



Land Information Memorandum



Property address:

5/80 Mackworth Street

LIM number: H10246001

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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

Application details

Date issued 11 August 2026
Date received 4 August 2026

Property details

Property address 5/80 Mackworth Street, Linwood, Christchurch
Valuation roll number 22451 91405
Valuation information Capital Value: \$525,000
Land Value: \$190,000
Improvements Value: \$335,000
Please note: these values are intended for Rating purposes
Legal description Lot 5 DP 584754
Lot 6 DP 584754
Existing owner BM Trustees Limited
Richard Charlie Grimsdale

Grimsdale Trust
22 Margaret Reeve Lane
Waiheke Island 1971

Council references

Rate account ID 73208812
LIM number H10246001
Property ID 1200633

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

- Coastal Hazard Inundation

The Council has a report, Coastal Hazard Assessment for Christchurch and Banks Peninsula (2017), that indicates this property or part of this property may be susceptible to coastal flooding (flooding by the sea). The 2017 report considers four sea level rise scenarios through to the year 2120. A copy of the 2017 report and other coastal hazard information can be found at <https://ccc.govt.nz/environment/coast/adapting-to-coastal-hazards/coastalhazards>.

The rate of sea level rise in this area may also be impacted by vertical land movement (a faster rate where land is moving downwards, and a slower rate where land is moving upwards). To find out how your area might be affected go to https://ccc.govt.nz/assets/Documents/Environment/Coast/Canterbury-VLM-and-Implications-for-Future-SLR-2025_FINAL.pdf or for more information go to <https://ccc.govt.nz/assets/Documents/Environment/Coast/Factsheets/VLM-and-sea-level-rise-factsheet-Sep-2025.pdf>

Title of Report: Coastal Hazard Assessment for Christchurch and Banks Peninsula (2017)

Purpose of report: To assess the extent to which coastal hazards will impact the Christchurch District under various future sea level rise projections

Scope of Report: District-wide

Where or how to access the report: <https://www.ccc.govt.nz/assets/Documents/Environment/Land/Coastal-Hazards/2017-Coastal-Hazards-Report.pdf>

Date of report: October 2017

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

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

Title of Report: Co-seismic and post-seismic rates of vertical land movement in the Canterbury Region and implications for future changes in sea level

Purpose of report: To build on the 2023/24 reports, by providing a district-wide analysis, filling key knowledge gaps and utilising a more recent and robust satellite data set.

Scope of Report: The Christchurch District and the coastal zone of the wider Canterbury region.

Where or how to access the report: (link to report or spatial portal)

Date of report: 16th April 2025

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

The name of person/entity that prepared the report: GNS Science

- 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.

(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.linz.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=b5f859bd18ee4912828cb092b6f6c449>.

(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 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.

(f) Tsunamis

- Property located in Tsunami Risk Zone

This property may be affected by flooding by some tsunami scenarios as shown in reports by GNS and NIWA commissioned by ECan and CCC. Links to reports can be found at <https://ccc.govt.nz/tsunami-evacuation-zones-and-routes/> and on ECan's web site <https://www.ecan.govt.nz> by searching for the terms tsunami hazard.

Title of Report: Multiple scenario tsunami modelling for Canterbury, GNS Science Consultancy Report 2018/198 November 2019

Purpose of report: Modelled inundation of the southern Pegasus Bay coast and Lyttelton Harbour in multiple local, regional and distant tsunami scenarios.

Scope of Report: Christchurch coast from Purau to Pines/Kairaki Beach

Where or how to access the report: <https://www.ecan.govt.nz/document/download?uri=3752435>

Date of report: November 2019

Name of person/entity that commissioned report: Environment Canterbury

The name of person/entity that prepared the report: GNS Science

Title of Report: Multiple scenario tsunami modelling for northern Pegasus Bay and northern Banks Peninsula Bays, GNS Science Consultancy Report 2020/136 November 2020

Purpose of report: Modelled inundation of northern Banks Peninsula coast in multiple local, regional and distant tsunami scenarios.

Scope of Report: Banks Peninsula from Godley Head to Le Bons Bay

Where or how to access the report: <https://www.ecan.govt.nz/document/download?uri=3996252>

Date of report: November 2020

Name of person/entity that commissioned report: Environment Canterbury

The name of person/entity that prepared the report: GNS Science

Title of Report: Multiple scenario tsunami modelling for the Selwyn Coastline, Kaitorete Barrier and Akaroa Harbour, GNS Science Consultancy Report 2020/47 November 2020

Purpose of report: Modelled inundation of southern Banks Peninsula coast and Kaitorete Barrier in multiple local, regional and distant tsunami scenarios.

Scope of Report: Banks Peninsula and Kaitorete Barrier, from Le Bons Bay to Taumutu

Where or how to access the report: <https://www.ecan.govt.nz/document/download?uri=3996251>

Date of report: November 2020

Name of person/entity that commissioned report: Environment Canterbury

The name of person/entity that prepared the report: GNS Science

Title of Report: Land Drainage Recovery Programme: Tsunami Study

Purpose of report: Modelled inundation of the Christchurch City coast in 500 and 2500 year return period tsunami scenarios.

Scope of Report: Christchurch City from Waimakariri River Mouth to Taylors Mistake

Where or how to access the report: <https://ccc.govt.nz/assets/Documents/Environment/Water/Flooding-Land-Drainage/Tsunami-Study-Final-report-June-19.pdf>

Date of report: February 2018

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

The name of person/entity that prepared the report: NIWA

Title of Report: Tsunami inundation modelling for Lyttelton and Akaroa Harbours NIWA Client Report No: 2018111CH May 2018

Purpose of report: Modelled inundation of Lyttelton and Akaroa Harbours in a 500 year return period tsunami scenario.

Scope of Report: Lyttelton Harbour from Godley Head to Adderley Head and Akaroa Harbour from Timutimu Head to Akaroa Head

Where or how to access the report: <https://ccc.govt.nz/assets/Documents/Consents-and-Licences/property-information-and-lims/Tsunami-inundation-modelling-for-Lyttelton-and-Akaroa-Harbours-1-500-year-event-from-South-America-NIWA.pdf>

Date of report: May 2018

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

The name of person/entity that prepared the report: NIWA

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(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

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

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

- This property is shown to be served by Christchurch City Council Sewer
- The council plan shows no public stormwater lateral plotted to this site.
- 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.

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.

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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 30/06/2027: \$3,451.54

	Instalment Amount	Date Due
Instalment 1	\$862.81	15/09/2026
Instalment 2	\$862.81	15/12/2026
Instalment 3	\$862.81	15/03/2027
Instalment 4	\$863.11	15/06/2027

Rates owing as at 11/08/2026: \$862.81

(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/1954/2549 Applied: 01/09/1954 Status: Completed
1/80 Mackworth Street Linwood
Permit issued 08/09/1954
SHED- Historical Reference PER5450277
- BCN/1967/2204 Applied: 27/04/1967 Status: Completed
1/80 Mackworth Street Linwood
Permit issued 09/06/1967
STUCCO- Historical Reference PER6768487
- BCN/2022/2085 Applied: 31/03/2022 Status: Completed
1/80 Mackworth Street Linwood
Accepted for processing 04/04/2022
Building consent granted 22/07/2022
Building consent issued 27/07/2022
Code Compliance Certificate Issued 30/08/2023
Construction of 5 attached dwellings within 2 blocks

(b) Certificates

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

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(c) Notices

(d) Orders

(e) Requisitions

Related Information

- Please find an electrical certificate/s attached relating to works that have been carried out on the current building/dwelling 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.

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

- **Qualifying Matter**

Property or part of property within the Tsunami Management Area qualifying matter, 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 Medium density residential zone, which is operative.

- **District Plan Zone**

Property or part of property within the Residential Suburban Density Transition Zone, which is operative.

- **Flood Management Area**

Property or part of property within the Flood Management Area (FMA) Overlay which is operative.

- **Fixed Minimum Floor Overlay**

This property or parts of the property are located within the Fixed Minimum Floor Overlay level in the Christchurch District Plan, which is operative. Under this plan pre-set minimum floor level requirements apply to new buildings and additions to existing buildings. The fixed minimum floor level can be searched at <http://ccc.govt.nz/floorlevelmap>. For more information please contact a CCC duty planner on 941 8999.

(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.

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- RMA/2021/3061 - Land Use Consent
80 Mackworth Street Linwood
Construct a multi-unit residential complex of five units with associated parking
Status: Processing complete
Applied 15/09/2021
Granted 30/11/2021
Decision issued 30/11/2021
- RMA/2022/3339 - Combined subdivision / land use consent
80 Mackworth Street Linwood
Subdivision - Fee simple - Five lots with land use
Status: Processing complete
Applied 27/10/2022
Granted 08/12/2022
Decision issued 08/12/2022
s223 Certificate issued 14/12/2022
s224 Certificate issued 15/08/2023

(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

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

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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**

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 Monday. Please leave your organics at the Kerbside by 6:00 a.m.
- Your recycling is collected Fortnightly on the Week 1 collection cycle on a Monday. Please leave your recycling at the Kerbside by 6:00 a.m. Your nearest recycling depot is the Metro Place EcoDrop.
- Your refuse is collected Fortnightly on the Week 1 collection cycle on a Monday. Please leave your rubbish at the Kerbside by 6:00 a.m. Your nearest rubbish depot is the Metro Place 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.

• Guest Accommodation

Guest accommodation (including whole unit listings on Airbnb; BookaBach; etc.) generally requires a resource consent in this zone when the owner is not residing on the site. For more information, please refer to: <https://ccc.govt.nz/providing-guest-accommodation/>.

• Community Board

Property located in Coastal-Burwood-Linwood Community Board.

• Tsunami Evacuation Zone

This property is in the yellow tsunami evacuation zone. It could potentially be flooded only in a large distant source tsunami. Evacuation is not necessary after a long or strong earthquake. Evacuation is only necessary under an official Civil Defence Tsunami Warning to evacuate the yellow zone. Tsunami sirens should prompt turning on the radio or visiting <https://ccc.govt.nz/services/civil-defence>. Stay out of the zone until told it is safe to go back. For more information visit <https://ccc.govt.nz/services/civil-defence/hazards/tsunami-evacuation-zones-and-routes/>

• Electoral Ward

Property located in Linwood 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

Property address:

5/80 Mackworth Street

LIM number: H10246001

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Christchurch City Council

53 Hereford Street, PO Box 73015
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- **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.

80 Mackworth Street,
Woolston, Christchurch

Geotechnical Report

Prepared for: Moreover Holdings Limited

Attention: Nigel Lundy

Project 50142 - Rev 0 - 25/08/2021

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Civil | Structural | Geotechnical | Environmental | Fire

Revision	Date	Engineer	Description
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Limitations of Report

Except where required by law, the findings presented as part of this report are for the sole use of our client, as noted above. The findings are not intended for use by other parties, and may not contain sufficient information for the purposes of other parties or other uses. No third party (excluding the local authority) may use or rely upon this report unless authorised by EDC in writing.

To the extent permitted by law, EDC expressly disclaims and excludes liability for any loss, damage, cost or expense suffered by any third party relating to or resulting from the use of, or reliance upon any information contained in this report. It is the responsibility of third parties to independently make enquiries or seek advice in relation to their particular requirements.

Our professional services are performed using a degree of care and skill normally exercised, under similar circumstances, by reputable consultants practicing in this field at this time. No other warranty, expressed or implied, is made as to the professional advice presented in this report, in regard to its accuracy or completeness.

Our opinions and recommendations are based on our comprehension of the current regulatory standards and must not be considered legal opinions. For legal advice, please consult your solicitor. This opinion is not intended to be advice that is covered by the Financial Advisors Act 2010.

The recommendations and opinions contained in this report are based on our visual reconnaissance of the site, information from geological maps and upon data from the field investigation as well as the results of in situ testing of soil. Inferences are made about the nature and continuity of subsoils away from and beyond the exploratory holes which cannot be guaranteed. The descriptions detailed on the exploratory hole logs are based on the field descriptions of the soils encountered.

This report includes Appendices. These appendices should be read in conjunction with the main part of the report and this report should not be considered complete without them.

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Appendix A

Listed Land Use Register Results

Appendix B

Hand Auger & Scala Penetrometer Logs

Appendix C

CPT Soil Behaviour Type

Appendix D

Ultimate Bearing Capacity Graph

Appendix E

CPT CLiq Data

Appendix F

Statement of Professional Opinion

1.0 INTRODUCTION

1.1 Terms of Reference

Engineering Design Consultants Ltd (EDC) was commissioned by Moreover Holdings Limited on 08 July 2021 to provide a combined Resource Consent and Building Consent stage geotechnical report for the proposed residential development at 80 Mackworth Street, Woolston, Christchurch (Lot 5 DP 9945), henceforth referred to as 'the site'.

1.2 Proposed Development/Works

It is our understanding that it is proposed to demolish the existing residential building and construct Multi-Unit Buildings (MUB's). No proposed layout has been received.

1.3 Objective/Scope

The objective of this report is to assess potential geotechnical constraints (as per Section 106 of the Resource Management Act), provide foundation type recommendations and geotechnical parameters for design.

In order to achieve the outlined objectives this geotechnical investigation comprised the following scope:

- A geotechnical desktop study to review geological mapping and geotechnical information resources.
- A review of freely-available historical aerial photographs.
- A site walkover.
- A shallow intrusive investigation comprising hand auger boreholes and Scala Penetrometer tests.
- A deep machine investigation comprising Cone Penetration Testing and subsequent liquefaction analysis.
- A Resource Management Act Section 106 assessment and provision of a Geotechnical Statement of Professional Opinion.
- Provision of an interpretive report summarising the above and providing geotechnical parameters for foundation design of the proposed development.

2.0 SITE DESCRIPTION

2.1 Site Location

The site is rectangular in shape, extending southeast from Mackworth Street and covers a total area of approximately 809m². The Google Earth coordinates of the approximate centre of the site are: 43°32'24.04"S, 172°40'24.18"E.



Figure 1: Site Aerial Photo (Courtesy of Canterbury Maps)

2.2 Site Walkover

The site is generally flat, approximately rectangular in shape and is bordered by Mackworth Street to the northwest and residential units to the south, north and east. The following summarises the EDC site walkover:

- The site is currently occupied by a single-storey residential dwelling with lightweight stucco cladding and lightweight sheet metal roofing. The foundations of the dwelling consist of internal piles and a concrete perimeter foundation (MBIE Type B1).
- There is an attached car-port structure and a detached small shed to the southeast of the dwelling that are both founded on a concrete slab-on-grade foundation (MBIE Type C).
- The rest of the site is generally lawned with grass and has various mature trees along the boundary fence.

No ground damage was evident at the time of EDC's site visit (19/07/2021). Figures 2, 3, 4 and 5 show the site, taken during the EDC site walkover:



Figure 2: View of the entrance to the site (Looking Southeast)



Figure 3: View of the carport and attached shed (Looking Southeast)



Figure 4: View of the rear garden (Looking Southeast)



Figure 5: View of the rear garden (Looking Northwest)

3.0 SITE HISTORY

3.1 Historical Aerial Mapping

Historical aerial photographs available on Environment Canterbury's (ECan) GIS database (Environment Canterbury, 2016) have been reviewed by EDC for the years 1940 through to the present. This review indicated that:

- The existing residential dwelling was constructed pre-1940. The site has remained relatively consistent since 1940.

No historical features have been identified that might pose a geotechnical constraint to the repair of the existing dwelling. However, due to the historic dwelling and residential land use it is possible that there will be localised areas of fill relating to previous foundations or buried residential waste.

3.2 Historical Land Use

The ECan Listed Land Use Register (LLUR) holds information regarding sites that have been or currently are used for activities which have the potential to cause contamination.

According to the LLUR the site shows no records of having any HAIL activities occur on the site; however, two sites within 50m of 80 Mackworth Street have been listed on the LLUR with the following outlined activities:

- 82 Mackworth Street – F4 – Motor Vehicle Workshop. The workshop (neighbouring the site) has not been investigated. The motor vehicle workshop is understood to have been active from pre-1977. Aerial photos suggest this was a small-scale operation and not directly abutting the site.
- Smith Street – A10 – Persistent Pesticide Bulk Storage or Use. The nearby site on Smith Street was identified as orchard and market garden plots between the 1941 to 1965 ECan Aerial Photographs.

It is considered unlikely that the above highlighted HAIL activities will have a geotechnical impact on the re-development of the site.

The LLUR response forms Appendix A.

4.0 GEOLOGICAL DESK-BASED INFORMATION

4.1 Geological Mapping

According to the GNS Geological Unit QMap, the site is underlain by Holocene (<11,700-year-old) river deposits of the Springston Formation, comprising *'Modern river floodplain/low-level degradation terraces. Unweathered, variably sorted gravel/sand/silt/clay. Surfaces <2° slope'* (IQa).

4.2 Geological Investigation Data

Previous deep geotechnical investigations, available on the New Zealand Geotechnical Database (NZGD), have been reviewed as part of this assessment. There is no deep investigation data within 100m of the site.

4.3 Ground Water Data

The GNS 'Water Table' maps, available on the NZGD indicate the following groundwater table depths, shown on Table 1:

Statistical Probability	Depth to Groundwater (m)
85 th percentile	0.0 – 2.0
Median	1.0 – 2.0
15 th percentile	1.0 – 2.0

Table 1: GNS Depths to Water Table

The NZGD suggests a variation of up to 0.2m bgl between the 85th percentile and 15th percentile groundwater depths.

4.4 Nearby Springs

There are no springs within 500m of the site.

5.0 GEO-HAZARDS DESK-BASED INFORMATION

5.1 Seismic Site Subsoil Classification

EDC considers that a seismic site subsoil classification 'Class D – Deep or soft soil sites', as defined in NZS:1170.5 is appropriate.

5.2 2010/2011 Canterbury Earthquake Sequence (CES)

The NZGD (containing the previous Canterbury Geotechnical Database) contains information from ECan, EQC and CERA relating to the CES. The concept of a database was introduced as part of the TC1, TC2 and TC3 investigations and the following information (in this section) has been extracted from the database and provides a general understanding of the geotechnical conditions of the land in the vicinity of the subject site. The following summary is information pertinent to the site:

5.2.1 MBIE Residential Foundation Technical Category

The Canterbury Maps website indicates the site is located in an area labelled 'Green Zone - Technical Category 2' (TC2). According to the MBIE, TC2 classification indicates minor to moderate land damage from liquefaction might occur.



Figure 6: Site Aerial Photo with Current Technical Category Classification Area

5.2.2 Observed Ground Cracks

Ground cracks across Christchurch were mapped following the 04 September 2010 and 22 February 2011 earthquake events. No ground cracks were recorded on or within the immediate vicinity of the site.

5.2.3 Vertical Ground Movements

LiDAR data overlays show the approximate elevation changes of the ground level that have occurred between 2003 and the June 2011 earthquake. This map indicates that the site might have subsided up to 300mm.

5.2.4 Horizontal Ground Movement

EQC 'Local' horizontal deformations are calculated by subtracting the 'Tectonic Component' of horizontal movement (GNS Science dislocation models of the horizontal tectonic movements during each earthquake) from the 'Observed from LiDAR' horizontal movements (the difference between pairs of LiDAR point clouds). Table 2 shows that observed Local movements for the major earthquakes in the 2010/2011 Canterbury Earthquake sequence:

	04 Sept 2010	22 Feb 2011	13 June 2011	23 Dec 2011
Local Horizontal Movement	165mm SW	315mm SW	50mm NW	40mm NW

Table 2: EQC Local Horizontal Deformation

5.2.5 Peak Ground Acceleration Models & Recorded Liquefied Soil Ejecta

The NZGD published a 'Conditional PGA' model by Bradley, of estimated Peak Ground Acceleration (PGA) contours for each of the major earthquakes throughout the greater Christchurch region. This method calculates PGA and standard deviation contours for each earthquake by combining the prediction from an empirical ground motion model of the fault rupture with the PGA recorded at any adjacent strong motion stations.

The 'Conditional Peak Ground Accelerations in the Canterbury Earthquakes for Conventional Liquefaction Assessment' research paper by Bradley et al indicates that *'the predicted values of PGA from these earthquakes are not known exactly (except at strong motion stations). The methodology for prediction of the conditional PGA values provides a distribution with both median and standard deviation. It is suggested that the uncertainty in the estimated PGA be explicitly considered in liquefaction assessments of existing structures in order to ensure that misinterpretations are not made when attempting to reconcile observed and predicted seismic performance'*.

In view of this an uncorrected PGA range based on one standard deviation either side of the Conditional Median PGA is provided.

The NZGD also records the severity of ejected liquefied soils following EQC walkover surveys. Post-earthquake aerial photographs available on the database have also been reviewed by EDC. The PGA & severity of ejected liquefied soil information for the recent main earthquake events is presented in Table 3 below:

Earthquake Event	Magnitude	Conditional Median PGA (g)	Uncorrected PGA range (g)	10 th Percentile PGA (g)	Severity/Amount of the Liquefaction Ejecta	
					EQC Street/Property Walkover	EDC's Aerial Photography Review
04 Sep 2010	7.1	0.22	0.16 to 0.30	0.13	No property or road walkovers undertaken.	Minor liquefied ejecta evident within the surrounding area.
22 Feb 2011	6.2	0.59	0.42 to 0.84	0.27	Property observations suggest no ground cracking or ejected liquefied material. Road observations suggest moderate quantities of ejected material.	Minor liquefied ejecta evident within the site and on the surrounding area.
13 Jun 2011	6.0	0.34	0.23 to 0.49	0.14	Road observations suggest no lateral spreading but minor to moderate quantities of ejected material.	No liquefied ejecta evident within the site or in the surrounding area.
23 Dec 2011	5.9	0.25	0.17 to 0.37	0.10	No property or road walkovers undertaken.	No liquefied ejecta evident within the site or in the surrounding area.

Note: Bold red text denotes 'sufficiently tested' to SLS. Bold green text denotes 'sufficiently tested' to ULS.

