
Scott Randell

Proposed Impermeable Surfaces

53F Shepherd Road, Kerikeri

Williams & King, Kerikeri¹
10 November 2023



Cover Photograph: Building Location for Proposed Shed

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1.0 Overview

Scott Randell proposes to further develop his property located at 53F Shepherd Road, in Kerikeri, through the addition of a proposed gable shed. PIM assessment of the building consent application (EBC-2024-310/0) has identified the need for resource consent due to the maximum proportion of the gross site area covered by buildings and other impermeable surfaces exceeding the permitted activity allowance. Note that the Form 4 has been revised as of 5 October 2023 to exclude the requirement for earthworks permit, based on the proposed earthworks being for the purpose of preparation of foundations and topsoil stripping for the building footprint.

The subject site contains an existing dwelling, with a metalled driveway, and is accessed via easements. It is legally described as Lot 8 DP 373344 and is held in the Record of Title 296612.

The subject site is zoned Rural Living in the Operative Far North District Plan, and the proposed development requires resource consent as a controlled activity for infringement of the 'Stormwater Management' Rule of the zone. Under the Proposed Far North District Plan, the site is zoned Rural Residential.

The application is accompanied by a Stormwater Mitigation Report, which provides the detail of proposed mitigation of stormwater runoff.

This assessment accompanies the Resource Consent application made by the Applicant and is provided in accordance with Schedule 4 of the Resource Management Act 1991. It is intended to provide the necessary information, in sufficient detail, to provide an understanding of the proposal and any actual or potential effects the proposed activity may have on the environment.

2.0 Description of Proposal

2.1 Proposed Building and Land Use

A proposed gable shed with a floor area of approximately 71.5m² and a roof area of 82.5m² is proposed on a site which is already developed with a residential dwelling, onsite wastewater system and metalled driveway.

The shed will have an apex height of approximately 5.1m.

The shed will be located in the south western portion of the site. The proposed building site is indicated by wooden stakes. Refer to the Site Plan, Earthworks Plan, Floor Plan, Elevation Plans in **Appendix 1**.

2.2 Vehicle Access and Parking

The shed will include a roller door facing an existing metalled parking and manoeuvring area. The existing internal driveway will be used for access, subject to minor adjustments to the alignment (for example, small extensions to the metalled area to ensure access to the roller door), however any added impermeable areas used for access would be offset through reversion of other existing metalled areas to grass and/or landscaping. The site has existing outdoor parking areas, and additional parking will be available within the shed.

2.3 Impermeable Surfaces and Stormwater Management

The proposal will add 82.5m² of impermeable surfaces to the site, comprising the additional roof area of the proposed shed. This will be in addition to the existing dwelling, driveway, concrete path, and portion of concrete terrace beneath the timber deck, which amount to an existing total impermeable surface coverage of approximately 442m². Therefore, the total impermeable surface coverage over the site will be approximately 525m² or 17.5% of the gross site area.

The following specialist report forms part of the proposed activity, and all recommendations are agreed to by the applicants:

- **Stormwater Mitigation Report:** Prepared by Wilton Joubert Limited, dated 9th November 2023. Refer to **Appendix 2**.

The Stormwater Mitigation Report makes the following recommendations:

- The upper section of the potable water tanks is to act as a detention volume to achieve stormwater neutrality for the proposed impermeable surface areas exceeding the Permitted Activity coverage threshold. One of the tanks is to be fitted with a 100mm diameter overflow outlet with flow attenuation outlets as specified in the design elements listed on pages 6 & 7 of the Stormwater Mitigation Report.
- Discharge and overflow from the potable water / detention tanks be directed via sealed pipes to the existing 6m long above ground dispersal device near the lot's south-western boundary.
- The orifice outlets may be installed on the existing overflow riser of the currently installed tank, or on a new overflow riser installed on the new tank draining directly to the spreader bar.
- The tanks must be linked via minimum 100mm diameter balancing pipe4s at the top and base of the tanks to ensure the tanks are lined and provide adequate detention volume across the top section of the tanks.
- The detention design assumes that both tanks will be installed level, if not further review and adjustment of the detention design will be required.
- Adequate fall from the tank's outlet to the discharge point is required, if not achievable, review of the design will be required.

2.4 Earthworks

Minor earthworks are required, as shown on the Earthworks Plan in **Appendix 1**. This shows the excavation for the foundations and stripping of topsoil to form the building footprint for the shed as involving 44m² over an area of 110.5m², to a depth of 400mm. The interpretation of ‘Excavation’ under the Control of Earthworks Bylaw excludes “excavation for building foundations and stripping of topsoil to form a building footprint”, which is the type of excavation proposed for the shed footprint. To bury the new water tank, to a depth of 1m to match the existing water tank, a volume of approximately 9.6m³ will be required over an area of 9.6m².

The initial Form 4 for EBC-2024-310/0 identified the need for an earthworks permit to be obtained, however further correspondence with Council confirmed that a permit was not required on the basis that the shed footprint requirements were excluded. Refer to the latest Form 4 (dated 5 October 2023) and associated correspondence in **Appendix 3**.

As the site has previously been used for orchard, it is a piece of land under the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. Refer to Section 6.3.1 for an assessment of the proposed activity in terms of these regulations, which concludes a permitted activity status provided that the controls specified in Regulation 8(3) are met.

3.0 Application Site Details and Description

3.1 Location

The property is located to the south west of Sheperd Road, within an existing rural residential area, in Kerikeri. The property is located approximately 1.4km south of central Kerikeri. Refer to the Location Map in **Figure 1**. The site has access over a series of Rights of Way, which provide access to the site from Shepherd Road.

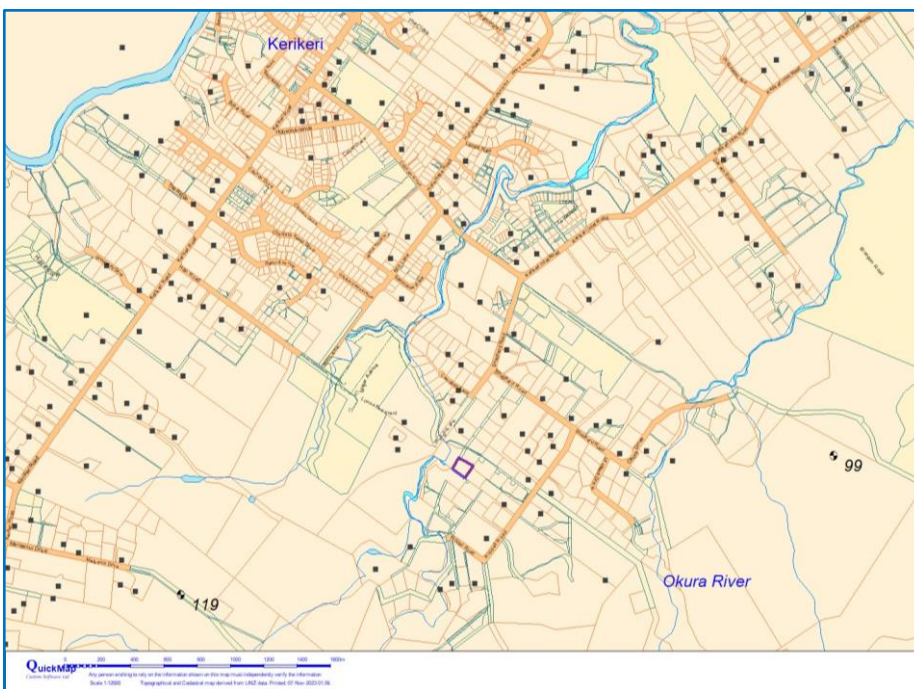


Figure 1: Location Map

3.2 Legal Details

Legal details of the application site are listed below. The Record of Title is attached in **Appendix 3**.

RECORD OF TITLE	APPELLATION	TITLE AREA
296612	Lot 8 DP 373344	3000m ² more or less

The Record of Title records the following relevant interests:

- Appurtenant right to drain water created by Easement Instrument 6438064.5.
- 7118857.2 Consent Notice pursuant to Section 221 Resource Management Act 1991:

SCHEDULE

- Each lot will require an Aerobic Package Treatment Plant or equivalent to provide satisfactory treatment of wastewater prior to on site disposal. The ongoing operation and maintenance of the system is to be covered by an maintenance agreement undertaken by the system supplier or its authorised agent.
- Land Covenant in Easement Instrument 7185233.1 (Private Land Covenant).
- Appurtenant rights of way and rights to convey water and telecommunications created by Easement Instrument 7185233.2. Subject to Section 243 (a) Resource Management Act 1991.

3.3 Site Conditions

The site is close to a square shape in dimension, with a generally level contour. Refer to the cadastral map in **Figure 2**. The site contains an existing dwelling and attached garage, which is accessed by an existing metalled driveway.

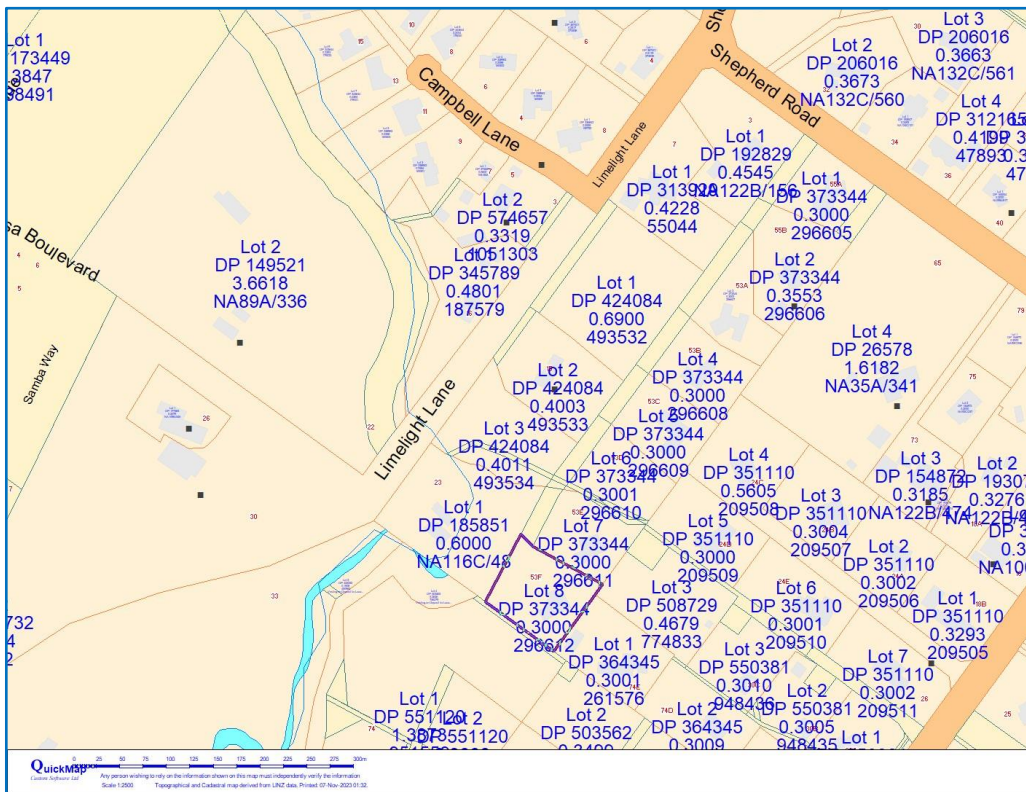


Figure 2: Cadastral Map

The onsite wastewater treatment system is located behind the dwelling, and the disposal field and reserve disposal area are located along the northern boundary. Refer to **Figure 3**.

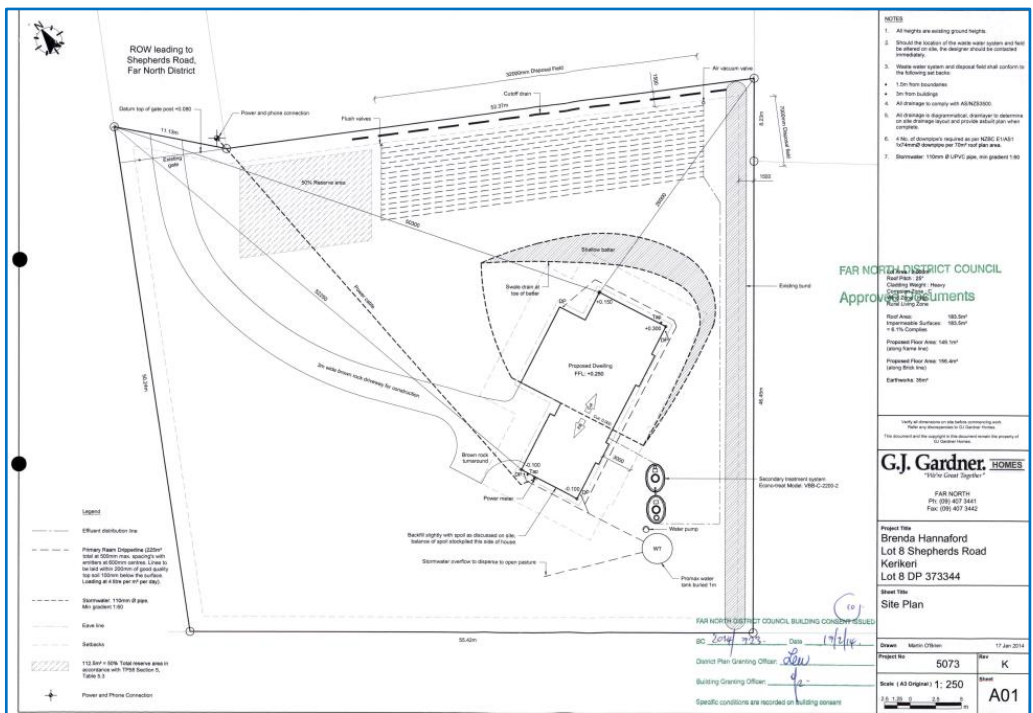


Figure 3: BC-2014-723-0 Approved Plan showing wastewater disposal system

The existing water tank and an additional water tank (not yet installed) are located to the south of the proposed dwelling. The overflow from the existing water tank drains to a spreader bar located beneath the shelterbelt along the south western boundary. Drainage features and infrastructure are described in the Stormwater Mitigation Report, along with a description of local geology and soils.

Unoccupied parts of the site are in lawn, and other gardens. Some remnant citrus orchard areas remain near the south eastern boundary of the site. The site's south western boundary adjacent to the proposed shed is occupied by a mature shelterbelt. Remaining boundaries are also defined by various hedging.

3.4 Recorded Natural Features

The Northland Regional Council Regional Policy Statement maps do not record the site as having any areas of high or outstanding natural character, outstanding natural features or outstanding natural landscapes.

The site is not part of any ecological unit recorded in the Department of Conservation Protected Natural Area mapping. The site is mapped as being located within a 'kiwi present' habitat (indicated by less than five kiwi calls per hour) in Far North Maps "Species Distribution (DoC)" Map.² The mapping related to kiwi habitat and Protected Natural Areas are non-statutory documents.

