Far North District Council

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Website: www.fndc.govt.nz

Office Use Only
Application Number:

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) O Fast Track Land Use* O Subdivision O Discharge

O Extension of time (s.125) O Change of conditions (s.127) O Change of Consent Notice (s.221(3))

O Consent under National Environmental Standard (e.g. Assessing and Managing Contaminants in Soil)

O 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: **Waipapa Pine Limited**

Electronic Address for Service (E-mail): [redacted]

Phone Numbers: [redacted]

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

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

Name/s: **SLR Consulting New Zealand Limited**

Electronic Address for Service (E-mail): [redacted]

Phone Numbers: [redacted]

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

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: **Waipapa Pine Limited**

Property Address/: Location

7. Application Site Details:

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

Site Address/ Location: **1945B State Highway 10, Waipapa**

(Lot 3 DP 343062, Lot 1 P 376253 & Lot 2 DP 376253)

Legal Description: _____ Val Number: _____

Certificate of Title: **NA138C/332 & NA138C/332**

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.

PLEASE CONTACT THE APPLICANT TO ARRANGE A SITE 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.

Expansion and development at an existing sawmill incl. a new dispatch area, boron treatment building, second boiler, landscaping, on-site stormwater and domestic wastewater system upgrades, site works and additional staff. Land use consent required for non-compliances with the FNDP's stormwater management, building height, building coverage, scale of activities, earthworks, hazardous substances, traffic intensity and car parking rules.

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)

Ø 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)

O yes Ø 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 O 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 requirement of Schedule 4 of the Resource Management Act 1991 and an application ca provided. The information in an AEE must be specified in sufficient detail to satisfy the purpo include additional information such as Written Approvals from adjoining property owners, or a

Land where earthworks will be undertaken is not a piece of land to which the NES-CS applies. Refer to AEE.

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) **Waipapa Pine Limited**

Email:

Postal Address:

Phone Numbers:

[redacted]

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: Ian Cooper (please print)

Signat[redacted] (signature of bill payer – **mandatory**) Date: 22 July 2024

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: Thomas Trevilla, on behalf of Waipapa Pine Limited (please print)

Signature: [redacted] (signature) Date: 22/07/2024

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

Checklist (please tick if information is provided)

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

Resource Consent Application

To undertake operations expansion and development at an existing sawmill site located at 1945B State Highway 10, Waipapa

Waipapa Pine Limited

Prepared by:

SLR Consulting New Zealand

SLR Project No.: 810.V16525.00001

5 July 2024

Revision: v1.0

Revision Record

Prepared for:	Waipapa Pine Limited	
Prepared by:	Thomas Trevilla Senior Project Consultant – Planning	
Checked by:	Ben Lee Northland Planning Manager – Planning	
Authorised by:	Ben Lee Northland Planning Manager – Planning	
SLR Project No.:	810.V16525.00001	
SLR Ref No.:	810.V16525.00001-R01-1.0 RCA FNDC - Waipapa Pine Expansion	
Revision:	Date:	
V1.0	5 July 2024	

Basis of Report

This report has been prepared by SLR Consulting New Zealand (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Waipapa Pine Limited (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

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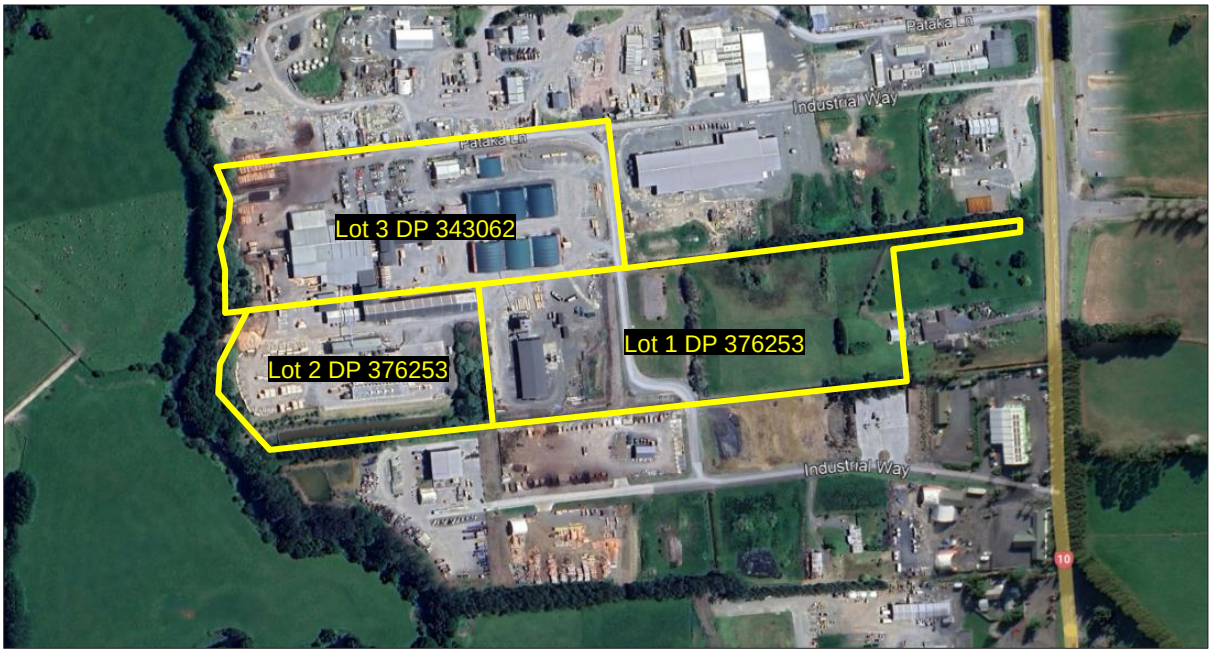
Application details

Consent authority:	Far North District Council
Applicant:	Waipapa Pine Limited
Address for service:	SLR Consulting New Zealand 201 Victoria Street West Auckland 1010 Attention: C/O Thomas Trevilla thomas.trevilla@slrconsulting.com 020 400 06702
Address for fees:	Waipapa Pine Limited 1945B State Highway 10 Waipapa 0295 Attention: C/O Maddie Dillon Maddie.Dillon@fbu.com
Site:	1945B State Highway 10, Waipapa, Northland
Legal description:	Lot 3 DP 343062, Lots 1 and 2 DP 376253
Owner(s):	Waipapa Pine Limited
Site area:	10.75 ha
Plan(s):	Far North District Plan (Operative 2009)
Zone(s):	Rural Production Zone
Designation(s):	None
Overlay(s) or control(s):	None
Proposed plan(s):	Proposed Far North District Plan (Notified 2022)
Proposed zone(s):	Heavy Industry Zone
Proposed designation(s):	None
Proposed overlay(s) or control(s):	River Flood Hazard Zone (100 Year ARI Event) River Flood Zone (10 Year ARI Event)
Brief description of the proposed activity:	To undertake operations expansion and development at an existing sawmill site including a new dispatch yard, new boron treatment building, second boiler, install landscaping, on-site stormwater and domestic wastewater system upgrades, earthworks, increase staff and parking.
Resource consent(s) required:	Land use consent
Status of the proposed activity:	Discretionary activity

Figure 1: Aerial photographs of the site outlined in yellow (Source: Google Earth).



1.0 Information requirements

This resource consent application to the Far North District Council (**the FNDC**) has been prepared in accordance with the requirements of Schedule 4 of the Resource Management Act 1991 (**the Act** or **the RMA**) and the Far North District Plan (Operative 2009) (**the FNDP**). In addition to this report, this application is supported by the following application drawings and specialist reports:

- Application Drawings (refer to Appendix B)
- Landscape Package prepared by SLR (refer to Appendix C)
- Civil Engineering Report prepared by Haigh Workman Limited (**Haigh Workman**) (refer to Appendix D)
- Geotechnical Investigation Report prepared by Haigh Workman (refer to Appendix E)
- Preliminary and Detailed Site Investigation Report prepared by Williamson Water & Land Advisory Limited (**WWLA**) (refer to Appendix F)
- Ecological Assessment Memo prepared by RMA Ecology Limited (**RMA Ecology**) (refer to Appendix G)
- Traffic Impact Assessment Report prepared by Haigh Workman (refer to Appendix H)
- Acoustic Assessment Report prepared by Marshall Day Acoustics Limited (**Marshall Day**) (refer to Appendix I)
- Hazardous Substances Regulatory Assessment Memo prepared by SLR (refer to Appendix J)
- Landscape Review prepared by SLR (refer to Appendix M)

2.0 Proposal

2.1 Introduction and summary

The Applicant, Waipapa Pine Limited (**Waipapa Pine**), is among the biggest employers in the Waipapa-Kerikeri area and produces timber products for the Northland and Auckland regions. Waipapa Pine operates an existing sawmill located at 1945B State Highway 10, Waipapa (**the site**). The site processes logs to produce a range of industrial and structural grade sawn timber products. The site's primary product is structural grade framing timber for the new house construction market in the North Island. Waipapa Pine was purchased by Fletcher Building Limited (**Fletcher Building**) in July 2023.

The site comprises three lots: Lot 2 DP 343062, Lot 3 DP 343062 and Lot 1 DP 376253. There are existing sawmill operations and development on Lots 2 and 3 DP 343062 and the western part of Lot 1 DP 376253. The activities on the site are authorised by a suite of district and regional resource consents, those of most relevance to this district application being land use consent 2150320-RMALUC (2016) and variation 2150320-RMAVAR/A (2022). The site's consent history is discussed further in Section 3.0 of this report.

Waipapa Pine seeks land use consent to undertake operations expansion and development on the site which, in summary, includes the following activities:

- Construct a new dispatch yard on the vacant paddock on the eastern part of the site.

- Construct a new boron treatment building adjacent to the new dispatch yard which will require the storage and use of a hazardous substance (a boron-based timber preservative chemical).
- Install a second boiler to serve the second existing timber kiln that is currently unused (leading to two kilns and boilers on the site).
- Progressively increase staff to 108 (with a maximum of 104 on site at any one time).
- Increase car parking spaces from 74 to 116 (including 4 accessible spaces).
- Generate vehicle movements of up to 670 vehicles per day and 83 vehicles per hour (which is the site's existing consented traffic limit). Waipapa Pine will not exceed its allocation of the maximum traffic movements on Industrial Way that the Council and NZ Transport Agency Waka Kotahi (**NZTA**) have previously supported.
- Upgrade the on-site domestic wastewater management system (discharging to land on-site), including upgrading the existing treatment plant, installing a second treatment plant, decommissioning the existing disposal area and constructing a new disposal area.
- Upgrade the on-site stormwater management system (discharging to the Kerikeri River to the west and an existing drain to State Highway 10 to the east), including two constructed wetlands, vegetated swale and other stormwater infrastructure.
- Install landscaping across the site for the constructed wetlands, vegetated swale, domestic wastewater disposal area, pond bunds and buffer / boundary planting.
- Undertake associated earthworks totalling 31,251 m^3 (8,980 m^3 cut and 22,271 m^3 fill) over 29,074 m^2 with accompanying earthworks controls. Cut and fill heights will not exceed 1.5 m in depth.

No changes to the existing consented hours of operation are proposed, being:

- Sawmill operations (i.e., timber processing): Monday to Friday (7:00am to 10:00 pm) and Saturday to Sunday (7:00 am to 7:00 pm).
- Other activities which do not involve timber processing including maintenance and monitoring of plan and machinery, site security and the operation of the boilers and kilns: Monday to Friday (10:00 pm to 7:00 am the following day) and Saturday to Sunday (7:00 pm to 7:00 am the following day).

2.2 New facilities and expanded operations

2.2.1 New dispatch yard

A new dispatch yard will be constructed on the vacant paddock on the eastern half of the site. The dispatch yard will have a footprint of approximately 15,000 m^2 (approximately 150 m in length by 100 m in width) and be formed with granular hardfill. Timber loading and truck dispatch will be undertaken in this area. A site plan is provided in the figure below.

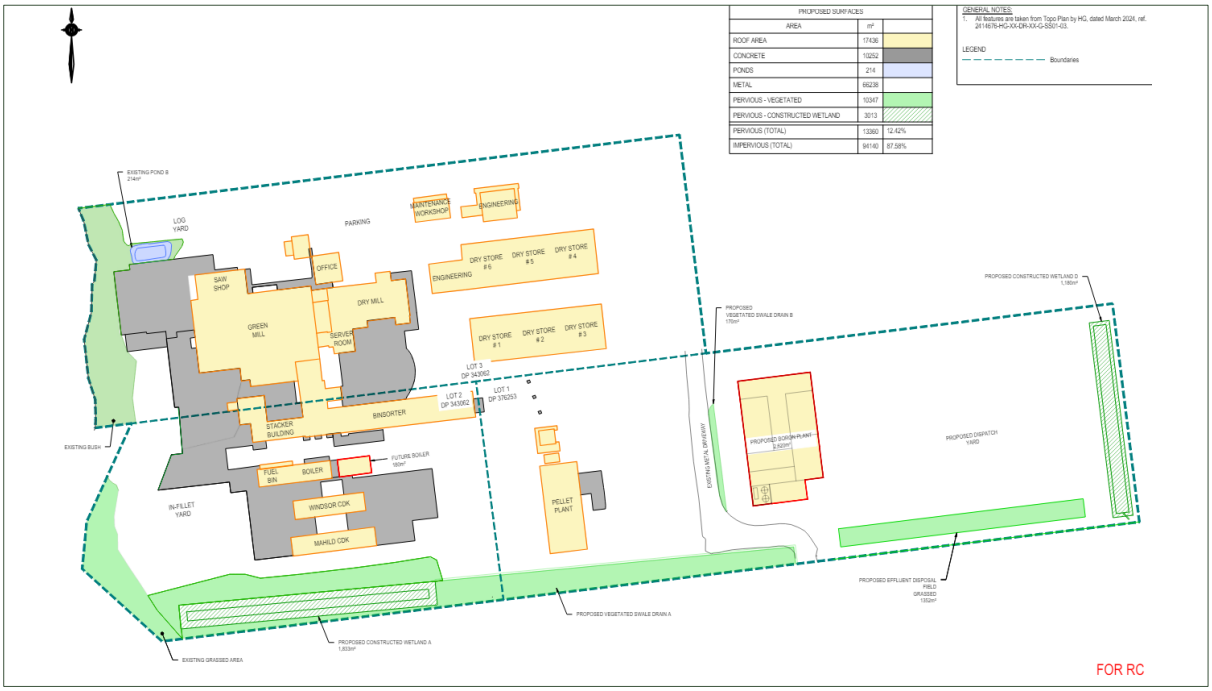


Figure 2: Sheet EXP02 of the Civil Drawings showing the proposed site plan (Source: Haigh Workman)

2.2.2 New boron treatment building

Boron treatment is proposed on the site. The new plant will be accommodated inside a new boron treatment building adjacent to the new dispatch yard. The new building is expected to have a footprint of approximately 2,620 m^2 (approximately 69 m in length by 40 m in width) and have a maximum height of approximately 9.9 m. The building will contain various areas including a bunded tanker bay, bunded boron plant and treatment chemical storage area, areas for layup and turning, pre-treatment, post-treatment, wrapping / strapping and offices.

The building will have a gable roof and be constructed with coloursteel trimline type roofing, cladding and flashings (coloured “permanent green”). Elevations of the building are provided in the figures below. Please note that the final plans, dimensions and internal layout of the building will need to be confirmed following detailed design and at building consent stage, however, the provided plans show the general bulk and design of the building, and it will continue to comply with the FNDP’s bulk and location standards.

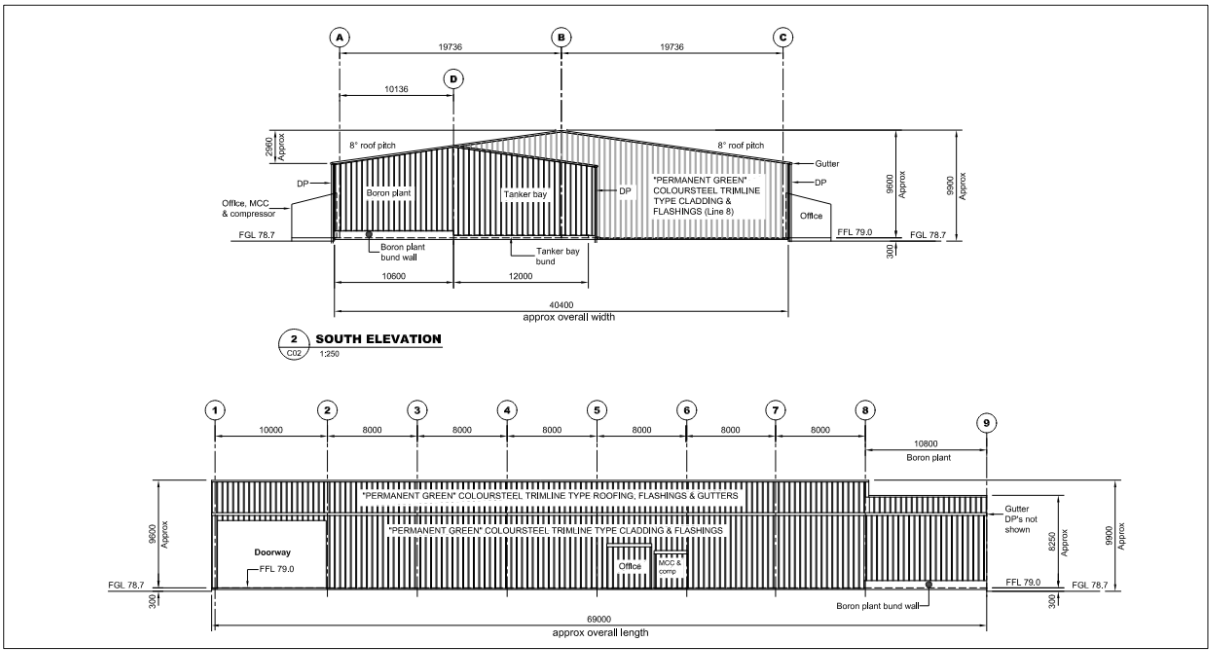


Figure 3: Sheet C03 of the Application Drawings showing the preliminary south (top) and west (bottom) elevations of the new boron treatment building (Source: Will Sumner Design Limited)

2.2.3 Hazardous substance for boron treatment process

The hazardous substance required for the new boron treatment process is discussed in the Hazardous Substances Regulatory Assessment Memo prepared by SLR and a summary is provided below.

The process will require a timber preservative chemical (FramePro) as detailed in the Hazardous Substances Regulatory Assessment Memo. The chemical is a boron-based substance containing a mixture of hazardous ingredients. The major ingredient is disodium octaborate tetrahydrate (10 % to 30 % of the total weight) which is an organic compound primarily used as an insecticide, fungicide and algicide.

Within the new boron treatment building, there will be 2 x bunded 40,000 L above ground storage tanks containing the chemical. Supplies of the chemical will be delivered to the site by bulk tanker. With a specific gravity of 1.28, the site will hold a maximum on 102 T of the substance at any one time.

Method 12.8.5.1 of the FNDP requires the adoption of the Hazardous Facility Screening Procedure (**HFSP**) when assessing proposed activities that involve hazardous substances. The HFSP determines the level of risk posed by the presence of hazardous substances. In turn, the level of risk establishes the status of an activity relative to the hazardous substances rules of the FNDP. This is called the consent status index.

Having followed the HSFP under Appendix 2 of the FNDP, the Hazardous Substances Regulatory Assessment Memo calculates the consent status index for the proposed hazardous substance as 112.2. The calculation is shown in the table below.

No other hazardous substances are proposed.

Table 1: Calculated consent status index for proposed chemical (Source: SLR)

Effect Type	Hazard Rating	Base Quantity (T)	Adjustment Factors			Adjusted Based Quantity (T)	Proposed Quantity	Quantity Ratios
			Substance Form	Distance From Boundary	Type of Activity			
Human Health	Medium	10	1	1	1	10	102	10.2
Environment	High	1	1	1	1	1	102	102
							Consent Status Index	112.2

Having regard to the human health and environmental risks of hazardous substances, Waipapa Pine will implement the Hazardous Substances Regulatory Assessment Memo's recommendations for hazard management:

- All handling of the chemical should occur under cover within a purpose-built facility. In this facility stormwater will not interact with timber receiving treatment.
- Secondary containment will be provided for the above ground storage tanks and tanker loading bay. The containment will be designed in accordance with WorkSafe New Zealand requirements. This will equate to the full volume of the above ground storage tanks plus at least 10 % additional storage (88,000 L).
- Handling of the substance will be completed in strict accordance with safety data sheet requirements.
- A spill response plan (**SRP**) will be developed which will outline how to safely identify and contain and manage the substance should an emergency event occur, including procedures for:
    - spill management;
    - clean up and disposal of soiled materials; and
    - post-emergency regulatory reporting.
- Spill kits containing sand and/or absorbent materials such as granules will be provided in the vicinity of the above ground storage tanks.

Waipapa Pine will follow other requirements for the use, storage and management of hazardous substances including under the Hazardous Substances and New Organisms Act 1996 and Health and Safety at Work Act 2015.

2.2.4 Second boiler

There are currently two timber kilns and one wood-fired boiler on the site. The first kiln is operational and served by the boiler; the second kiln is not operational. A second wood-fired boiler is proposed to be installed to serve the second kiln. The boiler, among other components, will require a stack and baghouse that are approximately 20 m and 13 m in height, respectively. The stack will be of the same height as the existing stack. The figure below shows 3D views of the second boiler and its components. Elevations and dimensions are included in Appendix B.

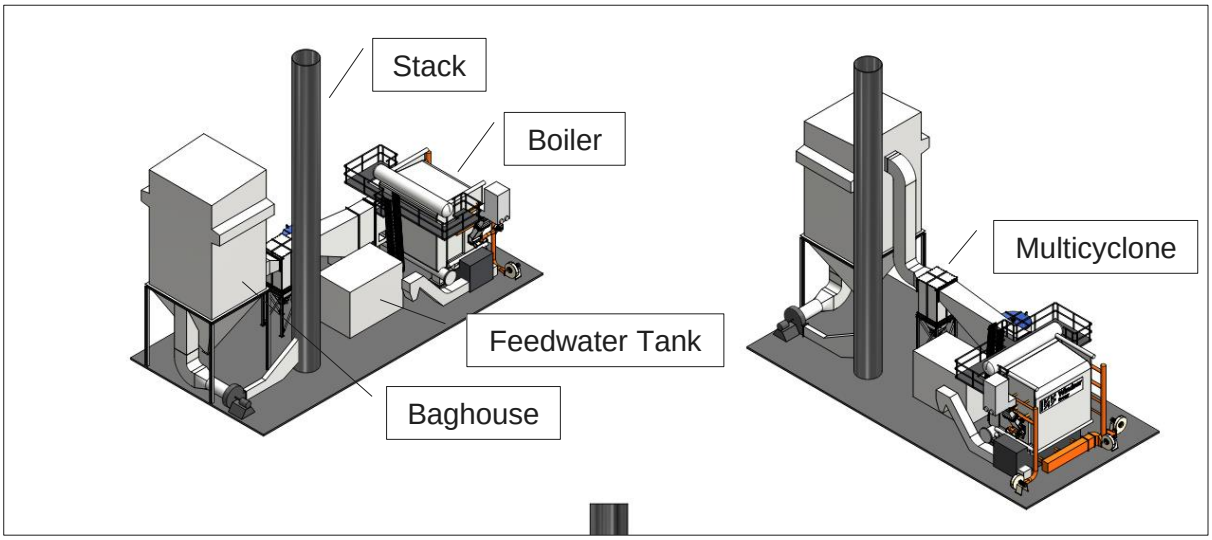


Figure 4: 3D views of the second boiler and its components (Source: Windsor Energy)

2.2.5 Operations

No changes to the consented operational hours are proposed by this application. Under land use consent 2150320-RMALUC, these are:

- Sawmill operations (i.e., timber processing): Monday to Friday (7:00am to 10:00 pm) and Saturday to Sunday (7:00 am to 7:00 pm).
- Other activities which do not involve timber processing including maintenance and monitoring of plan and machinery, site security and the operation of the boilers and kilns: Monday to Friday (10:00 pm to 7:00 am the following day) and Saturday to Sunday (7:00 pm to 7:00 am the following day).

A summary of existing and expanded operations is provided in the table below.

Table 2: Summary of existing and expanded operations during the day and night.

Time	Existing operations	Expanded operations
Day-time	• Cutting in the greenmill and drymill. • Log deliveries (32 movements per day), log unloading using the front end loader. • Truck loading and despatch (23 movements) in the existing dispatch yard. • Operating one kiln. • Operating debarker. • Operating bin sorter. • Operating one boiler. • Operating pellet plant building.	• Cutting in the greenmill and drymill. • **Log deliveries (46 movements per day), log unloading using the front end loader.** • **Truck loading and despatch (33 movements) in the new dispatch yard.** • **Operating two kilns.** • Operating debarker. • Operating bin sorter. • **Operating two boilers.** • Operating pellet plant building • **Operating boron treatment plant.**
Night-time	• Operating and occasional loading of one kiln (10:00 pm to 7:00 am). • Operating one boiler.	• **Operating and occasional loading of two kilns (10:00 pm to 7:00 am).** • **Operating two boilers.**

From the above, the only substantive changes to the site's overall operations proposed by this application are:

- truck despatch on the new dispatch yard (operated day-time only);
- operation of the new boron treatment plant (operated day-time only); and
- operation of a second kiln and second boiler (both kilns and boilers are operated day-time and night-time).

2.2.6 Noise

The site is subject to existing consented noise limits in accordance with Condition 9 of land use consent 2150320-RMALUC as follows:

> *9. The Consent Holder shall ensure that the activities undertaken do not result in noise levels exceeding the following noise limits unless otherwise specified as measured at or within the boundary of any other zone or the or within the notional boundary of any dwelling existing at the date of commencement of this consent:*
>
> *a. Monday to Friday from 7:00 am to 10:00 pm and 7:00 am to 7:00 pm Saturday and Sunday - 65dBA L_{10} for saw mill operations involving the processing of timber except that the maximum noise level shall not exceed 70dBA on the boundary with Lot 5 DP 69740;*
>
> *b. Monday to Friday from 10:00 pm to 7:00 am the following day and 7:00 pm to 7:00 am the following day on Saturday and Sunday - 45dBA L_{10} for any other activities (not involving saw mill operations) except that the maximum noise level shall not exceed 46dBA on the boundary with Lot 2 DP 69740;*
>
> *c. 70 dBA L_{max}.*

Marshall Day has modelled and assessed noise levels generated by existing and expanded operations against the existing consented noise limits. They conclude that the expanded operations will continue to comply with these noise limits. This is summarised in the table below, with compliant figures identified in green.

Table 3: Summary of noise limits and noise levels generated by existing and expanded operations (Source: Marshall Day)

	Dwellings (1897A/B State Highway 10)	Dwelling (1927 State Highway 10)	Northern site boundary (Lot 2 DP 69740)	Southern site boundary (Lot 5 DP 69740)	Industrial Zone boundary
Consented noise limits					
Day-limit	65 dB L_{A10}	65 dB L_{A10}	None	70 $L_{A10\ (15\text{-}min)}$	65 dB L_{A10}
Night-limit	45 dB L_{A10}	45 dB L_{A10}	46 dB $L_{A10\ (15\text{-}min)}$	-	45 dB L_{A10}
All times	70 dB L_{AFmax}	70 L_{AFmax}	-	-	70 L_{AFmax}
Existing operations					
Day-time	52	56	71	62	63
Night-time	41[1]	43	36	57	40
Expanded operations					

[1] Marshall Day notes that "no [Sound Absorption Coefficient (**SAC**)] is applied to the kilns and boiler operating at night in this calculation (and in scenario 4 [night-time during expanded operation]), however SAC would be applied to the overall level if cutting occurred in the night period".

	Dwellings (1897A/B State Highway 10)	Dwelling (1927 State Highway 10)	Northern site boundary (Lot 2 DP 69740)	Southern site boundary (Lot 5 DP 69740)	Industrial Zone boundary
Day-time	52	60	71	63	63
Night-time	44	45	38	58	42

To aid site monitoring and compliance by having one set of noise limits for the site, it is proposed to apply the same noise limits of Condition 9 of land use consent 2150320-RMALUC for this application, as discussed in Section 8.1 of this report.

2.2.7 Staffing

Waipapa Pine proposes to progressively increase staff to 108 in the future. A maximum of 104 staff will be on site at any one time.

2.2.8 Traffic generation

The proposal will maintain the existing type and scale of vehicles which access the site (e.g., staff, visitor, contractor and truck delivery vehicles). No changes to the site's existing driveway, Industrial Way or the intersection of Industrial Way and State Highway 10 are required nor proposed. Haigh Workman has assessed traffic volumes as follows:

- The site's existing consented traffic limit under land use consent 2150320-RMALUC is up to 670 vehicles per day (**vpd**) and 83 vehicles per hour (**vph**).
- The site's current surveyed 5-day average daily traffic (**ADT**) is 349 vpd and 39 vph during peak hour.
- The site's forecasted 5-day ADT is 496 vpd and 55 vph during peak hour.

The site's peak hour is 6:00 am to 7:00 am which, as shown in Figure 3 of the Traffic Impact Assessment Report, is outside of State Highway 10's peak hour.

Notwithstanding the forecasted traffic volumes, this application seeks to maintain the existing consented traffic limit of 670 vpd and 83 vph.

2.2.9 Car parking

The proposal will increase car parking spaces on site from 74 to 116, which includes 4 accessible car parking spaces. The additional car parking spaces will be located on the northern part of the site (by the office and engineering buildings) and on the eastern part of the site (by the new boron treatment building).

2.3 Private on-site infrastructure upgrades

The upgrades to the private on-site stormwater and domestic wastewater infrastructure are described in the Civil Engineering Report prepared by Haigh Workman and summaries are provided below.

2.3.1 Stormwater management system upgrade

The existing and proposed surfaces on the site are calculated as follows:

Table 4: Breakdown of surfaces on site (Source: Haigh Workman)

Surface type	Existing	Proposed
Roof areas	14,736 m^2	17,436 m^2
Concrete areas	10,252 m^2	10,252 m^2
Pond areas	2,047 m^2	214 m^2
Gravel areas	45,854 m^2	66,238 m^2
Constructed wetland areas	0 m^2	3,013 m^2
Grass / landscaped areas	34,611 m^2	10,347 m^2
Site area	107,500 m^2	107,500 m^2
Impermeable areas	78,889 m^2	94,140 m^2
Impermeable areas proportion of site area	68 %	88 %

With an increase in impermeable surfaces from 68 % to 88 %, the objectives of the stormwater management system upgrades are to provide for protection against flooding, and to meet the water quality and quantity objectives of the Council's Engineering Standards and the Regional Plan for Northland (Operative in Part) (**the NRP**).

Haigh Workman has considered the design in accordance with the latest Auckland Council guidelines (GD01, GD04 and GD05), the Council's Engineering Standards and the standards of the NRP, as well as the following design principles:

- stormwater reticulation within the site to suitable discharge points;
- overland flow paths within the site to suitable discharge points;
- control scour, particularly at discharge points;
- include water sensitive design where practicable; and
- avoid increases in flooding downstream as a result of the development.

The site will have two primary stormwater catchments, and an excerpt of the catchment plan is provided in the figure below.

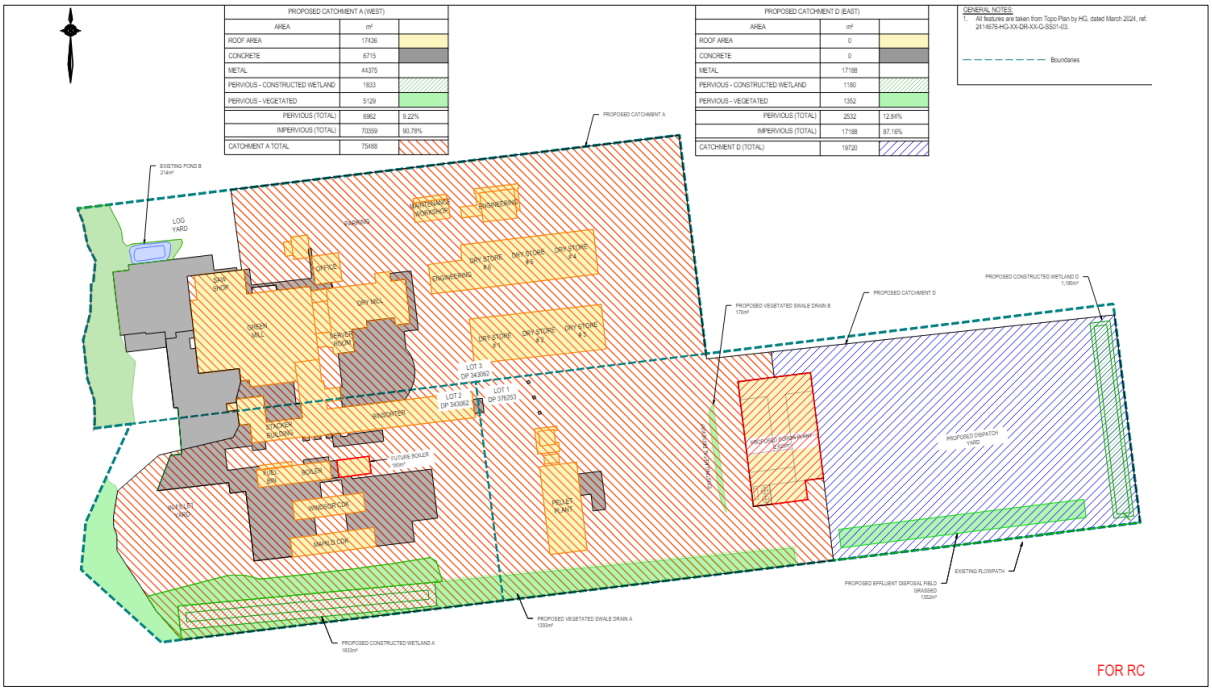


Figure 5: Sheet EXP04 of the Civil Drawings showing the proposed site catchments (Source: Haigh Workman)

The upgraded stormwater management system will comprise:

- piped stormwater reticulation network;
- scruffy dome and catch pit inlets;
- overland flow paths on the internal roads leading to the drainage network;
- southern boundary drain leading to Pond A reconstructed as a vegetated swale; and
- Ponds A and D, being constructed wetlands, as discussed below.

There is an existing pond, Pond A, on the south-western corner of the site. Pond A's outlet is via an open drain formed through the adjoining esplanade reserve and into the Kerikeri River. It is proposed to reconfigure Pond A as a constructed wetland to achieve the water quality objectives of Auckland Council GD01 guidelines[2]. Haigh Workman assesses that stormwater quantity objectives can be met during the 2, 5 and 10 year average recurrence interval (**ARI**) storms by reconfiguring the outlet arrangements in the discharge manhole. Haigh Workman assesses that attenuation for the 100 year ARI storm is not possible as the Kerikeri River spills into the site during that event. At that time, stormwater will not exit the site, and so not contribute to any offsite flooding. A vegetated swale to Pond A will also be constructed along the southern boundary.

A new pond, Pond D, will be a constructed wetland on the eastern most end of the site to service the new dispatch yard. Pond D has also been modelled with the more conservative Type 1A storm and designed to achieve 80 % predevelopment runoff during the 2, 5 and 100 year ARI events. Pond D's outlet will be to the existing drain along the site's southern

[2] Auckland Council document titled "Stormwater Management Devices in the Auckland Region, December 2017, Guideline Document 2017/001 Version 1".

boundary. The drain discharges to the east through the adjoining lot, Lot 1 DP 211216, into the State Highway 10 drain which flows northwards to Kahikatearoa Lane, and then discharges beneath State Highway 10 into the Sports Hub site which adjoins the Whiriwhiritoa Stream.

2.3.2 Domestic wastewater management system upgrade

The site has an existing domestic wastewater management system designed to service a flow of 2,000 L/day. Domestic wastewater is currently treated in a package treatment plant near the main office before it is piped and discharged to an existing disposal area of 500 m^2 (in the approximate location of the new boron treatment building) via drip dispersal.

The system will be upgraded to accommodate additional staff. The proposal will upgrade the existing treatment plant and construct a second treatment plant to service domestic wastewater from the boron treatment building. The existing disposal area will be decommissioned and both systems will discharge to a new disposal area constructed along the southern boundary, adjacent to the new dispatch yard. The upgraded system will have a design loading rate of 4,160 L/day and the new disposal area will have a total area of 1,352 m^2 (being 1,040 m^2 plus a 30 % reserve area of 312 m^2).

The new disposal area will have a 5 m setback from stormwater by the site entranceway and the reserve area will have a 15 m setback from Pond D and the open drain. The new disposal / reserve area will have a 3 m setback from the overland flow path on the adjoining property which follows the southern boundary; the overland flow path is also upstream such that the new disposal area does not drain towards it.

There are no trade waste or process wastewater discharges from the site; trade waste from the boron treatment plant will be taken off site via a sucker truck.

2.4 Landscaping

SLR has prepared a landscaping package detailing:

- planting for the two constructed wetlands and vegetated swale;
- planting for the pond bunds;
- planting for the domestic wastewater disposal field;
- buffer planting along the southern and eastern boundaries; and
- groundcovers for the car parking area of the new boron treatment building.

Planting will comprise a range of native groundcover, grasses, plant, shrub and tree species as per Sheet LA10. It is noted that buffer planting along the eastern boundary is currently provisional and will be confirmed following the completion of engagement with the neighbour (Colin Gillespie at Lot 1 DP 211216). The figure below is an excerpt of Sheet LA02 showing the extent of landscape works on the site.

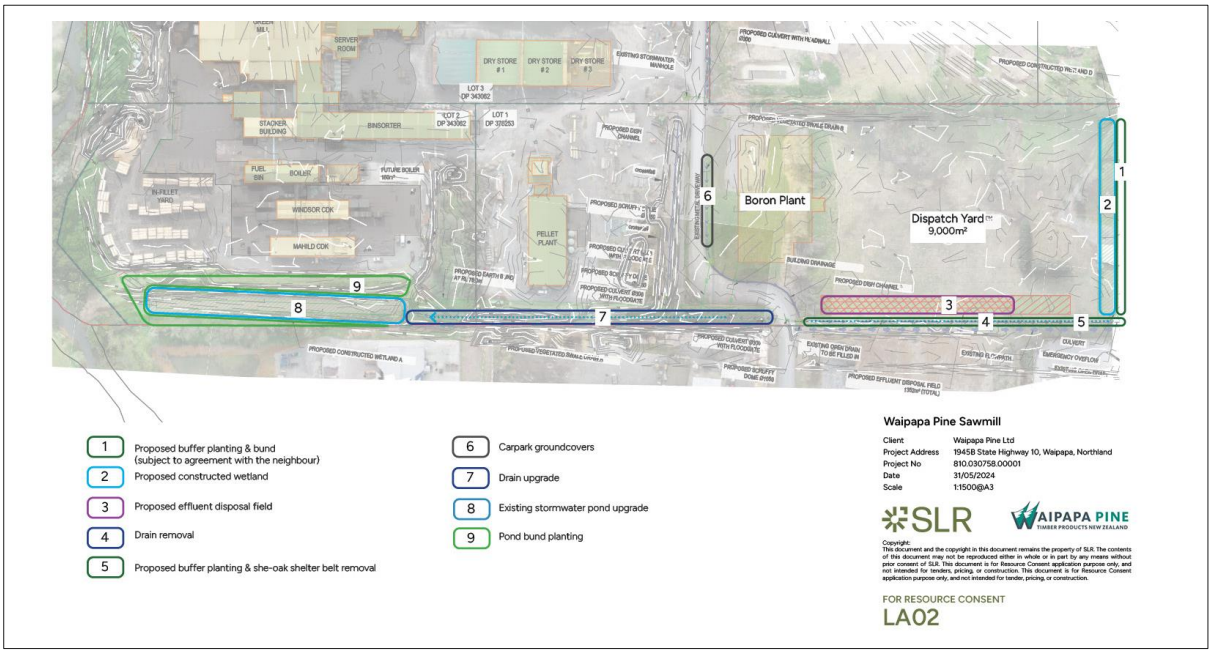


Figure 6: Sheet LA02 of the Landscape Package showing extent of landscape works on the site (Source: SLR)

2.5 Earthworks

Earthworks are described in the Civil Engineering Report prepared by Haigh Workman and a summary is provided below. It is noted that a Geotechnical Investigation Report has been prepared by Haigh Workman which concludes that the site is suitable for the proposed works. The recommendations of the report have been incorporated into the design process.

The new dispatch yard is designed with a minimum gradient of 1 % to achieve positive drainage. Earthworks for the dispatch yard and boron plant building will be over 26,118 m^2 and involve 5,224 m^3 cut (topsoil stripping and excavation of Pond D) and 22,271 m^3 fill.

The topsoil will be used to build up the new domestic wastewater disposal area mound, and excess topsoil will be carted off site. Imported aggregate to form the dispatch yard may be used as temporary preload over the building platform to compensate for superimposed loads. The volume of aggregate fill being brought to site will not increase in this scenario. The filling will comprise imported granular aggregate.

Three existing bunds will also be removed around the pellet plant (west of the site's driveway). The removal of the southern bund will enable the upgrading of the existing drain to Pond A into a vegetated swale. Earthworks for this will be over 2,956 m^2 and involve 3,756 m^3 cut.

Total earthworks amount to 31,251 m^3 over 29,074 m^2. Cut and fill heights will not exceed 1.5 m in depth. The table below provides a breakdown of earthworks quantities.

Separate to the earthworks above, minor earthworks may be required to establish the second boiler, some on-site infrastructure connections, and formation of new car parking spaces on other parts of the site.

Table 5: Estimated earthworks quantities (Source: Haigh Workman)

Development area	Area (m^2)	Cut volume (m^3)	Fill volume (m^3)
Dispatch yard and boron plant building	26,118	5,224	22,271
Removal of bunds	2,956	3,756	-
Total	29,074	8,980	22,271

Best practice erosion and sediment controls will be implemented to manage the potential adverse effects of earthworks and particularly in relation to nearby watercourses. The primary control is that most of the earthworks are associated with granular, hardfill materials which will be placed promptly on exposed subgrade (fine soils) to stabilise the site. Other controls will be implemented in accordance with those of the NRC publications and Auckland Council GD05 Guidelines, including but not limited to:

- clean water diversions;
- stabilised construction entrance;
- sediment retention pond;
- silt fences; and
- prompt stabilisation of earthworks areas.

Erosion and sediment controls are discussed further in the Application Drawings and Civil Engineering Report prepared by Haigh Workman.

3.0 Background

3.1 Existing resource consents

A sawmill was established on part of the site in the early 2000s. Waipapa Pine purchased the site in 2012 and, Fletcher Building then purchased Waipapa Pine in July 2023.

These are summarised below.

3.1.1 Far North District Council

3.1.1.1 Land use consent 2130204-RMALUC

Waipapa Pine was granted land use consent 2130204-RMALUC on 12 August 2013 for the establishment and operation of the existing sawmill. Land use consent was required for a discretionary activity overall under the traffic intensity, earthworks, setback from rivers and car parking rules of the FNDP.

3.1.1.2 Land use consent 2150320-RMALUC

Waipapa Pine was granted land use consent 2150320-RMALUC on 8 April 2016 for expansion and development of the existing sawmill, including:

- Sawmill operations (timber processing) on Monday to Friday from 7:00 am to 10:00 pm and on Saturday and Sunday from 7:00 am to 7:00 pm.
- Other activities not involving timber processing including maintenance and monitoring of plan and machinery, site security and the operation of the boiler and kiln on

Monday to Friday from 10:00 pm to 7:00 am the following day and on Saturday and Sunday the following day from 7:00 pm to 7:00 am.

- Use, maintenance, operation and refuelling of the boiler and kilns.
- Installation and use of two bunded timber treatment facilities using boron and anti-sapstain products.
- A stormwater management system including bunds and detention ponds.
- Traffic generation from the site up to 670 vpd and 83 vph.

Land use consent was required for a discretionary activity overall under the traffic intensity, scale of activity, noise, car parking, earthworks, stormwater management and hazardous substances rules of the FNDP.

3.1.1.3 Land use consent variation 2150320-RMAVAR/A

Waipapa Pine was granted land use consent variation 2150320-RMAVAR/A on 9 August 2022 for an updated site layout and sawmill operations including:

- Deletion of the boron treatment plant (which was never established), round table sorter and green store pre-delivery storage area.
- Relocation of the approved dry store activities.
- Additional dry store activities on the former approved boron treatment plant area and part of the wrapped and stacked ready for delivery storage area.
- Use of a compressed wooden pellet plant production facility.

The only amended condition was Condition 1 to incorporate the revised site layout plan.

3.1.2 Northland Regional Council

Waipapa Pine has also obtained various approvals for earthworks, air discharge and water take (on-site bore) activities from the Northland Regional Council (**the NRC**). Those that are currently active include:

- Air discharge permit AUT.031351.01.01: Discharge contaminants to air from a boiler with a maximum gross heat rate of 6 megawatts and two drying kilns. Granted 19 May 2014 and expires 31 May 2029.
- Deemed permitted activity notice AUT.201634.01.01: Divert and discharge stormwater to the Kerikeri River. Granted 12 April 2023.
- Water take permit AUT.045470.01.01: Take water from a bore on the site for use in a sawmill operation. Granted 21 November 2023 and expires 31 October 2038.
- Land use consent AUT.045596.01.01, stormwater diversion permit AUT.045596.02.01 and stormwater discharge permit AUT.045596.03.01: Earthworks to remove an existing earth bund in a Flood Hazard Area and the associated diversion and discharge of stormwater during the works. Granted 2 February 2024 and expires 31 December 2028.

3.2 Establishment and restrictions of Industrial Way

3.2.1 Right of way approval 3000349-LGA348

Solid Holdings Limited (**Solid Holdings**) obtained right of way approval 3000349-LGA348 on 25 September 2013 to establish a right of way, Industrial Way, over its land (Lot 5 DP 69740) in favour of Waipapa Pine. Advice Note 2 of the approval states that:

- Solid Holdings had originally also sought land use consent for a discretionary activity to generate an additional 1,400 vpd (totalling 2,144 vpd to be accommodated by Industrial Way) but this request was withdrawn on “technical reasons”.
- The Council and NZTA had nevertheless assessed and supported Industrial Way accommodating up to 2,144 vpd.

3.2.2 Easement EI 9571379.3

Waipapa Pine’s use of Industrial Way over Solid Holdings’ land is enabled by easement EI 9571379.3. The easement limits vehicle movements on Industrial Way as:

- Solid Holdings: Maximum of 1,474 vpd and 193 vph.
- Waipapa Pine: Maximum of 670 vpd and 83 vph.
- Total: Maximum of 2,144 vpd and 276 vph.

3.3 Records of title

Copies of the site’s records of title are included as Appendix A.

The site’s records of title have been reviewed and the following interests are noted:

- EI 9424933.2: “No complaints” covenant, applying in the outlined circumstances, on Lot 1 DP 211216 (Colin Gillespie, owner of the residential property adjoining the site’s eastern boundary) in favour of Waipapa Pine.
- EI 9571379.2: “No complaints” covenant, applying in the outlined circumstances, on Solid Holdings in favour of Waipapa Pine.
- EI 9571379.1: “No complaints” covenant, applying in the outlined circumstances, on Waipapa Pine in favour of Solid Holdings.
- EI 9424933.1: Covenant limiting vehicle movements over area Marked A on DP 37653 to a maximum of 20 daily light vehicle movements only (i.e., no heavy vehicles such as logging trucks or tankers). This area is the narrow gravel accessway adjacent to the northern boundary of Lot 1 DP 211216 (Colin Gillespie). This area has and will not be used as a vehicle access point.
- EI 9571379.3: Easement limiting vehicle movements on Industrial Way as discussed in the previous section.
- EI 11831267.1: Easement in gross for the conveyance of electricity over area Marked A on DP 549010 in favour of Top Energy Limited.
- EI 6399465.6: Easement for drainage over area Marked F on DP 343062 in favour of Lot 2 DP 343062 (LD Family Investments Limited, owner of the property adjoining the northern boundary with the new dispatch yard).

- EI 9862386.1 and EI 11076582.1: Easements for drainage and right of way that are for and against the lots within the site / Waipapa Pine.

3.4 Consultation and written approvals

3.4.1 Consultation with iwi

A timeline of iwi consultation is provided below:

- March 2024: Fletcher Building sent formal consultation letters to Ngāti Rēhia and Ngāpuhi. Ngāti Rēhia responded. Fletcher Building met with the Chair of Ngāti Rēhia in March 2024, and introduced Waipapa Pine and the planned expansion project.
- June 2024: Ngāti Rēhia were invited to site and undertook a site a tour and a presentation on Waipapa Pine's planned expansion project. It was agreed that Ngāti Rēhia will receive a copy of the application to review, and that they are fine that the resource consent application is lodged noting that their review is being undertaken.

A copy of correspondence is included as Appendix L. Updates on iwi consultation will be provided to the Council during processing.

3.4.2 Consultation with neighbours

Waipapa Pine and Fletcher Building are undertaking ongoing consultation on the project with the neighbouring properties to the east (Colin Gillespie) and west (Solid Holdings).

Waipapa Pine has obtained the written approval of Solid Holdings (refer to Appendix L).

3.5 National Policy Statement for Highly Productive Land

As there is currently no operative regional policy statement for Northland which maps highly productive land, the Council must rely on the transitional definition set out in clause 3.5(7) of the NPS-HPL.

> (7) Until a regional policy statement containing maps of highly productive land in the region is operative, each relevant territorial authority and consent authority must apply this National Policy Statement as if references to highly productive land were references to land that, at the commencement date:
>
> (a) is:
>
> (i) zoned general rural or rural production; and
>
> (ii) LUC 1, 2 or 3 land; but
>
> (b) is not:
>
> (i) identified for future development; or
>
> (ii) subject to a Council initiated, or an adopted, notified plan change to rezone it from general rural or rural production to urban or rural lifestyle.

The site is zoned Rural Production under the Operative Far North District Plan and identified as LUC 3 under the Manaaki Whenua Landcare Research Maps. However, the site is subject to an urban rezoning (Heavy Industrial Zone) under the Proposed Far North District Plan) which was notified on 27 July 2022 (before the NPS-HPL came into force on 17 October 2022). Therefore, the site is <u>not</u> "highly productive land".

3.6 Permitted activities that form part of the proposal

The permitted activities that form part of the proposal are summarised below.

3.6.1 Far North District Plan (Operative 2009)

- Noise from the new activities in the expanded area (i.e., the boron treatment plant and truck loading and despatch, which are day-time only activities) will comply with Rule 8.6.5.1.7 of the FNDP, as assessed by Marshall Day.
- The proposed domestic wastewater discharge will be able to comply with Rule 12.7.6.1.4 of the FNDP, as the wastewater is treated and disposed of on-site and the treatment and disposal system is not located within 30 m of any river, lake, wetland or the coastal marine area.

3.6.2 National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health

WWLA has undertaken a preliminary site investigation (**PSI**) and detailed site investigation (**DSI**), included as Appendix F, and visited the site in March 2024. The key conclusions of the investigations are:

- No activities on the Hazardous Activities and Industries List (**the HAIL**) have been or are occurring in the area where the earthworks subject of this application is proposed (i.e., the new dispatch yard and boron treatment building areas, and three large bunds to be removed). The National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (**the NES-CS**) does not apply to these works as they are not on a “piece of land” where the NES-CS applies.
- Furthermore:
    - The conceptual site model, developed to show where potential contamination risks lie, indicates there is no risk to site workers during earthworks associated with the redevelopment of the site, future users of the site, or the environment (during or post redevelopment).
    - Standard earthworks and health and safety procedures are expected to be suitable for earthworks. All soils can be reused on site. Some surplus surficial soil material is not suitable for disposal as clean fill.

3.7 Other resource consent requirements

There are aspects of the proposal which require resource consent from the Northland Regional Council. Therefore, resource consent is concurrently applied for the following:

- discharge permit to discharge treated domestic wastewater to land (on-site);
- land use consent, and associated stormwater discharge and water permits, for earthworks; and
- change of conditions of air discharge permit AUT.031351.01.01 to provide for the air discharge from a second boiler.

4.0 Site and surrounding environment

4.1 Site

The site is irregularly shaped and comprises three lots (Lot 3 DP 343062, Lots 1 and 2 DP 376253), all owned by Waipapa Pine, which have a combined area of approximately 10.75 ha. The site's western boundary adjoins a local purpose (esplanade) reserve (Lot 3 DP 376253) and immediately west of the reserve is the Kerikeri River. The site is accessed via the private road on Lot 5 DP 69740, Industrial Way, which has an intersection with State Highway 10 to the east.

4.1.1 Existing activities and development

Existing facilities on the site include a green mill building, dry mill building, dry store building, workshop buildings, offices, kiln buildings, boiler buildings, fillet and log yards, other ancillary buildings and on-site infrastructure as well as parking, loading and manoeuvring areas. The site currently has two kilns (with only one currently in operation) and one boiler. Existing development is principally located on Lots 1 and 2 DP 343062 while Lot 1 DP 376253 is a vacant paddock. There is an existing overhead power line (Top Energy Limited) which crosses the site's driveway and west of the new boron treatment building area. Required clearances, particularly in regard to the new boron treatment plant, from the powerline have been designed into the proposal.

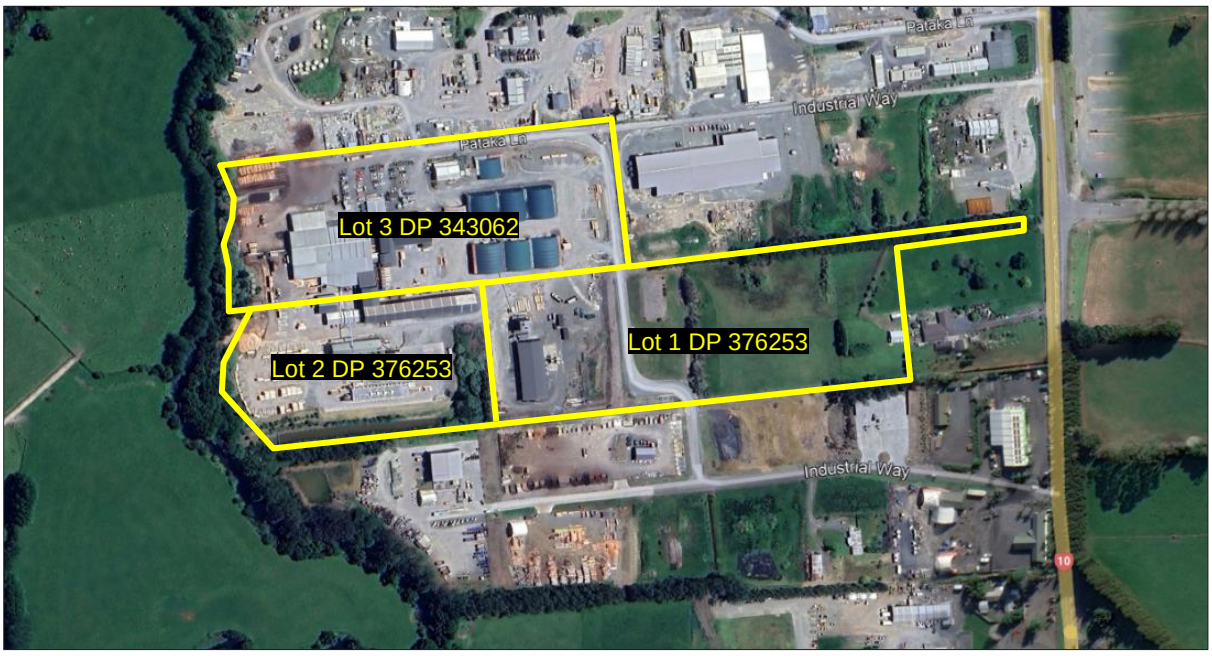


Figure 7: Aerial photograph of the site identified in yellow (Source: Google Earth).

4.1.2 Ecology investigation

The NRC's Biodiversity Wetlands Maps do not show wetland overlays on or within 100 m of the site. Dr Graham Ussher of RMA Ecology visited the site in March 2024 an undertook a walkover of the proposed development areas and has prepared an Ecological Assessment Memo. In terms of ecological values, in summary, Dr Ussher concludes that:

- There are no streams or wetlands present; the existing drain along the southern boundary of the site drains overland flow to State Highway 10 to the east (the western half of Waipapa Pine's sawmill site drains west to the Kerikeri River).
- Vegetation across the area is exotic and there is no indigenous vegetation and no 'Threatened' or 'At risk' native plant species.
- There is no habitat for bats.
- There is poor quality habitat for lizards, but native lizards are very unlikely to be present.
- Birdlife is a typical rural community of common native birds and any exotic species.
- There are no listed Significant Natural Areas (**SNA**) on the site, nor does the site meet any of the criteria to qualify as an SNA.

4.1.3 Stormwater catchments

The site has two primary stormwater catchments to the east and west. The existing composition of these catchments are as follows:

- The existing eastern catchment (i.e., east of the site's driveway, comprised by the paddock) discharges stormwater via an open drain along the southern boundary that connects to the State Highway 10 drain further east.
- The existing western catchment (i.e., west of the site's driveway, comprised by the existing sawmill area) channels stormwater to an open drain along the southern boundary which connects to Pond A. Pond A then discharges stormwater from its culvert outlet to an open drain in the esplanade reserve which then flows to the Kerikeri River.

An existing site plan is provided in the figure below which shows the eastern catchment (Catchment D, hatched blue) and western catchment (Catchment A, hatched red). Proposed changes to the catchments and stormwater management system are as described in Section 2.0 of this report.

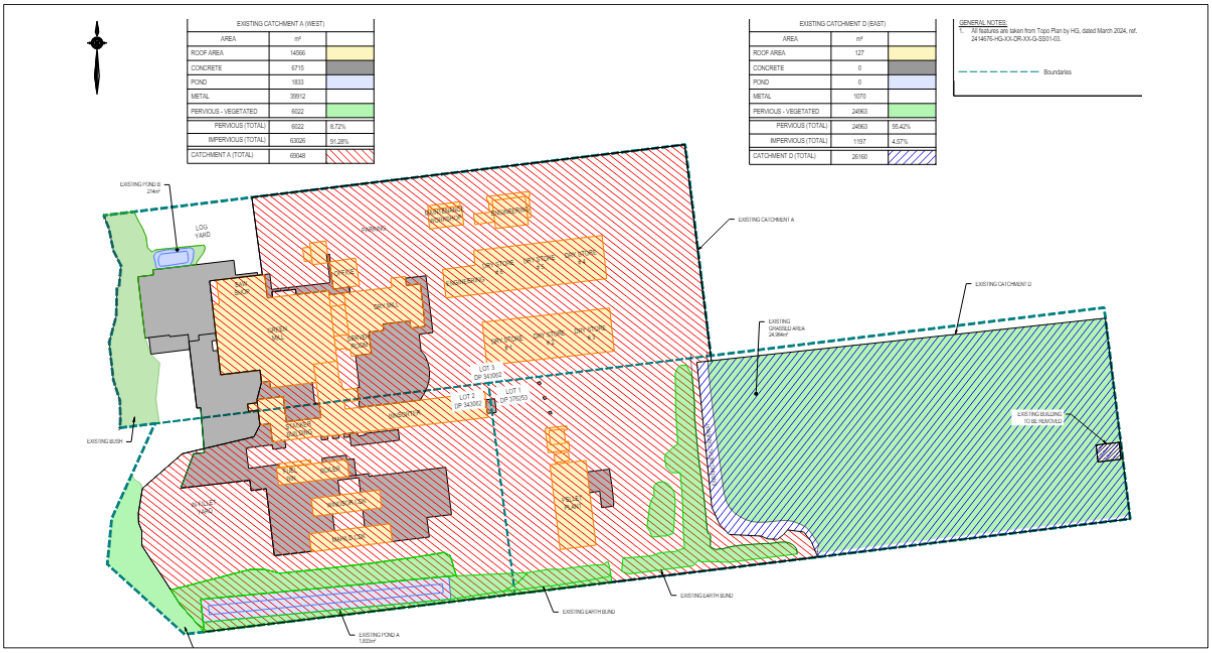


Figure 8: Sheet EXP03 of the Civil Drawings showing the existing catchments (Source: Haigh Workman)

4.1.4 Planning context

The site is zoned Rural Production under the FNDP and is not subject to any designations, overlays or controls. It is noted that the site is proposed to be zoned Heavy Industrial under the Proposed Far North District Plan (Notified 2022) (**the PFNDP**). There are no FNDP or PFNDP historical, cultural, landscape or ecological related overlays on or in the vicinity of the site. An excerpt of the FNDP and PFNDP maps are provided in the figures below.

