RESOURCE CONSENT APPLICATION AND ASSESSMENT OF ENVIRONMENTAL EFFECTS

Brougham Street Commercial Development

for K.D. Holdings Limited

Rev 2 - 04/09/2020

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Reviewed

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1 INTRODUCTION

1.1 Purpose

The purpose of this application is to seek land use resource consent from the New Plymouth District Council (NPDC) to establish a multi-storey building to accommodate a basement carpark, five levels of premium commercial office space, and an apartment, with associated removal of a Notable Tree. Application forms are included in Appendix A.

1.2 Application Details

The application site is contained within Records of Title (RT) TNF1/436, TNH4/976 and 510340, owned by the applicant and NPDC respectively, as described in Table 1.1. A copy of each RT is provided in Appendix C.

Table 1.1: Application Details

Applicant:	K.D. Holdings Limited		
Land Locations:	45-51 Brougham Street, New Plymouth	33 Devon Street West	24 Powderham Street
Legal Descriptions:	(x3) Part Section 683 Town of New Plymouth and (x2) Part Lot 6 DP 3466	Lot 2 DP 15492	Lot 3 DP 15492
Records of Title:	TNF1/436	TNH4/976	510340
Land Owners:	K.D. Holdings Limited	New Plymouth District Council	New Plymouth District Council
Site Areas:	478 m^2	1132 m^2	175 m^2
Consent Sought:	Land Use		
Operative District Plan (ODP) Environment Area:	Business A Environment Area		
ODP Map:	Maps C24a and C24b		
Proposed District Plan (PDP) Zone:	City Centre		
Special Notations:	Refer to Section 2.1 below.		

1.3 Summary of Non-Compliances

The following provides a summary of the New Plymouth District Plan (Operative and Proposed) rules that the proposal does not comply with (refer to Table 1.2 and Table 1.3). A full analysis of the proposal against the relevant rules of both Plans is included in Appendix D of this report.

With regard to the ODP, all activities requiring consent would have a **Restricted Discretionary** activity status. With regard to the PDP, the proposed removal of a Notable Tree triggers one rule with immediate legal effect with a **Non-Complying** activity status. Therefore, in accordance with the bundling principle, which is appropriate to apply in this case, the consent application will be assessed overall with a **Non-Complying** activity status.

1.3.1 Operative District Plan (ODP) Rules

Table 1.2: Summary of Relevant ODP Rules, Assessment and Activity Status

Rule	Parameter	Assessment	Activity Status
Bus12	Maximum building height	The proposed building at 25.5 m high exceeds the maximum permitted height of 14 m.	Restricted Discretionary
Bus58	Earthworks – maximum quantity	The proposed earthworks volume is approximately 685 m^3 which exceeds the maximum permitted quantity of 20 m^3 per 100 m^2 of site area in any 12 month period.	Restricted Discretionary
Bus87	Parking	Parking design does not meet the dimension standards of the ODP.	Restricted Discretionary
Bus88	Loading and standing space	The proposal does not provide an on-site loading or standing space.	Restricted Discretionary
Bus90	On-site Manoeuvring	The proposal does not meet the design standards of the ODP.	Restricted Discretionary
OL50	Removal or destruction of a Category 2 Notable Tree	Removal of Notable Tree 97 is proposed.	Restricted Discretionary
OL63	Maximum height within Cameron Street Viewshaft	At 25.5 m high the building exceeds the maximum permitted 14 m height within Section 2 of the viewshaft.	Restricted Discretionary
OL71	Maximum height within Marsland Hill Viewshaft	At 25.5 m high the building exceeds the maximum permitted height of 14 m within Section 3 of the viewshaft.	Restricted Discretionary
OL75	Maximum height within Victoria Road Viewshaft	At 25.5 m high the building exceeds the maximum permitted height of 14 m within Section 2 of the Victoria Street viewshaft.	Restricted Discretionary

1.3.2 Proposed District Plan (PDP) Rules

Table 1.3: Summary of Relevant PDP Rules, Assessment and Activity Status

Rule	Parameter	Assessment	Activity Status
TRE-R10	Removal, partial removal or destruction of a scheduled notable tree not otherwise provided for.	The removal of Notable Tree 97 is proposed. The tree is not currently unsafe or unsound.	Non-Complying

1.4 Technical Studies Undertaken

- An Architectural Design Statement by BOON Limited (architects) is provided in Appendix B.
- An Arboricultural Assessment of the Notable Tree undertaken by Bruce MacDonald of Asplundh is provided in Appendix E.
- An Archaeological Assessment undertaken by Archaeological Resource Management is provided in Appendix F.
- A Memorandum detailing an assessment of the potential for soil contamination prepared by BTW Company Limited is provided in Appendix G.
- A Geotechnical Interpretative Report has been undertaken by Tonkin & Taylor Ltd and is provided in Appendix J.
- A Recommendation letter regarding the Notable Tree by Red Jacket Engineers is provided in Appendix K.
- A Landscape and Visual Impact Assessment (LVIA) prepared by BOON Limited and peer reviewed by BECA is provided in Appendix L.
- A Cultural Impact Assessment (CIA) prepared by Ngāti Te Whiti hapū is provided in Appendix N.

1.5 Consents from Other Authorities

An application for an Archaeological Authority from Heritage New Zealand is being progressed, separate to this resource consent process, for any earthworks on 45-51 Brougham Street and for any proposed modification of the railway embankment. The application for the Authority has a component of consultation with Tāngata Whenua.

Though unlikely, should it be required, resource consent from the Taranaki Regional Council will be sought for taking of groundwater, for dewatering of the site during earthworks as part of erosion and sediment control.

2 SITE AND EXISTING ENVIRONMENT

2.1 Site Details

The application site is 45-51 Brougham Street (owned by the applicant), a small area of Lots 2 and 3 DP 15492 fronting Powderham Street (owned by NPDC), and a small area of footpath in the road reserve of Brougham Street. The site is identified in Figure 2.1 below with the area of proposed activities circled. Descriptions of the subject RTs follows:

- 45-51 Brougham Street is predominantly used for car parking with a gravel (unsealed) surface and is clear of structures, except for the Halamoana sculpture, retaining walls / fences and signage along boundaries. It has no vegetation of its own although it is overhung by Notable Tree 97 on the NPDC Titles as explained later in this report and as illustrated in Appendix I. The Halamoana sculpture is positioned on the south-western corner of the site. An existing vehicle crossing some 5 m wide at the kerb is located on Brougham Street adjacent to 43 Brougham Street. The history of 45-51 Brougham Street has been described in detail within the Memorandum on the potential for soil contamination in Appendix G. As per the Geotechnical Interpretive Report of Appendix J "*The site slopes moderately downwards to the north from approximately 11.3 RL m at the street corner to 9.7 RL m, with a steep bank sloping towards the east along the eastern boundary, dropping down to Huatoki Stream at approximately 2 RL m*". There is a stone block and timber sleeper non-engineered retaining wall up to 2-3 m high at the crest of this steep bank upslope from the stream.
- Lot 2 DP 15492 spans from Powderham Street to Devon Street and contains the Metro Plaza building which has recently been purchased by NPDC to make way for green space[1]. The portion adjacent to 45-51 Brougham Street is occupied by part of the Metro Plaza building, a strip of deck / stairway access, and some established trees including Notable Tree 97. Below the tree is a stone wall, one of the remnants of a railway embankment built in the late 1800s, as further described later in Section 2.5. Huatoki Stream is immediately adjacent to the east in Lot 3 DP 15492 and then runs through Lot 2 underground. The access and building to the south are not publicly accessible, with a fence and locked gates on the Powderham Street frontage. There is no vehicle access on Devon Street nor Powderham Street.
- Lot 3 DP 15492 contains the Huatoki Stream as it daylights from under the Powderham Street bridge, and its banks with numerous ferns and two kentia palms. A portion of the deck structure at the rear of the large building on Lot 2 DP 15492 is within the northern area of Lot 3 DP 15492. This RT is adjacent to the carpark building on Lot 1 DP 15492, as is Lot 2 DP 15492. This RT essentially has no direct pedestrian or vehicle access from Powderham Street but is accessible via the same stairway as that onto Lot 2 DP 15492. It has no service connections although the Huatoki Stream is identified as a part of NPDC's stormwater network on their 'utilities' GIS layer.

[1] https://www.stuff.co.nz/taranaki-daily-news/news/115278490/npdc-buys-new-plymouth-metro-plaza-building-for-155-million-as-part-of-green-space-plans (Daily News, 27 August 2019)



Figure 2.1: Aerial photo of site (outlined) and general area of proposed activities (circled) (Source: LINZ, 2016-17)

2.1.1 Operative District Plan

With regard to the ODP (Figure 2.2 and Figure 2.3), the site is located in:

- The Business A Environment Area;
- Section 2 of both the Cameron Street and Victoria Street Viewshafts;
- Section 3 of the Marsland Hill Viewshaft;
- A Defined Pedestrian Frontage is located along Devon Street;
- Notable Tree 97 is located on Lot 2 DP 15492. In Appendix 13 (Notable Trees) this single tree is categorised as a Willow Myrtle (Agonis flexuosa) in Category 2;
- Huatoki Stream is a Priority Waterbody; and
- Powderham Street is identified as State Highway 45 and Brougham Street as a Local Road within the Roading Hierarchy.

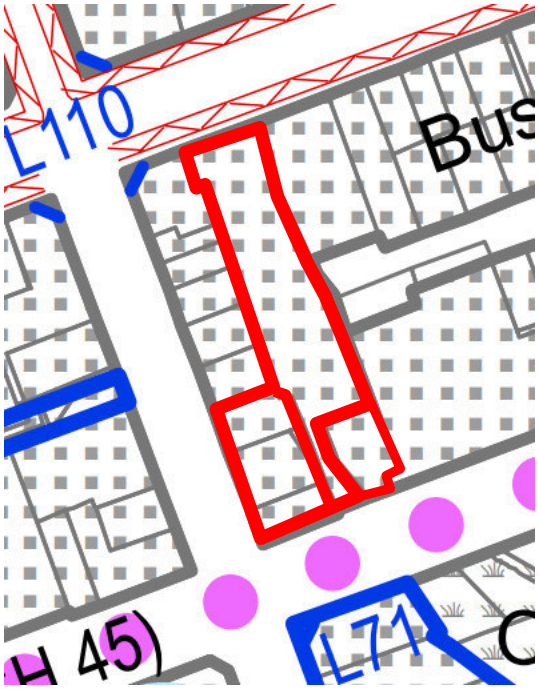


Figure 2.2: Extract from ODP C24a Map (site outlined red)

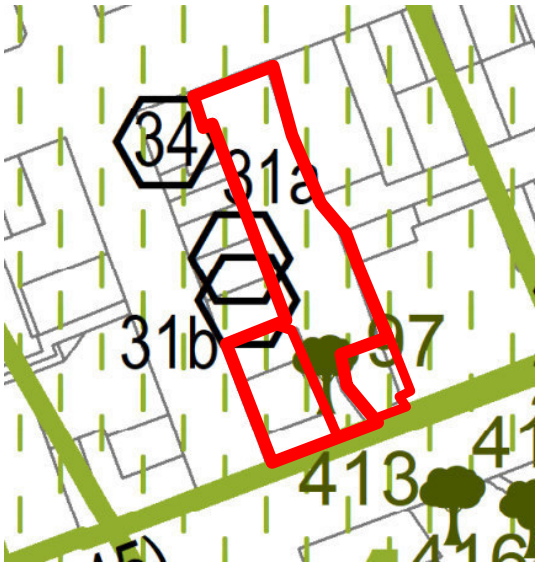


Figure 2.3: Extract from ODP C24b Map (site outlined red)

2.1.2 Proposed District Plan

The PDP was notified on 23 September 2019 and the submission period closed on 22 November 2019. The further submission period has recently closed. The PDP proposes the following provisions for the site (Figure 2.4):

Shared Provisions (both Titles):

- City Centre Zone;
- Victoria Road Viewshaft Section 2;
- Cameron Street Viewshaft Section 2;
- Pūkākā / Marsland Hill Viewshaft Section 4;
- Powderham Street: State Highway; and
- Dripline of Notable Tree Site ID 97.

Attributable to 45-51 Brougham Street:

- Height Management Area C (17 m maximum permitted height); and
- Brougham Street: Local Road.

Attributable to Lot 2 DP 15492

- Height Management Area B (14 m) at northern end, majority of site in Height Management Area C (17 m);
- Notable Tree Site ID 97; and
- Heritage Character Area.

Attributable to Lot 3 DP 15492

- Height Management Area C (17 m)
- Heritage Character Area.

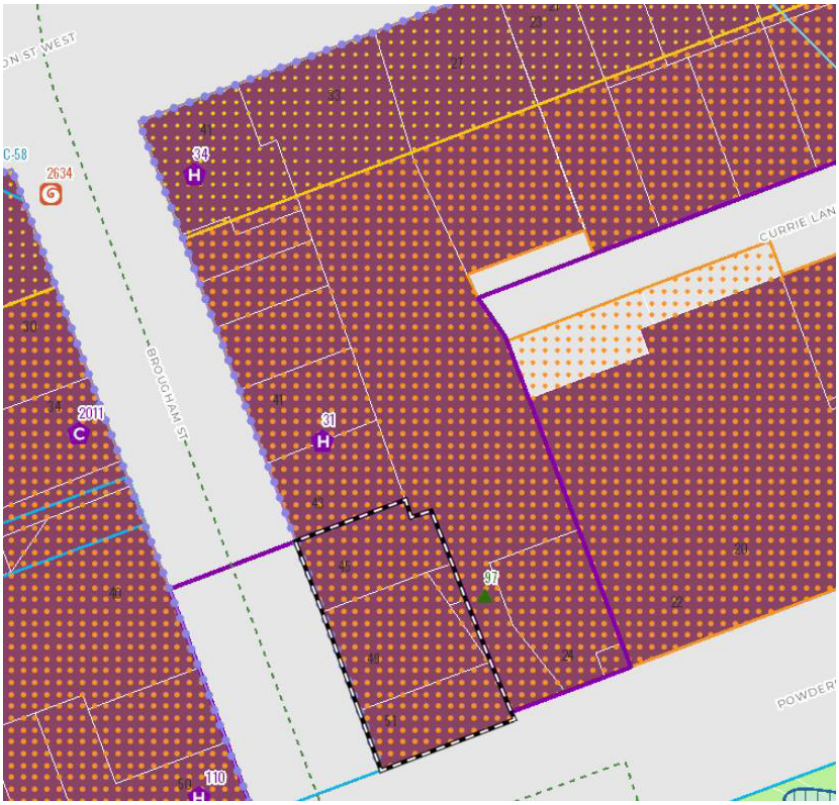


Figure 2.4: Extract from PDP Map

2.2 Surrounding Land Use Context

The site is located in the New Plymouth Central Business District (CBD) and as such land use is predominantly commercial in this area, with many retail and service businesses such as clothing stores, restaurants and motels along Brougham and Powderham Streets.

On the northern side of Powderham Street, development is high density with site coverage commonly at 100% and multi-storeyed buildings (e.g. the Grand Central Hotel at 40 Brougham Street and the NPDC-owned carpark building at 20 Powderham Street).

Sir Victor Davies Park with mature trees is established southeast of the site on the opposite side of Powderham Street, along the Huatoki Stream. Huatoki Stream then crosses under the street to emerge temporarily through Lot 3 DP 15492, before going underground again beneath the buildings on the site.

2.3 Traffic Environment-

Powderham Street and a portion of Brougham Street have 50 km/h speed limits, reducing to 30 km/h on Brougham Street adjacent to 45-51 Brougham Street and immediately south of its vehicle crossing.

The application site is included in the Parking Exemption Area of the ODP meaning there are no minimum parking requirements.

2.4 Services

Reticulated water, wastewater and stormwater mains are located along Brougham Street, Powderham Street and Devon Street. Electricity and telecommunication services are available along all streets. Lot 2 DP 15492 has connections to all of the above but 45-51 Brougham Street is not utilising utility connections at this time.

2.5 Heritage and Cultural Values

The site is located within the rohe of Ngāti Te Whiti hapū of Te Atiawa iwi.

There are no Wāhi Taonga/Sites of Significance or Archaeological Sites identified in Chapter 26 of the ODP for the application site, nor are there any identified for the application site on the PDP or the New Zealand Archaeological Association's (NZAA's) Archsite database. However, the CIA describes in detail that the immediate area of the application site once contained Mawhera Pā and that the area surrounding the Huatoki awa was a hub for papakainga activities and a source for mahinga kai, flax, raupo and timber. Two sacred stones named Paiare and Paitawa remain in the area today in the awa and under the Mill building. It is therefore recognised that while many physical remnants of past iwi and hapū activities are not well observed in this heavily modified urban landscape, the activities and the people who undertook them live on in the oral histories and practices of Tangata Whenua today.

An Archaeological Assessment was undertaken by Archaeological Resource Management and is attached in Appendix F. It outlines that a stone railway embankment (built between 1873-1875) is situated on Lot 2 DP 15492. The site therefore has an archaeological site present on it, though it is not scheduled in the ODP or PDP.

Sites adjacent to the north (41-42 Brougham Street, also owned by the applicant) are occupied by pre-1900 Brougham Street Offices which are identified on the NZAA database 'Archsite' with site identifier P19/381. The Offices are identified in the ODP Appendix 8 as Heritage Buildings with identifiers 31a and 31b, and in the PDP as a Heritage Building with identifier 31.

Huatoki Stream is a Statutory Acknowledgement Area of Te Atiawa Iwi as identified in the Te Atiawa Claims Settlement Act 2016.

2.6 National Environmental Standard - Contaminated Soil

Regulation 5 of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES-CS) describes disturbing soil and changing the use of a piece of land as activities to which the NES applies where an activity that can be found on the Ministry for the Environment's Hazardous Activities and Industries List (HAIL) is being undertaken on it, has been undertaken on it or where it is more than likely that a HAIL activity is being or has been undertaken on it.

The memorandum on the potential for soil contamination provided in Appendix G provides the following conclusions:

- *The subject site at 45-51 Brougham Street has no known recorded HAIL activity or any reason to advise further research regarding soil contamination.*

- *The site had a building erected in 1907 that was used as a warehouse for wholesaler's companies until 1983 when fire burnt the building down. The site has been used as a carpark since 1983.*
- *There is no reason to believe there is any soil contamination on the site or cause for a Preliminary Site Investigation to be undertaken at the site based on the information we have obtained from aerial imagery and TRC records.*

The subject site is not identified as a HAIL site on the Taranaki Regional Council Register of Selected Land Uses (RSLU) for contaminated sites. With regard to this and the summary above, the site is not subject to the NES-CS.

3 PROPOSAL

3.1 Proposed Land Use

3.1.1 Proposed Building

The activities proposed in this application centre around a mixed-use commercial office / apartment building on 45-51 Brougham Street incorporating a connection / interface to the adjacent future public space (further explained in Section 3.1.3).

The proposal is to construct a building on 45-51 Brougham Street consisting of a parking basement, five storeys for premium commercial office use, plus an apartment. Plans and a Design Statement are provided in Appendix B. The building is a maximum of 25.5 m high (above the current surveyed site level provided in Appendix I) and includes:

- 13 carparking spaces within the basement, with lifts and stairs to the floors above;
- Levels 1-5 with floor area to accommodate two commercial tenancies on each level with associated toilet facilities; and
- A three-bedroom apartment on the top level.

The Halamoana sculpture will be relocated off-site.

The building is 11.5 m above the permitted height of 14 m. Specific design elements to address effects of the building are explained in the Design Statement and include:

- The use of complete glass facades on all sides for the majority of the building, to create a feeling of lightness and maintain visual connection between commercial occupants, the outside world and the Huatoki awa. Final glass treatments will retain permeability and reduce reflection and heat intake as practicable;
- The stepping back of the apartment at the top of the building, reducing its size, prominence and visibility from the ground, plus avoidance of overhanging eaves to maintain a minimalist roof structure;
- The incorporation of cultural design elements that acknowledge mana whenua (see section 3.1.2 for further detail), including motif designs on external glazing and cladding, and flow through the main foyer in the shape of the historic Huatoki awa and estuary;
- The external eastern stairs, starting at street level and servicing most of the storeys, will extend some 2.9 m x 4.2 m into Lot 2 DP 15492, with paving beyond them into Lot 3 DP 15492 providing connection between Powderham Street, the building and the Huatoki Stream area. An appropriate legal mechanism will be agreed between the applicant and NPDC to authorise the stairs. The stairs are for provision of fire egress and connection between the building and the NPDC site;
- Vertical timber screening wrapped around the carparking level which is pushed down to a semi-basement level, maintaining an active edge for the building whereby its entry is near the corner of Powderham and Brougham Streets; and
- The opportunity for passive surveillance and crime prevention through environmental design from the building's ability to be occupied 24/7.

The structural elements of the building are to be predominantly constructed of New Zealand sourced timber and other low environmental-impact materials, with the carpark and external staircase utilising concrete and steel. The building is designed to maximise energy and resource use efficiency,

incorporating elements such as water-sensitive stormwater methods for non-potable use, an intelligent heating / cooling system, enhanced insulation and automatic LED lighting controls. The proposal has set a target to achieve a minimum 5 star NABERSNZ Energy base building energy certification and set an example for other sustainable buildings.

A 9.8 m x 2 m canopy is proposed for a portion of the building frontage along Brougham Street. This extends from Level 2 into road reserve 2 m outside of the site's western boundary to provide pedestrian shelter and identify the entrance to the building from street level. The canopy is cantilevered over the footpath and does not utilise any supports connected to the ground. The appropriate approval will be sought from Council with regard to a road reserve encroachment licence or lease. Similarly, a canopy is proposed on the Huatoki Stream side of the building (RTs TNH4/976 and 510340) to connect the Powderham street-front, paving, external doorway and stairs. This extends from level 2 into the Huatoki public space area to provide pedestrian shelter and identify the entrance to the building from the shared space. As for the first canopy it will be cantilevered and have the appropriate authorisation in place as per the stairs.

3.1.2 Cultural Narrative

As further explained in Section 6.3, two hui have been undertaken involving NPDC, the applicant and Ngāti Te Whiti as part of the hapū preparing a Cultural Impact Assessment. Appropriate design elements to provide a narrative of the history and values hapū have for the area and site were broadly discussed and have been proposed in the plans (in particular, A9.03) and Design Statement of Appendix B to include:

- Glazing treatments (fritting) to form an image or pattern on the glass;
- Treatment, colouration and arrangement of the cladding on the outside of the external staircase facing the Huatoki;
- Internal wall arrangement in the foyer, widening of the ground floor doorway to mimic the historic mouth of the Huatoki awa and patterning of the floor out to the Huatoki to create a more organic and accessible flow through the building and connection to Huatoki awa;
- A proposed composition of the Huatoki pavement area supporting pedestrian flow to and from the building and Huatoki Stream, rather than a winding path from the door to the awa.

It is proposed that a condition of consent (refer to Section 7) be applied with regard to finalising of the above detailed design matters through consultation and final agreement between the applicant, NPDC and Ngāti Te Whiti.

3.1.3 Huatoki Redevelopment

NPDC have purchased the Metro Plaza and Huatoki Stream parcels adjoining 45-51 Brougham Street for the purposes of redevelopment into public open / green space. Opening the underground Huatoki Stream from Powderham to Ariki Street has been a long-held strategic ambition of NPDC since at least 1998[2].

The long-term intention overall is to redevelop the whole application site incorporating 45-51 Brougham Street and the NPDC site from Powderham to Devon Street, as an integrated public / private development that celebrates the awa (Huatoki) and Ngāti Te Whiti's relationship with the land and supports commercial, residential and public space uses. A preliminary concept design has been prepared and is included as Drawing Number A9.03 in Appendix B for information purposes only, to

[2] https://www.newplymouthnz.com/-/media/NPDC/Documents/Forms%20and%20Fees/Design%20Considerations/Design%20Considerations%20Central%20area%20site%20survey.ashx (NPDC, 2012)

demonstrate how the proposed building could connect and interface with the redevelopment of the land adjoining the Huatoki Stream.

The redevelopment of the Huatoki does not form part of this application and will be subject to separate consultation and consenting processes, some of which have been initiated with Ngāti Te Whiti and NPDC as explained in Section 6.3.

3.2 Access, Parking and Manoeuvring

Building design is to utilise the existing vehicle crossing for access to the 2.5 m tall underground carpark. A height limit will be imposed on the crossing and it will be available for use by light vehicles only. There will be no vehicle access from 45-51 Brougham Street directly onto Powderham Street.

The proposal has no parking requirements under the ODP due to the site being within the Parking Exemption Area. However, the proposal is to provide 13 light (private) vehicle parking spaces in the basement of the building for use by commercial tenants and apartment residents. While the ODP does not require a certain number of parks for this activity, the design and manoeuvring standards still apply. The proposal is for more compact parks and aisle widths than what the ODP specifies and as such does not comply, though manoeuvring will be undertaken within this space to ensure vehicles enter and exit the site in a forward gear. Full details of carpark and aisle width design are provided in the plans of Appendix B and assessment against the relevant rules in Appendix D.

No on-site loading or standing spaces are proposed, instead any deliveries by a courier van to future commercial tenants are to be undertaken from the five-minute loading bay available on the opposite side of Brougham Street.

3.3 Vegetation

The proposal is to remove the Notable Tree by way of cutting and removing all trunk and branches, and if necessary/possibly the bulk of the tree roots thereafter by excavation. This work will be undertaken in consultation and agreement with the landowner (NPDC) and with all necessary health and safety measures in place. At this stage it is not possible to ascertain the exact method of removal or amount of excavation that will be required.

Significant further explanation on the due diligence process undertaken to ascertain whether the tree could be retained and incorporated into the proposal is provided as part of Section 4.3.

3.4 Earthworks

Earthworks are proposed to create the basement level, undertake servicing installation / foundation construction activities and in association with the removal of the Notable Tree dependent on the formation of the root ball.

With a carpark floor level of RL 9.3, excavation of 0.5 m to 1.5 m below the current ground level is proposed for floor, base course and foundation activities, taking the cut to a level of RL 8.8. Therefore, an estimated earthworks volume of 630 m^3 is proposed for the building footprint. An additional volume of approximately 20 m^3 is required for vehicle access, and approximately 35 m^3 in association with removing the root ball and forming the pavement near the stairs, with a total proposed estimated earthworks volume of 685 m^3.

The need for any retaining structure for the bank is yet to be determined and will be finalised through the detailed design phase post a grant of consent.

3.5 Heritage

The proposed activities are wholly within the sites as explained in Section 2 and are not proposed to have any effect on the foundations or above-ground structure of the Heritage Buildings to the north at 43 Brougham Street.

The proposed removal of the tree may result in some disturbance or removal of part of the railway embankment wall, to be determined by engineering assessment and detailed building structure design. An Archaeological Authority will be progressed with Heritage New Zealand for disturbance and modification of the railway wall as a separate process to this resource consent.

4 ASSESSMENT OF ENVIRONMENTAL EFFECTS

Under the Resource Management Act 1991 (RMA) an application for resource consent must include, in accordance with Schedule 4, an assessment of environmental effects in such detail as corresponds with the scale and significance of the effects that the activity may have on the environment.

Potential adverse effects from the proposal are considered to predominantly relate to the building height, effects on Business Environment Area character and amenity, removal of the Notable Tree and associated loss of amenity, compact parking and manoeuvring space design and earthworks.

4.1 Effects of the Building on Character and Amenity

Potential adverse effects from the proposal are considered to be with regard to conflicts with the character of the site or area, blocking or impinging on public viewshafts, loss of amenity for other sites and public areas, potential shading, and dominance effects.

4.1.1 Context

The building is set within the CBD of New Plymouth where multi-storey buildings covering the entire area of a site or the majority of a site are common. Through the PDP, Council's direction is for an uplift in permitted height limits across the CBD with the application site being within Height Management Area C with a permitted building height of 17 m. The Height Management Area approach for the CBD seeks to avoid tall buildings along the coast and around the Puke Ariki landing with taller buildings more supported on the flanks of the Huatoki basin (east and west) and distanced from the coast as is the case for the application site.

The site at 45-51 Brougham Street is currently an outlier in this area by being vacant since the 1980s. Although on a prominent CBD corner, it does not currently have any structure or land use that actively contributes to the character and amenity of the area. In fact, the appearance of the site somewhat detracts from the character and amenity of the CBD due to its primary land use being an unsealed carpark.

4.1.2 Shading

With regard to shading, as of right the site could be developed to its full extent with a 14 m high building. Shading from this permissible building is illustrated on Drawings A9.01 and A9.02 in Appendix B and would cover a significant area of Brougham and Powderham Streets and a portion of some sites to the west and south, mostly in winter. Proposed building shade is also modelled on the plans.

Shading that falls on habitable spaces has the potential to detract from the amenity of those sites however when shaded spaces are not dwellings, there is considered to be a much lower level of sensitivity. As illustrated in the plans, the areas in which the bulk of additional shading over the permitted level will occur are in road reserve (Brougham and Powderham Streets), on 35 Powderham Street (owned by the applicant, thus adverse effects upon them can be disregarded) and on 20 Powderham Street and the Sir Victor Davies Park (both owned by NPDC), with some shading to potentially occur on 16a Vivian Street. Most of the sites specified are not used for residential purposes. Additionally, road users and pedestrians are by nature only passing through the shade for a short time. Overall, any potential adverse effects with regard to shading over and above that which would occur as a result of a permitted building on the site are anticipated to maintain character and amenity of the Business Environment Area.

4.1.3 Architectural Design

The building seeks to be a landmark building within the CBD through achieving a certified sustainable building standard, significantly enhancing a prominent site with poor amenity, creating a link to the Huatoki awa and the future Huatoki project and providing a strong reference to mana whenua and their people and places of importance thus reasserting their mana within the CBD. Key design aspects of the building aimed at mitigating the bulk and dominance of the building are:

- Glass façades to enhance connectivity between other properties and the street with the building and its occupants creating vibrancy and active frontages. The glass facades will also allow light to penetrate/filter through the building and reduce shading and daylighting effects.
- Use of different materials (e.g. glazing and timber) and cultural motifs will aid in differentiating areas of the building, reducing its bulk and dominance.
- Stepping back of the top storey from the outside walls of the storeys below, to reduce its area (bulk) and make it less visible from street level.
- A minimalist roof design which avoids overhanging eaves or a bulky or differentiated roof structure.
- Cladding of recessive colours, i.e. tinted glazing, and natural or stained timber on the external staircase and apartment.

Additionally, as per the Appendix B Design Statement, the building has been designed with environmental sustainability at its core, targeting a minimum 5 star NABERSNZ Energy base building energy certification and resulting in reduced environmental effects compared to other traditional forms of construction for multi-storey buildings, including:

- Structural design predominantly consisting of timber. In turn this reduces the weight of the building - resulting in smaller foundations and less disturbance to adjacent buildings (such as the historic Brougham Street Offices);
- Energy efficient heating, cooling and ventilation system;
- Enhanced insulation and double glazing – reducing the building's demand for electricity;
- Automatic lighting controls including LED bulbs – minimising unused lit areas and with a lower electricity usage per bulb; and
- Water efficient fittings and fixtures, plus a rainwater harvesting system to provide flushing water – reducing demand for potable water.

While these design elements are not necessarily visual, they are considered to significantly reduce the resources required to construct and thereafter operate and maintain a commercial building of this scale, compared to an alternative conventional building which could conceivably be predominantly steel and concrete and incorporate none of the energy and water-saving technologies described above.

The location of the stairs and a ground-floor entrance on the eastern side of the building provides a crucial physical connection between the building and the NPDC site and can be further enhanced in the future once the NPDC area is redeveloped as a public space. Instead of turning its back to the NPDC site, the building interacts positively with it, enhancing amenity and character of this space.

Overall, the positive contributions and added vibrancy from enhancing an underdeveloped untidy site and providing new spaces for people to work and live, are considered to balance and mitigate adverse effects on character and amenity from the overheight nature of the building. Any potential

adverse effects on the character and amenity of the Business Environment Area in regard to the height of the building are considered to be no more than minor.

4.2 Visual and Landscape Effects

Photographs from 12 public viewpoints and the three ODP Viewshafts on Cameron Street, Marsland Hill / Pūkākā and Victoria Road, are provided in the LVIA of Appendix L as are visual simulations of the proposed building.

Assessment of landscape and visual effects of the proposal is provided in the LVIA. Effects on Viewshafts are summarised as follows:

- Marsland Hill / Pūkākā: Low
- Victoria Road: Moderate
- Cameron Street: Very Low

The building aesthetic affords positive amenity effects through:

- Being a landmark sustainable building;
- Setting an example for sustainable and quality buildings within the CBD;
- Activating the Brougham and Powderham Street edges;
- Providing connection through to the Huatoki awa;
- Providing a cultural and historic narrative;
- Supporting landscape elements to the east; and
- Appropriately offsetting adverse effects from the removal of the Notable Tree.

Overall with regard to visual and landscape effects the proposal will generally have minor adverse effects, with more than minor adverse effects on Victoria Road Viewshaft only.

4.3 Notable Tree

The tree is as described in the ODP Appendix 13, Schedule 4 of the PDP, the Arboricultural Assessment of Appendix E and Notable Tree Dripline Information of Appendix I. To summarise, the tree is not native to New Zealand, is not uncommon but is Notable due to its size including that of its lower trunk. It is understood that the tree is of no particular significance or value to Ngāti Te Whiti or Te Atiawa, given the tree is not a native and that the river margins were once covered in native Titoki trees. Ngāti Te Whiti make no objection to removal of the tree.

Numerous feeder and larger stabilisation roots are found within 45-51 Brougham Street in essentially the whole soil profile, from the upper soil horizon down to 1 m deep and beyond. Above ground, the canopy extends up to some seven metres west into 45-51 Brougham Street and is some 17 m in diameter north-south. An aerial photo shows the tree as being reasonably large and well-established with a 14 m wide diameter by 2001 (Figure 4.1). The tree is not of a long-lived species (up to 30 years as per the ODP Appendix 13 Life Expectancy ranking of 1) and therefore as it was already of a significant size 19 years ago, is anticipated to have a relatively short time remaining in its lifespan, up to a maximum of 20 years. In this regard, it is considered that the establishment and existence of the tree through the last few relatively contemporary decades (approximately 1990s onwards) does not afford it significant historical value, as compared to much longer lived trees established in pre-European or pre-1900 times for example. The Notable Tree Report within the Arboricultural Assessment of Appendix E reflects this by scoring the tree a 1 for both historic and cultural value

(with 4 being 'very important'). The tree dripline is wholly within private land (the applicant's) and land which, although owned by NPDC, currently has no public access. Access to the tree is therefore restricted and therefore amenity from the tree is considered to be essentially only visual.

The Arboricultural Assessment of Appendix E provides some assessment of environmental effects based on the Restricted Discretionary assessment criteria for ODP rules OL43 and OL44 and does not take into account the non-complying status under the PDP. However, the issues addressed are considered to be of an appropriate scope and nature to address all effects associated with the removal of the tree.



Figure 4.1: Aerial photo of site and Notable Tree (Source: NPDC, 2001)

4.3.1 Avoidance of Adverse Effects

As per the Arboricultural Assessment of Appendix E:

> *"To be certain of mitigating any detrimental structural, stability and health impacts to the tree due to construction, the footprint of excavation would need to be an estimated minimum of 8.0m from the base of the tree."* (Page 4)

Consideration of avoiding adverse effects on the tree by way of constructing a smaller building with regard to the above advice has been considered.

As per 'Site Constraints' considerations from BOON in the Design Statement and Plan (Drawing Number A10.01) of Appendix B, a building constructed away from the bulk of the tree dripline and base was considered. To be economically feasible by maintaining the required level of leasable space lost (from subtracting the tree area from each commercial storey), such a building would need to be significantly taller than that proposed. A building greater than the proposed height of 25.5 m is considered to potentially be outside the general character of the area and would have greater adverse effects than that proposed. The amenity of a narrower building is also greatly reduced for commercial tenants and also, a timber frame would be unable to support such a structure and less sustainable steel would be required. The proposal is therefore considered to offer an acceptable compromise between building bulk and location that provides for the character and amenity of the site and surrounds, efficiency of the use of the site, economic feasibility, and sustainability in building construction and operation for the long-term.

The option of building construction within the dripline while retaining the tree (as aided by trimming the tree) was also considered. As per the assessment of Appendix K, driven pile foundations and a concrete basement slab are necessary. As per the same report, the nature of the building design proposed dictates driven piles at regular locations under the building, therefore piles are unable to be located away from roots and, as per the Arboricultural Assessment (Appendix E), "*it is likely that pile holes will damage large anchoring roots resulting in heightened chance of tree failure and possible health decline due to root damage*". Considering that the tree is anchored on a steep bank, the Appendix K report concludes that:

> *"a) the extensive root system will be damaged by the proposed piles and foundation beams,*
>
> *b) the tree is located above the existing potential slip plane that extends down to the Huatoki Stream and removing the tree would mitigate potential damage to neighbouring buildings, and*
>
> *c) the short remaining life of the tree is inconsistent with the design life of the proposed new building."*

An economically viable design within the dripline of the tree would still require significant excavation up to around 1.5 – 2.0 m within the majority of the area of 45-51 Brougham Street. Such excavations "*will cause significant root damage that will impact on both the health and stability of the tree. This will certainly result in health decline and structural instability likely resulting in complete root-ball failure*" as per Appendix E.

Alternative shallow concrete foundations to minimise disturbance of the roots would be unable to support a multi-storeyed building. Similarly, a building on raised piles may practically be only one to two storeys high and this foundation design does not adequately provide for ground stability within the site. Due to the relatively small size of the applicant's Brougham Street site at 478 m^2 and other market-driven factors with regard to leasable commercial space in the inner-city, a building on the site is required to be multi-storeyed to be commercially feasible to construct, lease and thereafter maintain. Shallow or raised pile foundations for a one or two-storey building are therefore not feasible options.

Overall, with regard to the advice on building and commercial feasibility from BOON, the considerations of the professional Arboricultural Assessment, and advice from Red Jacket engineers, it is not considered practicable to retain the tree. To enable the development, the proposal is to remove the tree.

4.3.2 Removal of Notable Tree

Potential adverse effects from removal of a Notable Tree include reduction in visual amenity from loss of natural vegetation in an urban built environment, and from services the tree may have offered such as shading or shelter. Trees may also have associated botanical or cultural/historical values. As the tree is a common short-lived variety of no historical or cultural significance, and there is the potential for planting to be undertaken in the Huatoki awa area in the future, there is no objection to its removal from Ngāti Te Whiti or Te Atiawa. Therefore, adverse effects are considered to be limited to those with regard to visual amenity and on the character and amenity of the site and surrounding Business Environment Area. The location of the tree, wedged between a carpark and some stairs and on sloping ground with no public access, means the ability for the tree to contribute to amenity is somewhat limited as opposed to a tree located within a public park for example.

The proposal offers significant mitigation of effects for removal of the tree in the following ways:

- The building has been designed for high aesthetic quality and connection with people in the surrounding roads, footpaths and on the Huatoki NPDC site. While the positive amenity effects of the building are different to those of the tree, they are nonetheless considered to be a vast improvement from the current unsealed carpark which is not contributing to a vibrant or active commercial centre. The proposal is for the development of a prominent corner site in the central city which has contributed little to the vibrancy or amenity of the area for decades, except to supply car parking. The proposal offers a modern mixed-use development which will connect with a future public urban open space. The enhanced amenity values offered by the development with regard to commercial, residential and public functions are considered to be such that they will significantly mitigate the loss of amenity values associated with removing the tree.
- It is intended that the redesign of the NPDC site and Huatoki area integrates the two uncommon Kentia palms (either in situ or through relocation) which are currently hidden and suppressed within the canopy of the Notable Tree. As per the report of Appendix E "*The palms may be considered an extension of the wider Huatoki Plaza and associate with the Puke Ariki greenspace theme".* As attractive and not unsubstantial trees in their own right, they would become the new visual features of the site once the Notable Tree was removed.
- The Arboricultural Assessment states that "*The tree softens and screens an otherwise unsightly building* [note: the NPDC-owned carparking building at 20 Powderham Street] *and surrounds particularly when viewed from the west*" and also that "*Currently without building development, should the tree be removed the aesthetic contribution would be greatly noticed and missed*". The proposed building will also achieve this screening, therefore the loss of amenity from removal of the tree will be mitigated by the erection of the building, to a greater extent of screening due to the size of the building versus the size of the tree.

Irrespective of the proposed activities, the time the tree has remaining to contribute to the amenity of the area is limited to a maximum of approximately 20 years and thereafter, when it dies and decays, it has the potential to have adverse effects on ground stability, and safety of people and property in the site (both 45-51 Brougham Street and the NPDC-owned land). Conversely, the proposed building has a relatively long (50+ years) anticipated lifespan in which to contribute enhanced amenity to the site and central city.

Additionally, given that the amenity of the tree is predominantly visual, if an alternative proposal saw the tree retained and the building constructed to the permitted 14 m height, this situation would also be considered to substantially block views of the tree from Brougham and Powderham Streets, yet these effects would be permitted. The tree bulk that could remain visible above such a building would rationally be well above the level of vision at which most street users observe, which is considered to be at street level and the first two storeys above. The differences between the effects of this development - which could be undertaken as of right - and the proposed activities are not considered to be significant.

Overall, any potential adverse effects resulting from the removal of the Notable Tree are considered to be unavoidable and are mitigated through the enhancement of amenity values that will result from the proposal resulting in adverse effects on visual amenity that are no more than minor.

4.4 Culture and Heritage

4.4.1 Cultural Effects

A CIA has been completed by Ngāti Te Whiti and is attached in Appendix N. With the site being in the Ngāti Te Whiti rohe, the CIA explains the existing environment, Mana Whenua, and the history and values of the area pertaining to Mawhera and Pūkākā as Pā sites, traditional pathways along the Huatoki awa, and the contemporary buildings / amenities and their narratives that contribute to

the area. It is recognised that the CBD sits within a broader cultural landscape which is influencing some built form that has been occurring in the District and links one place to another. A strategy to advise development in the CBD is currently in creation and it is envisaged that it will contribute to character and identity in the CBD while honouring cultural values of Tāngata Whenua.

Recognising that there are historic and cultural values for the site, Huatoki Stream and the wider area for Ngāti Te Whiti hapū, cultural narrative has been integrated into the proposed building design, and the CIA has taken this into account.

Refer to the CIA for assessment of effects on:

- Sites and areas of significance to Māori, wāhi tapu and historic heritage; and
- Relationship of tangata whenua with – ancestral lands, waters (Huatoki) and wāhi tapu.

The CIA recommends conditions of consent available in full on page 26 to appropriately avoid, remedy or mitigate adverse effects. The conditions are not repeated here but are available in Section 7 of this application.

The CIA advises that with the adoption of the recommended conditions of consent, potential adverse effects on Ngāti Te Whiti are acceptable.

The applicant is happy to volunteer the above specified conditions of consent and therefore it is considered that actual and potential adverse effects on Ngāti Te Whiti and Te Atiawa are acceptable and no more than minor.

4.4.2 European Historic Sites

The potential to disturb archaeological material has been addressed in Sections 10.1-2 of the Archaeological Assessment in Appendix F, which states:

> *"…there is a low likelihood that archaeological evidence of the earlier occupations of Hughes, Rawson or Mofflin will have survived the later works. Any evidence of pre European land use, such as the "Maori pits" reportedly encountered by Hughes, were likely gardened away upon discovery during his early tenure. Only very deeply cut features, such as wells are likely to have survived at this location and given the close proximity to the nearby Huatoki stream, it is possible that wells were not dug at all here during the early years of European development on this section…."*
>
> *"10.2 It is possible that the removal of the large Agonis Flexuosa will destabilise the stone railway embankment, which may in turn require demolition and/or replacement of that wall. This structure predates 1900 and is by definition part of an archaeological site and will require an archaeological authority to damage destroy or modify this feature."*

To address this risk, in part advised by the recommendations of Section 12 in the Archaeological Assessment, all proposed earthworks will be undertaken under a precautionary Archaeological Authority. Under the Authority, should archaeological evidence or suspected archaeological evidence be recovered, all works will cease until the find has been verified by the project archaeologist and approval / authority to proceed has been granted by HNZPT and other relevant parties.

Any adverse effects on historic heritage will be no more than minor.

4.5 Parking

The building provides 13 carparks which are screened from view to maintain the character of adjacent sites and Brougham and Powderham Streets. The carpark design and manoeuvring does not meet the design standards of the ODP as it is smaller and more compact. Potential adverse effects could include difficulty manoeuvring, conflicts between vehicles on-site and the potential for people to reverse out of the vehicle crossing.

The parking design does not meet the standards of the ODP however the design is advised by AS-NZS standard 2890.1 (2004). While compact, the proposed design is considered to adequately provide for useable carparks and manoeuvring. The potential for reversing out of the crossing is considered to be nil as this would be more difficult and unattractive to drivers than manoeuvring on-site to exit in a forward gear. Any potential adverse effects are internal to the site.

The provision of this parking is considered to be appropriate in accommodating some of the building's generated demand by tenants so that they are not forced to use the inner-city parking supply elsewhere.

With regard to the proposal not providing a designated loading space on-site, potential effects could occur from loading being undertaken in inappropriate places within the road reserve. The proposal for loading activities to be undertaken in the five-minute loading zone on the opposite side of Brougham Street is considered to be in character with inner-city commercial development whereby on-street loading bays are commonly provided and utilised. The bay is a short distance from a traffic light-controlled crossing, maintaining safety for delivery people getting to and from the site.

Any potential adverse effects in respect of parking or loading are considered to be less than minor.

4.6 Site Development and Earthworks

Earthworks are proposed to create the basement parking area, remove the tree roots and railway embankment as necessary and for the installation of servicing and foundation piles. Potential adverse effects include visual and noise effects (e.g. disturbed earth and large machinery), the potential to disturb archaeological material, effects on adjacent sites, and runoff to stormwater and Huatoki Stream.

Visual and noise effects will be temporary in nature, to the minimum required to form foundations and servicing for the building and will thereafter be built over, stabilising any disturbed soil.

The potential to disturb archaeological material has been addressed in Section 2.5 and potential effects are considered to be appropriately managed through an Archaeological Authority.

Earthworks in some form are entirely necessary for the development of this site. The alternative, to disturb a lesser depth and utilise a concrete pad base, does not offer maximum efficiency for the use of this site as it would be unable to support a multi-level building.

All earthworks will be undertaken in accordance with the TRC-accepted earthworks and sediment control practices to ensure that sediment is not unduly discharged offsite via dust or in stormwater.

Any potential adverse effects as a result of earthworks on the site with regard to effects on archaeology, adjacent sites and sediment runoff will be appropriately managed and any potential adverse effects will be no more than minor.

4.7 Summary of Effects

Taking into account proposed mitigation measures, adverse effects in relation to building bulk and location, landscape and visual impacts, character and amenity, the Notable Tree, heritage and culture, parking and loading, and earthworks, are considered to be acceptable. However, it is acknowledged that the adverse effects of the proposal on the Victoria Road viewshaft will be more than minor.

The proposal is considered to result in the following positive effects:

- Creating a landmark / model building for the CBD through design and achieving a certified sustainable building standard;
- Enhancing a prominent site which currently offers poor amenity, and maintaining visual connection between outside and in;
- Creating a link to Huatoki awa and its future redevelopment;
- Strongly referencing mana whenua and reasserting their mana within the CBD, through presenting a cultural narrative on the building and through its foyer, and honouring the Huatoki awa as a waterbody of many values and as a traditional pathway route;
- Provision of an apartment providing for inner-city living; and
- Provision of high-quality office space for several commercial tenants.

5 REGULATORY REQUIREMENTS

The proposal requires consent for numerous rules as set out in Section 1.3 and Appendix D, but to summarise:

- The proposal breaches a number of rules in the ODP, all of which require consent as Restricted Discretionary activities; and
- The removal of the Notable Tree triggers one rule with immediate legal effect in the PDP, resulting in a Non-Complying activity status.

The activities are inextricably linked as the expert assessments provided with the application appendices conclude that for any proposal to construct a commercially feasible building upon 45-51 Brougham Street, it will essentially always prove impractical to retain the Notable Tree.

An application to remove the Notable Tree has not been made independently of the proposal to develop 45-51 Brougham Street as the intention is to proceed with the building as soon as practicable. Also, as explained in Section 4, the contributions to character and amenity of the central city area by the proposed building are considered to significantly mitigate the adverse effects of losing the tree and thus the two are inextricably linked.

In applying the bundling principle for the linked activities across both the ODP and PDP, with the most restrictive activity classification applied to the overall proposal, in this instance the activity status is Non-Complying. The proposal must therefore be considered pursuant to RMA Sections 104B and 104D.

5.1 Section 104D

Section 104D(1) outlines the thresholds of the 'gateway test'. An application for a non-complying activity must pass through one of these gateways in order for it to be considered under section 104 of the RMA:

> *(a) the adverse effects of the activity on the environment (other than any effect to which section 104(3)(a)(ii) applies) will be minor; or*
>
> *(b) the application is for an activity that will not be contrary to the objectives and policies of—*
>
> *(i) the relevant plan, if there is a plan but no proposed plan in respect of the activity; or*
>
> *(ii) the relevant proposed plan, if there is a proposed plan but no relevant plan in respect of the activity; or*
>
> *(iii) both the relevant plan and the relevant proposed plan, if there is both a plan and a proposed plan in respect of the activity.*

It should be noted that the proposal is, overall, considered as a non-complying activity solely because of the removal of the Notable Tree, not due to the height of the building, and solely under the PDP which is not yet operative. The conclusion is that the removal of the Notable Tree will result in adverse effects that are no more than minor.

As per the conclusion in the LVIA, the adverse effects on the Victoria Road viewshaft are considered to be more than minor. The proposal therefore does not pass through section 104D(1)(a) above.

Assessment against the relevant objectives and policies of the ODP and PDP is provided in the following sections and concludes that, on balance, the proposal is not contrary to either Plan. The proposal therefore passes through section 104(1)(b)(iii) above. Noting that only one gateway pass is required, the proposal can go on to be considered under Section 104 of the RMA.

5.2 Section 104

When considering resource consent applications, RMA Section 104 states that a consent authority *"must, subject to Part 2, have regard to–*

> *(a) any actual and potential effects on the environment of allowing the activity; and*
>
> *(ab) any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity; and*
>
> *(b) any relevant provisions of—*
>
> *(i) a national environmental standard:*
>
> *(ii) other regulations:*
>
> *(iii) a national policy statement:*
>
> *(iv) a New Zealand coastal policy statement:*
>
> *(v) a regional policy statement or proposed regional policy statement:*
>
> *(vi) a plan or proposed plan; and*
>
> *(c) any other matter the consent authority considers relevant and reasonably necessary to determine the application."*

Actual and potential effects on the environment have been assessed in Section 4. There are no National Environmental Standards or National Policy Statements relevant to the application. Assessment of the proposal against provisions of the relevant policy documents (Operative and Proposed District Plans, the Regional Policy Statement for Taranaki and the Te Atiawa Iwi Environmental Management Plan (Tai Whenua, Tai Tangata, Tai Ao) (IEMP)) is undertaken in the following sections. While it is recognised that the Section 104D test is for contrariness, the proposal's consistency with the provisions has also been assessed.

5.3 District Plans

5.3.1 Operative District Plan

The following ODP objectives and policies are relevant to this application:

Objective 1 - To ensure activities do not adversely affect the environmental and amenity values of areas within the district or adversely affect existing activities.
Policy 1.1 - Activities should be located in areas where their effects are compatible with the character of the area.
Policy 1.2 - Activities within an area should not have adverse effects that diminish the amenity of neighbouring areas, having regard to the character of the receiving environment and cumulative effects.
Policy 1.3 - New activities that are sensitive to the elements that define the character of the area in which they intend to locate should be designed and/or located to avoid conflict.

Assessment: The proposed development is considered be entirely compatible with both the site and the area which is located in the CBD with the area characterised by multi-storeyed buildings with high site coverage, in predominantly commercial use but with some ancillary residential uses. The proposal significantly enhances amenity for the site and the neighbouring area and provides the

opportunity for additional future amenity through connection with the NPDC site. The proposed apartment will be designed to maintain an appropriate noise level for residents and is stepped back from the edges of the site to maintain its privacy and is therefore designed appropriately for the inner-city environment. Overall, the proposal is consistent with and not contrary to the above Objective and Policies.

Objective 5 - To maintain and enhance the character and coherence of the urban areas of the New Plymouth District.
Policy 5.1 - The importance of open space areas to the community and the values associated with these areas should be recognised and provided for.
Policy 5.2 - Buildings and structures should not detract from or reduce the visual amenity of the Urban Viewshafts.
Policy 5.3 – The positive contribution vegetation makes to urban amenity should be recognised, maintained and, where possible, enhanced.

Assessment: The proposal recognises the importance of the future open space area within the adjacent Huatoki development, providing for it through the stairway and entrance connections for physical access, and the glass façades for visual connection between the building and outdoor spaces, consistent with and not contrary to Policy 5.1. As explained earlier after assessment in the LVIA there will be a more than minor adverse effect on the Victoria Road Viewshaft and the proposal is therefore considered to be contrary to Policy 5.2. The proposal is contrary to Policy 5.3 as the Notable Tree will be removed. Efforts to avoid effects on the tree or incorporate the tree into the development have been explored but a combination of factors prevent retention of the tree being a practicable option. However, overall the proposal is considered to enhance the inner-city character and coherence of the Brougham / Powderham Street area, including a connection and interface with a potential redevelopment of the Huatoki Stream. On balance the proposal is considered to be consistent with and not contrary to the above Objective.

Objective 7 - To ensure the attractive, vibrant, safe, efficient and convenient character of the business environment is maintained.
Policy 7.1 - Buildings, signs and other structures should be designed and/or located to avoid, remedy or mitigate adverse effects on the character and visual amenity of business areas.

Assessment: The building incorporates natural materials and glass facades to maintain visual amenity and connection with the surrounding area, including in the majority of the portion of the building that is above the 14 m permitted height limit. Additionally, the apartment on top is smaller in area and sits back from the lower walls of the building to reduce its prominence. Appropriate daylight and sunlight are maintained in pedestrian areas with shading predominantly falling on areas not occupied by habitable buildings. The design of the building has been demonstrated to contribute positively to the character and visual amenity of this business area and therefore the proposal is consistent with and not contrary to the above Objective and Policy.

Objective 11: To recognise the district's heritage resources, provide for their protection and promote their enhancement.
Policy 11.1: Notable Trees should be protected from destruction or alteration which will adversely affect their significance or health, except where they pose a threat to property, people or services.
Policy 11.4: The Huatoki Stream should be protected from enclosure by development within the New Plymouth CBD, and enhanced to promote its heritage significance.

Assessment: The proposal is contrary to Policy 11.1 due to the proposal to remove the Notable Tree for the reasons explained in Section 4.3. The proposal is considered to provide and promote an opportunity for visual and physical connection between the site and Huatoki Stream through the glass façade, stairs canopy and entrance out onto a pedestrian area, and is therefore consistent with and not contrary to Policy 11.4. On balance, it is considered that the proposal is contrary to the above Objective which specifies protection of a feature without allowances for the practicality of actually

retaining that feature or consideration of the benefits of the development that might be facilitated by removal of the tree.

Objective 13: To ensure that land use activities do not increase the likelihood or magnitude of natural hazard events.
Policy 13.1: Subdivision, development and other land uses should not result in aggravation of natural hazards.

Assessment: The potential for a slip plane to form under the proposed building is a known natural hazard, potentially exacerbated by the decay of the tree in the future. The proposal is considered to appropriately minimise this hazard potential with the proposed removal of the tree prior to construction of the building, and by using deep driven piles. The proposal is consistent with and not contrary to the above Objective and Policy.

Objective 18: To maintain and enhance public access to and along the coast, lakes and rivers.
Policy 18.1 - Public access should be provided to and along the coast and Priority Waterbodies except where such access should be restricted: • To preserve natural character. • To protect Significant Coastal Areas. • To protect Significant Natural Areas. • To safeguard ecological, intrinsic or recreational attributes. • To avoid conflicts between competing uses. • To protect cultural and spiritual values of Tangata Whenua. • To protect human health and safety. • For reasons of security. • To prevent aggravation of a natural hazard. • To protect the integrity of river and flood control works. • To provide for any other exceptional circumstances that are sufficient to justify the restriction, not withstanding the national importance of maintaining access.

Assessment: The proposal includes stairs and an entrance through from the building to the NPDC sites, intended to enhance access to and along the Huatoki Stream which is a Priority Waterbody. The proposal is consistent with and not contrary to the above Objective and Policy.

Objective 19 - To recognise and provide for the cultural and spiritual values of Tāngata Whenua in all aspects of resource management in the district in a manner which respects and accommodates Tikanga Maori.
Policy 19.1 - The use of land for traditional Maori activities should be recognised and provided for.
Policy 19.2 - Subdivision, land use or development should not adversely affect the relationship, culture or traditions that Tangata Whenua have with Waahi Taonga/ Sites Of Significance To Maori.
Policy 19.3 - The cultural and spiritual values of Tangata Whenua should be recognised and provided for in the resource management of the district.
Policy 19.4 - The principles of the Treaty Of Waitangi (Te Tiriti O Waitangi) will be taken into account in the management of the natural and physical resources of the district.

Assessment: "Advocate for and facilitate access to traditional areas and resources" is one of the methods of implementation for Policy 19.1 and the proposal is considered to be consistent with this through improving access to and along the Huatoki awa. The significance of the area and the Huatoki awa have been advised by Ngāti Te Whiti hui and CIA and thereafter incorporated into the design of the building. It is therefore considered that the proposal is consistent with Policies 19.2 and 19.3. The principles of Te Tiriti O Waitangi are explained in Section 5.6 to have been taken into account through the genuine engagement process undertaken with Ngāti Te Whiti, and the outcomes which

include acceptable adverse effects and the recognition of and provision for cultural and spiritual values. The proposal is therefore demonstrated to be consistent with Policy 19.4.

The proposal is entirely consistent with and not contrary to the above objective and policies with regard to recognising and providing for the cultural and spiritual values of Tāngata Whenua.

Objective 20 - To ensure that the road transportation network will be able to operate safely and efficiently.
Policy 20.1 - The movement of traffic to and from a site should not adversely affect the safe and efficient movement of vehicles, both on-site, onto and along the road transportation network.
Policy 20.2 - The safe and efficient operation of the road transportation network should not be adversely affected by land use activities that have insufficient or substandard parking or loading areas.
Policy 20.3 - Potential conflict between vehicles, pedestrians and cyclists moving on the road transportation network should be minimised to protect the safety and efficiency of road and footpath users.

Assessment: As addressed in Section 4.5, the proposal will maintain traffic, pedestrian and cyclist safety and efficiency along Brougham Street. Additionally, the proposal provides parking for some of its own generated demand and is overall considered to be consistent with and not contrary to the above Objective and Policies.

5.3.2 Summary

The proposal is contrary to three policies and an objective of the ODP as explained previously. These provisions direct that the amenity of urban viewshafts is maintained, and that vegetation in the central city, particularly Notable Trees, be protected. The provisions do not allow for consideration of the practicalities (e.g. social, economic, physical) of retaining the Notable Tree, including its restrictions on the development opportunities of nearby sites, nor the potential for alternative or enhanced amenity from a proposed development to mitigate that lost as a result of removing the tree.

Relative to this is that the proposal is not contrary to, but demonstrates consistency with the majority of the other relevant objectives and policies of the ODP, with regard to:

- General character, amenity and the compatibility of land use activities;
- Maintaining and enhancing the character and amenity of the Business Environment Area, including visual amenity;
- Providing the opportunity for connection, access and honouring of the Huatoki Stream as an important place;
- Appropriate building design to address natural hazards;
- Recognising and providing for the cultural and spiritual values of Tāngata Whenua in a manner which respects and accommodates Tikanga Māori; and
- Ensuring a safe and efficient transportation system.

While the above provisions to which the proposal is consistent with outnumber those to which it is contrary to, the content of the above provisions is more important. As such, overall and considering the proposal holistically, it is considered that the contributions of the proposal to the character, amenity and vibrancy of the central city through a modern sustainable building providing commercial working space, apartment living and design that embraces connection with other spaces and the Huatoki Stream, is a significant improvement to the current parking lot. Added to this is that the recognition and provision in the building design of the cultural and spiritual values of Tāngata Whenua all significantly outweigh any adverse visual effects of the overheight nature of the building and the loss of the tree. It is considered that this demonstrates strong consistency with the provisions

of the ODP which have broader aspirations for this central city site and area, which outweigh the provisions which more narrowly focus on protecting viewshafts and singular heritage features.

Overall, on balance the proposal is therefore not considered to be contrary to the Objectives and Policies of the ODP.

5.3.3 Proposed District Plan

Strategic Objectives
HC-1: The district's heritage and cultural values contribute to the district's sense of place and identity, and are recognised and protected.
HC-2: The cultural, spiritual and/or historical values associated with historic heritage and sites and areas of significance to Māori are protected.
HC-3 - Tangata whenua's relationships, interests and associations with their culture, traditions, ancestral lands, waterbodies, sites, areas and landscapes, and other taonga of significance are recognised and provided for.
TW-8 - Tangata whenua actively participate in resource management processes.
TW-9 - Recognise that only tangata whenua can identify impacts on their relationship with their culture, traditions, ancestral lands, waterbodies, sites, areas and landscapes and other taonga of significance to Māori.
TW-11 - Provide for the relationship of tangata whenua with their culture, traditions, ancestral lands, waterbodies, sites, areas and landscapes and other taonga of significance to Māori.
TW-12 - Recognise the contribution that tangata whenua and their relationship with their culture, traditions, ancestral lands, waterbodies, sites, areas and landscapes, and other taonga of significance make to the district's identity and sense of belonging.
UFD-13: The district develops in a cohesive, compact and structured way that: 1. maintains a compact urban form that provides for connected, liveable communities; 2. manages impacts on the natural and cultural environment; 3. recognises the relationship of tangata whenua with their culture, traditions, ancestral lands, waterbodies, sites, areas and landscapes and other taonga of significance; 4. enables greater productivity and economic growth; 5. enables greater social and cultural vitality; 6. takes into account the short, medium and long-term potential impacts of climate change and the associated uncertainty; 7. utilises existing infrastructure and/or can be efficiently serviced with new infrastructure; and 8. meets the community's short, medium and long-term housing and industrial needs.
UFD-15: A variety of housing types, sizes and tenures are available across the district in quality living environments to meet the community's diverse social and economic housing needs in the following locations: 1. suburban housing forms in established residential neighbourhoods; 2. a mix of housing densities in and around the city centre, town centres and transport nodes, including multi-unit housing; 3. opportunities for increased medium and high-density housing in the city centre, town centres and local centres that will assist to contribute to a vibrant, mixed-use environment; 4. a range of densities and housing forms in new subdivisions and areas identified as appropriate for growth; and 5. papakāinga housing that provides for the ongoing relationship of tangata whenua with ancestral land and for their cultural, environmental, social and economic well-being.
UFD-16: The district has a hierarchy of vibrant and viable centres that are the location for shopping, leisure, cultural, entertainment and social interaction experiences and provide for the community's employment and economic needs.
UFD-17: The hierarchy of centres in the district is maintained in accordance with the following hierarchy: 1. the city centre is the principal centre that provides a wide range of retail and business service activities, living activities, community facilities, and visitor accommodation that serve the district and the Taranaki region; 2. Waitara and Inglewood are town centres that provide a range of business, retail and entertainment activities that serve the needs of each town centre's community and surrounding rural areas and; 3. local centres are made up of rural service centres, village centres, suburban shopping centres and neighbourhood shops that provide convenience-based business and retail activities which serve the needs of each local centres community and surrounding areas.

UFD-19: Urban environments are liveable, connected, accessible, safe and well-designed spaces for the community to live, work and play, which:

1. integrate and enhance natural features and topography into the design of development to minimise environmental impacts;
2. recognise the local context and character of an area;
3. reduce opportunities for crime and perceptions of crime through design solutions;
4. create ease of movement in communities through connected transport networks, a range of transport modes and reduced reliance on private motorised vehicles;
5. incorporate matauranga Māori principles by involving tangata whenua in the design, construction and development of the built environment;
6. use low impact design solutions and/or healthy, accessible, energy efficient buildings; and
7. are adequately serviced by utilising and/or upgrading existing infrastructure or with new infrastructure.

Assessment: Recognising that the area has been of significance to iwi and hapū for hundreds of years the proposal recognises the values Ngāti Te Whiti associate with the site and Huatoki awa and protects / provides for them with an appropriate narrative incorporated in the building design (HC-2, HC-3 and TW-11). Those values and the cultural narrative that arose from them have been the result of iwi and hapū participation in this consent application process through hui and CIA (TW-8), understanding that those cultural values can only be advised by Tāngata Whenua (TW-9). The design of the building will provide a narrative for the hapū relationship with this site, area and the Huatoki as an integral part of the city's identity and sense of belonging and place in this Mawhera / Brougham Street area (HC-1 and TW-12).

With regard to UFD-13, the proposed design of the building aligns with the need for compact urban form in this central city area and diversifies use of the site for both commercial and residential use, adding to the area's vitality and providing for commercial productivity, economic growth, employment and housing demand in the city centre. The proposal is consistent with this policy.

The apartment component of the building is consistent with policy UFD-15 as it contributes to the mixture of housing densities in the city centre and contributes to a vibrant mixed-use environment.

The addition of premium office space provides areas for employment and meeting businesses economic needs, maintaining the New Plymouth city centre as the principal and highest on the hierarchy of urban centres in New Plymouth district, consistent with policy UFD-16 and UFD-17.

Design features have been incorporated in the building to ensure connections and accessibility with the surrounding streets and the Huatoki Stream, recognising its importance. The building is to utilise low impact design solutions, be energy efficient and as an observation point increases safety of the streets and Huatoki area users. The proposal is consistent with UFD-19.

Overall, the proposal is not considered to be contrary to the Strategic Objectives above other than HC-1 relating to the removal of the Notable Tree.

Objective VIEWS-O1: Viewshafts from public places to Mount Taranaki, the sea, Nga Motu/Sugar Loaf Islands and significant landmarks that provide a strong sense of place and identity are recognised and maintained.

VIEWS-P2: Maintain the visual amenity of viewshafts by controlling the height of structures within viewshafts.

VIEWS-P3: Ensure that any structure that exceeds permitted height limits within a viewshaft is appropriately located and does not result in inappropriate adverse visual effects on the viewshaft, having regard to:

1. the extent to which the additional height of the structure will encroach upon the core part of the view and/or compromise the visual coherence or integrity of the viewshaft and its view;
2. the focal elements that will be affected and the ability to interpret the view;
3. the reduction or loss of amenity, vegetation and/or landscaping values;
4. the particular cultural, spiritual and/or historical values, interests or associations of importance to tangata whenua that are associated with the viewshaft which may be affected by the over-height structure;
5. the outcomes of any consultation with tangata whenua, in particular with respect to mitigation measures and/or opportunities to incorporate mātauranga Māori principles into the overall scale, form, composition and design of the structure, to:

   a) minimise adverse visual effects on any cultural, spiritual and/or historical values, interests or associations of importance to tangata whenua that are associated with the viewshaft; and

   b) acknowledge and reflect the importance of the viewshaft to tangata whenua.
6. the view's sensitivity to change or capacity to accommodate change;
7. whether the additional height of the structure will enhance the quality of the view through its design; and/or
8. whether the proposed structure and/or additional height of the structure has a functional or operational need to be located within the viewshaft, any alternative locations for the structure on the site and the permenancy of the structure.

VIEWS-P4: Support enhancement planting on Council land that is located within viewshafts to improve the overall amenity of viewshafts.

Assessment: Policy VIEWS-P2 directs Council to have rules in the PDP with regard to height of buildings and structures within viewshafts. Recognising that there will be more than minor effects on the Victoria Road Viewshaft, nonetheless the proposal is considered to maintain the visual amenity of the Viewshaft as the vast majority of the view is unaffected. The additional height is a functional requirement and with mitigation through design methods, adverse effects are considered to have been appropriately controlled. Therefore, the proposal is not considered to be contrary to Policy VIEWS-P2.

As advised by the outcomes of the CIA, the proposal is considered to be consistent with and not contrary to Policy VIEWS-P3 which qualifies why additional height above the permitted level is acceptable in some instances or with regard to particular factors. This is because the building is appropriately located in the central city amongst other multi-storey buildings, and for the reasons explained in the LVIA which address points 1-3 and 6-7 of the Policy. With regard to points 4 and 5, as explained in the CIA any effects on cultural and spiritual values of Ngāti Te Whiti are acceptable, in part due to ensuring the building has an appropriate cultural narrative to be advised by Tāngata Whenua. With regard to point 8, there is no alternative location for the structure on the site due to the site's size and shape, with need for the apartment to be on top with the tenanted commercial spaces more easily accessible below, and for the building to be at this scale for it be economically functional.

The opportunity remains for enhancement planting in the future near the Huatoki Stream to improve the amenity of the viewshafts and the proposal is not contrary to Policy VIEWS-P4.

Overall it is considered that the proposal maintains the desired sense of place and identity from all relevant Viewshafts and is therefore not contrary to Objective VIEWS-O1.

Objective TREE-O1: Trees with notable botanical, landscape, amenity, historical or cultural (including tangata whenua) values are recognised, identified and protected.
TREE-P3: Allow the removal, partial removal or destruction of an unsafe or unsound scheduled notable tree where it has been certified by the Council that the tree is unsafe or unsound as determined by using the International Society of Arboriculture Tree Risk Assessment.
TREE-P5: Avoid the removal, partial removal or destruction of a scheduled notable tree, unless: 1. it is necessary to prevent a serious threat to people or property; 2. it is necessary to enable the ongoing provision of essential infrastructure; 3. it is necessary to ensure compliance with the Electricity (Hazards from Trees) Regulations 2003; and/or 4. the tree is rendering the site incapable of reasonable use.

Assessment: With regard to the above relevant Objective and Policies:

- The proposal is contrary to Objective TREE-01 due to the removal of the Notable Tree as it cannot be protected.
- The proposal is contrary to Policy TREE-P3 as removal of the tree is only allowed where Council have certified it unsafe or unsound and this has not occurred for this application.
- The proposal is not contrary to Policy TREE-P5 due to meeting one of the criteria, that being as explained in Section 4.3, the tree is rendering this site incapable of reasonable use.

Objective CCZ-O2: The city centre is the primary location for a wide range of retail and business service activities, living activities, community facilities and visitor accommodation.
Objective CCZ-O4: The structures in the city centre are well designed and contribute positively to the streetscape.
Objective CCZ-O5: The city centre is an attractive, accessible and safe environment for people to work, live and play.
CCZ-O6: Increased numbers of people live in the city centre.
CCZ-O7: The city centre's historic and cultural heritage is maintained and enhanced and contributes to the city's unique sense of place and identity.
CCZ-O8: The role and function of the city centre is not compromised by incompatible activities and/or built form.
CCZ-P1: Allow activities which are compatible with the role, function and predominant character of the City Centre Zone, while ensuring their design, scale and intensity is appropriate, including: 1. retail activities; 2. business service activities; 3. sensitive activities; 4. medical and health services; 5. sport and recreation activities; and 6. Māori purpose activities.
CCZ-P4: Encourage medium and high density housing developments in the city centre that will contribute to a vibrant, mixed use environment.
CCZ-P5: Maintain the role, function and predominant character of the City Centre Zone by controlling the effects of: 1. inactive frontages; 2. total or partial demolition of structures; 3. the erection of structures; 4. alterations to exteriors of structures; 5. additions to structures; 6. structure height; 7. noise and light; and 8. signage.

CCZ-P6: Require activities on pedestrian streets to maintain an active frontage and to contribute to a vibrant retail area by:

1. providing a verandah and/or other forms of shelter for pedestrians;
2. providing adequate transparent glazing so that goods and services are visible to create engaging, retail focused spaces;
3. providing an obvious public entrance;
4. locating parking and servicing areas within or to the rear of buildings; and
5. ensuring pedestrians can move safely and efficiently along the street and within public places.

CCZ-P8: Require structures and/or alterations to the exterior of or additions to structures to be compatible with the character and amenity of the relevant area by:

1. having an interesting and engaging frontage with variations in form, materials and colour;
2. providing clearly visible and accessible entranceways and connections to pedestrian networks, including safe and practicable access for people with limited mobility;
3. locating utilities and service areas so they are not visible from public areas and are screened or incorporated into the overall structure form;
4. using sustainable design methods, where possible, to minimise the use of energy and water resources and to create healthy living and working environments;
5. incorporating mātauranga Māori principles into the design and construction of the structure and, where appropriate, art works or unique and recognisable features that reflect cultural, spiritual and/or heritage values of importance to tangata whenua; and
6. maintaining similarity of frontage alignment, height and overall bulk, form and scale for structures adjoining a heritage building and/or within the heritage character area.

CCZ-P9: In addition to Policy CCZ-P8, require structures and/or alterations to the exterior of or additions to structures that adjoin a public place to:

1. maximise opportunities for the public to use and access that place;
2. maintain and enhance the city centre's historic and cultural heritage;
3. minimise any adverse shading effects on the public place; and
4. minimise the adverse impacts on the openness, historical and cultural values of the Huatoki Stream.

CCZ-P10: Ensure that structures proposing to exceed permitted height limits are appropriate, having regard to:

1. the prominence of the site's location, the extent of the structure's visibility to the public and its compatibility with the character and amenity of the area;
2. the overall scale, form, composition and design of the structure, the effects of the additional height and the ability to minimise adverse visual effects by breaking up dominant and/or monotonous facades;
3. the proximity of the structure to the coastal environment and its impact on coastal values;
4. the proximity of the structure to the Huatoki Stream and its impact on the openness, historical and cultural values of the stream;
5. the site's size, topography and the orientation of the structure on the site and whether the structure will result in adverse shading effects;
6. the extent to which the structure encroaches into the core part of the view and the focal elements that will be affected within any viewshaft;
7. the impact on any adjacent heritage building and/or the heritage character area, ensuring similarity of frontage alignment, height and overall bulk, form and scale.

CCZ-P11: Ensure any effects generated by activities are of a type, scale and level that are appropriate for the City Centre Zone and that will maintain city centre amenity, having regard to:

1. whether building occupants have adequate access to daylight;
2. the ability to manage noise and light emissions at an acceptable, reasonable level; and
3. the size, design and type of signage and whether it is compatible with the character and amenity of the city centre.

Assessment: The proposal offers a predominant commercial office activity, with diversification into an ancillary apartment use; both of which are compatible with the character of this area. As per the Effects Assessment, effects with regard to building height can be managed to an appropriate scale and intensity which maintains the role, function and character of this proposed Central City area, through methods such as transparent glazing, two canopies and entrances / stairs into public spaces

to maintain visual and physical engagement with the street and the Huatoki Stream. Design and construction of the building reflect principles advised by Tāngata Whenua, with art and features to both the interior and exterior that speak directly to the history and values of the area to Ngāti Te Whiti. The building fits with the many others of multiple storeys in this area however utilises modern sustainable design and function methods and has a stepped-back apartment on top to reduce its dominance. Some parking demand is serviced on-site and hidden beneath the building. Overall, the enhanced amenity to the site and area as a result of the proposal contributes significantly more to the inner city than the current vacant site and will contribute actively to this mixed working and living environment. Overall, the proposal is not considered to be contrary to the above Objectives and Policies.

5.3.4 Summary

Unlike the ODP, the PDP nominates some Strategic Objectives which have more weight than the other provisions of the ODP. The proposal is contrary to one of the Strategic Objectives as explained previously, which (similar to the ODP) directs the protection of heritage values (associated with the Notable Tree). Again, this does not provide for consideration of the practicalities and restrictions that the tree influences, nor mitigation of the effects of removing the tree, nor the timeframe in which the tree can reasonably remain as a heritage item, but instead requires protection at all costs, which is not provided for in this application. However, the proposal goes on to demonstrate strong consistency with other relevant Strategic Objectives with regard to recognising and providing for Tāngata Whenua cultural, spiritual and historical values, and urban form and development which directs developments to support an inner-city environment that is compact, connected, productive, vibrant and supports a mixture of commercial and residential uses.

With regard to the remaining Objectives and Policies of the PDP, the proposal is contrary to an Objective and a Policy that again directs the protection of Notable Trees. However, Policy TREE-P5 specifically provides for the removal of a Notable Tree if it is rendering the site incapable of reasonable use, as is the case for the subject Notable Tree. The Objective to protect the tree therefore, unlike the ODP, is required to take into account the practicalities and restrictions Notable Trees can create.

The proposal is not contrary to Policy VIEWS-P2 because the proposed height is considered to be adequately controlled to maintain the visual amenity of viewshafts, and it is not contrary to VIEWS-P3 which goes on to rationalise additional height when it is acceptable with regard to particular mitigating factors, which are applicable to this proposal. The proposal maintains the opportunity for enhancement planting along the Huatoki, not contrary to VIEWS-P4. Overall, the proposal is therefore not contrary to the VIEWS-O1 Objective by maintaining a strong sense of place and identity for the Viewshafts in which it sits.

The proposal thereafter demonstrates that it is not only not contrary to, but is consistent with the majority of the other relevant objectives and policies of the PDP, with regard to:

- Visual amenity in general; and
- The character and amenity of the Central City Zone, which is to have vibrant business and living amenities, an attractive and social streetscape and embraces place and identity.

Again the provisions that the proposal is consistent with outnumber those to which it is contrary, but in recognising the content of those provisions, the same conclusion is reached as for Section 5.3.2. Overall and considering the proposal holistically, it is considered that the contributions of the proposal to the character, amenity and vibrancy of the central city through commercial working space, apartment living and design that embraces connection with other spaces, is a significant improvement to the current parking lot, such that it outweighs the visibility within viewshafts and the

loss of the tree. It is considered that the proposal demonstrates strong consistency with the provisions of the PDP which have broader aspirations for this central city site and area, which outweigh provisions which more narrowly focus on protecting viewshafts and singular heritage features.

Overall, on balance the proposal is not considered to be contrary to the Objectives and Policies of the PDP.

5.4 Regional Policy Statement for Taranaki

The Regional Policy Statement (RPS) for Taranaki came into effect on 1 January 2010 and sets the framework for resource management policies including policies relating to the natural physical resources of Taranaki. It is the second RPS to be prepared by the Taranaki Regional Council. The purpose of the document is to *"promote the sustainable management of natural and physical resources in the Taranaki Region by providing an overview of resource management issues… and identifying policies and methods to achieve integrated management of natural and physical resources in the region"* (Taranaki Regional Council, 2010).

The RPS seeks to promote sustainable development whilst improving the quality of life by improving better social, environmental and economic outcomes.

Objectives and policies of the Land and Soil chapter (Chapter 5) seek to manage adverse effects arising from contaminated sites. In line with this, background research on the site has been undertaken and Appendix G confirms that there is no reason to believe there is any soil contamination on the site.

Enhancing public access to and along rivers is a topic of the objectives and policies of Chapter 6 (Fresh Water). Recognising that the Huatoki area is to be upgraded in the future to support public access and better appreciation of the Huatoki Stream, the development provides a connection through from the building to the Huatoki area.

Chapter 10 has regard to natural features and landscapes, historic heritage and amenity value. Objectives and policies centre around protecting and managing natural areas, features and landscapes which have (for example) character, amenity and heritage values. As explained earlier, the loss of amenity values associated with the tree is considered to be mitigated by the contribution of new values compatible with a vibrant the inner-city environment that the improved site will offer.

Objectives and policies within the Built Environment chapter (Chapter 15) of the RPS recognise the need to provide for appropriate development while avoiding, remedying or mitigating any adverse effects on the environment in order to maintain character and amenity values. The proposed high-quality compact development provides for the efficient use of an existing underutilised Business Environment site, stimulating social, environmental and economic vibrancy for this inner-city area with eco-friendly premium leasable commercial space and a modern apartment. The building is a walkable distance (and adjacent) to public spaces and all inner-city facilities, providing passive surveillance of public areas, whilst maintaining urban character and amenity.

Overall, the proposal is considered to be consistent with the intent of the RPS.

5.5 Tai Whenua, Tai Tangata, Tai Ao

The following objectives and policies in the Te Atiawa Iwi Environmental Management Plan are considered relevant to the proposal:

Provision	Assessment
Acknowledgement of Tāngata Whenua	
Ob. TTHA3.1 Te Atiawa members who hold mātauranga or knowledge that has been passed down through generations are recognised as experts on resource management issues in our rohe.	As further explained below, through the Cultural Impact Assessment and workshop process, the mātauranga and knowledge of Te Atiawa and Ngāti Te Whiti have informed the proposal, consistent with this relevant objective.
Pol. TTHA3.1 Te Atiawa are tangata whenua of the rohe which extends from Te Rau o Te Huia along the coast to the Herekawe Stream, inland to Maunga Taranaki and offshore. **Pol. TTHA3.2** Tai Whenua, Tai Tangata, Tai Ao does not replace the need to engage kanohi ki te kanohi with Te Atiawa. **Pol. TTHA3.3** Central government agencies, regional and district councils and any other consenting authority support Te Atiawa to achieve our environmental aspirations. **Pol. TTHA3.5** Ngā Hapū o Te Atiawa will be informed on all issues affecting natural, physical and heritage resources within our rohe.	Recognising that Te Atiawa and Ngāti Te Whiti are Tāngata Whenua (Pol. TTHA3.1) of the rohe in which the site is located, they have undertaken a Cultural Impact Assessment (CIA) (Pol. TTHA3.5) to consider the proposal and its effects, including hui and a workshop with the applicant (Pol. TTHA3.2) and NPDC (Pol. TTHA3.3) to be guided by the key outcomes of the CIA. The proposal is consistent with the relevant policies.
Acknowledgement of Kaitiakitanga	
Ob. TTHA4.1 Te Atiawa are recognised as kaitiaki over natural and physical and cultural resources within our respective rohe boundaries. **Ob. TTHA4.2** Te Atiawa exercise our duties as kaitiaki within our respective rohe boundaries. **Ob. TTHA4.3** Protect, maintain and enhance the mauri of natural resources which in turn sustains the social, economic, and cultural wellbeing of our people.	The undertaking of the CIA and workshop between the different parties involved in this consent is an opportunity to acknowledge and provide for kaitiakitanga by Ngāti Te Whiti and Te Atiawa. There are opportunities to recognise and provide for the mauri of the Huatoki Stream through the design of the proposal, and it is considered to be overall consistent with the relevant objectives.
Pol. TTHA4.1 Require central government agencies, regional and district councils, any other consenting authority and users of Tai Whenua, Tai Tangata, Tai Ao, to have the capability to appropriately acknowledge and provide for kaitiakitanga and that this is supported by all Council officials including Councillors, commissioners, senior management and officers. Practise note: this could include provision for cultural monitoring, maintenance opportunities, community environmental restoration projects, education initiatives.	The undertaking of the CIA, and workshop between the different parties with interests in this consent application has resulted in acknowledgement and providision for kaitiakitanga, consistent with this policy.
Participation in Decision–Making Processes	
Ob. TTHA5.1 Te Atiawa are active participants in all resource management decision–making processes of central government agencies, regional and district councils and any other consenting authority. **Ob. TTHA5.2** The tikanga, values and principles of Te Atiawa are considered and appropriate weight is given to these values during the decision–making process.	The undertaking of the CIA and the workshop between the different parties, and guided by the CIA, is an opportunity for participation by Ngāti Te Whiti and Te Atiawa and consideration of their values. The proposal is consistent with the relevant objectives.
Pol. TTHA5.3 Require plan users to consult kanohi ki te kanohi with Te Atiawa on their proposals at an early stage.	Prior to this application, Ngāti Te Whiti have been engaged in wider conversations about the redevelopment of the Huatoki Stream area. The workshop undertaken was then an opportunity for kanohi ki te kanohi between all parties involved. The proposal is consistent with this policy.

Provision	Assessment
Inland and Coastal Whenua	
General (Gen) Ob. TTAN1.1 Protect and enhance native vegetation, species and environments such as rivers, streams, tributaries and wetlands. **Gen. Ob. TTAN1.2** Protection of wāhi tapu/wāhi taonga, urupā and sites of significance to Māori, from damage, modification, desecration, destruction and loss of access. **Gen. Ob. TTAN1.3** Protect the mauri of our ancestral lands and wāhi tapu/wāhi taonga, urupā and sites of significance to Māori.	As explained below, the proposal is considered to protect the Huatoki Stream, archaeological sites of importance to Tāngata Whenua, and potentially protect the mauri of the land and stream, consistent with these relevant general objectives.
Gen. Pol. TTAN1.4 Require land use activities to occur in a manner that is consistent with land capability, natural resource capacity, availability and limits, and the overall capacity of catchments. **Gen. Pol. TTAN1.5** Prohibit damage, modification, desecration, destruction to wāhi tapu/wāhi taonga, urupā and sites of significance to Māori, and loss of access to these sites.	The proposed activity is consistent with the capability of the site as an inner-city commercial (Business Zone) site which had previously been developed with a building in past decades (Gen. Pol. TTAN1.4). Appropriate methods such as an ESCP will be in place to protect the Huatoki Stream. Due diligence to establish the potential for archaeological material of importance to Ngāti Te Whiti and Te Atiawa has been completed in terms of querying the Operative and Proposed District Plans, NZAA's ArchSite and an Archaeological Assessment prepared by Ivan Bruce (Gen. Pol. TTAN1.5). The proposal is consistent with these relevant general policies.
Urban and Township Planning and Development	
Ob. TTAN3.1 Te Atiawa has a prominent and influential role in urban planning and development. **Ob. TTAN3.2** Acknowledge and provide for Te Atiawa values and the expressions of our narrative in the built form and landscaping or urban environments.	As explained below, Te Atiawa and Ngāti Te Whiti have and shall be involved in the process for this proposal, with the opportunity for consideration of values expressed through design, consistent with these relevant objectives.
Pol. TTAN3.1 Work with district councils to recognise and provide for Te Atiawa values in urban and township planning, including to: a) require the involvement of Te Atiawa in the development and implementation of urban and township development plans and strategies; b) promote Te Atiawa's guiding principles and values to inform urban development and township planning within our Te Atiawa rohe including urban development capacity; Practise note: for the avoidance of doubt refer to Section 3 for Te Atiawa Guiding Principles. c) require that Te Atiawa's cultural landscapes are protected and enhanced, and articulated in the built design to connect and deepen our 'sense of place'.	Ngāti Te Whiti and Te Atiawa are involved, including consideration of the cultural landscape, through the CIA and its guiding of the hui and workshop to discuss the proposal and its relationship with the identified values. The process shall be consistent with this relevant policy.
Subdivision and Development	
Ob. TTAN4.2 Acknowledge and provide for Te Atiawa values and the expressions of our narrative in the built form and landscaping. **Ob. TTAN4.4** Acknowledge and provide for Te Atiawa cultural landscapes in the built design to connect and deepen our 'sense of place'.	The whole CIA process provides opportunity for discussion about the proposal design with regard to the values identified in the CIA. The proposal shall be consistent with these relevant objectives for development.

Provision	Assessment
Pol. TTAN4.5 Require the use of the following methods to facilitate engagement with Te Atiawa where a subdivision, land use or development activity may have actual or potential adverse effects on cultural values and interests. This may include but is not limited to: a) site visit and consultative hui; b) archaeological assessment (walk over/test pitting), or a full archaeological description; c) preparation of a Cultural Impact Assessment; and d) co–design of proposed conditions of consent. **Pol. TTAN4.10** Require setback areas along the river and stream boundaries at the time of subdivision development. These reserves or set back areas should be at least 20 metres. **Pol. TTAN4.12** Require that all setback areas are planted with sites– specific native species to provide protection for the waterways, ensuring that access is not restricted.	A CIA has be undertaken to include a site visit, advice from the archaeological assessment provided with the application, and consultative hui / workshops to discuss the CIA outcomes with regard to the proposal (Pol. TTAN4.5). There is potential for the proposal to connect to the Huatoki Stream area which will maintain a setback distance (Pol. TTAN4.10) which has the potential to be riparian planted (Pol. TTAN4.12), though not to 20m deep. On balance the proposal is considered to be consistent with these relevant policies.
Land Disturbance	
Ob. TTAN6.1 Wāhi tapu/wāhi taonga, urupā and sites of significance to Māori are protected from damage, modification, desecration or destruction.	As further explained below, appropriate methods are in place to investigate the potential for new sites of significance and to manage activities and effects thereafter. The proposal is consistent with this relevant objective.

Provision	Assessment
Pol. TTAN6.1 Prohibit damage, modification, desecration, destruction of wāhi tapu/wāhi taonga, urupā and sites of significance to Māori. **Pol. TTAN6.2** Require that all resource applications made under the Resource Management Act 1991 involving land disturbance activities provisions are made for any or all of the following: a) consultative site visit and hui; b) plans for development are certified by Te Atiawa, this includes but is not limited to quantity of land disturbance, building platforms (topsoil clearance and any contouring), trenching in relation to stormwater, wastewater and telecommunication services; c) archaeological assessment (walk over/test pitting), or a full archaeological description; d) preparation of a Cultural Impact Assessment; e) cultural monitoring; and f) recommended consent conditions or consent notices. **Pol. TTAN6.3** Require that all resource applications made under the Resource Management Act 1991 involving land disturbance activities (e.g landuse consent, building consent and earthworks consent regardless of the permitted earthworks thresholds) are assessed with particular regard to: a) potential effects on known and unknown wāhi tapu/wāhi taonga, urupā and sites of significance to Māori; b) potential effects on Te Atiawa Statutory Acknowledgement waterways and important habitats such as wetlands and waipuna; c) potential effects on indigenous biodiversity; d) potential effects on natural and cultural landforms; e) management measures such as erosion and silt control methods. **Pol. TTAN6.4** Require regional and district councils and applicants recognise Heritage New Zealand Pouhere Taonga and their legal obligations under the Heritage New Zealand Pouhere Taonga Act 2014 to manage activities where there is any potential to damage, modify or destroy an archaeological site. **Pol. TTAN6.6** Require that native vegetation removed or damaged during land disturbance is replaced to a level that results in a net biodiversity benefit. **Pol. TTAN6.7** Require adequate sediment and silt control measures adjacent to Te Atiawa Statutory Acknowledgement waterways, including but not limited to: a) minimising the extent of land cleared and left bare at any given time; and b) capture of run–off and sediment via control such as silt traps and fences, and these structures are monitored and cleared regularly to ensure effectiveness.	An archaeological assessment has been undertaken and concludes that the potential to disturb material of importance to Tāngata Whenua is low (Pol. TTAN6.1). A CIA has been undertaken to include a site visit and thereafter a consultative hui workshop. The proposal has therefore been advised by the outcomes of the CIA process with regard to effects on the variety of values Ngāti Te Whiti and Te Atiawa have for the site (Pol. TTAN6.2) and Huatoki Stream as a Statutory Acknowledgement Area (Pol. TTAN6.3). Consent conditions shall thereafter be appropriate to control effects of earthworks such as through an ESCP (Pol. TTAN6.7). An archaeological Authority shall be obtained for the removal of the railway embankment (Pol. TTAN6.4). A limited amount of native vegetation alongside the Huatoki Stream may be disturbed during the removal of the Notable Tree and earthworks, it is anticipated that this be replaced during the redevelopment of the stream parcel in the future (Pol. TTAN6.6). Altogether the proposal is considered to be consistent with these relevant policies.
Stormwater Management	

Provision	Assessment
Ob. TTAN7.1 Achieve a "zero stormwater discharge off–site" approach which utilises the natural ability of Awhi– Nuku to filter and cleanse stormwater before entering a waterbody.	It is not practicable to achieve total disposal or use of site-generated stormwater on the site due to its physical constraints, however some stormwater will be utilised on-site. The proposal is not consistent with the direction of this objective however does demonstrate consistency with some of the below policies.
Pol. TTAN7.1 Require that stormwater is managed on–site in all new applications to develop within the urban, rural, commercial and industrial environments. **Pol. TTAN7.2** Oppose discharging stormwater directly into rivers, streams, tributaries and wetlands. **Pol. TTAN7.3** Require that regional and district councils recognise and provide for the incremental and cumulative effects of stormwater discharges when developing planning documents, and assessing resource consents. **Pol. TTAN7.4** Require the use of sustainable stormwater management designs, including but not limited to the use of one or preferably a combination of the following: a) Swales; b) Wetlands; and c) System designed to dissipate water and filter contaminants and sediment.	As a result of the site size and building foundation design requirements, stormwater cannot be managed solely on-site, however there will be methods in place to utilise some stormwater for non-potable use in the proposed building (Pol. TTAN7.1 and Pol. TTAN7.4). While excess stormwater shall be discharged to Huatoki Stream (Pol. TTAN7.2), this water shall be from the roof and hardstand areas of the commercial building and is therefore relatively clean as opposed to stormwater from a site that is used for industrial purposes. Such water is considered to have a negligible effect on the Huatoki Stream and is from its catchment (Pol. TTAN7.3). On balance the proposal is consistent with these relevant policies.
Beds and Margins of Waterways and Lakes	
Ob. TTOM6.1 Provide for sustainable uses of beds and margins while avoiding adverse effects on their natural character and their ability to support flora and fauna.	The proposal manages activities and effects in the margin of the Huatoki Stream and retains a space between the proposed building and the waterbody and the opportunity for its enhancement in the future. The proposal is consistent with this objective.
Pol. TTOM6.2 Require that Te Atiawa Statutory Acknowledgement waterways have setback areas from residential, commercial or urban activities of at least 20 metres. Practise note: It is expected that the implementation of this policy will provide protection for the waterways, access to those waterways, provision for wildlife corridors, and connectivity between environments and future communities. **Pol. TTOM6.4** Require that all set back areas are planted with site–specific native vegetation to provide protection for waterways. **Pol. TTOM6.5** Require that all works in the beds and margins of waterways and lakes are undertaken in a manner that: a) protects waterbodies from disturbance; and b) mahinga kia habitats and species are not affected as a result of these activities. **Pol. TTOM6.6** Require that all loss or damage of riparian vegetation as a result of any works is restored with site–specific native riparian species.	Due to the historic design of the site and adjoining lots, it is not practicable to provide a 20m setback from the Huatoki Stream however there remains bank space between the proposed building and the waterway (Pol. TTOM6.2), and it is anticipated that there is the opportunity for this bank to be remediated and then planted and landscaped in the future (Pol. TTOM6.4 and Pol. TTOM6.6). Earthworks and the Notable Tree removal shall occur on the margin of Huatoki Stream but not in its bed, and methods such an ESCP will be utilised to protect the stream from disturbance effects (Pol. TTOM6.5). The proposal is on balance considered to be consistent with these relevant policies.
Access to Waterways	
Ob. TTOM7.1 To obtain access to our ancestral mahinga kai areas and sites of significance to Māori along Te Atiawa Statutory Acknowledgement waterways.	Access to the Huatoki Stream will be improved as a result of the proposal, consistent with this objective.

Provision	Assessment
Pol. TTOM7.1 Require and be provided access to mahinga kai areas and sites of significance to Māori through set back areas (through esplanade strips/reserves, easements, access strips or any other legal mechanism) at the time of subdivision development.	The proposal does not involve a legal mechanism in association with a subdivision at this time however it does maintain a margin between the proposed building and the Huatoki Stream in which access to Huatoki Stream can be gained from Powderham Street and from the stairwell of the building. This is an improvement from the current locked gates and structures surrounding the Huatoki. The proposal is consistent with this policy.
Light, Noise, Odour and Visual Pollution	
Ob. TTAR3.1 Ensure the effects of light, noise, odour, radiation and visual pollution are managed in a manner that does not impact on Te Atiawa, the environment, species, on our health and wellbeing, or cause a nuisance to our people.	The proposed building and its design considerations are considered to be appropriate for this inner-city environment with visual effects being overall appropriate. The proposal is consistent with this objective.
Pol. TTAR3.3 Require colours and building design to fit with that of the surrounding environment.	The surrounding environment is of multi storeyed urban buildings used for commercial and ancillary residential purposes, as is the proposed building. Colours are less dominant for this building due to its predominantly glass and timber design, which is considered a significant improvement on the other (predominantly concrete) buildings of inner-city New Plymouth. While the proposal therefore does not exactly mimic the surrounding environment, it does align with it appropriately (i.e. is compatible) and is therefore considered to be consistent with this relevant policy.
Acknowledgement and Protection of Wāhi Tapu / Wāhi Taonga, Urupā and Sites of Significance To Māori	
Ob. TTHE2.1 Ensure that wāhi tapu/wāhi taonga, urupā and sites of significance to Māori within our Te Atiawa rohe are protected from damage, modification, desecration, destruction and loss of access.	Multiple processes have been/are being undertaken including research by the applicant (through an Archaeological Assessment and Authority) and Ngāti Te Whiti and Te Atiawa to ensure appropriate treatment of important historical sites to ensure the proposal is consistent with this objective.
Pol. TTHE2.3 Require that central government agencies, regional and district councils and any other consenting authority provide for Ngā Hapū o Te Atiawa in the decision–making process, and ensure that the advice from kaumatua and holders of knowledge from Ngā Hapū o Te Atiawa regarding the location, significance and management of wāhi tapu/wāhi taonga, urupā and sites of significance to Māori supercedes other sources of information through the decision–making process. **Pol. TTHE2.6** Require conditions of consent for areas with a Low Risk of discovering wāhi tapu/wāhi taonga, urupā and sites of significance to Māori. This includes but is not limited to: a) applicants to engage with Ngā Hapū o Te Atiawa and adhere to an On–Call Procedure approved by Ngā Hapū o Te Atiawa specific to the proposed location. **Pol. TTHE2.9** Require that where an Archaeological Authority is granted, Ngā Hapū o Te Atiawa are involved in establishing conditions on the Archaeological Authority. This may include but is not limited to: a) Use of cultural monitors for soil disturbance; b) Induction for contractors undertaking earthworks; and c) An On–Call Procedure approved by Ngā Hapū o Te Atiawa.	An Archaeological Assessment has concluded that the probability of discovering archaeological material with important values to Tāngata Whenua is low. Further knowledge shared through the CIA have advised the proposal with regard to nearby places and sites of importance to Ngāti Te Whiti and Te Atiawa (Pol. TTHE2.3), including with regard to appropriate monitoring or on-call conditions (Pol. TTHE2.6). An Archaeological Authority is being sought for the removal of the railway embankment and this shall include consultation with Tāngata Whenua (Pol. TTHE2.9). The proposal is consistent with these relevant policies.

Overall, the proposal is considered to be consistent with the relevant objectives and policies of Tai Whenua, Tai Tangata, Tai Ao.

5.6 Part 2

The recent decision in the Court of Appeal in R J Davidson Family Trust v Marlborough District Council [2018] NZCA 316 has further influenced the way in which Part 2 should be assessed.

In circumstances where it is clear that a plan is "prepared having regard to Part 2 and with a coherent set of policies designed to achieve clear environmental outcomes" the Court envisaged that "the result of a genuine process that has regard to those policies in accordance with s 104(1) should be to implement those policies." Reference to Part 2 would not add anything, and "could not justify an outcome contrary to the thrust of the policies".

In respect of the ODP, PDP and other relevant planning documents, it is considered that they have been prepared with a coherent set of policies designed to achieve clear environmental outcomes and that an assessment of this application against Part 2 would not necessarily add anything to the evaluative exercise required.

However, in case NPDC disagree with this assessment, the application has been assessed against Part 2.

The overriding purpose in Section 5 of the Act is to promote the sustainable management of natural and physical resources. In informing the decision of whether or not a proposal promotes sustainable management, Part 2 of the RMA is paramount and directs reference to the following sections.

With regard to Section 6, the following matter of national importance is considered relevant to the proposal:

> *Section 6(e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:*

This is considered to be recognised and provided for through:

- Thorough due diligence to understand the history of the site and its potential for unknown archaeological material as advised by the Archaeological Assessment, with an understanding of the significance of the Huatoki Stream to Ngāti Te Whiti and Te Atiawa. Appropriate measures to address risks and values have then arisen, such as control of sediment from earthworks via an ESCP to minimise effects on the Huatoki Stream;
- The CIA process undertaken by Ngāti Te Whiti and Te Atiawa which has advised this application of the relationship that they have with the site and wider area and identifying how the proposal may impact on the values held for both; and
- Sharing this knowledge in workshops where parties involved can actively discuss and redesign the proposal with regard to the findings of the CIA, such that the building now represents a cultural narrative of Ngāti Te Whiti.

> *Section 6(f) the protection of historic heritage from inappropriate subdivision, use, and development:*

This is considered to be recognised and provided for through, as explained in the application, the commissioning of an Archaeological Assessment which in part concluded that there are other portions of the same railway embankment (of historic heritage value) in other locations in the city and that those portions are of better quality than the subject one proposed to be removed. It is therefore considered that a sufficient quantity of a suitable quality of the same historic heritage feature will remain protected after the proposed activities have been undertaken, and that the proposal is overall an appropriate development.

With regard to Section 7, the following matters are considered to be relevant to the proposal:

> *(a) kaitiakitanga:*
>
> *(b) the efficient use and development of natural and physical resources:*
>
> *(c) the maintenance and enhancement of amenity values:*
>
> *(f) maintenance and enhancement of the quality of the environment:*

The proposal is considered to have particular regard to kaitiakitanga as the CIA and hui / workshop are processes guided by Ngāti Te Whiti and Te Atiawa, and are opportunities for their active involvement as kaitiaki for this rohe. The proposal has been designed with a number of elements to ensure it has a relatively light touch (with regard to resource and energy use) on the central city site and area, including the use of renewable materials during construction and utilising renewable and energy efficiency technologies for use of the building thereafter. The proposal is considered to represent efficient mixed-use of this undeveloped site. It balances the loss of amenity and quality of the environment from the removal of a tree by enhancement of amenity and quality of this urban environment achieved for the site and wider area. As such, the proposal is considered to demonstrate that it has been designed with particular regard to the above matters.

With regard to Section 8, the Treaty of Waitangi:

> *In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).*

Ngāti Te Whiti, Te Atiawa, NPDC and the applicant have undertaken wānanga / hui together to consult on the proposal with initial guidance of the CIA. Design of the proposal was then amended to address iwi / hapū values and the history of the site, after which the CIA was completed based on the new design. Māori are actively participating in this consent decision-making process and this application has provided forums where all parties can act reasonably and in good faith.

The CIA itself has been commissioned to provide a holistic assessment of the proposal which has a place in the potentially larger future redevelopment of the Huatoki Plaza area, and is considered to be a first step in a partnership which involves Tāngata Whenua in the design of the proposed building and thereafter the adjacent public space.

Recognising that the Huatoki Stream is of cultural significance, as also indicated by its status as a Te Atiawa Statutory Acknowledgement Area, methods to minimise effects on the waterbody shall be utilised, such as an ESCP for earthworks. In addition, the undertaking of the Archaeological Assessment was to establish a likelihood for encountering historic material of value to Ngāti Te Whiti and Te Atiawa and to take action accordingly. These are two examples of how the proposal actively seeks to protect Māori interests.

For the reasons explained above it is considered that the proposal overall demonstrates that the principles of the Treaty of Waitangi have been taken into account.

6 CONSULTATION

Pursuant to Section 36A of the RMA, there is no duty to consult about a resource consent application. However, it is considered best practice to consult with those parties considered to be potentially adversely affected by a proposal.

6.1 Adjacent Sites

Sites adjacent (43 Brougham Street and Lot 1 DP 15492) to the proposed activities on the application sites are owned by either the applicant or NPDC. As such:

- The applicant therefore inherently accepts any adverse effects upon them as a result of the proposal; and
- Discussions have occurred with NPDC in their capacity as landowner with regard to the need to remove the tree, and the interface between the development on 45-51 Brougham Street and the concept for redevelopment of the Huatoki Stream area. No formal feedback has been provided by NPDC other than advice on the need to go through the RMA process and demonstrate justification and mitigation for the tree removal.

No other parties are considered to be affected and therefore no additional consultation to that below has been undertaken.

6.2 New Plymouth District Council

At the time of the first site visit as explained below, Lots 2 and 3 DP 15492 were owned privately. Sometime soon thereafter, NPDC became the owner of those lots. The consultation undertaken with NPDC has therefore been both in their capacity as a regulator as well as a landowner.

6.2.1 Site Visits

A site visit was undertaken on 13 August 2019 with Murali Bhaskar (Design Director - BOON Architects), Conrad Patterson and Josh Pace (Arborists / Parks Team - NPDC), and Darelle Martin (Planner - BTW Company Limited) on behalf of the applicant. Matters of discussion included:

- Likelihood that structural roots are located in the site at 45-51 Brougham Street;
- Potential instability of existing upper block retaining wall (not the railway embankment itself);
- Advice to contact Bruce MacDonald from Asplundh for advice;
- Potential to undertake aquablasting to scope root extent, with first 2 m depth of soil likely to contain most root mass; and
- Potential for effects to be greater the closer to the tree the building is located.

A further site visit was undertaken on 04 December 2019 including:

- NPDC staff Liam Hodgetts (Group Manager Strategy), Maya Neeson (Student), Josh Pace (Arborist / Parks Team) and Campbell Robinson (Planner); and
- Cam Twigley (Director, Planning and Environment) and Darelle Martin of BTW Company Limtied, and Shaun Murphy (Associate - BOON) on behalf of the applicant.

Matters of discussion included:

- NPDC's recently acquired ownership of the Metroplaza (Lots 2 and 3 DP 15492), and carpark building on the opposite side of Huatoki Stream; and

- Aspirations by NPDC to daylight Huatoki Stream and provide greater public access via demolition of the Metroplaza and development of green space and the importance for the proposed building to tie in with this future development.

The expert reports in the appendices of this report, design of the proposal, and Assessment of Environmental Effects in Section 4 are considered to address the above matters.

6.3 Ngāti Te Whiti

A meeting was held at BOON offices on 19 March 2020 between:

- Ngāti Te Whiti Hāpu Board members Trenton Martin (Chairperson) and Phillippa Fairclough (Secretary);
- Liam Hodgetts of NPDC; and
- Murali Bhaskar and Shaun Murphy of BOON, on behalf of the applicant.

The purpose of the meeting was to discuss master plan concept ideas for the Huatoki redevelopment on the NPDC site between Powderham Street and Devon Street.

The draft masterplan ideas represented by Drawing Number A9.03 in Appendix B were presented and BOON explained that this masterplan was developed in the context of the proposed new Brougham Street commercial building which sits alongside the Huatoki. The proposal seeks to primarily open up the awa and promote a pedestrian-focused space connecting Powderham Street with Devon Street.

The hāpu indicated that they were generally supportive of the ideas presented and of the Huatoki awa being opened up. It is anticipated that they will be involved in the design process for the NPDC Huatoki redevelopment with an opportunity to bring a cultural narrative into the development.

Ngāti Te Whiti and Te Atiawa have undertaken a Cultural Impact Assessment (CIA) with regard to this proposal and the potential redevelopment of the Huatoki Stream area. Wānanga including a hikoi and hui were hosted by Te Atiawa and Ngāti Te Whiti on the 7th and 21st August 2020 to include representatives from NPDC and the project team for this application. Key values and recommendations from a draft CIA were presented for discussion and subsequent changes to the design have been explained in Section 3.1.2. The CIA was then finalised with regard for the design changes that seek to better provide for Ngāti Te Whiti values for the area and Huatoki awa.

6.4 Waka Kotahi NZ Transport Agency

A copy of this application was provided to Waka Kotahi NZ Transport Agency (NZTA) on 23 July 2020. NZTA have reviewed the application and confirmed via email included in Appendix M that:

> *"…in principal that the impact will be less than minor on our network provided that no future access will be allowed from the state highway (Powderham St)."*

As no vehicle access is proposed from 45-51 Brougham Street onto Powderham Street, this is considered to confirm that effects of the proposal on NZTA are less than minor and therefore NZTA is not considered to be an affected party.

7 DRAFT CONDITIONS OF CONSENT

The following are possible conditions of consent that the applicant is agreeable to. These conditions are not intended to be a complete set of conditions but are those that have been developed from recommendations in the environmental impact assessments and through consultation with stakeholders.

As per page 26 of the CIA in Appendix N:

> *1. The consent holder shall engage Ngāti Te Whiti to provide and certify a cultural narrative for the development. Any cultural narrative shall be demonstrated in:*
>
> *a. the exterior of the building (façade and external staircase);*
>
> *b. the foyer and entrance on the ground floor;*
>
> *c. the landscaping and entrance to the building adjoining the Huatoki; and*
>
> *d. any other location agreed between the consent holder and Ngāti Te Whiti.*
>
> *2. The consent holder shall engage Ngāti Te Whiti to provide a mauri stone for the water feature to be located in a position to be agreed between the consent holder and Ngāti Te Whiti.*
>
> *3. At all times during the exercise of resource consent LUC20/47704, Ngāti Te Whiti Hapū shall be provided the opportunity to and be resourced to monitor all earthworks associated with the development.*
>
> *4. Kaitiaki Forum*
>
> *4.1 The consent holder shall convene and resource a Kaitiaki Forum. This Forum shall be established and commence immediately following granting of consent, prior to the preparation of any plans and any works commencing on site.*
>
> *4.2 The function and purpose of the Kaitiaki Forum shall be formally agreed by the Consent Holder, Ngāti Te Whiti Hapū and Te Kotahitanga o Te Atiawa Trust and formally documented in a Forum Collaboration Agreement. This Agreement shall include, but not be limited to;*
>
> *4.2.1 The matters the Forum shall consider including but not limited to cultural narrative, changes through the detailed design phase, hard and soft landscaping, mauri stone and associated infrastructure, subsequent developments of the Metro Plaza, cultural monitoring*
>
> *4.2.2 The entities to be represented on the Forum*
>
> *4.2.3 The number of representatives from the entities on the Forum*
>
> *4.2.4 The frequency at which the Forum shall meet*
>
> *4.2.5 The certification process that shall be utilised in the Forum*
>
> *4.2.6 The duration of the Forum*
>
> *4.2.7 A dispute resolution clause.*
>
> *4.3 A copy of the Forum Collaboration Agreement shall be provided to the New Plymouth District Council Planning Lead or nominee.*

Earthworks

> *Prior to earthworks commencing an Erosion and Sediment Control Plan shall be submitted to New Plymouth District Council.*

Notable Tree

Prior to removal of the tree, a methodology for its removal, including explanation of above-ground tree removal, excavation for root removal, and details of traffic management, shall be submitted to Council for approval.

Building Exterior

The final details for the exterior design of the building shall be submitted to Council's Planning Lead for approval prior to the application for a building consent. The final detailed design shall confirm:

- The treatment and external materials to be used for all building elevations including the apartment; and

- The exterior colour palette for the building as a whole. Building colours shall be visually recessive and/or natural materials, except where providing for cultural narrative.

8 CONCLUSION

This report provides an assessment of the application by K.D. Holdings Limited to undertake a commercial-residential building development at 45-51 Brougham Street, New Plymouth, with associated Notable Tree removal on the adjacent NPDC site. An assessment of the proposal has been made against Section 104, 104D and Part 2 of the RMA, and against the rules, objectives and policies of the ODP, PDP, Te Atiawa IEMP and RPS.

As summarised in Section 4.7, actual and potential adverse effects on the environment resulting from the proposal can be appropriately mitigated such that they are acceptable. The proposal on balance is considered to be consistent with and not contrary to the provisions of the ODP, PDP, Te Atiawa IEMP and RPS. The proposal therefore passes one of two gates of the gateway test for non-complying activities under section 104D RMA and can go on to be considered under Section 104 RMA. It is considered that the proposal will achieve the broad purpose of the RMA to promote the sustainable management of natural and physical resources.

APPENDIX A APPLICATION FORMS

Te Kaunihera-ā-Rohe o Ngāmotu
NEW PLYMOUTH DISTRICT COUNCIL
newplymouthnz.com

FORM 9
Application for a land use resource consent or fast-track resource consent

Section 87AAC & 88, Resource Management Act 1991

This form must be submitted with a completed application cover page form.

1. Applicant details

1a. I am the
- [x] Property owner
- [ ] Lessee
- [ ] Agent authorised by owner/lessee

1b. Full name
- First name(s): K.D. Holdings Limited
- Surname:

1c. Electronic service address - this must be provided for fast-track consent applications
c/o Darelle Martin - BTW Company
darelle.martin@btw.nz

1d. Telephone
- Mobile: 027 205 0301
- Landline: 06 759 5040

1e. Postal address or alternative method of service under Section 352 of RMA 1991
PO Box 551, New Plymouth 4340

2. Property owner details

Provide details below for the property owner if different to 1. above

2a. Full name
- First name(s): K.D. Holdings Limited, and
- Surname: NPDC

2b. Electronic service address
kdoody@xtra.co.nz

2c. Telephone
- Mobile:
- Landline: 06 759 2131

3. Fast-track application details

3a. Is this a fast-track controlled land use application?
- [ ] Yes
- [x] No (proceed to 4.)

3b. If yes, please indicate whether you opt out or do not opt out of the fast-track resource consent process
- [ ] I opt out
- [ ] I do not opt out

Under the fast-track resource consent process the Council must give notice of the decision within 10 working days after the date the application was first lodged, unless the applicant opts out of the process at the time of lodgement. A fast-track application may cease to be a fast-track application under Section 87AAC(2) of the RMA.

4. Description of proposed activity

4a. Description of activity
Commercial building with apartment, with associated earthworks, car parking and loading, viewshaft breaches, and removal of Notable Tree, fully described in attached application.

4b. Description of the site at which activity is to occur
45-51 Brougham Street and Lots 2 and 3 DP 15492

4c. Description of any other activities that are part of the proposal
Fully described in attached application.

4d. Details of additional resource consents required for this activity
- [x] No additional resource consents are required.
- [ ] Additional resource consents are required.
  Please provide details of the resource consents required, and whether these have been lodged.

Please turn over

OFFICE USE ONLY

Date received		Application #	
Time received		Document #	
Received by		Property ID	
Receipt #		Land ID	
Amount paid	$		

Planner's Pre-check

Signature

Date

Liardet Street, Private Bag 2025, New Plymouth 4342, New Zealand. Telephone 06-759 6060, Fax 06-759 6072, Email enquiries@npdc.govt.nz, Website www.newplymouthnz.com

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4. Description of proposed activity - continued

4e. District Plan rule(s) not being met

Bus12, Bus58, Bus87, Bus88, Bus90, OL50, OL63, OL71, OL75 - all Restricted Discretionary.
TRE-R10 (Proposed District Plan) - Non-Complying

4f. Proposed start date

5. Information included in application

I confirm that I have assessed my proposed activity against the relevant matters of the RMA:

- [x] Part 2 Purpose and Principles.
- [x] Section 104 Consideration of Applications.
- [x] Schedule 4, including an Assessment of Environmental Effects (AEE).

I have attached this assessment and all other required information as listed below:

- [x] Site plan. Your site plan must show the following items:
  - Scale and north orientation.
  - Existing and proposed buildings.
  - Building dimensions and distances to boundaries.
  - Trees, fences, landscaping, screening and contours.
  - Car parking, loading facilities and access points.
  - Signs.
- [x] Floor plan.
- [x] Elevation plan. Your plan must show the groundlines and the view of your site, from the ground up, from all boundaries.
- [ ] Written approvals from affected parties. Contact the Council if you are unsure of who the potentially affected parties might be.
- [x] Application fee. Refer to the land use consents fees and charges schedule.

6. Post-approval contact details for monitoring purposes

6a. Full name

Kevin (First name(s)) | Doody (Surname)

6b. Electronic service address

kdoody@xtra.co.nz

6c. Telephone

Mobile | 06 759 2131 (Landline)

7. Privacy statement

The Privacy Act 1993 applies to the personal information provided in this application. For the purposes of processing this application the Council may disclose that personal information to another party. If you want to have access to, or request correction of, that personal information, please contact the Council.

8. Applicant's declaration and privacy waiver

By signing this application, or by submitting this application electronically, I confirm that I am authorised to make such an application, that the information contained in this application is true and correct and that I have read, understood and agree to such terms and conditions applying to this application. I acknowledge and agree to the disclosure of my personal information in respect of this application.

A signature is not required if this application is submitted electronically.

If signing on behalf of a trust or company, please provide additional written evidence that you have signing authority.

Darelle Martin on behalf of K.D Holdings Limited (First name(s)) | (Surname)

(Signature) | Original 29/04/2020 - amended 04/09/2020 (Date)

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Te Kaunihera-ā-Rohe o Ngāmotu
NEW PLYMOUTH DISTRICT COUNCIL
newplymouthnz.com

FORM
Application cover page
(required with all other forms)

1. Property details

1a. Site address
(Specify unit/level number, location of building within site/block number, building name and street name)
45-51 Brougham Street, 24 Powderham Street and 33 Devon Street West

1b. Current lawfully established use
Commercial

1c. Legal description
Part Sections 683 Twn of New Plymouth, Pt Lots 6 DP 3466, Lots 2 and 3 DP 15492

1d. Rapid number

2. Property owner details

2a. Owner name
K.D. Holdings Limited (First name(s)) | (Surname)

2b. Name of additional owner(s)/company/trust
New Plymouth District Council

2c. Contact person
(if different from above)
Kevin Doody

2d. Postal address
(include postcode)

2e. Contact details
06 759 2131 (Phone) | (Mobile) | (Fax)

2f. Email
kdoody@xtra.co.nz

3. Payer details

3a. Required for invoice
- [x] Applicant - proceed to 4
- [ ] Owner - proceed to 4
- [ ] Other - provide details below

3b. Name in full
K.D. Holdings Limited

3c. Postal address
14 Brougham Street, New Plymouth

4. Description of project

4a. Detailed description of the development/ project
Commercial building with apartment, with associated earthworks, car parking and loading, viewshaft breaches, and removal of Notable Tree, fully described in attached application.

4b. Will business activities take place when building is completed?
- [x] Yes
- [ ] No

Please turn over

Liardet Street, Private Bag 2025, New Plymouth 4342, New Zealand. Telephone 06-759 6060, Fax 06-759 6072, Email enquiries@npdc.govt.nz, Website www.newplymouthnz.com

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5. Council applications for this project

OFFICE USE ONLY

	Application attached	Have applied already (write the application number if known)	Information provided
5a. Common applications			
Project information memorandum	○		●
Building consent	○		●
Vehicle crossing	○		●
Encroachment licence	○		●
Land use resource consent	✓		●
Deemed permitted boundary activity notice	○		●
Subdivision resource consent	○		●
Sewer connection/disconnection	○		●
Stormwater connection/disconnection	○		●
Water connection/disconnection	○		●
5b. Non-residential applications			
Discharge of trade waste consent	○		●
Alcohol licensing	○		●
Food premises registration	○		●
Health Act registration (Hairdressing, camping ground, funeral parlour, offensive trade)	○		●
Beauty registration	○		●
5c. Other project authorisations			
Swimming pool registration	○		●
Temporary obstruction on road reserve	○		●
Temporary road closure	○		●
Easements through Council-owned reserve land	○		●
5d. Other project requirements			
Rapid number request	○		●
Contractors parking space reservation	○		●
Existing street damage declaration	○		●

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APPENDIX B PROPOSED PLANS AND DESIGN STATEMENT

BROUGHAM STREET DEVELOPMENT

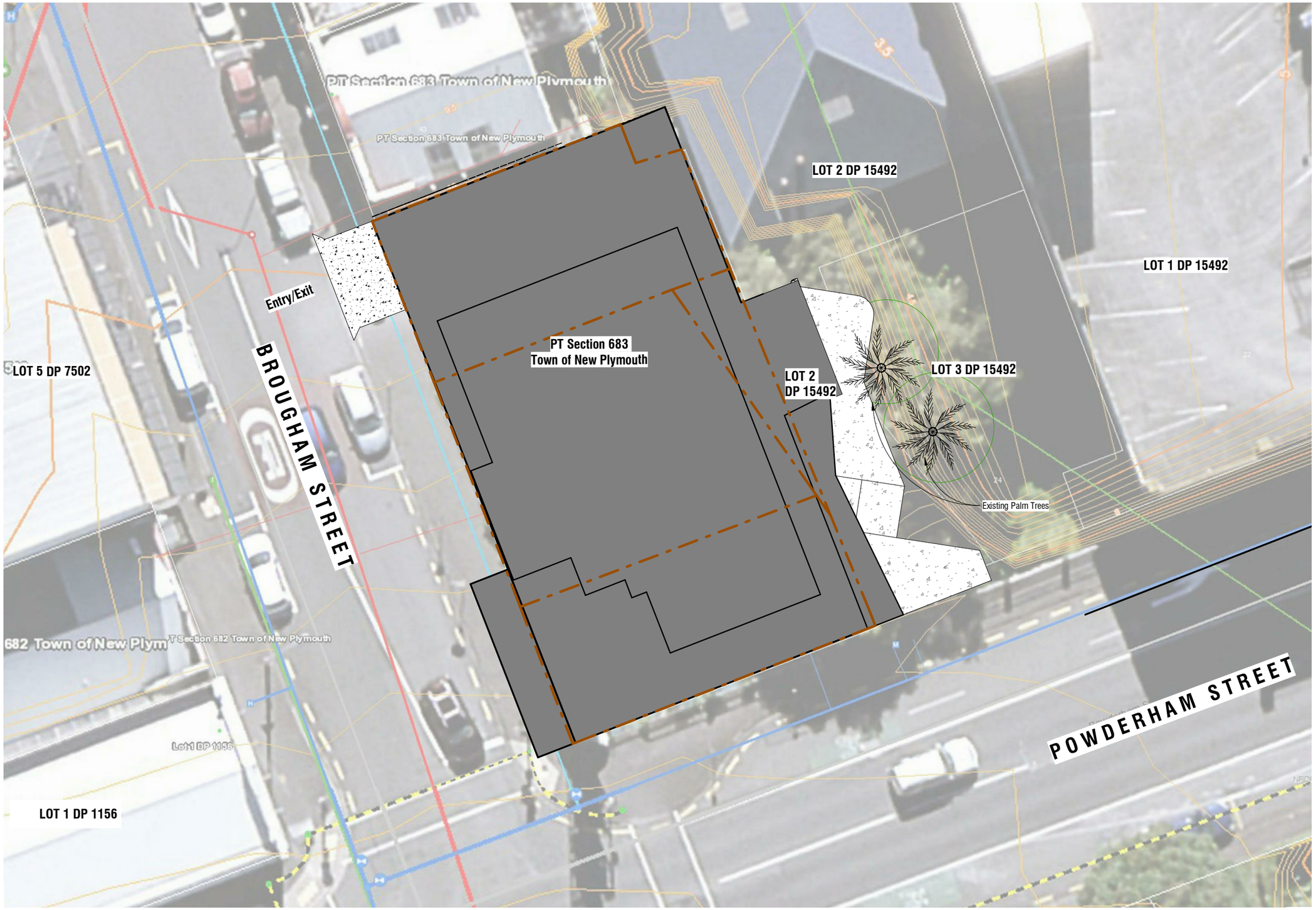
51 Brougham Street, New Plymouth

Dwg No.	Rev.	Dwg Name
A1.01		Proposed Site Plan
A2.01		Proposed L0 Plan
A2.02		Proposed L1 Plan
A2.03		Proposed L2,3,4,5 Plan
A2.04		Proposed L6 Floor Plan
A3.01		Elevations
A3.02		Elevations
A4.01		Cross Sections
A9.01		Shade Diagram - Mid Summer
A9.02		Shade Diagram - Mid Winter
A9.03		3D Views- Render
A10.01		Alternative Design with Tree Preserved

ISSUED FOR:
Resource Consent

6400

BOON
teamarchitects
A / 131 Courtenay St, New Plymouth 4310, New Zealand
P / 06 757 3200 **E** / office@boon.co.nz **W** / boon.co.nz



Site Description

PT Section 683 Town of New Plymouth
Zone: Business A
Wind Zone: TBC
Earthquake Zone: TBC
Exposure Zone: TBC

Site Coverage

Site area: 478m²
Total proposed building floor area 491m² approx

Line to perimeter of site indicates construction demarcation line. Construction confined to within this area.

Site Finishes Key

Proposed Building

New concrete paving slab

Site Plan - Proposed

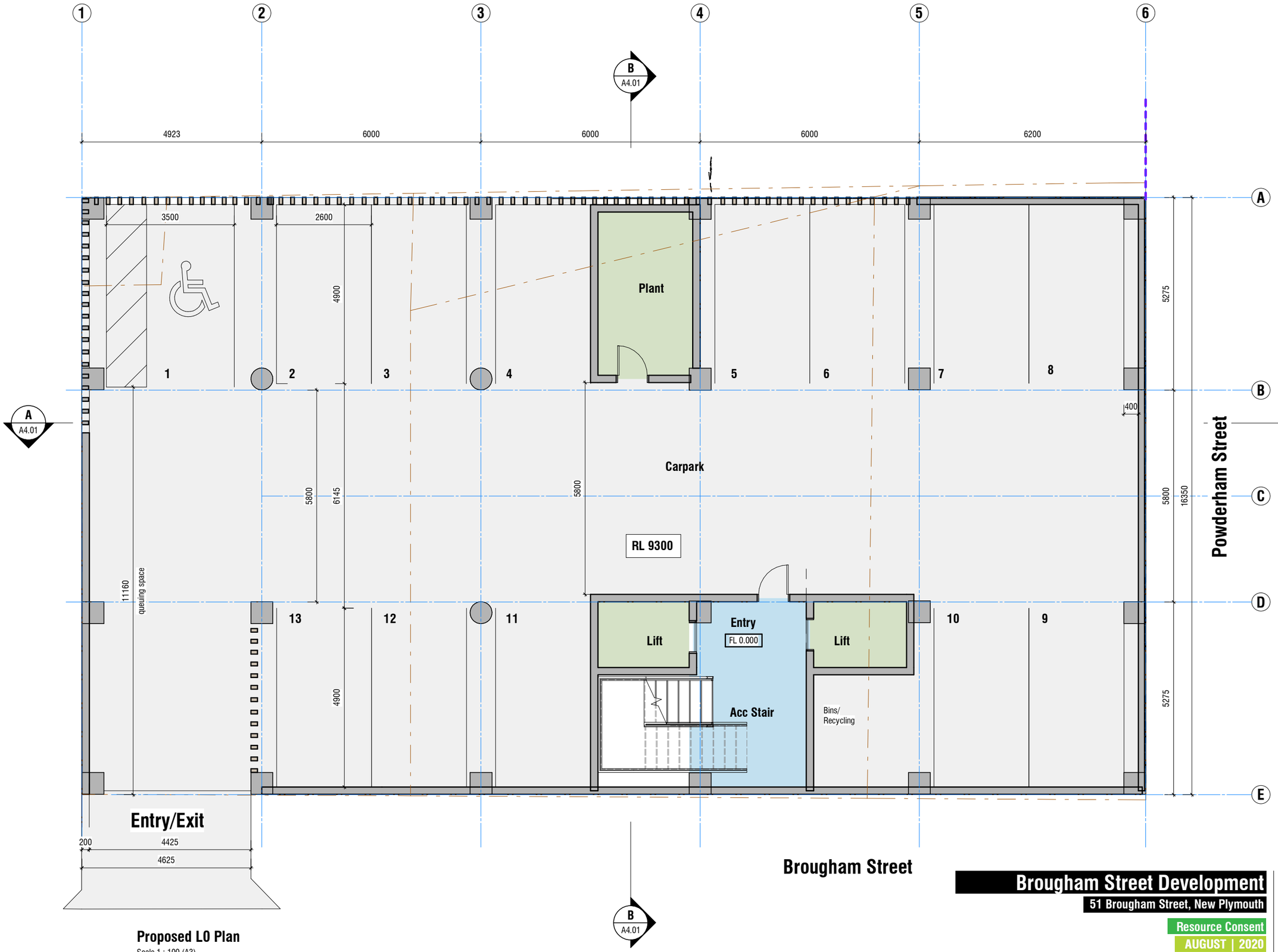
Scale 1 : 200 (A3)

Brougham Street Development
51 Brougham Street, New Plymouth
Resource Consent
AUGUST | 2020

job	a3	drawing no	rev	drawing title	print date
6400	As indicated	A1.01		Proposed Site Plan	27/08/2020 8:21:48 am

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Proposed L0 Plan

Scale 1 : 100 (A3)

Building Floor Areas:

LEVEL 0:
- 13 Carparks (covered)
- Floor area 54m² approx

LEVEL 1:
- Floor Area (total): 463m² approx
- Tenancy 1: 223m²
- Tenancy 2: 119m²

LEVEL 2,3,4,5:
- Floor Area (total): 450m² approx
- Tenancy 1: 239m²
- Tenancy 2: 148m²

LEVEL 6:
- Aparment: 216m²

Parking Notes

Parking to comply with AS/NZS 2890.1:2004

Brougham Street Development

51 Brougham Street, New Plymouth

Resource Consent

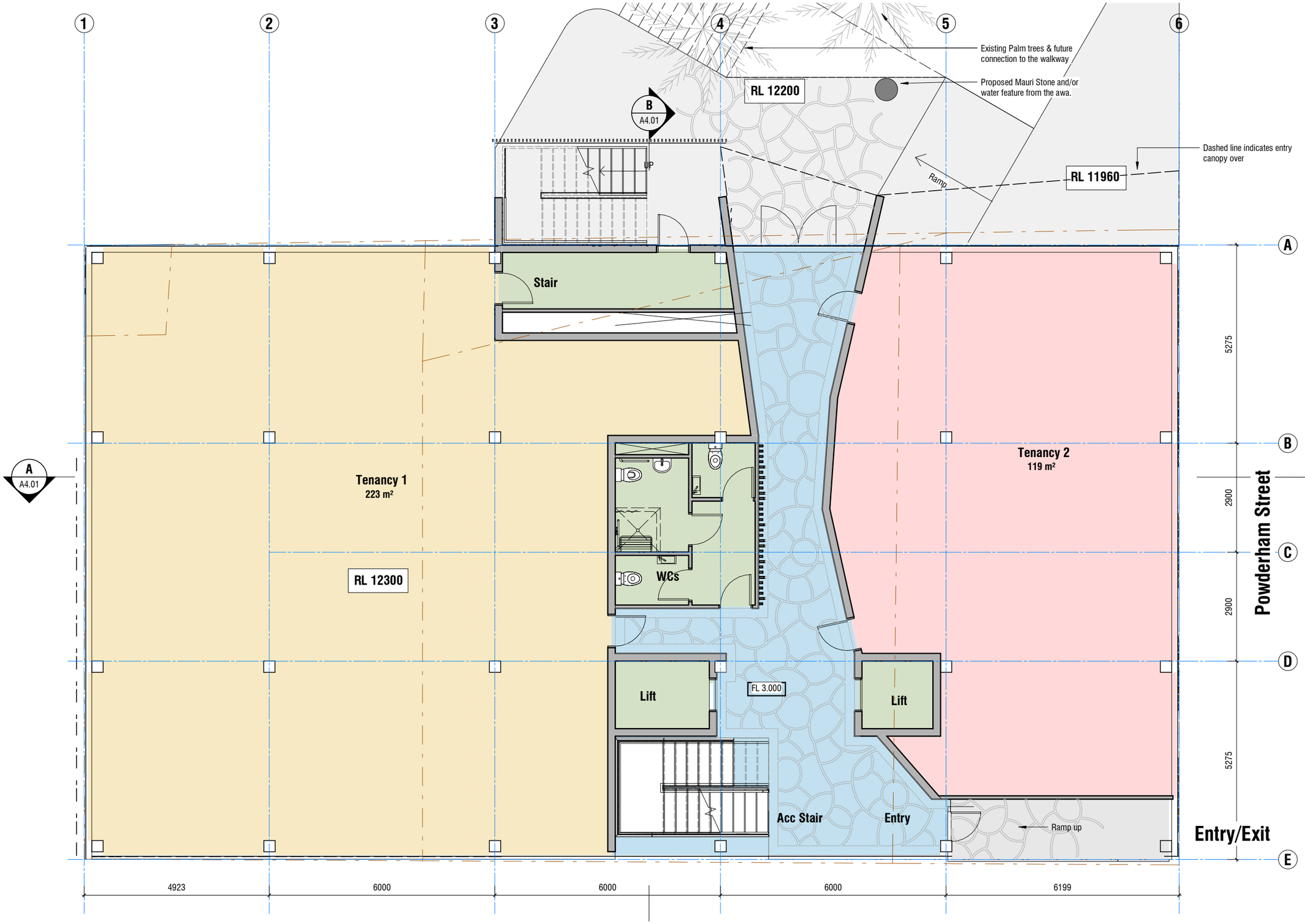
AUGUST | 2020

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Building Floor Areas:

LEVEL 0:
- 13 Carparks (covered)
- Floor area 54m² approx

LEVEL 1:
- Floor Area (total): 463m² approx
- Tenancy 1: 223m²
- Tenancy 2: 119m²

LEVEL 2,3,4,5:
- Floor Area (total): 450m² approx
- Tenancy 1: 239m²
- Tenancy 2: 148m²

LEVEL 6:
- Aparment: 216m²

Proposed L1 Plan

Scale 1 : 100 (A3)

Brougham Street Development

51 Brougham Street, New Plymouth

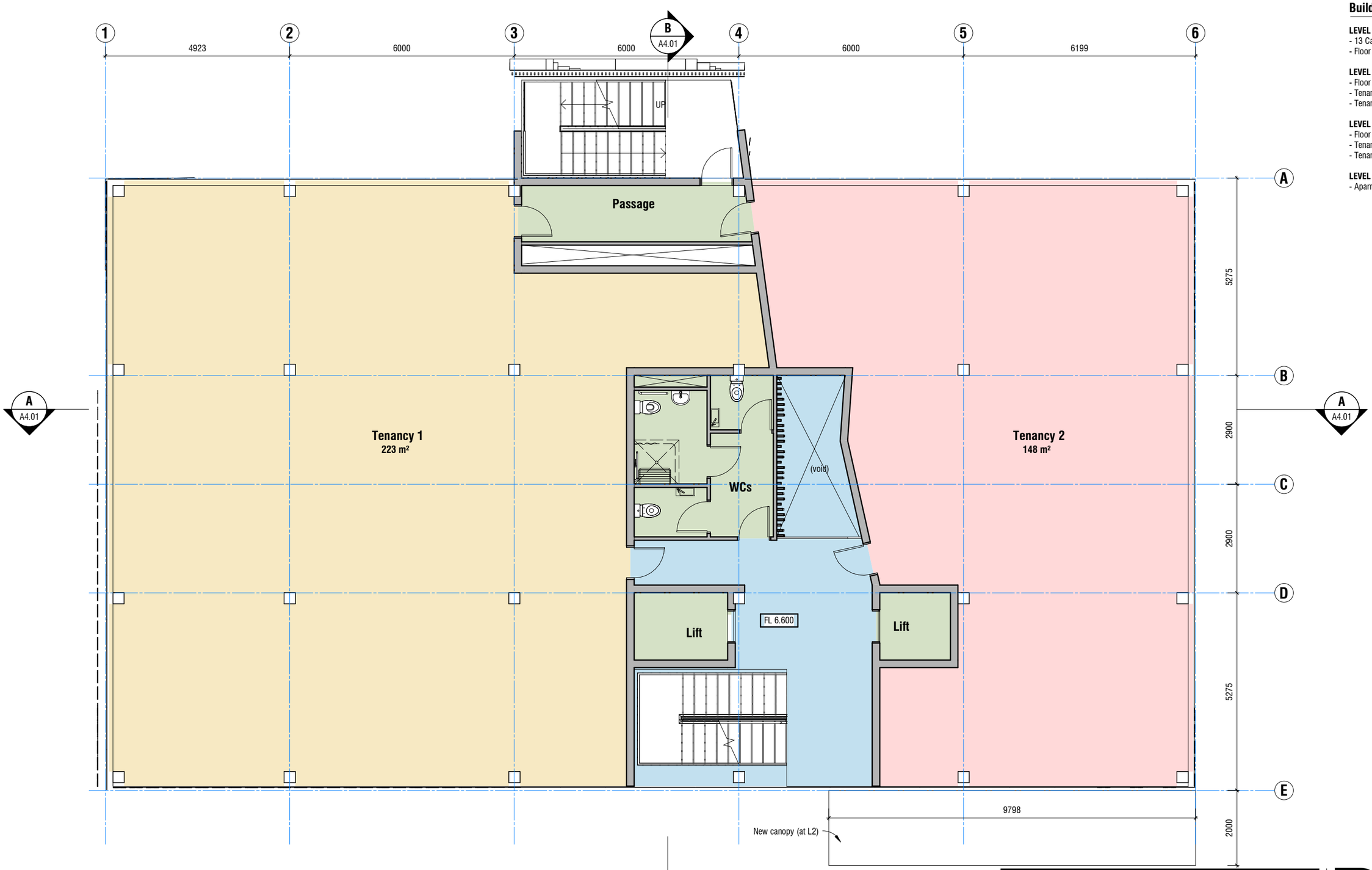
Resource Consent

AUGUST | 2020

job	a3	drawing no	rev	drawing title	print date
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Proposed L2,3,4,5 Plan

Scale 1 : 100 (A3)

Building Floor Areas:

LEVEL 0:
- 13 Carparks (covered)
- Floor area 54m² approx

LEVEL 1:
- Floor Area (total): 463m² approx
- Tenancy 1: 223m²
- Tenancy 2: 119m²

LEVEL 2,3,4,5:
- Floor Area (total): 450m² approx
- Tenancy 1: 239m²
- Tenancy 2: 148m²

LEVEL 6:
- Aparment: 216m²

Brougham Street Development

51 Brougham Street, New Plymouth

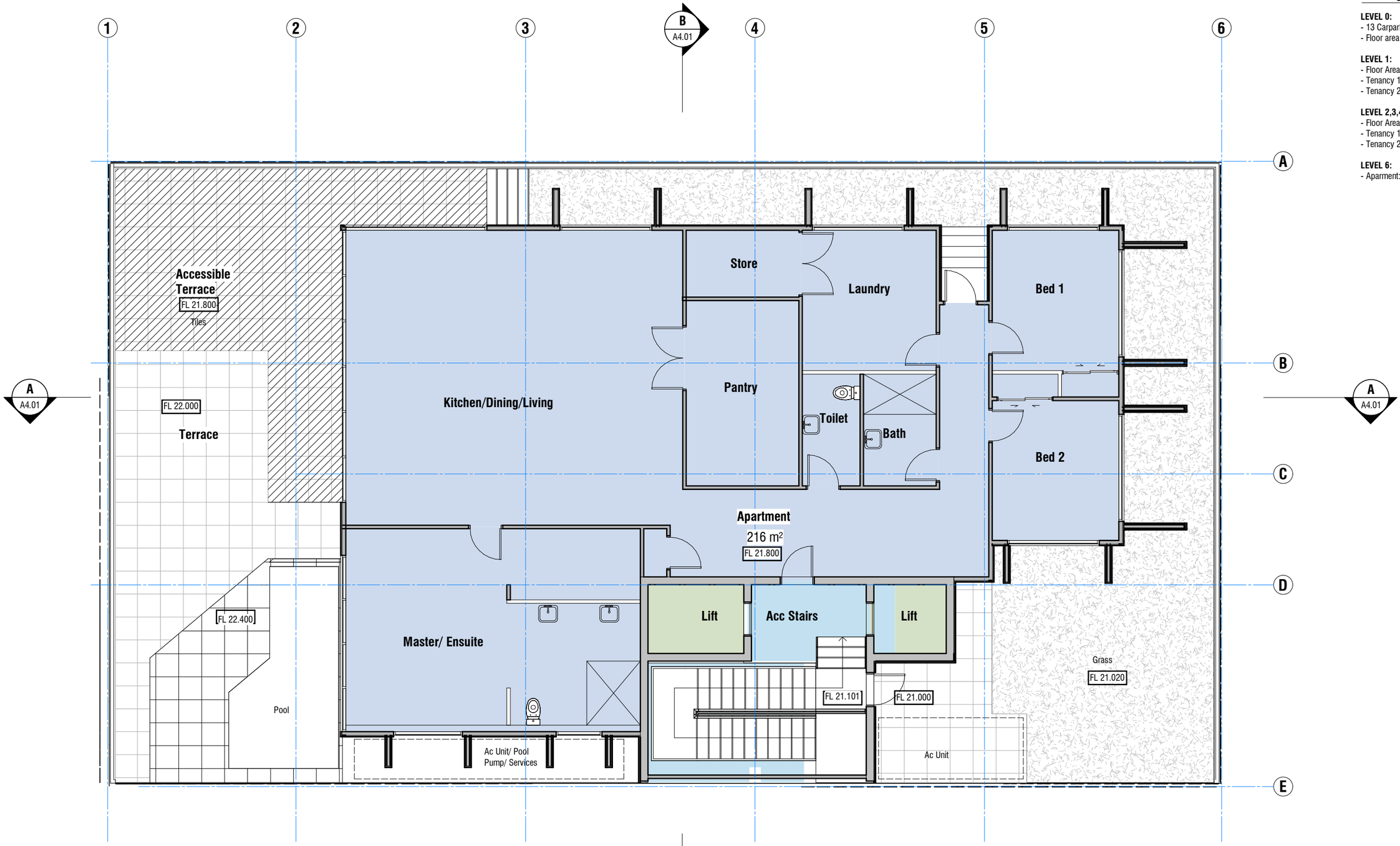
Resource Consent

AUGUST | 2020

job	a3	drawing no	rev	drawing title	print date
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Building Floor Areas:

LEVEL 0:
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- Floor area 54m² approx

LEVEL 1:
- Floor Area (total): 463m² approx
- Tenancy 1: 223m²
- Tenancy 2: 119m²

LEVEL 2,3,4,5:
- Floor Area (total): 450m² approx
- Tenancy 1: 239m²
- Tenancy 2: 148m²

LEVEL 6:
- Aparment: 216m²

L06 Proposed Apartment Floor

Scale 1 : 100 (A3)

Brougham Street Development

51 Brougham Street, New Plymouth

Resource Consent

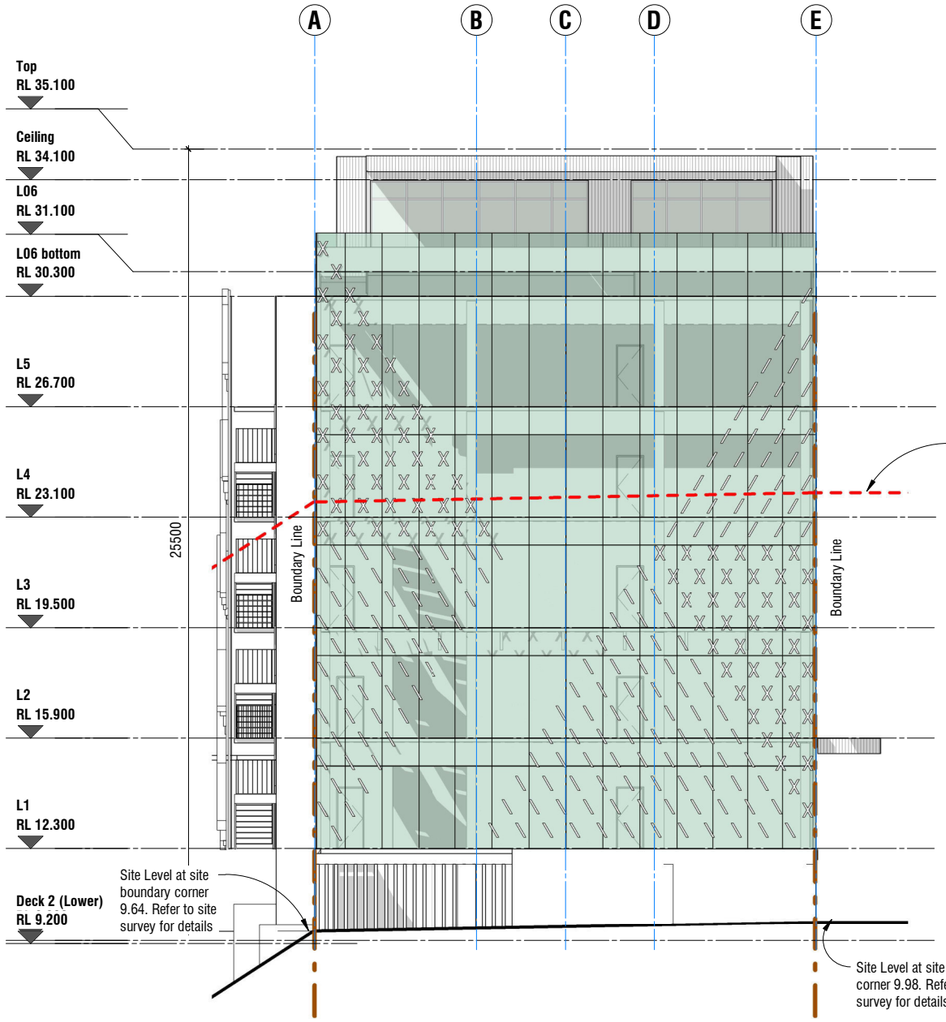
AUGUST | 2020

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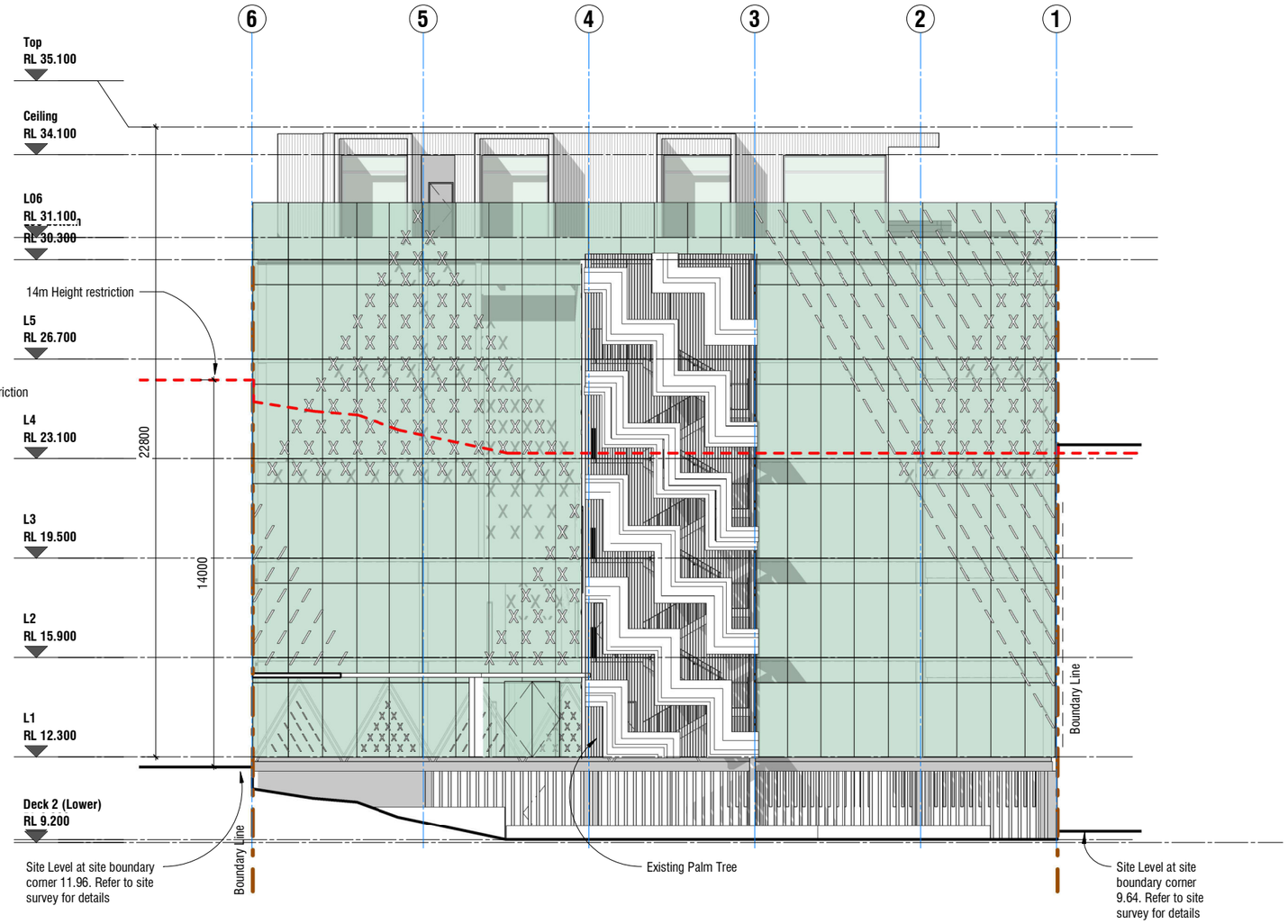
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North Elevation

Scale 1 : 200 (A3)



East Elevation

Scale 1 : 200 (A3)

Brougham Street Development

51 Brougham Street, New Plymouth

Resource Consent

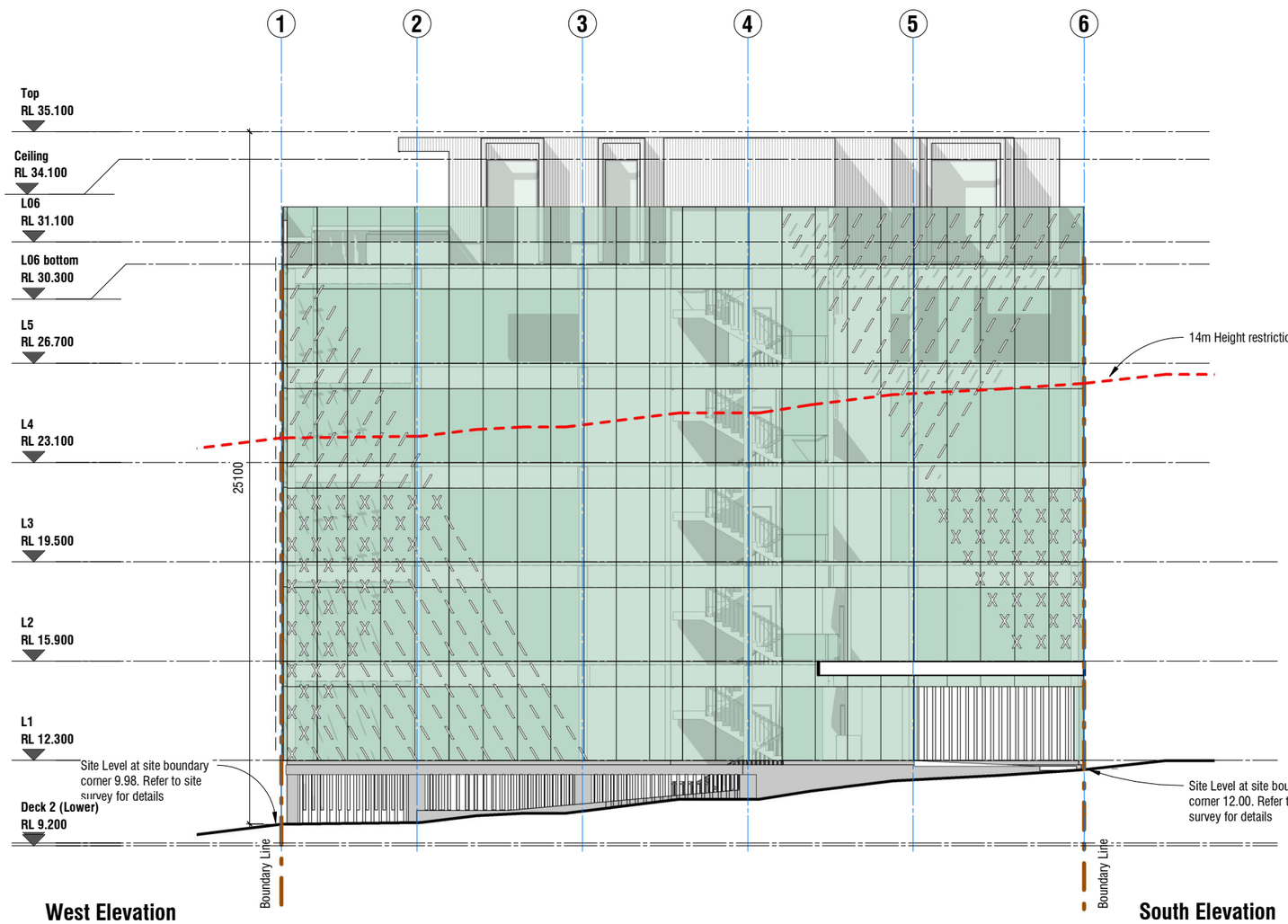
AUGUST | 2020

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6400	1 : 200	A3.01		Elevations	25/08/2020 1:21:00 pm

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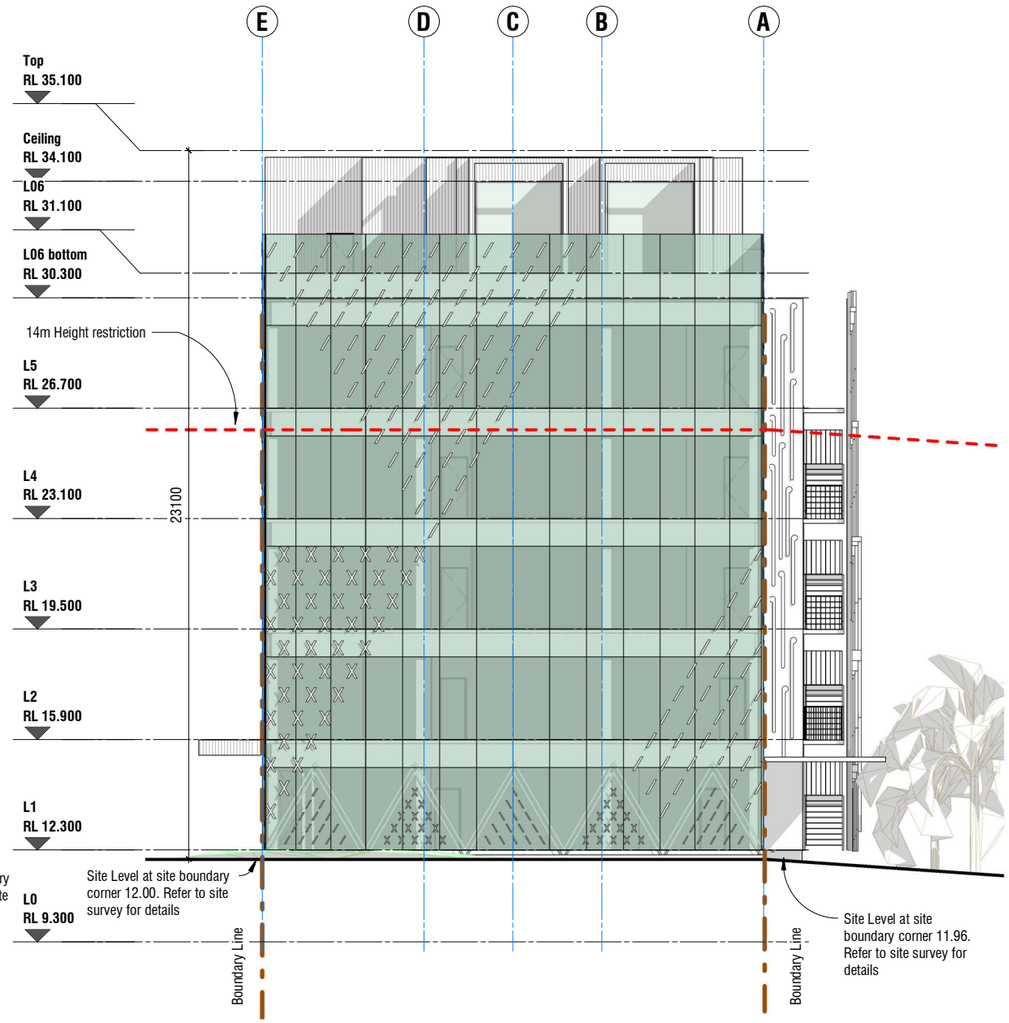
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West Elevation

Scale 1 : 200 (A3)



South Elevation

Scale 1 : 200 (A3)

Brougham Street Development

51 Brougham Street, New Plymouth

Resource Consent

AUGUST | 2020

job	a3	drawing no	rev	drawing title	print date
6400	1 : 200	A3.02		Elevations	25/08/2020 1:21:10 pm

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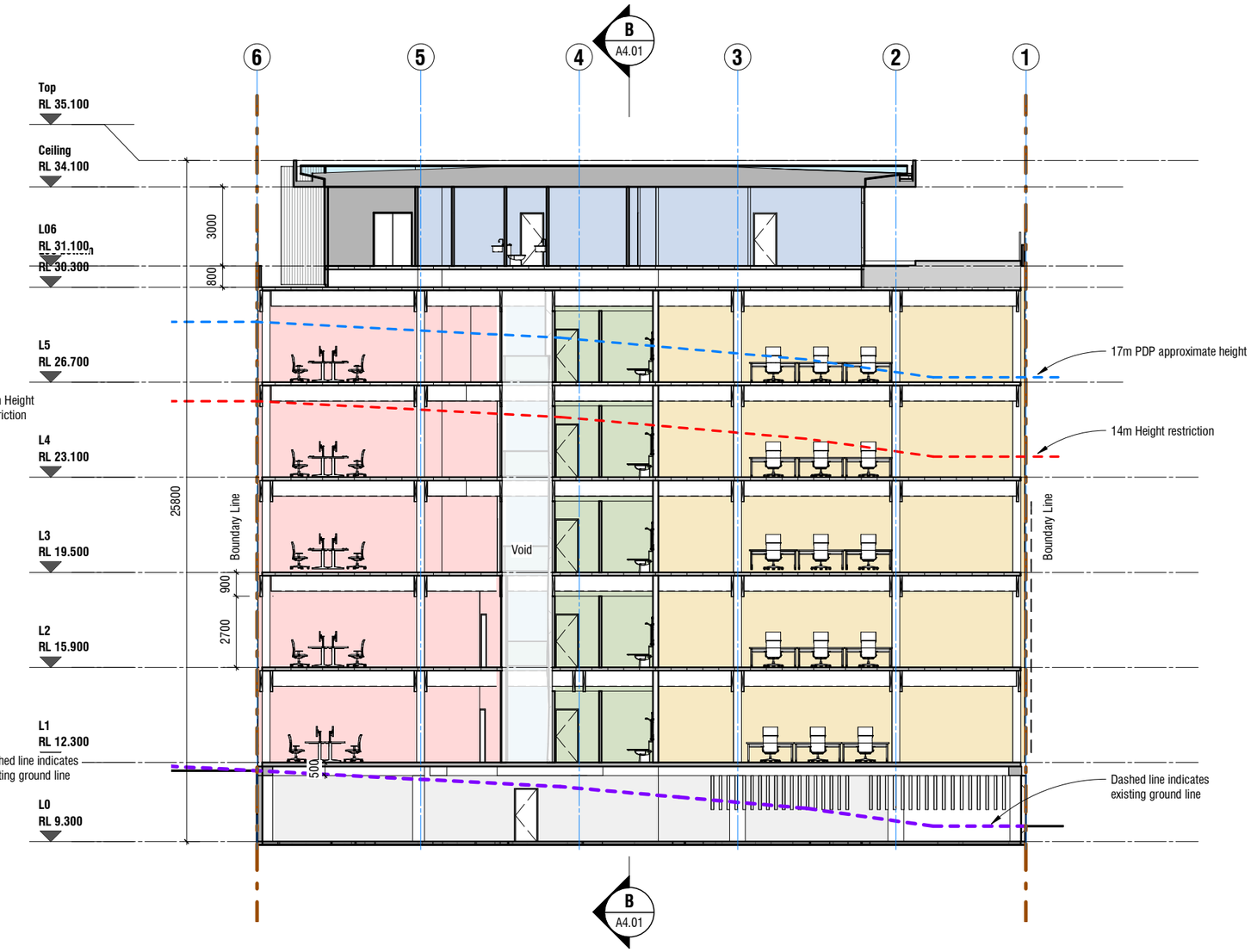
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Section B

Scale 1 : 200 (A3)



Section A

Scale 1 : 200 (A3)

Brougham Street Development

51 Brougham Street, New Plymouth

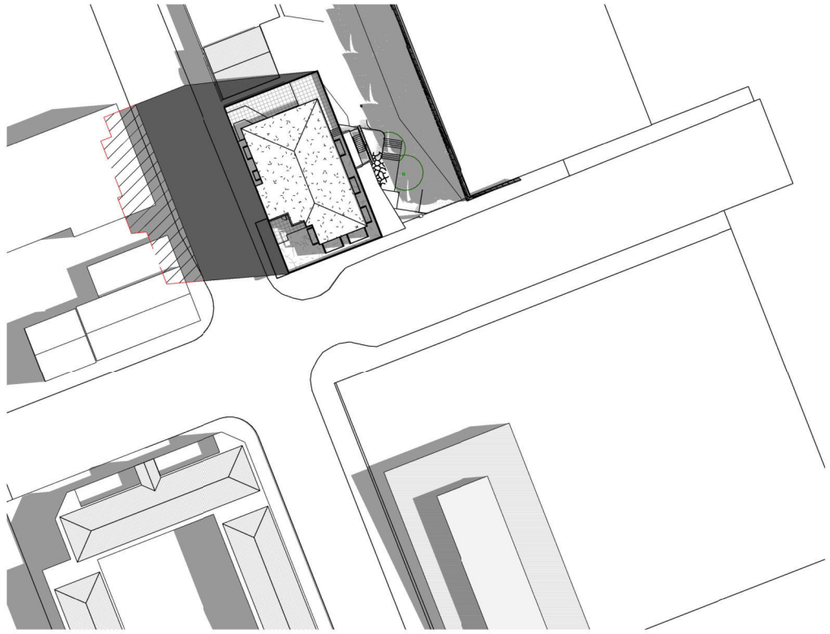
Resource Consent

AUGUST | 2020

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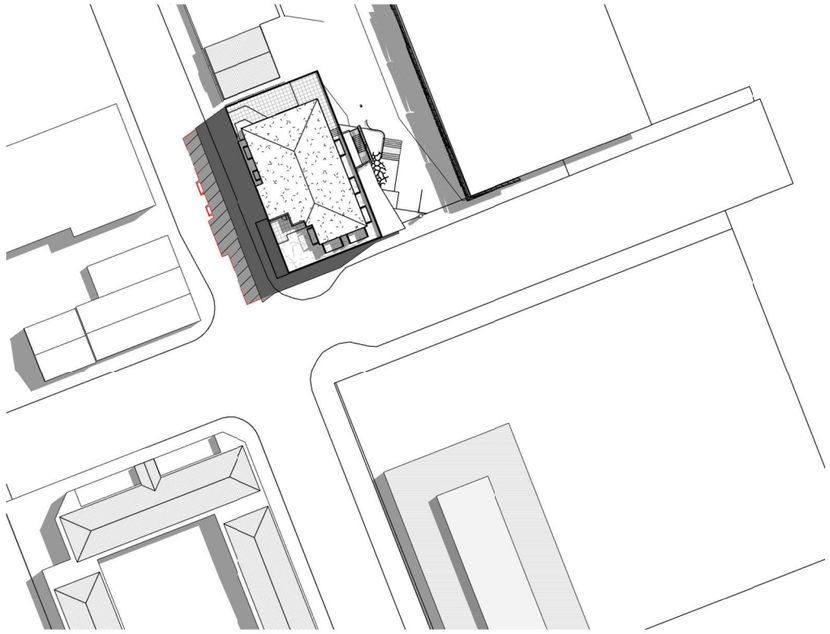
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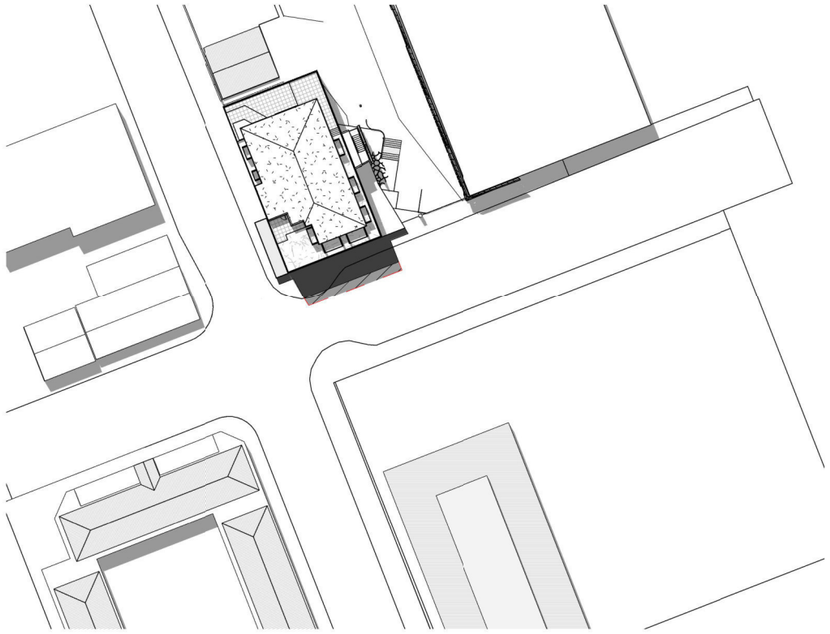
21 Dec 10am

Scale 1 : 1000 (A3)



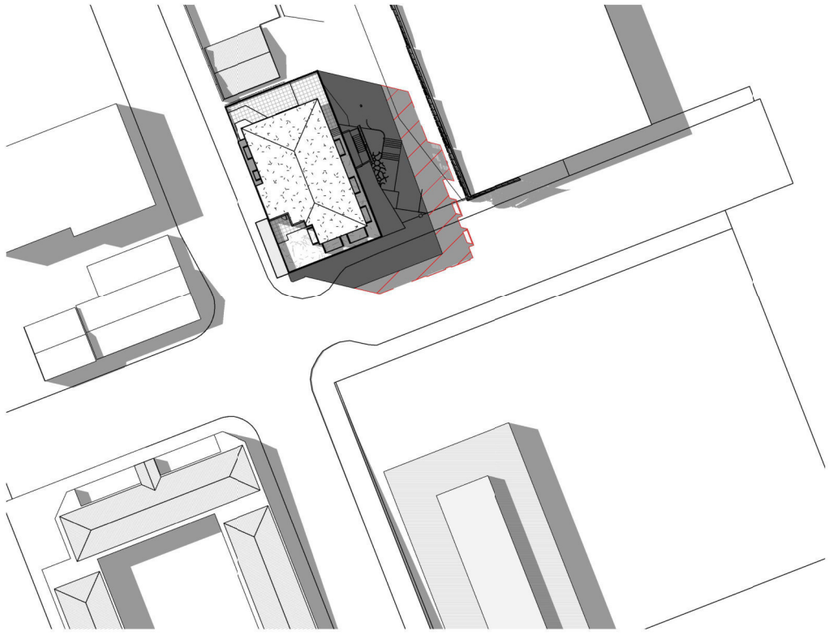
21 Dec 12pm

Scale 1 : 1000 (A3)



21 Dec 2pm

Scale 1 : 1000 (A3)



21 Dec 4pm

Scale 1 : 1000 (A3)

Key

Projected shade for 14m height building (approx)

Projected shade above 14m (infringement)

Disclaimer

Accuracy of the shading diagrams shown is affected by the coordinated data available as follows.

