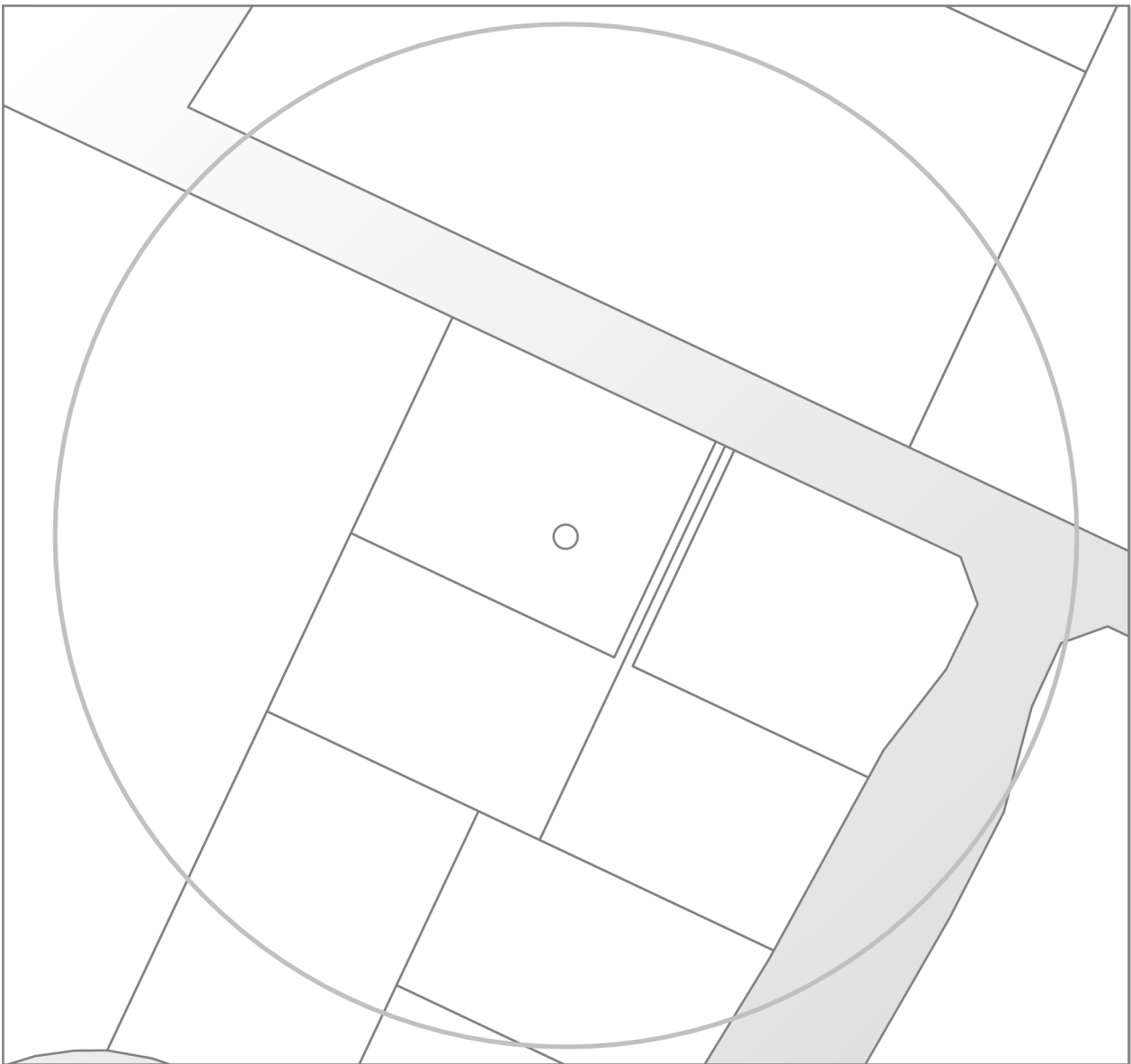


Land Information Memorandum



Property address:
61A Belfast Road

LIM number: H09602718

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Christchurch 8154, New Zealand
Tel 64 3 941 8999
Fax 64 3 941 8984

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Application details

Date issued 20 May 2026
Date received 12 May 2026

Property details

Property address 61A Belfast Road, Belfast, Christchurch
Valuation roll number 21800 83991
Valuation information Capital Value: \$3,450,000
Land Value: \$760,000
Improvements Value: \$2,690,000
Please note: these values are intended for Rating purposes
Legal description Lot 6 DP 584609
Existing owner Transocean International Development NO 2 Limited
PO Box 36339
Christchurch 8146

Council references

Rate account ID 73209492
LIM number H09602718
Property ID 1201273

Property address:
61A Belfast Road

LIM number: H09602718

Document information

This Land Information Memorandum (LIM) has been prepared for the purpose of section 44A of the Local Government Official Information and Meetings Act 1987 (LGOIMA). It is a summary of the information that we hold on the property. Each heading or "clause" in this LIM corresponds to a part of section 44A.

Sections 1 to 10 contain all of the information known to the Christchurch City Council that must be included under section 44A(2) LGOIMA. Any other information concerning the land as the Council considers, at its discretion, to be relevant is included at section 11 of this LIM (section 44A(3) LGOIMA). If there are no comments or information provided in these sections this means that the Council does not hold information on the property that corresponds to that part of section 44A.

The information included in this LIM is based on a search of Council records only and there may be other information relating to the land which is unknown to the Council. Please note that other agencies may also hold information relevant to the property, or administer legislation relevant to the use of the land, for example, the Regional Council (Ecan), Heritage New Zealand Pouhere Taonga, and Land Information New Zealand.

Council records may not show illegal or unauthorised building or works on the property. The applicant is solely responsible for ensuring that the land is suitable for a particular purpose.

A LIM is only valid at the date of issue as information is based only upon information the Council held at the time of that LIM request being made. It is essential that the applicant undertakes their own due diligence to verify the suitability of the property for their intended use.

Under Information Privacy Principle 3A (IPP3A) of the Privacy Act 2020, if personal information is collected indirectly (from someone other than the individual concerned), the affected person should be notified. If you are submitting a request on behalf of another individual and providing personal information to Council, please ensure that they are made aware of this prior to submission.

To enable the Council to measure the accuracy of this LIM document based on our current records, we would appreciate your response should you find any information contained therein which may be considered to be incorrect or omitted. Please telephone the Customer Call Centre on (03) 941 8999.

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A search of records held by the Council has revealed the following information:

1. Special features and characteristics of the land

Section 44(A)(2)(aa) LGOIMA. This is information known to the Council but is not apparent from a district plan under the Resource Management Act 1991. It identifies each (if any) special feature or characteristic of the land concerned, including but not limited to the likely presence of hazardous contaminants.

☎ For enquiries, please phone (03) 941 8999 or visit www.ccc.govt.nz.

Natural Hazards

Section 44A(2)(a) LGOIMA. This is information known to the Council about natural hazards that is required by section 44B LGOIMA.

Council's information has primarily been obtained from external specialists with the technical expertise to carry out research, investigation or analysis. Under the Local Government (Natural Hazard Information in Land Information Memoranda) Regulations 2025, the Council isn't required to:

- prepare a risk assessment of the land concerned.
- undertake any further analysis relating to the land.
- conduct additional searches or inquiries about the existence of natural hazard information.

It is the LIM recipient's responsibility to seek qualified advice about any identified natural hazard and/or the suitability of the land for its intended purpose.

This section may also include natural hazard information provided by Environment Canterbury. Christchurch City Council is required to include such information in LIMs where Environment Canterbury considers it meets the criteria under section 44C of LGOIMA.

The following statement has been provided by Environment Canterbury:

This Land Information Memorandum includes natural hazard information deemed by Environment Canterbury to be the most up to date, useful, and relevant, and is provided in accordance with the Local Government (Natural Hazard Information in Land Information Memoranda) Regulations 2025. All due care has been taken to ensure current information required to be provided under the regulations is presented below.

Environment Canterbury may hold superseded or less reliable natural hazards information relating to the land that has not been included in this Land Information Memorandum. Please contact Environment Canterbury if you would like to enquire about this information.

(a) Coastal Hazards

- Regional Hazard Information: Shoreline Modelling

Future shoreline modelling has not been completed for this area, however given the distance of the property from the coast, it will not be susceptible to coastal erosion for at least the next 100 years.

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(b) Earthquakes

- Liquefaction Assessment

Christchurch City Council holds indicative information about liquefaction hazards for Christchurch. Information, including an interactive web tool, can be found on the Council's website at ccc.govt.nz/liquefaction

Depending on the potential liquefaction hazard of an area that a property is in, the Council may require site-specific investigations before granting future subdivision or building consent for a property.

Title of report: Christchurch liquefaction vulnerability study

Purpose of report: To provide a district-wide liquefaction vulnerability assessment and to provide expected land performance for a range of potential future earthquake and groundwater scenarios. For use in land use planning, subdivision and building consenting

Scope of report: Christchurch urban area from the Waimakariri River mouth to Godley Head, and inland to the Selwyn District boundary

Where or how to access the report: <https://ccc.govt.nz/assets/Documents/Environment/Land/CCC-Liquefaction-ReportBody.pdf>

Date of report: July 2020

Name of person/entity that commissioned report: Christchurch City Council

Name of person/entity that prepared the report: Tonkin & Taylor Ltd

Title of Report: Geotechnical information on horizontal land movement due to the Canterbury earthquake sequence

Purpose of report: Background geotechnical information about shallow ground movements as a result of the earthquake sequence

Scope of Report: Christchurch City flat area, excluding Port Hills and Banks Peninsula

Where or how to access the report: <https://www.lin.govt.nz/resources/research/geotechnical-information-horizontal-land-movement-due-canterbury-earthquake-sequence>

Date of report: March 2015

Name of person/entity that commissioned report: Land Information New Zealand

The name of person/entity that prepared the report: Tonkin & Taylor Ltd

- Regional Liquefaction Information

Areas where there was evidence of liquefaction were mapped following the 2010/11 Canterbury earthquakes by Tonkin & Taylor for the Earthquake Commission (urban areas) and by a group of researchers for Environment Canterbury (rural, commercial and industrial areas). These are available in the Christchurch Liquefaction Viewer at <https://apps.canterburymaps.govt.nz/ChristchurchLiquefactionViewer/>.

Technical report information:

Title: Review of liquefaction hazard information in eastern Canterbury, including Christchurch City and parts of Selwyn, Waimakariri and Hurunui Districts.

Date: December 2012.

Author: H Brackley (compiler).

Commissioned by: Environment Canterbury.

Purpose of report: To collate liquefaction occurrence during the 2010/11 Canterbury earthquakes, and to determine liquefaction vulnerability. For use in land use planning, subdivision and building consenting.

Study area: Coastal Canterbury from the Waipara River mouth to the Rakaia River mouth, including Banks Peninsula, and inland to Rangiora, Aylesbury, Selwyn and Southbridge.

Accessible at: <https://www.ecan.govt.nz/document/download?uri=1702192>.

- Regional Hazard Information: Earthquake fault deformation

There are no known earthquake faults at the ground surface in Christchurch. However, it is possible there are some faults in Christchurch that are yet to be identified because they are not visible at the ground surface.

More information on fault deformation is available on Environment Canterbury's fault deformation map at <https://mapviewer.canterburymaps.govt.nz/?webmap=b5f859bd18ee4912828cb092bef6c449>.

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(c) Flooding

- Flooding

Flood models are used to show the probability and potential location of flooding in Christchurch. These are computer-based models, and use the data on the Council stormwater network, rainfall, topography, hydrology, soil, land-use and historic flooding. They also incorporate outputs of other modelling such as urban growth, ground water, sea level rise and climate change. Detailed reports on the modelling including its assumptions and limitations can be found at <https://ccc.govt.nz/consents-and-licences/property-information-and-lims/land-information-memorandum-lim>.

- Predicted 1 in 10 Year Flood Extent

Flood modelling shows this property, or parts of this property, is within a 1-in-10-year flood extent, not including impacts of climate change and sea level rise. You can view this on the flood extent map at <https://ccc.govt.nz/flood-and-floor-level-viewer>.

If changes such as land development or major infrastructure have occurred on this property, or in the surrounding area since the flood modelling, this may change the flood extent.

Please note: The current modelling may not fully account for the water flow into some sump inlets during smaller events, which could affect the flood extent. This will be addressed in future modelling updates. Any questions about this and how this may impact this property, please email us at floorlevels@ccc.govt.nz.

For more information, please refer to <https://ccc.govt.nz/flooding-and-floor-levels>.

- Predicted 1 in 50 Year Flood Extent

Flood modelling shows this property, or parts of this property, is within a 1-in-50-year flood extent, including impacts of climate change and sea level rise. You can view this on the flood extent map at <https://ccc.govt.nz/flood-and-floor-level-viewer>. If changes such as land development or major infrastructure have occurred on this property, or in the surrounding area since the flood modelling, this may change the flood extent. For more information, please refer to <https://ccc.govt.nz/flooding-and-floor-levels>.

- Predicted 1 in 200 Year Flood Extent

Flood modelling shows this property, or parts of this property, is within a 1-in-200-year flood extent, including impacts of climate change and sea level rise. You can view this on the flood extent map at <https://ccc.govt.nz/flood-and-floor-level-viewer>. If changes such as land development or major infrastructure have occurred on this property, or in the surrounding area since the flood modelling, this may change the flood extent. For more information, please refer to <https://ccc.govt.nz/flooding-and-floor-levels>.

- Regional Hazard Information: Flood Photographs

Photographs showing the property during or following past flood events may be available. Flood photographs are available on Environment Canterbury's flood imagery register at <https://apps.canterburymaps.govt.nz/FIR>.

- Regional Hazard Information: Site Specific Flood Assessment

A site specific flood hazard assessment may have been completed for the property by Environment Canterbury. The information contained in this assessment may now be outdated. Please contact Environment Canterbury if you would like to request a copy.

- Regional Hazard Information: Flood Assessment Request

You can request a new site-specific flood hazard assessment for the property from Environment Canterbury at: <https://www.ecan.govt.nz/do-it-online/property-information/flood-hazard-assessments>.

(d) Landslides

As at the date of this LIM, Council research found no information under this heading.

(e) Subsidence

- Consultant Report Available

Land Information New Zealand (LINZ) engaged Tonkin and Taylor to provide a Geotechnical Report on Ground Movements that occurred as a result of the Canterbury Earthquake Sequence. The report indicates this property may have been effected by a degree of earthquake induced subsidence. The report obtained by LINZ can be accessed on their website at <https://www.linz.govt.nz> and search Information for Canterbury Surveyors.

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(f) Tsunamis

As at the date of this LIM, Council research found no information under this heading.

(g) Volcanic and Geothermal Hazards

As at the date of this LIM, Council research found no information under this heading.

(h) Wind

As at the date of this LIM, Council research found no information under this heading.

(i) Any Other Natural Hazards

As at the date of this LIM, Council research found no information under this heading.

(j) District Plan Natural Hazard Information

Please refer to *Section 8. Land use and conditions* of this report for District Plan related natural hazard information.

(k) Building Notices

Please refer to *Section 5. Consents, certificates, notices, orders, or requisitions affecting the land and buildings* of this report for Building Act notice information.

Other Special Features or Characteristics of the Land


- Borelog/Engineer Report Image Available
Borelog/Engineer Report Image Available
- Fill
This property is located in an area known to have been filled. The year the fill occurred is 2015. The filling was, according to the Council's records carried out in a controlled manner and comprises Engineered Fill.
- Potentially Contaminating Activity
Council have a record showing that an activity has taken place on this site which fits within Group A, "Chemical manufacture, application and bulk storage", of the 2011 Hazardous Activities and Industries List (HAIL).
- Potentially Contaminating Activity - continued
More detail on the HAIL may be found at the Ministry for the Environment. More detail on this specific site may be available on the Listed Land Use Register (LLUR) maintained by Environment Canterbury. There is a potential for contaminants to be present in the ground. Site specific investigations may be required for any proposed land use.
- Record of Contamination
Records indicate that this site may have been contaminated with Animal Waste. For more information on the contamination you can contact the Environmental Health Team on 941 8999.

Related Information

- The latest soil investigation report for this property is attached for your information

2. Private and public stormwater and sewerage drains

Section 44A(2)(b) LGOIMA. This is information about private and public stormwater and sewerage drains as shown in the Council's records.

 For stormwater and sewerage enquiries, please phone (03) 941 8999 or visit www.ccc.govt.nz.

Related Information

- Attached are all drainage plans that Council hold for details of private and public drainage. Not all plans provided are verified by Council, and therefore Council cannot be liable for inaccuracies. Site investigation will be required by owners to determine exact layouts.
- This property is shown to be served by Christchurch City Council Sewer .
- The council plan shows no public stormwater lateral plotted to this site.
- Council Trade Waste Bylaw regulates the use of the sewer system for sources other than domestic sewage. A trade waste consent must be obtained by the new owner or occupier before any wastewater from an industrial or commercial processes including but not limited to wash down grease traps and cooling systems may be discharged to Council sewer system.

3. Drinking Water Supply

Section 44A(2)(ba) and (bb) LGOIMA. This is information notified to the Council about whether the land is supplied with drinking water, whether the supplier is the owner of the land or a networked supplier, any conditions that are applicable, and any information the Council has about the supply.

Please note the council does not guarantee a particular water quality to its customers. If you require information on current water quality at this property please contact the Three Waters & Waste Unit.

☎ For water supply queries, please phone (03) 941 8999 or visit www.ccc.govt.nz.

Water supply

Christchurch City Council is the networked supplier of water to this property. This property is connected to the Christchurch City Council Water Supply. The conditions of supply are set out in the Christchurch City Council Water Supply and Wastewater Bylaw (2022), refer to www.ccc.govt.nz.

Related Information

- All Commercial and industrial properties are required to have a Reduced Pressure Zone backflow prevention device at the boundary to protect the Christchurch water supply network. The installation of this device is a condition of supply and is the responsibility of the property owner in accordance with the Christchurch City Council Water Supply and Wastewater Bylaw 2022. For more information visit our website <https://ccc.govt.nz/backflow-prevention/> or contact the backflow installation team on 03 941 8999.

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4. Rates

Section 44A(2)(c) LGOIMA. This is information on any rates owing in relation to the land.

☎ For rates enquiries, please phone (03) 941 8999 or visit www.ccc.govt.nz.

(a) Annual rates

Annual rates to 30/06/2026: \$29,995.35

	Instalment Amount	Date Due
Instalment 1	\$7,498.79	31/08/2025
Instalment 2	\$7,498.79	30/11/2025
Instalment 3	\$7,498.79	28/02/2026
Instalment 4	\$7,498.98	31/05/2026

Rates owing as at 20/05/2026: \$35,338.00

(b) Excess water charges

For excess water charge enquiries, please phone (03) 941 8999 or visit www.ccc.govt.nz/contact-us

(c) Final water meter reading required at settlement?

Property settlements must now ensure all water usage and outstanding debts are accurately accounted for.

To advise of a commercial property settlement, please complete the request for settlement information form at www.ccc.govt.nz/services/rates-and-valuations/solicitors-request

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5. Consents, certificates, notices, orders, or requisitions affecting the land and buildings

Section 44A(2)(d) LGOIMA. This is information concerning any consent, certificate, notice, order, or requisition, affecting the land or any building on the land, previously issued by the Council.

The information in this section may also cover building consent and/or code compliance information issued by building certifiers under the Building Act 1991 and building consent authorities that are not the Council under the Building Act 2004.

You can check the property file to identify whether any consent or certificate was issued by a building certifier under the Building Act 1991.

The building consents recorded in this LIM are only those that the Council has issued or been notified of by a stand-alone BCA. There may be others if a stand-alone BCA has issued consents without notifying the Council.

Section 44A(2)(da) LGOIMA. The information required to be provided to a territorial authority under section 362T(2) of the Building Act 2004. There is currently no information required to be provided by a building contractor to a territorial authority under section 362T(2) of the Building Act 2004. The Building (Residential Consumer Rights and Remedies) Regulations 2014 only prescribed the information that must be given to the clients of a building contractor.

Sections 71 to 74 of the Building Act 2004 require the Building Consent Authority to consider natural hazards when it receives a building consent application for the construction or major alteration of a building on land that is subject to, or likely to be subject to, a natural hazard. A building consent for this property may have been issued subject to a section 72 or 73 notice. This means at the time of building consent the Building Consent Authority was not satisfied that adequate provision would be made to protect the building and land from the natural hazard and was subsequently required to notify the Registrar-General of Land to record the natural hazard on the Record of Title. The Building Act 2004 defines natural hazards as erosion (including coastal erosion, bank erosion, and sheet erosion), falling debris (including soil, rock, snow, and ice), subsidence, inundation (including flooding, overland flow, storm surge, tidal effects, and ponding), and slippage.

If your property contains a notice under s73 of the Building Act 2004, this will be identified on the building consent decision below (decision under s72 of the Building Act 2004) and on the properties' Record of Title. The Record of Title may also record this as a s36 notice under the Building Act 1991, or a s641A notice under the Local Government Act 1974.

☎ For building enquiries, please phone (03) 941 8999, email EPADutyBCO@ccc.govt.nz or visit www.ccc.govt.nz.

(a) Consents

- BCN/2022/235 Applied: 20/01/2022 Status: Completed
61A Belfast Road Belfast
Accepted for processing 20/01/2022
PIM Granted 11/03/2022
PIM Issued 17/03/2022
Construction of warehouse/office
- BCN/2022/5318 Applied: 01/08/2022 Status: Completed
65A Belfast Road Belfast
Accepted for processing 04/08/2022
Building consent granted 10/10/2022
Building consent issued 14/10/2022
Code Compliance Certificate Issued 21/09/2023
Installation of services for industrial subdivision
- BCN/2022/5630 Applied: 11/08/2022 Status: Completed
61A Belfast Road Belfast
Accepted for processing 16/08/2022
Building consent granted 20/10/2022
Building consent issued 25/10/2022

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Certificate for Public Use Applied: 13/06/2023 Issued: 20/06/2023 Expiry: 30/09/2023
Certificate for Public Use Applied: 04/10/2023 Issued: 04/10/2023 Expiry: 30/04/2024
Code Compliance Certificate Issued 22/11/2023
Construction of Warehouse and Office Building - Lot 6

(b) Certificates

Note: Code Compliance Certificates were only issued by the Christchurch City Council since January 1993.

(c) Notices

- WOF/2023/80 Expires: 01/12/2026
Investigation initiated 14/04/2025

(d) Orders

(e) Requisitions

Related Information

- In the property file there is an electrical and/or gas fitters certificate relating to works that have been carried out on the current building at this address.

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6. Certificates issued by a building certifier

Section 44A(2)(e) LGOIMA. This is information notified to the Council concerning any certificate issued by a building certifier pursuant to the Building Act 1991 or the Building Act 2004.

 For building enquiries, please phone (03) 941 8999, email EPADutyBCO@ccc.govt.nz or visit www.ccc.govt.nz.

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7. Weathertightness

Section 44A(2)(ea) LGOIMA. This is information notified to the Council under section 124 of the Weathertight Homes Resolution Services Act 2006.

 For weathertight homes enquiries, please phone (03) 941 8999 or visit www.ccc.govt.nz.

If there is no information below this means Council is unaware of any formal Weathertight Homes Resolution Services claim lodged against this property.

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8. Land use and conditions

Section 44A(2)(f) LGOIMA. This is information relating to the use to which the land may be put and conditions attached to that use. The planning information provided below is not exhaustive and reference to the Christchurch District Plan and any notified proposed changes to that plan is recommended: <https://ccc.govt.nz/the-council/plans-strategies-policies-and-bylaws/plans/christchurch-district-plan/>.

There may be some provisions of the Christchurch City Plan or Banks Peninsula District Plan that affect this property that are still operative.

☎ For planning queries, please phone (03) 941 8999, email DutyPlanner@ccc.govt.nz or visit www.ccc.govt.nz.

- **Regional plan or bylaw**

There may be objectives, policies or rules in a regional plan or a regional bylaw that regulate land use and activities on this site. Please direct enquiries to Canterbury Regional Council (Environment Canterbury).

(a)(i) Christchurch City Plan & Banks Peninsula District Plan

(ii) Christchurch District Plan

- **Development Constraint Conditions**

Council records show there is a specific condition on the use of this site: Consent Notice

- **Sites of Ngai Tahu Cultural Significance**

Property or part of property within the Mahaanui Iwi Management Plan Silent Files and Kaitorete Spit overlay, which is operative.

- **Liquefaction Management Area (LMA)**

Property or part of property within the Liquefaction Management Area (LMA) Overlay, which is operative.

- **District Plan Zone**

Property or part of property within the Industrial Heavy Zone, which is operative.

(b) Resource consents

If there are any land use resource consents issued for this property the Council recommends that you check those resource consents on the property file. There may be conditions attached to those resource consents for the property that are still required to be complied with.

- RMA/1997/3638 - Subdivision Consent
Bdy Adj SUBDIVISION - Historical Reference RMA13261
Status: Processing complete
Applied 26/08/1997
- RMA/2009/1872 - Subdivision Consent
Land Use Application for Earthworks - Historical Reference RMA92015359
Status: Processing complete
Applied 11/12/2009
Granted 27/01/2010

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Decision issued 27/01/2010

- RMA/2010/627 - Subdivision Consent
BOUNDARY ADJUSTMENT - Historical Reference RMA92016150
Status: Lapsed
Applied 04/05/2010
Granted 25/05/2010
Decision issued 25/05/2010
- RMA/2011/414 - Subdivision Consent
BOUNDARY ADJUSTMENT 223 & 224 ISSUED 2/8/11 - Historical Reference RMA92017944
Status: Processing complete
Applied 20/04/2011
Granted 30/05/2011
Decision issued 30/05/2011
- RMA/2014/3400 - s127 Change / cancellation of condition(s)
65A Belfast Road Belfast
Variation to Consent Conditions [RMA92025331] - Historical Reference RMA92028110
Status: Processing complete
Applied 18/12/2014
Granted 30/01/2015
Decision issued 30/01/2015
- RMA/2015/1341 - s127 Change / cancellation of condition(s)
65A Belfast Road Belfast
Variation of Consent Conditions [RMA92028712] - Historical Reference RMA92029601
Status: Processing complete
Applied 19/05/2015
Granted 10/06/2015
Decision issued 10/06/2015
- RMA/2022/574 - Combined subdivision / land use consent
65A Belfast Road Belfast
Fee simple subdivision in seven lots
Status: Processing complete
Applied 02/03/2022
Granted 15/06/2022
Decision issued 15/06/2022
s223 Certificate issued 07/08/2023
s224 Certificate issued 25/09/2023
- RMA/2022/600 - Certification
65A Belfast Road Belfast
Wastewater capacity certificate
Status: Processing complete
Applied 02/03/2022
Certificate issued 16/03/2022
- RMA/2022/1022 - Land Use Consent
61A Belfast Road Belfast
Industrial activity – wholesaling business with ancillary office and retail - Lot 6
Status: Processing complete
Applied 05/04/2022
Granted 05/09/2022

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Decision issued 06/09/2022

(c) Resource Consents Natural Hazard Information

- Land use and subdivision consents may require an assessment against natural hazards. This may be in the form of an applicant-supplied technical report. If there is a relevant applicant-supplied report applicable for the site, this may be attached as part of the LIM or can be obtained by contacting the Duty Planner at dutyplanner@ccc.govt.nz

Related Information

- The Council system shows a Development Constraint/Ongoing Condition Consent notice for this property. The consent notice should be registered against the record of title for the property and a search of that title and the consent notice will provide details in respect of the constraint / condition. If a search of the title does not record the consent notice or the consent notice is not clear then we suggest you contact the duty planner by either calling 941 8999 or emailing DutyPlanner@ccc.govt.nz. The Consent notice is as follows: Specific foundation design. Shall base on localised ground improvement. Shall follow advice by Soil & Rock (C17022 11th May 2017).

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9. Other land and building classifications

Section 44A(2)(g) LGOIMA. This is information notified to the Council by any statutory organisation having the power to classify land or buildings for any purpose.

 For land and building enquiries, please phone (03) 941 8999 or visit www.ccc.govt.nz.

Please refer to Section 1 for details

Property address:

61A Belfast Road

LIM number: H09602718

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Christchurch City Council

53 Hereford Street, PO Box 73015
Christchurch 8154, New Zealand
Tel 64 3 941 8999
Fax 64 3 941 8984

www.ccc.govt.nz

10. Network utility information

Section 44A(2)(h) LGOIMA. This is information notified to the Council by any network utility operator pursuant to the Building Act 1991 or the Building Act 2004.

☎ For network enquiries, please phone (03) 941 8999 or visit www.ccc.govt.nz.

- **None recorded for this property**

Property address:

61A Belfast Road

LIM number: H09602718

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Christchurch City Council

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11. Other information

Section 44A(3) LGOIMA. This is information concerning the land that the Council has the discretion to include if it considers it to be relevant.

☎ For any enquiries, please phone (03) 941 8999 or visit www.ccc.govt.nz.

(a) Kerbside waste collection

- Your organics are collected Weekly on Wednesday. Please leave your organics at the Kerbside by 6:00 a.m.
- Your recycling is collected Fortnightly on the Week 2 collection cycle on a Wednesday. Please leave your recycling at the Kerbside by 6:00 a.m. Your nearest recycling depot is the Styx Mill EcoDrop.
- Your refuse is collected Fortnightly on the Week 2 collection cycle on a Wednesday. Please leave your rubbish at the Kerbside by 6:00 a.m. Your nearest rubbish depot is the Styx Mill EcoDrop.

(b) Other

• Floor Levels Information

Council holds a variety of information on requirements for building or property development. This includes:

- required minimum finished floor levels, which need to be set to meet the surface water requirements in clause E1.3.2 of the Building Code (where this applies); and
- the requirements of the Christchurch District Plan (where a property is in the Flood Management Area).

Where this information has been processed for your property, you can view it online at <https://ccc.govt.nz/flooding-and-floor-levels>.

Otherwise, if you are building or developing on this land, you can request a calculation on required finished floor levels for your proposed building by emailing us at floorlevels@ccc.govt.nz.

• Community Board

Property located in Fendalton-Waimairi-Harewood Community Board.

• Tsunami Evacuation Zone

This property is not in a tsunami evacuation zone. It is not necessary to evacuate in a long or strong earthquake or during an official Civil Defence tsunami warning. Residents may wish to offer to open their home to family or friends who need to evacuate from a tsunami zone, and should plan with potential guests to do so in advance. More information can be found at <https://ccc.govt.nz/services/civil-defence/hazards/tsunami-evacuation-zones-and-routes/>

• Electoral Ward

Property located in Harewood Electoral Ward

• Listed Land Use Register

Hazardous activities and industries involve the use, storage or disposal of hazardous substances. These substances can sometimes contaminate the soil. Environment Canterbury identifies land that is used or has been used for hazardous activities and industries. This information is held on a publically available database called the Listed Land Use Register (LLUR). The Christchurch City Council may not hold information that is held on the LLUR. Therefore, it is recommended that you check Environment Canterbury's online database at www.llur.ecan.govt.nz

• Spatial Query Report

A copy of the spatial query report is attached at the end of this LIM. The spatial query report lists land use resource consents that have been granted within 100 metres of this property.

Property address:

61A Belfast Road

LIM number: H09602718

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Christchurch 8154, New Zealand
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Related Information

- Dangerous Goods Licences have been replaced with Location Test Certificates/ Location Compliance Certificates administered by Worksafe. You can contact a local Test Certifier to advise you or to issue the type of test certificate you need.

