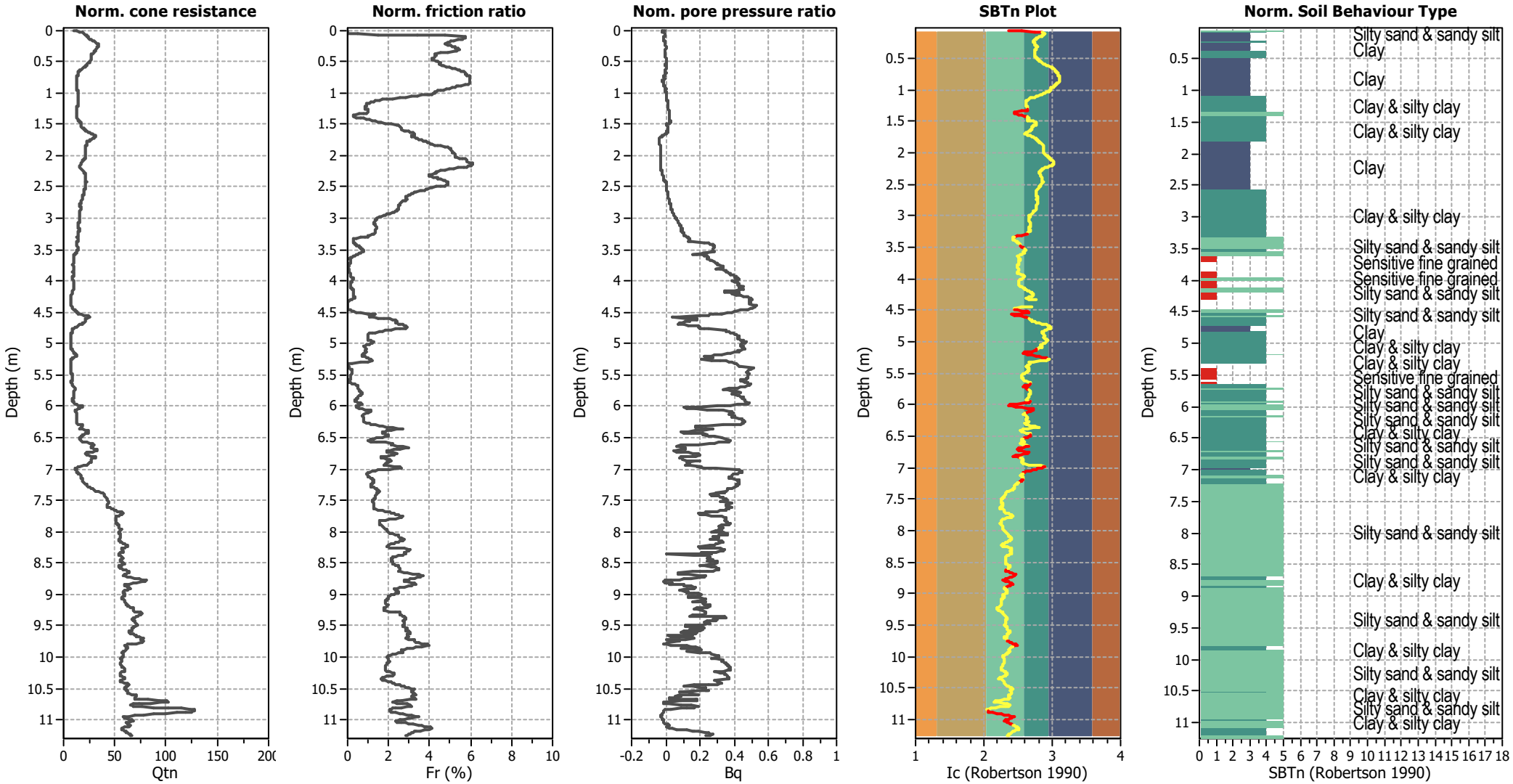
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	9.25 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	9.25 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBTn legend

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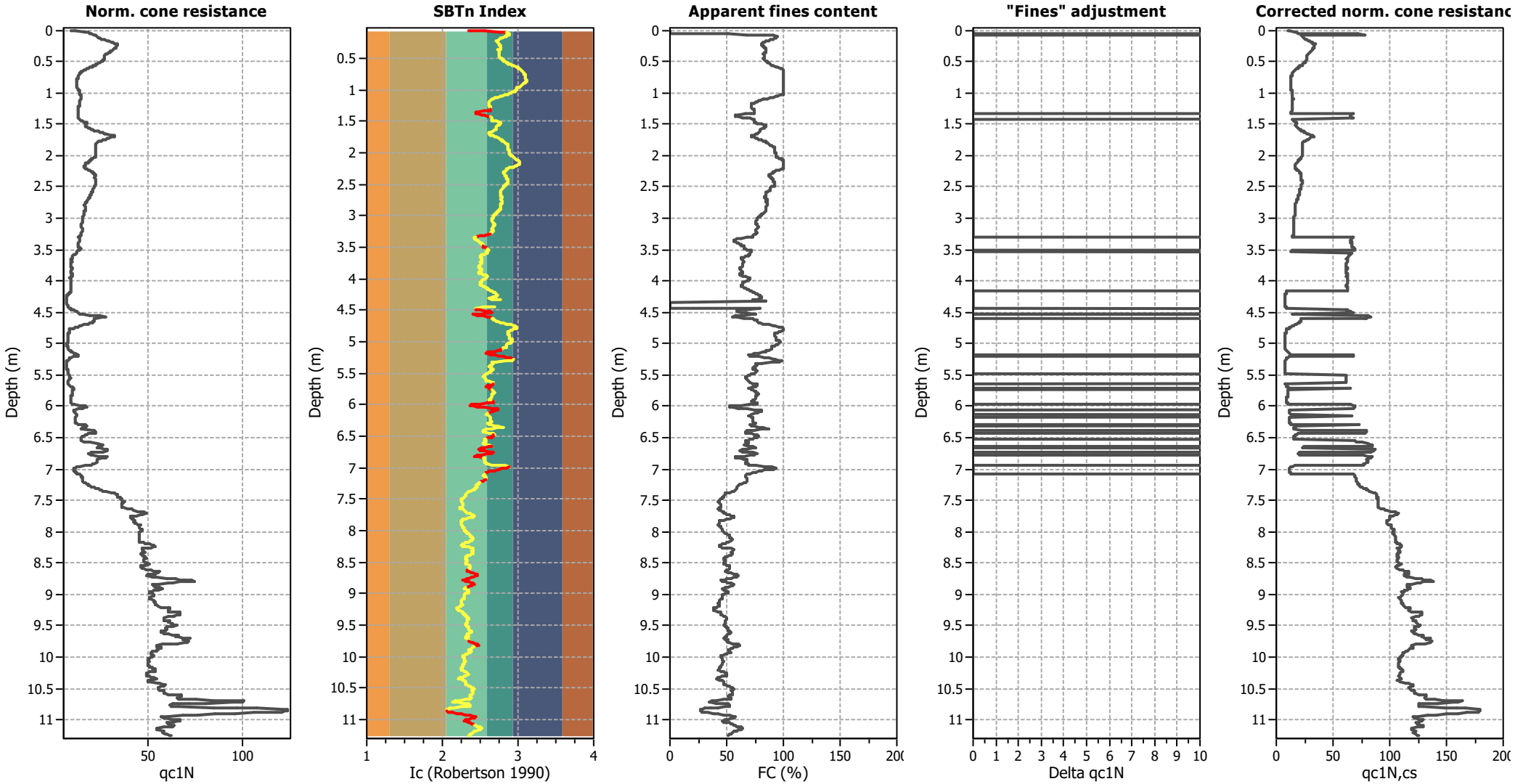
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

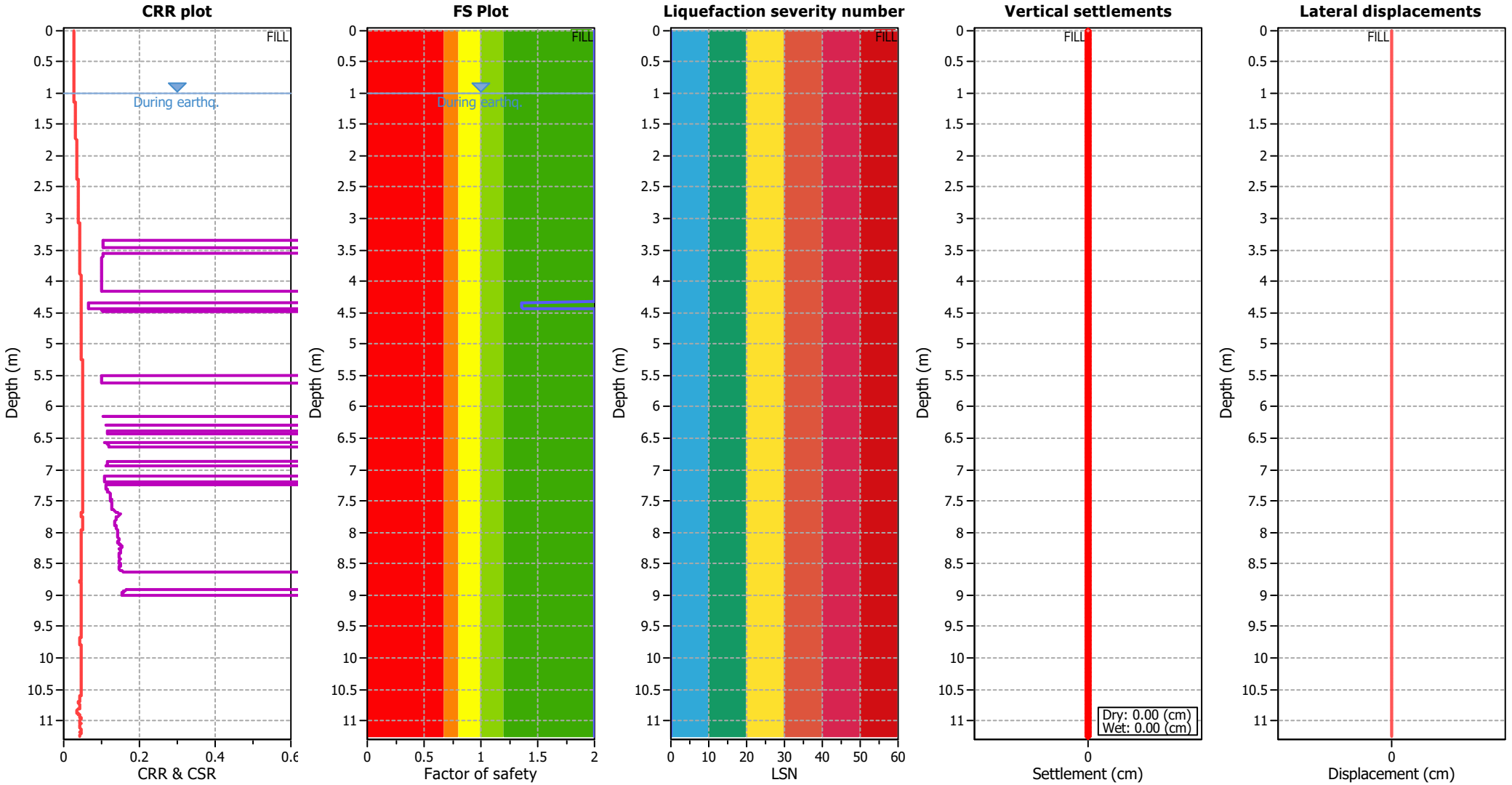
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	9.25 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	9.25 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

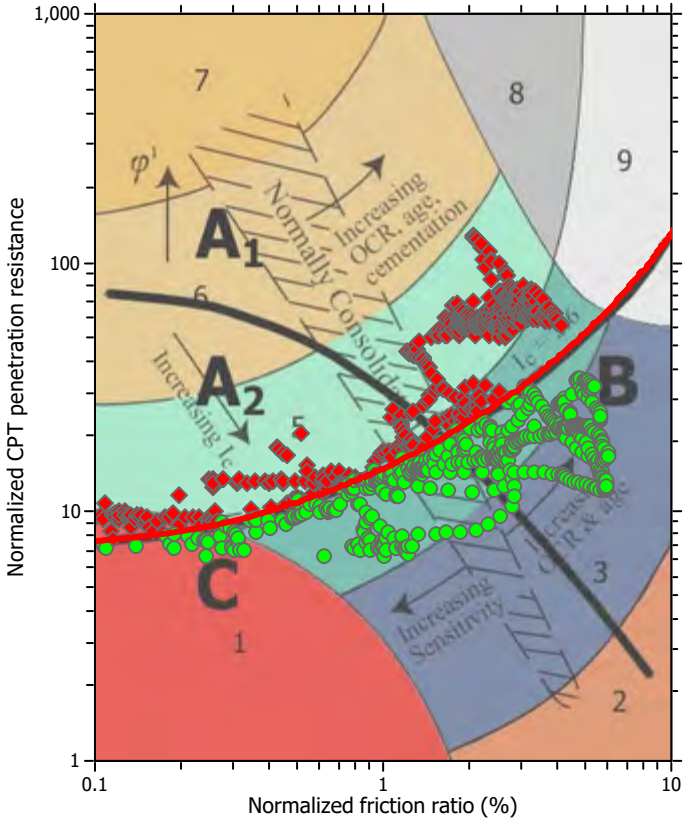
F.S. color scheme

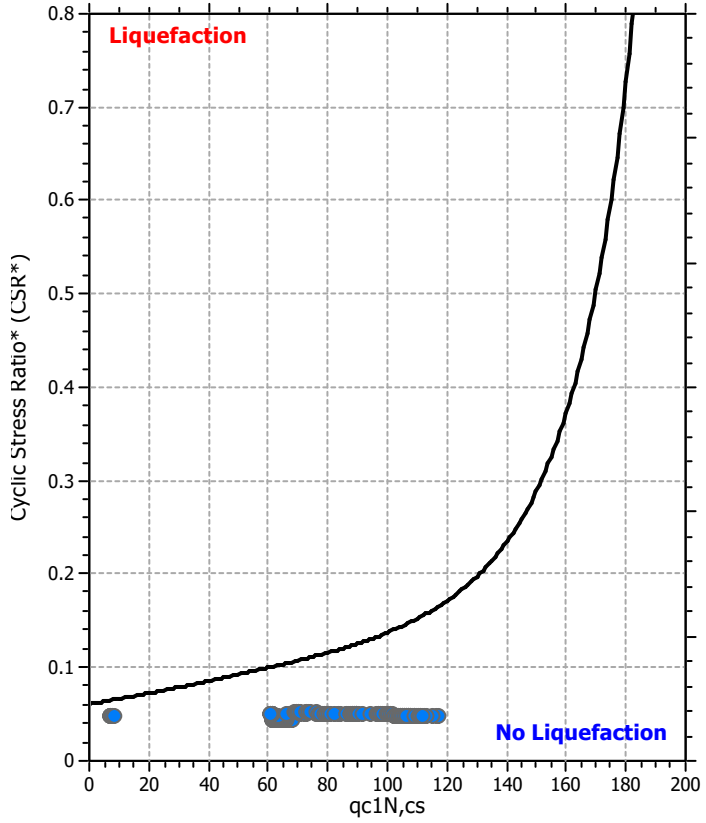
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