Modeling:

- The current topography of the property (51 Brougham St) and the neighboring Huatoki River has been surveyed by Bland & Jackson Ltd. and BTW Company Ltd. to provide accurate building outlines, relative levels and heights
- The contours of the extended neighbourhood geography and location of neighbouring properties are created using data from NPDC GIS database for land contours and property lines (NPDC GIS Viewer T&Cs apply)
- All existing neighbouring buildings (size/shape/height/location/levels etc) are shown approximate only, conservativley modelled based on data from NPDC GIS, photographs and observations of their relative locations and are NOT based on surveyed information

Shading:

- The generation of the shading is created via the in-built location data in the Autodesk Revit software used by BOON Ltd.
- As all existing neighbouring buildings are modeled as approximate only, therefore all shadows generated are to be read as such
- ALL SHADOWS SHOWN ARE APPROXIMATE ONLY

Brougham Street Development

51 Brougham Street, New Plymouth

Resource Consent

AUGUST | 2020

job	a3	drawing no	rev	drawing title	print date
6400	As indicated	A9.01		Shade Diagrams Summer Solstice	3/09/2020 9:42:38 am

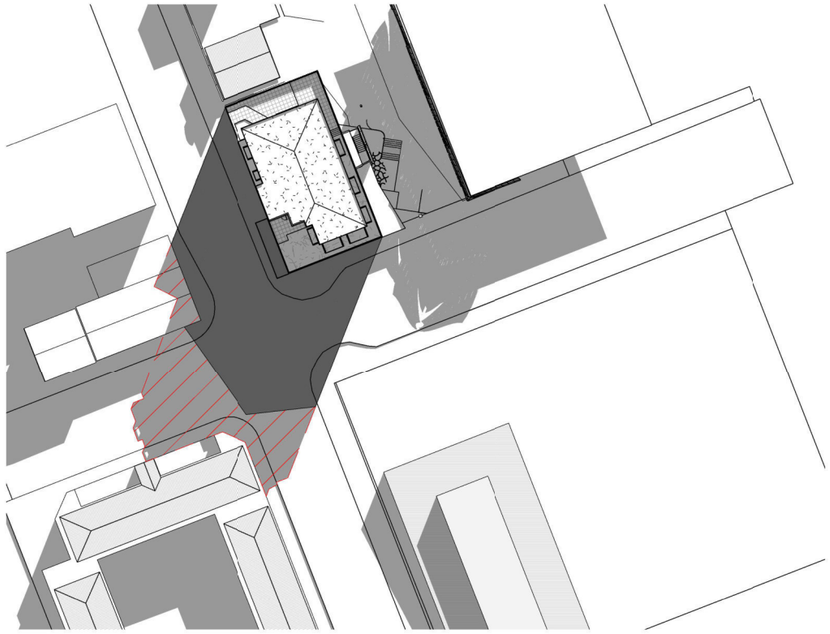
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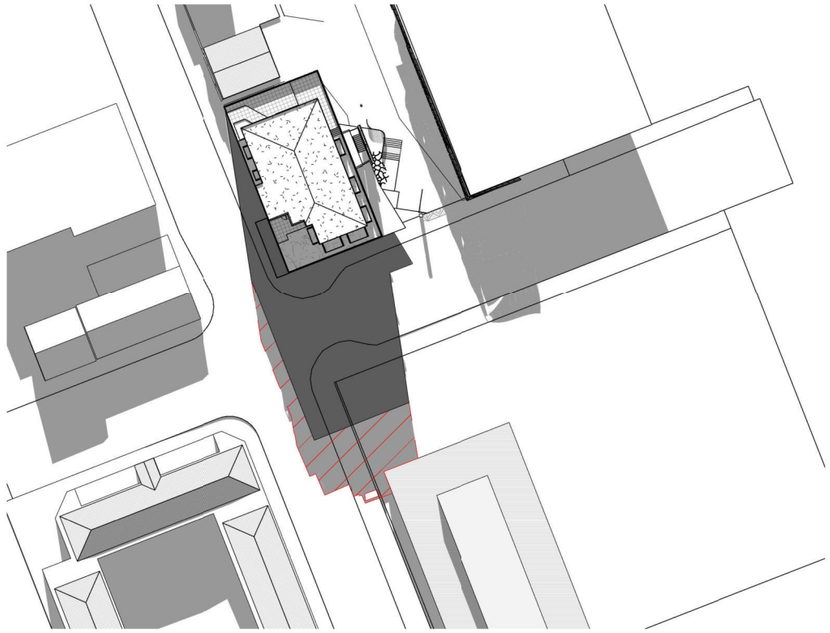
A/131 Courtenay St, New Plymouth 4310, New Zealand
P/06 757 3200 E/office@boon.co.nz W/boon.co.nz



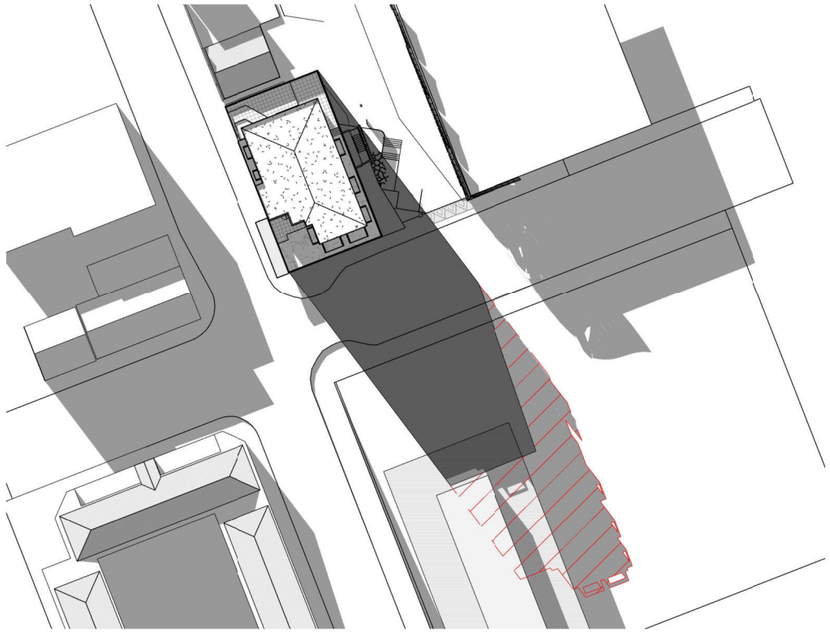
21 Jun 10am
Scale 1 : 1000 (A3)



21 Jun12PM
Scale 1 : 1000 (A3)



21 Jun 2pm
Scale 1 : 1000 (A3)



21 Jun 4pm
Scale 1 : 1000 (A3)

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Projected shade for 14m height building (approx)

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Brougham Street Development

51 Brougham Street, New Plymouth

Resource Consent

AUGUST | 2020

job	a3	drawing no	rev	drawing title	print date
6400	As indicated	A9.02		Shade Diagrams Winter Solstice	3/09/2020 9:43:31 am

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Proposed Building - Southeast View

Brougham Street Development

51 Brougham Street, New Plymouth

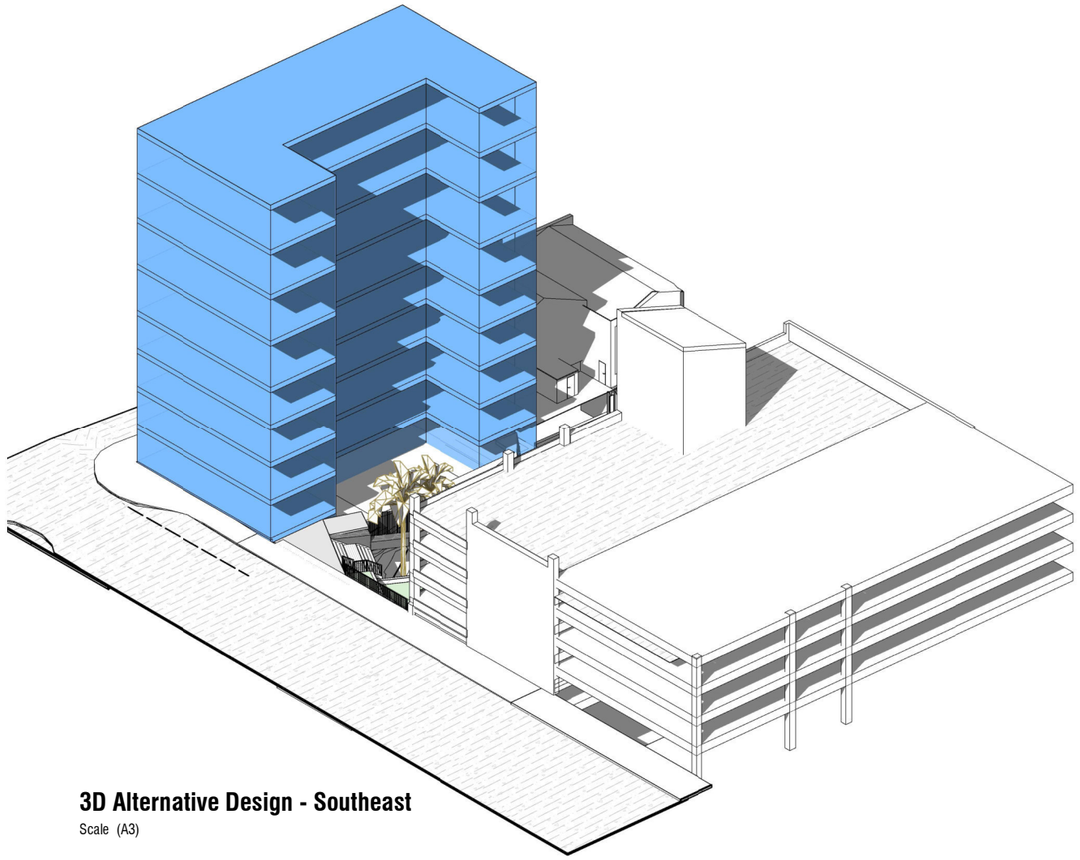
Resource Consent

AUGUST | 2020

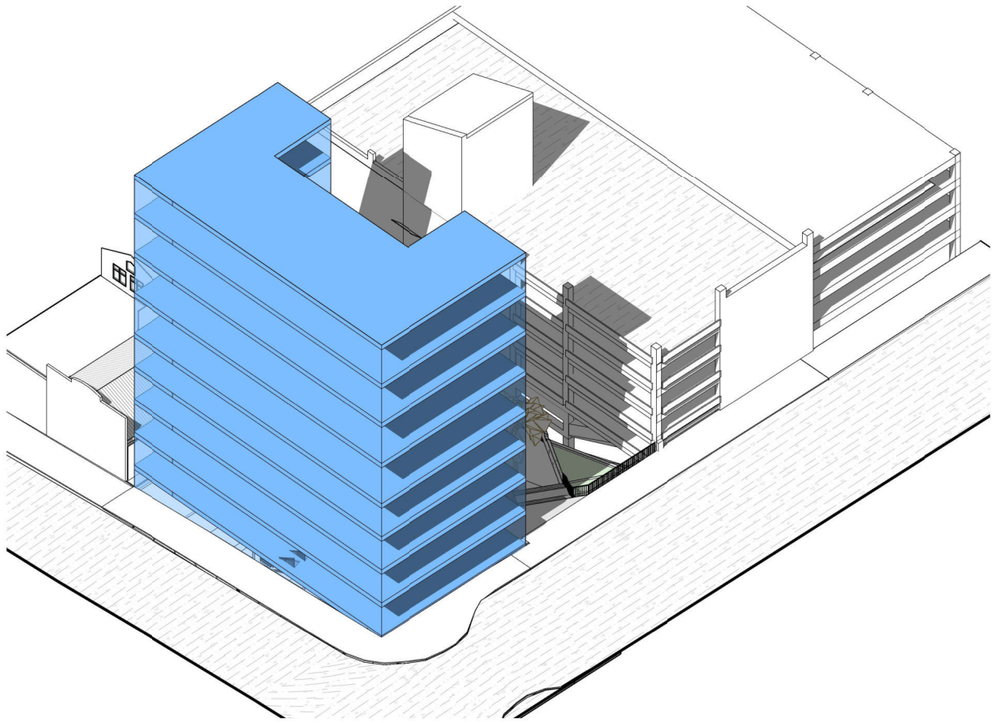
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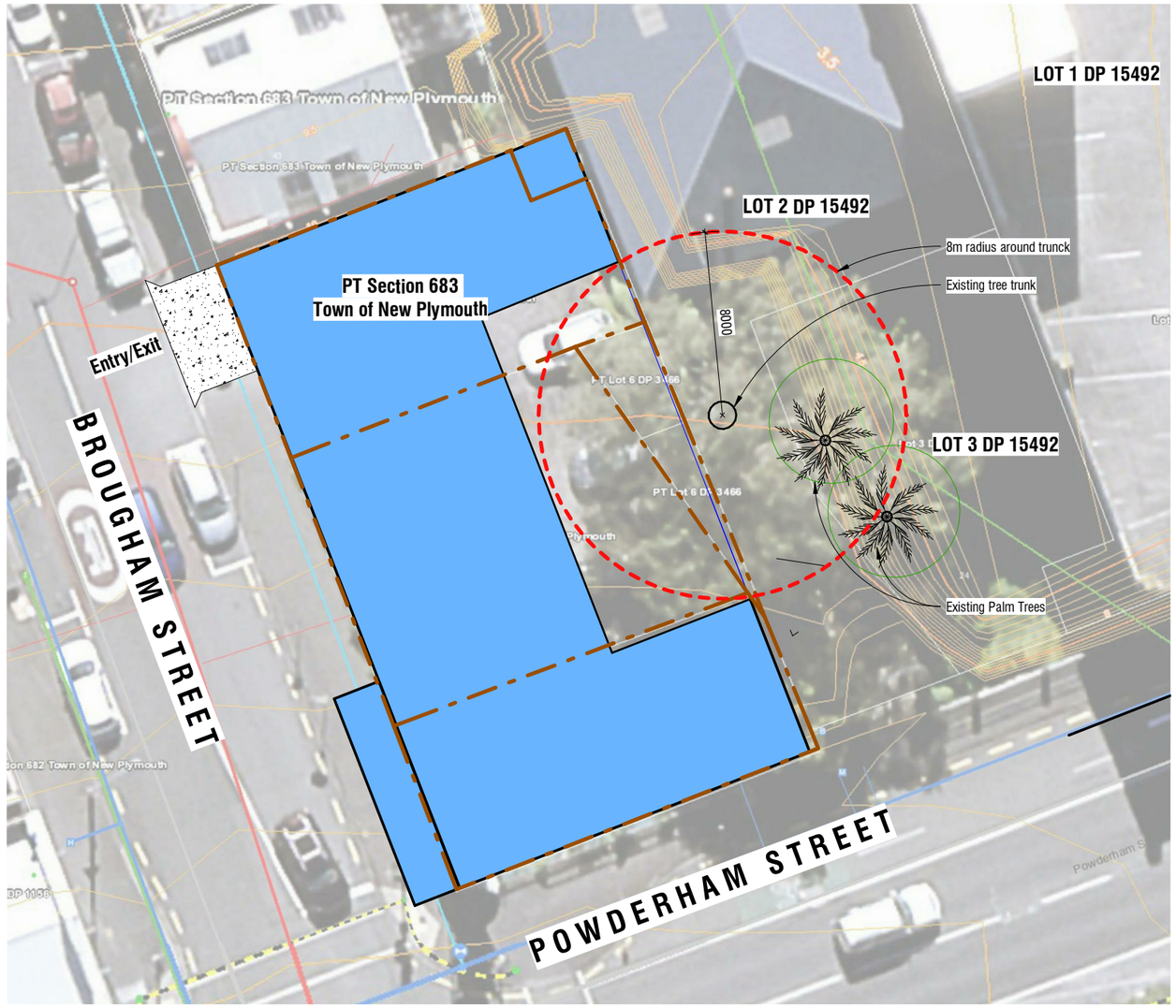
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P/06 757 3200 E/office@boon.co.nz W/boon.co.nz



3D Alternative Design - Southeast
Scale (A3)



3D Alternative Design - Southweast
Scale (A3)



Site Plan - Alternative with Tree Preserved
Scale1 : 250 (A3)

Areas
Original Proposal = 490m² per pavement x 7 = 3230m²
Alternative Proposal = 375m² per pavement x 9 = 3375m²

Brougham Street Development
51 Brougham Street, New Plymouth
Resource Consent
April 2020

job no.	a3 scale	drawing no	rev	drawing title	print date
6488	1 : 250	A10.01		Alternative Design with Tree Preserved	23/04/2020 6:16:39 PM

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BOON
teamarchitects
A/131 Courtenay St, New Plymouth 4310, New Zealand
P/06 757 3200 E/office@boon.co.nz W/boon.co.nz

BOON

27th August 2020

New Plymouth District Council
Private Bag 2025
New Plymouth 4342

Attention: NPDC Planning Department

Brougham Street Development – 51 Brougham Street, New Plymouth
Architectural Design Statement

Site:

The site is located on the corner of Brougham & Powderham Streets in the New Plymouth CBD. The 478m² site slopes north/south away from Powderham Street. The existing site currently consists of an unsealed carpark, accessed from the north west corner of the site and the Halamoana sculpture (proposed to be relocated as part of this proposal).
There is currently a two-level commercial building to the northern boundary, road boundaries to the south and to the east lies New Plymouth's historic Huatoki awa.

Proposal:

This project involves demolishing all existing structures, including the relocation of the existing Halamoana sculpture to construct a new six level mixed use development consisting of basement carparking, five levels of premium CBD commercial office space and a three-bedroom apartment on the 6th level. The development encompasses the entire 478m² footprint of the site, and includes duel entries into the building. An entry including a verandah over Brougham St, and a second entry opening into and connecting to the Huatoki awa. This entry includes a canopy and an egress stairwell in neighbouring eastern property (refer to architectural site plans for details).

Site constraints:

The proposed site shares a boundary which holds the root structure of a protected tree (refer to Arborist report for details). Based on the Arborist's report we initially tested some concept options that considered retaining the tree (refer to architectural drawings for details).
Through design development and rigorous testing of various options with separate consultants (structural engineers) it established that the project was not feasible in its current form due to:
- Irregular floorplate due to the 8m setback was not feasible for modern office design
- Net Lettable Area NLA of the floorplate too small to make the development economically viable
- Proposed height required to make the development economically viable well above current proposal and structurally incredibly difficult to create a workable solution

Whist we acknowledge there is some significance of the protected tree adjoining the proposed site, through this design feasibility study this ruled out any possible option of retention and led us to the only feasible design option being removal of the tree

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Design Statement:

Considered urban design sees buildings, places and spaces not as isolated elements but as part of the whole town or city. The wider context of the surrounding urban environment has been taken into consideration in the proposed design outcome The Brougham St Development design is minimalist and contemporary in style, taking what was a rundown brownfield site carpark and transforming it into an architectural showpiece in the New Plymouth CBD for modern and sustainable mixed-use urban design.

The complete glazed façade provides direct connectivity to the adjoining streets and the awa to the east, stimulating vibrant activity in the CBD by creating direct visual connections between people working in the building and people walking past on the street and down the proposed future walkway development. Connections through the buildings core open directly onto the eastern side of the façade, creating active edges to both facades of the building, and creating a direct link to the awa and the proposed Huatoki public space developments to come. The glazed façade allows filtered light to permeate through the building providing passive daylight to the public spaces either side of the proposed building, whilst at the same time patterned 'fritting' to the glass reduces glare to the interior & exterior as well as provide regulation to the heat gain to the building.

Whilst the building covers the entire footprint of the site, the complete glazed façade (ie. with no breaks between floors/walls etc), gives the building a lightness in feel and reduces the perception of the proposed height by creating a seamless façade face. The upper level apartment is clad in timber to directly link it to the timber structural elements below, and pronounced vertical elements in the apartment façade further reduces the visual impact by drawing the eye line up and out over the building as opposed to a capping that stops the eye. The apartment is also setback from the glazed façade to further reduce the bulk/scale of the development. The overall height also fits within the character of the CBD, particularly in regards to future building patterns in the area.

Good urban design principles call for 'active edges', particularly at inner city corner sites. The proposed design pushes the carparking into a semi-basement level, allowing the building entry to sit near the corner of Powderham & Brougham, creating a vibrant edge to the street corner.

Passive surveillance to the area is also greatly improved, through the transparency of the proposed façade creating visual links between inside and outside, and the mixed-use nature of the development means that the building will be occupied and therefore operational 24 hrs a day.

The proposed structural design for the Brougham St Development is to be constructed entirely from timber (excluding the basement carpark), including: all floors, columns, beams and bracing elements within the building.
The benefits of such a construction methodology include:
- Sustainable source of material
- Locally sourced and manufactured
- Predominantly timber construction significantly reduces embodied energy/carbon & construction waste
- Offsite manufacturing improves approval quality and significantly speeds up construction
- Reduces the overall weight of the building meaning smaller foundations & less disturbances to surrounding buildings during construction

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Design Response to Cultural Impact:

Guided by the Ngāti Te Whiti hapu and Mātauranga (Māori knowledge) along with the Te Aranga Design principles the Brougham Street development has design features underpinned by cultural context.

The design responds to the close proximity of significant cultural sites within the Ngāti Te Whiti rohe. It seeks to extend the presence of mana whenua and activate a connection to the neighbouring awa.

On the ground floor, the entry and shared foyer space has taken inspiration from Hīnaki (eel net) and the shape of the historical estuary of the Huatoki. The design response forms a wide-open accessible entry from the building's eastern façade to the adjoining Huatoki stream.

An opportunity to explore a cultural narrative within the building fabric is proposed in the concept through;

- Fritting to the glazing with a cultural reference that also assists with heat gain.
- Utilising timber and cultural patterning/narrative on the stair well to represent the Titoki tree that was once abundant but still growing on the banks of the Huatoki.
- Patterning on the ground floor shared space extending to the outside of the building connecting it to the land and representing Hīnaki
- Representation of Mauri stone and a water feature from the awa at the eastern boundary of the building

Environmental Sustainability Framework:

Quality urban design reduces the environmental impacts of our towns and cities through environmentally sustainable and responsive design solutions. The Brougham St Development has been designed with key environmental sustainability frameworks at its core, which includes:

• Energy & Emissions
Targeting minimum 5 Star NABERSNZ Energy base building energy certification
Targeting CarboNZero Certification
Roof mounted solar PV generation
Avoidance of on-site fossil fuel combustion
High efficiency hybrid variable refrigerant flow heating & cooling system
Enhanced roof, floor and wall insulation
Automatic lighting controls, demand control ventilation
Mixed mode ventilation, heat recovery ventilation
Air source heat pump domestic hot water heating
High efficiency LED lighting
• Comfort, Health and wellbeing
IGU low e solar control double glazing offers superior thermal comfort, daylight availability and external views
Low VOC and low formaldehyde materials and specifications offer improved air quality
Natural ventilation provides good air quality and physical connection with the natural environment
Timber structure provides visual connection with the natural environment
• Water Efficiency & Conservation
Water efficiency WELS rated fittings and fixtures
Rainwater harvesting system reduces peak stormwater runoff and provides flushing water
Water sub-metering with leak detection capability

• **Management & Operations**
Energy & water sub-metering
Building Management System
Post-occupancy building tuning improves energy and comfort performance
• **Local Emissions**
100% electric heating avoids on-site combustion for improved local air quality
Rainwater harvesting reduces peak stormwater run-off
Environmental management plan
• **Materials & Waste**
Predominantly timber construction significantly reduces embodies energy/carbon & construction waste
Minimised operational waste to landfill through recycling provisions and tenant engagement
Zero ozone depletion refrigerants and insulation
Low environmental impact materials specification
Minimised operational waste to landfill through recycling provisions

Overall the proposed design provides for a high- quality urban development in central New Plymouth, providing tangible socio and economic benefits to the wider community. Ultimately providing for a modern contemporary design that will add positively to the evolving urban fabric of New Plymouth.

Yours faithfully
BOON TEAM ARCHITECTS LTD



SHAUN MURPHY (B.Arch Hons, ANZIA)
ARCHITECT

On behalf of Murali Bhaskar – Design Director

APPENDIX C RECORDS OF TITLE

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**TNF1/436**
Land Registration District	**Taranaki**
Date Issued	04 June 1980

Prior References
TN87/40

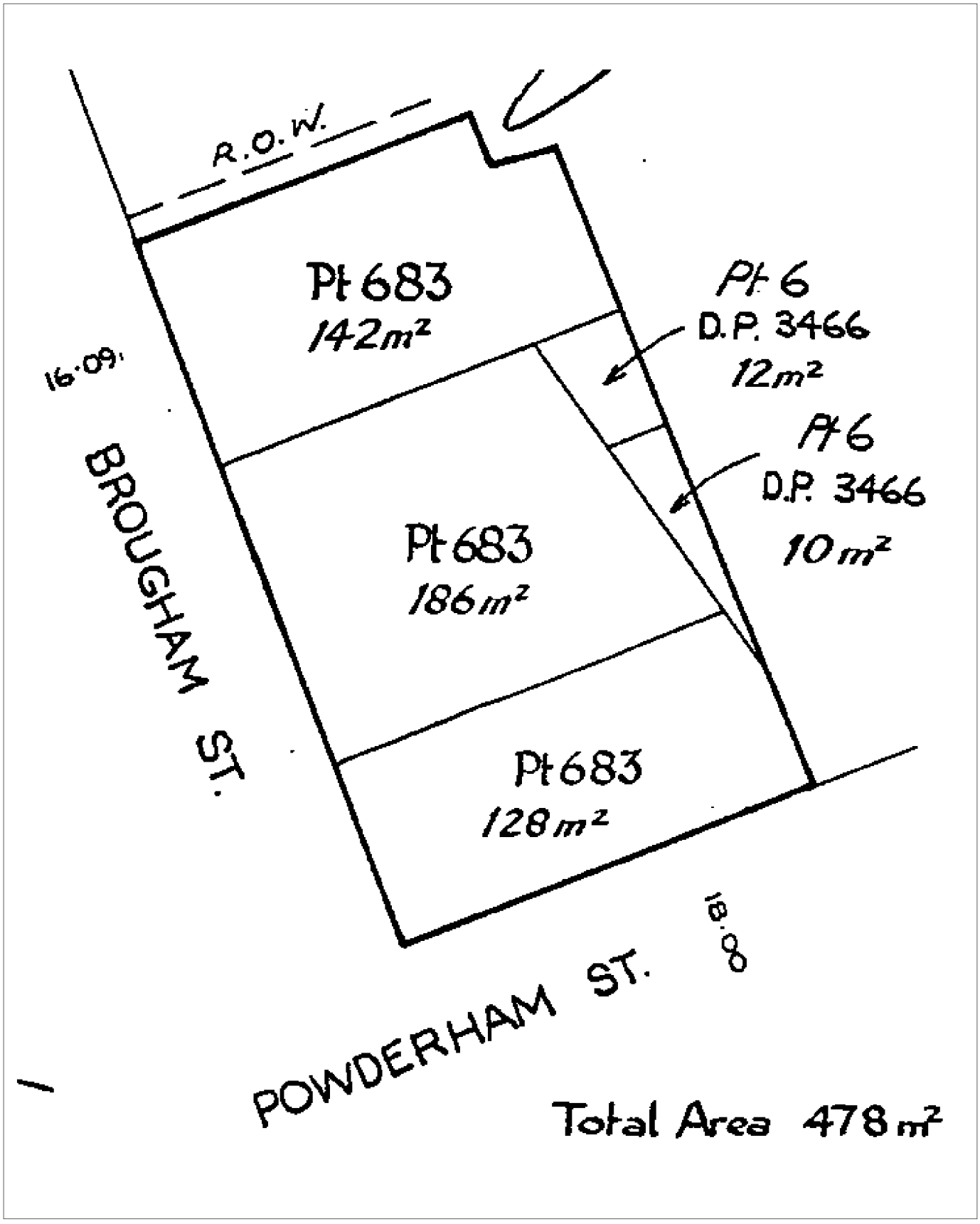
Estate	Fee Simple
Area	478 square metres more or less
Legal Description	Part Lot 6 Deposited Plan 3466 and Part Lot 6 Deposited Plan 3466 and Part Section 683 Town of New Plymouth and Defined On Deposited Plan 132 and Defined On Deposited Plan 2399 and Defined On Deposited Plan 3466

Registered Owners
K.D. Holdings Limited

Interests

Appurtenant hereto is a right of way created by Conveyance 27616 (R29/151)

11582641.1 Mortgage to TSB Bank Limited - 21.10.2019 at 9:08 am


R.O.W.
Pt 683
142m²
Pt 6
D.P. 3466
12m²
Pt 6
D.P. 3466
10m²
16.09
BROUGHAM ST.
Pt 683
186m²
Pt 683
128m²
18.08
POWDERHAM ST.
Total Area 478m²

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**TNH4/976**
Land Registration District	**Taranaki**
Date Issued	25 June 1990

Prior References

TN168/127 TN168/128 TNA2/99
TNB4/1010

Estate	Fee Simple
Area	1132 square metres more or less
Legal Description	Lot 2 Deposited Plan 15492

Registered Owners

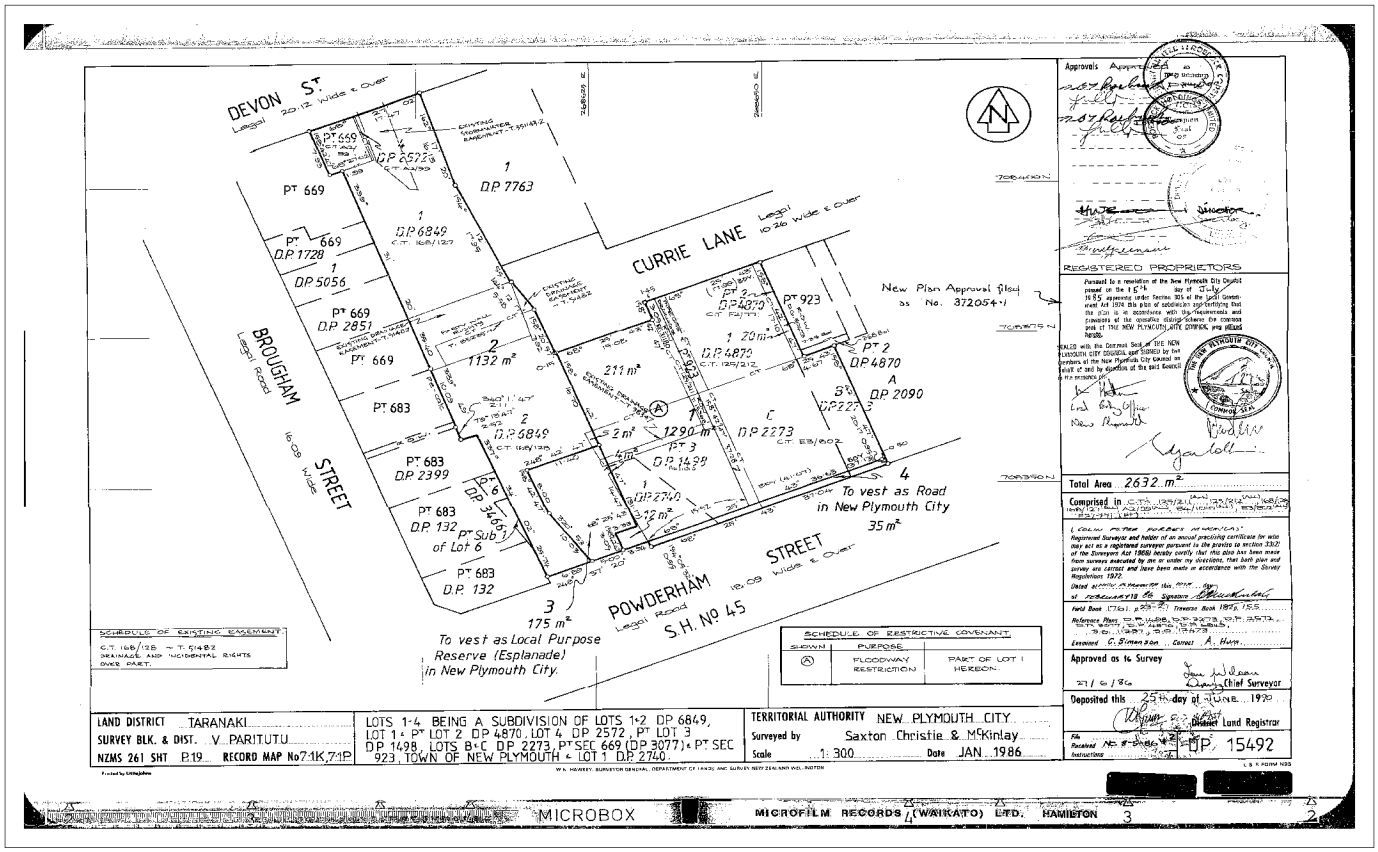
New Plymouth District Council

Interests

Subject to stormwater and other drainage rights (in gross) over part in favour of The New Plymouth District Council created by Transfer 51482 (affects formerly part CsT TN168/127 and TN168/128)

Appurtenant hereto are stormwater and soil drainage rights created by Transfer 92697 (affects part formerly in CT TNA2/99)

Subject to a right (in gross) to convey flood water over part marked C on DP 16090 in favour of The New Plymouth District Council created by Transfer 351143.2


DEVON ST
Legal 20.12 Wide & Over
PT 669
D.P. 2572
1
D.P. 7763
D.P. 6849
C.T. 168/127
PT 669
D.P. 1728
1
D.P. 5056
CURRIE LANE
Legal 10.26 Wide & Over
PT 669
D.P. 2851
BROUGHAM STREET
Legal Road
16.08 Wide
PT 669
2
1132 m²
211 m²
PT 2
D.P. 4870
C.T. 125/212
PT 923
New Plan Approval filed as No. 372054.1
PT 2
D.P. 4870
A
D.P. 2090
PT 683
2
D.P. 6849
C.T. 168/128
1
1290 m²
C
D.P. 2273
C.T. 83/602
PT 683
D.P. 2399
PT 683
D.P. 132
PT Sub 1 of Lot 6
D.P. 34651
1
D.P. 1439
1
D.P. 2740
12 m²
4
To vest as Road in New Plymouth City
35 m²
3
175 m²
To vest as Local Purpose Reserve (Esplanade) in New Plymouth City.
POWDERHAM STREET
Legal Road
S.H. No 45
18.08 Wide & Over
SCHEDULE OF EXISTING EASEMENT
C.T. 168/128 — T. 614882
DRAINAGE AND INCIDENTAL RIGHTS OVER PART.
SCHEDULE OF RESTRICTIVE COVENANT
SHOWN
PURPOSE
PART OF LOT 1 HEREON
FLOODWAY RESTRICTION
Approvals
REGISTERED PROPRIETORS
Total Area 2632 m²
Comprised in
Approved as to Survey
Chief Surveyor
Deposited this 25th day of JUNE 1986
District Land Registrar
DP 15492
LAND DISTRICT TARANAKI
SURVEY BLK. & DIST. V PARITUTU
NZMS 261 SHT P19 RECORD MAP No 7:1K, 7:1P
LOTS 1-4 BEING A SUBDIVISION OF LOTS 1-2 DP 6849, LOT 1 & PT LOT 2 DP 4870, LOT 4 DP 2572, PT LOT 3 DP 1498, LOTS B & C DP 2273, PT SEC 669 (DP 3077) & PT SEC 923, TOWN OF NEW PLYMOUTH & LOT 1 DP 2740.
TERRITORIAL AUTHORITY NEW PLYMOUTH CITY
Surveyed by Saxton Christie & McKinlay
Scale 1:300 Date JAN 1986
MICROBOX
MICROFILM RECORDS (WAIKATO) LTD. HAMILTON

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**510340**
Land Registration District	**Taranaki**
Date Issued	18 January 2010

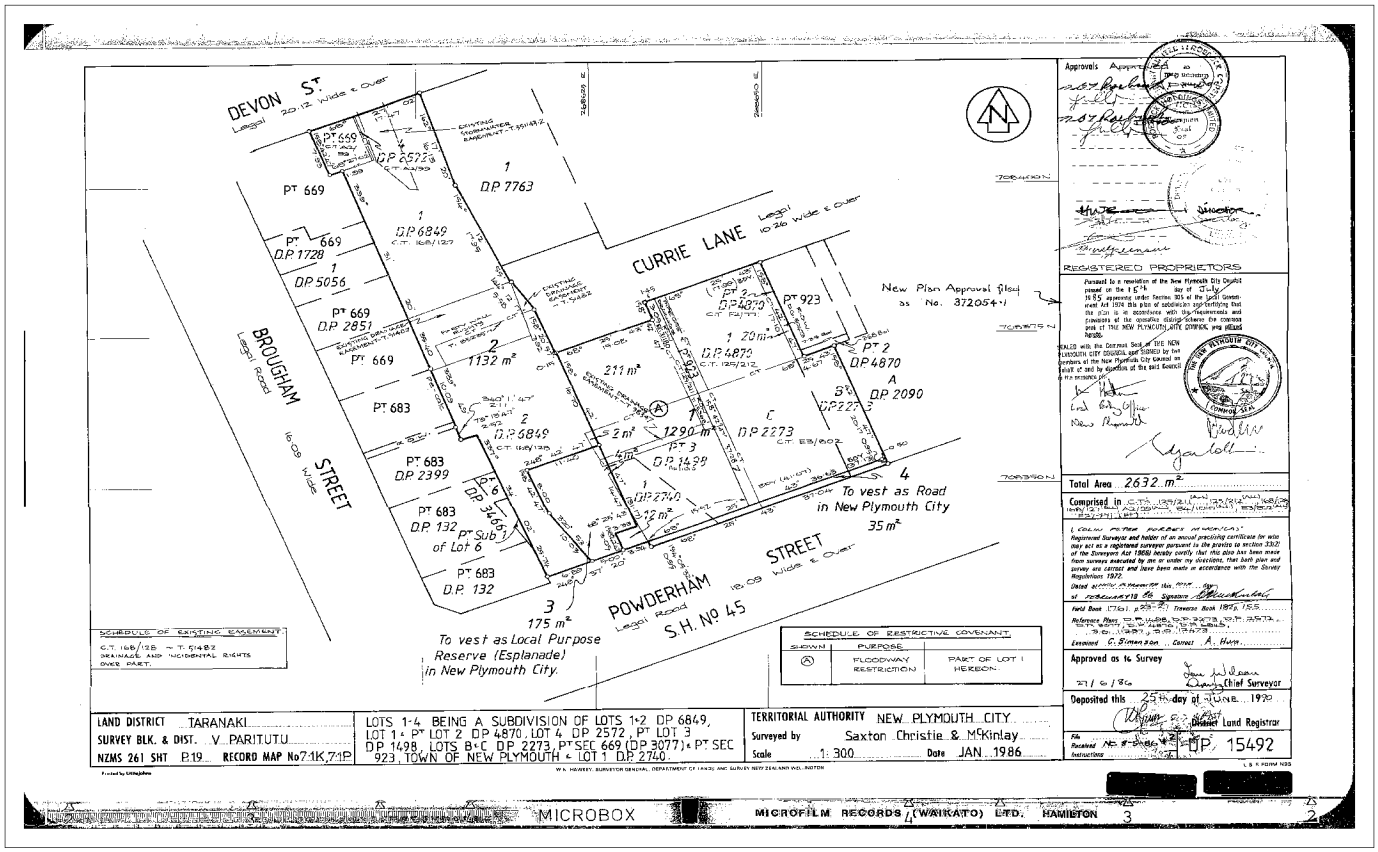
Prior References
TN168/128

Estate	Fee Simple
Area	175 square metres more or less
Legal Description	Lot 3 Deposited Plan 15492
Purpose	Local Purpose (esplanade) Reserve

Registered Owners
New Plymouth District Council

Interests

Subject to the Reserves Act 1977


DEVON ST
Legal 20.12 Wide & Over
CURRIE LANE
Legal 10.26 Wide & Over
BROUGHAM STREET
Legal Road
16.08 Wide
POWDERHAM STREET
Legal Road
S.H. No 45
16.08 Wide & Over
PT 669
D.P. 1728
D.P. 5056
D.P. 2851
PT 683
D.P. 2399
D.P. 132
PT Sub 1 of Lot 6
D.P. 7763
D.P. 6849
D.P. 2572
D.P. 4870
D.P. 2273
D.P. 1498
D.P. 2740
D.P. 2090
PT 923
1132 m²
211 m²
1290 m²
175 m²
35 m²
To vest as Local Purpose Reserve (Esplanade) in New Plymouth City.
To vest as Road in New Plymouth City
New Plan Approval filed as No. 372054.1
SCHEDULE OF EXISTING EASEMENT
C.T. 168/128 ~ T. 514B2 DRAINAGE AND INCIDENTAL RIGHTS OVER PART.
SCHEDULE OF RESTRICTIVE COVENANT
SHOWN A
PURPOSE FLOODWAY RESTRICTION
PART OF LOT 1 HEREON
REGISTERED PROPRIETORS
Total Area 2632 m²
Comprised in C.T. 129/211 (Limited as to Parcels) 168/128 (Limited as to Parcels) 168/129 (Limited as to Parcels) 521/171 (Limited as to Parcels)
Approved as to Survey
Chief Surveyor
Deposited this 25th day of JUNE 1986
District Land Registrar
DP 15492
LAND DISTRICT TARANAKI
SURVEY BLK. & DIST. V PARITUTU
NZMS 261 SHT P19 RECORD MAP No 7:1K, 7:1P
LOTS 1-4 BEING A SUBDIVISION OF LOTS 1-2 DP 6849, LOT 1 & PT LOT 2 DP 4870, LOT 4 DP 2572, PT LOT 3 DP 1498, LOTS B & C DP 2273, PT SEC 669 (DP 3077) & PT SEC 923, TOWN OF NEW PLYMOUTH & LOT 1 DP 2740.
TERRITORIAL AUTHORITY NEW PLYMOUTH CITY
Surveyed by Saxton Christie & McKinlay
Scale 1:300 Date JAN 1986
MICROBOX
MICROFILM RECORDS (WAIKATO) LTD. HAMILTON

APPENDIX D NEW PLYMOUTH DISTRICT PLAN RULES ANALYSIS

Table D 1: ODP Rules Analysis

Rule	Parameter	Assessment	Status
Bus12	Maximum height excluding temporary buildings in the Business A Environment Area	*Permitted: 14m (with other conditions)* The proposed building is a maximum of 25.5 m high above the modern surveyed ground level, exceeding the permitted standard by 11.5 m	Restricted Discretionary
Bus22	Requirement for sound attenuation of any building (excluding temporary buildings)	*Permitted: Shall be designed and constructed in accord with an acoustic design certificate from an acoustic engineer so that the level of noise received within a NOISE SENSITIVE ROOM, excluding noise from CONSTRUCTION WORK, does not exceed 40 dBA L10 between 10pm and 7am on any day.* The building will be designed and constructed to achieve the specified noise levels and the proposal will therefore comply. A condition of consent is proposed for an acoustic design certificate prior to construction commencing.	Permitted
Bus58	Earthworks - maximum quantity, measured in non-compacted form	*Permitted: 20m^3 per 100m^2 of SITE area in any 12 month period* Site area: Total 1785 m^2 / 100 m^2 = 17.85, x 20 m^3 = 357 m^3 permitted earthworks volume. The proposed earthworks volume is 685 m^3 which exceeds permitted levels.	Restricted Discretionary
Bus59	Reinstatement of earthworks for any excavation or filling of greater than 150m^3 per site in any 12 month period	*Permitted: All bare earth shall, as soon as is practicable, but not later than six months from the date of disturbance, be: 1) stabilised so that no earth moves off-site or presents a danger to life or property; and 2) vegetated, sealed, paved, metalled or built over* Bare earth will be built over and the proposal will comply.	Permitted
Bus86	Vehicle access point	*Permitted: Meets the conditions for a permitted activity as specified in Part A in Appendix 23* *23.1(d) Where the vehicle access point is onto a local road, collector road, or arterial road, table 23.5 and diagram 23.6 shall be complied with.* With regard to Table 23.5, there are no applicable standards for this 30 km/h zone with regard to sight and intersection distances. *Maximum total combined width of vehicle access points on any site is 4m or 50% of the road boundary, whichever is the greatest* The crossing will be some 4 m wide at the 29 m long boundary (which would permit crossings up to 14.5 m), which complies. There will be no direct vehicle access onto Powderham Street.	Permitted

Rule	Parameter	Assessment	Status
Bus87	Parking	*Permitted: Meets the conditions for a permitted activity as specified in Part B in Appendix 23* 23.7(1) The site is in the Parking Exemption Area of Diagram 23.14a and therefore is not required to provide a specific number of car parks. *23.7(2) Design and construction standards:* *a) Vehicle and bicycle parking shall be designed and constructed in accordance with Table 23.8. For vehicle dimensions less than medium service vehicles, the required parking space(s) and parking area shall:* *a) Not include any space used for on-site queuing, tracking curve, manoeuvring, loading or standing space or vehicle access point; and* *b) For vehicles of dimensions less than a medium service vehicle meet the requirements specified in table 23.10 and diagram 23.11.* Car parks will be formed to an all weather standard (sealed), not exceed a gradient of 1:20 and have a sealed entrance as per Table 23.10 for more than four parking spaces in site in a Business Environment Area. This construction standard complies. Diagram 23.11 requires 90 degree parks with nose in turns to be 4.9 m deep, 2.6 m wide and have an aisle width of 7 to 7.9 m. The proposed parks are some 4.9 m deep, 2.6 m wide and have an aisle width of 5.8 m. These have been designed comparably to standard AS/NZS 2890.1:2004 of Appendix H and do not comply with the ODP standards.	Restricted Discretionary
Bus88	Loading and standing space	*Permitted: Meets the conditions for a permitted activity as specified in Part C in Appendix 23.* *23.15(c)(i) and (ii) requires a loading and standing space for a light service vehicle, of specific construction standards.* The commercial (e.g. office related) activities to occur in the building will require the services of a courier van at most (e.g. for office supplies). No designated loading or standing space is proposed for this site, instead the five-minute loading zone on the opposite side of Brougham Street will be utilised.	Restricted Discretionary
Bus90	On-site manoeuvring space	*Permitted: Meets the conditions for a permitted activity as specified in Part E in Appendix 23* Manoeuvring space is required as the site has greater than four parking spaces (23.20(1)(a)(iii)). Manoeuvring space is provided in the aisle of the carpark and cars will enter and exit the site in a forward-facing direction. This is not specifically to the standard of the ODP due to the parking layout being designed alternatively.	Restricted Discretionary

Rule	Parameter	Assessment	Status
Bus91	On-site queueing space	*Permitted: Meets the conditions for a permitted activity as specified in Part F in Appendix 23* The proposal provides more than 6 but less than 30 parking spaces and provides an appropriate queueing space some 11.2 m long from the edge of the site boundary into car park number 1.	Permitted
OL50	Removal or destruction of a Category 2 Notable Tree	*Permitted: where the council or an approved arboricultural contractor determines that: 1) a notable tree is unsafe or unsound; or 2) the removal or destruction would benefit the health and growth of a more desirable notable tree* The proposal is to remove the tree after advice from an approved Arboricultural Contractor regarding its likely state of safety and soundness after site development has been undertaken. The tree has not been deemed unsafe or unsound in its current state, nor will its removal benefit another notable tree.	Restricted Discretionary
OL63	Maximum height within Cameron Street Viewshaft	*Permitted: Section 2: 14m, or the maximum height for the underlying environment area, whichever is the lesser.* The proposed building breaches the 14 m limit by a maximum of 11.5 m at 25.5 m high.	Restricted Discretionary
OL71	Maximum height within Marsland Hill Viewshaft	*Permitted: Sec 3: 14m, or the maximum height for the underlying environment area, whichever is the lesser.* The proposed building breaches the 14 m limit by a maximum of 11.5 m at 25.5 m high.	Restricted Discretionary
OL75	Maximum height within Victoria Road Viewshaft	*Permitted: Section 2: 14m, or the maximum height for the underlying environment area, whichever is the lesser.* The proposed building breaches the 14 m limit by a maximum of 11.5 m at 25.5 m high.	Restricted Discretionary

Table D 2: PDP Rules Analysis

Rule	Parameter	Assessment	Status
TREE-R10	Removal, partial removal or destruction of a scheduled notable tree not otherwise provided for in this table.	*Rule TREE-R5: Removal, partial removal or destruction of an unsafe or unsound scheduled notable tree.* *Permitted where:* *(1) the scheduled notable tree is unsafe or unsound as certified by the Council and in accordance with the International Society of Arboriculture Tree Risk Assessment Form; and* *(2) the removal, partial removal or destruction of the tree is undertaken by the Council or a Council approved arboricultural contractor.* The proposal is to remove the tree, which has not been deemed unsafe or unsound in its current state, nor will its removal benefit another tree. The proposal therefore does not comply with the permitted standards of rule TREE-R5.	Non-complying

APPENDIX E ARBORICULTURAL ASSESSMENT

ASPLUNDH

ARBORIST REPORT
51 Brougham St, NPL

ARBORICULTURAL ASSESSMENT

19 September 2019

Attn: Murali Bhasker
BOON Team Architects
131 Courtenay Street
New Plymouth 4310

Dear Murali

RE: ARBORIST ASSESSMENT OF NPDC PROTECTED TREE, 49 BROUGHHAM STREET, NPL

On 7th September 2019 Asplundh senior arborist Bruce MacDonald carried out a sustainability assessment of one NPDC protected tree (Agonis flexuosa, DP Item 97) growing on the embankment of 51 Brougham St, New Plymouth. The assessment included an exploratory excavation within the dripline to determine root depth and type. The purpose of this report is to assist the reader in making informed decisions regarding the sustainability in relation to proposed development of the site. The assessment was carried out with information provided from onsite meetings with stakeholder expertise, including NPDC arboricultural officers and reference to architectural and survey plans. The inspection process was in line with recognised international arboricultural assessment practices.

This report is based on observations made at the time of inspection and is assessed against councils District Plan, which includes:

Overlay 43 - Erection of Structures (including buildings) within the drip line of a Notable Tree (protected).

Overlay 44 - Excavation and Filling (including impervious surfaces) within the drip line of a Notable Tree (protected).

It follows internationally recognised Visual Tree Assessment guidelines endorsed by the International Society of Arboriculture (ISA).

Please contact me direct if you have any further queries.

Kind regards

Bruce MacDonald
Quality Manager NZ / Senior Consulting Arborist
DDI 06 769 6451| Fax 06 769 6452 | Mob 027 244 5282
PO Box 3179| 57 Hurlstone Drive | Fitzroy | New Plymouth

ARBORICULTURAL ASSESSMENT

1.0 SUMMARY

BTW and BOON has engaged external arboricultural expertise to assess the solitary agonis growing on an undeveloped site at 51 Brougham St, New Plymouth. The tree is listed within New Plymouth District Council District Plan as being and Category 2 Protected tree. It grows on council owned land. The tree, although common has a larger than normal stem, particularly at the base. The size of the tree has given it merit as a protected item over and above normal CBD Amenity Zone blanket protection.

The proposed development site at 51 Brougham Street neighbours council reserve land in which the tree grows, within the Huatoki stream embankment and adjacent the Down Town carpark. Currently the site is used as a gravel carpark. The proposed development involves the construction of a multi-level building encompassing the entire footprint of the existing carpark. Construction of the building includes an estimated 2.0m excavation within the dripline of the protected tree.

The protected tree is growing out of the embankment below the gravel carpark, the upper root flare is approximately 400mm below the embankment apex. Although the direction of roots and extent can somewhat be assumed from the basal root flare above ground, to accurately determine the root size and horizons required exploratory trenching. There are several other self-seeded agonis growing on site that have now formed a single canopy.

It must be noted at the time of inspection, the tree was identified as not being an imminent risk to existing structures.

2.0 TREES A COMMUNITY BENEFIT

Trees, especially within urban environments contribute numerous benefits. These can be summarised as aesthetic, environmental, climatological, ecological, economic and social factors. It is well proven and documented that trees used in the landscape will achieve substantial positive outcomes for the wider community and visitors. These proven outcomes ensure trees are continued to be used as an important tool in urban design to soften the often visually chaotic built character of towns and cities.

It should be recognised that some trees are of high value due to their species, age, history, and overall contribution to the landscape both as individuals and a collection, while other trees are of low value and can be removed and replaced as required. The key to ensuring amenity trees remain an asset is to apply consistency in methods of evaluation and decision making on issues related to all trees within a given landscape.

While in order to avoid significant degradation of urban tree cover it is necessary to maintain trees across a range of age classes. However, while it is necessary to maintain the quality of existing tree cover, it should be recognised that trees are not everlasting permanent features.

3.0 TREE SPECIFICS

Species: *Agonis flexuosa*
Common name: Willow myrtle
Location: Adjacent 51 Brougham street Huatoki embankment, council owned land.
Height: est 13.0m
Spread: est 12.0m
Health: Good
Form: Moderate
Structure: Moderate
Coordinates: Lat 39°03'31.46"S / Lon 174°04'24.94"

4.0 DISTRICT PLAN OVERLAY RULES - NOTABLE TREES

4.1 OVERLAY 43 - ERECTION of STRUCTURES

OL 43.1 Whether the ERECTION of the STRUCTURE is likely to damage the NOTABLE TREE or endanger its health and stability.

***Above Ground*:** According to supplied draft architectural concept plans (BOON), the proposed new building will impact on the notable trees above ground. According to the design, the building will be constructed within the western-side drip-line. The height of the structure will require modification of the tree in the form of branch removal and reduction on the west side to allow construction. Once established the proposed building is not expected to negatively impact on the structural stability of the trees upper canopy and scaffolds.

***Below Ground*:** The proposed development necessitates the excavation of foundation footings to a depth of approximately 2.0 meters. These excavations will cause significant root damage that will impact on both the health and stability of the tree. This will certainly result in health decline and structural instability likely resulting in complete root-ball failure.

Exploratory excavation findings: An exploratory excavation on 7th September 20919 using a 5t rubber tracked digger and hand tools was carried out to a depth of 1.0m and approximately 10.0m in length. The excavation focused on the area within the car park above the root flare on the west side of the tree stem. A large mass of feeder roots were observed immediately below the gravel basecourse within the upper soil horizons. At approximate depth of 1.0m, larger roots (>50mm ⌀) were exposed. The larger roots are considered 'cable' anchors that stabilise trees growing on embankments. Should these roots be severed, there is higher likelihood of total tree failure due to root-plate instability. The excavation depth did not surpass 1.0m for risk of unnecessary root damage, it is expected many more larger diameter roots are present below the depth of 1.0m.

OL 43.2 Any alternative methods and locations available to the APPLICANT for carrying out the works.

The footprint of the concept design uses the entire available space within the site. To be certain of mitigating any detrimental structural, stability and health impacts to the tree due to construction, the footprint of excavation would need to be an estimated minimum of 8.0m from the base of the tree. Undoubtedly there are numerous building design alternatives that would enable the trees continued health & stability, however any alternative methods and locations would significantly lessen the potential of the site.

OL 43.3 The extent to which the NOTABLE TREE contributes to the amenity of the neighbourhood.

This notable tree in its current site contributes greatly to the community and CBD aesthetics. The tree softens and screens an otherwise unsightly building and surrounds particularly when viewed from the west. The prominence of the tree has excellent visual amenity from the key approaches of upper Brougham and Powderham Streets. Currently without building development, should the tree be removed the aesthetic contribution would be greatly noticed and missed. However, several self-seeded agonis will continue to provide vegetation screening of a lesser degree.

***OL 43.4 The effect of the ERECTION of the STRUCTURE on the visibility of the NOTABLE TREE from a ROAD or public place*.**

The effect of the proposed new building will have on the visibility of the tree from a public place will be significant. The height and positioning of the proposed building will screen the tree from all the main approaches and visual corridors. The visible effects will be reduced to a small view shaft immediately to the south of the tree. This view shaft would be limited to pedestrians walking either side of Powderham Street towards the west (opposite direction of one-way system).

4.2 OVERLAY 44 – EXCAVATION and FILLING

OL 44.1 Whether the EXCAVATION is likely to damage any part of the NOTABLE TREE including its roots or endanger its health and stability.

The required excavations to a depth of 2.0m is certain to cause damage to tree roots. This damage will result in likely health decline and probable instability of the root structure. In addition to the 2.0m ground excavation, pile wells are required to be evenly spaced which rules out the option of positioning piles around any known roots. Any deep excavations are certain to cause both health decline and root-ball instability.

5.0 TREE REMOVAL

The removal of a high value tree should only be carried out after all other mitigating options have been explored in consultation with other arboricultural expertise. Many high value amenity trees are removed from the landscape unnecessarily when remedial arboricultural intervention would have sufficed. Generally, trees should only be removed if pruning or other remedial work is not practically possible and/or for one of the following reasons:

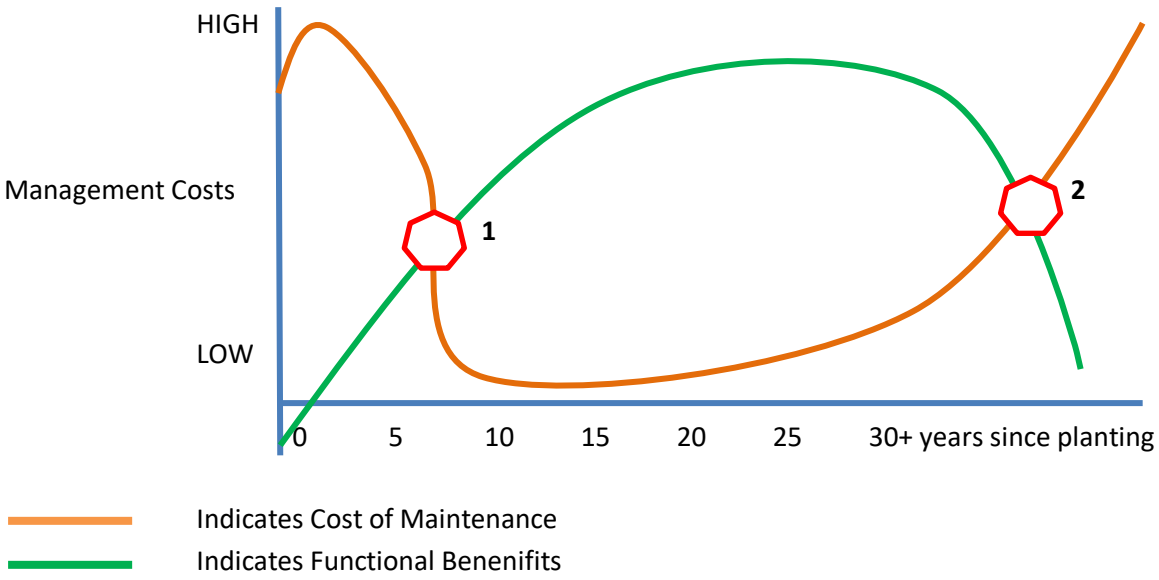
- Presents an immediate or potential danger to people or property or is shown to be a potentially severe health or safety risk.
- Is dead, dying, diseased, significantly decayed or disfigured with no realistic chance of recovery.
- Is causing uncontrollable structural damage to property and or services and remedial work to prevent further damage is impractical or of greater value than the tree.
- Is encroaching into the carriageway in such a manner that visibility is reduced or clearly causing a significant hazard and remedial work cannot mitigate the hazard.
- Is inhibiting the proper management or maintenance, or suppression of other trees of greater value.
- Is deemed to be of low amenity value, is poorly sited and/or requires unduly high levels of maintenance.
- Is unsustainable for the site due to its long-term potential to cause problems or the inappropriateness of the species.
- Is recognised as a species of high weed dispersion potential.

Rationalising the removal of low value high maintenance trees and redirecting funding to develop high value low maintenance plantings should be a priority for tree asset managers.

6.0 TREE ASSET MANAGEMENT

Establishing amenity trees within urban environments requires a significant level of intensive maintenance throughout the early phase of the trees life cycle. Management and maintenance costs are necessarily high during the initial stages, but progressively reduce over time. The probability of ongoing management, and associated costs must be forecasted throughout development to maturity. The lifespan of a tree is continuously subjected to both planned and unplanned works, whether by pruning, damage or other intervention.

The relationship between functional (aesthetic) benefits and management costs is shown in the following table (indicative only):



Area 1: is the point where the tree becomes an asset as the functional (aesthetic) benefit becomes greater than the cost of management.

Area 2: is the point where the tree is no longer sustainable and the cost of management exceeds the functional benefit.

For higher level tree asset management, the asset manager must be able to identify the point of transition when the functional benefits derived from the tree are reduced, and when maintenance costs outweigh retaining the tree. Due to the biodynamic nature of trees, this transition may take many years of slow decline, or can be instantaneous e.g. by means of storm damage or sudden realisation.

7.0 CONSIDERATIONS

Agonis flexuosa are generally not considered a long-lived tree. The NPDC District Plan Notable Trees Report has rated the Life Expectancy of this tree (DP Item 97) the lowest rating of 1, providing consistency to its known longevity. Across Powderham Street growing on the fringe of Sir Victor Davies Park is a similar Agonis flexuosa of comparative age and size, this senescent tree has numerous weakened decay pockets with loss of vigour and vitality. It is difficult to estimate the lifespan of any given tree and this agonis is no different. Given the trees age and its known inherent growth and development specifics coupled with observations of other locality agonis, best estimate of useful future lifespan would be 20 years.

The design concept of the new building incorporates numerous new and environmentally friendly construction materials and techniques into a design that is aesthetically pleasing. Given the limited beneficial life of the protected agonis, the aesthetic design of the building may well neutralize the loss of the tree. Should the proposed building be built, and the tree retained, the tree will no longer contribute the desired amenity effects for which it was originally protected, it is instead envisioned the building design would enhance the immediate locality.

Growing adjacent the protected Agonis within the Huatoki embankment are two uncommon kentia palms (*Howea forsteriana*). These palms are currently hidden and suppressed within the canopy of the agonis. There is great potential for enhancing this landscape and integrating the existing palms as botanical features. However, should the landscape design be such that the kentia palms are inhibiting landscape development, and should the landscape design's holistic value be greater than the amenity value offered by the kentia palms consideration should be given to their relocation. The species of palm is known to have a high transplant success rate. However, should this option be considered, it is advisable to engage the expertise of a palm specialist.

Should development occur on the site and the tree is retained and knowing the tree is not long-lived, consideration should be given to understanding the root decay process within ground embankments. Should this occur, there is possibility of the embankment being undermined and soil subsidence as the root system decays.

After meeting with geotechnical expertise and having a better understanding of the geotech requirements I can confirm that the foundation piles set in a gridline will likely affect the tree roots. The close proximity of the piles to the base of the tree and the gridline pattern of piles, it is likely that pile holes will damage large anchoring roots resulting in heightened chance of tree failure and possible health decline due to root damage.

It will be at councils discretion, but knowing the limited life of the agonis I believe removal of the tree is a viable option given limited useful life of the tree, the long term development and greenspace enhancement potential of the site.

My findings are the tree will no longer be considered a stable & sustainable asset if retained as a landscape feature when assessed against the provided geotech information, the design concept and with the known root structure (exploratory excavation).

APPENDIX 1. AREIAL OVERLAY



Aerial Image. The aerial image above depicts the location of the protected Agonis (within red circle) and the proposed development site on the immediate left (west-side). The tree is a prominent feature when approaching the Brougham Street intersection from the west, and from the south along Brougham Street.

APPENDIX 2. SUPPORTING IMAGES



Image 1. The protected agonis as seen when approaching from Powderham St. The main section of the protected agonis is highlighted within the red circle, the vegetation to right is predominately self-seeded agonis with the parent tree likely being the protected agonis.

ARBORICULTURAL ASSESSMENT



Image 2 (left). The base of the tree growing out of the embankment is larger than normal. It is the size of the lower stems and the trees prominence that merit the tree to be a Category 2 protected item.

Image 3 (right). The rooting structure of the tree extends into the bank with numerous small feeder roots growing up towards the carpark surface. The weight loading of the tree away from the carpark, is expected to be counteracted by anchoring roots also extending below the carpark at a deeper level.





Image 4 (left). Growing below the agonis on the embankment are two kentia palms, these palms are not considered common and should be preserved within their current location. The palms may be considered an extension of the wider Huatoki Plaza and associate with the Puke Ariki greenspace theme.



Image 5 (right). This image depicts the protected agonis and adjacent vegetation when viewed across Powderham Street, (looking north).

ARBORICULTURAL ASSESSMENT



Image 6 (left). The exploratory excavation confirmed the presence of both small feeder roots and larger anchoring roots. Most feeder roots were found within the top 30cm of soil below the gravel basecourse. Larger anchor roots were encountered at about a depth of 1.0m. To minimise root disturbance the excavation did not proceed beyond this depth .



Image 7 (right). The exploratory excavation found most roots were radiating from the base of the tree within the central part of the excavation trench. The larger and deeper roots were found either side of the tree.

APPENDIX 3. NPDC NOTABLE TREES REPORT - DP ITEM 97

Te Kaunihera-ā-Rohe o Ngāmotu
NEW PLYMOUTH DISTRICT COUNCIL
newplymouthnz.com

Notable Trees Report

DP Item:	97
DP Map No:	C24b
Name (Common/Botanical):	WILLOW MYRTLE AGONIS FLEXUOSA
Site Address:	33 Devon Street West NEW PLYMOUTH 4310
Legal Description:	LOT 2 DP 15492

Species Size:	Medium	Category:	2
Single Or Group?:	Single	Number of Trees:	1

Q1. Is the tree a good specimen?

Height: 13.0
Width: 12.0
Girth: 0
Charateristics: Multi-stemmed.

Life Expectancy:	1
Health/Vigour:	4
Form/Shape:	2
Structural Integrity:	2
Stature:	4

Specimen comments: Stability in ground may lessen as tree grows. Usual inclusions in stem unions.

Subtotal: 13

Q2. Does the tree have visual/landscape value?

Prominence of Position:	4
Presence of Other Trees:	4
Role in Location:	3

Visual comments: Very interesting growing situation at top of low rock wall. Leans over Huatoki stream.

Subtotal: 22

Q3. Does the tree have heritage value?

Historic:	1
Cultural:	1
Approximate Age of Tree:	2

Heritage comments:

Subtotal: 8

Disclaimer: *New Plymouth District Council does not warrant the accuracy or completeness in this report. Please note that the information in this report may be updated subsequent to the date it was printed.*

Report printed on: 23/09/2019 Page 1 of 3

Te Kaunihera-ā-Rohe o Ngāmotu
NEW PLYMOUTH DISTRICT COUNCIL
newplymouthnz.com

Notable Trees Report

Q4. Does the tree have botanical/rarity value?

Occurrence of the Species:	2
Botanical Value:	2
Botanical comments:	

Subtotal: 12

Q5. Is the tree manageable in its location?

Relation to Other Structures:	2
Manageability comments: Possible instability.	

Subtotal: 2

Q6. Is the tree part of a group?

Ecological/Climatic Contribution:	0
Stand/Landscape Value:	0
Contribution to Group:	0
Group comments:	

Subtotal: 0

Total Score: 57

Notes:

Additional Notes:

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Report printed on: 23/09/2019

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ARBORICULTURAL ASSESSMENT

Te Kaunihera-ā-Rohe o Ngāmotu
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Notable Trees Report







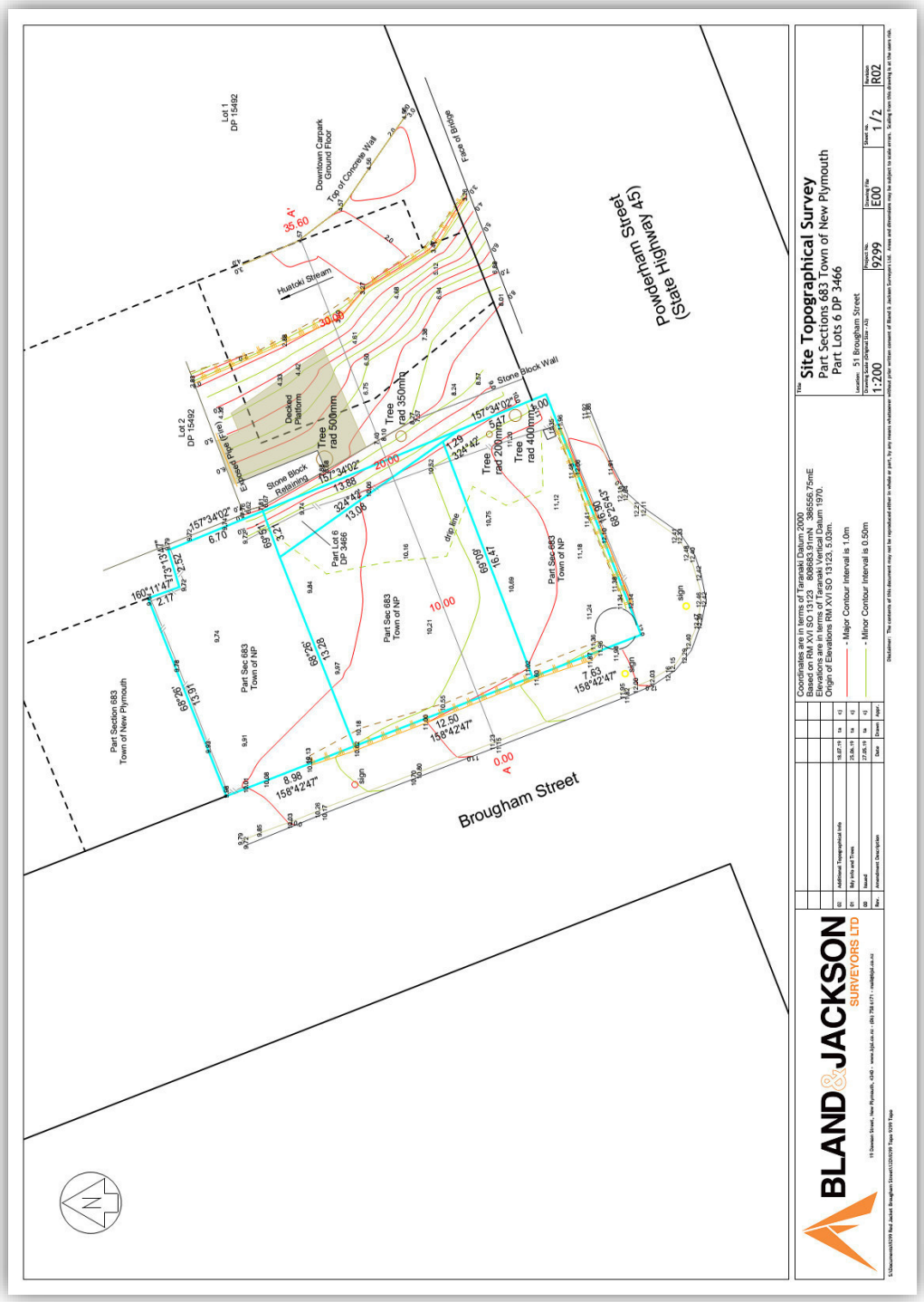


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APPENDIX 4. SITE TOPOGRAPHICAL SURVEY



Arborists Disclosure Statement

ARBORICULTURAL ASSESSMENT

Arborists are tree specialists who use their education, knowledge, training and experience to examine trees, recommend measures to enhance the appearance and the health of trees of trees and attempt to reduce the risk of living near trees. Clients may choose to accept or disregard the recommendations of the arborist, or to seek additional advice.

Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like any medicine cannot be guaranteed.

Treatment, pruning and removal of trees may involve considerations beyond the scope of the arborist's services such as property boundaries, property ownership, site lines, disputes between neighbours and other issues. Arborists cannot take such considerations into account unless complete and accurate information is disclosed to the arborist. The arborist should then be expected to reasonably rely upon the completeness and accuracy of the information provided.

Trees can be managed, but they cannot be controlled. To live near trees is to accept some degree of risk. The only way to eliminate all the risk associated with trees, is to eliminate all trees. Trees that are regularly inspected by competent, knowledgeable arborists, and maintained in accordance with modern arboricultural practices are far less likely to experience unexpected failures than unmanaged trees.

Assumptions and Limiting Conditions

1. Any legal description provided to the consultant is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character, nor is any opinion rendered as to the quality of any title. Any and all existing liens and encumbrances have been disregarded and any and all property is appraised/evaluated as though free and clear, under responsible ownership, and competent management.

2. It is assumed that any property is not in violation of any applicable codes, ordinances, statutes or other governmental regulations.

3. Care has been taken to obtain all information from reliable sources. All data has been verified as much as practically possible; however, the consultant can neither guarantee nor be responsible for the information provided by others.

4. The consultant shall not be required to give testimony or attend court by reason of this report unless subsequent contractual arrangements are made.

5. Loss or alteration of any part of this report invalidates the entire report.

6. Possession of this report, or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the expresses written consent of the consultant.

7. Neither all or any part of the contents of this report, nor copy thereof, shall be used for the purpose by anyone but the person whom it is addressed, without the prior written consent of the consultant; nor should it be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales to the media, without the prior written consent of the consultant.: particularly as to value conclusions, identity of the consultant, or any reference to any professional society or institute, or to any initialled designation conferred upon the consultant stated in his qualifications.

8. This report and any values expressed herein represent the opinion of the consultant and the consultant's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported

9. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessary to scale and should not be construed as engineering or architectural reports or surveys.

10. Unless otherwise expressed: 1) information contained in this report covers only those items that were examined and reflect the condition of those items at the time of inspection; and 2) the inspection is limited to visual examination of accessible components without dissection, excavation, or probing unless otherwise noted. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in the future.

APPENDIX F ARCHAEOLOGICAL ASSESSMENT

Brougham Street Development

Project Area: 51 Brougham St, New Plymouth

Proposed Works: Commercial development.

Commissioned by: K.D. Holdings Limited.

Authors: Ivan Bruce and Hamish Crimp. November 2019.



Current car parking area 51 - 45 Brougham St, image taken looking south towards Powderham St (Image: Ivan Bruce, 2019).

ARCHAEOLOGICAL RESOURCE MANAGEMENT
33 Scott Street/ Moturoa/ NEW PLYMOUTH
(0274) 888215
itmustbesointeresting@xtra.co.nz

Executive Summary

K.D. Holdings Ltd are proposing to construct a commercial premises at 51 - 45 Brougham St, New Plymouth, an undeveloped gravelled section currently used for car parking. This assessment was undertaken in order to advise K.D. Holdings Ltd whether these works will affect archaeological sites and to instigate any Heritage New Zealand Pouhere Taonga (HNZPT) authority process required in this case. Despite the history of colonial domestic and mercantile occupation at this site, significant site modification has occurred on this property since 1906 and the likelihood of recovering in-situ archaeological evidence on the property has been assessed as low. No archaeological site has been recorded on the property to date.

Recommendations are made to make an application for a general archaeological authority to HNZPT should the need arise to modify a pre 1900 railway embankment on the neighbouring property to the east as a consequence of this development.



Figure 1: Concept drawing of the proposed building.

1. Introduction

1.1 This archaeological assessment was undertaken in order to advise K.D. Holdings Ltd on the archaeological and historic record of the property, and to advise of any likelihood that the development of this project will affect archaeological sites.

1.2 The assessment is based on desktop research and pedestrian survey.

1.3 Affected property appellations are as follows:

- PT Section 683 Town of New Plymouth
- PT Lot 6 DP 3466
- PT Lot 6 DP 3466

1.4 The project will require earthworks for the installation of piles for the proposed section; the provision of amenities; and potentially the construction of retaining walls and the removal of a large tree.

1.5 The archaeological assessment was conducted specifically to identify surface archaeological evidence.

1.6 Waahi taonga and sites of cultural significance to Maori are outside the scope of this assessment.

1.7 The pedestrian archaeological assessment was undertaken by Ivan Bruce and a review of the historic land use of the property was completed by Hamish Crimp, between September and November 2019 . This report outlines the results.

2. Statutory requirements

2.1 There are two pieces of legislation in New Zealand that control work affecting archaeological sites. These are the *Heritage New Zealand Pouhere Taonga* Act 2014 (HNZPTA) and the *Resource Management Act* 1991 (RMA)

2.2 HNZPT administers the HNZPTA. It contains a consent (authority) process for any work affecting archaeological sites, where an archaeological site is defined as:

> Any place in New Zealand, including any building or structure (or part of a building or structure), that
>
> a. Was associated with human activity that occurred before 1900 or is the site of the wreck of any vessel where the wreck occurred before 1900; and
>
> b. Provides or may provide, through investigation by archaeological methods,

evidence relating to the history of New Zealand; and

c. Includes a site for which a declaration is made under section 43(1)

2.3 Any person who intends carrying out work that may modify or destroy an archaeological site, must first obtain an authority from HNZPT. The process applies to sites on land of all tenure including public, private and designated land. The HNZPTA contains penalties for unauthorised site damage or destruction.

2.4 The archaeological authority process applies to all archaeological sites, regardless of whether:

- The site is recorded in the New Zealand Archaeological Association Site Recording Scheme or included in the Heritage New Zealand List.
- The site only becomes known about as a result of ground disturbance, and/ or
- The activity is permitted under a district or regional plan, or a resource or building consent has been granted

2.5 The heritage places assessed in this report are prehistoric and historic archaeological sites as defined under the HNZPTA.

2.6 The protection of archaeological sites and waahi taonga are specifically provided for within the operative New Plymouth District Plan:

"Rules OL81 to OL87 relate to waahi taonga and archaeological sites. The rules state that a land use or subdivision resource consent may be required from the council before carrying out the following activities on, or in close proximity to, a waahi tapu or archaeological site listed in the District Plan.

2.7 The proposed NPDC district plan identifies also heritage buildings and items; heritage character areas; and archaeological sites within the proposed plan. These are contained within the Historic Heritage chapter of the plan. This plan contains objectives, policies and rules to protect and manage historic heritage and provisions to manage activities that may impact on historic heritage values. All rules relating to historic heritage have had legal effect since the plan was notified on 23 September 2019.

3. Physical environment and setting

3.1 The development will take place on an area of gravelled vacant land. The area has been cut down and levelled at some time, possibly following the removal of the last commercial building on the property in 1984.

3.2 The property is situated on the left bank of the Huatoki Stream land naturally slopes steeply downwards from Brougham St to the Huatoki, however no unmodified original ground surface exists today. The current level parking area has been created by cutting the down the original ground surface up to 1m on the Brougham and Powderham St boundaries and retaining the property and importing up to 1.5m fill along eastern boundary. This recent fill sits on top of a stone railway embankment (built between 1873-1875), situated on DP 15432, the neighbouring property to the east.

4. Resources and limitations

4.1 This assessment includes a review of the NZAA site recording scheme (Archsite 2019); archival material held at Puke Ariki; historic literature; and a pedestrian survey of project area.

4.2 The assessment is based on background research and non invasive field survey. No subsurface excavation or test excavations have been undertaken on the project area to date.

4.3 Due to previous earthworks and the gravelled surface, the project presented generally poor conditions for the identification of surface archaeological features.

5. Project outline

5.1. This project involves the construction of a four storied commercial building, covering the entirety of the ground space contained with the property titles.

5.2 Attached plans show that the property will be constructed on piles. However it can be expected that surface disturbance to the project area will be more widespread and the ground surface will likely be modified further by mechanical excavation for the purposes of levelling the existing ground surface and the installation of amenities.

5.3 A large tree (Agonis Flexuosa) is situated on the eastern boundary, that may require removal. The main supportive piles for this building will be required to be driven some 8m+ deep to reach suitably firm ground. Pile locations are not yet confirmed but will be located around the perimeter of the building and underneath it, making it unlikely that piles can be

installed to avoid damage to this tree's roots. Should the tree require removal earthworks may be required to remove the in ground stump and root system. These same earthworks may require either full or partial demolition of the 1875 era railway embankment.

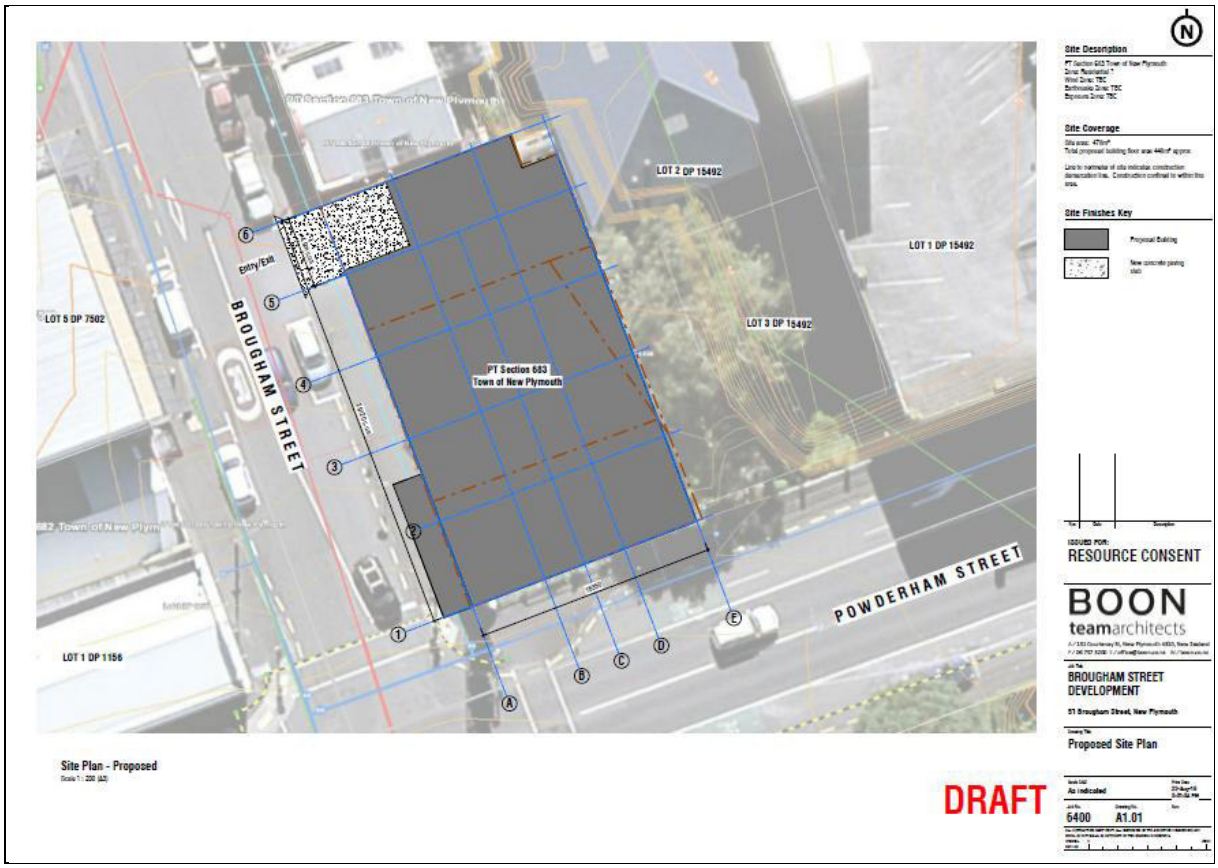


Figure 2: Footprint of the proposed building.

6. Māori Occupation

6.1 The land at the south-eastern corner of Brougham and Powderham Streets appears to have been utilised by Māori prior to the establishment of the settlement of New Plymouth in 1841. Evidence for this use was uncovered by early occupier Robert Hughes, who, it was reported some years later, often came upon "Maori pits", whilst working in his garden.[1] Although no specific evidence of Māori occupation has otherwise been recorded at this site, the Huatoki basin was in pre-European times (since at least the 17th Century), a densely populated landscape boasting several fortified pā, notably Pukaka[2], Puke Ariki[3] and Waimanu[4], occupied by hapu of the Te Atiawa tribe.

[1] "Town Improvements: Messrs Macky, Logan, Caldwell and Co." *Taranaki Herald*, 27 June 1907, p.7.
[2] Pukaka pā was located atop the present site of Marsland Hill, its top levelled in 1855 to enable construction of Military Barracks

6.2 By the early decades of the nineteenth century, it is said that "all the lands extending from [the future site of] St Mary's Church to the Manga-o-tuku stream, and on the north side of the Huatoki stream, about where the Kawau pa[5] stood in the early forties was all cultivated in kumara, taro, and small patches of potatoes".[6] This cultivated area would likely incorporate the site of Town Section 683 and may account for the presence of the storage pits discovered by Hughes. The pre-European pā within central New Plymouth were last occupied during early-1832, when invading Waikato taua forced their occupants to retreat to the relative safety of Otaka pā at Ngāmotu, with many Te Atiawa refugees later migrating south to the Wellington region.[7]

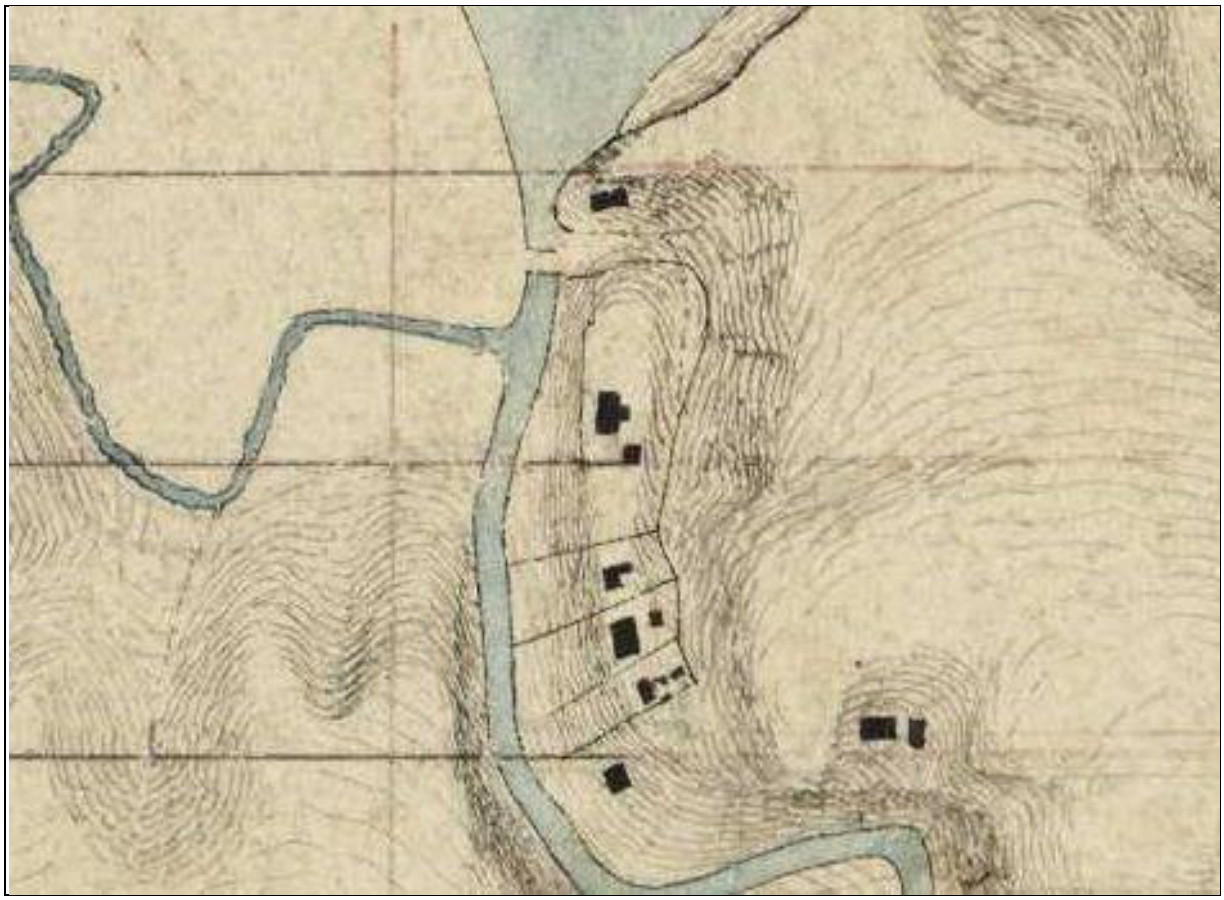


Figure 3: Detail showing structures erected on the eastern bank of the Huatoki Stream soon after European settlement commenced (likely including company stores, cottages etc.); no structures or earthworks are indicated on the later site of Town Section 683 at this time.

[3] Hill (since levelled) incorporating present site of Puke Ariki Museum & Library
[4] Near site of present 69-73 Gill Street (since levelled)
[5] Located on eastern bank of Huatoki estuary (now reclaimed), approximate site of Centre City car park
[6] Smith, *History and Traditions of the Maoris of the West Coast North Island of New Zealand Prior to 1840*, p.482.
[7] ibid.

(Topographic Map by F. A. Carrington. "Rough Sketch of Ground at New Plymouth". 1841. Alexander Turnbull Library).

7. Early European Occupation

7.1 Organised European settlement in Taranaki was co-ordinated by the Plymouth Company in 1839-40, with the Plymouth Company purchasing land from the New Zealand Company for the settlement of immigrants from Devon and Cornwall.[8] The site of the Town of New Plymouth was chosen and laid out by Chief Surveyor Frederic Alonzo Carrington in February 1841, with settler ships arriving from March 1841 onwards.[9] At the time of Carrington and his survey party's arrival, the area now encompassing central New Plymouth was devoid of permanent inhabitants, although a small number of Māori and whalers were living nearby at Otaka pā.[10]

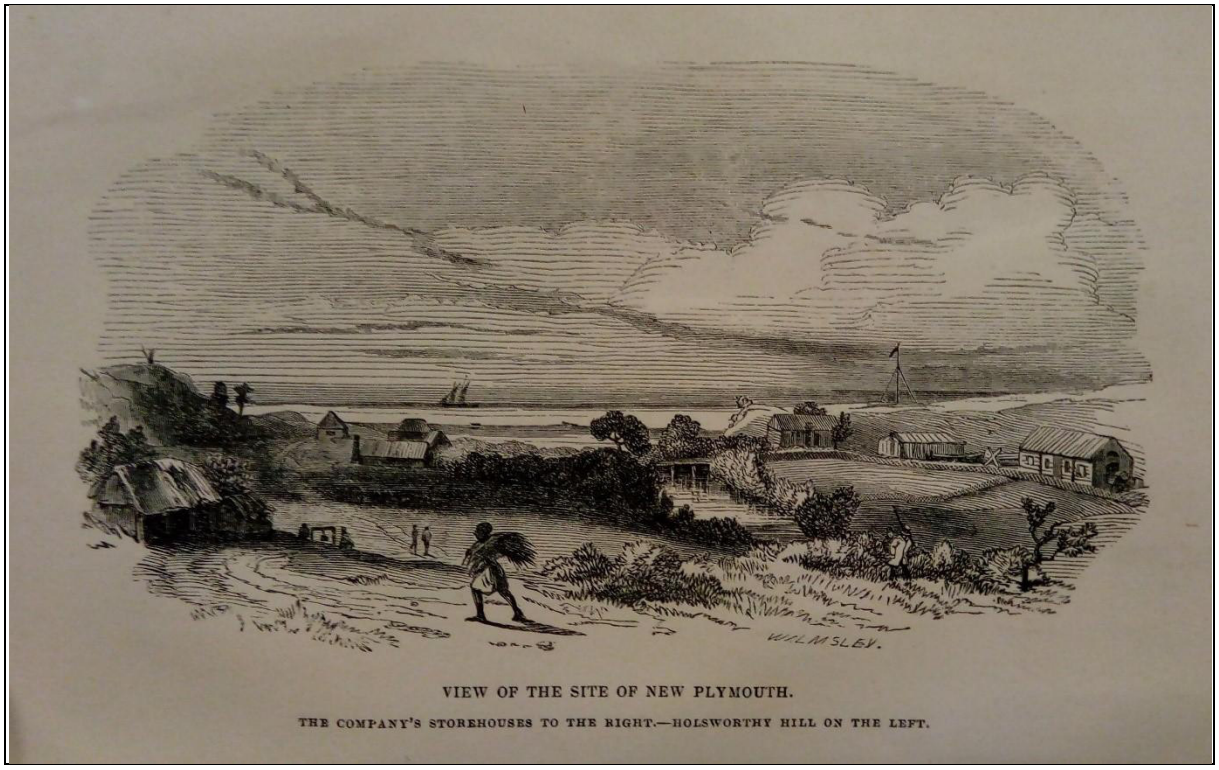


Figure 4: 1841 view of New Plymouth from about the intersection of Brougham and Powderham Streets, Huatoki Stream and Company stores etc on right, with Mt Eliot/Holsworthy Hill/Puke Ariki pa at left. Later site of Town Section 683 roughly at left in foreground. (Woodcut engraving by Walmsley. View of the Settlement of New Plymouth, West England Board of the New Zealand Company, Latest Information from the Settlement

[8] Tullett, *The Industrious Heart: A History of New Plymouth*, pp.8-10
[9] ibid.
[10] ibid.

of New Plymouth on the Coast of Taranake, New Zealand. Comprising Letters from Settlers there, with an Account of its General Products, Agricultural and Commercial Capabilities &c, frontispiece)

7.2 Town Section 683, of which this property is part, was one of the original New Plymouth Town Sections laid out by surveyor Frederick Carrington in 1841. A sketch map of the New Plymouth area produced by surveyor Carrington during 1841, and indicating buildings established since arrival, records a number of structures located on the eastern bank of the Huatoki, immediately opposite this site; however, no structures are shown as being present on the site of Town Section 683.[11] A list of town section allocations dated 3 September 1842 notes that Town Section 683 was originally allocated to "Company" (Plymouth Company).[12]

7.3 During 1850, the northern portion of Town Section 683 was purchased by Mr Robert Hughes from a Mr Johnston, who had seemingly acquired the property sometime previously.[13] The southern portion of Town Section 683 appears to have been acquired by Dr. St George during the 1840s or 1850s. From about 1856, Robert Hughes, in addition to owning the northern portion of Town Section 683, leased the southern portion from St. George.[14] Hughes soon attempted to purchase the southern portion from St. George, however the offer was declined.[15] Later, Hughes attempted to sell his half of Town Section 683 to St. George, however, this offer was also declined.[16] In a final attempt to settle the matter, Hughes suggested that St. George and himself should toss a coin to decide who should sell to who; this was, like the previous offers, also rejected by St. George.[17]

7.4 At some point during the 1850s, Hughes had a house constructed on each half of Town Section 683, with a small shop/workshop between. It seems the first building was constructed by Hughes soon after acquiring the northern portion of Town Section 683 in 1850, with Hughes operating a boot store from the building as early as 1854.[18] All three buildings were in existence by 1859 and can be distinguished in the background of two photographs taken that year.[19] It is reported that the southernmost house, nearest the intersection of Brougham and Powderham Streets, was occupied by the military during the

[11] Carrington, *Rough Sketch of Ground at New Plymouth*.
[12] Reference to the Sections Comprising the Town of New Plymouth, New Zealand, 1842, Puke Ariki, ARC2001-365/5
[13] "Town Improvements: Messrs Macky, Logan, Caldwell and Co." *Taranaki Herald*, 27 June 1907, p.7.
[14] ibid.
[15] ibid.
[16] ibid.
[17] ibid.
[18] *Taranaki Herald*, 22 February 1854, p.1.
[19] Webster, "View of New Plymouth from Liardet Street"; Webster, "Part of South Side Devon Street, N. P"

Taranaki Wars of the 1860s.[20] It is unclear when Hughes lease of Rawson's property ceased, however, this was likely before 1867, when the southern portion of Town Section 683 (including one of the houses/shops constructed by Hughes), was purchased by surgeon Thomas Edward Rawson.[21]

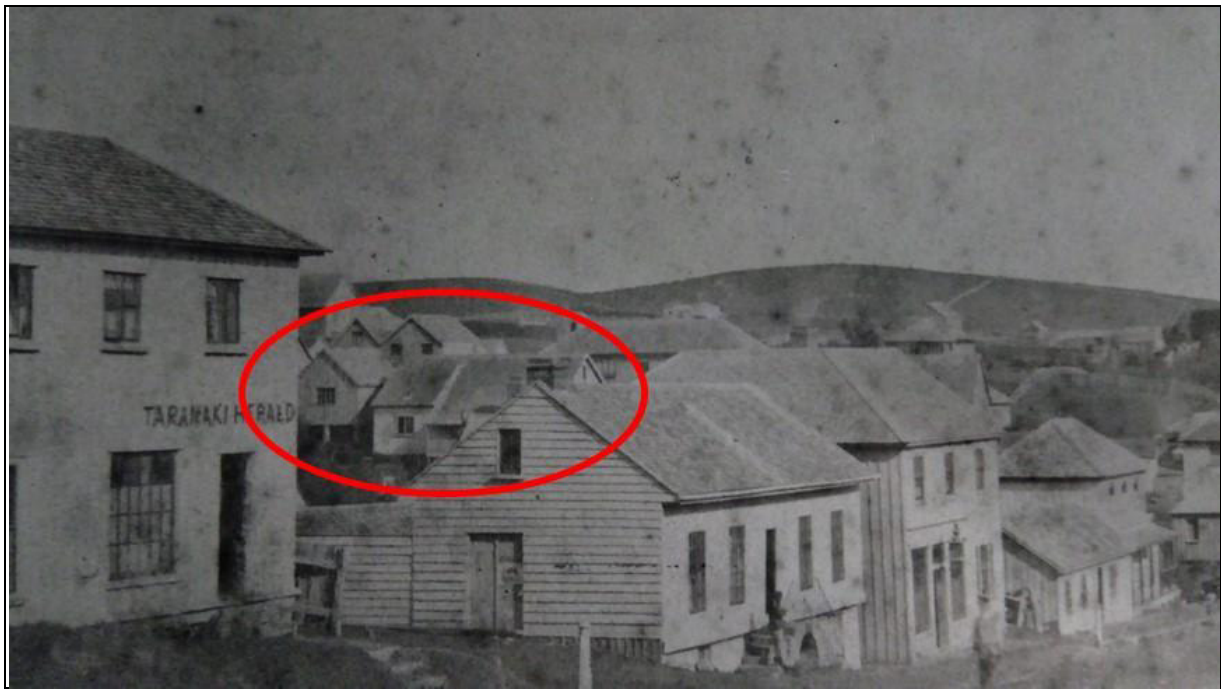


Figure 5. Detail showing rear of Robert Hughes Brougham Street buildings from Devon Street. (Photograph by Hartley Webster. "View of New Plymouth from Liardet Street". 1859. Puke Ariki).

7.5 From the 1870s onwards, ownership of the various portions of Town Section 683 becomes increasingly complex, with each half subdivided several times throughout the ensuing decades. The first subdivision occurred in 1871, when the northern portion of the southern half of Town Section 683 (containing the southernmost house/shop), was conveyed from Thomas Rawson to one of his sons, chemist Frederic George Rawson.[22] Following the sale, Frederic Rawson relocated his chemist store from Currie Street to Brougham Street, with later advertisements noting Rawson practised as both a chemist and dentist.[23]

7.6 Robert Hughes continued to operate his boot store, by now known as "The Old House", from the larger shop on the northern portion of Town Section 683.[24] In January 1873, Hughes announced he was retiring from the boot trade, with the property advertised

[20] "Town Improvements: Messrs Macky, Logan, Caldwell and Co." *Taranaki Herald*, 27 June 1907, p.7.
[21] Taranaki Land Deeds Indexes, c.1858 - c.1928, Series 23516, Archives New Zealand
[22] Taranaki Land Deeds Indexes, c.1858 - c.1928, Series 23516, Archives New Zealand
[23] "Removal." *Taranaki Herald*, 24 June 1871, p.3.; "Dentistry." *Taranaki Herald*, 2 March 1872, p.3.
[24] "The Old House", *Taranaki Herald*, 2 December 1871, p.3.

for sale later that year.[25] The property didn't initially sell and it seems Robert Hughes continued to operate his boot shop from the building until relocating to new premises in July 1874.[26] Meanwhile, in March 1874, the southern part of the northern portion of Town Section 683 (containing the small shop/workshop), was conveyed from Robert Hughes, to his son, solicitor Robert Clinton Hughes.[27] It is unclear if R. C. Hughes ever occupied the smaller shop, as it seems he took over his father's former boot shop premises, which he later purchased in 1877, soon after the boot shop relocated to Devon Street.[28]

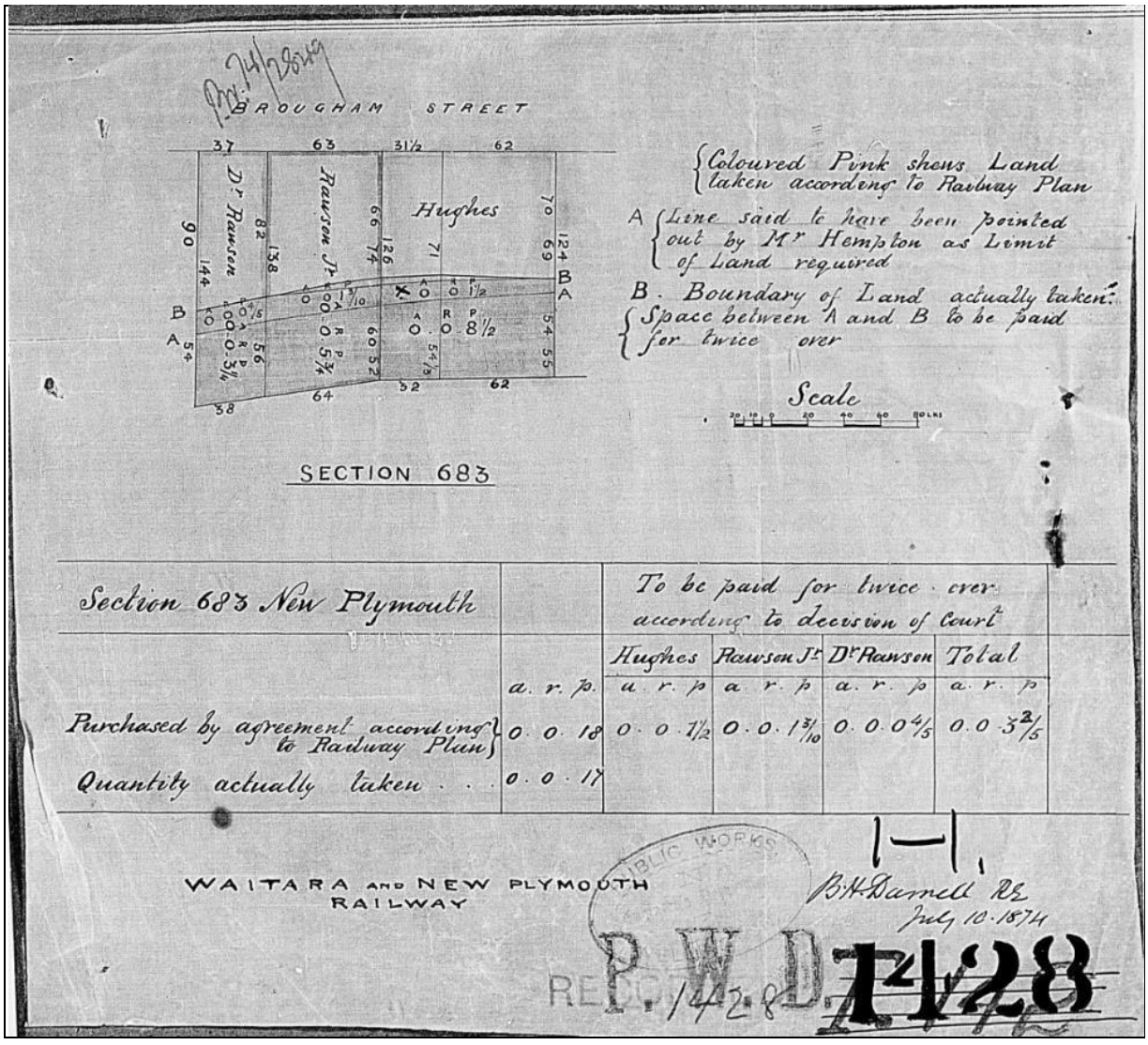


Figure 6: Public Works Department Plan showing parts of Town Section 683 taken for Waitara and New Plymouth Railway (Plan by B. H. Darnell. Darnell. "Waitara and New

[25] *Taranaki Herald*, 4 October 1873, p.1.
[26] *Taranaki Herald*, 15 July 1874, p.4.
[27] Taranaki Land Deeds Indexes, c.1858 - c.1928, Series 23516, Archives New Zealand
[28] ibid.

Plymouth Ryl [Railway], maps of Hughes and Rawson's premises". 1874. Archives New Zealand).

7.7 During May 1873, a proclamation was issued describing the lands to be taken to enable construction of Taranaki's first railway between New Plymouth and the northern river town of Waitara.[29] This proclamation noted that New Plymouth Town Section 683 would be one of the properties required for construction of the railway line.[30] Whilst it is unclear if the initial intention was to acquire the entire section, only the eastern portion of the section was ever taken for railway purposes.[31] It seems there was some dispute over the amount of compensation to be received for the land taken, with Robert Hughes taking a claim to the Compensation Court.[32]



Figure 7: Plan of the Town of New Plymouth with outline of extant buildings – detail showing three main buildings present on Town Section 683 during 1880. (T. K. Skinner. "Plan of New Plymouth in New Zealand". 1880. Puke Ariki).

[29] "Limits and Description of the Railway from Waitara to New Plymouth, Being a Portion of the Line from Waitara to Wanganui." *Taranaki Herald*, 10 May 1873, p.6.
[30] ibid.
[31] Taranaki Land Deeds Indexes, c.1858 - c.1928, Series 23516, Archives New Zealand
[32] "District Court", *Taranaki Herald*, 13 May 1874, p.2.

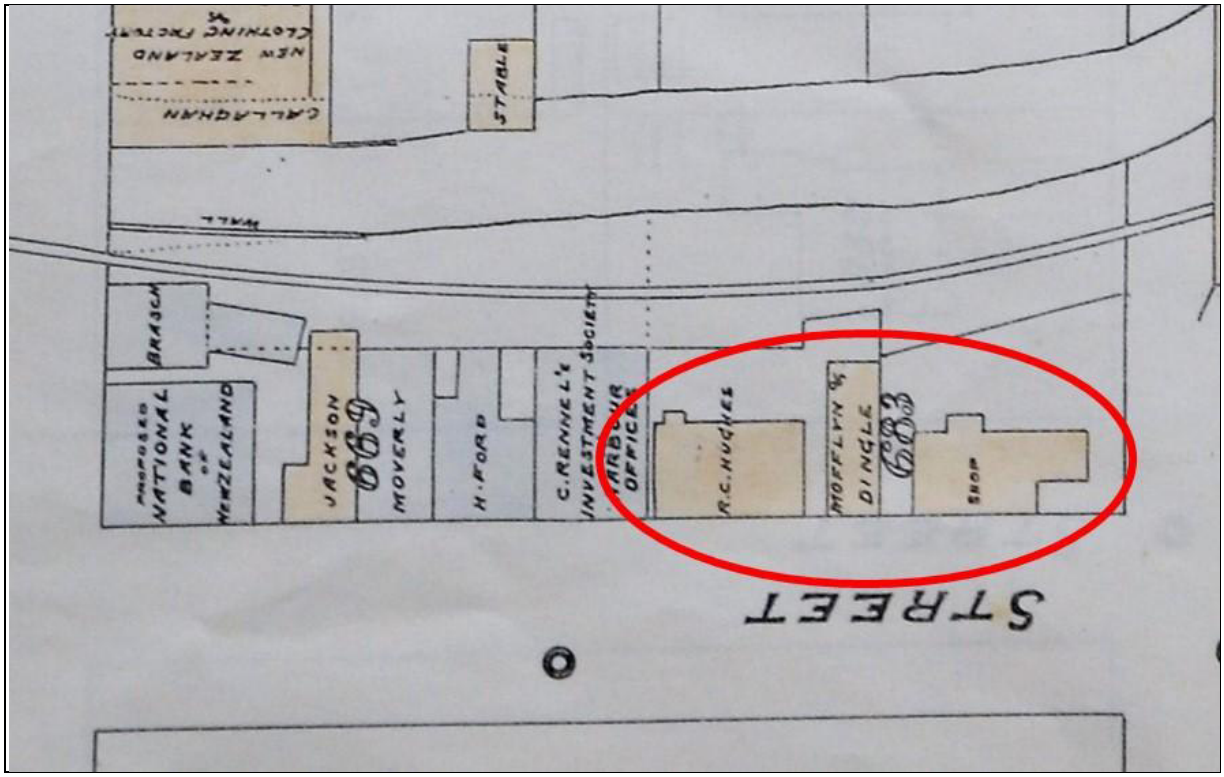


Figure 8: Plan of central New Plymouth with outline of extant buildings – detail showing three main buildings present on Town Section 683 during 1884. (Skinner & Sole. "Plans of the Centre Portion of New Plymouth". 1884. Puke Ariki).

7.8 In 1876, the remaining southern portion of the southern half of Town Section 683 was gifted to Frederic Rawson from his father Thomas.[33] In 1879, Rawson sold both his portions of Town Section 683 to local businessman William Courtney.[34] However, bankruptcy proceedings were initiated by a creditor of Courtney's during January 1880, with this property seemingly transferred to the trustees of his assigned estate as part of a deed of arrangement.[35] The property was later conveyed to solicitor Henry Robert Richmond during January 1881.[36] In September 1883, cabinetmaker Arthur Mofflin relocated his business to the small central shop owned by R. C. Hughes, later joining in partnership with Mr William Dingle during January 1884.[37]

7.9 In the early hours of May 19th, 1885, disaster struck central New Plymouth, a large fire, originating in Devon Street, spread to Currie Street, Currie Lane and Brougham Street, destroying or damaging 18 buildings.[38] Mofflin and Dingle's workshop caught fire and was

[33] Taranaki Land Deeds Indexes, c.1858 - c.1928, Series 23516, Archives New Zealand
[34] ibid.
[35] "In Bankruptcy", *Taranaki Herald*, 14 January 1880, p.3.
[36] Taranaki Land Deeds Indexes, c.1858 - c.1928, Series 23516, Archives New Zealand
[37] *Taranaki Herald*, 27 September 1883, p.3.; *Taranaki Herald*, 4 January 1884, p.3.
[38] "Disastrous Fire." *Taranaki Herald*, 19 May 1885, p.2.

pulled down to try and halt the spread of the inferno.[39] It also seems the southernmost building near the intersection with Powderham Street, which appears to have been occupied by Mofflin and Dingle as a shop, also caught fire, with the *Taranaki Herald* reporting that both Mofflin & Dingle's furniture shop and workshop had been destroyed.[40] Whilst the partnership of Mofflin & Dingle ceased two months later, during July 1885, Mofflin continued to operate the business as a sole proprietor.[41]



Figure 9: Brougham Street looking south with buildings on Town Section 683 at rear prior to 1885 fire. Unknown Photographer. "Brougham Street from Devon Street Corner". Circa December 1884. Puke Ariki.

7.10 It appears that the southernmost shop, then owned by Henry Richmond, was re-built shortly after the fire, with Mofflin advertising during late-July 1885 that he had re-opened his shop in Brougham Street following the completion of alterations to his business premises.[42]

7.11 The southernmost portion of Town Section 683 was surveyed for Henry Richmond in 1886, with DP132 clearly indicating the frontage of a building, occupied by Mr Mofflin, on the

[39] ibid.
[40] ibid.
[41] "Dissolution of Partnership", *Taranaki Herald*, 31 July 1885, p.3.
[42] *Taranaki Herald*, 29 July 1885, p.3.

property at this time.[43] Mofflin later acquired ownership of a portion of Town Section 683 on which his furniture factory and shop was located. He occupied the building until mid-1894, when he advertised it for let; from 1895 cabinetmaker Robert Hooker is noted as the occupier.[44]



Figure 10: Looking north down Brougham Street from Powderham Street corner before 1885 fire - three buildings on Town Section 683 at front on right. Unknown Photographer. "Upper Brougham Street". Photograph taken between mid-1884 and May 1885. Puke Ariki.

7.12 In 1895-96, Robert Clinton Hughes had new business premises constructed at the northern end of Town Section 683; these comprise the present building at 43 Brougham Street. To enable construction of the new offices, R. C. Hughes old premises, constructed in the 1850s and earlier occupied by his father's boot store, were demolished. The new building was designed by William Francis Brooking in the Italianate style and constructed by local firm Boon Bros.[45] 43 Brougham Street, along with its earlier neighbour, the former New Plymouth Investment and Loan Society building at 41 Brougham Street (1883-84), are listed

[43] DP 132, Land Information New Zealand (LINZ)
[44] Wises Post Office Directory, 1895
[45] Wagstaff, "Deficient Registration Report for a Historic Place: Brougham Street Offices (Former), New Plymouth (Record no. 888)".

as Category II with Heritage New Zealand[46]; Category A in the operative New Plymouth District Plan; and is a scheduled heritage building in the proposed district plan.

7.13 In 1906-07, all the buildings on Town Section 683 located south of R. C. Hughes Offices were demolished to make way for construction of a new two-storied warehouse for Macky, Logan & Caldwell.[47] Demolition of the buildings was welcomed by a *Taranaki Daily News* reporter, who described them as "almost an eyesore in the heart of town".[48] Macky, Logan & Caldwell occupied the building until the early-1960s, at which time it was taken over by Bing, Harris & Co.[49] On the 4th of March, 1983, the warehouse was destroyed by a large fire, and demolished the same day; at the time it was the premises of hardware firm Bennett and Sutton Limited.[50]

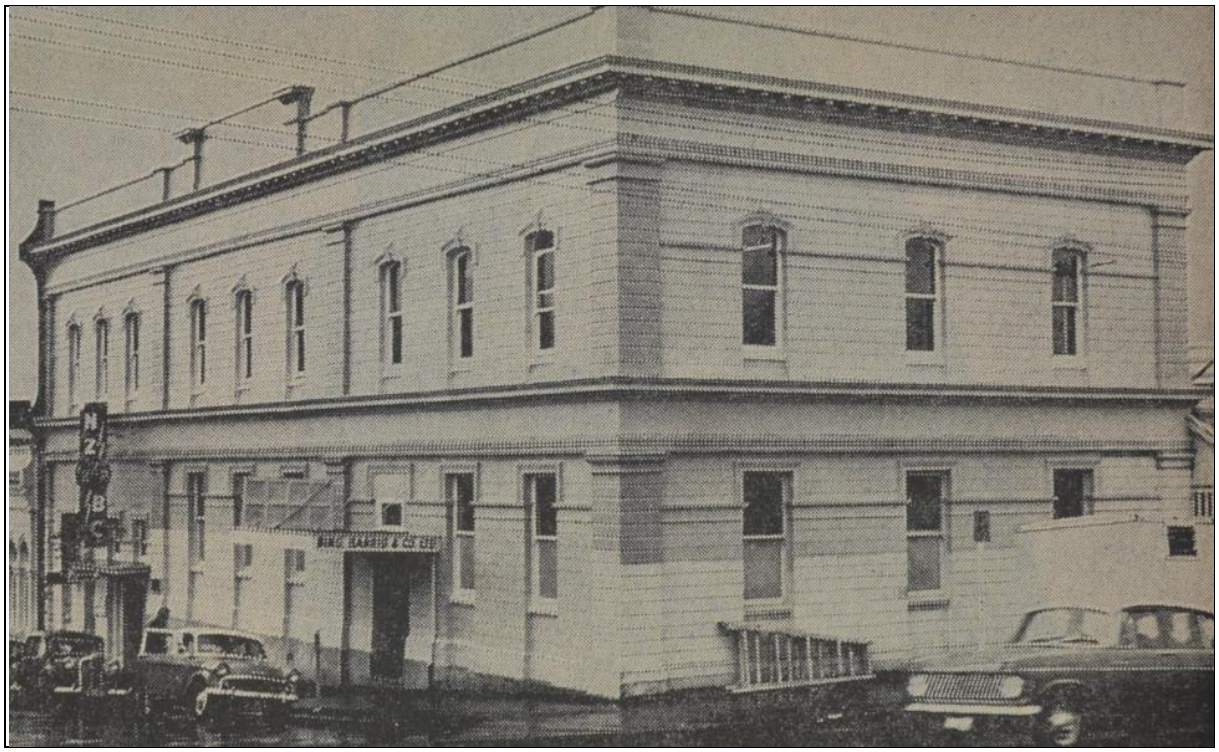


Figure 11: Macky, Logan & Caldwell building (Taranaki Herald 06/06/1964).

7.14 Following the fire it seems the section was levelled (and possibly lowered), with a Modulock show home erected on the property during 1984.[51] Following removal of the show home until the present time (2019), the section has been used as a private car park. In 2003, a sculpture called Halamoana, by artist Filipe Tohi, was erected near the Powderham

[46] ibid
[47] *Taranaki Herald*, 20 November 1906, p.4.
[48] *Taranaki Daily News*, 18 June 1907, p.2.
[49] *Taranaki Herald* on 06/06/1964, p.1.
[50] "Building Toppled After Marathon Fire Fight", *Taranaki Herald*, 4 March 1984, p.1.
[51] Wyatt, "Site of proposed car park, Currie Lane"

intersection; the sculpture was commissioned and paid for by New Plymouth architect, Terry Boon.[52]

8. Archaeological record

8.1 The NZAA site recording scheme currently contains no record of archaeological sites recorded on the project area.

8.2 No archaeological sites, sites of significance to Maori, or heritage structure or items are scheduled on either the operative or proposed New Plymouth District plans.

9. Survey results

9.1 The project area presents a heavily modified surface, consisting of a gravelled car park, sloping slightly to the north and east. There are no surface indications of the former historic structures that stood here.



Figure 12: Project area, photo taken looking north (Image: Ivan Bruce, 2019).

9.2 An inspection of the profile offered along the Powderham St exposed a section of up to 1.2m in depth, showing roading material overlying modified topsoil and "Taranaki ash"

[52] Gooch, "Macky, Logan, Caldwell & Co Building (cnr Brougham and Powderham Streets)"

subsoil. The Brougham St section is lower and showed only slumped pavement overlying mixed topsoils. No historic material was noted in either section.



Figure 13: Powderham St profile to the left of shot (Image: Ivan Bruce, 2019).

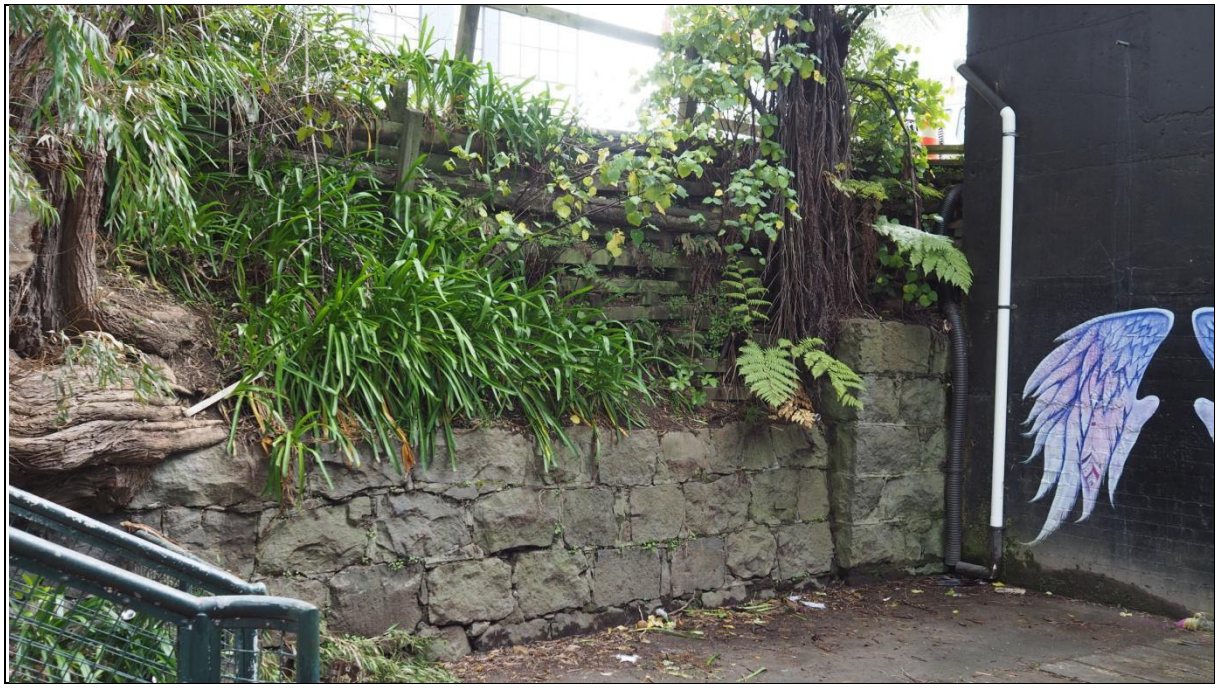


Figure 14: Remnant section of stone railway embankment, retained eastern boundary of project area above (Image: Ivan Bruce, 2019).

9.3 The eastern section has been retained and backfilled with relatively recent material, as stated in section 3.2. The retaining is supported by the former railway embankment,

constructed from blocks of split andesite stone. This embankment was constructed as part of the New Plymouth to Waitara Railway line, which opened in 1875, is by definition an archaeological feature, part of the former railway line assemblage. This section of embankment appears to be located on DP 15432, the property immediately east of the project area.

9.4 The northern boundary of the site could not be accessed during this field inspection, but has been retained and backfilled along the north east corner where the natural contour falls very steeply to the Huatoki Stream.

10 Assessment of effects

10.1 Any recovery archaeological evidence relating to the 19th Century land use of 51 Brougham St, if at all, is unlikely to be extensive and would be considered a chance find. Due to the extensive earthworks that have occurred on this section since the 1906-07 construction of the Macky, Logan & Caldwell warehouse, its demolition in 1984, and subsequent works in constructing the car parking facility, there is a low likelihood that archaeological evidence of the earlier occupations of Hughes, Rawson or Mofflin will have survived the later works. Any evidence of pre European land use, such as the "Maori pits" reportedly encountered by Hughes, were likely gardened away upon discovery during his early tenure. Only very deeply cut features, such as wells are likely to have survived at this location and given the close proximity to the nearby Huatoki stream, it is possible that wells were not dug at all here during the early years of European development on this section. The later installation of the New Plymouth Water supply in 1883 obviated any requirement for any other form of water supply from then on.

10.2 It is possible that the removal of the large Agonis Flexuosa will destabilise the stone railway embankment, which may in turn require demolition and/or replacement of that wall. This structure predates 1900 and is by definition part of an archaeological site and will require an archaeological authority to damage destroy or modify this feature.

11. Archaeological significance

11.1 Surface earthworks have already modified the project area and any surviving archaeological features are be expected to limited deeply cut archaeological features, i.e. wells. Due to the history of multiple European owners the ability for archaeological

investigation to identify discrete occupations or to clearly define a sequence of development at this site will be limited.

11.2 A range of artefacts such as commercial bottle glass, china and earthenware, glass bottles and earthenware crocks, clay tobacco pipes, shell and bone midden, clothing, footware, tools, and iron objects could potentially exist as backfill in wells. Most objects found by archaeologists in situations like this are recovered in a broken or fragmented state; but can potentially have high archaeological value, depending on the rarity and context of the artefact.

11.3 The stone railway embankment is part of a wider, largely unrecorded archaeological assemblage relating to the 1875 New Plymouth to Waitara Railway line. The short section of wall is one of a few sections of the stone embankment that survive in the New Plymouth CBD. However longer and substantially better presented sections of the same embankment do survive on publically accessible areas, notably on the right bank of the Huatoki Stream at the Huatoki Plaza and on the western side of Sir Victor Davies Memorial Park. The latter is listed as a heritage feature (ID 70) on the proposed NPDC District Plan. The heritage values of this remnant section of wall are low - medium and given that representative samples of the same assemblage are protected in the district plan, conditional modification of this feature could be reasonably expected to proceed under an archaeological authority.

12. Recommendations

12.1 All earthworks undertaken on the PT Section 683 Town of New Plymouth, PT Lot 6 DP 3466 and PT Lot 6 DP 3466 should be undertaken under an archaeological discovery protocol, under which should archaeological evidence, or suspected archaeological evidence be recovered, all works will cease until the find has been verified by the project archaeologist and approval/ authority to proceed has been granted by HNZPT.

12.2 No modification of the stone railway embankment should occur if possible. However if the preservation of the surviving section of embankment cannot be practically achieved I recommend that K.D. Holdings Limited make an application for a general archaeological authority to modify, damage or destroy this embankment, and any unrecorded archaeological features contained within the entirety of the project area.

12.3 It can be expected that any archaeological authority will contain conditions requiring that works proceed under an archaeological discovery protocol and the investigation and reporting of archaeological finds to an accepted archaeological standard.

12.4 Pre application discussions should be undertaken with the regional archaeologist from HNZPT prior to submitting this application to ensure that the correct process is undertaken and the application contains all required information to process the authority.

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Taranaki Herald on 06/06/1964, p.1.

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Unknown photographer. "Brougham Street from Devon Street Corner". Circa December 1884. Photographic print. Puke Ariki, PHO2011-0014.

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13.2 Secondary Sources

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APPENDIX G MEMORANDUM – POTENTIAL FOR SOIL CONTAMINATION

Memorandum

To:	**BOON Limited c/o Murali Bhaskar: m.bhaskar@boon.co.nz**		
Copy:	Dave Bolger – BTW Environment Manager		
From:	Alex Connolly – BTW Environmental Scientist		
Date:	11/9/19	**BTW Job number:**	190783

Subject: Potential For Soil Contamination At 45-51 Brougham Street, New Plymouth (Record of Title TNF1/436).

Scope:

- The Site: 45-51 Brougham Street, New Plymouth (Record of Title TNF1/436)
- Review of available aerial imagery
- Taranaki Regional Council (TRC) file review
- NPDC Kete New Plymouth website review
- Brief memo to client on the likelihood of soil contamination due to Hazardous Activities and Industries List (HAIL) activities, and recommendations as to whether any further investigation is required.

Background:

- The site is currently a vacant lot and is used as a carpark. A new building is proposed to be built on the site which will include excavation of soil.
- Since the fire in 1983 the site has continued to be utilised as a metalled car parking area.

NPDC Aerial Imagery and Records

- Historical aerial imagery was obtained for 1950, 1970, 1976 and 1981 for the New Plymouth Central Business District (1950 and 1976 aerial imagery of 45-51 Brougham Street building).
- The 1950, 1970 and 1976 images show a large building on the site, the building adjacent to this still exists to the present day and it is thought to be of a similar design to the building that existed on the subject site.
- From the aerial imagery obtained (1950, 1970 and 1976) a large building existed over the site and was used for wholesale activities. The New Plymouth Information Officer provided detail around the age of the building and how it was utilised. The building that used to exist on the carpark lot was built in 1907 and used as a warehouse for a wholesaler's company (Kete New Plymouth NPDC Information Services Officer, 2019).
- In 1983 the building was destroyed in a fire and demolished on the same day. (Kete New Plymouth NPDC Information Services Officer, 2019).
- From the recent aerial imagery obtained (2001 to 2019) the subject site has been utilised as a metalled car parking area (Google Earth, Time Hop 2001-2019).

Taranaki Regional Council Records

- TRC do not hold any information concerning the subject site and therefore have no records of past or present HAIL activity being undertaken.

- The site is not recorded on the TRC Register of Selected Land Uses (RSLU) which provides a record of known contaminated sites. There are no associated consents, permitted activities, environmental incidents or RSLU entries in TRC records.

Summary

- The subject site at 45-51 Brougham Street has no known recorded HAIL activity or any reason to advise further research regarding soil contamination.

- The site had a building erected in 1907 that was used as a warehouse for wholesaler's companies until 1983 when fire burnt the building down. The site has been used as a carpark since 1983.

- There is no reason to believe there is any soil contamination on the site or cause for a Preliminary Site Investigation to be undertaken at the site based on the information we have obtained from aerial imagery and TRC records.

CC: *Darelle Martin, Intermediate Planner, BTW Company*

Attachments:

- Kete New Plymouth NPDC Information Services Officer, 2019

-NPDC 1950 aerial imagery of 45-51 Brougham Street building

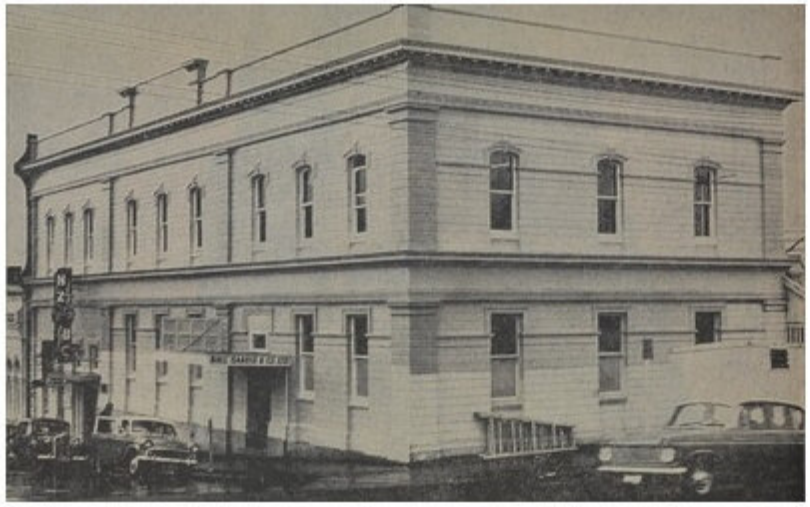
-NPDC 1976 aerial imagery of 45-51 Brougham Street building

- Google Earth, Time Hop 2001-2019

- Kete New Plymouth NPDC Information Services Officer, 2019

Macky, Logan, Caldwell & Co Building (cnr Brougham and Powderham Streets)

Topic » Place



This building was erected in 1907 as a warehouse for the wholesale company Macky, Logan, Caldwell and Co. The company was one of the largest wholesalers in the country and this New Plymouth branch was opened with the prospect of increasing business.

Located on the corner of Brougham and Powderham Streets - east side.

It was designed by Frank Messenger, and the contractors were Coleman and Son. The plumbing was done by Smart Bros, painting by Pillar and Bullot, and brickwork by Messrs Russell and Son. The cost was estimated to be £2,300. Please view the weblink, "*Town Improvements*", for more information about the building.

On the evening of 27 September 1952 a ceremony was conducted to mark the beginning of commercial radio (2XP) in Taranaki. They broadcast from the first floor of this building until new premises across the road in upper Brougham Street were built in 1966.

On the 4 March, 1983, the building was destroyed by a large fire, and demolished the same day. At the time it was the premises of Bennett and Sutton Limited.

The section has been used as a private carpark since then. In 2003 a sculpture called, *Halamoana*, by Filipe Tohi, was erected near the Powderham intersection. The sculpture was commissioned and paid for by New Plymouth architect, Terry Boon.

Tags

Tags: Macky Logan Caldwell & Co Building, fire 1980 to 1989, NPB_Powderham Street, 2XP, Brougham Street, Frank Messenger, Powderham Street, Smart Bros, Pillar and Bullot, Russell and Son, Bennett and Sutton Ltd, Filipe Tohi, Halamoana, Terry Boon, NPB_1900 to 1920, Town section 683, NPB_Brougham Street

Macky, Logan, Caldwell & Co Building (cnr Brougham and Powderham Streets)

City: New Plymouth

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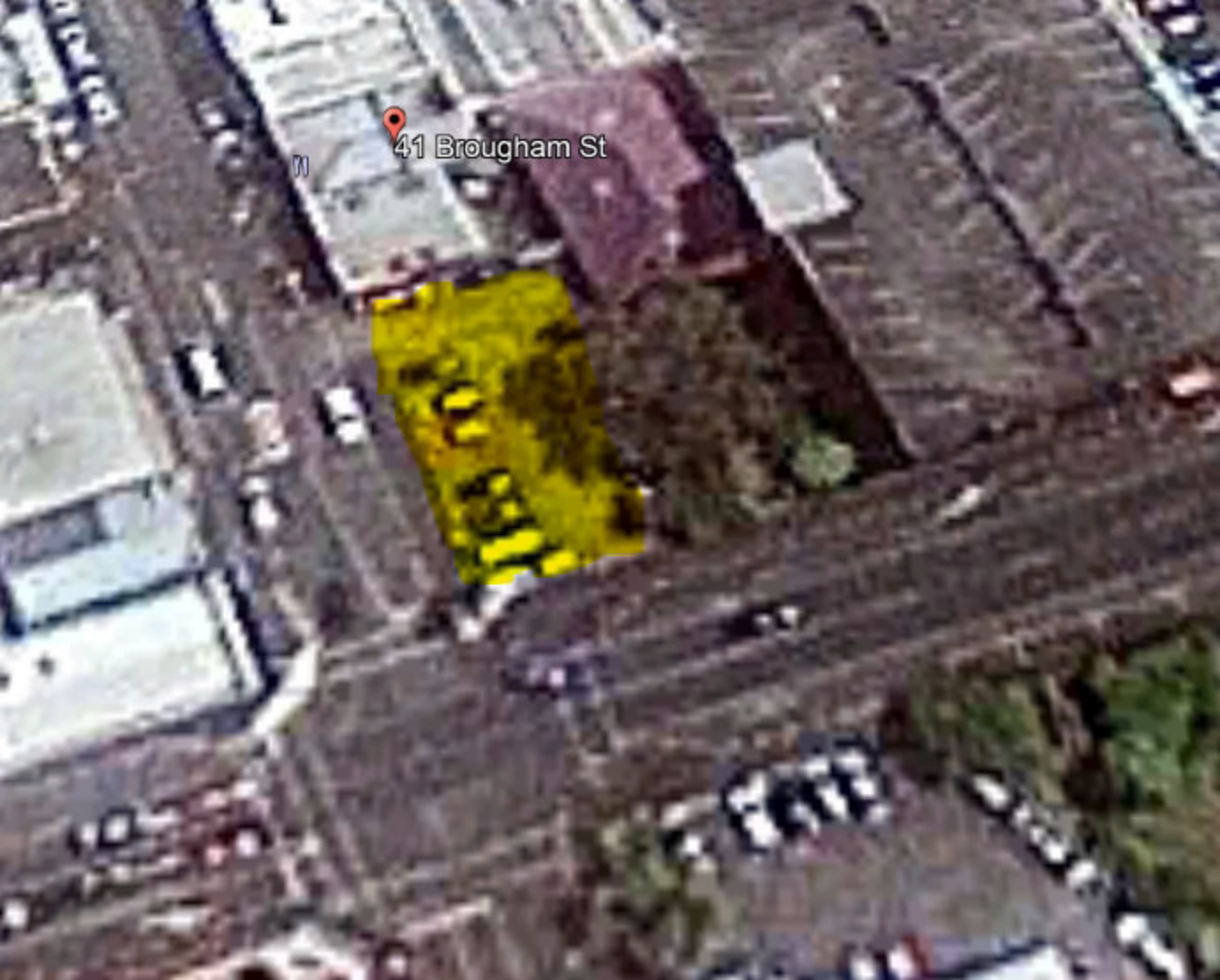
-NPDC 1950 aerial imagery of 45-51 Brougham Street building



-NPDC 1976 aerial imagery of 45-51 Brougham Street building



- Google Earth, Time Hop 2001-2019


41 Brougham St

APPENDIX H CARPARKING STANDARD AS/NZS 2890.1:2004

TABLE 1.1

CLASSIFICATION OF OFF-STREET CAR PARKING FACILITIES

User class	Required door opening	Required aisle width	Examples of uses (Note 1)
1	Front door, first stop	Minimum for single manoeuvre entry and exit	Employee and commuter parking (generally, all-day parking)
1A	Front door, first stop	Three-point turn entry and exit into 90° parking spaces only, otherwise as for User Class 1	Residential, domestic and employee parking
2	Full opening, all doors	Minimum for single manoeuvre entry and exit	Long-term city and town centre parking, sports facilities, entertainment centres, hotels, motels, airport visitors (generally medium-term parking)
3	Full opening, all doors	Minimum for single manoeuvre entry and exit	Short-term city and town centre parking, parking stations, hospital and medical centres
3A	Full opening, all doors	Additional allowance above minimum single manoeuvre width to facilitate entry and exit	Short term, high turnover parking at shopping centres
4	Size requirements are specified in AS/NZS 2890.6 (Note 2)		Parking for people with disabilities

NOTES:

1 Except for the requirements specified in Clause 1.4 relating to User Classes 1A and 4, the examples of uses are intended to be flexible and allow for progressive improvement both in the ease of manoeuvring into and out of parking spaces, and in leaving and re-entering the vehicle as one progresses up the user class scale from 1 to 3A. The modelling of vehicle manoeuvring into Class 1A spaces shows however, that many drivers may have difficulty driving into and out of such spaces, especially those with vehicles larger than the B85 vehicle. Furthermore, they may have difficulty entering and leaving the vehicle in the narrower spaces. Safety issues associated with delays and congestion caused by manoeuvres into and out of Class 1A spaces in large parking areas should also be taken into account. See also Appendix B, Paragraph B4.8.

2 In preparation, see footnote to Clause 1.2.

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2.4 DESIGN OF PARKING MODULES

2.4.1 Angle parking spaces

Dimensions of angle parking spaces shall be as shown in Figure 2.2 subject to the following exceptions:

(a) *Length* The nominal length of a parking space in a parking module shall be 5.4 m min except as follows:

(i) *End overhang* Where a vehicle may overhang the end of a space, e.g. at a kerb, provided the first 600 mm immediately behind it is unobstructed, is not another parking space and is not required as a footway or for some similar purpose, space lengths measured parallel to the parked vehicle may be reduced by 600 mm. Ends of bays shall be provided with wheel stops if the requirements specified in Clause 2.4.5.4 apply.

(ii) *In New Zealand* The space may be marked to a shorter length (nominally 5.0 m) as specified in Clause 4.4.1. There shall be no consequential reduction in the combined length of space and width of parking aisle from that given in Figure 2.2.

(iii) *Spaces for small cars* In certain circumstances it may be appropriate to provide a space smaller than specified above for small cars. It shall be designated as a space for small cars.

NOTE: The size of such spaces is based on small car vehicle dimensions recommended in Appendix A, Paragraph A6.

The minimum dimensions shall be as follows:

(A) In Australia—2.3 m wide × 5.0 m long.

(B) In New Zealand—2.3 m wide × 4.5 m long.

(b) *Width* The minimum width of parking spaces required for each user class is shown in Figure 2.2 except as follows:

(i) *Spaces for small cars* The specified minimum width is given in Item (a)(iii).

(ii) *Adjacent obstruction* If the side boundary of a space is a wall or fence, or if there are obstructions such as columns placed so as to restrict door opening, 300 mm shall be added to the width of the space.

(iii) *Parking spaces for people with disabilities* See AS/NZS 2890.6*.

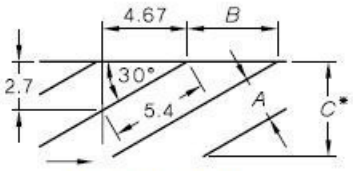
Attention is also drawn to the reduced width requirement for 30 degree parking as shown in Figure 2.2.

In the design of buildings or parts of buildings to be used exclusively as parking stations, the location of obstructions such as columns shall be in accordance with Clause 5.2.

* In preparation. See footnote to Clause 1.2.

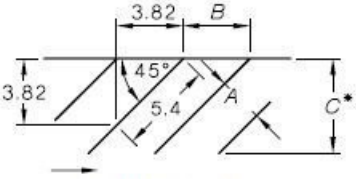
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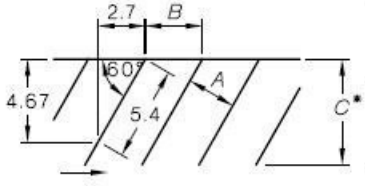
(a) Bays at 30°

User class (Note 1)	A (Notes 2 & 3)	B	C_1	C_2	C_3	Aisle width
1,1A	2.1	4.2	4.4	4.1	4.5	3.1
2	2.3	4.6	4.4	4.1	4.7	3.0
3	2.5	5.0	4.4	4.1	4.9	2.9
3A	2.5	5.0	4.4	4.1	4.9	3.45



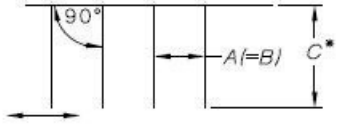
(b) Bays at 45°

User class (Note 1)	A (Note 3)	B	C_1	C_2	C_3	Aisle width
1,1A	2.4	3.4	5.2	4.8	5.5	3.9
2	2.5	3.5	5.2	4.8	5.6	3.7
3	2.6	3.7	5.2	4.8	5.7	3.5
3A	2.6	3.7	5.2	4.8	5.7	4.2
4	(See Note 5)					



(c) Bays at 60°

User class (Note 1)	A (Note 3)	B	C_1	C_2	C_3	Aisle width
1,1A	2.4	2.75	5.7	5.1	5.9	4.9
2	2.5	2.90	5.7	5.1	6.0	4.6
3	2.6	3.00	5.7	5.1	6.0	4.3
3A	2.6	3.00	5.7	5.1	6.0	5.1
4	(See Note 5)					



(d) Bays at 90°

User class (Note 1)	A (Note 3)	B	C_1	C_2	C_3	Aisle width (Note 4)
1	2.4	2.4	5.4	4.8	5.4	6.2
1A	2.4	2.4	5.4	4.8	5.4	5.8
2	2.5	2.5	5.4	4.8	5.4	5.8
3	2.6	2.6	5.4	4.8	5.4	5.8
3A	2.6	2.6	5.4	4.8	5.4	6.6
3A	2.7	2.7	5.4	4.8	5.4	6.2
4	(See Note 5)					

*Dimension C is selected as follows (see Note 6):

C1—where parking is to a wall or high kerb not allowing any overhang.

C2—where parking is to a low kerb which allows 600 mm overhang in accordance with Clause 2.4.1(a)(i).

C3—where parking is controlled by wheelstops installed at right angles to the direction of parking, or where the ends of parking spaces form a sawtooth pattern, e.g. as shown in the upper half of Figure 2.4(b).

For Notes—see over.

DIMENSIONS IN METRES

FIGURE 2.2 LAYOUTS FOR ANGLE PARKING SPACES

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NOTES TO FIGURE 2.2:

1 User class is defined in Table 1.1. The two Class 3A options given for 90 degree parking are alternatives of equal standing.

2 30 degree parking spaces can be made narrower than spaces at other angles because of the reduced chance of open doors hitting adjacent vehicles.

3 The design envelope around each parking space, to be kept clear of obstructions, is shown in Figure 5.2.

4 Dimensions for 90 degree parking aisles are for two-way aisles. These dimensions are required to be observed even though one-way movement along aisles is imposed for other purposes, see Clause 2.3.2(a).

5 Space dimensions for User Class 4 spaces (for people with disabilities) are specified in AS/NZS 2890.6*. Aisle widths shall be the same as applicable to adjacent other-user spaces or in the absence of such spaces, 5.8 m minimum.

6 The values for dimension C have been calculated as follows:

$$C_1 = 5.4 \sin\theta + 1.9 \cos\theta$$

$$C_2 = C_1 - 0.6 \sin\theta$$

$$C_3 = C_1 + (A - 1.9) \cos\theta$$

where

θ = parking angle

A = space width, in metres

2.4.2 Angle parking aisle

The width of angle parking aisles is determined from either the width needed for circulating traffic or the width needed to manoeuvre into and out of a parking space. In the latter case, the width will vary according to the width of the parking spaces, wider spaces needing less aisle width for the parking manoeuvre. Minimum aisle widths shall be as shown in Figure 2.2. These widths will cater both for the angle parking manoeuvre or for circulating traffic, two-way in the case of 90 degree parking and one-way in the case of 30, 45 and 60 degree parking. For aisles where there is parallel parking on one or both sides, see Clause 2.4.4.

When designing for turns between an aisle and a ramp or circulation roadway, or between two aisles, adequate area shall be provided for the turning movements (see Clause 2.5.2(c)).

The following additional requirements shall apply:

(a) *Class 1A aisles* Class 1A aisles apply to 90° parking only. Minimum aisle widths are shown in Figure 2.2.

NOTE: These may be of lesser width than those for user Class 1 aisles and may not allow access into parking spaces in a single manoeuvre by some vehicles, see Appendix B, Paragraph B4.8.

(b) *Class 3A aisles* To cater for expected higher turnover than other User Class 3 parking areas, User Class 3A parking spaces or aisle widths shall be increased in size as shown in Figure 2.2.

(c) *Blind aisles* At blind aisles, the aisle shall be extended a minimum of 1 m beyond the last parking space, as shown in Figure 2.3, and the last parking space widened by at least 300 mm if it is bounded by a wall or fence.

NOTE: Where practicable the space should be widened by the same amount as the aisle is lengthened.

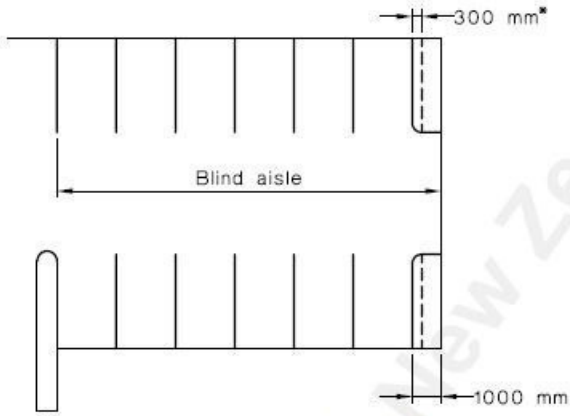
In car parks open to the public, the maximum length of a blind aisle shall be equal to the width of six 90 degree spaces plus 1 m, unless provision is made for cars to turn around at the end and drive out forwards.

* In preparation. See footnote to Clause 1.2.

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(d) *Single-sided aisles* Where there is angle parking on one side of an aisle only and the other side is confined by a wall or other high vertical obstruction closer than 300 mm to the nominal edge of the aisle, to provide manoeuvring clearance, the aisle width shall be increased by 300 mm, measured to the vertical obstruction.



*Additional widening required if there is a wall or fence at the side of the last space, see Clause 2.4.1(b)(ii).

DIMENSIONS IN MILLIMETRES

FIGURE 2.3 BLIND AISLE EXTENSION

2.4.3 Angle parking module layout

Layouts of typical angle parking modules are shown in Figure 2.4.

2.4.4 Parallel parking in parking aisles

Where parallel parking is to be provided on one or both sides of a parking aisle the following shall apply:

(a) *Parallel parking one or both sides, one-way or two-way aisle*

Layout requirements for parallel parking on one or both sides of a one-way aisle shall be as set out in Figure 2.5.

Where the aisle is two-way but parking is on one side only, its width shall be increased by 3.0 m minimum.

Where parallel parking is provided on both sides of a two-way aisle, the aisle widths shown in Figure 2.5 shall be provided on each side of the aisle centre-line.

For parallel parking on both sides of a one-way aisle the aisle width shall be at least twice that shown in Figure 2.5.

(b) *Parallel parking one side, angle parking the other, one-way or two-way aisle* Requirements shall be as follows:

(i) Angle parking space depths shall be as shown for dimension C on Figure 2.2.

(ii) Parallel parking space dimensions shall be as shown on Figure 2.5.

(iii) Aisle width shall be that shown on Figure 2.2 plus a further 0.5 m.

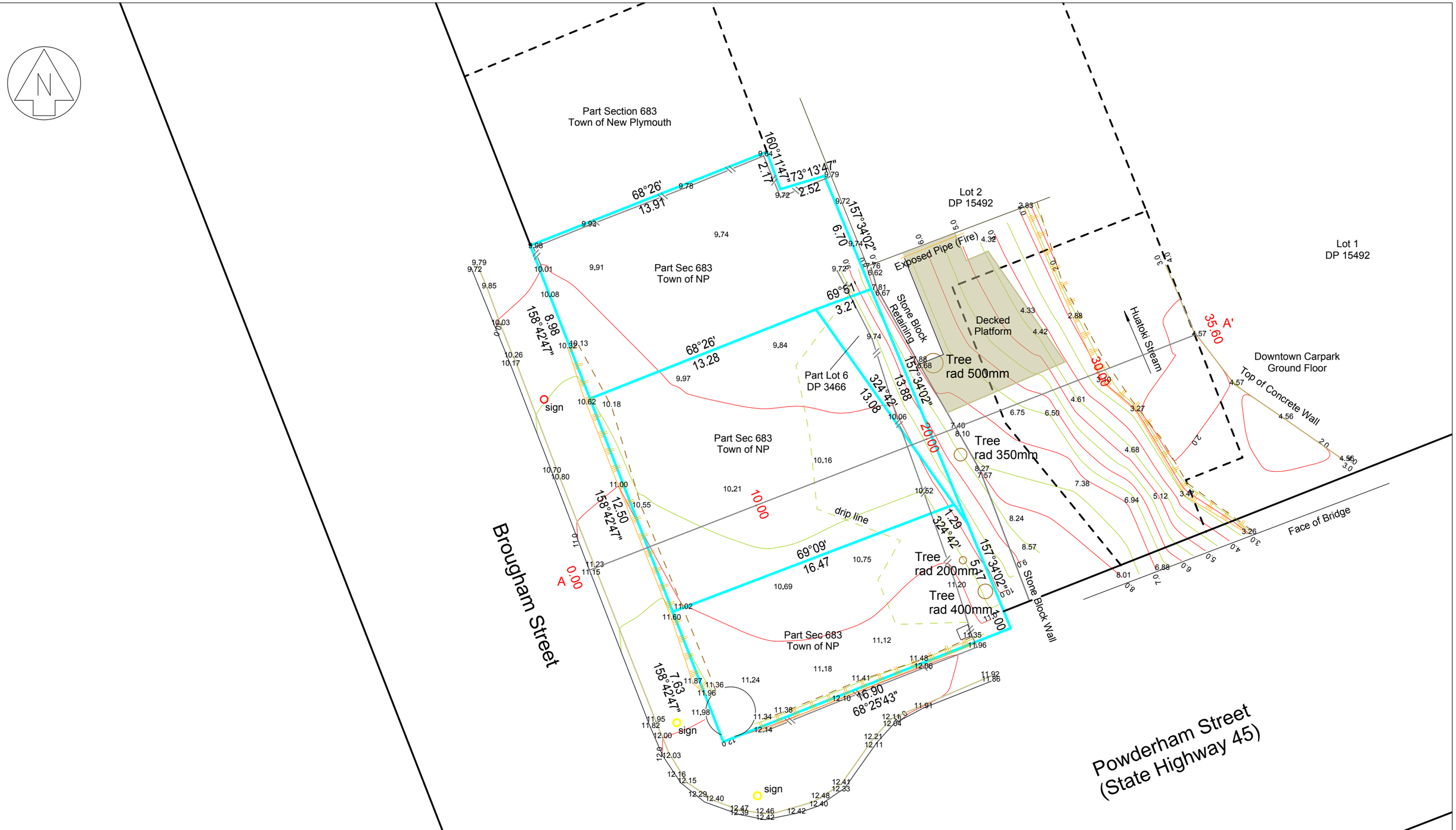
(iv) Steps shall be taken to discourage reverse-in parking where the angle parking angle is other than 90 degrees.

NOTE: Suitable steps might include making the aisle one-way or signposting the angle parking spaces as front-in only.

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APPENDIX I TOPOGRAPHICAL SURVEY AND NOTABLE TREE DRIPLINE INFORMATION



02	Additional Topographical Info	18.07.19	ta	cj
01	Bdy info and Trees	25.06.19	ta	cj
00	Issued	27.05.19	ta	cj
Rev.	Amendment Description	Date	Drawn	Appr.

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19 Dawson Street, New Plymouth, 4340 - www.bjsl.co.nz - (06) 758 6171 - mail@bjsl.co.nz

Coordinates are in terms of Taranaki Datum 2000
Based on RM XVI SO 13123 808683.91mN 386556.75mE
Elevations are in terms of Taranaki Vertical Datum 1970.
Origin of Elevations RM XVI SO 13123, 5.03m.