Property address:

61A Belfast Road

LIM number: H09602718

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- | | |
|---|-----------------------------------|
| StreetAddress | SwFacility |
| WwAccess | SwPipe (non CCC) |
| Standard Manhole | Removed |
| Vented Manhole | SwLateral (non CCC) |
| WwPipeFlowDirection | In Service |
| WwPipe | SwInlet (not In Service) |
| NominalDiameter | Single Sump |
| Diameter is greater than 200mm, up to 450mm | SwOutlet (not In Service) |
| Diameter is greater than 450mm | SwPipeProtection (not In Service) |
| WwLateral | WsValve |
| WwPipe (non CCC) | Gate |
| In Service | Sluice |
| Abandoned | Sluice, Normally Closed |
| WwLateral (non CCC) | WsHydrant |
| In Service | WsConnection |
| SwAccess | Meter |
| SwHeadwall | WsFitting |
| Inlet | End Cap |
| SwGrill | Connector |
| Inlet | Connector |
| SwInlet | WsPipe |
| Single Sump | NominalDiameter |
| Double Sump | Diameter is 110mm or smaller |
| SwOutlet | Diameter is greater than 225mm |
| Junction | WsLateral |
| SwPipeFlowDirection | WsConnection (not In Service) |
| SwPipe | Meter |
| NominalDiameter | RatingUnit |
| Diameter is 450mm or smaller | WcRestriction |
| Diameter is greater than 750mm | Narrowing |
| SwLateral | WcBridge |
| SwPipeProtection | WcWaterCourse |
| | WaterCourseSegmen |

Christchurch City Council 

ph: 03 941 8999 web: ccc.govt.nz

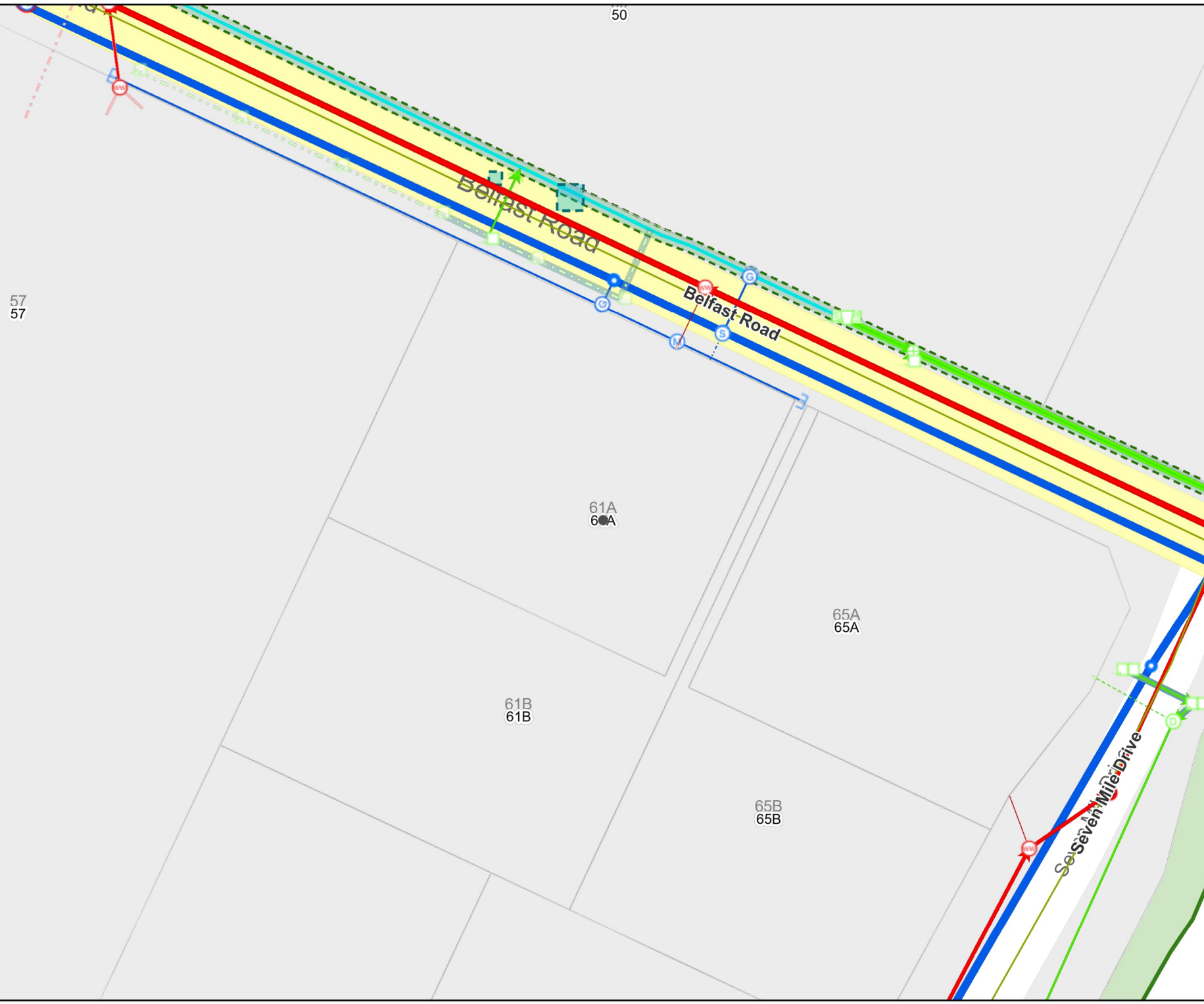
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Display of data scale dependant.
Client selected legend.

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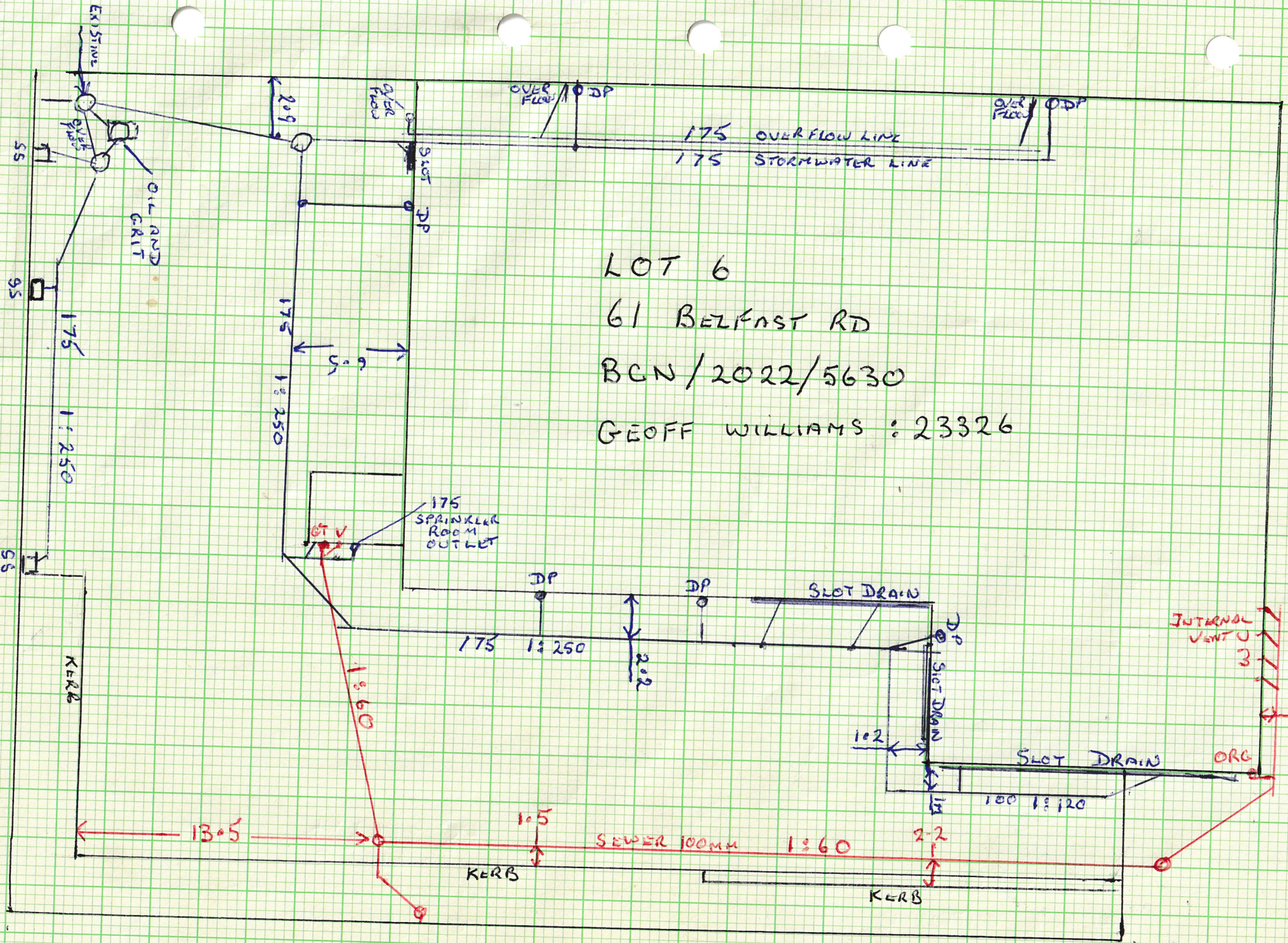
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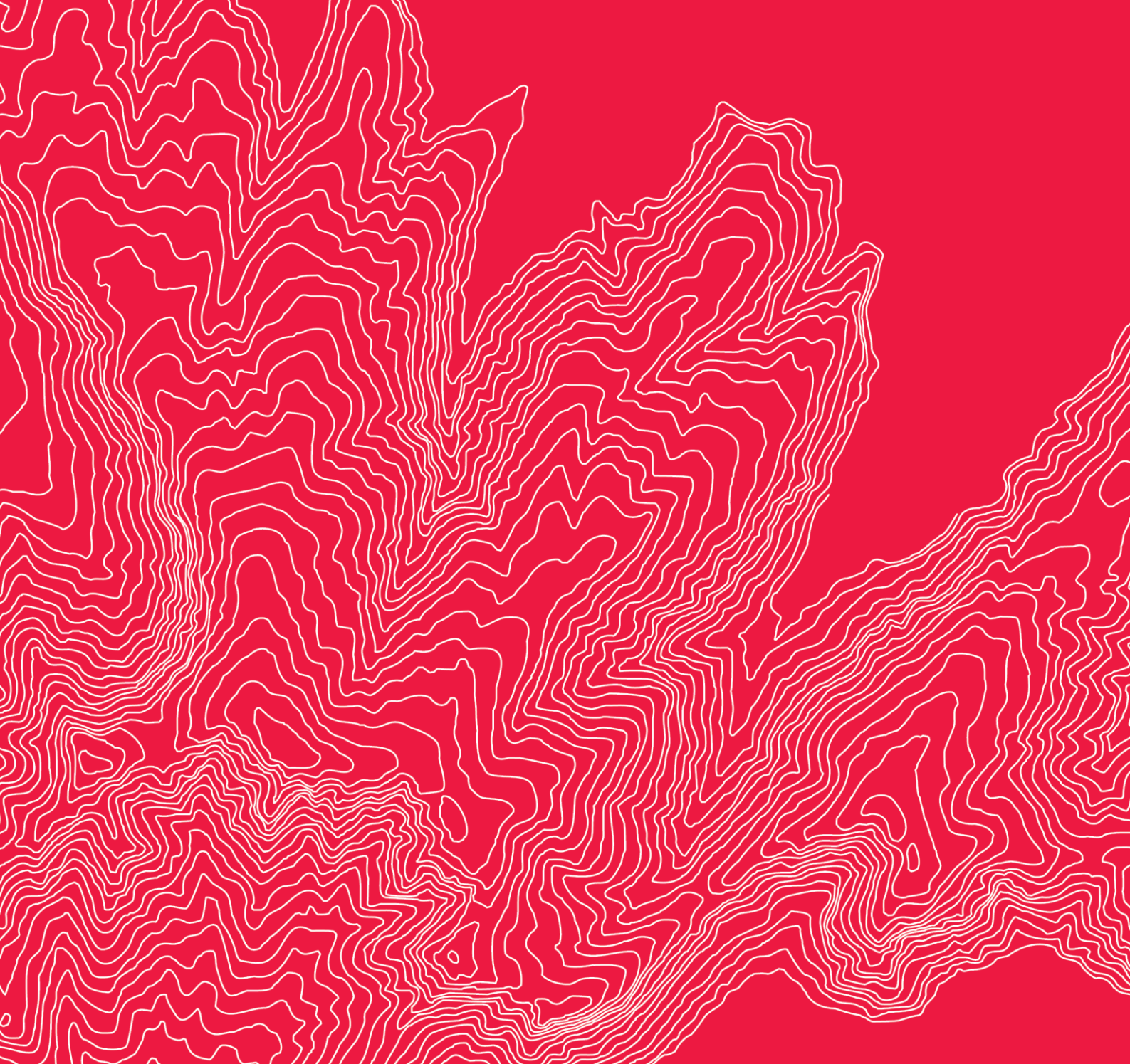
Seven Mile Drive

Belfast Road

Belfast Road



LOT 6
 61 BELFAST RD
 BCN/2022/5630
 GEOFF WILLIAMS : 23326



Geotechnical Report

**eliot
sinclair**

61 Belfast Road, Belfast Business Park
Prepared for Zeal Construction Limited
503314

Geotechnical Report

61 Belfast Road, Belfast

Prepared for Zeal Construction Limited

503314

Quality Control Certificate

Eliot Sinclair & Partners Limited

eliotsinclair.co.nz

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Status:	Final		
Release date:	16 March 2022		
Reference no:	503314		
Distributed to:	Zeal Construction Limited		

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Appendix A. Nearby geotechnical information

Appendix B. Shallow site investigation records

Appendix C. CPT data from NZG

Appendix D. Liquefaction assessment

1. Introduction

Further to your request, we have investigated the ground conditions at 61 Belfast Road, Belfast Business Park and write to confirm the ground model and the geotechnical properties that will need to be adopted by the foundation design engineer for the proposed warehouse and office building.

This report is intended to be used as technical supporting documentation for the foundation design and the Building Consent application.

2. Scope of Work

The scope of work for this geotechnical assessment was to investigate the geotechnical conditions across 61 Belfast Road by undertaking;

- A desktop review of relevant geotechnical data from the New Zealand Geotechnical Database, Canterbury Maps, and GNS Science's Active Faults Database,
- A site walkover inspection,
- Four test pit and hand-auger excavations to a target depth of ~3m below ground level (bgl) to investigate the nature of the existing fill and insitu soils that are below the fill,
- Four Dynamic Cone Penetrometer (DCP-Scala) tests to a target depth of 2m bgl to investigate the nature and bearing capacity of the shallow soil profile,
- Calculate the risk of liquefaction and liquefaction-induced settlement from existing CPT test data that was recorded on the NZGD, and then
- Provide a geotechnical report that summarises the results of the geotechnical investigation, comments on the risk of liquefaction as a result of future earthquakes affecting the site, and discusses the geotechnical constraints and parameters that are to be taken into account when designing the foundations for the proposed warehouse and office buildings.

3. Site Description

Refer to Figure 1. The property at 61 Belfast Road ('the site') is a newly created subdivision located within the Belfast Business Park, which is approximately 8.5km north of the Christchurch Central Business District. Belfast Business Park is bounded by Blakes Road to the east, Belfast Road to the north and the Main North Railway line to the west.

The site will be legally described as Lot 6 of a total of 7 new Lots, and is to be formed by subdivision of Lot 3 DP 487191. The subdivision scheme plan prepared by Survus Consultants, Project No. 13629, dated August 2021 indicates Lot 6 is roughly square shaped in plan and will cover 2,660m².

The topography across the site and adjacent land is generally near level. There are no major waterways or sudden changes in topography that occur close to the site.

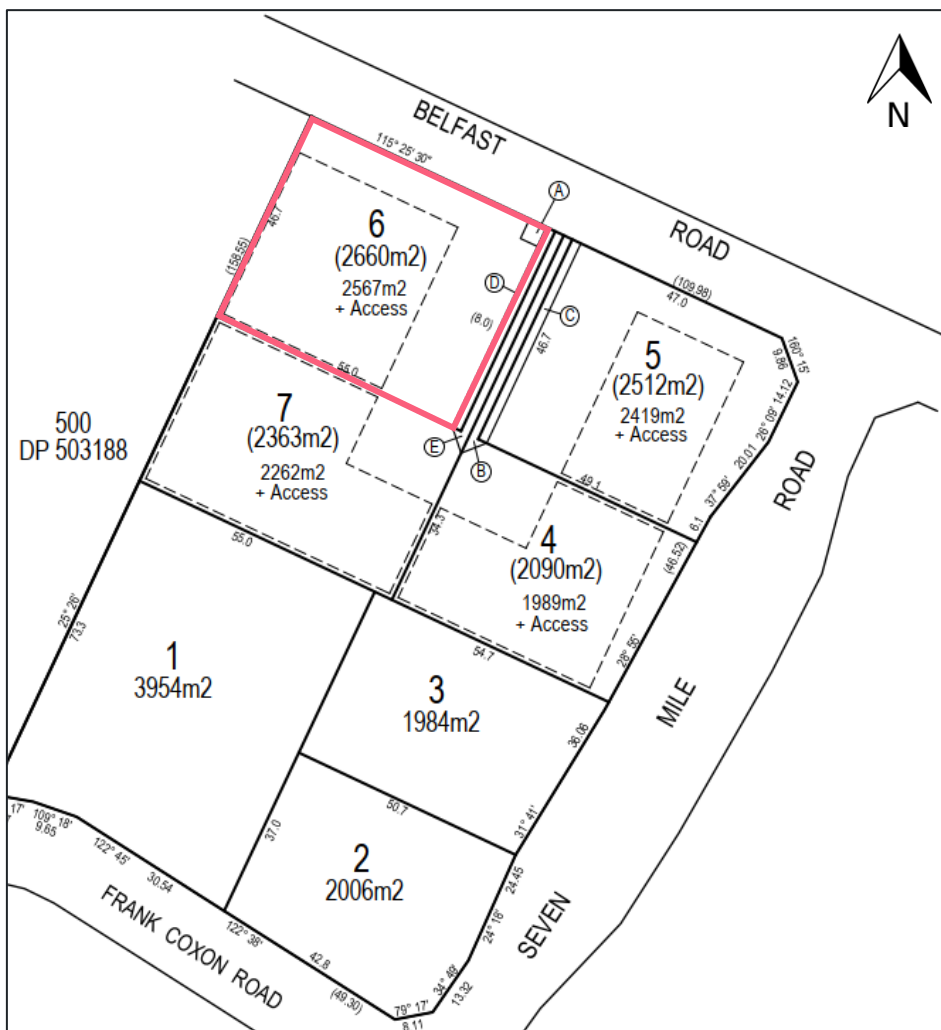


Figure 1. Excerpt from proposed Scheme Plan by Survus Consultants

4. Proposed Industrial Development

We have received preliminary Site Layout and elevation drawings for the proposed development designed by Architecture Studio Ltd., dated October 2021. Refer to Figure 2.

The proposed Site Plan identifies the proposed warehouse will have a 1000m² footprint and will occupy the south-west part of the site. The south wall of the warehouse will be constructed 200mm north of the south property boundary.

The warehouse will have an attached two-storey office space that will be located at the northwest corner of the site and will have a footprint of around 86m².



Figure 2. Excerpt from BBH Developments' Site Layout for the proposed industrial building

The proposed Site Plan also indicates a pavement area will provide parking for up to seventeen vehicles across the remainder of the site.

We understand the proposed new buildings will be constructed with a concrete slab on ground, the warehouse will have a steel portal frame that is supported on shallow foundation pads, while both full-height and part-height concrete tilt panels are intended to be supported on shallow strip foundations/ground beams.

At the time of writing this report we have not been advised of any other site-specific requirements such as unusually large loads from heavy racking systems or other large point loads.

5. Desktop Investigation

5.1. Published geology

The Geology of the Christchurch Area (Map 16)¹, published by the Institute of Geological and Nuclear Sciences (IGNS) in 2008 (including mapping at a scale of 1:250,000) shows the site is underlain by the Springston Formation which comprises 'grey river alluvium beneath plains or low-level terraces'.

5.2. Groundwater

The GNS Science groundwater model that is recorded on the NZGD indicates the median depth to groundwater across the site is likely to be around 3m to 4m below ground level (bgl).

5.3. Active Faults

We have searched the GNS Science Active Faults database² and viewed the NZGD to check for any known active faults in the locality. The Greendale Fault, which ruptured and produced a M7.1 earthquake on the 4th of September 2010, is located approximately 25km southwest of the site.

The 22 February 2011 M6.2 earthquake had its epicentre near the Heathcote Valley; approximately 15km south of the site. The Port Hills Fault did not rupture at the ground surface. However, we understand the likely surface projection of the Port Hills Fault is located between southern Christchurch and the Port Hills.

Based on available data, the site is located outside the minimum 20m fault avoidance zone that is recommended by the Ministry for the Environment.

5.4. Previous Land Use

An abattoir/freezing works was constructed on the site sometime around the 1880s. The surrounding pastoral land was initially used for holding stock. However, additional buildings were added to the works during the 1960s and 1970s. The freezing works closed sometime around 2010.

Around 2014, the old buildings were gradually demolished, and the land subdivided to create the Belfast Business Park.

Historical aerial photography shown on Canterbury Maps identifies most of the site and surrounding areas were occupied by industrial buildings and hardstand areas from the 1940s until up until 2016.

Prior to the freezing works demolition and subdivision, the area of present day 61 Belfast Road was previously covered by an employee car park from at least 1970 to 2014.

5.5. 2010/11 earthquakes

MBIE's guidance document specifies the peak horizontal ground acceleration (PGA) to be adopted for liquefaction assessment for industrial sites in Canterbury as $PGA_{M6.0}=0.19g$ and $PGA_{M7.5}=0.13g$ for a Serviceability Limit State (SLS) event, and $PGA_{M7.5}=0.35g$ for an Ultimate Limit State (ULS) event.

¹ Geology of the Christchurch Area, 1:250,000 Geological Map 16 – compiled by PJ Forsyth, DJA Barrell, R Jongens for Institute of Geological & Nuclear Sciences, Lower Hutt, 2008.

² Geological and Nuclear Sciences (2004). Active Faults Database. Retrieved June 2019 from <https://data.gns.cri.nz/af/>

Conditional Median Peak Ground Acceleration (PGA) values, developed by Bradley Seismic Ltd and the University of Canterbury, are shown on the NZGD.

These values have been scaled (Table 1) to match a design earthquake moment magnitude (M_w) of 7.5 in accordance with Idriss and Boulanger (2008), as recommended by Bradley and Hughes (2012).

Table 1. Scaled Conditional PGA Values for the site

Earthquake	Moment Magnitude, M_w	Average PGA, g	Standard Deviation, σ	$PGA_{M_w=7.5}$, g	10 th Percentile $PGA_{M_w=7.5}$	Was the site 'sufficiently tested' for SLS
4 Sept 2010	7.1	0.18	0.375	0.16	0.100	No
22 Feb 2011	6.2	0.21	0.400	0.15	0.089	No
13 Jun 2011	6.0	0.12	0.425	0.08	0.047	No
23 Dec 2011	5.9	0.19	0.425	0.12	0.073	No
14 Feb 2016	5.7	0.10	0.475	0.06	0.034	No

In accordance with the MBIE Guidance, the site cannot be regarded as having been 'sufficiently tested' for an SLS design event during the CES and therefore the ground performance in the 2010/11 earthquakes may not be a dependable guide to performance in a SLS or ULS earthquake.

We have reviewed the New Zealand Geotechnical Database (NZGD) to identify any obvious indicators of land damage and to assess likely land performance in the 2010/2011 Canterbury Earthquake Sequence (CES).

Aerial photography taken soon after each of the September 2010 and February 2011 Christchurch earthquakes identifies likely liquefaction ejecta occurred within the northern area of the Business Park.

The nearest surface ejecta to Lot 6 was observed approximately 160m to the southeast, and 200m east of the site. Surface water was identified to the south of the site after the September 2010 earthquake. Figure 3 shows the extent of liquefaction ejecta around the site after the September 2010 and February 2011 events.

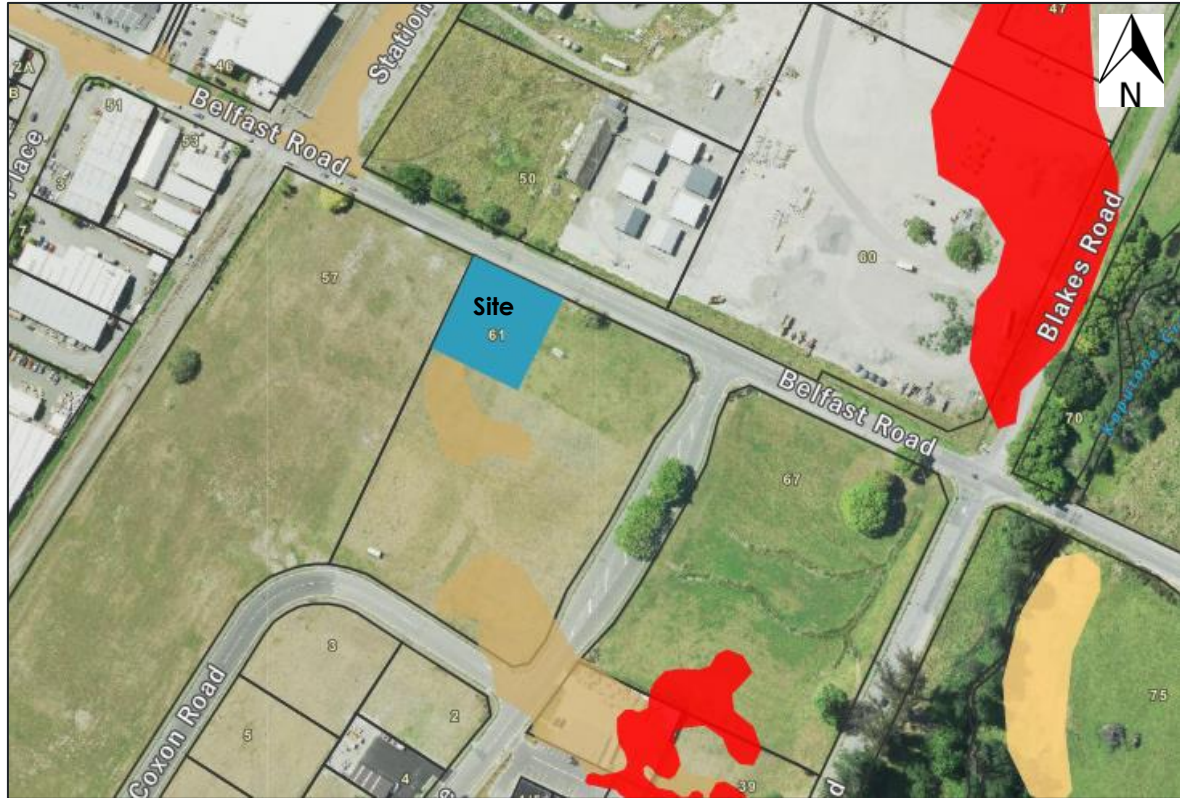


Figure 3. Areas of liquefaction ejecta (red) and surface water (light brown) inferred from aerial photography that was recorded soon after the September 2010 and February 2011 earthquakes. Lot 6 highlighted in centre of image (blue).

5.6. Nearby Geotechnical Investigations

5.6.1. Eliot Sinclair

We have previously investigated nearby sites within Belfast Business Park Lot 44 in 2018, Lot 45 in 2019 and Lot 16A in 2019. These three sites are within 350m of Lot 6 (Refer to Figure 4).

Analysis of deep geotechnical test data from those properties has previously concluded they are underlain by mixed layers of silts and sands that extend to around 7m bgl and overlie clay-like soils that extend to at least 10m bgl where CPT testing terminated at the target depth.

5.6.2. Soil & Rock Consultants

Boreholes

Soil & Rock Consultants (SRC) carried out a site-wide investigation prior to the subdivision construction in November 2013. As part of the site testing two geotechnical boreholes (MB01 and MB02) were drilled to depths of 23.36m and 25.45m bgl respectively (Refer to Figure 4). MB01 was located around 70m southeast of the site and MB02 was located around 450m south of the site.

The boreholes encountered up to 1m of uncontrolled fill, underlain by very loose to loose sandy silt and silty sand to around 17m bgl, in turn underlain by medium dense to very dense silty sand to 23m bgl. The very dense sandy Riccarton Gravels were encountered at 21m and 23m bgl to the borehole termination depths.

The S&R factual logs are presented within Appendix A.

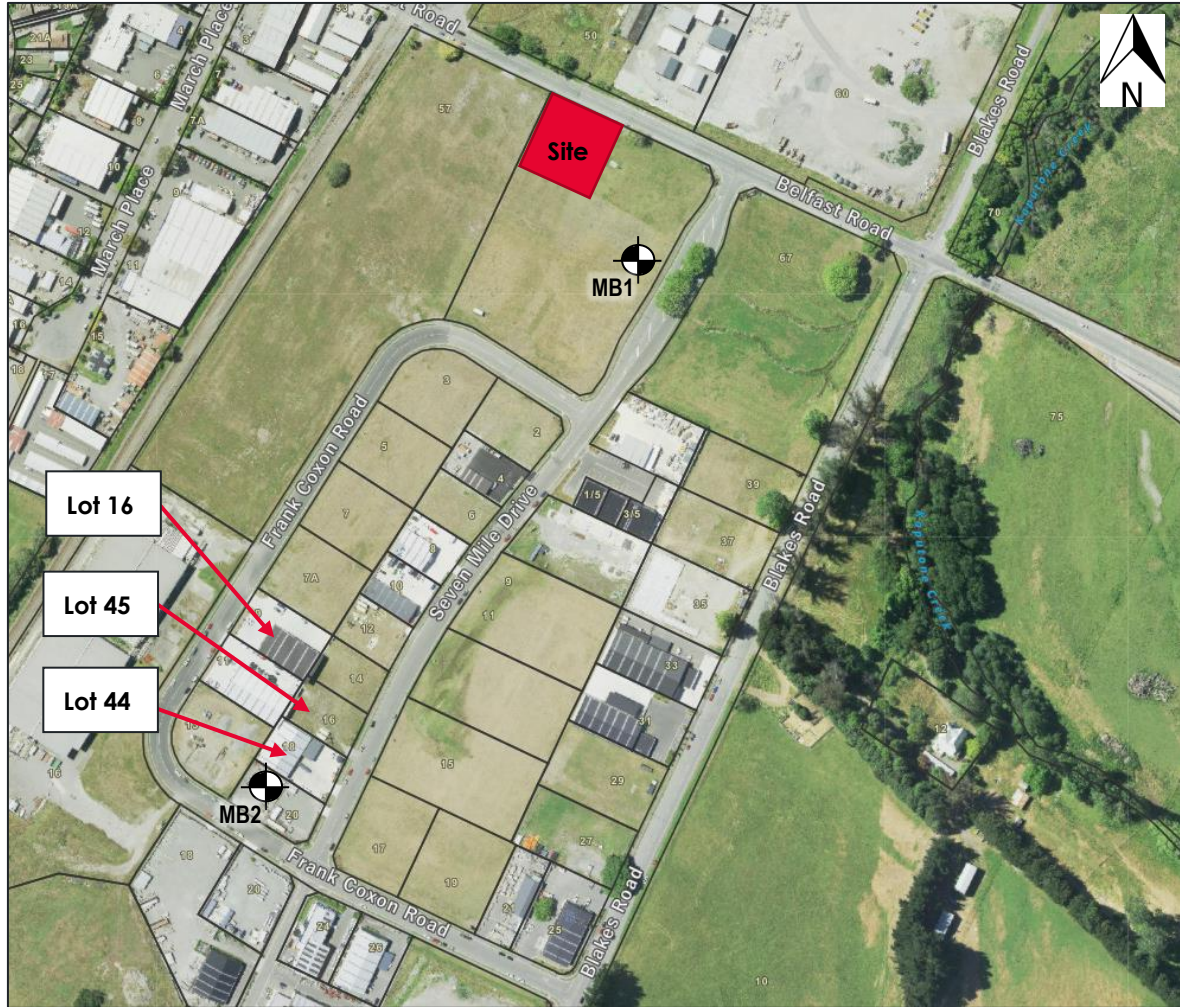


Figure 4. The Lots previously investigated by Eliot Sinclair and the locations of the SRC boreholes relative to the site

Cone Penetration Testing (CPT)

SRC also prepared a geotechnical report for Stage 1 of Belfast Business Park in May 2016, which includes the Lot 6 area. Liquefaction analysis was carried out on CPT data from six tests close to the site. The CPT test depths ranged from 18.61m to 21.06m and the modelled groundwater level was 2.0m. The calculated liquefaction-induced ground settlement for the full depths of testing were between 60mm to 165mm for SLS, and 80mm to 190mm for ULS levels of shaking.