² A map showing the distribution of Northland Brown Kiwi and Northland Mudfish in the Far North District. Kiwi habitat distribution based on call count monitoring in 2019 by Department of Conservation: Craig, E. (2020): Call count monitoring of Northland brown kiwi 2019. Department of Conservation, Whangarei, New Zealand.

4.0 District Plan Assessment

4.1 Operative Far North District Plan

The application site is zoned Rural Living and is not subject to any Resource Features. The proposal is assessed against the relevant rules of the District Plan as follows:

4.1.1 Rural Living Zone

Rule	Discussion	Compliance
Permitted Activities		
8.7.5.1.1 Residential Intensity	No new residential units are proposed.	Complies.
8.7.5.1.3 Building Height	The maximum building height is shown as 5.076m – refer to Appendix 1 .	
8.7.5.1.4 Sunlight	With the minimum setback shown as 4.9m, and taking into account the 2m vertical allowance, the proposed shed complies with the permitted standard. Refer to Appendix 1 .	Complies.
8.7.5.1.5 Stormwater management	Proposed impermeable surfaces exceed 12.5% of gross site area.	Does not comply.
8.7.5.1.6 Setback from Boundaries	The proposed shed complies with the permitted standard. Refer to Appendix 1 .	Complies.
8.7.5.1.13 Building Coverage	Less than 10% building coverage is proposed.	Complies
Controlled Activities		
8.7.5.2.2 Stormwater Management	Proposed impermeable surfaces do not exceed 20% of the gross site area.	Does not comply.

4.1.2 District Wide Provisions

Natural & Physical Resources

Rule	Discussion	Compliance
Soils & Minerals		
12.3.6.1.2 Excavation and/or Filling In the ... Rural Living ... Zones	Earthworks volumes will be less than 300m ³ .	Complies.
Natural Hazards		
12.4.6.1.2 Fire Risk to Residential Units	No residential dwellings are proposed.	Complies

Financial Contributions

The proposal has no implications in terms of Chapter 14.

Transportation

Rule	Discussion	Compliance
Traffic – Permitted Activities		
15.1.6A.2.1 Traffic Intensity	The first residential unit on a site is exempt from this rule. No additional residential units are proposed.	Complies.
Parking – Permitted Activities		
15.1.6B.1.1 On-Site Car Parking Spaces	Existing car parking available and not affected by the proposed shed.	Complies.
15.1.6B.1.5 Car Parking Space Standards	Car parking dimensions and manoeuvring meets this standard.	Complies.
Access – Permitted Activities		
15.1.6C.1.1 Private Accessway in All Zones	Established at subdivision stage.	Complies.
15.1.6C.1.5 Vehicle Crossing Standards in Rural and Coastal Zones		
15.1.6C.1.7 General Access Standards		

4.1.3 Summary of Activity Status

Overall, the proposal has been assessed as a controlled activity, requiring consent under Rule 8.7.5.2.2.

4.2 Proposed Far North District Plan

The subject site is zoned Rural Residential.

4.2.1 Rules with Immediate Legal Effect

Rules relating to earthworks and the discovery of suspected sensitive material, and earthworks and erosion and sediment control (EW-R12 and EW-R13) and associated standards EW-S3 and EW-S5 can be complied with through advice notes relating to the Heritage New Zealand Accidental Discovery Protocol and the requirement for erosion and sediment control to be implemented in accordance with the specified guideline document for the duration of earthworks. We are not aware of any other applicable rules with immediate legal effect under the Proposed District Plan. Other relevant rules without immediate legal effect are assessed below.

4.2.2 Area-Specific Matters - Rural Residential Zone

Rule	Discussion	Compliance
Permitted Activities		
RRZ-R2 Impermeable Surface Coverage	Impermeable surface coverage exceeds 12.5% .	Does not comply – Restricted Discretionary Activity.

RRZ-R3 Residential Activity	No additional residential units are proposed.	Complies
RRZ-S2 Height in Relation to Boundary	Permitted activity sunlight angles achieved.	Complies.
RRZ-S3 Setback	Permitted activity setbacks achieved (minimum 4.9m shown on Site Plan).	Complies.
RRZ-S5 Building or Structure Coverage	Does not exceed 12.5%.	Complies.

4.2.3 District-Wide Matters – General District-Wide Matters – Transport

Rule	Discussion	Compliance
Permitted Activities		
TRAN-R1 Parking	Off street car parking is available.	Complies
TRAN-R2 Vehicle crossings and access, including private accessways	Access to the boundary of the site established at subdivision stage.	Complies
Tran-R5 Trip Generation	No additional residential units proposed.	Complies.

4.2.4 Summary of Activity Status under Proposed Far North District Plan

Overall, the proposal has been assessed as a restricted discretionary activity under the Proposed District Plan.

Rules with immediate effect are EW-R12 and EW-R13, both of which can be satisfied as a permitted activity via consent conditions and an advice note.

5.0 Assessment of Environmental Effects

Section 104(1)(a) and (ab) of the Resource Management Act 1991 (“RMA”) require the consent authority, subject to Part 2 of the Act, to have regard to any actual and potential effects on the environment of allowing the activity and 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.

Section 104(2) indicates that a consent authority may disregard an adverse effect of the activity on the environment if a national environmental standard of the plan permits an activity with that effect and Section 104(3)(a)(ii) requires a consent authority to not, when considering an application, have regard to any effect on a person who has given written approval to the application (unless that person has withdrawn the written approval before the date of a hearing or before the application is determined, as set out in 104(4)).

Clauses 6 and 7 of Schedule 4 of the RMA indicate the information requirements and matters that must be addressed in or by an assessment of environmental effects, both of which are subject to the provisions of any policy statement or plan. This assessment of environmental effects addresses those relevant matters and also addresses the relevant criteria listed under Section 8.7.5.2.2 of the Operative District Plan.

An assessment of the actual or potential effect on the environment of the activity

The relevant matters listed in Rule 8.7.5.2.2 are addressed within the Stormwater Mitigation Report. This summarises that the effects of stormwater runoff from the proposed impermeable surfaces will be mitigated to no more than the levels that would result from the permitted activity threshold.

Remaining actual and potential effects are assessed below.

A description of the mitigation measures (including safeguards and contingency plans where relevant) to be undertaken to help prevent or reduce the actual or potential effect

The Stormwater Mitigation Report sets out the proposal to attenuate stormwater, in order to mitigate the effects of stormwater run-off from the proposed impermeable surfaces to pre-development conditions and to below permitted activity levels. That report specifies that, provided that the report recommendations are adhered to, the effects of stormwater runoff will have a less than minor effect on the receiving environment. Refer to **Appendix 2**.

Any effect on those in the neighbourhood and, where relevant, the wider community, including any social, economic, or cultural effects

The proposal is for the development of the subject site in accordance with the intended purpose (being a rural residential land use), which is anticipated by the zoning of the site and the underlying subdivision consent. As such, no wider effects on the surrounding neighbourhood or wider community will arise. As noted above, with the implementation of the recommendations of the Stormwater Mitigation Report, the effects of stormwater runoff on the receiving environment will be less than minor.

Any physical effect on the locality, including any landscape and visual effects

The site does not have any high or outstanding landscape, natural character or visual values. As the proposed development is for the expected use of the site, and complies with permitted activity bulk and location standards in terms of setback, height in relation to boundary, building coverage, and building height, no adverse effects on amenity values are anticipated. Existing screening vegetation is established. The extent of impermeable surface coverage is reasonable for the site.

Any effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity

The proposed activity will not have any direct or indirect adverse effects on ecosystems. No removal of indigenous vegetation is required.

Any effect on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual, or cultural value, or other special value, for present or future generations

The subject site does not possess any of the listed values. In particular, there are no recorded archaeological, heritage or cultural sites on the property, and no natural features of interest. As previously noted, the site does not have any high or outstanding landscape, natural character or visual values.

The proposal avoids adverse effects in this respect.

Any discharge of contaminants into the environment, including any unreasonable emission of noise, and options for the treatment and disposal of contaminants

Stormwater runoff is as described in the Stormwater Management Report, and the proposed mitigation measures will be implemented. It is not anticipated that runoff from the proposed residential development will contain any contaminants of concern. Note that the permitted activity requirements of Regulation 8(3) of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 are intended to be met.

The onsite wastewater system is existing, and is not affected by the proposed development.

Any risk to the neighbourhood, the wider community, or the environment through natural hazards or hazardous installations

The subject site is not subject to natural hazards. The attenuation of stormwater to pre-development levels will ensure that the proposed impermeable surfaces do not contribute to downstream flooding.

Summary of effects and mitigation

Overall, taking into account the mitigating factors presented by proposed stormwater attenuation, it is considered that the effects of the proposed development will be less than minor.

6.0 Statutory Assessment

6.1 Objectives and Policies

6.1.1 Far North Operative District Plan

The objectives and policies of the Rural Environment and Rural Living Zone Sections of the District Plan are relevant to this proposal. As the proposed activity achieves a controlled activity status, and the relevant matters of control have been adequately addressed, it is considered that the proposal will be consistent with the relevant objectives and policies.

6.1.2 Far North Proposed District Plan

The proposed impermeable surface coverage would be a restricted-discretionary activity under the Proposed District Plan. The matters over which discretion is restricted to are adequately covered in the Stormwater Mitigation Report, and it is considered that the proposed activity is in accordance with the objectives and policies of the Proposed District Plan. In particular, it is noted that the relevant matters of discretion generally replicate those related to the controlled activity rule for stormwater management in the Operative District Plan, with the addition of 'natural hazard mitigation and site constraints', and 'extent of potential adverse effects on cultural, spiritual, heritage and/or amenity values of any affected waterbodies'. These matters are covered within the Assessment of Environmental Effects.

6.1.3 Regional Policy Statement for Northland (“RPS”)

The Regional Policy Statement’s role is to promote sustainable management of Northland’s natural and physical resources. It does this by providing an overview of the region’s resource management issues; and setting out policies and methods to achieve integrated management of Northland’s natural and physical resources.

The subject site is not part of the coastal environment and does not include any areas of high or outstanding natural character, nor any outstanding natural features. Relevant policies from the Regional Policy Statement are commented on under the relevant heading below.

5.1.1 Policy – 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;*
- (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.*

Note: in determining the appropriateness of subdivision, use and development (including development in the coastal environment – see next policy), all policies and methods in the Regional Policy Statement must be considered, particularly policies relating to natural character, features and landscapes, heritage, natural hazards, indigenous ecosystems and fresh and coastal water quality.

The proposed use and development comply with all permitted activity Rural Living Zone standards with the exception of the Stormwater Management Rule. The site is already developed with an existing dwelling, and an ancillary shed is proposed as an anticipated land use in this zone. The development of the site for this purpose will be compatible with other existing activities in the area so as to maintain the character of the surrounding environment.

6.2 Part 2 of the Resource Management Act 1991

An assessment of the proposal in relation to Part 2 of the Act is given below.

PART 2 PURPOSE AND PRINCIPLES

5 Purpose

- (1) The purpose of this Act is to promote the sustainable management of natural and physical resources.*
- (2) In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while-*
 - (a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
 - (b) Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
 - (c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

7 Other matters

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development and protection of natural and physical resources, shall have particular regard to-

- (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;*

8 Treaty of Waitangi

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

The proposal represents sustainable management, as it enables the site to be used for its intended purpose, while mitigating the effects of stormwater runoff to no more than the levels that would result from the permitted activity threshold of impermeable surfaces.

There are no relevant Section 6 Matters.

The proposal has regard to Section 7 Matters and represents an efficient and anticipated use of the land, which will retain existing amenity values and maintain the quality of the environment.

The proposed activity has no known implications in terms of the Treaty of Waitangi.

Overall, the proposal is considered to be consistent with the purpose and principles of the Resource Management Act 1991.

6.3 National Environmental Standards

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

The proposal has been considered in terms of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. The subject site is not recorded on Northland Regional Council's Selected Landuse Register.³

However, review of historic aerial photography shows that the subject land has previously been used as an orchard, meaning that the above regulations must be considered, as the site is a 'piece of land'.

The residential use of the site has already been established. A Preliminary Site Investigation ("PSI") was submitted as part of the building consent application for the existing dwelling (BC-2014-723-0), a copy of which is attached in **Appendix 5**. This PSI investigated the site characteristics and assessed soil samples. In particular, it notes that "*a sample regime based on a grid system over the whole site would be adopted*". The PSI goes on to conclude that the levels of the composite samples indicated for the tested heavy metals and NES organic compounds are lower than the adjusted guideline value.

A condition / advice note on the PIM Check for BC-2014-723-0 is copied below:

³ Northland Regional Council. Retrieved 12 April 2023 from <https://localmaps.nrc.govt.nz/localmapsviewer/?map=65b660a9454142d88f0c77b258a05f21>

HAIL

This site has been identified as a HAIL (Hazardous Activities and Industries List) site because of the past orchard use as shown on the Landcover maps (attached) derived from the Ministry for the Environment data. As per the National Environmental Standard, Regulations for Assessing and Managing Contaminants in Soil to Protect Human Health, under the Resource Management Act 1991, please note the attached conditions for Disturbing Soil which must comply with Section 8 (Permitted activities) subclause (3).

As the site has an established rural residential use, and the overall sample testing regime covered the whole site, the only new activity requiring consideration in terms of the regulations is the proposed soil disturbance. As a permitted activity, Regulation 8(3) allows the following:

Disturbing soil

(3) Disturbing the soil of the piece of land is a permitted activity while the following requirements are met:

(a) controls to minimise the exposure of humans to mobilised contaminants must—

(i) be in place when the activity begins:

(ii) be effective while the activity is done:

(iii) be effective until the soil is reinstated to an erosion-resistant state:

(b) the soil must be reinstated to an erosion-resistant state within 1 month after the serving of the purpose for which the activity was done:

(c) the volume of the disturbance of the soil of the piece of land must be no more than 25 m³ per 500 m²:

(d) soil must not be taken away in the course of the activity, except that,—

(i) for the purpose of laboratory analysis, any amount of soil may be taken away as samples:

(ii) for all other purposes combined, a maximum of 5 m³ per 500 m² of soil may be taken away per year:

(e) soil taken away in the course of the activity must be disposed of at a facility authorised to receive soil of that kind:

(f) the duration of the activity must be no longer than 2 months:

(g) the integrity of a structure designed to contain contaminated soil or other contaminated materials must not be compromised.

The proposed volume of soil disturbance amounts to 53.8m³ over the total site area of 3,000m². Regulation 8(3)(c) allows 25m³ per 500m², which equates to 150m³ on the subject site. The volume of soil disturbance will be less than this permitted activity allowance, and therefore, provided that the remaining conditions specified in (a), (b), (d), (e), (f), and (g) are met, the application is considered to be a permitted activity.

6.3.2 National Environmental Standards for Freshwater & Amendments

There are no wetland or other natural freshwater features on the site, or any wetlands within 100m as recorded by the Northland Regional Council 'Biodiversity Wetlands Map'. As such, the proposal is not considered to have any implications in terms of the above national environmental standard, in particular, regulation 54.