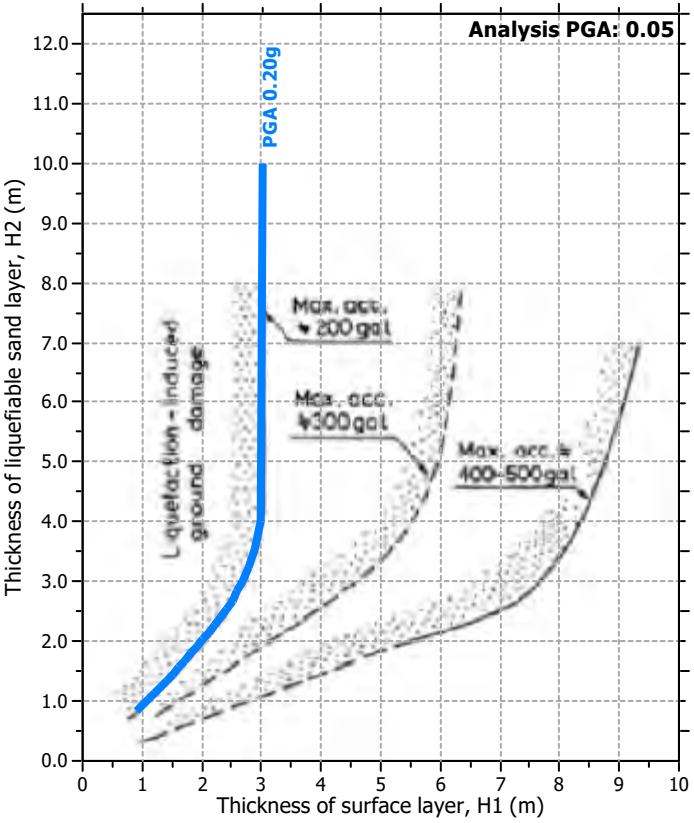
LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Liquefaction analysis summary plots



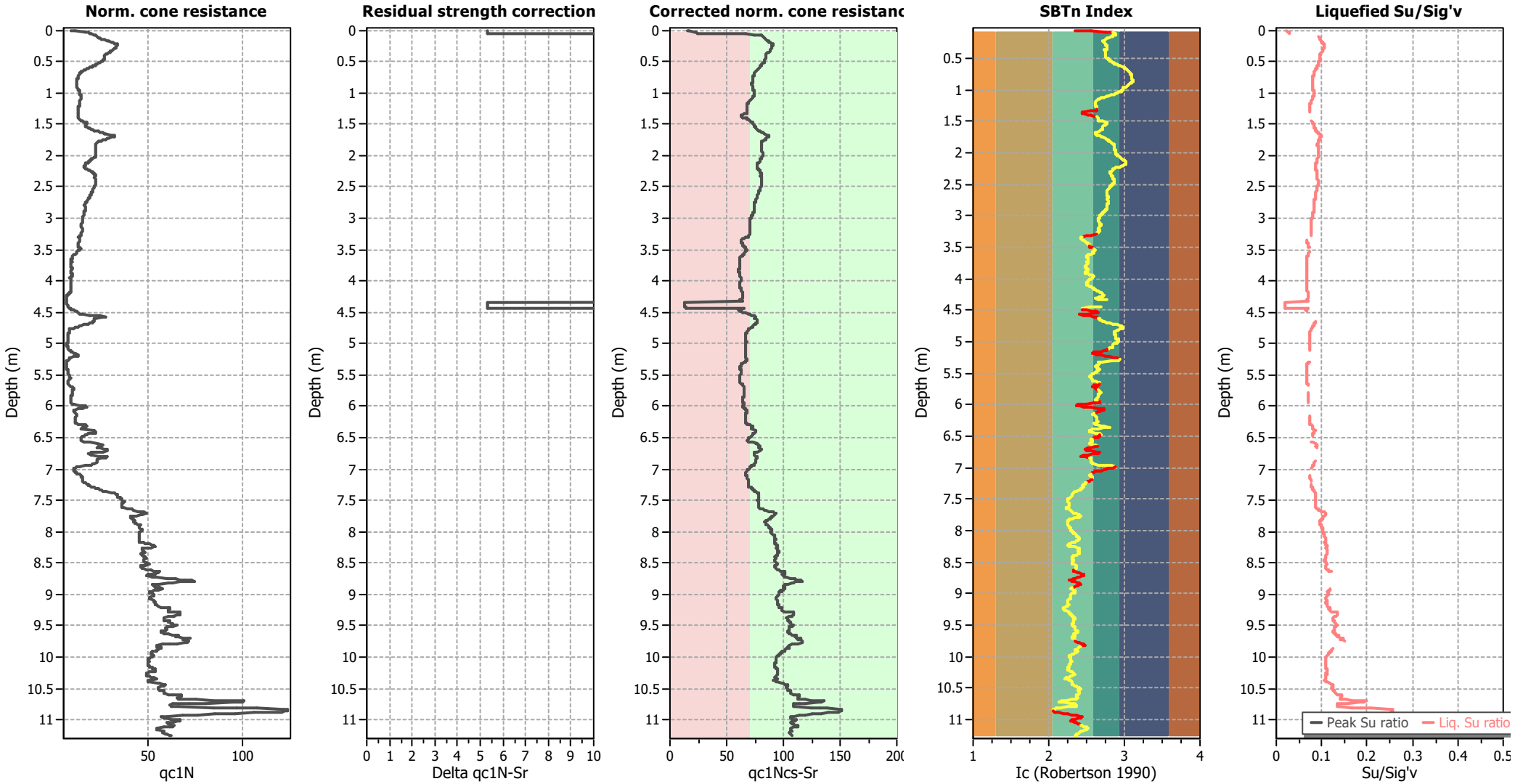




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	9.25 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

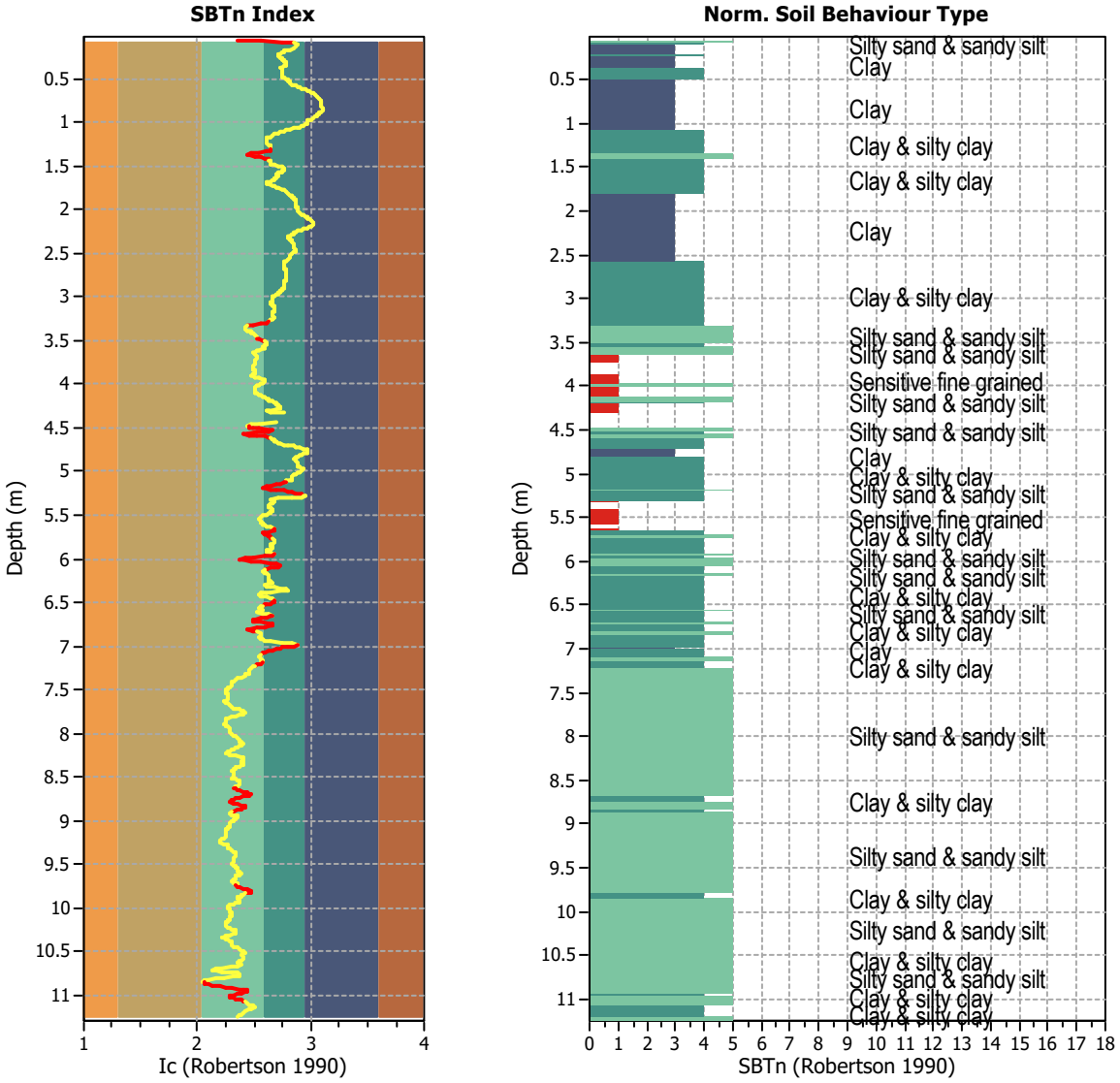
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	9.25 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



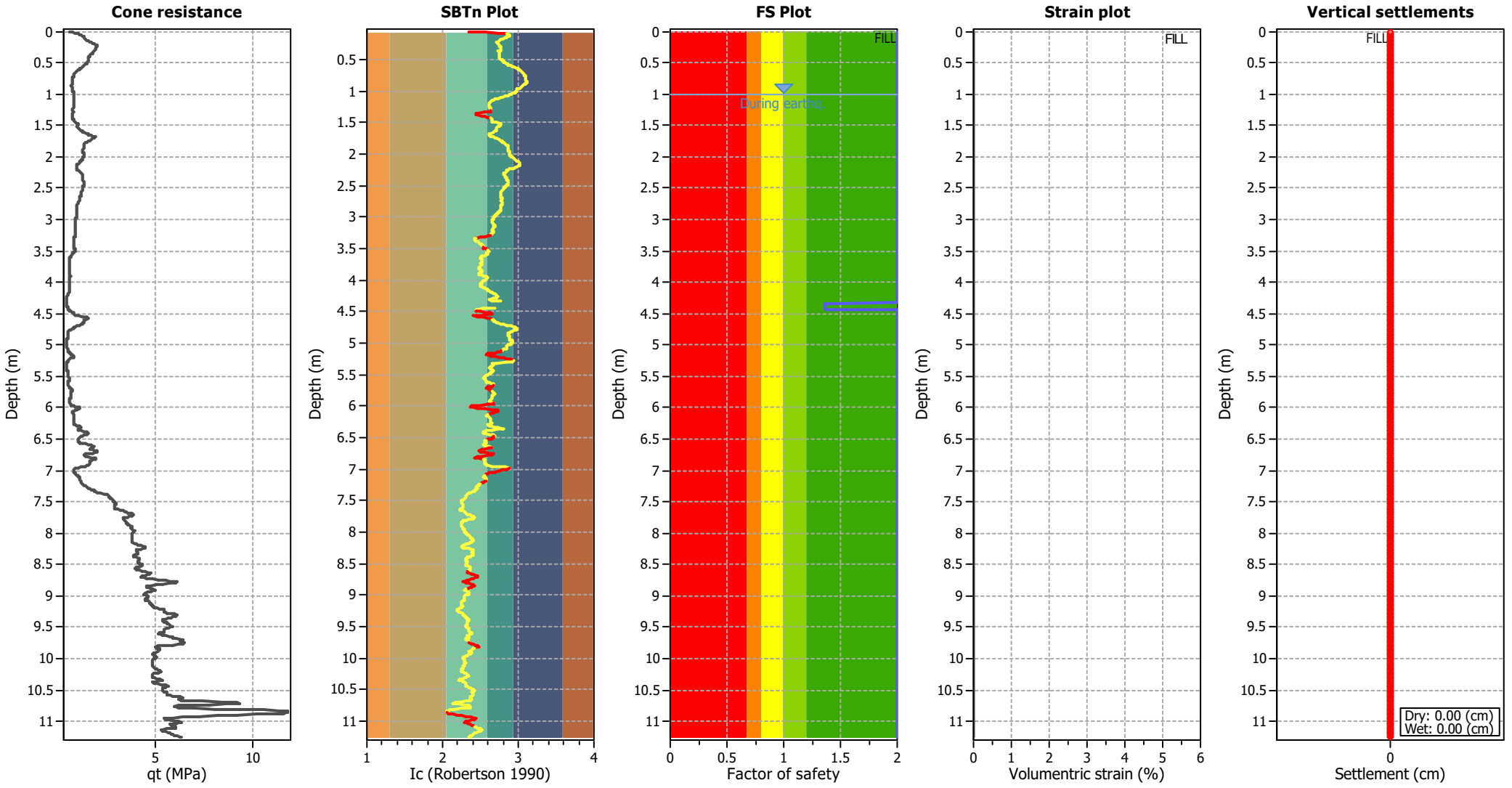
Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	1125
Total points excluded:	201
Exclusion percentage:	17.87%
Number of layers detected:	31