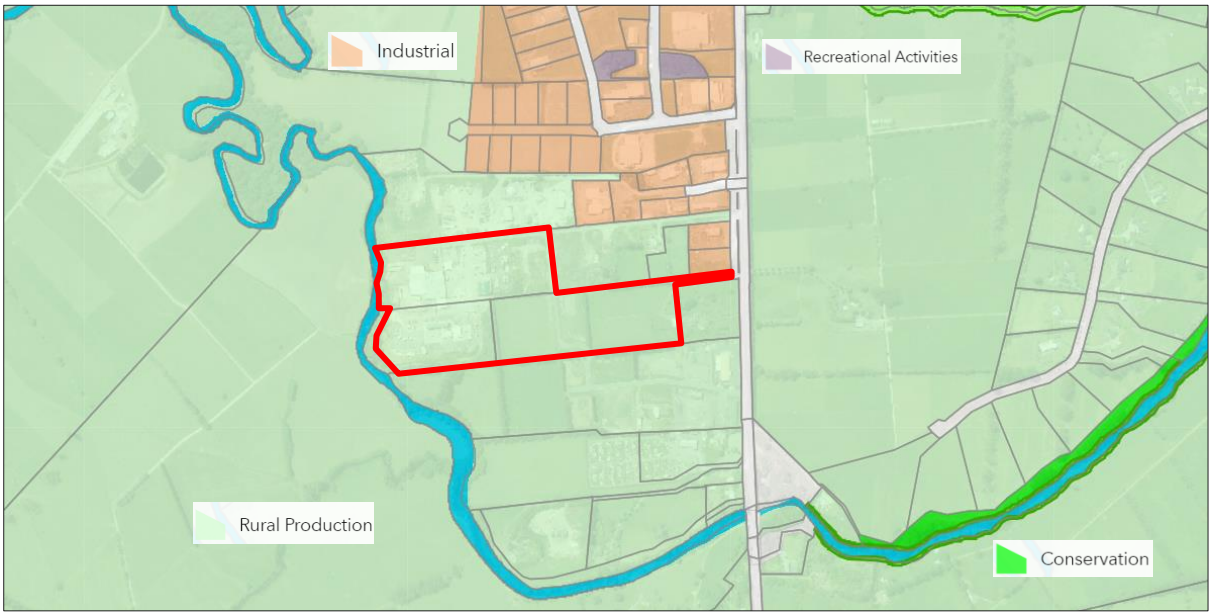


Figure 9: Excerpt of the FNDP Maps with the site outlined in red (Source: FNDC GIS)

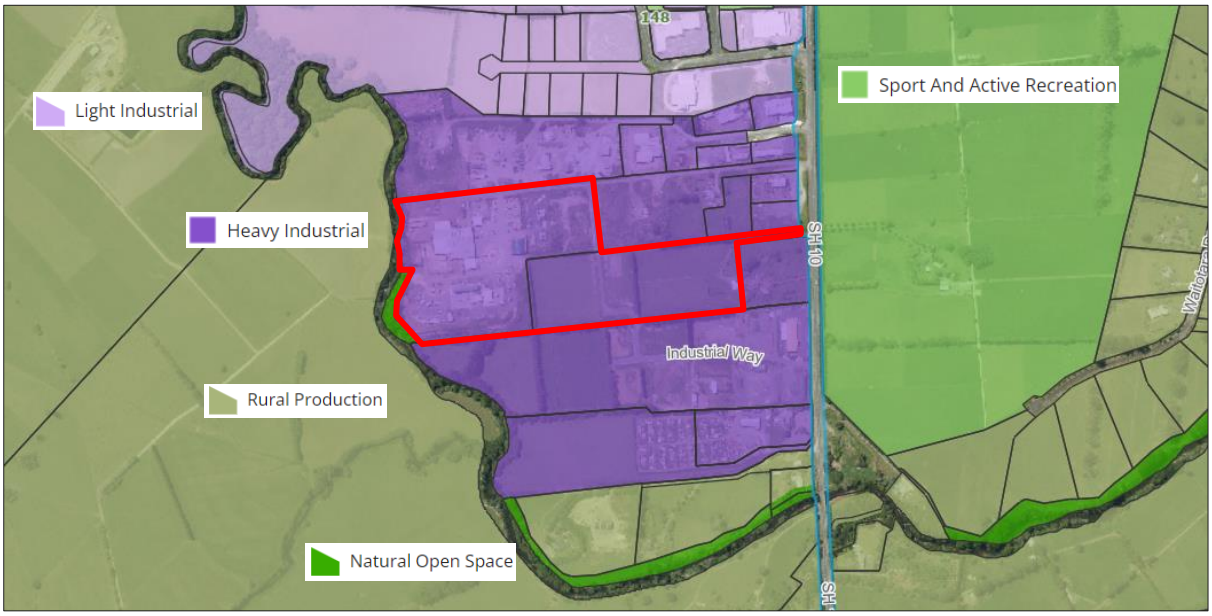


Figure 10: Excerpt of the PFNDP Maps with the site outlined in red (Source: FNDC GIS)

There are also no registered archaeological sites under the New Zealand Archaeological Association's ArchSite Maps on or in the vicinity of the site. The site is not within a treaty settlement acknowledgement area.

4.2 Industrial Way and State Highway 10

State Highway 10 is a two-lane road that runs from State Highway 1 at Pakaraka to the south and connects back to State Highway 1 at Awanui to the north-west. Near the site, State Highway 10 has one traffic lane in each direction, a centre median for turning, no footpaths and a posted speed limit of 100 km/h. It is understood that NZTA intends to reduce the speed limit of State Highway 10 to 80 km/h around the site.

Industrial Way is a private road over Solid Holdings' land that serves several industrial and commercial properties on its land as well as Waipapa Pine's. It is a two-way road and has been designed to accommodate large trucks. There are no footpaths along Industrial Way. The intersection of Industrial Way and State Highway 10 is currently an auxiliary left turn lane and a channelised right turn lane along State Highway 10. As discussed in the preceding section, Industrial Way is approved to have up to 2,144 vpd and 276 vph.

Haigh Workman has undertaken tube counts to survey traffic conditions on State Highway 10 and Industrial Way, summarised as follows:

- State Highway 10: A tube count was carried out along the straight just south of the site. The tube count data indicated that the highway currently carries around 11,500 vpd. Haigh Workman assesses that the volume is elevated due to the current closure of State Highway 1 through the Mangamuka Gorge. Haigh Workman understands that the Mangamuka Gorge is predicted to open late 2024 after which traffic volumes are predicted to drop back to around 8,000 vpd.
- Industrial Way: Tube counts were carried out concurrently near the Waipapa Pine entrance and State Highway 10 intersection. The tube count data indicates that the 5-day ADT is 2,045 vpd and peak hour traffic of 238 vph on a weekday and 243 vph during the weekend.

Haigh Workman assesses that Industrial Way's peak hour traffic does not coincide with State Highway 10's peak hour traffic in the morning and afternoon periods.

Haigh Workman has reviewed NZTA's Crash Analysis System (**CAS**) for crashes over the last 10 years on State Highway 10 in the vicinity of Industrial Way. The CAS review, as discussed in the Traffic Impact Assessment Report, concludes that the intersection has operated safely over the last 10 years and there were no crashes that would suggest that the continued use of Industrial Way and of the State Highway 10 intersection would be unsafe.

4.3 Surrounding environment

Land immediately north and south of the site is used for heavy and light industrial activities, as well as a Northland Waste transfer station on Solid Holdings' land to the south-west. The wider surrounding environment is predominantly characterised by a mixture of other industrial activities, warehouses, small and large retail shops, farmland and rural lifestyle blocks. On the opposite side of the Kerikeri River is private land in pasture owned by Julie and Murray Wright. The centre of Waipapa is approximately 1.1 km north of the site while Kerikeri is approximately 3.1 km south-east of the site.

The esplanade reserve adjoining the site comprises grassed and vegetated areas that slopes down towards the river. The reserve's northern and southern boundaries adjoin private land, owned by Waipapa Pine and Solid Holdings. The reserve is not subject to the esplanade priority overlay of the FNDP. The next closest esplanade reserve, legally described as Lot 4 DP 321759, is located approximately 300 m to the south-east. There is currently no means of access to the reserve by land without crossing private land. Land surrounding the site is zoned Rural Production or Industrial. Under the PFNDP, surrounding land is proposed to be zoned Heavy Industrial.

The figure below provides an aerial photograph of the site and surrounding land.

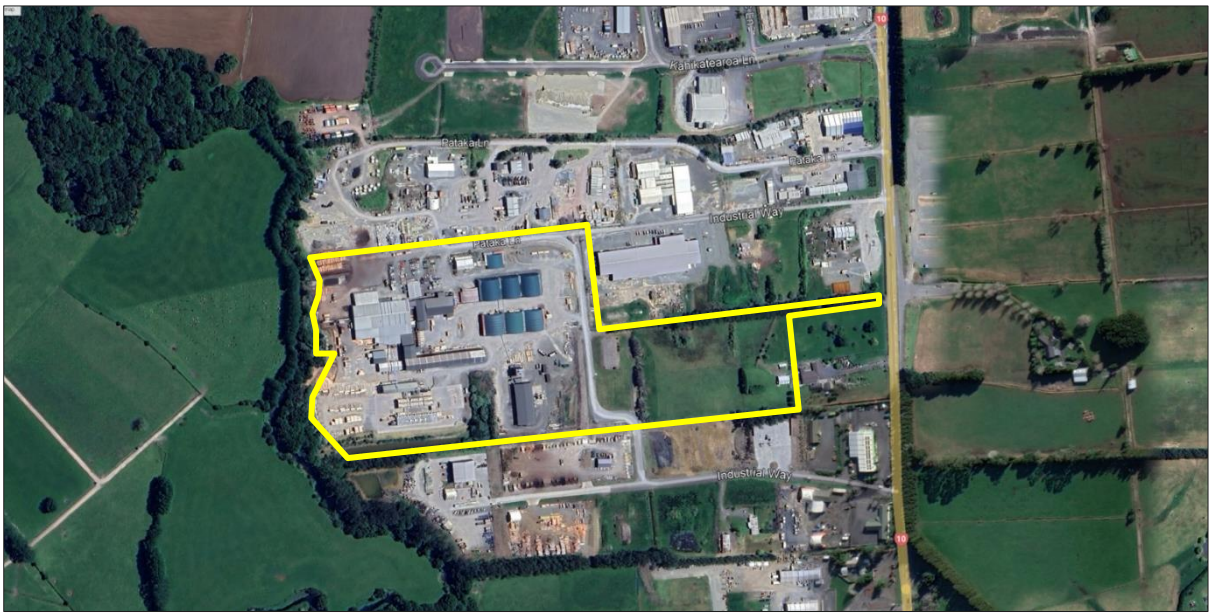


Figure 11: Aerial photograph of the site, identified in yellow, and surrounding land (Source: Google Earth)

5.0 Reasons for the application

An assessment of the proposal against the relevant statutory documents has been undertaken and the following reasons for consent have been identified.

5.1 Far North District Plan (Operative 2009)

An assessment of the relevant rules of the FNDP is provided below.

Table 6: Assessment of the relevant rules of the FNDP.

Reference	Rule	Performance	Status
8 Rural Environment			
8.6 Rural Production Zone			
8.6.5.1.2	Sunlight	The proposed buildings will not exceed the 45 degree recession plane m measured inwards from any point 2 m vertically above ground level on any site boundary.	Permitted
8.6.5.1.3	Stormwater Management	The proposed site impermeable surface of 88 % exceeds the maximum of 15 %.	**Discretionary**

Reference	Rule	Performance	Status
8.6.5.1.4	Setback from Boundaries	No proposed buildings or accessory buildings will be within the specified minimum setbacks from site boundaries.	Permitted
8.6.5.1.5	Transportation	An assessment of the proposal against the transportation rules is provided below and there are non-compliances with rules 15.1.6A.2.1 and 15.1.6B.1.1.	**Discretionary**
8.6.5.1.7	Noise	Noise from the new activities in the expanded area (i.e., the boron treatment plant and truck loading and despatch, which are day-time only activities) will comply with this rule. The entire site, including existing activities on the existing sawmill area, will be able to comply with the noise limits of existing land use consent 2150320-RMALUC. Construction noise will be undertaken to comply with permitted activity limits.	Permitted
8.6.5.1.8	Building Height	The proposed boiler's stack and baghouse will be 20 m and 13 m in height, which exceeds the maximum of 12 m. The proposed boron treatment building's height will comply with this rule.	**Discretionary**
8.6.5.1.10	Building Coverage	The proposed site building coverage of 16.2 % exceeds the maximum of 12.5 %.	**Discretionary**
8.6.5.1.11	Scale of Activities	The proposed maximum staff on site at any time of 104 exceeds the maximum of 21 (based on 2 per 1 ha of net site area for activities ancillary to plantation forestry).	**Discretionary**
12 Natural and Physical Resources			
12.3 Soils and Minerals			
12.3.6.1.1	Excavation and/or filling, excluding mining and quarrying, in the Rural Production Zone or Kauri Cliffs Zone	The proposed earthworks totalling 32,251 m^3 (undertaken within a 12-month period) exceeds the maximum of 5,000 m^3 in any 12 month period.	**Discretionary**
12.3.6.1.4	Nature of filling material in all Zones	The proposed fill material will meet the specified content requirements.	Permitted
12.7 Lakes, Rivers, Wetlands and the Coastline			
12.7.6.1.1	Setback from lakes, rivers, and the Coastal Marine Area	No proposed buildings or impermeable surfaces will be within the specified minimum setbacks from any lake, river or the coastal marine area.	Permitted
12.7.6.1.2	Setback from smaller lakes, rivers and wetlands	No proposed buildings or impermeable surfaces will be within the specified minimum setbacks from any smaller lake, river or indigenous wetland.	Permitted
12.7.6.1.3	Preservation of indigenous wetlands	No indigenous wetlands have been identified on the site nor are any activities proposed to be undertaken in indigenous wetlands.	N/A
12.7.6.1.4	Land use activities involving discharges of human sewage effluent	The proposed domestic wastewater disposal area will not be within the minimum 30 m setback from any lake,	Permitted

Reference	Rule	Performance	Status
		river, indigenous wetland or the coastal marine area.	
12.8 Hazardous Substances			
12.8.6.1.1	Consent Status Indices for Permitted Activities	The proposed hazardous substance (FramePro) consent status index of 112.2 exceeds the maximum of 0.75 in the Rural Production Zone.	**Discretionary**
15 Transportation			
15.1 Traffic, Parking and Access			
15.1.6A Traffic			
15.1.6A.2.1	Traffic Intensity	The proposal will maintain the existing consented traffic generation limit of up to 670 vpd. The permitted maximum is 30 vpd in the Rural Production Zone where access is via a state highway.	**Discretionary**
15.1.6B Parking			
15.1.6B.1.1	On-Site Car Parking Spaces	The proposed 116 car parking spaces is below the minimum requirement of 257 (based on 1 per 100 m^2 GBA of 25,700 m^2).	**Discretionary**
15.1.6B.1.4	Accessible Car Parking Spaces	The proposed 4 accessible car parking spaces meet the minimum of four (2 for 21-50 regular car parking spaces plus 1 additional for every 50 additional regular car parking spaces).	Permitted
15.1.6B.1.5	Car Parking Space Standards	The proposed car parking spaces have been designed to meet the dimension and manoeuvring requirements.	Permitted
15.1.6C Access			
15.1.6C.1.1	Private Accessway in All Zones	No new private accessway is proposed.	N/A
15.1.6C.1.7	General Access Standards	No changes to the site's existing approved driveway nor Industrial Way are proposed.	N/A
15.1.6C.1.8	Frontage to Existing Roads	The site has a narrow frontage (immediately north of the adjoining property Lot 5 DP 69740) to State Highway 10 which is and will not be used for vehicle access. The site is and will continue to be accessed via Industrial Way which is designed to accommodate the traffic and carries a lesser volume of traffic than State Highway 10.	N/A

Land use consent for a **discretionary activity** is required for non-compliances with the following rules:

- 8.6.5.1.3 Stormwater Management: The proposed site impermeable surface of 88 % exceeds the maximum of 15 %.
- 8.6.5.1.8 Building Height: The proposed boiler's stack and baghouse will be 20 m and 13 m in height, which exceeds the maximum of 12 m.
- 8.6.5.1.10 Building Coverage: The proposed site building coverage of 16.2 % exceeds the maximum of 12.5 %.

- 8.6.5.1.11 Scale of Activities: The proposed maximum staff on site at any one time of 104 exceeds the maximum of 21.
- 12.3.6.1.1 Excavation and/or filling: The proposed earthworks totalling 32,251 m^3 exceeds the maximum of 5,000 m^3 (in any 12-month period).
- 12.8.6.1.1: Hazardous Substances: The proposed timber preservative chemical's consent status index of 112.2 exceeds the maximum of 0.75.
- 15.1.6A.2.1 Traffic Intensity: The existing land use consent 2150320-RMALUC consented an increase in traffic generation from the site of up to 670 vpd. While the proposal will maintain traffic generation from the site to be within this existing consented threshold, a resource consent is sought under Rule 15.1.6A.2.1 Traffic Intensity as the application for land use consent 2150320-RMALUC identified future expansion on only the western part of Lot 1 DP 376253 whereas the new dispatch yard will be located on the eastern part of Lot 1 DP 376253.
- 15.1.6B.1.1 On-Site Car Parking Spaces: The proposed 116 car parking spaces is below the minimum requirement of 257.

5.2 Proposed Far North District Plan (Notified 2022)

In terms of the PFNDP, hearings are currently in progress and no decisions have been publicly notified to date. No rules of the PFNDP which have immediate legal effect under section 86B of the Act are relevant to this application.

5.3 Overall activity status

Land use consent is required by the FNDP for a **discretionary activity** overall.

As a discretionary activity, there is no limitation in the matters that the consent authority can consider providing they are resource management related. The consent authority may grant resource consent with or without conditions, or, decline resource consent.

6.0 Assessment of effects on the environment

6.1 Introduction

Having reviewed the relevant plan provisions, visited the site and taking into account the matters that must be addressed by an assessment of effects on the environment as outlined in clause 7 of Schedule 4 of the Act, the potential effects that warrant consideration as part of this application are:

- adverse effects on character and amenity;
- adverse effects of impermeable surfaces exceedance;
- adverse effects of earthworks;
- adverse effects on hazardous substances risks;
- adverse effects on the transportation network; and
- positive effects.

An assessment of these effects, that corresponds with the scale and significance of the effects that the proposed activity may have on the environment, is provided below. Clause 7(2) notes that the requirement to address matters in the assessment of effects on the

environment is subject to the provisions of any policy statement or plan. The relevant documents are also assessed in this report.

6.2 Effects to be considered or disregarded

The effects that can be disregarded pursuant to the existing environment and/or the permitted baseline (if applicable) are relevant to the assessment under sections 95A to 95G and 104 of the Act. Under these sections, a consent authority must disregard the effect of an activity that is associated with the existing environment and may disregard an adverse effect of the activity on the environment if a national environmental standard or the plan permits an activity with that effect. It is only the adverse effects over and above these that are relevant when considering an application.

6.2.1 Effects that must be disregarded – lawful existing environment

Effects that are within the "existing environment" must be disregarded. This includes any effects associated with lawful activities that exist or are likely to proceed. As relevant to the lawful existing environment, the effects that must be disregarded include those from:

- The existing sawmill activity, and the associated administrative and delivery activities, which Waipapa Pine has operated under district and regional resource consents for the last 11 years. Among others, these consented activities include:
  - Traffic generation of up to 670 vpd and 83 vpd (no exceedance proposed).
  - Employment of 59 staff (108 now proposed).
  - Maximum of 28 staff on site at any one time (104 now proposed).
  - Site building coverage of 9.27 % (12.5 % now proposed).
  - Site impermeable surfaces of 68 % (88 % now proposed).
  - Noise within the consented noise limits (no exceedance proposed).
  - Existing hours of operation (no changes proposed).
- The existing buildings, structures, infrastructure, access and parking on the site as described in Section 4.0 of this report.

6.2.2 Effects that may be disregarded – permitted baseline

In this case, the permitted baseline is:

- Maximum site impervious area of up to 15 % under Rule 8.6.5.1.3.
- Maximum site building coverage of up to 12.5 % under Rule 8.6.5.1.10.
- Maximum staff on site at any one time of up to 21 under Rule 8.6.5.1.11.
- Maximum earthworks of 5,000 m^3 in a 12-month period under Rule 12.3.6.1.1.

6.2.3 Receiving environment

In this case, the receiving environment is as described in Section 4.0 of this report. In addition, we are not aware of unimplemented resource consents on surrounding land that are likely to be implemented and would impact the assessment of this proposal.

6.2.4 Other considerations

Sections 95D(d) to 95D(e) and 104(3)(a) of the Act require that assessments must disregard:

- trade competition, or the effects of trade competition; and
- any effect on a person who has given written approval to this application.

Trade competition is not relevant to this application, but written approval is. The following persons have provided their written approval, and the relevant signed forms are included as Appendix L.

- Solid Holdings Limited - Lot 5 DP 69740 (5-15C Industrial Way).

Sections 95D(e) and 104(3)(a)(ii) are relevant because this person has provided their written approval to the application. As directed by the Act, in considering whether the application will have or is likely to have adverse effects on the environment that are more than minor, our assessment has disregarded the effects on this person.

6.3 Adverse effects on character and amenity

6.3.1 Scale of activity exceedance

An assessment of the FNDP's criteria under Section 11.1 is provided below. It is concluded that the adverse effects of the scale of activity exceedance are less than minor.

Criteria	Assessment of effects
(a) The character and appearance of building(s) and the extent to which the effects they generate can be avoided, remedied or mitigated, consistent with the principal activity on the site and with other buildings in the surrounding area.	The proposal is in keeping with the existing use of the site, being a sawmill which was initially established nearly 20 years ago. The site will continue to be in keeping in an area largely characterised by industrial, commercial and productive activities. This existing character is recognised in the Heavy Industrial zoning proposed in the PFNDP.
(b) The siting of the building(s), decks and outdoor areas relative to adjacent properties and the road frontage, in order to avoid visual domination and loss of privacy and sunlight.	While the new boron treatment building complies with the relevant bulk and location standards, specifically maximum height and sunlight access standards, and can be constructed as a permitted activity we still make the following comments as the criteria requires an assessment of new buildings in general. The building will be located approximately 190 m from the closest neighbouring dwelling such that any adverse visual dominance, privacy and shading effects are less than minor. The adverse effects of the proposed boiler stack and baghouse height exceedance are commented on further below, having regard to the Landscape Review in Appendix M.
(c) The size, location and design of open space and the extent to which trees and garden plantings are utilised for mitigating adverse effects.	The main interface between the neighbouring residential dwelling to the east and the sawmill will be, firstly, buffer planting, and secondly, the proposed large dispatch yard (rather than additional buildings). Adverse amenity effects are less than minor.
(d) The ability of the immediate environment to cope with the effects of increased vehicular and pedestrian traffic.	Traffic matters are assessed further below. The immediate environment will continue to accommodate vehicular traffic (there is no to very little pedestrian traffic from the site).

Criteria	Assessment of effects
(e) The location and design of vehicular and pedestrian access, on site vehicle manoeuvring and parking areas and the ability of those to mitigate the adverse effects of additional traffic.	Traffic matters are assessed further below. The location and design of access, parking and manoeuvring arrangements are sufficient to appropriately service the development.
(f) Location in respect of the roading hierarchy – the activity should be assessed with regard to an appropriate balance between providing access and the function of the road.	Not applicable. The proposal will maintain the site's existing consented access via Industrial Way and no new access to State Highway 10 is proposed.
(g) The extent to which hours of operation are appropriate in terms of the surrounding environment.	Not applicable. No changes to the existing consented operating hours are proposed.
(h) Noise generation and the extent to which reduction measures are used.	As assessed by Marshall Day: • Noise from the new activities on the site (i.e., new dispatch yard and boron treatment building) will comply with permitted activity limits. • The entire site, including existing activities on the existing sawmill area, will comply with the noise limits of existing land use consent 2150320-RMALUC.
(i) Any servicing requirements and/or constraints of the site – whether the site has adequate water supply and provision for disposal of waste products and stormwater.	The site has its own water supply (via a bore) and its private on-site stormwater and domestic wastewater management systems will be upgraded. There are no trade waste or process wastewater discharges.
(j) Whether the development is designed in a way that avoids, remedies or mitigates any adverse effects of stormwater discharge from the site into reticulated stormwater systems and/or natural water bodies.	Stormwater matters are assessed further below.
(k) The ability to provide adequate opportunity for landscaping and buildings and for all outdoor activities associated with the residential unit(s) permitted on the site.	Not applicable. No residential units are proposed.
(l) The degree to which mitigation measures are proposed for loss of open space and vegetation.	The only reduction in the existing "open space" of the site (which is just a vacant paddock) is due to the new boron treatment building. No specific measures are necessary for mitigation however planting will be installed for various purposes, including buffers with the neighbouring properties.
(m) Any adverse effects on the life supporting capacity of soils.	While the site's land is mapped as LUC 3: • The developed part of the site has been used for a sawmill, an industrial activity, for nearly 20 years and the undeveloped paddock where the dispatch yard will be located is and has not been used for productive activities in that time; and • The land is not "highly productive land" under the NPS-HPL and is proposed to be rezoned to Heavy Industrial under PFNDP.
(n) The extent of visual and aural privacy between residential units on the site and their associated outdoor spaces.	Not applicable. There are no existing or proposed residential units.
(o) Visual effects of site layout on the natural character of the coastal environment.	Not applicable. The site is not located in a coastal environment.
(p) The effect on indigenous vegetation and habitats of indigenous fauna.	The Ecological Impact Assessment Memo concludes that there is no indigenous vegetation or threatened or at risk native plant species in the vicinity of the works

Criteria	Assessment of effects
	areas. Lizard habitat is assessed to be of very poor quality with no lizards or lizard sign evident (not even for the introduced plague skink *Lampropholis delicata*).
(q) The extent to which the activity may cause or exacerbate natural hazards or may be adversely affected by natural hazards, and therefore increase the risk to life, property and the environment.	The proposal will not exacerbate natural hazard risks.
(r) Proximity to rural production activities and potential for incompatible and reverse sensitivity effects.	Productive activities are to the west on the opposite side of Kerikeri River. The site's side of the Kerikeri River is largely used for industrial and commercial activities, as demonstrated by the Council's proposal to rezone it to Heavy Industrial under the PFNDP. The proposed expansion is on the opposite side of the site and, given the separation distance from the neighbouring land to the west, is not anticipated to generate any reverse sensitivity effects.
(s) When establishing a minor residential unit:	Not applicable. No minor residential unit is proposed.
(t) With respect to access to a State Highway (SH) that is a Limited Access Road, the effects on the safety and/or efficiency on any SH and its connections to the local roading network and the provision of written approval from the NZ Transport Agency.	Traffic matters are assessed further below. The proposal will not result in additional adverse traffic effects beyond that already consented nor Waipapa Pine's allocation of the maximum Industrial Way traffic movements that NZTA had supported.

An assessment of the FNDP's criteria under Section 11.7 regarding the screening of non-residential activities is provided below.

Criteria	Assessment of effects
(a) Any adverse effects on the outlook from adjoining sites.	No adverse effects on the outlook of neighbouring properties are anticipated. There is existing boundary planting and additional buffer planting will be installed to enhance privacy and visual amenity.
(b) Any adverse noise effects arising from the use of the site.	As assessed by Marshall Day: • Noise from the new activities on the site (i.e., new dispatch yard and boron treatment building) will comply with permitted activity limits. • The entire site, including existing activities on the existing sawmill area, will comply with the noise limits of existing land use consent 2150320-RMALUC.
(c) Whether there are any alternative methods available for screening from adjacent sites.	There is existing boundary planting and additional buffer planting will be installed.

An assessment of the FNDP's criteria under Section 11.9 regarding the site intensity of non-residential activities is provided below.

Criteria	Assessment of effects
(a) The extent to which the area of the site and the proposed activities thereon are in keeping with the scale and form of the existing built environment and activities in the surrounding area and the total impermeable area of the catchment.	The proposal is in keeping with the existing use of the site, being a sawmill which was initially established nearly 20 years ago. The site will continue to be in keeping in an area largely characterised by industrial, commercial and productive activities.
(b) Whether permeable surfaces are planted to maintain and enhance the amenity of the site and the	Planting will be installed for the constructed wetlands / stormwater ponds as well as buffer planting.

Criteria	Assessment of effects
adjacent area and to retain, treat and/or dispose of stormwater generated on the site.	
(c) The extent to which measures are adopted to mitigate any adverse effects of increased size or scale of activity.	The scale of the proposal and development has been kept to that necessary for the operations expansion, and the existing and proposed buffer planting will help mitigate visual effects.

6.3.2 Boiler stack and baghouse height exceedance

An assessment of the FNDP's criteria under Section 11.2 is provided below. It is concluded that the adverse effects of the height exceedance of the proposed boiler stack and baghouse are less than minor.

Criteria	Assessment of effects
(a) The extent to which adjacent properties will be adversely affected in terms of visual domination, overshadowing, loss of privacy and loss of access to sunlight and daylight.	Neighbouring land to the proposed stack is used for industrial, commercial and farming activities, none of which are sensitive to residential amenity effects. The proposed boiler stack and baghouse are not a large nor occupiable "buildings" that might otherwise have adverse visual dominance effects. There are no adverse privacy effects as they are not occupiable "buildings". There will be no adverse shading effects on neighbouring land given the thin profile of the stack and the separation distances of both structures from site boundaries.
(b) The ability to mitigate any adverse effects by way of increased separation distances between buildings or the provision of landscaping and screening.	The proposed boiler stack and baghouse will be approximately 100 m to 150 m from the closest neighbouring buildings (being the waste transfer station and industrial or commercial buildings to the south). The separation distances, coupled with these activities being non-sensitive to residential amenity effects, do not require additional landscaping or screening.
(c) The extent of the building area and the scale of the building and the extent to which they are compatible with both the built and natural environments in the vicinity.	The proposed stack and baghouse will be adjacent to an existing stack, as such it will not be a new element to the site and these structures are commonplace in industrial areas, such as this part of Waipapa.
(d) The spatial relationship between the new building and adjacent residential units, and the outdoor space used by those unit.	The proposed boiler stack and baghouse will have significant separation distances from the closest neighbouring dwellings, being approximately 450 m from the dwellings at 1927 and 1897B State Highway 10. There are no adverse privacy effects, nor shading effects given the distances. SLR has prepared a Landscape Review in Appendix M. The review assesses the site's context and assesses that the proposed boiler will not be visible off site and the proposed stack, being adjacent to an existing stack of the same height, will not be visually prominent within its industrial setting and when visible typically had vegetation of comparable height within the view shaft. Considering the receiving environment, separation distances, and the Landscape Review, adverse amenity effects will be less than minor.
(e) The nature of the activity to be carried out within the building and its likely generated effects.	The proposed boiler baghouse is an air pollution control device while steam will be discharged from the proposed stack. Both elements are functionally

Criteria	Assessment of effects
	required to be a certain height in order to perform their function. Air discharges and their effects are managed by the NRP.

6.3.3 Building coverage exceedance

An assessment of the FNDP's criteria under Section 11.24 is provided below. It is concluded that the adverse effects of the building coverage exceedance are less than minor.

Criteria	Assessment of effects
(a) the ability to provide adequate landscaping for all activities associated with the site.	There is existing boundary planting and, while no specific measures are necessary for mitigation, additional buffer planting will be installed.
(b) the extent to which building(s) are consistent with the character and scale of the existing buildings in the surrounding environment.	The new boron treatment building is in keeping with the character and scale of existing buildings on the site and surrounding environment.
(c) the scale and bulk of the building in relation to the site.	The additional building coverage is due to the new boron treatment building (approximately 2,700 m^2). The building will not be of any significant scale or bulk in the context of larger buildings on the western areas of the site and given the site's area of 10.75 ha.
(d) the extent to which private open space can be provided for future uses.	The industrial use of the site does not necessitate private open space. However, the new dispatch yard may qualify, as there are no proposed buildings on it, and may provide for alternative uses in the future.
(e) the extent to which the cumulative visual effects of all the buildings impact on landscapes, adjacent sites and the surrounding environment.	Having regard to the receiving environment, the above assessments and the Landscape Review, no cumulative visual effects are considered to arise.
(f) the extent to which the siting, setback and design of building(s) avoid visual dominance on landscapes, adjacent sites and the surrounding environment.	Having regard to the receiving environment, the above assessments and the Landscape Review, adverse amenity effects are less than minor.
(g) the extent to which landscaping and other visual mitigation measures may reduce adverse effects.	No specific measures are necessary for mitigation however planting will be installed for various purposes, including buffer.
(h) the extent to which non-compliance affects the privacy, outlook and enjoyment of private open spaces on adjacent sites.	The new boron treatment building is not anticipated to adversely affect the privacy, outlook and enjoyment of the private open space on adjacent sites.

6.4 Adverse effects of impermeable surfaces exceedance

An assessment of the FNDP's criteria under Section 11.3 is provided below. It is concluded that the adverse effects of the impermeable surfaces exceedance are no more than minor, and no persons are considered to be an affected person.

Criteria	Assessment of effects
(a) The extent to which building site coverage and impermeable surfaces result in increased stormwater runoff and contribute to total catchment impermeability and the provisions of any catchment or drainage plan for that catchment.	Haigh Workman has designed Ponds A and D as constructed wetlands to provide for stormwater neutrality in accordance with the Council's Engineering Standards 2023 and the NRP's standards to manage the adverse effects of impervious surfaces. There is no specific drainage plan available for this catchment.
(b) The extent to which Low Impact Design principles have been used to reduce site impermeability.	The proposed stormwater upgrades have been designed with low impact design principles.

Criteria	Assessment of effects
(c) Any cumulative effects on total catchment impermeability.	Haigh Workman's stormwater design has addressed stormwater quality and quantity issues to address cumulative effects by way of Ponds A and D.
(d) The extent to which building site coverage and impermeable surfaces will alter the natural contour or drainage patterns of the site or disturb the ground and alter its ability to absorb water.	The site has moderate to slowly drained alluvial soils overlying rugged basalt flows with a high ground water table. The natural soils therefore have a limited ability to absorb water. Buildings and concrete surfaces will act as a barrier for water to penetrate the ground, whilst gap graded gravel is semi-permeable for low rainfall events. Whilst the ability of the ground to absorb water will be reduced with increased impervious surfaces, this is not considered to be a detrimental effect due to the nature of the ground conditions. Haigh Workman has also addressed the site's natural contour and drainage patterns pre and post development within their report and drawings. This involves a diversion of surface water (roof water) from the new boron treatment building towards Pond A, which has been catered for within the stormwater neutrality design.
(e) The physical qualities of the soil type.	The developed part of the site has been used for a sawmill, an industrial activity, for nearly 20 years and the undeveloped paddock where the dispatch yard will be located is and has not been used for productive activities in that time.
(f) Any adverse effects on the life supporting capacity of soils.	While the site's land is mapped as LUC 3: • The developed part of the site has been used for a sawmill, an industrial activity, for nearly 20 years and the undeveloped paddock where the dispatch yard will be located is and has not been used for productive activities in that time; and • The land is not "highly productive land" under the NPS-HPL and is proposed to be rezoned to Heavy Industrial under PFNDP.
(g) The availability of land for the disposal of effluent and stormwater on the site without adverse effects on the water quantity and water quality of water bodies (including groundwater and aquifers) or on adjacent sites.	The site will accommodate the on-site disposal of treated domestic wastewater and stormwater will be appropriately managed to not adversely affect the water quantity and water quality of water bodies or on adjacent sites.
(h) The extent to which paved, impermeable surfaces are necessary for the proposed activity.	Additional impermeable surfaces have been limited to that necessary for operations. It is noted that the additional impermeable surface is largely due to the new boron treatment process, which must be contained within a building to contain the activity and, among others, ensure that no substances are entrained in stormwater.
(i) The extent to which landscaping may reduce adverse effects of run-off.	A core component of additional planting, particularly for the constructed wetlands / ponds / swales, is to aid stormwater management and treatment.
(j) Any recognised standards promulgated by industry groups.	The proposed stormwater upgrades have been designed with industry standards and requirements.
(k) The means and effectiveness of mitigating stormwater run-off to that expected by the permitted activity limit.	For Pond A, Haigh Workman has provided for stormwater neutrality during the 2, 5 and 10 year ARI.

Criteria	Assessment of effects
	It is not possible to attenuate the 100 year ARI as the Kerikeri River spills into the site during that event. For Pond D, Haigh Workman has provided for 80 % predevelopment runoff during the 2, 5 and 100 year ARI (i.e., rather than attenuating to the permitted maximum of 15 %, Haigh Workman has provided attenuation back to predevelopment levels (Pond A) or less than predevelopment levels (Pond D).
(l) The extent to which the proposal has considered and provided for climate change.	Haigh Workman's design has provided for climate change adjusted rainfall intensity. This provides for the Representative Concentration Pathway 6.0 scenario for the 2081 to 2100 period.
(m) The extent to which stormwater detention ponds and other engineering solutions are used to mitigate any adverse effects.	Constructed wetlands / ponds are part of the proposed stormwater upgrades.

6.5 Adverse effects of earthworks

An assessment of the FNDP's criteria under Section 12.3.7 is provided below. It is concluded that the adverse effects of the earthworks are no more than minor, and no persons are considered to be an affected person.

Criteria	Assessment of effects
(a) the degree to which the activity may cause or exacerbate erosion and/or other natural hazards on the site or in the vicinity of the site, particularly lakes, rivers, wetlands and the coastline;	The earthworks will be undertaken with appropriate erosion and sediment controls and will not exacerbate natural hazard risks.
(b) any effects on the life supporting capacity of the soil;	While the site's land is mapped as LUC 3: • The developed part of the site has been used for a sawmill, an industrial activity, for nearly 20 years and the undeveloped paddock where the dispatch yard will be located is and has not been used for productive activities in that time; and • The land is not "highly productive land" under the NPS-HPL and is proposed to be rezoned to Heavy Industrial under PFNDP.
(c) any adverse effects on stormwater flow within the site, and stormwater flow to or from other properties in the vicinity of the site including public roads;	Earthworks will be undertaken with appropriate stormwater and sediment controls and to ensure that there are no adverse effects on neighbouring properties or State Highway 10.
(d) any reduction in water quality;	Earthworks will be undertaken with appropriate controls to not reduce the quality of water bodies.
(e) any loss of visual amenity or loss of natural character of the coastal environment;	Not applicable. The site is not located in a coastal environment.
(f) effects on Outstanding Landscape Features and Outstanding Natural Features	Not applicable. There are no outstanding landscape or outstanding natural features on the site.
(g) the extent to which the activity may adversely affect areas of significant indigenous vegetation or significant habitats of indigenous fauna;	Not applicable. There are no known areas of significant indigenous vegetation or habitats of indigenous fauna on the site.
(h) the extent to which the activity may adversely affect heritage, especially archaeological sites;	Not applicable. There are no known heritage or archaeological sites on the site.

Criteria	Assessment of effects
(i) the extent to which the activity may adversely affect the cultural and spiritual values of Māori, especially Sites of Cultural Significance to Māori and waahi tapu;	Waipapa Pine is undertaking ongoing engagement with iwi on the project. There are no known Sites of Cultural Significance to Māori and waahi tapu on the site. Accidental discovery protocols will be in place.
(j) any cumulative adverse effects on the environment arising from the activity;	The earthworks will be temporary and managed to not result in cumulative adverse effects.
(k) the effectiveness of any proposals to avoid, remedy or mitigate any adverse effects arising from the activity;	The earthworks will be temporary and managed to manage potential adverse effects, including erosion, sediment and nuisance effects such as dust. Construction noise will be undertaken to comply with permitted activity limits.
(l) the ability to monitor the activity and to take remedial action if necessary;	The earthworks will be undertaken with the ability for monitoring and remedial action protocols.
(m) the criteria in Section 11.20 Development Plans in Part 2; and	Not applicable. This relates to mineral extraction activities which are not proposed.
(n) the criteria (p) in 17.2.7 National Grid Yard.	Not applicable. The earthworks will not be undertaken within a National Grid Yard.

6.6 Adverse effects on hazardous substances risks

An assessment of the FNDP's criteria under Section 12.8.7 is provided below. It is concluded that the adverse effects on hazardous substances risks are less than minor.

Criteria	Assessment of effects
(a) the nature and the probability of the risk;	The potential adverse effects of exposure to the hazardous substance are skin irritation, eye damage and oral toxicity. It is also very toxic to aquatic life with long lasting effects. The hazard rating risk levels to human health and the environment is medium and high, respectively. The hazardous substance and boron treatment process will be fully contained in a building and operated by trained staff. The activity will be undertaken in accordance with industry regulations, best practice and emergency protocols / spill response plan (SRP). The probability of risk is low.
(b) the sensitivity of the surrounding natural and physical environment with regard to the scale of the proposal, including any need for separation distances from activities which result in high concentrations of people (e.g. schools, rest homes, marae, hospitals, residential areas, shopping centres) or to sensitive natural resources (e.g. aquifers, water bodies, wetlands);	There are no sensitive land uses or concentrations of people in the vicinity. The separation distance from the river is sufficient. In any event, regulations on stationary containment of substances of this type and volume only require a separation distance of 5 m from "areas of high intensity land use" which are defined as areas of regular habitation, structures made of combustible materials that would sustain a significant fire, and high density traffic routes. There is a bore on the site, but the area is not described as a significant aquifer under the NRP.
(c) the number of people potentially at risk from the use of hazardous substances;	The substance will be handled and used by select staff who are specially trained to operate within hazardous substances and workplace safety regulations.
(d) the risk to adjacent property;	There are no risks to adjacent properties. As noted against criteria (b) the separation distances required by regulations are more than met.

Criteria	Assessment of effects
(e) cumulative effects of the use, storage, transport and disposal of hazardous substances in the area and other hazardous substances in the vicinity;	No cumulative adverse effects are expected.
(f) site drainage and off-site infrastructure (e.g. stormwater and sewer type and capacity);	The transportation of the hazardous substance will be subject to industry standards and regulation. The substance will be contained such that there is no contamination of stormwater. Emergency protocols will be in place.
(g) transportation safety, including the suitability of the site with regard to methods of transportation, quantities and types of hazardous substances to be transported, and proposed transport routes, including access and egress to and from the site;	There is no undue risk. The location of the boron treatment building is part of the proposed expansion onto the vacant part of the site and has been sited to be separate from the other activities with adequate space for access and manoeuvring. The Traffic Impact Assessment Report confirms that access to and from State Highway 10 is safe with excellent site distances.
(h) the extent to which the proposed activity can avoid or mitigate any undue risk, including site layout, site management, spill contingency planning, transport methods and routes, monitoring and maintenance schedules;	An SRP / emergency protocols will be in place. The consent holder will comply with all relevant regulations for the use, storage and transportation of the hazardous substance.
(i) the adequacy of an emergency and evacuation plan to deal with possible on-site accidents involving hazardous substances;	An SRP / emergency protocols will be in place. The consent holder will comply with all relevant regulations for the use, storage and transportation of the hazardous substance.
(j) the ability of the proposed activity to be established at an alternative location, or to use alternative methods, when it is likely that an activity will result in any significant adverse effects on the environment;	The location of the new boron treatment building is appropriate and has been chosen so that the risk of adverse effects is minimised. Consideration of alternative locations is not therefore warranted.
(k) the extent to which the proposed site is accessible from the major roading network to avoid heavy traffic volumes on local roads (particularly residential local roads) and the extent to which the proposed site's entry and exit points may pose a problem with existing intersections;	The site is easily accessed from State Highway 10 via Industrial Way which serves other industrial or commercial activities (and no residential activities). No problems are expected from the site's existing access arrangements.
(l) any risks posed by natural hazards;	None. The boron treatment building is outside those parts of the site which are expected to be subject to surface flooding during extreme rainfall events.
(m) the extent to which the activity may adversely affect cultural and spiritual values;	No adverse effects on cultural and spiritual values are anticipated.
(n) the adequacy of proposed record keeping and audits regarding quantities of hazardous substances stored on-site and taken away to disposal.	Record keeping and audits of the hazardous substance will be undertaken to comply with industry requirements and regulations.

6.7 Adverse effects on the transportation network

6.7.1 Traffic generation

As discussed earlier in this report:

- The proposal will maintain the existing type and scale of vehicles which access the site (e.g., staff, visitor, contractor and truck delivery vehicles).

- The proposal will increase the level of traffic beyond current operations but will not exceed the existing consented limit under land use consent 2150320-RMALUC of 670 vpd and 83 vph.
- No changes to the site's existing driveway, Industrial Way or the intersection of Industrial Way and State Highway 10 are required nor proposed.
- The Council must disregard the adverse effects of lawful activities within the existing environment. This includes traffic within the site's consented limit.

Therefore, as no additional traffic is proposed beyond the site's consented limit, and there is no change in the type and scale of vehicles which access the site, there are no additional adverse traffic effects beyond that already assessed and consented by the Council.

6.7.2 Car parking shortfall

An assessment of the FNDP's criteria under Section 15.1.6B.5 is provided below. It is concluded that the adverse effects of the car parking shortfall are less than minor.

Criteria	Assessment of effects
(a) Whether it is physically practicable to provide the required car parks on site.	While additional car parking could be constructed on the site, the proposed car parking supply is adequate for the site and additional parking spaces / sealed areas are unnecessary.
(b) Whether there is an adequate alternative supply of parking in the vicinity, such as a public car park or angled road parking.	An alternative parking supply is not required.
(c) Whether there is another site nearby where a legal agreement could be entered into with the owner of that site to allow it to be used for the parking required for the application.	An alternative parking supply is not required.
(d) Whether it can be shown that the actual parking demand will not be as high as that indicated in Appendix 3C.	The site has adequate car parking for current operations and the additional car parking will adequately accommodate the additional staff.
(e) Adequacy of the layout and design of the car parking areas in terms of other recognised standards, including the provision made to mitigate the effects of stormwater runoff, and any impact of roading and access on waterways, ecosystems, drainage patterns or the amenities of adjoining properties.	The car parking areas have been designed to comply with engineering standards.
(f) Degree of user familiarity with the car park and length of stay of most vehicles.	Car parking will be used by staff and contractors that are familiar with the site.
(g) Total number of spaces in the car park.	The car parking supply is adequate for the site.
(h) Clear space for car doors to be opened even if columns, walls and other obstructions intrude into a car parking space.	There are no known obstacles to the car parking.
(i) For sites with a frontage with Kerikeri Road between its intersection with SH10 and Cannon Drive:	Not applicable. The site does not have frontage to Kerikeri Road.
(j) Whether cycling facilities or open green space have been considered or are appropriate as an alternative to car parking.	There is a car-pool programme on the site.
(k) Whether adequate consideration has been given to providing accessible car parking spaces for those with	Four accessible car parking spaces will be provided.

Criteria	Assessment of effects
disabilities, the location of these spaces and regulating inappropriate use of the spaces.	
(l) The extent to which the site can be accessed by alterative transport means such as buses, cycling or walking.	There is a car-pool programme in place at the site.
(m) The extent to which the reduced number of car parking spaces may increase congestion along arterial and strategic roads.	No spill-over parking from the site is anticipated.
(n) The degree to which provision of on-site car parking spaces may have resulted in adverse visual effects or fragmented pedestrian links.	The car parking spaces will not result in adverse visual effects or fragmented pedestrian links.
(o) Whether a financial contribution in lieu of car parking spaces is appropriate.	Not required.
(p) Consideration given to shared parking options between adjacent sites and activities that have varying peak parking demands.	Shared parking options are not required.
(q) The varying parking requirements for staff and customers	The car parking supply is adequate for the site.

6.8 Positive effects

The proposal will generate positive effects on the environment, being:

- Social and economic benefits: The proposal will support the continued operation of an existing sawmill, and Waipapa Pine is among the biggest employers in the Waipapa-Kerikeri area and produces timber products for the Northland and Auckland regions. The sawmill's primary product is structural grade framing timber which will support the housing construction industry in the North Island.
- Social and economic benefits: The proposed increase in staff will result in new employment opportunities in the area.
- Environmental benefits: The proposed stormwater infrastructure upgrades, and particularly the incorporation of constructed wetlands and a vegetated swale, have been designed in accordance with best practice and industry standards, and will further enhance the quality and reduce the peak flows of stormwater discharges from the site. The upgrades will achieve the stormwater quantity and quality objectives of the Council's Engineering Standards and the NRP.
- Environmental benefits: The proposed landscaping will, over time, enhance the visual appearance of the site.

6.9 Conclusion

Overall, based on the preceding assessment, it is concluded that the:

- adverse effects on character and amenity are less than minor;
- adverse effects of the impermeable surfaces exceedance are no more than minor;
- adverse effects of earthworks are no more than minor;
- adverse effects on hazardous substances risks are less than minor; and

- adverse effects on the transportation network are less than minor.

No persons are considered to be adversely affected to a minor or more than minor degree.

Overall, the adverse effects are acceptable, and the proposal will result in positive effects.

7.0 Statutory assessment

Section 104(1) of the Act requires that, when considering a resource consent application, the consent authority must have regard to the matters set out in subsections (1)(a), (ab), (b) and (c). These matters are addressed below, and all are subject to Part 2.

7.1 Section 104(1)(a) (Actual and potential effects)

Section 104(1)(a) requires the consent authority to have regard to "any actual and potential effects on the environment of allowing the activity".

As assessed in Section 6.0 of this report above, the proposed activity will have actual and potential effects on the environment that are acceptable as well as positive effects in terms of social, economic and environmental matters.

7.2 Section 104(1)(ab) (Offsetting or compensation)

Section 104(1)(ab) requires that the consent authority consider "any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity".

In this case, the proposed activity is not of a scale or nature that would require specific offsetting or environmental compensation measures to ensure positive effects on the environment.

7.3 Section 104(1)(b) (Statutory documents)

Section 104(1)(b) requires the consent authority to have regard to any relevant provisions of the following:

- a national environmental standard;
- other regulations;
- a national policy statement;
- a New Zealand coastal policy statement;
- a regional policy statement or proposed regional policy statement; and
- a plan or proposed plan.

An assessment of the relevant statutory documents that corresponds with the scale and significance of the effects that the proposed activity may have on the environment is provided below.

7.3.1 Regional Policy Statement for Northland (Operative 2016)

The following objective and policy of the Regional Policy Statement for Northland (Operative 2016) (**the NRPS**) are relevant to the application:

Objective 3.5 Enabling economic wellbeing

Northland's natural and physical resources are sustainably managed in a way that is attractive for business and investment that will improve the economic wellbeing of Northland and its communities.

Policy 5.1.1 Planned and coordinated development

Subdivision, use and development should be located, designed and built in a planned and co-ordinated manner which:

(a) Is guided by the 'Regional Form and Development Guidelines' in Appendix 2;

(b) Is guided by the 'Regional Urban Design Guidelines' in Appendix 2 when it is urban in nature;

(c) Recognises and addresses potential cumulative effects of subdivision, use, and development, and is based on sufficient information to allow assessment of the potential long-term effects;

(d) Is integrated with the development, funding, implementation, and operation of transport, energy, water, waste, and other infrastructure;

(e) Should not result in incompatible land uses in close proximity and avoids the potential for reverse sensitivity;

(f) Ensures that plan changes and subdivision to / in a primary production zone, do not materially reduce the potential for soil-based primary production on land with highly versatile soils, or if they do, the net public benefit exceeds the reduced potential for soil-based primary production activities; and

(g) Maintains or enhances the sense of place and character of the surrounding environment except where changes are anticipated by approved regional or district council growth strategies and / or district or regional plan provisions.

(h) Is or will be serviced by necessary infrastructure.

The relevant provisions of Appendix 2 are contained in Part A. The relevant clauses seek that subdivision, use or development:

(a) Demonstrate access to a secure supply of water; and

(b) Demonstrate presence or capacity or feasibility for effective wastewater treatment; and

(j) Be designed, located and cited to avoid significant adverse effects on transportation corridors and consented or designated transport corridors; and

(k) Be directed away from 10-year and 100-year flood areas and high risk coastal hazard areas (refer to 'Natural hazards' for more details and guidance); and

(o) Avoid or mitigate adverse effects on natural hydrological characteristics and processes (including aquifer recharge), soil stability, water quality and aquatic ecosystems, including through low impact design methods where appropriate; and

(r) Consider effects on the unique tangata whenua relationships, values, aspirations, roles and responsibilities with respect to the site of development; and

The proposal is consistent with these provisions for the following reasons:

- The proposal will provide for use and development that is in keeping with an established industrial site that is located in an established industrial and commercial area. The proposal will maintain the sense of place and character of the surrounding environment, or will it result in reverse sensitivity effects.
- The proposed development and earthworks will not be located in a flood hazard area. Climate change risks have been taken into account in the stormwater design.
- The site will be adequately serviced by infrastructure:
    - Water supply (via an existing bore).
    - Stormwater (via an existing on-site system that will be upgraded to further enhance the quality and reduce the peak flows of discharges).
    - Domestic wastewater (via an existing on-site system to accommodate additional staff and achieve relevant engineering standards).

- Other utilities (via existing power and telecommunications connections).

- The proposed infrastructure servicing has been designed to achieve relevant engineering standards and with regard to the receiving environment, including the site's soil characteristics and the Kerikeri River.
- The proposal will not result in additional adverse traffic effects on the state highway network beyond what is already consented. Adequate car parking is provided on-site.
- Waipapa Pine are undertaking ongoing engagement with iwi. A copy of the application has been provided to Ngāti Rēhia. Updates on iwi consultation will be provided to the Council during processing.
- In terms of social and economic benefits, the proposal will support the continued operation of an existing sawmill, and Waipapa Pine is among the biggest employers in the Waipapa-Kerikeri area and produces timber products for the Northland and Auckland regions. The sawmill's primary product is structural grade framing timber which will support the housing construction industry in the North Island, thereby supporting economic and social wellbeing in the local community and the wider North Island. The proposed increase in staff will also result in new employment opportunities in the area, thereby supporting economic and social wellbeing in the community.

7.3.2 Far North District Plan (Operative 2009)

7.3.2.1 Chapter 8 Rural Environment – 8.6 Rural Production Zone

The following objectives are relevant to the application:

8.3.1 To promote the sustainable management of natural and physical resources of the rural environment.

8.3.3 To avoid, remedy or mitigate the adverse and cumulative effects of activities on the rural environment.

8.3.6 To avoid actual and potential conflicts between land use activities in the rural environment.

8.3.7 To promote the maintenance and enhancement of amenity values of the rural environment to a level that is consistent with the productive intent of the zone.

8.6.3.2 To enable the efficient use and development of the Rural Production Zone in a way that enables people and communities to provide for their social, economic, and cultural well being and for their health and safety.

8.6.3.3 To promote the maintenance and enhancement of the amenity values of the Rural Production Zone to a level that is consistent with the productive intent of the zone.

8.6.3.7 To avoid remedy or mitigate the adverse effects of incompatible use or development on natural and physical resources.

The following policies are relevant to the application:

8.4.2 That activities be allowed to establish within the rural environment to the extent that any adverse effects of these activities are able to be avoided, remedied or mitigated and as a result the life supporting capacity of soils and ecosystems is safeguarded and rural productive activities are able to continue.

8.4.4 That development which will maintain or enhance the amenity value of the rural environment and outstanding natural features and outstanding landscapes be enabled to locate in the rural environment.

8.4.5 That plan provisions encourage the avoidance of adverse effects from incompatible land uses, particularly new developments adversely affecting existing land-uses (including by constraining the existing land-uses on account of sensitivity by the new use to adverse affects from the existing use – i.e. reverse sensitivity).

8.6.4.1 That the Rural Production Zone enables farming and rural production activities, as well as a wide range of activities, subject to the need to ensure that any adverse effects on the environment, including any reverse sensitivity effects, resulting from these activities are avoided, remedied or mitigated and are not to the detriment of rural productivity.

8.6.4.2 That standards be imposed to ensure that the off site effects of activities in the Rural Production Zone are avoided, remedied or mitigated.

8.6.4.4 That the type, scale and intensity of development allowed shall have regard to the maintenance and enhancement of the amenity values of the Rural Production Zone to a level that is consistent with the productive intent of the zone.

8.6.4.7 That although a wide range of activities that promote rural productivity are appropriate in the Rural Production Zone, an underlying goal is to avoid the actual and potential adverse effects of conflicting land use activities.

The proposal is consistent with these provisions because:

- While located in the Rural Production Zone, industrial activities have long been established on the site and the site is within a wider industrial and commercial area where the amenity value of the rural environment has already been significantly depleted. The activity will not further reduce this, particularly with the existing and proposed buffer landscaping that will assist the minimisation of visual effects experienced by road users and adjacent property owners and occupiers. The activity and development are compatible with, and will maintain the prevailing character and amenity of, the wider area.
- The proposed expansion and development are in addition to and therefore consistent with the existing activities on site. Due to the industrial nature of the immediate surrounding environment, the proposal is also consistent with the nature of activities to the north and south of the site.
- In terms of rural productivity, the developed part of the site has been used for an industrial activity for over nearly 20 years and the undeveloped paddock where the dispatch yard will be located is not used for productive activities.
- As previously discussed, there are no adverse traffic effects beyond that already consented and the adverse effects of the car parking shortfall are less than minor and acceptable.
- The adverse effects on land use activities to the east and west are minimised by setback distances and the landscaped buffers.
- There is productive land with farming activities on the property to the west of the site, although the Kerikeri River separates the site from this neighbouring property. The proposed activities are located well away from the site boundaries, and will not affect this land use.
- The subject site is set back from the road. There are existing boundary plantings on site, and additional landscaping is included as part of this proposal to further reduce any adverse visual effects.
- Waipapa Pine is among the biggest employers in the Waipapa-Kerikeri area, and the proposal will maintain and increase the jobs available to the local community.
- Additional landscaping and constructed wetlands form part of the proposal, to ensure that remaining amenity values of the site and surrounds can be enhanced.

7.3.2.2 Chapter 12 Natural and Physical Resources – 12.3 Soils and Minerals

The following objectives are relevant to the application:

12.3.3.3 To avoid, remedy or mitigate adverse effects associated with soil excavation or filling.

The following policies are relevant to the application:

12.3.4.1 That the adverse effects of soil erosion are avoided, remedied or mitigated

12.3.4.2 That the development of buildings or impermeable surfaces in rural areas be managed so as to minimise adverse effects on the life supporting capacity of the soil.

12.3.4.4 That soil excavation and filling, and mineral extraction activities be designed, constructed and operated to avoid, remedy or mitigate adverse effects on people and the environment.