- Major Contour Interval is 1.0m
- Minor Contour Interval is 0.50m

Title

Site Topographical Survey

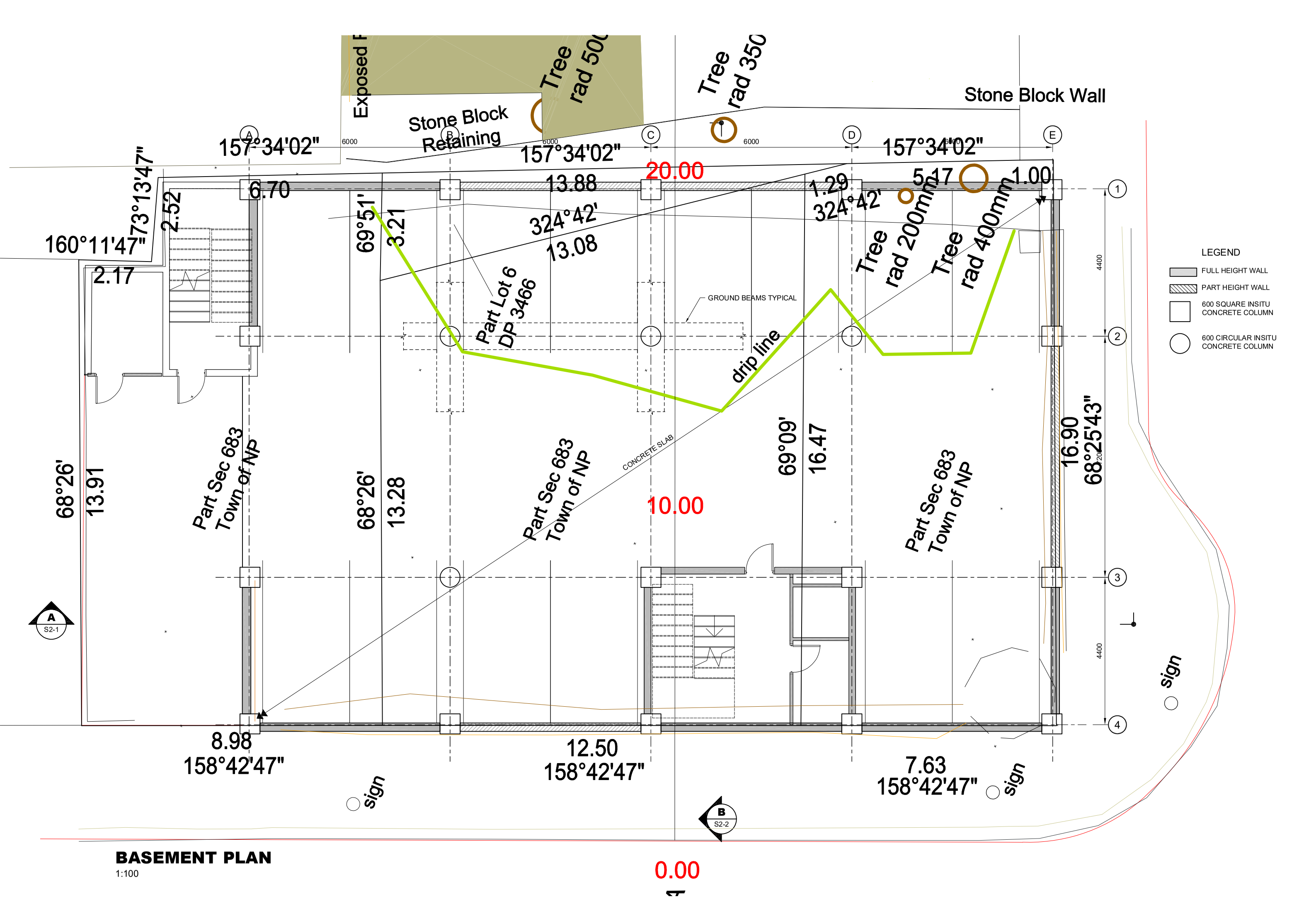
Part Sections 683 Town of New Plymouth
Part Lots 6 DP 3466

Location: 51 Brougham Street

Drawing Scale (Original Size - A3)	Project No.	Drawing File	Sheet no.	Revision
1:200	9299	E00	1 /2	R02

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BASEMENT PLAN

1:100

APPENDIX J GEOTECHNICAL INTERPRETIVE REPORT

REPORT

Tonkin+Taylor

Geotechnical Interpretative Report

51 Brougham Street, New Plymouth

Prepared for
Red Jacket Ltd
Prepared by
Tonkin & Taylor Ltd
Date
December 2019
Job Number
1011502.v2



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Document Control

Title: 51 Brougham Street, New Plymouth Geotechnical Interpretative Report					
Date	**Version**	**Description**	**Prepared by:**	**Reviewed by:**	**Authorised by:**
September 2019	1	Draft for review	C McDiarmid / E Williams	P Tang	H Maclean
December 2019	2	First issue	E Williams	P Tang	H Maclean

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Red Jacket Ltd	1 electronic copy
Tonkin & Taylor Ltd (FILE)	1 electronic copy

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Appendix B : Previous ground investigation results
Appendix C : Current ground investigation results
Appendix D : Liquefaction assessment
Appendix E : Slope stability analyses

1 Introduction

Tonkin + Taylor Ltd (T+T) was engaged by Red Jacket Limited (Red Jacket) to supervise geotechnical field investigations on site and to provide geotechnical services for the proposed development at 51 Brougham Street, New Plymouth. The geotechnical services provided were in accordance with our proposal dated 5 July 2019[1].

This report details the results of the geotechnical investigations and assessment for the proposed development consisting of a four storey building with basement level carparking. Subject to the recommendations in this report and ongoing groundwater monitoring, we consider the site to be generally suitable for the proposed development.

1.1 Scope of work

The scope of works undertaken includes organisation and supervision of geotechnical site investigations outlined in Section 2.1.3 and a geotechnical assessment comprising:

- Interpretation of geotechnical site investigations and preparation of a geological section and site plan;
- Assessment of site subsoil class for seismic design and comment on liquefaction potential;
- Preliminary assessment of foundation options for structural design;
- Provision of design soil parameters for retaining wall design (for low retaining structures) and options for temporary retaining wall support;
- Provision of recommendations for site excavation methodology and ground preparation;
- Undertake a slope stability assessment of the eastern slope;
- Advise on floor slab design (CBR value) and external pavements;
- Provision of this combined factual and interpretive geotechnical report which summarises the assessment outlined above. This report can be used to support building and resource consent applications for the proposed building development.

This report does not cover detailed design of retaining walls.

1.2 Site description

This subject site in New Plymouth CBD is shown on site survey drawings[2] provided by Red Jacket (included in Appendix A). It is located on the corner of Powderham and Brougham Street bound to the south by Powderham Street and to the west by Brougham Street. The site is generally rectangular in shape and encompasses four property lots, legally described as Part Sections 683 Town of New Plymouth (three lots) and Part Lots 6 DP 3466.

The site slopes moderately downwards to the north from approximately 11.3 RL m at the street corner to 9.7 RL m, with a steep bank sloping towards the east along the eastern boundary, dropping down to Huatoki Stream at approximately 2 RL m. There is an archaeologically significant stone railway embankment[3] (built between 1873 - 1875 and is referred to herein as the 'non-engineered retaining wall') comprising stone block and timber sleepers up to 2-3 m high at the crest of this steep bank upslope from the stream. A timber walkway has been established mid-slope from the stream.

[1] Tonkin & Taylor Ltd, 5 July 2019, Offer of Service – 51 Brougham Street, New Plymouth – Geotechnical Consultancy Service. Job Ref: 1011502.
[2] Bland & Jackson Surveyors Ltd (18 July 2019). *Site Topographical Survey; Part Sections 683 Town of New Plymouth; Part Lots 6 DP 3466. Location: 51 Brougham Street. Project No. 9299.* Drawing File: E00; Sheet1/2; R02.
[3] K.D Holdings Ltd, November 2019 "Brougham Street Development Project Area 512 Brougham Street, New Plymouth".

The stream runs along this eastern boundary and continues toward the southeast under Powderham Street to the Huatoki Walkway.

Across the Huatoki Stream to the east is a multi-storey carparking building (Downtown) and adjacent to the northern boundary is a single storey retail building. Along the northeastern boundary is another single storey building with a raised deck platform overlooking the stream.

1.3 Proposed development

The proposed development as shown by master planning drawings provided by Red Jacket[4] (Sketches SK1.02 & SK3.01 to SK3.04 in Appendix A), is a four storey building with basement level carparking. The proposed building footprint being approximately 412m^2. We understand that up to three additional storeys could be added. Later stages of this development may include similar developments at 53 Brougham Street, which this report does not cover.

It is expected that ground retention will be required along the southern and western sides of the basement level (along the road boundaries of Powderham and Brougham Street) but that the basement will largely daylight along the downslope eastern boundary. Minor retention may be required to support the existing buildings on the northern and northeastern sides of the site. Architectural drawings have been prepared by Boon Team Architects.

2 Assessment and interpretation of site conditions

2.1 Previous geotechnical investigations

Previous geotechnical investigations and assessment have been undertaken at a nearby site by Beca Ltd in 2016, comprising two machine drilled borehole logs which were obtained from the New Zealand Geotechnical Database (NZGD) from a site approximately 200m away. The borehole logs suggest the subsurface condition is likely to comprise volcanic ash overlying sand/gravel lahar material. These borehole logs can be found in Appendix B.

2.2 Current geotechnical investigations

Geotechnical investigations were carried out at the project site on 30 July to 31 July 2019. The investigations comprised:

- 1 No. Machine drilled borehole;
- 6 No. Hand augered boreholes (undertaken by Red Jacket Ltd);
- 5 No. Cone Penetration Tests (CPTs).

The locations of the investigations were surveyed by hand held GPS and are presented on the investigation summary tables below. The investigation locations are presented on Figure 1, Appendix A. The logs are presented in Appendix C.

[4] Boon Team Architects (4 April 2019). *Brougham Street Development, 51-53 Brougham Street, New Plymouth; Master Planning. Job number 6400.* Drawing No. SK1.02 & SK3.01 to SK3.04.

Table 2-1: Summary of site investigations

Location ID	Location (NZTM)		Ground Surface Elevation RL* (m)	Termination depth (m)	Reason for termination
	Easting (m)	Northing (m)			
BH1	1692880	567616	9.68	19.95	Target Depth
HA1	1692877	5676144	11.03	5.0	Target Depth
HA2	1692870	5676154	10.13	5.0	Target Depth
HA3	1692867	5676165	9.79	5.0	Target Depth
HA4	1692884	5676145	11.01	5.0	Target Depth
HA5	1692891	5676159	6.72	4.7	Refusal on dense gravel layer
HA6	1692899	5676161	3.1	2.3	Refusal on dense gravel layer
CPT01 & 1A	1692884	5676145	11.01	5.36 & 6.11	Refusal on dense gravel layer
CPT02 &2A	1692877	5676144	11.03	5.87 & 5.2	Refusal on dense gravel layer
CPT03 &3A	1692870	5676154	10.13	5.23 & 5.19	Refusal on dense gravel layer
CPT04	1692867	5676165	9.79	7.14	Refusal on dense gravel layer
CPT05	1692880	5676161	9.68	5.3	Refusal on dense gravel layer

*Elevation is based upon contour data provided by Bland & Jackson Surveyors Ltd.

2.2.1 Machine drilled borehole

The machine drilled borehole was carried out using a rotary coring drilling rig, supplied and operated by Drillforce Ltd. The boreholes were advanced from ground level using a hydro-vacuum technique to a depth of 1.5 m for service clearance, then HQ3 triple tube coring was undertaken down to the end of hole.

In-situ Standard Penetration Testing (SPT) was carried out at regular (1.5 m) intervals through the soil horizon. All drilling works were completed under the full time supervision of an engineering geologist from T+T. The recovered drill core was photographed and logged to NZGS 'Field Description of Soil and Rock' guidelines.

2.2.2 Cone Penetration Tests (CPTs)

Five (5) Cone Penetration Tests (CPTs) were undertaken by Drillforce Ltd on 31 July 2019. None of the Cone Penetration Tests achieved the target depth of 20 m with depths to refusal ranging between 5.19 m and 7.14 m below ground level due to the cone terminating on or within a hard, impenetrable strata such as rock or a dense sand layer. A second test was performed adjacent to the original test locations where possible in an attempt to get a deeper test result. Based on the material logged from BH1, it is expected that all the CPTs refused on cobbles/boulders underlying the Taranaki Brown Ash. The CPT Logs are presented in Appendix C.

2.2.3 Hand augered boreholes

Six (6) hand augered boreholes were carried out by a Red Jacket Ltd. In situ shear strength testing was undertaken at 0.5 m intervals throughout the soil horizon. The top 1.5 to 2.0 m of the holes were hydro-vacuum excavated for service clearance. The material encountered in the hand augered boreholes was generally stiff to very stiff Taranaki Brown Ash and firm Taranaki Brown Ash closer to the stream level.

2.3 Published Geology

The published geological map of the area[5] indicates that the site is underlain by the Pouakai Group (marine terraces/ beach deposits), and bound to the coastline by the Maitahi Formation (debris avalanche) to the south. The site is overlain by a small covering of Holocene age Taranaki Brown Ash. New Plymouth is located 30km north of Mt Taranaki on the Pouakai volcanic ring plain, which consists of radiating and coalescing fans of laharic, pyroclastic and alluvial volcaniclastic detritus. The location of the site in the context of the regional geology is presented below on Figure 2.1.

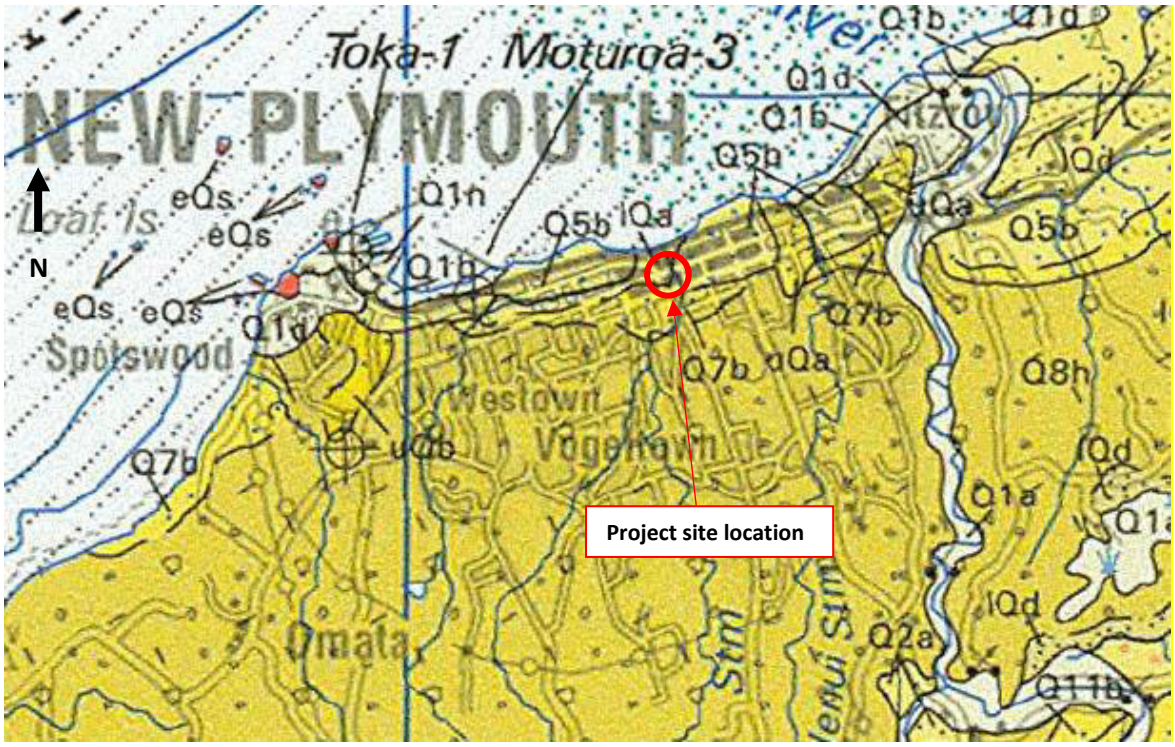


Figure 2.1 Published geological map of the Taranaki Region.

2.4 Geotechnical model

The subsurface conditions and geotechnical assessment presented in this report have been developed based on the readily available geotechnical information including the published geological map and the information held within the T+T database. The nature and continuity of the subsoil is inferred, but it must be appreciated that actual conditions could vary from the assumed model.

[5] Townsend, D.; Vonk, A.; Kamp, P.J.J. (compilers) 2008: *Geology of the Taranaki area*. Institute of Geological & Nuclear Sciences 1:250,000 geological map 7. 1 sheet + 77 p. Lower Hutt, New Zealand. GNS Science.

Based on the available geotechnical information detailed above, the site is expected to be underlain by:

- Fill
- Taranaki Brown Ash
- Pouakai Group

A description of the various geological units are presented in the sections below.

2.4.1 Fill

Fill is expected to underlie the entire site. The thickness of fill was encountered up to 1.5 m bgl. The fill is likely to comprise hardfill related to the existing pavement and a blend of reworked Taranaki Brown Ash and sandy gravels. The strength and stiffness properties of this fill appear highly variable and it is unlikely the materials have been placed to an engineering standard suitable for founding structures.

2.4.2 Taranaki Brown Ash

Taranaki Brown Ash is a term widely applied to the surface deposits of ash and lapilli found throughout the Taranaki Region, and was present across the entire site. It was found to generally comprise low to high plasticity, stiff to very stiff silty clay to clayey/sandy silt with minor gravels. Closer to the stream, the Taranaki Brown Ash was firm to stiff. The Taranaki Brown Ash is known to be allophanic and highly sensitive and can lose much of its in-situ strength when disturbed. The material was often heavily disturbed during the drilling process, resulting in the recovered material being significantly softer than its expected in situ strength. Shear vane values in the ash ranged between 40 and 200 kPa with the lower bound encountered in the hand augered borehole next to the stream.

2.4.3 Pouakai Group

The Pouakai Group includes middle to late Quaternary alluvial and marine deposits. Marine deposits of the Pouakai group underlie the Taranaki Brown Ash across the entire site. This material is predominantly sands and gravels with SPT ‘N’ Values ranged between 19 and 50+. The upper layer of Pouakai Group sands and gravels was medium dense to approximately 10.5 m below ground level. Below this level, the material becomes dense to very dense.

2.5 Groundwater

A PVC standpipe piezometer was installed within BH1 to monitor groundwater levels corresponding to the lower basement level of the proposed development. Summary details of the piezometer installation is presented in the table below. Installation records are attached on the borehole log, presented in Appendix C.

Table 2-2: Piezometer installation details

Borehole ID	Collar RL (m)	Installation depth (m)	Screened section depth (RL m)	Type	Geological Unit over screened depth
BH1	9.5	10.0	2.5 to -0.5	Standpipe	Pouakai Group (marine terraces)

The groundwater level was measured at 3.2 m below ground level (6.3 RL m) within BH1. Seasonal fluctuation is expected. For the purpose of foundation design and construction, we recommend a design groundwater level that is shown in the cross section in Appendix A. Table 2-3 show a summary of the piezometer details.

Table 2-3: Piezometer details

Location ID	Manual Dip		Ground Surface Elevation RL (m)	Groundwater Depth (m bgl)	Groundwater Depth RL (m)
	Date	Time			
BH1	26/08/2019	10:30am	9.68	3.2	6.5

3 Geotechnical considerations

3.1 General

The principal geotechnical considerations which will need to be addressed for the design and construction of the proposed development are:

- Seismic hazards;
- Foundation options;
- Slope stability;
- Subgrade strength for slabs on grade and pavements;
- Ground retention;
- Construction methodology.

Preliminary geotechnical recommendations in relation to these issues have been presented in the subsections below.

3.2 Seismic shaking hazard

3.2.1 Seismic site subsoil class

Seismic accelerations to be resisted by a structure are dependent upon the stiffness of the underlying soil/rock. If assessment of site subsoil class is undertaken with strict adherence to NZS1170.5 then the site Subsoil Class is D (deep soil site). However, T+T believes this site and others within the New Plymouth CBD may behave more like a Subsoil Class C site (shallow soil site). **Accordingly, our recommendation is that both are considered by conservatively adopting the larger ground actions of either subsoil Class C or D, which will be dependent on period.** The Designer is responsible for assessing whether Subsoil Class C or Subsoil Class D governs for the specific period being considered. Subsoil Class C is expected to govern at low periods (i.e. for geotechnical design including liquefaction analysis, in-ground structures and for low period

structures such as short buildings). Site subsoil Class D is expected to govern at higher periods (i.e. for higher period structures such as tall buildings). If more certainty on the subsoil class is required, a detailed site specific analysis could be undertaken.

Following the above recommendation, the subsoil category for this site for seismic design actions for geotechnical design may be taken as Class C: Shallow soil site. We have assumed an Importance Level 2 (IL2) structure with a design life of 50 years for liquefaction assessment.

For assessing the liquefaction hazard (refer to Section 3.3) the peak ground acceleration (PGA_H) and earthquake magnitude (M_{eff}) have been based on NZGS/MBIE Guidelines[6], Section 5, Method 1. The table below provides the return periods for design-level earthquake magnitudes and the associated unweighted peak horizontal ground acceleration (PGA_H).

Table 3-1: Ground seismic hazard for Subsoil Class C (Geotechnical design only)

NZS 1170.5 Limit State	PGA (g)	Effective magnitude M_{eff}	Return period (years)
Serviceability limit state (SLS)	0.07	6.0	25
Ultimate limit state (ULS)	0.29	6.0	500

Note:

PGA and effective magnitude has been assessed based on NZGS/MBIE Guideline Module 1 and Bridge Manual SP/M/022 Third Edition for the following:

Building design life	50 years – agreed with structural engineer
Building importance level	2 (NZS 1170.0:2004, Table 3.2) – agreed with structural engineer
Return period factor, Ru	1.0 for 500yr (NZS 1170.5:2004, Table 3.5)
Subsoil class	C (Shallow soil) – refer NZS 1170.5:2004, Table 3.2
Return period PGA coefficient, $C_{0,1000}$	0.28 (Bridge Manual Table 6A.1)
Site subsoil class factor, f	1.33 (Bridge Manual Section 6.2)
PGA	$C_{0,1000}$ x Ru/1.3 x f x g (Bridge Manual Section 6.2)
Effective Magnitude, M_{eff}	6.0 for 500yr return period (Bridge Manual Table C6.1)

3.3 Liquefaction assessment

A site specific liquefaction assessment based on CPT data was undertaken using the design action in Table 3-1. The assessment was limited to the upper layers of fill and Taranaki Brown Ash relative to the refusal depth of the CPTs. The methods used in our CPT based liquefaction analysis follow those set out by Boulanger and Idriss 2014[7]. Outputs of these analysis are included in Appendix D.

From the analyses, the liquefaction potential at the site for a ULS event is expected to be low to negligible. The CPT analysis indicate thin layers of liquefiable material could occur within the ash (<100mm thick). The cumulative liquefaction induced free field settlement was calculated to be <15mm.

The liquefaction potential of the Pouakai Group materials underlying the Taranaki Brown Ash has been assessed using SPT values. Results indicates the material is too dense to liquefy.

[6] New Zealand Geotechnical Society (NZGS) and Ministry of Business, Innovation & Employment (MBIE) guidelines for *Earthquake Geotechnical Practice in New Zealand. Module 1: Overview of the guidance*, Rev 0 issue date March 2016

[7] Boulanger, R.W and Idriss, I.M., 2014. *CPT and SPT based liquefaction triggering procedures*. Report No. UCD/CGM-14/01, Center for Geotechnical Modelling, Department of Civil and Environmental Engineering, University of California, Davis, CA, 134 pp

3.4 Foundation options

Concept plans indicate that the basement floor slab finished level is at approximately 9 m RL meaning the western side will likely be on Taranaki Brown Ash and the eastern side on the existing surficial fill.

Piled foundations are likely to be most suitable to support the four storey building given it is located directly upslope of Huatoki Stream. Any uplift capacity may be provided by tension piles.

3.4.1 Pile foundations

Pile foundations would be a feasible option for the proposed development and would need to extend to the medium dense to dense gravels and sands of the Pouakai Group which is expected to be present from an elevation of 4.5 m RL and founding near existing stream level at around 1 m RL. We understand that an archaeologically significant, non-engineered wall is present directly downslope and along the eastern boundary. Low impact and low vibration pile options may be preferred to avoid any damage to this wall, such as screw piles or bored piles. Driven piles are an acceptable option from a geotechnical perspective but associated vibration have the potential to damage the existing non-engineered retaining wall. The piles foundation options are discussed in more detail below.

Building piles on the eastern side of the building may need to be designed to resist a lateral load of 45 kN/m depending upon the approach adopted to mitigate potential instability of the eastern slope (as outlined in Section 3.5).

Screwpiles

Screw piles are solid steel helical shaped piles. The piles have a central steel pile shaft with a single helix welded to it. The pile gains capacity through end bearing as the shaft is rotated into the soil. Extension shafts with plates are added as needed. The target bearing stratum for screw piles will also be the medium dense to dense Pouakai Group formation founding at around 1 RL m. The size and capacity of the screwpile helix will need to be assessed during detailed design. Similar capacities to an H-pile can be considered for concept design.

Bored piles

Reinforced concrete bored piles extending to the medium dense to dense Pouakai Group formation founding at around 1 RL m are also considered suitable if low impact and low vibration is required. However, these are expected to require temporary support (temporary casings or bentonite slurry) through the Pouakai Group formation soils to prevent hole collapse during construction. The Bored piled capacities into the Pouakai Group formation are outlined in Table 3-2.

When calculating the maximum ultimate limit state load, a strength reduction factor (ϕ) of 0.5 should be applied to the following geotechnical ultimate capacities.

Table 3-2 – Bored pile design parameters

Geological unit	Approximate reduced level of top of unit	Geotechnical ultimate capacity (kPa)		
		Pile skin friction (Compression, kPa)	Pile end bearing (1) (Compression, kPa)	Pile skin friction (Tension, kPa)
Medium dense to dense gravels and sands Pouaki Group	4.5 RL m and below	20	1,250	To be confirmed based on pile diameter
Notes: (1) Requires an embedment of at least 3 pile diameters into geological unit to mobilise end bearing capacity				

Driven H-piles

Driven H piles could be utilised. Table 3-3 outlines preliminary estimates for driven H pile capacities. Preliminary pile capacities are calculated based on a capacity reduction factor of $\phi = 0.45$. These will need to be confirmed with detailed geotechnical investigations and analysis. The available capacities may be increased if dynamic pile testing with signal matching is undertaken on a minimum of 10% of the pile foundations. For concept design, an embedment of up to 4 m into the medium dense to dense gravels and sands of the Pouakai Group (N-value ≥ 15) should be assumed. The embedment depth of the piles may be shortened and will need to be driven with an appropriately sized hammer to achieve a pile driving set to prove the design pile capacity. The required pile driving set will need to be developed by the contractor and reviewed by T+T.

During installation of driven piles, compliance with noise and vibration restrictions would be required. If driven piles are considered, then an additional noise and vibration assessment would need to be undertaken to determine the feasibility of compliance with these regulations in close vicinity to the neighbouring buildings.

Table 3-3: Preliminary estimates for driven pile capacities

Pile Material	Pile Size	Ultimate geotechnical capacity, R_{Drive} (kN)	Preliminary ULS capacity, $\phi = 0.45$ (kN)
Steel – 300 MPa grade	150UC30	540	243
	150UC37	670	302
	200UC46	825	371
	200UC52	940	423
	200UC60	1080	486
	250UC73	1310	590
	250UC89	1600	720
	310UC97	1750	788
	310UC118	2120	954
	310UC137	2470	1112
	310UC158	2840	1278

3.4.2 Shallow foundations

Shallow pad foundations may be a suitable foundation option at basement level for small structures (for example, entranceway canopies and not supporting the full building load) provided adequate groundwater controls are implemented and an adequate factor of safety can be achieved on the adjacent slope. This should be assessed on a case by case basis and be subject to review by the Geotechnical Engineer.

Any shallow pad foundations used are expected to be founded within the Taranaki Brown Ash. The following parameters may be assumed for foundation design:

- Geotechnical Ultimate bearing capacity = 300 kPa
- Factored (ULS) bearing capacity = 150 kPa
- Allowable bearing capacity = 100 kPa

Shallow foundation loads should be applied to further slope stability assessment during detailed design if they are used.

3.5 Ground anchors for additional uplift capacity

Ground anchors can be installed where foundations are unable to fully support the tension loads of the building. Constructability of the ground anchors through the Pouakai gravels/sands will need to be considered as casing may need to be installed to avoid hole collapse. Ground anchor capacities can be provided should this be required during detailed design.

3.6 Slope stability assessment

Slope stability analysis software SLOPE/W by Geostudio was used to assess a critical section of the existing slope. A cross section (Figure 1, Appendix A) was developed using site survey, geological information and measured groundwater levels.

The following slope stability design cases were assessed:

- Design groundwater levels (static);
- Elevated groundwater levels (static);
- ULS seismic case using the seismic design criteria presented in Table 3-1.

The slope stability model showed a sensitivity to the adopted groundwater level. The design groundwater level in the slope stability model was assumed to be at 2.9 m below ground level, slightly lower than the groundwater as measured within BH1 in winter. It is assumed that the groundwater level measured in BH1 reflects the elevated groundwater levels during winter conditions. The elevated groundwater level in the slope stability model has been assumed to be 1 m higher than the design groundwater level and has been analysed using existing ground conditions. It is recommended that ongoing groundwater monitoring be undertaken to confirm the preliminary design assumptions.

The results of the slope stability analyses indicate that the eastern slope does not meet the required slope stability criteria. Normally accepted factors of safety (FoS) are achieved by introducing a 45 kN/m lateral stabilising load along the leading edge pile location. A summary of the results of these analyses is presented in Table 3-4 with SLOPE/W outputs presented in Appendix D.

Table 3-4: Summary of slope stability analyses of the proposed slope

Design case	Minimum FOS criteria	Analysed FOS	Analysed FOS with 45 kN/m lateral load
Design groundwater levels (static)	1.5	1.33	1.53 (1.60 without floor live load)
Elevated groundwater levels (static)	1.25	1.06	1.25
ULS seismic case (PGA = 0.29g)	1.0	0.91	1.0

The results presented in Table 3-4 indicate that the following approaches could be taken with respect to the portion of the building platform at the crest of the eastern slope which lies within zone of slope instability (7 m from the slope crest):

- Option 1: Fully suspend the floor slab and design the building piles to resist the 45kN/m lateral load so that any slope instability does not adversely affect the building or,
- Option 2: Construct an in-ground (palisade) retaining wall (likely comprising closely spaced piles at 3 times the pile diameter) along the crest of the eastern slope to stabilise the building platform. The building piles would therefore not be required to resist lateral loads. The floor slab may be fully suspended or constructed as a slab-on-grade.

Local instability as a result of movement of the existing non-engineered retaining wall near the crest of the eastern slope is likely over the design life of the building. However, this should have no effect on the building if one of the foundation options above is constructed.

Local (small scale) superficial scouring could occur on the steep area downslope of the building platform and non-engineered wall during rainfall. Adequate measures should be taken to ensure that stormwater is directed away from the slope (including toe of the slope) and that the finished surface of the fill batter is contoured and protected appropriately to minimise degradation of the slope.

3.7 Slab on grade and pavements

A preliminary subgrade California Bearing Ratio (CBR) of 3% may be adopted for design of pavements bearing on the existing fill and Taranaki Brown Ash. This figure should be confirmed by in-situ testing following stripping to subgrade level and confirmation of the building loads. Any soft spots encountered in the non-engineered fill will need to be sub-excavated and replaced with compacted hardfill.

A fully suspended floor slab may be required on the eastern side of the building as discussed in Section 3.5.

3.8 Ground retention

Ground retention is required along the southern and western ends of the proposed basement excavation, along the boundary to the road reserve.

The excavation required on the northern end is expected to be <1 m. Temporary and permanent ground retention may be required to support the buildings to the north and northeast. The property

files for these buildings should be reviewed during detailed design in order to assess the impact (if any) of the basement excavation on the neighbouring building foundations.

An in-ground retaining wall may also be required along the eastern side of the site to achieve slope stability design criteria depending upon the preferred foundation option as discussed fully in Section 3.5.

The following geotechnical design parameters (Table 3-5) may be adopted for retaining wall design where retained heights are no greater than 3 m with no upslope batters:

Table 3-5: Soil parameters

Soil type	Unit weight, γ (kN/m^3)	Undrained shear strength (kPa)	Effective cohesion, c' (kPa)	Drained friction angle, ϕ (°)	Modulus of elasticity, E ' (MPa)	Poisson's ratio, v'
Fill (gravels and reworked Taranaki Brown Ash	16	-	2	30	10	0.3
Taranaki Brown Ash (stiff to very stiff clay and sandy silt)	16	100	5	40	20	0.3

Soil type	Active earth pressure coefficient, k_a	Passive earth pressure coefficient, k_p	"At rest" earth pressure coefficient, k_0[2]
Fill (gravels and reworked Taranaki Brown Ash)	0.29	4.64	0.50
Taranaki Brown Ash (stiff to very stiff clay and sandy silt)	0.18	9.60	0.36

1 – Assumes normally consolidated soil

Retaining wall design should consider the maximum permissible deflections for any nearby buildings and services.

During construction, temporary retention will be required. The design for the temporary retention will need to be undertaken during detailed design. Un-propped retention may be feasible for lower retained heights, this is to be confirmed in detailed design.

3.9 Earthworks

The proposed development will require excavation to the basement ground beams and floor slabs. We anticipate the underlying fill and ash material to be suitable for re-use as engineered fill with appropriate conditioning and compaction. Alternatively, material can be disposed at a suitable landfill (subject to contamination testing).

The volcanic ash is relatively sensitive. Excessive movement of construction plant directly over the ash should be avoided.

Any earthworks undertaken in the area should be carefully managed, both in the short term and long term. It is recommended that all temporary works and construction methods be reviewed by a geotechnical engineer.

3.10 Construction considerations

The following geotechnical construction considerations are identified

1 Temporary support may be required to support heavy machinery (such as piling machines) at the site to ensure the eastern slope is stable at all times;

2 Berms and temporary props may be required to provide temporary ground retention during construction (to be confirmed during detailed design of the retaining walls);

3 Protection of the archaeologically significant stone railway embankment while using heavy machinery or installation of piles near the existing wall.

4 Construction observations should be undertaken to:

- Confirm foundation condition beneath floor slabs and any shallow foundations;
- Confirm founding conditions for pile foundations.

4 Further work

This report is intended to support design of the proposed building development of 51 Brougham Street site. It cannot be relied upon as the geotechnical assessment of the neighbouring site at 53 Brougham Street.

The following further work is recommended:

- Further monitoring of groundwater levels is recommended;
- Retaining wall design will need to be undertaken for the basement. Both permanent and temporary retaining wall design should consider the maximum permissible deflections for any nearby buildings and services;
- It is recommended that T+T be provided with a complete set of detailed design drawings for review prior to issuing for construction. This is to confirm that advice presented in this document has been appropriately interpreted. During excavation and construction, the site should be examined by an engineer competent to judge whether the exposed subsoils are compatible with the inferred conditions on which the report has been based. We would be pleased to provide this service to you and believe your project would benefit from the continuity. However, it is important that we be contacted if there is any variation in subsoil conditions from those described in the report.

5 Summary and conclusions

On the basis of the geotechnical assessment carried out, we summarise our conclusions and recommendations with respect to the proposed development as follows:

1 The proposed development includes a basement level which will require ground retention along the southern and western sides of the basement level (along the road boundaries of Powderham and Brougham Street) and minor retention may be required to support the existing northern and northeastern buildings. The basement level will daylight after excavation along the eastern boundary;

2 Geotechnical investigations indicate the site is underlain by the following materials fill, underlain by Taranaki Brown Ash, underlain by gravel and sands of the Pouakai Group;

3 The groundwater level was encountered at 3.2 m bgl from one measurement. Ongoing groundwater monitoring is recommended;

4 As discussed in Section 3.2.1, we recommend that seismic design consider both subsoil Class C or D by conservatively adopting the larger ground actions of either subsoil Class C or D, which will be dependent on period. The Designer is responsible for assessing whether Subsoil Class C or Subsoil Class D governs for the specific period being considered. The site is classified as a Subsoil Class C (shallow soil site) for geotechnical design.

5 The site is considered to have a low risk due to liquefaction;

6 The site is generally suitable for pile foundations (screw piles or bored piles for low vibration/impact options, and driven piles for high impact/vibration). Piles should be driven or drilled into the Pouakai Group sand/gravels or driven to a pile driving set determined by the contractor and reviewed by T+T;

7 FoS for slope stability on the eastern slope do not meet design criteria. Options (in-ground retaining or suspended floor slab) are provided in Section 3.5 for ensuring a stable building platform.

8 Local instability as a result of movement of the archeologically significant, existing non-engineered stone retaining wall (and stacked timber sleepers) at the crest of the eastern slope is likely over the design life of the building. However, this will not affect the building platform if the one of the recommended foundation options given to mitigate the low FoS for stability of the eastern slope is constructed.

9 Adequate measures should be taken to minimise degradation of the steep slope downslope of the building platform. All drainage should be directed away from the slope;

10 A preliminary subgrade California Bearing Ratio (CBR) of 3% may be adopted subject to in-situ testing for the basement floor slab and pavements;

11 The following considerations should be made during detailed design and construction:

- Temporary and permanent retaining wall design should consider the maximum permissible deflections for any nearby buildings and services;
- Consideration into the type of machinery or piles to be used on site if protection of the archaeologically significant stone railway embankment is required.
- Berms and temporary props may be required to provide temporary ground retention during construction;
- Un-propped retention may be feasible for lower retained heights and should be confirmed in detailed design;

6 Applicability

This report has been prepared for the exclusive use of our client Red Jacket Ltd, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

Recommendations and opinions in this report are based on data from discrete investigation locations. The nature and continuity of subsoil away from these locations are inferred but it must be appreciated that actual conditions could vary from the assumed model.

Tonkin & Taylor Ltd

Report prepared by:

pp.

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Geotechnical Engineer

Report reviewed by:

.....

Prisca Tang
Senior Geotechnical Engineer

Authorised for Tonkin & Taylor Ltd by:

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Hamish Maclean
Project Director

13-Dec-19
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Appendix A : Figures

- **Figure 1 – Site plan**
- **Figure 2 – Cross section**
- **Drawings from client**
- **Topographic survey**

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LEGEND

- SITE BOUNDARY
- PROPERTY BOUNDARY
- 6.0 SURVEYED CONTOUR (1m INTERVAL)
- SURVEYED CONTOUR (0.5m INTERVAL)
- BH1 TONKIN + TAYLOR BOREHOLE LOCATION (AUG 2019)
- HA5 TONKIN + TAYLOR HAND AUGER LOCATION (AUG 2019)
- CPT5 TONKIN + TAYLOR CONE PENETRATION TEST LOCATION (AUG 2019)

A3 SCALE 1:200

0 2 4 6 8 10 (m)

ORIGINAL IN COLOUR

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NOTES:

1. ALL DIMENSION ARE IN METRES UNLESS NOTED OTHERWISE.
2. BASEPLAN AND SURVEY SUPPLIED BY BLAND & JACKSON SURVEYORS LTD, REF "9299 E00 R02 Site Topographical Survey.dwg" DATED 25/07/2019.
3. AERIAL PHOTOGRAPHY SOURCED FROM LINZ DATA SERVICE <https://data.linz.govt.nz/layer/95525-new-plymouth-010m-urban-aerial-photos-2017/> , LICENSED BY LINZ FOR RE-USE UNDER THE CREATIVE COMMONS ATTRIBUTION 4.0 NEW ZEALAND LICENCE (CC BY 4.0). ACCESSED 12/08/2019.

PROJECT No.	1011502	
DESIGNED	CMCD	Aug.19
DRAWN	JC	Aug.19
CHECKED	EMAD	Sep.19
APPROVED	H. MACLEAN	DATE SEP.19

CLIENT **RED JACKET LIMITED**

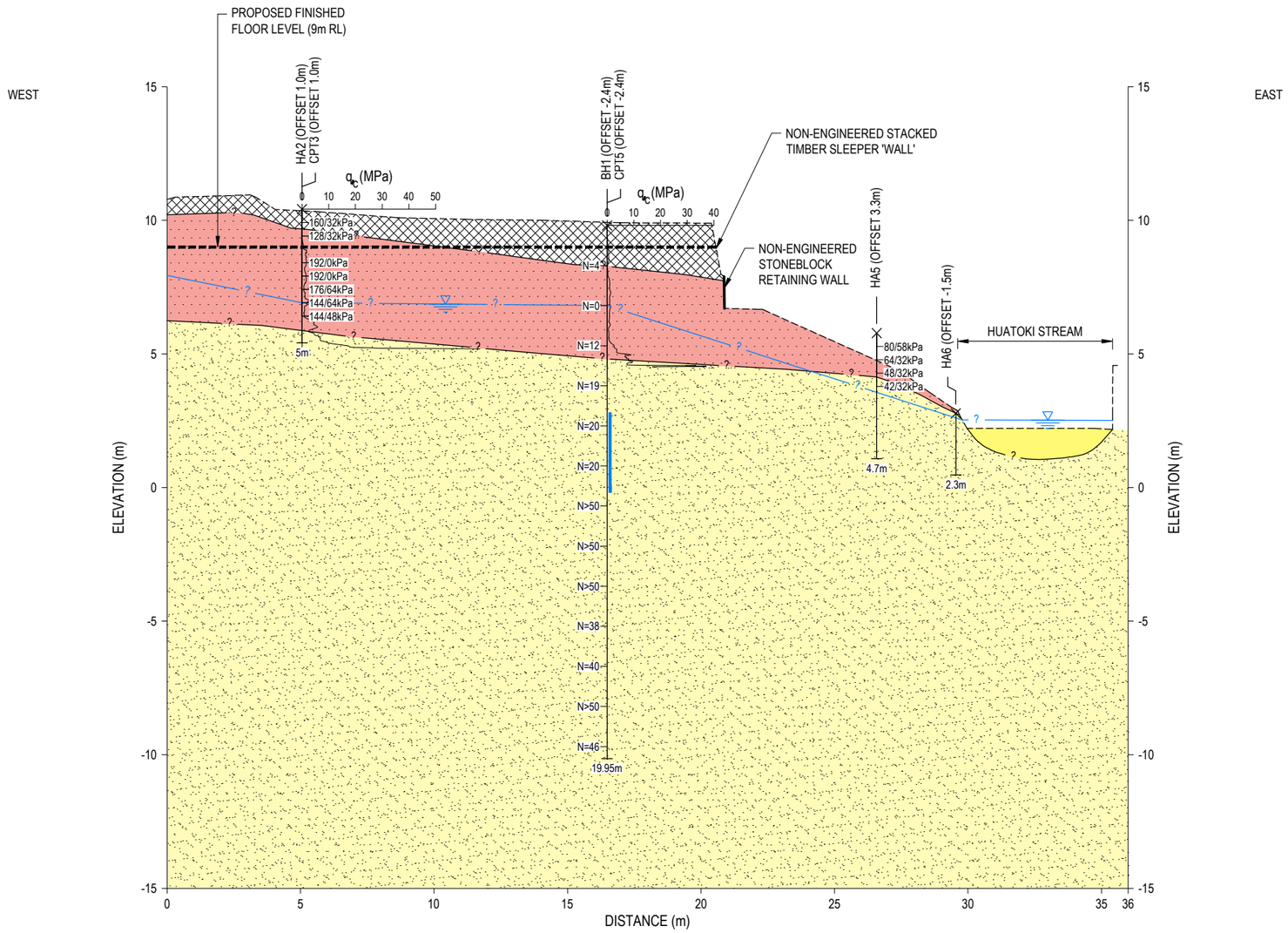
PROJECT **51 BROUGHAM STREET, NEW PLYMOUTH**

TITLE GEOTECHNICAL INVESTIGATION
SITE PLAN

SCALE (A3) 1:200 FIG No. FIGURE 1 REV 1

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SECTION 1 / F1
SCALE 1: 200

LEGEND

- FINISHED FLOOR LEVEL
- EXISTING GROUND PROFILE
- INFERRED GEOLOGICAL BOUNDAY
- INFERRED WATER LEVEL
- FILL
- TARANAKI ASH
- POUAKAI GROUP (MARINE TERRACES)
- ALLUVIUM
- PIEZOMETER WITH SCREEN DEPTH

A3 SCALE 1:200

ORIGINAL IN COLOUR

NOTES:

1. ALL DIMENSION ARE IN METRES UNLESS NOTED OTHERWISE.
2. GROUND PROFILE BASED ON SURVEY SUPPLIED BY BLAND & JACKSON SURVEYORS LTD, REF "9299 E00 R02 Site Topographical Survey.dwg" DATED 25/07/2019.

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PROJECT No.	1011502	
DESIGNED	CMCD	Aug.19
DRAWN	JC	Aug.19
CHECKED	EMAD	Sep.19
APPROVED	H. MACLEAN	DATE SEP.19

CLIENT **RED JACKET LIMITED**

PROJECT **51 BROUGHAM STREET, NEW PLYMOUTH**

TITLE GEOTECHNICAL INVESTIGATION
GEOLOGICAL CROSS SECTION 1

SCALE (A3) 1:200 FIG No. FIGURE 2 REV 1



Site Plan

Scale 1 : 500 (A3)

Proposed Floor Areas - 51 Brougham

NOTE. All areas are approximate. Areas include entire building footprint, ie. no allowance for circulation, WCs etc.

L0 - 412m² (covered)
L1 - 412m²
L2 - 412m²
L3 - 412m²
L4 - 205m²

Total - 1853m²

Proposed Floor Areas - 53 Brougham

NOTE. All areas are approximate. Areas include entire building footprint, ie. no allowance for circulation, WCs etc.

L0 - 752m² (covered)
L1 - 752m²
L2 - 752m²
L3 - 752m²

Total - 3008m²

BROUGHAM STREET DEVELOPMENT

51 & 53 Brougham Street, New Plymouth

MASTERPLANNING

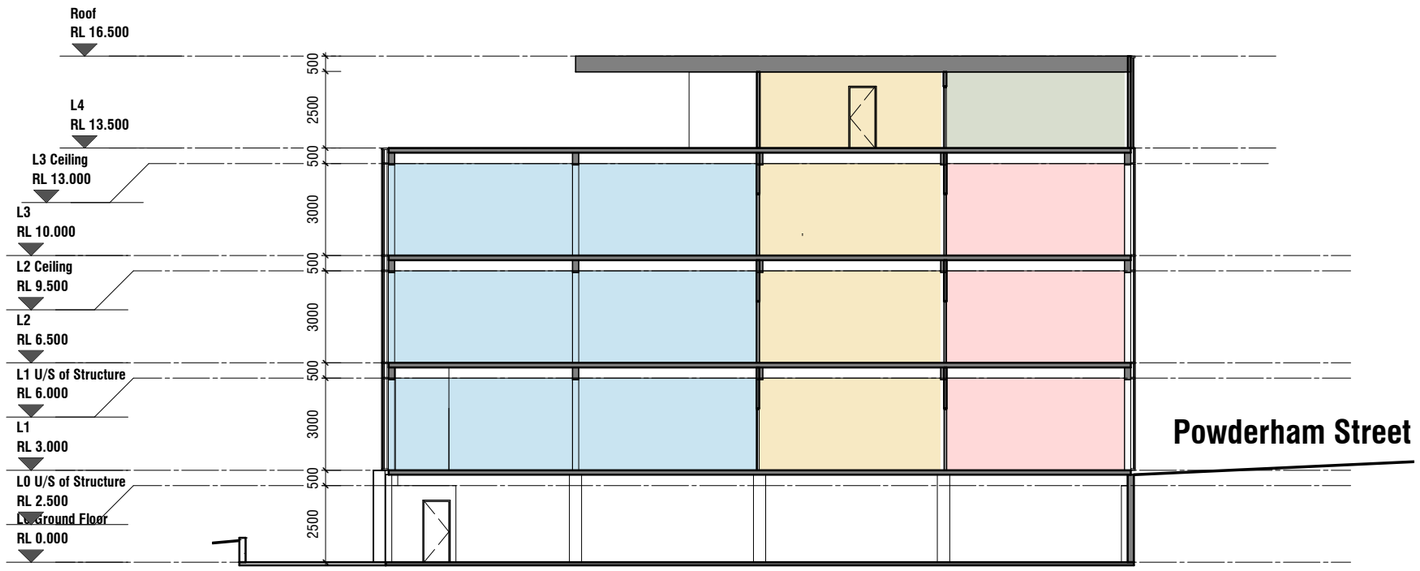
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job no.	a3 scale	drawing no	rev	drawing title	print date
6400	As indicated	SK1.02		Proposed Site Plan	15-Mar-19 8:35:46 AM

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A SK1.01 **Section A**

Scale 1 : 200 (A3)

BROUGHAM STREET DEVELOPMENT

51-53 Brougham Street, New Plymouth

MASTERPLANNING

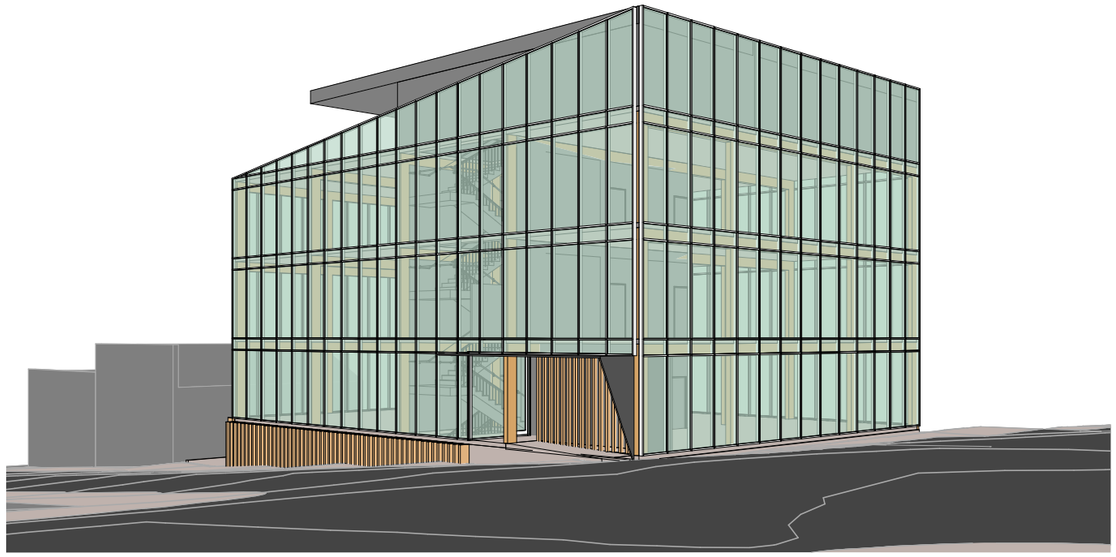
APRIL | 2019

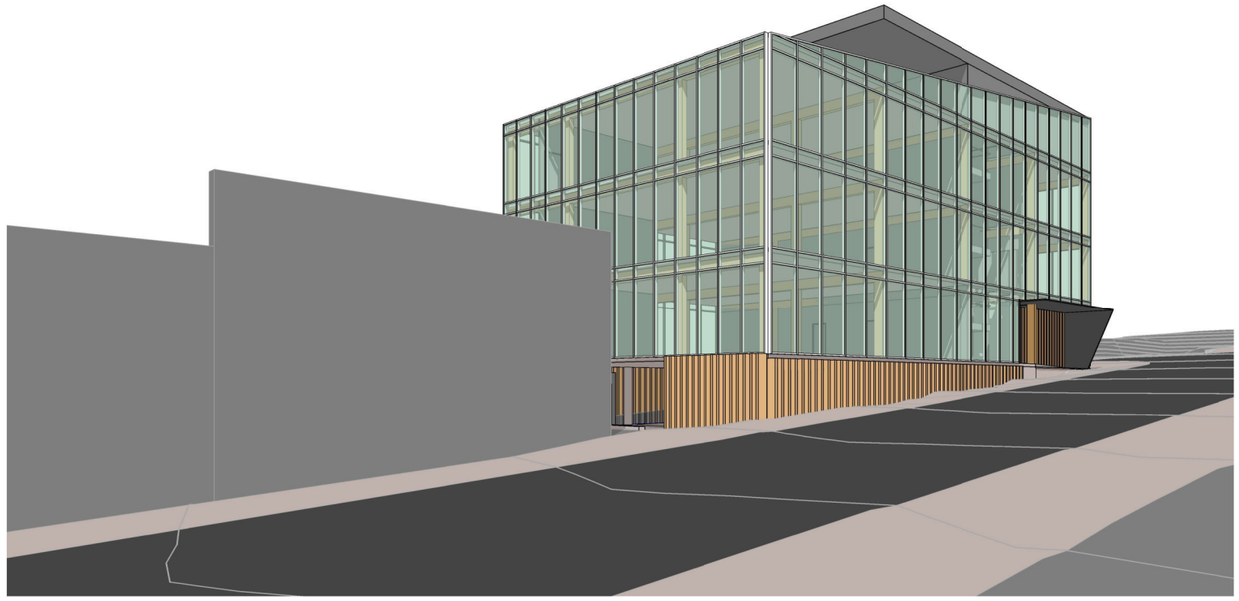
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A/131 Courtenay St, New Plymouth 4310, New Zealand
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BROUGHAM STREET DEVELOPMENT

51-53 Brougham Street, New Plymouth

MASTERPLANNING

APRIL | 2019

job no.	a3 scale	drawing no	rev	drawing title	print date
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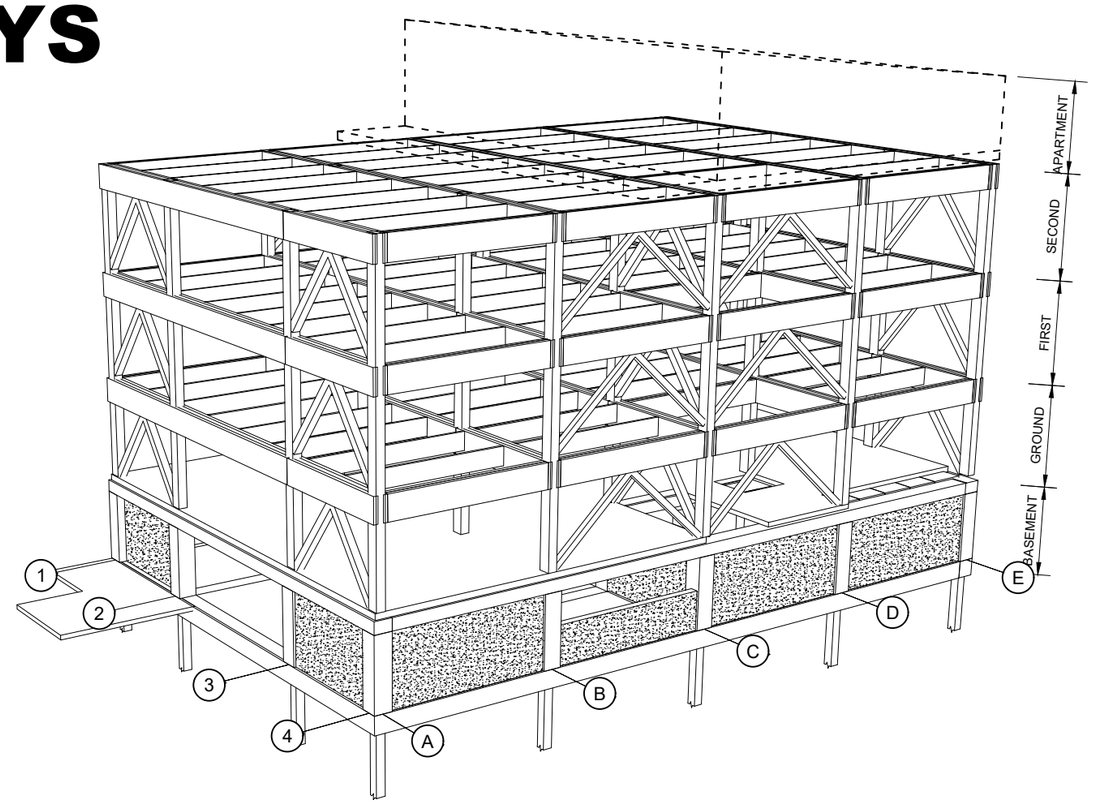
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NEW COMMERCIAL BUILDING
CONCRETE FLOOR OVERLAYS
51 BROUGHAM STREET
NEW PLYMOUTH

SHEET No.	DESCRIPTION	29/05/19								
S0-1	COVER SHEET	A								
S1-2	BASEMENT PLAN	A								
S1-3	GROUND FLOOR PLAN	A								
S1-4	FIRST FLOOR PLAN	A								
S1-5	SECOND FLOOR PLAN	A								
S1-6	SECOND FLOOR PLAN	A								
S2-1	LONG SECTION	A								
S2-2	CROSS SECTION	A								



CONCEPT

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Client: KD HOLDINGS LTD

Project: NEW COMMERCIAL BUILDING
CONCRETE FLOOR OVERLAYS
51 BROUGHAM STREET
NEW PLYMOUTH

Sheet Title: COVER SHEET

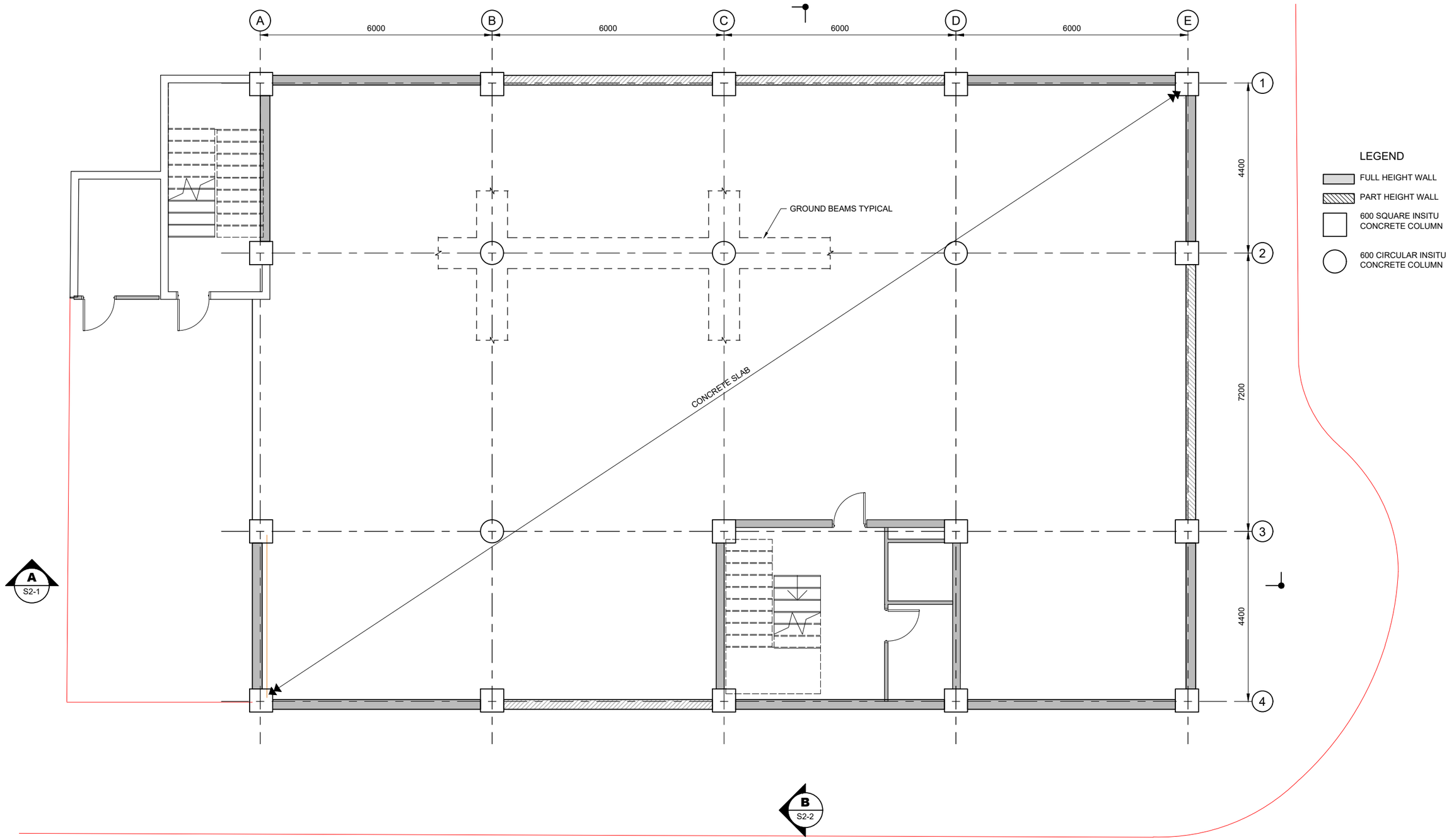
Drawing No.: 400-401

A3

REV. A

Job No.: 3297

Sheet No.: S0-1



BASEMENT PLAN

1:100

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51 BROUGHAM STREET
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Sheet Title: BASEMENT PLAN

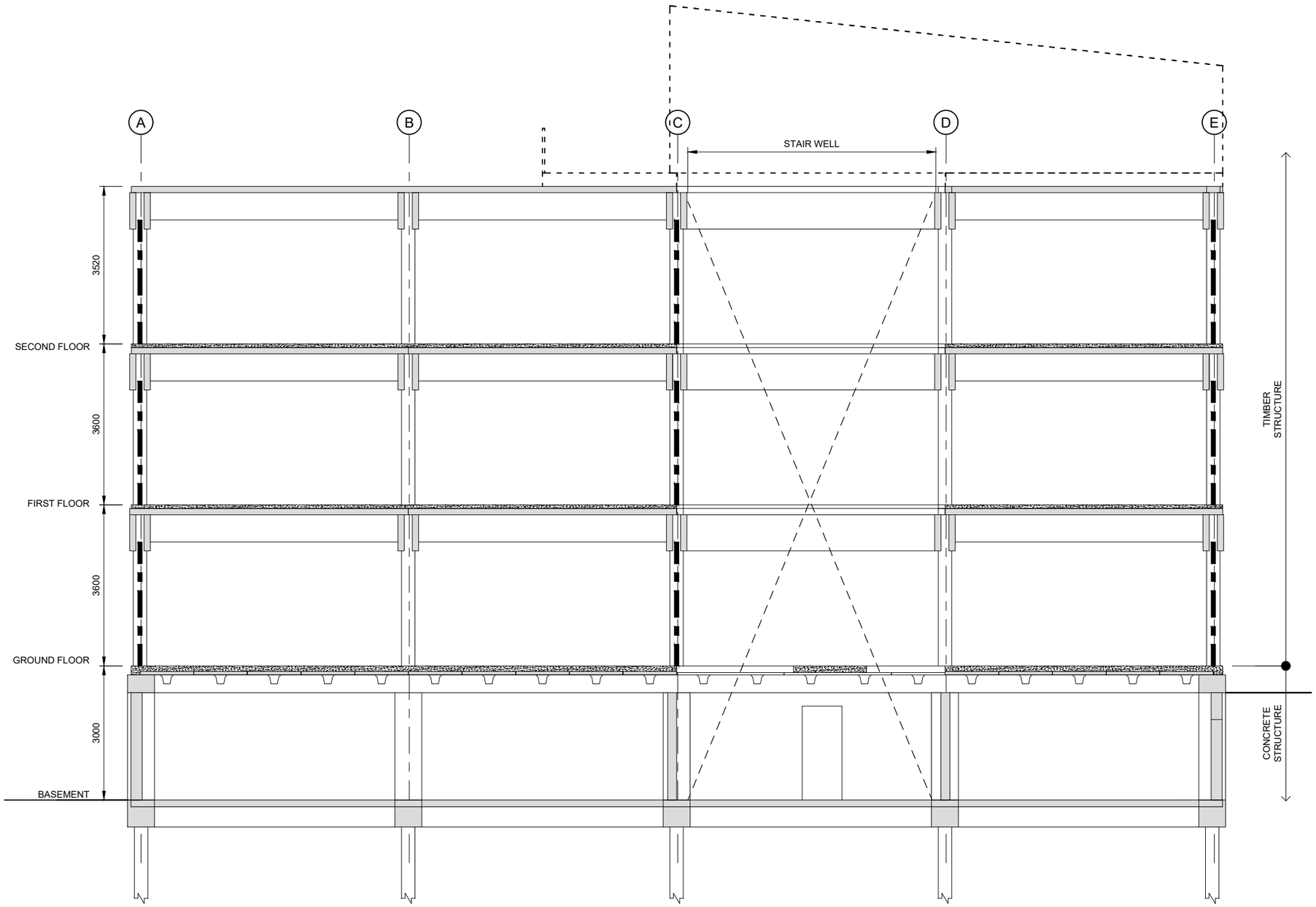
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A3

REV. A

Job No.: 3297

Sheet No.: S1-2



A - LONG SECTION

1:100

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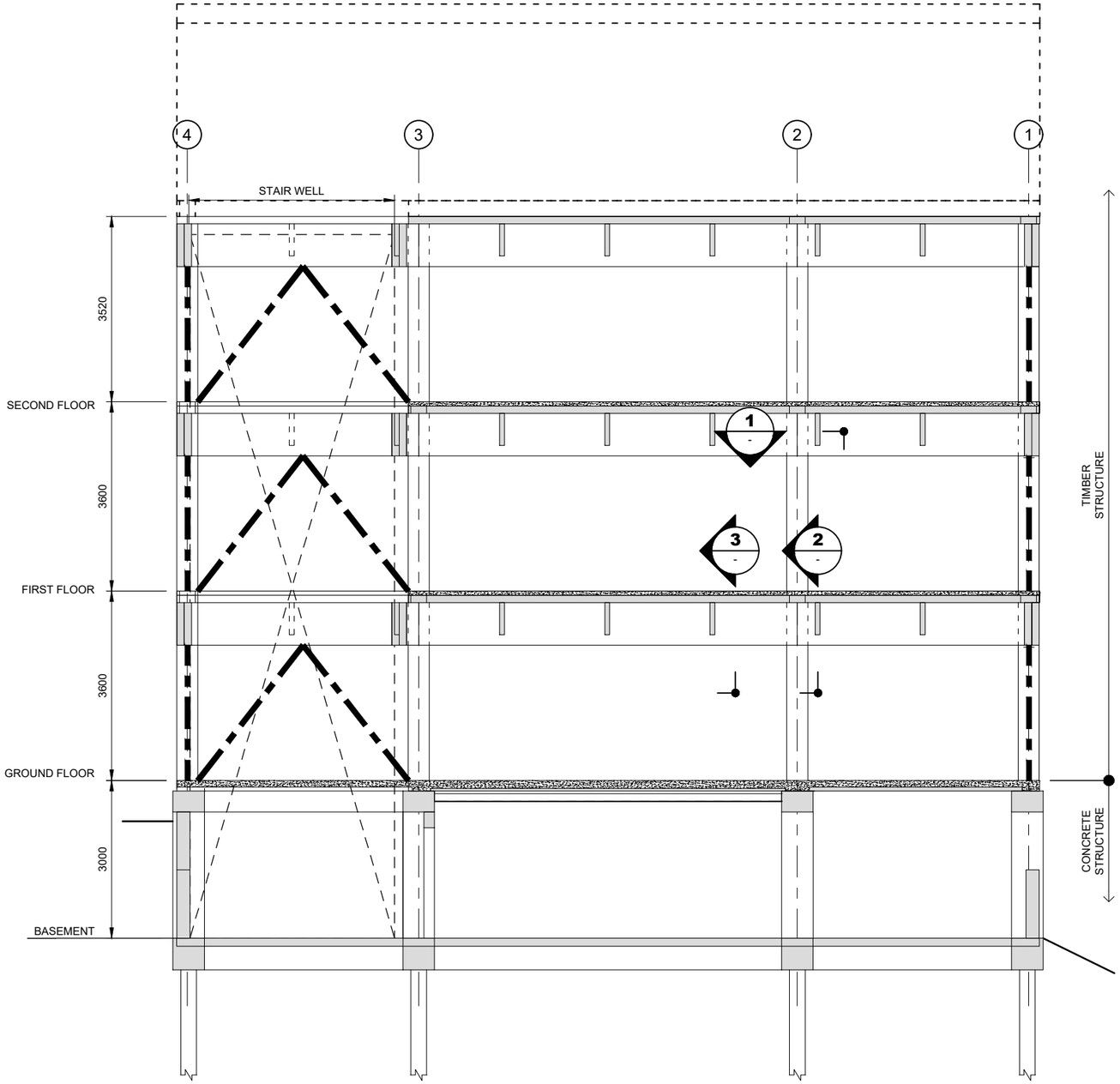
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Client
KD HOLDINGS LTD

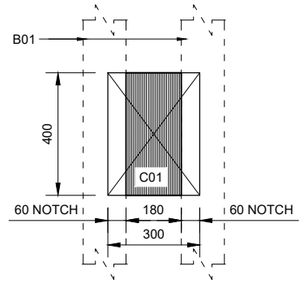
Project
NEW COMMERCIAL BUILDING
CONCRETE FLOOR OVERLAYS
51 BROUGHAM STREET
NEW PLYMOUTH

Sheet Title
LONG SECTION

Drawing No. 400-401
A3
REV. A
Job No. 3297
Sheet No. S2-1



B - **CROSS SECTION**
1:100

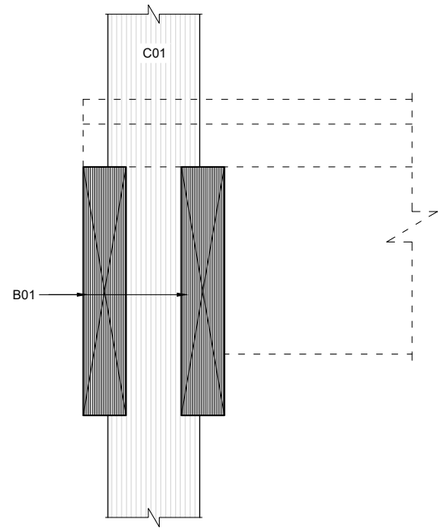


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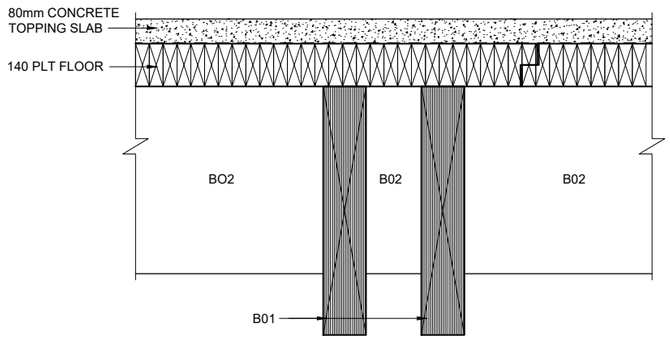
B01 800x140 LVL 11
B02 610x90 LVL 11

C01 400x300 LVL 11

1 - **DETAIL**
1:20



2 - **DETAIL**
1:20



3 - **DETAIL**
1:20

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DATE	REV	REV RECORD	BY	CHD	VER	APP
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Client
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Project
NEW COMMERCIAL BUILDING
CONCRETE FLOOR OVERLAYS
51 BROUGHAM STREET
NEW PLYMOUTH

Sheet Title
CROSS SECTION

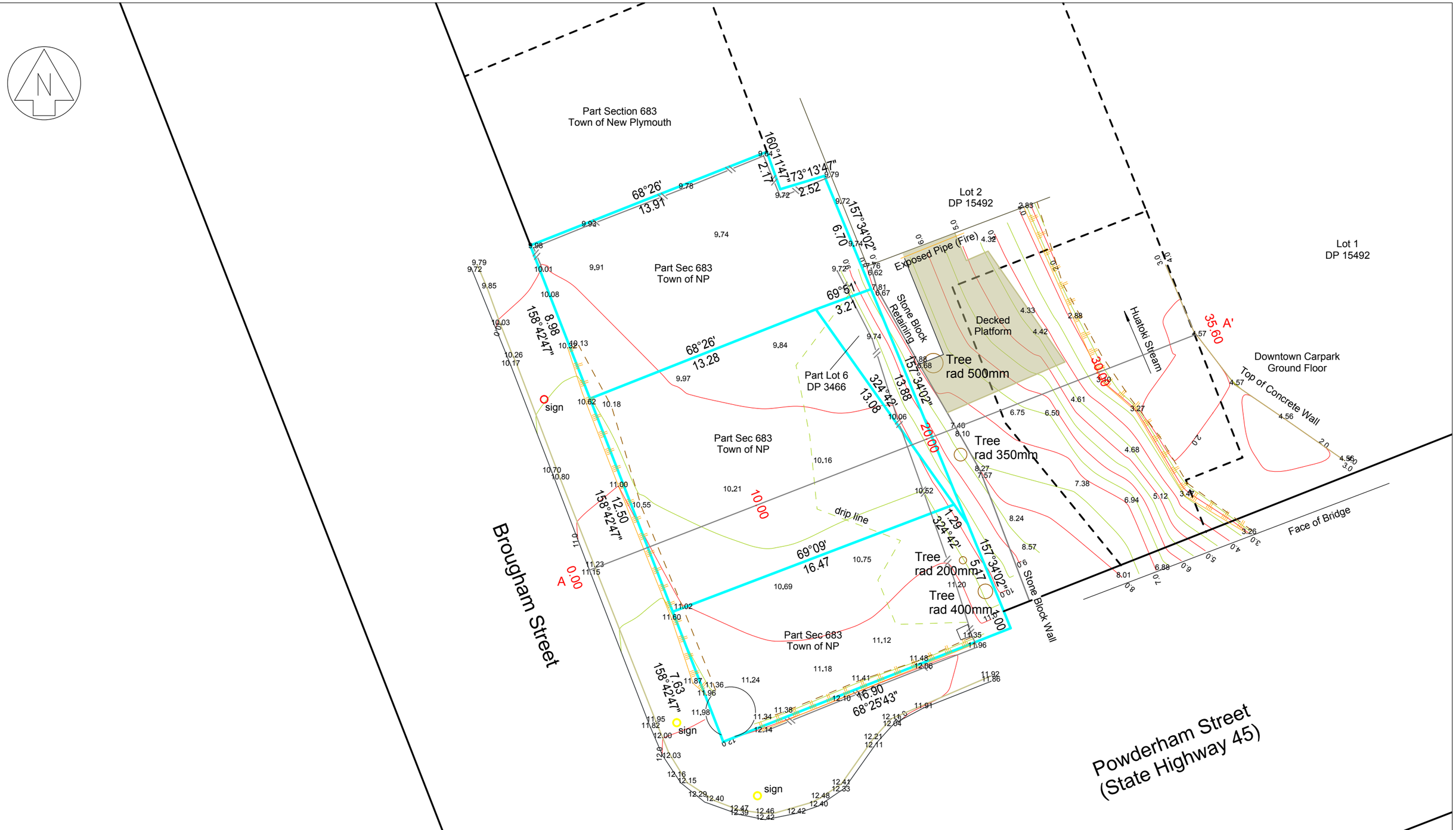
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400-401

A3

REV.
A

Job No.
3297

Sheet No.
S2-2



02	Additional Topographical Info	18.07.19	ta	cj
01	Bdy info and Trees	25.06.19	ta	cj
00	Issued	27.05.19	ta	cj
Rev.	Amendment Description	Date	Drawn	Appr.

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Coordinates are in terms of Taranaki Datum 2000
Based on RM XVI SO 13123 808683.91mN 386556.75mE
Elevations are in terms of Taranaki Vertical Datum 1970.
Origin of Elevations RM XVI SO 13123, 5.03m.

- Major Contour Interval is 1.0m
- Minor Contour Interval is 0.50m

Title

Site Topographical Survey

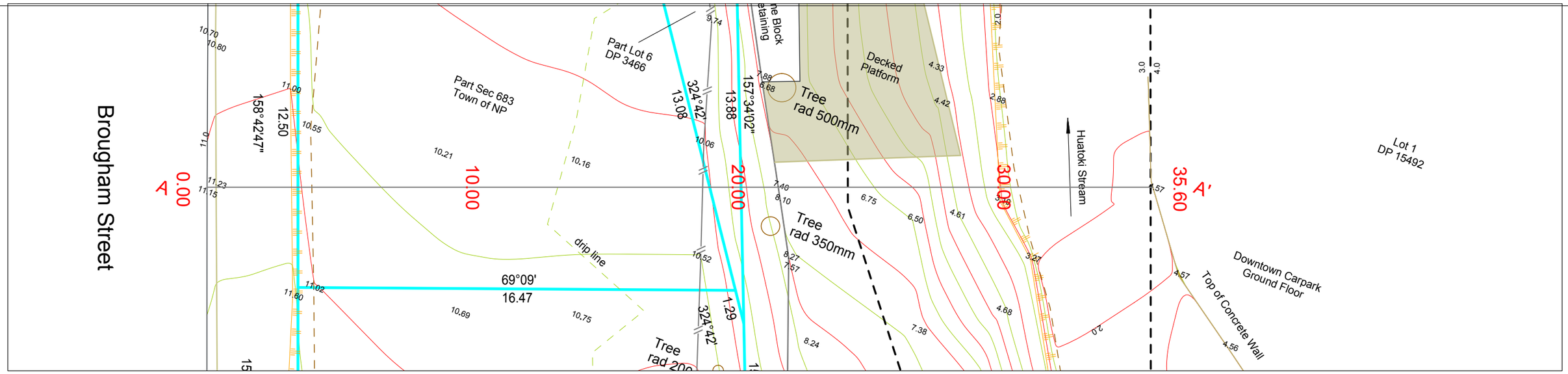
Part Sections 683 Town of New Plymouth
Part Lots 6 DP 3466

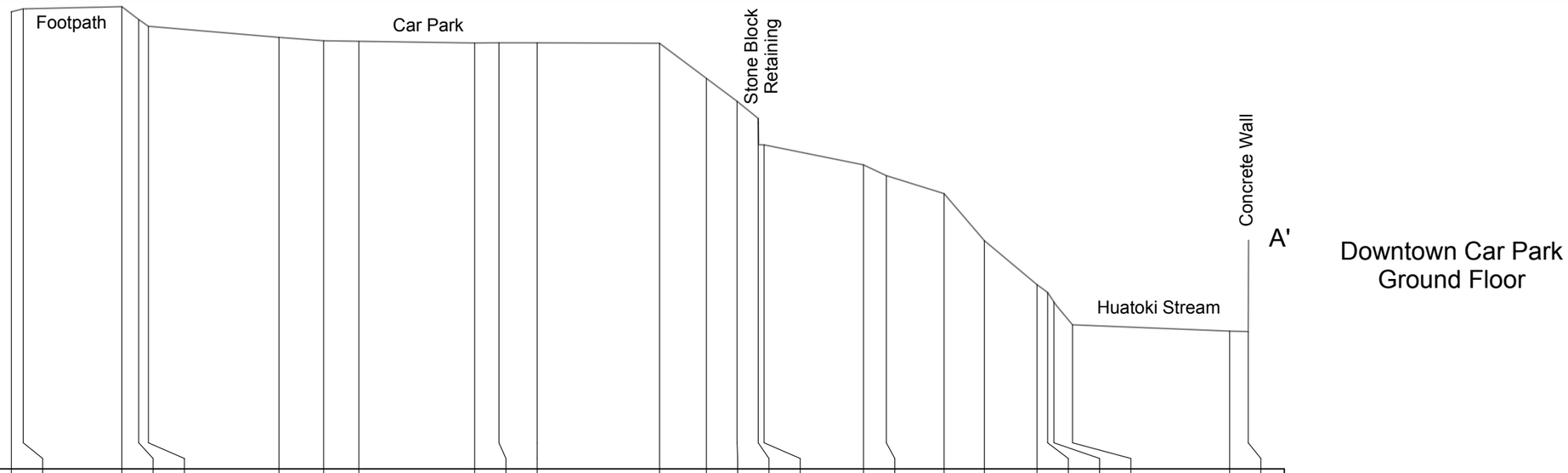
Location: 51 Brougham Street

Drawing Scale (Original Size - A3)	Project No.	Drawing File	Sheet no.	Revision
1:200	9299	E00	1 /2	R02

S:\Documents\9299 Red Jacket Brougham Street\12D\9299 Topo 9299 Topo

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Brougham Street
A
0.00
10.00
20.00
30.00
35.60
A'
158°42'47"
12.50
Part Sec 683
Town of NP
Part Lot 6
DP 3466
324°42'
13.08
13.88
157°34'02"
Stone Block
Retaining
Decked
Platform
Tree
rad 500mm
Tree
rad 350mm
Tree
rad 200
drip line
69°09'
16.47
1.29
Huatoki Stream
Lot 1
DP 15492
Downtown Carpark
Ground Floor
Top of Concrete Wall


Brougham Street
Footpath
Car Park
Stone Block
Retaining
Concrete Wall
A'
Huatoki Stream
Downtown Car Park
Ground Floor

Datum R.L. -2.00

| | | |

Appendix B: Previous ground investigation results

- **Beca Borehole logs**

SOURCE: NZGD

Beca

BOREHOLE No: BH02

MACHINE BOREHOLE LOG

SHEET 1 of 10

PROJECT: NP CBD Borehole Drilling 15/BSG05 JOB NUMBER: 3853039

SITE LOCATION: New Plymouth CLIENT: New Plymouth District Council

CIRCUIT: NZTM BOREHOLE LOCATION: Wind Wand

COORDINATES: N 5,676,436.04 m R L: 6.02 m COORDINATE ORIGIN: dGPS

E 1,692,611.55 m DATUM: MSL ACCURACY: ±0.01m

DRILLING: FLUID LOSS | DAILY WATER LEVEL | CORE RECOVERY | METHOD | CASING | RQD

IN-SITU TESTS: SV | τ (kPa) | SPT 'N'

SAMPLES | DEPTH (m) | GRAPHIC LOG | SOIL / ROCK DESCRIPTION | GEOLOGICAL UNIT | R L (m)

Torqueless + Sand Drill

Core recovery	Method	Samples	Depth (m)	Soil / rock description	Geological unit	R L (m)
100 %	HQ3			'Loose', silty, fine to coarse SAND, some rootlets, trace clay; dark reddish brown; moist, low plasticity (matrix). [Topsoil]	Fill	
50 %	HQ3			'Loose', medium to coarse GRAVEL; grey; moist, non plastic. Gravel: SW, angular to subrounded greywacke, clast supported. [Ballast]		
50 %	HQ3		1	'Loose', fine to coarse sandy, medium to coarse GRAVEL, minor silt, dark reddish brown; moist, non plastic. Gravel: SW, rounded to subangular greywacke. 0.5 m, matrix lost on drilling (?).		5
90 %	HQ3	Box 1		'Loose', fine to coarse sandy, medium to coarse GRAVEL, some silt, trace clay; dark brown; low plasticity (matrix). Gravel: MW-SW, subangular greywacke/ andesite.		
80 %	HQ3		2	Very soft, fine to coarse gravelly SILT, some fine to coarse sand, trace clay; orange; wet, low plasticity. Loses volume on reworking. Gravel: SW, rounded to angular andesite.		4
88 %	HQ3			Core loss (1.4 - 1.8 m).		
85 %	HQ3			Very soft, fine to coarse gravelly SILT, some fine to coarse sand, trace clay; orange; wet, low plasticity. Loses volume on reworking. Gravel: SW, rounded to angular andesite.	Fill/ Quatenrary Andesitic Ash	
80 %	HQ3		3	Soft, SILT, minor medium to coarse sand, minor clay; orange-brown; wet, high plasticity, moderately sensitive, pumiceous. Structure: open, loses volume on reworking. Moderately thinly interbedded with thin beds of fine to medium uncemented SAND. 2.8 m, stiff.		3
67 %	HQ3			3.5 m, soft.		
0 %	HQ3	Box 2	4	4.0 m, moderately thin (100 mm) bed of uncemented SAND.		2
100 %	HQ3			'Medium dense', medium to coarse GRAVEL and BOULDERS; grey/ orange; wet. Gravel/ boulders: SW, subrounded andesite, clast supported, maximum 330 mm diameter.	Undifferentiated Quaternary Lahars	
89 %	HQ3		5	Core loss (5.0 - 5.5 m).		1
100 %	HQ3			'Loose', fine to medium SAND, minor fine to medium gravel; dark grey; wet, non plastic. Gravel: SW, rounded andesite.		
73 %	HQ3		6	'Loose', fine to coarse SAND, some silt; laminated light grey, speckled black; wet, non plastic, pumiceous, weakly cemented, loses volume on reworking. Moderately thinly interbedded with fine to medium SAND, trace silt; dark grey, laminated white; wet, non plastic.		0
100 %	HQ3		7	'Loose', fine to coarse SAND, minor silt; dark grey; saturated, non plastic, pumiceous. 7.05 m, some silt; brownish grey; saturated. Uncemented. 7.18 m, thin (20 mm) bed of very soft, clayey SILT; grey; wet, high plasticity.		-1
100 %	HQ3	Box 3		'Loose', coarse GRAVEL; brownish grey: wet, non plastic. Gravel: SW, subrounded to subangular andesite. 7.6 m, moderately thin (100 mm) bed of hard, SILT, minor clay; dark greenish brown; moist, low plasticity, sensitive/ loses volume on reworking. [Cemented ash?]		
60 %	HQ3		8	'Loose', sandy fine to coarse GRAVEL; brownish grey: wet, non plastic. Gravel: SW, subrounded to subangular andesite.		-2
				'Medium dense', medium to coarse gravelly, fine to coarse SAND, some silt; greyish brown; moist, non plastic, cemented. Gravel: MW-SW, subangular andesite, greywacke. 1 x cobble: extremely weak, SW, grey mudstone (breaks down to SILT; low plasticity).		
30 %	HQ3		9	'Loose', uncemented fine to medium SAND; grey; wet, non plastic. Core loss (8.6 - 9.7 m).		-3
				'Loose', medium to coarse SAND; dark brownish grey; moist, non plastic.		

DATE STARTED: 16/2/16 DRILLED BY: Drill Force NZ Ltd COMMENTS:

DATE FINISHED: 26/2/16 EQUIPMENT: YDX3L

LOGGED BY: JUB DRILL METHOD: HQ3

SHEAR VANE No: NA DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

A4 Scale 1:50

BECA LIB 1.07.4.GLB Log BECA MACHINE BOREHOLE NP CBD BH DRILLING 15_BSG05.GPJ <<DrawingFile>> 28/07/2016 14:51 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: Beca 1.07.4 2016-01-15 Prj: Beca 1.07 2014-12-16

BH_TT98872 BH_94475

SOURCE: NZGD

Beca

BOREHOLE No: BH02

MACHINE BOREHOLE LOG

SHEET 2 of 10

PROJECT: NP CBD Borehole Drilling 15/BSG05 JOB NUMBER: 3853039

SITE LOCATION: New Plymouth CLIENT: New Plymouth District Council

CIRCUIT: NZTM BOREHOLE LOCATION: Wind Wand

COORDINATES: N 5,676,436.04 m R L: 6.02 m COORDINATE ORIGIN: dGPS

E 1,692,611.55 m DATUM: MSL ACCURACY: ±0.01m

DRILLING: FLUID LOSS | DAILY WATER LEVEL | CORE RECOVERY | METHOD | CASING | RQD

IN-SITU TESTS: SV | τ (kPa) | SPT 'N'

SAMPLES | DEPTH (m) | GRAPHIC LOG | SOIL / ROCK DESCRIPTION | GEOLOGICAL UNIT | R L (m)

Drilling: Torqueless + Sand Drill

Core recovery	Method	Samples	Depth (m)	R L (m)	Soil / Rock description
100 %	HQ3	Box 3	11	-5	'Medium dense', medium to coarse gravelly, fine to coarse SAND, some silt; greyish brown; moist, non plastic, cemented. Gravel: MW-SW, subangular andesite and greywacke.
100 %	HQ3				
100 %	HQ3				11.0 - 11.6 m, weakly cemented.
					11.6 m, cemented.
40 %	HQ3		12	-6	Core loss (12.1 - 12.9 m).
0 %	HQ3	Box 4			
90 %	HQ3		13	-7	'Medium dense', medium to coarse gravelly, fine to coarse SAND, some silt; greyish brown; moist, non plastic, cemented. Gravel: MW-SW, subangular andesite and greywacke.
100 %	HQ3				
100 %	HQ3		14	-8	
100 %	HQ3				
100 %	HQ3		15	-9	Core loss (15.0 - 15.3 m).
60 %	HQ3				'Medium dense', medium to coarse gravelly, fine to coarse SAND, minor silt; greyish brown; moist, non plastic, cemented. Gravel: MW-SW, subangular andesite and greywacke.
93 %	HQ3		16	-10	
100 %	HQ3	Box 5			Very stiff, fine sandy SILT, trace clay; bluish grey (oxidised greenish brown); moist, low plasticity.
			17	-11	'Medium dense', medium to coarse GRAVEL; grey; dry, clast supported (matrix lost?). Gravel: SW, rounded to subangular andesite.
					Core loss (16. 7 - 17.6 m).
90 %	HQ3		18	-12	'Medium dense', medium to coarse gravelly, fine to coarse SAND, minor silt; greyish brown; moist, non plastic, cemented. Gravel: MW-SW, subangular andesite and greywacke. 17.9 - 18.3 m, weakly cemented, some matrix loss.
100 %	HQ3				
53 %	HQ3	Box 6	19	-13	Core loss (18.9 - 19.4 m).
					'Medium dense', medium to coarse gravelly, fine to coarse SAND, minor silt; greyish brown; moist, non plastic, cemented. Gravel: MW-SW, subangular andesite and greywacke.

Geological unit: **Undifferentiated Quaternary Lahars**

DATE STARTED: 16/2/16 DRILLED BY: Drill Force NZ Ltd

DATE FINISHED: 26/2/16 EQUIPMENT: YDX3L

LOGGED BY: JUB DRILL METHOD: HQ3

SHEAR VANE No: NA DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

COMMENTS:

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

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A4 Scale 1:50

BH_TT98872 BH_94475

SOURCE: NZGD

Beca

BOREHOLE No: BH02

MACHINE BOREHOLE LOG

SHEET 3 of 10

PROJECT: NP CBD Borehole Drilling 15/BSG05 JOB NUMBER: 3853039

SITE LOCATION: New Plymouth CLIENT: New Plymouth District Council

CIRCUIT: NZTM BOREHOLE LOCATION: Wind Wand

COORDINATES: N 5,676,436.04 m R L: 6.02 m COORDINATE ORIGIN: dGPS

E 1,692,611.55 m DATUM: MSL ACCURACY: ±0.01m

FLUID LOSS	DAILY WATER LEVEL	DRILLING: CORE RECOVERY	DRILLING: METHOD	DRILLING: CASING	DRILLING: RQD	IN-SITU TESTS: SV	IN-SITU TESTS: τ (kPa)	IN-SITU TESTS: SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
Torqueless + Sand Drill		0 %	HQ3						Box 6	21		Core loss (20.0 - 21.1 m).	Undifferentiated Quaternary Lahars	-15
		0 %	HQ3											
		100 %	HQ3									'Dense', fine to coarse gravelly, fine to coarse SAND, minor silt; greyish brown; moist, non plastic, weakly cemented. Gravel: MW-SW, subangular to rounded, andesite, greywacke and quartz.		
		100 %	HQ3							22		21.9 - 22.16 m, 'loose', medium to coarse SAND; dark brownish grey (possibly uphole material).		-16
		78 %	HQ3						Box 7	23		'Dense', fine to coarse SAND, some medium to coarse gravel; greyish and pinkish brown; wet, non plastic, pumiceous, cemented. Gravel: SW, subangular, andesite.		-17
		32 %	HQ3							24		23.9 m, 'loose', matrix lost.		-18
												Core loss (24.23 - 24.9 m).		
		35 %	HQ3							25		'Dense', medium to coarse GRAVEL; grey; wet, non plastic, clast supported. Gravel: SW, subangular andesite.		-19
												'Medium dense', fine to medium SAND; brownish grey; wet, non plastic, uncemented.		
												Core loss (25.25 - 25.9 m).		
		100 %	HQ3							26		'Medium dense', fine to medium SAND; brownish grey; wet, non plastic, uncemented.		-20
		96 %	HQ3											
		100 %	HQ3									26.8 m, 1 x cobble: strong, SW, greyish green andesite.		
		50 %	HQ3							27		Core loss (27.0 - 27.25 m).		-21
		80 %	HQ3						Box 8			'Medium dense', fine to medium SAND; brownish grey; wet, non plastic, uncemented. 27.4 m, 1 x cobble: strong, SW, greyish green andesite.		
												27.75 m, 'dense'; brown; weakly cemented.		
		12 %	HQ3							28		'Dense', fine gravelly, fine to coarse SAND, trace coarse gravel; dark brownish grey; moist, non plastic. Gravel: SW, subrounded andesite and greywacke.		-22
												28.23 - 30.6 m, core loss.		
										29				-23

DATE STARTED: 16/2/16 DRILLED BY: Drill Force NZ Ltd COMMENTS:

DATE FINISHED: 26/2/16 EQUIPMENT: YDX3L

LOGGED BY: JUB DRILL METHOD: HQ3

SHEAR VANE No: NA DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

A4 Scale 1:50

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BH_TT98872 BH_94475

SOURCE: NZGD

Beca

BOREHOLE No: BH02

MACHINE BOREHOLE LOG

PROJECT: NP CBD Borehole Drilling 15/BSG05 JOB NUMBER: 3853039

SITE LOCATION: New Plymouth CLIENT: New Plymouth District Council

CIRCUIT: NZTM BOREHOLE LOCATION: Wind Wand

COORDINATES: N 5,676,436.04 m R L: 6.02 m COORDINATE ORIGIN: dGPS

E 1,692,611.55 m DATUM: MSL ACCURACY: ±0.01m

DRILLING: FLUID LOSS | DAILY WATER LEVEL | CORE RECOVERY | METHOD | CASING | RQD

IN-SITU TESTS: SV | τ (kPa) | SPT 'N'

SAMPLES | DEPTH (m) | GRAPHIC LOG | SOIL / ROCK DESCRIPTION | GEOLOGICAL UNIT | R L (m)

Torqueless + Sand Drill

Core recovery	Method	Samples	Depth (m)	R L (m)	Soil / rock description	Geological unit
12 %	HQ3				28.23 - 30.6 m, core loss.	
100 %	HQ3				'Dense', fine gravelly, fine to coarse SAND, trace coarse gravel; dark brownish grey; moist, non plastic. Gravel: SW, subrounded andesite and greywacke.	Undifferentiated Quaternary Lahars
80 %	HQ3	Box 8	31	-25	'Dense', fine to medium SAND, trace coarse gravel; brownish grey; moist, non plastic. Gravel: MW-SW, siltstone.	
91 %	HQ3				'Dense', fine to coarse SAND, minor fine to medium gravel; brownish grey; moist, non plastic. Gravel: SW, subrounded andesite.	
83 %	HQ3		32	-26		
75 %	HQ3					
67 %	HQ3		33	-27	32.9 m, brown.	
					33.3 m, trace wood fragments (bark).	
95 %	HQ3				'Very dense', fine to medium SAND, trace fine gravel, trace silt; greyish brown; moist, non plastic, weakly cemented. Gravel: SW, subrounded greywacke.	
53 %	HQ3		34	-28	Core loss (33.4 - 33.6 m).	
		Box 9			'Very dense', fine to medium SAND, trace fine gravel, trace silt; greyish brown; moist, non plastic, weakly cemented. Gravel: SW, subrounded greywacke.	
			35	-29	'Very dense', fine to coarse SAND, some shell fragments, some fine to coarse gravel; orange-brown; moist, non plastic. Gravel:	
					35.0 m, fine to coarse sandy, medium to coarse GRAVEL; brownish grey; wet, non plastic. Gravel:	Matemateaonga Formation
60 %	HQ3				Very weak, MW-SW, grey MUDSTONE	
					35.3 m, moderately thin (100 mm) bed of extremely weak fine silty SANDSTONE.	
					35.4 m, extremely weak. Defects: subhorizontal, planar/ stepped, smooth.	
			36	-30	35.8 m, moderately thin (100 mm) uncemented SANDSTONE.	
					35.9 m, very weak.	
100 %	HQ3				35.95 m, defect: very steeply inclined, planar/stepped smooth.	
					36.7 m, extremely weak, fine sandy MUDSTONE, thinly interbedded with silty SANDSTONE.	
			37	-31	36.8 m, very weak MUDSTONE; subvertical brown veined. Defects: very closely spaced, subvertical (to depth 37.5 m), planar, smooth.	
					37.4 - 37.8 m, silty SANDSTONE, moderately thickly interbedded with thin MUDSTONE beds.	
					Extremely weak, MW-SW, grey SANDSTONE. Defect: very steeply inclined, closed.	
			38	-32	38.1 - 38.25 m, subhorizontal brown laminations (organic flecked).	
100 %	HQ3	Box 10			Very weak, MW-SW, brownish grey fine sandy MUDSTONE. Defects: subhorizontal/ gently inclined, undulating, rough.	
			39	-33	38.8 m, defect: very steeply inclined, planar/stepped, smooth.	
					39.6 m, moderately thin (100 mm) bed of silty SANDSTONE.	
					39.83 m, SW. Defect: steeply inclined, closed.	

DATE STARTED: 16/2/16 DRILLED BY: Drill Force NZ Ltd

DATE FINISHED: 26/2/16 EQUIPMENT: YDX3L

LOGGED BY: JUB DRILL METHOD: HQ3

SHEAR VANE No: NA DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

COMMENTS:

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

BECA LIB 1.07.4.GLB Log BECA MACHINE BOREHOLE NP CBD BH DRILLING 15_BSG05.GPJ <<DrawingFile>> 28/07/2016 14:51 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: Beca 1.07.4 2016-01-15 Prj: Beca 1.07 2014-12-16

A4 Scale 1:50

BH_TT98872 BH_94475

SOURCE: NZGD

Beca

BOREHOLE No: BH02

MACHINE BOREHOLE LOG

SHEET 5 of 10

PROJECT:	NP CBD Borehole Drilling 15/BSG05	JOB NUMBER:	3853039
SITE LOCATION:	New Plymouth	CLIENT:	New Plymouth District Council

CIRCUIT: NZTM
COORDINATES: N 5,676,436.04 m
E 1,692,611.55 m

BOREHOLE LOCATION: Wind Wand
R L: 6.02 m
DATUM: MSL

COORDINATE ORIGIN: dGPS
ACCURACY: ±0.01m

DRILLING						IN-SITU TESTS							
FLUID LOSS	DAILY WATER LEVEL	CORE RECOVERY	METHOD	CASING	RQD	SV	τ (kPa)	SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
Torqueless + Sand Drill		93 %	HQ3						Box 11	41		40.0 m, moderately thin (100 mm) bed of very weak, SW, grey silty fine SANDSTONE, some organic laminations. 40.2 m, defects: closely spaced, steeply inclined, planar, rough, and moderately widely spaced, stepped, smooth. 40.6 m, organic laminations. 40.9 m, moderately thin (150 mm) bed of extremely weak, SW, grey, uncemented fine to medium SANDSTONE. Defect: very steeply inclined, stepped, rough. 41.2 m, moderately thick (300 mm) bed of extremely weak, SW, grey, uncemented fine to medium SANDSTONE. 41.4 - 41.5 m, core loss.	Matemateaonga Formation	-35
		100 %	HQ3							42		Very weak, SW, grey MUDSTONE. Moderately thickly interbedded with organic laminations. Defects: closely to moderately widely spaced, subhorizontal, stepped, smooth. 41.9 m, moderately thin (100 mm) bed of extremely weak silty fine SANDSTONE. 42.3 - 42.6 m, moderately thinly interbedded with very weak silty SANDSTONE.		-36
		98 %	HQ3						Box 12	43		42.85 m, moderately thin (200 mm) bed of extremely weak silty fine SANDSTONE. 42.9 m, defect: steeply inclined, planar, smooth. 43.05 m, extremely weak (very stiff, SILT, minor clay; grey; moist, low plasticity). Defect: very steeply inclined moderately narrow (15 mm) greenish brown vein (undulating/ planar, smooth). 43.2 m, moderately thin (100 mm) bed of very weak, silty fine SANDSTONE, moderately thinly interbedded with lenses of uncemented sand. 43.4 m, very weak; moderately thinly interbedded with silty fine SANDSTONE and organic laminations. Bedding: gently inclined. Defects: subhorizontal to gently inclined, stepped, rough (breaking on sandstone beds).		-37
		100 %	HQ3							44				-38
										45		45.1 m, defects: moderately widely spaced, steeply inclined, undulating, smooth. 45.45 m, defect: steeply inclined, undulating, smooth.		-39
		100 %	HQ3						Box 13	46		45.9 m, moderately thin (100 mm) bed of very weak, fine to medium SANDSTONE. Extremely weak, SW, grey, fine to medium SANDSTONE; micaceous. Uncemented. ('Very dense', SAND, trace silt; grey; non plastic).		-40
										47		Very weak to weak, SW, dark grey, medium to coarse volcaniclastic SANDSTONE. Massive. 47.05 m, moderately thin (150 mm) bed of very weak, SW, grey MUDSTONE. 47.7 m, weak.		-41
										48		48.0 m, strong, SW, grey volcaniclastic SANDSTONE (400 mm diameter, boulder?). Defect: very steeply inclined, undulating, rough, quartz lined. 48.4 m, weak to moderately strong. Defects: widely spaced, steeply inclined, undulating rough.		-42
		100 %	HQ3						Box 14	49		49.16 m, cobble (100 mm), subrounded, weak SANDSTONE. 49.26 m, very weak, greenish grey, trace mica. 49.4 m, extremely weak, weakly cemented. Trace fine mudstone clasts (within sandstone matrix). Becoming more fine grained with depth.		-43

DATE STARTED:	16/2/16	DRILLED BY:	Drill Force NZ Ltd
DATE FINISHED:	26/2/16	EQUIPMENT:	YDX3L
LOGGED BY:	JUB	DRILL METHOD:	HQ3
SHEAR VANE No:	NA	DRILL FLUID:	Lubricant
		DIAMETER/INCLINATION:	100 mm/ 90°

COMMENTS:

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

A4 Scale 1:50

BECA LIB 1.07.4.GLB Log BECA MACHINE BOREHOLE NP CBD BH DRILLING 15_BSG05.GPJ <<DrawingFile>> 28/07/2016 14:51 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: Beca 1.07.4 2016-01-15 Prj: Beca 1.07 2014-12-16

BH_TT98872

BH_94475

SOURCE: NZGD

Beca

BOREHOLE No: BH02

MACHINE BOREHOLE LOG

SHEET 6 of 10

PROJECT: NP CBD Borehole Drilling 15/BSG05 JOB NUMBER: 3853039

SITE LOCATION: New Plymouth CLIENT: New Plymouth District Council

CIRCUIT: NZTM BOREHOLE LOCATION: Wind Wand

COORDINATES: N 5,676,436.04 m R L: 6.02 m COORDINATE ORIGIN: dGPS

E 1,692,611.55 m DATUM: MSL ACCURACY: ±0.01m

DRILLING: FLUID LOSS	DRILLING: DAILY WATER LEVEL	DRILLING: CORE RECOVERY	DRILLING: METHOD	DRILLING: CASING	DRILLING: RQD	IN-SITU TESTS: SV	IN-SITU TESTS: τ (kPa)	IN-SITU TESTS: SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
Torqueless + Sand Drill		100 %	HQ3						Box 14			Very weak, SW, grey MUDSTONE, thinly interbedded with extremely weak, SW, grey, weakly cemented fine to medium SANDSTONE.		
												Very weak, SW, grey MUDSTONE. Defects: gently inclined, stepped, smooth (bedding parallel).		
		96 %	HQ3						Box 15	51		Extremely weak, SW, grey SANDSTONE. 51.0 m, moderately thin (100 mm) bed of fine sandy MUDSTONE. 51.2 m, very weak, silty fine SANDSTONE. Defects: moderately widely spaced, subhorizontal (possibly drilling induced). 51.3 m, moderately thin bed of very weak, fine sandy MUDSTONE. Defects: subhorizontal to gently inclined, undulating/ stepped, smooth.		-45
										52		51.8 m, moderately thin bed of very weak MUDSTONE. Bedding: gently inclined, laminated. 52.1 m, moderately thin (50 mm) bed of extremely weak, fine to medium SANDSTONE. Trace shells.		-46
												52.5 m, moderately thin (50 mm) bed of extremely weak, fine to medium SANDSTONE. Trace shells.		
										53				-47
		97 %	HQ3						Box 16	54		54.0 m, very weak, silty fine SANDSTONE. Trace shell fragments, trace mica flakes. Moderately thinly interbedded with very weak MUDSTONE. Defects: widely spaced, gently inclined, undulating, smooth.	Matemateaonga Formation	-48
										55		55.3 m, defect: steeply inclined, undulating, rough.		-49
										56				-50
		90 %	HQ3						Box 17	57		Very weak, SW, grey, fine sandy MUDSTONE, moderately thinly interbedded with extremely weak to very weak, silty fine SANDSTONE. Trace shells.		-51
										58				-52
										59				-53
		99 %	HQ3						Box 18					

DATE STARTED: 16/2/16 DRILLED BY: Drill Force NZ Ltd COMMENTS:

DATE FINISHED: 26/2/16 EQUIPMENT: YDX3L

LOGGED BY: JUB DRILL METHOD: HQ3

SHEAR VANE No: NA DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

A4 Scale 1:50

BECA LIB 1.07.4.GLB Log BECA MACHINE BOREHOLE NP CBD BH DRILLING 15_BSG05.GPJ <<DrawingFile>> 28/07/2016 14:51 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: Beca 1.07.4 2016-01-15 Prj: Beca 1.07 2014-12-16

BH_TT98872 BH_94475

SOURCE: NZGD

Beca

BOREHOLE No: BH02

MACHINE BOREHOLE LOG

SHEET 7 of 10

PROJECT: NP CBD Borehole Drilling 15/BSG05 — JOB NUMBER: 3853039

SITE LOCATION: New Plymouth — CLIENT: New Plymouth District Council

CIRCUIT: NZTM — BOREHOLE LOCATION: Wind Wand

COORDINATES: N 5,676,436.04 m — R L: 6.02 m — COORDINATE ORIGIN: dGPS

E 1,692,611.55 m — DATUM: MSL — ACCURACY: ±0.01m

DRILLING: FLUID LOSS	DRILLING: DAILY WATER LEVEL	DRILLING: CORE RECOVERY	DRILLING: METHOD	DRILLING: CASING	DRILLING: RQD	IN-SITU TESTS: SV	IN-SITU TESTS: τ (kPa)	IN-SITU TESTS: SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
Torqueless + Sand Drill		99 %	HQ3						Box 18	61		Very weak, SW, grey MUDSTONE. Trace shell fragments. Massive. Defects: moderately widely spaced, undulating, rough. 60.2 m, grades to fine sandy MUDSTONE. 60.5 m, 200 mm strong SANDSTONE (concretion?). 60.7 m, MUDSTONE. 61.5 m, defect: gently inclined, stepped, smooth, sand coated. 61.7 m, thin (20 mm) bed of extremely weak SANDSTONE.		-55
										62				-56
		73 %	HQ3						Box 19	63		62.4 m, defects: closely to moderately widely spaced, subhorizontal (appear drilling induced).		-57
										64		64.22 - 64.5 m, extremely weak, thinly interbedded with weakly cemented silty SANDSTONE (very dense, silty SAND, trace shell fragments; moist, non plastic).		-58
										65		Core loss (64.6 - 65.4 m).		-59
		99 %	HQ3						Box 20	66		Extremely weak to very weak, SW, grey silty SANDSTONE. Trace mica flakes. Very weak, SW, grey MUDSTONE. Bedding: gently inclined, very thin. Defects: moderately widely spaced, gently inclined, undulating, smooth. 66.0 m, extremely weak. Defects: closely to moderately widely spaced, bedding parallel. 66.27 m, 150 mm strong SANDSTONE (concretion?).	Matemateaonga Formation	-60
										67		67.0 m, very weak. Defects: widely spaced.		-61
										68		68.4 m, extremely weak to very weak. 68.7 m, extremely weak.		-62
		88 %	HQ3						Box 21	69		Extremely weak, SW, grey, fine silty SANDSTONE, thinly interbedded with MUDSTONE. ('very dense', silty fine SAND; moist, non plastic). Bedding: subhorizontal. Defects: closely spaced, subhorizontal to gently inclined, stepped, smooth. 69.5 m, weakly cemented, trace mica flakes. Extremely weak to very weak, SW, grey MUDSTONE. Bedding: gently inclined. Defects: closely to very closely spaced, stepped, smooth, sand coated.		-63

DATE STARTED: 16/2/16 — DRILLED BY: Drill Force NZ Ltd

DATE FINISHED: 26/2/16 — EQUIPMENT: YDX3L

LOGGED BY: JUB — DRILL METHOD: HQ3

SHEAR VANE No: NA — DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

COMMENTS:

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

A4 Scale 1:50

BECA LIB 1.07.4.GLB Log BECA MACHINE BOREHOLE NP CBD BH DRILLING 15_BSG05.GPJ <<DrawingFile>> 28/07/2016 14:51 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: Beca 1.07.4 2016-01-15 Prj: Beca 1.07 2014-12-16

BH_TT98872

BH_94475

SOURCE: NZGD

Beca

BOREHOLE No: BH02

MACHINE BOREHOLE LOG

SHEET 8 of 10

PROJECT: NP CBD Borehole Drilling 15/BSG05 JOB NUMBER: 3853039

SITE LOCATION: New Plymouth CLIENT: New Plymouth District Council

CIRCUIT: NZTM BOREHOLE LOCATION: Wind Wand

COORDINATES: N 5,676,436.04 m R L: 6.02 m COORDINATE ORIGIN: dGPS

E 1,692,611.55 m DATUM: MSL ACCURACY: ±0.01m

DRILLING: FLUID LOSS | DAILY WATER LEVEL | CORE RECOVERY | METHOD | CASING | RQD

IN-SITU TESTS: SV | τ (kPa) | SPT 'N'

SAMPLES | DEPTH (m) | GRAPHIC LOG | SOIL / ROCK DESCRIPTION | GEOLOGICAL UNIT | R L (m)

Torqueless + Sand Drill

88 % HQ3

Box 21

71

70.1 m, bedding: gently inclined, laminated (5-10 mm) sand lenses. Defects: closely spaced, very steeply inclined, undulating, smooth.
70.2 m, moderately thick (300 mm) bed of very weak MUDSTONE. Bedding: Defects: subhorizontal, planar/ stepped, smooth and subvertical, undulating, smooth, stained brown.
70.5 m, extremely weak. Defects: very closely spaced.

Core loss (71.0 - 71.4 m).

-65

62 % HQ3

72

Very weak, SW, grey MUDSTONE, interbedded with laminations of fine silty SANDSTONE. Bedding: subhorizontal. Defects: closely spaced, stepped, smooth, sand coated.

72.2 m, very weak, SW, grey sandy MUDSTONE.

-66

73

72.6 m, extremely weak.
72.7 m, moderately thin (150 mm) bed of extremely weak, silty SANDSTONE ('very dense', silty SAND; moist, non plastic). Bedding: gently inclined.
72.85 m, very weak. Defects: subhorizontal and subvertical, stepped, smooth.
72.95 m, extremely weak.
73.15 m, very weak.

Core loss (73.25 - 74.4 m).

-67

74

-68

33 % HQ3

Box 22

75

Extremely weak, SW, grey, silty fine SANDSTONE ('dense', silty fine sand; moist, non plastic). Bedding: subhorizontal.

Extremely weak, SW, grey, fine sandy MUDSTONE, laminated with subhorizontal beds of silty SANDSTONE.
74.7 m, very weak. Defects: very closely spaced, subhorizontal, stepped, smooth.
74.85 m, extremely weak.
74.92 m, very weak, MUDSTONE, laminated with silty SANDSTONE. Bedding: gently inclined. Defects: closely to very closely spaced, gently inclined, planar/stepped, smooth.
75.2 m, extremely weak silty SANDSTONE.
75.33 m, extremely weak, SW, grey MUDSTONE (very stiff, SILT, minor clay; moist, low plasticity).

-69

76

Core loss (75.4 - 77.40 m).

-70

77

-71

40 % HQ3

Very weak, SW, grey MUDSTONE. Trace mica. Bedding: laminated, subhorizontal. Defects: very closely spaced, subhorizontal, sand coated.
77.53 m, 180 mm strong SANDSTONE (concretion).

78

Core loss (77.8 - 79.4 m).

-72

0 % HQ3

79

-73

85 % HQ3

Box 23

Extremely weak, silty fine to medium SANDSTONE. Micaceous, cemented. ('Very dense', silty SAND; moist, non plastic).
79.5 m, grading to fine sandy MUDSTONE.

Extremely weak, SW, grey SANDSTONE. Trace shell fragments. Uncemented.

Matemateaonga Formation

DATE STARTED: 16/2/16 DRILLED BY: Drill Force NZ Ltd COMMENTS:

DATE FINISHED: 26/2/16 EQUIPMENT: YDX3L

LOGGED BY: JUB DRILL METHOD: HQ3

SHEAR VANE No: NA DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

A4 Scale 1:50

BECA LIB 1.07.4.GLB Log BECA MACHINE BOREHOLE NP CBD BH DRILLING 15_BSG05.GPJ <<DrawingFile>> 28/07/2016 14:51 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: Beca 1.07.4 2016-01-15 Prj: Beca 1.07 2014-12-16

BH_TT98872 BH_94475

SOURCE: NZGD

Beca

BOREHOLE No: BH02

MACHINE BOREHOLE LOG

PROJECT: NP CBD Borehole Drilling 15/BSG05 JOB NUMBER: 3853039

SITE LOCATION: New Plymouth CLIENT: New Plymouth District Council

CIRCUIT: NZTM BOREHOLE LOCATION: Wind Wand

COORDINATES: N 5,676,436.04 m R L: 6.02 m COORDINATE ORIGIN: dGPS

E 1,692,611.55 m DATUM: MSL ACCURACY: ±0.01m

DRILLING: FLUID LOSS | DAILY WATER LEVEL | CORE RECOVERY | METHOD | CASING | RQD

IN-SITU TESTS: SV | τ (kPa) | SPT 'N'

SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
			Torqueless + Sand Drill		
			85 % HQ3		
			Bedding: very thin, lenses of extremely to very weak mudstone. ('Very dense', fine to medium SAND, some silt; saturated, non plastic).		
			80.15 m, extremely weak silty SANDSTONE. Bedding: genty inclined, laminated. Defects: very closely spaced, gently inclined, planar, smooth.		
			Core loss (80.25 - 80.4 m).		
			96 % HQ3		
	81		Extremely weak, SW, grey, fine to medium SANDSTONE. Massive, micaceous, trace shell fragments, weakly cemented.		-75
Box 23			69 % HQ3		
	82		82.14 m, moderately thin (60 mm) bed of sandy MUDSTONE. Defect: subvertical, undulating, smooth.		-76
			82.62 m, extremely to very weak, SW, grey MUDSTONE.		
	83		Core loss (82.77 - 83.4 m).		-77
			33 % HQ3		
			Extremely weak, silty, fine to medium SANDSTONE. Trace mica. Weakly cemented to uncemented. Bedding: laminated.		
	84		Core loss (83.9 - 85.2 m).		-78
Box 24			40 % HQ3		
	85		Extremely weak, silty, fine to medium SANDSTONE. Weakly cemented to uncemented.		-79
			72 % HQ3		
			Extremely weak to very weak, SW, grey MUDSTONE (hard, SILT, minor fine sand, trace clay; moist, low plasticity).		
	86		85.6 m, thin (50 mm) bed of uncemented silty fine SANDSTONE. 85.7 m, defect: steeply inclined, stepped, rough.		-80
			52 % HQ3		
			Core loss (85.76 - 85.9 m).		
			Extremely weak to very weak, SW, grey MUDSTONE (hard, SILT, minor fine sand, trace clay; moist, low plasticity).		
			94 % HQ3		
			Core loss (86.26 - 86.4 m).		
			Extremely weak, SW, grey, fine sandy MUDSTONE. Trace shells, trace mica flakes. 86.6 m, thin (50 mm) bed of uncemented silty SANDSTONE.		
	87		100 % HQ3		-81
			Extremely weak, SW, grey, silty, shelly, fine to medium SANDSTONE. Uncemented.		
			Extremely to very weak, SW, grey, MUDSTONE.		
			15 % HQ3		
			Extremely weak, SW, grey, fine silty SANDSTONE. Some coarse gravel: UW, strong, subrounded greywacke, and weak mudstone and sandstone. Some shells. 87.3 m, moderately thin (100 mm) bed of fine sandy MUDSTONE. Trace shells. 87.4 m, uncemented fine to medium SANDSTONE, with 2 x coarse, subangular gravels. Gravel: moderately strong to strong SILTSTONE and strong fossiliferous SANDSTONE.		
	88		Core loss (87.6 - 88.5 m).		-82
Box 25			90 % HQ3		
			Extremely weak, SW, grey, fine to medium SANDSTONE. Trace shells. Uncemented.		
	89		89.1 m, cobble (100 mm), subrounded, SW, moderately strong greywacke.		-83
			100 % HQ3		
				Matemateaonga Formation	

DATE STARTED: 16/2/16 DRILLED BY: Drill Force NZ Ltd

DATE FINISHED: 26/2/16 EQUIPMENT: YDX3L

LOGGED BY: JUB DRILL METHOD: HQ3

SHEAR VANE No: NA DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

COMMENTS:

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

A4 Scale 1:50

BECA LIB 1.07.4.GLB Log BECA MACHINE BOREHOLE NP CBD BH DRILLING 15_BSG05.GPJ <<DrawingFile>> 28/07/2016 14:51 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: Beca 1.07.4 2016-01-15 Prj: Beca 1.07 2014-12-16

BH_TT98872 BH_94475

SOURCE: NZGD

Beca

BOREHOLE No: BH02

MACHINE BOREHOLE LOG

SHEET 10 of 10

PROJECT: NP CBD Borehole Drilling 15/BSG05 — JOB NUMBER: 3853039

SITE LOCATION: New Plymouth — CLIENT: New Plymouth District Council

CIRCUIT: NZTM — BOREHOLE LOCATION: Wind Wand

COORDINATES: N 5,676,436.04 m — R L: 6.02 m — COORDINATE ORIGIN: dGPS

E 1,692,611.55 m — DATUM: MSL — ACCURACY: ±0.01m

DRILLING: FLUID LOSS	DRILLING: DAILY WATER LEVEL	DRILLING: CORE RECOVERY	DRILLING: METHOD	DRILLING: CASING	DRILLING: RQD	IN-SITU TESTS: SV	IN-SITU TESTS: τ (kPa)	IN-SITU TESTS: SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
Torqueless + Sand Drill		100 %	HQ3						Box 25	91		Extremely weak, SW, grey, fine to medium SANDSTONE. Trace shells. Uncemented.	Matemateaonga Formation	-85
		63 %	HQ3						Box 26			91.6 m, 160 mm strong SANDSTONE (concretion) (broken in two).		
										92		Core loss (91.7 - 92.0 m).		-86
												END OF LOG @ 92 m		
										93				-87
										94				-88
										95				-89
										96				-90
										97				-91
										98				-92
										99				-93

DATE STARTED: 16/2/16 — DRILLED BY: Drill Force NZ Ltd

DATE FINISHED: 26/2/16 — EQUIPMENT: YDX3L

LOGGED BY: JUB — DRILL METHOD: HQ3

SHEAR VANE No: NA — DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

COMMENTS:

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

A4 Scale 1:50

BECA LIB 1.07.4.GLB Log BECA MACHINE BOREHOLE NP CBD BH DRILLING 15_BSG05.GPJ <<DrawingFile>> 28/07/2016 14:51 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: Beca 1.07.4 2016-01-15 Prj: Beca 1.07 2014-12-16

BH_TT98872

BH_94475

SOURCE: NZGD

Beca

BOREHOLE No: BH03/03a

MACHINE BOREHOLE LOG

SHEET 1 of 14

PROJECT: NP CBD Borehole Drilling 15/BSG05 JOB NUMBER: 3853039

SITE LOCATION: New Plymouth CLIENT: New Plymouth District Council

CIRCUIT: NZTM BOREHOLE LOCATION: Vivian St Carpark

COORDINATES: N 5,676,133.05 m R L: 6.47 m COORDINATE ORIGIN: dGPS

E 1,693,062.11 m DATUM: MSL ACCURACY: ±0.01m

DRILLING: FLUID LOSS | DAILY WATER LEVEL | CORE RECOVERY | METHOD | CASING | RQD

IN-SITU TESTS: SV | τ (kPa) | SPT 'N'

SAMPLES

DEPTH (m)

GRAPHIC LOG

SOIL / ROCK DESCRIPTION

GEOLOGICAL UNIT

R L (m)

Torqueless + Sand Drill

Depth (m)	Core recovery	Method	Samples	Soil / rock description	Geological unit	R L (m)
0	100 %	HQ3		'Loosely packed', coarse GRAVEL; grey; dry. Gravel: SW, subangular andesite, clast supported.	Fill	6
0.5	5 %	HQ3		Core loss (0.5 - 1.5 m).		
1.5	100 %	HQ3	Box 1	Very soft, SILT, some fine to coarse sand, trace fine gravel, trace clay, trace organics; brown; saturated, low plasticity. Organics: decomposing fine fibrous. [Topsoil]	Quaternary Andesitic Ash	5
2	100 %	HQ3		Soft, fine to medium sandy SILT, trace clay; light brown speckled black; wet, low plasticity. 1.8 m, minor fibrous organics (rootlets). 2.0 m, firm.		4
2.6	100 %	HQ3		2.6 m, some decomposing fibrous organics.		
3	100 %	HQ3		Firm, clayey SILT, some fine to medium sand, minor organics; light brownish grey speckled black; wet, high plasticity, sensitive. Organics: rootlets.		3
3.8	88 %	HQ3		Firm, fine to medium sandy SILT, minor clay; light greyish brown and orange-brown; wet, low plasticity, sensitive. 3.8 m, trace fine fibrous organics; brown. Sand: fine to coarse.		
4.3	100 %	HQ3	Box 2	'Loose', silty fine to coarse SAND, trace clay; brown; wet, non plastic.	Undifferentiated Quaternary Lahars	2
4.7	56 %	HQ3		Core loss (4.3 - 4.7 m).		
5				'Loose', coarse gravelly COBBLES; grey; dry. Gravel/ cobbles: SW, subrounded andesite, clast supported (matrix lost on drilling?).		1
5.2	65 %	HQ3		Core loss (5.2 - 5.55 m).		
5.55				'Loose', coarse GRAVEL; grey and brownish grey; moist. Gravel: SW, subrounded andesite, clast supported (matrix lost on drilling?).		
6	90 %	HQ3		'Loose', fine to coarse SAND, trace silt; dark brownish grey; saturated, non plastic. 6.05 - 6.2 m, some cobbles: SW, subangular to subrounded andesite, clast supported.		0
7	92 %	HQ3	Box 3	'Loose', coarse gravelly, fine to coarse SAND; dark brownish grey; wet, non plastic. Gravel: SW, subangular andesite. 6.95 m, clast supported, matrix lost on drilling (?).		-1
8	90 %	HQ3		'Loose', fine to coarse SAND, some medium to coarse gravel, minor cobbles; dark brownish grey; wet, non plastic. Gravel: MW-SW, subangular to subrounded andesite. 7.5 m, cobble (180 mm) broken into coarse gravel-cobbles.		-2
9	70 %	HQ3		8.7 m, hydrocarbon odour.		
9.6	94 %	HQ3		'Medium dense', medium to coarse gravelly, coarse SAND, minor fine to medium sand; dark brownish grey; wet, non plastic. Gravel: SW, subrounded andesite, matrix supported. 9.6 m, trace cobbles: subrounded, pink andesite.		-3
10	93 %	HQ3				

DATE STARTED: 7/3/16 DRILLED BY: Drill Force NZ Ltd

DATE FINISHED: 7/4/16 EQUIPMENT: YDX3L

LOGGED BY: JUB DRILL METHOD: HQ3

SHEAR VANE No: NA DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

COMMENTS:
This borehole log combines the upper 20.1 m of BH03 (which was drilled to 23.2 m, and terminated due to artesian conditions), and the replacement borehole nearby, BH03a which was wash drilled to 20.1 m and cored thereafter.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

A4 Scale 1:50

BECA LIB 1.07.4.GLB Log BECA MACHINE BOREHOLE NP CBD BH DRILLING 15_BSG05.GPJ <<DrawingFile>> 28/07/2016 15:38 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: Beca 1.07.4 2016-01-15 Prj: Beca 1.07 2014-12-16

BH_TT98873

BH_94476

SOURCE: NZGD

Beca

BOREHOLE No: BH03/03a

MACHINE BOREHOLE LOG

PROJECT: NP CBD Borehole Drilling 15/BSG05 JOB NUMBER: 3853039

SITE LOCATION: New Plymouth CLIENT: New Plymouth District Council

CIRCUIT: NZTM BOREHOLE LOCATION: Vivian St Carpark

COORDINATES: N 5,676,133.05 m R L: 6.47 m COORDINATE ORIGIN: dGPS

E 1,693,062.11 m DATUM: MSL ACCURACY: ±0.01m

FLUID LOSS	DAILY WATER LEVEL	CORE RECOVERY	METHOD	CASING	RQD	IN-SITU TESTS: SV	IN-SITU TESTS: τ (kPa)	IN-SITU TESTS: SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
Torqueless + Sand Drill		93 %	HQ3						Box 4	10		'Medium dense', medium to coarse gravelly, coarse SAND, minor fine to medium sand; dark brownish grey; wet, non plastic. Gravel: SW, subrounded andesite, matrix supported.	Undifferentiated Quaternary Lahars	-4
		90 %	HQ3									10.2 m, clast supported.		
		100 %	HQ3							11		10.8 m, some fine to medium sand.		
		76 %	HQ3									11.2 m, sand: fine to coarse.		-5
		90 %	HQ3							12				
		78 %	HQ3									12.6 m, trace cobbles.		-6
		92 %	HQ3							13				
		100 %	HQ3						Box 5			'Medium dense', fine to coarse SAND, some coarse gravel, minor cobbles; dark brownish grey; wet, non plastic. Gravel/ cobbles: SW, subangular pink and grey andesite, matrix supported.		-7
		91 %	HQ3							14				
		86 %	HQ3											-8
		83 %	HQ3							15		15.06 m, boulder (240 mm), SW, grey, andesite.		
		80 %	HQ3											-9
		92 %	HQ3							16		16.0 m, trace silt.		
		88 %	HQ3						Box 6					-10
		90 %	HQ3							17				
		100 %	HQ3											-11
		80 %	HQ3							18				
		90 %	HQ3									18.6 - 18.7 m, coarse gravel, clast supported (matrix lost on drilling ?).		-12
		88 %	HQ3						Box 7	19				
		100 %	HQ3											-13

DATE STARTED: 7/3/16 DRILLED BY: Drill Force NZ Ltd

DATE FINISHED: 7/4/16 EQUIPMENT: YDX3L

LOGGED BY: JUB DRILL METHOD: HQ3

SHEAR VANE No: NA DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

COMMENTS:
This borehole log combines the upper 20.1 m of BH03 (which was drilled to 23.2 m, and terminated due to artesian conditions), and the replacement borehole nearby, BH03a which was wash drilled to 20.1 m and cored thereafter.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

A4 Scale 1:50

BECA LIB 1.07.4.GLB Log BECA MACHINE BOREHOLE NP CBD BH DRILLING 15_BSG05.GPJ <<DrawingFile>> 28/07/2016 15:38 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: Beca 1.07.4 2016-01-15 Prj: Beca 1.07 2014-12-16

BH_TT98873

BH_94476

SOURCE: NZGD

Beca

BOREHOLE No: BH03/03a

MACHINE BOREHOLE LOG

PROJECT: NP CBD Borehole Drilling 15/BSG05 JOB NUMBER: 3853039

SITE LOCATION: New Plymouth CLIENT: New Plymouth District Council

CIRCUIT: NZTM BOREHOLE LOCATION: Vivian St Carpark

COORDINATES: N 5,676,133.05 m R L: 6.47 m COORDINATE ORIGIN: dGPS

E 1,693,062.11 m DATUM: MSL ACCURACY: ±0.01m

DRILLING						IN-SITU TESTS							
FLUID LOSS	DAILY WATER LEVEL	CORE RECOVERY	METHOD	CASING	RQD	SV	τ (kPa)	SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
Torqueless + Sand Drill		86 %	HQ3						Box 8	21		'Dense', fine to coarse gravelly, fine to coarse SAND, minor silt; dark greenish grey (oxidised brown); moist, non plastic, matrix supported, weakly cemented. Gravel: MW-SW, subangular andesite.	Undifferentiated Quaternary Lahars	-14
		24 %	HQ3									20.3 m, very thin (10 mm) clayey SAND lenses, yellowish brown.		
												20.32 m, clast supported, cemented cobble (of fine to coarse gravelly SAND).		
		85 %	HQ3									Core loss (20.51 - 20.7 m).		
												'Dense', medium to coarse gravelly BOULDERS AND COBBLES; grey; dry. Boulders/ cobbles/ gravel: SW, subangular andesite (matrix lost on drilling ?).		-15
		60 %	HQ3							22		'Dense', fine to coarse gravelly, fine to coarse SAND, some silt; greenish grey oxidised brown; moist, non plastic, cemented. Gravel: MW-SW, subangular andesite, matrix supported.		-16
		100 %	HQ3							23		'Dense', fine to coarse sandy, fine to coarse GRAVEL and COBBLES, minor silt; brownish grey; moist, non plastic, weakly cemented. Gravel: MW-SW, subangular andesite, matrix supported.		-17
		89 %	HQ3									23.45 - 23.85 m, greenish brown/ grey; cemented.		
		87 %	HQ3							24		'Medium dense' fine SAND, some silt; grey; saturated, non plastic.	Marine Sands	-18
		100 %	HQ3						Box 9	25		24.5 m, trace mica, trace silt. Sand: fine to medium, dilatant.		-19
		50 %	HQ3									'Medium dense', silty fine to medium SAND; grey; saturated, non plastic, weakly cemented.		
		100 %	HQ3							26		Core loss (25.58 - 26.0 m).		
												'Dense', fine to medium SAND, trace mica flakes; grey; wet, non plastic.		
		100 %	HQ3							27		26.3 m, trace fine gravel; saturated. Gravel: subangular, weakly cemented siltstone.		-20
		100 %	HQ3						Box 10	28				-21
		100 %	HQ3							29				-22
		100 %	HQ3						Box 11					-23

DATE STARTED: 7/3/16 DRILLED BY: Drill Force NZ Ltd

DATE FINISHED: 7/4/16 EQUIPMENT: YDX3L

LOGGED BY: JUB DRILL METHOD: HQ3

SHEAR VANE No: NA DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

COMMENTS:
This borehole log combines the upper 20.1 m of BH03 (which was drilled to 23.2 m, and terminated due to artesian conditions), and the replacement borehole nearby, BH03a which was wash drilled to 20.1 m and cored thereafter.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

BECA LIB 1.07.4.GLB Log: BECA MACHINE BOREHOLE: NP CBD BH DRILLING 15_BSG05.GPJ <<DrawingFile>> 28/07/2016 15:38 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: Beca 1.07.4 2016-01-15 Prj: Beca 1.07 2014-12-16

A4 Scale 1:50

BH_TT98873 BH_94476

SOURCE: NZGD

Beca

BOREHOLE No: BH03/03a

MACHINE BOREHOLE LOG

PROJECT: NP CBD Borehole Drilling 15/BSG05 JOB NUMBER: 3853039

SITE LOCATION: New Plymouth CLIENT: New Plymouth District Council

CIRCUIT: NZTM BOREHOLE LOCATION: Vivian St Carpark

COORDINATES: N 5,676,133.05 m R L: 6.47 m COORDINATE ORIGIN: dGPS

E 1,693,062.11 m DATUM: MSL ACCURACY: ±0.01m

DRILLING: FLUID LOSS | DAILY WATER LEVEL | CORE RECOVERY | METHOD | CASING | RQD

IN-SITU TESTS: SV | τ (kPa) | SPT 'N'

SAMPLES | DEPTH (m) | GRAPHIC LOG | SOIL / ROCK DESCRIPTION | GEOLOGICAL UNIT | R L (m)

Torqueless + Sand Drill

Core recovery	Method	Sample	Depth (m)	Soil / rock description	Geological unit	R L (m)
100 %	HQ3			'Dense', fine to medium SAND, trace mica flakes; grey; saturated, non plastic.	Marine Sands	
				Core loss (30.63 - 31.0 m).		-24
100 %	HQ3	Box 11	31	'Dense', fine to coarse SAND, trace fine to medium gravel, trace silt; dark grey; wet, non plastic.		
			32			-25
60 %	HQ3			Core loss (32.15 - 32.5 m).		
100 %	HQ3	Box 12		'Dense', fine to coarse SAND, minor fine to medium gravel, minor shells, minor silt; dark grey; wet, non plastic. Gravel: MW-SW, subrounded andesite, and subangular shelly conglomerate.		-26
100 %	HQ3		33	Extremely weak, SW, grey MUDSTONE.		
100 %	HQ3			33.66, sandy concretion (100 mm). 33.76 m, defect: subvertical, undulating, smooth.		-27
			34			
100 %	HQ3			34.75 m, thin (30 mm) uncemented bed.		-28
			35			
94 %	HQ3	Box 13		Extremely weak, SW, grey SANDSTONE. Uncemented ('Very dense', fine to medium SAND, minor silt; moist, non plastic).		-29
				Extremely weak, SW, grey MUDSTONE.	Matemateaonga Formation	
100 %	HQ3		36			
				36.2 m, moderately thin (80 mm) bed of extremely weak, SW, grey, uncemented SANDSTONE. 36.4 - 36.5 m, disturbed by drilling.		-30
90 %	HQ3		37			
						-31
100 %	HQ3		38			
				38.05 m, moderately thin (150 mm) bed of extremely weak, SW, grey, uncemented SANDSTONE.		-32
100 %	HQ3	Box 14	39			
				Extremely weak, SW, grey, silty fine SANDSTONE. 39.3 m, grading to sandy MUDSTONE.		-33
99 %	HQ3			Extremely weak, SW, grey, SANDSTONE. Uncemented to weakly cemented. Moderately thinly interbedded with extremely weak, SW, grey, MUDSTONE.		

DATE STARTED: 7/3/16 DRILLED BY: Drill Force NZ Ltd

DATE FINISHED: 7/4/16 EQUIPMENT: YDX3L

LOGGED BY: JUB DRILL METHOD: HQ3

SHEAR VANE No: NA DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

COMMENTS:
This borehole log combines the upper 20.1 m of BH03 (which was drilled to 23.2 m, and terminated due to artesian conditions), and the replacement borehole nearby, BH03a which was wash drilled to 20.1 m and cored thereafter.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

A4 Scale 1:50

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BH_TT98873 BH_94476

SOURCE: NZGD

Beca

BOREHOLE No: BH03/03a

MACHINE BOREHOLE LOG

PROJECT: NP CBD Borehole Drilling 15/BSG05 JOB NUMBER: 3853039

SITE LOCATION: New Plymouth CLIENT: New Plymouth District Council

CIRCUIT: NZTM BOREHOLE LOCATION: Vivian St Carpark

COORDINATES: N 5,676,133.05 m R L: 6.47 m COORDINATE ORIGIN: dGPS

E 1,693,062.11 m DATUM: MSL ACCURACY: ±0.01m

DRILLING						IN-SITU TESTS							
FLUID LOSS	DAILY WATER LEVEL	CORE RECOVERY	METHOD	CASING	RQD	SV	τ (kPa)	SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
Torqueless + Sand Drill		99 %	HQ3						Box 14	41		Extremely weak, SW, grey, SANDSTONE. Uncemented to weakly cemented ('Very dense', fine to medium SAND, minor silt; moist, non plastic). Moderately thinly interbedded with moderately thin beds of extremely weak, SW, grey, MUDSTONE.	Matemateaonga Formation	-34
		100 %	HQ3						Box 15	42		41.13 m, organic lamination.		-35
		100 %	HQ3							43		42.5 m, trace mica flakes, trace shells.		-36
		100 %	HQ3							44		42.95 m, 50mm strong shelly SANDSTONE (concretion). 43.15 m, weakly cemented. 43.4 m, thin (40 mm) zone of organic laminations.		-37
		90 %	HQ3						Box 16	45		44.85 m, 50 mm strong SANDSTONE (concretion).		-38
		100 %	HQ3							46		45.7 m, uncemented.		-39
		100 %	HQ3						Box 17	47				-40
		100 %	HQ3							48		Extremely weak, SW, grey, silty, fine to medium SANDSTONE to sandy SILTSTONE. Weakly cemented. 47.85 m, 4x organic laminations.		-41
		100 %	HQ3							49		Extremely weak, SW, grey, SANDSTONE, trace shells. Uncemented. Bedding: laminated. ('Very dense', fine to medium SAND, minor silt; moist, non plastic).		-42
		33 %	HQ3						Box 18			49.4 m, 50 mm strong sandstone (concretion). Core loss (49.46 - 50.0 m).		-43

DATE STARTED: 7/3/16 DRILLED BY: Drill Force NZ Ltd

DATE FINISHED: 7/4/16 EQUIPMENT: YDX3L

LOGGED BY: JUB DRILL METHOD: HQ3

SHEAR VANE No: NA DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

COMMENTS:
This borehole log combines the upper 20.1 m of BH03 (which was drilled to 23.2 m, and terminated due to artesian conditions), and the replacement borehole nearby, BH03a which was wash drilled to 20.1 m and cored thereafter.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

A4 Scale 1:50

BECA LIB 1.07.4.GLB Log BECA MACHINE BOREHOLE NP CBD BH DRILLING 15_BSG05.GPJ <<DrawingFile>> 28/07/2016 15:38 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: Beca 1.07.4 2016-01-15 Prj: Beca 1.07 2014-12-16

BH_TT98873 BH_94476

SOURCE: NZGD

Beca

BOREHOLE No: BH03/03a

MACHINE BOREHOLE LOG

SHEET 6 of 14

PROJECT: NP CBD Borehole Drilling 15/BSG05 JOB NUMBER: 3853039

SITE LOCATION: New Plymouth CLIENT: New Plymouth District Council

CIRCUIT: NZTM BOREHOLE LOCATION: Vivian St Carpark

COORDINATES: N 5,676,133.05 m R L: 6.47 m COORDINATE ORIGIN: dGPS

E 1,693,062.11 m DATUM: MSL ACCURACY: ±0.01m

DRILLING						IN-SITU TESTS								
FLUID LOSS	DAILY WATER LEVEL	CORE RECOVERY	METHOD	CASING	RQD	SV	τ (kPa)	SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
Torqueless + Sand Drill		100 %	HQ3						Box 18	51		Extremely weak, SW, grey, SANDSTONE. Uncemented to weakly cemented ('Very dense', fine to medium SAND, minor silt; moist, non plastic). Moderately thinly interbedded with moderately thin beds of extremely weak, SW, grey, MUDSTONE.	Matemateaonga Formation	-44
												50.78 m, organic lamination; subhorizontal bedding.		
		100 %	HQ3							52				-45
		90 %	HQ3						Box 19	53		Extremely weak, SW, grey, silty fine SANDSTONE. Uncemented. Thinly interbedded with extremely weak, SW, grey, sandy MUDSTONE, trace shells.		-46
		100 %	HQ3							54		53.93 m, 110 mm strong SANDSTONE (concretion). 54.04 m, sandy MUDSTONE moderately thinly interbedded.		-47
												Extremely weak, MW-SW, grey, speckled black and white volcaniclastic SANDSTONE. 54.35 m, 50 mm moderately strong volcaniclastic SANDSTONE (concretion).		-48
												Extremely weak, SW, grey, silty fine SANDSTONE. Uncemented. Thinly interbedded with extremely weak, SW, grey, sandy MUDSTONE, trace shells.		
		93 %	HQ3							55		Extremely weak, SW, grey MUDSTONE.		-49
		96 %	HQ3						Box 20	56		Extremely weak, SW, grey, silty SANDSTONE. Uncemented.		-50
										57		Extremely weak, SW, grey MUDSTONE.		
												Extremely weak, SW, grey, silty SANDSTONE. Uncemented.		
												Extremely weak, SW, grey MUDSTONE.		-51
												Extremely weak, SW, grey, SANDSTONE, trace shells. Uncemented.		
										58		57.85 m, 50 mm strong SANDSTONE (concretion).		
												Extremely weak, SW, grey MUDSTONE.		-52
		100 %	HQ3						Box 21	59		Extremely weak, SW, grey SANDSTONE. Uncemented ('Very dense', fine to medium SAND, minor silt; moist, non plastic).		
		100 %	HQ3									59.22 m, 20 mm strong SANDSTONE (concretion).		-53

DATE STARTED: 7/3/16 DRILLED BY: Drill Force NZ Ltd

DATE FINISHED: 7/4/16 EQUIPMENT: YDX3L

LOGGED BY: JUB DRILL METHOD: HQ3

SHEAR VANE No: NA DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

COMMENTS:
This borehole log combines the upper 20.1 m of BH03 (which was drilled to 23.2 m, and terminated due to artesian conditions), and the replacement borehole nearby, BH03a which was wash drilled to 20.1 m and cored thereafter.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

A4 Scale 1:50

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BH_TT98873

BH_94476

SOURCE: NZGD

Beca

BOREHOLE No: BH03/03a

MACHINE BOREHOLE LOG

PROJECT: NP CBD Borehole Drilling 15/BSG05 JOB NUMBER: 3853039

SITE LOCATION: New Plymouth CLIENT: New Plymouth District Council

CIRCUIT: NZTM BOREHOLE LOCATION: Vivian St Carpark

COORDINATES: N 5,676,133.05 m R L: 6.47 m COORDINATE ORIGIN: dGPS

E 1,693,062.11 m DATUM: MSL ACCURACY: ±0.01m

DRILLING						IN-SITU TESTS							
FLUID LOSS	DAILY WATER LEVEL	CORE RECOVERY	METHOD	CASING	RQD	SV	τ (kPa)	SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
Torqueless + Sand Drill		100 %	HQ3						Box 21	61		Extremely weak, SW, grey SANDSTONE. Uncemented ('Very dense', fine to medium SAND, minor silt; moist, non plastic).	Matemateaonga Formation	-54
		100 %	HQ3									60.75 m, 130 mm strong SANDSTONE (concretion).		
		100 %	HQ3						Box 22	62				-55
												62.35 m, 60 mm strong SANDSTONE (concretion).		-56
		100 %	HQ3							63				
														-57
		100 %	HQ3						Box 23	64		64.43 m, 90 mm strong coarse SANDSTONE (concretion).		-58
										65		65.03 m, 70 mm strong to weak SANDSTONE (concretion).		-59
		100 %	HQ3							66				
												66.25 m, thin (30 mm) weak bed.		-60
												66.8 m, 50 mm strong SANDSTONE (concretion).		
		97 %	HQ3							67				-61
									Box 24	68				-62
		98 %	HQ3							69		69.4 m, 120 mm strong SANDSTONE (concretion).		-63

DATE STARTED: 7/3/16 DRILLED BY: Drill Force NZ Ltd

DATE FINISHED: 7/4/16 EQUIPMENT: YDX3L

LOGGED BY: JUB DRILL METHOD: HQ3

SHEAR VANE No: NA DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

COMMENTS:
This borehole log combines the upper 20.1 m of BH03 (which was drilled to 23.2 m, and terminated due to artesian conditions), and the replacement borehole nearby, BH03a which was wash drilled to 20.1 m and cored thereafter.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

A4 Scale 1:50

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BH_TT98873 BH_94476

SOURCE: NZGD

Beca

BOREHOLE No: BH03/03a

MACHINE BOREHOLE LOG

PROJECT: NP CBD Borehole Drilling 15/BSG05 JOB NUMBER: 3853039

SITE LOCATION: New Plymouth CLIENT: New Plymouth District Council

CIRCUIT: NZTM BOREHOLE LOCATION: Vivian St Carpark

COORDINATES: N 5,676,133.05 m R L: 6.47 m COORDINATE ORIGIN: dGPS

E 1,693,062.11 m DATUM: MSL ACCURACY: ±0.01m

DRILLING						IN-SITU TESTS							
FLUID LOSS	DAILY WATER LEVEL	CORE RECOVERY	METHOD	CASING	RQD	SV	τ (kPa)	SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
Torqueless + Sand Drill		100 %	HQ3									Extremely weak, SW, grey, SANDSTONE. Uncemented to weakly cemented ('very dense', fine to medium SAND, some silt; moist, non plastic).		
		92 %	HQ3											
		100 %	HQ3						Box 25	71				-64
										72				-65
		100 %	HQ3							73		73.0 m, weakly cemented. Defects: drilling induced.		-66
														-67
		100 %	HQ3						Box 26	74		74.0 m, 170 mm strong SANDSTONE (concretion, with possible shell casts).		-68
		100 %	HQ3									Extremely weak, fine sandy MUDSTONE.	Matemateaonga Formation	
		100 %	HQ3							75		74.5 m, very weak.		-69
		98 %	HQ3							76		75.9 m, defect: steeply inclined, undulating, rough.		-70
									Box 27	77		Very weak, SW, grey MUDSTONE.		
		98 %	HQ3									77.25 m, 120 mm strong fine sandy MUDSTONE (concretion).		-71
										78				-72
		100 %	HQ3						Box 28	79		78.95 m, extremely weak. Defect: steeply inclined, undulating, smooth.		
												79.25 m, trace shells.		-73

DATE STARTED: 7/3/16 DRILLED BY: Drill Force NZ Ltd

DATE FINISHED: 7/4/16 EQUIPMENT: YDX3L

LOGGED BY: JUB DRILL METHOD: HQ3

SHEAR VANE No: NA DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

COMMENTS:
This borehole log combines the upper 20.1 m of BH03 (which was drilled to 23.2 m, and terminated due to artesian conditions), and the replacement borehole nearby, BH03a which was wash drilled to 20.1 m and cored thereafter.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

A4 Scale 1:50

BECA LIB 1.07.4.GLB Log BECA MACHINE BOREHOLE NP CBD BH DRILLING 15_BSG05.GPJ <<DrawingFile>> 28/07/2016 15:38 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: Beca 1.07.4 2016-01-15 Prj: Beca 1.07 2014-12-16

BH_TT98873 BH_94476

SOURCE: NZGD

Beca

BOREHOLE No: BH03/03a

MACHINE BOREHOLE LOG

PROJECT: NP CBD Borehole Drilling 15/BSG05 JOB NUMBER: 3853039

SITE LOCATION: New Plymouth CLIENT: New Plymouth District Council

CIRCUIT: NZTM BOREHOLE LOCATION: Vivian St Carpark

COORDINATES: N 5,676,133.05 m R L: 6.47 m COORDINATE ORIGIN: dGPS

E 1,693,062.11 m DATUM: MSL ACCURACY: ±0.01m

DRILLING						IN-SITU TESTS							
FLUID LOSS	DAILY WATER LEVEL	CORE RECOVERY	METHOD	CASING	RQD	SV	τ (kPa)	SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
Torqueless + Sand Drill		96 %	HQ3						Box 28	81		Extremely weak, SW, grey MUDSTONE.	Matemateaonga Formation	-74
		100 %	HQ3						Box 29	82		Extremely weak, SW, grey, silty SANDSTONE, trace shells. Weakly cemented. 82.24 m, 20 mm strong SANDSTONE (concretion).		-75
		90 %	HQ3							83				-76
		58 %	HQ3							84		83.7 m, moderately thin (100 mm) very weak bed.		-77
		100 %	HQ3						Box 30	85				-78
		95 %	HQ3							86				-79
		100 %	HQ3						Box 31	87		87.5 m, very weak, grading to fine sandy MUDSTONE.		-80
		80 %	HQ3							88		Strong, SW, grey SANDSTONE (concretion). 88.26 m, defect: steeply inclined, undulating, rough. 88.35 m, defect: gently inclined, undulating, rough.		-81
										89		Extremely weak, SW, grey, silty fine SANDSTONE. Weakly cemented. 88.7 m, very weak/ extremely weak, moderately thinly interbedded. 88.8 - 88.9 m, extremely weak, drilling disturbed. 1x 50 mm strong SANDSTONE (concretion). 89.15 m, defect: steeply inclined, undulating, rough. 89.26 m, defect: steeply inclined, stepped, smooth. 89.6 m, defect: subvertical, planar, rough.		-82 -83

DATE STARTED: 7/3/16 DRILLED BY: Drill Force NZ Ltd

DATE FINISHED: 7/4/16 EQUIPMENT: YDX3L

LOGGED BY: JUB DRILL METHOD: HQ3

SHEAR VANE No: NA DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

COMMENTS:
This borehole log combines the upper 20.1 m of BH03 (which was drilled to 23.2 m, and terminated due to artesian conditions), and the replacement borehole nearby, BH03a which was wash drilled to 20.1 m and cored thereafter.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

A4 Scale 1:50

BECA LIB 1.07.4.GLB Log BECA MACHINE BOREHOLE NP CBD BH DRILLING 15_BSG05.GPJ <<DrawingFile>> 28/07/2016 15:38 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: Beca 1.07.4 2016-01-15 Prj: Beca 1.07 2014-12-16

BH_TT98873 BH_94476

SOURCE: NZGD

Beca

BOREHOLE No: BH03/03a

MACHINE BOREHOLE LOG

SHEET 10 of 14

PROJECT: NP CBD Borehole Drilling 15/BSG05 JOB NUMBER: 3853039

SITE LOCATION: New Plymouth CLIENT: New Plymouth District Council

CIRCUIT: NZTM BOREHOLE LOCATION: Vivian St Carpark

COORDINATES: N 5,676,133.05 m R L: 6.47 m COORDINATE ORIGIN: dGPS

E 1,693,062.11 m DATUM: MSL ACCURACY: ±0.01m

DRILLING						IN-SITU TESTS							
FLUID LOSS	DAILY WATER LEVEL	CORE RECOVERY	METHOD	CASING	RQD	SV	τ (kPa)	SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
Torqueless + Sand Drill		65 %	HQ3							91		Extremely weak, SW, grey, silty fine SANDSTONE. Weakly cemented.		
												Very weak, SW, grey, fine sandy MUDSTONE. 90.45 m, defect: steeply inclined, undulating, smooth.		-84
												Extremely weak to very weak, SW, grey, silty fine SANDSTONE. 90.8 m, extremely weak, weakly cemented. 90.9 m, defect: steeply inclined, stepped, rough.		
												Core loss (91.3 - 92.9 m).		-85
									Box 32	92				-86
		64 %	HQ3							93		Extremely weak, SW, grey, silty fine SANDSTONE. Weakly cemented. Defects: closely spaced, drilling induced.		-87
												93.4 m, 30 mm strong SANDSTONE (concretion).		
										94		93.75 m, defect: steeply inclined, stepped, rough.		-88
		94 %	HQ3									94.5 m, extremely weak to very weak.		
												94.75 - 95.0 m disturbed by drilling.		
		96 %	HQ3							95		Very weak, SW, grey, fine sandy MUDSTONE.	Matemateaonga Formation	-89
												95.37 m, extremely weak.		
									Box 33	96				-90
		96 %	HQ3									96.65 m, very weak, trace shells.		
		100 %	HQ3							97				-91
										98				-92
		99 %	HQ3						Box 34			98.6 m, extremely weak.		
										99		Extremely weak, SW, grey, silty fine SANDSTONE, trace shells. Cemented.		-93

DATE STARTED: 7/3/16 DRILLED BY: Drill Force NZ Ltd

DATE FINISHED: 7/4/16 EQUIPMENT: YDX3L

LOGGED BY: JUB DRILL METHOD: HQ3

SHEAR VANE No: NA DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

COMMENTS:
This borehole log combines the upper 20.1 m of BH03 (which was drilled to 23.2 m, and terminated due to artesian conditions), and the replacement borehole nearby, BH03a which was wash drilled to 20.1 m and cored thereafter.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

A4 Scale 1:50

BECA LIB 1.07.4.GLB Log BECA MACHINE BOREHOLE NP CBD BH DRILLING 15_BSG05.GPJ <<DrawingFile>> 28/07/2016 15:38 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: Beca 1.07.4 2016-01-15 Prj: Beca 1.07 2014-12-16

BH_TT98873 BH_94476

SOURCE: NZGD

Beca

BOREHOLE No: BH03/03a

MACHINE BOREHOLE LOG

SHEET 11 of 14

PROJECT: NP CBD Borehole Drilling 15/BSG05 JOB NUMBER: 3853039

SITE LOCATION: New Plymouth CLIENT: New Plymouth District Council

CIRCUIT: NZTM BOREHOLE LOCATION: Vivian St Carpark

COORDINATES: N 5,676,133.05 m R L: 6.47 m COORDINATE ORIGIN: dGPS

E 1,693,062.11 m DATUM: MSL ACCURACY: ±0.01m

DRILLING: FLUID LOSS	DAILY WATER LEVEL	CORE RECOVERY	METHOD	CASING	RQD	IN-SITU TESTS: SV	τ (kPa)	SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
Torqueless + Sand Drill		99 %	HQ3									Extremely weak, SW, grey, silty fine SANDSTONE, trace shells. Cemented,		
		100 %	HQ3									100.3 m, very weak.		-94
												100.7 - 100.8 m, disturbed by drilling.		
		100 %	HQ3						Box 35	101				-95
										102		102.1 - 102.2 m, disturbed by drilling.		
		94 %	HQ3											-96
		100 %	HQ3						Box 36	103		103.4 m, 50 mm bed with some shells.		-97
												Extremely weak to very weak, SW, grey, fine sandy MUDSTONE.		
										104				-98
		100 %	HQ3									Extremely weak, SW, grey, silty fine SANDSTONE. Cemented.	Matemateaonga Formation	
										105		Very weak, SW, grey, fine sandy MUDSTONE, trace shells.		-99
		100 %	HQ3							106				
												Extremely weak to very weak, SW, grey, silty fine SANDSTONE.		-100
		90 %	HQ3						Box 37	107		106.65 m, extremely weak, weakly cemented. 106.8 m, 60 mm strong SANDSTONE (concretion) trace black speckled.		
												107.14 m, extremely weak, weakly cemented. Trace shells.		-101
										108				-102
		82 %	HQ3						Box 38	109		109.2 m, thin (30 mm) bed of extremely weak MUDSTONE. 109.3 m, thin (30 mm) bed of extremely weak MUDSTONE.		-103
												109.8 - 111.7 m, drilling disturbed.		

DATE STARTED: 7/3/16 DRILLED BY: Drill Force NZ Ltd

DATE FINISHED: 7/4/16 EQUIPMENT: YDX3L

LOGGED BY: JUB DRILL METHOD: HQ3

SHEAR VANE No: NA DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

COMMENTS:
This borehole log combines the upper 20.1 m of BH03 (which was drilled to 23.2 m, and terminated due to artesian conditions), and the replacement borehole nearby, BH03a which was wash drilled to 20.1 m and cored thereafter.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

A4 Scale 1:50

BECA LIB 1.07.4.GLB Log BECA MACHINE BOREHOLE NP CBD BH DRILLING 15_BSG05.GPJ <<DrawingFile>> 28/07/2016 15:38 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: Beca 1.07.4 2016-01-15 Prj: Beca 1.07 2014-12-16

BH_TT98873 BH_94476

SOURCE: NZGD

Beca

BOREHOLE No: BH03/03a

MACHINE BOREHOLE LOG

SHEET 12 of 14

PROJECT: NP CBD Borehole Drilling 15/BSG05 — JOB NUMBER: 3853039

SITE LOCATION: New Plymouth — CLIENT: New Plymouth District Council

CIRCUIT: NZTM — BOREHOLE LOCATION: Vivian St Carpark

COORDINATES: N 5,676,133.05 m — R L: 6.47 m — COORDINATE ORIGIN: dGPS

E 1,693,062.11 m — DATUM: MSL — ACCURACY: ±0.01m

DRILLING: FLUID LOSS	DRILLING: DAILY WATER LEVEL	DRILLING: CORE RECOVERY	DRILLING: METHOD	DRILLING: CASING	DRILLING: RQD	IN-SITU TESTS: SV	IN-SITU TESTS: τ (kPa)	IN-SITU TESTS: SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
Torqueless + Sand Drill		100 %	HQ3						Box 38	111		Extremely weak, SW, grey, silty fine SANDSTONE, trace shells. Weakly cemented. Defect: very steeply inclined to subvertical, undulating, smooth. 110.2 m, defect: very steeply inclined to subvertical, undulating, smooth. 110.75 m, defect: very steeply inclined, undulating, smooth, coarsely striated in dip direction. 111.15 m, defect: very steeply inclined, undulating, smooth, coarsely striated in dip direction.	Matemateaonga Formation	-104 -105
		81 %	HQ3							112		Very weak, SW, grey, MUDSTONE, trace shells.		-106
		99 %	HQ3						Box 39	113		Extremely weak, SW, grey, silty fine SANDSTONE. Weakly cemented. 113.0 m, trace shells.		-107
		100 %	HQ3							114				-108
										115				-109
		49 %	HQ3						Box 40	116		115.95 m, disturbed by drilling. 116.6 m, very thin (5 mm) very steeply inclined brown band.		-110
										117		Extremely weak, SW, grey SANDSTONE. Uncemented. Extremely weak, SW, grey, silty fine SANDSTONE. Weakly cemented.		-111
										118		Core loss (117.48 - 119.0 m).		-112
		80 %	HQ3							119		Extremely weak, SW, grey, silty fine SANDSTONE, trace shells. Weakly cemented.		-113
		100 %	HQ3						Box 41			119.5 - 120.4 m, extremely weak to very weak.		
		40	HQ3											

DATE STARTED: 7/3/16 — DRILLED BY: Drill Force NZ Ltd

DATE FINISHED: 7/4/16 — EQUIPMENT: YDX3L

LOGGED BY: JUB — DRILL METHOD: HQ3

SHEAR VANE No: NA — DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

COMMENTS:
This borehole log combines the upper 20.1 m of BH03 (which was drilled to 23.2 m, and terminated due to artesian conditions), and the replacement borehole nearby, BH03a which was wash drilled to 20.1 m and cored thereafter.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

A4 Scale 1:50

BECA LIB 1.07.4.GLB Log BECA MACHINE BOREHOLE NP CBD BH DRILLING 15_BSG05.GPJ <<DrawingFile>> 28/07/2016 15:38 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: Beca 1.07.4 2016-01-15 Prj: Beca 1.07 2014-12-16

BH_TT98873

BH_94476

SOURCE: NZGD

Beca

BOREHOLE No: BH03/03a

MACHINE BOREHOLE LOG

SHEET 13 of 14

PROJECT: NP CBD Borehole Drilling 15/BSG05 JOB NUMBER: 3853039

SITE LOCATION: New Plymouth CLIENT: New Plymouth District Council

CIRCUIT: NZTM BOREHOLE LOCATION: Vivian St Carpark

COORDINATES: N 5,676,133.05 m R L: 6.47 m COORDINATE ORIGIN: dGPS

E 1,693,062.11 m DATUM: MSL ACCURACY: ±0.01m

DRILLING						IN-SITU TESTS								
FLUID LOSS	DAILY WATER LEVEL	CORE RECOVERY	METHOD	CASING	RQD	SV	τ (kPa)	SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
Torqueless + Sand Drill		43 %	HQ3							121		Extremely weak to very weak, SW, grey, silty fine SANDSTONE, trace shells. Weakly cemented. 120.62 m, 50 mm very weak to weak SANDSTONE (concretion?). Core loss (120.7 - 122.0 m).		-114 -115
		52 %	HQ3						Box 41	122 123		Extremely weak, SW, grey, silty fine SANDSTONE. Cemented. Defects: closely spaced (drilling induced?). 122.3 m, defect: subvertical (~200 mm persistence), undulating, rough. Core loss (123.5 - 124.9 m).		-116 -117
		77 %	HQ3							124 125		Extremely weak, SW, grey, silty fine to medium SANDSTONE. Cemented.	Matemateaonga Formation	-118 -119
		100 %	HQ3						Box 42	126 127		125.6 - 125.72 m, uncemented zone (silty fine to medium SAND). 125.6 - 125.9 m, defect: subvertical, undulating, smooth. Core loss (126.52 - 127.0 m). Extremely weak, SW, grey, silty fine to medium SANDSTONE, trace shells. Cemented.		-120 -121
		100 %	HQ3						Box 43	128 129		127.7 - 127.82 m, very weak. 128.0 m, moderately widely spaced thin (50 mm) weakly cemented to uncemented beds.		-122 -123

DATE STARTED: 7/3/16 DRILLED BY: Drill Force NZ Ltd

DATE FINISHED: 7/4/16 EQUIPMENT: YDX3L

LOGGED BY: JUB DRILL METHOD: HQ3

SHEAR VANE No: NA DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

COMMENTS:
This borehole log combines the upper 20.1 m of BH03 (which was drilled to 23.2 m, and terminated due to artesian conditions), and the replacement borehole nearby, BH03a which was wash drilled to 20.1 m and cored thereafter.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

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A4 Scale 1:50

BH_TT98873 BH_94476

SOURCE: NZGD

Beca

BOREHOLE No: BH03/03a

MACHINE BOREHOLE LOG

SHEET 14 of 14

PROJECT: NP CBD Borehole Drilling 15/BSG05 JOB NUMBER: 3853039

SITE LOCATION: New Plymouth CLIENT: New Plymouth District Council

CIRCUIT: NZTM BOREHOLE LOCATION: Vivian St Carpark

COORDINATES: N 5,676,133.05 m R L: 6.47 m COORDINATE ORIGIN: dGPS

E 1,693,062.11 m DATUM: MSL ACCURACY: ±0.01m

DRILLING: FLUID LOSS	DRILLING: DAILY WATER LEVEL	DRILLING: CORE RECOVERY	DRILLING: METHOD	DRILLING: CASING	DRILLING: RQD	IN-SITU TESTS: SV	IN-SITU TESTS: τ (kPa)	IN-SITU TESTS: SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
		100 %	HQ3						Box 43	131		Extremely weak to very weak, SW, grey, silty fine to medium SANDSTONE, trace shells. Cemented. 130.8 m, extremely weak to very weak. END OF LOG @ 131 m		-124 -125 -126 -127 -128 -129 -130 -131 -132 -133

132 133 134 135 136 137 138 139

DATE STARTED: 7/3/16 DRILLED BY: Drill Force NZ Ltd

DATE FINISHED: 7/4/16 EQUIPMENT: YDX3L

LOGGED BY: JUB DRILL METHOD: HQ3

SHEAR VANE No: NA DRILL FLUID: Lubricant

DIAMETER/INCLINATION: 100 mm/ 90°

COMMENTS:
This borehole log combines the upper 20.1 m of BH03 (which was drilled to 23.2 m, and terminated due to artesian conditions), and the replacement borehole nearby, BH03a which was wash drilled to 20.1 m and cored thereafter.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

A4 Scale 1:50

BECA LIB 1.07.4.GLB Log BECA MACHINE BOREHOLE NP CBD BH DRILLING 15_BSG05.GPJ <<DrawingFile>> 28/07/2016 15:38 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: Beca 1.07.4 2016-01-15 Prj: Beca 1.07 2014-12-16

BH_TT98873

BH_94476

Appendix C: Current ground investigation results

- **Borehole Logs**
- **Hand Auger Logs**
- **Cone Penetration Test Logs**

BOREHOLE LOG

Tonkin+Taylor

BOREHOLE No.: BH1

SHEET: 1 OF 2

PROJECT: 51 Brougham St, New Plymouth
JOB No.: 1011502.0000
LOCATION: 51 Brougham St, New Plymouth

CO-ORDINATES: (NZTM2000) 5676161.00 mN 1692880.00 mE
DIRECTION:
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 9.73m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: Total Station\Surveyed

DRILLED BY: Ollie & Kerwyn
LOGGED BY: CMCD
CHECKED: KJH
START DATE: 30/07/2019
FINISH DATE: 31/07/2019
CONTRACTOR: Drillforce Ltd

GEOLOGICAL UNIT	DESCRIPTION OF CORE (SOIL: Classification, colour, consistency / density, moisture, plasticity; ROCK: Weathering, colour, fabric, name, strength, cementation)	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)
Fill	ASPHALT;					
	Silty GRAVEL with some sand and organics (rootlets); Dark grey. Tightly packed, moist, well graded; Gravel, medium to coarse, angular, highly weathered andesite; Sand, fine to medium [HARDFILL]	HVAC	0			
	Sandy GRAVEL with some organics (rootlets); Greyey-brown. Tightly packed, wet, poorly graded; Gravel, fine-medium, sub-angular, highly weathered andesite; Sand, medium to coarse.					
Taranaki Ash	Gravelly SAND with some organics (wood fragments); dark brown-grey. Loosely packed, poorly graded; Sand, medium to coarse; Gravel, fine to medium, sub-angular, highly weathered andesite.	SPT	0	1/1 1/1 1/1 N=4		
	Clayey SILT with some sand with trace organics (rootlets); brown. Stiff, wet, low plasticity; sand, fine to medium.	HQTT	100			
	2.40m: with trace fine, sub-angular gravel.					
	2.80m: becoming very stiff.					
	Sandy SILT with some clay; orange-brown. Firm, wet-saturated, non plastic; sand, fine-medium.	SPT	88	0/0 0/0 0/0 N=0		
	3.6-3.75m: CORELOSS;					
	Silty CLAY with some sand; orange-brown. Stiff, wet, medium plasticity.	HQTT	71			
	3.95m: becoming mottled orange & grey, very stiff.					
	4.30m: with trace organics (rootlets).					
	4.35-4.5m: CORELOSS;					
	Silty CLAY with some sand; orange-brown. Stiff, wet, medium plasticity.	SPT	0	2/1 3/3 2/4 N=12		
Pouakai Group	Sandy GRAVEL; mottled brown and grey. Medium dense, wet, well graded; gravel, fine to coarse, sub-rounded, slightly to unweathered andesite; sand, medium to coarse.	HQTT	80			
	Slightly weathered, light brown SILTSTONE; Extremely weak, moderately cemented, shallow dipping bedding planes.					
	SAND with some gravel; brown, mottled black and orange. Medium dense, wet, poorly graded; sand, fine to coarse; gravel, fine, sub-rounded, slightly to unweathered andesite.	SPT	100	3/3 3/5 5/6 N=19		
	Slightly weathered, light brown SILTSTONE; Extremely weak, moderately cemented, shallow dipping bedding planes.	HQTT	52			
	5.8-6.0m: CORELOSS;					
	Silty CLAY; light brown. Very stiff, moist to wet, high plasticity.					
	Silty SAND with some gravel; dark brown. Medium dense, wet, poorly graded; sand, fine to medium; gravel, medium to coarse, sub-angular, slightly to unweathered andesite.	SPT	66	2/4 3/5 6/6 N=20		
	7.0-7.5m: CORELOSS;					
	Silty SAND with some gravel; dark brown. Medium dense, wet, poorly graded; sand, fine to medium; gravel, medium to coarse, sub-angular, slightly to unweathered andesite.	HQTT	33			
	8.05m: grading into coarse, sub-rounded gravel.					
	Silty gravelly SAND; light brown with grey mottles. Medium dense, poorly graded; sand, fine to medium; gravel, fine, sub-rounded, slightly to unweathered andesite.	SPT	100	3/5 4/4 6/6 N=20		
	8.3-9.0m: CORELOSS;					

ROCK DEFECTS: Defect Log; Fracture Spacing (mm); RQD (%); Description & Additional Observations

0.00 - 1.50m: Hydro Excavation. Point samples taken from borehole walls.