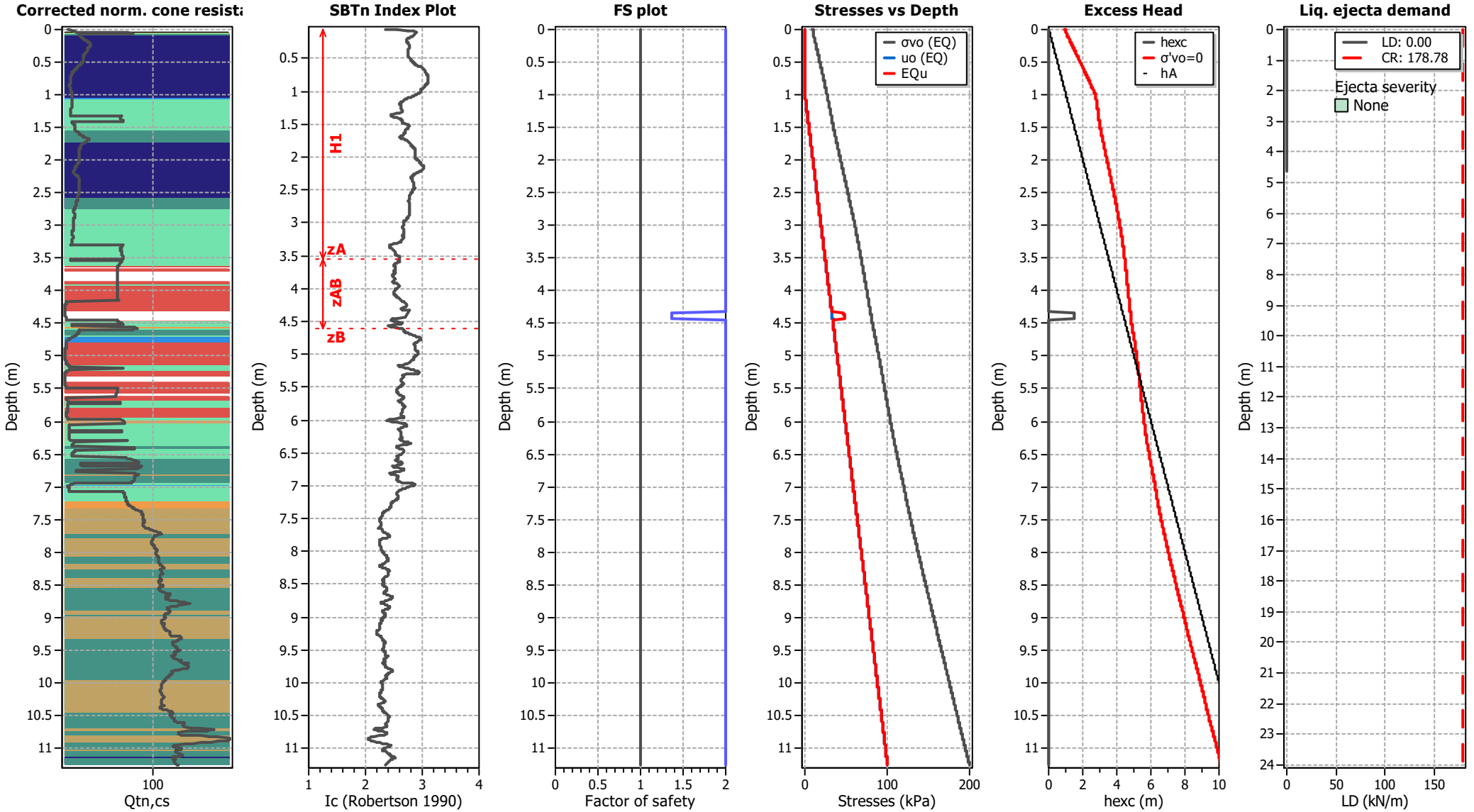
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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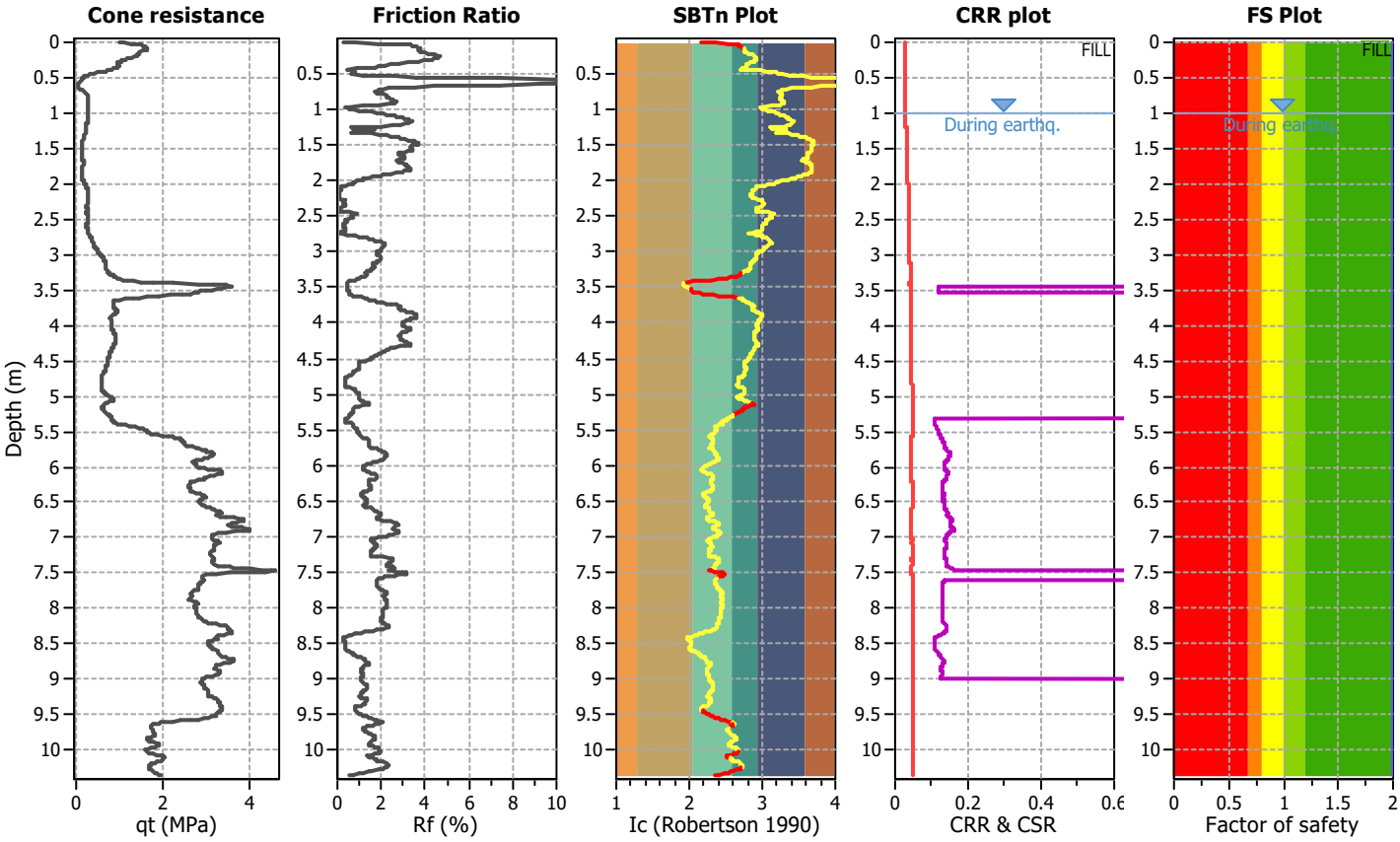
LIQUEFACTION ANALYSIS REPORT

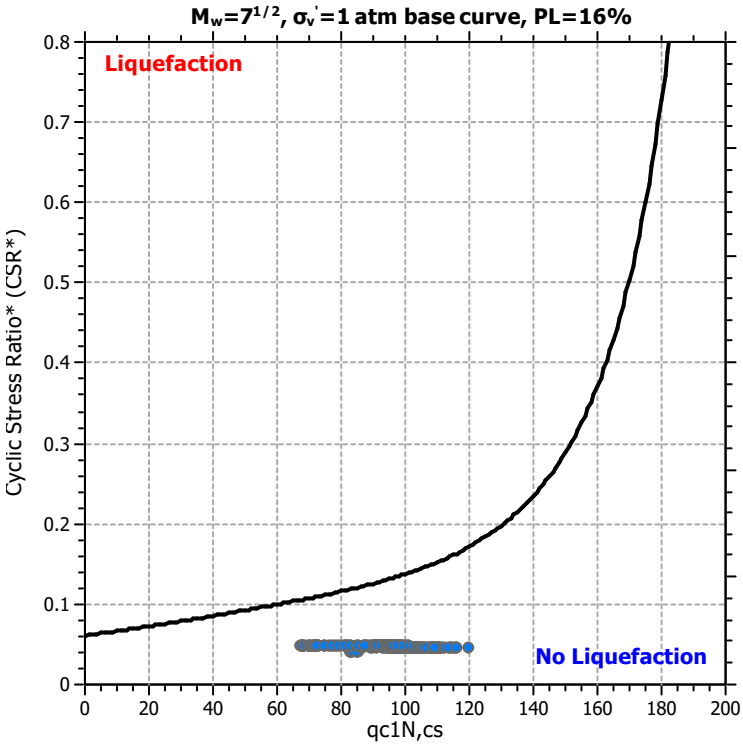
Project title : Sunfield Landholding **Location :**

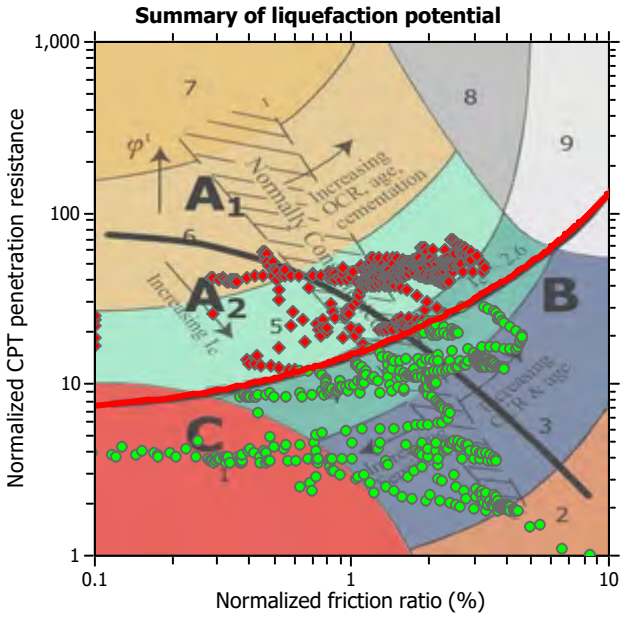
CPT file : CPT403

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	18.50 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