Table 3: Peak Ground Acceleration & Observed Liquefied Soil Ejecta

Section 13.5 in Part C of the MBIE guidance indicates criteria by which a site can be considered to be 'sufficiently tested' to a design earthquake event if the value of the 10th percentile PGA (calculated using Bradley's Method) for each event equals or exceeds the design earthquake event (0.13g for SLS & 0.35g ULS).

The above information suggests that the site can be considered sufficiently tested to an SLS level earthquake (but not to a ULS level) during the 4 September 2010, 22 February 2011 and 13 June 2011 earthquake events, following which minor quantities of liquefied ejecta was observed on the site and minor to moderate quantities of ejected material was observed along Mackworth Street.

5.2.6 GNS CES Event Specific Groundwater Depths

GNS has also produced groundwater levels for the 2010/2011 earthquake sequence, as shown on Table 4:

Earthquake event	Groundwater Depth (m)
04 September 2010	0.0 – 2.0
22 February 2011	0.0 – 2.0
13 June 2011	0.0 – 2.0
23 December 2011	0.0 – 2.0

Table 4: Canterbury Earthquake Event Specific Groundwater Depths

Important Notice:

This section (Section 5.2) contains information which was prepared and/or compiled for the Earthquake Commission (EQC) to assist in assessing insurance claims made under the Earthquake Commission Act 1993 and/or for the New Zealand Geotechnical Database on behalf of the Canterbury Earthquake Recovery Authority (CERA). It was not intended for any other purpose. EQC, CERA, their data suppliers and their engineers, Tonkin & Taylor, have no liability to any user of this map and data or for the consequences of any person relying on them in any way.

5.3 District Plan Natural Hazards

The Christchurch City Council (CCC) District Plan indicates the following Natural Hazard designations for the site:

5.3.1 Flood Management Areas

The Christchurch City Council (CCC) website in collaboration with CERA (CERA & CCC, 2014) provides maps of the flood-risk areas. This map indicates that the site is located within a Flood Management Area (FMA).

The Christchurch City Council (CCC) was contacted regarding the flood risk to the site. A summary of relevant information is provided in Table 5 below:

	Christchurch Drainage Datum (CCD) (m)
Building Code Floor Level	No Specific FFL
District Plan Floor Level	12.30 (12.56 recommended)
Property within FMA	Yes
Predicted 1 in 50 Year Flood Level	No Flooding Predicted
Predicted 1 in 200 Year Flood Level	11.88
Minimum Ground Level	11.42
Average Ground Level	11.84
Maximum Ground Level	12.34

Table 5: CCC Ground Level Data

The above table suggests that the proposed developments may need a Finished Floor Level (FFL) of 12.56m above the CCD, indicating that the finished floor level in some areas of the site might need to be up to 1.1m above the current ground levels.

5.3.2 Liquefaction Management Area (LMA)

The LMA addresses consenting requirements for subdivision rather than the feasibility of constructing on land at risk from liquefaction. An assessment of liquefaction risk is contained within Section 7.2 of this report.

5.4 Nearest Water Body/Water Course

80 Mackworth Street is located approximately 820m northwest of the Heathcote River.

6.0 SITE INVESTIGATION

6.1 Rationale

To achieve the outlined objectives, deep machine testing involving Cone Penetration Testing (CPT's) and shallow hand testing (involving hand auger boreholes (HA's) and Scala Penetrometer tests (SC's)) was considered sufficient to determine ground conditions for the proposed works, in accordance with the MBIE guidance.

6.2 Intrusive Investigation Summary

6.2.1 Shallow Hand Testing

EDC visited the site on 19 July 2021 to undertake a shallow geotechnical investigation. We undertook a total of five hand augered exploratory holes and five Scala Penetrometer tests (HASC 101-105).

Soils have been described generally in accordance with NZGS: Field Description of Soil and Rock. The results of these investigations are shown on the HA Log sheet attached in Appendix B.

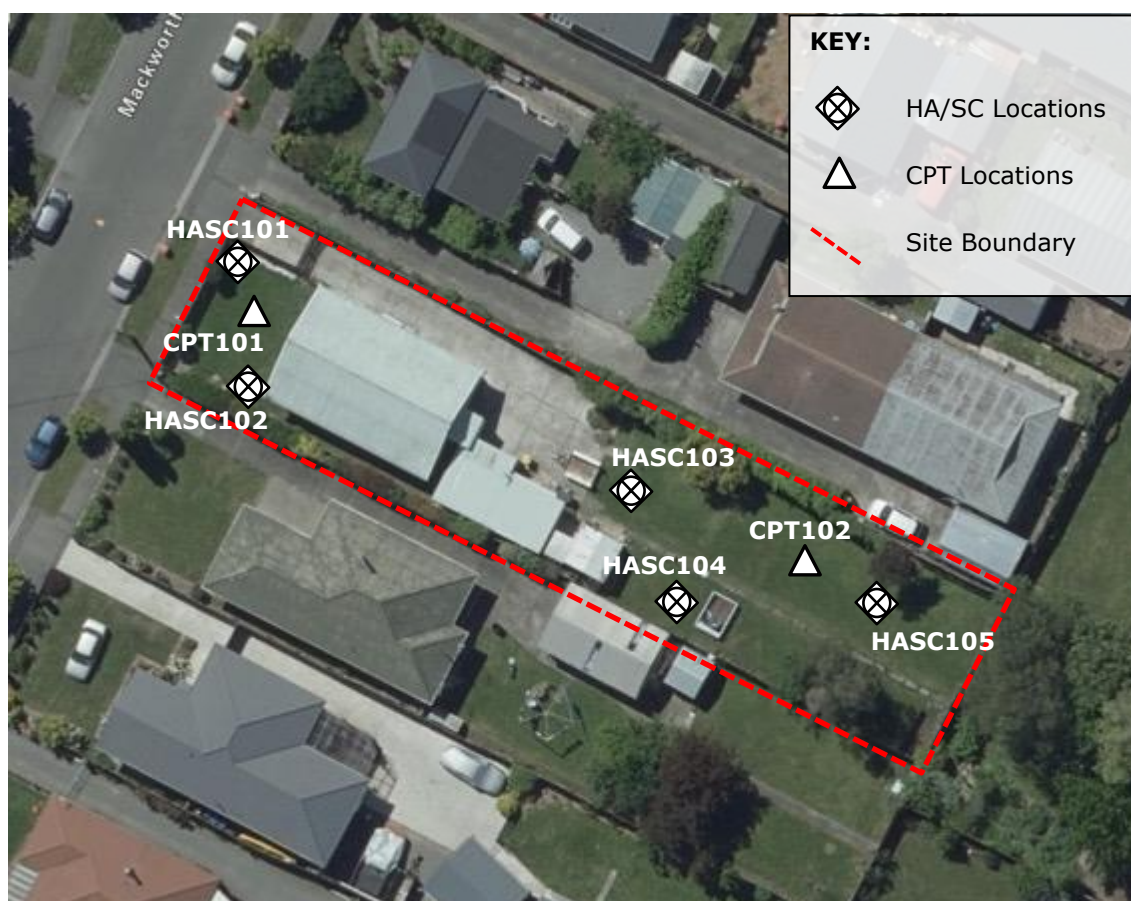


Figure 7: Intrusive Investigation Approximate Locations

The following table shows the depths reached by EDC's hand testing:

Test Ref.	Depth Reached – Reason for Termination
HA 101	1.00m – Target Depth Reached
HA 102	2.00m – Termination (Running Sand)
HA 103	2.00m – Termination (Running Sand)
HA 104	2.00m – Termination (Running Sand)
HA 105	1.80m – Termination (Running Sand)
SC 101 & SC 102	2.90m & 2.90m
SC 103, 104, 105	1.80m, 1.90m, 1.90m

Table 6: Shallow Hand Testing Summary

The approximate investigation locations are indicated on Figure 7, above.

6.2.2 Deep Machine Testing

On-site Cone Penetration Testing (CPT), comprising 2 No. holes (CPT101 & CPT102), was undertaken by Canterbury Geotest Ltd on 19 July 2021. Both of the CPT's reached their target depths of 15.0m below existing ground level (begl). The approximate locations of the CPT's are indicated on Figure 7. Logs of the Normalised Soil Behaviour Type (SBT) for the CPT results are shown in Appendix C.

6.3 Summary of Ground Conditions

This investigation indicates the following approximate soil section across the site. The soils indicated by the CPT's (shaded in grey below) are based on the normalised SBT's established using the Geologismiki Software "CLiq" v.3.0.2.4):

General Depth Range (m)	Generalised Ground Description	Density/Consistency
Surface to 0.3/0.5*	Topsoil – Organic Silt	Firm to Stiff
0.3/0.5 to 0.7/1.0	Silt	Firm to Stiff
0.7/1.0 to 2.0	Sand	Medium Dense to Dense
2.0 to 15.21	Interbedded Sand, Silty Sand, Clay, Silty Clay and Sandy Silt	Medium Dense to Dense Sands. Firm to Stiff Silts and Clays

Note: * - Topsoil to 0.5m begl noted in a localised area to the eastern extent of the site

Table 7: Ground Condition Summary

Groundwater was encountered during hand auger excavations at depths from between 1.20m and 1.30m below existing ground level (begl).

7.0 GEOTECHNICAL ASSESSMENT

7.1 Static Ultimate Bearing Capacity Assessment

7.1.1 Scala Penetrometer Tests

The Scala Penetrometer results have been assessed using a correlation between Scala blow count and allowable bearing capacity by Stockwell (Stockwell, 1977). Using this correlation, the Scala Penetrometer results indicate the following geotechnical ultimate bearing capacities (UBC's):

Depth begl (m)	UBC (kPa)
Natural inorganic soils to 1.3	200
>1.3	>300

Table 8: Available UBC Depth Summary

7.1.2 Cone Penetration Tests

The CPT results have also been assessed using the Geologismiki Software 'CPet-IT' v.3.5.3.3. The data indicates that a UBC of >300kPa can be achieved from 0.5m begl.

A copy of the Scala Penetrometer Ultimate Bearing Capacity Graph forms Appendix D.

7.2 Quantitative Liquefaction Analysis

7.2.1 Assessment Methods

Liquefaction analyses to assess estimated ground settlement were undertaken on the data from the CPT's, using the Geologismiki Software "CLiq" v.3.0.2.4 and the methods prescribed by the current MBIE guidance.

The site is located >200m from any significant water course with no evidence of lateral movement on-site and as such, in accordance with the MBIE guidance, lateral spreading analysis has not been undertaken.

7.2.2 Analysis Parameters

Groundwater was encountered in EDC's hand auger boreholes at a depth of between 1.20m and 1.30m begl. This is in line with the published GNS 85th percentile depth and the assessed groundwater depths during all of the previous earthquake events of the CES (2010/2011) of between 0.0m to 2.0m begl. Therefore, a static groundwater level of 1.2m begl has been assumed with a groundwater level of 0.7m begl used during an earthquake scenario for the liquefaction analyses.

Three seismic scenarios have been analysed for the purpose of assessing future ground performance, in accordance with the MBIE Guidance. The parameters used in these analyses are shown on Table 9:

Scenario	Earthquake Magnitude (Mw)	Peak Ground Acceleration (g)
SLS 1A	7.5	0.13
SLS 1B	6.0	0.19
ULS	7.5	0.35

Notes: Serviceability Limit State (SLS) design assesses the deformations that occur under working conditions, while Ultimate Limit State (ULS) assesses the situation that would lead to the collapse of a structure.

Table 9: Liquefaction Analysis Scenario Parameters

7.2.3 Estimated Ground Settlement

The graphical results sheets for each of the analyses are included in Appendix E. The following table summarises the results of estimated settlements:

CPT Test Ref.	CPT Depth (m)	Estimated Free-Field Settlement (mm)					
		SLS Scenario 1A		SLS Scenario 1B		ULS Scenario	
		Index	Full CPT Depth	Index	Full CPT Depth	Index	Full CPT Depth
CPT_101	15.01	35 – TC2	58	55 – TC3	65	124 – TC3	170
CPT_102	15.21	31 – TC2	43	49 – TC2	83	103 – TC3	189

Table 10: Summary of Estimated Liquefaction-Induced Settlement

Note: Yellow = results falling into the TC 2 Category and Blue = results falling into the TC 3 category.

The free field settlement analysis indicates:

- Estimated SLS free-field settlements of up to 55mm with the estimated settlement occurring from below 2.0m begl to 7.5m begl.
- Estimated ULS free-field settlements of up to 124mm with the estimated settlement occurring from below the earthquake groundwater table at a depth of 0.7m begl.
- It is noted that when using the median PGA's indicated in Table 3 the calculated settlements and an estimated ground damage (LSN's) appear to differ from that observed. When applying a higher CRR probability limit of 50%, the SLS index settlements are all less than 50mm though the ULS index settlements do not differ significantly to those shown in Table 10.

It should be noted that these estimated settlements do not account for loss of ground volume via liquefaction ejecta.

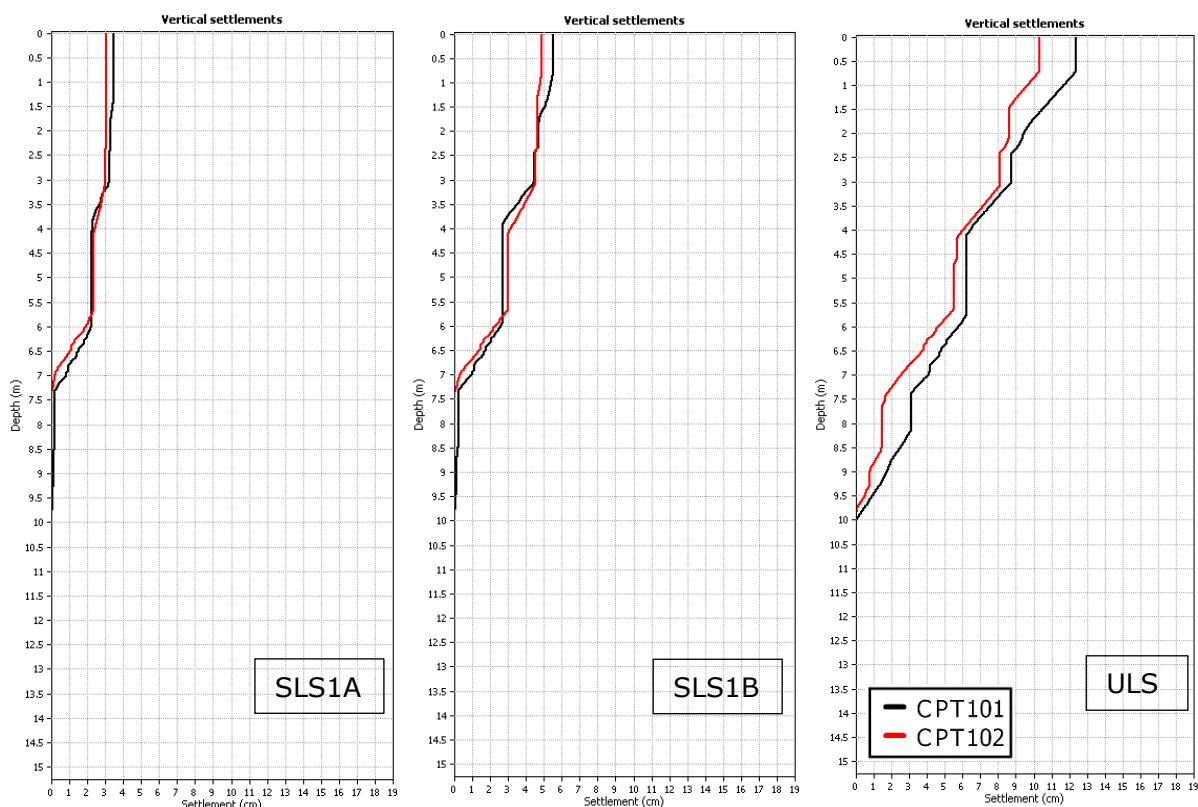


Figure 8: Estimated Total Vertical Settlements Under SLS and ULS Conditions

7.2.4 Liquefaction Severity

The Liquefaction Severity Number (LSN) is a parameter that predicts the occurrence of damaging liquefaction by recognising that damaging liquefaction is related to the depth at which liquefaction occurs. The LSN's for the CPT analyses are shown below:

CPT ref.	Estimated Ground Damage		
	SLS Scenario 1A	SLS Scenario 1B	ULS Scenario
CPT_101	8	16	42
CPT_102	6	12	34

Table 11: Summary of Estimated Liquefaction-Induced Ground Damage

LSN Key

0 – 10 = Little to no expression of liquefaction,
10 – 20 = Minor expression of liquefaction,
20 – 30 = Moderate expression of liquefaction,
30 – 40 = Moderate to severe expression of liquefaction,
40 – 50 = Major expression of liquefaction,
>50 = Severe damage.

The above indicates that in an SLS event, little to minor expression of liquefaction could be expected (based on Scenario 1B), while in a ULS event, moderate to severe expression of liquefaction could be anticipated.

In order to attain a degree of realism in the LSN analyses, an additional liquefaction analysis was undertaken on the CGD CPT's using the 22 Feb 2011 earthquake parameters (6.2M & 0.27g PGA, based on Bradley's method from Section 5.2). This

resulted in LSN values ranging from 26-35, similar to the ULS analysis, when in fact only minor to moderate liquefaction ejecta was observed onsite (by both EQC walkover & EDC's Aerial Photo review). This suggests that the LSN's are conservative.

7.3 NZS 3604 "Good Ground" Assessment

NZS 3604: 2011 indicates "Good Ground" is ground where "Any soil or rock capable of permanently withstanding an ultimate bearing capacity of 300kPa (i.e. an allowable bearing pressure of 100kPa using a factor of safety 3.0),..." It excludes expansive soils, topsoils or organic rich soils, uncompacted loose gravel and any ground likely to experience ground movements of 25mm or more.

The soils at the site do not meet the NZS 3604 definition of 'Good Ground' due to the potential for liquefaction.

7.4 Technical Category Assessment

The following table is an excerpt from the MBIE Guidance Part A (Table 3.1 – Index criteria for foundation technical categories):

Foundation Technical Category	Future land performance expectations from liquefaction	Nominal SLS land settlement (mm)	Nominal ULS land settlements (mm)	Nominal lateral stretch (mm)
TC1	Liquefaction damage is unlikely in a future large earthquake.	0-15	0-25	Generally not expected
TC2	Liquefaction damage is possible in a future large earthquake.	0-50	0-100	<50
TC3	Liquefaction damage is possible in a future large earthquake	>50	>100	>50

Table 12: MBIE Technical Category Criteria

The estimated vertical settlements from the CPT analyses indicate that site should be categorised as Technical Category TC3, though this is only a marginal categorisation for SLS, the results for which generally suggest TC2. When considering the observed performance against the calculated free field settlements and LSN's it is considered that the analysis has slightly overestimated the risk. Based on this and the liquefaction analysis results when raising the CRR probability to 50%, it is considered that a TC2/TC3 Hybrid classification is appropriate.

The risk of lateral spreading is considered to be Minor.

8.0 RESOURCE MANAGEMENT ACT ASSESSMENT

Section 106 (1) of the Resource Management Act (RMA) states:

'A consent authority may refuse to grant a subdivision consent, or may grant a subdivision consent subject to conditions, if it considers that:

(a) there is a significant risk from natural hazards; or

(b) section repealed.

(c) sufficient provision has not been made for legal and physical access to each allotment to be created by the subdivision'

RMA 106 1A indicates that *'for the purpose of subsection (1)(a), an assessment of the risk from natural hazards requires a combined assessment of:*

(a) the likelihood of natural hazards occurring (whether individually or in combination); and

(b) the material damage to land in respect of which the consent is sought, other land, or structures that would result from natural hazards; and

*(c) any likely subsequent use of the land in respect of which the consent is sought that would accelerate, worsen, or result in material damage of the kind referred to in paragraph (b)'.
'*

Table 13 provides our assessment of parts (a) of the above. Section 106 1(b) was repealed and 106 (c) is not relevant to a geotechnical assessment:

Hazard	Potential Susceptibility	
	Current (part a)	Post Development (part b)
Erosion	No signs of erosion were observed during the site walkover.	It is not anticipated that the proposed development will accelerate or worsen the erosion rates if appropriate stormwater collection and disposal methods are implemented.
Falling Debris	N/A = Site and surrounds are relatively flat and therefore no issues anticipated.	
Slippage	N/A = Site and surrounds are relatively flat and therefore no issues anticipated.	
Subsidence	Based on the general strength and non-organic nature of the natural soils the risk of static subsidence is considered low. The site is classified by CERA as TC2. Based on our liquefaction assessment it is considered that the site should be classified as TC3.	Provided that foundations are designed to the conditions outlined in this report it is unlikely that the risk of subsidence will be worsened. It is recommended that further assessment of static settlement risk is undertaken if the ground is raised by more than 400mm.

Hazard	Potential Susceptibility	
	Current (part a)	Post Development (part b)
Inundation - Flooding	CCC indicated that the site is within a Flood Management Area. The 1 in 50-year flood level is not predicted and the 1 in 200-year flood level is 11.88m RL. The average ground level of the site is 11.84m RL with a minimum ground level of 11.42m RL. Therefore, the site is at risk of flooding from a 1 in 200-year flooding event.	A FFL of 12.56m RL is recommended by the CCC district plan to mitigate the flood inundation risk, though the required minimum is 12.30m. The higher value suggests that Finished Floor Levels of the proposed building will have to be up to 1.1m above the lowest ground levels. It is considered feasible to construct the proposed MUB provided appropriate engineering measures are incorporated. Consultation with CCC is recommended to establish any restrictions / Resource Consent requirements.
Inundation - Liquefaction	Minor liquefaction ejecta was observed on the site and in the surrounding areas following the Sept 2010, Feb 2011 and June 2011 earthquake events during which the site was sufficiently tested to an SLS level in terms of ground motion.	It is considered that the proposed FFL, with regards to flooding will provide adequate protection from the risk of liquefaction inundation.

Table 13: RMA Section 106 (1) Assessment

It is considered, under Section 106 (1) of the RMA, that there are no reasons from a geotechnical perspective that the site is considered unsuitable for development, provided any development is undertaken with appropriate engineering design measures.