In terms of the MBIE Technical Categories for future ground performance, the area within Stage 1 was generally equivalent to a mixture of Technical Category 2 (TC2) and the lower limit of Technical Category 3 (TC3).

5.7. Subdivision Earthworks

The SRC Earthworks Completion Report for Stage 1A Belfast Business Park, (Ref: 14186 and dated August 2015) includes an 'Depth of Engineered Fill' plan (ref. 133676-1-248, Rev C, dated August 2015) prepared by Harrison Grierson. This indicates Lot 6 was subject to a maximum cut of 0.2m across its western part and placement of up 0.1m of fill across its eastern part.

The SRC statement indicates the subdivision earthfill that is shown on the Harrison Grierson plan has been placed in compliance with the terms of NZS 4431:1989.

Where fill was found to greater depths, we have assumed the material is historical and uncontrolled (i.e. the standard of compaction of the historical fill was not certified by SRC).

5.8. Flood Management and Minimum Floor Level

The Christchurch City Council District Plan indicates that the site is not within a District Plan Flood Management Area (FMA).

However, the need for a minimum floor level should be confirmed by the Council at the time of Building Consent approval. Where a minimum floor level is required, we recommend a site benchmark be established by a Registered Professional Surveyor or Licensed Cadastral Surveyor and foundation and floor levels set out by reference to the site benchmark.

6. Eliot Sinclair's 2022 Geotechnical Investigation

6.1. Shallow Site Investigation

6.1.1. Overview

Our shallow soil investigations carried out on 24 February 2022 included excavation of four hand auger test holes and four Dynamic Cone Penetration (DCP) tests. These tests were selected to investigate the nature and bearing capacity of the shallow soils. A hydraulic excavator with a narrow bucket was used to excavate through the upper dense to very fill.

One of the test locations (AH04) was located in the area of the proposed carpark areas (i.e. northeast part of the site).

The other three test locations (AH01 to AH03) were located in the areas of the proposed warehouse. The test locations are shown on the site investigation records within Appendix B.

6.1.2. Soils

- The investigation revealed topsoil and fill that extended from 0.2m – 0.4m to a maximum depth of 0.8m bgl. The fill is inferred to be engineered as mentioned in the SRC completion report for Stage 1. However we encountered a slightly thicker layer of engineered fill than SRC stated.
- Below the topsoil and engineered fill we encountered natural silt and sandy silt to 3.0m bgl, being our shallow investigation target depth. Given the effort needed to excavate through the fill and the visual appearance of the exposed fill, it appeared to be well-compacted.
- The engineered fill was underlain by 0.1m of buried topsoil at two of the four test locations.
- Groundwater was encountered at depths of 1.3m and 1.5m bgl during the shallow soil testing which was carried out in late February 2022.

6.1.3. Dynamic Cone Penetrometer (DCP) resistances

- Due to the gravelly nature of the fill the DCP indicated the material was medium dense to very dense according to NZGS logging guidelines.
- Within the proposed building footprint (AH01 to AH03) DCP testing through the natural in situ sandy silt and silts that are present below the gravelly fill required between 1 to 8 blows per 100mm penetration and indicates the in situ sands and silts range from soft/loose to stiff/ dense.
- DCP at the location of AH04 at the northeast part of the site, and within the proposed parking area, required less than 3 blows per 100mm penetration to 1.4m. From 1.4m to 2.0m required 3 to 5 blows. This indicates soft/loose to firm/ medium dense material at this location.

Refer to Appendix B for Eliot Sinclair's Site Investigation Records.

6.2. Cone Penetration Testing

The data from four nearby Cone Penetration Tests (CPTu) were used to assess the risk of liquefaction. The CPT data was downloaded from the NZGD. The location of each CPT test is shown in Figure 4.

The representation of the soil profile from the CPTu data indicates various layers of 'silty clay and clay' to around 15m bgl, over 'sand and silty sand that extend to at least 20m bgl where CPT testing terminated. Refer to Appendix C.

The software used to analyse the liquefaction potential infers the soil type from the CPT data. As no soil samples are taken during this test method, care should be taken in this regard.

6.3. Liquefaction Hazard

The risk of liquefaction has been calculated using data from four nearby CPTu tests (refer to Appendix D).

The peak ground acceleration (pga) values that are to be adopted to assess liquefaction triggering in an SLS and ULS earthquake are specified by MBIE's Guidelines, as set out below. Although the guidance document relates to residential properties, the seismic parameters are appropriate for geotechnical assessment of the proposed industrial development.

- SLS (1:25 year return period) Case 1: M7.5, PGA 0.13g;
- SLS (1:25 year return period) Case 2: M6.0, PGA 0.19g; and
- ULS (1:500-year return period) Case 3: M7.5, PGA 0.35g.



Figure 5. CPT locations from the NZGD whose data was used to analyse the liquefaction potential

The calculation of liquefaction triggering was undertaken using the method by Boulanger and Idriss (2014)³ and the estimation of post-liquefaction induced settlements using the method by Zhang et al (2002)⁴.

Based on the GNS groundwater model and CPTu records, groundwater appears to be located around 3m bgl. However, semi-saturated to saturated conditions were encountered during our investigation at around 1.5m bgl.

For liquefaction assessment we have assumed perched groundwater could extend to 1.0m bgl in wet winter and seismic conditions. Refer to Appendix D for analysis details.

6.3.1. Liquefaction-induced free-field settlement

The settlement values calculated by CLiq⁵ were determined by adopting the method by Zhang et al (2002), for a range of geotechnical parameters that are estimated from the four basic CPT parameters (depth, cone tip resistance, skin friction and pore water pressure).

The liquefaction-induced settlement values calculated by CLiq are only an 'index' value that represents the relative susceptibility of the ground to liquefaction. 'Index' settlement values do not

³ Boulanger, R. W. and Idriss, I. M. (2014). CPT and SPT based liquefaction triggering procedures (Report No. UCD/CGM-14/01), University of California, Davis, CA, 134 p.

⁴ Zhang, G., Robertson, P. K., & Brachman, R. (2002). Estimating liquefaction induced ground settlements from CPT for level ground. Canadian geotechnical journal, 39(5): 1168-1180.

⁵ CLiq (version 2.3.1.14). GeoLogismiki Geotechnical Software

represent the amount of differential or total settlement that could occur to the land and/or building foundations in a future earthquake. Refer to Table 2 and Appendix D.

Table 2. Liquefaction-induced 'index' settlement values

CPT Test No. (Termination Depth)	Liquefaction-Induced Settlement (mm)					
	'Index' (i.e. from GL to 10mbgl)			Full Depth of Testing		
	SLS1 M7.5, PGA=0.13g	SLS2 M6.0, PGA=0.19g	ULS M7.5, PGA=0.35g	SLS1 M7.5, PGA=0.13g	SLS2 M6.0, PGA=0.19g	ULS M7.5, PGA=0.35g
CPT_168859 (20.0m)	40	45	47	107	111	177
CPT_168861 (20.6m)	41	46	46	97	97	188
CPT_168862 (20.7m)	48	60	67	159	175	198
CP_168866 (21.0m)	32	40	44	57	66	85

In both an SLS and ULS earthquake, the soils that are located between ~2.5m bgl to around 6m bgl are likely to liquefy. This implies there will be a ~2.5m thick non-liquefiable crust which may suppress, but not completely eliminate, liquefaction ejecta. As a result, some differential ground settlement could occur in any earthquake that is close to, or exceeds, the duration and intensity of an SLS earthquake.

The liquefaction analysis indicates no liquefaction triggering from around 6m to 11m bgl at up to ULS levels of shaking. This non-liquefiable layer could suppress the damaging effects of deeper liquefied soils.

6.4. Liquefaction Severity Number

The Liquefaction Severity Number (LSN) is a parameter developed to identify the potential damaging effects of shallow liquefaction on residential land and shallow foundations but is also a useful comparator for non-residential sites such as Lot 6 Belfast Business Park.

The procedure to calculate LSN⁶ is limited to an assessment of the upper 10m of the soil profile. LSN can range between 0 up to 50. A lower number represents a lower risk of damage to shallow foundations due to liquefaction.

At this site, the LSN in both an SLS and ULS earthquake is calculated to generally be less than 20, which suggests there is a risk of 'minor expression of liquefaction, some sand boils' occurring. Refer to Table 3. This appears to be consistent with the observations of minor to moderate amounts of liquefaction ejecta in the 2010/11 Christchurch earthquakes.

Table 3. Liquefaction Severity Number – Limited to the upper 10m of soils.

CPT Test No. (Termination Depth)	Liquefaction Severity Number (LSN)		
	SLS1 M7.5, PGA=0.13g	SLS2 M6.0, PGA=0.19g	ULS M7.5, PGA=0.35g
CPT_168859 (20.0m)	9	6	13
CPT_168861 (20.6m)	9	11	11
CPT_168862 (20.7m)	10	14	18
CP_168866 (21.0m)	7	11	14

⁶ Tonkin and Taylor (2013). Liquefaction Vulnerability Report_6 Sept 2016

6.5. Lateral Displacement

Based on the information identified by the desktop study, the topography of the site, and the liquefaction hazard discussed above, we conclude the risk of lateral stretch to be low.

6.6. Technical Category

The Technical Category (TC) land classification system is primarily intended for application to residential land. However, it also gives a useful indication of the relative vulnerability of non-residential land to earthquake-induced land deformation.

We have assessed the predicted earthquake-induced land deformation to be equivalent to Technical Category 2 (TC2).

7. Discussion

7.1. Site Subsoil Classification

In terms of Clause 3.1.3 of NZS 1170.5:2004, the site can be considered to be **Class D (Deep Soil Site)**.

7.2. Foundation Design Risk

Our assessment indicates the soils between the existing ground surface to around 2.5m below existing ground level is unlikely to liquefy in a SLS earthquake event. However, structures supported on shallow foundations may be subject to earthquake-induced land deformation due to liquefaction of soil at depth.

We understand the preference is for a shallow foundation system for the proposed warehouse and office. On this site the risk of shallow foundations settling differentially due to liquefaction-induced settlement should be recognised.

The proposed foundation system and superstructure should be capable of accommodating differential settlement, and shall incorporate provision for releveling of the base of the portal frame columns, the base of the concrete wall panels, and the floor slab. This would allow the building to be relevelled, if needed.

7.3. Ultimate Bearing Capacity

Due to the presence of soft/loose sands and silts located around 0.8m bgl, we recommend all foundations be designed by assuming the ground provides an ultimate bearing capacity (q_u) of 200kPa under static conditions.

The foundation design engineer shall adopt a geotechnical strength reduction factor of $\Phi_{bc}=0.5$ for both long-term static loads and short-term seismic load scenarios.

We recommend strip foundations be embedded at 0.5m bgl on engineered fill built up from the silt layer.

It is acknowledged that other shallow foundations system may be feasible. The geotechnical and structural engineers should work together to arrive at a suitable and economic foundation solution.

7.4. Design bearing pressure

To limit long-term foundation settlement under serviceability load scenarios, we recommend the design bearing pressure, q_d , (often referred to as allowable bearing pressure) not exceed $q_d = 200\text{kPa}$ to limit foundation settlement under static conditions to less than 25mm over 50 years.

7.5. Resilient foundation design

Due to the risk of liquefaction, we recommend the foundation pads and strip footings, and ideally also the floor slab, be tied together/connected to minimise the risk of significant differential movement between various foundation and slab elements in a large earthquake, as recommended by MBIE guidelines on Earthquake Resistant Foundation Design.

The building super-structure should be designed in a manner that can accommodate some differential foundation settlement and make provision for releveling, if needed.

The risk of liquefaction-induced differential settlement and damage to foundations can be reduced (but not eliminated) to some extent by increasing the thickness and stiffness of the 'crust' (e.g., by replacement with an engineered fill raft) and/or by using stiffened shallow foundations.

If the proposed building structure and owner are overly sensitive to the risk of damage due to differential settlement, or there is a need to avoid the risk of disruption that could arise because of liquefaction, then ground improvement will need to be carried out. Please advise Eliot Sinclair if you have any site-specific risk-reduction requirements.

7.6. Floor Slab

We recommend all topsoil fill and any other areas of soft (previously disturbed) fill, soft in-situ soils, rubbish or debris that is encountered, be stripped from the building footprint to a uniform depth before compacting the exposed gravel subgrade to provide a firm, uniform surface, and the area then backfilled by placing and compacting AP40 sandy gravels in 200mm thick layers to achieve a compacted dry density of at least 2150kg/m^3 .

7.7. Pavement Design

The results of the DCP testing infer the gravel fill that is present to between 0.4m to 0.8m bgl provides a CBR of at least 5%, or a modulus of subgrade reaction of 35kN/m^3 .

Providing all the topsoil/ fill, soft and unsuitable material, which was found to extend to variable depths below existing ground level, is stripped, and the exposed surface is protected to avoid stormwater penetrating the ground, then we consider the pavement can be designed assuming the insitu silt subgrade provides a **CBR=5%**.

The recommended CBR assumes the existing fill will remain dry. Care should be taken during construction to schedule the earthworks to be carried out during dry weather, or to protect the excavated areas to ensure subsoil conditions do not become wet or saturated.

We recommend the slab and pavement design be undertaken by an experienced structural or civil engineer once the pavement performance requirements for the proposed development are specified by the designer and client.

The stripped surface of the subgrade should be proof-rolled and compacted with a vibrating drum roller compactor to achieve a firm, uniform surface, before inspection by the geotechnical engineer to confirm the exposed subgrade provides a firm uniform surface and that there are no areas of heaving or excessive consolidation that may indicate deeper unsuitable ground conditions.

Pavement/floor slab construction can proceed once written approval is provided by the geotechnical engineer.

7.8. Construction Inspections

We recommend Eliot Sinclair inspect the following stages of foundation and pavement construction:

- The excavated strip and pad foundations to verify all foundations are excavated through all topsoil and fill and to at least 0.3m bgl (for the strip footing) and to at least 0.7m bgl (for pad foundations), and that the exposed subgrade is as expected.
- The excavated floor slab area to confirm all topsoil is removed, and that the prepared subgrade provides a firm uniform bearing surface and does not contain any areas of deeper soft or unsuitable soils or uncontrolled fill.
- The excavations of the driveway/parking areas to confirm all topsoil is removed, and the exposed engineered fill has a CBR of at least 5%, and to specify any additional excavation requirements where loose or unsuitable soils or uncontrolled fill are encountered.
- Any filling earthworks to verify they are being carried out in a manner that achieves a high standard of compaction, in accordance with the requirements of NZS4431:1989 'Code of Practice for Earth Fill for Residential Development'. *The earthworks contractor should provide nuclear density test records of the compacted hardfill to verify it has been placed and compacted to a satisfactory standard.*
- We will confirm any other specific requirements for the new foundations and vehicle pavement areas following our inspections.

Please arrange for your builder to contact Eliot Sinclair **at least 48 hours** prior to needing an inspection so that we have sufficient time to allocate this work to our staff.

Where Eliot Sinclair's geotechnical team inspect and verify the exposed foundation bearing conditions and compacted earthfill have been completed satisfactorily and are consistent with the recommendations of this report, then we will issue a 'Producer Statement – Construction Review' for the foundation and floor slab bearing conditions.

Disclaimer

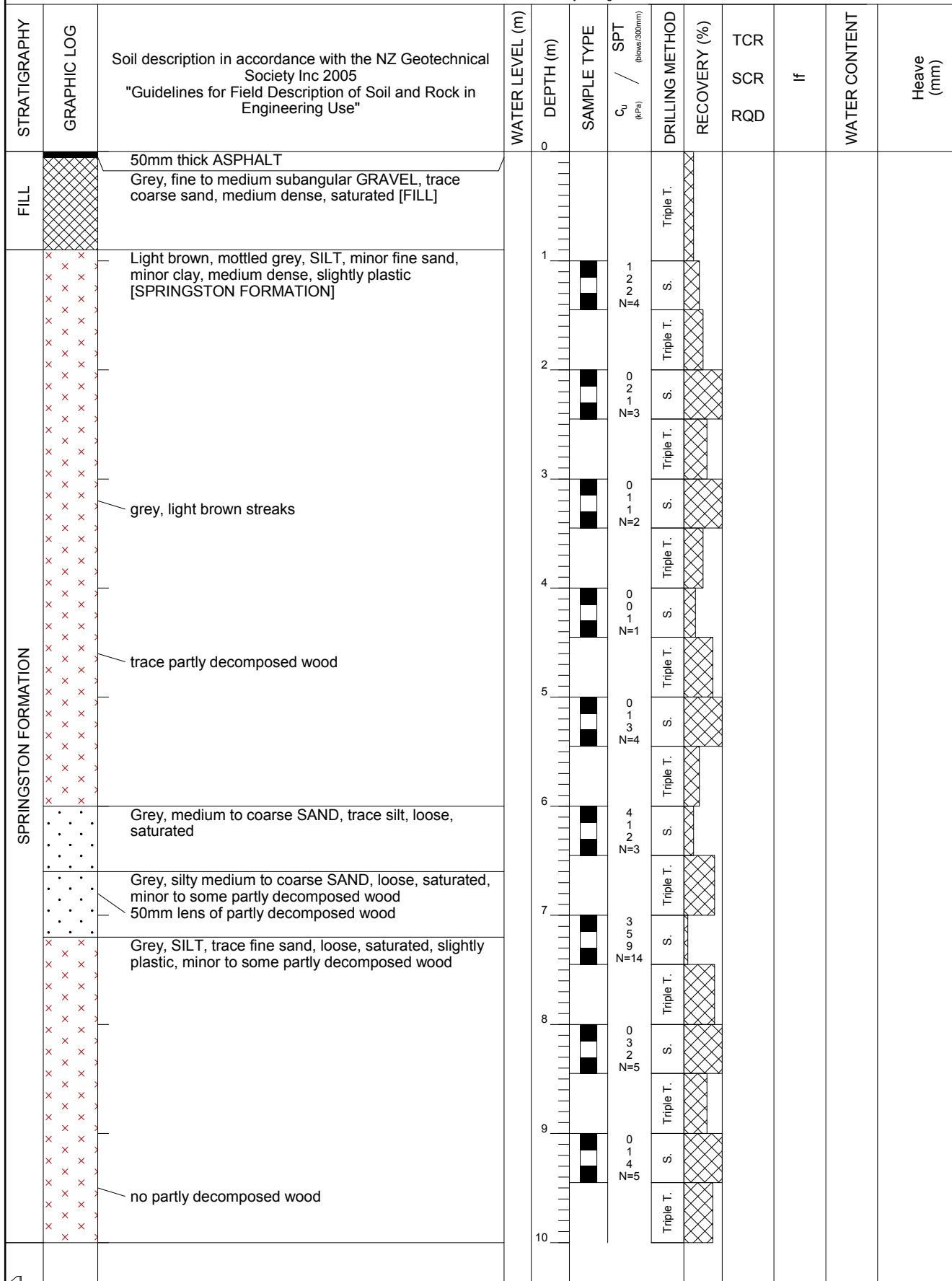
Comments made in this geotechnical report are based on the results of shallow hand auger hole and Dynamic Cone Penetrometer testing within the upper soils, two nearby boreholes, and data from four cone penetration tests (one of them on the site boundary).

Whilst every care was taken during our investigation and interpretation of subsurface conditions, there may well be subsoil strata and features that were not detected by the limited areas of testing. Additionally, on-going seismicity in the general area may lead to deterioration or additional ground settlement that could not have been anticipated at time of writing of this report. The exposure of such conditions, or occurrence of additional strong seismicity, may require a review of our recommendations.

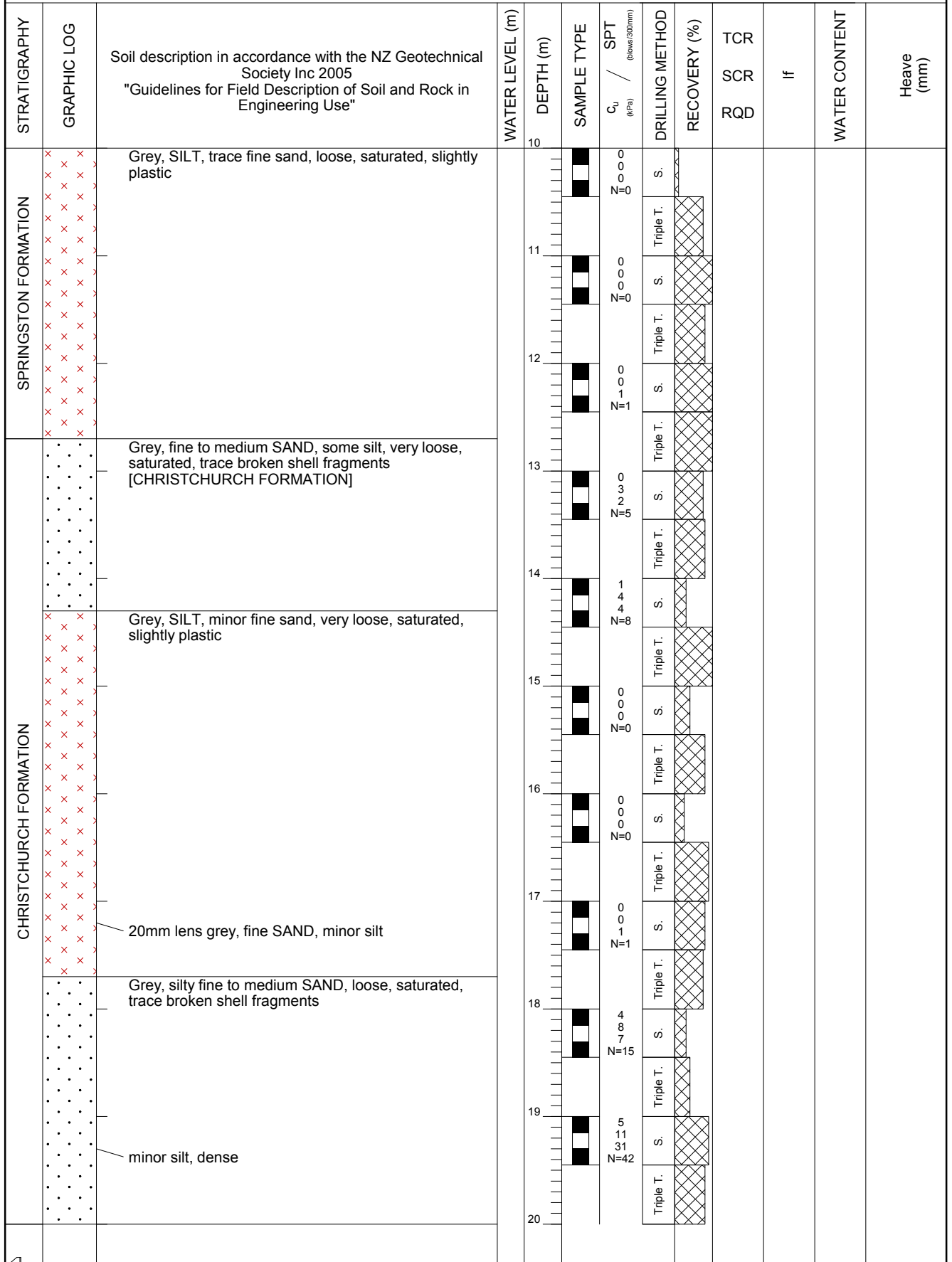
This report has been prepared for the benefit of Zeal Construction Limited and the Christchurch City Council in accordance with the approved scope of work. No liability is accepted by this company or any employee of this company with respect to the use of this report by any other party for any other purpose.

Appendix A. Nearby geotechnical information

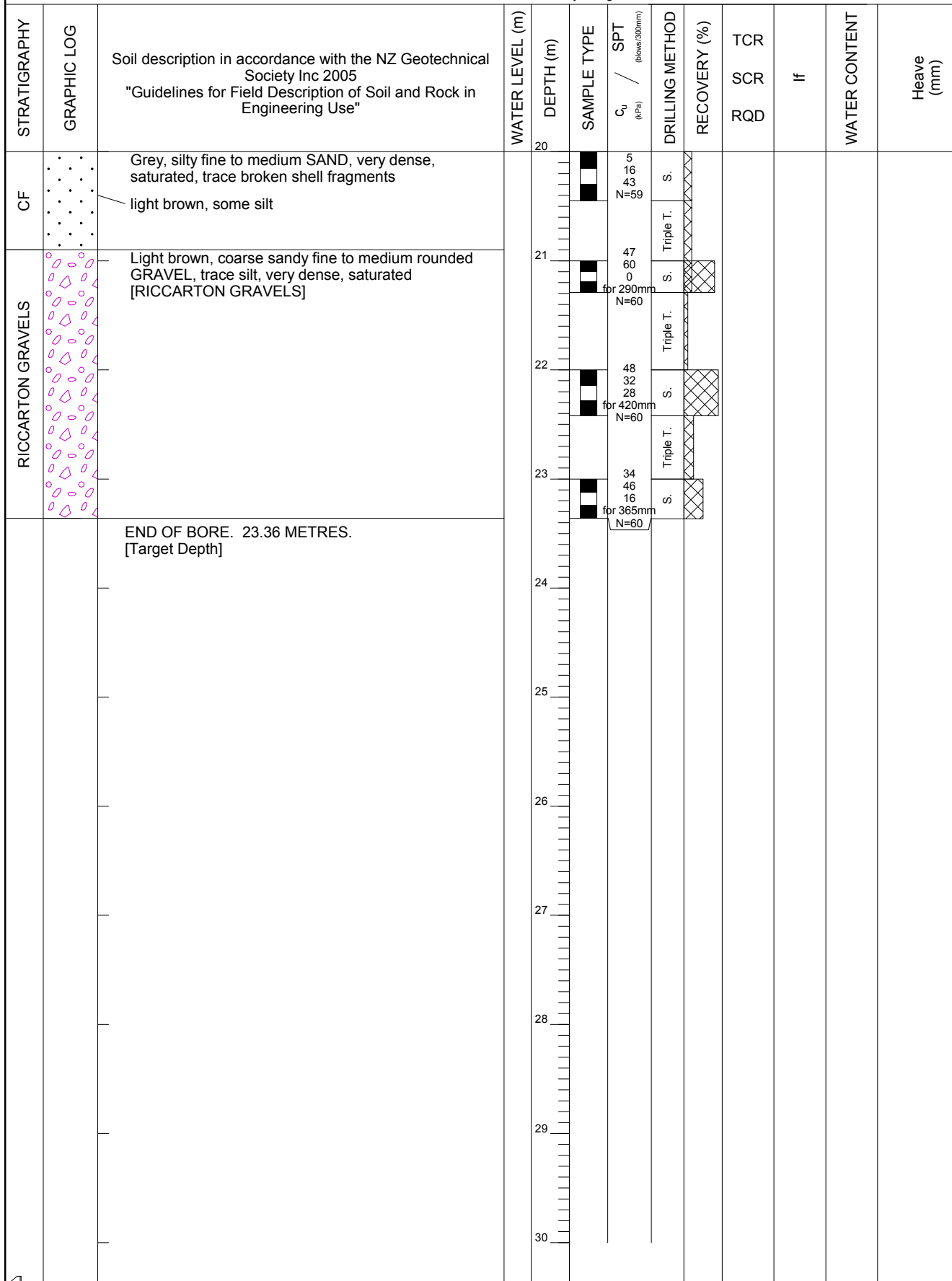
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Date Started: 18/11/13	Ground Elevation:	Surface Conditions: Near level, asphalt
Date Finished: 18/11/13	Water Level: Groundwater masked by drilling	Shear Vane Number: N/A



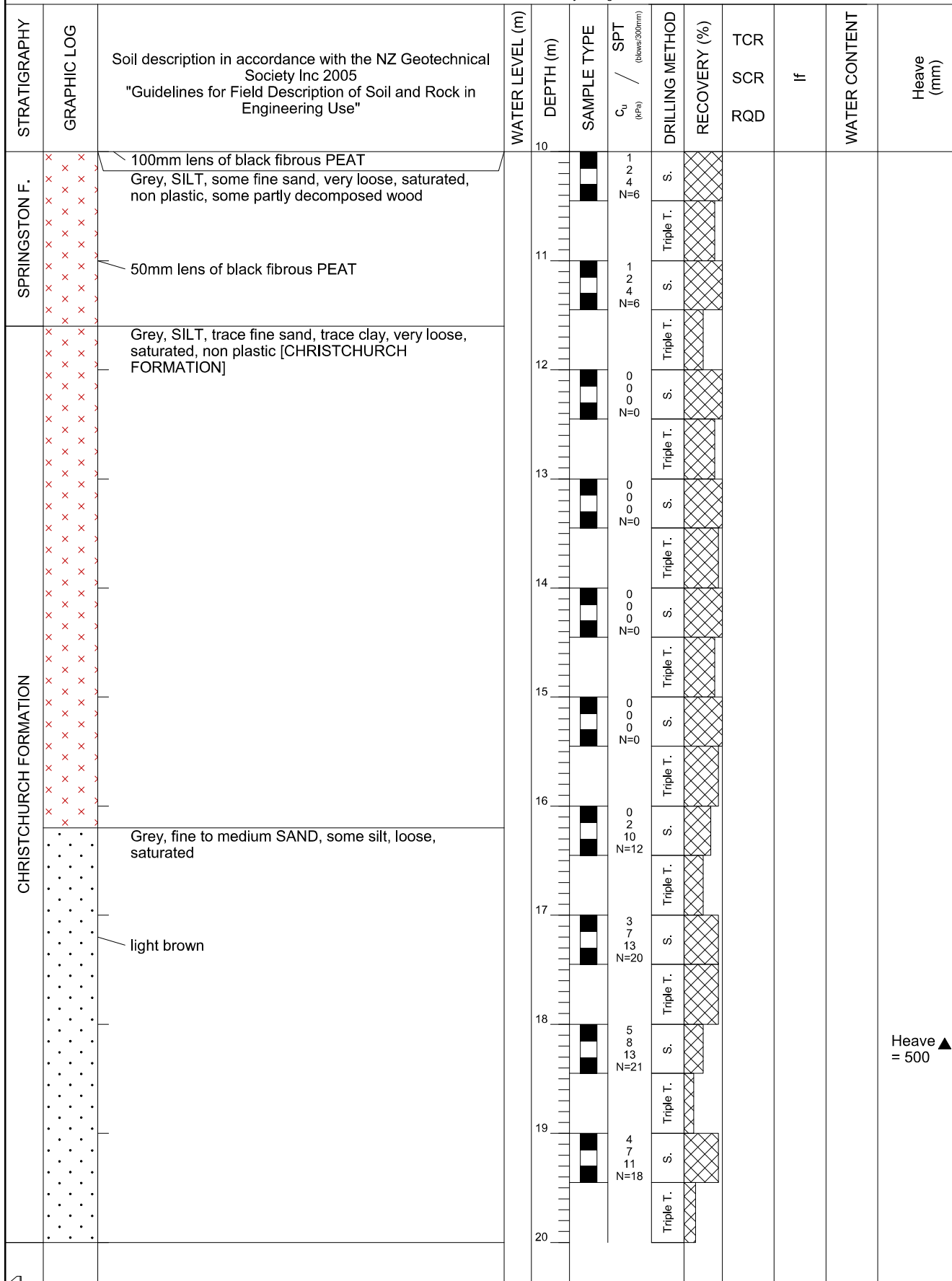
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Drilled By: Speight Drilling Ltd.	Coordinates:	Reviewed By: PS
Date Started: 18/11/13	Ground Elevation:	Surface Conditions: Near level, asphalt
Date Finished: 18/11/13	Water Level: Groundwater masked by drilling	Shear Vane Number: N/A



