Far North District Council

Office Use Only
Application Number:

Private Bag 752, Memorial Ave
Kaikohe 0440, New Zealand
Freephone: 0800 920 029
Phone: (09) 401 5200
Fax: (09) 401 2137
Email: ask.us@fndc.govt.nz
Website: www.fndc.govt.nz

APPLICATION FOR RESOURCE CONSENT OR FAST-TRACK RESOURCE CONSENT

(Or Associated Consent Pursuant to the Resource Management Act 1991 (RMA))
(If applying for a Resource Consent pursuant to Section 87AAC or 88 of the RMA, this form can be used to satisfy the requirements of Form 9)

Prior to, and during, completion of this application form, please refer to Resource Consent Guidance Notes and Schedule of Fees and Charges – both available on the Council's web page.

1. Pre-Lodgement Meeting

Have you met with a Council Resource Consent representative to discuss this application prior to lodgement? Yes / No

2. Type of Consent being applied for (more than one circle can be ticked):

- ☑ Land Use
- ○ Fast Track Land Use*
- ○ Subdivision
- ○ Discharge
- ○ Extension of time (s.125)
- ○ Change of conditions (s.127)
- ○ Change of Consent Notice (s.221(3))
- ○ Consent under National Environmental Standard (e.g. Assessing and Managing Contaminants in Soil)
- ○ Other (please specify) _____

***The fast track for simple land use consents is restricted to consents with a controlled activity status and requires you provide an electronic address for service.**

3. Would you like to opt out of the Fast Track Process?

~~Yes~~ / No

4. Applicant Details:

Name/s: [redacted]

Electronic Address for Service (E-mail):

Phone Numbers:

Postal Address: (*or* alternative method of service under section 352 of the Act)

Post Code:

5. Address for Correspondence: *Name and address for service and correspondence (if using an Agent write their details here).*

Name/s: Steven Sanson - Sanson & Associates Limited

Electronic Address for Service (E-mail): steve@sansons.co.nz

Phone Numbers: Work: 0211606035 Home:

Postal Address: (*or* alternative method of service under section 352 of the Act) Po Box 318, Paihia, 0247

Post Code:

All correspondence will be sent by email in the first instance. Please advise us if you would prefer an alternative means of communication.

6. Details of Property Owner/s and Occupier/s: *Name and Address of the Owner/Occupiers of the land to which this application relates (where there are multiple owners or occupiers please list on a separate sheet if required)*

Name/s: Refer Record of Titles appended to the AEE

Property Address/: Location: 41 Hokianga Harbour Drive, Opononi

7. Application Site Details:

Location and/or Property Street Address of the proposed activity:

Site Address/ Location: 41 Hokianga Harbour Drive

Legal Description: Lot 1 DP 195242

Certificate of Title: NZ123B/576

Please remember to attach a copy of your Certificate of Title to the application, along with relevant consent notices and/or easements and encumbrances (search copy must be less than 6 months old)

Site Visit Requirements:

Is there a locked gate or security system restricting access by Council staff? ~~Yes~~ / No

Is there a dog on the property? ~~Yes~~ / No

Please provide details of any other entry restrictions that Council staff should be aware of, e.g. health and safety, caretaker's details. This is important to avoid a wasted trip and having to re-arrange a second visit.

8. Description of the Proposal:

Please enter a brief description of the proposal here. Attach a detailed description of the proposed activity and drawings (to a recognized scale, e.g. 1:100) to illustrate your proposal. Please refer to Chapter 4 of the District Plan, and Guidance Notes, for further details of information requirements.

2 x cabins in the Commercial Zone

If this is an application for an Extension of Time (s.125); Change of Consent Conditions (s.127) or Change or Cancellation of Consent Notice conditions (s.221(3)), please quote relevant existing Resource Consents and Consent Notice identifiers and provide details of the change(s) or extension being sought, with reasons for requesting them.

9. Would you like to request Public Notification

~~Yes~~/No

10. Other Consent required/being applied for under different legislation (more than one circle can be ticked):

O Building Consent (BC ref # if known)

O Regional Council Consent (ref # if known)

O National Environmental Standard consent

O Other (please specify)

11. National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health:

The site and proposal may be subject to the above NES. In order to determine whether regard needs to be had to the NES please answer the following (further information in regard to this NES is available on the Council's planning web pages):

Is the piece of land currently being used or has it historically ever been used for an activity or industry on the Hazardous Industries and Activities List (HAIL)

Ø yes O no O don't know

Is the proposed activity an activity covered by the NES? (If the activity is any of the activities listed below, then you need to tick the 'yes' circle).

O yes Ø no O don't know

O Subdividing land

O Changing the use of a piece of land

O Disturbing, removing or sampling soil

O Removing or replacing a fuel storage system

12. Assessment of Environmental Effects:

Every application for resource consent must be accompanied by an Assessment of Environmental Effects (AEE). This is a requirement of Schedule 4 of the Resource Management Act 1991 and an application can be rejected if an adequate AEE is not provided. The information in an AEE must be specified in sufficient detail to satisfy the purpose for which it is required. Your AEE may include additional information such as Written Approvals from adjoining property owners, or affected parties.

Please attach your AEE to this application.

13. Billing Details:

This identifies the person or entity that will be responsible for paying any invoices or receiving any refunds associated with processing this resource consent. Please also refer to Council's Fees and Charges Schedule.

Name/s: (please write all names in full) BDO Pakihi Taitokerau Limited

Email: solomon.dalton@bdo.co.nz

Postal Address: C/O BDO Northland Limited, 108 Kerikeri Road, Kerikeri

Post Code:

Phone Numbers: Work: 09 4077250 Home: Fax:

Fees Information: An instalment fee for processing this application is payable at the time of lodgement and must accompany your application in order for it to be lodged. Please note that if the instalment fee is insufficient to cover the actual and reasonable costs of work undertaken to process the application you will be required to pay any additional costs. Invoiced amounts are payable by the 20th of the month following invoice date. You may also be required to make additional payments if your application requires notification.

Declaration concerning Payment of Fees: I/we understand that the Council may charge me/us for all costs actually and reasonably incurred in processing this application. Subject to my/our rights under Sections 357B and 358 of the RMA, to object to any costs, I/we undertake to pay all and future processing costs incurred by the Council. Without limiting the Far North District Council's legal rights if any steps (including the use of debt collection agencies) are necessary to recover unpaid processing costs I/we agree to pay all costs of recovering those processing costs. If this application is made on behalf of a trust (private or family), a society (incorporated or unincorporated) or a company in signing this application I/we are binding the trust, society or company to pay all the above costs and guaranteeing to pay all the above costs in my/our personal capacity.

Name: [redacted] (please print)

Signature [redacted] (signature of bill payer – **mandatory**) Date: 16 November 2023

14. Important Information:

Note to applicant
You must include all information required by this form. The information must be specified in sufficient detail to satisfy the purpose for which it is required.
You may apply for 2 or more resource consents that are needed for the same activity on the same form.
You must pay the charge payable to the consent authority for the resource consent application under the Resource Management Act 1991.

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

Privacy Information:
Once this application is lodged with the Council it becomes public information. Please advise Council if there is sensitive information in the proposal. The information you have provided on this form is required so that your application for consent pursuant to the Resource Management Act 1991 can be processed under that Act. The information will be stored on a public register and held by the Far North District Council. The details of your application may also be made available to the public on the Council's website, www.fndc.govt.nz. These details are collected to inform the general public and community groups about all consents which have been issued through the Far North District Council.

Declaration: The information I have supplied with this application is true and complete to the best of my knowledge.

Name:_____(please print)

Signature:_____(signature) Date: _____

(A signature is not required if the application is made by electronic means)

Checklist (please tick if information is provided)

- ○ Payment (cheques payable to Far North District Council)
- ○ A current Certificate of Title (Search Copy not more than 6 months old)
- ○ Copies of any listed encumbrances, easements and/or consent notices relevant to the application
- ○ Applicant / Agent / Property Owner / Bill Payer details provided
- ○ Location of property and description of proposal
- ○ Assessment of Environmental Effects
- ○ Written Approvals / correspondence from consulted parties
- ○ Reports from technical experts (if required)
- ○ Copies of other relevant consents associated with this application
- ○ Location and Site plans (land use) AND/OR
- ○ Location and Scheme Plan (subdivision)
- ○ Elevations / Floor plans
- ○ Topographical / contour plans

Please refer to Chapter 4 of the District Plan for details of the information that must be provided with an application. Please also refer to the RC Checklist available on the Council's website. This contains more helpful hints as to what information needs to be shown on plans.

Only one copy of an application is required, but please note for copying and scanning purposes, documentation should be:

UNBOUND **SINGLE SIDED** **NO LARGER THAN A3 in SIZE**

Tel: +64 9 407 7250
Fax: +64 9 407 7129
kerikeri@bdo.co.nz
www.bdo.nz

BDO PAKIHI TAITOKERAU LIMITED
108 Kerikeri Road
P O Box 304
Kerikeri 0245
NEW ZEALAND

24 November 2023

Far North District Council
Private Bag 752,
Kaikohe 0440

Dear

Ministry of Housing and Urban Development - Cyclone Recovery Cabins

I hope this letter finds you well. I am writing to you on behalf of BDO Pakihi, in relation to the recent submission of resource consent applications for our project within the Far North District. We appreciate the role that the Far North District Council plays in ensuring responsible and sustainable development within the community.

Our project, aimed at fostering enhanced housing outcomes in Northland, operates under a constrained budget. As we navigate through the intricacies of resource management, we are proactively seeking ways to optimise our expenses to maximise the positive impact on the community. Given the financial constraints of our project, we kindly request your consideration for a reduction in the resource consent fees associated with our applications.

The allocation of resources to our housing initiative is of utmost importance, and any cost savings achieved through a fee reduction would directly contribute to the enhancement of housing outcomes for the people of Northland. We believe that by alleviating some of the financial burden associated with the consent process, we can redirect those funds towards the improvement of housing facilities and amenities, ultimately benefitting the broader community.

We understand the importance of adhering to regulatory processes and are committed to fulfilling all requirements set forth by the Far North District Council. We view this request as an opportunity for collaboration, where both parties can work together to achieve positive and sustainable outcomes for the region.

We would be grateful for the opportunity to discuss this matter further and explore potential avenues for cooperation. Your consideration of our request is highly valued, and we are open to providing any additional information or clarification that may assist in the decision-making process.

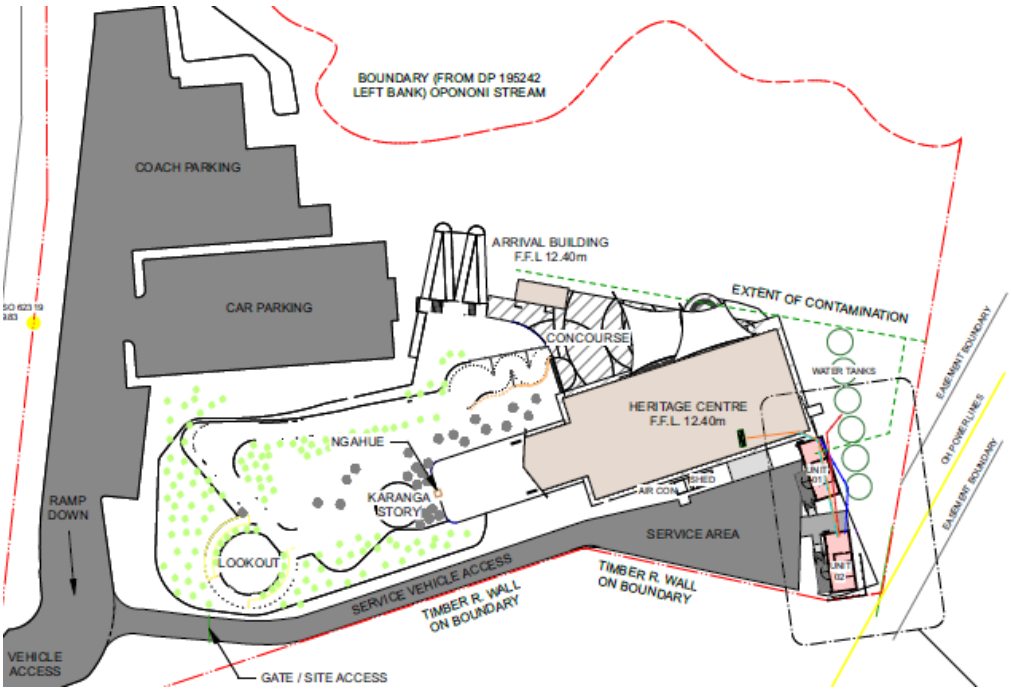
Thank you for your time and attention to this matter. We look forward to the possibility of working closely with the Far North District Council to bring about positive change in our community.

Kind

[redacted]mited

[redacted].nz
Visit our website: www.bdo.nz

SANSON & ASSOCIATES LTD
Planners & Resource Consent Specialists



Assessment of Environmental Effects

Application for Resource Consent:

Two cabins at the Manea Site

Prepared for: BDO Pakihi

Prepared by Steven Sanson | Consultant Planner

February 2024

1.0 APPLICANT & PROPERTY DETAILS

Applicant	BDO Pakihi
Address for Service	Sanson & Associates Limited PO Box 318 PAIHIA 0247 C/O - Steven Sanson steve@sansons.co.nz 021-160-6035
Legal Description	Lot 1 DP 195242
Record Of Title	NA123B/576
Physical Address	41 Hokianga Harbour Drive, Opononi
Site Area	1.1700ha
Owner of the Site	Te Hua O Te Kawariki Trust
District Plan Zone	Commercial (ODP) Mixed Use Zone and Coastal Environment Overlay (PDP)
District Plan Features	Nil
Archaeology	Nil known
NRC Overlays	Coastal Environment
Soils	6e 15 and 4e 4
Protected Natural Area	Nil
HAIL	Yes

Schedule 1

2.0 SUMMARY OF PROPOSAL

Proposal	The proposal seeks to add two cabins to the existing Manea Cultural centre site. Each cabin has a floor area of approximately 32m^2. Wastewater is proposed via the existing connection to the Councils reticulated system. There are existing water tanks onsite that can be utilised for the proposed cabins.
Reason for Application	The proposal breaches: • 7.7.5.1.5 Noise Mitigation for Residential Activities; • 7.7.5.1.11 – Stormwater; • 15.1.6A.2.1 – Traffic Intensity; • 15.1.6C.1.1 Private Accessway in All Zone. Overall, the proposal is a *Discretionary Activity* under the ODP. No consents are required under the PDP.
Appendices	Appendix 1 – Record of Title & Instruments Appendix 2 – Architectural Drawings [Site Scope] Appendix 3 – Pile Testing Results [Stop Digging] Appendix 4 – NZTA Consultation Appendix 5 – Top Energy Consultation Appendix 6 – PSI Report [Cook Costello] Appendix 7 – Manea Cultural Centre Decision Appendix 8 – Site Suitability Report [Cook Costello]
Consultation	NZTA Top Energy
Pre Application Consultation	Nil
Relevant Applications	Nil

3.0 INTRODUCTION & PROPOSAL

3.1 Report Requirements

This report has been prepared for BDO Pakihi in support of a land use consent application at 41 Hokianga Harbour Drive, Opononi.

The application has been prepared in accordance with the provisions of Section 88 and the Fourth Schedule of the Resource Management Act 1991. This report serves as the Assessment of Environmental Effects required under both provisions.

The report also includes an analysis of the relevant provisions of the Far North District Plan, relevant National Policy Statements and Environmental Standards, as well as Part 2 of the Resource Management Act 1991.

3.2 Proposal & Background

Application Site: A range of details regarding the site are outlined in Schedule 1 of this report.

These details are supplemented by the Record of Title and relevant instruments located in Appendix 1.

A broader description of the site is provided in Section 4 of this Report.

Land Use Consent: The proposal seeks to add two cabins 'residential units' to the existing Manea Heritage Centre site. Both cabins are 1bdr with associated infrastructure such as water tanks.

The site has an existing wastewater connection to the reticulated system which can also be utilised by the proposed cabins. The existing vehicle crossing and service vehicle access will also be utilised for the proposed cabins.

These proposal items are shown on the architectural drawings provided in Appendix 2.

The proposal is supported by pile testing which has been undertaken by Stop Digging. This is found in Appendix 3. Given access is from a limited access road, consultation has been undertaken with NZTA and this is found in Appendix 4.

As the proposed location of the cabins are in reasonable proximity to Top Energy transmission lines, consultation has also been undertaken with them and this is found in Appendix 5.

As part of the development associated with the Manea Cultural Centre, a PSI was undertaken to determine the relevance of the NES- Soil Contamination and HAIL matters. This is attached as Appendix 6.

Given the relevance of the underlying approvals, the recent decision for the Cultural Centre – RC 2180455 -RMAVAR/A is attached as Appendix 7. From a stormwater management perspective, the proposal seeks to rely on the mitigation methods put in place for the overall cultural centre development to assist with the management of the stormwater generated from the proposed cabins.

Background: An Order in Council – Severe Weather Emergency Recovery (Temporary Accommodation) Order 2023 was made effective from June 1 2023. This approach allows exemptions from the Resource Management Act 1991 for temporary accommodation until August 9 2026 or until such a time that resource consent was granted for the activity.

Whilst the provisions of the Order in Council are enabling (to a certain extent) all sites to be situated within the Far North District that are part of the HUD Cabins Project are seeking permanent residence of these cabins, as opposed to the temporary accommodation relief that the provisions provide. This, alongside breaches to District Wide Rules of the Operative District Plan, requires a resource consent to be sought.

Therefore, a full consent for permanent occupancy of the cabins is sought under this consent. Areas such as Opononi very rarely receive opportunities such as this and as such this consent seeks to make use of available government funding to support accommodation in rural areas.

Activity Status: The proposal is a Discretionary Activity.

4.0 SITE & SURROUNDING ENVIRONMENT

4.1 Zoning & Resource Features

The proposed activity is located in the Commercial Zone under the Operative District Plan. The site is located in the Mixed Use Zone under the Proposed District Plan. The zoning is outlined in Figure 1 & Figure 2. There are no resource features of relevance.

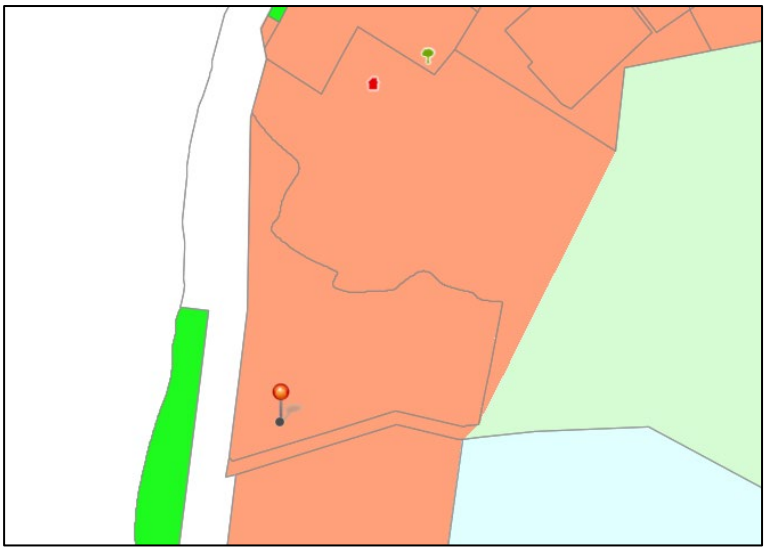


Figure 1 – Operative Plan - Zone Maps (Source: Far North Maps)

Figure 2 – Proposed Plan - Zone Maps (Source: Far North Maps)

The site has minimal areas covered by coastal flooding hazards; the proposed cabin sites are outside those areas. The site is implicated by HAIL (Refer Figures 3 & 4).

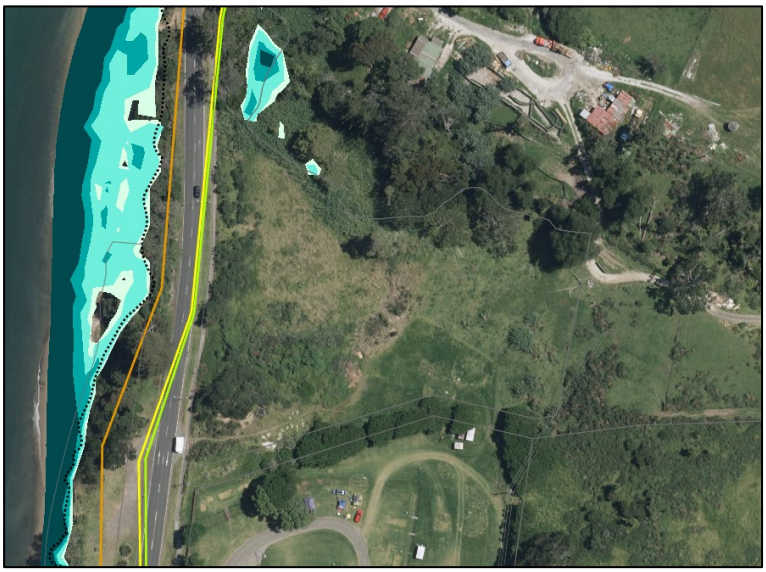


Figure 3 – Hazard Maps (Source: NRC Local Maps)

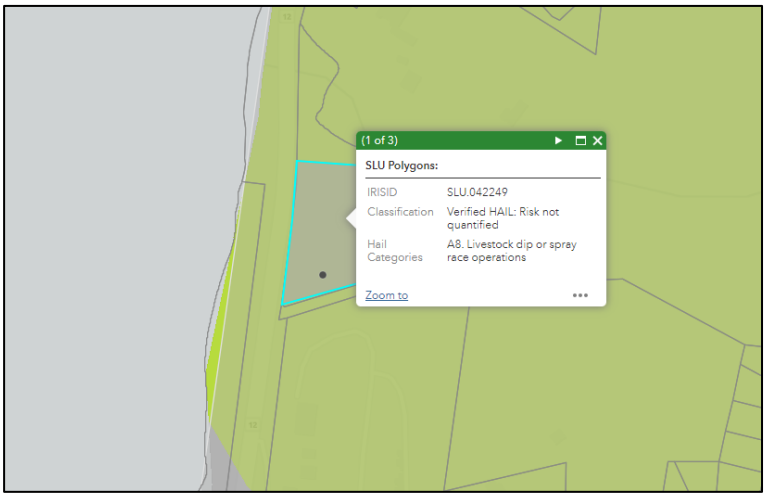


Figure 4 – HAIL (Source: NRC Local Maps)

4.3 Topography & Natural Features

The site is relatively flat and outside of built development is grassed pasture with some scattered vegetation. This is outlined in Figure 5 & 6 below.

Figure 5 – Aerial Map Prior to Development (Source: Prover Maps)

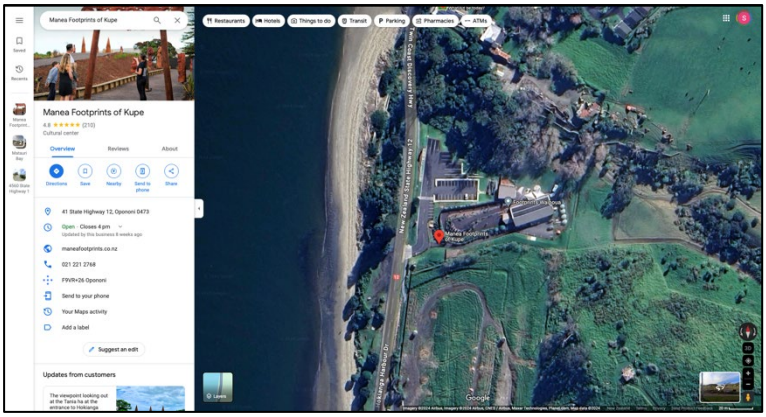


Figure 6 – Aerial Map Current (Source: Google Maps)

4.4 Built Form & Access

The site plan, within the architectural drawings (see Appendix 2), outlines the existing built development on the site, this includes the water tanks, carparks, lookout, arrival building, driveway and heritage centre.

The site gains access from State Highway 12, via a single crossing. This is located at the southwestern corner of the site. The existing heritage centre complex makes up the predominant built features of the site.

4.5 Surrounding Environment

The site is within the small coastal settlement of Opononi. There are dispersed residential units located in the surrounds along with commercial activities to the north. The Hokianga Harbour is located to the west of the site. Otherwise, the surrounds are largely in pasture/ vegetation particularly inland to the east of the site.

5.0 ASSESSMENT OF RELEVANT RULES

5.1 Assessment Summary

An assessment of the relevant rules of the Far North District Plan has been undertaken and this is provided in Table 1-3 below. Those rules breached are highlighted for ease of reference.

Table 1 – Commercial Zone Rules

Commercial Zone		
RULE	STANDARDS	PERFORMANCE
Rule 7.7.5.1.1 Building Height	**Permitted**: the maximum height of any building in the commercial zone not otherwise specified (see District Plan) shall be 12m.	Proposed cabin height will be less than 12m. Complies
Rule 7.7.5.1.2 Sunlight	**Permitted**: no part of any building to exceed height of 2m plus shortest horizontal distance between that part of building and nearest site boundary which adjoins a Residential, Coastal Residential, Russell Township, Rural Living or Coastal Living zones.	Proposed cabins will not breach the sunlight recession planes. Complies
Rule 7.7.5.1.3 Visual Amenity and Environmental Protection	Along boundaries adjoining any zone other than the Commercial or Industrial Zone, outdoor areas providing for activities such as parking, loading, outdoor storage and other outdoor activities associated with non-residential activities on the site shall be screened from adjoining sites by landscaping, wall/s, close boarded fence/s or trellis/es or a combination thereof. They shall be of a height sufficient to wholly or substantially separate these areas from the view of neighbouring properties. Structures shall be at least 1.8m in height, but no higher than 2.0m, along	N/A. The proposed cabins relate to residential activities. Complies

	the length of the outdoor area. Where such screening is by way of landscaping it shall be a strip of vegetation which has or will attain a minimum height of 1.8m for a minimum depth of 2m. At least 50% of that part of the site between the road boundary and a parallel line 3m therefrom, which is not occupied by buildings or driveways, shall be landscaped. Any landscaping required by these rules shall remain on the site for the duration of the activity and be maintained, and, if such landscaping dies or becomes diseased or damaged, shall be replaced.	
Rule 7.7.5.1.4 Setback from boundaries	Setbacks are not required unless the road frontage is identified as a 'Pedestrian Frontage' or within the Commercial Zone in Paihia (see District Plan)	No setback requirements for this property. Complies
Rule 7.7.5.1.5 Noise Mitigation for Residential Activities	Any new residential activity involving permanent or non-permanent accommodation shall be developed in such a way that the attenuation of noise between any boundary and living room is no less than 20 dB, and between any boundary and any room used for sleeping is no less than 30 dB. In the absence of forced ventilation or air-conditioning, these reductions shall be achieved with any exterior windows open. The Council will require an acoustic design report prepared by a suitably qualified and experienced person demonstrating compliance with this requirement prior to issuing any Certificate of Compliance under s139 of the Act.	The proposed cabins cannot meet the noise mitigation requirements. Discretionary Activity
Rule 7.7.5.1.6 Transportation	Refer District Wide rule assessment below	

Rule 7.7.5.1.7 Keeping of Animals	No site shall be used for factory farming, a boarding or breeding kennel or a cattery.	N/A.
Rule 7.7.5.1.8 Noise	All activities within the zone shall be conducted so that noise measured at any point within any other site in the zone shall not exceed: 0700 to 2200 hours 65 dBA L10 2200 to 0700 hours 55 dBA L10 and 80 dBA Lmax All activities within the zone shall be conducted so as to ensure that noise measured at any point within any site in the Residential, Coastal Residential or Russell Township Zones or at or within the notional boundary of any other dwelling in any other rural or coastal zone shall not exceed: 0700 to 2200 hours 55 dBA L10 2200 to 0700 hours 45 dBA L10 and 70 dBA Lmax	The proposed cabins will be utilised for residential activities. Complies
Rule 7.7.5.1.10 Roof Pitch		This rule relates to a specific site. N/A.
Rule 7.7.5.1.11 Stormwater Management	**Permitted**: The disposal of collected stormwater from the roof of all new buildings and new impervious surfaces provided that the activity is within an existing consented urban stormwater management plan or discharge consent. **Controlled:** The disposal of collected stormwater from the roof of all new buildings and new impervious surfaces provided that: (a) where the means of disposal of collected stormwater will be by way of piping to an approved outfall, each allotment shall be provided with a piped connection to the outfall laid at least 600mm into the net area of the	The property does not appear to be within an existing consented urban stormwater management plan or discharge consent therefore it cannot meet the permitted standard. Controlled Activity.

	allotment. This includes land allocated on a cross-lease; and (b) the stormwater collection system shall be designed to avoid any contaminants stored or used on the site from being entrained in any stormwater discharge unless that stormwater is discharged through a stormwater interceptor system; and (c) the site is managed such that the concentration of contaminants in stormwater leaving the site do not pose an immediate or long term hazard to human health or the environment.	
Rule 7.7.5.1.12 Helicopter Landing Area	**Permitted**: a helicopter landing area shall be at least 200m from the nearest boundary of any of the Residential, Coastal Residential, Russell Township or Point Veronica Zones.	N/A.

Table 2 - District Wide Standards

District Wide Standards		
Rule	Standard	Performance/Comments
Natural and Physical Resources		
12.1 Landscape & Natural Features	12.1.6.1.1 Protection of Outstanding Landscape Features 12.1.6.1.2 Indigenous Vegetation Clearance in Outstanding landscapes 12.1.6.1.3 Tree Planting in Outstanding Landscapes 12.1.6.1.4 Excavation and/or filling within an outstanding landscape 12.1.6.1.5 Buildings within outstanding landscapes 12.1.6.1.6 Utility Services in Outstanding Landscapes	N/A – None of these features apply to the site.

District Wide Standards		
Rule	Standard	Performance/Comments
12.2 Indigenous Flora and Fauna	12.2.6.1.1 Indigenous Vegetation Clearance Permitted Throughout the District 12.2.6.1.2 Indigenous Vegetation Clearance in the rural Production and Minerals Zones 12.2.6.1.3 Indigenous Vegetation Clearance in the General Coastal Zone 12.2.6.1.4 Indigenous Vegetation Clearance in Other Zones	N\A – No vegetation clearance is required.
12.3 Earthworks	No earthworks rules that relate to the commercial zone.	Total earthworks associated with the proposal include a cut and fill volume of 25.84m2. Retaining walls will not exceed a 1.5m height. Complies
12.4 Natural Hazards	12.4.6.1.1 Coastal Hazard 2 Area 12.4.6.1.2 Fire Risk to Residential Units	The proposed cabins are not within 20m of vegetation. Complies
12.5 Heritage	12.5.6.1.1 Notable Trees 12.5.6.1.2 Alterations to/and maintenance of historic sites, buildings and objects 12.5.6.1.3 Registered Archaeological Sites 12.5.6.2.2 Activities which could affect sites of cultural significance to maori	The site is not implicated by these features. Complies
12.5A Heritage Precincts	There are no Heritage Precincts that apply to the site.	N/A - None of these features apply to the site. Complies
12.6 Air	Not applicable	N/A

District Wide Standards		
Rule	Standard	Performance/Comments
12.7 Lakes, Rivers, Wetlands and the Coastline	12.7.6.1.1 Setback from lakes, rivers and the coastal marine area 12.7.6.1.2 Setback from smaller lakes, rivers and wetlands Permitted = for rivers minimum setback of 10 x the average width of the river where it passes through or past the site provided that the minimum setback is 10m and the maximum is no more than minimum required by Rule 12.7.6.1.1 12.7.6.1.4 Land Use Activities involving the Discharges of Human Sewage Effluent 12.7.6.1.5 Motorised Craft 12.7.6.1.6 Noise	N/A – None of these rules are implicated by the proposal.
12.8 Hazardous Substances		N/A Complies
12.9 Renewable Energy and Energy Efficiency		N/A Complies
13 Subdivision		N/A – No subdivision proposed.
14 Financial Contributions		N/A – No financial contributions required.

District Wide Standards		
Rule	Standard	Performance/Comments
15 Traffic, Parking and Access	Traffic Movements Other Buildings used for Social, Cultural or Recreational purposes (including Grandstands) = 2 traffic movement per every person the facility is designed for. House on Papakinga = 5 traffic movements per unit	Existing activity generates 607 traffic movements (refer underlying consent). Two cabins proposed. 2 x 10 = 10 (first house exempt). Total Traffic Movements = 617. Restricted Discretionary Activity Parking exists for the heritage centre. The proposed cabins can accommodate the necessary car parks. Complies There is one existing access to the site. The proposed cabins will utilise this access onto the State Highway. NZTA consultation is underway. Discretionary Activity
16 Signs & Lighting		N/A – No signage is proposed.

Table 3 - PDP Rules

Proposed District Plan				
Matter	Rule/Std Ref	Relevance	Compliance	Evidence
Hazardous Substances Majority of rules relates to development within a site that has heritage or cultural items scheduled	Rule HS-R2 has immediate legal effect but only for a new significant hazardous facility located within a scheduled site and area of significance to Māori, significant natural area or a	N/A	Yes	Not proposed.

and mapped however Rule HS-R6 applies to any development within an SNA – which is not mapped	scheduled heritage resource HS-R5, HS-R6, HS-R9			
Heritage Area Overlays (Property specific) This chapter applies only to properties within identified heritage area overlays (e.g. in the operative plan they are called precincts for example)	All rules have immediate legal effect (HA-R1 to HA-R14) All standards have immediate legal effect (HA-S1 to HA-S3)	N/A	Yes	Not indicated on Far North Proposed District Plan
Historic Heritage (Property specific and applies to adjoining sites (if the boundary is within 20m of an identified heritage item)). Rule HH-R5 Earthworks within 20m of a scheduled heritage resource. Heritage	All rules have immediate legal effect (HH-R1 to HH-R10) Schedule 2 has immediate legal effect	N/A	Yes	Not indicated on Far North Proposed District Plan

resources are shown as a historic item on the maps) This chapter applies to scheduled heritage resources – which are called heritage items in the map legend				
Notable Trees (Property specific) Applied when a property is showing a scheduled notable tree in the map	All rules have immediate legal effect (NT-R1 to NT-R9) All standards have legal effect (NT-S1 to NT-S2) Schedule 1 has immediate legal effect	N/A	Yes	Not indicated on Far North Proposed District Plan
Sites and Areas of Significance to Māori (Property specific) Applied when a property is showing a site / area of significance to Maori in the map or within the Te Oneroa-a Tohe Beach Management Area (in the operative plan they are	All rules have immediate legal effect (SASM-R1 to SASM-R7) Schedule 3 has immediate legal effect	Yes	Yes	Not relevant.

called site of cultural significance to Maori)				
Ecosystems and Indigenous Biodiversity SNA are not mapped – will need to determine if indigenous vegetation on the site for example	All rules have immediate legal effect (IB-R1 to IB-R5)	N/A	Yes	Not indicated on Far North Proposed District Plan
Activities on the Surface of Water	All rules have immediate legal effect (ASW-R1 to ASW-R4)	N/A	Yes	Not indicated on Far North Proposed District Plan
Earthworks all earthworks (refer to new definition) need to comply with this	The following rules have immediate legal effect: EW-R12, EW-R13 The following standards have immediate legal effect: EW-S3, EW-S5	Yes	Yes	With respect of EW-R12, this requires that the proposed earthworks comply with EW-S3. In effect, EW-S3 triggers the need for an ADP to be applied. It is confirmed that the proposed earthworks will comply with an ADP, and this is volunteered as a condition of consent. EW-R13 links to EW-S5. EW-S5 requires earthworks to be controlled in accordance with GD-05. It is confirmed here that the earthworks will be undertaken in accordance with GD-05.

Signs (Property specific) as rules only relate to situations where a sign is on a scheduled heritage resource (heritage item), or within the Kororareka Russell or Kerikeri Heritage Areas	The following rules have immediate legal effect: SIGN-R9, SIGN-R10 All standards have immediate legal effect but only for signs on or attached to a scheduled heritage resource or heritage area	N/A	Yes	Not indicated on Far North Proposed District Plan
Orongo Bay Zone (Property specific as rule relates to a zone only)	Rule OBZ-R14 has partial immediate legal effect because RD-1(5) relates to water	N/A	Yes	Not indicated on Far North Proposed District Plan
Comments:				
No consents are required under the PDP.				

Clause 2(1)(d) of Schedule 4 of the RMA requires applicants to identify other activities of the proposal with the intention of capturing activities which need permission or licensing under other enactments.

Section 9.4 provides a more considered assessment of relevant NPS's and NES's and in summary, no consents are required under these higher order documents.

6.0 NOTIFICATION ASSESSMENT

6.1 Public Notification

The table below outlines the steps associated with public notification insofar as it relates to s95 of the Act.

Table 4 – Notification Process

Step 1	Mandatory public notification in certain circumstances	
S95A(3)(a)	Has the applicant requested that the application be publicly notified?	No
S95A(3)(b)	Is public notification required under section 95C?(after a request for further information)	TBC
S95A(3)(c)	Has the application been made jointly with an application to exchange recreation reserve land under section 15AA of the Reserves Act 1977.	No
Step 2	if not required by step 1, public notification precluded in certain circumstances	
S95A(5)(a)	Is the application for a resource consent for 1 or more activities and each activity is subject to a rule or national environmental standard that precludes public notification?	No
S95A(5)(b)	Is the application for a resource consent for 1 or more of the following, but no other, activities; (i) a controlled activity; (iii) a restricted discretionary, discretionary, or non-complying activity, but only if the activity is a boundary activity;	No

The proposed development does not meet the tests for mandatory public notification, nor does it meet the tests for precluding public notification.

Therefore, an assessment of the proposals effects on the environment is required to ascertain the effects of the development and whether public notification is required. The section below provides this assessment.

7.0 EFFECTS ON THE ENVIRONMENT

7.1 Effects that May be Disregarded

Effects on persons who are owners and occupiers of the land in, on, or over which the application relates, or of adjacent land must be disregarded when considering effects on the environment (s 95D(a)). Those adjoining properties are shown below in Figure 5.

Address	Suburb	Town	Capital Value	Owners	Last Sale Date	Last Sale Price	Land Area	Floor Area
33 Hokianga Harbour Drive	Opononi	Far North	2180000	Wayne Revell Baker,Wayne Revell Baker	31 Mar 2010	1250000	226.4497 ha	360 m²

Figure 7 – Adjoining Persons (Source: Prover Maps)

The permitted baseline may be taken into account should the Council deem it relevant. Except for the proposal items, the site has consented and legally established items.

7.2 Written Approvals

Both NZTA and Top Energy have been consulted with. Their feedback to date is attached as appendices. Top Energy has provided approval of sorts for the location of the cabins. At time of lodgment NZTA approval had not been received.

7.3 Effects Assessment

The following assessment has been prepared in accordance with Section 88 and Schedule 4 of the Act which specifies that the assessment of effects provided should correspond with the scale and significance of the proposal.

In terms of localised effects or Effects to People, this assessment is undertaken in Section 8 of this Report. Therefore, assessment criteria which refer to adjacent sites or properties, are addressed appropriately under that section of the report.

Table 5 – Effects Assessment

Item & Assessment Criteria	Comments
Positive Effects	• The proposal will provide for additional accommodation and upgraded facilities for tangata whenua and other users of the Heritage Centre. • The proposal, from application through to development, employs a number of service providers and sellers of goods. • The proposal seeks to minimise the effects from earthworks, stormwater and wastewater by considered design and mitigation measures.
Noise Mitigation (Derived from 11.14)	a) The site adjoins a property that is vacant and not known to contain any specific use (refer image below). The character of noise generated here is likely to be low intensity rural that occurs infrequently. The surrounds are not expected to impact or require the cabins to be attenuated from a noise perspective.

	 b) The hours of operation of the surrounding use is not known, but likely to be infrequent and not of concern to two 1 x bdr cabins. c) As above, the timing and character / duration of noise is unlikely to impact the proposed activity.
Stormwater (Derived from 7.7.5.2.3)	• The proposal seeks to use the existing mitigation methods for stormwater generated for the overall cultural centre on the site. The additional stormwater generated from is largely captured by existing water tanks on the site. The stormwater methodology and approach having been undertaken for the underlying development is found in Appendix 8, which was based on the criteria applicable for 7.7.5.2.3.
Traffic Intensity (Derived from 15.1.6A.4.1)	a) Traffic movements associated with the cabins will be residential in character in terms of movement throughout the day. If the users work on the site , this will greatly reduce effects. b) There is a vacant section to the south with a vehicle crossing ~150m away. To the north is the Four Square entrance which is ~280m away. c) The width of the road is considered appropriate.

	d) A footpath is located on the sites frontage. Pedestrian traffic is not known but likely used regularly by locals. e) Sight distances are considered appropriate through upgrades provided for previous development. f) Existing volumes are unknown, however upgrades for the previous development have been undertaken to provide safe access onto the site. g) No known congestion or safety problems arise. h) No such mitigation measures are proposed. i) The upgrades undertaken for the predominant use is considered appropriate in the context of the engineering standards. j) Not relevant. k) The internal layout of the site is walkable.
Access (Derived from 15.1.6C.4)	• The proposal relies on the underlying access upgrades undertaken for the predominant use. Consultation has been undertaken with NZTA to consider the adequacy of sight distances, traffic safety and congestion matters and whether any further upgrades are required to the access. Given the standard of the existing access way and vehicle crossing, we expect this to be appropriate for the very small scale addition of the 2 cabins.
Effects Conclusion	Considering the assessment above and the mitigation measures proposed it is considered that the proposal results in effects which are less than minor.

8.0 EFFECTS TO PEOPLE

The table below outlines the steps associated with limited notification insofar as it relates to s95 of the Act.

Table 6 – Limited Notification Process

Step 1	certain affected groups and affected persons must be notified	
S95B(2)(a)	Are there any affected protected customary rights groups?	No
S95B(2)(b)	Are there any affected customary marine title groups (in the case of an application for a resource consent for an accommodated activity)?	No
S95B(3)(a)	Is the proposed activity on or adjacent to, or may affect, land that is the subject of a statutory acknowledgement made in accordance with an Act specified in Schedule 11?	No
S95B(3)(b)	Is the person to whom the statutory acknowledgement is made is an affected person under section 95E?	No
Step 2	if not required by step 1, limited notification precluded in certain circumstances	
S95B(6)(a)	the application is for a resource consent for 1 or more activities, and each activity is subject to a rule or national environmental standard that precludes limited notification:	No
S95B(6)(b)	the application is for a controlled activity (but no other activities) that requires a resource consent under a district plan (other than a subdivision of land)	No

8.1 Affected Person Determination

As the proposed activity does not trigger mandatory limited notification, nor is it precluded, an assessment of potential affected persons must be undertaken.

The consent authority has discretion to determine whether a person is an affected person. A person is affected if an activity's adverse effects are minor or more than

minor to them. The effects of the proposal on adjacent landowners have been undertaken below.

8.2 Localised Effects Assessment (Effects to Persons)

Section 7 of this report provides a graphic and table of the relevant adjacent properties that this assessment relates. The relevant persons associated with the assessment are found in Figure 5 in Section 7.0 of this report.

For the following reasons, those parties and persons above not considered to be adversely affected by the proposal to a minor or more than minor level:

- All proposed works are situated within the confines of the site. All effects can be managed on site.
- The assessment found in Section 7 of this report details that there are no effects to localized person in terms of the identified breaches.
- The proposed works are essentially to provide accommodation in areas that have been impacted by accommodation shortages in areas are not usually funded to provide accommodation. The cabins are small in scale and nature and situated far from the road frontage.

8.3 Effect to Persons Conclusion

Having considered the effects above, there are no adversely affected persons resulting from the proposal.

9.0 STATUTORY CONTEXT

9.1 Operative Far North District Plan

An assessment of the relevant objectives and policies associated with the Operative Far North District Plan has been undertaken below.

This application is subject to the provisions of the Operative Far North District Plan. The site is zoned Commercial and is to be assessed in terms of the objectives and policies for the zone and the district-wide subdivision and environment provisions.

The proposal would achieve the purpose of the Commercial zone which is to enable commercial and other activities to establish in centres within urban areas so as to provide for the everyday commercial needs of the people of the District.

It is anticipated that the size and form of the proposal (which is in general accordance with Council standards) would:

- Achieve the development of commercial areas in the District accommodating a wide range of activities that avoid, remedy or mitigate the adverse effects of activities on other activities within the Commercial Zone and on the natural and physical resources of the District. RPZ (Obj 7.7.3.1);
- That the range of activities provided for the Commercial Zone be limited only by the needs for the effects generated by the particular activity to be consistent with other activities in the zone (Pol 7.7.4.2);
- The stormwater disposal systems will not result in suspended solids, industrial by-products, oil, or other contaminated substance or waste entering the stormwater collection system in concentrations that are likely to pose an immediate or long term hazard to human health or the environment (Pol 7.7.4.4);

Of prime importance is that the cabins projects allows for the Heritage Centre and community of Opononi to enhance their cultural and social wellbeing by providing housing on their site.

Having considered these sections of the Plan, it is concluded that the proposal is not inconsistent with the relevant objectives and policies of the Far North District Plan.

9.2 Proposed Far North District Plan

The Far North District Council have released their Proposed District Plan.

Section 88A(2) provides that "any plan or proposed plan which exists when the application is considered must be had regard to in accordance with section 104(1)(b)." This requires applications to be assessed under both the operative and proposed objective and policy frameworks from the date of notification of the proposed district plan.

In the event of differing directives between objective and policy frameworks, it is well established by case law that the weight to be given to a proposed district plan depends on what stage the relevant provisions have reached, the weight generally being greater as a proposed plan move through the notification and hearing process. In Keystone Ridge Ltd v Auckland City Council, the High Court held that the extent to which the provisions of a proposed plan are relevant should be considered on a case by case basis and might include:

- The extent (if any) to which the proposed measure might have been exposed to testing and independent decision making;
- Circumstances of injustice; and
- The extent to which a new measure, or the absence of one, might implement a coherent pattern of objectives and policies in a plan.

In my view the PDP has not gone through the sufficient process to allow a considered view of the objectives and policies for the Mixed-Use Zone and Coastal Environment Overlay however this has still been provided below.

The proposed cabins are considered to complement the existing activities on site (MUZ-O1). The proposed cabins are anticipated to contribute positively to the vibrancy, safety and amenity of the zone (MUZ-O2). The existing infrastructure can support the proposed cabins as previously outlined (MUZ-P1). The proposed residential units will not be located on the top floor of the existing buildings which is

not considered appropriate in this location where there is no streetscape (MUZ-P5). Overall, the proposal is not considered inconsistent with the Mixed-Use Zone.

In terms of the Coastal Environment, the site includes existing development, therefore the two additional small-scale cabins is considered appropriate and will not adversely affect the character of the coastal environment (CE-O1, CE-O2, CE-O3). There are no other special features identified on this site except for the coastal environment overlay (CE-P2, CE-P3). There is adequate existing and proposed infrastructure to support the proposal without adversely affecting the characteristic and qualities of the existing environment (CE-P5). Overall, the proposal is not considered inconsistent with the Coastal Environment Overlay.

9.3 Regional Policy Statement for Northland (RPS)

An assessment of the relevant objectives and policies associated with the RPS for Northland has been undertaken and is found in Table 7 below. The RPS sets region wide objectives and policies for the environment.

Table 7 – NRC RPS Review

Objective / Policy	Comment
Integrated Catchment Management	Not relevant
Region Wide Water Quality	Not relevant
Ecological Flows and Water Quality	Not relevant
Indigenous Ecosystems & Biodiversity	There are no SNA's on the site.
Enabling Economic Wellbeing	The proposal allows for various goods/services in the land development sector in Opononi.
Economic Activities – Reverse Sensitivity And Sterilization	The proposal does not result in any reverse sensitivity or sterilization effects given the design and scale of the proposal.
Regionally Significant Infrastructure	The proposal does not impact any regionally significant infrastructure.

Efficient and Effective Infrastructure	The proposal seeks to use existing infrastructure i.e FNDC / NZTA roads. The proposal also seeks to upgrade on site infrastructure for future generations.
Security of Energy Supply	Power is provided to the site.
Use and Allocation of Common Resources	Not relevant.
Regional Form	The proposal does not result in any reverse sensitivity effects, or a change in character or sense of place. Versatile soils are not adversely affected.
Tangata Whenua Role in Decision Making	Local iwi / hapū may be consulted with as interested parties.
Natural Hazard Risk	Nil affecting the site.
Natural Character, Outstanding Natural Features, Outstanding Natural Landscapes And Historic Heritage	Not relevant.

Having considered the relevant components of the RPS, it is concluded that the proposal is not inconsistent with the relevant objectives and policies.

9.4 National Policy Statements and Plans

With respect to the National Environmental Standard – Soil Contamination, the site has been assessed and the PSI Report for the previous development is provided as part of this application.

In terms of the NES – Freshwater Management, there are no wetlands located on the site. The NES is not considered relevant.

In terms of the NPS for Highly Productive Land. The proposed development is located on a site that does not contain Class 1-3 soils.

The site is located in the Coastal Environment. Given the proposed small scale cabins on a developed site the NZCPS is not considered to be offended, particularly with it being located within a developed and highly modified urban area.

There are no relevant other policy statements or plans to assess.

10.0 PART 2 ASSESSMENT

10.1 Section 5 - Purpose of the Act

Section 5 in Part 2 of the Act identifies the purpose as being the sustainable management of natural and physical resources. This means managing the use of natural and physical resources in a way that enables people and communities to provide for their social, cultural and economic well-being which sustain those resources for future generations, protecting the life supporting capacity of ecosystems, and avoiding remedying or mitigating adverse effects on the environment.

It is considered that proposal represents Part 2, Section 5 of the Act.

10.2 Section 6 - Matters of National Importance

In achieving the purpose of the Act, a range of matters are required to be recognised and provided for. This includes:

a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:
b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:
c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:

d) the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:
e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:
f) the protection of historic heritage from inappropriate subdivision, use, and development:
g) the protection of protected customary rights:
h) the management of significant risks from natural hazards.

In context, the relevant items to the proposal and have been recognised and provided for. Section 6(e) is directly relevant to the proposal.

10.3 Section 7 - Other Matters

In achieving the purpose of the Act, a range of matters are to be given particular regard. This includes:

(a) kaitiakitanga:
(aa) the ethic of stewardship:
(b) the efficient use and development of natural and physical resources:
(ba) the efficiency of the end use of energy:
(c) the maintenance and enhancement of amenity values:
(d) intrinsic values of ecosystems:
(e) [Repealed]
(f) maintenance and enhancement of the quality of the environment:
(g) any finite characteristics of natural and physical resources:
(h) the protection of the habitat of trout and salmon:
(i) the effects of climate change:
(j) the benefits to be derived from the use and development of renewable

energy.

These matters have been given particular regard through the design of the proposal.

10.4 Section 8 - Treaty of Waitangi

The Far North District Council is required to take into account the principles of the Treaty of Waitangi when processing this consent. This consent application may be sent to local iwi and hapū who may have an interest in this application. We doubt any persons would have a cultural issue with the proposal.

10.5 Part 2 Conclusion

Given the above, it is considered that the proposal meets the purpose of the Act.

11.0 CONCLUSION

Discretionary Activity resource consent is sought from the Far North District Council to carry out the proposed development.

The proposal is considered to result in less than minor effects on the environment and through assessment, there are considered to be no affected persons.

The proposal is consistent with the objectives and policies of the Far North District Plans, the Regional Policy Statement for Northland, and achieves the purpose of the Act. Relevant NPS' and NES' have been considered with the proposal finding consistency with their general aims and intent.

Given the assessment carried out in this report, it is considered that this proposal can be determined non-notified under the RMA 1991.

We appreciate draft conditions to be supplied to us prior to decision being made.

Regards,

Steven Sanson BPlan (Hons)

Consultant Planner

NZPI Member No 4230

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Guaranteed Search Copy issued under Section 60 of the Land Transfer Act 2017

R.W. Muir
Registrar-General
of Land

Identifier	**NA123B/576**
Land Registration District	**North Auckland**
Date Issued	19 September 2001

Prior References
NA115D/596

Estate	Fee Simple
Area	1.1700 hectares more or less
Legal Description	Lot 1 Deposited Plan 195242
Registered Owners	

Te Hua O Te Kawariki Trust

Interests

Appurtenant hereto is a right of way created by Transfer B675478.7 - 16.6.1987 at 9:00 am

Fencing Covenant in Gazette Notice C442845.1 - 16.10.1992 at 10.29 am

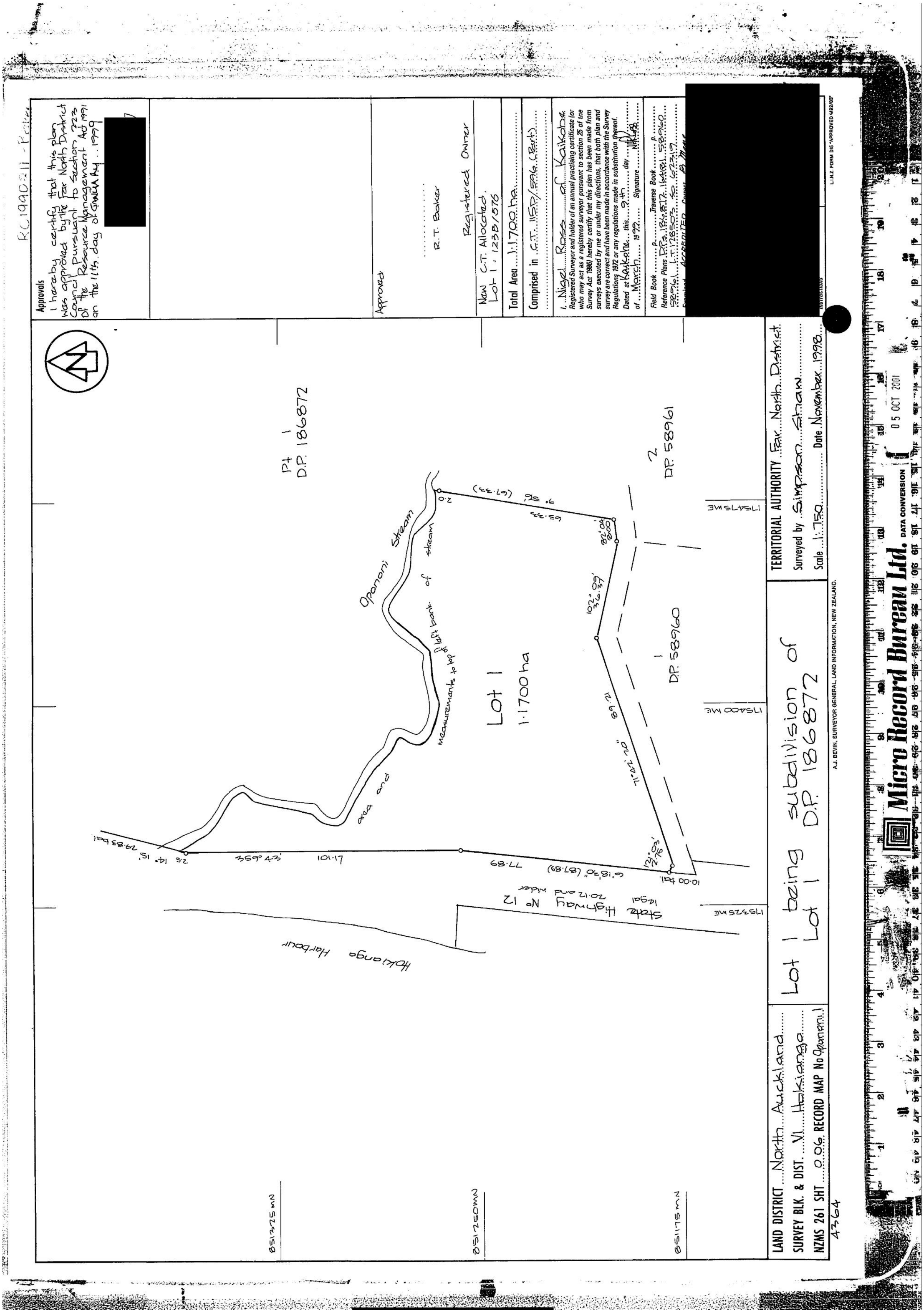
D223037.2 Consent Notice pursuant to Section 221(1) Resource Management Act 1991 - 4.12.1997 at 11.42 am

D616625.1 Gazette Notice declaring part State Highway 12 to be a limited access road

D616685.1 Notice pursuant to Section 91 Transit New Zealand Act 1989 - 27.6.2001 at 9.01 am

5900068.1 Notice pursuant to Section 91 Transit New Zealand Act 1989 - 16.2.2004 at 9:00 am

12217182.2 Mortgage to Far North Holdings Limited - 1.10.2021 at 12:04 pm


Approvals
R.T. Baker
Registered Owner
New C.T. Allocated. Lot 1. 123B/576
Total Area 1.1700 ha
Pt 1 D.P. 186872
2 DP 58961
Opononi Stream
Lot 1
1.1700 ha
1 DP 58960
State Highway No 12
Hokianga Harbour
TERRITORIAL AUTHORITY Far North District
Surveyed by Simpson Shaw
Scale 1:750 Date November 1998
Lot 1 being subdivision of Lot 1 D.P. 186872
LAND DISTRICT North Auckland
SURVEY BLK. & DIST. VI Hokianga
Micro Record Bureau Ltd.
05 OCT 2001

D223037.2COND

THE RESOURCE MANAGEMENT ACT 1991

SECTION 221 : CONSENT NOTICE

REGARDING The subdivision of
Part Land on DP 2627 and Lot 1 DP 52974, Blk VII, Hokianga S.D North Auckland Registry.

PURSUANT to Section 221 for the purposes of Section 224 of the Resource Management Act 1991, this Consent Notice is issued by the FAR NORTH DISTRICT COUNCIL to the effect that conditions described in the schedule below are to be complied with on a continuing basis by the subdividing owner and the subsequent owners after the deposit of the survey plan, and is to be registered on the appropriate new titles.

SCHEDULE

(1) Should the Transfer Station be removed, Lot 1 shall be amalgamated with Part 1 DP 52974 or Part Taumatawiwi Blk, DP 2627 and held in one Certificate of Title (unless it is a fully complying allotment for the respective zone) to safeguard against a non-complying site existing in the future.

SIGNED: [redacted]
by the FAR NORTH DISTRICT COUNCIL
under delegated authority.