Our Geotechnical Statement of Professional Opinion forms Appendix F.

9.0 CONCLUSIONS

9.1 Site History

A review of historical photos of the site indicates it has been residential since pre-1940 and no significant geotechnical constraints are evident on the aerials or the LLUR. It is possible that there may be areas of buried domestic waste, relating to the historic land use though none was encountered in EDC's intrusive investigation.

The LLUR does not currently have any information about a Hazardous Activity or Industry having occurred on the site. It is considered unlikely that the highlighted HAIL activities on nearby sites will have a geotechnical impact on the proposed development.

9.2 Ground Description

According to the GNS Geological Unit QMap, the site is underlain by Holocene (<11,700-year-old) river deposits of the Springston Formation, comprising *'Modern river floodplain/low-level degradation terraces. Unweathered, variably sorted gravel/sand/silt/clay. Surfaces <2° slope'* (IQa).

Our intrusive investigation indicates shallow soils comprising topsoil up to 0.3m thick across the site, but up to 0.5m in a localised area to the eastern extent of the site, underlain by silt and then sand to 2.0m below existing ground level (begl), where the shallow hand testing met practical refusal. The on-site CPT's indicate that these soils are further underlain by interbedded sand, silty sand, clay, silty clay and sandy silt to >15.0m begl.

Groundwater was encountered in the HA's at depths ranging from 1.2m to 1.3m begl. This is in line with the published GNS groundwater maps which indicate an 85th percentile groundwater table depth of 0.0m – 2.0m begl across the site.

9.3 Static Ultimate Bearing Capacity

EDC's shallow hand testing indicated a consistent Geotechnical UBC of 200kPa is achieved in the natural inorganic soils, with a Geotechnical UBC of greater than 300kPa achieved from 1.3m begl.

9.4 Seismic Site Subsoil Classification

EDC consider that a seismic site subsoil classification 'Class D – Deep or soft soil sites', as defined in NZS:1170.5 is appropriate.

9.5 Liquefaction Analyses

During the 04 Sept 2010, 22 Feb 2011 and 13 June 2011 CES events the site was sufficiently tested to an SLS level event (and well beyond SLS levels in the Feb 2011 event) following which only minor expression of liquefied ejecta was observed on-site and in the surrounding areas.

The CPT's liquefaction analyses indicates the following:

- The CPT analyses indicates up to 55mm of estimated index (10.0m) settlements under SLS conditions up and up to 124mm of estimated index settlements under ULS conditions.
- Estimated free-field settlements generally occur consistently from 2.0m begl under SLS conditions and from the earthquake groundwater depth of 0.7m begl under ULS conditions.
- It is noted that when using the median PGA's indicated in Table 3 the calculated settlements and an estimated ground damage (LSN's) appear to differ from that observed. When applying a higher CRR probability limit of 50% the SLS index settlements are all less than 50mm though the ULS index settlements do not differ significantly to those shown in Table 10.

Although the site is classified as TC2 the CPT liquefaction analyses indicates that the site performance is consistent with a TC3 Hybrid classification.

9.6 NZS 3604 "Good Ground" Assessment

The soils at the site do not meet the NZS 3604 definition of 'Good Ground' due to the potential for liquefaction.

9.7 Flooding

The CCC indicated that the site is within a Flood management Area and that a FFL that meets the District Plan Floor Level of 12.56m RL is acceptable. This indicates that the FFL in some areas of the site may need to be up to 1.1m above the lowest current ground levels.

9.8 Resource Management Act Assessment

It is considered, under Section 106 (1) of the RMA, that there are no reasons from a geotechnical perspective that the site is considered unsuitable for development, provided any development is undertaken with appropriate engineering design measures.

10.0 RECOMMENDATIONS

10.1 Site Restrictions

The site still contains a residential structure which will need to be demolished or removed from site prior to the construction of the proposed MUB. Following this, any fill or buried material waste encountered on-site will need to be removed.

10.2 Potential Foundation Types

Based on the ground assessment and the MBIE Guidance for subdivisions, the following foundation types are considered appropriate to the ground conditions. However, it should be noted that the MUB design has not been finalised and therefore the following foundation options are preliminary and are based off the assumptions stated in Section 1.1.

10.2.1 Concrete Floor

- MBIE TC2 Option 4 (stiffened waffle raft slab foundation) on a minimum 0.6m thick geogrid reinforced gravel raft beneath the foundation.

MBIE Option 4 concrete slabs are recommended with a reinforced gravel hardfill raft to a minimum depth of 0.6m below the foundation. The final thickness of the gravel raft will be based on an approach that looks to limit the risk of shear induced foundation settlement in the shallow soils for an SLS event. The formation for the gravel hardfill should found on natural, inorganic soils, where a minimum Geotechnical UBC of 200kPa can be used for design. The gravel hardfill (crushed AP65 or AP40) should extend beyond the footprint of the proposed structure a distance equal to its thickness (or 1m, whichever is less), with a layer of geotextile (DuraForce AS280 or Bidim A19 or engineer approved equal) placed on the base and sides of the excavation with 1 layer of geogrid (DuroGrid 40/40 or Triax TX160 or engineer approved equal) above the geotextile layer.

10.2.2 Timber Floor

- Specific Engineer Design shallow piles

The formation for the piles should be on natural inorganic soils, where a Geotechnical UBC of 200kPa can be used for design. Due to the shallow groundwater there is a risk of differential settlement in an SLS event from foundation shear, though it is noted that this foundation is releveable. In view of the proposed development including MUB's, there will need to be an assessment of compliance with the MBIE criteria of 'readily releveable' (4 weeks non-occupancy) if pursuing this foundation option, once the building locations and forms have been determined.

All foundation design shall be produced by a Chartered Professional Engineer (with suitable structural experience). Further geotechnical advice should also be sought once the working loads and a proposed foundation option have been finalised.

10.3 General

Should dewatering be required, the works should be undertaken in accordance with the Christchurch City Councils Dewatering Guideline (SCIRT 1001-CN-GE-GL-0001, dated 03/11/2016).

Flexible service connections should be installed as per MBIE Guidance. Minimum drainage gradients should be avoided in order to minimise the risk of backfalls if settlement occurs in future events.

If gravel hardfill is required, it should be compacted in accordance with NZS 4431:1989 Code of Practice for Earthfill for Residential Development and MBIE Module 5A: Specification of ground improvement for residential properties in the Canterbury region (MBIE & NZGS, 2015). Validation testing of the compacted gravel should be undertaken and signed off by a suitably experienced Geotechnical Engineer.

According to the New Zealand Building Code ultimate bearing capacities should be multiplied by 0.80 – 0.90 (EDC recommends 0.8) for load combinations involving earthquake over strength and 0.40 – 0.55 (EDC recommends 0.50) for all other load combinations.

It is the structural engineer or designer's responsibility to ensure that the recommendations of this report are correctly understood and applied. We are happy to discuss the project with the structural engineer or designer and recommend that we review the final design documentation prior to construction.

Any topsoil/fill, very soft, organic or otherwise unsuitable materials encountered are not considered a suitable bearing stratum for new foundations and will require removal beneath the building platform.

Advice from a geotechnical engineer should be sought if ground conditions different to those encountered in the intrusive investigation are observed during foundation construction works.

10.4 Construction Inspections

It is recommended that a Chartered Professional Engineer with appropriate geotechnical experience be engaged to supervise any future bulk earthworks, foundation excavations. This is in accordance with normal council practice at the Building Consent stage. It should also be noted that under the Building Act (2004), there are specific requirements for supervision by appropriately qualified personnel.

All inspections will require a minimum of 24 hours' notice and it should be noted that unless we are given the chance to undertake all appropriate inspections for the items specified in the Building Consent, a Producer Statement (PS4) will not be issued.

10.4.1 Foundation Inspections

The geotechnical engineer should inspect earthworks and foundation construction at the following stages, and pursuant to any Building Consent Conditions:

1. At the formation level of any new temporary or permanent foundation element; and
2. If gravel hardfill is required, compaction testing should be undertaken. Frequency will be dependent on the validation test method adopted, but should occur once gravel fill has been placed and compacted.

10.5 Health and Safety

We recommend that 'Safety in Design' principles are included during the design of the proposed structure/development. It should be noted that all parties involved in construction, including the client have responsibilities under the current 'Health and Safety at Work Act 2015'. This includes ensuring that the chosen contractor is both competent and suitably qualified/experienced to undertake the commissioned works.

Specifically, with respect to earthworks and foundations for this site, consideration needs to be made with respect to the presence of:

- Public services on-site;
- Potentially abnormally hazardous access; and
- Possible soil contamination.

This list is not exhaustive and there might also be other specific considerations not listed above. EDC would be happy to provide geotechnical/geoenvironmental advice in relation to these issues at any workshops or design meetings for this project. In addition, our Structural and Fire Safety Design Engineers can provide advice as appropriate.

11.0 REFERENCES

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- Environment Canterbury. (2016). *Canterbury Maps Enhanced Web Mapping Tools*. Retrieved from
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- Stockwell, M. (1977). *Determination of allowable bearing pressure under small structures*. New Zealand Engineering, Volume 32 Issue 6.

APPENDIX A

LISTED LAND USE REGISTER RESULTS

Dear Sir/Madam

Thank you for submitting your property enquiry from our Listed Land Use Register (LLUR). The LLUR holds information about sites that have been used or are currently used for activities which have the potential to cause contamination.

The LLUR statement shows the land parcel(s) you enquired about and provides information regarding any potential LLUR sites within a specified radius.

Please note that if a property is not currently registered on the LLUR, it does not mean that an activity with the potential to cause contamination has never occurred, or is not currently occurring there. The LLUR database is not complete, and new sites are regularly being added as we receive information and conduct our own investigations into current and historic land uses.

The LLUR only contains information held by Environment Canterbury in relation to contaminated or potentially contaminated land; additional relevant information may be held in other files (for example consent and enforcement files).

Please contact Environment Canterbury if you wish to discuss the contents of this property statement.

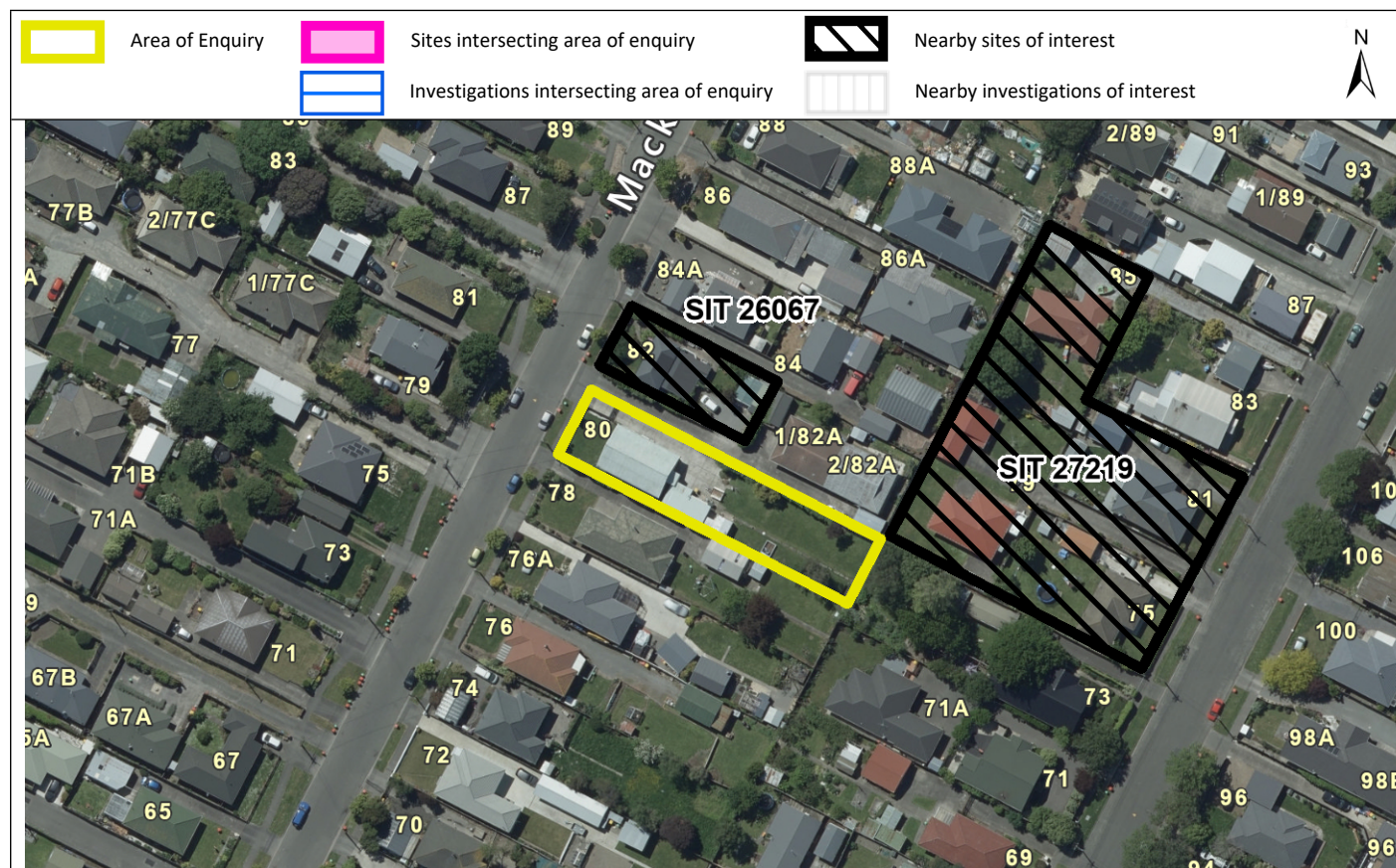
Yours sincerely

Contaminated Sites Team

Property Statement from the Listed Land Use Register

Visit ecan.govt.nz/HAIL for more information or
contact Customer Services at ecan.govt.nz/contact/ and quote ENQ288651

Date generated: 16 July 2021
Land parcels: Lot 5 DP 9945



The information presented in this map is specific to the area within a 50m radius of property you have selected. Information on properties outside the search radius may not be shown on this map, even if the property is visible.

Sites at a glance

Sites within enquiry area

Site number	Name	Location	HAIL activity(s)	Category
-------------	------	----------	------------------	----------

Please note that the above table represents a summary of sites and HAILs intersecting the area of enquiry only.

Nearby sites

Site number	Name	Location	HAIL activity(s)	Category
26067	26067	82 MACKWORTH STREET	F4 - Motor vehicle workshops;	Not Investigated
27219	27219	Smith Street, Linwood	A10 - Persistent pesticide bulk storage or use;	Not Investigated

Please note that the above table represents a summary of sites and HAILs intersecting the area of enquiry within a 50m buffer.

More detail about the sites

Site 26067: 26067 (Within 50m of enquiry area.)

Category: Not Investigated
Definition: Verified HAIL has not been investigated.

Location: 82 MACKWORTH STREET
Legal description(s): Lot 1 DP 33615

HAIL activity(s):	Period from	Period to	HAIL activity
	Pre 1977	Unknown	Motor vehicle workshops

Notes:



Investigations:

There are no investigations associated with this site.

Site 27219: 27219 (Within 50m of enquiry area.)

Category: Not Investigated
Definition: Verified HAIL has not been investigated.

Location: Smith Street, Linwood
Legal description(s): Lot 1 DP 20713, Lot 3 DP 20713, Lot 4 DP 20713, Lot 5 DP 20713

HAIL activity(s):	Period from	Period to	HAIL activity
	Pre 1941	Pre 1965	Persistent pesticide bulk storage or use including sports turfs, market gardens, orchards, glass houses or spray sheds

Notes:

26 Sep 2013 Area defined from: 1941-1965 Ecan Aerial Photographs.
Orchards and market garden plots were noted in aerial photographs reviewed.



Investigations:

There are no investigations associated with this site.



Nearby investigations of interest

There are no investigations associated with the area of enquiry.

Disclaimer

The enclosed information is derived from Environment Canterbury's Listed Land Use Register and is made available to you under the Local Government Official Information and Meetings Act 1987.

The information contained in this report reflects the current records held by Environment Canterbury regarding the activities undertaken on the site, its possible contamination and based on that information, the categorisation of the site. Environment Canterbury has not verified the accuracy or completeness of this information. It is released only as a copy of Environment Canterbury's records and is not intended to provide a full, complete or totally accurate assessment of the site. It is provided on the basis that Environment Canterbury makes no warranty or representation regarding the reliability, accuracy or completeness of the information provided or the level of contamination (if any) at the relevant site or that the site is suitable or otherwise for any particular purpose. Environment Canterbury accepts no responsibility for any loss, cost, damage or expense any person may incur as a result of the use, reference to or reliance on the information contained in this report.

Any person receiving and using this information is bound by the provisions of the Privacy Act 1993.

Listed Land Use Register

What you need to know

What is the Listed Land Use Register (LLUR)?

The LLUR is a database that Environment Canterbury uses to manage information about land that is, or has been, associated with the use, storage or disposal of hazardous substances.

Why do we need the LLUR?

Some activities and industries are hazardous and can potentially contaminate land or water. We need the LLUR to help us manage information about land which could pose a risk to your health and the environment because of its current or former land use.

Section 30 of the Resource Management Act (RMA, 1991) requires Environment Canterbury to investigate, identify and monitor contaminated land. To do this we follow national guidelines and use the LLUR to help us manage the information.

The information we collect also helps your local district or city council to fulfil its functions under the RMA. One of these is implementing the National Environmental Standard (NES) for Assessing and Managing Contaminants in Soil, which came into effect on 1 January 2012.

For information on the NES, contact your city or district council.

How does Environment Canterbury identify sites to be included on the LLUR?

We identify sites to be included on the LLUR based on a list of land uses produced by the Ministry for the Environment (MfE). This is called the Hazardous Activities and Industries List (HAIL)¹. The HAIL has 53 different activities, and includes land uses such as fuel storage sites, orchards, timber treatment yards, landfills, sheep dips and any other activities where hazardous substances could cause land and water contamination.

We have two main ways of identifying HAIL sites:

- We are actively identifying sites in each district using historic records and aerial photographs. This project started in 2008 and is ongoing.
- We also receive information from other sources, such as environmental site investigation reports submitted to us as a requirement of the Regional Plan, and in resource consent applications.

¹ The Hazardous Activities and Industries List (HAIL) can be downloaded from MfE's website www.mfe.govt.nz, keyword search HAIL

How does Environment Canterbury classify sites on the LLUR?

Where we have identified a HAIL land use, we review all the available information, which may include investigation reports if we have them. We then assign the site a category on the LLUR. The category is intended to best describe what we know about the land use and potential contamination at the site and is signed off by a senior staff member.

Please refer to the Site Categories and Definitions factsheet for further information.

What does Environment Canterbury do with the information on the LLUR?

The LLUR is available online at www.llur.ecan.govt.nz. We mainly receive enquiries from potential property buyers and environmental consultants or engineers working on sites. An inquirer would typically receive a summary of any information we hold, including the category assigned to the site and a list of any investigation reports.

We may also use the information to prioritise sites for further investigation, remediation and management, to aid with planning, and to help assess resource consent applications. These are some of our other responsibilities under the RMA.

If you are conducting an environmental investigation or removing an underground storage tank at your property, you will need to comply with the rules in the Regional Plan and send us a copy of the report. This means we can keep our records accurate and up-to-date, and we can assign your property an appropriate category on the LLUR. To find out more, visit www.ecan.govt.nz/HAIL.



My land is on the LLUR – what should I do now?

IMPORTANT! Just because your property has a land use that is deemed hazardous or is on the LLUR, it doesn't necessarily mean it's contaminated. The only way to know if land is contaminated is by carrying out a detailed site investigation, which involves collecting and testing soil samples.

You do not need to do anything if your land is on the LLUR and you have no plans to alter it in any way. It is important that you let a tenant or buyer know your land is on the Listed Land Use Register if you intend to rent or sell your property. If you are not sure what you need to tell the other party, you should seek legal advice.

You may choose to have your property further investigated for your own peace of mind, or because you want to do one of the activities covered by the National Environmental Standard for Assessing and Managing Contaminants in Soil. Your district or city council will provide further information.

If you wish to engage a suitably qualified experienced practitioner to undertake a detailed site investigation, there are criteria for choosing a practitioner on www.ecan.govt.nz/HAIL.



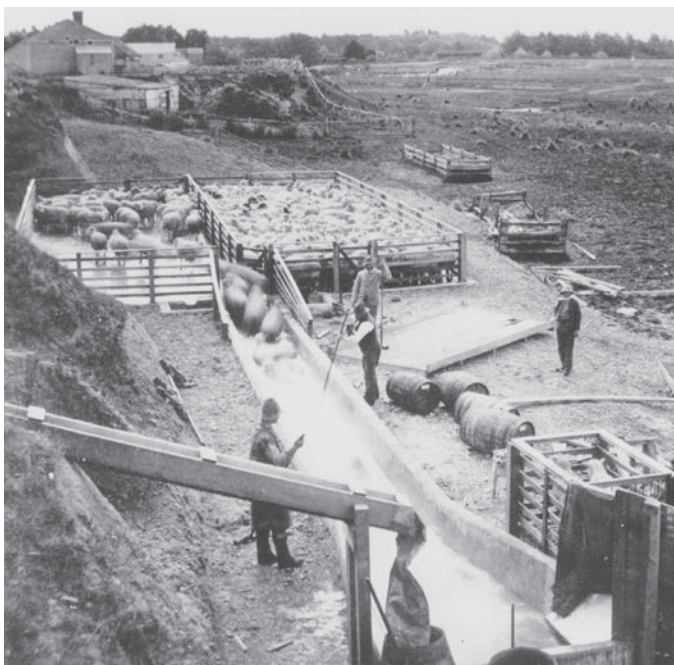
I think my site category is incorrect – how can I change it?

If you have an environmental investigation undertaken at your site, you must send us the report and we will review the LLUR category based on the information you provide. Similarly, if you have information that clearly shows your site has not been associated with HAIL activities (eg. a preliminary site investigation), or if other HAIL activities have occurred which we have not listed, we need to know about it so that our records are accurate.