Drill Type: Rotary	Project No: C13393	Logged By: LT
Drilled By: Speight Drilling Ltd.	Coordinates:	Reviewed By: PS
Date Started: 18/11/13	Ground Elevation:	Surface Conditions: Near level, asphalt
Date Finished: 18/11/13	Water Level: Groundwater masked by drilling	Shear Vane Number: N/A

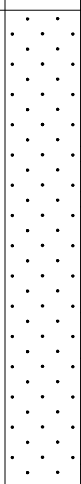



Drill Type: Rotary	Project No: C13393	Logged By: LT
Drilled By: Speight Drilling Ltd.	Coordinates:	Reviewed By: PS
Date Started: 19/11/13	Ground Elevation:	Surface Conditions: Near level, grass
Date Finished: 19/11/13	Water Level: Groundwater masked by drilling	Shear Vane Number: N/A



Heave ▲ = 500

Drill Type: Rotary	Project No: C13393	Logged By: LT
Drilled By: Speight Drilling Ltd.	Coordinates:	Reviewed By: PS
Date Started: 19/11/13	Ground Elevation:	Surface Conditions: Near level, grass
Date Finished: 19/11/13	Water Level: Groundwater masked by drilling	Shear Vane Number: N/A

STRATIGRAPHY	GRAPHIC LOG	Soil description in accordance with the NZ Geotechnical Society Inc 2005 "Guidelines for Field Description of Soil and Rock in Engineering Use"	WATER LEVEL (m)	DEPTH (m)	SAMPLE TYPE	SPT (blows/300mm) C _u (kPa)	DRILLING METHOD	RECOVERY (%)	TCR	SCR	RQD	if	WATER CONTENT	Heave (mm)
CHCH FRM.		Grey, fine to medium SAND, some silt, loose, saturated	20	1-6 15 N=21	S.	Triple T.								
		150mm lens of silty fine to medium SAND	21	5 11 16 N=27	S.	Triple T.								
		50mm lens of light brown, SILT, trace fine sand brown, sand becomes fine to coarse, trace silt, medium dense	22	12 22 38 N=60	S.	Triple T.								
		100mm lens of yellowish grey SILT	23	15 7 3 N=10	S.	Triple T.								
			24	30 51 9 N=60	S.	Triple T.								
RICCARTON GRAVELS		Light brown, coarse sandy fine to medium rounded GRAVEL, trace silt, very dense, saturated [RICCARTON GRAVELS]		25	23 28 21 N=49	S.	Triple T.							
		END OF BORE. 25.45 METRES. [Target Depth]		26										
				27										
				28										
				29										
				30										

Appendix B. Shallow site investigation records

Site Investigation Record

Client: Zeal Construction Ltd

Site: 61 Belfast Road, Belfast Business Park

Technical Category: N/A

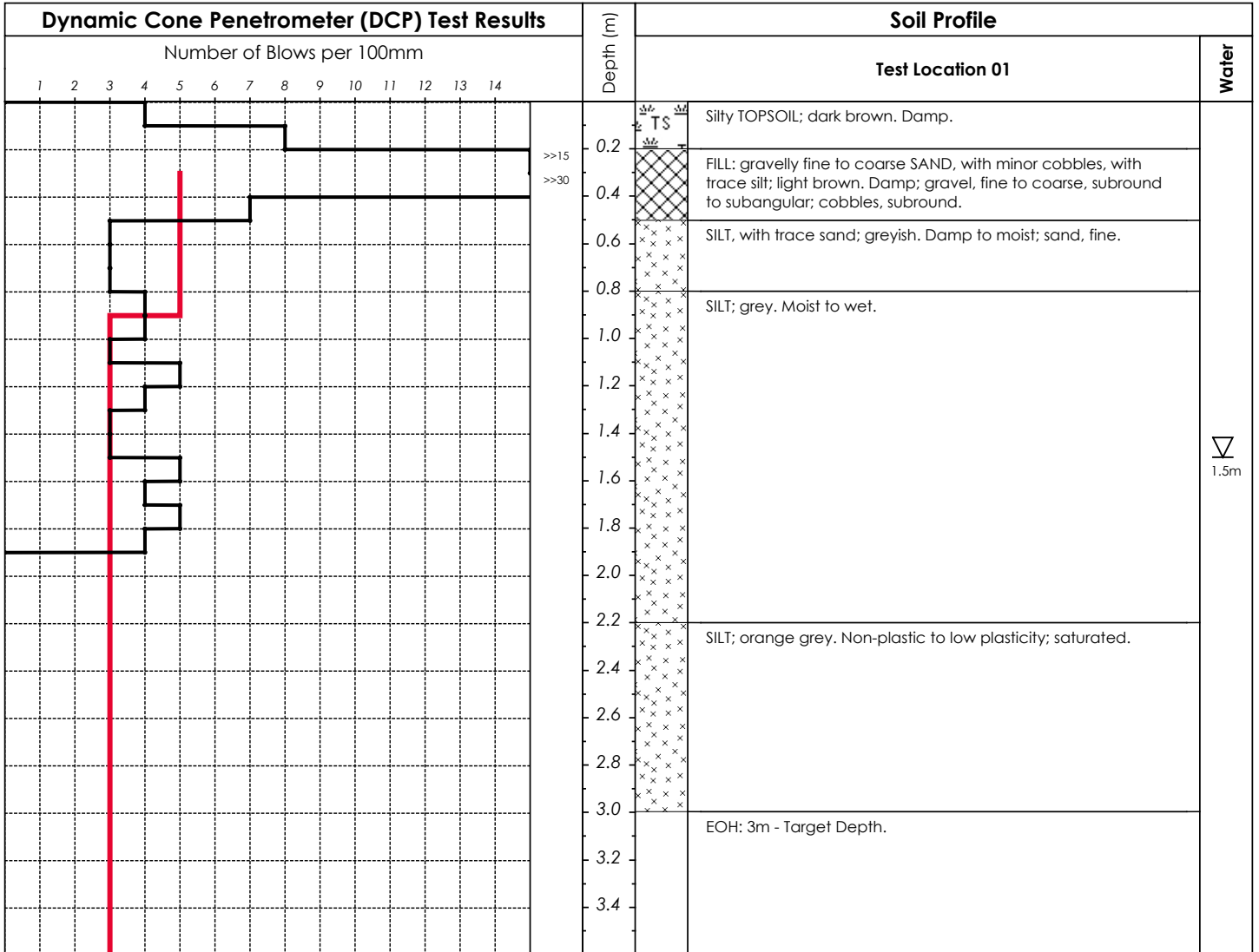
Lot: 6

D.P.: Not available

Date Tested: 24-Feb-2022

Log Sheet No.: 1 of 1

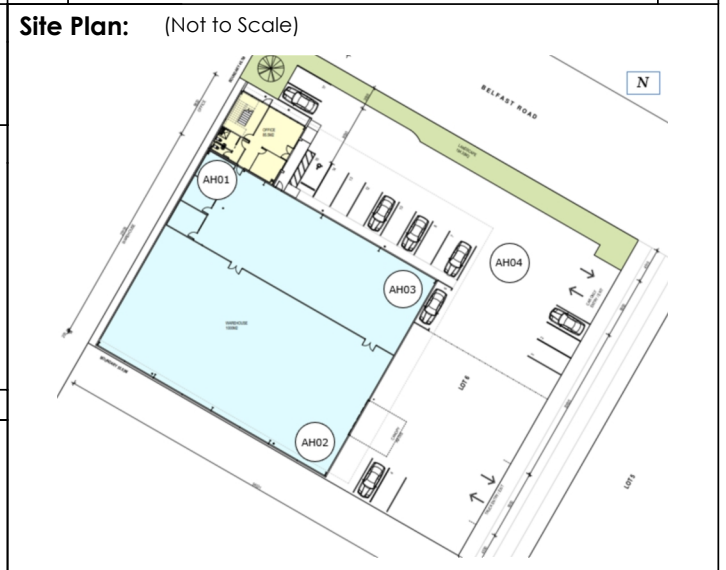
Project No.: 503314



— 01
 Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

Comments:
 Within the proposed building footprint

Field Staff: PRS/MG	Prepared By: MG	Soil Profile From: <input checked="" type="checkbox"/> Hand Auger <input type="checkbox"/> Spade Hole <input type="checkbox"/> Test Pit
Job Manager: NKH	Approved By: NKH	



Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.



Produced with CORE-GS Report Published: 15/03/2022 3:36:21 pm

Site Investigation Record

Client: Zeal Construction Ltd

Site: 61 Belfast Road, Belfast Business Park

Technical Category: N/A

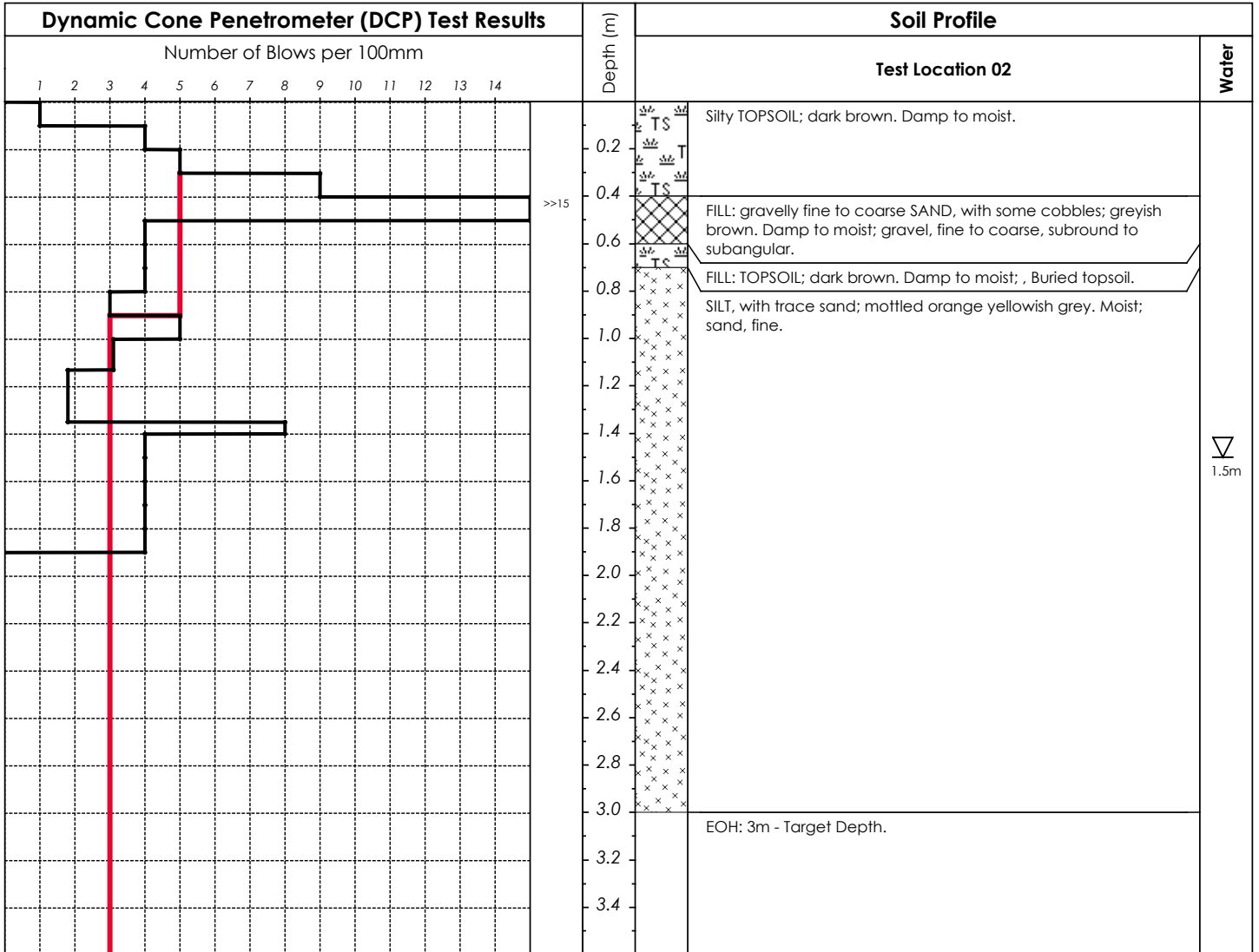
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D.P.: Not available

Date Tested: 24-Feb-2022

Log Sheet No.: 1 of 1

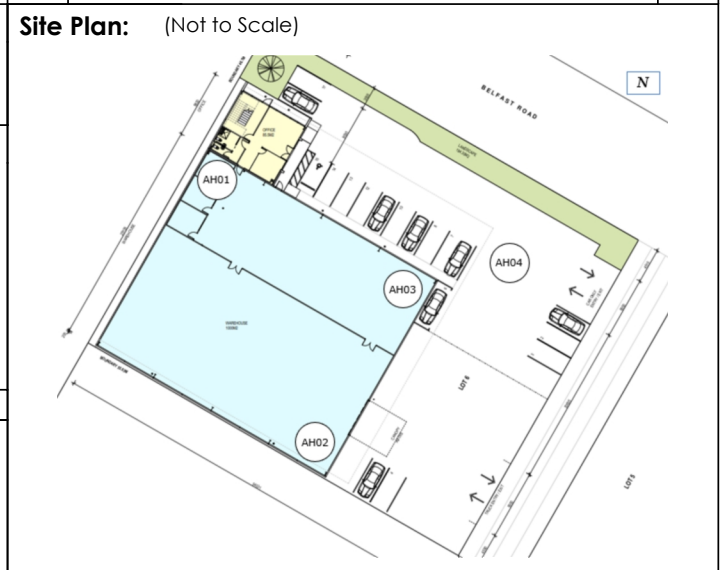
Project No.: 503314



— 02
 Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

Comments:
 Within the proposed building footprint

Field Staff: PRS/MG	Prepared By: MG	Soil Profile From: <input checked="" type="checkbox"/> Hand Auger <input type="checkbox"/> Spade Hole <input type="checkbox"/> Test Pit
Job Manager: NKH	Approved By: NKH	



Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 15/03/2022 3:36:21 pm



Site Investigation Record

Client: Zeal Construction Ltd

Site: 61 Belfast Road, Belfast Business Park

Technical Category: N/A

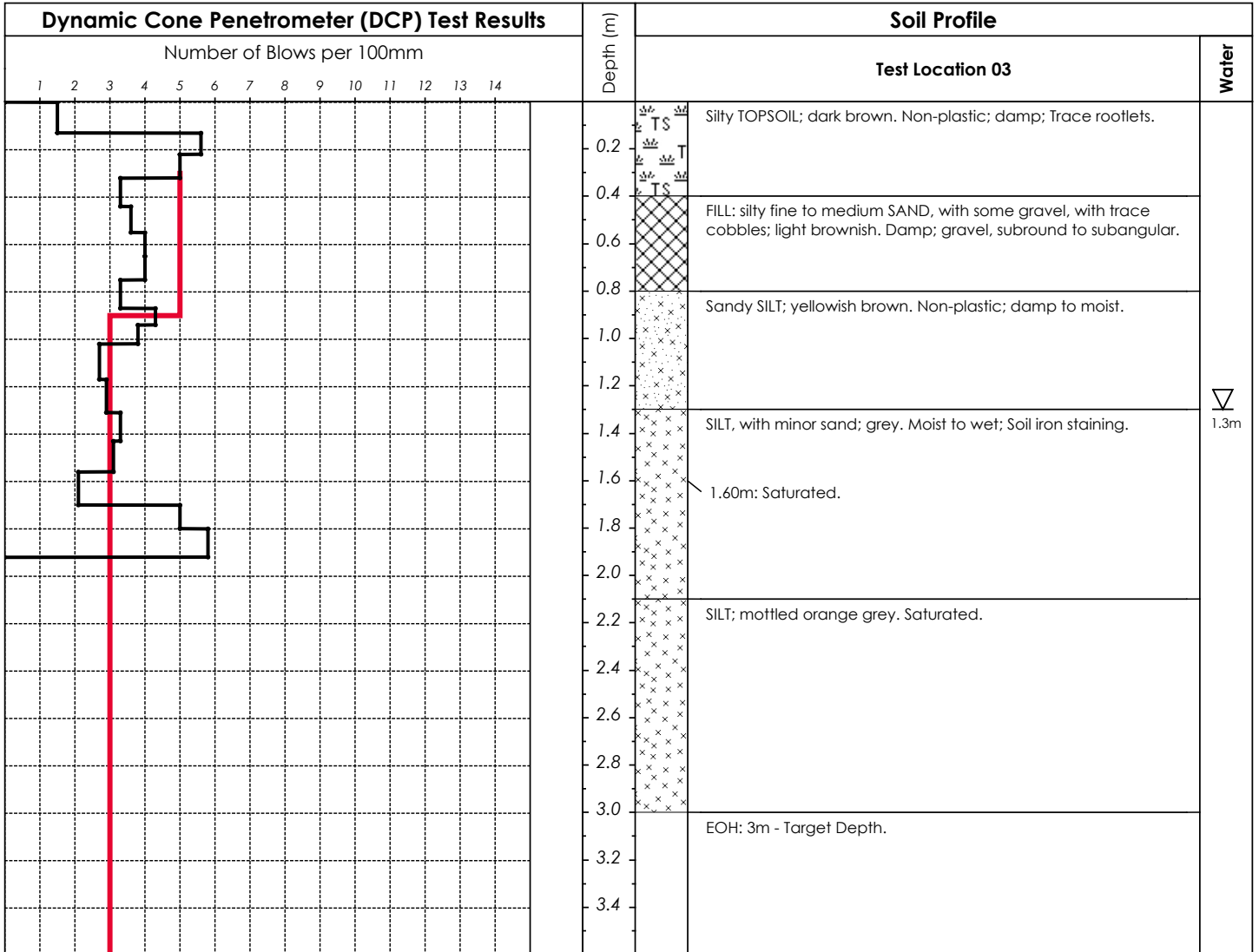
Lot: 6

D.P.: Not available

Date Tested: 24-Feb-2022

Log Sheet No.: 1 of 1

Project No.: 503314



— 03
 Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

Comments:

Within the proposed building footprint

Site Plan: (Not to Scale)



Field Staff: PRS/MG	Prepared By: MG	Soil Profile From: <input checked="" type="checkbox"/> Hand Auger <input type="checkbox"/> Spade Hole <input type="checkbox"/> Test Pit
Job Manager: NKH	Approved By: NKH	

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.



Produced with CORE-GS Report Published: 15/03/2022 3:36:21 pm

Site Investigation Record

Client: Zeal Construction Ltd

Site: 61 Belfast Road, Belfast Business Park

Technical Category: N/A

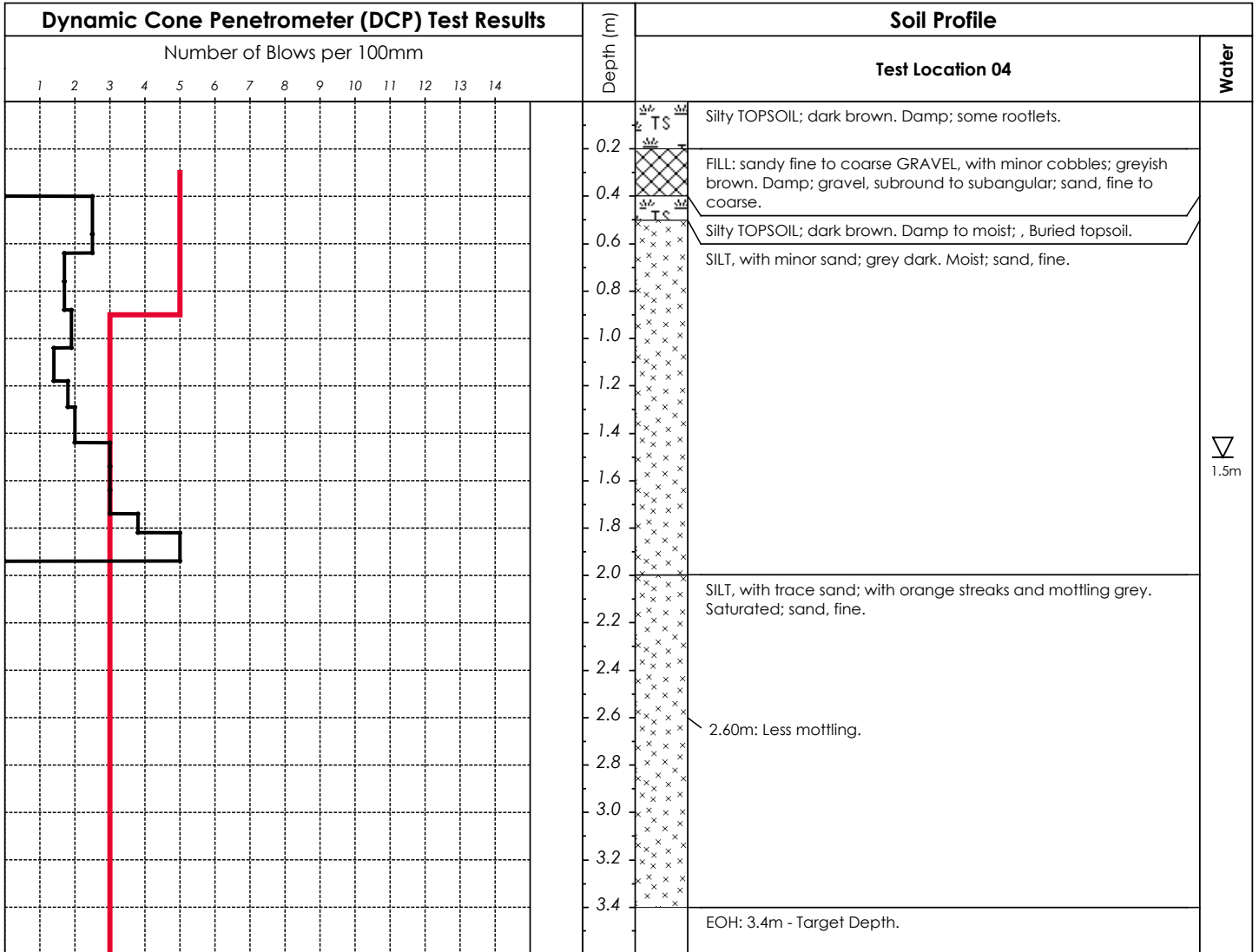
Lot: 6

D.P.: Not available

Date Tested: 24-Feb-2022

Log Sheet No.: 1 of 1

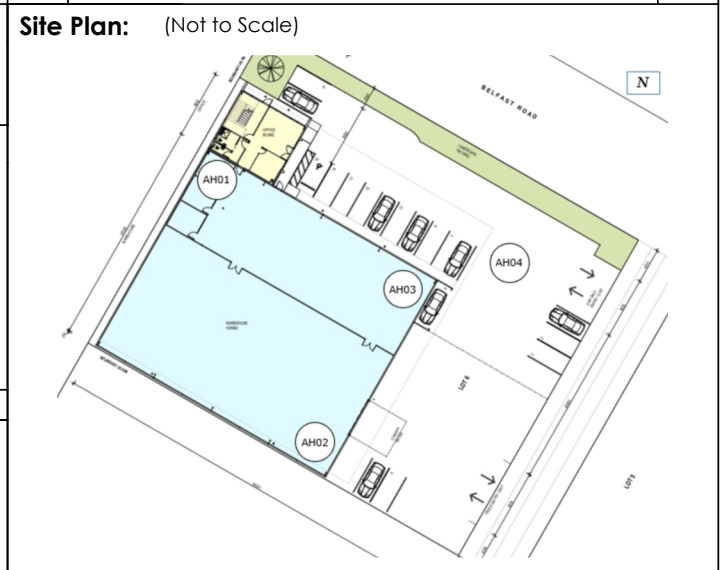
Project No.: 503314



— 04
 Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

Comments:
 Within the proposed parking area

Field Staff: PRS/MG	Prepared By: MG	Soil Profile From: <input checked="" type="checkbox"/> Hand Auger <input type="checkbox"/> Spade Hole <input type="checkbox"/> Test Pit
Job Manager: NKH	Approved By: NKH	

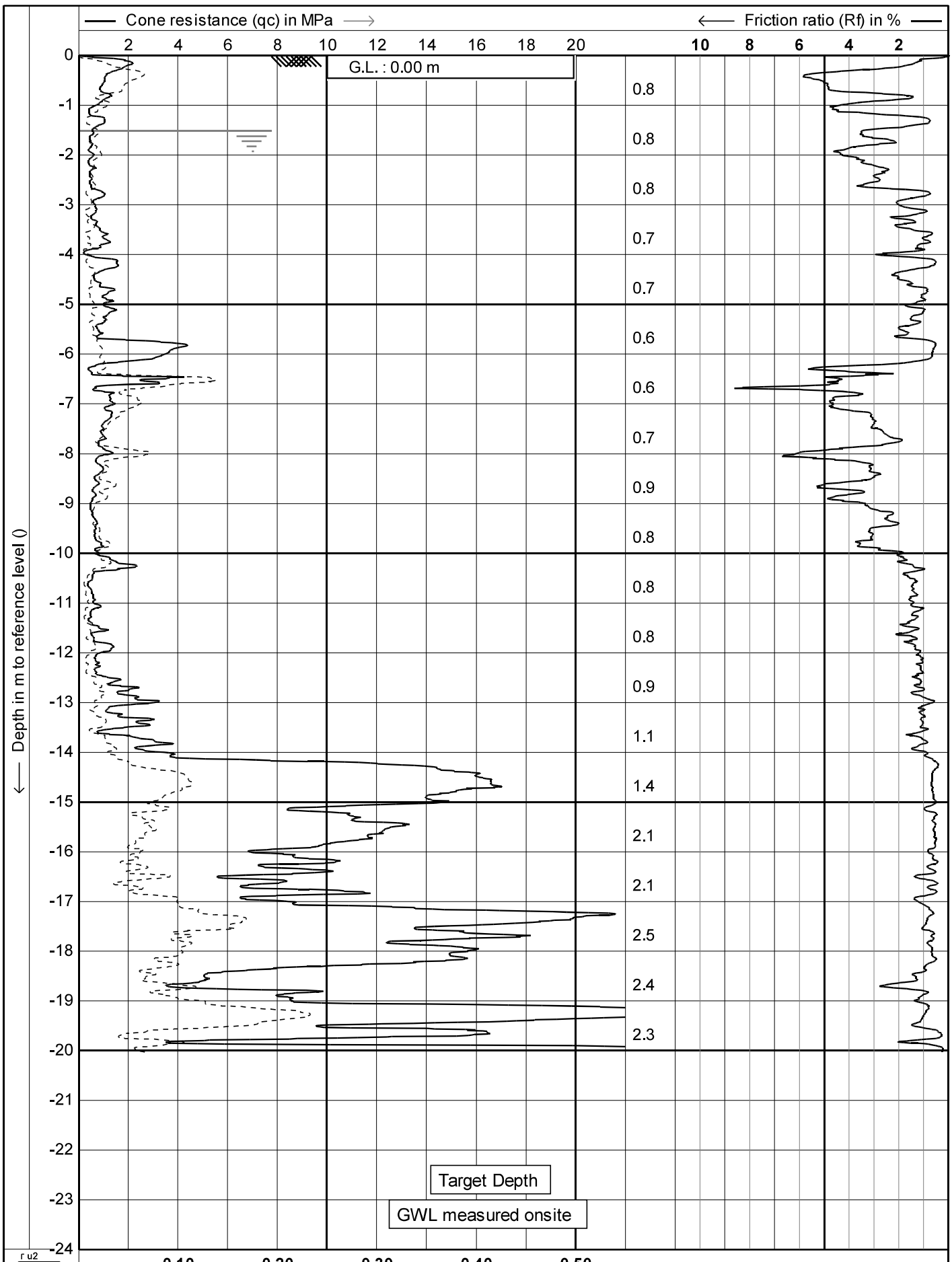


Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

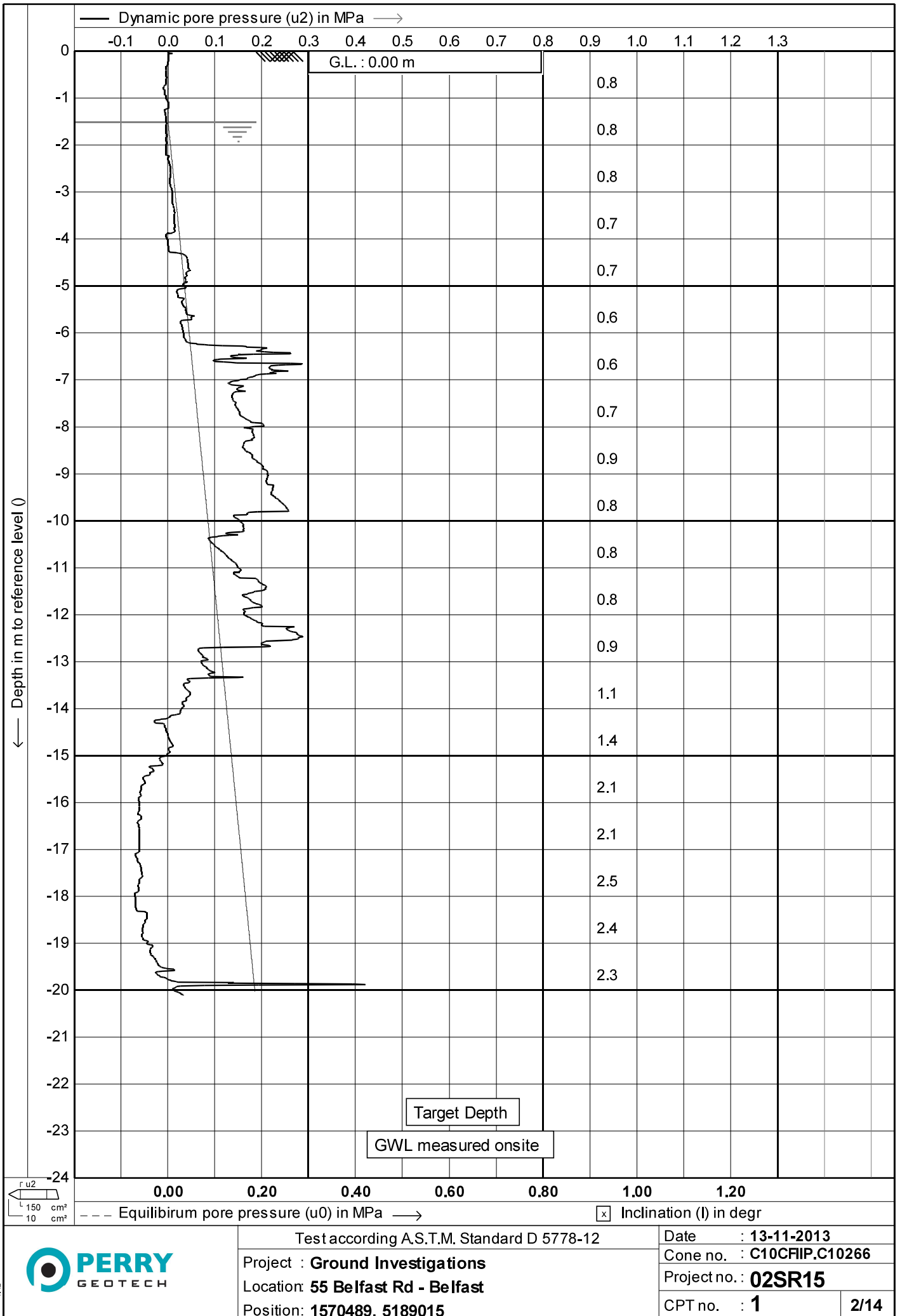


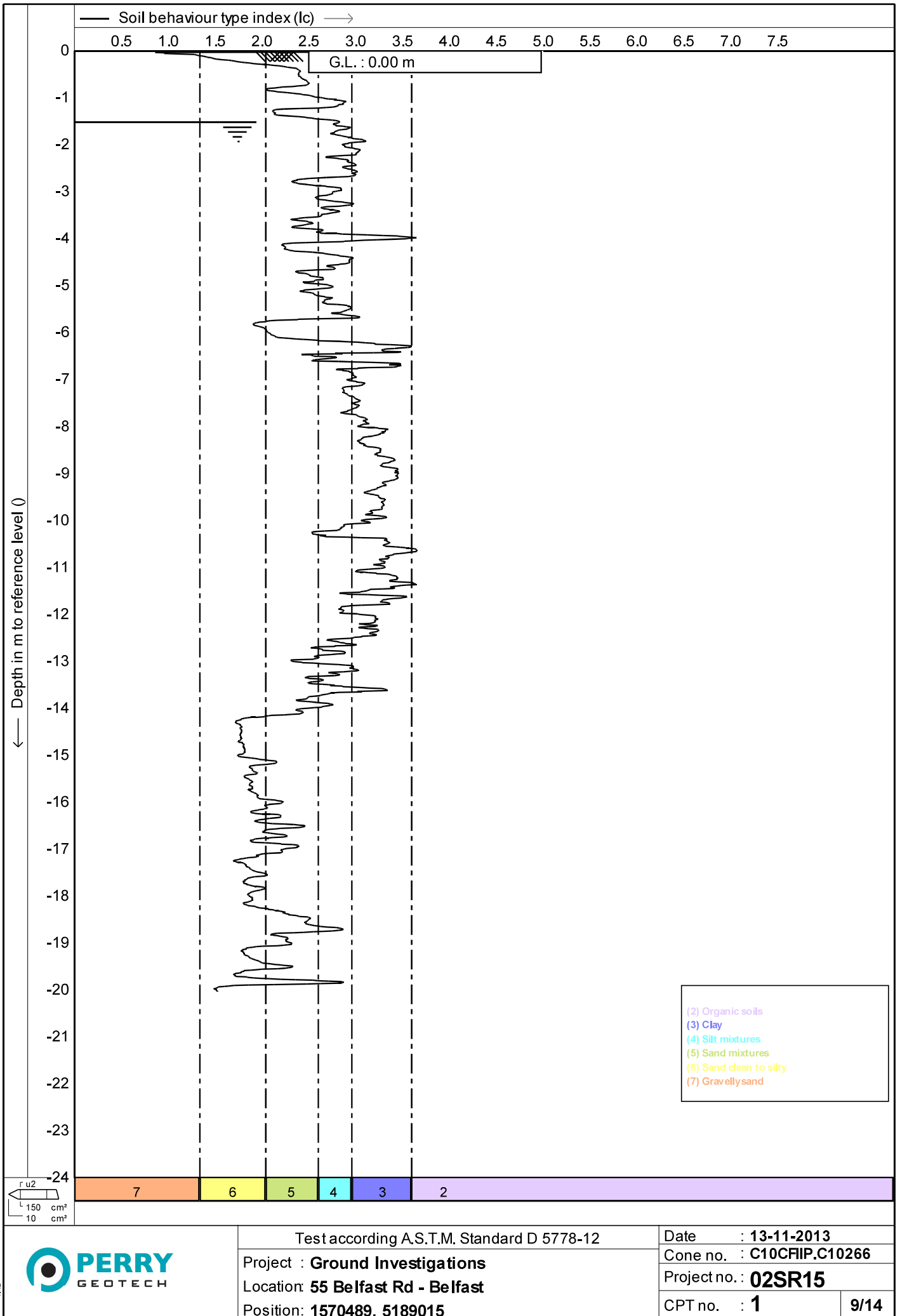
Produced with CORE-GS Report Published: 15/03/2022 3:36:21 pm