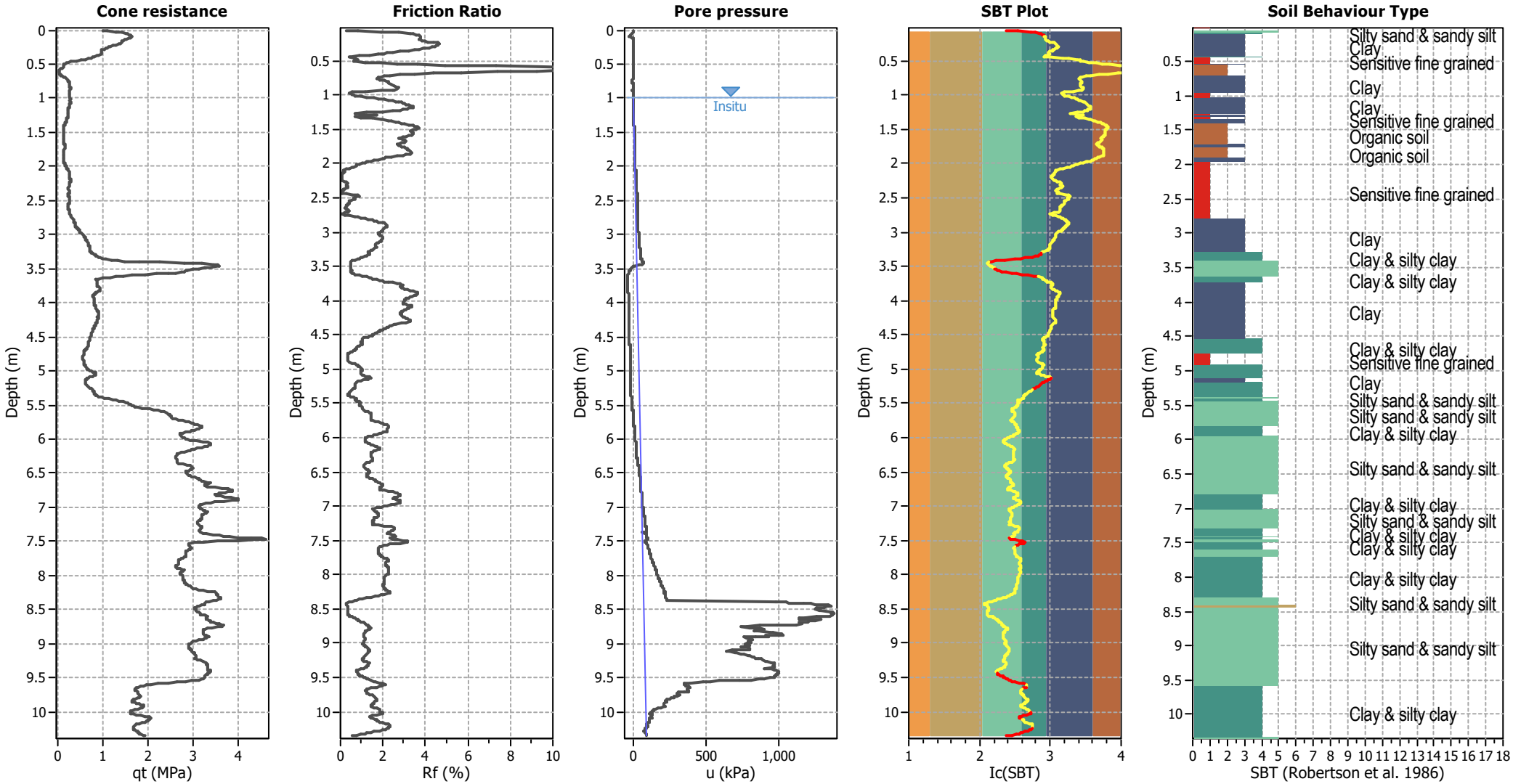






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



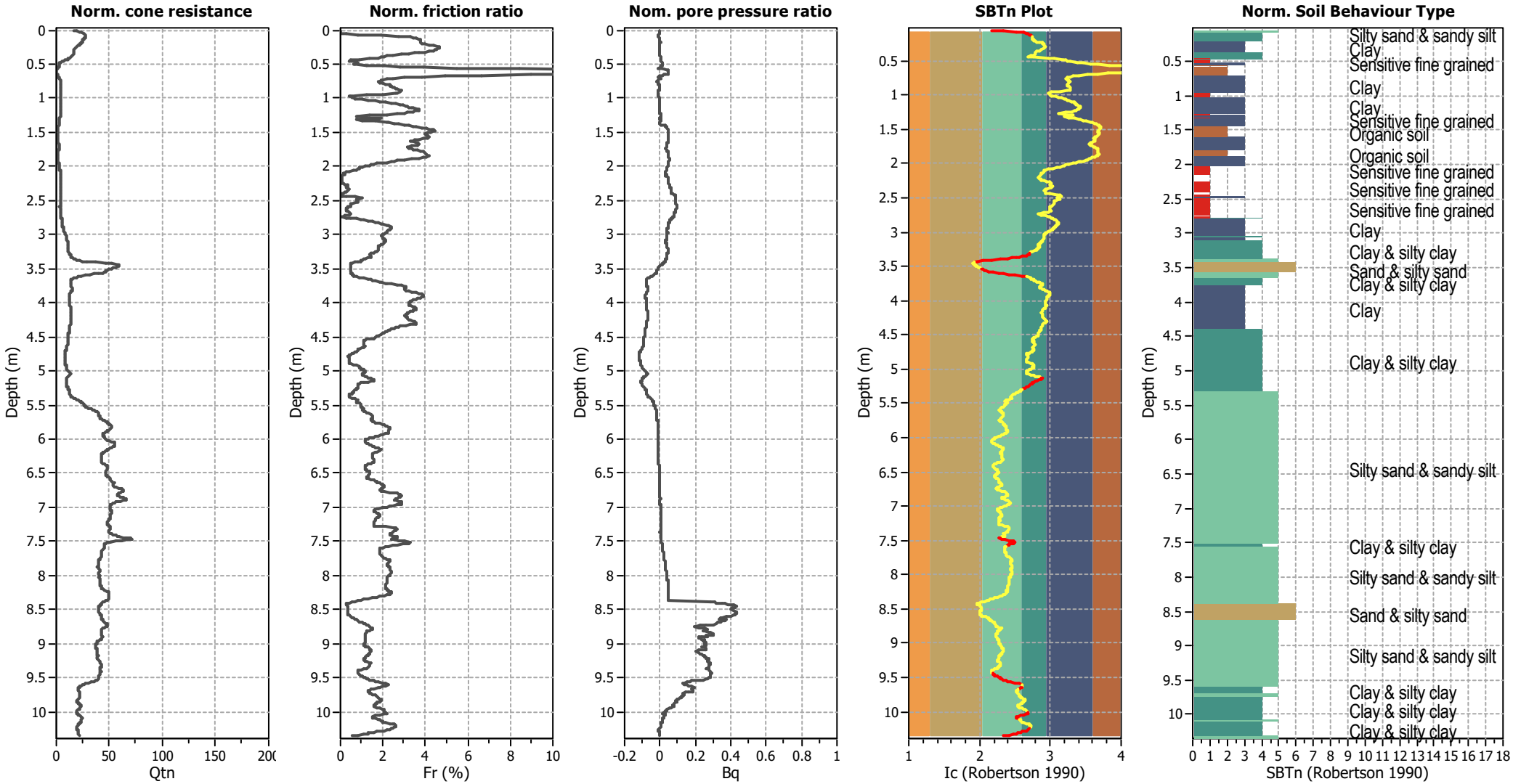
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

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

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
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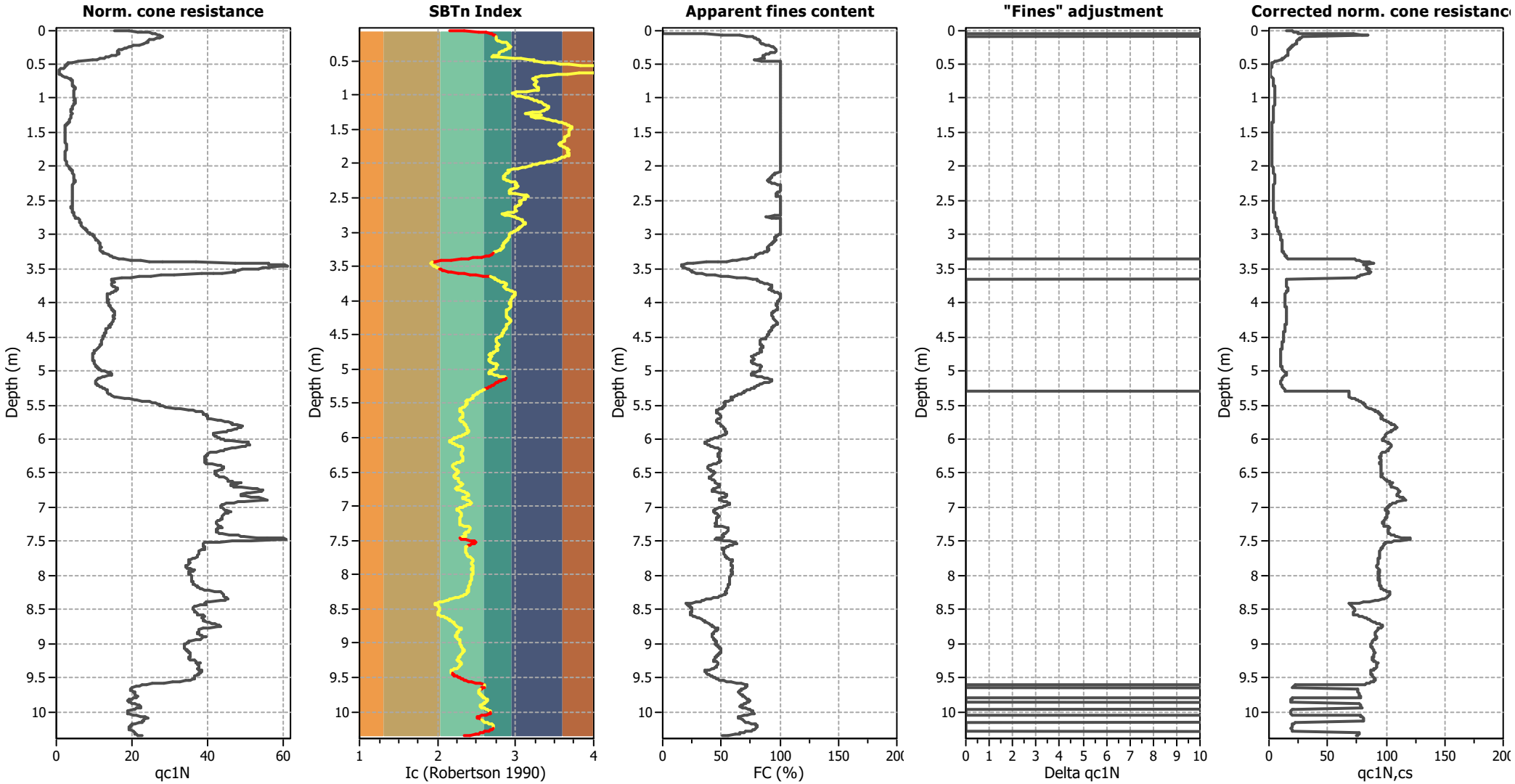
9. Very stiff fine grained

Liquefaction analysis overall plots (intermediate results)



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Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
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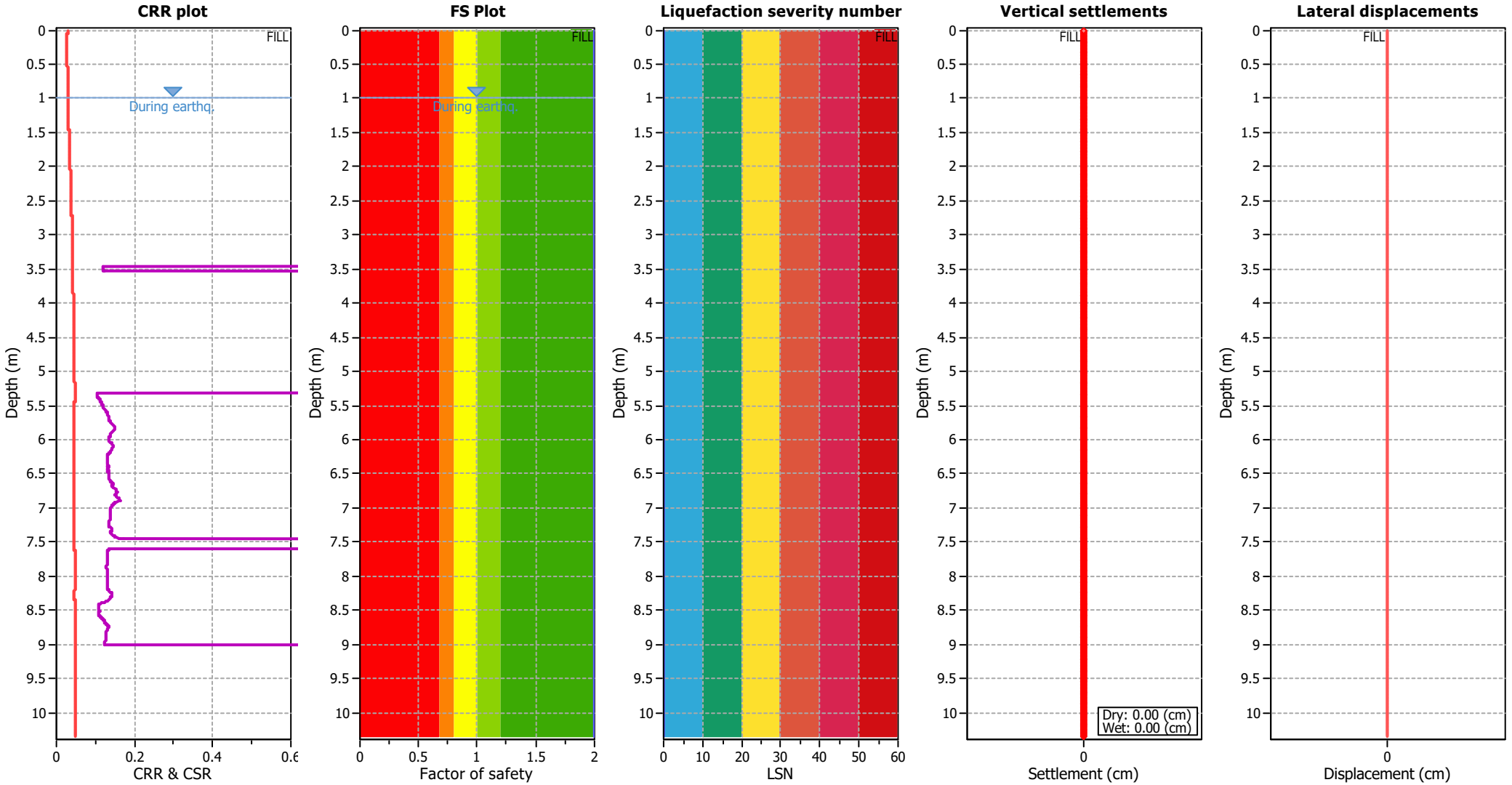
Liquefaction analysis overall plots