6.4 Regional Plans

No consents are known to be required under the Proposed Regional Plan.

7.0 Consultation & Notification Assessment

7.1 Consultation

The applicant has not sought any written approvals for the proposed activity.

7.2 Public Notification Assessment

Step 1: Public notification is not requested. Section 95A(3)(b) and (c) do not apply.

Step 2: Public notification is not precluded.

Step 3: There are no rules that require public notification in terms of section 95A8(a). An assessment has been made in accordance with section 95D, and it is considered that the adverse effects of the activity are not more than minor. Refer to Section 5.0 of this report.

Step 4: No special circumstances exist to warrant public notification.

7.3 Limited Notification Assessment

Step 1: The site is not in the marine and coastal area or common marine and coastal area. There are no affected protected customary rights groups or affected customary marine title groups, the land is not subject to a statutory acknowledgement.

Step 2: Limited notification is not precluded.

Step 3: In terms of 95B(8), an assessment has been undertaken in accordance with section 95E. Section 95E(1) specifies that a person is an affected person if the consent authority decides that the activity's adverse effects on the person are minor or more than minor (but are not less than minor).

Section 95E(2) provides guidance as to how a consent authority should assess an activity's adverse effects on a person for the purposes of Section 95E, including clause (a), where they may disregard an adverse effect of the activity on a person if a rule or national environmental standard permits an activity with that effect and clause (b), where they must, if the activity is a controlled activity or a restricted discretionary activity, disregard an adverse effect of the activity on the person if the effect does not relate to a matter for which a rule or a national environmental standard reserves control or restricts discretion.

Section 95E(3) specifies that a person is not an affected person in relation to an application for a resource consent for an activity if (a) the person has given, and not withdrawn, approval for the proposed activity in a written notice received by the consent authority before the authority has decided whether there are any affected persons.

Taking into account the relevant matters of control, the anticipated adverse effects of the proposed development are expected to be less than minor, and will not result in adverse effects that are minor or greater on any person, for the following reasons:

- The proposal represents the development of the subject site in accordance with the intended purpose.
- The proposal does not include infringement of any boundary rules.

- The scale of development is consistent with other existing land use activities in the surrounding environment.
- The proposed activity does not generate any off-site effects.
- The recommended stormwater mitigation measures detailed in the Stormwater Mitigation Report are accepted by the applicant. This will ensure that the new impermeable surface areas will be attenuated using on-site water tanks to pre-development conditions, achieving stormwater neutrality, and ensuring that effects from stormwater runoff will be less than minor.

As such, it is considered that there are no persons affected by the application.

Step 4: There are no special circumstances to warrant notification to any other person.

7.4 Summary of Notification Assessment

As outlined above we are of the opinion that the proposal satisfies the statutory requirements for non-notification, and we respectfully request that it be processed on that basis.

8.0 Conclusion

In terms of section 104 and 104A of the Resource Management Act 1991, we consider that:

- The actual and potential adverse effects of the proposal can be avoided and mitigated so as to be less than minor.
- The proposal is considered to be consistent with the relevant objectives and policies of the Operative District Plan, Proposed District Plan, and Regional Policy Statement.
- The proposal is in accordance with the Purpose and Principles of the Resource Management Act 1991.

We also note that:

- It has been assessed that the proposal meets the statutory criteria to be processed as non-notified.

For these reasons it is requested this application be considered to be a non-notified application, and that the Council grant consent to the proposal, under delegated authority, as detailed in the application and supporting information.

Signed
 Natalie Watson,
 Resource Planner

10 November 2023
 Date
 WILLIAMS & KING
 Kerikeri

9.0 Appendices

Appendix 1: Site Location Plan, Site Plan, Floor Plan, Elevations

Appendix 2: Stormwater Mitigation Report prepared by Wilton Joubert Limited, dated 9th November 2023

Appendix 3: Revised Form 4 and Correspondence Regarding Earthworks Permit

Appendix 4: Record of Title

Appendix 5: Preliminary Site Investigation from BC-2014-723-0



**RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD**

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




R. W. Muir
Registrar-General
of Land

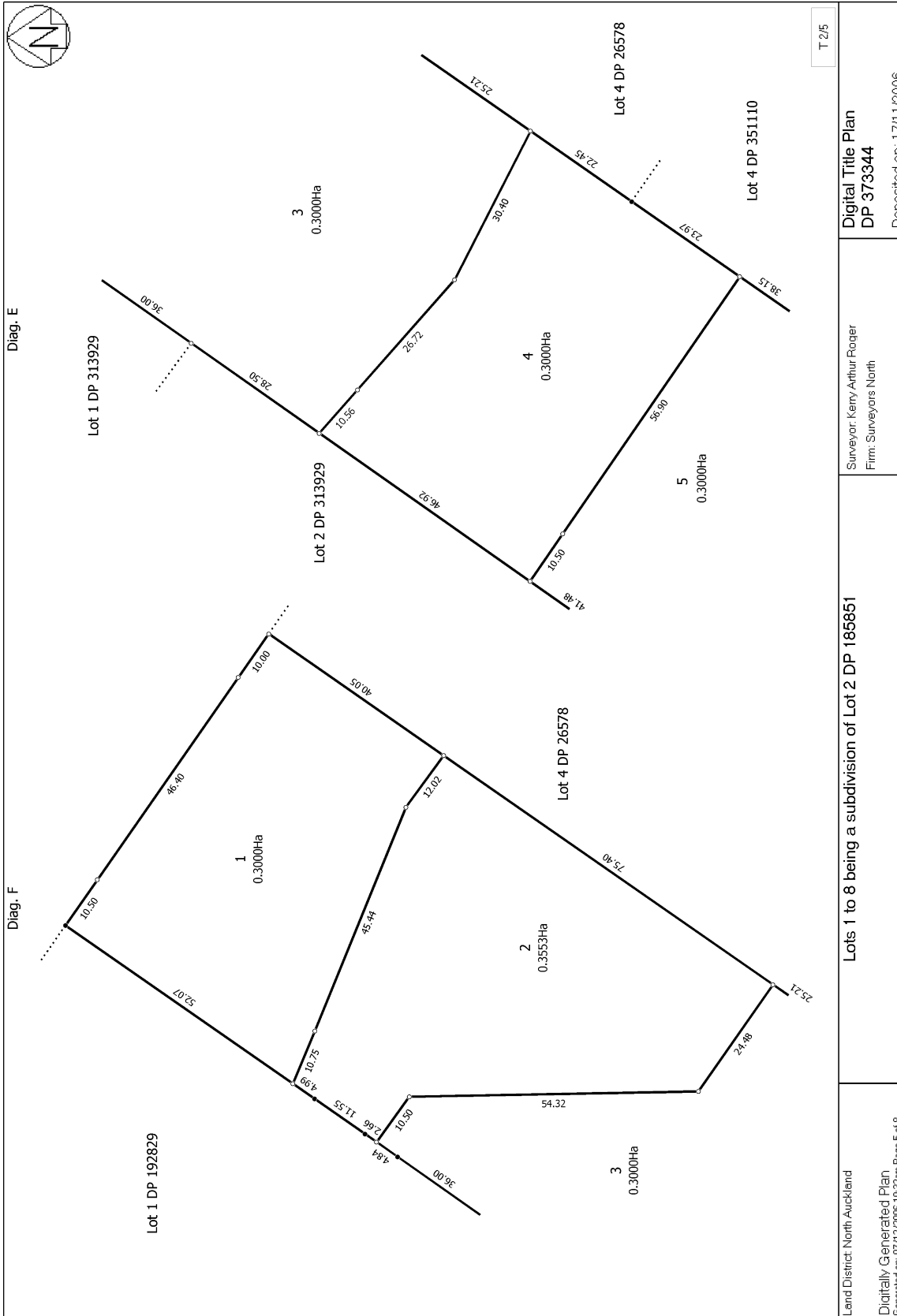
Identifier 296612
Land Registration District North Auckland
Date Issued 17 November 2006

Prior References
NA116C/49

Estate Fee Simple
Area 3000 square metres more or less
Legal Description Lot 8 Deposited Plan 373344
Registered Owners
Scott Fraser Randell

Interests

Fencing Covenant in Transfer 6145455.2 - 10.9.2004 at 9:00 am
Appurtenant hereto is a right to drain water easement created by Easement Instrument 6438064.5 - 27.5.2005 at 9:00 am
7118857.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 17.11.2006 at 9:00 am
Land Covenant in Easement Instrument 7185233.1 - 9.1.2007 at 9:00 am
Appurtenant hereto are rights of way and rights to convey water and telecommunications created by Easement Instrument 7185233.2 - 9.1.2007 at 9:00 am
The easements created by Easement Instrument 7185233.2 are subject to Section 243 (a) Resource Management Act 1991
Fencing Covenant in Transfer 8467743.2 - 13.5.2010 at 11:29 am
10876569.2 Mortgage to Bank of New Zealand - 22.8.2017 at 8:40 am

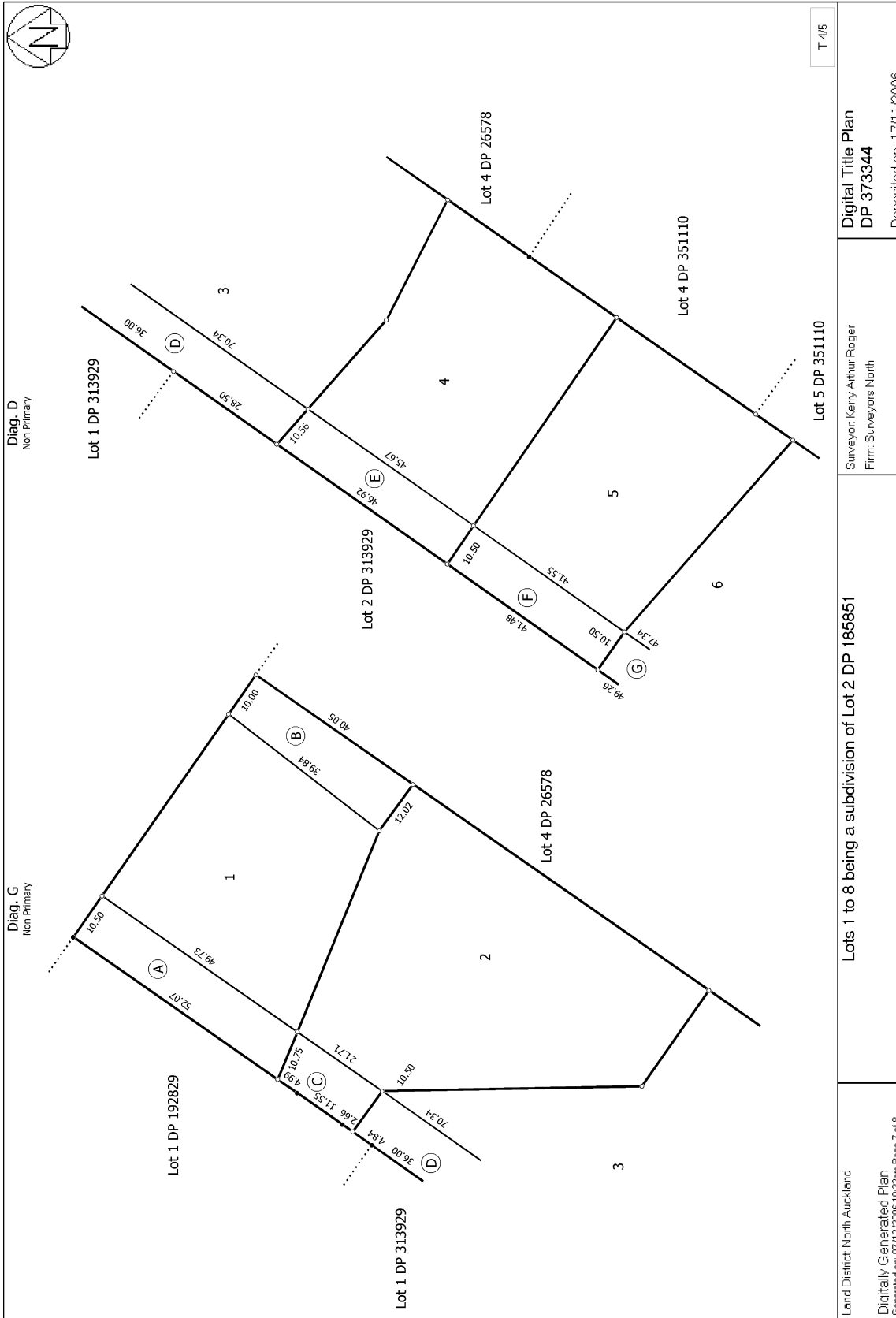


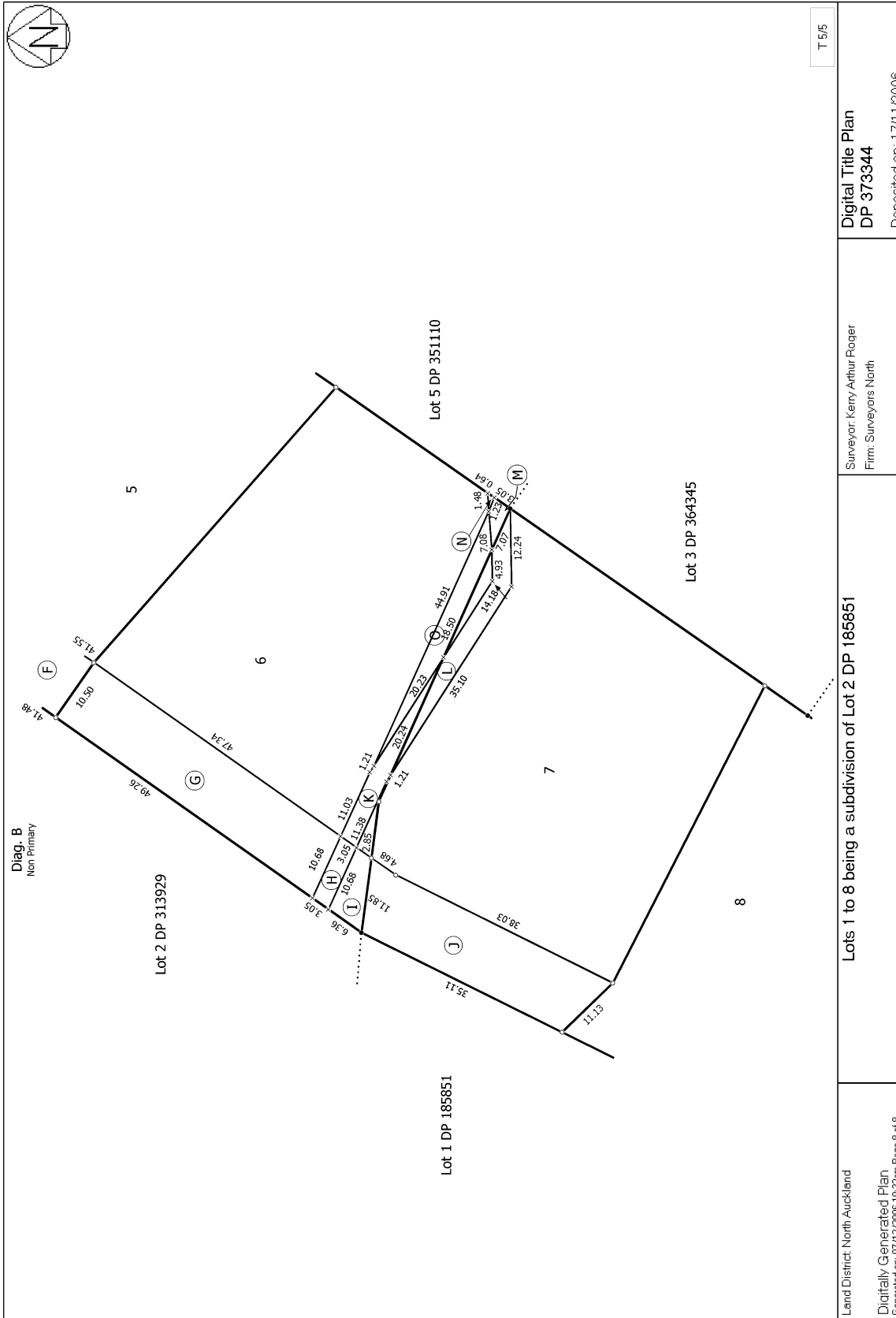
Land District: North Auckland
Digitally Generated Plan
Generated on: 07/12/2006 10:32am Page 5 of 8