Fluid Loss (%); Water Level (31/07/2019, 30/07/2019); Casing (100mm PQ Casing); Installation; Core Box No (Box 1, 0.0-5.1m)

COMMENTS: 10.0m PVC Standpipe Piezometer installed with a screened zone from 7.0-10.0m bgl.

Hole Depth 19.95m

Scale 1:50

Rev.: A

General Log - gd - 16/08/2019 4:48:34 PM - Produced with Core-GS by GeRoc

BOREHOLE LOG

Tonkin+Taylor

BOREHOLE No.: BH1

SHEET: 2 OF 2

PROJECT: 51 Brougham St, New Plymouth
JOB No.: 1011502.0000
LOCATION: 51 Brougham St, New Plymouth

CO-ORDINATES: (NZTM2000) 5676161.00 mN 1692880.00 mE
DIRECTION:
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 9.73m
R.L. COLLAR:
DATUM: NZVD2016
SURVEY: Total Station\Surveyed

DRILLED BY: Ollie & Kerwyn
LOGGED BY: CMCD
CHECKED: KJH
START DATE: 30/07/2019
FINISH DATE: 31/07/2019
CONTRACTOR: Drillforce Ltd

GEOLOGICAL UNIT	DESCRIPTION OF CORE SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation	Rock Weathering	Rock Strength	Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK DEFECTS: Defect Log	ROCK DEFECTS: Fracture Spacing (mm)	ROCK DEFECTS: RQD (%)	ROCK DEFECTS: Description & Additional Observations	Fluid Loss (%)	Water Level	Casing	Installation	Core Box No
Pouakai Group	Sandy silty GRAVEL; brown-grey. Medium dense, wet, well graded; gravel, fine, sub-rounded, slightly to unweathered andesite; sand, medium to coarse. 9.65m: grading to coarse gravel 9.8-10.0m: CORELOSS;			HQTT SPT	80 100	8/18 10 for 25mm **N>=50** Bouncing	-1	11										
	Silty SAND with some gravel; brown-grey. Medium dense, wet, poorly graded; sand, medium to coarse; gravel, sub-angular, medium to coarse, slightly to unweathered andesite. 10.5m: becoming very dense.			HQTT	69		-2	12										
	SAND; grey. Very dense, wet, poorly graded; sand, fine to medium. 11.4-11.6m: 5mm thick interbedded black and orange bands of tightly packed, fine SAND 11.6-12.0m: CORELOSS;			SPT	55	4/7 10/11 14/16 **N>=50**												
	SAND; grey. Very dense, wet, poorly graded; sand, fine to medium.			HQTT	100		-3	13					*12.45m:* End of day 30/07/19. Standing ground water at 2.26m.					Box 3, 10.3-13.5m
				SPT	100	4/7 10/13 17/10 for 45mm **N>=50**	-4	14										
	silty CLAY; grey. Very stiff, moist to wet, high plasticity. SAND; grey. Very dense, wet, poorly graded; sand, fine to medium.			HQTT	53		-5	15										
	14.5-15.0m: CORELOSS; SAND; grey. Very dense, wet, poorly graded; sand, fine to medium. *15.50m:* with some fine, sub-angular gravel.			SPT	100	4/6 6/9 11/12 **N=38**												
	16.0-16.5m: CORELOSS;			HQTT	52		-6	16										
	Silty gravelly SAND; dark grey. Dense, wet, poorly graded; sand, medium to coarse; gravel, sub-angular, fine, slightly to unweathered andesite.			SPT	100	5/6 11/10 9/10 **N=40**	-7	17										
				HQTT	100		-8											Box 4, 13.5-18.0m
	18.00m: becoming very dense			SPT	57	6/8 17/17 16 for 50mm **N>=50** Bouncing		18										
	18.80m: traces of wood fragments.			HQTT	100		-9	19										
	19.95m: Target depth			SPT	100	5/7 7/12 14/13 **N=46**	-10											Box 5, 18.0-20.0m

COMMENTS: 10.0m PVC Standpipe Piezometer installed with a screened zone from 7.0-10.0m bgl.

Hole Depth 19.95m

Scale 1:50

Rev.: A

General Log - gd - 16/08/2019 4:48:35 PM - Produced with Core-GS by GeRoc

Tonkin+Taylor

CORE PHOTOS

BOREHOLE No.: **BH1**

PROJECT: 51 Brougham St, New Plymouth	LOCATION: 51 Brougham St, New Plymouth	JOB No.: 1011502.0000
CO-ORDINATES: 5676161.00 mN (NZTM2000) 1692880.00 mE R.L.: 9.73m DATUM: NZVD2016	DRILL TYPE: Drill Rig DRILL METHOD: RC	HOLE STARTED: 30/07/2019 HOLE FINISHED: 31/07/2019 DRILLED BY: Drillforce Ltd LOGGED BY: CMCD CHECKED: KJH



0.00-5.05m



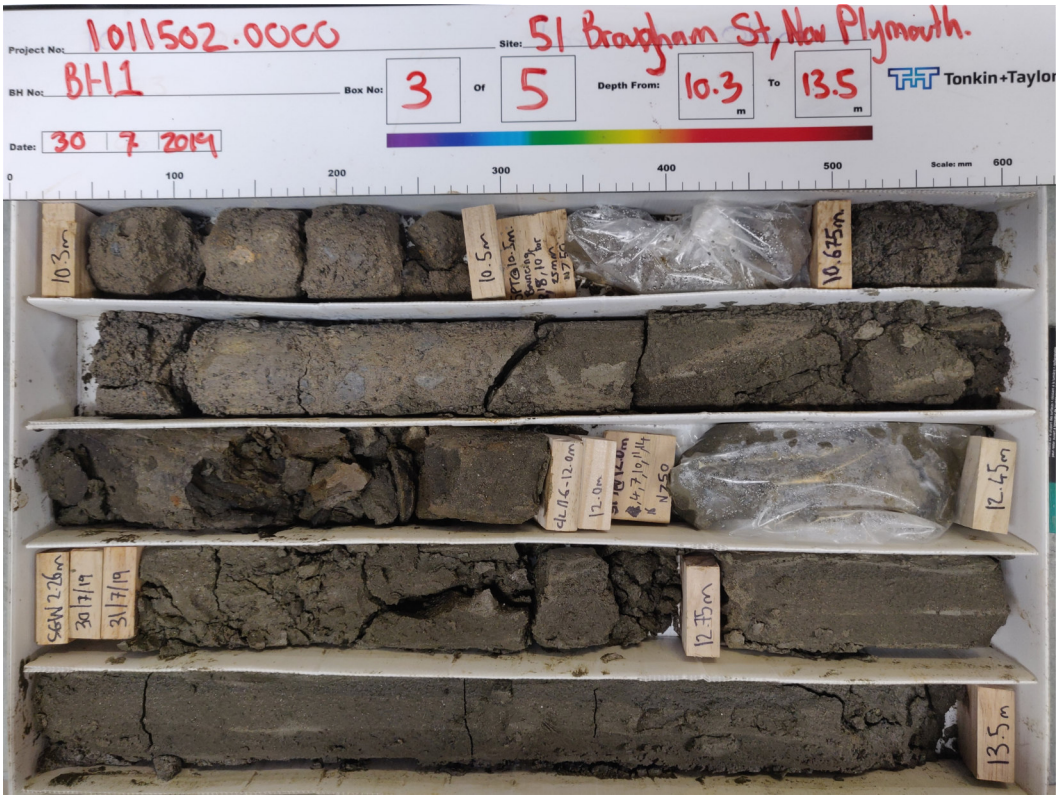
5.05-10.30m

General Log - gd - 16/08/2019 4:48:35 PM - Produced with Core-GS by GeRoc v10

CORE PHOTOS

BOREHOLE No.: **BH1**

PROJECT: 51 Brougham St, New Plymouth	LOCATION: 51 Brougham St, New Plymouth	JOB No.: 1011502.0000
CO-ORDINATES: 5676161.00 mN (NZTM2000) 1692880.00 mE R.L.: 9.73m DATUM: NZVD2016	DRILL TYPE: Drill Rig DRILL METHOD: RC	HOLE STARTED: 30/07/2019 HOLE FINISHED: 31/07/2019 DRILLED BY: Drillforce Ltd LOGGED BY: CMCD CHECKED: KJH



10.30-13.50m



13.50-18.00m

General Log - gd - 16/08/2019 4:48:36 PM - Produced with Core-GS by GeRoc

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CORE PHOTOS

BOREHOLE No.: **BH1**

PROJECT: 51 Brougham St, New Plymouth	LOCATION: 51 Brougham St, New Plymouth	JOB No.: 1011502.0000
CO-ORDINATES: 5676161.00 mN (NZTM2000) 1692880.00 mE R.L.: 9.73m DATUM: NZVD2016	DRILL TYPE: Drill Rig DRILL METHOD: RC	HOLE STARTED: 30/07/2019 HOLE FINISHED: 31/07/2019 DRILLED BY: Drillforce Ltd LOGGED BY: CMCD CHECKED: KJH



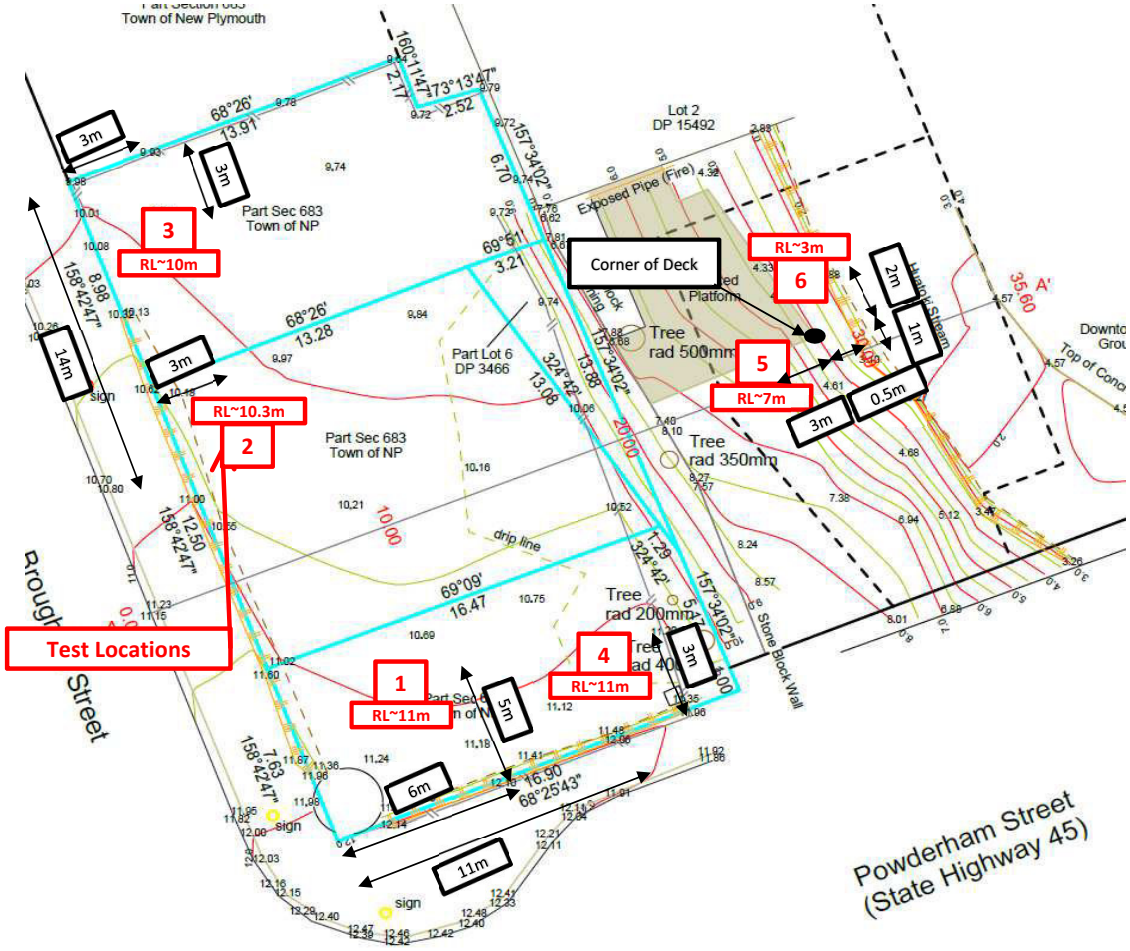
18.00-19.95m

General Log - gd - 16/08/2019 4:48:36 PM - Produced with Core-GS by GeRoc v10

Date	31/07/2019	Job No.	3297
By	MP	Page No.	1 of 7
Doc No.	TST-3297-01		

SOIL TESTING RESULTS

51 Brougham Street, New Plymouth



Location Plan
(N.T.S)

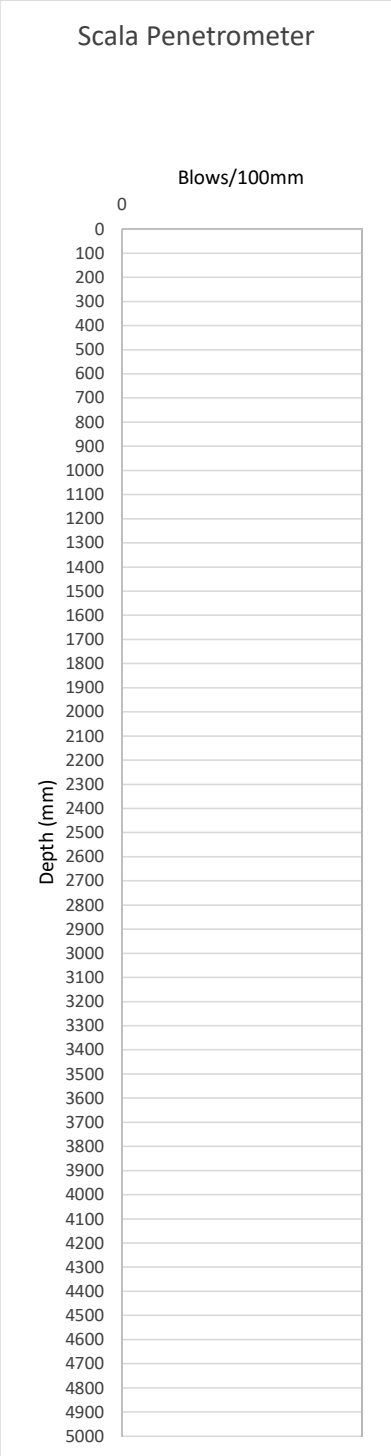
Disclaimer:
These Soil Testing Results are prepared for the client of Red Jacket for the stated purpose, and cannot be used for any other purpose or by others unless authority is given by Red Jacket Consulting Engineers Ltd.

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Date	31/07/2019	Job No.	3297
By	MP	Page No.	2 of 7
Doc No.	TST-3297-01		

SOIL TESTING RESULTS - Location No.1

51 Brougham Street, New Plymouth



NOTES:
a) No Scala Penetrometer Test.
b) The clay content of the volcanic ash increased in each soil layer

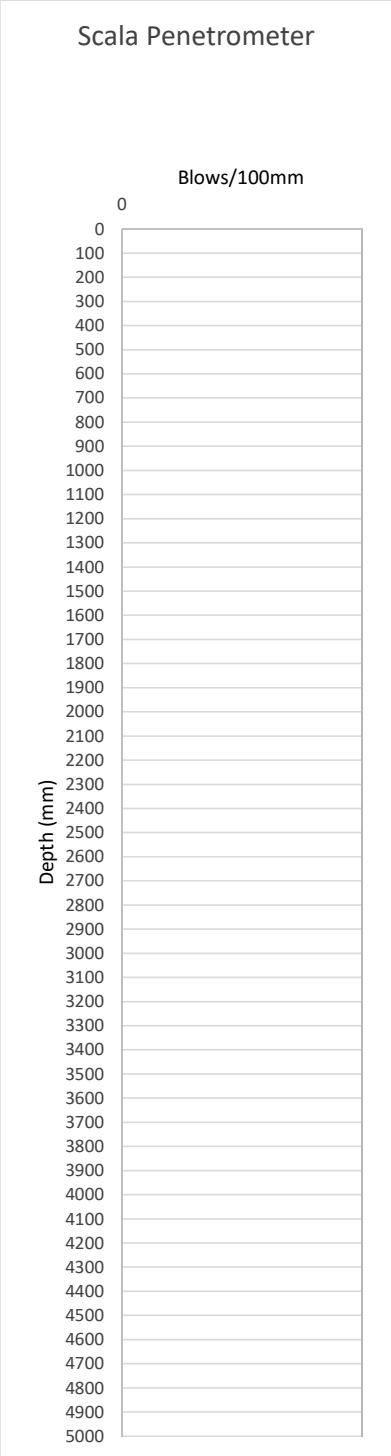
Shear Vane Used: Serial Number 1564

Shear Strength (kPa)	Soil Class.	Soil Type
	G	HARDFILL
96 / 48	C	Hydrovac to 1.5 m depth. Soil VOLCANIC ASH by visual inspection of hole.
112 / 64		
192 /	CL	Moist low plasticity brown sandy VOLCANIC ASH with traces of gravels
192 /	C	Moist stiff brown sandy VOLCANIC ASH with traces of gravels
192 /		
192 /	CL	Moist slightly plastic brown sandy VOLCANIC ASH with traces of gravels and pumice
144 / 64	CH	Moist high plasticity orangey brown sandy VOLCANIC ASH
192 /		
192 /		
	S	Moist grey Silty SAND

Date	31/07/2019	Job No.	3297
By	MP	Page No.	3 of 7
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SOIL TESTING RESULTS - Location No.2

51 Brougham Street, New Plymouth



NOTES:
a) No Scala Penetrometer Test.
b) The clay content of the volcanic ash increased in each soil layer

Shear Vane Used: Serial Number 1564

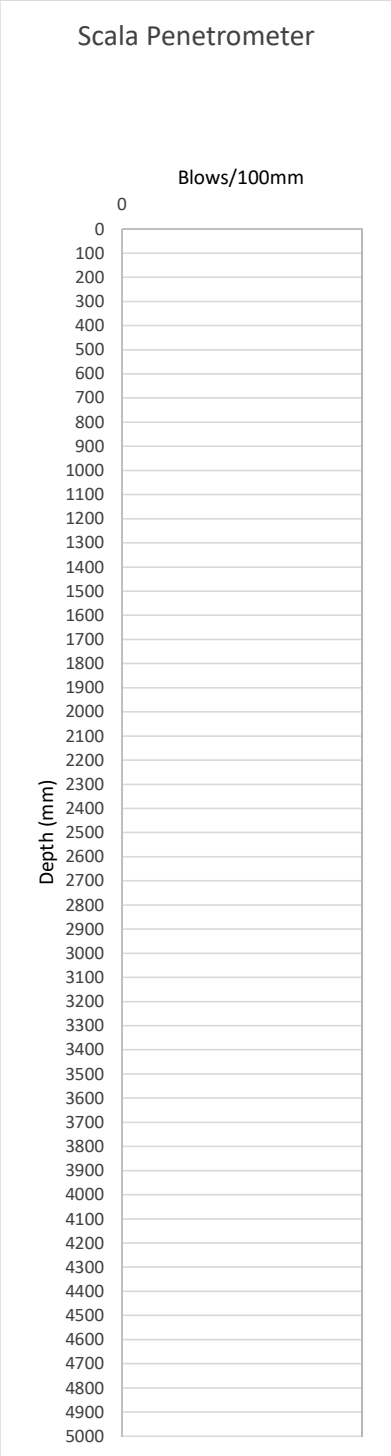
Shear Strength (kPa)	Soil Class.	Soil Type
	G	HARDFILL
160 / 32	C	Hydrovac to 1.7 m depth. Soil VOLCANIC ASH by visual inspection of hole.
128 / 32		
192 /	C	Moist stiff brown sandy VOLCANIC ASH with traces of gravels
192 /		
176 / 64	CL	Moist low plasticity orangey brown sandy VOLCANIC ASH
144 / 64	CH	- high plasticity at 3.5 m
144 / 48		
	S	Moist grey Silty SAND

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Doc No.	TST-3297-01		

SOIL TESTING RESULTS - Location No.3

51 Brougham Street, New Plymouth



NOTES:
a) No Scala Penetrometer Test.
b) The clay content of the volcanic ash increased in each soil layer

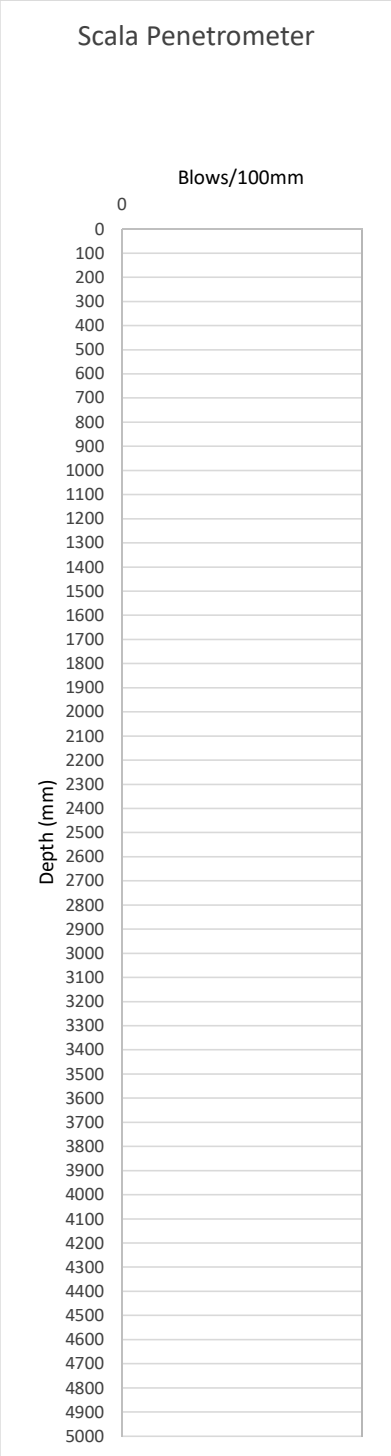
Shear Vane Used: Serial Number 1564

Shear Strength (kPa)	Soil Class.	Soil Type
	G	Hydrovac to 2.0 m depth. Soil HARDFILL between 0-1.5 m depth by visual inspection of hole.
	C	Hydrovac to 2.0 m depth. Soil VOLCANIC ASH between 1.5-2.0 m depth by visual inspection of hole.
192 /	C	Moist stiff brown sandy VOLCANIC ASH with traces of gravels
144 / 80	CH	- High plasticity at 3.0 m
160 / 112	CL	Moist low plasticity orangey brown sandy VOLCANIC ASH
192 /		
192 /		- Veins of white silt at 4.6 m
192 /		

Date	31/07/2019	Job No.	3297
By	MP	Page No.	5 of 7
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SOIL TESTING RESULTS - Location No.4

51 Brougham Street, New Plymouth



NOTES:
a) No Scala Penetrometer Test.
b) The clay content of the volcanic ash increased in each soil layer

Shear Vane Used: Serial Number 1564

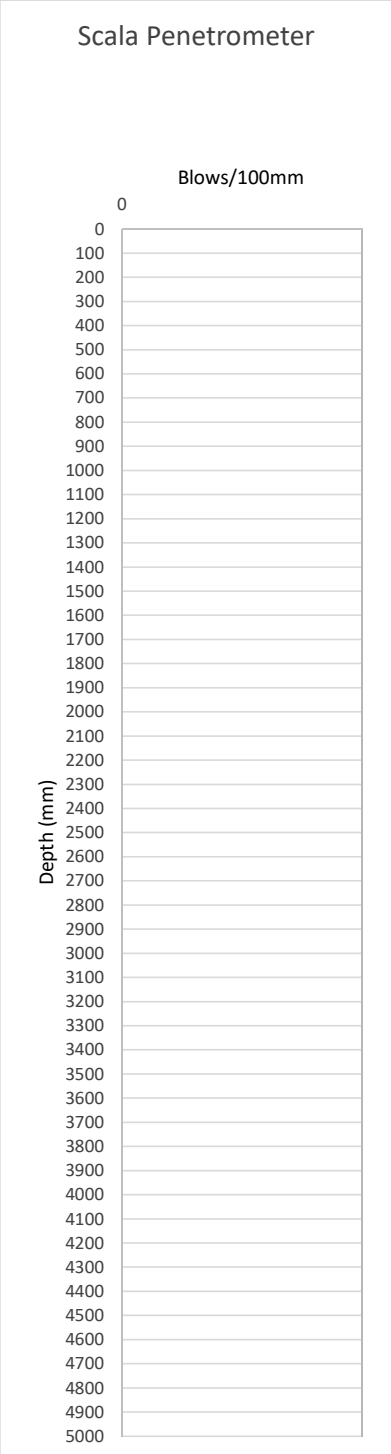
Shear Strength (kPa)	Soil Class.	Soil Type
	G	HARDFILL
	C	Hydrovac to 2.0 m depth. Soil VOLCANIC ASH by visual inspection of hole.
144 / 64 96 / 48	CL	Moist low plasticity brown sandy VOLCANIC ASH with traces of gravels
192 /	C	Moist slightly plastic brown sandy VOLCANIC ASH with traces of gravels and pumice
192 / 128 / 64	CH	Moist high plasticity brown sandy VOLCANIC ASH with traces of gravels
144 / 96 192 /	CH	Moist high plasticity orangey brown sandy VOLCANIC ASH

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SOIL TESTING RESULTS - Location No.5

51 Brougham Street, New Plymouth



NOTES:
a) No Scala Penetrometer Test.
b) Depth of auger approximately to stream level

Shear Vane Used: Serial Number 1564

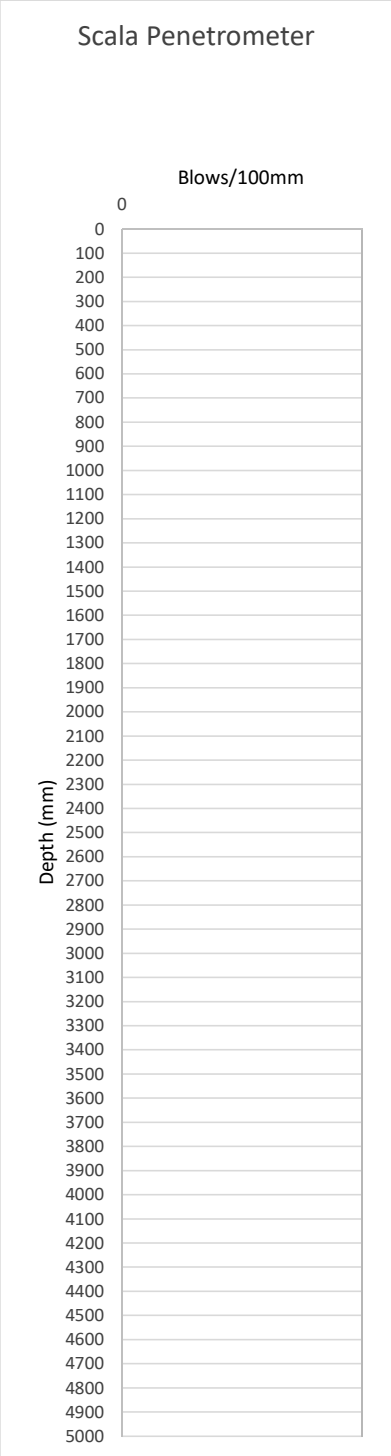
Shear Strength (kPa)	Soil Class.	Soil Type
80 / 58	O	Dark brown TOPSOIL with roots and rubbish
64 / 32	C	Moist friable mottled - brown and dark brown - sandy VOLCANIC ASH
48 / 32		
42 / 32	S	Moist black silty SAND -wet at 2.6 m -water likely purching on below soil layer
	S	Pale brown very stiff clayey SILT
	S	Wet grey coarse sandy SILT - gravel content increases with depth
		REFUSAL at 4.7 m. Auger head catching on gravels

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SOIL TESTING RESULTS - Location No.6

51 Brougham Street, New Plymouth

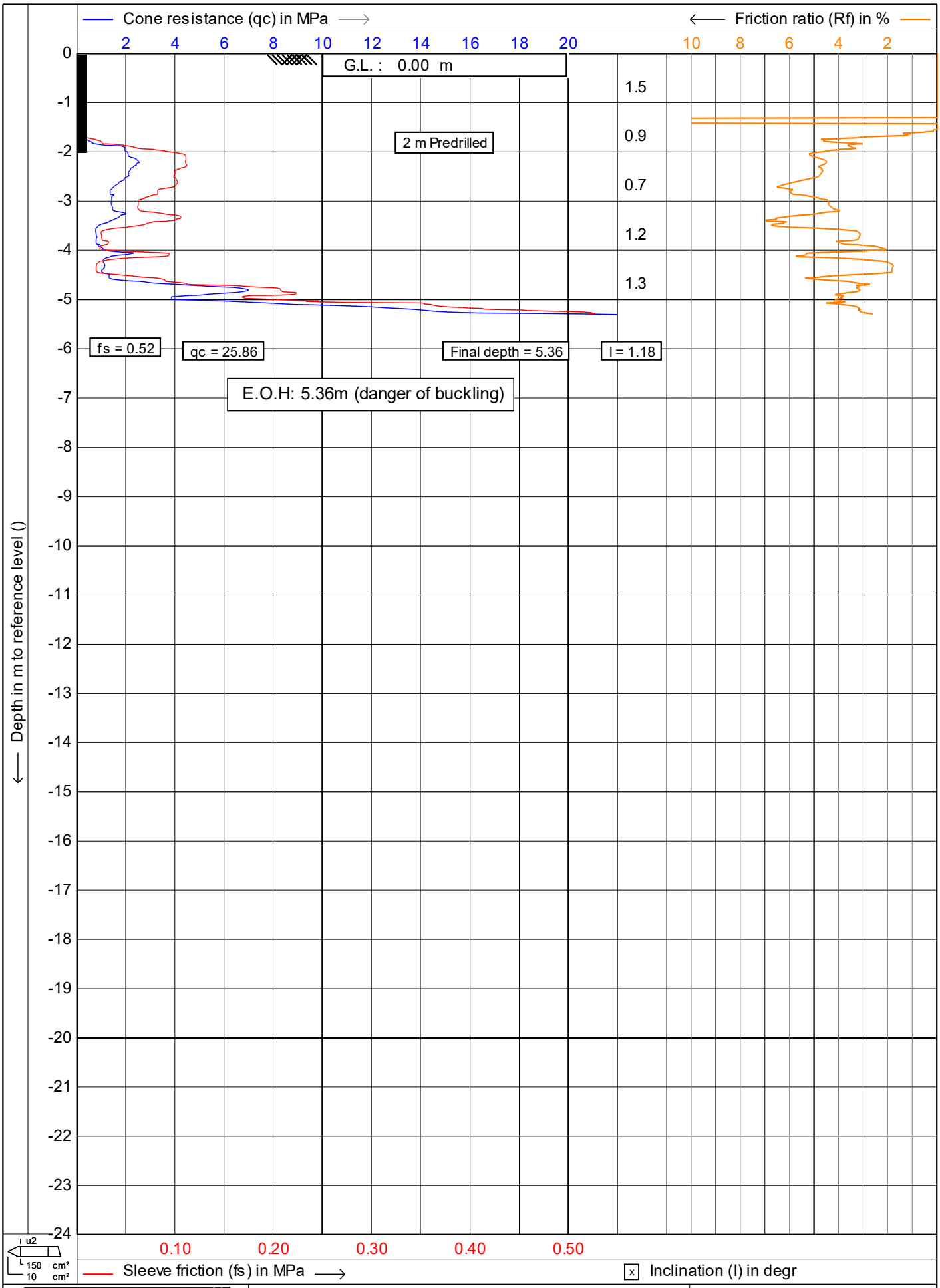


NOTES:
a) No Scala Penetrometer Test.

Shear Vane Used: Serial Number 1564

Shear Strength (kPa)	Soil Class.	Soil Type
	O	TOPSOIL
	C	VOLCANIC ASH
	S	Moist black soft sandy SILT
	S	Moisture grey sandy SILT with traces of gravel - moist and gravel content increases with depth - water table at 1.8 m ▽
		REFUSAL at 2.3 m. Auger head catching on gravels

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Test according NEN 5140 class 1

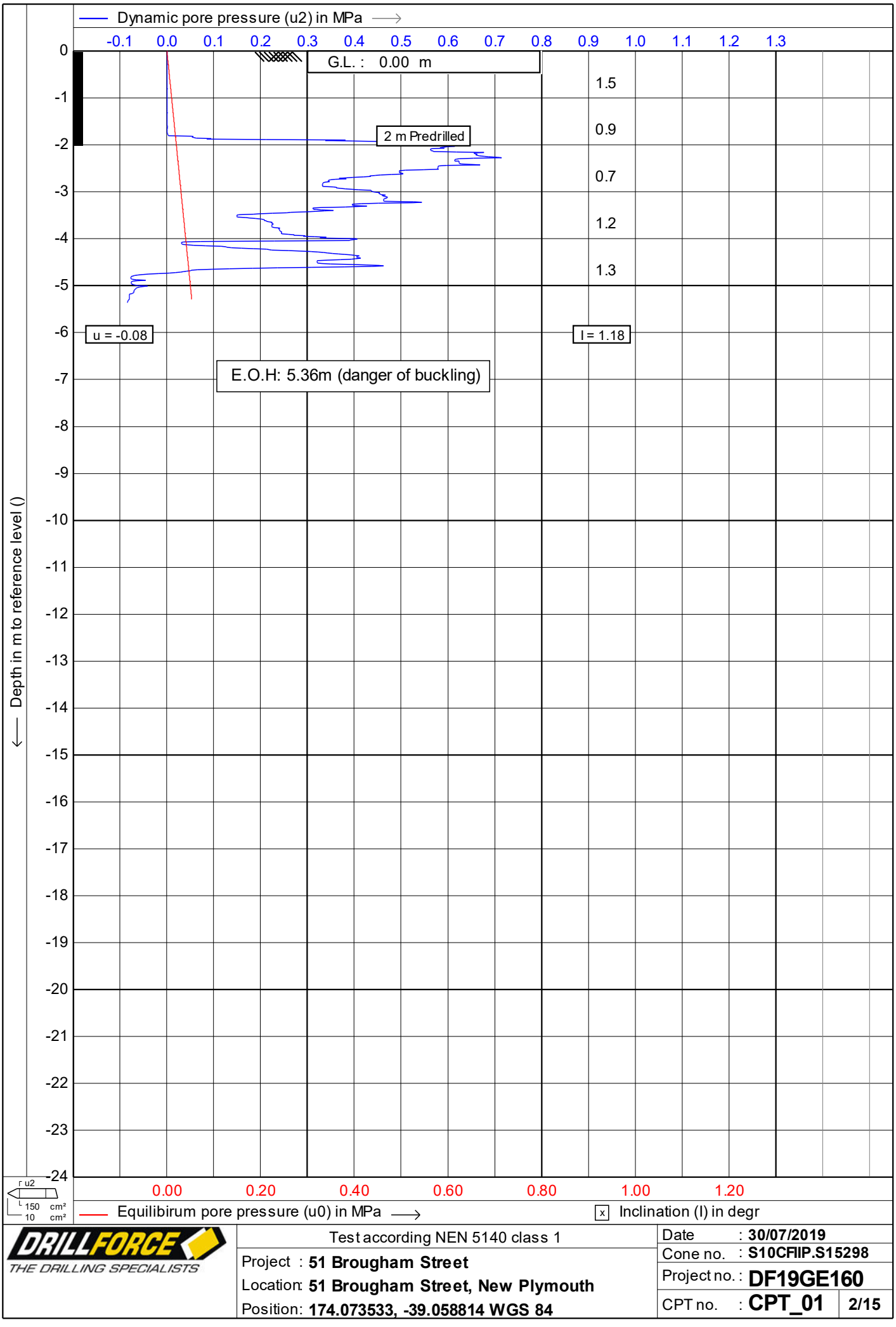
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01** 1/15

1.47



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Test according NEN 5140 class 1

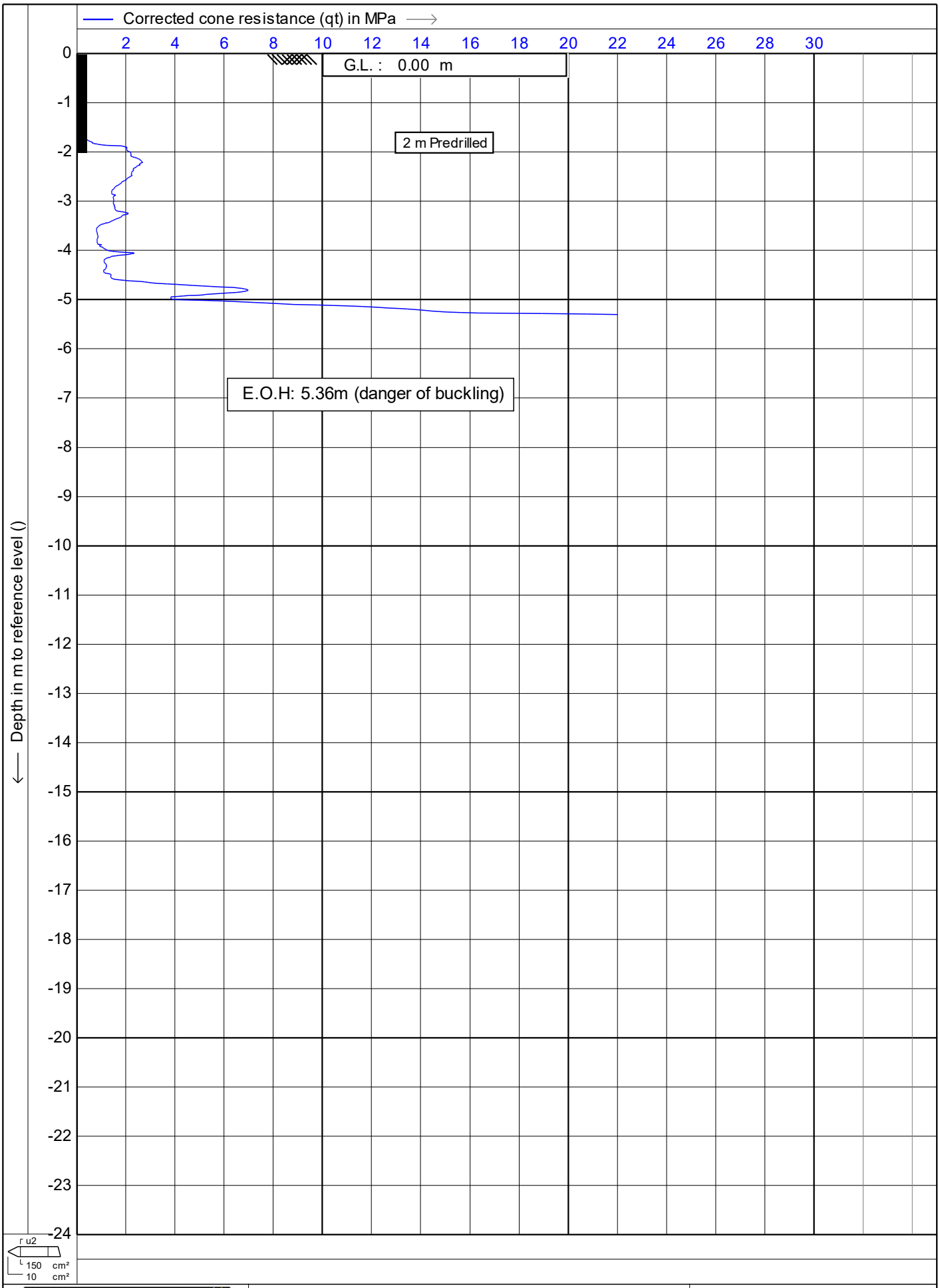
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01** 2/15

1.47



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Test according NEN 5140 class 1

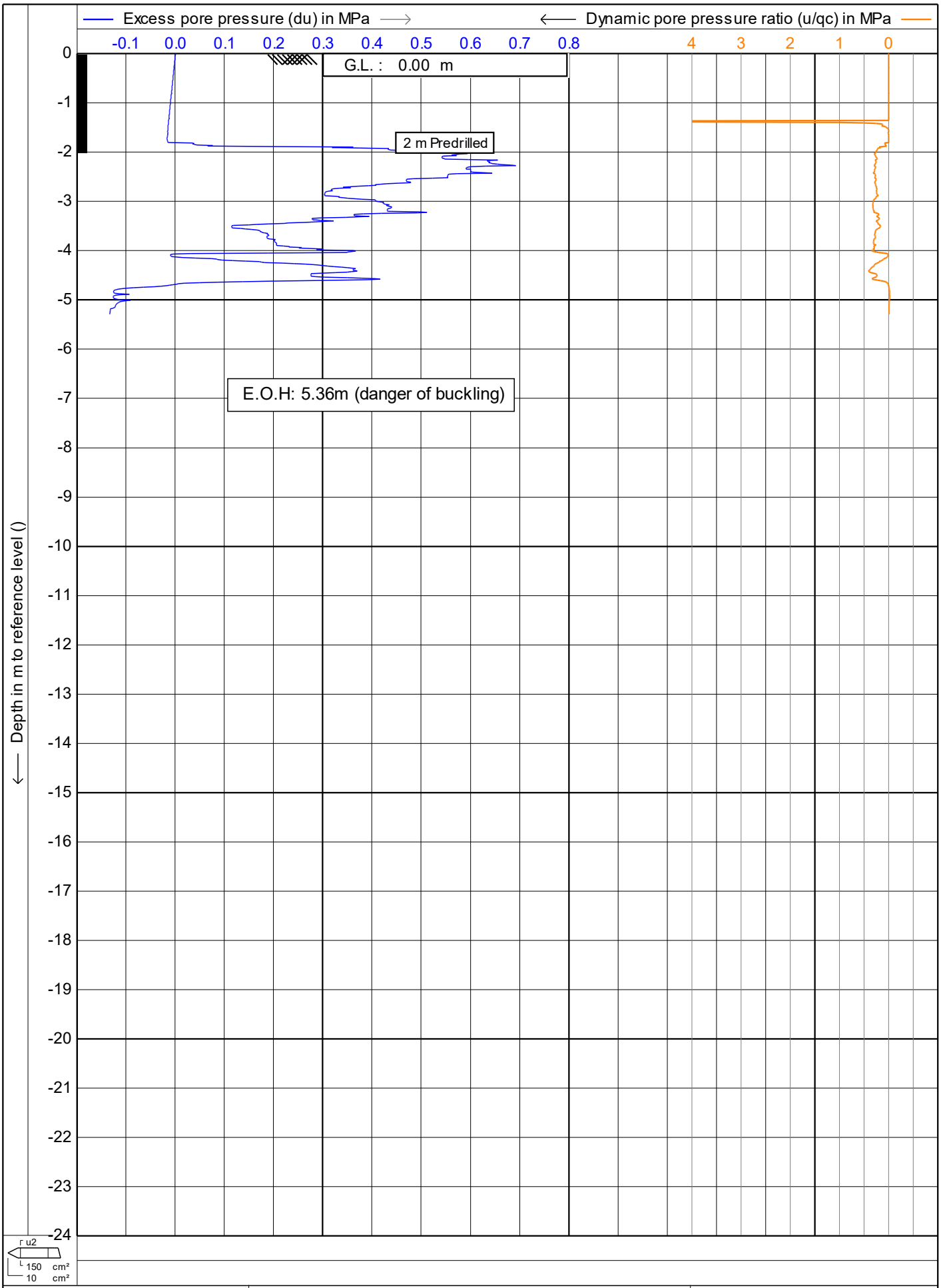
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
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CPT no.	: **CPT_01** **3/15**

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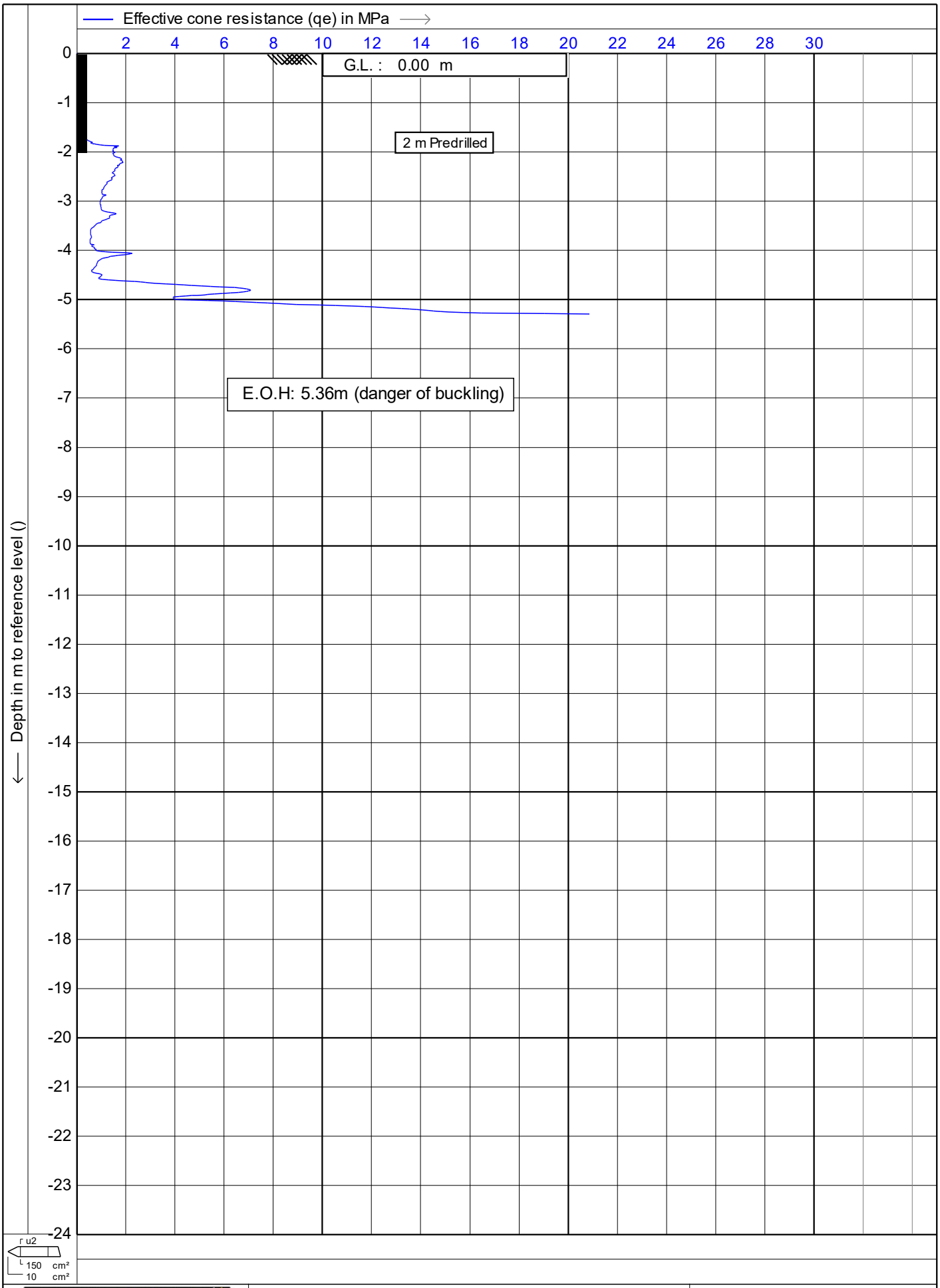
Project : **51 Brougham Street**

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CPT no.	: **CPT_01** 4/15

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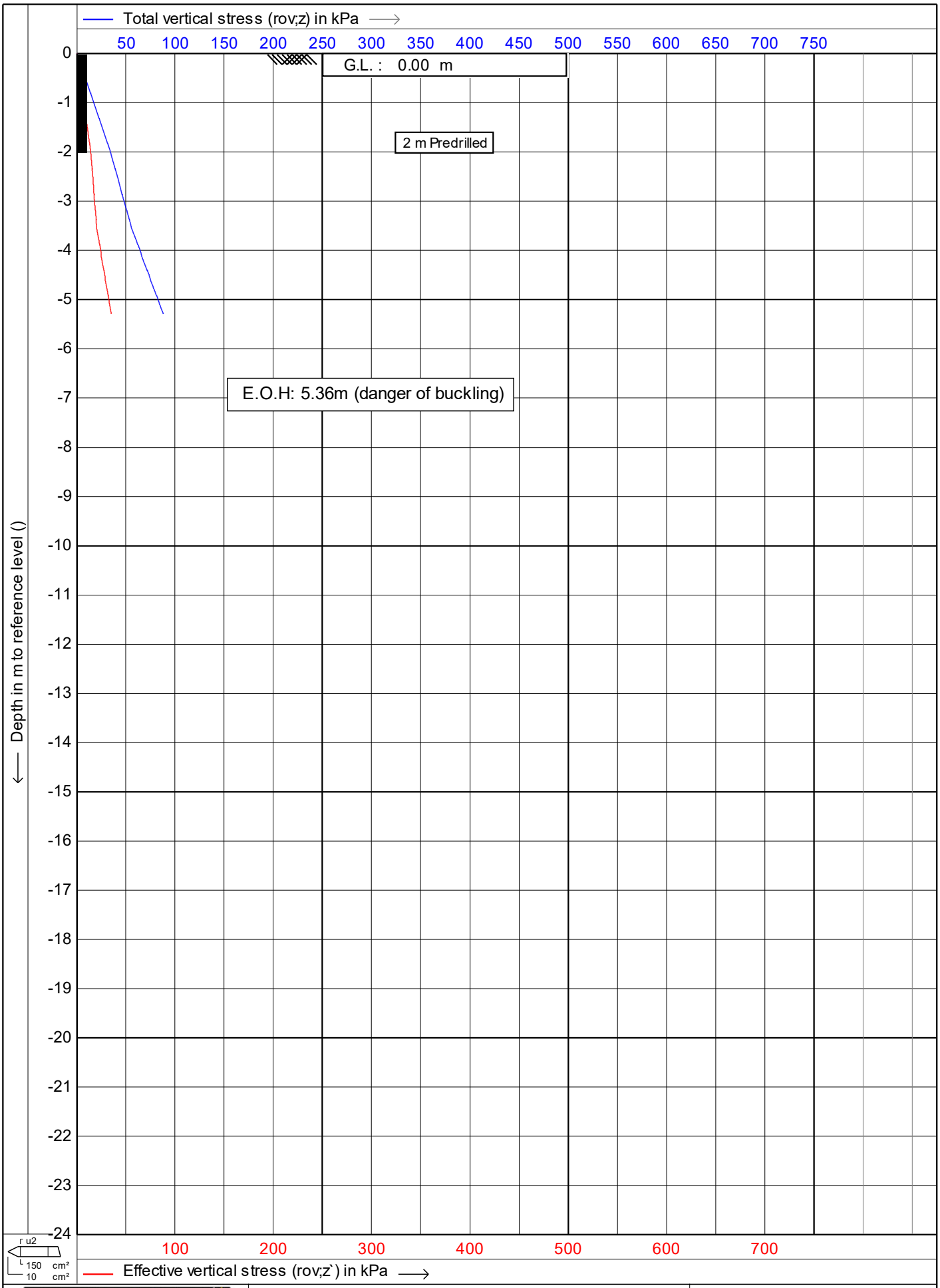
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
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Project no.	: **DF19GE160**
CPT no.	: **CPT_01** **5/15**

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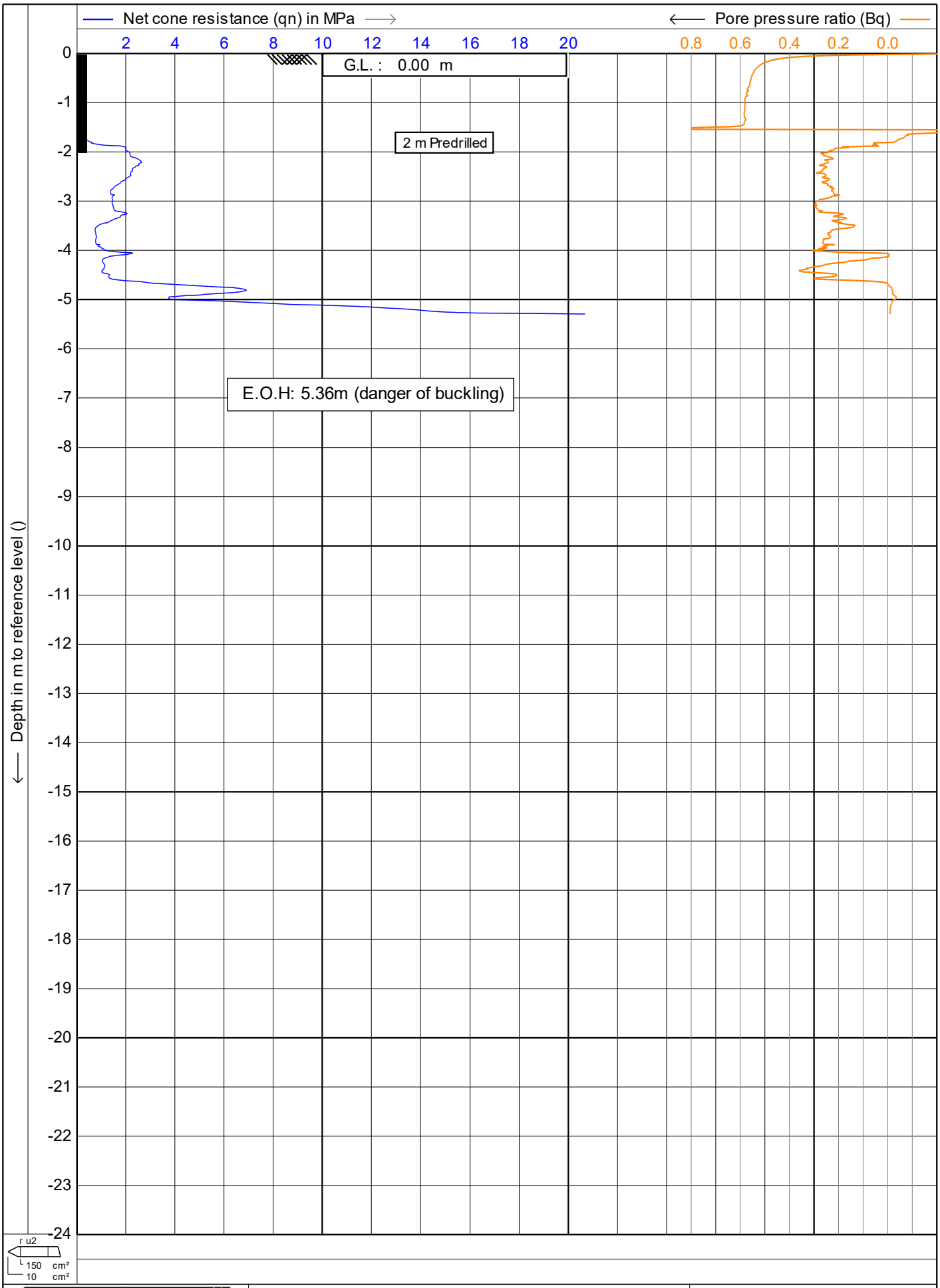
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
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Project no.	: **DF19GE160**
CPT no.	: **CPT_01** **6/15**

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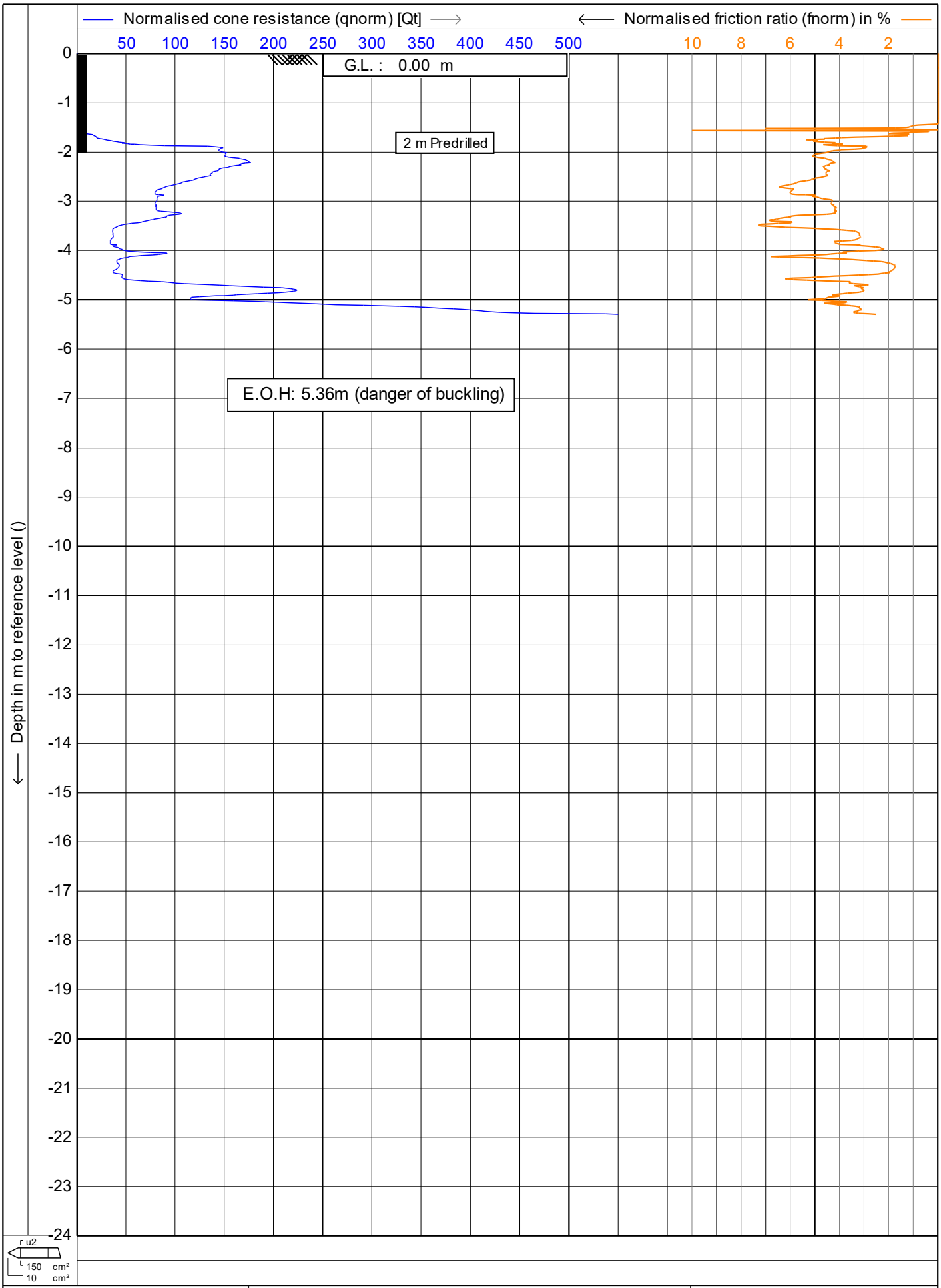
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Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01** **7/15**

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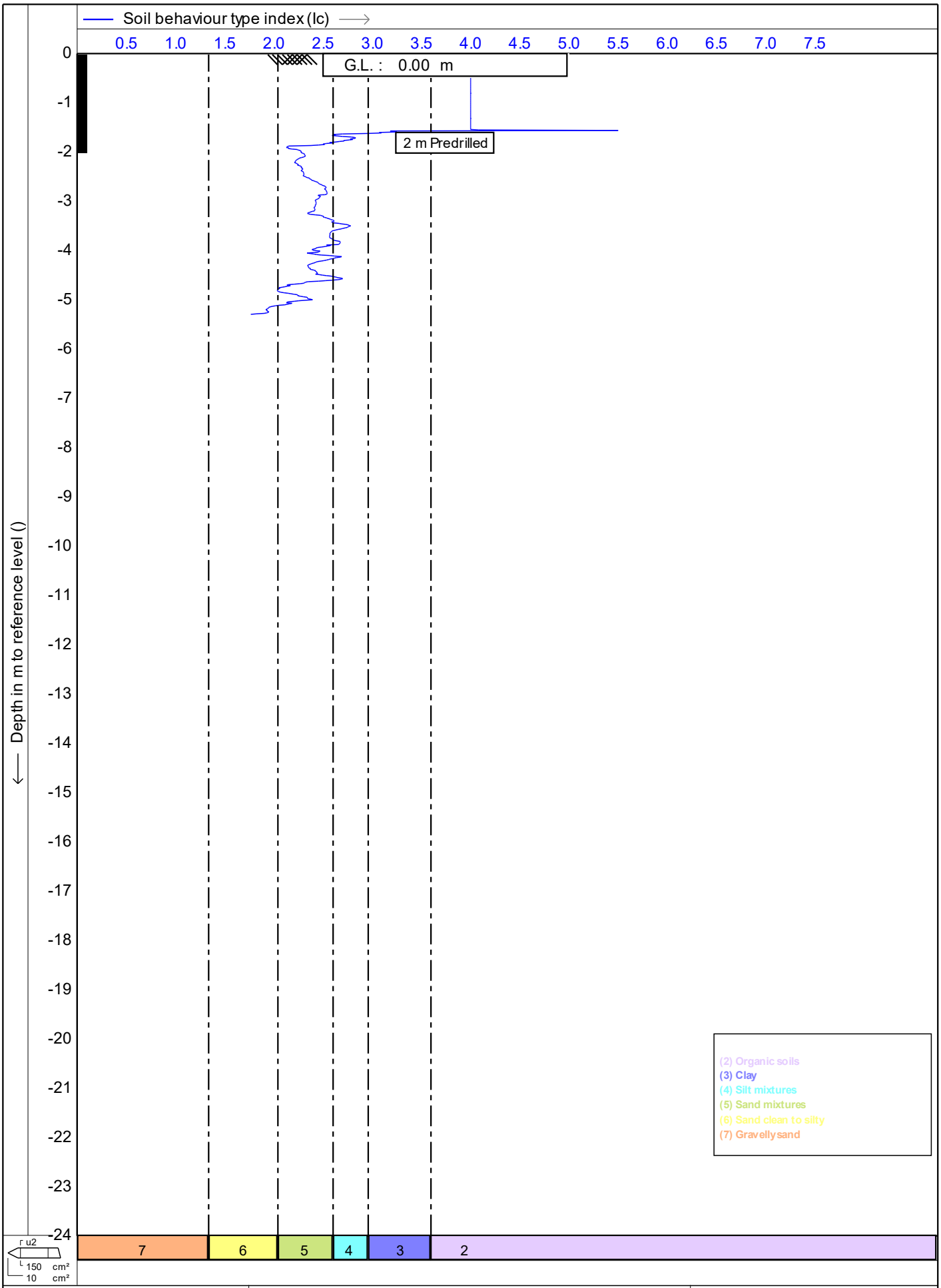
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Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01** **8/15**

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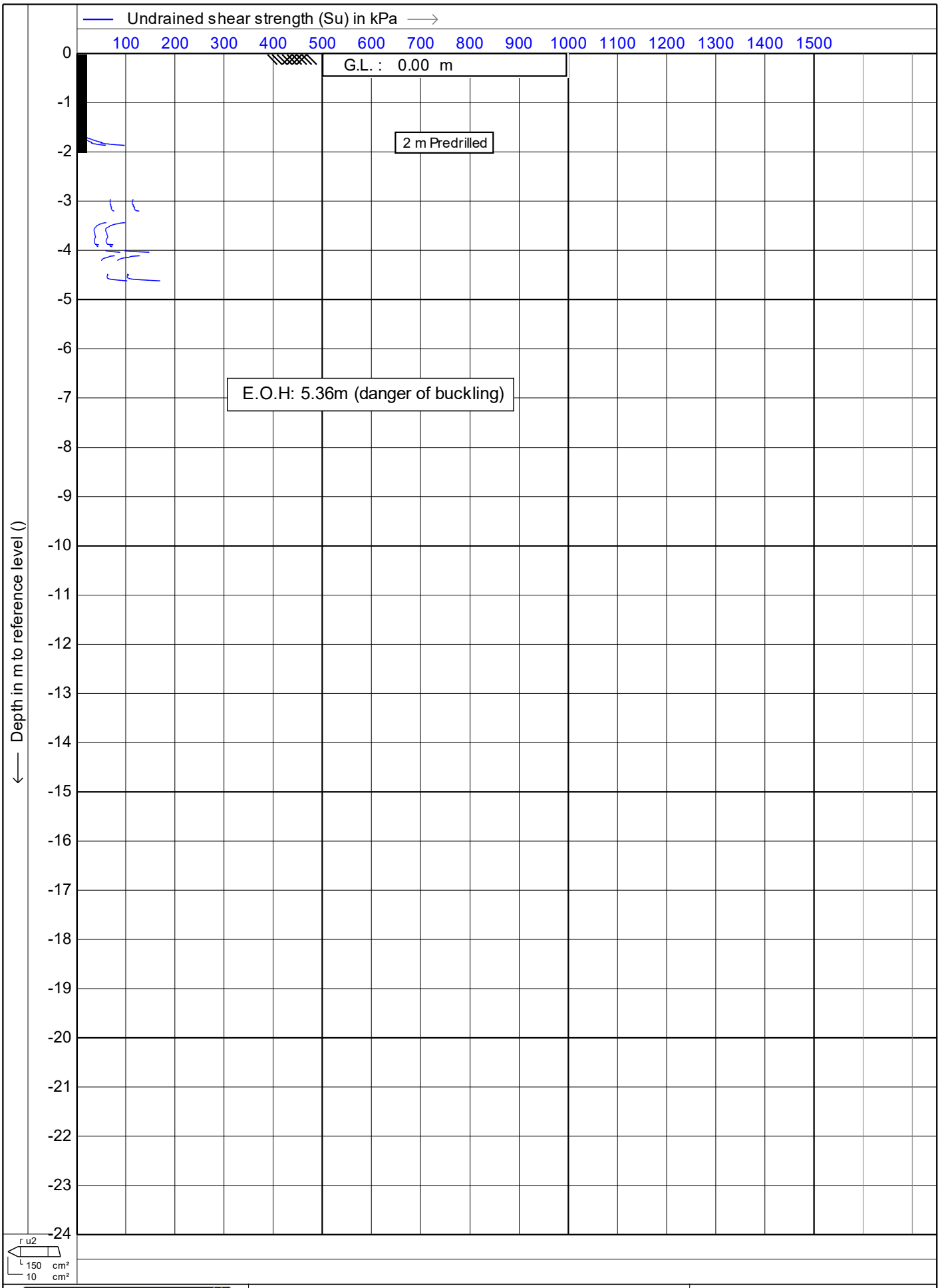
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
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Project no.	: **DF19GE160**
CPT no.	: **CPT_01** 9/15

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Test according NEN 5140 class 1

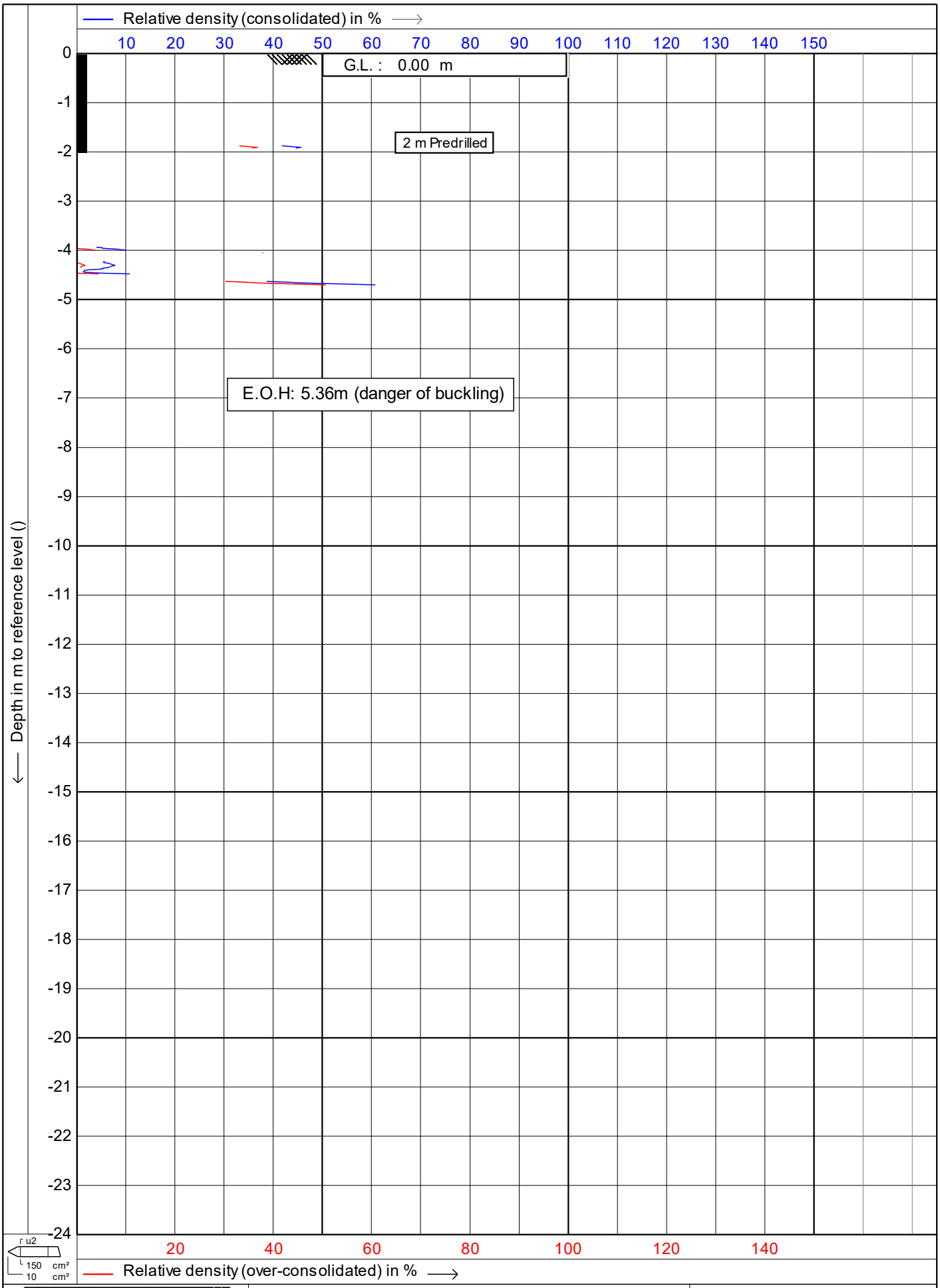
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Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
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CPT no.	: **CPT_01** **10/15**

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DRILLFORCE
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Test according NEN 5140 class 1

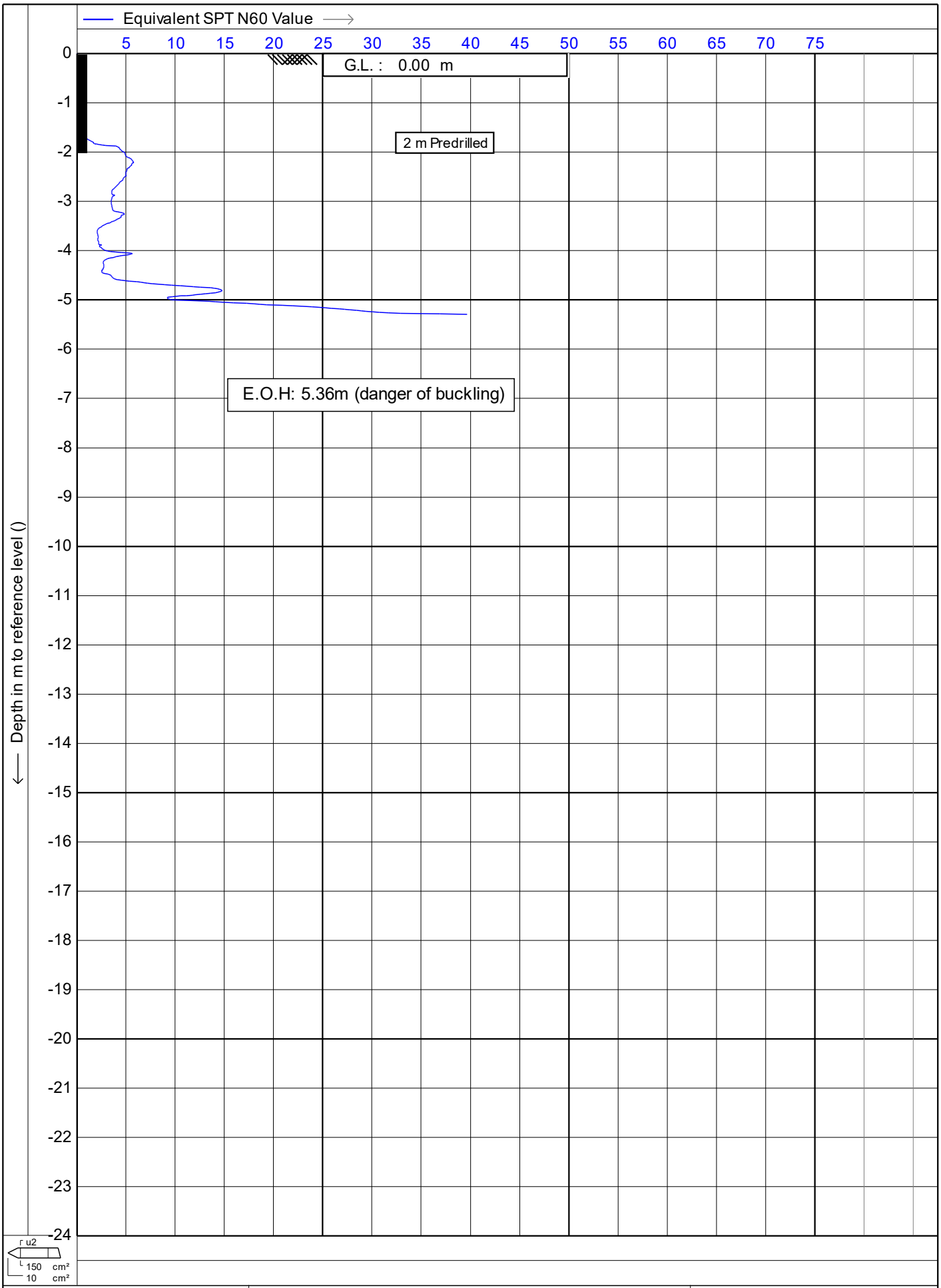
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Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01** 11/15

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Test according NEN 5140 class 1

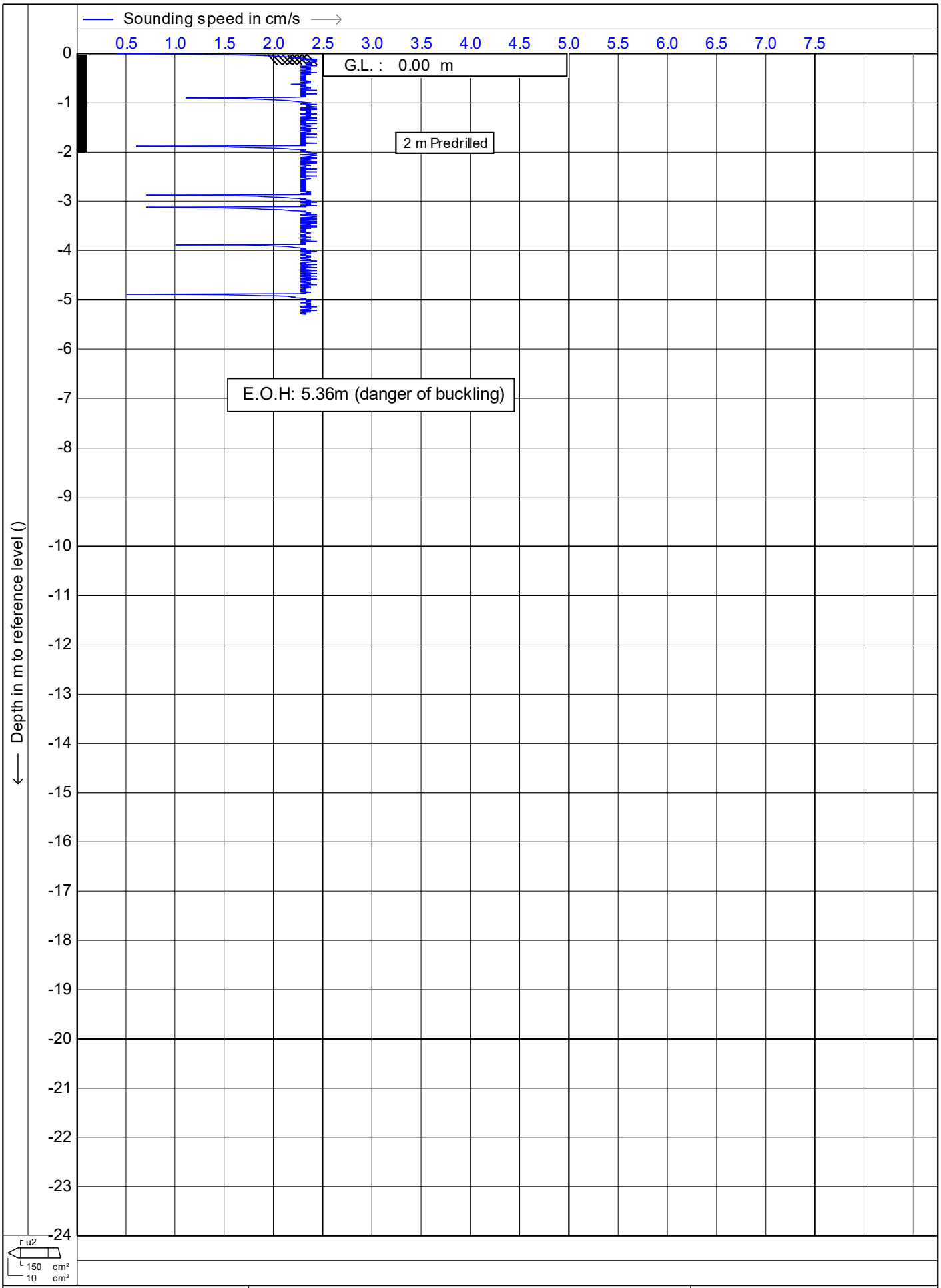
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01** 12/15

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

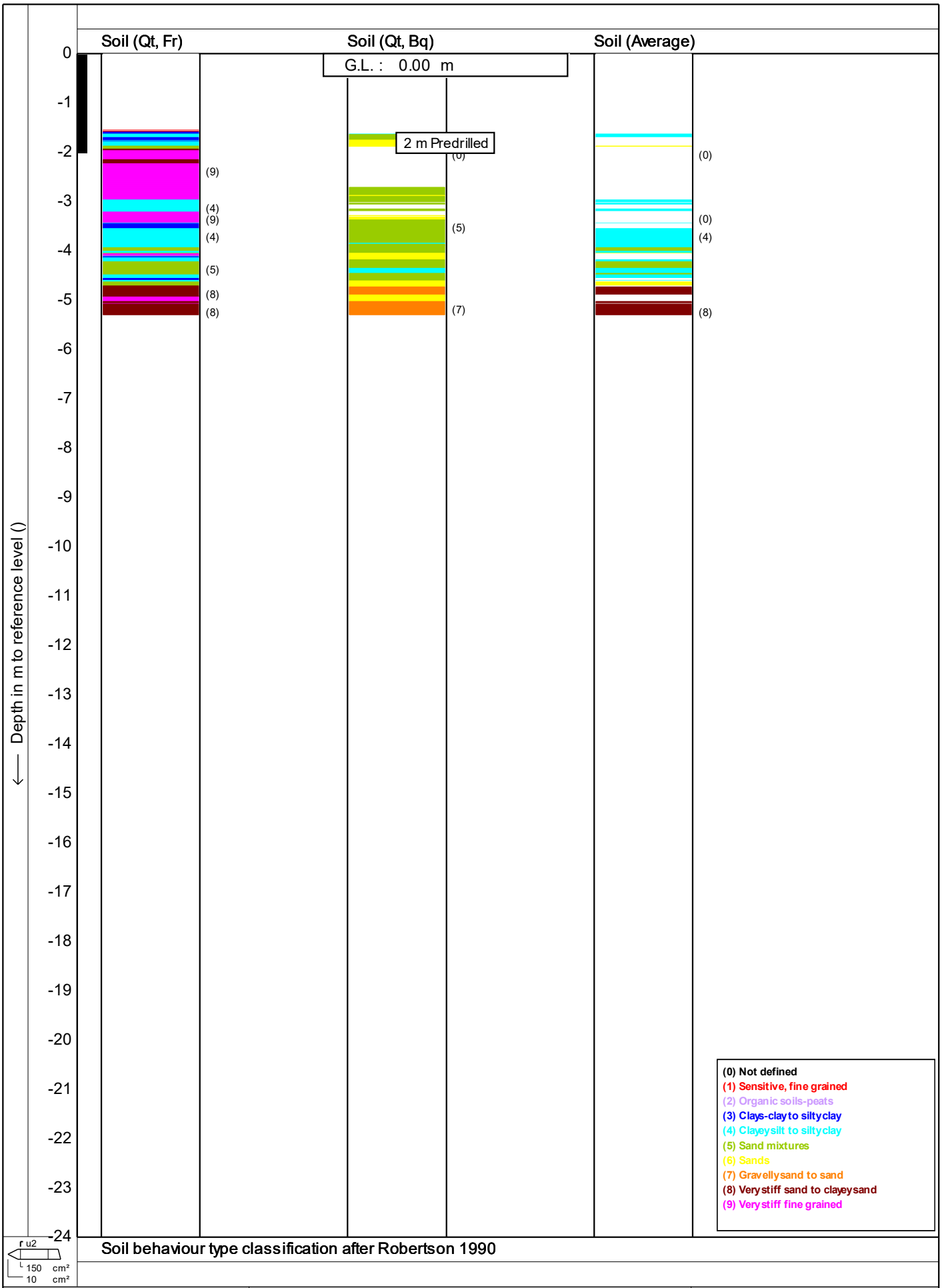
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01** **13/15**

1.47



Soil behaviour type classification after Robertson 1990

DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

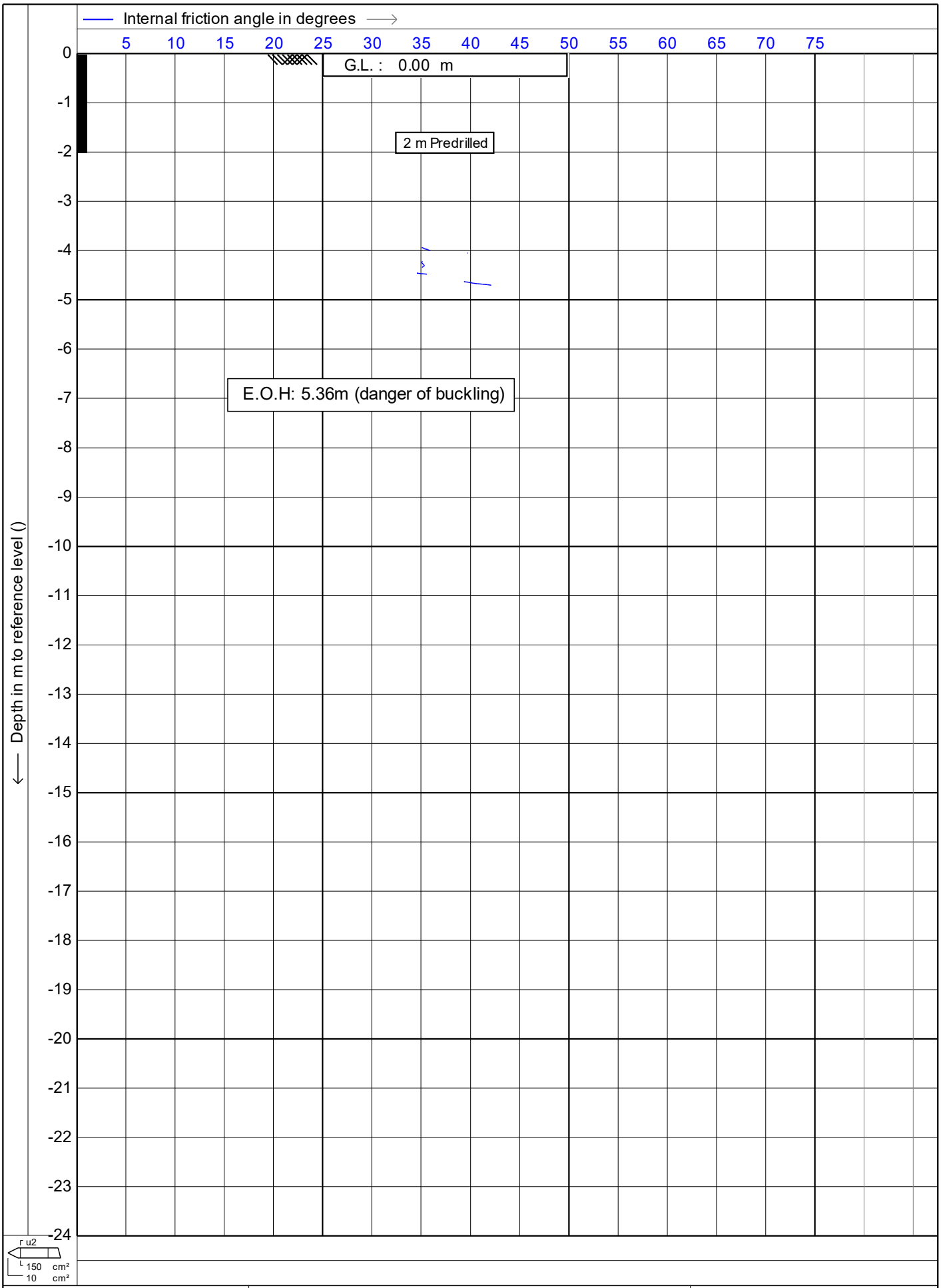
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01** 14/15

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

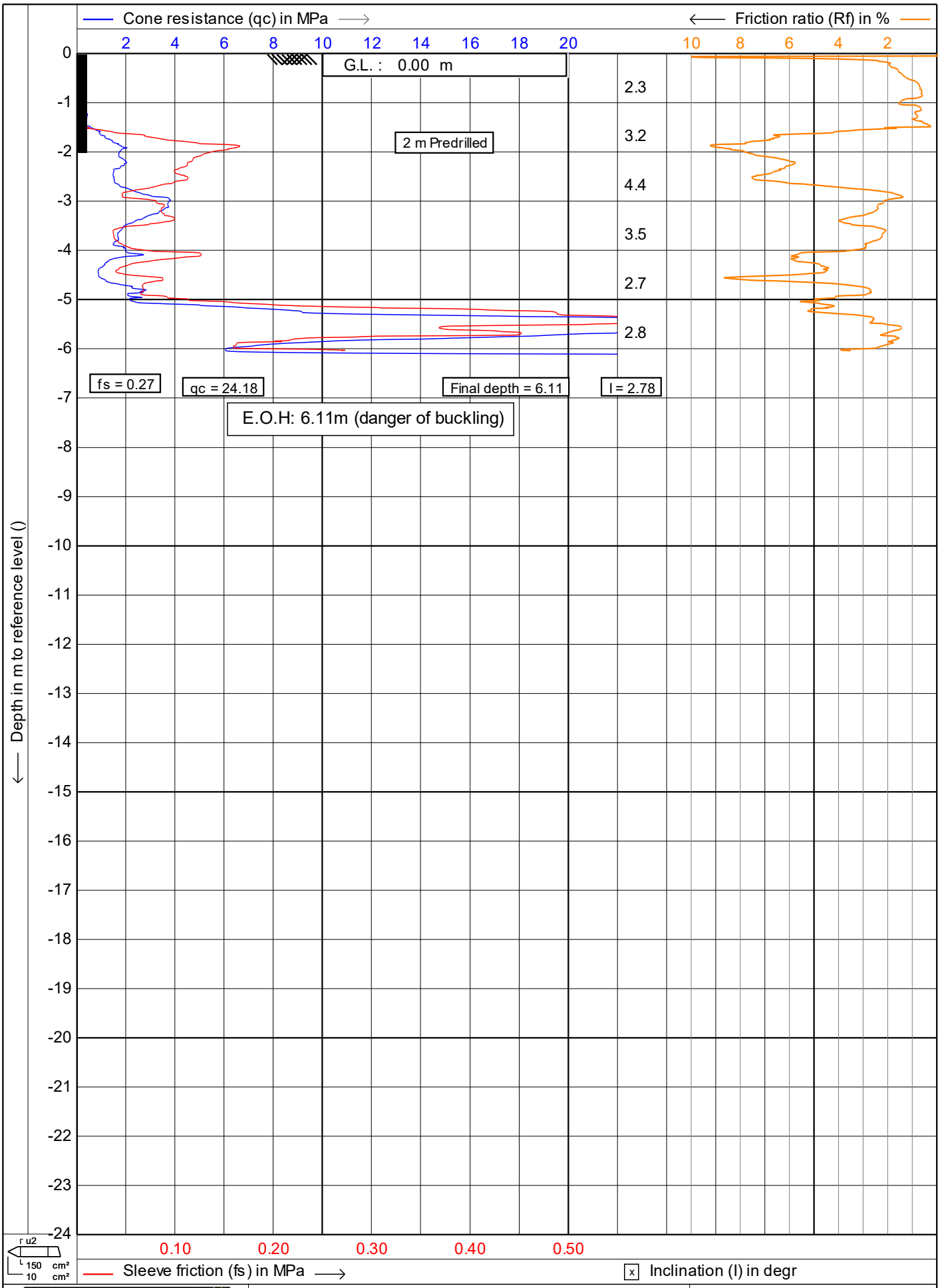
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01** **15/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

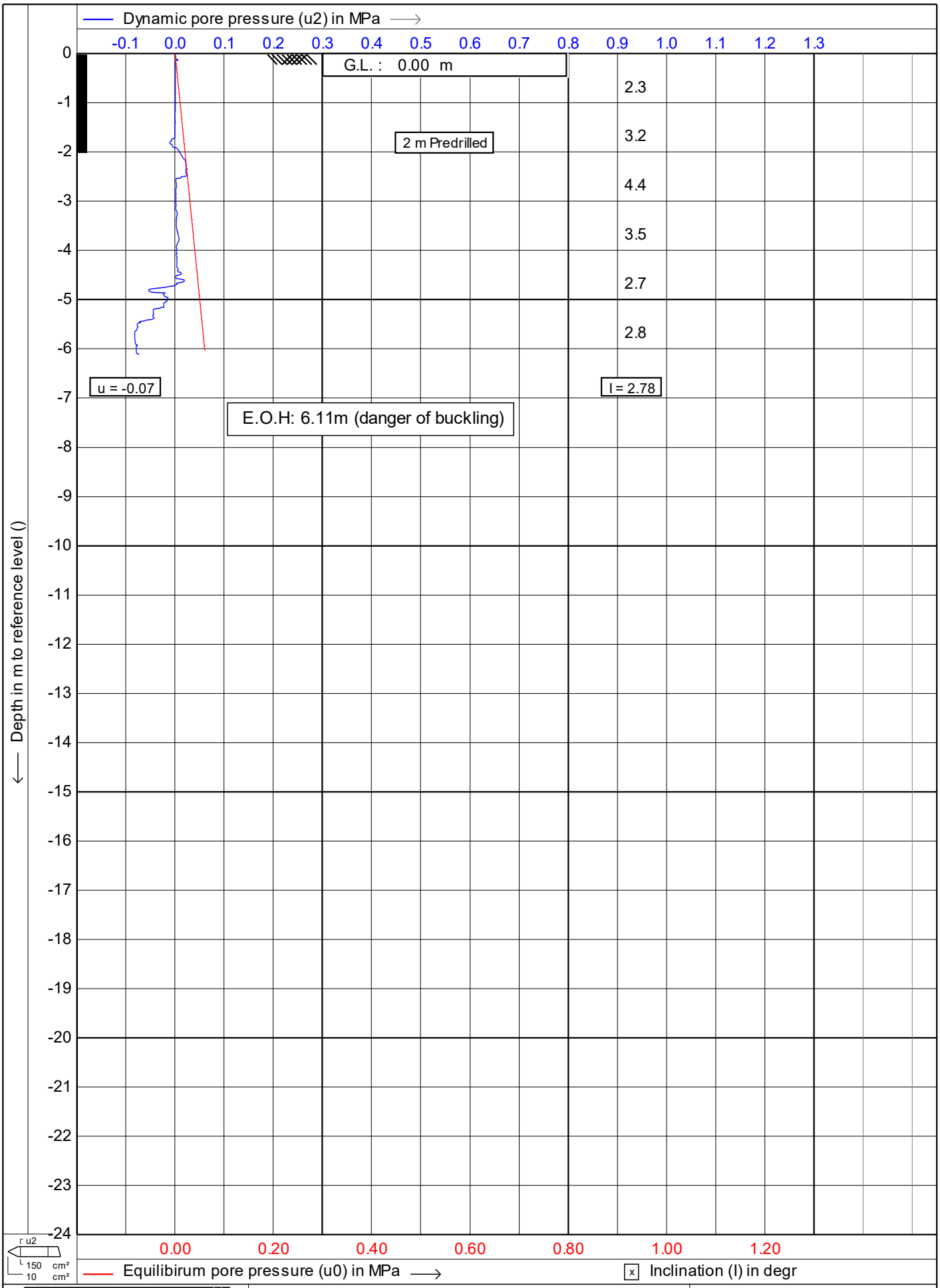
Test according NEN 5140 class 1

Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01A** 1/15



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

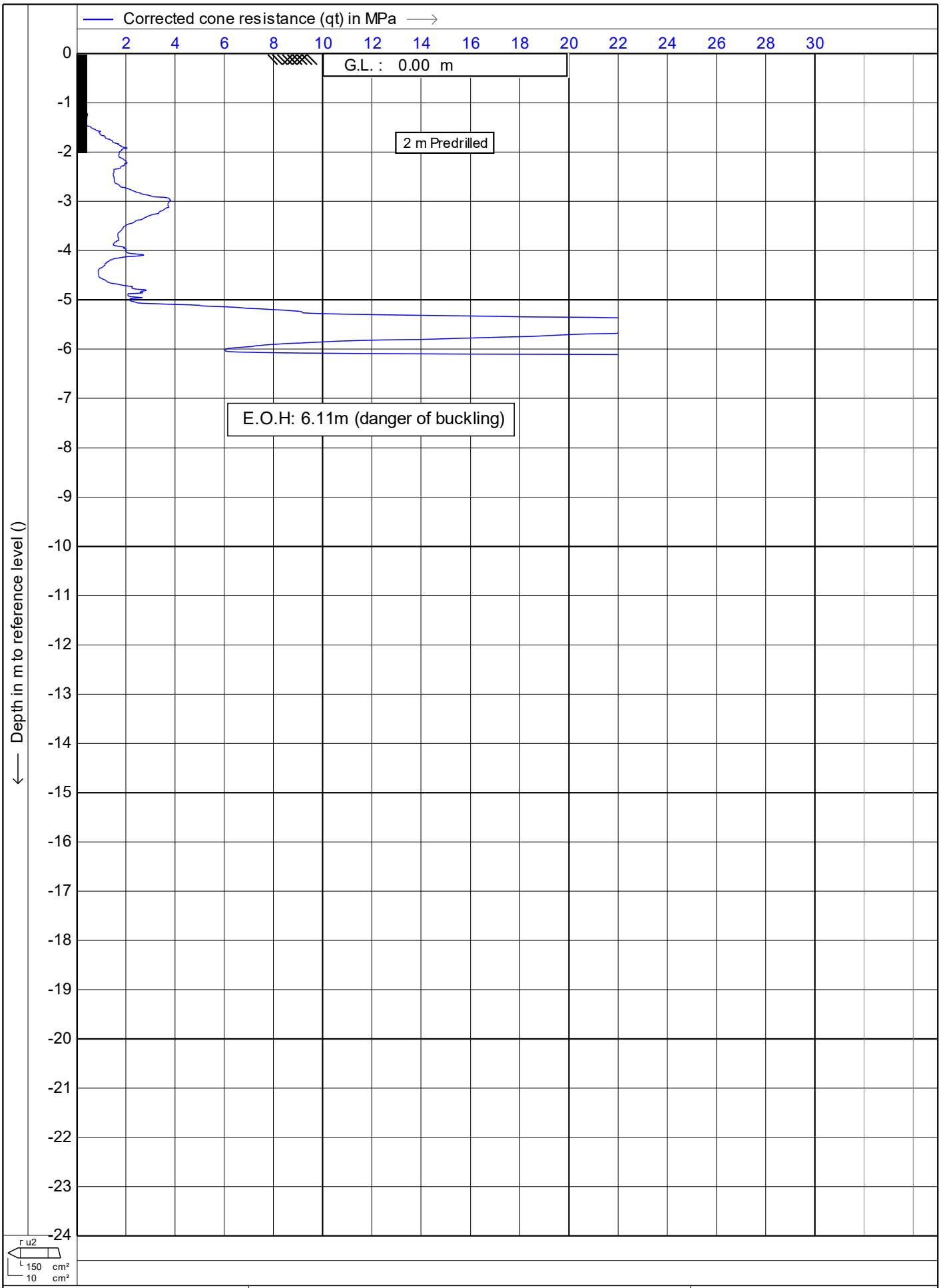
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01A** **2/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

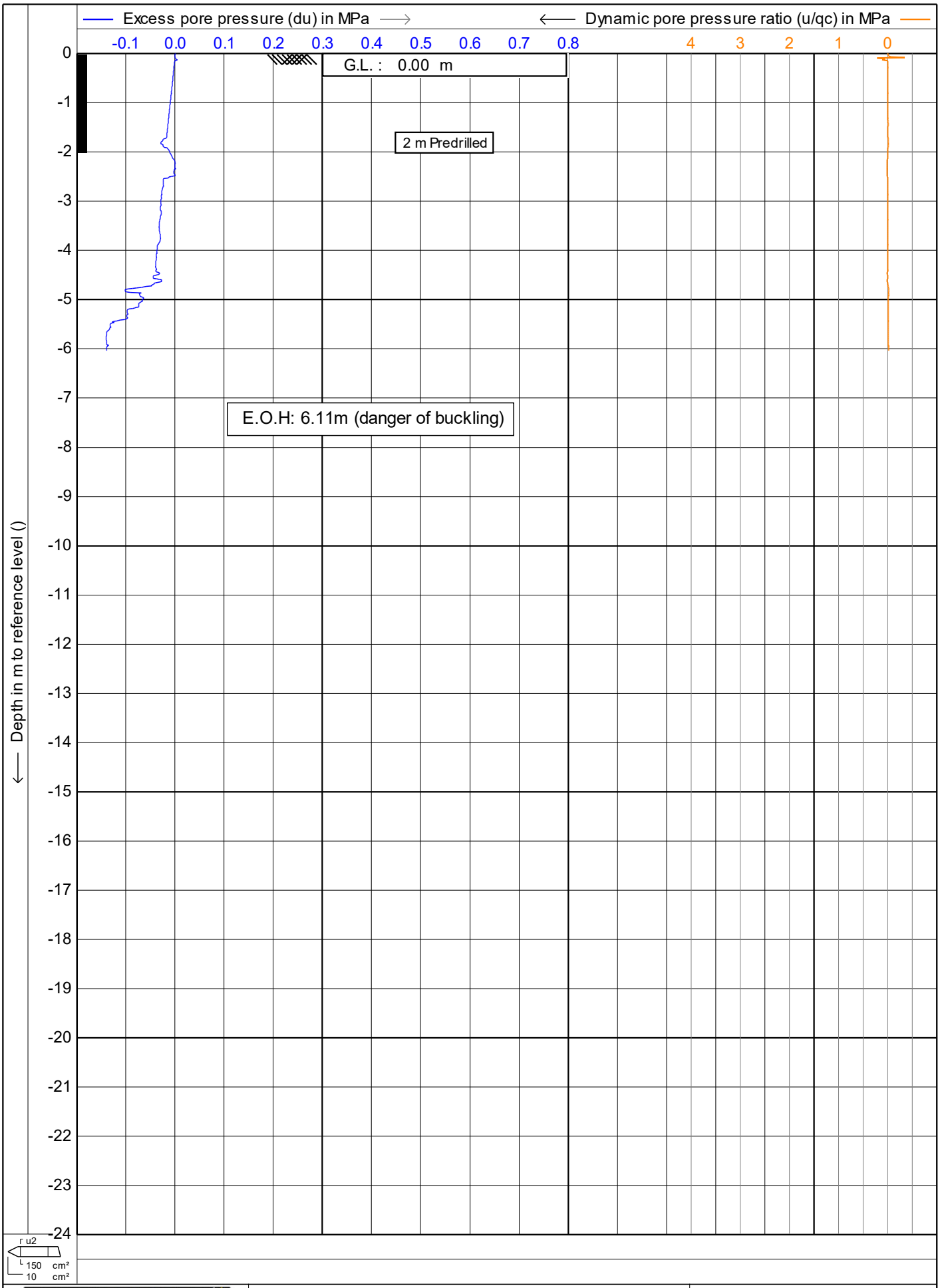
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01A** **3/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

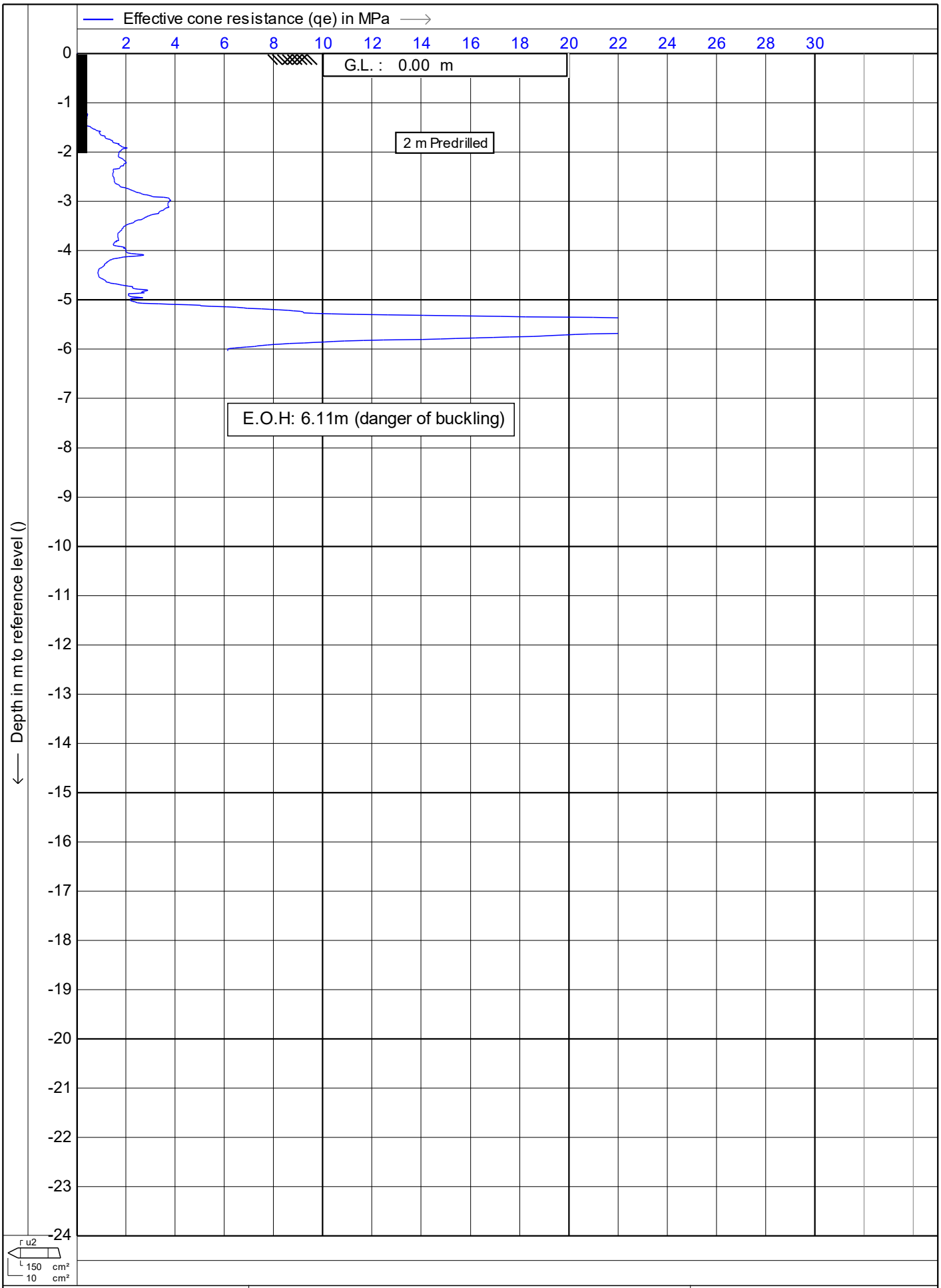
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01A** **4/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

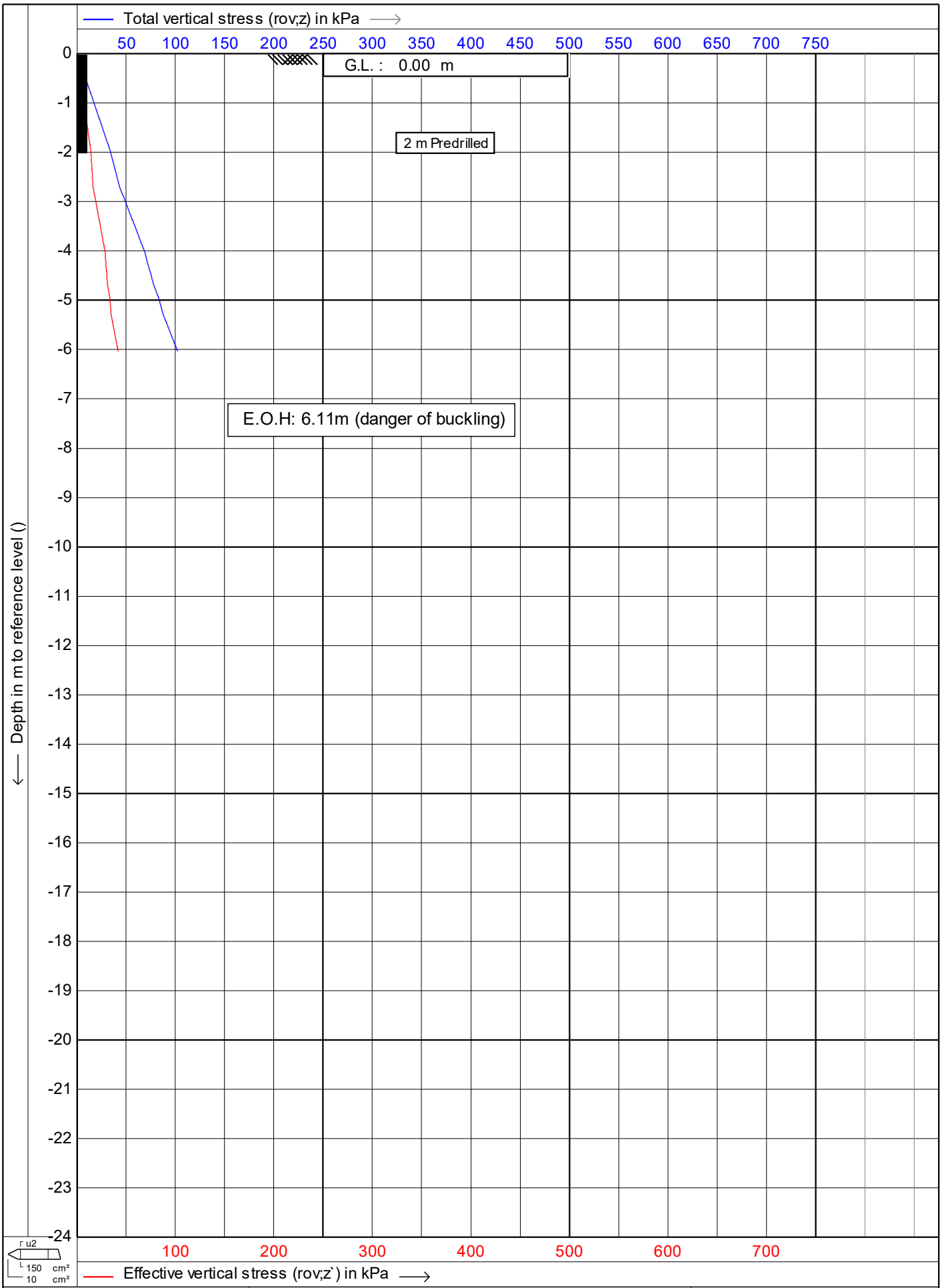
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01A** **5/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

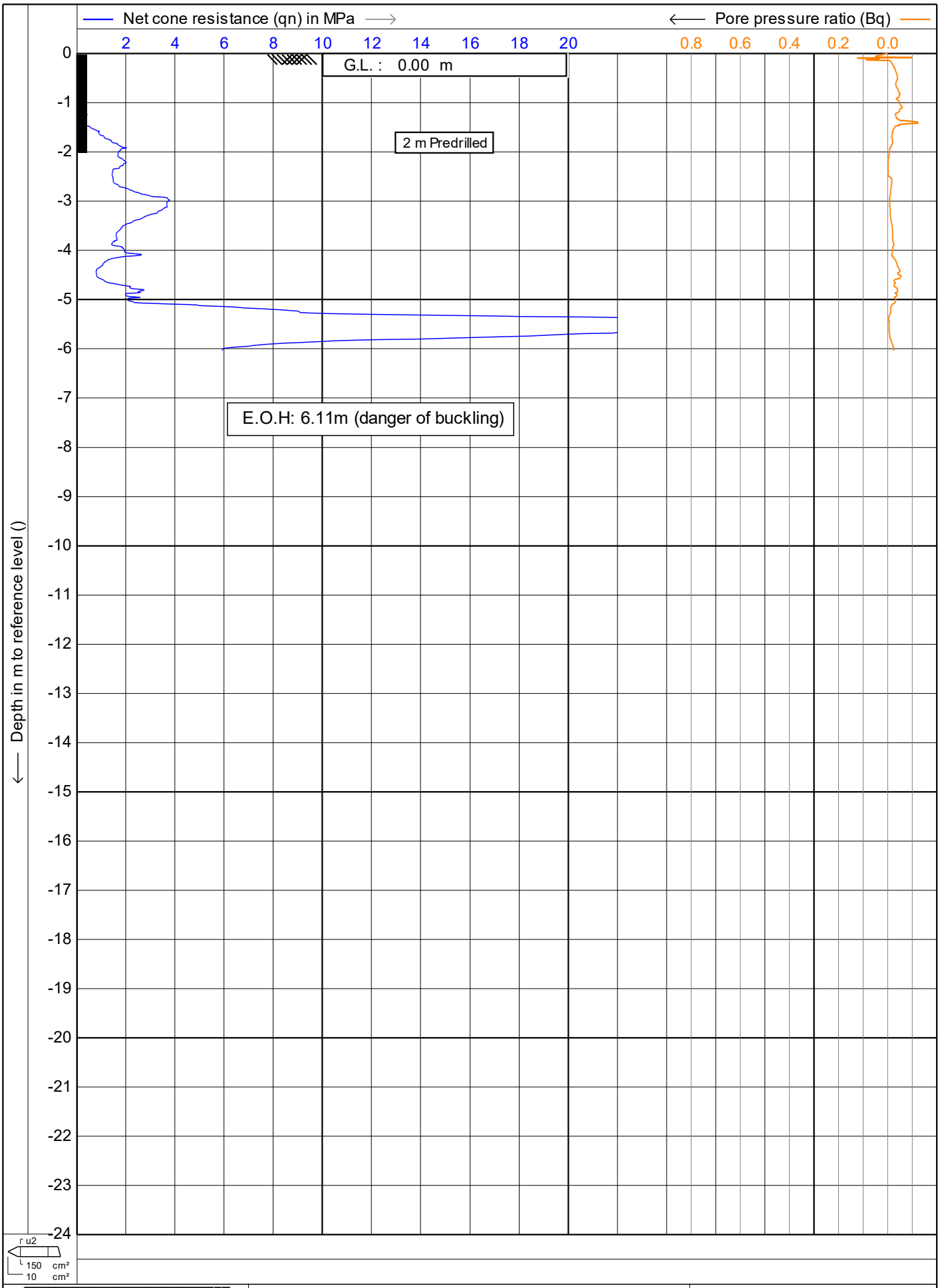
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01A** **6/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

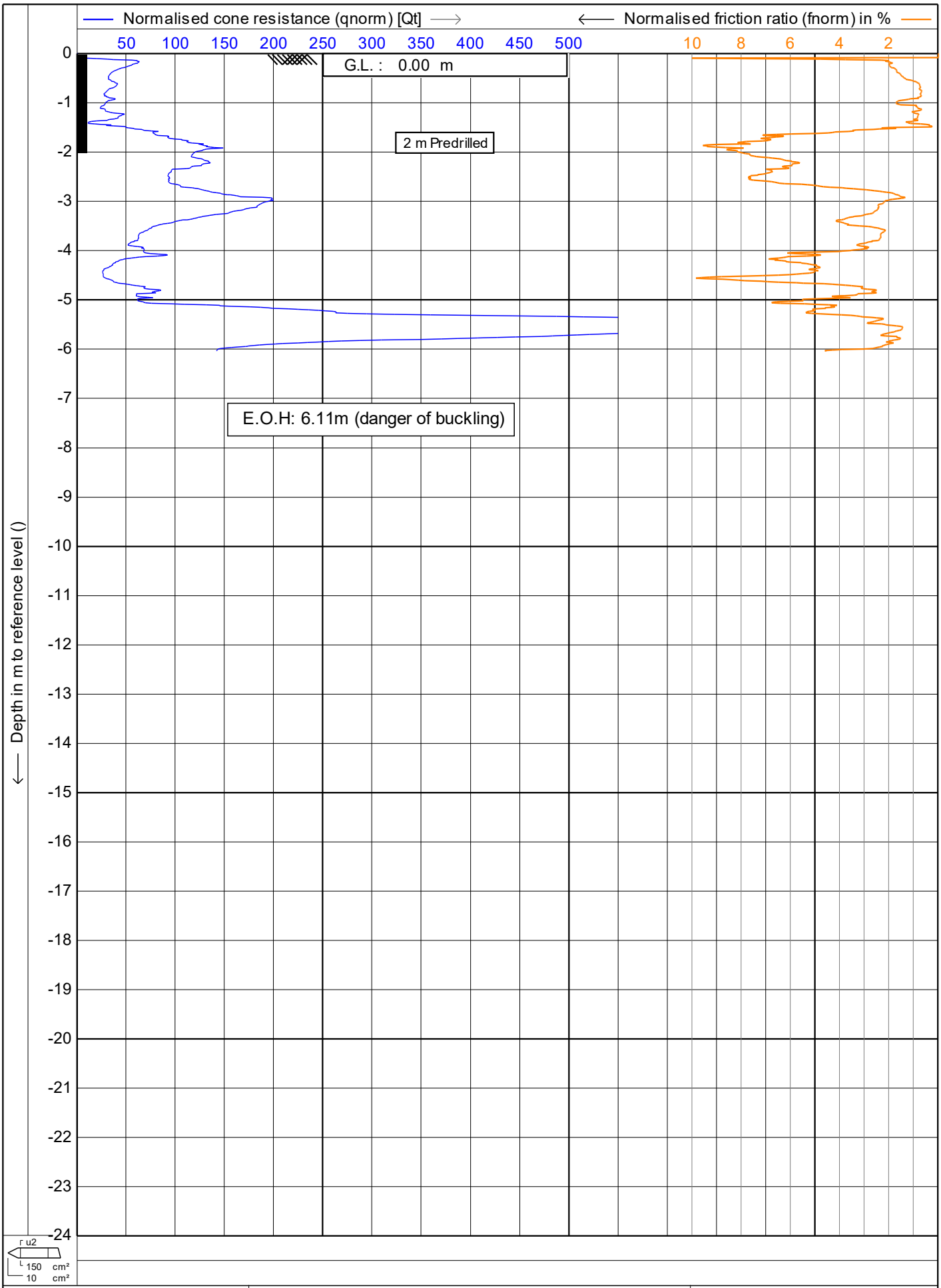
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01A** **7/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

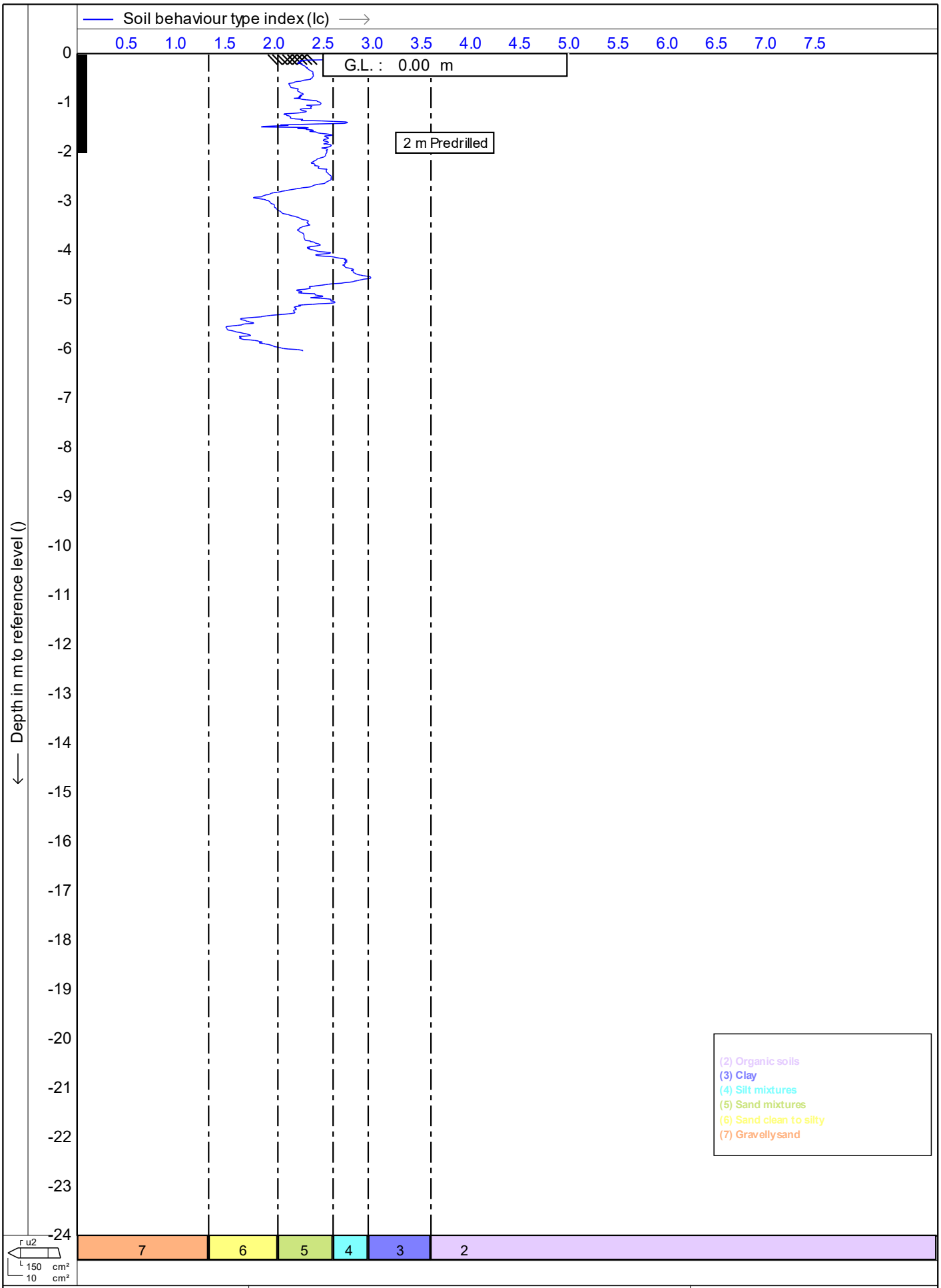
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01A** **8/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

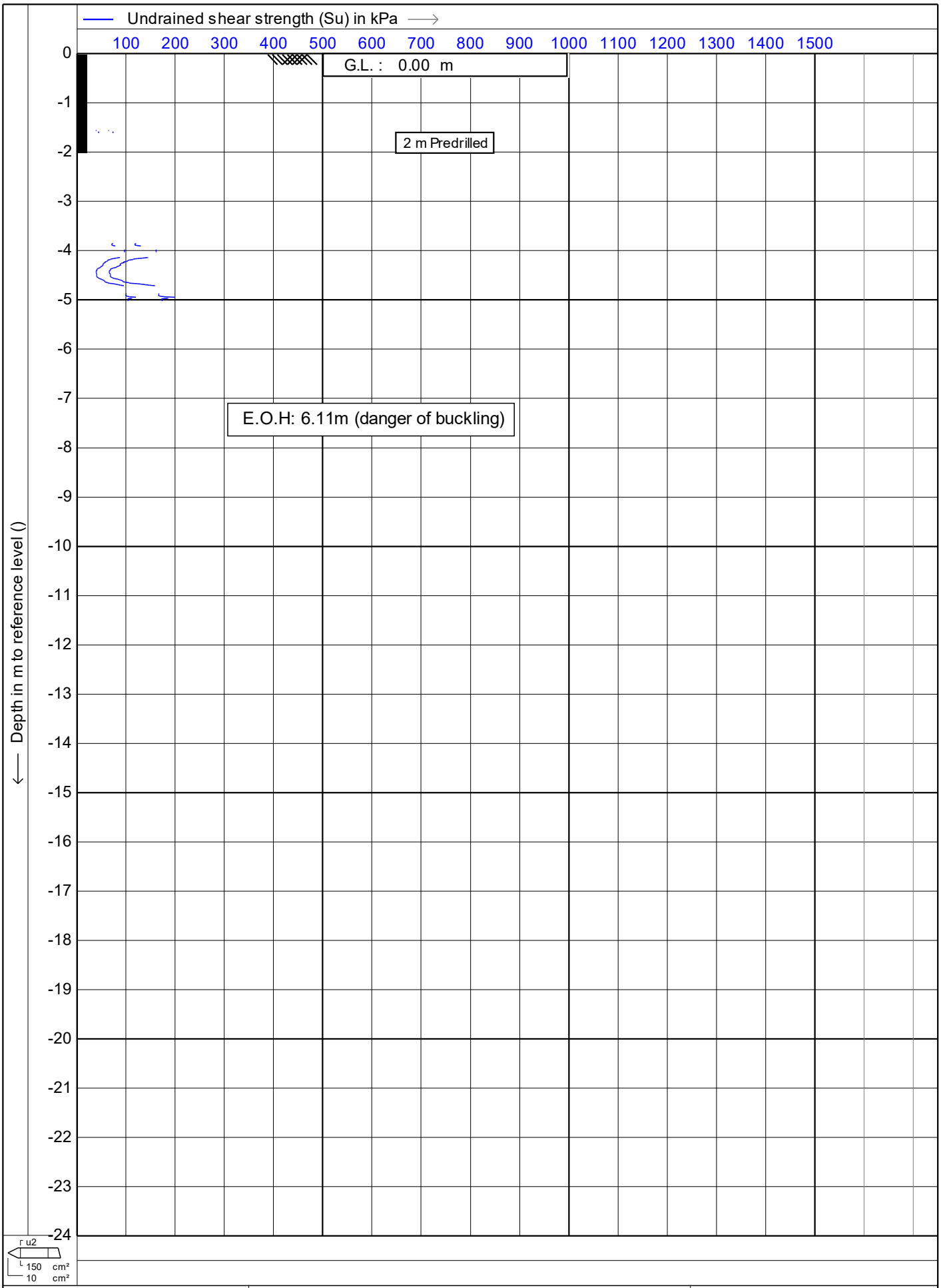
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01A** **9/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

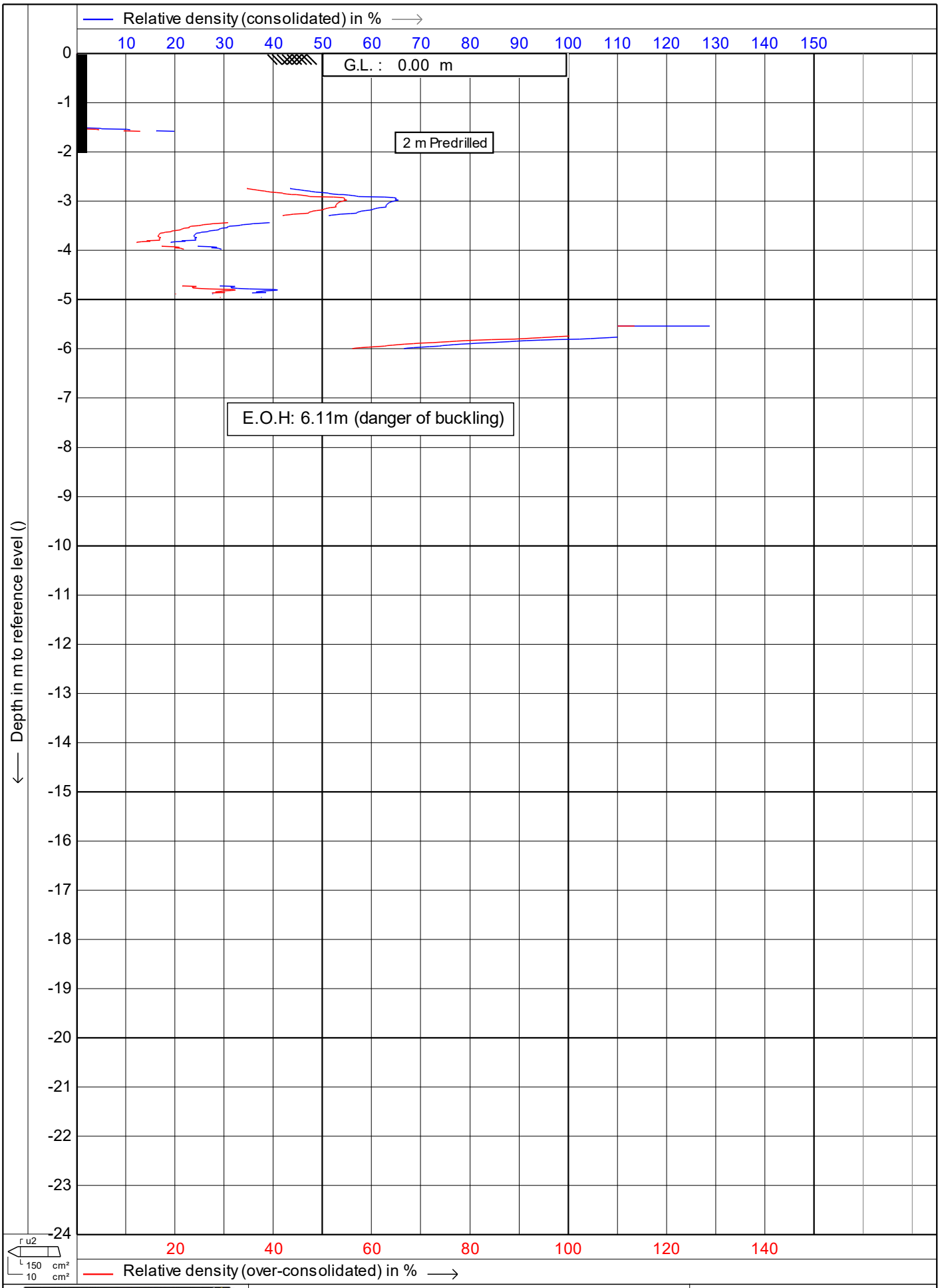
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01A** **10/15**

1.47



u2
150 cm²
10 cm²

DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

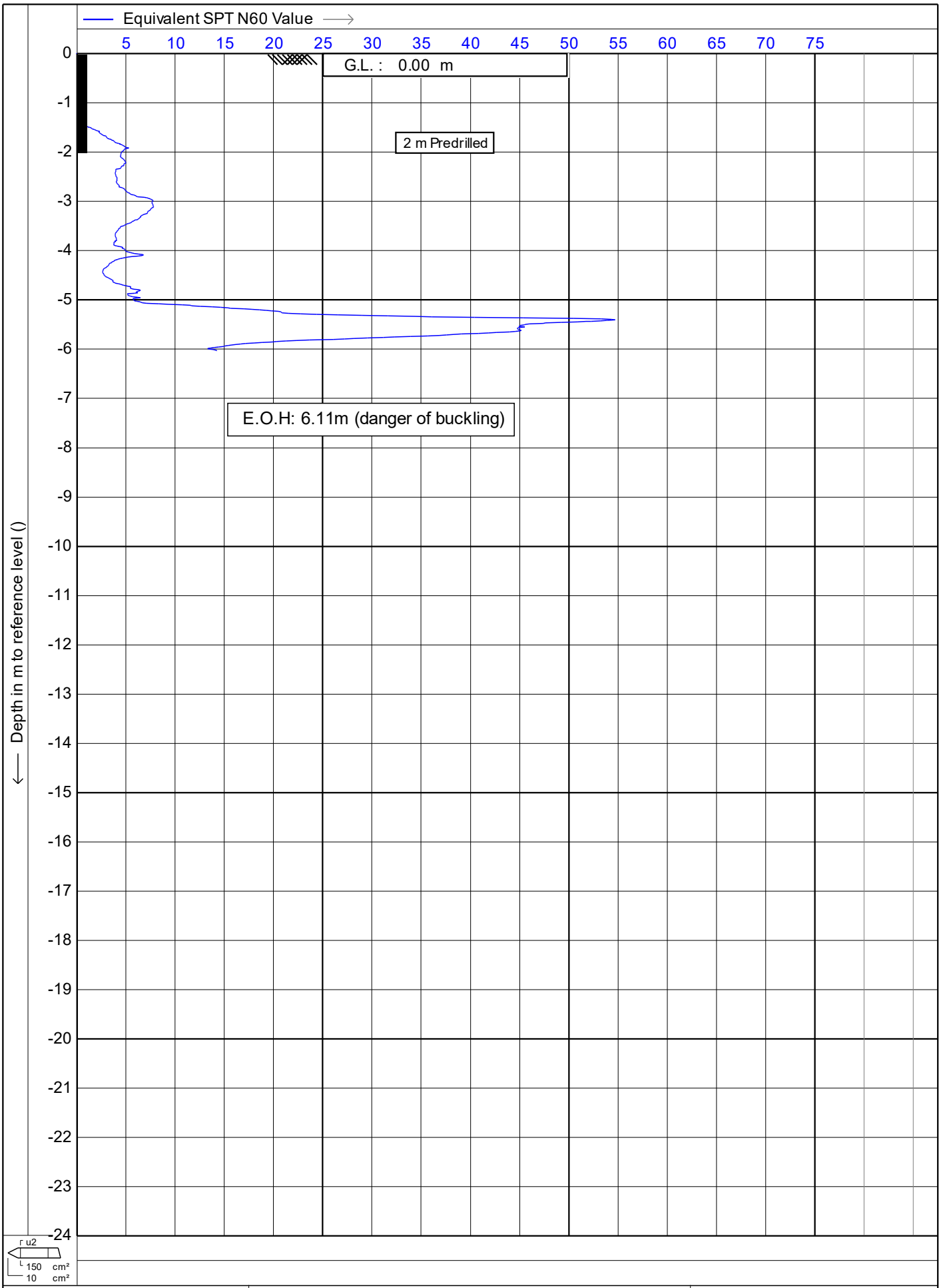
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01A** **11/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

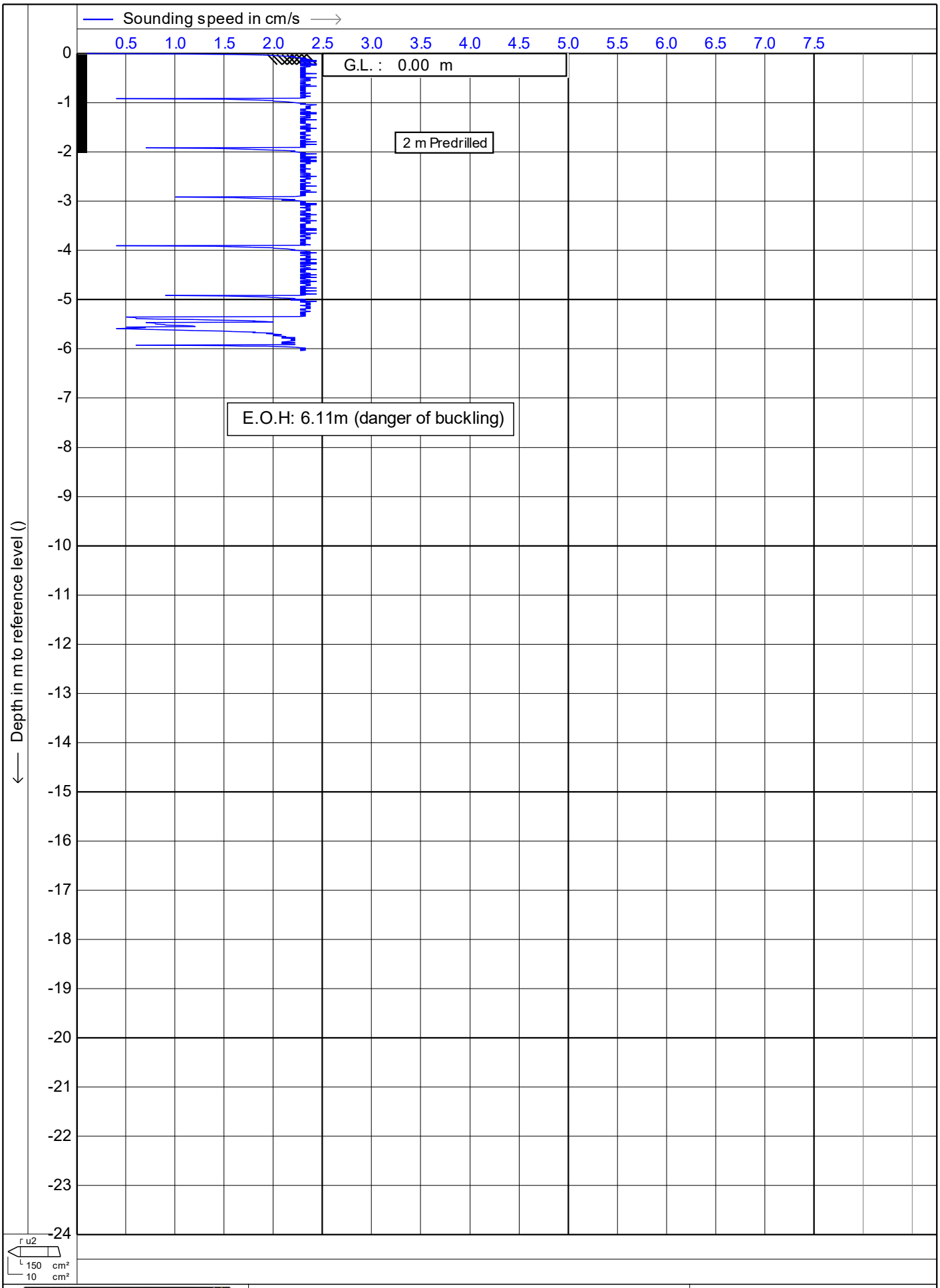
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01A** **12/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

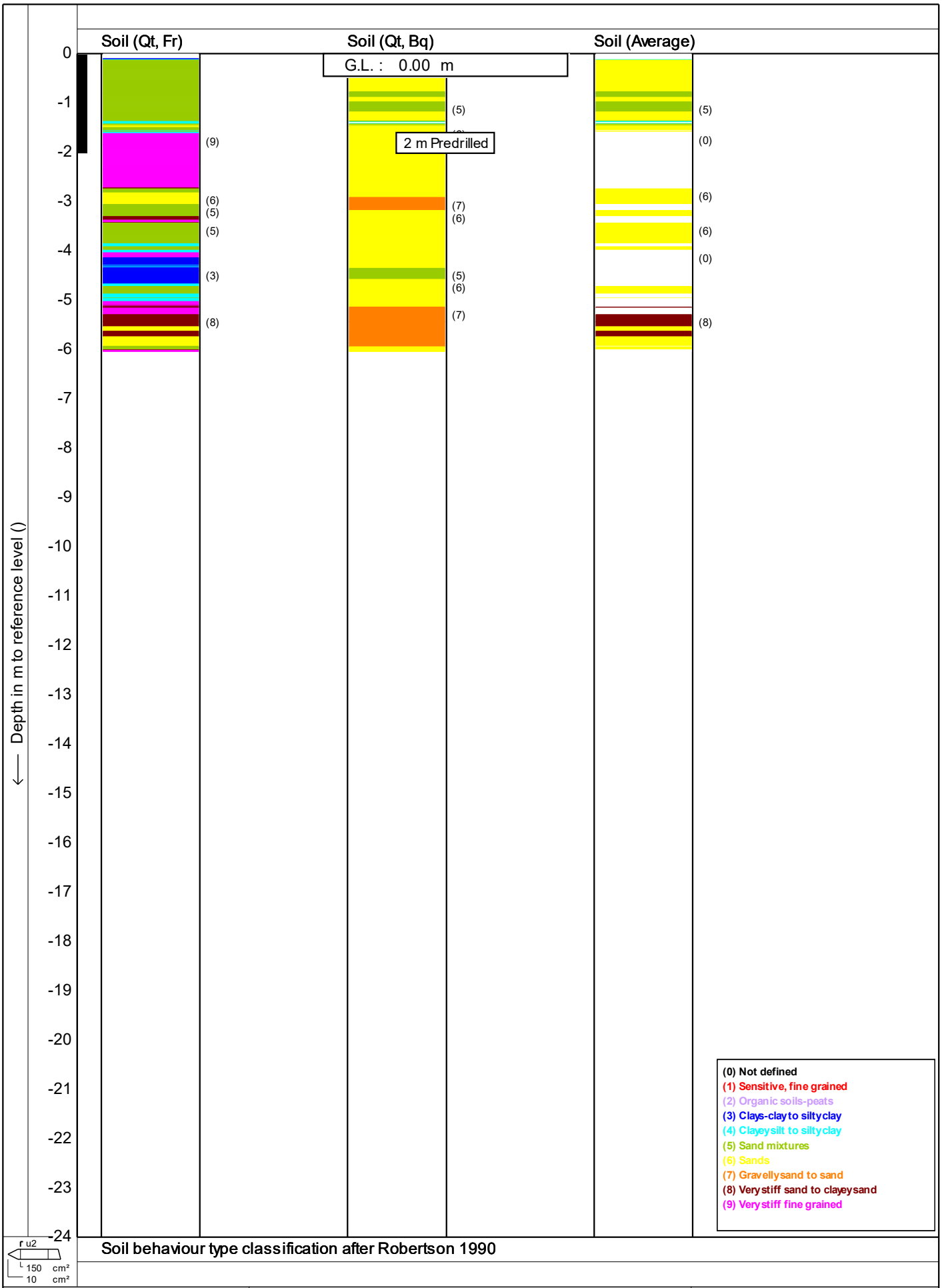
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01A** **13/15**

1.47



Soil behaviour type classification after Robertson 1990

DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

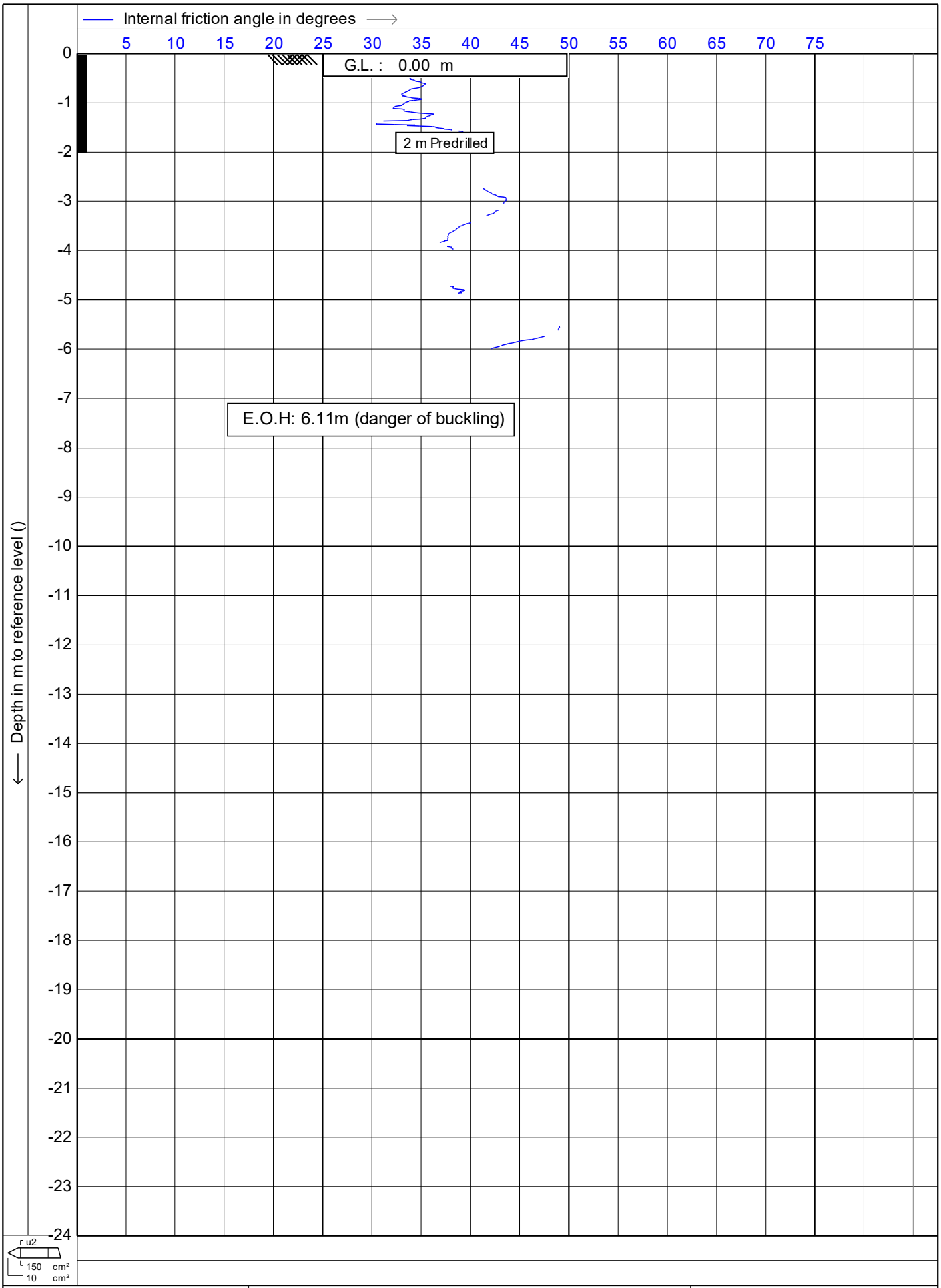
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01A**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

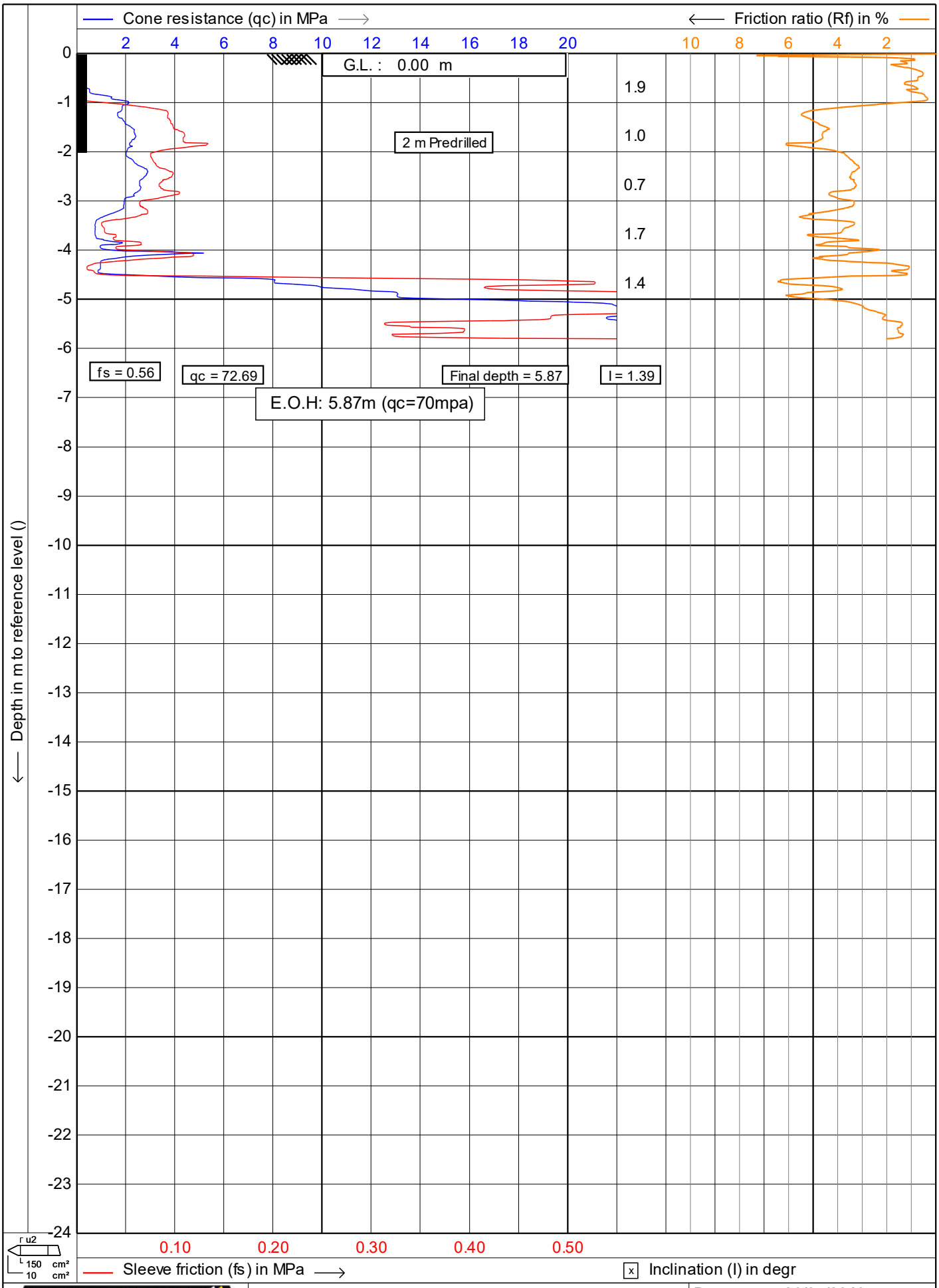
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073533, -39.058814 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_01A** **15/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

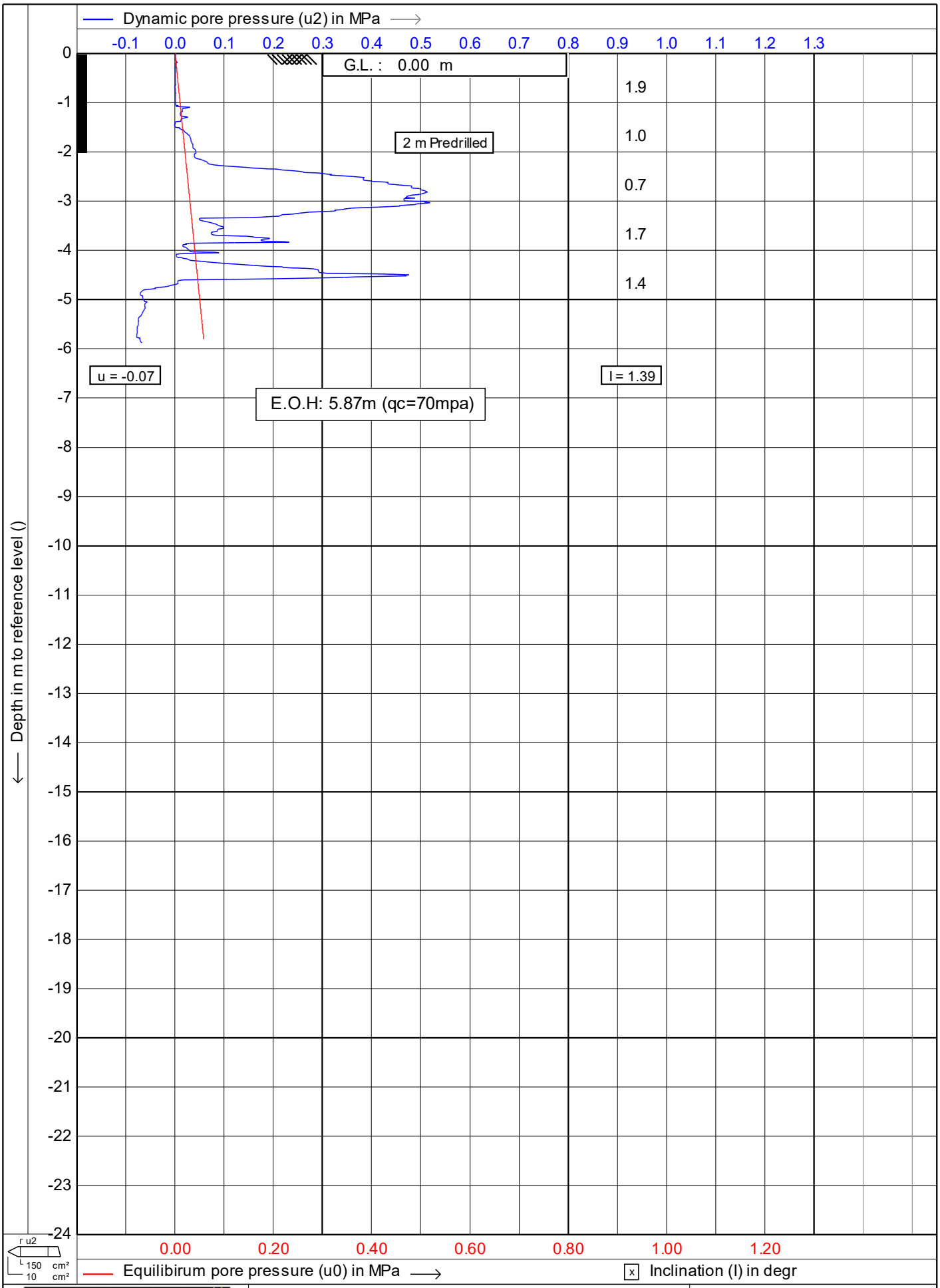
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02** **1/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

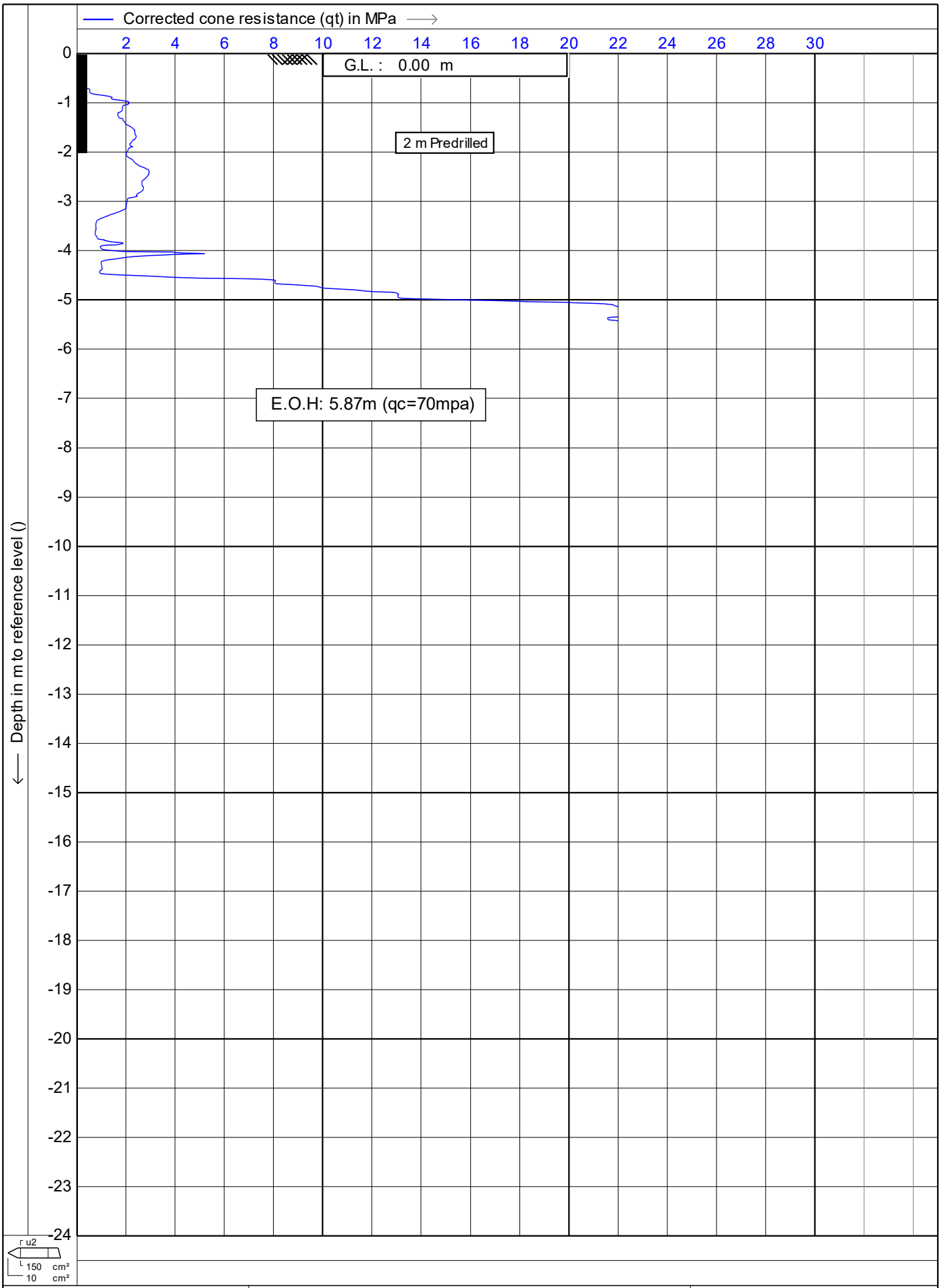
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02** **2/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