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- Almost certain it will liquefy
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- Liquefaction and no liq. are equally likely
- Unlike to liquefy
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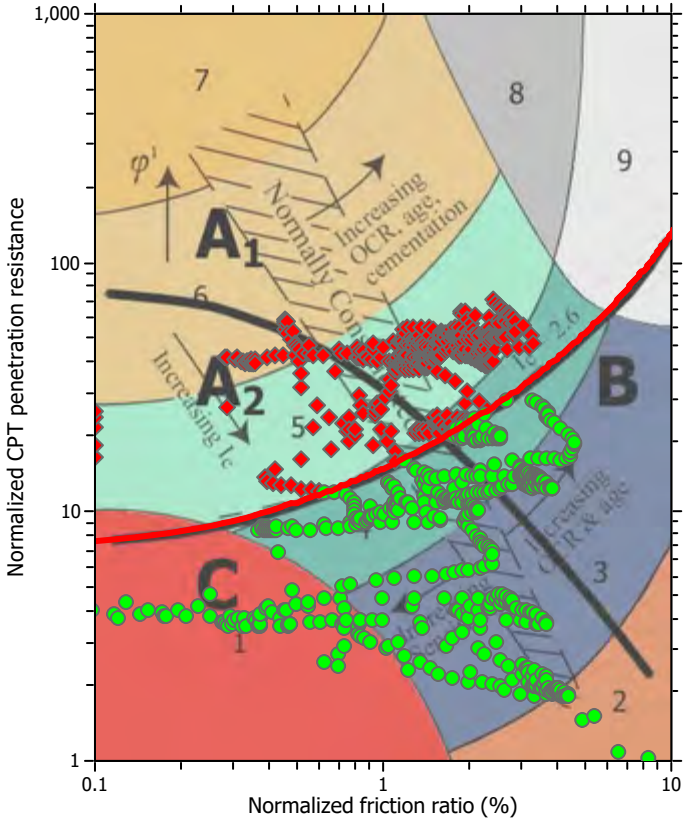
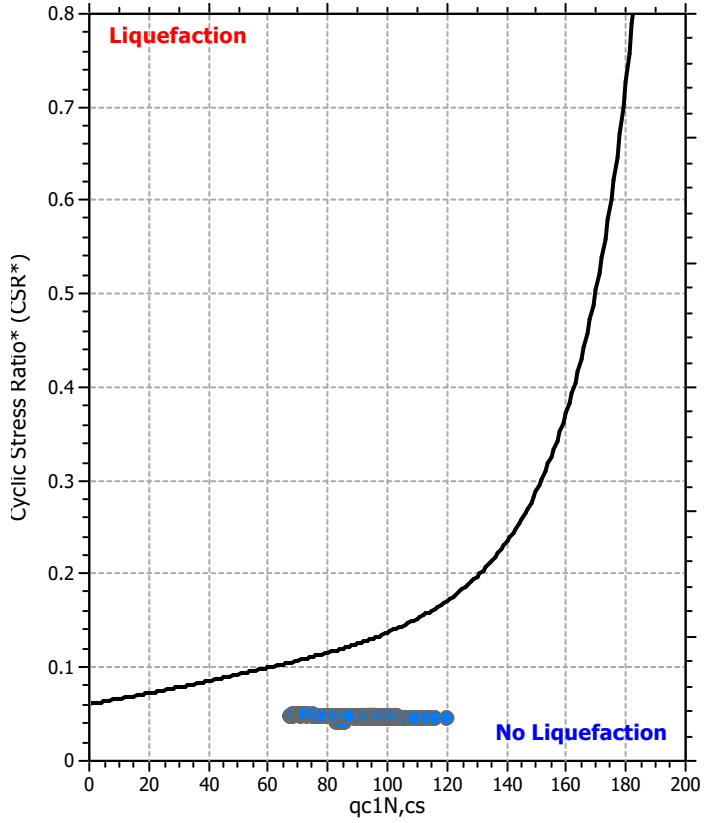
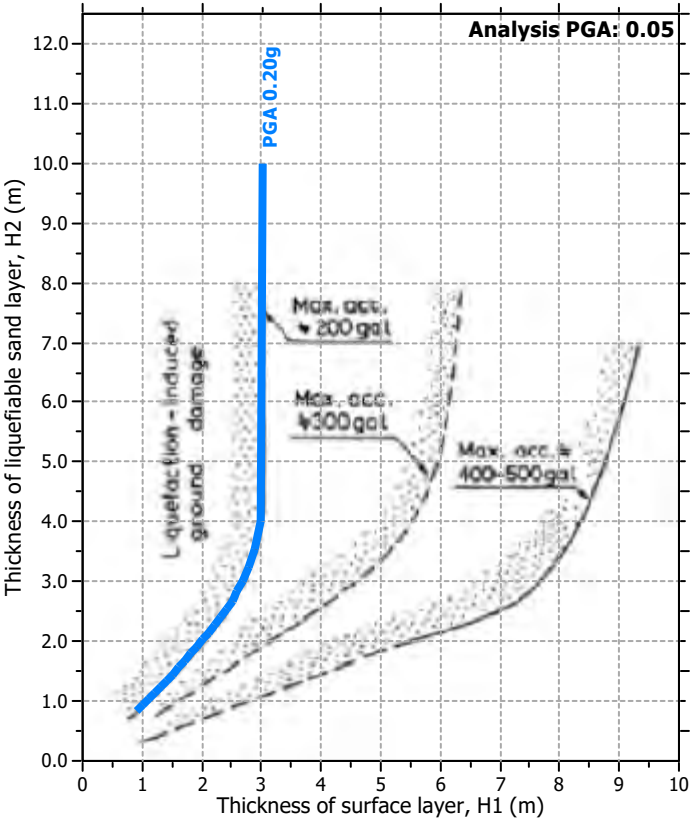
Liquefaction analysis summary plots







Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
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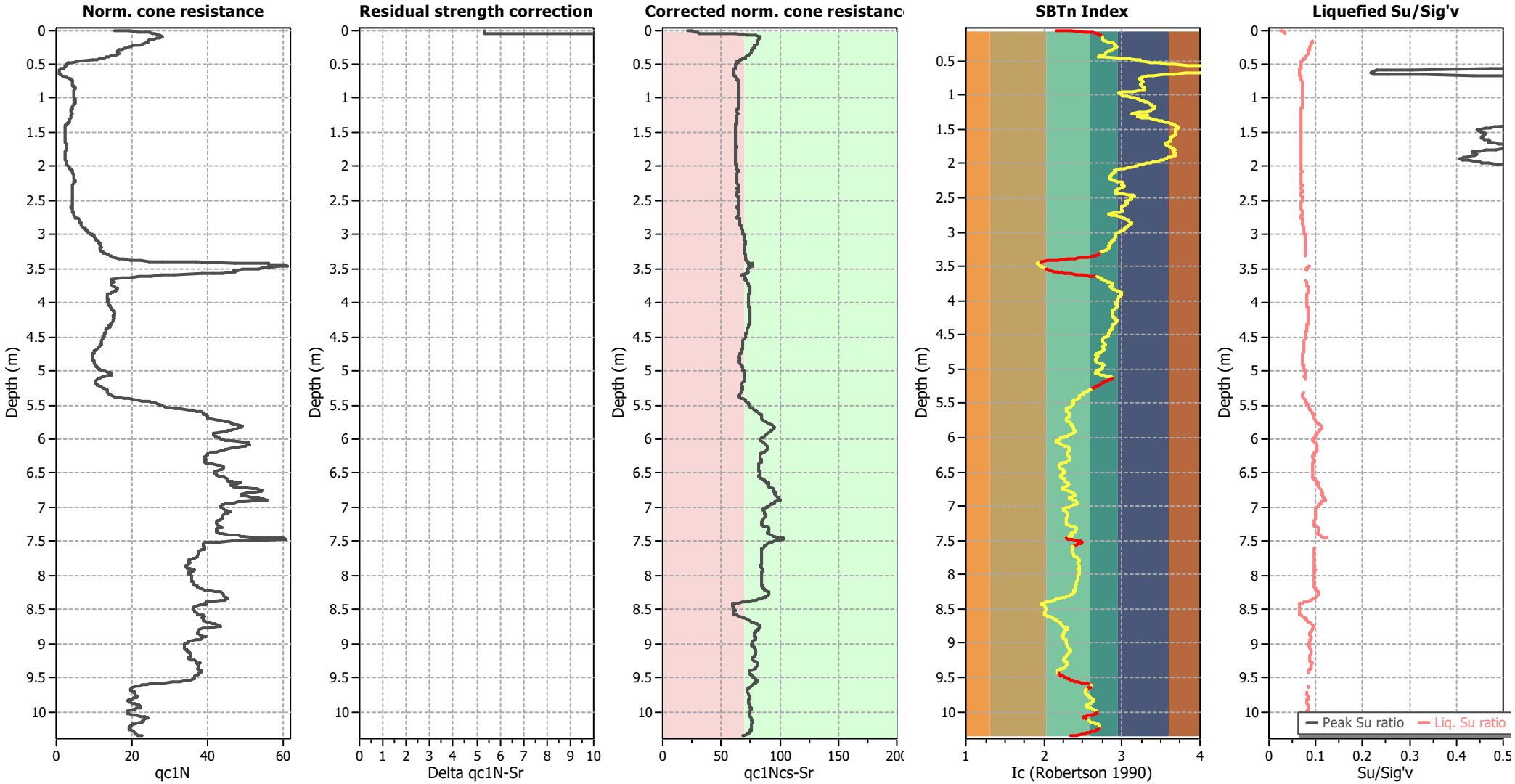
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

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



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	18.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
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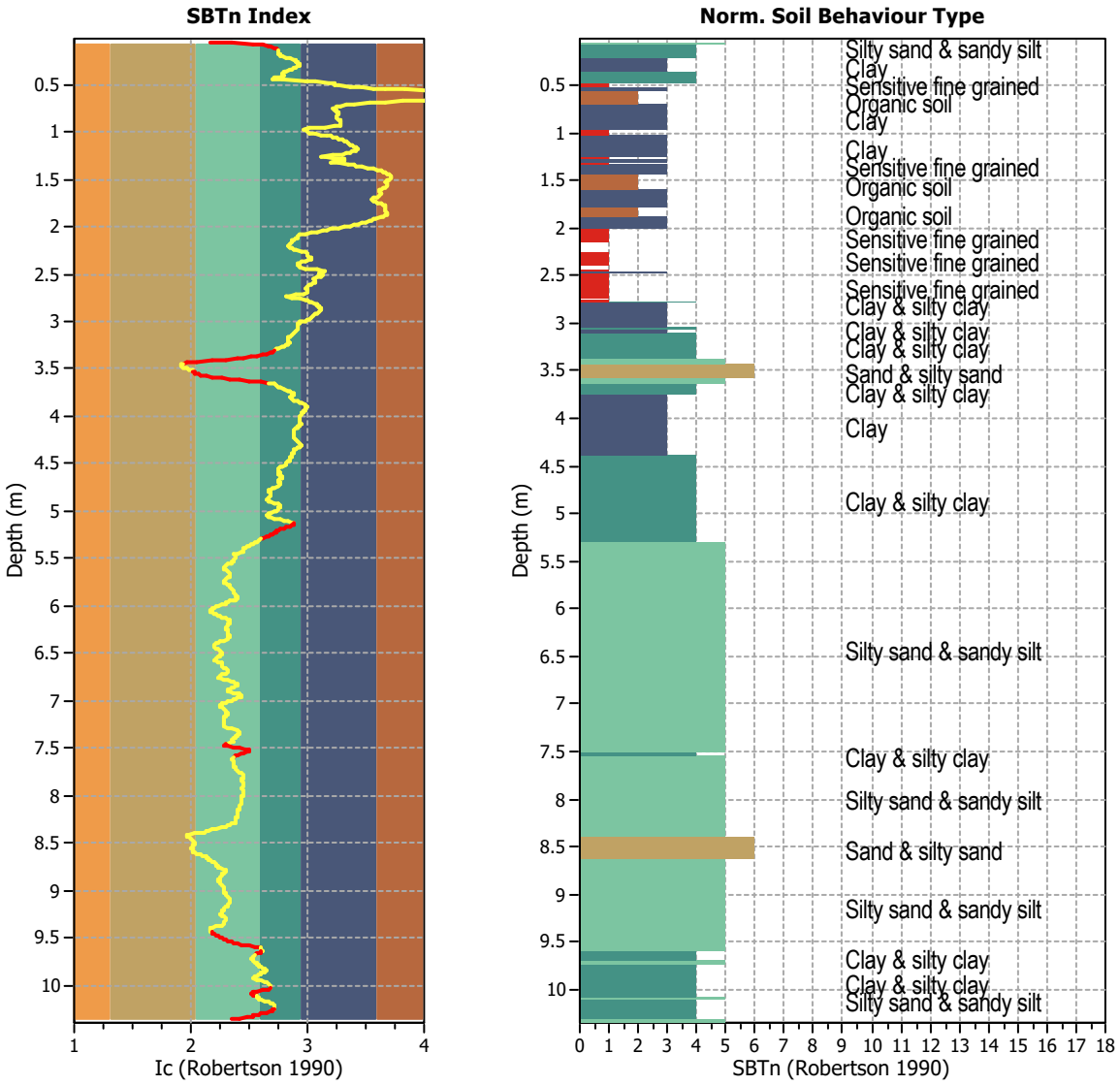
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

