

15 September 2021

Marnie Rydon
Consultant Planner
Kapiti Coast District Council
Private Bag 60601
Paraparaumu 5032

Dear Marnie

**RE: FURTHER INFORMATION REQUEST UNDER SECTION 92(1) OF THE RESOURCE MANAGEMENT ACT 1991
PROPOSED OTAIHANGA ESTATES SUBDIVISION**

I refer to your request for further information letter dated 26 July 2021 (RM210147) relating to the proposed subdivision for the Otaihanga Estates located at 48 & 58 Tieko Street; 131, 139 & 147 Otaihanga Road, Paraparaumu.

The following addresses the information requested in your letter of 26 July corresponding to the paragraph numbers used. Attached is a set of possible draft conditions that are offered by the applicant to address some of the matters included in the s.92 request as appropriate.

Resource Management

1. *Given the intended use of proposed Lots 23-49 for dwellings, can you please comment on the usability of the Lots with respect to the bulk and location permitted activity standards for the Rural Residential Zone and the standards relating to accessory buildings, minor flats (minor dwellings in the Operative District Plan 2021) and the location of sensitive activities within 300m of a building or enclosure containing a lawfully established farming activity or within 300m of a lawfully established extractive industry.*

Response:

The following are the bulk and location permitted activity standards included in Rule 7A.1.3 for all Rural Zones relevant to the proposed Otaihanga Estates subdivision in the Rural Residential Zone:

1. The maximum number of residential buildings on any site shall be one household unit and one minor flat ... The maximum total floor area for a sleep out shall be 30m².
2. The maximum height from *original ground level* of any:
 - a) Accessory farm building shall be 10 metres
 - b) Habitable building shall be 8 metres
 - c) ...
3. ...
4. No *sensitive activities* shall be located within 300 metres of a building or enclosure containing lawfully established *intensive farming activity*, or within 300 metres of a lawfully established *extractive industry*.
5. The minimum yard requirements for any site shall be:
 - a) Front yard
 - i. All buildings must be set back at least 10 metres from a road boundary; and
 - ii. Intrusion of eaves up to 0.6 metres are excluded
 - b) Side and rear yards
 - i. All buildings (other than intensive farming buildings) must be set back at least 5 metres from a side or rear yard boundary; and
 - ii. Intrusion of eaves up to 0.6 metres are excluded

6. All parts of buildings must fit within a height envelope which is made up of recession planes which commence at a point 2.1 metres above the original ground level at the property boundary and inclines inward at an angle of 45 degrees.

The exception to this is that garages located in the side or rear yard are up to 7 metres in length and not more than 2.4 metres in height may infringe the height envelope.

In relation to **Standard 1**, 1 household unit is feasible on all lots but the overall usability of a number of smaller lots is questionable due to the 10m set back from a road boundary required by Standard 5 (a), as discussed below. Larger lots are also able to cater for one minor flat.

In relation to **Standard 2**, the Operative District Plan defines *Original Ground Level* as

“the level, measured above sea level of land on any site prior to modification by earthworks in relation to the proposed activity. Note: For the avoidance of doubt, original ground level may have been lawfully established via a land use consent for earthworks.” (emphasis added)

The proposed subdivision proposes earthworks (cuts and fill) that will change the ground height for all of Lots 23 – 49, as shown in Sheet 3 of the Scheme Plans provided with the resource consent application (refer to Appendix C). Once the earthworks are undertaken in accordance with [RM210147] (should it be granted), a new *Original Ground Level* would be lawfully established and the building height requirements of Standard 2 would be able to be met for a new building (proposed activity) by new owners of the lots.

In relation to **Standard 4**, the Operative District Plan defines:

- *sensitive activities* as activities more sensitive to noise, dust, spray residue, odour or visual effects of nearby properties – includes residential activities, visitor accommodation, educational facilities and medical facilities
- *intensive farming activity* means the commercial raising of pigs, poultry, dairy, beef cattle and other animals in feedlots, barns or similar enclosures or buildings for more than 6 months in any calendar year and being sustained on supplementary feed; while so confined
- *extractive industry activities* where open or surface excavation of rock or other material deposits including gravel, rock, soil, sand or peat is undertaken and removed from the site

While the residential uses proposed on Lots 23 – 49 are *sensitive activities* as defined above, there are no buildings or enclosures containing a lawfully established *intensive farming activity* or a lawfully established *extractive industry* within 300m of the proposed subdivision site.

In relation to **Standard 5**, Lots 23 – 49 range in size from 490m² to 7,130m², with the majority of the lots (23) being between 500 to 1,100m². However, the lots that adjoin the road boundary (lots 23 28; 31 – 34; 36 – 39; 41 – 43; and 46 – 49 – a total of 20 lots) have significantly reduced usability if the 10m front and 5m side/rear yard setbacks of the Rural Zone are required to be met. In this case the usability is considered in terms of the buildable area available on these lots once the Standard 5 set back requirements are complied with. For these lots adjoining the road boundary, it is proposed that the Residential Zone yard requirements that require a 4.5m front yard setback, 3m rear yard, and 3m for one side yard and 1.5m for all other side yards be adopted.

For consistency and in keeping with the urban character of the southern area, and also because some of the larger rear lots have building exclusion areas reducing the usability of these lots (including lots 29, 30, 47 – 47 that have dunes being protected), it is also considered appropriate for the remaining rear lots to also have the Residential Zone yard requirements adopted.

A suggested draft condition is proposed on any consent granted that would require a Consent Notice to be placed on the lots the southern area requiring compliance with the Residential Zone yard requirements (refer to suggested conditions in **Attachment 1**).

In relation to **Standard 6**, the discussion regarding Original Ground level in relation to Standard 2 above applies. Once the earthworks are undertaken in accordance with [RM210147] (should it be granted), a new

Original Ground Level would be lawfully established and the recession plane requirements of Standard 6 would be able to be met for a new building (proposed activity) by new owners of the lots.

- 2 *Ātiawa ki Whakarongotai Charitable Trust (the Trust) have reviewed the application and advised that consultation is ongoing with the Applicants. Please provided a conclusion to this consultation that includes final comments from the Trust that includes whether or not the application is supported.*

Response:

Please find in **Attachment 2** confirmation from Dr Mahina-a-rangi Baker in her email of 20 July that the applicant has satisfied all of the concerns of the Trust adequately.

Subsequent to that email confirmation, the applicant has been working with Ra Higgot, a Trustee of the Board, to undertake a site visit and to try to locate historical land titles and information about the land in order for the identity of Ātiawa to be reflected through the project, and this work is ongoing.

- 3 *Two consent notices (Land Information New Zealand references B663195.2 and 5269965.3) are referenced on the Records of Title provided with the application, please provide copies of these and comment on their ongoing applicability.*

Response:

Copies of consent notices B663195.2 and 5269965.3 are in **Attachment 3** as requested.

- 4 *Please provide detail of Lots 1 and 3 DP 303764 in respect to the registered interests on the Record of Title with respect to section 241(2) and 242(1) of the Resource Management Act 1991.*

Response:

The registered interest on the Record of Title for Lots 1 and 3 DP 303746 with respect to section 241(2) and 242(1) of the RMA required these lots to remain together in order to ensure Lot 3 had legal access. However, the Kapiti Expressway has severed the legal access to Lot 3 and it is no longer viable to Keep these lots together as required by the registered interest on the Record of Title. A separate resource consent application has recently been granted by Council [RM210172] to undertake a boundary adjustment to allow those parts of Lots 1 and 3 to the east severed by the Kapiti Expressway to be subdivided from land to the west that is part of the Otaihanga Estates subdivisions resource consent application [RM210147]. This separate resource consent means the registered interest on the Record of Title is redundant and will be deleted.

Roading

- 5 *Applicant to provide up to date turning counts at Tieko Street including pedestrian and cyclist counts at Otaihanga Road (passing Tieko Street and on the shared path/road passing the proposed intersection with Otaihanga Road). Also include an adjustment for potential summer flows of peds/cyclists and assess the impact of increased traffic flows in respect of road safety.*

Response:

Harriet Fraser has undertaken additional counts as requested, and she has provided the following commentary:

The traffic count of the intersection of Tieko Street and Otaihanga Road was repeated on Saturday 31 July 2021. A comparison between this and the May 2018 count is summarised in the table below.

Saturday 12 May 2018	Saturday 31 July 2021
Busiest hour was between 12.30 and 1.30pm with a total of 175 vehicle movements through the intersection.	Busiest hour was between 1.00pm and 2.00pm with a total of 198 vehicle movements through the intersection.
Two pedestrians and one cyclist were observed on Tieko Street during the full 11.00am to 2.00pm survey period.	10 cyclists travelled along Otaihanga Road through the intersection and three turned left out of Tieko Street during the full 12 noon to 2pm survey period.

	Two pedestrians walked along Otaihanga Road through the intersection and one pedestrian turned right out of Tieko Street.
29 vehicle movements were counted on Tieko Street during the peak hour with 13 departures and 16 arrivals.	18 vehicle movements were counted on Tieko Street during the peak hour with 7 departures and 11 arrivals.

As such, vehicle flows on Otaihanga Road were slightly higher than in the 2018 survey but vehicle movements in and out of Tieko Street were less. There was more pedestrian and cyclist activity through the intersection than in 2018. The weather during the 2021 survey was perfect for recreational walking and cycling which may have been an influence. The counts have not been factored for seasonal variation. For this to be undertaken with any certainty would need local data from year round cycle counts.

A traffic count was also undertaken, at the same time, along the Otaihanga Road frontage to the proposed subdivision site. The peak hour of vehicle activity was between 12.45pm and 1.45pm with 501vph. During the full survey period six cyclists passed along the frontage and six pedestrians.

On Wednesday 4 August 2021 between 8am and 9am, pedestrian and cyclist activity was observed in the vicinity of the Otaihanga Road intersection with Ratanui Road. In this location it was possible to see pedestrian and cyclist movements from the direction of each of the Otaihanga Road frontage to the site and Tieko Street. During this time 596vph were counted heading to/from the direction of Mazengarb Road, two cyclists turned right out of Otaihanga Road and onto the path along Ratanui Road and five pedestrians walked between Otaihanga Road (direction of Tieko Street) and the path along Ratanui Road.

The surveys showed only limited pedestrian and cyclist activity. However, the existing provision of separated shared paths provides good levels of amenity and safety for pedestrians and cyclists and means that busier levels of active mode activity can be accommodated alongside existing and future increased levels of traffic activity.

- 6 *Applicant to provide a scale drawing with dimensions indicating how the sightlines could be improved at the intersection of Tieko Street/Otaihanga Road - show both options put forward - vegetation trimming and road marking alterations.*

Response:

Please refer to the drawing in **Attachment 4** that provides the information requested.

- 7 *Provide details of the vertical alignment for on the proposed roadside approach to the proposed intersection with Otaihanga Road. We want to understand crossfall for pedestrians/cyclists crossing the road and also how the level of the side road affects sightlines (object height view.)*

Response:

Please find in **Attachment 5** a drawing that provides details of the vertical alignment of the proposed intersection with Otaihanga Road.

- 8 *Applicant to address the CPTED issues in NZS 4404:2010 with regard to path connections, points a), b), c), e) and f) to be addressed (see below) – lighting is required for the entire length especially given the length of the shared path and the potential use by cyclists and pedestrians and motor vehicles:*

3.3.11.1 Footpaths and accessways

Footpaths shall be a minimum of 1.5 m wide surfaced over their full width. The crossfall should be no greater than 2%. Wider footpaths or areas of local widening will often be required by the TA where higher use or other needs dictate such widening.

Accessways should be provided at no-exit roads or where necessary to improve connectivity. They shall be designed for user safety using crime prevention through environmental design (CPTED) principles and should:

- (a) Be direct and no greater than two properties long;
- (b) Have good sight lines for passive surveillance with fences a maximum height of 1.2 m for 10 m from the road frontage, or no fencing;
- (c) Be sited to ensure high levels of community use;
- (d) Be amenity landscaped without compromising safety;
- (e) Have provision for the disposal of stormwater;
- (f) Be provided with pedestrian level lighting; and
- (g) Have a legal width not less than 5.5 m.

Response:

In relation to (a), it is considered the path is more rural in nature than urban and this CPTED design principle is more appropriate in the urban context. It is noted existing shared paths within the rural parts of Kapiti would not meet this design standard.

In relation to (b), the nature and size of the adjacent rural-residential lots may limit the opportunity for passive surveillance from the properties. However, it is noted that the Landscape Concept Plan included in the Landscape and Visual Assessment (Appendix D accompanying the AEE) proposes open style fences, a maximum of 1.5m in height, on either side of the extent of the shared use path. This type of fence will retain the openness sought by principle (b).

In relation to (c), the proposed shared path is located so that it connects the proposed community park (Lot 105) and access road to the southern area (Lots 23 – 49) to the access road to the northern area (Lots 1 – 22). This will provide a shared path network that loops back to Tieko Street and Otaihanga Road. The location of the shared path is designed to service the entire proposed subdivision, and connect to existing walking/cycling facilities along Otaihanga Road and the Kapiti Expressway.

In relation to (e), the shared use path (Lot 104) is not proposed to be sealed, but will be topped with a fine gravel (and permeable) similar to paths adjoining the Wharemauku Stream in Paraparaumu. This will allow stormwater to go straight to ground as it currently does. Should this part of the shared use path be sealed in the future, stormwater disposal could be addressed using a combination of swales and soakage devices within the Lot 104 boundary easement.

In relation to (f), the shared use path is intended to be a daytime recreational facility and the use of the path during the hours of darkness will not be encouraged. Therefore, as discussed with the Council's roading team at a meeting on 24 February, no lighting is proposed. The provision of lighting fittings also reduces the natural character of the northern area which is rural-residential. It is noted that CEPTD in relation to lighting states that it is crucial that lighting sends the right messages to the public about the safe and appropriate use of space at different times of day and night. Lighting should not be provided in areas not intended for night-time use, therefore avoiding a false impression of safety.

- 9 *Footpaths are required to be provided on both sides of the roads. Applicant to provide amended plans to show this. Especially given that there is potential for through movement of pedestrians and cyclists between both roads both by existing residents and future residents in the area.*

Response:

The advice from Harriet Fraser is that she considers footpaths are only needed on one side of the access road. Cyclists are expected to be on the street and pedestrian activity will be low given the walking distances to amenities, as shown by low surveyed pedestrian movements into and out of Tieko Street (refer to #5 above). The applicant therefore confirms the current Scheme Plans are correct and there is no intention to provide footpaths on both sides of the access roads.

- 10 *We do not agree that the number of truck movements detailed in the traffic assessment can be safely accommodated on Tieko Street in its current form and are not comparable to the development traffic flows when complete bearing in mind that these will be predominantly passenger cars. Applicant to address this issue in proposing mitigation measures to limit the conflict between all vehicle movements on Tieko Street and also what controls are proposed to mitigate potential road damage by heavy vehicles.*

Response:

A Construction Traffic Management Plan will be prepared and the scope will include measures to minimise truck movements via Tieko Street. A draft condition will be provided for this management plan.

- 11 *The Applicant states that a 2m shared path is proposed, Council minimum standards for shared paths is a minimum of 2.5m width. Applicant to provide amended plans to show this.*

Response:

In response to this point, the applicant can confirm the proposed shared path will be a minimum of 2.5m width. Revised Sheets 8 and 9 of the Scheme Plans 22208 SCH1 in **Attachment 6** show the shared use path (Lot 104) having a legal width of 5.5m, with a formed width of 2.5m along its entirety.

It should be noted that the footpath width along the Tieko Street extension will be 2m wide.

- 12 *Vehicular access over Lot 104 - We have road safety concerns regarding the mixing of traffic and pedestrians/cyclists on a shared path/ROW. Our preference would be to access these lots via access legs to the proposed roads not via the shared path connection. Also, notwithstanding the comments above, the right of way layout raises questions over width, waste collection and delivery vehicle access along with vehicle turning facilities (turning head) and street lighting. Can the Applicant please respond to these issues.*

Response:

Following discussions with Council Officers, this concern has been addressed and revised Sheets 8 and 9 of the Scheme Plans 22208 SCH1 in **Attachment 6** show the proposed shared path (legal with 5.5m, formed width 2.5m) alongside and separate to a 3.5m wide vehicle access to Lots 20 and 21. It is considered that this amendment would address the safety concerns raised. Waste collection will be from the cul-de-sac head just as if these properties were urban rear lots. While there is an assumption that turning will be available within the properties which are substantial in size, and two passing bays are proposed as discussed below in relation to #14. It is not proposed to provide lighting along this vehicle access as there is only limited movements to the two sites.

- 13 *All ROW's need to be a minimum of 3.5m wide in accordance with the Operative District Plan 2021.*

Response:

The applicant confirms that the 3.5m wide ROW will be complied with. Revised Sheets 8 and 9 of the Scheme Plans 22208 SCH1 in **Attachment 6** show the 3.5m ROW.

- 14 *Can the Applicant confirm that passing bays comply with NZS 4404:2010.*

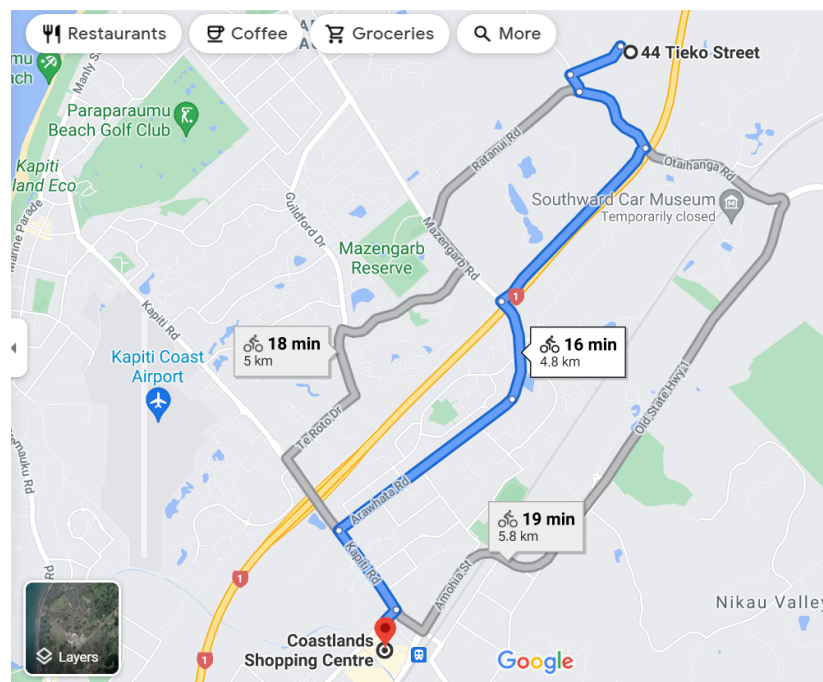
Response:

The applicant confirms the spacing and width (5.6m total formed width) of the passing bays are as per NZS 4404:2010. Revised Sheets 8 and 9 of the Scheme Plans 22208 SCH1 in **Attachment 6** that show the complying passing bays.

- 15 Applicant to set out cycling routes to Paraparaumu town centre and confirm, with further justification, if these routes are viable from a distance and travel time perspective.

Response:

Harriet Fraser has prepared the extract below from Google Maps with the possible cycling routes to Paraparaumu shown from 44 Tiekó Street (a location chosen towards the end of Tiekó St). The distance from this location to Coastlands is 4.8km with an estimated 16 minute travel time. Harriet Fraser considers this to be a viable cycling option.



- 16 Proposed Right Turn Lane and Intersection with Otaihanga Road, Applicant to provide the following information:
- Dimensioned plan and cross section showing lane widths, shoulder widths, length of storage bay and tapers. Confirmation of compliance with Austroads and MOTSAM standards.
 - Confirmation of what the tighter curve radius is, being created by alterations to create the turn lane and intersection, and whether this complies with Austroads geometric design standards for a road with a 60km/h design speed.
 - Street lighting needs to be shown on the proposed plans for the intersection and new roads.
 - A sidra model and assessment is required for the proposed intersection with Otaihanga Road covering the am and pm peak periods.
 - Details of tactile paving at the intersection of Otaihanga Road and the proposed subdivision road.
 - Details of curve warning signage proposed and confirm if there are any effects on the existing curve warning signage in terms of type of signs, positioning and layout.
 - Confirmation that land over which splays are provided will be levelled to create flat grass berm areas that are easy to maintain and under the ownership of the Applicant or vested to Council as road.

Response:

A plan in **Attachment 4** shows the upgrade of Tiekó Street and Otaihanga Rd that address points a, b and g above.

With regard to point b, Harriet Fraser advises that the radius of the existing bend is around 100m. With the modification to accommodate the proposed intersection the radius for the eastbound traffic flow will be 75m.

Based on Table 3.4 in Austroads Guide to Road Design Part 3: Geometric Design, a single curve section with a radius of 100m can be expected to have a section operating speed of 64km/h, this reduces to 57km/h with a 75m radius. Harriet Fraser considers that the 60km/h speed limit remains appropriate and that vehicles will continue to be able to safely negotiate this section of the road and that if needed, curve advisory signs could easily be added onto the outside of the bend.

Also attached are outputs from the intersection analysis, using the Sidra software, of the proposed new intersection with Otaihanga Road undertaken by Harriet Fraser as requested in point d. This shows the intersection performing at a Level of Service A (average delays of less than 10 seconds on all approaches) during both the weekday morning and afternoon peaks. It has been assumed that all traffic turning right onto Otaihanga Road will give way to both the eastbound and westbound traffic flows.

In relation to points c, e and f, while the applicant agrees that these matters need to be considered, they are not considered matters that need to be dealt with at the resource consent stage, but would be provided as detail design for Council's consideration at that time. It is proposed a condition be drafted that captures these matters in the detail design that will be provided later in the process.

17 *Stormwater crates are not permitted to be within the road carriageway and must be located within the berm. Please provide updated plans showing this that also show the required setbacks from structures.*

Response:

AWA can confirm that stormwater crates are not being used within the proposed infrastructure development.

18 *Details of the reinstatement of the access to Lot 105 and what the treatment is for the shared path on the Otaihanga Road frontage at this point.*

Response:

A Landscape Plan showing the reinstatement of access to Lot 105 and the treatment of the shared path on the Otaihanga Road frontage at this point is in **Attachment 7**. This Landscape Plan has been developed in collaboration with Mr Jamie Roberts of Councils Parks & Recreation Team, to Council's requirements.

Open Space/Biodiversity

19 *As there is currently no Open Space within 400m walking distance the Reserve Lot 105 would be required in order for the development to meet DP policy DW10.*

Section 5.1 of the CHC Report states "The proposed recreation reserve (Lot 105) fronting Otaihanga Road will assist with retaining an open character" (p25) and "The proposed recreation reserve (Lot 105) fronting Otaihanga Road will assist with retaining an open character in the southern area" (p26).

These statements are repeated in the DCM Urban Landscape and Visual Impact Assessment.

It is therefore reasonable to conclude that the inclusion of Lot 105 in the scheme plan is both a means of responding to the effects of the development in terms of Open Space provision under DW10, but is also integral to the design response and mitigation for the landscape and visual effects of the development as a whole. The provision of Lot 105 should therefore be included in the list of mitigations in the Landscape and Visual Assessment and Application Reports. Please provide acknowledgement and acceptance of this in your response. Correspondingly, for valuation purposes, alternate scenarios for the development of Lot 105, such as for private residential lots should be agreed as not feasible by the applicant.

Response:

It is not considered correct to state that there is currently no Open Space within 400m walking distance from the Lots 23 – 49 of the proposed subdivision. Open Space(s) in the PDP means:

"any area of outdoor open space and includes public and private parks, sportsgrounds, waterways, gardens, scenic reserves, conservation areas, playgrounds, cemeteries and utility and other reserves. In

general, open spaces are recognised as areas in which people can move through without fear of challenge, though there may be a level of restriction on what they can do in those areas. For the purposes of this definition, open space does not include outdoor living courts.”

It is considered that the existing shared use path along the Kapiti Expressway, the entrance on the western side that is within 400m of Tieko Street and 125m from the proposed new access to Lots 23 – 49 from Otaihanga Road, meets the definition of Open Space above. This facility provides for people to move freely without fear of challenge.

Dave Compton-Moen, the Applicant’s landscape expert, has considered the question above and provided the following response:

“I do not consider that the provision of a recreation reserve is necessary with retaining open character within the receiving environment. The Landscape and Visual Impact Assessment initially considered that Lot 105 would be used for residential purposes with the bulk of the proposed residential dwellings sited back from Otaihanga Road behind the proposed stormwater reserve. I acknowledge that the dwellings on the cul-de-sac will be visible from Otaihanga Road but I do not consider that they are of a density or scale which will adversely effect the existing character or views into the area. This is due to the proximity to the expressway, its associated infrastructure and existing dwellings.

The provision of a recreation reserve within a 400m walking catchment is not a determinant of ‘Open Character’, and while its location adjacent to Otaihanga Road assists with retaining an open character, its inclusion in the proposal is not considered a ‘mitigation measure’. I consider that even with the proposed development, the area will still retain a high degree of open character due to the retention of larger dune formations which are protected from development. The following are the mitigation measures which I have promoted to achieve this:

MM5	<p><i>Identify and protect important topographical features on site.</i></p> <ul style="list-style-type: none"> • <i>Restrict buildings to less prominent locations</i>
MM6	<p><i>Solid fencing should preferably be restricted to side yards to retain an open character along streets and existing roads or at a minimum front boundary fencing will have restrictions. Side fencing should not extend forward of the front wall closest to the street of a house or would need to be limited in height.</i></p> <ul style="list-style-type: none"> • <i>Refer to Landscape Concept Plan</i>

In response, I do not consider the provision of a recreation reserve to be a mitigation measure to ensure the retention of open space.”

The Applicant considers that this question in particular which appears to seek a concession from the Applicant is an inappropriate use of the Council’s s92 power.

The proposed reserve and any potential works on that reserve are the subject of a developers agreement request which Council is currently considering. The Applicant considers that any discussions regarding the provision of a reserve as part of the development are commercially sensitive and should be regarded as confidential, out of respect for that process.

Council is well aware that the Applicant has included Lot 105 as a proposed recreational reserve, because in discussions following the pre-application meeting for this project (which did not include a reserve) Ms Law (then Manager Recreation and parks indicated Council’s desire to have a recreational reserve in that area. Three options were proposed with Council indicating a preference for Lot 105, in the proposed size and shape. No policy or objective was cited as the basis for this and the PDP was not operative. A planting plan/ reserve design has also been provided on Councils request based on Council identifying its requirements for the area.

It is unclear why Council is now seeking confirmation from the Applicant that the reserve is being offered as 'mitigation' given this background.

- 20 *The Landscape Visual Assessment needs to be updated to include before and after simulations in accordance with NZILA best practice guide 10.2 'Visual Simulations' (2010) to more accurately describe the effects and support conclusions. Following this the Assessment should be peer-reviewed by a NZILA Registered Landscape Architect with expertise in Landscape and Visual Assessment.*

Response:

Dave Compton- Moen has provided the following response:

"I consider that there is limited benefit in preparing visual simulations for this project given the potential variation in house design, placement, materials and colour which are possible. In my assessment, I have concluded that any visual effects on nearby residential properties will be Less than Minor at most."

- 21 *Page 74 of the application states "Lot 105 has been identified as an area KCDC wishes to have vested as a local purpose reserve". For clarification it should be stated that prior to this development proposal being brought forward, Council did not anticipate the formation of new open space in this area as it is currently zoned rural. The creation of Lot 105 should more correctly be described as a requirement under Policy DW10 should development receive resource consent. Please provide acknowledgement of this in your response.*

Response:

This matter has been addressed above in relation to #19 above.

- 22 *The Landscape Concept Plan needs to be updated to show active areas, access, and planting proposed for Lot 105, acknowledging that this will be worked through in detail if the consent is granted.*

Response:

A landscape plan in **Attachment 7** shows the active areas, access and planting for proposed Lot 105 and the constructed wetland area. The Applicant's landscape expert has met with Council (Mr Roberts) and has prepared the planting plan based on Council's requirements. By seeking to engage with Council at this time, the Applicant wishes to avoid substantial changes being required by Council to the layout post-consent. Again this work has formed part of the Applicant's developer agreement request and should more properly be considered as part of that process, rather than via a s92 request.

Development Control

- 23 *The proposed earth fill elevations show the finished ground level on some of the proposed allotments. The plans prepared by Cuttriss Consultants Limited refer to it as a pad level on the lots. Can AWA please confirm that any future dwellings on these lots can be constructed outside of the flood areas and provide minimum build levels for the allotments.*

Response:

AWA can confirm that any future dwellings on the shown lots can be constructed outside of the flood areas. Minimum build levels for lots 3, 4, 5 and 6 are RL 6.1. All of the pad design levels are above this minimum level.

- 24 *Cuttriss Consultants Limited's plan 22208 SCH1 sheet 3 shows areas within proposed Lots 11, 21 and 30 for the disposal of unsuitable fill. The unsuitable fill does not appear to be mentioned in the application for within the geotechnical report provided with respect to the kind of fill that will be placed in these areas. Please comment on the type of fill that is being located in these areas, if there are any ongoing hazards created and if these areas need to be no-build areas.*

Response:

Cuttriss have confirmed that this matter was addressed in Section 5.3 of the Engineering Infrastructure Report (Attachment I to the AEE). Cuttriss have advised that this material will be compacted so it will not pose a hazard but given the likely organic material will not meet the standards of NZS4431. The building sites will be certified following completion of the earthworks. The report accompanying the certification will specify any restrictions that need to be imposed (which are unknown at this stage). Cuttriss anticipate the standard earthworks condition requiring the recommendations of the report are adhered to via the registration of a consent notice on the future titles.

25 *The AWA report doesn't appear to mention any buffer areas within proposed Lots 5, 14- 18 and 20 along the wetland as no build or earthwork zone. Can AWA please confirm this wetland shown on Cuttriss Consultants Limited's plan 22208 SCH1 sheet 3 are not part of SW modelling. If not, is there any offset requirements from this wetland for any proposed future development.*

Response:

Earthwork & building exclusion areas and natural wetland buffer zones have been addressed by Cuttriss. AWA can confirm the natural wetlands, within Lots 5, 14-18 & 20, shown on Cuttriss' plan 2208 SC1 sheet 3 have not been considered as part of the primary stormwater treatment. The primary form of stormwater treatment for the northern development sites will be via individual lot soak pits.