If we have incorrectly identified that a HAIL activity has occurred at a site, it will be not be removed from the LLUR but categorised as Verified Non-HAIL. This helps us to ensure that the same site is not re-identified in the future.

IMPORTANT!

The LLUR is an online database which we are continually updating. A property may not currently be registered on the LLUR, but this does not necessarily mean that it hasn't had a HAIL use in the past.



Sheep dipping (ABOVE) and gas works (TOP) are among the former land uses that have been identified as potentially hazardous. (Photo above by Wheeler & Son in 1987, courtesy of Canterbury Museum.)

Contact us

Property owners have the right to look at all the information Environment Canterbury holds about their properties.

It is free to check the information on the LLUR, online at www.llur.ecan.govt.nz.

If you don't have access to the internet, you can enquire about a specific site by phoning us on (03) 353 9007 or toll free on 0800 EC INFO (32 4636) during business hours.

Contact Environment Canterbury:

Email: ecinfo@ecan.govt.nz

Phone:

Calling from Christchurch: (03) 353 9007

Calling from any other area: 0800 EC INFO (32 4636)



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E13/101

Listed Land Use Register

Site categories and definitions

When Environment Canterbury identifies a Hazardous Activities and Industries List (HAIL) land use, we review the available information and assign the site a category on the Listed Land Use Register. The category is intended to best describe what we know about the land use.

If a site is categorised as **Unverified** it means it has been reported or identified as one that appears on the HAIL, but the land use has not been confirmed with the property owner.

If the land use has been confirmed but analytical information from the collection of samples is not available, and the presence or absence of contamination has therefore not been determined, the site is registered as:

Not investigated:

- A site whose past or present use has been reported and verified as one that appears on the HAIL.
- The site has not been investigated, which might typically include sampling and analysis of site soil, water and/or ambient air, and assessment of the associated analytical data.
- There is insufficient information to characterise any risks to human health or the environment from those activities undertaken on the site. Contamination may have occurred, but should not be assumed to have occurred.

If analytical information from the collection of samples is available, the site can be registered in one of six ways:

At or below background concentrations:

The site has been investigated or remediated. The investigation or post remediation validation results confirm there are no hazardous substances above local background concentrations other than those that occur naturally in the area. The investigation or validation sampling has been sufficiently detailed to characterise the site.

Below guideline values for:

The site has been investigated. Results show that there are hazardous substances present at the site but indicate that any adverse effects or risks to people and/or the environment are considered to be so low as to be acceptable. The site may have been remediated to reduce contamination to this level, and samples taken after remediation confirm this.

Managed for:

The site has been investigated. Results show that there are hazardous substances present at the site in concentrations that have the potential to cause adverse effects or risks to people and/or the environment. However, those risks are considered managed because:

- the nature of the use of the site prevents human and/or ecological exposure to the risks; and/or
- the land has been altered in some way and/or restrictions have been placed on the way it is used which prevent human and/or ecological exposure to the risks.

Partially investigated:

The site has been partially investigated. Results:

- demonstrate there are hazardous substances present at the site; however, there is insufficient information to quantify any adverse effects or risks to people or the environment; or
- do not adequately verify the presence or absence of contamination associated with all HAIL activities that are and/or have been undertaken on the site.

Significant adverse environmental effects:

The site has been investigated. Results show that sediment, groundwater or surface water contains hazardous substances that:

- have significant adverse effects on the environment; or
- are reasonably likely to have significant adverse effects on the environment.

Contaminated:

The site has been investigated. Results show that the land has a hazardous substance in or on it that:

- has significant adverse effects on human health and/or the environment; and/or
- is reasonably likely to have significant adverse effects on human health and/or the environment.

If a site has been included incorrectly on the Listed Land Use Register as having a HAIL, it will not be removed but will be registered as:

Verified non-HAIL:

Information shows that this site has never been associated with any of the specific activities or industries on the HAIL.

Please contact Environment Canterbury for further information:

(03) 353 9007 or toll free
on 0800 EC INFO (32 4636)

email ecinfo@ecan.govt.nz

 **Environment
Canterbury**
Regional Council
Kaunihera Taiao ki Waitaha

APPENDIX B

HAND AUGER & SCALA PENETROMETER LOGS

PROJECT: Geotechnical Investigation

CLIENT: Moreover Holdings Ltd

ADDRESS: 80 Mackworth Street, Woolston

LOGGED

DP

PROCESSED

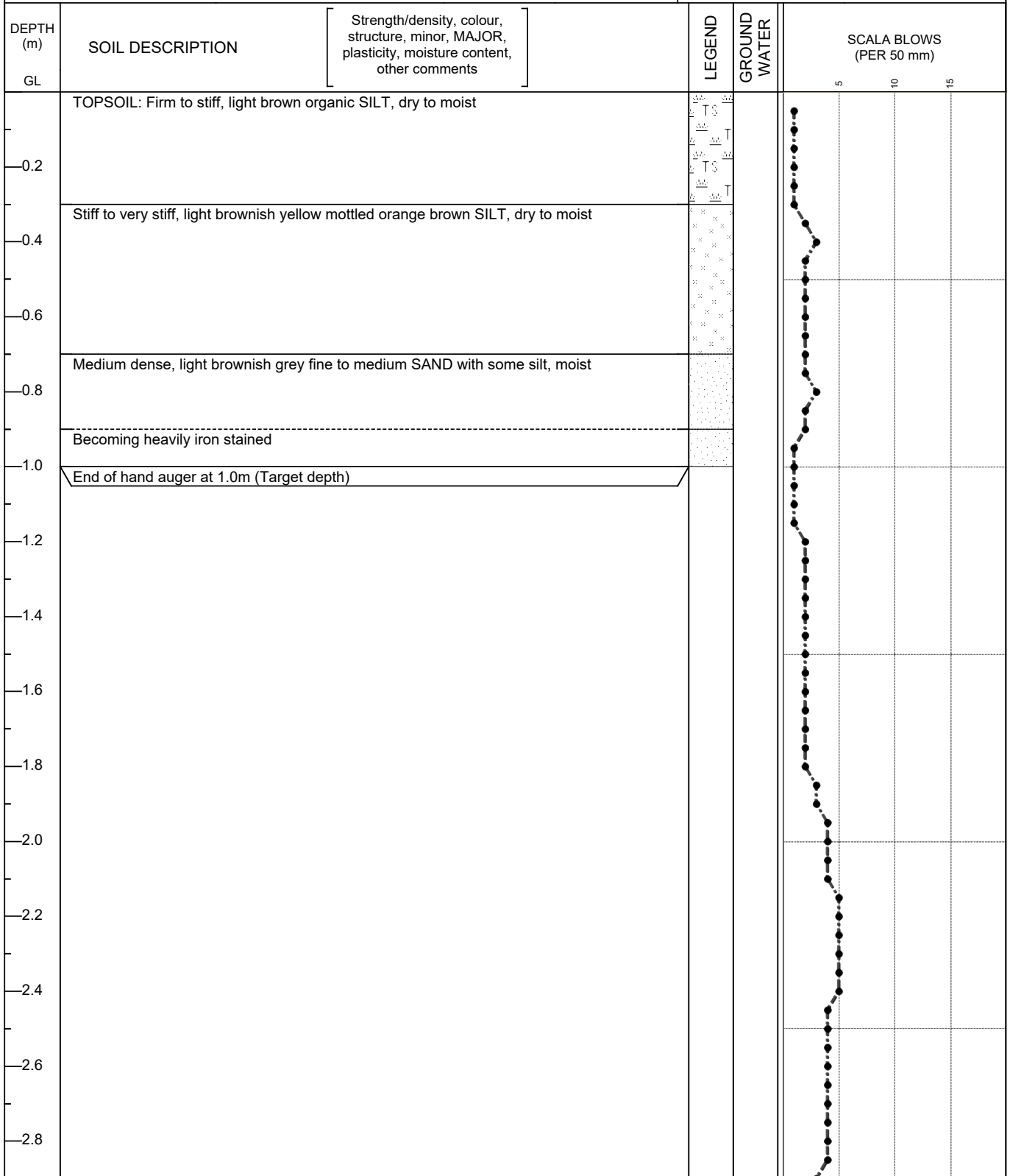
DP

CHECKED

JF

BH LOCATION: COORDS:

RL GROUND:



NOTES:

Target depth reached.
Groundwater not encountered

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1st FLOOR, UNIT 1, 100 BUSH ROAD,
ALBANY, AUCKLAND

PH (09) 451 9044

PROJECT: Geotechnical Investigation

CLIENT: Moreover Holdings Ltd

ADDRESS: 80 Mackworth Street, Woolston

LOGGED

PROCESSED

CHECKED

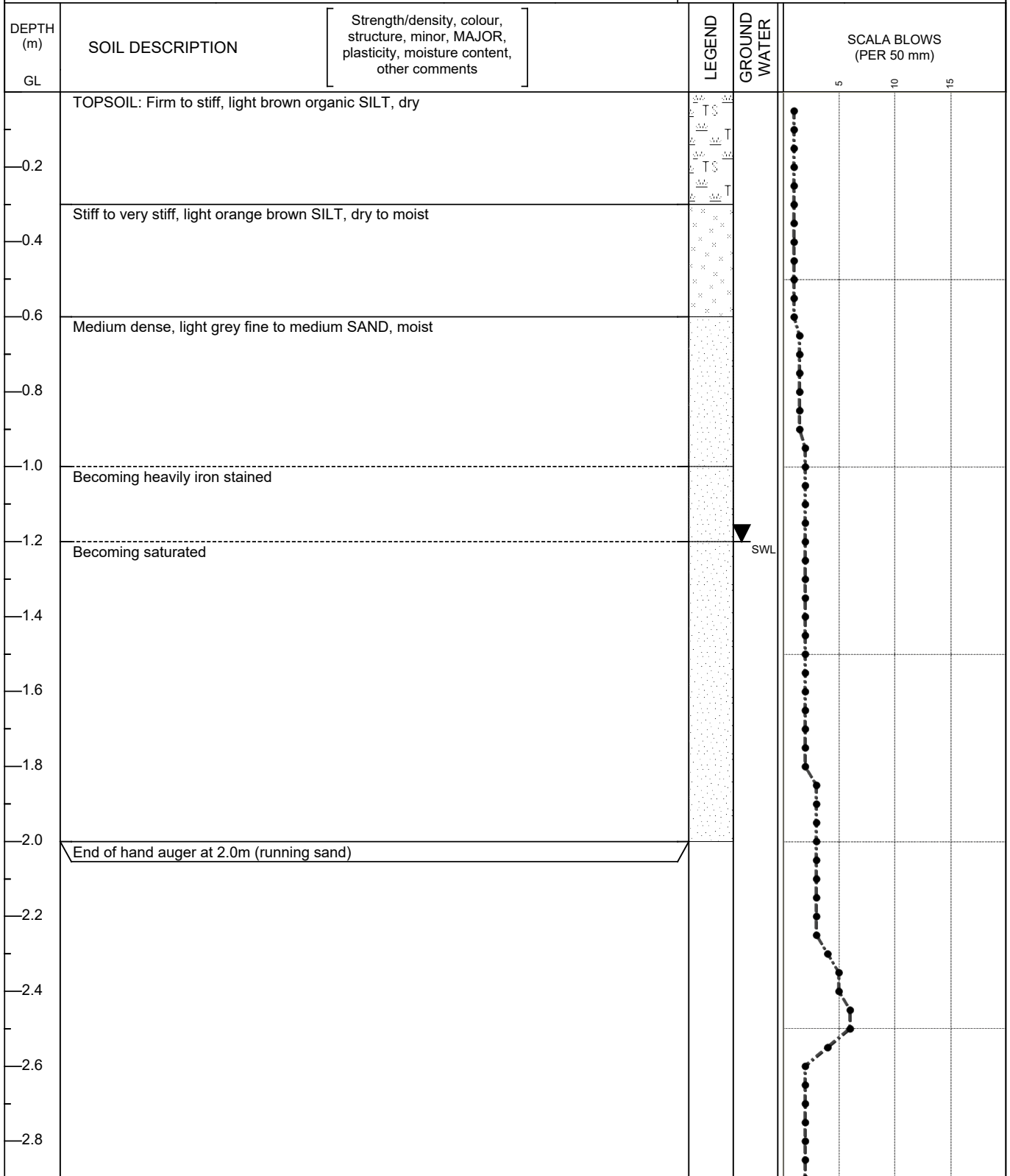
DP

DP

JF

BH LOCATION: COORDS:

RL GROUND:



NOTES:

Termination due to running sand at 2.0m
Groundwater encountered at 1.2m

ENGINEERING DESIGN CONSULTANTS LTD

CIVIL, STRUCTURAL,
ENVIRONMENTAL, GEOTECHNICAL AND
FIRE ENGINEERS

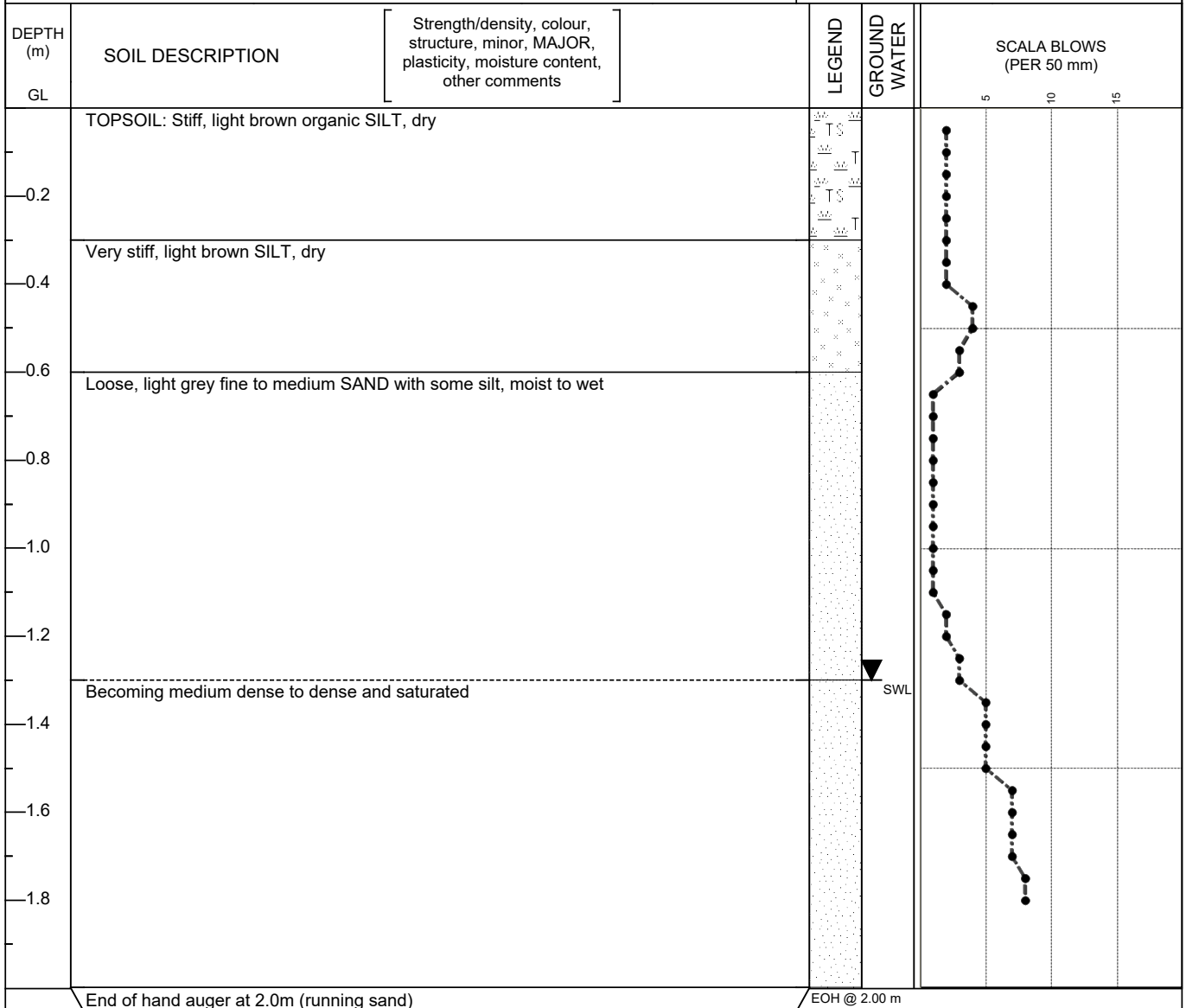
www.edc.co.nz
team@edc.co.nz

15B LESLIE HILLS DRIVE
RICCARTON 8011
CHRISTCHURCH

PH (03) 355 5559
FAX (09) 415 1280

1st FLOOR, UNIT 1, 100 BUSH ROAD,
ALBANY, AUCKLAND

PH (09) 451 9044



NOTES:

Termination due to running sand at 2.0m
Groundwater encountered at 1.3m

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FAX (09) 415 1280

1st FLOOR, UNIT 1, 100 BUSH ROAD,
ALBANY, AUCKLAND

PH (09) 451 9044

PROJECT: Geotechnical Investigation

CLIENT: Moreover Holdings Ltd

ADDRESS: 80 Mackworth Street, Woolston

LOGGED

PROCESSED

CHECKED

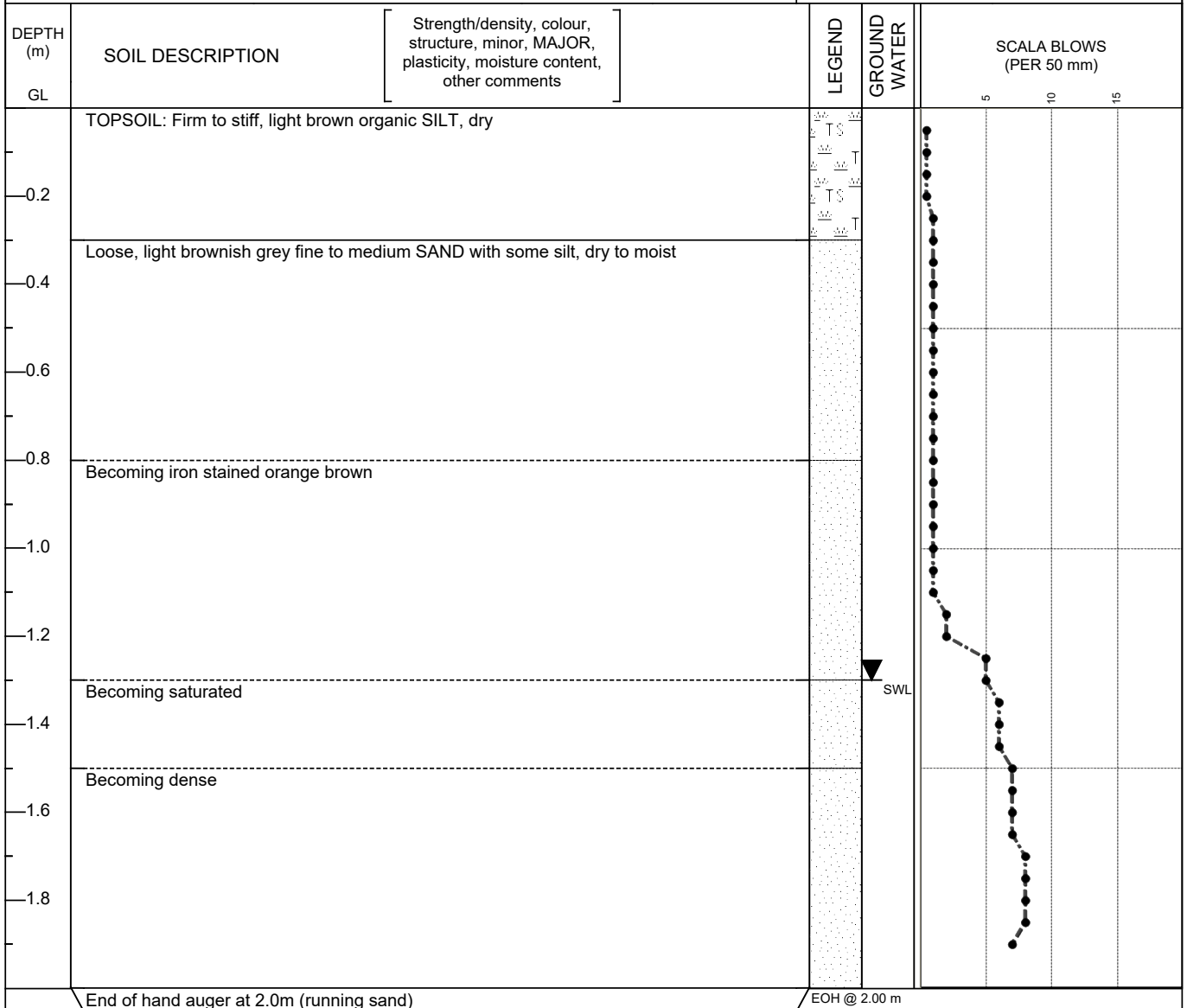
DP

DP

JF

BH LOCATION: COORDS:

RL GROUND:



NOTES:

Termination due to running sand at 2.0m
Groundwater encountered at 1.3m

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1st FLOOR, UNIT 1, 100 BUSH ROAD,
ALBANY, AUCKLAND