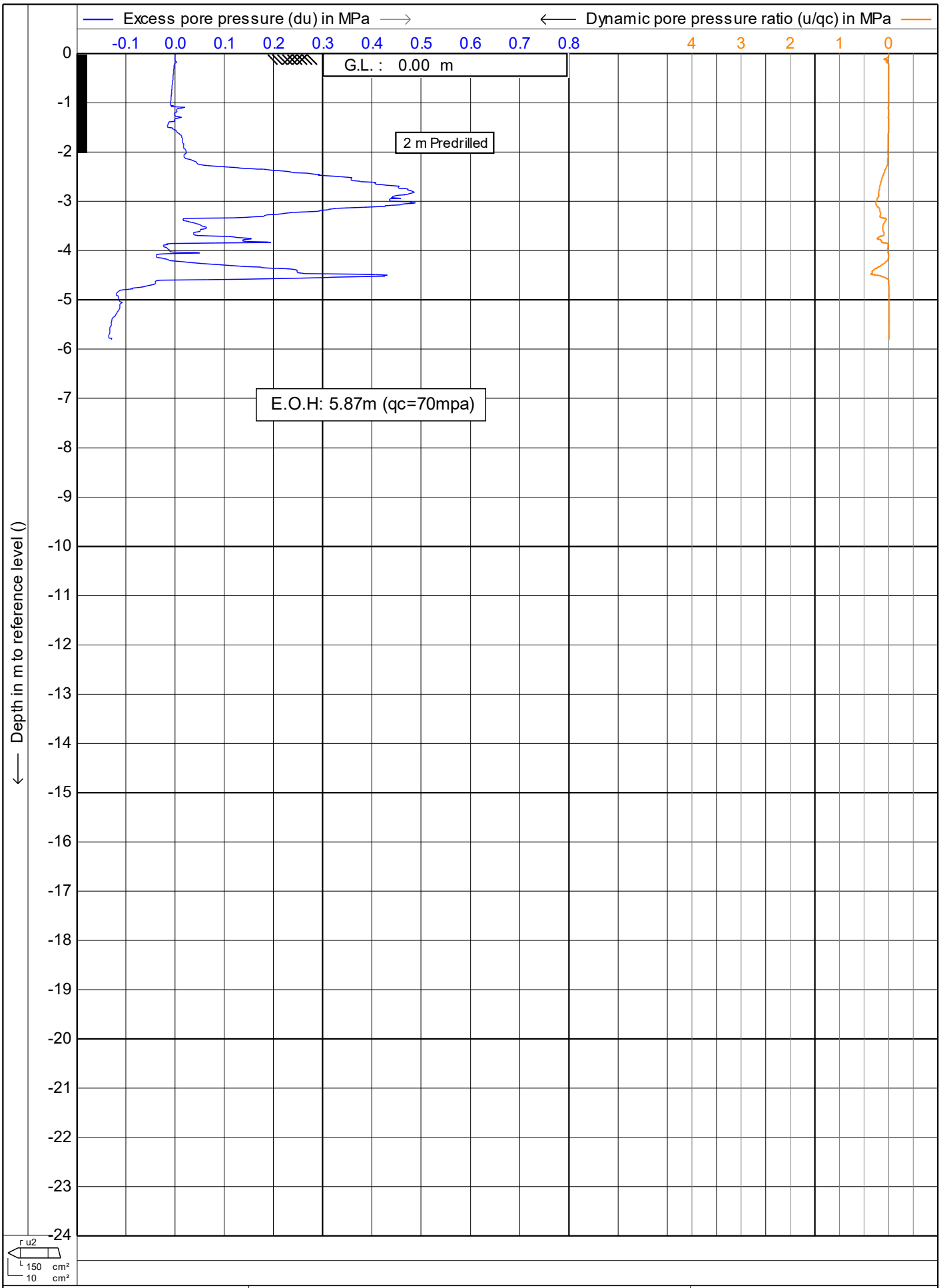
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02** **3/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

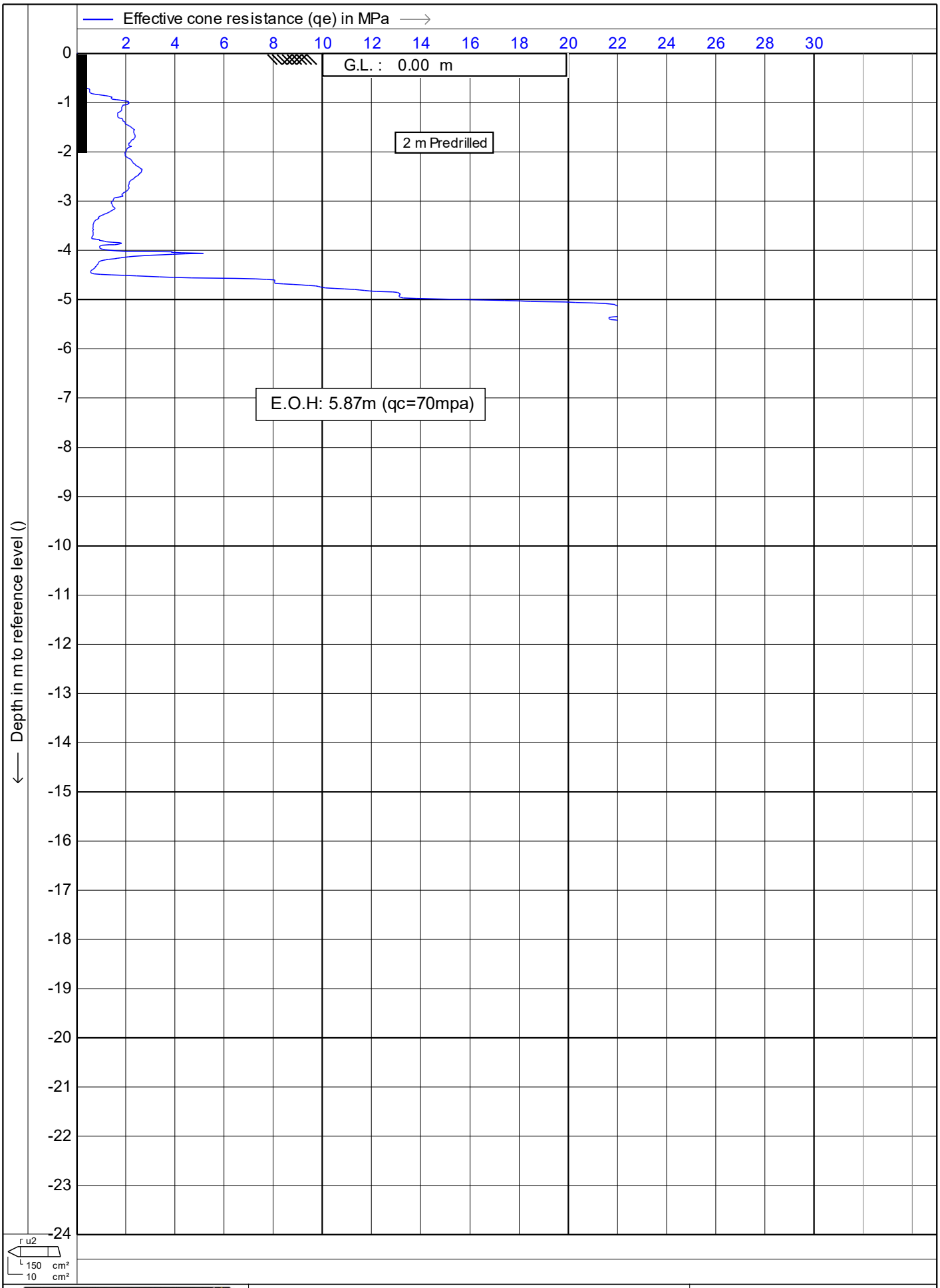
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02** **4/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

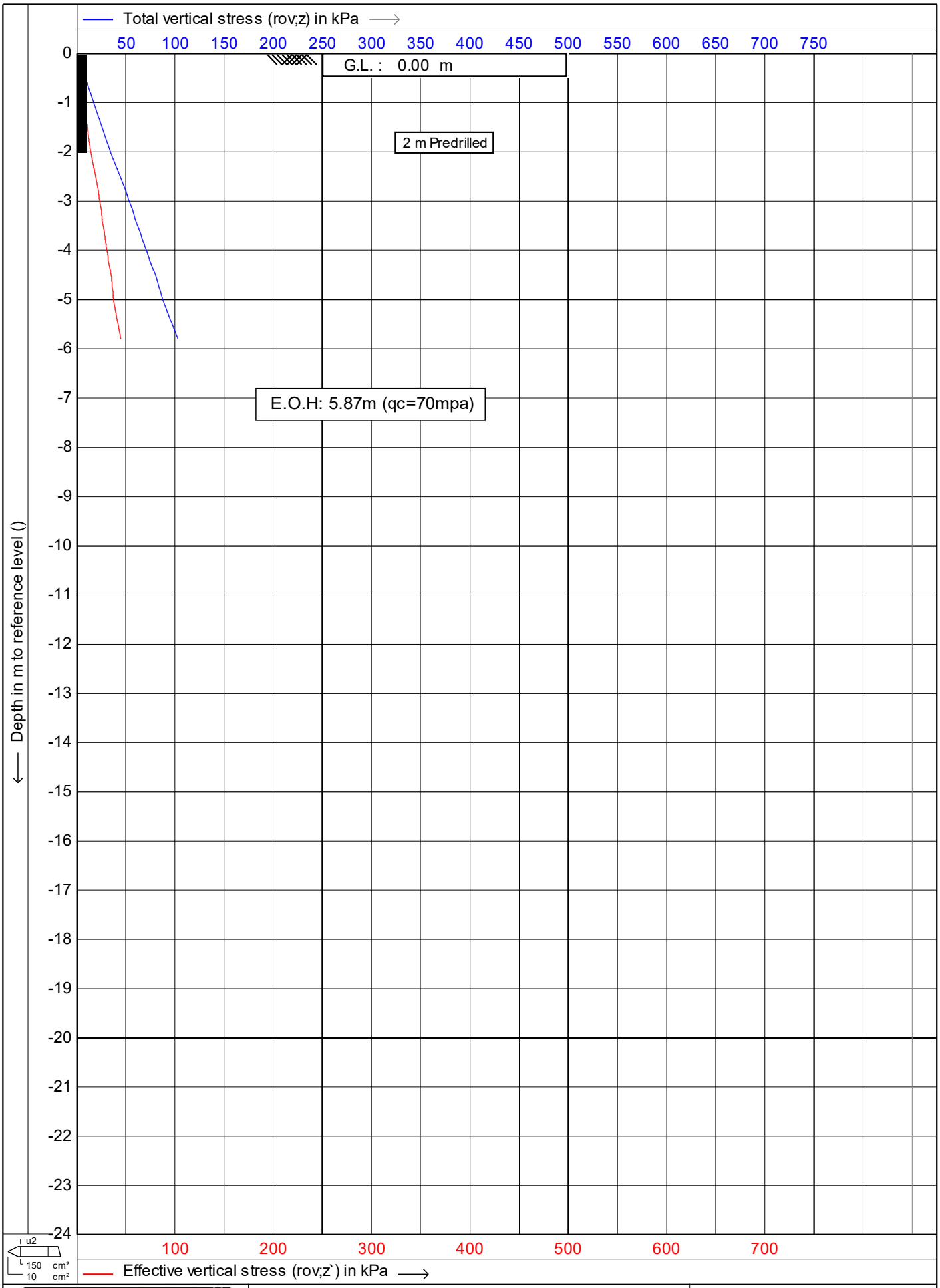
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02** **5/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

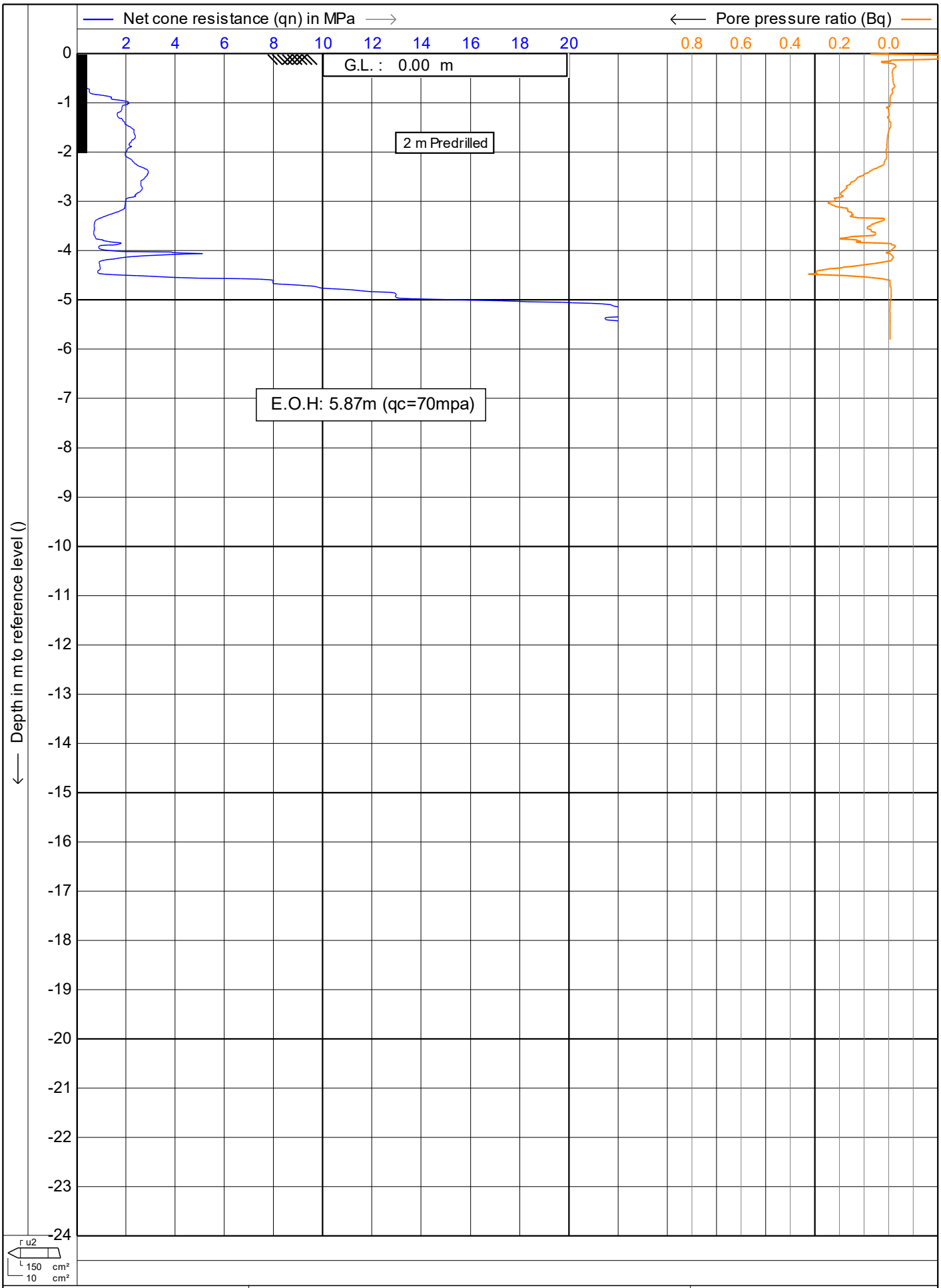
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02** **6/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

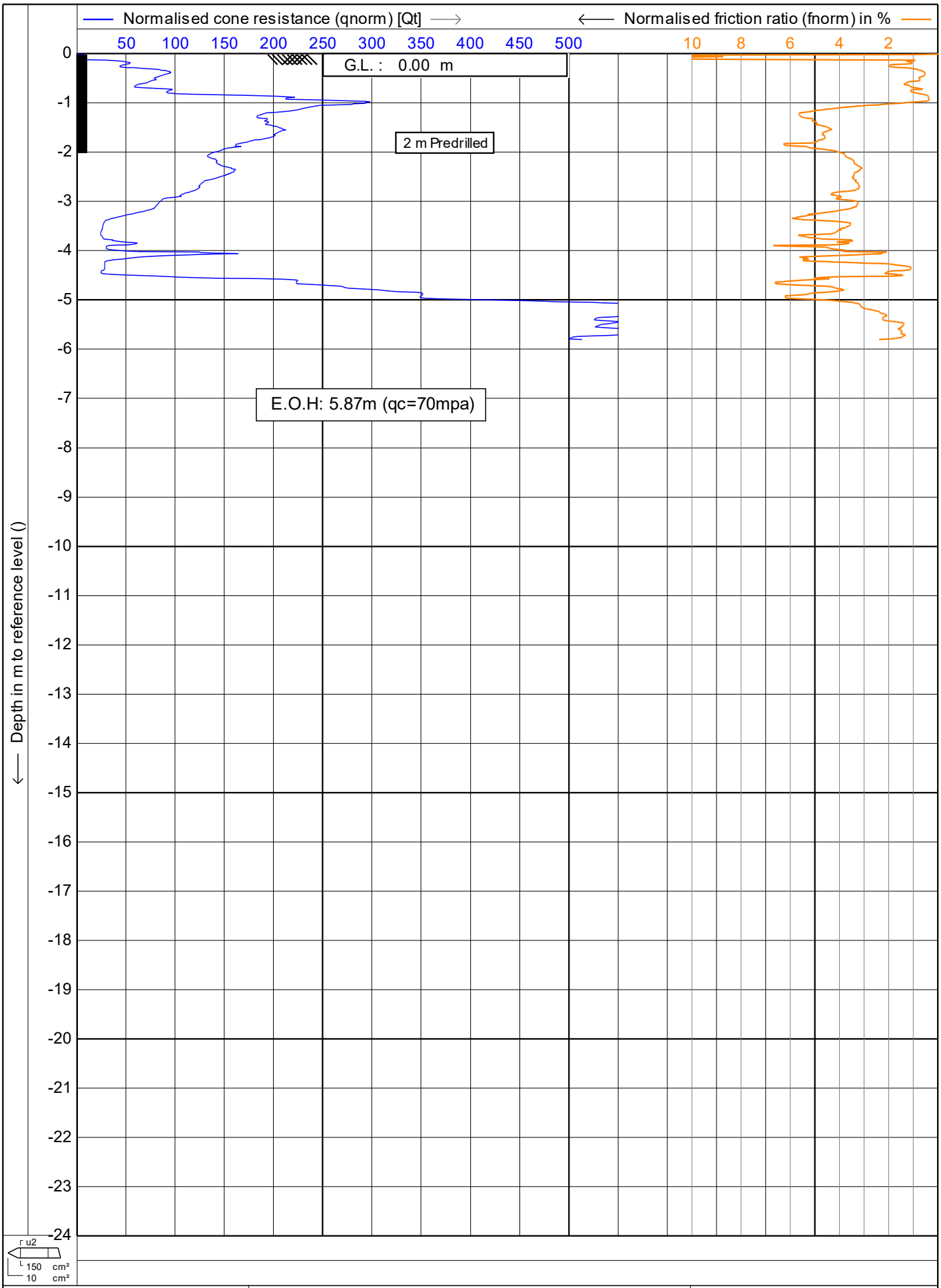
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02** **7/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

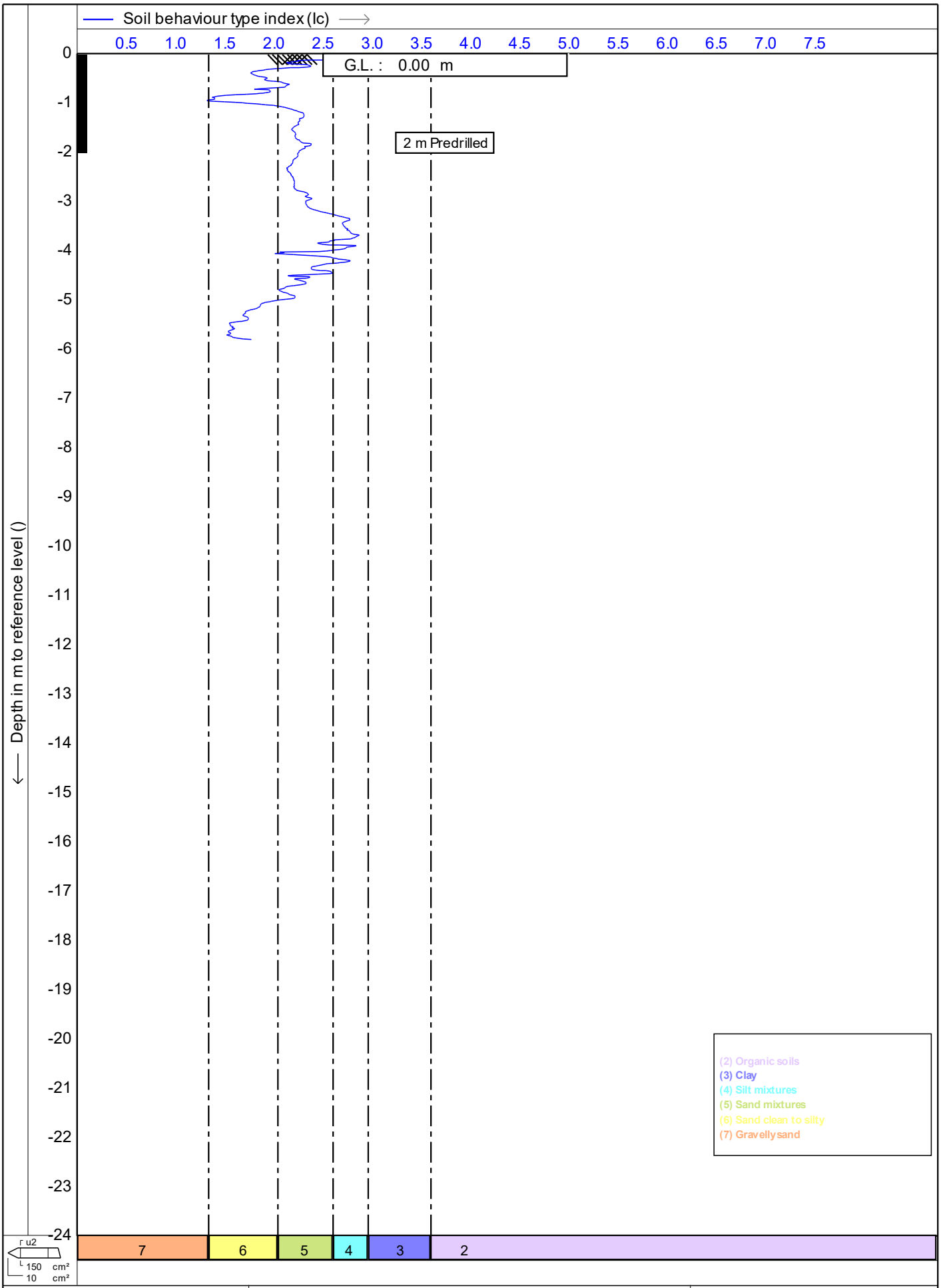
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02** **8/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

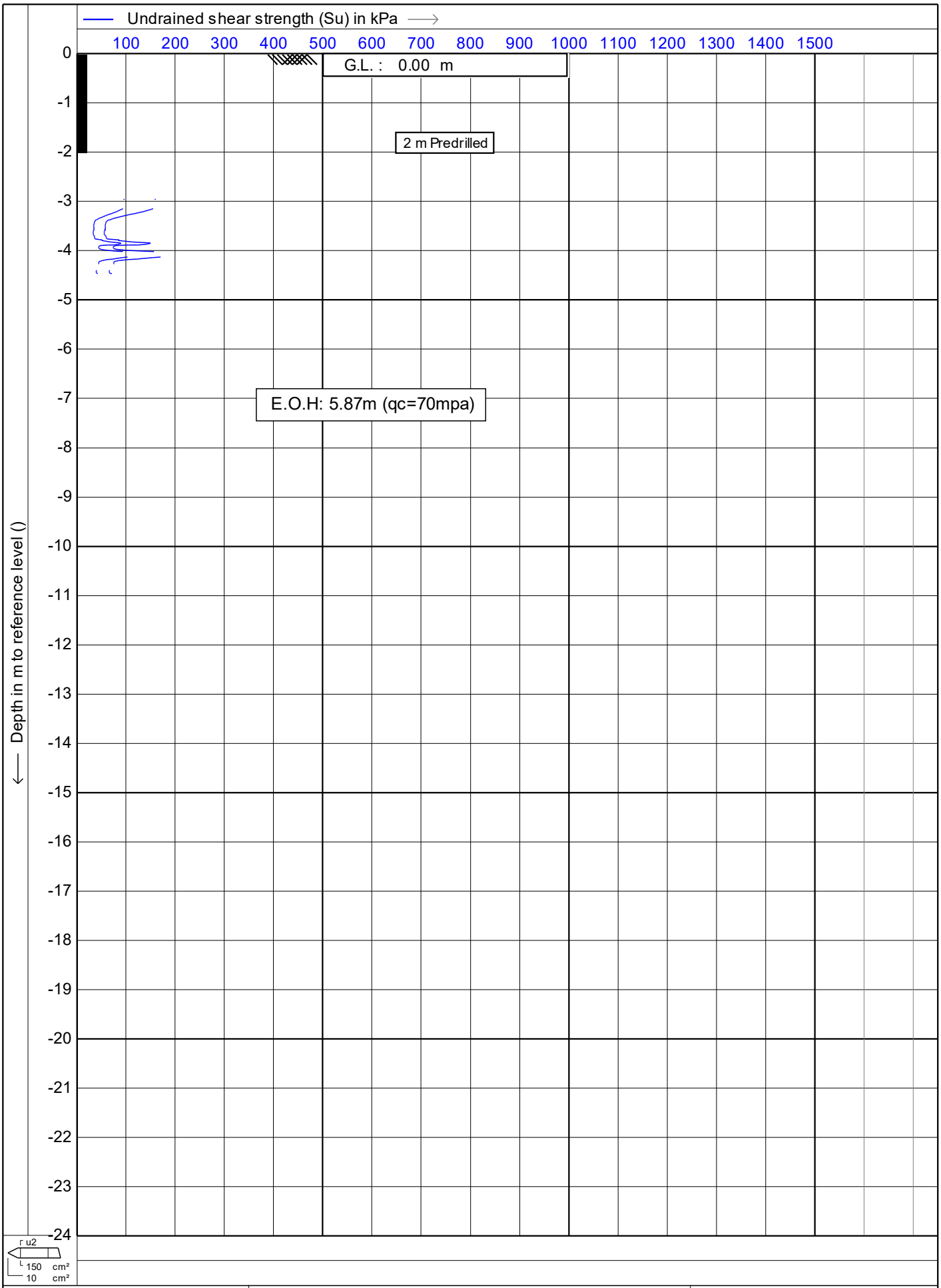
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02** **9/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

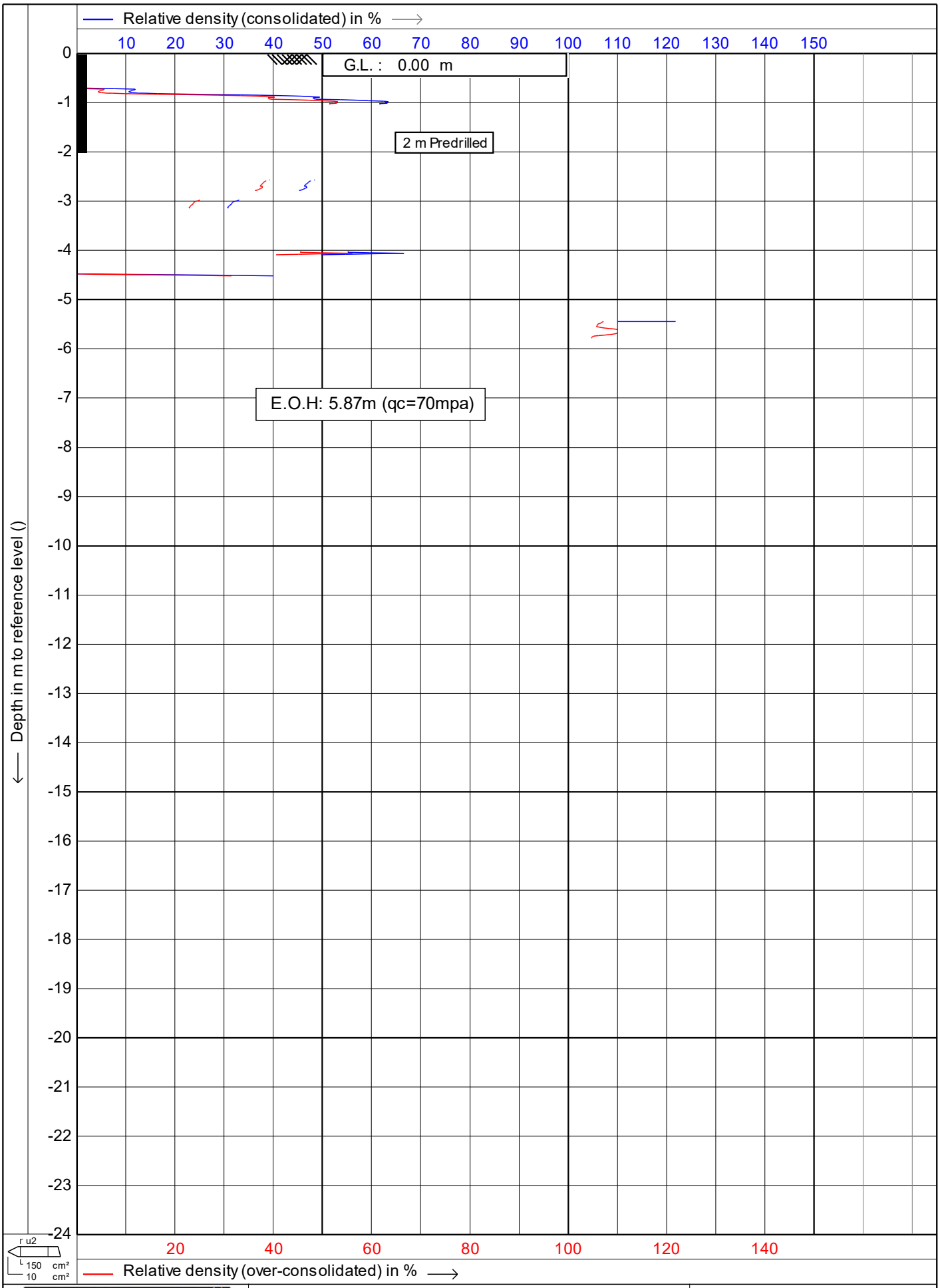
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02** **10/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

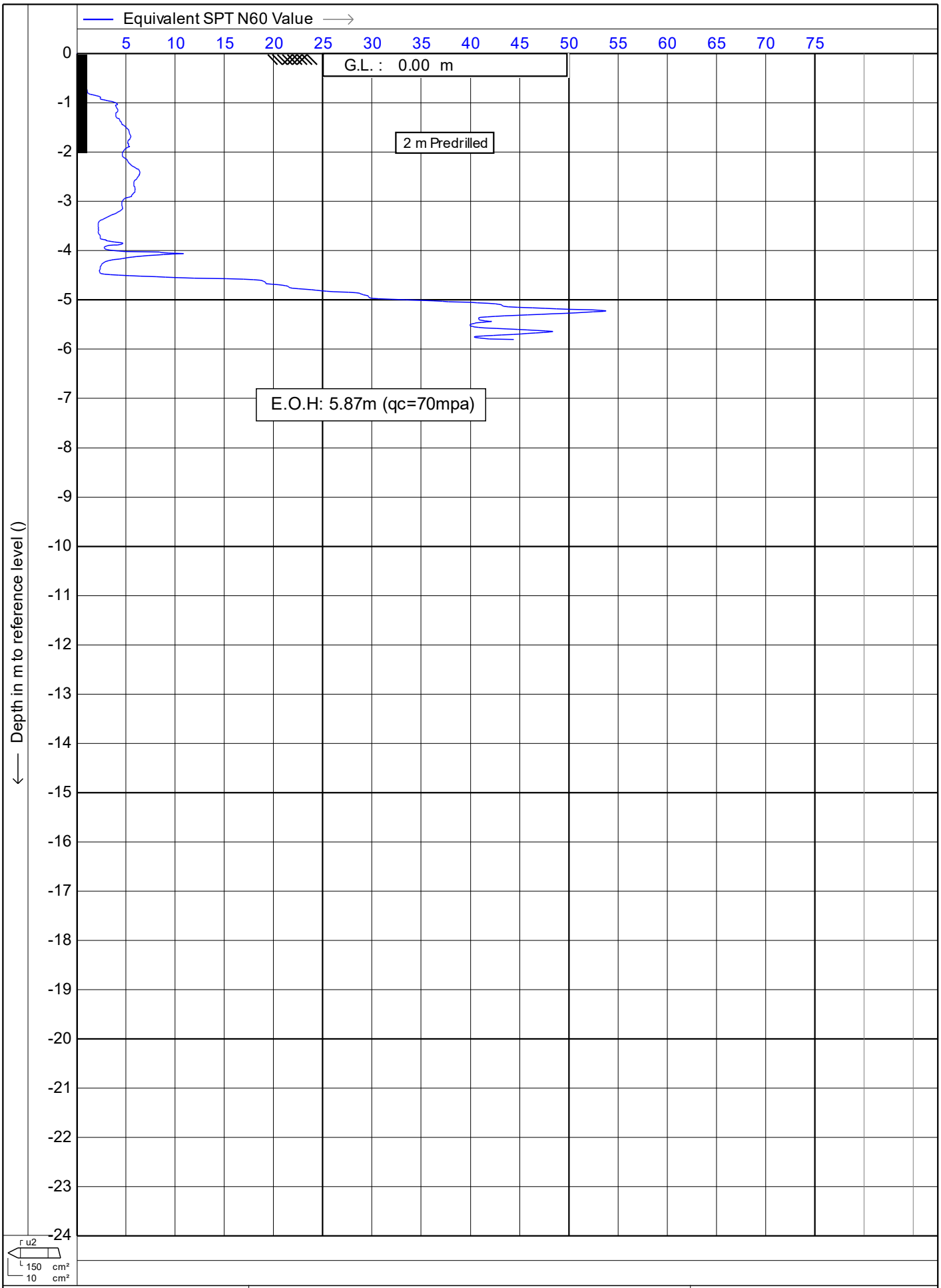
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02** **11/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

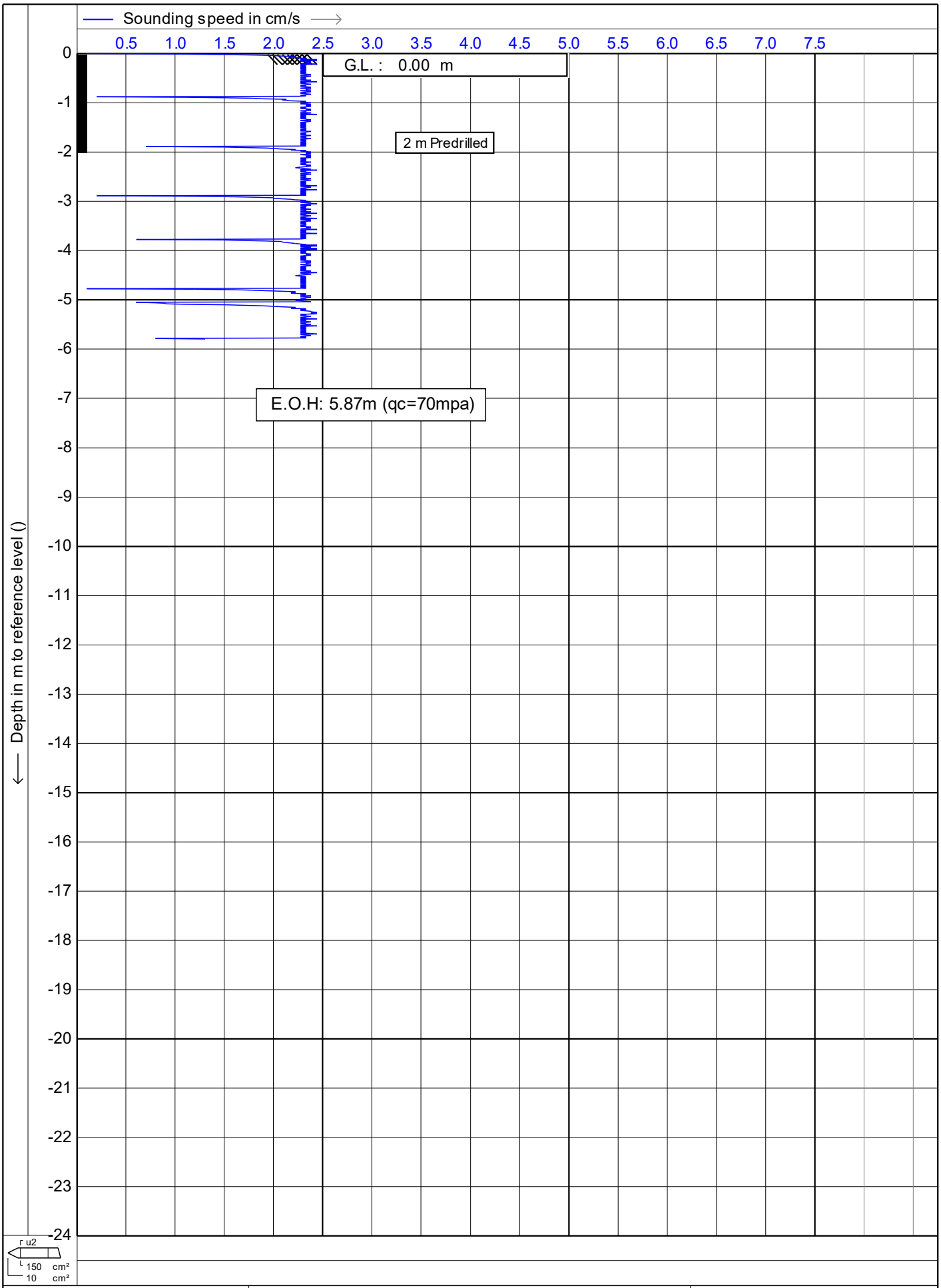
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

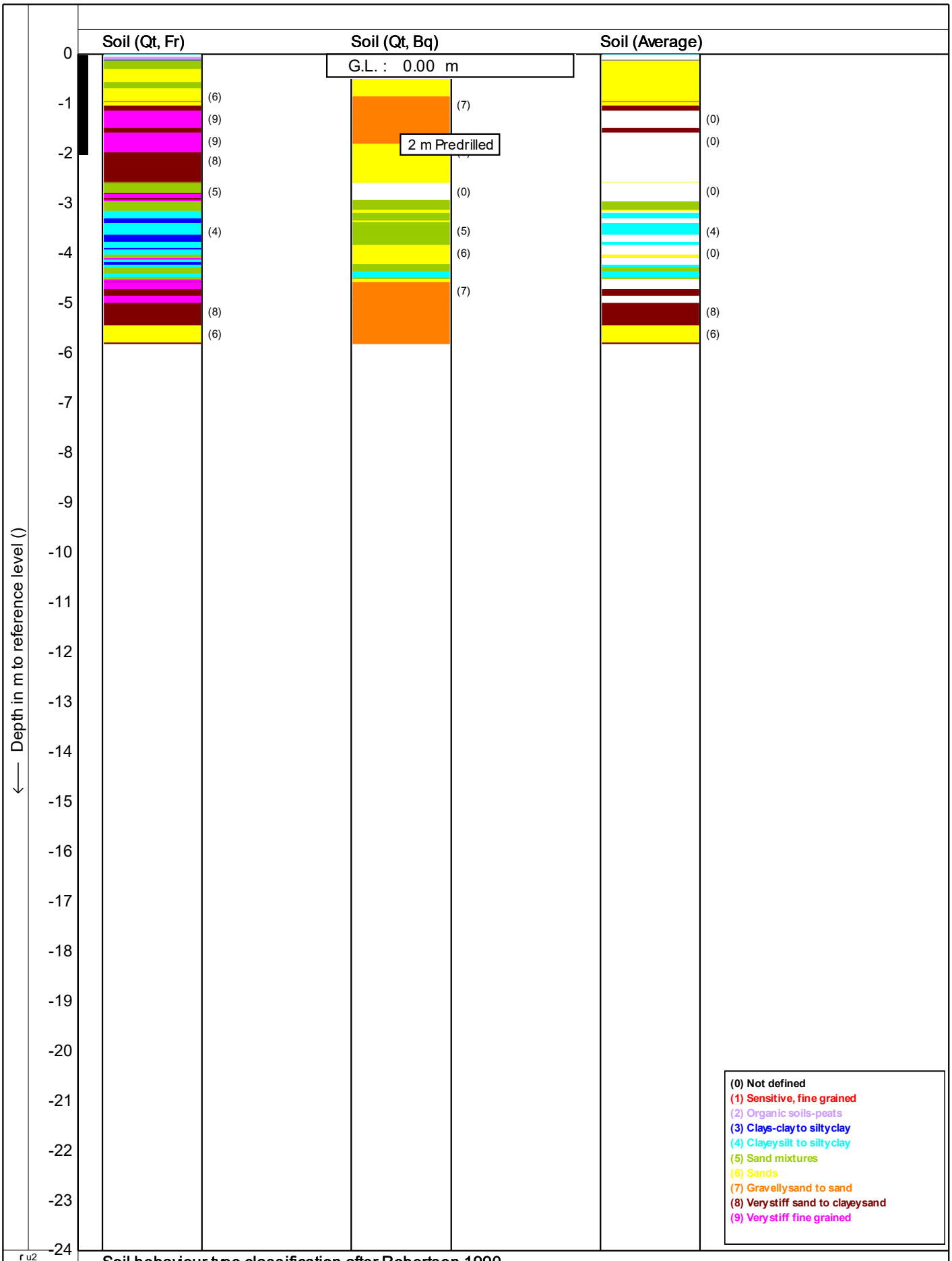
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02** **13/15**

1.47



Soil behaviour type classification after Robertson 1990

DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

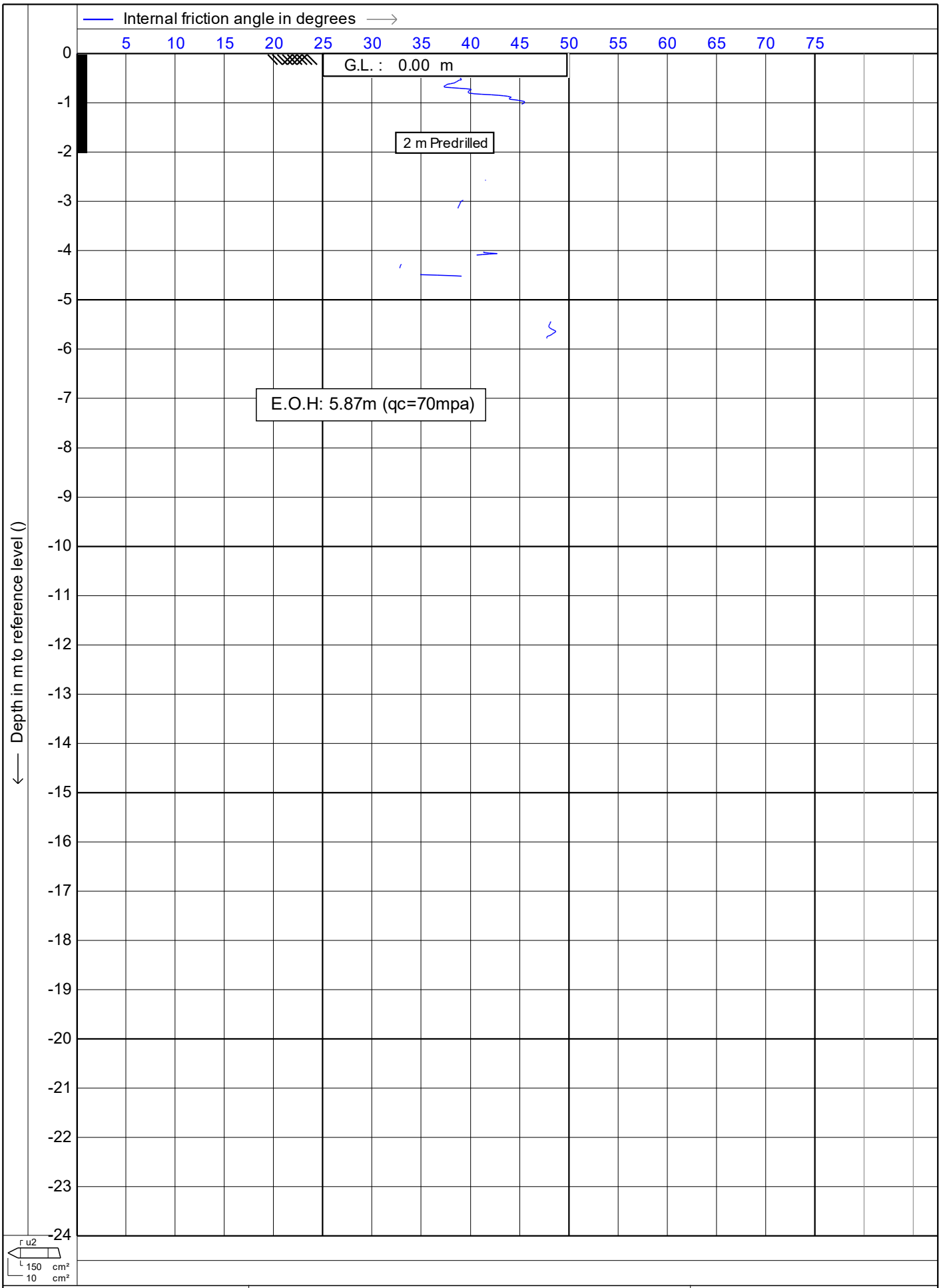
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02** **14/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

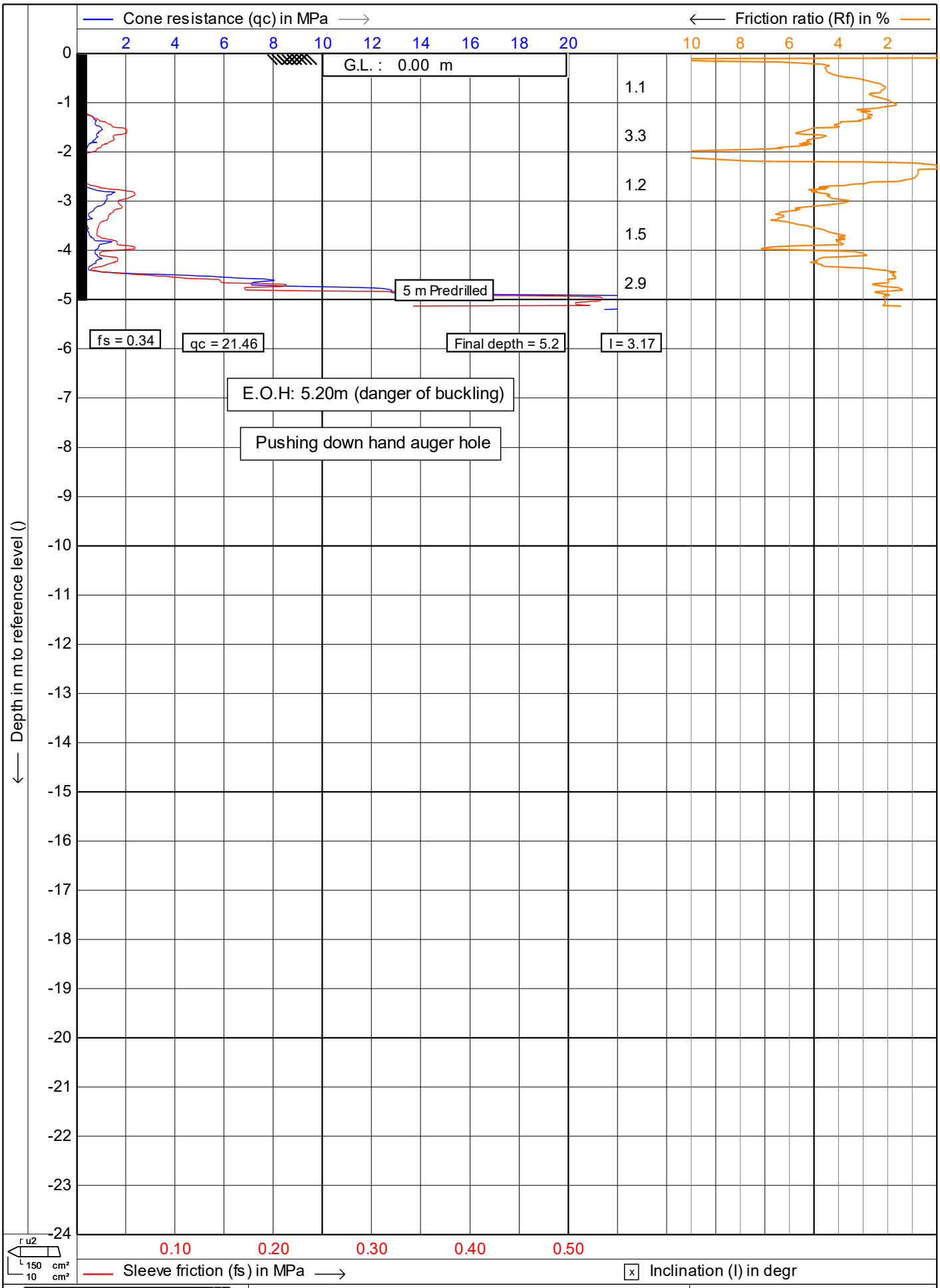
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02** **15/15**

1.47



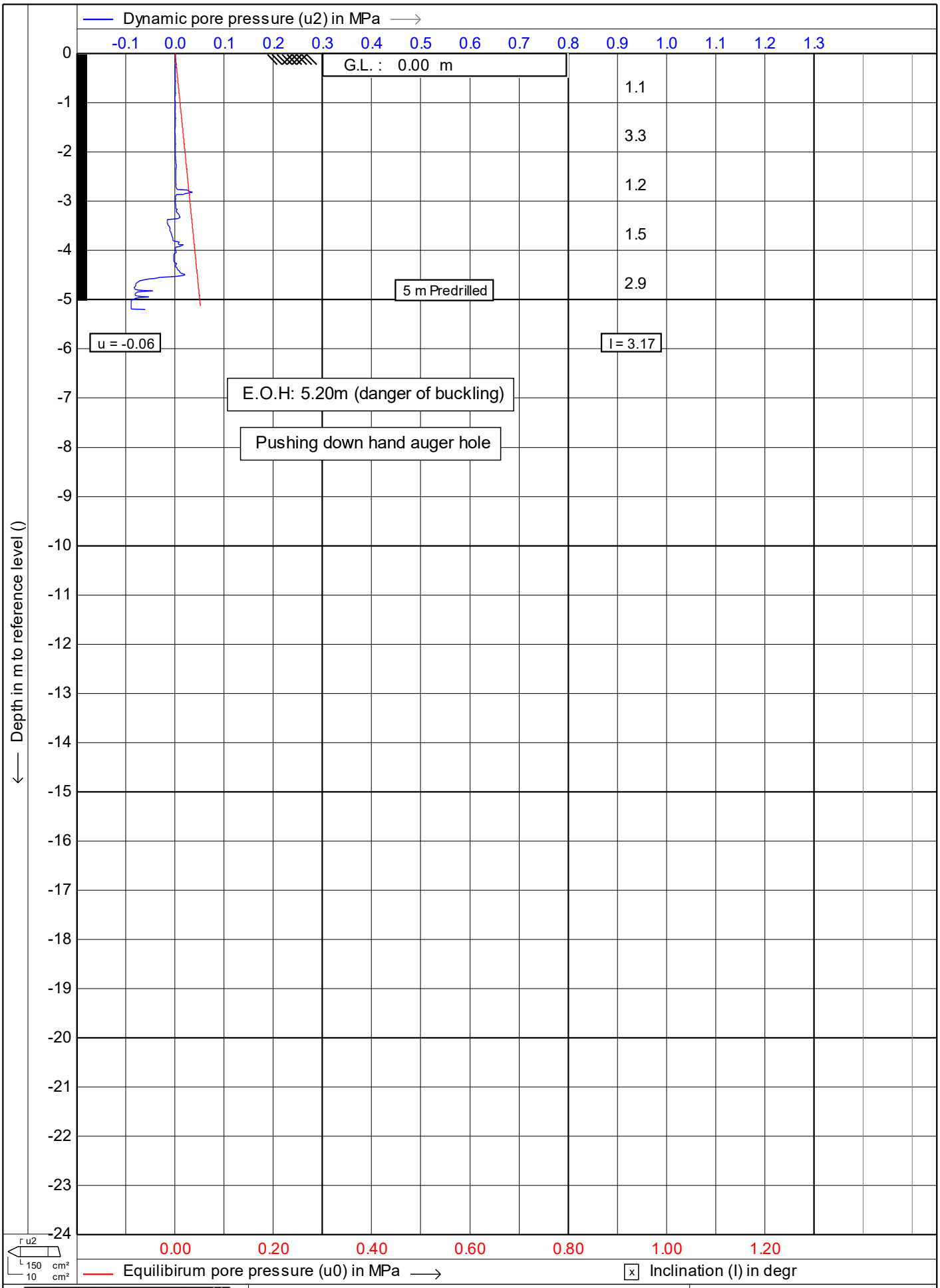
DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

Project : **51 Brougham Street**
Location: **51 Brougham Street, New Plymouth**
Position: **174.073453, -39.058828 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02A** **1/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

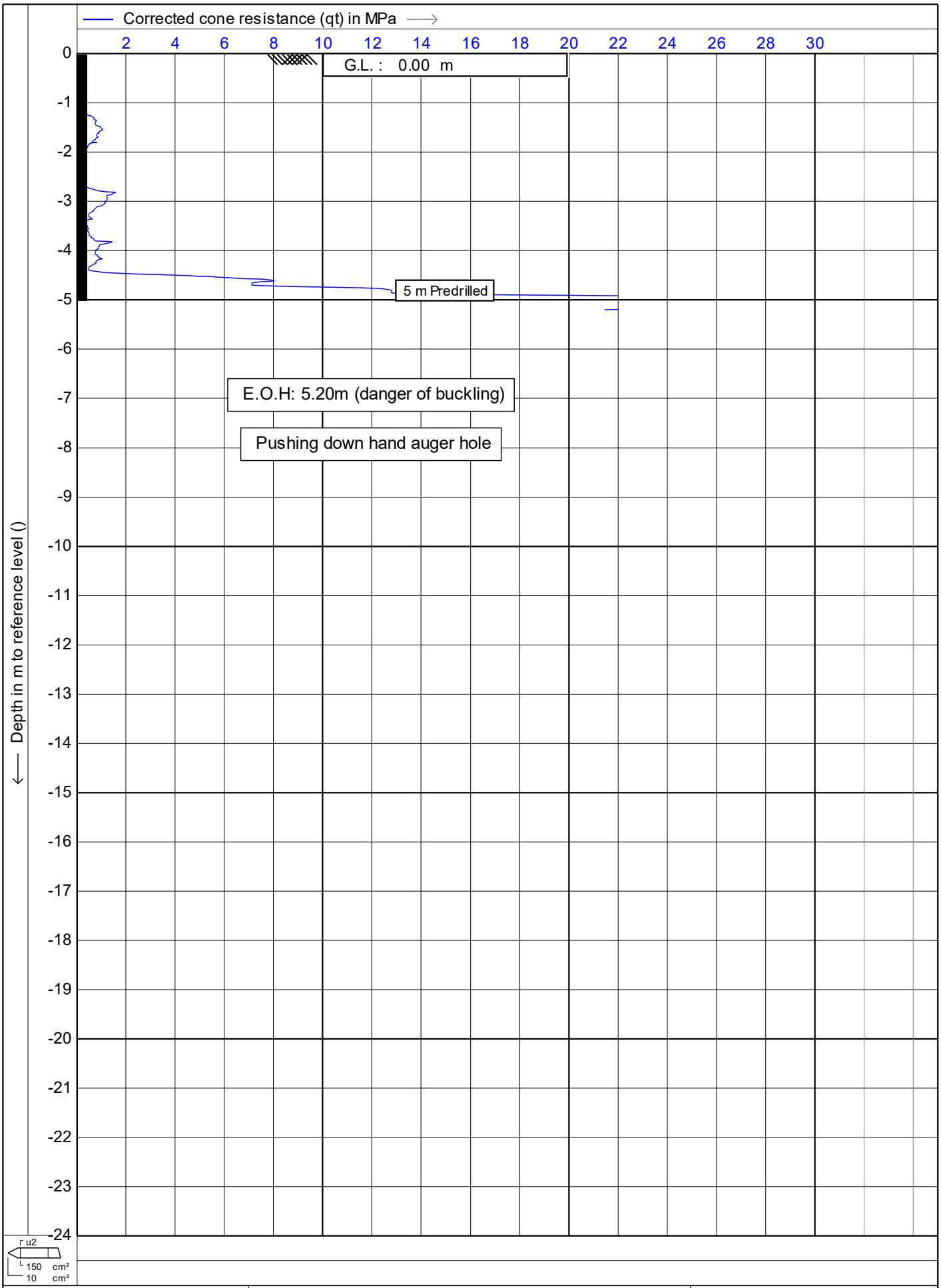
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02A**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

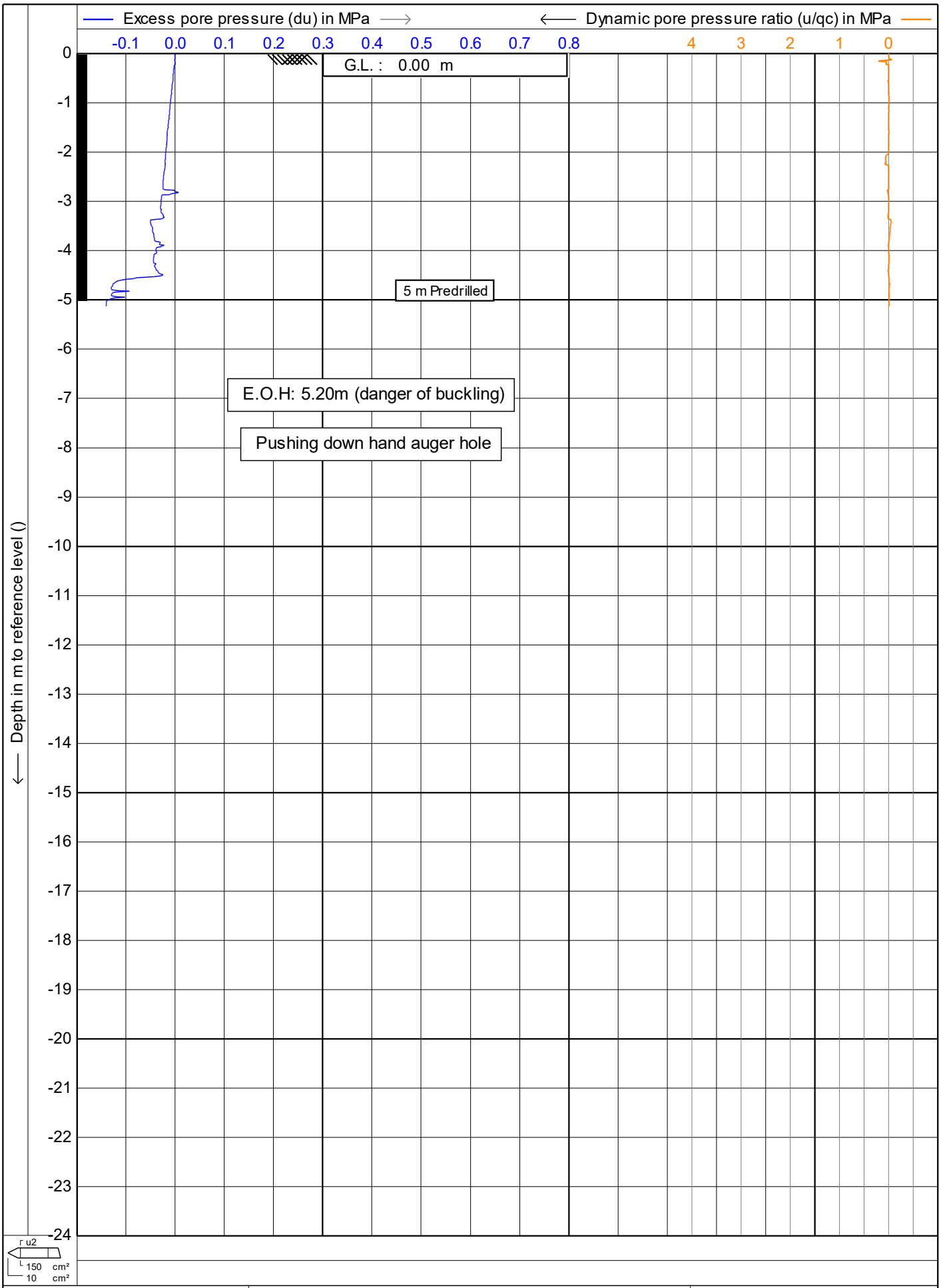
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02A** **3/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

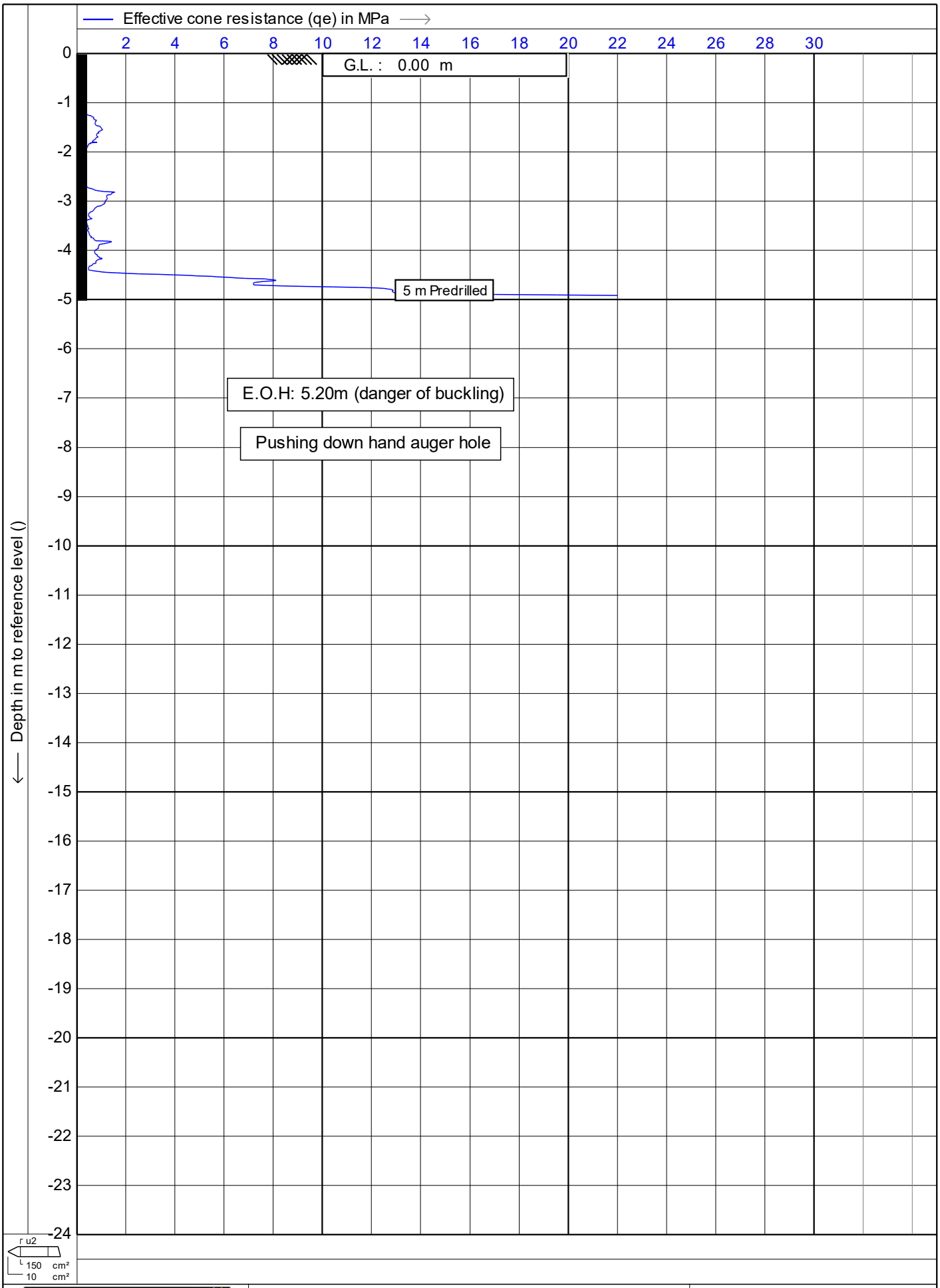
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02A** **4/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

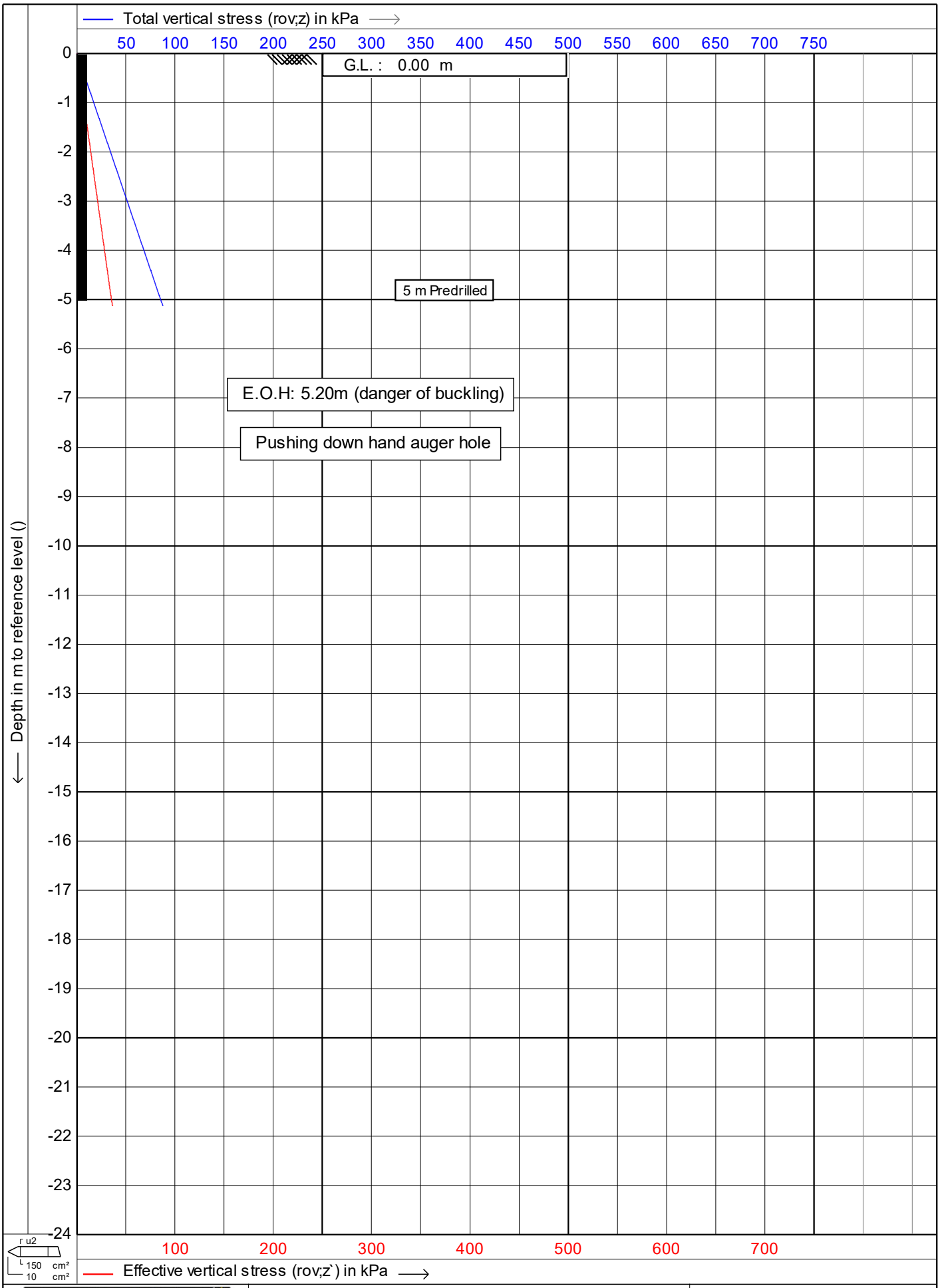
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02A** **5/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

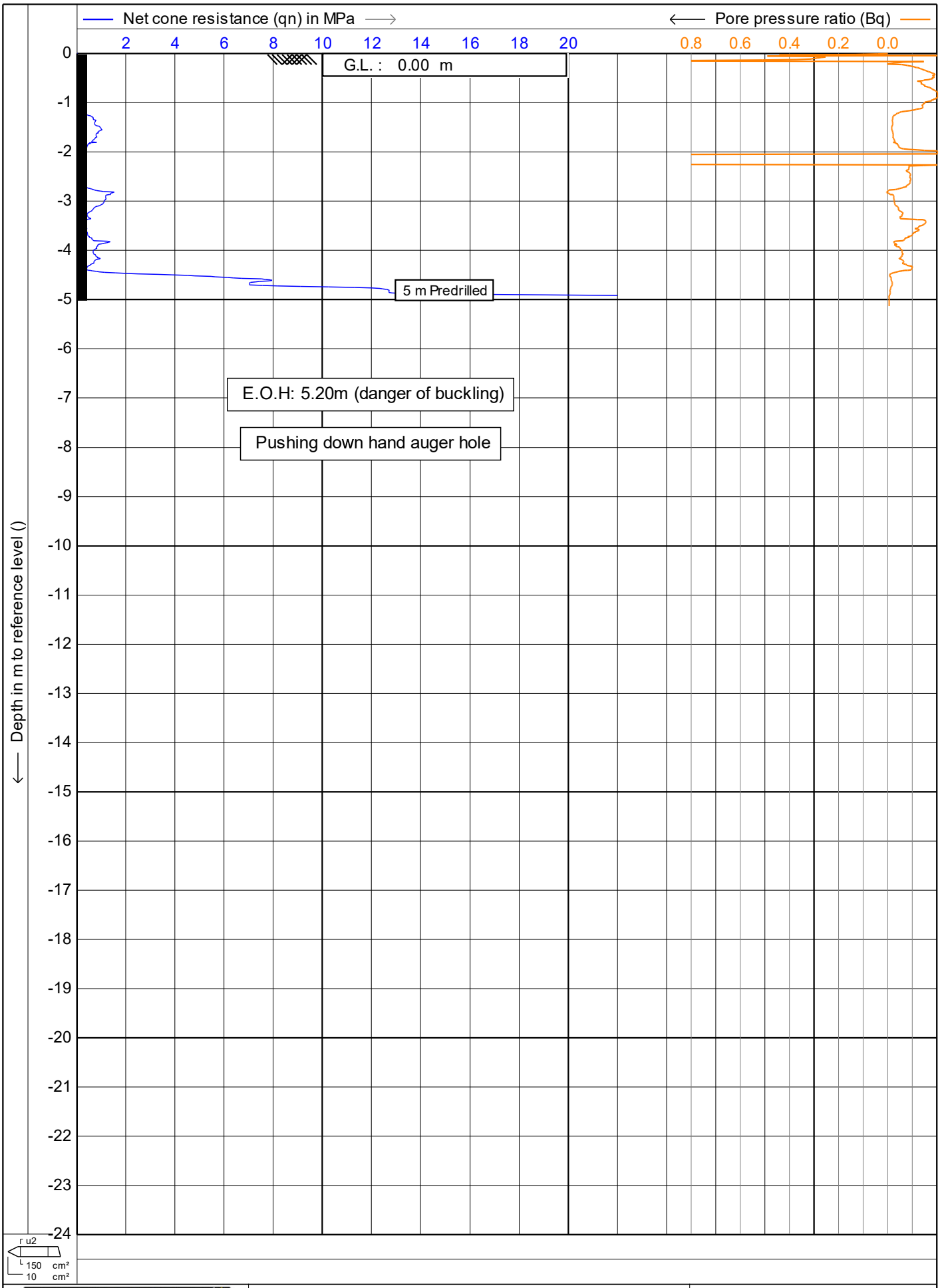
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02A** **6/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

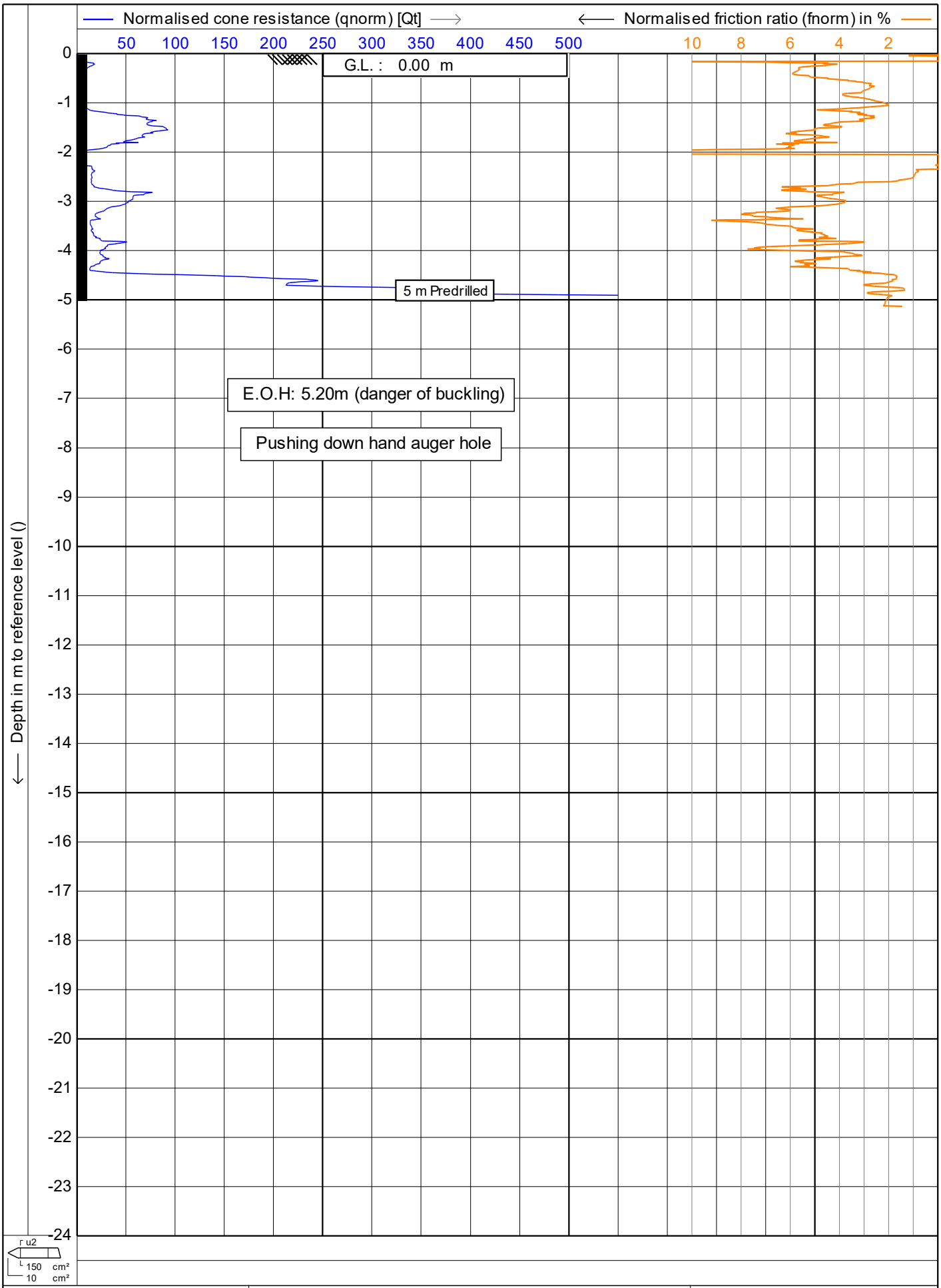
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02A** **7/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

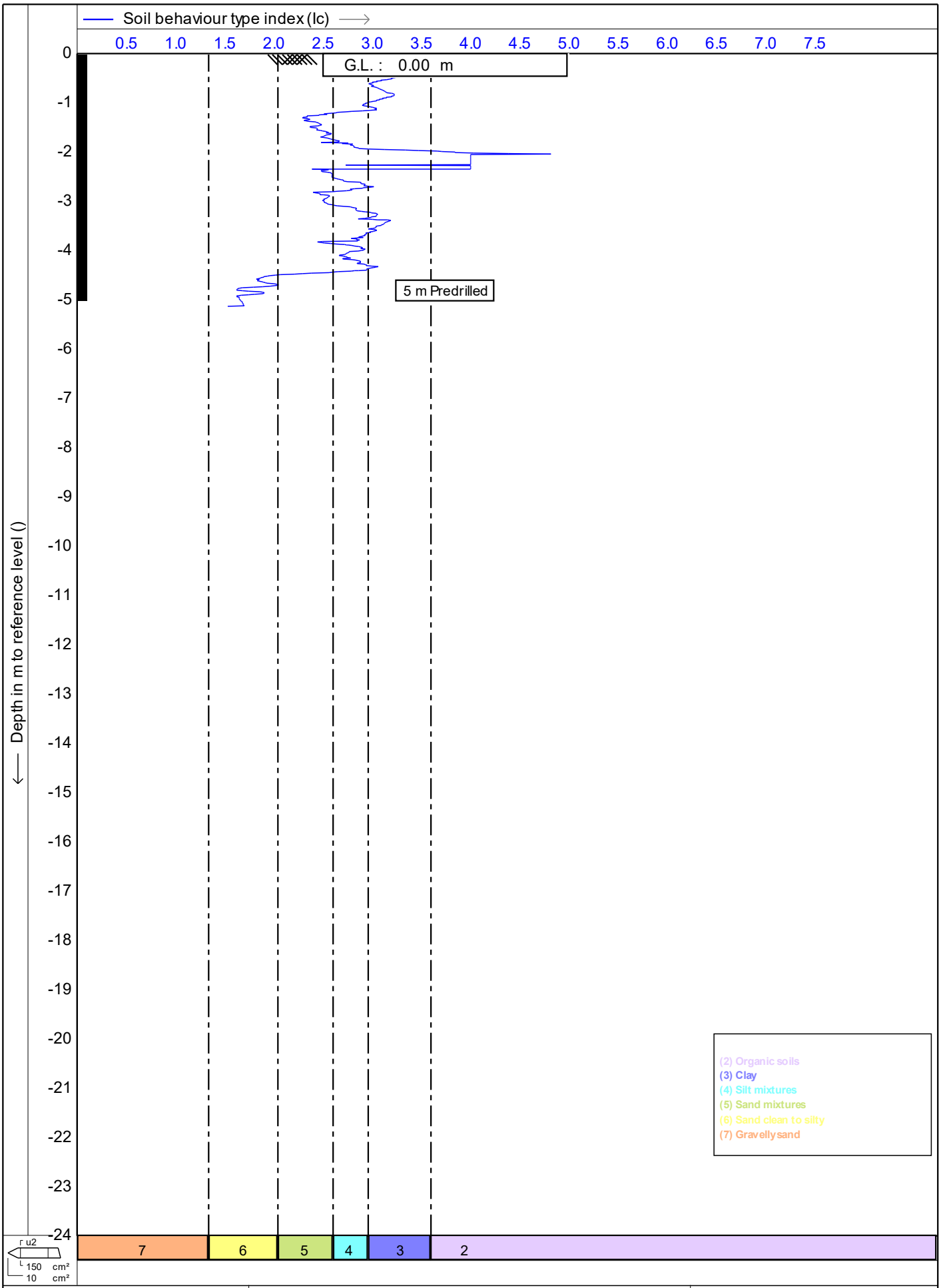
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02A** **8/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

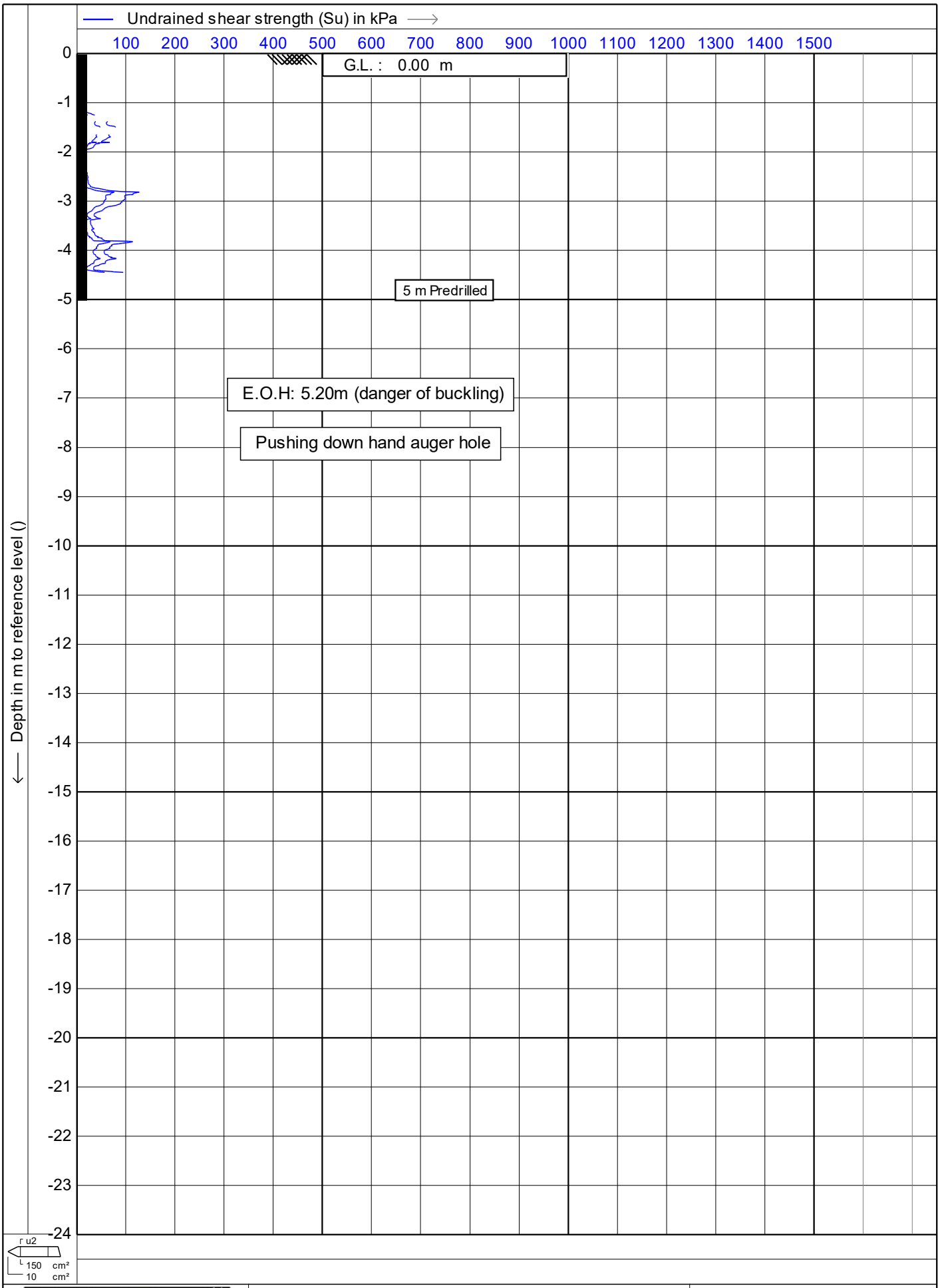
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02A** **9/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

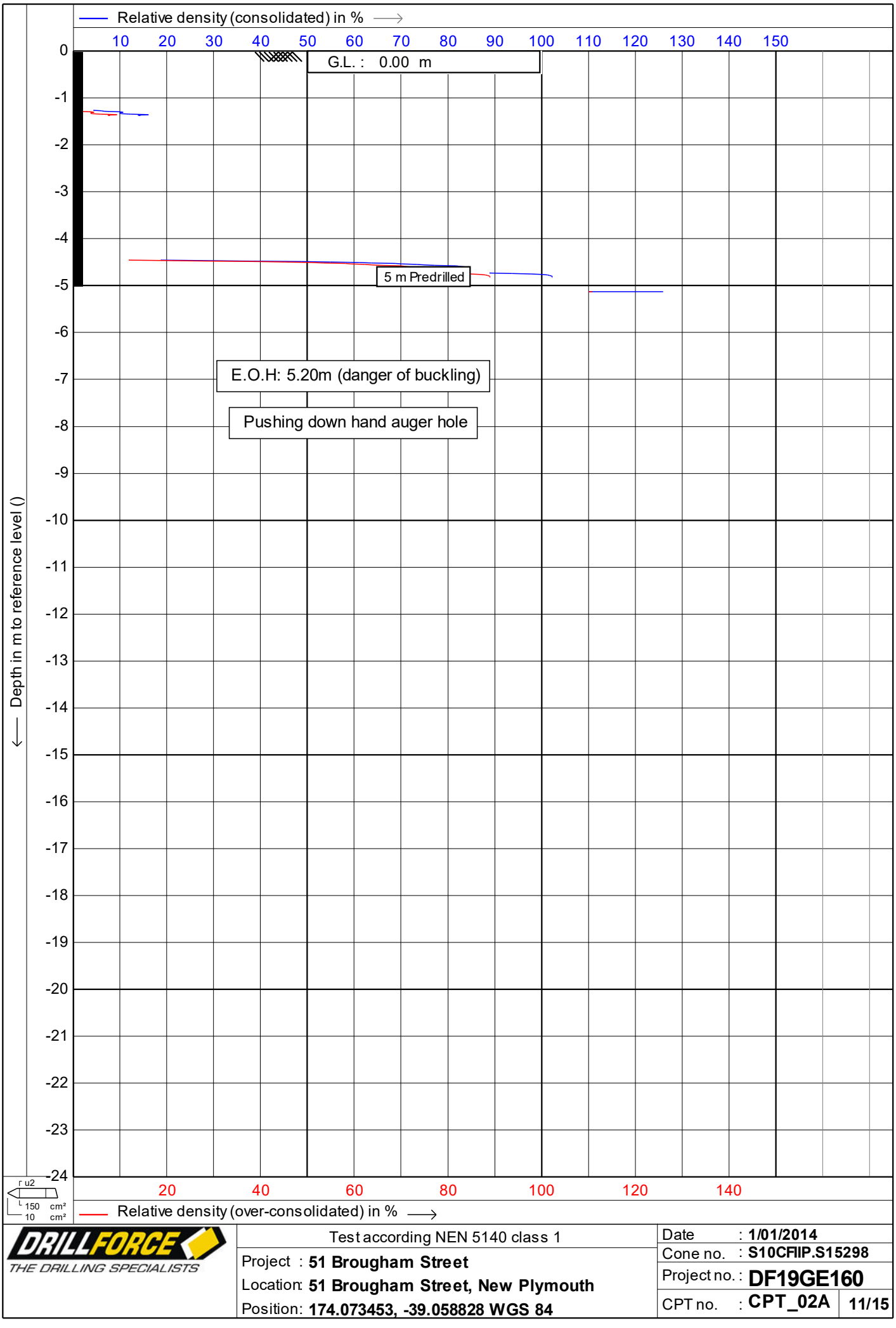
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02A** **10/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

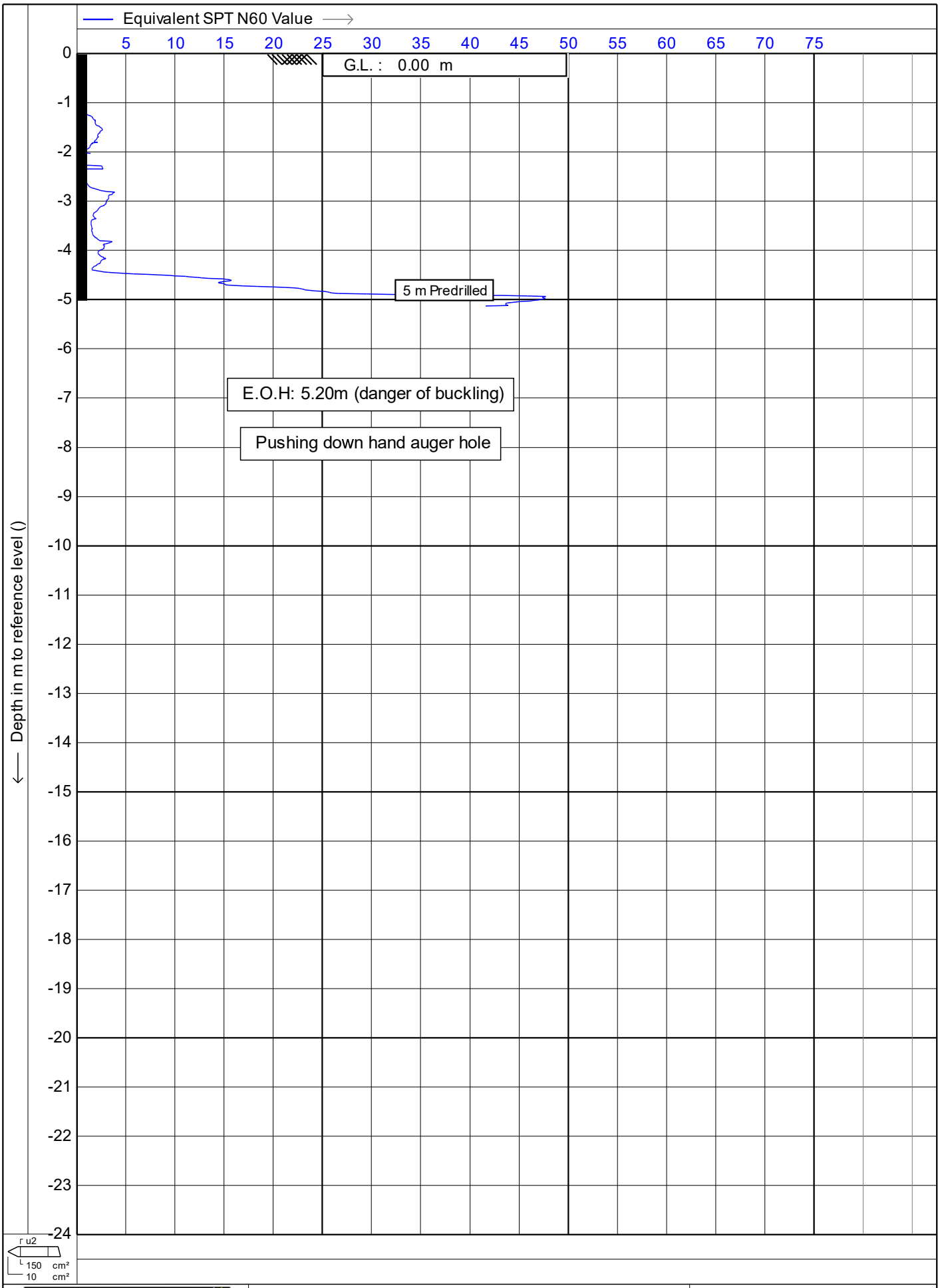
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02A** **11/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

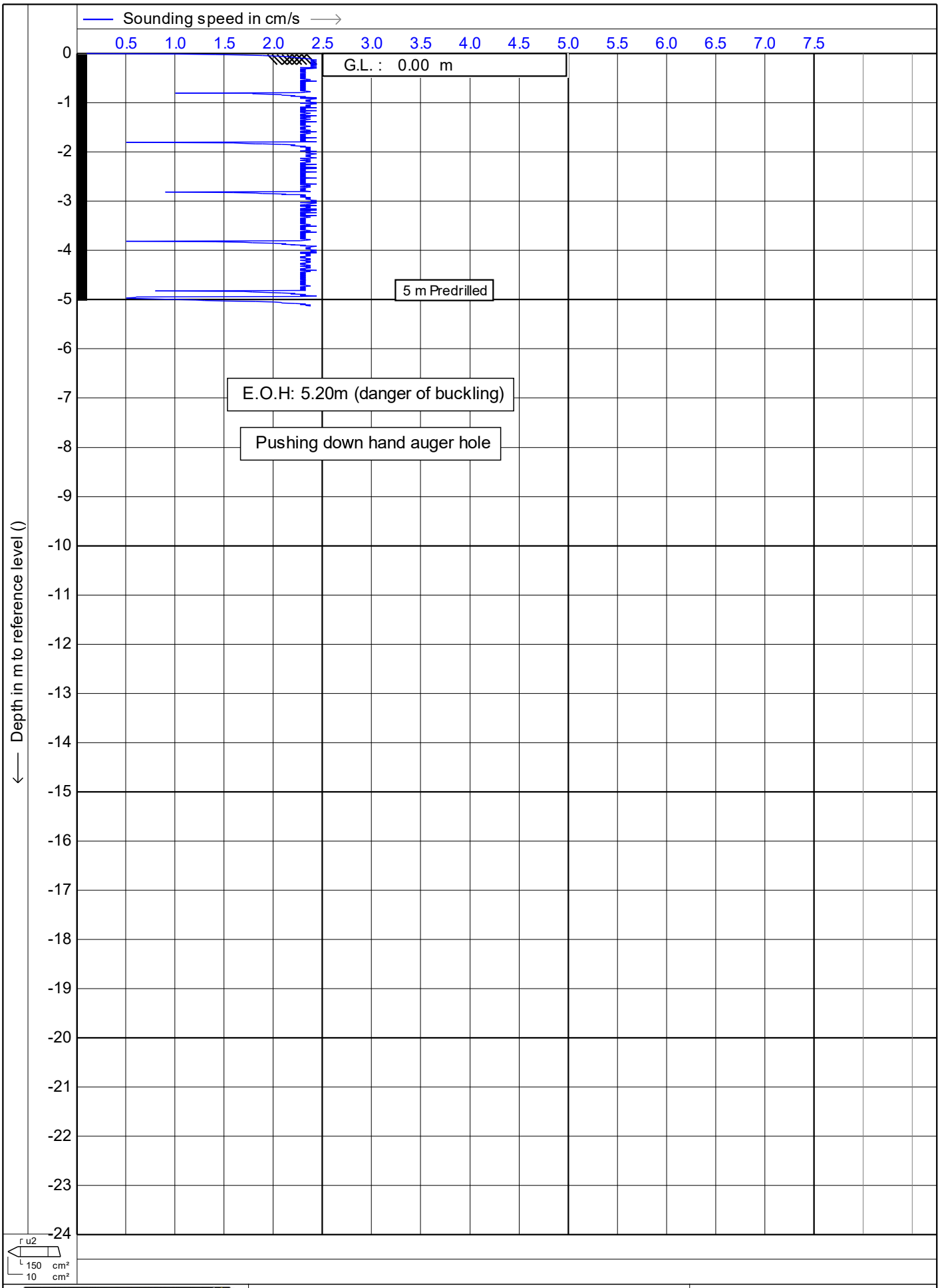
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02A** **12/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

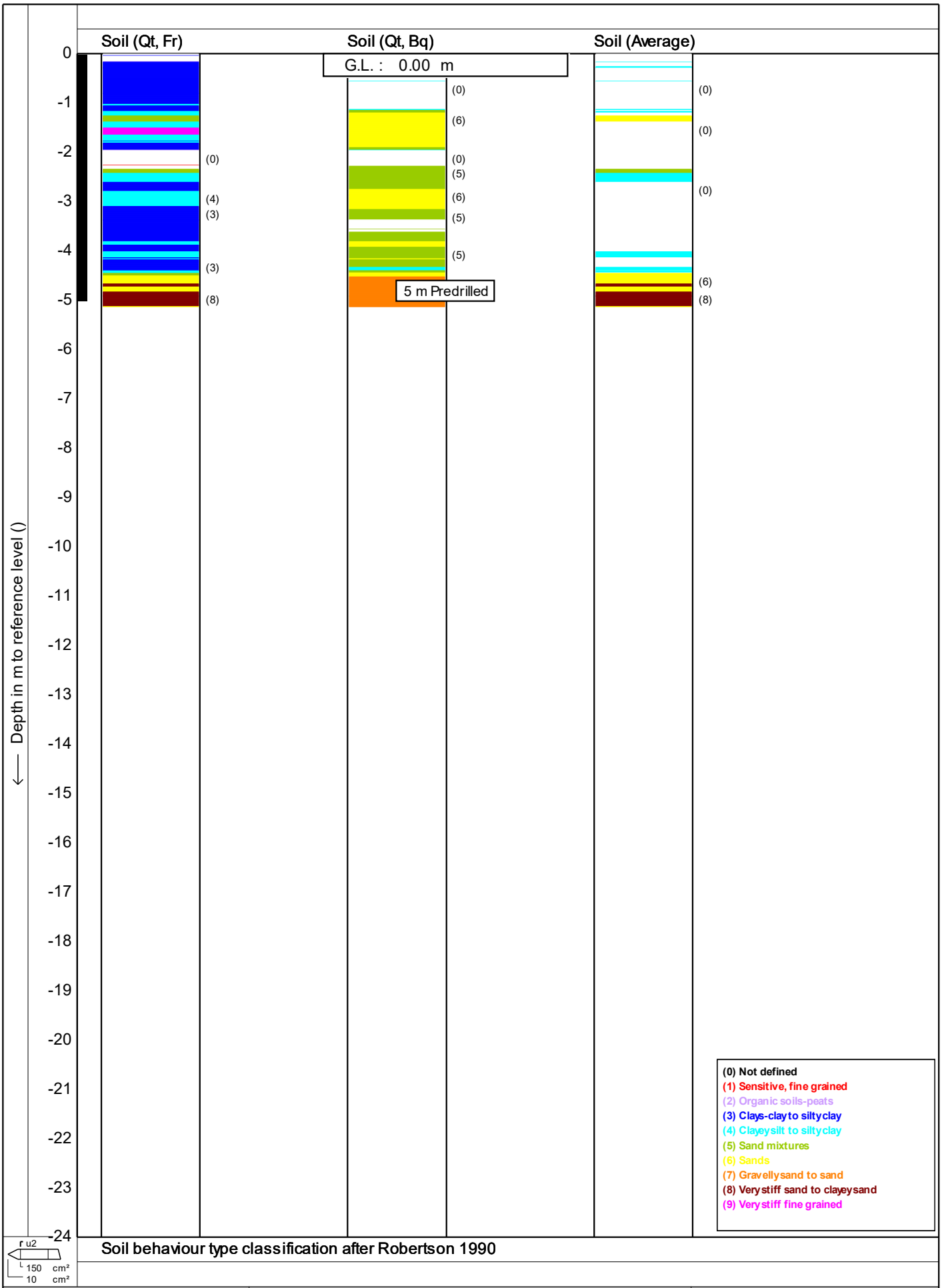
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02A** **13/15**

1.47



Soil behaviour type classification after Robertson 1990

DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

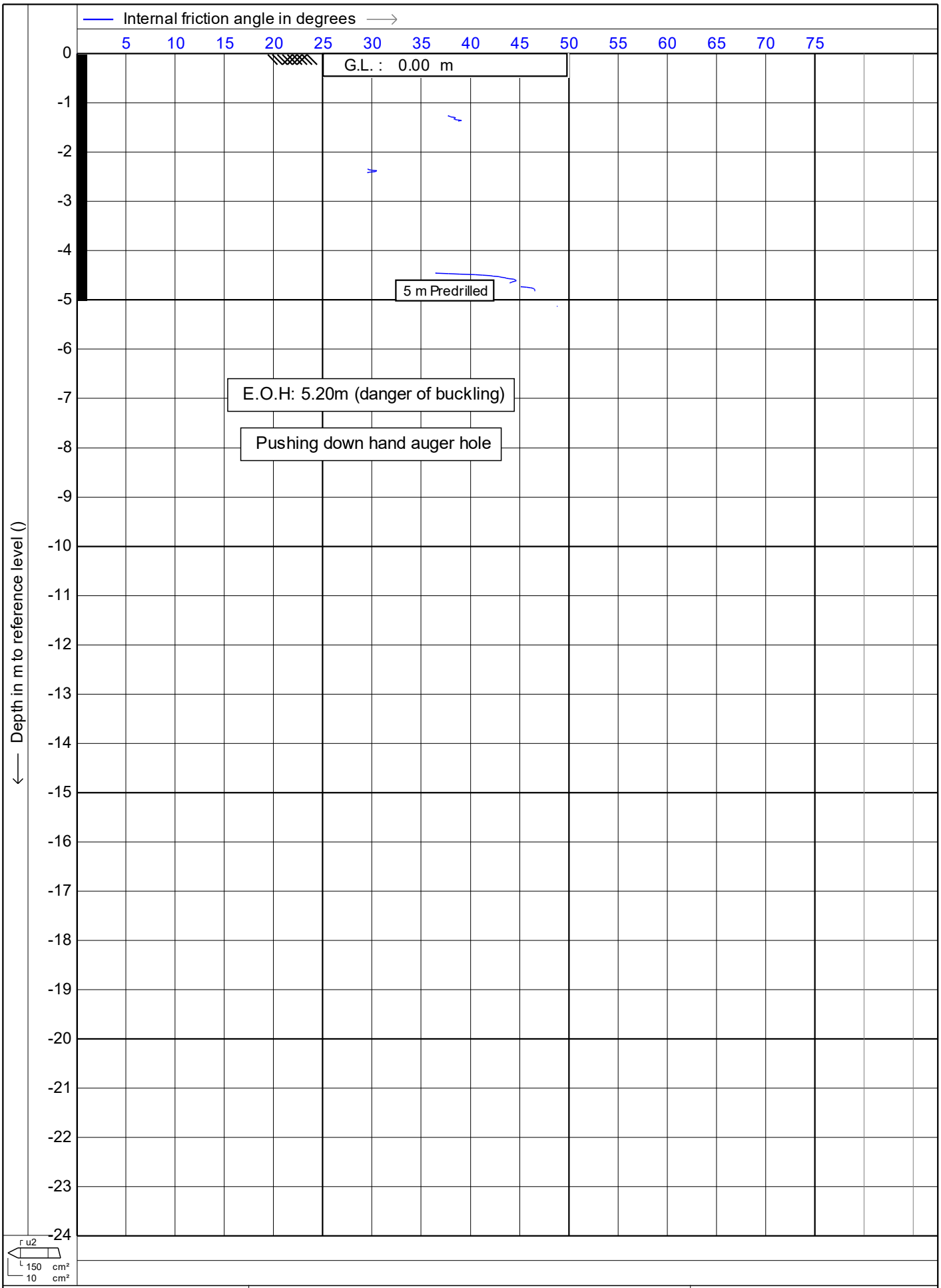
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02A**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

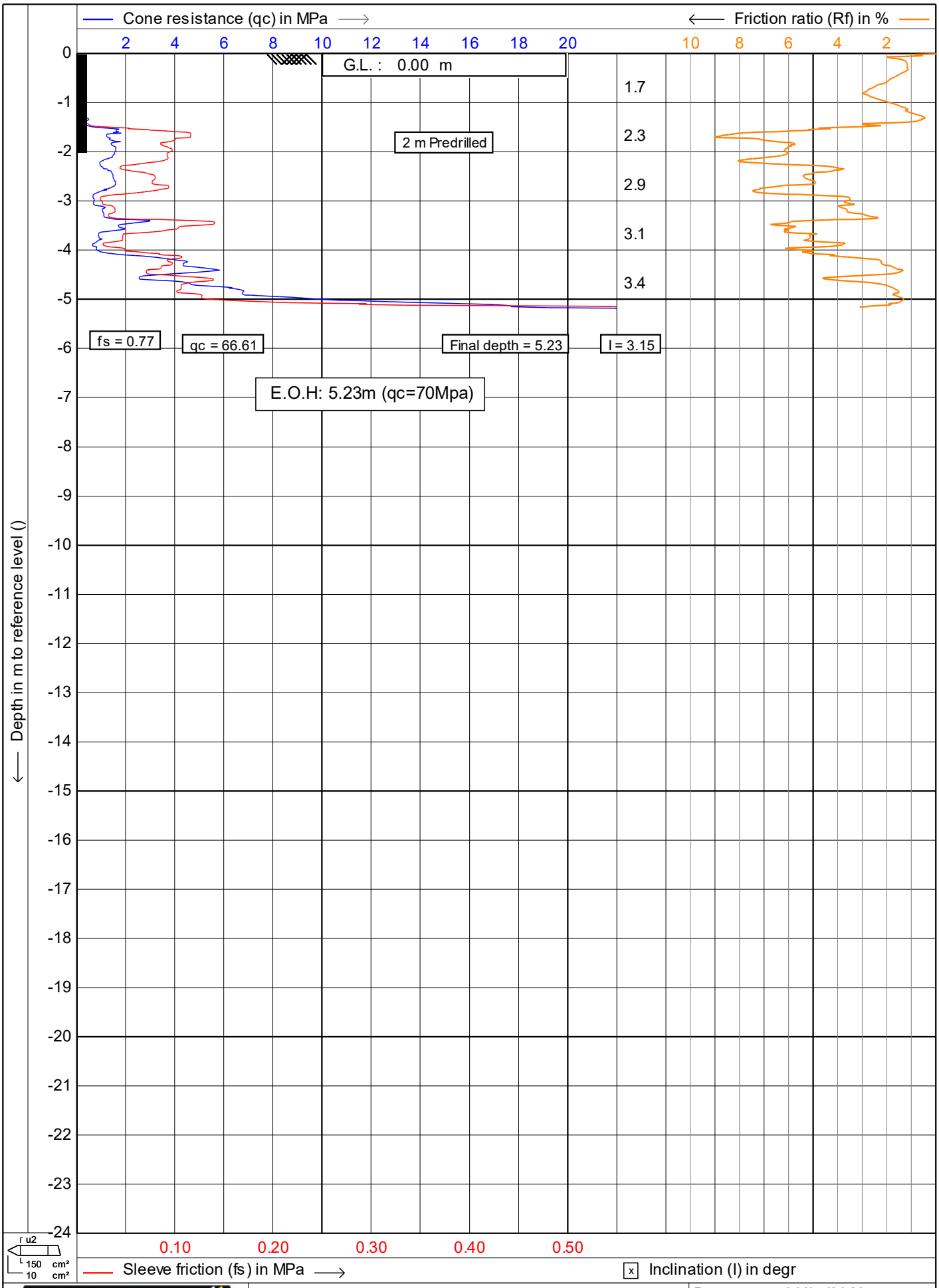
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073453, -39.058828 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_02A** **15/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

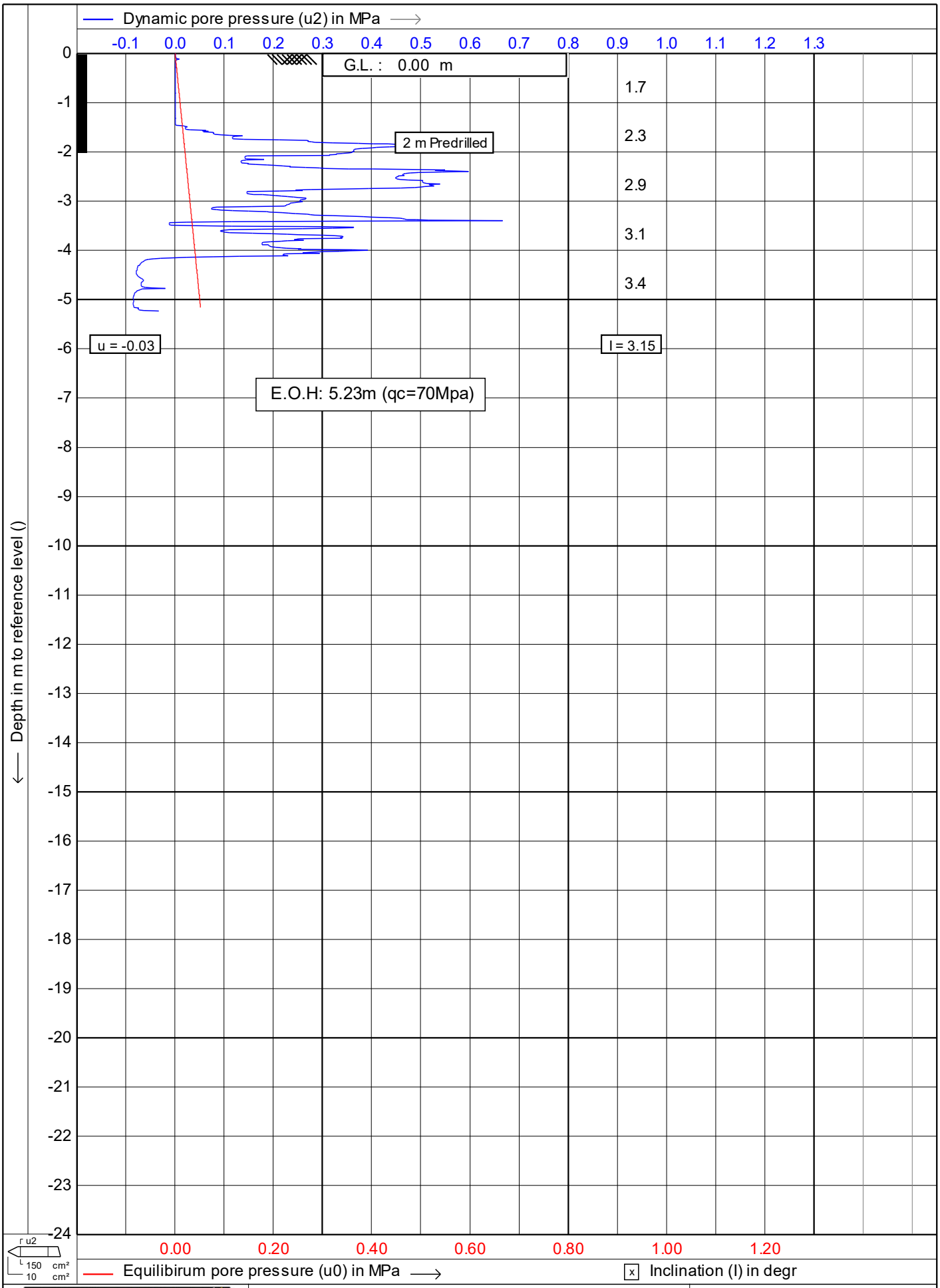
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03** 1/15

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

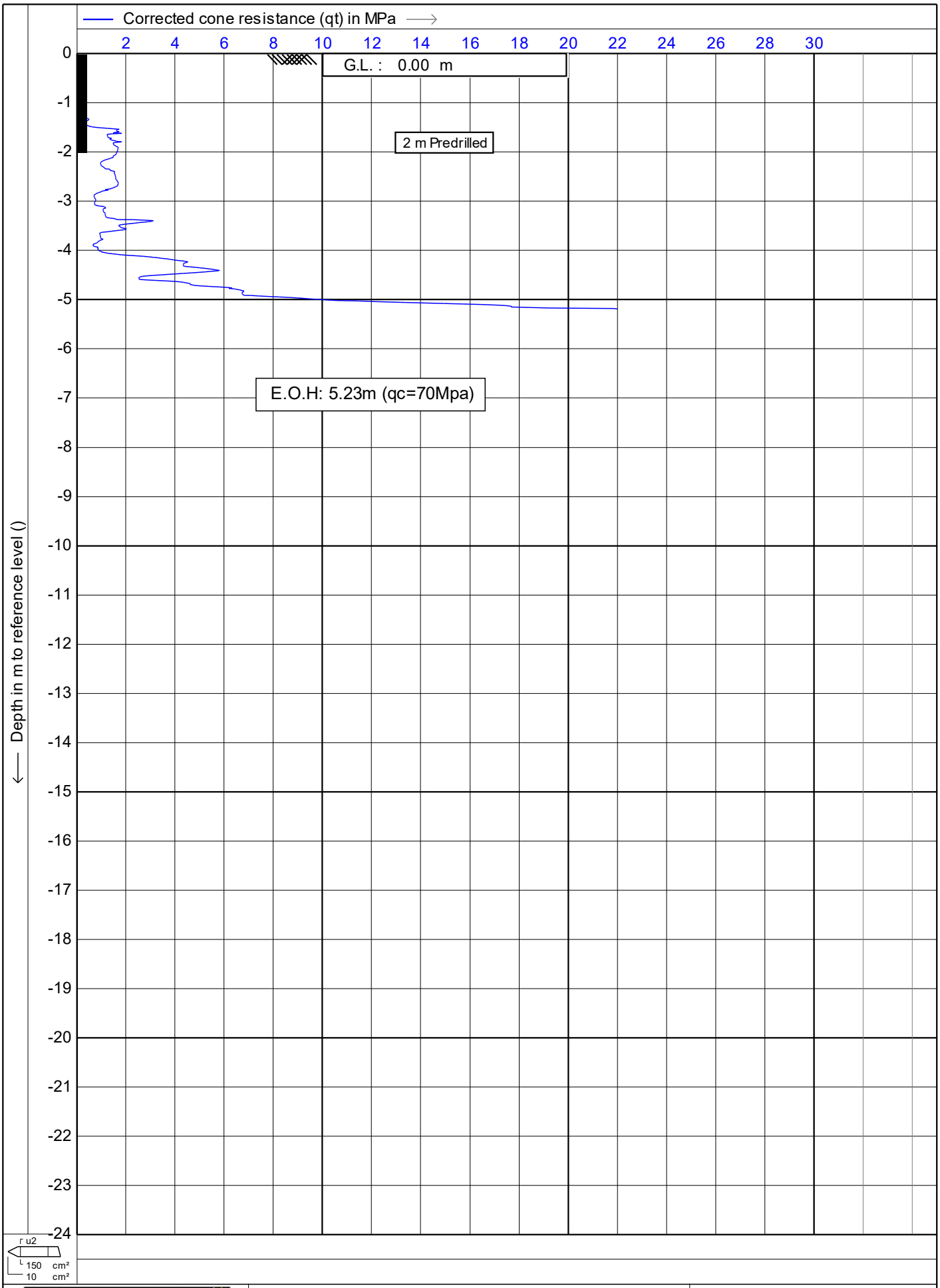
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

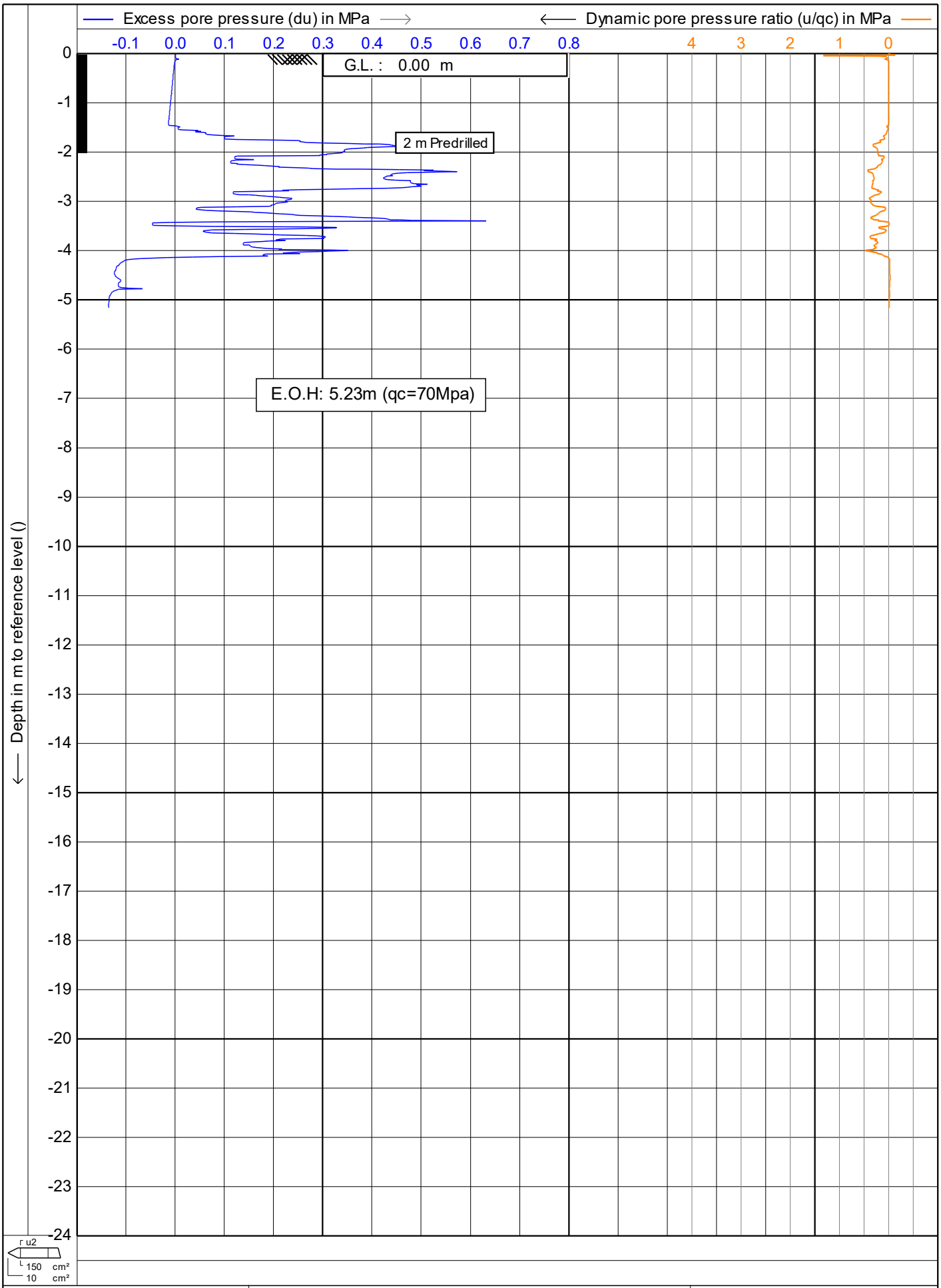
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03** **3/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

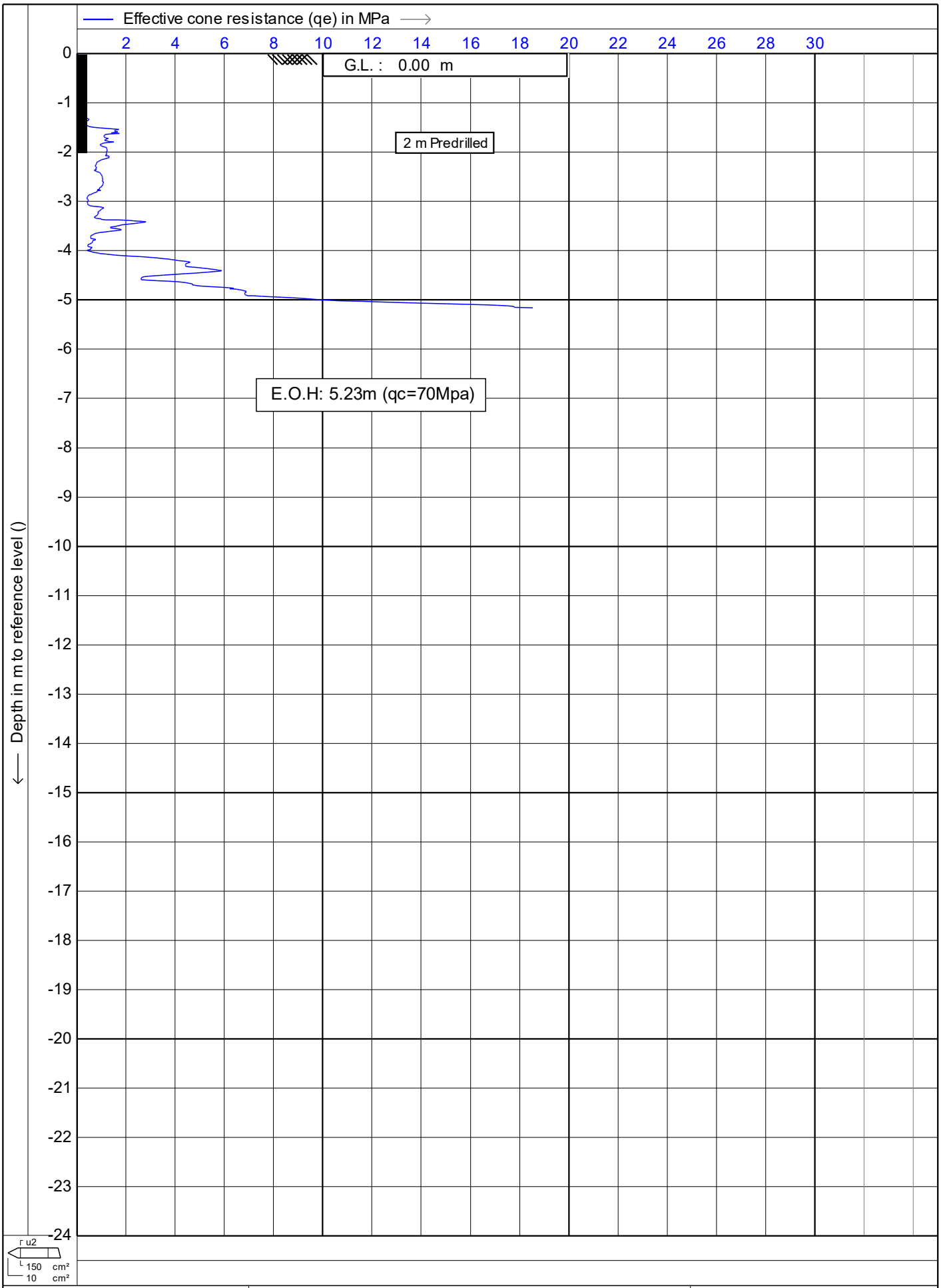
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03** **4/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

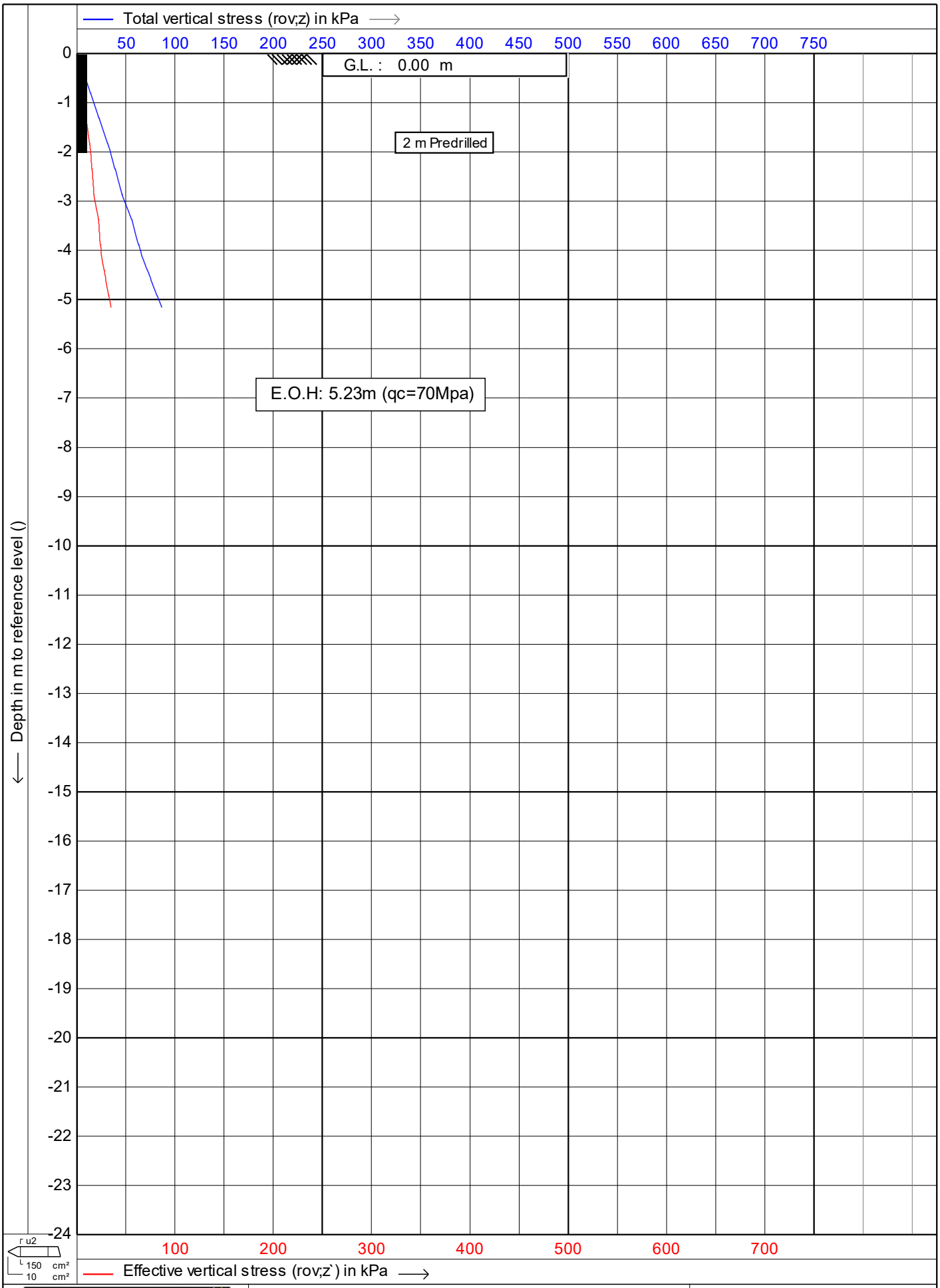
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03** **5/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

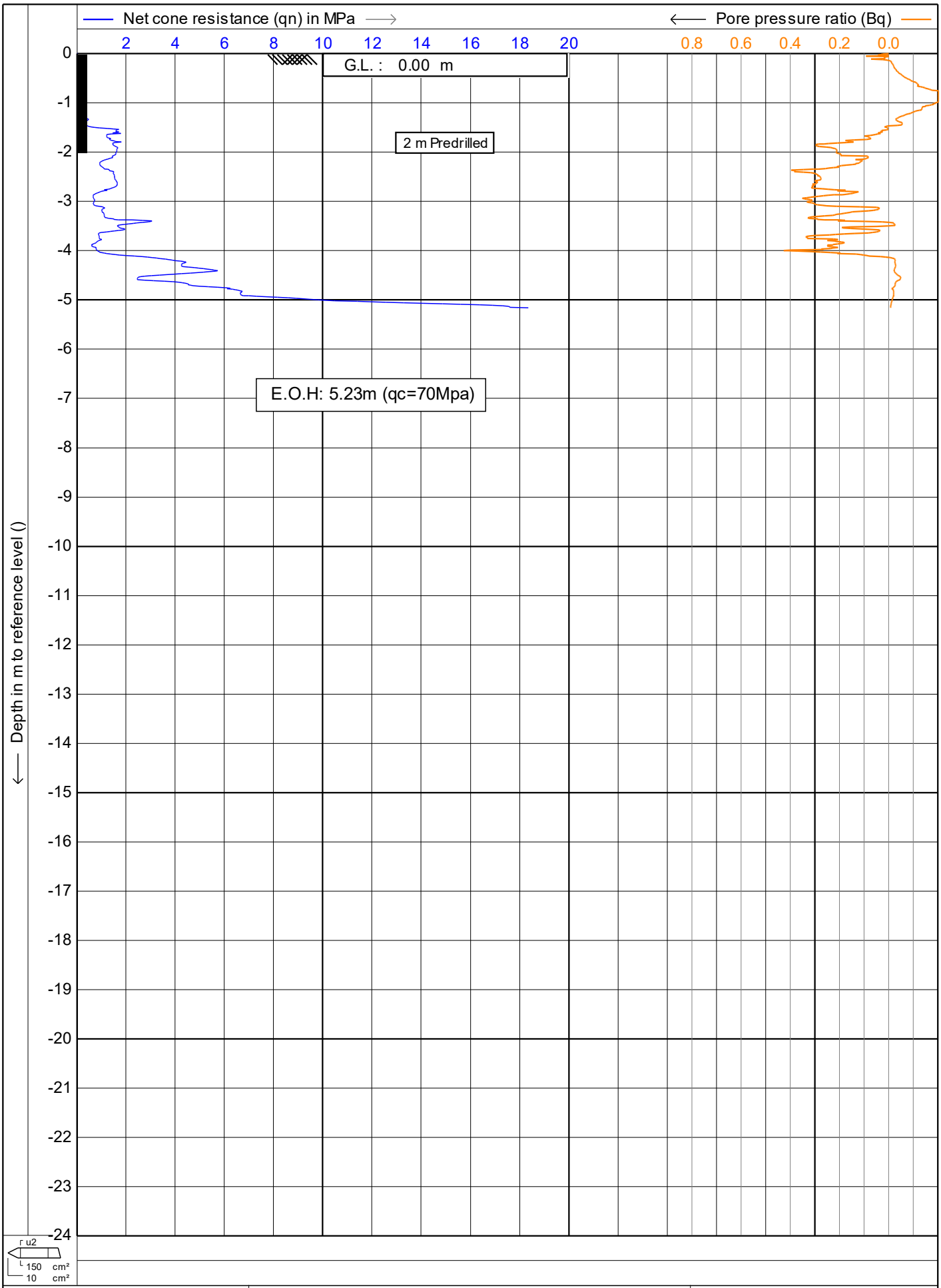
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03** **6/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

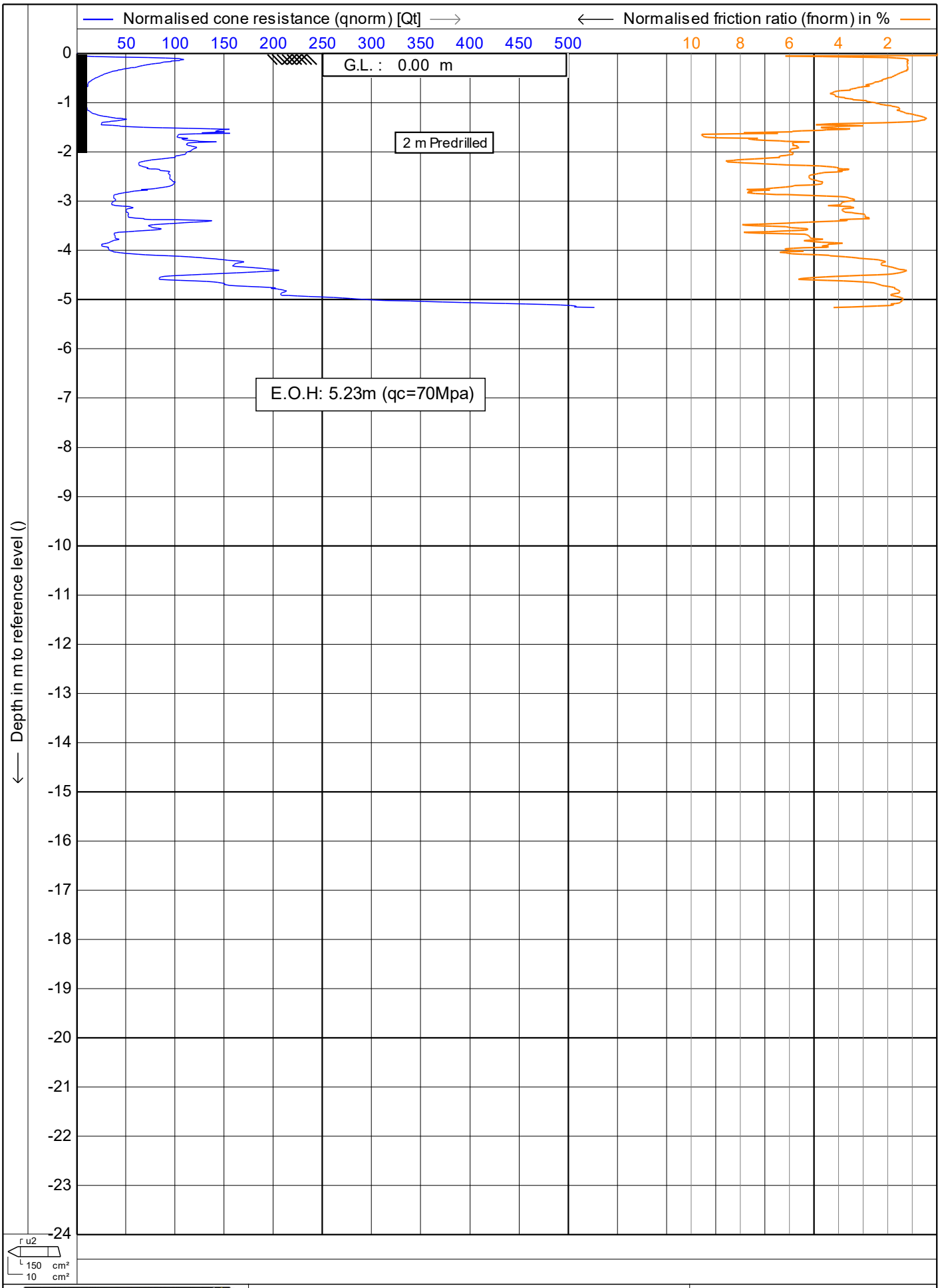
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03** **7/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

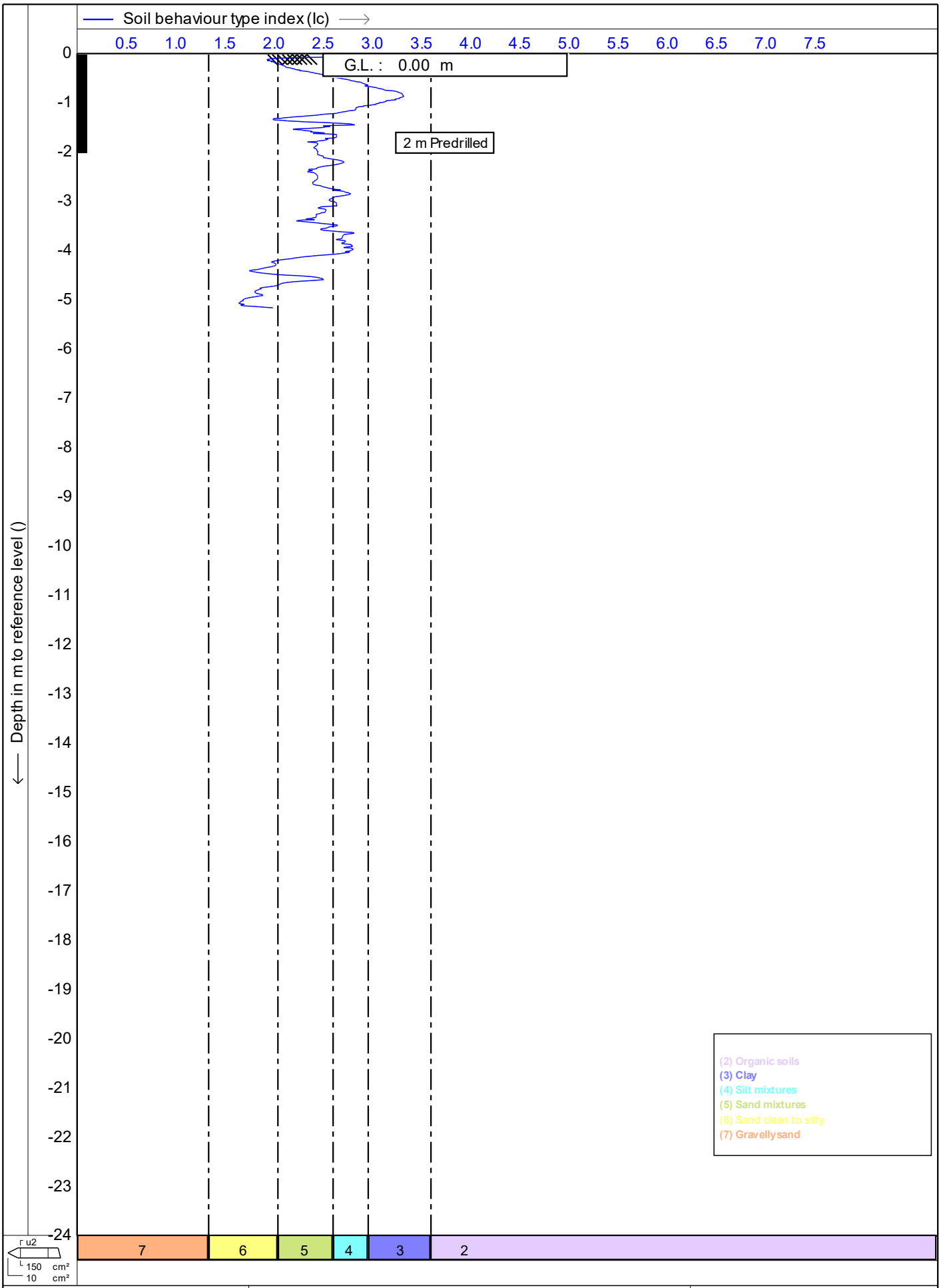
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03** **8/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

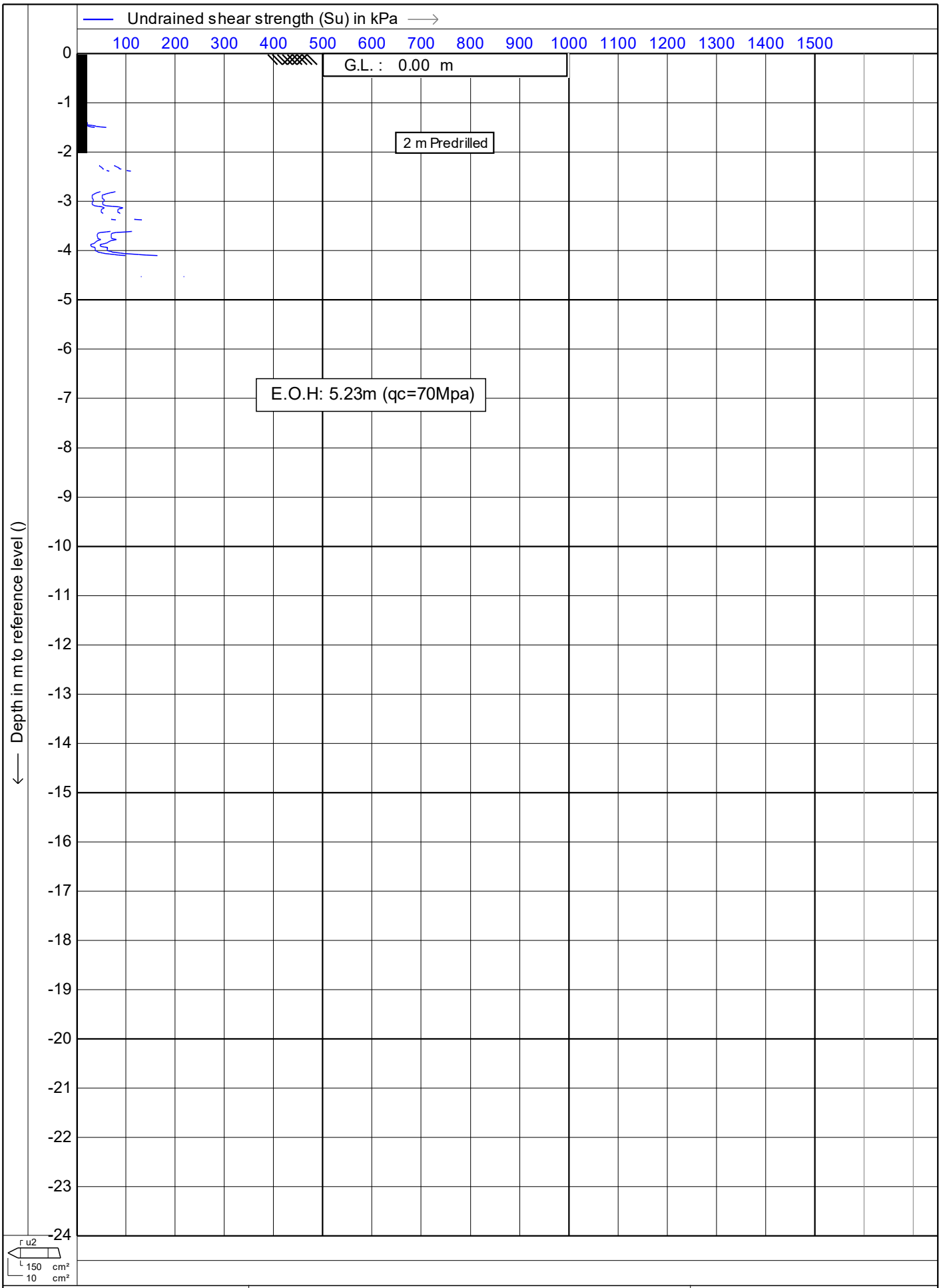
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03** **9/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

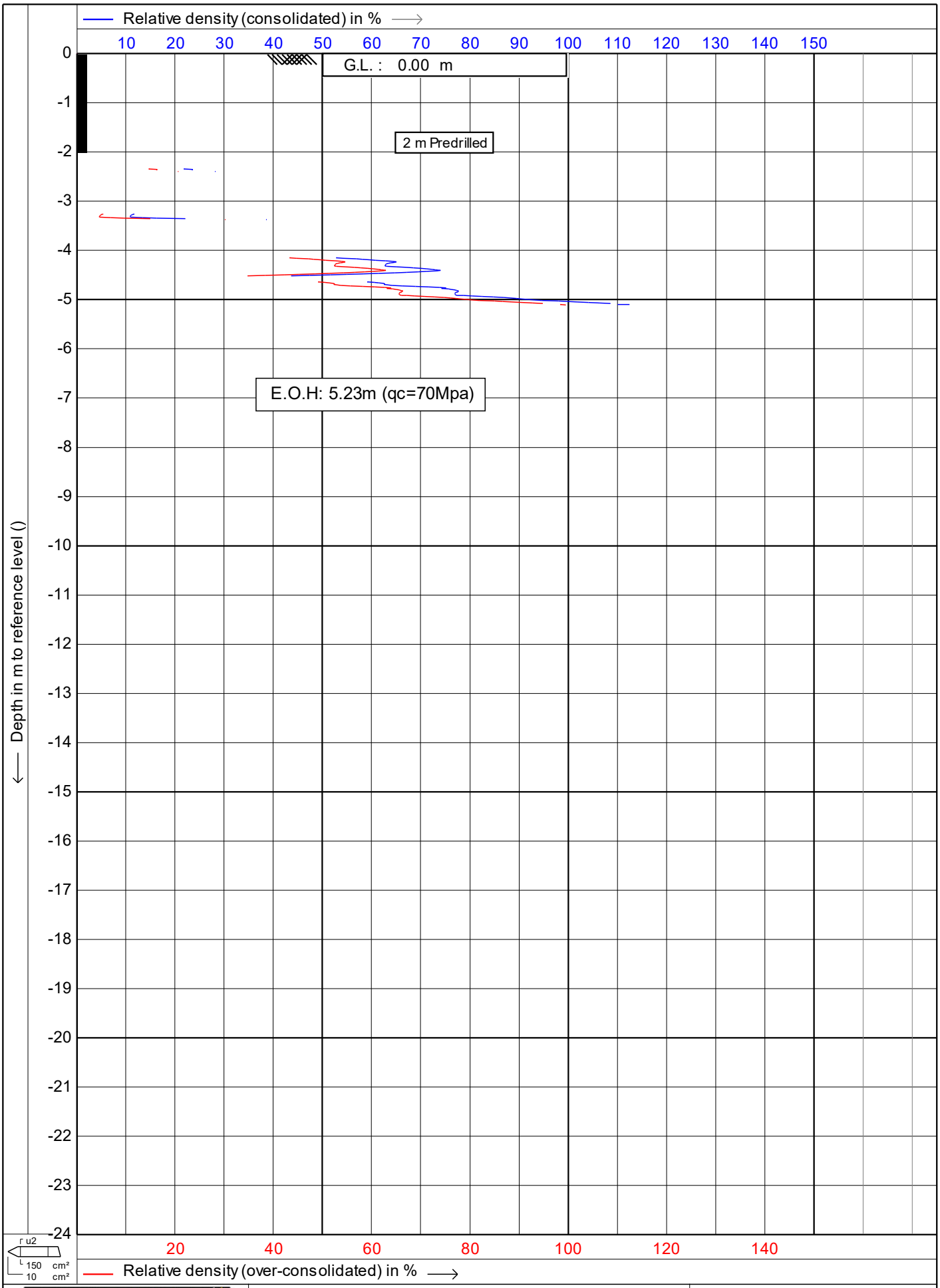
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03** **10/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

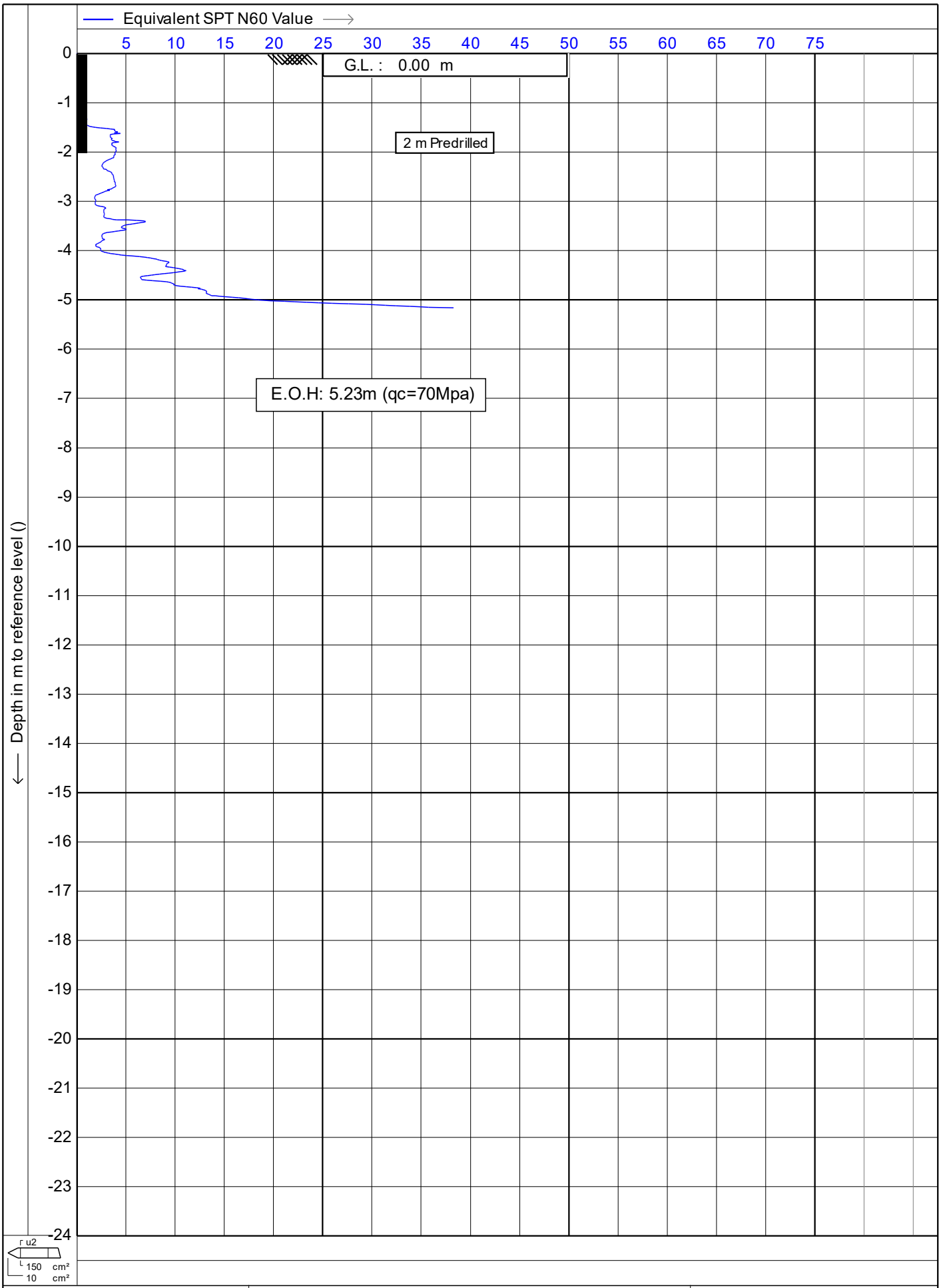
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03** **11/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

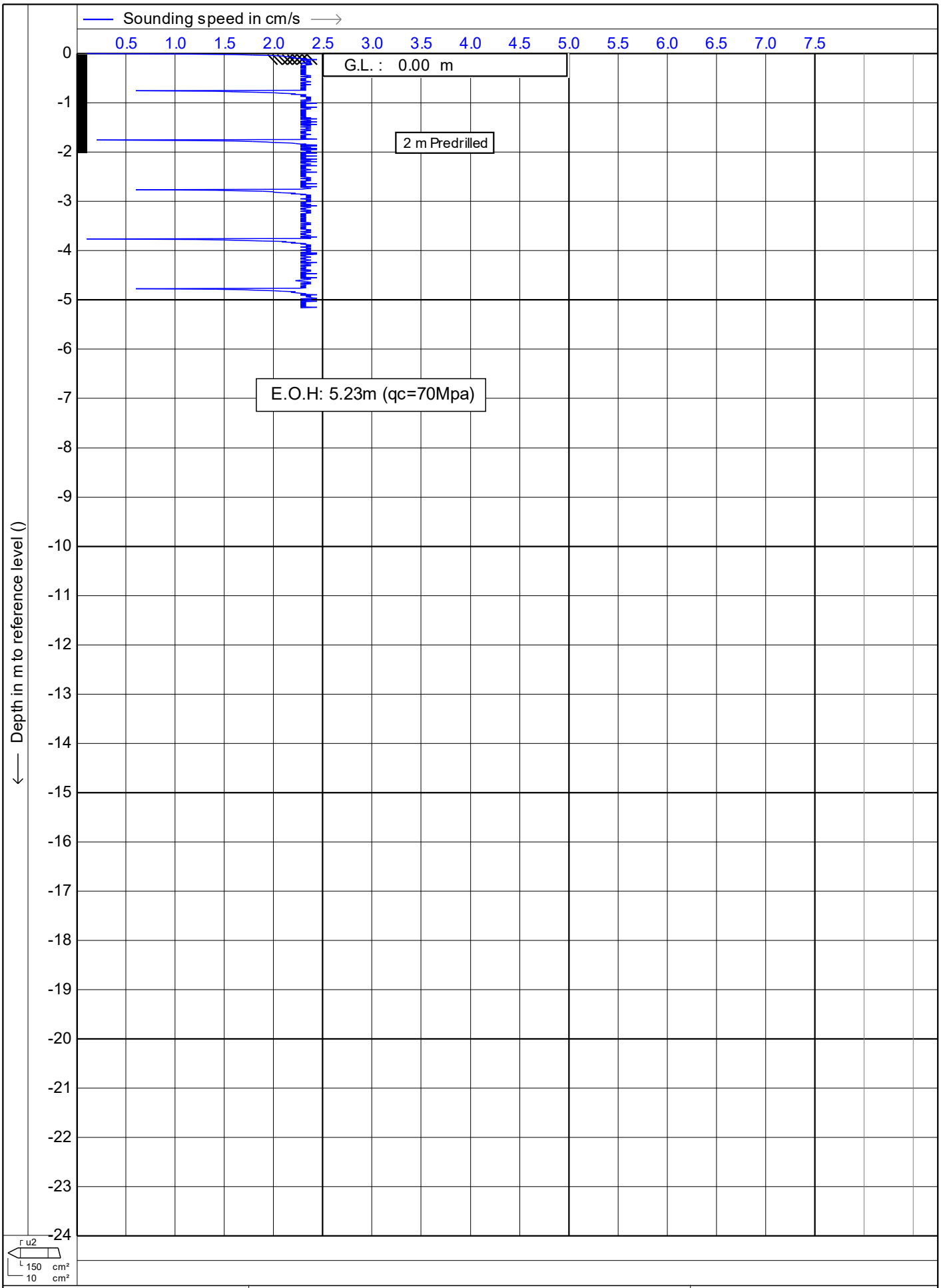
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03** 12/15

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

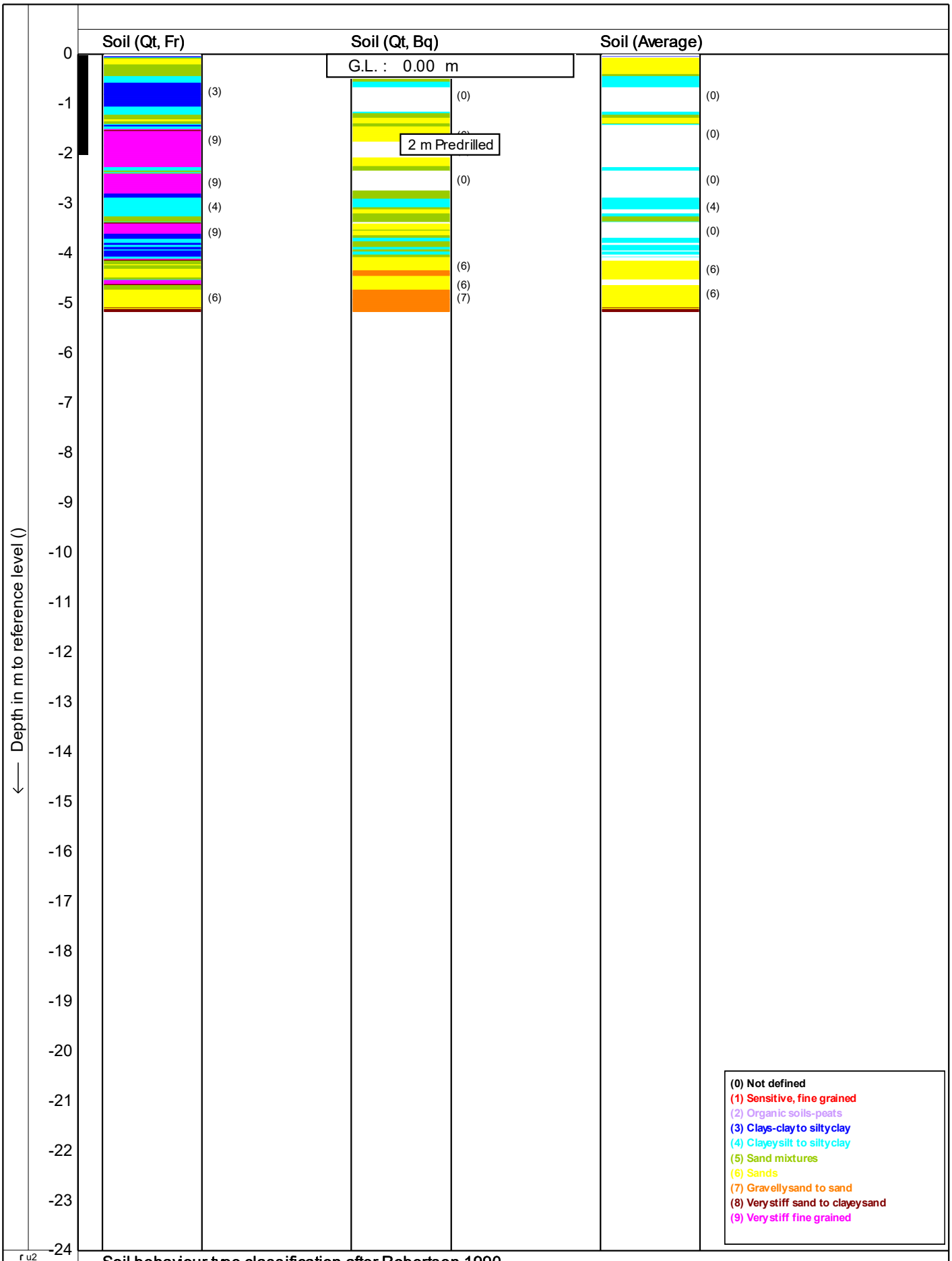
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03** **13/15**

1.47



Soil behaviour type classification after Robertson 1990

DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

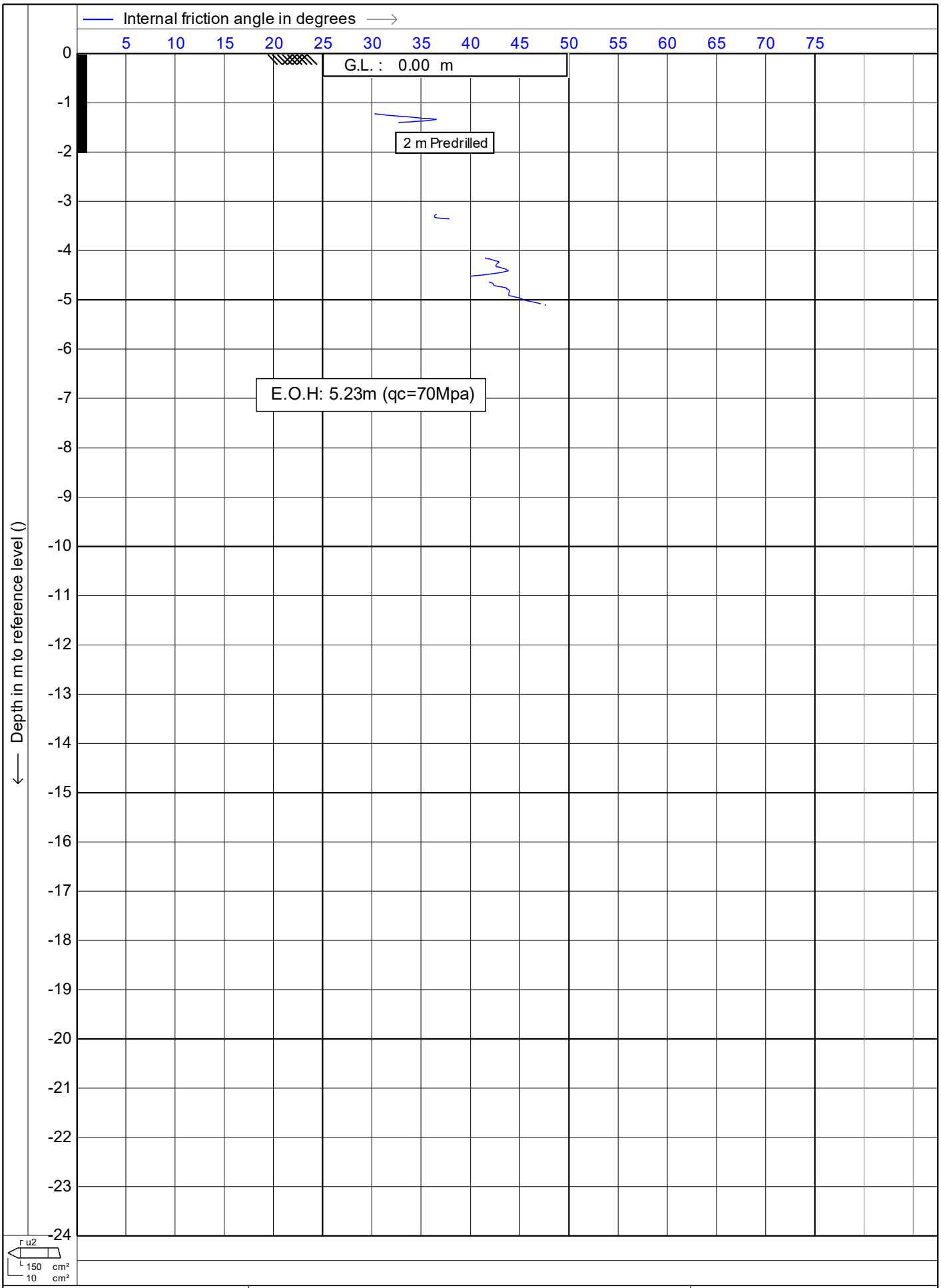
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03** **14/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