26 *Can the Applicant provide more information on the 3m geotechnical setback requirement shown on Cuttriss Consultants Limited's plan 22208 SCH1 sheet 3, there does not appear to be any corresponding information within the application itself.*

Response:

RDCL, the applicants Geotechnical experts, have recommended a 3.0m setback for all slopes greater than 15° to address the shallow instabilities that were observed. Initially RDCL recommended 5.0m in their report dated February 2021 (included as attachment F of the AEE), however, following discussions with the applicant's engineers (Cuttriss) and an internal review, this setback was revised to 3.0m as being appropriate for the proposed works. An updated RDCL Geotechnical Report dated 26 April 2021 is included as **Attachment 8** of this response.

RDCL advise that for all other slopes, NZS3604:2011 will apply for building foundations.

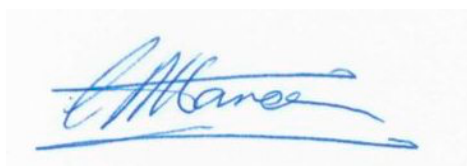
An Advice Note is included in the suggested conditions (refer to **Attachment 1**) requires a covenant to be placed on the title of the lots 9 – 10; 18; and 25 – 28 shown on Sheet 8 of the Scheme Plans 22208 SCH1 included in Appendix C of the AEE are adhered to.

Concluding Statement

In addition to the above, the applicant is currently in the process of gaining a number of approvals from neighbours, and in particular the owners of the land on the eastern side of the express that had previously had access from Otaihangā Road through the site. these approvals will be forwarded to Council as soon as they are available.

I trust the above information and responses address the information request points sufficiently for you to proceed to process the resource consent application. Please confirm the process to consider the applications can be restarted.

Yours sincerely



Chris Hansen
RMA Principal Planner

E-mail: chris@rmaexpert.co.nz

Mobile: 02102645108



Attachments:

Attachment 1 – Suggested draft conditions

Attachment 2 - Email confirmation from the Ātiawa ki Whakarongotai Charitable Trust

Attachment 3 – Copies of consent notices B663195.2 and 5269965.3

Attachment 4 – Scale drawings of the Tieko Street/Otaihanga Road intersection

Attachment 5 – Scale drawings showing vertical alignment of proposed intersection with Otaihanga Road

Attachment 6 – Revised Sheets 8 and 9 of 22208 SCH1 showing widths of shared path, ROW and passing bays

Attachment 7 – Landscape Plan for Lot 105

Attachment 8 – Revised RDCL Geotechnical Report dated 26 April 2021

Otaihanga Estates

Suggested Draft Conditions for KCDC Consents

Introduction

The following suggested draft conditions for [RM210147] include mitigations recommended in the technical reports that accompanied the Assessment of Environmental Effects (AEE) and in the response to the further information requested by KCDC under s.92 of the RMA.

The purpose of these draft conditions is to capture the intent of the mitigations proposed – the specific wording may need further work in discussion with Council and technical experts.

These draft conditions are offered on a ‘**WITHOUT PREJUDICE**’ basis.

Standard subdivision and development conditions relating to standard matters (such as compliance with the details and plans provided with the application; compliance with Councils’ Subdivision and Development Principles and Requirements; monitoring and review; general subdivision requirements; completion of works requirements etc.) are not included.

It is acknowledged that there may be some overlap with the regional resource consents sought by the applicant from Greater Wellington Regional Council (GWRC), and in particular relating to earthworks and the proposed infrastructure. The applicant intends to provide a separate draft set of conditions specific to the Regional Council that will apply to the regional consents applied for, and to provide a copy of these suggested KCDC conditions (as information only) to GWRC for use as a reference considering the different role of each Council.

Earthworks

Condition #	Suggested Condition (or similar)
E1	All construction shall proceed in general accordance with the Construction Management Plan to be prepared by a suitably qualified person and certified by Council’s Development Engineer under [RM210147] prior to any construction activity being undertaken.
E2	All earthworks staging, stabilisation and monitoring are to be undertaken in accordance with the Preliminary Erosion & Sediment Control Plan (ESCP) provided with [RM210147] in Appendix C of the Infrastructure Engineering Report prepared by Cuttriss dated 29 June 2021, further information provided in the s92 response, or any subsequent updated version agreed with Council. <i>Note: A Consent Notice under Section 221 of the Resource Management Act 1991 will be issued to facilitate the recording of requirements recommended in the Geotechnical Completion Report, which is to be complied with on an on-going basis.</i>
E3	All earthworks are to comply with requirements of the current issue NZS 4431, unless otherwise specifically approved by the Council’s Development Engineer; at completion of works consent holder shall provide a report and certificates in the form of Appendix A of NZS 4431 and Schedule 2A of NZS 4404 by a suitably qualified person. The report shall also detail site investigations work and findings together with recommendations for foundation design for those allotments not subjected to earthworks in accordance with NZS 4431.

	Note: If as a result of this report specifically designed foundations are required in accordance with the Building Act 2004, then a Consent Notice under Section 221 of the Resource Management Act will be issued to facilitate the recording of this condition which is to be complied with on an on-going basis.
E4	The consent holder shall ensure a minimum batter slope of 1V:2H for permanent batters and a nominal setback for earthworks and buildings of 3m from slopes > 15° shall be provided.
E5	The consent holder shall ensure all silt fences shall be installed and maintained in accordance with the GWRC ESC Guidelines.
E6	The consent holder shall ensure the location of topsoil stockpile sites shall be identified using criteria included in the Preliminary ESCP provided with [RM210147]) prior to commencement of construction activities; the management of the topsoil stockpile sites shall be undertaken in accordance with the measures included in the Preliminary ESCP provided with [RM210147].
E7	The consent holder shall ensure the disposal of unsuitable material shall only be to the sites identified on Sheet 3 of the Scheme Plans provided with [RM210147]; management of these sites shall be undertaken in accordance with the measures included in the Preliminary ESCP provided with [RM210147].
E8	All earthworks are subject to the Archaeology Management Plan (AMP) prepared under Archaeology Authority #2020/378 and the roles and responsibilities and discovery protocols included in the AMP should any archaeological remains be found; monitoring of all earthworks shall be consistent with the AMP and with Appendix A of the Te Ātiawa Kaitiakitanga Plan.

Subdivision

Condition #	Suggested Condition (or similar)
SUB1	The e-survey dataset shall be in general conformity with the scheme plans included in Appendix C of the application as Drawing Number 22208 SCH1, or the FINAL version of those approved plans provided by the Applicant should amendments be made during the consenting process.
SUB2	A benchmark level reference point, with respect to Mean Sea Level (Wellington) shall be provided within close vicinity of the subdivision at a location approved by the Council's Development Engineer.
SUB3	Easements are required over any rights of ways and communal, private and public services where these pass through the lots in the subdivision; easement documents shall be prepared by solicitors at the consent holder's expense. <i>Note: The applicant has a separate resource consent granted by Council [RM210172] to undertake a boundary adjustment to separate the access lots with easements and rights of way to the eastern side of the property severed by the Kapiti Expressway. A final subdivision scheme plan under s.221 of the RMA will extinguish the easements and rights of way associated with that resource consent that currently exist on the site.</i>

Buildings

Condition #	Suggested Condition (or similar)
B1	The consent holder shall identify final building sites for Lots 1 – 22 prior to the Certificate of Title being issued for these lots

B2	<p>The consent holder shall ensure a consent notice pursuant to section 221 of the Resource Management Act 1991 is registered against the titles of proposed Lots 23 - 49. This must state:</p> <p><i>The construction of any new buildings within Lots 23 - 49 shall be subject to a reduced yard setback requirement of 4.5m from the road boundary, 3m rear yard, and 3m for one side and 1.5m for all other sides. If the relevant permitted standards of the District plan are less restrictive than these specified reduced setbacks at the time of construction, the District Plan standards will apply.</i></p> <p>Note: <i>The Condition above must be the subject of a consent notice under section 221 of the resource Management Act 1991 and registered against the new Record of Title for Lots 23 - 49. The section 221 consent notice shall be prepared by Council at the cost of the consent holder. The section 221 consent notice shall be issued with the section 224(c) certificate to facilitate the recording of this condition which is to be complied with on an on-going basis.</i></p>
----	--

Stormwater

Condition #	Suggested Condition (or similar)
ST1	The consent holder shall submit for certification to the Council's Development Engineer the stormwater disposal design for the Otiahanga Estates area in accordance with design and plans included in the Awa/Cuttriss Technical Reports accompanying the application, including information provided by the Applicant in its s92 response ; written certification must be received prior to commencement of construction.
ST2	In the northern area, the consent holder shall ensure the discharge of stormwater from roofs into an appropriately designed/sized on-site soakage pit; discharge of stormwater from access road into swales, through an under-drain bio-filtration device prior to discharge to land as per the Awa preliminary design included in the Awa Technical Report accompanying the application.
ST3	In the southern area, the consent holder shall ensure discharge of stormwater from roofs, driveways and access road to be collected and conveyed using traditional curb and channel into the proposed controlled compensatory storage area (constructed wetland) located in Lot 200; modify the open channel adjacent to Otaihanga Road as part of the formalisation of the compensatory storage area; install a non-return valve as per the Awa preliminary design included in the Awa Technical Report accompanying the application.
ST4	The consent holder shall provide appropriate planting of constructed wetland area in Lot 200 to filter out potential contaminants from stormwater discharge in accordance with the Planting Plan provided in the Landscape & Visual Assessment Technical Report accompanying the application, prior to the vesting of Lot 200 with Council.
ST5	The consent holder shall install of an overflow pipe in the Otaihanga Road reserve adjacent to the NZTA property immediately east of the southern area of the site to allow discharge from that site of ponding caused in a 100-year flood event as shown in the Awa Technical Report accompanying the application.
ST6	The consent holder shall provide Council with a comprehensive Maintenance and Operations Manual for the stormwater disposal systems prior to vesting with Council.
ST7	Lot 200 shall be vested in Council as Local Purpose Reserve (stormwater).
ST8	Completion documentation, including operation and maintenance manuals, shall be submitted in support of an application for Section 224(c) certification in accordance with Part 1 of NZS 4404:2010 and Part 4, Schedule 1 of KCDC's SDPR:2012. The

	consent holder shall provide Council with an itemised schedule of quantities and costs, and the CCTV inspection reports, for those stormwater services and assets which are to be vest in Council.
--	--

Wastewater

Condition #	Suggested Condition (or similar)
WW1	Prior to the issue of Certificate of Titles for the proposed subdivision, the consent holder shall submit to Council's Development Engineer a concept plan showing the total development of the Otaihanga Estates and provide details of the likely population, flow requirements including factors for peaks and wet weather, and overall wastewater requirements.
WW2	Using the supplied information, the consent holder shall, at its cost, model the concept plan verifying the size of the mains and what, if any, rehabilitation works would be required in advance of Council's asset renewal programme. <i>Note: The applicant has provided a Wastewater Modelling Development Impact Assessment (prepared by Hydraulic Analysis Ltd; October 2017) as Appendix D to the Engineering Infrastructure Report accompanying the application. A revised report submitted to Council's Development Engineer for certification may be required once the detail design of the wastewater system has been certified by Council.</i>
WW3	Completion documentation, including operation and maintenance manuals, shall be submitted in support of an application for Section 224(c) certification in accordance with Part 1 of NZS 4404:2010 and Part 4, Schedule 1 of KCDC's SDPR:2012. The consent holder shall provide Council with an itemised schedule of quantities and costs, and the CCTV inspection reports, for those wastewater services and assets which are to be vest in Council.

Water

Condition #	Suggested Condition (or similar)
W1	Prior to the issue of Certificate of Titles for the proposed subdivision, the consent holder shall submit to Council's Development Engineer a concept plan showing the total development of the Otaihanga Estates and provide details of the likely population, requirements for peak water demand and fire flows, and overall water requirements.
W2	Using the supplied information, the consent holder shall, at its cost, model the concept plan verifying the size of the mains and what, if any, mitigation measures would be required on the existing water supply to meet the requirements of the proposed Otaihanga Estate. <i>Note: The applicant has provided a Water Supply Assessment (prepared by Stantec dated April 2021) as Appendix B to the Engineering Infrastructure Report accompanying the application. A revised report submitted to Council's Development Engineer for certification may be required once the detail design of the water supply system has been certified by Council.</i>
W3	Fire-fighting requirements shall comply with the New Zealand Fire Service Fire-fighting Water Supplies Code of Practice SNL 4509:2008.
W4	Completion documentation, including operation and maintenance manuals, shall be submitted in support of an application for Section 224(c) certification in accordance with Part 1 of NZS 4404:2010 and Part 4, Schedule 1 of KCDC's SDPR:2012. The consent holder shall provide Council with an itemised schedule of quantities and

	costs, and the CCTV inspection reports, for those water services and assets which are to be vest in Council.
--	--

Roading/Transport

Condition #	Suggested Condition (or similar)
R1	The consent holder shall ensure the access roads, layout and corridor design, and shared use path network is established in general accordance with the plans included in Appendix C of the application as Drawing Number 22208 SCH1. The final details of road design and construction shall be submitted to the Council's Development Engineer for certification in writing prior to the commencement of any construction.
R2	The consent holder shall provide a new intersection on Otaihanga Rd with a right turn bay providing access to southern area to comply with Austroads standards as shown in the scheme plans included in Appendix C of the application as Drawing Number 22208 SCH1. The final design of the new intersection is to be provided to the Council's Development Engineer for certification in writing prior to the commencement of any construction.
R3	The consent holder shall prepare a Construction Traffic Management Plan (CTMP) to cover such matters as: days and hours of construction traffic access; access to the site to avoid trucks queuing on Otaihanga Road; avoiding trucks passing on Tiekoo Street and the right of way; and wheel washing. The CTMP is to be provided to the Council's Development Engineer for certification in writing prior to the commencement of any construction.
R4	The consent holder will facilitate, in collaboration with Council's Roading Engineer, the trimming/removal of planting along Otaihanga Road at the Tiekoo Street intersection to meet Austroads sight line standards, prior to the completion of the subdivision and development.
R5	The consent holder shall ensure the provision and design of the shared use path meet the relevant CPTED standards for intended purpose and use of the facility where practicable.
R6	Lots 100 – 104 shall be vested in Council as road (Lots 100 and 101) and road widening (Lots 102 and 103).

Environmental

Condition #	Suggested Condition (or similar)
EN1	<p>The consent holder shall provide an on-site 1ha northern grass skink habitat area to be fenced and planted around northern most wetland (Lot 5) as shown in the scheme plans included in Appendix C of the application as Drawing Number 22208 SCH1. The consent holder shall prepare a Lizard Management Plan to meet any requirements of the Wildlife Act to establish the skink habitat area, and provide a copy to Council for information purposes.</p> <p><i>Note: The consent holder will need a Wildlife Act permit for the handling and translocation of northern grass skink, and the Lizard Management Plan will be required by that permit issued by the Department of Conservation.</i></p> <p><i>Refer to the Advice Note below that requires a covenant be placed on the Certificate of Title of Lot 5 that contains the proposed skink habitat.</i></p>

EN2	<p>The consent holder shall ensure natural wetlands are fenced to provide a 10m buffer (except where already fenced or the wetland and/or buffer area would exceed the site boundary); undertake weed pest control; undertake planting with appropriate wetland species (as per the Wildlands Report and Landscape Concept Plan accompanying the application), prior to the Certificate of Title being issued for a lot that includes a natural wetland.</p> <p><i>Note: refer to the Advice Note below that requires a covenant be placed on the Certificate of Title of any lot that include natural wetlands to ensure the long term management of the 10m buffer by the new lot owner.</i></p>
EN3	<p>The consent holder shall ensure the kānuka stands has pest plant management and underplanting within the groves undertaken prior to the Certificate of Title being issued for a lot that include kānuka stands.</p> <p><i>Note: refer to the Advice Note below that requires a covenant be placed on the Certificate of Title of any lot that include kānuka stands to ensure the long term management of the stands by the new lot owner.</i></p>
EN4	<p>The consent holder shall ensure all woody vegetation to be removed during construction is undertaken outside of the bird breeding season (September – March (if possible)).</p>
EN5	<p>The consent holder shall implement the Planting Plan included in the Landscape & Visual Assessment Technical Report accompanying the application, prior to the Certificate of Title being issued for lots identified as having amenity planting.</p>
EN6	<p>The consent holder shall implement the Landscape Concept Plan included in the Landscape & Visual Assessment Technical Report accompanying the application, prior to the Certificate of Title being issued for the subdivision.</p>

Term of Consent

Under Section 125 of the Resource Management Act 1991, this resource consent lapses 10 years after the date of commencement of consent.

Advice Note

- Under Section 125 of the Resource Management Act 1991, this resource consent will lapse in five years, unless it is given effect to within that time.
- The consent holder is required to place a covenant on the Certificate of Titles to control the following matters:
 - Roof and paint materials – to restrict the use of zinc or copper roofing materials; lead paints on Lots 1 - 22.
 - No build areas/no land disturbance areas/geotechnical setback requirements – to restrict any buildings/land disturbance on dunes and ridgelines in Lots 6 – 11; 18; 21 – 22; 25 – 30; and 47 - 49 shown on Sheet 8 of the Scheme Plans 22208 SCH1 included in Appendix C of the AEE are adhered to.
 - Proposed Fill Area (unsuitable material) – to restrict any buildings/land disturbance within the areas identified on Lots 11, 12 and 30 shown in Sheet 3 of the Scheme Plans 22208 SCH1 included in Appendix C of the AEE.
 - Kānuka stands – to ensure existing kānuka stands shown in Lots 1 – 2; 5; and 20 on Sheet 3 of the Scheme Plans 22208 SCH1 included in Appendix C of the AEE are protected.

- Wetland Buffer Areas – to restrict the following activities within the 10m fenced buffer areas around natural wetlands shown in Lots 1; 5; 14 – 18; and 20 on Sheet 3 of the Scheme Plans 22208 SCH1 included in Appendix C of the AEE:
 - the placement of rubbish or green waste;
 - the construction of any building or structure;
 - the removal of any indigenous vegetation and/or planting of any exotic vegetation.
- Proposed Lizard Habitat – to require the on-going protection of the 1ha area for the northern grass skink around the northern most natural wetland area (Lot 5).
- Fencing – to require fencing types within identified areas to meet the specifications in accordance with Landscape Concept Plan included in Appendix D of the AEE to ensure open space character is retained.
- Building Platforms – to require the building platforms on Lots 6 and 7 to be elevated to be within the freeboard water surface level.

DRAFT

Taiao Ahiawa

RE: Otaihanga Estates Update

Mansell Subdivision 20 July 2021 at 2:47 PM

[Details](#)



To: Chris Hansen, Cc: Madie Davy, Phernne Tancock, Richard Mansell, Rawhiti Higgott

Tēnā koe Chris,

I hope you've been keeping well.

Thank you for the material sent in two emails in response to our recommendations. It's promising to see the progress that has been made with the development.

I have reviewed the response letter and all the attached material it references.

Thank you for considering and responding to our recommendations. I am satisfied that this addresses all our concerns adequately.

You have asked for direction as to how the identity of Ātiawa can be reflected through the development and to that end I have copied in Ra Higgot. He is a Trustee of our Board, and also the key kaumatua that provides direction for developments on naming, cultural history and the like. Can I ask that you get in touch with him directly to meet, perhaps on site as suggested, with a most up to date copy of the subdivision plan and he can provide whatever guidance he thinks is necessary. I note that there is the intention for a small park in the development, so without pre-empting any decisions, Ra may provide advice on naming in reference to the history of the area. Please ensure that you are able to reimburse him for any time or travel. I will also leave it to him to advise whether karakia should take place on site noting you've acknowledged you can provide us the opportunity for that if it's deemed necessary.

Uncle Ra, from my look at it, the subdivision sits just south of Kaiwarehou, to give you some context. Also in terms of the archaeological test-pitting, a grindstone was found in an otherwise quiet site.

Please let me know if there is any further information you need from us, I am assuming this email will suffice to attach to your resource consent.

Ngā mihi

Dr. Mahina-a-rangi Baker
Pou Takawaenga Taiao
Environmental Manager
Ātiawa ki Whakarongotai Charitable Trust

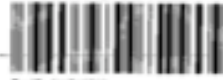


ĀTIAWA KI WHAKARONGOTAI



CONO B663195.2 Consent

Copy - 01/01.Pgs - 002.27002/06.17.34



DocId: 41164310

KAPITI COAST DISTRICT COUNCIL
CONSENT NOTICE PURSUANT TO SECTION 221
OF THE RESOURCE MANAGEMENT ACT 1991
FOR THE DEPOSIT OF LAND TRANSFER PLAN 84524
THE SUBDIVISION OF LOT 1 DP 77969 & PART LOT 3 DP 57614,
OTAIHANGA ROAD, PARAPARAUMU
FOR B & M R MANSELL.

The District Land Registrar at Wellington

PURSUANT to Section 221 of the Resource Management Act 1991 the Kapiti Coast District Council hereby gives notice that it has consented to the subdivision and the following condition is to be complied with on a continuing basis:

1. On site effluent disposal for Lots 2, 3 and 4 shall be in accordance with Wellington Regional Council Discharges to Land Plan, Rule 7 and Appendix 6, and shall also comply with the recommendations contained in the report prepared by Base Consulting Engineers Limited dated 14 July 1997 which was submitted with application No. RM950191 and is held at Council.

~~Owners shall be responsible for the ongoing maintenance and monitoring of the effluent disposal system in accordance with the systems maintenance specifications.~~

2. A portion of Lot 1 is subject to the Sandhills Motorway designation. Access to the dwelling within this allotment may have to be altered as a result of the construction of the motorway.

Dated this 17th day of December 1997.


AUTHORISED OFFICER


AUTHORISED OFFICER

✓

COMD

12.34 29.APR98 B 663195.2

ARTICULARS ENTERED
AND REGISTERED WELL

ASST. LAB. DIR. CI. 75



27A/770

446/377



LOCAL GOVERNMENT ACT 1974
FOR THE DEPOSIT OF LAND TRANSFER PLAN 303764
BEING THE SUBDIVISION OF LOTS 1 AND 2 DP 82494
117 OTAIHANGA ROAD, PARAPARAUMU
FOR W E & D M LATTEY AND B & M R MANSELL

To: The District Land Registrar at Wellington

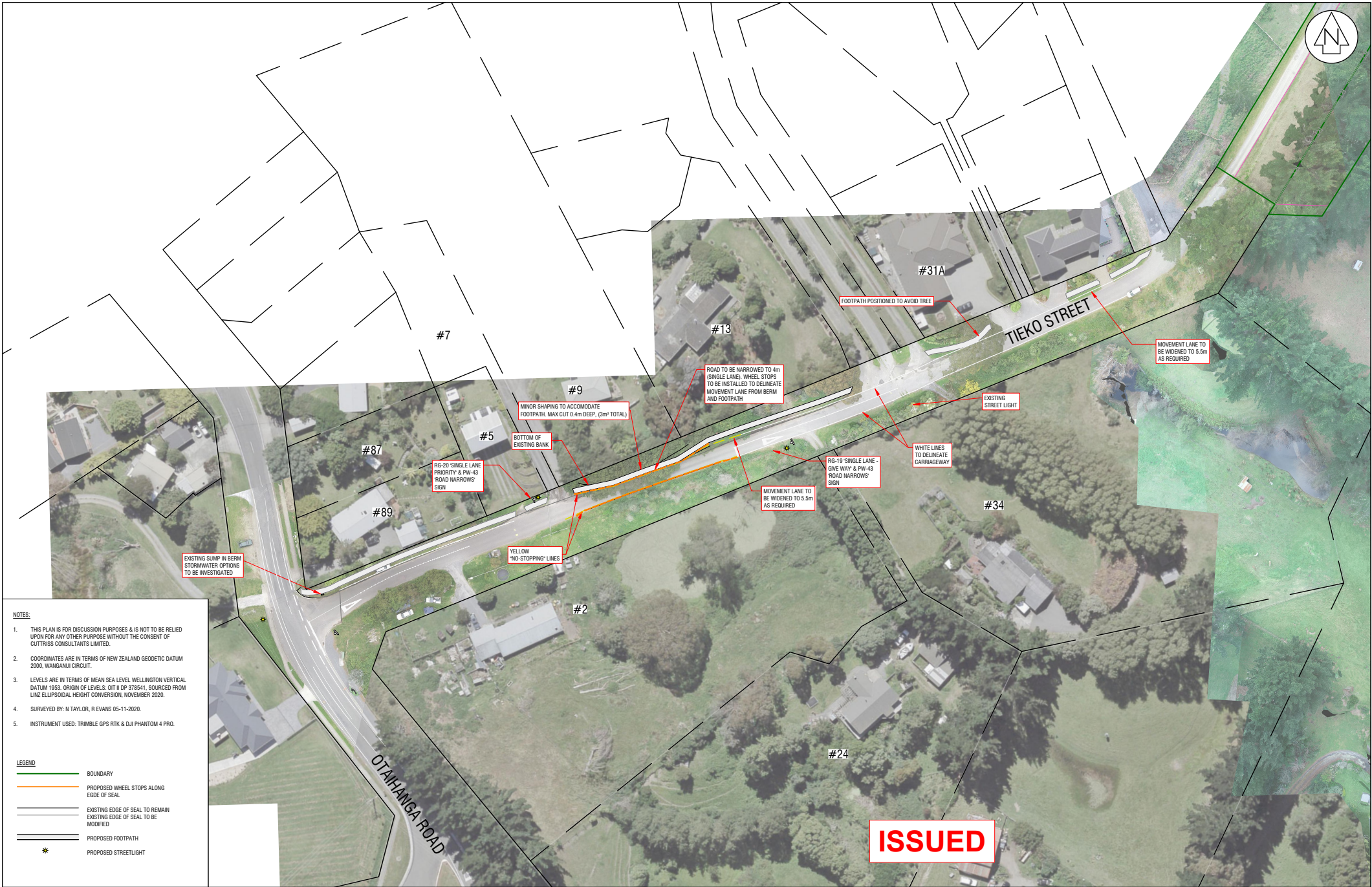
RESOLVED:

It is hereby resolved by the Kapiti Coast District Council pursuant to the provisions of Section 321(3)(c) of the Local Government Act 1974 that Lot 3 Land Transfer Plan 303764 is permitted to be without frontage to a public road on the grounds that adequate access to that allotment is provided for over other land pursuant to easements of right of way running with the land and on that ground subsection 1 of section 321 shall not apply.

Issued in respect of application No. RM 010157 at Paraparaumu this 20th day of June 2002.


AUTHORISED OFFICER


AUTHORISED OFFICER



- NOTES:**
- THIS PLAN IS FOR DISCUSSION PURPOSES AND IS NOT TO BE RELIED UPON FOR ANY OTHER PURPOSE WITHOUT THE CONSENT OF CUTTRISS CONSULTANTS LIMITED.
 - COORDINATES ARE IN TERMS OF NEW ZEALAND GEODETIC DATUM 2000, WANGANUI CIRCUIT.
 - LEVELS ARE IN TERMS OF MEAN SEA LEVEL WELLINGTON VERTICAL DATUM 1953. ORIGIN OF LEVELS: OTI II DP 378541. SOURCED FROM LINZ ELLIPSOIDAL HEIGHT CONVERSION, NOVEMBER 2020.
 - SURVEYED BY: N TAYLOR, R EVANS 05-11-2020.
 - INSTRUMENT USED: TRIMBLE GPS RTK & DJI PHANTOM 4 PRO.

LEGEND

	BOUNDARY
	PROPOSED WHEEL STOPS ALONG EDGE OF SEAL
	EXISTING EDGE OF SEAL TO REMAIN
	EXISTING EDGE OF SEAL TO BE MODIFIED
	PROPOSED FOOTPATH
	PROPOSED STREETLIGHT

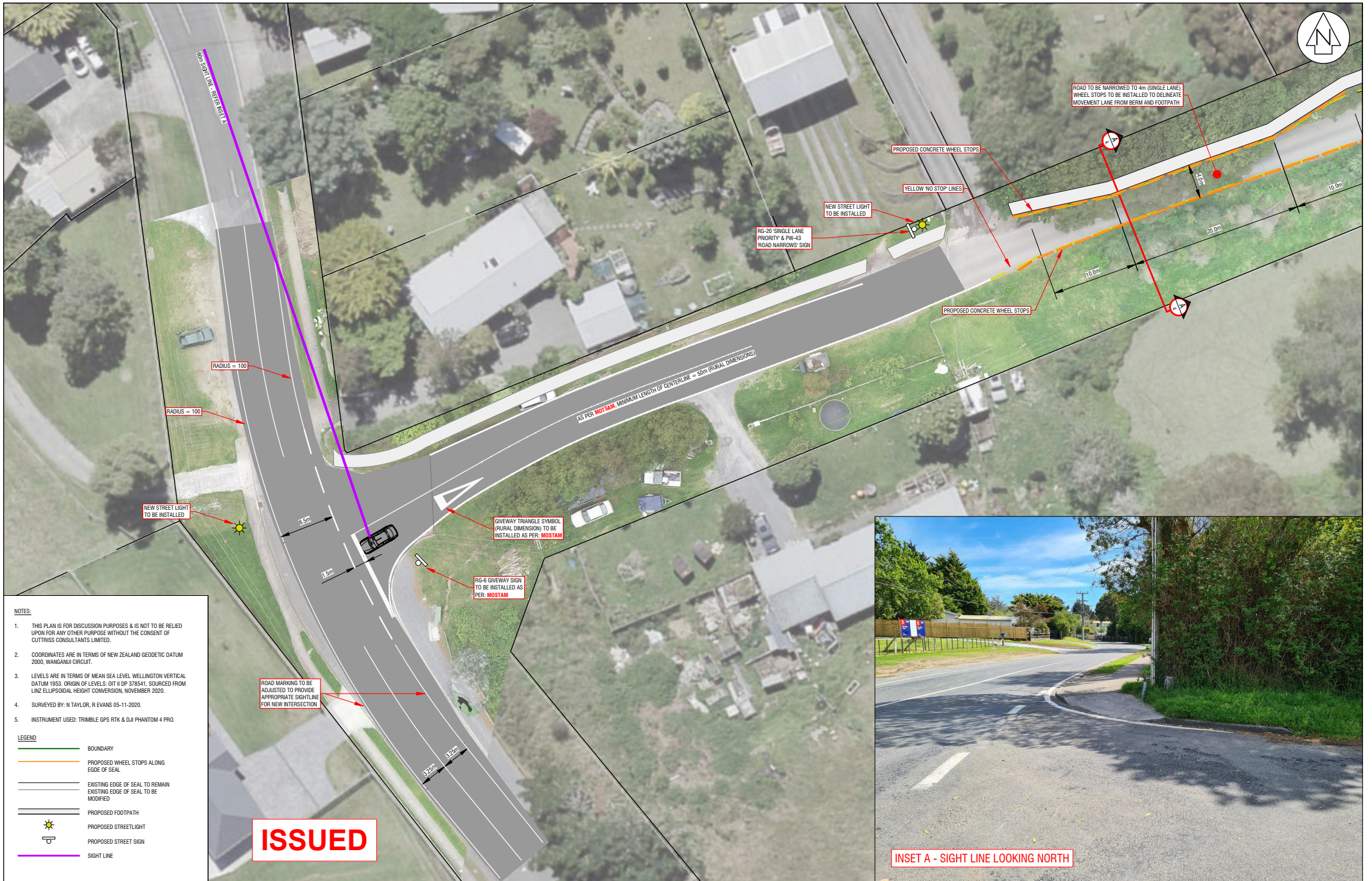
ISSUED



PROJECT: **TIEKO STREET UPGRADE OVERVIEW**

CLIENT: **MANSELL**

REVISION DETAILS		NAME	DATE	SCALE A1 1:500		REDUCED SCALE A3- 1:1000	
A	CROSS SECTION ADDED	NHT	08-21				
B	ROAD MARKING DETAIL ADDED	NHT	08-21				
				FIELDWORK	NKT	08/20	DRAWING NUMBER 22208 SK3
				DESIGNED	TWC	11/20	
				DRAWN	TWC	11/20	
				CHECKED	NKT	11/20	
				SHEET	1	OF 4	SHEETS
				REVISION			B



- NOTES:**
- THIS PLAN IS FOR DISCUSSION PURPOSES & IS NOT TO BE RELED UPON FOR ANY OTHER PURPOSE WITHOUT THE CONSENT OF CUTTRISS CONSULTANTS LIMITED.
 - COORDINATES ARE IN TERMS OF NEW ZEALAND GEODETIC DATUM 2000, WANGANUI CIRCUIT.
 - LEVELS ARE IN TERMS OF MEAN SEA LEVEL WELLINGTON VERTICAL DATUM 1953. ORIGIN OF LEVELS: OTI II DP 378541, SOURCED FROM LINZ ELLIPSOIDAL HEIGHT CONVERSION, NOVEMBER 2020.
 - SURVEYED BY: N TAYLOR, R EVANS 05-11-2020.
 - INSTRUMENT USED: TRIMBLE GPS RTK & DJI PHANTOM 4 PRO.