DATE: 25 September 1997

tmw\3sec221c.fm

[redacted]

consents notice
Item 158047

(2)

P2982 TEMPORARY ACCOMODATION - MANEA MARAE - ARCHITECTURAL ON SITE

SHEET LIST		
SHEET NUMBER	SHEET NAME	CURRENT REVISION
AO-000	COVER SHEET	3
AO-010	SITE PLAN - TRUE NORTH	3
AO-011	SITE PLAN - INFRASTRUCTURE	3
AO-012	SITE PLAN - INFRASTRUCTURE - CALL OUT	3
AO-100	FLOOR PLAN LAYOUT	3
AO-110	FOUNDATION PLAN	3
AO-111	UNIT 01 - SUBFLOOR FRAMING	3
AO-112	UNIT 02 - SUBFLOOR FRAMING	3
AO-120	PLUMBING & DRAINAGE	3
AO-200	SITE ELEVATIONS	3
AO-300	SITE SECTIONS	3
AO-600	DETAILS - SCREW PILES	3
AO-601	DETAILS - DECKS	3
AO-602	DETAILS - UNIT 01 STAIRS	3
AO-603	DETAILS - UNIT 02 STAIRS	3
AO-604	DETAILS - RETAINING WALL	3

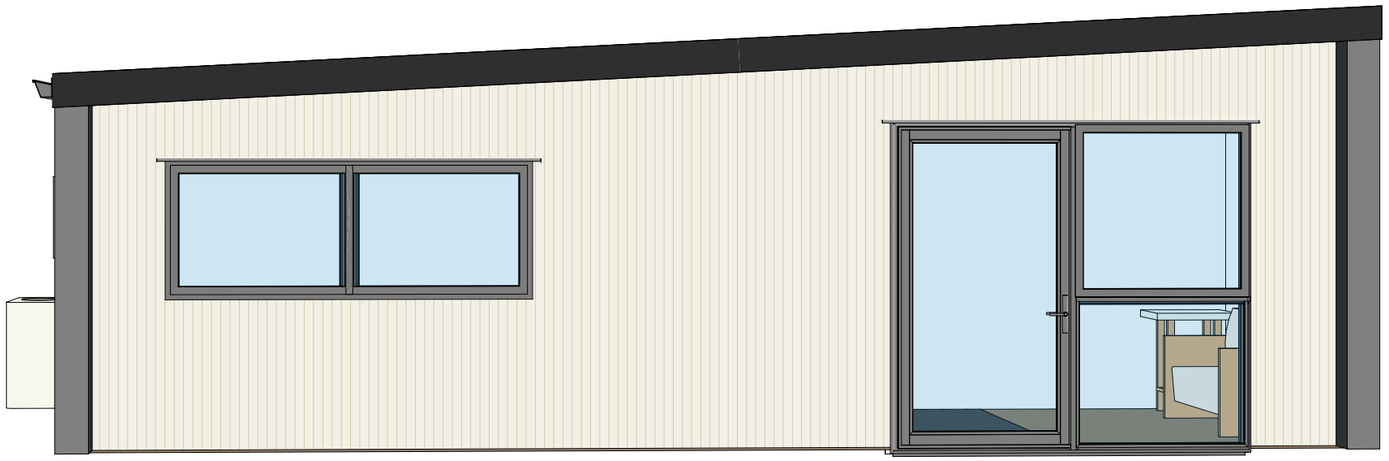
GENERAL NOTES
ALL CONSTRUCTION SHALL COMPLY WITH THE NEW ZEALAND BUILDING CODE & NEW ZEALAND STANDARDS
TOTAL BUILDING m^2
HOME SPACE 1 = $32m^2$
HOME SPACE 2 = $32m^2$
TOTAL = $64m^2$
LEGAL DESCRIPTION
PARCEL ID: 4936799
LEGAL DESCRIPTION: LOT 1 DP 195242
LOCATION: 41 STATE HIGHWAY 12, OPONONI, HOKIANGA 0473
DESIGN LIMITATIONS
EARTHQUAKE ZONE: 1
CORROSION ZONE: D
LEE ZONE: NO
RAINFAILL RANGE: 70-80
WIND REGION: A
WIND ZONE: HIGH

CLIENT: TE TŪĀPAPA KURA KĀINGA

DATE: 17/11/2023

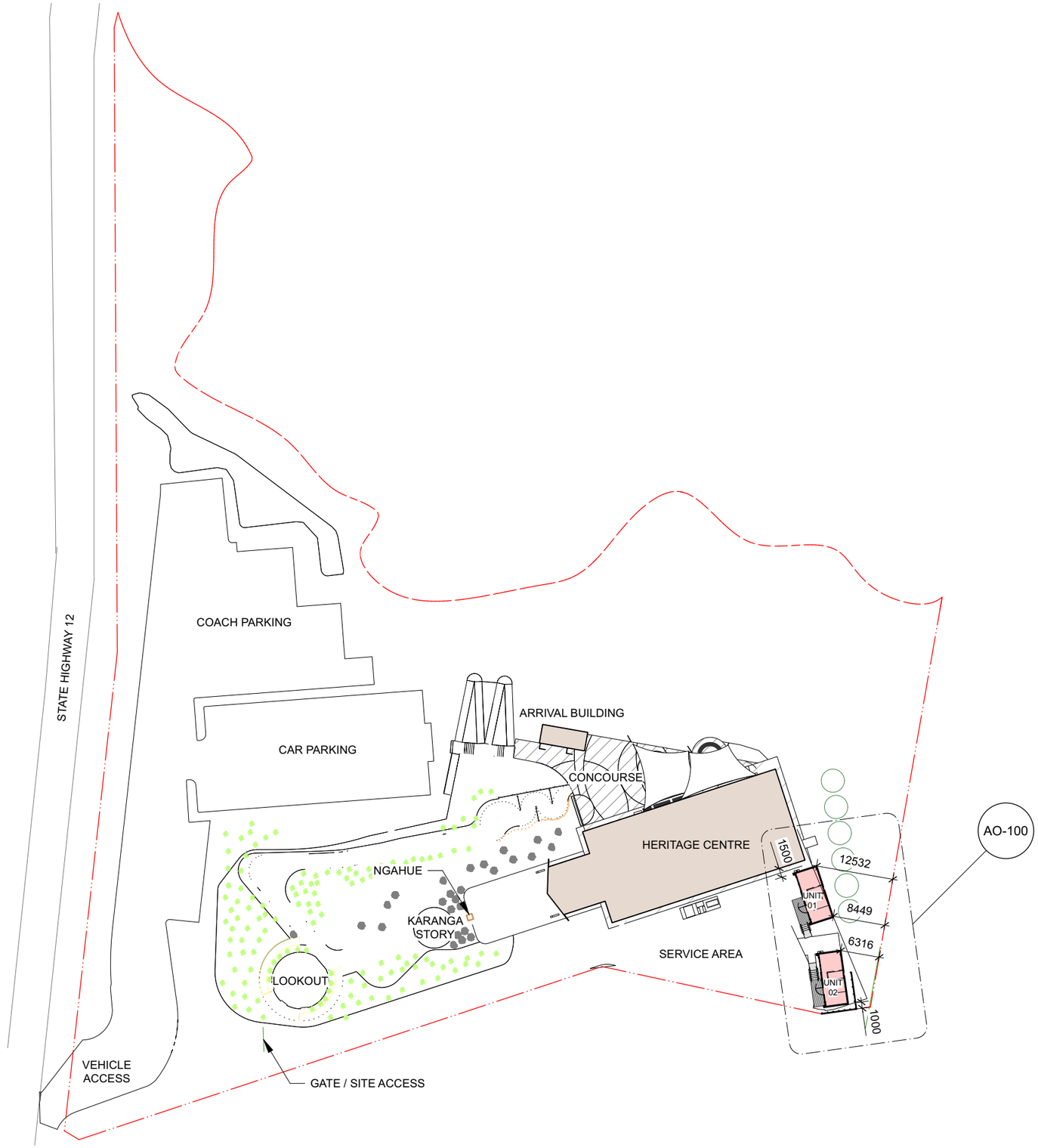
DRAWN: LUKE MORGAN

CHECKED: MATTHEW ABERCROMBIE



NOTES - SITE
EXISTING IMPERVIOUS AREA: $856.956m^2$
PROPOSED IMPERVIOUS AREA: $88.200m^2$
ENSURE ALL GRADES ARE ACHIEVABLE BEFORE WORK COMMENCES
CONTRACTORS ARE RESPONSIBLE TO PLOT & UNCOVER EXISTING DRAINS PRIOR TO COMMENCING OF WORKS
STAIRS TO COMPLY WITH NZS 4121:2001. HANDRAILS REQUIRED ON BOTH SIDES OF STAIRS TO COMPLY WITH NZBC F4

DOCUMENT TRANSMITTAL		
REV	DESCRIPTION	DATE
1	PRELIMINARY	10/10/2023
2	PRELIMINARY	17/10/2023
3	BUILDING CONSENT	17/11/2023



LEGEND

- SITE BOUNDARY
- EXISTING FENCELINES
- EXISTING BUILDINGS
- PROPOSED MODSPACE® MODULES - 32m² TOTAL FLOOR AREA 96m²
- PROPOSED TIMBER DECKS & RAMPS
- PROPOSED CONCRETE LANDINGS

DOCUMENT TRANSMITTAL

REV	DESCRIPTION	DATE
1	PRELIMINARY	10/10/2023
2	PRELIMINARY	17/10/2023
3	BUILDING CONSENT	17/11/2023

SITE SCOPE
260 WAIMATE NORTH ROAD,
KERIKERI, 0293
projects@sitescope.co.nz
www.sitescope.co.nz

Te Tūāpapa Kura Kāinga
Ministry of Housing and Urban Development

CLIENT: TE TŪĀPAPA KURA KĀINGA

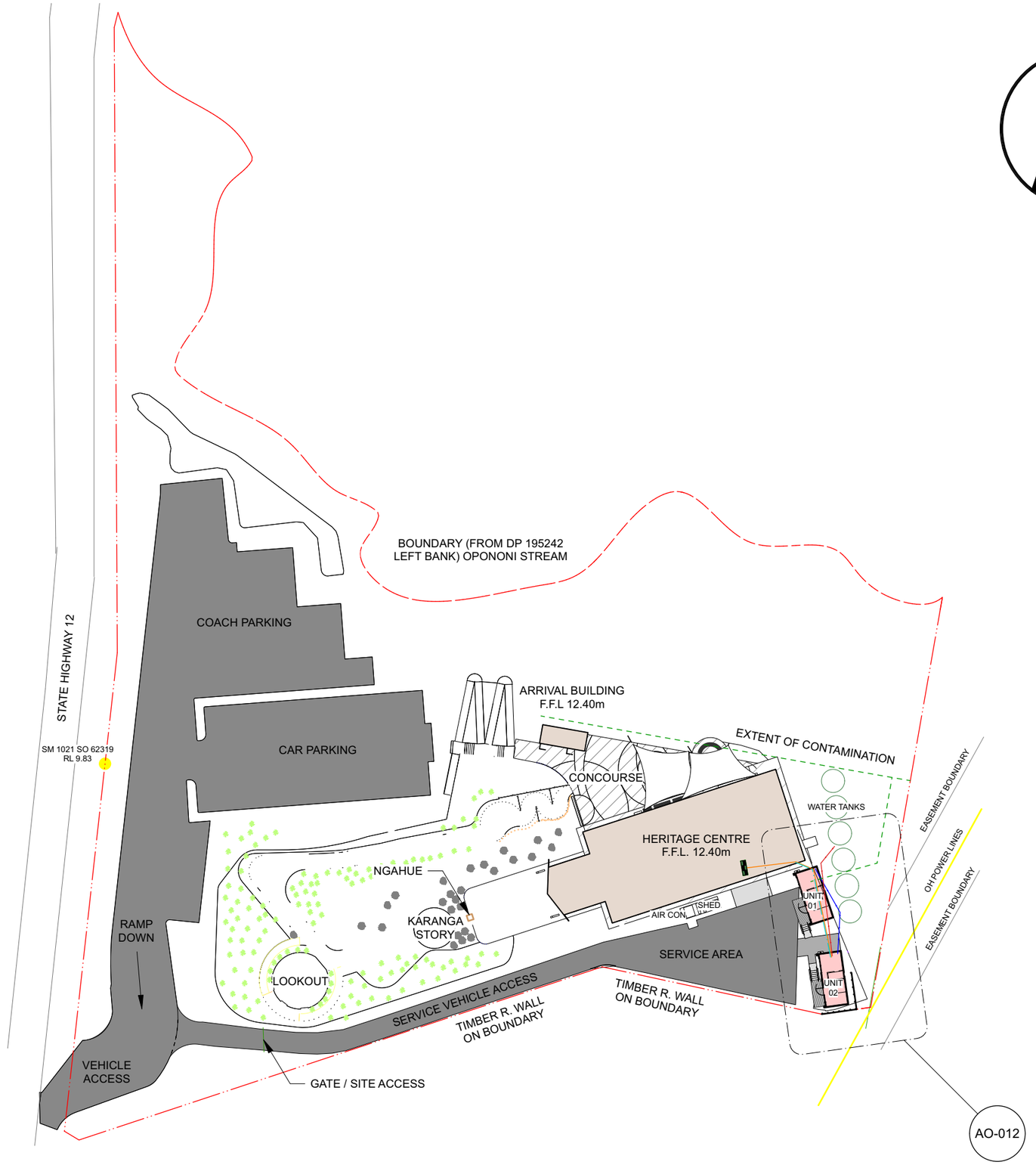
PROJECT: P2982 TEMPORARY ACCOMODATION - MANEA MARAE

SHEET:

SITE PLAN - TRUE NORTH

DATE: 17/11/2023
DRAWN: LM
CHECKED: MA
REV: 3
SCALE: 1:750
SHEET NO: **AO-010**

0 10 20 30 40mm



LEGEND

- SITE BOUNDARY
- EXISTING FENCELINES
- EXISTING BUILDINGS
- EXISTING IMPERVIOS DRIVEWAY
- PROPOSED MODSPACE® MODULES - 32m² TOTAL FLOOR AREA 96m²
- PROPOSED TIMBER DECKS & RAMPS
- PROPOSED CONCRETE LANDINGS
- PROPOSED GRAVEL DRIVEWAY
- 150mm STORMWATER LINE
- 150mm GRAVITY SEWER
- 100mm ELECTRICAL CONDUIT
- 25mm POTABLE WATER SUPPLY, FROM EXISTING SUPPLY & RUN THROUGH SS TRENCH
- OVERHEAD POWER LINES
- EXTENT OF CONTAMINATION

NOTES - INFRASTRUCTURE

ALL PROPOSED INFRASTRUCTURE TO CONNECT TO EXISTING INFRASTRUCTURE IN PLACE ON SITE

SUBMAIN CABLE WILL EXIT MAIN SWITCH BOARD ROOM BY DRILLING THROUGH FLOOR THEN TUNNING ALONG THE FOUNDATION CONCRETE IN A 32mm GREY ELECTRICAL CONDUIT, JUST UNDER THE CLADDING OF THE BUILDING

THEN TRENCHED UNDER THE BUILDING TO UNIT 01 TO A 15-WAY WATERPROOF DISTRIBUTION BOARD MOUN.TED ON THE SIDE OF UNIT 01 @ 1000 AFFL

SUPPLY CABLE TO EACH UNIT AND PUMP CHAMBER WILL COME FROM THIS SUBBOARD IN A COMBINATION OF TRENCHING & CLIPPING UNDER THE SUB-FRAME

NOTES - EARTHWORKS

EXCAVATION CALCULATIONS:	
SITE EXCAVATION:	5.281m³
RETAINING WALL AUGERING:	2.520m³
TOTAL:	**7.801m³**

FILL CALCULATIONS:	
RETAINING WALL PILES:	2.520m³
RETAINING WALL BACKFILL:	14.502m³
GRAVEL DRIVEWAY:	1.013m³
TOTAL:	**18.035m³**

DOCUMENT TRANSMITTAL

REV	DESCRIPTION	DATE
1	PRELIMINARY	10/10/2023
2	PRELIMINARY	17/10/2023
3	BUILDING CONSENT	17/11/2023

40mm 30 20 10 0

SITE SCOPE
260 WAIMATE NORTH ROAD,
KERIKERI, 0293
projects@sitescope.co.nz
www.sitescope.co.nz

Te Tūāpapa Kura Kāinga
Ministry of Housing and Urban Development

CLIENT: TE TŪĀPAPA KURA KĀINGA

PROJECT: P2982 TEMPORARY ACCOMODATION - MANEA MARAE

SHEET:

SITE PLAN - INFRASTRUCTURE

DATE:	17/11/2023	REV:	3
DRAWN:	LM	SCALE:	1:750
CHECKED:	MA	SHEET NO:	AO-011

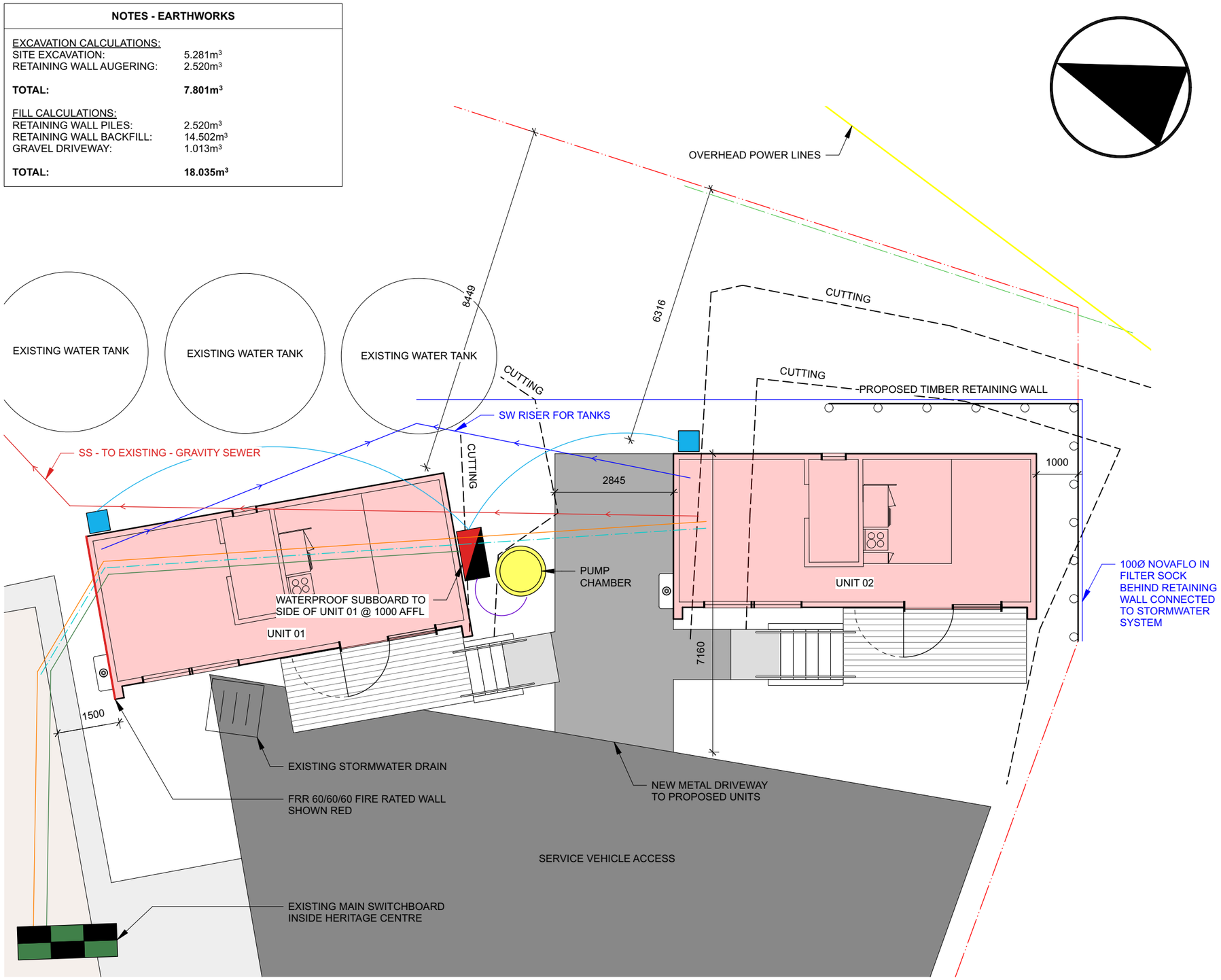
NOTES - EARTHWORKS

EXCAVATION CALCULATIONS:

SITE EXCAVATION:	5.281m³
RETAINING WALL AUGERING:	2.520m³
TOTAL:	**7.801m³**

FILL CALCULATIONS:

RETAINING WALL PILES:	2.520m³
RETAINING WALL BACKFILL:	14.502m³
GRAVEL DRIVEWAY:	1.013m³
TOTAL:	**18.035m³**



LEGEND

- SITE BOUNDARY
- EXISTING FENCELINES
- EXISTING BUILDINGS
- EXISTING IMPERVIOS DRIVEWAY
- PROPOSED MODSPACE® MODULES - 32m² TOTAL FLOOR AREA 96m²
- PROPOSED TIMBER DECKS & RAMPS
- PROPOSED CONCRETE LANDINGS
- PROPOSED GRAVEL DRIVEWAY
- 150mm STORMWATER LINE
- 150mm GRAVITY SEWER
- 100mm ELECTRICAL CONDUIT
- 25mm POTABLE WATER SUPPLY, FROM EXISTING SUPPLY & RUN THROUGH SS TRENCH
- SUBMAIN CABLE FROM SUPPLY SWITCHBOARD TO MODSPACE® MODULE DISTRIBUTION
- SUBCIRCUIT CABLE FROM WATERPROOF DB TO EACH UNITS CARAVAN SOCKET
- POWER SUBCIRCUIT TO SEWER PUMP
- 32 AMP INLET SOCKET FOR POWER PROTECTED BY 20 AMP CIRCUIT BREAKER
- OVERHEAD POWER LINES

NOTES - INFRASTRUCTURE

ALL PROPOSED INFRASTRUCTURE TO CONNECT TO EXISTING INFRASTRUCTURE IN PLACE ON SITE

SUBMAIN CABLE WILL EXIT MAIN SWITCH BOARD ROOM BY DRILLING THROUGH FLOOR THEN TUNNING ALONG THE FOUNDATION CONCRETE IN A 32mm GREY ELECTRICAL CONDUIT, JUST UNDER THE CLADDING OF THE BUILDING

THEN TRENCHED UNDER THE BUILDING TO UNIT 01 TO A 15-WAY WATERPROOF DISTRIBUTION BOARD MOUN.TED ON THE SIDE OF UNIT 01 @ 1000 AFFL

SUPPLY CABLE TO EACH UNIT AND PUMP CHAMBER WILL COME FROM THIS SUBBOARD IN A COMBINATION OF TRENCHING & CLIPPING UNDER THE SUB-FRAME

DOCUMENT TRANSMITTAL

REV	DESCRIPTION	DATE
1	PRELIMINARY	10/10/2023
2	PRELIMINARY	17/10/2023
3	BUILDING CONSENT	17/11/2023

40mm 30 20 10 0

SITE SCOPE
260 WAIMATE NORTH ROAD, KERIKERI, 0293
projects@sitescope.co.nz
www.sitescope.co.nz

Te Tūāpapa Kura Kāinga
Ministry of Housing and Urban Development

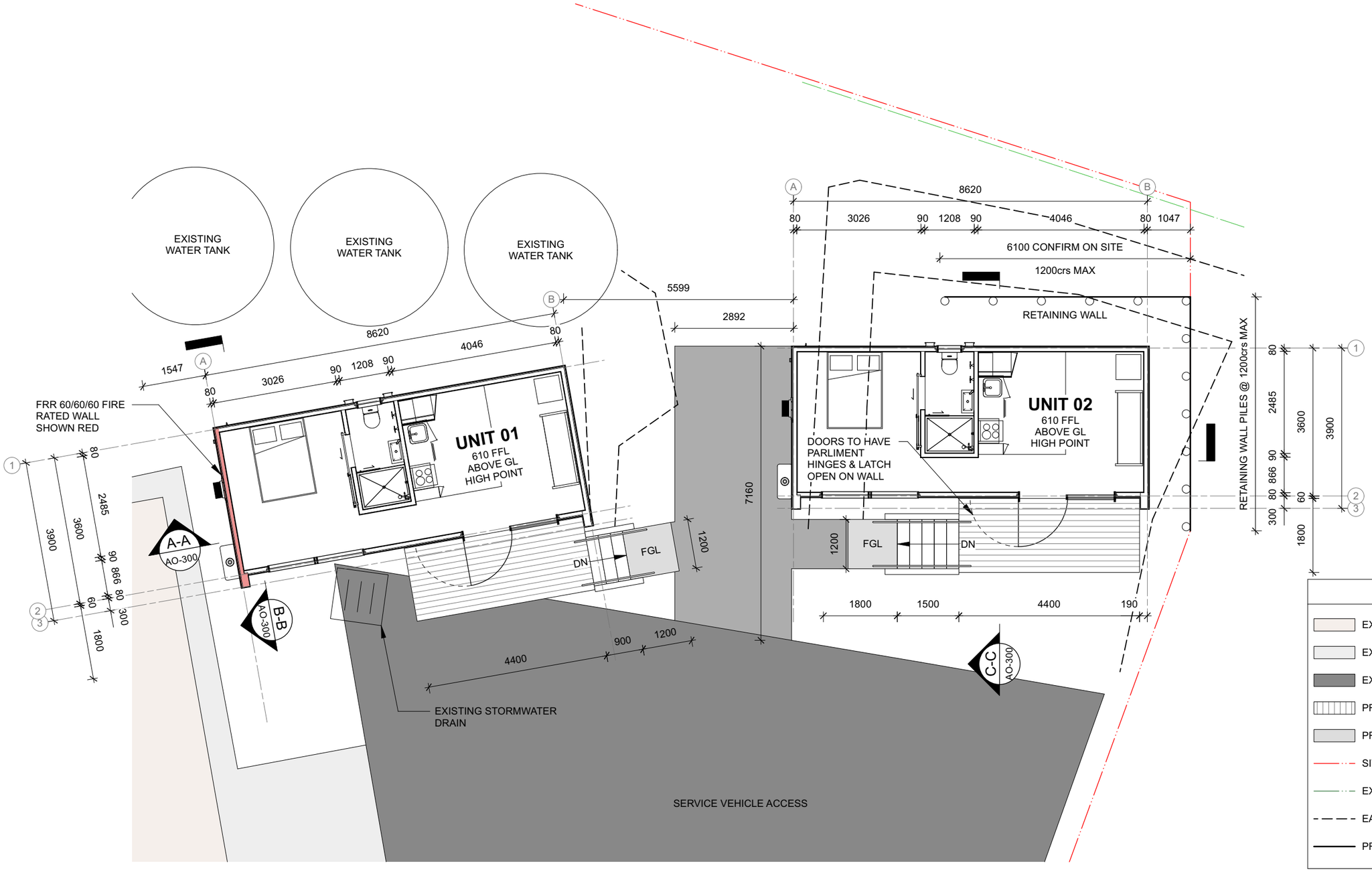
CLIENT: TE TŪĀPAPA KURA KĀINGA

PROJECT: P2982 TEMPORARY ACCOMODATION - MANEA MARAE

SHEET:

SITE PLAN - INFRASTRUCTURE - CALL OUT

DATE:	17/11/2023	REV:	SCALE:	1:100
DRAWN:	LM	3	SHEET NO:	**AO-012**
CHECKED:	MA			



LEGEND

- EXISTING BUILDINGS
- EXISTING CONCRETE
- EXISTING SERVICE VEHICLE ACCESS
- PROPOSED TIMBER DECKS & RAMPS
- PROPOSED CONCRETE LANDINGS
- SITE BOUNDARY
- EXISTING FENCELINES
- EARTHWORKS CUTTING
- PROPOSED 1.5m MAX HIGH TIMBER RETAINING WALL

DOCUMENT TRANSMITTAL

REV	DESCRIPTION	DATE
1	PRELIMINARY	10/10/2023
2	PRELIMINARY	17/10/2023
3	BUILDING CONSENT	17/11/2023

DATE:	17/11/2023	REV:	SCALE:	1:100	
DRAWN:	LM	3	SHEET NO:	**AO-100**	
CHECKED:	MA				

40mm 30 20 10 0

SITE SCOPE
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KERIKERI, 0293
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Te Tūāpapa Kura Kāinga
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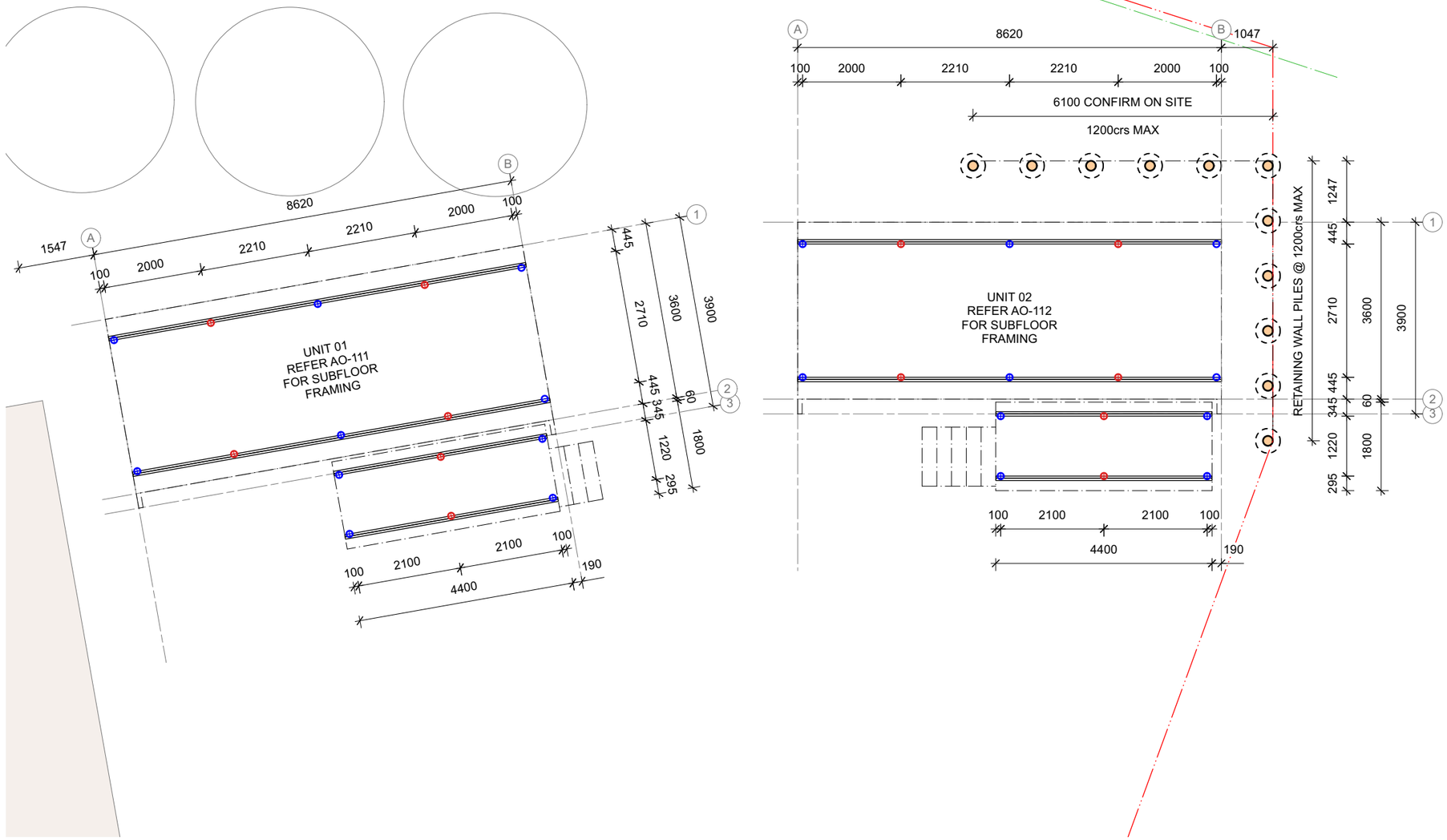
CLIENT: TE TŪĀPAPA KURA KĀINGA

PROJECT: P2982 TEMPORARY ACCOMODATION - MANEA MARAE

SHEET:

FLOOR PLAN LAYOUT



FOUNDATION LEGEND

- STOPDIGGING SGC 89x1600 FOUNDATION GROUND SCREW C/W SGE145 BRACKET
- STOPDIGGING SGC 76x1600 FOUNDATION GROUND SCREW C/W SGE145 BRACKET
- 200Ø H5 TIMBER RETAINING WALL PILE IN 500Ø 20 MPa CONCRETE FOOTING WITH 1050 EMBEDMENT
- 2/190x45 SG8 H3.2 BEARER
- SITE BOUNDARY
- EXISTING FENCELINES

DOCUMENT TRANSMITTAL

REV	DESCRIPTION	DATE
1	PRELIMINARY	10/10/2023
2	PRELIMINARY	17/10/2023
3	BUILDING CONSENT	17/11/2023

0 10 20 30 40mm

SITE SCOPE
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Te Tūāpapa Kura Kāinga
Ministry of Housing and Urban Development

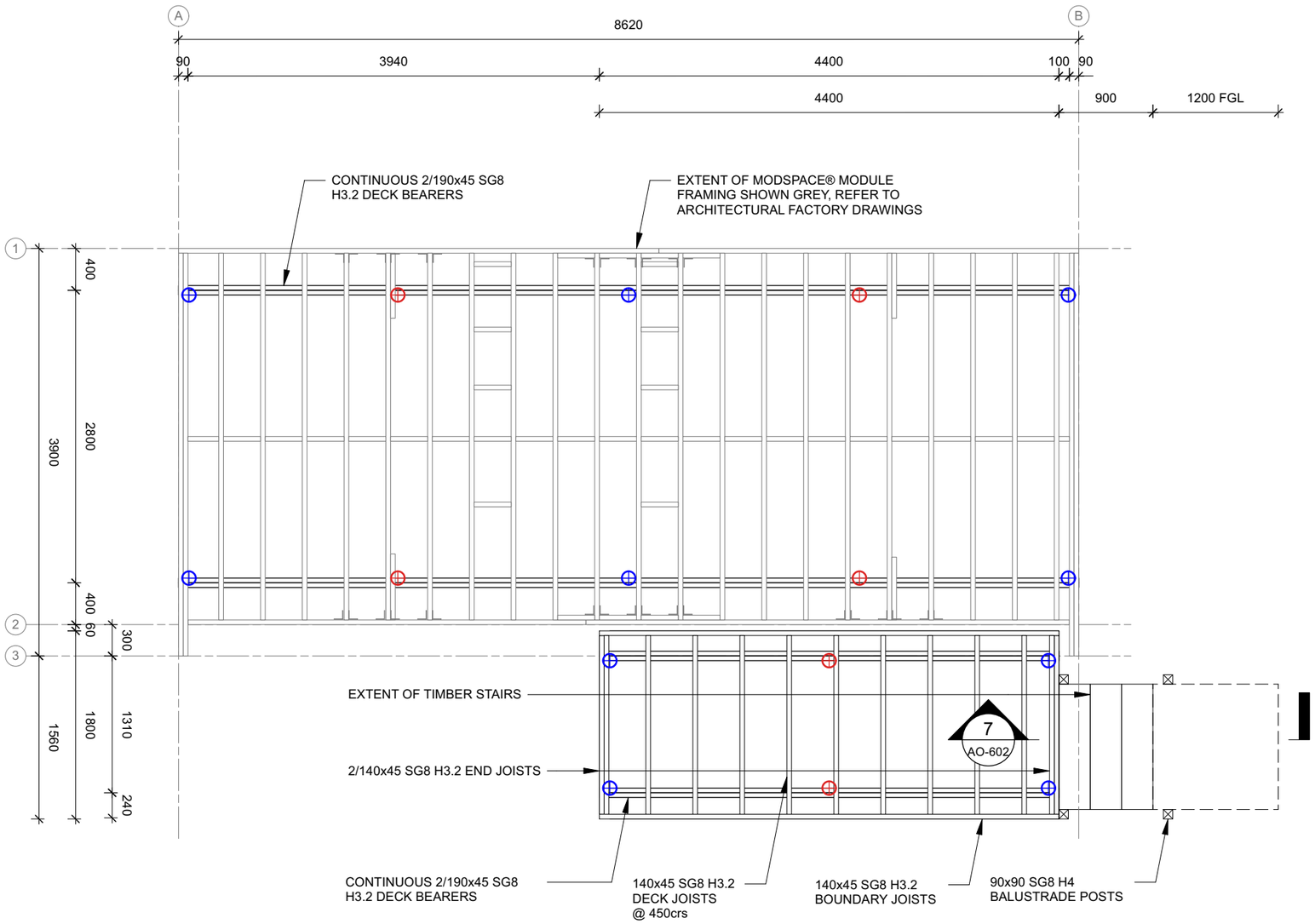
CLIENT: TE TŪĀPAPA KURA KĀINGA

PROJECT: P2982 TEMPORARY ACCOMODATION - MANEA MARAE

SHEET:

FOUNDATION PLAN

DATE:	17/11/2023	REV:	3
DRAWN:	LM	SCALE:	1:100
CHECKED:	MA	SHEET NO:	AO-110



FOUNDATION LEGEND

- STOPDIGGING SGC 89x1600 FOUNDATION GROUND SCREW C/W SGE145 BRACKET
- STOPDIGGING SGC 76x1600 FOUNDATION GROUND SCREW C/W SGE145 BRACKET

DOCUMENT TRANSMITTAL

REV	DESCRIPTION	DATE
1	PRELIMINARY	10/10/2023
2	PRELIMINARY	17/10/2023
3	BUILDING CONSENT	17/11/2023

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Te Tūāpapa Kura Kāinga
Ministry of Housing and Urban Development

CLIENT: TE TŪĀPAPA KURA KĀINGA

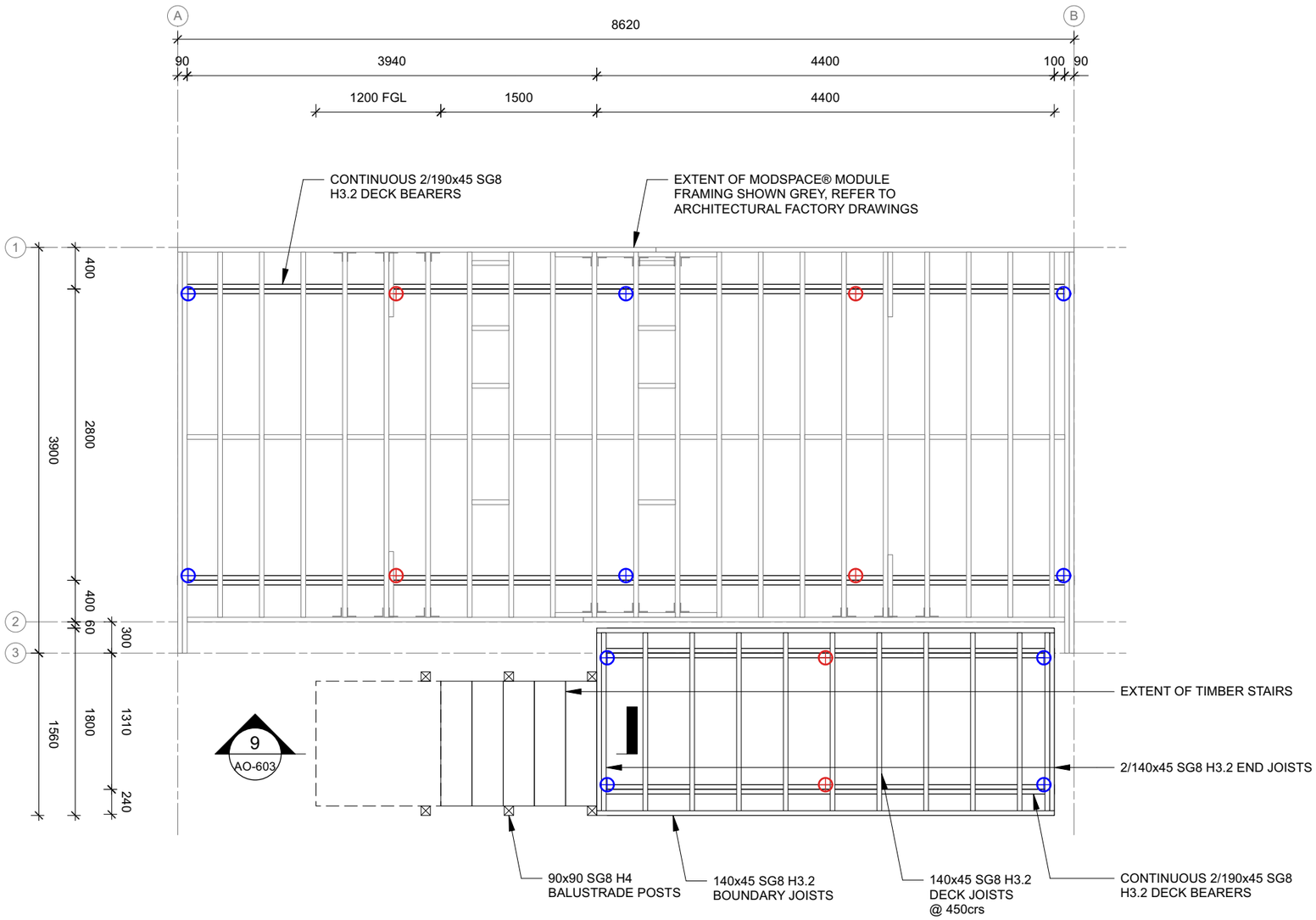
PROJECT: P2982 TEMPORARY ACCOMODATION - MANEA MARAE

SHEET:

UNIT 01 - SUBFLOOR FRAMING

DATE: 17/11/2023
DRAWN: LM
CHECKED: MA
REV: 3
SCALE: 1:50
SHEET NO: **AO-111**

0 10 20 30 40mm



FOUNDATION LEGEND

- STOPDIGGING SGC 89x1600 FOUNDATION GROUND SCREW C/W SGE145 BRACKET
- STOPDIGGING SGC 76x1600 FOUNDATION GROUND SCREW C/W SGE145 BRACKET

DOCUMENT TRANSMITTAL

REV	DESCRIPTION	DATE
1	PRELIMINARY	10/10/2023
2	PRELIMINARY	17/10/2023
3	BUILDING CONSENT	17/11/2023

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CLIENT: TE TŪĀPAPA KURA KĀINGA

PROJECT: P2982 TEMPORARY ACCOMODATION - MANEA MARAE

SHEET:

UNIT 02 - SUBFLOOR FRAMING

DATE: 17/11/2023
DRAWN: LM
CHECKED: MA
REV: 3
SCALE: 1:50
SHEET NO: AO-112

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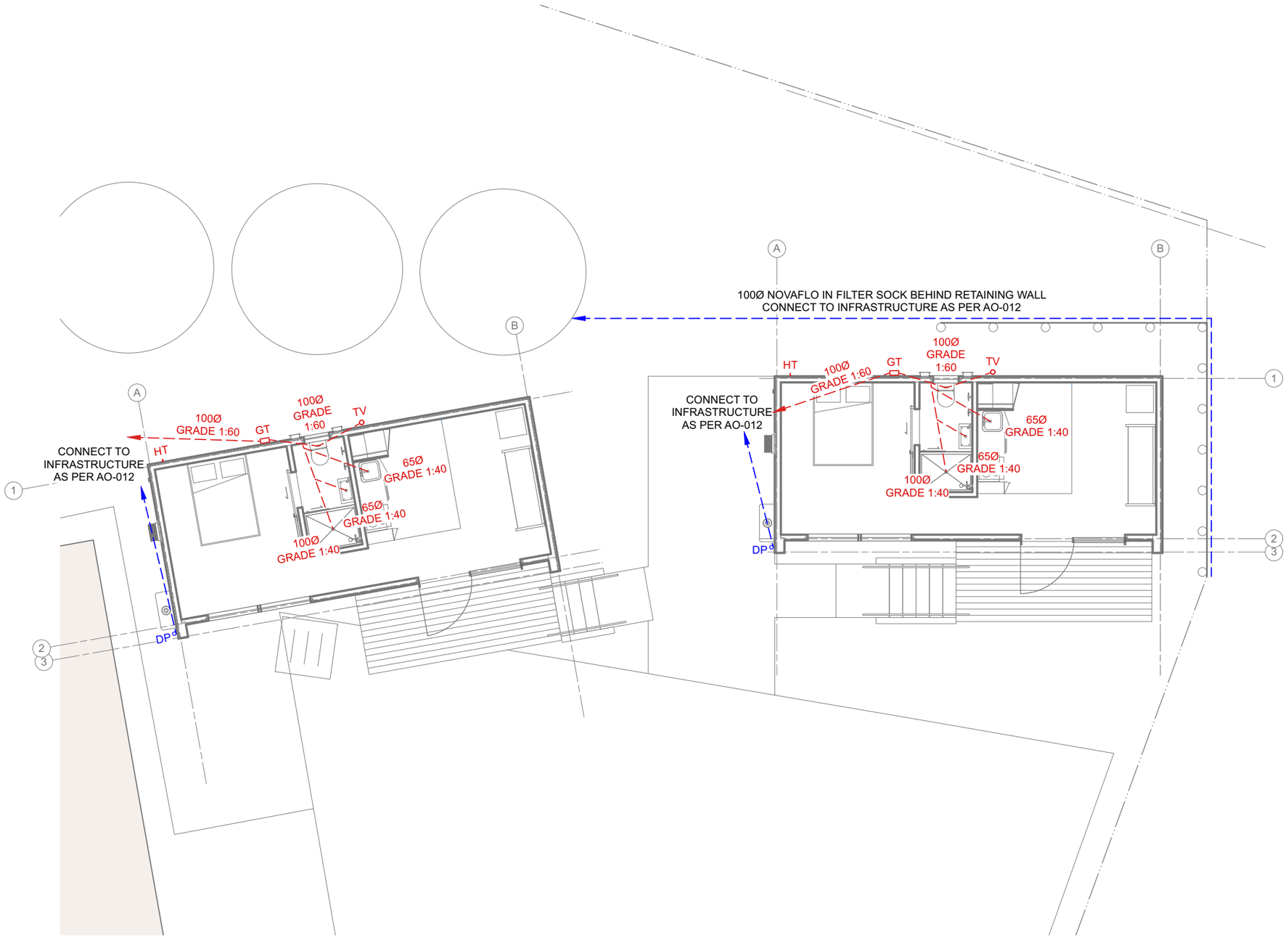

WASTE PIPE GRADIENTS (MIN)		
40Ø	1:40 MINIMUM GRADIENT	4DU
65Ø	1:40 MINIMUM GRADIENT	21DU
100Ø	1:60 MINIMUM GRADIENT	115DU
WASTE PIPE & DISCHARGE UNITS		
40Ø	KITCHEN SINK	3DU
DRAINAGE PIPE GRADIENT		
65Ø	1:40 MINIMUM GRADIENT	25DU
85Ø	1:60 MINIMUM GRADIENT	61DU
100Ø	1:60 MINIMUM GRADIENT	205DU
150Ø	1:60 MINIMUM GRADIENT	1310DU

LEGEND	
GT	GULLY TRAP
TV	TERMINAL VENT
HT	HOSE TAP
DP	DOWN PIPE

DOCUMENT TRANSMITTAL		
REV	DESCRIPTION	DATE
3	BUILDING CONSENT	17/11/2023

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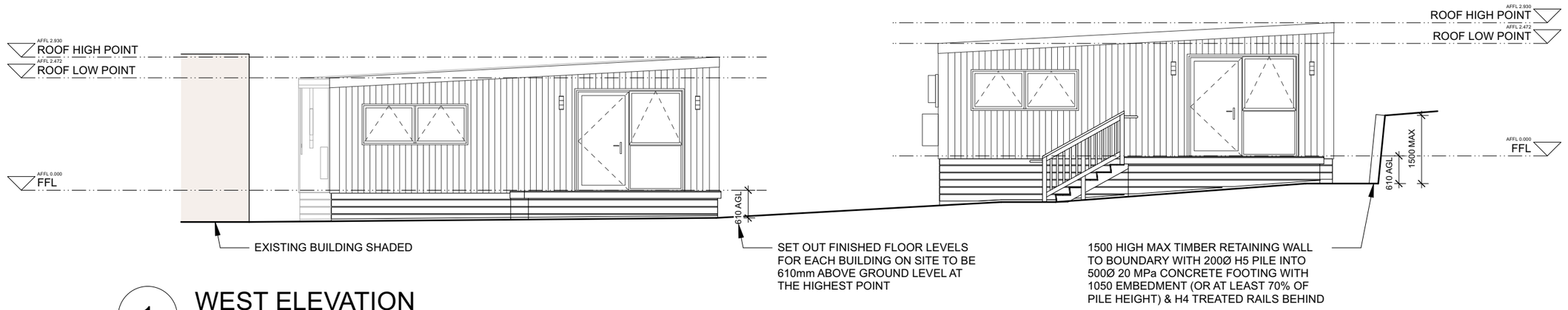
PROJECT: P2982 TEMPORARY ACCOMODATION - MANEA MARAE

SHEET:

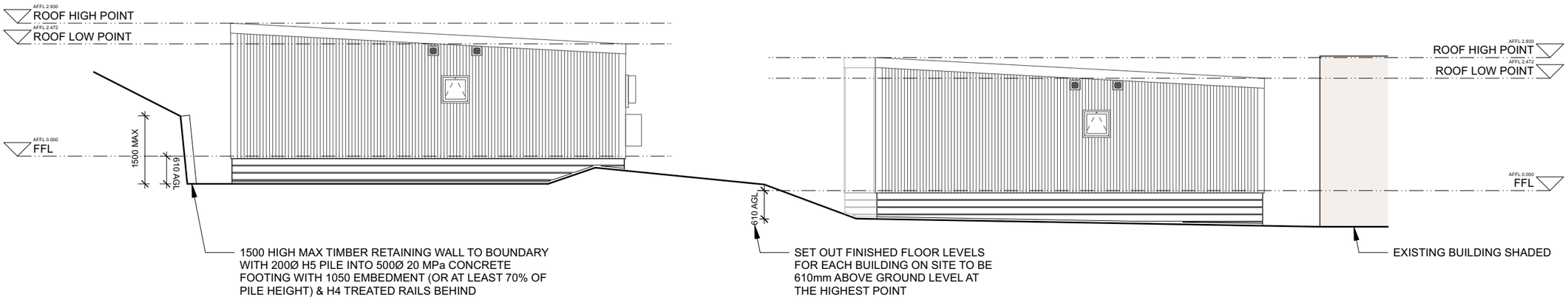
PLUMBING & DRAINAGE

DATE:	17/11/2023	REV:	SCALE:	1:100
DRAWN:	LM	3	SHEET NO:	AO-120
CHECKED:	MA			

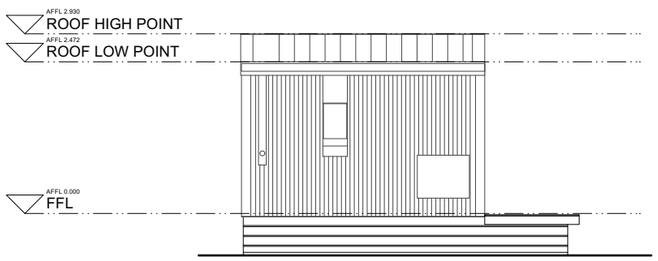
0 10 20 30 40mm



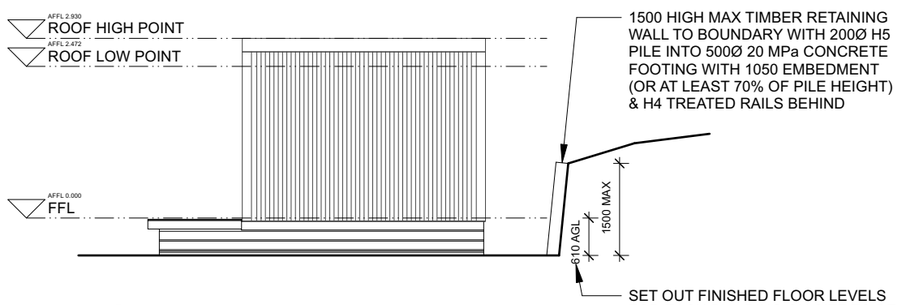
1 WEST ELEVATION



2 EAST ELEVATION



3 NORTH ELEVATION



4 SOUTH ELEVATION

NOTES - ELEVATIONS

ELEVATIONS SHOW ON SITE SET OUT OF MODULES ONLY

FOR FURTHER DETAIL ON MODSPACE® CONSTRUCTION, REFER TO ARCHITECTURAL FACTORY DOCUMENTATION

DOCUMENT TRANSMITTAL

REV	DESCRIPTION	DATE
3	BUILDING CONSENT	17/11/2023

SITE SCOPE
260 WAIMATE NORTH ROAD, KERIKERI, 0293
projects@sitescope.co.nz
www.sitescope.co.nz

Te Tūāpapa Kura Kāinga
Ministry of Housing and Urban Development

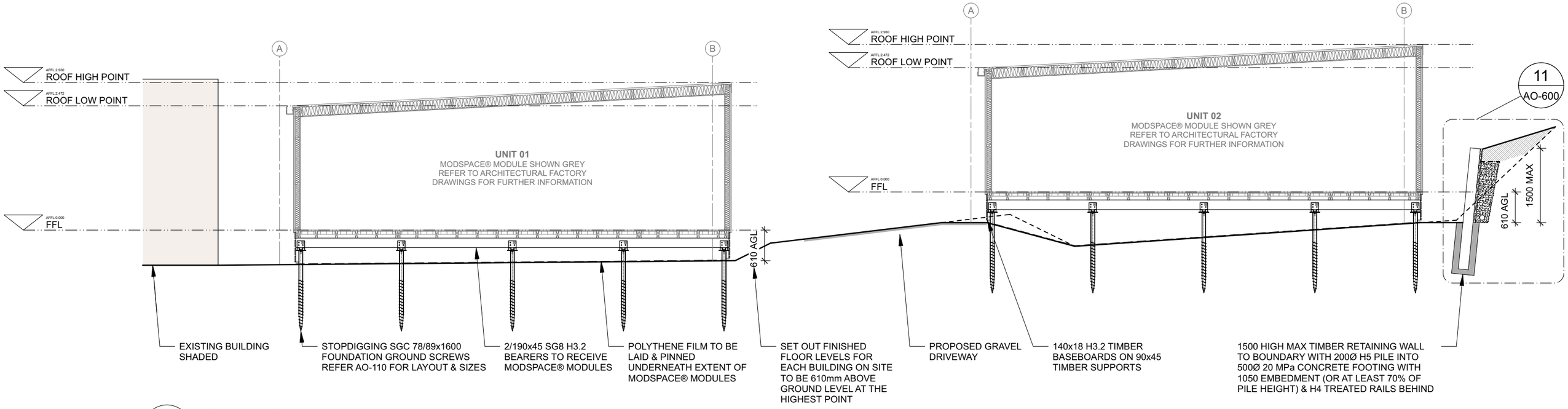
CLIENT: TE TŪĀPAPA KURA KĀINGA

PROJECT: P2982 TEMPORARY ACCOMODATION - MANEA MARAE

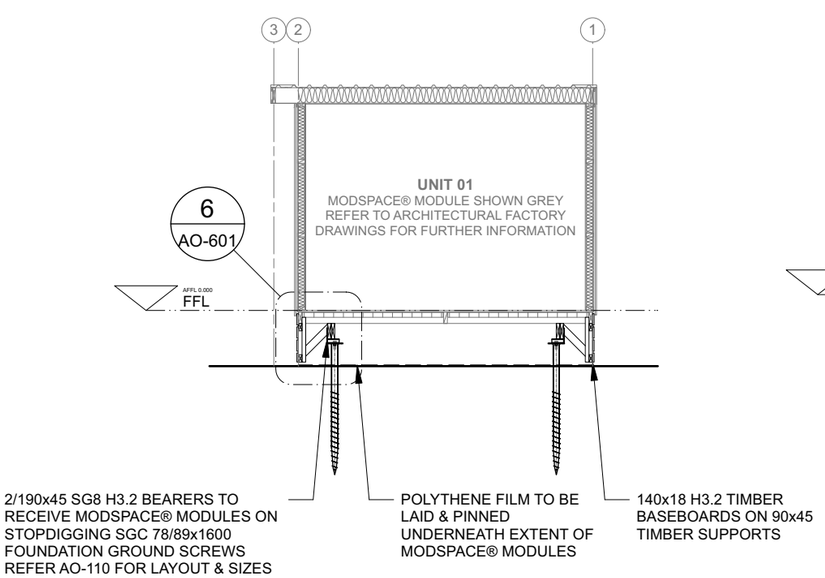
SHEET: SITE ELEVATIONS

DATE:	17/11/2023	REV:	3
DRAWN:	LM	SCALE:	1:100
CHECKED:	MA	SHEET NO:	AO-200

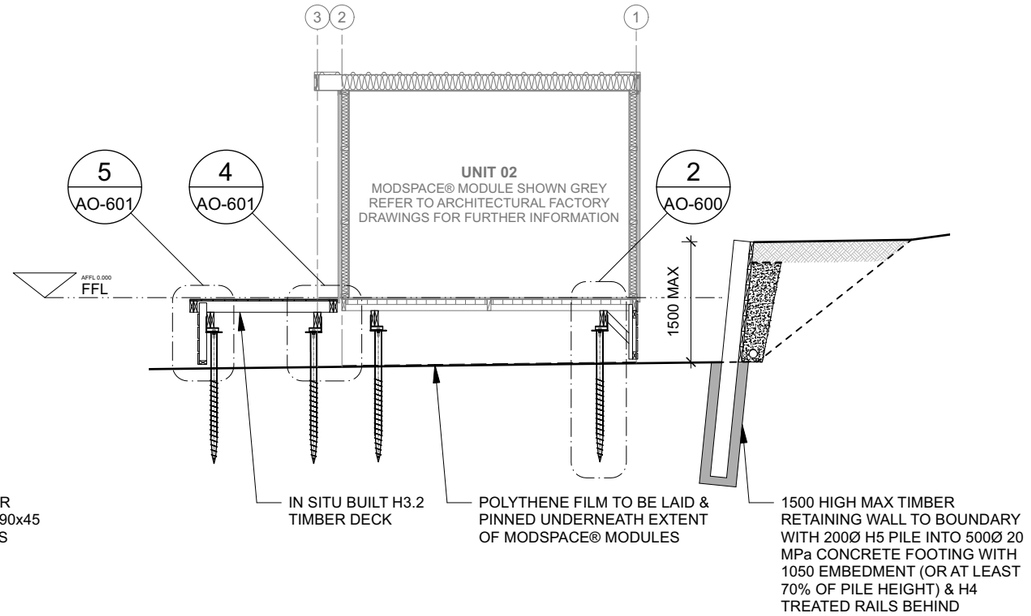
0 10 20 30 40mm



A-A SECTION 1



B-B SECTION 2



C-C SECTION 3

NOTES - SECTIONS

SECTIONS SHOW ON SITE SET OUT OF MODULES ONLY

FOR FURTHER DETAIL ON MODSPACE® CONSTRUCTION, REFER TO ARCHITECTURAL FACTORY DOCUMENTATION

DOCUMENT TRANSMITTAL

REV	DESCRIPTION	DATE
3	BUILDING CONSENT	17/11/2023

SITE SCOPE
260 WAIMATE NORTH ROAD, KERIKERI, 0293
projects@sitescope.co.nz
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Te Tūāpapa Kura Kāinga
Ministry of Housing and Urban Development

CLIENT: TE TŪĀPAPA KURA KĀINGA

PROJECT: P2982 TEMPORARY ACCOMODATION - MANEA MARAE

SHEET: SITE SECTIONS

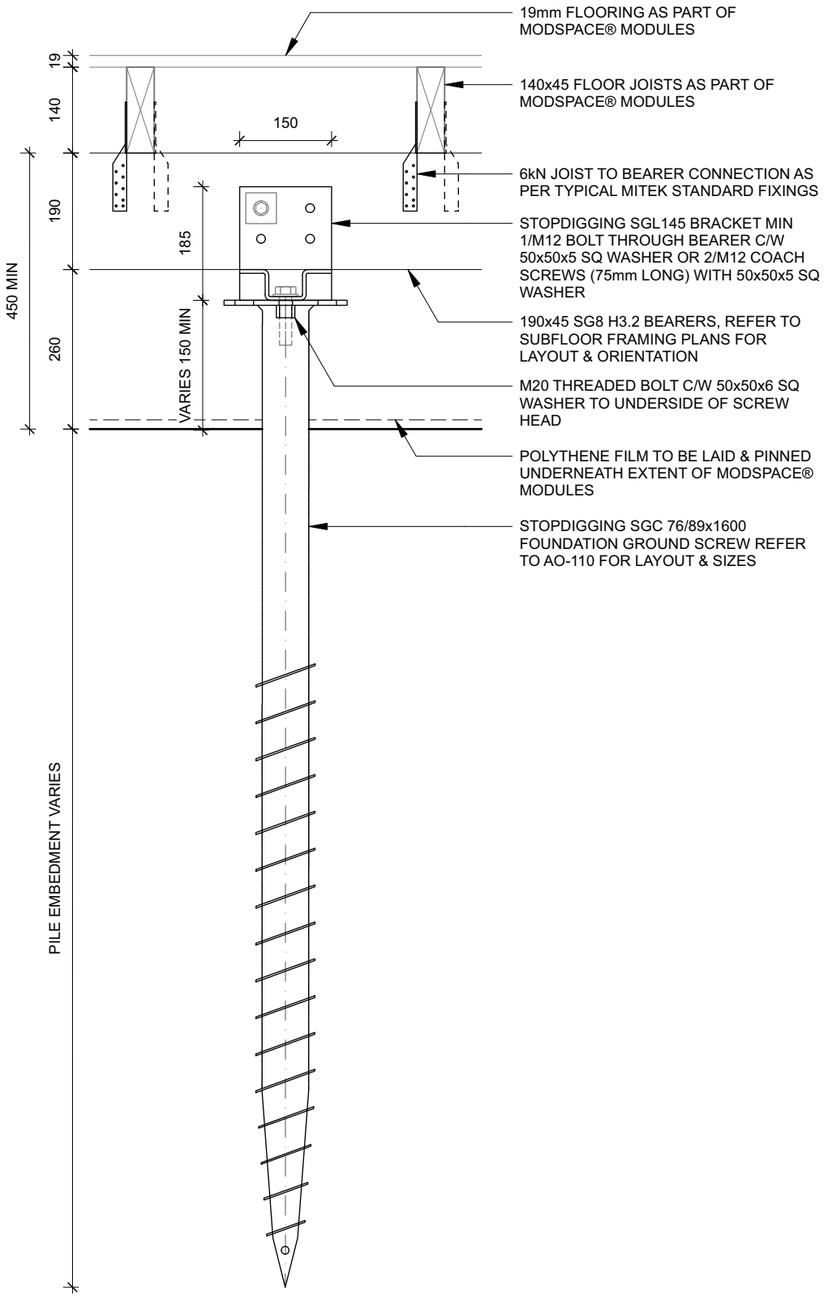
DATE:	17/11/2023	REV:	3
DRAWN:	LM	SCALE:	1:75
CHECKED:	MA	SHEET NO:	AO-300