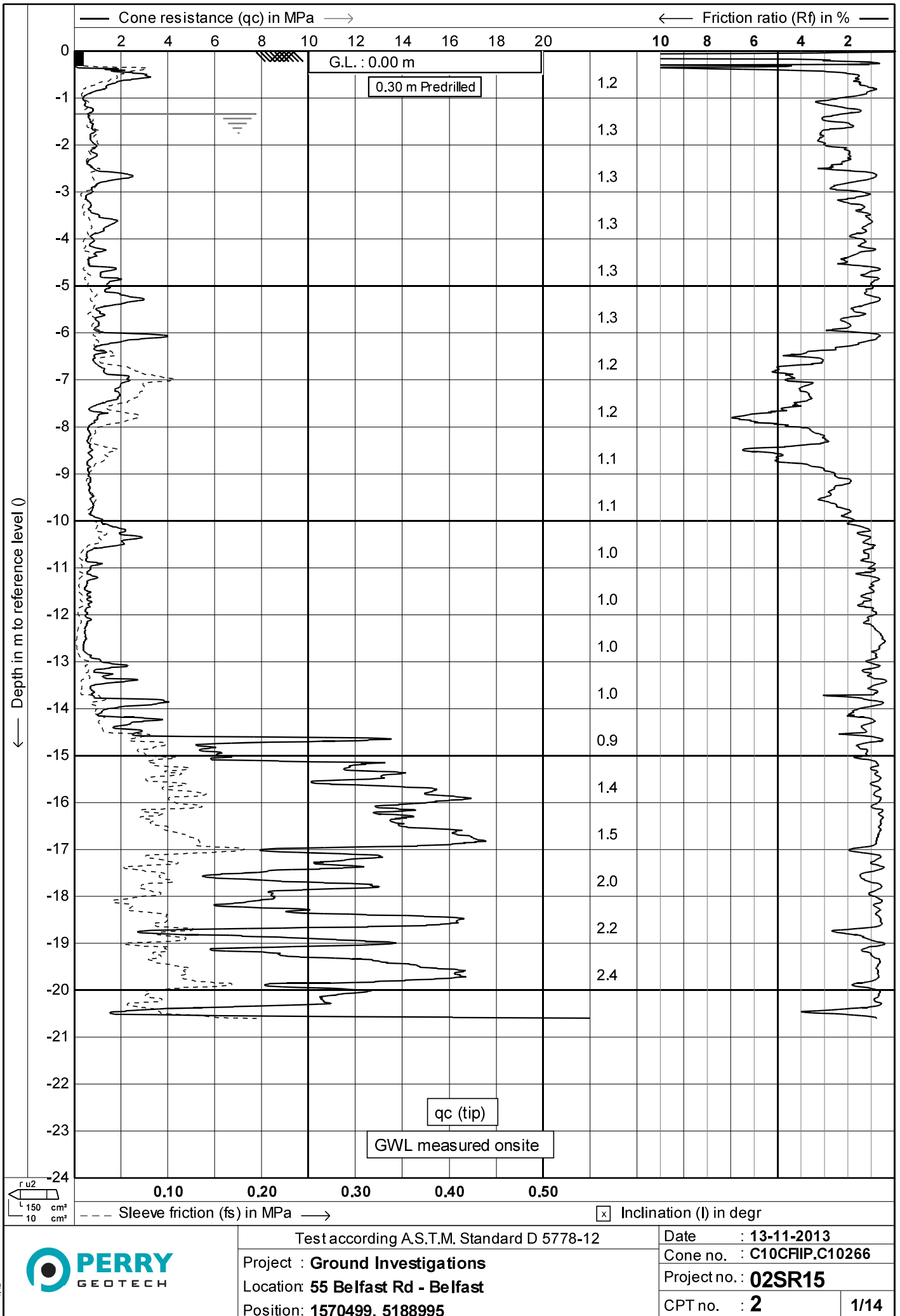
Appendix C. CPT data from NZG



	Test according A.S.T.M. Standard D 5778-12		Date : 13-11-2013
	Project : Ground Investigations		Cone no. : C10CFIP.C10266
	Location: 55 Belfast Rd - Belfast		Project no. : 02SR15
	Position: 1570489, 5189015		CPT no. : 1
			1/14

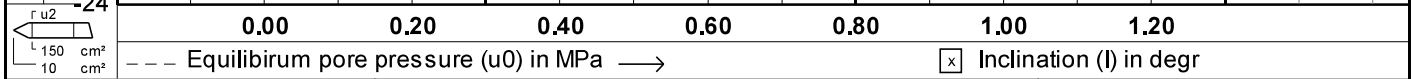
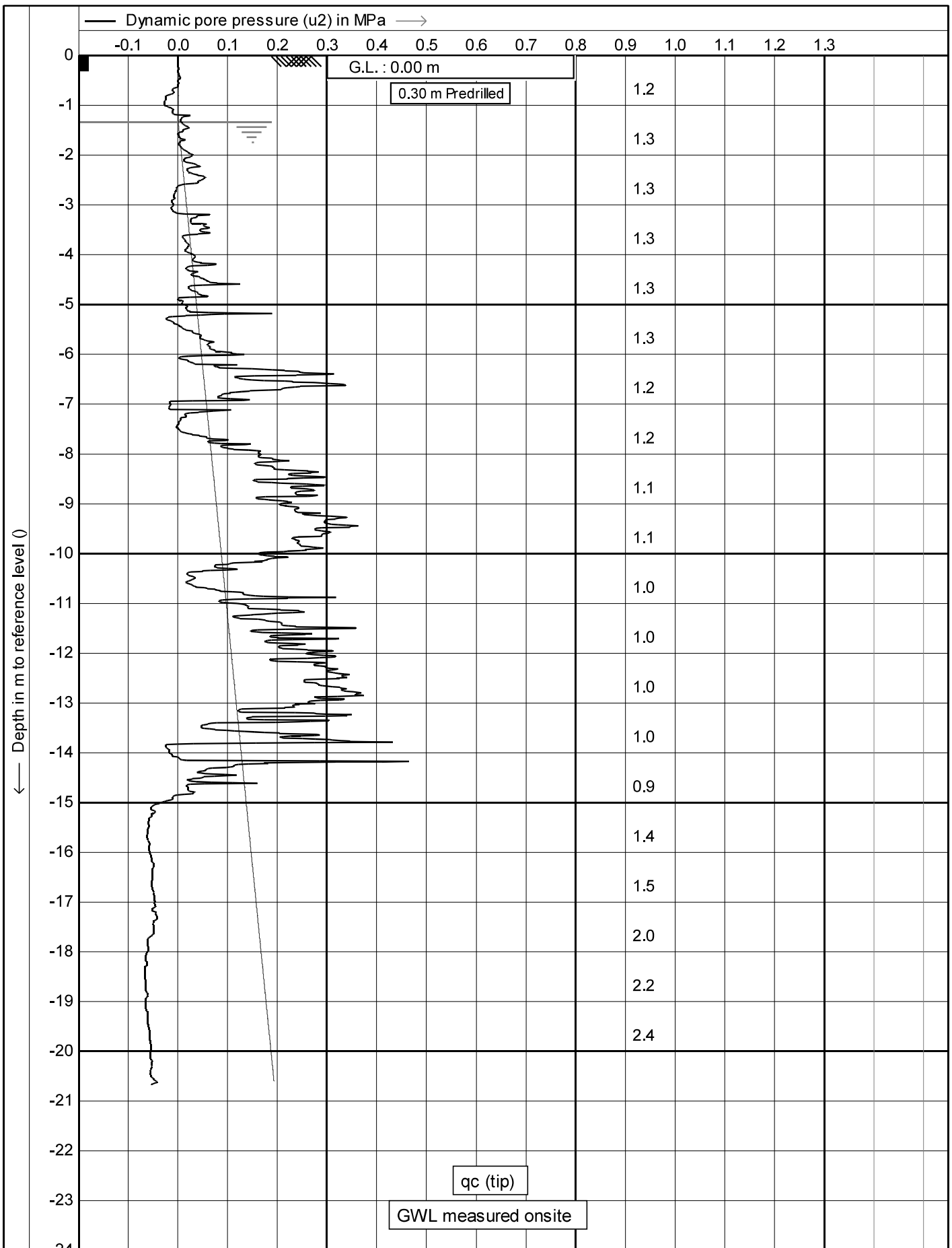




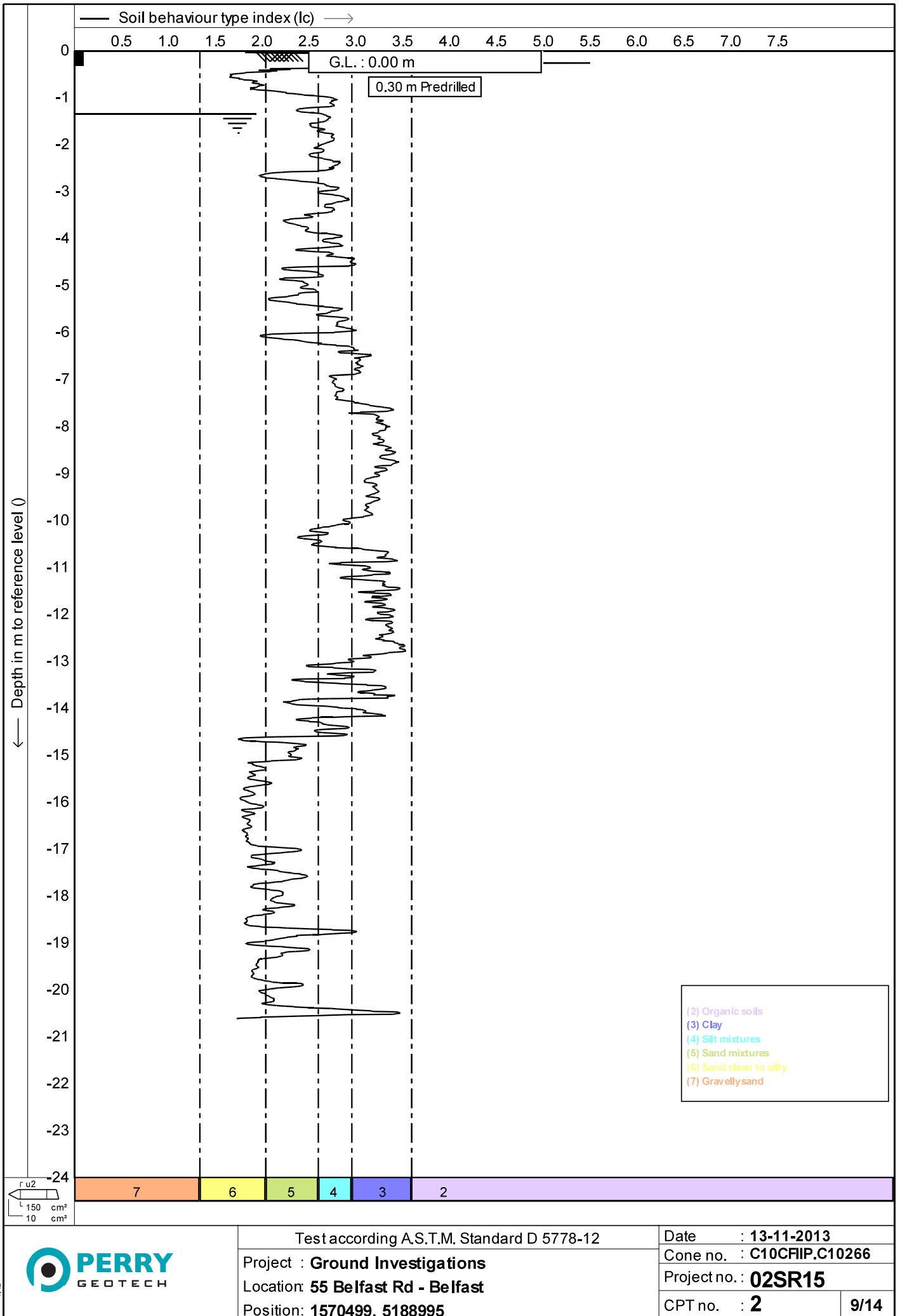


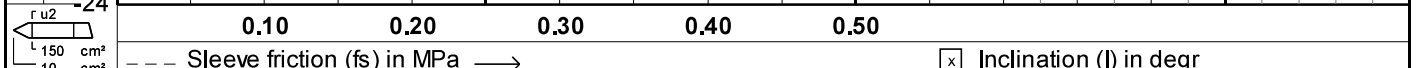
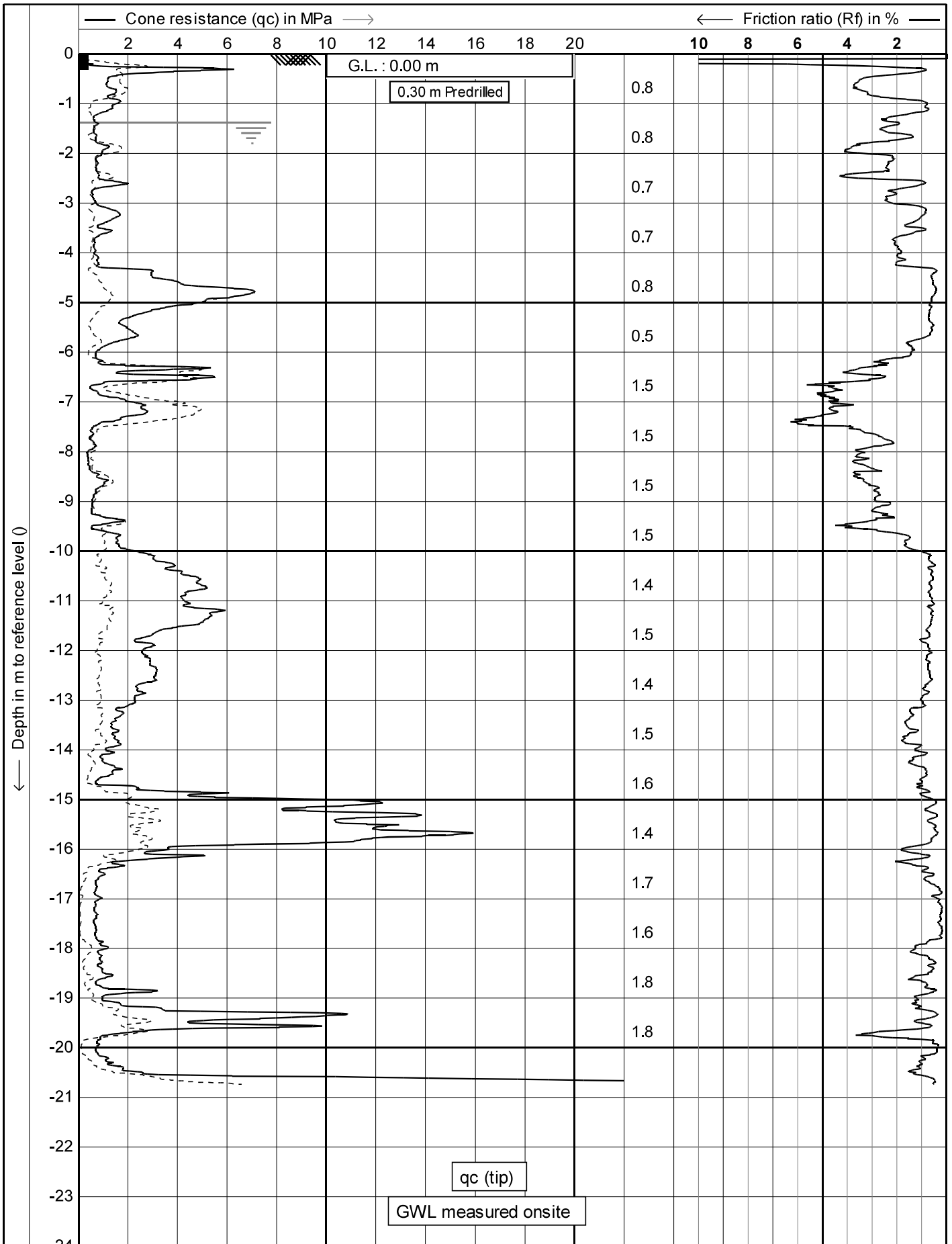
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 Project : **Ground Investigations**
 Location: **55 Belfast Rd - Belfast**
 Position: **1570499, 5188995**

Date : **13-11-2013**
 Cone no. : **C10CFIP.C10266**
 Project no. : **02SR15**
 CPT no. : **2** / 1/14

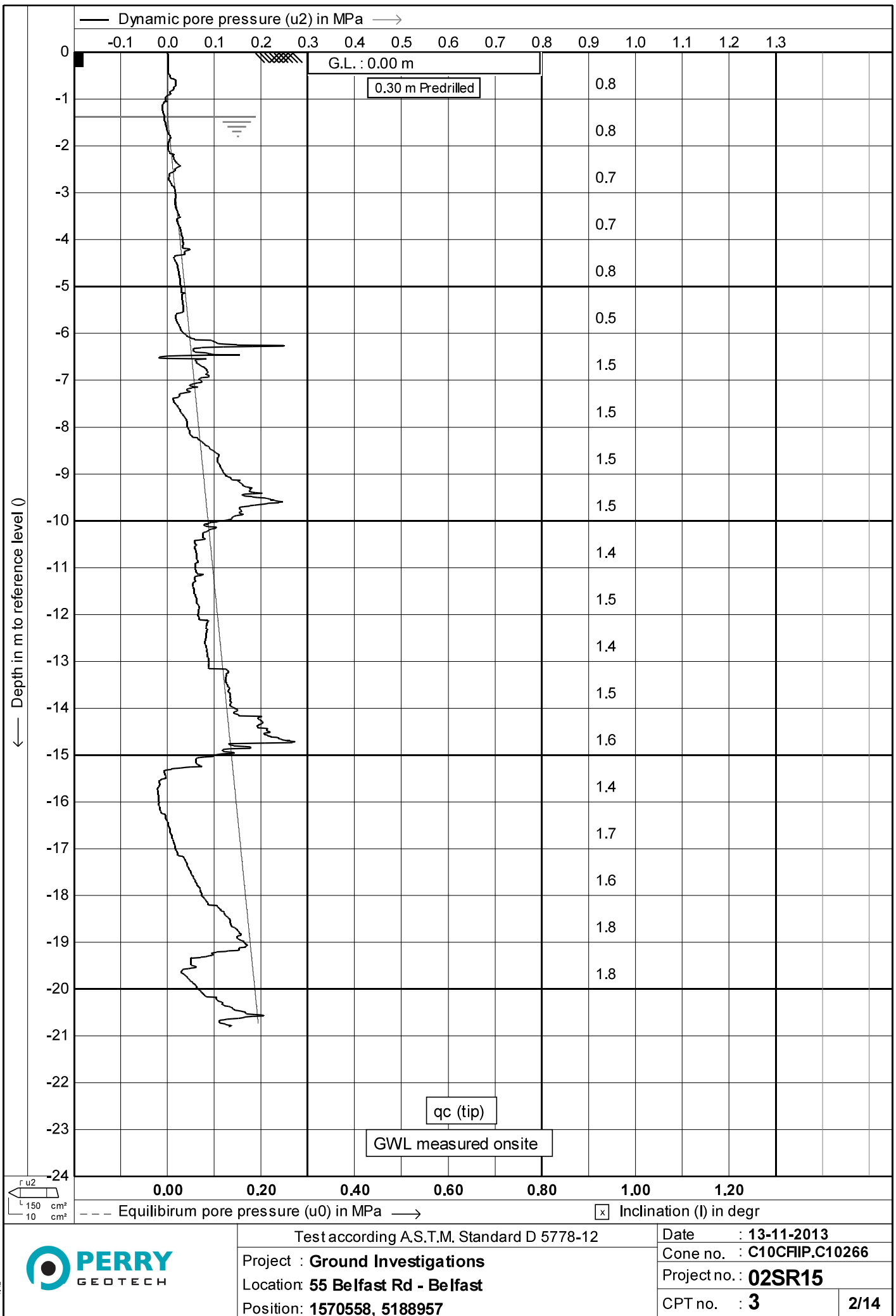


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	Project : Ground Investigations	Cone no. : C10CFIP.C10266
	Location: 55 Belfast Rd - Belfast	Project no. : 02SR15
	Position: 1570499, 5188995	CPT no. : 2
		2/14



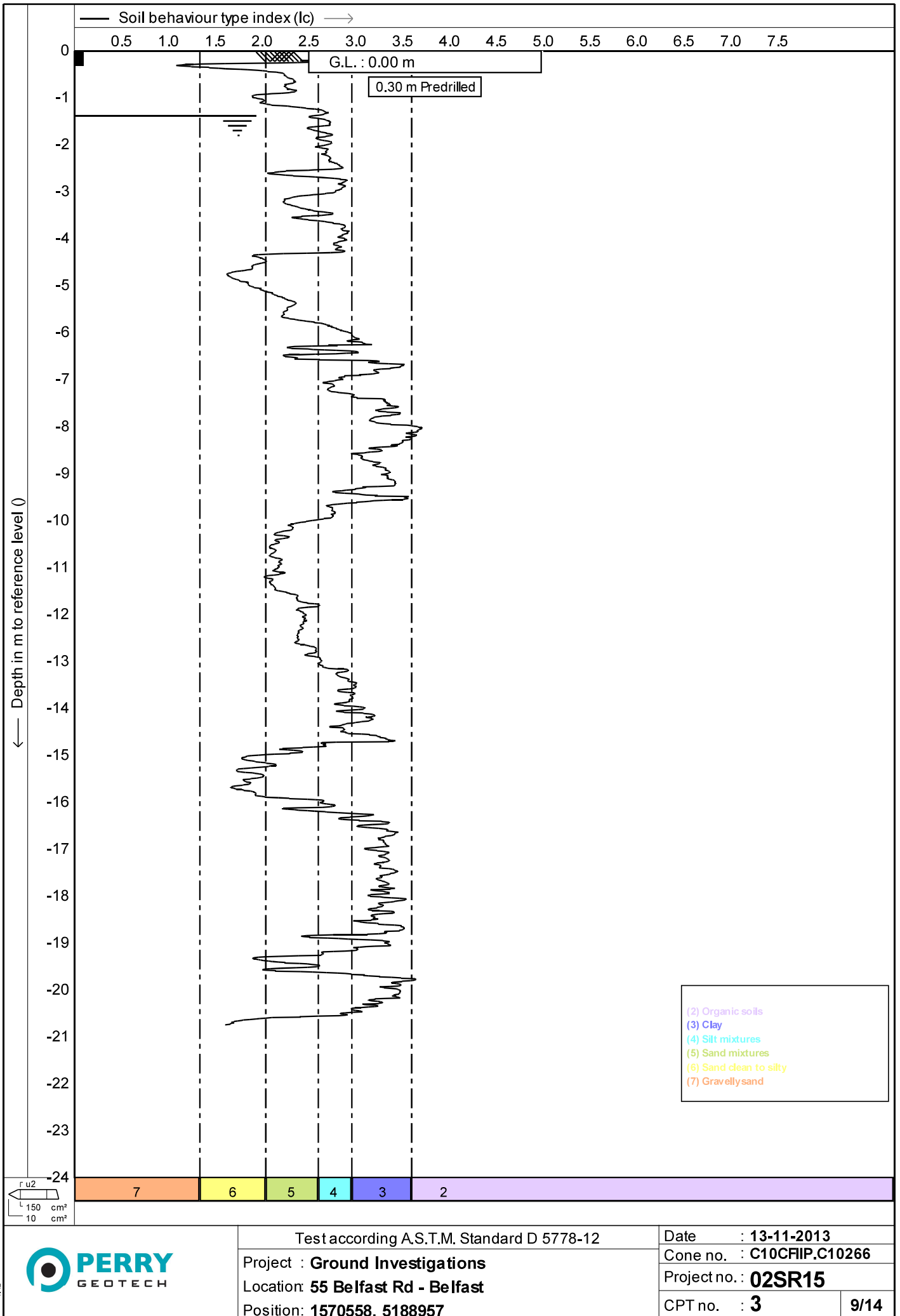


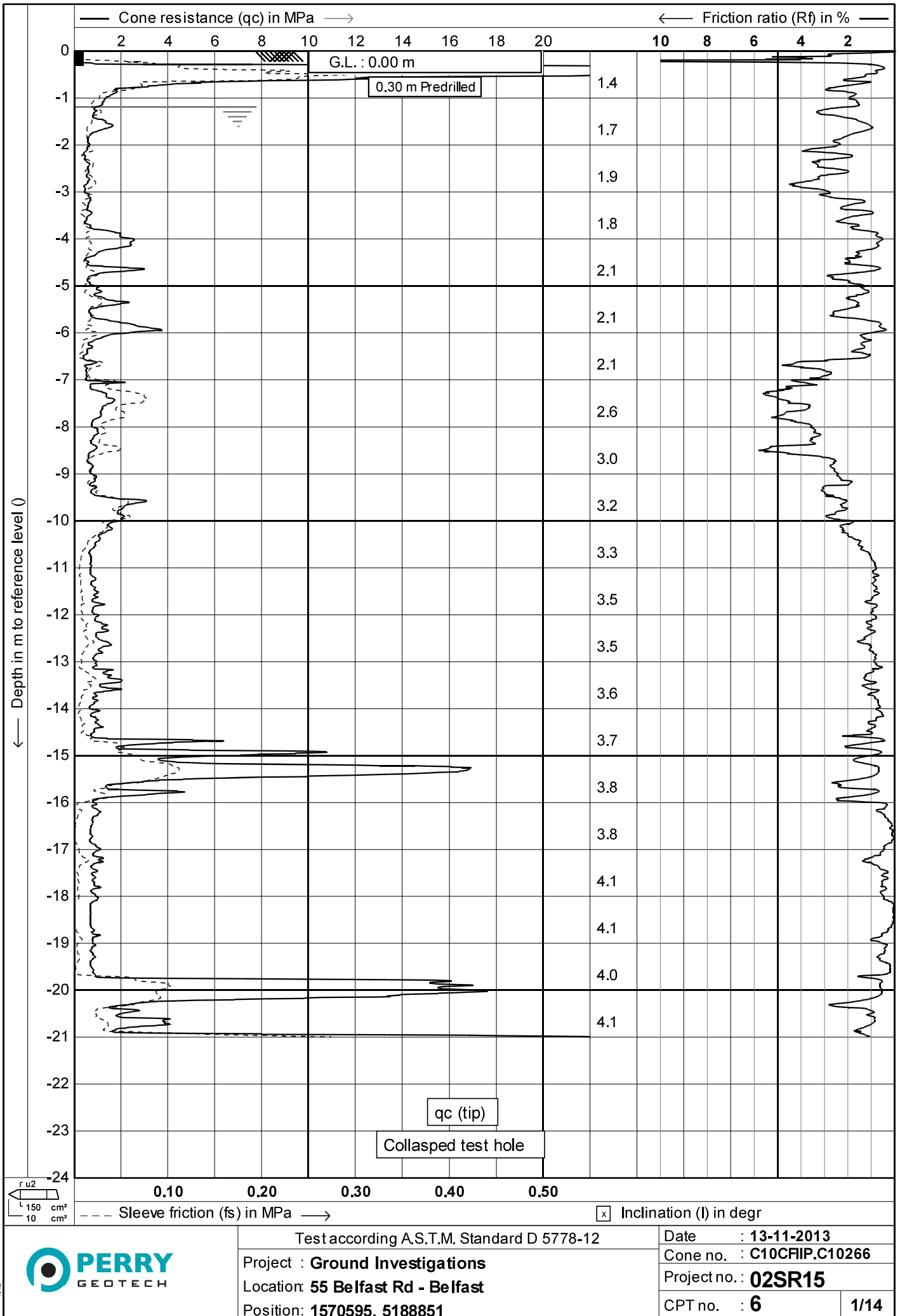
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	Project : Ground Investigations	Cone no. : C10CFIP.C10266
	Location: 55 Belfast Rd - Belfast	Project no. : 02SR15
	Position: 1570558, 5188957	CPT no. : 3
		1/14



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 Project : **Ground Investigations**
 Location: **55 Belfast Rd - Belfast**
 Position: **1570558, 5188957**