Surveyor: Kerry Arthur Rogier
Firm: Surveyors North

Lots 1 to 8 being a subdivision of Lot 2 DP 185851

Digital Title Plan
DP 373344
Deposited on: 17/11/2006





T 5/5

Digital Title Plan
DP 373344

Surveyor: Kerry Arthur Rogier
Firm: Surveyors North

Lots 1 to 8 being a subdivision of Lot 2 DP 185851

Land District: North Auckland
Digitally Generated Plan
Generated on: 07/12/2006 10:32am Page 6 of 8

Deposited on: 17/11/2006

Easement instrument to grant easement or profit à prendre or create land covenant
Sections 90A and 90F, Land Transfer Act 1952

2003/6180EF
Approved
Registrar-General of Land

EI 7185233.1 Easement I

Cpy - 01/04, Pgs - 006, 08/01/07, 16:06



DocID: 312773930

Land registration district

North Auckland

Grantor

John Byatt and Anne-Marie Byatt

Surname(s) must be underlined or in CAPITALS.

Grantee

John Byatt and Anne-Marie Byatt

Surname(s) must be underlined or in CAPITALS.

Grant* of easement or profit à prendre or creation or 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).

DATED this 2 day of September 2006

Attestation

	<p>Signed in my presence by the Grantor</p> Signature of Witness Witness to complete in BLOCK letters (unless legibly printed) Witness name: Occupation: Address:
<p>Signature [Common Seal] of Grantor</p>	<p>Signed in my presence by the Grantee</p> Signature of Witness Witness to complete in BLOCK letters (unless legibly printed) Witness name: Occupation: Address:

Certified correct for the purposes of the Land Transfer Act 1952

[Solicitor for] the Grantee

* If the consent of any person is required for the grant, the specified consent form must be used.

Annexure Schedule 1

2003/6180EF Approved Registrar-General of Land
--

Easement instrument

Dated 12 September 2006 Page 2 of 3 pages

Schedule A

Continue in additional Annexure Schedule if required.

Purpose (nature and extent) of easement, profit, or covenant	Shown (plan reference)	Servient tenement (Identifier/CT)	Dominant tenement (Identifier/CT or in gross)
Land Covenant	Lot 1 DP 373344 & Lot 3-8 inclusive DP373344	296605, 296607, 296608, 296609, 296610, 296611, 296612	296605 -296612 inclusive

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 provided in specific classes of easement are those proscribed by the Land Transfer Regulations 2002 and/or the Ninth Schedule of the Property Law Act 1952.~~

The implied rights and powers are [varied] [negated] [added to] or [substituted] by:

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

~~[The provisions set out in Annexure Schedule 2].~~

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].

[The provisions set out in Annexure Schedule 2].

All signing parties and either their witnesses or solicitors must sign or initial in this box.

Annexure Schedule 2

Dated 12 September 2006 Page 3 of 4 Pages

LAND COVENANTS

The purchasers for themselves and their successors in title and the vendor hereby covenant:

1. No existing planted shelter shall be removed without first replacing it with other suitable hedging and only if agreement with adjacent section holders.
2. Not to erect or permit to be erected or placed on the said land:
 - (a) any building for which a building consent has not been issued;
 - (b) any building used, or intended to be used, or capable of being used as a dwelling unit having an enclosed floor area of less than 150 square metres, including internal garaging;
3. They will not, without the approval of the vendor, use or permit or suffer to be used in any buildings on the land any outerwall sheathing of corrugated iron, flat fibrolite or plywood.
4. They will not, without the approval of the vendor, erect or permit or suffer to be erected on the land any building prior to the erection thereon of a dwelling house.
5. They will not erect or move onto the said land any dwelling house or any other building which has been previously occupied or transportable home being a dwelling house substantially constructed elsewhere for transportation to a building site, unless they can prove to the vendor's satisfaction that such a building will enhance the desirability and resaleability of the lots in the subdivision.
6. They will not allow any iron or aluminium roof to remain unpainted for a period of more than 12 months after the roof has been erected.
7. They will not place or permit or suffer to be upon the said land any caravan unless such caravan is currently registered, has a current warrant of fitness, has wheels attached and is not occupied as a dwelling.
8. They will not allow to remain on the property any derelict vehicles (vehicles without current registration or warrant of fitness) unless suitably garaged, or screened from view to preserve the amenities of the neighbourhood.
9. They will screen from all views, from the street, thoroughfare or adjacent properties, all water storage tanks to preserve neighbourhood amenities and avoid visual pollution.
10. They will not, without prior written permission of the adjacent land owners, erect or allow to be erected any fence on the said land to a height greater than 1.8 metres nor erect a boundary fence of corrugated iron.
11. They will not use the said land or permit or suffer it to be used for any trading or commercial purposes (as defined in the Far North District Council Draft District Plan April 2000) nor exceed the scale of activities as permitted by the Far North District Council Draft District Plan April 2000 Rural Living Zone, or home-based occupation.
12. Not to keep pigs or poultry
13. Not to allow noxious weeds to develop and proliferate.

If this Annexure Schedule is used as an expansion of an instrument, all signing parties and either their witnesses or their solicitors must put their signatures or initials here.



Annexure Schedule - Consent Form

Land Transfer Act 1952 section 238(2)

Insert type of instrument
Caveat, Mortgage, etc

Easement Instrument

Page **4** of **4** pages

Consentor
(Surname must be underlined)

Capacity and Interest of Consentor
(eg. Caveator under Caveat no. Mortgagee under Mortgage no.)

ASB Bank Limited	Mortgage under mortgage No. 6489796.1
------------------	--

Consent

Delete Land Transfer Act 1952, if inapplicable, and insert name and date of application Act.
Delete words in [] if inconsistent with the consent.
State full details of the matter for which consent is required.

Pursuant to [section 238(2) of the Land Transfer Act 1952]

[section of the Act]


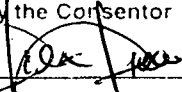
~~With full particulars to the rights and powers existing under the interest of the Consentor~~

The Consentor hereby consents to:

the registration of the attached easement instruments.

Dated this 12th day of September 2006

Attestation

SIGNED by ASB BANK LIMITED by its Attorney  ANDREW MARK MCLEAN	Signed in my presence by the Consentor 
	Signature of Witness <i>Witness to complete in BLOCK letters (unless legibly printed)</i> Witness name Occupation Address
Signature of Consentor	Alex Aiono Bank Officer AUCKLAND

An Annexure Schedule in this form may be attached to the relevant instrument, where consent is required to enable registration under the Land Transfer Act 1952, or other enactments, under which no form is prescribed

ASB BANK LIMITED
CERTIFICATE OF NON-REVOCATION OF POWER OF ATTORNEY

I Andrew Mark McLean of Auckland, New Zealand, hereby certify:

- 1 THAT by a Deed dated **3 February 2004** and deposited in the Land Information New Zealand office as **No. 5911838** ASB Bank Limited appointed the persons holding, or from time to time acting in, the following ASB Bank offices as its attorneys on the terms and subject to the conditions set out in the said Deed:

Senior Manager Business and Rural Documentation
Senior Manager Group Retail Loan Documentation
Senior Manager Loan Security Maintenance
Manager Business and Rural Loan Documentation
Legal Executive, Lending Services
Manager Administration
Manager Security Alterations and Settlements
Manager Inward Documents and Security Filing
Manager Evening Processing Team
Manager BankDirect
Chief Manager Lending Services
Manager Debt Assessment and Recoveries
Manager Business Credit

2. THAT I hold the appointment of Acting Manager Security Alterations and Settlements, Lending Services, with ASB Bank Limited
3. THAT at the date of signing I have not received any notice of or information of the revocation of that appointment by the winding up of the said company or otherwise.



SIGNED at Auckland this *12th* day of *September* 2006



Far North
District Council

Private Bag 752, Memorial Ave

Kaikohe 0400, New Zealand

Freephone: 0800 920 029

Phone: (09) 405 2750

Fax: (09) 401 2137

Email: ask.us@fndc.govt.nz

Website: www.fndc.govt.nz

CONO 7118857.2 Consent

Cpy - 01/01, Pgs - 001, 16/11/06, 14:42



DocID: 312726489

THE RESOURCE MANAGEMENT ACT 1991

SECTION 221 : CONSENT NOTICE

REGARDING RC 2050954

the Subdivision of Lot 2 DP 18581
North Auckland Registry

PURSUANT to Section 221 for the purpose of Section 224 of the Resource Management Act 1991, this Consent Notice is issued by the **FAR NORTH DISTRICT COUNCIL** to the effect that conditions described in the schedule below are to be complied with on a continuing basis by the subdividing owner and the subsequent owners after the deposit of the survey plan, and is to be registered on the titles of Lots 6, 7 & 8 DP 373344.

SCHEDULE

- Each lot will require an Aerobic Package Treatment Plant or equivalent to provide satisfactory treatment of wastewater prior to on site disposal. The ongoing operation and maintenance of the system is to be covered by an maintenance agreement undertaken by the system supplier or its authorised agent.

SIGNED:


By the FAR NORTH DISTRICT COUNCIL
Under delegated authority:
RESOURCE CONSENTS MANAGER

Mr Pat Killalea

DATED at **KAIKOHE** this *12th* day of *October* 2006

5 October 2023

Scott Fraser Randell
C/- Rodel Santos
218 Hunter Road
RD 7
Hamilton

Dear Sir / Madam,

Building consent number: EBC-2024-310/0
Property ID: 3349772
Address: 53F Shepherd Road, Kerikeri 0230
Description: New Gable Shed

Requirement for Resource Consent

PIM Assessment of your application has highlighted the need for Resource Consent that must be granted prior to any building works or earthworks commencing.

NB: As of 27th July 2022, some rules and standards in the Far North District Council Proposed District Plan took legal effect and compliance with these rules applies to your building consent. Please visit our website to see these rules
[Far North Proposed District Plan \(isoplan.co.nz\)](http://isoplan.co.nz)

The site is zoned **Rural Living** under the District Plan and Resource Consent is required for breach of the following:

Rule:	8.7.5.1.5 STORMWATER MANAGEMENT The maximum proportion or amount of the gross site area covered by buildings and other impermeable surfaces shall be 12.5% or 3,000m ² , whichever is the lesser.
Reason:	12.5% = 375m ² , impermeable coverage on site is not clearly stated but proposed shed is 71.5m and the existing dwelling roof area is stated as 183.5m ² = 255m ² and a rough scale of the existing driveway from aerial photos = 160m ² = 415m ² or 13.83%.

Please note there may be other rule breaches found during the Resource Consent process. It is your responsibility to ensure the Resource Consent approved plans match the Consented approved plans.

The application form can be downloaded from www.fndc.govt.nz and submitted to Council's (Planning Department) with the appropriate documentation and instalment fee.

If you have any queries, please contact the Duty Planner on Duty.Planner@fndc.govt.nz or 0800 920 029.

Yours faithfully

A black rectangular redaction box covering the signature of the sender.

Leeanne Tane
PIM Officer
Delivery and Operations

Emailed to: buildingconsents@waikatosheds.co.nz; randellsf@gmail.com

Property ID: 3349772

FORM 4
Certificate attached to
PROJECT INFORMATION MEMORANDUM
Section 37, Building Act 2004

Building Consent Number: EBC-2024-310/0

**RESTRICTIONS ON COMMENCING BUILDING WORK UNDER
RESOURCE MANAGEMENT ACT 1991**

The building work referred to in the attached Project Information Memorandum is also required to have the following **Resource Consent(s)** under the Resource Management Act 1991:

- **Resource Consent – REQUIRED**

As the above Resource Consent(s) will affect the building work to which the Project Information Memorandum relates, until this has been granted no building work may proceed.

Failure to comply with the requirements of this notice may result in legal action being taken against you under the Resource Management Act 1991.

Signature:



Position:

Trent Blakeman
Manager - Building Services

On behalf of:

Far North District Council (Building Consent Authority)

Date:

5 October 2023

Natalie Watson

From: Building Support <Building.Group@fndc.govt.nz>
Sent: Wednesday, 25 October 2023 5:36 pm
To: Natalie Watson; buildingconsents@waikatosheds.co.nz; [REDACTED]
Cc: Duty Planner
Subject: Revised Form 4 - Section 37 Certificate that highlights the requirement for a Resource Consent for EBC-2024-310/0
Attachments: Approved Form4.pdf

Hi Natalie

Thank you for the email confirming that the proposed earthworks for the above application are for a site scrape and foundations and are not within 3m of a boundary, cut/fill <500mm and volume is <50m³ and area is <50m². Therefore an Earthworks Permit will not be required for these works.

Please find attached a revised Form 4 without the advice note that an EWP is required.

Kind regards,



Leeanne Tane

PIM's Officer - Building Services Administration
P 6494070425 | Leeanne.Tane@fndc.govt.nz

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

Pokapū Kōrero 24-hāora | 24-hour Contact Centre 0800 920 029
fndc.govt.nz



From: Natalie Watson <nat@saps.co.nz>
Sent: Wednesday, October 25, 2023 1:19 PM
To: Duty Planner <Duty.Planner@fndc.govt.nz>; Building Support <Building.Group@fndc.govt.nz>
Subject: Form 4 - Section 37 Certificate that highlights the requirement for a Resource Consent for EBC-2024-310/0

CAUTION: This email originated from outside Far North District Council.

Do not click links or open attachments unless you recognise the sender and know the content is safe.

Good afternoon,

Our client, Scott Randell, intends to build a shed and place a new water storage tank on his property, and this activity requires consent under the Stormwater Management Rule of the Operative District Plan (Rural Living Zone).