0 10 20 30 40mm

1 SCREW PILE LONG SECTION

AO-300

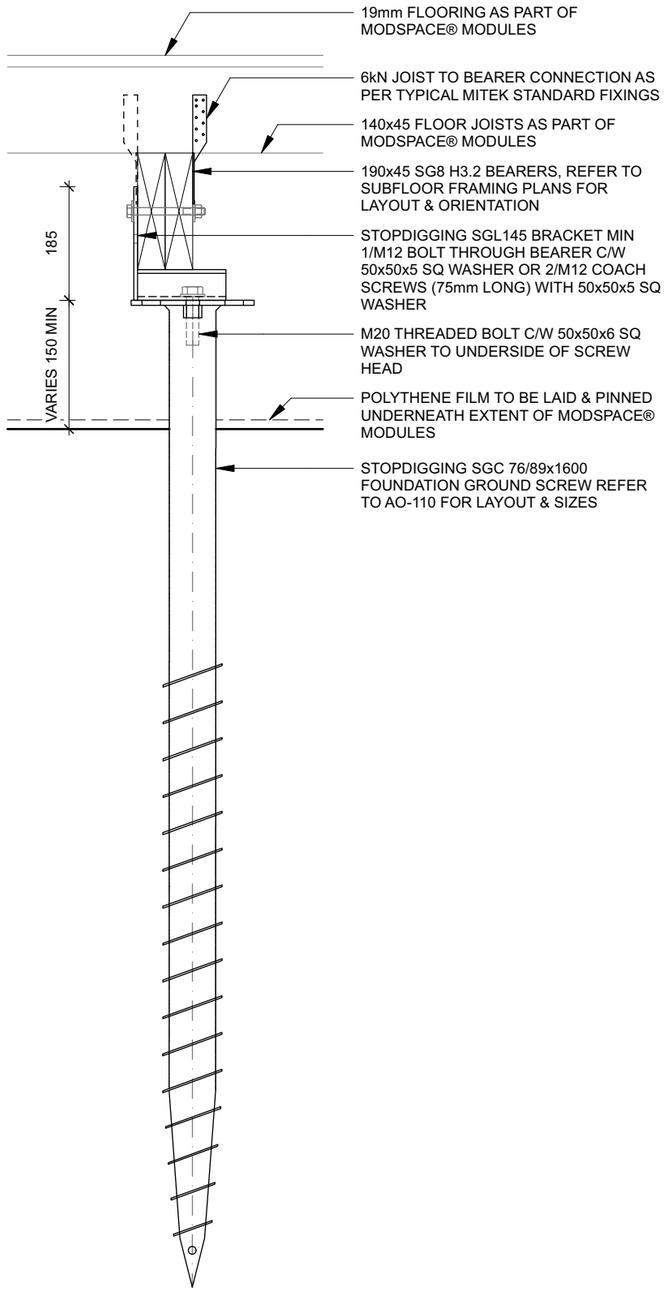
1:10



2 SCREW PILE SHORT SECTION

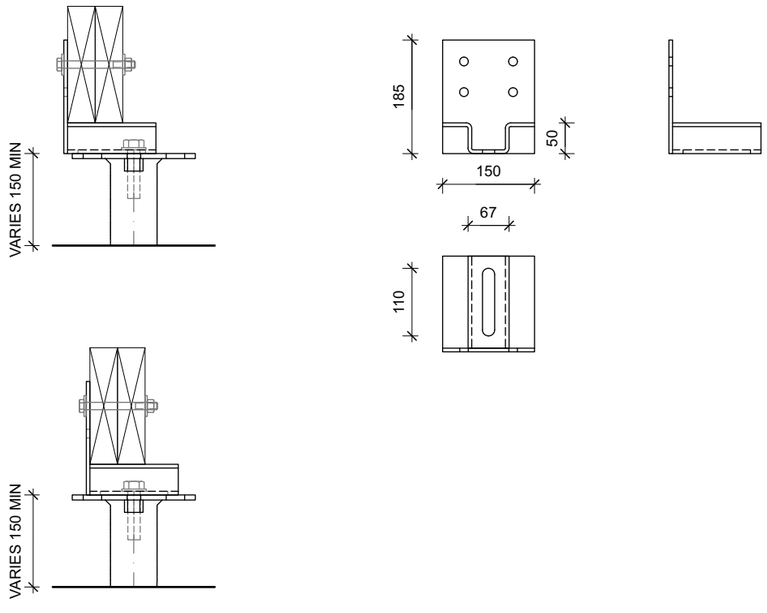
AO-300

1:10



3 STOPDIGGING BRACKET SG145

1:10



DOCUMENT TRANSMITTAL		
REV	DESCRIPTION	DATE
3	BUILDING CONSENT	17/11/2023

SITE SCOPE

260 WAIMATE NORTH ROAD,
KERIKERI, 0293

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Te Tūāpapa Kura Kāinga
Ministry of Housing and Urban Development

CLIENT: TE TŪĀPAPA KURA KĀINGA

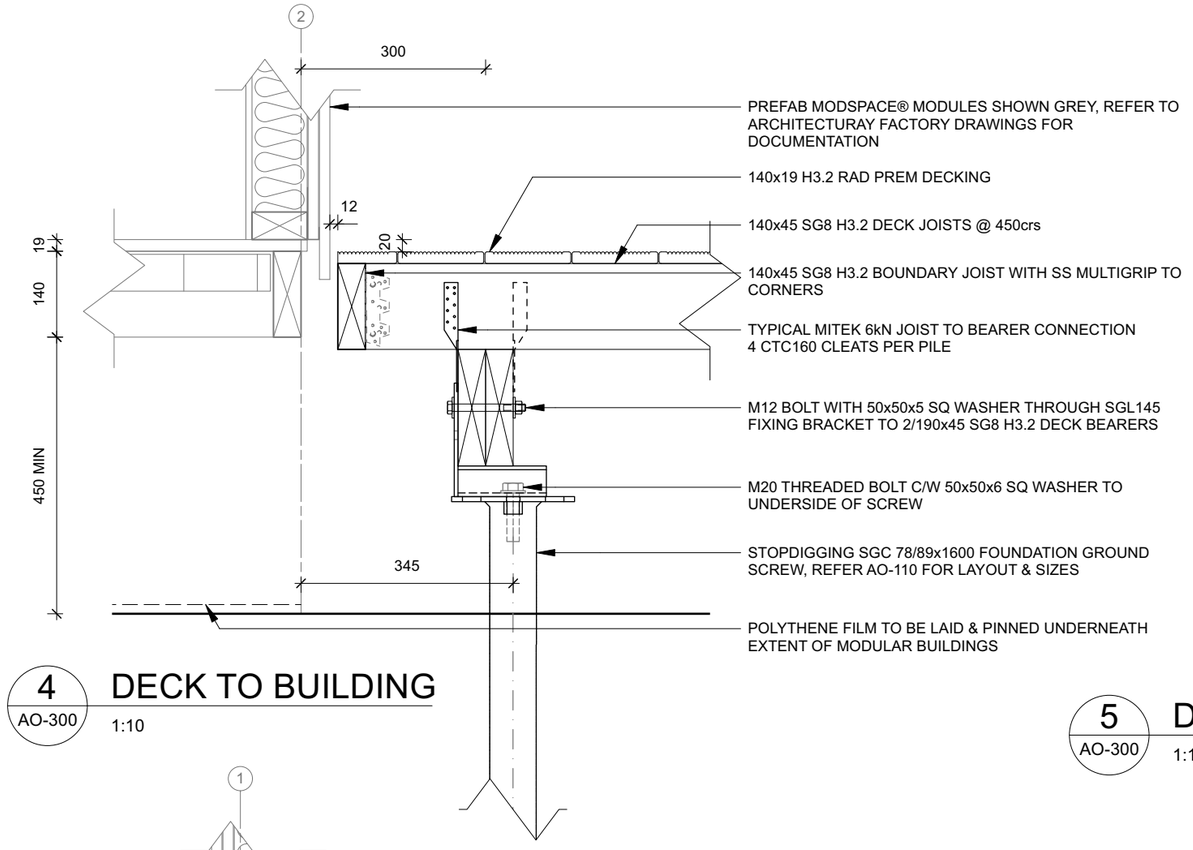
PROJECT: P2982 TEMPORARY ACCOMODATION - MANEA MARAE

SHEET:

DETAILS - SCREW PILES

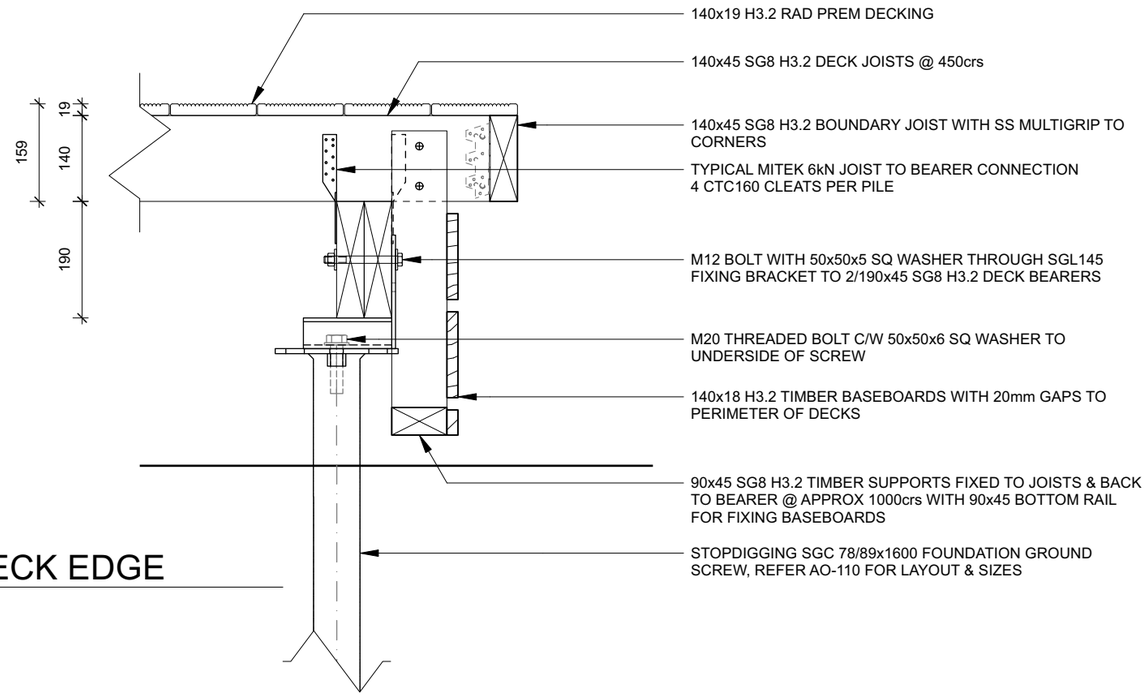
DATE:	17/11/2023	REV:	SCALE: 1:10
DRAWN:	LM	3	SHEET NO: AO-600
CHECKED:	MA		

0 10 20 30 40mm



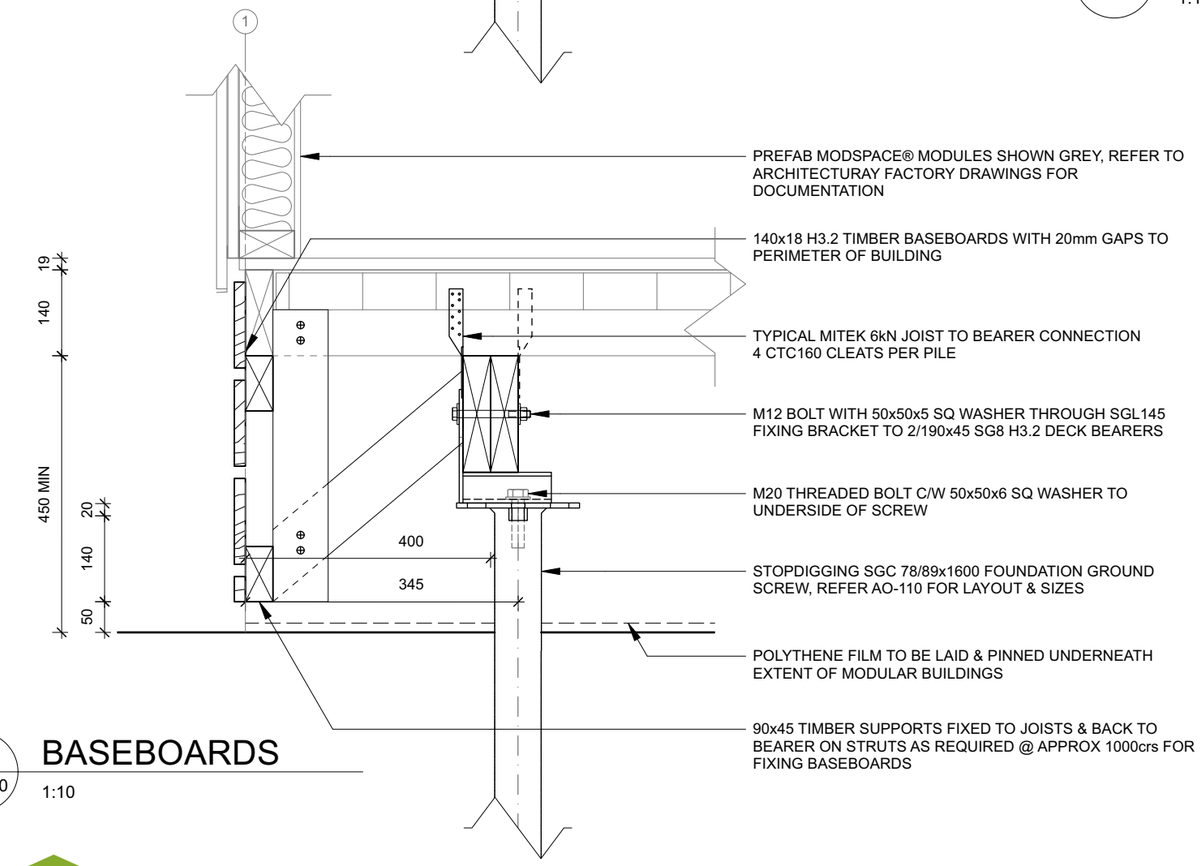
4 AO-300 **DECK TO BUILDING**

1:10



5 AO-300 **DECK EDGE**

1:10



6 AO-300 **BASEBOARDS**

1:10

DOCUMENT TRANSMITTAL

REV	DESCRIPTION	DATE
3	BUILDING CONSENT	17/11/2023

DATE:	17/11/2023	REV:	SCALE:	1:10	
DRAWN:	LM	3	SHEET NO:	AO-601	
CHECKED:	MA				

0 10 20 30 40mm

SITE SCOPE
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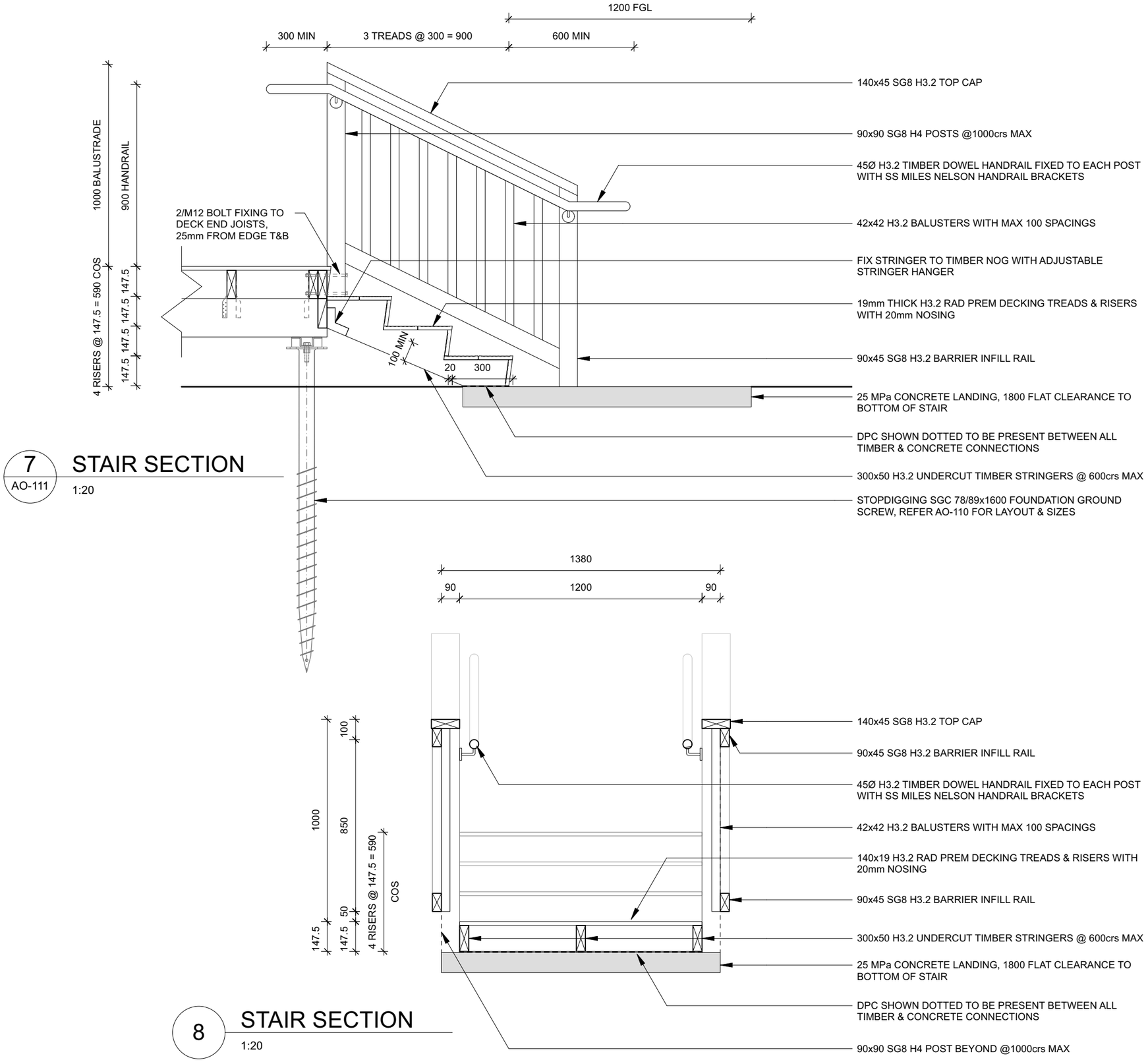
Ministry of Housing and Urban Development

CLIENT: TE TŪĀPAPA KURA KĀINGA

PROJECT: P2982 TEMPORARY ACCOMODATION - MANEA MARAE

SHEET: DETAILS - DECKS



7 AO-111

STAIR SECTION

1:20

8

STAIR SECTION

1:20

DOCUMENT TRANSMITTAL		
REV	DESCRIPTION	DATE
3	BUILDING CONSENT	17/11/2023

SITE SCOPE

260 WAIMATE NORTH ROAD,
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Ministry of Housing and Urban Development

CLIENT: TE TŪĀPAPA KURA KĀINGA

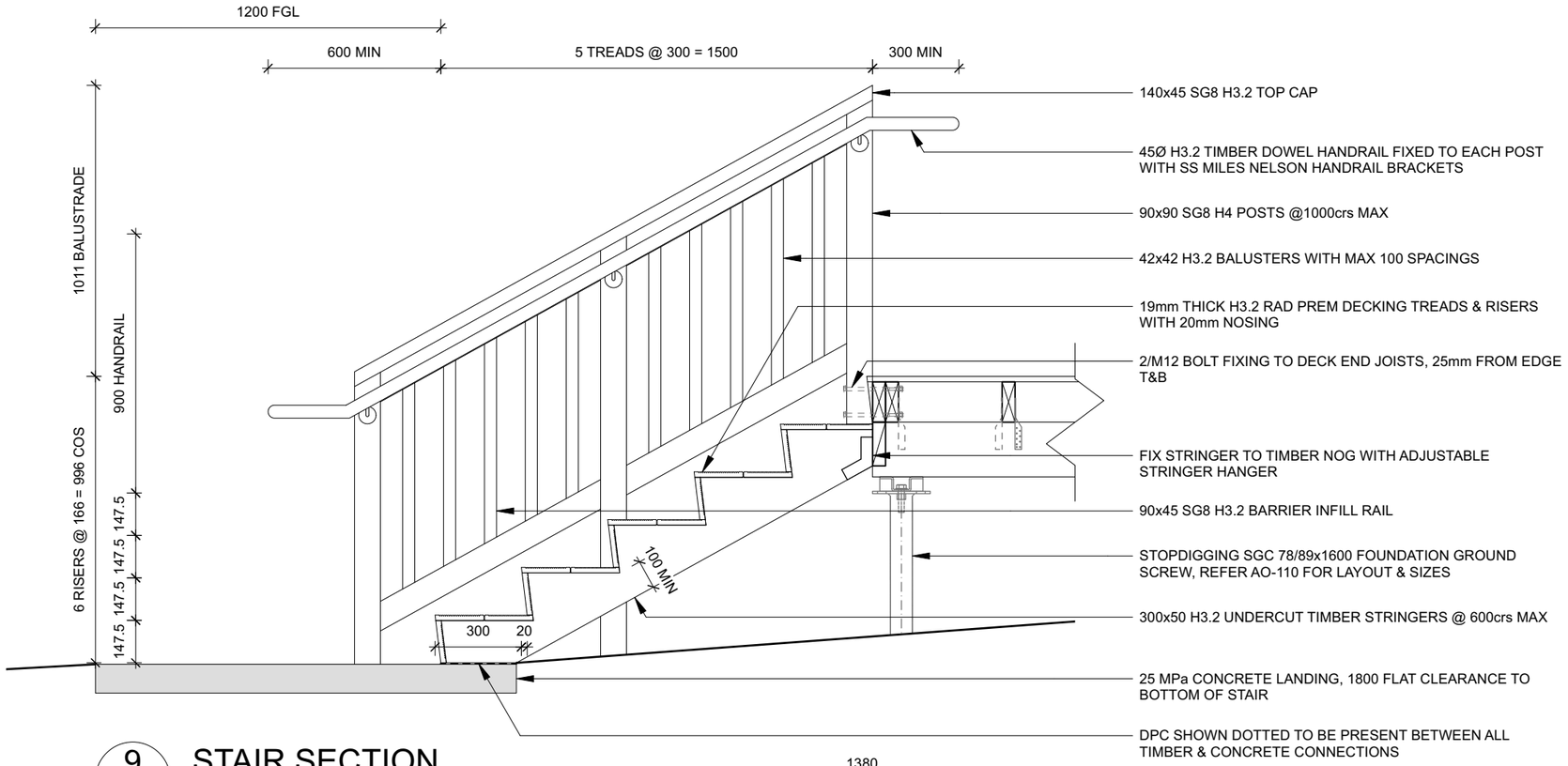
PROJECT: P2982 TEMPORARY ACCOMODATION - MANEA MARAE

SHEET:

DETAILS - UNIT 01 STAIRS

DATE:	17/11/2023	REV:	3
DRAWN:	LM	SCALE:	1:20
CHECKED:	MA	SHEET NO:	AO-602

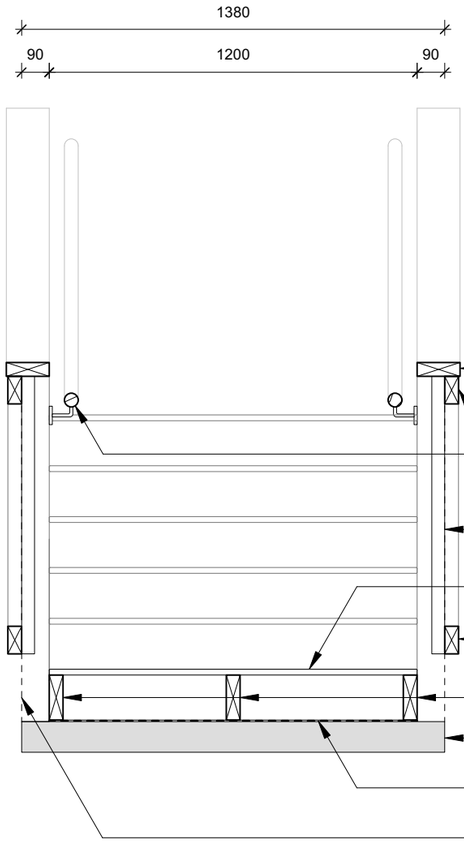
0 10 20 30 40mm



9 AO-112

STAIR SECTION

1:20



10 AO-112

STAIR SECTION

1:20

DOCUMENT TRANSMITTAL

REV	DESCRIPTION	DATE
3	BUILDING CONSENT	17/11/2023

40mm 30 20 10 0

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SHEET:

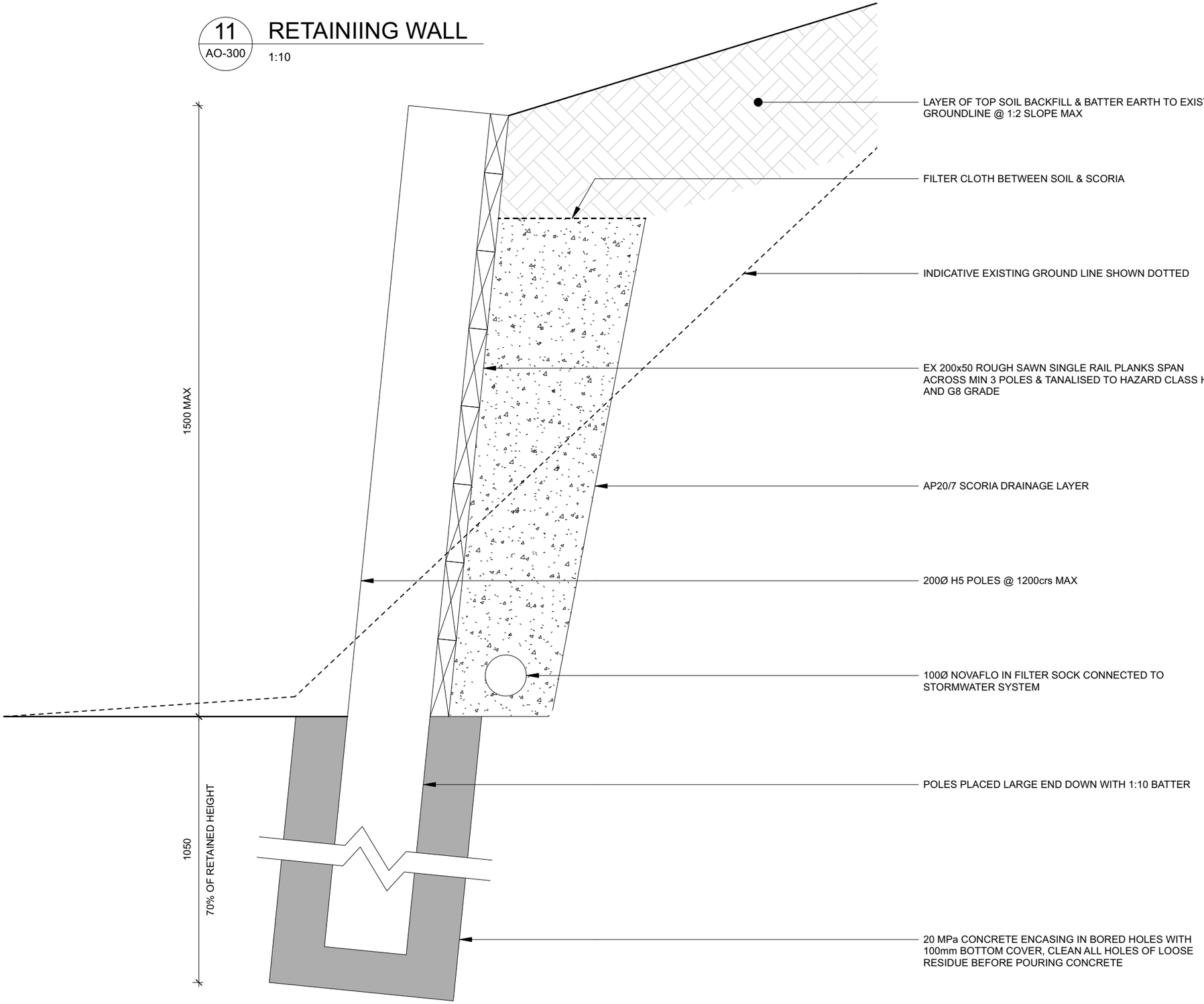
DETAILS - UNIT 02 STAIRS

DATE:	17/11/2023	REV:	SCALE:	1:20
DRAWN:	LM	3	SHEET NO:	AO-603
CHECKED:	MA			

11 RETAINIING WALL

AO-300

1:10



NOTES - RETAINING WALL
THE CONSENT HOLDER SHALL ENGAGE A GEOTECHNICAL ENGINEER TO CONFIRM SOIL CONDITIONS AFTER POLE RETAINING WALL AUGERING
LOCATION AND EXTENT OF TIMBER POLE RETAINING WALLS TO BE CONFIRMED ON SITE
ALL TIMBER POLES SHALL BE H5 TREATED RADIATA PINE IN ACCORDANCE WITH NZS3603:1993 UNLESS OTHERWISE SPECIFIED. ALL TIMBER POLES SHALL HAVE CONCRETE ENCASEMENT BELOW THE GROUND LEVEL WITH A MINIMUM OF 75mm SIDE COVER. THE TIMBER RAILING SHALL BE H4 TREATED RADIATA PINE AND SHALL BE FIXED TO THE POLES WITH GALVANISED NAIL. CUTTING OF TIMBERS SHALL BE AVOIDED WHEREVER POSSIBLE. IF CUTTING IS NECESSARY, THE EXPOSED SURFACES SHALL BE FLOOD WITH A COPPER NAPTHENATE TYPE OF WOOD PRESERVATIVE. RAILINGS TO SPAN A MINIMUM OF 3 POLES. THE CONCRETE ENCASEMENT SHALL BE ADEQUATELY VIBRATED WITH A PENCIL VIBRATOR TO AVOID "HONEY COMBING", AND SHALL BE A MINIMUM STRENGTH OF 20 MPa.
A PERFORATED OR OPEN JOINTED SUBSOIL DRAIN SHALL BE LAID AND SURROUNDED IN APPROVED DRAINAGE-GRADED AGGREGATE OR SCORIA WITH INVERT BELOW LOWER GROUND LEVELS AND LET TO A FREE OUTLET AT A POINT OF SAFE DISCHARGE.
THE MAXIMUM RETAINING WALL HEIGHT SHALL BE AS SPECIFIED ON THE DRAWINGS AND SHALL NOT BE EXCEEDED UNLESS APPROVED WITH DESIGN ENGINEERING IN WRITING.
THE EXTENT OF EXCAVATION SHALL BE MARKED OUT ON THE GROUND HAVING REGARD TO THE POSITION OF POLES, WORKING SPACE FOR CONSTRUCTION, BACKFILL AND DRAINAGE PROVIDERS.
EXCAVATIONS FOR FOUNDATION SHALL BE TAKEN OUT BY AUGURING TO THE DIMENSIONS DETAILED, WITH ALL SURPLUS SOLID BEING DISPOSED OF AWAY FROM SITE. ALLOWANCE SHALL BE MADE IN POSITIONING AUGURED HOLES FOR THE SLOPE OF THE WALL AND FOR CONCRETE SURROUNDS TO POLES. DRIVING OF POLES IS NOT ACCEPTABLE AS AN ALTERNATIVE TO AUGURING, UNLESS OTHERWISE APPROVED WITH DESIGN ENGINEERING. THE CONTRACTOR SHALL VERIFY THE POSITION OF ALL UNDERGROUND SERVICES AND CONFIRM THAT THERE ARE NO CLASHES PRIOR TO CONSTRUCTION.
IT IS RECOMMENDED THAT CONSTRUCTION OF THE RETAINING WALLS PROCEED IMMEDIATELY AFTER EXCAVATION SO THAT THE EXCAVATED FACES ARE LEFT EXPOSED AND UNSUPPORTED FOR THE SHORTEST DURATION POSSIBLE. IF LEFT EXPOSED, APPROPRIATE PROTECTION AGAINST WET WEATHER AND TEMPORARY SUPPORT MUST BE PUT IN PLACE. CURRENT INDUSTRY SAFE WORKING PRACTICES SHOULD BE FOLLOWED AT ALL TIMES WHEN WORKING NEAR CUT FACES.

DOCUMENT TRANSMITTAL

REV	DESCRIPTION	DATE
3	BUILDING CONSENT	17/11/2023

SITE SCOPE

260 WAIMATE NORTH ROAD,
KERIKERI, 0293

projects@sitescope.co.nz
www.sitescope.co.nz

Te Tūāpapa Kura Kāinga
Ministry of Housing and Urban Development

CLIENT: TE TŪĀPAPA KURA KĀINGA

PROJECT: P2982 TEMPORARY ACCOMODATION - MANEA MARAE

SHEET:

DETAILS - RETAINING WALL

DATE:	17/11/2023	REV:	3
DRAWN:	LM	SCALE:	1:10
CHECKED:	MA	SHEET NO:	AO-604

0 10 20 30 40mm

STOPDIGGING!
THE GROUND SCREW FOR SOLID FOUNDATIONS

CODEMARK
CMNZ70132

November 2022

THE STOPDIGGING! GROUND SCREW FOUNDATION SYSTEM

THE DESIGN PROCESS

In NZ, a foundation design is typically described by the foundation material and the dimensions associated with their installation, e.g. dimension of footing, volume of concrete etc. Underpinning the foundation design is the pre-established knowledge of the soil capacity, and the calculated design compressive and lateral loads required to meet all applicable loads.

The STOPDIGGING! Ground Screw Foundation System (the system) is different; footing dimension, volume of concrete are not relevant. The key information are the design compressive and lateral loads required to meet all applicable loads. The on-site static pile testing then establishes the capacity of the soil, and therefore confirms that the specified design loads can be achieved with the installation of the ground screw. The on-site testing is conservative, additional redundancy is ensured by testing the soil capacity to a greater compressive and lateral load (the test load).

Put another way, the STOPDIGGING! Ground Screw Foundation System provides tested assurance of the performance of the foundation system.

THE STOPDIGGING! GROUND SCREW FOUNDATION SYSTEM CODEMARK

SCOPE

The STOPDIGGING! Ground Screw Foundation system CodeMark certifies the ground screw and the foundation system; the method of design and installation.

CodeMark covers use of the system,

- for all buildings, and
- located in all exposure zones; where situated within 500 m of the sea including harbours, or 100 m from tidal estuaries or sheltered inlets then the ground screws must be protected by enclosing the space or applying a protective coating.

There are two design options.

1. Relying on the pre-engineered (design & test) load tables for building within the design scope of NZS 3604 or the NASH standard for lightweight steel framing. The placement of ground screws follows typical NZS 3604 placement.
2. Engineer calculation of design and test loads and placement of ground screws.

Installation is the same irrespective of design method.

CONDITIONS

There are three simple conditions.

1. Requirement for a geotechnical report

Since the installation includes site specific testing of the ground capacity, a geotechnical assessment is only required if:

- the on-site static pile test does not confirm use of the foundation system, or
- it the site is subject to land subsidence, liquefaction, or other geotechnical effect.

2. Design declaration

Where a building consent application is lodged, a signed and completed Design Declaration must be supplied with a copy of the Certificate of Conformity, and the design & test loads & ground screw foundation plan.

3. Installation declaration

A signed and completed Installation Declaration, which incorporates the installation record, must be provided when an application for CCC is made. Producer statements or council inspections are not required.

FOR MORE INFORMATION

Feel free to contact me directly on +64 22 192 7966 or email me on jude.hickson@stopdigging.co.nz.

Jude Hickson

Jude Hickson
Managing Director NZ

STOPDIGGING!
THE GROUND SCREW FOR SOLID FOUNDATIONS

CODEMARK™
CMNZ70132

GROUNDSCREW FOUNDATION SYSTEM

Project details

Project address	41 STATE HIGHWAY 12, OPONONI, HOKIANGA 0473		
Legal description	LOT 1 DP 195242		
Design scope	Install Stop Digging Screw Piles for Buildings & Decks		
Engineer name		CPEng #	

Ground conditions

- [ ] Soil type allowed for in Table 2 STOPDIGGING! Ground Screw Design Guide
- [x] Soil suitability has been confirmed through testing (test report attached)
- [ ] Ground conditions to be established post consent via static pile testing
- [ ] Ground conditions to be confirmed via post consent static pile test founded in accordance with the Geotech Report

name, author, #

Design & test loads

Specification of design & test loads rely on

- [x] Table 3 STOPDIGGING! Ground Screw Design Guide
- [ ] CPEng engineer, foundation design SED
- [x] Table 4 STOPDIGGING! Ground Screw Design Guide

Where design & test loads are specifically engineered

- [ ] Fixings specifically engineered by named CPEng engineer

Declaration

By signing this declaration you confirm that all conditions of the CodeMark Certificate as they apply to the design of the STOPDIGGING! Ground Screw Foundation System have been met.

Details of signatory

Name	Hamish Abercrombie		
Position	Designer		
Company	Site Scope Limited		
LPB or CPEng #	BP139963	Date	30/10/23

PRODUCT CERTIFICATE

STOPDIGGING! Ground Screw Foundation System

CERTIFICATE NO: CMNZ70132
Version No: 0

Original issue date: 21 October 2022
Version date: 21 October 2022

1 CERTIFICATE HOLDER DETAILS

STOPDIGGING NZ Ltd
5c Beatrice Tinsley Crescent
Rosedale, Auckland 0632
New Zealand

Email: info@stopdigging.co.nz
Phone: +64 9 393 5528
www.stopdigging.co.nz

STOPDIGGING!
THE GROUND SCREW FOR SOLID FOUNDATIONS

2 PRODUCT CERTIFICATION BODY

Bureau Veritas Australia Pty Ltd
11/500 Collins Street
Melbourne VIC 3000
Australia

product.certification@bureauveritas.com
Ph: 1800 855 190
www.bureauveritas.com.au

The complaints process for this certificate can be found here:
www.bureauveritas.com.au/your-feedback

3 DESCRIPTION OF BUILDING METHOD OR PRODUCT

Name of the product or method in New Zealand, including any brand names used. Description of what it is and the components that make up any system and its physical attributes including the materials and make-up of the product, where applicable.

*Matters that should be taken into account in the use or application of the building method or product can be found in item **6. Conditions and Limitations of Use***

The STOPDIGGING! Ground Screw Foundation System comprises ground screws matched to site conditions by static pile testing to determine the screw type, size and depth for installation to achieve the capacity required to meet the design loads.

The STOPDIGGING! Ground Screws are circular hollow sections with a continuously welded helix manufactured from steel that complies with ISO 630 FE360A (High Tensile Steel for Structural Purposes). The ground screws are coated with a hot-dipped galvanised coating that achieve an average of 125 ?m zinc cover.

The STOPDIGGING! Ground Screw Foundation System uses the following STOPDIGGING! Products:

- Ground screws: SGU 95 (580 mm to 1600 mm long), SGC 76Ø (865 mm to 3000 mm long) , SGC 89Ø (1200mm to 3000mm long)
- Brackets: SGL 145, SGE 125 and SGE

The building method's or building product's catalogue or model identification number or numbers or other unique identifiers that might be used to identify the building product or building method

4 INTENDED USE OF BUILDING METHOD OR PRODUCT

Intended use of the building method or product as described in the product manual and other instructional materials.
A statement of the function or purpose of the building method or product.

The STOPDIGGING! Ground Screw Foundation System is an alternative to piles and foundation walls as defined in NZS 3604:2011, or for use in other foundations by specific engineering design.

5 NEW ZEALAND BUILDING CODE PROVISIONS

The performance clauses of the New Zealand Building Code that are relevant to the intended use and with which the building method or product complies or contributes to (where used as part of a system).
e.g. Clause B2 – DURABILITY Performance B2.3.1

*How the building method or product complies or contributes can be found in item 9. **Basis for Certification.** Any qualifications on the extent of that compliance can be found in item **6. Conditions and limitations of use.***

B1 Structure: B1.3.1, B1.3.2, B1.3.3 (b, f, g, h), B1.3.4
B2 Durability: B2.3.1 (a), B2.3.2 (a)
F2 Hazardous building materials: F2.3.1

PRODUCT CERTIFICATE

STOPDIGGING! Ground Screw Foundation System

6 CONDITIONS AND LIMITATIONS OF USE

The building method or product's use is to be in accordance with the installation instructions and requirements against which the building method or product was assessed.
Conditions or limitations of conformity for the performance requirements the building method or product is compliant with, including any requirements for people with the qualifications and skills to install or use the building method or product, any known or demonstrated situations where the building method or product should not be used. A statement as to whether there are any matters that should be taken into account in the use or application of the building product or building method and, if so, what those matters are.
NOTE: Together, items 3,4,5 and 6 define scope of use

1. The STOPDIGGING! Ground Screw Foundation System is certified
   a. for foundations of buildings with suspended floors within the scope of NZS3604:2011 section 1.1.2 or NASH standard Part 2: May 2019 section 1.1:
      i) situated on good ground as defined in Acceptable Solution B1/AS1 (that is, as defined in NZS3604:2011 but excluding ground that has the potential for liquefaction or lateral spread), or on ground with adequate bearing capacity established by static pile testing (but excluding ground that has the potential for liquefaction or lateral spread), and
      ii) maximum above ground height of the ground screw does not exceed 900 mm, and
      iii) diagonal bracing is not required, and
   b. for foundations specifically engineered for buildings other than in 1(a), and
   c. located in Exposure zones A, B, C and D (as defined in NZS3604:2011 section 4.2), except microclimates. Where located within 500m of the sea including harbours, or 100m from tidal estuaries and sheltered inlets, the above ground portion of the ground screws shall have a protective coating, or the space containing them shall be enclosed.

2. The STOPDIGGING! Ground Screw Foundation System shall be designed in accordance with the STOPDIGGING Design Guide NZ V4.0, October 2022 and installed in accordance with the STOPDIGGING Installation Manual NZ V3.0, October 2022.

3. The designer shall provide a signed declaration for inclusion with any application for building consent that all design conditions of this CodeMark certificate have been met when specifying the STOPDIGGING! Ground Screw Foundation System. The declaration shall include the following details:
   a. confirmation that the STOPDIGGING! Ground Screw Foundation System has been designed in accordance with the STOPDIGGING Design Guide NZ V4.0, October 2022, and
   b. confirmation that the soil type is suitable as listed in Table 2 in the Design Guide, and
   c. confirmation that the ground is good ground as defined in Acceptable Solution B1/AS1 (that is, as defined in NZS3604:2011 but excluding ground that has the potential for liquefaction or lateral spread) or on ground with adequate bearing capacity established by static pile testing (but excluding ground that has the potential for liquefaction or lateral spread), or where this is not established, a geotechnical report for the site
   d. for foundations that have been specifically engineered, a design statement from a CPEng (Structural).

4. The installer shall provide a signed declaration/record of installation for submission with an application for a Code Compliance Certificate that all installation conditions of this CodeMark certificate have been met when installing the STOPDIGGING! Ground Screw Foundation System. The record of installation shall include:
   a. confirmation that the STOPDIGGING! Ground Screw Foundation System has been installed in accordance with the STOPDIGGING Installation Manual NZ V3.0, October 2022
   b. results of static pile testing
   c. the screw type(s), size(s) and depth(s) of installation.

PRODUCT CERTIFICATE

STOPDIGGING! Ground Screw Foundation System

7 HEALTH AND SAFETY INFORMATION

Health, safety, and well-being declarations associated with installation, maintenance, and use of the building method or product, and their specific editions and dates necessary to ensure the performance requirements of clauses F1 to F9 of the Building Code can be met.

The compliance with any manufacturer's installation instructions, maintenance, OH & S statements, MSDS's and other Health and Safety declarations will provide the necessary Health and Safety Information pertaining to the product.

8 SIGNATURES

Name and Signature of the Product Certification Body's (PCB) authorised representative and, where different, the person assigned by the PCB to make the certification decision

[redacted]

Sam Guindi
Product Certification Manager

For and on behalf of
Bureau Veritas Australia Pty Ltd

PRODUCT CERTIFICATE

STOPDIGGING! Ground Screw Foundation System

9 BASIS FOR CERTIFICATION

How the performance requirements in the Building Code were met for each of the provisions. Where used as part of a system, the specific contribution to compliance.

B1 Structure - By testing and comparison with Verification Method B1/AS1 and Acceptable Solution B1/AS1
B2 Durability - By analysis and comparison with Verification Method B2/VM1
F2 Hazardous building materials - By comparison with the performance requirements of Building Code clause F2.3.1

10 SUPPORTING DOCUMENTATION FOR CERTIFICATION

Reference to any acceptable solutions, verification methods, New Zealand Standards, or other compliance pathways referenced against each individual performance requirement the building method or product is compliant with, and their specific version and date.
Reference to documents describing tests and evaluations and any other documents relied on for certification or used to prove compliance, including their full title, specific version and date.

1. Acceptable Solutions and Verification Methods for New Zealand Building Code Clause B2 Durability Second edition (Amendment 12), 28 November 2019
2. Acceptable Solutions and Verification Methods for New Zealand Building Code Clause B1 Structure First edition (Amendment 20), 29 November 2021
3. Cook Costello "Stopdigging! Ground Screw Specification" Revision 3, 24 February 2022
4. AMX Structures Report "Design and Test Loads for Ground Screws", 14 September 2022
5. WSP Opus "Ground Screw Load Testing", Report AL2883 , 22 July 2018
6. STOPDIGGING! Ground Screw Design Guide V4.0, October 2022
7. STOPDIGGING! Ground Screw Installation Guide V3.0, October 2022
8. STOPDIGGING! Adapter Screw SGC89 Product Sheet
9. STOPDIGGING! Beam Screw SGU Product Sheet

PRODUCT CERTIFICATE

STOPDIGGING! Ground Screw Foundation System

SUPPORTING INFORMATION

11 SUPPORTING INFORMATION ABOUT DESCRIPTION (OPTIONAL)

Any supporting information for section 3

N/A

12 SUPPORTING INFORMATION ABOUT INTENDED USE (OPTIONAL)

Any supporting information for section 4

N/A

13 SUPPORTING INFORMATION ABOUT CONDITIONS AND LIMITATIONS OF USE (OPTIONAL)

Any supporting information for section 6

N/A

DESIGN GUIDE

VERSION 5.0 FEBRUARY 2023

STOPDIGGING!
THE GROUND SCREW FOR SOLID FOUNDATIONS

CODEMARK
CMNZ70132

CONTENTS

HOW THIS DOCUMENT IS ORGANISED

PURPOSE	This guide provides: **a.** the information to design and specify a STOPDIGGING! ground screw foundation system without the need for specific engineering (Part 1) and **b.** the advice necessary to design and specify a STOPDIGGING! ground screw foundation system where a specific engineering design (SED) is required (Part 2).
DESCRIPTION	STOPDIGGING! ground screws are circular hollow sections with a continuously welded helix manufactured from steel that complies with ISO 630 FE360A–High Tensile Steel for Structural Purposes. They are coated with a hot-dipped galvanised coating that achieves an average of 125 µm zinc cover. The STOPDIGGING! ground screws are classified as category HDG900 (900 g/m^2). They are capable of resisting vertical (tensile and compression) and lateral forces. Therefore, they can be specified as a proprietary foundation system, an alternative to traditional foundation piles and strip footings as defined in NZS 3604:2011, or a foundation subject to SED. STOPDIGGING! ground screws are mechanically installed into soil to a depth at which the required resistance is achieved. The screws can be installed without disturbance or damage to the ground. Concrete is not required. STOPDIGGING! ground screws are supplied in various screw diameters with extensions, adapters, and connection brackets. The actual diameter and length of ground screws are established at the time of installation and based on the compressive and lateral loads achieved. The screws are reusable and recyclable.

PART 1 BUILDINGS WITHIN THE DESIGN SCOPE OF NZS 3604:2011 OR NASH STANDARD PART 2

SCOPE

Part 1 applies to projects where the STOPDIGGING! ground screw foundation system is to be used

- Subfloor designed to NZS3604:2011 or to NASH Std. Part 2:May 2019 and design floor loads do not exceed 3kPa[1].

For projects that fall outside this scope, includuing where the structure is founded on a concrete slab. refer to Part 2 of this guide.

SKILLS REQUIRED

Part 1 is intended for use by licensed building practitioners (LBP), or deemed LBP, licensed to the applicable class.

Where consent is not required, then this part of the guide is also intended for use by a person competent to use the subfloor standards.

IMPORTANT DOCUMENTS

When using Part 1 of this guide, the following documents will also be required:

- CodeMark Certificate of Conformity (where building consent applies)
- STOPDIGGING! Installation Guide
- the subfloor standards.

Refer to www.stopdigging.co.nz for current versions of STOPDIGGING! documents.
A copy of NZS 3604:2011 may be downloaded from https://www.standards.govt.nz/shop/nzs-36042011/.

A copy of the NASH standard may be downloaded from https://nashnz.org.nz/publications/downloads/.

WORKED EXAMPLES FOR PART 1

Worked examples are provided for the following scenarios:

- Example 1: Level site with cantilevered piles
- Example 2: Level site with Anchor and ordinary piles
- Example 3: Sloping ground with cantilevered piles.

The worked examples are contained in Appendix 3.

DESIGN PROCESS

Overview

The design process can be divided into three sections:

- confirming that the project falls within the scope of part 1 of this design guide,
- confirming ground conditions,
- designing subfloor and STOPDIGGING! ground screw foundation system.

Refer to Appendix 3 for worked examples of the design process.

Step 1: Confirm building scope

Confirm that the Subfloor is designed to NZS3604:2011 or to NASH Std: Part 2 May 2019 and design floor loads do not exceed 3kPa.

Step 2: Confirm ground conditions

Note: In all installations, ground conditions are confirmed immediately prior to installation.

Check the soil suitability

Table 2, Appendix 1 provides a soil suitability matrix. Confirm that the site specific soil type is listed as suitable.

1 NZS3604 and NASH std are collectively referred to in this document as the "subfloor standard".

Where the soil is not covered in Table 2 site soil testing and a Geotechnical report will be required as part of the design process.

Confirm ground stability

From council files and the applicable GIS determine if liquefaction or other ground stability must be factored in when designing the foundation system.

Where these geotechnical features need to be considered a Geotechnical report will be required for the design stage.

Step 3: Design timber subfloor and STOPDIGGING! ground screw foundation system

NZS 3604:2011 design methodology is to be followed when designing a timber or lightweight steel subfloor with piles (ground screws).

NZS 3604:2011 provides the dimensions and bracing units for a foundation system for a given load (e.g., NZS 3604:2011, Table 6.1). However, the STOPDIGGING! ground screw foundation system requires specification of ULS design loads assigned to piles, which are then confirmed at installation.

When used in conjunction with a timber subfloor, the ground screws can:

- act as cantilever 'free head' piles or
- as an anchor/ordinary pile system.

ULS calculated load

Appendix 2 provides tables that identify individual pile design loads that are to be used for static pile test targets. Test loads designated in the table allow a geotechnical safety factor.

A static pile test should be provided to 100 % of the 'Test Load' in the table.

Diagonal bracing units

Where the head of the ground screw is expected to be ≥ 900 mm above the ground, the on-site lateral load test must establish that the lateral load can be met.

Where the on-site testing demonstrates that lateral loads cannot be met, then there are three solutions:

1. a ground screw with a larger diameter is installed and lateral load confirmed, or
2. install a diagonal steel pipe bracing unit, or
3. a ground screw with steel bracket may be used to support a timber senton post. Timber diagonal bracing can then be installed to the senton posts in accordance with NZS 3604:2011.

Where diagonal bracing is required, engineering design is required (Part 2 of this guide).

Step 4: Specify fixings

Ground screw to bearer connection

SGL 145 Bracket should be used for fixing bearer to pile. The bracket is fixed through a slotted hole using an M20 threaded bolt in the centre of the screw.

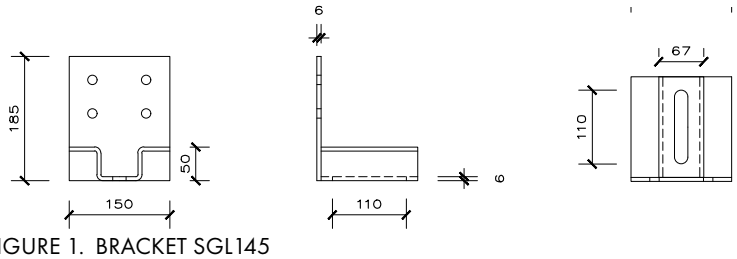


FIGURE 1. BRACKET SGL145

There are two fixing options for the SGL 145 bracket that achieve a 6 kN fixing

- 1 x M12 bolt through bearer c/w 50 x 50 x 6 mm square washer, or
- 2 x M12 coach screws (75 mm long) with 50 x 50 x 6 mm square washer.

The bracket may be positioned in one of three orientations on the head of the screw depending on the position of the bearer relative to the head of the screw.

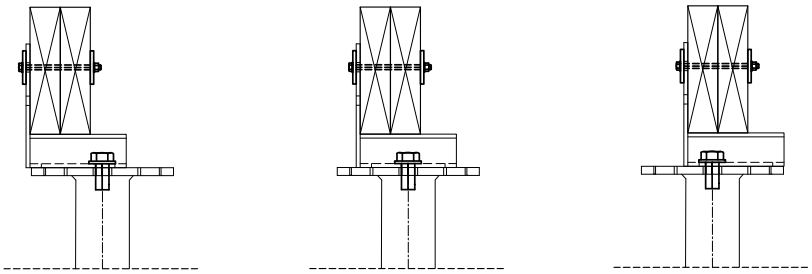


FIGURE 2 POSITION OF GROUND SCREW

Ground screw to pile or post connection

Use the SGE 125 bracket when fixing to timber senton piles.

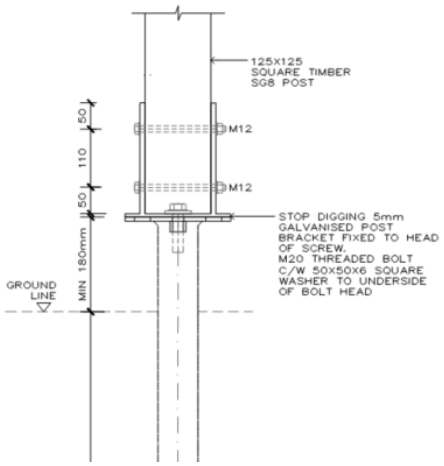


FIGURE 3 BRACKET SGE125 FIXED TO SENTON PILE.

Step 5: Select ground screw

For decks specify the STOPDIGGING! beam screw – SGU 95.

For all other uses, specify STOPDIGGING! adapter screw – SGC 76Ø or SGC 89Ø.

Adapter screws are used in conjunction with brackets SGL 145, SGE 125, and SGE 95 where required and as established on-site.

PART 2 FOR BUILDING PROJECTS REQUIRING SPECIFIC ENGINEERING DESIGN

SCOPE	This part applies to projects where the STOPDIGGING! ground screw foundation system is to be used for projects where the design floor loads are > 3kPa, or where the structure is founded on a concrete slab.
SKILLS REQUIRED	This part is intended for use by a CPEng engineer. It is expected that the engineer will complete the STOPDIGGING! design declaration in respect of the design work.
IMPORTANT DOCUMENTS	When using this part, the following documents will be required when lodging an application for building consent: › CodeMark Certificate of Conformity › STOPDIGGING! Installation Guide › Specific engineering design and calculations › CPEng signed STOPDIGGING! Design Declaration. Refer to www.stopdigging.co.nz for current versions of STOPDIGGING! documents.
EXAMPLE CALCULATIONS FOR PART 2	Example calculations show how to apply engineering calculations in conjunction with the STOPDIGGING! brackets and ground screws to calculate fixing requirements. The calculations are contained in Appendix 4.
DESIGN PROCESS	Overview The design process can be divided into three sections: › confirming ground conditions › specifying design loads for the STOPDIGGING! ground screw foundation system › specify fixings. Refer to Appendix 4 for example engineering calculations for fixing requirements.
Step 1:	Confirm ground conditions Note: In all installations, ground conditions are confirmed immediately prior to installation. **Check the soil suitability** Table 2, Appendix 1 provides a soil suitability matrix. Confirm that the site specific soil type is listed as suitable. Where the soil is not covered in Table 2 site soil testing and a Geotechnical report will be required as part of the design process. **Confirm ground stability** From council files and the applicable GIS determine if liquefaction or other ground stability must be factored in when designing the foundation system. Where these geotechnical features need to be considered a Geotechnical report will be required for the design stage.

Step 2: Design STOPDIGGING! ground screw foundation system

Ensure that the engineering design prescribes the position and required design loads for the STOPDIGGING! ground screw foundation system. Ensure that a geotechnical safety factor is included or annotate the design to make it clear that the ULS loads have been calculated without the geotechnical safety factor.

Ground screws can be used to support concrete slabs on grade when piles are needed to transfer loads to a depth below the existing subgrade level.

Suitable uses include:

- Where a geotechnical assessment has identified 'good ground' at a certain depth. The length of screw can be selected to embed the helix within 'good ground' to satisfy the geotechnical requirements. Load testing will be required to confirm the site-specific capacities at the required depth to verify that the design loads can be achieved.
- Where a minimum embedment depth is required to avoid the surface effects of expansive soils. The length of screw can be selected to embed the helix below the recommended depths for different expansivity classes.
- Where building work is proposed close to or over underground services/pipes. The length of screw can be selected to transfer loads below the influence line of the pipe.
- Where shear keys are required, the ground screws can act as free head piles to resist lateral loads. Load testing will be required to confirm the site-specific lateral capacity of the ground screw when installed to cleared ground level.

Ground screws supporting concrete slabs

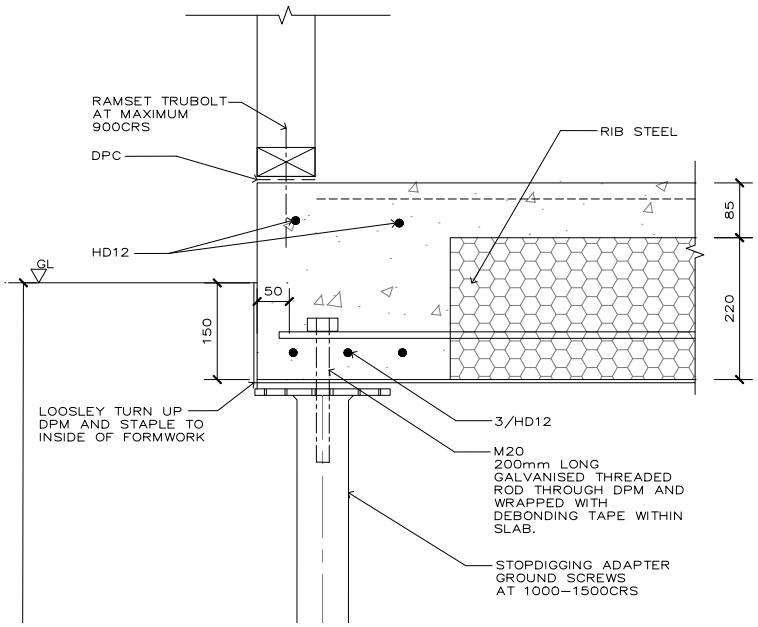


FIGURE 4 GROUND SCREW SUPPORTING CONCRETE SLAB

Diagonal bracing units

Where the head of the ground screw is expected to be ≥ 600 mm above the ground, on-site lateral load test must establish that the lateral load can be met.

Where the on-site testing demonstrates that lateral loads cannot be met, then there are two solutions:

1. a ground screw with a larger diameter is installed and lateral load confirmed, or
2. a diagonal bracing unit is used.

A diagonal bracing unit creates an alternative load path to distribute lateral loads from subfloor level to foundation level.

The diagonal bracing unit must be specified as follows:

- 48.3 CHS Grade 250 tube.
- A maximum length of 3.2 m.
- At an angle between 10° and 45° from horizontal.
- The bracing unit is to be connected with a scaffolding coupler that has an established capacity of greater than 6 kN.
- The bracing unit must be fixed at least 100 mm above ground level.

Where diagonal steel pipe bracing is used, lateral testing must be completed at the height of application of load from the diagonal braces. Vertical testing must be completed at the maximum height that the ground screws are installed.