LEGEND

	BOUNDARY
	PROPOSED WHEEL STOPS ALONG EDGE OF SEAL
	EXISTING EDGE OF SEAL TO REMAIN
	EXISTING EDGE OF SEAL TO BE MODIFIED
	PROPOSED FOOTPATH
	PROPOSED STREETLIGHT
	PROPOSED STREET SIGN
	SIGHT LINE

ISSUED



INSET A - SIGHT LINE LOOKING NORTH

REVISION DETAILS		NAME	DATE	REDUCED SCALE	
A	CROSS SECTION ADDED	NHT	08-21	A1	1:500
B	ROAD MARKING DETAIL ADDED	NHT	08-21	A3	1:1000
				FIELDWORK	NHT 08/20
				DESIGNED	TWC 11/20
				DRAWN	TWC 11/20
				CHECKED	NHT 11/20
				DRAWING NUMBER	
				22208 SK3	
				SHEET 2 OF 4 SHEETS	
				REVISION B	



ISSUED

- NOTES:**
1. THIS PLAN IS FOR DISCUSSION PURPOSES & IS NOT TO BE RELIED UPON FOR ANY OTHER PURPOSE WITHOUT THE CONSENT OF CUTTRISS CONSULTANTS LIMITED.
 2. COORDINATES ARE IN TERMS OF NEW ZEALAND GEODETIC DATUM 2000, WANGANUI CIRCUIT.
 3. LEVELS ARE IN TERMS OF MEAN SEA LEVEL WELLINGTON VERTICAL DATUM 1952. ORIGIN OF LEVELS: OF 1 DP 376541. SOURCED FROM LINZ ELLIPSOIDAL HEIGHT CONVERSION, NOVEMBER 2020.
 4. SURVEYED BY: N TAYLOR, R EVANS 05-11-2020.
 5. INSTRUMENT USED: TRIMBLE GPS RTK & DJI PHANTOM 4 PRO.

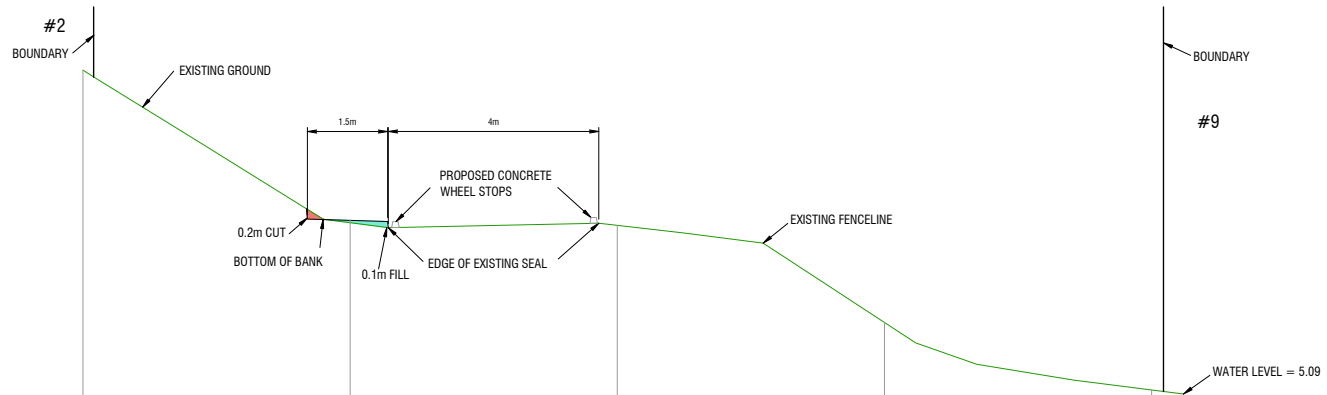
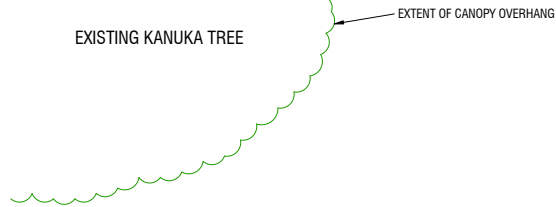
LEGEND

	BOUNDARY
	PROPOSED WHEEL STOPS ALONG EDGE OF SEAL
	EXISTING EDGE OF SEAL TO REMAIN
	EXISTING EDGE OF SEAL TO BE MODIFIED
	PROPOSED FOOTPATH
	PROPOSED STREETLIGHT
	PROPOSED STREET SIGN

REVISION DETAILS		NAME	DATE
A	CROSS SECTION ADDED	NHT	08-21
B	ROAD MARKING DETAIL ADDED	NHT	08-21

SCALE	A1 1:100	REDUCED SCALE	A3- 1:200
FIELDWORK	NKT	DATE	08/20
DESIGNED	TWC	DATE	11/20
DRAWN	TWC	DATE	11/20
CHECKED	NKT	DATE	11/20

DRAWING NUMBER		22208 SK3
SHEET	3	OF 4 SHEETS
REVISION		B



A
2 CROSS SECTION AA DATUM = 4

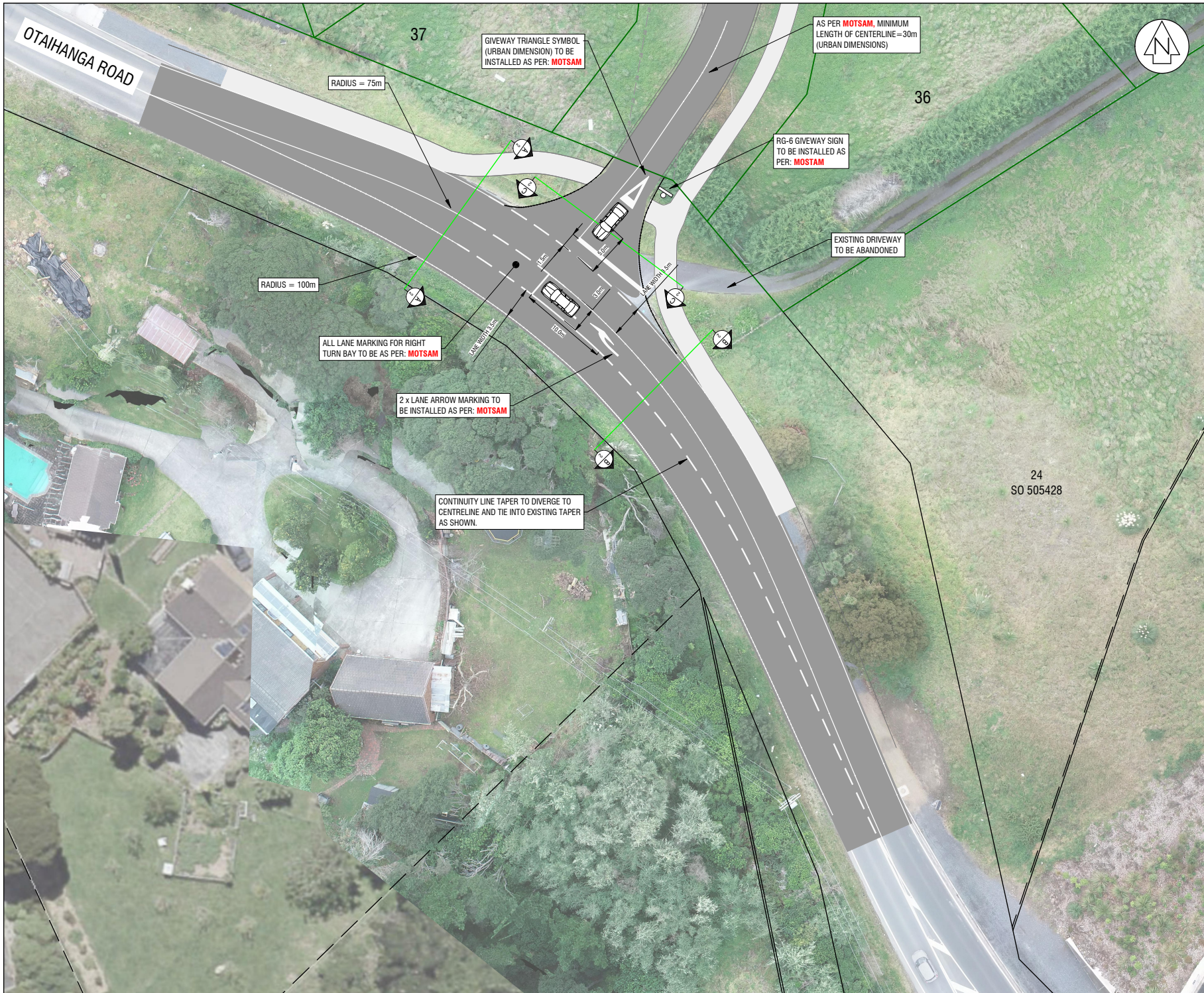
DESIGN LEVEL		8.34			
GROUND LEVEL	11.15	8.3	8.25	6.43	5.17
CHAINAGE	0	5	10	15	20

NOTES:

1. THIS PLAN IS FOR DISCUSSION PURPOSES & IS NOT TO BE RELIED UPON FOR ANY OTHER PURPOSE WITHOUT THE CONSENT OF CUTTRISS CONSULTANTS LIMITED.
2. COORDINATES ARE IN TERMS OF NEW ZEALAND GEODETIC DATUM 2000, WANGANUI CIRCUIT.
3. LEVELS ARE IN TERMS OF MEAN SEA LEVEL WELLINGTON VERTICAL DATUM 1953. ORIGIN OF LEVELS: OIT II DP 376541, SOURCED FROM LINZ ELLIPSOIDAL HEIGHT CONVERSION, NOVEMBER 2020.
4. SURVEYED BY: N TAYLOR, R EVANS 05-11-2020.
5. INSTRUMENT USED: TRIMBLE GPS RTK & DJI PHANTOM 4 PRO.

ISSUED

REVISION DETAILS		NAME	DATE	SCALE		REDUCED SCALE	
A	CROSS SECTION ADDED	NHT	08-21	A1	1:50	A3	1:100
B	ROAD MARKING DETAIL ADDED	NHT	08-21			DRAWING NUMBER	
		NAME	DATE	22208 SK3			
		DESIGNED	TWC	11/20	SHEET 4 OF 4 SHEETS		
		DRAWN	TWC	11/20	REVISION		
		CHECKED	NKT	11/20	B		



REVISION DETAILS			NAME	DATE
A	INCREASED SIGHT LINE DISTANCE ADDED		JLG	08/21

- NOTES:
- THIS PLAN DEFINES THE TOPOGRAPHICAL NATURE & FEATURES OF THE SITE FOR DISCUSSION PURPOSES & IS NOT TO BE RELIED UPON FOR ANY OTHER PURPOSE WITHOUT THE CONSENT OF CUTTRISS CONSULTANTS LIMITED
 - DIMENSIONS AND AREAS SHOWN ON THIS PLAN WILL BE SUBJECT TO FINAL LAND TRANSFER SURVEY AND DETAILED ENGINEERING DESIGN.
 - COORDINATES ARE IN TERMS OF NEW ZEALAND GEODETIC 2000 DATUM, WANGANUI CIRCUIT.
 - LEVELS ARE IN TERMS OF MEAN SEA LEVEL WELLINGTON VERTICAL DATUM 1953. ORIGIN OF LEVELS: OIT # DP 82978 RL 5.806, ELLIPSOIDAL HEIGHT CONVERSION: 18 JULY 2019
 - NOT ALL INTERESTS ON THE RECORD OF TITLE MAY BE SHOWN ON THIS PLAN, AND SHOULD BE INVESTIGATED FURTHER
 - SERVICES HAVE BEEN LOCATED ON SITE WHERE POSSIBLE, OTHERWISE SHOWN FROM KDCDC RECORDS, AND SHOULD BE VERIFIED ON SITE
 - BOUNDARY INFORMATION HAS BEEN SOURCED FROM INFORMATION PROVIDED BY LINZ XMI, & HAS NOT BEEN VERIFIED ON SITE
 - ALL ELECTRONIC CAD DATA MUST BE READ IN CONJUNCTION WITH THESE NOTES

LEGEND

	BOUNDARY
	EASEMENT
	SIGHTLINES - TURNING OUT

ISSUED

Cuttriss
 Surveyors. Engineers. Planners.
www.cuttriss.co.nz
 Copyright Cuttriss Consultants Limited

CLIENT
MANSELL

PROJECT
PROPOSED SUBDIVISION
 PT LOT 6 DP 53191, LOTS 2-4 & PT LOT 5 DP 84524, PT LOTS 1 & 2 DP 303764, SECS 5, 7 & 12 SO 404971, SECS 25, 27 & 31 SO 505428, 131-155 OTAIHANGA RD & 48-58 TIEKO ST,

INTERSECTION DETAILS

SCALE A1 - 1:200	REDUCED SCALE A3 - 1:400
FIELDWORK NHT 07/19	DRAWING NUMBER 22208 SK5
DESIGNED NHT 11/20	SHEET 1 OF 3 SHEETS
DRAWN JLG 08/21	REVISION
CHECKED NHT 08/21	A



REVISION DETAILS			NAME	DATE
A	INCREASED SIGHT LINE DISTANCE ADDED		JLG	08/21

- NOTES:
- THIS PLAN DEFINES THE TOPOGRAPHICAL NATURE & FEATURES OF THE SITE FOR DISCUSSION PURPOSES & IS NOT TO BE RELIED UPON FOR ANY OTHER PURPOSE WITHOUT THE CONSENT OF CUTTRISS CONSULTANTS LIMITED
 - DIMENSIONS AND AREAS SHOWN ON THIS PLAN WILL BE SUBJECT TO FINAL LAND TRANSFER SURVEY AND DETAILED ENGINEERING DESIGN.
 - COORDINATES ARE IN TERMS OF NEW ZEALAND GEODETIC 2000 DATUM, WANGANUI CIRCUIT.
 - LEVELS ARE IN TERMS OF MEAN SEA LEVEL WELLINGTON VERTICAL DATUM 1953. ORIGIN OF LEVELS: OTI # DP 82978 RL 5.806, ELLIPSOIDAL HEIGHT CONVERSION, 16 JULY 2019
 - NOT ALL INTERESTS ON THE RECORD OF TITLE MAY BE SHOWN ON THIS PLAN, AND SHOULD BE INVESTIGATED FURTHER
 - SERVICES HAVE BEEN LOCATED ON SITE WHERE POSSIBLE, OTHERWISE SHOWN FROM KCCDC RECORDS, AND SHOULD BE VERIFIED ON SITE
 - BOUNDARY INFORMATION HAS BEEN SOURCED FROM INFORMATION PROVIDED BY LINZ XML & HAS NOT BEEN VERIFIED ON SITE
 - ALL ELECTRONIC CAD DATA MUST BE READ IN CONJUNCTION WITH THESE NOTES

LEGEND

	BOUNDARY
	EASEMENT
	SIGHTLINES - TURNING OUT

ISSUED

Cuttriss
 Surveyors. Engineers. Planners.

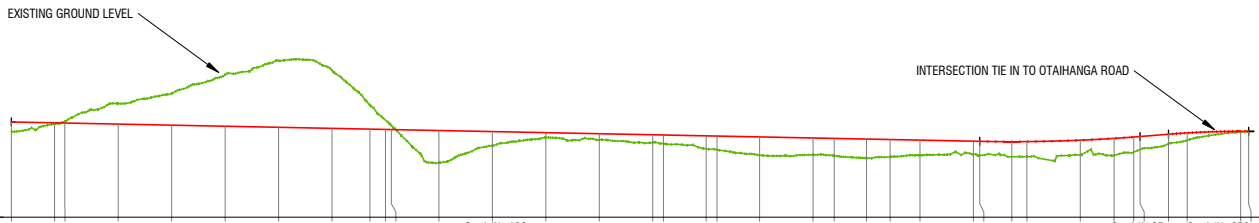
www.cuttriss.co.nz
 Copyright Cuttriss Consultants Limited

CLIENT
MANSELL

PROJECT
PROPOSED SUBDIVISION
 PT LOT 6 DP 53191, LOTS 2-4 & PT LOT 5 DP 84524, PT LOTS 1 & 2 DP 303764, SECS 5, 7 & 12 SO 404971, SECS 25, 27 & 31 SO 505428
 131-155 OTAIHANGA RD & 48-58 TIEKO ST,

OTAIHANGA RD SIGHT LINES

SCALE A1 - 1:400		REDUCED SCALE A3 - 1:800	
FIELDWORK	NHT	DATE	07/19
DESIGNED	NHT	DATE	11/20
DRAWN	JLG	DATE	08/21
CHECKED	NHT	DATE	08/21
DRAWING NUMBER 22208 SK5		SHEET 2 OF 3 SHEETS	
REVISION			A



DATUM RL = 1.5

VERTICAL GEOMETRY	G=1 IN -100																				G=1 IN 25		G=1 IN -250											
HORIZONTAL GEOMETRY	L=8.1m				R=100m				L=4m				R=45m				L=10m				R=35m				L=10.5m		L=30.0m		L=15.0m					
EXISTING GROUND LEVELS	9.49	10.26	10.26	12.13	13.08	14.83	16.15	15.24	11.98	10.58	6.59	8.18	8.96	8.73	8.49	8.38	7.89	7.81	7.30	7.33	7.26	7.03	7.14	7.29	7.32	7.29	7.59	7.79	7.59	7.83	8.36	8.70	8.67	8.52
CUT OR FILL DEPTHS	0.92	0.15	0.15	-1.93	-2.97	-4.82	-6.24	-5.43	-2.25	-0.87	3.02	1.32	0.45	0.58	0.72	0.81	1.22	1.28	1.71	1.58	1.61	1.78	1.62	1.42	1.38	1.59	1.41	1.21	0.90	0.36	0.69	0.06	0.55	
DESIGN CENTRELINE LEVELS	10.41	10.33	10.33	10.21	10.11	10.01	9.91	9.81	9.74	9.71	9.61	9.51	9.41	9.31	9.21	9.19	9.11	9.09	9.01	8.91	8.87	8.81	8.71	8.71	8.70	8.70	8.67	8.60	8.57	8.57	8.57	8.57	8.57	8.57
CHAINAGES (DESIGN CENTRELINE)	0.00	9.09	18.00	27.00	36.00	45.00	54.00	63.00	72.00	81.00	90.00	99.00	108.00	117.00	126.00	135.00	144.00	153.00	162.00	171.00	180.00	189.00	198.00	207.00	216.00	225.00	234.00	243.00	252.00	261.00	270.00	279.00	288.00	

ROADING LONGSECTION
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:250

ISSUED

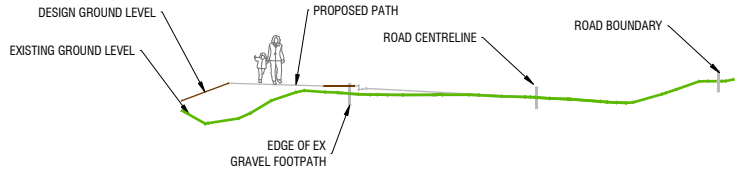
Cuttriss
Surveyors. Engineers. Planners.
www.cuttriss.co.nz
Copyright Cuttriss Consultants Limited

CLIENT
MANSELL

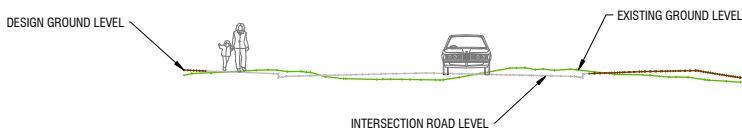
PROJECT
PROPOSED SUBDIVISION
PT LOT 6 DP 53191, LOTS 2-4 & PT LOT 5 DP 84524, PT LOTS 1 & 2 DP 303764, SECS 5, 7 & 12 SO 404971, SECS 25, 27 & 31 SO 505428
131-155 OTAIHANGA RD & 48-58 TIEKO ST,

ROAD LONG SECTION & CROSS SECTIONS

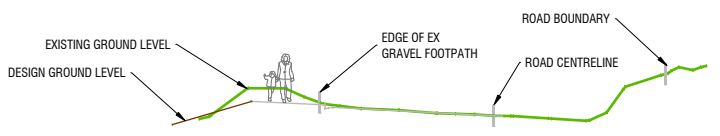
SCALE A1 - AS SHOWN		REDUCED SCALE A3 - AS SHOWN	
FIELDWORK	NHT	DATE	07/19
DESIGNED	NHT	DATE	11/20
DRAWN	JLG	DATE	08/21
CHECKED	NHT	DATE	08/21
DRAWING NUMBER 22208 SK5			SHEET 3 OF 3 SHEETS
REVISION			A



CROSS SECTION A
SCALE 1:100



CROSS SECTION C
SCALE 1:100

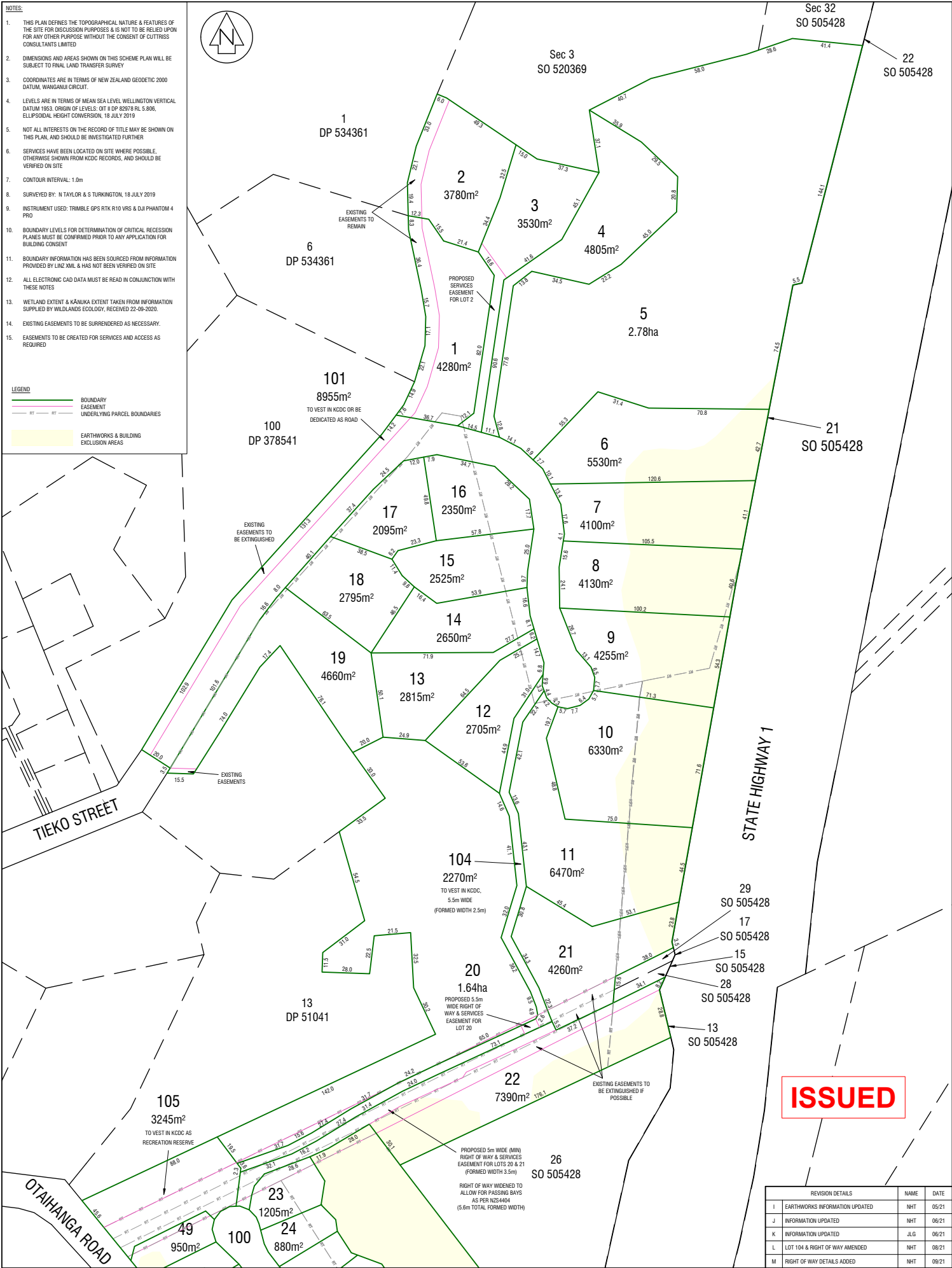


CROSS SECTION B
SCALE 1:100

- NOTES:**
- THIS PLAN DEFINES THE TOPOGRAPHICAL NATURE & FEATURES OF THE SITE FOR DISCUSSION PURPOSES & IS NOT TO BE RELIED UPON FOR ANY OTHER PURPOSE WITHOUT THE CONSENT OF CUTTRISS CONSULTANTS LIMITED
 - DIMENSIONS AND AREAS SHOWN ON THIS SCHEME PLAN WILL BE SUBJECT TO FINAL LAND TRANSFER SURVEY
 - COORDINATES ARE IN TERMS OF NEW ZEALAND GEODETIC 2000 DATUM, WANGANUI CIRCUIT.
 - LEVELS ARE IN TERMS OF MEAN SEA LEVEL WELLINGTON VERTICAL DATUM 1953. ORIGIN OF LEVELS: OT DP 82978 RL 5.806, ELLIPSOIDAL HEIGHT CONVERSION, 18 JULY 2019
 - NOT ALL INTERESTS ON THE RECORD OF TITLE MAY BE SHOWN ON THIS PLAN, AND SHOULD BE INVESTIGATED FURTHER
 - SERVICES HAVE BEEN LOCATED ON SITE WHERE POSSIBLE, OTHERWISE SHOWN FROM KDCDC RECORDS, AND SHOULD BE VERIFIED ON SITE
 - CONTOUR INTERVAL: 1.0m
 - SURVEYED BY: N TAYLOR & S TURKINGTON, 18 JULY 2019
 - INSTRUMENT USED: TRIMBLE GPS RTK R10 VRS & DJI PHANTOM 4 PRO
 - BOUNDARY LEVELS FOR DETERMINATION OF CRITICAL RECEPTION PLACES MUST BE CONFIRMED PRIOR TO ANY APPLICATION FOR BUILDING CONSENT
 - BOUNDARY INFORMATION HAS BEEN SOURCED FROM INFORMATION PROVIDED BY LINZ XML & HAS NOT BEEN VERIFIED ON SITE
 - ALL ELECTRONIC CAD DATA MUST BE READ IN CONJUNCTION WITH THESE NOTES
 - WETLAND EXTENT & KAIHUKA EXTENT TAKEN FROM INFORMATION SUPPLIED BY WILDLANDS ECOLOGY, RECEIVED 22-09-2020.
 - EXISTING EASEMENTS TO BE SURRENDERED AS NECESSARY.
 - EASEMENTS TO BE CREATED FOR SERVICES AND ACCESS AS REQUIRED