He has received a Form 4 notice to advise him of the resource consent requirement, however, the letter also states that:

NB: Earthworks are stated as 53.8m³ and 120.1m² therefore as per the Control of Earthworks Bylaw 2019 an earthworks permit is required.

I note that the Interpretation of 'Excavation' under the above bylaw excludes "excavation for building foundations and stripping of topsoil to form a building footprint", which is the type of excavation proposed for the shed footprint. Presumably, the removed soil will be re-spread around the perimeter of the building. The shed excavation will be less than 500mm deep over the total area. Could you please clarify whether this activity is excluded from the Bylaw requirement for a permit, taking into account that the same volume will be respread on the site? If this can be excluded, then the overall earthworks volume (including the water tank excavation) would no longer exceed 50m³.

Thanks for your assistance.

Kind regards,
Natalie Watson

WILLIAMS & KING
P +64 9 407 6030
27 Hobson Ave
P.O. Box 937, Kerikeri 0230, NZ
<http://www.saps.co.nz>

A Division of Survey & Planning Solutions (2010) Ltd This email is intended solely for the use of the addressee and may contain information that is confidential or subject to legal privilege. If you receive this email in error please immediately notify the sender and delete the email.



Wilton Joubert Limited
09 527 0196
PO BOX 11-381
Ellerslie
Auckland 1524

SITE Lot 8 DP 373344, 53F Shepherd Road, Kerikeri
PROJECT Proposed Shed
CLIENT Steph & Scott Randell
REFERENCE NO. 130235
DOCUMENT Stormwater Mitigation Report
STATUS/REVISION No. A
DATE OF ISSUE 9th November 2023

Report Prepared For	Email
Steph & Scott Randell	[REDACTED]

Authored by	G. Brant <i>(BE(Hons) Civil)</i>	Civil Design Engineer	Gustavo@wjl.co.nz	[REDACTED]
Reviewed by	P. McSweeney <i>(BE(Hons) Civil)</i>	Civil Design Engineer	Patrick@wjl.co.nz	[REDACTED]
Approved by	B. Steenkamp <i>(CPEng, BEng Civil, CMEngNZ, BSc (Geology))</i>	Senior Civil Engineer	BenS@wjl.co.nz	[REDACTED]

1. EXECUTIVE SUMMARY

The following table is intended to be a concise summary which must be read in conjunction with the relevant report sections as referenced herein.

Legal Description:	Lot 8 DP 373344	
Site Area:	2,998 m ²	
Development Proposals Supplied:	Preliminary Concept Plans Provided	
Development Type:	Proposed Shed	
District Plan Zone:	Rural Living	
Permitted Activity Coverage:	<u>12.5%</u>	
	Post-development Impermeable Areas	
Impermeable Coverage:	Total Roof Areas	284 m ²
	Total Hardstand	241 m ²
	Post-Development Total = 525 m ² or 17.5% of the site area	
Activity Status:	<u>Controlled Activity</u>	
	Attenuation is to be provided in accordance with the requirements outlined in Section 5 via flow attenuated outlets in the existing / proposed dwelling's rainwater tanks.	
Roof Attenuation:	<p>Recommended Tank – 2 x 25,000L Rainwater Tanks Dimensions - 3600mmØ (or greater) x 2600mm high (or greater) 10% AEP Control Orifice – 34mmØ orifice; located <u>>390mm below the overflow outlet</u> 1% AEP Control Orifice – 18mmØ orifice; located <u>240mm above the 10% AEP control orifice</u> Overflow – 100mmØ; located <u>at the top of the tank</u></p>	
Driveway Mitigation:	No changes to hardstand stormwater management are considered necessary as no changes to hardstand are proposed as part of this development.	
Discharge Point:	It is recommended that discharge and overflow from the potable water / detention tanks be directed via sealed pipes to the existing 6m long above ground dispersal device near the lot's south-western boundary.	
Further Review of Development Proposals Required:	Not anticipated unless development proposals/impermeable areas are revised.	

2. SCOPE OF WORK

Wilton Joubert Ltd. (WJL) was engaged by the client to produce a stormwater mitigation assessment at the above site.

At the time of report writing, the following documents were referred to for background data and details of the proposed development:

- Plan Set by Waikato Shed Company including site plan and roof plan (Ref No: 310735K, dated: 26.09.2023)

Any revision of these drawings and/or development proposals with stormwater management implications should be referred back to us for review.

3. SITE DESCRIPTION

The proposed development will be constructed within the following property, which is located off the southern side of Shepherd Road:

- 53F Shepherd Road, Kerikeri, legally described as Lot 8 DP 373344.

The site is shown in Figure 1 below.



Figure 1: Aerial Snip from FNDC Maps Showing Site Boundaries (cyan) and 1m Contours (yellow)

The surface area of the subject site encompasses 2,998m² and is accessed via a formed metalled driveway at the northern corner. The driveway traverses towards the south-eastern boundary, providing access to the existing residential dwelling.

Besides the existing development, ground cover on-site consists predominantly of pasture with trees / shrub concentrated around the property's boundaries. The property features gentle slopes, generally falling to the northwest towards a stream.

The FNDC GIS Water Services Map indicates that reticulated wastewater, stormwater, and potable water connections are not available to the property.

4. DEVELOPMENT PROPOSALS

The development proposal, obtained from the client, is to construct a shed on-site as depicted in the plan set by Waikato Shed Company (Ref No: 310735K, dated: 26.09.2023).

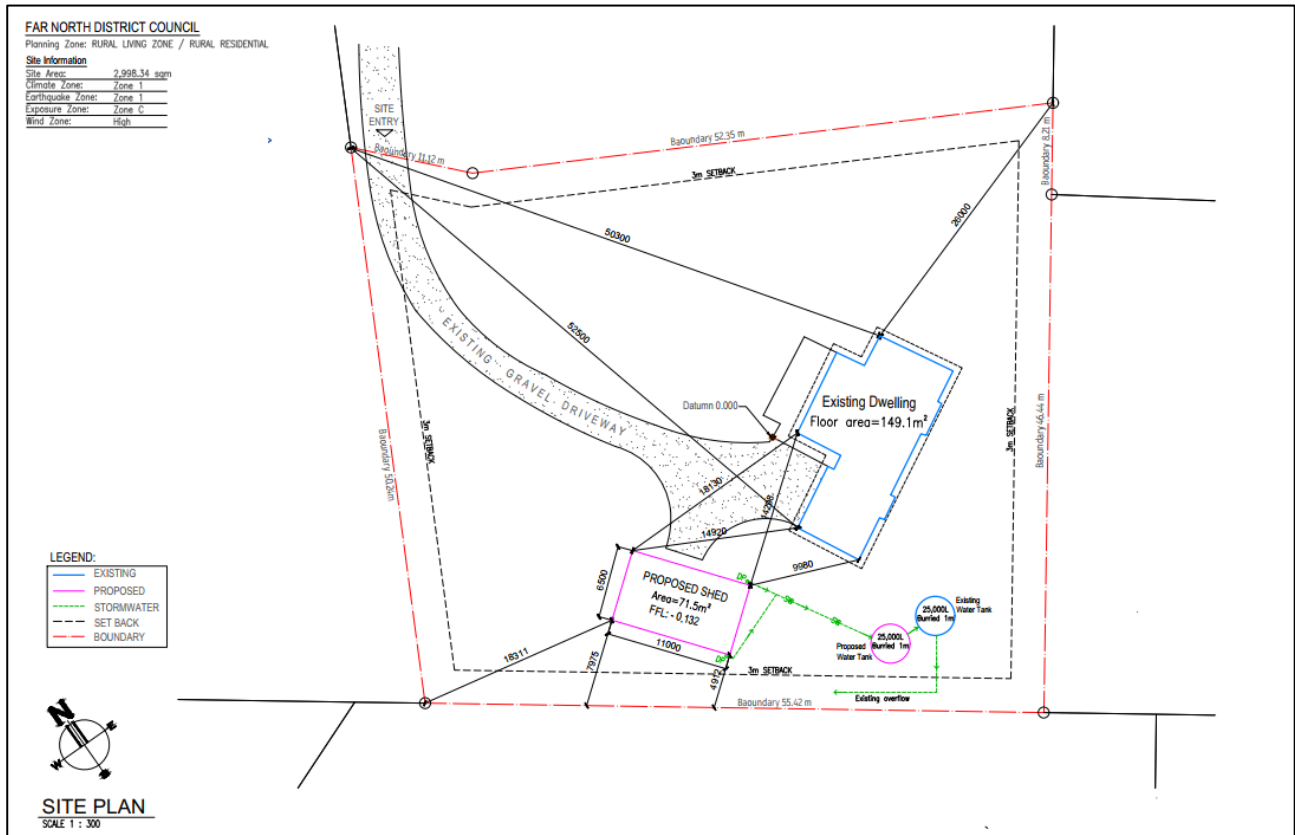


Figure 2: Snip of Proposed Site Plan by Waikato Shed Company (Ref No: 310735K, dated: 26.09.2023)

5. ASSESSMENT CRITERIA

Impermeable Areas

The calculations for the on-site primary stormwater management system for the proposed development are based on a gross site area of 2,998m² and the below areas extracted from the supplied plans:

	Pre-Development	Post-Development	Total Change
Roof Area	190 m²	284 m²	94 m²
Existing Dwelling	190 m²	190 m²	
Proposed Shed	0 m²	94 m²	
Total Hardstand	241 m²	241 m²	0 m²
Existing Gravel Driveway	217 m²	217 m²	
Existing Patio	24 m²	24 m²	
Pervious	2,567 m²	2,473 m²	-94 m²

The total amount of impermeable area on site, post-development will be 525m² or 17.5% of the site area. Should any changes be made to the current proposal, the on-site stormwater mitigation design must be reviewed.

District Plan Rules

The site is zoned Rural Living. The following rules apply under the FNDC District Plan:

8.7.5.1.5 – **Permitted Activities – Stormwater Management** - The maximum proportion or amount of the gross site area covered by buildings and other impermeable surfaces shall be 12.5% or 3,000m², whichever is the lesser.

8.7.5.2.2 – **Controlled Activities – Stormwater Management** - The maximum proportion or amount of the gross site area covered by buildings and other Impermeable Surfaces shall be 20% or 3300m², whichever is the lesser.

The total proposed impermeable area for the development exceeds 12.5% of the site area and does not comply with Permitted Activity Rule (8.7.5.1.5). Therefore, the proposals are considered to be a Controlled Activity. Additional considerations for stormwater management as outlined in the FNDC District Plan Section 8.7.5.2.2 are required. A District Plan Assessment has been included in Section 8 of this report.

Design Requirements

The site is under the jurisdiction of the Far North District Council. The design has been completed in accordance with the recommendations and requirements contained within the Far North District Council Engineering Standards, the Far North District Council District Plan and Clause E1 of the New Zealand Building Code.

The total impermeable area in exceedance of Permitted Activity Rule 8.7.5.1.5 is **150.25m²**. Stormwater attenuation for the 10% AEP and 1% AEP storm events with an adjustment for climate change will therefore be provided for this excess impermeable area.

Provided that the recommendations within this report are adhered to, the effects of stormwater runoff resulting from the unattenuated proposed / existing impermeable surfaces (374.75m² total) are considered to have less than minor effects on the receiving environment, equivalent to conditions that would result from development proposals falling within the Permitted Activity coverage threshold.

Stormwater Modelling Method

The attenuation calculations have been computed using HydroCAD modelling software. The model has been configured utilising the Rational Method (NZ Building Code E1). The rainfall intensity values for the 10% and 1% AEP storm events adjusted for climate change are as follows:

	Rainfall Intensity Values (RCP6.0 2081-2100)							
Time	10m	20m	30m	1h	2h	6h	12h	24h
10% AEP	124	89.7	74.2	53.4	37.7	20.5	13.4	8.36
1% AEP	185	134	111	80.4	57.0	31.3	20.5	12.9

The NIWA RCP6.0 rainfall data scenario for 2081-2100 has been used to account for climate change.

Local geology at the property is noted on the GNS Science New Zealand Geology Web Map Scale 1:250,000, as; Kerikeri Volcanic Group, refer; 'GNS Science Website'. Kerikeri Volcanic Group soils are typically considered Type C in terms of the Draft Far North District Council Engineering Standards. Therefore, in accordance with Table 4-3 of the standards, a pre-development runoff coefficient of 0.59 has been adopted.

6. STORMWATER MITIGATION ASSESSMENT

Potable Water Supply

A 25,000L Promax Enduro Rainwater Tank currently provides the existing residential dwelling with a potable water supply. It is our understanding that it is proposed to install an additional 25,000L Promax Enduro Rainwater Tank on-site.

A proprietary guttering system is required to collect roof runoff from the existing dwelling and proposed shed and direct roof runoff to the rainwater tanks. If any first flush diverters or leaf guards are installed between the gutters and the tank inlet, the tank inlet level should be at least 600mm below the gutter / filter level. Any filters will require regular inspection and cleaning to ensure the effective operation of the system. The frequency of cleaning will depend on current and future plantings around the existing and proposed roof areas. Provision should be made by the homeowner for top-up of the tanks via water tankers in periods of low rainfall.

All potable water tanks must be constructed level and fitted with minimum 100mmØ balancing pipes at the top and near the base of each tank to connect all potable water tanks to each other. Partial burial of the tanks is at the discretion of the client. Due to inadequate water quality concerns, runoff from hardstand areas should not be allowed to drain to the potable water tanks.

The upper section of the potable water tanks is to act as a detention volume to achieve stormwater neutrality for the proposed impermeable areas exceeding the Permitted Activity coverage threshold. One of the tanks is to be fitted with a 100mmØ overflow outlet with flow attenuation outlets as specified below.

Potable Tanks Detention Volume

As per the attached design calculations, the design elements of the detention volume are as follows:

Existing / Proposed Tanks	2 x 25,000 litre Rainwater Tanks
Tank dimensions	3600mm Ø (or greater) x 2600mm high (or greater)
Outlet orifice (10% AEP control)	34mm diameter orifice ; located <u>>390mm below the Overflow Outlet</u> <ul style="list-style-type: none">- 240mm water elevation- 4.9m³ Storage
Outlet orifice (1% AEP control)	18mm diameter orifice ; located <u>240mm above the 10% AEP Control Orifice</u> <ul style="list-style-type: none">- 383mm water elevation- 7.8m³ Storage
Overflow Outlet	100mm diameter ; located at the top of the tank

Site Plan (130235-C200), Tank Detail (130235-C201) and supporting calculations are appended to this report for clarification. It is recommended that discharge and overflow from the potable water / detention tanks be directed via sealed pipes to the existing 6m long above ground dispersal device near the lot's south-western boundary.

The orifice outlets may be installed on the existing overflow riser of the currently installed tank, or on a new overflow riser draining directly to the spreader bar installed on the new tank. In either case, the tanks must be linked via minimum 100mmØ balancing pipes at the top and base of the tanks to ensure the tanks are linked and provide an adequate detention volume across the top section of the tanks per the attached Tank Detail (130235-C201).

The detention design assumes that both tanks will be installed level. If the tanks are not installed level WJL will be required to review the installation and adjust the detention design accordingly.