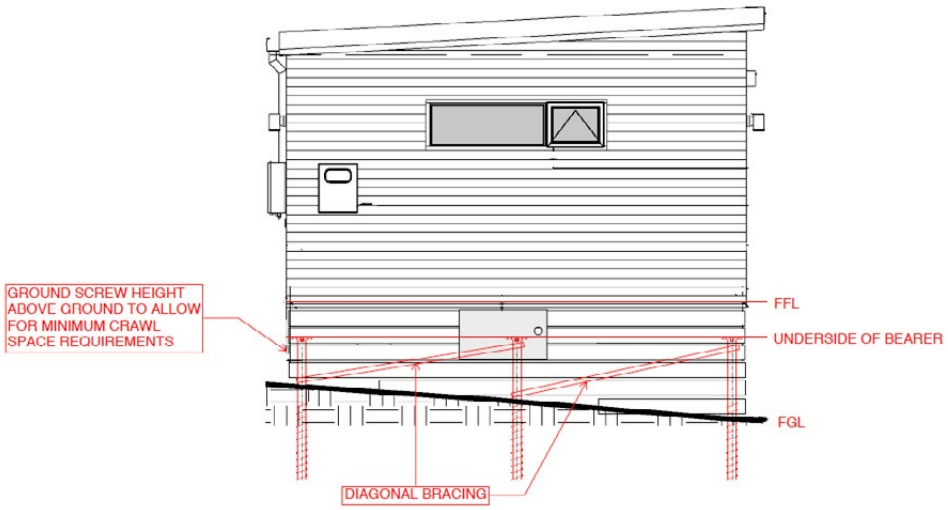


FIGURE 5: DIAGONAL BRACING

Step 3:

Specify fixings

The following steps should be carried out to calculate fixing requirements:

› Select project values using the following table:

TABLE 1: SECTION CAPACITIES

	New (Complete Section)				50-year Design Life (0.5 mm reduced wall thickness)				100-year Design Life (1 mm reduced wall thickness)			
Installed Height Above Ground (mm)	600		1200		600		1200		600		1200	
CHS Section Size	N_s	M_s	N_c	M_n	N_c	M_n	N_c	M_n	N_c	M_n	N_c	M_n
89x5	308.5	6.2	297.7	6.2	279.3	5.6	269.5	5.6	249.8	5.1	241.0	5.1
89x4	249.8	5.1	241.0	5.1	220.0	4.5	212.3	4.5	189.7	4.0	183.0	4.0
76x4	210.5	3.6	200.7	3.6	185.5	3.2	177.0	3.2	160.2	2.8	152.8	2.8
67x3	139.6	2.2	131.5	2.2	117.4	1.9	110.6	1.9	94.6	1.5	89.3	1.5
67x2	94.6	1.5	89.3	1.5	71.5	1.2	67.5	1.2	48.1	0.8	45.4	0.8

› Abbreviations

- N_s = nominal section capacity of compression member (kN)
- M_s = nominal section moment capacity (kNm)
- N_c = nominal member capacity in compression (kN)
- M_n = nominal member moment capacity (kNm)

› Calculate for combined action.

› Calculate for bearer connection using STOPDIGGING! brackets. The following steps are required:

- Specify the connection from the bearer to the bracket.
- Consider the bending capacity of the steel bracket.
- Design the weld strength beween the plates.
- Specify steel bolt in slotted hole - bracket to ground screw connection.
- Calculate bearing length of bearer on to bracket.

Refer to Appendix 4 for example engineering calculations for fixing requirements.

Step 4:

Select ground screw.

For decks specify the STOPDIGGING! beam screw – SGU 95.

For all other uses, specify STOPDIGGING! adapter screw – SGC 76Ø or SGC 89Ø.

Where the specifying engineer requires additional durability, SGC 89Ø is available with a 5 mm thickness.

Adapter screws are used in conjunction with brackets SGL 145, SGE 125, and SGE 95 where required and as established on-site.

APPENDIX 1 – SOIL SUITABILITY

TABLE 2: SUITABILITY OF GROUND SCREWS BASED ON SOIL TYPE

MAJOR SOIL TYPE	SUITABILITY[2]	RATIONALE
Silt	Yes	Silt can generally be predrilled with a suitable soil auger, allowing for installation of the ground screws.
Sand	Yes	Ground screws can generally displace sands during installation.
Fine gravel	Yes	Fine gravels are expected to behave in a similar way to sands.
Medium gravel	Requires on-site confirmation	Medium gravels may become disturbed during installation, diminishing the bond strength between the ground screw and the soil. As such the suitability of the soils will need to be confirmed with on-site testing.
Coarse gravel	Requires on-site confirmation	Coarse gravels may become disturbed during installation, diminishing the bond strength between the ground screw and the soil. As such the suitability of the soils will need to be confirmed with on-site testing.
Cobbles	No	Cobbles are expected to become disturbed during installation or prevent installation altogether due to penetration resistance. Disturbed cobbles would have a greatly diminished bond strength to the installed ground screw.
Boulders	No	It is unlikely that the predrilling process or the ground screw installation will be able to penetrate through soil medium comprising boulders as the main constituent.
Clay	Yes	Clays can generally be augured, allowing the predrilling process to be completed successfully and in most cases shall allow for the successful installation of the ground screws.
Peat	No	Peat is an organically dominated material that is unsuitable for most shallow foundation types.
Topsoil	No	Topsoil is an organically dominated material that is unsuitable for most shallow foundation types.
Rock	No	Predrilling is generally unsuccessful into bedrock and ground screws are unable to displace rock during installation.
Non-engineered fill	No	Non-engineered fills are inconsistent material with unpredictable characteristics. Uncontrolled fill lacks the horizontal stratification that is common in naturally deposited materials. As such, localised soil and load testing cannot be used to infer the performance or the load carrying characteristics of the soil across an entire site.

[2] Assuming soil is sufficiently dense.

APPENDIX 2 – DESIGN AND TEST LOADS

TABLE 3: 1.5 kPa AND 2 kPa FLOOR LOADS

SPAN* OF		DESIGN & TEST LOADS FOR GROUND SCREWS							
Bearer (m)	Joists (m)	Floor and non- loadbearing walls only		1 storey		2 storey		3 storey	
		Design Load	Test Load	Design Load	Test Load	Design Load	Test Load	Design Load	Test Load
1.30	2.0	6kN	10kN	11kN	20kN	16kN	25kN	18kN	30kN
	3.5	8kN	15kN	18kN	30kN	27kN	40kN	34kN	50kN†
	5.0	11kN	20kN	27kN	40kN	40kN	60kN†	45kN	70kN†
	6.0	14kN	25kN	30kN	45kN†	45kN	70kN†	55kN	85kN†
1.65	2.0	6kN	10kN	14kN	25kN	21kN	35kN	24kN	40kN
	3.5	9kN	15kN	27kN	40kN	33kN	50kN†	40kN	60kN†
	5.0	14kN	25kN	30kN	45kN†	50kN	75kN†	55kN	85kN†
2.00	2.0	6kN	10kN	16kN	25kN	27kN	40kN	30kN	45kN†
	3.5	11kN	20kN	27kN	40kN	41kN	60kN†	55kN	85kN†

TABLE 4: 3 kPa FLOOR LOADS

MAXIMUM SPANS* OF		DESIGN & TEST LOADS FOR GROUND SCREWS					
Bearers (m)	Joists (m)	Floor only		Floor and walls of:			
				1 storey		2 storeys	
		Design Load	Test Load	Design Load	Test Load	Design Load	Test Load
1.30	2.0	4kN	10kN	7kN	15kN	11kN	20kN
	3.5	7kN	15kN	24kN	40kN	38kN	60kN†
	5.0	8kN	15kN	30kN	45kN†	50kN	75kN†
	6.0	9kN	15kN	38kN	60kN†	59kN	90kN†
1.65	2.0	7kN	15kN	9kN	15kN	27kN	40kN
	3.5	8kN	15kN	27kN	40kN	50kN	75kN†
	5.0	11kN	20kN	38kN	60kN†	63kN	95kN†
2.00	2.0	6kN	10kN	11kN	20kN	34kN	50kN†
	3.5	11kN	20kN	34kN	50kN†	59kN	90kN†

*Span is the average of the bearer or joist spans on either side of the pile under consideration.

†Special consideration is required for these loads, please check with STOPDIGGING! to confirm the availability of the larger capacity testing and installation equipment..

Note: the above tables relied on the following assumptions

ULS bearing capacity = 150 kPa

ULS vertical capacity of pad = 150 kPa x 0.275m x 0.275 m = 11 kN

APPENDIX 3 – FOUNDATION SYSTEM WORKED EXAMPLES

The following worked examples are provided for the following scenarios that relate to Part 1:

- Example 1: Level site with cantilevered piles
- Example 2: Level site with Anchor and ordinary piles
- Example 3: Sloping ground with cantilevered piles.

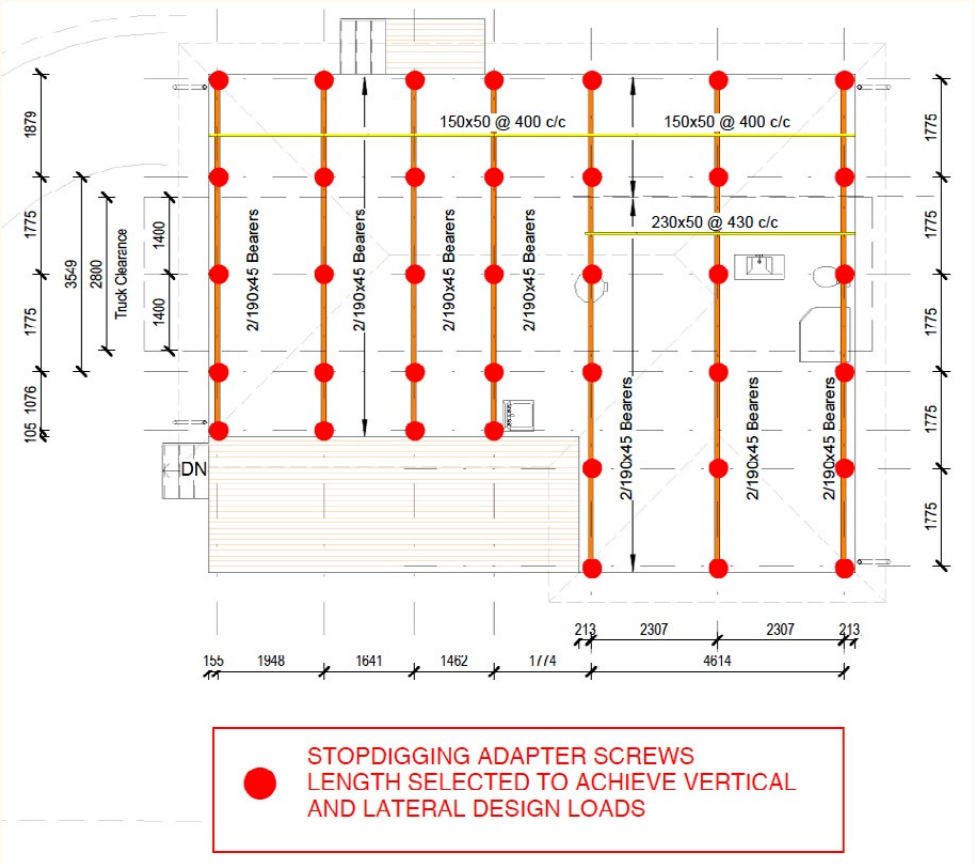
FOUNDATION SYSTEM WORKED EXAMPLES

Example 1: Level site with cantilevered piles

All ground screw foundations are to act as cantilevered piles with the total subfloor bracing demand being shared by all screws.

All ground screws must have connections to the bearer that are suitable to transfer the required lateral load per screw. The STOPDIGGING! SGL 145 bracket should be used.

On-site testing is completed at the maximum height that the ground screws are installed to provide accurate ultimate load capacities.

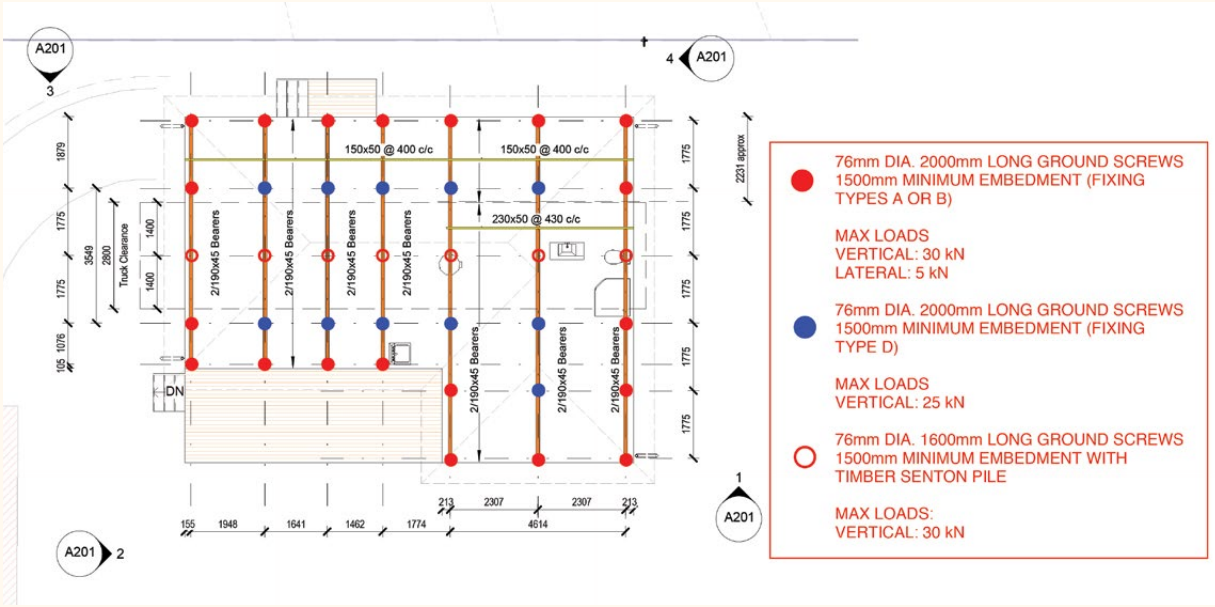


Example 2: Level site with anchor and ordinary pile

Anchor piles (anchor screws) are nominated on subfloor bracing lines to resist the subfloor bracing demand. Anchor screws must have connections to the bearer that are suitable to transfer the required lateral load per anchor pile. The STOPDIGGING! SGL 145 bracket should be used.

Ordinary piles are required to support vertical loads only. For simplicity the STOPDIGGING! SGL 145 bracket should be used.

On-site testing is completed at the maximum height that the ground screws are installed to provide accurate ultimate load capacities.



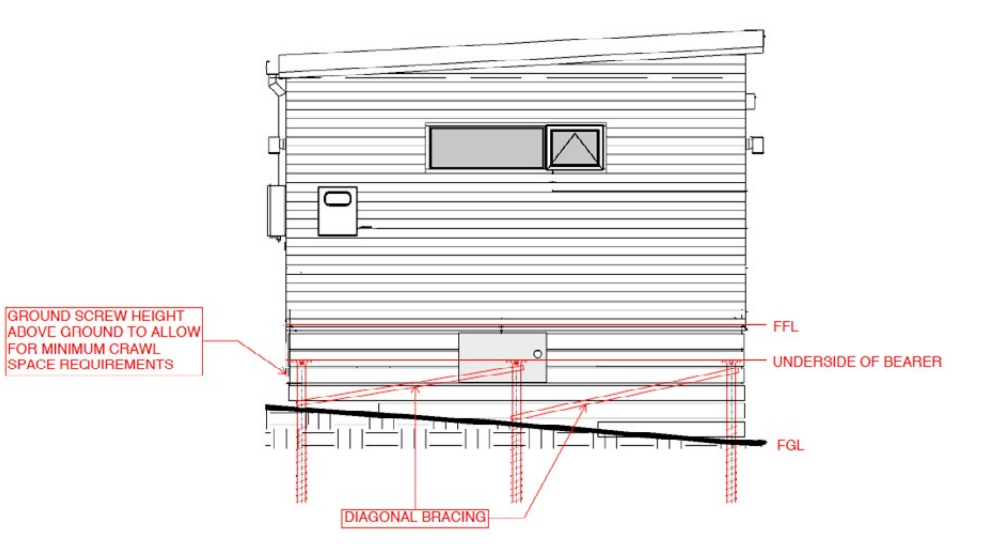
Example 3: Sloping ground with cantilevered piles

All ground screw foundations to act as cantilevered piles so that the total subfloor bracing demand can be shared by all piles.

All ground screws must have connections to the bearer that are suitable to transfer the required lateral load per screw. The STOPDIGGING! SGL 145 bracket should be used.

On-site testing is completed at the maximum height that the ground screws are installed to provide accurate ultimate load capacities.

Larger diameter and longer screws can be used to provide additional stiffness and embedment depth where needed to provide lateral capacity to screws with greater clearances to the underside of the bearer.
Note additional testing must be completed by STOPDIGGING! for each length/size of screw.



APPENDIX 4 – EXAMPLE ENGINEERING CALCULATIONS

The following examples show how to apply engineering calculations in conjunction with the STOPDIGGING! brackets and ground screws.

All abbreviations have the meaning provided in steel and timber engineering standards and are given the normally accepted meaning.

EXAMPLE CALCULATIONS FOR FIXING REQUIREMENTS

Calculate for combined action

Assume project values as follows using Table 1 Section capacities (refer to Part 2):

Section:	76 x 4 Ground Screw
Height above Ground:	600 mm
Assumed Design Life:	100 years
Vertical Load (ULS)	N = 20 kN
Lateral Load (ULS)	V = 3 kN

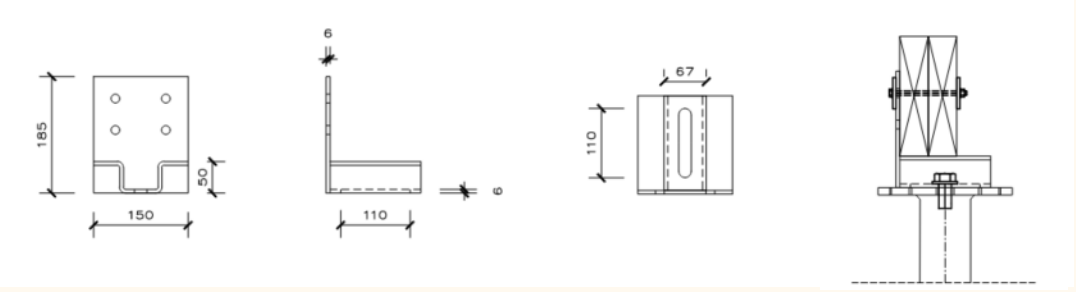
Calculations are as follows

M*	=	0.6 m x 3 kN	=	1.8 kNm
ΦMn	=	0.9 x 2.8 kNm	=	2.5 kNm
ΦNc	=	0.9 x 160.2 kN	=	144.2 kN
ΦMr	=	ΦM_b x (1 – (N*/ ΦN))		
	=	2.5 kNm x (1 – (20/137.5))	=	2.1 kNm > M*

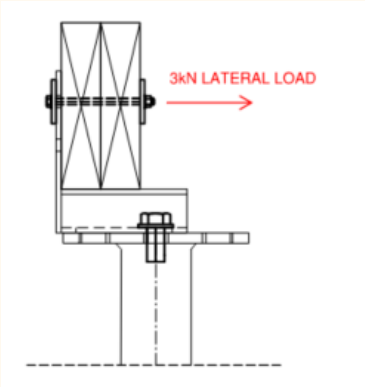
Calculate for bearer connection

Use STOPDIGGING! SGL 145 designed to transfer lateral load of 3 kN from the bearer to the ground screw head.

SGL 145 Bracket should be used for fixing bearer to pile. The bracket is fixed through a slotted hole using an M20 threaded bolt in the centre of the screw.



1. Specify connection from bracket to bearer



Option A: 1 x M12 bolt

Bolt acting in tension (loaded at 90° to bearer)

N*t = 3 kN

Tensile capacity of M12 bolt confirmed by inspection
(ΦNt = 27.w0 kn)

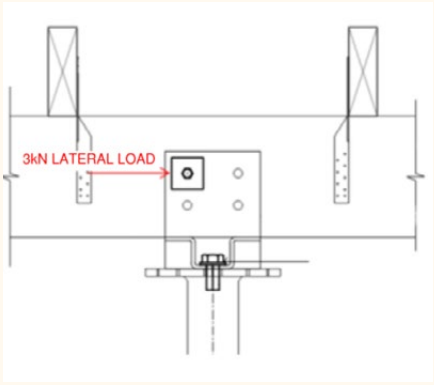
Connection is governed by the bearing strength of the washer.

Propose 50 mm x 50 mm x 6 mm square washers.

A_p = $(50\ mm)^2 - \pi \times (14\ mm)^2/4$
= $2356\ mm^2$

ΦN_{nb} = $\Phi \times k1 \times k3 \times fp \times Ap$
= $0.7 \times 1.0 \times 1.0 \times 8.9\ MPa \times 2356\ mm^2/1000$
= 14.7 kN
= >0. 3 kN

Bolt acting in shear (loaded at 0° to bearer)



Loading parallel to grain

Be = 90 mm
Qskl = 10.4 kN x 1.25
= 13.0 kN

(Alternative steel & timber members)

ΦQ_n = $\Phi \times n \times k_1 \times k_{12} \times k_{13} \times Q_{sk}$
= 0.7 x 1.0 x 1.0 x 1.0 x 1.0 x 13.0
= 9.1 kN
> 3 kN

Option B 2 x M12 75 mm coach screws

Coach screws acting in tension (loaded at 90° to bearer)

N^*_t = 3 kN

Tensile capacity of M12 coach screw confirmed by inspection. Connection is governed by the withdrawal strength of the coach screw.

Propose 2 mm x 75 mm M12 coach screws.

Coach screw embedment = 75 mm – (6 mm + 5 mm) = 64 mm

ΦQ_n = $\Phi \times n \times k1 \times p \times Qk$
= 0.7 x 2.0 x 1.0 x 64 mm x 118 N/mm/1000 = 10.6 kN
> 3 kN

Coach screws acting in shear (loaded at 0° to bearer)

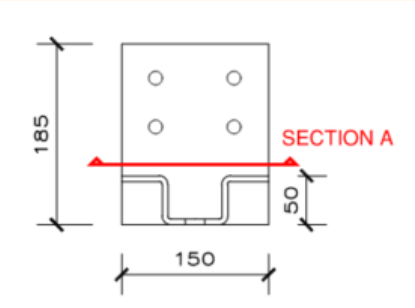
Loading parallel to grain

B_e = 90 mm
Q_{skl} = 10.4 kN x 1.25 = 13.0 kN

(Alternative steel & timber members)

ΦQ_n = $\Phi \times n \times k_1 \times k_{12} \times k_{13} \times k \times Q_{sk}$
= 0.7 x 2.0 x 1.0 x 1.0 x 1.0 x 0.5 x 13.0
= 9.1 kN
> 3 kN

2. Consider bending capacity of steel bracket



Steel yield

Stress fy = 250 MPa

Plate thickness, t = 6 mm

Plate bending strength at section A:

$\Phi Mn = \Phi \times fy \times Z$

$Z = b \times d^2/4$

$= 150 \times 62 / 4 = 1350\ mm^3$

$\Phi Mn = \Phi \times fy \times Z$

$= 0.9 \times 250\ MPa \times 1350\ mm^3 \times 10^{-6}$

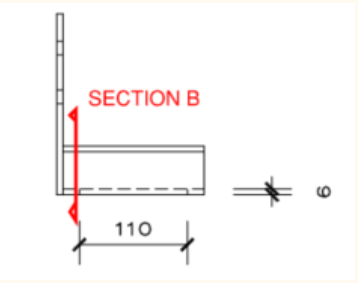
$= 0.30\ kNm$

Propose M12 bolt in top hole (worst case[3])

$M^* = 3\ kN \times 0.1\ m$

$= 0.30\ kN$ therefore OK.

Plate bending strength at section B:



Calculate section properties of irregular section:

PART	A (mm^2)	I (mm^4)	y (mm)	Iy	d (mm)	Ad^2
1	228	684	3	2052	22	110352
2	192	16384	25	409600	0	0
3	90	270	47	12690	22	43560
TOTAL:		**34676**		**848684**		

$y' = 848684/34676$

$= 25$ mm

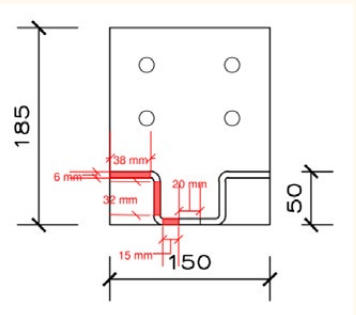
$I_{section} = I + Ad^2$

$= 342500\ mm^4$

$Z_{section} = I/y'$

$= 13700\ mm^3$

Check slenderness of flanges



b = 38 mm

t = 6 mm

$\lambda_e = 6.3$

$\lambda ep = 10$

$= \lambda sp$

$\lambda ey = 16$

$= \lambda sy$

$\lambda s < \lambda sy$ therefore, section is compact

$Ze = 1.5 \times Z$

$= 20550\ mm^3$

$Ms = 0.9 \times 250\ MPa \times 20550\ mm^3 \times 10^{-6}$

$= 4.6\ kNm$

3 M12 bolt to bottom hole would reduce lever arm

3. Design weld strength between plates

Propose 3 mm fillet weld SP 41 as a minimum, both sides of plates.

Minimum weld length available = 30 mm
Minimum weld strength = 2 x 0.417 kN/mm x 30 mm
= 25.0 kN
N_t^* = 0.3 kNm/0.05 m = 6.0 kN
< 25.0 kN therefore OK.

4. Specify steel bolt in slotted hole - bracket to ground screw connection

As per NZS 3404 section 9.3.3.1

Where slip in the SLS case is required to be limited, a bolt subjected only to a design shear force in the plane of the interfaces shall satisfy:

$V^*_{sf} \leq \Phi V_{sf}$
$\Phi V_{sf} = \Phi \times \mu_s \times n_{ei} \times N_{ti} \times k_h$
μ_s = 0.18 for galvanised surfaces
N_{ti} = 145 kN for M20 (g8.8) bolts

Propose 50 mm x 50 mm x 6 mm square washer

AREA, A = (502 – 50 x 22) mm^2
= 1400 mm^2
Φ Vsf = 0.7 x 0.18 x 2 x 1400 mm^2 x 145 kN x 0.7 x 10^{-3}
= 35.8 kN

Note: this is an SLS load case; therefore, the shear demand on the bolt will be less than 3 knN.

5. Bearing length of bearer on to bracket

Minimum bearing length = 38 mm
Distance from end of bearer = 25 mm

Minimum 90 mm wide bearer

Bearing area, A = 90 mm x 38 mm
= 3420 mm^2

For SG8 timber bearer:

$\Phi N_b = \Phi \times k_1 \times k_3 \times f_p \times A$
= 2 x 0.8 x 0.6 x 1.0 x 5.0 MPa x 3420 mm^2 x 10^{-3}
= 16.4 kN

Calculate section capacities

Where Table 1 is not relied upon the following is an example calculation for section capacity using NZS3404 clause 6.2.

Example Calculation for section capacity – NZS 3404 clause 6.2

Section:	76 x 4
An	= Ag
	= (762 – 682) x /4
	= 905 mm2
kf	= 1.0
fy	= 235 MPa
Ns	= kf x An x fy
	= 212.6 kN

STOPDIGGING!
THE GROUND SCREW FOR SOLID FOUNDATIONS

This document is uncontrolled in printed form.
See www.stopdigging.co.nz for current version.

Static Pile Test Report

STOPDIGGING!

Region Manager Name:	Heremaia Harris
Region Manager Email:	[redacted]
Region Manager Phone:	[redacted]
Region:	Far North
Engineer Contact Name:	Hamish Abercrombie – LBP Designer
Company / Client:	Site Scope
Building Consent Number (If applicable)	TBC
Site Address:	Manea Marae, 41 Twin Coast Discovery Highway, Opononi
Date:	24/10/2023

StopDigging NZ Ltd have conducted in-ground static pile testing on our groundscrews for the purpose of confirming load bearing capacity in the site specific ground conditions.

Testing methodology is based on the Screw Pile Guidance Document ISSN 1176-0907 by IPENZ, some details from AS2159, and ASTM D3689-07. Our pile displacement parameters are 5% of pile diameter / 5mm for compression/tension and 25mm for lateral for determining failure. We typically use a tension test to confirm compression load bearing strength, which offers a further safety factor to the final installation.

PROJECT DETAILS

Single storey cabins and decks. On site testing completed to confirm loading for use of Stopdigging.

Foundation Ground Screws.

Design Loads provided:

Compression Load:	**12Kn**
Tension Load	**10Kn**
Lateral Load:	**4.5Kn**

Location Test Number#	1
GPS Coordinates (If necessary)	N/A
Ground Screw Type	SGC 76x1600
Length mm	1600mm
Screw Head Height Above Ground / In ground (mm)	300mm
Tensile (kN) Stable /Failure	18.04
Lateral (kN) Stable	4.52
Compression (kN) Stable	16.10

Test Result 1:

SGC 1600mm x 76mm embedded to 1300mm. Compression loading of 16.10Kn @ 5mm of displacement.

SGC 1600mm x 76mm embedded to 1300mm. Lateral loading of 4.52kn @ 25mm of displacement.

SGC 1600mm x 76mm embedded to 1300mm. Uplift loading of 18.04kn @ 5mm of displacement.

Test Recommendations:

Complete the cabin foundation installation using a combination of SGC 1600x76 and SGC 89x1600 foundation ground screws.

Complete the foundation installation for the deck using SGU 1200x95 foundation ground screws.

Ground Screw Test Report Ground Screw - Compression

Test 1

Compression Load (Kn)

Stage :	Load : (KN)	Duration:	Min Displacement
1 10%	8.64	1	1mm
2 25%	10.68	1	2mm
3 50%	13.04	1	3mm
3 75%	14.94	1	4mm
4 100%	16.10	15	5mm
5 150%	0.00	0	0

Ground Screw Test Report Ground Screw - Lateral

Test 1

Lateral Load (Kn)

Stage :	Load : (KN)	Duration:	Min Displacement
1 10%	2.66	1	5mm
2 25%	3.14	1	10mm
3 50%	3.60	15	15mm
3 75%	4.04	0	20mm
4 100%	4.52	0	25mm
5 150%	0	0	0

Ground Screw Test Report Ground Screw - Tension

Test 1

Tension Load (Kn)

Stage	Load :	Duration	Min
1 10%	11.24	1	1mm
2 25%	12.46	1	2mm
3 50%	14.44	1	3mm
4 75%	16.60	1	4mm
5 100%	18.04	15	5mm
6 150%	0	0	0

Compression Result – Test 1

Lateral Result – Test 1

Tension Result – Test 1

Static Pile Test Report

STOPDIGGING!

Region Manager Name:	Heremaia Harris
Region Manager Email:	[redacted]
Region Manager Phone:	
Region:	Far North
Engineer Contact Name:	Hamish Abercrombie – LBP Designer
Company / Client:	Site Scope
Building Consent Number (If applicable)	TBC
Site Address:	Manea Marae, 41 Twin Coast Discovery Highway, Opononi
Date:	24/10/2023

StopDigging NZ Ltd have conducted in-ground static pile testing on our groundscrews for the purpose of confirming load bearing capacity in the site specific ground conditions.

Testing methodology is based on the Screw Pile Guidance Document ISSN 1176-0907 by IPENZ, some details from AS2159, and ASTM D3689-07. Our pile displacement parameters are 5% of pile diameter / 5mm for compression/tension and 25mm for lateral for determining failure. We typically use a tension test to confirm compression load bearing strength, which offers a further safety factor to the final installation.

PROJECT DETAILS

Single storey cabins and decks. On site testing completed to confirm loading for use of Stopdigging.

Foundation Ground Screws.

Design Loads provided:

Compression Load:	**12Kn**
Tension Load	**10Kn**
Lateral Load:	**4.5Kn**

Location Test Number#	2
GPS Coordinates (If necessary)	N/A
Ground Screw Type	SGC 76x1600
Length mm	1600mm
Screw Head Height Above Ground / In ground (mm)	300mm
Tensile (kN) Stable /Failure	16.28
Lateral (kN) Stable	6.26
Compression (kN) Stable	21.78

Test Result 2:

SGC 1600mm x 76mm embedded to 1300mm. Compression loading of 16.28Kn @ 5mm of displacement.

SGC 1600mm x 76mm embedded to 1300mm. Lateral loading of 6.26kn @ 25mm of displacement.

SGC 1600mm x 76mm embedded to 1300mm. Uplift loading of 21.78kn @ 5mm of displacement.

Test Recommendations:

Complete the cabin foundation installation using a combination of SGC 1600x76 and SGC 89x1600 foundation ground screws.

Complete the foundation installation for the deck using SGU 1200x95 foundation ground screws.

Ground Screw Test Report Ground Screw - Compression

Test 2

Compression Load (Kn)

Stage :	Load : (KN)	Duration:	Min Displacement
1 10%	8.80	1	1mm
2 25%	10.72	1	2mm
3 50%	13.14	1	3mm
3 75%	14.88	1	4mm
4 100%	16.28	15	5mm
5 150%	0.00	0	0

Ground Screw Test Report Ground Screw - Lateral

Test 2

Lateral Load (Kn)

Stage :	Load : (KN)	Duration:	Min Displacement
1 10%	2.68	1	5mm
2 25%	3.14	1	10mm
3 50%	4.66	15	15mm
3 75%	5.44	0	20mm
4 100%	6.26	0	25mm
5 150%	0	0	0

Ground Screw Test Report Ground Screw - Tension

Test 2

Tension Load (Kn)

Stage	Load :	Duration	Min
1 10%	14.22	1	1mm
2 25%	16.40	1	2mm
3 50%	18.46	1	3mm
4 75%	19.62	1	4mm
5 100%	21.78	15	5mm
6 150%	0	0	0

Compression Result – Test 2

Lateral Result – Test 2

Tension Result – Test 2

41 Hokianga Harbour Drive (SH12) Opononi, Northland - Enquiry-2024-0196 CRM:0296000015

11 messages

Vonnie Veen-Grimes <Vonnie.Veen-Grimes@nzta.govt.nz> Thu, Feb 22, 2024 at 7:40 PM
To: "steve@sansons.co.nz" <steve@sansons.co.nz>

Hi Steve,

Hope you're well. Thanks for getting in touch regarding the 2x cabins within Manea cultural center. The plans for the cabins did not come through. Could you please resend this? And do you have any images of the existing access?

Ngā mihi
Vonnie Veen-Grimes
Planner, Environmental Planning (Auckland/Northland)
Poutiaki Taiao| System Design
Email: Vonnie.Veen-Grimes@nzta.govt.nz

Waka Kotahi New Zealand Transport Agency
Auckland, Level 5, AON Centre, 29 Customs Street West
Private Bag 106602, Auckland 1143, New Zealand
Facebook | Twitter | LinkedIn
WAKA KOTAHI NZ TRANSPORT AGENCY www.nzta.govt.nz

Steven Sanson <steve@sansons.co.nz> Fri, Feb 23, 2024 at 1:25 PM
To: Vonnie Veen-Grimes <Vonnie.Veen-Grimes@nzta.govt.nz>

Hi Vonnie ,

Please find attached.

I don't have photos but attached is the approved plan which when i look at the aerial image from google seems to line up.

Steve
[Quoted text hidden]
--
Steven Sanson (BPlan Hons)
M: 021-160-6035 | steve@sansons.co.nz
Managing Director | Consultant Planner
www.sansons.co.nz

2 attachments

Plan - Architectural.pdf
7612K

Appendix B - Updated Site Plan prepared by Cook Costello.pdf
138K

Vonnie Veen-Grimes <Vonnie.Veen-Grimes@nzta.govt.nz> Fri, Feb 23, 2024 at 1:31 PM
To: Steven Sanson <steve@sansons.co.nz>

Hey Steven

Thanks for that. The google street view is what we often use however this location hasn't been updated since 2019. Has the access been upgraded from this state?

Ngā mihi

Vonnie Veen-Grimes

Planner, Environmental Planning (Auckland/Northland)

Poutiaki Taiao| System Design

Email: Vonnie.Veen-Grimes@nzta.govt.nz

Waka Kotahi New Zealand Transport Agency

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Facebook | Twitter | LinkedIn

WAKA KOTAHI NZ TRANSPORT AGENCY www.nzta.govt.nz

[redacted]

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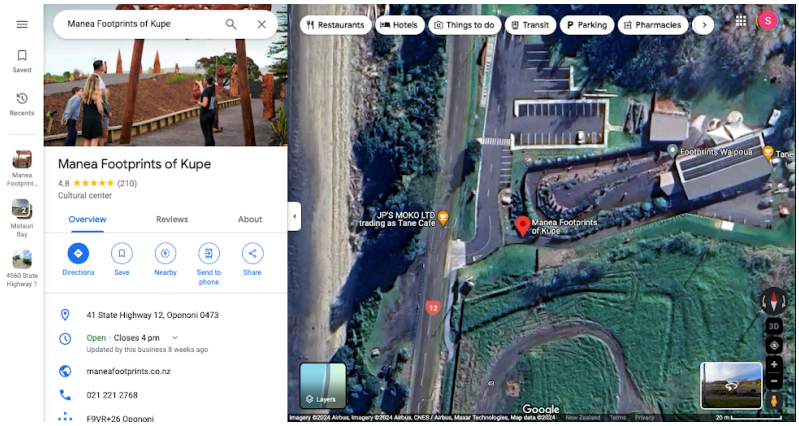
Steven Sanson <steve@sansons.co.nz> Fri, Feb 23, 2024 at 1:37 PM
To: Vonnie Veen-Grimes <Vonnie.Veen-Grimes@nzta.govt.nz>

See below - street view not updated but imager certainly is.



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Vonnie Veen-Grimes <Vonnie.Veen-Grimes@nzta.govt.nz> Fri, Feb 23, 2024 at 2:20 PM
To: Steven Sanson <steve@sansons.co.nz>

Thanks Steven. I will take this information to safety and network but they may ascertain that current images of the CP are required here to do their assessment.

If you have someone that is able to take photos of it that would be greatly appreciated. Our NOC is not in the area regularly so it could take sometime for them to get there and review it the existing which would slow down the progressing of this application.

Ngā mihi

Vonnie Veen-Grimes

Planner, Environmental Planning (Auckland/Northland)

Poutiaki Taiao| System Design

Email: Vonnie.Veen-Grimes@nzta.govt.nz

Waka Kotahi New Zealand Transport Agency

Auckland, Level 5, AON Centre, 29 Customs Street West

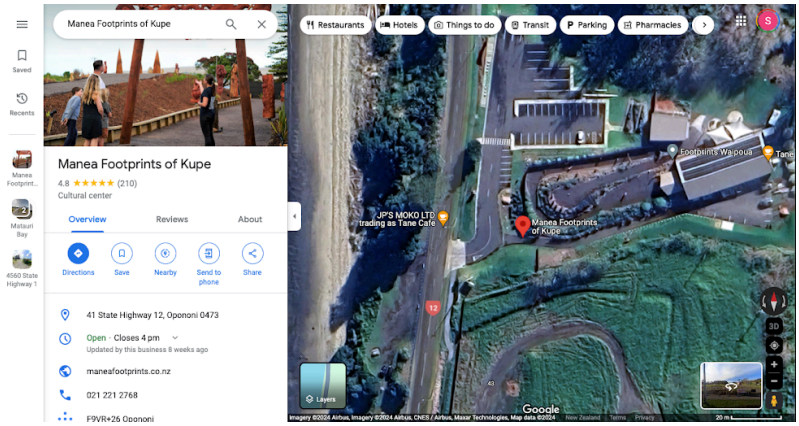
Private Bag 106602, Auckland 1143, New Zealand

Facebook | Twitter | LinkedIn

WAKA KOTAHI NZ TRANSPORT AGENCY www.nzta.govt.nz

From: Steven Sanson <steve@sansons.co.nz>
Sent: Friday, February 23, 2024 1:38 PM
To: Vonnie Veen-Grimes <Vonnie.Veen-Grimes@nzta.govt.nz>
Subject: Re: 41 Hokianga Harbour Drive (SH12) Opononi, Northland - Enquiry-2024-0196 CRM:0296000015

See below - street view not updated but imager certainly is.



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Steven Sanson <steve@sansons.co.nz> Fri, Feb 23, 2024 at 2:32 PM
To: Vonnie Veen-Grimes <Vonnie.Veen-Grimes@nzta.govt.nz>

Fair call , i will see if someone is out there who may be able to assist.
[Quoted text hidden]
[Quoted text hidden]

Steven Sanson <steve@sansons.co.nz> Fri, Feb 23, 2024 at 2:33 PM
To: ringa@daltonbuild.co.nz, Solomon Dalton <Solomon.Dalton@bdo.co.nz>

If anyone out there could take a photo of the crossing place for NZTA approval that would be great. If not i will head out there on Thursday.

Steve
[Quoted text hidden]
[Quoted text hidden]

Ringa Dalton <ringa@daltonbuild.co.nz> Mon, Feb 26, 2024 at 1:11 PM
To: Steven Sanson <steve@sansons.co.nz>, Solomon Dalton <Solomon.Dalton@bdo.co.nz>

Photos of crossing at manea

Nga Mihi,
Ringa Dalton

Director|Bay of Islands
PHONE: (021) 024 77869 | EMAIL: ringa@daltonbuild.co.nz

From: Steven Sanson <steve@sansons.co.nz>
Sent: Friday, February 23, 2024 2:33:06 PM
To: Ringa Dalton <ringa@daltonbuild.co.nz>; Solomon Dalton <Solomon.Dalton@bdo.co.nz>
Subject: Fwd: 41 Hokianga Harbour Drive (SH12) Opononi, Northland - Enquiry-2024-0196 CRM:0296000015

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3 attachments

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891K

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927K

processed-427E5256-B268-4B2D-950B-D111AB375986.jpeg
1047K

Steven Sanson <steve@sansons.co.nz> Mon, Feb 26, 2024 at 1:19 PM
To: Vonnie Veen-Grimes <Vonnie.Veen-Grimes@nzta.govt.nz>

Hi Vonnie,

See photos attached.
[Quoted text hidden]

3 attachments

processed-416A9CCB-1C0B-4156-9E57-EAF1311AF8B8.jpeg
891K

processed-5ABAA2CD-476C-4BEA-A72C-C24ED991EF5F.jpeg
927K

processed-427E5256-B268-4B2D-950B-D111AB375986.jpeg
1047K

Vonnie Veen-Grimes <Vonnie.Veen-Grimes@nzta.govt.nz> Mon, Feb 26, 2024 at 4:28 PM

To: Steven Sanson <steve@sansons.co.nz>

Brilliant, thanks Steven.

Ngā mihi

Vonnie Veen-Grimes

Planner, Environmental Planning (Auckland/Northland)

Poutiaki Taiao| System Design

Email: Vonnie.Veen-Grimes@nzta.govt.nz

Waka Kotahi New Zealand Transport Agency

Auckland, Level 5, AON Centre, 29 Customs Street West

Private Bag 106602, Auckland 1143, New Zealand

Facebook | Twitter | LinkedIn

From: Steven Sanson <steve@sansons.co.nz>
Sent: Monday, February 26, 2024 1:20 PM
To: Vonnie Veen-Grimes <Vonnie.Veen-Grimes@nzta.govt.nz>
Subject: Fwd: 41 Hokianga Harbour Drive (SH12) Opononi, Northland - Enquiry-2024-0196 CRM:0296000015

[Quoted text hidden]
[Quoted text hidden]

Steven Sanson <steve@sansons.co.nz> Thu, Feb 29, 2024 at 10:13 AM
To: Vonnie Veen-Grimes <Vonnie.Veen-Grimes@nzta.govt.nz>

Hi Vonnie,

We will be lodging this today and I will be attaching this thread as evidence. Just giving you a heads up.

Steve
[Quoted text hidden]
[Quoted text hidden]

Gmail Steven Sanson <sanson.assoc@gmail.com>

FW: Safe distance between buildings and overhead powerlines EBC-2024-527/0

Ringa Dalton <ringa@daltonbuild.co.nz>
To: Steven Sanson <steve@sansons.co.nz>
Cc: Solomon Dalton <Solomon.Dalton@bdo.co.nz>, Matthew Abercrombie | Site Scope <matthew@sitescope.co.nz>

From: Aaron Birt <Aaron.Birt@topenergy.co.nz>
Date: Thursday, 22 February 2024 at 10:15 AM
[redacted]
Subject: RE: Safe distance between buildings and overhead powerlines EBC-2024-527/0

Hi Ringa,

As attached confirmation building can be positioned where proposed.

Re: Close Approach Consent, that paragraph is just a reminder about works within 4m of line.

I understand that you will not be using any machinery or working within this area, so all good.

If you have any queries let me know.

Regards

Aaron Birt
Planning & Design
Top Energy Group

Level 2, John Butler Centre
PO Box 43, Kerikeri, 0245
Cell: +64 27 242 7728

www.topenergy.co.nz

TOP ENERGY Te Puna Wihiko

NEW ZEALAND ENERGY EXCELLENCE AWARDS 2023 OUTCOMES AWARD FOR AFFORDABLE ENERGY

TOITŪ CARBON REDUCE ISO 14064-1 ORGANISATION

[redacted] powerlines EBC-2024-527/0

Kia ora Aaron,

Thank you for speaking on the phone with me yesterday.

I have also filled out the online form as you requested, but as there is a urgency around the delivery of the funding this project Is attached to I thought I would also send v

Attached plans. On page 4 is a mark-up of approx distance between completed dwelling at its highest elevation and the power line.

Attached site photo. Line is closest at internal corner of retaining wall and poles are 2m high for reference.

Nga mihi

Ringa Dalton

Manager/DirectorlBay of Islands, Northland

PHONE: (021) 024 77869 I EMAIL: ringa@daltonbuild.co.nz

[redacted] and overhead powerlines EBC-2024-527/0

FYI – Top Energy requirements.

Steve Sanson

Director | Consultant Planner

Bay of Islands Planning (2022) Ltd

09 407 5253 | 021 160 6035

steve@bayplan.co.nz

https://www.bayplan.co.nz

2 Cochrane Drive, Kerikeri, 0295

[redacted] ad powerlines EBC-2024-527/0

Hi Steve,

Further correspondence below for your action.

Kind Regards,

MATTHEW ABERCROMBIE

OPERATIONS MANAGER

021 408 131 / 0800 483 700

matthew@sitescope.co.nz

www.sitescope.co.nz

[redacted]d powerlines EBC-2024-527/0

Hi Matthew

Please see the response form Top Energy, it appears that consent may be required from then for the proposed works.

Kind regards,

Leeanne Tane

PIM's Officer - Building Services Administration

P 6494070425 | Leeanne.Tane@fndc.govt.nz

Te Kaunihera o Tai Tokerau ki te Raki | Far North District Council

Pokapū Kōrero 24-hāora | 24-hour Contact Centre 0800 920 029

fndc.govt.nz

[redacted]lings and overhead powerlines [ref:!00D0K024I6a.!500RA04GwNV:ref]

Hi there,

I have been passed your query related to proposed dwellings at 41 Hokianga Harbour Drive.

Firstly, the minimum distance from new buildings to the side of conductors without engineering advice for this line (voltage =11kV and span is over 125m) is 12m - Table 2

If the proposed building does not comply with these requirements then engineering advice needs to sought to establish distances in accordance with Table 3 ECP34.

Based upon the outcome of the engineering study the clearance can be reduced, restrictions outlined or construction prohibited. The written consent includes the minimu and/or within 2.2m of the poles, receive and hold a written and valid Close Approach Consent issued by Top Energy before.

As a guide for this site, based upon the information known from the desk top, the proposed dwellings could be as close as 3.5m to the side of the conductors. To establis planning department at Top Energy for permission to build closer than the 12m to line to receive written consent.

Link for application: Top Energy | Top Energy

The 12m distance is based upon length of span(distance between poles and voltage, as per table 2). It can be different for other voltages and span lengths. This informa perspective, advice should be regarding dwellings and power lines that if within 10-12m of wire seek advice from Top Energy.

Any queries let me know. Happy to discuss.

Regards

Aaron Birt

Planning & Design

Top Energy Group

Level 2, John Butler Centre

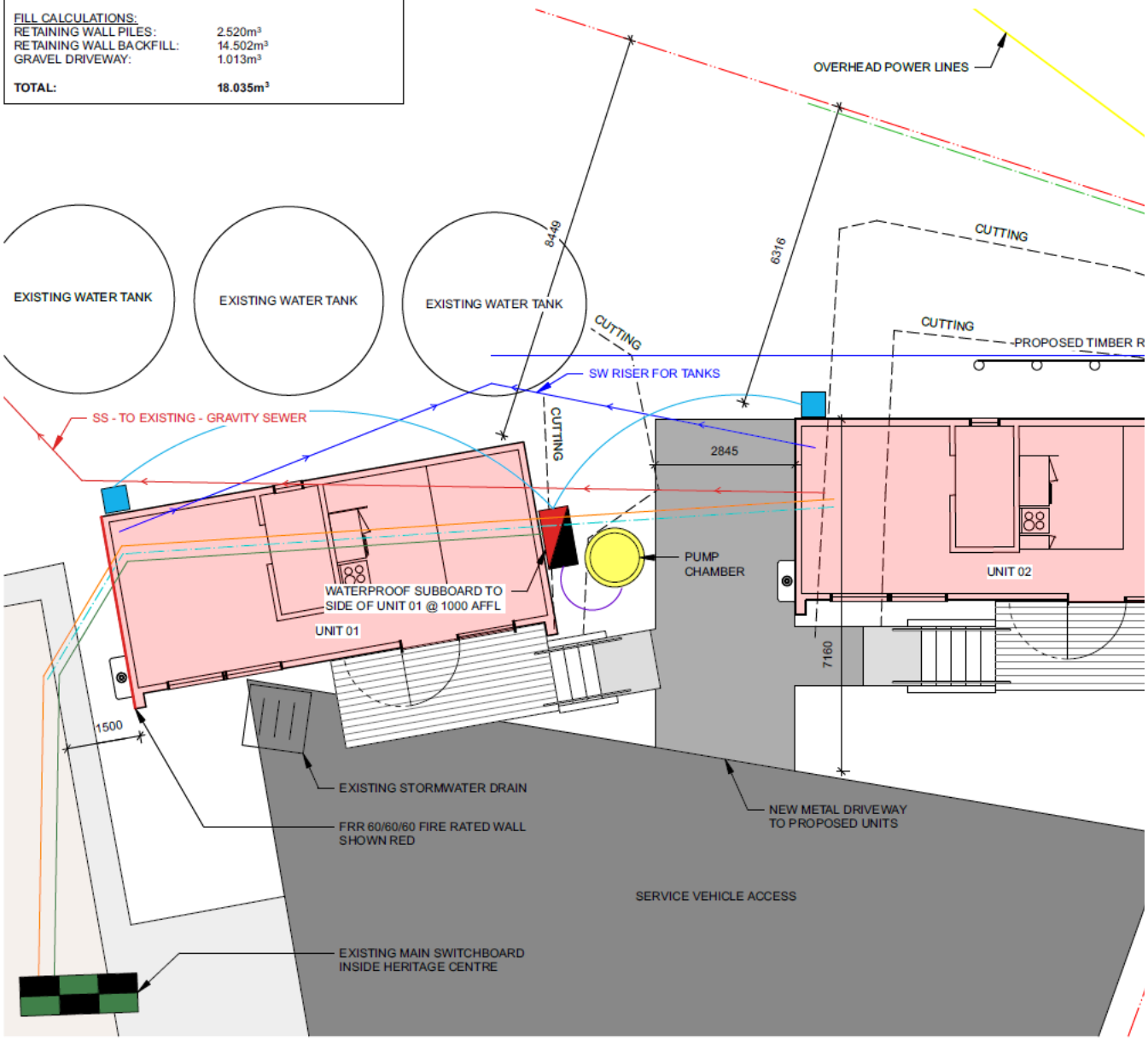
PO Box 43, Kerikeri, 0245

Cell: +64 27 242 7728

www.topenergy.co.nz

Please consider the environment before printing this email.

NOTES - EARTHWORKS	
EXCAVATION CALCULATIONS:	
SITE EXCAVATION:	5.281m³
RETAINING WALL AUGERING:	2.520m³
TOTAL:	**7.801m³**
FILL CALCULATIONS:	
RETAINING WALL PILES:	2.520m³
RETAINING WALL BACKFILL:	14.502m³
GRAVEL DRIVEWAY:	1.013m³
TOTAL:	**18.035m³**



SITE SCOPE

260 WAIMATE NORTH ROAD,
KERIKERI, 0293

projects@sitescope.co.nz
www.sitescope.co.nz

Te Tūāpapa Kura Kāinga
Ministry of Housing and Urban Development

CLIENT: TE TŪĀPAPA KURA KĀINGA

PROJECT: P2982 TEMPORARY ACCOMODATION - MANEA MARAE

SHEET:

SITE PLAN - INFR CALL OUT

Leeanne Tane

PIM's Officer ? Building Services Administration

P 6494070425 | Leeanne.Tane@fndc.govt.nz

Te Kaunihera o Tai Tokerau ki te Raki I Far North District Council

Pokap? K?rero 24-h?ora I 24-hour Contact Centre 0800 920 029

fndc.govt.nz

Manea Marae 41 Harbour View Rd Opononi.pdf
177K

Contaminated Land Management
Preliminary Site Investigation Report

41 State Highway 12, Opononi
(Lot 1 DP 195242)

for Far North Holding Ltd

cook | costello

Consulting Engineers

30 January 2018

Revision: 1

Project Number: 14146

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Summary contaminated sites report checklist					
Indicate the reports contained in this document	☒	☐	☐	☐	☐
Report section(s) and information to be presented	**PSI**	**SIR**	**RAP**	**SVR**	**MMP**
Executive summary	R ☒	R ☐	R ☐	R ☐	R ☐
Scope of work	R ☒	R ☐	R ☐	R ☐	R ☐
Site identification	R ☒	R ☐	R ☐	R ☐	R ☐
Site history	R ☒	S ☐	S ☐	S ☐	S ☐
Site condition and surrounding environment	R ☒	S ☐	S ☐	S ☐	S ☐
Geology and hydrology	A ☒	R ☐	S ☐	S ☐	S ☐
Sampling and analysis plan and sampling methodology	A ☒	R ☐	X	R ☐	R ☐
Field quality assurance and quality control (QA/QC)	N ☒	R ☐	X	R ☐	S ☐
Laboratory QA/QC	N ☒	R ☐	X	R ☐	X
QA/QC data evaluation	N ☒	R ☐	X	R ☐	X
Basis for guideline values	R ☒	R ☐	R ☐	R ☐	R ☐
Results	A ☒	R ☐	R ☐	R ☐	S ☐
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Remedial actions	X	X	R ☐	S ☐	S ☐
Validation	X	X	X	R ☐	S ☐
Site management plan	X	X	R ☐	S ☐	S ☐
Ongoing site monitoring	X	X	X	N ☐	R ☐
Conclusions and recommendations	R ☒	R ☐	R ☐	R ☐	R ☐

1. EXECUTIVE SUMMARY

It is proposed to develop Lot 1 DP 195242, 41 State Highway 12, Opononi for a Maori Cultural Visitor Centre at the property, as depicted in the Site Plans in Appendix 1.

The scope considered by this report is to ascertain from site history and observations made on 17 January 2108, and additional provided information whether activities from the Hazardous Activities and Industries List (HAIL Oct 2011) have occurred on the property, or on the neighbouring properties in a manner which may affect the subject property; to assess the likelihood of soil contamination from these activities; and to assess the risk to human health.

Due to past land uses on the site, the site has been divided into three Pieces of Land. Piece of Land 1 consists of majority of the property, but excludes the north eastern corner and a portion of land on the southern boundary. Piece of Land 2 consists of a portion of land in the north eastern corner of the site, where a historic woolshed, yards and sheep dip were located. Piece of Land 3 consists of a portion of the site on the southern boundary, where a historic cowshed and yards were located.

A Preliminary Site Investigation in accordance with the National Environmental Standards has been undertaken. This report finds that from site history, observations and soil sampling:

- Piece of Land 1 is suitable for the proposed development, as fill material brought onto the site is consistent with clean fill and **unlikely** to trigger **HAIL G5:** *Waste disposal to land.* Notwithstanding this, there is evidence of recent fly tipping, and the presence of some construction and demolition waste. Due to the limited amount and nature of this waste, it is unlikely that this waste will pose a risk to human health, with its management addressed through the Construction Management Plan.

- It has been determined through site investigations and soil sampling that it is likely that an activity listed in the HAIL has been carried out within Piece of Land 2, namely **HAIL A8***: Livestock dip or spray race operations,* due to the presence of a pre-1951 wool shed, stockyard, sheep dip and dipping yard and confirmation that drench material was stored in the woolshed and used in the sheep dip.

  Soil testing confirms concentrations of Arsenic and DDT above parkland/recreational values in samples collected from the dipping yard and sheep dip splash zone in the eastern portion of the Piece of Land.

  It is appropriate to place a Management Zone on the eastern portion of the Piece of Land to limit access and the grazing of stock, until such time that additional soil testing provides greater clarity on the nature and extent of any contamination.

By limiting access to the eastern portion of Piece of Land 2, it is unlikely to pose a risk to human health. Disturbance of soil in Piece of Land 2 is considered to be a discretionary activity.

- It has been determined through site investigations that it is possible that an activity listed in the HAIL may have been carried out within Piece of Land 3, namely **HAIL I***: Any other land that has been subject to the intentional or accidental release of a hazardous substance,* due to the presence of a historic cowshed, holding yards and loading ramp, and the possible use of treated timber (CCA) and/or Lead based paints with weather by products potentially being present under a layer of what appears to be imported (clean) fill material.

  Although it is possible that a HAIL activity may have occurred on Piece of Land 3, it is unlikely to pose a risk to human health, if managed in accordance with the Construction Management Plan.

- To address the uncertainties of the site, it is recommended that a condition of the resource consent is for the proponent to prepare a Construction Management Plan which includes, but is not limited to:

  - The management of fill material on Piece and Land 1 and 3,
  - The sampling and management of natural soils on Piece of Land 3,
  - The establishment of a Management Zone on the eastern portion of Piece of Land 2 (where the historic sheep dip and dipping yards are located) which limits access until additional site investigations are completed.
  - The management of soil taken from the western portion of Piece of Land 2.

2. SCOPE OF WORK

Cook Costello has been engaged by Far North Holdings Ltd to undertake a contaminated Primary Site Investigation (PSI) at 41 State Highway 12, Opononi, which is legally described as Lot 1 DP 195242, as depicted in Figure 1.

The scope of work of this PSI is to identify whether any potential activities listed in the Hazardous Activities Industries List (HAIL) have been undertaken within the site or in the surrounding area and subsequently migrated to the site.

In the event that HAIL activities have occurred on the site, the scope of work is to ascertain the risk to human health from these.

This PSI has been carried out in accordance with the *Contaminated Land Management Guidelines No. 1 – Reporting on Contaminated Sites in New Zealand (Revised 2011)* and the Cook Costello Short Form Agreement signed by Wayne Hicks and dated 5 December 2017.

This investigation:

- Establishes the site history by desktop study (including historic aerial photographs of the site, and reviews of relevant Council records and correspondence), interviews of people knowledgeable with the site, and a site inspection/walkover.
- Establishes the site condition and the surrounding environment.
- Considers hydrological influences at the site.
- Provides a conceptual site model.
- Provides characterisation of the site in terms of risk to human health due to contamination of the ground.

3. SITE IDENTIFICATION

The site as shown (in yellow) in Figure 1:

- Is located at 41 State Highway 12, Oponini.
- Is legally described as Lot 1 DP 195242.
- Has a total land area of 1.17 ha.

Figure 1. The site

Piece of Land 1 consists of the majority of lot, but excludes a portion of north eastern corner of the site and a portion along the southern of the site.

Piece of Land 2 consists of a portion of land in the north eastern corner of the lot, where a historic woolshed, stockyards and sheep dip were located.

Piece of Land 3 consists of a portion of the site on the southern boundary, where a historic cowshed and yards were located.

The Pieces of Land are shown in Figure 2 on a 1966 aerial photograph when the woolshed, stockyards and sheep dip existed on the site.

Figure 2. The Pieces of Land

3.1. Site Description and Current Land Use

The site is located approximately 250 metres south south west of the Opononi Hotel on State Highway 12, as depicted in Figure 3. The site is currently zoned Commercial, with the western portion of the site being vacant land, and the eastern portion of the site being used for the grazing of cattle.

Figure 3: Property location map (Google Earth)

3.2. Proposed Development

It is proposed to develop Lot 1 DP 195242, 41 State Highway 12, Opononi for a Maori cultural visitor centre at the property, as depicted in Appendix 1.

4. NES PROVISIONS

The objective of the NES is to ensure land affected by contaminants in soil is appropriately identified and assessed when soil disturbance and/or land development takes place and, if necessary managed to make the land safe for human use.

The NES Regulations apply to land that having, has had, or more likely than not has had a HAIL activity undertaken on it.

Section 5 of the NES Regulations apply to:

- Certain soil disturbance activities (subclause 4),
- Subdivisions of land (subclause 5), and
- Land use changes (subclause 6).