- LEGEND**
- BOUNDARY EASEMENT
 - UNDERLYING PARCEL BOUNDARIES
 - EARTHWORKS & BUILDING EXCLUSION AREAS



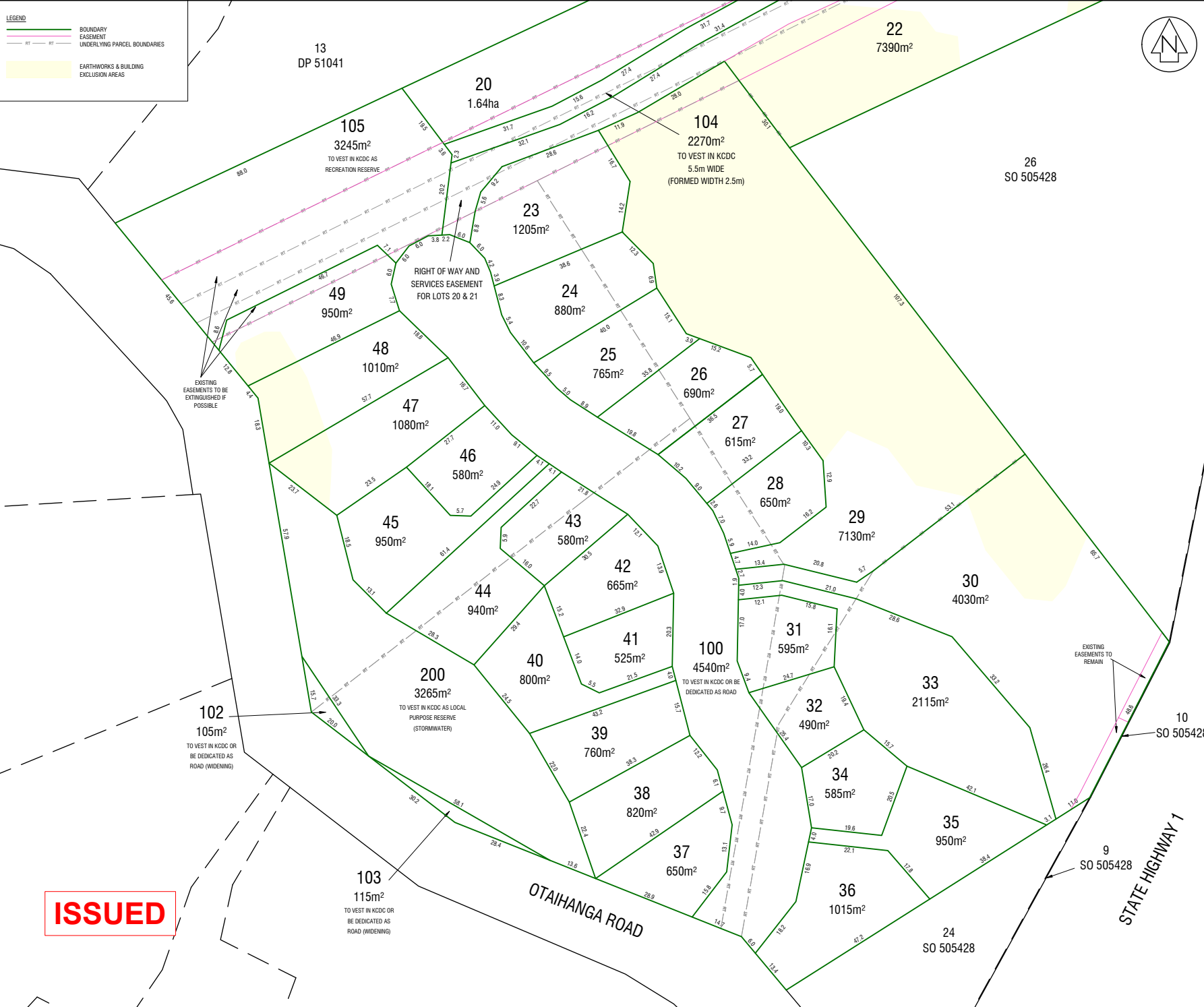
ISSUED

REVISION DETAILS		NAME	DATE
I	EARTHWORKS INFORMATION UPDATED	NHT	05/21
J	INFORMATION UPDATED	NHT	06/21
K	INFORMATION UPDATED	JLG	06/21
L	LOT 104 & RIGHT OF WAY AMENDED	NHT	08/21
M	RIGHT OF WAY DETAILS ADDED	NHT	09/21

SCALE	A1 1:1000	REDUCED SCALE	AS 1:2000
PROJECT		DRAWING NUMBER	
PT LOT 6 DP 53191, LOTS 2-4 & PT LOT 5 DP 84524, PT LOTS 1 & 2 DP 303764, SECS 5, 7 & 12 SO 404971, SECS 25, 27 & 31 SO 505428, 131-155 OTAIHANGA RD & 48-58 TIEKO ST, OTAIHANGA		22208 SCH1	
CLIENT		SHEET	
MANSELL		8 of 13 SHEETS	
		REVISION	
		M	

Cuttriss
 Surveyors. Engineers. Planners.
 www.cuttriss.co.nz

PROJECT
 PROPOSED SUBDIVISION
 PT LOT 6 DP 53191, LOTS 2-4 & PT LOT 5 DP 84524, PT LOTS 1 & 2 DP 303764, SECS 5, 7 & 12 SO 404971, SECS 25, 27 & 31 SO 505428, 131-155 OTAIHANGA RD & 48-58 TIEKO ST, OTAIHANGA
 SCHEME PLAN - LEGAL
 CLIENT
 MANSELL



REVISION DETAILS		NAME	DATE
I	EARTHWORKS INFORMATION UPDATED	NHT	05/21
J	INFORMATION UPDATED	NHT	06/21
K	INFORMATION UPDATED	JLG	06/21
L	LOT 104 & RIGHT OF WAY AMENDED	NHT	08/21
M	RIGHT OF WAY DETAILS ADDED	NHT	09/21

- NOTES:
- THIS PLAN DERMES THE TOPOGRAPHICAL NATURE & FEATURES OF THE SITE FOR DISCUSSION PURPOSES & IS NOT TO BE RELIED UPON FOR ANY OTHER PURPOSE WITHOUT THE CONSENT OF CUTTRISS CONSULTANTS LIMITED
 - DIMENSIONS AND AREAS SHOWN ON THIS SCHEME PLAN WILL BE SUBJECT TO FINAL LAND TRANSFER SURVEY
 - COORDINATES ARE IN TERMS OF NEW ZEALAND GEODETIC 2000 DATUM, WANGANUI CIRCUIT.
 - LEVELS ARE IN TERMS OF MEAN SEA LEVEL, WELLINGTON VERTICAL DATUM 1953. ORIGIN OF LEVELS: OT II DP 82978 RL 5.806. ELLIPSOIDAL HEIGHT CONVERSION, 18 JULY 2019
 - NOT ALL INTERESTS ON THE RECORD OF TITLE MAY BE SHOWN ON THIS PLAN, AND SHOULD BE INVESTIGATED FURTHER
 - SERVICES HAVE BEEN LOCATED ON SITE WHERE POSSIBLE. OTHERWISE SHOWN FROM KCDC RECORDS, AND SHOULD BE VERIFIED ON SITE
 - CONTOUR INTERVAL: 1.0m
 - SURVEYED BY: N TAYLOR & S TURKINGTON, 18 JULY 2019
 - INSTRUMENT USED: TRIMBLE GPS RTK R10 VRS & DJI PHANTOM 4 PRO
 - BOUNDARY LEVELS FOR DETERMINATION OF CRITICAL RECESION PLANES MUST BE CONFIRMED PRIOR TO ANY APPLICATION FOR BUILDING CONSENT
 - BOUNDARY INFORMATION HAS BEEN SOURCED FROM INFORMATION PROVIDED BY LINZ XML & HAS NOT BEEN VERIFIED ON SITE
 - ALL ELECTRONIC CAD DATA MUST BE READ IN CONJUNCTION WITH THESE NOTES
 - WETLAND EXTENT & KANUKA EXTENT TAKEN FROM INFORMATION SUPPLIED BY WILDLANDS ECOLOGY, RECEIVED 22-09-2020.
 - EXISTING EASEMENTS TO BE SURRENDERED AS NECESSARY.
 - EASEMENTS TO BE CREATED FOR SERVICES AND ACCESS AS REQUIRED

Cuttriss
 Surveyors. Engineers. Planners.
www.cuttriss.co.nz
 Copyright Cuttriss Consultants Limited

CLIENT
MANSELL

PROJECT
PROPOSED SUBDIVISION
 PT LOT 6 DP 53191, LOTS 2-4 & PT LOT 5 DP 84524, PT LOTS 1 & 2 DP 303764, SECS 5, 7 & 12 SO 404971, SECS 25, 27 & 31 SO 505428
 131-155 OTAIHANGA RD & 48-58 TIEKO ST, OTAIHANGA

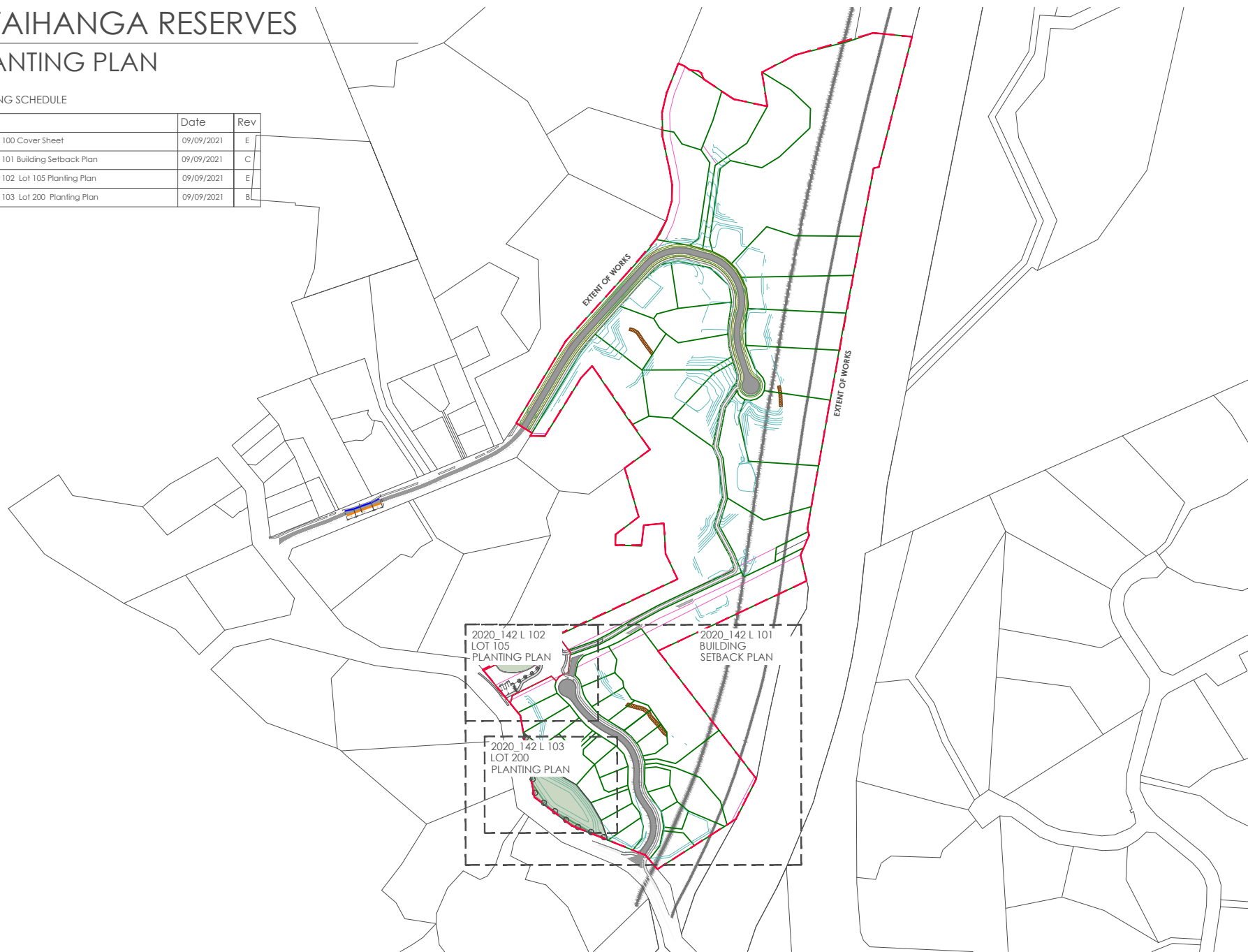
SCHEME PLAN LEGAL

SCALE A1 - 1:500	REDUCED SCALE A3 - 1:1000
FIELDWORK NHT 07/19	DRAWING NUMBER 22208 SCH
DESIGNED NHT 11/20	SHEET 9 OF 13 SHEETS
DRAWN NHT 11/20	REVISION M
CHECKED NKT 11/20	

OTAIHANGA RESERVES PLANTING PLAN

DRAWING SCHEDULE

Sheet	Date	Rev
2020_142 L 100 Cover Sheet	09/09/2021	E
2020_142 L 101 Building Setback Plan	09/09/2021	C
2020_142 L 102 Lot 105 Planting Plan	09/09/2021	E
2020_142 L 103 Lot 200 Planting Plan	09/09/2021	BL



legend:

rev no.	date	description	approved
A	09/09/2021	For approval	DCM
B	06/09/2021	Council amendments	DCM
C	06/09/2021	Council amendments	DCM
D	09/09/2021	Council amendments	DCM
E	09/09/2021	Amendments	DCM

dcM
URBAN

DCM URBAN DESIGN LIMITED
LEVEL 3, 309 DURHAM STREET NORTH
CHRISTCHURCH, NZ
WWW.DCMURBAN.COM



note:
Contractors to verify all dimensions on site prior to commencing work. Contractors are responsible for confirming the location of all underground services on site prior to commencing work. Figured dimensions to be taken in preference to scaled dimensions

client / project name:
**MANSELL
PROPOSED SUBDIVISION
OTAIHANGA**

drawing name:
COVER SHEET

drawing sheet:
Sheet 1 of 1

date : AUG 2021
designed by : DCM/BD
drawn by : BD
scale (@ A1) : 1:2000

project no / drawing no / revision:
2020_142/ L 100 / E



legend:

rev no.	date	description	approved
A	10/06/2021	For Approval	DCM
B	08/09/2021	Council Amendments	DCM
C	09/09/2021	Amendments	DCM

dcu
URBAN

DCM URBAN DESIGN LIMITED
LEVEL 3, 309 DURHAM STREET NORTH
CHRISTCHURCH, NZ
WWW.DCMURBAN.COM

note:
Contractors to verify all dimensions on site prior to commencing work. Contractors are responsible for confirming the location of all underground services on site prior to commencing work. Figured dimensions to be taken in preference to scaled dimensions.

client / project name:
**MANSELL
PROPOSED SUBDIVISION
OTAIHANGA**

drawing name:
BUILDING SETBACK PLAN

drawing sheet:
Sheet 1

date : AUG 21
designed by : DCM
drawn by : BD
scale (@ A1) : 500

project no / drawing no / revision:
2020_142/ L 101 / C

NOTE:
ACCESSORY BUILDINGS CAN BE BUILT INTO REAR AND SIDE SETBACKS WITH A MINIMUM SETBACK OF 1M

SETBACKS
SIDE AND REAR - 3M
FRONT - 4.5M

BUILDING SETBACK PLAN
1:500 @ A1, 1:1000 @ A3

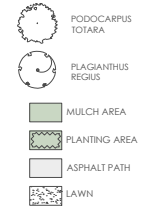
2020_142 OTAIHANGA RESERVES PLANT SCHEDULE_B

Botanical Name	Common Name	Size (H. Bagsize)	Spacing (mm)	Unit	Quantity
Specimen (Native) Trees					
Plagianthus regius	Ribbonwood	1.5m, Pb40	As shown	No	10
Podocarpus totara	Totara	1.5m, Pb40	As shown	No	11
Welland Buffer Plant Mix A (10m wide)					
					Area (m ²) = 905
Carex geminata	Raurahi	0.5L	705	10%	182
Coprosma propinqua	Mingimingi	0.5L	1400	5%	23
Coprosma robusta	Karamu	0.5L	1400	10%	46
Cardylina australis	Ti kouka	0.5L	1400	10%	46
Dacrydium diacrydioides	Kahikatea	2L pot	5000	5%	2
Kunzea robusta	Karuka	0.5L	1400	20%	92
Lupinus permutum scoparium	Karuka	0.5L	1400	15%	69
Muehlenbeckia complexa	Pohuehue	0.5L	1000	10%	91
Phormium tenax	Harakeke	0.5L	1400	10%	46
Podocarpus totara	Totara	2L pot	5000	5%	2
Mix B Constructed Welland					
					Area (m ²) = 3490.6
Carex geminata	Raurahi	RX90	700	15%	1069
Coprosma propinqua	Mingimingi	RX91	700	15%	1069
Muehlenbeckia complexa	Pohuehue	RX92	700	25%	1781
Phormium tenax	Harakeke	RX93	700	20%	1425
Fittonia nodosa	Knobby club rush	RX94	700	25%	1781

RESERVE PLANT SCHEDULE
NIS

LOT 105 RESERVE PLANTING PLAN
1:200 @ A1, 1:400 @ A3

legend:



rev no.	date	description	approved
1	01/09/2021	for issue	DCM
2	06/09/2021	Control amendments	DCM
3	08/09/2021	Control amendments	DCM
4	09/09/2021	Amendments	DCM
5	09/09/2021	Amendments	DCM

DCM
URBAN
DCM URBAN DESIGN LIMITED
LEVEL 3, 329 DURHAM STREET NORTH
CHRISTCHURCH, NZ
WWW.DCMURBAN.COM

note:
Contractors to verify all dimensions on site prior to commencing work. Contractors are responsible for confirming the location of all underground services on site prior to commencing work. Figured dimensions to be taken in preference to scaled dimensions.

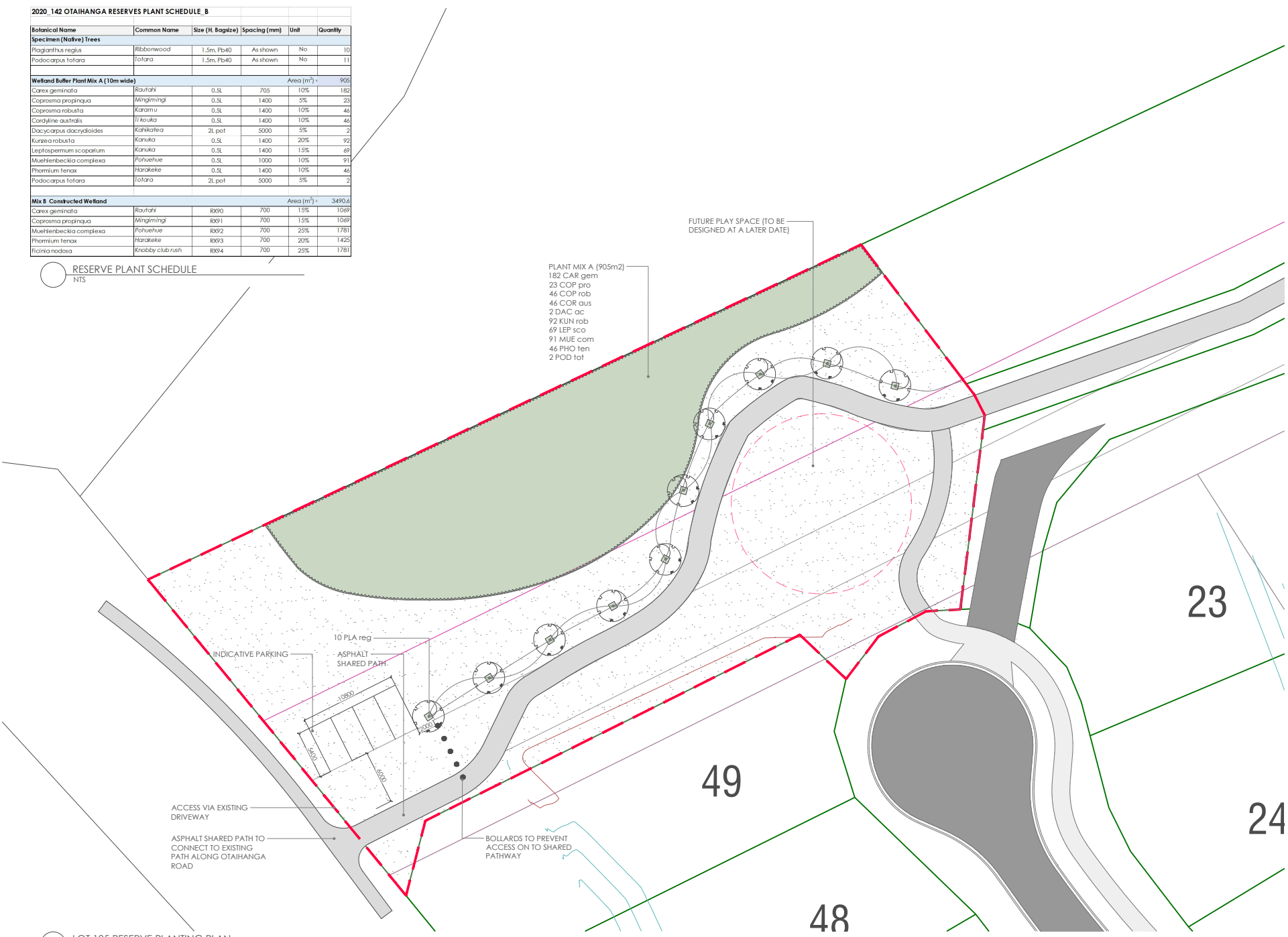
client / project name:
**MANSELL
PROPOSED SUBDIVISION
OTAIHANGA**

drawing name:
LOT 105 RESERVE PLANTING PLAN

drawing sheet:
Sheet 1 of 2

date : AUG 21
designed by : DCM
drawn by : BD
scale (@ A1) : 200

project no / drawing no / revision:
2020_142/ L 102 / E



PLANT MIX A (905m2)
182 CAR gem
23 COP pro
46 COP rob
46 COR aus
2 DAC ac
92 KUN rob
69 LEP sco
91 MUE com
46 PHO ten
2 POD tot

FUTURE PLAY SPACE (TO BE
DESIGNED AT A LATER DATE)

INDICATIVE PARKING

10 PLA reg
ASPHALT
SHARED PATH.

ACCESS VIA EXISTING
DRIVEWAY
ASPHALT SHARED PATH TO
CONNECT TO EXISTING
PATH ALONG OTAIHANGA
ROAD

BOLLARDS TO PREVENT
ACCESS ON TO SHARED
PATHWAY

23

49

48

24



legend:

- PODOCARPUS TOTARA
- PLAGIANTHUS REGIUS
- MULCH AREA
- PLANTING AREA
- ASPHALT PATH
- LAWN

revision:

rev no.	date	description	approved
1	10/06/2021	For review	DCM
2	09/09/2021	For review	DCM

dcu
 URBAN

DCU URBAN DESIGN LIMITED
 LEVEL 3, 309 DURHAM STREET NORTH
 CHRISTCHURCH, NZ
 WWW.DCUURBAN.COM

note:
 Contractors to verify all dimensions on site prior to commencing work. Contractors are responsible for confirming the location of all underground services on site prior to commencing work. Figured dimensions to be taken in preference to scaled dimensions.

client / project name:
**MANSELL
 PROPOSED SUBDIVISION
 OTAHANGA**

drawing name:
LOT 200 RESERVE PLANTING PLAN

drawing sheet:
 Sheet 2 of 2

date : AUG 21
 designed by : DCM
 drawn by : BD
 scale (@ A1) : 200

project no / drawing no / revision:
2020_142 / L 103 / B

**REPORT ON:
GEOTECHNICAL INVESTIGATION**

PROJECT:

**MANSELL FARM SUBDIVISION
OTAIHANGA RD, PARAPARAUMU**

CLIENT: MR RICHARD & MR ALASTAIR MANSELL

**C/- CHRIS HANSEN CONSULTANTS LTD
220 ROSS RD
RD 7 WHAKAMARAMA
TAURANGA 3179**

EXECUTIVE SUMMARY

Chris Hansen Consultants Ltd (CHC), on behalf of Mr Richard and Mr Alastair Mansell, engaged Resource Development Consultants Ltd (RDCL) to complete a geotechnical investigation at 131 Otaihanga Rd, Paraparaumu.

We understand the intent is to subdivide the site into forty-nine (49) rural life-style and residential lots. Currently the land is being used as farmland. Our geotechnical investigation and reporting are required to support resource consent application. For the purpose of geotechnical assessment, the proposed development is assumed to be of Importance Level (IL) 2.

Based on results from this investigation we have developed the following generalised soil profile:

- Silty/sandy TOPSOIL to ~0.25m bgl; overlying
- Loose to dense silty SAND to 16m bgl.

Ultimate Bearing Capacity of 300kPa is generally available:

- Between 0.3m and 1.7m bgl.

Liquefaction assessment results indicate little to no risk of liquefaction hazards across the site, including free field settlement and lateral spreading.

Based on the results of our investigation, we consider the proposed development is suitable from a geotechnical perspective following:

- Building restriction zones are established within 3.0m from the top and bottom of natural slopes;
- NZS3604:2011 foundations are considered appropriate

CONTENTS

1	OVERVIEW	4
1.1	UNDERSTANDING OF THE PROJECT	4
1.2	SCOPE OF WORK	4
2	SITE DESCRIPTION	5
2.1	REGIONAL GEOLOGICAL MAPPING	5
2.2	GEOHAZARDS	5
2.2.1	Active Faults	5
2.2.2	Flooding	5
2.2.3	Liquefaction Risk	5
3	SITE INVESTIGATION	6
3.1	SUBSURFACE CONDITIONS	6
3.1.1	Shallow Soil Profile	6
3.1.2	Deep Soil Profile	7
3.2	GROUNDWATER	7
4	GEOTECHNICAL ASSESSMENT	8
4.1	SHALLOW BEARING CAPACITY	8
4.3	SEISMIC SOIL CLASS	9
4.4	LIQUEFACTION ASSESSMENT	9
4.4.1	Liquefaction Potential	9
4.4.2	Vertical Settlement	10
4.4.3	Lateral Spread Assessment	11
4.4.4	Basis of Assessment	12
5	GEOTECHNICAL RECOMMENDATIONS	13
5.1	GEOTECHNICAL SITE SUITABILITY	13
5.2	FOUNDATION RECOMMENDATIONS	13
5.3	SETBACK FROM SLOPES	13
5.4	PARAMETERS FOR EARTHWORKS AND/OR RETAINING	14
5.5	ROAD CONSTRUCTION	14
6	FURTHER GEOTECHNICAL INPUT	14
7	REFERENCES	15
8	LIMITATIONS	16
9	CLOSURE	16

FIGURES

FIGURE 1: SITE INVESTIGATION LAYOUT	17
-------------------------------------	----

APPENDICES

APPENDIX A: SITE INVESTIGATION LOGS	A
APPENDIX B: LIQUEFACTION ASSESSMENT RESULTS	B

1 OVERVIEW

Chris Hansen Consultants Ltd (CHC), on behalf of Mr Richard and Mr Alastair Mansell, engaged Resource Development Consultants Ltd (RDCL) to complete a geotechnical investigation at 131 Otaihanga Rd, Paraparaumu.

The legal description of the site is LOT 6 DP 53191, SEC 31 SO 505428, PT LOT 5 DP 84524, LOT 1 & LOT 3 DP 303764, LOT 4 DP 84524, LOT 3 DP 84524, LOT 2 DP 84524.

This geotechnical investigation report is to meet the requirements for:

- Resource consent application, including:
 - Confirmation of site suitability; and
 - Recommendations for foundations and earthworks.

1.1 UNDERSTANDING OF THE PROJECT

RDCL have been supplied with scheme plans for the proposed subdivision, prepared by Cuttriss Consultants Ltd (Ref. 22208 SCH1, Revision C, dated November 2020).

We understand the intent is to subdivide the site into forty-nine (49) rural life-style and residential lots. A detailed Project Description is provided in Section 3 of the AEE accompanying the resource consent applications.

In summary, the proposal involves the subdivision of 17ha (western) portion of the Mansell Farm into 49 lots: 22 rural life-style lots in the northern part of the site, and 27 residential lots adjacent to Otaihanga Road in the south of the site. Access to 19 of the rural life-style lots in the north will be via Tieko Street, and the remainder of the rural-lifestyle and residential lots will be accessed via Otaihanga Road.

The proposed subdivision of this area involves earthworks, construction of roads, installation of services and identification of notional 20m building circle areas on the rural life-style lots.

1.2 SCOPE OF WORK

This work was completed in general accordance with RDCL proposal 19534, issued to the client on 16th August 2019.

2 SITE DESCRIPTION

The proposed subdivision is located within sand dunes in the centre of Otaihanga.

The site is currently farmland comprising:

- Predominantly gently to steeply sloping rolling dunes (approximately 18.15ha):
 - With localised areas of ponding (Figure 1).

2.1 REGIONAL GEOLOGICAL MAPPING

GNS maps indicate the proposed subdivision is underlain by:

- Holocene windblown sand deposits (inactive sand dunes).

2.2 GEOHAZARDS

2.2.1 ACTIVE FAULTS

No active faults directly impacting the site have been identified in the New Zealand Active Faults Database (GNS Science, 2018).

The Wairau Fault is approximately 17km east of the site. This fault requires a near fault factor in accordance with NZS1170.5:2004.

2.2.2 FLOODING

The KCDC natural hazard maps indicate the proposed subdivision site is:

- Susceptible to ponding within low lying areas.

2.2.3 LIQUEFACTION RISK

GWRC hazard mapping for this region indicates that the proposed development has:

- A liquefaction risk category of “high”;
- A ground shaking hazard rating of “moderate”; and
- A combined hazard rating of “moderate-high”.

3 SITE INVESTIGATION

RDCL carried out a general site walkover and subsurface field testing (Figure 1), which comprised:

- Seventeen (17) test pits;
 - terminated between 1.7-3.0m bgl;
- Sixteen (16) Dynamic Cone Penetrometer (DCP) tests;
 - terminated between 0.5-2.4m bgl, and
- Eleven (11) CPT tests,
 - terminated between 4.5-16.6m bgl.

Test pits and DCPs were completed in dry summer conditions.

CPTs were carried out in spring conditions.

Site investigation logs are in Appendix A.

3.1 SUBSURFACE CONDITIONS

We have developed several simplified soil profiles based on our investigations. Shallow profiles were developed based on results of test pit investigations. Deep soil profiles were developed based on results from CPT testing.

Full investigation logs are available in Appendix A.

3.1.1 SHALLOW SOIL PROFILE

Test pit investigations show that shallow conditions generally comprise:

- Silty/sandy TOPSOIL to ~0.25 – 0.6m bgl; underlain by
- Loose to dense silty SAND to at least 3.0m bgl.

Test locations fell into categories; dune crests, or low lying dune edges and valleys.

- Dune crest materials generally comprise dry, silty, sand (fine) that is loose at surface and becomes more dense with depth.
- Low lying dune edges and valleys generally comprise medium dense to dense, silty sand that is wet to saturated and tends to be dilatant.
- Topsoil in TP03 was deep (0.6m bgl) and highly peaty.

3.1.2 DEEP SOIL PROFILE

Deep soil testing comprised CPT testing. A simplified soil profile correlated to Soil Behaviour Type (SBT) indicate the site is generally underlain by:

- Sand and silty sand (sands) interbedded with silty sand to sandy silt (sand mixtures) to at least 16.62m bgl.

3.2 GROUNDWATER

Groundwater levels encountered during site investigations are in Table 1.

TABLE 1: DEPTH TO GROUNDWATER AS ENCOUNTERED DURING SITE INVESTIGATIONS

Test ID	Groundwater Level (m bgl)
TP01	1.7
TP02	2.5
TP03	1.6
TP06	1.6
TP10	1.8
TP11	1.4
TP12	2.1
TP13	2.9

4 GEOTECHNICAL ASSESSMENT

4.1 SHALLOW BEARING CAPACITY

We identified no significant peat or organic soil deposits in this investigation in regard to potential for static settlements.

DCP test results have been correlated to Ultimate Bearing Capacity (UBC) in accordance with Stockwell (1977) (Table 2).

Depth to 200kPa ultimate soil bearing capacity was identified:

- between 0.2m and 1.3m bgl.