The tanks must be installed in accordance with the tank suppliers' details and specifications. Levels are to be confirmed by the contractor on-site prior to construction. Adequate fall (minimum 1% grade) from the tank's outlet to the discharge point is required. If this is not achievable, WJL must be contacted for review of the design.

Hardstand Areas

No changes to hardstand stormwater management are considered necessary as no changes to hardstand are proposed as part of this development.

7. STORMWATER RUNOFF SUMMARY

Refer to the appended HydroCAD Calculation output.

Pre-Development Scenario – 10% AEP & 1% AEP Storm Events + CCF

Surface	Area	Runoff C	10% AEP Peak Flow Rate	1% AEP Flow Peak Rate
Greenfields Impermeable Roof Areas	150.25 m ²	0.59	1.14ℓ/s	1.72ℓ/s

Post-Development Scenario – 10% AEP & 1% AEP Storm Events + CCF

Surface	Area	Runoff C	10% AEP Peak Flow Rate	1% AEP Flow Peak Rate
Post-Development Roof Areas via Detention Tank	150.25 m ²	0.96	1.14ℓ/s	1.71ℓ/s

Given the design parameters, stormwater neutrality has been achieved for the 10% AEP and 1% AEP storm events across the proposed impermeable surfaces exceeding the Permitted Activity threshold.

8. DISTRICT PLAN ASSESSMENT

This report has been prepared to demonstrate the likely effects of increased stormwater run-off arising from the proposed development and the means of mitigating run-off to no more than the levels that would result from the permitted threshold under Stormwater Management Rule 8.7.5.1.5.

In assessing an application under this provision, the Council will exercise its discretion to review the following matters. In respect of matters (a) through (i), we provide the following comments:

(a) the extent to which building site coverage and Impermeable Surfaces contribute to total catchment impermeability and the provisions of any catchment or drainage plan for that catchment;	Impermeable surfaces resulting from the development increase site impermeability. Through tank attenuation, runoff is to be attenuated to pre-development conditions for the proposed impermeable coverage exceeding the Permitted Activity threshold.
(b) the extent to which Low Impact Design principles have been used to reduce site impermeability;	The impermeable areas in exceedance of Permitted Activity Rule 8.7.5.1.5 have been attenuated back to pre-development flow rates for the 10% AEP and 1% AEP storm event, adjusted for climate change. Low impact design principles have been implemented in the

	provision of a dispersal bar outlet for erosion protection at the system outfall.
(c) any cumulative effects on total catchment impermeability;	Impermeable coverage will increase by 94m ² .
(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;	Runoff from the existing and proposed roof areas is to be collected and directed to stormwater management devices via sealed pipes which will aid in mitigating the potential for runoff to pass over / saturate the surrounding soils. Ponding is not anticipated to occur provided the recommendations within this report are adhered to.
(e) the physical qualities of the soil type;	Kerikeri Volcanic Group. Moderate drainage.
(f) 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 is large enough for on-site stormwater and effluent disposal (i.e setbacks between water sources and effluent disposal comply with Table 9 of the PRPN).
(g) the extent to which paved, Impermeable Surfaces are necessary for the proposed activity;	No changes to hardstand areas is proposed as part of this development. Existing unsealed / gravel driveway provides vehicle access to the existing dwelling and proposed shed and is not considered excessive.
(h) the extent to which land scaping and vegetation may reduce adverse effects of runoff;	Existing vegetation and any plantings introduced by the homeowner during occupancy will aid in reducing surface water velocity and providing treatment. No specified landscaping scheme is proposed as part of the stormwater management system described herein.
(i) the means and effectiveness of mitigating stormwater runoff to that expected by permitted activity threshold.	The impermeable areas in exceedance of Permitted Activity Rule 8.7.5.1.5 have been attenuated back to pre-development flow rates for the 10% AEP and 1% AEP storm event, adjusted for climate change.

9. NOTES

If any of the design specifications mentioned in the previous sections are altered or found to be different than what is described in this report, Wilton Joubert Ltd will be required to review this report. Indicative system details have been provided in the appendices of this report (130235-C200 & 130235-C201).

Subsequent to construction, a programme of regular inspection / maintenance of the system should be initiated by the Owner to ensure the continuance of effective function, and if necessary, the instigation of any maintenance required.

Wilton Joubert Ltd recommends that all contractors keep a photographic record of their work.

10. LIMITATIONS

The recommendations and opinions contained in this report are based on information received and available from the client at the time of report writing.

This assignment only considers the primary stormwater system. The secondary stormwater system, Overland Flow Paths (OLFP), vehicular access and the consideration of road/street water flooding is all assumed to be undertaken by a third party.

All drainage design is up to the connection point for each building face of any new structures/slabs; no internal building plumbing or layouts have been undertaken.

During construction, an engineer competent to judge whether the conditions are compatible with the assumptions made in this report should examine the site. In all circumstances, if variations occur which differ from that described or that are assumed to exist, then the matter should be referred to a suitably qualified and experienced engineer.

The performance behaviour outlined by this report is dependent on the construction activity and actions of the builder/contractor. Inappropriate actions during the construction phase may cause behaviour outside the limits given in this report.

This report has been prepared for the particular project described to us and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose.

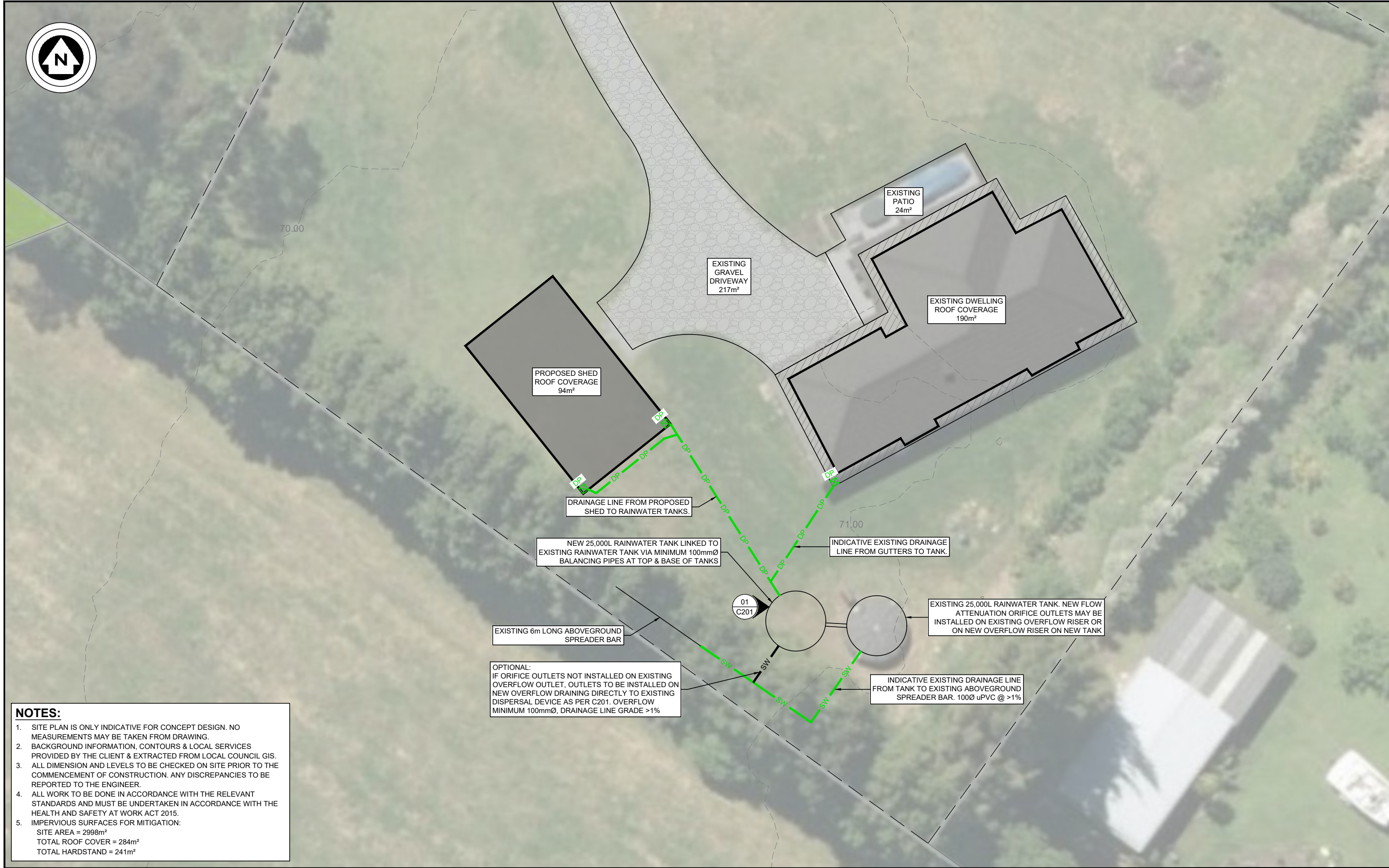
Wilton Joubert Ltd.



Gustavo Medina Brant
BE(Hons)

REPORT ATTACHMENTS

1. Site Plan - C200 (1 sheet)
2. Tank Detail - C201 (1 sheet)
3. Calculation Set



NOTES:

1. SITE PLAN IS ONLY INDICATIVE FOR CONCEPT DESIGN. NO MEASUREMENTS MAY BE TAKEN FROM DRAWING.
2. BACKGROUND INFORMATION, CONTOURS & LOCAL SERVICES PROVIDED BY THE CLIENT & EXTRACTED FROM LOCAL COUNCIL GIS.
3. ALL DIMENSION AND LEVELS TO BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER.
4. ALL WORK TO BE DONE IN ACCORDANCE WITH THE RELEVANT STANDARDS AND MUST BE UNDERTAKEN IN ACCORDANCE WITH THE HEALTH AND SAFETY AT WORK ACT 2015.
5. IMPERVIOUS SURFACES FOR MITIGATION:
 SITE AREA = 2998m²
 TOTAL ROOF COVER = 284m²
 TOTAL HARDSTAND = 241m²

OPTIONAL:
 IF ORIFICE OUTLETS NOT INSTALLED ON EXISTING OVERFLOW OUTLET, OUTLETS TO BE INSTALLED ON NEW OVERFLOW DRAINING DIRECTLY TO EXISTING DISPERSAL DEVICE AS PER C201. OVERFLOW MINIMUM 100mmØ, DRAINAGE LINE GRADE >1%

EXISTING 25,000L RAINWATER TANK. NEW FLOW ATTENUATION ORIFICE OUTLETS MAY BE INSTALLED ON EXISTING OVERFLOW RISER OR ON NEW OVERFLOW RISER ON NEW TANK

INDICATIVE EXISTING DRAINAGE LINE FROM TANK TO EXISTING ABOVEGROUND SPREADER BAR. 100Ø uPVC @ >1%

NEW 25,000L RAINWATER TANK LINKED TO EXISTING RAINWATER TANK VIA MINIMUM 100mmØ BALANCING PIPES AT TOP & BASE OF TANKS

INDICATIVE EXISTING DRAINAGE LINE FROM GUTTERS TO TANK.

DRAINAGE LINE FROM PROPOSED SHED TO RAINWATER TANKS.

Northland: 09 945 4188
 Auckland: 09 527 0196
 Christchurch: 021 824 063
 Wanaka: 03 443 6209
 www.wiltonjoubert.co.nz

ISSUE / REVISION			
No.	DATE	BY	DESCRIPTION
A	NOV '23	GB	STORMWATER MITIGATION REPORT

DESIGNED BY:	GB
DRAWN BY:	GB
CHECKED BY:	BGS
SURVEYED BY:	N/A

SERVICES NOTE
WHERE EXISTING SERVICES ARE SHOWN, THEY ARE INDICATIVE ONLY AND MAY NOT INCLUDE ALL SITE SERVICES. WILTON JOUBERT LTD DOES NOT WARRANT THAT ALL, OR INDEED ANY SERVICES ARE SHOWN. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE AND PROTECT ALL EXISTING SERVICES PRIOR TO AND FOR THE DURATION OF THE CONTRACT WORKS.

BUILDING CONSENT

DESIGN / DRAWING SUBJECT TO ENGINEERS APPROVAL

DRAWING TITLE:
SITE PLAN

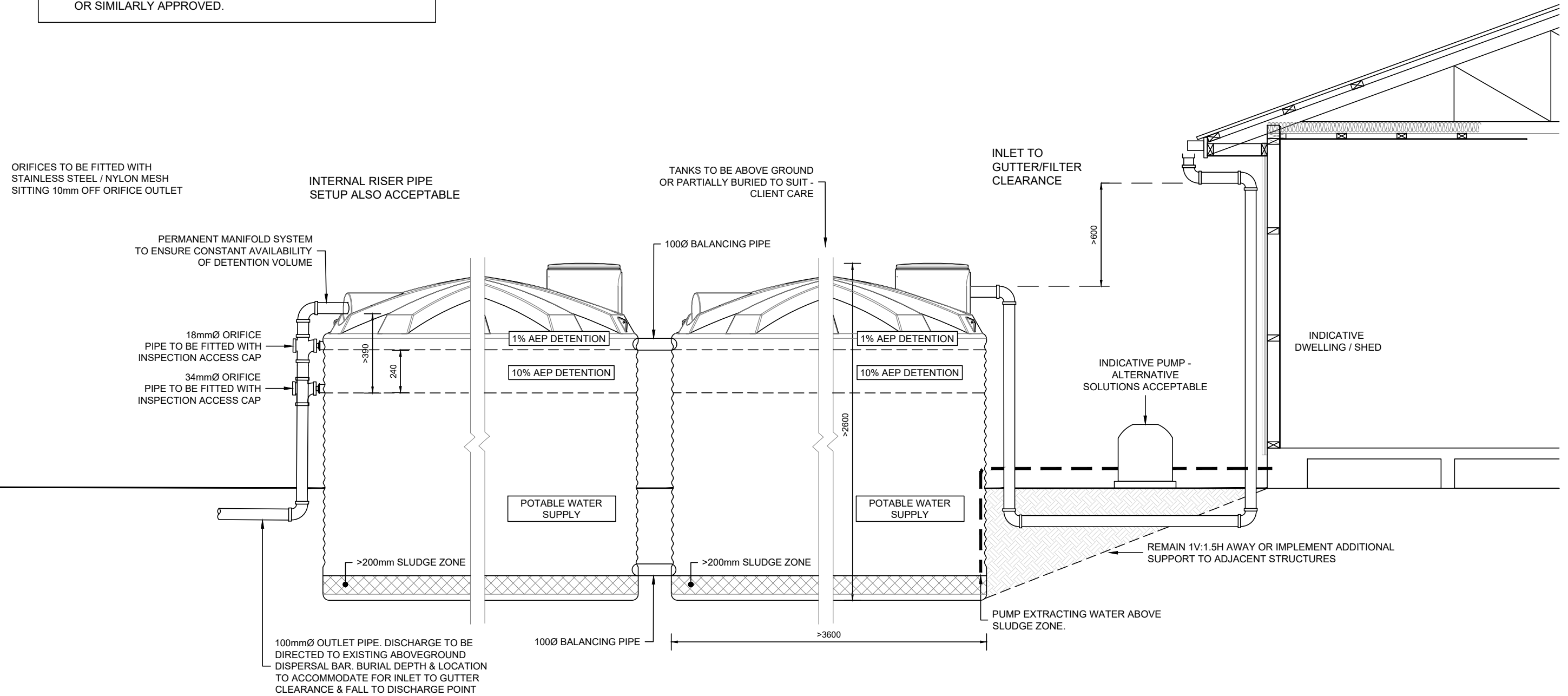
PROJECT DESCRIPTION:
STORMWATER MITIGATION REPORT

PROJECT TITLE:
**LOT 8 DP 373344
 53F SHEPHERD ROAD
 KERIKERI
 NORTHLAND**

ORIGINAL DRAWING SIZE: A3	OFFICE: OREWA
DRAWING SCALE: 1:200	CO-ORDINATE SYSTEM: NOT COORDINATED
DRAWING NUMBER: 130235-C200	ISSUE: A
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NOTES:

1. NOT TO SCALE. DRAWN INDICATIVELY ONLY.
2. ALL LEVELS & DIMENSIONS TO BE CONFIRMED ON SITE & ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
3. TANK TO BE INSTALLED AS PER MANUFACTURERS SPECIFICATIONS & RELEVANT COUNCIL STANDARDS.
4. REGULAR INSPECTION & CLEANING IS REQUIRED TO ENSURE THE EFFECTIVE OPERATION OF THE SYSTEM.
5. MINIMUM SLUDGE ZONE OF 200mm TO BE KEPT.
6. ASSUMED USE OF A 2 x 25,000 LITRE PROMAX WATER TANKS OR SIMILARLY APPROVED.