The proposal is consistent with these provisions because:

- The earthworks will be undertaken with a range of controls in accordance with NRC publications, Auckland Council GD05 guidelines and will ensure that potential adverse effects on the surrounding environment are appropriately managed.
- The earthworks will be temporary and managed to manage potential adverse effects, including erosion, sediment and nuisance effects such as dust. Noise during earthworks will comply with permitted activity limits.
- There are no known or registered areas of significant indigenous vegetation or habitats of indigenous fauna on the site, Sites of Cultural Significance to Maori or waahi tapu, heritage sites or archaeological sites. Accidental discovery protocols will be followed in the unlikely event that sensitive sites or artefacts are discovered.
- The developed part of the site has been used for a sawmill, an industrial activity, over nearly 20 years and the undeveloped paddock where the dispatch yard will be located is not used for productive activities.

7.3.2.3 Chapter 12 Natural and Physical Resources – 12.7 Lakes, Rivers, Wetlands and the Coastline

The following objectives are relevant to the application:

12.7.3.1 To avoid, remedy or mitigate the adverse effects of subdivision, use and development on riparian margins.

12.7.3.5 To avoid the adverse effects from inappropriate use and development of the margins of lakes, rivers, indigenous wetlands and the coastline.

The following policies are relevant to the application:

12.7.4.1 That the effects of activities which will be generated by new structures on or adjacent to the surface of lakes, rivers and coastal margins be taken into account when assessing applications.

12.7.4.3 That adverse effects of land use activities on the natural character and functioning of riparian margins and indigenous wetlands be avoided.

The proposal is consistent with these provisions because:

- No development is proposed within proximity to Kerikeri River west of the site. Furthermore, the proposed domestic wastewater disposal area will not be within the minimum 30 m setback from any lake, river, indigenous wetland or the coastal marine area. The upgrading of the western pond and drain into a constructed wetland and vegetated swale will add to the landscaped character of the area surrounding the Kerikeri River.

7.3.2.4 Chapter 12 Natural and Physical Resources – 12.8 Hazardous Substances

The following objectives are relevant to the application:

12.8.3.1 To avoid or mitigate adverse environmental effects and to minimise the risks presented by activities involving the use, storage, transport and disposal of hazardous substances.

12.8.3.2 To protect people and the environment from the adverse effects of hazardous substances.

The following policies are relevant to the application:

12.8.4.1 That activities and facilities involving the use of hazardous substances be designed, located, constructed and operated so as to avoid adverse effects on people and the environment and to minimise risk to people and the environment.

12.8.4.2 That where the Council deems it necessary, spill response contingency plans will be developed and operated on sites where hazardous substances are stored, used, transported or disposed of.

The proposal is consistent with these provisions because:

- The hazardous substance and boron treatment process will be fully contained in a building and operated by trained staff. The activity will be undertaken in accordance with industry regulations, best practice and emergency protocols / SRP. The probability of risk to people and the environment is low. No process wastewater or trade waste discharges are proposed.
- The location of the substance will not be in close proximity to people, other than those persons trained to handle it on site.
- Protocols for transportation, storage and use will be implemented and followed.
- Contingency plans will be put in place for emergency situations.

7.3.2.5 Chapter 15 Transportation – 15.1 Traffic, Parking and Access

The following objectives are relevant to the application:

15.1.3.1 To minimise the adverse effects of traffic on the natural and physical environment.

15.1.3.3 To ensure that appropriate provision is made for on-site car parking for all activities, while considering safe cycling and pedestrian access and use of the site.

15.1.3.4 To ensure that appropriate and efficient provision is made for loading and access for activities.

15.1.3.5 To promote safe and efficient movement and circulation of vehicular, cycle and pedestrian traffic, including for those with disabilities.

The following policies are relevant to the application:

15.1.4.1 That the traffic effects of activities be evaluated in making decisions on resource consent applications.

15.1.4.2 That the need to protect features of the natural and built environment be recognised in the provision of parking spaces.

15.1.4.3 That parking spaces be provided at a location and scale which enables the efficient use of parking spaces and handling of traffic generation by the adjacent roading network.

15.1.4.4 That existing parking spaces are retained or replaced with equal or better capacity where appropriate, so as to ensure the orderly movement and control of traffic.

15.1.4.8 That alternative options be considered to meeting parking requirements where this is deemed appropriate by the Far North District Council.

The proposal is consistent with these provisions because:

- The proposal will not result in additional adverse traffic effects beyond what is already consented, nor Waipapa Pine's allocation of the maximum traffic movements on Industrial Way that the Council and NZTA supported.
- Car parking is provided for on site to accommodate for staff at various locations around the site. While additional car parking could be constructed on the site, the proposed car parking supply is adequate for the site and additional parking spaces / sealed areas are unnecessary.
- Due to the nature of the activities on site, no cyclists are anticipated. There are designated areas for pedestrian use within the site boundaries for staff, however no footpath has been provided for outside of the site due to minimal pedestrian use in the area.
- Ample space for manoeuvring and loading on site with the required tracking curves being provided for.
- Industrial Way is a private road. No additional access points to public roads are required for this activity.

7.3.3 Proposed Far North District Plan (Notified 2022)

7.3.3.1 Part 3 Area Specific Matters – Heavy Industrial Zone

The following objectives are relevant to the application:

HIZ-O2 The Heavy Industrial zone accommodates a range of heavy industrial activities that:

a. efficiently use the physical resources of the zone;

b. are characterised largely by the use of large-scale purpose built utilitarian buildings and large areas of car parking and/or outdoor storage;

c. are not unreasonably constrained by surrounding activities; and

d. avoid compromising the operation of future heavy industrial activities within the zone.

HIZ-O4 The adverse environmental effects generated by heavy industrial activities are managed, in particular at zone boundaries.

The following policies are relevant to the application:

HIZ-P1 Enable the development and operation of heavy industrial activities in this zone.

HIZ-P4 Require heavy industrial activities to internalise adverse effects on-site as far as practicable, particularly along the interface of surrounding zones.

HIZ-P7 Manage land use and subdivision to address the effects of the activity requiring resource consent, including (but not limited to) consideration of the following matters where relevant to the application: […]

The proposal is consistent with these provisions for the same reasons as provided in the assessment of the FNDP's provisions. It is also important to note that the proposed Heavy Industrial zoning under the PFNDP is a more appropriate zone to the site and the surrounding environment given the existing industrial land uses.

7.3.4 Weighting

The proposed rezoning from Rural Production under the FNDP to Heavy Industrial under the PFNDP is a significant policy shift to reflect the existing industrial land uses. However, the PFNDP's provisions are subject to submissions and further submissions and hearings are ongoing. Because of this, greater weight has been given to the FNDP's provisions,

notwithstanding that these provisions are quite dated, particularly in relation to this area of Waipapa.

7.3.5 Conclusion

The above assessments demonstrate that the proposal is consistent with the relevant provisions of the relevant statutory documents, subject to fair and reasonable conditions being imposed as recommended in Section 8.0 of this report.

7.4 Section 104(1)(c) (Other matters)

In addition to the matters of regard covered under subsections (1)(a), (ab) and (b), subsection (1)(c) states that consideration must be given to "any other matters that the consent authority considers relevant and reasonably necessary to determine the application."

There are no other matters relevant to this application.

8.0 Other relevant sections of the Act

8.1 Section 108 (Proposed conditions of consent)

Noise from the new activities on the site (i.e., new dispatch yard and boron treatment building) will be able to comply with permitted activity standards. The entire site, including existing activities on the existing sawmill area, will be able to comply with the noise limits of existing land use consent 2150320-RMALUC.

Despite the above, Waipapa Pine offers a noise condition for this application with the same noise limits of Condition 9 of land use consent 2150320-RMALUC. This is so that the entire site is subject to one set of noise limits thereby aiding monitoring and compliance.

> *(X) The Consent Holder shall ensure that the activities undertaken do not result in noise levels exceeding the following noise limits unless otherwise specified as measured at or within the boundary of any other zone or the or within the notional boundary of any dwelling existing at the date of commencement of this consent:*
>
> *(a) Monday to Friday from 7:00 am to 10:00 pm and 7:00 am to 7:00 pm Saturday and Sunday - 65dBA L_{10} for saw mill operations involving the processing of timber except that the maximum noise level shall not exceed 70dBA on the boundary with Lot 5 DP 69740;*
>
> *(b) Monday to Friday from 10:00 pm to 7:00 am the following day and 7:00 pm to 7:00 am the following day on Saturday and Sunday - 45dBA L_{10} for any other activities (not involving saw mill operations) except that the maximum noise level shall not exceed 46dBA on the boundary with Lot 2 DP 69740;*
>
> *(c) 70 dBA L_{max}.*

It is requested that draft conditions of consent are shared to SLR in advance of a decision being made on the application.

8.2 Section 125 (Lapsing of consent)

Section 125 prescribes a standard consent period of five years in which all works must be undertaken, but this may be amended as deemed appropriate by the consent authority. It is requested that the standard five-year period be applied in this case.

8.3 Section 35 (Monitoring charges)

Under section 35, the consent authority is required to monitor the exercise of resource consents. Given the limited scale of the proposed activity, and because all mitigation measures are inherent within the application, it is considered that only a limited need for monitoring exists. Waipapa Pine accepts a reasonable monitoring fee in accordance with the consent authority's monitoring fee system and that the consent authority may carry out its monitoring functions by way of inspections of the site during development of the proposal.

9.0 Notification assessment

9.1 Public notification assessment

Section 95A of the Act requires the consent authority to follow specific steps to determine whether to publicly notify an application. An assessment of the application against these steps is provided below.

9.1.1 Step 1: Mandatory public notification in certain circumstances

An application must be publicly notified if it meets any of the criteria under section 95A(3):

> (3) (a) the applicant has requested that the application be publicly notified:
>
> (b) public notification is required under section 95C:
>
> (c) the application is made jointly with an application to exchange recreation reserve land under section 15AA of the Reserves Act 1977.

The Applicant does not request public notification and the application is not made jointly with an application to exchange recreation reserve land.

Therefore, Step 1 does not apply, and Step 2 must be considered.

9.1.2 Step 2: Public notification precluded in certain circumstances

An application must not be publicly notified if it meets any of the criteria under section 95A(5):

> (5) (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 public notification:
>
> (b) the application is 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:

None of these criteria apply to the application.

Therefore, Step 2 does not apply, and Step 3 must be considered.

9.1.3 Step 3: Public notification required in certain circumstances

An application must be publicly notified if it meets any of the criteria under section 95A(8):

(8) (a) the application is for a resource consent for 1 or more activities, and any of those activities is subject to a rule or national environmental standard that requires public notification:

(b) the consent authority decides, in accordance with section 95D, that the activity will have or is likely to have adverse effects on the environment that are more than minor.

There is no rule or national environmental standard that requires public notification. However, an assessment of adverse effects on the environment is required.

With respect to section 95D(a), the following land is adjacent to the subject site.

Table 7: Land adjacent to the subject site.

Address	Legal description
12 Pataka Lane	Part Lot 2 DP 69740
1945A State Highway 10	Lot 2 DP 343062
No address	Lot 1 DP 343062
1943 State Highway 10	Lot 2 DP 177522
1927 State Highway 10	Lot 1 DP 211216
1-8 and 15A-15C Industrial Way	Lot 5 DP 69740
Local purpose (esplanade) reserve	Lot 3 DP 376253
No address	Lot 1 DP 185968

Figure 12: Aerial photograph of the site with adjacent land identified in yellow (Source: GRIP Maps)

An assessment of environmental effects was undertaken in Section 6.0 of this report. When excluding adjacent land, positive effects and written approvals, and taking into account the permitted baseline, lawful existing environment and receiving environment, it is concluded that the:

- adverse effects on character and amenity are less than minor;
- adverse effects of the impermeable surfaces exceedance are no more than minor;
- adverse effects of earthworks are no more than minor;
- adverse effects on hazardous substances risks are less than minor; and
- adverse effects on the transportation network are less than minor.

As such, there are no adverse effects on the environment that are more than minor.

Therefore, Step 3 does not apply, and Step 4 must be considered.

9.1.4 Step 4: Public notification in special circumstances

Under section 95A(9), an application must be publicly notified if the consent authority determines that "special circumstances" exist, notwithstanding that Steps 1 to 3 do not require or preclude public notification.

Special circumstances are not defined by the Act. Case law has, however, identified special circumstances as being "outside the common run of things which is exceptional, abnormal or unusual, but less than extraordinary or unique. A special circumstance would be one which makes notification desirable despite the general provisions excluding the need for notification."[3] The consent authority should also be satisfied that public notification may elicit additional information on those aspects of the proposal which require resource consent.

However, special circumstances must be more than:

- where the consent authority has had an indication that people want to make submissions;
- the fact that a large development is proposed; or
- the fact that some persons have concerns about the proposal.

No special circumstances exist that require the application being publicly notified as:

- The proposal involves the construction of industrial buildings in an industrial area and so it is neither exceptional nor unusual.
- The proposal is not considered to be controversial or of significant public interest.
- The application and its supporting material have been prepared by a set of qualified professionals with input from the civil engineering, geotechnical engineering, environmental sciences, ecology, landscape architecture, traffic engineering and acoustics engineering specialists. It is very unlikely that notification would elicit any additional, relevant information.
- The applicant is a privately owned company, and the site is privately owned.
- The proposal is self-contained and is not a prelude or first step towards a wider development.
- The Applicant is not aware of any party that could have a legitimate expectation of being notified.

[3] *Far North District Council v Te Runanga-a-iwi o Ngati Kahu* [2013] NZCA 221 at [36] and [37].

- It would not be desirable in all of the circumstances above to publicly notify the application.

9.1.5 Public notification summary

From the assessment above it is considered that the application does not need to be publicly notified, but an assessment of limited notification is required.

9.2 Limited notification assessment

If the consent authority determines not to publicly notify an application, it must then follow the steps of section 95B of the Act to determine whether to give limited notification of the application. An assessment of the application against these steps is provided below.

9.2.1 Step 1: Certain affected groups and affected persons must be notified

An application must be limited notified to the relevant persons if it meets the criteria under sections 95B(2) to 95B(4):

> (2) (a) affected protected customary rights groups; or
>
> (b) affected customary marine title groups (in the case of an application for a resource consent for an accommodated activity).
>
> (3) (a) whether the proposed activity is 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; and
>
> (b) whether the person to whom the statutory acknowledgement is made is an affected person under section 95E.
>
> (4) Notify the application to each affected group identified under subsection (2) and each affected person identified under subsection (3).

There are no protected customary rights groups or customary marine title groups or statutory acknowledgement areas that are relevant to this application.

Therefore, Step 1 does not apply, and Step 2 must be considered.

9.2.2 Step 2: Limited notification precluded in certain circumstances

An application must not be limited notified to any persons if it meets any of the criteria under section 95B(6):

> (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:
>
> (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).

None of these criteria apply to the application.

Therefore, Step 2 does not apply, and Step 3 must be considered.

9.2.3 Step 3: Certain other affected persons must be notified

Other affected persons must be notified in the following circumstances specified by section 95B(7) and (8):

> (7) In the case of a boundary activity, determine in accordance with section 95E whether an owner of an allotment with an infringed boundary is an affected person.
>
> (8) In the case of any other activity, determine whether a person is an affected person in accordance with section 95E.

The proposal is not for a boundary activity.

In deciding whether a person is an affected person under section 95E, the consent authority under section 95E(2):

> (2) (a) may disregard an adverse effect of an activity on a person if a rule or national environmental standard permits an activity with that effect;
>
> (b) must disregard an adverse effect that does not relate to a matter for which a rule or environmental standard reserves control or restricts discretion; and
>
> (c) must have regard to every relevant statutory acknowledgement made in accordance with a statute set out in Schedule 11 of the Act.

The consent authority must not consider that a person is an affected person if they have given their written approval, or it is unreasonable in the circumstances to seek that person's written approval.

With respect to sections 95B(8) and 95E, the permitted baseline and written approval was considered as part of the assessment of environmental effects undertaken in Section 6.0 of this report. No persons will be affected to a minor or more than minor degree as:

- The earthworks will be temporary and managed to manage potential adverse effects, including erosion, sediment and nuisance effects such as visual amenity and dust. Construction noise will be undertaken to comply with permitted activity limits. The Geotechnical Investigation Report prepared by Haigh Workman concludes that the site is suitable for the proposed works. The earthworks are not expected to result in the instability of land or buildings beyond the site. There are no known historic or archaeological sites or sites of significance to iwi on the site or the vicinity of the earthworks. Additionally, in the unlikely event that any archaeological sites are uncovered, accidental discovery protocols will be followed.
- The proposed activities and development are in keeping with the long-established industrial use of the site within a wider established industrial and commercial area. The proposal can be reasonably expected by neighbours. Buffer planting will mitigate visual effects and enhance privacy to respective neighbours over time.
- The proposed boiler stack and baghouse height exceedances will result in no adverse privacy effects and less than minor adverse visual dominance and shading effects. The structures are in keeping with surrounding buildings and structures on the site and in industrial areas.
- The boron treatment process and associated timber preservative chemical will be bunded and contained within a building and will be handled by trained staff and in

accordance with management plans and industry regulations, to protect human health and the environment within and beyond the site.

- Noise from the new activities in the expanded area (i.e., the boron treatment plant and truck loading and despatch, which are day-time only activities) will comply with Rule 8.6.5.1.7 of the FNDP. The entire site, including existing activities on the existing sawmill area, will comply with the noise limits of existing land use consent 2150320-RMALUC.
- There is no additional traffic is proposed beyond the site's consented limit, and there is no change in the type and scale of vehicles which access the site, there are no additional adverse traffic effects beyond that already assessed and consented. No changes to the site's existing driveway, Industrial Way or the intersection of Industrial Way and State Highway 10 are required nor proposed.

With respect to section 95E(2)(c), when deciding who is an affected person, the consent authority must have regard to every relevant statutory acknowledgement made in accordance with an Act that is specified under Schedule 11. Those named in that schedule are affected if the adverse effects are minor or more than minor. There are no statutory acknowledgements that are relevant to this application.

Overall, there are no affected persons. Therefore, Step 3 does not apply, and Step 4 must be considered.

9.2.4 Step 4: Further notification in special circumstances

As required by section 95B(10), the consent authority must determine the following:

> (10) Determine whether special circumstances exist in relation to the application that warrant notification of the application to any other persons not already determined to be eligible for limited notification under this section (excluding persons assessed under section 95E as not being affected persons).

The proposal is for industrial activities and development on an established industrial site that is within a wider industrial area. A consideration of adverse effects on any person has been undertaken under Step 3 where it was concluded that these are less than minor.

Therefore, there are no other persons who should be limited notified.

9.2.5 Limited notification assessment summary

Overall, from the assessment undertaken, Steps 1 to 4 do not apply and there are no affected persons.

9.3 Notification assessment conclusion

Pursuant to sections 95A to 95G of the Act, it is recommended that the application is non-notified based on the following reasons:

- Step 1 of section 95A: Public notification is not mandatory.
- Step 2 of section 95A: Public notification is not precluded.
- Step 3 of section 95A: Public notification is not required as the specified circumstances do not apply, including that the adverse effects on the environment will not be more than minor.

- Step 4 of section 95A: No special circumstances exist that require public notification.
- Step 1 of section 95B: There are no certain affected groups or persons who must be limited notified.
- Step 2 of section 95B: Limited notification is not precluded.
- Step 3 of section 95B: There are no certain other affected persons who must be limited notified.
- Step 4 of section 95B: No special circumstances exist that require limited notification to any other persons.

10.0 Part 2 of the Act

We consider that those aspects of the plan relevant to this application have been "competently prepared under the Act", in the sense referred to by the Court of Appeal.[4] The consent authority is therefore not obliged to conduct an evaluation under Part 2 of the Act, and Part 2 considerations should not be used to override the plan provisions.

However, for the sake of completeness, and to remove any doubt, the following assessment against Part 2 has also been undertaken.

Section 5 identifies the purpose of the Act 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 while sustaining those resources for future generations, protecting the life supporting capacity of ecosystems, and avoiding, remedying or mitigating adverse effects on the environment.

Section 6 of the Act sets out several matters of national importance, including:

> *(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:*
>
> *(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:*
>
> *(h) the management of significant risks from natural hazards.*

The assessments in this report conclude that the proposal is not inappropriate use or development and will not detract from the character of the Kerikeri River. The proposal will not affect public access to or along the Kerikeri River (noting that there is no land-based access to the river in the vicinity of the site without going through private land). The proposal will not exacerbate natural hazard risks. Waipapa Pine is undertaking ongoing engagement with iwi on the project. There are no known Sites of Cultural Significance to Māori and waahi tapu on the site. Accidental discovery protocols will be in place.

Section 7 identifies a number of "other matters" to be given particular regard to in the consideration of any assessment for resource consent, including:

[4] *R J Davidson Family Trust v Marlborough District Council* [2018] NZCA 316.

(a) kaitiakitanga:

(b) the efficient use and development of natural and physical resources:

(c) the maintenance and enhancement of amenity values:

(f) maintenance and enhancement of the quality of the environment:

The assessments in this report conclude that the proposed use and development are appropriate to the site and surrounding environment, site works will be undertaken with appropriate controls and adverse amenity effects are acceptable and will be further mitigated by additional landscaping.

Section 8 requires the consent authority to take into account the principles of the Treaty of Waitangi, and this has also informed our assessment under section 104.

Overall, the application is considered to be consistent with the relevant provisions of Part 2, as expressed through the objectives, policies and rules that we reviewed in earlier sections of this application. Given this consistency, it is concluded that the proposal achieves the purposes of sustainable management set under section 5.

11.0 Conclusion

Waipapa Pine seeks to undertake operations expansion and development at its existing sawmill site located at 1945B State Highway 10, Waipapa. Waipapa Pine requires land use consent from the Council due to non-compliances with the FNDP's rules.

In terms of section 104(1)(a) of the Act, as assessed in Sections 6.0 and 7.0 of this report, the actual and potential adverse effects of the proposed activity on the wider environment will be no more than minor In particular:

- The proposed expansion and development are in addition to and therefore consistent with the existing activities on site. Due to the industrial nature of the immediate surrounding environment, the proposal is also consistent with the nature of activities in the area, and no land use conflict nor reverse sensitivity effects are expected.
- Noise from the new activities on the site (i.e., new dispatch yard and boron treatment building) will comply with permitted activity limits. The entire site, including existing activities on the existing sawmill area, will comply with the noise limits of existing land use consent 2150320-RMALUC.
- The earthworks will be undertaken with a range of controls including in accordance with NRC publications, Auckland Council GD05 guidelines and will ensure that potential adverse effects on the surrounding environment are appropriately managed.
- The proposed stormwater and domestic wastewater management system upgrades have been designed with the relevant requirements and industry standards and will enhance servicing on the site.
- The hazardous substance and boron treatment process will be fully contained in a building and operated by trained staff. The transportation, storage and use of the substance will be undertaken in accordance with industry regulations, best practice and emergency protocols / SRP.
- The proposal will not result in additional adverse traffic effects beyond what is already consented, nor Waipapa Pine's allocation of the maximum traffic movements on Industrial Way that the Council and NZTA previously supported. The proposed car parking amount is also appropriate to the site. No changes to the site's existing

driveway, Industrial Way or the intersection of Industrial Way and State Highway 10 are required nor proposed.

The proposed activity will also generate positive effects on the environment, being:

- The proposal will support the continued operation of an existing sawmill, and Waipapa Pine is among the biggest employers in the Waipapa-Kerikeri area and produces timber products for the Northland region and across New Zealand. The sawmill's primary product is high grade framing timber which will support the housing construction industry in the North Island. The proposed increase in staff will result in new employment opportunities.
- The proposed stormwater infrastructure upgrades, and particularly the incorporation of constructed wetlands and a vegetated swale, will further enhance the quality and reduce the peak flows of the discharges.
- The proposed landscaping will, overtime, enhance the visual appearance of the site.

In terms of section 104(1)(b) of the Act, the FNDP's objectives, policies, rules and assessment criteria have also formed part of that assessment, as well as the relevant provisions of the PFNDP, and the proposal is considered consistent to the degree needed to grant consent. The proposal is consistent with Part 2 as expressed through those provisions.

It is recommended that the application is non-notified as the proposal will have no more than minor adverse effects on the wider environment, there are no affected persons and no special circumstances exist.

Hence, in accordance with section 104B in relation to discretionary activities, it is considered appropriate for consent to be granted on a non-notified basis, subject to fair and reasonable conditions.

Appendix A Records of Title

Resource Consent Application

To undertake operations expansion and development at an existing sawmill site located at 1945B State Highway 10, Waipapa

Waipapa Pine Limited

SLR Project No.: 810.V16525.00001

5 July 2024

Appendix B Application Drawings

Resource Consent Application

To undertake operations expansion and development at an existing sawmill site located at 1945B State Highway 10, Waipapa

Waipapa Pine Limited

SLR Project No.: 810.V16525.00001

5 July 2024

Appendix C Landscape Package

Resource Consent Application

To undertake operations expansion and development at an existing sawmill site located at 1945B State Highway 10, Waipapa

Waipapa Pine Limited

SLR Project No.: 810.V16525.00001

5 July 2024

Appendix D Civil Engineering Report

Resource Consent Application

To undertake operations expansion and development at an existing sawmill site located at 1945B State Highway 10, Waipapa

Waipapa Pine Limited

SLR Project No.: 810.V16525.00001

5 July 2024

Appendix E Geotechnical Investigation Report

Resource Consent Application

To undertake operations expansion and development at an existing sawmill site located at 1945B State Highway 10, Waipapa

Waipapa Pine Limited

SLR Project No.: 810.V16525.00001

5 July 2024

Appendix F Preliminary and Detailed Site Investigation Report

Resource Consent Application

To undertake operations expansion and development at an existing sawmill site located at 1945B State Highway 10, Waipapa

Waipapa Pine Limited

SLR Project No.: 810.V16525.00001

5 July 2024

Appendix G Ecological Assessment Memo

Resource Consent Application

To undertake operations expansion and development at an existing sawmill site located at 1945B State Highway 10, Waipapa

Waipapa Pine Limited

SLR Project No.: 810.V16525.00001

5 July 2024

Appendix H Traffic Impact Assessment Report

Resource Consent Application

To undertake operations expansion and development at an existing sawmill site located at 1945B State Highway 10, Waipapa

Waipapa Pine Limited

SLR Project No.: 810.V16525.00001

5 July 2024

Appendix I Acoustic Assessment Report

Resource Consent Application

To undertake operations expansion and development at an existing sawmill site located at 1945B State Highway 10, Waipapa

Waipapa Pine Limited

SLR Project No.: 810.V16525.00001

5 July 2024

Appendix J Hazardous Substances Regulatory Assessment Memo

Resource Consent Application

To undertake operations expansion and development at an existing sawmill site located at 1945B State Highway 10, Waipapa

Waipapa Pine Limited

SLR Project No.: 810.V16525.00001

5 July 2024

Appendix K Background Documents

Resource Consent Application

To undertake operations expansion and development at an existing sawmill site located at 1945B State Highway 10, Waipapa

Waipapa Pine Limited

SLR Project No.: 810.V16525.00001

5 July 2024

Appendix L Consultation Correspondence and Written Approval Documents

Resource Consent Application

To undertake operations expansion and development at an existing sawmill site located at 1945B State Highway 10, Waipapa

Waipapa Pine Limited

SLR Project No.: 810.V16525.00001

5 July 2024

Appendix M Landscape Review

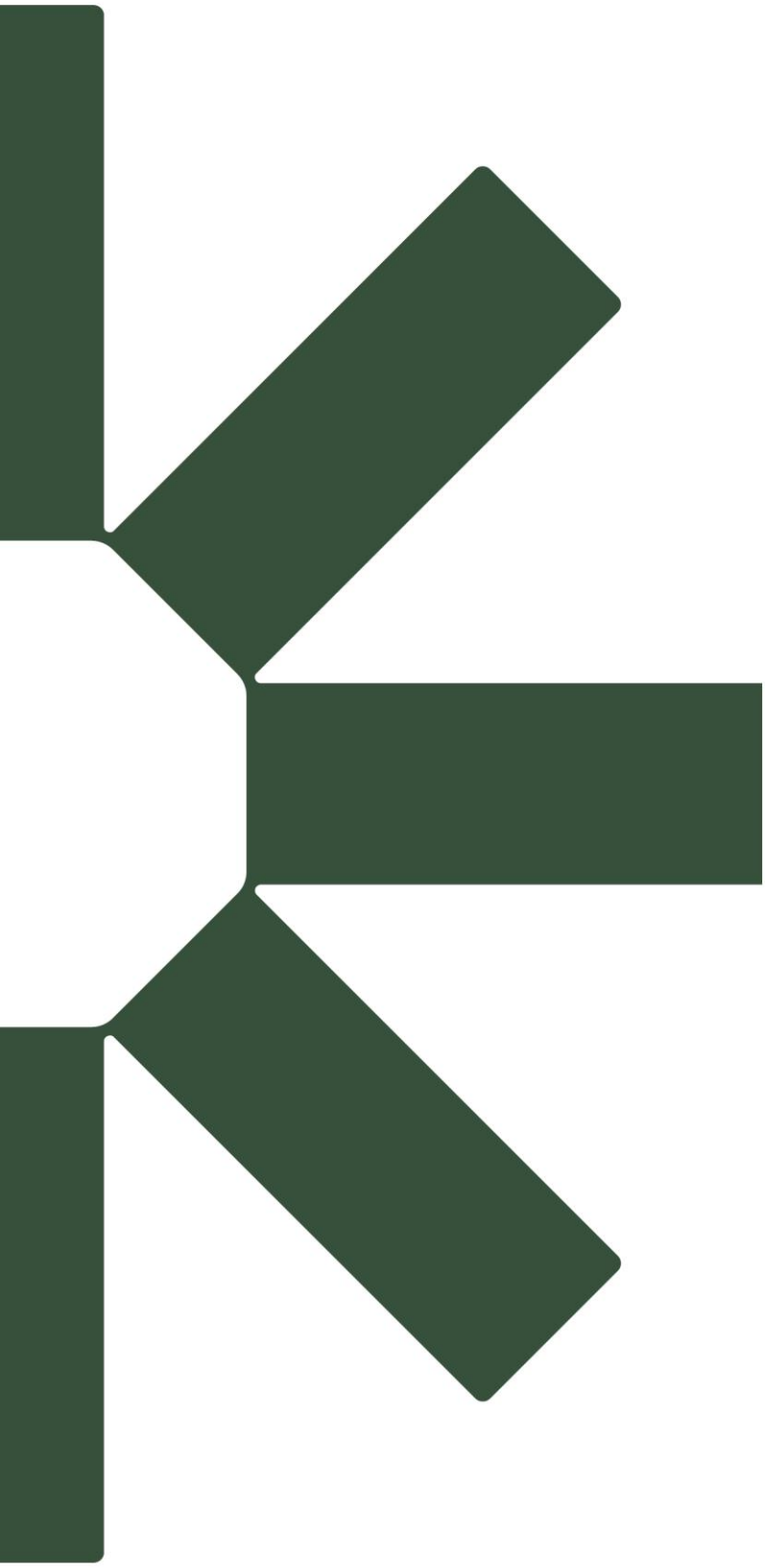
Resource Consent Application

To undertake operations expansion and development at an existing sawmill site located at 1945B State Highway 10, Waipapa

Waipapa Pine Limited

SLR Project No.: 810.V16525.00001

5 July 2024



Making Sustainability Happen

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier **306630**
Land Registration District **North Auckland**
Date Issued 08 December 2006

Prior References
176694 NA138C/332

Estate Fee Simple
Area 6.5280 hectares more or less
Legal Description Lot 2 Deposited Plan 376253 and Lot 3 Deposited Plan 343062

Registered Owners
Waipapa Pine Limited

Interests

573901.1 Gazette Notice (NZ Gazette No.102 23.11.1978 p.3210) declaring the adjoining State Highway No.10 to be a limited access road - 31.1.1979 at 10:51 am (affects Lot 3 DP 343062)

Appurtenant hereto is a drainage right specified in Easement Certificate B199494.4 - 28.7.1983 at 9.03 am (affects Lot 3 DP 343062)

Some of the easement specified in Easement Certificate B199494.4 will be subject to Section 309 (1) (a) Local Government Act 1974 (See DP 99619)

6399465.3 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 28.4.2005 at 9:00 am (affects Lot 3 DP 343062)

Appurtenant hereto is a a right to convey electricity, telecommunications and computer media and drain water created by Easement Instrument 6399465.6 - 28.4.2005 at 9:00 am (affects Lot 3 DP 343062)

The easements created by Easement Instrument 6399465.6 are subject to Section 243 (a) Resource Management Act 1991

6444692.1 Variation of the conditions/covenants created by Easement Instrument 6399465.6 - 2.6.2005 at 9:00 am

Subject to Section 241(2) and Sections 242(1) and (2) Resource Management Act 1991(affects DP 376253)

Land Covenant in Easement Instrument 9424933.1 - 26.6.2013 at 4:18 pm (affects Lot 2 Deposited Plan 376253)

Land Covenant in Easement Instrument 9424933.2 - 26.6.2013 at 4:18 pm

9553856.1 Notification that a building consent issued pursuant to Section 72 Building Act 2004 identifies inudation as a natural hazard - 25.10.2013 at 7:00 am

Appurtenant hereto is a right to drain water and sewage created by Easement Instrument 9862386.1 - 13.11.2014 at 4:10 pm

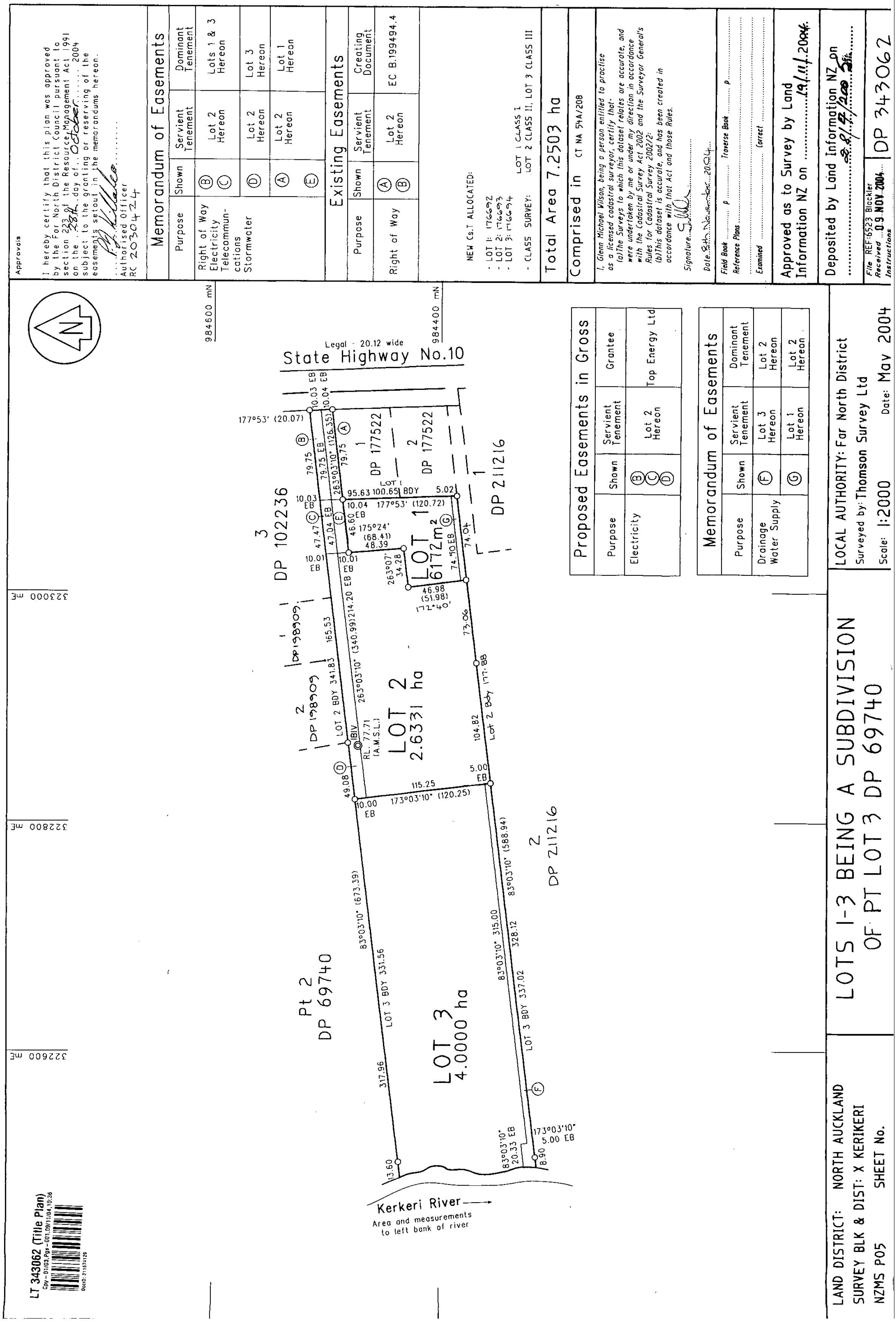
Land Covenant in Easement Instrument 9571379.1 - 19.8.2016 at 4:16 pm

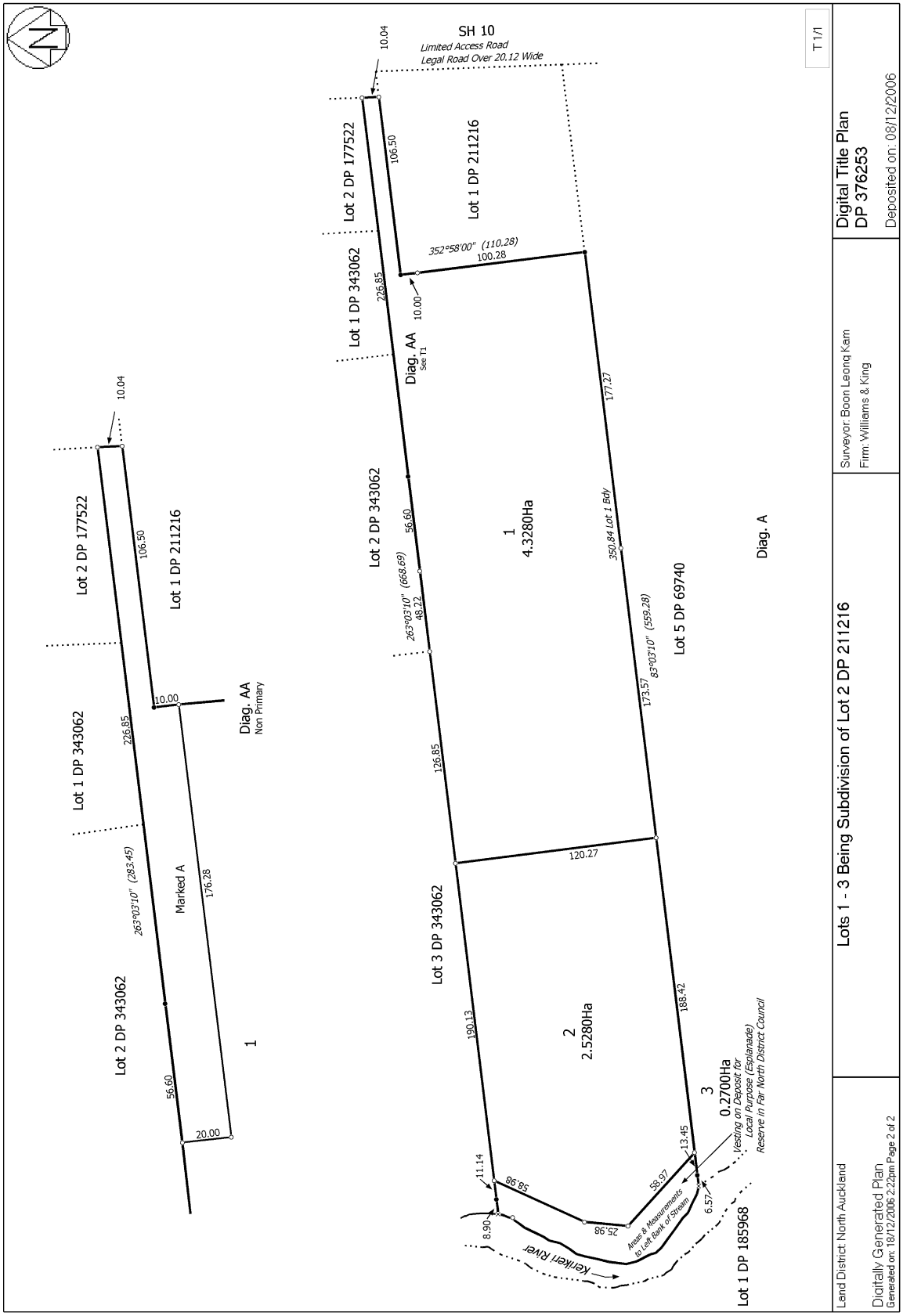
Land Covenant in Easement Instrument 9571379.2 - 19.8.2016 at 4:16 pm

Appurtenant hereto is a right of way created by Easement Instrument 9571379.3 - 19.8.2016 at 4:16 pm

Appurtenant to Lot 3 DP 343062 is a right of way created by Easement Instrument 11076582.1 - 11.4.2018 at 11:53 am

12701841.1 CERTIFICATE PURSUANT TO SECTION 77 BUILDING ACT 2004 THAT THIS RECORD OF TITLE IS SUBJECT TO THE CONDITION IMPOSED UNDER SECTION 75(2) (ALSO AFFECTS 306629) - 30.3.2023 at 7:00 am


LOTS 1-3 BEING A SUBDIVISION OF PT LOT 3 DP 69740
DP 343062
LOCAL AUTHORITY: Far North District
Surveyed by: Thomson Survey Ltd
Scale: 1:2000 Date: May 2004
LAND DISTRICT: NORTH AUCKLAND
SURVEY BLK & DIST: X KERIKERI
NZMS P05 SHEET No.
State Highway No.10
Kerkeri River
Area and measurements to left bank of river
LOT 1 617m²
LOT 2 2.6331 ha
LOT 3 4.0000 ha
Pt 2 DP 69740
3 DP 102236
2 DP 211216
1 DP 211216
1 DP 177522
2 DP 177522
Memorandum of Easements
Proposed Easements in Gross
Existing Easements
Total Area 7.2503 ha
Comprised in CT NA 59A/208
Approved as to Survey by Land Information NZ on 19/11/2004
LT 343062 (Title Plan)


SH 10
Limited Access Road
Legal Road Over 20.12 Wide
Lot 2 DP 177522
Lot 1 DP 211216
Lot 1 DP 343062
Lot 2 DP 343062
Lot 3 DP 343062
Lot 5 DP 69740
Lot 1 DP 185968
Diag. AA
See T1
Diag. AA
Non Primary
Diag. A
Marked A
1
4.3280Ha
2
2.5280Ha
3
0.2700Ha
Vesting on Deposit for
Local Purpose (Esplanade)
Reserve in Far North District Council
Areas & Measurements
to Left Bank of Stream
Kerikeri River
Lots 1 - 3 Being Subdivision of Lot 2 DP 211216
Digital Title Plan
DP 376253
Deposited on: 08/12/2006
Surveyor: Boon Leong Kam
Firm: Williams & King
Land District: North Auckland
Digitally Generated Plan
Generated on: 18/12/2006 2:22pm Page 2 of 2
T 1/1

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier **306629**
Land Registration District **North Auckland**
Date Issued 08 December 2006

Prior References
NA138C/332

Estate Fee Simple
Area 4.3280 hectares more or less
Legal Description Lot 1 Deposited Plan 376253
Registered Owners
Waipapa Pine Limited

Interests

Land Covenant in Easement Instrument 9424933.1 - 26.6.2013 at 4:18 pm

Land Covenant in Easement Instrument 9424933.2 - 26.6.2013 at 4:18 pm

Subject to a right to drain water and sewage over part marked S on DP 480496 created by Easement Instrument 9862386.1 - 13.11.2014 at 4:10 pm

Land Covenant in Easement Instrument 9571379.1 - 19.8.2016 at 4:16 pm

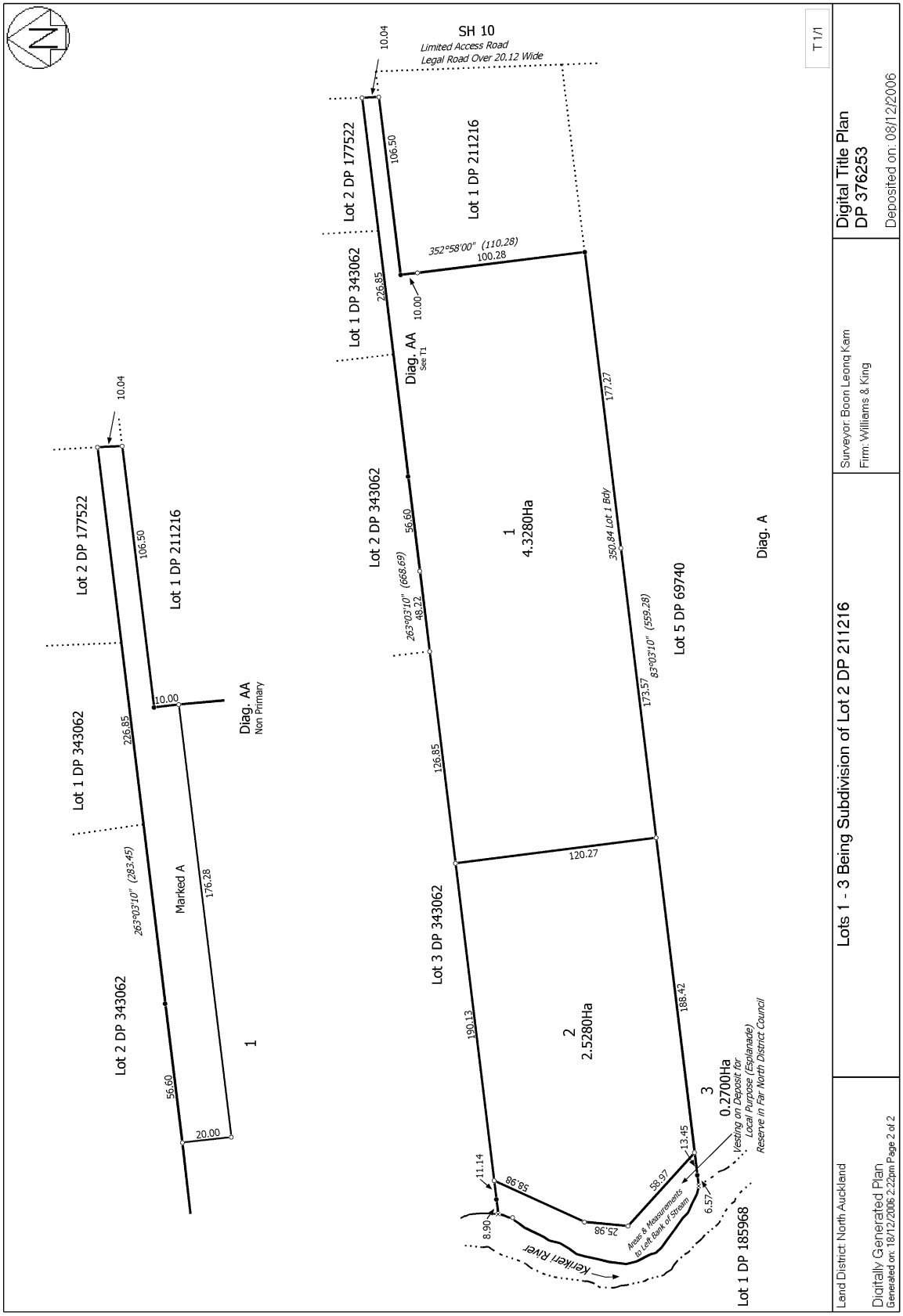
Land Covenant in Easement Instrument 9571379.2 - 19.8.2016 at 4:16 pm

Appurtenant hereto is a right of way created by Easement Instrument 9571379.3 - 19.8.2016 at 4:16 pm

Subject to a right of way over part marked A on DP 518189 created by Easement Instrument 11076582.1 - 11.4.2018 at 11:53 am

Subject to a right (in gross) to convey electricity over part marked A on DP 549010 in favour of Top Energy Limited created by Easement Instrument 11831267.1 - 21.8.2020 at 4:57 pm

12701841.1 CERTIFICATE PURSUANT TO SECTION 77 BUILDING ACT 2004 THAT THIS RECORD OF TITLE IS SUBJECT TO THE CONDITION IMPOSED UNDER SECTION 75(2) (ALSO AFFECTS 306630) - 30.3.2023 at 7:00 am


SH 10
Limited Access Road
Legal Road Over 20.12 Wide
Lot 2 DP 177522
Lot 1 DP 211216
Lot 1 DP 343062
Lot 2 DP 343062
Lot 3 DP 343062
Lot 5 DP 69740
Lot 1 DP 185968
Diag. AA
See T1
Diag. AA
Non Primary
Diag. A
Marked A
1
4.3280Ha
2
2.5280Ha
3
0.2700Ha
Vesting on Deposit for
Local Purpose (Esplanade)
Reserve in Far North District Council
Areas & Measurements
to Left Bank of Stream
Kerikeri River
Lots 1 - 3 Being Subdivision of Lot 2 DP 211216
Digital Title Plan
DP 376253
Deposited on: 08/12/2006
Surveyor: Boon Leong Kam
Firm: Williams & King
Land District: North Auckland
Digitally Generated Plan
Generated on: 18/12/2006 2:22pm Page 2 of 2
T 1/1

View Instrument Details

Instrument No.	9571379.3
Status	Registered
Date & Time Lodged	19 Aug 2016 16:16
Lodged By	Savage, Tony John
Instrument Type	Easement Instrument

Affected Computer Registers	Land District
306629	North Auckland
306630	North Auckland
NA25C/985	North Auckland

Annexure Schedule: Contains 4 Pages.

Grantor Certifications

I certify that I have the authority to act for the Grantor and that the party has the legal capacity to authorise me to lodge this instrument ☑

I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☑

I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☑

I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☑

Mortgage 9424933.4 does not affect the servient tenement, therefore the consent of the Mortgagee is not required ☑

Signature

Signed by Graeme Leslie McLelland as Grantor Representative on 30/08/2016 02:58 PM

Grantee Certifications

I certify that I have the authority to act for the Grantee and that the party has the legal capacity to authorise me to lodge this instrument ☑

I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☑

I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☑

I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☑

Signature

Signed by Tony John Savage as Grantee Representative on 30/08/2016 01:09 PM

***** End of Report *****

Easement instrument to grant easement or *profit à prendre*, or create land covenant

(Sections 90A and 90F Land Transfer Act 1952)

2015/6246
APPROVED
Registrar-General of Land

Page 1 of 2 pages

Grantor

Solid Holdings Limited

Grantee

Adrian Talbot BROUGHTON, Megan Elizabeth BROUGHTON and UMK Trustee Company Limited

Grant of Easement or *Profit à prendre* or Creation of Covenant

The Grantor being the registered proprietor of the servient tenement(s) set out in Schedule A **grants to the Grantee** (and, if so stated, in gross) the easement(s) or *profit(s) à prendre* set out in Schedule A, **or creates** the covenant(s) **set out** in Schedule A, with the rights and powers or provisions set out in the Annexure Schedule(s)

Schedule A *Continue in additional Annexure Schedule, if required*

Purpose (Nature and extent) of easement; *profit* or covenant	Shown (plan reference)	Servient Tenement (Computer Register)	Dominant Tenement (Computer Register) or in gross
Right of Way	**A on LT 469893**	**Lot 5 DP 69740 (NA 25C/985)**	**Lot 1 DP 376253 (NA 306629) Lot 2 DP 376253 Lot 3 DP 343062 (NA 306630)**

Easements or *profits à prendre* rights and powers (including terms, covenants and conditions)

Delete phrases in [ ] and insert memorandum number as required; continue in additional Annexure Schedule, if required

Unless otherwise provided below, the rights and powers implied in specified classes of easement are those prescribed by the Land Transfer Regulations 2002 ~~and/or Schedule Five of the Property Law Act 2007~~

The implied rights and powers are hereby **[varied] [negatived] [added to]** or **[substituted]** by:

~~[Memorandum number , registered under section 155A of the Land Transfer Act 1952]~~

[the provisions set out in Annexure Schedule **A**]

Covenant provisions

Delete phrases in [ ] and insert Memorandum number as required; continue in additional Annexure Schedule, if required

The provisions applying to the specified covenants are those set out in:

~~[Memorandum number , registered under section 155A of the Land Transfer Act 1952]~~

~~[Annexure Schedule]~~

Form L

Annexure Schedule A Page 1 of 2 Pages

Insert instrument type

Easement.

if required

1. **INTERPRETATION**

In this instrument the context otherwise requires:

"Dominant land" in relation to the easement means the land described in schedule A to which the relevant easement is appurtenant.

"The Grantee" in relation to the easement means the registered proprietors for the time being of the dominant lands to which the relevant easement is appurtenant.

"The Grantee and other authorised persons" in relation to the easement means each Grantee and their respective agents, employees, contractors, tenants, licensees and invitees of each Grantee and all other persons authorised or invited by each Grantee to enjoy the easement.

"The Grantor" in relation to the easement means the registered proprietor for the time being of the servient land which is the subject of the easement.

"The Grantor and other authorised persons" means in relation to the easement means the Grantor and the agents, employees, contractors, tenants, licensees and invitees of the Grantor and all other persons authorised or invited by the Grantor to enjoy the easement.

"Right of Way Area" means that part of the land described in schedule A as being subject to the right of way easement.

"Servient Land" in relation to the easement means the land described in schedule A which is subject to the easement.

2. The Grantor and the Grantee shall contribute to the repair and maintenance of the right of way, including all associated costs, (together called "the Costs"), in the following manner:
   (a) For that part of the right of way from the intersection with State Highway 10 to the intersection with that part of the right of way which services only the Grantee's property, the Costs will be shared equally between the Grantor and the Grantee; and
   (b) For that part of the right of way which services only the Grantee's property, the Costs will be borne by the Grantee solely; and
   (c) For that part of the right of way which services only the Grantor's property, the Costs will be borne by the Grantor solely.

3. The Grantor and the Grantee will ensure that their respective use of the right of way by themselves and their other authorised persons does not exceed the following vehicle movements per day (VPD) and vehicle movement per hour (VPH) to and from the servient and dominant lands.

4. The grant of right of way and the provisions of clauses 2, 3 and 4 shall apply only until such time as the right of way is vested as public road. The written approval of both the registered proprietor of the servient land and the registered proprietors of the dominant lands must be obtained before the right of way may be vested as public road.

	VPD	VPH
Grantor	1474	193
Grantee	670	83

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BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA
WAIPAPA PINE LIMITED

Project No. 23 256

FOR RC
13/05/2024

Index

Dwg No	Title 01	Title 02	Title 03	Rev No	Rev Date	Rev No	Rev Date
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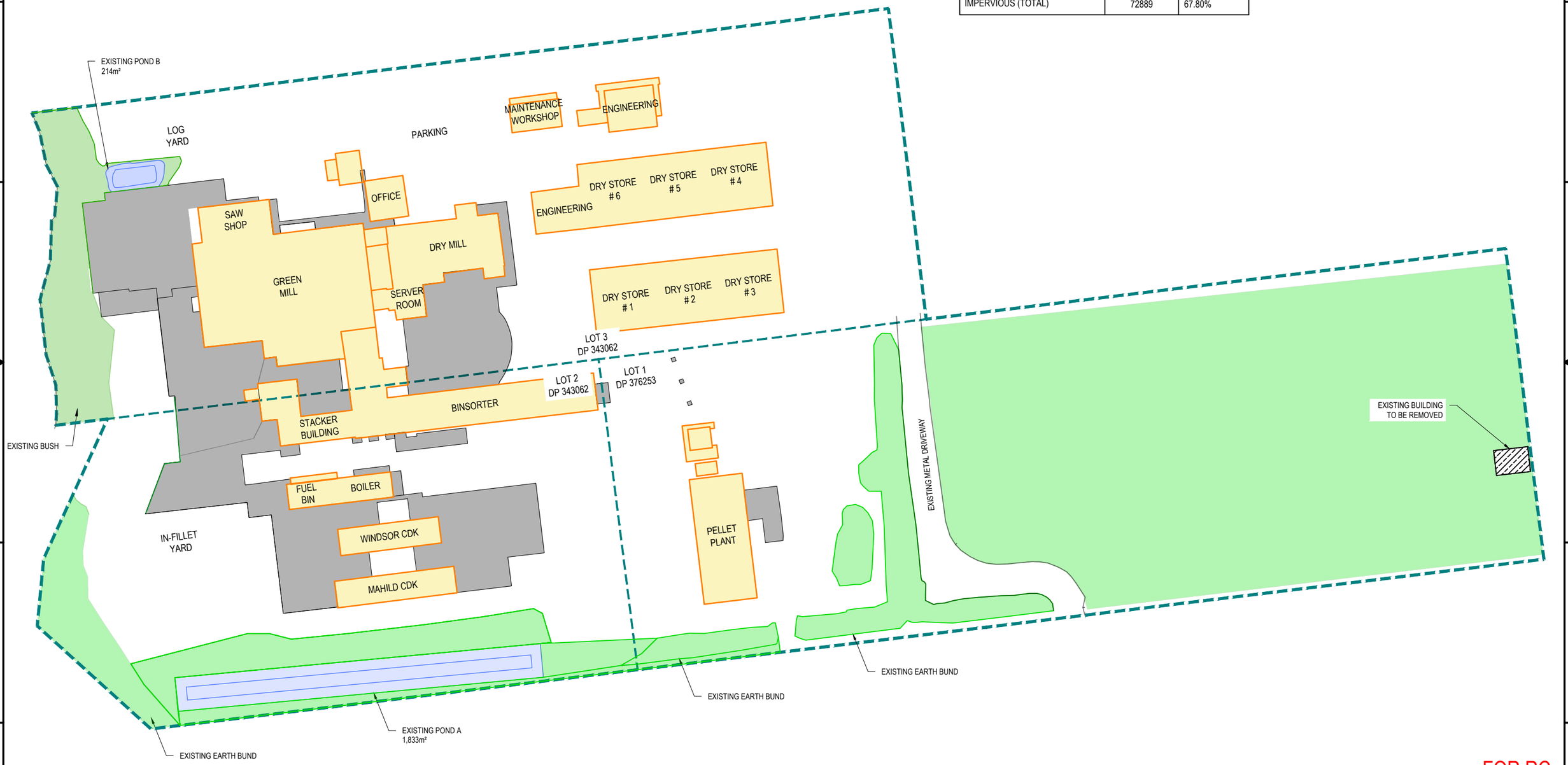
EWP02	EARTHWORKS	CUT AND FILL	PLAN	A	13/05/2024	B	29/05/2024
EWL01	EARTHWORKS	SECTION A		A	13/05/2024	B	29/05/2024
EWL02	EARTHWORKS	SECTION B		A	13/05/2024	B	29/05/2024
EWL03	EARTHWORKS	SECTION C		A	13/05/2024	B	29/05/2024
CPP01	ACCESS & PARKING	PLAN	(NORTH)	A	13/05/2024	B	29/05/2024
CPP02	ACCESS & PARKING	PLAN	(BORON PLANT)	A	13/05/2024	B	29/05/2024
CPP03	ACCESS & PARKING	PLANT	(DISPATCH YARD)	A	13/05/2024	B	29/05/2024
ESC01	EROSION AND SEDIMENT CONTROL			A	13/05/2024	B	29/05/2024

EXISTING SURFACES		
AREA	m²	
ROOF AREA	14736	
CONCRETE	10252	
PONDS	2047	
METAL	45854	
PERVIOUS - VEGETATED	34611	
PERVIOUS (TOTAL)	34611	32.20%
IMPERVIOUS (TOTAL)	72889	67.80%

GENERAL NOTES:
1. All features are taken from Topo Plan by HG, dated March 2024, ref. 2414676-HG-XX-DR-XX-G-SS01-03.