Depth to 300kPa ultimate soil bearing capacity was identified:

- between 0.3m and 1.7m bgl.

TABLE 2: SUMMARY OF SHALLOW ULTIMATE BEARING CAPACITY

Test ID	Indicative Depth to 200 kPa UBC (m bgl)	Indicative Depth 300 kPa UBC (m bgl)
DCP01	0.2	0.3
DCP02	1.3	1.7
DCP03	1.1	1.4
DCP04	0.6	0.7
DCP05	0.4	0.4
DCP06	0.4	0.9
DCP07	0.3	0.9
DCP08	0.7	1.1
DCP09	0.3	1.2
DCP10	0.4	0.9
DCP11	0.2	0.8
DCP12	0.4	1.1
DCP13	0.2	1.1
DCP14	0.9	1.0
DCP15	1.1	1.1
DCP16	0.4	0.9

4.3 SEISMIC SOIL CLASS

The site is classified as site subsoil “Class D Site” in accordance with NZS1170.5:2004, part 5: Earthquake Actions – New Zealand; based on

- NZGD borehole record BH_76860 to a depth of 63m bgl, roughly 150m southeast of the south corner of the site.

4.4 LIQUEFACTION ASSESSMENT

4.4.1 LIQUEFACTION POTENTIAL

A liquefaction assessment was carried out on the results of the CPT investigation, which indicates:

- Low risk of liquefaction during Serviceability Limit State (SLS) design seismic event, with
 - LSN of 0, indicating little to no expression of liquefaction; and
- Low risk of liquefaction during Ultimate Limit State (ULS) design seismic event, with
 - LSN of 0 to 0.461, indicating little to no expression of liquefaction.

Results are presented in Appendix B.

4.4.2 VERTICAL SETTLEMENT

The settlements presented in Table 3 are estimates of the free field settlement, which is the amount of vertical settlement anticipated in the site. These values do not necessarily represent actual building settlement resulting from structural loading.

Estimated vertical settlement during SLS and ULS design seismic events is in Table 3.

TABLE 3: ESTIMATED VERTICAL SETTLEMENT DURING SLS AND ULS DESIGN SEISMIC EVENTS

Design Seismic Event	Test ID	Vertical Settlement (mm)	LSN
SLS	CPT01	0	0
	CPT02	0	0
	CPT03	0	0
	CPT04	0	0
	CPT05	0	0
	CPT06	0	0
	CPT07	0	0
	CPT08	0	0
	CPT09	0	0
	CPT10	0	0
	CPT11	0	0
ULS	CPT01	1.1	0.461
	CPT02	0.5	0.124
	CPT03	0.5	0
	CPT04	0.4	0.187
	CPT05	0	0
	CPT06	0	0
	CPT07	0	0
	CPT08	1.8	0.274
	CPT09	1.0	0.187
	CPT10	0	0
	CPT11	0.9	0.116

4.4.3 LATERAL SPREAD ASSESSMENT

Lateral spreading occurs on sites which have un-retained free faces or slopes combined with liquefaction risk. When the site liquefies, soil moves towards the free face or slope resulting in cracks developing as the soil displaces.

Estimated lateral spread during SLS and ULS design seismic events is in Table 4.

TABLE 4: ESTIMATED LATERAL SPREAD DURING SLS AND ULS DESIGN SEISMIC EVENTS

Design Seismic Event	Test ID	Lateral Spread (mm)	LSN
SLS	CPT01	0	0
	CPT02	0	0
	CPT03	0	0
	CPT04	0	0
	CPT05	0	0
	CPT06	0	0
	CPT07	0	0
	CPT08	0	0
	CPT09	0.6	0
	CPT10	0	0
	CPT11	0.2	0
ULS	CPT01	18	0.461
	CPT02	4	0.124
	CPT03	15	0
	CPT04	7	0.187
	CPT05	0	0
	CPT06	0	0
	CPT07	1	0
	CPT08	29	0.274
	CPT09	15	0.187
	CPT10	0	0
	CPT11	10	0.116

4.4.4 BASIS OF ASSESSMENT

The liquefaction assessment for the site was carried out using CLiq (accepted industry software package), CPT data of current ground conditions and the following input parameters (NZTA Bridge Manual v.3.2 section 5 [NZ Transport Agency, 2013]):

- Magnitude (M) = 6.2 SLS & 6.9 ULS;
- PGA = 0.08g (SLS) & 0.34g (ULS), based on:
 - $C_{0,1000} = 0.44$ (map 6.1a),
 - $f = 1.0$ (Class D Soil), and
 - $R = 0.25$ (SLS) & 1 (ULS)
- Groundwater levels taken from CPT measurements.

Lateral spreading assessment was carried out for a generic model of gently sloping ground with a slope grade of $S (\%) = 1.00$.

The design earthquake was chosen based on probability of recurrence, which is based on historical earthquakes. A 50 year design life was assigned. For an importance level 2 building, this correlates with a 25 year return period (SLS) and 500 year return period (ULS).

5 GEOTECHNICAL RECOMMENDATIONS

5.1 GEOTECHNICAL SITE SUITABILITY

Results of our liquefaction assessment indicate little to no risk of liquefaction for this site.

Based on the results of this investigation, we consider the proposed development is suitable from a geotechnical perspective, following our recommendations below.

5.2 FOUNDATION RECOMMENDATIONS

NZS3604:2011 shallow foundations are considered suitable for the overall site. Building platforms will require testing to confirm site requirements in accordance with NZS3604:2011.

5.3 SETBACK FROM SLOPES

We observed evidence of shallow slope instability localised to a single dune (see Figure 1).

A nominal building restriction zone of 3.0m is established from natural slopes exceeding 15° (from the top and base of slopes). Building within these zones must take into consideration the potential for slope instability.

Typical NZS3604:2011 setbacks are recommended for fill batters.

5.4 PARAMETERS FOR EARTHWORKS AND/OR RETAINING

We recommend the following slope limits for earthworks design; for:

- Permanent batters in:
 - Loose material 1V:2H; and
 - Dense material 1V:1.5H.
- Temporary batters in:
 - Loose Material 1V:1.5H; and
 - Dense material 1V:1H.

We recommend the following geotechnical parameters are adopted for retaining wall design:

TABLE 5: ESTIMATED EFFECTIVE SOIL PARAMETERS (DRAINED)

Soil Type	Friction Angle, ϕ' (°)	Cohesion, c' (kPa)	Density (kN/m ³)
Loose Silty Sand	30	0	15
Dense Silty Sand	40	0	20

5.5 ROAD CONSTRUCTION

Results of DCP testing have been correlated with California Bearing Ratio (CBR).

For loose silty sands, we recommend an average of 7% CBR for roading construction.

CBR values presented here are based on test results at the time of our investigations and should be re-evaluated once the project enters the building consent stage.

6 FURTHER GEOTECHNICAL INPUT

We recommend a suitably qualified geotechnical professional be engaged:

- To confirm bearing for specific house foundations at the time of construction;
- To provide construction monitoring and issue a Statement of Professional Opinion on Suitability of Land for Construction; and/or
- Should ground conditions be found to differ from those contained in this report.

7 REFERENCES

1. Dellow, G.D.; Abbott, E.R.; Heron, D.W.; Scott, B.J.; Ries, W.F.; Lukovic, B. 2016. *Update of hazard Information for 2015 Lifelines Risk & Responsibilities Report, GNS Science Consultancy Report 2016/40*. 33 p.
2. GNS Science. 2000. WELLINGTON. *Institute of Geological and Nuclear Sciences, 1:250,000 Geological Map 10*. (Begg, J.G.; Johnston, M.R., Compilers) GNS Science.
3. GNS Science. 2015. *New Zealand Active Faults Database: Active Faults 250K*. [online] Available at <https://data.gns.cri.nz/af/> [Accessed 15 May. 2019].
4. Ministry of Business, Innovation and Employment. 2012. *Guidance: Repairing and rebuilding houses affected by the Canterbury earthquakes (Part A: Technical Guidance)*. Wellington: Ministry of Business, Innovation and Employment.
5. NZ Transport Agency. 2013. *Bridge Manual*. NZTA SP/M/022 version 3.2. Wellington: New Zealand Transport Agency.
6. Standards New Zealand. 2004. *Structural Design Actions Part 5: Earthquake Actions*. NZS 1170.5:2004. Wellington: Standards New Zealand.
7. Standards New Zealand. 2011. *Timber-framed Buildings*. NZS3604:2011. Wellington: Standards New Zealand.
8. Standards New Zealand. 1989. *Code of Practice for Earthfill for Residential Development*. NZS4431:1989. Wellington: Standards New Zealand.
9. Stockwell, M. 1977. *Determination of allowable bearing pressure under small structures*. New Zealand Engineering, 32(6), pp.132-135.

8 LIMITATIONS

- This report has been prepared for the particular purpose outlined in the project brief and no responsibility is accepted for the use of any part in other contexts or for any other purpose.
- Ground conditions assessed in this report are inferred from published sources, site inspection and the investigations described. Variations from the interpreted conditions may occur, and special conditions relating to the site may not have been revealed by this investigation, and which are therefore not taken into account. No warranty is included either expressed or implied that the actual conditions will conform to the interpretation contained in this report.
- No responsibility is accepted by Resource Development Consultants Ltd for inaccuracies in data supplied by others. Where data has been supplied by others, it has been assumed that this information is correct.
- Groundwater conditions can vary with season or due to other events. Any comments on groundwater conditions are based on observations at the time.
- This report is provided for sole use by the client and Kāpiti Coast District Council (KCDC) and is confidential to the client and their professional advisors. No responsibility whatsoever for the contents of this report shall be accepted for any person other than the client.

9 CLOSURE

We trust this meets your current needs. Should you wish to discuss any aspect of the contents of this document please contact the undersigned on 06 877-1652.

Sincerely,



Rachael Delaney
MSc
Engineering Geologist



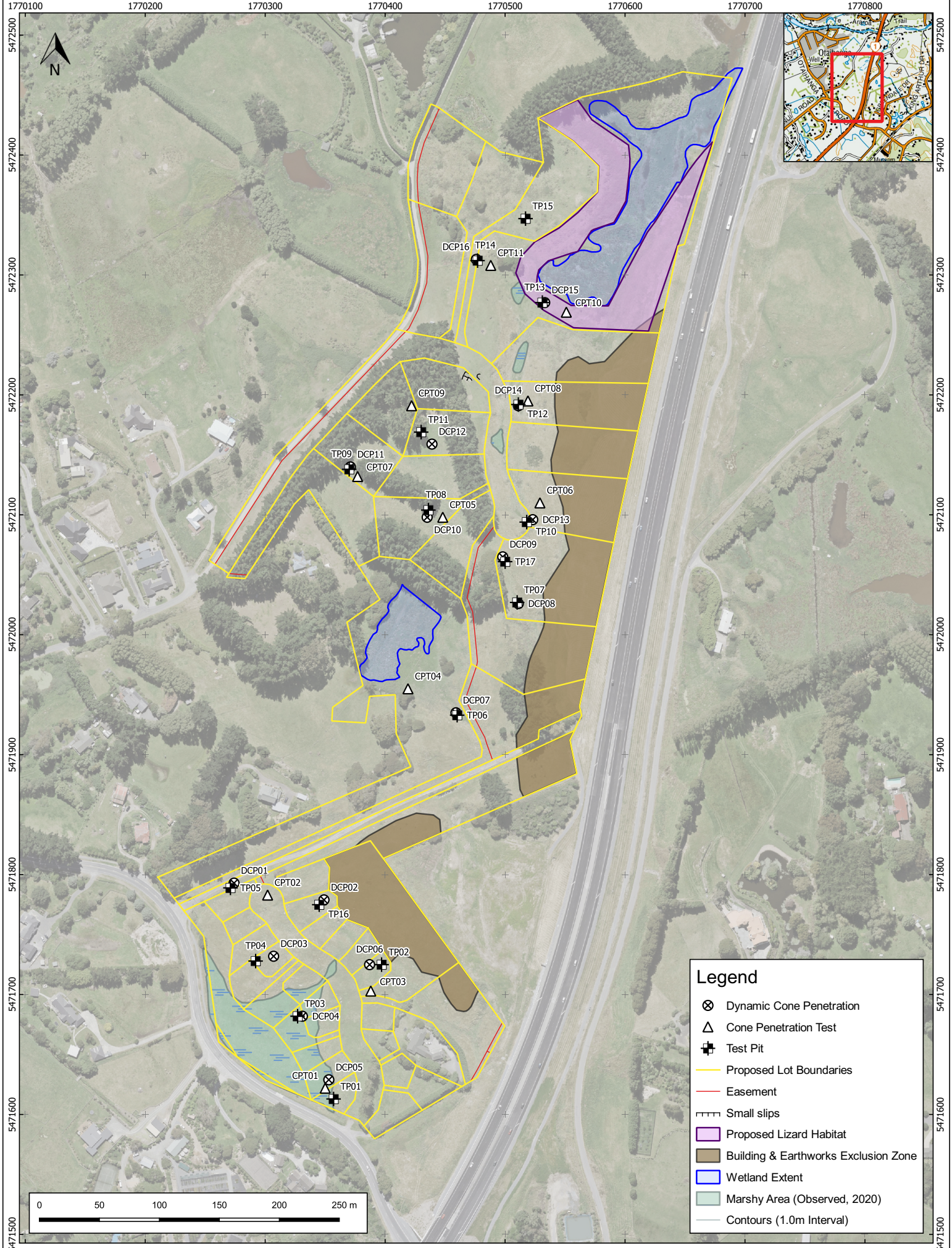
Jethro Neeson
BEng, NZGS
Geotechnical Engineer



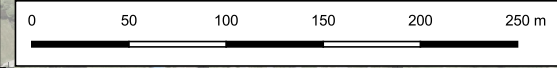
Cam Wylie
MSc; MIPENZ; CPEng
Principal

Attachments:
Figure 1: Site Investigation Layout
Appendix A: Site Investigation Logs
Appendix B: Liquefaction Assessment Results
Important Information about this Geotechnical Report

FIGURE 1: SITE INVESTIGATION LAYOUT



Legend	
	Dynamic Cone Penetration
	Cone Penetration Test
	Test Pit
	Proposed Lot Boundaries
	Easement
	Small slips
	Proposed Lizard Habitat
	Building & Earthworks Exclusion Zone
	Wetland Extent
	Marshy Area (Observed, 2020)
	Contours (1.0m Interval)



RDCL
 PO Box 28057
 8/308 Queen St East
 Hastings, NZ
 Tel: +64 6 8771652
 Fax: +64 6 877 5015
 Email: info@rdcl.co.nz

Title	Investigation Layout
Project	195340402 - 131 Otahanga Rd
Client	Mr Richard & Mr Alastair Mansell

Drawn By	RD	Date	22/02/21	A3
Checked By	JJN	Date	22/02/21	Figure 1
Approved By	JJN	Date	22/02/21	Rev. 2

APPENDIX A: SITE INVESTIGATION LOGS



CONE PENETRATION TEST

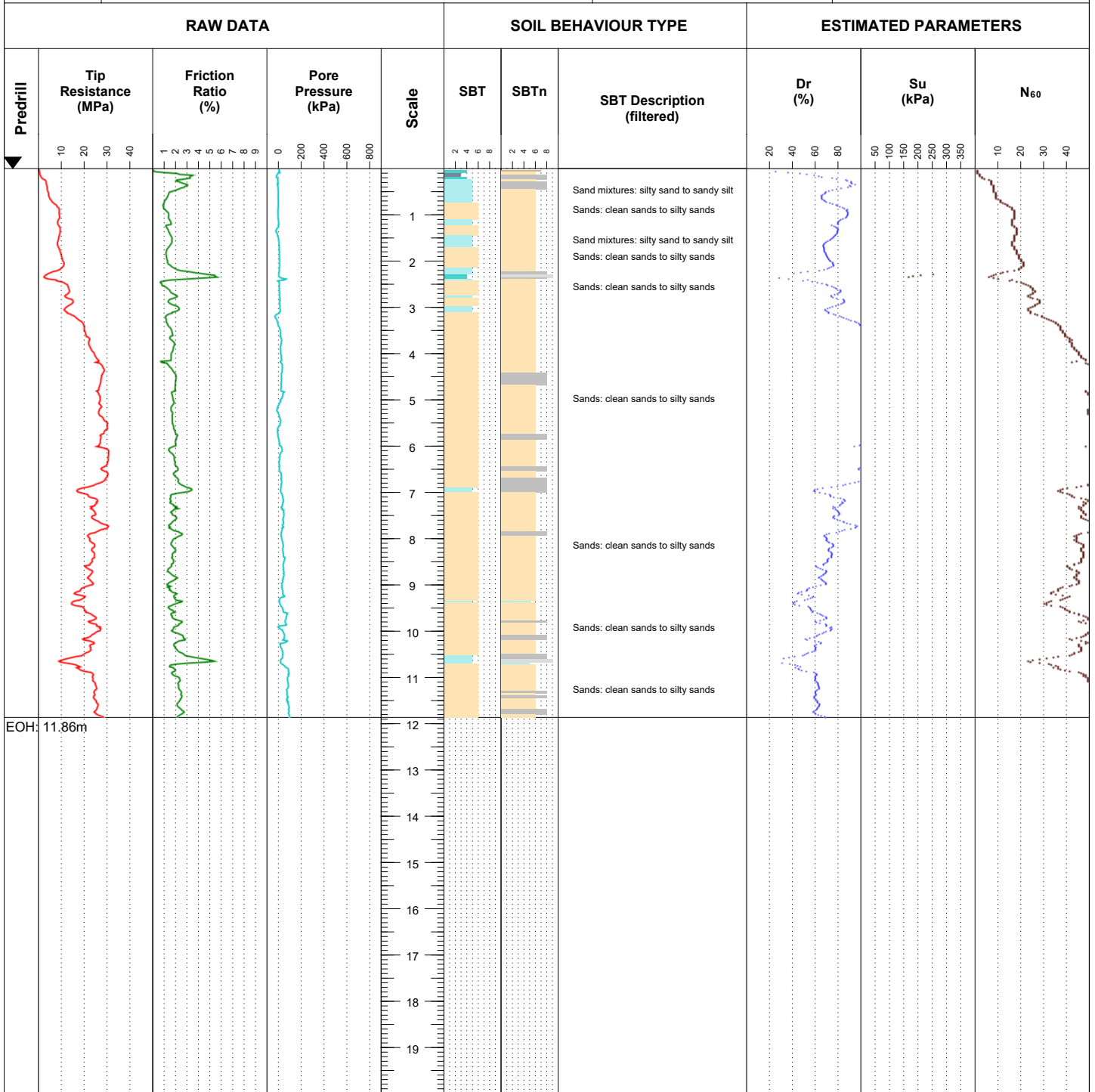
Job: 195340402

CPT No.: CPT01

Name: 131 Otaihanga Rd
Client: Richard Mansell
Location: 131 Otaihanga Rd

Grid: NZTM
Datum: -
Termination: -

North (m): 5471622.00
East (m): 1770350.00
Elevation (m): 0.00
Hole Depth (m): 11.86



Soil Behaviour Type (SBT) - Robertson et al. 1986

- | | |
|--|--|
| 0 Undefined | 5 Sand mixtures: silty sand to sandy silt |
| 1 Sensitive fine-grained | 6 Sands: clean sands to silty sands |
| 2 Clay - organic soil | 7 Dense sand to gravelly sand |
| 3 Clays: clay to silty clay | 8 Stiff sand to clayey sand |
| 4 Silt mixtures: clayey silt & silty clay | 9 Stiff fine-grained |

Notes & Limitations

Data shown on this report has been assessed to provide a basic interpretation in terms of Soil Behaviour Type (SBT) and various geotechnical soil and design parameters using methods published in P. K. Robertson and K.L. Cabal (2010), Guide to Cone Penetration Testing for Geotechnical Engineering, 4th Edition. The interpretations are presented only as a guide for geotechnical use, and should be carefully reviewed by the user. Geroc Solutions Ltd do not warrant the correctness or the applicability of any of the geotechnical soil and design parameters shown and does not assume any liability for any use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used to derive data shown in this report.

Remarks

Hole Depth (m): 11.86

Sheet 1 of 11



CONE PENETRATION TEST

Job: 195340402

CPT No.: CPT02

Name: 131 Otaihanga Rd
Client: Richard Mansell
Location: 131 Otaihanga Rd

Grid: NZTM

Datum: -

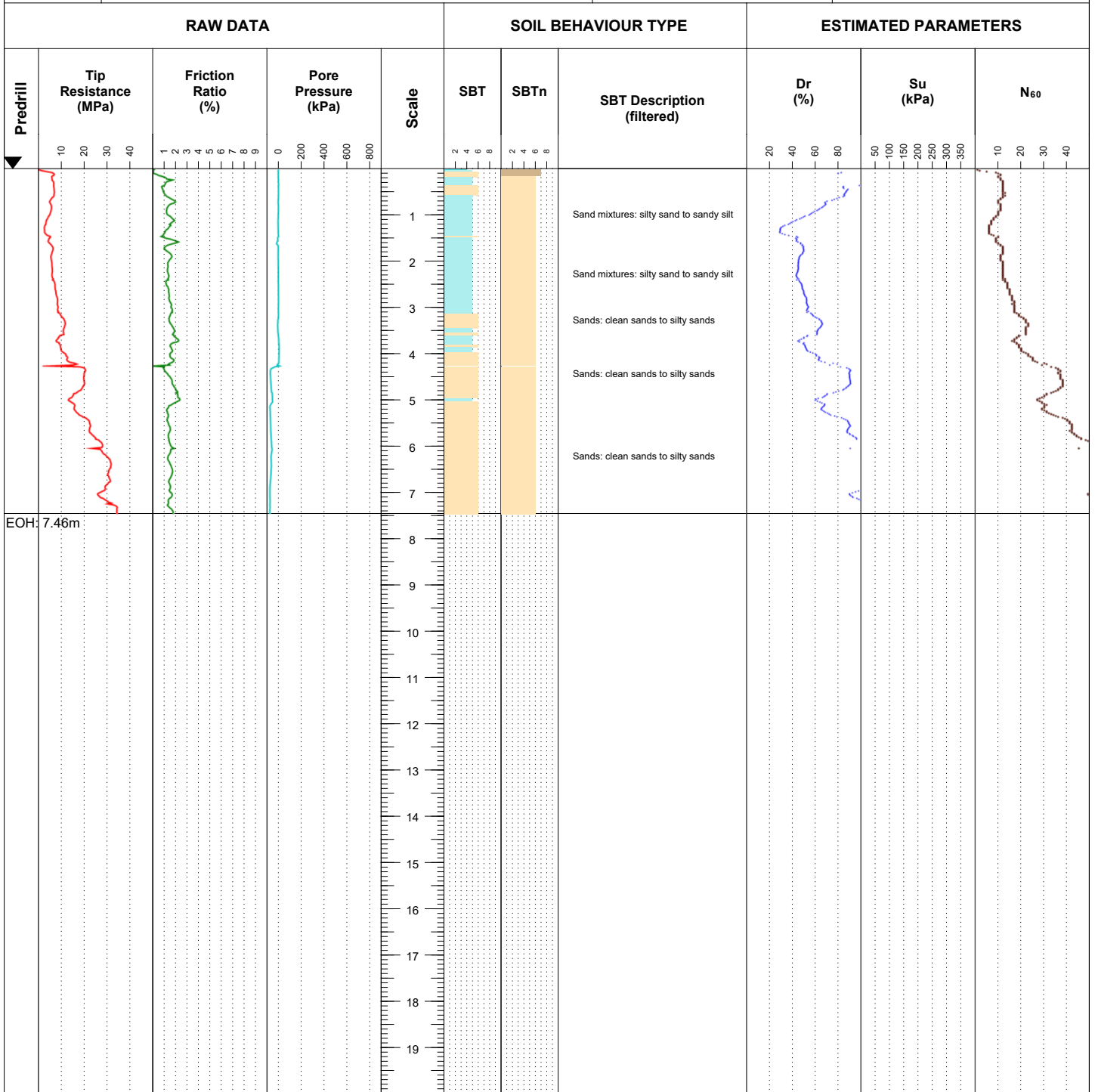
Termination: -

North (m): 5471783.00

East (m): 1990302.00

Elevation (m): 0.00

Hole Depth (m): 7.46



Soil Behaviour Type (SBT) - Robertson et al. 1986

- 0 Undefined
- 1 Sensitive fine-grained
- 2 Clay - organic soil
- 3 Clays: clay to silty clay
- 4 Silt mixtures: clayey silt & silty clay
- 5 Sand mixtures: silty sand to sandy silt
- 6 Sands: clean sands to silty sands
- 7 Dense sand to gravelly sand
- 8 Stiff sand to clayey sand
- 9 Stiff fine-grained

Notes & Limitations

Data shown on this report has been assessed to provide a basic interpretation in terms of Soil Behaviour Type (SBT) and various geotechnical soil and design parameters using methods published in P. K. Robertson and K.L. Cabal (2010), Guide to Cone Penetration Testing for Geotechnical Engineering, 4th Edition. The interpretations are presented only as a guide for geotechnical use, and should be carefully reviewed by the user. Gero Solutions Ltd do not warrant the correctness or the applicability of any of the geotechnical soil and design parameters shown and does not assume any liability for any use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used to derive data shown in this report.

Remarks

Hole Depth (m): 7.46

Sheet 2 of 11



CONE PENETRATION TEST

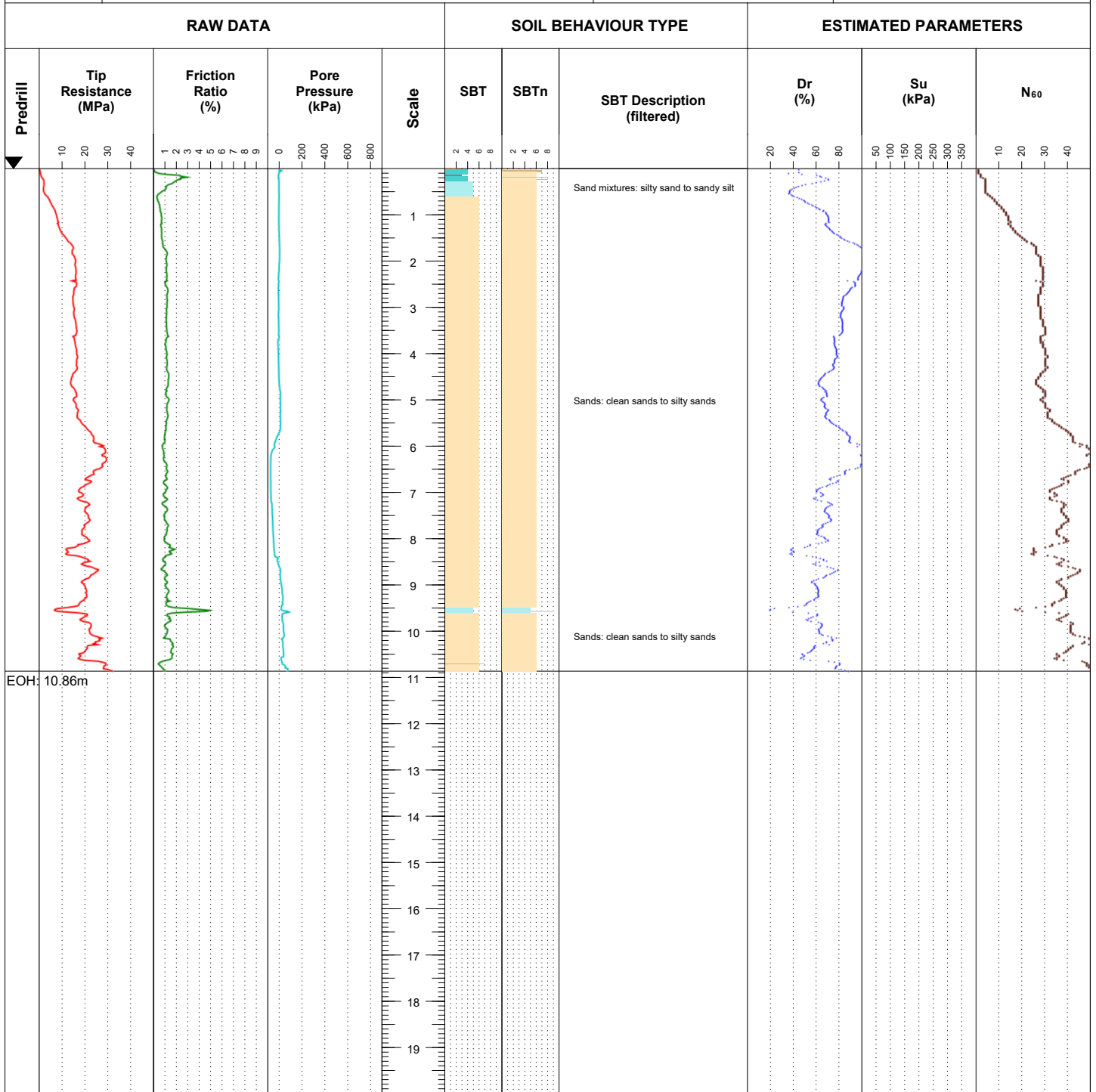
Job: 195340402

CPT No.: CPT03

Name: 131 Otaihanga Rd
Client: Richard Mansell
Location: 131 Otaihanga Rd

Grid: NZTM
Datum: -
Termination: -

North (m): 5471703.00
East (m): 1770388.00
Elevation (m): 0.00
Hole Depth (m): 10.86



Soil Behaviour Type (SBT) - Robertson et al. 1986

- 0 Undefined
- 1 Sensitive fine-grained
- 2 Clay - organic soil
- 3 Clays: clay to silty clay
- 4 Silt mixtures: clayey silt & silty clay
- 5 Sand mixtures: silty sand to sandy silt
- 6 Sands: clean sands to silty sands
- 7 Dense sand to gravelly sand
- 8 Stiff sand to clayey sand
- 9 Stiff fine-grained

Notes & Limitations

Data shown on this report has been assessed to provide a basic interpretation in terms of Soil Behaviour Type (SBT) and various geotechnical soil and design parameters using methods published in P. K. Robertson and K.L. Cabal (2010), Guide to Cone Penetration Testing for Geotechnical Engineering, 4th Edition. The interpretations are presented only as a guide for geotechnical use, and should be carefully reviewed by the user. Gero Solutions Ltd do not warrant the correctness or the applicability of any of the geotechnical soil and design parameters shown and does not assume any liability for any use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used to derive data shown in this report.