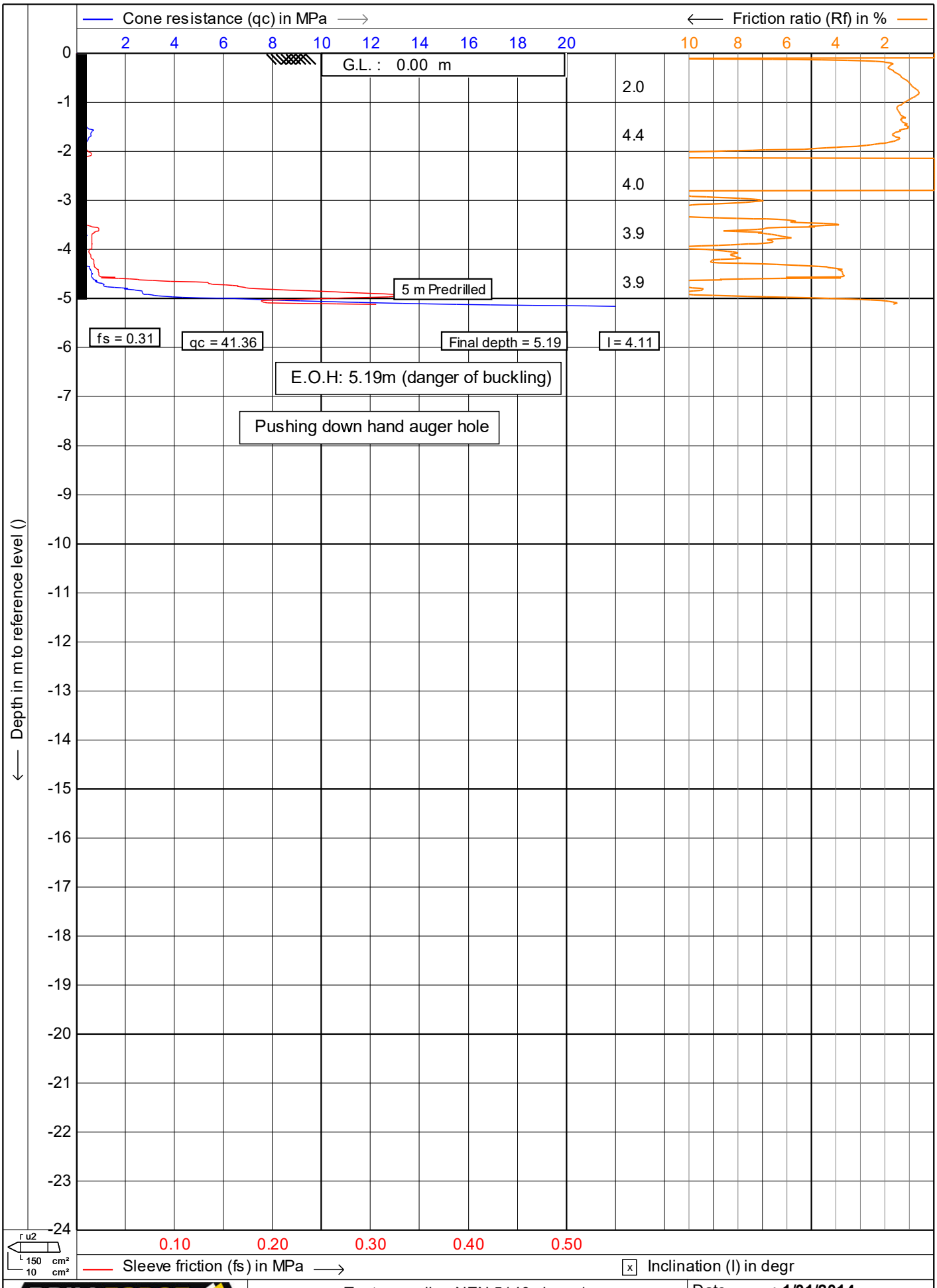
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **30/07/2019**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03** **15/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

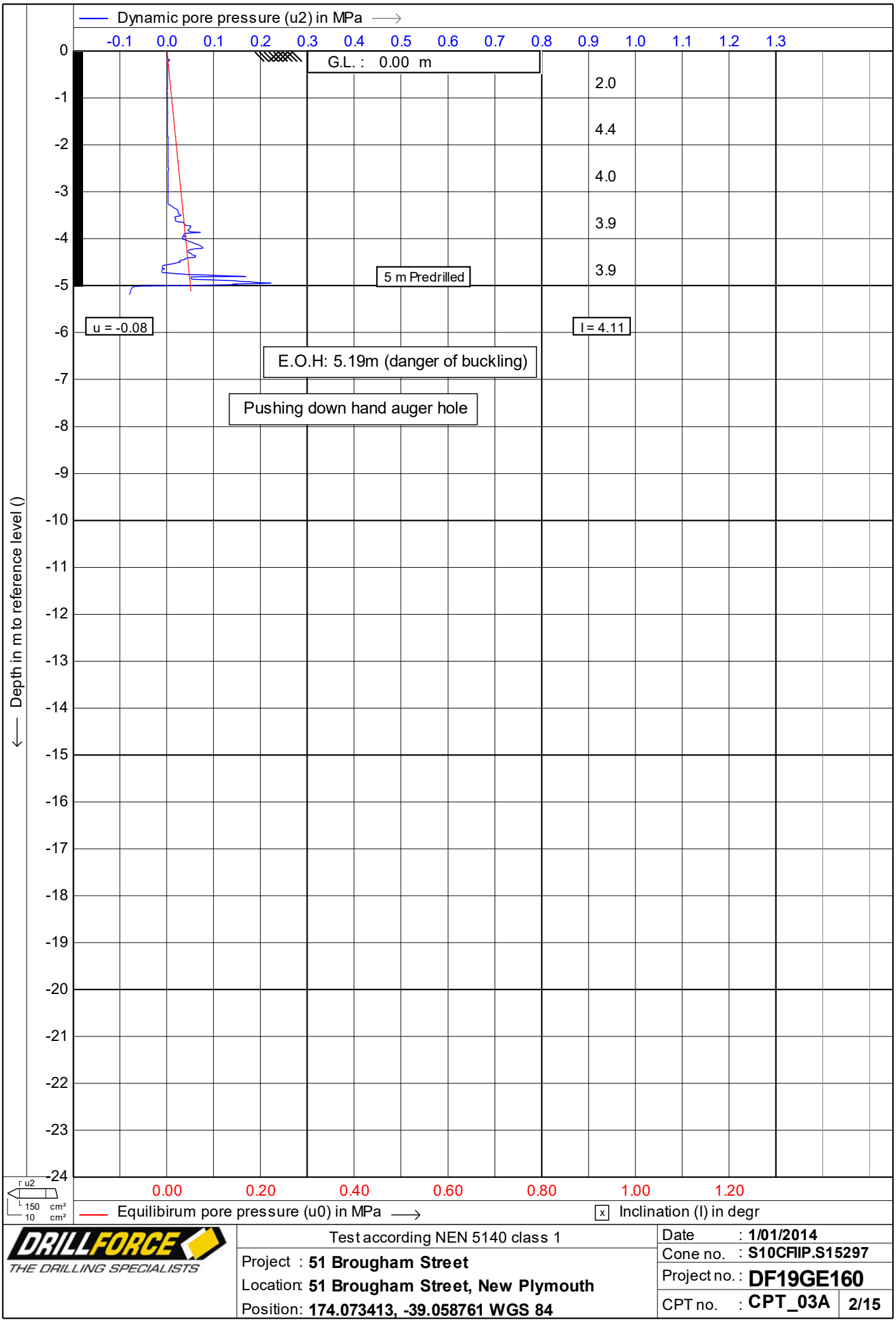
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03A** **1/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

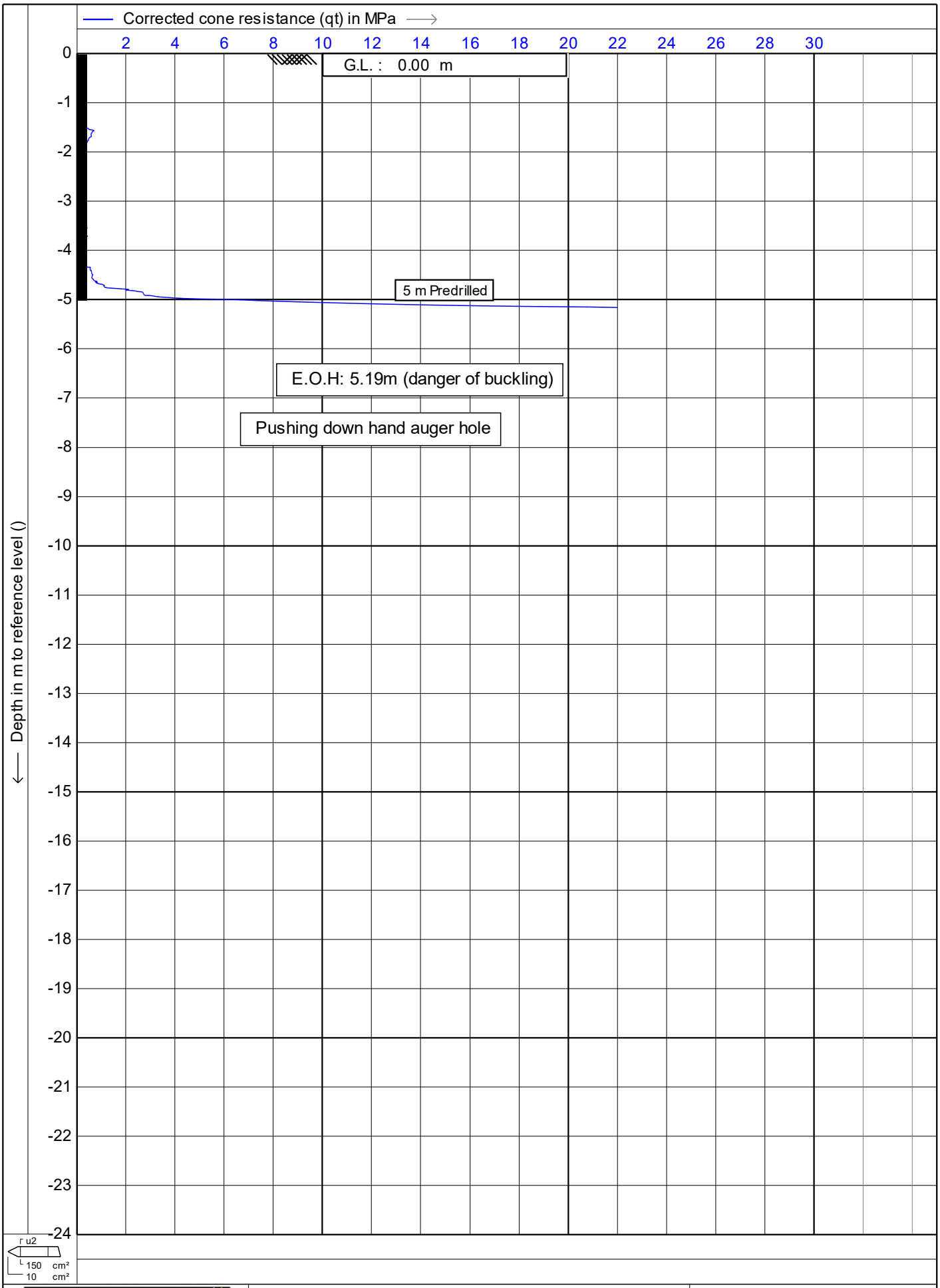
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03A** **2/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

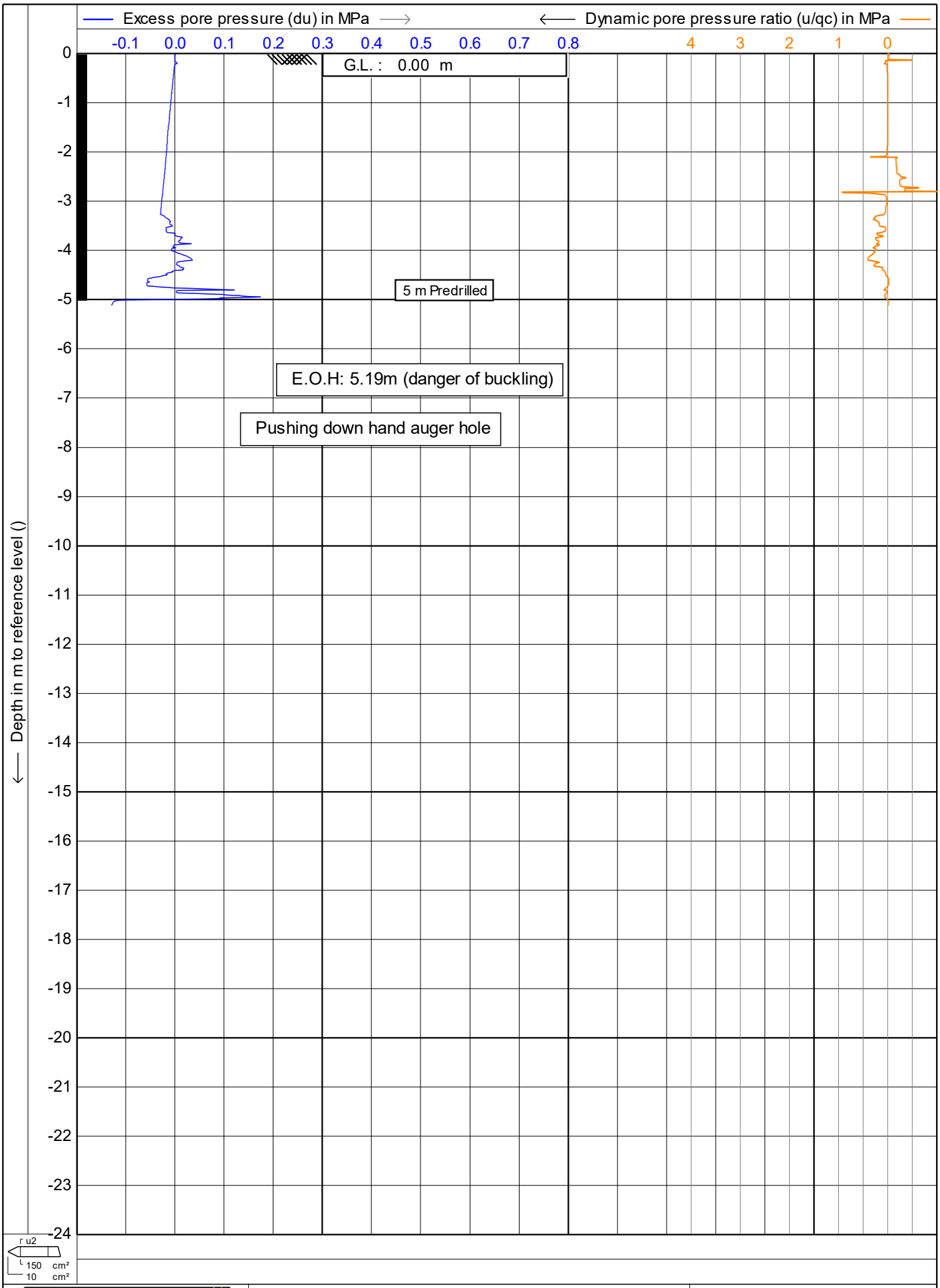
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03A** **3/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

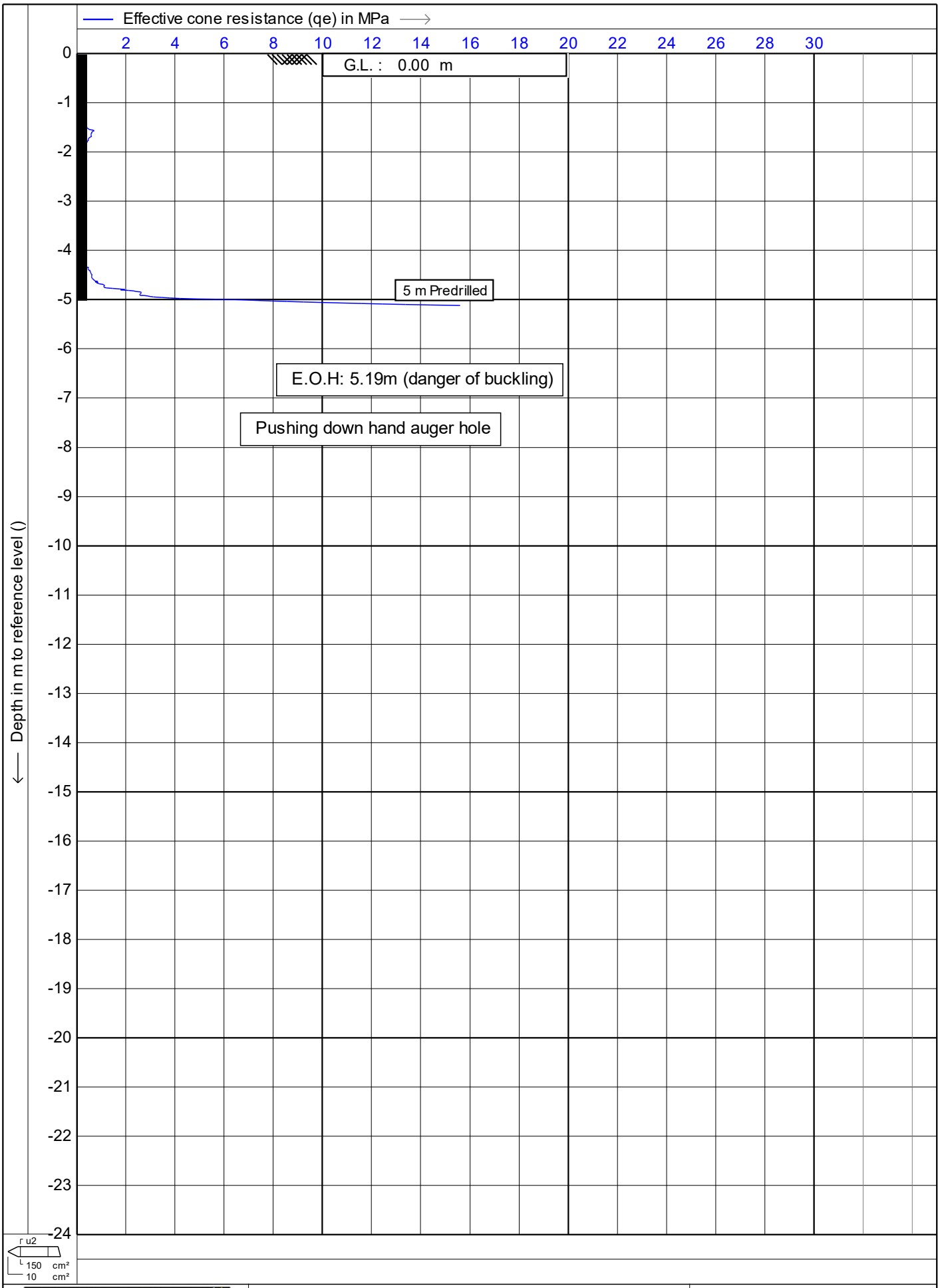
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03A** **4/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

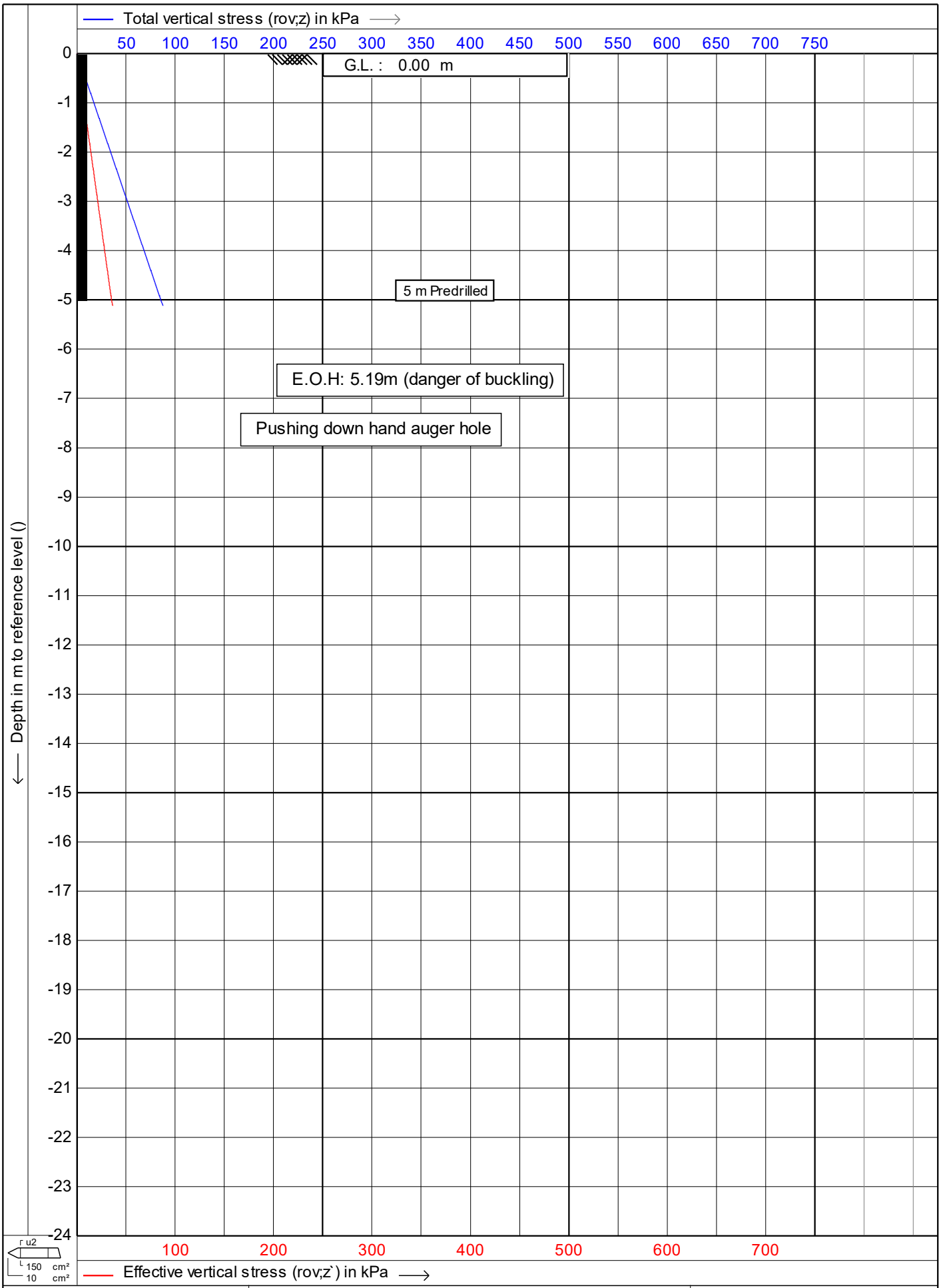
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03A** **5/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

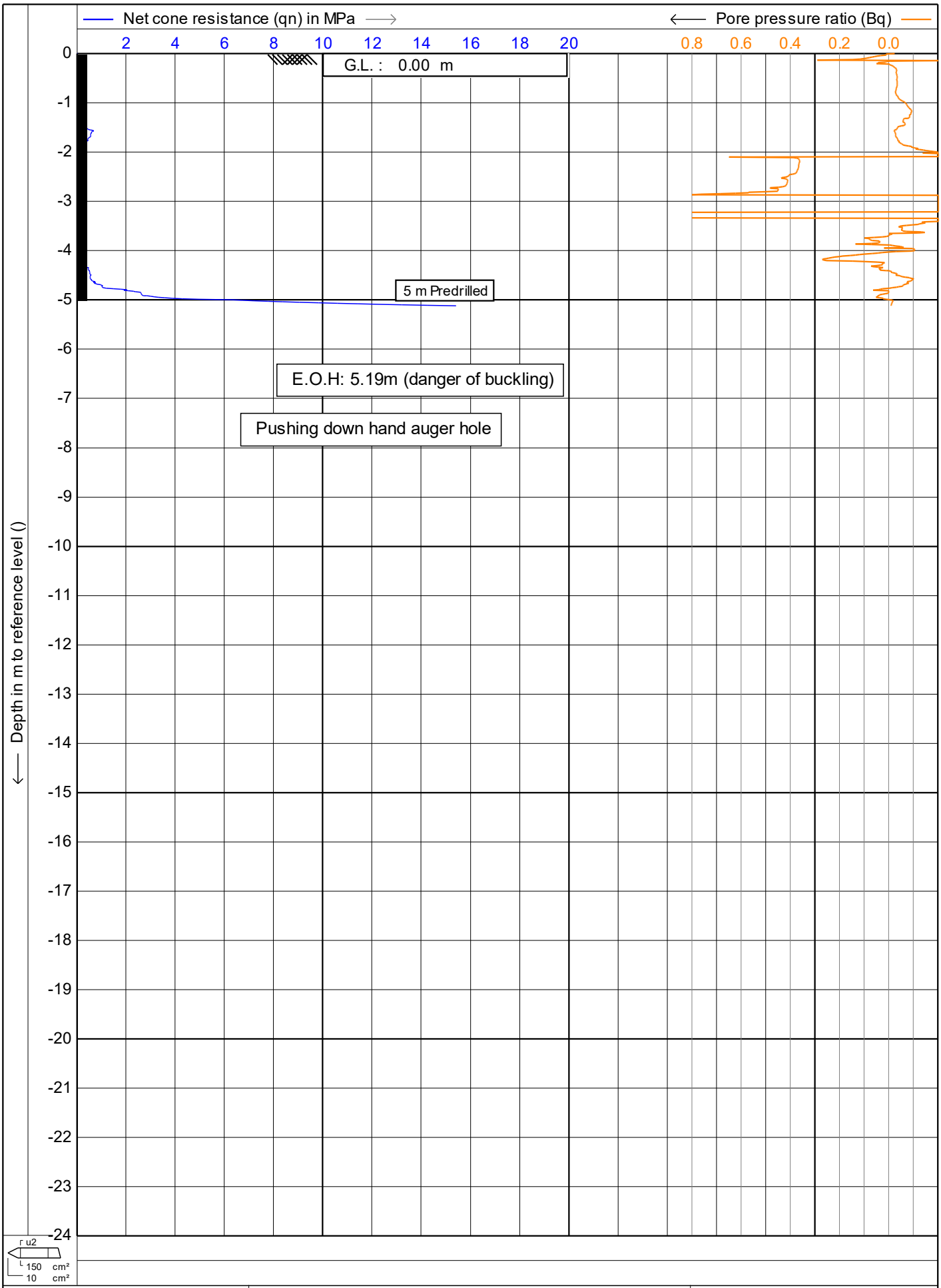
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03A** **6/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

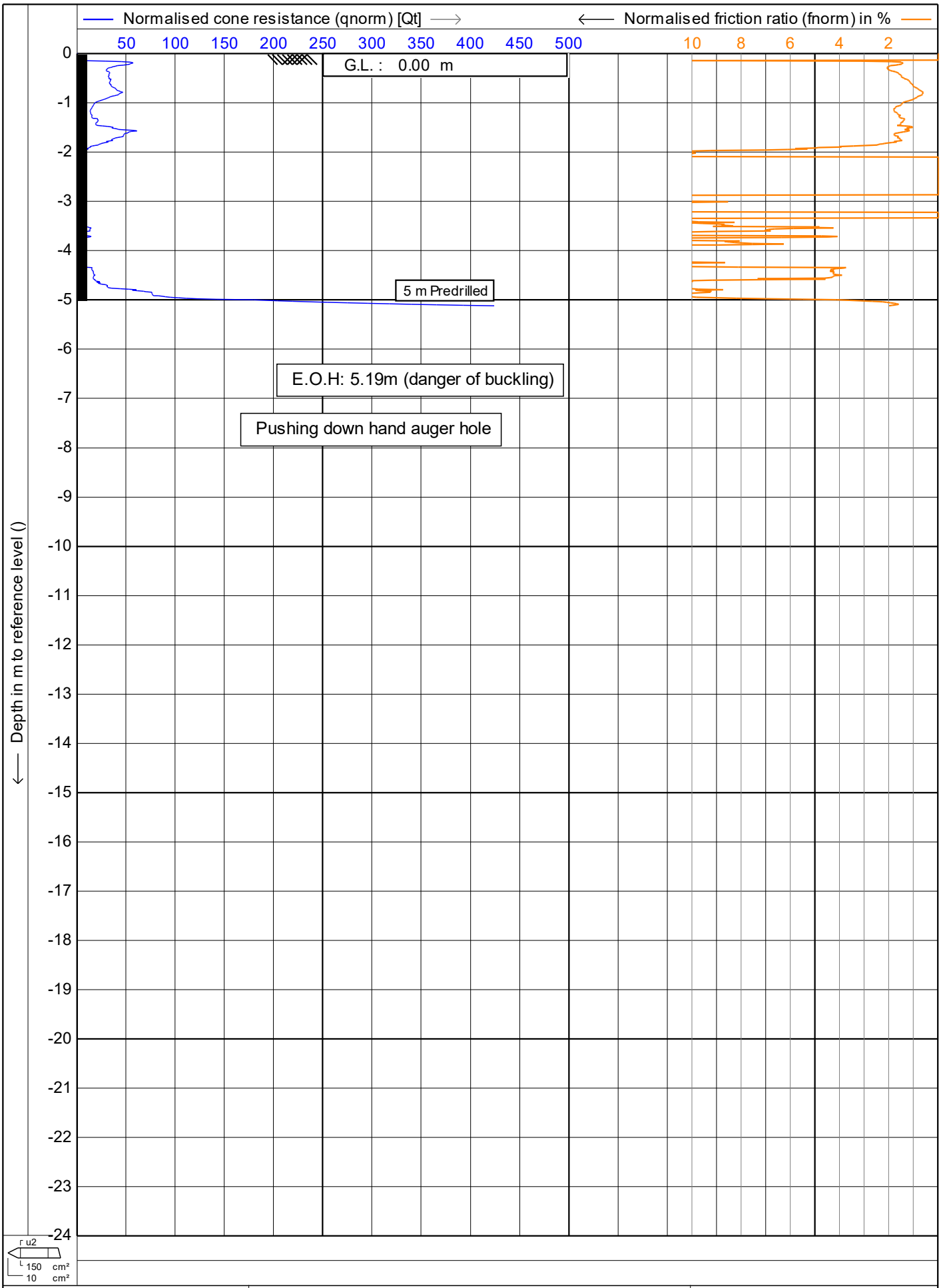
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03A** **7/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

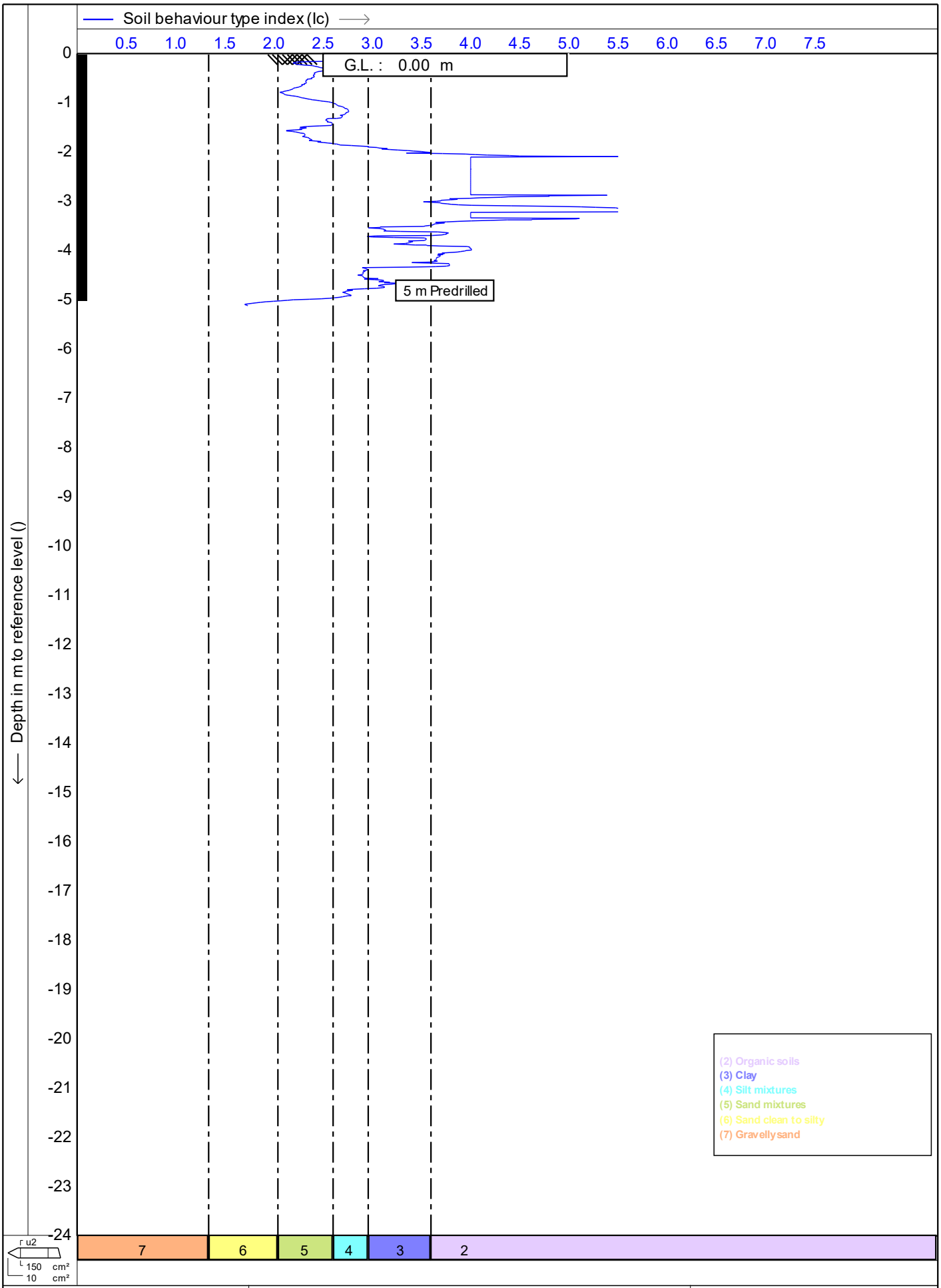
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03A** **8/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

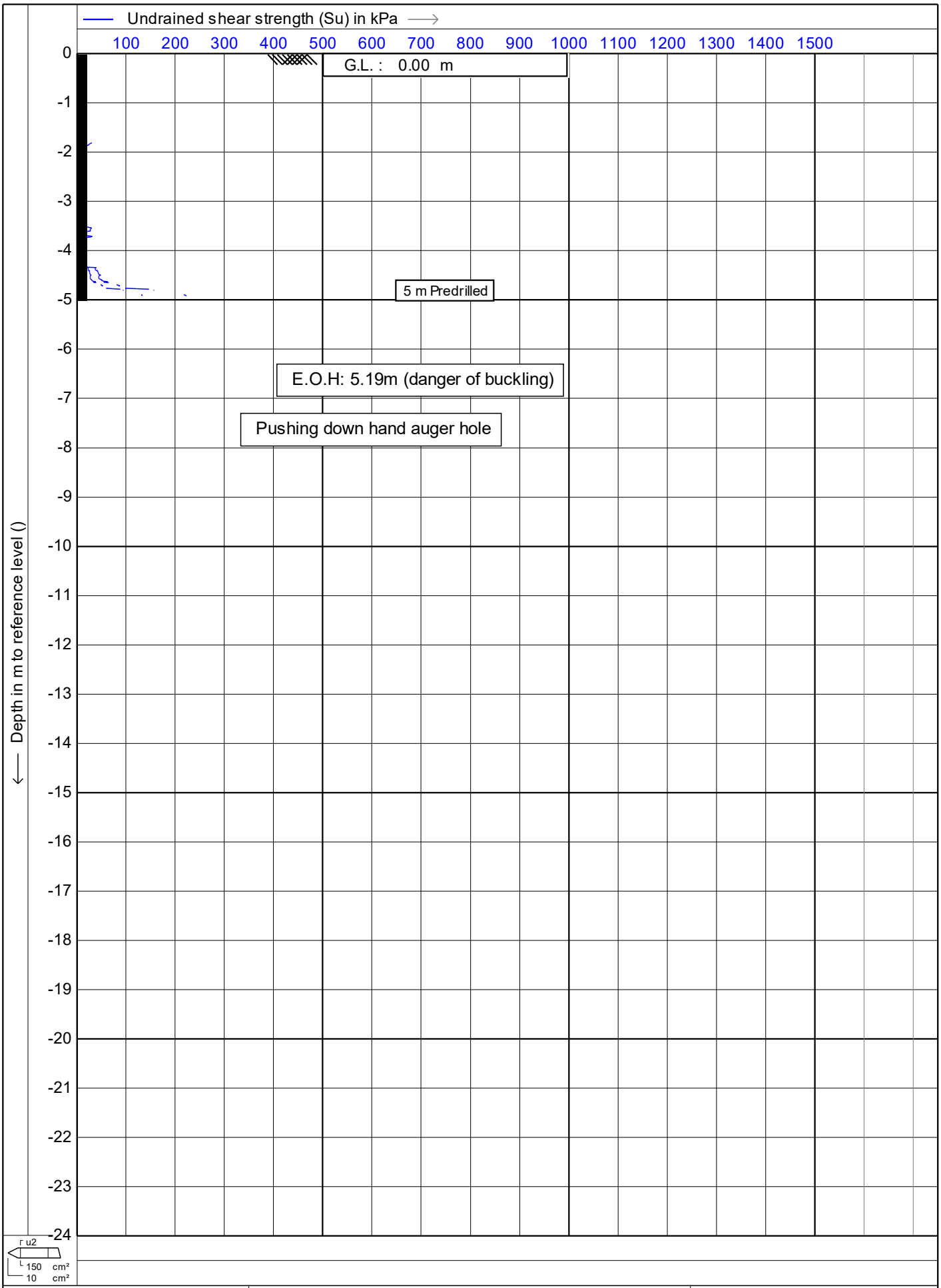
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03A** **9/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

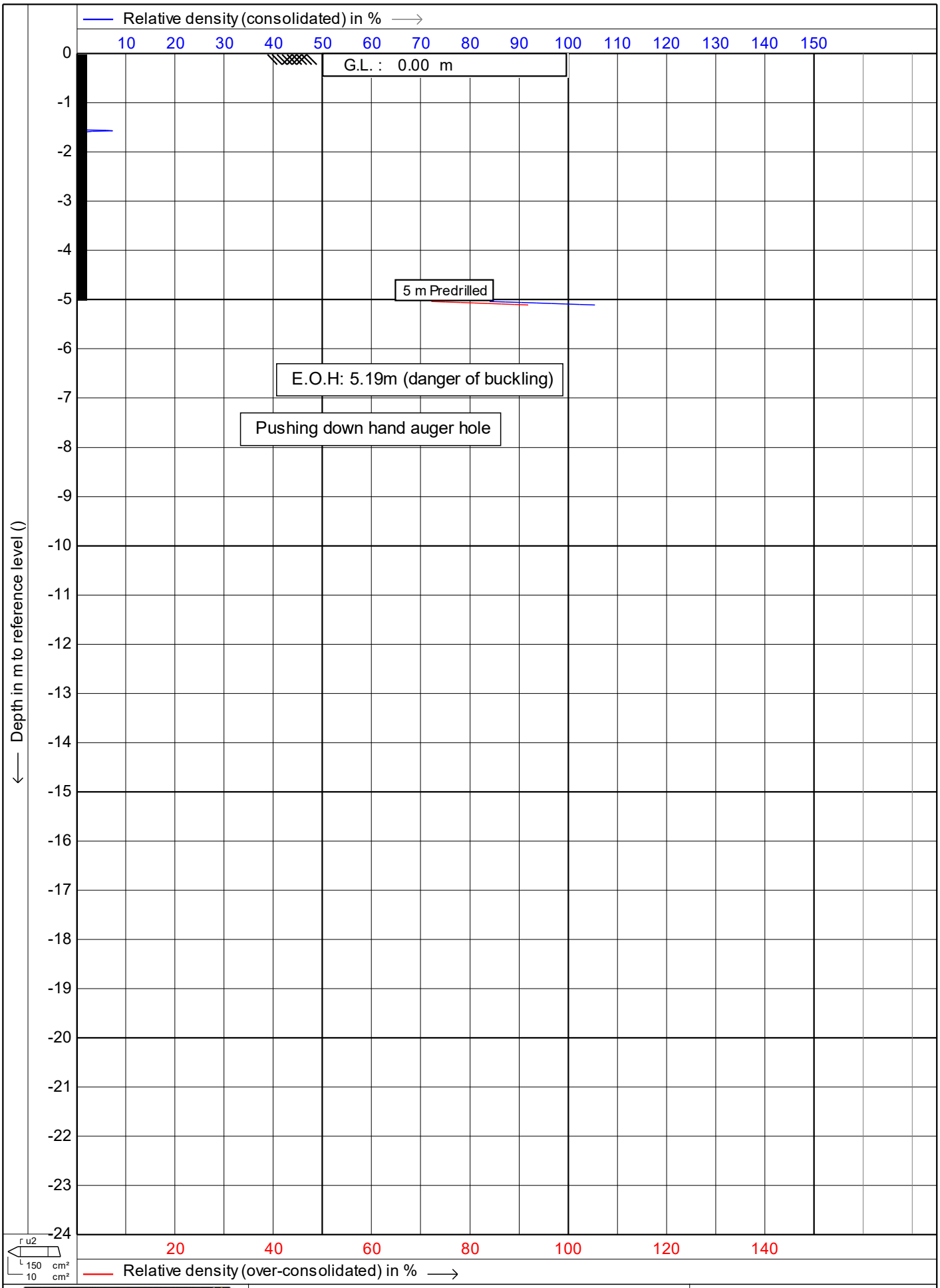
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03A** **10/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

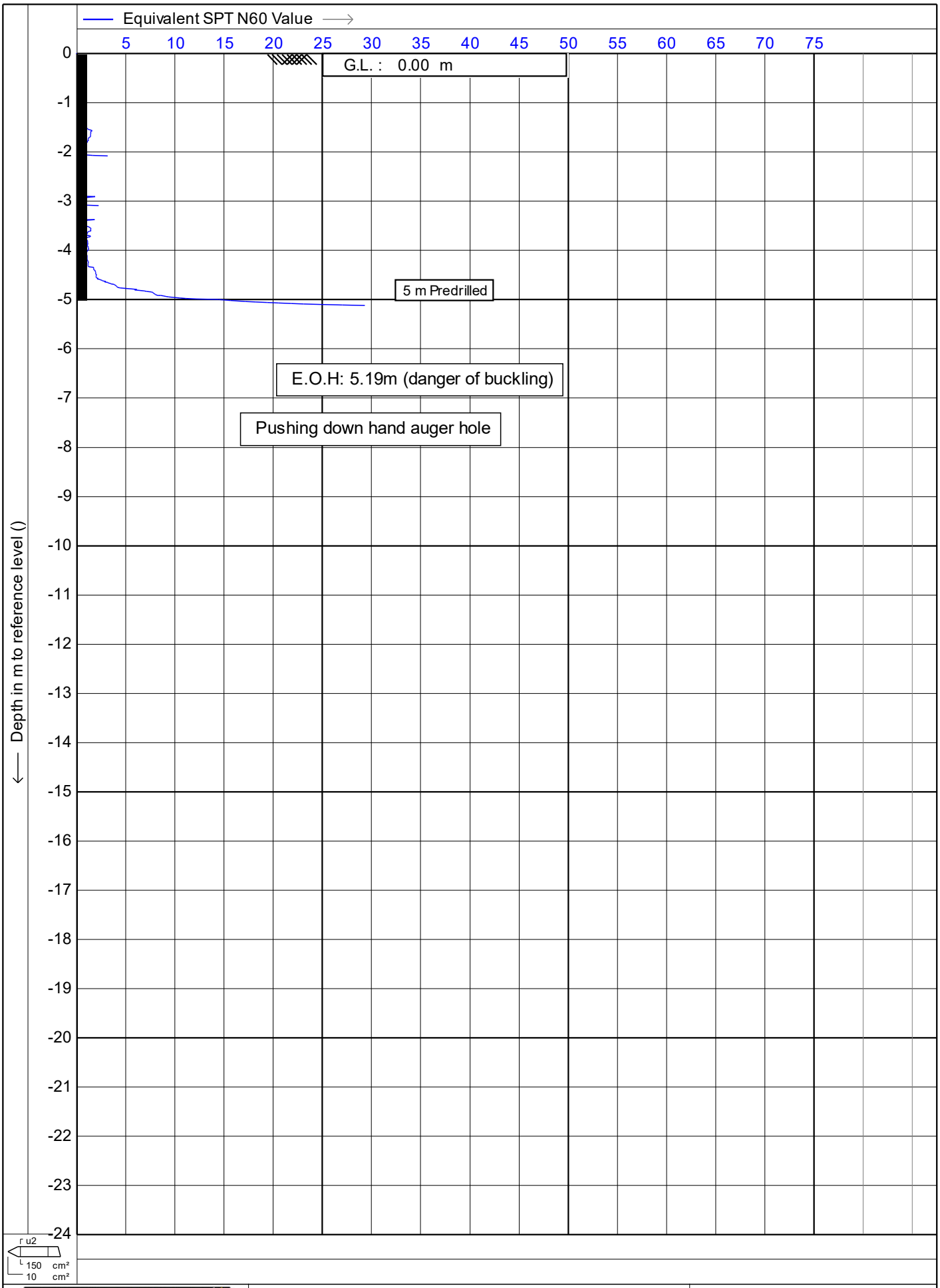
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03A** **11/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

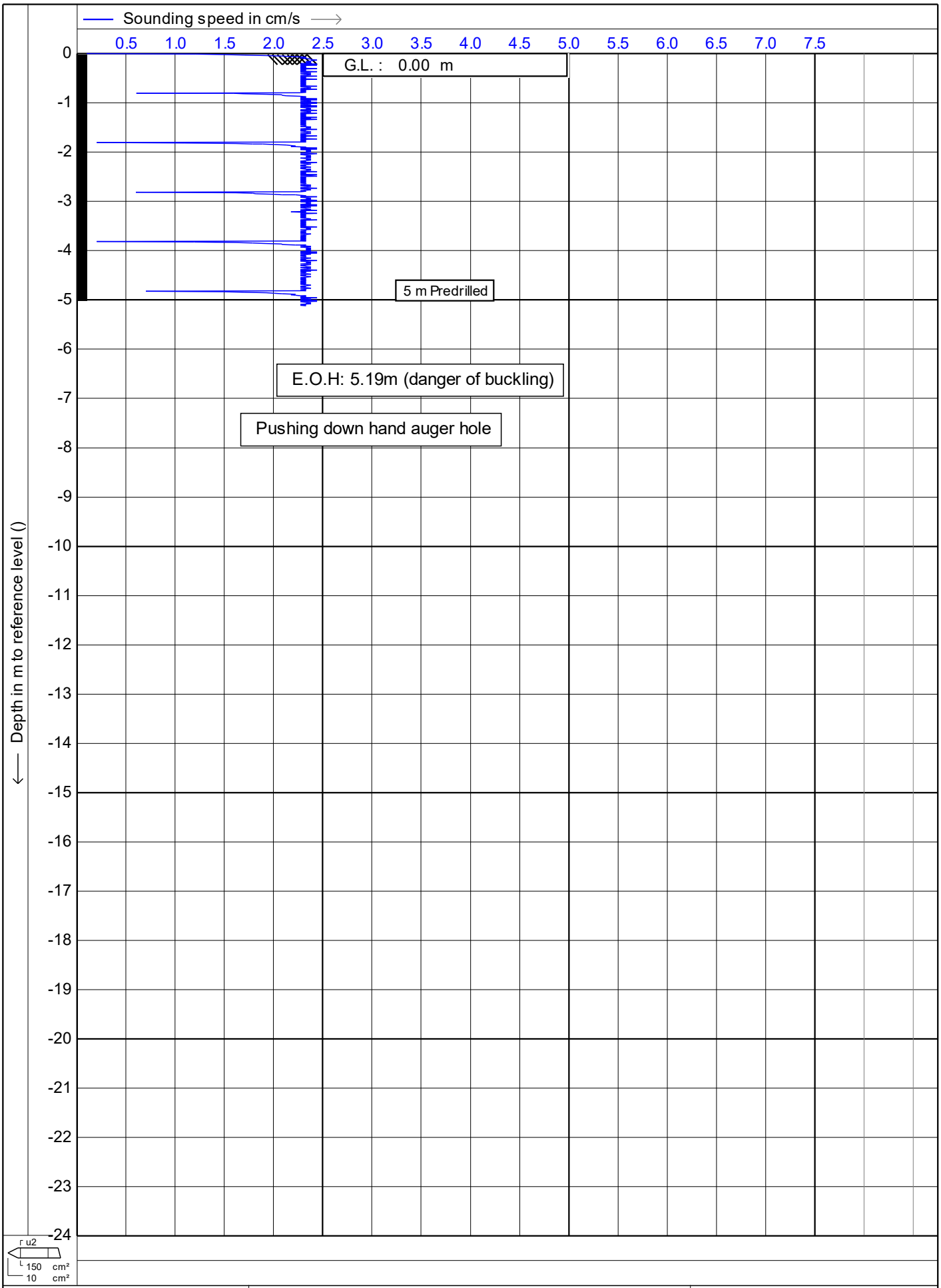
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03A** **12/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

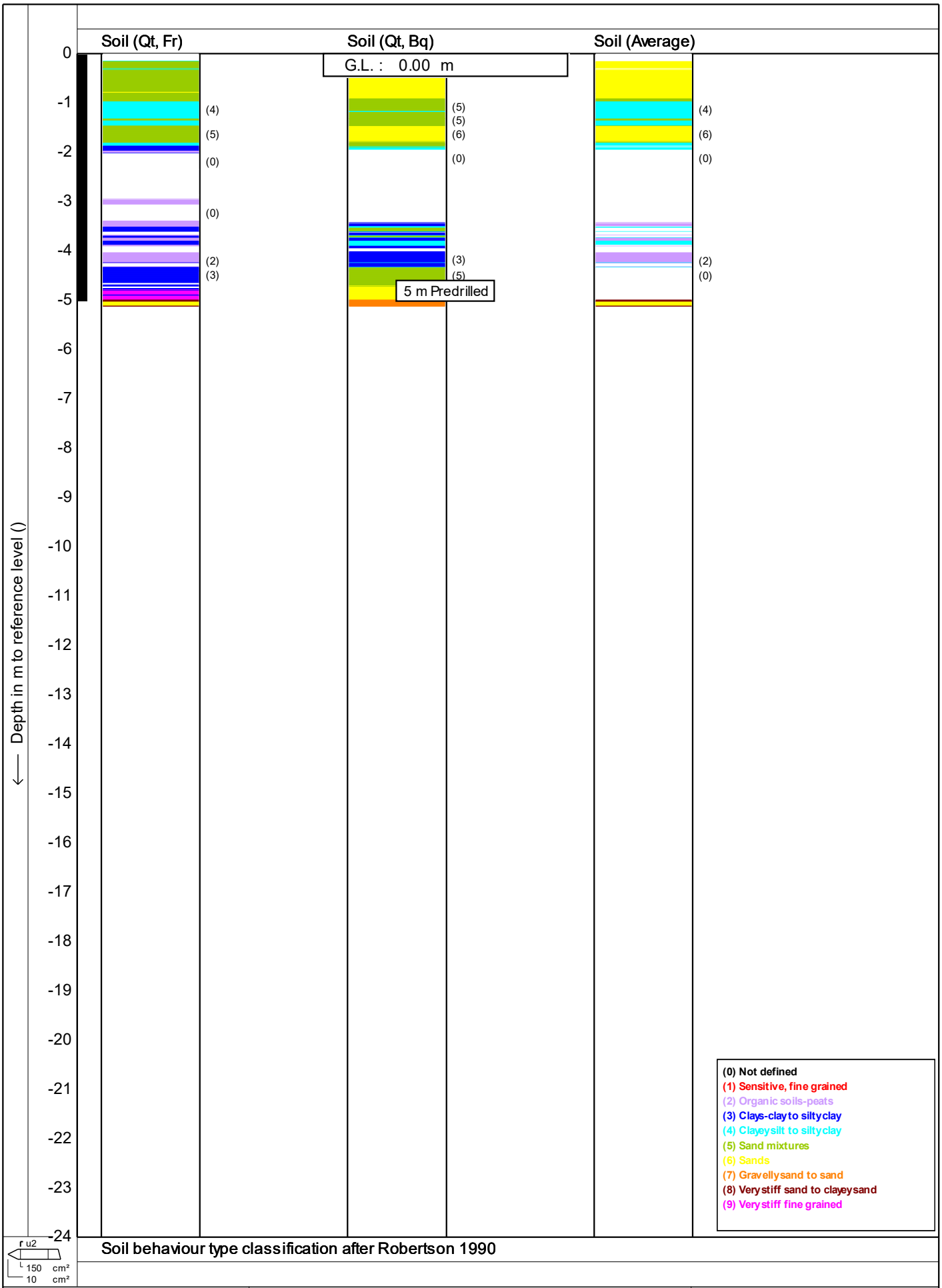
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03A** **13/15**

1.47



(0) Not defined
(2) Organic soils-peats
(3) Clays-clay to siltyclay
(4) Clayeysilt to siltyclay
(5) Sand mixtures
(6) Sands

Soil behaviour type classification after Robertson 1990

DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

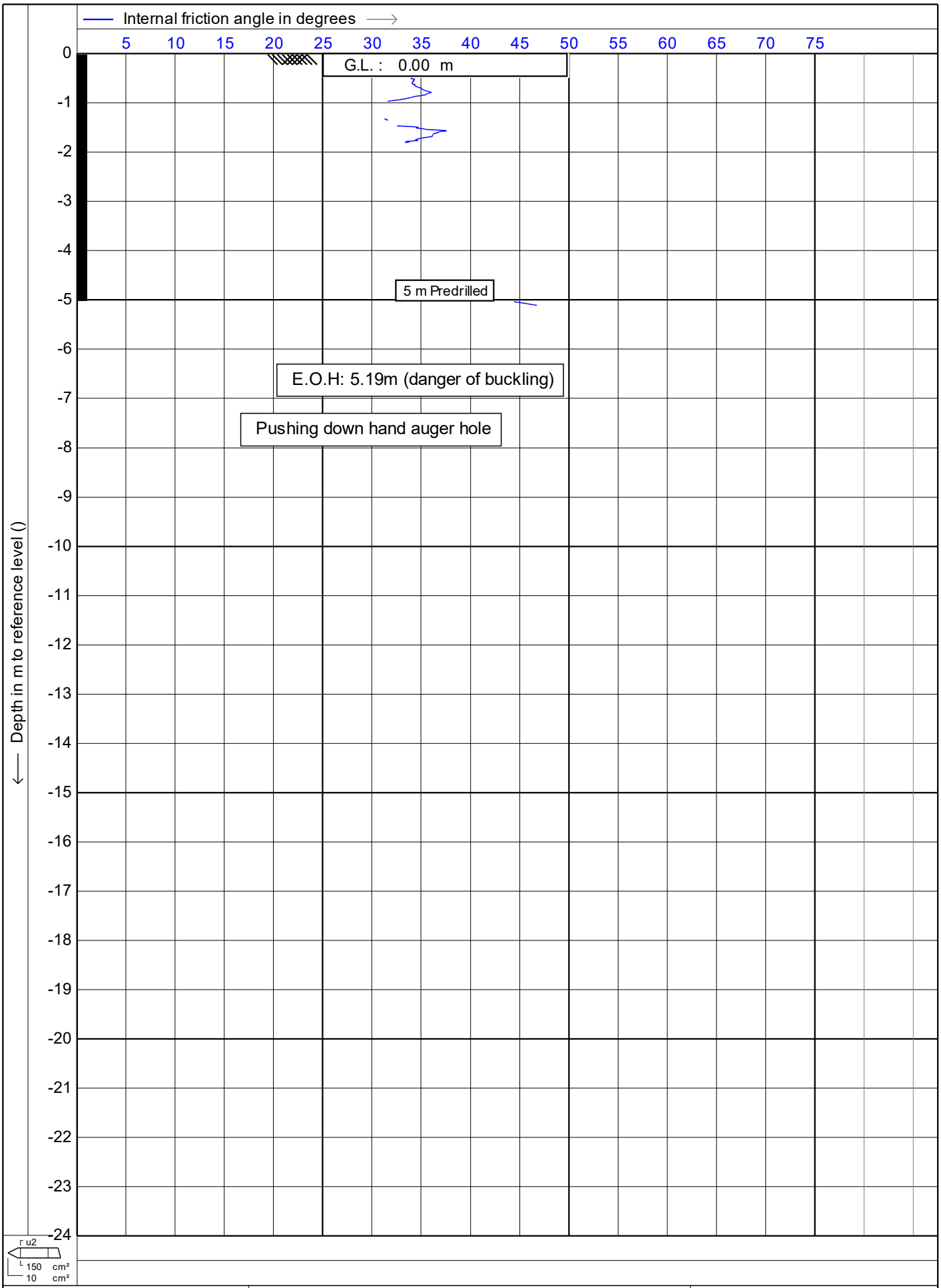
Project : **51 Brougham Street**

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Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03A**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

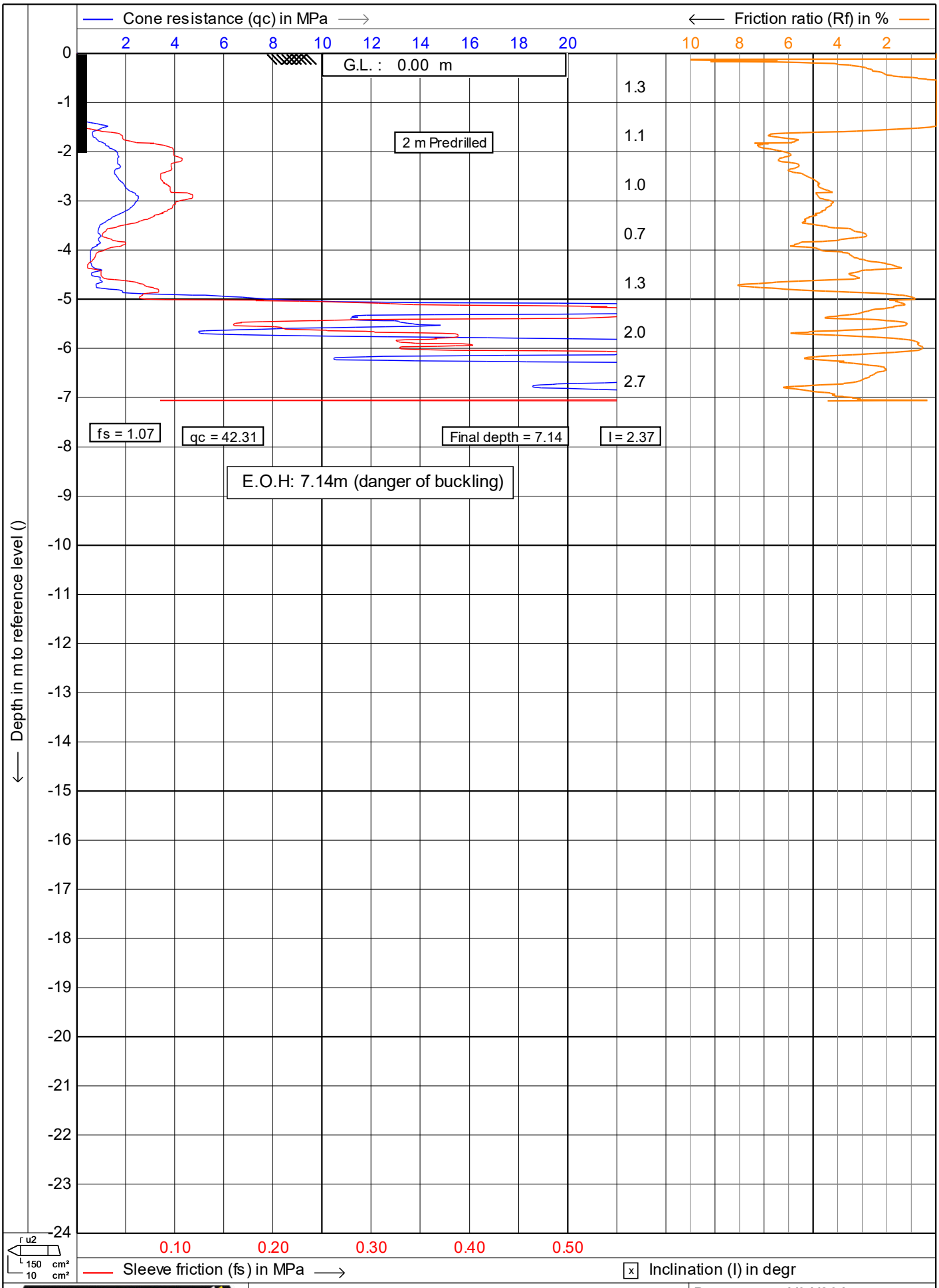
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073413, -39.058761 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_03A** **15/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

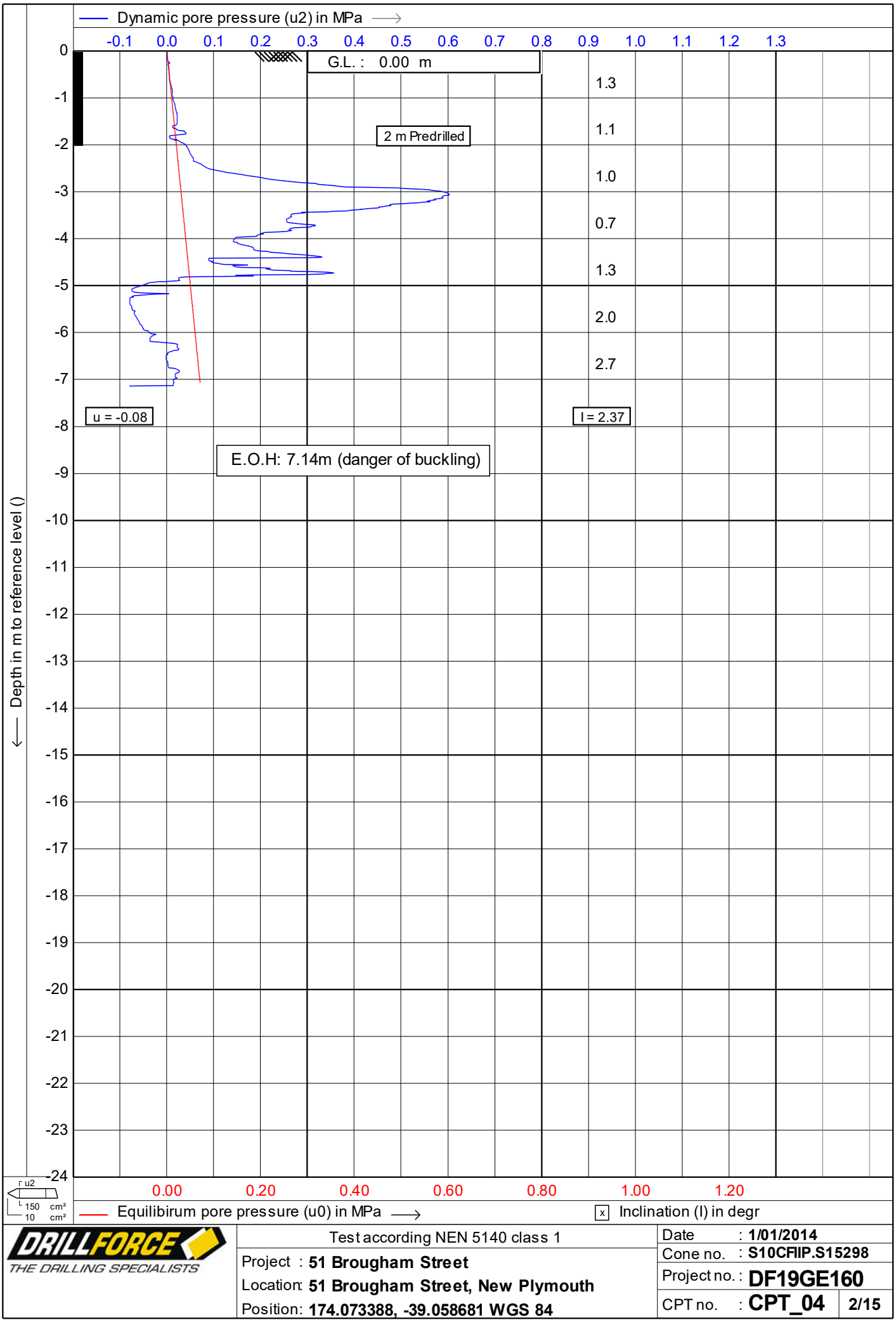
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073388, -39.058681 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_04** 1/15

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

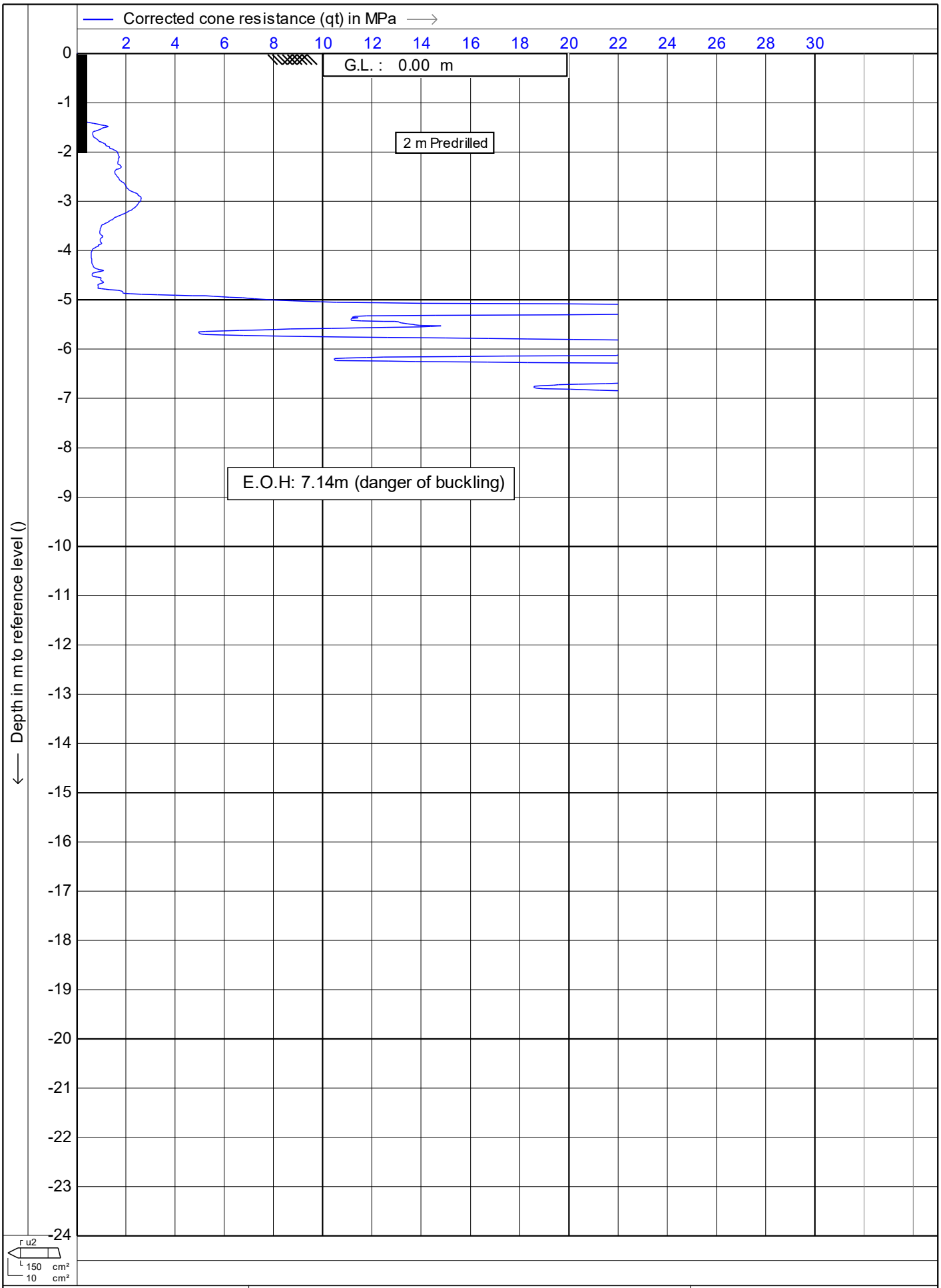
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073388, -39.058681 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_04** **2/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

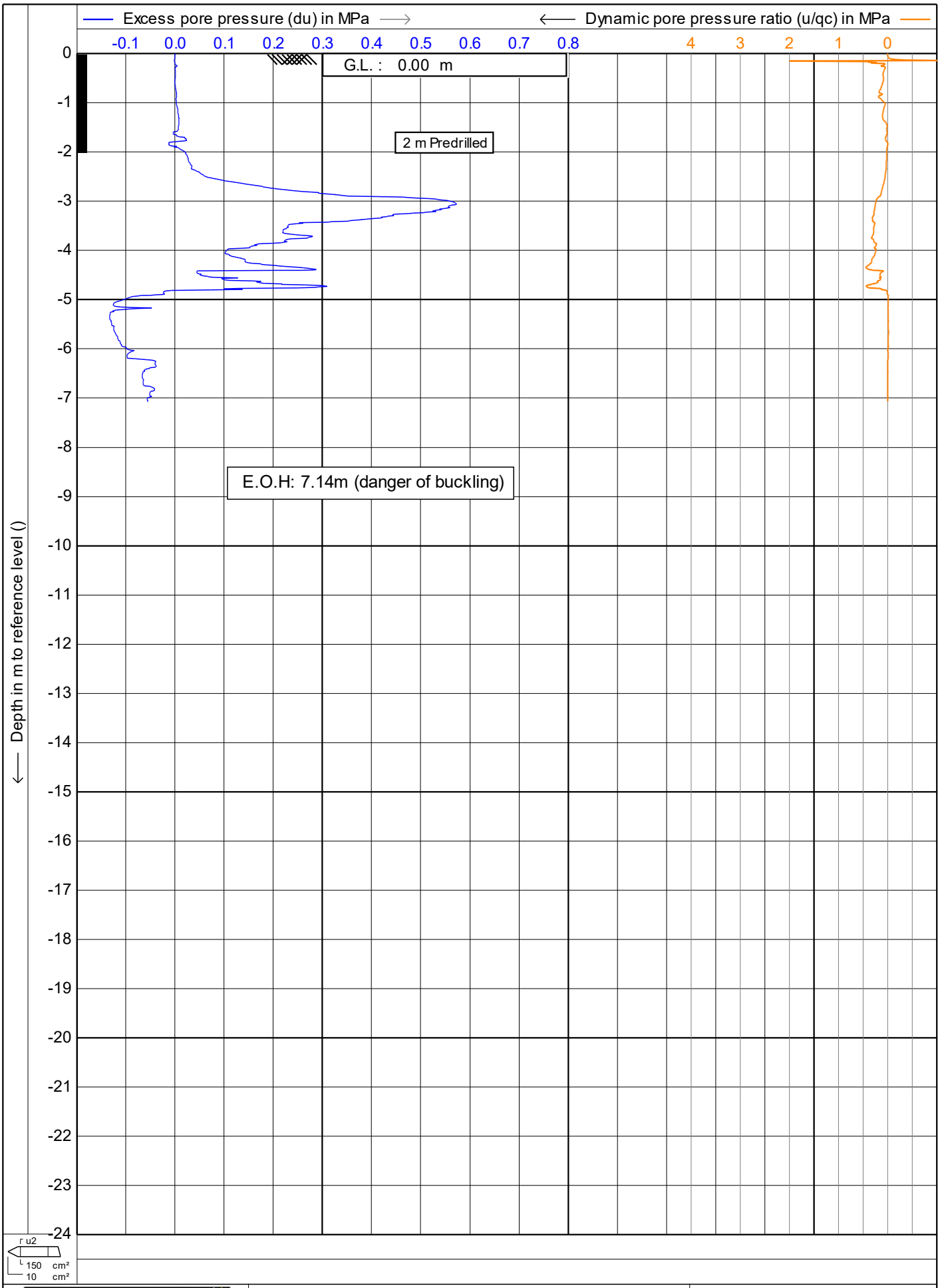
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073388, -39.058681 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_04** **3/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

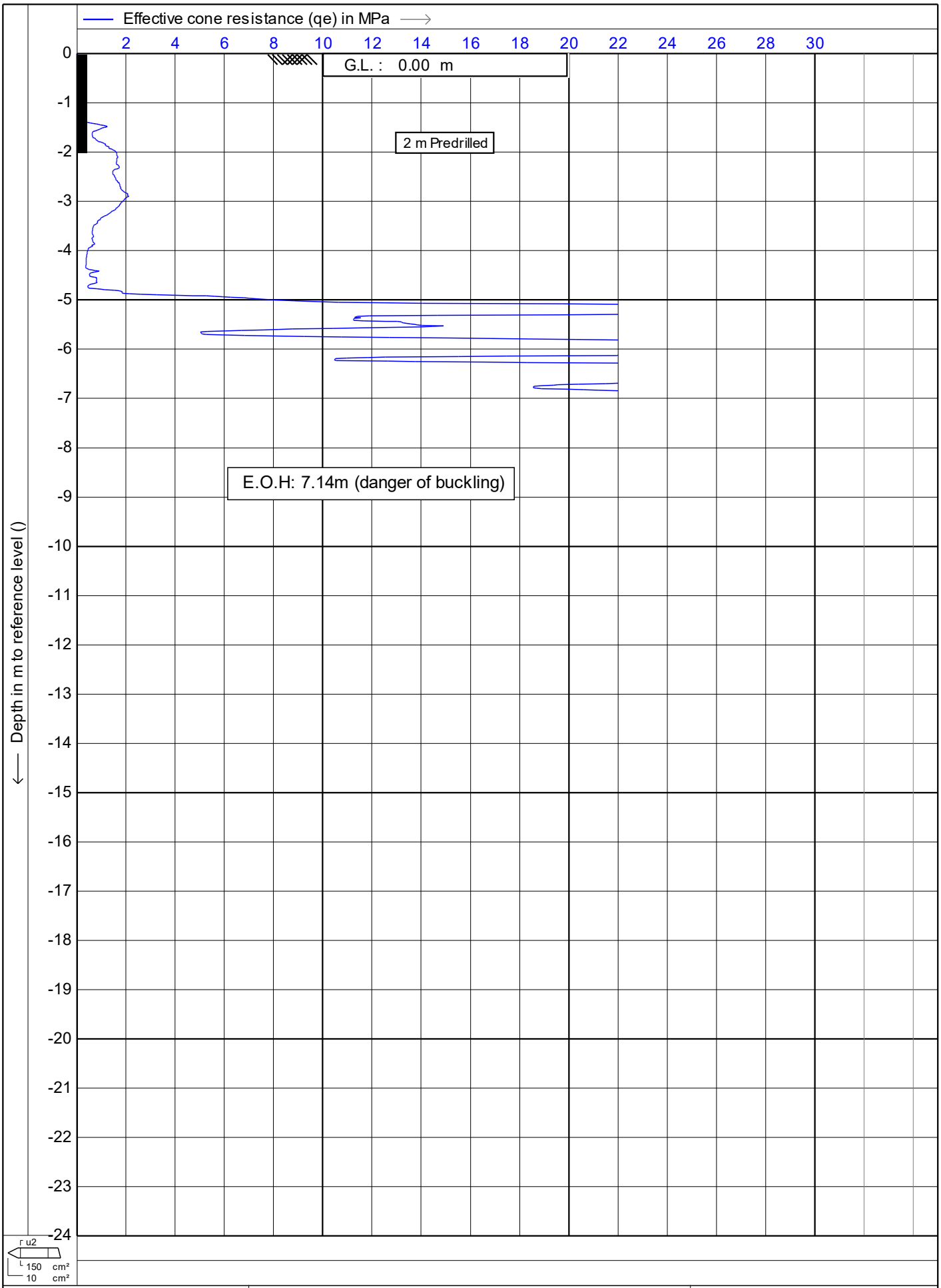
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073388, -39.058681 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_04** **4/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

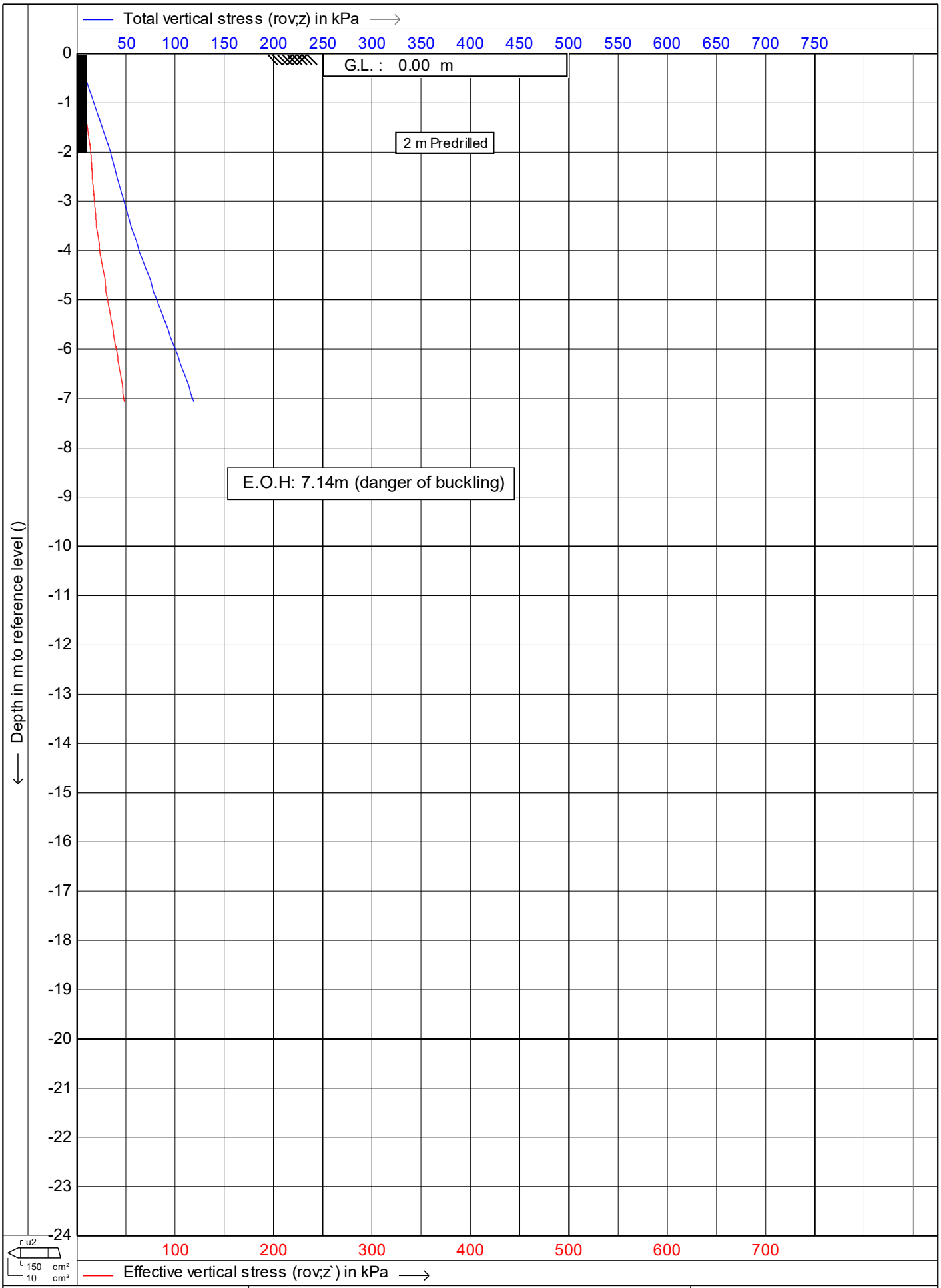
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073388, -39.058681 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_04** **5/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

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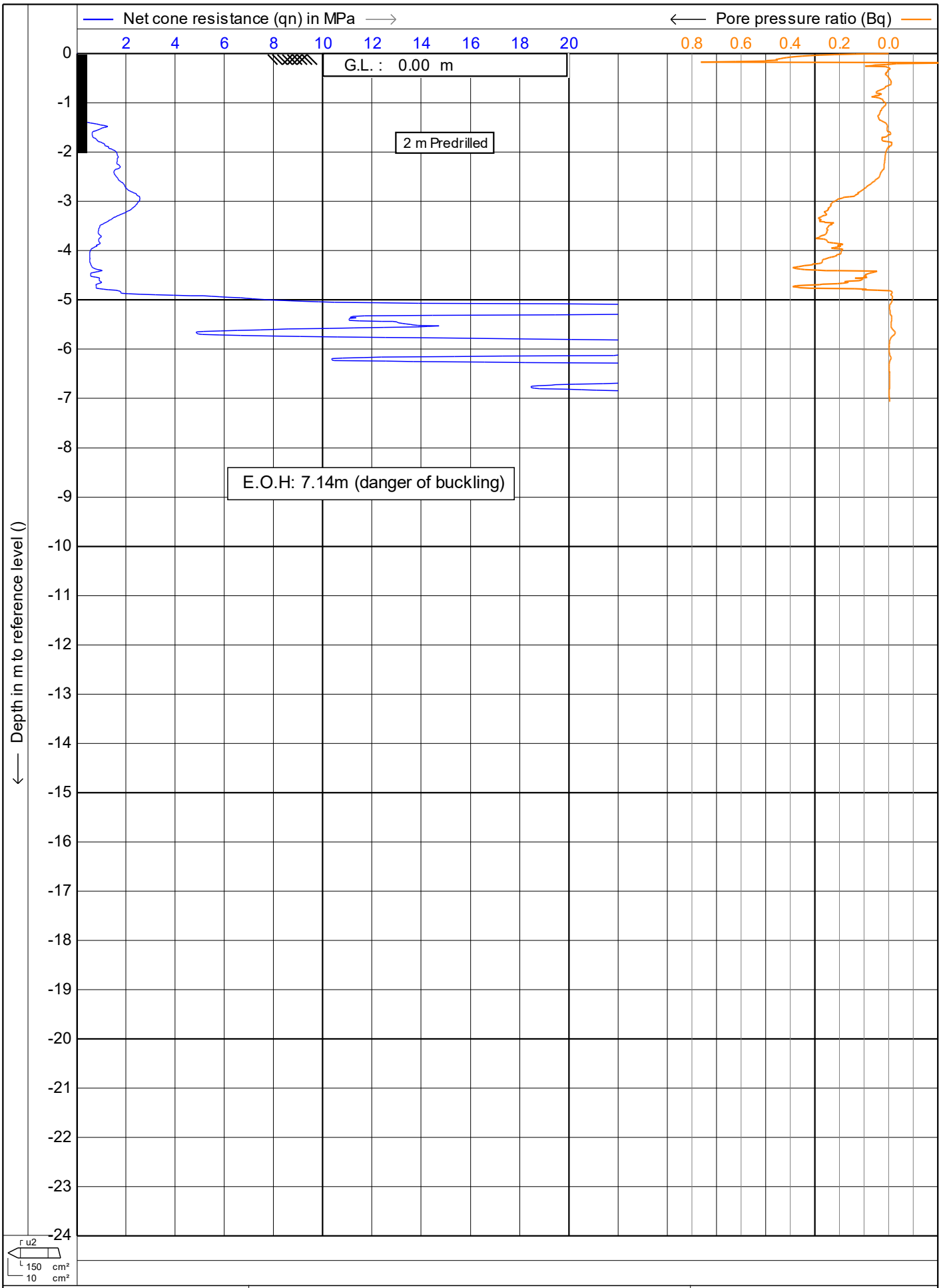
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073388, -39.058681 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_04** **6/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

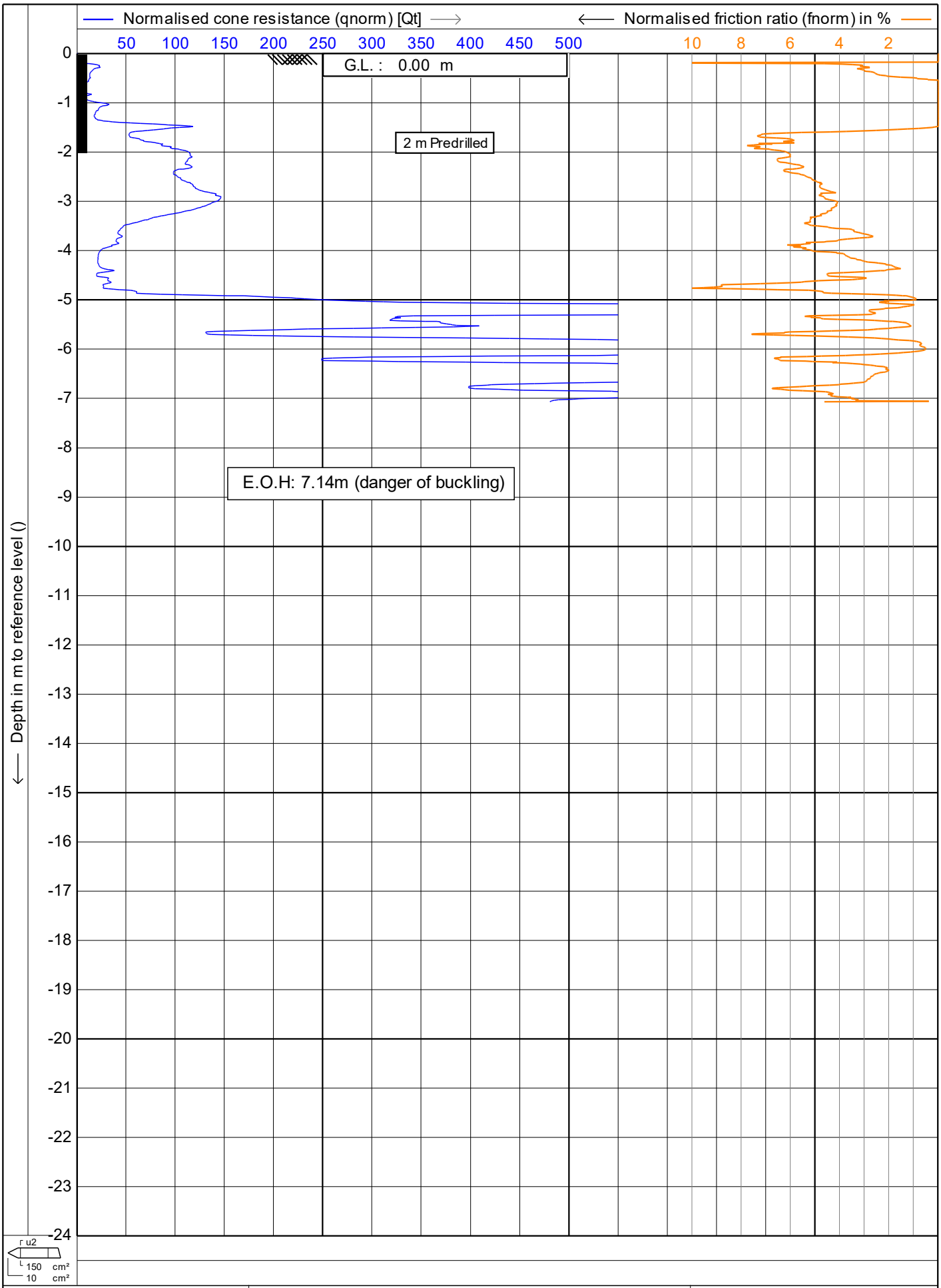
Project : **51 Brougham Street**

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Position: **174.073388, -39.058681 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_04** **7/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

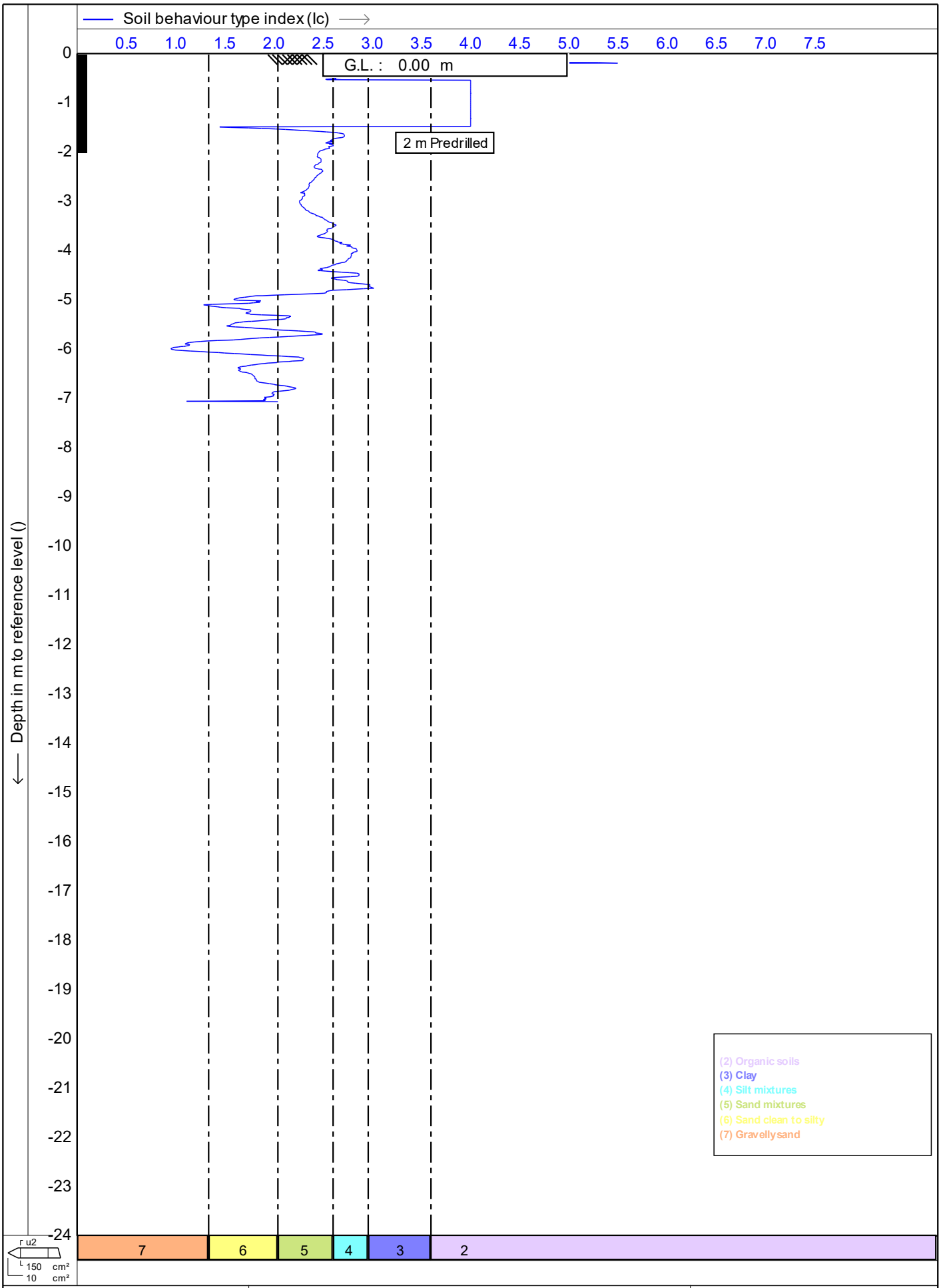
Project : **51 Brougham Street**

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Position: **174.073388, -39.058681 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_04** **8/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

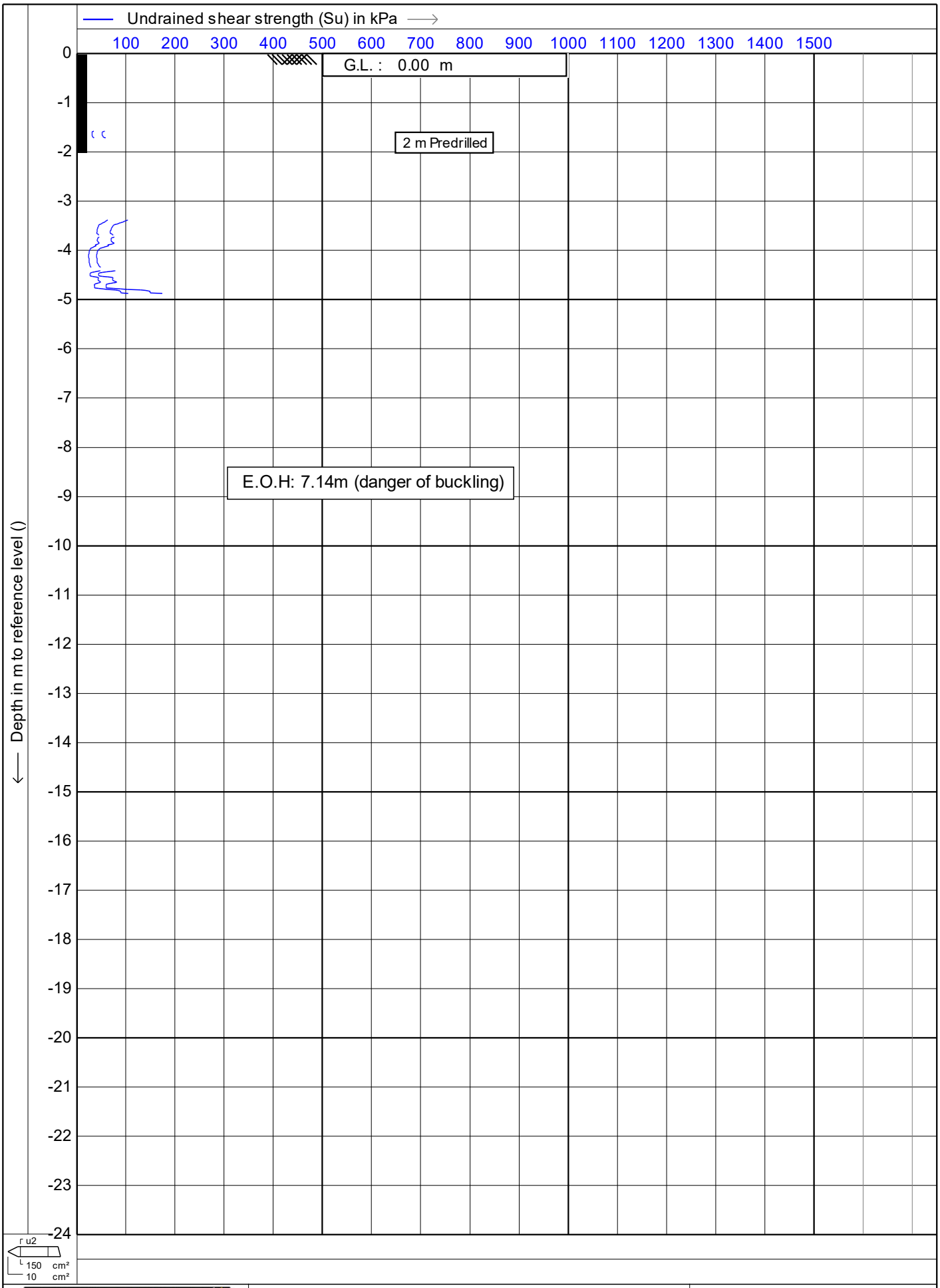
Project : **51 Brougham Street**

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Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_04** **9/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

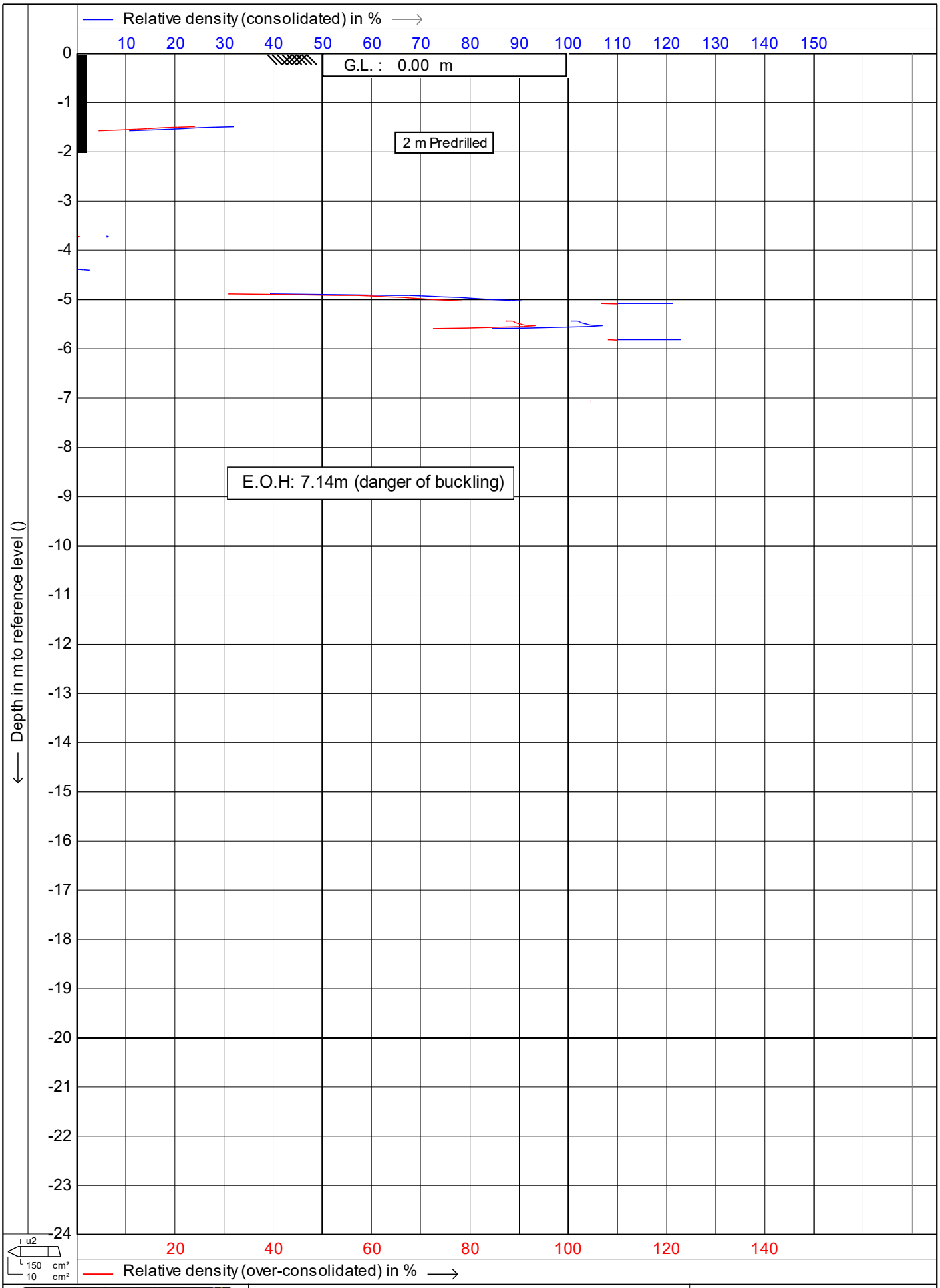
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073388, -39.058681 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
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1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

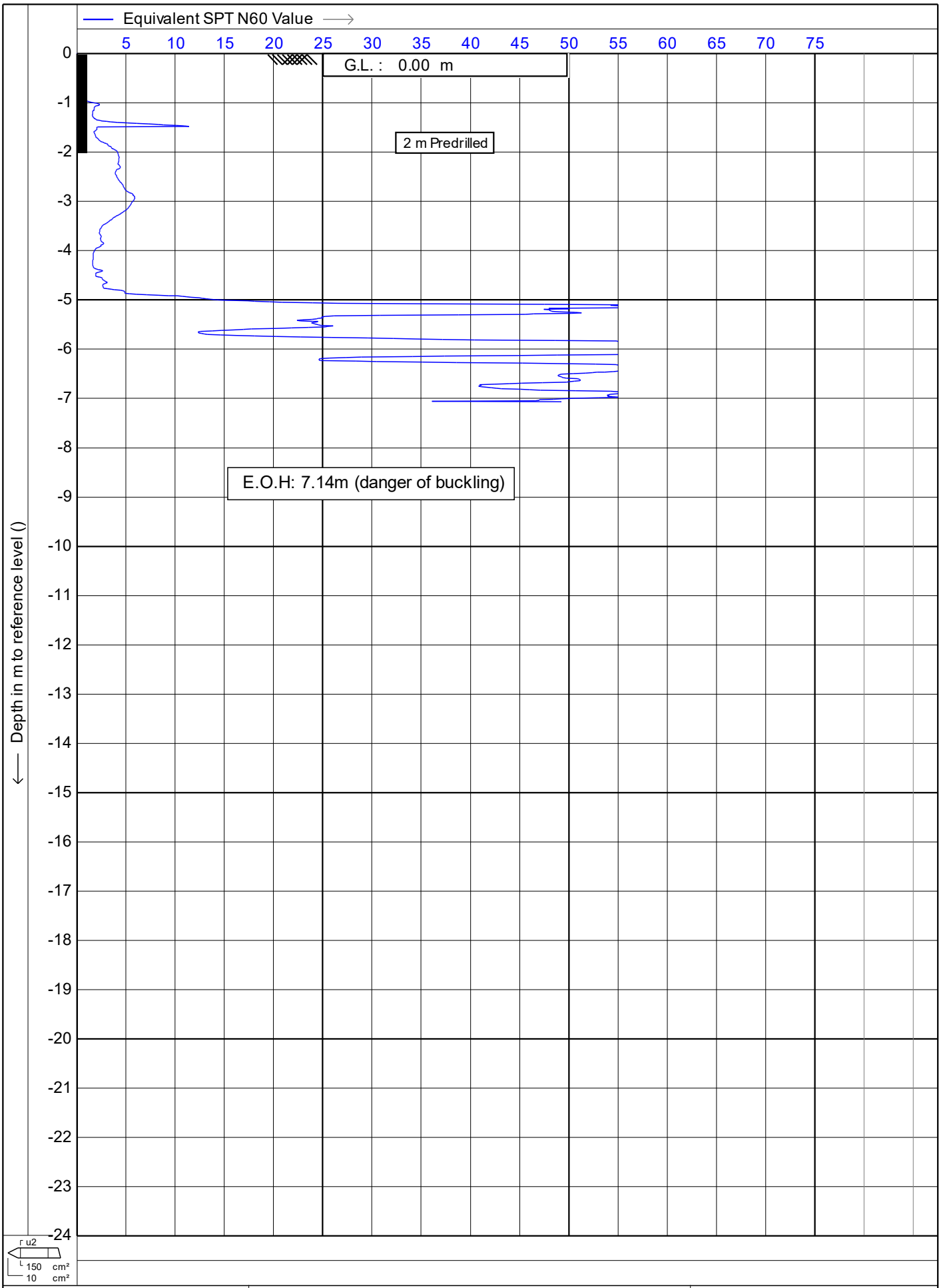
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073388, -39.058681 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_04** **11/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

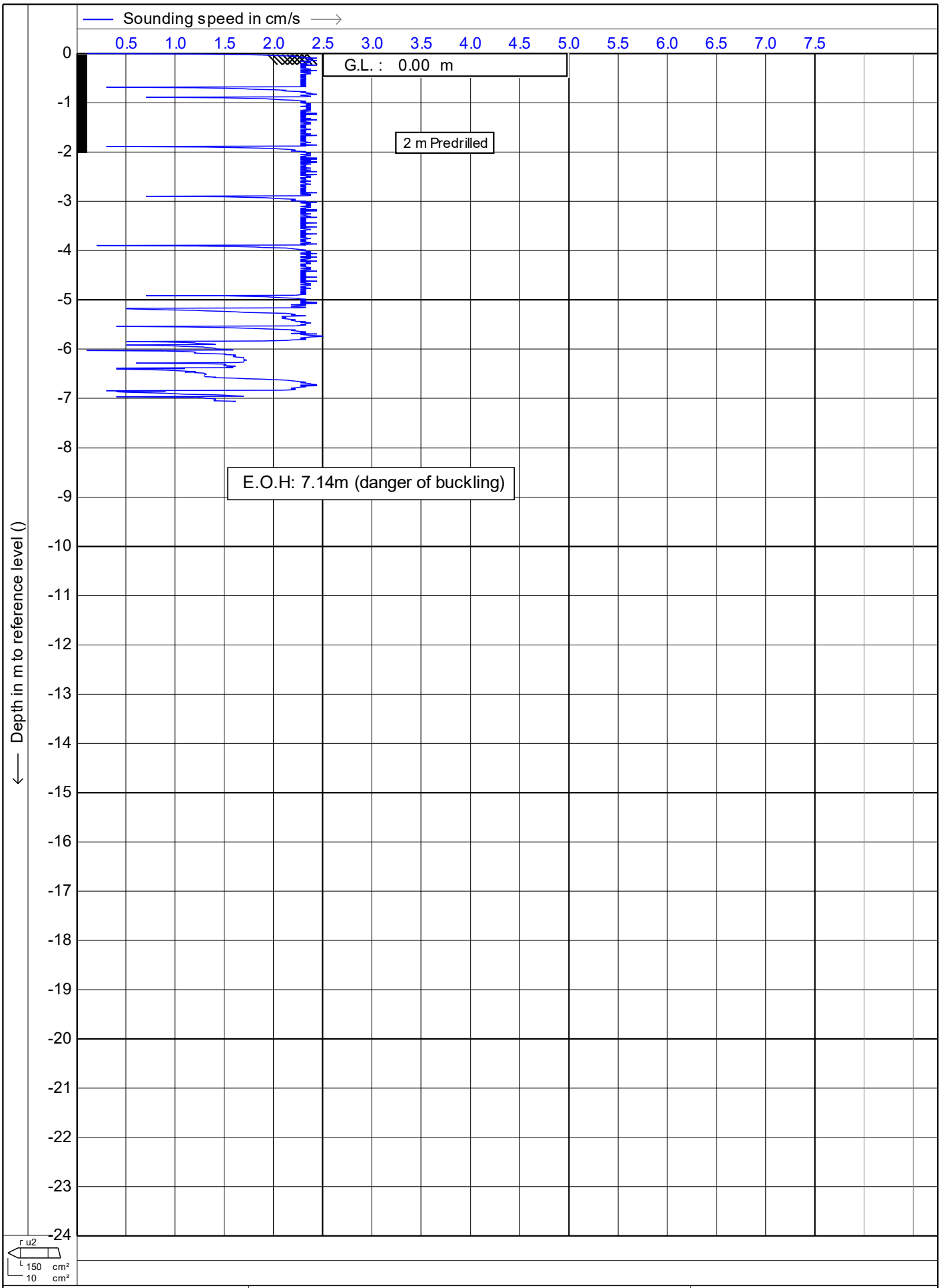
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073388, -39.058681 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_04** 12/15

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

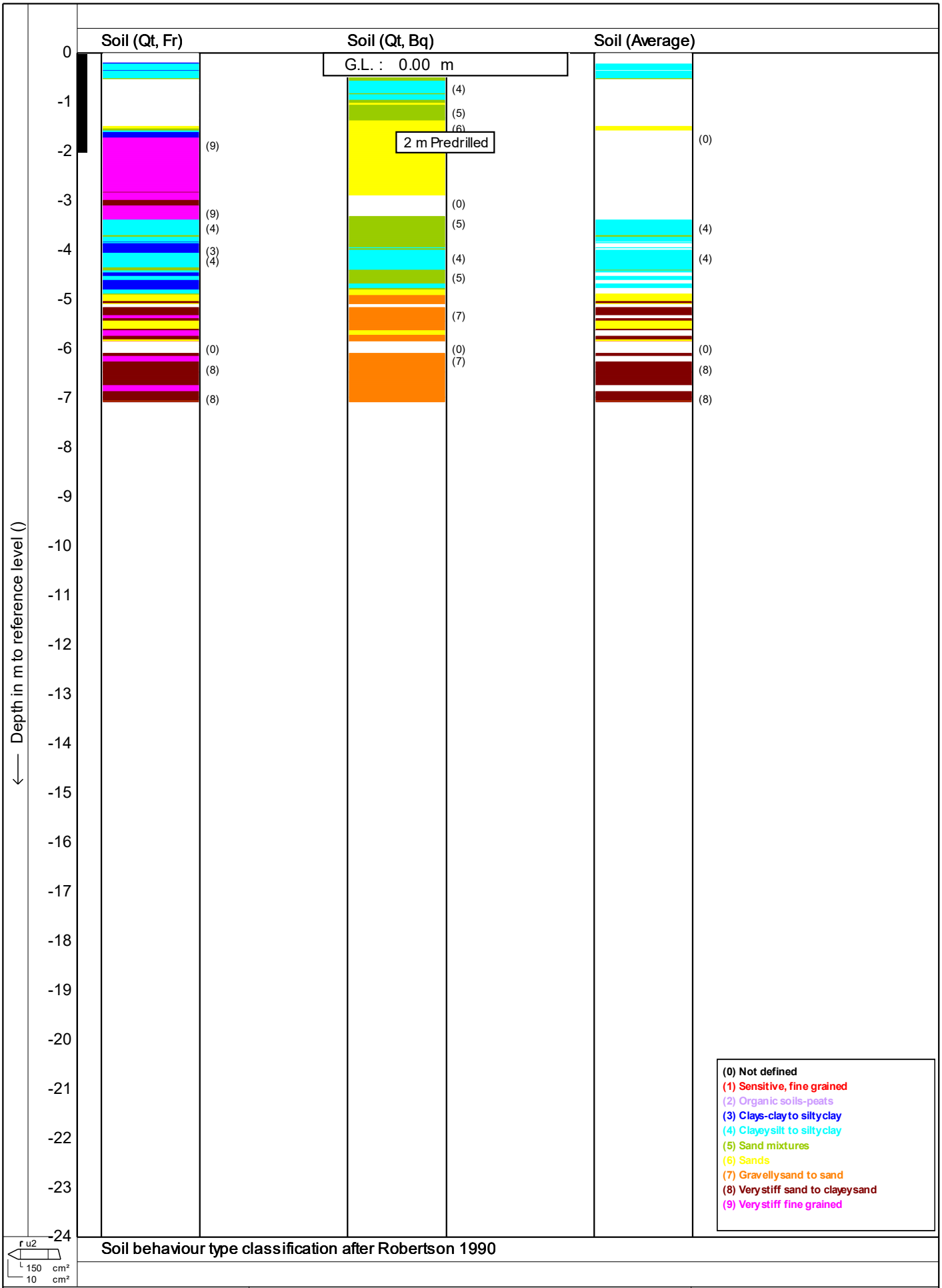
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073388, -39.058681 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_04** **13/15**

1.47



Soil behaviour type classification after Robertson 1990

DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

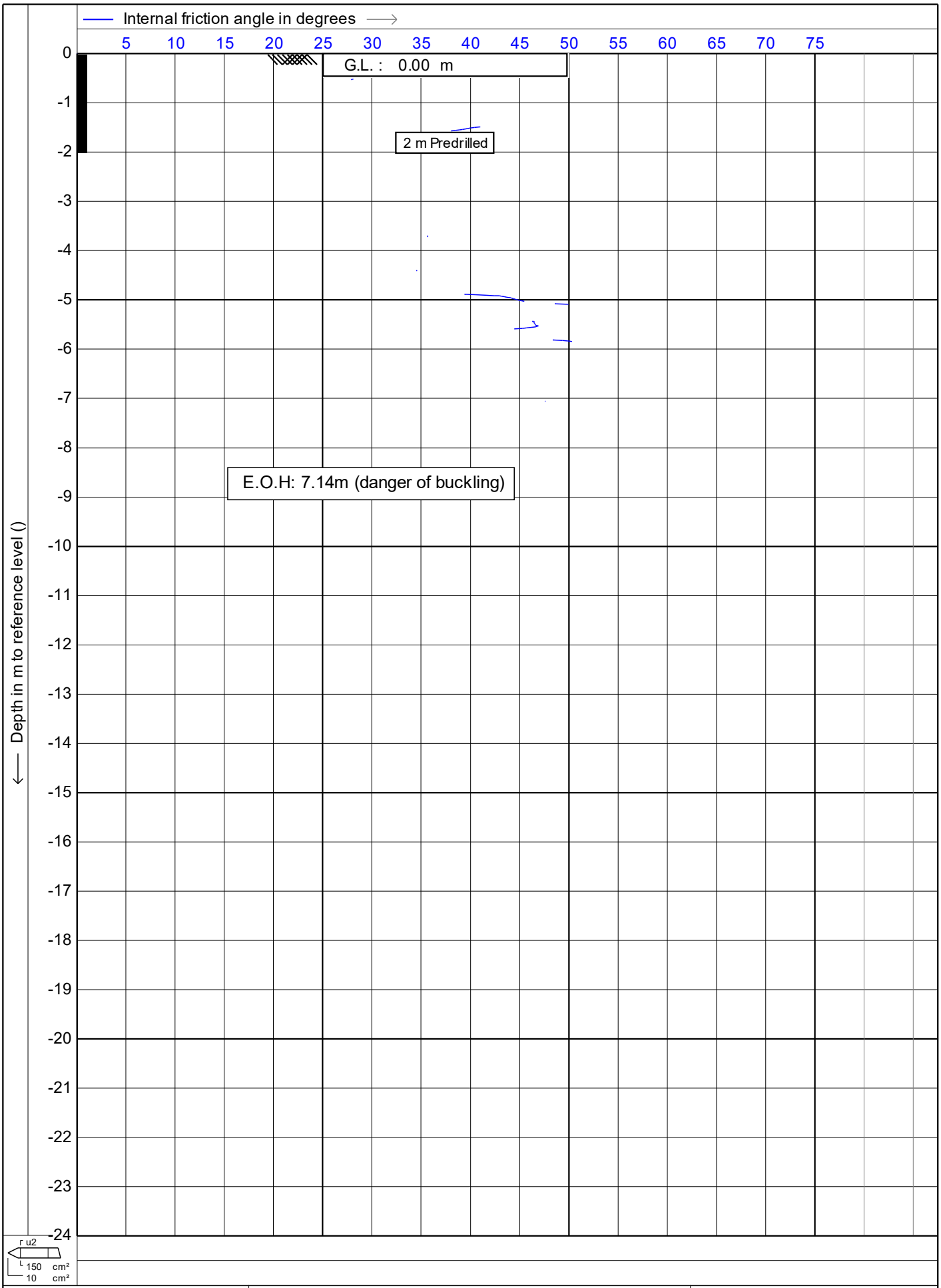
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073388, -39.058681 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_04** 14/15

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

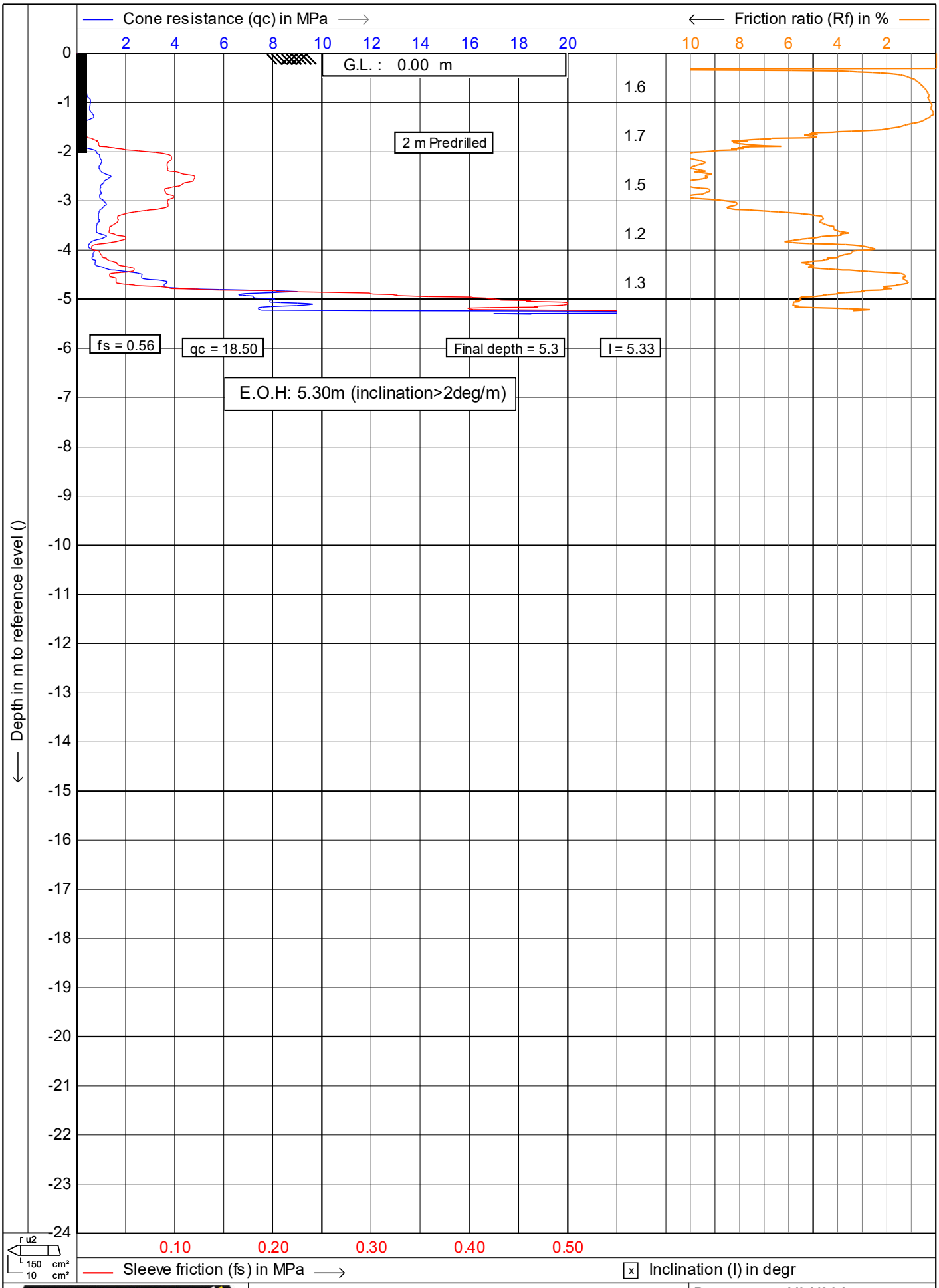
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073388, -39.058681 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15298**
Project no.	: **DF19GE160**
CPT no.	: **CPT_04** **15/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

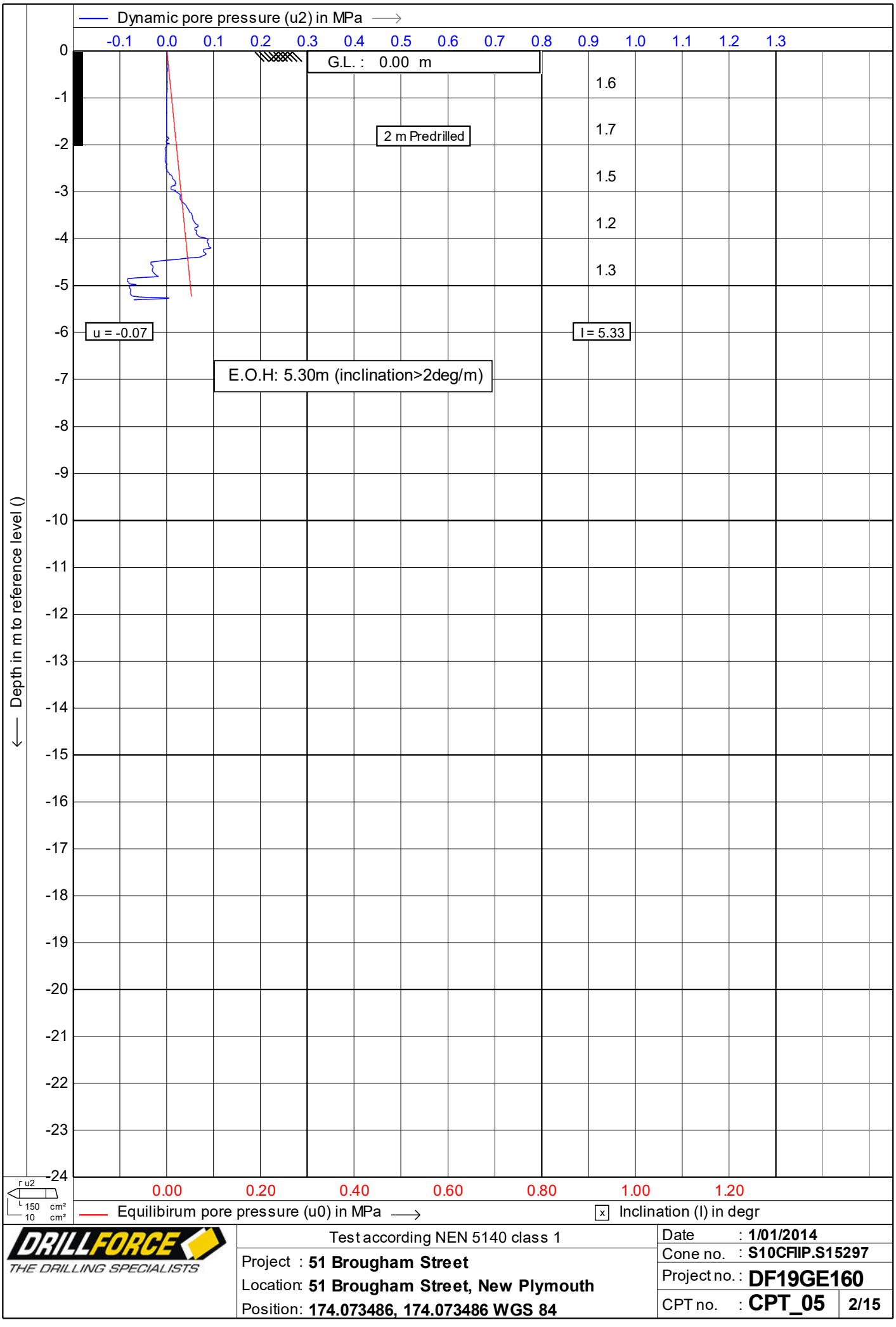
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073486, 174.073486 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_05** 1/15

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

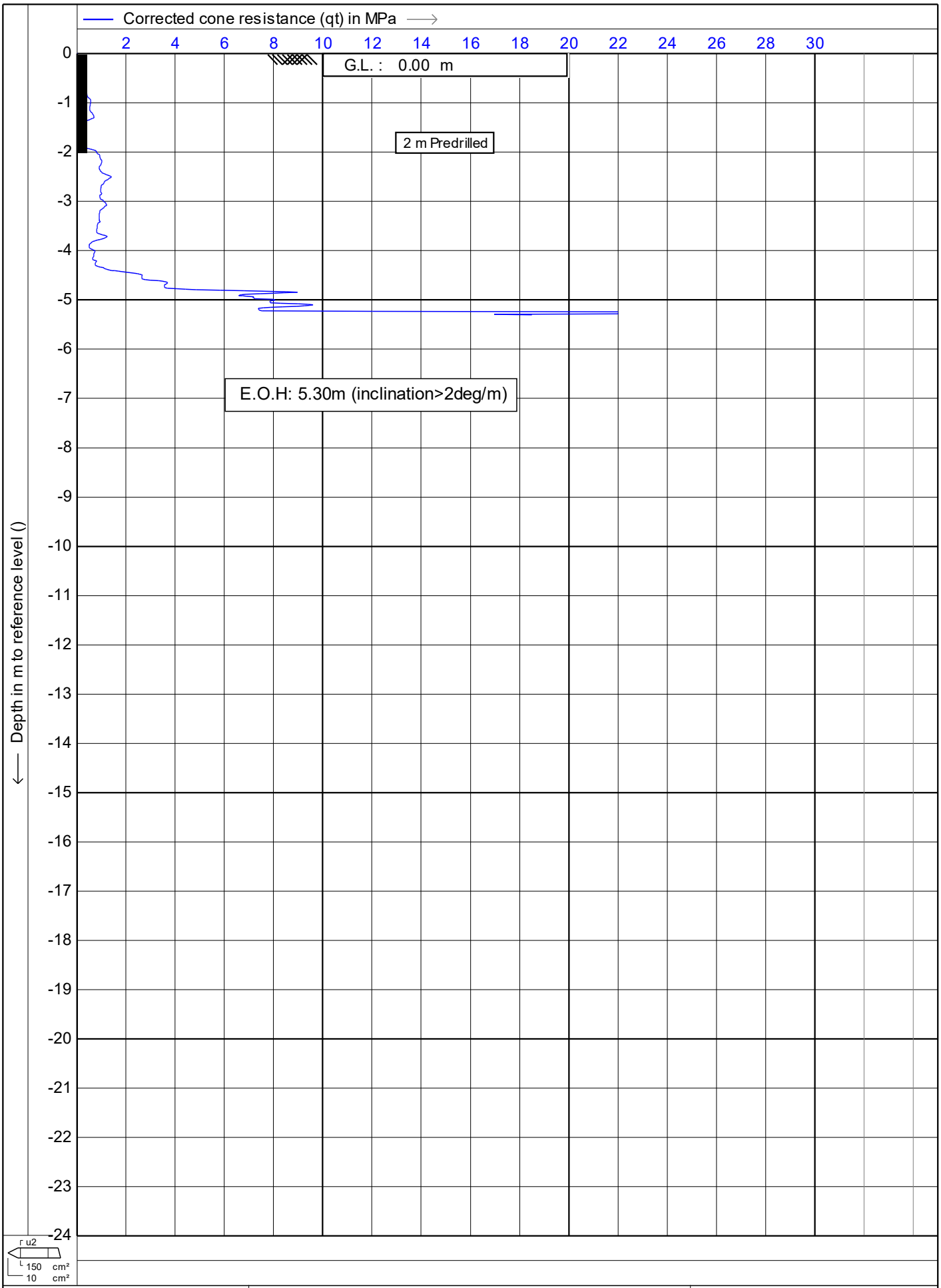
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073486, 174.073486 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_05**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

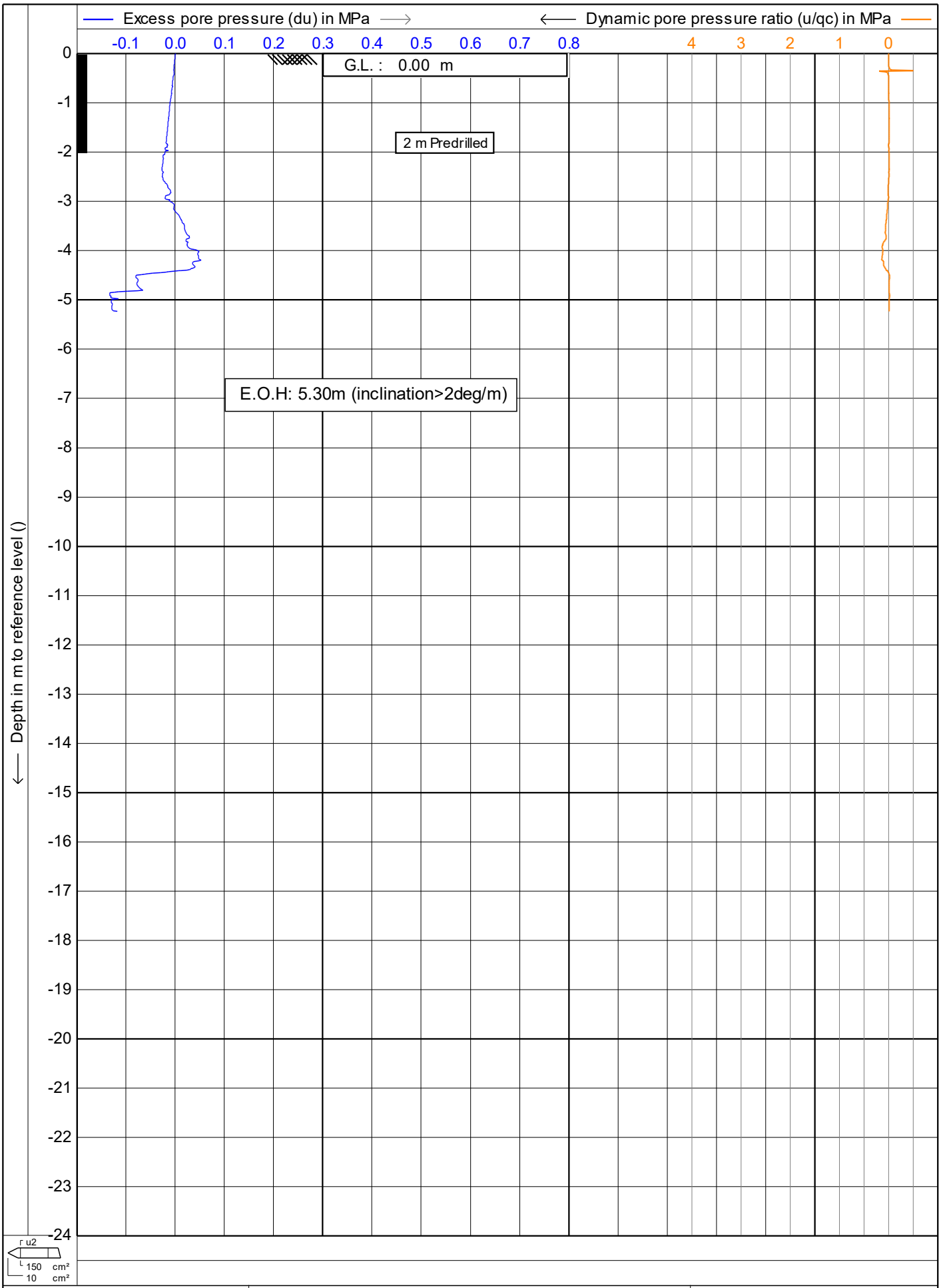
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073486, 174.073486 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_05** **3/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

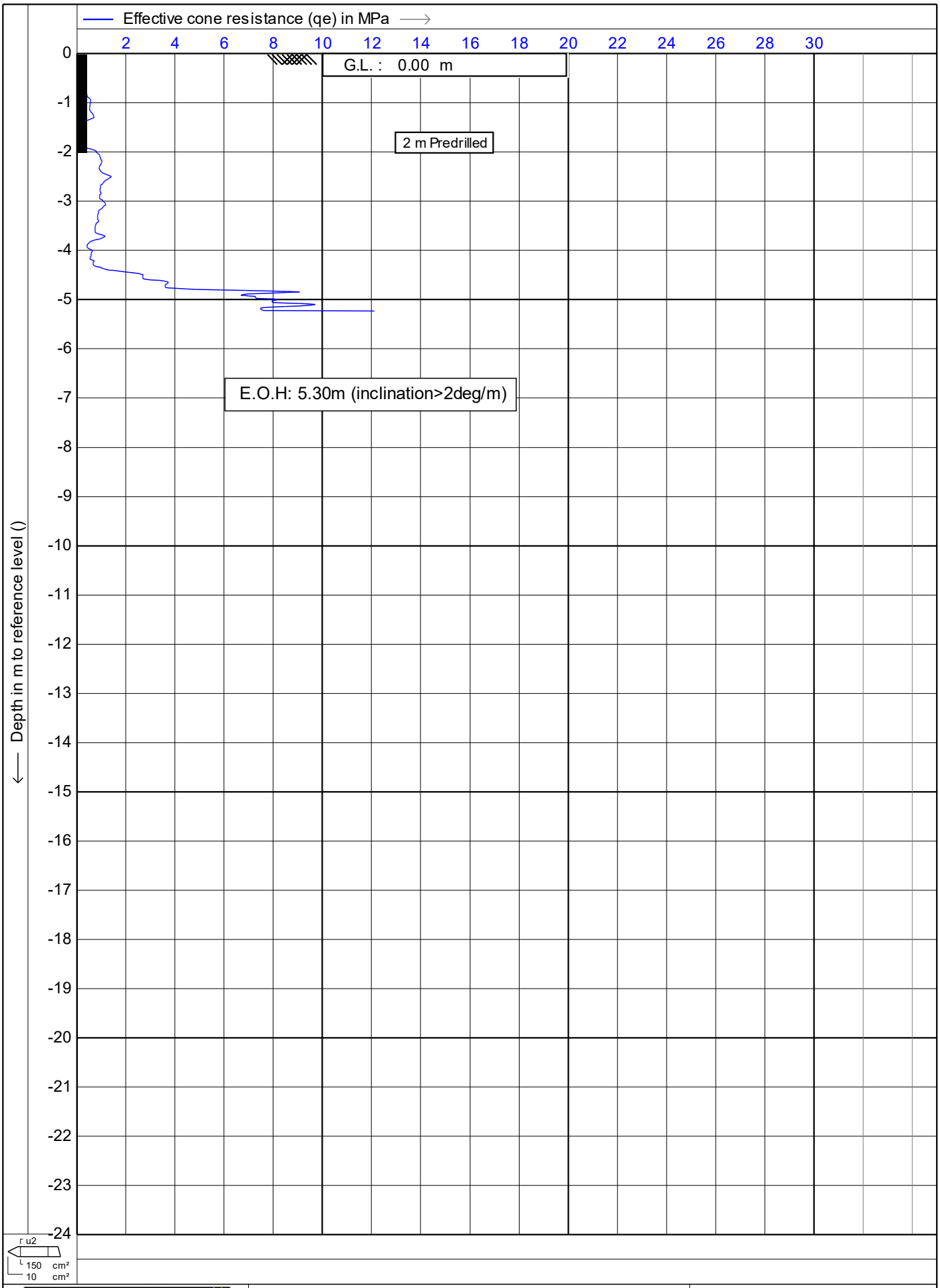
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073486, 174.073486 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_05** **4/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

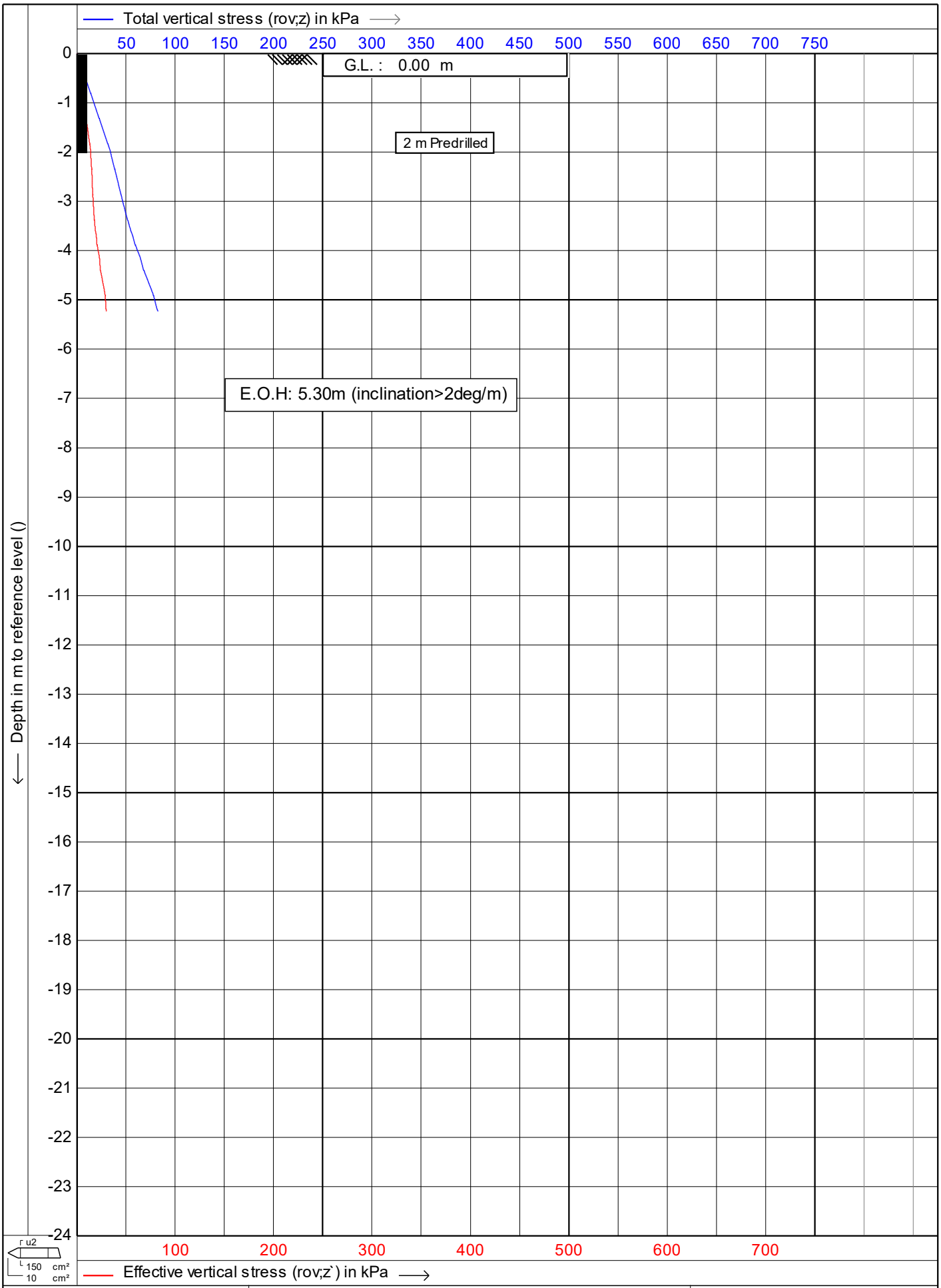
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073486, 174.073486 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_05** **5/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

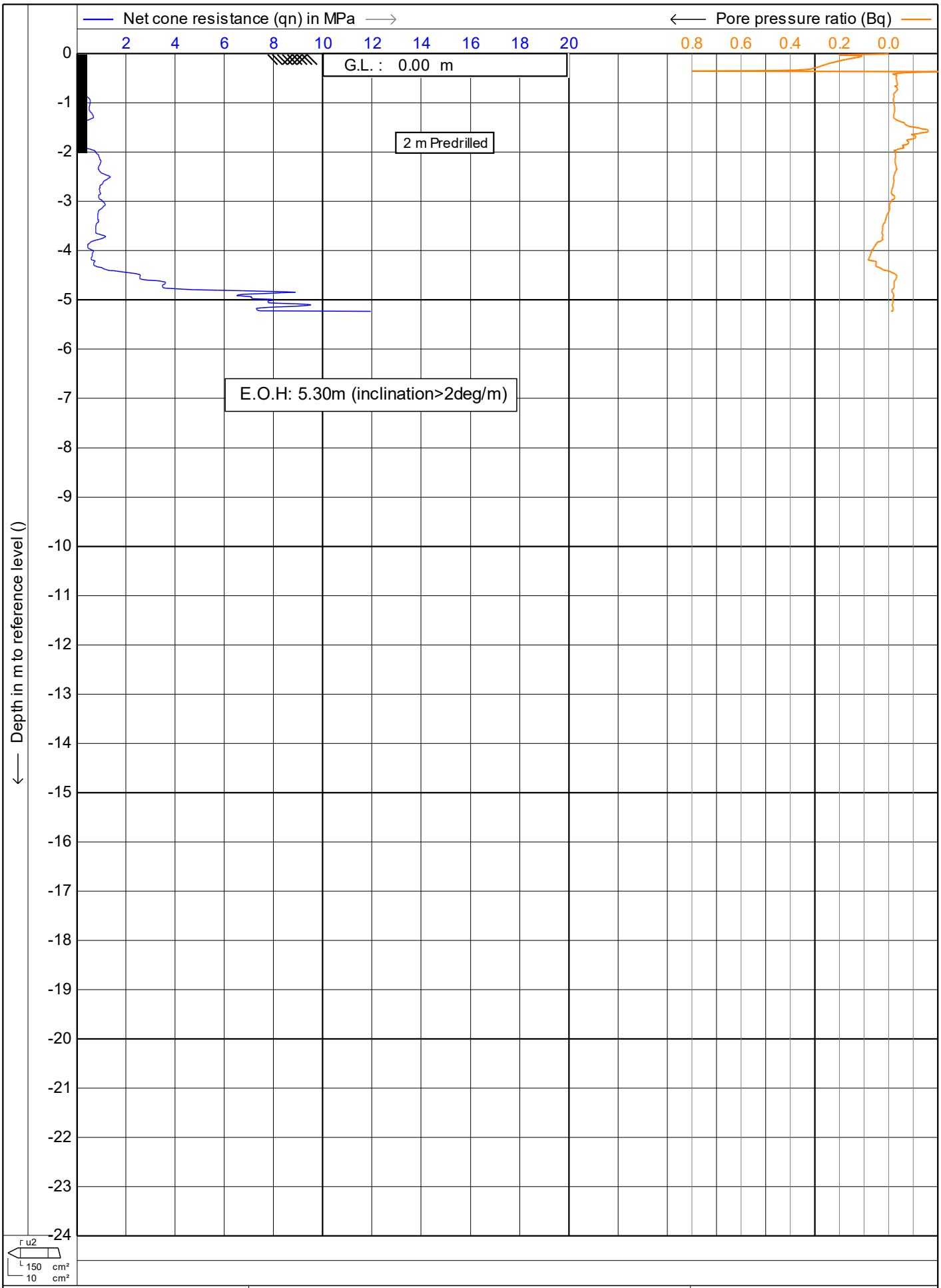
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073486, 174.073486 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_05** **6/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

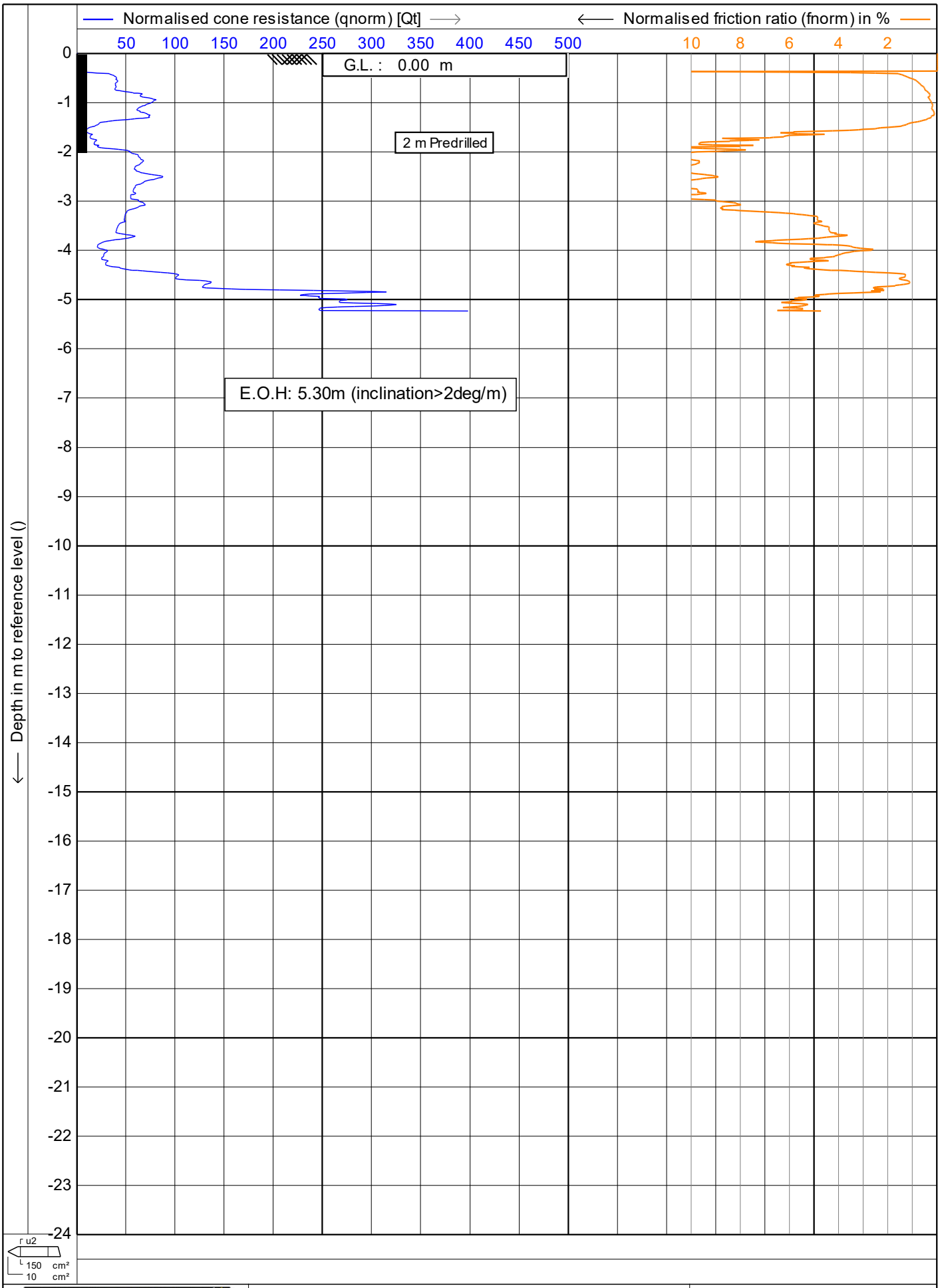
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073486, 174.073486 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_05** 7/15

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

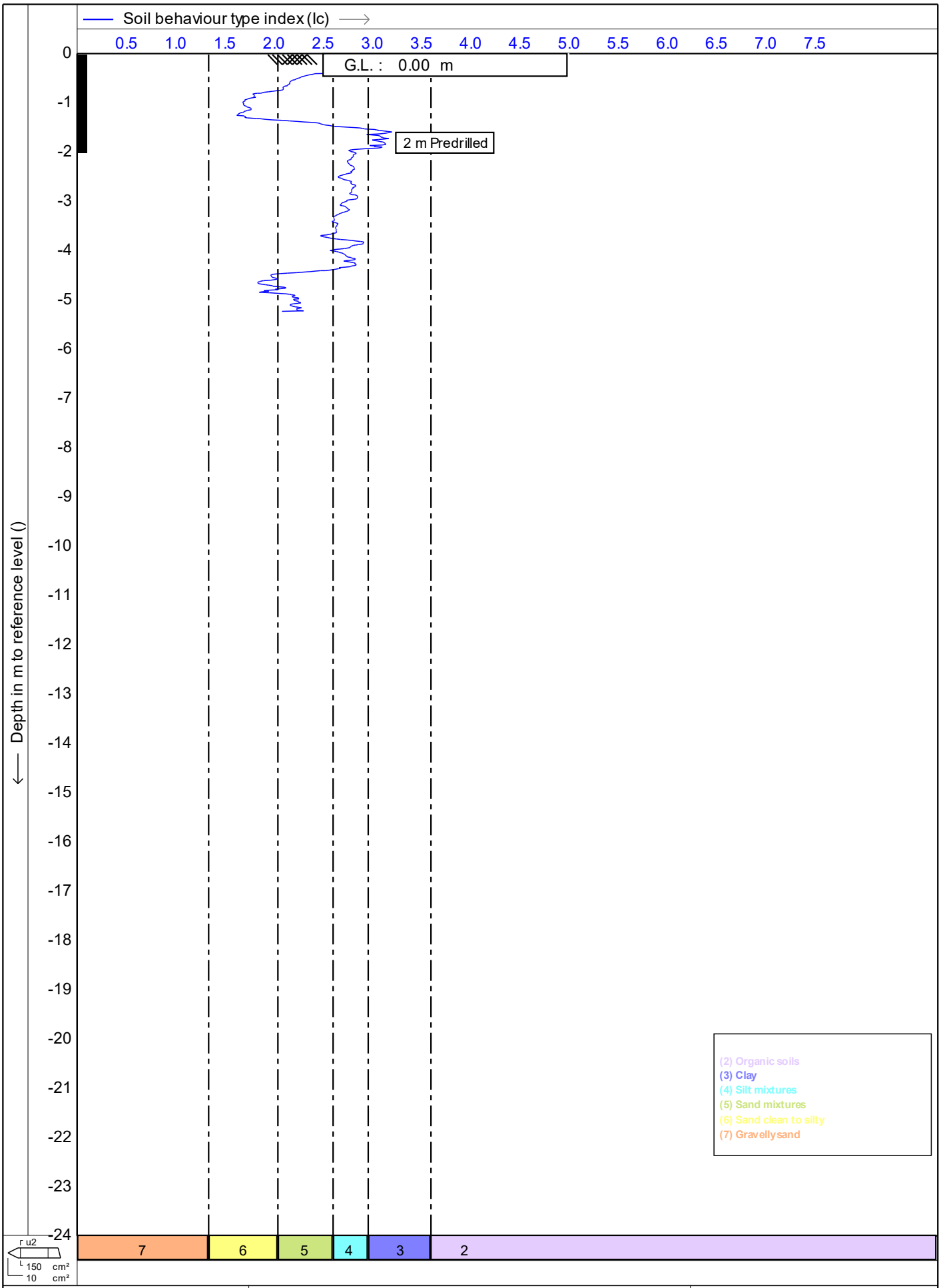
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073486, 174.073486 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_05** **8/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

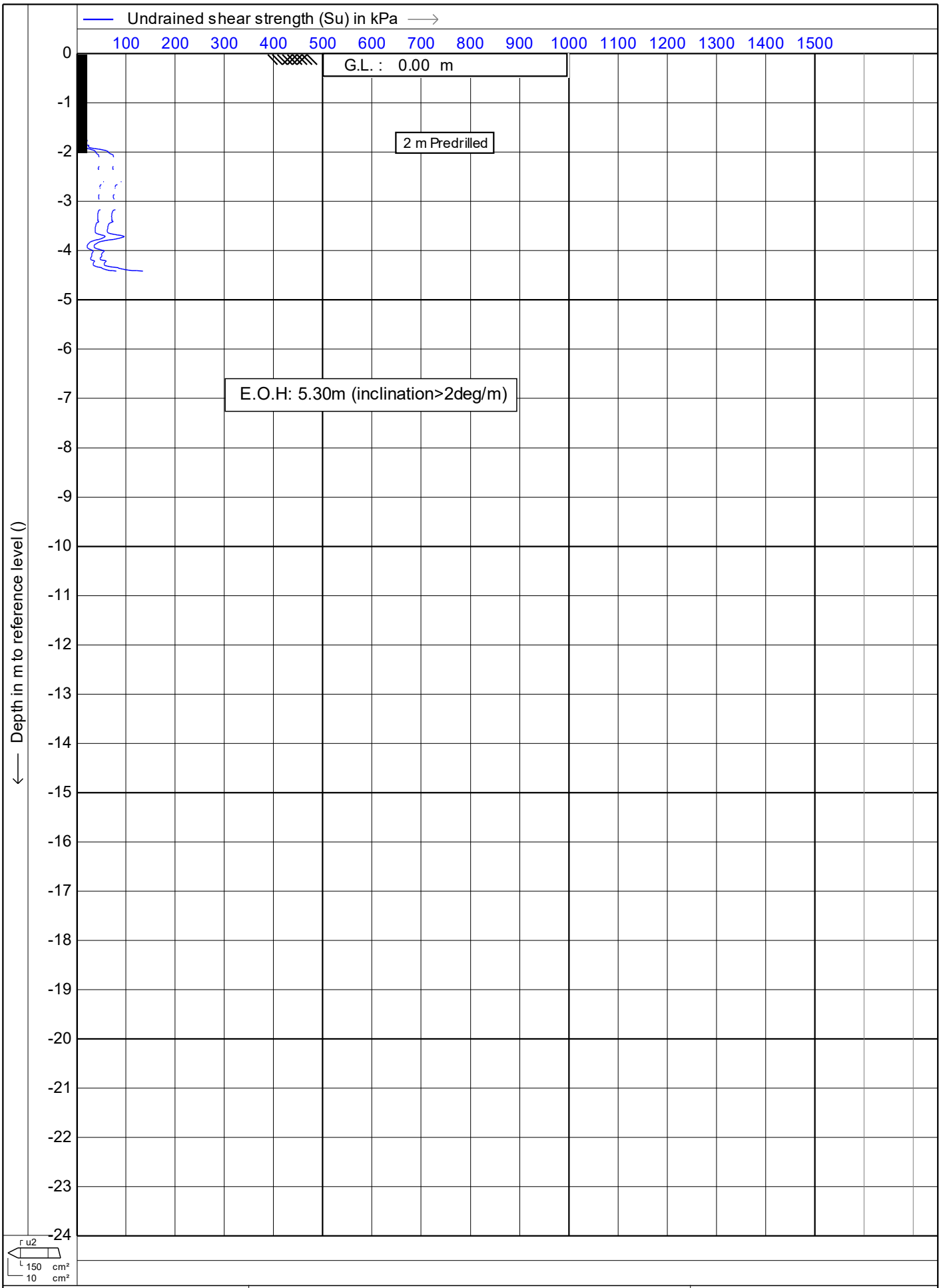
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073486, 174.073486 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_05** **9/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

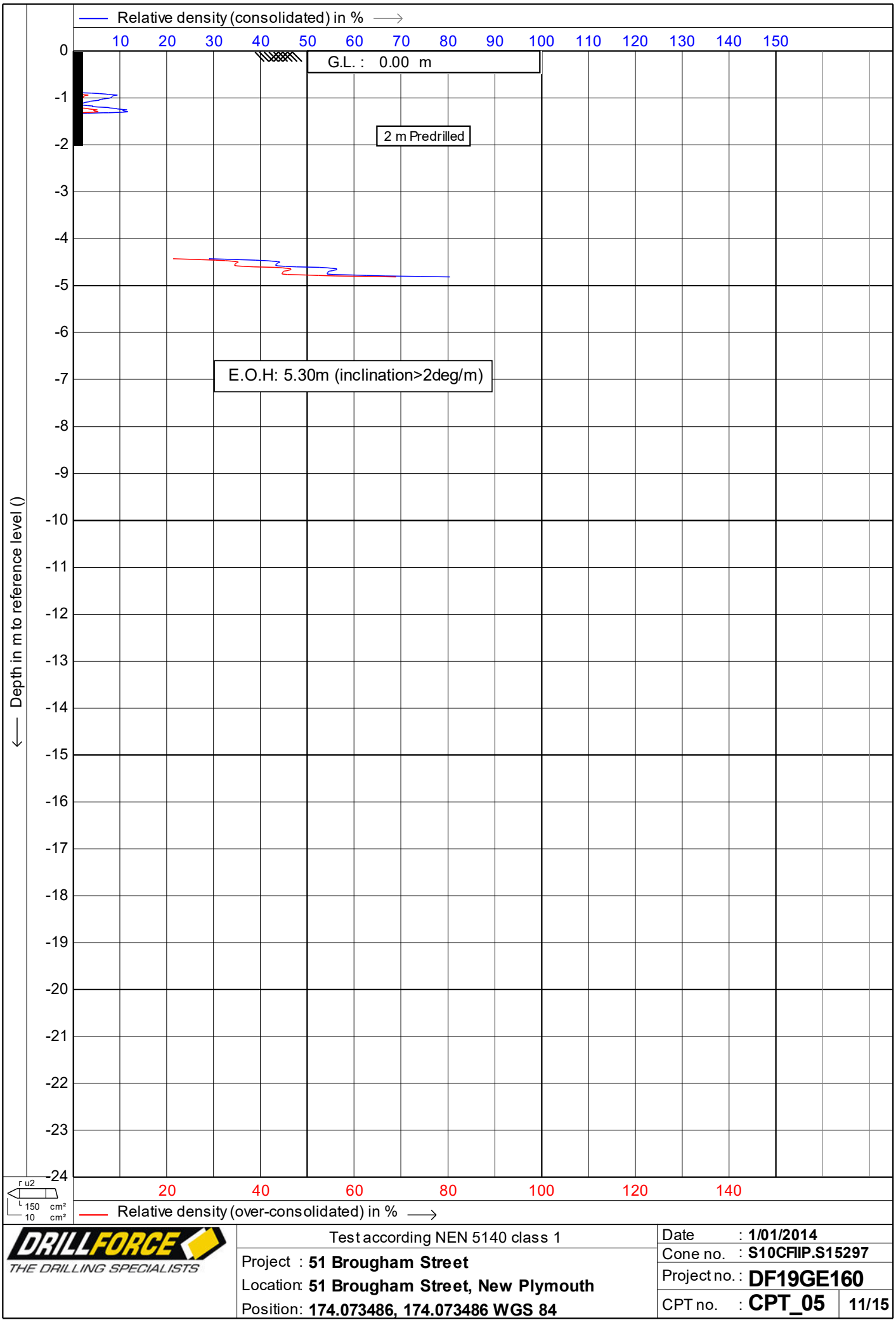
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073486, 174.073486 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_05** **10/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

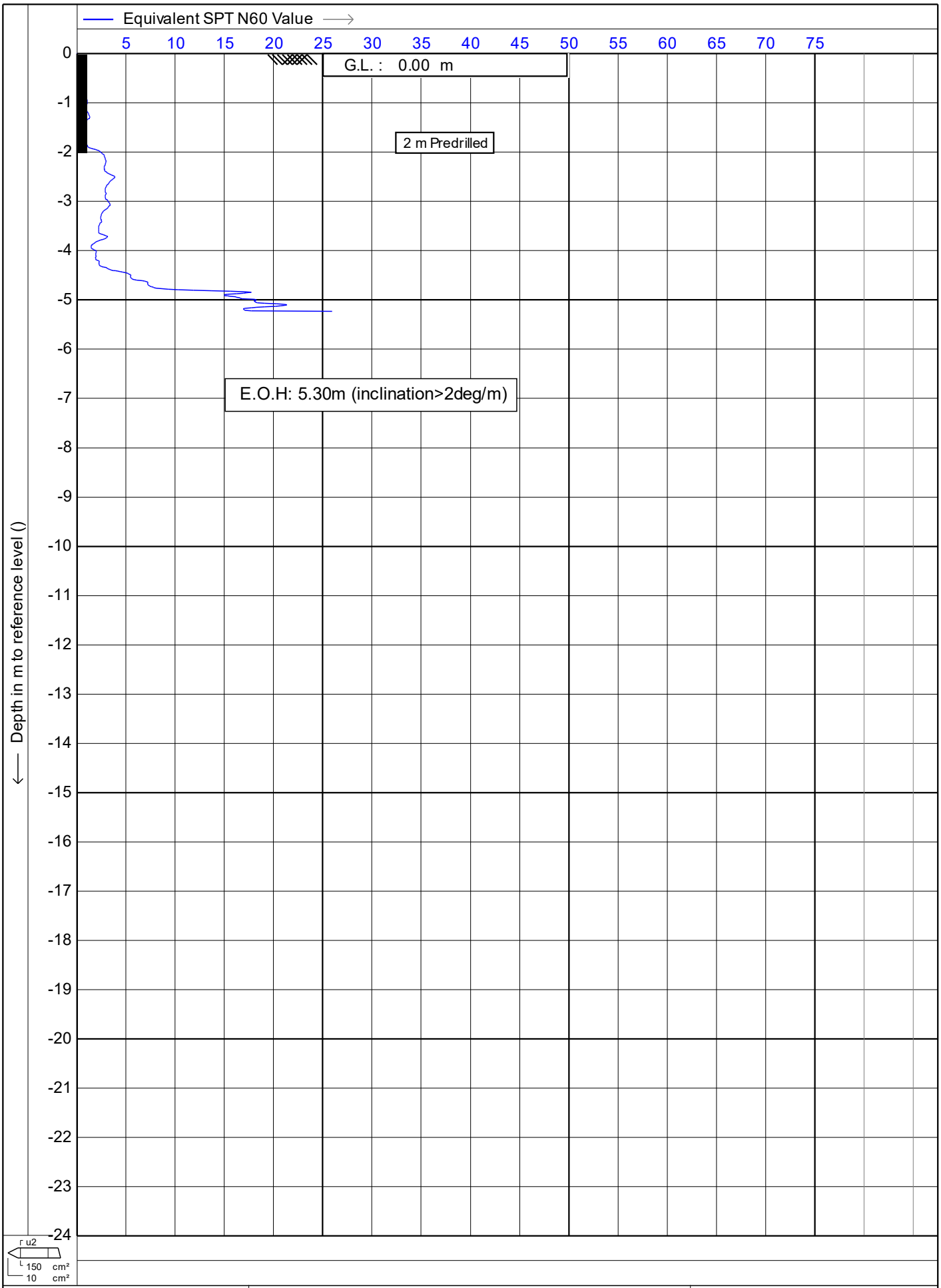
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073486, 174.073486 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_05** 11/15

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

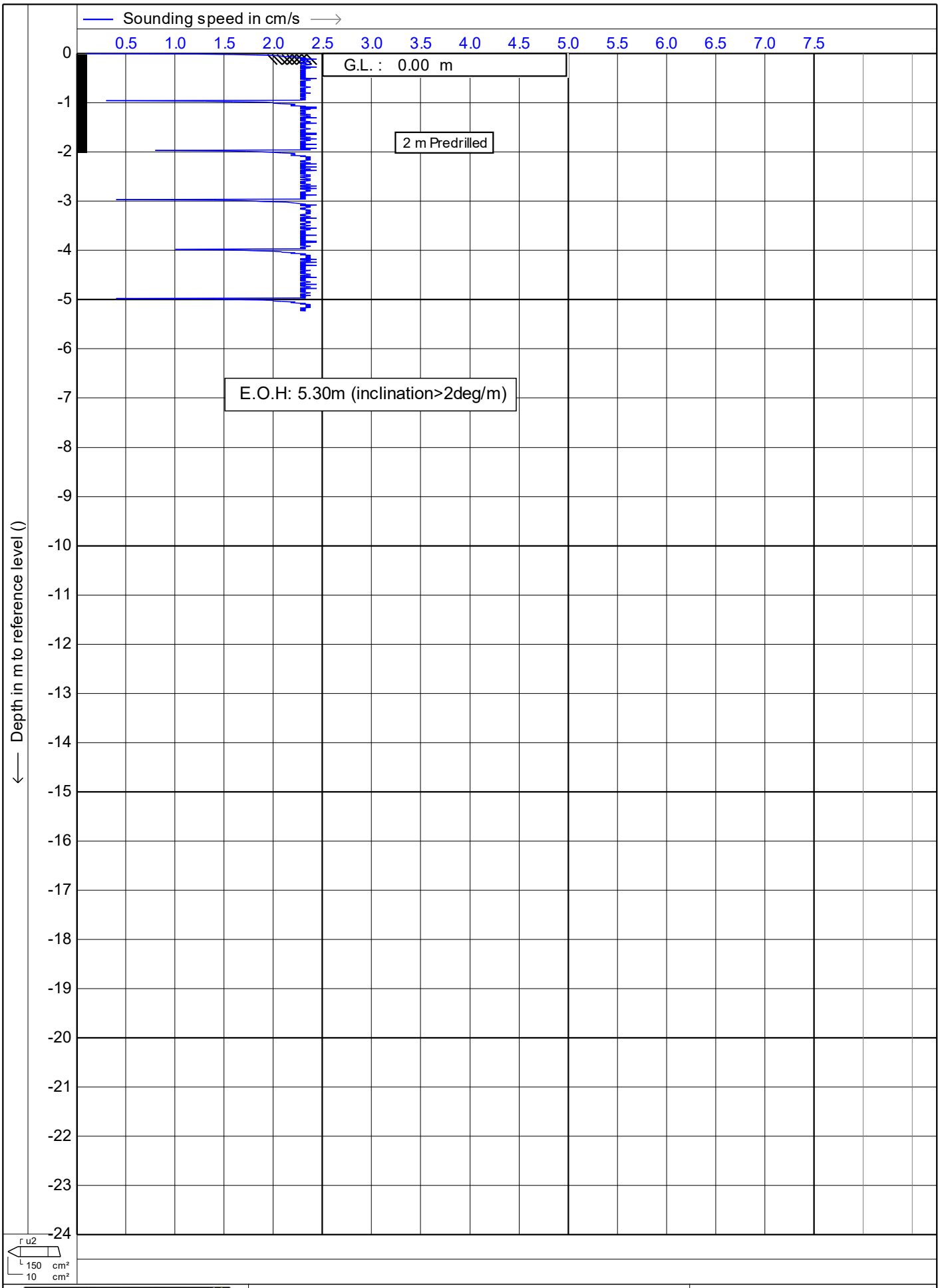
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073486, 174.073486 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_05** **12/15**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

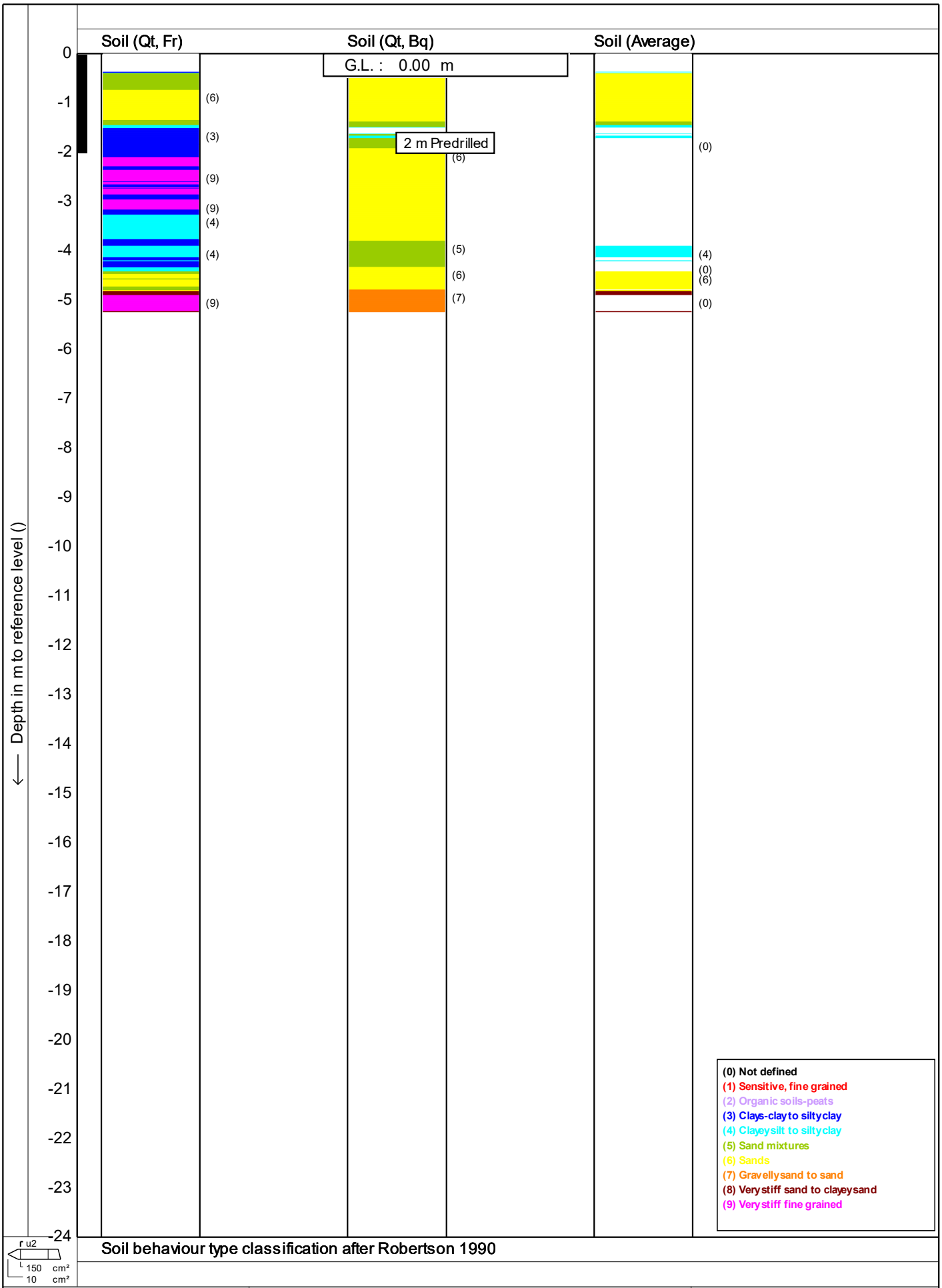
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073486, 174.073486 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_05** **13/15**

1.47



Soil behaviour type classification after Robertson 1990

DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

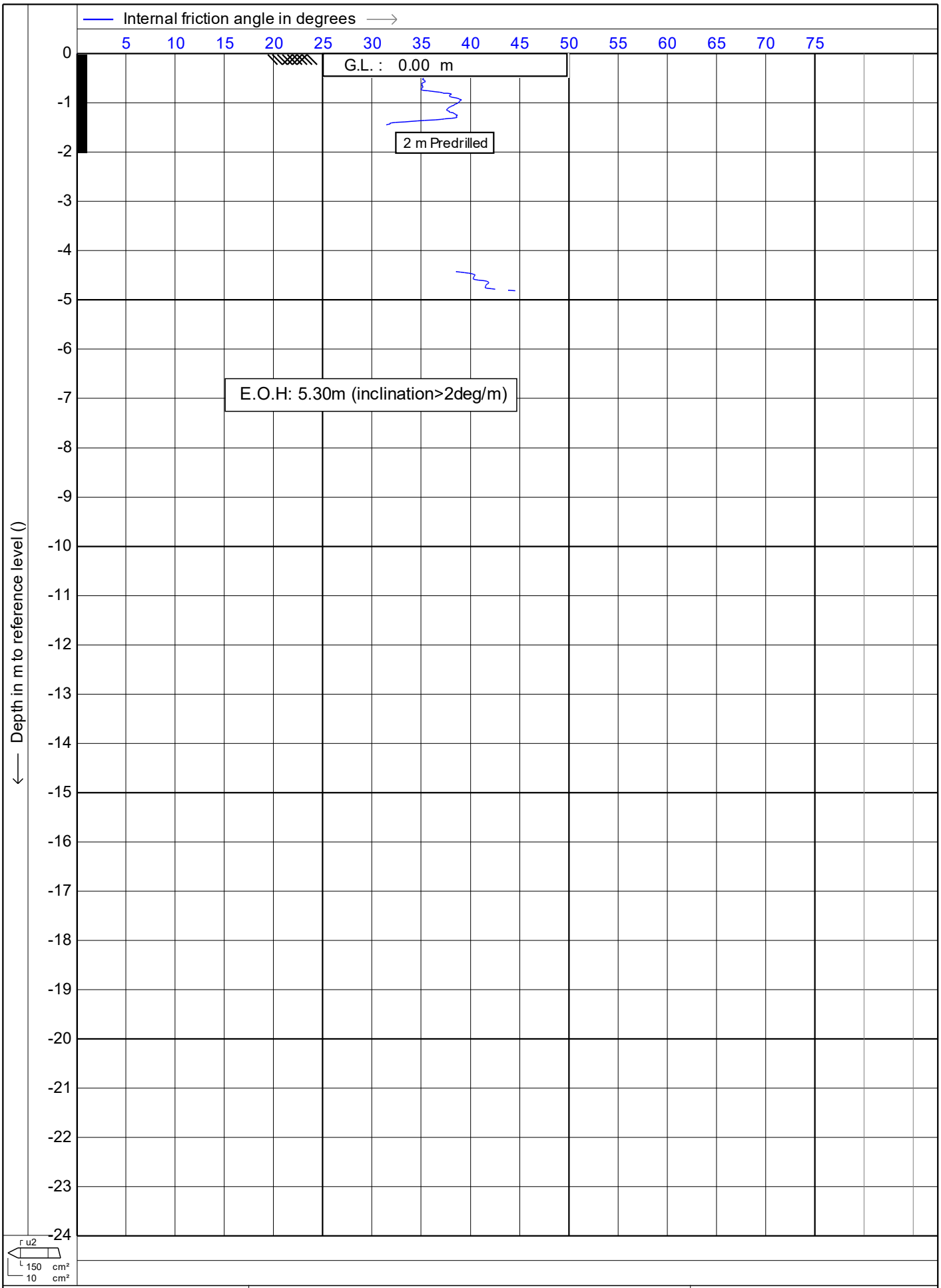
Project : **51 Brougham Street**

Location: **51 Brougham Street, New Plymouth**

Position: **174.073486, 174.073486 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_05**

1.47



DRILLFORCE
THE DRILLING SPECIALISTS

Test according NEN 5140 class 1

Project : **51 Brougham Street**

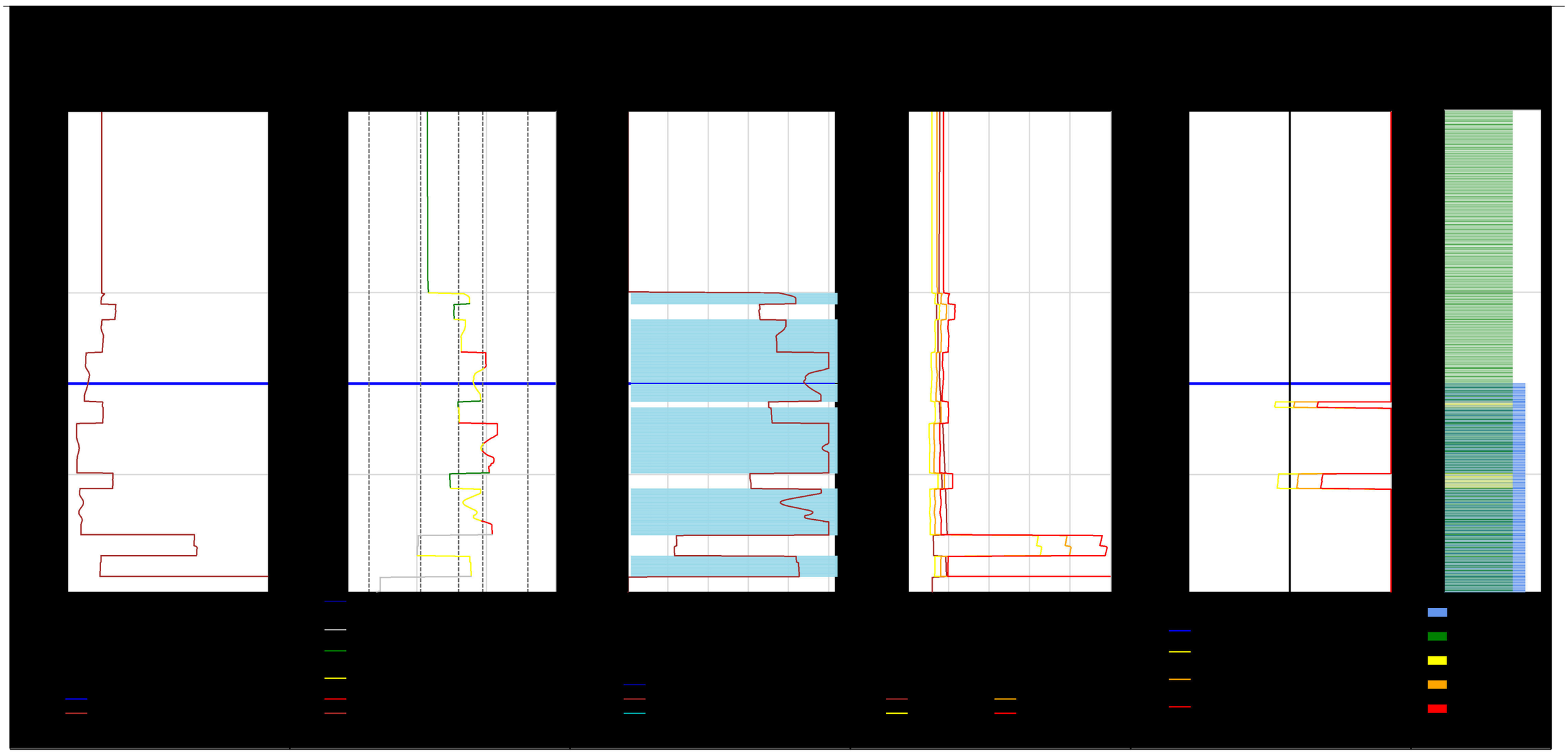
Location: **51 Brougham Street, New Plymouth**

Position: **174.073486, 174.073486 WGS 84**

Date	: **1/01/2014**
Cone no.	: **S10CFIIP.S15297**
Project no.	: **DF19GE160**
CPT no.	: **CPT_05** **15/15**

1.47

Appendix D: Liquefaction assessment



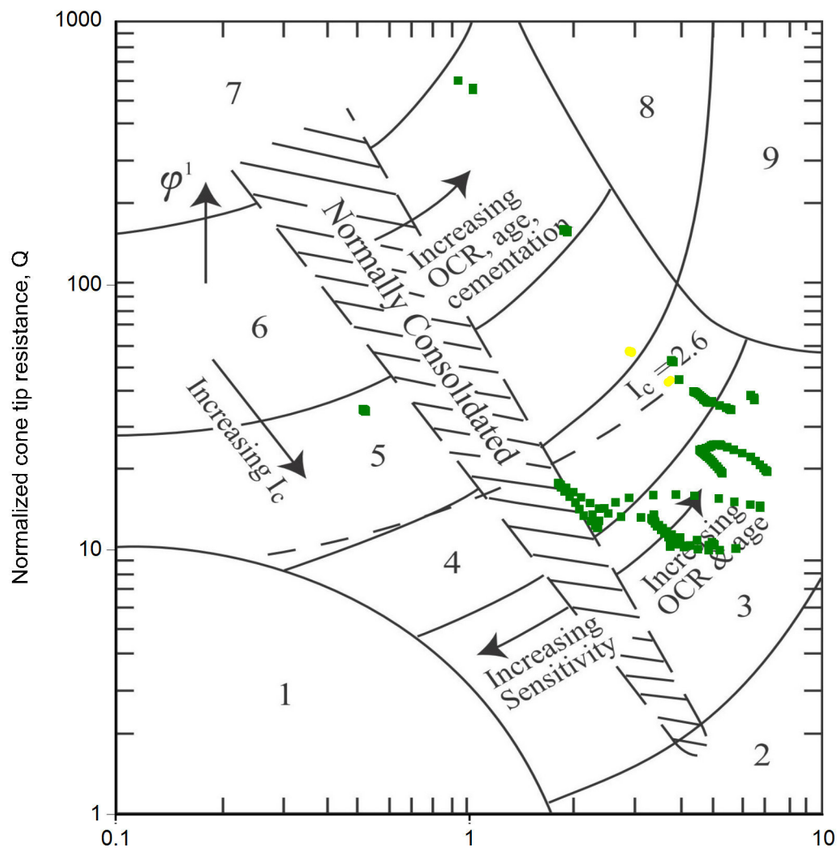
Note: Inverse filtered Qc/Fs data (10 cm²) used.