LEGEND
Boundaries



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A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
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DWG EXISTING SURFACES

A3 Scale 1: 1500 (0, 30, 75)

Date 13/05/2024

Drawn LP | Checked JP | Approved JP

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage

Dwg No. EXP01

Sheet No.

PROPOSED SURFACES		
AREA	m²	
ROOF AREA	17436	
CONCRETE	10252	
PONDS	214	
METAL	66238	
PERVIOUS - VEGETATED	10347	
PERVIOUS - CONSTRUCTED WETLAND	3013	
PERVIOUS (TOTAL)	13360	12.42%
IMPERVIOUS (TOTAL)	94140	87.58%

GENERAL NOTES:
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LEGEND
Boundaries

EXISTING POND B
214m²
LOG YARD
PARKING
MAINTENANCE WORKSHOP
ENGINEERING
OFFICE
SAW SHOP
GREEN MILL
DRY MILL
SERVER ROOM
ENGINEERING
DRY STORE # 6
DRY STORE # 5
DRY STORE # 4
DRY STORE # 1
DRY STORE # 2
DRY STORE # 3
LOT 3 DP 343062
LOT 2 DP 343062
LOT 1 DP 376253
BINSORTER
STACKER BUILDING
FUTURE BOILER
180m²
FUEL BIN
BOILER
WINDSOR CDK
MAHILD CDK
IN-FILLET YARD
PELLET PLANT
EXISTING BUSH
PROPOSED CONSTRUCTED WETLAND D
1,180m²
PROPOSED VEGETATED SWALE DRAIN B
170m²
EXISTING METAL DRIVEWAY
PROPOSED BORON PLANT
2,620m²
PROPOSED DISPATCH YARD
PROPOSED EFFLUENT DISPOSAL FIELD GRASSED
1352m²
PROPOSED VEGETATED SWALE DRAIN A
PROPOSED CONSTRUCTED WETLAND A
1,833m²
EXISTING GRASSED AREA

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
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DWG PROPOSED SURFACES

A3 Scale 1: 1500 (0 30 75) Date 13/05/2024

Drawn LP Checked JP Approved JP

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RC no.

Stage

Dwg No. EXP02

Sheet No.

EXISTING CATCHMENT A (WEST)		
AREA	m²	
ROOF AREA	14566	
CONCRETE	6715	
POND	1833	
METAL	39912	
PERVIOUS - VEGETATED	6022	
PERVIOUS (TOTAL)	6022	8.72%
IMPERVIOUS (TOTAL)	63026	91.28%
CATCHMENT A (TOTAL)	69048	

EXISTING CATCHMENT D (EAST)		
AREA	m²	
ROOF AREA	127	
CONCRETE	0	
POND	0	
METAL	1070	
PERVIOUS - VEGETATED	24963	
PERVIOUS (TOTAL)	24963	95.42%
IMPERVIOUS (TOTAL)	1197	4.57%
CATCHMENT D (TOTAL)	26160	

GENERAL NOTES:
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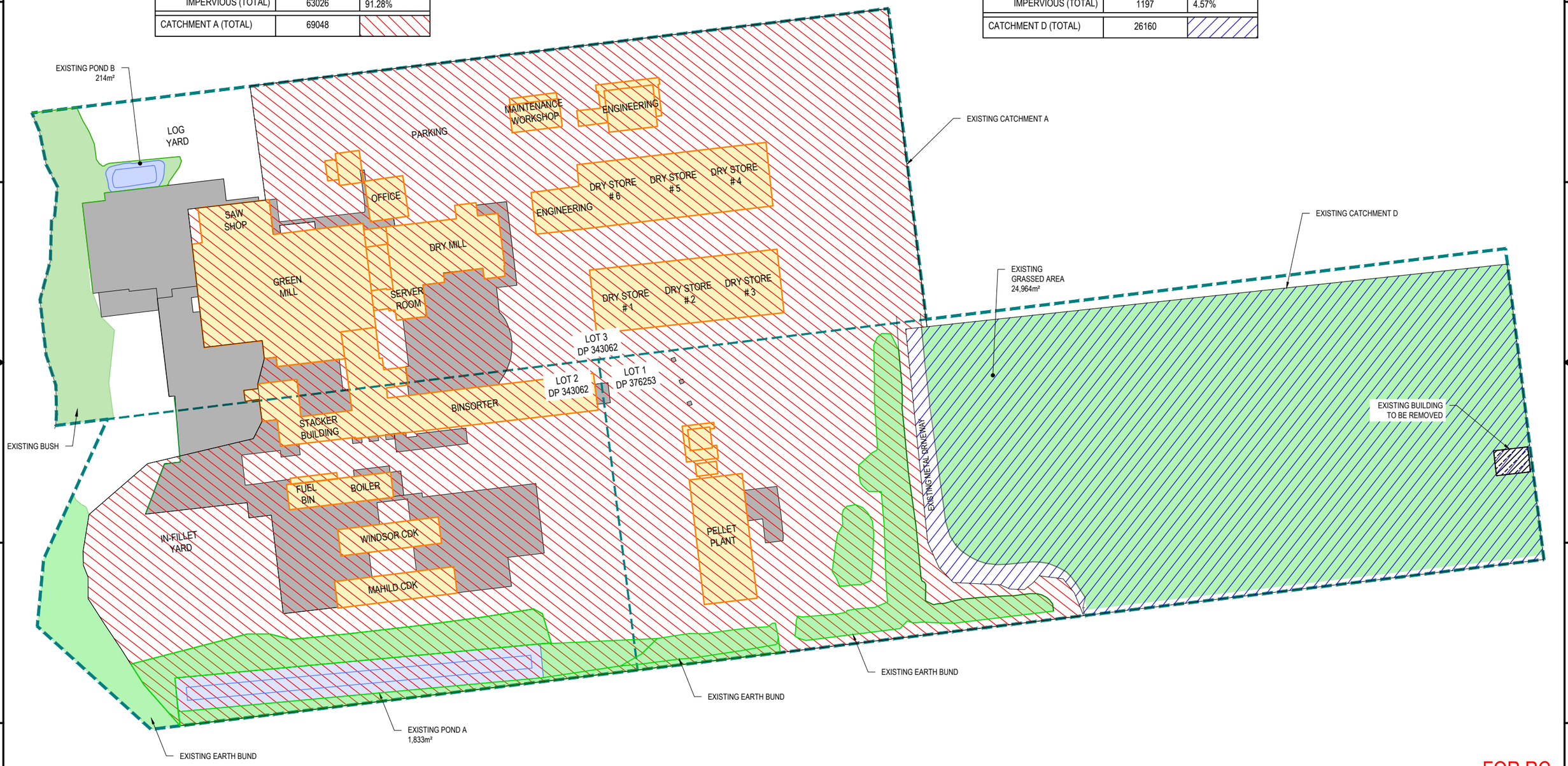
Boundaries



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DWG EXISTING CATCHMENT A AND D

A3 Scale 1: 1500 (0 30 75)

Date 13/05/2024

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Project No. 23 256

RC no.

Stage

Dwg No. EXP03

Sheet No.

PROPOSED CATCHMENT A (WEST)		
AREA	m²	
ROOF AREA	17436	
CONCRETE	6715	
METAL	44375	
PERVIOUS - CONSTRUCTED WETLAND	1833	
PERVIOUS - VEGETATED	5129	
PERVIOUS (TOTAL)	6962	9.22%
IMPERVIOUS (TOTAL)	70359	90.78%
CATCHMENT A TOTAL	75488	

PROPOSED CATCHMENT D (EAST)		
AREA	m²	
ROOF AREA	0	
CONCRETE	0	
METAL	17188	
PERVIOUS - CONSTRUCTED WETLAND	1180	
PERVIOUS - VEGETATED	1352	
PERVIOUS (TOTAL)	2532	12.84%
IMPERVIOUS (TOTAL)	17188	87.16%
CATCHMENT D (TOTAL)	19720	

GENERAL NOTES:
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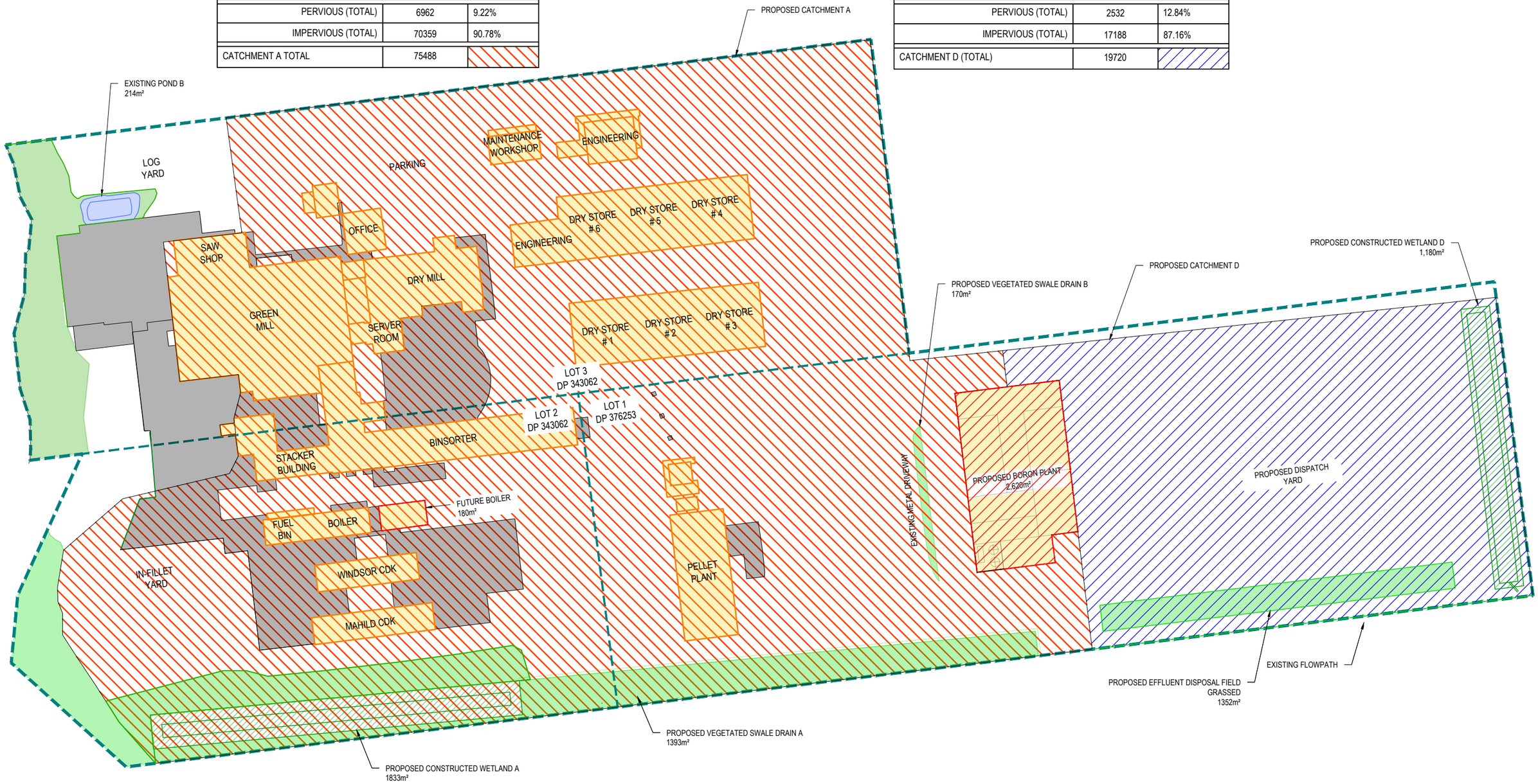
Boundaries



FOR RC

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A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
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DWG PROPOSED CATCHMENT A AND D

A3 Scale 1: 1500 (0 30 75) Date 13/05/2024

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Project BOREN PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage

Dwg No. EXP04

Sheet No.

GENERAL NOTES:
1. All features are taken from Topo plan by HG, dated 20/03/2024
2. Aerial image courtesy of Google.
3. Flood extent taken from NRC GIS map.

LEGEND
- Boundaries
- Proposed Stormwater Pipe
- Flowpath
- Open drain
- Dish channel

EXISTING POND B
LOG YARD
PARKING
MAINTENANCE WORKSHOP
ENGINEERING
OFFICE
SAW SHOP
GREEN MILL
DRY MILL
SERVER ROOM
ENGINEERING
DRY STORE # 6
DRY STORE # 5
DRY STORE # 4
DRY STORE # 1
DRY STORE # 2
DRY STORE # 3
LOT 3 DP 343062
LOT 2 DP 343062
LOT 1 DP 376253
BINSORTER
STACKER BUILDING
FUTURE BOILER 180m²
FUEL BIN
BOILER
WINDSOR CDK
MAHILD CDK
IN-FILLET YARD
PELLET PLANT
EXISTING OPEN DRAIN
PROPOSED CULVERT WITH HEADWALL Ø300
EXISTING STORMWATER MANHOLE
PROPOSED CONSTRUCTED WETLAND D
PROPOSED VEGETATED SWALE DRAIN B
PROPOSED DISH CHANNEL
crossfall
PROPOSED SCRUFFY DOME Ø1050
crossfall
PROPOSED CULVERT Ø300 WITH FLOODGATE
PROPOSED SCRUFFY DOME Ø1050
PROPOSED CULVERT Ø300 WITH FLOODGATE
EXISTING METAL DRIVEWAY
PROPOSED BORON PLANT 2,620m²
PROPOSED DISPATCH YARD
BUILDING DRAINAGE
PROPOSED DISH CHANNEL
CULVERT
EMERGENCY OVEFLOW
EXISTING OPEN DRAIN
EXISTING FLOWPATH
EXISTING OPEN DRAIN TO BE FILLED IN
PROPOSED EFFLUENT DISPOSAL FIELD 1352m² (TOTAL)
PROPOSED SCRUFFY DOME Ø1050
PROPOSED CULVERT Ø300 WITH FLOODGATE
PROPOSED EARTH BUND AT RL 78.0m
PROPOSED VEGETATED SWALE DRAIN A
PROPOSED CONSTRUCTED WETLAND A

FOR RC

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A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
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DWG STORMWATER PLAN

A3 Scale 1: 1500 (0 30 75)

Date 13/05/2024

Drawn LP | Checked JP | Approved JP

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1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

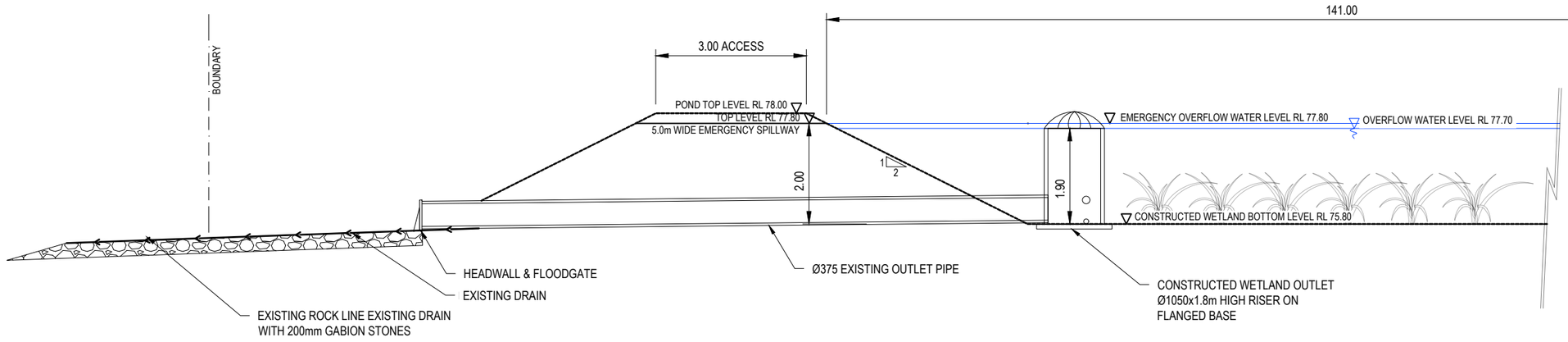
Project No. 23 256

RC no.

Stage

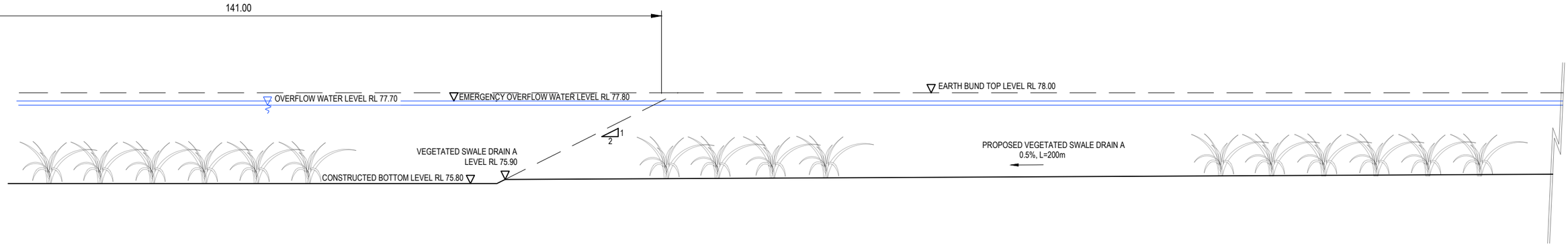
Dwg No. SWP01

Sheet No. 1 of 1



CONSTRUCTED WETLAND A SECTION A1-A1 @ OUTLET PIPE

SCALE 1:100 @A3



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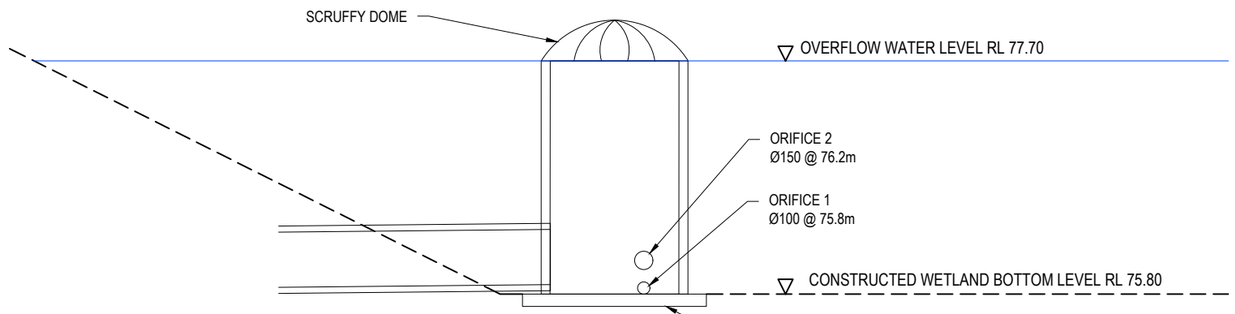

CONSTRUCTED WETLAND A OUTLET PIPE

SCALE 1:50 @A3

FOR RC

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A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
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DWG CONSTRUCTED WETLAND A DETAILS

A3 Scale 1: 100 (0, 2, 5)

Date 13/05/2024

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1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

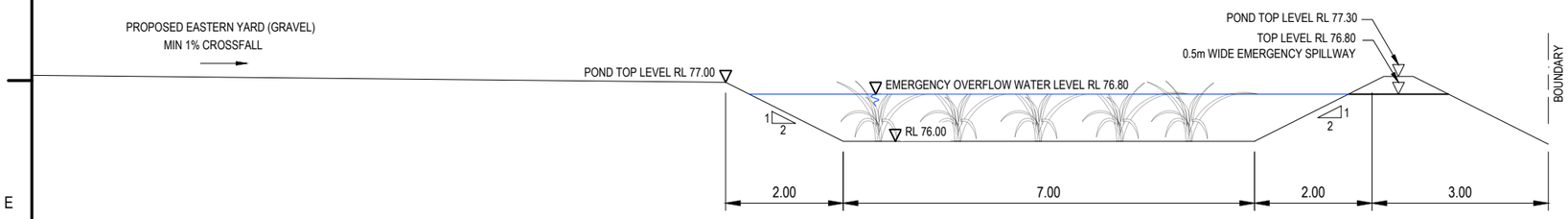
Project No. 23 256

RC no.

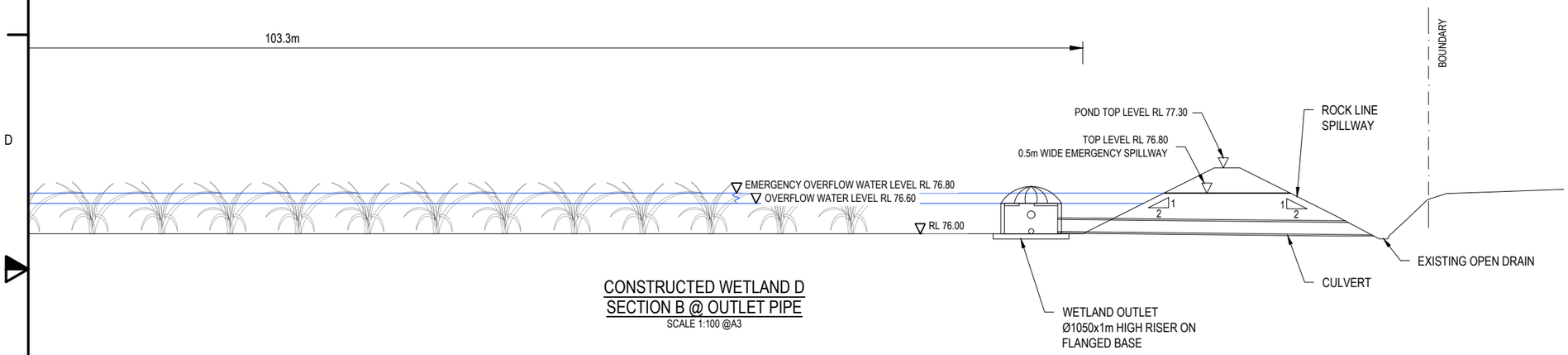
Stage

Dwg No. SWD01

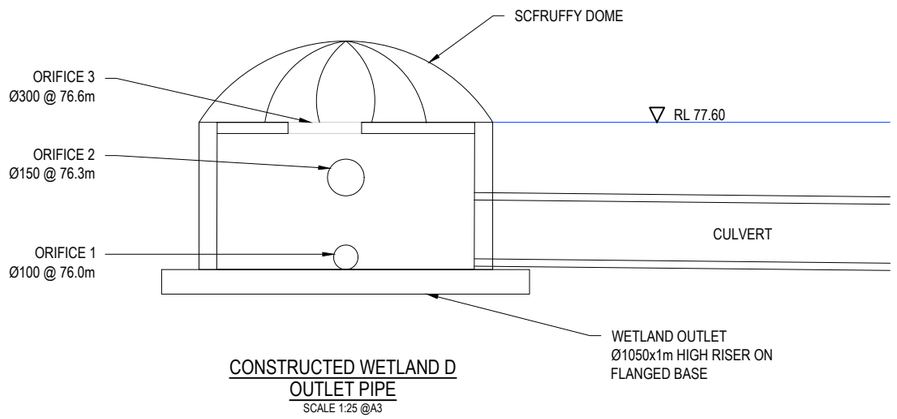
Sheet No.



CONSTRUCTED WETLAND D
SECTION A
SCALE 1:100 @A3



CONSTRUCTED WETLAND D
SECTION B @ OUTLET PIPE
SCALE 1:100 @A3



CONSTRUCTED WETLAND D
OUTLET PIPE
SCALE 1:25 @A3

FOR RC

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A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
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DWG CONSTRUCTED WETLAND D DETAILS

A3 Scale 1: 100 (0, 2, 5) Date 13/05/2024

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

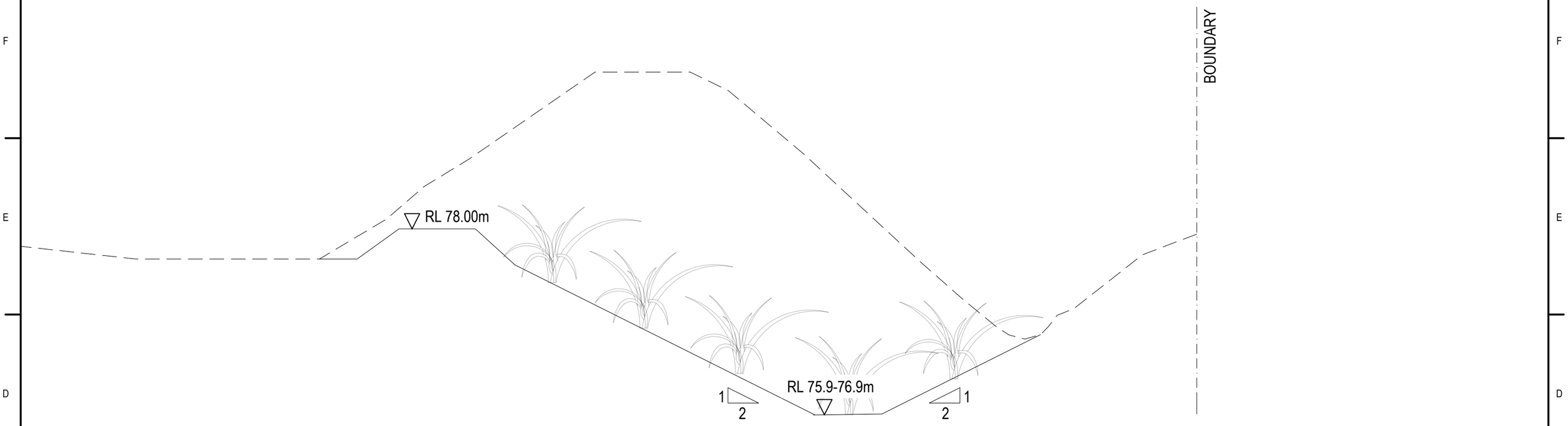
Project No. 23 256

RC no.

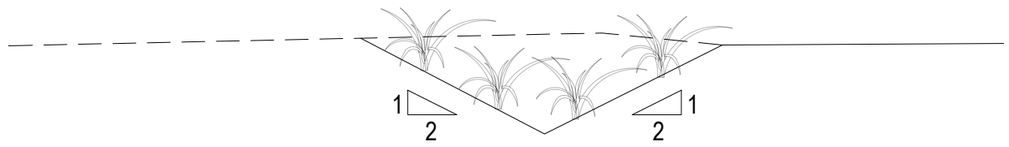
Stage

Dwg No. SWD02

Sheet No.



VEGETATED SWALE DRAIN A
TYPICAL SECTION
SCALE 1:100 @A3



VEGETATED SWALE DRAIN B
TYPICAL SECTION
SCALE 1:100 @A3

FOR RC

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DWG SWALE DRAIN A AND B TYPICAL SECTION

A3 Scale 1: 50 (0, 1, 3)

Date 13/05/2024

Drawn JT | Checked JP | Approved JP

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

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RC no.

Stage

Dwg No. SWD03

Sheet No.

GENERAL NOTES:
1. All features are taken from Topo Plan by HG, dated March 2024, ref. 2414676-HG-XX-DR-XX-G-SS01-03.
2. Flood extent taken from NRC GIS map.

Boundaries

FLOOD EXTENT	
10-YEAR FLOOD EXTENT (10% AEP) (NRC MAP)	
100-YEAR FLOOD EXTENT (1% AEP) (NRC MAP)	

FUTURE BOILER
180m²

PROPOSED BORON PLANT
2,620m²

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG FLOOD HAZARD PLAN

A3 Scale 1: 2000 (0, 40, 100)

Date 13/05/2024

Drawn LP | Checked JP | Approved JP

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage

Dwg No. EXP05

Sheet No.

GENERAL NOTES:
1. All features are taken from Topo plan by HG, dated 20/03/2024
2. Aerial image courtesy of Google.
3. Flood extent taken from NRC GIS map.

LEGEND
- Boundaries
- Existing Wastewater Pipe Line
- Proposed Wastewater Pipe Line
- Proposed Stormwater Pipe
- Flowpath
- Open drain

NOTE:
1. STORMWATER RUNOFF FROM HOUSE PLATFORM TO BE DIRECTED AWAY FROM THE EFFLUENT FIELD DISPOSAL FILED
2. SET SEQUENCING VALVE SO THAT ALL THREE DISPOSAL FIELDS RECEIVE THE SAME DOSES.

PROPOSED ADDITIONAL TANKS TO EXISTING TREATMENT PLANT REF SHEET WWD01 FOR DETAILS
EXISTING TREATMENT PLANT
LOG YARD
PARKING
MAINTENANCE WORKSHOP
ENGINEERING
OFFICE
SAW SHOP
GREEN MILL
DRY MILL
SERVER ROOM
ENGINEERING
DRY STORE # 6
DRY STORE # 5
DRY STORE # 4
DRY STORE # 1
DRY STORE # 2
DRY STORE # 3
LOT 3 DP 343062
LOT 2 DP 343062
LOT 1 DP 376253
BINSORTER
STACKER BUILDING
FUTURE BOILER 180m²
FUEL BIN
BOILER
WINDSOR CDK
MAHILD CDK
IN-FILLET YARD
PELLET PLANT
EXISTING OPEN DRAIN
EXISTING EFFLUENT PUMP LINE
EXISTING STORMWATER MANHOLE
PROPOSED CULVERT 300Ø
PROPOSED EFFLUENT PUMP LINE TO PROPOSED PUMP CHAMBER
PROPOSED CONSTRUCTED WETLAND D
EXISTING EFFLUENT DISPOSAL FIELD (TO BE DECOMMISSIONED)
PROPOSED SWALE DRAIN B
PROPOSED DISCH CHANNEL
EXISTING METAL DRIVEWAY
PROPOSED BORON PLANT 2,620m²
PROPOSED SECONDARY TREATMENT PLANT EconoTraet VBB-C-300 (FOR BORON PLANT ONLY)
PROPOSED DISPATCH YARD
PROPOSED PUMP CHAMBER
PROPOSED EFFLUENT PUMP LINE
BUILDING DRAINAGE
SEQUENCING VALVE
15.00
EXISTING WATER BORE
101.18
MIN 3m
MIN 5m
EXISTING FLOWPATH
PROPOSED RESERVE AREA 312m² (30%)
EXISTING OPEN DRAIN
PROPOSED DISH CHANNEL
PROPOSED SCRUFFY DOME
PROPOSED CULVERT Ø300 WITH FLOOD GATE
PROPOSED VEGETATED SWALE DRAIN A
EXISTING OPEN DRAIN TO BE FILLED IN
PROPOSED EFFLUENT DISPOSAL FIELD 1040m² (TOTAL) SURFACE MOUNTED DRIPPLINES DENSELY PLANTED REF. SHEET WWD02 FOR DETAILS
PROPOSED CONSTRUCTED WETLAND A

MINIMUM SECONDARY TREATMENT PLANT SETBACKS:
- INVERT LEVEL AT INLET - NOT LESS THAN 0.5m BELOW FLOOR LEVEL
- BUILDINGS - 3 m
- BOUNDARIES - 1.5m
- EASILY ACCESSIBLE FOR MAINTANACE.

CHECK ALL DIMENSION ON SITE.

SPECIFIC WASTEWATER DESIGN:
MINIMUM EFFLUENT DISPOSAL SETBACKS:
- BOUNDARIES - 1.5m
- BUILDINGS AND RETAINING WALLS - 3m
- SURFACE WATER - 5m (SECONDARY)
- COAST, RIVERS, LAKES - 30m

CHECK ALL DIMENSION ON SITE.

FLOOD EXTENT	
10-YEAR FLOOD EXTENT (10% AEP) (NRC MAP)	
100-YEAR FLOOD EXTENT (1% AEP) (NRC MAP)	

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG WASTEWATER PLAN 1/2
A3 Scale 1: 1500 (0, 30, 75)
Date 13/05/2024
Drawn LP | Checked JP | Approved JP
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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA
Client WAIPAPA PINE LIMITED
Project No. 23 256
RC no.
Stage
Dwg No. WWP01
Sheet No.

GENERAL NOTES:
1. All features are taken from Topo plan by HG, dated 20/03/2024
2. Aerial image courtesy of Google.

LEGEND
- Boundaries
- Existing Wastewater Pipe Line
- Proposed Wastewater Pipe Line
- Proposed Stormwater Pipe
- Flowpath
- Open drain

NOTE:
1. STORMWATER RUNOFF FROM HOUSE PLATFORM TO BE DIRECTED AWAY FROM THE EFFLUENT FIELD DISPOSAL FILED
2. SET SEQUENCING VALVE SO THAT DISPOSAL FIELD 1 RECEIVES ONE DOSE AND DISPOSAL FIELD 2 RECEIVES TWO DOSES.

PROPOSED CONSTRUCTED WETLAND D

PROPOSED CULVERT 300Ø

PROPOSED EFFLUENT PUMP LINE TO PROPOSED PUMP CHAMBER

EXISTING EFFLUENT DISPOSAL FIELD (TO BE DECOMMISSIONED)

PROPOSED SWALE DRAIN B

PROPOSED SECONDARY TREATMENT PLANT EconoTraet VBB-C-300 (FOR BORON PLANT ONLY)

PROPOSED DISPATCH YARD

PROPOSED DISCH CHANNEL

PROPOSED PUMP CHAMBER

PROPOSED EFFLUENT PUMP LINE

SEQUENCING VALVE

PROPOSED DISH CHANNEL

MIN 15m

MIN 3m

EXISTING OPEN DRAIN

PROPOSED RESERVE AREA 312m² (30%)

MINIMUM SECONDARY TREATMENT PLANT SETBACKS:
- INVERT LEVEL AT INLET - NOT LESS THAN 0.5m BELOW FLOOR LEVEL
- BUILDINGS - 3 m
- BOUNDARIES - 1.5m
- EASILY ACCESSIBLE FOR MAINTANACE.

CHECK ALL DIMENSION ON SITE.

SPECIFIC WASTEWATER DESIGN:
MINIMUM EFFLUENT DISPOSAL SETBACKS:
- BOUNDARIES - 1.5m
- BUILDINGS AND RETAINING WALLS - 3m
- SURFACE WATER - 5m (SECONDARY)
- COAST, RIVERS, LAKES - 30m

CHECK ALL DIMENSION ON SITE.

PROPOSED CULVERT Ø300

PROPOSED SCRUFFY DOME

MIN 5m

EXISTING OPEN DRAIN TO BE FILLED IN

PROPOSED EFFLUENT DISPOSAL FIELD 1040m² (TOTAL) SURFACE MOUNTED DRIPPLINES DENSELY PLANTED REF. SHEET WWD02 FOR DETAILS

FOR RC

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A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
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DWG WASTEWATER PLAN 2/2

A3 Scale 1: 750 (0 15 38) Date 13/05/2024

Drawn LP Checked JP Approved JP

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

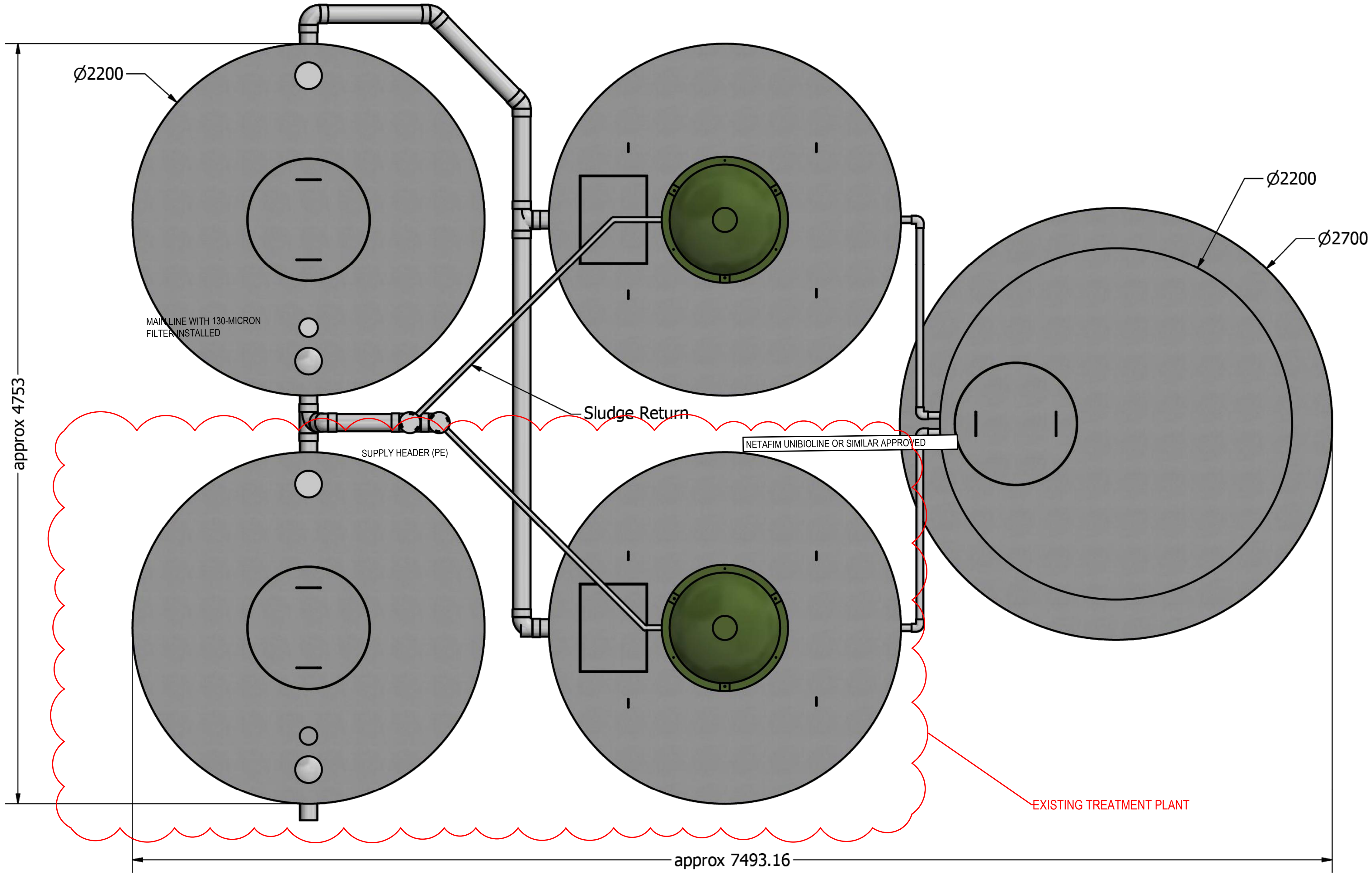
Project No. 23 256

RC no.

Stage

Dwg No. WWP02

Sheet No.



Water Flow NZ LTD	1160 SH12 MAUNGATUROTO 0548 PH: 0800 628 356 E: sales@waterflow.co.nz	**Econotreat VBB C 3000 Twin** -, -

PREPARED FOR:			Sheet 2 of 4
DRAWN: Gerald Hoyle	DWG:	SCALE: 1 / 25	REF:
REVISION	DATE: 17/04/2019		

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG: WASTEWATER TREATMENT PLANT AT THE OFFICE PLAN VIEW

A3 Scale: NTS | Date: 13/05/2024

Drawn LP | Checked JP | Approved JP

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Project: BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

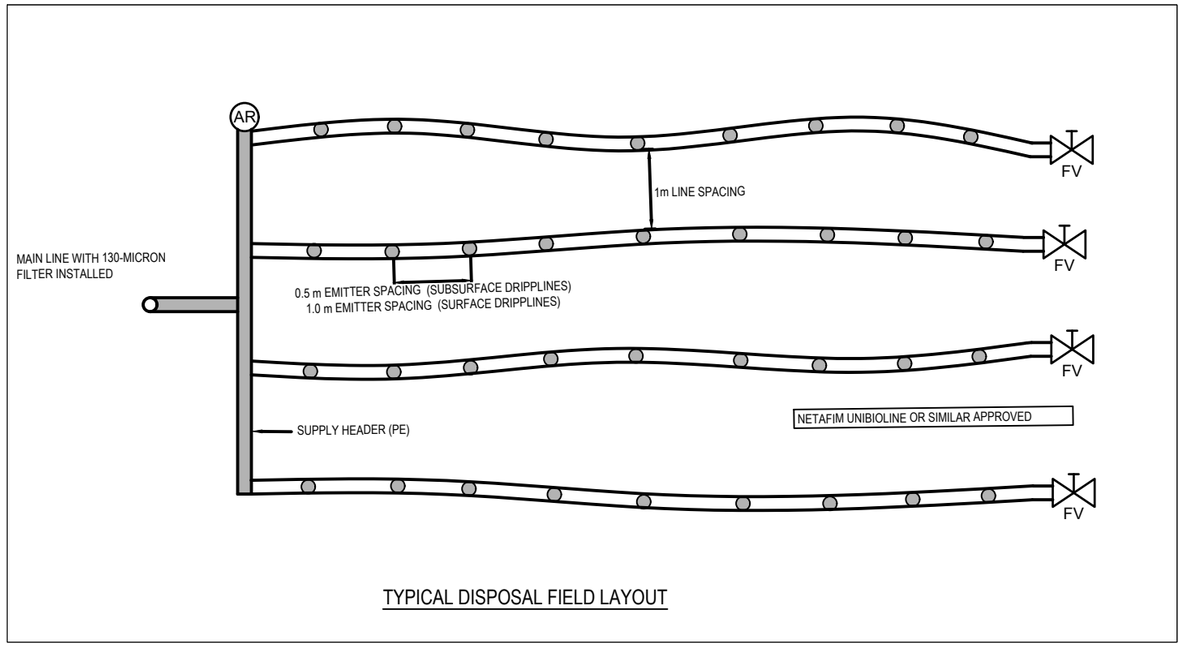
Client: WAIPAPA PINE LIMITED

Project No. 23 256 | RC no.

Stage

Dwg No. WWD01

Sheet No.



TYPICAL DISPOSAL FIELD LAYOUT

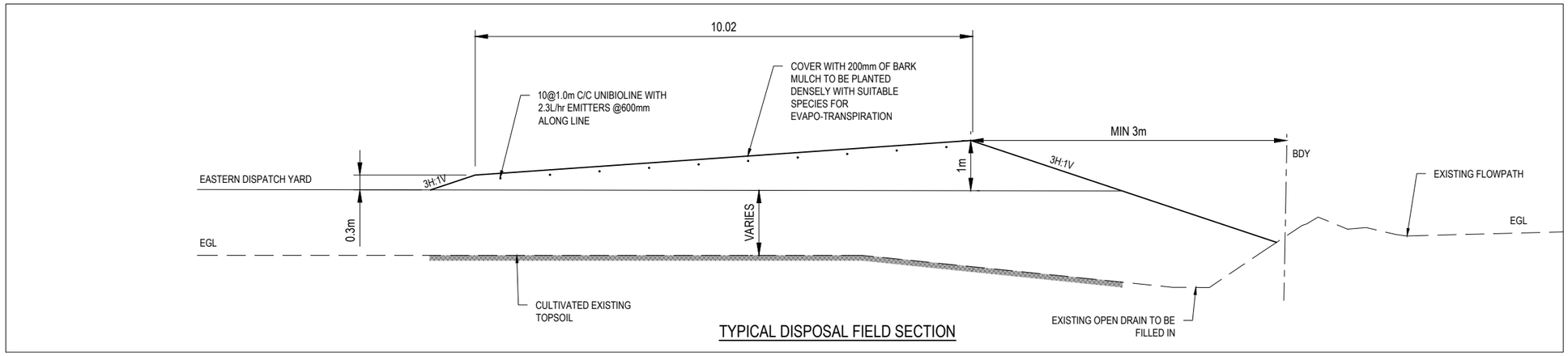
LEGEND:

AR — AIR / VACUUM RELEASE VALVE

FV — FLUSHING VALVE

NOTE:

1. DNL VALVES TO BE PLACED ACCORDINGLY TO PREVENT SATURATION AT LOW POINTS DUE TO DRAIN DOWN.



TYPICAL DISPOSAL FIELD SECTION

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG EFFLUENT DISPOSAL AREA LAYOUT

A3 Scale: NTS | Date 13/05/2024

Drawn LP | Checked JP | Approved JP

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

Project No. 23 256 | RC no.

Stage

Dwg No. WWD03

Sheet No.

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	JT	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG FINISHED GROUND LEVEL PLAN

A3 SCALE 1:750 0 15m 37.5m

Date 13/05/2024

Drawn JT | Checked JP | Approved JP

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage

Dwg No. EWP01

Sheet No. 1 of 2

BUND 1 EARTHWORKS					
Number	Color	Minimum Elevation	Maximum Elevation	2D Area	Volume
1		-3.000 m	-2.000 m	551.9 m2	167.9 m3
2		-2.000 m	-1.000 m	564.3 m2	822.7 m3
3		-1.000 m	0.000 m	994.9 m2	1 537.9 m3
			Total Cut	2 111.1 m2	2 528.5 m3

BUND 2 EARTHWORKS					
Number	Color	Minimum Elevation	Maximum Elevation	2D Area	Volume
1		-4.000 m	-3.000 m	0.0 m2	0.0 m3
2		-3.000 m	-2.000 m	167.9 m2	86.3 m3
3		-2.000 m	-1.000 m	107.6 m2	222.1 m3
4		-1.000 m	0.000 m	119.8 m2	333.8 m3
			Total Cut	395.3 m2	642.2 m3

BUND 3 EARTHWORKS					
Number	Color	Minimum Elevation	Maximum Elevation	2D Area	Volume
1		-4.000 m	-3.000 m	0.7 m2	0.0 m3
2		-3.000 m	-2.000 m	117.6 m2	56.8 m3
3		-2.000 m	-1.000 m	139.0 m2	185.3 m3
4		-1.000 m	0.000 m	192.8 m2	342.8 m3
			Total Cut	450.1 m2	584.9 m3

DISPATCH YARD TOPSOIL STRIPPING (-0.2m)						
Number	Color	Minimum Elevation	Maximum Elevation	2D Area	Volume	Total Volume
1		-1.000 m	0.000 m	26 119.6 m2	5 223.9 m3	Total Cut (5 223.9 m3)

DISPATCH YARD EARTHWORKS						
Number	Color	Minimum Elevation	Maximum Elevation	2D Area	Volume	Total Volume
1		-1.000 m	0.000 m	1 181.8 m2	508.1 m3	Total Cut (508.1 m3)
2		0.000 m	1.000 m	13 752.3 m2	19 105.3 m3	Total Fill (22 273.1 m3)
3		1.000 m	2.000 m	10 527.6 m2	3 166.9 m3	
4		2.000 m	3.000 m	9.4 m2	0.9 m3	

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	JT	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG EARTHWORKS CUT AND FILL PLAN

A3 SCALE 1:1000 0 20m 50m Date 13/05/2024

Drawn JT Checked JP Approved JP

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

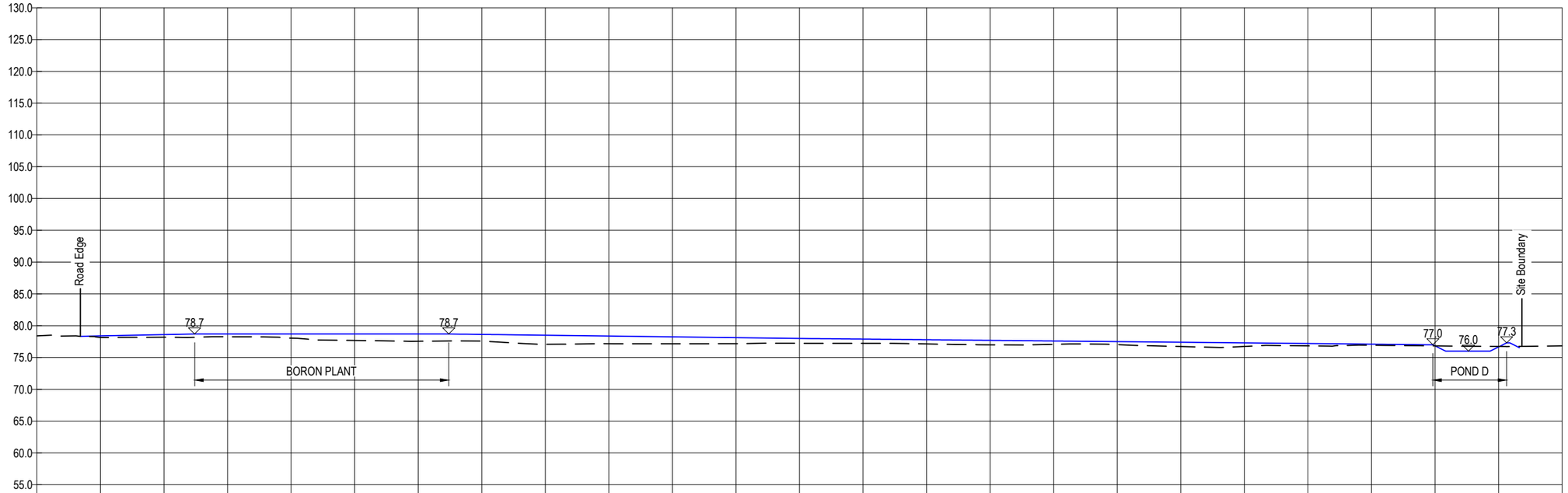
Client WAIPAPA PINE LIMITED

Project No. 23 256 RC no.

Stage

Dwg No. EWP02

Sheet No. 2 of 2



Vertical: 1:500
Horizontal: 1:500

Datum 30.0

Design Levels		78.392	78.599	78.700	78.700	78.700	78.700	78.633	78.508	78.382	78.255	78.128	78.002	77.897	77.797	77.697	77.597	77.497	77.397	77.297	77.197	77.097	76.836	76.664	76.540	
Existing Levels	78.394	78.161	78.188	78.268	78.049	77.683	77.561	77.584	77.074	77.165	77.16	77.177	77.233	77.226	77.135	76.999	77.076	77.021	76.729	76.744	76.83	76.936	76.830	76.735	76.748	76.825
Cut/Fill Depth		0.230	0.411	0.432	0.651	1.017	1.139	1.049	1.434	1.217	1.094	0.951	0.769	0.671	0.662	0.698	0.520	0.476	0.667	0.553	0.367	0.161	0.007	-0.071		
Chainage	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	230.000	233.294	240.000

SECTION A

Scale: Horizontal 1:500, Vertical 1:500

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	JT	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG EARTHWORKS
SECTION A

A3 SCALE 1:750 0 15m 37.5m

Date 13/05/2024

Drawn JT | Checked JP | Approved JP

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

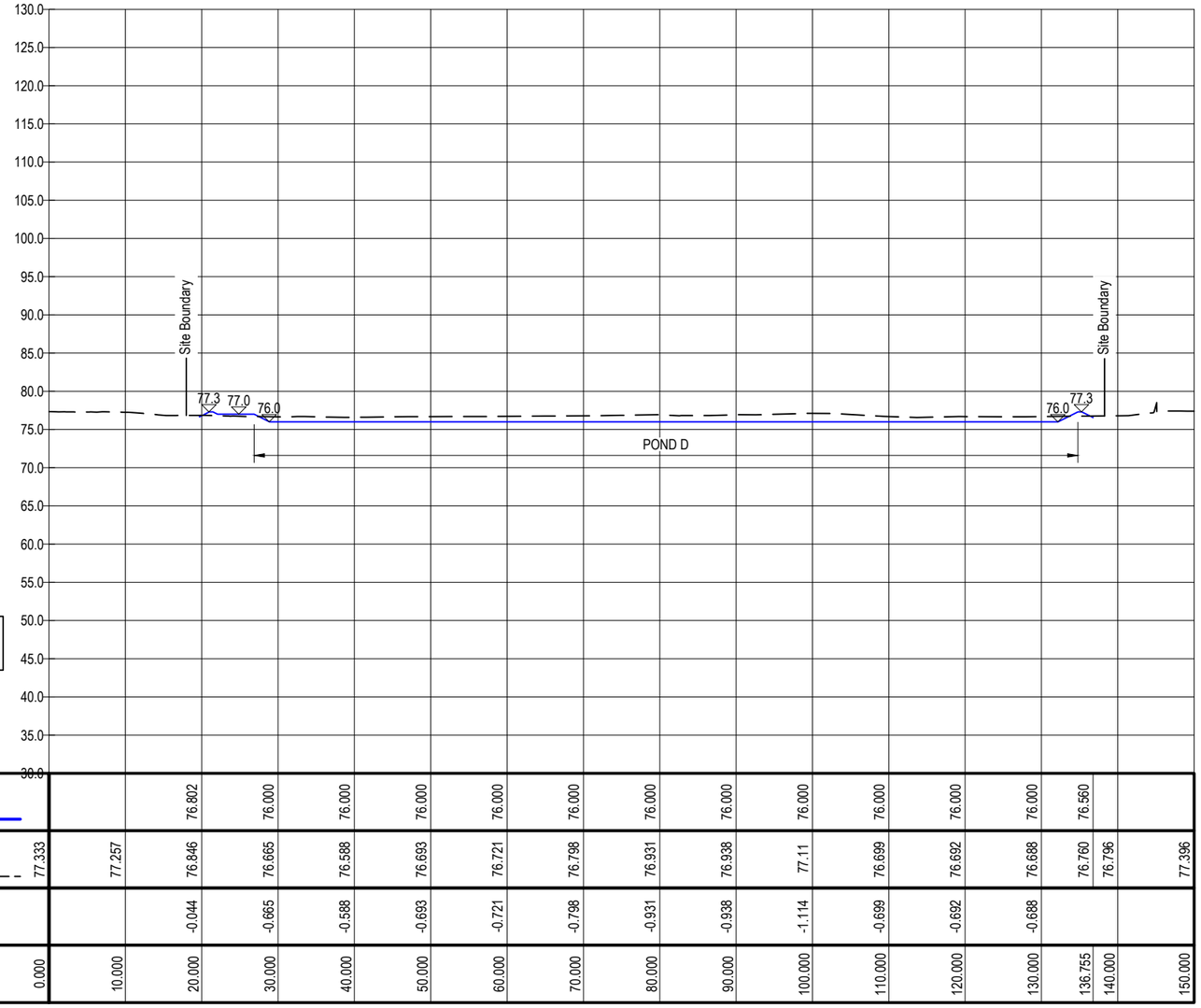
Project No. 23 256

RC no.

Stage

Dwg No. EWL01

Sheet No. 1 of 3



Vertical: 1:500
Horizontal: 1:500

Datum 30.0

Design Levels			76.802	76.000	76.000	76.000	76.000	76.000	76.000	76.000	76.000	76.000	76.000	76.560	
Existing Levels	77.333	77.257	76.846	76.665	76.588	76.693	76.721	76.798	76.931	76.938	77.11	76.699	76.692	76.688	76.760	76.796	77.396
Cut/Fill Depth			-0.044	-0.665	-0.588	-0.693	-0.721	-0.798	-0.931	-0.938	-1.114	-0.699	-0.692	-0.688			
Chainage	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	136.755	140.000	150.000

SECTION B

Scale: Horizontal 1:500, Vertical 1:500

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	JT	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG EARTHWORKS
SECTION B

A3 SCALE 1:750 0 15m 37.5m

Date 13/05/2024

Drawn JT | Checked JP | Approved JP

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Project BOREN PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

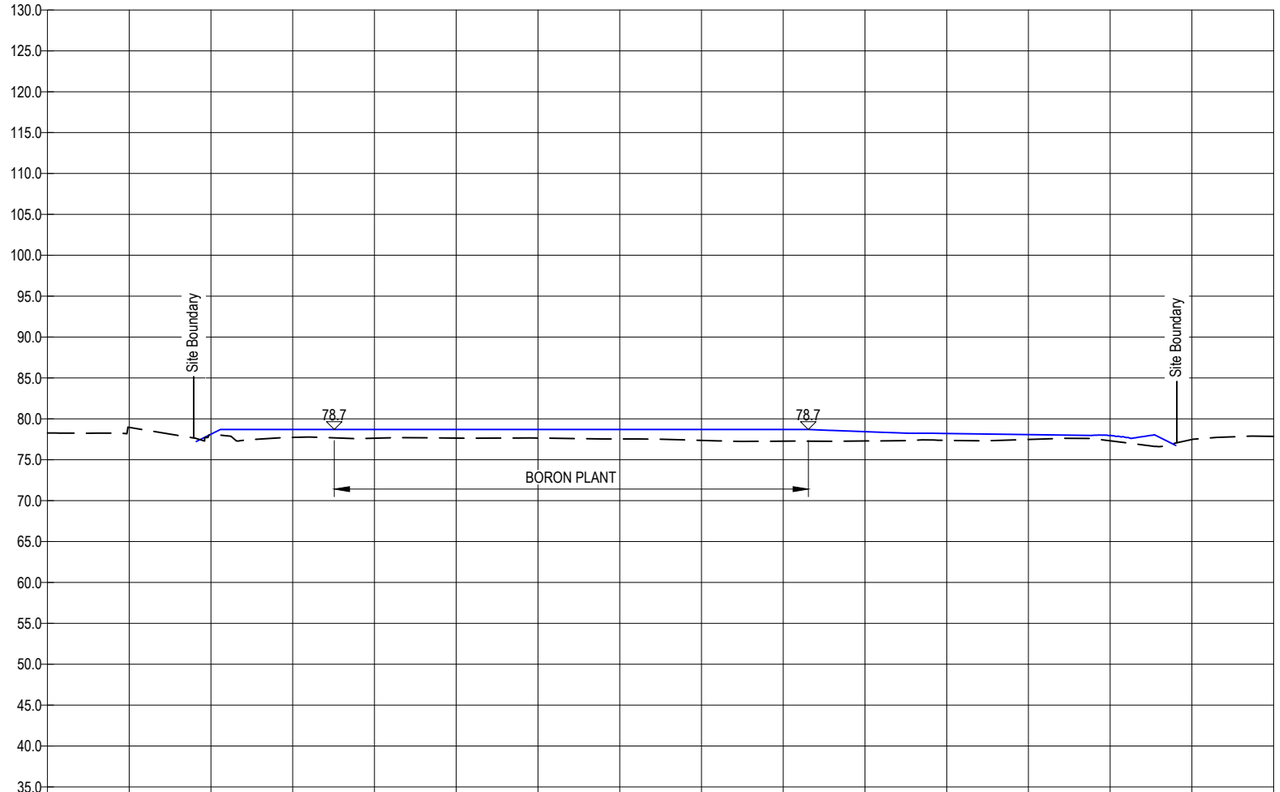
Project No. 23 256

RC no.