01 **TANK DETAIL**
C200 N.T.S

WILTON JOUBERT
Consulting Engineers
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Christchurch: 021 824 063 Wanaka: 03 443 6209
www.wiltonjoubert.co.nz

ISSUE / REVISION			
No.	DATE	BY	DESCRIPTION
A	NOV '23	GB	STORMWATER MITIGATION REPORT

DESIGNED BY: GB
DRAWN BY: GB
CHECKED BY: BGS
SURVEYED BY: N/A

SERVICES NOTE
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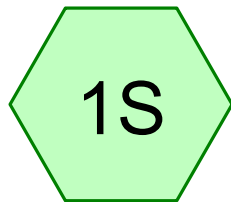
BUILDING CONSENT
DESIGN / DRAWING SUBJECT TO ENGINEERS APPROVAL

DRAWING TITLE: **TANK DETAIL**
PROJECT DESCRIPTION: **STORMWATER MITIGATION REPORT**

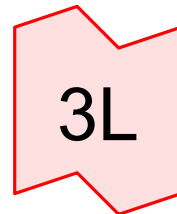
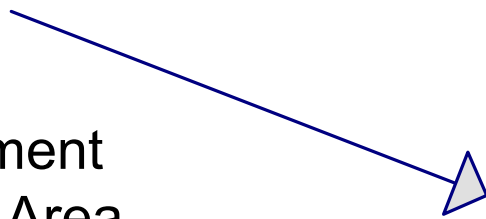
PROJECT TITLE: **LOT 8 DP 373344
53F SHEPHERD ROAD
KERIKERI
NORTHLAND**

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DRAWING SCALE: N.T.S	CO-ORDINATE SYSTEM: NOT COORDINATED
DRAWING NUMBER: 130235-C201	ISSUE: A
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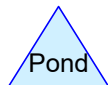
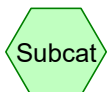
Pre-Development Scenario



Pre-Development
Impermeable Area
Exceeding 12.5%



Pre-Development



130235

53F Shepherd Road 10-Year + CCF Duration=80 min, Inten=46.2 mm/hr

Prepared by Wilton Joubert Limited

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Page 2

Time span=0.00-3.00 hrs, dt=0.01 hrs, 301 points

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-Development

Runoff Area=150.2 m² 0.00% Impervious Runoff Depth=36 mm
Tc=10.0 min C=0.59 Runoff=1.14 L/s 5.5 m³

Link 3L: Pre-Development

Inflow=1.14 L/s 5.5 m³
Primary=1.14 L/s 5.5 m³

Summary for Subcatchment 1S: Pre-Development Impermeable Area Exceeding 12.5%

Runoff = 1.14 L/s @ 0.17 hrs, Volume= 5.5 m³, Depth= 36 mm

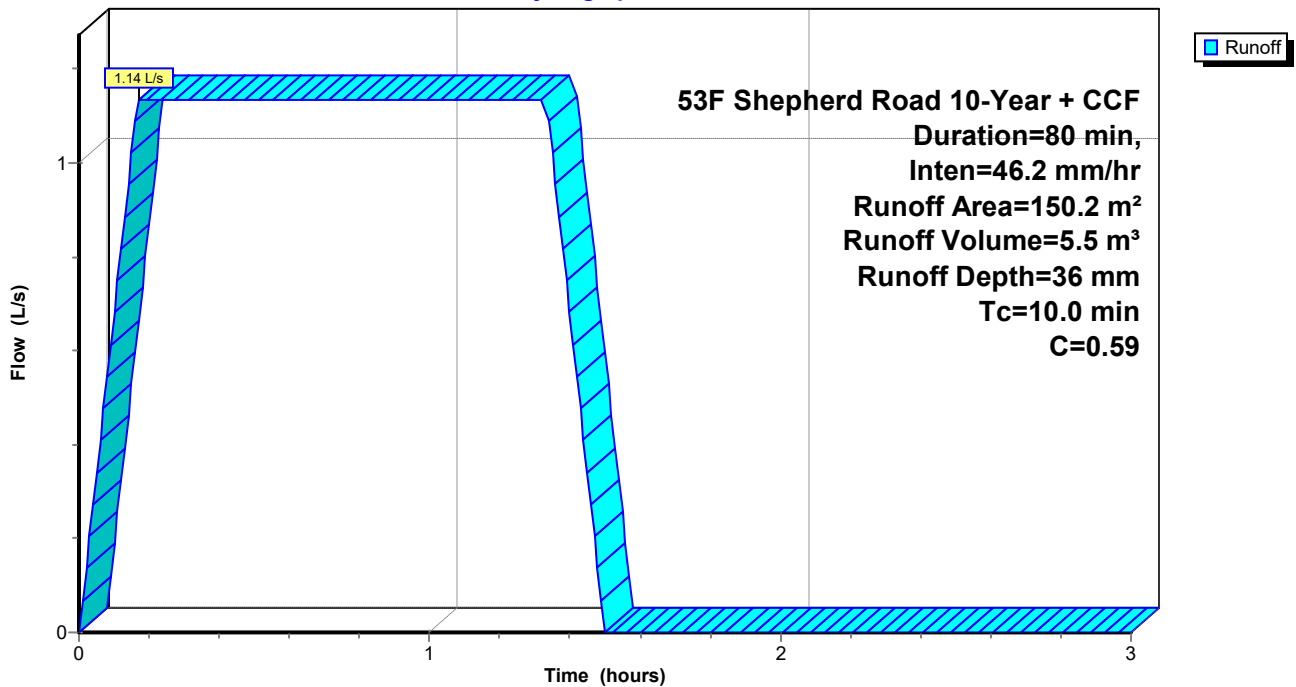
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
53F Shepherd Road 10-Year + CCF Duration=80 min, Inten=46.2 mm/hr

Area (m ²)	C	Description
150.2	0.59	Grass, short
150.2		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m ³ /s)	Description
10.0					Direct Entry,

Subcatchment 1S: Pre-Development Impermeable Area Exceeding 12.5%

Hydrograph



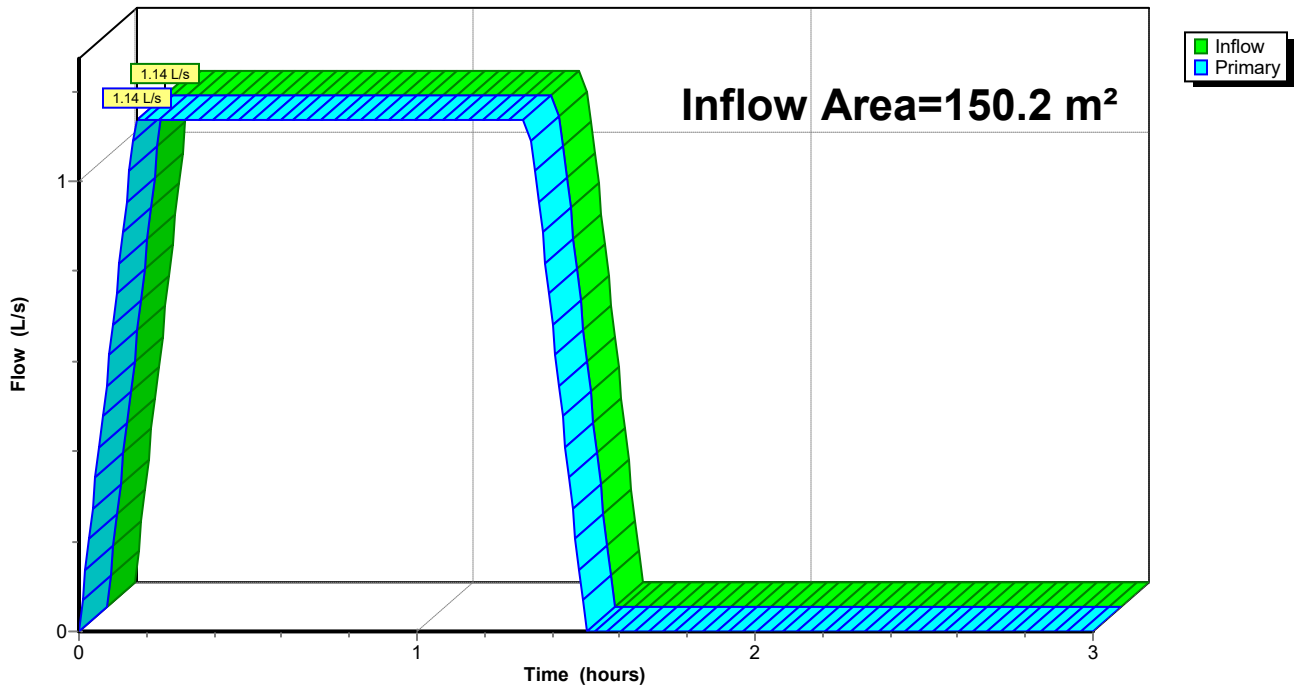
Summary for Link 3L: Pre-Development

Inflow Area = 150.2 m², 0.00% Impervious, Inflow Depth = 36 mm for 10-Year + CCF event
Inflow = 1.14 L/s @ 0.17 hrs, Volume= 5.5 m³
Primary = 1.14 L/s @ 0.17 hrs, Volume= 5.5 m³, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Link 3L: Pre-Development

Hydrograph



130235

53F Shepherd Road 100-Year + CCF Duration=80 min, Inten=69.7 mm/hr

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Time span=0.00-3.00 hrs, dt=0.01 hrs, 301 points

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-Development

Runoff Area=150.2 m² 0.00% Impervious Runoff Depth=55 mm
Tc=10.0 min C=0.59 Runoff=1.72 L/s 8.2 m³

Link 3L: Pre-Development

Inflow=1.72 L/s 8.2 m³
Primary=1.72 L/s 8.2 m³

Summary for Subcatchment 1S: Pre-Development Impermeable Area Exceeding 12.5%

Runoff = 1.72 L/s @ 0.17 hrs, Volume= 8.2 m³, Depth= 55 mm

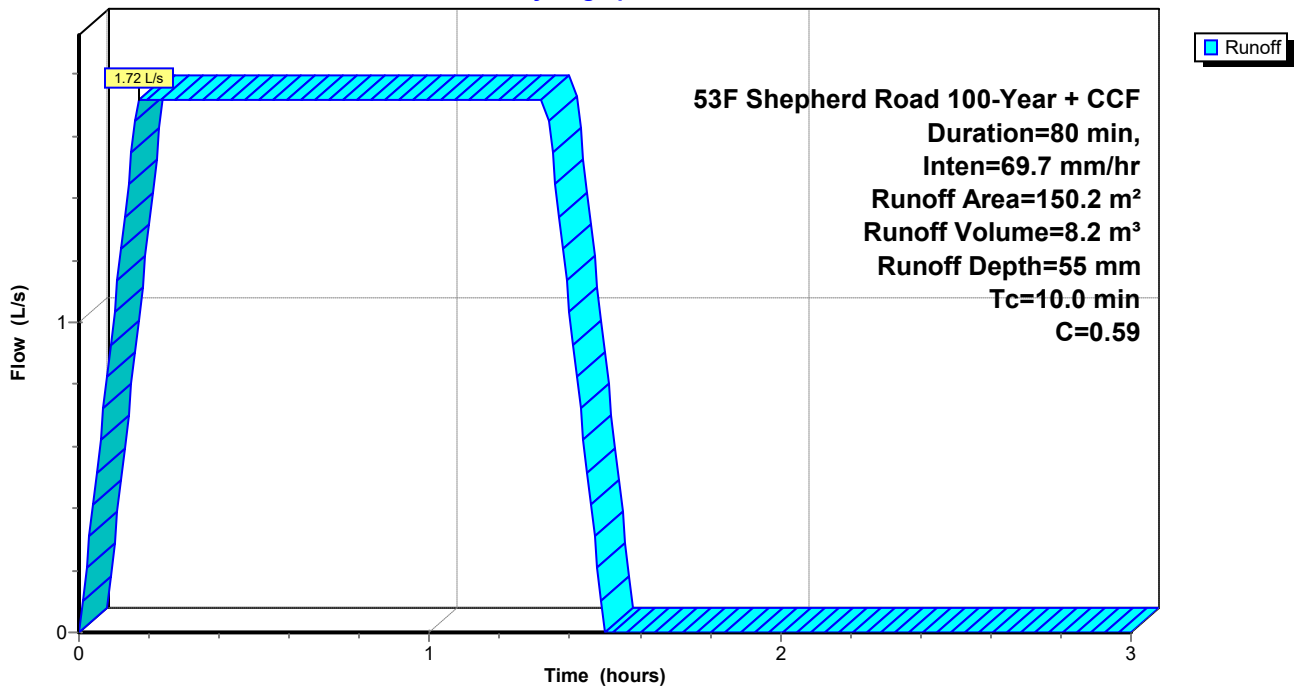
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
53F Shepherd Road 100-Year + CCF Duration=80 min, Inten=69.7 mm/hr

Area (m ²)	C	Description
150.2	0.59	Grass, short
150.2		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m ³ /s)	Description
10.0					Direct Entry,