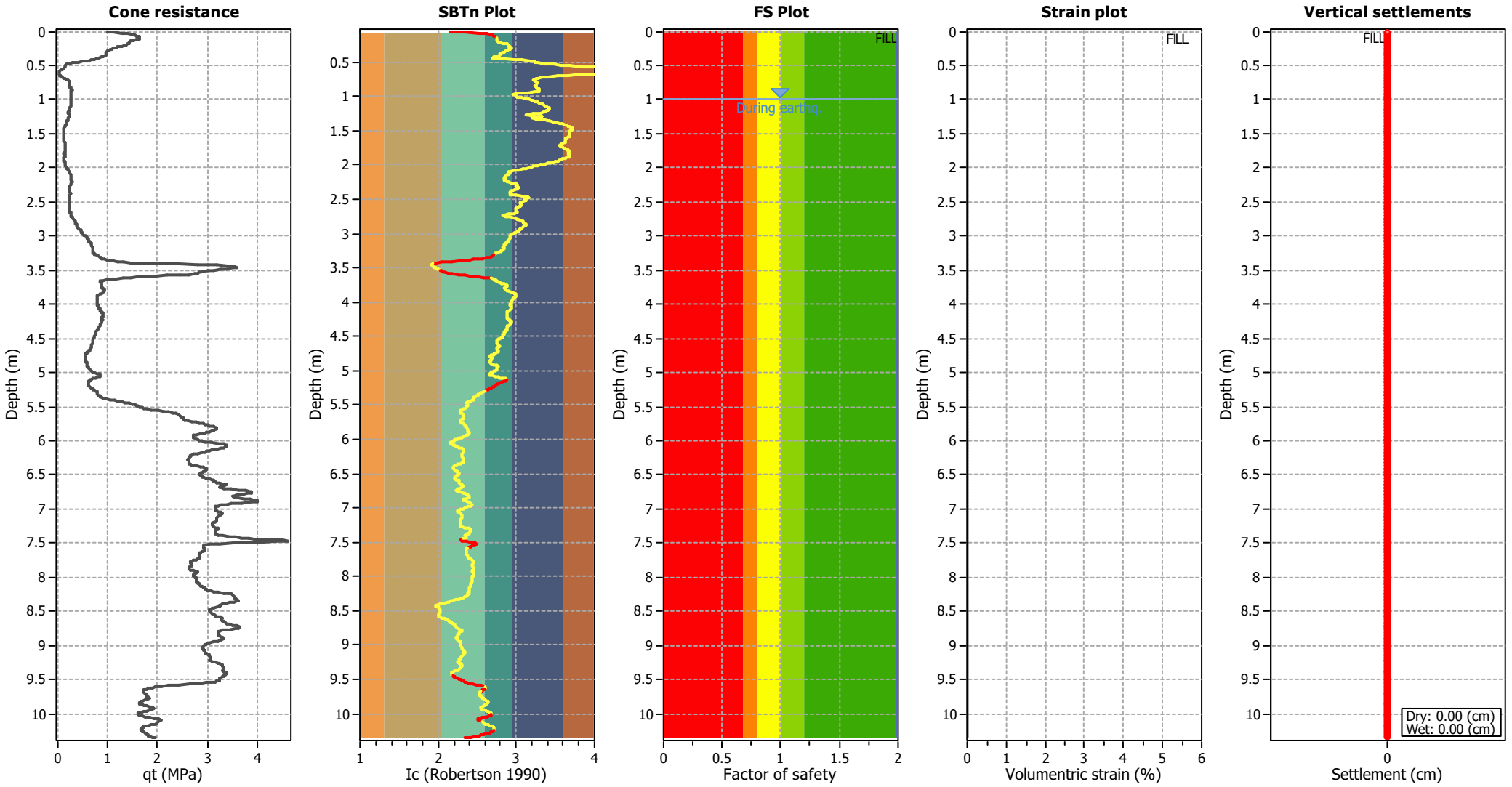
The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	1035
I_c maximum check value:	3.00	Total points excluded:	111
I_c change ratio value:	0.0100	Exclusion percentage:	10.72%
Minimum number of points in layer:	4	Number of layers detected:	11

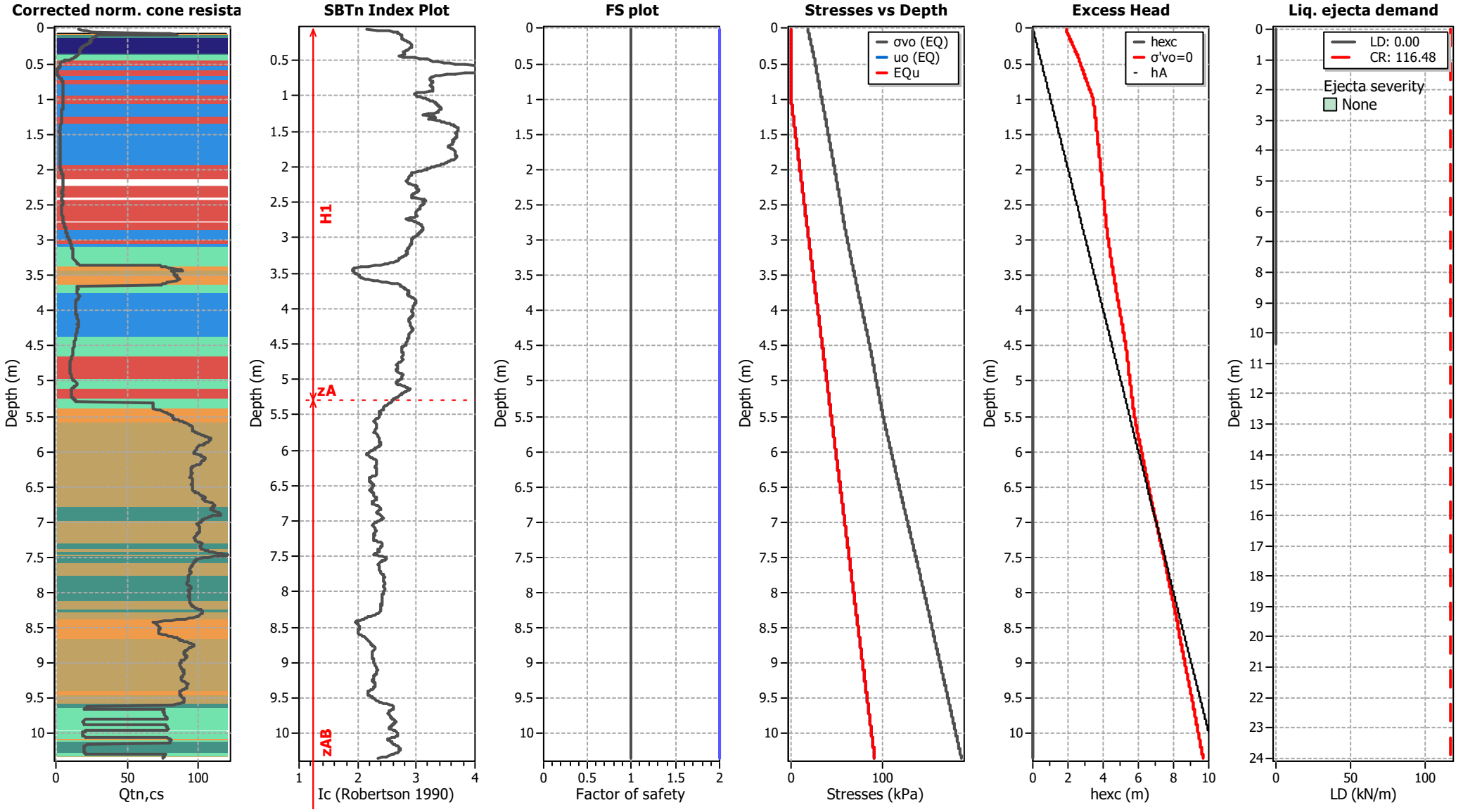
Estimation of post-earthquake settlements



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
Volumentric strain:	Post-liquefaction volumentric strain

Ejecta Severity Estimation



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Geotechnical Engineers
Merarhias 56
http://www.geologismiki.gr

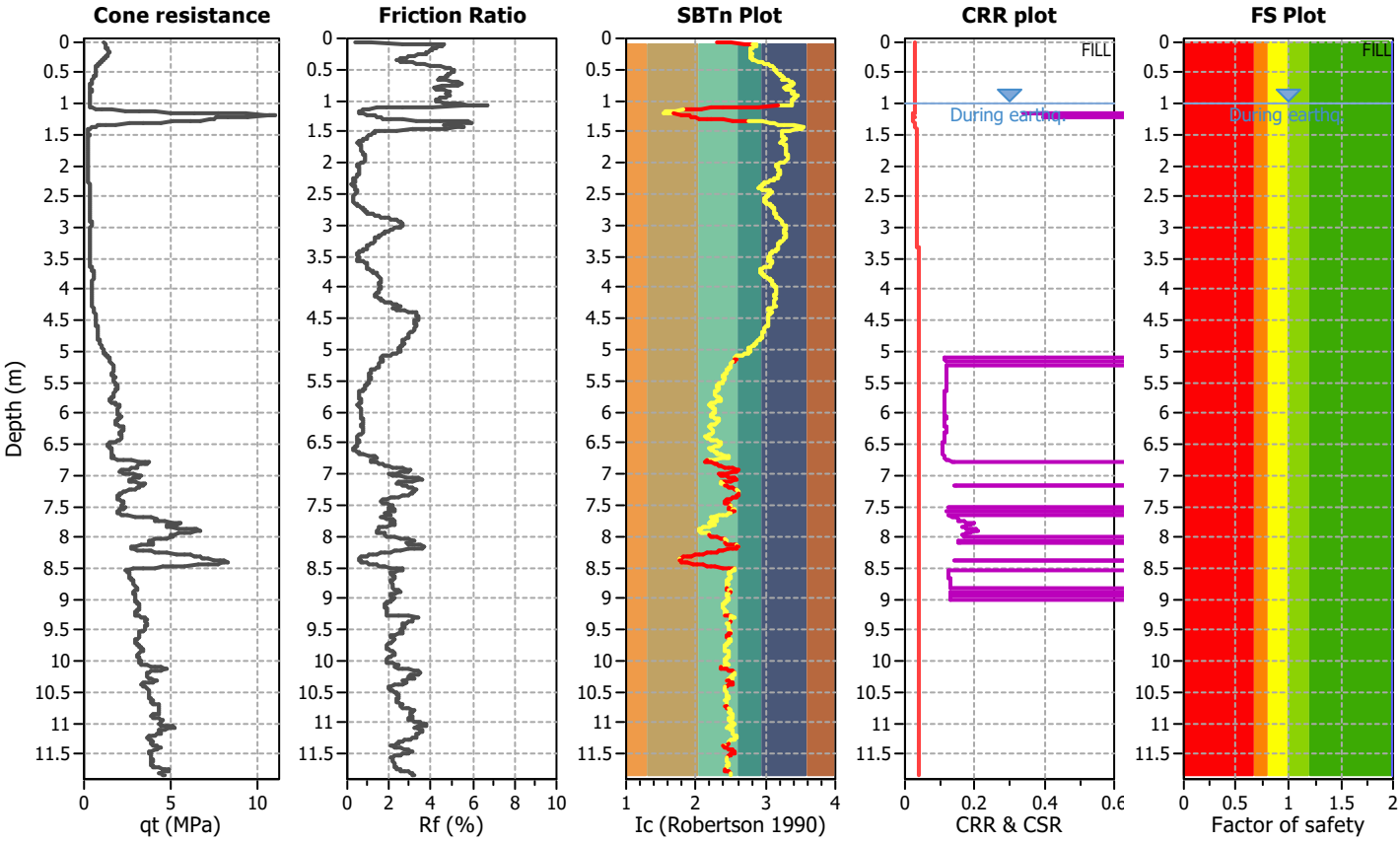
LIQUEFACTION ANALYSIS REPORT

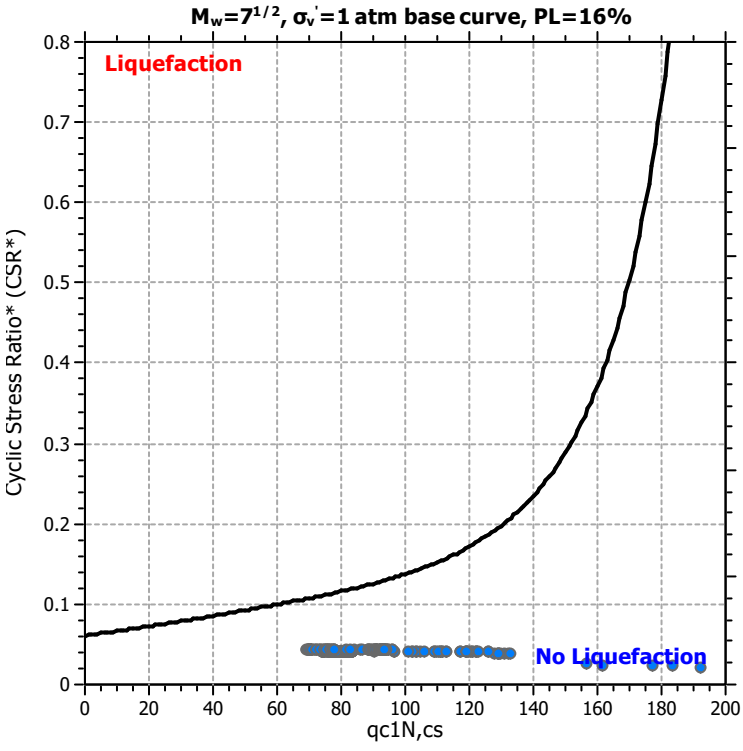
Project title : Sunfield Landholding **Location :**

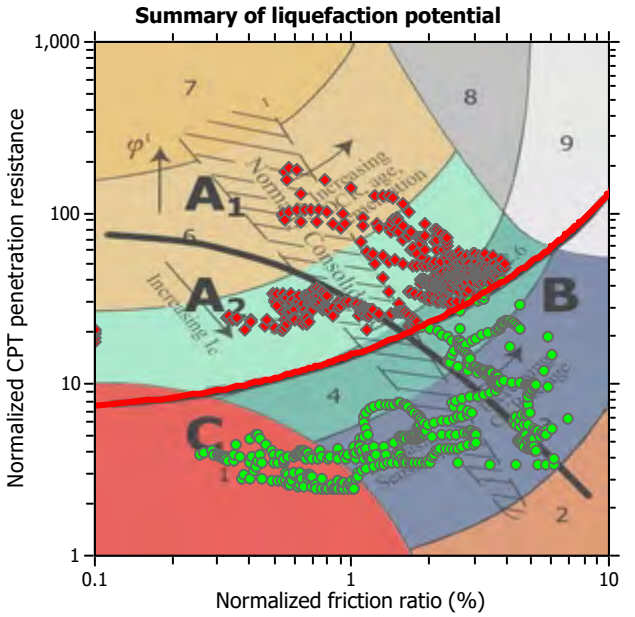
CPT file : CPT404

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	Yes	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	1.00 m	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	55.50 kN/m³	Limit depth:	10.00 m
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.05	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		







Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
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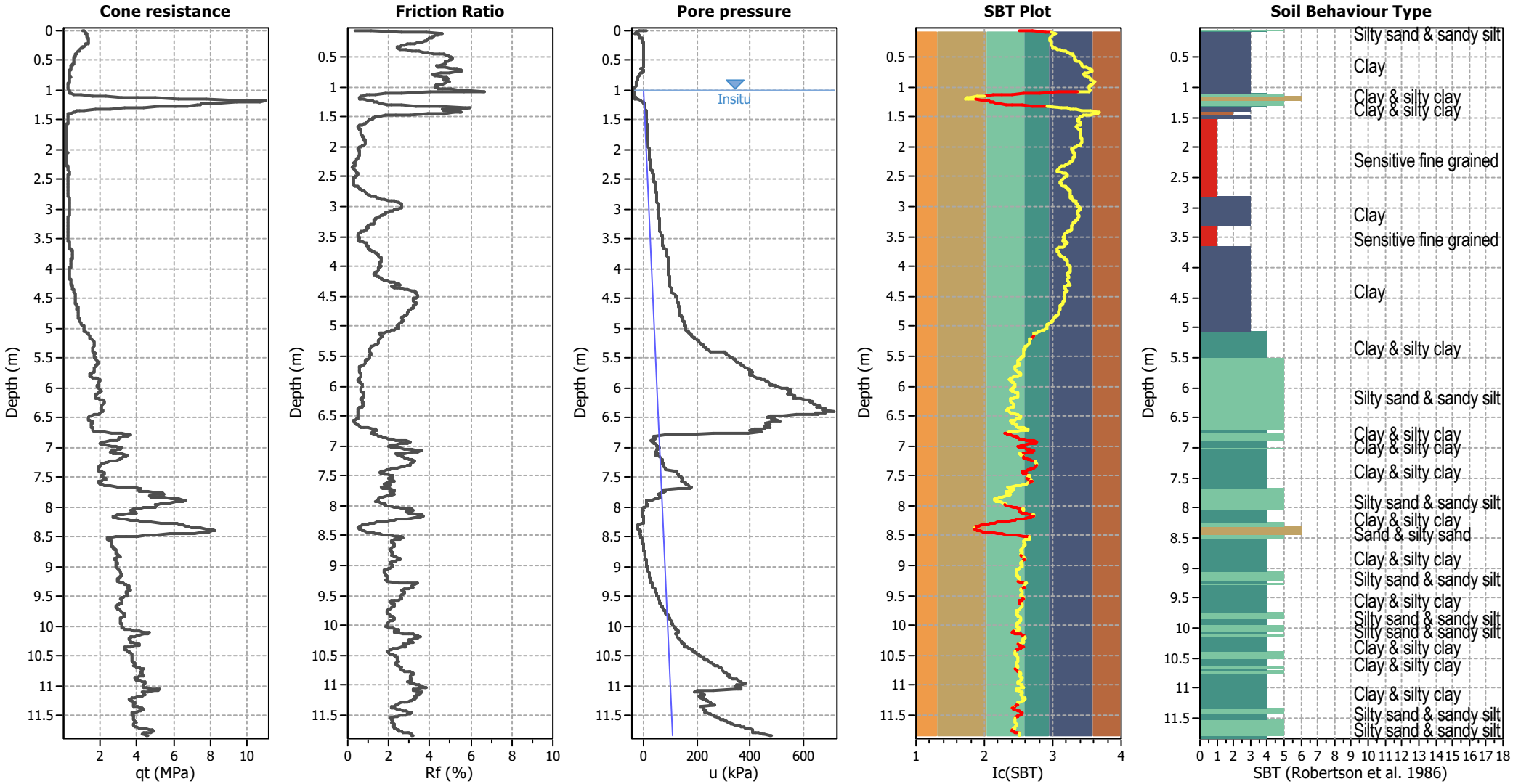
CPT basic interpretation plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	55.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.05	Use fill:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	1.00 m	Limit depth:	10.00 m

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
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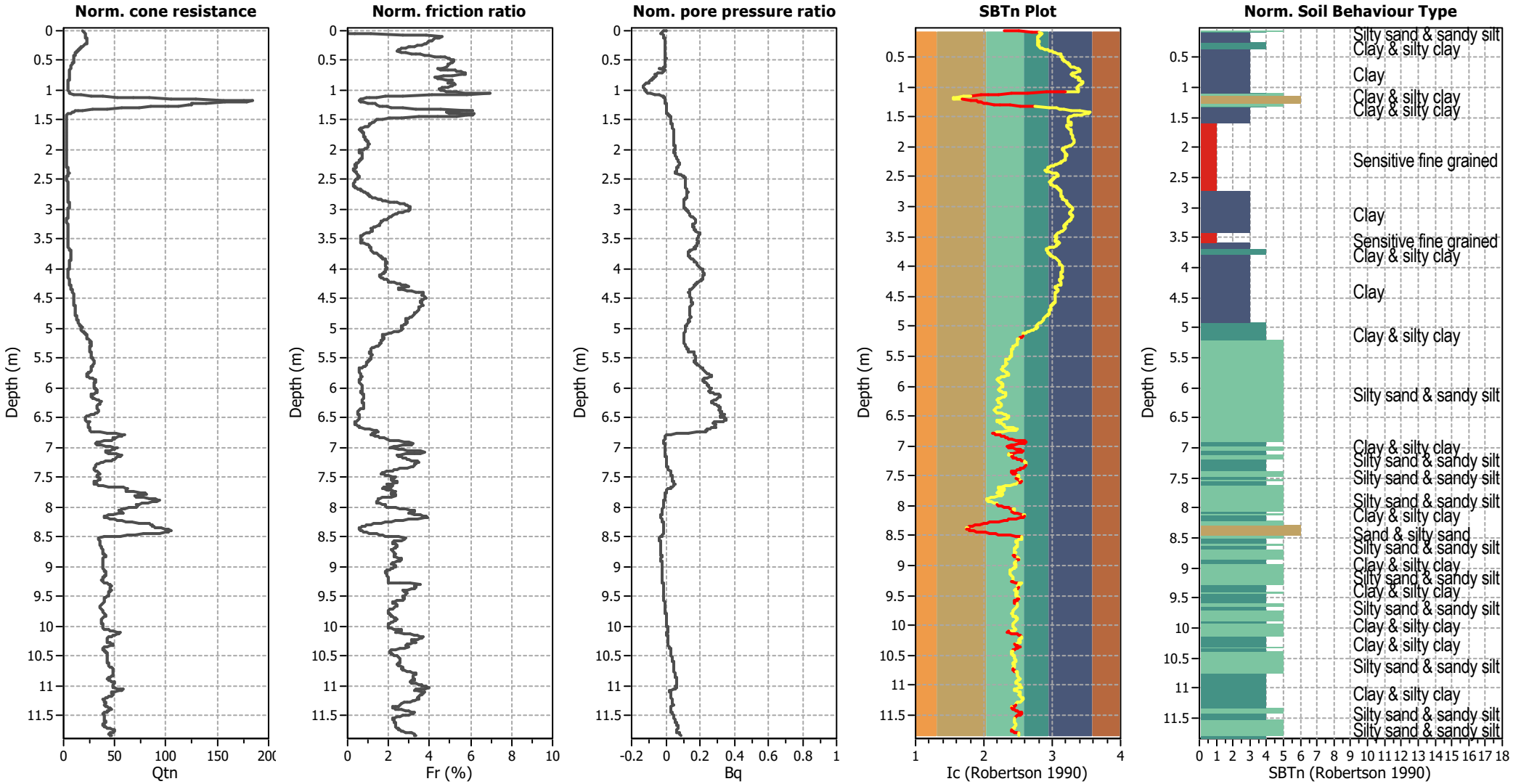
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



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Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	55.50 kN/m³
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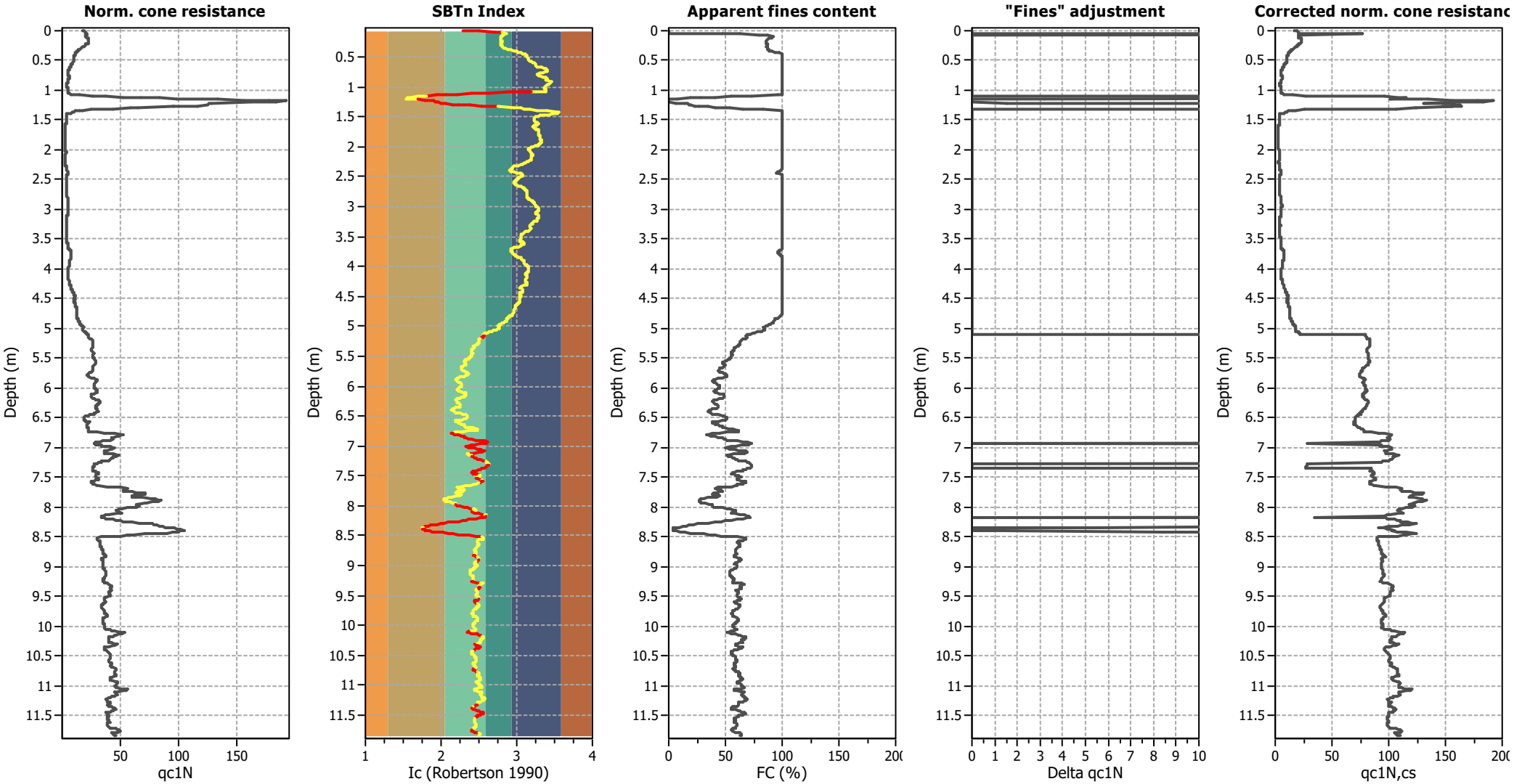
Liquefaction analysis overall plots (intermediate results)



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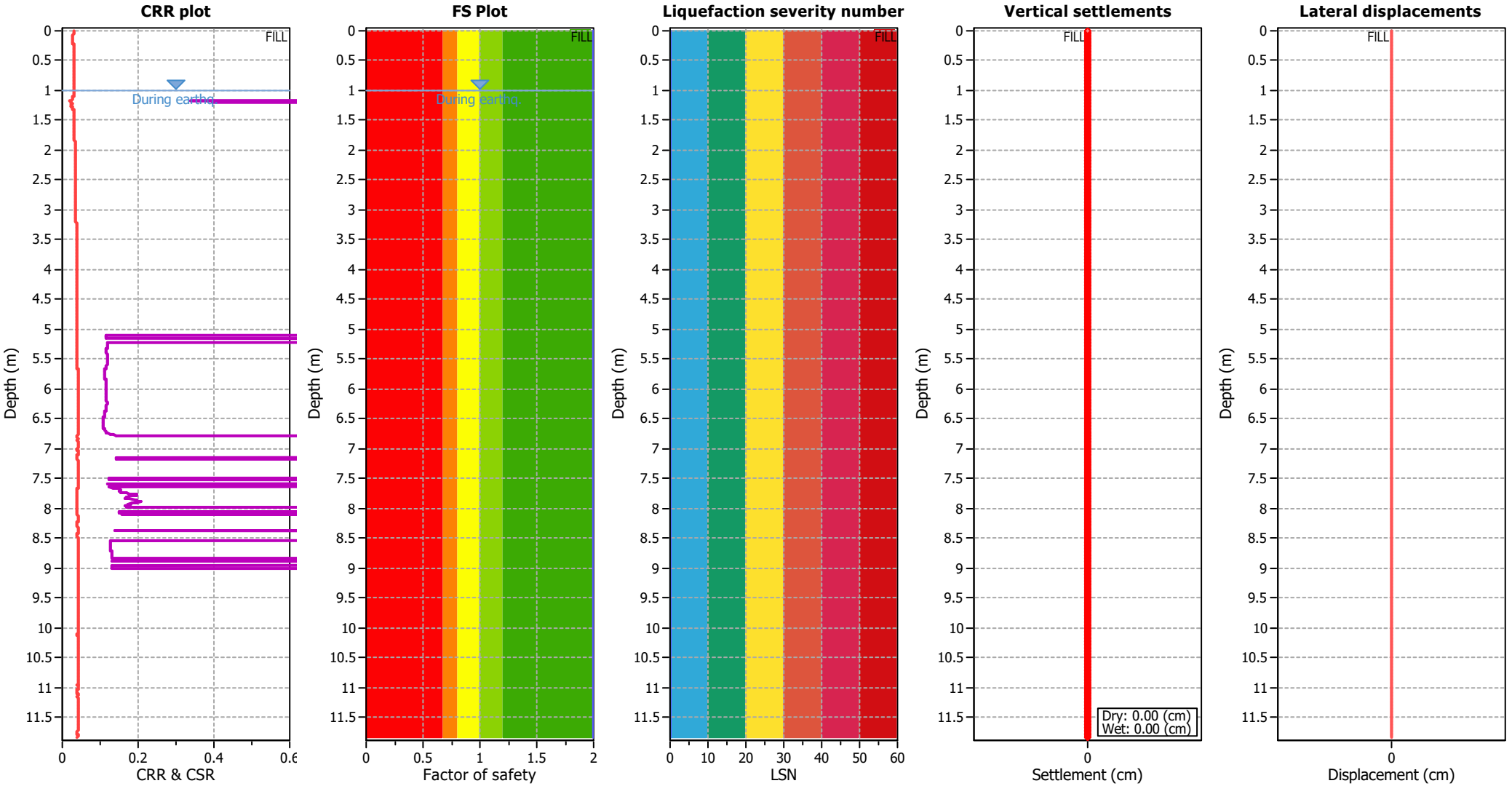
Liquefaction analysis overall plots