	Run Description	TTGD ID	Investigation Date	Pre-drill (m)	Magnitude	PGA (g)	Trigger Method	Settlement Method	γ (kN/m³)	Surcharge/Cut/Fill	Surcharge (kPa)	Cut/Fill Height (m)
INPUT	CPT01	140508	30/07/2019	2	6	0.29	BI-2014	ZRB-2002	18		0	

	PL	SV1D (mm)	CTL (m)	LPI	LSN	CT (m)	LPIish
OUTPUT	15%	4	0.2	0	1	4	0
	50%	2	0	0	0	5.3	0
	85%	1	0	0	0	5.3	0

Reviewed by:

CPT Inversion	ammw
Groundwater	ammw
Susceptibility	ammw
Triggering	ammw
Consequence	ammw

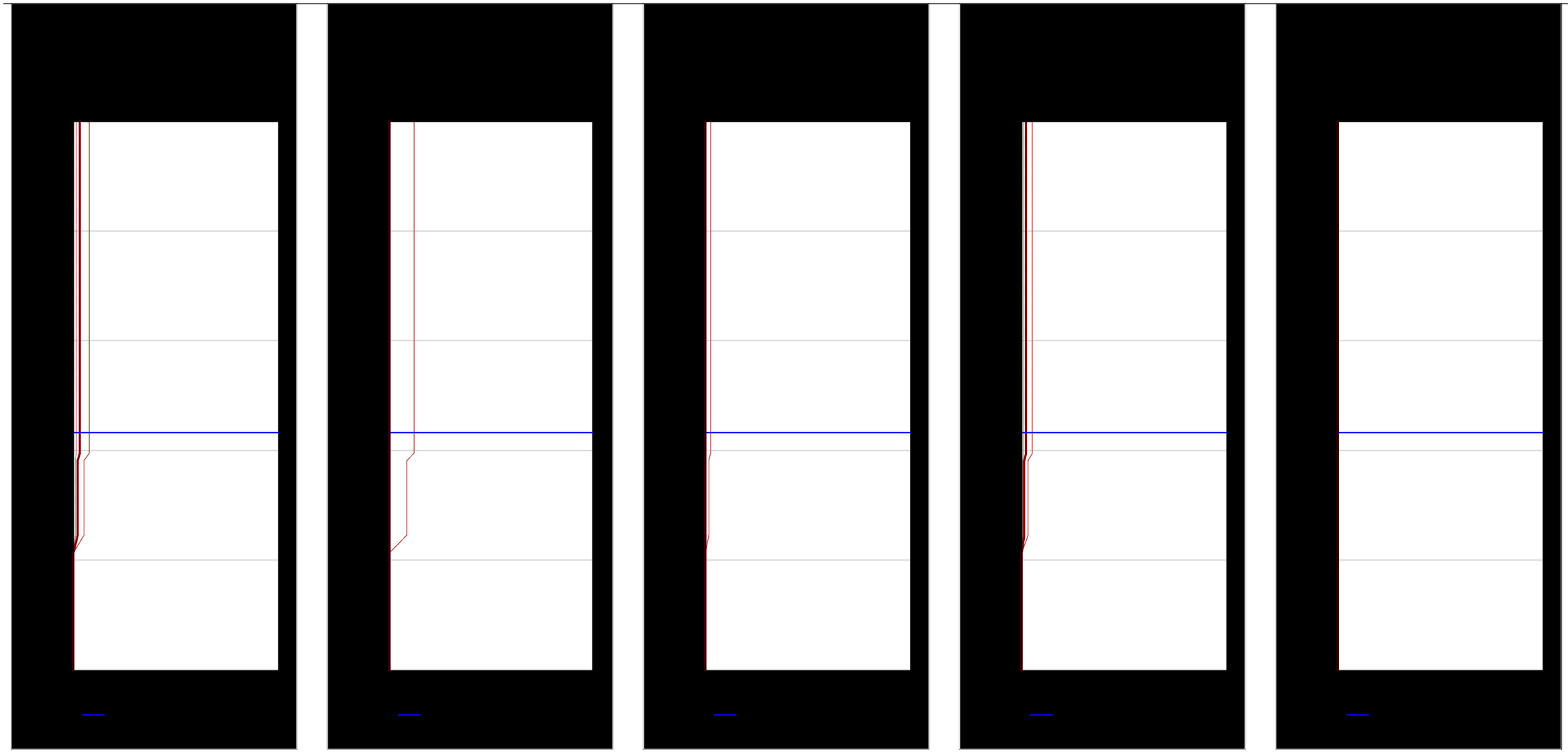


Unlikely to liquefy
15% liquefaction probability
50% liquefaction probability
85% liquefaction probability

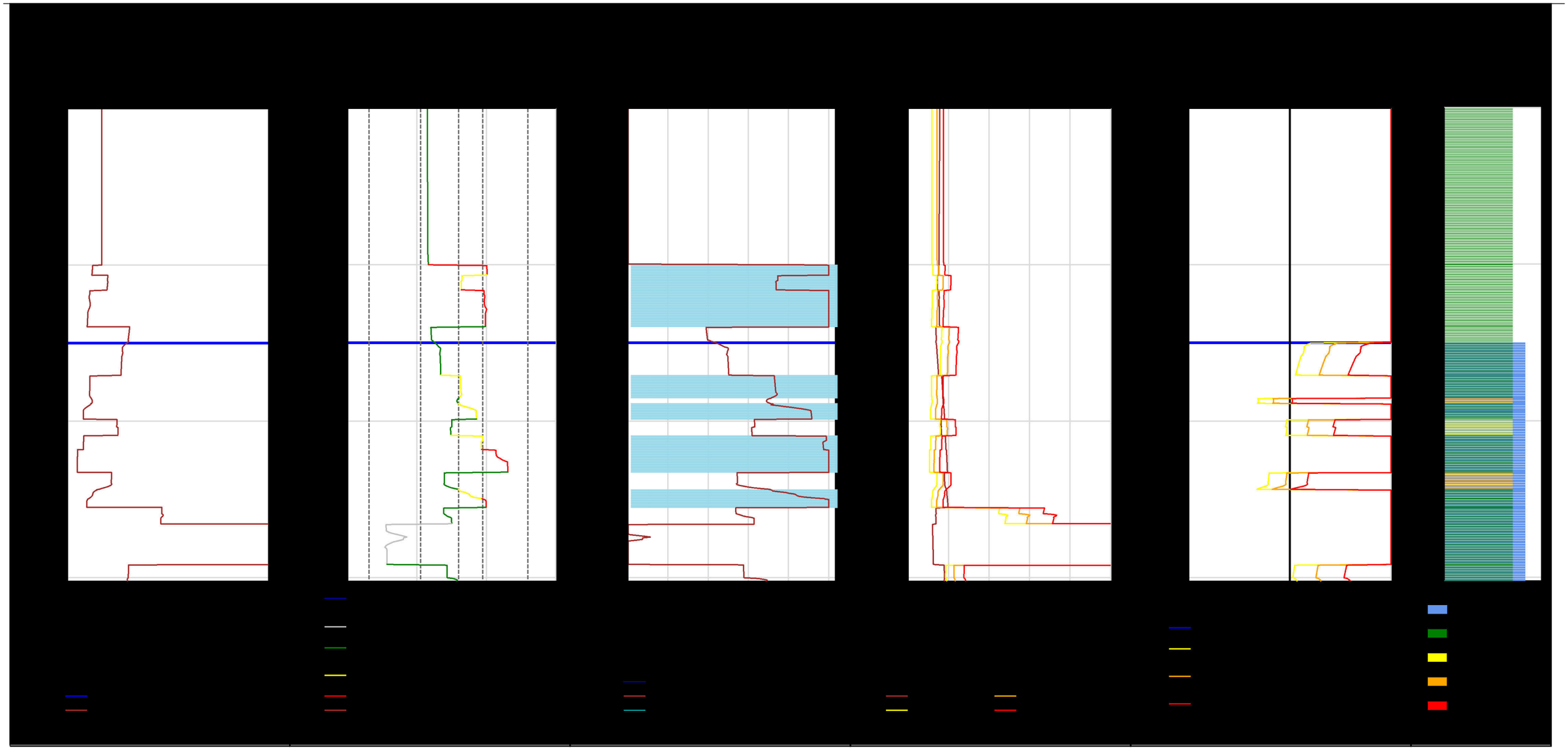
1. Sensitive, fine grained
2. Organic soils - peats
3. Clays - silty clay to clay
4. Silt mixtures - clayey silt to silty clay
5. Sand mixtures - silty sand to sandy silt
6. Sands - clean sand to silty sand
7. Gravelly sand to dense sand
8. Very stiff sand to clayey sand *
9. Very stiff, fine grained *

*Heavily overconsolidated or cemented

CPT-based soil behavior type classification chart by Robertson (1990)



	Run Description	TTGD ID	Investigation Date	Pre-drill (m)	Magnitude	PGA (g)	Trigger Method	Settlement Method	ɣ (kN/m³)	Surcharge/Cut/Fill	Surcharge (kPa)	Cut/Fill Height (m)
INPUT	CPT01	140508	30/07/2019	2	6	0.29	BI-2014	ZRB-2002	18		0	



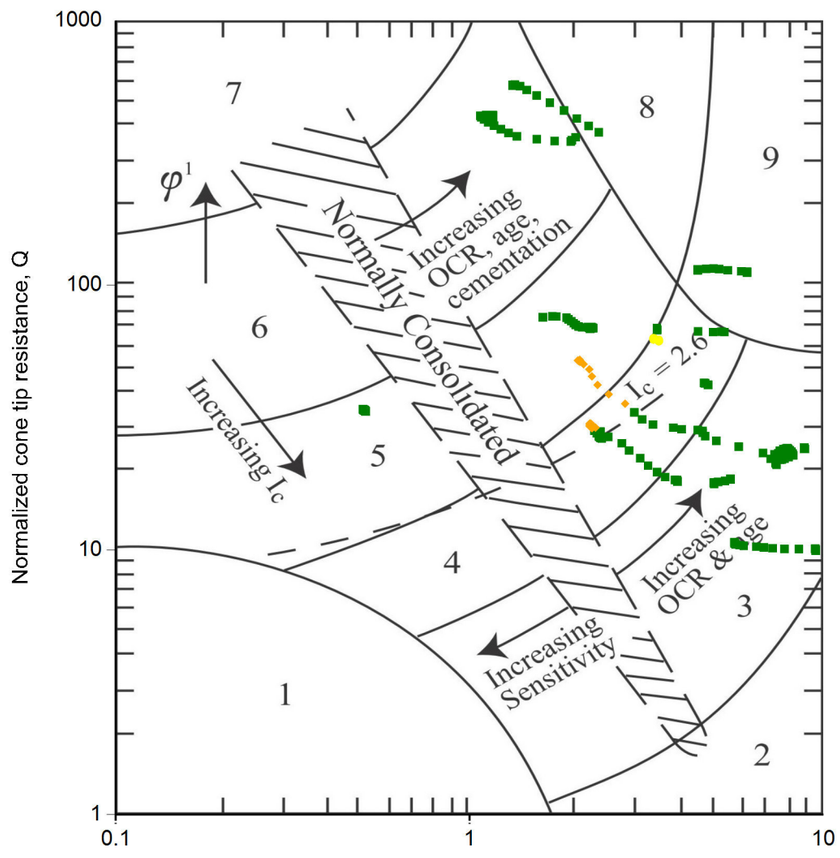
Note: Inverse filtered Qc/Fs data (10 cm²) used.

	Run Description	TTGD ID	Investigation Date	Pre-drill (m)	Magnitude	PGA (g)	Trigger Method	Settlement Method	ɣ (kN/m³)	Surcharge/Cut/Fill	Surcharge (kPa)	Cut/Fill Height (m)
INPUT	CPT01A	140510	30/07/2019	2	6	0.29	BI-2014	ZRB-2002	18		0	

	PL	SV1D (mm)	CTL (m)	LPI	LSN	CT (m)	LPIish
OUTPUT	15%	12	0.5	1	3	4	0
	50%	7	0.3	0	2	4.7	0
	85%	3	0	0	1	6	0

Reviewed by:

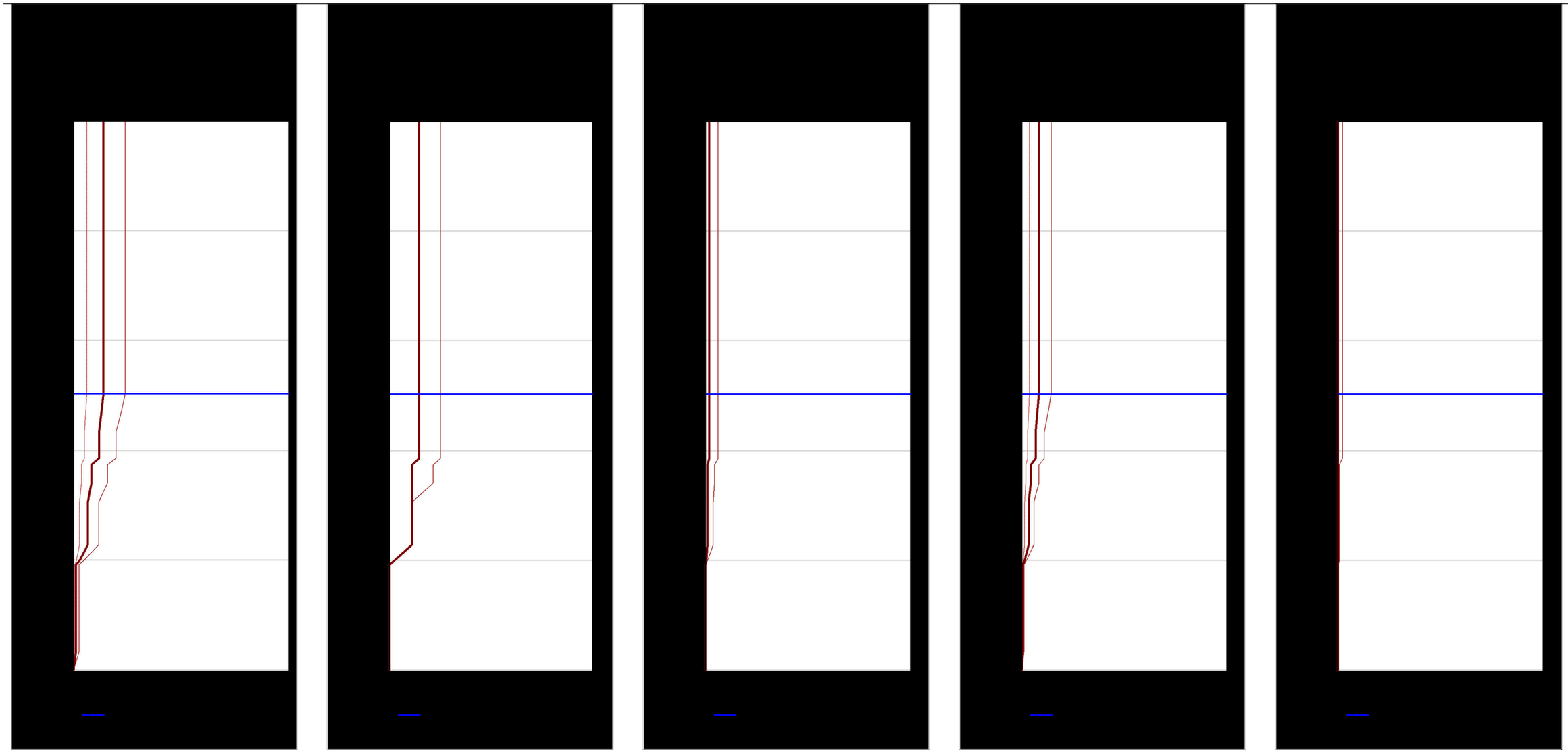
CPT Inversion	ammw
Groundwater	ammw
Susceptibility	ammw
Triggering	ammw
Consequence	ammw



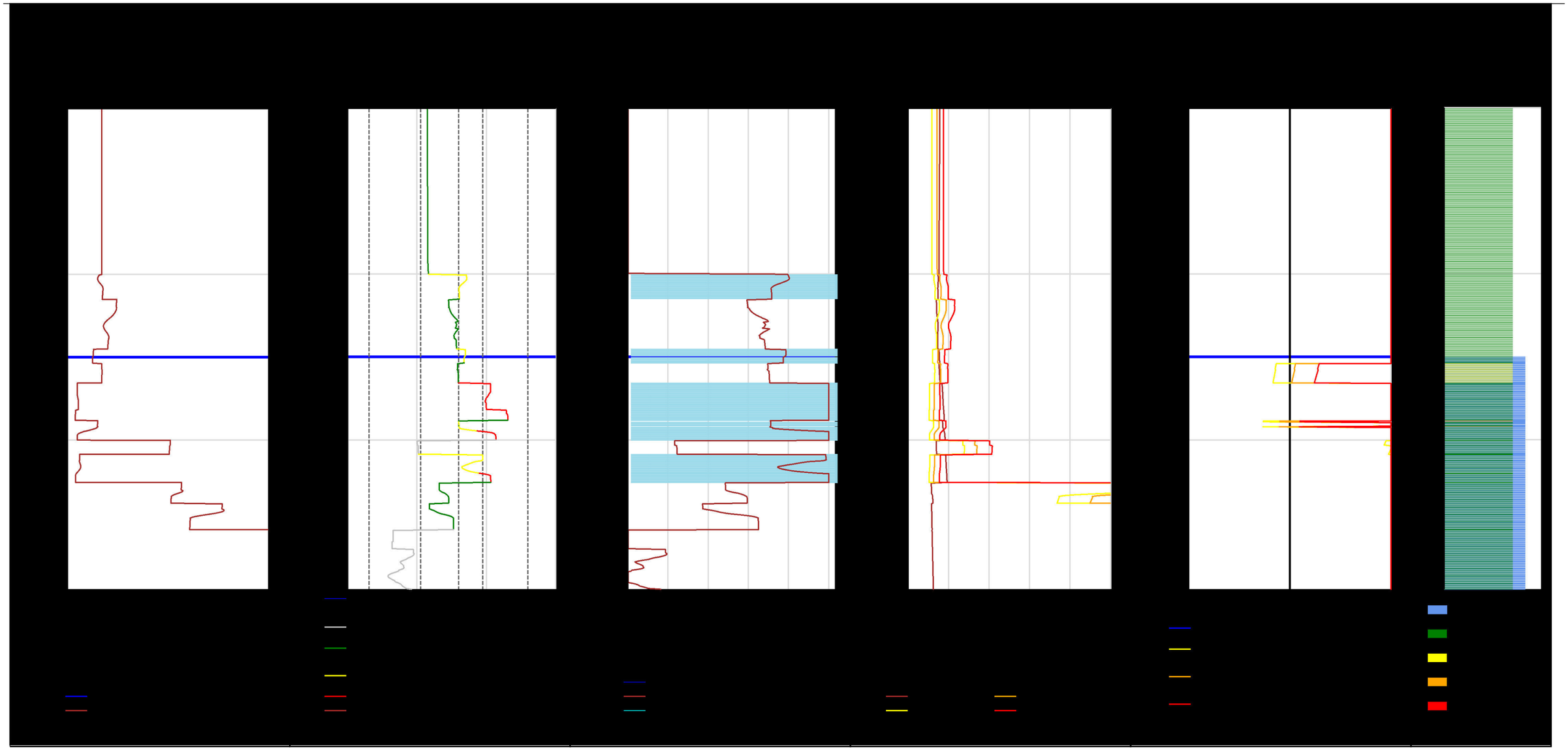
1. Sensitive, fine grained
2. Organic soils - peats
3. Clays - silty clay to clay
4. Silt mixtures - clayey silt to silty clay
5. Sand mixtures - silty sand to sandy silt
6. Sands - clean sand to silty sand
7. Gravelly sand to dense sand
8. Very stiff sand to clayey sand *
9. Very stiff, fine grained *

*Heavily overconsolidated or cemented

CPT-based soil behavior type classification chart by Robertson (1990)



	Run Description	TTGD ID	Investigation Date	Pre-drill (m)	Magnitude	PGA (g)	Trigger Method	Settlement Method	ɣ (kN/m³)	Surcharge/Cut/Fill	Surcharge (kPa)	Cut/Fill Height (m)
INPUT	CPT01A	140510	30/07/2019	2	6	0.29	BI-2014	ZRB-2002	18		0	



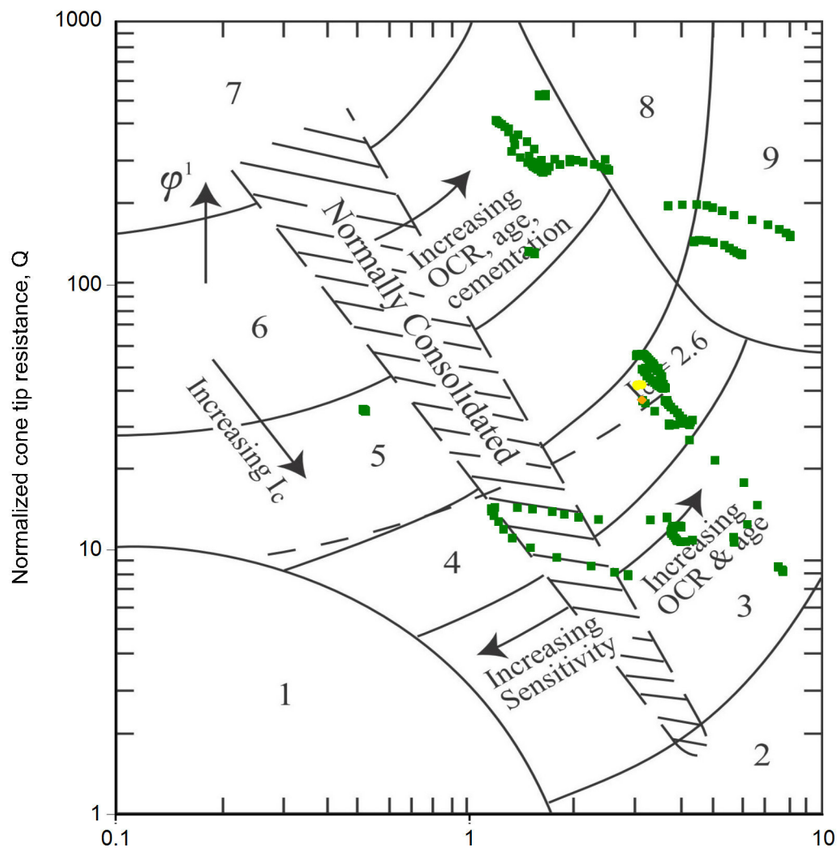
Note: Inverse filtered Qc/Fs data (10 cm²) used.

	Run Description	TTGD ID	Investigation Date	Pre-drill (m)	Magnitude	PGA (g)	Trigger Method	Settlement Method	γ (kN/m³)	Surcharge/Cut/Fill	Surcharge (kPa)	Cut/Fill Height (m)
INPUT	CPT02	140509	30/07/2019	2	6	0.29	BI-2014	ZRB-2002	18		0	

	PL	SV1D (mm)	CTL (m)	LPI	LSN	CT (m)	LPIish
OUTPUT	15%	5	0.3	0	2	3.2	0
	50%	2	0	0	1	5.8	0
	85%	1	0	0	0	5.8	0

Reviewed by:

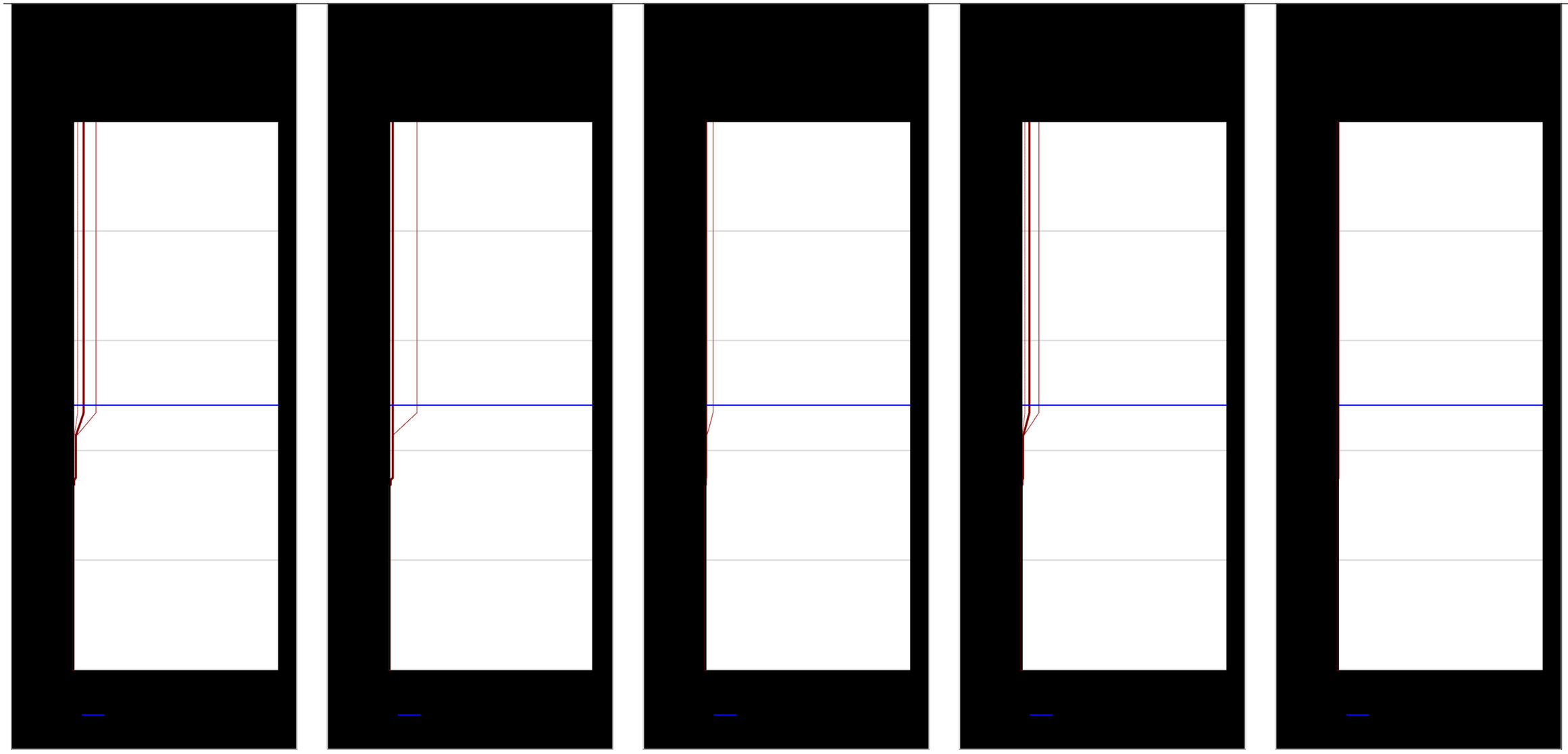
CPT Inversion	ammw
Groundwater	ammw
Susceptibility	ammw
Triggering	ammw
Consequence	ammw



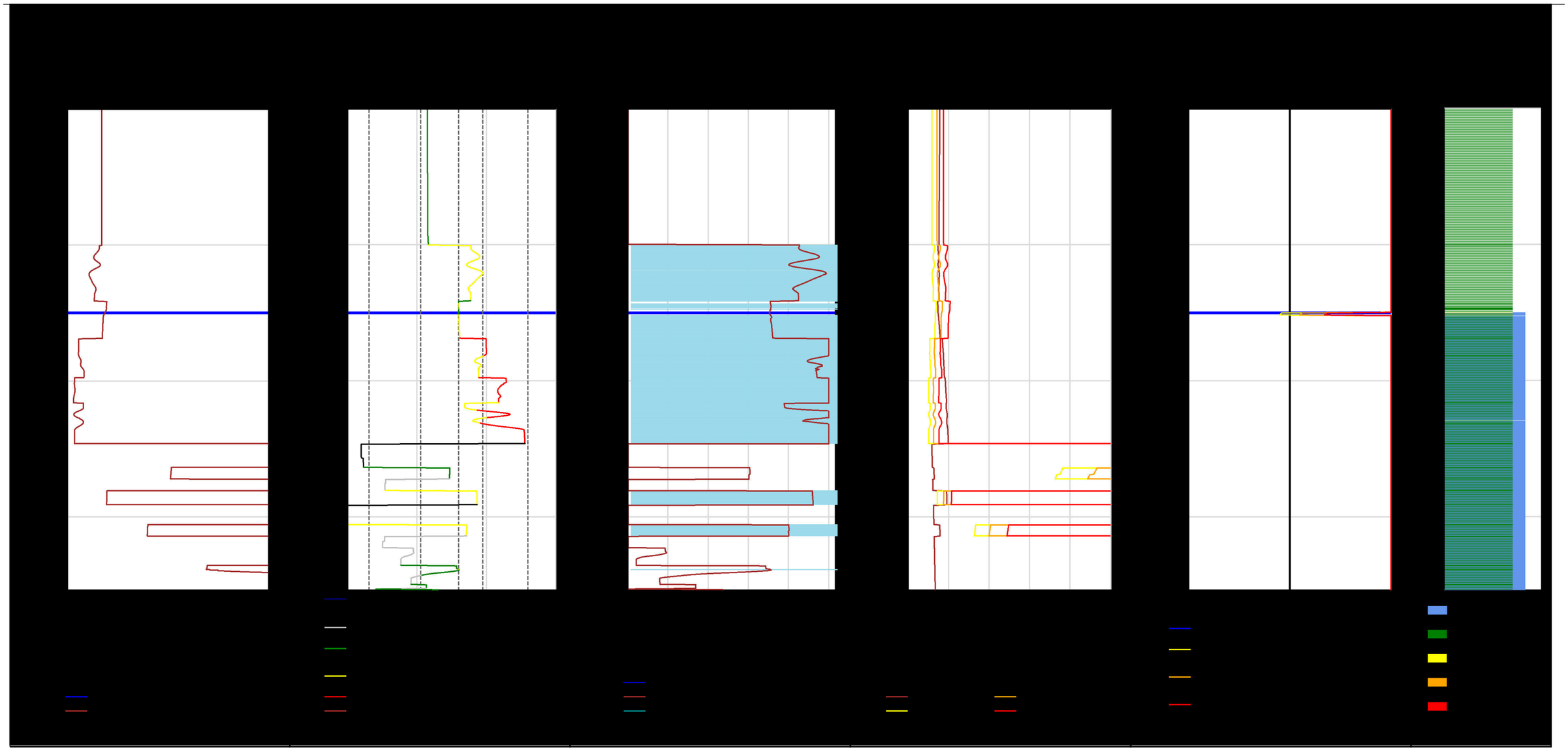
1. Sensitive, fine grained
2. Organic soils - peats
3. Clays - silty clay to clay
4. Silt mixtures - clayey silt to silty clay
5. Sand mixtures - silty sand to sandy silt
6. Sands - clean sand to silty sand
7. Gravelly sand to dense sand
8. Very stiff sand to clayey sand *
9. Very stiff, fine grained *

*Heavily overconsolidated or cemented

CPT-based soil behavior type classification chart by Robertson (1990)



	Run Description	TTGD ID	Investigation Date	Pre-drill (m)	Magnitude	PGA (g)	Trigger Method	Settlement Method	ɣ (kN/m³)	Surcharge/Cut/Fill	Surcharge (kPa)	Cut/Fill Height (m)
INPUT	CPT02	140509	30/07/2019	2	6	0.29	BI-2014	ZRB-2002	18		0	



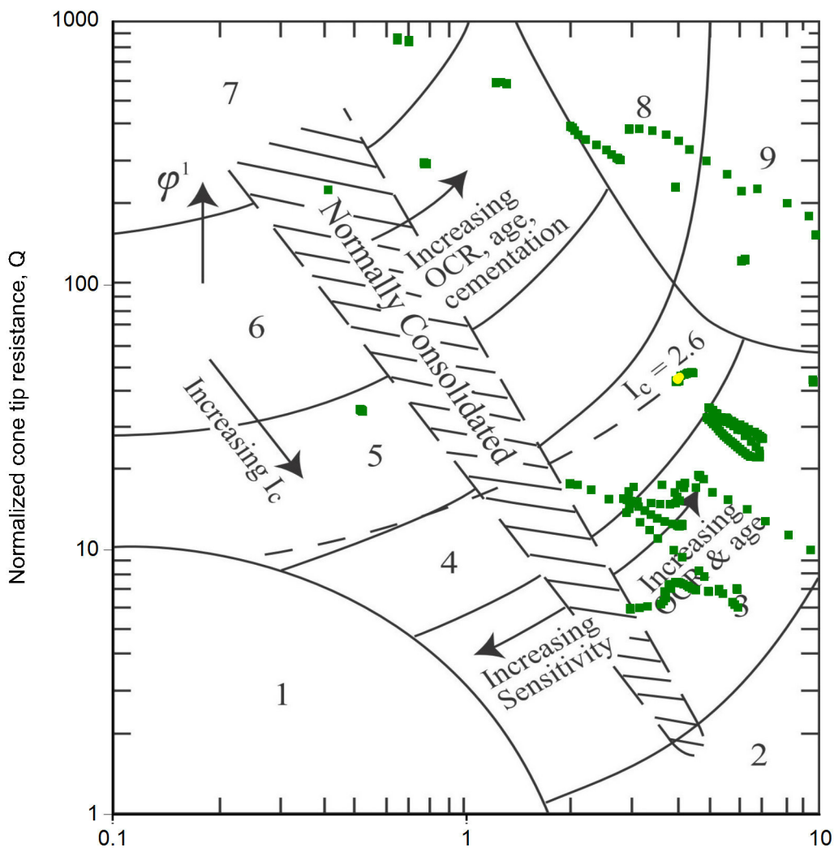
Note: Inverse filtered Qc/Fs data (10 cm²) used.

	Run Description	TTGD ID	Investigation Date	Pre-drill (m)	Magnitude	PGA (g)	Trigger Method	Settlement Method	ɣ (kN/m³)	Surcharge/Cut/Fill	Surcharge (kPa)	Cut/Fill Height (m)
INPUT	CPT04	140514	1/01/2014	2	6	0.29	BI-2014	ZRB-2002	18		0	

	PL	SV1D (mm)	CTL (m)	LPI	LSN	CT (m)	LPIish
OUTPUT	15%	1	0	0	0	7.1	0
	50%	0	0	0	0	7.1	0
	85%	0	0	0	0	7.1	0

Reviewed by:

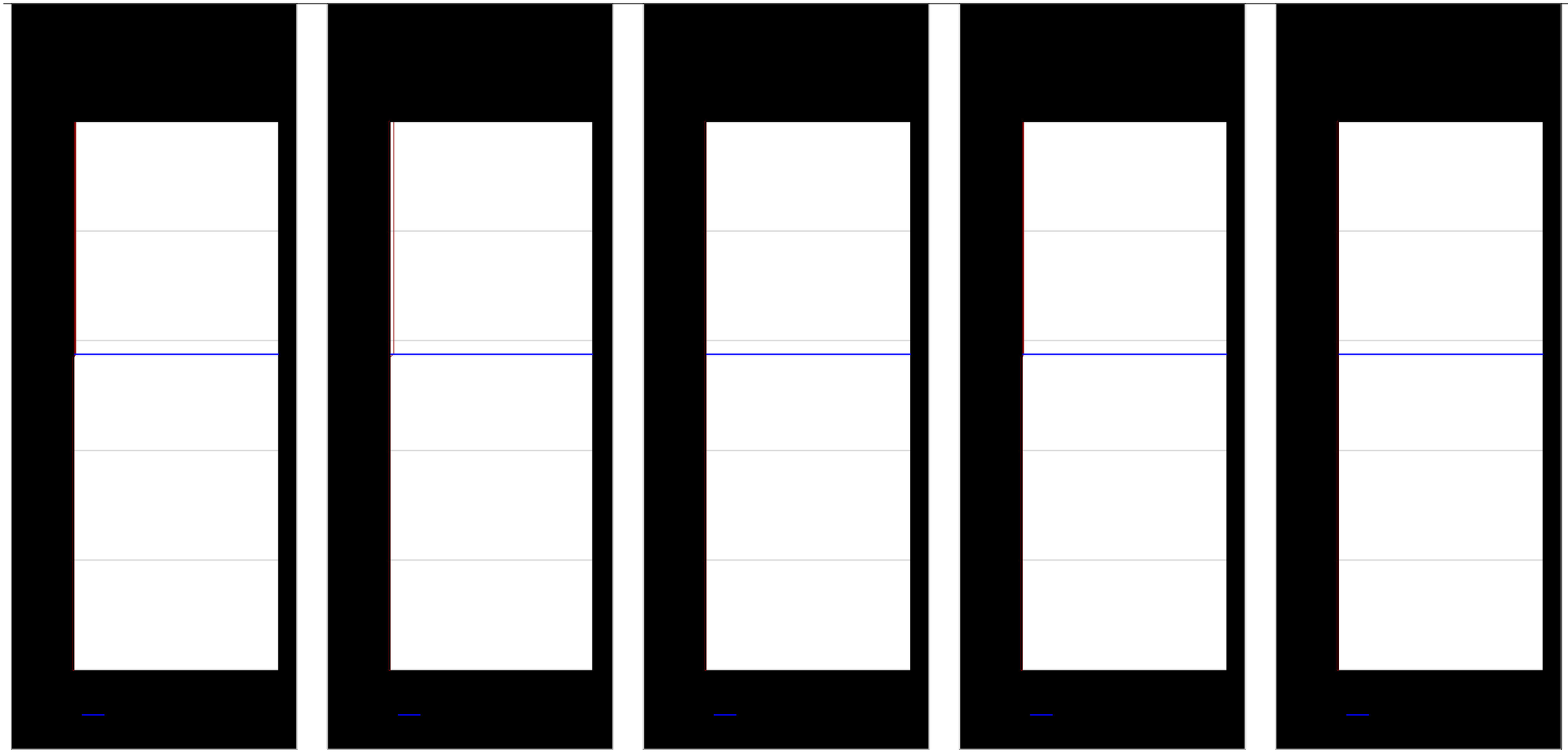
CPT Inversion	ammw
Groundwater	ammw
Susceptibility	ammw
Triggering	ammw
Consequence	ammw



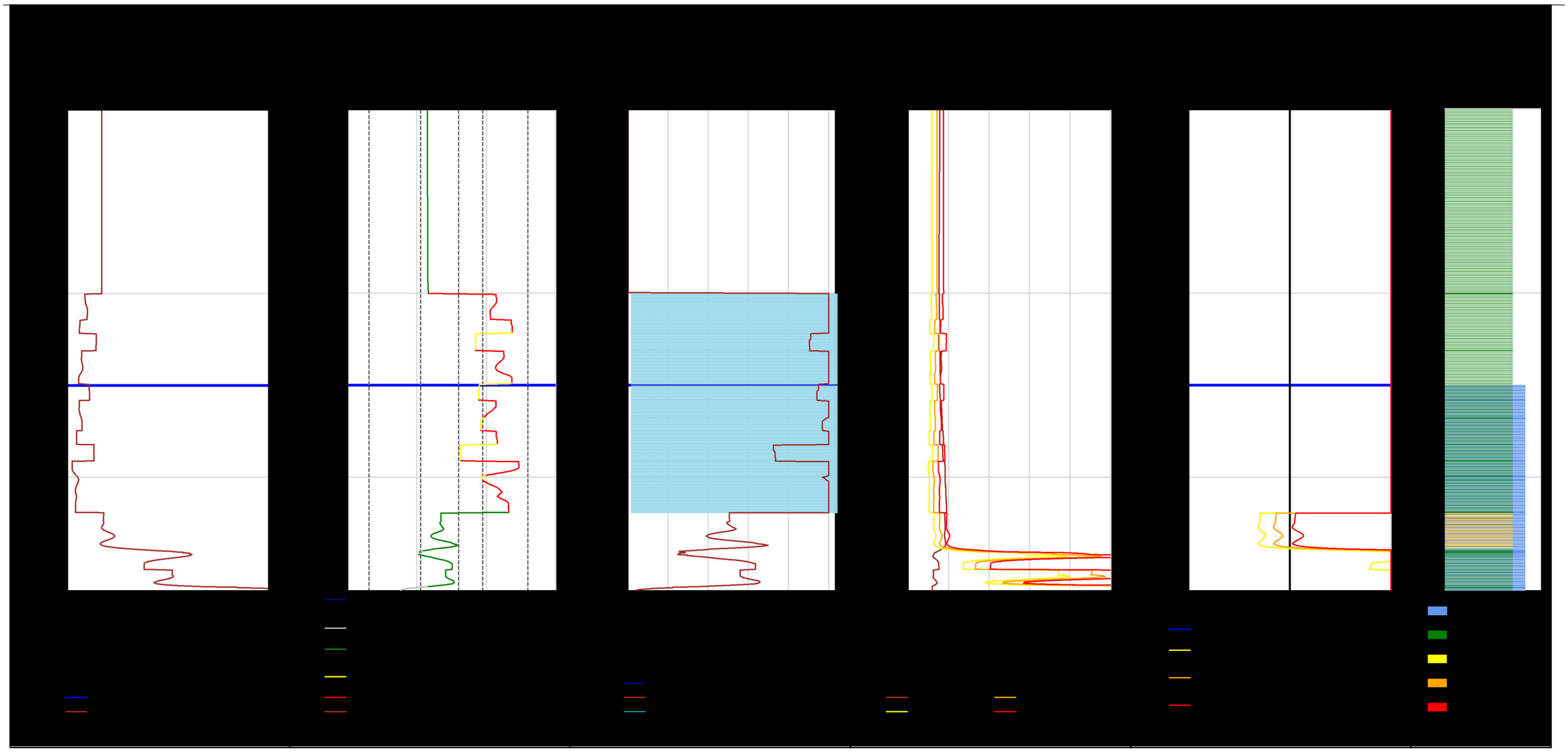
1. Sensitive, fine grained
2. Organic soils - peats
3. Clays - silty clay to clay
4. Silt mixtures - clayey silt to silty clay
5. Sand mixtures - silty sand to sandy silt
6. Sands - clean sand to silty sand
7. Gravelly sand to dense sand
8. Very stiff sand to clayey sand *
9. Very stiff, fine grained *

*Heavily overconsolidated or cemented

CPT-based soil behavior type classification chart by Robertson (1990)



	Run Description	TTGD ID	Investigation Date	Pre-drill (m)	Magnitude	PGA (g)	Trigger Method	Settlement Method	ɣ (kN/m³)	Surcharge/Cut/Fill	Surcharge (kPa)	Cut/Fill Height (m)
INPUT	CPT04	140514	1/01/2014	2	6	0.29	BI-2014	ZRB-2002	18		0	



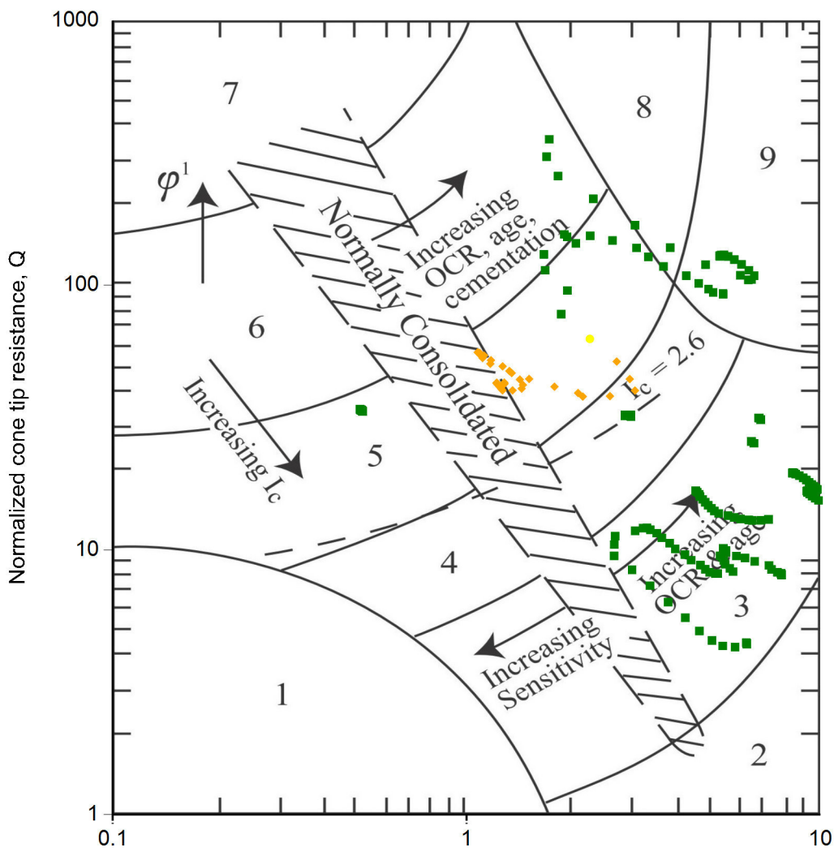
Note: Inverse filtered Qc/Fs data (10 cm²) used.

	Run Description	TTGD ID	Investigation Date	Pre-drill (m)	Magnitude	PGA (g)	Trigger Method	Settlement Method	ɣ (kN/m³)	Surcharge/Cut/Fill	Surcharge (kPa)	Cut/Fill Height (m)
INPUT	CPT05	140515	1/01/2014	2	6	0.29	BI-2014	ZRB-2002	18		0	

	PL	SV1D (mm)	CTL (m)	LPI	LSN	CT (m)	LPIish
OUTPUT	15%	10	0.4	1	2	4.5	0
	50%	7	0.4	0	2	4.5	0
	85%	3	0	0	1	5.2	0

Reviewed by:

CPT Inversion	ammw
Groundwater	ammw
Susceptibility	ammw
Triggering	ammw
Consequence	ammw

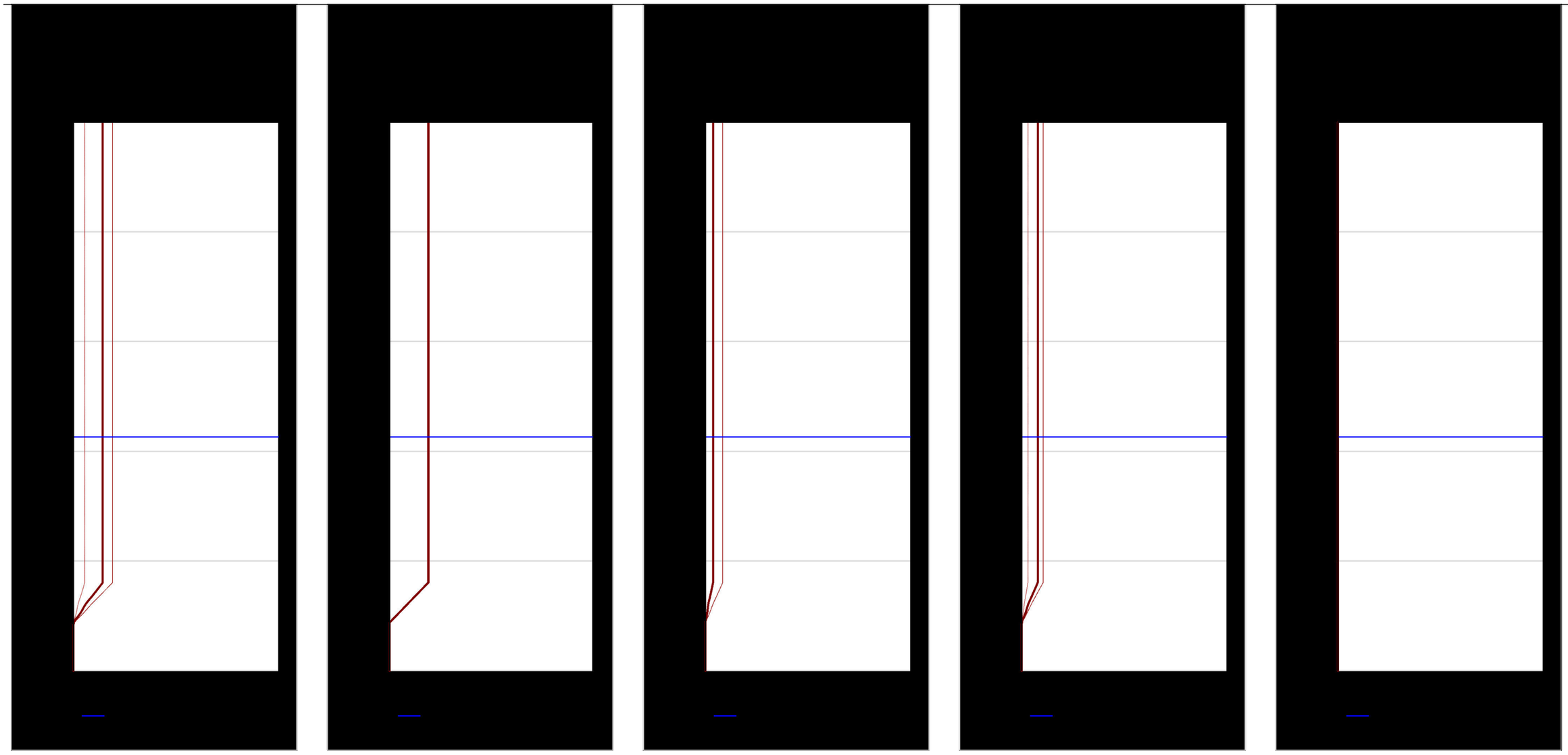


Unlikely to liquefy
15% liquefaction probability
50% liquefaction probability
85% liquefaction probability

1. Sensitive, fine grained
2. Organic soils - peats
3. Clays - silty clay to clay
4. Silt mixtures - clayey silt to silty clay
5. Sand mixtures - silty sand to sandy silt
6. Sands - clean sand to silty sand
7. Gravelly sand to dense sand
8. Very stiff sand to clayey sand *
9. Very stiff, fine grained *

*Heavily overconsolidated or cemented

CPT-based soil behavior type classification chart by Robertson (1990)

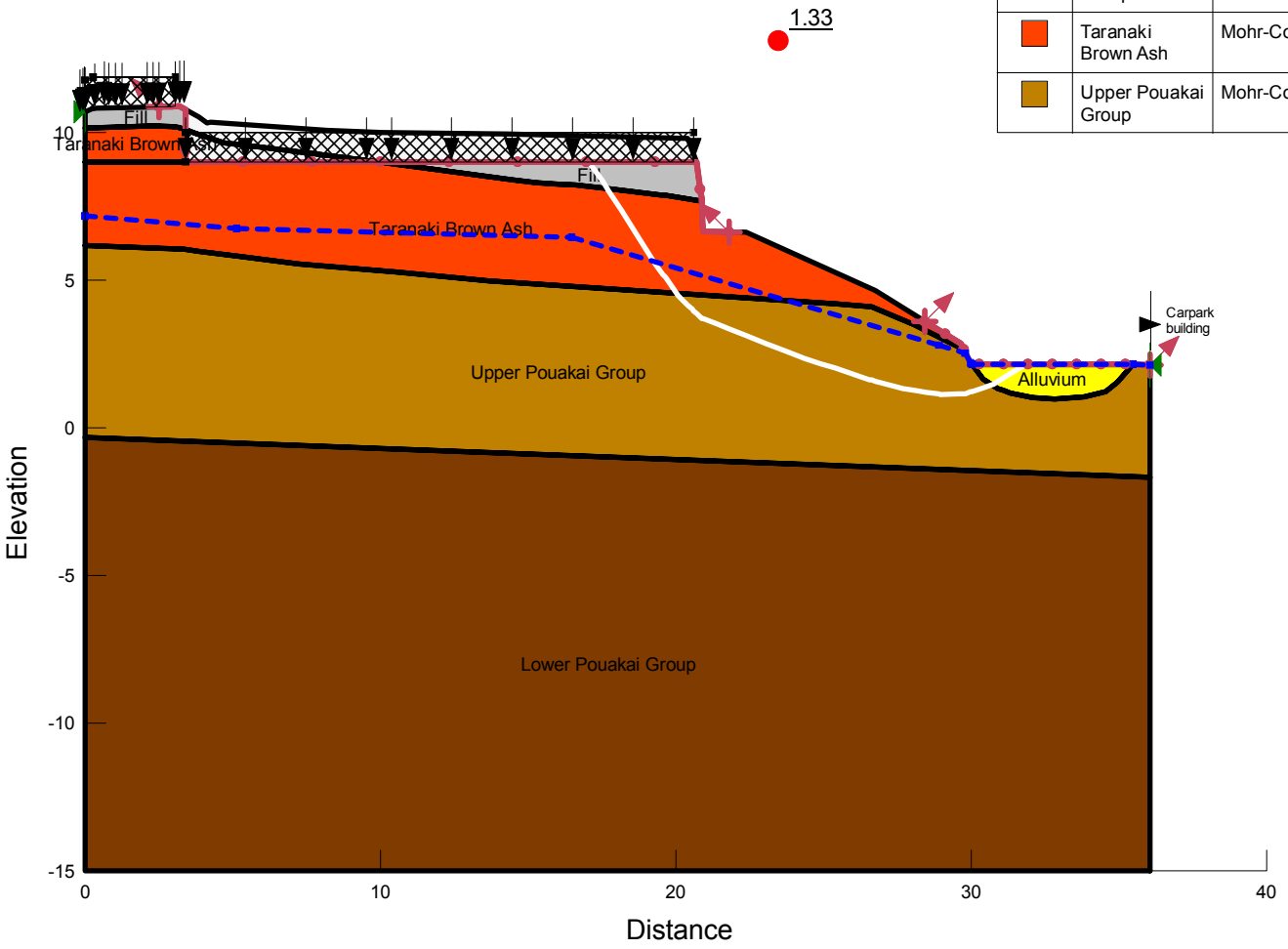


	Run Description	TTGD ID	Investigation Date	Pre-drill (m)	Magnitude	PGA (g)	Trigger Method	Settlement Method	ɣ (kN/m³)	Surcharge/Cut/Fill	Surcharge (kPa)	Cut/Fill Height (m)
INPUT	CPT05	140515	1/01/2014	2	6	0.29	BI-2014	ZRB-2002	18		0	

Appendix E: Slope stability analyses

Analysis Notes:
1. Name: 2. Static Normal GW Conditions
2. Method: Morgenstern-Price
3. Direction of movement: Left to Right
4. Slip Surface Option: Entry and Exit
5. PWP Conditions Source: Piezometric Line
6. Optimization: Yes
7. Tension Crack Option: (none)
8. F of S Calculation Option: Constant
9. Horz Seismic Load:

Color	Name	Model	Unit Weight (kN/m³)	Cohesion' (kPa)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	18	2	32	1
	Fill	Mohr-Coulomb	16	2	30	1
	Lower Pouakai Group	Mohr-Coulomb	18	0	40	1
	Taranaki Brown Ash	Mohr-Coulomb	16	5	40	1
	Upper Pouakai Group	Mohr-Coulomb	18	2	35	1



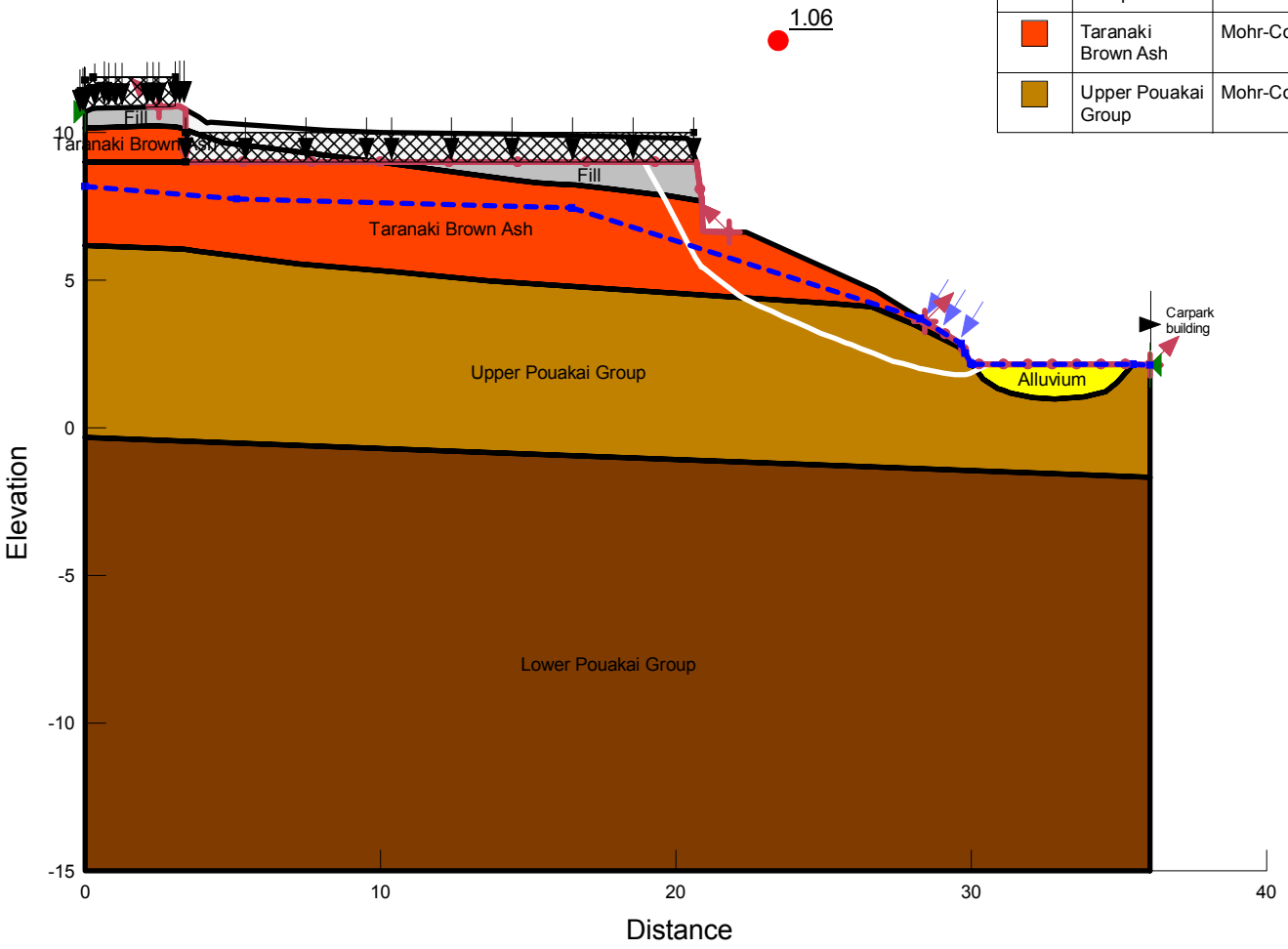
Tonkin+Taylor

Title: 51 Brougham Slope W_20191203.gsz		Job Number: 1011502.0000
Analysis: 2. Static Normal GW Conditions		Analysed by: CMCD
Comments:	Scale: 1:250 @ A4	Checked by: EMAD

Directory: P:\1011502\WorkingMaterial\Slope Stability\

Analysis Notes:
1. Name: 3. Elevated GW Conditions
2. Method: Morgenstern-Price
3. Direction of movement: Left to Right
4. Slip Surface Option: Entry and Exit
5. PWP Conditions Source: Piezometric Line
6. Optimization: Yes
7. Tension Crack Option: (none)
8. F of S Calculation Option: Constant
9. Horz Seismic Load:

Color	Name	Model	Unit Weight (kN/m³)	Cohesion' (kPa)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	18	2	32	1
	Fill	Mohr-Coulomb	16	2	30	1
	Lower Pouakai Group	Mohr-Coulomb	18	0	40	1
	Taranaki Brown Ash	Mohr-Coulomb	16	5	40	1
	Upper Pouakai Group	Mohr-Coulomb	18	2	35	1



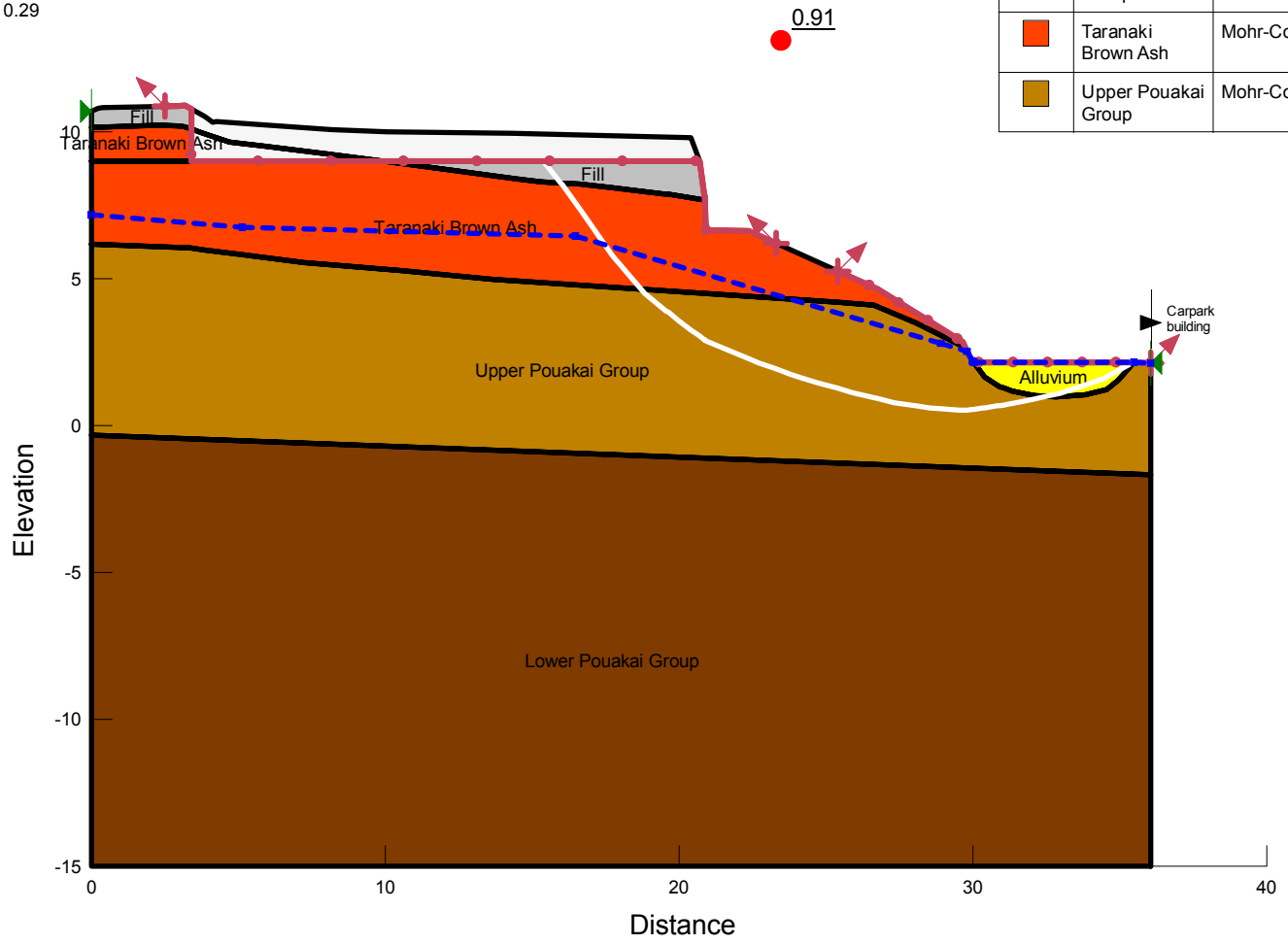
Tonkin+Taylor

Title: 51 Brougham Slope W_20191203.gsz		Job Number: 1011502.0000
Analysis: 3. Elevated GW Conditions		Analysed by: CMCD
Comments:	Scale: 1:250 @ A4	Checked by: EMAD

Directory: P:\1011502\WorkingMaterial\Slope Stability\

Analysis Notes:
1. Name: 4. Seismic with Static Normal GW Conditions
2. Method: Morgenstern-Price
3. Direction of movement: Left to Right
4. Slip Surface Option: Entry and Exit
5. PWP Conditions Source: Piezometric Line
6. Optimization: Yes
7. Tension Crack Option: (none)
8. F of S Calculation Option: Constant
9. Horz Seismic Load: 0.29

Color	Name	Model	Unit Weight (kN/m³)	Cohesion' (kPa)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	18	2	32	1
	Fill	Mohr-Coulomb	16	2	30	1
	Lower Pouakai Group	Mohr-Coulomb	18	0	40	1
	Taranaki Brown Ash	Mohr-Coulomb	16	5	40	1
	Upper Pouakai Group	Mohr-Coulomb	18	2	35	1



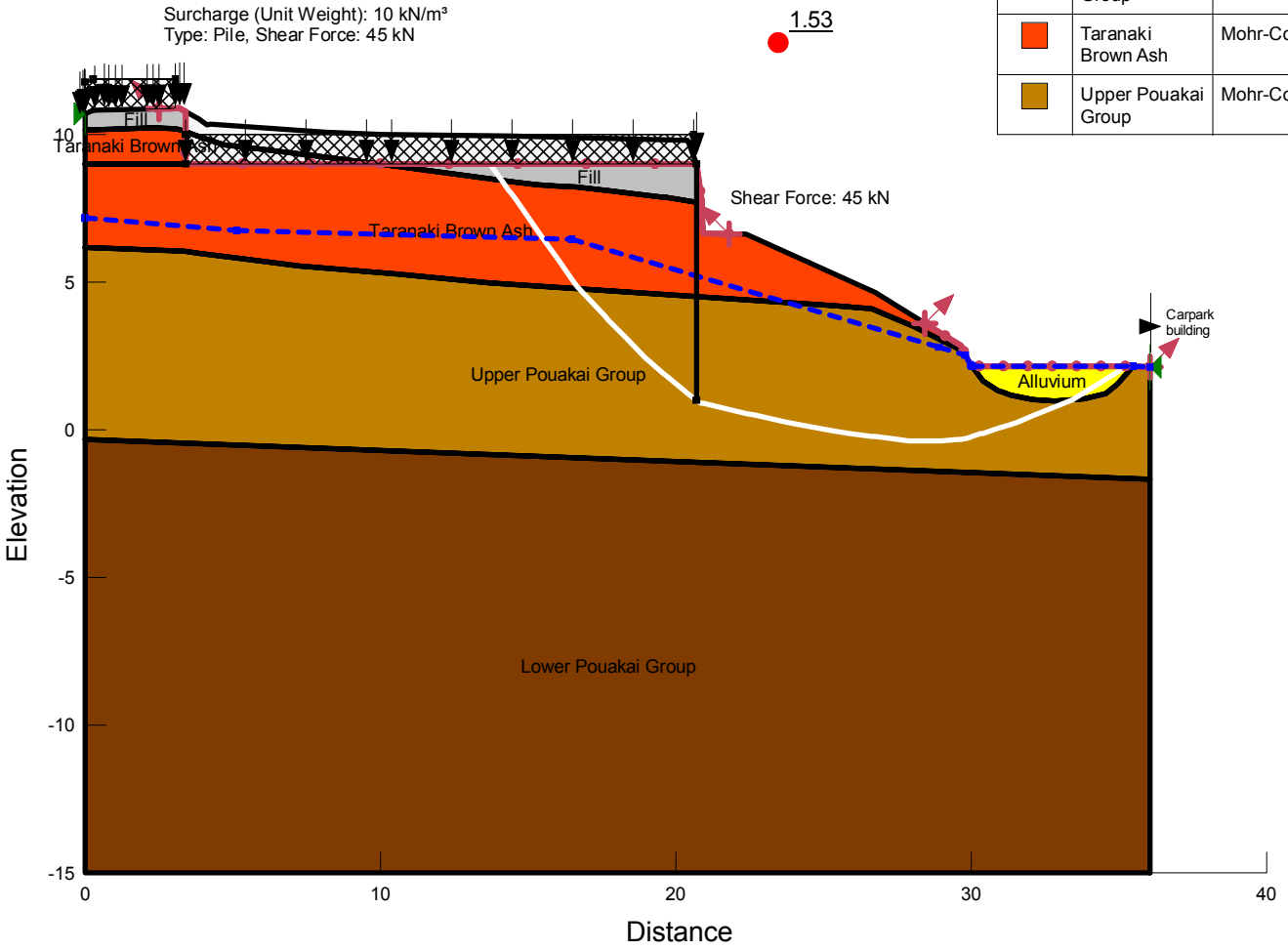
Tonkin+Taylor

Title: 51 Brougham Slope W_20191203.gsz		Job Number: 1011502.0000
Analysis: 4. Seismic with Static Normal GW Conditions		Analysed by: CMCD
Comments:	Scale: 1:250 @ A4	Checked by: EMAD

Directory: P:\1011502\WorkingMaterial\Slope Stability\

Analysis Notes:
1. Name: 2. Static Normal GW Conditions, pile length optimized
2. Method: Morgenstern-Price
3. Direction of movement: Left to Right
4. Slip Surface Option: Entry and Exit
5. PWP Conditions Source: Piezometric Line
6. Optimization: Yes
7. Tension Crack Option: (none)
8. F of S Calculation Option: Constant
9. Horz Seismic Load:

Color	Name	Model	Unit Weight (kN/m³)	Cohesion' (kPa)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	18	2	32	1
	Fill	Mohr-Coulomb	16	2	30	1
	Lower Pouakai Group	Mohr-Coulomb	18	0	40	1
	Taranaki Brown Ash	Mohr-Coulomb	16	5	40	1
	Upper Pouakai Group	Mohr-Coulomb	18	2	35	1



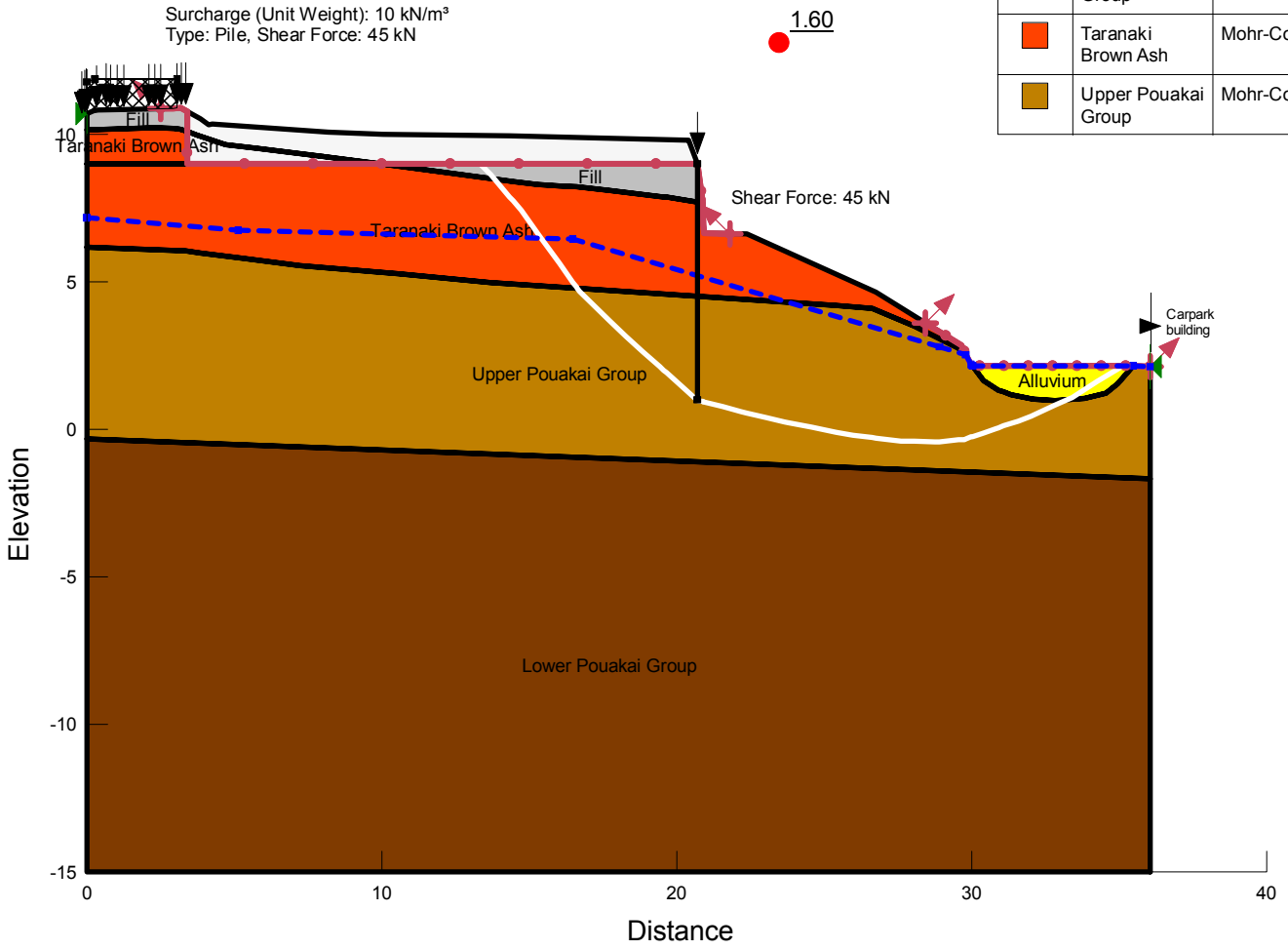
Tonkin+Taylor

Title: 51 Brougham Slope W_20191203.gsz		Job Number: 1011502.0000
Analysis: 2. Static Normal GW Conditions, pile length optimized		Analysed by: CMCD
Comments:	Scale: 1:250 @ A4	Checked by: EMAD

Directory: P:\1011502\WorkingMaterial\Slope Stability\

Analysis Notes:
1. Name: 2. Static Normal GW Conditions, pile length optimized, susp floor
2. Method: Morgenstern-Price
3. Direction of movement: Left to Right
4. Slip Surface Option: Entry and Exit
5. PWP Conditions Source: Piezometric Line
6. Optimization: Yes
7. Tension Crack Option: (none)
8. F of S Calculation Option: Constant
9. Horz Seismic Load:

Color	Name	Model	Unit Weight (kN/m³)	Cohesion' (kPa)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	18	2	32	1
	Fill	Mohr-Coulomb	16	2	30	1
	Lower Pouakai Group	Mohr-Coulomb	18	0	40	1
	Taranaki Brown Ash	Mohr-Coulomb	16	5	40	1
	Upper Pouakai Group	Mohr-Coulomb	18	2	35	1



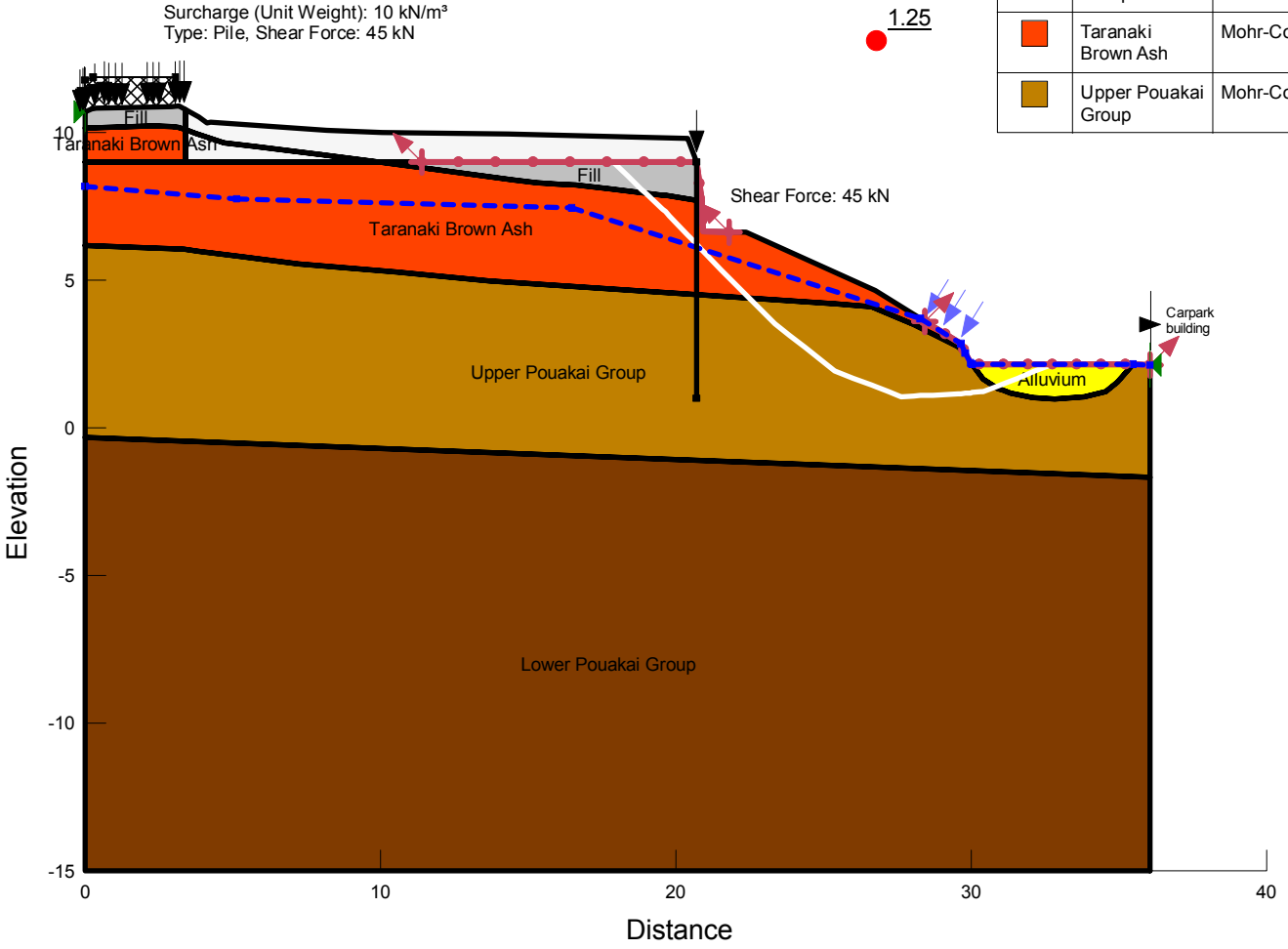
Tonkin+Taylor

Title: 51 Brougham Slope W_20191203.gsz		Job Number: 1011502.0000
Analysis: 2. Static Normal GW Conditions, pile length optimized, susp floor		Analysed by: CMCD
Comments:	Scale: 1:250 @ A4	Checked by: EMAD

Directory: P:\1011502\WorkingMaterial\Slope Stability\

Analysis Notes:
1. Name: 3. Elevated GW Conditions, pile length optimized
2. Method: Morgenstern-Price
3. Direction of movement: Left to Right
4. Slip Surface Option: Entry and Exit
5. PWP Conditions Source: Piezometric Line
6. Optimization: Yes
7. Tension Crack Option: (none)
8. F of S Calculation Option: Constant
9. Horz Seismic Load:

Color	Name	Model	Unit Weight (kN/m³)	Cohesion' (kPa)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	18	2	32	1
	Fill	Mohr-Coulomb	16	2	30	1
	Lower Pouakai Group	Mohr-Coulomb	18	0	40	1
	Taranaki Brown Ash	Mohr-Coulomb	16	5	40	1
	Upper Pouakai Group	Mohr-Coulomb	18	2	35	1

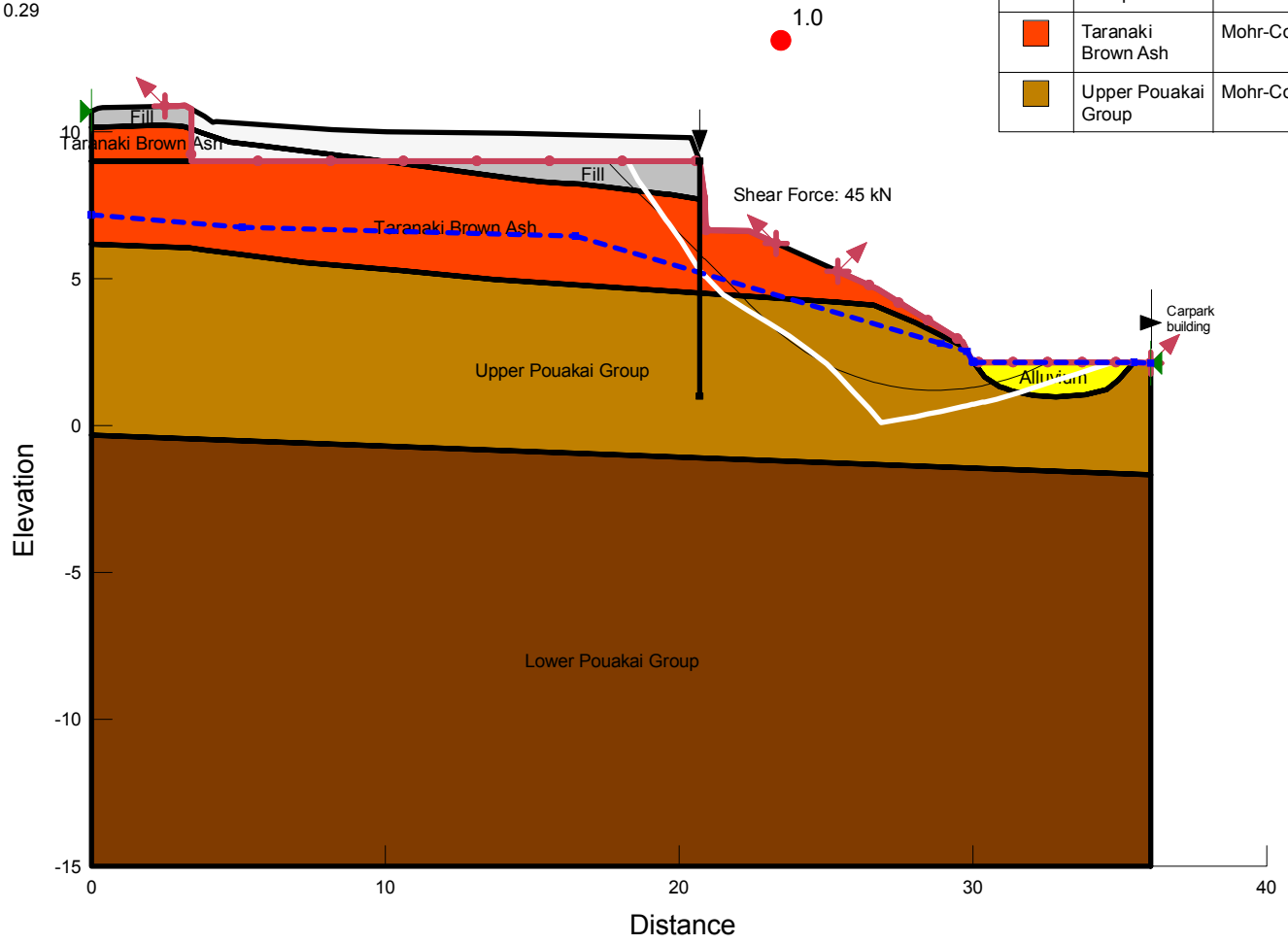


Tonkin+Taylor	Title: 51 Brougham Slope W_20191203.gsz	Job Number: 1011502.0000
	Analysis: 3. Elevated GW Conditions, pile length optimized	Analysed by: CMCD
	Comments: Scale: 1:250 @ A4	Checked by: EMAD

Directory: P:\1011502\WorkingMaterial\Slope Stability\

Analysis Notes:
1. Name: 4. Seismic with Static Normal GW Conditions, pile length optimized (45kN)
2. Method: Morgenstern-Price
3. Direction of movement: Left to Right
4. Slip Surface Option: Entry and Exit
5. PWP Conditions Source: Piezometric Line
6. Optimization: Yes
7. Tension Crack Option: (none)
8. F of S Calculation Option: Constant
9. Horz Seismic Load: 0.29

Color	Name	Model	Unit Weight (kN/m³)	Cohesion' (kPa)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	18	2	32	1
	Fill	Mohr-Coulomb	16	2	30	1
	Lower Pouakai Group	Mohr-Coulomb	18	0	40	1
	Taranaki Brown Ash	Mohr-Coulomb	16	5	40	1
	Upper Pouakai Group	Mohr-Coulomb	18	2	35	1



Tonkin+Taylor

Title: 51 Brougham Slope W_20191203.gsz		Job Number: 1011502.0000
Analysis: 4. Seismic with Static Normal GW Conditions, pile length optimized (45kN)		Analysed by: CMCD
Comments:	Scale: 1:250 @ A4	Checked by: EMAD

Directory: P:\1011502\WorkingMaterial\Slope Stability\

www.tonkintaylor.co.nz

APPENDIX K RECOMMENDATION – NOTABLE TREE

14th October 2019

K.D. Holdings Limited

53 Brougham Street

NEW PLYMOUTH

Attn: Kevin Doody

JOB 3297 NOTABLE TREE at 51 BROUGHAM STREET, NEW PLYMOUTH

We have considered the effects of the existing notable tree on the proposed new building structure, and on the stability of the existing ground.

We confirm the tree and its roots will be affected by the proposed pile foundations and by the potential slip plane related to the steep downslope to the Huatoki stream.

The following discussion provides the justification around the recommendation.

Geotechnical Assessment

We have received the following information and advice from Tonkin and Taylor Ltd in their geotechnical report where:

a) They recommend pile foundations for the proposed building,
b) They have assessed three different slope stability cases and in all three cases a slip plane forms within 51 Brougham Street as described on the attached cross sections where the slip plane is indicated by the white line, and
c) They recommend a suspended concrete basement slab to span over the potential slip area.

Building Foundations

The foundations in the location of the tree roots will be designed to support a suspended slab and ground beams with piles where:

a) The regular nature of the building layout will dictate the location of the piles at the gridline intersections which will likely coincide with the irregular root locations, meaning it would be very difficult and unlikely for the piles to miss the tree roots and leave them undamaged,
b) The piles could be adjusted in the area of the roots, however because of the intensive nature of the root system the same outcome as in a) would apply, and
c) The Arborist noted that if the roots were damaged the tree could potentially become unstable because the tree is positioned on the steep stream bank where these roots provided the necessary anchoring for the tree.

The notable tree is within the slip plane identified by Tonkin & Taylor where the main geotechnical considerations are:

a) The Arborist could comment on the stability of the tree if the soil which the tree is founded in slips away, and
b) The tree would likely fall with the slip plane surface that could result in potential damage to the neighbouring buildings.

The Tree

The Arborist has identified that the tree is coming to the end of its effective life span and should be removed at some time in the near future.

This means any decision on the tree should be taken in context with the design life of the proposed new building of at least 50 years.

Summary

We have assessed the existing tree and advise that it is not practicable to keep the tree because:

a) the extensive root system will be damaged by the proposed piles and foundation beams,
b) the tree is located above the existing potential slip plane that extends down to the Huatoki Stream and removing the tree would mitigate potential damage to neighbouring buildings, and
c) the short remaining life of the tree is inconsistent with the design life of the proposed new building.

This report is prepared for your use as owners and for your agents for the stated purpose and cannot be used for any other purpose or by others unless authority is given by the undersigned.

Yours faithfully

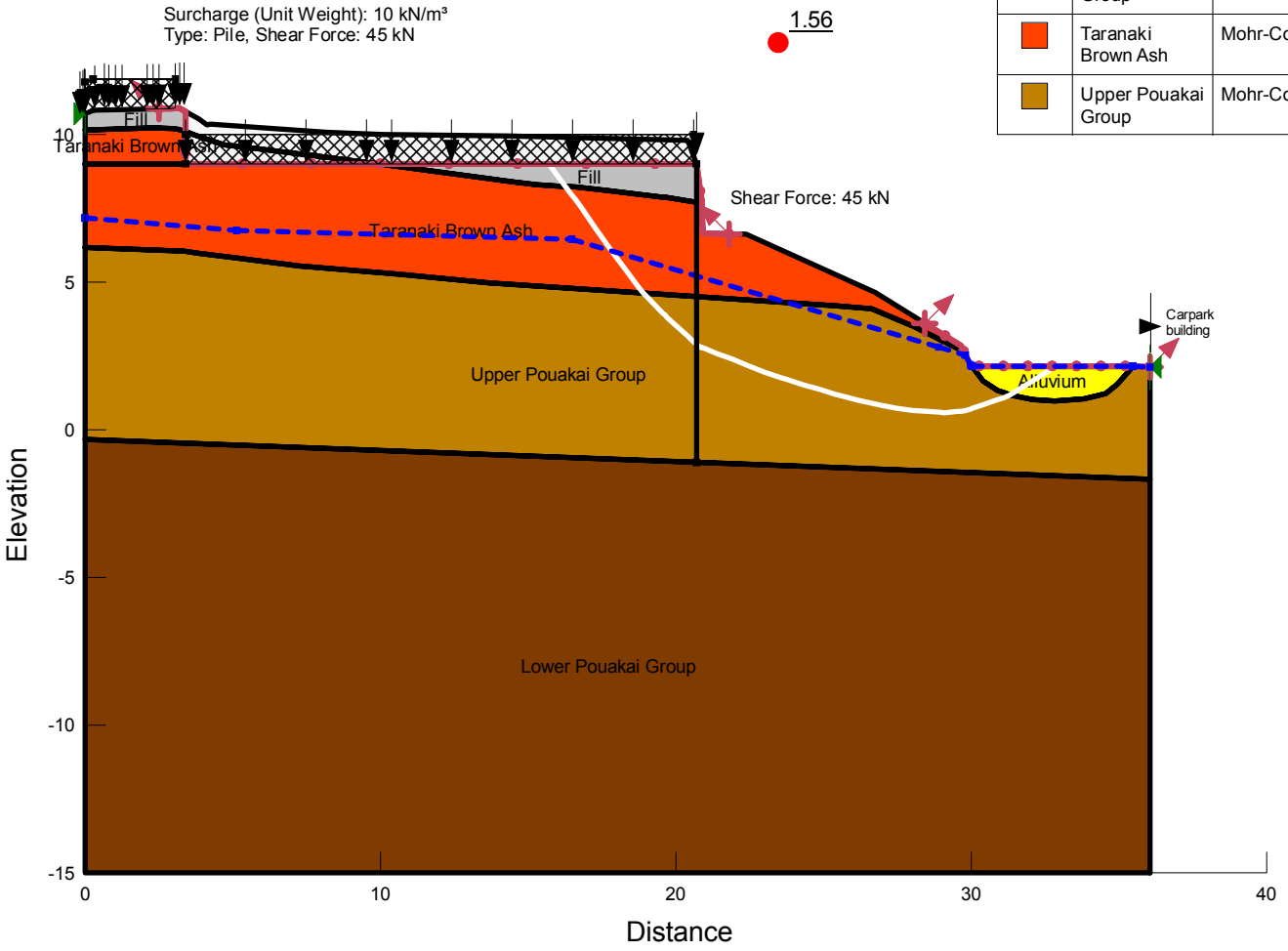


A D L Fraser

Managing Director **CPEng, CMEngNZ**

Analysis Notes:
1. Name: 2. Static Normal GW Conditions, pile
2. Method: Morgenstern-Price
3. Direction of movement: Left to Right
4. Slip Surface Option: Entry and Exit
5. PWP Conditions Source: Piezometric Line
6. Optimization: Yes
7. Tension Crack Option: (none)
8. F of S Calculation Option: Constant
9. Horz Seismic Load:

Color	Name	Model	Unit Weight (kN/m³)	Cohesion' (kPa)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	18	2	32	1
	Fill	Mohr-Coulomb	16	2	30	1
	Lower Pouakai Group	Mohr-Coulomb	18	0	40	1
	Taranaki Brown Ash	Mohr-Coulomb	16	5	40	1
	Upper Pouakai Group	Mohr-Coulomb	18	2	35	1



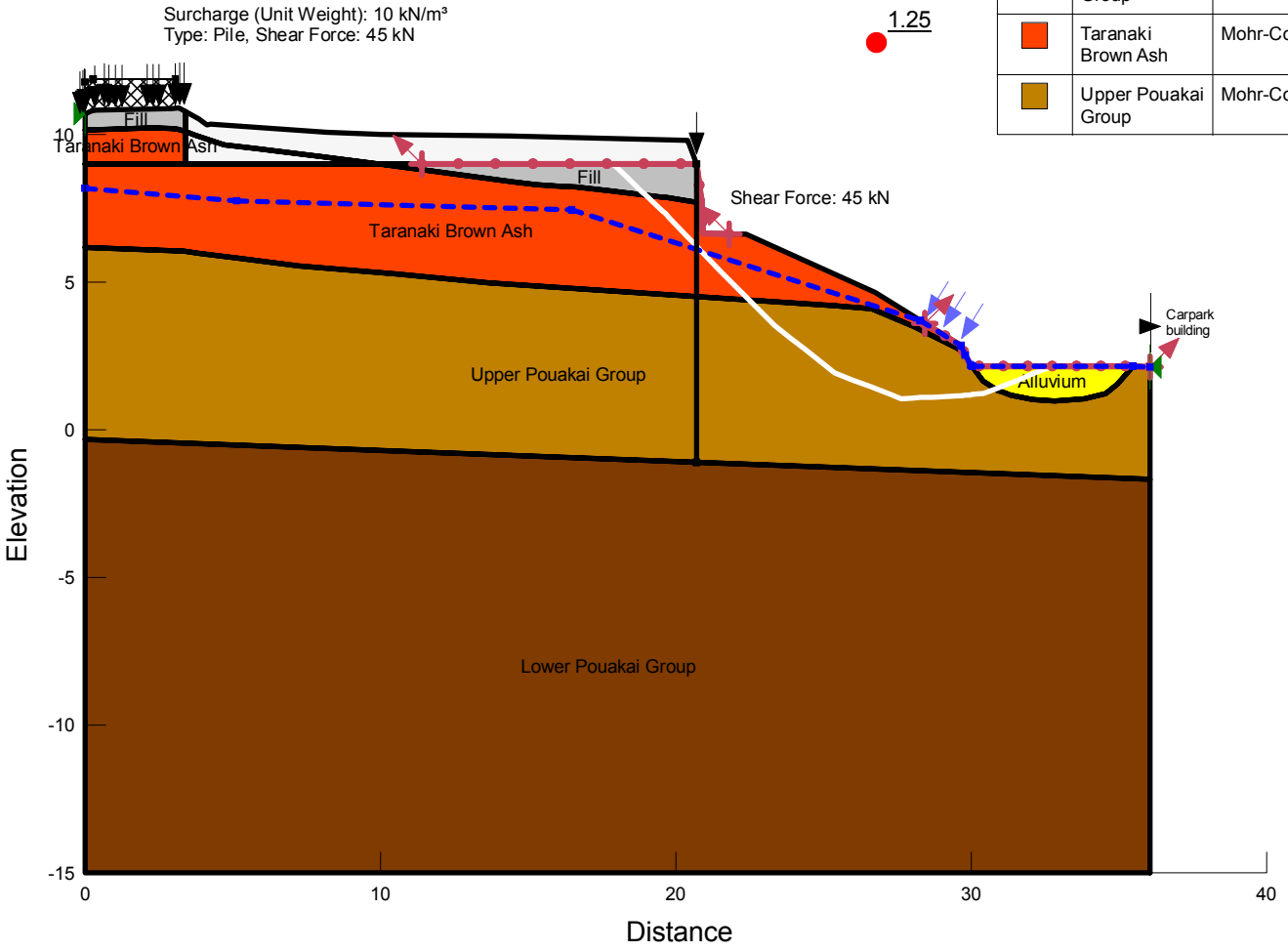
Tonkin+Taylor

Title: 51 Brougham Slope W_20190915.gsz		Job Number: 1011502.0000
Analysis: 2. Static Normal GW Conditions, pile		Analysed by: CMCD
Comments:	Scale: 1:250 @ A4	Checked by: EMAD

Directory: P:\1011502\WorkingMaterial\Slope Stability\

Analysis Notes:
1. Name: 3. Elevated GW Conditions, pile
2. Method: Morgenstern-Price
3. Direction of movement: Left to Right
4. Slip Surface Option: Entry and Exit
5. PWP Conditions Source: Piezometric Line
6. Optimization: Yes
7. Tension Crack Option: (none)
8. F of S Calculation Option: Constant
9. Horz Seismic Load:

Color	Name	Model	Unit Weight (kN/m³)	Cohesion' (kPa)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	18	2	32	1
	Fill	Mohr-Coulomb	16	2	30	1
	Lower Pouakai Group	Mohr-Coulomb	18	0	40	1
	Taranaki Brown Ash	Mohr-Coulomb	16	5	40	1
	Upper Pouakai Group	Mohr-Coulomb	18	2	35	1

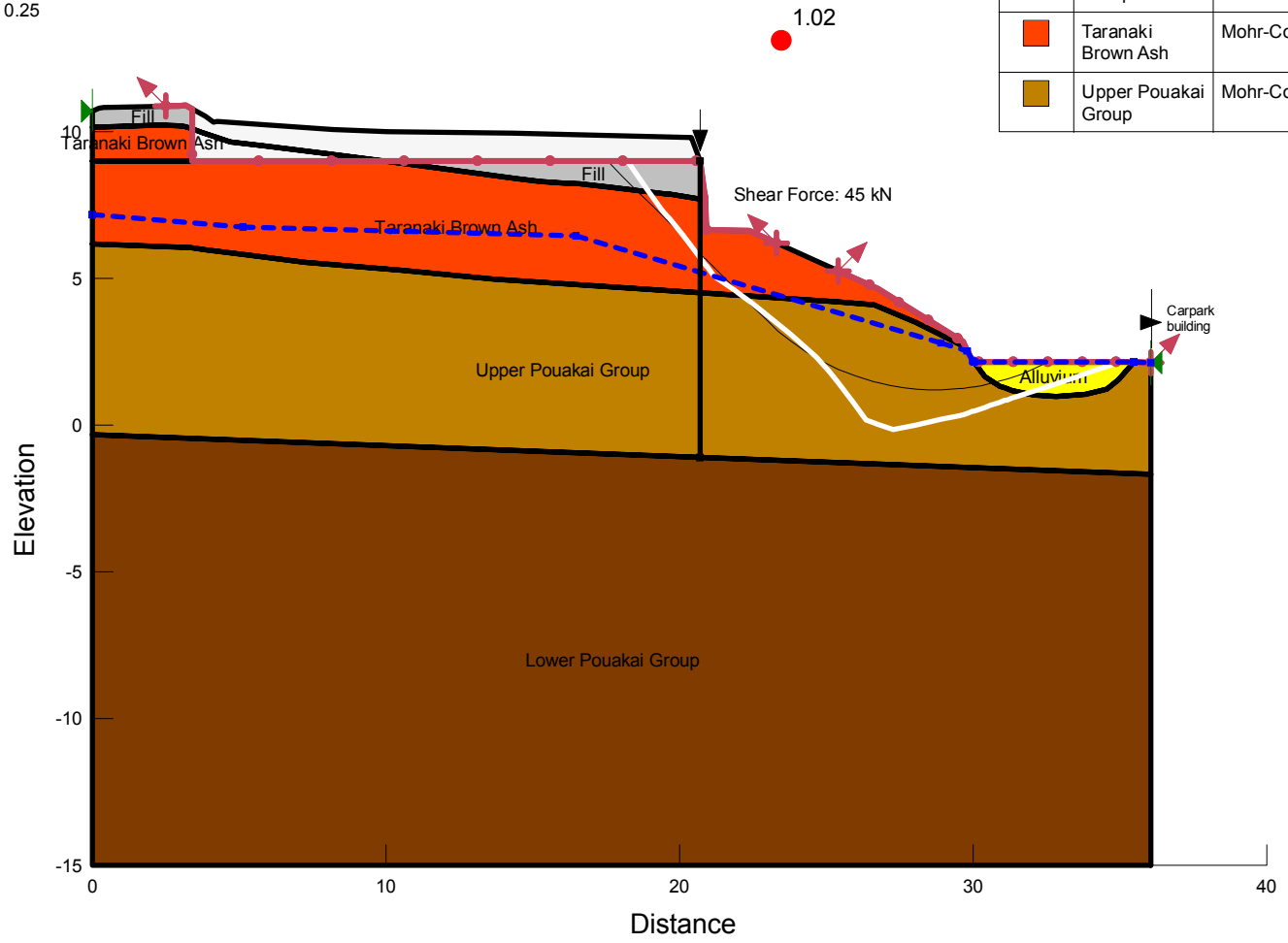


Tonkin+Taylor	Title: 51 Brougham Slope W_20190915.gsz	Job Number: 1011502.0000
	Analysis: 3. Elevated GW Conditions, pile	Analysed by: CMCD
	Comments: Scale: 1:250 @ A4	Checked by: EMAD

Directory: P:\1011502\WorkingMaterial\Slope Stability\

Analysis Notes:
1. Name: 4. Seismic with Static Normal GW Conditions, pile
2. Method: Morgenstern-Price
3. Direction of movement: Left to Right
4. Slip Surface Option: Entry and Exit
5. PWP Conditions Source: Piezometric Line
6. Optimization: Yes
7. Tension Crack Option: (none)
8. F of S Calculation Option: Constant
9. Horz Seismic Load: 0.25

Color	Name	Model	Unit Weight (kN/m³)	Cohesion' (kPa)	Phi' (°)	Piezometric Line
	Alluvium	Mohr-Coulomb	18	2	32	1
	Fill	Mohr-Coulomb	16	2	30	1
	Lower Pouakai Group	Mohr-Coulomb	18	0	40	1
	Taranaki Brown Ash	Mohr-Coulomb	16	5	40	1
	Upper Pouakai Group	Mohr-Coulomb	18	2	35	1



Tonkin+Taylor	Title: 51 Brougham Slope W_20190915.gsz	Job Number: 1011502.0000
	Analysis: 4. Seismic with Static Normal GW Conditions, pile	Analysed by: CMCD
	Comments: Scale: 1:250 @ A4	Checked by: EMAD

Directory: P:\1011502\WorkingMaterial\Slope Stability\

APPENDIX L LANDSCAPE AND VISUAL IMPACT ASSESSMENT

BOON

Brougham Street Commercial Development

LANDSCAPE & VISUAL IMPACT ASSESSMENT

For K.D Holdings Limited

Revision A

1st of September 2020

Assessment undertaken and prepared by:
Daniel McEwan Landscape Architect at BOON Landscape

Reviewed by:
Wade Robertson Principal Landscape Architect at BECA

BOON

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FIGURES:

Figure 1 – Building Location Diagram
Figure 2 – Immediate Site Context Diagram
Figure 3 - Visual Catchment Diagram
Figure 4 – Viewpoint Location Map
Figure 5 – Viewpoint Location Table

PLATES:

Plate 1 – Huatoki Stream (from Powderham Street overbridge)
Plate 2 – NPDC 14m+ Tall Building Location Map
Plate 3 – NZME building and Nice Hotel
Plate 4 – Brougham Heights Motel
Plate 5 –Western side of Brougham Street (montage)
Plate 6 – Eastern side of Brougham Street (montage)
Plate 7 – Public Car Parking Building
Plate 8 – Sir Victor Davies Memorial Park (Huatoki Walkway)

APPENDICES:

A. Viewpoint Photographs & Visual Simulations.
B. Definitions
C. A3 Viewpoint Photographs & Visual Simulations of Viewpoints C, D & E and Viewshafts 1 & 2.

SUPPORTING DOCUMENTS:

Architectural drawings 6488, BOON Ltd for RC.
Resource Consent Application and Assessment of Environmental Effects (BTW Company)
With specific attention to the following documents contained within the consent application:

- *Arboricultural Assessment (Asplundh)*
- *Archaeological Assessment (Archaeological Resource Management)*
- *Structural Report in relation to the Notable Tree (Red Jacket)*

BOON

LANDSCAPE VISUAL IMPACT ASSESSMENT

45 – 51 Brougham Street Development

BOON Ltd have been engaged to provide a Landscape Visual Impact Assessment for K D Holdings Limited to assist the current Land Use Resource Consent application for the proposed commercial development at 45 – 51 Brougham Street.

Revision A of this LVIA supersedes the previous LVIA report dated 21st of July 2020.

This current revision A of the LVIA has taken into consideration the following updated and additional documentation and processes:

- Peer Review of Landscape and Visual Amenity Effects –by Richard Bain from Bluemarble for NPDC.
- Revised Architectural Design documents – by BOON ltd, reflecting LVIA and CIA mitigation measures.
- Discussions and Hui relating to the Cultural Impact Assessment (CIA), currently being undertaken by Ngāti Te Whiti for NPDC.

Key additions/updates within this document are as follows:

Section 4: Planning Framework

- Additional Proposed District Plan policy objectives to provide further context for this report
- Additional summary of planning framework context.

Section 5: Proposed Development

- Updated sections to reflect revised architectural documentation.
- Additional section relating to cultural & historical aspects of the proposed development.

Section 6: Existing Environment

- Further analysis/description on existing built/urban form.
- Additional images (plates) to support the updated built/urban form description.
- Additional existing tall buildings diagram to provide further context to analyse the height encroachment of the proposed building against.
- Additional Visual Catchment mapping and analysis.
- Additional cultural & historical analysis based on further investigation and findings within the CIA discussions and Hui.

Section 8: Visual Assessment

- Updated analysis primarily in viewpoints C, D & E and viewshafts 1 & 2 (Pūkākā/Marsland Hill & Victoria Road)

Section 9: Strategy for Mitigation Measures

- Updates to existing mitigation measures.
- Updates to proposed mitigation measures based on the supplied revised documentation.

Section 10: Conclusion

- Revised conclusion based on implemented mitigation measures in response to LVIA peer review and CIA reports.

Appendices:

- New Appendix C – A3 Viewpoint Photographs & Visual Simulations of Viewpoints C, D & E and Viewshafts 1 & 2 based on peer review suggestions.

1. INTRODUCTION:

The proposal is to construct a commercial building at 45-51 Brougham Street and part of Lot 2 & 3 DP 15492, New Plymouth.

The proposed building is 25.5m in height at its tallest point, consisting of six stories, five of which are commercial, with a 3-bedroom apartment on the sixth level, and a partially excavated basement level providing for on-site car parking. Given its height, the proposed building exceeds the current ODP height restriction of 14m by a maximum of 11.5m (at the northern boundary).

BOON Ltd have been engaged to provide a Landscape Visual Impact Assessment (LVIA) for KD Holdings Limited to accompany the Resource Consent application for the proposal and with a focus on the height exceedance described above and potential streetscape character and landscape visual effects that may result.

2. SCOPE:

The purpose of this LVIA is to identify potential changes to existing landscape character (in this case an urban streetscape) and to then assess potential effects (adverse or beneficial) on those characteristics and qualities that are valued by the community. Mitigation measures are proposed where effects are considered significant and could be lessened via specific design initiatives being adopted.

The scope set out below stems from consultation with Council Officers and includes:

- Consideration of relevant statutory plans consisting of the ODP and PDP.
- Description of the site and its current attributes.
- Description of the existing landscape and/or urban character and context.
- Description of the proposed development and activities.
- Identification and description of potentially affected public or private receptors including identified public viewshafts.
- Assessment of potential effects on streetscape (urban) character, amenity, general views and specific viewshafts identified in the ODP.
- Strategy for visual and amenity mitigation measures.

3. METHODOLOGY:

In preparing this assessment the following guidance documents have been considered:

- NZILA Best Practice Note – Landscape Assessment and sustainable management 10.1
- NZILA Best Practice Guide – Visual Simulations BPG 10.2
- NZTA Landscape and Visual Assessment Guidelines
- Visual Assessment Best Practice Methodologies – Lisa Rimmer

Visits to the site and wider visual catchment have occurred on four occasions being the 8th, 15th, 22nd & 23rd of June 2020. These visits were also informed by desktop analysis including public GIS mapping data and google 'street view' imaging to help identify potentially affected receptors and the associated viewpoints.

The initial site visit was primarily to scope and confirm viewpoint locations with the second undertaken in liaison with NPDC council officers and their external Landscape Architect (Richard Bain), where public viewpoints and applicable Operative District Plan viewshafts were

discussed and relevant visual simulations viewpoints were agreed. The final two visits were undertaken to capture the relevant viewpoint and viewshaft images using the methodology described below:

Photographs were captured using a Nikon D60 10.2mp camera with a fixed 35mm (52mm focal point) lens. A manfrotto fluid head tripod with built in spirit level was used to ensure level photographs were captured at each location with vertical measurement taken from ground level to the center of the lens to ensure a suitable viewing height was established. The adopted viewing height was 1750mm taken as a nominal height for adults and being the base camera height in the utilised rendering software enscape in accordance with industry guidelines.

Visual simulations were compiled using a Revit & Enscape generated 3D model of the proposed building overlaid in the various viewpoint images using Photoshop. Topography data and Trimble's 'SiteVision' mixed reality modelling was used in tandem to ensure position, representations and viewing angles were produced to an accurate degree. The visual simulations are included in Appendix A & C of this report.

The following stages provide the basis for the assessment of potential landscape and visual effects:

Stage 1: Landscape Description & Evaluation.
This describes the existing landscape aspects of the site. Landscape being defined under the NZILA Practice Note 10.1 as *'the cumulative expression of natural and cultural features, patterns and processes in a geographical area, including human perceptions and associations.*'

Landscape evaluation explores the inherent characteristics of the site and evaluates the significance of relevant landscape qualities, features, patterns and processes and their sensitivity to change.

As part of the evaluation process a Visual Absorption Capability (VAC) approach has been adopted and considers findings from both above stages and seeks to identify the landscape/existing urban fabrics ability to receive the proposed change without affording any significant compromise to its existing character. The VAC considers the landscape resilience 'the *ability* of a landscape to *adapt* to change whilst retaining its particular character and values' of the site/area against that landscapes capacity '*amount* of change that a landscape can accommodate without substantially altering or compromising its existing character or values' with identifying the VAC the key view points and potentially affected existing views.

Visual Absorption Capability.
The VAC ratings use a six-point scale defined below, where:

- Very low - Where the '**capacity**' for the landscape to absorb change is very low or has no ability to absorb change where the effects will be highly visible becoming a potential focal point, significantly altering the existing character and values introducing a completely new element to the landscape.
- Low - Where the '**capacity**' for the landscape to absorb change is low or has little ability to absorb change where the effects will be visible, and significantly alter the existing character and values.
- Moderate – Where the '**capacity**' for the landscape to absorb change has some ability for absorption, where the effects will be visible but align with the overall existing character or values of the landscape/urban environment.
- High – where the **'capacity'** for the landscape to absorb change is high or has a great ability to absorb change where the effects will be negligible or insignificant in altering the existing character or values of the landscape/urban environment.
- Very High – Completely or nearly completely screened, unidentifiable at a distance, no effect on existing character

Stage 2: Landscape Assessment.
This Assessment uses an 'expert' approach to analyse the visual effects from the proposed development considering various 'viewing audiences' identified in Figures 3 & 4. To assess these potential effects, each viewpoint and viewshaft (audience) has analysis provided through a landscape 'visual' assessment context which evaluates the 'type' and 'value' these effects/impacts may have. This stage assesses the 'scale' an effect will impact on the audience from the various viewpoints which differs from the evaluation in stage 1 which addresses the overall 'sensitivity' within the existing context.
The scale for stage 2 is defined below and in Appendix B -Definitions.

Visual Effect Level
The actual (or final) effect is the outcome by analysing the 'nature of effect' with the 'magnitude' of this effect minus 'mitigation' measures to determine the final resulting value of effect as described in the following definitions using a seven-point scale:

Negligible – The effect will have no noticeable change or a neutral effect on the existing landscape character and amenity.

Very Low - Barely noticeable effect that requires no mitigation.

Low - Effects that are noticeable but are likely too small to generate 'negative' effects that would require additional mitigation.
(Low is determined as 'minor' under the RMA.)

Moderate - Effects that are noticeable that cumulatively may be more significant but can generally be mitigated to an appropriate level

High - Effects that are significant on their own likely to represent an inappropriate development however may be reduced to a lower effect through appropriate mitigation measures.

Very High - Effects that are significant where additional mitigation measures are unlikely to reduce the degree of effect to an acceptable level.

Extreme – Effects that have an unacceptable level of change on the existing environment where a proposal becomes a dominant feature impacting on significant views and drastically altering the landscape character and amenity.

Effects can be adverse, neutral or beneficial.

Site Visibility.
Site visibility considers primarily where the over height portion of the proposed building is visible in addition to that afforded by a permitted activity within the ODP and PDP.
The proposal will be visible from public viewpoints and immediate private receptors in the form of existing CBD apartments. Locations of potential private receptors within the wider area can be estimated from the viewshaft analysis and visual catchment analysis which identifies where the over height
activity may impact on these viewing audiences but further investigation would be required to identify actual affected parties. As the Consent is being publicly notified identifying individual private receptors is not part of this assessment

Viewing Audience.
The viewing audiences considered within this assessment are identified in Figure 4 & 5 and captured within the various Visualisations attached as Appendix A and Appendix C, which illustrate key viewpoints, deemed most likely to be impacted by the proposed development, including:

- Public audience (general) – Footpath network, scenic locations,
- Public audience (Viewshafts) – Specific views where the proposal can be sighted from Viewshafts contained in OL63, OL71 & OL75.

4. PLANNING FRAMEWORK:

A comprehensive analysis of the relevant planning framework is provided in the assessment of environmental effects (prepared by BTW Company) that accompanies the resource consent application. The following provisions and general commentary are relevant to this LVIA.

Operative District Plan

The site is located within Business A area (Bus A) as illustrated on maps 24a and 24b of the district plan. It is surrounded by primarily business area A & B type environments with the exception of Sir Victor Davies Memorial Park which is open space area B environment. The site is located in three viewshafts which have height restrictions of 14m, which is proposed to increase to 17m under the Proposed District Plan.

As noted in the consent application the following rules provide the policy framework in which to assess the landscape and visual effects of the proposal, namely:

- Rule Bus12, maximum height of buildings within Business A environment.
- Rules OL63, OL71,OL75 maximum height within District Plan Viewshafts
- Rule OL50 (TREE-R10 in the PDP) Proposed removal of notable tree.

The BUSINESS A ENVIRONMENT AREAS are those areas located centrally within the New Plymouth, Waitara and Inglewood retail areas. They are pedestrian orientated with premises located up to the street, and generally provide no parking on the SITE. Most tend to be two story BUILDINGS with verandahs and retail display windows. ADVERTISING SIGNS provide vitality to these areas and are an important and accepted component of these central business and commerce areas.[1]

Rule Bus12:

As the proposed development exceeds the permitted building height under Rule12 by 11.5m relevant assessment criteria include the following:

1) The extent to which the over height infringement of the proposed building will:

a. *Adversely affect the character and visual amenity of the surrounding area;*
b. *Adversely affect outstanding and regionally significant landscapes;*
c. *Intrude and/or block an urban viewshaft; and*
d. *Adversely affect the natural character of the coastal environment, or priority waterbodies.*

These parameters will be assessed primarily against the impact the over height infringement and scale along with the overall adverse impacts on character effects and how these effects can be mitigated.

[1] *Business Environment Area Chapter, NPDC ODP*

Rule OL63, 71 & 75 Urban Viewshafts:
The following Viewshafts are potentially affected by the proposed development:

- OL75 - Victoria Road View Shaft
- OL71 - Marsland Hill/Pūkākā View Shaft
- OL63 - Cameron Street View Shaft

The site is located within three viewshafts, which are defined in the ODP maps. The permitted building height of all three Viewshafts along with Business Area A is 14m (17m proposed in the PDP) The proposal can be assessed against the following assessment criteria:

1. *The extent of intrusion of the additional HEIGHT of the STRUCTURE into the viewshaft, and the elements of the view affected (see section 3 of the planning maps).*
2. *The extent to which the core of the view is impinged upon by the additional HEIGHT of the STRUCTURE (refer to "view details" in section 3 of the planning Maps in the ODP).*
3. *Whether the STRUCTURE results in the removal of existing intrusions or increases the quality of the view.*
4. *Whether the additional HEIGHT of the STRUCTURE will frame the view.*
5. *The proximity of the STRUCTURE to the inside edge of the viewshaft.*

The relevant impact the over height encroachment of the proposed building has within these Viewshafts is described in Sections 8 & 9 of this assessment. It considers the matters above and the impact of effects this building will have relating to its height, scale and context within the existing urban character on these viewshafts as illustrated in the various visual simulations attached in Appendix A & C of this assessment.

Proposed District Plan
Rule OL50 (TREE –R10 in the PDP) Notable tree and its proposed removal:

The AEE identifies the proposed removal of a solitary Notable tree (DP item 71) with supporting arborist and engineer reports providing an assessment of the condition and potential for retention of the tree as part of the consent application.

The tree rules are referenced in the arborist report and are relevant to the consideration of the removal of the and potential impacts on landscape character and amenity value and potential mitigation measures that might be implemented as part of the proposal:

OL43 - *Any alternative methods and locations available to the APPLICANT for carrying out the works.*
- *The extent to which the NOTABLE TREE contributes to the amenity of the neighbourhood.*

OL44 - *Whether the EXCAVATION is likely to damage any part of the NOTABLE TREE including its roots or endanger its health and stability.*

A proposed 17m permitted height activity within in the PDP area C, outlines future direction to increase the limits of height and density to promote viable developments within the CBD. This will help guide in assessing the proposal against future objectives for the CBD.

Relevant PDP overlays which have been considered within this assessment are as follows:

- Heritage Character Area
- Heritage buildings
- Public Access Corridor – Natural environment

Specific Controls:

- Defined Pedestrian Frontage –
- Site of significance to Māori - Wāhi Tapu site 2634 -

The following proposed objectives and policies outlined within the PDP are considered in assessing various effects of the proposed development.

- An appropriate location for retail and business facilities
- Encourage residential living in larger centres
- Centres to be compact with public spaces to be well designed to give developers confidence to invest and make them attractive for the community to work and play
- Ensure high quality buildings positively contribute to the streetscape
- Placing a focus on the city centre and the Huatoki stream
- Promote choices in housing, workplace and recreation opportunities
- Promote energy efficiency in urban forms, site layout and building design
- Promote maintenance, enhancement or protection of land, air and water resources within the urban areas or affected by urban activities
- Meeting restrictions set within the 'height management areas'
- Meet 'scale' objectives pertaining to 'heritage character area'
- Enhancement of public spaces along rivers
- The relationship of Māori and their culture and traditions with their ancestral lands, water, sites, wahi tapu, and other Taonga

Summary

The Operative District Plan primarily provides the criteria in which to assess the proposed developments height, scale, and existing amenity against the affected viewshafts and business area rules also including the affected notable tree.

The Proposed District Plan provides criteria relating to height, scale and character impacts for in considering the proposed development with a strong focus on how future developments can be provided through Sustainable Urban Development (SUD) and local policies, plans and strategies primarily the New Plymouth 'District Strategic Framework', 'District Blueprint' and 'Central Area Urban Design Framework'. The PDP is used as a guide within this assessment against proposed objectives and policy where not operative.

Key PDP objectives considered as a guide while assessing the proposed development against the ODP include but are not limited to the following:

- Encourage high quality urban design, including the maintenance and enhancement of amenity values.
- Promote choices in housing, workplace and recreation opportunities.
- Promote energy efficiency in urban forms, site layout and building design.
- Promote the maintenance, enhancement or protection of land, air and water resources within urban areas or affected by urban activities.
- Protect indigenous biodiversity and historic heritage.
- Central City: Champion a thriving Central City for all.
- Destination: Become a world class destination.

5. PROPOSED DEVELOPMENT:

The building

The proposed development is fully described within the planners (BTW Company) consent application which includes the architectural drawings and renders supplied by BOON Ltd including the architects design statement outlining the aesthetic, environmental and construction process qualities provided.

The proposed building consists of six above ground levels and 1 partially below ground basement level for car parking. The 6th level is currently proposed as a single 3-bedroom apartment with the below five levels as premium commercial office space. The proposed commercial portion of the structure consists of a fully glazed façade with exposed timber forming the structural elements with exposed timber, steel & concrete elements forming the external stairwell. Internal walls are pushed towards the center of the building which aim to create visual and sunlight permeability through the glazing. Timber details and finishes form the majority of the buildings remaining solid components. The top level apartment building proposes vertical timber cladding that will grey off in time with large full height glazed elements.The building aims to achieve a 5 Star NABERSNZ rating through use of sustainable materials and construction processes.

The glazed façade is continuous, forming an unbroken face to all four sides of the building up to the top level apartment. This aims to create a lighter visual impact by having a more permeable external envelope with the potential of some reflection from the sky and surrounding urban form. Tinted glass is proposed with fritting to that glass forming a pattern to all four glazed facades of the building. The fritted pattern aims to inform part of the cultural narrative of the local area. It is understood that the treatments to the glazed façade will be designed to meet heat reduction and glare criteria while maintaining a good level of external visual permeability into the building while contributing to the overall aesthetics.

The top level three bedroom apartment proposes vertical timber cladding and full height glazed elements to the East, West and South faces of the building adding continuity with the vertical lineal nature of the commercial building below. The North face of this apartment includes a short canopy which runs almost the entire length of this face and is finished in the same vertical timber cladding. All faces of the apartment are set back from the edge with the North face considerably setback aiming to reduce the scale and bulk of the top level portion of the building.

The building envelope extends to the boundary of sites 45-51 Brougham Street sharing this boundary with the notable tree on Lot 2 & 3 DP 15492. The external stairwell and canopy is located in Lot 2 & 3 DP 15492 which will require an appropriate legal mechanism and agreement with the council. The proposed building footprint creates a building edge directly adjacent to the public footpaths on Brougham and Powderham Streets and creates a narrow pedestrian access on the site of the Former Brougham street offices of approximately 1m between the existing heritage buildings and the proposed building. The external stairwell outer façade is made up of timber elements which form some pattern that aims to contribute to the cultural narrative of the area. This timber element also softens what would otherwise be primarily exposed concrete and steel that form the structure of the stairwell.

Within the ODP the proposal is a non-complying activity due to the removal of the notable tree. The current permitted building activity allows for a height of 14m following existing contours. At the southern boundary adjacent to Powderham Street, the over height portion is 9.14m which will be the primary view from the Urban Viewshafts when approaching from the south. As the topography of the site drops towards the north the over height infringement on the northern boundary is 11.5m above the permitted 14m restriction.

The over height portion of the building is clearly indicated in the architects drawing (A3.01) shown by way of a dashed red line in East Elevation'. As the roof line of the proposed building is level and the site topography changes, the over height infringement varies between the northern and southern edges of the site.

The proposal although fully glazed on the exterior façade will provide a change in mass exceeding permitted building heights within the ODP and PDP of which the additional massing impacts/effects are demonstrated in the Visualisations included in Appendix A & C of this assessment.

Landscaping

New paving is proposed in Lot 2 & 3 DP 15492 connecting the external stairwell and Powderham Street entrance, while preserving the existing Kentia Palms by transplanting as recommended in the arborist report that forms part of the consent application. The paving on this Eastern side suggests a plain paved finish with a patterned portion of the paving representing a Māori fishing net (Hīnaki) extended directly out from the main entrance doors that continues this same pattern through to the internal ground floor surfaces. No planting is proposed as part of this hard landscaped connection to Powderham Street but some indicative future planting is shown in the architectural renders as shown in the visual simulation of 'Viewpoint B' in Appendix A.

This paved landscape element indicates connection to the Huatoki Stream and potential future development of the walkway. Any potential Huatoki Stream development does not inform any part of this LVIA and is to be considered as separate to the current consent application.
Note: It is important to mention that future development of this section of the Huatoki would provide continuity connecting the Huatoki walkway to the sea but requires daylighting of the stream where the Downtown Plaza currently sits.

The architectural plans indicate grass to the southern external areas of the top level apartment but how this will be implemented i.e. a green roof system and/or any additional softscape elements to be included on the exterior portion of this top level are to be decided at the time of detailed design.

Street Edge

The Powderham Street frontage consists of continuous glazed facade the length of the building to the proposed level one tenancy. Level one finished floor level is approximately 150mm above footpath level providing good activation between the public and building users. Depending on the tinting to the glazed façade there should be high visual permeability with further interest and aesthetics provided by the fritting on the glass. Through the glazed façade the structural timber elements of the building should be clearly visible providing good aesthetic and will showcase some of the sustainable building elements present within the design. This street edge now hosts the main entrance to the building which proposes a wide paved entrance leading to the main door on the East façade and providing good connection for future development of the Huatoki Stream. The proposed canopy to this entrance off Powderham Street provides shelter from the elements to public and building users and aids in further connecting the proposed building to the Huatoki Stream edge.

Brougham Street edge of the building has approximately half of its length activated by the level one tenancy and glazed façade and the secondary pedestrian entrance to the building. This entrance provides good amenity value and again showcases the buildings sutainable design and will provide some level of activation with the coming and going of the building users. Cultural narrative should be clearly identified on this edge again through the fritted glass and the likely visible Hīnaki (eel net) patterning on the floor surface of the building entrance and corridor. The lower half of the Brougham Street edge has an open vertical timber screen and driveway to the basement level car park and building entrances. The timber screen is approximately 70 percent permeable and provides some amenity value in its use of materials. The lower car park portion of the Brougham Street edge offers very low street activation from a pedestrian context but does not dominate this edge due to the southern end of this basement level excavated below existing ground level as the Brougham Street foot path rises up towards Powderham Street.

Cultural & Historical Significance

The proposed development provides cultural narrative and acknowledges some of the local history of relevant sites including the Huatoki Stream (awa), Mawhera Pā, Puke Ariki Pā, Paiaua, Paitawa and some of the resources and customs associated with these sites. The development aims to provide these cultural and historical aspects through the following:

- Patterning on all glazed facades and the timber façade to the stairwell.
- Hīnaki (eel net) pattern to the internal and external ground plane.
- Reference to the historic Huatoki estuary in the shape of the level one corridor and entrances which connects directly out towards the Huatoki Stream on the Eastern side of the development.
- Representation of Mauri stone and as stated in the architects design statement potential for a combined water element creating a symbolic or physical link to the awa.

There is the potential for further development of Ngāti Te Whiti narrative through a Pou and planting as indicated in the architect's 3D render but would need to be confirmed through a separate process and additional consultation outside of this consent application.

6. EXISTING ENVIRONMENT:

The 'local' environment consists of four urban blocks surrounding the site, with the 4 corners of these blocks forming the Powderham and Brougham Street intersection which the site is directly adjacent to. The area is characterized by primarily larger bulky buildings but that are within the current 14m height limit with the Powderham Street car parking building lift shaft tower being the exception as it exceeds the 14m height restriction by approximately 8.5m. The buildings vary in use with some hotels/motels and apartments and the Powderham Street public carpark building to the south-east of the site. Retail, hospitality and commercial form the majority of the buildings north and north-west of the site. Sir Victor Davies Memorial Park forms part of the block to the south-east of the site which is a part of the Huatoki walkway. The buildings north of the site are primarily oriented towards pedestrian customers with the buildings south-west and south-east of the site oriented towards customers/occupants using motorized transport. The Powderham and Brougham Street intersection is dominated by vehicular movement with Powderham Street being part of the city's one-way system and a primary heavy traffic route through the City. Pedestrian activity along Brougham and Powderham Streets is primarily through traffic with no static public spaces apart from the Sir Victor Davies Memorial Park.

The site.

The site is located on the north-eastern corner of Powderham and Brougham Streets and includes sites 45 – 51 Brougham Street with a portion of the proposed development sitting within Lot 2 & 3 DP 15492. It is situated in Business Area A within the ODP.

Sites 45-51 a 'borwnfields' site, currently provides car parking in the form of a loose seal open air lot which currently drains into the Huatoki Stream.
The adjacent Lot 2 & 3 DP 15492 runs alongside the Huatoki stream and contains timber stairs and deck platforms with established vegetation including the notable 'Agonis flexuosa' tree. A remnant section of stone wall from the historic railway forms the bank/wall from which the Notable grows out of. Formerly used as public access to the downtown plaza, Lot 2 & 3 DP 15492 now appears closed off to the public with a substantial security steel gate at the top of the stairs meeting Powderham Street. It appears to be primarily a fire escape route and staff entry for the Downtown Plaza. The current timber stairs and platforms to the back entrance of the downtown plaza are in a very degraded state and pose health and safety risk primarily due to slipping when wet.

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Figure 1 – Building Location Diagram

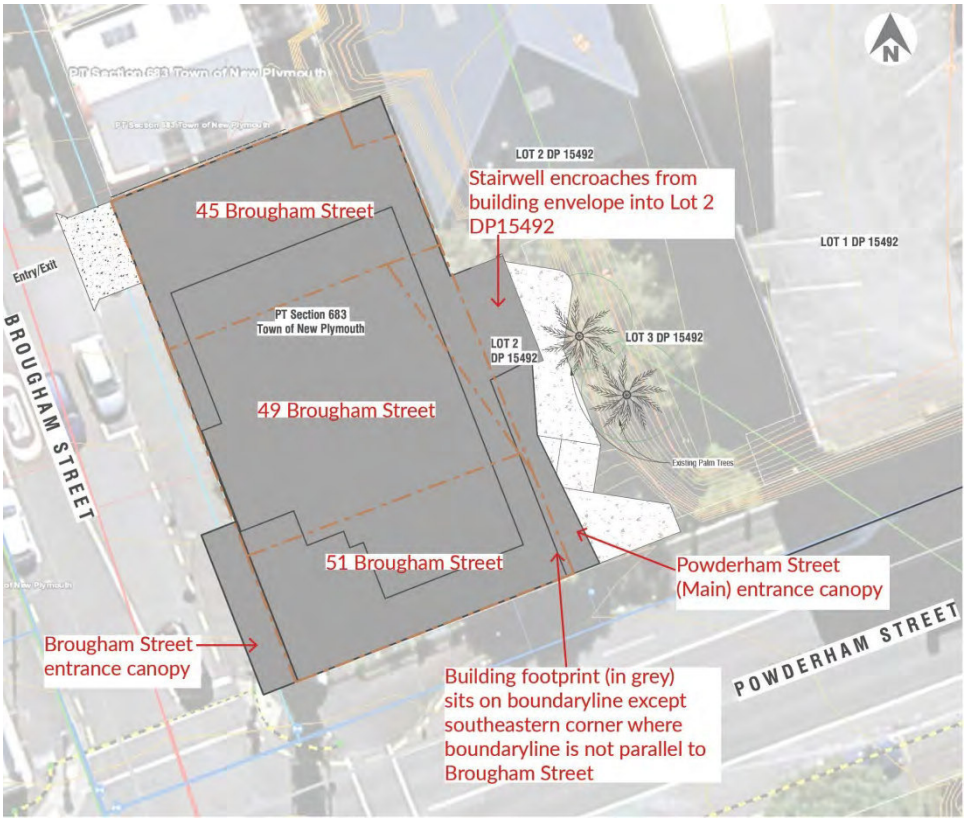
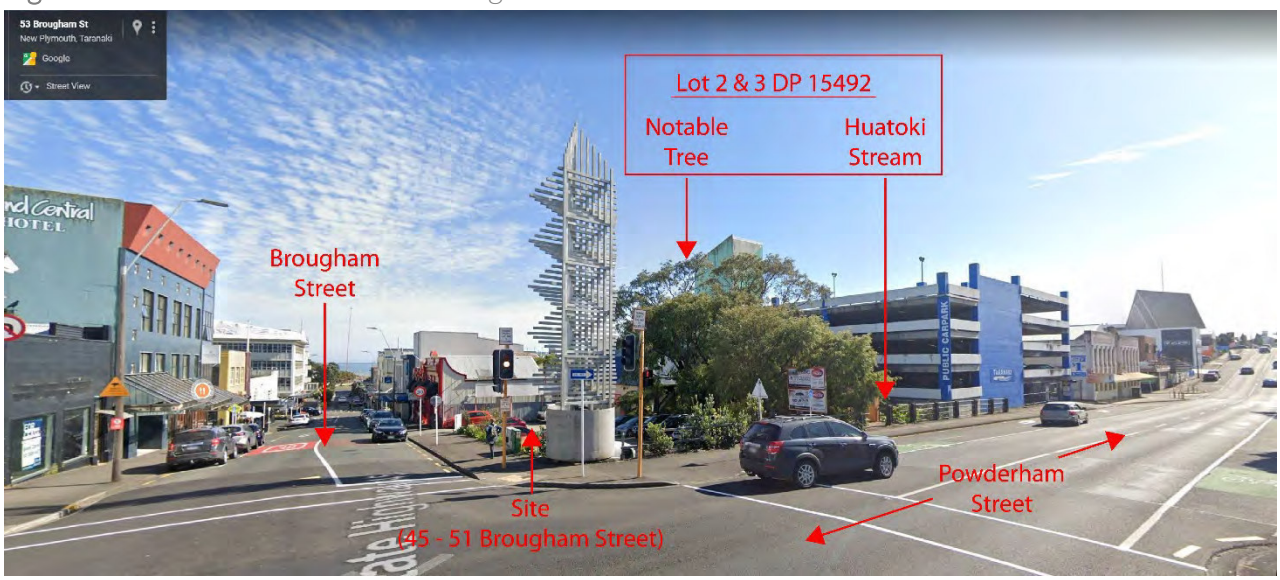


Figure 2 – Immediate Site Context Diagram



Notable Tree.

The tree is a mature Agonis flexuosa (Willow myrtle) which is not endemic to New Zealand but due to its size and condition it has existing amenity value. Growing out of the embankment and rock wall that is just beyond the eastern boundary of sites 45 - 51 Brougham Street the tree has a substantial girth to its trunk of approximately 1m in diameter. The canopy has good form and currently screens the dull facade of the adjacent Powderham Street public car-parking building. Self-seeded Agonis also help form this canopy which are smaller and not noteworthy. The tree currently provides good amenity from various street level vantage points primarily heading East along Powderham Street and heading north down Brougham Street. The tree also provides some amenity value to the landscape character that is viewed directly from the Marsland Hill/Pūkākā vantage point looking towards the site.

Huatoki Stream.

The site is located on the western bank of the Huatoki Stream with the concrete foundations/structure of the public car parking building on Powderham Street forming the eastern side of the stream. To the south of Lot 2 & 3 DP 15492 the Huatoki runs under the former Downtown Plaza and then Devon Street West before connecting to the Huatoki Plaza where portions of the stream are day-lighted. The stream has significant historic and cultural value and is a Statutory Acknowledgement Area of Te Atiawa Iwi and plays a role in the biodiversity of the immediate and wider urban environment.

Cultural Significance.

The Huatoki Stream is extremely significant to local iwi as it is 'He Wai Māori' or provides for Māori way of life as it was an important resource to day to day provisions notably 'piharau' (Lamprey) which were abundant and a sought after food source with the stream being a key contributor to the biodiversity and natural character of the area.

Because of the streams significance and value, numerous key Pā/papakāinga were located along and adjacent to the Huatoki including Puke Ariki, Te Kawau, Pūkākā, Mawhera, Mataipu and Okoare. The site of the proposed development was likely part of or adjacent to Mawhera Pā and would have likely formed part of the key pathways to Puke Ariki and to the sea. Mawhera has references as being an area for trade and markets.

Two large, sacred stones (toka tapu) are located in the river upstream from the site. They are named Paiare and Paitawa and were a significant part of the food gathering customs that are practised by Māori.

Plate 1 – Powderham Street Edge (Huatoki Stream overbridge and access to the Downtown Plaza)



Built Form.

The majority of larger buildings in the immediate vicinity of the proposed development sit within the current 14m ODP height restriction with the exception of the lift tower of the Powderham Street parking building which is approximately 8.5m above the 14m height restriction (Plate 7). Taller buildings exceeding the 14m height restriction tend to flank either side of the Huatoki basin (refer Plate 2) with a cluster of taller buildings opposite the Len Lye Centre on Devon Street West to the west of the site and a row of taller buildings running along the western side of Liardet Street towards the foreshore to the east of the site. Of the taller buildings above 14m only one has been built in the last 25 years which is a result of current planning restrictions and likely a popular adversity to change.

Plate 2 – NPDC 14m plus Building Diagram



The immediate vicinity has some larger bulky buildings in width with the majority of these buildings consisting of three levels. Some four level buildings are also present with the public parking building being the main example of this. It is understood in referencing the NPDC 'Central Area Building Heights' report, that as a result of New Plymouth predominantly being a low rise and widespread city with an abundance of outer Greenfields sites and with a strong social resistance towards modern forms of building and/or living typologies[2], is in large the result of the restrictions around building heights and the resulting existing built form. Another reason behind the taller buildings positions is the aim to preserve the overall character and of the Huatoki basin hence flanking the proposed site.

The NZME Radio commercial building (3 levels) with tall radio towers characterise the property to the south of the site across Powderham Street (BusB area) with Nice hotel and apartment (3 levels) and a two story restaurant to the rear of this site (BusD area). The Brougham Heights Motel (BusB area) occupies the site directly southeast of the site consisting of two to three level buildings. (Refer plate 3 & 4)

Plate 3 – NZME building with Nice Hotel in the background.



Plate 4 – Brougham Heights Motel.



[2] *Investigation into the New Plymouth Central Area and Building Heights – Kyle Ramsay.*

The block directly west of the site across Brougham Street (Plate 5) includes the single level Salvation Army Citadel heritage building then an older building with modern alterations to its front façade and is currently used for retail. Next in this block is the Grand Central Hotel (4 levels) and currently the dominant building on this section of Brougham Street and the Chaos Café building which is the former National Insurance Building. Further down this edge is the Harcourts building which corners on Devon Street West. This buildings street frontage is dark in color and feel and has its entry points set back up an uninviting set of stairs so doesn't afford great street frontage.

Directly north and adjacent to the site on the Eastern side of Brougham Street (Plate 6) is the former Brougham Street Office buildings (single levels with mezzanine) which now are occupied by Area 41 restaurant and a hair salon and are heritage buildings. Next to the Area 41 building is the ANZ building (3 to 4 levels approximately) which consists of a modern addition with a hard mostly enclosed façade before the existing heritage building on the corner of Brougham and Devon Streets. The ANZ building provides little in the way of an active street frontage due to its solid bulky facade.

Plate 5 – Western side of Brougham Street.



Plate 6 – Eastern side of Brougham Street.



The Downtown Parking Building (Plate 7) is a large concrete structure consisting of 4 above ground levels with a total of 13 split levels from the basement level to the top parking level. The foundations have altered the Huatoki Stream and create a hard vertical concrete edge to the stream. This building is primarily within the current ODP 14m height restriction with the exception of the lift shaft tower which is approximately 8.5m above the 14m height restriction. This building has no façade treatment and each level is open to all parking areas so provides poor amenity contribution to the area.

Plate 7 – Downtown Parking Building.



Open Space.

South east of the site and adjacent to the commercial buildings and radio towers sits the 'Sir Victor Davies Park' (Plate 8) which includes a portion of the Huatoki Walkway & Stream. There is no direct link to Lot 2 & 3 DP 15492 as the Powderham Street stream over bridge blocks any pedestrian access which is directed to the crossing at the Powderham and Brougham Street intersection. There is a significant Pohutukawa at the entrance of the park with other native and exotic species visible from road level which provides some screening of the commercial building and radio towers. These help soften the existing building forms opening the street towards the south but with no views to Marsland Hill/Pūkākā or Mount Taranaki both of which are either screened by existing vegetation and existing buildings along with the site dropping in elevation towards the Huatoki Stream.

Plate 8 – Sir Victor Davies Memorial Park (Huatoki Walkway)



Visual Catchment.

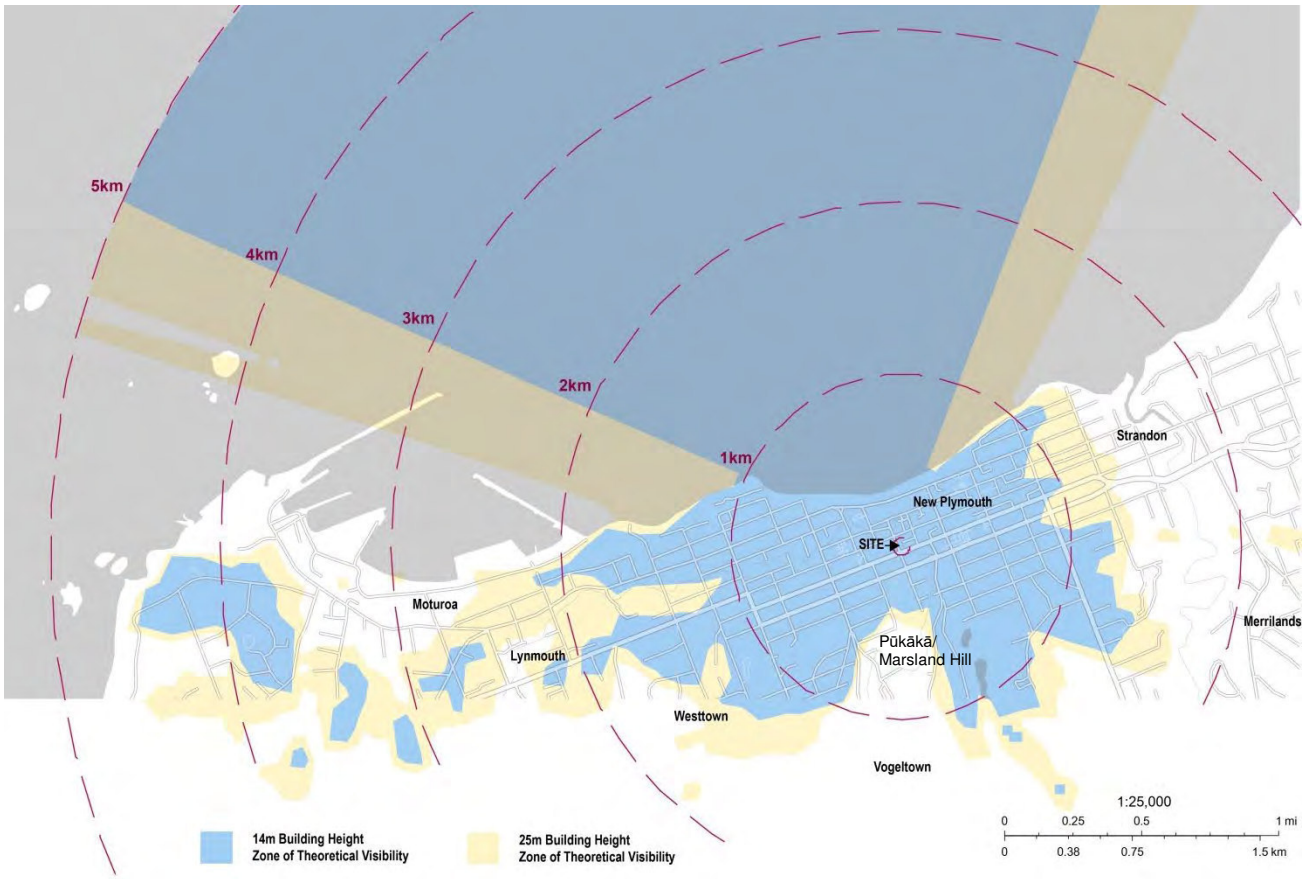
The visual catchment area, shown in Figure 3, includes a 5km radius from the center of the site and has been defined by assessing 'Zones of Theoretical Visibility' which is based on bare ground line of site information that does not take into account "screening effects of intervening vegetation or structures in the landscape"[3]. This provides indicative information only where visibility may occur. It is to be noted that the ZTV map is based on 1:50k topographic and view shed information generated by 'ArcGIS 'online tools. This provides a low level of detail and accuracy due to the wider scale used in generating the ZTV information.

The proposed site sits on the southern side of the CBD. There is expected to be limited visibility looking south towards the site from the north due to the existing urban form obstructing the majority of potential views but due to the proposed height of the building it will be visible as indicated in Viewpoints H,G,I & J attached in Appendix A.