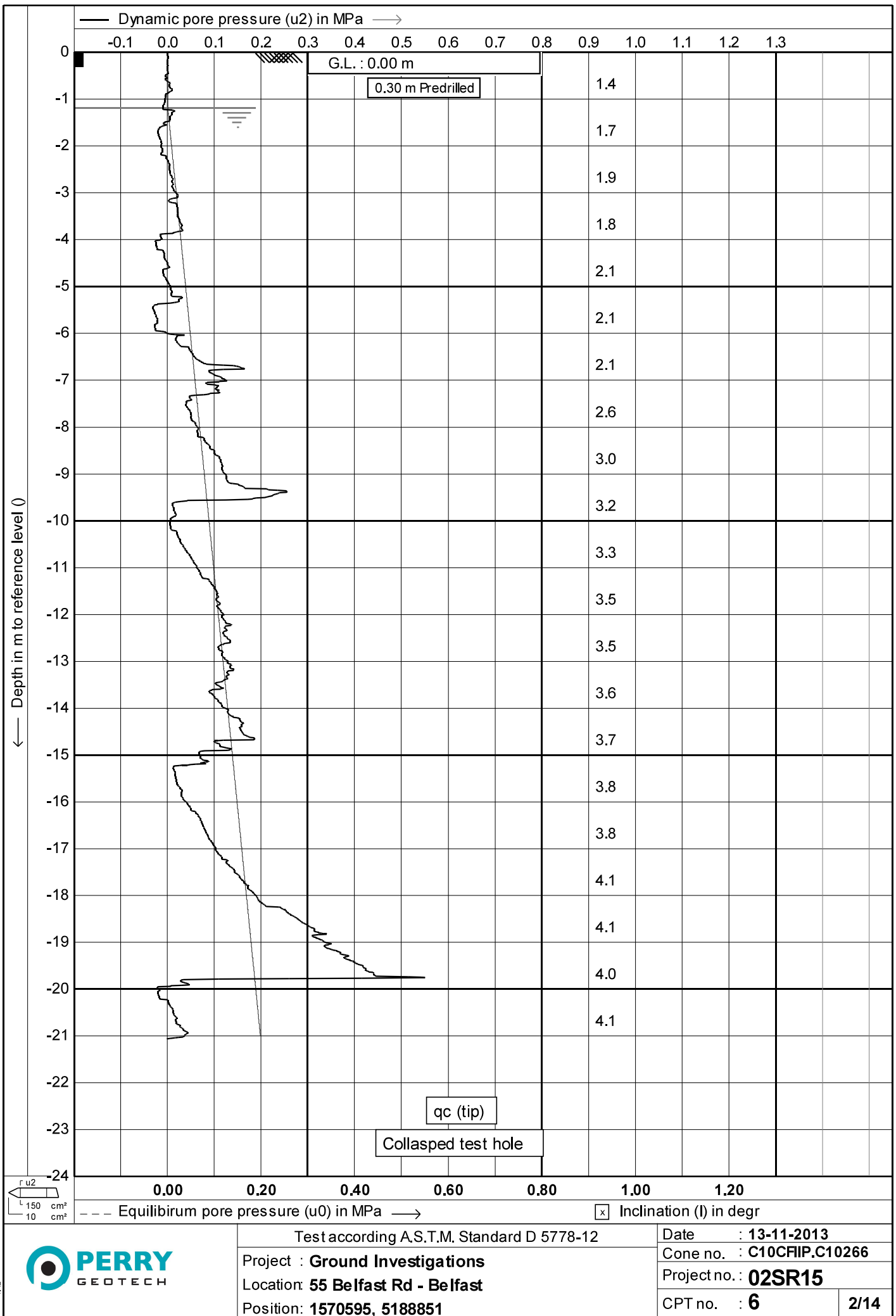
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 Cone no. : **C10CFIP.C10266**
 Project no. : **02SR15**
 CPT no. : **3** **2/14**





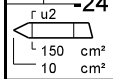
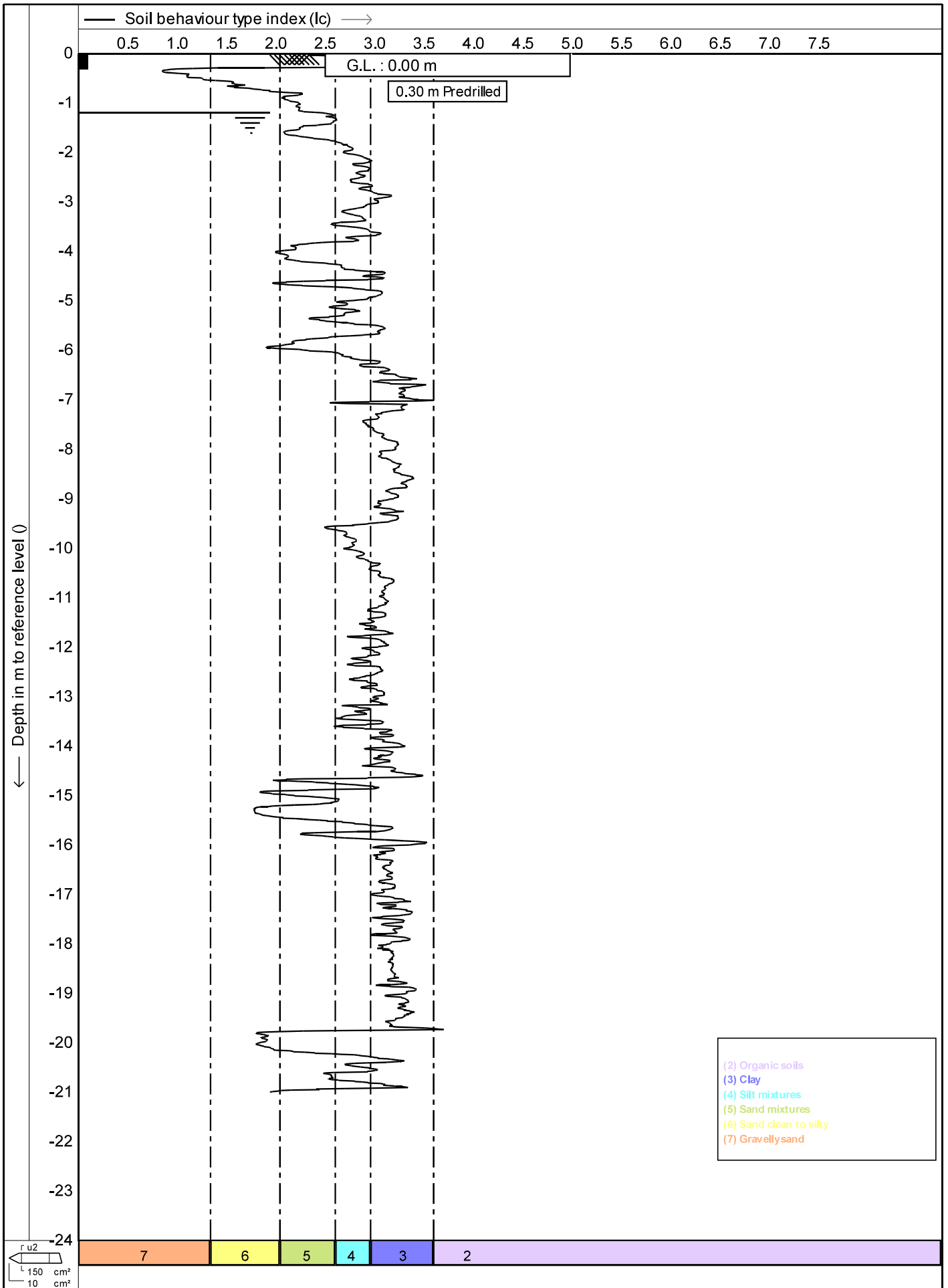
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 Project : **Ground Investigations**
 Location: **55 Belfast Rd - Belfast**
 Position: **1570595, 5188851**

Date : **13-11-2013**
 Cone no. : **C10CFIP.C10266**
 Project no. : **02SR15**
 CPT no. : **6**



Test according A.S.T.M. Standard D 5778-12
 Project : **Ground Investigations**
 Location: **55 Belfast Rd - Belfast**
 Position: **1570595, 5188851**

Date : **13-11-2013**
 Cone no. : **C10CFIP.C10266**
 Project no. : **02SR15**
 CPT no. : **6** **2/14**

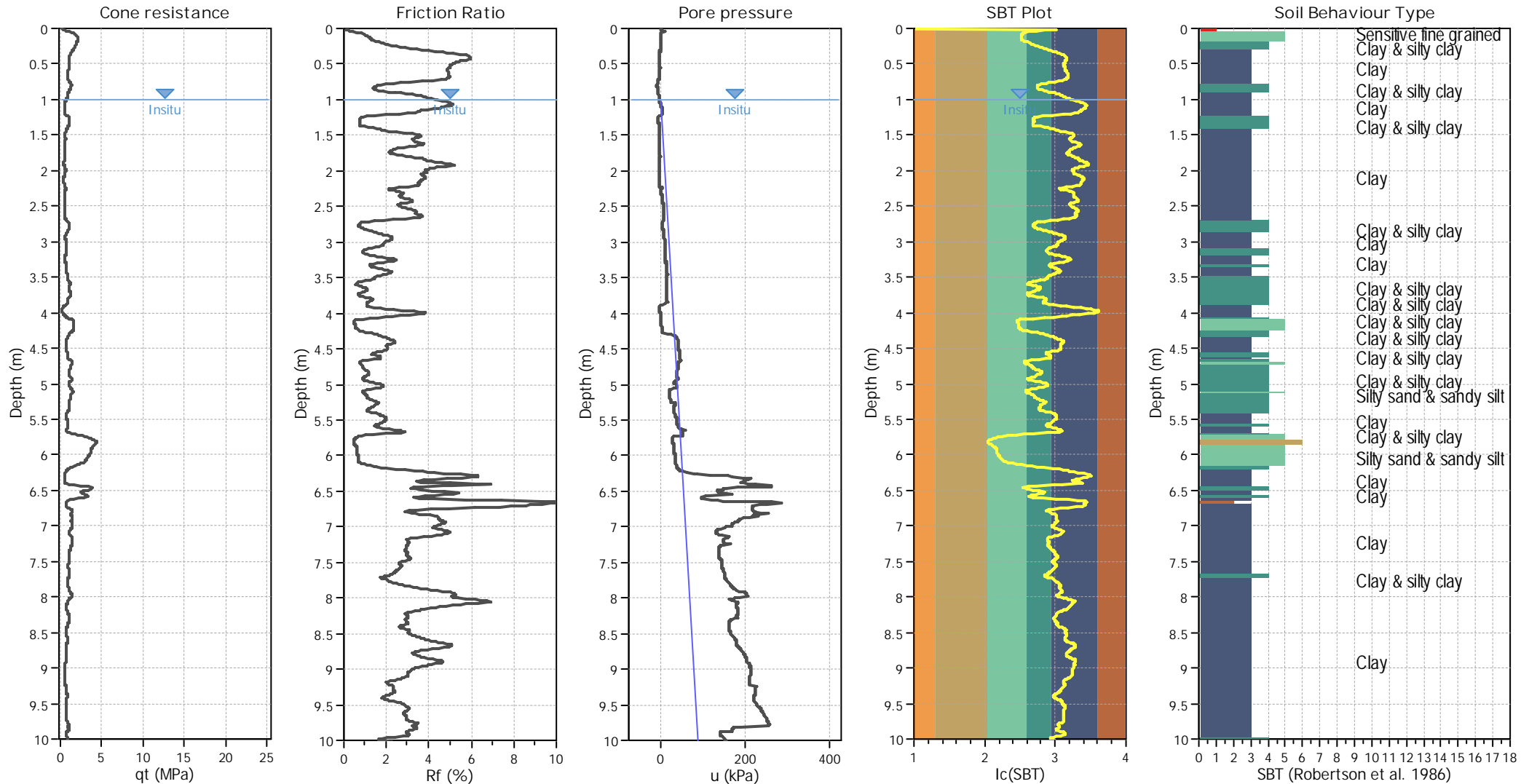


- (2) Organic soils
- (3) Clay
- (4) Silt mixtures
- (5) Sand mixtures
- (6) Sand clean to silty
- (7) Gravelly sand

	Test according A.S.T.M. Standard D 5778-12	Date : 13-11-2013
	Project : Ground Investigations	Cone no. : C10CFIP.C10266
	Location: 55 Belfast Rd - Belfast	Project no. : 02SR15
	Position: 1570595, 5188851	CPT no. : 6
		9/14

Appendix D. Liquefaction assessment

CPT basic interpretation plots



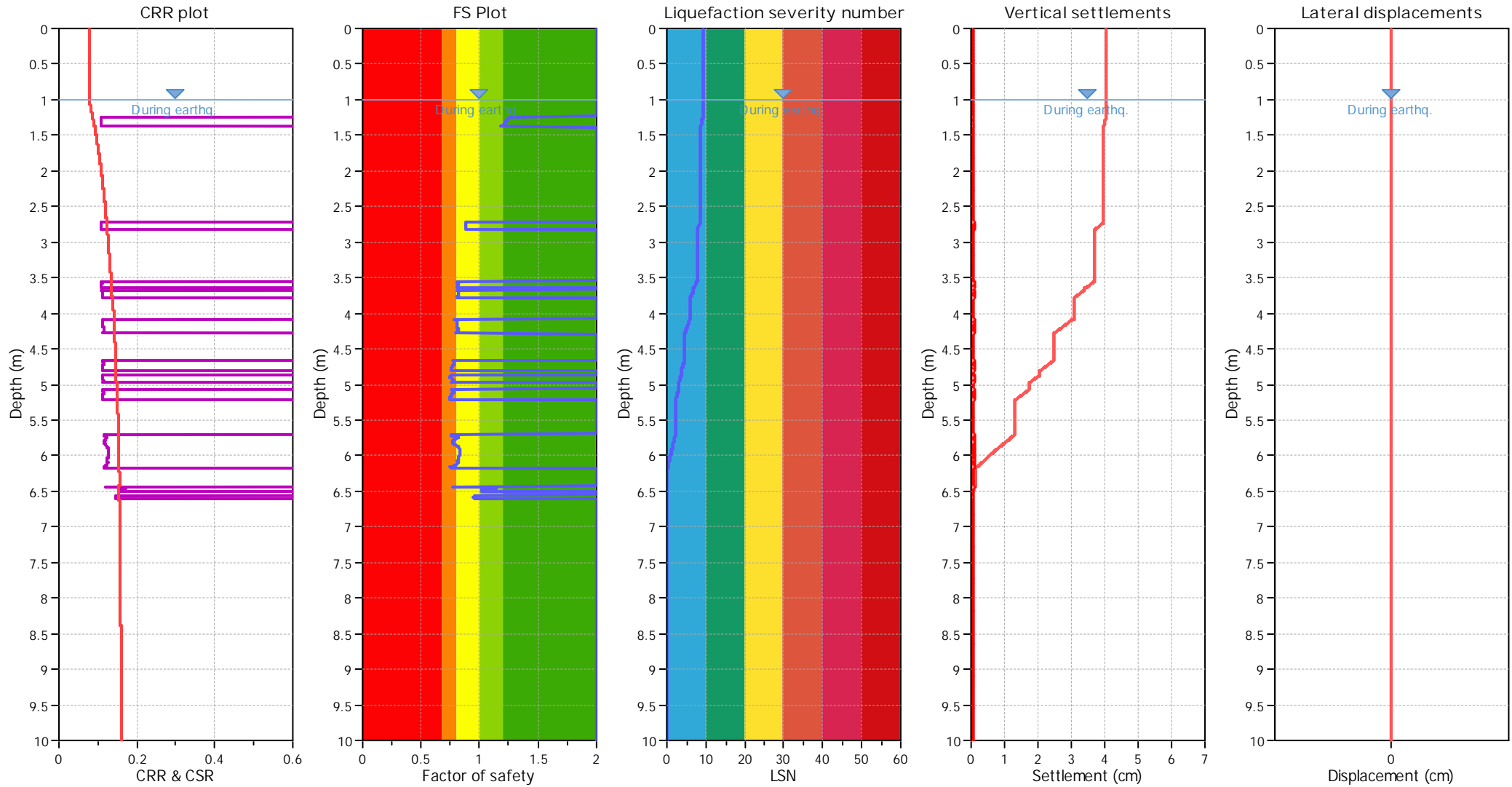
Input parameters and analysis data

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Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_q applied:	Yes
Earthquake magnitude M_w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	10.00 m

SBT legend

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

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (earthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_q applied:	Yes
Earthquake magnitude M_w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	10.00 m

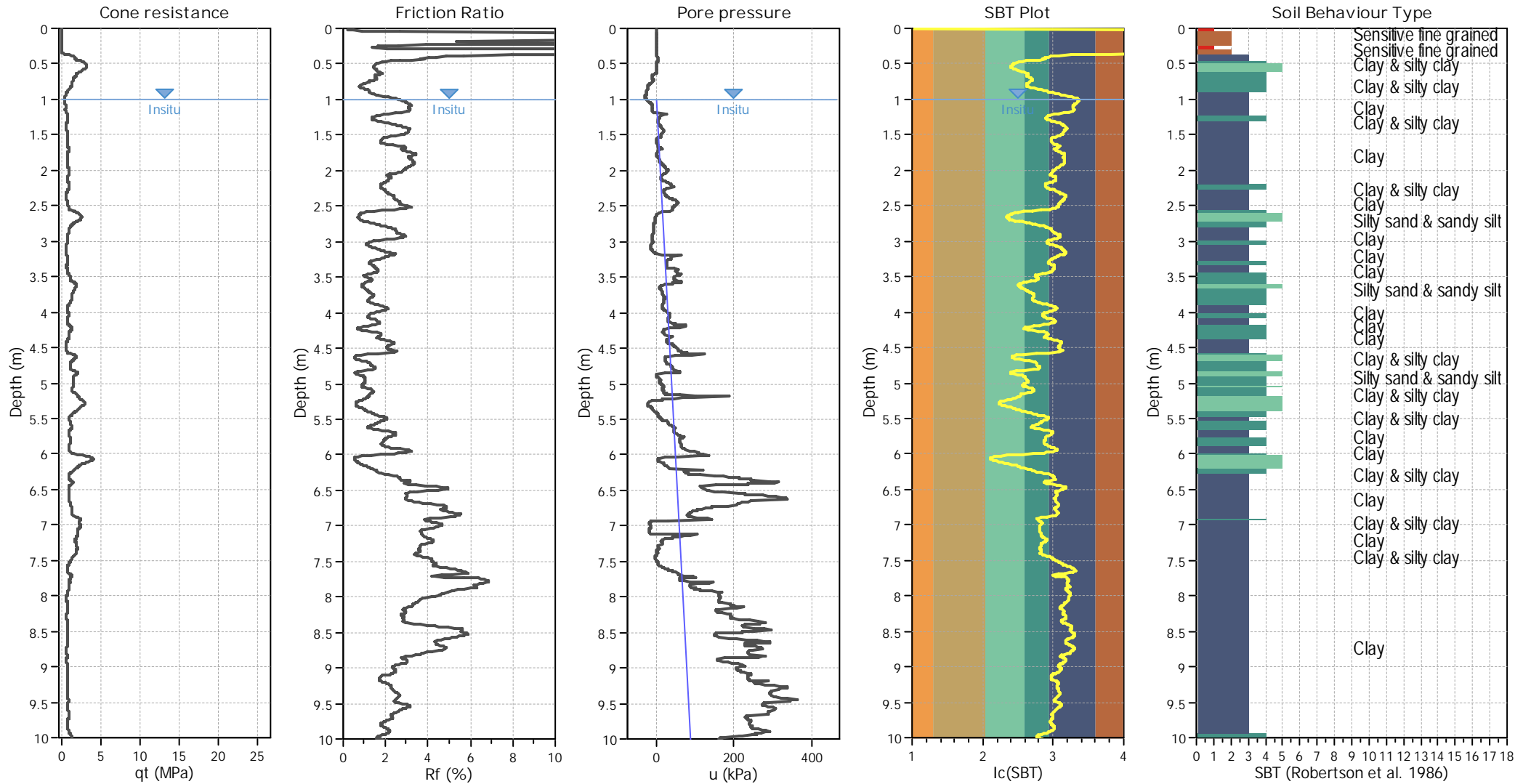
F.S. color scheme

- 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

CPT basic interpretation plots



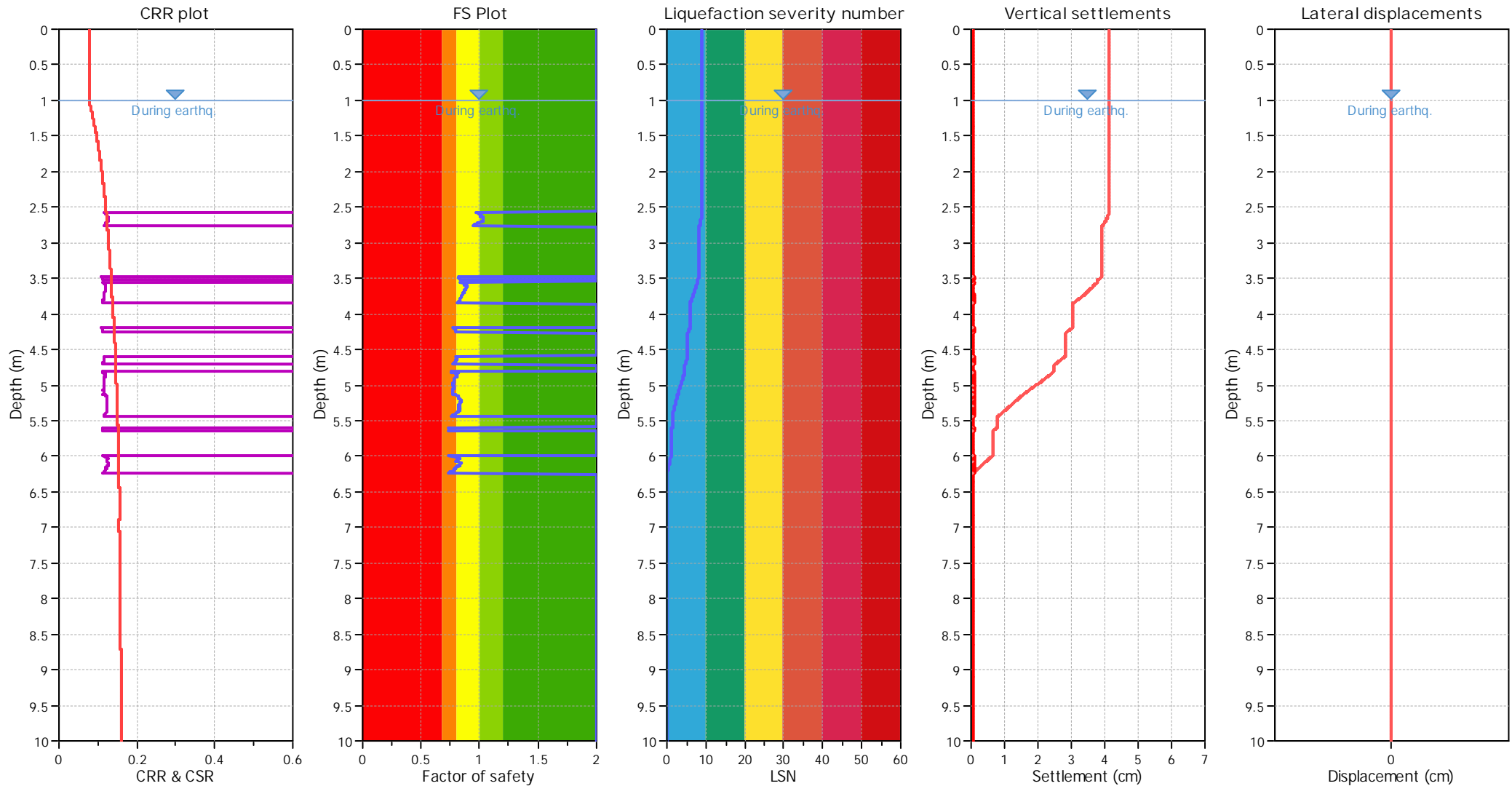
Input parameters and analysis data

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Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_g applied:	Yes
Earthquake magnitude M_w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	10.00 m

SBT legend

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

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (earthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_q applied:	Yes
Earthquake magnitude M_w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	10.00 m

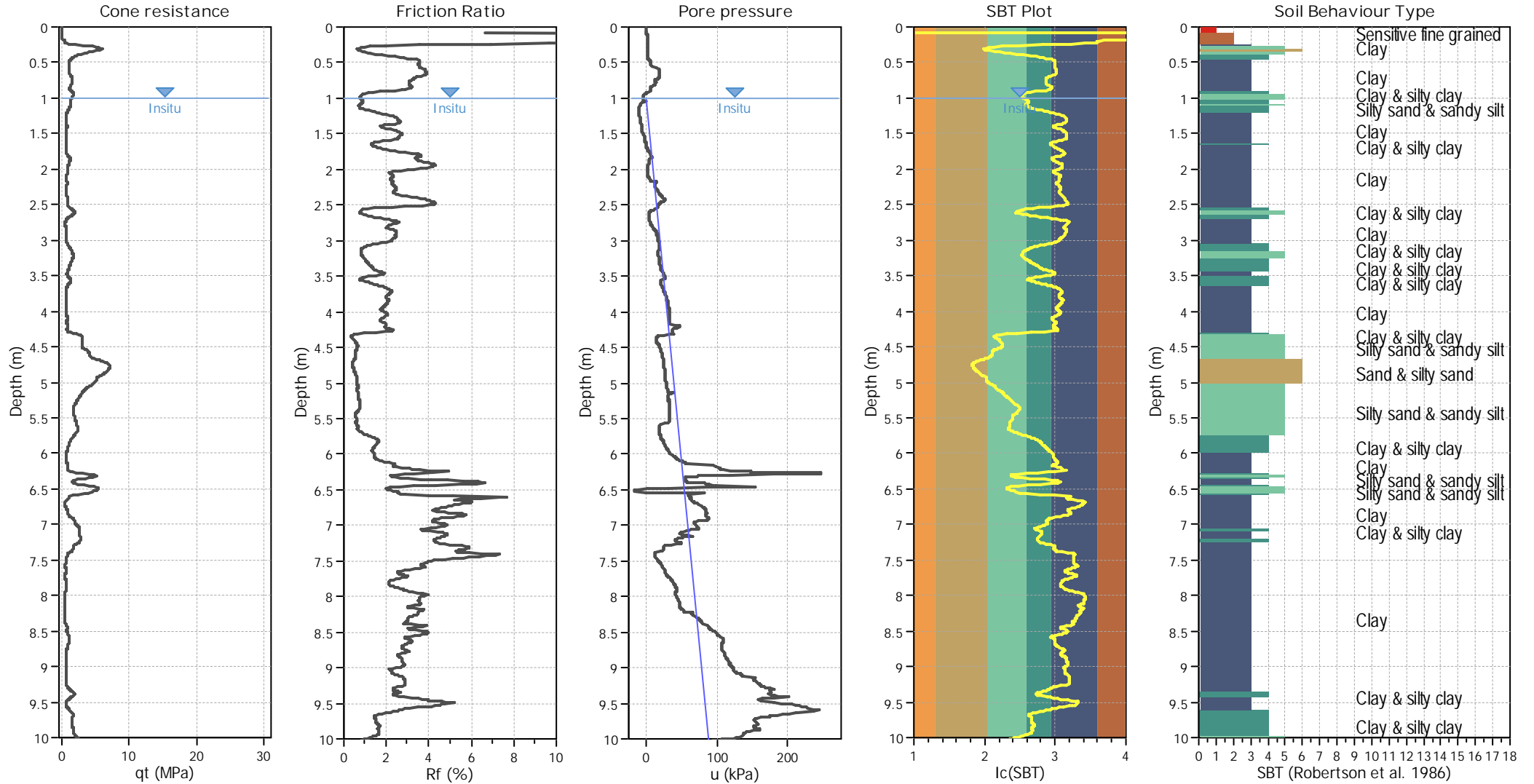
F.S. color scheme

- 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

CPT basic interpretation plots



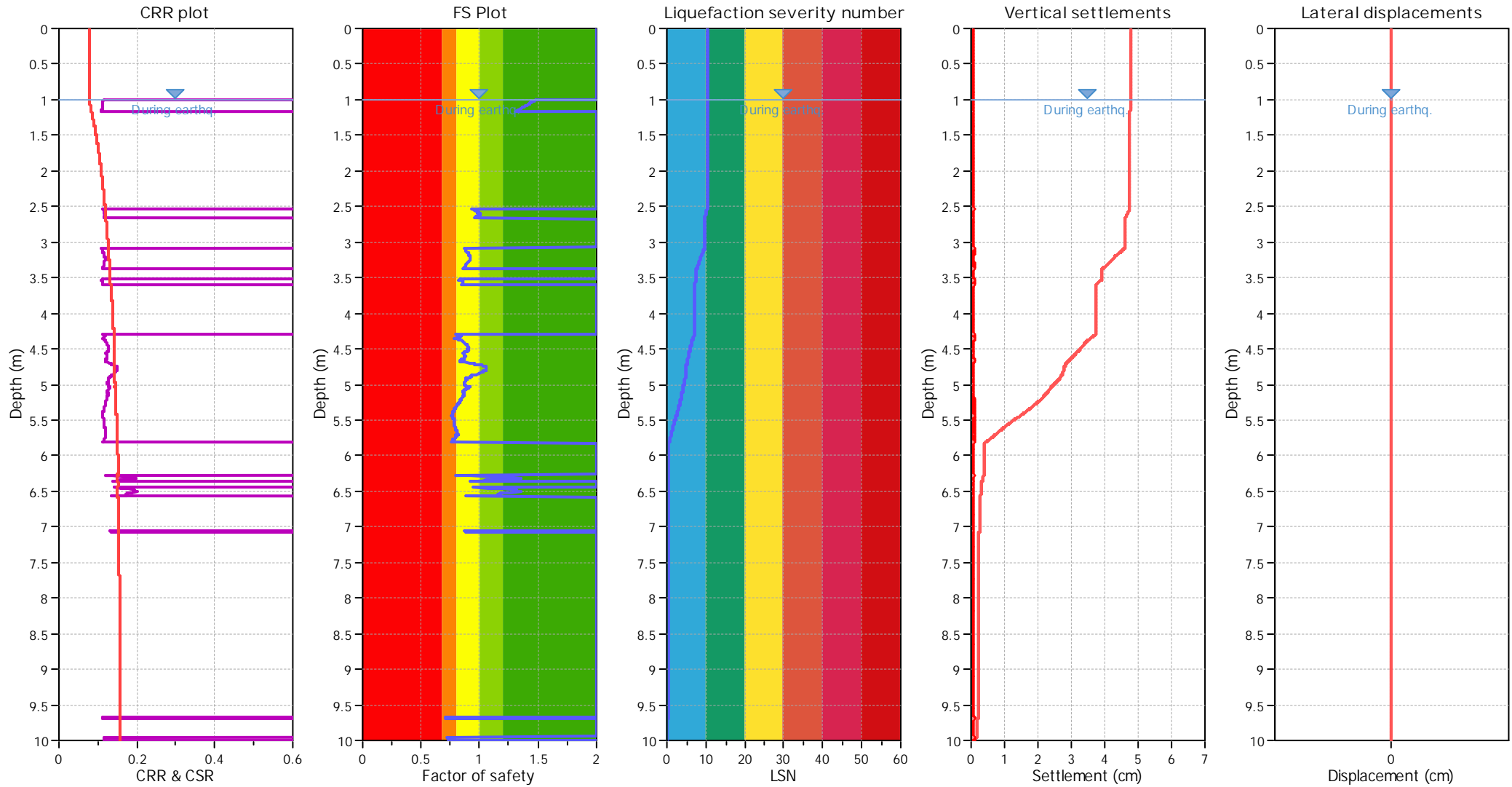
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_q applied:	Yes
Earthquake magnitude M_w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	10.00 m

SBT legend

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

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (earthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_q applied:	Yes
Earthquake magnitude M_w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	10.00 m