As the client wishes to potentially disturb land through construction of the access road, look-out and building pad(s), then the provisions of the NES Regulations apply.

5. SITE CONDITIONS & SURROUNDING ENVIRONMENT

The site is accessed off State Highway 12, which runs along the western boundary. An ephemeral water course forms the northern boundary of the site.

From the site contours (Figure 4), the northern portion of the site is relatively flat and rises steeply to the road to the west (about 3.5 metres), to the south (about 8 metres) and to the east (about 6 metres). Access to the site is via a vehicle crossing on the south west corner of the site. The southern portion of the site is elevated compared to the surrounding land suggesting that this area has been historically filled. Evidence of ongoing filling in this area was observed during the site walkover. The unsurveyed eastern portion of the site appears to be unaffected by this historic filling activity.

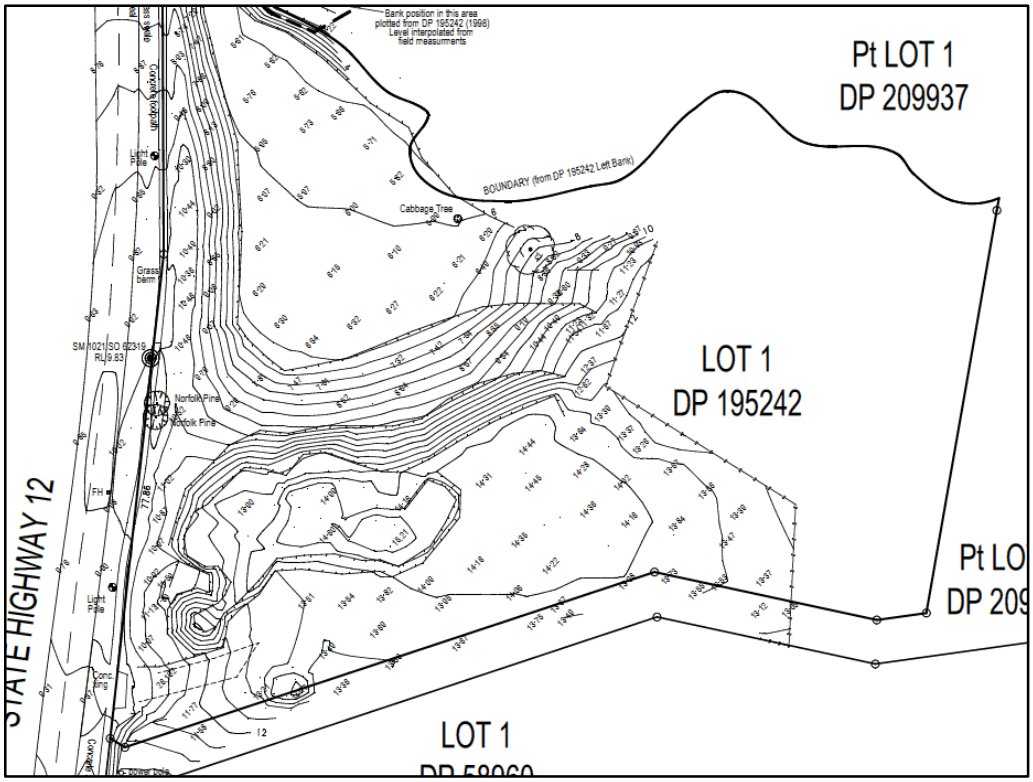


Figure 4: Site contours

Land surrounding the site is being used for:

- North – tree arboretum, farming residence/yards and commercial buildings.
- South – caravan park,
- East – farmland (grazing of cattle), and
- West – State Highway 12 and coastal reserve.

Depicted below (in Figure 5) are the key features of the site as observed during the site visit on 17 January 2018.

Figure 5: Key features (red) and sampling points (blue) on the site. Yellow line approximates site boundary.

5.1. Hydrology

Based on the topography of the site, as shown by Figures 4 and 6, it is inferred that groundwater flows to the west (towards the coast) and is influenced by Opononi Stream that borders the northern boundary, which also heavily influences site drainage.

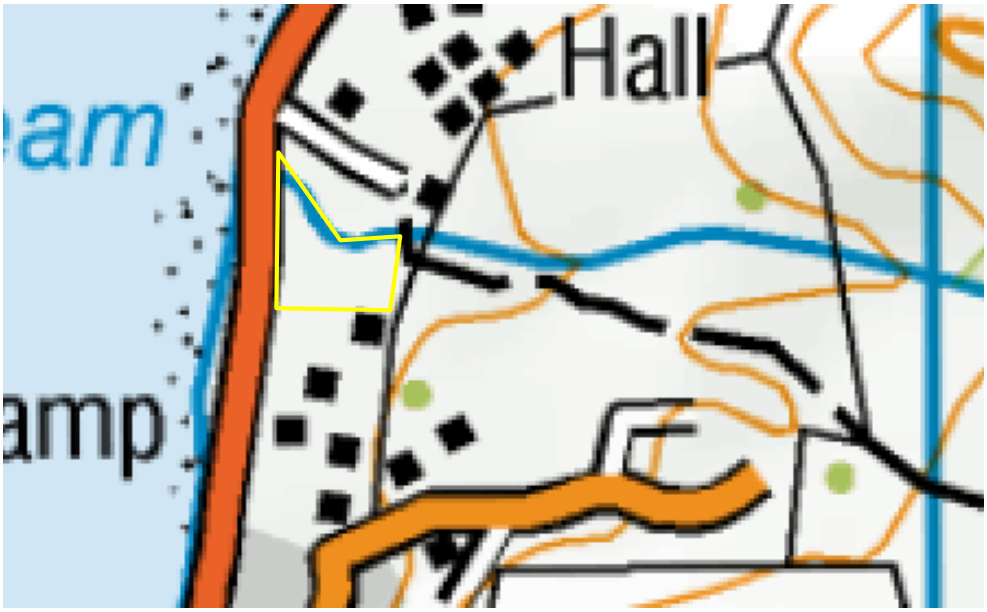


Figure 6. Topography of the site showing contours and water courses (LINZ, NZ Raster Image (Topo50) 2015) and approximate subject property (yellow).

6. PRELIMINARY SITE INVESTIGATION

A desktop assessment of the site was undertaken to identify any historic or current activities that may have resulted in any potential contaminants of concern.

The following information sources were reviewed to establish a history of the site:

- Northland Regional Council HAIL records
- QV records
- Historical Aerial Photographs
- Interviews with previous landowners/neighbors

6.1. Far North District Council

A LIM for the site was not available from the Far North District Council due to offsite digitising of relevant information.

6.2. Northland Regional Council

A review of the Northland Regional Councils database of Hazardous Activities and Industries List (HAIL) (http://www.nrc.govt.nz/Environment/Waste-and-pollution/Hazardous-Activities-and-Industries-List/) did not identify any current or historic HAIL activities, as shown in Figure 7.

Figure 7: NRC Selected Land-use Register of the site (bold yellow)

NRC was contacted to gain additional information. Gary Young, NRC advised in an email dated 18 January 2018 that:

41 SH12, Opononi being Lot 1 DP 195242.

The property that you have enquired about is listed on the NRC Selected Land-use Register (SLR) for any current or historical Hazardous Activities and Industries List (HAIL) activities. SLU.042249 A8: Livestock dip or spray race operations.

There are no recorded environmental incidents shown on the property.

6.3. QV Records

According to qv.co.nz (https://www.qv.co.nz/property/41-state-highway-12-opononi-kaikohe-0473/2082602) the property was sold on 7 August 1998. The Certificate of Title (NA123B/576) advises that the proprietor of the land is Shane Lloydd Trustee Limited. According to http://www.bizdb.co.nz/company/9429030448711/, Shane Lloydd Trustee Limited is the majority (90%) shareholder of Copthorne Hotel & Resort, Hokianga.

6.4. Historical Aerial Photographs

Aerial imagery is presented in Appendix 2 (Photographs 21-32). The area of interest is located approximately within the yellow area.

The following is inferred from the available aerial imagery.

1966: The site was in use for farming activities. There are two buildings located on the site. The south western building is a cowshed and associated stockyard. The eastern building is a woolshed (shearing shed) with associated yards. Due to its proximity to the water course, a sheep dip may also exist in the area (a sheep (pot) dip was confirmed by the previous landowner's son). Fence lines visible in the central western part of the site suggests the grazing/keeping of animals. Farming residence and buildings to the north east

of the site. Large grassed area to the south west of the site. The two buildings present in the 1966 aerial were also present in the 1951 aerial.

1977: The bulk of the site was in use for open land farming. Location of fencelines not visible from photograph. Cowshed and woolshed still visible on the site. Extension of one farm building to the north east of the site. Caravan Park established to the south west of the site, with associated boundary fenceline.

2004: Cowshed and woolshed no longer visible on the site. Eastern area of the site appears to be in use for open land farming. Vegetation on the western portion of the site starting to establish. Stockyard/loading race and turning circle established on the neighbouring farm to the north of the site.

2006: No significant changes from 2004 photograph. Track established on neighbouring farm on north east corner of the site, with vehicle track running of State Hwy 12 in the south west corner of the site to the diagonally opposite corner to join up with the neighbouring farm track.

2010: Aerial photograph partially obscured by cloud. No significant changes from 2006 photograph.

2011: Aerial photographs taken March, August and September. Evidence of filling occurring in south western portion of the site using access track off State Highway 12 in the south western corner of the site. Supermarket established to the north of the site on State Highway 12.

2013: Historic filling now covered with vegetation. Paddock in south eastern portion of the site appears to being used by Caravan Park for grazing. Vegetation on the rest of the site continues to grow.

2015: Evidence of small scale fly tipping/filling in southern and central portion of the site, accessed from State Highway 12 in south west corner of the site. Evidence of animals grazing on staked ropes in south eastern paddock (presumably goats from Caravan Park)

2016/17: Evidence of larger scale tipping/filling in south west corner of site extending into southern central portion of the site. Eastern portion of the site remain as paddocks.

Based on the aerial photographs from 1951 – 2017, the site has predominantly remained as farmland, with a cowshed, woolshed and associated stockyards visible in 1951-77 photographs. Cowshed and woolshed removed prior to 2004. There is evidence of fly tipping/filling of the south western and south central portion of the site in 2011 and again in 2015 – 2017. Development around the site includes the Caravan Park to the south by 1977, and farming residence, expanding out buildings and yards to the north. A supermarket was established to the north of the site in 2011.

6.5. Client supplied information and interviews

Mr Harry Barlow, owner of the Opononi Beach Holiday Park was asked about the history of the site and advised that he has owned the Park since 1991. He understood the owner of the site were the Lloydd's who own the Copthorne Resort. He remembers a milking shed on the southern portion of the site and has observed trucks of soil being dumped onto the site. He assisted the Lloydd's by moving concrete blocks across the entrance to the site (off State Highway 12) to control access to the site, and the incidence of unauthorised tipping. There was a loading race at the cowshed, but he was not sure how the shed was demolished or disposed of. He has observed concrete rubble in the deposited material, which he believed may have come from Copthorne's.

Mr Wayne Baker, son of Revel Baker who owns the surrounding farm (and previous owner of the site) was asked about the history of the site and advised that his family had owned the farm for about four generations. There was a cowshed, holding yards and loading ramp on the southern portion of the site which his great grandfather built. The cowshed was used to milk cows and finished operating in the late 1960's. Chemicals used in the cowshed were those relating to hygiene, with no external animal treatments applied. The woolshed was used to shear sheep and had a partially slatted floor. Drench chemicals were stored in the north western corner of the woolshed. They finished stocking sheep in the early 1990's and now run beef cattle. The sheep dip was located on the eastern side of the woolshed and had a post dip holding yard to the east of the sheep dip. He advised that there was also a woolshed, yards, sheep dip and loading ramp onsite. He advised that the woolshed and cowshed buildings where relocated to a different property. They currently use the eastern paddock of the site to graze stock.

In relation to filling on the site, fill material was brought onto the site when the shop area was developed about seven years ago. There has been fly tipping over the years and Copthorne's has brought demolition type waste onto the site. Recently, road slip material (containing limestone material) was brought to the site.

During the site meeting on 17 January 2018, a representative from Copthorne Hotel & Resort confirmed that they had brought construction and demolition type waste onto the site as part of unit development, and had also burnt cardboard packaging on the site.

6.6. Site walkover and onsite interview

A site meeting and walkover of the site was undertaken on 17 January 2018. Attendees included representatives from Far North Holdings, Copthorne Hotel & Resort, Cook Costello and Wayne Baker. The meeting was primarily focused on the development of the proposed Cultural Centre, but also included discussions around past land uses, and sources/suitability of fill material on the site.

The site is presently in a similar state to that presented in Figure 3, although vegetation on the south and central western part of the site (where the proposed Cultural Centre is proposed to be located) has been mulched, as shown in Photograph 1.

Photograph 1: view from SH12 of proposed building site. Opononi Creek is on the left.

The temperature during the site visit was around 23 degrees, with occasional showers and moderate northerly winds. No hydrocarbon or pesticides type odours were detected during the site walkover.

There is evidence of extensive filling in the south western and central portion of the site, with waste being placed/pushed over the slope towards the proposed building site. A range of fill material was observed during the site walkover and an earlier visit on 28 December 2017. This material was predominantly soil, but included green waste, concrete, electrical wire, PVC piping, pieces of Copper Chrome Arsenic (CCA) treated timber and cardboard. Small amounts of non-asbestos fibre cement were observed, as well as vitreous china pipe, a tyre, 20L plastic drum and vacuum cleaner (Photographs 1 - 8). All photographs were taken on 17 January 2018, unless otherwise stated.

Photograph 2: packaging type waste (28-Dec-2017) – now burnt

Photograph 3: concrete waste

Photograph 4: electrical wire

Photograph 5: PVC pipe

Photograph 6: green waste, 20L plastic drum and tyre

Photograph 7: edge of tipping face with deposited green waste

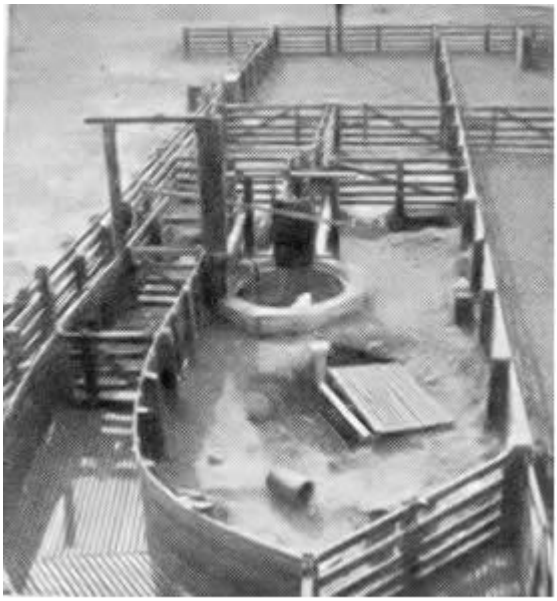
Photograph 8: typical type soil used as fill material

Wayne Baker showed Cook Costello personnel the location of the woolshed, sheep dip and associated yards. Where the woolshed used to be located was slightly elevated above background soil. As a portion of the floor of the woolshed had a slated floor, debris (manure, soil etc) is likely to have increased the height of the ground beneath the shed. A woolshed foundation post was still visible (Photograph 9). The greenish colour of the post would indicate that it has been treated with CCA.

Photograph 9: location of woolshed and sheep dip (beyond) – looking east

The sheep dip (Photograph 10) was located to the east of the woolshed and is consistent with a pot bath style of dip (Photograph 11).

Photograph 10: sheep (pot) dip – concrete curb edge in foreground



Photograph 11: Pot bath with curved race and covered sump
http://www.mfe.govt.nz/publications/hazards-land/html/appendix-10-photographs-sheep-dip-structures

The site walkover identified the following contamination risk items:

- Piece of Land 1: Uncontrolled fill material deposited to the south western and central portion of the site. May trigger a HAIL category.
- Piece of Land 2: Old woolshed, sheep dip, yards and stock ramp on the eastern portion of the site. It is likely that drench material (Organochlorine Pesticides and Arsenic) historic external animal treatments were applied. Further, treated timber (CCA) and/or Lead based paints may have been used in the woolshed, yard or race construction. Likely to trigger a HAIL category.
- Piece of Land 3: Old cowshed, yards and cattle ramp on the southern portion of the site. It is unlikely that historic external animal treatments have been applied. Treated timber (CCA) and/or Lead based paints may have been used in its construction. This area appears to have been covered with fill material. May trigger a HAIL category.

7. SUMMARY OF POTENTIAL HAIL ACTIVITIES

Based on the historic aerial photographs, site history, interviews and site walkover:

- On Piece of Land 1, there is evidence to suggest that significant amounts of fill (waste) material has been brought onto the site. This material appears to have been sourced from virgin soils, but also included some construction and demolition waste. Green waste and packaging waste has been burnt on the site. Small amounts of uncontrolled fly tipping has also occurred on this Piece and Land.

  Due to the possible use of the Piece of Land for the disposal of waste material, then it is likely that this area could be classified **HAIL G5:** *Waste disposal to land (excluding where biosolids have been used as soil conditioners).*

- On Piece of Land 2, there is evidence to suggest that a wool (shearing) shed, stockyard, sheep dip, dipping yard and sheep loading ramp was present on the site in 1951. It is likely that external animal treatments were applied to the sheep, and drench material was stored within the woolshed. The drench material is likely to have contained Arsenic and Organochlorine Pesticides (OCP).

  It is understood that the wool shed, stockyard, dipping yard and sheep loading ramp was of timber construction. Often timber is treated with a range of preservative chemicals, including Copper, Chrome and Arsenic (CCA) and lead based paints. Leaching from treated timber occurs and can increase concentrations of these contaminants in the soil in the vicinity of their use.

  Due to the storage of drench material in the woolshed, sheep dip and dipping yard, and the potential leaching from treated timber, then (at least a portion of) this area is classified **HAIL A8:** *Livestock dip or spray race operations.*

- On Piece of Land 3, there is evidence to suggest that a milking shed, holding yards and loading ramp was present on the site in 1966, however information provided by Wayne Baker suggests that only chemicals used for hygiene control were used in and around the milking shed.

  It is understood that the milking shed, holding yards and cattle ramp was of timber construction. Often timber is treated with a range of preservative chemicals, including Copper, Chrome and Arsenic (CCA) and lead based paints. Leaching from treated timber occurs and can increase concentrations of these contaminants in the soil in the vicinity of their use.

  The area appeared to be covered with a layer of fill (soil) material that had been brought onto the site. This material appears to have been sourced from virgin soils.

  Due to the possible leaching of chemicals from treated timber from the milking shed/yards, then this area could possibly be classified **HAIL I:** *Any other land that*

has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment.

- In summary, there were three potential HAIL activities identified from the desktop study and site walkover on the site:

Activity	HAIL Reference	Description	Potential health risk
Piece of Land 1 – importation of fill (waste) material brought onto the site.	G5	Waste disposal to land	Can pose a risk if concentrations exceed appropriate guideline values, animals / people access the area, and soil is disturbed
Piece of Land 2 - woolshed, stockyard, sheep dip, dipping yard and loading ramp – location of sheep dip and likely use of treated timber	A8	Livestock dip or spray race operations	Can pose a risk if concentrations exceed appropriate guideline values and animals / people access the area
Piece of Land 3 – cowshed, holding yard and loading ramp – possible use of treated timber	I	Any other land that has been subject to the intentional or accidental release of a hazardous substance	Buried under fill material – low risk, however sampling required if disturbed

Table 1: Potential HAIL activity identified on proposed Lot 2

8. SAMPLING & ANALYSIS PLAN

8.1. Fill material, cowshed, yards and loading ramp (Piece of Land 1)

A significant amount of fill material was brought onto the south western and central portion of the site. Anecdotal evidence suggest that this material predominately came from land development sites or from road slips and is consistent with clean fill. There is a small amount of construction and demolition type waste mixed in with this material (especially from later filling). It is appropriate to selectively test the fill material for NES metals to determine suitability for reuse on the site.

8.2. Woolshed, yards, sheep dip and loading ramp (Piece of Land 2)

It is likely that sheep were drenched (and externally treated) on Piece of Land 2. *Identifying, investigating and managing risks associated with former sheep-dip sites: a guide for local authorities* (MfE, 2006) http://www.mfe.govt.nz/publications/hazards-land/html/2-characteristics-sheep-dip-contamination advise that *in general, if there is a reasonable site history, which shows that the dip was used before 1961, it is recommended to test for arsenic and organochlorines (which include dieldrin, lindane, DDT and its primary degradation products DDE and DDD − often referred to as ∑DDT).* Further, treated timber (CCA) and/or Lead based paints may have been used in the woolshed, yard or race construction. Appropriate to test for NES metals and Organochlorine Pesticides (OCP) in the vicinity of the sheep dip. Arsenic can be used as an indicator in other samples not tested for OCP.

8.3. Fill material, cowshed, holding yards and loading ramp (Piece of Land 3)

The area appeared to be covered with a layer of fill (soil) material that had been brought onto the site. This material appears to have been sourced from virgin soils. No testing for NES metals required.

Located beneath the fill material on the southern portion of the site was the cowshed, holding yards and loading ramp. It is possible that treated timber (CCA) and/or Lead based paints may have been used in its construction. As the natural (historic) soil surface is below the current fill material, then soil testing should occur if natural soil levels are disturbed. Additional sampling for NES metals may be required (especially if the material is to be used as fill material). The sampling and management of this material can be addressed through the Construction Management Plan.

8.4. Investigation methodology

The investigation methodology involved judgemental sampling of soil from across the site.

On Piece of Land 1, this involved the sampling of three separate stockpiles of visibly different fill material in the south western and central portions of the site for analysis for NES Metals.

On Piece of Land 2, this involved the sampling of six sites, predominantly in an east-west line, starting from west of the woolshed, within the woolshed footprint, in the yard area of the woolshed, in the sheep dip, in the yard area of the sheep dip and in the splash zone of the sheep dip. All six sites to be analysed for NES metals with the last two sites (sheep dip yard and sheep dip splash zone) to be analysed for OCP.

Soil samples were collected either by a Cook Costello senior engineer or senior environmental scientist. Samples were taken using a shovel and/or hand trowel and gloved hand. The shovel and/or hand trowel were scrubbed clean with potable water using a two stage/bucket wash system between samples and gloves replaced. Laboratory supplied sample containers were used (plastic for samples to be tested for metals; glass for all other samples) and dispatched to the laboratory for analysis. The three fill material samples were collected on 28 December 20017, stored refrigerated, prior to dispatch on 15 January 2018. Samples collected on 17 January 2018 were refrigerated overnight prior to being dispatched. The Chain of Custody records are attached as Appendix 3.

9. QUALITY ASSURANCE AND QUALITY CONTROL

9.1. Field QA/QC

Sample collection and handling was undertaken by senior engineer, Adrian Tonks or senior environmental scientist, Guy Watson. Sample dispatch was undertaken by Guy Watson. The report was authored by Guy Watson and reviewed by Adrian Tonks, who are familiar and experienced with the Ministry for the Environment Contaminated Land Management guidelines and referenced documents.

No duplicate testing was undertaken as part of the Preliminary Site Investigation.

All samples jars were marked with the sample type, sample location, depth, date, and time of sample with this information being transferred onto the laboratory sampling request forms.

The shovel and/or hand trowel used to collect soil samples were scrubbed clean with potable water using a two stage/bucket wash system between samples. Laboratory supplied sample containers were used, cooled and dispatched to Hill Laboratories Ltd.

All laboratory testing was carried out by Hill Laboratories Ltd within two weeks of receipt.

9.2. Laboratory QA/QC

Refer to Cook Costello (2016) and Appendix 3 and 4 for laboratory QA/QC documentation, results and Chain of Custody forms.

9.3. QA/QC Data Evaluation

All samples were collected by either Adrian Tonks or Guy Watson using the same method and tested at the same laboratory.

Data was evaluated by Guy Watson and reviewed by Adrian Tonks, who are familiar and experienced with the Ministry for the Environment Contaminated Land Management guidelines and referenced documents.

10. BASIS FOR GUIDELINE VALUE

As it is proposed to develop a Cultural Visitor Centre, it is considered appropriate to use the human health commercial/industrial, parkland/recreational and lifestyle block guideline values listed in the:

- *Ministry for the Environment's Environmental Guideline Value (EGV) Database, June 2013.*
- Table A5 in *Identifying, investigating and managing risks associated with former sheep-dip sites: a guide for local authorities* (MfE, 2006), as shown in Table 2.

Contaminant	Scenario	Soil ingestion	Dermal absorption	Produce ingestion	Combined*
∑DDTs	Rural/lifestyle	72	2,735	9.6	8.4
	Standard residential	72	2,735	48	28
	High-density urban residential	72	2,735	–	70
	Parks/recreation	143	4,100	–	139
	Commercial/industrial	1,955	15,600	–	1,740
Dieldrin	Rural/lifestyle	16	60	0.7	0.7
	Standard residential	16	60	3.4	2.7
	High-density urban residential	16	60	–	12
	Parks/recreation	31	89	–	23
	Commercial/industrial	425	339	–	190
Lindane	Rural/lifestyle	782	7,450	35	33
	Standard residential	782	7,450	173	139
	High-density urban residential	782	7,450	–	707
	Parks/recreation	1,560	11,200	–	1,370
	Commercial/industrial	> 20,000	> 20,000	–	14,180

* The combined value is calculated by taking the inverse of the sum of the inverse value of each pathway.

Table 2: Summary of the soil guideline values derived for individual pathways, and the final combined

Background values would be representative of those values which might be expected at the site if no hazardous industry or activity had been undertaken at the site. Background values would be based on:

- *Background Concentrations of Inorganic Elements in Soils from the Auckland Region, Auckland Regional Council, Technical Publication No. 153, October 2001*.

11. RESULTS

11.1. Sampling locations

Nine locations were sampled on the site – three (S1-S3) of Piece of Land 1 on 28 December 2017, and six (S11-S16) on Piece of Land 2 on 17 January 2018, as depicted in Figure 5. The sample location, depth and site characteristic are detailed in Table 3:

Sample Location	Characteristic	Analyses
S1 Surface	C&D waste stockpile	NES Metals
S2 Surface	Central soil stockpile	
S3 Surface	Lookout stockpile	
S11 Surface	West of woolshed	
S12 Surface	Under woolshed	
S13 Surface	Woolshed yard	
S14 Surface	Sheep dip	
S15 Surface	Sheep dip yard	NES Metals, OCP
S16 0.15m bgl	Sheep dip splash zone	

Table 3: Sample location, depth, characteristic and analyses.

Surface soil samples were chosen based on changes in soil type/appearance and/or characteristics for S1-S3, and location for S11-S16. S16 was sampled at a depth of approximately 0.15m below ground level (bgl) to identify contaminants potentially unaffected by surface leaching.

Soil sampling locations and characteristics are presented in Photographs 12-20.

Photograph 12: Sample Site S1

Photograph 13: Sample Site S2

Photograph 14: Sample Site S3

Photograph 15: Sample Site S11

Photograph 16: Sample Site S12

Photograph 17: Sample Site S13

Photograph 18: Sample Site S14

Photograph 19: Sample Site S15

Photograph 20: Sample Site S16

Personnel from Cook Costello carried out on-site sample collection. Hill Laboratories Ltd undertook laboratory testing of collected samples within the site, with full laboratory results presented in Appendix 4.

11.2. Metals within the site

Results of testing for Arsenic, Boron, Cadmium, Chromium III (Total Chromium), Chromium VI, Copper, Lead and Mercury are presented in Table 3.

		Arsenic	Boron	Cadmium	Chromium III	Chromium VI	Copper	Lead	Mercury
NES Priority Contaminant - Commercial/Industrial guideline values (mg/kg)		70	NA	1300	NA	6300	NA	3300	4200
NES Priority Contaminant - Parkland/recreation guideline values (mg/kg)		80	NA	400	NA	2700	NA	880	1800
NES Priority Contaminant - Lifestyle block guideline values (mg/kg)		17	NA	0.8	NA	290	NA	160	200
Background concentrations (non volcanic) - Auckland Regional Council: 2001 (mg/kg)		0.4 – 12	2 - 45	0.1 - 0.65	2 - 55	<0.1– 0.65	1 - 45	<1.5 – 65	<0.03 – 0.45
S1	surface	4	<20	<0.10	14*	<0.4	22	10.4	0.77
S2	surface	3	<20	<0.10	13*	<0.4	21	6.9	<0.1
S3	surface	3	<20	0.14	8*	<0.4	35	4.5	<0.1
S11	surface	5	<20	0.25	14*	<0.4	14	16.6	<0.1
S12	surface	7	<20	0.44	11*	<0.4	11	113	0.22
S13	surface	6	<20	0.17	12*	<0.4	10	14.9	<0.1
S14	surface	33	<20	0.35	14*	<0.4	21	20	<0.1
S15	surface	470	<20	0.32	17*	<0.4	142	68	0.15
S16	0.15 bgl	420	<20	1.11	19*	<0.4	310	110	0.22

*Total Chromium Results above background Results above parkland/recreational guideline

Table 3. Tabulation of results from testing for NES Metals

Comparing these results to the typical background concentrations of metals for non-volcanic soils in the Auckland area:

- On Piece of Land 1, tested samples were at background levels for all NES Metals, apart from one result for Mercury in S1 which reported a concentration twice that of background, but only 0.4% of the Priority Contaminant lifestyle block guideline value.
- On Piece of Land 2, tested samples were at background levels for Boron, Chromium, and Mercury. Arsenic was about three times background for S14 (Sheep dip); Cadmium was about twice background for S16 (Sheep dip splash zone); Copper was 3-7 times background for S15 (Dip yard) and S16, respectively; and Lead was up to twice background for S12 (woolshed), S15 and S16.

Comparing these results to the Priority Contaminant guideline values for human health for parkland/recreation, there were two tested samples that indicated concentrations of tested metals exceeding the guideline values, namely Arsenic in S15 and S16 (approximately six times the guideline value for both parkland/recreation and commercial/ industrial).

11.3. OCP within Piece of Land 2

Results of testing for Organochlorine Pesticides are presented in Table 4.

		DDT	Dieldrin
NES Priority Contaminant - Commercial/Industrial guideline values (mg/kg)		1000	160
NES Priority Contaminant - Parkland/recreation guideline values (mg/kg)		400	70
NES Priority Contaminant - Lifestyle block guideline values (mg/kg)		45	1.1
Identifying, investigating and managing risks associated with former sheep-dip sites: a guide for local authorities (MfE, 2006) - Commercial/Industrial guideline values (mg/kg)		1740	190
Identifying, investigating and managing risks associated with former sheep-dip sites: a guide for local authorities (MfE, 2006) - Parkland/recreation guideline values (mg/kg)		139	23
Identifying, investigating and managing risks associated with former sheep-dip sites: a guide for local authorities (MfE, 2006)- Lifestyle block guideline values (mg/kg)		8.4	0.7
S15	surface	0.75	0.38
S16	0.15 bgl	830	8.3

Results above parkland/recreational guideline

Table 4. Tabulation of results from testing for OCPs

Comparing these results to the Priority Contaminant guideline values for human health for parkland/recreation, there were one tested sample that indicated concentrations of OCPs exceeding the guideline values, namely DDT in S16 (approximately twice the guideline value). The result was below the commercial/ industrial guideline value(s).

12. CONCEPTUAL SITE MODEL

A risk to human health can only exist if there are sources of contamination and contaminants of potential concern (hazards), sensitive receptors (receptor), and migration pathways and exposure routes between these. The absence of any one of these components means no risk can exist. A conceptual site model is designed to identify the hazards, receptors and possible links between these.

It is proposed to develop Piece of Land 1 into a Cultural Centre (commercial development), including road access off State Highway 12. Significant routes of exposure includes ingestion, inhalation and dermal absorption. This may occur through construction workers being potentially exposed to potentially contaminated soil, or through potentially contaminated soil as dust being inhaled by site occupants/visitors.

It is proposed to either develop Piece of Land 2 into recreational land or continue is use for stock grazing. Significant routes of exposure includes ingestion, inhalation and dermal absorption. This may occur through children playing outside in potentially contaminated soil, the eating of grass on the site in potentially contaminated soil, or through potentially contaminated soil as dust being inhaled by site occupants/visitors.

It is proposed to develop Piece of Land 3 into road access as part of the Cultural Centre development. Significant routes of exposure includes ingestion, inhalation and dermal absorption. This may occur through construction workers being potentially exposed to potentially contaminated soil, or through potentially contaminated soil as dust being inhaled by site occupants/visitors.

Site investigations/soil testing have concluded that the only identified area where elevated contaminant levels exist (above parkland/recreation guideline values) would be on Piece of Land 2, namely:

- S15 (in the dipping yard): Arsenic;
- S16 (in the sheep dip splash zone): Arsenic and DDT.

As the majority of Piece of Land 2 is proposed to remain undisturbed, then exposure to these elevated contaminants in unlikely. As a precaution, the Construction Management Plan should identify the eastern portion of this area as prohibited access. Further, cattle grazing in the area of the sheep dip and dipping yard should be avoided.

If it is proposed to disturb natural soil levels in Piece of Land 3, it is recommended that additional sampling for NES metals occurs (as part of the Construction Management Plan) to assist in the management of soils in this area.

13. SITE CHARACTERISATION

13.1. Piece of Land 1

It has been determined through desktop study of site history, interviews and site walkover that it is possible that an activity listed in the HAIL may have been carried out within Piece of Land 1, namely **HAIL G5:** *Waste disposal to land.*

On Piece of Land 1, the three soil samples collected for analysis indicate background levels of all NES Metals, apart from one (spurious) result for Mercury in S1 which reported a concentration twice that of background, but only 0.4% of the Priority Contaminant lifestyle block guideline value. Accordingly, the tested fill material is consistent with clean fill (and unlikely to pose a risk to human health) and **unlikely** to trigger **HAIL G5:** *Waste disposal to land.*

Notwithstanding this, there is evidence of recent fly tipping, and the presence of some construction and demolition waste, which may trigger **HAIL G5:** *Waste disposal to land.* Due to the limited amount and nature of this waste, it is unlikely that this waste will pose a risk to human health.

As this material is likely to be disturbed as part of development of the site, it is recommended that construction waste (concrete, pipe, wire etc) is either reused onsite (as appropriate) or removed offsite to an appropriate landfill and/or recycling centre. Fly tipping waste not suitable for use as fill material should be removed offsite to an appropriate landfill and/or recycling centre.

Management of the fill material should be documented in the Construction Management Plan.

Although it is possible that a HAIL activity may have occurred on Piece of Land 1, it is unlikely to pose a risk to human health, if managed in accordance with the Construction Management Plan.

13.2. Piece of Land 2

It has been determined through desktop study of site history, interviews, site walkover and soil sampling that it is likely that an activity listed in the HAIL has been carried out within Piece of Land 2, namely **HAIL A8***: Livestock dip or spray race operations,* due to the presence of a pre-1951 wool shed, stockyard, sheep dip and dipping yard and confirmation that drench material was stored in the woolshed and used in the sheep dip.

The presence of elevated (above background) concentrations of Arsenic, Cadmium, Copper, Lead and DDT are consistent with the use of sheep drench, sheep foot rot treatment and leaching from lead based paints. Soil testing confirms concentrations

of Arsenic and DDT above parkland/recreational values in samples S15 (dipping yard) and S16 (sheep dip splash zone) in the eastern portion of Piece of Land 2.

Piece of Land 2 is currently being used for the grazing of cattle, and unlikely to be disturbed as part of the proposed redevelopment. It is appropriate to place a Management Zone on the eastern portion of Piece of Land 2, to limit access and the grazing of stock, until such time that additional soil testing provides greater clarity on the nature and extent of any contamination.

Should soil on the western portion of Piece of Land 2 need to be disturbed as part of redevelopment of the site, then this can be managed though compliance with the Construction Management Plan.

By limiting access to the eastern portion of Piece of Land 2, it is unlikely to pose a risk to human health.

13.3. Piece of Land 3

It has been determined through desktop study of site history, interviews and site walkover that it is it is possible that an activity listed in the HAIL may have been carried out within Piece of Land 3, namely **HAIL I***: Any other land that has been subject to the intentional or accidental release of a hazardous substance.*

No soil samples were collected in the Piece of Land 3, where the cowshed, holding yard and loading ramp once stood, as this area had been filled with imported (soil) material. Although this material appeared to have been sourced from virgin soils, it is possible that treated timber (CCA) and/or Lead based paints may have been used in the construction of the cowshed and yards and would require additional sampling if natural soils are disturbed as part of redevelopment works. This sampling (and guidance on how to manage results from this sampling) can be addressed via the Construction Management Plan.

Although it is possible that a HAIL activity may have occurred on Piece of Land 3, it is unlikely to pose a risk to human health, if managed in accordance with the Construction Management Plan.

14. CONCLUSIONS & RECOMMENDATIONS

The Preliminary Site Investigation finds:

- The site has an area of approximately 1.17 ha and is located at 41 State Highway 12, Opononi.
- The site has been divided into three Pieces of Land. Piece of Land 1 consists of majority of the property, but excludes the north eastern corner and a portion of land on the southern boundary. Piece of Land 2 consists of a portion of land in the north eastern corner of the site, where a historic woolshed, yards and sheep dip were located. Piece of Land 3 consists of a portion of the site on the southern boundary, where a historic cowshed and yards were located
- The site has predominantly remained as farmland, with a cowshed, woolshed and associated yards visible in 1951/1977 photographs. The cowshed and woolshed were removed prior to 2004. There is evidence of fly tipping/filling of the south western and south central portions of the site in 2011 and again in 2015/17. Development around the site includes the Caravan Park to the south, and farming residence, out buildings and yards to the north. A supermarket was established to the north of the site in 2011.
- On Piece of Land 1, there is a history of fill material being deposited onto the land. Site investigations and soil sampling indicate background levels of all NES Metals, apart from one (spurious) result for Mercury. Accordingly, the tested fill material is consistent with clean fill and **unlikely** to trigger **HAIL G5:** *Waste disposal to land.*

  Notwithstanding this, there is evidence of recent fly tipping, and the presence of some construction and demolition waste. Due to the limited amount and nature of this waste, it is unlikely that this waste will pose a risk to human health, with its management addressed through the Construction Management Plan.

  Although it is possible that a HAIL activity may have occurred on Piece of Land 1, it is unlikely to pose a risk to human health, if managed in accordance with the Construction Management Plan.
- It has been determined through site investigations and soil sampling that it is likely that an activity listed in the HAIL has been carried out within Piece of Land 2, namely **HAIL A8*:*** *Livestock dip or spray race operations,* due to the presence of a pre-1951 wool shed, stockyard, sheep dip and dipping yard and confirmation that drench material was stored in the woolshed and used in the sheep dip.

  Soil testing confirms concentrations of Arsenic and DDT above parkland/recreational values in samples S15 (dipping yard) and S16 (sheep dip splash zone) in the eastern portion of the land. It is appropriate to place a

Management Zone on the eastern portion of the Piece of Land to limit access and the grazing of stock, until such time that additional soil testing provides greater clarity on the nature and extent of any contamination.

Should soil on the western portion of Piece of Land 2 need to be disturbed as part of redevelopment of the site, then this can be managed though compliance with the Construction Management Plan.

By limiting access to the eastern portion of Piece of Land 2, it is unlikely to pose a risk to human health.

- It has been determined through site investigations that it is it is possible that an activity listed in the HAIL may have been carried out within Piece of Land 3, namely **HAIL I***: Any other land that has been subject to the intentional or accidental release of a hazardous substance,* due to the presence of a historic cowshed, holding yards and loading ramp, and the possible use of treated timber (CCA) and/or Lead based paints under a layer of what appeared to be imported (clean) fill material.

  Should redevelopment works disturb natural soils on the land, then additional sampling would be required. This sampling (and guidance on how to manage results from this sampling) can be addressed via the Construction Management Plan.

  Although it is possible that a HAIL activity may have occurred on Piece of Land 3, it is unlikely to pose a risk to human health, if managed in accordance with the Construction Management Plan.

- To address the uncertainties of the site, it is recommended that a condition of the resource consent if for the proponent to prepare a Construction Management Plan which includes, but is not limited to:

  - The management of fill material on Piece and Land 1 and 3,
  - The sampling and management of natural soils on Piece of Land 3,
  - The establishment of a Management Zone on the eastern portion of Piece of Land 2 (where the historic sheep dip and dipping yards are located) which limits access until additional site investigations are completed.
  - The management of soil taken from the western portion of Piece of Land 2.

15. LIMITATIONS

This report has been prepared for the benefit of Far North Holdings Ltd as our client and for Far North District Council as with respect to Contaminated Land Management Preliminary Site Investigation. It shall not be relied upon for any other purpose. The reliance by other parties on the information or opinions contained in this report shall, without our prior review and agreement in writing, be at such parties' sole risk.

Opinions and judgments expressed herein are based on our understanding and interpretation of current regulatory standards, and should not be construed as legal opinions. Where opinions or judgments are to be relied on they should be independently verified with appropriate legal advice

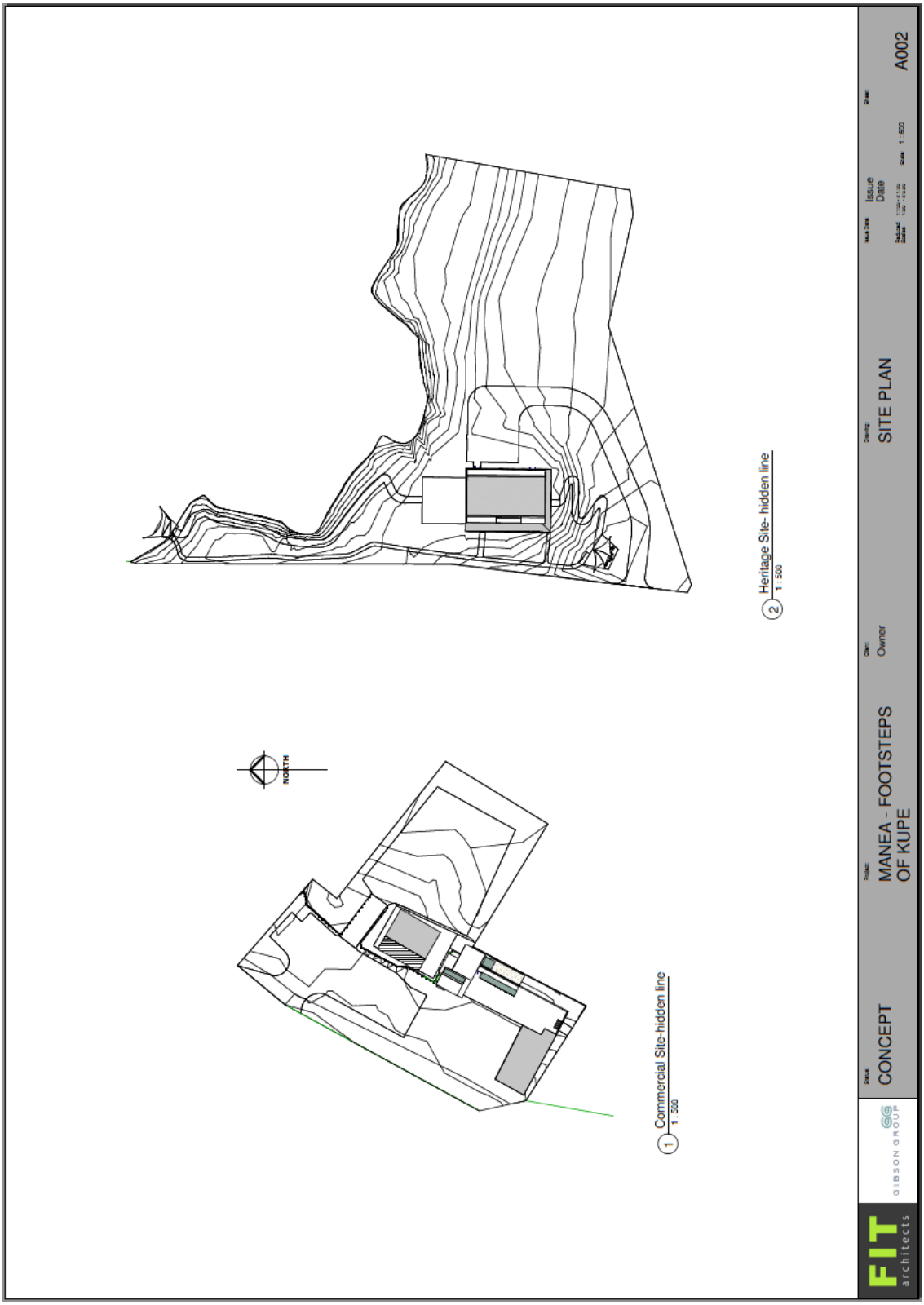
Cook Costello have performed the services for this project in accordance with the standard agreement for consulting services and current professional standards for environmental site assessment. No guarantees are either expressed or implied.

There is no investigation which is thorough enough to preclude the presence of materials at the site which presently, or in the future, may be considered hazardous. Because regulatory evaluation criteria are constantly changing, concentrations of contaminants present and considered to be acceptable now may in the future become subject to different regulatory standards which cause them to become unacceptable and require further remediation for this site to be suitable for the existing or proposed land use activities.

Guy Watson
Senior Environmental Scientist
BSc (Env Science)

Adrian Tonks
Engineer
BE (ESc), GIPENZ, IQP (WDC 024

APPENDIX 1: SITE PLAN



APPENDIX 2: HISTORIC AERIAL PHOTOGRAPHS

Photograph 21: 1 August 1966 (Retrolens)

Photograph 22: 8 March 1977 (Retrolens)

Photograph 23: 8 November 2004 (Google Earth)

Photograph 24: 2006 (FNC GIS)

Photograph 25: 21 February 2010 *(Google Earth)*

Photograph 26: 12 March 2011 (Google Earth)

Photograph 27: 27 August 2011 (Google Earth)

Photograph 28: 4 September 2011 (Google Earth)

Photograph 29: 23 August 2013 (Google Earth)

Photograph 30: 2015 (FNC GIS)

Photograph 31: 1 December 2016 (Google Earth)

Photograph 32: 29 January 2017 (Google Earth)

APPENDIX 3: CHAIN OF CUSTODY REPORTS

Hill Laboratories
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[redacted]

233730
233730
218037

ANALYSIS REQUEST

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
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W www.hill-laboratories.com

Job No: **190 7961**
Date Recv: 16-Jan-18 06:00
Received by: Alister Kennedy

3119079612

CHAIN OF CUSTODY RECORD

[redacted]

Sent to Hill Laboratori

Tick if you require to be emailed bac

Charge To CCL 2015 Limited 218037

Client Reference

Order No

Results To *Reports will be emailed to Primary Contact by default. Additional Reports will be sent as specified below.*

☐ *Email Primary Contact* ☐ *Email Submitter* ☐ *Email Client*
☐ *Email Other*
☐ *Other*

Received at Hill Laboratories
Date & Time:
Name:
Signature:

Condition ☐ *Room Temp* ☐ *Chilled* ☐ *Frozen* *Temp:* 19.7.

☐ Sample & Analysis details checked
Signature:

ADDITIONAL INFORMATION

Job 14146: Manea Cultural Centre, Opononi

Priority ☐ Low ☐ Normal ☑ High
☐ **Urgent** (ASAP, extra charge applies, please contact lab first)
NOTE: The estimated turnaround time for the types and number of samples and analyses specified on this quote is by 4:30 pm, 5 working days following the day of receipt of the samples at the laboratory.

Requested Reporting Date:

Quoted Sample Types
Soil (Soil)

No.	Sample Name	Sample Date/Time	Sample Type	Tests Required
1	S1 Surface	28/12/17 18:00	Soil	NES Metals
2	S2 Surface	28/12/17 18:10	Soil	NES Metals
3	S3 Surface	28/12/17 18:20	Soil	NES Metals
4				
5				
6				
7				
8				
9				
10				

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W www.hill-laboratories.com

Job Information Summary

Client:
Contact: [redacted]

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	S1 Surface 28-Dec-2017 6:00 pm	Soil	PSoil250	National Environmental Standards Metals
2	S2 Surface 28-Dec-2017 6:10 pm	Soil	PSoil250	National Environmental Standards Metals
3	S3 Surface 28-Dec-2017 6:20 pm	Soil	PSoil250	National Environmental Standards Metals

SUMMARY OF METHODS

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Preparation	Air dried at 35°C and sieved, <2mm fraction. Used for sample preparation. May contain a residual moisture content of 2-5%.	-	1-3
National Environmental Standards Metals		0 - 20 mg/kg dry wt	1-3
Dry Matter (Env)	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	1-3
Extraction of Hexavalent Chromium in Environmental Solids	0.01M KH_2PO_4 Extraction.	-	1-3
Total Recoverable digestion	Nitric / hydrochloric acid digestion. US EPA 200.2.	-	1-3
Total Recoverable Arsenic	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	1-3
Total Recoverable Boron	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	20 mg/kg dry wt	1-3
Total Recoverable Cadmium	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	0.10 mg/kg dry wt	1-3
Trivalent Chromium	Calculation Total Chromium - Hexavalent Chromium.	0 mg/kg dry wt	1-3
Hexavalent Chromium in Environmental Solids	Phosphate buffer extraction, colorimetry.	0.4 mg/kg dry wt	1-3
Total Recoverable Chromium	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	1-3
Total Recoverable Copper	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	1-3
Total Recoverable Lead	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	0.4 mg/kg dry wt	1-3
Total Recoverable Mercury	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	0.10 mg/kg dry wt	1-3

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ANALYSIS REQUEST

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205

Job No: 191 0344
Date Recv: 18-Jan-18 05:59

Quote No 88133

[redacted]

Soil (Soil)

No.	Sample Name	Sample Date/Time	Sample Type	Tests Required
1	S11 Surface	17.1.18 12:05	Soil	NES Metals
2	S12 Surface	17.1.18 12:10	Soil	— " —
3	S13 Surface	17.1.18 12:15	Soil	— " —
4	S14 Surface	17.1.18 12:20	Soil	— " —
5	S15 Surface	17.1.18 12:25	Soil	— " — Dieldrin, Lindane, DDT, DDE/DDD.
6	S16 150mm	17.1.18 12:50	Soil	— " — Dieldrin, Lindane, DDT, DDE/DDD.
7				
8				
9				
10				

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E mail@hill-labs.co.nz
W www.hill-laboratories.com

Job Information Summary

[redacted]

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	S11 Surface 17-Jan-2019 12:05 pm	Soil	PSoil250	National Environmental Standards Metals
2	S12 Surface 17-Jan-2019 12:10 pm	Soil	PSoil250	National Environmental Standards Metals
3	S13 Surface 17-Jan-2019 12:15 pm	Soil	PSoil250	National Environmental Standards Metals
4	S14 Surface 17-Jan-2019 12:20 pm	Soil	PSoil250	National Environmental Standards Metals
5	S15 Surface 17-Jan-2019 12:25 pm	Soil	GSoil300	National Environmental Standards Metals; Organochlorine Pesticides Screening in Soil
6	S16 Surface 17-Jan-2019 12:50 pm	Soil	GSoil300	National Environmental Standards Metals; Organochlorine Pesticides Screening in Soil

SUMMARY OF METHODS

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Preparation	Air dried at 35°C and sieved, <2mm fraction. Used for sample preparation. May contain a residual moisture content of 2-5%.	-	1-6
National Environmental Standards Metals		0 - 20 mg/kg dry wt	1-6
Organochlorine Pesticides Screening in Soil	Sonication extraction, SPE cleanup, dual column GC-ECD analysis (modified US EPA 8082). Tested on as recieved sample	0.010 - 0.06 mg/kg dry wt	5-6
Dry Matter (Env)	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	1-6
Extraction of Hexavalent Chromium in Environmental Solids	0.01M KH_2PO_4 Extraction.	-	1-6
Total Recoverable digestion	Nitric / hydrochloric acid digestion. US EPA 200.2.	-	1-6
Total Recoverable Arsenic	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	1-6
Total Recoverable Boron	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	20 mg/kg dry wt	1-6
Total Recoverable Cadmium	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	0.10 mg/kg dry wt	1-6
Trivalent Chromium	Calculation Total Chromium - Hexavalent Chromium.	0 mg/kg dry wt	1-6
Hexavalent Chromium in Environmental Solids	Phosphate buffer extraction, colorimetry.	0.4 mg/kg dry wt	1-6
Total Recoverable Chromium	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	1-6

Sample Type: Soil			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Total Recoverable Copper	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	1-6
Total Recoverable Lead	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	0.4 mg/kg dry wt	1-6
Total Recoverable Mercury	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	0.10 mg/kg dry wt	1-6

APPENDIX 4: SAMPLING RESULTS

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ANALYSIS REPORT

Client: [redacted]
Contact:

Sample Type: Soil

Sample Name:	S1 Surface 28-Dec-2017 6:00 pm	S2 Surface 28-Dec-2017 6:10 pm	S3 Surface 28-Dec-2017 6:20 pm		
Lab Number:	1907961.1	1907961.2	1907961.3		
Individual Tests					
Dry Matter g/100g as rcvd	80	88	85	-	-
National Environmental Standards Metals					
Total Recoverable Arsenic mg/kg dry wt	4	3	3	-	-
Total Recoverable Boron mg/kg dry wt	< 20	< 20	< 20	-	-
Total Recoverable Cadmium mg/kg dry wt	< 0.10	< 0.10	0.14	-	-
Trivalent Chromium* mg/kg dry wt	14	13	8	-	-
Chromium (hexavalent)* mg/kg dry wt	< 0.4	< 0.4	< 0.4	-	-
Total Recoverable Chromium mg/kg dry wt	14	13	8	-	-
Total Recoverable Copper mg/kg dry wt	22	21	35	-	-
Total Recoverable Lead mg/kg dry wt	10.4	6.9	4.5	-	-
Total Recoverable Mercury mg/kg dry wt	0.77	< 0.10	< 0.10	-	-

Analyst's Comments

Samples 1-3 Comment:
It should be noted that the results reported for lead and mercury are total recoverable, not inorganic as specified by the NES standards. This should be kept in mind when interpreting these results.

SUMMARY OF METHODS

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Preparation	Air dried at 35°C and sieved, <2mm fraction. Used for sample preparation. May contain a residual moisture content of 2-5%.	-	1-3
National Environmental Standards Metals*		0 - 20 mg/kg dry wt	1-3
Dry Matter (Env)	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	1-3
Extraction of Hexavalent Chromium in Environmental Solids*	0.01M KH_2PO_4 Extraction.	-	1-3
Total Recoverable digestion	Nitric / hydrochloric acid digestion. US EPA 200.2.	-	1-3
Total Recoverable Arsenic	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	1-3
Total Recoverable Boron	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	20 mg/kg dry wt	1-3

IANZ ACCREDITED LABORATORY

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.
The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked *, which are not accredited.

Sample Type: Soil			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Total Recoverable Cadmium	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	0.10 mg/kg dry wt	1-3
Trivalent Chromium*	Calculation Total Chromium - Hexavalent Chromium.	0 mg/kg dry wt	1-3
Hexavalent Chromium in Environmental Solids*	Phosphate buffer extraction, colorimetry.	0.4 mg/kg dry wt	1-3
Total Recoverable Chromium	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	1-3
Total Recoverable Copper	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	1-3
Total Recoverable Lead	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	0.4 mg/kg dry wt	1-3
Total Recoverable Mercury	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	0.10 mg/kg dry wt	1-3

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

[redacted]
Ara Heron BSc (Tech)
Client Services Manager - Environmental

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ANALYSIS REPORT

[redacted]

Sample Type: Soil						
Sample Name:		S11 Surface 17-Jan-2018 12:05 pm	S12 Surface 17-Jan-2018 12:10 pm	S13 Surface 17-Jan-2018 12:15 pm	S14 Surface 17-Jan-2018 12:20 pm	S15 Surface 17-Jan-2018 12:25 pm
Lab Number:		1910344.1	1910344.2	1910344.3	1910344.4	1910344.5
Individual Tests						
Dry Matter	g/100g as rcvd	78	84	76	59	68
National Environmental Standards Metals						
Total Recoverable Arsenic	mg/kg dry wt	5	7	6	33	470
Total Recoverable Boron	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
Total Recoverable Cadmium	mg/kg dry wt	0.25	0.44	0.17	0.35	0.32
Trivalent Chromium*	mg/kg dry wt	14	11	12	14	17
Chromium (hexavalent)*	mg/kg dry wt	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Total Recoverable Chromium	mg/kg dry wt	14	11	12	14	17
Total Recoverable Copper	mg/kg dry wt	14	11	10	21	142
Total Recoverable Lead	mg/kg dry wt	16.6	113	14.9	20	68
Total Recoverable Mercury	mg/kg dry wt	< 0.10	0.22	< 0.10	< 0.10	0.15
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	-	-	-	-	< 0.015
alpha-BHC	mg/kg dry wt	-	-	-	-	< 0.015
beta-BHC	mg/kg dry wt	-	-	-	-	< 0.015
delta-BHC	mg/kg dry wt	-	-	-	-	< 0.015
gamma-BHC (Lindane)	mg/kg dry wt	-	-	-	-	< 0.015
cis-Chlordane	mg/kg dry wt	-	-	-	-	< 0.015
trans-Chlordane	mg/kg dry wt	-	-	-	-	< 0.015
Total Chlordane [(cis+trans)* 100/42]	mg/kg dry wt	-	-	-	-	< 0.04
2,4'-DDD	mg/kg dry wt	-	-	-	-	0.034
4,4'-DDD	mg/kg dry wt	-	-	-	-	0.084
2,4'-DDE	mg/kg dry wt	-	-	-	-	< 0.015
4,4'-DDE	mg/kg dry wt	-	-	-	-	0.45
2,4'-DDT	mg/kg dry wt	-	-	-	-	0.024
4,4'-DDT	mg/kg dry wt	-	-	-	-	0.156
Total DDT Isomers	mg/kg dry wt	-	-	-	-	0.75
Dieldrin	mg/kg dry wt	-	-	-	-	0.38
Endosulfan I	mg/kg dry wt	-	-	-	-	< 0.015
Endosulfan II	mg/kg dry wt	-	-	-	-	< 0.015
Endosulfan sulphate	mg/kg dry wt	-	-	-	-	< 0.015
Endrin	mg/kg dry wt	-	-	-	-	< 0.015
Endrin aldehyde	mg/kg dry wt	-	-	-	-	< 0.015
Endrin ketone	mg/kg dry wt	-	-	-	-	< 0.015
Heptachlor	mg/kg dry wt	-	-	-	-	< 0.015
Heptachlor epoxide	mg/kg dry wt	-	-	-	-	< 0.015

Sample Type: Soil						
Sample Name:		S11 Surface 17-Jan-2018 12:05 pm	S12 Surface 17-Jan-2018 12:10 pm	S13 Surface 17-Jan-2018 12:15 pm	S14 Surface 17-Jan-2018 12:20 pm	S15 Surface 17-Jan-2018 12:25 pm
Lab Number:		1910344.1	1910344.2	1910344.3	1910344.4	1910344.5
Organochlorine Pesticides Screening in Soil						
Hexachlorobenzene	mg/kg dry wt	-	-	-	-	< 0.015
Methoxychlor	mg/kg dry wt	-	-	-	-	< 0.015

Sample Name:		S16 Surface 17-Jan-2018 12:50 pm				
Lab Number:		1910344.6				
Individual Tests						
Dry Matter	g/100g as rcvd	74	-	-	-	-
National Environmental Standards Metals						
Total Recoverable Arsenic	mg/kg dry wt	420	-	-	-	-
Total Recoverable Boron	mg/kg dry wt	< 20	-	-	-	-
Total Recoverable Cadmium	mg/kg dry wt	1.11	-	-	-	-
Trivalent Chromium*	mg/kg dry wt	19	-	-	-	-
Chromium (hexavalent)*	mg/kg dry wt	< 0.4	-	-	-	-
Total Recoverable Chromium	mg/kg dry wt	19	-	-	-	-
Total Recoverable Copper	mg/kg dry wt	310	-	-	-	-
Total Recoverable Lead	mg/kg dry wt	110	-	-	-	-
Total Recoverable Mercury	mg/kg dry wt	0.22	-	-	-	-
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.014	-	-	-	-
alpha-BHC	mg/kg dry wt	< 0.014	-	-	-	-
beta-BHC	mg/kg dry wt	< 0.014	-	-	-	-
delta-BHC	mg/kg dry wt	< 0.014	-	-	-	-
gamma-BHC (Lindane)	mg/kg dry wt	< 0.014	-	-	-	-
cis-Chlordane	mg/kg dry wt	< 0.014	-	-	-	-
trans-Chlordane	mg/kg dry wt	< 0.014	-	-	-	-
Total Chlordane [(cis+trans)* 100/42]	mg/kg dry wt	< 0.04	-	-	-	-
2,4'-DDD	mg/kg dry wt	250	-	-	-	-
4,4'-DDD	mg/kg dry wt	550	-	-	-	-
2,4'-DDE	mg/kg dry wt	3.0	-	-	-	-
4,4'-DDE	mg/kg dry wt	12.5	-	-	-	-
2,4'-DDT	mg/kg dry wt	1.59	-	-	-	-
4,4'-DDT	mg/kg dry wt	7.4	-	-	-	-
Total DDT Isomers	mg/kg dry wt	830	-	-	-	-
Dieldrin	mg/kg dry wt	8.3	-	-	-	-
Endosulfan I	mg/kg dry wt	< 0.014	-	-	-	-
Endosulfan II	mg/kg dry wt	< 0.014	-	-	-	-
Endosulfan sulphate	mg/kg dry wt	< 0.014	-	-	-	-
Endrin	mg/kg dry wt	0.013	-	-	-	-
Endrin aldehyde	mg/kg dry wt	< 0.014	-	-	-	-
Endrin ketone	mg/kg dry wt	< 0.014	-	-	-	-
Heptachlor	mg/kg dry wt	< 0.014	-	-	-	-
Heptachlor epoxide	mg/kg dry wt	< 0.014	-	-	-	-
Hexachlorobenzene	mg/kg dry wt	< 0.014	-	-	-	-
Methoxychlor	mg/kg dry wt	< 0.014	-	-	-	-

Analyst's Comments

Samples 1-6 Comment:
It should be noted that the results reported for lead and mercury are total recoverable, not inorganic as specified by the NES standards. This should be kept in mind when interpreting these results.