The catchment area south of the site predominantly rises in elevation above the proposed building therefore increasing the potential for views of the over height portion of the building. As indicated in Figure 3, potential visibility of the proposed building increases to the east towards Strandon and Merrilands and in patches of the west towards Paritutu where elevations above the proposed building height increase potential for visibility.

The Visual Catchment Diagram (Figure 3) aims to identify the increase of potential visibility by overlaying ZTV of a proposed 14m building indicated in blue on top of the proposed 25m approximate building height indicated in yellow. This acts as a guide to where potential visibility may occur due to the over height portion of the proposed building.

Figure 3 – Visual Catchment Diagram (Zone of Theoretical Visibility)



[3] *NZILA Best Practise Guide – Visual Simulations BPG 10.2*

Visual Absorption Capability

The Visual Absorption Capability over all is Moderate primarily due to the existing built form and urban fabric providing some capacity for the proposed building to be absorbed into the existing environment from various vantage points. As indicated within Figure 3 the proposed building has the potential of being visible from a range of vantage points across the city within this urban context. The analysis of the various viewpoints in Section 8 and Appendix A & C of this report aims to capture the range of potential views of the proposed development by selecting viewpoints of significance to represent the type of views that may be present at other vantage points across the city. This helps understand what 'Capacity' the existing urban form has to absorb some of the effects the development may afford.

Evaluation

The existing urban fabric has low existing amenity with its non-heritage building stock but does provide good amenity value with the heritage buildings in the immediate area. The overall built environment provides Moderate VAC with moderate sensitivity to change within this urban character.
Within the immediate vicinity of the proposed building there is some defined street frontage primarily with Chaos Café across Brougham Street and the Area 41 building which help activate this portion of Brougham Street but other existing buildings from Devon Street South along Brougham and along Powderham Streets provide little to activate the street frontage. The pavement on Brougham and Powderham Streets are narrow poor quality asphaltic concrete paved paths which provide poor amenity and no amenity value to the street interface.

High traffic dominance also dictates the environment adding to the low quality of amenity for pedestrians.
Low visual permeability into the predominant surrounding buildings also offers low street activation and interaction.
The adjacent and opposite heritage buildings provide good visual amenity and uniqueness to the urban fabric via the scale and appearance of the front facades of these buildings.
The site itself exhibits low amenity value as a loose seal car parking lot with poor quality fencing and vegetation to the sites boundary with the exception of the notable tree that sits east of the site in Lot 2 & 3 DP 15492.

7. LANDSCAPE & VISUAL EFFECTS

7.1 Landscape Effects

Built form and urban character

The proposed building exceeds the permitted building height limit which will increase the range of potential locations the development may be visible from. It will provide a positive contribution to the local area in form of introducing a modern quality building that aims to achieve a '5 Star NABERSNZ Energy base building certification' and targeting 'CarboNZero' certification through use of sustainable materials and construction processes using high quality locally sourced materials where possible. The proposed built form will 'lift' the overall quality of the local built environment but will have an impact on scale within the existing environment as the majority of the existing buildings are within the ODP permitted 14m height restriction. The existing environment is currently characterised by relatively low quality and dated modern buildings amongst some reasonable quality existing heritage buildings located primarily to the north and west of the site which are located within the CBD Heritage Character Area (PDP). The local area is characterised by a high degree of variability in built form, scale and appearance which means the proposed building can be absorbed into this urban character to some degree.
The over height portion of the proposed building impacts on this character from certain vantage points which is further described within section 8 of this report.
The building will also serve to anchor the north-eastern corner of the Brougham/ Powderham Street intersection which is consistent with good urban design practice (as opposed to being located 'mid-block') and will provide further continuity to the existing street scape with the exception that the over height portion of the building may have a slight 'adverse' effect on this continuity.

The site has a small footprint which is likely one of the main factors driving the proposed height of building where the over height portion is primarily the only aspect of the building 'adversely' effecting the existing character.

The removal of the notable tree will have an effect on landscape character with a reduction of vegetation in this environment but is considered to be the same effect generated from that of a permitted building activity within the current and proposed district plans. This is due to the tree being approximately 20m in height where a permitted building would obscure the trees visibility. This effect on character with the loss of the tree is currently offset by the opposite existing vegetation in Sir Victor Davies Park and will likely be offset by the effect in opening up a portion of the Huatoki Stream and the proposed and potential landscaping, most evident as part of the street scape character change at a human scale where the buildings proposed entrance opens towards the stream.

Street scape

The local streetscape is vehicle dominated and presents a relatively low-quality environment from a human scale with the street scape gaining some activation when traveling down Brougham Street towards Devon Street with a greater presence of retail and hospitality provided within the existing buildings. The street character is largely informed by a narrow asphalt pedestrian footpath against the existing buildings . The current car park, a brownfields site, occupies the proposed developments site. Poor fencing and vegetation form the boundary edge which in places impedes on the already narrow footpath. The condition and current use of this site has 'adverse' effects on the surrounding character especially that of the adjacent heritage building where the cars and exposed back of this building (the former Brougham Street Offices) compromise existing urban/landscape character. The proposed building will have a 'beneficial' effect on the overall street edge by further framing the existing street conditions and providing an activated street edge adjacent to the site through public and building user activity through the glazed façade. There is a short canopy over the proposed Brougham Street pedestrian entrance which will provide some shelter to this corner of the Brougham and Powderham Street intersection and crossing. The proposed entrance located on Lot 2 & 3 DP 15492 adjacent to Huatoki stream will activate this portion of Powderham Street through way of added human activity and the proposed hard and soft landscape portion of this development. This entrance has a more substantial canopy and is the main entrance to the development, significantly opening up the Powderham Street edge and towards the Huatoki Stream providing a high level of 'beneficial' effects. This will go some way to offsetting the 'adverse' effect afforded by the removal of the notable tree on streetscape amenity and existing character and the added impact of scale that the over height portion of the building creates within certain viewpoints.

Cultural and Historical Elements.

The cultural and historical narrative that is yet to be defined but is present in the proposed development primarily in the use of patterning to the building facades and ground level surfaces will provide a high level of 'beneficial' effects.

Firstly there will be the aesthetic benefits that create vibrancy and interest and contribute to a potential landmark building as well as showcasing some of the materials/processes that contribute to achieving a sustainable green building.

Secondly and to some degree more critically the narrative in design will start to pull together a wider 'Ngamotu' (New Plymouth) narrative that is already present in the new Airport development and current and proposed developments of the Taranaki Base Hospital. As the Coastal Walkway connects the City to the sea and links the West to the East, this forming narrative affords the ability to connect the past to the present and connect and acknowledge existing and lost significant landmarks and natural features important to Mana whenua, Ngamotu and the wider region. This cultural and historic narrative has high 'beneficial' effects that will considerably contribute in offsetting the main adverse effect of the proposal in it's over height portion and the loss of the notable tree.

7.2 Visual effects

Shading

The shading caused by the proposed over height portion of the building will create some shading effects primarily on Brougham Heights Motel and the NZME commercial building across Powderham Street during winter months only. Basic simulations of the shading effects are demonstrated within the submitted architectural drawings from Boon Ltd. The existing buildings across Brougham Street would un-likely receive any additional adverse effects than that of a permitted building activity in the same location. Some additional shading will also affect Sir Victor Davies Memorial Park but with the existing mature trees in this park this will likely have minimal change in shading effects on this open space.
The overall effect of shading is considered having a Low 'adverse' type effect.

Over height infringement

The over height infringement will be visible in all views included in this analysis except the Cameron Street Viewshaft 3 where the development will be screened by existing vegetation and buildings. A permitted building activity will also be visible in these views with the exception of Viewpoint J & L (See Figures 3 & 4 for locations) where only a portion of the proposed over height building will be visible.
The various effects are described within the individual viewpoint analysis following in Section 8.

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8. VISUAL ASSESSMENT:

Figure 4 – Viewpoint Location Map



Figure 5 – Viewpoint Location Table (Refer Appendix A for Viewpoint Analysis)

Viewpoints			
Receptor	Type	Address / Location	Viewpoint
A	Public	Cnr Powderham & Brougham Streets	Pedestrian footpath
B	Public	9 Powderham Street	Huatoki walkway
C	Public	54 Brougham Street	Pedestrian footpath
D	Public	Cnr Vivian & Brougham Streets	Pedestrian footpath
E	Public	Cnr Devon & Brougham Streets	Pedestrian looking SE
F	Public	Brougham Street (Library shared zone)	Pedestrian footpath
G	Public	Puke Ariki main entrance landing	Looking S/SE from landing
H	Public	Wind Wand Deck / Platform	Viewing platform/deck
I	Public	Huatoki Plaza (between Devon and Gill Streets)	Pedestrian walkway/plaza
J	Public	Cnr Currie & Devon Streets	Pedestrian footpath
K	Public	Cnr Powderham & Liardet Streets	Pedestrian footpath
L	Public	Cnr Queen & Devon Street West (Len Lye centre)	Pedestrian footpath
District Plan Viewshaft locations			
1	Public	Pukaka / Marsland Hill	Looking North from loc 1
2	Public	Victoria Road	As per ODP view
3	Public	Cameron Street	As per ODP view

Viewpoint Analysis.
(Refer Appendix B – for Effect ratings and their definitions)

Viewpoint A: Corner of Powderham & Brougham Streets (Public).
Location Description:

This viewpoint considers vehicles, cyclists & pedestrians travelling east along Powderham Street where there are close up views from approximately 25m back from the intersection. The building is located in the foreground and to the left of the view with the west and south facing façades being visible.

Effects on Character and Amenity:

No viewshafts or coastal views are affected from this viewpoint. The primary adverse impacts of the proposal on this view include the removal of the existing notable tree and the additional over height portion of the building. The additional height provided by the proposed buildings scale, impacts on the surrounding heritage buildings with the existing 'Grand Central Hotel' building providing some balance to this scale effect.

The scale and position of the proposed building provides some screening of the existing public car parking building in the following block. Taken with the high-quality aesthetic of the proposed building this screening of the car park building is considered a **'beneficial'** effect on the urban character. The over height portion encroaches into additional sky view above that of a 14m permitted height building but is considered as generic sky view and the overall scale impact on the immediate area is not deemed as a greatly significant impact of potential activities allowed within the ODP and PDP.

The notable tree provides some screening of the 'unsightly' parking building as referred to in the arborists report. As the proposed building and existing condition both provide '**beneficial'** screening benefits it is considered **'neutral'** In effect.

The cultural narrative present in the fritted patterning on the glass will be clearly visible from this view on the Western and Southern facades primarily with some level of visual permeability through to the Eastern façade.

The overall visual effect level is considered **Low** from this viewpoint.

Viewpoint B: 9 Powderham Street, entrance/exit to Huatoki Stream Walkway & Sir Victor Davies Park (public).

Location & Audience Description:

This viewpoint considers primarily a pedestrian audience using the Huatoki Walkway through 'Sir Victor Davies Park' and pedestrians approaching the site heading east to west along Powderham Street. The proposed building will be viewed at close proximity where the over height portion of the building will be visible and impeding direct line of sight up towards the sky but not blocking any key views or viewshafts.

Effects on Character and Amenity:

The removal of the notable tree and loss of associated amenity value will have a **'negative'** impact on amenity with the over height portion of the building providing a new significant mass to this view. The removal of the notable tree is offset by the opening up and provision of access to the Huatoki stream via the proposed paved entrance and external stair well on the eastern side of the proposed building. Combined with retention of the 'uncommon' kentia palms and soft landscaping potential, the landscape character and amenity effects will be **'Beneficial'**.

The building will further screen the Brougham Street facades of the Grand Central Hotel and the adjacent retail store. Impacts on the view of the heritage 'Salvation Army' building will be comparable to the permitted building activities and are therefore **'negligible'**.

The scale of the proposed building will be significantly noticeable from this viewpoint in contrast to the existing brownfields site but as the foot print is small on this site the over height impact on scale is considered to have a similar impact to that provided by the lower but larger mass of the existing public car park building across from this viewpoint.

The level of shade from within 'Sir Victor Davies Park' added from the proposed over height building is considered **'negligible'** as the existing mature trees within the park appear to shade most areas where the building shade would otherwise fall. As with **viewpoint A** the additional shade from the over height portion of the building on the existing urban character with have minimal difference in summer with some additional shade added in winter which will have **Low** effect than that from a permitted height building.

The proposed entrance off Powderham Street to the main entrance on the Eastern side will open up this edge and allow more light into this portion of the site and the Huatoki Stream especially around noon.

This will provide a sense of openness and lightness which will help offset the 'adverse' effects from the height of the building. The cultural narrative will be clearly visible from this view with the patterning on the glazed facades. The hard and soft landscaped areas to the eastern side of the building will also contribute 'beneficial' effects to this view.

The overall visual effect on this viewpoint is considered Low.

Viewpoint C: Just off pedestrian footpath outside 54 Brougham Street vehicle entry (public).

Location & Audience Description:

This viewpoint considers the footpath/road public space adjacent to the Brougham Heights Motel at 54 Brougham Street when approaching north towards the site.

Effects on Character and Amenity:

No significant sea views are affected from this view. As indicated by the dashed red line the 14m permitted building height will also impact these views so the type of visual effect can be considered 'neutral'. The loss of the notable tree has 'adverse' effect on the character and amenity value of this view due to the mass of the proposed building and the reduction of vegetation/natural elements.

The size and form of the proposed building helps balance the built urban form mirroring the 'Grand Central Hotel' building to some degree. Although taller than the surrounding buildings the proposal will help frame the significant street view out towards the ocean with the Len Lye Wind Wand becoming a focal point in the view when seen from the road. This has a High 'beneficial' effect on visual character providing some balance to the existing built form and further framing this view. Although taller than the neighbouring Downtown Parking Building lift shaft and the NZME building, these two building's provide some level of height and scale with the lift shaft sitting just below the top level (level six) of the proposed building. The NZME building which is base level starts at a higher elevation to the proposed building, helps balance and offset the proposed building from this view.

The active street edge on Brougham Street is visible but does not contribute greatly in this view.

The cultural narrative is visible with the fritted patterning on the West and South facades in this view.

The overall visual effect level on this viewpoint is considered Low.

Viewpoint D: Just off pedestrian footpath at the south-western corner of Vivian & Brougham Streets (public).

Location & Audience Description:

This viewpoint considers vehicles approaching the north from Brougham and Vivian Streets and pedestrian viewers looking north from Vivian Street and/or heading north from the Marsland Hill/Pūkākā Walkway.

Effects on Character and Amenity:

The removal of the notable tree will have negligible impact on public receptors as only a very small portion of the tree is visible from this viewpoint. Due to the higher elevation of this view a small portion of sea view visible just above the existing ANZ building will be lost. Some visible sky will be lost with the over height portion of the proposed building but with the existing Brougham Heights Motel, Nice Hotel and NZME buildings skyline views are already compromised. This view will also be lost with a permitted building height activity so the effect type is considered 'neutral'.

As per Viewpoint C the form of the proposed building again provides framing of the street view out to sea with the Wind Wand as a focal point and affords some balance to the existing built form.

Some of the fritted patterning will be visible but a significant portion of the building is screened by the existing pohutukawa tree out in front of the Nice Hotel within this view.

The overall visual effect level from this viewpoint is considered Low.

Viewpoint E: North-western corner of Devon & Brougham Streets looking south-east from pedestrian footpath (public).

Location & Audience Description:

This viewpoint considers views for-pedestrians and vehicles at the intersection of Devon Street East and Brougham Street looking south and/or approaching the site from the north.

Effects on Character and Amenity:

The over height portion of the proposed development does not impede on any significant views from this viewpoint but does block views of the sky. Apart from an added sense of scale the over height portion of building has no adverse effect on the character or visual amenity over and above what a permitted building of 14m would have.

The building will screen the radio transmitter towers located on top of the NZME commercial building across Powderham Street, which is considered a Low positive effect on visual amenity (i.e. removing utilitarian clutter from the view).

From this view the basement carpark level will be in the foreground of the street edge with the Brougham Street entrance and level 1 tenancy further in the distance so limited street activation will be noticeable from this location. There is a pedestrian link between the proposed building and the Area 41 building which aims to provide a connection from Brougham Street to potential future development of the Huatoki Stream but won't contribute greatly to street activation unless some form of development takes place in the future.

The fritted patterning on the North and West facades will be visible from this view but connecting its narrative to the Huatoki Stream and other cultural aspects will be less obvious from this view.

Considering the existing built form in this view and the 'positive' visual screening the visual effect level is considered Low from this viewpoint

Viewpoint F: Looking south from the shared portion of Brougham Street outside the public library.

Location & Audience Description:

This viewpoint considers a public pedestrian viewing audience using the shared zone in front of the public library on Brougham Street with some motorized traffic viewing when turning onto Brougham Street to head south. The view looks south from the shared pedestrian/vehicle portion of Brougham Street.

Effects on Character and Amenity:

The over height portion of the proposed building extends above the existing ANZ building into view of sky but does not infringe on any significant views.

From this view the roof line sits below the rooflines of the existing buildings directly opposite the library in which context the proposed building has no dominant adverse effects this including the height difference between the proposed building and the Grand Central Hotel on the opposite side of the Brougham Street.

The visual effect level from this viewpoint is considered Low.

Viewpoint G: Looking south-east from the landing directly outside Puke Ariki main entrance.

Location & Audience Description:

This viewpoint considers solely a public pedestrian audience looking south towards the site from the platform/landing directly in front of Puke Ariki.

Effects on Character and Amenity:

The over height portion of the proposed building, as indicated by the red dashed line in the simulation, is clearly visible from this view with the roofline sitting fractionally higher into the skyline than the existing built form to the left of the view.

The proposed building screens out some of the less visually pleasing radio towers in view but in doing so also screens some mature tree canopy behind the built form. As the proposed building takes center of this view it becomes the more dominant built form but is still in context with the surrounding existing buildings. The existing Nikau palms in the foreground provide amenity to this view and are expected to screen the proposed building within 5 to 10 years.

The loss of visual amenity with the background tree canopy and the slight dominance over the existing built form is low 'adverse' type of effect within the existing urban form.

The overall visual effect level is considered to be Low.

Viewpoint H: Looking south from between the Wind Wand and railway barrier fence on the Wind Wand viewing platform (public).

Location & Audience Description:

This view considers primarily a pedestrian audience looking south towards the proposed building from the Wind Wand Viewing Platform on the Coastal Walkway. A secondary audience could be considered from this view in terms of motorists passing through the view along St Aubyn Street, but the view would be only momentary as vehicles on this stretch of St Aubyn street will be constantly moving.

Effects on Character and Amenity:

The over height portion of the proposed building does sit in a recess within the existing natural and urban form at the horizon filling in a view of sky but is in context with the existing buildings either side of the view and does not block the visible portion of mature trees on Marsland Hill/Pūkākā which the existing building to the right of view does. The proposed building does appear to sit fractionally higher than the existing buildings in view, and being central to this view, is easily identifiable but slightly less dominant than seen in the Puke Ariki viewpoint G.

The overall effect level on the character and amenity value in this view is considered Low.

Viewpoint I: Looking south-west from the centre of the pedestrian route through the Huatoki Plaza (public).

Location & Audience Description:

This viewpoint considers a public solely pedestrian audience from the center of the Huatoki Plaza looking south towards the proposed building.

Effects on Character and Amenity:

The over height portion of the proposed building is clearly visible from this point but is in context with the surrounding built forms. The Alder street trees on Devon Street East visible in view are also likely to have further growth screening more of the visible portion of the proposed building.

The character and visual effect on this view is considered Very Low.

Viewpoint J: Looking west from in front of the bench seat adjacent to the Devon Street crossing on the corner of Devon & Currie Street (public).

Location & Audience Description:

This viewpoint considers a public pedestrian and motorized viewing audience looking south/west from the corner of Currie and Devon Street East and approaching the proposed building down Devon Street East from the East.

Effects on Character and Amenity:

The over height portion of the proposed building is visible from this location only infringing into a small portion of sky view above the facades and roof lines on the opposite corner of Currie and Devon Street East. The visible portion of the proposed building is in context with the existing built forms. This view can be considered 'neutral' in effect type.

The overall visual effect is considered Very Low.

Viewpoint K: Looking west from the corner of Liardet and Powderham Streets adjacent to St Andrews Church (public)

Location & Audience Description:

This view considers primarily a public pedestrian viewing audience at the corner of Liardet and Powderham Streets, due to Powderham Street traffic flowing east only. A secondary public viewing audience considering traffic looking west while approaching north down Liardet Street can also be considered but will be momentary with no direct line of sight.

Effects on Character and Amenity:

The over height portion of the proposed building, as indicated above the red dashed line in the simulated view of 'Viewpoint K', is clearly visible from this view. The over height portion does not affect any viewshafts or coastal views but does screen a Norfolk pine and the steeple of St Joseph's Church which provide character and amenity value to this view to the existing horizon. The existing office tower currently occupied by OMV is also screened by the proposed building which in terms of architectural aesthetic, provides poor visual amenity however considering the irregular angled roof line of this building within the horizon, this building is considered to have 'neutral' visual effects to this view. The proposed buildings front façade provides 'beneficial' amenity value when considered in context with the built forms in the foreground but does impact on the character afforded by the current horizon.
The over height encroachment into the existing horizon line creates a change in existing character within this view which is considered a 'neutral' change in the existing urban form.

The cultural narrative will be visible from this view but due to the distance will be fairly indistinguishable. The building will a provide a landmark that can act as a marker to the Huatoki Stream and or Brougham Street although this is to some degree presently existing in the form of the 'Halamoana' sculpture which is to be relocated.

The overall visual effects in this view are considered Low.

Viewpoint L: Looking south-east from the corner of Queen & Devon Streets on the footpath outside the Len Lye building (public).

Location & Audience Description:

This view considers public motorized and pedestrian viewing audiences looking south/east towards the proposed building from the corner of Devon Street West and Queen Street and approaching west to east along Devon Street West. This is the corner of the Govett Brewster/Len Lye Gallery.

Effects on Character and Amenity:
The over height portion of the proposed building is just visible above the existing ASB building roof line as indicated as a red mass to illustrate the visible portion in simulate viewpoint L.

The visual and amenity effect of the proposed building in this view is considered Very Low as the visible portion will be negligible.

Viewshaft Analysis. (As per the ODP Urban Viewshaft Overlays).

Viewshaft 1: Marsland Hill/Pūkākā – looking north from the bench seat that faces the view towards the Centre City Complex (public)
Location & Audience Description:
The Marsland Hill/Pūkākā viewshaft considers a pedestrian audience looking north towards the proposed building from one of the north-facing bench seats as indicated by viewshaft location 1 in Figure 2 on top of the hill. The view is framed by a mature Totara to the left of the view and a mature Puriri tree to the right of the view. This is only one view from Marsland Hill/Pūkākā with another view looking North-West towards Kawaroa and Moturoa and out to sea. Other views from Marsland Hill/Pūkākā look West and East along the urban and suburban environments and views to the South towards Mount Taranaki.

Effects on Character and Amenity:
The over height portion of the building encroaches slightly into the sea view just above the Centre City Complex but the effects are considered Low 'adverse' as the urban fabric from this view has a High VAC which also infringes in to the sea from this view. However, the uniform roof plane of the proposed building does affect the character of the existing built form from this vantage point, which has a change in effect from the existing form and texture provided. The uniform roof plane of the proposed building screens some of the poor aesthetic quality of some buildings as well as plant on top of some buildings. For this reason, the overall effect type can be considered 'neutral'.

The loss of the notable Agonis tree in this view along with the mass of the new building façade creates a significant change in character for this view with the loss of natural amenity that blends with the mature trees that frame this view. This however would have the same or similar effect if a 14m high permitted building occurred, meaning the over height portion of the proposed building from this perspective would have minor effect difference than that of a permitted building on this site. It is also considered that the trees either side of this view although mature are expected to have continued growth which over time will enclose/narrow the portion of the view that the proposed building is visible mitigating any adverse effects as a result of the removed notable tree.

The fritted patterning on the South façade will be visible from this view and will provide some visual connection/link to the Huatoki Stream just out of view in the void between the proposed building and the Downtown Parking building.

'Adverse' types of effects include the slight encroachment into sea view and the additional mass of the over height portion of the proposed building, and loss of the notable tree. This balanced with the 'beneficial' effects being screening of less desirable built form and a quality new landmark building.

The overall level of effect level on character and amenity is considered Low for this view.

Viewshaft 2: Victoria Road - As per ODP view (public).
Location & Audience Description:
The Victoria Road Viewshaft as per the ODP considers primarily a public motorized viewing audience with a secondary pedestrian audience approaching the proposed development from the south looking north. This view is framed by the embankment and mature Pohutukawa and other trees on the right hand side of the view which

adjoins Pukekura Park, and existing residential properties with substantial other vegetation framing the left. The Len Lye Wind Wand is clearly visible center right of the framed view.

Effects on Character and Amenity:
The over height portion of the proposed building infringes on a small portion of sea view directly left of the Wind Wand and central to this framed view. This loss of sea view is to be considered 'adverse' on the visual amenity. The lower bulk of the building also screens the lower portion of the Wind Wand, but this can be considered 'neutral' as a permitted building activity would afford the same effect.

The proposed building, although larger in view than existing structures within this urban form, is in context with these other structural elements that also encroach on the lower portion of visible sea. The effect on the urban character can be considered 'neutral' as a permitted building activity will have a similar effect.

The fritted patterning on the South façade will likely be visible but indistinguishable from this view although the proposed building in relationship with the existing lift shaft of the Downtown Parking building provide vertical landmarks to the banks of the Huatoki Stream could be seen a contributing to cultural and historical narrative.

Due the proposed buildings encroachment into visible sea and its position within view detracting from the existing framed view of the Wind Wand Sculpture, the level of effect on character and amenity value is considered Moderate.

Viewshaft 3: Cameron Street – As per ODP view (public).
Location & Audience Description:

The Cameron Street Viewshaft, considers a public primarily motorized viewing audience approaching from south east from the top of Cameron Street towards the proposed development.

Effects on Character and Amenity:

As indicated by the red mass in the simulation for Viewshaft 3, the proposed building is not visible due to screening of existing mature tree canopies that block line of sight. If trees were excluded from the view it can be estimated that the building would sit just below the view of the Sugar Loaf Island preserving any direct line sight to these natural features significant to the Cameron Street Viewshaft.

The effect on character and amenity value of this view is considered Very Low as there is no expected view of the proposed building.

Summary

The over height portion of the proposed building presents the potential for adverse effects primarily in the Marsland Hill/Pūkākā and Victoria Road Viewshaft and viewpoints C, D, G &H.
While it is relevant to note that a 14m high compliant building would be visible in a number of views (especially Victoria Road & Marsland Hill), the height and scale of the proposed building means that it will be highly recognisable/distinguishable in these views. Although the Marsland Hill has High 'VAC' with the existing built form there will be a noticeable change in the texture of the urban fabric as the proposed buildings mass and roof form will predominantly occupy what currently is a variety of existing buildings ranging in aesthetic quality and affording a greater perception of the city layout from this view.
The Victoria Road Viewshaft (see Appendix A, Viewshaft 2) where the reveal along the Victoria Road approach of the proposed over height infringement will be highly recognisable and resulting visual effects will be Moderate 'adverse'.

9. STRATEGY FOR MITIGATION MEASURES:

The following lists existing and proposed mitigation measures that seek to avoid or mitigate adverse effects on the landscape character and visual amenity afforded to the various audiences. These measures include but are not limited to:

Existing Measures:

- The proposed glazed façade with setback internal walls seeks to mitigate some of the adverse effects the building mass will have on the immediate and wider context also providing better light permeability which aids visibility at the street edges and should help mitigate some of the adverse shading effects.
- The choice of timber as structural components and finishing components helps create a softer natural feel adding to the existing built form and creating a better relationship to the adjacent natural environment compared to typical concrete or steel building types within the immediate building stock.
- The focus on a sustainable NABERSNZ energy efficient building seeks to promote better quality buildings that help minimize effects on the environment through the building process & create a landmark building.
- Connection and promoted activity to the adjacent Huatoki Stream. By way of the Stairwell and hard and soft landscape elements proposed in Lot 2 & 3 DP 15492.
- Visual permeability of private commercial activity. The glazed façade and set back internal walls create better connection of the internal building activities with the wider public activity seeking to create more vibrancy in the city. This aids in passive surveillance and activating the buildings edges.
- Cultural narrative in patterns present on the glazed façade and timber stairwell façade
- Cultural narrative in the patterns on internal floor elements and external paved elements representing Hīnaki (eel net) with the wider form of this ground plane pattern representing the form of the historical estuary at the mouth of the Huatoki.
- Representation of Mauri stone with some form of water element from the Huatoki stream.

Proposed measures:

- Soft landscaping/planting to the top apartment exterior spaces. This needs to be carefully considered and seek opportunities where further softening and or enhancement of the top apartment can be achieved without providing further scale to the top level. An example of this could be strategically placed foliage wire and climbers that complement and soften portions of the apartment façade as opposed to a tree planter located on the corners of the building which would potentially add adverse effects on scale.
- Planted elements to the Huatoki Stream/Eastern edge of the proposed building. Soft-scaping and vegetation are to be considered in support of the retained Kentia Palms to mitigate the adverse effects as a result of lost amenity with the proposed removal of the notable tree. There is potential for small gardens to the Southern side of the main door and in front of the timber stairwell façade. Foot traffic tolerant planted portions of the paving should also be considered to further promote water sensitive design and potentially tie in to the cultural narrative or themes associated with the proposal.

10. CONCLUSION:

The proposed development sits well within the existing urban fabric and overall urban character of the area with the exception of the Victoria Road viewshaft as per the NPDC ODP due primarily to the over height intrusion into this view. It is considered that the proposed building will sit well within the existing context of the Marsland Hill/Pūkākā viewshaft and viewpoints A to I and K. The building will unlikely be visible from the Cameron Street viewshaft and have '**very low**' effect on Viewpoints J and L.

The overall building aesthetic affords '**positive**' amenity to the existing urban form providing a landmark building as a precedent for green/sustainable building practices that encourage better quality buildings within the CBD with the buildings proposed energy efficient 5 Star NABERSNZ target. Powderham and Brougham Street edges are activated through the tenancies and good visual permeability at pedestrian level creating opportunity for public/private interaction and passive surveillance. A clear connection from the Eastern face of the building provides direct connection to the Huatoki Stream and affords great opportunity for future development of the Huatoki Stream potentially providing a continuous connection of the Huatoki Walkway if the Downtown Plaza was to be redeveloped to allow for this. Further amenity value is achieved through the cultural and historic narrative in the proposed design with treatments to the facades and ground planes along with the provision of a Mauri stone and other landscaped elements to the Eastern entrance of the building all contributing to mitigate any adverse effects in removal of the notable tree and helping to offset any adverse effects of the buildings scale. This is also aided by opening the stream edge to more daylight and visibility for more human scale interaction and acknowledgment of the importance of the streams contribution to the central city's biodiversity and natural landscape.

Considering a permitted 14m high development within the ODP. The over height portion of the proposed development will have a change in effect on the scale of the existing environment as described in the majority of the visual analysis. It is considered that the overall impact on the urban character and amenity value will be **Low** and the proposal will achieve overall **'beneficial'** contributions to current and future planning and policy objectives.

In summary of this assessment of effects on landscape and urban character and amenity value of the proposed development to construct a building up to 11.5m above the permitted building height. It is considered that in implementing the current and proposed mitigation measures the overall impact on the surrounding area and wider context will be acceptable.

Assessment prepared by Daniel McEwan – Landscape Architect
BOON LTD

Assessment reviewed by Wade Robertson – Principal Landscape Architect
BECA

BOON

APPENDICIES:

Appendix A:

Viewpoint Photographs & Visual Simulations

Appendix B:

Definitions

Appendix C:

Viewpoint Photographs & Visual Simulations of Viewpoints C, D & E and Viewshafts 1 & 2

BOON

APPENDIX A – Viewpoint photographs & Visual Simulations



Viewpoint A Simulation – Cnr Powderham & Brougham Streets – Public Receptor
(14m ODP approximate building height – (Red dashed line) 17m PDP approximate height (blue dashed line))



Viewpoint A Existing Condition – Cnr Powderham & Brougham Streets

BOON



Viewpoint B Simulation – 9 Powderham Street (Sir Victor Davies Park Entrance) – Public Receptor
(14m ODP approximate building height – (Red dashed line) 17m PDP approximate height (blue dashed line))



Viewpoint B Existing Condition – 9 Powderham Street (Sir Victor Davies Park Entrance)



Viewpoint C Simulation – Vivian Street end of Brougham Street – Public Receptor
(14m ODP approximate building height – (Red dashed line) 17m PDP approximate height (blue dashed line))



Viewpoint C Existing Condition – Vivian Street end of Brougham Street.



Viewpoint D Simulation – Cnr Vivian and Brougham Streets – Public Receptor
(14m ODP approximate building height – (Red dashed line) 17m PDP approximate height (blue dashed line))



Viewpoint D Existing Condition – Cnr Vivian and Brougham Streets



Viewpoint E Simulation - Cnr Devon Street East & Brougham Street – Public Receptor
(14m ODP approximate building height – (Red dashed line) 17m PDP approximate height (blue dashed line))



Viewpoint E Existing Condition - Cnr Devon Street East & Brougham Street



Viewpoint F Simulation - Brougham Street Library Forecourt – Public Receptor
(14m ODP approximate building height – (Red dashed line) 17m PDP approximate height (blue dashed line))



Viewpoint F Existing Condition - Brougham Street Library Forecourt

BOON



Viewpoint G Simulation - Puke Ariki Main Entrance Landing – Public Receptor
(14m ODP approximate building height – (Red dashed line) 17m PDP approximate height (blue dashed line))



Viewpoint G Existing Condition - Puke Ariki Main Entrance Landing



Viewpoint H Simulation - Wind Wand Deck/Platform – Public Receptor
(17m PDP approximate height (blue dashed line)



Viewpoint H Existing Condition - Wind Wand Deck/Platform



Viewpoint I Simulation – Huatoki Plaza – Public Receptor
(17m PDP approximate height (blue dashed line) 14m ODP permitted height not visible in this view)



Viewpoint I Existing Condition – Huatoki Plaza



Viewpoint J Simulation – Cnr Currie & Devon Street East – Public Receptor
(ODP and PDP building heights not visible in this view)



Viewpoint J Simulation – Cnr Currie & Devon Street East

BOON



Viewpoint K Simulation – Cnr Liardet & Powderham Streets – Public Receptor
(14m ODP approximate building height – (Red dashed line) 17m PDP approximate height (blue dashed line))



Viewpoint K Existing Condition – Cnr Liardet & Powderham Streets



Viewpoint L Simulation – Cnr Queen & Devon Street East – Public Receptor
This simulation is indicated by the red massing above the ASB roof line showing the visible portion of the proposed building.



Viewpoint L Existing Condition – Cnr Queen & Devon Street East



Viewshaft 1 Simulation – View point out from Marsland Hill/Pūkākā – Public Receptor



Viewshaft 1Existing Condition – View point out from Marsland Hill/Pūkākā. As per ODP.
When viewed at correct viewing distance the notable tree has central position and mass within this view which is framed by the native Totara and Puriri trees on Marsland Hill/Pukaka.

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Viewshaft 2 Simulation – Victoria Road – Public Receptor
(14m ODP approximate building height – (Red dashed line) 17m PDP approximate height (blue dashed line))



Viewshaft 2 Existing Condition – Victoria Road. As per ODP.



Viewshaft 3 Simulation – Cameron Street – Public Receptor.
This simulation is indicated by the red massing between the two power poles centre left of the image



Viewshaft 3 Existing Condition – Cameron Street. As per ODP.

Appendix B

VISUAL ABSORPTION CAPABILITY[4]

The capability of the surrounding landscape to absorb a development.
The ability of a landscape to integrate a development into the existing visual character without significant change.

Factors which determine the VAC include.

a) The degree to which the development is visible
b) Visual and physical links with other similar elements in the landscape
c) The level of modification to the surrounding landscape
d) Appropriateness of scale
e) Distance
f) Backdrop

This rating determines the extent of visibility of a proposed development and is rated under the following:

Very low – Highly visible, potential focal point, different in appearance or scale to existing, significantly alter existing character. Introduce a new element.

Low – Clearly visible, not a primary focal point, alter existing character.

Neutral – Neither screened or a focal attraction, no effect on existing character, a visual element which may viewed in similar landscape types

Moderate – Partially screened or visually absorbed, still readily identifiable, secondary focal point, no effect on existing character

High – Mostly screened or visually absorbed, still identifiable, tertiary focal point, no effect on existing character

Very High – Completely or nearly completely screened, unidentifiable at a distance, no effect on existing character

VISUAL EFFECT TYPE[5]

Visual effect type is classified as one of the following:

Beneficial – contributing to the quality of the environment
Adverse – detracting from the existing quality of the environment
Neutral – no effect on the existing character

[4] *Visual Assessment Best Practice Methodoligies – Lisa Rimmer*
[5] *Visual Assessment Best Practice Methodoligies – Lisa Rimmer*

LEVEL OF EFFECT

Describes the degree of effect of the proposal as one of the following:

Extreme – Use- the development/ activity would:

- result in an extreme change on the characteristics or key attributes of the receiving environment and/ or the vista within which it is seen; and/ or
- have an extreme effect on the perceived amenity derived from it
- unacceptably high visual effects, dominant feature, character of landscape is significantly affected

Very High – Use – the development/ activity would:

- have a very high level of effect on the character or key attributes of the receiving environment and/ or the vista within which it is see; and/ or
- have a very high level of effect on the perceived amenity derived from it

High – Use – the development/ activity would:

- have a high level of effect on the character or key attributes of the receiving environment and/ or the vista within which it is see; and/ or
- have a high level of effect on the perceived amenity derived from it
- high visual effect, significant and apparent change affecting overall landscape character

Moderate – Use – the development/ activity would:

- have a moderate level of effect on the character or key attributes of the receiving environment and/ or the vista within which it is see; and/ or
- have a moderate level of effect on the perceived amenity derived from it
- visual effects of some significance, visible and recognisable new element, may have a noticeable impact on viewers

"Minor" threshold under the RMA
Low – Use – the development/ activity would:

- have a low level of effect on the character or key attributes of the receiving environment and/ or the vista within which it is seen; and/ or
- have a low level effect on the perceived amenity derived from it
- no more than minor visual effects under RMA, no more than minor effects on view, which includes less than minor, minor component of a wider view

Very low – Use – the development/ activity would:

- have a very low level of effect on the character or key attributes of the receiving environment and/ or the vista within which it is seen; and/ or.
- have a very low level effect on the perceived amenity derived from it

Negligible – Use – the development/ activity would:

- have a negligible level of effect on the character or key attributes of the receiving environment and/ or the vista within which it is seen; and/ or
- have a negligible level effect on the perceived amenity derived from it

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APPENDIX C – A3 Viewpoint photographs & Visual Simulations of Viewpoints C, D & E and Viewshafts 1 & 2



Viewpoint C Simulation - Vivian Street end of Brougham Street - Public Receptor

A3 viewing distance - 640mm

BOON
LANDSCAPE



Viewpoint C Existing Condition - Vivian Street end of Brougham Street - Public Receptor

A3 viewing distance - 640mm

BOON
LANDSCAPE



Viewpoint D Simulation - Cnr Vivian & Brougham Streets - Public Receptor

A3 viewing distance - 640mm

BOON
LANDSCAPE



Viewpoint D Existing Condition - Cnr Vivian & Brougham Streets - Public Receptor

A3 viewing distance - 640mm

BOON
LANDSCAPE



Viewpoint E Simulation - Cnr Devon Street East & Brougham Street Public Receptor

A3 viewing distance - 854mm

BOON
LANDSCAPE



Viewpoint E Simulation - Cnr Devon Street East & Brougham Street Public Receptor

A3 viewing distance - 854mm

BOON
LANDSCAPE



Viewshaft 1 Simulation - View point out from Marsland Hill / Pūkākā. As per ODP.

A3 viewing distance - 854mm

BOON
LANDSCAPE



Viewshaft 1 Existing Condition - View point out from Marsland Hill / Pūkākā. As per ODP.

A3 viewing distance - 854mm

BOON
LANDSCAPE



Viewshaft 2 Simulation Option 1 - Victoria Road. As per ODP - Public Receptor

A3 viewing distance - 854mm

BOON
LANDSCAPE



Viewshaft 2 Existing Condition - Victoria Road. As per ODP - Public Receptor

A3 viewing distance - 854mm

BOON
LANDSCAPE

APPENDIX M COMMUNICATION FROM NZTA

Darelle Martin

Subject: FW: [#BTW190783] Commercial Building Consent Application - Cnr Powderham St, New Plymouth - K.D. Holdings Limited

From: Emily Hunt <Emily.Hunt@nzta.govt.nz>
Sent: Thursday, 13 August 2020 3:49 PM
To: Darelle Martin <darelle.martin@btw.nz>
Subject: RE: [#BTW190783] Commercial Building Consent Application - Cnr Powderham St, New Plymouth - K.D. Holdings Limited

Good afternoon Darelle,

Waka Kotahi NZ Transport Agency agree in principal that the impact will be less than minor on our network provided that no future access will be allowed from the state highway (Powderham St).

I just have one question regarding the Section 3.2 on Access, Parking and Manoeuvring, which states the following:

'No on-site loading or standing spaces are proposed, instead any deliveries by a courier van to future commercial tenants are to be undertaken from the five-minute loading bay available on the opposite side of Dawson Street'.

I'm assuming this reference to the loading bay was supposed to reference Brougham Street not Dawson Street?

I look forward to receiving clarification on this.

Kind regards,
Emily

Emily Hunt / Planner
Consents & Approvals - Transport Services
DDI +64 7 958 7884 / **M** 027 319 3256
E emily.hunt@nzta.govt.nz / **w** nzta.govt.nz

Waka Kotahi NZ Transport Agency

Hamilton Office / **Level 1, Deloitte Building** 24 Anzac Parade
PO Box 973, Waikato Mail Centre, 3240, New Zealand

APPENDIX N CULTURAL IMPACT ASSESSMENT

ngāti te whiti

Cultural Impact Assessment

Brougham St/Huatoki proposals | New Plymouth District Council

Prepared by: Ngāti Te Whiti Hapū

Prepared for: New Plymouth District Council

Adopted by Ngāti Te Whiti Hapū, 2 September 2020

Quality Assurance			
Date	Version	Change	Comment
02/09/2020	1		Final CIA
03/09/2020	2	Corrections, pg 24 + 26	Final CIA
04/09/2020	3	Updated drawings	Final CIA

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1.0 He Kupu Whakataki/Introduction

Purpose

The purpose of this Cultural Impact Assessment (CIA)[1] is to assess the actual and potential effects on Ngāti Te Whiti Hapū (or Ngāti Te Whiti or the hapū) that may result from the Brougham Street commercial development proposed by K.D. Holdings Limited (resource consent ref. LUC20/47704) and inform future development opportunities of the New Plymouth District Council owned Metro Plaza.

Ngāti Te Whiti has undertaken an effects assessment to consider how the proposal recognises and provides for their relationship with their ancestral lands, waters, wāhi tapu and other taonga; as well as providing for the protection of sites and areas of significance to Māori and other historic heritage resources in the area as matters of national importance.

Ngāti Te Whiti has also considered how the proposal provides for their role as kaitiaki of resources in the Central Business District (CBD) area.

Authors & Te Ao Māori

Ngāti Te Whiti, with the support of Te Kotahitanga o Te Atiawa Trust (Te Kotahitanga or the Trust), have prepared this CIA to assess the effects of the proposal. Only tangata whenua who *whakapapa* have the mandate to carry out CIAs, and only tangata whenua can determine the issues that affect themselves and their natural and physical resources and to what extent these may be.

Ngāti Te Whiti have a holistic view of the environment based around whakapapa (genealogy) and whanaungatanga (relationships), connecting us and all physical and spiritual things in the world. Our relationship with the environment stems from our whakapapa to Papatūānuku (Earth Mother) and Ranginui (Sky Father) who gave rise to many children, also known as the Atua (guardians) of the domains of the natural world. Therefore, it is important to understand that potential impacts of any proposed activity would be conceptualised holistically. For example, Ngāti Te Whiti would not consider environmental impacts separately to impacts on health and wellbeing of ngā tangata.

Over the last 200 years the prominence of the Māori worldview has been eroded across the political landscape of Aotearoa/ New Zealand. This began with the denigration of Rangi, Papa and the other Atua with the arrival of the early Christian missionaries. This continued with the gradual loss of control by tangata whenua over land and other resources. The strengthening of the Western Worldview's focus over this time on the individual and his material needs has further eroded the values inherent in the Māori Worldview. It is of no coincidence that over this time the condition of natural resources has degraded and the amount available for use has diminished. The reversal of this trend both in the condition of natural resources and the relevance of Te Ao Māori is welcomed by tangata whenua.

The values that this application is assessed against in this CIA are informed by this world view.

Experienced resource management practitioners were engaged to provide technical planning support to hapū kaitiaki whom undertook this assessment.

Methodology

The following were the key steps taken to inform the development of this CIA:

- A site visit to understand the extent of the proposals, the aspirations of New Plymouth District Council (NPDC or the Council) for public space in vicinity to the proposed application site and to gain an understanding of the existing environment on the 17/07/2020.

[1] Appendix 1 sets out general context around what a CIA does, and what matters they generally address.

- Review of the application, and documentation held by hapū kaitiaki regarding sites and areas of significant to Māori within the CBD area.
- A series of weekly hui between 29/06/2020 and 31/07/2020 undertaking the assessment.

Presentation of the findings of the draft CIA to NPDC and K.D. Holdings Ltd was undertaken on 07/08/2020.

Following this presentation, K.D. Holdings Ltd reviewed their application and a revised proposal submitted. Subsequently this CIA was finalised on 02/09/2020

2.0 The K.D. Holdings Limited Proposal

K.D. Holdings Limited proposal description

K.D. Holdings Limited are proposing to construct a 25.5m tall mixed-use building (commercial/residential). The proposed site is adjacent to the Huatoki on the corner of Brougham and Powderham Streets. Renders of the proposed development are showing in Figure 1, with entrance and lobby design shown in Figure 2 below.



Figure 1: Southern facade - proposed development[2]

[2] Updated plans, prepared by BOON, provided 04/09/2020

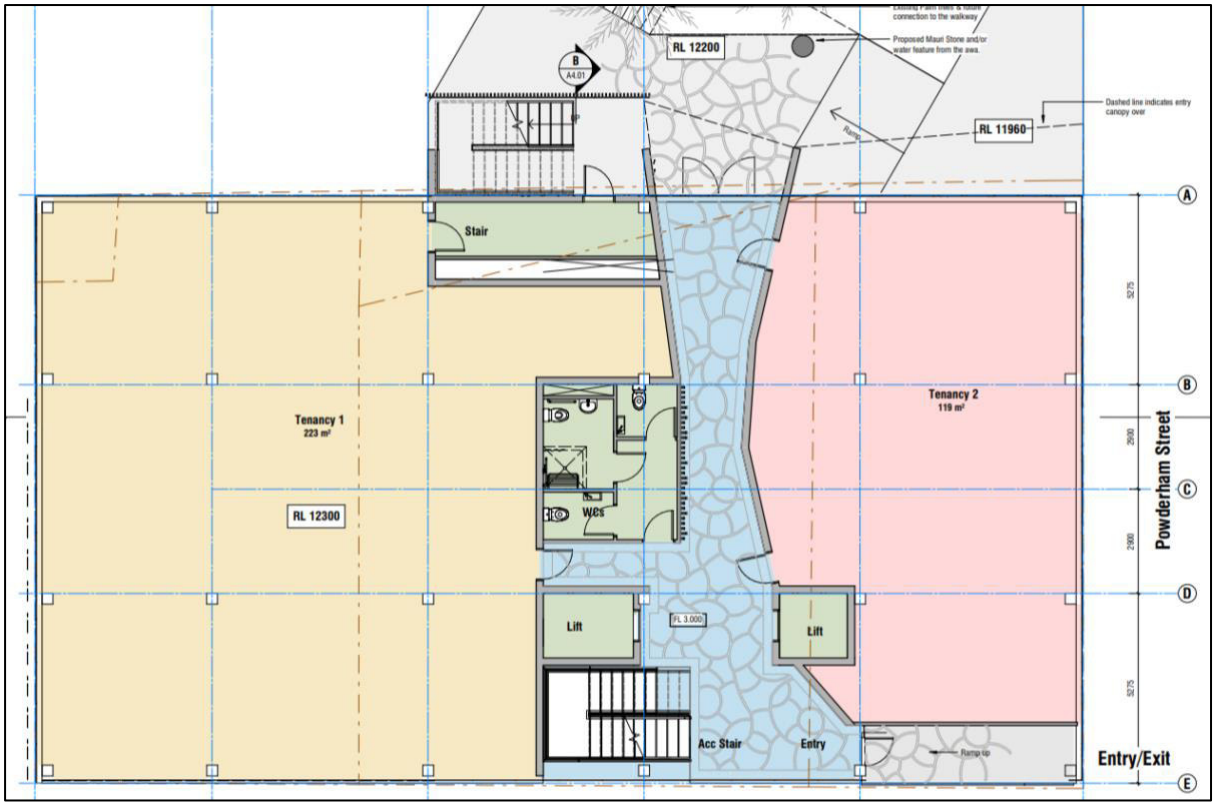


Figure 2: Entrance and foyer design referencing the head of the Huatoki estuary[3]

Ngāti Te Whiti understand the application includes the following key features:

Guided by the Ngāti Te Whiti hapu and Mātauranga (Māori knowledge) along with the Te Aranga Design principles the Brougham Street development has design features underpinned by cultural context.

The design responds to the close proximity of significant cultural sites within the Ngāti Te Whiti rohe. It seeks to extend the presence of mana whenua and activate a connection to the neighbouring awa.

On the ground floor, the entry and shared foyer space has taken inspiration from Hīnaki (eel net) and the shape of the historical estuary of the Huatoki. The design response forms a wide-open accessible entry from the building's eastern façade to the adjoining Huatoki stream.

An opportunity to explore a cultural narrative within the building fabric is proposed in the concept through;

- Fritting to the glazing with a cultural reference that also assists with heat gain;
- Utilising timber and cultural patterning/narrative on the stair well to represent the Titoki tree that was once abundant but still growing on the banks of the Huatoki;
- Patterning on the ground floor shared space extending to the outside of the building connecting it to the land and representing Hīnaki;
- Representation of Mauri stone and a water feature from the awa at the eastern boundary of the building.

Broader design drivers include:

[3] Updated plans, prepared by BOON, provided 04/09/2020

- An urban design approach that sees this building fit within the wider context of the surrounding urban environment, taken into consideration.
- A design that is minimalist and contemporary in style, taking what was a rundown brownfield site carpark and transforming it into an architectural showpiece in the New Plymouth CBD for modern and sustainable mixed-use urban design.
- The risk of encountering archaeological material is considered to be low given the earthwork history of the site. That said, an Archaeological Authority from Heritage New Zealand Pouhere Taonga is being applied for in the instance site works disturb a block wall associated with a historic rail line.
- The complete glazed façade provides direct connectivity to the adjoining streets and the Huatoki to the east, stimulating vibrant activity in the CBD by creating direct visual connections between people working in the building and people walking past on the street and along the proposed future walkway development. Connections through the buildings core open directly onto the eastern side of the façade, creating active edges to both facades of the building, and creating a direct link to the awa and the proposed Huatoki public space developments to come.
- The complete glazed façade (i.e. with no breaks between floors/walls etc), gives the building a lightness in feel and reduces the perception of the proposed height by creating a seamless façade face. The upper level apartment is also setback from the façade to further reduce the bulk/scale of the development.
- The proposed design pushes the carparking into a semi-basement level, allowing the building entry to sit near the corner of Powderham & Brougham, creating a vibrant edge to the street corner.
- Passive surveillance to the area is also greatly improved, through the transparency of the proposed façade creating visual links between inside and outside.
- Utilising a timber construction; benefits of which include:
    - Sustainable source of material
    - Locally sourced and manufactured
    - Predominantly timber construction significantly reduces embodies energy/carbon and construction waste
    - Offsite manufacturing improves approval quality and significantly speeds up construction
    - Reduces the overall weight of the building meaning smaller foundations & less disturbances to surrounding buildings during construction.

Site works include earthwork to establish foundations and the semi-basement floor (parking). The archaeological assessment works undertaken to date does not consider there to be a high likelihood of encountering archaeology[4].

Metro Plaza, Huatoki Plaza and the Huatoki walkway

In 2019 New Plymouth District Council (NPDC) purchased the Metro Plaza (33 Devon Street West, New Plymouth) with a view to implementing some of the feedback it received through the CBD 2050 forum. This included the potential to daylight the section of the Huatoki beneath the Metro Plaza, and upgrade the public space in the area, working towards a sustainable and more welcoming CBD. Early features of the future environment identified for this area include removal of much of the concrete

[4] Resource Consent Application and Assessment of Environmental Effects; Brougham Street Commercial Development (2020); 190783 Rev.1; prepared by BTW Company Limited.

on the top level of the Huatoki Plaza and the tarmac in James Lane. Lawn and native plants such as Nikau to soften the concrete edges and help filter the breeze through the Huatoki Plaza are proposed.

Other changes suggested include:

- New seats with USB charging ports.
- New lighting in the Huatoki Plaza and James Lane.
- A pathway connecting Devon and Ariki streets.
- Removing the big yellow roof that currently forms a wind tunnel through the Huatoki Plaza. NPDC intends to reuse it at The Junction, the community's Zero Waste centre that is being developed on Colson Road.
- NPDC is also working with the owners of buildings next to James Lane about opening into the laneway and creating more vibrancy.



Figure 2: Location of Metro Plaza (33 Devon Street) in relation to the application site[5].

[5] Resource Consent Application and Assessment of Environmental Effects; Brougham Street Commercial Development (2020); 190783 Rev.1; prepared by BTW Company Limited.

3.0 Statutory Context

Te Tiriti o Waitangi

The purpose of CIAs is to ensure that the spiritual and physical well-being of a resource, area or site is maintained and that the kaitiaki obligations of tangata whenua are upheld. These roles and responsibilities apply to the ocean, rivers, lakes, forests, fisheries and wildlife as they do to all natural and physical resources.

These resources were guaranteed to tangata whenua under Article 2 of the Treaty of Waitangi and Te Tiriti o Waitangi (the Māori language version) for as long as tangata whenua so desired. Tangata whenua have not relinquished these rights and responsibilities. Below is a transcript of the Second Article of Te Tiriti o Waitangi followed by the translation into English (Professor IH Kawharu) and the first part of "Article the Second" of the Treaty of Waitangi.

> *"Ko te Kuini o Ingarani ka wakarite ka wakaae ki nga Rangatira ki nga Hapū, ki nga tangata katoa o Nu Tirani te tino rangatiratanga o ratou wenua o ratu kainga me o ratou taonga katoa. Otiia ko nga Rangatira o te wakaminenga me nga Rangatira katoa atu ka tuku ki te Kuini te hokonga o era wāhi wenua e pai ai te tangata nona te Wenua - ki te ritenga o te utu e wakaritea ai e ratou ko te kai hoko e meatia nei e te Kuini hei kai hoko mona."*
>
> *"The Second The Queen of England agrees to protect the Chiefs, the subtribes and all the people of New Zealand in the unqualified exercise of their chieftainship over their lands, villages and all their treasures. But on the other hand the Chiefs of the Confederation and all the Chiefs will sell land to the Queen at a price agreed to by the person owning it and by the person buying it (the latter being) appointed by the Queen as her purchase agent." (trans. IH Kawharu)*
>
> *"Her Majesty the Queen of England confirms and guarantees to the Chiefs and Tribes of New Zealand and to the respective families and individuals thereof the full and exclusive and undisturbed possession of their land and Estates, Forests, Fisheries and other properties which they may collectively or individually possess so long as it is their wish and desire to retain the same in their possession....."*

Since the signing of the Treaty of Waitangi in 1840, land and other natural resources have been gradually alienated from tangata whenua. This has diminished the authority of iwi, hapū and whanau over ngā taonga tuku iho for which kaitiaki responsibilities were previously held. Despite this loss, the tikanga, rights and responsibilities over natural and physical resources by mana whenua iwi, hapū and whānau still remain strong.

Resource Management Act 1991

The Resource Management Act 1991 (RMA or the Act) further affirms both the guarantee set out in Article 2 of the Treaty, as well as the rights and responsibilities of tangata whenua. In brief, the purpose of the RMA is *"the sustainable management of natural and physical resources"*[6] with the principles of the RMA (sections 6-8) requiring all persons exercising functions and powers under the Act to:

- recognise and provide for matters of national importance. These include the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, wāhi tapu and

[6] Part 2, section 5, RMA 1991

other taonga[7]; and the protection of historic heritage from inappropriate subdivision, use and development; and

- have particular regard to other matters including kaitiakitanga, where this is defined in the RMA as "*the exercise of guardianship; and in relation to a resource, includes the ethics of stewardship based on the nature of the resource itself*"; as well as the maintenance and enhancement of the quality of the environment; and
- take into account the principles of the Treaty of Waitangi, noting that these principles of the Treaty are not the same as the Treaty of Waitangi itself[8]. These principles have been developed from debate and case law over the exact meanings of the words and represent a simplification and summary of the basic concepts and agreements contained within the two original documents, the Treaty of Waitangi and Te Tiriti o Waitangi. These principles now appear in various New Zealand statutes and under the RMA is of particular importance to tangata whenua in terms of resource management. Key principles in regard to this application include:
    - Retention of rangatiratanga: *"The Maori Chiefs looked to the Crown for protection from other foreign powers, for peace and for law and order. They reposed their trust for these things in the Crown believing that they retained their own rangatiratanga and taonga."* Per Justice Bisson.
    - Duty to Consult: The responsibility to act in good faith and reasonably puts the onus on the Crown to make an informed decision, in many cases that will require consultation.
    - Duty of active protection: The Crown has a duty to actively protect Māori interests in the use of their lands and waters[9].

Te Mana o te Wai

The application site is located within the Huatoki catchment, adjacent to the Huatoki Stream with the proposed site draining to the river. The National Policy Statement for Freshwater Management (NPS-FM) recognises that fresh water has a deep cultural meaning to Aotearoa. Te Mana o te Wai is a concept described with the NPS-FM; and recognises that each waterbody has its own mauri and its own mana which must come first to protect the integrity of the waterbody. Upholding Te Mana o te Wai requires provision for Te Hauora o te Taiao (the health of the environment), Te Hauora o te Wai (the health of the waterbody), and Te Hauora o te Tangata (the health of the people).

The NPS-FM includes clear direction regarding the concept of Te Mana o te Wai and its consideration through resource management processes. Importantly for this application, this includes consideration of the integrated management of freshwater resources by all local authorities. This includes ensuring tangata whenua rights and interests are reflected in freshwater management.

The proposed NPS-FM 2019 elevates Mahinga Kai as a compulsory value to be considered in the management of freshwater, alongside others, to inform the target to maintain or improve the health of a waterbody.

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[7] Case law has defined that 'ancestral lands' do not have to be in Māori ownership; however the Court of Appeal found that councils and courts should base resource management decision on the well-being of the community as a whole even if that was at the expense of a segment of the community, including Māori.

[8] The Treaty of Waitangi is a living document to be interpreted in a contemporary setting. New principles are constantly emerging and existing ones are modified. However, the key principles of the Treaty of Waitangi were outlined by the Court of Appeal in New Zealand Māori Council v Attorney-General [1987] 1 NZLR 641.

[9] Environment Foundation (2018) *Māori and Environmental Law*; 2 September 2020 <http://www.environmentguide.org.nz/overview/maori-and-environmental-law/>

It is important to note that the concept of Te Mana o te Wai extends to activities on the banks of waterbodies, and how these can be managed in an integrated way to ensure the health of a waterbody.

Tai Whenua, Tai Tangata, Tai Ao – an iwi planning document for Te Atiawa

Tai Whenua, Tai Tangata, Tai Ao is an iwi planning document for Te Atiawa. This document is required to be taken into account through resource management processes, including the consideration of resource consent applications. This iwi planning document contains a number of directive policies relevant to the proposal. These include:

- dual notification processes (hapū and iwi), as well as ongoing engagement with tangata whenua through the planning process;
- outcomes for freshwater and the coastal environment;
- outcomes for infrastructure and a preference for water sensitive urban design;
- stormwater management and support for low impact urban design; and
- the quality of the built environment.

It is important to note that this CIA/application is running ahead of a specific piece of work determining values and outcomes for the CBD area to be completed as a part of the NPDC CBD Strategy which is best articulated as a Cultural Values Statement (CVS) for this area.

New Plymouth District Plan (Operative and Proposed)

The application sets out the relevant rules from both the Operative and Proposed District Plans (where these have legal effect). Overall, the activity status is considered as a non-complying activity. There are a range of policies from both the Operative and Proposed Plan required to consider this proposal against, including those which manage the effects of developments on the Pūkākā viewshaft, waterbodies and historic heritage. Of note for this development is the directive provisions regarding the prominence of the Huatoki, and the significance of this waterbody from a heritage perspective that must be provided for at time of development.

Summary

The Treaty of Waitangi/Te Tiriti o Waitangi 1840, particularly Article two, conferred on tangata whenua a right in respect of full exclusive and undisturbed possession of their lands and estates, forests, fisheries and other properties/taonga. The RMA, regional and district planning documents, and iwi management plans, are amongst the legislation, policies and statements that affirm the mana whenua status of tangata whenua. The role of kaitiaki in regard to the management and monitoring is affirmed as is the relevance and practice of kaitiakitanga.

4.0 Site description and existing environment

Existing environment

The application includes a description of the existing environment at Section 2. This outlines some of the aspects of the existing environment, particularly the existing built form. Additional description is provided in the Landscape and Visual Impact Assessment. However, in the view of Ngāti Te Whiti this assessment is brief; particularly with respect to cultural and heritage features which contribute to the character and amenity of the area. This is necessary given the policy direction of both the Operative and Proposed District Plans with respect to the Huatoki, and Historic Heritage. The assessment of the existing environment should include Huatoki, Mawhera Pā and historic trails along the Huatoki adjacent to the application site, as well as the relationship mana whenua have with these places, and how these contribute to the character and amenity of the area.

Mana whenua

Ngāti Te Whiti are mana whenua for the area the application site is located within. Through mana whenua there are cultural narratives which form a part of this existing environment. Some of these include:

- The Huatoki, and the resources this provided for mana whenua. Of significance are piharau – a kai rangatira that were abundant in this area.
- Numerous Pā/papakāinga including Puke Ariki, Te Kawau, Pūkākā, Mawhera, Mataipu and Okoare and the associated archaeological, cultural, historic, scientific and technological features of these sites.
- The future environment in this area as it is reasonable to anticipate. The design, redevelopment and operation of the CBD is a focus for NPDC. As the partnership between the NPDC and mana whenua strengthens cultural narratives are expected to be reflected in the built environment in this area as these investments are made.

Ensuring there is a Ngāti Te Whiti voice within the development process is critical to ensuring a more complete understanding of the existing environment to consider the actual or potential adverse effects that may result from the proposal; this CIA goes some way to providing for the engagement of cultural expertise to navigate and reflect mana whenua in the built environment/development process.

Huatoki River

The Huatoki makes a significant contribution to the character[10] of the existing environment. The Huatoki is He Wai Māori; it provides for our way of life. The Huatoki springs from the land and heads to the Tasman Sea. At its source it is very narrow but widens as it flows to the sea. In the location of the proposed development the Huatoki opened out into an estuary. Pā/papakāinga Puke Ariki, Te Kawau and Mawhera were located around the extent of the estuary. Figure 4 below demonstrates the

[10]Natural Character is not the same as natural features and landscapes or amenity values and may include:

a. natural elements, processes and patterns;
b. biophysical, ecological, geological and geomorphological aspects;
c. natural landforms such as headlands, peninsulas, cliffs, dunes, wetlands, reefs, freshwater springs and surf breaks;
d. the natural movement of water and sediment;
e. the natural darkness of the night sky;
f. places or areas that are wild or scenic;
g. a range of natural character from pristine to modified; and
h. experiential attributes, including the sounds and smell of the sea; and their context or setting.

extent of this estuary; the Huatoki in the foreground. The bridge is the approximate location of what is Devon Street today.



Figure 3: This lithograph was published in Edward Jerningham Wakefield's book Adventure in New Zealand and was intended to present an idealised view of a New Zealand Company settlement[11].

The name Huatoki was coined because of the abundance of the Titoki tree, which grew, and still grows, along its banks; as well as the abundance of kokawa or andesite that was used for toki. A product from the Titoki tree, oil, was valued for its cosmetic qualities. The Huatoki was also important for its running freshwater source and mahinga kai, flax, raupo and timber. The food resources along with the kaimoana from nearby reefs provided ample sustenance for and sustained the papakāinga along the banks of the Huatoki, papakāinga such as Puke Ariki, Te Kawau, Pūkākā, Mawhera, Maripu and Okoare.

Two toka tapu (large, sacred stones within the river) – Paiare and Paitawa – are located in proximity to the application site within the Huatoki. These were locations where tohunga gave offerings[12].

Maramamao was a cultivation area located on the outer reaches of Puke Ariki Pā west of the application site. The large flat area became the cultivation area, Maramamao, through which the stream, Mangaotuku, ran. The food resources of Maramamao supplied the people of Puke Ariki and nearby pā such as Mawhera and Pūkākā. There were other cultivation areas but Maramamao was the largest and most distant from the centre of the pā. Puke Ariki contained many marae and several urupā. One of the urupā, was located close to Maramamao where at least three chiefs, including Te Rangi Apiti Rua, are buried. Puke Ariki, its constituent marae, urupā and cultivation area remain significant to Ngāti Te Whiti and are expressed and remembered through constant kōrero tawhito/oral history and daily cultural practices[13].

Puke Ariki was a large pā which stretched from the coast inland and was likely built by Te Rangi Apiti Rua sometime in the 1700s. In building the pā, Te Rangi Apiti Rua retained the landscape, a hill sloping

[11] Wakefield, E. J. (2010). *Adventure in New Zealand* (Vol. 1). Wilson & Horton Ltd, Auckland
[12] D. Ritai, Ngāti Te Whiti Hapū, personal communication, July 2020
[13] Te Atiawa and the Trustees of Te Kotahitanga o Te Atiawa and The Crown (August 2014). *Te Atiawa (Taranaki) Deed of Settlement, Deed of Settlement Schedule: Documents*

upwards from the sea to a large flat area[14]. Today Puke Ariki is represented as the regional museum which houses many of the taonga found around the Taranaki region. The significance of that location is reflected in the design and operation of Puke Ariki.

Most of the papakāinga existed peacefully with the others and shared nohonga (places to stay) along the banks of the Huatoki, especially in the summer months, to gather and store resources. The abundance of resources, however, did not prevent the odd dispute. One such dispute remembered today in kōrero tawhito was between Te Rangi Apiti Rua of Puke Ariki and of Manu Kino of Waimanu over the latter's piharau fishing rights. This resulted in Te Rangi Apiti Rua attacking Waimanu in revenge and the people of Waimanu being rescued by Potaka of Nga Puke Turua. Another battle occurred when Koronerea, ambushed and defeated a taua from a neighbouring iwi who were advancing up the Huatoki. This battle was named Pakirikiri because the bodies of the slain resembled Pakirikiri, the rock eyed cod.

Currently the Huatoki is subjugated by inappropriate built form, with buildings constructed over top of it, its flow restricted, and the banks fortified with hard structures. Irrespective, the Huatoki retains its historic, cultural, spiritual and traditional value to Ngāti Te Whiti and Te Atiawa who continue to exercise kaitiakitanga over the river, its conservation and aesthetic values[15].

Mawhera

As set out above, there are numerous pā and papakāinga located in proximity to the application site. One such site is Mawhera. The extent of Mawhera has not been identified through NPDC's Wāhi Tapu and Archaeological Sites Review; however it is a papakāinga located on the NZME site and surrounds[16].

Mawhera operated as a papakāinga, with larger more fortified pā in the area being utilised for safety at time of conflict. There are references of this site as a market or trading area.

Te Mawhera Tanga o Huatoki – the opening up of the Huatoki estuary - gives some guidance on the type of landscape that existed prior to modification as a result of urban development. Located at the head of the estuary where the Huatoki entered Te Tai o Te Tai-o-Rēhua, it is the ideal location where activities such as fishing for piharau would have occurred. Similarly, tauranga waka and other every day activities associated with pre-European life in Aotearoa would have been common-place.

It is important to understand that despite the modification of this area, Mawhera still exists; this is the only place where this name can be and is retained in the pepeha of mana whenua and as such contributes to the character of the existing environment.

Pūkākā

The name Pūkākā literally means a place where there was the overwhelming sound of kākā[17]. The pā was fist settled in the 1730s by the Nga-potiki-taua hapū; a hapū with whakapapa to both Taranaki and Te Atiawa iwi. Today Pūkākā remains a tongi or marker in the landscape, with the land around this area being tohu-whenua. The views from Pūkākā out to Te Tai-o-Rēhua (the Tasman Sea) across the Huatoki include to Puke Ariki and Te Kawau (Centre City area) as two of the papakāinga established on the Huatoki estuary as set out above. These views, and the significance of them to Ngāti Te Whiti

[14] Te Atiawa and the Trustees of Te Kotahitanga o Te Atiawa and The Crown (August 2014). *Te Atiawa (Taranaki) Deed of Settlement, Deed of Settlement Schedule: Documents*
[15] Te Atiawa and the Trustees of Te Kotahitanga o Te Atiawa and The Crown (August 2014). *Te Atiawa (Taranaki) Deed of Settlement, Deed of Settlement Schedule: Documents*
[16] Te Atiawa and the Trustees of Te Kotahitanga o Te Atiawa and The Crown (August 2014). *Te Atiawa (Taranaki) Deed of Settlement, Deed of Settlement Schedule: Documents*
[17] D. Ritai, Ngāti Te Whiti Hapū, personal communication, July 2020

as references to the cultural landscape form a part of the character and amenity of the existing environment.

It is important to note that views from Pūkākā to other tongi including Maungaroa, Whakawhitiwhiti, Papawhero, Pararoa, Paraparanui/Pakaka, Rewarewa, Taranaki Maunga, Paritutu and Ngā Motu, visually connect the cultural landscape across the urban area of New Plymouth and beyond.

Te Ara Puawai/Pathways/Linkages

Historically, there was a trail along the Huatoki linking Puke Ariki to St Mary's[18]. This was utilised by Ngāti Te Whiti in their everyday life. The ability to walk this path has been removed through successive urban development and dislocation of tangata whenua from their pā and papakāinga. The daylighting of the Huatoki, and the reported aspirations of the Council that underpin the purchase of the Metro Plaza, to provide for more access and public space, presents an opportunity for mana whenua to once again walk the trails of their tūpuna. Ngāti Te Whiti consider these pathways to be an important component of the character of the CBD area; this is heightened noting contemporary cultural facilities in proximity to the application site, and linkages between them.

Cultural facilities/references in the CBD area

Contemporary cultural facilities in the CBD area include Puke Ariki, the Puke Ariki landing (including Tukotahi[19]) , the interior design of the new Govett Quilliam building, and the Huatoki walkway (following historic pathways utilised by mana whenua). Te Whare Hononga (The House That Binds) is proposed as a part of the strengthening and redevelopment of St Mary's Church.

These buildings/public amenities, and the narratives that link them together, form part of the character of the CBD area.

Future environment and relationship

The CBD area, and the application site sits within a broader cultural landscape that is re-emerging in the built form in the District. In some instances, these references are subtle (e.g. the interior design of the Govett Quilliam offices) and some are more overt (e.g. the new New Plymouth Airport terminal).

The creation story of Te Atiawa as an iwi is imbedded in the design of the Airport terminal. The connection between the Airport site/development/narrative and other developments in key locations within the rohe of Te Atiawa is considered to be a part of the character of the future environment of the District[20]. The application site, being located in the viewshaft from Pūkākā and on/adjoining the site of Mawhera, adjacent to the Huatoki, is one such location. These connections/narratives form a part of the character of the existing environment.

A CBD Strategy is currently being developed by NPDC. The implementation of this strategy will contribute to the character and sense of identity in the CBD area. NPDC is engaging Ngāti Te Whiti and Te Kotahitanga through this process to identify broader cultural values[21] in the CBD area to inform that strategy. It is anticipated that some of the outcomes Ngāti Te Whiti and Te Kotahitanga will recommend the NPDC adopt to implement these values include:

[18] D. Ritai, Ngāti Te Whiti Hapū, personal communication, July 2020

[19] The pou erected at the landing carved by the members of the Rangimarie Maori Arts and Craft Society. It features a Maori cloak and a net. The net represents bringing people together referencing the arrival of European settlers into Aotearoa being received by tangata whenua.

[20] The urban design policy direction of the Proposed New Plymouth District Plan provides for these outcomes.

[21] Articulated as a Cultural Values Statement (CVS)

- Mana whenua have a prominent, authentic and active presence in the city centre and waterfront. The cultural landscape is not static. Opportunities for developments to acknowledge their locations within this cultural landscape, delivered through the application of Māori design principles and with the support of mana whenua and NPDC.
- Māori life and culture thrives throughout the city centre.
- Te reo Māori is fully integrated within the city centre. This would bring a strong Māori presence through multiple projects, laying a theme across the area, including te reo Māori (spoken, heard, seen and electronic). Recognising the taonga status of our primary language, te reo Māori is fully integrated into the city centre. Te reo Māori is accessible to all as part of day to day life, and there is a wide range of opportunities hard wired into the urban fabric for residents and visitors alike to experience and participate in kōrero Māori. This could be through bilingual signage and dual naming.
- Emergence of a Ngā Motu design approach founded on the recognition of natural, human and cultural ecologies unique to this area.
- Mana whenua are able to undertake their traditional manaakitanga role for all visitors and residents.
- Tourism industry benefits from warmth and generosity of mana whenua.
- The Māori enterprise, innovation and investment footprint continues to grow.
- Environmental health indicators benefit from mātauranga Māori environmental management model.

Summary

The assessment of the character of an area must consider the historic context, as well as how the environment may change in the future as a result of developments reasonably able to be anticipated. The additional assessment of existing environment set out above provides further context the proposed development must be considered within. Ngāti Te Whiti has identified a number of other components which make the character and amenity of the existing environment; these include:

- Their relationship with ancestral lands, waters and wāhi tapu;
- Items of historic heritage which require protection; and
- Elements of the future environment reasonably able to be anticipated regarding the connection of contemporary cultural facilities in the CBD area and beyond, and the narratives which link these sites to the broader cultural landscape of Te Atiawa.

5.0 Assessment of effects

Effects on sites and areas of significance to Māori, wāhi tapu and historic heritage

Mawhera is an area of Historic Heritage. Evidence for the existence of the site goes beyond a heart-felt belief, with a number of sources referencing the site; these include kōrero of Ngāti Te Whiti kaumatua, settlement legislation for Te Atiawa and statements of association collated through that process, and the book *Pioneer Tales of Old New Plymouth*[22]. Archaeological features noted in the assessment undertaken by Archaeological Resource Management (pits) may be associated with Mawhera providing further collaborating evidence of the site.

The primary means by which protection of historic heritage is provided for is by scheduling items or areas in the District Plan. However, even if an item or area is not scheduled, section 6(f) may still apply in favour of protection[23].

The cumulative adverse effect of urban development through the CBD area on sites and areas of significance to Māori, wāhi tapu and historic heritage is significant. Due to the nature of the site (being a papakāinga) and the development history of the area there may be little chance of encountering archaeological material associated with Mawhera[24]. Nonetheless, this is the only location where this name, and the events of history associated with it exist. Practical opportunities to reflect the site in the proposed development are considered necessary to avoid further adverse effects on the site resulting from urban development in this area.

Recommendations to recognise and protect this area of Historic Heritage include:

- Listing Mawhera as a sites and areas of significance to Māori (SASM) in the Proposed New Plymouth District Plan. It is noted that this is outside of the scope of this resource consent process.
- A precautionary archaeological authority for the occurrence where archaeological material associated with Mawhera is encountered (noting that one is already being applied for).
- Design features on the façade of the proposed building which reference the site.
- Design features in the entrance of the building, drawing on the 'Te Mawhera Tanga o Huatoki' narrative and the convergence of people at this location; formerly for activities such as fishing for piharau.
- Story boarding/pou/public art being utilised to articulate the connection of Mawhera, the Huatoki and other papakāinga it is connected with (Te Kawau, Puke Ariki, Pūkākā).

Conditions of consent to recognise, provide for and protect this area of historic heritage must address the following areas:

1. Cultural narrative and link to other narratives relevant to this location, including the new Airport terminal.
2. Engagement and certification of the cultural narrative being adopted into the design/operation of the proposed building by mana whenua.
3. Visibility of the conditions of the Archaeological Authority being sought for this application.

[22] See Appendix 2 for source material regarding Mawhera
[23] New Zealand Historic Places Trust v Waitaki DC (NZEnvC C034/08, 3 April 2008), <http://www.environmentguide.org.nz/rma/principles/section-6-matters-of-national-importance/>
[24] Archaeological Resource Management (November 2019). *Brougham Street Development.*

The application recognises and provides for Mawhera through the adoption of a cultural narrative reflected in design features on the building façade. The render shown in Figure 1 depicts this as the fritting, with the final design to be confirmed as the narrative including reference to Mawhera is determined.

The ongoing engagement of Ngāti Te Whiti to inform these design features recognises and provides for the role of mana whenua as kaitiaki through this resource consent process. Conditions of consent which provide for items 1-3 are described later in this report.

Overall, Ngāti Te Whiti consider the potential adverse effects of the proposal on Mawhera are able to be adequately avoided, remedied or mitigated.

Effects on relationship of tangata whenua with – ancestral lands, waters (Huatoki) and wāhi tapu

The proposed building does little to reference the character of the receiving environment as articulated in Section 4 above. The following assessment considers the actual and potential adverse effects resulting from the proposal on those features/areas/places/activities that contribute to the character of the area.

Huatoki

The proposed building has a direct link to the Huatoki, with the main entrance way and foyer opening out to the river; in effect the front of the building is to the Huatoki. This, coupled with the glass façade which enables a direct visual link to Huatoki results in the river being more prominent in the development, and for the people who will utilise this area. Ultimately an active edge with the Huatoki is achieved.

The design of the foyer goes further to reference the Huatoki, with the layout mirroring the former shape of the head of the Huatoki estuary. The cultural narrative discussed above is proposed to be reflected further in the design of the foyer. This may draw from the piharau narrative, and that of the two toka tapu (large, sacred stones within the river) – Paiare and Paitawa – located in proximity to the application site within the Huatoki.

A mauri stone will further anchor the building and provide a direct link to the Huatoki. This feature is to be located on the landing at the entrance to the Huatoki. Stormwater is proposed to be utilised in this feature adopting water sensitive design principles.

As set out above, the entire façade of the building is glass. The upper floors have been designed to enable natural light, whilst muted, to enter the Huatoki area.

Ngāti Te Whiti considers that the combination of these features recognises and provides for their relationship with the Huatoki.

Conditions of consent which recognise and provide for the significance of the Huatoki and its contribution to the character of the area, as well as the relationship Ngāti Te Whiti has with this waterbody must address the following:

1. Water Sensitive Urban Design.
2. Cultural narrative and link to other narratives – piharau, mauri stones as set out above.
3. Ecological and Landscaping plan – active edge and connection to the Huatoki.
4. Certification of any management plans/cultural narratives adopted into the design/operation of the proposed building.

The proposal has an opportunity to remediate the cumulative effects of tall buildings and hard infrastructure that subjugate the Huatoki to built form through the adjustments to the design and operation of the building which has been achieved through design features and deeper narratives which reference the Huatoki in key locations.

Overall, the potential adverse effects on the relationship Ngāti Te Whiti has with the Huatoki in this location resulting from this proposal are acceptable.

Ancestral Lands – Pūkākā and tohu whenua, Puke Ariki, Te Whare Hononga (The House That Binds), Te Ara Puawai

Pūkākā viewshaft

The proposed building is prominent in the Pūkākā viewshaft as shown in Figure 5. Building heights within the CBD in New Plymouth are generally low to medium rise. Consequently, tall buildings are prominent in the landscape, and remain so for a long time.

Ngāti Te Whiti consider that the recommendations set out above regarding Mawhera and Huatoki are required to be adopted to avoid potential adverse effects of the proposed building on the aspects of the view from Pūkākā that are significant to mana whenua. A strong cultural narrative underpinning design elements that reflect the context within which the building sits avoids potential adverse visual effects that include:

- a loss of legibility of the view for mana whenua, noting existing views to Puke Ariki, Te Kawau, out to Te Tai-o-Rēhua and other areas of significance are already restricted. This in turn has the potential to detract from the amenity the view provides from Pūkākā;
- cumulative visual effects resulting from the proliferation of euro-centric urban design that fails to reference the cultural landscape/character of the CBD; and
- a missed opportunity to recognise and provide for the relationship of mana whenua with the CBD area in the built form of the city.



Figure 4: visual simulation of the proposed building in the Pūkākā viewshaft[25]

Design features discussed above ensure that the proposed building avoids those potential adverse effects listed above. Once confirmed, it is considered the cultural narrative which is reflected in the building including Mawhera will enable the proposed building to add to the quality of the view. Mawhera will be visible in the landscape again, partially remediating the loss of this area through successive developments over time.

As above, the ongoing engagement of Ngāti Te Whiti to inform these designs through the implementation of the consent, recognises and provides for the role of mana whenua as kaitiaki.

Overall, the potential adverse effects of the proposed development on the cultural elements of the view are considered acceptable.

Te Ara Puawai, connecting contemporary cultural facilities in the CBD

As set out in Section 4, there are a number of contemporary cultural facilities in the CBD (Puke Ariki, the Puke Ariki Landing etc), with another, Te Whare Hononga, proposed to be constructed. The Huatoki was a trail that our tūpuna utilised to travel between pā and papakāinga and looking forward is likely to be available to do so again in the foreseeable future.

Ensuring that the proposed building does not detract from the feeling of safety, access, wayfinding etc in the future public area between it and the Huatoki, will further enable/encourage people to walk the paths of our tūpuna.

Identifying big and little stories to share along that pathway, including at the application site, will help to connect these areas noting they are part of a larger cultural landscape and character. Ngāti Te Whiti consider that opportunities to bring some of the histories out from Puke Ariki and back into

[25] BOON (2020). *Brougham Street Commercial Development, Landscape and Visual Impact Assessment.*

prominence in the landscape in the CBD will further remediate the adverse effects the existing built form has had on the character of the area, and the relationship Ngāti Te Whiti has with their ancestral lands.

A subsequent proposal for the walkway/plaza aspect of this development will further develop this part of the CIA once that process is commenced.

Having particular regard to kaitiakitanga

Ngāti Te Whiti are mana whenua of the area the application site is located within. Through Ngāti Te Whiti there are cultural narratives which form a key component of the character of the area. The recognition of this must be reflected in the proposed development to avoid or mitigate potential adverse effects on the character of the area, and the relationship Ngāti Te Whiti has with the application site and surrounds.

Ensuring our voice is present throughout the development process is considered necessary to have particular regard to kaitiakitanga, noting our relationship with resources that are impacted by the proposed development.

This is best achieved through the engagement of Ngāti Te Whiti to provide and certify a cultural narrative as referenced above, and through the use of a Kaitiaki Forum or reference group where the design team are able to access cultural advice to inform the detailed design phase and any changes which may be required through that state of the process. Conditions of consent which provide for these also provide for the role of Ngāti Te Whiti as kaitiaki through the implementation phase of the project.

Summary

The application has adopted recommendations from Ngāti Te Whiti to recognise and protect Mawhera, to improve the relationship of the proposed building with the Huatoki, facilitating pathways (both historic and between contemporary cultural facilities) and to ensure the narratives of mana whenua are more prominent in the landscape, begins to remediate the adverse effects urban development has had on Ngāti Te Whiti and their relationship with their ancestral lands, waters, sites and wāhi tapu. It is considered that these attributes in this context contribute to the unique features of the proposed building; which in turn is considered to set a precedent for future development in the CBD which is positive for the relationship of Ngāti Te Whiti with the CBD area.

As set out above, conditions of consent which facilitate the ongoing involvement of mana whenua through key stages of the development will ensure that the intent/integrity/narratives put forward are realised. This will provide for the role/obligation of Ngāti Te Whiti as kaitiaki. With the adoption of conditions of consent in this assessment overall, the potential adverse effects of the proposal on the relationship Ngāti Te Whiti has with their ancestral lands, water, sites, wāhi tapu, and other taonga are acceptable in this instance.

Conclusions & recommendations

This CIA sets out a number of recommendations to ensure this development recognises and provides for the relationship of Ngāti Te Whiti and their culture and traditions with ancestral lands, water, sites, wāhi tapu, and other taonga in this area. The proposal has responded to these recommendations with key design features reflecting the cultural context the building is located within including Mawhera, Huatoki and associated narratives. These are shown conceptually in the drawings attached as Appendix 4, with the final design to be confirmed through the implementation of this consent.

Conditions of consent which confirm the following design elements/processes are recommended:

1. The consent holder shall engage Ngāti Te Whiti to provide and certify a cultural narrative for the development. Any cultural narrative shall be demonstrated in:
    a. the exterior of the building (façade and external staircase);
    b. the foyer and entrance on the ground floor;
    c. the landscaping and entrance to the building adjoining the Huatoki; and
    d. any other location agreed between the consent holder and Ngāti Te Whiti.
2. The consent holder shall engage Ngāti Te Whiti to provide a mauri stone for the water feature to be located in a position to be agreed between the consent holder and Ngāti Te Whiti.
3. At all times during the exercise of resource consent LUC20/47704, Ngāti Te Whiti Hapū shall be provided the opportunity to and be resourced to monitor all earthworks associated with the development.
4. Kaitiaki Forum
    4.1 The consent holder shall convene and resource a Kaitiaki Forum. This Forum shall be established and commence immediately following granting of consent, prior to the preparation of any plans and any works commencing on site.
    4.2 The function and purpose of the Kaitiaki Forum shall be formally agreed by the Consent Holder, Ngāti Te Whiti Hapū and Te Kotahitanga o Te Atiawa Trust and formally documented in a Forum Collaboration Agreement. This Agreement shall include, but not be limited to;
        4.2.1 The matters the Forum shall consider including but not limited to cultural narrative, changes through the detailed design phase, hard and soft landscaping, mauri stone and associated infrastructure, subsequent developments of the Metro Plaza, cultural monitoring
        4.2.2 The entities to be represented on the Forum
        4.2.3 The number of representatives from the entities on the Forum
        4.2.4 The frequency at which the Forum shall meet
        4.2.5 The certification process that shall be utilised in the Forum
        4.2.6 The duration of the Forum
        4.2.7 A dispute resolution clause.
    4.3 A copy of the Forum Collaboration Agreement shall be provided to the New Plymouth District Council Planning Lead or nominee.

The final note must be to Kevin and his design team for their care to understand the cultural context of this location, the constructive working relationship formed through this CIA process, and their willingness to set a precedent with this landmark building. Ngā mihi nui ki a koutou.

Appendix 1 – Cultural Impact Assessment

A CIA is a report documenting Māori cultural values, interests and associations with an area or a resource, and the potential impacts of a proposed activity on these. CIAs are a tool to facilitate meaningful and effective participation of Māori in impact assessment.

There is no statutory requirement for applicants or a territorial/regional council to prepare or commission a CIA. However, an assessment of impacts on cultural values and interests can assist both applicants and the council to meet statutory obligations in a number of ways, including:

- preparation of an AEE in accordance with the fourth schedule of the Resource Management Act 1991 ('the RMA');
- requests for further information under s92 of the RMA in order to assess the application;
- providing information to assist the council in determining notification status under ss95 to 95F of the RMA;
- providing information to enable appropriate consideration of the relevant Part 2 matters when making a recommendation on a s104, s108 of the RMA.

CIAs are often prepared to articulate the effects of a proposal or activity and are framed in response to Part 2 matters under the RMA, usually as part of a consent. In particular, CIAs address how a proposal is:

- Recognising and providing for the relationship of tangata whenua with their ancestral lands,
- waters, forests, wāhi tapu and other taonga;
- Recognising and providing for the protection of historic heritage;
- Having particular regard for Kaitiakitanga;
- Taking into account the principles of the Treaty of Waitangi; and
- Taking into account any iwi planning document.

Appendix 2 – Mawhera

- Moorhead, M (2005) *Pioneer tales of old New Plymouth*. Zenith Publishing, New Plymouth
- Puke Ariki (2020) *Kete New Plymouth*, 2 September 2020 < http://ketenewplymouth.peoplesnetworknz.info/documents/0000/0000/2562/Rich_in_pioneer.pdf>
- Te Atiawa and the Trustees of Te Kotahitanga o Te Atiawa and The Crown (August 2014). *Te Atiawa (Taranaki) Deed of Settlement, Deed of Settlement Schedule: Documents*
- New Plymouth District Council (undated). *New Plymouth Central Area Site Survey*, ECM 1352465.
- New Plymouth District Council (2013). New Plymouth Central Area Urban Design Framework, ECM 1398140

Appendix 3 – Design statement

BOON

27th August 2020

New Plymouth District Council
Private Bag 2025
New Plymouth 4342

Attention: NPDC Planning Department

Brougham Street Development – 51 Brougham Street, New Plymouth
Architectural Design Statement

Site:

The site is located on the corner of Brougham & Powderham Streets in the New Plymouth CBD. The 478m² site slopes north/south away from Powderham Street. The existing site currently consists of an unsealed carpark, accessed from the north west corner of the site and the Halamoana sculpture (proposed to be relocated as part of this proposal).
There is currently a two-level commercial building to the northern boundary, road boundaries to the south and to the east lies New Plymouth's historic Huatoki awa.

Proposal:

This project involves demolishing all existing structures, including the relocation of the existing Halamoana sculpture to construct a new six level mixed use development consisting of basement carparking, five levels of premium CBD commercial office space and a three-bedroom apartment on the 6th level. The development encompasses the entire 478m² footprint of the site, and includes duel entries into the building. An entry including a verandah over Brougham St, and a second entry opening into and connecting to the Huatoki awa. This entry includes a canopy and an egress stairwell in neighbouring eastern property (refer to architectural site plans for details).

Site constraints:

The proposed site shares a boundary which holds the root structure of a protected tree (refer to Arborist report for details). Based on the Arborist's report we initially tested some concept options that considered retaining the tree (refer to architectural drawings for details).
Through design development and rigorous testing of various options with separate consultants (structural engineers) it established that the project was not feasible in its current form due to:
- Irregular floorplate due to the 8m setback was not feasible for modern office design
- Net Lettable Area NLA of the floorplate too small to make the development economically viable
- Proposed height required to make the development economically viable well above current proposal and structurally incredibly difficult to create a workable solution

Whist we acknowledge there is some significance of the protected tree adjoining the proposed site, through this design feasibility study this ruled out any possible option of retention and led us to the only feasible design option being removal of the tree

BOON

Design Statement:

Considered urban design sees buildings, places and spaces not as isolated elements but as part of the whole town or city. The wider context of the surrounding urban environment has been taken into consideration in the proposed design outcome The Brougham St Development design is minimalist and contemporary in style, taking what was a rundown brownfield site carpark and transforming it into an architectural showpiece in the New Plymouth CBD for modern and sustainable mixed-use urban design.

The complete glazed façade provides direct connectivity to the adjoining streets and the awa to the east, stimulating vibrant activity in the CBD by creating direct visual connections between people working in the building and people walking past on the street and down the proposed future walkway development. Connections through the buildings core open directly onto the eastern side of the façade, creating active edges to both facades of the building, and creating a direct link to the awa and the proposed Huatoki public space developments to come. The glazed façade allows filtered light to permeate through the building providing passive daylight to the public spaces either side of the proposed building, whilst at the same time patterned 'fritting' to the glass reduces glare to the interior & exterior as well as provide regulation to the heat gain to the building.

Whilst the building covers the entire footprint of the site, the complete glazed façade (ie. with no breaks between floors/walls etc), gives the building a lightness in feel and reduces the perception of the proposed height by creating a seamless façade face. The upper level apartment is clad in timber to directly link it to the timber structural elements below, and pronounced vertical elements in the apartment façade further reduces the visual impact by drawing the eye line up and out over the building as opposed to a capping that stops the eye. The apartment is also setback from the glazed façade to further reduce the bulk/scale of the development. The overall height also fits within the character of the CBD, particularly in regards to future building patterns in the area.

Good urban design principles call for 'active edges', particularly at inner city corner sites. The proposed design pushes the carparking into a semi-basement level, allowing the building entry to sit near the corner of Powderham & Brougham, creating a vibrant edge to the street corner.

Passive surveillance to the area is also greatly improved, through the transparency of the proposed façade creating visual links between inside and outside, and the mixed-use nature of the development means that the building will be occupied and therefore operational 24 hrs a day.

The proposed structural design for the Brougham St Development is to be constructed entirely from timber (excluding the basement carpark), including: all floors, columns, beams and bracing elements within the building.
The benefits of such a construction methodology include:
- Sustainable source of material
- Locally sourced and manufactured
- Predominantly timber construction significantly reduces embodied energy/carbon & construction waste
- Offsite manufacturing improves approval quality and significantly speeds up construction
- Reduces the overall weight of the building meaning smaller foundations & less disturbances to surrounding buildings during construction

BOON

Design Response to Cultural Impact:

Guided by the Ngāti Te Whiti hapu and Mātauranga (Māori knowledge) along with the Te Aranga Design principles the Brougham Street development has design features underpinned by cultural context.

The design responds to the close proximity of significant cultural sites within the Ngāti Te Whiti rohe. It seeks to extend the presence of mana whenua and activate a connection to the neighbouring awa.

On the ground floor, the entry and shared foyer space has taken inspiration from Hīnaki (eel net) and the shape of the historical estuary of the Huatoki. The design response forms a wide-open accessible entry from the building's eastern façade to the adjoining Huatoki stream.

An opportunity to explore a cultural narrative within the building fabric is proposed in the concept through;

- Fritting to the glazing with a cultural reference that also assists with heat gain.
- Utilising timber and cultural patterning/narrative on the stair well to represent the Titoki tree that was once abundant but still growing on the banks of the Huatoki.
- Patterning on the ground floor shared space extending to the outside of the building connecting it to the land and representing Hīnaki
- Representation of Mauri stone and a water feature from the awa at the eastern boundary of the building

Environmental Sustainability Framework:

Quality urban design reduces the environmental impacts of our towns and cities through environmentally sustainable and responsive design solutions. The Brougham St Development has been designed with key environmental sustainability frameworks at its core, which includes:

• Energy & Emissions
Targeting minimum 5 Star NABERSNZ Energy base building energy certification
Targeting CarboNZero Certification
Roof mounted solar PV generation
Avoidance of on-site fossil fuel combustion
High efficiency hybrid variable refrigerant flow heating & cooling system
Enhanced roof, floor and wall insulation
Automatic lighting controls, demand control ventilation
Mixed mode ventilation, heat recovery ventilation
Air source heat pump domestic hot water heating
High efficiency LED lighting
• **Comfort, Health and wellbeing**
IGU low e solar control double glazing offers superior thermal comfort, daylight availability and external views
Low VOC and low formaldehyde materials and specifications offer improved air quality
Natural ventilation provides good air quality and physical connection with the natural environment
Timber structure provides visual connection with the natural environment
• **Water Efficiency & Conservation**
Water efficiency WELS rated fittings and fixtures
Rainwater harvesting system reduces peak stormwater runoff and provides flushing water
Water sub-metering with leak detection capability

• **Management & Operations**
Energy & water sub-metering
Building Management System
Post-occupancy building tuning improves energy and comfort performance
• **Local Emissions**
100% electric heating avoids on-site combustion for improved local air quality
Rainwater harvesting reduces peak stormwater run-off
Environmental management plan
• **Materials & Waste**
Predominantly timber construction significantly reduces embodies energy/carbon & construction waste
Minimised operational waste to landfill through recycling provisions and tenant engagement
Zero ozone depletion refrigerants and insulation
Low environmental impact materials specification
Minimised operational waste to landfill through recycling provisions

Overall the proposed design provides for a high- quality urban development in central New Plymouth, providing tangible socio and economic benefits to the wider community. Ultimately providing for a modern contemporary design that will add positively to the evolving urban fabric of New Plymouth.

Yours faithfully
BOON TEAM ARCHITECTS LTD



SHAUN MURPHY (B.Arch Hons, ANZIA)
ARCHITECT

On behalf of Murali Bhaskar – Design Director

Appendix 4 – Application drawings

BROUGHAM STREET DEVELOPMENT

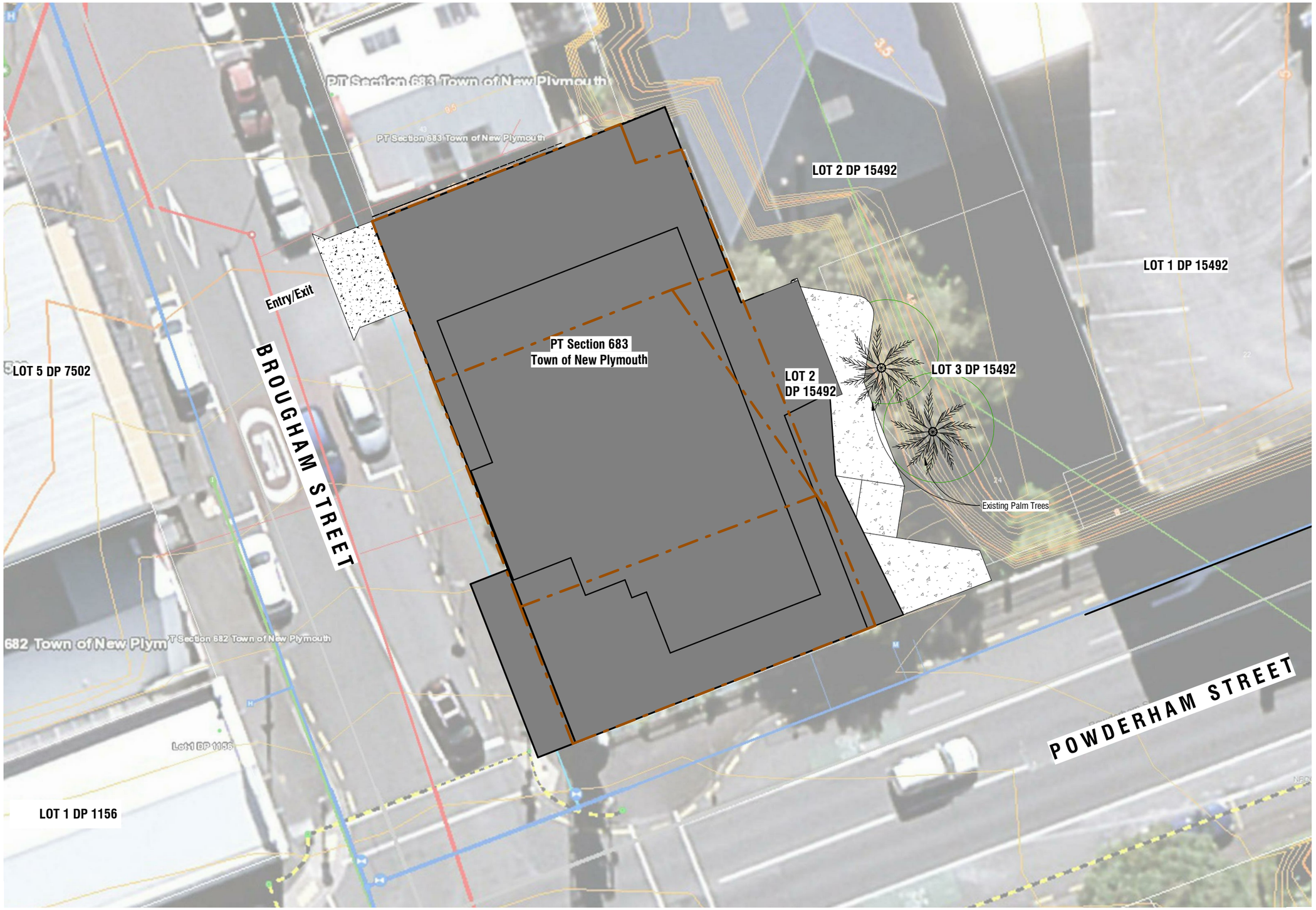
51 Brougham Street, New Plymouth

Dwg No.	Rev.	Dwg Name
A1.01		Proposed Site Plan
A2.01		Proposed L0 Plan
A2.02		Proposed L1 Plan
A2.03		Proposed L2,3,4,5 Plan
A2.04		Proposed L6 Floor Plan
A3.01		Elevations
A3.02		Elevations
A4.01		Cross Sections
A9.01		Shade Diagram - Mid Summer
A9.02		Shade Diagram - Mid Winter
A9.03		3D Views- Render
A10.01		Alternative Design with Tree Preserved

ISSUED FOR:
Resource Consent

6400

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teamarchitects
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Site Description

PT Section 683 Town of New Plymouth
Zone: Business A
Wind Zone: TBC
Earthquake Zone: TBC
Exposure Zone: TBC

Site Coverage

Site area: 478m²
Total proposed building floor area 491m² approx

Line to perimeter of site indicates construction demarcation line. Construction confined to within this area.

Site Finishes Key

Proposed Building

New concrete paving slab

Site Plan - Proposed

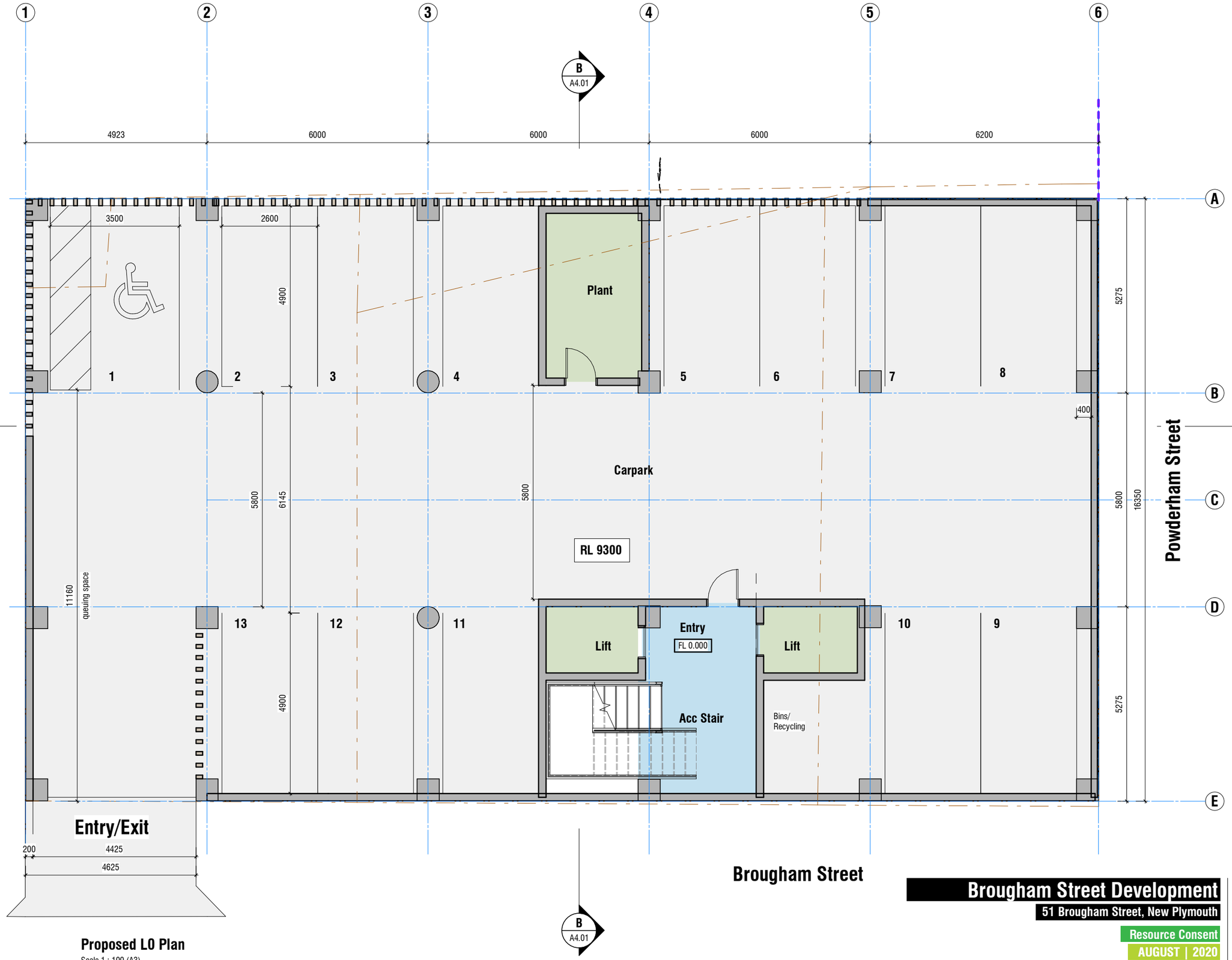
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Brougham Street Development
51 Brougham Street, New Plymouth
Resource Consent
AUGUST | 2020

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Proposed L0 Plan

Scale 1 : 100 (A3)

Building Floor Areas:

LEVEL 0:
- 13 Carparks (covered)
- Floor area 54m² approx

LEVEL 1:
- Floor Area (total): 463m² approx
- Tenancy 1: 223m²
- Tenancy 2: 119m²

LEVEL 2,3,4,5:
- Floor Area (total): 450m² approx
- Tenancy 1: 239m²
- Tenancy 2: 148m²

LEVEL 6:
- Aparment: 216m²

Parking Notes

Parking to comply with AS/NZS 2890.1:2004

Brougham Street Development

51 Brougham Street, New Plymouth

Resource Consent

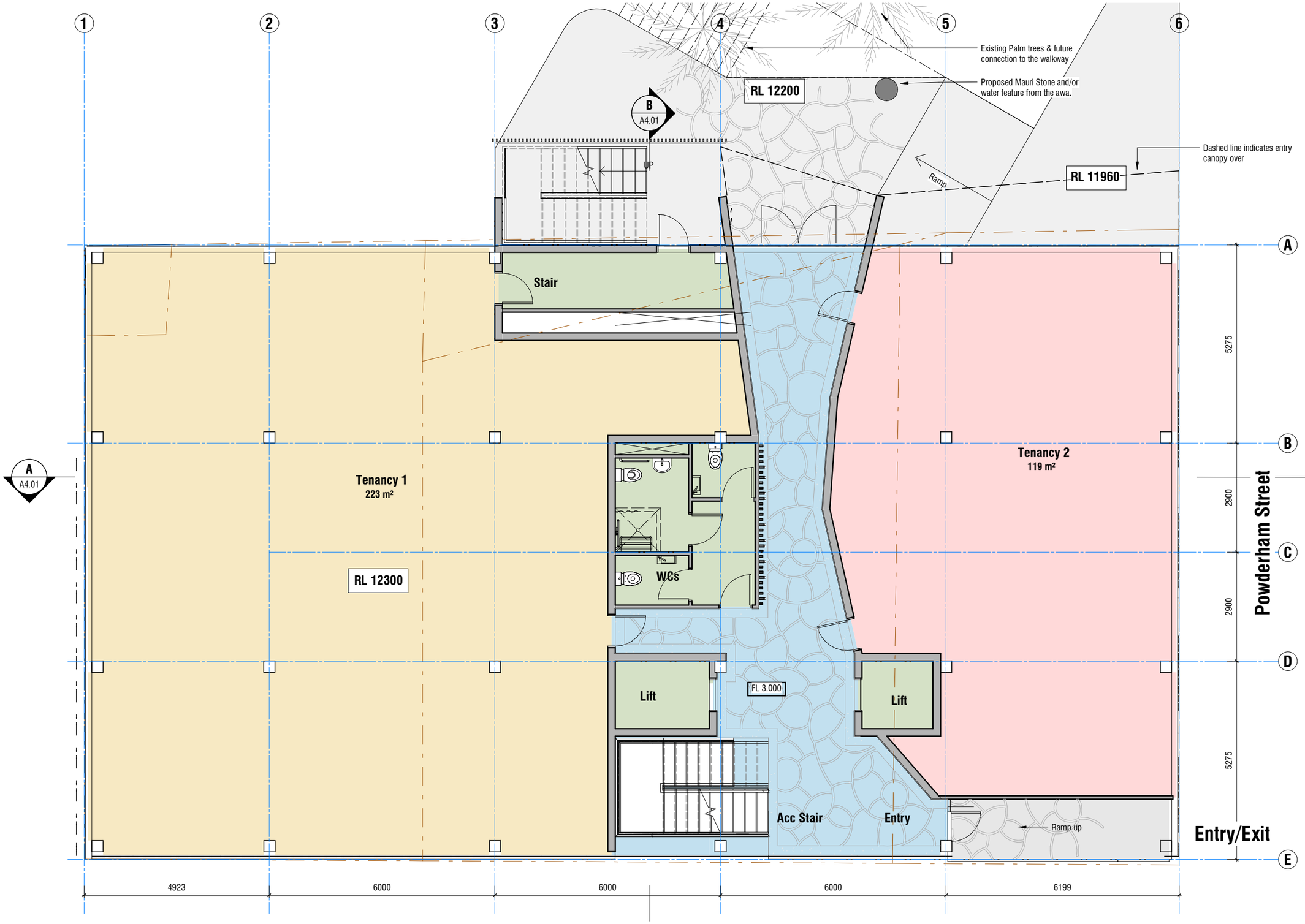
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Building Floor Areas:

LEVEL 0:
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- Floor area 54m² approx

LEVEL 1:
- Floor Area (total): 463m² approx
- Tenancy 1: 223m²
- Tenancy 2: 119m²

LEVEL 2,3,4,5:
- Floor Area (total): 450m² approx
- Tenancy 1: 239m²
- Tenancy 2: 148m²

LEVEL 6:
- Aparment: 216m²

Proposed L1 Plan

Scale 1 : 100 (A3)

Brougham Street Development

51 Brougham Street, New Plymouth

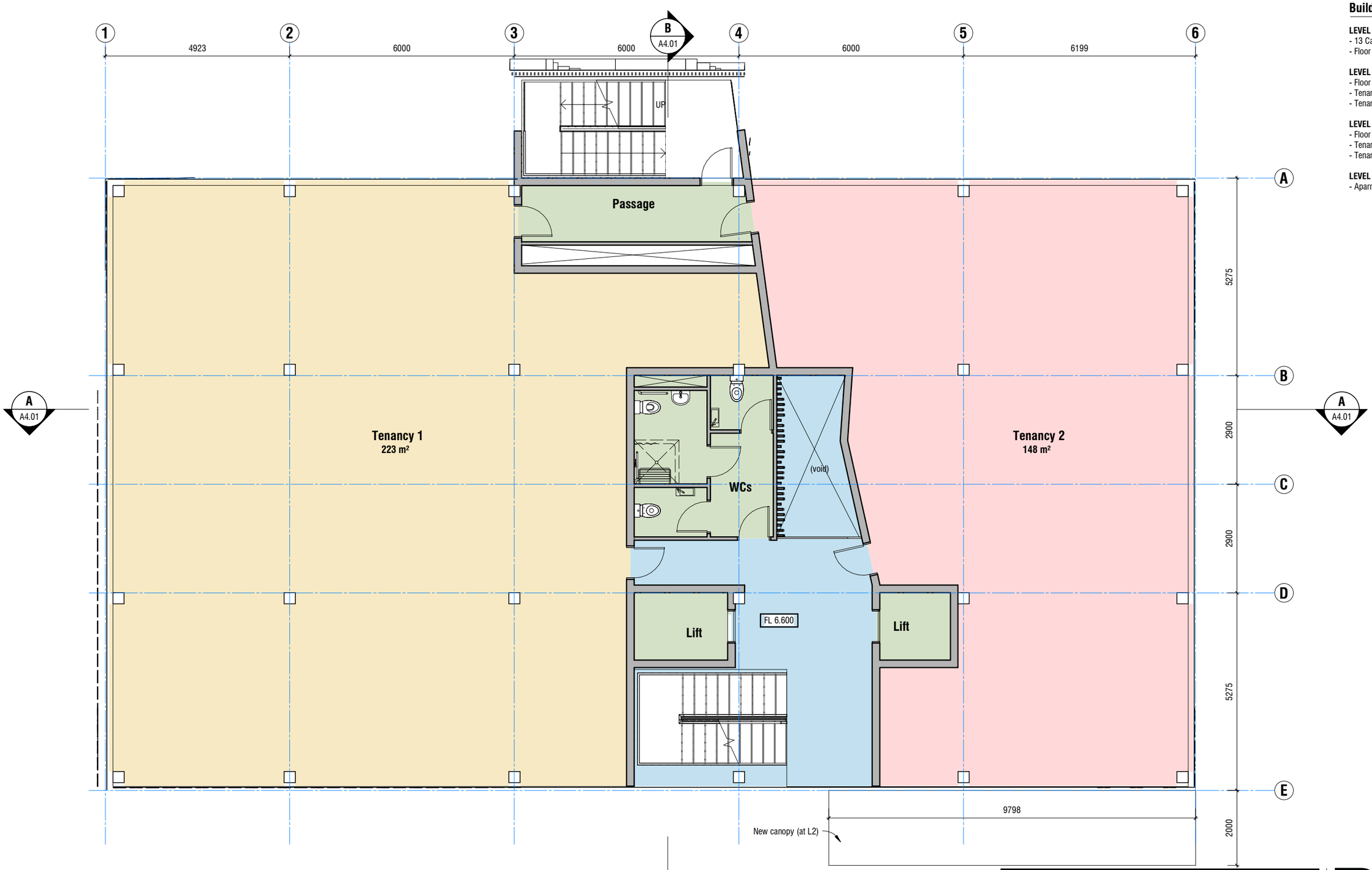
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Proposed L2,3,4,5 Plan

Scale 1 : 100 (A3)

Building Floor Areas:

LEVEL 0:
- 13 Carparks (covered)
- Floor area 54m² approx

LEVEL 1:
- Floor Area (total): 463m² approx
- Tenancy 1: 223m²
- Tenancy 2: 119m²

LEVEL 2,3,4,5:
- Floor Area (total): 450m² approx
- Tenancy 1: 239m²
- Tenancy 2: 148m²

LEVEL 6:
- Aparment: 216m²

Brougham Street Development

51 Brougham Street, New Plymouth

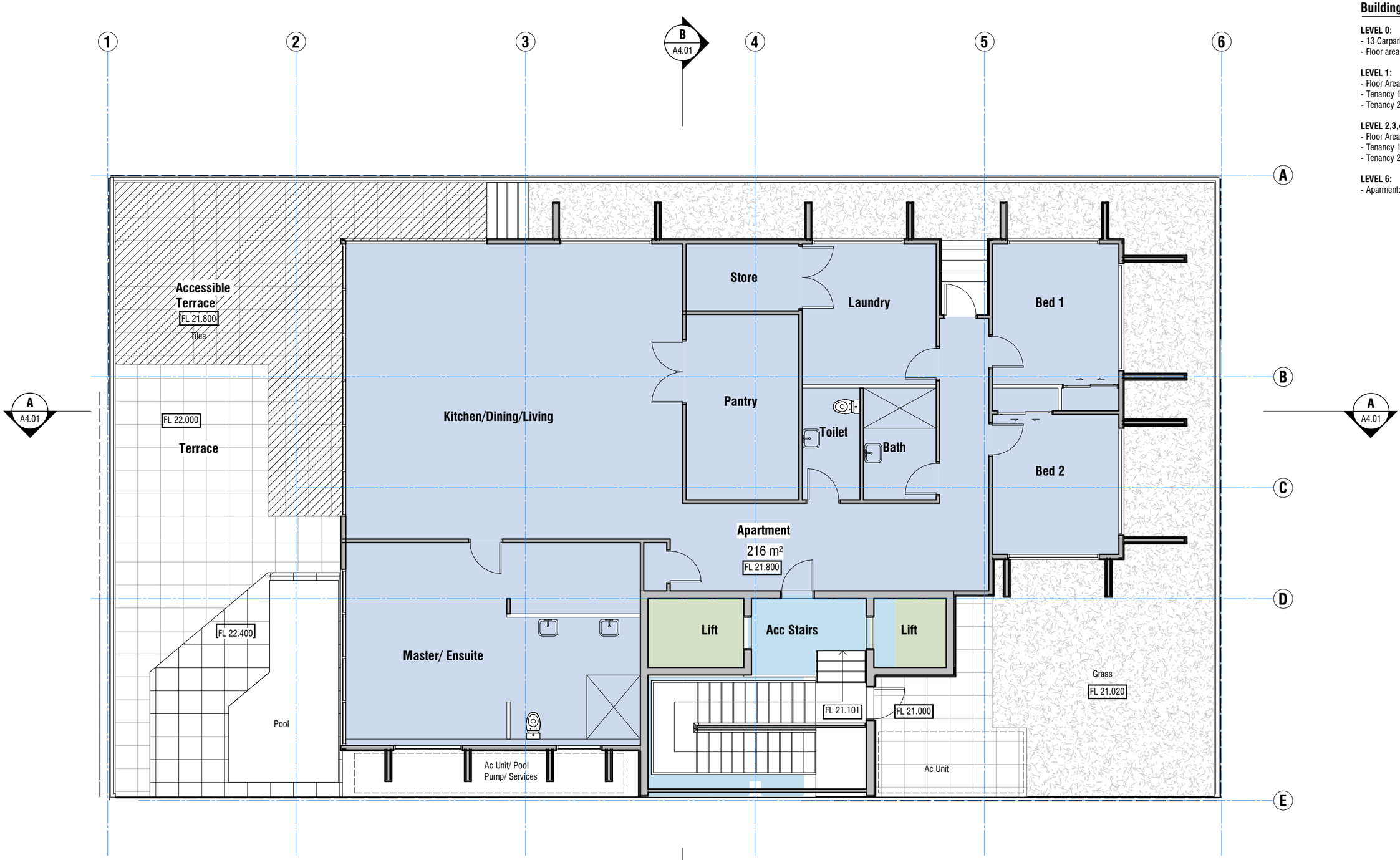
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AUGUST | 2020

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Building Floor Areas:

LEVEL 0:
- 13 Carparks (covered)
- Floor area 54m² approx

LEVEL 1:
- Floor Area (total): 463m² approx
- Tenancy 1: 223m²
- Tenancy 2: 119m²

LEVEL 2,3,4,5:
- Floor Area (total): 450m² approx
- Tenancy 1: 239m²
- Tenancy 2: 148m²

LEVEL 6:
- Aparment: 216m²

L06 Proposed Apartment Floor

Scale 1 : 100 (A3)

Brougham Street Development

51 Brougham Street, New Plymouth

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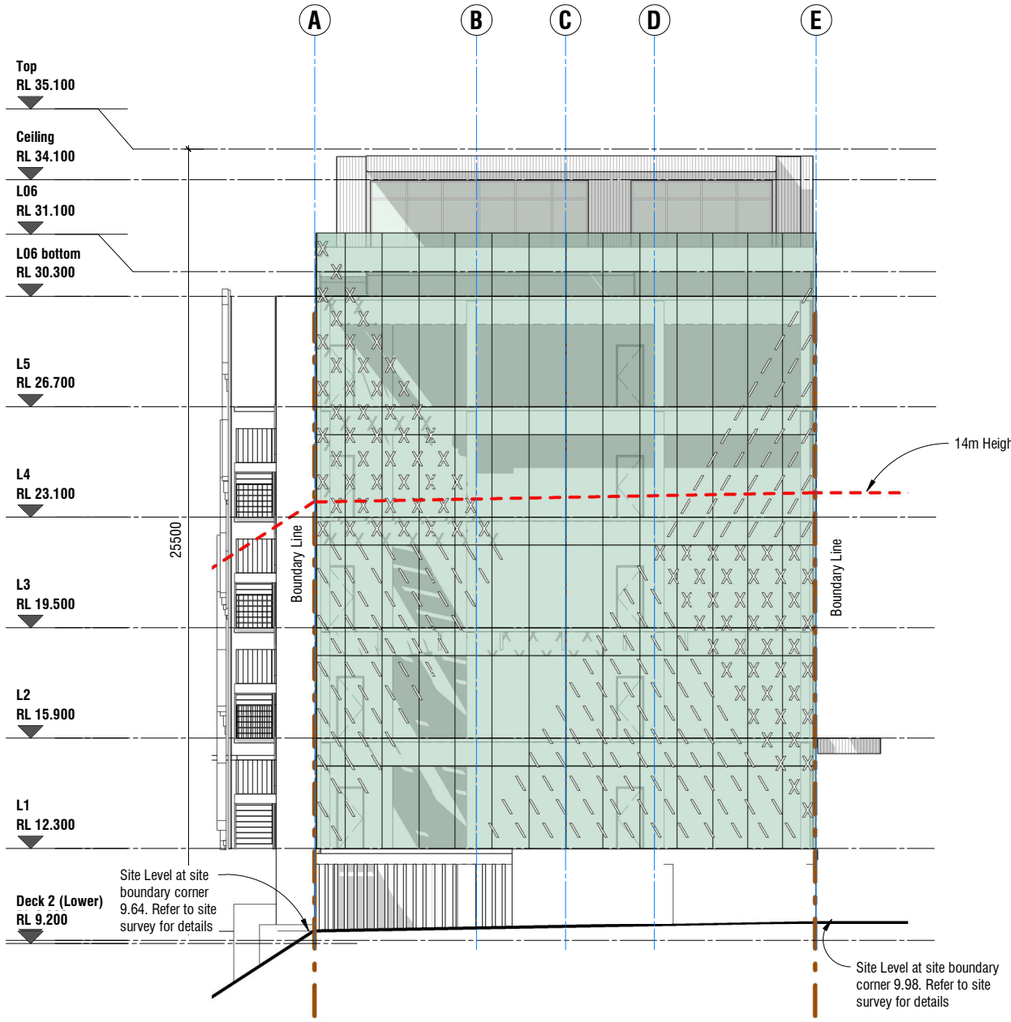
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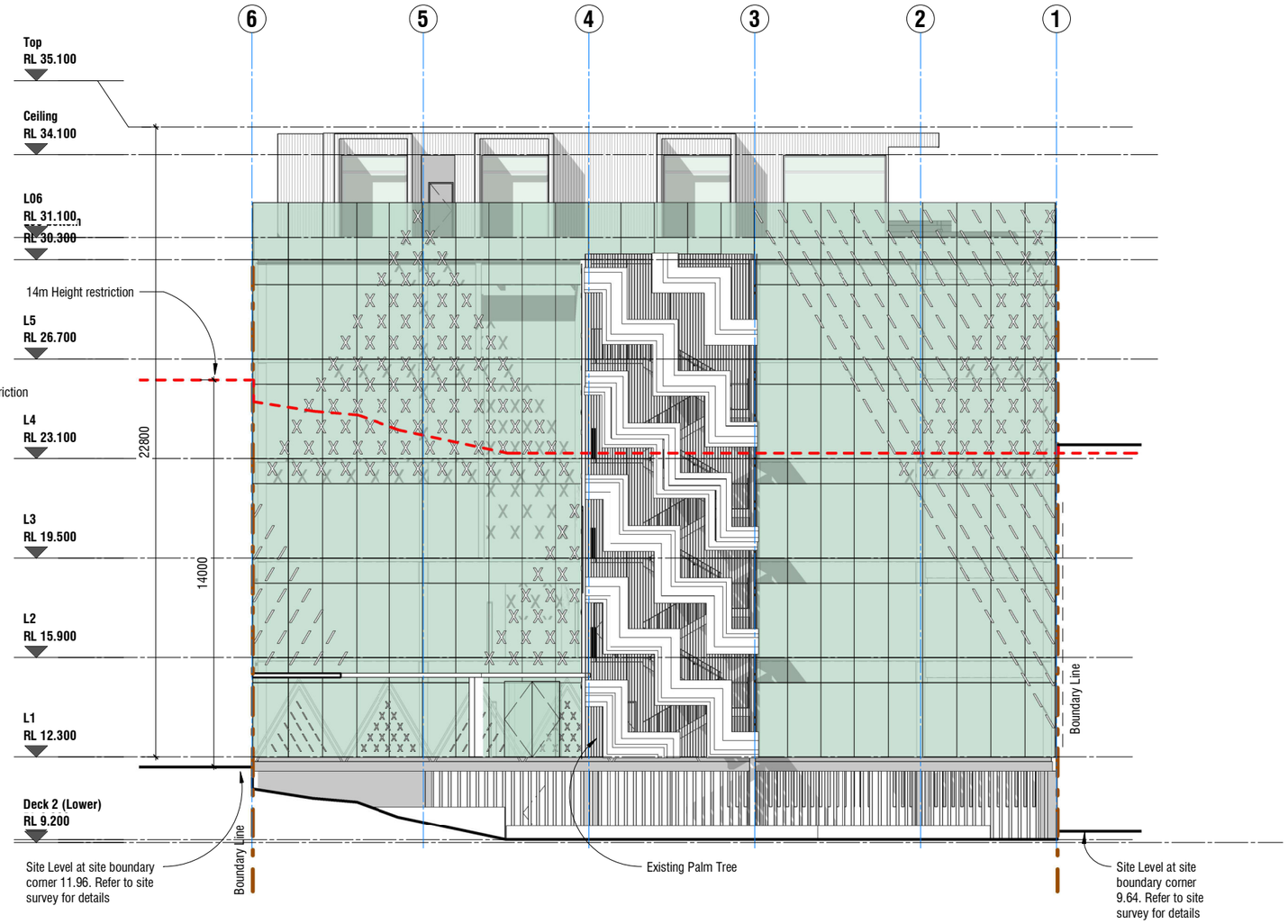
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North Elevation

Scale 1 : 200 (A3)



East Elevation

Scale 1 : 200 (A3)

Brougham Street Development

51 Brougham Street, New Plymouth

Resource Consent

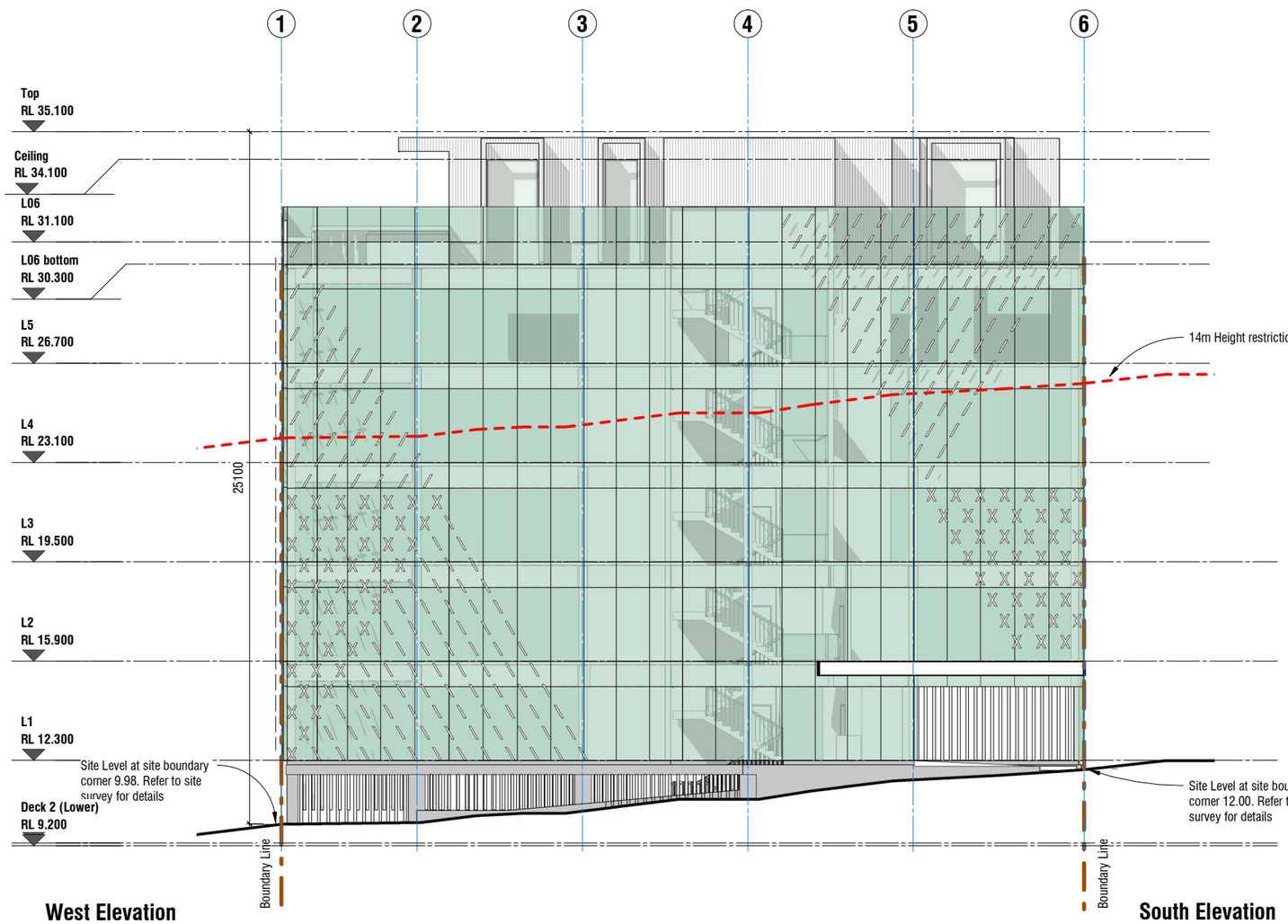
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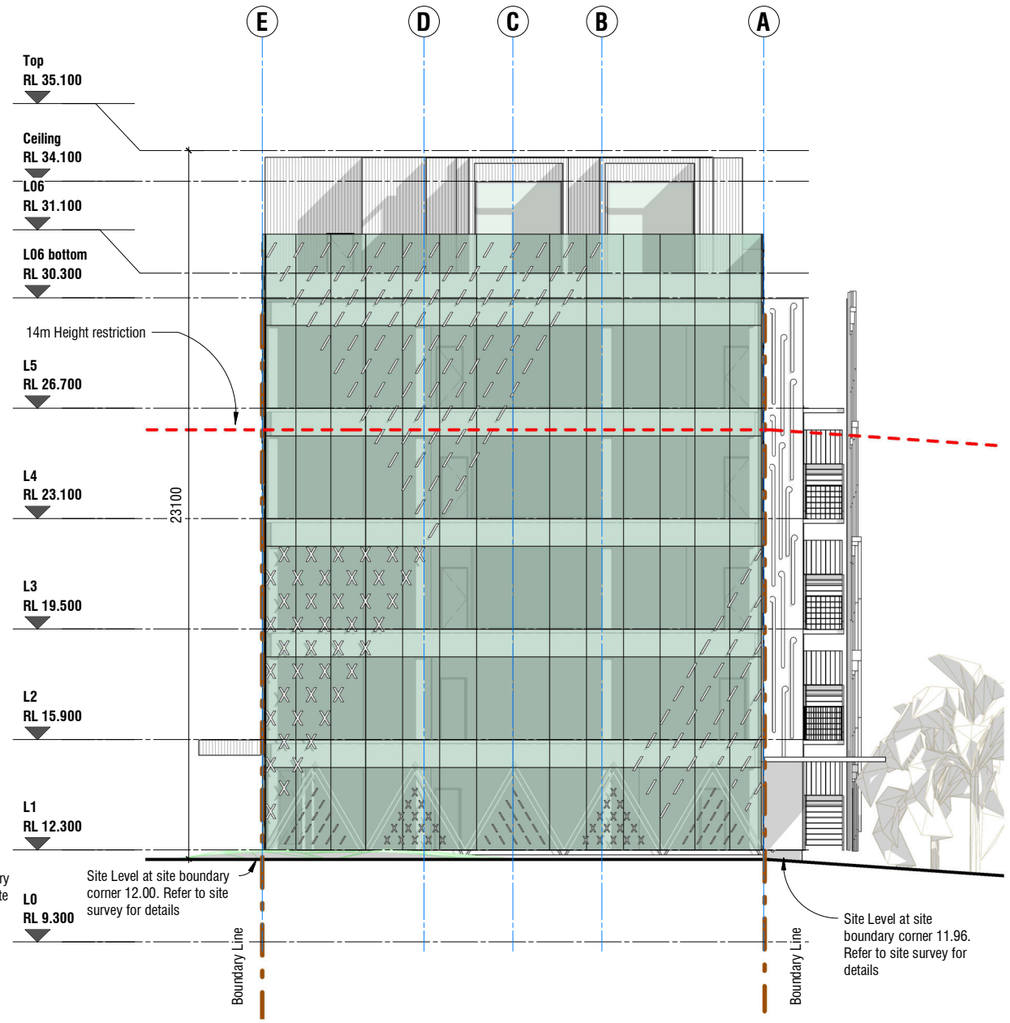
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West Elevation

Scale 1 : 200 (A3)



South Elevation

Scale 1 : 200 (A3)

Brougham Street Development

51 Brougham Street, New Plymouth

Resource Consent

AUGUST | 2020

job	a3	drawing no	rev	drawing title	print date
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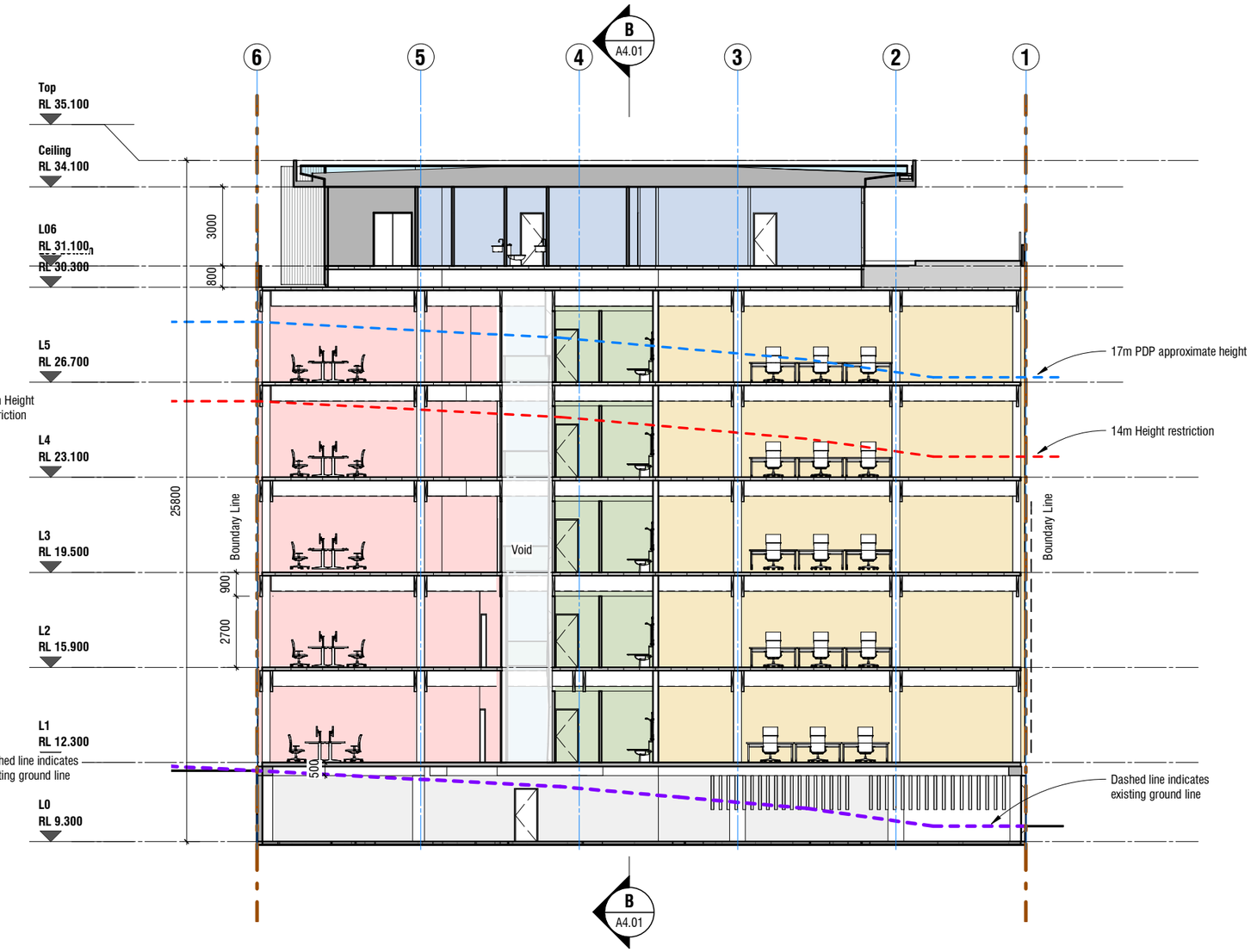
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Section B

Scale 1 : 200 (A3)



Section A

Scale 1 : 200 (A3)

Brougham Street Development

51 Brougham Street, New Plymouth

Resource Consent

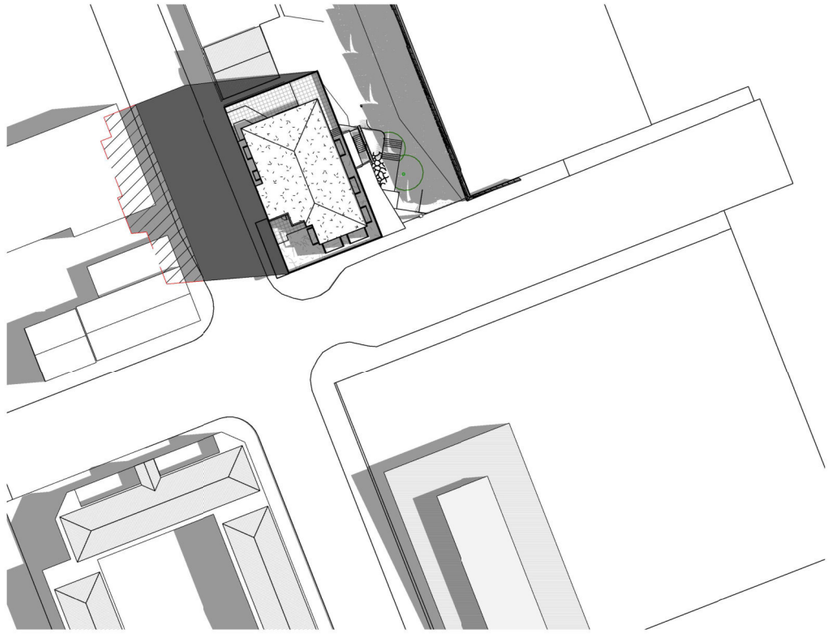
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6400	1 : 200	A4.01		Cross Sections	25/08/2020 1:21:21 pm

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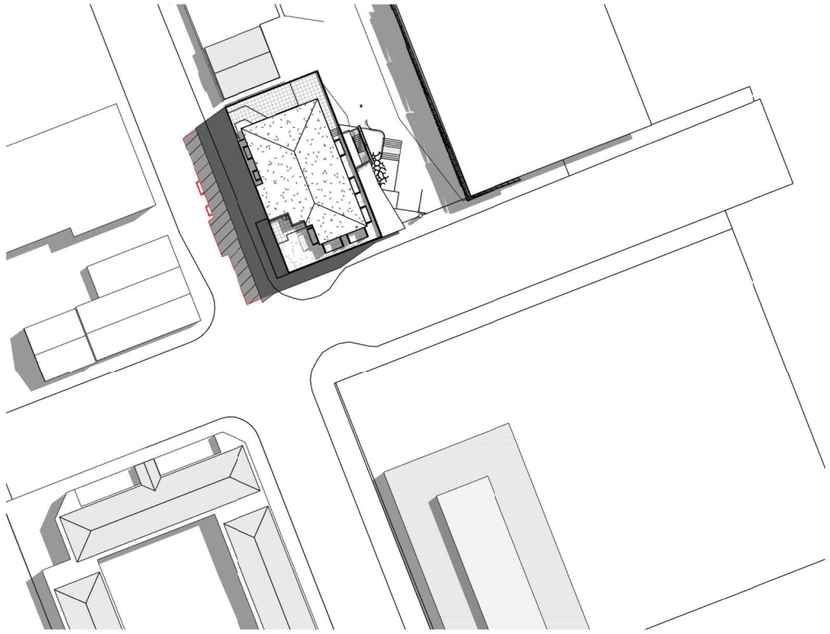
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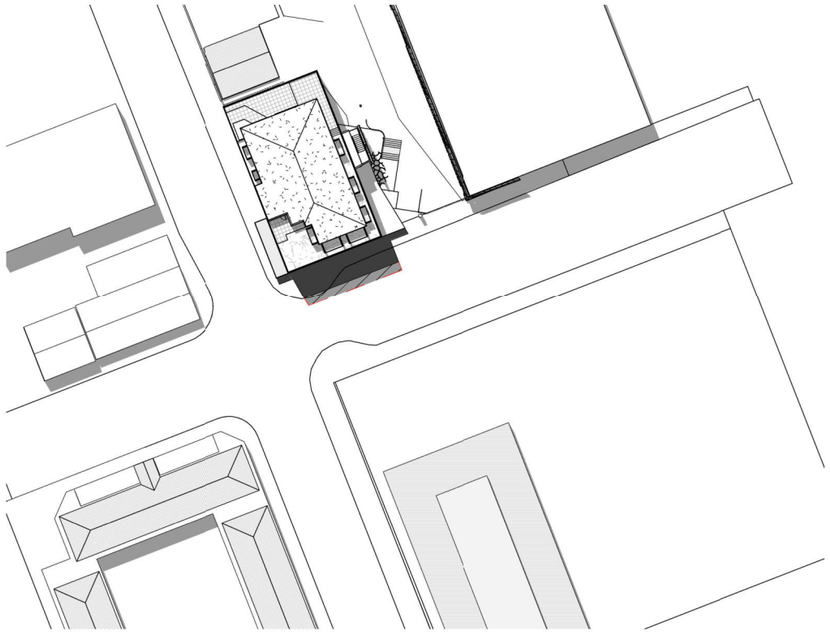
21 Dec 10am

Scale 1 : 1000 (A3)



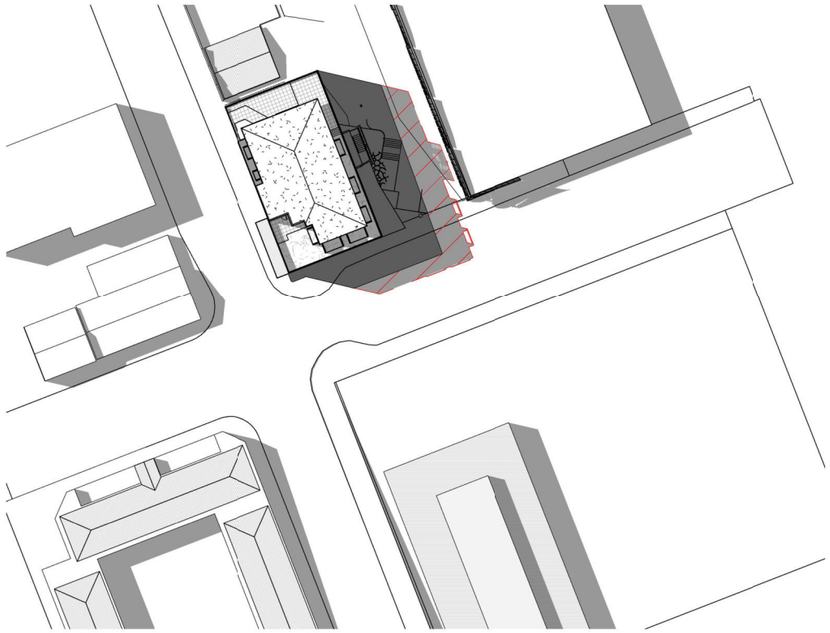
21 Dec 12pm

Scale 1 : 1000 (A3)



21 Dec 2pm

Scale 1 : 1000 (A3)



21 Dec 4pm

Scale 1 : 1000 (A3)

Key

Projected shade for 14m height building (approx)

Projected shade above 14m (infringement)

Disclaimer

Accuracy of the shading diagrams shown is affected by the coordinated data available as follows.

Modeling:

- The current topography of the property (51 Brougham St) and the neighboring Huatoki River has been surveyed by Bland & Jackson Ltd. and BTW Company Ltd. to provide accurate building outlines, relative levels and heights
- The contours of the extended neighbourhood geography and location of neighbouring properties are created using data from NPDC GIS database for land contours and property lines (NPDC GIS Viewer T&Cs apply)
- All existing neighbouring buildings (size/shape/height/location/levels etc) are shown approximate only, conservativley modelled based on data from NPDC GIS, photographs and observations of their relative locations and are NOT based on surveyed information

Shading:

- The generation of the shading is created via the in-built location data in the Autodesk Revit software used by BOON Ltd.
- As all existing neighbouring buildings are modeled as approximate only, therefore all shadows generated are to be read as such
- ALL SHADOWS SHOWN ARE APPROXIMATE ONLY

Brougham Street Development

51 Brougham Street, New Plymouth

Resource Consent

AUGUST | 2020

job	a3	drawing no	rev	drawing title	print date
6400	As indicated	A9.01		Shade Diagrams Summer Solstice	3/09/2020 9:42:38 am

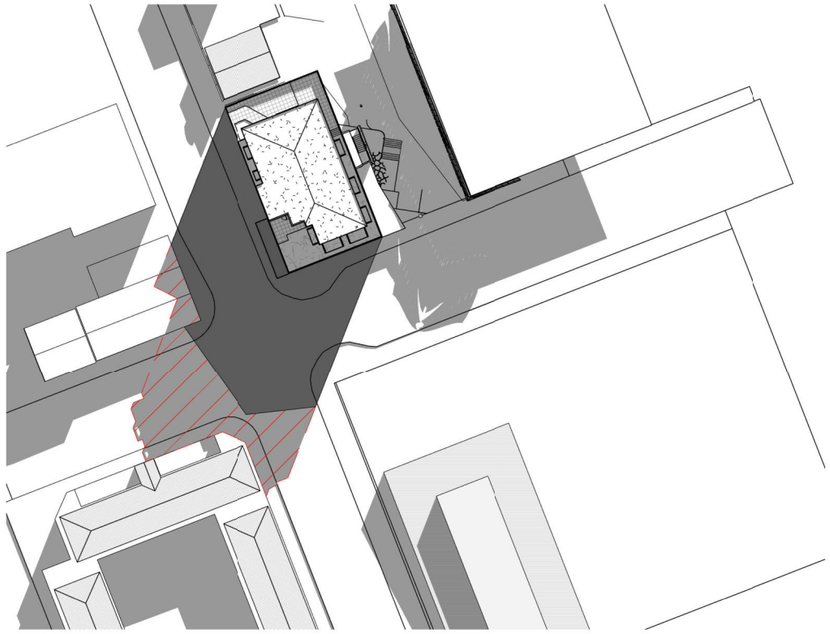
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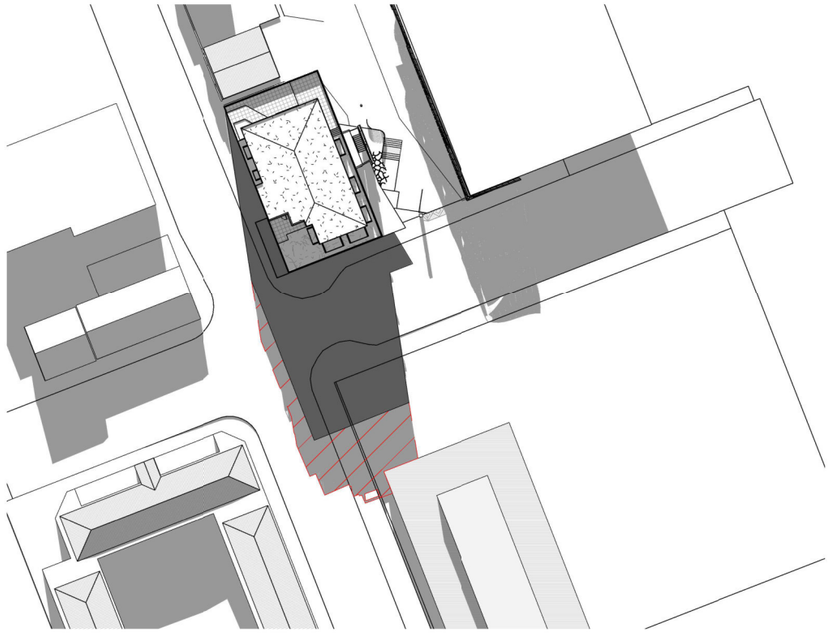
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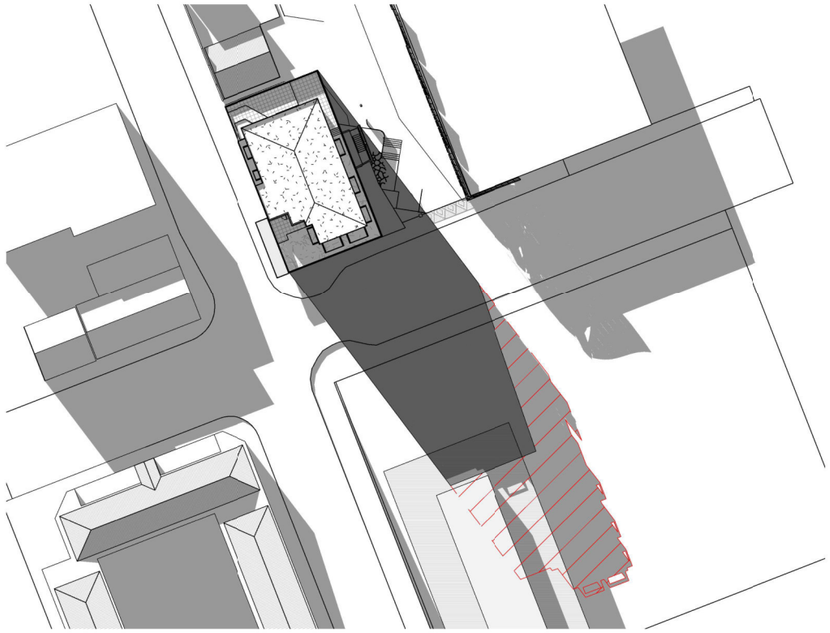
21 Jun 10am
Scale 1 : 1000 (A3)



21 Jun12PM
Scale 1 : 1000 (A3)



21 Jun 2pm
Scale 1 : 1000 (A3)



21 Jun 4pm
Scale 1 : 1000 (A3)

Key

Projected shade for 14m height building (approx)

Projected shade above 14m (infringement)

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Brougham Street Development

51 Brougham Street, New Plymouth

Resource Consent

AUGUST | 2020

job	a3	drawing no	rev	drawing title	print date
6400	As indicated	A9.02		Shade Diagrams Winter Solstice	3/09/2020 9:43:31 am

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Proposed Building - Southeast View

Brougham Street Development

51 Brougham Street, New Plymouth

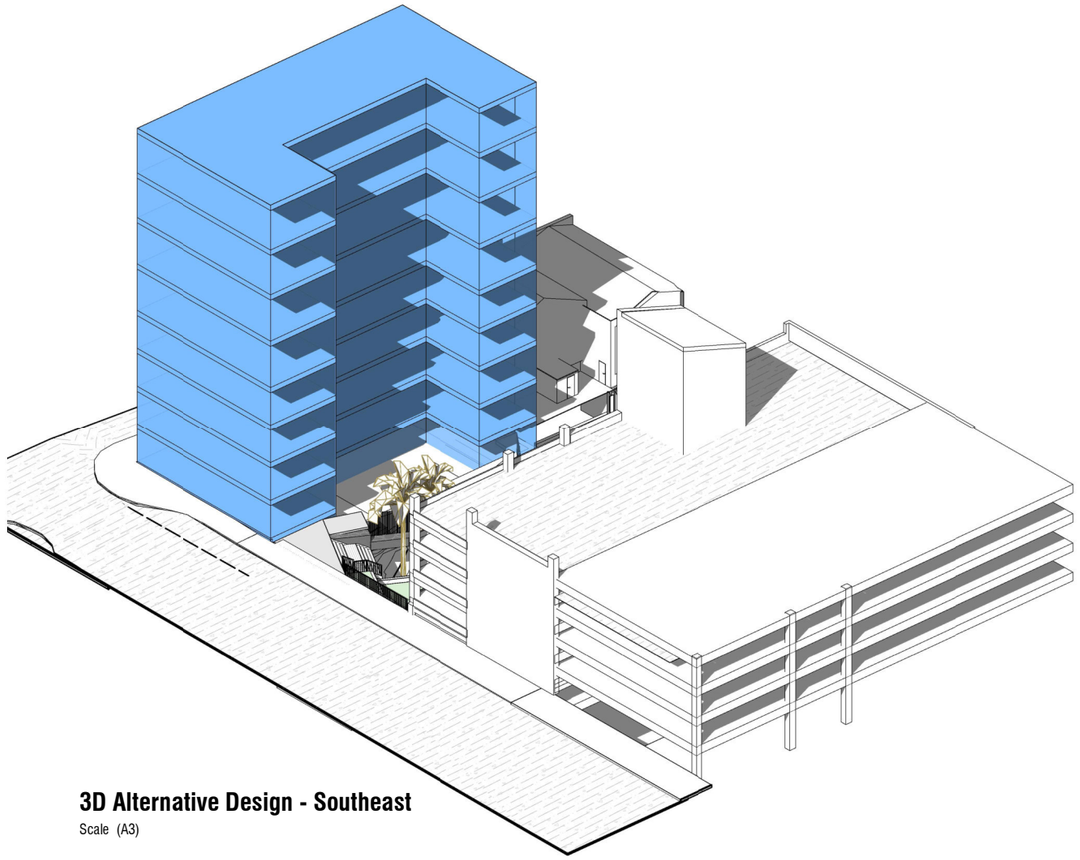
Resource Consent

AUGUST | 2020

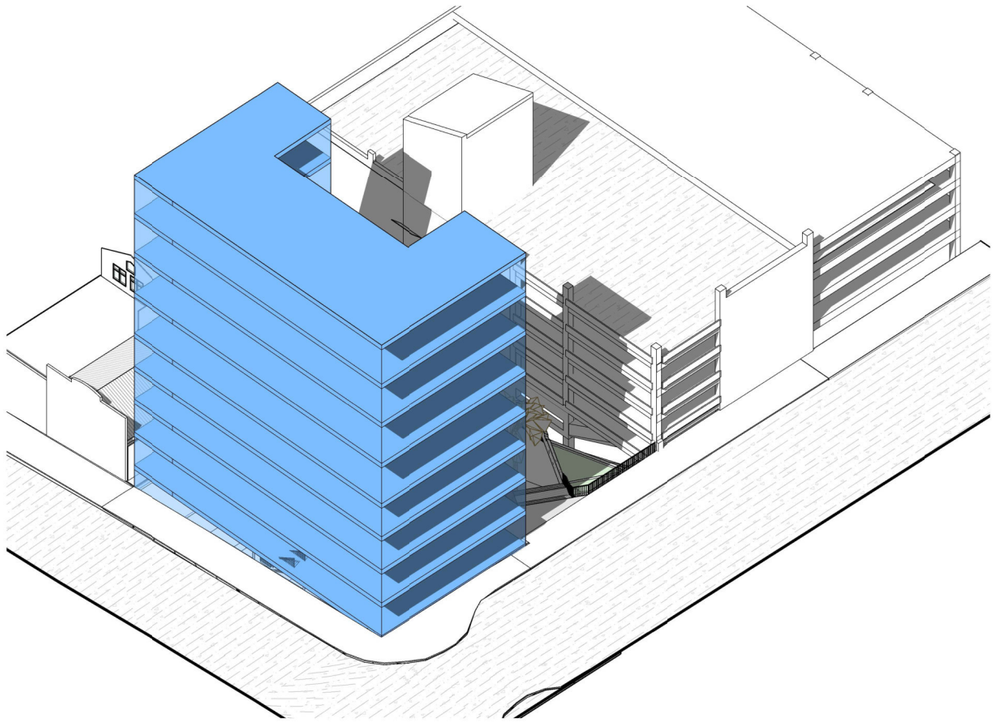
job	a3	drawing no	rev	drawing title	print date
6400		A9.03		3D Views- Render	25/08/2020 1:24:39 pm

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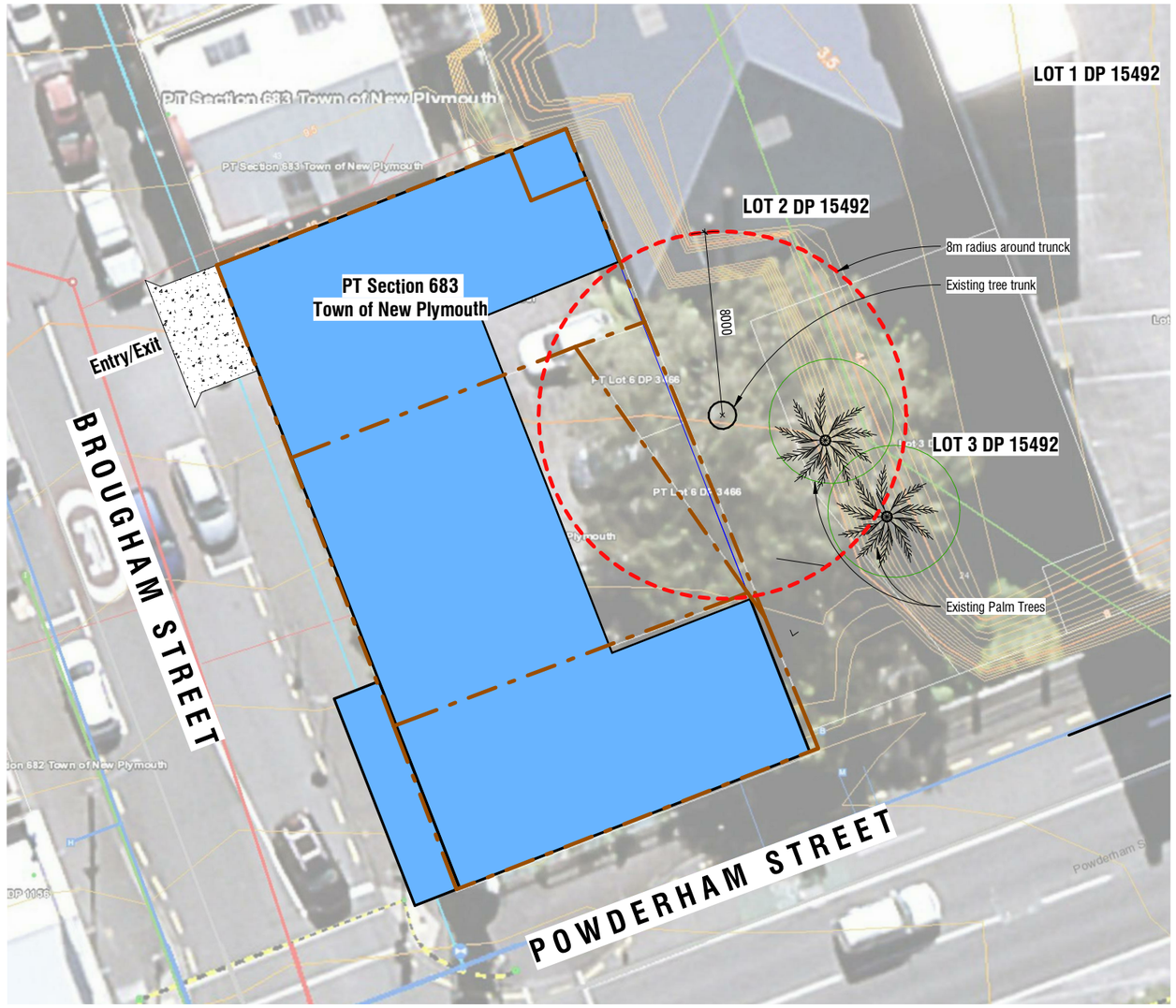
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3D Alternative Design - Southeast
Scale (A3)



3D Alternative Design - Southwest
Scale (A3)



Site Plan - Alternative with Tree Preserved
Scale1 : 250 (A3)

Areas
Original Proposal = 490m² per pavement x 7 = 3230m²
Alternative Proposal = 375m² per pavement x 9 = 3375m²

Brougham Street Development
51 Brougham Street, New Plymouth
Resource Consent
April 2020

job no.	a3 scale	drawing no	rev	drawing title	print date
6488	1 : 250	A10.01		Alternative Design with Tree Preserved	23/04/2020 6:16:39 PM

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