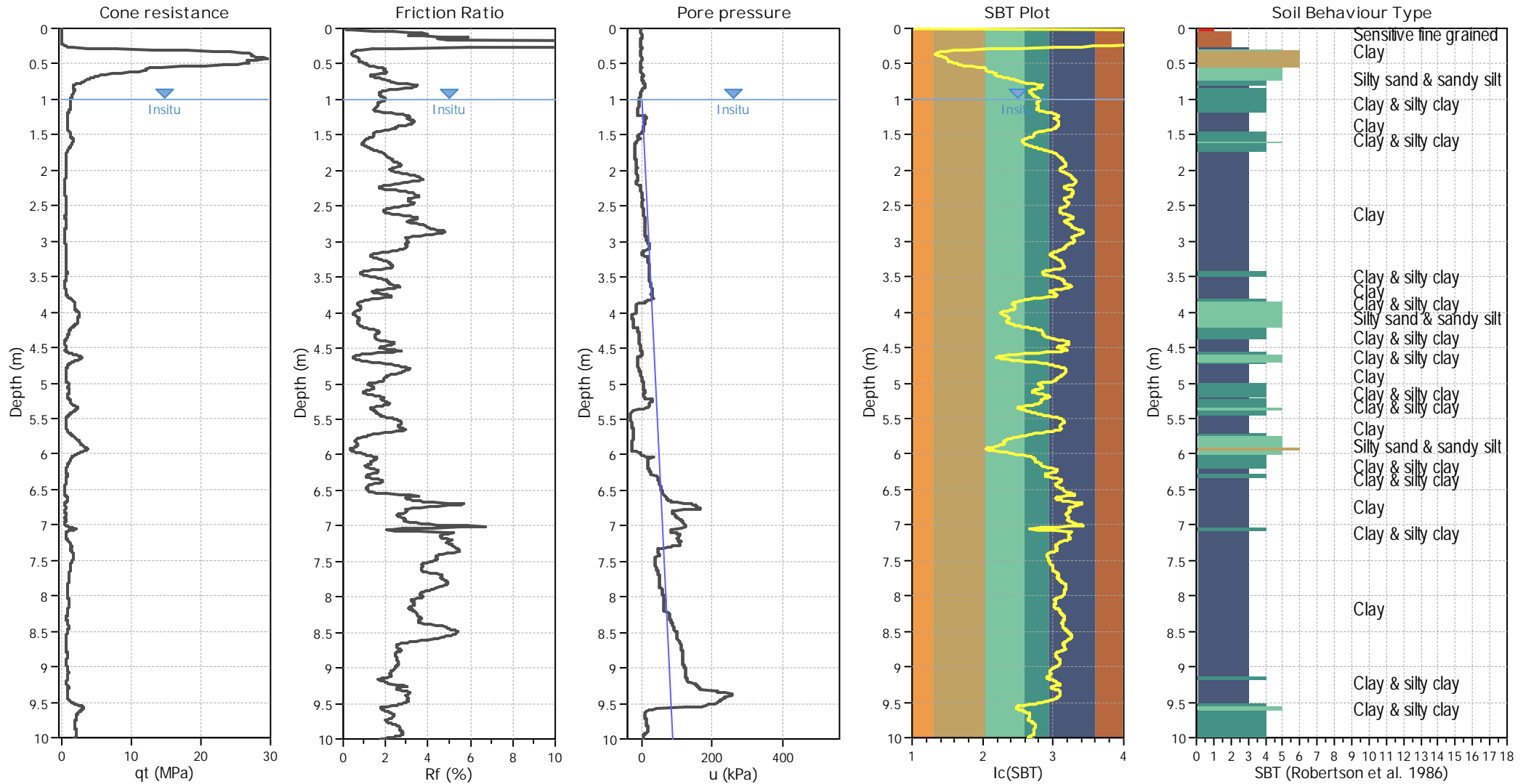
F.S. color scheme

- 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

CPT basic interpretation plots



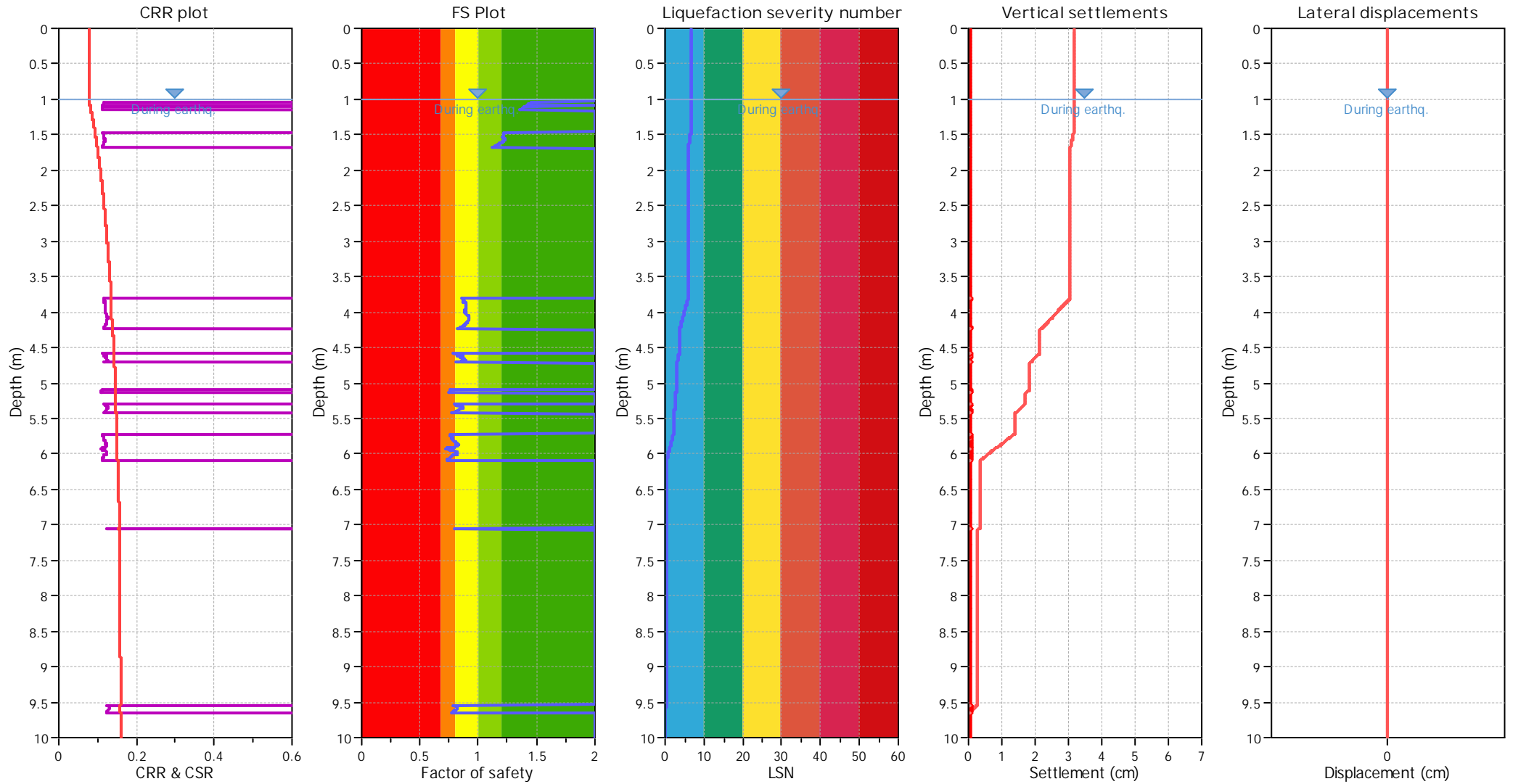
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_g applied:	Yes
Earthquake magnitude M_w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	10.00 m

SBT legend

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

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (earthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_q applied:	Yes
Earthquake magnitude M_w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	10.00 m

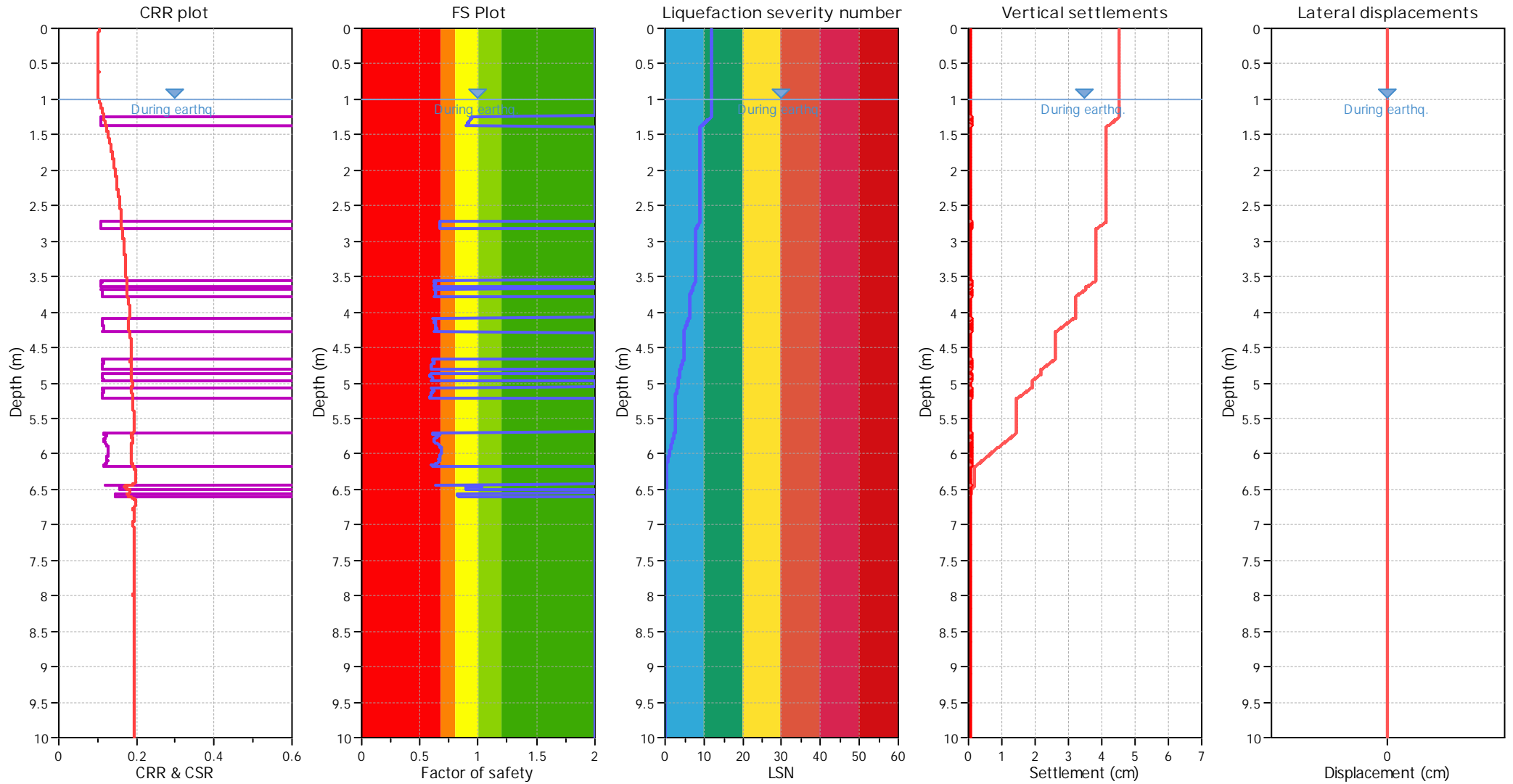
F.S. color scheme

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- Very likely to liquefy
- Liquefaction and no liq. are equally likely
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- 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 overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (earthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_d applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	10.00 m

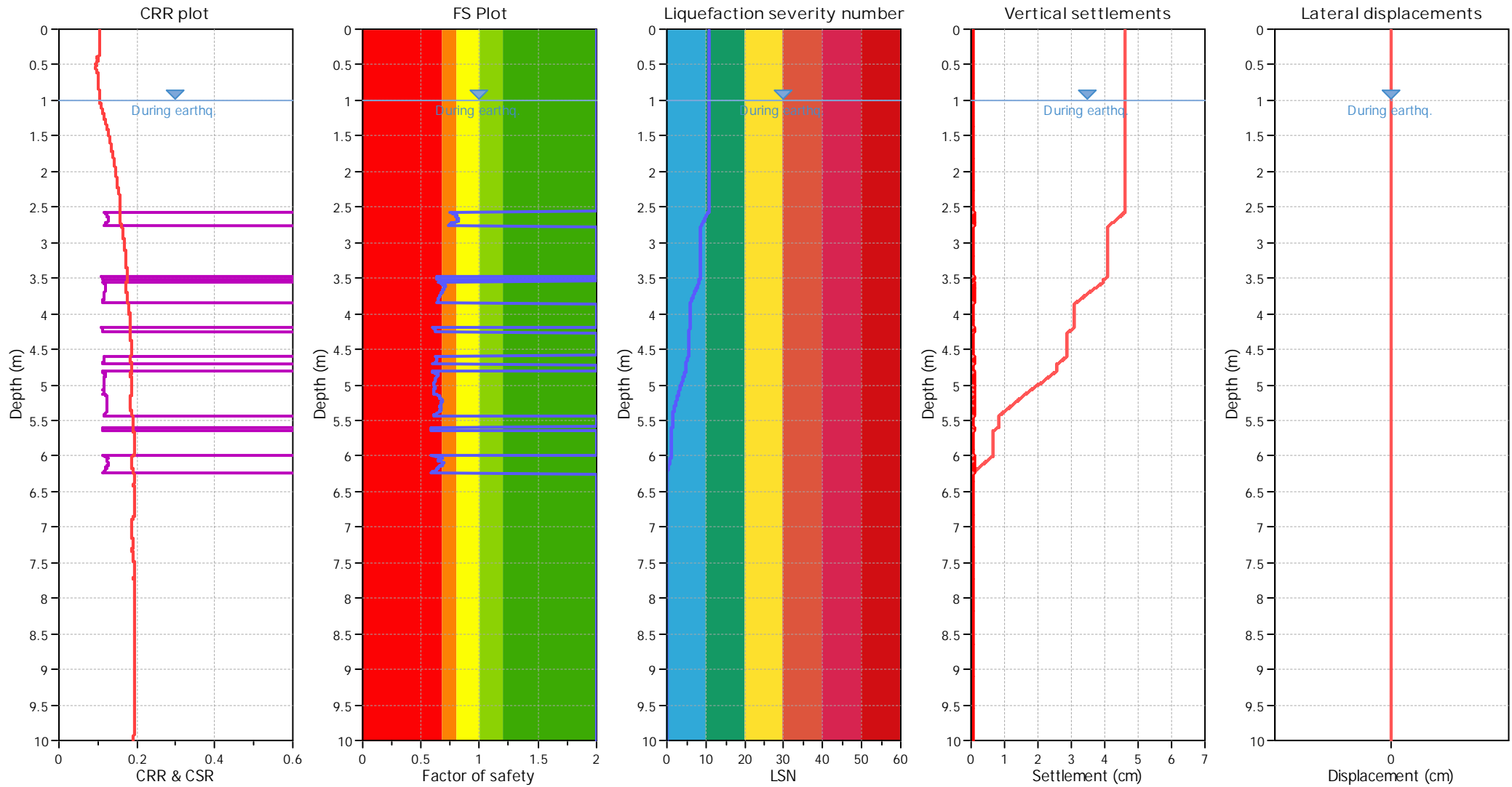
F.S. color scheme

- 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 overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_q applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	10.00 m

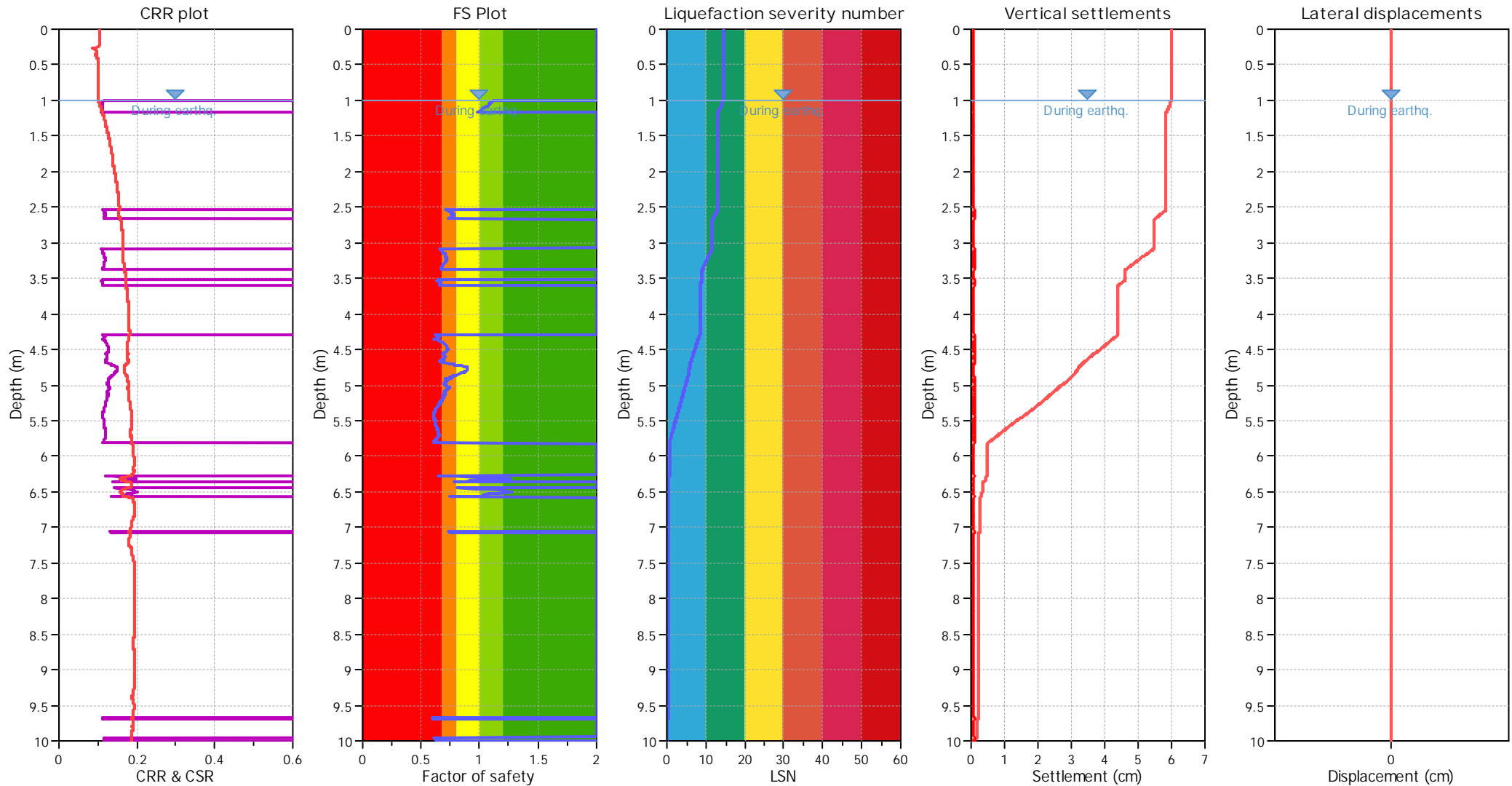
F.S. color scheme

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LSN color scheme

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- Moderate to severe exp. of liquefaction
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Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (earthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_q applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	10.00 m

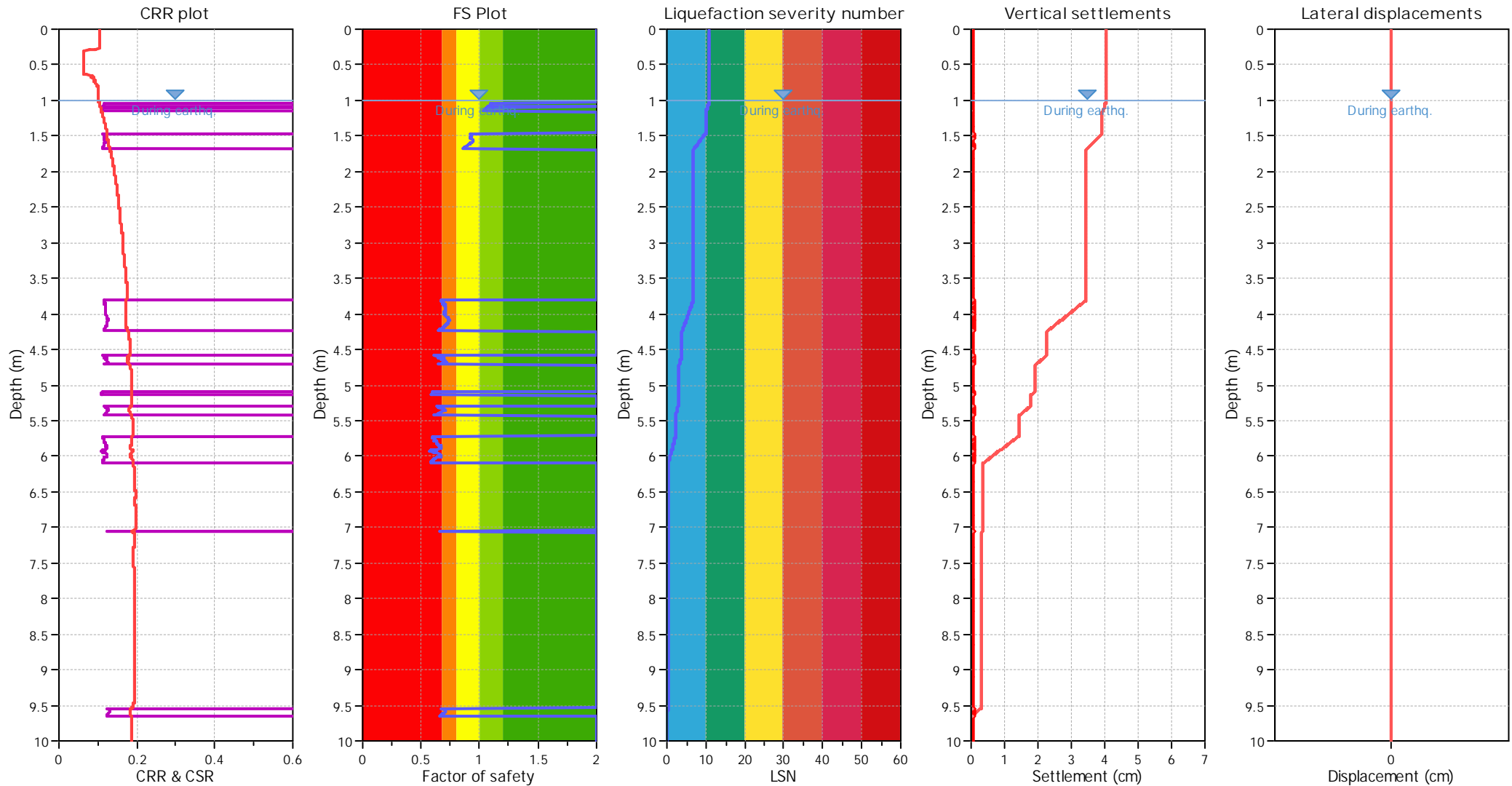
F.S. color scheme

■	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 overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (earthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_q applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	10.00 m

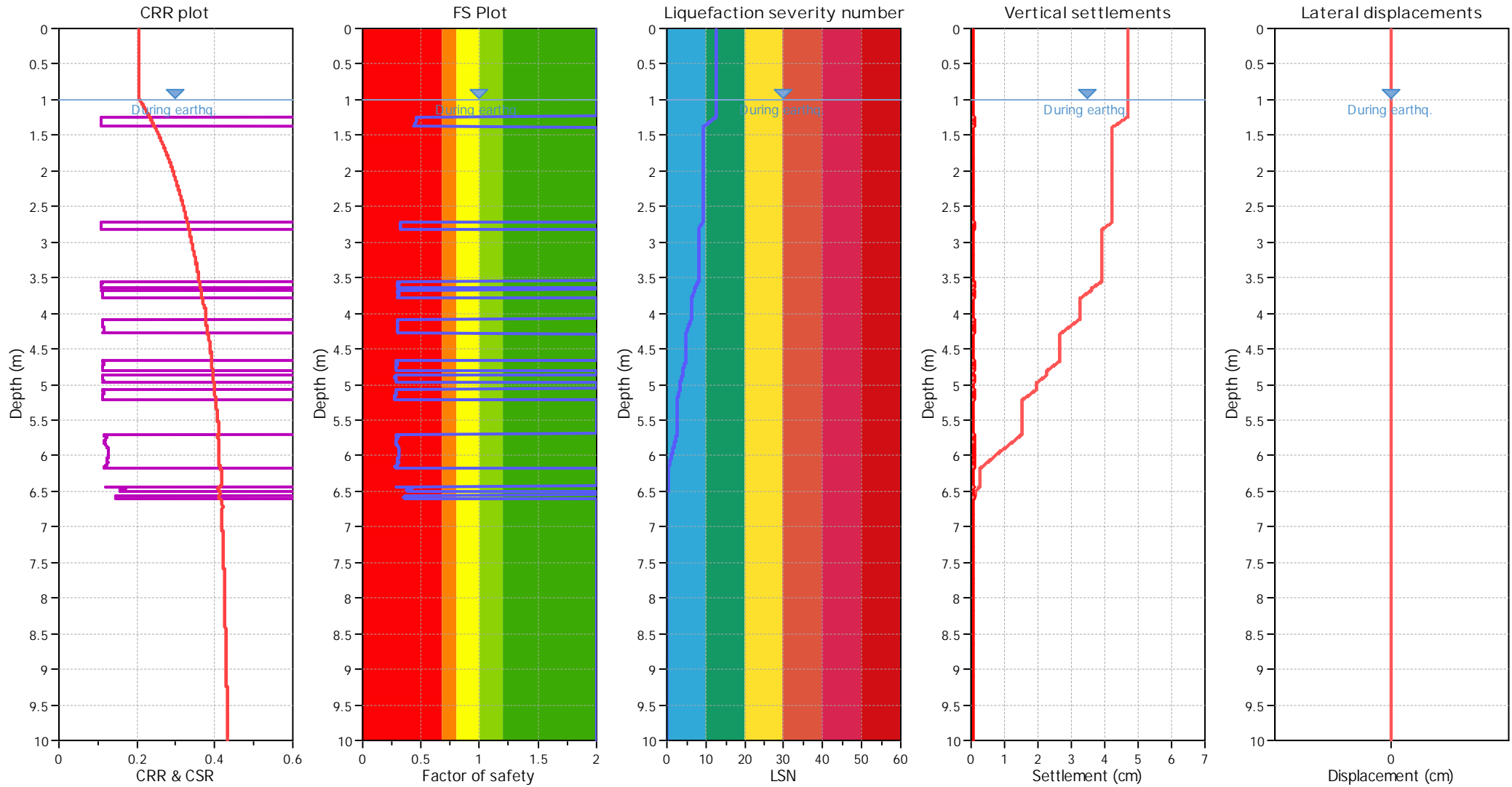
F.S. color scheme

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- Liquefaction and no liq. are equally likely
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Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (earthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_q applied:	Yes
Earthquake magnitude M_w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.35	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	10.00 m

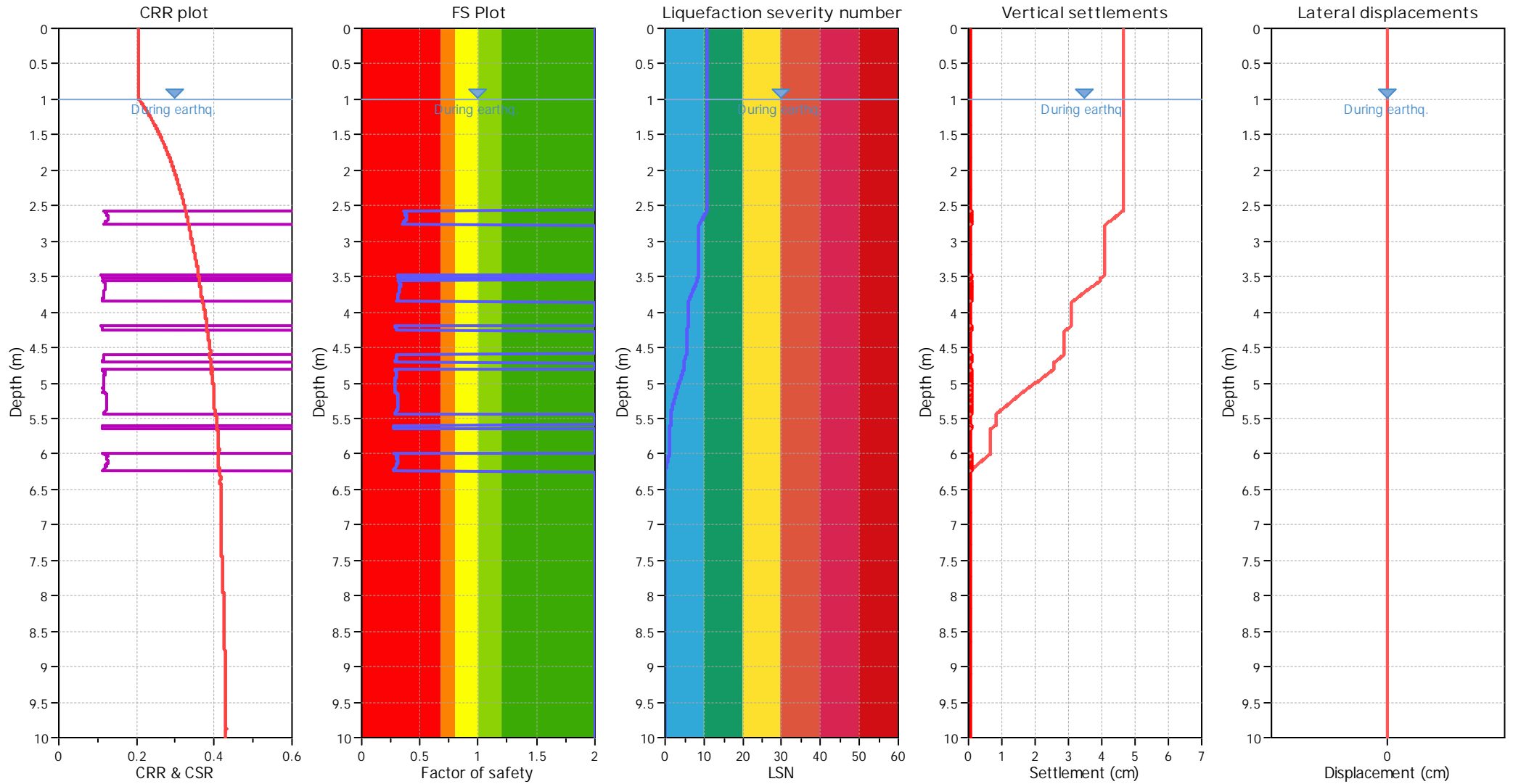
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Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_q applied:	Yes
Earthquake magnitude M_w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.35	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	10.00 m