Remarks

Hole Depth (m): 10.86

Sheet 3 of 11



CONE PENETRATION TEST

Job: 195340402

CPT No.: CPT04

Name: 131 Otaihanga Rd
Client: Richard Mansell
Location: 131 Otaihanga Rd

Grid: NZTM

Datum: -

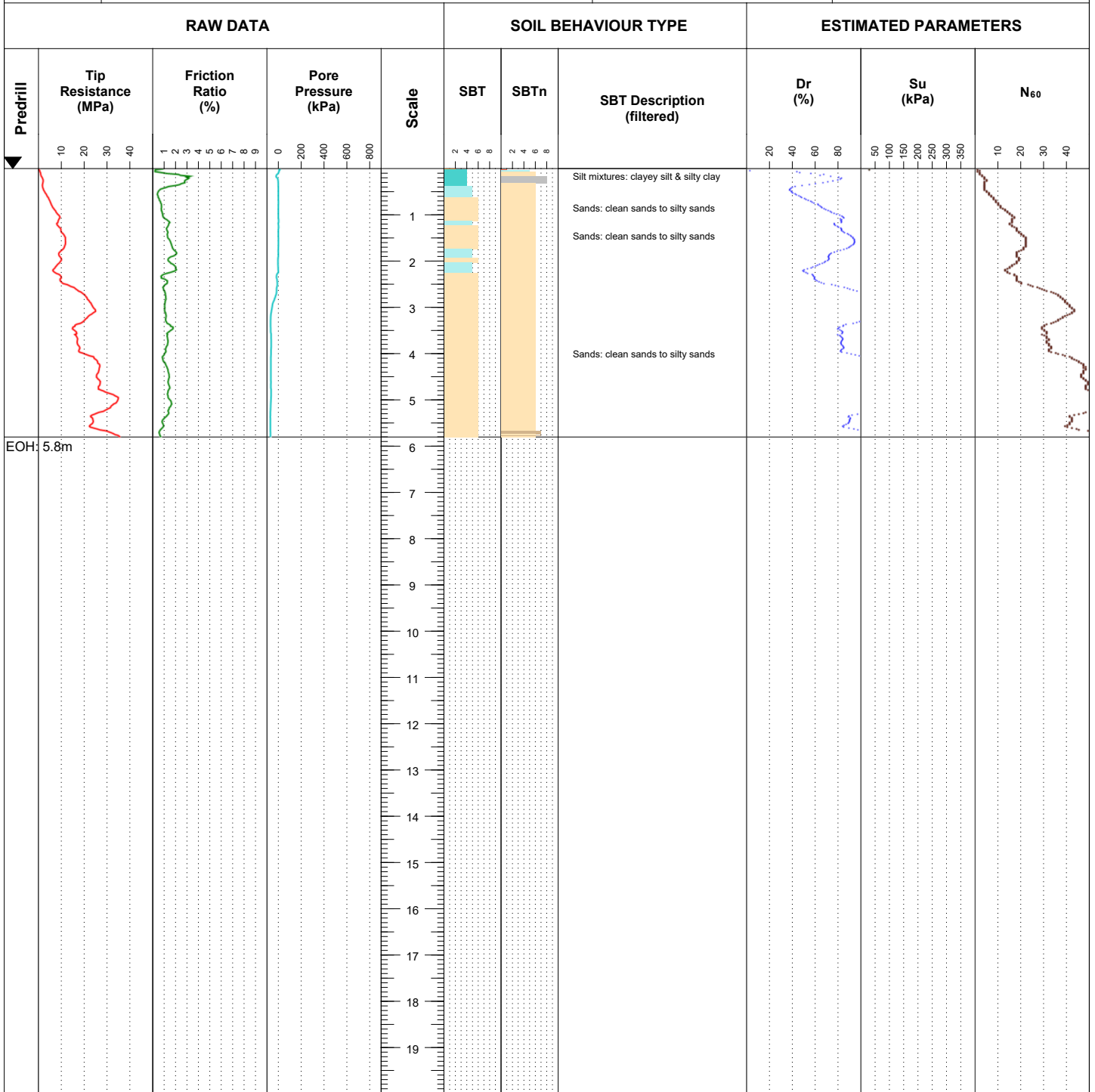
Termination: -

North (m): 5471955.00

East (m): 1770419.00

Elevation (m): 0.00

Hole Depth (m): 5.80



Soil Behaviour Type (SBT) - Robertson et al. 1986

- 0 Undefined
- 1 Sensitive fine-grained
- 2 Clay - organic soil
- 3 Clays: clay to silty clay
- 4 Silt mixtures: clayey silt & silty clay
- 5 Sand mixtures: silty sand to sandy silt
- 6 Sands: clean sands to silty sands
- 7 Dense sand to gravelly sand
- 8 Stiff sand to clayey sand
- 9 Stiff fine-grained

Notes & Limitations

Data shown on this report has been assessed to provide a basic interpretation in terms of Soil Behaviour Type (SBT) and various geotechnical soil and design parameters using methods published in P. K. Robertson and K.L. Cabal (2010), Guide to Cone Penetration Testing for Geotechnical Engineering, 4th Edition. The interpretations are presented only as a guide for geotechnical use, and should be carefully reviewed by the user. Gero Solutions Ltd do not warrant the correctness or the applicability of any of the geotechnical soil and design parameters shown and does not assume any liability for any use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used to derive data shown in this report.

Remarks

Hole Depth (m): 5.80

Sheet 4 of 11



CONE PENETRATION TEST

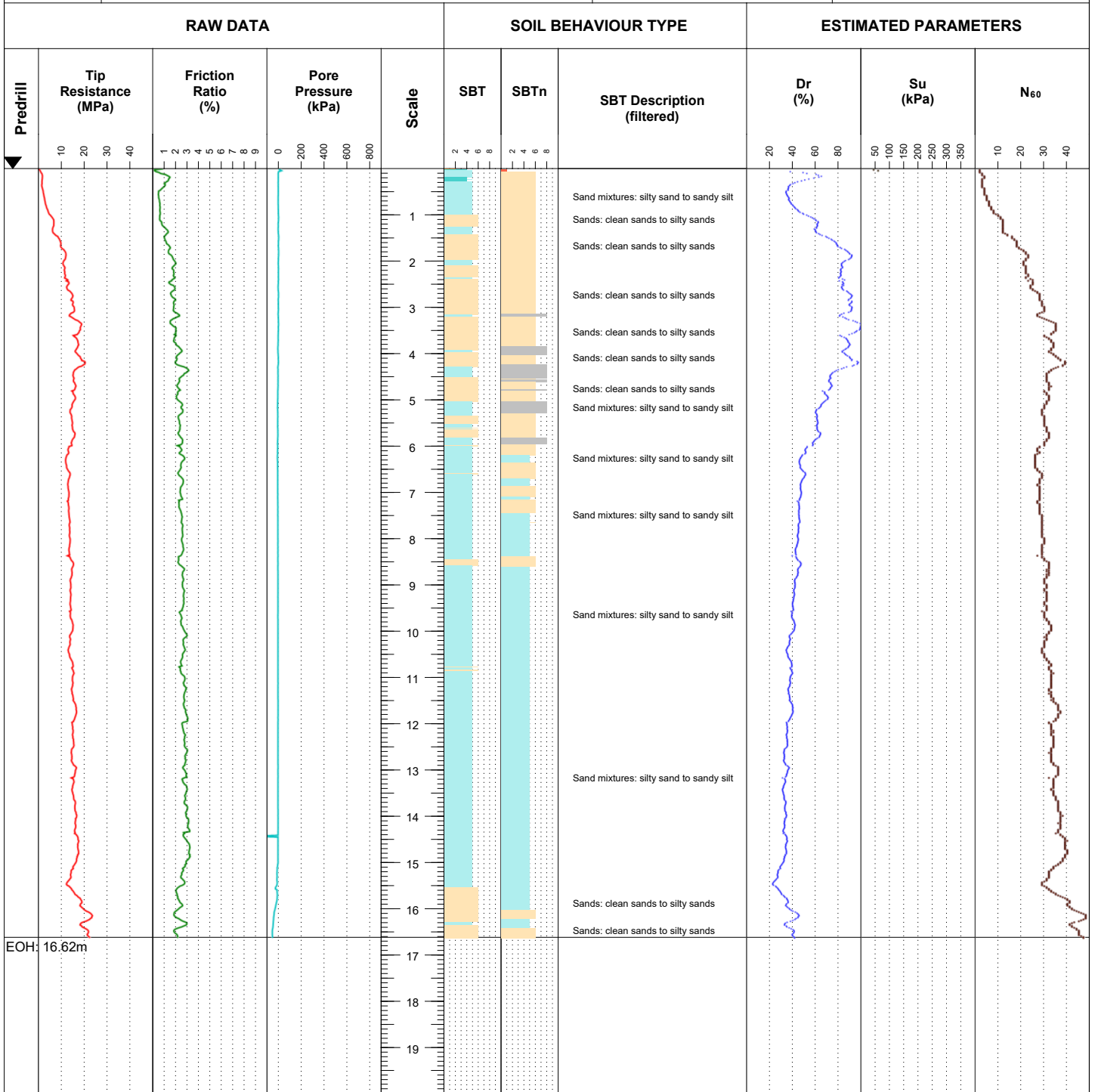
Job: 195340402

CPT No.: CPT05

Name: 131 Otaihanga Rd
Client: Richard Mansell
Location: 131 Otaihanga Rd

Grid: NZTM
Datum: -
Termination: -

North (m): 5472098.00
East (m): 1770448.00
Elevation (m): 0.00
Hole Depth (m): 16.62



Soil Behaviour Type (SBT) - Robertson et al. 1986

- 0 Undefined
- 1 Sensitive fine-grained
- 2 Clay - organic soil
- 3 Clays: clay to silty clay
- 4 Silt mixtures: clayey silt & silty clay
- 5 Sand mixtures: silty sand to sandy silt
- 6 Sands: clean sands to silty sands
- 7 Dense sand to gravelly sand
- 8 Stiff sand to clayey sand
- 9 Stiff fine-grained

Notes & Limitations

Data shown on this report has been assessed to provide a basic interpretation in terms of Soil Behaviour Type (SBT) and various geotechnical soil and design parameters using methods published in P. K. Robertson and K.L. Cabal (2010), Guide to Cone Penetration Testing for Geotechnical Engineering, 4th Edition. The interpretations are presented only as a guide for geotechnical use, and should be carefully reviewed by the user. Gero Solutions Ltd do not warrant the correctness or the applicability of any of the geotechnical soil and design parameters shown and does not assume any liability for any use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used to derive data shown in this report.

Remarks

Hole Depth (m): 16.62

Sheet 5 of 11



CONE PENETRATION TEST

Job: 195340402

CPT No.: CPT06

Name: 131 Otaihanga Rd
Client: Richard Mansell
Location: 131 Otaihanga Rd

Grid: NZTM

Datum: -

Termination: -

North (m): 5472110.00

East (m): 1770529.00

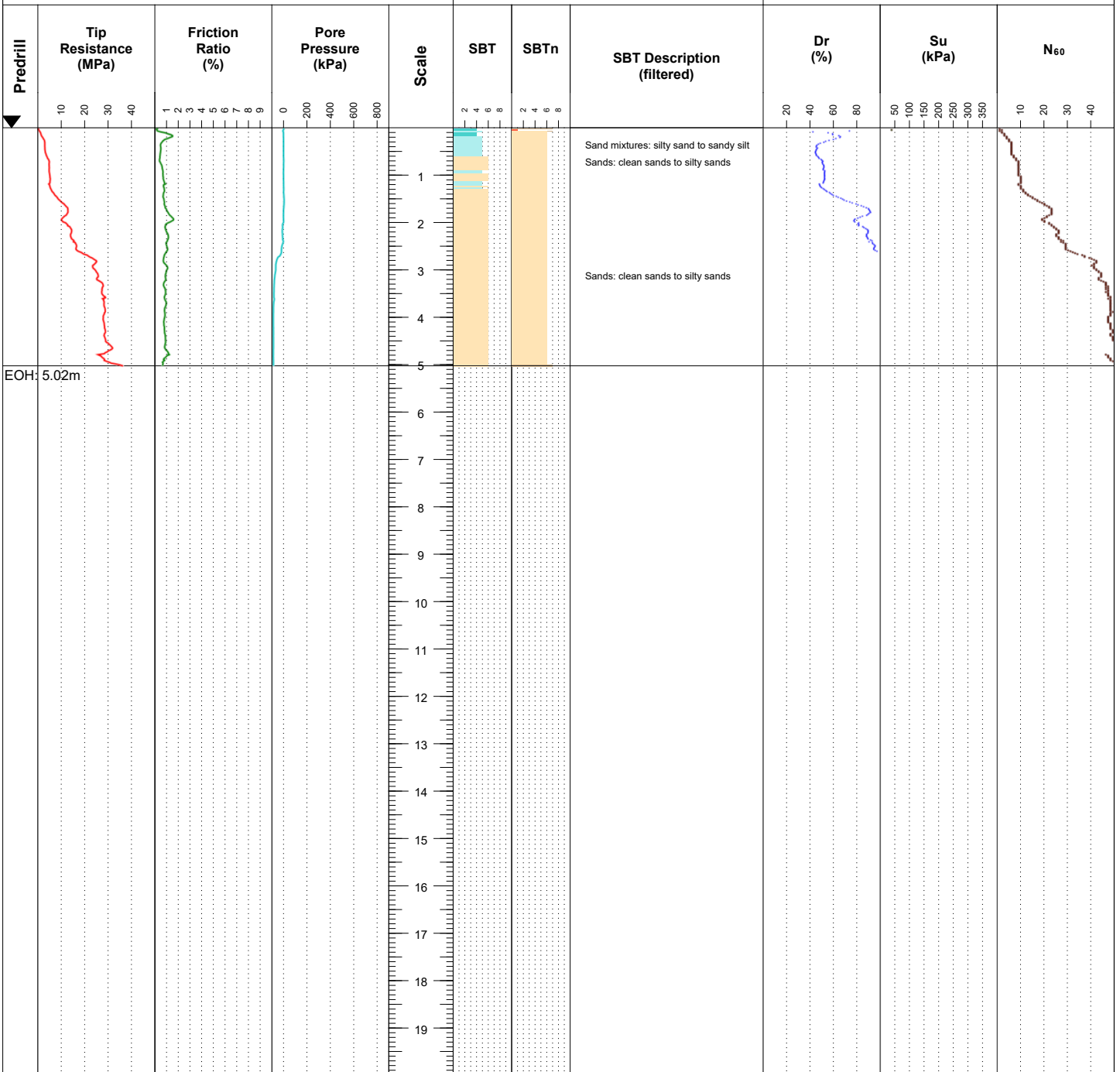
Elevation (m): 0.00

Hole Depth (m): 5.02

RAW DATA

SOIL BEHAVIOUR TYPE

ESTIMATED PARAMETERS



Soil Behaviour Type (SBT) - Robertson et al. 1986

- 0 Undefined
- 1 Sensitive fine-grained
- 2 Clay - organic soil
- 3 Clays: clay to silty clay
- 4 Silt mixtures: clayey silt & silty clay
- 5 Sand mixtures: silty sand to sandy silt
- 6 Sands: clean sands to silty sands
- 7 Dense sand to gravelly sand
- 8 Stiff sand to clayey sand
- 9 Stiff fine-grained

Notes & Limitations

Data shown on this report has been assessed to provide a basic interpretation in terms of Soil Behaviour Type (SBT) and various geotechnical soil and design parameters using methods published in P. K. Robertson and K.L. Cabal (2010), Guide to Cone Penetration Testing for Geotechnical Engineering, 4th Edition. The interpretations are presented only as a guide for geotechnical use, and should be carefully reviewed by the user. GeroC Solutions Ltd do not warrant the correctness or the applicability of any of the geotechnical soil and design parameters shown and does not assume any liability for any use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used to derive data shown in this report.

Remarks

Hole Depth (m): 5.02

Sheet 6 of 11



CONE PENETRATION TEST

Job: 195340402

CPT No.: CPT07

Name: 131 Otaihanga Rd
Client: Richard Mansell
Location: 131 Otaihanga Rd

Grid: NZTM

Datum: -

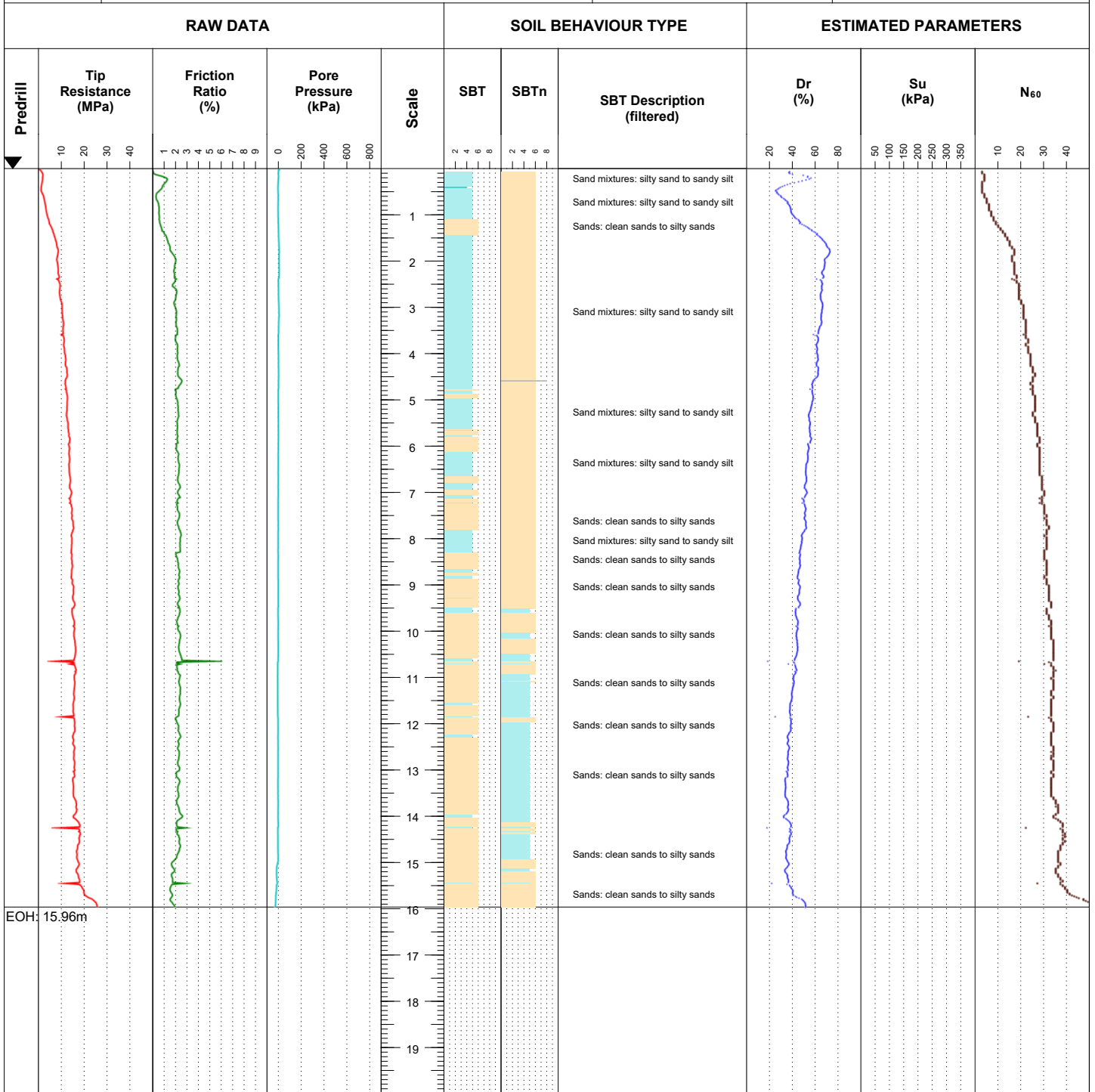
Termination: -

North (m): 5472132.00

East (m): 1770377.00

Elevation (m): 0.00

Hole Depth (m): 15.96



EOH: 15.96m

Soil Behaviour Type (SBT) - Robertson et al. 1986

- 0 Undefined
- 1 Sensitive fine-grained
- 2 Clay - organic soil
- 3 Clays: clay to silty clay
- 4 Silt mixtures: clayey silt & silty clay
- 5 Sand mixtures: silty sand to sandy silt
- 6 Sands: clean sands to silty sands
- 7 Dense sand to gravelly sand
- 8 Stiff sand to clayey sand
- 9 Stiff fine-grained

Notes & Limitations

Data shown on this report has been assessed to provide a basic interpretation in terms of Soil Behaviour Type (SBT) and various geotechnical soil and design parameters using methods published in P. K. Robertson and K.L. Cabal (2010), Guide to Cone Penetration Testing for Geotechnical Engineering, 4th Edition. The interpretations are presented only as a guide for geotechnical use, and should be carefully reviewed by the user. Gero Solutions Ltd do not warrant the correctness or the applicability of any of the geotechnical soil and design parameters shown and does not assume any liability for any use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used to derive data shown in this report.

Remarks

Hole Depth (m): 15.96

Sheet 7 of 11



CONE PENETRATION TEST

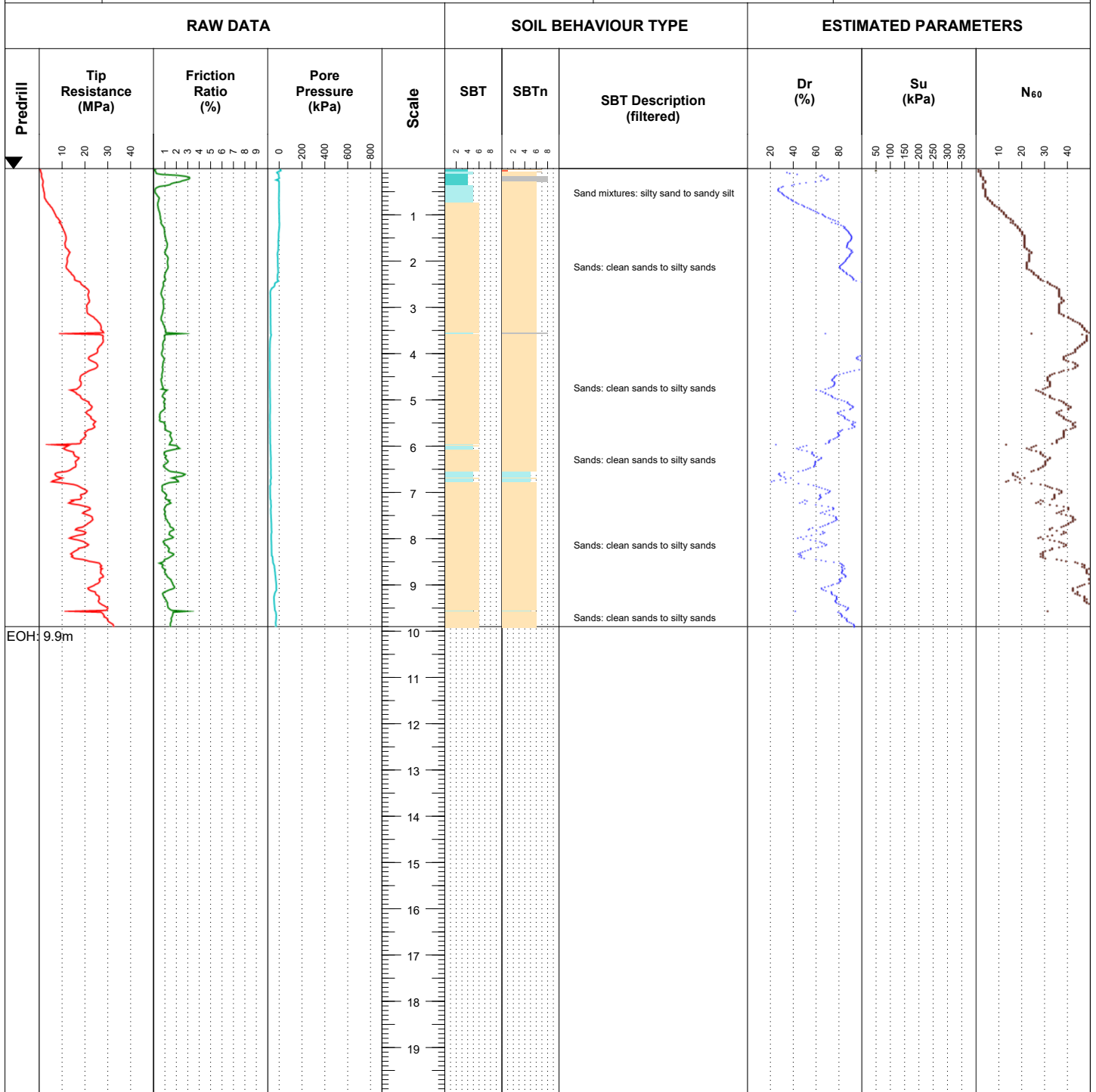
Job: 195340402

CPT No.: CPT08

Name: 131 Otaihanga Rd
Client: Richard Mansell
Location: 131 Otaihanga Rd

Grid: NZTM
Datum: -
Termination: -

North (m): 5472195.00
East (m): 1770519.00
Elevation (m): 0.00
Hole Depth (m): 9.90



Soil Behaviour Type (SBT) - Robertson et al. 1986

- 0 Undefined
- 1 Sensitive fine-grained
- 2 Clay - organic soil
- 3 Clays: clay to silty clay
- 4 Silt mixtures: clayey silt & silty clay
- 5 Sand mixtures: silty sand to sandy silt
- 6 Sands: clean sands to silty sands
- 7 Dense sand to gravelly sand
- 8 Stiff sand to clayey sand
- 9 Stiff fine-grained

Notes & Limitations

Data shown on this report has been assessed to provide a basic interpretation in terms of Soil Behaviour Type (SBT) and various geotechnical soil and design parameters using methods published in P. K. Robertson and K.L. Cabal (2010), Guide to Cone Penetration Testing for Geotechnical Engineering, 4th Edition. The interpretations are presented only as a guide for geotechnical use, and should be carefully reviewed by the user. Gero Solutions Ltd do not warrant the correctness or the applicability of any of the geotechnical soil and design parameters shown and does not assume any liability for any use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used to derive data shown in this report.

Remarks

Hole Depth (m): 9.90

Sheet 8 of 11



CONE PENETRATION TEST

Job: 195340402

CPT No.: CPT09

Name: 131 Otaihanga Rd
 Client: Richard Mansell
 Location: 131 Otaihanga Rd

Grid: NZTM

Datum: -

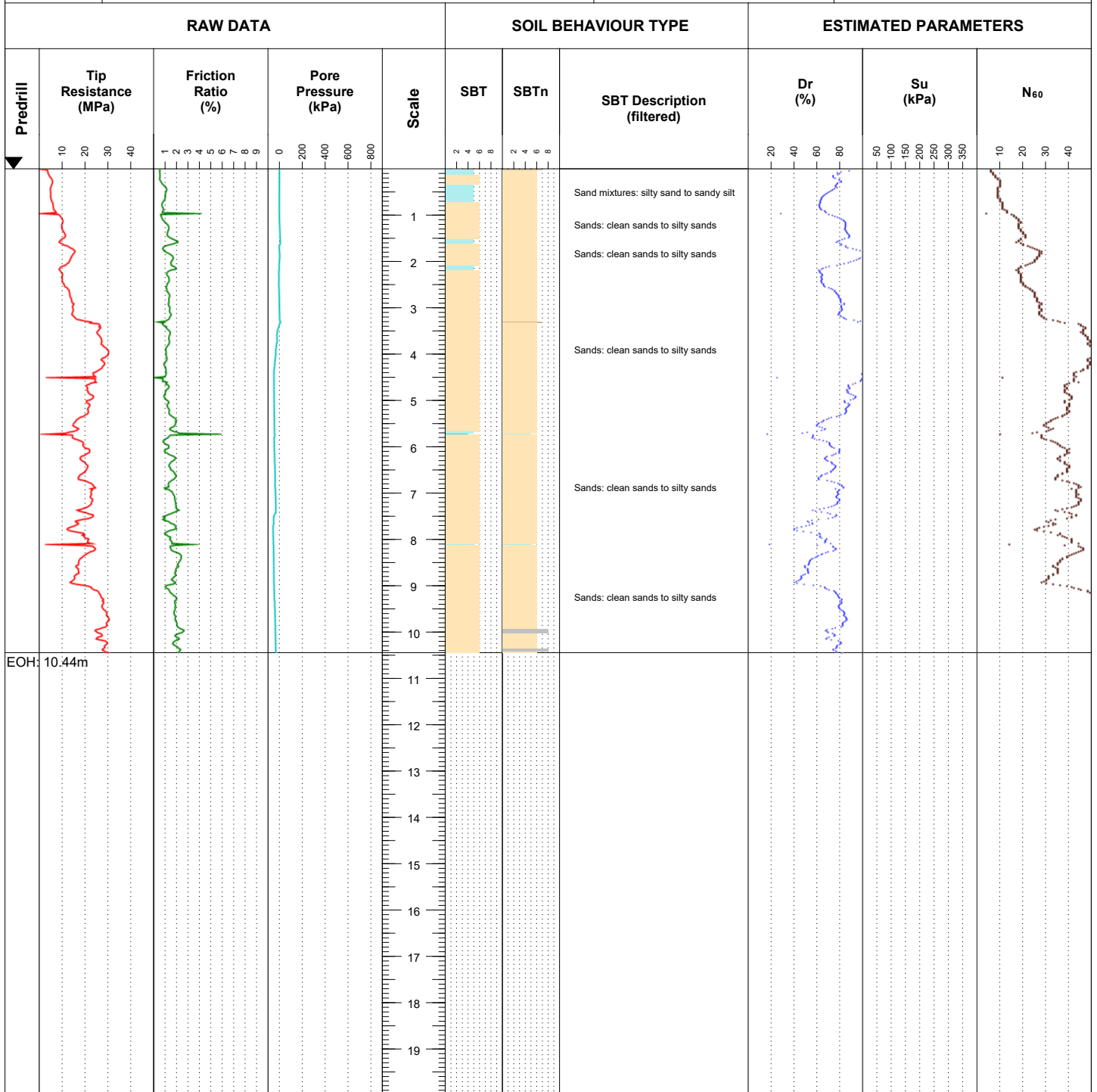
Termination: -

North (m): 5472191.00

East (m): 1770422.00

Elevation (m): 0.00

Hole Depth (m): 10.44



Soil Behaviour Type (SBT) - Robertson et al. 1986

- 0 Undefined
- 1 Sensitive fine-grained
- 2 Clay - organic soil
- 3 Clays: clay to silty clay
- 4 Silt mixtures: clayey silt & silty clay
- 5 Sand mixtures: silty sand to sandy silt
- 6 Sands: clean sands to silty sands
- 7 Dense sand to gravelly sand
- 8 Stiff sand to clayey sand
- 9 Stiff fine-grained

Notes & Limitations

Data shown on this report has been assessed to provide a basic interpretation in terms of Soil Behaviour Type (SBT) and various geotechnical soil and design parameters using methods published in P. K. Robertson and K.L. Cabal (2010), Guide to Cone Penetration Testing for Geotechnical Engineering, 4th Edition. The interpretations are presented only as a guide for geotechnical use, and should be carefully reviewed by the user. Gero Solutions Ltd do not warrant the correctness or the applicability of any of the geotechnical soil and design parameters shown and does not assume any liability for any use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used to derive data shown in this report.