PH (09) 451 9044

PROJECT: Geotechnical Investigation

CLIENT: Moreover Holdings Ltd

ADDRESS: 80 Mackworth Street, Woolston

LOGGED

DP

PROCESSED

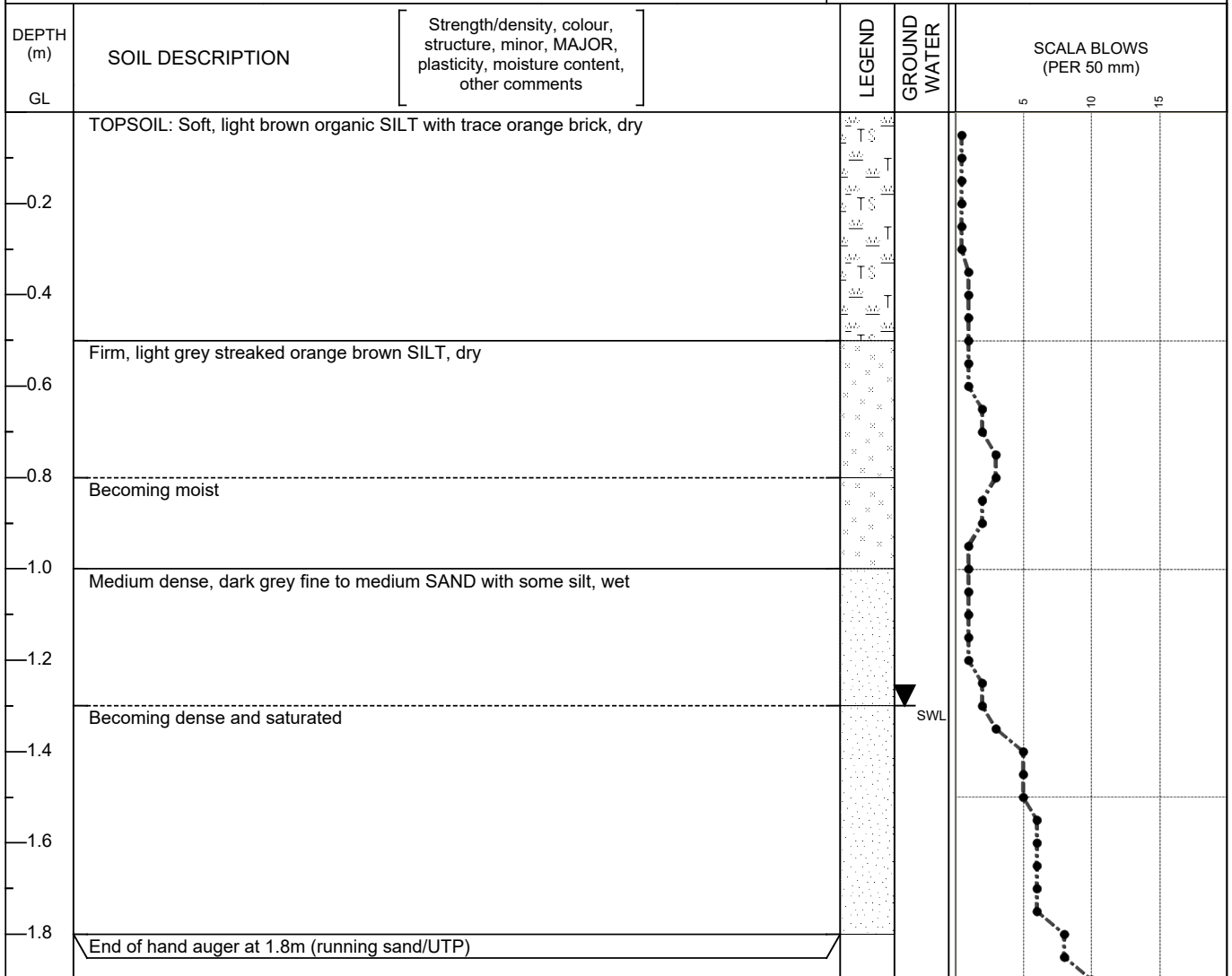
DP

CHECKED

JF

BH LOCATION: COORDS:

RL GROUND:



NOTES:

Termination due to running sand / unable to penetrate at 1.8m
Groundwater encountered at 1.3m

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ENVIRONMENTAL, GEOTECHNICAL AND
FIRE ENGINEERS

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team@edc.co.nz

15B LESLIE HILLS DRIVE
RICCARTON 8011
CHRISTCHURCH

PH (03) 355 5559
FAX (09) 415 1280

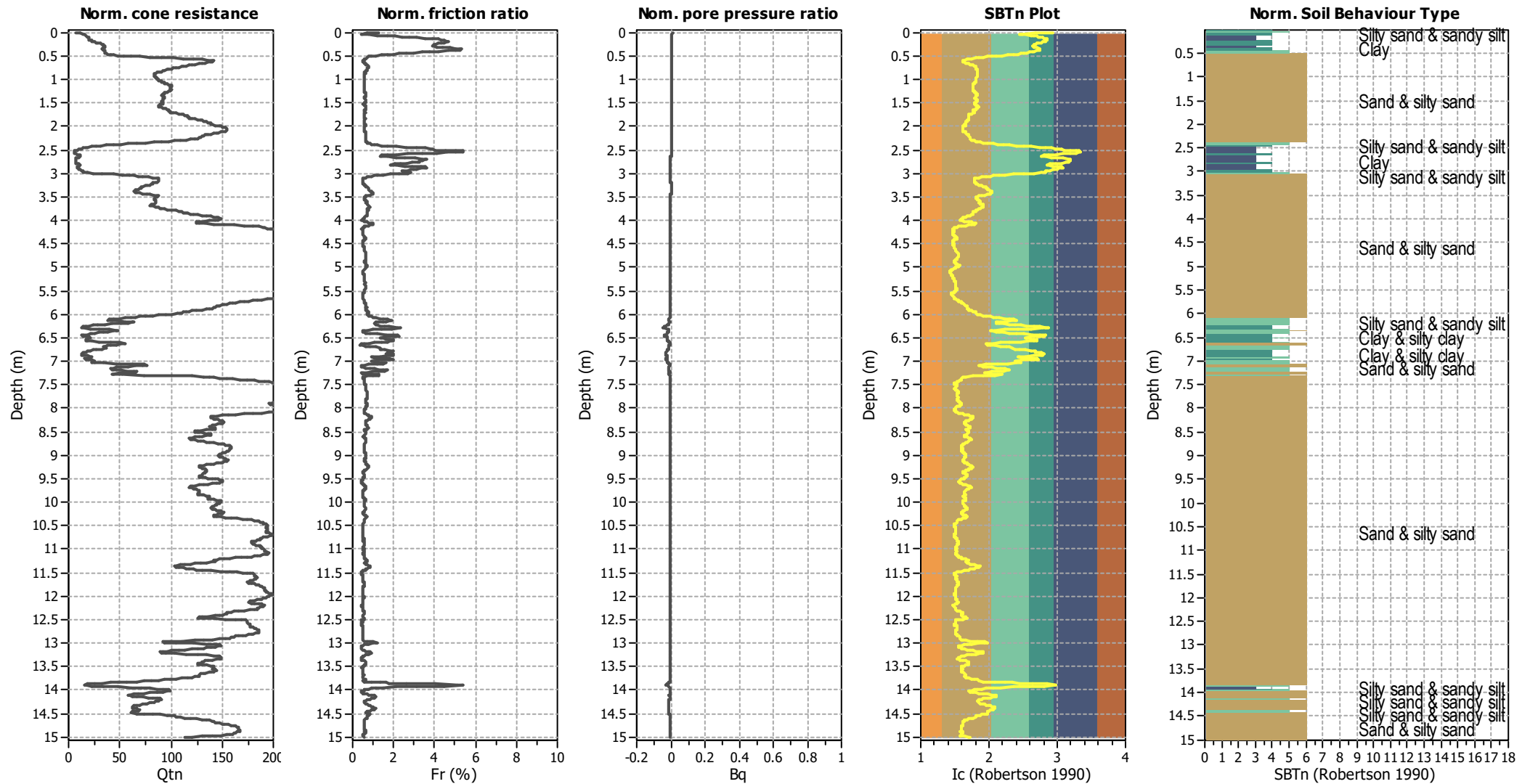
1st FLOOR, UNIT 1, 100 BUSH ROAD,
ALBANY, AUCKLAND

PH (09) 451 9044

APPENDIX C

CPT SOIL BEHAVIOUR TYPE

CPT basic interpretation plots (normalized)



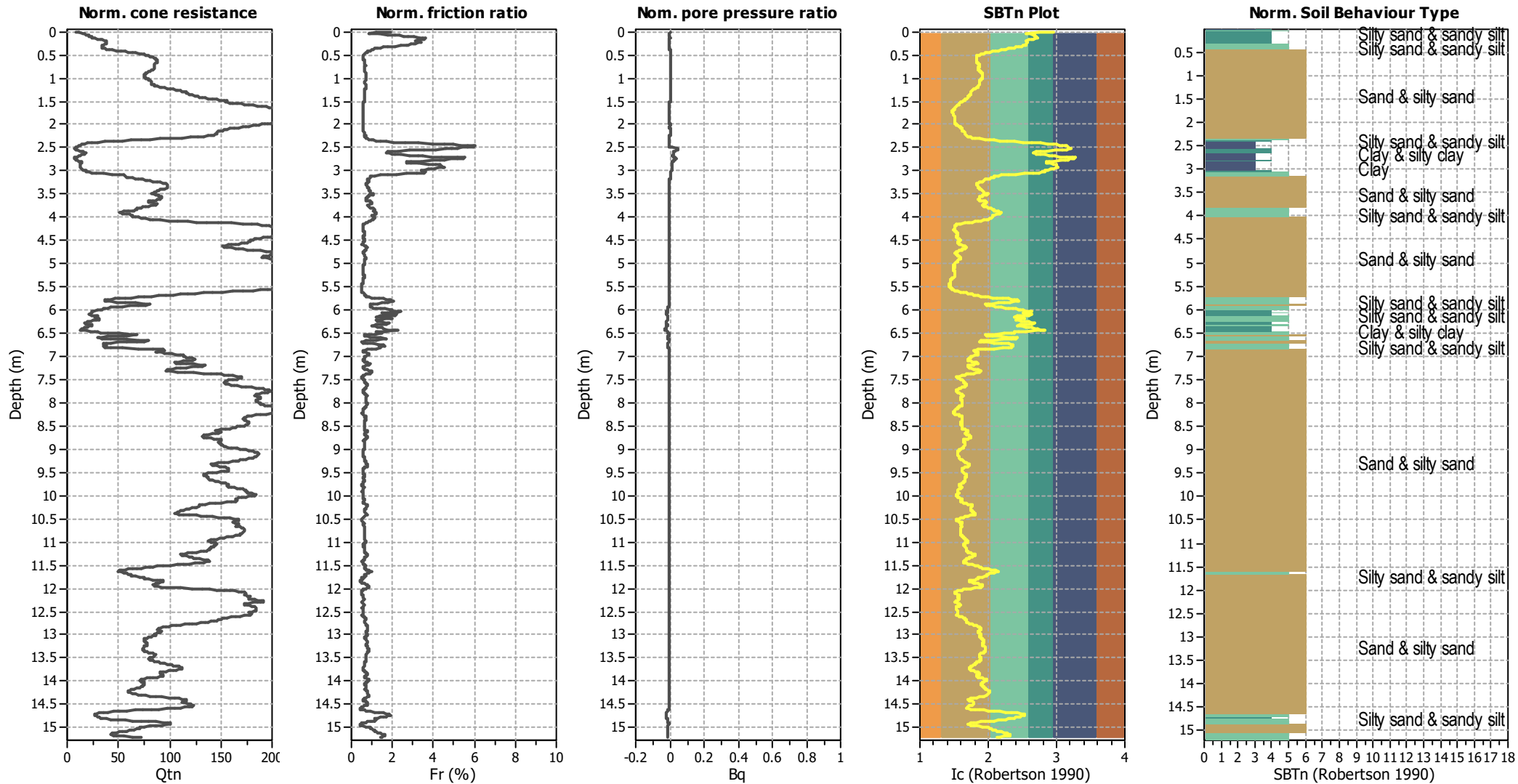
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	0.70 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 _o applied:	Yes
Earthquake magnitude M _w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

SBTn legend

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

CPT basic interpretation plots (normalized)



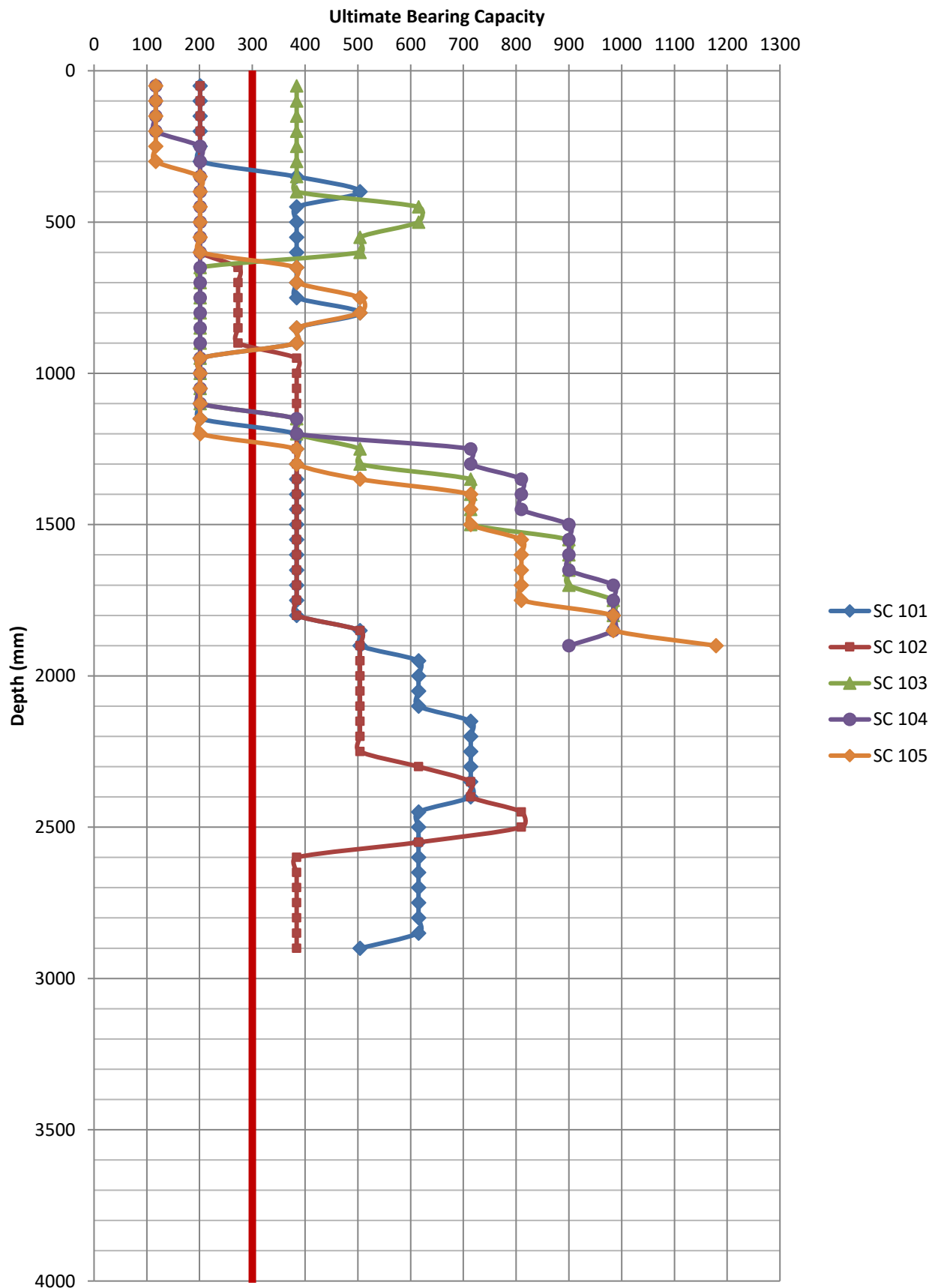
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	0.70 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 ₀ applied:	Yes
Earthquake magnitude M _w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

APPENDIX D

ULTIMATE BEARING CAPACITY GRAPH

Summary of Ultimate Bearing Capacity vs Depth



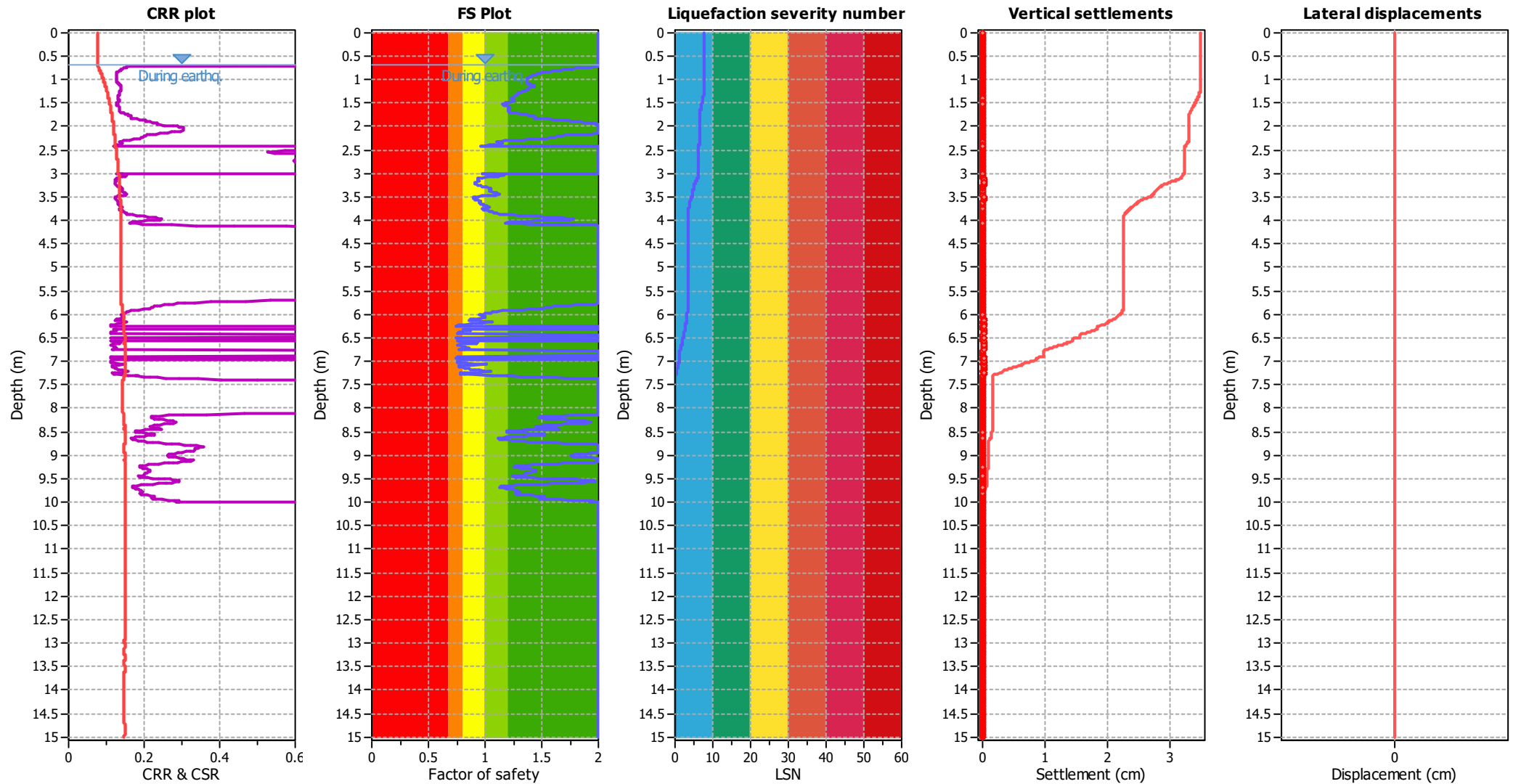
NOTES

1. Based on Stockwell, M.J., 1977: Determination of allowable bearing pressure under small structures. New Zealand Engineering (32:6), dated 15 June 1977, using a factor of safety of three to back calculate the UBC.