Stage

Dwg No. EWL02

Sheet No. 2 of 3



Vertical: 1:500
Horizontal: 1:500

Datum 30.0

Design Levels			78.129	78.700	78.700	78.700	78.700	78.700	78.700	78.437	78.211	78.075	77.990	76.753	
Existing Levels	78.266	78.955	78.126	77.731	77.634	77.647	77.656	77.550	77.368	77.274	77.29	77.372	77.485	77.314	77.048	77.478	77.863
Cut/Fill Depth			0.003	0.969	1.066	1.053	1.044	1.150	1.332	1.426	1.143	0.840	0.590	0.676			
Chainage	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	138.030	140.000	150.000

SECTION C

Scale: Horizontal 1:500, Vertical 1:500

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	JT	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG EARTHWORKS
SECTION C

A3 SCALE 1:750 0 15m 37.5m

Date 13/05/2024

Drawn JT | Checked JP | Approved JP

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage

Dwg No. EWL03

Sheet No. 3 of 3

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	JT	JP
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DWG ACCESS & PARKING PLAN (NORTH)

A3 SCALE 1:500 (0 / 10m / 25m)

Date 13/05/2024

Drawn JT | Checked JP | Approved JP

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

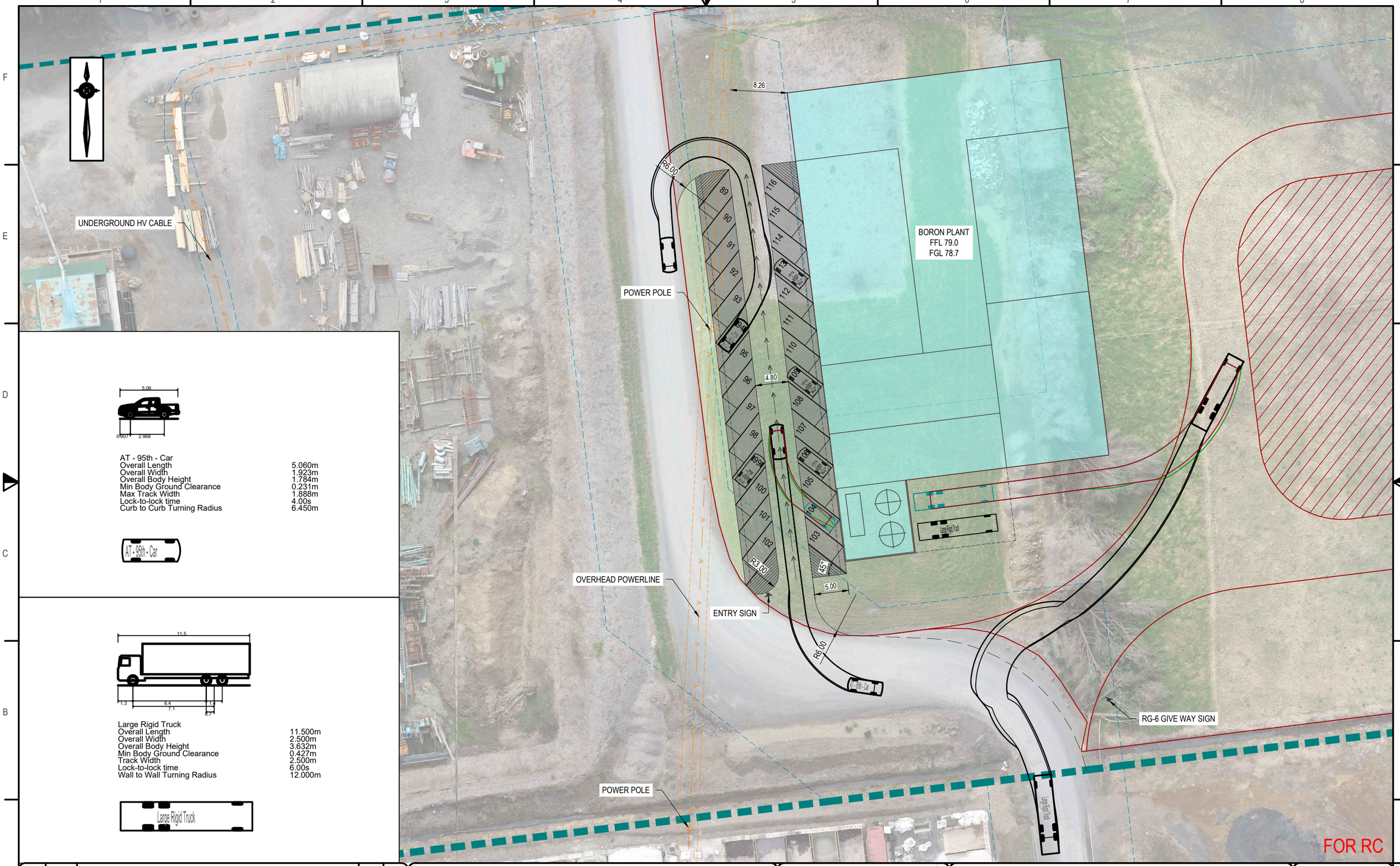
Stage

Dwg No. CPP01

Sheet No. 1 of 3

AT - 95th - Car	
Overall Length	5.060m
Overall Width	1.923m
Overall Body Height	1.784m
Min Body Ground Clearance	0.231m
Max Track Width	1.888m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.450m

FOR RC



AT - 95th - Car

Overall Length	5.060m
Overall Width	1.923m
Overall Body Height	1.784m
Min Body Ground Clearance	0.231m
Max Track Width	1.888m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.450m

Large Rigid Truck

Overall Length	11.500m
Overall Width	2.500m
Overall Body Height	3.632m
Min Body Ground Clearance	0.427m
Track Width	2.500m
Lock-to-lock time	6.00s
Wall to Wall Turning Radius	12.000m

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	JT	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG ACCESS & PARKING PLAN (BORON PLANT)

A3 SCALE 1:500 0 10m 25m

Date 13/05/2024

Drawn JT | Checked JP | Approved JP

File T:\CLIENTS\WAIPAPA PINE LIMITED\JOBS\23 256 - WAIPAPA MILL -1945B STATE HIGHWAY 10, WAIPAPA\ENGINEERING\DRAWINGS\01_CIVIL\23_256_CIVIL_DESIGN_C3D.DWG

HAIGH WORKMAN LTD
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Kerikeri, BOI
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F: 09 407 8378
E: info@haighworkman.co.nz

Project BOREON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage

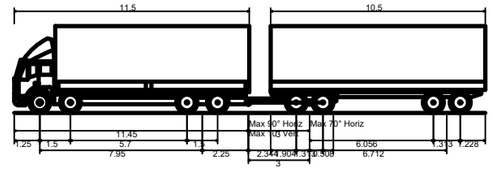
Dwg No. CPP02

Sheet No. 2 of 3

BORON PLANT
FFL 79.0
FGL 78.7

DISPATCH YARD
9,000 m²

RG-6 GIVE WAY SIGN



AT - Truck - HPMV - 23.0m Truck and Trailer

Overall Length	23.046m
Overall Width	2.500m
Overall Body Height	4.250m
Min Body Ground Clearance	0.373m
Track Width	2.500m
Lock-to-lock time	6.00s
Wall to Wall Turning Radius	12.500m

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	JT	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG ACCESS & PARKING PLANT (DISPATCH YARD)

A3 SCALE 1:500 0 10m 25m

Date 13/05/2024

Drawn JT | Checked JP | Approved JP

File T:\CLIENTS\WAIPAPA PINE LIMITED\JOBS\23 256 - WAIPAPA MILL -1945B STATE HIGHWAY 10, WAIPAPA\ENGINEERING\DRAWINGS\01_CIVIL\23_256_CIVIL_DESIGN_C3D.DWG

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage

Dwg No. CPP03

Sheet No. 3 of 3

GENERAL NOTES:
1. All features are taken from Topo plan by HG, dated 20/03/2024
2. Aerial image courtesy of Google.
3. Flood extent taken from NRC GIS map.

LEGEND
- Boundaries
- Existing Wastewater Pipe Line
- Proposed Wastewater Pipe Line
- Proposed Stormwater Pipe
- Flowpath
- Existing drain
- Stabilised Entrance
- Decanting Earth Bund (Catchment area less than 0.3ha)

EXISTING OPEN DRAIN
PROPOSED CULVERT PROVIDES INTERCEPTION
EXISTING EFFLUENT DISPOSAL FIELD (TO BE DECOMMISSIONED)
EXTENT OF EARTHWORKS
PROPOSED WASTEWATER PIPE LINE
DIG CONSTRUCTED WETLAND D AS SEDIMENT POND
FUTURE BOILER 180m²
EXISTING OPEN DRAIN
TOPSOIL TO BE STOCKPILED ON FUTURE WASTEWATER FIELD
STABILISED ENTRANCE
PROPOSED EFFLUENT DISPOSAL FIELD
EXISTING OPEN DRAIN TO BE FILLED IN
EXISTING FLOWPATH
SILT FENCE
PROPOSED VEGETATED SWALE DRAIN A

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	JT	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG EROSION AND SEDIMENT CONTROL

A3 Scale 1: 1500 (0, 30, 75)
Date 13/05/2024
Drawn JT
Checked JP
Approved JP
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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

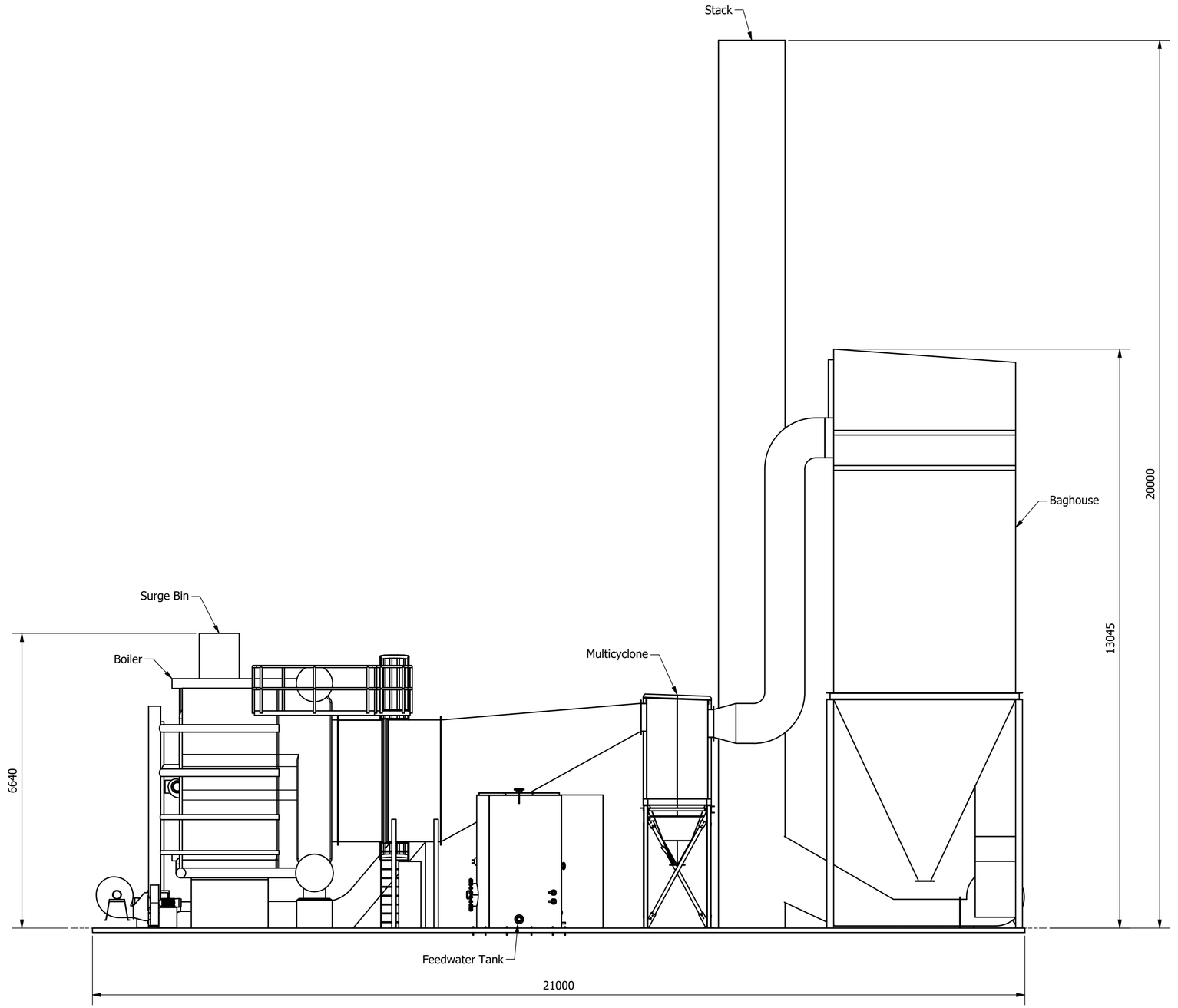
Project No. 23 256

RC no.

Stage ####

Dwg No. ESC01

Sheet No.



Elevation
Scale 1:75

Rev	Description	By	Dsgn	Chkd	App	Date
A	Issued For Proposal	JM	-	-	-	05/24

Windsor Energy

Tolerancing Unless Otherwise Stated To: AS1100.201-1992 Designation - N/A

Scales: AS SHOWN

All Dimensions In mm Do Not Scale

	By	Date
Drawn	JM	05/24
Designed	-	-
Checked	-	-
Approved	-	-

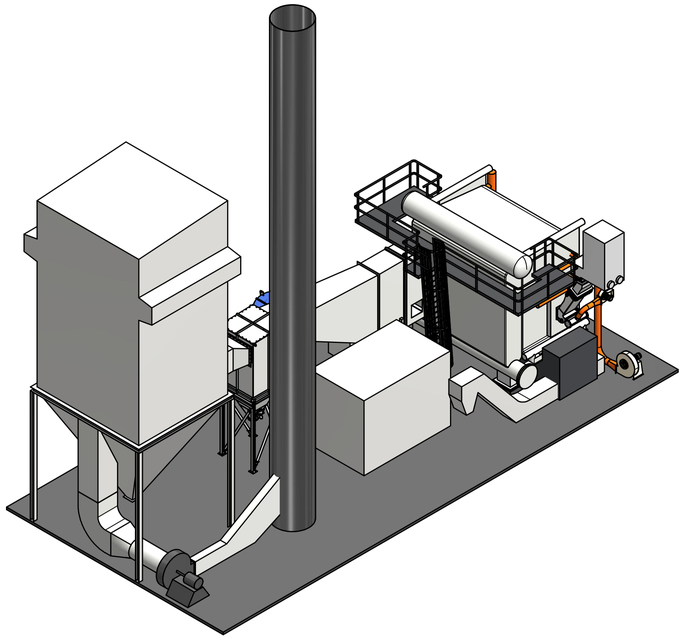
Client: FLETCHER - WAIPAPA PINE

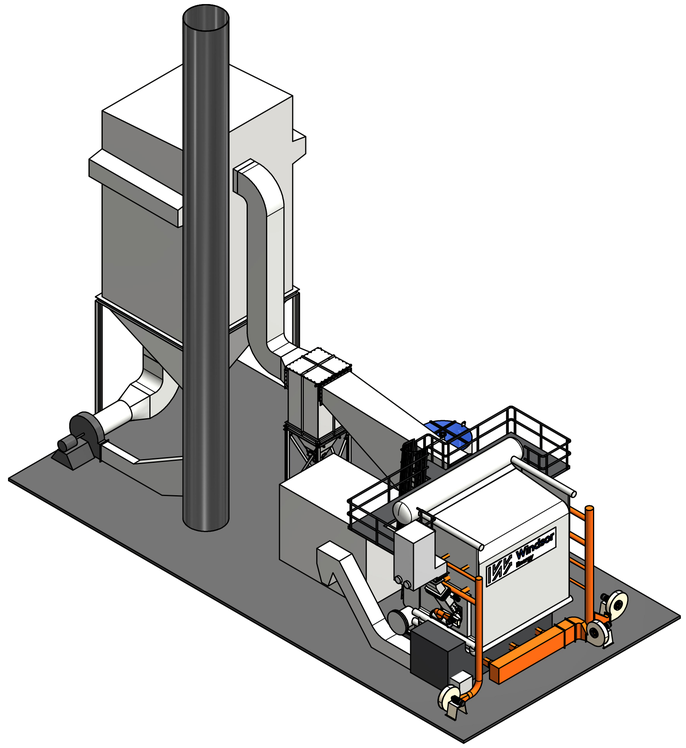
Title: 6MW BIOMASS STEAM BOILER
PLANT LAYOUT
ELEVATION

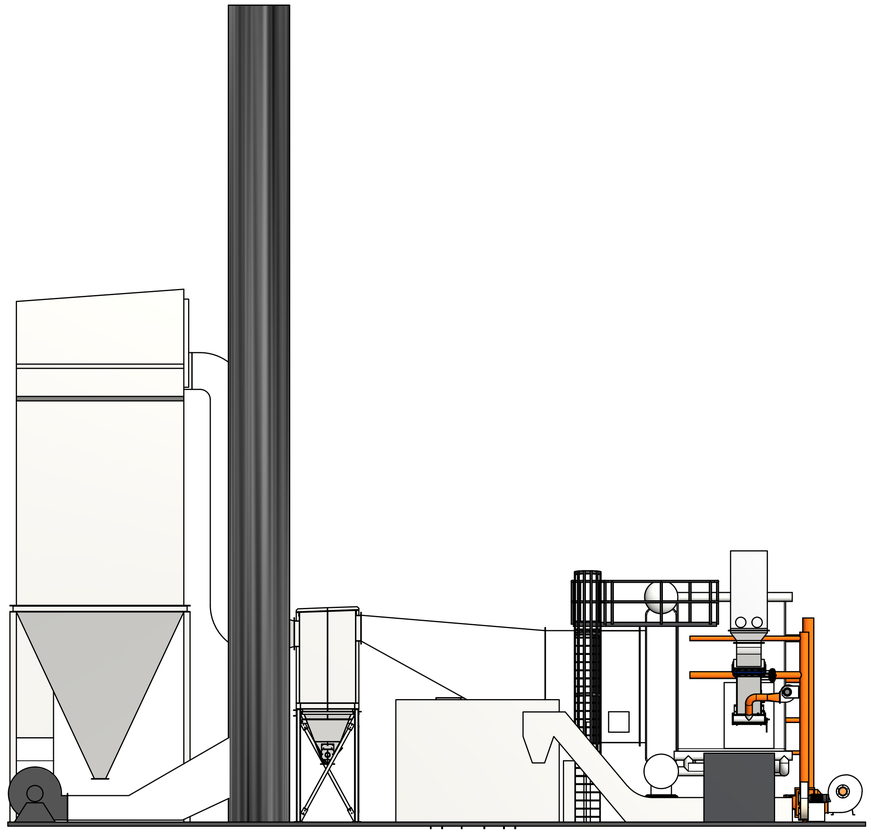
Drawing Number: H7851-15-002

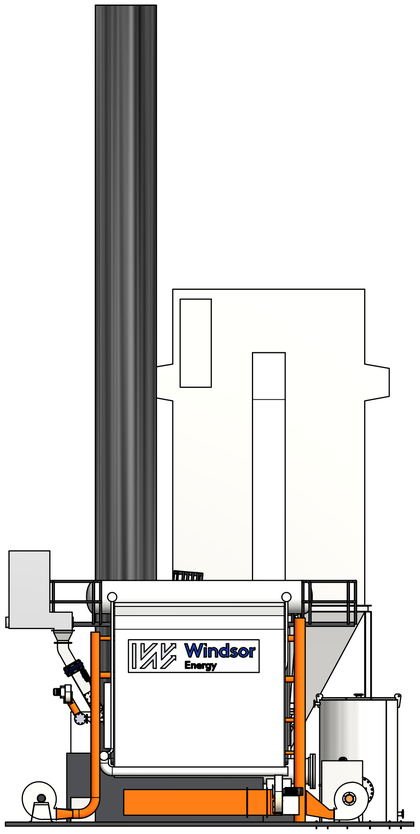
A2

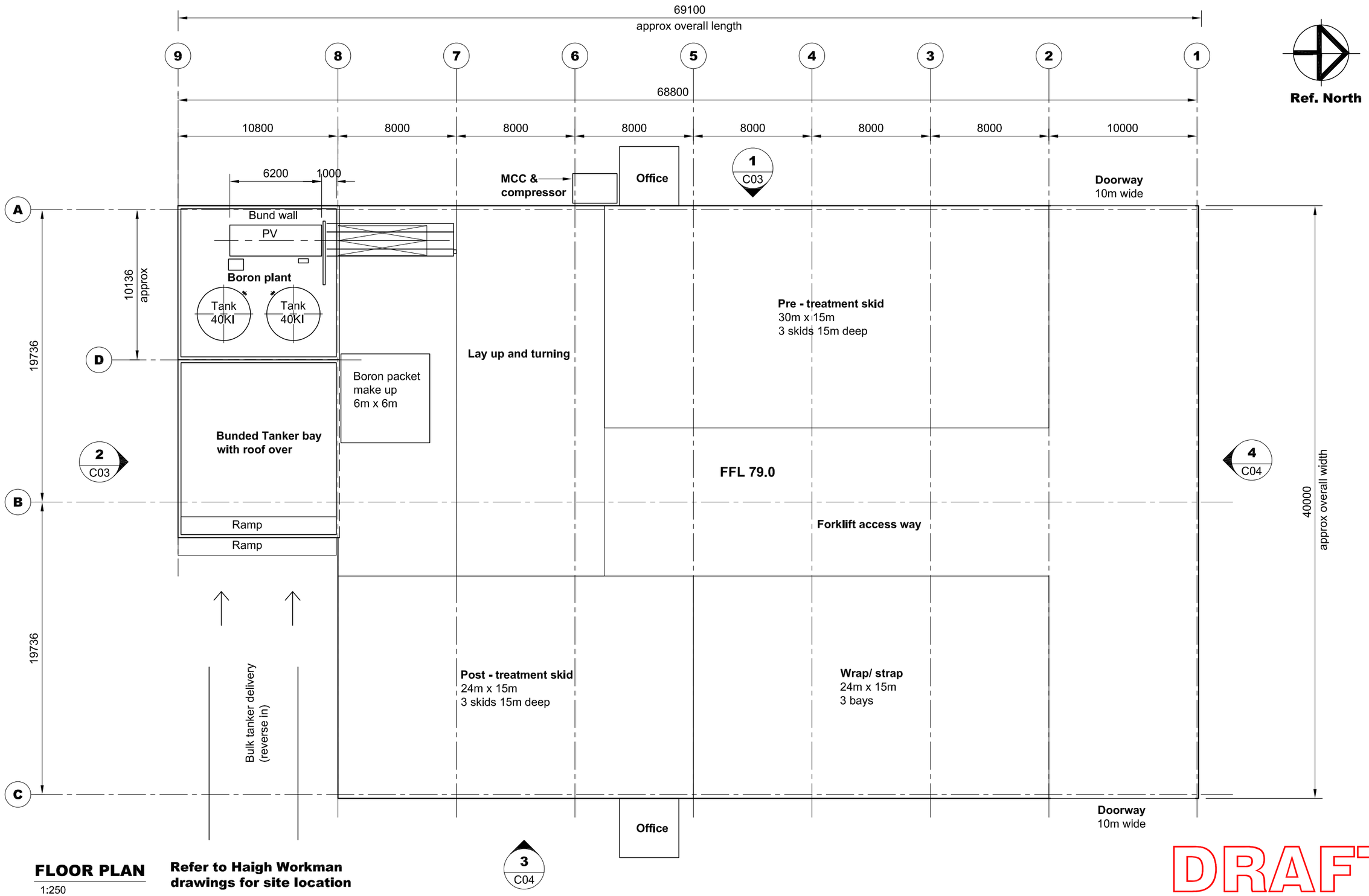
CONFIDENTIAL




Windsor




Windsor
Energy



FLOOR PLAN
1:250

Refer to Haigh Workman drawings for site location

DRAFT

Rev:	Date:	By:	Details:
A	04/06/24	WS	Issued for Resource Consent

Prepared By:
Will Sumner Design Ltd
M. 021 577 124
E. willsumner@xtra.co.nz

WAIPAPA PINE
TIMBER PRODUCTS NEW ZEALAND

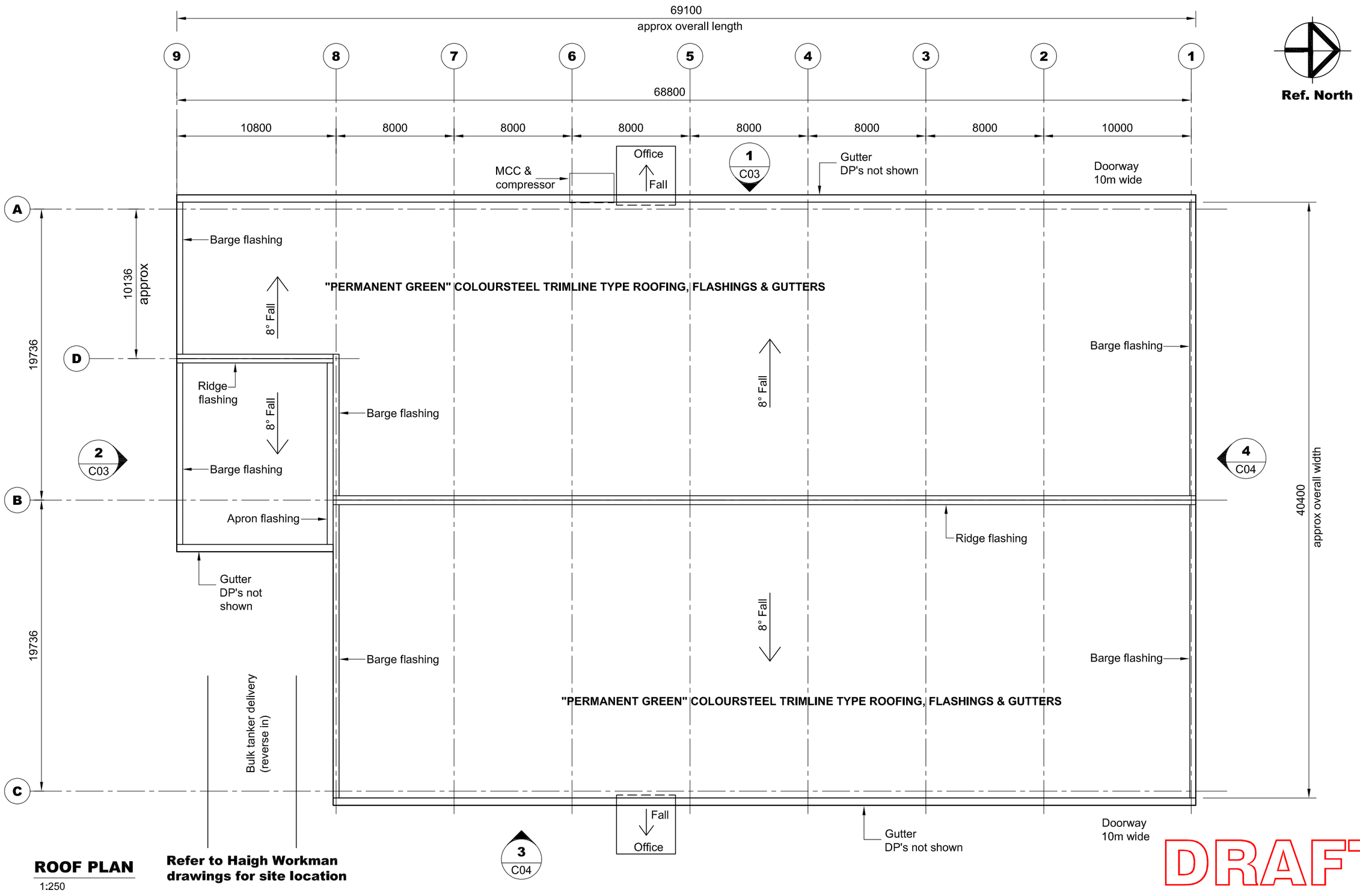
BORON PLANT – FLOOR PLAN

Design:	Date: 04/06/24	
Drawn: WILL	Scale: 1:250 @ A3	

Project: BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Drg No: C01

Rev: A



ROOF PLAN
1:250

Refer to Haigh Workman drawings for site location

DRAFT

Rev:	Date:	By:	Details:
A	04/06/24	WS	Issued for Resource Consent

Prepared By:
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E. willsumner@xtra.co.nz

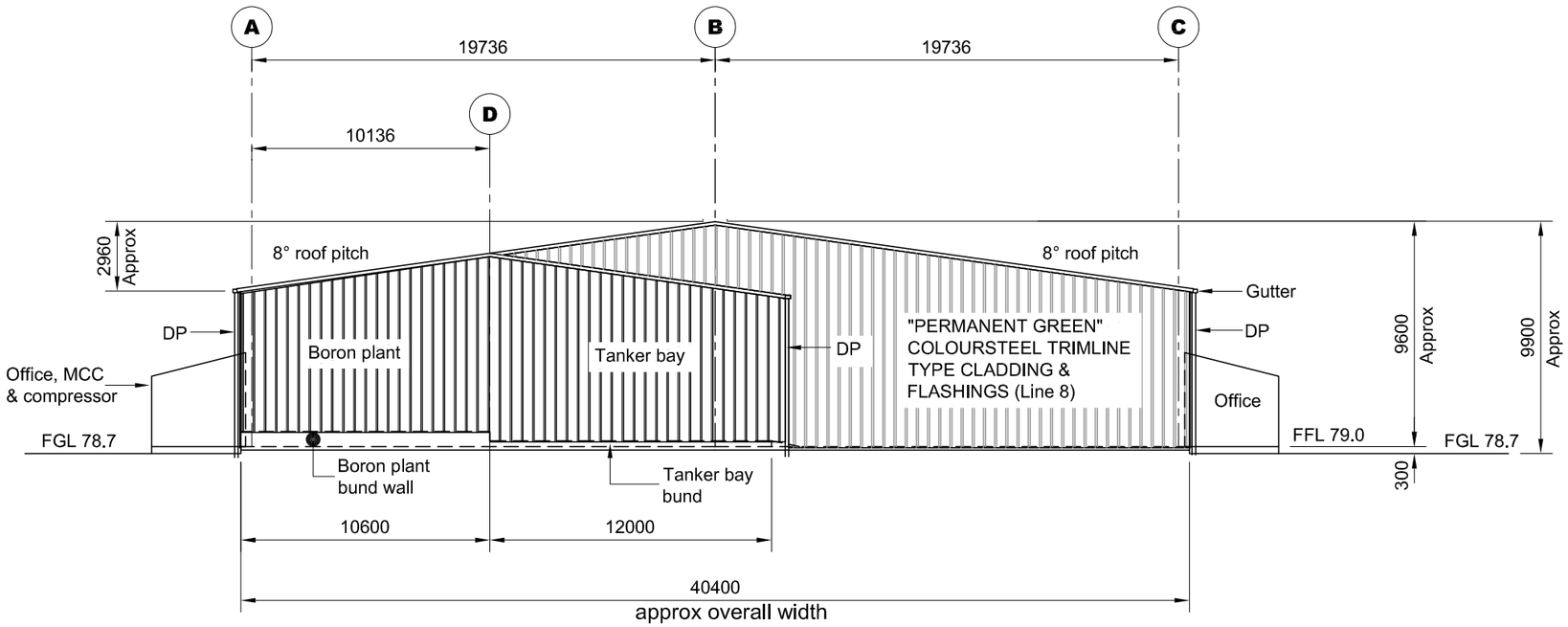
WAIPAPA PINE
TIMBER PRODUCTS NEW ZEALAND

BORON PLANT – ROOF PLAN

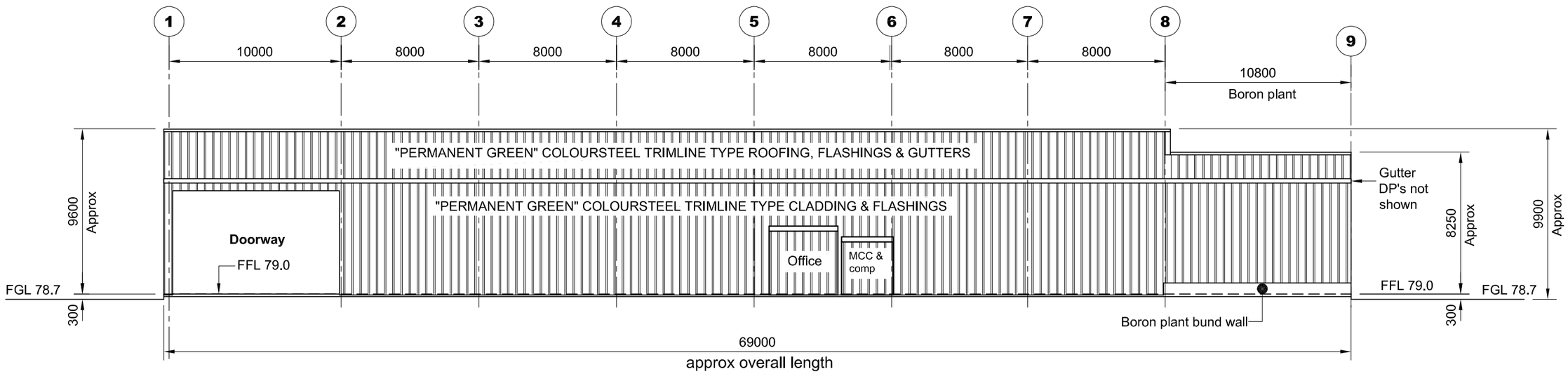
Design:	Date: 04/06/24	
Drawn: WILL	Scale: 1:250 @ A3	

Project: BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Drg No: C02 Rev: A



2 SOUTH ELEVATION
C02 1:250



1 WEST ELEVATION
C02 1:250

DRAFT

Rev:	Date:	By:	Details:
A	04/06/24	WS	Issued for Resource Consent

Prepared By:
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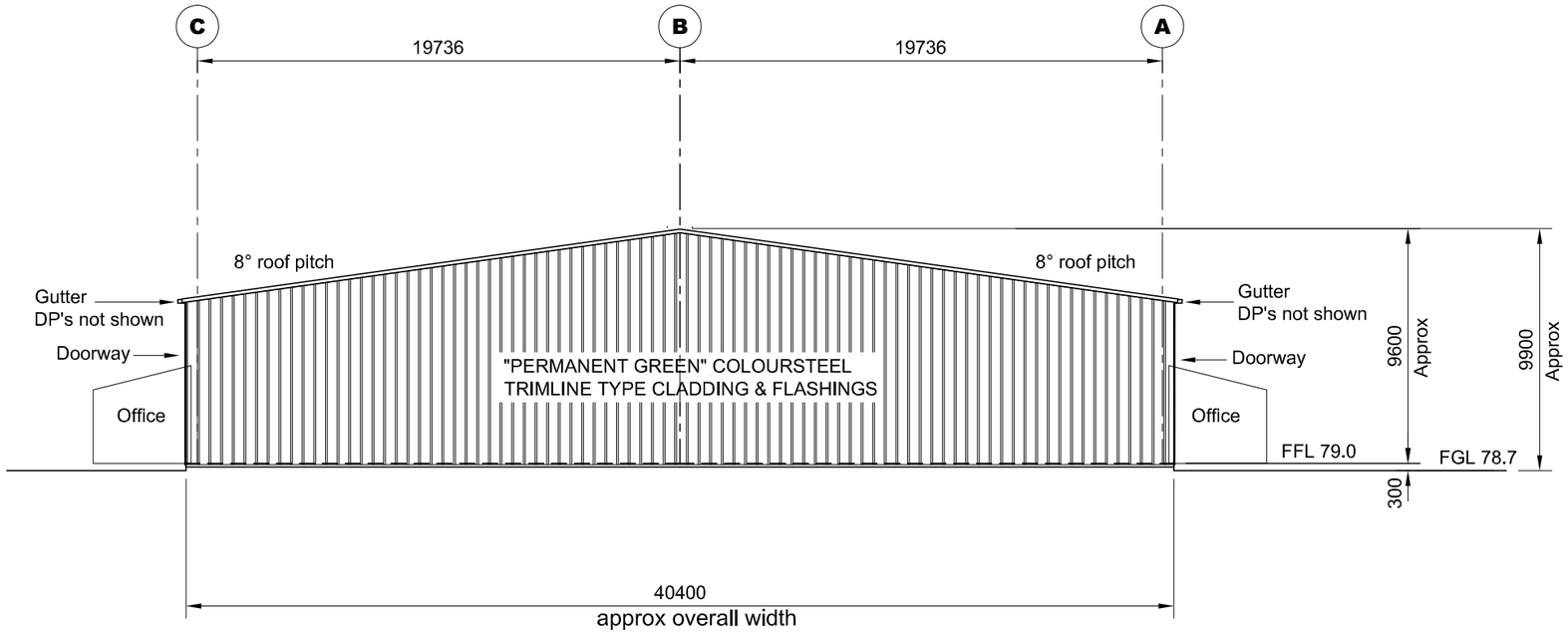
WAIPAPA PINE
TIMBER PRODUCTS NEW ZEALAND

BORON PLANT – ELEVATIONS

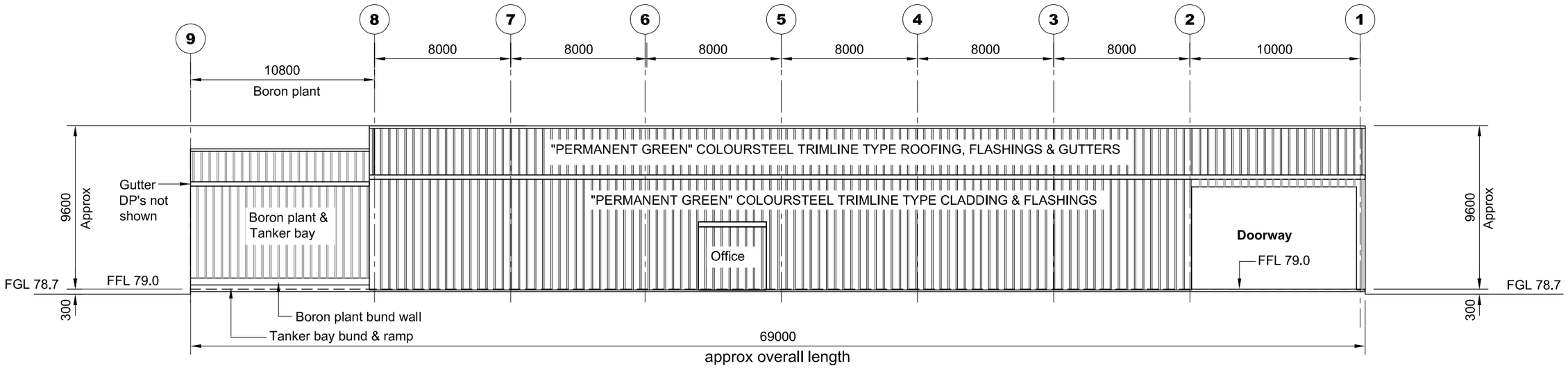
Design:	Date: 04/06/24	
Drawn: WILL	Scale: 1:250 @ A3	

Project: BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Drg No: C03 Rev: A



4 NORTH ELEVATION
C02 1:250



3 EAST ELEVATION
C02 1:250

DRAFT

Rev:	Date:	By:	Details:
A	04/06/24	WS	Issued for Resource Consent

Prepared By:
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E. willsumner@xtra.co.nz

WAIPAPA PINE
TIMBER PRODUCTS NEW ZEALAND

BORON PLANT – ELEVATIONS

Design:
Drawn: WILL
Date: 04/06/24
Scale: 1:250 @ A3

Project: BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Drg No: C04
Rev: A

WAIPAPA PINE LTD

WAIPAPA PINE SAWMILL

Landscape Package For Resource Consent

JUNE 2024 VERSION 1

SLR

Information and Quality Control

Revision	Date	For	Author	Reviewer
V0.1	29-04-2024	FB	M. Tongue	
V0.2	16-05-2024	FB	M.Tongue	
V1.0	05-06-2024	FB & Council	M. Tongue	S Williams

Prepared for	Waipapa Pine Limited
Document Name	Landscape Package for Resource Consent
File Path	810_030758_WaipapaPineSawmill_LscapeConcept-FINAL
Approved for Release	Megan Tongue

Prepared By:

SLR Consulting NZ

201 Victoria Street West

Auckland Central

+64 9 303 0311

Contents

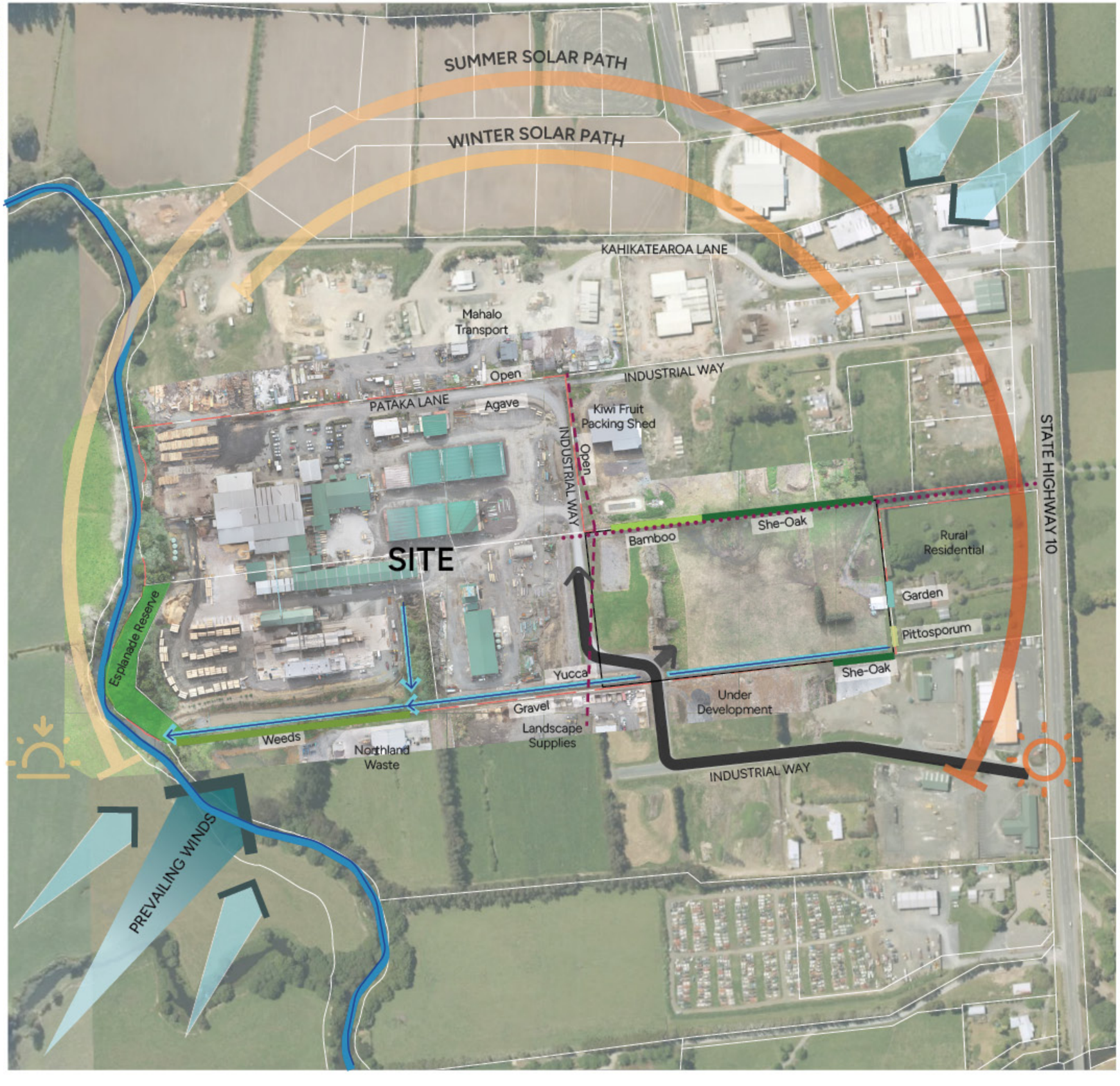
PLAN SET

APPENDIX

MAKING SUSTAINABILITY HAPPEN

Site Context & Analysis

NORTH



KEY

- Site Access
- Solar Path
- Prevailing Winds
- Waipekakoura River Tributary
- Esplanade Reserve
- Site Drainage
- Overhead Powerlines
- High Voltage Line

Boundary Vegetation

- Bamboo
- She-Oak
- Mixed Garden
- Aging Pittosporum Hegde
- Open / Fenced / Gravel
- Weed Infestations

Neighbours

- Mahalo Transport
- Kiwi Fruit Packing Shed
- Rural Residential Dwelling
- Industrial Under Development
- Landscape Supplies
- Northland Waste

Waipapa Pine Sawmill

Client	Waipapa Pine Ltd
Project Address	1945B State Highway 10, Waipapa, Northland
Project No	810.030758.00001
Date	16/05/2024
Scale	1:3000@A3

SLR

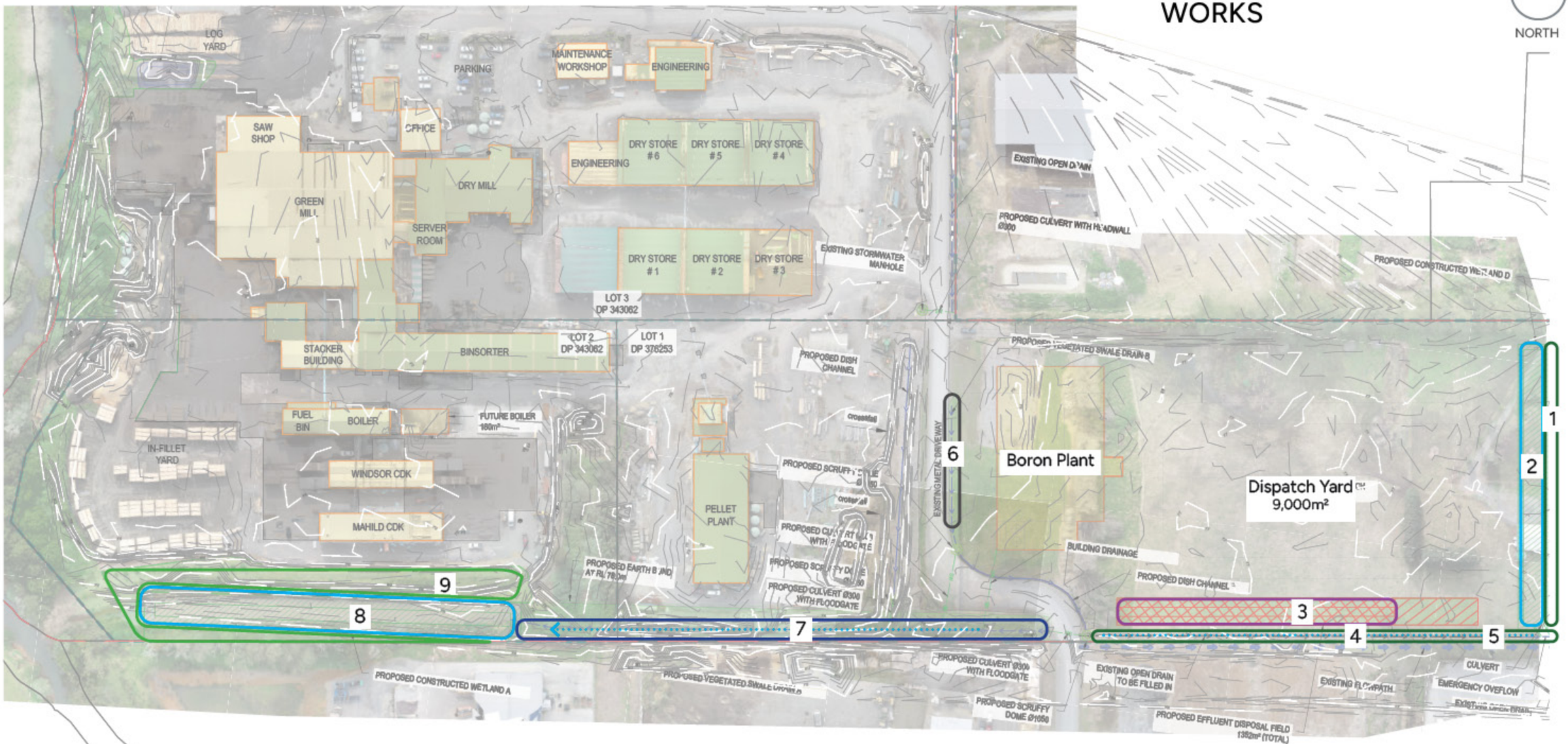
WAIPAPA PINE TIMBER PRODUCTS NEW ZEALAND

FOR RESOURCE CONSENT

LA01

EXTENT OF LANDSCAPE WORKS

NORTH



1 Proposed buffer planting & bund (subject to agreement with the neighbour)

2 Proposed constructed wetland

3 Proposed effluent disposal field

4 Drain removal

5 Proposed buffer planting & she-oak shelter belt removal

6 Carpark groundcovers

7 Drain upgrade

8 Existing stormwater pond upgrade

9 Pond bund planting

Waipapa Pine Sawmill

Client	Waipapa Pine Ltd
Project Address	1945B State Highway 10, Waipapa, Northland
Project No	810.030758.00001
Date	31/05/2024
Scale	1:1500@A3

SLR

WAIPAPA PINE TIMBER PRODUCTS NEW ZEALAND

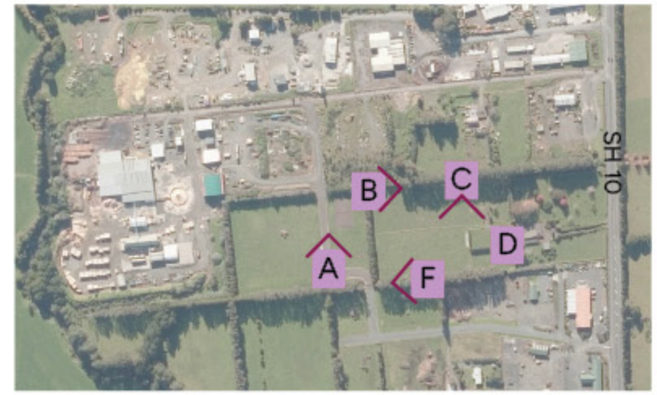
FOR RESOURCE CONSENT

LA02

MAKING SUSTAINABILITY HAPPEN

Site Photos

NORTH



A

F

B

C

D

D

Waipapa Pine Sawmill

Client	Waipapa Pine Ltd
Project Address	1945B State Highway 10, Waipapa, Northland
Project No	810.030758.00001
Date	24/04/2024

FOR RESOURCE CONSENT

LA03

Site Photos

NORTH

E

E

E

F

G

H

H

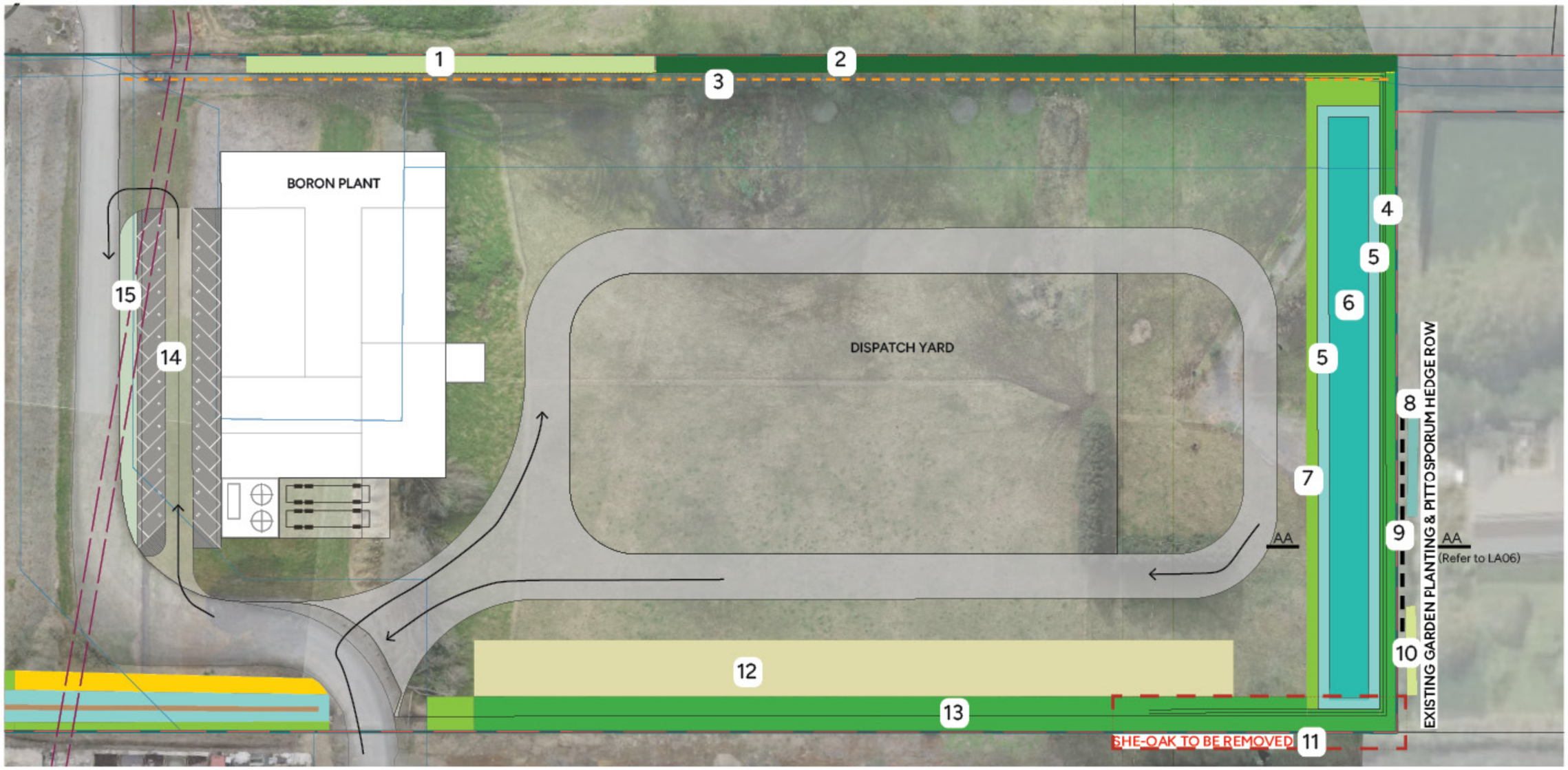
Waipapa Pine Sawmill

Client	Waipapa Pine Ltd
Project Address	1945B State Highway 10, Waipapa, Northland
Project No	810.030758.00001
Date	24/04/2024

FOR RESOURCE CONSENT

LA04

Proposed Dispatch Yard - Stormwater East - Landscape Development Plan



KEY

1. Retain bamboo
2. Retain she-oak
3. Ensure earthworks setback from root zone
4. Buffer Planting, 3m wide (subject to agreement with the neighbour)
5. Wetland edge planting
6. Wetland floor planting, 7m wide,
7. Upper dry edge/bund planting
8. Existing Garden Planting on Neighbours Property
9. Close board timber fence for part length of boundary. (subject to agreement with the neighbour)
10. Existing pittosporum row on Neighbours Property
11. Remove she-oak hedgerow
12. Disposal Field, 10m wide, 1:12 slope
13. Buffer Planting, 3m minimum wide, native trees and shrubbery
14. Carpark, one way in one way out, reverse angled park, separated from driveway
15. Swale B, 3m wide, create physical separation cars and trucks, assist dust management

Refer to LA10 for plant species schedule.

Plant setout subject to detailed Engineering design.

Waipapa Pine Sawmill

Client	Waipapa Pine Ltd
Project Address	1945B State Highway 10, Waipapa, Northland
Project No	810.030758.00001
Date	31/05/2024
Scale	1:750@A3

90% FOR RESOURCE CONSENT

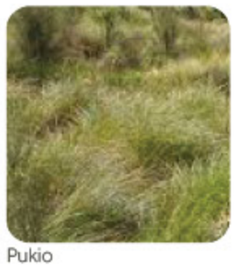
LA05

Example plant species


Karamu


Akeake


Turutu


Pukio


Titoki


Rewarewa


Kowhai


Harakeke


Coastal toetoe

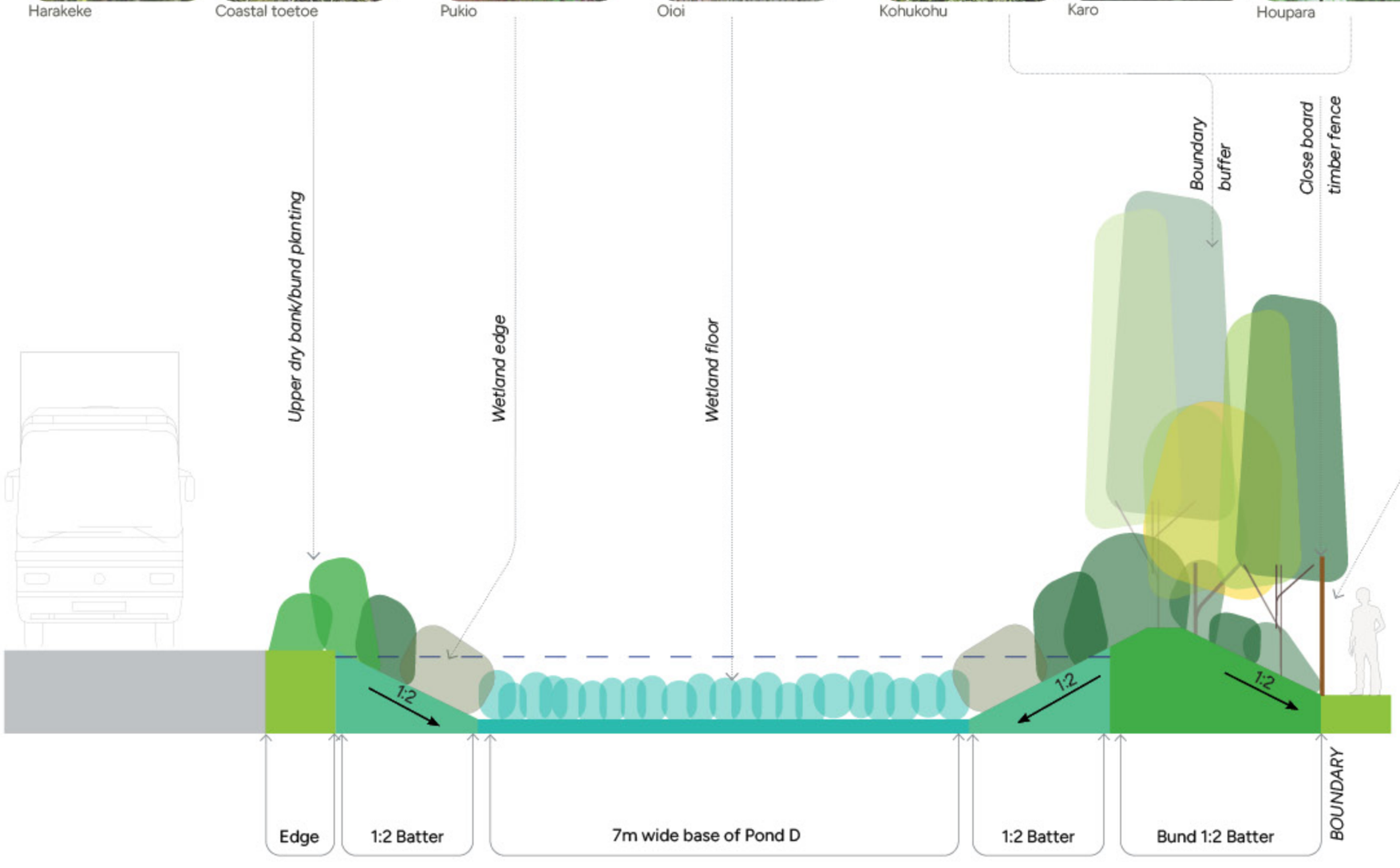

Pukio


Oioi


Kohukohu


Karo


Houpara



Proposed Constructed Wetland Cross Section AA

Refer to LA05 for Location

NOTE: The western boundary buffer planting species selection and close board timber fence is subject to agreement with the neighbour.