Remarks

Hole Depth (m): 10.44

Sheet 9 of 11



CONE PENETRATION TEST

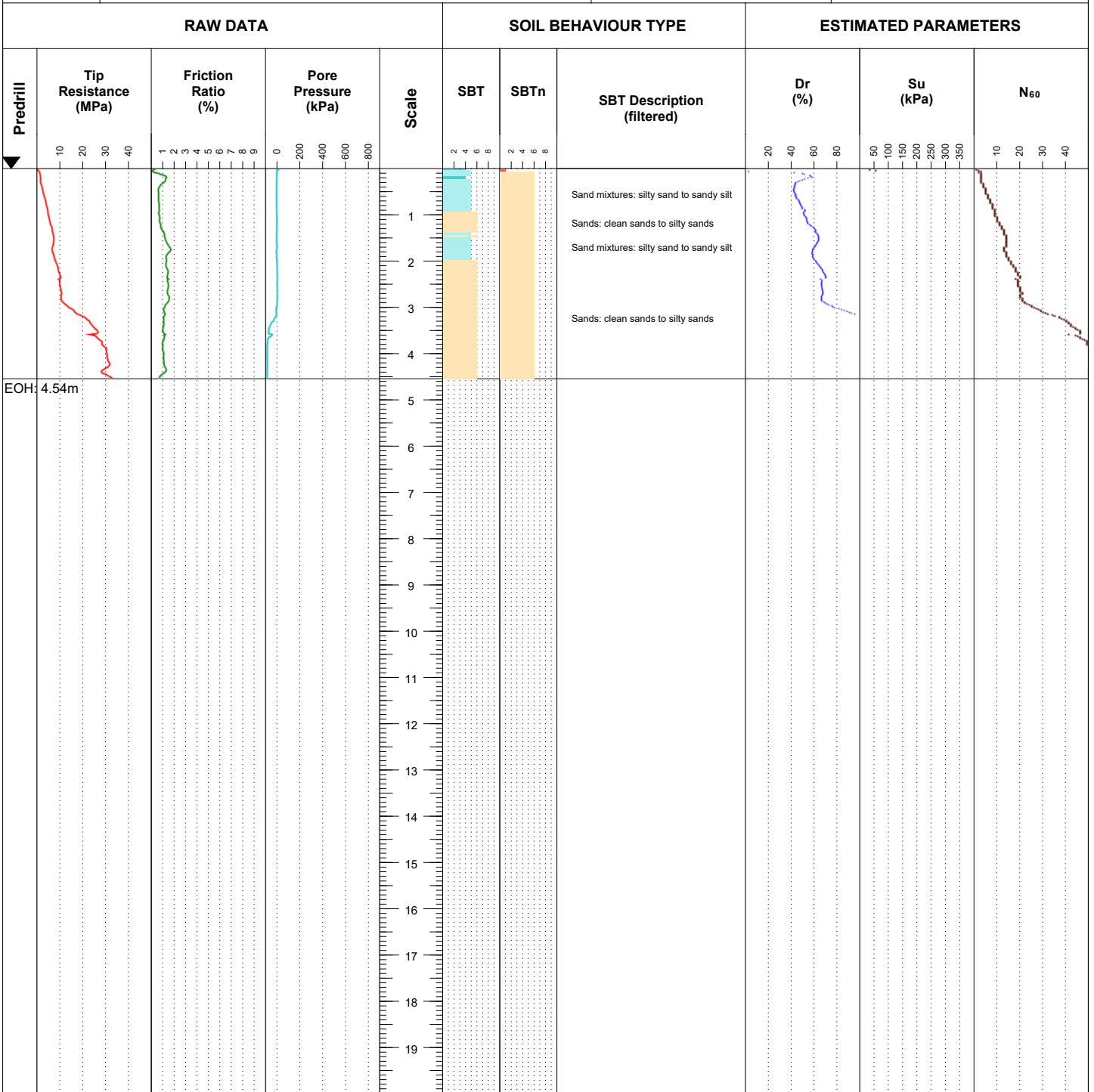
Job: 195340402

CPT No.: CPT10

Name: 131 Otaihanga Rd
 Client: Richard Mansell
 Location: 131 Otaihanga Rd

Grid: NZTM
 Datum: -
 Termination: -

North (m): 5472269.00
 East (m): 1770551.00
 Elevation (m): 0.00
 Hole Depth (m): 4.54



Soil Behaviour Type (SBT) - Robertson et al. 1986

- | | |
|--|--|
| 0 Undefined | 5 Sand mixtures: silty sand to sandy silt |
| 1 Sensitive fine-grained | 6 Sands: clean sands to silty sands |
| 2 Clay - organic soil | 7 Dense sand to gravelly sand |
| 3 Clays: clay to silty clay | 8 Stiff sand to clayey sand |
| 4 Silt mixtures: clayey silt & silty clay | 9 Stiff fine-grained |

Notes & Limitations

Data shown on this report has been assessed to provide a basic interpretation in terms of Soil Behaviour Type (SBT) and various geotechnical soil and design parameters using methods published in P. K. Robertson and K.L. Cabal (2010), Guide to Cone Penetration Testing for Geotechnical Engineering, 4th Edition. The interpretations are presented only as a guide for geotechnical use, and should be carefully reviewed by the user. Gero Solutions Ltd do not warrant the correctness or the applicability of any of the geotechnical soil and design parameters shown and does not assume any liability for any use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used to derive data shown in this report.

Remarks

Hole Depth (m): 4.54

Sheet 10 of 11



CONE PENETRATION TEST

Job: 195340402

CPT No.: CPT11

Name: 131 Otaihanga Rd
Client: Richard Mansell
Location: 131 Otaihanga Rd

Grid: NZTM

North (m): 5472308.00

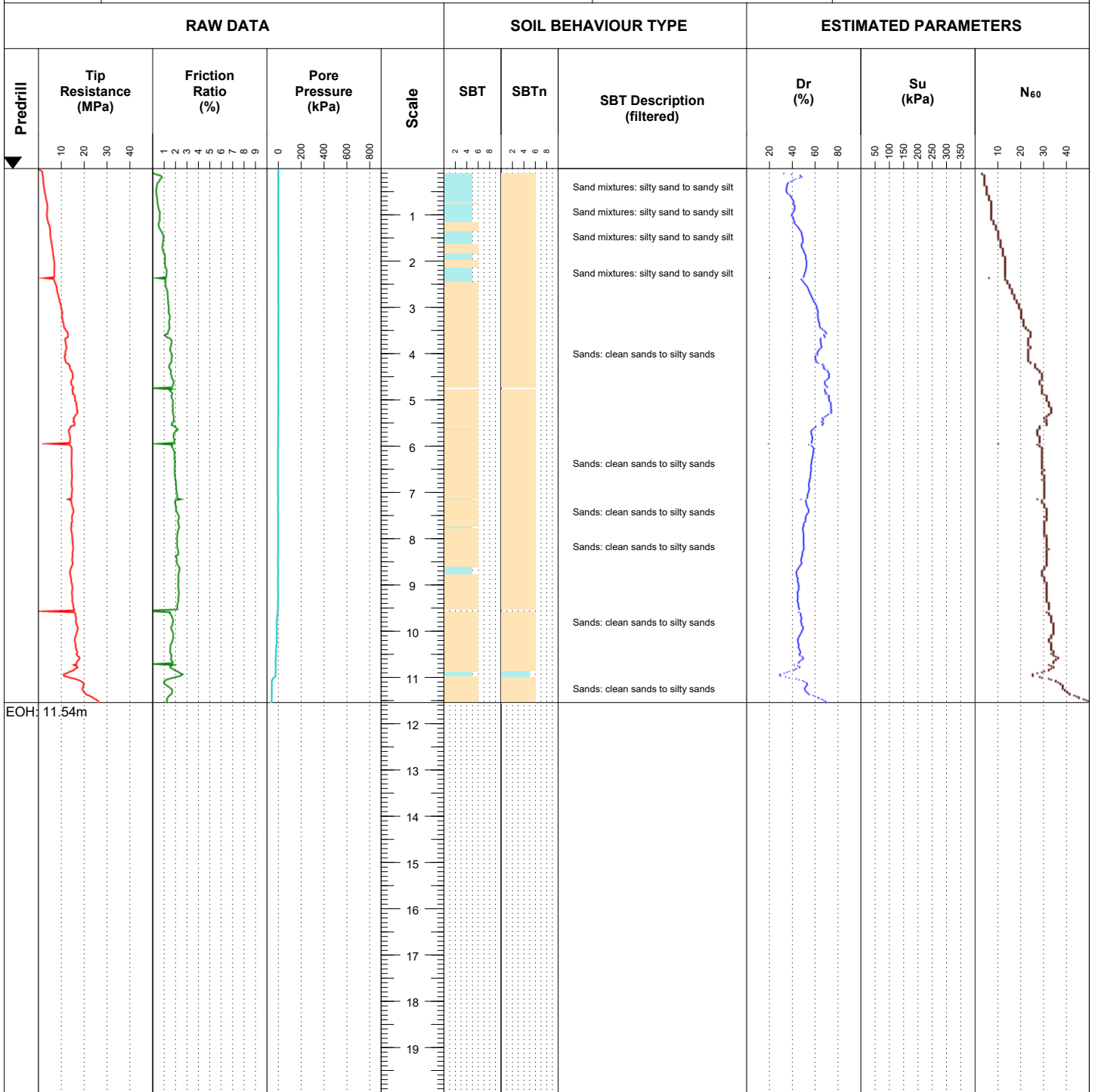
East (m): 1770488.00

Datum: -

Elevation (m): 0.00

Termination: -

Hole Depth (m): 11.54



Soil Behaviour Type (SBT) - Robertson et al. 1986

- 0 Undefined
- 1 Sensitive fine-grained
- 2 Clay - organic soil
- 3 Clays: clay to silty clay
- 4 Silt mixtures: clayey silt & silty clay
- 5 Sand mixtures: silty sand to sandy silt
- 6 Sands: clean sands to silty sands
- 7 Dense sand to gravelly sand
- 8 Stiff sand to clayey sand
- 9 Stiff fine-grained

Notes & Limitations

Data shown on this report has been assessed to provide a basic interpretation in terms of Soil Behaviour Type (SBT) and various geotechnical soil and design parameters using methods published in P. K. Robertson and K.L. Cabal (2010), Guide to Cone Penetration Testing for Geotechnical Engineering, 4th Edition. The interpretations are presented only as a guide for geotechnical use, and should be carefully reviewed by the user. Gero Solutions Ltd do not warrant the correctness or the applicability of any of the geotechnical soil and design parameters shown and does not assume any liability for any use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used to derive data shown in this report.

Remarks

Hole Depth (m): 11.54

Sheet 11 of 11

SOUNDING DETAILS: CPT01**Sounding: 2**

Machine: Geoprobe 54LT	Water Level: -
Operator: BR	Tip Resistance Initial: 6.8193
Cone Reference: 4483	Tip Resistance Final: -0.038
Cone Area Ratio: 0.87	Local Friction Initial: 128.8
Cone Type: -	Local Friction Final: -3
Date: 11/09/2019	Pore Pressure Initial: 264.2
Predrill: 0.00	Pore Pressure Final: -2.5

SOUNDING DETAILS: CPT02**Sounding: 1**

Machine: Geoprobe 54LT	Water Level: -
Operator: BR	Tip Resistance Initial: 6.8429
Cone Reference: 4483	Tip Resistance Final: -0.0173
Cone Area Ratio: 0.87	Local Friction Initial: 126.6
Cone Type: -	Local Friction Final: -1
Date: 11/09/2019	Pore Pressure Initial: 263.4
Predrill: 0.00	Pore Pressure Final: -1.4

SOUNDING DETAILS: CPT03**Sounding: 1**

Machine: Geoprobe 54LT	Water Level: -
Operator: BR	Tip Resistance Initial: 6.836
Cone Reference: 4483	Tip Resistance Final: -0.0317
Cone Area Ratio: 0.87	Local Friction Initial: 128.2
Cone Type: -	Local Friction Final: -2.2
Date: 11/09/2019	Pore Pressure Initial: 263.9
Predrill: 0.00	Pore Pressure Final: -2.2

SOUNDING DETAILS: CPT04**Sounding: 1**

Machine: Geoprobe 54LT	Water Level: -
Operator: BR	Tip Resistance Initial: 6.8337
Cone Reference: 4483	Tip Resistance Final: 0.0017
Cone Area Ratio: 0.87	Local Friction Initial: 127.2
Cone Type: -	Local Friction Final: -0.9
Date: 13/09/2019	Pore Pressure Initial: 263
Predrill: 0.00	Pore Pressure Final: -1

SOUNDING DETAILS: CPT05**Sounding: 1**

Machine: Geoprobe 54LT	Water Level: -
Operator: BR	Tip Resistance Initial: 6.836
Cone Reference: 4483	Tip Resistance Final: -0.0455
Cone Area Ratio: 0.87	Local Friction Initial: 127.9
Cone Type: -	Local Friction Final: -0.2
Date: 12/09/2019	Pore Pressure Initial: 264.4
Predrill: 0.00	Pore Pressure Final: -2.7

SOUNDING DETAILS: CPT06**Sounding: 1**

Machine: Geoprobe 54LT	Water Level: -
Operator: BR	Tip Resistance Initial: 6.8383
Cone Reference: 4483	Tip Resistance Final: -0.004
Cone Area Ratio: 0.87	Local Friction Initial: 128.1
Cone Type: -	Local Friction Final: -1.4
Date: 12/09/2019	Pore Pressure Initial: 263.4
Predrill: 0.00	Pore Pressure Final: -1.6

SOUNDING DETAILS: CPT07**Sounding: 2**

Machine: Geoprobe 54LT	Water Level: -
Operator: BR	Tip Resistance Initial: 6.8199
Cone Reference: 4483	Tip Resistance Final: -0.0478
Cone Area Ratio: 0.87	Local Friction Initial: 128.7
Cone Type: -	Local Friction Final: -0.2
Date: 12/09/2019	Pore Pressure Initial: 264
Predrill: 0.00	Pore Pressure Final: -2.8

SOUNDING DETAILS: CPT08**Sounding: 3**

Machine: Geoprobe 54LT	Water Level: -
Operator: BR	Tip Resistance Initial: 6.7773
Cone Reference: 4483	Tip Resistance Final: 0.0063
Cone Area Ratio: 0.87	Local Friction Initial: 129
Cone Type: -	Local Friction Final: -0.6
Date: 12/09/2019	Pore Pressure Initial: 263.9
Predrill: 0.00	Pore Pressure Final: -2.2

SOUNDING DETAILS: CPT09**Sounding: 1**

Machine: Geoprobe 54LT	Water Level: -
Operator: BR	Tip Resistance Initial: 6.8302
Cone Reference: 4483	Tip Resistance Final: -0.0368
Cone Area Ratio: 0.87	Local Friction Initial: 127.3
Cone Type: -	Local Friction Final: -0.7
Date: 13/09/2019	Pore Pressure Initial: 263.1
Predrill: 0.00	Pore Pressure Final: -2

SOUNDING DETAILS: CPT10**Sounding: 4**

Machine: Geoprobe 54LT	Water Level: -
Operator: BR	Tip Resistance Initial: 6.7986
Cone Reference: 4483	Tip Resistance Final: 0.004
Cone Area Ratio: 0.87	Local Friction Initial: 129.3
Cone Type: -	Local Friction Final: 0
Date: 12/09/2019	Pore Pressure Initial: 264.2
Predrill: 0.00	Pore Pressure Final: -1.8

SOUNDING DETAILS: CPT11

Sounding: 5

Machine: Geoprobe 54LT	Water Level: -
Operator: BR	Tip Resistance Initial: 6.7813
Cone Reference: 4483	Tip Resistance Final: 0.0092
Cone Area Ratio: 0.87	Local Friction Initial: 129.1
Cone Type: -	Local Friction Final: -4.6
Date: 12/09/2019	Pore Pressure Initial: 262.9
Predrill: 0.00	Pore Pressure Final: -1.3



DCP LOG

DCP01

SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	SUB-LOCATION: 131 Otaihanga Rd
PROJECT: 195340402	EASTING: 1770274.00	STARTED: 27/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5471793.00	FINISHED: 27/02/2020
OFFICE: RDCL - Hastings	DATUM: -	LOGGED BY: MT/RD DATE: 27/02/2020
ENGINEER:	ELEVATION: -	CHECKED BY: DATE:
	AZUMITH: PLUNGE: 90°	STATUS: Draft data

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
				4 8 12 16		
0.5	-0.5	Groundwater Not Encountered	DATA	1		
			3			
			5			
			8			
			9			
			7			
1.0	-1.0		4			
			4			
			4			
			5			
			7			
			8			
			10			
1.5	-1.5		11			
			11			
2.0	-2.0					
2.5	-2.5					
3.0	-3.0					
3.5	-3.5					
4.0	-4.0					
4.5	-4.5					

REMARKS
Soils tested in accordance with NZGS

- SYMBOLS**
- ▼ Standing Water Level
 - ◁ Out flow
 - ▷ In flow

Produced with Core-GS by Geric



DCP LOG

DCP02

SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	SUB-LOCATION: 131 Otaihanga Rd
PROJECT: 195340402	EASTING: 1770349.00	STARTED: 27/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5471779.00	FINISHED: 27/02/2020
OFFICE: RDCL - Hastings	DATUM: -	LOGGED BY: MT/RD DATE: 27/02/2020
ENGINEER:	ELEVATION: -	CHECKED BY: DATE:
	AZUMITH: PLUNGE: 90°	STATUS: Draft data

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	DATA	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
					4 8 12 16		
0.5	-0.5	Groundwater Not Encountered		1			
			2				
			2				
			2				
			1				
			1				
			1				
			1				
1.0	-1.0		3				
			2				
			3				
			3				
			4				
1.5	-1.5		3				
			5				
			6				
			6				
			7				
2.0	-2.0		8				
			9				
		9					
		9					
2.5	-2.5						
3.0	-3.0						
3.5	-3.5						
4.0	-4.0						
4.5	-4.5						

REMARKS
Soils tested in accordance with NZGS

SYMBOLS

- ▼ Standing Water Level
- ◁ Out flow
- ▷ In flow

Produced with Core-GS by Geric



DCP LOG

DCP03

SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	SUB-LOCATION: 131 Otaihanga Rd
PROJECT: 195340402	EASTING: 1770307.00	STARTED: 27/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5471732.00	FINISHED: 27/02/2020
OFFICE: RDCL - Hastings	DATUM: -	LOGGED BY: MT/RD DATE: 27/02/2020
ENGINEER:	ELEVATION: -	CHECKED BY: DATE:
	AZUMITH: PLUNGE: 90°	STATUS: Draft data

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	DATA	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
					4 8 12 16		
0.5	-0.5	Groundwater Not Encountered		1			
				1			
				3			
				2			
				2			
				2			
				1			
				2			
				3			
1.0	-1.0			1			
				3			
				4			
				3			
				4			
				5			
				5			
				6			
				6			
			6				
2.0	-2.0						
2.5	-2.5						
3.0	-3.0						
3.5	-3.5						
4.0	-4.0						
4.5	-4.5						

REMARKS
Soils tested in accordance with NZGS

SYMBOLS
 ▼ Standing Water Level
 ◁ Out flow
 ▷ In flow

Produced with Core-GS by Geric

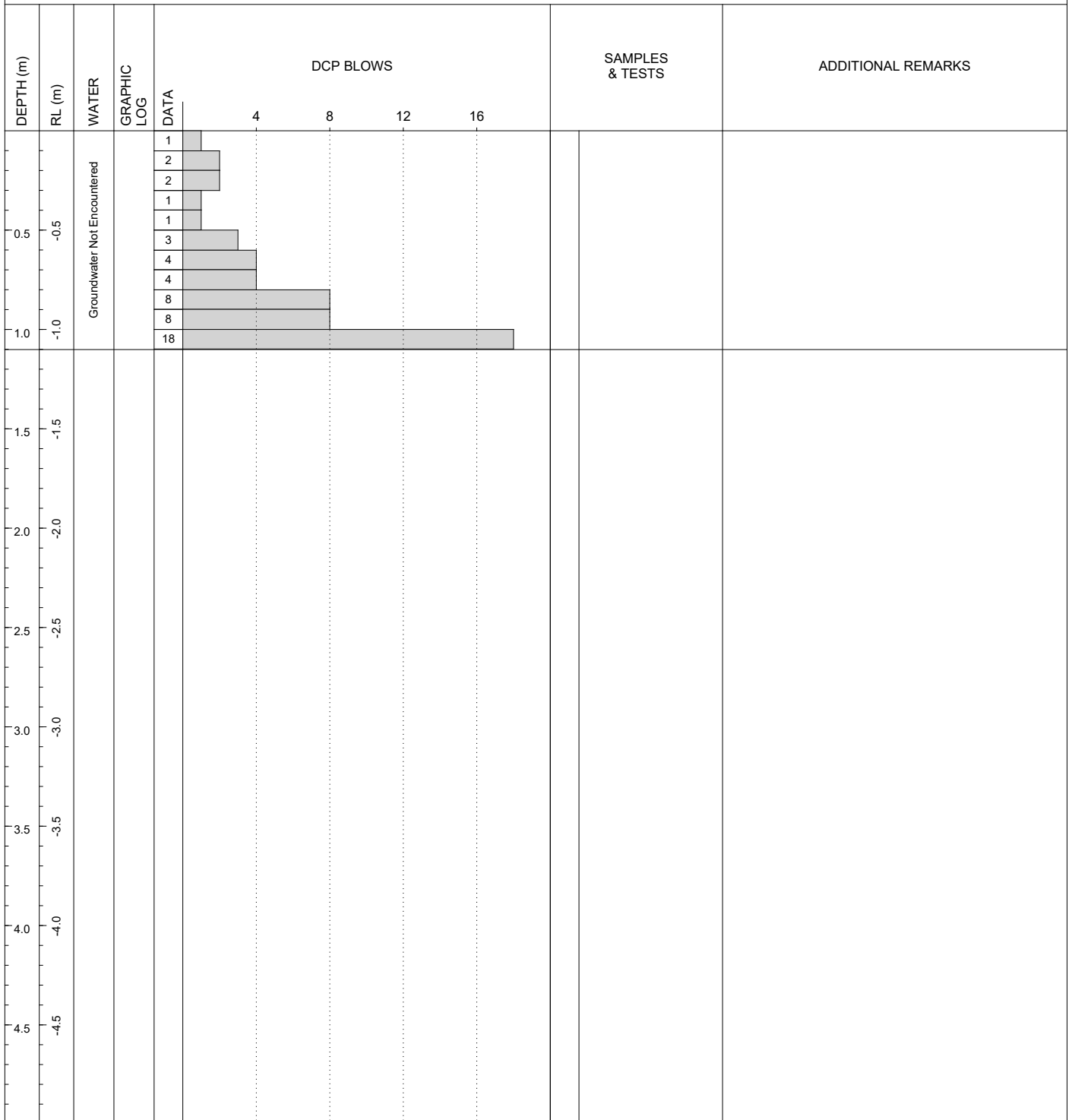


DCP LOG

DCP04

SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	SUB-LOCATION: 131 Otaihanga Rd
PROJECT: 195340402	EASTING: 1770331.00	STARTED: 27/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5471682.00	FINISHED: 27/02/2020
OFFICE: RDCL - Hastings	DATUM: -	LOGGED BY: MT/RD DATE: 27/02/2020
ENGINEER:	ELEVATION: -	CHECKED BY: DATE:
	AZUMITH: PLUNGE: 90°	STATUS: Draft data



REMARKS
Soils tested in accordance with NZGS

- SYMBOLS**
- ▼ Standing Water Level
 - ◁ Out flow
 - ▷ In flow

Produced with Core-GS by Geric

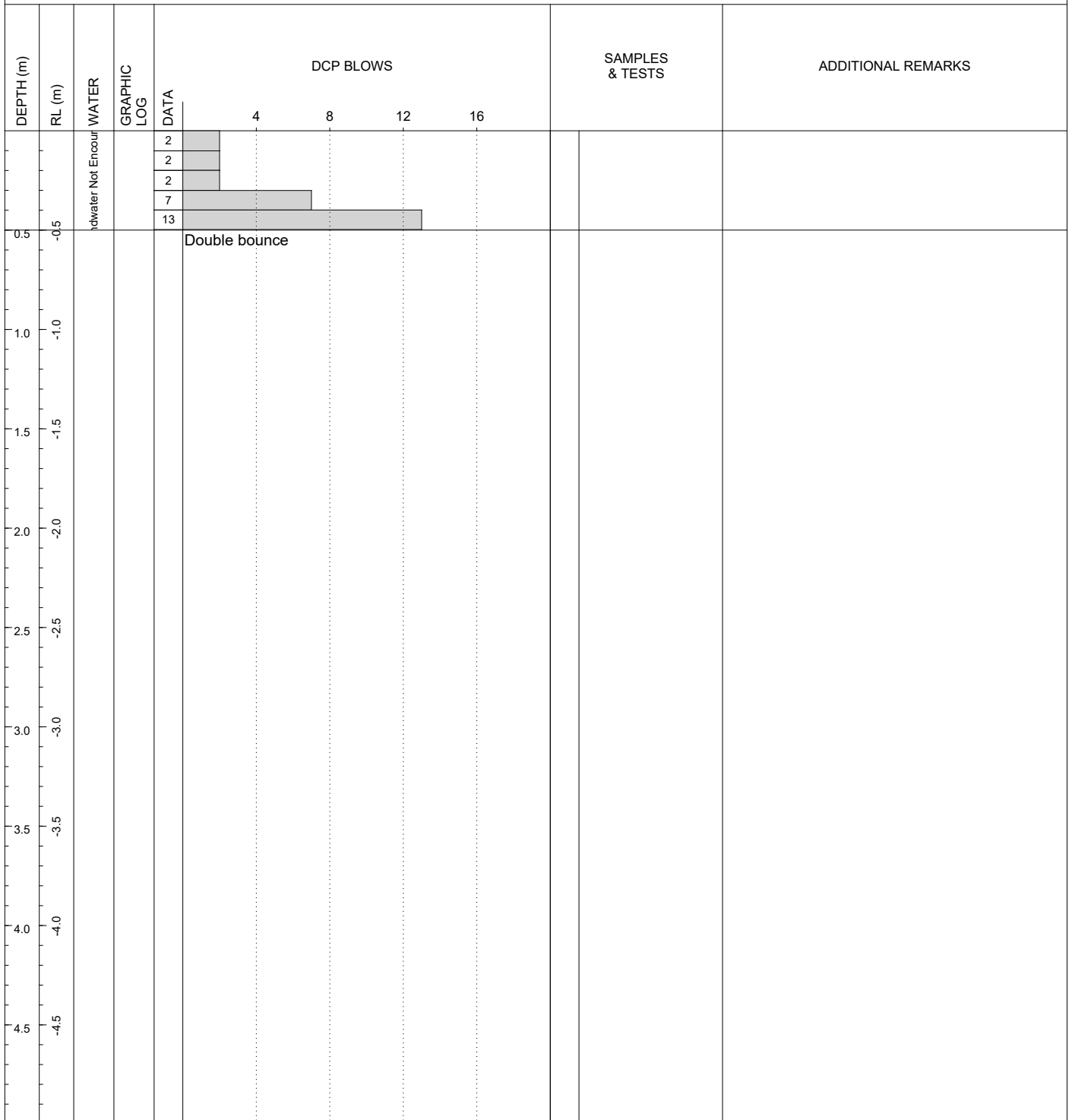


DCP LOG

DCP05

SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	SUB-LOCATION: 131 Otaihanga Rd
PROJECT: 195340402	EASTING: 1770353.00	STARTED: 27/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5471629.00	FINISHED: 27/02/2020
OFFICE: RDCL - Hastings	DATUM: -	LOGGED BY: MT/RD DATE: 27/02/2020
ENGINEER:	ELEVATION: -	CHECKED BY: DATE:
	AZUMITH: PLUNGE: 90°	STATUS: Draft data



REMARKS
Soils tested in accordance with NZGS

- SYMBOLS**
- ▼ Standing Water Level
 - ◁ Out flow
 - ▷ In flow

Produced with Core-GS by Geric



DCP LOG

DCP06

SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	SUB-LOCATION: 131 Otaihanga Rd
PROJECT: 195340402	EASTING: 1770387.00	STARTED: 27/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5471725.00	FINISHED: 27/02/2020
OFFICE: RDCL - Hastings	DATUM: -	LOGGED BY: MT/RD DATE: 27/02/2020
ENGINEER:	ELEVATION: -	CHECKED BY: DATE:
	AZUMITH: PLUNGE: 90°	STATUS: Draft data

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	DATA	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
					4 8 12 16		
0.5	-0.5	Groundwater Not Encountered		1			
				2			
				2			
				3			
				3			
				3			
				4			
1.0	-1.0			5			
				4			
				7			
				8			
				8			
				7			
1.5	-1.5		10				
			12				
			13				
2.0	-2.0						
2.5	-2.5						
3.0	-3.0						
3.5	-3.5						
4.0	-4.0						
4.5	-4.5						

REMARKS
Soils tested in accordance with NZGS

SYMBOLS

- ▼ Standing Water Level
- ◁ Out flow
- ▷ In flow

Produced with Core-GS by Geric



DCP LOG

DCP07

SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	SUB-LOCATION: 131 Otaihanga Rd
PROJECT: 195340402	EASTING: 1770459.00	STARTED: 27/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5471935.00	FINISHED: 27/02/2020
OFFICE: RDCL - Hastings	DATUM: -	LOGGED BY: MT/RD DATE: 27/02/2020
ENGINEER:	ELEVATION: -	CHECKED BY: DATE:
	AZUMITH: PLUNGE: 90°	STATUS: Draft data

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
				4 8 12 16		
0.5	-0.5	Groundwater Not Encountered	1			
			1			
			3			
			3			
			3			
			2			
			3			
			4			
1.0	-1.0		5			
			9			
			9			
			9			
			8			
1.5	-1.5	9				
2.0	-2.0					
2.5	-2.5					
3.0	-3.0					
3.5	-3.5					
4.0	-4.0					
4.5	-4.5					