SUMMARY OF METHODS

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Preparation	Air dried at 35°C and sieved, <2mm fraction. Used for sample preparation. May contain a residual moisture content of 2-5%.	-	1-6
National Environmental Standards Metals*		0 - 20 mg/kg dry wt	1-6
Organochlorine Pesticides Screening in Soil	Sonication extraction, SPE cleanup, dual column GC-ECD analysis (modified US EPA 8082). Tested on as recieved sample	0.010 - 0.06 mg/kg dry wt	5-6
Dry Matter (Env)	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	1-6
Extraction of Hexavalent Chromium in Environmental Solids*	0.01M KH_2PO_4 Extraction.	-	1-6
Total Recoverable digestion	Nitric / hydrochloric acid digestion. US EPA 200.2.	-	1-6
Total Recoverable Arsenic	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	1-6
Total Recoverable Boron	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	20 mg/kg dry wt	1-6
Total Recoverable Cadmium	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	0.10 mg/kg dry wt	1-6
Trivalent Chromium*	Calculation Total Chromium - Hexavalent Chromium.	0 mg/kg dry wt	1-6
Hexavalent Chromium in Environmental Solids*	Phosphate buffer extraction, colorimetry.	0.4 mg/kg dry wt	1-6
Total Recoverable Chromium	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	1-6
Total Recoverable Copper	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	1-6
Total Recoverable Lead	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	0.4 mg/kg dry wt	1-6
Total Recoverable Mercury	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	0.10 mg/kg dry wt	1-6

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

[redacted]

Ara Heron BSc (Tech)
Client Services Manager - Environmental

Far North District Council

Private Bag 752, Memorial Ave
Kaikohe 0440, New Zealand
Freephone: 0800 920 029
Phone: (09) 401 5200
Fax: (09) 401 2137
Email: ask.us@fndc.govt.nz
Website: www.fndc.govt.nz

Te Kaunihera o Tai Tokerau Ki Te Raki

Application No: 2180455-RMAVAR/A

29 November 2018

Far North Holdings Limited
C/- Bay of Islands Planning Attn: Jeff Kemp
PO Box 795
Kerikeri 0245

Dear Sir / Madam,

Re: RESOURCE CONSENT APPLICATION BY Far North Holdings Limited

I am pleased to inform you that your application for resource consent has been approved. The decision is enclosed for your information. The application was considered and determined under authority delegated to the Team Leader Resource Consents of the Far North District Council, pursuant to Section 34A of the Resource Management Act 1991.

It is very important that you understand and comply with any conditions of consent. If you have any questions or concerns about any aspect of your consent or its conditions, please contact the planner who prepared the decision.

Please note, that you will be sent either an invoice or credit note depending on the actual cost of processing your application. Any additional costs shown on an invoice need to be paid by the 20th of the month following the date of the invoice. If you receive a credit note, you have the option of requesting a refund by bank transfer, or transferring the amount to any other Council account. Please advise and supply a printed bank deposit slip and allow 10 working days for the refund to be processed.

If you have any further queries regarding this matter, please contact the reporting Planner.

Yours faithfully

[redacted]

Didi Paraone
Planning Support
Resource Consents Department

Far North District Council

FAR NORTH DISTRICT COUNCIL

FAR NORTH OPERATIVE DISTRICT PLAN
DECISION ON CHANGE OF CONDITIONS APPLICATION (SECTION 127)

Resource Consent Number: 2180455A-RMALUC

Pursuant to section 104B and section 127 of the Resource Management Act 1991 (the Act), the Far North District Council hereby grants resource consent to:

Far North Holding Limited

The activity to which this decision relates: To vary conditions 1 - 3 of 2810455 – RMALUC to reflect the new built location and orientation of access and parking and the Heritage Centre, and updated requirements from NZTA

Subject Site Details

Address:	**41 State Highway 12, Opononi**
Legal Description:	Lot 1 DP 164181 & Lot 1 DP 195242
Certificate of Title reference:	NA123B/576 and NA98D/951

Consent change sought are:

1. The activity shall be carried out in general accordance with the approved plans prepared by FIT Architects referenced Heritage Centre Plans, drawing number 201, Heritage Centre – Views, drawing number A202, Heritage Centre – Elevations, drawing number A203, Retail/Ticket Office, drawing number A207, all undated, and the Cook Costello Plan entitled Infrastructure Plan Drawing number SCH02, Revision A, dated 15/11/2018, and ~~A001, A002, A101, A102, A103, dated 5 September 2014, A000, A101, A102, A102, A103, and A104 undated~~, and attached to this consent with the Council's "Approved Stamp" affixed to them.

2. Prior to commencing operation of the Heritage Centre the consent holder shall provide evidence to the FNDC Resource Consent Manager or equivalent that NZTA requirements set out in a letter Ref ~~4538~~ PID 118020 and dated ~~19 March~~ 20 November 2018 have been met.

3. ~~Provide formed, sealed, marked and drained access, manoeuvring, and parking for a minimum of 3 buses located at the rear of the Heritage Centre~~ Prior to works commencing the consent holder shall submit engineering plans for approval to the FNDC Resource Consent Manager or equivalent to demonstrate the development will be constructed to Council Engineering Standards, including the access and parking area, site stormwater management, wastewater disposal and water supply. The final plan for the Parking and Access arrangements shall be in general accordance with the Cook Costello Plans entitled "8m Truck Turning", "Bus Turning", and "Entrance Vehicle Turning", all referenced as

Drawing number SCH02, Sheet 1, Revision A. A plan for Landscaping of the Road Frontage and the 4x25m^3 firefighting tanks at the site entrance shall also be submitted for approval.

The complete revised conditions are set out below.

Pursuant to Section 108 of the Act, this consent is issued subject to the following conditions:

Decision A

General

1. The activity shall be carried out in general accordance with the approved plans prepared by FIT Architects referenced Heritage Centre Plans, drawing number 201, Heritage Centre – Views, drawing number A202, Heritage Centre – Elevations, drawing number A203, Retail/Ticket Office, drawing number A207, all undated, and the Cook Costello Plan entitled Infrastructure Plan Drawing number SCH02, Revision A, dated 15/11/2018 and attached to this consent with the Council's "Approved Stamp" affixed to them.

Traffic

2. Prior to commencing operation of the Heritage Centre the consent holder shall provide evidence to the FNDC Resource Consent Manager or equivalent that NZTA requirements set out in a letter Ref PID 118020 and dated 20 November 2018 have been met.

3. Prior to works commencing the consent holder shall submit engineering plans for approval to the FNDC Resource Consent Manager or equivalent to demonstrate the development will be constructed to Council Engineering Standards, including the access and parking area, site stormwater management, wastewater disposal and water supply. The final plan for the Parking and Access arrangements shall be in general accordance with the Cook Costello Plans entitled "8m Truck Turning", "Bus Turning", and "Entrance Vehicle Turning", all referenced as Drawing number SCH02, Sheet 1, Revision A. A plan for Landscaping of the Road Frontage and the 4x25m^3 firefighting tanks at the site entrance shall also be submitted for approval.

Earthworks

4. The consent holder shall ensure that excavation and filling works, including any retaining structures and any necessary de-watering requirements and methods, shall be prepared and supervised by a Chartered Professional Engineer with suitable geotechnical qualifications and expertise.

5. That prior to undertaking bulk earthworks for the development of the Heritage Centre, the consent holder shall submit for the approval of Council a Construction Management Plan The plan is to contain information on site management procedures for the following matters:

   - The measures proposed to minimise silt and sediment runoff during earthworks, and location of such measures. Such mitigation measures shall include interception drains, collection drains, silt fences, settlement ponds and points of discharge to vegetated areas.
   - The timing of civil engineering, including hours of operation and key project and site management personnel and their contact details;

- The transportation of materials to and from the site, loading and unloading of materials and associated controls on vehicles through sign posted site entrances and exits;
- Compliance with the recommendations of the PSI report prepared by Cook Costello in accordance with the NES "Assessing and Managing Contaminants in Soil to Protect Human Health" Regulations 2011 and dated January 2018.

6. The consent holder shall establish and mark the location of the boundary pegs and mark all property boundaries adjacent to the proposed earthworks. No authorisation is given for works on legal road or on private property other than the lot subject to the land use consent. Where the consent holder is not the lot owner, the consent holder is responsible for obtaining approval from the lot owner prior to commencing work.

7. The consent holder is to ensure that stormwater diversion and silt control measures are in place prior to the commencement of bulk earthworks.

8. The consent holder shall ensure that groundwater removed from the site as part of the dewatering process shall be pumped to a baffled settling tank and discharged via a decant to remove silt from the discharged water. Where the water is discharged into Councils reticulated stormwater system the discharged water shall comply with the parameters of the Councils stormwater Discharge Consent.

9. The consent holder shall control of dust and use any appropriate avoidance or remedial measures to prevent any earth, mud, gravel or other material being deposited on adjoining roads be vehicles exiting the site; and remedial measures should that occur.

10. The consent holder shall be responsible for the repair and reinstatement of the road carriageway, the kerb and footpath damaged as a result of the earthworks. Such works, where required, will be completed to the satisfaction of the Councils Roading Manager.

Decision B

1. The woolshed and sheep dip area is to be subject to a Management Zone to limit access and grazing until such time as additional sampling and testing confirms the nature and extent of contamination in accordance with the recommendations of the Cook Costello PSI report.

2. Any soil disturbance in the cowshed area is to be in accordance with the provisions of the Construction Management Plan approved under condition 5 of Decision A above.

Advice Notes

1. Archaeological sites are protected pursuant to the Heritage New Zealand Pouhere Taonga Act 2014. It is an offence, pursuant to the Act, to modify, damage or destroy an archaeological site without an archaeological authority issued pursuant to that Act. Should any site be inadvertently uncovered, the procedure is that work should cease, with the Trust and local iwi consulted immediately. The New Zealand Police should also be consulted if the discovery includes koiwi (human remains). A copy of Heritage New Zealand's Archaeological Discovery Protocol (ADP) is attached for your information. This should be made available to all person(s) working on site.

2. The consent holder is advised that it is their responsibility to arrange for buried services to be located and marked prior to commencing earthworks and is also responsible for the repair and reinstatement of any underground services damaged as a result of the earthworks.

3. The consent holder is responsible for arranging the required consent for work within the Riparian Management Zone from the Northland Regional Council.

4. Any debris deposited on the public road as a result of the earthworks shall be removed by or at the expense of the applicant.

5. During the assessment of your application it was noted that a private Land Covenant exists on your property. Council does not enforce private land covenants, and this does not affect Council approving your plans. However, you may wish to get independent legal advice, as despite having a resource consent from Council, the private land covenant can be enforced by those parties specified in the covenant.

Reasons for the Decision

1. The Council has determined (by way of an earlier report and resolution) that the adverse environmental effects associated with the proposed activity are less than minor and that there are no affected persons or affected customary rights group or customary marine title group.

2. The proposed activity is considered to have adequately taken into account, and be consistent with, relevant statutory provisions, including the following objectives and policies from the Operative Far North District Plan: Objective 7.7.3.1, policies 7.7.4.2, and 7.7.4.3 of the chapter of commercial zone, and Objectives 15.1.3.1, 15.1.3.2 15.1.3.3, policies 15.1.4.3,15.1.4.4, 15.4.4.6 and 15.1.4.7

3. Overall, the relevant objectives and policies seek to provide appropriate development in a manner that retains the existing character and amenity of within commercial zone, minimise the effects from car parking spaces on traffic generation, and pedestrian safety. It is considered that the proposal will not undermine the amenity as the proposed buildings meets all the land use amenity based performance standards. Most visitors are expected arrive by bus, the proposed development is anticipated to increase traffic movements in the area by around 25-63 trips per hour during the busiest hours. The increased volume is anticipated to be within the existing roading capacity, as confirmed by the NZTA.

4. In addition, the parking space shortfall in the proposal is only 2 spaces. There is sufficient parking places for individual vehicles due to predominated bus arrival of the site. The proposal will result in all the heritage centre associated activities being located within one site, rather than two sites.

5. This proposed change will avoid the potential conflictions among vehicles, car parking spaces, pedestrians on 29 S.H 12, which will improve the pedestrian and traffic safety on

site. Based on the assessment above, the proposal is therefore considered to be consistent with relevant provisions.

Relevant National planning provisions include:

(a) The New Zealand Coastal Policy Statement.
Due to the proximity to the coast the NZCPS is considered relevant. Given the commercial zoning and scale of the proposal, and the compliance with all the land use amenity based performance standards, the proposal will have a negligible impact on the surrounding coastal character and tangata whenua values. As such, the development is considered to meet the intent of the NZCPS.

Relevant Regional planning provisions include:

(a) The Northland Regional Policy Statement
Given the scale of the built form relating to this proposal, the effects of the development on the matters addressed in Section 2.8 of the RPS 'Natural character, features/landscape and historic heritage' are considered to be less than minor. The proposal will therefore achieve the environmental outcomes anticipated by the RPS and its associated objectives and policies.

6. Other matters considered relevant in making this decision
There are no other matters relevant to the proposal

7. Part 2 Matters
The Council has taken into account the purpose & principles outlined in sections 5, 6, 7 & 8 of the Act. It is considered that granting this resource consent application achieves the purpose of the Act.

8. In summary it is considered that the activity is consistent with the sustainable management purpose of the RMA.

Approval
This resource consent has been prepared by Consultant Planner Blair Masefield and is granted under delegated authority (pursuant to section 34A of the Resource Management Act 1991) from the Far North District Council by:

[redacted]

Pat Killalea, Principal Planner

Date: 28th November 2018

Right of Objection
If you are dissatisfied with the decision or any part of it, you have the right (pursuant to section 357A of the Resource Management Act 1991) to object to the decision. The objection must be in writing, stating reasons for the objection and must be received by Council within 15 working days of the receipt of this decision.

Lapsing Of Consent
Pursuant to section 125 of the Resource Management Act 1991, this resource consent will lapse 5 years after the date of commencement of consent unless, before the consent lapses;

The consent is given effect to; or

An application is made to the Council to extend the period of consent, and the council decides to grant an extension after taking into account the statutory considerations, set out in section 125(1)(b) of the Resource Management Act 1991.

Accidental Discovery Protocol (ADP)

Prior to the commencement of any works, a copy of this ADP should be made available to all contractors working on site.

Under the *Historic Places Act* (1993) an archaeological site is defined as a place associated with pre-1900 human activity, where there may be evidence relating to the history of New Zealand. Over 11,000 archaeological sites have been recorded in Northland, and more are identified on a regular basis.

For Maori sites (the most common site types in Northland), the largest and most obvious site types are pa, pits and terraces. However, evidence may be of a smaller nature, in the form of bones, shells, charcoal, burnt stone etc; a midden is an archaeological rubbish tip, in which many of these items can be found consolidated together. Evidence of disturbance of a midden can be a scattering of shell across a wide area; this can be confusing if it is near a beach. Pieces of obsidian or chert, together with stone tools, may also be recovered.

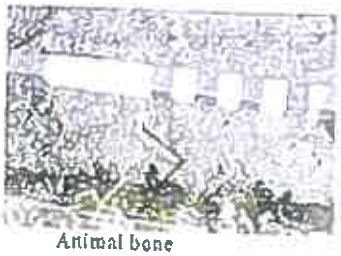
In later sites of European origin artefacts such as bottle glass, iron/metal, crockery etc. may be found, or evidence of old foundations, wells, drains or similar structures.

Burials/koiwi tangata may be found from any period.

Some examples:


Shell midden


Discoloured soils indicating burning


Animal bone


Historic pottery on a roadside scrape


A flight of pits in forest


Shell midden uncovered in road scraping

In the event of an "accidental discovery" of archaeological material the following steps must be taken:

1. All work on the site will cease immediately. The contractor works supervisor will shut down all equipment and activity.

2. The contractor/works supervisor/owner will take immediate steps to secure the site (tape it off) to ensure the archaeological remains are undisturbed and the site is safe in terms of health and safety requirements. Work may continue outside of the site area.

3. The contractor/works supervisor/owner will notify the Area Archaeologist of the Historic Places Trust (Northland Office), tangata whenua and any required statutory agencies[1] if this has not already occurred.

4. The New Zealand Historic Places Trust will appoint/advise a qualified archaeologist who will confirm the nature of the accidentally discovered material.

5. If the material is confirmed as being archaeological, under the terms of the *Historic Places Act*, the landowner will ensure that an archaeological assessment is carried out by a qualified archaeologist, and if appropriate, an archaeological authority is obtained from the Trust before work resumes.

6. If burials, human remains/koiwi tangata are uncovered, steps 1 to 3 above must be taken and the Area Archaeologist of the Historic Places Trust, the New Zealand Police and the Iwi representative for the area must be contacted immediately. The area must be treated with discretion and respect and the koiwi tangata/human remains dealt with according to law and tikanga.

7. Works at the site area shall not recommence until an archaeological assessment has been made, all archaeological material has been dealt with appropriately, and statutory requirements met. All parties will work towards work recommencement in the shortest possible timeframe while ensuring that archaeological and cultural requirements are complied with

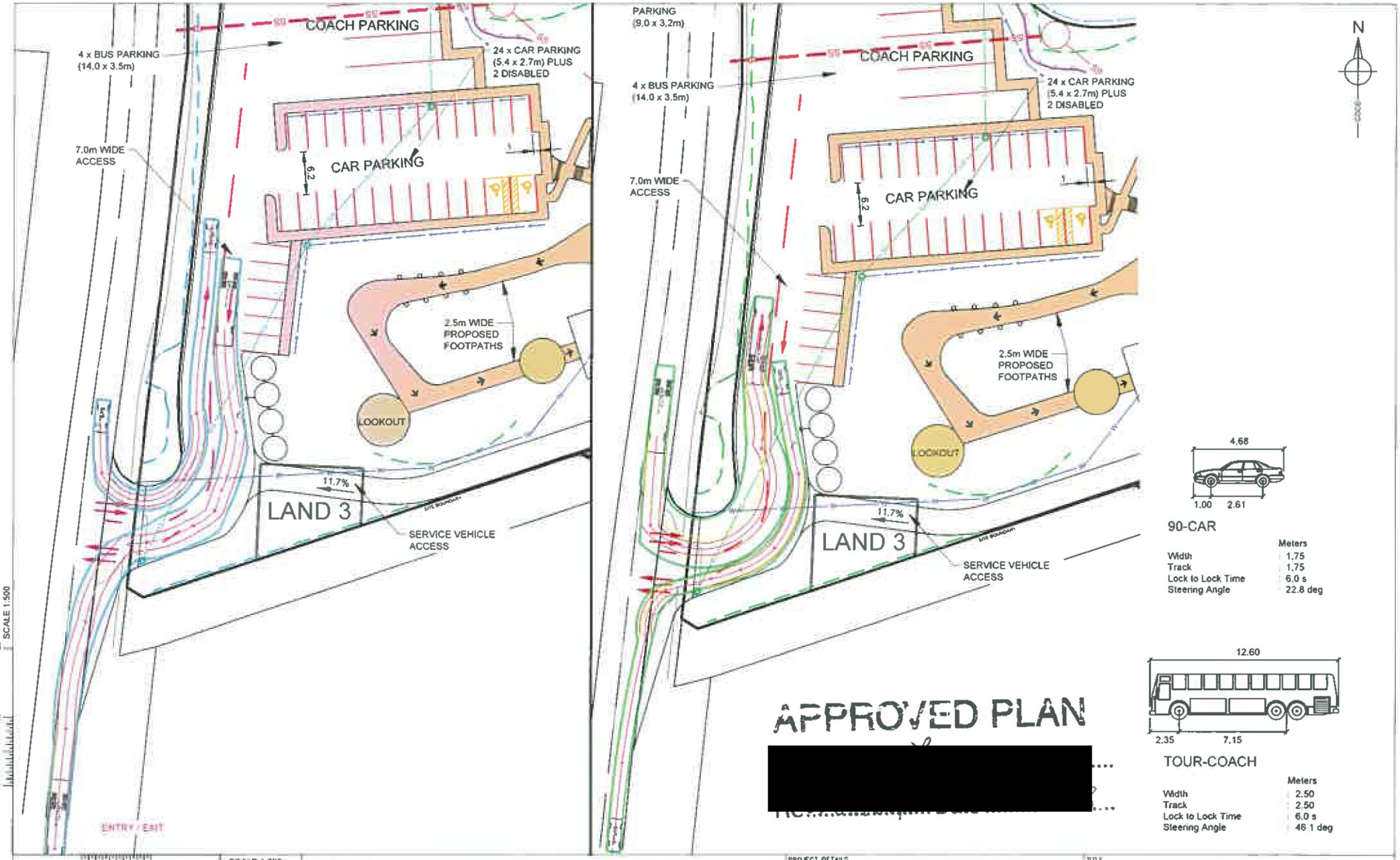
ADVICE TO ALL CONTRACTORS/SITE WORKERS/OWNERS:-

IF IN DOUBT, STOP AND ASK; TAKE A PHOTO AND SEND IT TO THE NZHPT ARCHAEOLOGIST (details below)

Contact details for the Area Archaeologist for Northland are

Bill Edwards, Area Archaeologist Northland or
Shelagh Norton, Assistant Area Archaeologist Northland
NZ Historic Places Trust
PO Box 836, Kerikeri 0245
Ph. 64 9 401 7947; mobile 027 2490864; fax. +64 9 407 3454
or

[1] For example, the New Zealand Police in the event that human remains are found.



APPROVED PLAN

[redacted]

REV	REVISION DETAILS	DRAWN	DATE
A	1ST ISSUE	KH	19-09-2018

cook | costello

Whangarei | 09 4389 529
Auckland | 09 373 5357
Wellington | 04 472 7282
Christchurch | 03 365 5960
ccl@coco.co.nz
www.coco.co.nz

PROJECT DETAILS

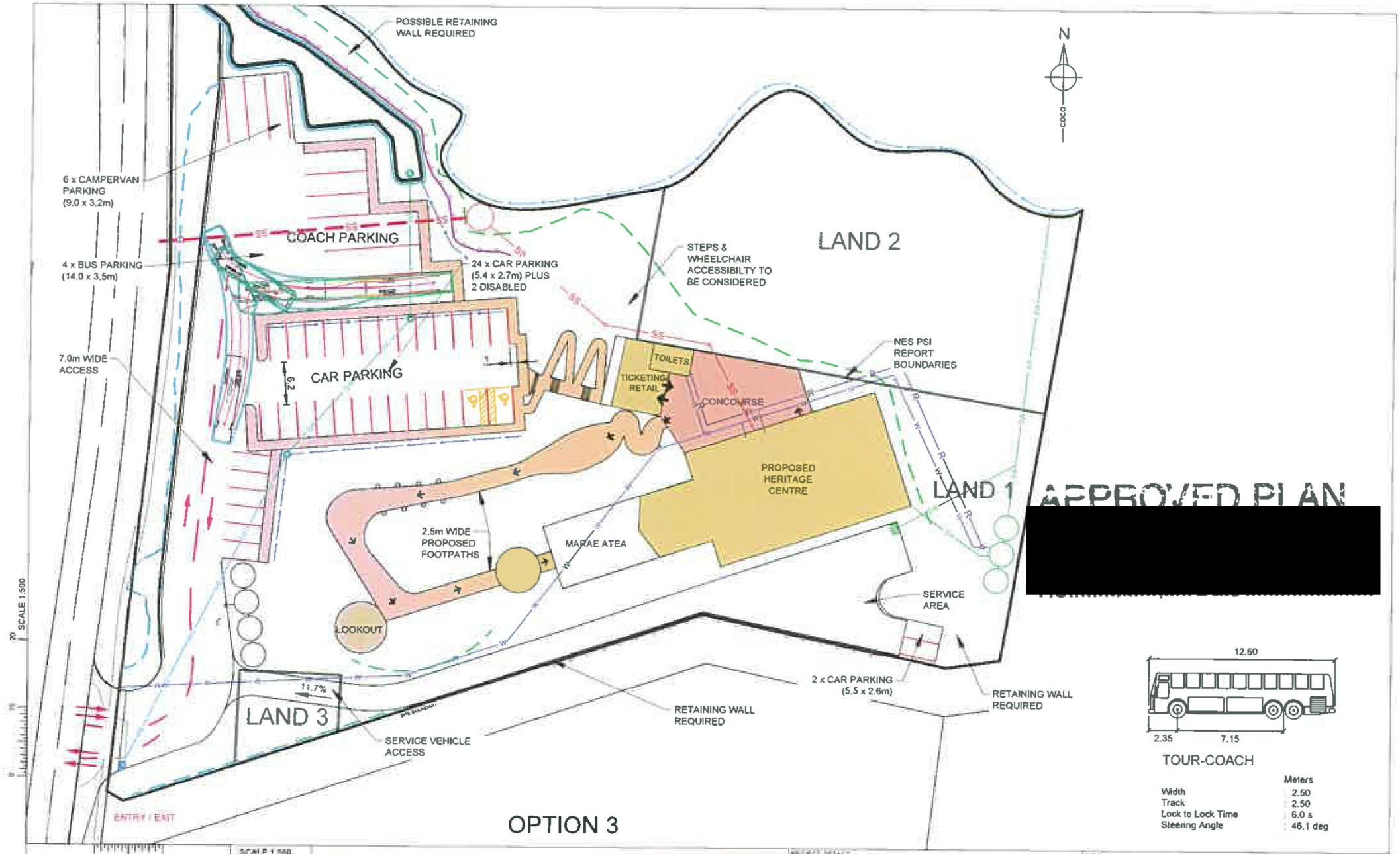
FAR NORTH HOLDINGS LTD,
31 & 41 STATE HIGHWAY 12, OPONONI,
LOT 1 DP 164181 & LOT 1 DP 195242

TITLE

ENTRANCE VEHICLE TURNING

DESIGNED	DRAWING No	TYPE NUMBER	REV
A TONKS	14146-003	SCH02	A
APPROVED			
STATUS PRELIMINARY	SCALE 1:500 @ A3	SHEET No. 1 OF 1	

DATE PLOTTED: Thursday, 15 November 2018 4:50:13 PM FILE PATH: Z:\14000-14499\14146 Manea Cultural Centre, Opononi\14146-003 (BC stage - single site)\Cad\Resource consent\14146-003 Vehicle turning curves 20181030.dwg



APPROVED PLAN

[redacted]

SCALE 1:500

REV	REVISION DETAILS	BY & INIT	DATE
A	1ST ISSUE	KH	15-05-2018

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ACENZ

PROJECT DETAILS

FAR NORTH HOLDINGS LTD,
31 & 41 STATE HIGHWAY 12, OPONONI,
LOT 1 DP 164181 & LOT 1 DP 195242

TITLE

BUS TURNING

DESIGNED	JOB REF No.	DWG NUMBER	REV
A TONKS	14146-003	SCH02	A
APPROVED			
STATUS PRELIMINARY	SCALE 1:500 @ A3	SHEET No. 1 OF 1	

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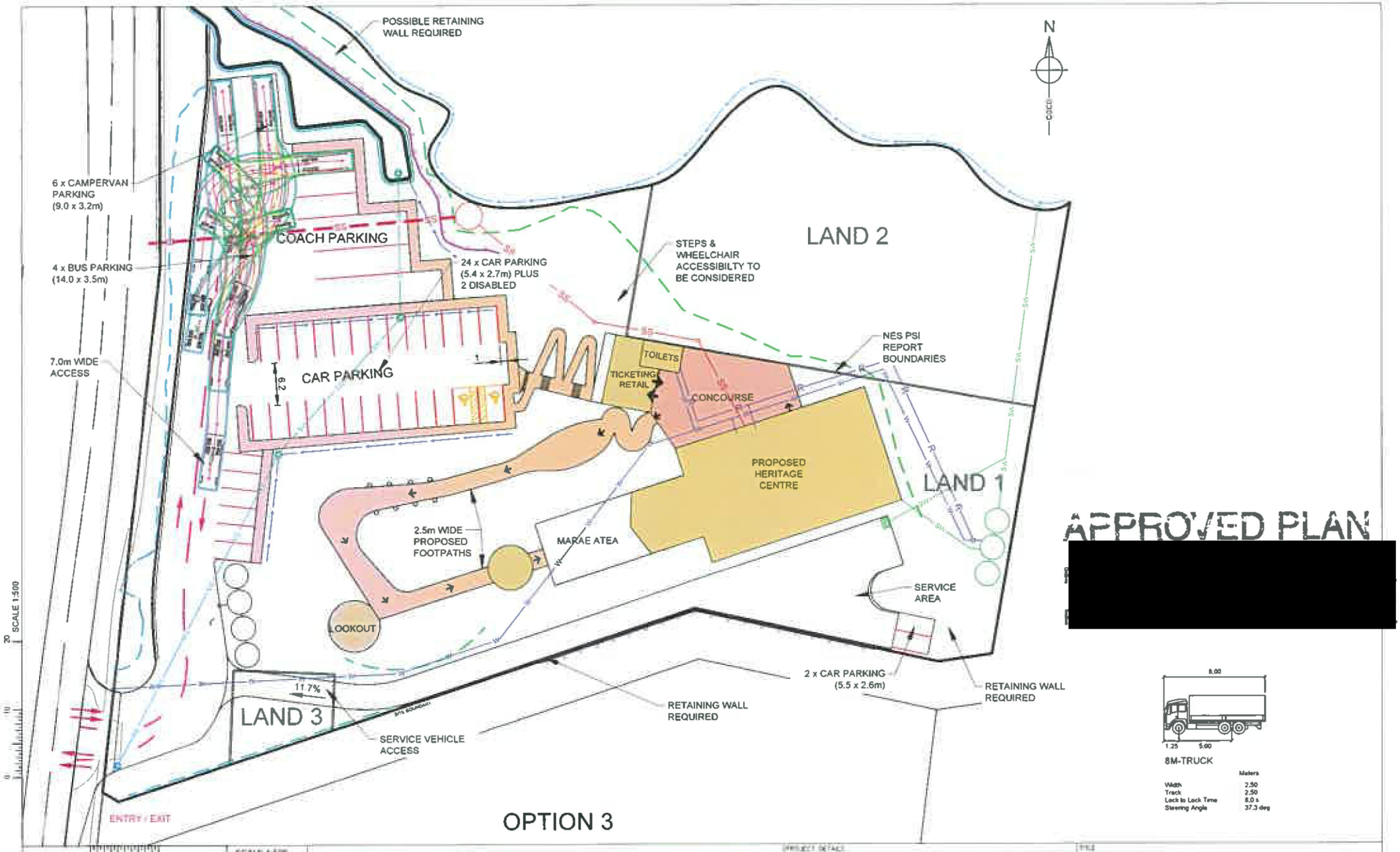

REV	REVISION DETAILS	DRAWN	DATE
D			
C			
B			
A	1ST ISSUE	KH	19-09-2018

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Christchurch | 03 365 5960
ccl@coco.co.nz
www.coco.co.nz

PROJECT DETAILS

FAR NORTH HOLDINGS LTD,
31 & 41 STATE HIGHWAY 12, OPONONI,
LOT 1 DP 164181 & LOT 1 DP 195242

TITLE

8m TRUCK TURNING

DESIGNED	CCL REF No	DWG NUMBER	REV
A TONKS	14146-003	SCH02	A
APPROVED			
STATUS: PRELIMINARY	SCALE: 1:500 @ A3	SHEET No: 1 OF 1	

DATE PLOTTED: Thursday, 15 November 2018 4:50:05 PM FILE PATH: Z:\14000-14499\14146 Manea Cultural Centre, Opononi\14146-003 (BC stage - single site)\Cad\Resource consent\14146-003 Vehicle turning curves 20181030.dwg

APPROVED PLAN

[redacted]

NOT FOR CONSTRUCTION

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SCALE 1:750

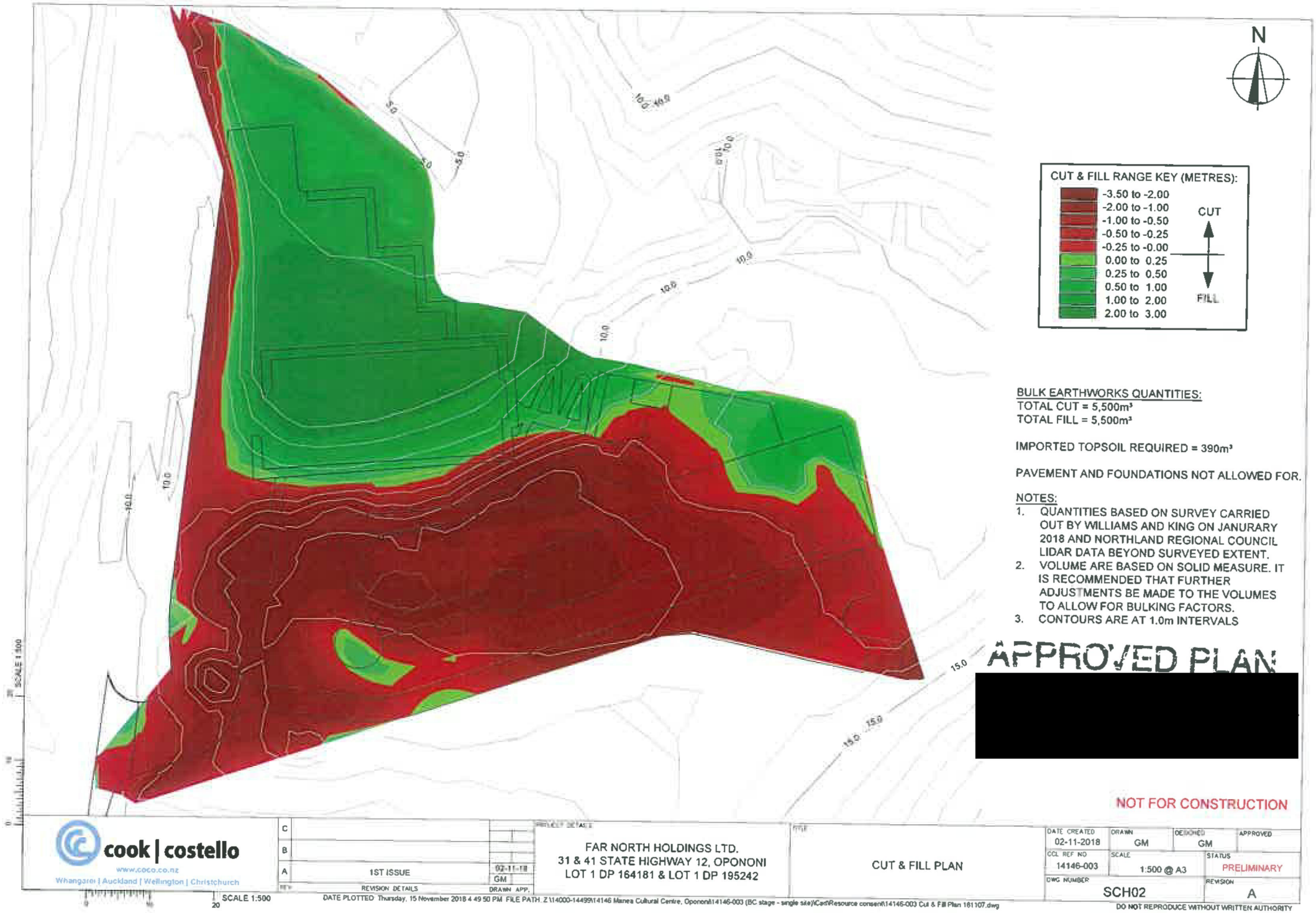
REV	REVISION DETAILS	DRAWN	APP
C			
B			
A	1ST ISSUE	15-11-18 BG	

PROJECT DETAILS
FAR NORTH HOLDINGS LTD.
31 & 41 STATE HIGHWAY 12, OPONONI
LOT 1 DP 164181 & LOT 1 DP 195242

TITLE
SLOPE PLAN

DATE CREATED	DRAWN	DESIGNED	APPROVED
15-11-2018	BG	GM	
CCL REF NO	SCALE	STATUS	
14146-003	1:750 @ A3	PRELIMINARY	
DWG NUMBER		REVISION	
SCH02		A	

DATE PLOTTED Thursday, 15 November 2018 4:50:00 PM FILE PATH: Z:\14000-14499\14146 Manea Cultural Centre, Opononi\14146-003 (BC stage - single site)\Cad\Resource consent\14146-003 Slope Plan 20181031.dwg



BULK EARTHWORKS QUANTITIES:
TOTAL CUT = 5,500m³
TOTAL FILL = 5,500m³

IMPORTED TOPSOIL REQUIRED = 390m³

PAVEMENT AND FOUNDATIONS NOT ALLOWED FOR.

NOTES:
1. QUANTITIES BASED ON SURVEY CARRIED OUT BY WILLIAMS AND KING ON JANURARY 2018 AND NORTHLAND REGIONAL COUNCIL LIDAR DATA BEYOND SURVEYED EXTENT.
2. VOLUME ARE BASED ON SOLID MEASURE. IT IS RECOMMENDED THAT FURTHER ADJUSTMENTS BE MADE TO THE VOLUMES TO ALLOW FOR BULKING FACTORS.
3. CONTOURS ARE AT 1.0m INTERVALS

APPROVED PLAN

[redacted]

NOT FOR CONSTRUCTION

SCALE 1:500

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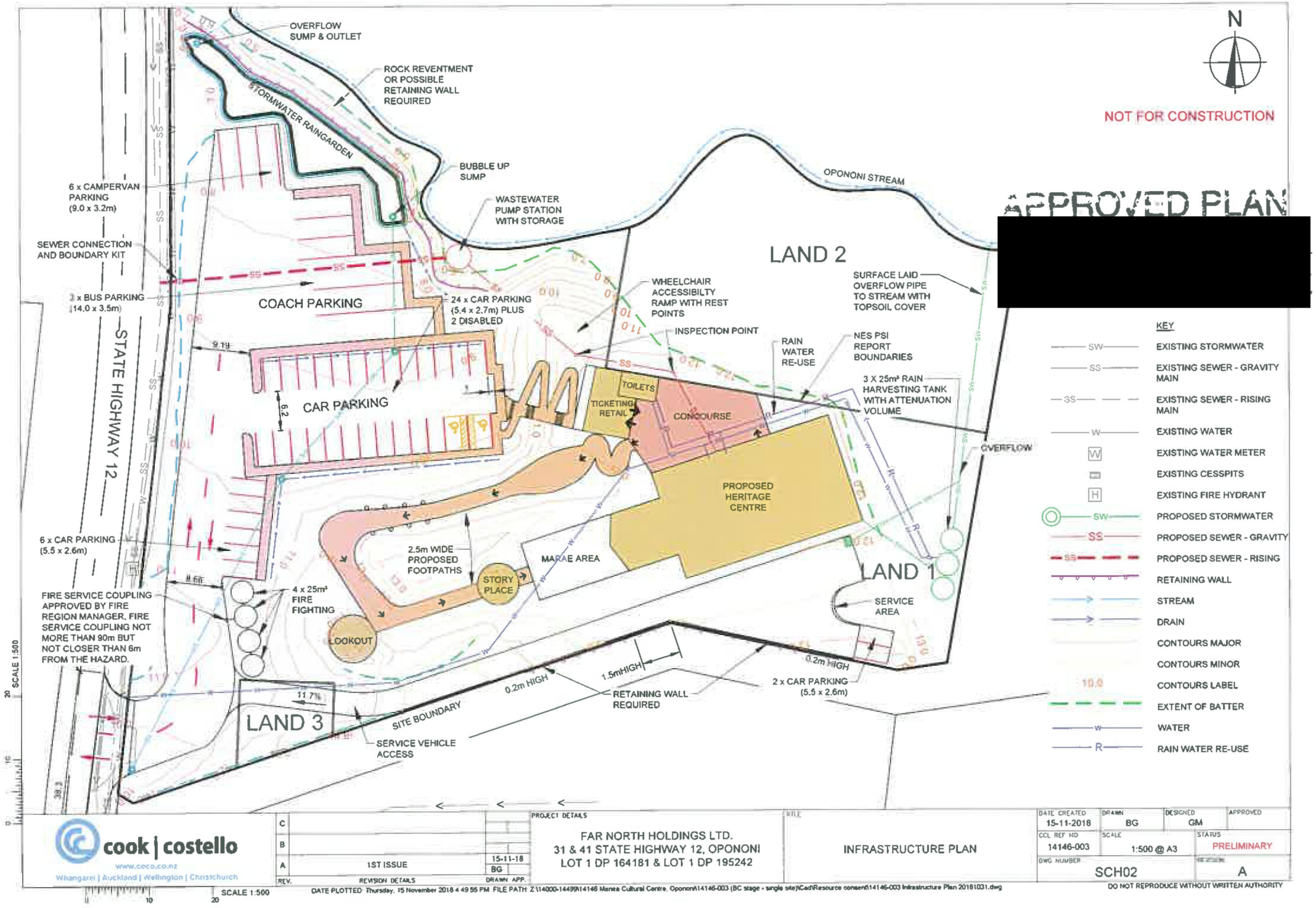
REV	REVISION DETAILS	DRAWN	APP.
C			
B			
A	1ST ISSUE	02-11-18	GM

PROJECT DETAILS
FAR NORTH HOLDINGS LTD.
31 & 41 STATE HIGHWAY 12, OPONONI
LOT 1 DP 164181 & LOT 1 DP 195242

TITLE
CUT & FILL PLAN

DATE CREATED	DRAWN	DESIGNED	APPROVED
02-11-2018	GM	GM	
CCL REF NO	SCALE	STATUS	
14146-003	1:500 @ A3	PRELIMINARY	
DWG NUMBER		REVISION	
SCH02		A	

DATE PLOTTED Thursday, 15 November 2018 4 49 50 PM FILE PATH Z:\14000-14499\14146 Manea Cultural Centre, Opononi\14146-003 (BC stage - single site)\Cad\Resource consent\14146-003 Cut & Fill Plan 181107.dwg



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REV.	REVISION DETAILS	DRAWN	APP.
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PROJECT DETAILS
FAR NORTH HOLDINGS LTD.
31 & 41 STATE HIGHWAY 12, OPONONI
LOT 1 DP 164181 & LOT 1 DP 195242

TITLE
INFRASTRUCTURE PLAN

DATE CREATED	DRAWN	DESIGNED	APPROVED
15-11-2018	BG	GM	
CCL REF NO	SCALE	STATUS	
14146-003	1:500 @ A3	PRELIMINARY	
DWG NUMBER			
SCH02		A	

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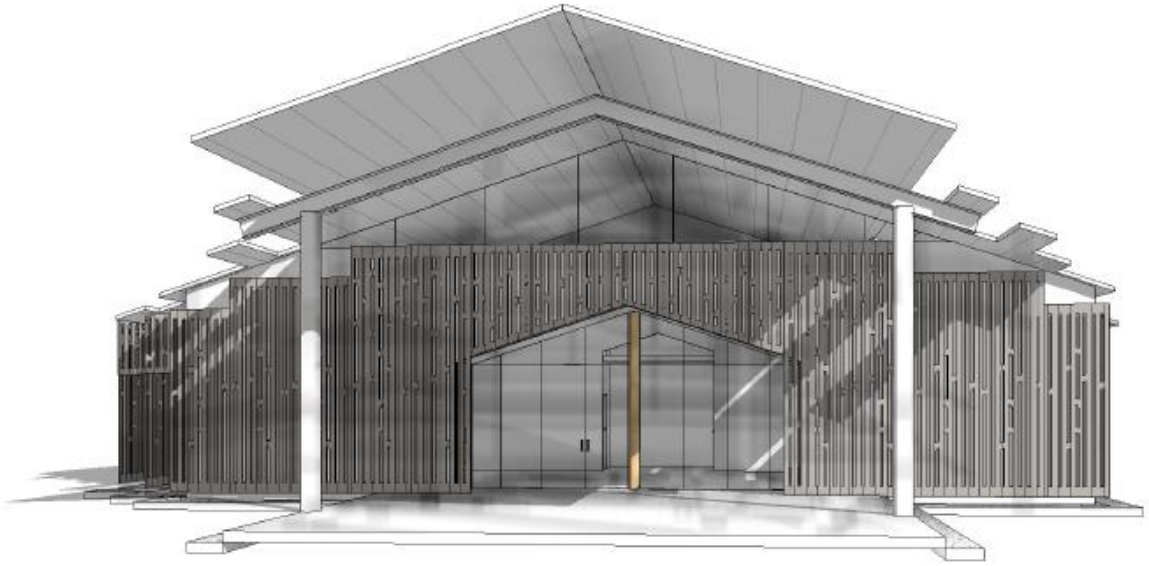
MANEA – FOOTPRINTS OF KUPE
Site and Infrastructure Suitability Report

31 & 41 State Highway 12, Opononi
(Lot 1 DP 164181 & Lot 1 DP 195242)

For Far North Holdings Ltd



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26 January 2018
Revision: 0
CCL Project Number: 14146

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1. INTRODUCTION

Cook Costello have been engaged by Far North Holdings Ltd to provide a Site and Infrastructure Suitability Report for use in support of a Resource Consent application for land use with the Far North District Council.

It is proposed to develop a Maori cultural visitor attraction in Opononi. The attraction is located on two sites adjacent to the waterfront of Opononi, with the sites connected by pedestrian link. The northern site contains the commercial hub and is located alongside the existing visitor i-Site and carpark. The southern site contains the main building.

This report considers:

- Suitability of the proposed building platforms for the construction of a new commercial building. This includes consideration of the existing stability of the site and effects of the proposed development on stability.
- Earthworks
- Stormwater & Flood Assessment
- Potable Water & Fire Fighting
- Wastewater

Additionally separate reports consider:

- Traffic and Access Assessment
- NES Contaminated Land Preliminary Site Investigation

1.1. Proposed development

It is proposed to develop:

- A new Commercial Hub for ticketing, admissions, and gift shop; and a Cultural Centre for the tour experience. The two proposed buildings are physically separated and linked by an internal pedestrian access.

The development is also expected to involve:

- Earthworks to create a level building platform at the Cultural Centre
- Construction of gravel access surfaces and standby coach parking
- Construction of pedestrian pathway and foot bridge
- Construction of stormwater management infrastructure
- Construction of a new effluent disposal system
- Construction of fire fighting reservoir storage

1.2. Relevant Documentation

- AS/NZS 1547:2012 – On-site wastewater
- AS 2870: 2011 – Construction of residential slabs and footings
- Auckland Council
- Auckland Regional Council
- Dept. Lands and Surveys: 1980 – NZMS290 Sheet P04/05 Whangaroa - Kaikohe (SOILS)
- Far North District Council: 2016 – GIS Maps
- Far North District Council – District Plan
- Far North District Council: 2009 – Engineering Standards and Guidelines
- GNS Science: 2009 – Geological Map 2, Whangarei Area (scale 1: 250 000)
- Land Information New Zealand – Aerial imagery
- Northland Regional Council: 2016 – GIS Maps
- NRC: 2016 – GIS Maps
- NRC: 2004 – Regional Water and Soil Plan
- NZS 4402:1986 – Methods of testing soils for civil engineering purposes
- NZS 4404:2010 Land Development and Subdivision Infrastructure
- New Zealand Building Code: Clause E1 – Surface Water
- New Zealand Building Code: Clause G1 - Personal Hygiene – Second Edition
- NZS 3604: 2011 – Timber framed buildings
- NZ Building Code: B1/VM4:

  "Good Ground – means any soil or rock capable of permanently withstanding an ultimate bearing pressure of 300kPa (i.e. an allowable bearing of 100kPa using a factor of safety of 3.0) but excludes:

  a. *Potentially compressible ground such as topsoil, soft soils such as clay which can be moulded easily in the fingers, and uncompacted loose gravel which contains obvious voids,*

  b. *Expansive soils being those that have a liquid limit of more than 50% when tested in accordance with NZS4402 Test 2.2 and a linear shrinkage of more than 15% when tested from the liquid limit in accordance with NZS 4402 Test 2.6 and,*

  c. *Any ground which could foreseeably experience movement of 25mm or greater for any reason including one or a combination of the following: land instability, ground creep, subsidence, seasonal swelling and shrinking, frost heave, changing ground water level, erosion, dissolution of soil in water, and effects of tree roots."*
- SNZ PAS 4509-2008 – New Zealand Fire Service Firefighting Water Supplies Code of Practice

2. SITE DESCRIPTION

The proposed development is located in Opononi, on the southern side of the Hokianga Harbour. The site spans two properties with the Commercial Hub at the northern #31 State Highway 12 (Lot 1 DP 164181) and the Cultural Centre at the southern #41 State Highway 12 (Lot 1 DP 195242). These two properties are situated on the western side of State Highway 12 and are separated by the entrance to #33 State Highway 12 (Pt Lot 1 DP 209937). It is proposed to link the two development areas together by pedestrian access.

Figure 1: Commercial Hub at the northern 31 State Highway 12 (Lot 1 DP 164181) and the Cultural Centre at the southern 41 State Highway 12 (Lot 1 DP 195242)

The Commercial Hub will be sited between the existing i-Site and 4 Square. The site has an existing car park and it is proposed to use this area for visitor arrivals and parking. The proposed Commercial Hub is a two storied building, in part atrium space, and will straddle an existing split level retaining wall. The ground floor level of 119m² contains a retail space and washrooms. The upper level, with a similar floor height to the adjacent i-Site, is 159m² and contains the entrance, ticketing, and assembly areas.

The two sites will be linked by pedestrian access. While an existing footpath is present along the western side of State Highway 12 it is proposed create a new path internal to the sites. The proposed pathway departs the assembly area and will travel south, traversing along the existing

split retaining wall bench, before heading south west toward the harbour, crossing the driveway of #33 to a new foot bridge that connects to an internal pathway within the southern site leading to the Cultural Center.

The proposed Cultural Center is predominantly single storied with a minor mezzanine space and has a total floor area of approximately 450m². The proposed development footprint of the Cultural Center is located on the western portion of the property and is presently vacant land. An existing vehicle crossing with State Highway 12 is present at the south western boundary and will be retained as a service entrance to the site. The development area comprises of a low lying plateau where the building and service area will be situated, and elevated ground in the southern portion which contains the service access and proposed lookout. Both areas have undergone anthropogenic change through widespread filling. Significant recent uncontrolled fill is present in the southern portion along with minor fly-tipping. It proposed to use a portion of the residual site area, to the east of the development footprint, as a standby location for tour coaches to relieve parking pressure at the Commercial Hub.

The footprint of both the Commercial Hub and the Cultural Centre are outside of the 2115 Coastal Erosion and 2115 Coastal Inundation mapped extents. Catchment runoff flooding is mapped within the lower reach of the water course located on the boundary between #33 and #41. A double culvert passes beneath State Highway 12 in this locality, although for the extreme event scenario it is the road crest height that controls the flood elevation. Both sites, as with much of Opononi, are mapped within the orange Tsunami evacuation zone.

Both #31 and #41 State Highway 12 are zoned Commercial in the Far North District Council Plan.

2.1. Visitor Numbers and Staffing

Projected visitor numbers are provided in the Manea Business Plan Outline, dated 1st October 2014. The projected initial year visitor numbers are 35,000 per annum, growing to 61,000 in 2020-21. Peak visitor numbers are expected to occur in the month of January, with the January 2021 totaling 9000. The Business Plan expectation is the projected visitor numbers are potentially conservative and for Civil infrastructure design purposes an uncertainty factor of 1.5 is applied, raising peak monthly visitor numbers to 13,500 individual, equating to an average peak daily of 450. A peaking factor of 2 is applied to the daily average figure to account for fluctuations around the average and raises the peak daily figure for services design to 900 individuals.

Usual hours of operation are 9am – 5pm, seven days per week. The experience duration is 1.5 hours. For design purposes the assumed staffing numbers are 10 or less full time equivalent.

3. DESKTOP STUDY

3.1. Zoning and land use

The properties at 31 & 41 State Highway 12 in Opononi are zoned as Commercial. #31 is currently used as an i-SITE Information Centre with café, Four Square retail store and car parking. #41 is currently used as vegetated scrub and pasture,

3.2. Geology

With reference to the GNS Science Geological Map 1 - Kaitaia (1996; scale 1:250,000) (Figure 2) it is interpreted that geology of the property consists of:

> "eQa: Karioitahi Group; Partly consolidated sand, mud and peat or lignite of estuarine, lacustrine, swamp, alluvial, and colluvial origins"

and

> "Omm: Northland Allochthon of the Motatau Complex; Micritic cocclith foraminiferal muddy limestone, commonly with redeposited glauconitic sandstone beds."

Figure 2. Excerpt from a geological map of the area (GNS Science: 1996 - Geological Map 1 - Kaitaia, scale 1: 250 000)

The property at #31 with the existing buildings is located within Omm: Northland Allochthon, while the southern property, #41 is located within eQa: alluvial deposits. The geological

boundary between the units will be approximate to the alignment of the stream between the properties.

3.3. Aerial Imagery and Services

Based on Aerial Imagery and existing Council services are presented in Figure 3:

- The general landform slopes to the west at a gentle to moderate grade
- The Opononi Stream flows south-east to north-west between the two properties. Mature trees and vegetation line the slopes of the stream. The northern property has only a minor proportion covered in vegetation of which is grass lawn and a few mature trees. The southern property is covered in pasture with a few mature trees.
- Reticulated stormwater, water supply and wastewater pipes are available within the road corridor outside the properties.

Figure 3. Aerial Imagery & services (FNDC GIS Maps)

3.4. Hazard maps

Based on the Far North District Council GIS maps:

- For floodplains a significant portion of the lower part of the southern property is mapped as susceptible (see Figure 3 below).
- For coastal flood hazard the properties are mapped outside of Coastal Hazard 1, but a portion of the northern property is within Coastal Hazard 2.

Figure 4. Floodplain zones map (FNDC GIS Maps)

Based on the Northland Regional Council GIS maps:

- For coastal erosion hazard part of the properties are mapped as susceptible
- For tsunami hazard the properties are mapped Orange Evacuation Zone

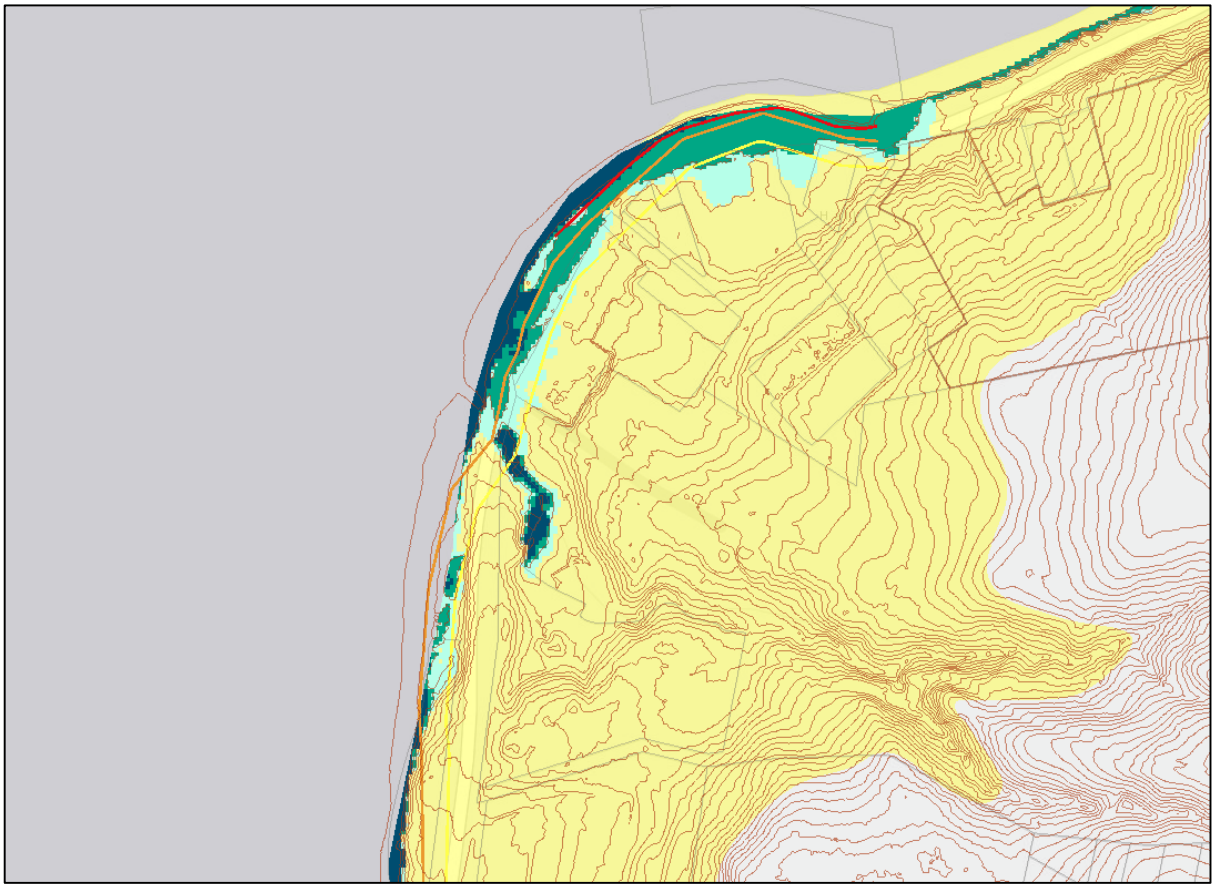


Figure 5. Natural hazard zones map (NRC GIS Maps)

3.5. Power and Telecommunication Services

Power and telecommunication services are located adjacent to the sites within the State Highway 12 corridor.

4. GEOTECHNICAL SITE INVESTIGATION

4.1. Methodology

A site investigation was undertaken on 5 January 2018. This investigation consisted of:

- A visual inspection and walkover by a Geotechnical Engineer
- Three hand augered boreholes (HA) at the proposed southern lot building platform, to depth of up to 2.8m with shear vane measurements to characterise the subsurface profile
- Five dynamic (Scala) cone penetrometer tests (DCP), to characterise soil consistency

Test locations are presented in Appendix 1 and results are presented in Appendix 2.

4.2. Ground model

Based on shallow ground investigation, observations from the site walkover and information gathered through the desktop study a preliminary conceptual ground model has been produced for the proposed southern lot building platform:

- Topsoil is considered to be present across the proposed building platforms to a depth of approximately 0.3m. Several trees and shrubs are present within the proposed building platform and are likely to have roots penetrating deeper.
- Subsoil consisted of stiff silty clay, with gravels increasing with depth and is interpreted as man-made FILL. The fill was observed to a depth of 2.2mbgl. Only one of the three attempted boreholes achieved a depth through the fill due to refusal on inferred large boulders within the fill material.
- Below a depth of 2.2m natural ground of a dense, coarse orange/brown SAND was observed. This sand is interpreted as a coastal dune formation, rather than alluvium from the adjacent stream.
- The nearby shoreline had exposed faces caused by wave erosion. The exposed faces showed approximately 2m of coarse, poorly graded grey/brown sand below the topsoil, followed by greater than 2m thickness of large boulders and tree trunks (up to 500mm diameter) in a clayey silt matrix.
- Weathered bedrock was not observed or encountered by investigation to a maximum attained depth of 5.0m below existing ground level, however an increase in strength with depth is interpreted.

This ground model is based on limited shallow investigation and should be confirmed by additional testing prior to building consent application and during development.

- Undrained shear strengths of >100kPa were measured within the fill using a hand held shear vane, but the readings may be inaccurate due to the presence of gravels.