APPENDIX E

CPT CLIQ DATA

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (earthq.):	0.70 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_{σ} applied:	Yes
Earthquake magnitude M_w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

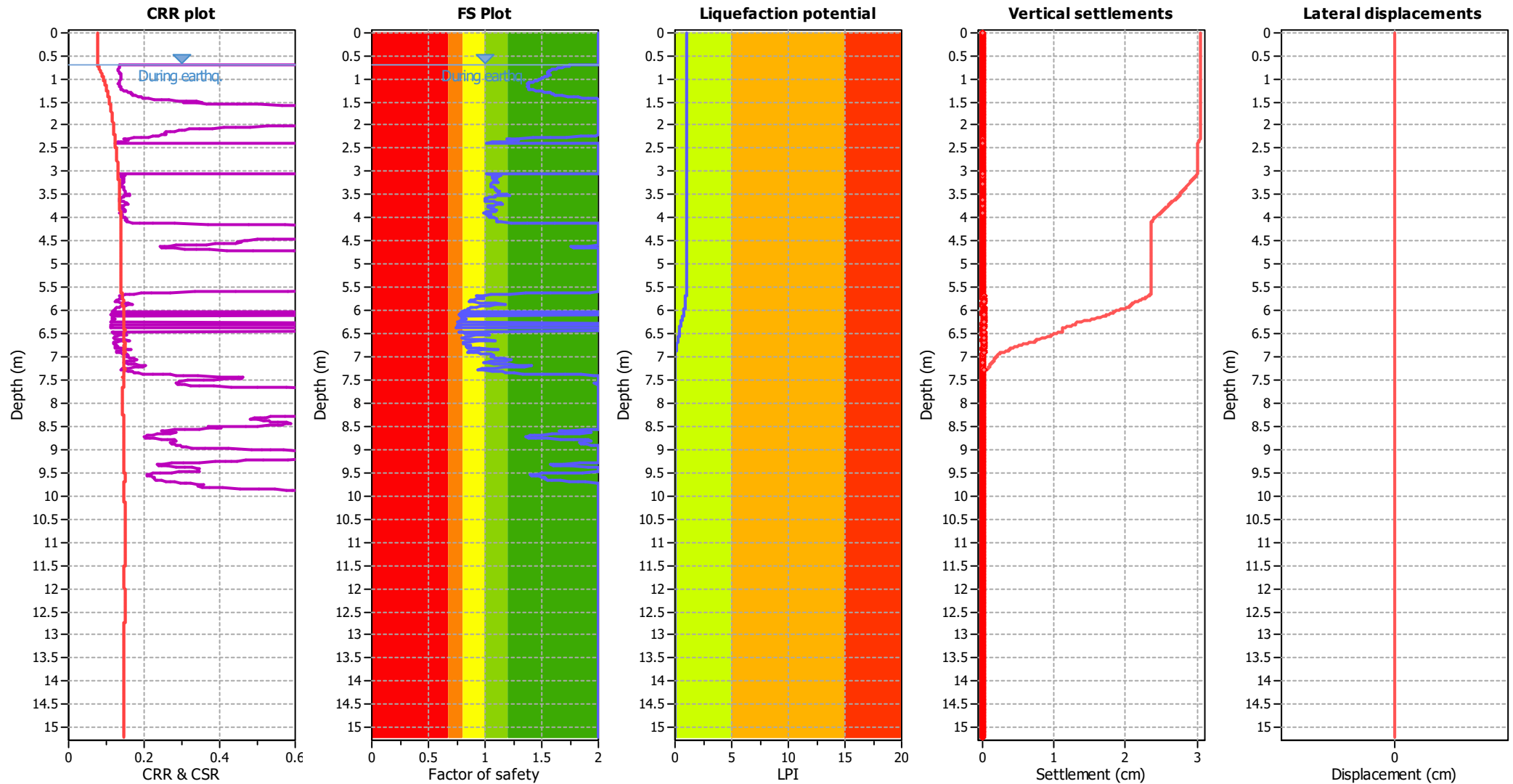
F.S. color scheme

■	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.):	0.70 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_{σ} applied:	Yes
Earthquake magnitude M_w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

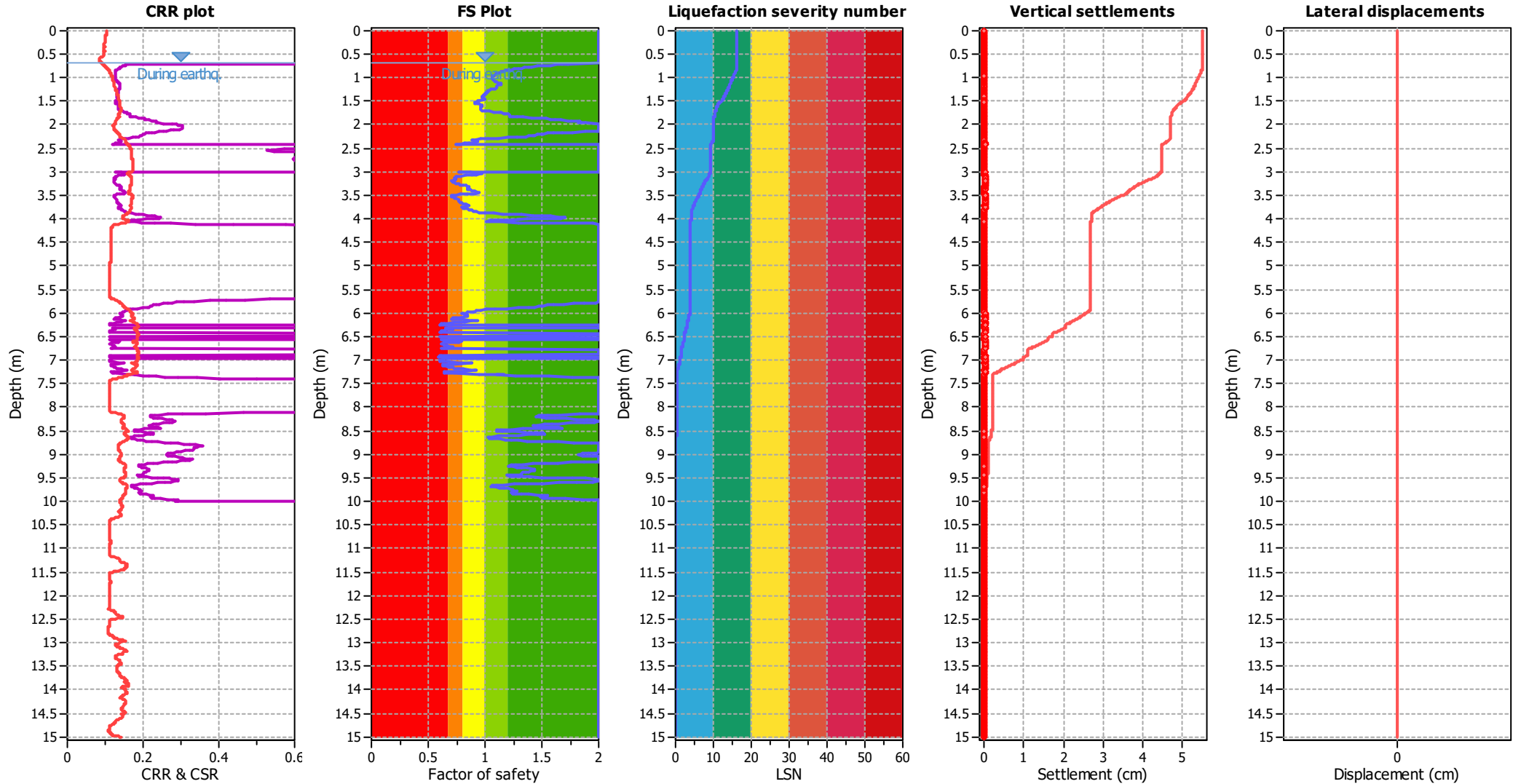
F.S. color scheme

■	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

LPI color scheme

■	Very high risk
■	High risk
■	Low risk

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (earthq.):	0.70 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 _o applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

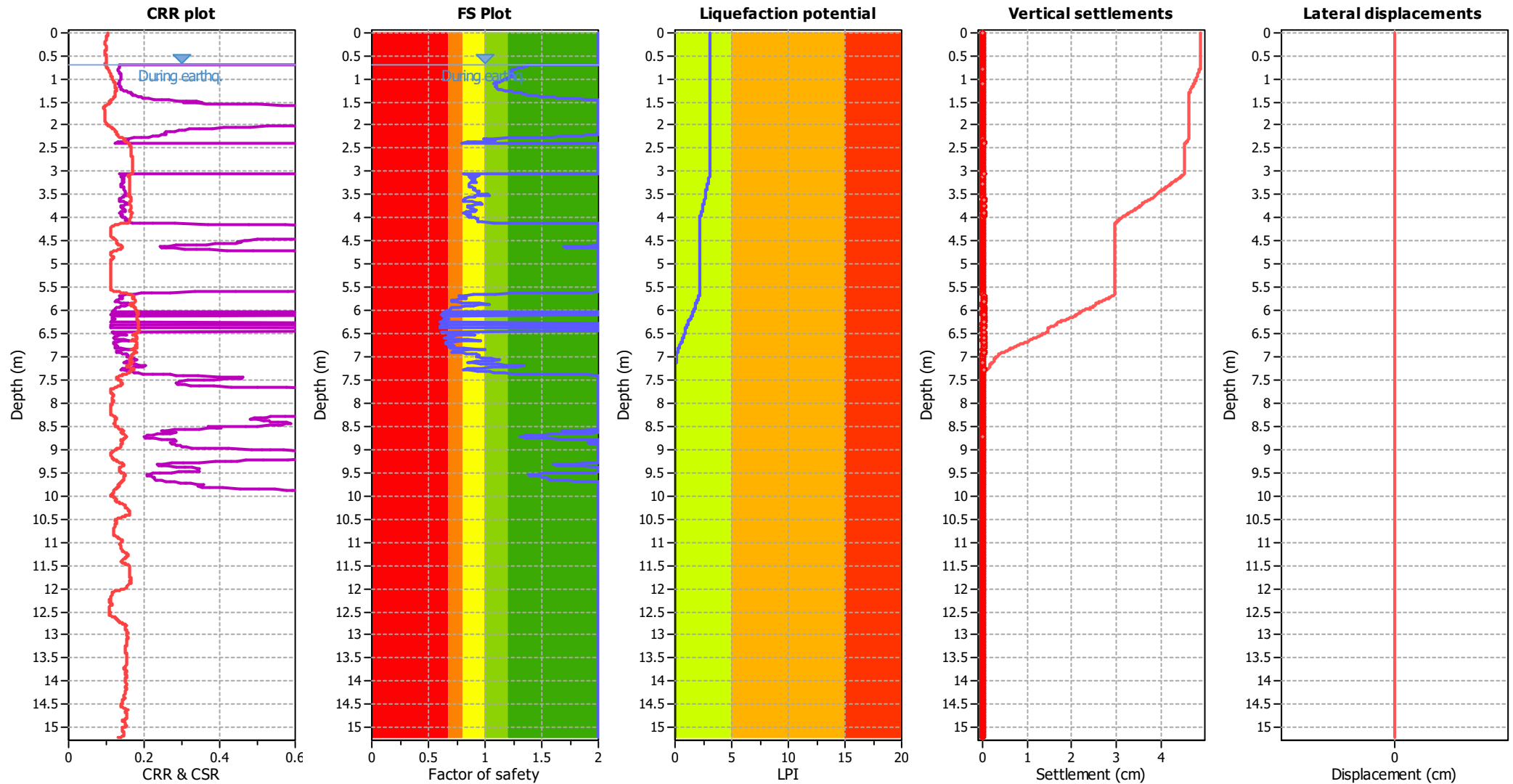
F.S. color scheme

Red	Almost certain it will liquefy
Orange	Very likely to liquefy
Yellow	Liquefaction and no liq. are equally likely
Green	Unlike to liquefy
Dark Green	Almost certain it will not liquefy

LSN color scheme

Red	Severe damage
Orange	Major expression of liquefaction
Yellow	Moderate to severe exp. of liquefaction
Green	Moderate expression of liquefaction
Light Green	Minor expression of liquefaction
Blue	Little to no expression of liquefaction

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	0.70 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_{σ} applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

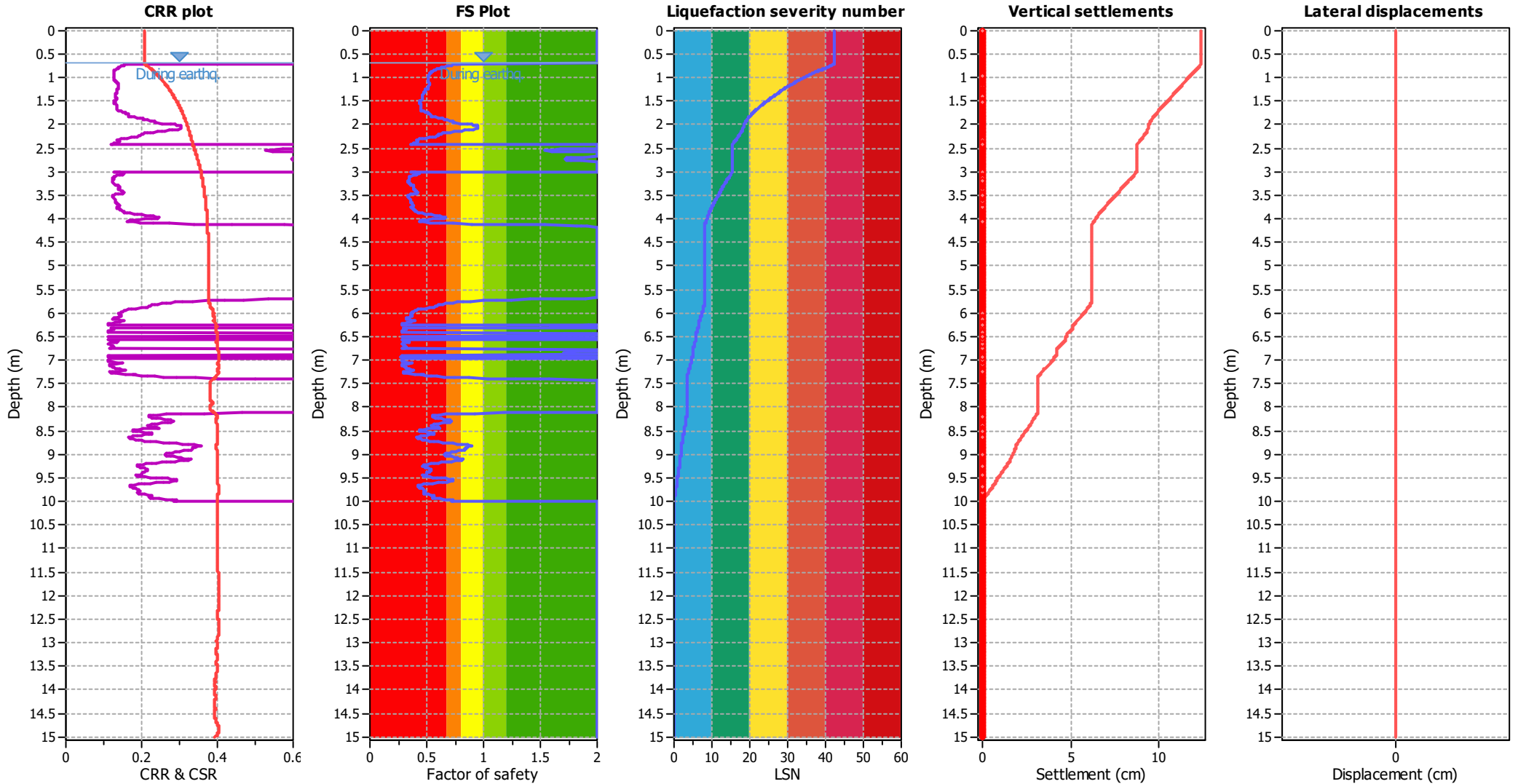
F.S. color scheme

■	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

LPI color scheme

■	Very high risk
■	High risk
■	Low risk

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	0.70 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 _o applied:	Yes
Earthquake magnitude M _w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.35	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

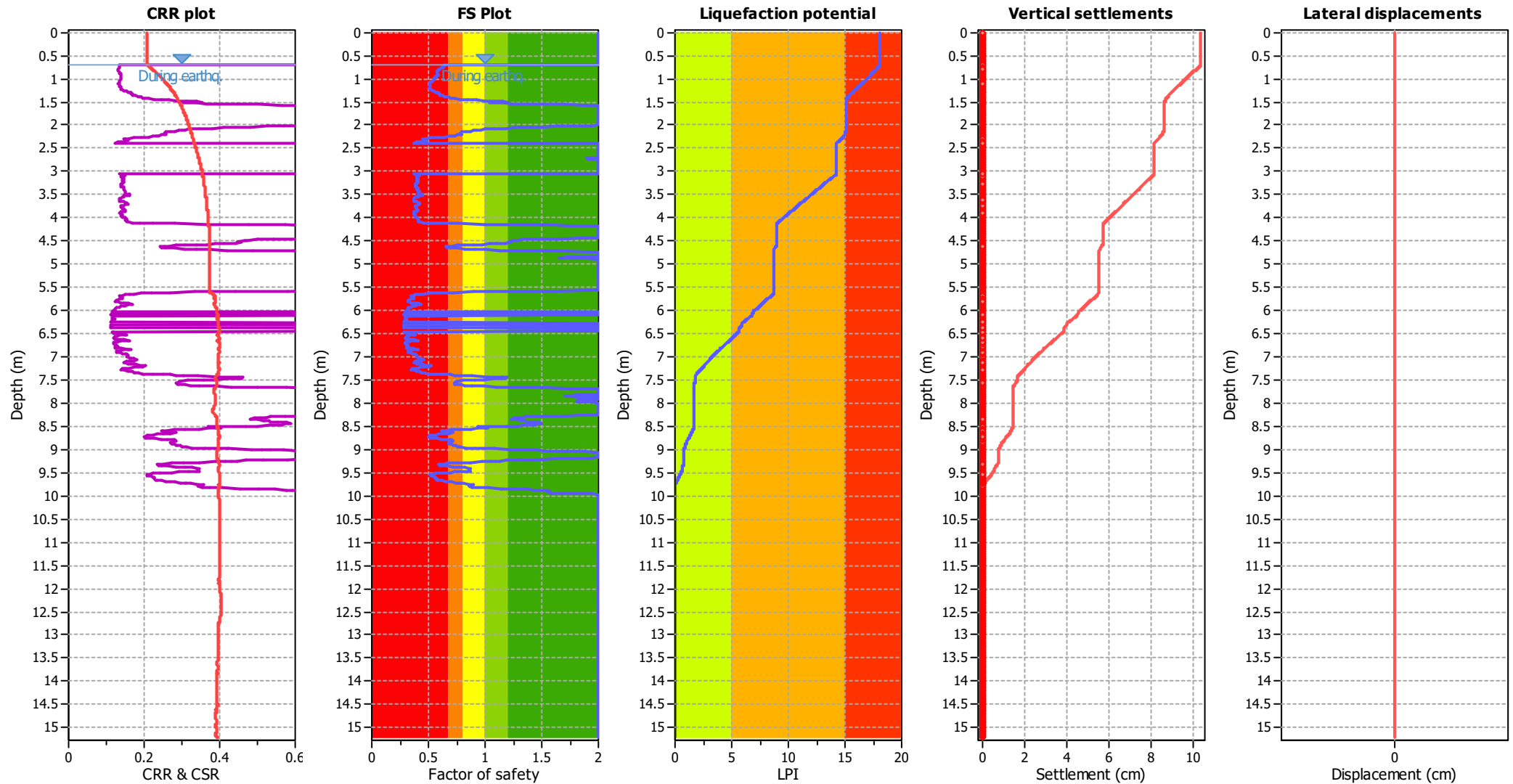
F.S. color scheme

Red	Almost certain it will liquefy
Orange	Very likely to liquefy
Yellow	Liquefaction and no liq. are equally likely
Green	Unlike to liquefy
Dark Green	Almost certain it will not liquefy

LSN color scheme

Red	Severe damage
Dark Red	Major expression of liquefaction
Orange	Moderate to severe exp. of liquefaction
Yellow	Moderate expression of liquefaction
Green	Minor expression of liquefaction
Blue	Little to no expression of liquefaction

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (earthq.):	0.70 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_{σ} applied:	Yes
Earthquake magnitude M_w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.35	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 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

LPI color scheme

■	Very high risk
■	High risk
■	Low risk

APPENDIX F

STATEMENT OF PROFESSIONAL OPINION

APPENDIX I

Statement of Professional Opinion on the Suitability of Land for Subdivision

ISSUED BY: Engineering Design Consultants Ltd (EDC Ltd)
(Geotechnical engineering firm or suitably qualified engineer)

TO: Christchurch City Council
(Territorial authority)

TO BE SUPPLIED TO: Moreover Holdings Limited
(Owner/Developer)

IN RESPECT OF: Subdivision
(Description of infrastructure/land development)

AT: 80 Mackworth Street, Woolston, Christchurch

(Address)

I Gareth B. Williams on behalf of
(Geoprofessional)
Engineering Design Consultants Ltd (EDC Ltd)
(Geotechnical engineering firm)

hereby confirm:

1. I am a suitably qualified and experienced geoprofessional employed by EDC Ltd.
and the geotechnical firm named above was retained by the owner/developer as the geoprofessional on
the above proposed development.

2. The geotechnical assessment report, dated 25/08/2021 has been carried out in accordance with the
Ministry of Business, Innovation and Employment *Guidelines for geotechnical investigation and assessment
of subdivisions* and the Christchurch City Council *Infrastructure Design Standard – Part 4: Geotechnical
Requirements* and includes:

- (i) Details of and the results of my/the site investigations.
- (ii) A liquefaction and lateral spread assessment.
- (iii) An assessment of rockfall and slippage, including hazards resulting from seismic activity.
- (iv) An assessment of the slope stability and ground bearing capacity confirming the location and appropriateness of building sites.
- (v) Recommendations proposing measures to avoid, remedy or mitigate any potential hazards on the land subject to the application, in accordance with the provisions of Section 106 of the Resource Management Act 1991.

3. In my professional opinion, not to be construed as a guarantee, I consider that Council is justified in granting consent incorporating the following conditions:

(i) No further conditions to those outlined in the Geotechnical Assessment (EDC: 50142)

(ii) _____

4. This professional opinion is furnished to the territorial authority and the owner/developer for their purposes alone, on the express condition that it will not be relied upon by any other person and does not remove the necessity for the normal inspection of foundation conditions at the time of erection of any building. It is limited to those items referred to in clause 2 only.

5. This statement shall be read in conjunction with the geotechnical report referred to in clause 2 above, and shall not be copied or reproduced except in conjunction with the full geotechnical completion report.

6. Liability under this statement accrues to the geotechnical firm only and no liability shall accrue to the individual completing this statement.

7. The geotechnical engineering firm issuing this statement holds a current policy of professional indemnity insurance of no less than \$ 1 Million

(Minimum amount of insurance shall be commensurate with the current amounts recommended by IPENZ, ACENZ, NZTA, INGENIUM.)

 Date: 25/08/2021

(Signature of engineer, for and on behalf of Engineering Design Consultants Ltd.)