Waipapa Pine Sawmill

Client	Waipapa Pine Ltd
Project Address	1945B State Highway 10, Waipapa, Northland
Project No	810.030758.00001
Date	31/05/2024

FOR RESOURCE CONSENT

LA06

Drain Upgrade - Stormwater Central - Landscape Development Plan

KEY

1	Boundary buffer planting
2	Disposal Field, 10m wide, 1:12 slope
3	Low planting at entrance
4	Swale edge planting 1:2 slope
5	Low planting on battered bank
6	Powerline
7	Swale B, 3m wide, create physical separation cars and trucks, assist dust management
8	Bund planting
9	Riprap
10	Pond floor planting, 5m wide
11	Pond edge planting 1:2 slope

Refer to LA10 for plant species schedule.

Plant setout subject to detailed Engineering design.

Waipapa Pine Sawmill

Client	Waipapa Pine Ltd
Project Address	1945B State Highway 10, Waipapa, Northland
Project No	810.030758.00001
Date	17/05/2024
Scale	1:750

SLR

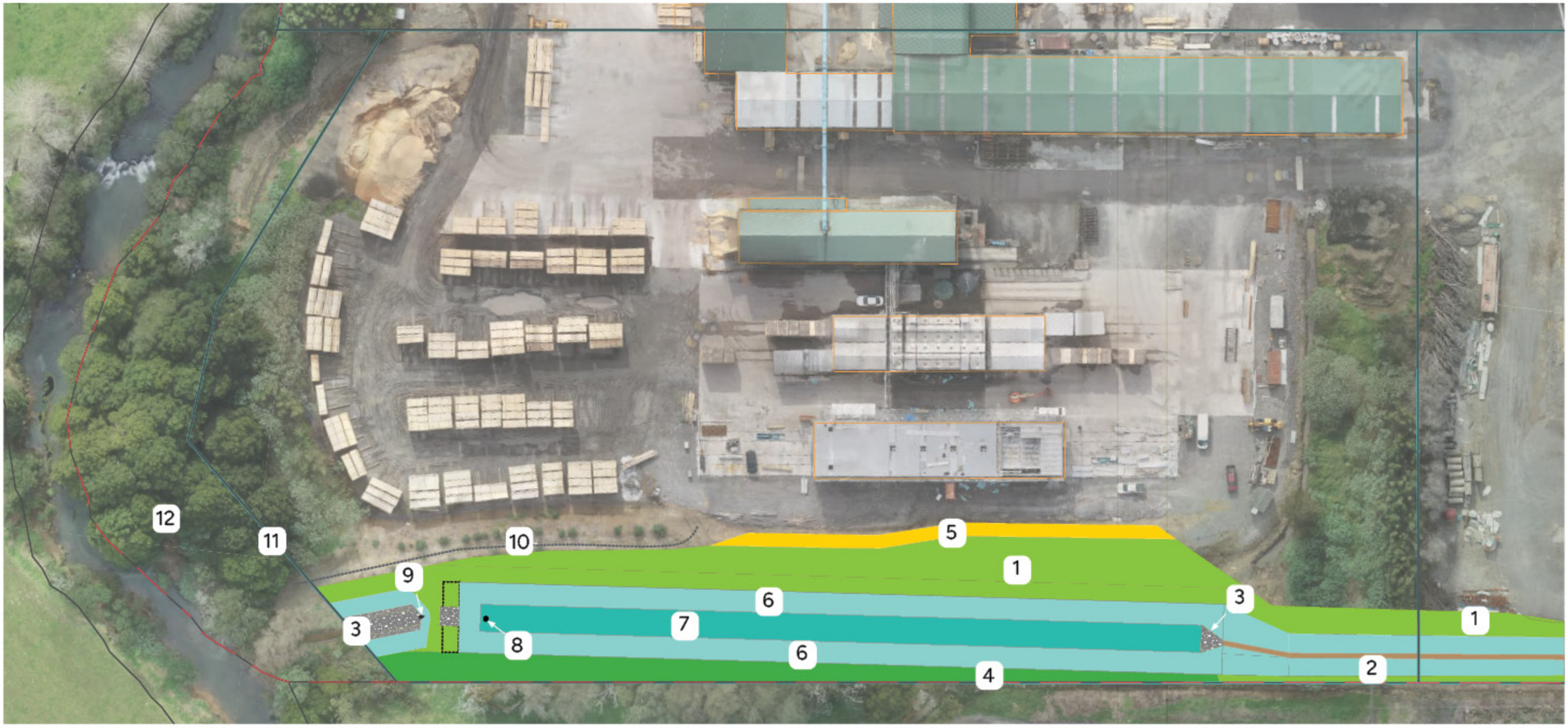
WAIPAPA PINE
TIMBER PRODUCTS NEW ZEALAND

FOR RESOURCE CONSENT

LA07

Pond Upgrade - Stormwater West - Landscape Development Plan

NORTH



KEY

1. Bund planting
2. Swale edge planting 1:2 slope
3. Riprap
4. Boundary buffer planting
5. Low planting on battered bank
6. Pond edge planting 1:2 slope
7. Pond floor planting, 5m wide
8. Pond outlet riser
9. Wetland outlet pipe
10. Existing site access
11. Esplanade reserve post and wire boundary fence
12. Esplanade reserve

Refer to LA10 for plant species schedule.
Plant setout subject to detailed Engineering design.

Waipapa Pine Sawmill

Client	Waipapa Pine Ltd
Project Address	1945B State Highway 10, Waipapa, Northland
Project No	810.030758.00001
Date	31/05/2024
Scale	1:750

SLR

WAIPAPA PINE
TIMBER PRODUCTS NEW ZEALAND

FOR RESOURCE CONSENT

LA08

MAKING SUSTAINABILITY HAPPEN

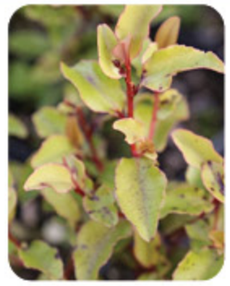
Boundary Buffer Planting

Alectryon excelsus
Titoki

Carpodetus serratus
Putaputaweta

Griselinia lucida
Puka

Hoheria populnea
Houhere



Myrsine australis
Mapou

Knightia excelsa
Rewarewa

Pittosporum tenuifolium
Kohukohu

Wetland, Swale & Pond Edge Planting 1:2 batter

Austroderia fulvida
Māhoe

Hebe stricta var. stricta
Koromiko

Dianella nigra
Turutu

Wetland Floor Planting

Apodasmia similis
Oioi

Cyperus ustulatus
Giant umbrella sedge

Juncus pallidus
Wiwi / Giant Rush

Effluent Disposal Field

Austroderia fulvida
Toetoe

Carex geminata
Rautahi

Phormium tenax
Harakeke

Bund Planting

Coprosma repens
Taupata

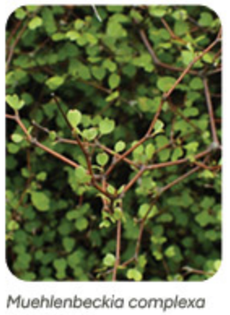
Coprosma robusta
Karamu

Dodonaea viscosa
Ake-ake

Low Planting

Coprosma acerosa
Sand coprosma

Lomandra 'Tanika'
Lomandra



Muehlenbeckia complexa
Pohuehue

Car Park Swale B Planting

Carex virgata
Pukio

Dianella nigra
Turutu

Lomandra 'Tanika'
Lomandra

Plant Mood Board

Complete Species Schedule detailed on LA10

Waipapa Pine Sawmill

Client	Waipapa Pine Ltd
Project Address	1945B State Highway 10, Waipapa, Northland
Project No	810.030758.00001
Date	31/05/2024

SLR

WAIPAPA PINE
TIMBER PRODUCTS NEW ZEALAND

FOR RESOURCE CONSENT

LA09

Name		Grade	Spacing	Mature Size		Characteristics			Comments
Botanical Name	Common Name	Grade	Spacing	Height (m)	Width (m)	Native / Exotic	Plant Flammability Low, Moderate, High	Growth Rate Slow, Moderate, Fast	
Boundary Buffer Planting									
Alectryon excelsus	titoki	25L east	5m	12	6	Native	Low/moderate	M	East Boundary only
Carpodetus serratus	Putaputaweta	2L	1/2m2	6	3	Native	Low	M	
Coprosma macrocarpa	Karamu	2L	1/2m2	8	3	Native	Low	M	
Coprosma repens	Taupata	2L	1/2m2	5	3	Native	Low	M	
Coprosma robusta	Karamu, glossy karamu	2L	1/2m2	5	3	Native	Low	M	
Geniostoma ligustrifolium	Hangehange	2L	1/2m2	3	2	Native	Low	F	
Griselinia lucida	Puka	2L	1/2m2	5	2	Native	Low	M	
Hoheria populnea	Houhere, Lacebark	2L	1/m2	5	2	Native	Low/moderate	F	
Knightia excelsa	Rewarewa	10L sth / 25L east	5m	15	5	Native	Low/moderate	M	Larger Grade East Boundary
Melicytus ramiflorus	Mahoe	2L	1/2m2	9	3	Native		M	
Myrsine australis	red matipo, mapou	2L	1/2m2	5	2	Native		M	
Phormium tenax	Harakeke, NZ Flax	2L	1/m2	3	3	Native	Moderate	M	
Pittosporum crassifolium	Karo	2L sth / 10L east	1/2m2	5	3	Native	Low/moderate	F	Larger Grade East Boundary
Pittosporum eugenioides	Tarata/Lemonwood	2L sth / 10L east	1/2m2	12	3	Native	Low/moderate	M	Larger Grade East Boundary
Pittosporum tenuifolium	Kohukohu, black matipo	2L sth / 10L east	1/2m2	6	4	Native	Moderate	F	Larger Grade East Boundary
Pseudopanax lessonii	Houpara	2L sth / 10L east	1/2m2	4	3	Native	Low		Larger Grade East Boundary
Schefflera digitata	Patē, seven-finger	2L	1/2m2	4	4	Native	Low	M	
Sophora microphylla	Kowhai	10L east	5m	4	3	Native		M	East Boundary only
Wetland, Swale & Pond Edge Planting 1:2 batter									
Austroderia fulvida	Toetoe	1L	1/m2	1	1	Native		M	
Carex geminata	Rautahi	1L	2/m2	1	1	Native		M	
Carex virgata	Pukio	1L	2/m2	0.8	0.8	Native		M	
Coprosma robusta	Karamu, glossy karamu	1l	1/2m2	5	3	Native	Low	M	
Dianella nigra	Turutu	1L	2/m2	0.5	1	Native		M	
Hebe stricta var. stricta	Koromiko	1L	1/m2	3	2	Native	Low/moderate	M	
Melicytus ramiflorus	Mahoe	1L	1/2m2	9	3	Native		M	
Phormium tenax	Harakeke, NZ Flax	1L	1/m2	3	3	Native	Moderate	M	Wetland edge only, not swale edge
Wetland Floor Planting									
Apodasmia similis	Oioi	1L	2/m2	1	1	Native		F	
Carex secta	Purei, Pukio	1L	2/m2	1.5	2	Native		M	
Cyperus ustulatus	Giant umbrella sedge	1L	2/m2	1.5	2	Native		F	
Eleocharis acuta	Sharp Samp Sedge	1L	2/m2	0.9	0.8	Native		M	
Juncus pallidus	wiwi/giant rush	1L	2/m2	0.75	0.5	Native		M	
Ficinia nodosa	Wiwi/ Club Rush	1L	2/m2	1	1.5	Native		F	
Machaerina (Baumea) articlata	baumea	1L	2/m2	1	1	Native		M	
Effluent Disposal Field									
Apodasmia similis	Oioi	1L	2/m2	1	1	Native		F	
Austroderia fulvida	Toetoe	1L	1/m2	1	1	Native		M	
Carex geminata	Rautahi	1L	2/m2	1	1	Native		M	
Carex secta	Purei, Pukio	1L	2/m2	1.5	2	Native		M	
Cyperus ustulatus	Giant umbrella sedge	1L	2/m2	1.5	2	Native		F	
Dianella nigra	Turutu	1L	2/m2	0.5	1	Native		M	
Phormium tenax	Harakeke, NZ Flax	2L	1/m2	3	3	Native	Moderate	M	
Bund Planting									
Austroderia fulvida	Toetoe	2L	1/m2	1	1	Native		M	
Coprosma repens	Taupata	2L	1/2m2	5	3	Native	Low	M	
Coprosma rhamnoides	Twiggy coprosma	2L	1/m2	2	1	Native		M	
Coprosma robusta	Karamu, glossy karamu	2L	1/2m2	5	3	Native	Low	M	
Dodonaea viscosa	Ake-ake	2L	1/m2	3	2	Native	Moderate/high	F	
Griselinia lucida	Puka	2L	1/m2	5	2	Native	Low	M	
Hebe stricta var. stricta	Koromiko	2L	1/m2	3	2	Native	Low/moderate	M	
Myoporum laetum	Ngaio	2L	1/2m2	5	4	Native	Low/moderate	F	
Olearia furfuracea	Akepiro	2L	1/m2	3	2	Native		M	
Phormium cookianum	Harakeke, Mt Flax	2L	1/m2	1.5	1.5	Native	Moderate	M	
Low Planting									
Coprosma acerosa	Sand coprosma	1L	1/m2	0.2	1	Native			
Lomandra 'Tanika'	Lomandra	1L	1/m2	0.7	0.7	Exotic		M	
Muehlenbeckia complexa	Pohuehue, maidenhair vine	1L	1/m2	2	3	Native		F	
Phormium cookianum	Harakeke, Mt Flax	1L	1/m2	1.5	1.5	Native	Moderate	M	
Car Park Swale B Planting									
Carex virgata	Pukio	1L	2/m2	0.8	0.8	Native		M	
Dianella nigra	Turutu	1L	2/m2	0.5	1	Native		M	
Lomandra 'Tanika'	Lomandra	1L	1/m2	0.7	0.7	Exotic		M	

Summary Plant Species Schedule

NOTE: The western boundary buffer planting species selection is subject to agreement with the neighbour.

NOTE: Plant Species list not exhaustive, subject to detailed design and availability of locally sourced plants.

Plants selected with reference to Northland Regional Council planting guidelines.

Waipapa Pine Sawmill

Client	Waipapa Pine Ltd
Project Address	1945B State Highway 10, Waipapa, Northland
Project No	810.030758.00001
Date	31/05/2024
Scale	1:750

FOR RESOURCE CONSENT

LA10

APPENDIX

Plants to 6 metres

Botanical name	Common name	What can the plant tolerate: Dry soil	Shade: light med heavy	Wind	Frost	Do possums eat it? 1-No 2-At times 3-Often	Bird food: Food for: bellbird tūī silvereye	Food for: pigeons (kūkupa)	Environs: Coast salt hardy	Damp margins wetlands	Growth: Growth rate	Final height metres
Alseuosmia macrophylla	karapapa		M			2	•				med	1.5
Clianthus puniceus	kakabeak	•	L			3	•				fast	2
Coprosma autumnalis (=C.grandfolia)	kanono		M			2		•			med	6
Coprosma propinqua	mingimingi					2	•			•	med	6
Corokia buddleioides	korokia		L			1	•		•		med	3
Geniostoma ligustrifolium	hangehange	•	M			2			•		med	3
Piper excelsum	kawakawa		M			2	•	•			med	5
Leptospermum scoparium	mānuka	•		•	•	1			•	•	fast	4
Lophomyrtus bullata	ramarama	•		•		2	•				med	6
Myrsine australis	māpou	•		•	•	2	•		•		slow	6
Myrsine divaricata	weeping māpou		L			1				•	slow	4
Olearia furfuracea	akepiro	•	L			1			•		med	5
Phormium tenax	flax	•		•	•	1	•		•	•	med	3
Pseudopanax lessonii	houpara	•		•		2			•		med	6
Solanum aviculare	poroporo	•	M			2	•	•			fast	2.5
Tecomanthe speciosa	tecomanthe					1	•				fast	vine

Plants to 6-8 metres

Botanical name	Common name	What can the plant tolerate: Dry soil	Shade: light med heavy	Wind	Frost	Do possums eat it? 1-No 2-At times 3-Often	Bird food: Food for: bellbird tūī silvereye	Food for: pigeons (kūkupa)	Environs: Coast salt hardy	Damp margins wetlands	Growth: Growth rate	Final height metres
Aristotelia serrata	makomako / wineberry		L	•	•	3	•	•			fast	10
Brachyglottis repanda	rangiora					1				•	med	8
Coprosma repens	taupata	•		•		2	•		•	•	fast	8
Coprosma robusta	karamū					2	•		•	•	fast	8
Dodonaea viscosa	akeake	•		•		1			•		fast	8
Entelea arborescens	whau		L			1			•		med	8
Griselinia littoralis	kapuka / broadleaf	•		•		2	•	•	•		slow	8
Griselinia lucida	puka / akapuka	•		•		2	•	•	•		slow	7
Melicope simplex	poataniwha		L		•	1				•	slow	8
Meryta sinclairii	puka	•		•		2			•		med	8
Olearia rani	heketara		L			1				•	med	7
Pittosporum umbellatum	haekaro	•		•		2			•		fast	7
Pseudopanax arboreus	whauwhaupaku / five finger	•		•		3	•	•	•		fast	8
Schefflera digitata	patē	•				3	•	•			med	8
Veronica species	hebe / koromiko	•		•		2			•	•	fast	7

Plants to 9-12 metres

Botanical name	Common name	What can the plant tolerate: Dry soil	Shade: light med heavy	Wind	Frost	Do possums eat it? 1-No 2-At times 3-Often	Bird food: Food for: bellbird tūī silvereye	Food for: pigeons (kūkupa)	Environs: Coast salt hardy	Damp margins wetlands	Growth: Growth rate	Final height metres
Ackama rosifolia	makamaka				•	2					med	12
Alectryon excelsus	tītoki				•	2	•	•		•	slow	10
Carpodetus serratus	putaputawētā		L	•	•	2	•	•		•	med	10
Coprosma macrocarpa	karamū	•		•		2			•		med	10
Fuchsia excorticata	kotukutuku		H	•	•	3	•	•			med	12
Hedycarya arborea	porokaiwhiri / pigeonwood		H	•		2		•			med	12
Hoheria populnea	houhere / lacebark	•		•	•	2			•	•	fast	10
Melicytus ramiflorus	mahoe	•	H	•	•	3	•	•	•	•	fast	10
Myoporum laetum	ngaio	•	L	•	•	1		•	•		med	10
Pittosporum crassifolium	karo	•		•		1	•		•		fast	9
Pittosporum eugenioides	tarata / lemonwood			•	•	2	•			•	fast	9
Pittosporum tenuifolium	kōhūhū		M		•	2	•			•	fast	9
Rhopalostylis sapida	nīkau	•	H	•		2		•	•		slow	10
Sophora microphylla	kōwhai	•	L	•	•	2	•	•	•	•	med	10
Streblus heterophyllus	tūrepo		L	•	•	2		•		•	slow	12

Plants to 13-20 metres

Botanical name	Common name	What can the plant tolerate: Dry soil	Shade: light med heavy	Wind	Frost	Do possums eat it? 1-No 2-At times 3-Often	Bird food: Food for: bellbird tūī silvereye	Food for: pigeons (kūkupa)	Environs: Coast salt hardy	Damp margins wetlands	Growth: Growth rate	Final height metres
Cordyline australis	tī kōuka / cabbage tree	•	L	•	•	2	•	•	•	•	med	20
Corynocarpus laevigatus	karaka	•	L	•		2		•	•		med	15
Dysoxylum spectabile	kohekohe		M	•		3		•			med	13
Elaeocarpus dentatus	hīnau		L	•		2		•			slow	18
Elaeocarpus hookerianus	pokaka			•		2		•		•	slow	13
Kunzea robusta	kānuka	•		•	•	1			•		fast	15
Metrosideros excelsa	pōhutukawa	•		•		3	•		•		slow	20
Nestegis sp.	maire			•	•	2		•			med	20
Plagianthus regius	mānatu / ribbonwood (deciduous)		M	•	•	1			•	•	fast	17
Planchonella costata	tawāpou	•		•		2		•	•		med	15
Pseudopanax crassifolius	horoeka / lancewood		L	•	•	2	•	•			med	15
Syzygium maire	maire tawake / swamp maire				•	2		•		•	slow	15
Weinmannia silvicola	towai		L	•		3				•	med	15

Snail/slug control will be needed

Least flammable plants (i.e. plant has low to moderate flammability)

Reference: A planter's handbook for Northland natives, by Northland Regional Council

Plants over 20 metres

Botanical name	Common name	What can the plant tolerate: Dry soil	Shade: light	Shade: med	Shade: heavy	Wind	Frost	Do possums eat it? 1-No 2-At times 3-Often	Bird food: Food for: bellbird tūī silvereye	Bird food: Food for: pigeons (kūkupa)	Environs: Coast salt hardy	Environs: Damp margins wetlands	Growth: Growth rate	Growth: Final height metres
Agathis australis	kauri	•				•	•	1					slow	60
Beilschmiedia tarairi	taraire					•		2		•	•		med	20
Beilschmiedia tawa	tawa					•	•	2		•			med	24
Dacrycarpus dacrydioides	kahikatea						•	2	•	•		•	med	60
Dacrydium cupressinum	rimu					•	•	2	•	•	•	•	slow	25
Knightia excelsa	rewarewa	•				•	•	2	•	•			med	30
Laurelia novae-zelandiae	pukatea			M			•	2				•	slow	30
Libocedrus plumosa	kawaka	•				•		2			•		med	25
Metrosideros robusta	rātā					•	•	3	•				slow	25
Podocarpus totara	tōtara			L		•	•	3	•				fast	30
Pectinopitys ferruginea	miro			L			•	2		•			med	25
Prumnopitys taxifolia	matai			L		•	•	2		•			med	25
Vitex lucens	pūriri	•				•		2	•	•	•		med	20

Low growing/Ground covers

Botanical name	Common name	What can the plant tolerate: Dry soil	Shade: light	Shade: med	Shade: heavy	Wind	Frost	Do possums eat it? 1-No 2-At times 3-Often	Bird food: Food for: bellbird tūī silvereye	Bird food: Food for: pigeons (kūkupa)	Environs: Coast salt hardy	Environs: Damp margins wetlands	Growth: Growth rate	Growth: Final height metres
Arthropodium cirratum	rengarenga	•		L		•		2			•		fast	0.5
Astelia banksii	kowharawhara / coastal astelia	•		L		•		2	•		•		med	1.5
Calystegia soldanella	rauparaha / shore bindweed	•				•		1			•		med	0.5
Coprosma acerosa	sand coprosma	•				•	•	2	•		•		slow	2.0
Dianella nigra	turutu / NZ blueberry			M				1	•				fast	0.5
Elatostema rugosum	parataniwha			H				1				•	fast	1.5
Fuchsia procumbens	creeping fuchsia			M				2			•	•	fast	0.5
Hibiscus diversifolius	hibiscus	•				•		1			•		med	1.0
Libertia ixioides	mīkoikoi	•		L			•	1					med	0.5
Lobelia angulata	pānakenake / pratia			L				1	•			•	fast	0.2
Mazus novaezeelandiae	mazus			M				1					slow	0.1
Muehlenbeckia complexa	pōhuehue	•				•	•	1	•				med	1.0
Xeronema callistemon	Poor Knights lily	•		M				1	•		•		slow	0.5

Snail/slug control will be needed

Least flammable plants (i.e. plant has low to moderate flammability)

Grasses-Rushes-Sedges

Botanical name	Common name	What can the plant tolerate: Dry soil	Shade: light	Shade: med	Shade: heavy	Wind	Frost	Do possums eat it? 1-No 2-At times 3-Often	Bird food: Food for: bellbird tūī silvereye	Bird food: Food for: pigeons (kūkupa)	Environs: Coast salt hardy	Environs: Damp margins wetlands	Growth: Growth rate	Growth: Final height metres
Apodasmia similis	oioi / jointed wire rush					•	•	1			•	•	med	1.5
Austroderia fulvida	toetoe					•	•	1				•	med	1.5
Austroderia splendens	coastal toetoe	•				•	•	1			•		med	3.0
Austrostipa stipoides	needlegrass	•				•		1			•		med	0.45
Carex comans	longwood tussock / sedge			L			•	1				•	fast	0.25
Carex pumila	sand sedge					•		1			•		fast	0.4
Carex secta	pukio / purei					•	•	1				•	med	1.0
Carex species	tussock sedges	•		L			•	1			•	•	fast	0.3-1.5
Carex uncinata	hook sedge	•		M		•		1			•	•	med	0.45
Chionochloa bromoides	coastal tussock	•				•		1			•		med	0.45
Cyperus ustulatus	giant umbrella sedge					•	•	1				•	med	1.0
Ficinia nodosa	wiwi / knobby club rush	•				•		1			•		med	0.5
Gahnia xanthocarpa	tupari maunga			M		•		1				•	med	3.5
Machaerina (=Baumea) articulata	jointed twig sedge						•	1				•	med	1.8

Ferns

Botanical name	Common name	What can the plant tolerate: Dry soil	Shade: light	Shade: med	Shade: heavy	Wind	Frost	Do possums eat it? 1-No 2-At times 3-Often	Bird food: Food for: bellbird tūī silvereye	Bird food: Food for: pigeons (kūkupa)	Environs: Coast salt hardy	Environs: Damp margins wetlands	Growth: Growth rate	Growth: Final height metres
Adiantum cunninghamii	common maidenhair	•		M				1			•		med	0.35
Adiantum hispidulum	rosy maidenhair	•		L				1			•		med	0.2
Asplenium bulbiferum	pikopiko / hen & chicken fern	•		M				2					fast	0.8
Asplenium flaccidum	hanging spleenwort			M				1					slow	1.0
Asplenium lamprophyllum				L				1			•		slow	0.8
Parablechnum novae-zelandiae	kiokio			L		•	•	1				•	fast	3.5
Cyathea cunninghamii	gully tree fern			M				2				•	slow	20
Cyathea dealbata	ponga / silver fern			M				1					slow	12
Cyathea medullaris	mamaku / blackfern			M			•	3				•	slow	20
Dicksonia squarrosa	wheki			M			•	2				•	slow	7.0
Pteris bemula				M				2				•	med	2.0
Lomaria discolor	piupiu / crown fern			L			•	2					med	1.0
Polystichum neozelandicum	common shield fern	•						2			•		slow	0.8
Pneumatopteris pennigera	gully fern			M				2				•	fast	1.0
Pteris macilenta	sweet fern	•		M				2			•		med	1.4

Reference: A planter's handbook for Northland natives, by Northland Regional Council

Civil Engineering Report

Proposed Boron Plant and Dispatch Yard

1945B State Highway 10, Waipapa

For

Waipapa Pine Limited

Haigh Workman reference 23 256

May 2024

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Revision History

Revision №	Issued By	Description	Date
A	John Papesch	Draft for Client Comment	13 May 2024
B	John Papesch	For Resource Consent	11 June 2024

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Executive Summary

Haigh Workman Ltd (Haigh Workman) has been commissioned by Waipapa Pine Limited (the client) to provide civil engineering services for a proposed expansion of the existing sawmill facilities comprising a new dispatch yard and Boron Treatment facility at Waipapa Pine located at 1945B State Highway 10, Waipapa.

The Waipapa pine Site is spread across lots 1 and 2 DP 376253 and Lot 3 DP 343062. The proposed boron plant and dispatch yard are located in a greenfield area on lot 1 DP 376253.

Under the Operative District Plan, the site is zoned Rural Production.

Geotechnical

A Geotechnical Investigation Report dated 14 May 2024 has been completed by Haigh Workman. The subsoils comprise low strength alluvial deposits overlying rugged basalt flows typical to the area. Ground water table typically varies around 0.5 – 1.5 m depth, and the depth of alluvial soils over basalt is typically 2 to 7 m thick. The low strength alluvial deposits are susceptible to settlement under superimposed load. Preloading of the building platform may be carried out in order to limit differential settlement risk across the building platform by replicating the building load. Assuming a 30 kPa building load, the preload may be 1.5 m above Finished Floor Level. Settlement is expected to be fairly rapid, such that the aggregate used for the preload, may then be used to build the dispatch yard.

Earthworks

In order to achieve positive drainage across the dispatch yard, a minimum gradient of 1 % has been set. Starting from Pond D at the eastern boundary at RL 77.0 results in RL 78.7 at the Boron Plant and the resultant FFL of 79.0. This level ties in well with the existing access road to the west. Allowing for 5,224 m3 of topsoil stripping and excavation of Pond D, the total fill volume has been modelled at 22,271 m3 over an area of 26,118 m2. The filling will comprise imported granular aggregate. Topsoil will be used to build up the wastewater mound, and excess topsoil will be carted off site.

It is also proposed to remove the 3 bunds on the western side of the access road and to form a vegetated swale along the southern boundary to Pond A. The volume of excavation modelled there is 3,756 m3. This material will be carted off site. The total volume of earthworks is therefore calculated to be 26,118 m3 of fill plus 8,980 m3 of excavation = 35,098 m3.

This is a discretionary activity in the Rural Production zone as it exceeds the restricted discretionary limit of 20,000 m^3 per year [District Plan Rule 12.3.6.2.3]. Cut and fill heights do not exceed 1.5 m depth. The earthworks area will also exceed the 5,000 m^2 of exposed earth at any time permitted by the Regional Plan.

Earthworks is proposed to be completed in the 2024/25 summer earthworks season. An erosion and sediment control plan is included in the drawing set, with the primary control being early construction of pond D, configured to act as a sediment pond during construction.

Access

A Traffic Impact Assessment dated 10 June 2024 has been completed by Haigh Workman which addresses the State Highway intersection, Industrial Way, and internal parking and manoeuvring. Access to the site is via a right of way easement over Lot 5 DP 69740 to State Highway 10 named Industrial Way. No changes are proposed to the existing access arrangements. Parking and associated manoeuvring can be accommodated within the Site.

Flooding

The Site discharges into two river catchments – Kerikeri river to the west, and Whiriwhiritoa stream the east. The catchment boundary in the Site is the internal access road, ie the greenfield area where the Boron Plant and Dispatch yard are to be sited fall into the Whiriwhiritoa stream catchment, whilst the rest of the site falls into the Kerikeri river catchment.

Kerikeri river spills into the site in the 100 year ARI event. Pond A has been designed to provide attenuation for the 10 year ARI event, but in the 100 year ARI event the pond, and the site, is inundated. In this scenario, stormwater is not able to discharge from the site, so attenuation objectives of the Regional Plan and FNDC Engineering standards are met.

Pond D has been designed to provide attenuation for the 100 year ARI event to 80 % of predevelopment levels to meet flood control objectives of the Regional Plan and FNDC Engineering standards. To achieve certainty that attenuation objectives are achieved for this catchment, the design includes a partial diversion of stormwater, by directing roof water from the Boron plant westwards.

It is recommended that industrial and commercial buildings be constructed with a minimum freeboard of 300 mm from the 100 year ARI event. The FFL of the Boron plant is 79.0, which is approximately 1.0 m higher than the 100 year ARI flood level.

Stormwater

The impervious surfaces of the Site today is calculated at 68 % and this will increase to 88 %. This is a discretionary activity as it exceeds the controlled activity limit of 20 % [District Plan rule 8.6.5.2.1]. The stormwater objectives for this site are to provide for protection against flooding, and to meet water quality and quantity objectives of the FNDC 2023 Engineering Standards and the Regional Plan.

Pond A was previously designed by Haigh Workman as a wet pond in accordance with TP10 and modelled with the modified rational method. This pond has been built in general accordance with the approved plans and services the bulk of the Site. The outlet from Pond A is via an open drain formed through an Esplanade Reserve (Lot 3 DP 376253) to Kerikeri River.

It is proposed to reconfigure Pond A as a constructed wetland to achieve water quality objectives in accordance with GD01. This will involves draining the wet pond nature of the current design and densely planting. As part of this assessment, we have reanalysed Pond A with a Type 1A storm, which is more conservative than the modified rational method. Our calculations show stormwater quantity objectives can be met for the 2, 5 and 10 year ARI storms by reconfiguring the outlet arrangements in the discharge manhole. Attenuation for the 100 year ARI storm is not possible, as the Kerikeri River spills into the site in that event. It is also proposed to construct a vegetated swale to Pond A along the southern boundary. Due to the flat nature of the site, the swale has also been utilised in the Pond A stormwater model.

It is similarly proposed to construct Pond D as a constructed wetland to service the dispatch yard. Pond D has been also modelled with the more conservative Type 1A storm, and designed to achieve 80 % predevelopment run-off for the 2, 5 and 100 year ARI events. The outlet from Pond D will be to the farm drain that traverses the southern boundary of the site. This drain discharges eastwards through Lot 1 DP 211216 (Gillespie) and follows the State Highway northwards to Kahikatearoa Lane, which discharges beneath State Highway 10 into the Sports Hub site, joining Whiriwhiritoa stream. The design provides for 80 % predevelopment run-off to ensure effects on the downstream drainage network (including the State Highway) are mitigated.

Trade Waste

There are no trade waste discharges associated with this development. The boron plant design will include covered and bunded areas for unloading and storage of hazardous chemicals. The position of the boron tanks and unloading dock is located outside of the flood hazard zone. Timber that is treated with boron will be fully wrapped before placement on the dispatch yard. The details associated with the management of hazardous substances will be provided for in the building consent process.

Wastewater

The existing wastewater system was designed by Haigh Workman for a design loading rate of 2,000 litres with a 500 m^2 raised topsoil mound with a design irrigation rate of 4 mm/day. A meter has been fitted to the treatment plant and monitored for two months. The data indicates that the existing design is fit for purpose, with a design loading rate of 40 litres per person per day. The topsoil mound is also performing well.

The number of staff is forecast to increase from 45 today, up to 104. Adopting the same parameters results in a design loading rate of 4,160 L/day and disposal area of 1040 m^2 plus a 30 % (312 m^2) reserve area which total 1,352 m^2. Resource consent is required from NRC as the discharge exceeds 2,000 L/day.

The existing wastewater field will be decommissioned, and a new wastewater field constructed along the southern boundary. The existing farm drain that traverses the southern boundary will be filled in. The mound will be formed with topsoil and pitched gently to the north, into the site. The wastewater field has been located to achieve 5 m setback from surface water at the western end of the mound, and 15 m away from the constructed wetland and drain at the eastern end of the mound. An overland flow path from the adjoining properties will follow the southern boundary, and the wastewater field will be located a minimum 3 m away from the boundary flow path. In the proposed arrangement, the overland flow path is upstream of the disposal field, ie the disposal field does not drain towards it.

The existing treatment plant at the main office will be upgraded with this proposal, and a new treatment plant installed to service toilets and sinks at the Boron plant. Both treatment plants will discharge to the disposal field via a common pump chamber.

The disposal field will need to be constructed in stages to facilitate the proposed earthworks. This will comprise relocating the existing 500 m^2 disposal field to the final position to service the existing development to allow bulk earthworks to proceed.

Water Supply

A water bore has recently been constructed to provide for the water demand requirements for the Site. Tanks may also be installed to provide for potable water supply, or alternatively the bore water may be treated to meet potable water requirements.

Firefighting requirements will be determined with a building fire services engineer as part of the building consent. This may involve additional site storage tanks being constructed.

Power Supply

Early engagement has been entered into with Top Energy to determine availability of high voltage supply to support the boron plant, and to confirm safe setback distances from the boron plant from the 33 kV overhead lines which traverse the site.

1 Introduction

1.1 Project Brief and Scope

Haigh Workman Ltd (Haigh Workman) has been commissioned by Waipapa Pine Limited (the Client) to provide civil engineering services for the proposed expansion of the existing sawmill facilities comprising a new dispatch yard and Boron Treatment facility. This report presents the civil engineering rationale and resource consent design as laid out in the accompanying engineering drawings. This report, drawings and calculations have been prepared to support Resource Consent applications to FNDC and NRC for earthworks, impervious surfaces and stormwater and wastewater discharges. Separate reports prepared by Haigh Workman address geotechnical and traffic engineering.

This report provides a summary of the following:

- Earthworks
- Stormwater & Flooding
- Wastewater Disposal
- Water supply.

1.2 Proposed Development

Waipapa Pine Limited propose to expand the site operations by creating a new dispatch yard near the entrance to the site, and construction of a warehouse building to accommodate a Boron treatment plant. The proposed Boron treatment plant building is partially located over an existing wastewater dispersal mound which will need to be decommissioned and the mound removed. Concept drawings provided by Waipapa Pine indicate a single storey building with a footprint of 2,586 m^2, plus additional canopy and hardstand area on the southern side to accommodate the Boron tanks. The land to the east of the building will comprise a 150 m long x 100 m wide yard covering 15,000 m^2 and will be formed with granular hardfill.

1.3 Disclaimer

This report has been prepared for our Client, Waipapa Pine Limited, with respect to the particular brief given to us. The information and opinions contained within this report shall not be used in any other context for any other purpose without prior review and agreement by Haigh Workman Ltd. This report may not be read or reproduced except in its entirety.

2 Site Description

The Waipapa Pine sawmill is located over three lots (lots 1 and 2 DP 376253 and Lot 3 DP 343062), comprising an approximate land area of 10.75 hectares and irregular in plan shape. The site is accessed via a private road, Industrial Way, over Lot 5 DP 69740. The proposed development area is located near the entrance into the sawmill, on the eastern side of the internal access road. The approximate proposed building development locations are shown in Figure 1.

The ground surface across the proposed development area is generally flat, with approximately 1.0 - 1.5 m of elevation change from the internal access road to the eastern boundary. There is a farm drain which traverses the southern boundary of the site, discharging east through Lot 1 DP 211216 (Gillespie) and towards the State Highway. There is a wastewater disposal mound (located in an easement) where the proposed Boron plant is to be located. There is an internal hedgerow that is to be removed, together with an existing farm shed where pond D is proposed.

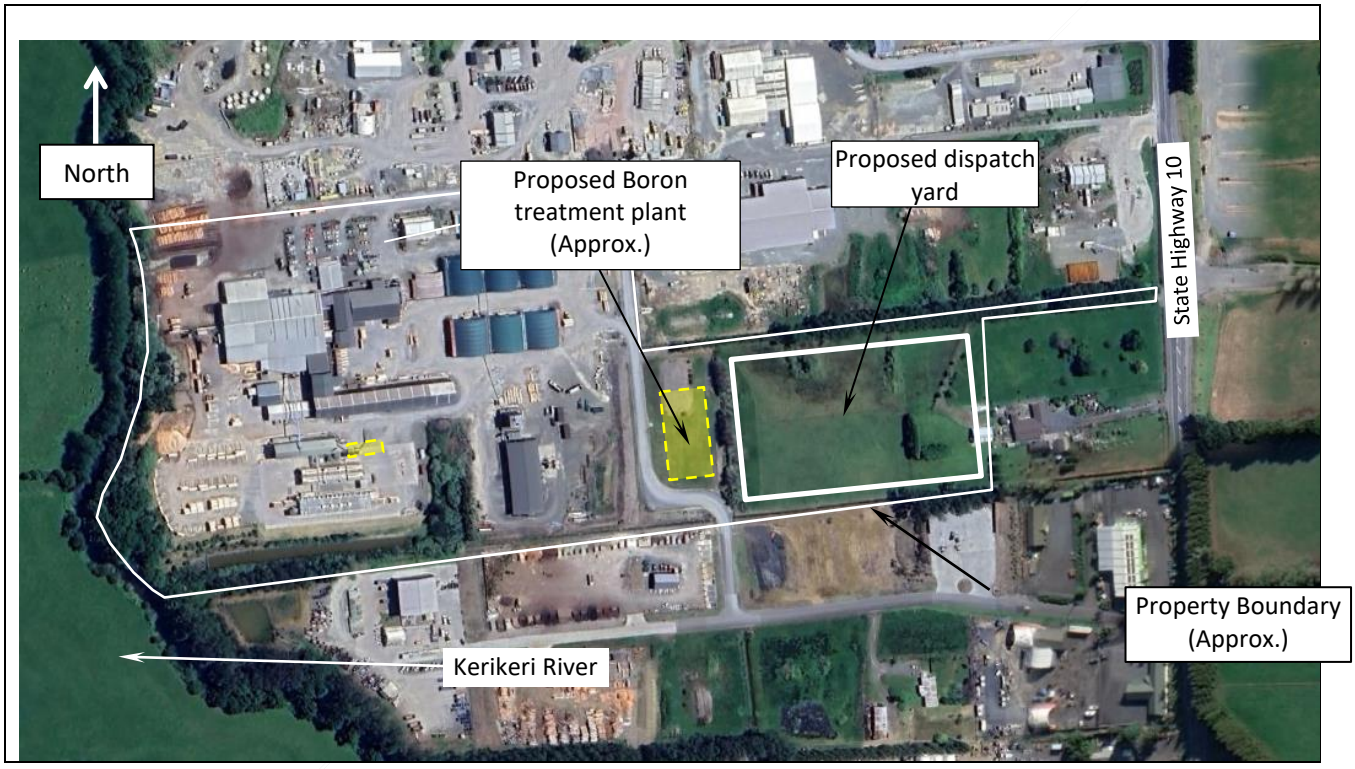


Figure 1 - Site location

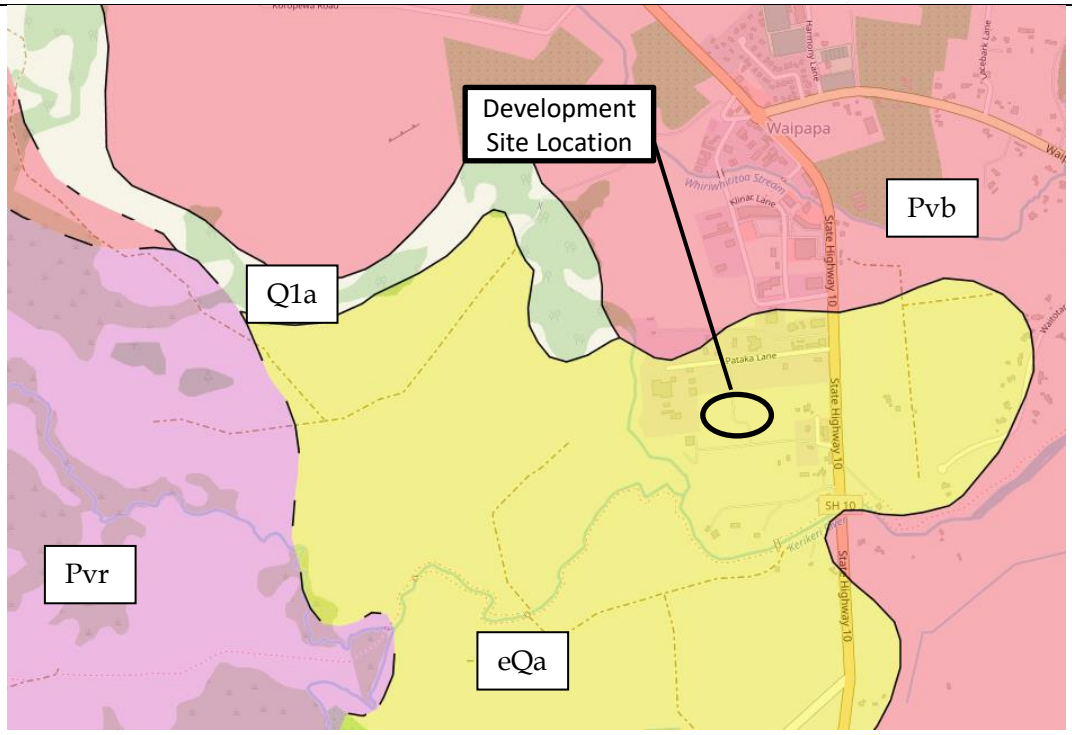
3 Geology

3.1 Published Geology

Sources of Information:

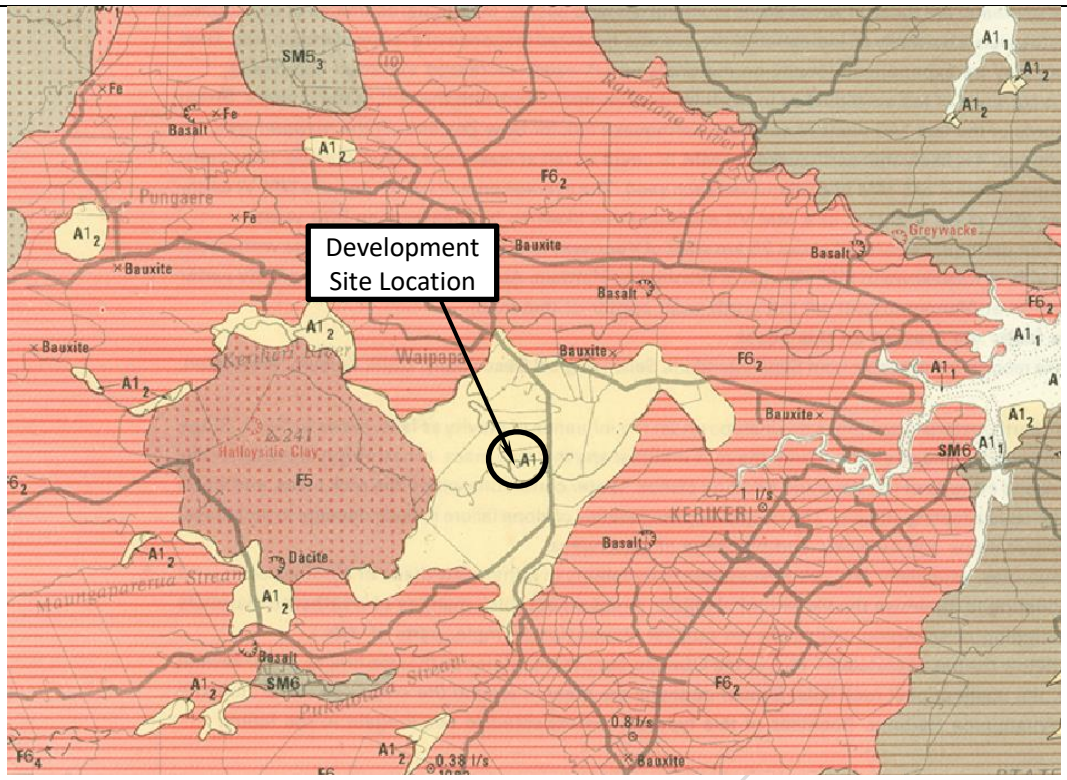
- Institute of Geological & Nuclear Sciences 1:250,000 Geological Map 2, 2009: "*Geology of the Whangarei area*"
- NZMS 290 Sheet P04/05, 1: 100,000 scale, 1982: *"Rock types map of the Whangaroa - Kaikohe area"*
- NZMS 290 Sheet P04/05, 1: 100,000 scale, 1980: *"Soil map of the Whangaroa - Kaikohe area"*

The site is within the bounds of the GNS Geological Map 2 "Geology of the Whangarei area", 1:250,000 scale*. The published geology shows the site to be located near a geological boundary of Kerikeri Volcanic Group and Tauranga Group alluvial soils. The Waipapa area, although mapped as Kerikeri Volcanic Group, typically is overlain by recent alluvial soils exhibiting variable strength. Further reference to the published New Zealand land inventory maps (Whangaroa-Kaikohe 1980) also indicates the site is underlain by alluvium ($A1_2$), forming riverbed and flood plain deposits, in places forming a thin veneer (1-3m) over rugged surfaces of lava flows.



Edbrooke, S.W.; Brook, F.J. Geology of the Whangarei Area, IGNS, 1:250,000

* Edbrooke, S.W; Brook, F.J. (compilers) 2009. Geology of the Whangarei area.



Kermode, L.O. 1982: Whangaroa – Kaikohe, NZMS 290, Sheet P04/05, 1:100,000

Figure 2 – Published geological maps

Table 1 - Geological Legend

Symbol	Unit Name	Description
Q1a / $A1_2$	Tauranga Group (Holocene)	Unconsolidated to poorly consolidated mud, sand, gravel, and peat deposits of alluvial, colluvial and lacustrine origins. Holocene river deposits.
eQa	Tauranga Group (Early to middle Pleistocene)	Partly consolidated mud, sand, gravel and peat or lignite of alluvial, colluvial, lacustrine, swamp and estuarine origins. Early Pleistocene – Middle Pleistocene estuary, river, and swamp deposits.
Pvb / $F6_2$	Kerikeri Volcanic Group (Late Miocene to early Pliocene)	Basalt lava, volcanic plugs, and minor tuff. Kerikeri Volcanic Group Late Miocene basalt of Kaikohe – Bay of Islands Volcanic Field.
Pvr / F5	Kerikeri Volcanic Group (Late Miocene to early Pliocene)	Alkaline and peralkaline rhyolite domes with some obsidian.

5 Earthworks

5.1 Proposed Earthworks

In order to achieve positive drainage across the dispatch yard, a minimum gradient of 1 % has been set. Starting from Pond D at the eastern boundary at RL 77.0 results in RL 78.7 at the Boron Plant and the resultant FFL of 79.0. This level ties in well with the existing access road to the west.

The earthworks design results in the following volumes:

Development area	Area (m^2)	Cut Volume (m^3)	Fill Volume (m^3)
Boron Plant and Dispatch yard	26,118	5,224	22,271
Bund removal	2,956	3,756	
Total	29,074	8,980	22,271

Allowing for 5,224 m^3 of topsoil stripping and excavation of Pond D, the total fill volume has been modelled at 22,271 m^3 over an area of 26,118 m^2. The filling will comprise imported granular aggregate. Topsoil will be used to build up the wastewater mound, and excess topsoil will be carted off site.

Imported aggregate to form the dispatch yard may be used as temporary preload over the building platform to compensate for superimposed loads. The volume of aggregate fill being brought to site will not increase in this scenario.

It is also proposed to remove the 3 bunds on the western side of the access road and to form a vegetated swale along the southern boundary to Pond A. The volume of excavation modelled there is 3,756 m^3. This material will be carted off site. The total volume of earthworks is therefore calculated to be 26,118 m^3 of fill plus 8,980 m^3 of excavation = 35,098 m^3.

This is a discretionary activity in the Rural Production zone as it exceeds the restricted discretionary limit of 20,000 m^3 per year [District Plan Rule 12.3.6.2.3]. Cut and fill heights do not exceed 1.5 m depth. The earthworks area will also exceed the 5,000 m^2 of exposed earth at any time permitted by the Proposed Regional Plan Rule C.8.3.1.

5.2 Erosion & Sediment Control

During construction it will be important for the contractor to control the potential mobilisation of silt to prevent it entering into any watercourses, to the greatest extent practicable. The bulk part of the earthworks is associated with granular, hard fill materials, which will be placed promptly on exposed subgrade (fine soils) to stabilise the site. This is the primary erosion sediment control measure for this site.

Excavation of the topsoil will expose a total area of up to 25,000 m^2 of disturbed soil. However, by limiting exposed subgrade areas with prompt placement of pavement aggregate, the non-stabilised soil area will be minimised. It will be in the best interest of all parties for those areas to be stabilised prior to any inclement weather.

The erosion sediment control measures predominantly comprise:

- Clean water diversions
- Stabilised construction entrance
- Sediment Retention Ponds
- Silt fences

- Prompt stabilisation of earthworks areas

Designs for erosion and sediment control measures are shown on the Engineering drawings included in Appendix A.

Best practice site controls are to be implemented during the works, as generally outlined in NRC publications. The following advice is in accordance with Auckland Council Guidance Document GD05 *Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region:* June 2016 (Incorporating Amendment 1, October 2018).

Relevant sections of GD05 are listed in brackets below and should be referred to in constructing and maintaining the sediment control measures. All sedimentation controls shall be maintained in place until bare earthworks areas have been stabilised with aggregate or re-grassing has established.

5.2.1 *Clean Water Diversion (E2.1)*

Separation of clean and dirty water greatly reduces the effort needed to prevent sediment run-off by limiting the quantity of run-off that can become contaminated with silt. The primary clean water diversion required is to ensure that stormwater from the internal access road does not spill into the earthworks site. Drainage here is currently indistinct, however a table drain may readily be formed to intercept road run-off.

5.2.2 *Stabilised Entrance (E2.6)*

Access to the Boron Plant and Dispatch yard earthworks area is adjacent to the site entrance and a stabilised construction entrance can be readily formed here. A stabilised entrance to the site will reduce dust and sediment being tracked off-site onto the road network.

5.2.3 *Sediment Retention Pond (F1.1)*

Sediment retention ponds are appropriate for catchment areas of 0.3 to 5 ha (3,000 to 50,000 m^2).

The Boron Plant and Dispatch yard earthworks area of 26,000 m^2 drains to the east. It is proposed to use Pond D as a sediment retention pond constructed earlier and designed in accordance with GD05 Section F1.1 to intercept runoff from this area. Discharge from the pond will be to the existing open drain on the southern boundary. On completion of earthworks, it is intended to convert the sediment pond into a constructed wetland for permanent water quality and quantity treatment of stormwater runoff.

The Sediment Retention Ponds have been designed in accordance with GD05 as follows:

Maximum catchment area	26,000 m^2
Maximum catchment slope	1%
Maximum catchment length	210 m
Minimum volume (200m^3 per ha catchment)	520 m^3
Pond base (length x width)	7 m x 103 m
Pond size (length x width x depth) at spillway level	11 m x 107 m x 0.8 m
Dead storage (30%) (300mm depth)	156 m^3
Live storage (70%) (500mm depth)	364 m^3
Total storage (800mm depth)	520 m^3

5.2.4 *Silt Fences (F1.3)*

Silt fences are useful for small, disturbed areas or sloping areas and are considered appropriate for the area where the earth bunds are to be removed. These will be deployed down-slope of these small-scale earthworks to ensure sediment cannot enter the stormwater drain along the southern boundary.

5.2.5 *Stormwater Inlet Protection (F1.6)*

Once the piped stormwater system has been constructed, cesspits will initially intercept stormwater from unsealed pavement areas. The cesspits will be covered until the pavement surface is sealed or concreted.

5.2.6 *On Site Works*

Operations involving concrete washings such as water blasting concrete surfaces, washing down equipment, concrete and tile cutting shall be undertaken with care since these products are highly alkaline and can contain oxides, heavy metals (copper drill lubricants) and or petroleum products. Release of these products into the stormwater system or waterways shall be prevented.

- If washing cement or concrete fines, make sure the wash water is contained on site and the contaminants removed preferably by allowing time for the sediment to settle out.
- When water blasting, contain the run-off. Cement and chemical additives must not be discharged to stormwater drains.

5.2.7 *Plant Re-fuelling*

To contain any spillage of fuel, oil or similar contaminants vehicles and plant are to be re-fueled on a gravel pad, where potential spillage can be contained by on site controls. A spill kit comprising saw dust shall be kept on site as a first defence to deal with any spillages.

5.2.8 *Maintenance*

Silt controls shall be checked on a regular basis and immediately prior to any forecast for rain. Maintenance shall be carried out as necessary and any build-up of silt removed following rainfall events.

5.2.9 *Heavy or Prolonged Rainfall*

Where heavy rain is forecast, the site will be stabilised as much as practicable and sediment control measures checked to ensure they are in correct working condition. Earthworks operations will cease during heavy or prolonged rainfall events. Prior to work resuming, all sediment control measures will be inspected and maintained as necessary.

5.2.10 *Review*

Review of sedimentation control measures is to be undertaken at each major stage of the earthworks and following heavy rain storm events.

5.2.11 *Construction Details*

A site plan of the proposed erosion and sediment control measures is included at the drawings appended to this report. Standard diagrams from GD05 are to be utilised for the stabilised entrance, sediment retention pond and silt fencing.

6 Flood Hazard

6.1 Published Flood Data

The flood levels at the southwestern corner of the site provided by NRC are as follows:

- 10 year ARI flood level – 77.29 m
- 50 year ARI flood level – 77.79 m
- 100 year ARI + CC flood level – 78.05 m

A copy of the flood hazard information sourced from NRC is included in Appendix C

The 100 year ARI + CC flood level prediction for the property show that flood water is spilling into the site where RL is less than 78.0 m which is predominantly the lower areas of land to the east and west of the pellet plant.

6.2 Flood Hazard Assessment

A detailed topographical survey of the site has been completed by Harrison Grierson which provides a more accurate record of site levels for consideration of flood hazard risk. Whilst not mapped, there is potential for flood water to spill along the southern boundary and across the access road at the site entrance (RL 77.55) and inundate the greenfield area of the site.

To mitigate the risk of flood water spilling through the site more than mapped, we recommend a bund is formed at RL 78.0 around the swale drain A, which extends from Pond A up to the site entrance. The existing drain is to be regraded and formed as a vegetated swale as part of the Project. To avoid flow reversal in any pipes which discharge into Pond A or Swale Drain A, flap gates should be fitted.

The dispatch yard is being raised to RL 78.7 at the Boron Plant and the FFL of the Boron plant is RL 79.0 providing a safe freeboard above the flood hazard for plant and machinery and storage of hazardous substances. This is like other built floor levels surveyed around the site:

- Pellet Plant – 78.90
- Mahild CDK – 78.89
- Windsor CDK – 78.90
- Boiler – 78.95
- Bin sorter – 78.69
- Dry mill – 78.86

6.3 Engineering Standards

New Zealand Building Code Clause E1 Surface Water: E1.3.2 specifies that 'Surface water, resulting from an event having a 2% probability of occurring annually, shall not enter buildings'. The Code notes that this Performance Measure applies only to Housing, Communal Residential and Communal Non-residential buildings. It does not apply to commercial or industrial buildings.

Land Development and Subdivision Infrastructure standard NZS4404:2010 clause 4.3.5.2 specifies a minimum freeboard of 300mm from the 100 year return period (1% AEP) flood level to the underside of the floor slab of a commercial or industrial building.

FNDC Engineering Standards & Guidelines Clause 4.3.2.5.2 specifies all habitable buildings and areas used for storage of hazardous chemicals shall be set above the 100 year return period flood level plus 500 mm. As the land is zoned Industrial, future buildings are unlikely to be 'habitable', so only the hazardous chemical standard applies.

At this site, there is almost 1.0 m freeboard above the flood hazard with a FFL of 79.0.

7 Stormwater Management

7.1 Existing Site

The ground surface across the proposed development area is generally flat, with approximately 1.0 - 1.5 m of elevation change from the internal access road to the eastern boundary. There is a farm drain which traverses the southern boundary of the proposed development area, discharging east through Lot 1 DP 211216 (Gillespie) and towards the State Highway.

The Site discharges into two river catchments – Kerikeri river to the west, and Whiriwhiritoa stream to the east. The catchment boundary in the Site is the internal access road, ie the greenfield area where the Boron Plant and Dispatch yard are to be sited fall into the Whiriwhiritoa stream catchment, whilst the rest of the site falls into the Kerikeri river catchment.

Pond A was previously designed by Haigh Workman as a wet pond in accordance with TP10 and modelled with the modified rational method[†]. This pond has been built in general accordance with the approved plans and services the bulk of the Site. The outlet from Pond A is via an open drain formed through an Esplanade Reserve (Lot 3 DP 376253) to Kerikeri River.

The existing stormwater networks are lawfully established and it is not proposed to change it.

7.2 Impermeable surfaces

The impervious surfaces of the Site today is calculated at 68 % and this will increase to 88 %. This is a discretionary activity as it exceeds the controlled activity limit of 20 % [District Plan rule 8.6.5.2.1]. We have calculated the existing and proposed impermeable coverage for the Site as follows;

Surface type	Existing	Proposed
Roof	14,736	17,436
Concrete	10,252	10,252
Ponds	2,047	214
Gravel	45,854	66,238
Constructed wetlands	0	3,013
Grass/landscaping	34,611	10,347
Site area	107,500	107,500
Impermeable areas	78,889	94,140
Impermeable coverage	68%	88%

7.3 Stormwater Management

7.3.1 *Introduction*

The design incorporates the total stormwater management system (collection and conveyance network, overland flow paths, treatment devices, pipe outfalls and low impact design principles).