- Below a depth of 0.5m it is indicated that using a Scala penetrometer >3 blows/100mm penetration indicative of an uncorrected ultimate bearing capacity >300kPa is achieved. However, this may not be considered “good ground” due to the presence of potentially compressible uncontrolled fill below this depth.
- Scala penetrometer results of an uncorrected ultimate bearing capacity >300kPa within natural ground indicative of “good ground” was attained at a depth of 3.1mbgl.
- It is anticipated that preliminary design of shallow foundations for a light-weight construction will require a minimum piled foundation depth of 3.1mbgl and be founded >500mm into natural ground.

5. GEOTECHNICAL ASSESSMENT

5.1. Slope stability

In terms of slope stability it is considered that the proposed building platforms are presently stable and it is considered that development of the building platforms is unlikely to accelerate or worsen slope stability.

Oversteepened slopes to the south of the southern lot building platform from recent tipping of uncontrolled fill shall be regraded to a stable angle. The use of retaining structures may be avoided by battering of existing slopes, but if desired, will require additional slope stability analysis and specific design.

5.2. Expansive soil

Many soils within Northland are subject to expansive behaviour. This behaviour is typically associated with clay soils and involves the shrinking and swelling of soil in response to increasing and decreasing soil moisture content. Cyclic shrinking and swelling can occur seasonally and can have a significant impact on foundations of structures and also on other components of developments such as services, claddings, windows, doors, roading etc. It is evident from historical reports and site inspections that the effect of expansive soils is a major problem in Northland.

Based on mapped geology and soils encountered at the site, soils at the proposed building platforms are considered to be moderately expansive (Class M). Seasonal wetting and drying cycles at the proposed building platform are considered to currently be significant. Foundation design shall specifically address issues of expansive soils.

5.3. Foundations

Shallow foundations with specific design by a Chartered Professional (Geotechnical) Engineer are anticipated to be appropriate at the proposed building platforms. The proposed building foundations for the northern lot will need to take into consideration and be integrated with the existing, adjacent i-SITE, café and retaining wall. Suitable foundation options for a concrete

floor will be a stiffened waffle/rib concrete slab to mitigate the effects of expansive soil. For a timber floor, shallow timber piles in accordance with NZS 3604 are considered suitable. The piles shall have a minimum embedment of 600mm bgl to found below the zone of volume change due to variation in moisture content.

For the proposed Heritage Centre on the southern lot the existing fill and any potential future fill will need to be taken into consideration. Foundation options suitable in mitigating the effect of expansive soil may include stiffened waffle/rib concrete slab and piles founded below 3.1mbgl and embedded >500mm into natural ground.

Piles shall be designed to account for negative skin friction that may develop due to consolidation of the existing fill and the placement of any additional fill.

Additional testing with a Cone Penetrating Test (CPT) rig and Static Plate Load tests will be required to calculate the expected settlements within the existing fill if piles are not desired.

5.1. Earthworks

At the proposed Commercial Hub no bulk earthworks are proposed.

At the proposed Cultural Centre the site development involves a total cut volume of 3800m³ and will achieve a cut to fill balance with a fill volume of 3800m³.

All cut and fill operations at the proposed building platforms should be undertaken with care and in accordance with proper engineering practices. All fill within 2m of the building footprint, or with thickness greater than 0.6m, or on slopes greater than 15° shall be specifically considered by a Geotechnical Engineer prior to construction.

5.2. Seismicity

Seismicity parameters may be determined by the risk based method using the earthquake hazard presented in the NZTA Bridge Manual (2016). Based on the geotechnical investigation a classification of ‘Class D - deep or soft soil’ can be adopted.

6. WASTEWATER MANAGEMENT

The architectural concept plan proposes unisex washroom facilities with each cubicle containing a toilet and hand basin. Four cubicles are proposed at the Commercial Hub and three at the Cultural Centre. Based on an 8 hour period of operation with 1.5 hour visitor duration yields a design occupancy of 170. For this occupancy the NZBC G1 facilities requirement for 'Museums & Art Galleries' is 3 and for 'Theatre & Cinemas' is 5.5. An additional 2 facilities are required for the assumed 10 FTE staff. The proposed 7 cubicles complies with the NZBC G1 requirements.

The wastewater load generated per visitor is 15 l/p/d and per staff is 40 l/p/d, resulting in a peak daily load of 13.9m³. Removing the peaking factor gives a rolling 5 day daily average load of 7m³. The Commercial Hub is the drop off and pick up point and it is expected that a larger portion of the wastewater load will be generated at that point with a nominal 2/3rd 1/3rd split indicating a peak average daily load of 4.7m³ at the Commercial Hub and 2.3m³ at the Cultural Site.

The Commercial Hub is within the 'area of benefit' for the municipal wastewater scheme and it is confirmed by the Far North District Council Asset Manager – 3 Waters, Barry Somers, via e-mail 1st December 2017, that the Commercial Hub is able to connect to the reticulated wastewater network.

It was also confirmed within the same communication that the Cultural Centre is located outside the area of benefit and would need to apply for a connection, and to extend the reticulated network. An existing rising main is present along SH12. Preliminary advise from FNDC in the aforementioned communication advises that this line cannot be connected to, which would certainly be the case for a gravity connection. Subject to further discussion with FNDC it may be an option to make a rising main tee connection with an onsite tank pumping out to this line. Technical issues such as backflow prevention and the coordination of pump out timing by telemetry to the primary pump station are amongst the issues that would need to be addressed. To accommodate the peak daily load and a further 24 hour emergency storage an onsite 9m³ tank with macerating pump would be sufficient. Subject to a technical solution being available and Council agreeing to it a direct connection to the rising main would limit the length of new rising main reticulation to < 60m.

If a direct connection to the existing rising main cannot be made an alternate is to extend a new rising main from the Cultural Centre back to the existing gravity system in vicinity of the Commercial Hub. An existing water main and the existing rising main are located adjacent to the property boundary within the State Highway 12 road reserve. To avoid potential construction issues with pipe clashes, issues with working within the road reserve, and to avoid seeking NZTA approval to do so and approval to occupy this space, the more likely route for the new rising main is to follow the proposed pedestrian link. This would be subject to agreement of the land owner at #33 to grant a right to convey easement. Construction would likely involve a

directional drilled conduit beneath the retaining wall behind the 4 Square and adjacent driveway, and would require the rising main to be strapped to the proposed pedestrian bridge bearers. A portion of the proposed pedestrian link within the Cultural Centre site is heavily wooded and the rising main would need to be surface laid and covered through this section. Capacity constraints potentially exist in the existing gravity reticulated network. Were these to exist they can be avoided by timed pump out of the holding tank in the late evening through to early morning. This also avoids noise during the Cultural Center operating hours.

The third option for wastewater is onsite disposal. Within the areas of historic filling the NZS1547 soil category is 6, and in natural ground is soil category 5. In the eastern portion of the site is an area of generally level natural ground that is unutilized by this scheme. It is understood that the intention is to reserve this area for future purposes, however were a connection to the municipal reticulated system not available this is suitable with approximately 1680m² available once setbacks and an allowance for bus parking have been made. Secondary treatment in this area of natural ground has a design loading rate of 3mm/day. Including the uncertainty and peak loading factors the design load of 4600l/d would require a field area of 1500m³ although would lack a portion of the required 500m² additional reserve area. It is likely that this shortfall in additional area can be found within the site or an alternative method with disposal beds at a higher loading rate of 12mm/day is an option as a means to avoid the area constraint. The Northland Regional Water and Soil permitted activity rules for disposal of secondary treated effluent can be met. Regarding disposal volume Permitted Activity rule 15.1.4.(i) *The volume of effluent discharged does not exceed 3 cubic metres per day, averaged over the month of greatest discharge* is achieved as the design rolling average (including uncertainty factor but excluding peaking factor) is 2.3m³. Rule 15.1.4.(j) *The maximum volume of effluent discharge does not exceed 6 cubic metres over any 24 hour period* is achieved with the peak load of 4.6m³. As a result a resource consent for effluent disposal to land is not required.

7. POTABLE WATER AND FIRE FIGHTING CAPACITY

Reticulated potable water supply is available to both sites and availability to connect has been confirmed by the Far North District Council Asset Manager – 3 Waters, Barry Somers, via e-mail 1st December 2017.

Water use requirements at both the Commercial Hub and the Cultural Centre are directly linked to the wastewater load. At the Commercial Hub additional water use requirements are unlikely however extensive planting is proposed at the Cultural Centre and at this time it is not confirmed whether irrigation supply will be from the reticulated supply or an alternate source. In the event that reticulated supply may be used either in part or in full for purposes other than the washrooms, it is recommended an additional meter is install to record supply to the washrooms, particularly if the wastewater is disposed to the reticulated network.

The reticulated main is located along State Highway 12 and both sites are less than 135m from two fire hydrants and less than 270m from an additional third hydrant. While both buildings are within vicinity of a number of hydrants these are supplied from a single pressure zone sourced from the south. The hydrant test data available is limited to static pressure and flow, and data is only available for the hydrant in front of the camp ground (to the south of the Cultural Centre - Static 69m, flow 26l/s) and in front of the RSA (to the north east of the Commercial Hub – Static 76m, flow 16l/s). In the absence of residual head figures it is not possible to extrapolate the supply capacity down to the fire service required minimum residual head of 10m. Nevertheless with some broad assumptions that the test conditions at the two hydrants were identical and the residual head in both cases was 10m, using linear interpolation along the intervening pipe length indicates fire fighting supply adjacent to the Cultural Centre of 24l/s and the Commercial Hub of 21l/s.

Both buildings have a similar use and are the SNZPAS4509-2008 FHC2 (fire hazard category *crowd activities >100 people with low fire load*). The Commercial Hub with a total floor area of 278m² has a fire water classification of FW3 (being a single fire cell 200 – 399m²). The Cultural Centre with a total floor area of 450m² has a fire water supply of FW4 (assuming it remains a single fire cell 400 – 600m²).

	Reticulated water supply		Non-reticulated water supply	
Fire water classification	Required flow within a distance of 135m	Required flow within a distance of 270m	Minimum storage within 90m	
			Time (firefighting) (min)	Volume (m^3)
FW3	25l/s	25l/s	60	180
FW4	50l/s	50l/s	90	540

Table 1: PAS4509-2008 fire fighting capacity requirements

The available hydrant supply at both building is not able to achieve this specification, although ultimately what is acceptable is at the fire services discretion. The existing i-Site is FW3 and existing 4 Square is FW4, suggesting that the proposed FW3 Commercial Hub will be

adequately supplied. Additional supply from seawater is accessible with an appropriate hardstand next to the wharf within 170m of the building.

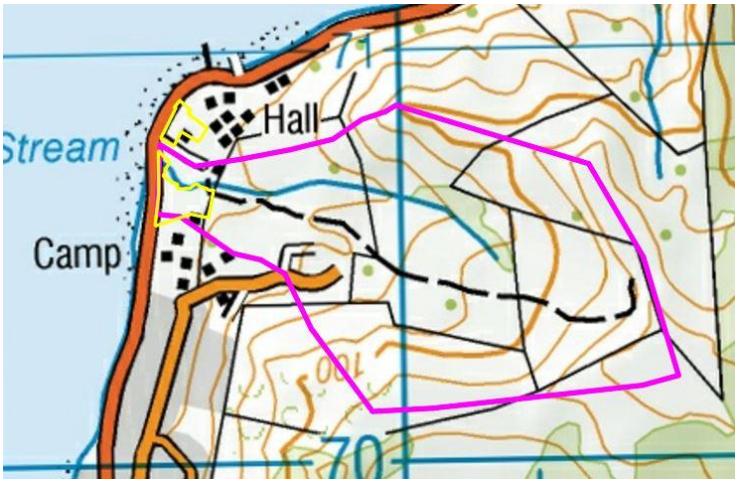
The Cultural Centre building is 20m from the nearest boundary and 70m from the nearest existing building. At 450m² floor area the Cultural Hub is marginally larger than the FW3 fire cell threshold of 400m². Depending on the fire service input the lower fire water classification may be acceptable. The proposed layout has several compartmentalised areas of use and if the lower classification for the entire area is not acceptable an alternative is to create multiple fire cells. In either case it is expected FW3 classification is achievable. The existing hydrant supply is adequate for half of the FW3 supply with the residual volume coming from an on-site reservoir of 90m³, which can be achieved with four 25m³ tanks in series with an appropriate fire service coupling. A hardstand shall be designated and shall allow a 4.5m x 11m standard fire appliance. Roading and hardstand shall be suitable to support a 20 tonne vehicle with appropriate turning circle.

An alternative to meeting the FW3 fire fighting supply requirement is to install sprinklers, which drops the water classification to FW2 and requires a total supply of 25l/s.

8. STORMWATER MANAGEMENT

8.1. Catchment Sourced Flooding

The proposed Commercial Hub is within an existing minor catchment encompassing the upper car park and i-Site building and surrounds. Due to its limited size and the surface gradient to the coast it is not subject to flooding.



	Regional Area
Mean Annual	1.3
100yr ARI	3.02
100yr+cc ARI	4.34

Peak flow estimates (m^3/s). Regional Area $Q_{bar}/A^{0.8}$ = 2, Q_{100}/Q_{bar} = 2.3, 20% factor applied for climate change. 20% FOS added to the Q_{100+cc} for small catchment method uncertainty.

Figure 6: Cultural Centre catchment 0.59km² and peak flow estimates

The proposed Cultural Centre is located at the lower reach of a 59ha catchment. The catchment water course is ephemeral and during periods of flow discharges beneath State Highway 12 to the coast by double Ø1050 culverts with invert at OTP 1.3m.

Figure 7: SH12 double Ø1050 culvert. Upstream LHS IL OTP 1.3m, downstream RHS

The double culvert outlet is almost completely blocked by accumulated beach sand and while this will cut down during sustained flow for the purpose of assessing the extreme flood elevation case it is assumed the culvert conveys no flow. Under this scenario the road acts as a broad crested weir with a length of 7.5m, side slopes of 1:12, and crest level at OTP 3.44m. At the Q100+cc design flow the flood depth is 0.49m, giving a flood elevation of OTP 3.93m. While the backwater effect will marginally raise the flood level higher adjacent to the development

area the existing ground level is in excess of OTP 5.5m and is well above the flood extent. The development area is not susceptible to flooding and the further filling proposed to raise the existing plateau level to OTP 8.2m will have no effect on the available flood storage.

8.2. Coastal Inundation, Erosion and Tsunami Hazards

The footprint of both the Commercial Hub and the Cultural Centre are outside of the 2115 Coastal Erosion and 2115 Coastal Inundation mapped extents. The Regional Policy Statement section 7.1.7.5.(a) requires new non-habitable building to have a minimum finished floor level on the West Coast of OTP 4.1m. The floor level of both proposed buildings exceed this minimum requirement.

Both sites, as with much of Opononi, are mapped within the orange Tsunami evacuation zone. The tsunami risk is present throughout the Northland coast. The event exceedance interval is beyond the 100 year planning horizon and does not have direct effect on the minimum floor level requirement. Nevertheless it is advisable that the occupants are made aware of this hazard, the tsunami warning mechanisms and escape pathways.

8.3. Stormwater Quantity Mitigation

The Far North District Plan for Commercial zoned land section 7.7.5.1.11 Stormwater permitted activity allows for the *disposal of collected stormwater from the roof of all new buildings and new impervious surfaces provided that the activity is within an existing consented urban stormwater management plan or discharge consent.* Additionally, section 7.7.5.2.3 permitted activity rule places some requirements on the depth of reticulated pipework, avoidance of discharge to stormwater of site contaminants, and the management of concentrated flows to not pose an immediate or long term hazard to human health or the environment. An advice note to section 7.7.5.2.3 reads *in order to meet the conditions listed it is strongly recommended that the stormwater collection system be designed in accordance with the onsite volume control practices as contained in "Technical Publication 10, Stormwater Management, Devices – Design Guidelines Manual".* The Far North District Council Engineering Standards requires mitigation of the 10 year ARI plus climate change nested Chicago design event peak flow to pre-development levels using the SCS Generalise Method as described in "Technical Publication 108, Guidelines for Stormwater Runoff Modelling in the Auckland Region".

The Regional Water and Soil Plan section 21.1.1 allows as a permitted activity for the diversion and discharge of stormwater where the collection system is connected to a stormwater system for which a resource consent exists. Section 21.1.2 provides a list of permitted activity rules where not otherwise permitted by 21.1.1. In relation to stormwater quantity Rule 21.1.2.a requires the design to minimize change to stormwater flows after development for the 5 year ARI storm event. 21.1.2.d requires the primary flow capacity for the 5 year ARI flows, and secondary flows by stabilized overland flow path for the 50 year ARI event. 21.1.2.f requires discharge to not cause scour or erosion of the beds or banks of the receiving water body. 21.1.2.i requires the diversion and/or discharge does not cause flooding of adjacent properties.

To assess the stormwater runoff change and mitigation requirements a hydrological and hydraulic model has been built using Mike Urban by DHI, in accordance with ARC TP108, with the Auckland hyetograph shape altered to reflect the NIWA High Intensity Rainfall Data (HIRDS3) at the site. The 5 year ARI and 10 year plus climate (+%20) ARI 24 hour rainfall depths are 86.1 and 121.7mm respectively.

	Surface	Area (m²)	Hydrologic Soil Group	CN	Ia (mm)	ToC (min)
Commercial	Predevelopment	390	B	61	5	10
	Post Development	390		98	0	10
Cultural	Predevelopment	2470	D	80	5	10
	Roof & Paving	770		98	0	10
	Service & Access	910		91	5	10
	Standby Parking	790		91	5	10

Table 2: Sub catchment and hydrological model parameters

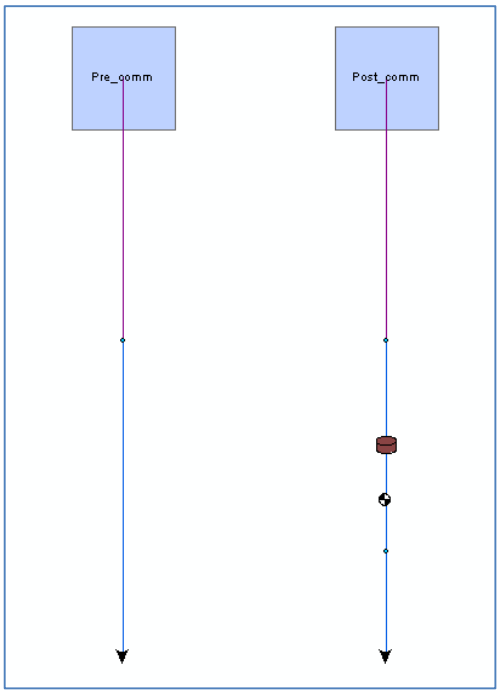


Figure 8: Proposed Commercial Hub hydrological and hydraulic model

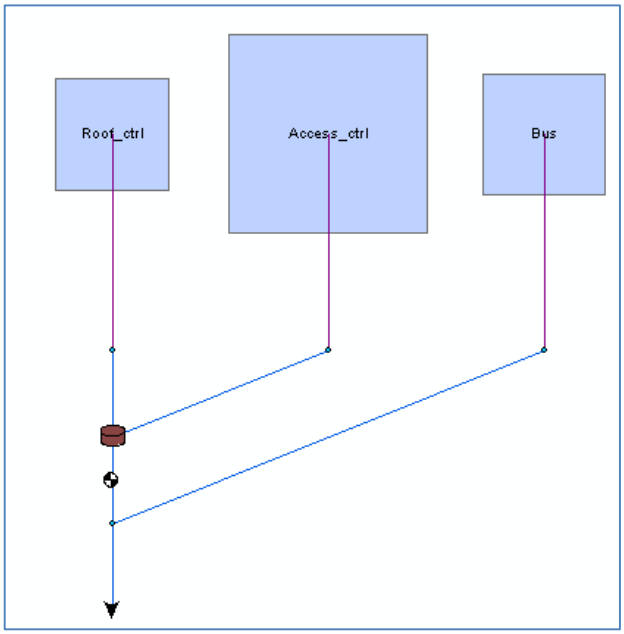


Figure 9: Proposed Cultural Centre hydrological and hydraulic model

	Tank Ø (m)	Orifice Ø (mm)	Event (ARI)	Pre Peak (l/s)	Attenuated Peak (l/s)	Atten WL (m)	Atten Vol (m³)	Post to Pre (%)
Commercial	2.5	28	5yr	1.4	1.4	0.75	3.7	100
			10yr+cc	2.6	1.8	1.25	6.155	69
Cultural	3.7	80	5yr	16.1	16.1	0.58	6.23	100
			10yr+cc	26.8	22.9	1.07	11.5	85

Table 3: Hydrological and hydraulic model output

The proposed Commercial Hub will discharge stormwater to an existing manhole which in turn discharges directly to the coast. It is unnecessary to mitigate coastal stormwater discharge subject to the intervening existing network having sufficient capacity. As Built detail of this network is not currently available and at the time of detailed design will require field survey to allow the capacity to be checked. If the existing capacity is found to be insufficient the additional discharge from the Commercial Hub can be mitigated back to the predevelopment case within a 9m³ attenuation tank.

The proposed Cultural Centre will discharge stormwater to the ephemeral water course and unmitigated flows would create a minor worsening of the flood elevation at the neighbouring #33 property boundary and at the State Highway 12 road corridor. To avoid future cumulative effects the change in runoff can be mitigated by attenuation. It is proposed to attenuate runoff from the proposed building, the service area, and the length of new access to a degree that the additional runoff from the standby coach parking can remain unmitigated. The proposed attenuation tank is 12.5m³.

The permitted activity requirements for stormwater quantity control can be achieved at both sites.

8.4. Stormwater Quality

The proposed Commercial Hub is located within an existing car park and no additional trafficked surfaces are created. No stormwater quality treatment is proposed in relation to the Commercial Hub.

The proposed Cultural Centre has new trafficked surfaces with low traffic volumes. The Auckland Council Technical Report 2013/035 *Auckland Unitary Plan stormwater management provisions: Technical basis of contaminant and volume management requirement* is an update to the objectives detailed in ARC TP10 and methods in ARC TP108. TR2013/035 provides a guidance on the number of vehicle movements above which stormwater contaminant treatment is required and for parking areas and associated access ways that are exposed to the weather the threshold is '*more than 50 vehicles per day'.* The traffic volumes at the Cultural Centre will be below this and no specific treatment other than debris remove upstream of the attenuation tank is proposed.

8.5. Footbridge and the Riparian Zone

A pedestrian footbridge proposed to cross the ephemeral water course. The proposed structure is a single 12m span with the deck bearers invert elevated above the 100 year + climate change flood elevation. The faces of the bridge abutments are located at the extent of the flood width. The proposed structure complies with the Regional Water and Soil Plan permitted activity rule 29.1.4 Single Span Bridges.

In order to create the area required to accommodate the proposed Cultural Centre building and associated Marae Atea and service area it is proposed to undertake filling within the lower plateau which abuts the water course. The existing dominant slope beyond the bank full edge was created by historic filling and is < 15°. Regional Water and Soil Plan identifies the width of the riparian strip for this grade of the dominant slope is a 10m setback from the bank full edge. Filling is proposed within this area with the volume exceeding the 200m² exposed area and 50m³ volume permitted activity thresholds. To undertake filling in this area would require a Discretionary resource consent. Given the context of the proposed earthworks and the existing water course no difficulties are anticipated in gaining this consent. In the unlikely event this proves not to be the case alternate scheme arrangements are available although likely have construction cost and minor functional effects.

Outside of the riparian zone the proposed earthworks volumes comply with the Regional Water and Soil Plan permitted activity rule 33.1.3 volume less than 5000m³ not on erosion prone land.

Concentrated stormwater shall not be discharged to slopes. Stormwater is considered to be a key factor in triggering slope instability. Specific consideration from a Geotechnical Engineer should be provided at the building consent stage, prior to development of the site.

9. CONTAMINATION – SUMMARY OF FINDINGS

A NES Preliminary Site Investigation has been undertaken on the proposed Cultural Centre site. Judgmental soil sampling has been undertaken as part of this study. The site has been divided into three Pieces of Land. Piece of Land 1 consists of the majority of the site, but excludes the north eastern corner, and a small portion on the southern boundary. Piece of Land 2 consists of a portion of land in the north eastern corner of the site, where a historic woolshed, yards and sheep dip were located. Piece of Land 3 is located on the southern boundary where a historic dairy shed and associated yard was located. The dairy shed, wool shed and yards have historically been removed. Remnants of the sheep dip structure are visible on site.

The pieces of land are identified in the attached Civil drawing set.

The proposed development is contained within Piece of Land 1. This area contains a large volume of predominantly clean fill although on occasion has been subject to uncontrolled site access and minor fly-tipping. Piece of Land 3 contains the location of a historic dairy shed and associated yard and ramp and has also had minor filling consistent with clean fill. A portion of the service access passes through Piece of Land 3. It is possible that activities listed in the HAIL have been carried out within Piece of Land 1 and 3, namely:

- HAIL G5: Waste disposal to land. (Piece of Land 1)
- HAIL I: Any other land that has been subject to release of hazardous substance. (Piece of 3)

The three fill material soil samples collected for analysis on Piece of Land 1 indicate background levels of all NES Metals, apart from one result for marginally elevated result for Mercury. Accordingly, the tested fill is unlikely to pose a risk to human health. Notwithstanding this, there is evidence of recent fly tipping, and the presence of a minor quantity of construction and demolition waste. Due to the limited amount and nature of this waste, it is unlikely that this waste will pose a risk to human health.

No soil samples were collected in the area where the cowshed, and its associated stockyard and loading ramp once stood, as this area had been covered with imported fill material. Should natural soils be disturbed as part of redevelopment of this area, then it is recommended to undertake investigative sampling to provide greater clarity. The dairy shed and associated yard are unlikely to have been subject to a specific HAIL activity although due weathering of paint and treated timber it is expected to have raised some NES Metals constituents, in particular lead and arsenic, to above background levels.

Piece of Land 2 is outside of the development area. On Piece of Land 2, investigations have determined that a historic HAIL activity (HAIL A8: Livestock dip or spray race operations) would have occurred, due to the presence of a pre 1951 wool shed, sheep dip and yards and confirmation that drench material was stored in the woolshed and used in the sheep dip. Soil testing confirmed concentrations of Arsenic and DDT above parkland/recreational guideline

values in samples collected from the dipping yard and sheep dip splash zone in the eastern portion of Piece of Land 2.

Piece of Land 2 is currently being used for the grazing of cattle, and unlikely to be disturbed as part of the proposed redevelopment. It is appropriate to place a management zone on this Piece of Land. Should soil need to be disturbed as part of redevelopment of the site, then this can be managed though compliance with the Construction Management Plan.

Although it is possible that two HAIL activities may have occurred on Piece of Land 1 & 3, they are unlikely to pose a risk to human health. In relation to the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 reporting meets the Module 1 requirements of the Preliminary Site Investigation, and additionally has been extended by laboratory testing of judgmental samples. Laboratory results of samples taken within the development area returned some results that were marginally above background levels but significantly below Priority Contaminant threshold levels. The soil disturbance volume exceeds the Permitted Activity levels and would require resource consent. The Controlled Activity resource consent requires a Detailed Site Investigation. The sampling and laboratory testing requirements to complete a Detailed Site Investigation complying with the Module 5, due to the volume and area of filling, would be significant both in number and cost, meanwhile it is most unlikely to provide greater clarity in this case than already provided by the Preliminary Site Investigation and supplementary testing. Instead it is proposed to approach the consenting requirement as a Discretionary Activity and would suggest conditions of consent include a Construction Management Plan and Site Validation Report.

10. TRAFFIC ASSESSMENT – SUMMARY OF FINDINGS

The traffic assessment finds, subject to the recommendations reproduced below, that if the proposed development as described is undertaken, minimal adverse effects to the function, capacity and safety of the surrounding transport network are anticipated.

Recommendations

- Car park access is marked with a limit line, centreline and directional arrows;
- The i-site parking area includes a pick-up / drop-off area of at least one tour coach. This area should also be subject to a bus / pedestrian management plan as the manoeuvring space is limited and it is possible the buses will be required to reverse. This management plan should particularly address pedestrian safety in the i-site area in relation to bus movements;
- Pedestrian access is provided between upper and lower parking areas

Tour coach tracking curves are shown in the attached Civil drawing set.

11. CONCLUSIONS

Geotechnical

A building platform of sufficient area has been nominated at the proposed building platforms. Based on this geotechnical investigation it is considered to presently be stable and suitable for the proposed development. Development will need to be carried out in accordance with the recommendations of this report and proper engineering practices.

Wastewater

The proposed Commercial Hub is able to connect to the existing municipal reticulated gravity wastewater network.

The proposed Cultural Centre is outside the municipal scheme area of benefit and would need to apply to connect. A wastewater rising main runs along the property boundary although it is more likely that the site will connect to the gravity system by private rising main reticulated to vicinity of the proposed Commercial Hub. An onsite holding tank of 9m³ is suitable and timed pump out would avoid noise generation during the hours of operation. While connecting to the municipal scheme is the preferred option, onsite wastewater disposal of secondary treated effluent is available as an alternative approach.

Potable water.

Connection to the municipal scheme is available at both sites.

Fire Fighting Supply

Hydrant sourced fire fighting supply is available but with limited capacity at both sites and supplementary sources form part of the fire fighting supply strategy. The proposed Commercial Hub is fire water classification 3 (FW3). A supplementary source is available from sea water with an appropriate existing hard stand adjacent to the Opononi Wharf. The proposed Cultural Centre is marginally above the floor area for FW3 and is FW4. A FW3 classification is achievable either through dispensation by the Fire Service or through reducing the fire cell area through the use of internal firewalls. A supplementary supply of 90m³ onsite storage is proposed at the Cultural Centre.

Stormwater

The development area at both sites are not affected by catchment sourced flooding or coastal inundation / erosion. The stormwater quantity mitigation requirements from new impervious areas can readily be achieved through a range of options. It is likely that no quantity mitigation is required at the Commercial Hub subject to the capacity of the existing reticulated portion as this discharges directly to the sea. No stormwater quality mitigation measures are proposed because no additional trafficked surfaces result from the Commercial Hub development and traffic volumes at the Cultural Centre are below a level that specific treatment would provide benefit.

Contaminated Land

Traffic Assessment

The proposed development is anticipated to cause minimal adverse effects to the function, capacity and safety of the surrounding transport network. Tour coach manoeuvring at the drop off / pick up point within the i-Site car park may require reversing movements and a management plan is proposed to mitigate potential pedestrian safety issues.

Power and Communication

Existing services are located adjacent to both sites.

Consenting requirements in addition to the Land Use consent

Northland Regional Council Discretionary Activity consent regarding earthworks with the Riparian zone

Far North District Council Discretionary Activity consent regarding disturbance of potentially contaminated soil

Providing that the above-mentioned recommendations are followed then the conclusion drawn from the site investigation and analysis of the property as identified above, is that the site is capable of developed as proposed, and in terms of Section 71 of the Resource Management Act 1991:

i. the land in respect of which the consent is sought is not likely to be subject to material damage by erosion, falling debris, subsidence, slippage, or inundation from any source; and

ii. any subsequent use that is likely to be made of the land is not likely to accelerate, worsen, or result in material damage to the land, other land, or structure by erosion, falling debris, subsidence, slippage, or inundation from any source.

12. LIMITATIONS

This report has been prepared for the benefit of Far North Holdings Ltd as our client and for Far North District Council as a Site Suitability Report as defined in the brief for the proposed change of land use at 31 & 41 State Highway 12 in Opononi. The reliance by other parties on the information or opinions contained in this report shall, without our prior review and agreement in writing, be at such parties' sole risk.

Opinions and judgments expressed herein are based on our understanding and interpretation of current regulatory standards, and should not be construed as legal opinions. Where opinions or judgments are to be relied on they should be independently verified with appropriate legal advice. Any recommendations, opinions, or guidance provided by Cook Costello in this report are limited to technical engineering requirements and are not made under the Financial Advisers Act 2008.

Recommendations and opinions in this report are based on data from observations and limited intrusive ground testing undertaken on site. The nature and continuity of subsoil conditions away from test locations are inferred and it must be appreciated that actual ground conditions could vary considerably from the assumed model.

Cook Costello have performed the services for this project in accordance with the standard agreement for consulting services and current professional standards for environmental site assessment. No guarantees are either expressed or implied.

If there are any queries regarding the content of this report, please do not hesitate to contact the undersigned.

Adrian Tonks
Engineer
BE (ESci), MEngNZ

G Harding
Chartered Professional Engineer
CPEng, IntPE (NZ), BE, BSc, MIPENZ

APPENDIX 1. CIVIL DRAWING SET

RESOURCE CONSENT

SIGNED 26/01/18 DATE

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Engineers | Architects | Surveyors

ENGINEERING DESIGN

FAR NORTH HOLDINGS LTD
OPONONI
LOT 1 DP 164181 &
LOT 1 DP 195242

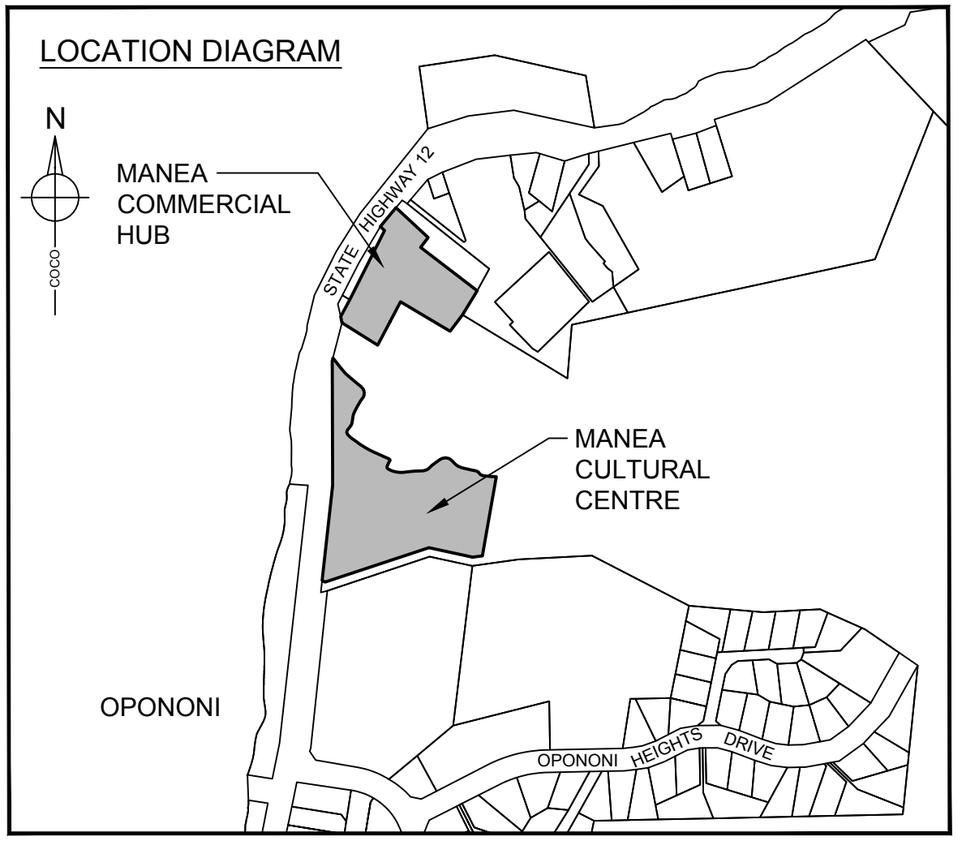
CCL PROJECT REF:14146
DATE: 26 JANUARY 2018

SCHEDULE OF DRAWINGS		
SHEET #	**TITLE**	**REV**
RC01	COVER SHEET & LOCATION DIAGRAM	A
RC02	EXISTING SITE PLAN - OVERALL	A
RC03	EXISTING SITE PLAN - ZOOM 1	A
RC04	EXISTING SITE PLAN - ZOOM 2	A
RC05	EXISTING SITE PLAN - ZOOM 3	A
RC06	GENERAL ARRANGEMENT PLAN - OVERALL	A
RC07	GENERAL ARRANGEMENT PLAN - ZOOM 1	A
RC08	GENERAL ARRANGEMENT PLAN - ZOOM 2	A
RC09	GENERAL ARRANGEMENT PLAN - ZOOM 3	A
RC10	BULK EARTHWORKS PLAN	A
RC11	FOOT BRIDGE CONCEPT CROSS SECTION	A
RC12	TOUR COACH STANDBY PARKING	A
RC13	TOUR COACH I-SITE TURNING PATHS	A
RC14	CONTAMINATED SITES - PIECES OF LAND	A

IMPORTANT NOTE: PRODUCER STATEMENTS

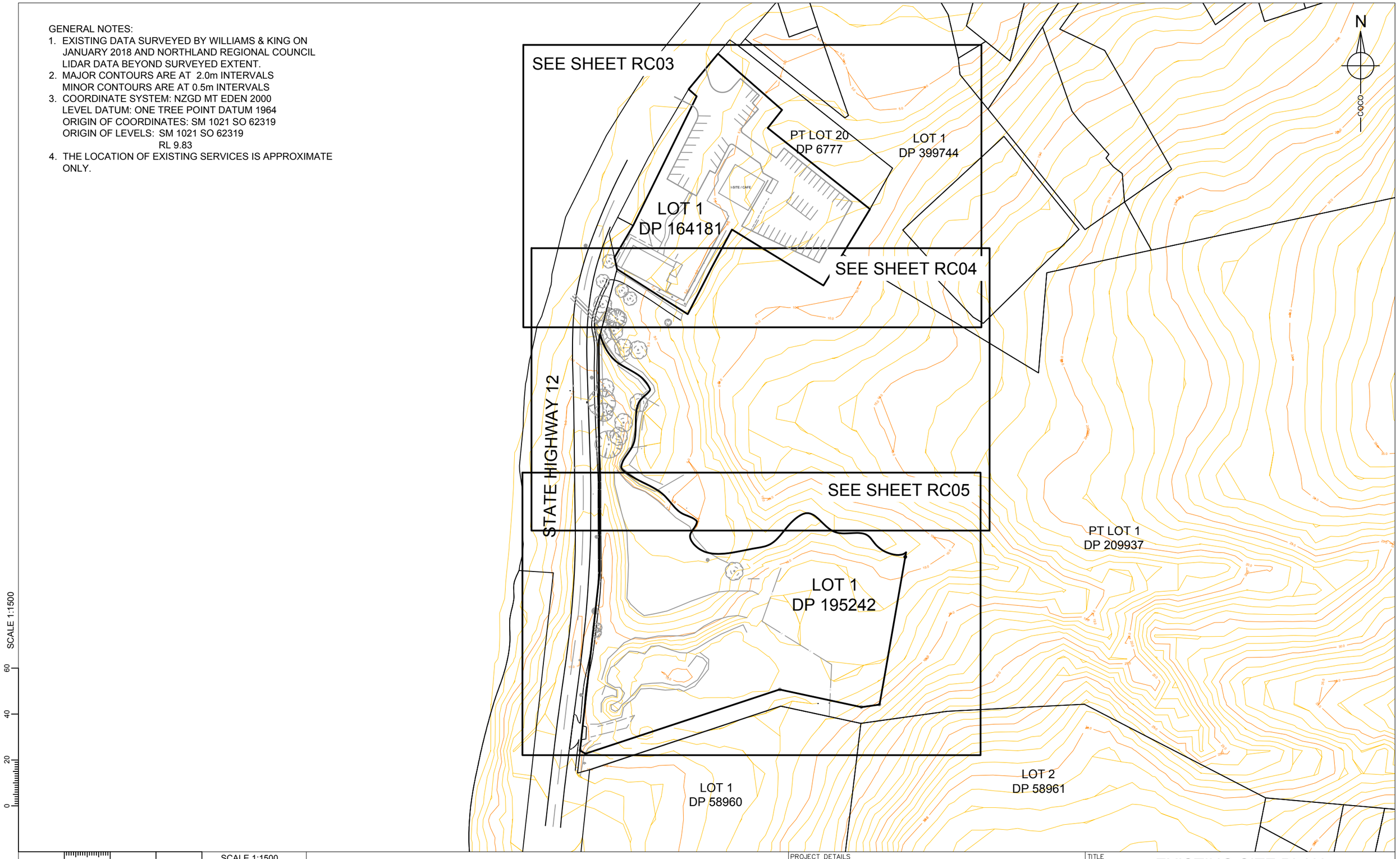
PS4 WILL NOT BE ISSUED AT COMPLETION OF WORKS UNLESS ALL REQUIRED TESTS AND INSPECTIONS HAVE BEEN NOTIFIED TO COOK COSTELLO AND COMPLETED DURING CONSTRUCTION

LOCATION DIAGRAM



GENERAL NOTES:

1. EXISTING DATA SURVEYED BY WILLIAMS & KING ON JANUARY 2018 AND NORTHLAND REGIONAL COUNCIL LIDAR DATA BEYOND SURVEYED EXTENT.
2. MAJOR CONTOURS ARE AT 2.0m INTERVALS
   MINOR CONTOURS ARE AT 0.5m INTERVALS
3. COORDINATE SYSTEM: NZGD MT EDEN 2000
   LEVEL DATUM: ONE TREE POINT DATUM 1964
   ORIGIN OF COORDINATES: SM 1021 SO 62319
   ORIGIN OF LEVELS: SM 1021 SO 62319
   RL 9.83
4. THE LOCATION OF EXISTING SERVICES IS APPROXIMATE ONLY.



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PROJECT DETAILS

RESOURCE CONSENT APPLICATION FOR
FAR NORTH HOLDINGS LTD,
31 & 41 STATE HIGHWAY 12, OPONONI,
LOT 1 DP 164181 & LOT 1 DP 195242

TITLE

EXISTING SITE PLAN OVERALL

DESIGNED	CCL REF. No.	DWG NUMBER	REV.
A TONKS	14146	RC02	A
APPROVED: G HARDING			
STATUS: RESOURCE CONSENT	SCALE: 1:1500 @ A3	SHEET No.: 2 OF 14	

DATE PLOTTED: 26/01/2018 FILE PATH: Z:\14000-14499\14146 Manea Cultural Centre, Opononi\CAD\RC Application\14146 Existing Site Plan.dwg

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GENERAL NOTES:
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   ORIGIN OF LEVELS: SM 1021 SO 62319
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KEY

CONTOURS MAJOR

CONTOURS MINOR

BH1/SP1 — BOREHOLE / SCALA PENETROMETER TEST

SP5 — SCALA PENETROMETER TEST

S12 — SOIL SAMPLES

I-SITE / CAFE

LOT 1
DP 164181

4 Square

pohutukawa

Pohutukawa

Pohutukawa

Pohutukawa

Metal Drive

Pine

Pine

SWMH Lid Level 3.53
Invert 2.28

2* 1050mmdai SW culverts

Invert In 1.30

5.0

10.0

15.0

SCALE 1:500

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LOT 1 DP 164181 & LOT 1 DP 195242

TITLE

EXISTING SITE PLAN - ZOOM 1

DESIGNED	CCL REF. No.	DWG NUMBER	REV.
A TONKS	14146	RC03	A
APPROVED: G HARDING			
STATUS: RESOURCE CONSENT	SCALE: 1:500 @ A3	SHEET No.: 3 OF 14	

DATE PLOTTED: 26/01/2018 FILE PATH: Z:\14000-14499\14146 Manea Cultural Centre, Opononi\CAD\RC Application\14146 Existing Site Plan.dwg

SWMH Lid Level 3.53
Invert 2.28
2* 1050rmdai SW culverts
pohutukawa
4 Square
Pohutukawa
Pohutukawa
Pohutukawa
Metal Drive
Pine
Pine
Cabbage Tree
Invert In 1.30
Mac
stream bed
Mac
Gum
Fence remains
Light Pole
Bank position in this area plotted from DP 195242 (1998) Level interpolated from field measurments
STATE HIGHWAY 12
FH
Norfolk Pine
Pine
Large Pine
Concrete footpath
edge of seal
edge of seal
Grass swale
Concrete footpath
Bank position in this area plotted from DP 195242 (1998) Level interpolated from field measurments
Bank position in this area plotted from DP 195242 (1998) Level interpolated from field measurments
Pt LOT 1
DP 209937
5.0
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15.0
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COCO
SCALE 1:500
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GENERAL NOTES:
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   ORIGIN OF LEVELS: SM 1021 SO 62319
   RL 9.83
4. THE LOCATION OF EXISTING SERVICES IS APPROXIMATE ONLY.

KEY

- CONTOURS MAJOR
- CONTOURS MINOR
- BH1/SP1 — BOREHOLE / SCALA PENETROMETER TEST
- SP5 — SCALA PENETROMETER TEST
- S12 — SOIL SAMPLES

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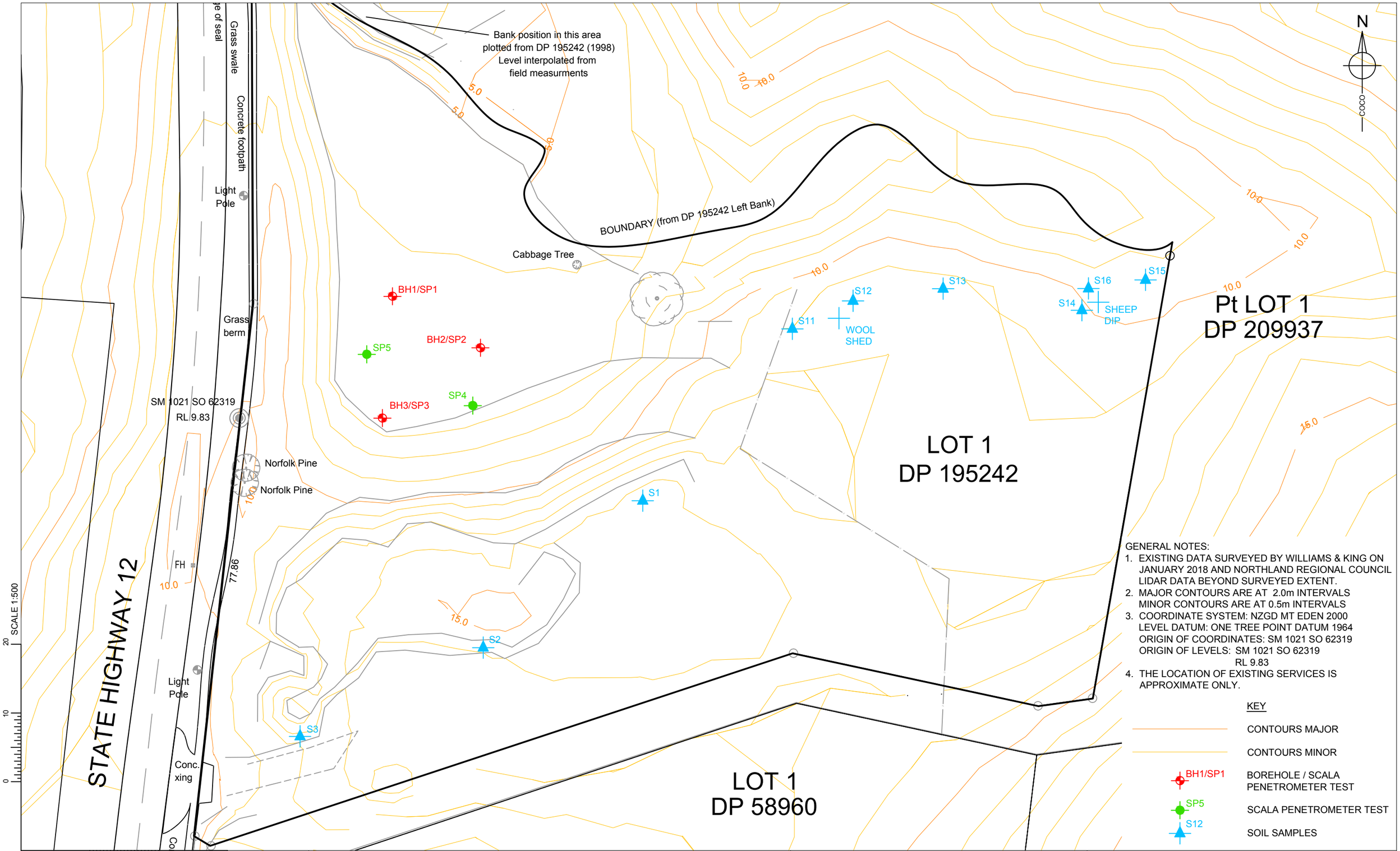
TITLE

EXISTING SITE PLAN - ZOOM 2

DESIGNED	CCL REF. No.	DWG NUMBER	REV.
A TONKS	14146	RC04	A
APPROVED: G HARDING			
STATUS: RESOURCE CONSENT	SCALE: 1:500 @ A3	SHEET No.: 4 OF 14	

DATE PLOTTED: 26/01/2018 FILE PATH: Z:\14000-14499\14146 Manea Cultural Centre, Opononi\CAD\RC Application\14146 Existing Site Plan.dwg



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- BH1/SP1 — BOREHOLE / SCALA PENETROMETER TEST
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TITLE

EXISTING SITE PLAN - ZOOM 3

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A TONKS	14146	RC05	A
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STATUS: RESOURCE CONSENT	SCALE: 1:500 @ A3	SHEET No.: 5 OF 14	

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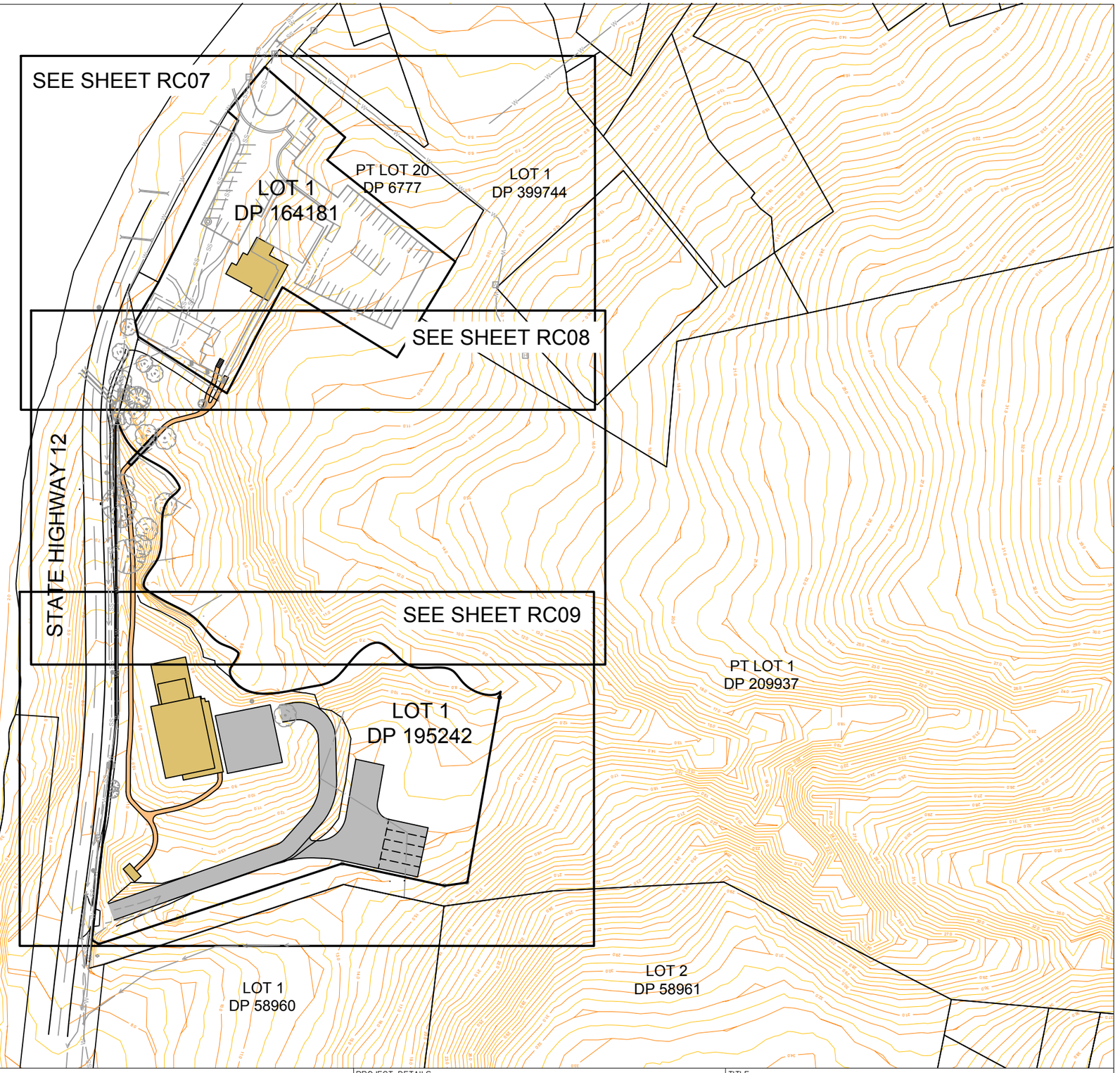

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RESOURCE CONSENT APPLICATION FOR
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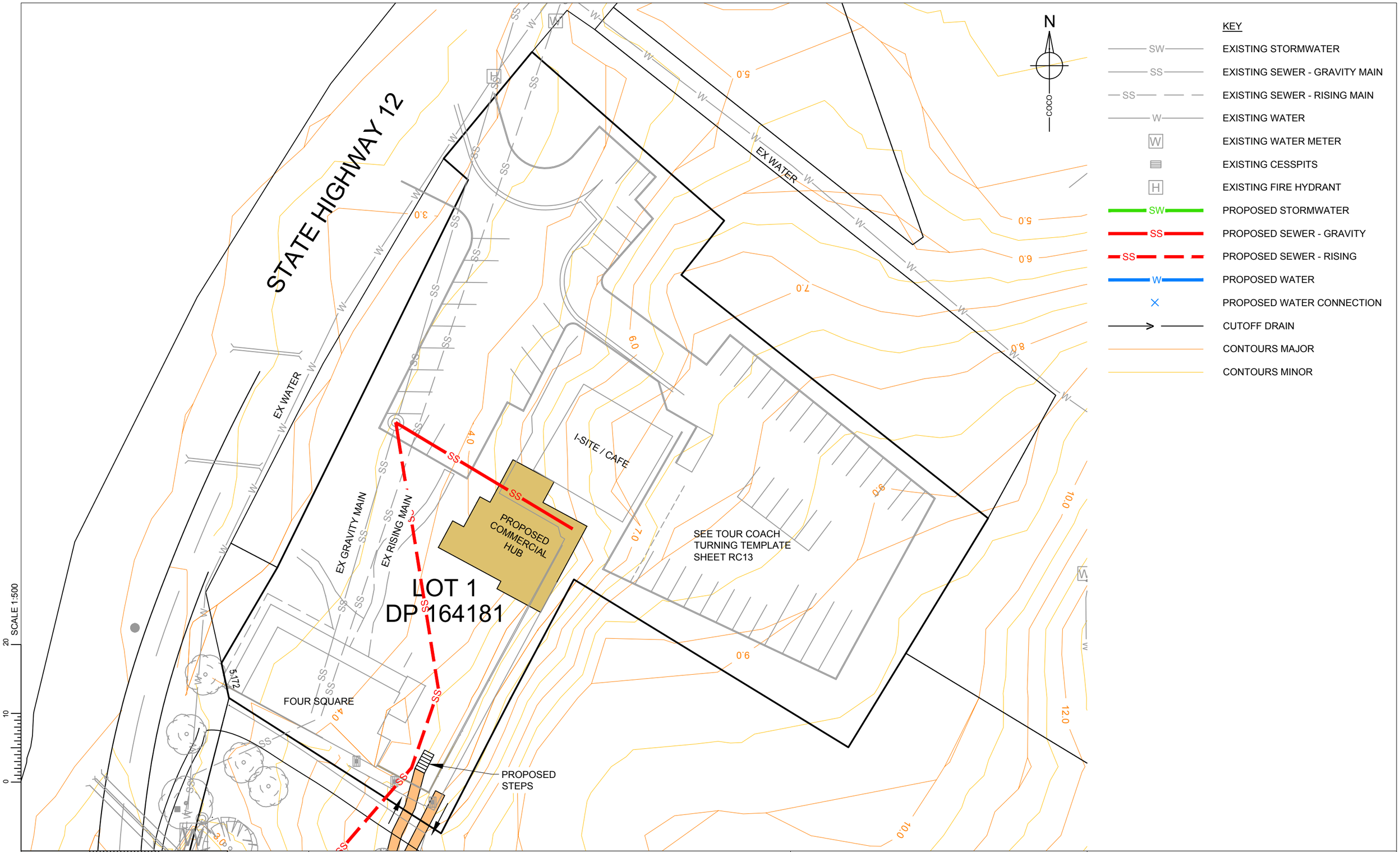
TITLE

GENERAL ARRANGEMENT PLAN OVERALL

DESIGNED	CCL REF. No.	DWG NUMBER	REV.
A TONKS	14146	RC06	A
APPROVED: G HARDING			
STATUS: RESOURCE CONSENT	SCALE: 1:1500 @ A3	SHEET No.: 6 OF 14	

DATE PLOTTED: 26/01/2018 FILE PATH: Z:\14000-14499\14146 Manea Cultural Centre, Opononi\CAD\RC Application\14146 General Arrangement Plans.dwg



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PROJECT DETAILS

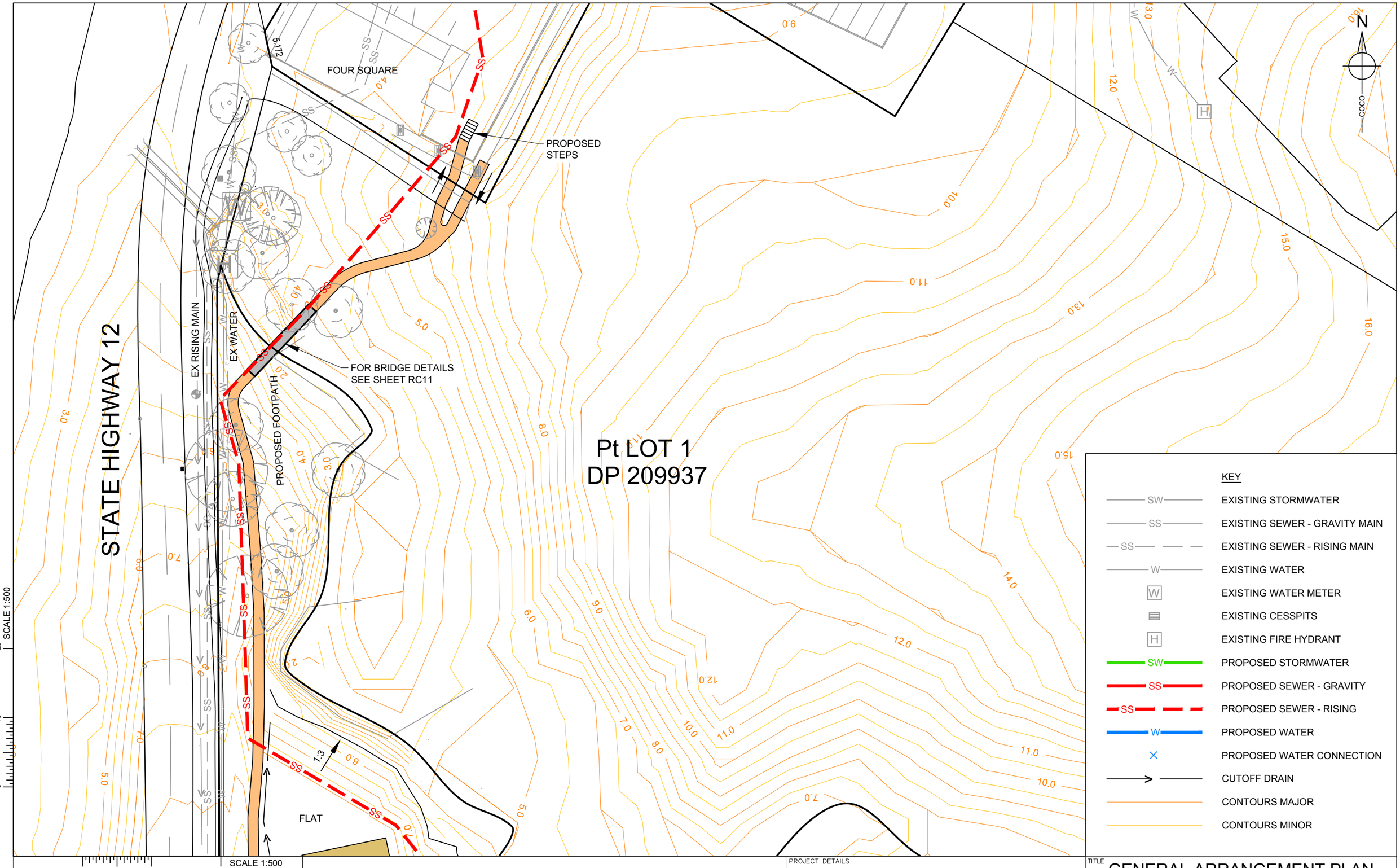
RESOURCE CONSENT APPLICATION FOR FAR NORTH HOLDINGS LTD, 31 & 41 STATE HIGHWAY 12, OPONONI, LOT 1 DP 164181 & LOT 1 DP 195242

TITLE

GENERAL ARRANGEMENT PLAN - ZOOM 1

DESIGNED: A TONKS	CCL REF. No.: 14146	DWG NUMBER: RC07	REV.: A
APPROVED: G HARDING			
STATUS: RESOURCE CONSENT	SCALE: 1:500 @ A3	SHEET No.: 7 OF 14	

DATE PLOTTED: 26/01/2018 FILE PATH: Z:\14000-14499\14146 Manea Cultural Centre, Opononi\CAD\RC Application\14146 General Arrangement Plans.dwg



KEY

- SW — EXISTING STORMWATER
- SS — EXISTING SEWER - GRAVITY MAIN
- SS — EXISTING SEWER - RISING MAIN
- W — EXISTING WATER
- W — EXISTING WATER METER
- EXISTING CESSPITS
- H — EXISTING FIRE HYDRANT
- SW — PROPOSED STORMWATER
- SS — PROPOSED SEWER - GRAVITY
- SS — PROPOSED SEWER - RISING
- W — PROPOSED WATER
- PROPOSED WATER CONNECTION
- CUTOFF DRAIN
- CONTOURS MAJOR
- CONTOURS MINOR

REV.	REVISION DETAILS	DRAWN	DATE
D			
C			
B			
A	1ST ISSUE	AJP	26-01-18

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PROJECT DETAILS

RESOURCE CONSENT APPLICATION FOR
FAR NORTH HOLDINGS LTD,
31 & 41 STATE HIGHWAY 12, OPONONI,
LOT 1 DP 164181 & LOT 1 DP 195242

TITLE

GENERAL ARRANGEMENT PLAN - ZOOM 2

DESIGNED	CCL REF. No.	DWG NUMBER	REV.
A TONKS	14146	RC08	A
APPROVED: G HARDING			
STATUS: RESOURCE CONSENT	SCALE: 1:500 @ A3	SHEET No.: 8 OF 14	

N

FLAT

FLAT PAD
FL 8.2m

PROPOSED
HERITAGE
CENTRE

PROPOSED
SERVICE AREA
(GRAVEL)

IN GROUND
SEWER TANK

IN GROUND
STORMWATER
ATTENUATION
TANK

PROPOSED FOOTPATH

EX RISING MAIN

STATE HIGHWAY 12

77.86

GRAVEL
SURFACING

GRAVEL
SURFACING

SEE TOUR COACH
TURNING TEMPLATE
SHEET RC12

PROPOSED
LOOKOUT
RL 14.0

FIRE FIGHTING
STORAGE INSTALLED
WITH FIRE SERVICE
COUPLING
(25m³ x 4 BURIED TO
LID LEVEL)

Pt LOT 1
DP 209937

LOT 1
DP 195242

LOT 1
DP 58960

NOTES:
1. CONTOURS ARE AT 0.5m INTERVALS.