Qualifications and experience

CP Eng, IntPE(NZ), MIPENZ, MAusIMM, MloD Director, Snr Geotechnical Engineer

This form is to accompany Form 9 – Resource Management Act 1991 (Application for a Resource Consent (Subdivision))

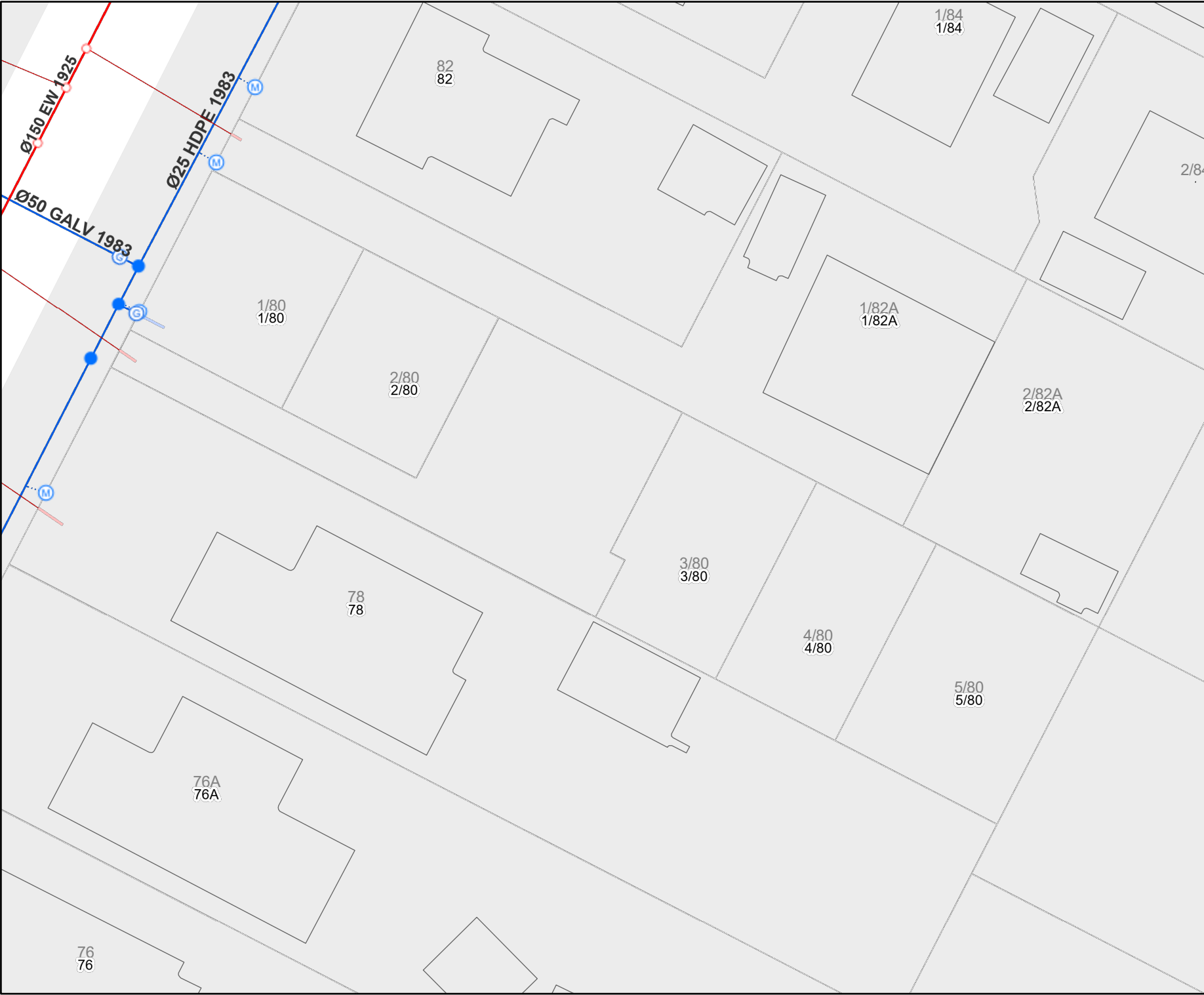
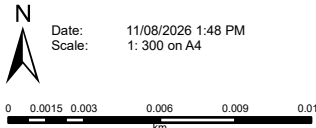
- Buildings
- StreetAddress
- WwEye**
 - Eye
 - Eye
 - WwPipeFlowDirection
- WwPipe**
 - NominalDiameter**
 - Diameter is 200mm or smaller
 - WwLateral
 - WwLateral (non CCC)**
 - In Service
- WsValve**
 - Gate
- WsConnection**
 - Meter
- WsFitting**
 - Connector
 - Connector
- WsPipe**
 - NominalDiameter**
 - Diameter is 110mm or smaller
 - WsLateral
 - WsLateral (non CCC)**
 - In Service
 - RatingUnit



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

Accuracy not guaranteed. Onsite verification required.
Display of data scale dependant.
Client selected legend.

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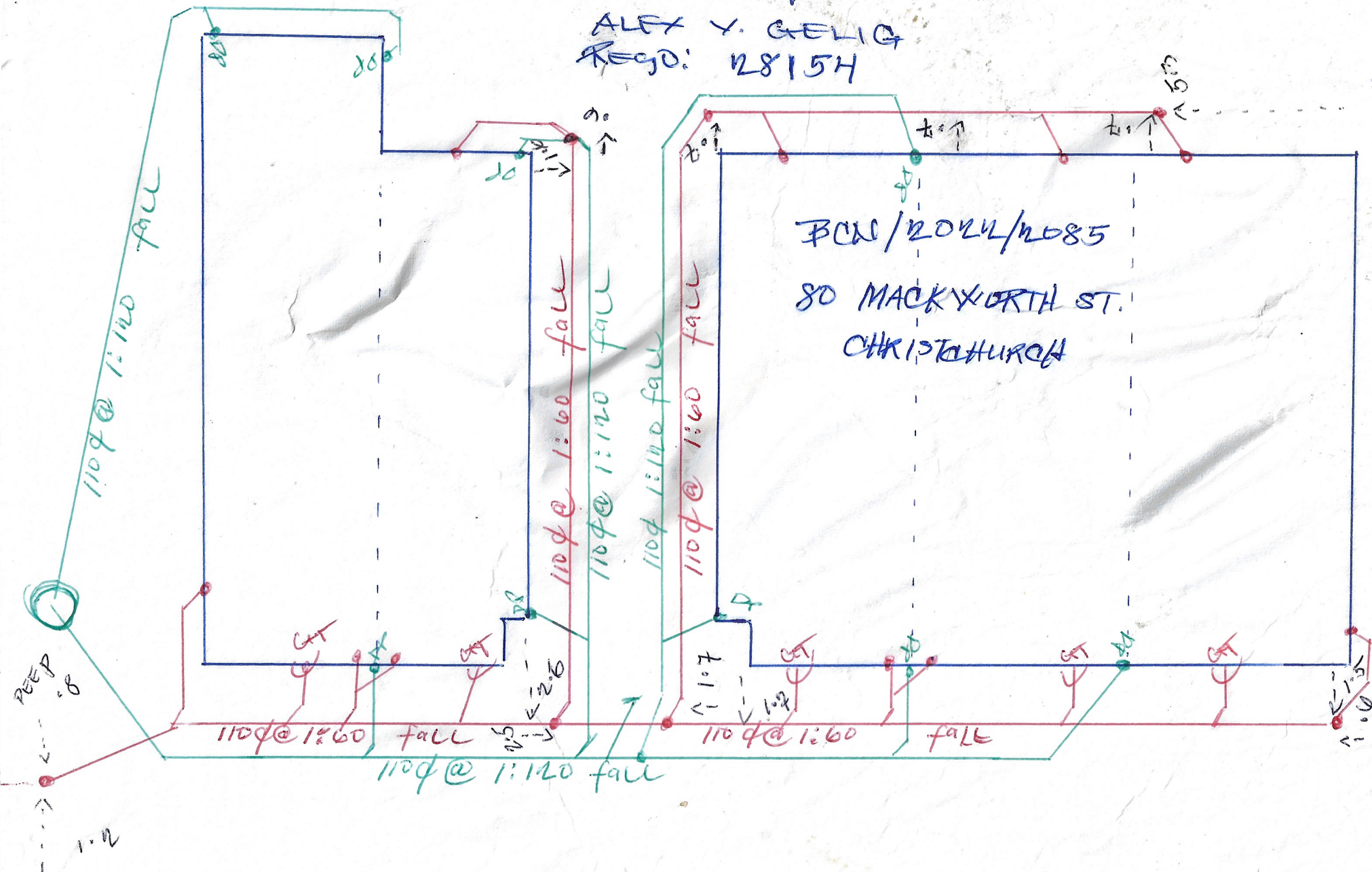
CLIENT: MOREOVER HOLDING LTD.
CERTIFYING DRAIN LAYER: PAUL BARNES
REGO: 18172

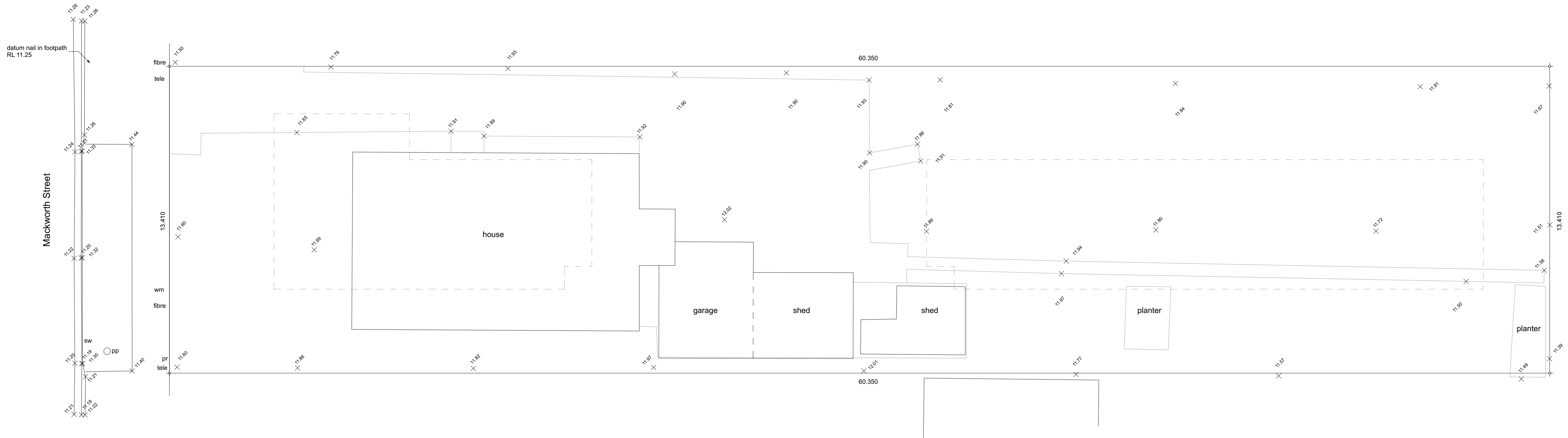
ALEX V. GELIG
REGO: 128154

PCN/2024/2085

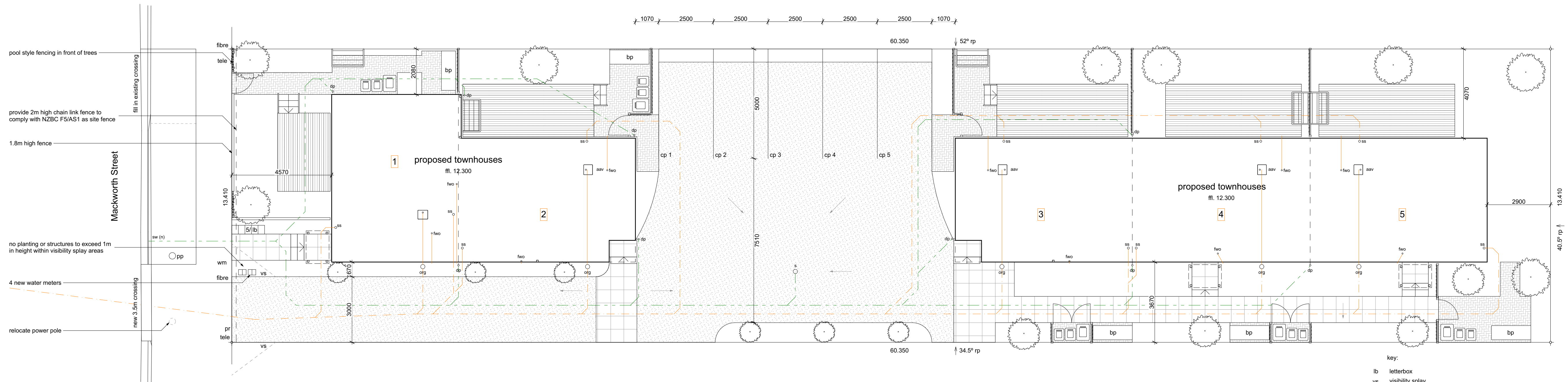
80 MACKWORTH ST.

CHRISTCHURCH





existing site plan



site description

Lot 5
DP 9945
80 Mackworth Street
Woolston
Christchurch

building areas

site area 809 m²
existing impervious surfaces 311 m² 38%
proposed impervious surfaces 491 m² 61%
site coverage 236 m² 29%

wind zone

low

earthquake zone

zone 2

zone

RSDT
FMA

note:
Drain layer to site investigate the existing sewer lateral. Verification will be required stating existing laterals are still in sound condition and confirming the invert level and grade.
Add access points to sewer/ stormwater drains at: no further than 50m between points, at change of direction greater than 45° & junctions of drains (except single d.p. branch less than 2m long or gully trap less than 2m distance).
For sewer only: within 2m of drain entering/ exiting building, immediately inside boundary.
For stormwater drain running under foundation slab place inspection point at each end within 2m of slab

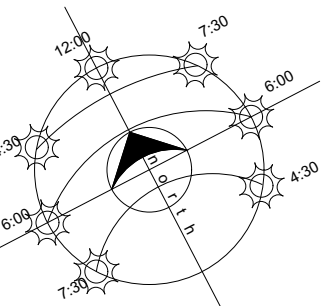
waste key:

wastes to AS/NZS 3500.2
wh/ sink 40mm ø waste pipe
shower 40mm ø waste pipe
w.c. 100mm ø waste pipe
40mm ø waste pipe
tub 40mm ø waste pipe
50mm ø waste pipe
100mm ø stormwater drain @ 1:120 min fall
100mm ø sewer pipe @ 1:60 min fall

key:

lb letterbox
vs visibility splay
bp covered bike park (minimum internal dimensions 650 x 1800)
sw (n) new storm water outlet
s sump (type 1 to E1/AS1)
ss 100s single stack
asv air admittance valve
dp 75s downpipe
fwo floor waste outlet
org overflow relief gully to NZBC G13/AS2 clause 3.3.2

proposed site plan





ELECTRICAL CERTIFICATE OF COMPLIANCE

REFERENCE/CERTIFICATE ID No.: #4330C5/80

This form has been designed to be used by licensed electrical workers to certify that installations or Part installations under Part 1 or Part 2 of AS/NZS 3000 are safe to be connected to the specified system of electrical supply.

Location Details:

5/80 Mackworth Street, Woolston, Christchurch, Canterbury 8062

Contact Details: (Name and address)

Metro Advances Ltd invoices.metro@xtra.co.nz

Name of Electrical worker:

Josh Partridge

Registration/Practising licence number:

E258185

Phone & email:

PartridgeElectrical1@gmail.com

Name and registration number of person(s) supervised:

Sam Halliday (E260073), Timothy Sampson (E060984), Jorja Ellens (E-TLC-156081), Cheyne Turahui (E285535)

Certificate of Compliance

Type of work:

☐ Addition

☐ Alteration

☒ New work

The prescribed electrical work is:

☐ Low risk

☐ General

☒ High-risk (Specify):

New MEN single phase switchboard with 63A main switch, 63amp MCB, 35mm neutralscreen mains to boundary box and earth stake

Means of compliance:

☐ Part 1 of AS/NZS 3000

☒ Part 2 of AS/NZS 3000

Additional Standards or electrical code of practice were required: ☒ No ☐ Yes (specify):

Date or range of dates that prescribed electrical work undertaken: 2/2/2023 to 21/6/2023

Contains fittings that are safe to connect to a power supply?

☒ Yes

☐ No

Specify type of supply system: 230v MEN

The installation has an earthing system that is correctly rated (where applicable)

☒ Yes

☐ No

Parts of the installation to which this certificate relates that are safe to connect to a power supply?

☒ All ☐ Parts (specify)

The work relies on manufacturers instructions:

☐ Yes

☒ No

If yes - identify the instruction manual including name, date and version. Also attach a copy of manufacturer's instructions to this certificate.

(Or provide reference to readily accessible electronic format, eg Internet link.)

Identify:

Link:

The work has been done in accordance with a certified design:

☐ Yes

☒ No

If yes - identify the certified design including name, date and version. Also attach a copy of the certified design to this certificate.

(Or provide reference to readily accessible electronic format, eg Internet link.)

Identify:

Link:

The work relies on a Supplier Declaration of Conformity (SDoC): ☒ Yes ☐ No

If yes - identify the SDoC including name, date and version OR EESS registration. Also attach a copy of the SDoC to this certificate.

(Or provide reference to readily accessible electronic format, eg Internet link.)

Identify: Radcliffe Electrical

Link: Ltd:http://www.jarussell.co.nz/product-range/sdocs

The installation has been satisfactorily tested in accordance with the Electricity (Safety) Regulations 2010

☐ No

☒ Yes

Description of Work:

New MEN single phase switchboard with 63A main switch, 63amp MCB, 35mm neutral screen mains to boundary box and earth stake

Test Results (provide values)

Polarity (Independent earth):	
Insulation resistance:	Ohms
Earth Continuity:	Ohms
Bonding:	Ohms
Fault Loop impedance:	Ohms
Other (specify):	

By signing this document I certify that the completed prescribed electrical work to which this Certificate of Compliance applies has been done lawfully and safely, and the information in the certificate is correct.

Certifier's signature:

Date:

27/6/2023

CUSTOMER COPY - THIS IS AN IMPORTANT DOCUMENT AND SHOULD BE RETAINED FOR A MINIMUM OF 7 YEARS



ELECTRICAL CERTIFICATE OF COMPLIANCE & ELECTRICAL SAFETY CERTIFICATE

REFERENCE/CERTIFICATE ID No.:

#4330CNaN5/80

This form has been designed to be used by licensed electrical workers to certify that installations or Part installations under **Part 1** or **Part 2** of AS/NZS 3000 are safe to be connected to the **specified** system of electrical supply.

Location Details:

5/80 Mackworth Street, Woolston, Christchurch, Canterbury 8062

Contact Details:
(Name and address)

Metro Advances Ltd invoices.metro@xtra.co.nz

Name of Electrical worker:

Josh Partridge

Registration/Practising
licence number:

E258185

Phone & email:

PartridgeElectrical1@gmail.com

Name and registration number
of person(s) supervised:

Cheyne Turahui (E285535), Sam Halliday (E260073), Timothy Sampson (E060984), Jorja Ellens (E-TLC-156081), Layton Hockey (E-TLC-159805)

Certificate of Compliance

Type of work:

☐ Addition☐ Alteration☒ New work

The prescribed electrical work is:

☐ Low risk☒ General☐ High-risk (Specify):

Means of compliance:

☐ Part 1 of AS/NZS 3000☒ Part 2 of AS/NZS 3000

Additional Standards or electrical code of practice were required:

☒ No☐ Yes (specify):

Date or range of dates that prescribed electrical work undertaken: 2/2/2023 to 30/6/2023

Contains fittings that are safe to connect to a power supply?

☒ Yes☐ No

Specify type of supply system: 230volts MEN

The installation has an earthing system that is correctly rated (where applicable)

☒ Yes☐ No

Parts of the installation to which this certificate relates that are safe to connect to a power supply?

☒ All ☐ Parts (specify)

The work relies on manufacturers instructions:

☐ Yes☒ No

If yes – identify the instruction manual including name, date and version. Also attach a copy of manufacturer's instructions to this certificate.
(Or provide reference to readily accessible electronic format, eg Internet link.)

Identify:

Link:

The work has been done in accordance with a certified design:

☐ Yes☒ No

If yes – identify the certified design including name, date and version. Also attach a copy of the certified design to this certificate.
(Or provide reference to readily accessible electronic format, eg Internet link.)

Identify:

Link:

The work relies on a Supplier Declaration of Conformity (SDoC): ☒ Yes ☐ No

If yes - identify the SDoC including name, date and version OR EESS registration. Also attach a copy of the SDoC to this certificate.
(Or provide reference to readily accessible electronic format, eg Internet link.)

Identify: Radcliffe Electrical

Link: Ltd:http://www.jarussell.co.nz/product-range/sdocs

The installation has been satisfactorily tested in accordance with the Electricity (Safety) Regulations 2010

☐ No☒ Yes

Description of Work:

New unit wired and installed components including 15x MCB, 3xRCD, 2xtowelrail, 1xbathroom heaters, 2xinline bathroom extractor fans, hob & oven with switches, hot water cylinder, security alarm, 28xLED downlights, 13xlight switching points, 16x double socket outlets, 4x single socket outlets, 1x socket for range hood, 4xwall light, outside sensor

Test Results (provide values)

Polarity (Independent earth):	
Insulation resistance:	Ohms
Earth Continuity:	Ohms
Bonding:	Ohms
Fault Loop impedance:	Ohms
Other (specify):	

By signing this document I certify that the completed prescribed electrical work to which this Certificate of Compliance applies has been done lawfully and safely, and the information in the certificate is correct.

Certifier's signature:

Date:

19/7/2023

Electrical Safety Certificate

By signing this document I certify that the installation, or part of the installation, to which this Electrical Safety Certificate applies is connected to a power supply and is safe to use.

Certifier's
name:

Josh Partridge

Registration/Practising
licence number:

E258185

Certifier's
signature:

Certificate
Issue Date:

19/7/2023

Connection Date:

19/7/2023

CUSTOMER COPY – THIS IS AN IMPORTANT DOCUMENT AND SHOULD BE RETAINED FOR A MINIMUM OF 7 YEARS

This Electrical Safety Certificate also confirms that the electrical work complies with the building code for the purposes of Section 19(1)(e) of the Building Act 2004.