[†] Stormwater Management Plan, Issue A dated 3/10/2014, Haigh Workman Ltd reference 12 102. The approved plans formed part of RC 2150320-RMALUC which provided for the current sawmill operations.

The objective of the stormwater management system is to provide a best practice option to avoid, remedy or mitigate more than minor adverse environmental effects, determined through an evaluation of the catchment, modelled information and upstream and downstream effects.

The design includes consideration of the latest guidance documents issued by Auckland Council (GD01, GD04, GD05).

The following design principles apply to stormwater management for the proposed development:

- Stormwater reticulation within the site to suitable discharge points
- Overland flowpaths within the site to suitable discharge points
- Control scour, particularly at discharge points
- Include water sensitive design where practicable.
- Avoid increases in flooding downstream as a result of the development.

The proposed stormwater management system comprises:

- Piped stormwater reticulation network;
- Scruffy Dome and Catch pit inlets;
- Open drains on the internal roads leading to the drainage network
- Southern boundary drain leading to Pond A reconstructed as a vegetated swale
- Pond A reconfigured as a constructed wetland to treat the existing Site and boron plant
- Pond D formed as a constructed wetland to treat the dispatch yard

7.3.2 *Trade Waste*

There are no trade waste discharges associated with this development. The boron plant design will include covered and bunded areas for unloading and storage of hazardous chemicals. The position of the boron tanks and unloading dock is located outside of the flood hazard zone. Timber that is treated with boron will be fully wrapped before placement on the dispatch yard. The details associated with the management of hazardous substances will be provided for in the building consent process.

7.3.3 *Piped Stormwater Network*

Stormwater pipes are required for the following areas:

- Collection of stormwater from the eastern side of the internal access road (adjacent to the Kainui Packhouse Site). Culvert crossing the internal access road, connected to the reticulated site network
- Collection of stormwater from swale drain B on eastern side of access road, discharging to swale drain A
- Collection of stormwater from western side of access road, discharging to swale drain A
- Collection of roof water from the Boron Plant, discharging to swale drain A

All piped discharges to swale drain A, or Pond A, should be fitted with flap gates to avoid potential for flow reversal in extreme flood events.

7.3.4 *Secondary Overland Flow Paths*

The roads, accessways, yard areas and swale drains will be constructed lower than the surrounding buildings to act as secondary flow paths.

7.3.5 *Constructed Wetlands*

Pond A was previously designed by Haigh Workman as a wet pond in accordance with TP10 and modelled with the modified rational method. This pond has been built in general accordance with the approved plans and services the bulk of the Site.

It is proposed to reconfigure Pond A as a constructed wetland to better achieve water quality objectives in accordance with GD01. This will involves converting the wet pond nature of the current design to a constructed wetland and densely planting. It is also proposed to construct a vegetated swale to Pond A along the southern boundary.

It is similarly proposed to construct Pond D as a constructed wetland to service the dispatch yard.

7.3.6 *Stormwater Outlets*

The outlet from Pond A is via an open drain formed through an Esplanade Reserve (Lot 3 DP 376253) to Kerikeri River.

The outlet from Pond D will be to the farm drain that traverses the southern boundary of the site. This drain discharges eastwards through Lot 1 DP 211216 (Gillespie) and follows the State Highway Northwards to Kahikatearoa Lane, which discharges beneath State Highway 10 into the Sports Hub site, joining Whiriwhiritoa stream.

7.4 Stormwater Model

7.4.1 *Rainfall*

The rainfall events were modelled with 2 methods being:

- Type 1A – 24 hour storm (SCS method)
- Modified Rational method (Fixed profile, variable duration)

Type 1A and Modified Rational method are specified in the 2023 Engineering Standards as being acceptable modelling methods. Type 1A yielded the most conservative results, so we have adopted that for deisgn.

HIRDS data for the RCP6.0 2081-2100 event was adopted for design.

7.4.2 *Run-off parameters*

The following parameters were used to calculate runoff. Curve numbers were for Hydrological Class B soils as recommended by TP108 for alluvial soils. Runoff coefficients were as recommended by FNDC Engineering Standards 2023.

	Curve number (SCS Method)	Runoff coefficient (Modified Rational method)
Roof / concrete	98	0.96
Gravel	85	0.8
Grass/landscaping	61	0.59
Wet Ponds	98	0.96

7.4.3 *Pond A*

The catchment to pond A comprises the following:

Surface type	Existing	Proposed
Roof	14566	17436
Concrete	6715	6715
Gravel	39912	44375
Pond A	1833	0
Constructed Wetland A	0	1833
Grass/landscaping	6022	5129
Total	69048	75488

The total area discharging to Pond A is increased, as the roof water from the Boron Plant and adjacent car park is being directed towards it. This is able to be offset with the additional storage being provided in Pond A by way of converting the wet pond, plus the additional storage capacity being provided for in swale drain A.

With the pond dimensions and orifice arrangement as displayed on the drawings, the following flow rates are achieved:

	Pre-development (greenfields)	Post-development (unattenuated)	Post-development (attenuated)
2yr	101	517	83
5yr	227	743	168
10yr	334	891	325

Our calculations show stormwater quantity objectives can be met for the 2, 5 and 10 year ARI storms by reconfiguring the outlet arrangements in the discharge manhole. Attenuation for the 100 year ARI storm is not possible, as the Kerikeri River spills into the site in that event.

Stormwater Calculations are included in Appendix B.

7.4.4 *Pond D*

The catchment to pond D comprises the following:

Surface type	Existing	Proposed
Roof	127	0
Concrete	0	0
Constructed Wetland D	0	1180
Gravel	1070	17188
Grass	24963	1352
Total	25090	19720

The total area discharging to the east is reduced, as the roof water from the Boron Plant and adjacent car park is being directed west to Pond A. This proposed stormwater diversion, is to ensure that the design can provide for 80 % predevelopment run-off to ensure effects on downstream drainage, including the State Highway drainage, are mitigated.

With the pond dimensions and orifice arrangement as displayed on the drawings, the following flow rates into the existing open drain can be achieved:

ARI	Pre-development	Post-development (unattenuated)	Post-development (attenuated)
2yr	43	122	35
5yr	94	179	81
100yr	310	371	249

Our calculations show stormwater quantity objectives can be met for the 2, 5 and 100 year ARI storms thus ensuring that stormwater discharge into the Gillespie property and towards the State Highway is reduced.

7.5 Regional Plan

Rule C.6.4.2 provides for the diversion and discharge of stormwater into water or onto land from an impervious area or by way of a stormwater collection system, is a permitted activity, provided (amongst other conditions):

2) the diversion and discharge does not cause or increase flooding of land on another property in a storm event of up to and including a 10 percent annual exceedance probability, or flooding of buildings on another property in a storm event of up to and including a one percent annual exceedance probability, and

6) the diversion and discharge does not cause permanent scouring or erosion of the bed of a water body at the point of discharge.

The proposed stormwater management system will comply with Rule C.6.4.2 with the stormwater management design proposed.

8 Wastewater

8.1 Existing Wastewater System

The existing wastewater system was designed by Haigh Workman[‡]. The system is designed to service a flow of 2,000 litres/day. A water meter has been monitored for two months to measure actual generation rates. These rates can be related back to occupancy to determine a per capita generation rate to inform the design.

Day	Date	Reading	days	m3	m3/day	m3/week
Tue	12/03/2024	76	0			
Wed	13/03/2024	78	1	2	**2.0**	
Tue	19/03/2024	80	6	2	0.3	4.0
Wed	20/03/2024	81	1	1	1.0	
Thu	21/03/2024	82	1	1	1.0	
Mon	25/03/2024	85	4	3	0.8	
Tue	26/03/2024	86	1	1	1.0	6.0
Wed	27/03/2024	88	1	2	2.0	
Thu	28/03/2024	90	1	2	2.0	
Tue	2/04/2024	92	5	2	0.4	6.0
Mon	15/04/2024	108	13	16	1.2	
Tue	16/04/2024	109	1	1	1.0	8.5
Wed	17/04/2024	110	1	1	1.0	
Thu	18/04/2024	111	1	1	1.0	
Fri	19/04/2024	112	1	1	1.0	
Mon	22/04/2024	115	3	3	1.0	
Tue	23/04/2024	116	1	1	1.0	7.0
Wed	24/04/2024	118	1	2	**2.0**	
Mon	29/04/2024	122	5	4	0.8	
Tue	30/04/2024	123	6	5	0.8	8.0
Fri	10/05/2024	137	11	15	1.4	
		Total	**65**	**66**	**1.0**	**6.6**
				5-day avg	1.4	
				peak	2.0	8.5
			staff	**45**	32	L/person/day avg
					44	L/person/day peak

The readings indicate that actual use is typically 32 L/person/day, and peak of 44 L/person per day. The book value adopted of 40 L/person/day for wastewater production remains valid for estimating increased flows.

Site investigations indicate the soil to have moderate drainage properties with a moderately high winter ground water table of approximately 1.0 m bgl. At present, wastewater is treated in a package treatment plant and then discharged to a mound via a drip dispersal system with an area of 500 m^2 with a loading rates of 4L/m^2/day. The dripper dispersal area ought to be densely planted to maximise evapo-transpiration, however the existing arrangements seem to be working without issue.

[‡] On-site Wastewater System for Amenities Block at Waipapa Pine Sawmill, 1945 State Highway 10, Waipapa. Lot 3 DP 343062 and Lot 1 DP 376253. Haigh Workman Ltd, 9 July 2013, reference 12 102

8.2 Regional Plan

The discharge of sewage effluent on to land is controlled by the permitted activity rules C.6.1.3 of the Regional Plan for Northland. The maximum number of staff on site on weekdays is set to increase to 104, in comparison with the current typical staff numbers of 45. At 40 L/person/day, this equates to an average daily loading rate of 4,160 litres/day. A resource consent is therefore required as the flow rate will exceed 2,000 litres/day.

The mound will be formed with topsoil and pitched gently to the north, into the site. The wastewater field has been located to achieve 5 m setback from surface water at the western end of the mound, and 15 m away from the constructed wetland and drain at the eastern end of the mound. An overland flow path from the adjoining properties will follow the southern boundary, and the wastewater field will be located a minimum 3 m away from the boundary flow path. In the proposed arrangement, the overland flow path is upstream of the disposal field, ie the disposal field does not drain towards it.

Exclusion areas and setback distances are provided in Table 9 of the plan and presented below.

Table 9: Exclusion areas and setback distances for on-site domestic wastewater systems

Feature	Primary treated domestic type wastewater	Secondary and tertiary treated domestic type wastewater	Greywater
Exclusion areas			
Floodplain	5% annual exceedance probability	5% annual exceedance probability	5% annual exceedance probability
Horizontal setback distances			
Identified stormwater flow path (including a formed road with kerb and channel, and water-table drain) that is down-slope of the disposal area	5 metres	5 metres	5 metres
River, lake, stream, pond, dam or natural wetland	20 metres	15 metres	15 metres
Coastal marine area	20 metres	15 metres	15 metres
Existing water supply bore	20 metres	20 metres	20 metres
Property boundary	1.5 metres	1.5 metres	1.5 metres
Vertical setback distances			
Winter groundwater table	1.2 metres	0.6 metres	0.6 metres

8.2.1 *District Plan*

The Far North District Plan contains an additional rule relating to wastewater discharges to land:

- District Plan Rule 12.7.6.1.4 specifies that effluent fields shall be located no closer than 30 m from any river, lake, wetland or the Coastal Marine Area.

This rule will be complied with.

8.3 Proposed Treatment System

The existing treatment plant located adjacent to the office is an Econotreat VBB-C-3000 which has a manufacturer rated flow rate of 3,000 litres/day for domestic effluent. A commercial system is required here, as the nature of the waste stream will be more consistent with black water. To achieve this, Water Flow NZ have provided a solution which may be able to utilise the existing tanks by installing additional tanks alongside.

An additional treatment plant is required to service toilets and handbasins provided for staff facilities at the Boron Plant. It is proposed to install a second treatment plant here. Another pump chamber will be fitted adjacent to the treatment plant tanks at the Boron plant to pump wastewater into the dripper field. The existing pump line from the office wastewater system to the existing disposal mound will be utilised, and extended to the Boron plant pump chamber.

The secondary treatment plant brand may be varied for the building consent application. Treatment plants must meet the requirements of AS / NZS 1546.3:2001. The system is to meet the quality output of AS / NZS 1546.3:2003, producing effluent of less than:

- 20 g/m^3 – 5-day biochemical oxygen demand (BOD_5), and
- 30 g/m^3 – total suspended solids (TSS).

8.4 Proposed Disposal Field

Our site investigations indicate that the soil type can be described as TP58 category 4. With the disposal area being formed as a raised topsoil mound, this site is expected to sustain an aerial loading rate of 4mm/day for drip irrigation.

Based on a design loading rate of 4,160 L/day, a 1,040 m^2 land application area is required, plus a 30 % reserve area, which equates to a total area of 1,352 m^2.

A factor of safety in design is rest periods over weekends when staff numbers reduce. Assuming just one rest day per week, the average weekly loading rate equates to 3.4 mm per day, or if there are two rest days, this further reduces to 2.9 mm per day.

The raised topsoil mound has been sized at 10 m wide x 104 m long to achieve the 1,040 m^2 land application area. 10 dripper lines spaced at 1 m centres extend the length of the mound. The drippers are to be pinned to the surface of the mound, covered with 200 mm of bark mulch and densely planted.

The actual width of the mound will be a minimum 14 m. This is to ensure a minimum 1 m from the gravel yard to the lowest dripper, and a minimum 3 m from the boundary to raise up to the mound level.

The raised topsoil mound is to be shaped to slope north with typical surface gradient of 5 degrees. This shape will have the advantage of:

- Being north facing
- Reducing the risk of wastewater mixing with surface water
- Ensuring the overland flow path from the southern boundary neighbour does not impact the disposal field

The reserve area is being formed as an extension to the mound by extending a further 31 m northwards, ie the overall length of the mound is 135 m to provide for the disposal and reserve area. The reserve is 312 m^2 to provide for the 30 % area requirement of the Regional Plan.

The disposal area is set back a minimum 5 m from the stormwater at the entranceway, and the reserve area is set back a minimum 15 m from pond D at the eastern end of the site.

The disposal field will need to be constructed in stages to facilitate the proposed earthworks. This will comprise relocating the existing 500 m^2 disposal field to the final position to service the existing development to allow bulk earthworks to proceed.

9 Water Supply

9.1 Potable Water Supply

A water bore has been installed on site. Potable water supply may be via collecting roof water, or alternatively by utilising the bore supply, and treating to potable water standards.

9.2 Fire Fighting

As no public reticulated supply is available for firefighting, it is anticipated that alternative design following SNZ PAS 4509:2008 will be completed by a building fire services engineer. Clause 4.4 of the Code states that:

- Fire engineers or similar competent persons may use alternative methods to determine firefighting water supplies. To comply with this code of practice, such alternatives must be submitted for approval to the person(s) nominated by the National Commander. The person(s) so nominated will approve these cases on confirmation that the method and calculations used are correctly applied.
- Alternative methods will need to show that the calculated firefighting water supply makes allowances for tactical flow rates (that is, the amount needed above a theoretical amount to absorb the released heat for operational effectiveness).

The procedure to be followed in the case of an alternative fire-fighting supply is as follows:

- The competent person should submit a firefighting facilities checklist (FFFC), with a scale site map showing contours and proposed alternatives to Table 2 with rationale for assessment to NZFS.

If the proposed supply is approved by a nominated NZFS person, Council will accept the FFFC and compliance with the Code will be achieved.

NZFS considers that a 'one size fits all' volume is not appropriate in all circumstances. There are alternatives to firefighting couplings but firefighters are not expected to lift pumps or hoses onto the top of water tanks.

10 Power Supply

The site has connection to the High Voltage network from the Waipapa Substation. Early engagement with Top Energy has revealed that the underground HV network which services the pellet plant has residual capacity for supply, and will be the most like source of power for the proposed boron plant and boiler.

33kV overhead cables traverse the site following the internal accessway which lead to the Waipapa substation. Early engagement with Top Energy has been carried out to consider safety in design, and the proposed boron plant has been positioned to satisfy the requirements of NZ Electrical Code of Practice for Electrical Safe Distances NZECP 34:2001.

Appendix A – Drawings

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BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA
WAIPAPA PINE LIMITED

Project No. 23 256

FOR RC
13/05/2024

Index

Dwg No	Title 01	Title 02	Title 03	Rev No	Rev Date	Rev No	Rev Date
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EXP02	PROPOSED SURFACES			A	13/05/2024	B	29/05/2024
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EWP01	FINISHED	GROUND LEVEL	PLAN	A	13/05/2024	B	29/05/2024
EWP02	EARTHWORKS	CUT AND FILL	PLAN	A	13/05/2024	B	29/05/2024
EWL01	EARTHWORKS	SECTION A		A	13/05/2024	B	29/05/2024
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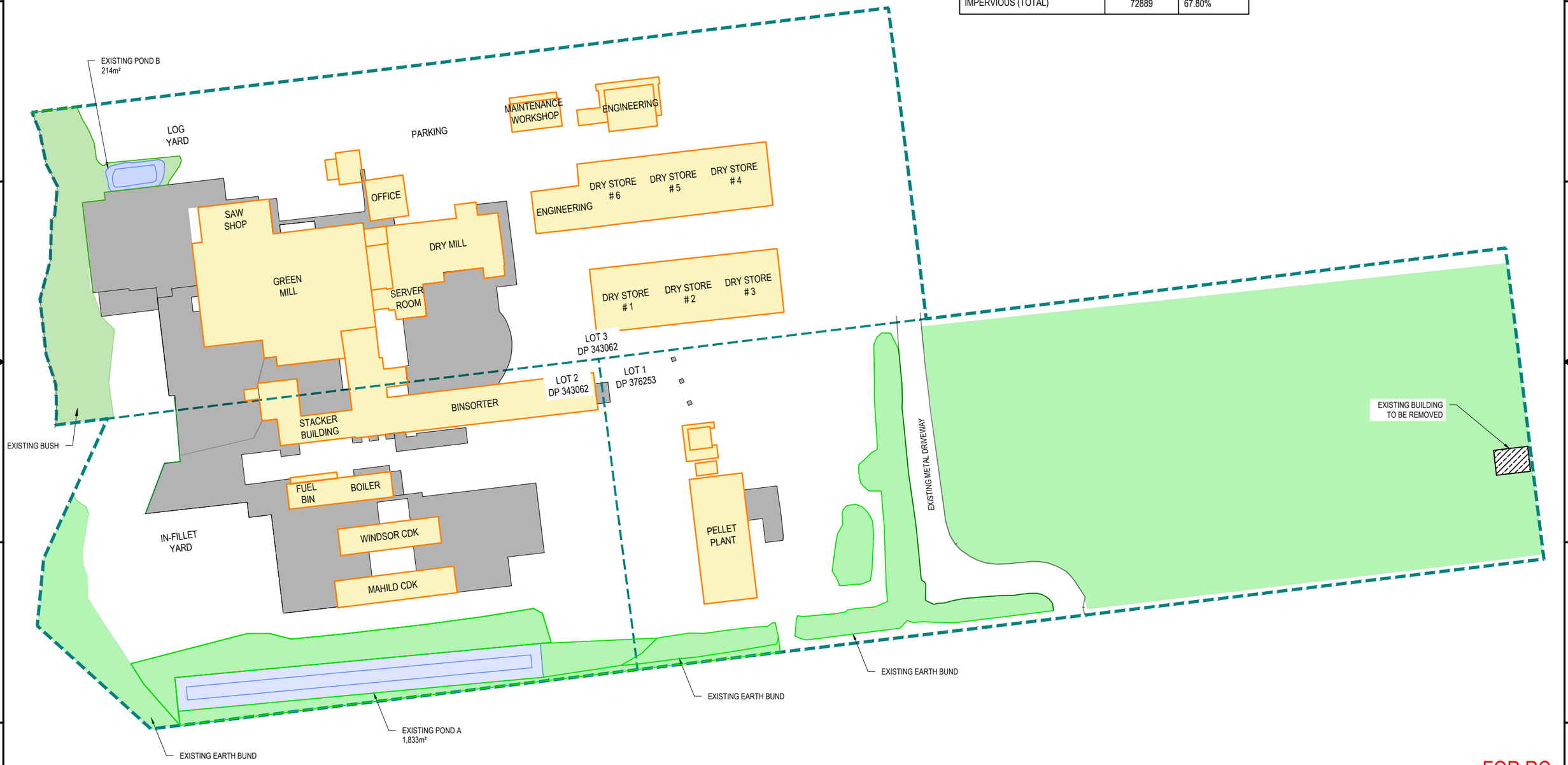
CPP01	ACCESS & PARKING	PLAN	(NORTH)	A	13/05/2024	B	29/05/2024
CPP02	ACCESS & PARKING	PLAN	(BORON PLANT)	A	13/05/2024	B	29/05/2024
CPP03	ACCESS & PARKING	PLANT	(DISPATCH YARD)	A	13/05/2024	B	29/05/2024
ESC01	EROSION AND SEDIMENT CONTROL			A	13/05/2024	B	29/05/2024

EXISTING SURFACES		
AREA	m²	
ROOF AREA	14736	
CONCRETE	10252	
PONDS	2047	
METAL	45854	
PERVIOUS - VEGETATED	34611	
PERVIOUS (TOTAL)	34611	32.20%
IMPERVIOUS (TOTAL)	72889	67.80%

GENERAL NOTES:
1. All features are taken from Topo Plan by HG, dated March 2024, ref. 2414676-HG-XX-DR-XX-G-SS01-03.

LEGEND
Boundaries



FOR RC

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A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG EXISTING SURFACES

A3 Scale 1: 1500 (0, 30, 75)

Date 13/05/2024

Drawn LP | Checked JP | Approved JP

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage

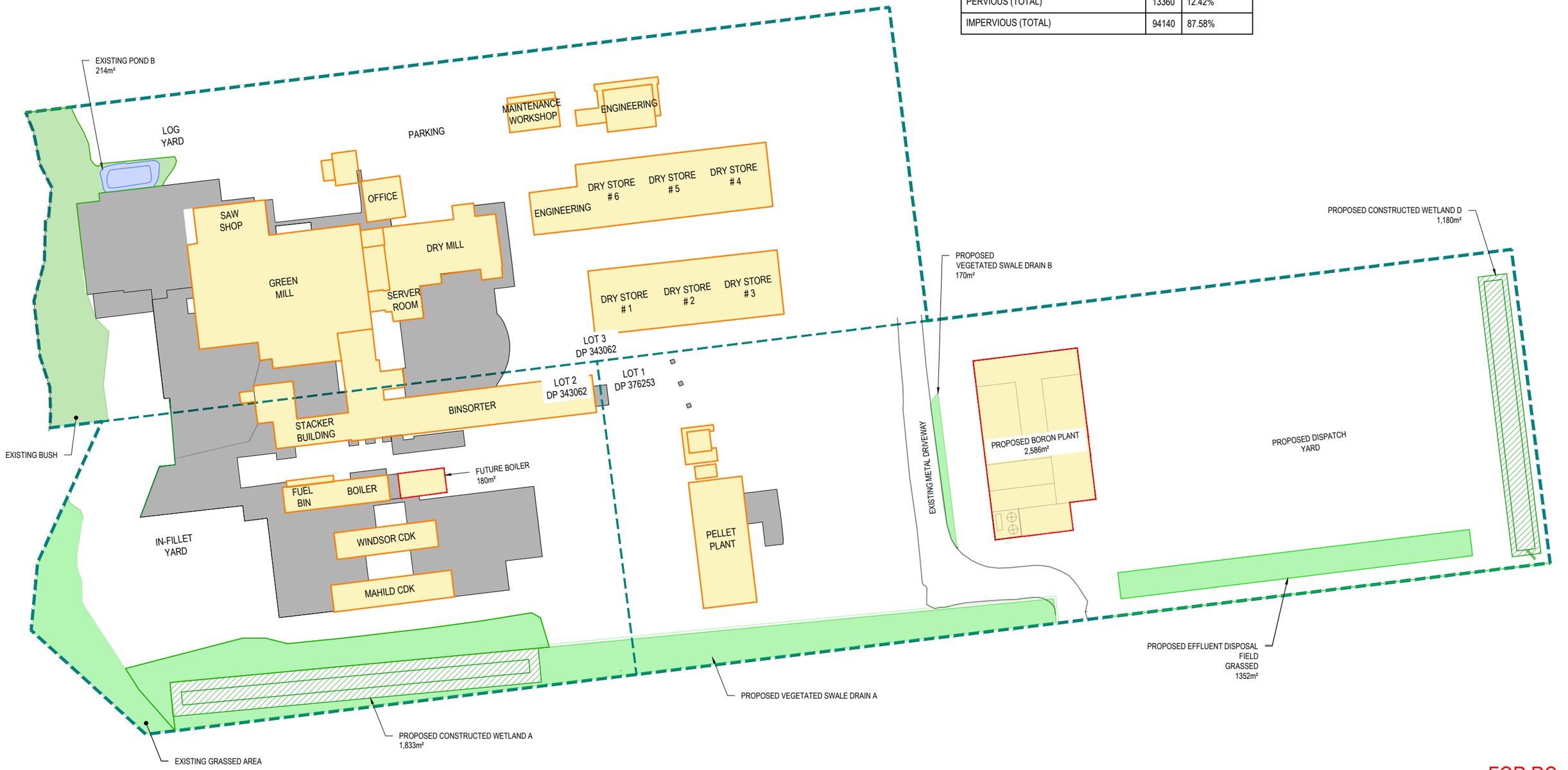
Dwg No. EXP01

Sheet No.

PROPOSED SURFACES		
AREA	m²	
ROOF AREA	17436	
CONCRETE	10252	
PONDS	214	
METAL	66238	
PERVIOUS - VEGETATED	10347	
PERVIOUS - CONSTRUCTED WETLAND	3013	
PERVIOUS (TOTAL)	13360	12.42%
IMPERVIOUS (TOTAL)	94140	87.58%

GENERAL NOTES:
1. All features are taken from Topo Plan by HG, dated March 2024, ref. 2414676-HG-XX-DR-XX-G-SS01-03.

LEGEND
Boundaries



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Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
B	29/05/2024	REV B - CHANGES TO BORON PLANT, FOR RESOURCE CONSENT	LP	JP

DWG PROPOSED SURFACES

A3 Scale 1: 1500 (0, 30, 75) Date 13/05/2024

Drawn LP Checked JP Approved JP

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Client WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage

Dwg No. EXP02

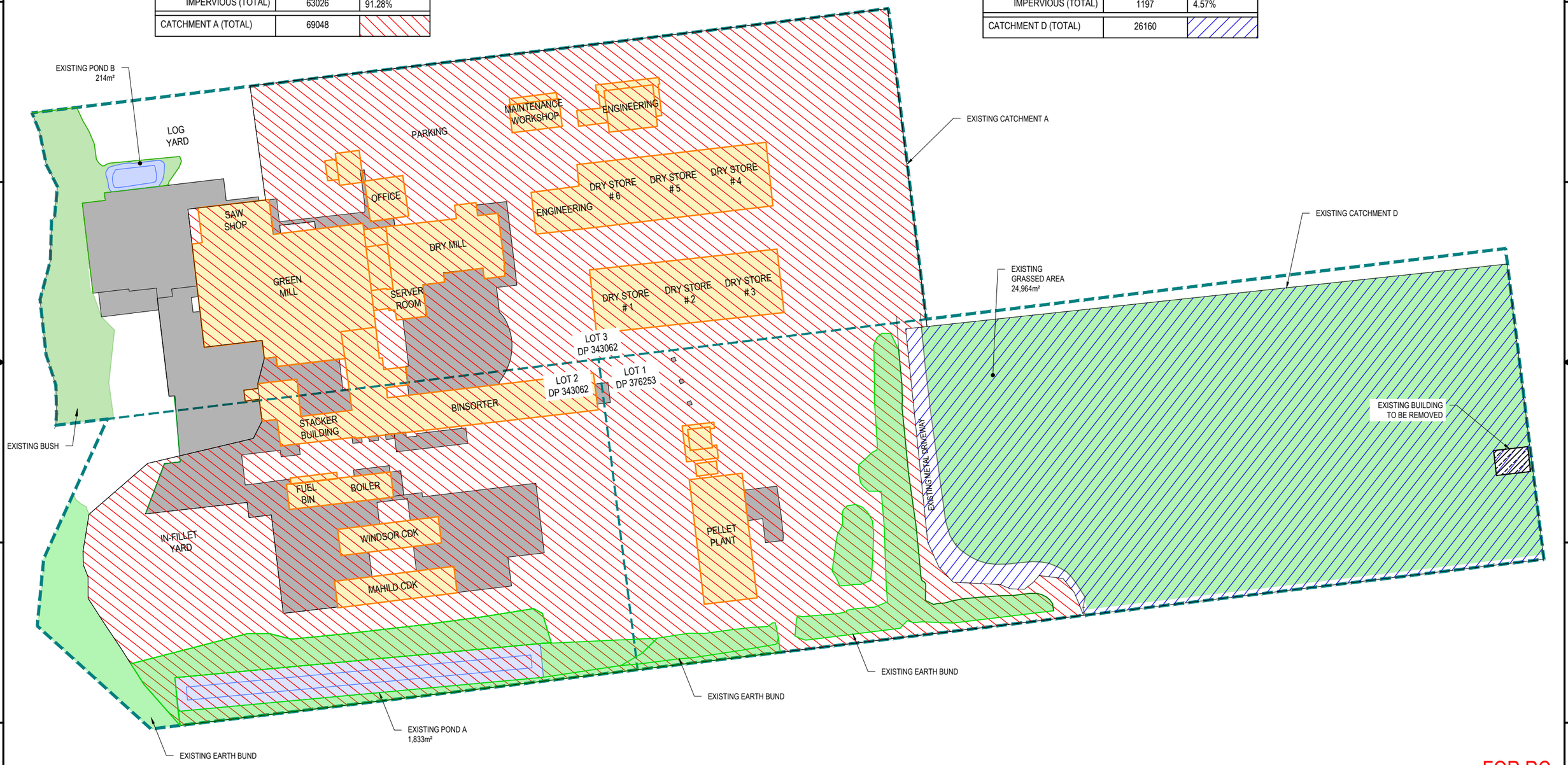
Sheet No.

EXISTING CATCHMENT A (WEST)		
AREA	m²	
ROOF AREA	14566	
CONCRETE	6715	
POND	1833	
METAL	39912	
PERVIOUS - VEGETATED	6022	
PERVIOUS (TOTAL)	6022	8.72%
IMPERVIOUS (TOTAL)	63026	91.28%
CATCHMENT A (TOTAL)	69048	

EXISTING CATCHMENT D (EAST)		
AREA	m²	
ROOF AREA	127	
CONCRETE	0	
POND	0	
METAL	1070	
PERVIOUS - VEGETATED	24963	
PERVIOUS (TOTAL)	24963	95.42%
IMPERVIOUS (TOTAL)	1197	4.57%
CATCHMENT D (TOTAL)	26160	

GENERAL NOTES:
1. All features are taken from Topo Plan by HG, dated March 2024, ref. 2414676-HG-XX-DR-XX-G-SS01-03.

Boundaries



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A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
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DWG EXISTING CATCHMENT A AND D

A3 Scale 1: 1500 (0 30 75) Date 13/05/2024

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Project No. 23 256 RC no.

Stage

Dwg No. EXP03

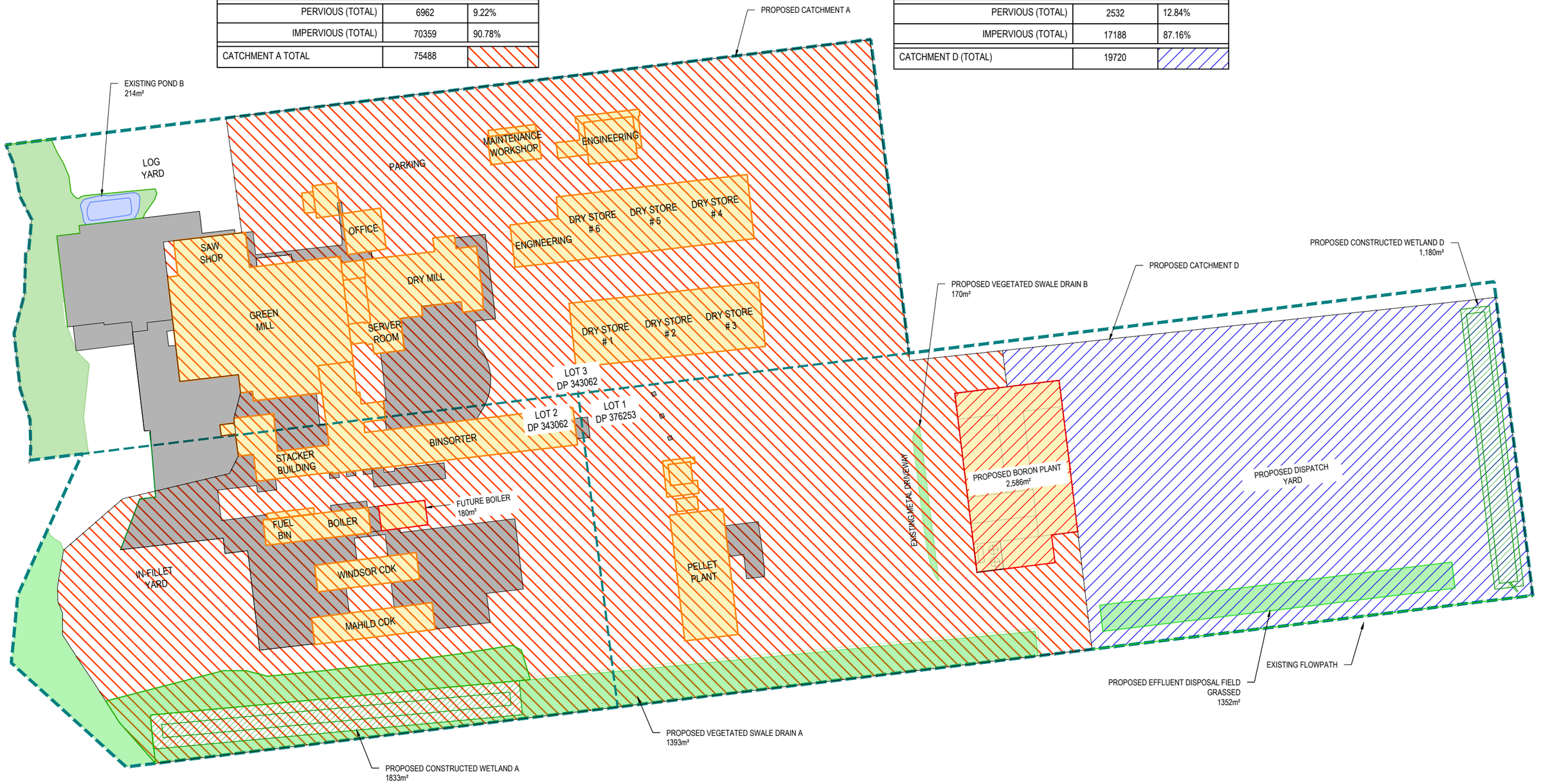
Sheet No.

PROPOSED CATCHMENT A (WEST)		
AREA	m²	
ROOF AREA	17436	
CONCRETE	6715	
METAL	44375	
PERVIOUS - CONSTRUCTED WETLAND	1833	
PERVIOUS - VEGETATED	5129	
PERVIOUS (TOTAL)	6962	9.22%
IMPERVIOUS (TOTAL)	70359	90.78%
CATCHMENT A TOTAL	75488	

PROPOSED CATCHMENT D (EAST)		
AREA	m²	
ROOF AREA	0	
CONCRETE	0	
METAL	17188	
PERVIOUS - CONSTRUCTED WETLAND	1180	
PERVIOUS - VEGETATED	1352	
PERVIOUS (TOTAL)	2532	12.84%
IMPERVIOUS (TOTAL)	17188	87.16%
CATCHMENT D (TOTAL)	19720	

GENERAL NOTES:
1. All features are taken from Topo Plan by HG, dated March 2024, ref. 2414676-HG-XX-DR-XX-G-SS01-03.

Boundaries



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A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
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DWG PROPOSED CATCHMENT A AND D

A3 Scale 1: 1500 (0 30 75) Date 13/05/2024

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage

Dwg No. EXP04

Sheet No.

GENERAL NOTES:
1. All features are taken from Topo plan by HG, dated 20/03/2024
2. Aerial image courtesy of Google.
3. Flood extent taken from NRC GIS map.

LEGEND
- Boundaries
- Proposed Stormwater Pipe
- Flowpath
- Open drain
- Dish channel

EXISTING POND B
LOG YARD
PARKING
MAINTENANCE WORKSHOP
ENGINEERING
OFFICE
SAW SHOP
GREEN MILL
DRY MILL
SERVER ROOM
ENGINEERING
DRY STORE # 6
DRY STORE # 5
DRY STORE # 4
DRY STORE # 1
DRY STORE # 2
DRY STORE # 3
LOT 3 DP 343062
LOT 2 DP 343062
LOT 1 DP 376253
BINSORTER
STACKER BUILDING
FUTURE BOILER 180m²
FUEL BIN
BOILER
WINDSOR CDK
MAHILD CDK
IN-FILLET YARD
PELLET PLANT
EXISTING OPEN DRAIN
PROPOSED CULVERT WITH HEADWALL Ø300
EXISTING STORMWATER MANHOLE
PROPOSED CONSTRUCTED WETLAND D
PROPOSED VEGETATED SWALE DRAIN B
PROPOSED DISH CHANNEL
crossfall
PROPOSED SCRUFFY DOME Ø1050
crossfall
PROPOSED CULVERT Ø300 WITH FLOODGATE
PROPOSED SCRUFFY DOME Ø1050
PROPOSED CULVERT Ø300 WITH FLOODGATE
EXISTING METAL DRIVEWAY
PROPOSED BORON PLANT 2,586m²
PROPOSED DISPATCH YARD
BUILDING DRAINAGE
PROPOSED DISH CHANNEL
CULVERT
EMERGENCY OVEFLOW
EXISTING FLOWPATH
EXISTING OPEN DRAIN
EXISTING OPEN DRAIN TO BE FILLED IN
PROPOSED EFFLUENT DISPOSAL FIELD 1352m² (TOTAL)
PROPOSED SCRUFFY DOME Ø1050
PROPOSED EARTH BUND AT RL 78.0m
PROPOSED VEGETATED SWALE DRAIN A
PROPOSED CONSTRUCTED WETLAND A

FOR RC

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A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
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DWG STORMWATER PLAN

A3 Scale 1: 1500 (0, 30, 75)

Date 13/05/2024

Drawn LP | Checked JP | Approved JP

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

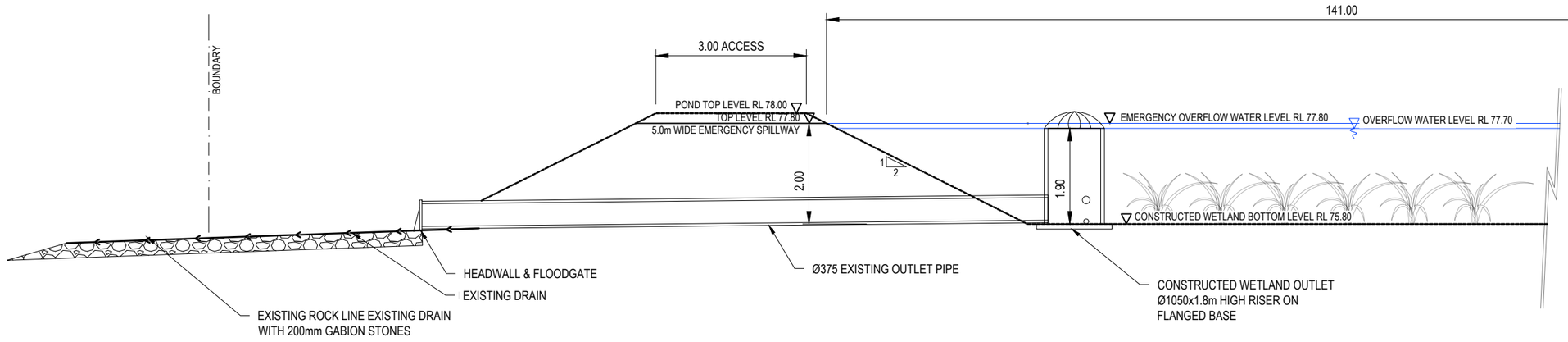
Project No. 23 256

RC no.

Stage

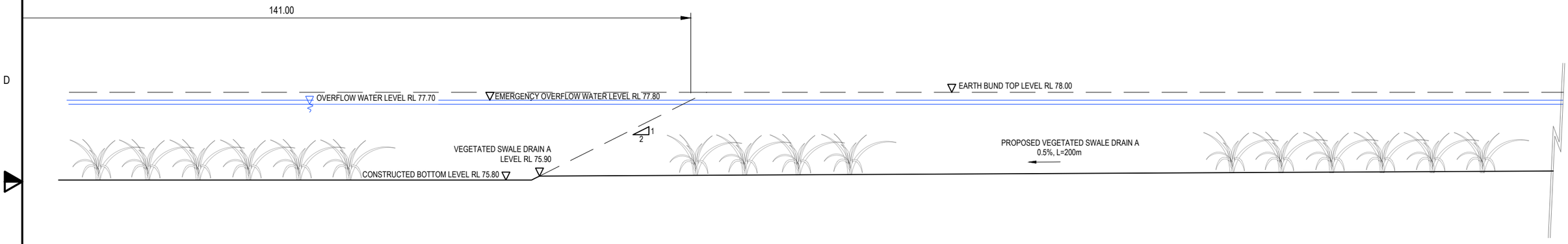
Dwg No. SWP01

Sheet No. 1 of 1



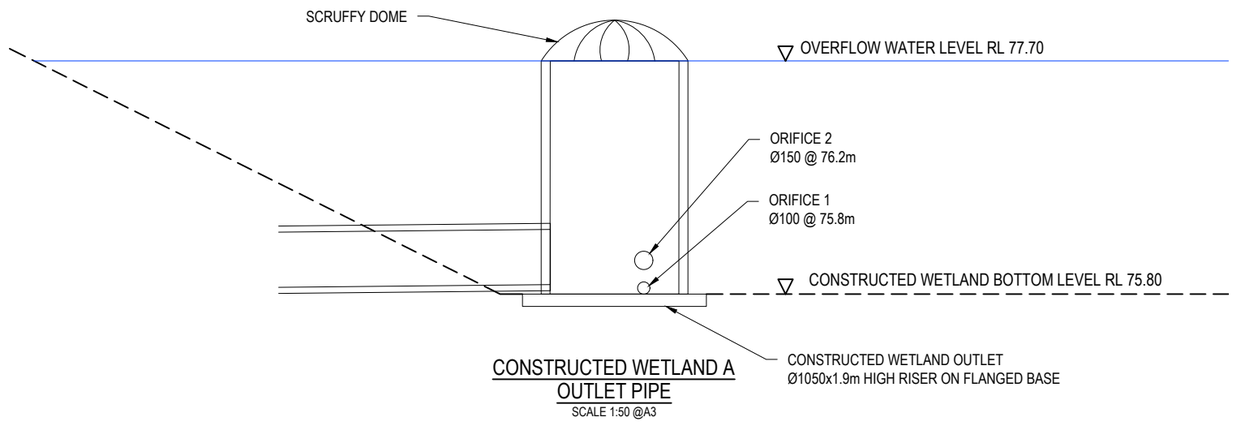
CONSTRUCTED WETLAND A SECTION A1-A1 @ OUTLET PIPE

SCALE 1:100 @A3



CONSTRUCTED WETLAND A SECTION A2-A2

SCALE 1:100 @A3



CONSTRUCTED WETLAND A OUTLET PIPE

SCALE 1:50 @A3

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
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DWG CONSTRUCTED WETLAND A DETAILS

A3 Scale 1: 100 (0 2 5) Date 13/05/2024

Drawn LP | Checked JP | Approved JP

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

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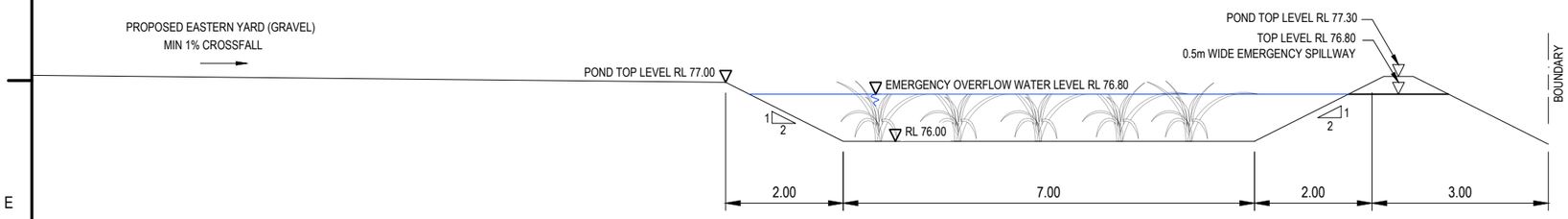
Project No. 23 256

RC no.

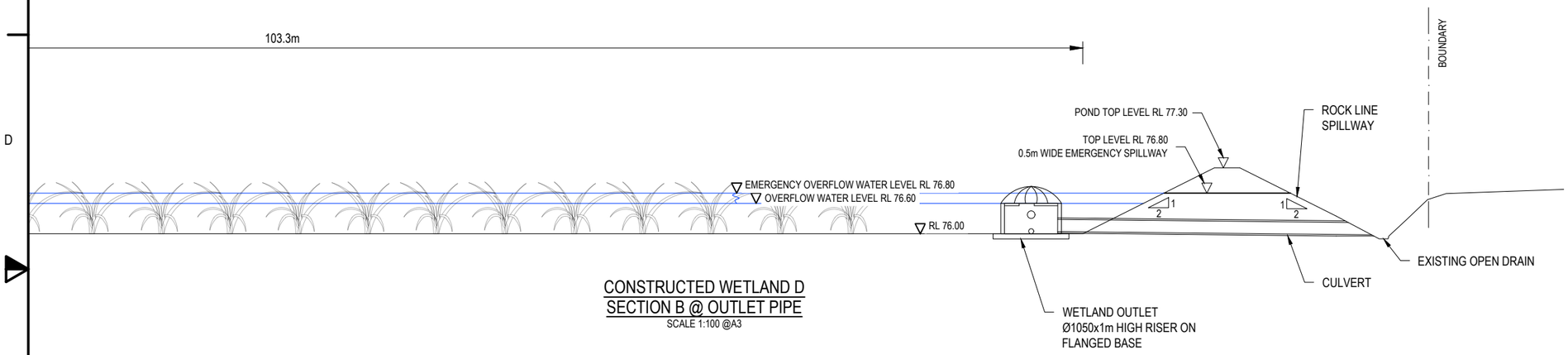
Stage

Dwg No. SWD01

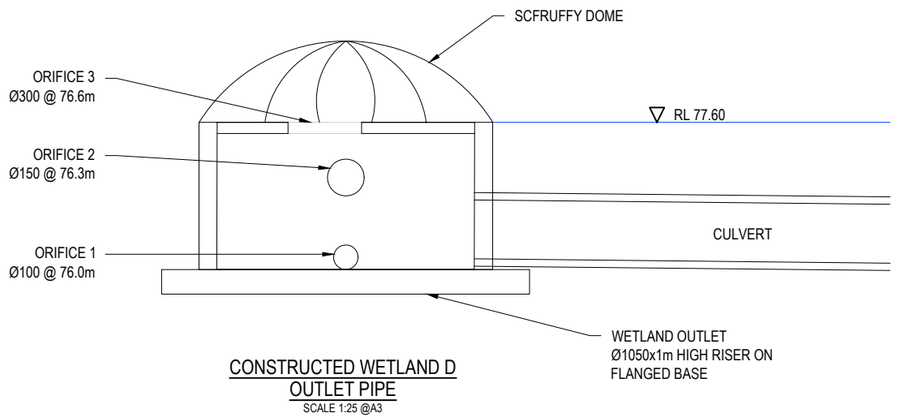
Sheet No.



CONSTRUCTED WETLAND D
SECTION A
SCALE 1:100 @A3



CONSTRUCTED WETLAND D
SECTION B @ OUTLET PIPE
SCALE 1:100 @A3



CONSTRUCTED WETLAND D
OUTLET PIPE
SCALE 1:25 @A3

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG CONSTRUCTED WETLAND D DETAILS

A3 Scale 1: 100 (0 2 5) Date 13/05/2024

Drawn LP Checked JP Approved JP

File T:\CLIENTS\WAIPAPA PINE LIMITED\JOBS\23 256 - WAIPAPA MILL -1945B STATE HIGHWAY 10, WAIPAPA\ENGINEERING\DRAWINGS\01_CIVIL\23 256_20240510_SW DETAILS 2D.DWG

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

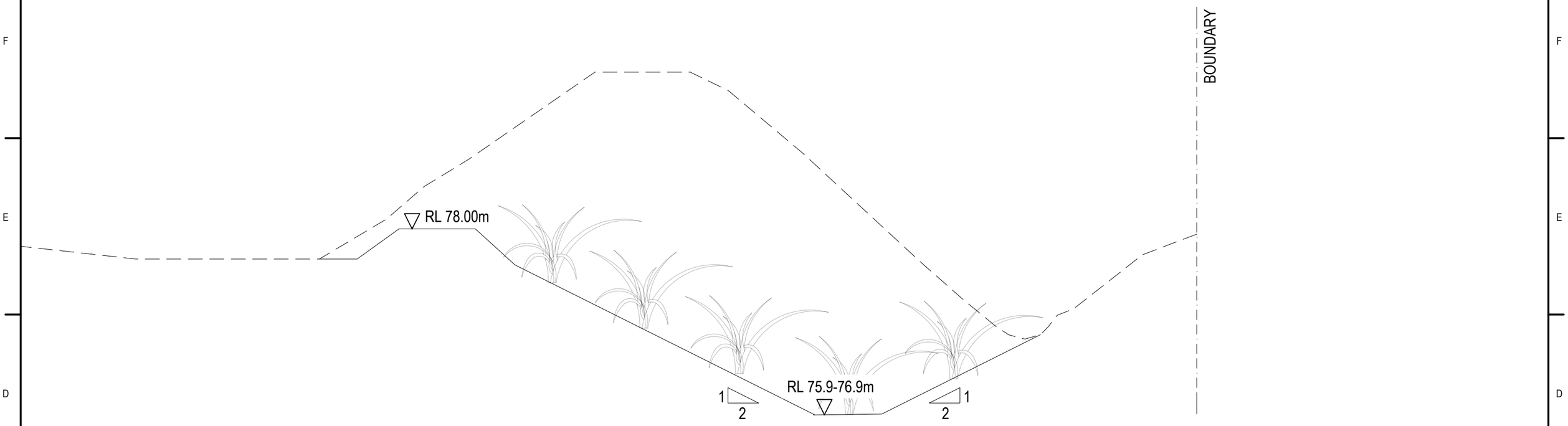
Project No. 23 256

RC no.

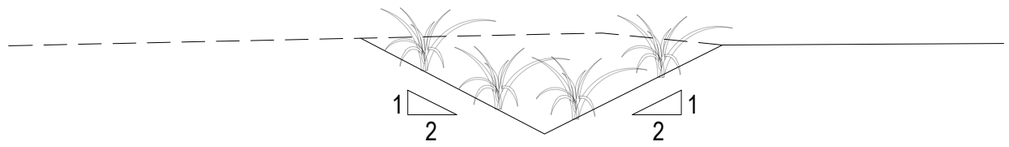
Stage

Dwg No. SWD02

Sheet No.



VEGETATED SWALE DRAIN A
TYPICAL SECTION
SCALE 1:100 @A3



VEGETATED SWALE DRAIN B
TYPICAL SECTION
SCALE 1:100 @A3

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	JT	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG SWALE DRAIN A AND B TYPICAL SECTION

A3 Scale 1: 50 (0, 1, 3)

Date 13/05/2024

Drawn JT | Checked JP | Approved JP

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage

Dwg No. SWD03

Sheet No.

GENERAL NOTES:
1. All features are taken from Topo Plan by HG, dated March 2024, ref. 2414676-HG-XX-DR-XX-G-SS01-03.
2. Flood extent taken from NRC GIS map.

Boundaries

FLOOD EXTENT	
10-YEAR FLOOD EXTENT (10% AEP) (NRC MAP)	
100-YEAR FLOOD EXTENT (1% AEP) (NRC MAP)	

FUTURE BOILER
180m²

PROPOSED BORON PLANT
2,586m²

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG FLOOD HAZARD PLAN

A3 Scale 1: 2000 (0, 40, 100)

Date 13/05/2024

Drawn LP | Checked JP | Approved JP

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage

Dwg No. EXP05

Sheet No.

GENERAL NOTES:
1. All features are taken from Topo plan by HG, dated 20/03/2024
2. Aerial image courtesy of Google.
3. Flood extent taken from NRC GIS map.

LEGEND
- Boundaries
- Existing Wastewater Pipe Line
- Proposed Wastewater Pipe Line
- Proposed Stormwater Pipe
- Flowpath
- Open drain

NOTE:
1. STORMWATER RUNOFF FROM HOUSE PLATFORM TO BE DIRECTED AWAY FROM THE EFFLUENT FIELD DISPOSAL FILED
2. SET SEQUENCING VALVE SO THAT ALL THREE DISPOSAL FIELDS RECEIVE THE SAME DOSES.

PROPOSED ADDITIONAL TANKS TO EXISTING TREATMENT PLANT REF SHEET WWD01 FOR DETAILS
EXISTING TREATMENT PLANT
LOG YARD
PARKING
MAINTENANCE WORKSHOP
ENGINEERING
OFFICE
SAW SHOP
GREEN MILL
DRY MILL
SERVER ROOM
ENGINEERING
DRY STORE # 6
DRY STORE # 5
DRY STORE # 4
DRY STORE # 1
DRY STORE # 2
DRY STORE # 3
LOT 3 DP 343062
LOT 2 DP 343062
LOT 1 DP 376253
BINSORTER
STACKER BUILDING
FUTURE BOILER 180m²
FUEL BIN
BOILER
WINDSOR CDK
MAHILD CDK
IN-FILLET YARD
PELLET PLANT
EXISTING OPEN DRAIN
EXISTING EFFLUENT PUMP LINE
EXISTING STORMWATER MANHOLE
PROPOSED CULVERT 300Ø
PROPOSED EFFLUENT PUMP LINE TO PROPOSED PUMP CHAMBER
PROPOSED CONSTRUCTED WETLAND D
EXISTING EFFLUENT DISPOSAL FIELD (TO BE DECOMMISSIONED)
PROPOSED SWALE DRAIN B
PROPOSED DISCH CHANNEL
EXISTING METAL DRIVEWAY
PROPOSED BORON PLANT 2,586m²
PROPOSED SECONDARY TREATMENT PLANT EconoTraet VBB-C-300 (FOR BORON PLANT ONLY)
PROPOSED DISPATCH YARD
PROPOSED PUMP CHAMBER
PROPOSED EFFLUENT PUMP LINE
BUILDING DRAINAGE
SEQUENCING VALVE
15.00
EXISTING WATER BORE
101.18
MIN 3m
MIN 5m
EXISTING FLOWPATH
PROPOSED RESERVE AREA 312m² (30%)
EXISTING OPEN DRAIN
PROPOSED DISH CHANNEL
PROPOSED SCRUFFY DOME
PROPOSED CULVERT Ø300 WITH FLOOD GATE
PROPOSED VEGETATED SWALE DRAIN A
EXISTING OPEN DRAIN TO BE FILLED IN
PROPOSED EFFLUENT DISPOSAL FIELD 1040m² (TOTAL) SURFACE MOUNTED DRIPPLINES DENSELY PLANTED REF. SHEET WWD02 FOR DETAILS
PROPOSED CONSTRUCTED WETLAND A

MINIMUM SECONDARY TREATMENT PLANT SETBACKS:
- INVERT LEVEL AT INLET - NOT LESS THAN 0.5m BELOW FLOOR LEVEL
- BUILDINGS - 3 m
- BOUNDARIES - 1.5m
- EASILY ACCESSIBLE FOR MAINTANACE.

CHECK ALL DIMENSION ON SITE.

SPECIFIC WASTEWATER DESIGN:
MINIMUM EFFLUENT DISPOSAL SETBACKS:
- BOUNDARIES - 1.5m
- BUILDINGS AND RETAINING WALLS - 3m
- SURFACE WATER - 5m (SECONDARY)
- COAST, RIVERS, LAKES - 30m

CHECK ALL DIMENSION ON SITE.

FLOOD EXTENT	
10-YEAR FLOOD EXTENT (10% AEP) (NRC MAP)	
100-YEAR FLOOD EXTENT (1% AEP) (NRC MAP)	

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
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DWG WASTEWATER PLAN 1/2
A3 Scale 1: 1500 (0, 30, 75)
Date 13/05/2024
Drawn LP | Checked JP | Approved JP
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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA
Client WAIPAPA PINE LIMITED
Project No. 23 256
RC no.
Stage
Dwg No. WWP01
Sheet No.

GENERAL NOTES:
1. All features are taken from Topo plan by HG, dated 20/03/2024
2. Aerial image courtesy of Google.

LEGEND
- Boundaries
- Existing Wastewater Pipe Line
- Proposed Wastewater Pipe Line
- Proposed Stormwater Pipe
- Flowpath
- Open drain

NOTE:
1. STORMWATER RUNOFF FROM HOUSE PLATFORM TO BE DIRECTED AWAY FROM THE EFFLUENT FIELD DISPOSAL FILED
2. SET SEQUENCING VALVE SO THAT DISPOSAL FIELD 1 RECEIVES ONE DOSE AND DISPOSAL FIELD 2 RECEIVES TWO DOSES.

PROPOSED CONSTRUCTED WETLAND D

PROPOSED CULVERT 300Ø

PROPOSED EFFLUENT PUMP LINE TO PROPOSED PUMP CHAMBER

EXISTING EFFLUENT DISPOSAL FIELD (TO BE DECOMMISSIONED)

PROPOSED SWALE DRAIN B

PROPOSED SECONDARY TREATMENT PLANT EconoTraet VBB-C-300 (FOR BORON PLANT ONLY)

PROPOSED DISPATCH YARD

PROPOSED DISCH CHANNEL

PROPOSED PUMP CHAMBER

PROPOSED EFFLUENT PUMP LINE

SEQUENCING VALVE

PROPOSED DISH CHANNEL

MIN 15m

MIN 3m

EXISTING OPEN DRAIN

PROPOSED RESERVE AREA 312m² (30%)

MINIMUM SECONDARY TREATMENT PLANT SETBACKS:
- INVERT LEVEL AT INLET - NOT LESS THAN 0.5m BELOW FLOOR LEVEL
- BUILDINGS - 3 m
- BOUNDARIES - 1.5m
- EASILY ACCESSIBLE FOR MAINTANACE.

CHECK ALL DIMENSION ON SITE.

SPECIFIC WASTEWATER DESIGN:
MINIMUM EFFLUENT DISPOSAL SETBACKS:
- BOUNDARIES - 1.5m
- BUILDINGS AND RETAINING WALLS - 3m
- SURFACE WATER - 5m (SECONDARY)
- COAST, RIVERS, LAKES - 30m

CHECK ALL DIMENSION ON SITE.