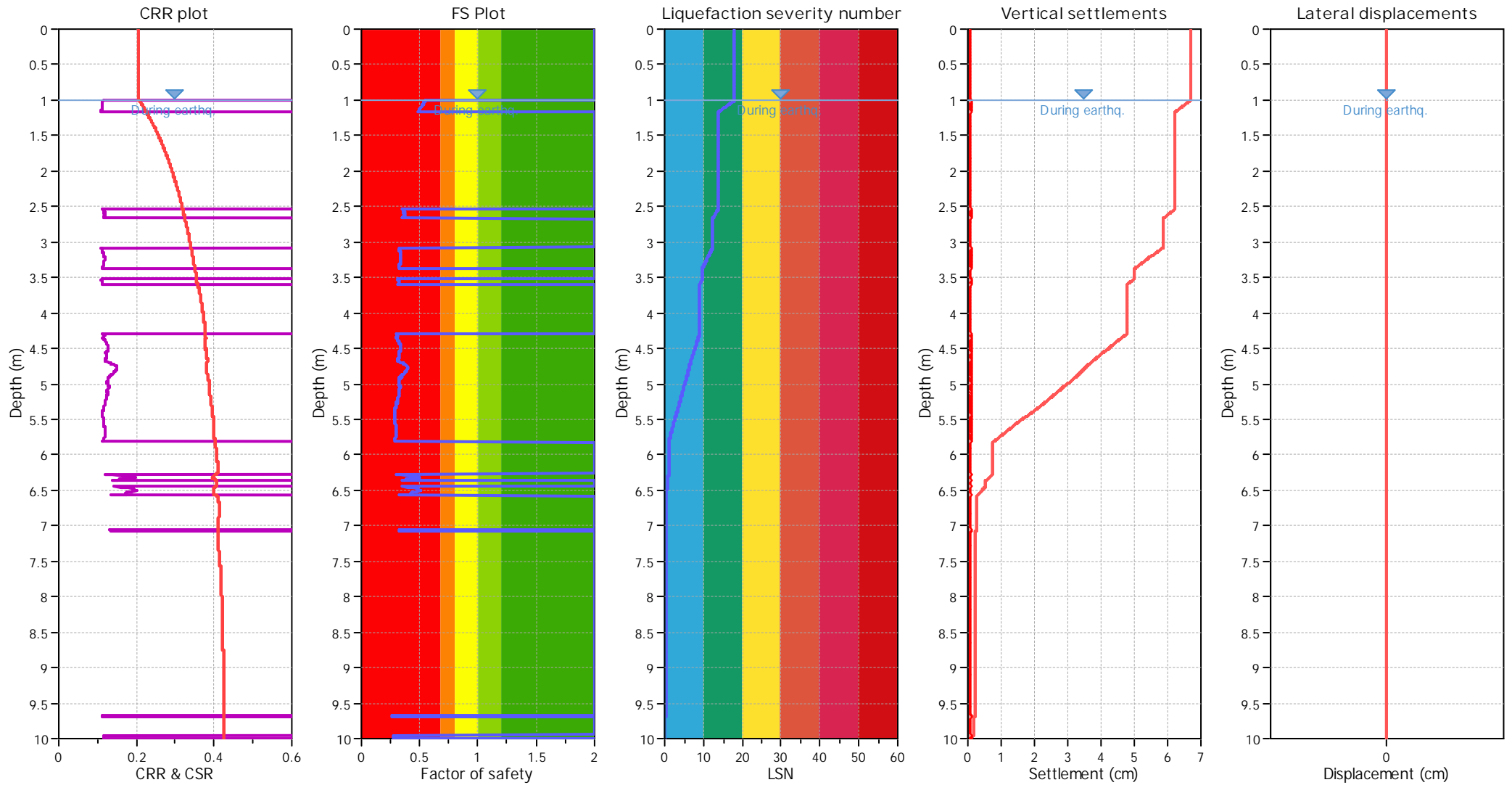
F.S. color scheme

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Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (earthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_q applied:	Yes
Earthquake magnitude M_w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.35	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	10.00 m

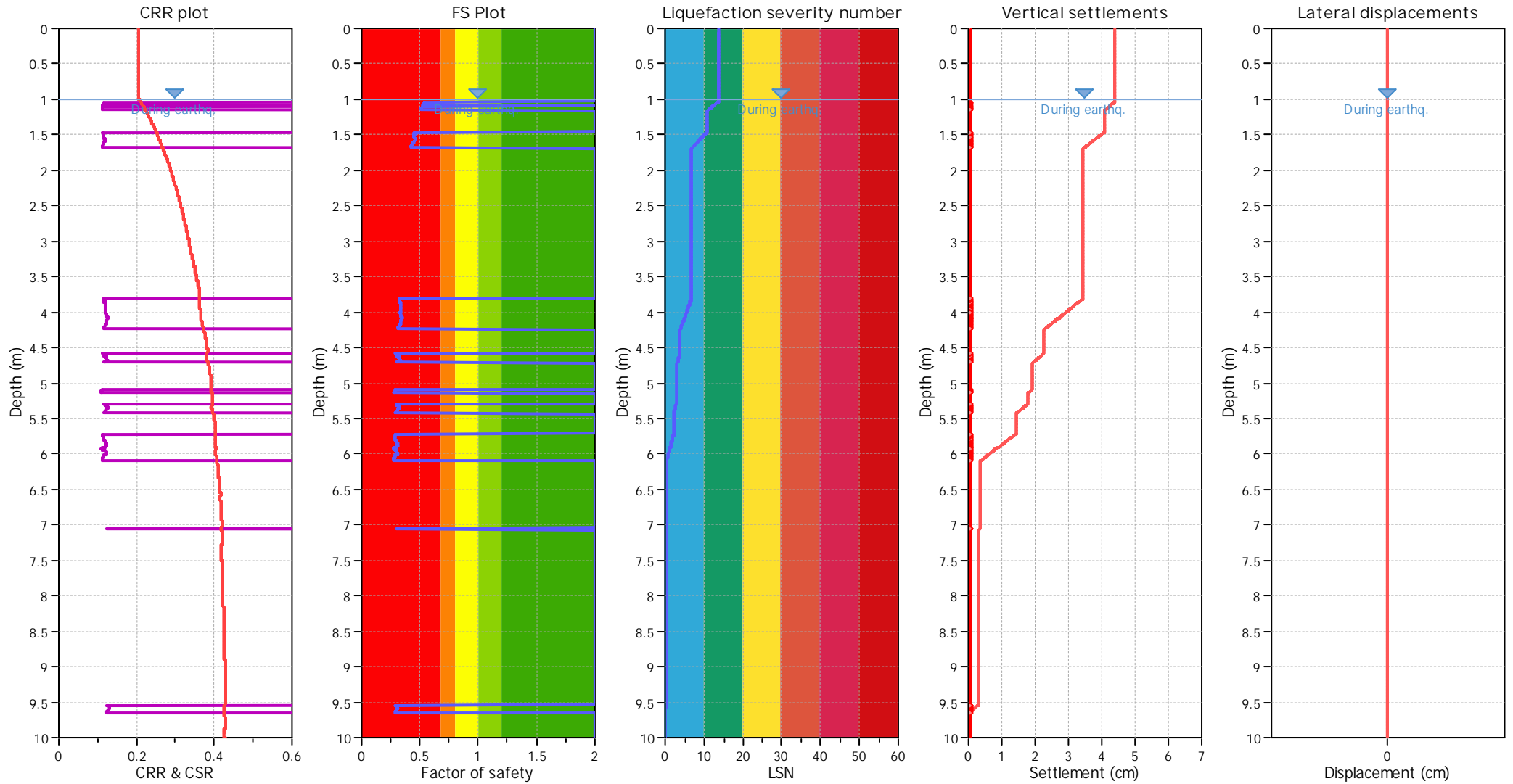
F.S. color scheme

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- 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
- Little to no expression of liquefaction

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (earthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_q applied:	Yes
Earthquake magnitude M_w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.35	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	10.00 m

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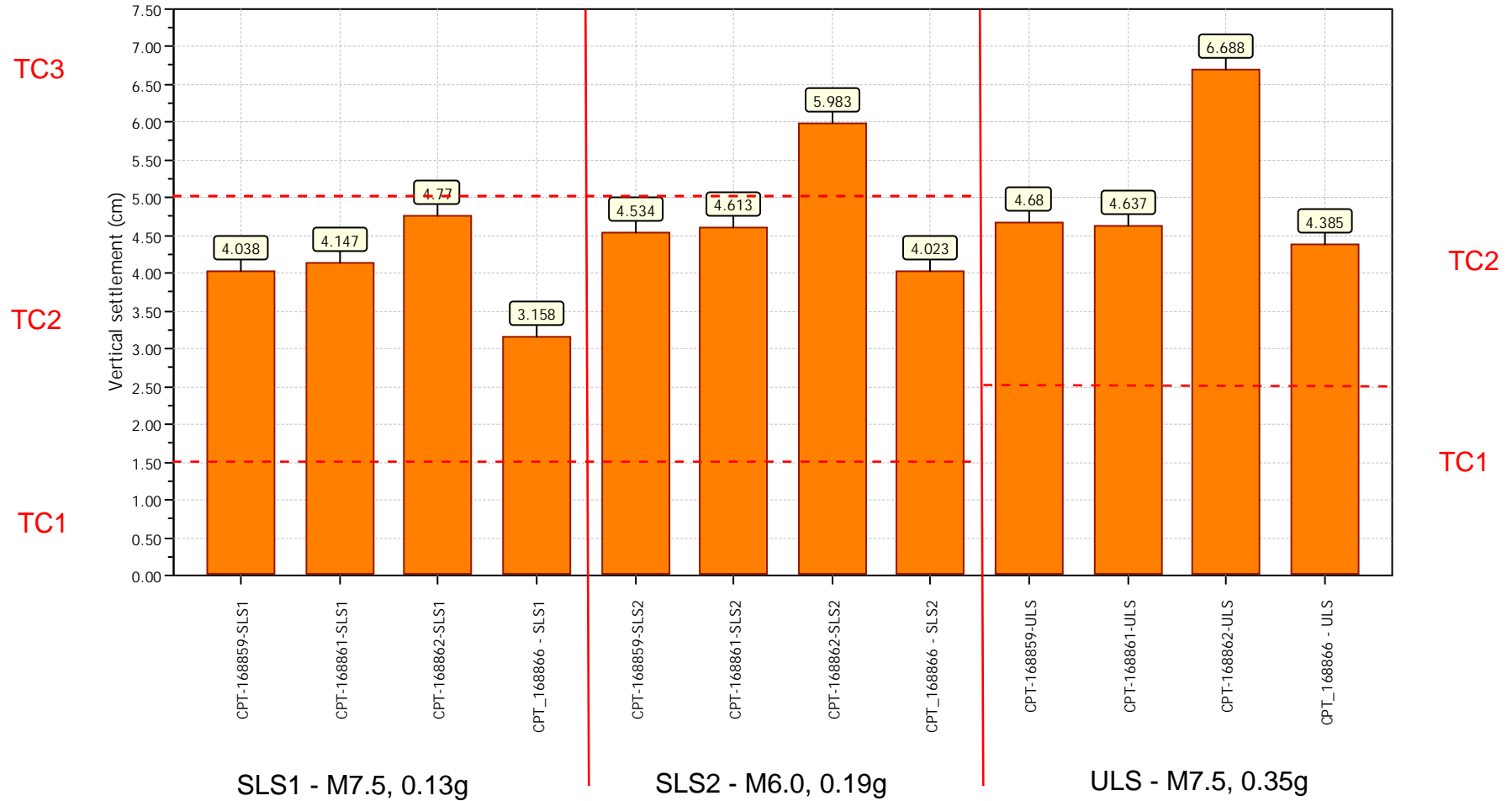
LSN color scheme

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

Project title : Liquefaction analysis - upper 10m

Location : 61 Belfast Road

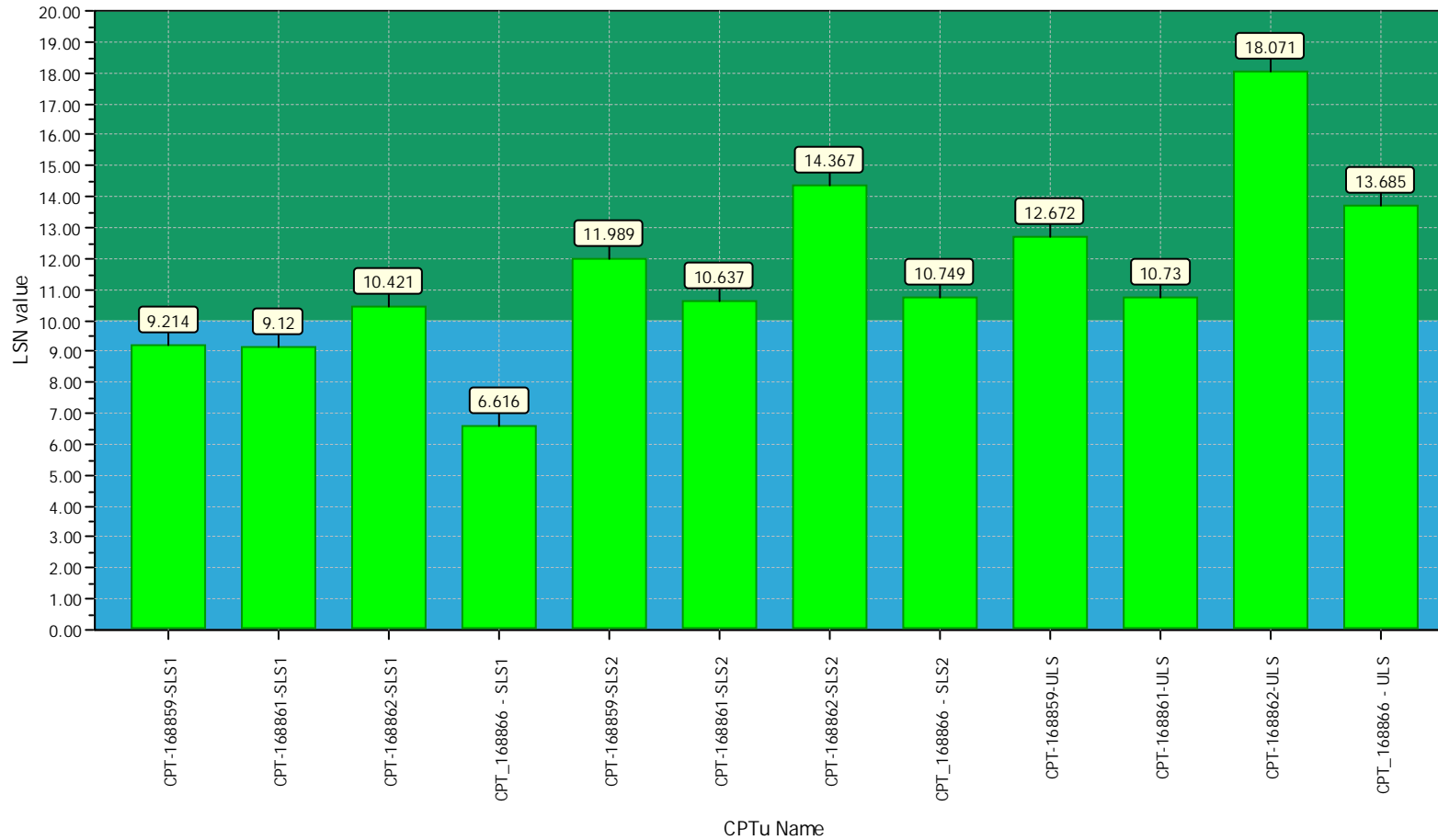
Index Settlements for the upper 10m



Project title : Liquefaction analysis - upper 10m

Location : 61 Belfast Road

Overall Liquefaction Severity Number report



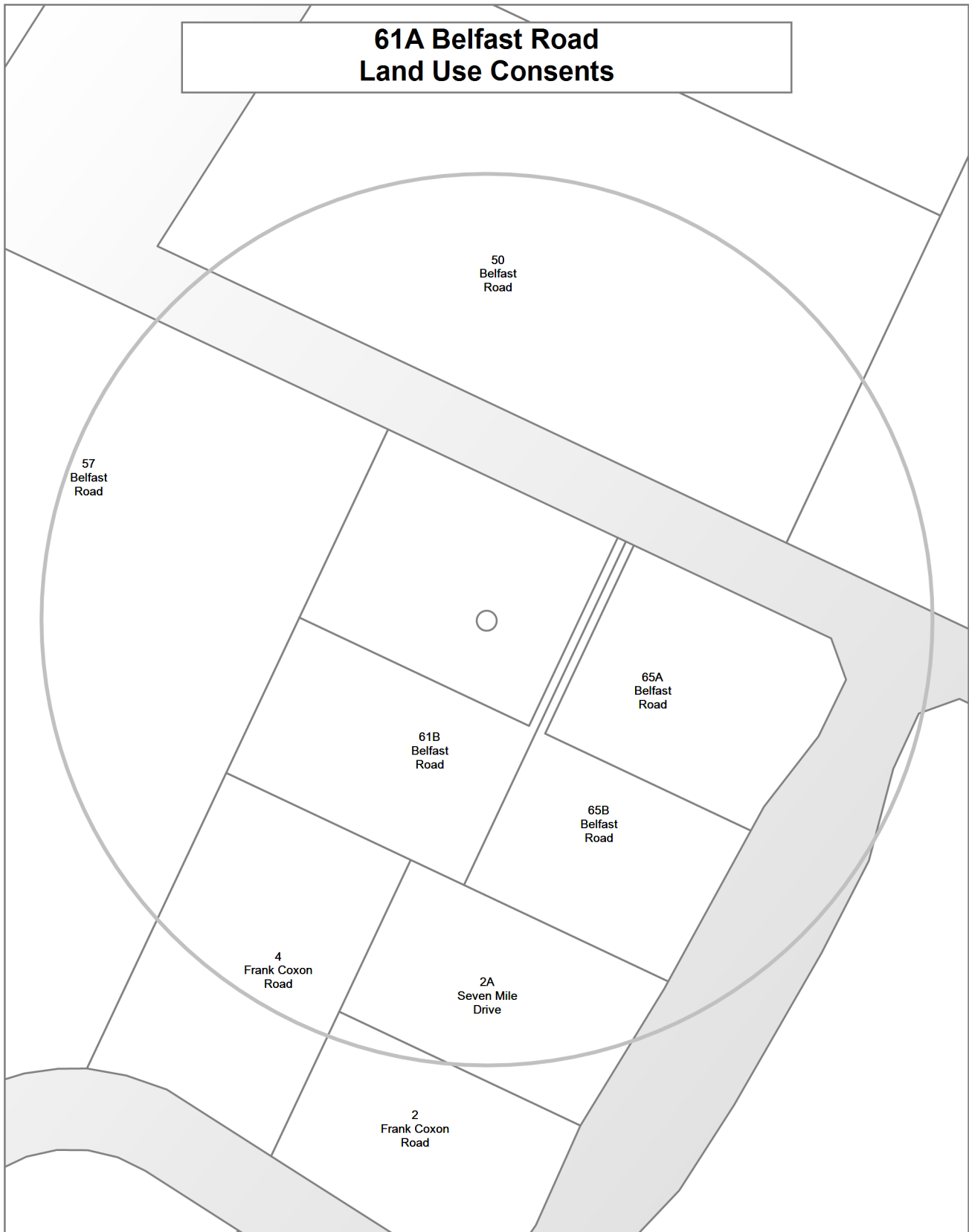
LSN color scheme

- 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

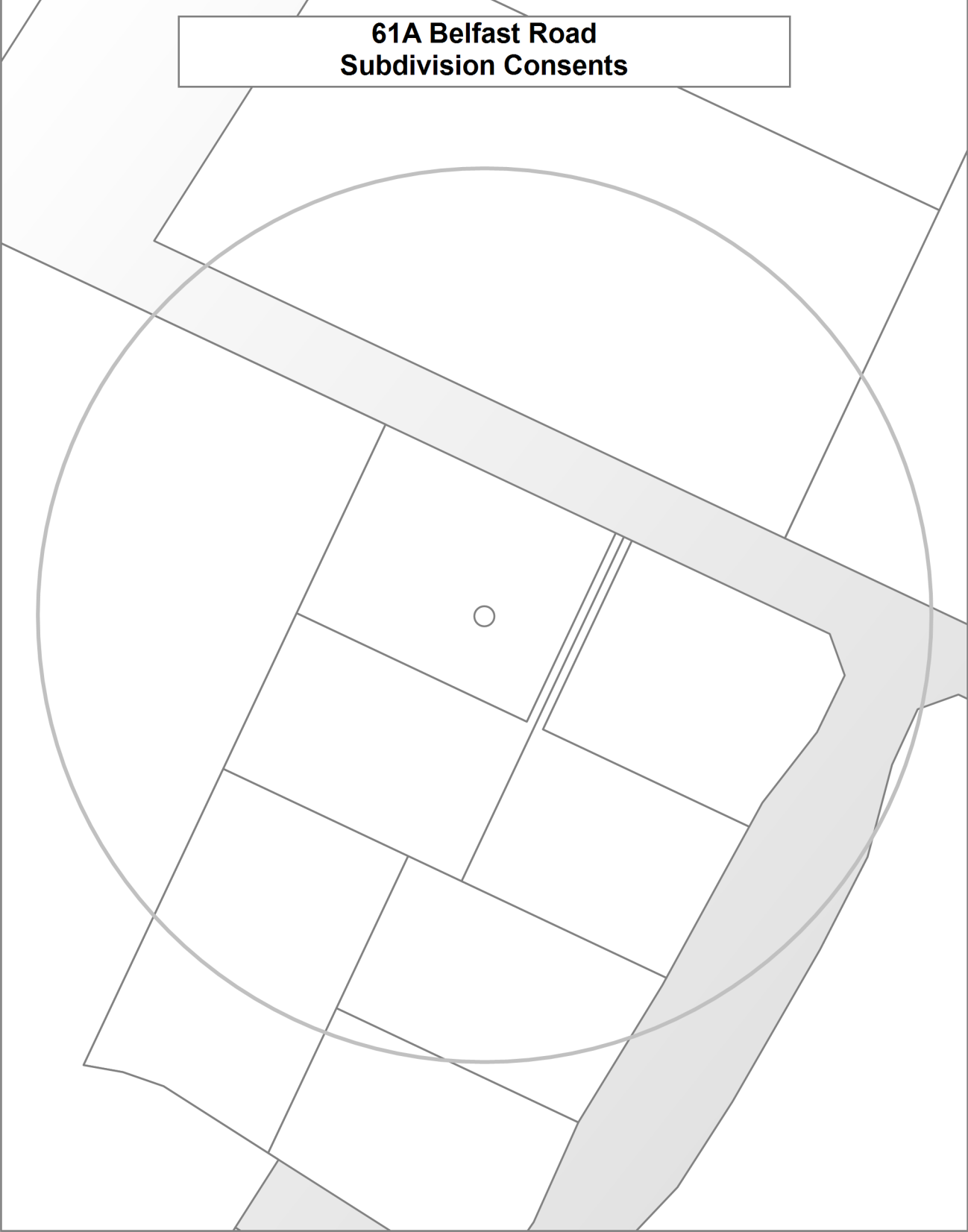
Basic statistics

- Total CPT number: 12
- 25% little liquefaction
- 75% minor liquefaction
- 0% moderate liquefaction
- 0% moderate to major liquefaction
- 0% major liquefaction
- 0% severe liquefaction

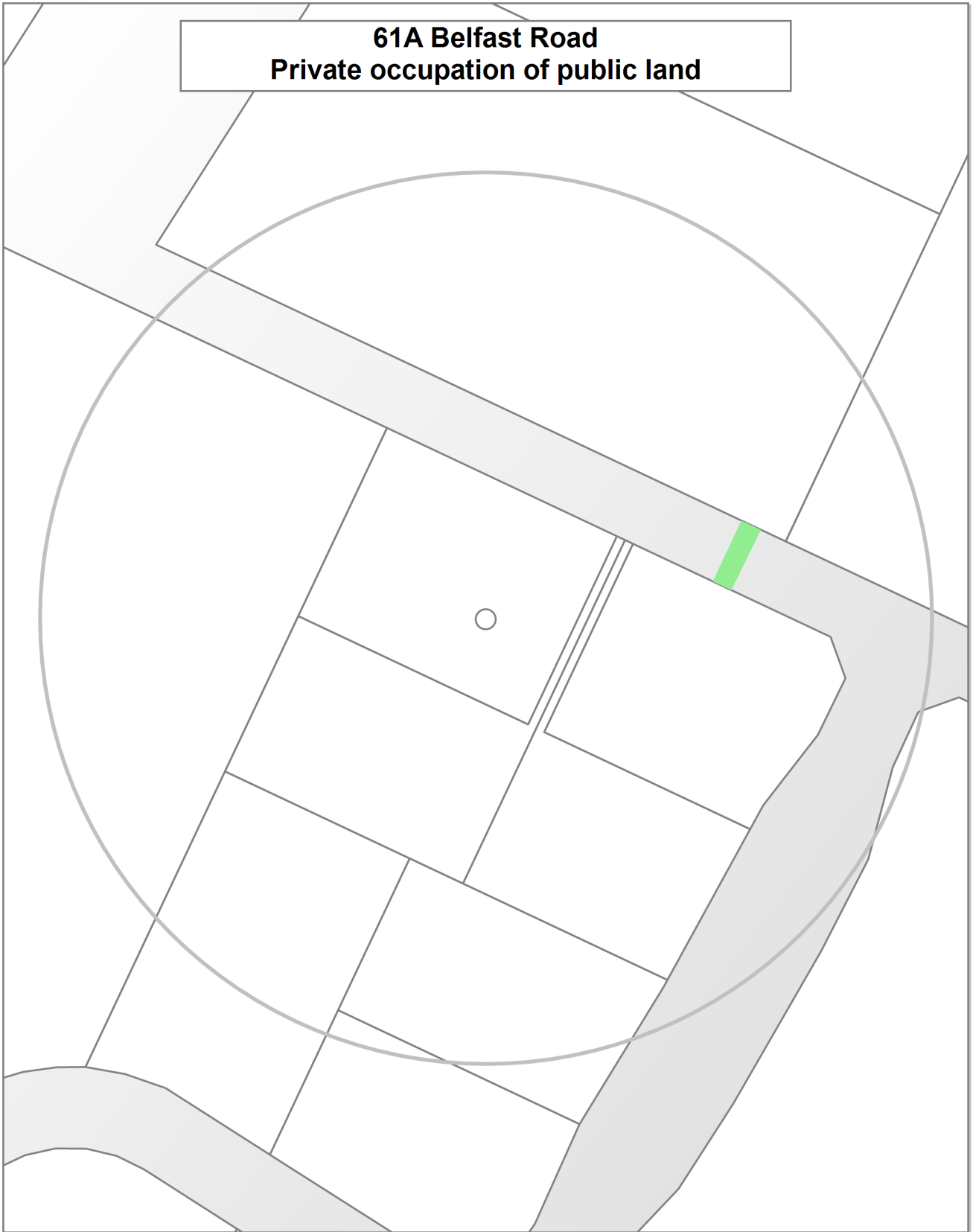
61A Belfast Road Land Use Consents



**61A Belfast Road
Subdivision Consents**



61A Belfast Road
Private occupation of public land



Land Use Resource Consents within 100 metres of 61A Belfast Road

Note: This list does not include subdivision Consents and Certificates of Compliance issued under the Resource Management Act.

2 Frank Coxon Road

RMA/2022/574

Fee simple subdivision in seven lots

Processing complete

Applied 02/03/2022

s223 Certificate issued 07/08/2023

s224 Certificate issued 25/09/2023

Decision issued 15/06/2022

Granted 15/06/2022

RMA/2022/600

Wastewater capacity certificate

Processing complete

Applied 03/03/2022

Certificate issued 16/03/2022

2A Seven Mile Drive

RMA/2022/574

Fee simple subdivision in seven lots

Processing complete

Applied 02/03/2022

s223 Certificate issued 07/08/2023

s224 Certificate issued 25/09/2023

Decision issued 15/06/2022

Granted 15/06/2022

RMA/2022/600

Wastewater capacity certificate

Processing complete

Applied 03/03/2022

Certificate issued 16/03/2022

4 Frank Coxon Road

RMA/2022/574

Fee simple subdivision in seven lots

Processing complete

Applied 02/03/2022

s223 Certificate issued 07/08/2023

s224 Certificate issued 25/09/2023

Decision issued 15/06/2022

Granted 15/06/2022

RMA/2022/600

Wastewater capacity certificate

Processing complete

Applied 03/03/2022

Certificate issued 16/03/2022

50 Belfast Road

RMA/2016/3680

Earthworks to replace topsoil with gravel and crushed concrete.

Processing complete

Applied 22/12/2016

Decision issued 25/05/2017

Granted 25/05/2017

RMA/2018/2957

Establish several prefabricated ancillary office buildings

Not accepted for processing

Applied 03/12/2018

Not accepted for processing 31/12/2018

RMA/2019/1603

To Establish Several Prefabricated Buildings on site

Processing complete

Applied 18/07/2019

Decision issued 25/09/2019

Granted 25/09/2019

RMA/2019/878

To Conduct Earthworks

Not accepted for processing

Applied 26/04/2019

Not accepted for processing 14/05/2019

57 Belfast Road

RMA/2018/1229

Partial Cancellation of Consent Notice Cono 10126965.8

Consent issued

Applied 22/05/2018

Amended decision issued - s133A 02/08/2018

Decision issued 08/06/2018

Granted 30/05/2018

RMA/2019/9

To Establish and Operate a Water Bottling and Distribution Plant with Associated Earthworks

Processing complete

Applied 21/12/2018

Decision issued 14/03/2019

Granted 25/03/2019

61B Belfast Road

RMA/2022/574

Fee simple subdivision in seven lots

Processing complete

Applied 02/03/2022

s223 Certificate issued 07/08/2023

s224 Certificate issued 25/09/2023

Decision issued 15/06/2022

Granted 15/06/2022

RMA/2022/600

Wastewater capacity certificate

Processing complete

Applied 03/03/2022

Certificate issued 16/03/2022

65A Belfast Road

RMA/2022/574

Fee simple subdivision in seven lots

Processing complete

Applied 02/03/2022

s223 Certificate issued 07/08/2023

s224 Certificate issued 25/09/2023

Decision issued 15/06/2022

Granted 15/06/2022

RMA/2022/600

Wastewater capacity certificate

Processing complete

Applied 03/03/2022

Certificate issued 16/03/2022

RMA/2026/632

Warehouse with Ancillary office/showroom

On hold - waiting for response from applicant

Applied 06/03/2026

65B Belfast Road

RMA/2022/574

Fee simple subdivision in seven lots

Processing complete

Applied 02/03/2022

s223 Certificate issued 07/08/2023

s224 Certificate issued 25/09/2023

Decision issued 15/06/2022

Granted 15/06/2022

RMA/2022/600

Wastewater capacity certificate

Processing complete

Applied 03/03/2022

Certificate issued 16/03/2022

67 Belfast Road

RMA/2017/2500

s241 Cancellation of amalgamation condition

Processing complete

Applied 09/10/2017

Certificate issued 16/11/2017

Data Quality Statement

Land Use Consents

All resource consents are shown for sites that have been labelled with an address. For sites that have been labelled with a cross (+) no resource consents have been found. Sites that have no label have not been checked for resource consents. This will be particularly noticeable on the margins of the search radius. If there are such sites and you would like them included in the check, please ask for the LIM spatial query to be rerun accordingly. This will be done free of charge although there may be a short delay. Resource consents which are on land occupied by roads, railways or rivers are not, and currently cannot be displayed, either on the map or in the list. Resource consents that relate to land that has since been subdivided, will be shown in the list, but not on the map. They will be under the address of the land as it was at the time the resource consent was applied for. Resource consents that are listed as Non-notified and are current, may in fact be notified resource consents that have not yet been through the notification process. If in doubt. Please phone (03)941 8999.

The term "resource consents" in this context means land use consents. Subdivision consents and certificates of compliance are excluded.

Subdivision Consents

All subdivision consents are shown for the sites that have been labelled with consent details. For Sites that have been labelled with a cross (+) no records have been found. Sites that have no label have not been checked for subdivision consents. This will be particularly noticeable on the margins of the search radius. If there are such sites and you would like them included in the check, please ask for the LIM spatial query to be rerun accordingly. This will be done free of charge although there may be a short delay.

The term "subdivision consents" in this context means a resource consent application to subdivide land. Non subdivision land use resource consents and certificates of compliance are excluded.

This report will only record those subdivision applications which have not been completed i.e once a subdivision has been given effect to and the new lots/properties have been established the application which created those lots will not be shown

All subdivision consent information is contained on the map and no separate list is supplied