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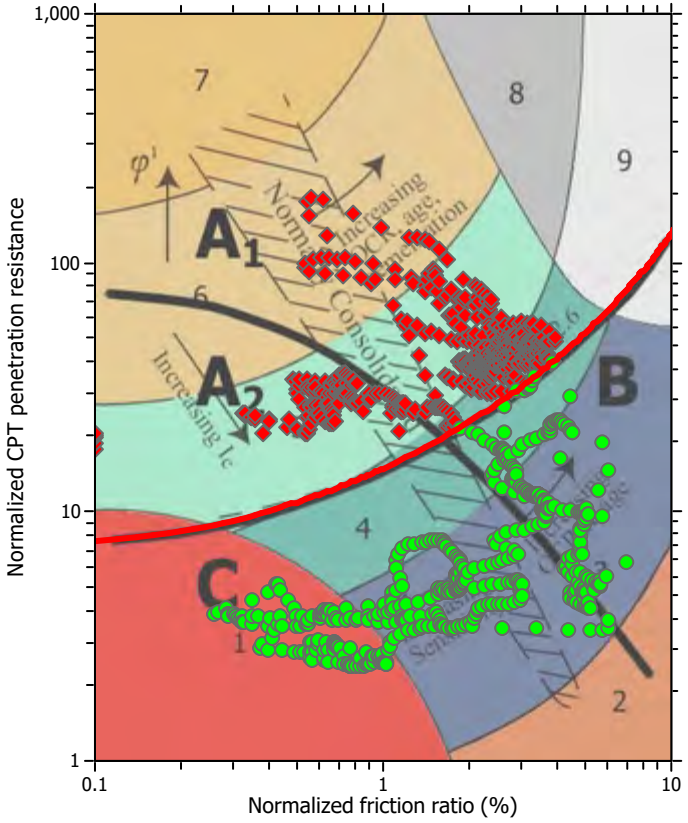

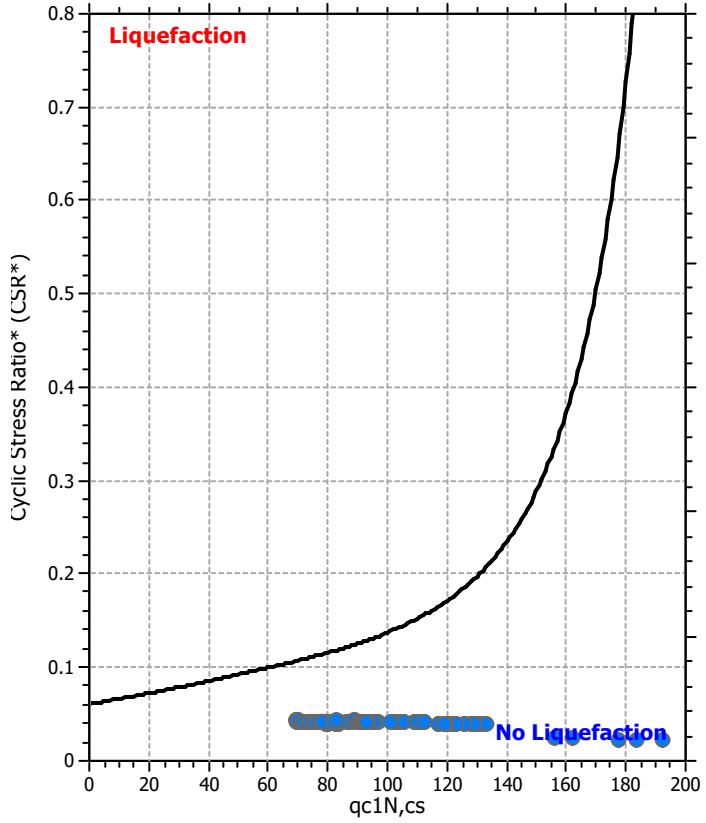

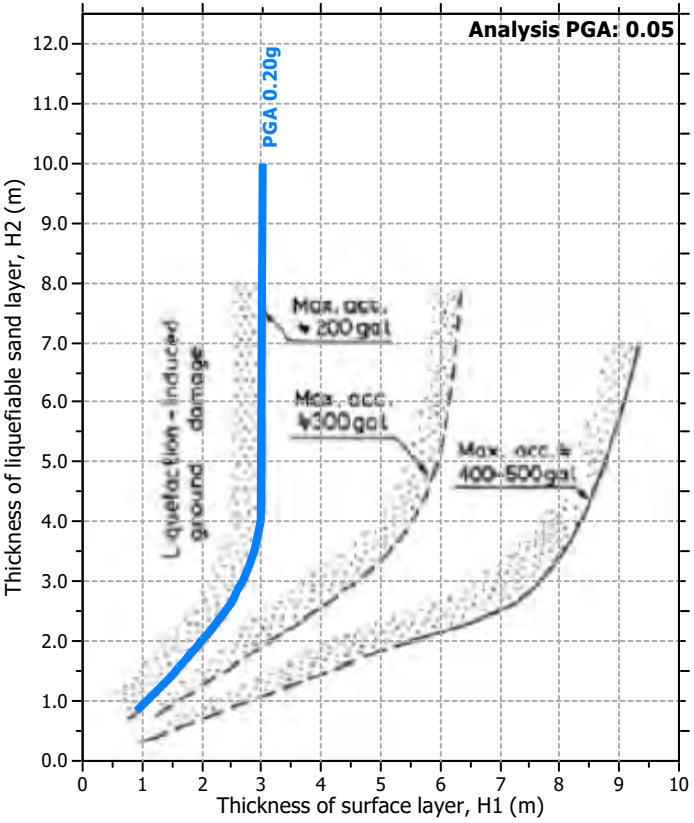

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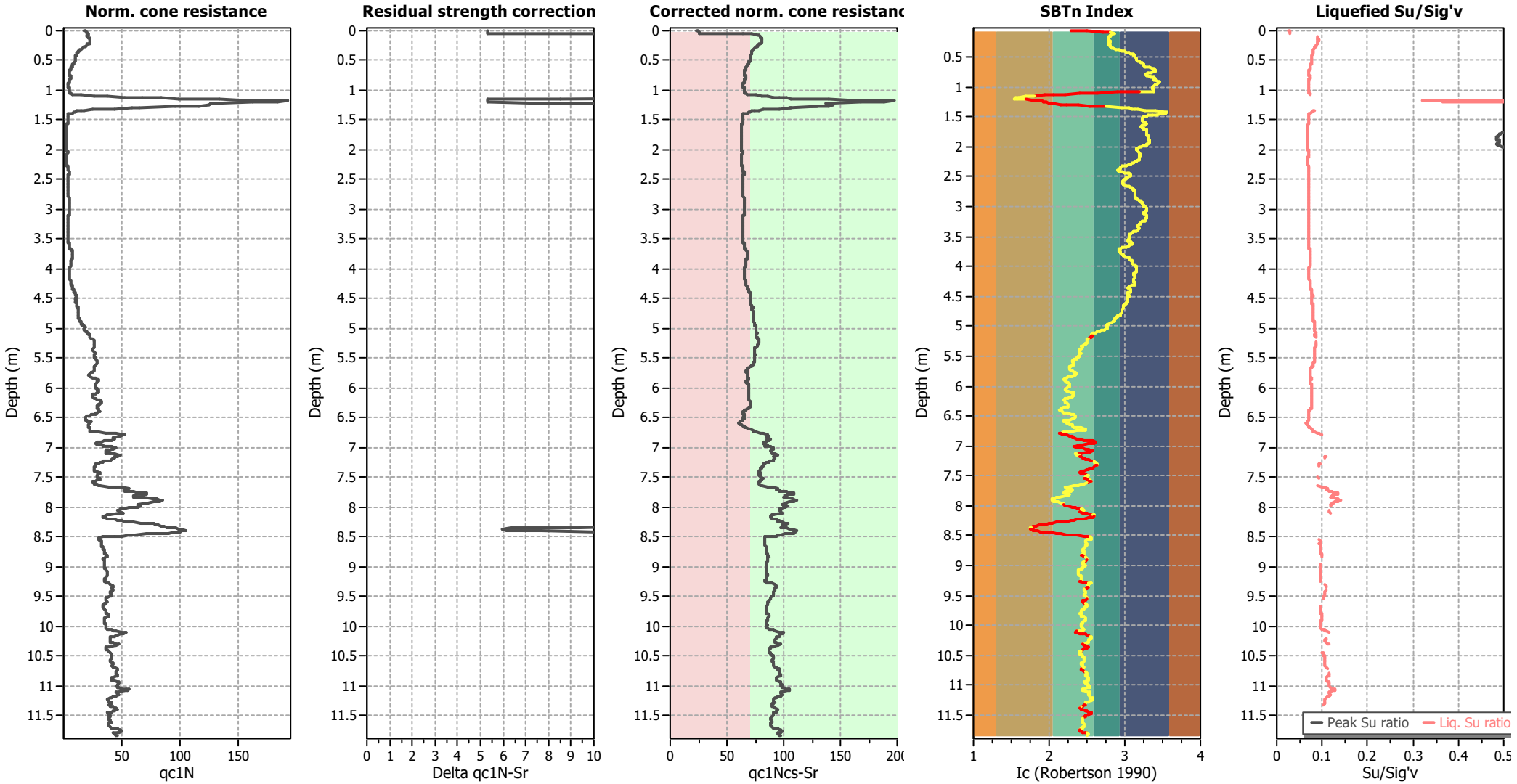

Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	55.50 kN/m³
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
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TRANSITION LAYER DETECTION ALGORITHM REPORT
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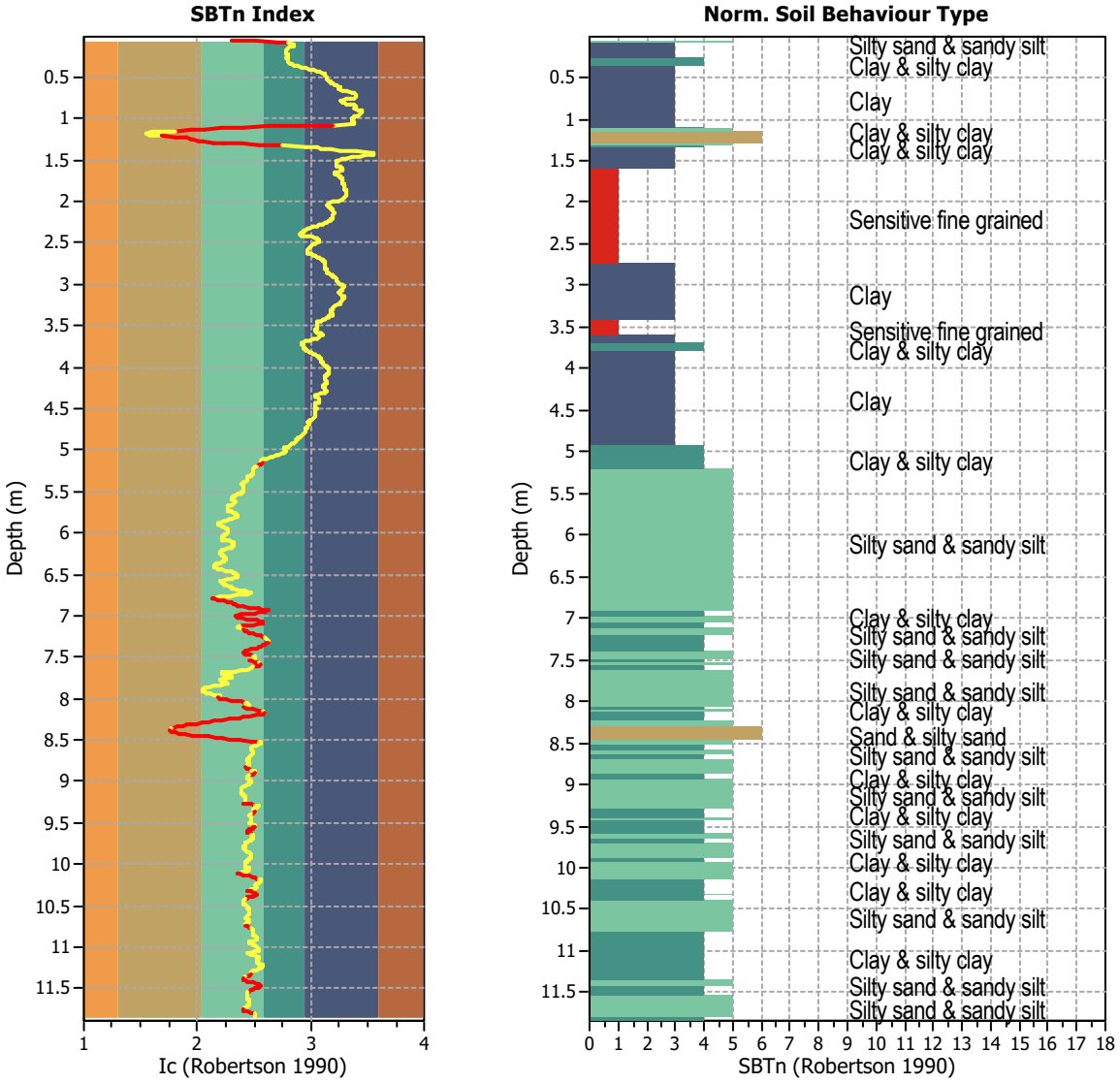

Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	1184
Total points excluded:	233
Exclusion percentage:	19.68%
Number of layers detected:	31