PROPOSED CULVERT Ø300

MIN 5m

PROPOSED SCRUFFY DOME

EXISTING OPEN DRAIN TO BE FILLED IN

PROPOSED EFFLUENT DISPOSAL FIELD 1040m² (TOTAL) SURFACE MOUNTED DRIPPLINES DENSELY PLANTED REF. SHEET WWD02 FOR DETAILS

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG WASTEWATER PLAN 2/2

A3 Scale 1: 750 (0 15 38)

Date 13/05/2024

Drawn LP | Checked JP | Approved JP

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Project BOREON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

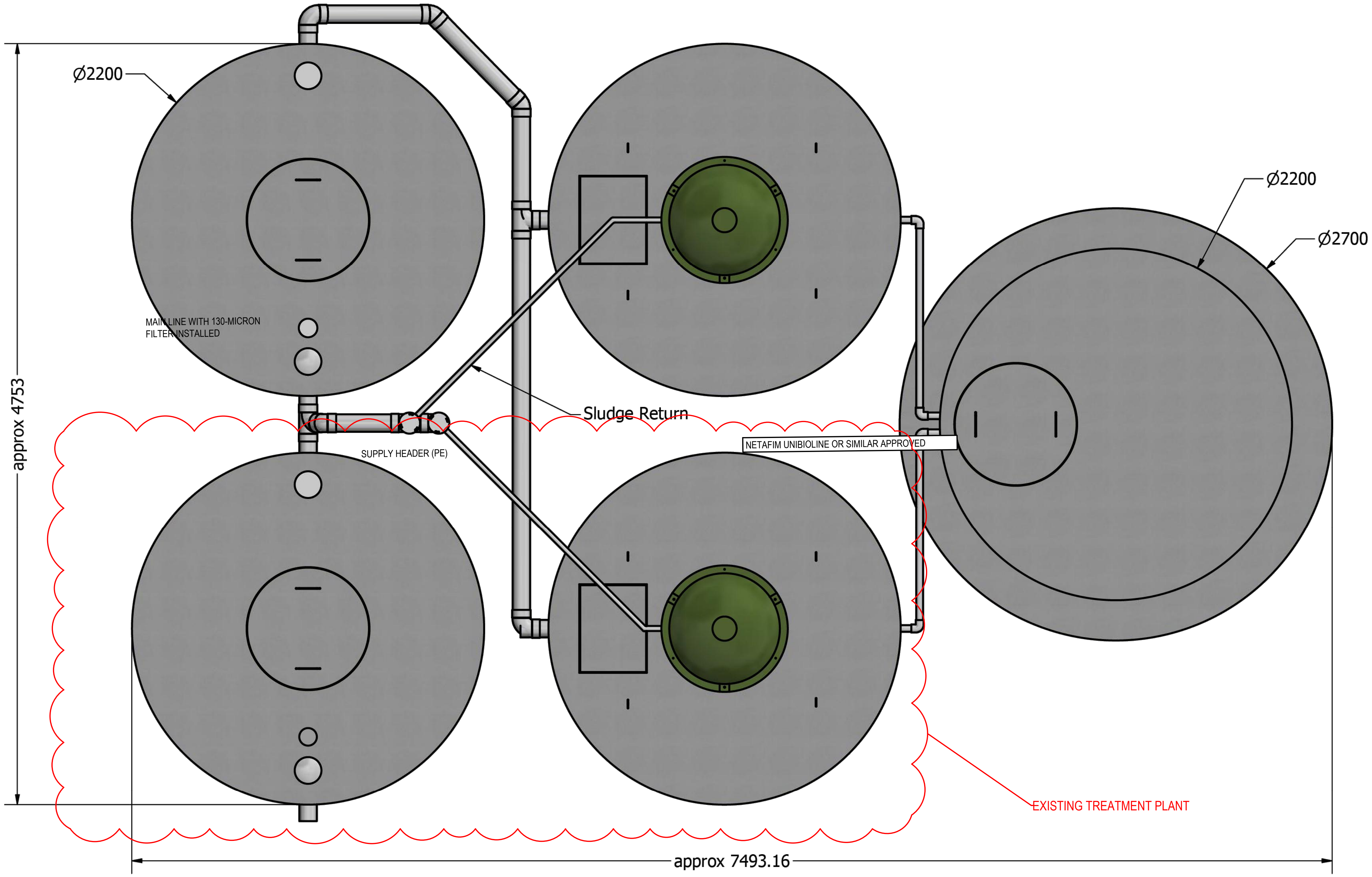
Project No. 23 256

RC no.

Stage

Dwg No. WWP02

Sheet No.



Water Flow NZ LTD

1160 SH12
MAUNGATUROTO 0548
PH: 0800 628 356
E: sales@waterflow.co.nz

Econotreat VBB C 3000 Twin

-, -

PREPARED FOR:

Sheet 2 of 4

DRAWN: Gerald Hoyle | DWG:
REVISION | DATE: 17/04/2019 | SCALE: 1 / 25 | REF:

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG: WASTEWATER TREATMENT PLANT AT THE OFFICE PLAN VIEW

A3 Scale: NTS
Date: 13/05/2024
Drawn: LP
Checked: JP
Approved: JP
File: T:\CLIENTS\WAIPAPA PINE LIMITED\JOBS\23 256 - WAIPAPA MILL -1945B STATE HIGHWAY 10, WAIPAPA\ENGINEERING\DRAWINGS\01_CIVIL\23 256_20240507_DRIPLINES.DWG

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Project: BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

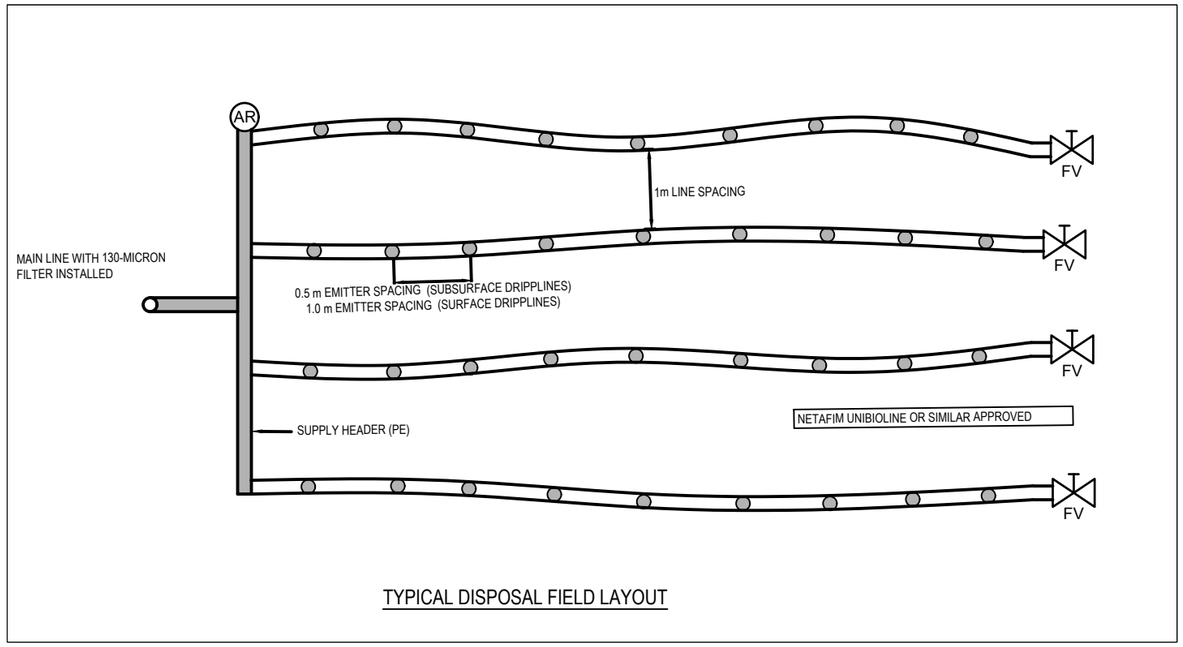
Client: WAIPAPA PINE LIMITED

Project No. 23 256
RC no.

Stage

Dwg No. WWD01

Sheet No.



TYPICAL DISPOSAL FIELD LAYOUT

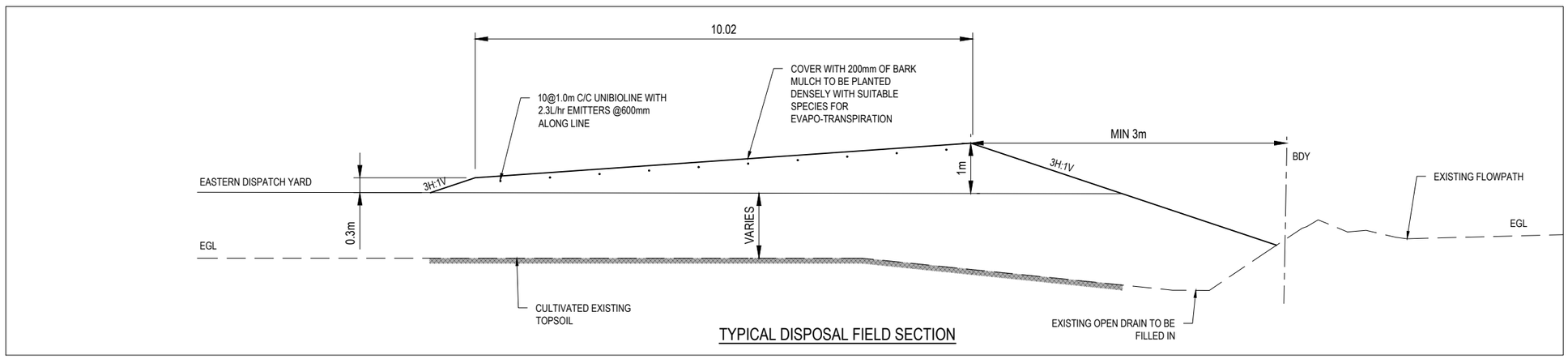
LEGEND:

AR — AIR / VACUUM RELEASE VALVE

FV — FLUSHING VALVE

NOTE:

1. DNL VALVES TO BE PLACED ACCORDINGLY TO PREVENT SATURATION AT LOW POINTS DUE TO DRAIN DOWN.



TYPICAL DISPOSAL FIELD SECTION

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG EFFLUENT DISPOSAL AREA LAYOUT

A3 Scale: NTS | Date 13/05/2024

Drawn LP | Checked JP | Approved JP

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage

Dwg No. WWD03

Sheet No.

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	JT	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG FINISHED GROUND LEVEL PLAN

A3 SCALE 1:750 0 15m 37.5m

Date 13/05/2024

Drawn JT | Checked JP | Approved JP

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage

Dwg No. EWP01

Sheet No. 1 of 2

BUND 1 EARTHWORKS					
Number	Color	Minimum Elevation	Maximum Elevation	2D Area	Volume
1		-3.000 m	-2.000 m	551.9 m2	167.9 m3
2		-2.000 m	-1.000 m	564.3 m2	822.7 m3
3		-1.000 m	0.000 m	994.9 m2	1 537.9 m3
			Total Cut	2 111.1 m2	2 528.5 m3

BUND 2 EARTHWORKS					
Number	Color	Minimum Elevation	Maximum Elevation	2D Area	Volume
1		-4.000 m	-3.000 m	0.0 m2	0.0 m3
2		-3.000 m	-2.000 m	167.9 m2	86.3 m3
3		-2.000 m	-1.000 m	107.6 m2	222.1 m3
4		-1.000 m	0.000 m	119.8 m2	333.8 m3
			Total Cut	395.3 m2	642.2 m3

BUND 3 EARTHWORKS					
Number	Color	Minimum Elevation	Maximum Elevation	2D Area	Volume
1		-4.000 m	-3.000 m	0.7 m2	0.0 m3
2		-3.000 m	-2.000 m	117.6 m2	56.8 m3
3		-2.000 m	-1.000 m	139.0 m2	185.3 m3
4		-1.000 m	0.000 m	192.8 m2	342.8 m3
			Total Cut	450.1 m2	584.9 m3

DISPATCH YARD TOPSOIL STRIPPING (-0.2m)						
Number	Color	Minimum Elevation	Maximum Elevation	2D Area	Volume	Total Volume
1		-1.000 m	0.000 m	26 119.6 m2	5 223.9 m3	Total Cut (5 223.9 m3)

DISPATCH YARD EARTHWORKS						
Number	Color	Minimum Elevation	Maximum Elevation	2D Area	Volume	Total Volume
1		-1.000 m	0.000 m	1 181.8 m2	508.1 m3	Total Cut (508.1 m3)
2		0.000 m	1.000 m	13 752.3 m2	19 105.3 m3	Total Fill (22 273.1 m3)
3		1.000 m	2.000 m	10 527.6 m2	3 166.9 m3	
4		2.000 m	3.000 m	9.4 m2	0.9 m3	

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	JT	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG EARTHWORKS CUT AND FILL PLAN

A3 SCALE 1:1000 0 20m 50m

Date 13/05/2024

Drawn JT | Checked JP | Approved JP

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

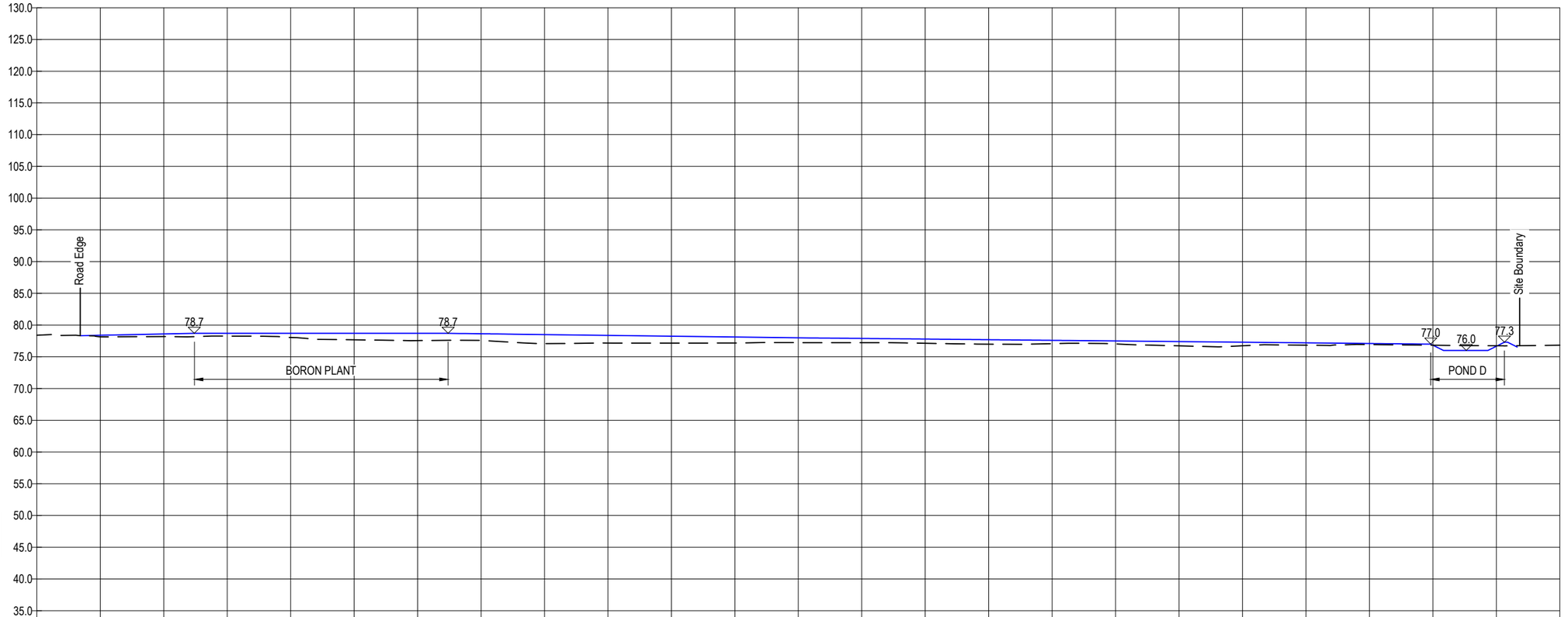
Project No. 23 256

RC no.

Stage

Dwg No. EWP02

Sheet No. 2 of 2



Vertical: 1:500
Horizontal: 1:500

Datum 30.0

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Existing Levels	78.394	78.161	78.188	78.268	78.049	77.683	77.561	77.584	77.074	77.165	77.16	77.177	77.233	77.226	77.135	76.999	77.076	77.021	76.729	76.744	76.83	76.936	76.830	76.735	76.748	76.825
Cut/Fill Depth		0.230	0.411	0.432	0.651	1.017	1.139	1.049	1.434	1.217	1.094	0.951	0.769	0.671	0.662	0.698	0.520	0.476	0.667	0.553	0.367	0.161	0.007	-0.071		
Chainage	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	230.000	233.294	240.000

SECTION A

Scale: Horizontal 1:500, Vertical 1:500

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	JT	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG EARTHWORKS
SECTION A

A3 SCALE 1:750 0 15m 37.5m

Date 13/05/2024

Drawn JT | Checked JP | Approved JP

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

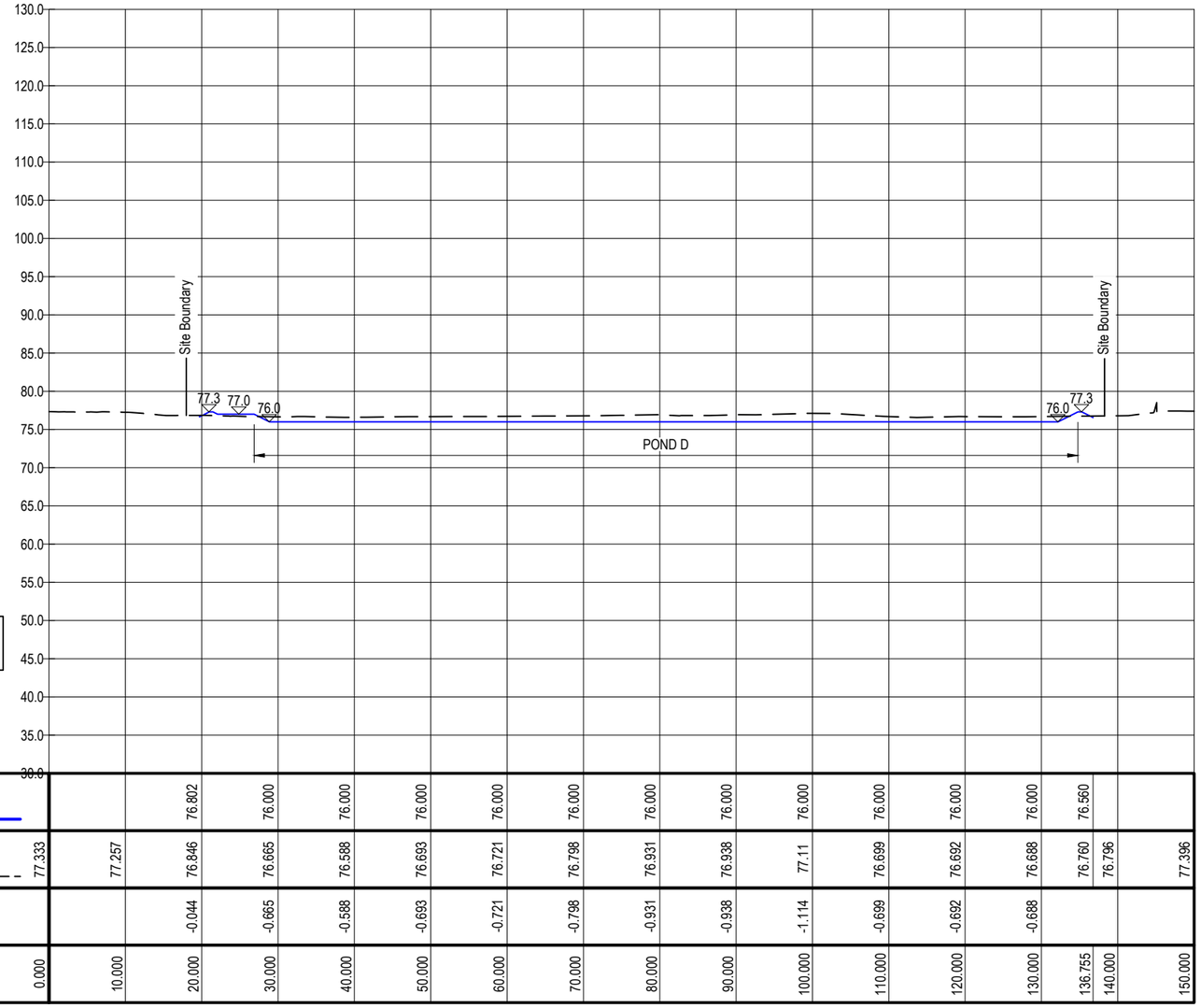
Project No. 23 256

RC no.

Stage

Dwg No. EWL01

Sheet No. 1 of 3



Vertical: 1:500
Horizontal: 1:500

Datum 30.0

Design Levels			76.802	76.000	76.000	76.000	76.000	76.000	76.000	76.000	76.000	76.000	76.000	76.560	
Existing Levels	77.333	77.257	76.846	76.665	76.588	76.693	76.721	76.798	76.931	76.938	77.11	76.699	76.692	76.688	76.760	76.796	77.396
Cut/Fill Depth			-0.044	-0.665	-0.588	-0.693	-0.721	-0.798	-0.931	-0.938	-1.114	-0.699	-0.692	-0.688			
Chainage	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	136.755	140.000	150.000

SECTION B

Scale: Horizontal 1:500, Vertical 1:500

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	JT	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG EARTHWORKS
SECTION B

A3 SCALE 1:750 0 15m 37.5m

Date 13/05/2024

Drawn JT | Checked JP | Approved JP

File T:\CLIENTS\WAIPAPA PINE LIMITED\JOBS\23 256 - WAIPAPA MILL -1945B STATE HIGHWAY 10, WAIPAPA\ENGINEERING\DRAWINGS\01_CIVIL\23_256_CIVIL_DESIGN_C3D.DWG

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

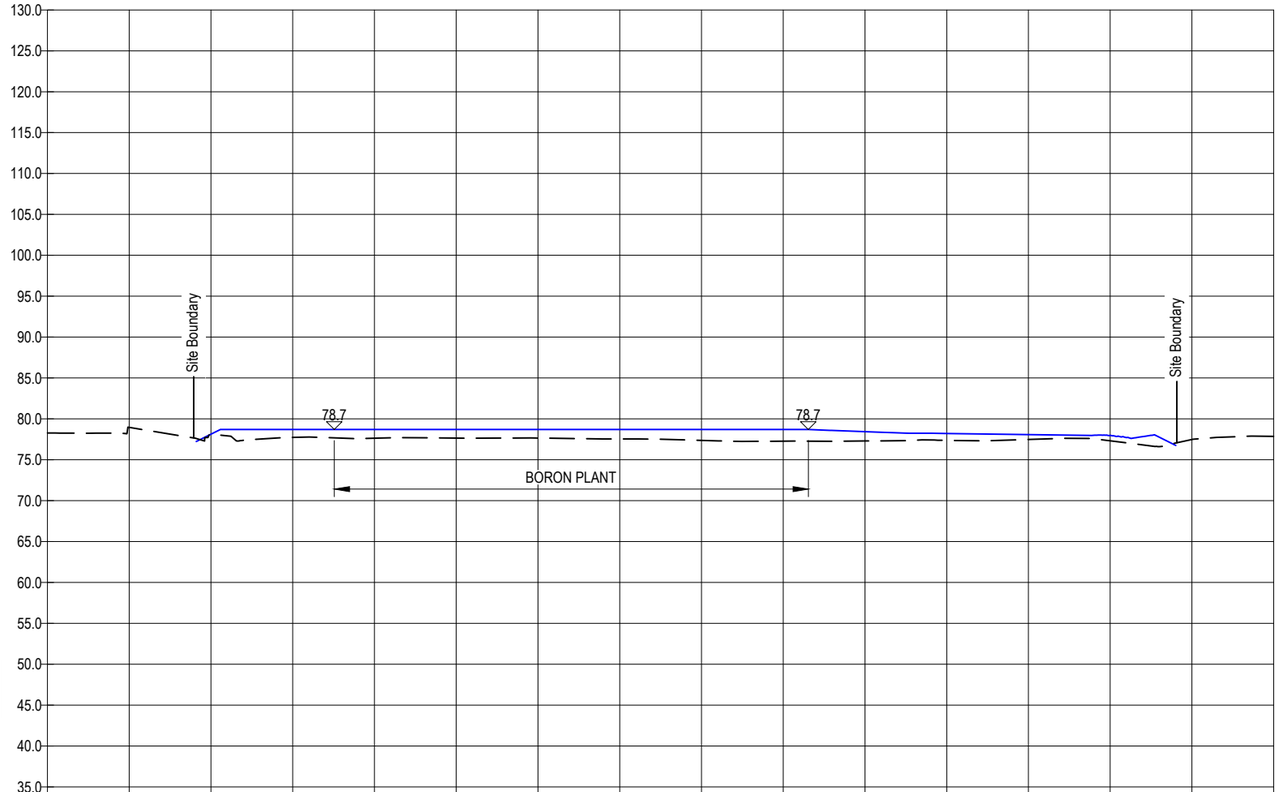
Project No. 23 256

RC no.

Stage

Dwg No. EWL02

Sheet No. 2 of 3



Vertical: 1:500
Horizontal: 1:500

Datum 30.0

Design Levels			78.129	78.700	78.700	78.700	78.700	78.700	78.700	78.437	78.211	78.075	77.990	76.753	
Existing Levels	78.266	78.955	78.126	77.731	77.634	77.647	77.656	77.550	77.368	77.274	77.29	77.372	77.485	77.314	77.048	77.478	77.863
Cut/Fill Depth			0.003	0.969	1.066	1.053	1.044	1.150	1.332	1.426	1.143	0.840	0.590	0.676			
Chainage	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	138.030	140.000	150.000

SECTION C

Scale: Horizontal 1:500, Vertical 1:500

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	JT	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG EARTHWORKS
SECTION C

A3 SCALE 1:750 0 15m 37.5m

Date 13/05/2024

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage

Dwg No. EWL03

Sheet No. 3 of 3

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	JT	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

AT - 95th - Car

Overall Length	5.060m
Overall Width	1.923m
Overall Body Height	1.784m
Min Body Ground Clearance	0.231m
Max Track Width	1.888m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.450m

FOR RC

DWG ACCESS & PARKING PLAN (NORTH)

A3 SCALE 1:500 0 10m 25m

Date 13/05/2024

Drawn JT | Checked JP | Approved JP

File T:\CLIENTS\WAIPAPA PINE LIMITED\JOBS\23 256 - WAIPAPA MILL -1945B STATE HIGHWAY 10, WAIPAPA\ENGINEERING\DRAWINGS\01_CIVIL\23_256_CIVIL_DESIGN_C3D.DWG

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

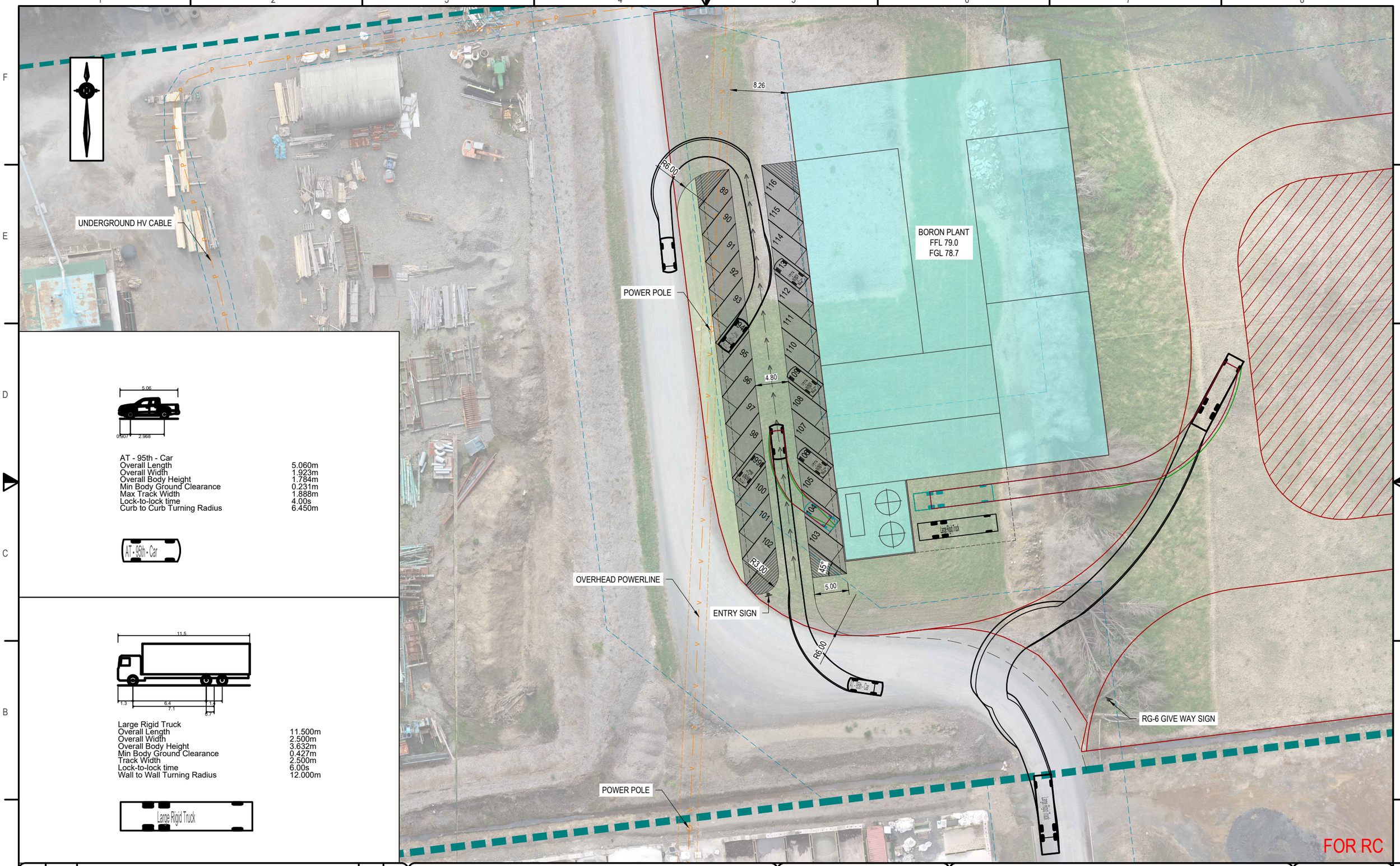
Project No. 23 256

RC no.

Stage

Dwg No. CPP01

Sheet No. 1 of 3



AT - 95th - Car

Overall Length	5.060m
Overall Width	1.923m
Overall Body Height	1.784m
Min Body Ground Clearance	0.231m
Max Track Width	1.888m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.450m

Large Rigid Truck

Overall Length	11.500m
Overall Width	2.500m
Overall Body Height	3.632m
Min Body Ground Clearance	0.427m
Track Width	2.500m
Lock-to-lock time	6.00s
Wall to Wall Turning Radius	12.000m

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	JT	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG ACCESS & PARKING PLAN (BORON PLANT)

A3 SCALE 1:500 — 0 — 10m — 25m

Date 13/05/2024

Drawn JT | Checked JP | Approved JP

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Project: BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client: WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage

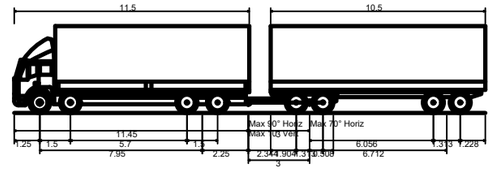
Dwg No. CPP02

Sheet No. 2 of 3

BORON PLANT
FFL 79.0
FGL 78.7

DISPATCH YARD
9,000 m²

RG-6 GIVE WAY SIGN



AT - Truck - HPMV - 23.0m Truck and Trailer

Overall Length	23.046m
Overall Width	2.500m
Overall Body Height	4.250m
Min Body Ground Clearance	0.373m
Track Width	2.500m
Lock-to-lock time	6.00s
Wall to Wall Turning Radius	12.500m

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	JT	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG ACCESS & PARKING PLANT (DISPATCH YARD)

A3 SCALE 1:500 0 10m 25m

Date 13/05/2024

Drawn JT | Checked JP | Approved JP

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage

Dwg No. CPP03

Sheet No. 3 of 3

GENERAL NOTES:
1. All features are taken from Topo plan by HG, dated 20/03/2024
2. Aerial image courtesy of Google.
3. Flood extent taken from NRC GIS map.

LEGEND
- Boundaries
- Existing Wastewater Pipe Line
- Proposed Wastewater Pipe Line
- Proposed Stormwater Pipe
- Flowpath
- Existing drain
- Stabilised Entrance
- Decanting Earth Bund (Catchment area less than 0.3ha)

EXISTING OPEN DRAIN
PROPOSED CULVERT PROVIDES INTERCEPTION
EXISTING EFFLUENT DISPOSAL FIELD (TO BE DECOMMISSIONED)
EXTENT OF EARTHWORKS
PROPOSED WASTEWATER PIPE LINE
DIG CONSTRUCTED WETLAND D AS SEDIMENT POND
FUTURE BOILER 180m²
EXISTING OPEN DRAIN
TOPSOIL TO BE STOCKPILED ON FUTURE WASTEWATER FIELD
STABILISED ENTRANCE
PROPOSED EFFLUENT DISPOSAL FIELD
EXISTING OPEN DRAIN TO BE FILLED IN
EXISTING FLOWPATH
SILT FENCE
PROPOSED VEGETATED SWALE DRAIN A

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	JT	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG EROSION AND SEDIMENT CONTROL

A3 Scale 1: 1500 (0 30 75) Date 13/05/2024

Drawn JT Checked JP Approved JP

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Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage ####

Dwg No. ESC01

Sheet No.

Appendix B - NRC Flood Maps

Flood Level Report

Northland REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

Parcel ID: 6902570

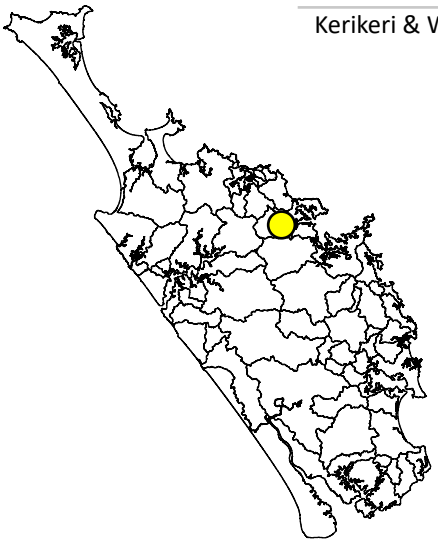
Title: 306630

Appellation: Lot 2 DP 376253

Survey Area: 25,280 m²

Catchment Name(s)

Kerikeri & Waipapa



Date Exported: 21/03/2024

Report Reference: 20240321_081732

Useful Flood Information Definitions

Annual Exceedance Probability (AEP) - The probability of a flood event of a given size occurring in any one year, usually expressed as a percentage annual chance.

1% AEP - A flood of this size or larger has a 1 in 100 chance or a 1% probability of occurring in any year.
2% AEP - A flood of this size or larger has a 1 in 50 chance or a 2% probability of occurring in any year.
5% AEP - A flood of this size or larger has a 1 in 20 chance or a 5% probability of occurring in any year.
10% AEP - A flood of this size or larger has a 1 in 10 chance or a 10% probability of occurring in any year.

NZVD2016 - New Zealand Vertical Datum - The reference level used in our flood models to define ground level.
Flood Levels - Flood levels are used from our modelled flood level rasters. The flood levels are calculated above NZVD 2016 Datum.
Climate Change (CC) - NZCPS (2010) requires that the identification of coastal hazards includes consideration of sea level rise over at least a 100-year planning period. Climate change impacts, such as increased rain intensity, have been included in the flood scenarios. You can read more about the Climate Change forecasts included in each flood model in the technical reports on the NRC website.
Mean high water spring (MHWS) - describes the highest level that spring tides reach, on average.

Coastal Flood Hazard Zones (CFHZ)

Coastal flood hazard zones are derived using a range of data including tide gauge analysis, wind and wave data and models, and use empirical calculations to estimate extreme water levels around the coastline. The calculations include projected sea level rise scenarios based on the latest Ministry for the Environment guidance.

CFHZ 0 Coastal Flood Hazard Zone 0 - area currently susceptible to coastal inundation (flooding by the sea) in a 1-in-100 year storm event
CFHZ 1 Coastal Flood Hazard Zone 1 - an area susceptible to coastal inundation (flooding by the sea) in a 1-in-50 year storm event, taking into account a projected sea-level rise of 0.6m over the next 50 years
CFHZ 2 Coastal Flood Hazard Zone 2 - an area susceptible to coastal inundation (flooding by the sea) in a 1-in-100 year storm event, taking into account a projected sea-level rise of 1.2m over the next 100 years
CFHZ 3 Coastal Flood Hazard Zone 3 - an area susceptible to coastal inundation (flooding by the sea) in a 1-in-100 year storm event, taking into account a projected sea-level rise of 1.5m over the next 100 years (rapid sea level rise scenario)

REGIONWIDE and PRIORITY - RIVER FLOOD HAZARD ZONES (RFHZ)

River flood hazard zones are created to raise awareness of where flood hazard areas are identified, inform decision-making and to support the minimisation of the impacts of flooding in our region. The river flood hazard zones have been created using an assessment of best current available information, engaging national and international experts in the field, using national standards and guidelines and has been peer reviewed. This will provide a good indication of the areas at potential risk of flooding from a regional perspective. However, flood mapping is a complex process which involves some approximation of the natural features and processes associated with flooding.

River Flood Hazard Zone 1 – 10% AEP flood extent: an area with a 10% chance of flooding annually
River Flood Hazard Zone 2 – 2% AEP flood extent: an area with a 2% chance of flooding annually
River Flood Hazard Zone 3 – 1% AEP flood extent: an area with a 1% chance of flooding annually with the inclusion of potential Climate Change (CC) impact

River Flooding

10 Year

Maximum	Minimum
77.68 m	77.29 m

Max Min flood levels are for the raster extent shown on the map

10 Year

m NZVD

77.29 - 77.49

77.49 - 77.69

Parcel

Flood Level Point

Label	Level
1	77.29 m
2	0 m
4	0 m

N

0 15 30 60 90 m

Report Reference: 20240321_081732

River Flooding

50 Year

Maximum	Minimum
78.26 m	77.46 m

Max Min flood levels are for raster extent shown on the map

50 Year

m NZVD

- 77.46 - 77.66
- 77.66 - 77.86
- 77.86 - 78.06
- 78.06 - 78.26
- 78.26 - 78.46

Parcel

Flood Level Point

Label	Level
1	77.79 m
2	77.64 m
3	77.46 m
4	78.25 m

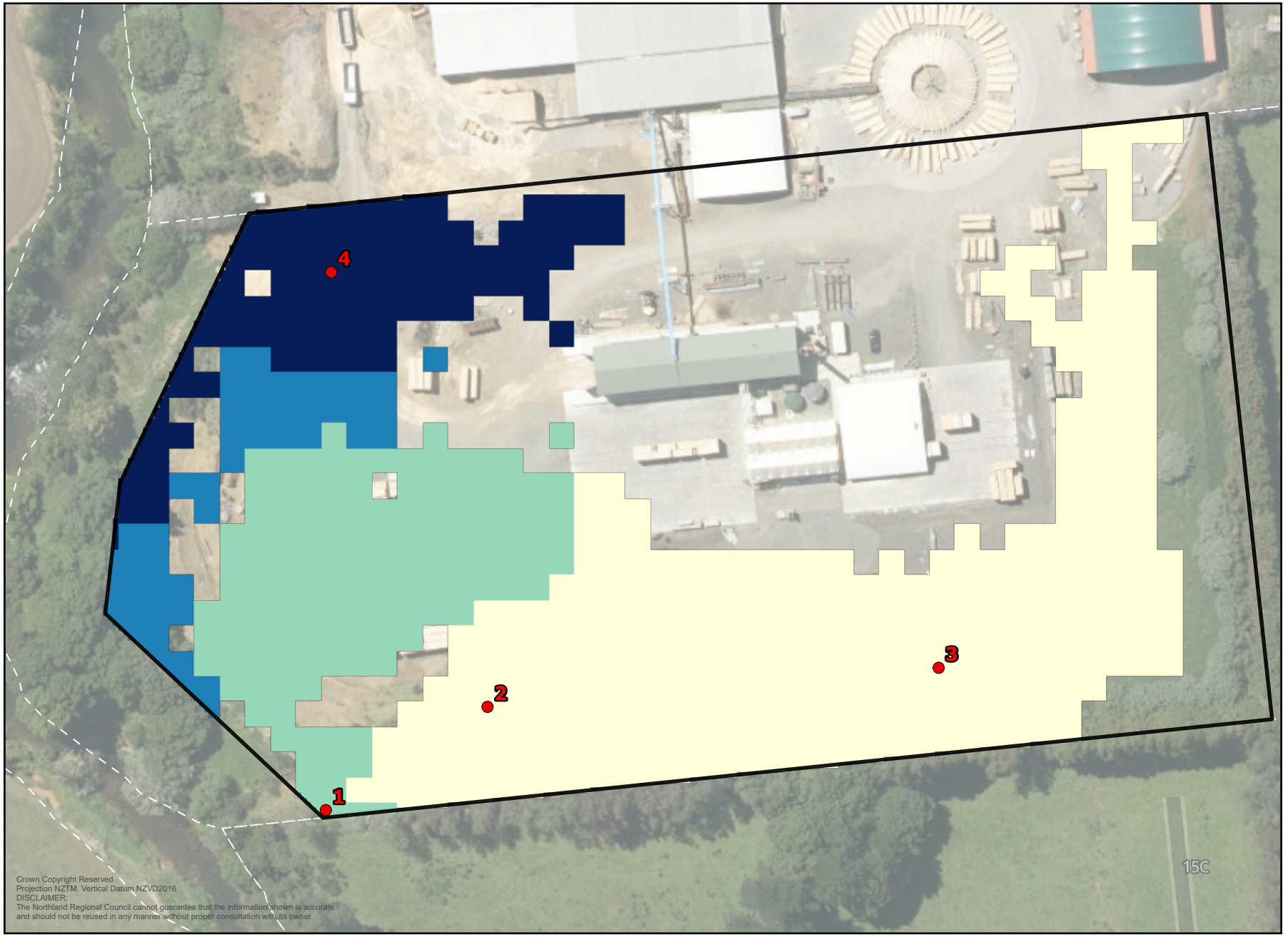
N

0 15 30 60 90 m

Report Reference: 20240321_081732

River Flooding

100 Year + CC



Maximum	Minimum
78.59 m	77.8 m

Max Min flood levels are for raster extent shown on the map

100 Year + CC

m NZVD

- 77.80 - 78.00
- 78.00 - 78.20
- 78.20 - 78.40
- 78.40 - 78.60
- Parcel
- Flood Level Point

Label	Level
1	78.05 m
2	77.96 m
3	77.81 m
4	78.5 m

N

0 15 30 60 90 m

Report Reference: 20240321_081732

Disclaimers

Our modelling disclaimers are linked below:
https://www.nrc.govt.nz/media/ko2dkgxn/coastal-hazard-maps-disclaimer-june-2017.pdf
https://www.nrc.govt.nz/media/cqnnw12y/flood-map-disclaimer-2021.pdf

Our regionwide modelling reports are linked below:
https://www.nrc.govt.nz/environment/river-flooding-and-coastal-hazards/river-flooding/river-flood-hazard-maps/regionwide-river-catchments-analysis-technical-reports

ARE YOU FLOOD READY?

01

Know your risk

Check what potential flood risks and other hazards that may impact your property.

The Natural Hazards Portal is a great place to start. It's a 'one-stop-shop' of information related to natural hazards within our region: www.nrc.govt.nz/environment/natural-hazards-portal

The Environmental Data Hub provides river level and flow data, as well as warning levels, rainfall data, water quality, and more: www.nrc.govt.nz/environment/environmental-data/environmental-data-hub

02

Have a plan

Make sure you have an evacuation plan, emergency kit and important phone numbers ready. Check out: https://getready.govt.nz/en/prepared/ for tips on how to get ready.

03

Stay up to date

In a civil defence emergency situation, follow the updates on the Northland CDEM Group's Facebook page: www.facebook.com/civildefencenorthland

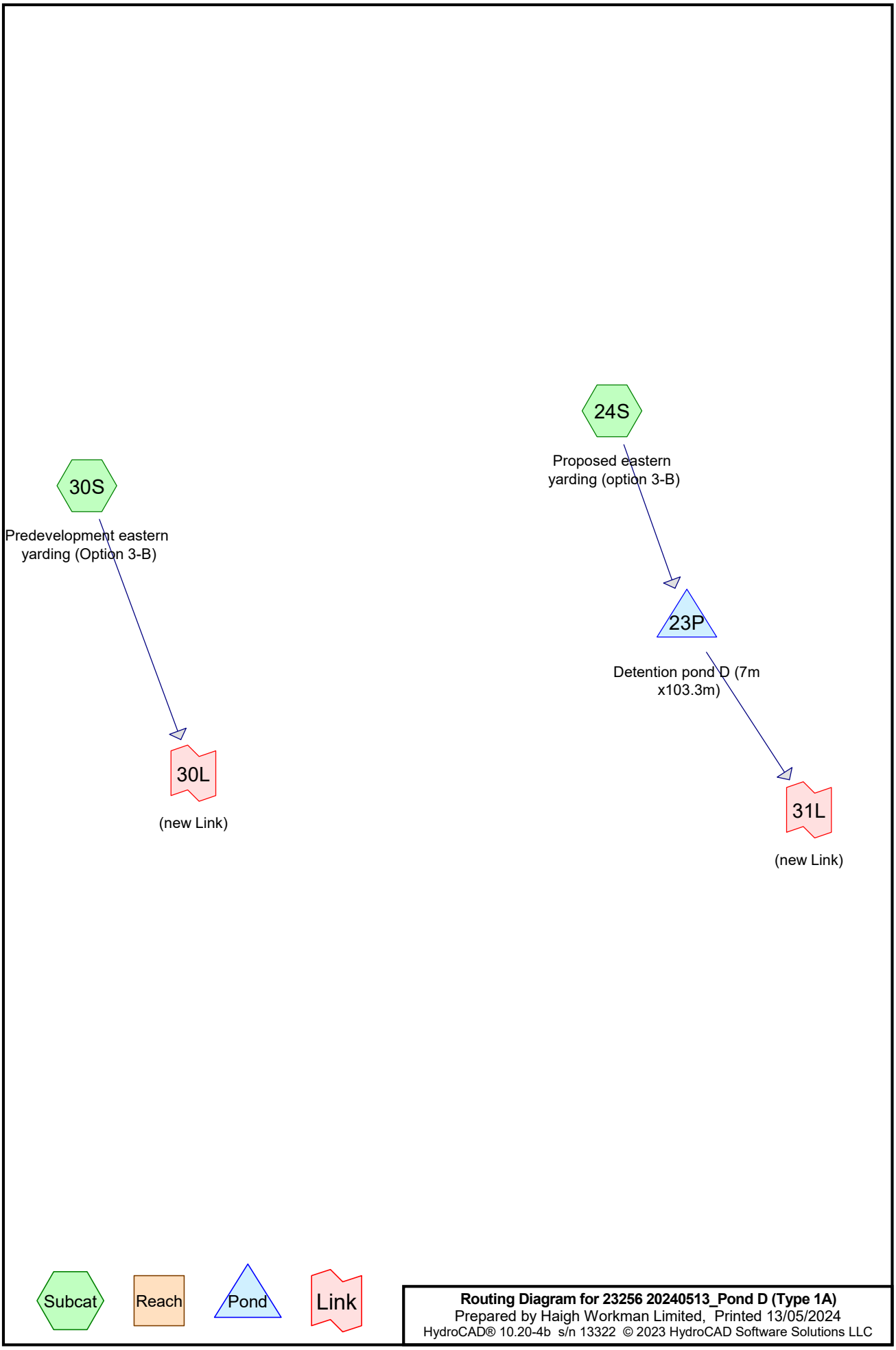
Or follow updates from the embedded feed on the regional council website: www.nrc.govt.nz/civildefence

04

In an emergency

Remember, if life is threatened dial 111 to contact emergency services.

Appendix C – Stormwater Calculations



Routing Diagram for 23256 20240513_Pond D (Type 1A)
Prepared by Haigh Workman Limited, Printed 13/05/2024

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (mm)	AMC
1	Type 1A-100yr	Type IA 24-hr		Default	24.00	1	311	2
2	Type 1A-10yr	Type IA 24-hr		Default	24.00	1	202	2
3	Type 1A-2yr	Type IA 24-hr		Default	24.00	1	129	2
4	Type 1A-5yr	Type IA 24-hr		Default	24.00	1	171	2

Area Listing (selected nodes)

Area (sq-meters)	CN	Description (subcatchment-numbers)
19,771	61	Grass (30S)
2,620	61	Grass (Boron Plant) (30S)
3,770	61	Grass (carparks, road) (30S)
19,771	85	Gravel (24S)
45,932	**71**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (sq-meters)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
0	HSG D	
45,932	Other	24S, 30S
45,932		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (sq-meters)	HSG-B (sq-meters)	HSG-C (sq-meters)	HSG-D (sq-meters)	Other (sq-meters)	Total (sq-meters)	Ground Cover	Subcatch Numbers
0	0	0	0	19,771	19,771	Grass	
0	0	0	0	2,620	2,620	Grass (Boron Plant)	
0	0	0	0	3,770	3,770	Grass (carparks, road)	
0	0	0	0	19,771	19,771	Gravel	
0	**0**	**0**	**0**	**45,932**	**45,932**	**TOTAL AREA**	

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 24S: Proposed Runoff Area=19,771 m² 0.00% Impervious Runoff Depth>262 mm
Tc=10.0 min CN=85 Runoff=371 L/s 5,183 m³

Subcatchment 30S: Predevelopment Runoff Area=26,161 m² 0.00% Impervious Runoff Depth>175 mm
Tc=10.0 min CN=61 Runoff=310 L/s 4,583 m³

Pond 23P: Detention pond D (7m Peak Elev=77.00 m Storage=944 m³ Inflow=371 L/s 5,182 m³
Outflow=249 L/s 4,709 m³

Link 30L: (new Link) Inflow=310 L/s 4,581 m³
Primary=310 L/s 4,581 m³

Link 31L: (new Link) Inflow=249 L/s 4,708 m³
Primary=249 L/s 4,708 m³

Total Runoff Area = 45,932 m² Runoff Volume = 9,766 m³ Average Runoff Depth = 213 mm
100.00% Pervious = 45,932 m² 0.00% Impervious = 0 m²

Summary for Subcatchment 24S: Proposed eastern yarding (option 3-B)

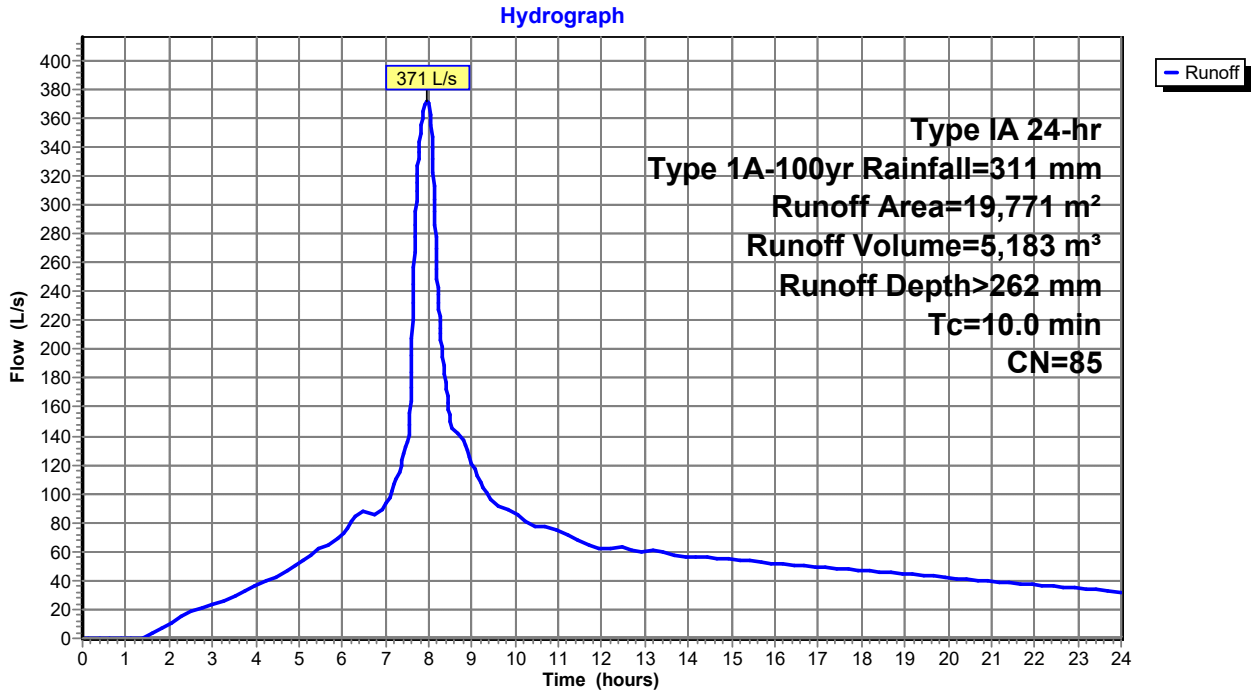
Runoff = 371 L/s @ 7.95 hrs, Volume= 5,183 m³, Depth> 262 mm
Routed to Pond 23P : Detention pond D (7m x103.3m)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type IA 24-hr Type 1A-100yr Rainfall=311 mm

	Area (m²)	CN	Description
*	19,771	85	Gravel
	19,771		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 24S: Proposed eastern yarding (option 3-B)



Summary for Subcatchment 30S: Predevelopment eastern yarding (Option 3-B)

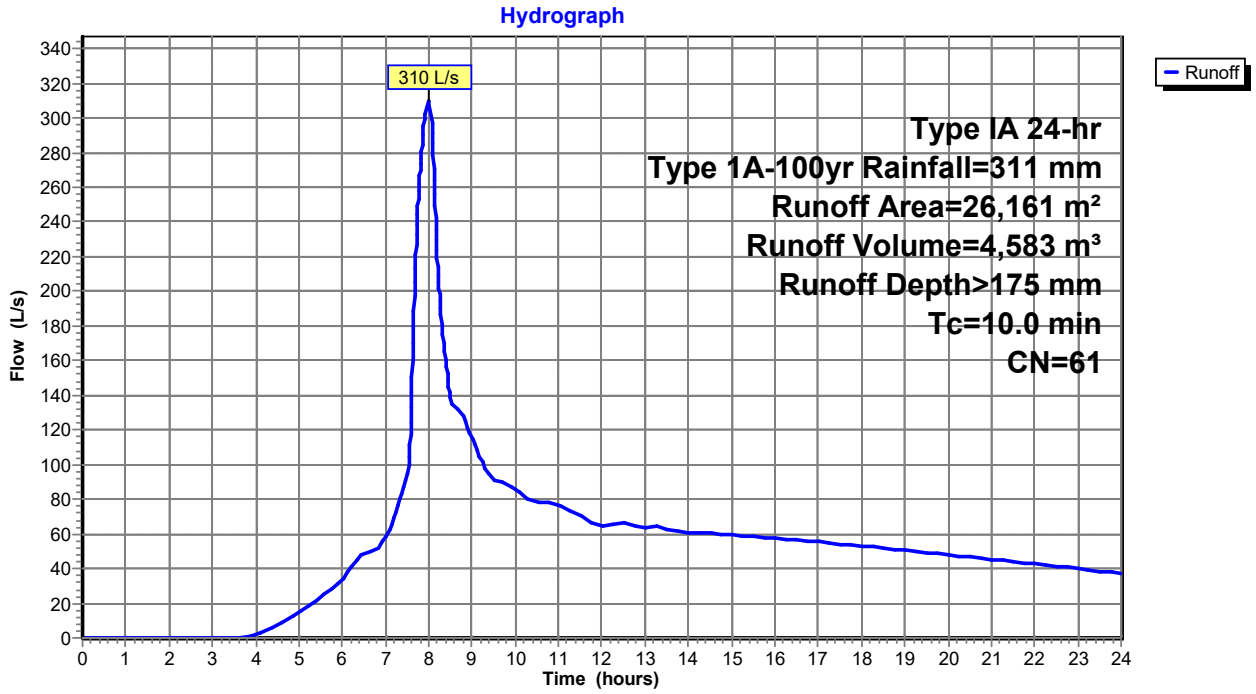
Runoff = 310 L/s @ 8.01 hrs, Volume= 4,583 m³, Depth> 175 mm
Routed to Link 30L : (new Link)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type IA 24-hr Type 1A-100yr Rainfall=311 mm

	Area (m²)	CN	Description
*	19,771	61	Grass
*	2,620	61	Grass (Boron Plant)
*	3,770	61	Grass (carparks, road)
	26,161	61	Weighted Average
	26,161		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 30S: Predevelopment eastern yarding (Option 3-B)



Summary for Pond 23P: Detention pond D (7m x103.3m)

Inflow Area = 19,771 m², 0.00% Impervious, Inflow Depth > 262 mm for Type 1A-100yr event
Inflow = 371 L/s @ 7.95 hrs, Volume= 5,182 m³
Outflow = 249 L/s @ 8.20 hrs, Volume= 4,709 m³, Atten= 33%, Lag= 15.2 min
Primary = 249 L/s @ 8.20 hrs, Volume= 4,709 m³
Routed to Link 31L : (new Link)

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 77.00 m @ 8.20 hrs Surf.Area= 1,178 m² Storage= 944 m³

Plug-Flow detention time= 129.1 min calculated for 4,709 m³ (91% of inflow)
Center-of-Mass det. time= 65.7 min (761.9 - 696.2)

Volume	Invert	Avail.Storage	Storage Description
#1	76.00 m	949 m³	**7.00 mW x 103.30 mL x 1.00 mH Prismatoid Z=2.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	76.00 m	**100 mm Vert. Orifice/Grate 2yr** C= 0.650 Limited to weir flow at low heads
#2	Primary	76.30 m	**150 mm Vert. Orifice/Grate** C= 0.650 Limited to weir flow at low heads
#3	Primary	76.60 m	**300 mm Horiz. Orifice/Grate - Horizontal** C= 0.650 Limited to weir flow at low heads
#4	Primary	76.80 m	**0.15 m long + 2.0 m/m SideZ x 0.50 m breadth Broad-Crested Rectangular W** Head (meters) 0.06 0.12 0.18 0.24 0.30 0.37 0.43 0.49 0.55 0.61 0.76 0.91 1.07 Coef. (Metric) 1.43 1.45 1.45 1.47 1.50 1.55 1.59 1.67 1.67 1.64 1.78 1.81 1.83

Primary OutFlow Max=249 L/s @ 8.20 hrs HW=77.00 m TW=0.00 m (Dynamic Tailwater)
- **1=Orifice/Grate 2yr** (Orifice Controls 22 L/s @ 2.80 m/s)
- **2=Orifice/Grate** (Orifice Controls 40 L/s @ 2.27 m/s)
- **3=Orifice/Grate - Horizontal** (Orifice Controls 128 L/s @ 1.81 m/s)
- **4=Broad-Crested Rectangular Weir** (Weir Controls 58 L/s @ 0.55 m/s)

Pond 23P: Detention pond D (7m x103.3m)