REMARKS
Soils tested in accordance with NZGS

- SYMBOLS**
- ▼ Standing Water Level
 - ◁ Out flow
 - ▷ In flow

Produced with Core-GS by Geric



DCP LOG

DCP08

SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	SUB-LOCATION: 131 Otaihanga Rd
PROJECT: 195340402	EASTING: 1770511.00	STARTED: 27/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5472026.00	FINISHED: 27/02/2020
OFFICE: RDCL - Hastings	DATUM: -	LOGGED BY: MT/RD DATE: 27/02/2020
ENGINEER:	ELEVATION: -	CHECKED BY: DATE:
	AZUMITH: PLUNGE: 90°	STATUS: Draft data

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	DATA	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
					4 8 12 16		
0.5	-0.5	Groundwater Not Encountered		1			
			2				
			2				
			2				
			3				
			3				
			3				
1.0	-1.0		2				
			5				
			5				
			4				
			3				
			5				
			5				
			6				
		5					
		5					
2.0	-2.0						
2.5	-2.5						
3.0	-3.0						
3.5	-3.5						
4.0	-4.0						
4.5	-4.5						

REMARKS
Soils tested in accordance with NZGS

SYMBOLS

- ▼ Standing Water Level
- ◁ Out flow
- ▷ In flow

Produced with Core-GS by Geric



DCP LOG

DCP09

SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	SUB-LOCATION: 131 Otaihanga Rd
PROJECT: 195340402	EASTING: 1770498.00	STARTED: 27/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5472065.00	FINISHED: 27/02/2020
OFFICE: RDCL - Hastings	DATUM: -	LOGGED BY: MT/RD DATE: 27/02/2020
ENGINEER:	ELEVATION: -	CHECKED BY: DATE:
	AZUMITH: PLUNGE: 90°	STATUS: Draft data

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	DATA	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
					4 8 12 16		
0.5	-0.5	Groundwater Not Encountered		1			
				2			
				3			
				2			
				3			
				2			
				3			
				3			
				3			
				5			
				3			
				3			
				5			
				4			
				5			
				6			
				8			
2.0	-2.0						
2.5	-2.5						
3.0	-3.0						
3.5	-3.5						
4.0	-4.0						
4.5	-4.5						

REMARKS
Soils tested in accordance with NZGS

SYMBOLS
 ▼ Standing Water Level
 ◁ Out flow
 ▷ In flow

Produced with Core-GS by Geric



DCP LOG

DCP10

SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	SUB-LOCATION: 131 Otaihanga Rd
PROJECT: 195340402	EASTING: 1770435.00	STARTED: 28/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5472098.00	FINISHED: 28/02/2020
OFFICE: RDCL - Hastings	DATUM: -	LOGGED BY: MT/RD DATE: 28/02/2020
ENGINEER:	ELEVATION: -	CHECKED BY: DATE:
	AZUMITH: PLUNGE: 90°	STATUS: Draft data

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	DATA	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
					4 8 12 16		
0.5	-0.5	Groundwater Not Encountered		2			
				2			
				3			
				4			
				3			
				4			
				3			
				4			
				4			
				6			
				7			
				7			
				7			
				6			
				8			
				7			
				7			
2.0	-2.0						
2.5	-2.5						
3.0	-3.0						
3.5	-3.5						
4.0	-4.0						
4.5	-4.5						

REMARKS
Soils tested in accordance with NZGS

SYMBOLS

- ▼ Standing Water Level
- ◁ Out flow
- ▷ In flow

Produced with Core-GS by Geric



DCP LOG

DCP11

SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	SUB-LOCATION: 131 Otaihanga Rd
PROJECT: 195340402	EASTING: 1770371.00	STARTED: 28/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5472140.00	FINISHED: 28/02/2020
OFFICE: RDCL - Hastings	DATUM: -	LOGGED BY: MT/RD DATE: 28/02/2020
ENGINEER:	ELEVATION: -	CHECKED BY: DATE:
	AZUMITH: PLUNGE: 90°	STATUS: Draft data

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	DATA	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
					4 8 12 16		
0.5	-0.5	Groundwater Not Encountered		2			
			3				
			4				
			3				
			3				
			3				
			4				
			4				
1.0	-1.0		5				
			6				
			7				
			7				
			8				
			8				
1.5	-1.5		9				
		8					
2.0	-2.0						
2.5	-2.5						
3.0	-3.0						
3.5	-3.5						
4.0	-4.0						
4.5	-4.5						

REMARKS
Soils tested in accordance with NZGS

- SYMBOLS**
- ▼ Standing Water Level
 - ◁ Out flow
 - ▷ In flow

Produced with Core-GS by Geric



DCP LOG

DCP12

SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	SUB-LOCATION: 131 Otaihanga Rd
PROJECT: 195340402	EASTING: 1770439.00	STARTED: 28/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5472159.00	FINISHED: 28/02/2020
OFFICE: RDCL - Hastings	DATUM: -	LOGGED BY: MT/RD DATE: 28/02/2020
ENGINEER:	ELEVATION: -	CHECKED BY: DATE:
	AZUMITH: PLUNGE: 90°	STATUS: Draft data

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	DATA	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
					4 8 12 16		
0.5	-0.5	Groundwater Not Encountered		2			
				2			
				2			
				3			
				3			
				3			
				2			
				2			
				2			
				3			
1.0	-1.0			5			
				5			
				6			
				7			
				9			
1.5	-1.5		7				
			10				
			10				
2.0	-2.0						
2.5	-2.5						
3.0	-3.0						
3.5	-3.5						
4.0	-4.0						
4.5	-4.5						

REMARKS
Soils tested in accordance with NZGS

- SYMBOLS**
- ▼ Standing Water Level
 - ◁ Out flow
 - ▷ In flow

Produced with Core-GS by Geric



DCP LOG

DCP13

SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	SUB-LOCATION: 131 Otaihanga Rd
PROJECT: 195340402	EASTING: 1770523.00	STARTED: 28/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5472096.00	FINISHED: 28/02/2020
OFFICE: RDCL - Hastings	DATUM: -	LOGGED BY: MT/RD DATE: 28/02/2020
ENGINEER:	ELEVATION: -	CHECKED BY: DATE:
	AZUMITH: PLUNGE: 90°	STATUS: Draft data

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	DATA	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
					4 8 12 16		
0.5	-0.5	Groundwater Not Encountered		1			
				3			
				3			
				4			
				3			
				3			
				2			
				4			
				3			
				3			
1.0	-1.0			6			
				6			
				8			
				6			
				8			
1.5	-1.5		12				
			12				
2.0	-2.0						
2.5	-2.5						
3.0	-3.0						
3.5	-3.5						
4.0	-4.0						
4.5	-4.5						

REMARKS
Soils tested in accordance with NZGS

SYMBOLS

- ▼ Standing Water Level
- ◁ Out flow
- ▷ In flow

Produced with Core-GS by Geric



DCP LOG

DCP14

SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	SUB-LOCATION: 131 Otaihanga Rd
PROJECT: 195340402	EASTING: 1770511.00	STARTED: 28/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5472191.00	FINISHED: 28/02/2020
OFFICE: RDCL - Hastings	DATUM: -	LOGGED BY: MT/RD DATE: 28/02/2020
ENGINEER:	ELEVATION: -	CHECKED BY: DATE:
	AZUMITH: PLUNGE: 90°	STATUS: Draft data

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	DATA	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
					4 8 12 16		
0.5	-0.5	Groundwater Not Encountered		2			
				2			
				2			
				2			
				2			
				2			
				2			
				2			
1.0	-1.0			3			
				4			
				7			
			10				
			9				
			10				
1.5	-1.5		11				
2.0	-2.0						
2.5	-2.5						
3.0	-3.0						
3.5	-3.5						
4.0	-4.0						
4.5	-4.5						

REMARKS Soils tested in accordance with NZGS	SYMBOLS ▼ Standing Water Level ◁ Out flow ▷ In flow
---	--

Produced with Core-GS by Geric



DCP LOG

DCP15

SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	SUB-LOCATION: 131 Otaihanga Rd
PROJECT: 195340402	EASTING: 1770533.00	STARTED: 28/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5472277.00	FINISHED: 28/02/2020
OFFICE: RDCL - Hastings	DATUM: -	LOGGED BY: MT/RD DATE: 28/02/2020
ENGINEER:	ELEVATION: -	CHECKED BY: DATE:
	AZUMITH: PLUNGE: 90°	STATUS: Draft data

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	DATA	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
					4 8 12 16		
0.5	-0.5	Groundwater Not Encountered		2			
				1			
				2			
				3			
				3			
				2			
				2			
				1			
				1			
				2			
				5			
1.0	-1.0		4				
			4				
			7				
			8				
			9				
			10				
			11				
2.0	-2.0						
2.5	-2.5						
3.0	-3.0						
3.5	-3.5						
4.0	-4.0						
4.5	-4.5						

REMARKS
Soils tested in accordance with NZGS

SYMBOLS

- ▼ Standing Water Level
- ◁ Out flow
- ▷ In flow

Produced with Core-GS by Geric



DCP LOG

DCP16

SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	SUB-LOCATION: 131 Otaihanga Rd
PROJECT: 195340402	EASTING: 1770476.00	STARTED: 28/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5472313.00	FINISHED: 28/02/2020
OFFICE: RDCL - Hastings	DATUM: -	LOGGED BY: MT/RD DATE: 28/02/2020
ENGINEER:	ELEVATION: -	CHECKED BY: DATE:
	AZUMITH: PLUNGE: 90°	STATUS: Draft data

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	DATA	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
					4 8 12 16		
0.5	-0.5	Groundwater Not Encountered		2			
				2			
				2			
				3			
				2			
				3			
				2			
				3			
				4			
1.0	-1.0			4			
				5			
				5			
				5			
				6			
				7			
				6			
				5			
				9			
2.0	-2.0						
2.5	-2.5						
3.0	-3.0						
3.5	-3.5						
4.0	-4.0						
4.5	-4.5						

REMARKS
Soils tested in accordance with NZGS

SYMBOLS

- ▼ Standing Water Level
- ◁ Out flow
- ▷ In flow

Produced with Core-GS by Geric



TEST PIT LOG

TP01
SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	STARTED: 27/02/2020
PROJECT: 195340402	EASTING: 1770357.00	FINISHED: 27/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5471613.00	
131 Otaihanga Rd	DATUM: -	LOGGED BY: MT/RD DATE: 27/02/2020
OFFICE: RDCL - Hastings	ELEVATION: -	CHECKED BY: DATE:
ENGINEER:	DIMENSIONS: m x m	STATUS: Draft data

CONTRACTOR: _____ MACHINE TYPE & MODEL: _____

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	ROCK / SOIL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / DENSITY	CLASSIFICATION	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
0.0				Silty TOPSOIL, with trace sand; dark brown. Moist; sand, fine; rootlets.	M					
0.5	-0.5			Silty SAND, with trace clay; brown; blocky. Soft to firm; non-plastic; moist; sand, fine; rootlets.		S - FM				
1.0	-1.0			Silty SAND, with trace rootlets; dark brown. Loose; wet; sand, fine; becoming blocky and tannish grey with depth.	W	L				
1.5	-1.5	▼		Silty SAND; blue; blocky. Medium dense; dilatant; saturated; sand, fine.	S	MD				
2.0	-2.0			EOH: 2.10m						
2.5	-2.5									

REMARKS

SYMBOLS
 ▼ Standing Water Level
 ◁ Out flow
 ▷ In flow



TEST PIT LOG

TP02
SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	STARTED: 27/02/2020
PROJECT: 195340402	EASTING: 1770397.00	FINISHED: 27/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5471725.00	
131 Otaihanga Rd	DATUM: -	LOGGED BY: MT/RD DATE: 27/02/2020
OFFICE: RDCL - Hastings	ELEVATION: -	CHECKED BY: DATE:
ENGINEER:	DIMENSIONS: m x m	STATUS: Draft data

CONTRACTOR: _____ MACHINE TYPE & MODEL: _____

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	ROCK / SOIL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / DENSITY	CLASSIFICATION	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
				Silty TOPSOIL, with some clay, with trace sand; brown. Moist; sand, fine; rootlets.	M					
0.5	-0.5			Silty SAND, with some rootlets; tan; blocky. Loose to medium dense; moist becoming wet; sand, fine; becoming yellowish tan with trace iron staining with depth.	M becoming W	L - MD				
1.5	-1.5			Silty SAND; greyish blue. Medium dense; dilatant; wet; sand, fine.	W	MD				
2.5	-2.5	▼		EOH: 2.50m						

REMARKS

SYMBOLS
 ▼ Standing Water Level
 ◁ Out flow
 ▷ In flow



TEST PIT LOG

TP03
SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	STARTED: 27/02/2020
PROJECT: 195340402	EASTING: 1770327.00	FINISHED: 27/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5471682.00	LOGGED BY: MT/RD DATE: 27/02/2020
131 Otaihanga Rd	DATUM: -	CHECKED BY: DATE:
OFFICE: RDCL - Hastings	ELEVATION: -	STATUS: Draft data
ENGINEER:	DIMENSIONS: m x m	

CONTRACTOR: MACHINE TYPE & MODEL:

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	ROCK / SOIL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / DENSITY	CLASSIFICATION	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
0.5	-0.5			TOPSOIL (PEATY), with trace sand; very dark brown. Soft; moist to dry; peat, fibrous; sand, fine; trace logs up to 1.0m long; eggy odour; rootlets.	M - D	S				
1.0	-1.0			Silty SAND, with trace rootlets; dark brown; blocky. Medium dense; non-plastic; wet; sand, fine.			W			
1.5	-1.5	▼		Silty SAND; blueish grey. Medium dense; wet; sand, fine.			MD			
2.0	-2.0			Silty SAND, with trace rootlets; greyish blue becoming blue; blocky. Medium dense; wet to saturated; sand, fine.			W - S			
				EOH: 2.20m						
2.5	-2.5									

REMARKS

SYMBOLS
 ▼ Standing Water Level
 ◁ Out flow
 ▷ In flow



TEST PIT LOG

TP04
SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	STARTED: 27/02/2020
PROJECT: 195340402	EASTING: 1770292.00	FINISHED: 27/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5471728.00	
131 Otaihanga Rd	DATUM: -	LOGGED BY: MT/RD DATE: 27/02/2020
OFFICE: RDCL - Hastings	ELEVATION: -	CHECKED BY: DATE:
ENGINEER:	DIMENSIONS: m x m	STATUS: Draft data

CONTRACTOR: MACHINE TYPE & MODEL:

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	ROCK / SOIL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / DENSITY	CLASSIFICATION	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
				Silty TOPSOIL, with some sand; dark brown. Moist; sand, fine; rootlets.						
0.5	-0.5			Silty SAND; yellowish tan. Loose; moist; sand, fine; becoming greyish tan at 1.1m bgl.						
1.0	-1.0				M					
1.5	-1.5					L				
2.0	-2.0									
2.5	-2.5									

Groundwater Not Encountered

EOH: 2.30m

REMARKS

- SYMBOLS**
- ▼ Standing Water Level
 - ◁ Out flow
 - ▷ In flow



TEST PIT LOG

TP05
SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	STARTED: 27/02/2020
PROJECT: 195340402	EASTING: 1770271.00	FINISHED: 27/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5471789.00	
131 Otaihanga Rd	DATUM: -	LOGGED BY: MT/RD DATE: 27/02/2020
OFFICE: RDCL - Hastings	ELEVATION: -	CHECKED BY: DATE:
ENGINEER:	DIMENSIONS: m x m	STATUS: Draft data

CONTRACTOR: MACHINE TYPE & MODEL:

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	ROCK / SOIL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / DENSITY	CLASSIFICATION	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
			TS	Silty TOPSOIL, with trace sand; dark brown. Moist; sand, fine; rootlets.	M					
0.5	-0.5		Groundwater Not Encountered	Silty SAND; tan. Very loose; non-plastic; dry becoming moist; sand, fine.						
1.0	-1.0					D becoming M	VL			
1.5	-1.5									
2.0	-2.0									
2.5	-2.5			EOH: 2.60m						

REMARKS

- SYMBOLS**
- ▼ Standing Water Level
 - ◁ Out flow
 - ▷ In flow



TEST PIT LOG

TP06
SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	STARTED: 27/02/2020
PROJECT: 195340402	EASTING: 1770460.00	FINISHED: 27/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5471933.00	LOGGED BY: MT/RD
131 Otaihanga Rd	DATUM: -	DATE: 27/02/2020
OFFICE: RDCL - Hastings	ELEVATION: -	CHECKED BY:
ENGINEER:	DIMENSIONS: m x m	STATUS: Draft data

CONTRACTOR: _____ MACHINE TYPE & MODEL: _____


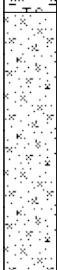
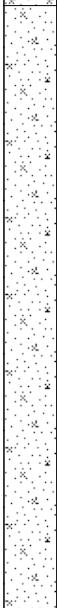
DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	ROCK / SOIL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / DENSITY	CLASSIFICATION	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
				Silty TOPSOIL, with trace sand; dark brown. Dry to moist; sand, fine; rootlets.	D - M					
0.5	-0.5			Sandy SILT; tan; blocky. Loose to medium dense; moist; sand, fine; rootlets.	M	L - MD				
1.0	-1.0			Silty SAND; blueish grey. Medium dense; wet; sand, fine.	W	MD				
1.5	-1.5	▼		EOH: 1.90m						
2.0	-2.0									
2.5	-2.5									

REMARKS

- SYMBOLS**
- ▼ Standing Water Level
 - ◁ Out flow
 - ▷ In flow

CLIENT: Richard Mansell	PROJECTION: NZTM2000	STARTED: 27/02/2020
PROJECT: 195340402	EASTING: 1770510.00	FINISHED: 27/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5472027.00	
131 Otaihanga Rd	DATUM: -	LOGGED BY: MT/RD DATE: 27/02/2020
OFFICE: RDCL - Hastings	ELEVATION: -	CHECKED BY: DATE:
ENGINEER:	DIMENSIONS: m x m	STATUS: Draft data

CONTRACTOR:	MACHINE TYPE & MODEL:
-------------	-----------------------

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	ROCK / SOIL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / DENSITY	CLASSIFICATION	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
				Silty TOPSOIL, with trace sand; brown. Moist to dry; sand, fine; rootlets.	M - D					
0.5	-0.5			Sandy SILT, with some roots; tan/greyish brown. Loose; dry; sand, fine.		L				
1.0	-1.0			Silty SAND; yellowish tan; blocky. Loose to dense; dry; sand, fine; becoming moist with depth.	D					
1.5	-1.5									
2.0	-2.0									
2.5	-2.5									
		Groundwater Not Encountered								
				EOH: 3.00m						

REMARKS
Pine roots throughout.

SYMBOLS

- ▼ Standing Water Level
- ◁ Out flow
- ▷ In flow



TEST PIT LOG

TP08
SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	STARTED: 28/02/2020
PROJECT: 195340402	EASTING: 1770436.00	FINISHED: 28/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5472104.00	
131 Otaihanga Rd	DATUM: -	LOGGED BY: MT/RD DATE: 28/02/2020
OFFICE: RDCL - Hastings	ELEVATION: -	CHECKED BY: DATE:
ENGINEER:	DIMENSIONS: m x m	STATUS: Draft data

CONTRACTOR: _____ MACHINE TYPE & MODEL: _____


DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	ROCK / SOIL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / DENSITY	CLASSIFICATION	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
			TS	Sandy TOPSOIL, with some silt; dark brown. Dry to moist; sand, fine; rootlets.						
0.5	-0.5	Groundwater Not Encountered	[Graphic Log Symbols]	Silty SAND; tan. Loose; dry to moist; sand, fine; becoming moist with depth.	D - M	L				
1.0	-1.0									
1.5	-1.5									
				EOH: 1.80m						
2.0	-2.0									
2.5	-2.5									

REMARKS

- SYMBOLS**
- ▼ Standing Water Level
 - ◁ Out flow
 - ▷ In flow

CLIENT: Richard Mansell	PROJECTION: NZTM2000	STARTED: 28/02/2020
PROJECT: 195340402	EASTING: 1770370.00	FINISHED: 28/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5472138.00	
131 Otaihanga Rd	DATUM: -	LOGGED BY: MT/RD DATE: 28/02/2020
OFFICE: RDCL - Hastings	ELEVATION: -	CHECKED BY: DATE:
ENGINEER:	DIMENSIONS: m x m	STATUS: Draft data

CONTRACTOR:	MACHINE TYPE & MODEL:
-------------	-----------------------

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	ROCK / SOIL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / DENSITY	CLASSIFICATION	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
0.5	-0.5	Groundwater Not Encountered		Sandy TOPSOIL, with some silt; dark brown. Dry to moist; sand, fine; rootlets.	D - M					
1.0	-1.0			Silty SAND; tan. Loose; dry; sand, fine; rootlets.	D	L				
1.5	-1.5			EOH: 1.70m						
2.0	-2.0									
2.5	-2.5									

REMARKS
Pine roots throughout.

SYMBOLS

- ▼ Standing Water Level
- ◁ Out flow
- ▷ In flow



TEST PIT LOG

TP10
SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	STARTED: 28/02/2020
PROJECT: 195340402	EASTING: 1770518.00	FINISHED: 28/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5472094.00	
131 Otaihanga Rd	DATUM: -	LOGGED BY: MT/RD DATE: 28/02/2020
OFFICE: RDCL - Hastings	ELEVATION: -	CHECKED BY: DATE:
ENGINEER:	DIMENSIONS: m x m	STATUS: Draft data

CONTRACTOR: _____ MACHINE TYPE & MODEL: _____

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	ROCK / SOIL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / DENSITY	CLASSIFICATION	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
			TS	Sandy TOPSOIL, with trace silt; dark brown. Moist to dry; sand, fine; rootlets.	M - D					
0.5	-0.5		TS	Silty SAND, with trace rootlets; tan. Loose to medium dense; moist; sand, fine.	M	L - MD				
1.0	-1.0		TS	Silty SAND; grey with orange mottle. Medium dense; dilatant; saturated; sand, fine; orange mottle inferred to be iron staining.	S	MD				
1.5	-1.5	▼								
2.0	-2.0									
2.5	-2.5			EOH: 2.20m						

REMARKS

SYMBOLS

- ▼ Standing Water Level
- ◁ Out flow
- ▷ In flow



TEST PIT LOG

TP11
SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	STARTED: 28/02/2020
PROJECT: 195340402	EASTING: 1770430.00	FINISHED: 28/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5472169.00	
131 Otaihanga Rd	DATUM: -	LOGGED BY: MT/RD DATE: 28/02/2020
OFFICE: RDCL - Hastings	ELEVATION: -	CHECKED BY: DATE:
ENGINEER:	DIMENSIONS: m x m	STATUS: Draft data

CONTRACTOR: _____ MACHINE TYPE & MODEL: _____

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	ROCK / SOIL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / DENSITY	CLASSIFICATION	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
			TS	Sandy TOPSOIL, with trace silt; dark brown; blocky. Moist; sand, fine.						
0.5	-0.5		M	Silty SAND; reddish brown. Loose; moist; sand, fine.	M	L				
1.0	-1.0		W	Silty SAND, with trace rootlets; grey; blocky. Medium dense; wet; sand, fine.	W	MD				
1.5	-1.5	▼								
2.0	-2.0			EOH: 2.00m						
2.5	-2.5									

REMARKS
Roots throughout.

SYMBOLS
 ▼ Standing Water Level
 ◁ Out flow
 ▷ In flow



TEST PIT LOG

TP12
SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	STARTED: 28/02/2020
PROJECT: 195340402	EASTING: 1770511.00	FINISHED: 28/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5472192.00	
131 Otaihanga Rd	DATUM: -	LOGGED BY: MT/RD DATE: 28/02/2020
OFFICE: RDCL - Hastings	ELEVATION: -	CHECKED BY: DATE:
ENGINEER:	DIMENSIONS: m x m	STATUS: Draft data

CONTRACTOR: _____ MACHINE TYPE & MODEL: _____

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	ROCK / SOIL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / DENSITY	CLASSIFICATION	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
0.5	-0.5			Sandy TOPSOIL, with some silt, with trace clay; dark brown. Moist; sand, fine; rootlets.	M	L - MD				
1.0	-1.0			Silty SAND, with trace iron stain; tan. Loose to medium dense; moist; sand, fine.						
1.5	-1.5			Silty SAND, with trace iron stain; grey. Medium dense; wet; sand, fine.	W	MD				
2.0	-2.0	▼		EOH: 2.10m						
2.5	-2.5									

REMARKS

SYMBOLS
 ▼ Standing Water Level
 ◁ Out flow
 ▷ In flow



TEST PIT LOG

TP13
SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	STARTED: 28/02/2020
PROJECT: 195340402	EASTING: 1770531.00	FINISHED: 28/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5472277.00	
131 Otaihanga Rd	DATUM: -	LOGGED BY: MT/RD DATE: 28/02/2020
OFFICE: RDCL - Hastings	ELEVATION: -	CHECKED BY: DATE:
ENGINEER:	DIMENSIONS: m x m	STATUS: Draft data

CONTRACTOR: _____ MACHINE TYPE & MODEL: _____

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	ROCK / SOIL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / DENSITY	CLASSIFICATION	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
				Sandy TOPSOIL, with trace silt; dark brown. Moist; sand, fine; rootlets.	M					
0.5	-0.5			Silty SAND; tan. Loose; moist to dry; sand, fine.	M - D	L				
1.0	-1.0			Silty SAND; dark tan. Loose to medium dense; moist; sand, fine; becoming wet and greyish tan from 1.9m bgl.	M	L - MD				
1.5	-1.5									
2.0	-2.0									
2.5	-2.5									
		▼		EOH: 2.90m						

REMARKS

SYMBOLS
 ▼ Standing Water Level
 ◁ Out flow
 ▷ In flow



TEST PIT LOG

TP14
SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	STARTED: 28/02/2020
PROJECT: 195340402	EASTING: 1770477.00	FINISHED: 28/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5472312.00	
131 Otaihanga Rd	DATUM: -	LOGGED BY: MT/RD DATE: 28/02/2020
OFFICE: RDCL - Hastings	ELEVATION: -	CHECKED BY: DATE:
ENGINEER:	DIMENSIONS: m x m	STATUS: Draft data

CONTRACTOR: _____ MACHINE TYPE & MODEL: _____

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	ROCK / SOIL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / DENSITY	CLASSIFICATION	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
			TS	Silty TOPSOIL, with trace sand; dark brown. Dry; sand, fine; rootlets.						
0.5	-0.5	Groundwater Not Encountered	[Symbol]	Silty SAND, with trace rootlets; tan. Loose; dry; sand, fine; some iron staining starting at 0.9m bgl.	D	L				
1.0	-1.0									
1.5	-1.5									
2.0	-2.0									
2.5	-2.5									
										EOH: 1.80m

REMARKS

- SYMBOLS**
- ▼ Standing Water Level
 - ◁ Out flow
 - ▷ In flow



TEST PIT LOG

TP15
SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	STARTED: 28/02/2020
PROJECT: 195340402	EASTING: 1770517.00	FINISHED: 28/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5472347.00	
131 Otaihanga Rd	DATUM: -	LOGGED BY: MT/RD DATE: 28/02/2020
OFFICE: RDCL - Hastings	ELEVATION: -	CHECKED BY: DATE:
ENGINEER:	DIMENSIONS: m x m	STATUS: Draft data

CONTRACTOR: _____ MACHINE TYPE & MODEL: _____

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	ROCK / SOIL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / DENSITY	CLASSIFICATION	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
0.5	-0.5			Sandy TOPSOIL, with some silt; light brown. Dry; sand, fine; rootlets.	D					
1.0	-1.0			Silty SAND; tan. Loose becoming medium dense; dry becoming moist; sand, fine; rootlets.	D beco ming M	L beco ming MD				
1.5	-1.5									
2.0	-2.0									
2.5	-2.5									

Groundwater Not Encountered








EOH: 1.90m

REMARKS

- SYMBOLS**
- ▼ Standing Water Level
 - ◁ Out flow
 - ▷ In flow

CLIENT: Richard Mansell	PROJECTION: NZTM2000	STARTED: 27/02/2020
PROJECT: 195340402	EASTING: 1770345.00	FINISHED: 27/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5471775.00	
131 Otaihanga Rd	DATUM: -	LOGGED BY: MT/RD DATE: 27/02/2020
OFFICE: RDCL - Hastings	ELEVATION: -	CHECKED BY: DATE:
ENGINEER:	DIMENSIONS: m x m	STATUS: Draft data

CONTRACTOR:	MACHINE TYPE & MODEL:
-------------	-----------------------

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	ROCK / SOIL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / DENSITY	CLASSIFICATION	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
				Silty TOPSOIL, with trace sand; dark brown. Moist to dry; sand, fine.	M - D					
0.5	-0.5			Silty SAND, with trace rootlets; tan. Loose; dry to moist; sand, fine.	D - M	L				
1.0	-1.0			Silty SAND, with trace iron stain; tan; blocky. Loose to medium dense; moist; sand, fine; trace rootlets.						
1.5	-1.5									
2.0	-2.0				M	L - MD				
2.5	-2.5									
										
				EOH: 2.90m						

REMARKS
Buried topsoil (likely ancient) at 0.6m bgl.

SYMBOLS
 ▼ Standing Water Level
 ◁ Out flow
 ▷ In flow



TEST PIT LOG

TP17
SHEET 1 OF 1

CLIENT: Richard Mansell	PROJECTION: NZTM2000	STARTED: 27/02/2020
PROJECT: 195340402	EASTING: 1770500.00	FINISHED: 27/02/2020
LOCATION: 131 Otaihanga Rd	NORTHING: 5472061.00	
131 Otaihanga Rd	DATUM: -	LOGGED BY: MT/RD DATE: 27/02/2020
OFFICE: RDCL - Hastings	ELEVATION: -	CHECKED BY: DATE:
ENGINEER:	DIMENSIONS: m x m	STATUS: Draft data

CONTRACTOR: _____ MACHINE TYPE & MODEL: _____

DEPTH (m)	RL (m)	WATER	GRAPHIC LOG	ROCK / SOIL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / DENSITY	CLASSIFICATION	DCP BLOWS	SAMPLES & TESTS	ADDITIONAL REMARKS
			TS	Sandy TOPSOIL, with trace silt; dark brown. Moist; sand, fine; rootlets.	M					
0.5	-0.5		Groundwater Not Encountered	Silty SAND; tan. Dry to moist; sand, fine; trace blocky iron-pan inclusions.						
1.0	-1.0				D - M					
1.5	-1.5									
2.0	-2.0									
2.5	-2.5			EOH: 2.50m						

REMARKS

- SYMBOLS**
- ▼ Standing Water Level
 - ◁ Out flow
 - ▷ In flow