RECORD OF INSPECTION (RoI) OF HIGH-RISK PRESCRIBED ELECTRICAL WORK PURSUANT TO THE ELECTRICAL (SAFETY) REGULATIONS 2010

Reference / Record ID Number: 7215503RN701

Issuer (Inspector) details:

Name of Inspector: Shiu Datt Registration #: I256172
Email address: inspections@telpower.co.nz Telephone: 03 339 4150

Location of installation:

Location details: Unit 5, 80 Mackworth Street, Linwood
Location type: ☐ Domestic ☐ Non-Domestic Accommodation ☐ Industrial ☐ Commercial
☐ Educational ☐ Healthcare ☐ Miscellaneous (other)

Certifying Electrical Work and Certificate of Compliance (CoC) details:

Name of Electrical worker(s): Joshua Partridge Registration #: I258185
CoC details: ☐ CoC(s) attached

Certifying Electrical Work and RoI details:

What was inspected:

Mains, Main Earth, MEN Link, Polarity, Rotation, RCD

Specify the regulation(s) and companion standard(s), or identify the certified design, followed when carrying out the inspection:

ESR2010, AS/NZS 3000:2007 Part 2, AS/NZS 3012:2010

ECP34

What are the results of the inspection:

Line R	MΩ	Load	MΩ	Loop Test	R	V	Ω	A
Line W	MΩ	Load	MΩ		W	V	0.15	1.53k A
Line B	MΩ	Load	MΩ		B	V	235	A
Line RW	MΩ	Load	MΩ	RCD Test		ms	x5	ms mA
Line RB	MΩ	Load	MΩ			ms	x5	ms mA
Line WB	MΩ	Load	MΩ			ms	x5	ms mA
Earth Resistance	0.05							
Polarity	Correct							
Rotation								
Bond								

High Risk Category:

- ☐ Not to AS/NZS 3000 Part 2 – 6A(2)(a)(i) ☐ Photovoltaic system – 6A(2)(a)(iv) ☐ Electrical medical area – 6A(2)(a)(vi)
☐ High voltage installation – 6A(2)(a)(ii) ☐ Hazardous area – 6A(2)(a)(v) ☒ Mains work – 6A(2)(b)
☐ Mains parallel generation – 6A(2)(a)(iii) ☐ Animal stunning or meat conditioning 6A(2)(c)
☐ Other – please describe:

Declaration

I hereby confirm that the work described above has been done in ~~not in~~ accordance with the regulations; and the ~~part~~ installation on which the work has been done is, and will be ~~not be~~, when enlivened, electrically safe.

(Note: Strike out or delete the inapplicable words highlighted in red above.)

Signature:

Date: 27-06-2023



ELECTRICAL CERTIFICATE OF COMPLIANCE & ELECTRICAL SAFETY CERTIFICATE

REFERENCE / CERTIFICATE ID No.: 7215503RN701

This form has been designed to be used by licensed electrical workers to certify that installations or Part installations under Part 1 or Part 2 of AS/NZS 3000 are safe to be connected to the specified system of electrical supply.

Location Details:

Unit 5, 80 Mackworth Street, Linwood

Contact Details:

(Name and address)

Name of Electrical worker:

Shiu Datt

Registration/Practising licence number:

1256172

Phone & email:

03 339 4150 inspections@telpower.co.nz

Company:

Telpower Canterbury Ltd – Inspections Division

Certificate of Compliance

Type of work:

☐ Addition

☐ Alteration

☐ New Work

The prescribed electrical work is:

☐ Low Risk

☒ General

☐ High Risk (Specify):

Means of compliance:

☐ Part 1 of AS/NZS 3000

☒ Part 2 of AS/NZS 3000

Additional Standards or electrical code of practice were required:

☒ No ☐ Yes (specify):

Date or range of dates that prescribed electrical work undertaken:

Contains fittings that are safe to connect to a power supply?

☒ Yes ☐ No

Specify type of supply system:

MEN

The installation has an earthing system that is correctly rated (where applicable)

☐ Yes

☐ No

Parts of the installation to which this certificate relates that are safe to connect to a power supply?

☐ All ☒ Parts (Specify)

Metering

The work relies on manufacturers instructions:

☐ Yes

☒ No

If yes – identify the instruction manual including name, date and version. Also attach a copy of manufacturer's instructions to this certificate.

(Or provide reference to readily accessible electronic format, eg Internet link.)

Identify:

Link:

The work has been done in accordance with a certified design:

☐ Yes

☒ No

If yes – identify the certified design including name, date and version. Also attach a copy of the certified design to this certificate.

(Or provide reference to readily accessible electronic format, eg Internet link.)

Identify:

Link:

The work relies on a Supplier Declaration of Conformity (SDoC):

☐ Yes

☒ No

If yes - identify the SDoC including name, date and version OR EESS registration. Also attach a copy of the SDoC to this certificate.

(Or provide reference to readily accessible electronic format, eg Internet link.)

Identify:

Link:

The installation has been satisfactorily tested in accordance with the Electricity (Safety) Regulations 2010

☐ No

☒ Yes

Description of Work:

This COC / ESC covers the installation of the revenue metering and connection from network supply to main switch.

Even Supply

Test Results (provide values)

Polarity (Independent earth):	
Insulation resistance:	Ohms
Earth Continuity:	Ohms
Bonding:	Ohms
Fault Loop impedance	Ohms
Other (specify):	

By signing this document I certify that the completed prescribed electrical work to which this Certificate of Compliance applies has been done lawfully and safely, and the information in the certificate is correct.

Certifier's signature:

Date: 27-06-2021

Electrical Safety Certificate

By signing this document I certify that the installation, or part of the installation, to which this Electrical Safety Certificate applies is connected to a power supply and is safe to use.

Certifier's name:

Shiu Datt

Registration/Practising licence number:

1256172

Certifier's signature:

Certificate Issue Date:

27-06-2023

Connection Date:

27-06-2023

CUSTOMER COPY – THIS IS AN IMPORTANT DOCUMENT AND SHOULD BE RETAINED FOR A MINIMUM OF 7 YEARS

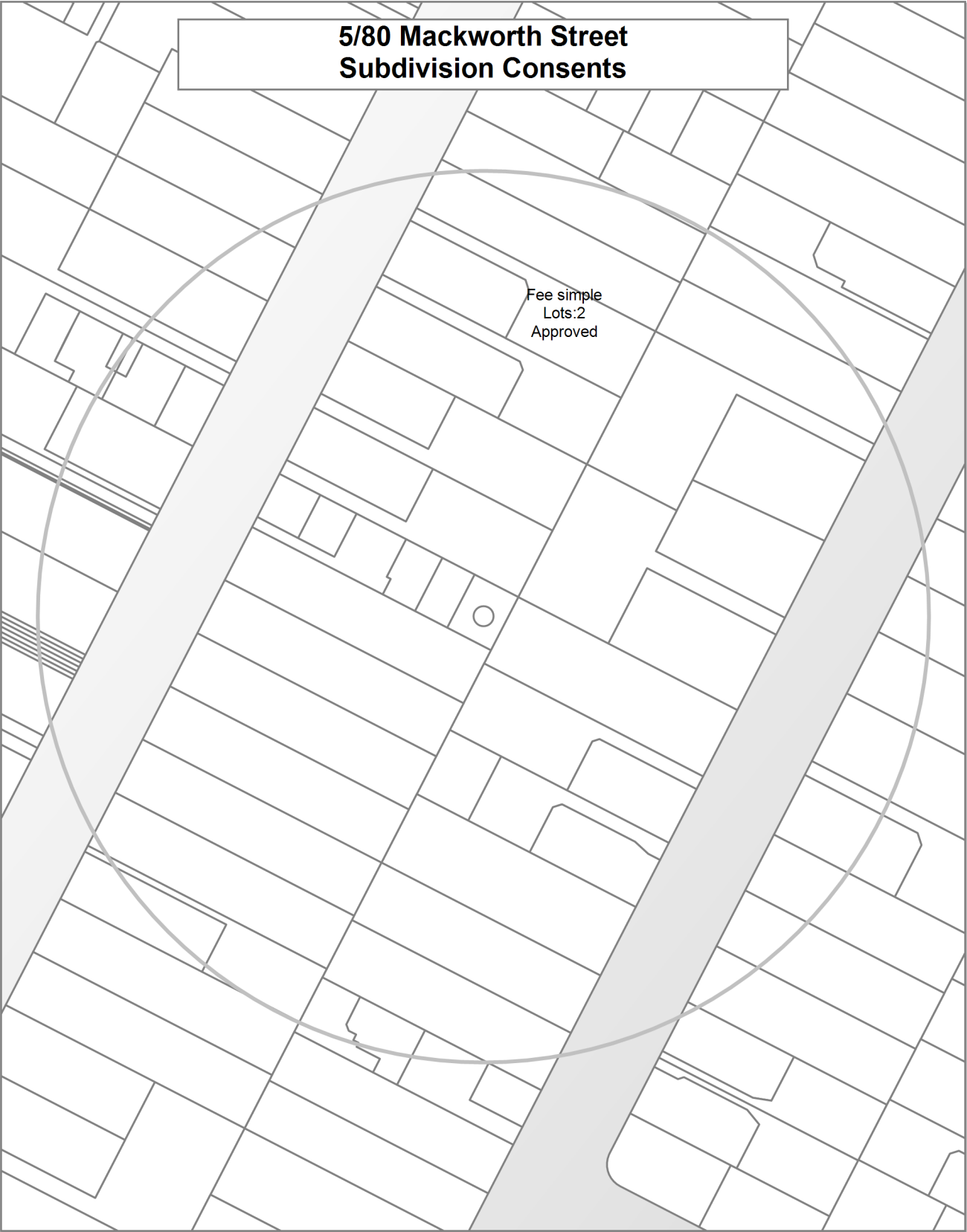
This Electrical Safety Certificate also confirms that the electrical work complies with the building code for the purposes of Section 19(1)(e) of the Building Act 2004.

**5/80 Mackworth Street
Land Use Consents**



**5/80 Mackworth Street
Subdivision Consents**

Fee simple
Lots:2
Approved



Land Use Resource Consents within 100 metres of 5/80 Mackworth Street

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

1/77B Mackworth Street

RMA/2003/2736

To pipe a section of the Tamai No 1 Drain - Historical Reference RMA20015071

Withdrawn

Applied 14/10/2003

1/80 Mackworth Street

RMA/2021/3061

Construct a multi-unit residential complex of five units with associated parking

Processing complete

Applied 15/09/2021

Decision issued 30/11/2021

Granted 30/11/2021

RMA/2022/3339

Subdivision - Fee simple - Five lots with land use

Processing complete

Applied 27/10/2022

s223 Certificate issued 14/12/2022

s224 Certificate issued 15/08/2023

Decision issued 08/12/2022

Granted 08/12/2022

1/81 Mackworth Street

RMA/2022/3523

Construct four residential units

Processing complete

Applied 17/11/2022

Decision issued 27/03/2023

Granted 27/03/2023

RMA/2023/1732

Subdivision - Fee Simple - 4 Lots with land use

Processing complete

Applied 05/07/2023

s223 Certificate issued 08/09/2023

s224 Certificate issued 21/09/2023

Decision issued 03/08/2023

Granted 02/08/2023

1/83 Mackworth Street

RMA/2003/2736

To pipe a section of the Tamai No 1 Drain - Historical Reference RMA20015071

Withdrawn

Applied 14/10/2003

1/87 Smith Street

RMA/1986/520

To erect a Dormer window intruding through the recession plane - Historical Reference RES9209684

Processing complete

Applied 30/05/1986

Decision issued 26/06/1986

Granted 26/06/1986

RMA/2002/2568

Garage/sleepout exceeds 40m² forward of the dwelling, intrudes the 5.5m road boundary setback, site coverage and outdoor living space. - Historical Reference RMA20011611

Processing complete

Applied 09/10/2002

Decision issued 10/03/2003

Granted 10/03/2003

1/89 Smith Street

RMA/2002/841

Garage which intrudes into the 5.5m accessway. - Historical Reference RMA20009824

Processing complete

Applied 12/04/2002

Decision issued 24/04/2002

Granted 24/04/2002

2/77A Mackworth Street

RMA/2003/2736

To pipe a section of the Tamai No 1 Drain - Historical Reference RMA20015071

Withdrawn

Applied 14/10/2003

2/80 Mackworth Street

RMA/2021/3061

Construct a multi-unit residential complex of five units with associated parking

Processing complete

Applied 15/09/2021

Decision issued 30/11/2021

Granted 30/11/2021

RMA/2022/3339

Subdivision - Fee simple - Five lots with land use

Processing complete

Applied 27/10/2022

s223 Certificate issued 14/12/2022

s224 Certificate issued 15/08/2023

Decision issued 08/12/2022

Granted 08/12/2022

2/81 Mackworth Street

RMA/2022/3523

Construct four residential units

Processing complete

Applied 17/11/2022

Decision issued 27/03/2023

Granted 27/03/2023

RMA/2023/1732

Subdivision - Fee Simple - 4 Lots with land use

Processing complete

Applied 05/07/2023

s223 Certificate issued 08/09/2023

s224 Certificate issued 21/09/2023

Decision issued 03/08/2023

Granted 02/08/2023

3/80 Mackworth Street

RMA/2021/3061

Construct a multi-unit residential complex of five units with associated parking

Processing complete

Applied 15/09/2021

Decision issued 30/11/2021

Granted 30/11/2021

RMA/2022/3339

Subdivision - Fee simple - Five lots with land use

Processing complete

Applied 27/10/2022

s223 Certificate issued 14/12/2022

s224 Certificate issued 15/08/2023

Decision issued 08/12/2022

Granted 08/12/2022

3/81 Mackworth Street

RMA/2022/3523

Construct four residential units

Processing complete

Applied 17/11/2022

Decision issued 27/03/2023

Granted 27/03/2023

RMA/2023/1732

Subdivision - Fee Simple - 4 Lots with land use

Processing complete

Applied 05/07/2023

s223 Certificate issued 08/09/2023

s224 Certificate issued 21/09/2023

Decision issued 03/08/2023

Granted 02/08/2023

4/80 Mackworth Street

RMA/2021/3061

Construct a multi-unit residential complex of five units with associated parking

Processing complete

Applied 15/09/2021

Decision issued 30/11/2021

Granted 30/11/2021

RMA/2022/3339

Subdivision - Fee simple - Five lots with land use

Processing complete

Applied 27/10/2022

s223 Certificate issued 14/12/2022

s224 Certificate issued 15/08/2023

Decision issued 08/12/2022

Granted 08/12/2022

4/81 Mackworth Street

RMA/2022/3523

Construct four residential units

Processing complete

Applied 17/11/2022

Decision issued 27/03/2023

Granted 27/03/2023

RMA/2023/1732

Subdivision - Fee Simple - 4 Lots with land use

Processing complete

Applied 05/07/2023

s223 Certificate issued 08/09/2023

s224 Certificate issued 21/09/2023

Decision issued 03/08/2023

Granted 02/08/2023

61B Smith Street

RMA/2022/3516

Subdivision - Fee Simple - Four lots with Land Use

Processing complete

Applied 17/11/2022

s223 Certificate issued 17/03/2023

s224 Certificate issued 17/03/2023

Decision issued 21/12/2022

Granted 20/12/2022

RMA/2022/633

To establish a multi-unit residential complex consisting of four detached units

Processing complete

Applied 07/03/2022

Decision issued 27/09/2022

Granted 27/09/2022

61C Smith Street

RMA/2022/3516

Subdivision - Fee Simple - Four lots with Land Use

Processing complete

Applied 17/11/2022

s223 Certificate issued 17/03/2023

s224 Certificate issued 17/03/2023

Decision issued 21/12/2022

Granted 20/12/2022

RMA/2022/633

To establish a multi-unit residential complex consisting of four detached units

Processing complete

Applied 07/03/2022

Decision issued 27/09/2022

Granted 27/09/2022

61D Smith Street

RMA/2022/3516

Subdivision - Fee Simple - Four lots with Land Use

Processing complete

Applied 17/11/2022

s223 Certificate issued 17/03/2023

s224 Certificate issued 17/03/2023

Decision issued 21/12/2022

Granted 20/12/2022

RMA/2022/633

To establish a multi-unit residential complex consisting of four detached units

Processing complete

Applied 07/03/2022

Decision issued 27/09/2022

Granted 27/09/2022

69 Smith Street

RMA/2024/2085

Wastewater Capacity Certificate for Two Lot Subdivision

Processing complete

Applied 22/07/2024

Certificate issued 02/08/2024

RMA/2024/2142

Subdivision - Fee Simple - 2 Lots with land use

Processing complete

Applied 06/08/2024

Amended decision issued - s133A 29/01/2025

s223 Certificate issued 19/06/2025

s224 Certificate issued 19/06/2025

Decision issued 28/01/2025

Granted 28/01/2025

RMA/2025/1375

Construct two new dwellings as part of a multi-unit residential complex

Processing complete

Applied 14/05/2025

Decision issued 04/07/2025

Granted 04/07/2025

69A Smith Street

RMA/2025/1142

Minimum floor level certificate

Processing complete

Applied 15/04/2025

Certificate issued 22/04/2025

RMA/2025/3916

Subdivision - Fee Simple - Two (2) lots and associated land use

Processing complete

Applied 19/11/2025

s223 Certificate issued 23/04/2026

s224 Certificate issued 23/04/2026

Decision issued 12/01/2026

Granted 09/01/2026

69B Smith Street

RMA/2025/1142

Minimum floor level certificate

Processing complete

Applied 15/04/2025

Certificate issued 22/04/2025

RMA/2025/3916

Subdivision - Fee Simple - Two (2) lots and associated land use

Processing complete

Applied 19/11/2025

s223 Certificate issued 23/04/2026

s224 Certificate issued 23/04/2026

Decision issued 12/01/2026

Granted 09/01/2026

71E Mackworth Street

RMA/2012/219

CONSTRUCT A CONSERVATORY - Historical Reference RMA92019547

Processing complete

Applied 13/02/2012

Decision issued 14/03/2012

Granted 14/03/2012

75 Mackworth Street

RMA/2007/72

Garage over 9m in length and within 1.8m on boundary - Historical Reference RMA92007276

Processing complete

Applied 17/01/2007

Decision issued 29/01/2007

Granted 25/01/2007

79 Smith Street

RMA/1980/333

To erect a 22.5m sleepout attached a garage and a caavan port - Historical Reference RES9209679

Processing complete

Applied 24/01/1980

Decision issued 07/02/1980

Granted 07/02/1980

86 Mackworth Street

RMA/1999/2139

2 LOT SUBDIVISION WITH VARIOUS NON COMPLIANCES - Historical Reference RES990765

Processing complete

Applied 19/03/1999

Decision issued 26/03/1999

Granted 26/03/1999

86A Mackworth Street

RMA/1998/2694

To erect a 2nd dwelling and attached garage which exceeds the site coverage under the Transitional City Plan. lan. - Historical Reference RES983081

Processing complete

Applied 16/11/1998

Decision issued 22/12/1998

Granted 22/12/1998

RMA/1999/2139

2 LOT SUBDIVISION WITH VARIOUS NON COMPLIANCES - Historical Reference RES990765

Processing complete

Applied 19/03/1999

Decision issued 26/03/1999

Granted 26/03/1999

87 Mackworth Street

RMA/2006/632

Dwelling addition with the living area window being 1.8m from the northeast boundary - Historical Reference RMA92004643

Processing complete

Applied 27/03/2006

Decision issued 26/04/2006

Granted 26/04/2006

88 Mackworth Street

RMA/1993/555

To erect two accessory buildings which exceed the total amount of accessory building permitted on the site by 5m2. - Historical Reference RES9218841

Processing complete

Applied 24/05/1993

Decision issued 28/05/1993

Granted 28/05/1993

88 Smith Street

RMA/2023/2603

Dwelling Rebuild

Processing complete

Applied 04/10/2023

Decision issued 16/11/2023

Granted 16/11/2023

88A Mackworth Street

RMA/1993/555

To erect two accessory buildings which exceed the total amount of accessory building permitted on the site by 5m2. - Historical Reference RES9218841

Processing complete

Applied 24/05/1993

Decision issued 28/05/1993

Granted 28/05/1993

RMA/2008/2485

Erect 2 Elderly Persons Housing Units with site coverage non compliances & unit 1 does not meet outdoor living compliance - Historical Reference RMA92013406

Processing complete

Applied 23/12/2008

Decision issued 26/01/2009

Granted 26/01/2009

Decision issued 26/01/2009

Granted 26/01/2009

RMA/2022/3493

Discharge of encumbrance - OPH unit

Processing complete

Applied 14/11/2022

Encumbrance discharged 08/12/2022

Encumbrance discharged 08/12/2022

88B Mackworth Street

RMA/2008/2485

Erect 2 Elderly Persons Housing Units with site coverage non compliances & unit 1 does not meet outdoor living compliance - Historical Reference RMA92013406

Processing complete

Applied 23/12/2008

Decision issued 26/01/2009

Granted 26/01/2009

RMA/2022/3493

Discharge of encumbrance - OPH unit

Processing complete

Applied 14/11/2022

Encumbrance discharged 08/12/2022

90 Smith Street

RMA/1992/615

To erect a garage exceeding 9m in length within 1.8m of the boundary. - Historical Reference RES9217265

Processing complete

Applied 14/10/1992

Decision issued 30/10/1992

Granted 30/10/1992

91 Mackworth Street

RMA/1988/179

To extend dwelling by over 40% the existing wall length and closer than 1.8m from the boundary - Historical Reference RES9204552

Processing complete

Applied 22/11/1988

Decision issued 09/12/1988

Granted 09/12/1988

92 Mackworth Street

RMA/1994/1158

To erect an accessory building of 10.2 metres in length exceeding the 9.0m maximum length - Historical Reference RES94102362

Processing complete

Applied 10/10/1994

Decision issued 12/10/1994

Granted 12/10/1994

RMA/1994/1485

To erect a garage exceeding 9.0m in length to 10.2m at 0.6m from the boundary - Historical Reference RES94102817

Processing complete

Applied 12/12/1994

Decision issued 21/12/1994

Granted 21/12/1994

94A Mackworth Street

RMA/2007/2003

To create to lots, Lot 1 309m² and lot 2 330m² - Historical Reference RMA92009303

Processing complete

Applied 18/07/2007

Decision issued 28/09/2007

Granted 28/09/2007

RMA/2008/52

Dwelling with detached garage which intrudes on ROW setback and rear garage which intrudes on recession plane of rear section - Historical Reference RMA92010825

Processing complete

Applied 11/01/2008

Decision issued 08/02/2008

Granted 08/02/2008

96 Smith Street

RMA/2014/3081

Variation of Consent Notice [RMA92024452] - Historical Reference RMA92027780

Processing complete

Applied 21/11/2014

Decision issued 03/12/2014

Granted 03/12/2014

96A Smith Street

RMA/2015/1070

Dwelling with Attached Garage - Historical Reference RMA92029317

Processing complete

Applied 22/04/2015

Decision issued 08/07/2015

Granted 07/07/2015

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