KEY

SW	EXISTING STORMWATER
SS	EXISTING SEWER - GRAVITY MAIN
SS	EXISTING SEWER - RISING MAIN
W	EXISTING WATER
W	EXISTING WATER METER
	EXISTING CESSPITS
H	EXISTING FIRE HYDRANT
SW	PROPOSED STORMWATER
SS	PROPOSED SEWER - GRAVITY
SS	PROPOSED SEWER - RISING
W	PROPOSED WATER
	PROPOSED WATER CONNECTION
	CUTOFF DRAIN
	CONTOURS MAJOR
	CONTOURS MINOR

SCALE 1:500
0 10 20

REV.	REVISION DETAILS	DRAWN	DATE
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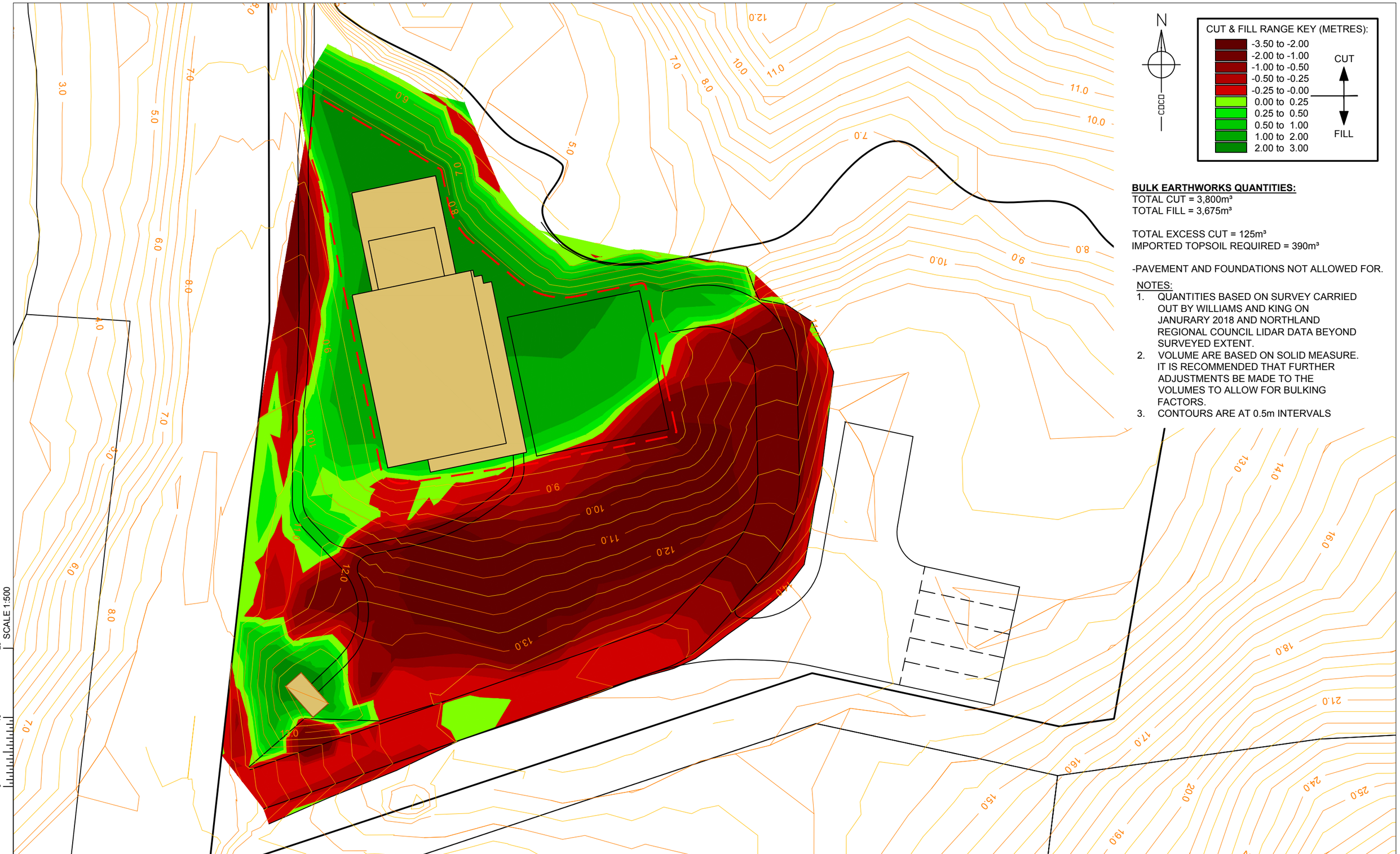
PROJECT DETAILS
RESOURCE CONSENT APPLICATION FOR
FAR NORTH HOLDINGS LTD,
31 & 41 STATE HIGHWAY 12, OPONONI,
LOT 1 DP 164181 & LOT 1 DP 195242

TITLE
GENERAL ARRANGEMENT PLAN
- ZOOM 3

DESIGNED	CCL REF. No.	DWG NUMBER	REV.
A TONKS	14146	RC09	A
APPROVED G HARDING			
STATUS RESOURCE CONSENT	SCALE 1:500 @ A3	SHEET No. 9 OF 14	

DATE PLOTTED: 26/01/2018 FILE PATH: Z:\14000-14499\14146 Manea Cultural Centre, Opononi\CAD\RC Application\14146 General Arrangement Plans.dwg



BULK EARTHWORKS QUANTITIES:
TOTAL CUT = 3,800m³
TOTAL FILL = 3,675m³

TOTAL EXCESS CUT = 125m³
IMPORTED TOPSOIL REQUIRED = 390m³

-PAVEMENT AND FOUNDATIONS NOT ALLOWED FOR.

NOTES:
1. QUANTITIES BASED ON SURVEY CARRIED OUT BY WILLIAMS AND KING ON JANURARY 2018 AND NORTHLAND REGIONAL COUNCIL LIDAR DATA BEYOND SURVEYED EXTENT.
2. VOLUME ARE BASED ON SOLID MEASURE. IT IS RECOMMENDED THAT FURTHER ADJUSTMENTS BE MADE TO THE VOLUMES TO ALLOW FOR BULKING FACTORS.
3. CONTOURS ARE AT 0.5m INTERVALS

SCALE 1:500

REV.	REVISION DETAILS	DRAWN	DATE
D			
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A	1ST ISSUE	AJP	26-01-18

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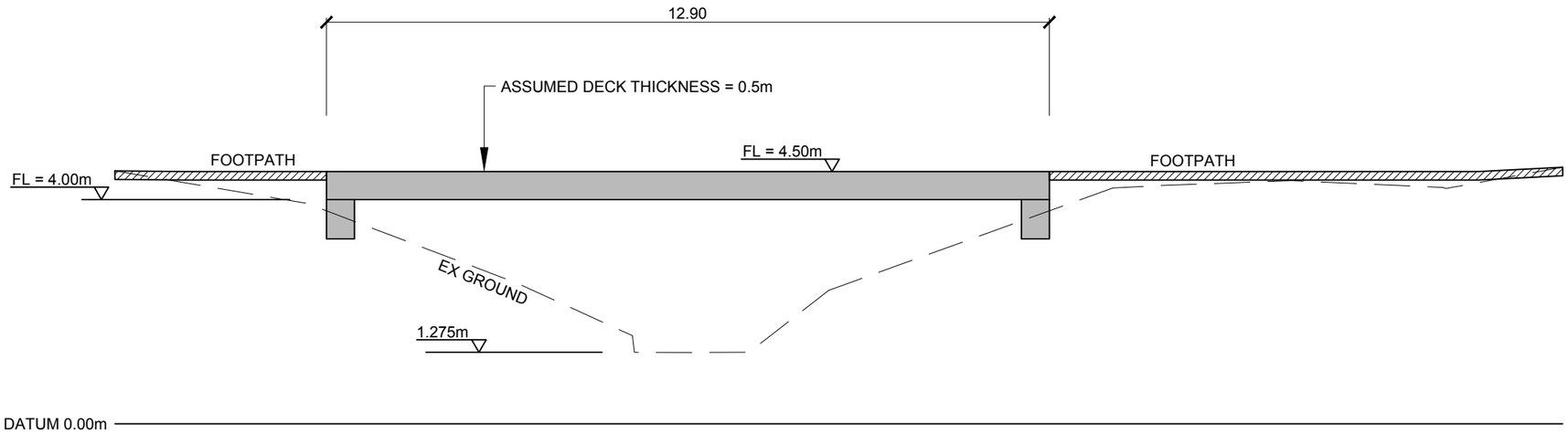
PROJECT DETAILS
RESOURCE CONSENT APPLICATION FOR FAR NORTH HOLDINGS LTD,
31 & 41 STATE HIGHWAY 12, OPONONI,
LOT 1 DP 164181 & LOT 1 DP 195242

TITLE
BULK EARTHWORKS PLAN

DESIGNED	CCL REF. No.	DWG NUMBER	REV.
A TONKS	14146	RC10	A
APPROVED: G HARDING			
STATUS: RESOURCE CONSENT	SCALE: 1:500 @ A3	SHEET No.: 10 OF 14	



SCALE 1:100

0 2 4

SCALE 1:100

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D			
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PROJECT DETAILS

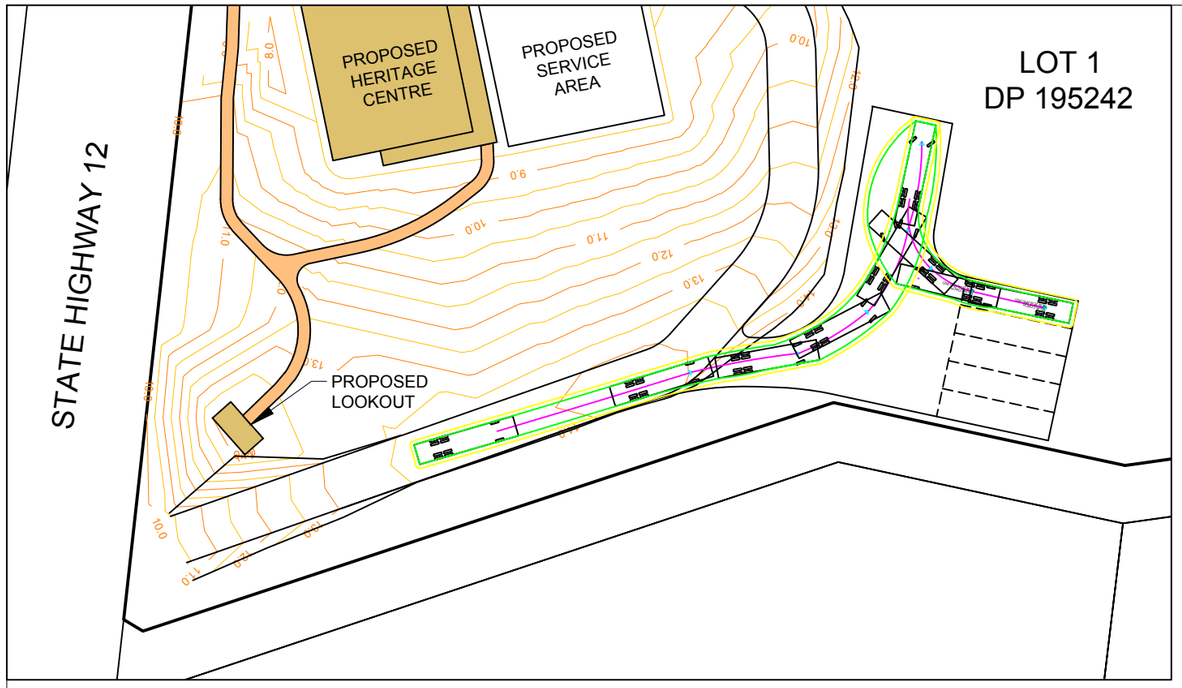
RESOURCE CONSENT APPLICATION FOR
FAR NORTH HOLDINGS LTD,
31 & 41 STATE HIGHWAY 12, OPONONI,
LOT 1 DP 164181 & LOT 1 DP 195242

TITLE

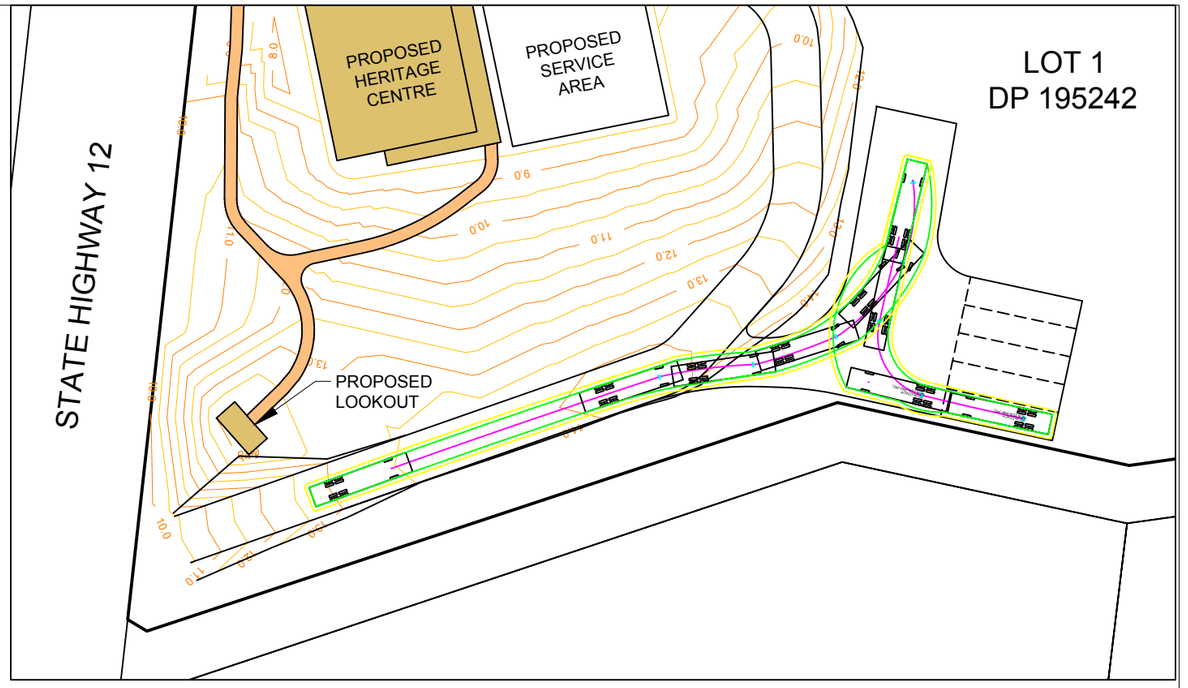
FOOT BRIDGE CONCEPT CROSS SECTION

DESIGNED	CCL REF. No.	DWG NUMBER	REV.
A TONKS	14146	RC11	A
APPROVED: G HARDING			
STATUS: RESOURCE CONSENT	SCALE: 1:100 @ A3	SHEET No.: 11 OF 14	

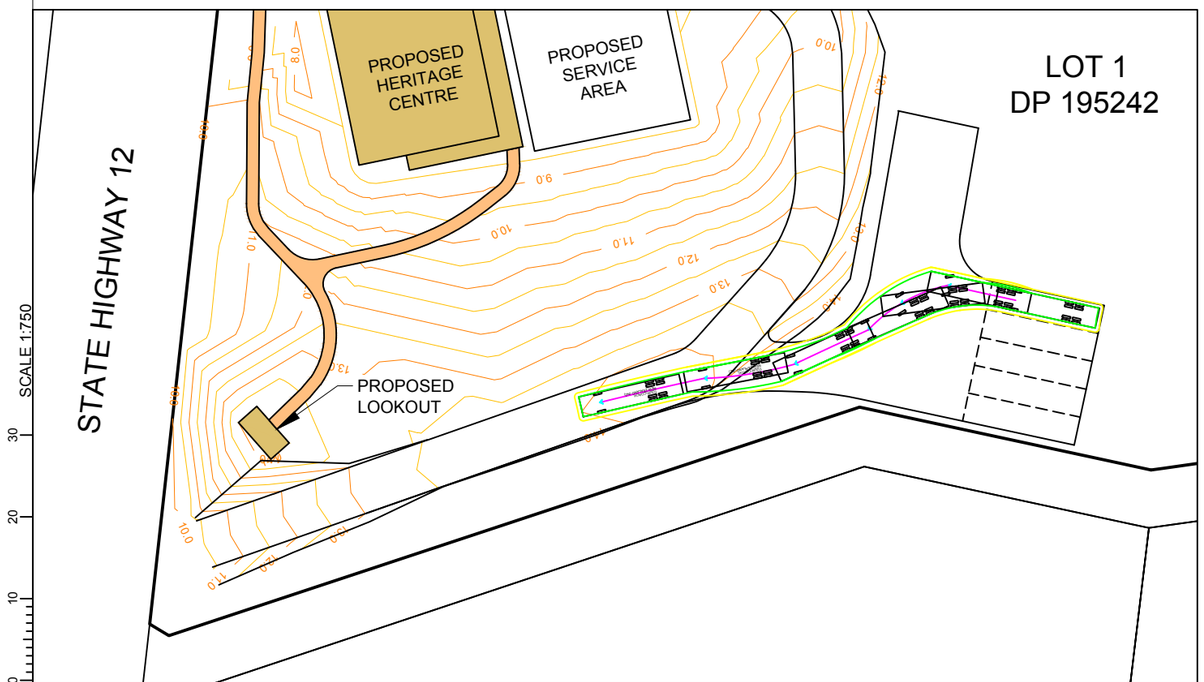
DATE PLOTTED: 26/01/2018 FILE PATH: Z:\14000-14499\14146 Manea Cultural Centre, Opononi\CAD\RC Application\14146 Bridge Details.dwg



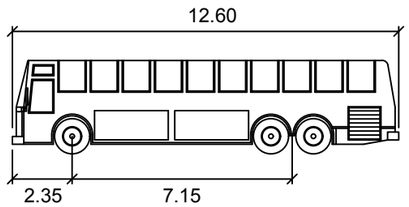
TOUR COACH TURNING IN - SCENARIO 1



TOUR COACH TURNING IN - SCENARIO 2



TOUR COACH TURNING OUT



TOUR-COACH

	Meters
Width:	: 2.50
Track:	: 2.50
Lock to Lock Time:	: 6.0 s
Steering Angle:	: 46.1 deg

REV.	REVISION DETAILS	DRAWN	DATE
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B			
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PROJECT DETAILS

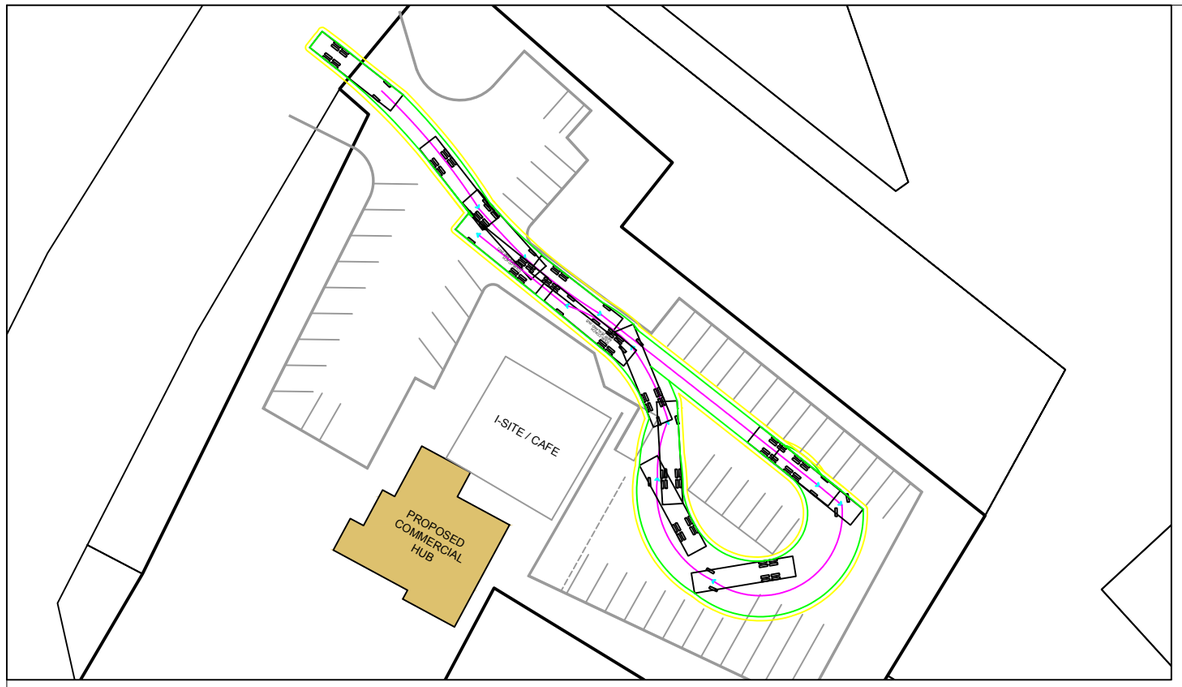
RESOURCE CONSENT APPLICATION FOR FAR NORTH HOLDINGS LTD, 31 & 41 STATE HIGHWAY 12, OPONONI, LOT 1 DP 164181 & LOT 1 DP 195242

TITLE

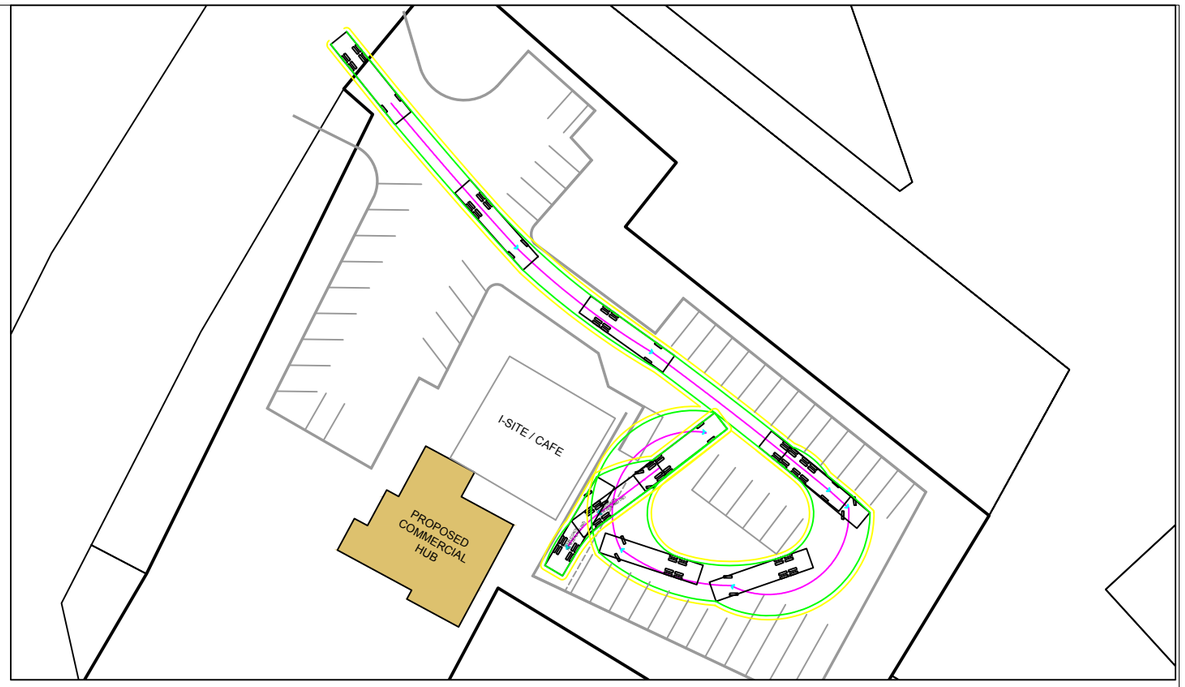
TOUR COACH STANDBY PARKING

DESIGNED	CCL REF. No.	DWG NUMBER	REV.
A TONKS	14146	RC12	A
APPROVED G HARDING			
STATUS RESOURCE CONSENT	SCALE 1:750 @ A3	SHEET No. 12 OF 14	

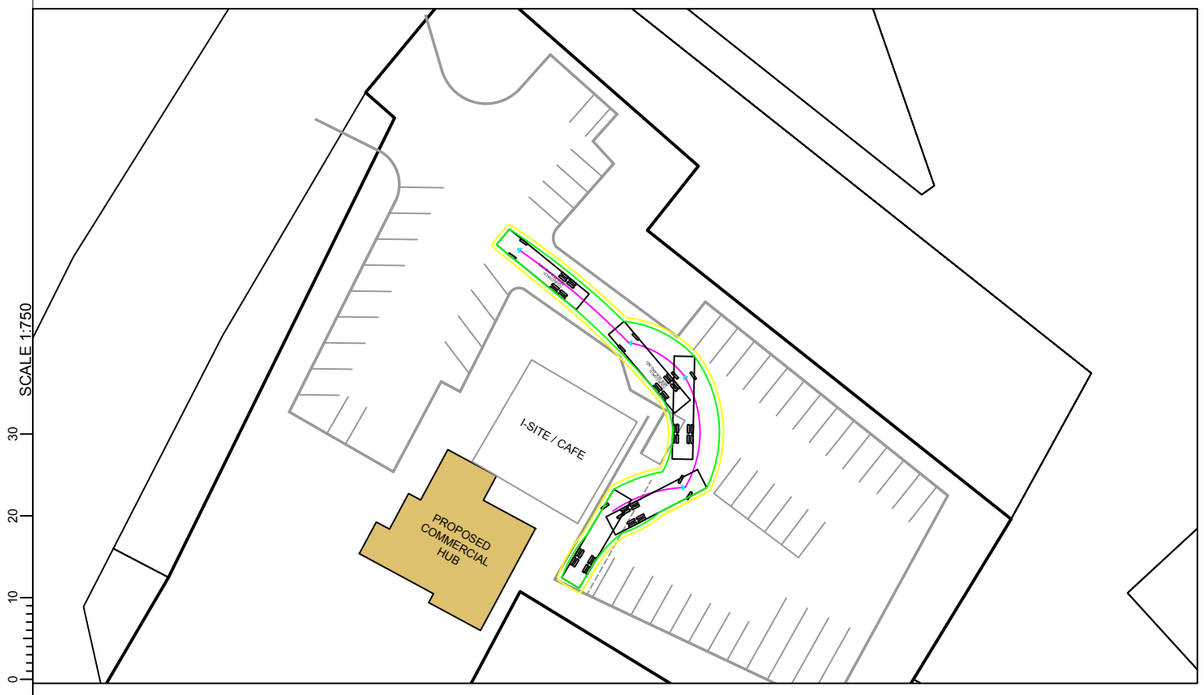
DATE PLOTTED: 26/01/2018 FILE PATH: Z:\14000-14499\14146 Manea Cultural Centre, Opononi\CAD\RC Application\14146 Tour Coach Turning Circles.dwg



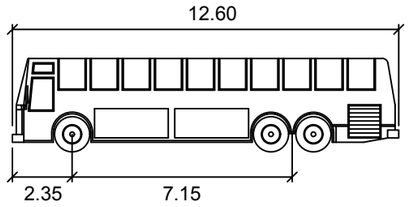
I-SITE TOUR COACH TURNING



I-SITE TOUR COACH DROP OFF



I-SITE TOUR COACH LEAVING



TOUR-COACH

	Meters
Width:	: 2.50
Track:	: 2.50
Lock to Lock Time:	: 6.0 s
Steering Angle:	: 46.1 deg

SCALE 1:750

REV.	REVISION DETAILS	DRAWN	DATE
D			
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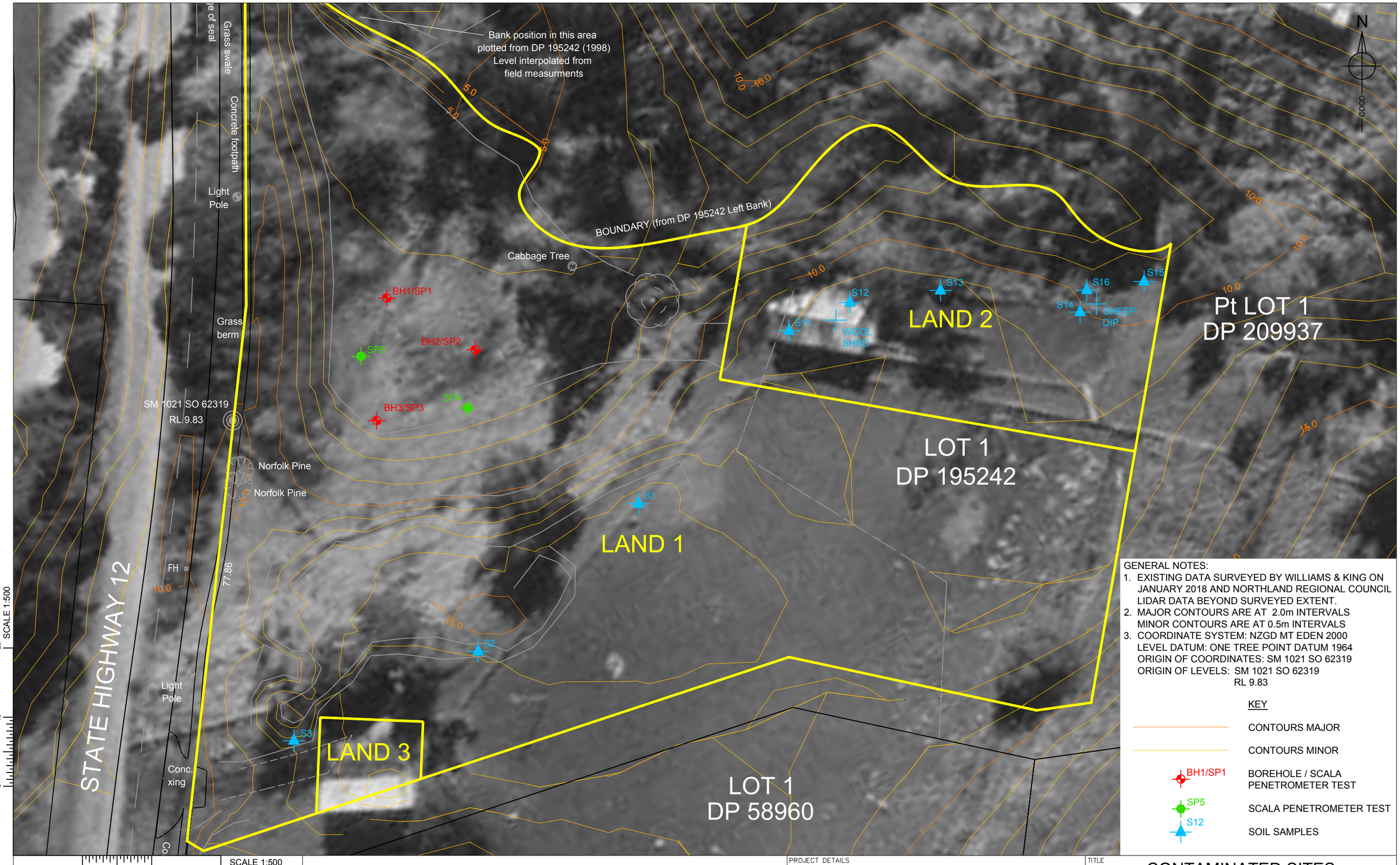
PROJECT DETAILS

RESOURCE CONSENT APPLICATION FOR
FAR NORTH HOLDINGS LTD,
31 & 41 STATE HIGHWAY 12, OPONONI,
LOT 1 DP 164181 & LOT 1 DP 195242

TITLE

TOUR COACH I-SITE TURNING PATHS

DESIGNED	CCL REF. No.	DWG NUMBER	REV.
A TONKS	14146	RC13	A
APPROVED G HARDING			
STATUS RESOURCE CONSENT	SCALE 1:750 @ A3	SHEET No. 13 OF 14	



GENERAL NOTES:

1. EXISTING DATA SURVEYED BY WILLIAMS & KING ON JANUARY 2018 AND NORTHLAND REGIONAL COUNCIL LIDAR DATA BEYOND SURVEYED EXTENT.
2. MAJOR CONTOURS ARE AT 2.0m INTERVALS
   MINOR CONTOURS ARE AT 0.5m INTERVALS
3. COORDINATE SYSTEM: NZGD MT EDEN 2000
   LEVEL DATUM: ONE TREE POINT DATUM 1964
   ORIGIN OF COORDINATES: SM 1021 SO 62319
   ORIGIN OF LEVELS: SM 1021 SO 62319
   RL 9.83

KEY

- CONTOURS MAJOR
- CONTOURS MINOR
- BH1/SP1 — BOREHOLE / SCALA PENETROMETER TEST
- SP5 — SCALA PENETROMETER TEST
- S12 — SOIL SAMPLES

REV.	REVISION DETAILS	DRAWN	DATE
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PROJECT DETAILS

RESOURCE CONSENT APPLICATION FOR
FAR NORTH HOLDINGS LTD,
31 & 41 STATE HIGHWAY 12, OPONONI,
LOT 1 DP 164181 & LOT 1 DP 195242

TITLE

CONTAMINATED SITES - PIECES OF LAND

DESIGNED	CCL REF. No.	DWG NUMBER	REV.
A TONKS	14146	RC14	A
APPROVED: G HARDING			
STATUS: RESOURCE CONSENT	SCALE: 1:500 @ A3	SHEET No.: 14 OF 14	

DATE PLOTTED: 26/01/2018 FILE PATH: Z:\14000-14499\14146 Manea Cultural Centre, Opononi\CAD\RC Application\14146 Contaminated Site 180126.dwg

APPENDIX 2. INTRUSIVE GROUND TEST RESULTS

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BOREHOLE LOG AND TEST SHEET

NZGS December 2005

Ref.: 14146
Client: Far North Holdings
Date: 5/01/2018
Borehole No.: 1
Location: #41 SH12 Opononi
Drilling Method: HA

Page: 1
Tested by: GH
Logger: GH
Checked:
Date Checked:

Depth (mbgl)	Legend	Soil Description	Water Level	Vane Shear Strength maximum/ residual corrected (kPa)
0		TOPSOIL with rootlets; brown/orange		
0.2		Silty CLAY; light grey/brown with gravels Clay is moist, stiff, medium to high plasticity Gravel <25mm in diameter, subangular, grey		
0.5				154/52
1				
		End of BH1 - 1.2 mbgl. Refusal on inferred boulder		
1.5				
2				
2.5				

Remarks:
Groundwater was not encountered.
Shear vane readings may be inaccurate due to gravels

Topsoil
Fill
Clay
Silt
Sand
Gravel
Peat
Rock

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BOREHOLE LOG AND TEST SHEET

NZGS December 2005

Ref.: 14146
Client: Far North Holdings
Date: 5/01/2018
Borehole No.: 2
Location: #41 SH12 Opononi
Drilling Method: HA

Page: 1
Tested by: GH
Logger: GH
Checked:
Date Checked:

Depth (mbgl)	Legend	Soil Description	Water Level	Vane Shear Strength maximum/ residual corrected (kPa)
0		TOPSOIL with rootlets; brown/orange		
0.3		Silty CLAY; light grey/brown with gravels		
0.5		Clay is wet, stiff, medium to high plasticity Gravel <15mm in diameter, subangular, grey		120/36
1		End of BH2 - 0.8mbgl. Refusal on inferred boulder		
1.5				
2				
2.5				

Remarks:
Groundwater was not encountered.
Shear vane readings may be inaccurate due to gravels

Topsoil
Fill
Clay
Silt
Sand
Gravel
Peat
Rock

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BOREHOLE LOG AND TEST SHEET

NZGS December 2005

Ref.: 14146
Client: Far North Holdings
Date: 5/01/2018
Borehole No.: 3
Location: #41 SH12 Opononi
Drilling Method: HA

Page: 1
Tested by: GH
Logger: GH
Checked:
Date Checked:

Depth (mbgl)	Legend	Soil Description	Water Level	Vane Shear Strength maximum/ residual corrected (kPa)
0		TOPSOIL with rootlets; brown/orange		
0.2		Silty CLAY; light grey/brown with gravels Clay is wet, stiff, medium to high plasticity Gravel <35mm in diameter, subangular, grey		
0.5				145/65
1				112/48
		- orange/brown sand lens at 1.2m bgl		
1.5		- gravels increasing in prevalence		N/A
2				N/A
2.2		SAND with some silt, orange/brown, coarse, poorly graded, wet, dense		
2.5				N/A
2.8		End of BH3 - 2.8mbgl. Hole collapse		

Remarks:
Groundwater was not encountered.
Shear vane readings may be inaccurate due to gravels

Topsoil
Fill
Clay
Silt
Sand
Gravel
Peat
Rock

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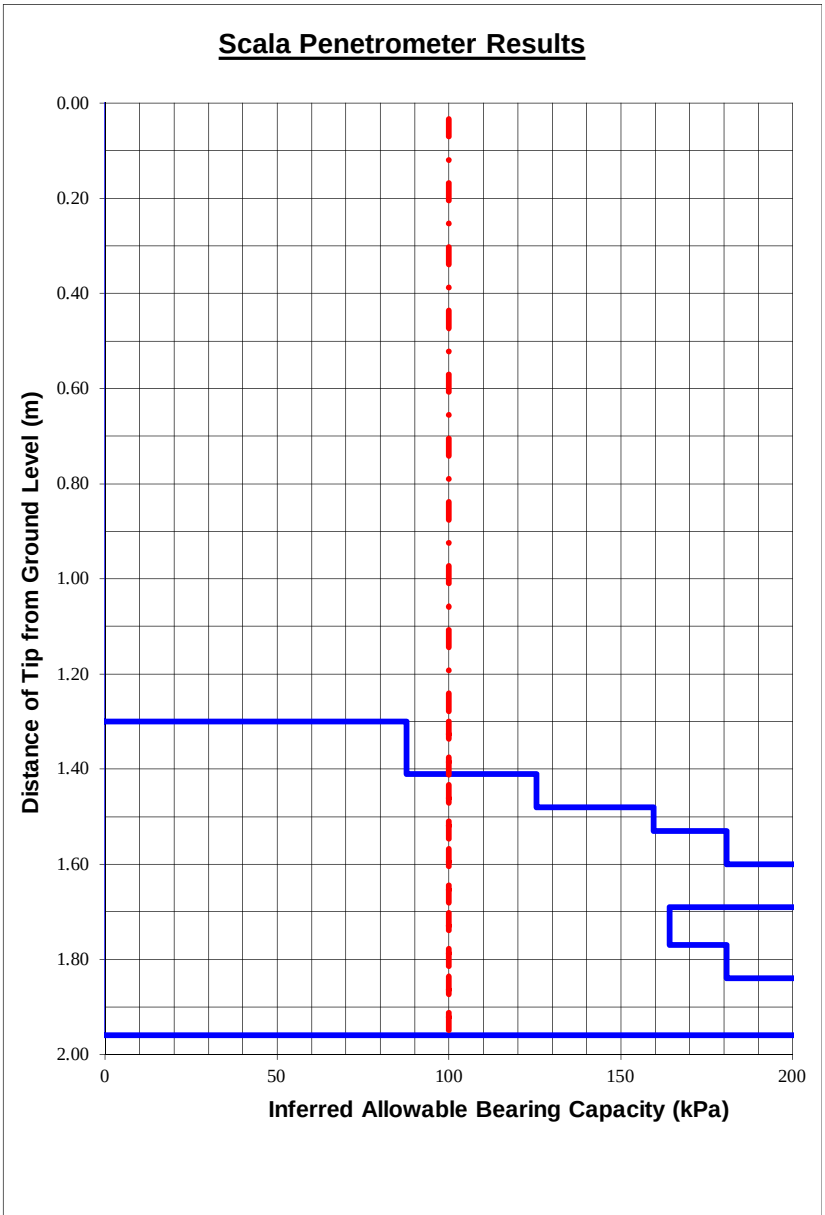
DYNAMIC CONE (SCALA) PENETROMETER

Test 23 / NZS 4402 : 1988 Test 6.5.2

Job: 14146
Client: Far North Holdings
Date: 5/01/2018
Location: #41 SH12 Opononi
Scala No.: 1
Page: 1

Tested by: GH
Logged by: GH
Checked:
Date Checked:
Ground Level (m): 1.3
Required Allowable kPa: 100

No. Blows	Tip to ref (cm)	Total Blows	mm / blow	kPa	depth (m)
0	76.0	0	0	0	1.3
3	65.0	3	37	88	1.41
3	58.0	6	23	125	1.48
3	53.0	9	17	160	1.53
5	46.0	14	14	181	1.60
5	41.0	19	10	230	1.65
5	37.0	24	8	273	1.69
5	29.0	29	16	164	1.77
5	22.0	34	14	181	1.84
5	18.0	39	8	273	1.88
5	13.0	44	10	230	1.93
5	10.0	49	6	330	1.96



Line is the suggested correlation of e (mm/blow) and Bearing Pressure after STOCKWELL REF: NZ ENGINEERING (32,6) 15 June 1977

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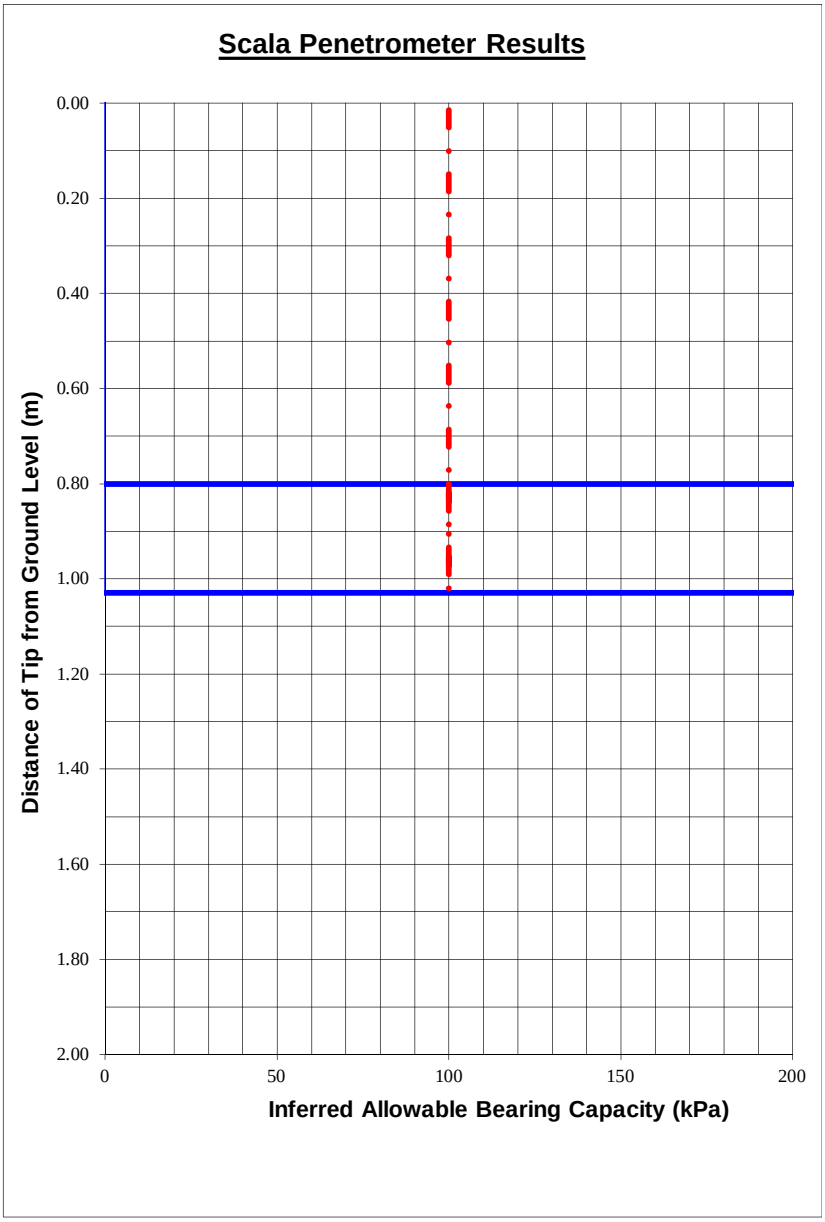
DYNAMIC CONE (SCALA) PENETROMETER

Test 23 / NZS 4402 : 1988 Test 6.5.2

Job: 14146
Client: Far North Holdings
Date: 5/01/2018
Location: #41 SH12 Opononi
Scala No.: 2
Page: 1

Tested by: GH
Logged by: GH
Checked:
Date Checked:
Ground Level (m): 0.8
Required Allowable kPa: 100

No. Blows	Tip to ref (cm)	Total Blows	mm / blow	kPa	depth (m)
0	56.0	0	0	0	0.8
5	51.0	5	10	230	0.85
5	47.0	10	8	273	0.89
5	43.0	15	8	273	0.93
5	38.0	20	10	230	0.98
5	35.0	25	6	330	1.01
5	33.0	30	4	425	1.03



Line is the suggested correlation of e (mm/blow) and Bearing Pressure after STOCKWELL REF: NZ ENGINEERING (32,6) 15 June 1977

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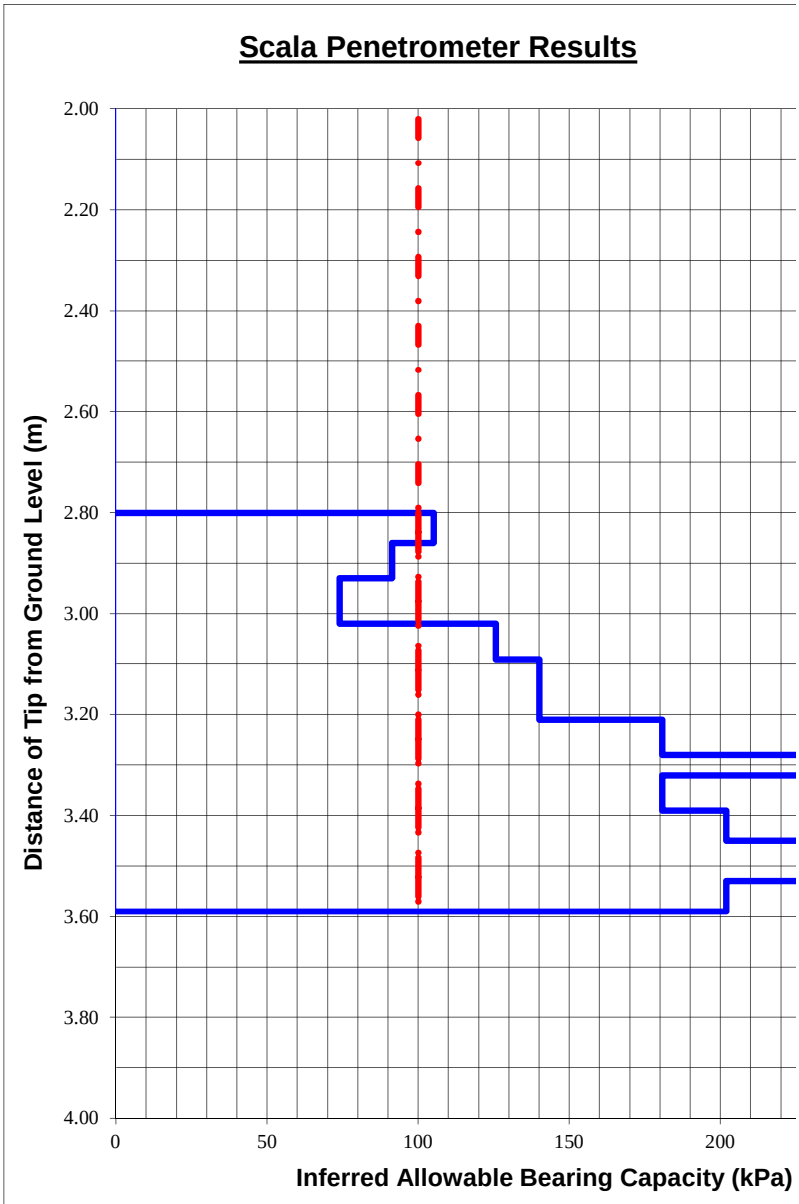
DYNAMIC CONE (SCALA) PENETROMETER

Test 23 / NZS 4402 : 1988 Test 6.5.2

Job: 14146
Client: Far North Holdings
Date: 5/01/2018
Location: #41 SH12 Opononi
Scala No.: 3
Page: 1

Tested by: GH
Logged by: GH
Checked:
Date Checked:
Ground Level (m): 2.8
Required Allowable kPa: 100

No. Blows	Tip to ref (cm)	Total Blows	mm / blow	kPa	depth (m)
0	80.0	0	0	0	2.8
2	74.0	2	30	105	2.86
2	67.0	4	35	91	2.93
2	58.0	6	45	74	3.02
3	51.0	9	23	125	3.09
3	45.0	12	20	140	3.15
3	39.0	15	20	140	3.21
5	32.0	20	14	181	3.28
5	28.0	25	8	273	3.32
5	21.0	30	14	181	3.39
5	15.0	35	12	202	3.45
5	10.0	40	10	230	3.50
5	7.0	45	6	330	3.53
5	1.0	50	12	202	3.59



Line is the suggested correlation of e (mm/blow) and Bearing Pressure after STOCKWELL REF: NZ ENGINEERING (32,6) 15 June 1977

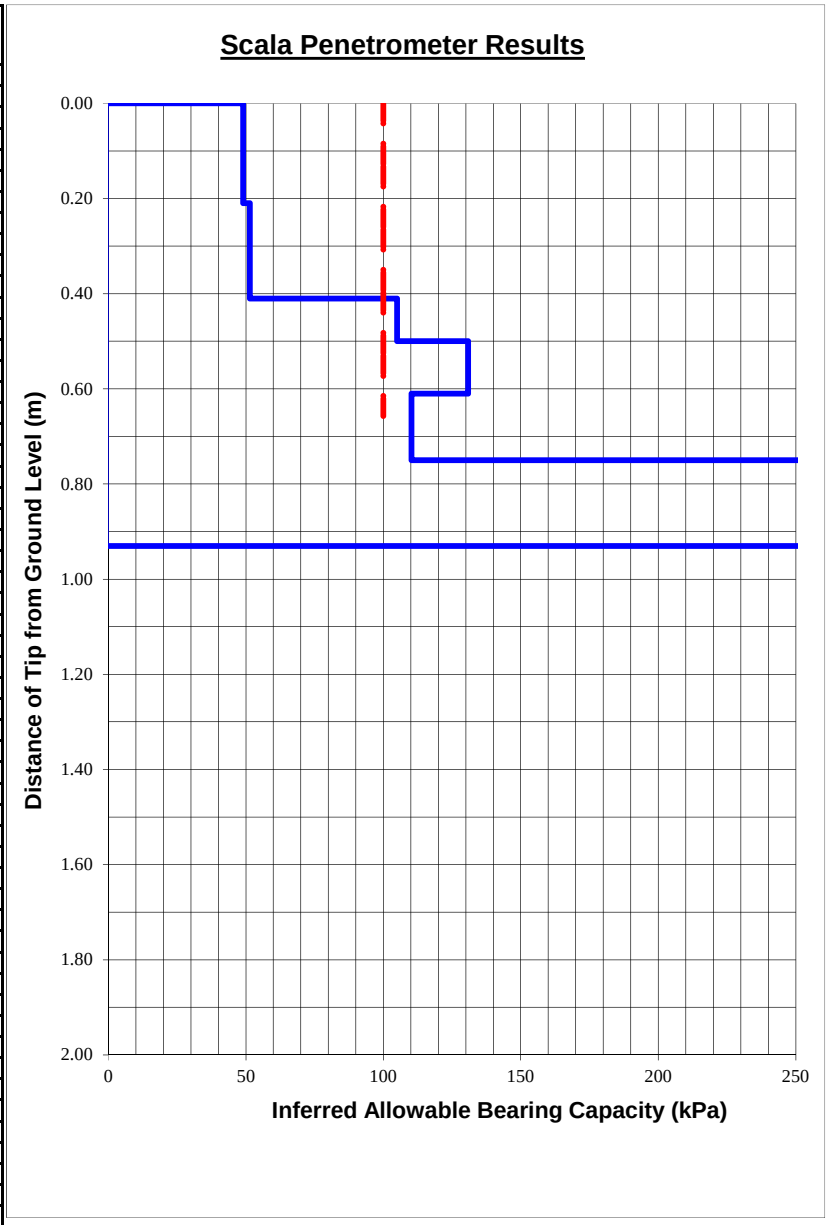
DYNAMIC CONE (SCALA) PENETROMETER

Test 23 / NZS 4402 : 1988 Test 6.5.2

Job: 14146
Client: Far North Holdings
Date: 5/01/2018
Location: #41 SH12 Opononi
Scala No.: 4
Page: 1

Tested by: GH
Logged by: GH
Checked:
Date Checked:
Ground Level (m): 0
Required Allowable kPa: 100

No. Blows	Tip to ref (cm)	Total Blows	mm / blow	kPa	depth (m)
0	93.0	0	0	0	0.0
3	72.0	3	70	49	0.21
3	52.0	6	67	51	0.41
3	43.0	9	30	105	0.50
5	32.0	14	22	131	0.61
5	18.0	19	28	110	0.75
5	14.0	24	8	273	0.79
5	11.0	29	6	330	0.82
5	8.0	34	6	330	0.85
5	5.0	39	6	330	0.88
5	3.0	44	4	425	0.90
5	0.0	49	6	330	0.93



Line is the suggested correlation of e (mm/blow) and Bearing Pressure after STOCKWELL REF: NZ ENGINEERING (32,6) 15 June 1977

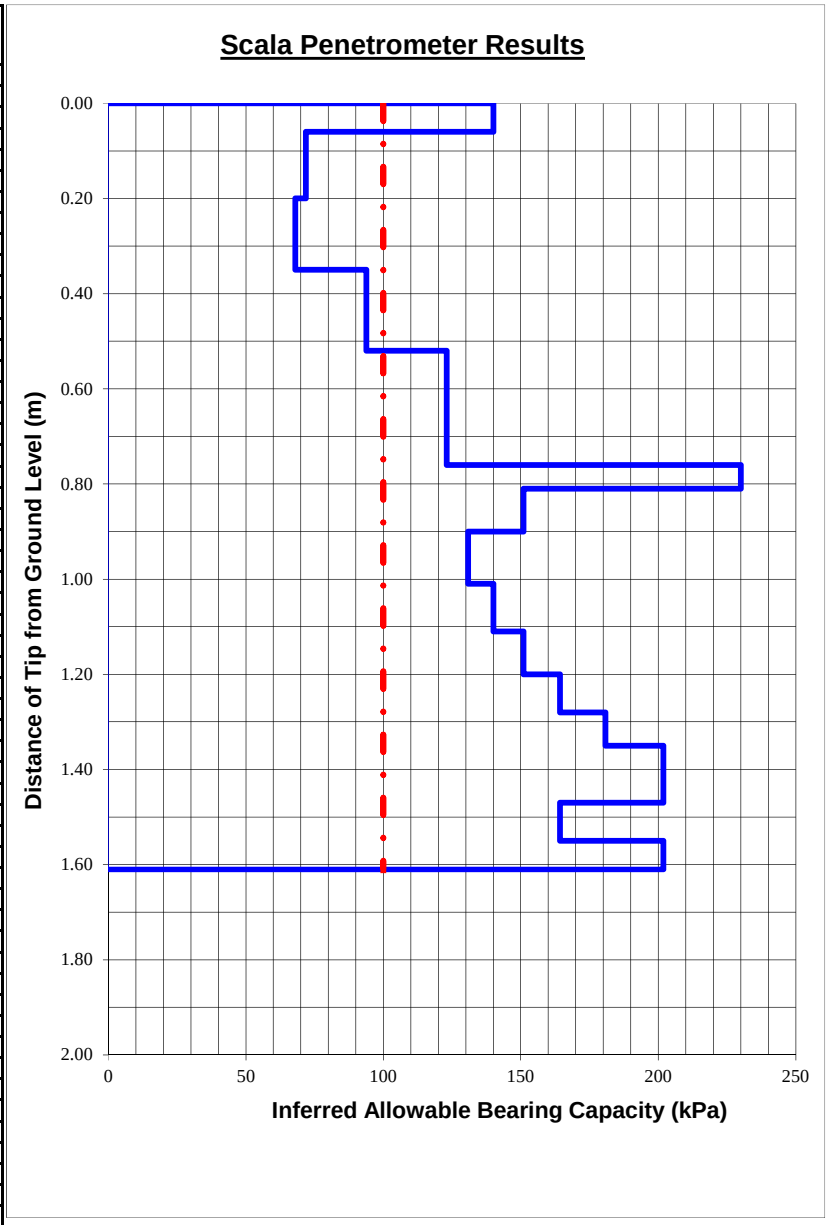
DYNAMIC CONE (SCALA) PENETROMETER

Test 23 / NZS 4402 : 1988 Test 6.5.2

Job: 14146
Client: Far North Holdings
Date: 5/01/2018
Location: #41 SH12 Opononi
Scala No.: 5
Page: 1

Tested by: GH
Logged by: GH
Checked:
Date Checked:
Ground Level (m): 0
Required Allowable kPa: 100

No. Blows	Tip to ref (cm)	Total Blows	mm / blow	kPa	depth (m)
0	98.0	0	0	0	0.0
3	92.0	3	20	140	0.06
3	78.0	6	47	72	0.20
3	63.0	9	50	68	0.35
5	46.0	14	34	94	0.52
5	34.0	19	24	123	0.64
5	22.0	24	24	123	0.76
0	117.0	24	0	123	0.76
5	112.0	29	10	230	0.81
5	103.0	34	18	151	0.90
5	92.0	39	22	131	1.01
5	82.0	44	20	140	1.11
5	73.0	49	18	151	1.20
5	65.0	54	16	164	1.28
5	58.0	59	14	181	1.35
5	52.0	64	12	202	1.41
5	46.0	69	12	202	1.47
5	38.0	74	16	164	1.55
5	32.0	79	12	202	1.61



Line is the suggested correlation of e (mm/blow) and Bearing Pressure after STOCKWELL REF: NZ ENGINEERING (32,6) 15 June 1977