Subcatchment 1S: Pre-Development Impermeable Area Exceeding 12.5%

Hydrograph



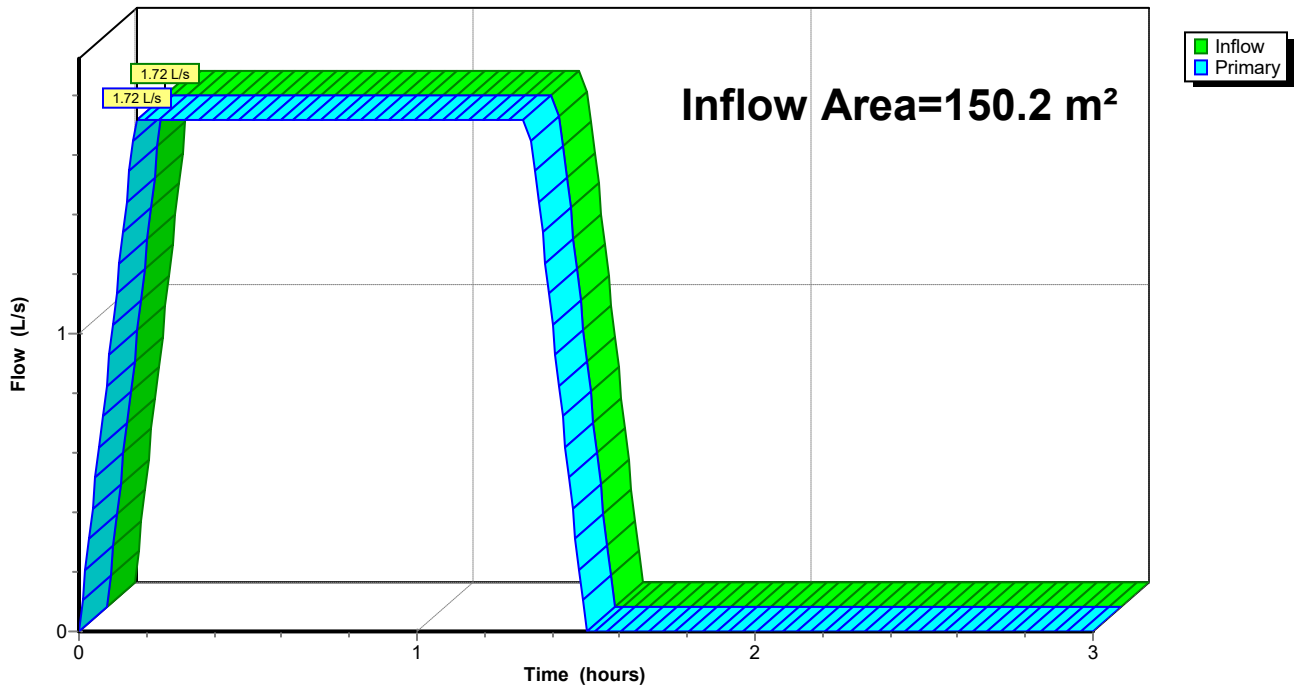
Summary for Link 3L: Pre-Development

Inflow Area = 150.2 m², 0.00% Impervious, Inflow Depth = 55 mm for 100-Year + CCF event
Inflow = 1.72 L/s @ 0.17 hrs, Volume= 8.2 m³
Primary = 1.72 L/s @ 0.17 hrs, Volume= 8.2 m³, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Link 3L: Pre-Development

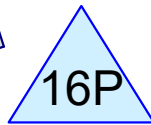
Hydrograph





Post-Development
Impermeable Area
Exceeding 12.5%

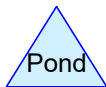
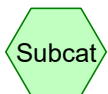
**Post-Development
Scenario**



2 x 25,000L Rainwater
Tanks



Post-Development



Routing Diagram for 130235

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130235

53F Shepherd Road 10-Year + CCF Duration=80 min, Inten=46.2 mm/hr

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Page 2

Time span=0.00-3.00 hrs, dt=0.01 hrs, 301 points

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 20S: Post-Development Runoff Area=150.2 m² 100.00% Impervious Runoff Depth=59 mm
Tc=10.0 min C=0.96 Runoff=1.85 L/s 8.9 m³

Pond 16P: 2 x 25,000L Rainwater Tanks Peak Elev=0.240 m Storage=4.9 m³ Inflow=1.85 L/s 8.9 m³
Outflow=1.14 L/s 8.1 m³

Link 16L: Post-Development Inflow=1.14 L/s 8.1 m³
Primary=1.14 L/s 8.1 m³

Summary for Subcatchment 20S: Post-Development Impermeable Area Exceeding 12.5%

Runoff = 1.85 L/s @ 0.17 hrs, Volume= 8.9 m³, Depth= 59 mm

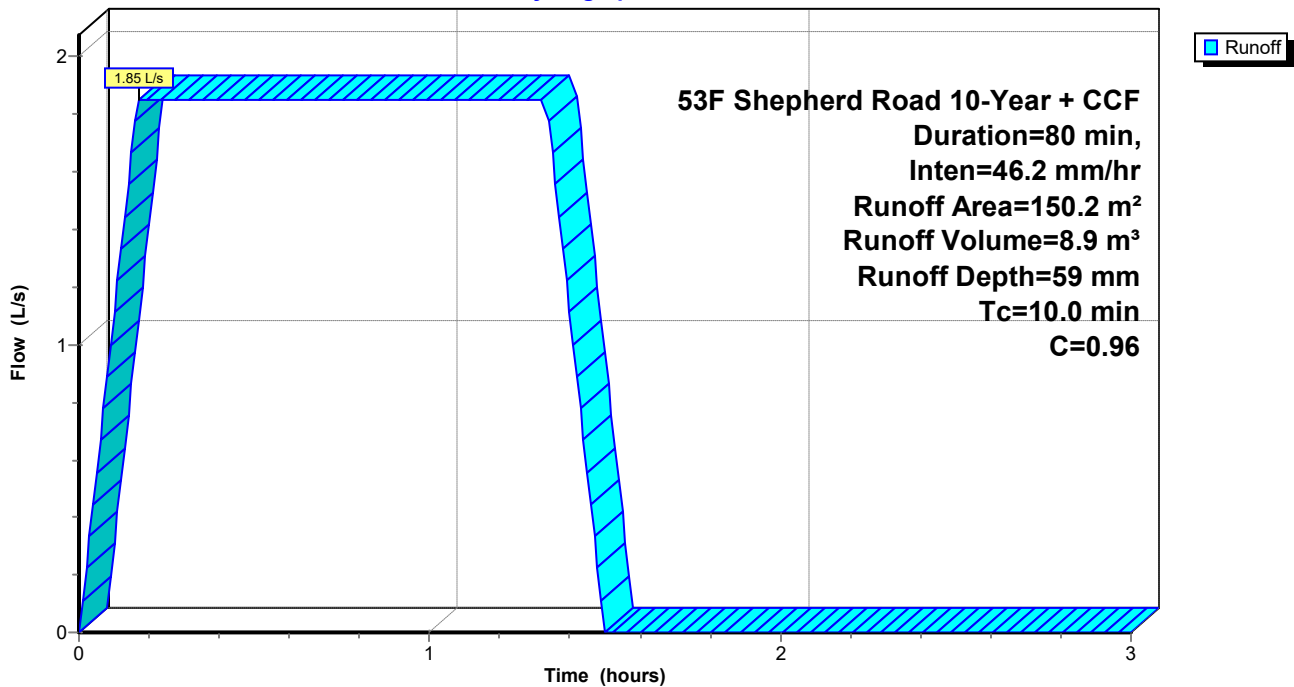
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
53F Shepherd Road 10-Year + CCF Duration=80 min, Inten=46.2 mm/hr

Area (m ²)	C	Description
150.2	0.96	Roof Areas
150.2		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m ³ /s)	Description
10.0					Direct Entry,

Subcatchment 20S: Post-Development Impermeable Area Exceeding 12.5%

Hydrograph



Summary for Pond 16P: 2 x 25,000L Rainwater Tanks

Inflow Area = 150.2 m², 100.00% Impervious, Inflow Depth = 59 mm for 10-Year + CCF event
 Inflow = 1.85 L/s @ 0.17 hrs, Volume= 8.9 m³
 Outflow = 1.14 L/s @ 1.40 hrs, Volume= 8.1 m³, Atten= 38%, Lag= 73.6 min
 Primary = 1.14 L/s @ 1.40 hrs, Volume= 8.1 m³

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 Peak Elev= 0.240 m @ 1.40 hrs Surf.Area= 20.4 m² Storage= 4.9 m³

Plug-Flow detention time= 48.4 min calculated for 8.1 m³ (91% of inflow)
 Center-of-Mass det. time= 45.1 min (90.1 - 45.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.000 m	52.9 m ³	3.60 mD x 2.60 mH Vertical Cone/Cylinder x 2

Device	Routing	Invert	Outlet Devices
#1	Primary	0.000 m	34 mm Vert. Orifice/Grate C= 0.600
#2	Primary	0.240 m	18 mm Vert. Orifice/Grate C= 0.600

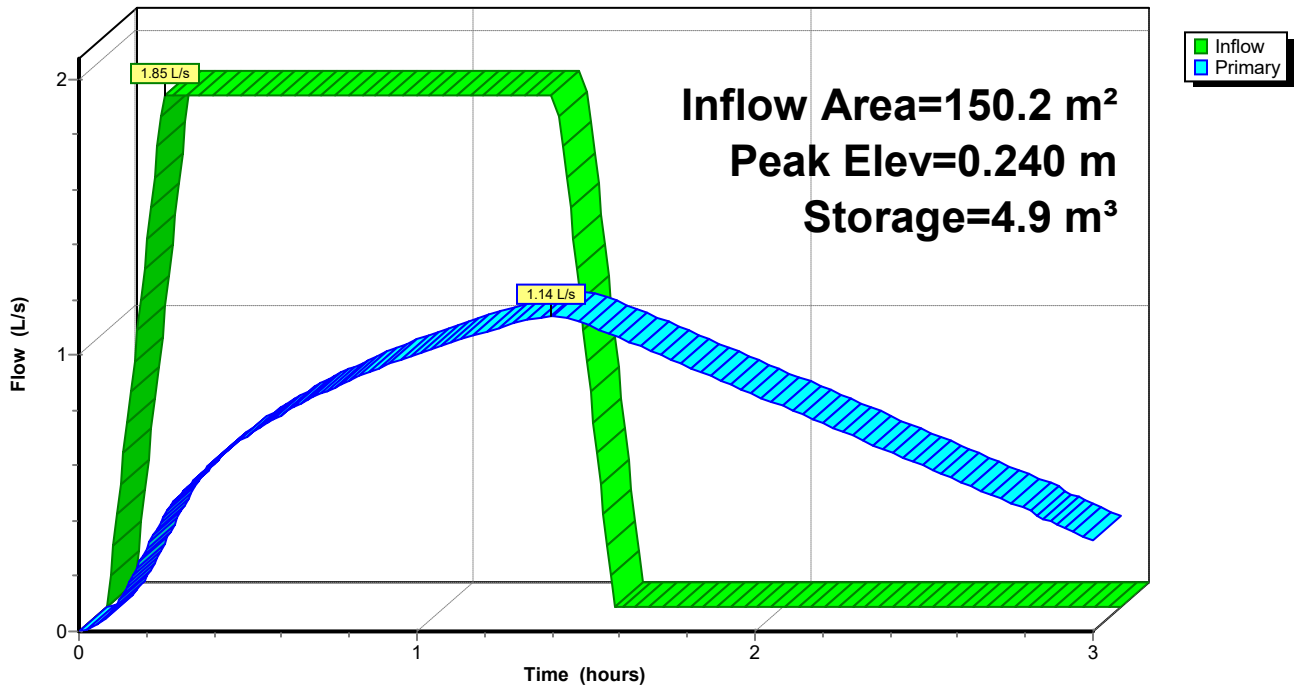
Primary OutFlow Max=1.14 L/s @ 1.40 hrs HW=0.240 m (Free Discharge)

1=Orifice/Grate (Orifice Controls 1.14 L/s @ 1.26 m/s)

2=Orifice/Grate (Orifice Controls 0.00 L/s @ 0.04 m/s)

Pond 16P: 2 x 25,000L Rainwater Tanks

Hydrograph



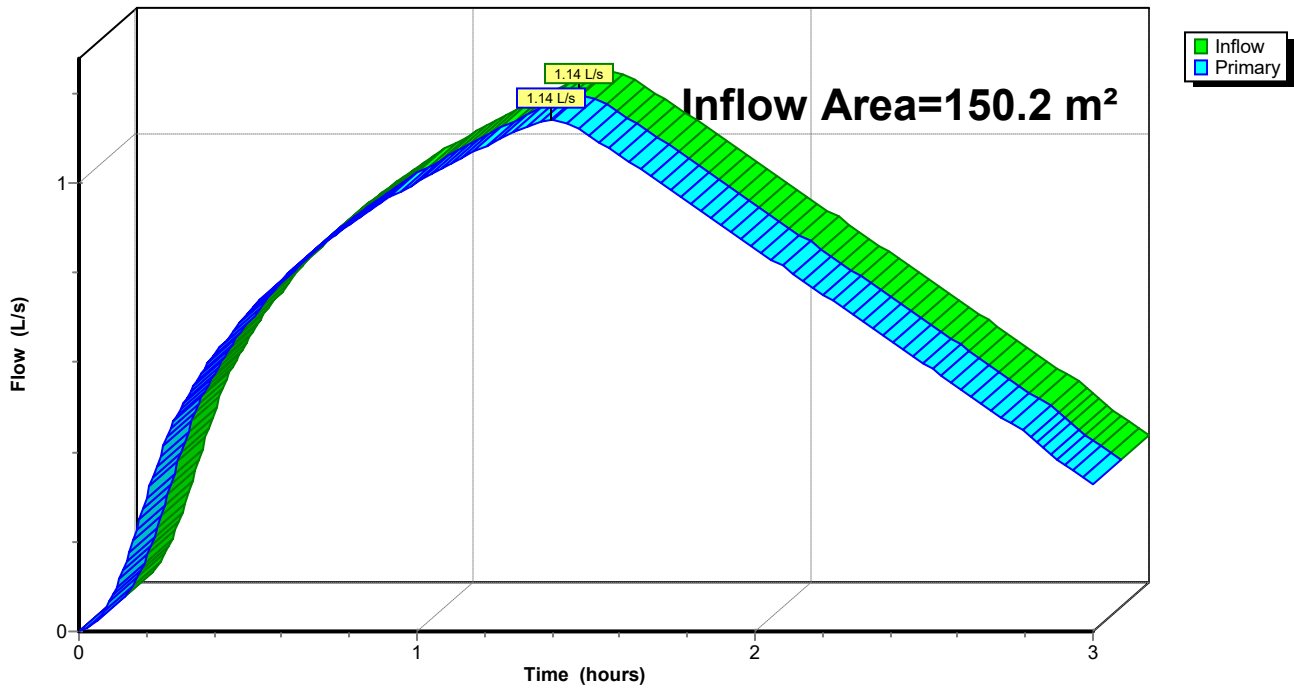
Summary for Link 16L: Post-Development

Inflow Area = 150.2 m², 100.00% Impervious, Inflow Depth > 54 mm for 10-Year + CCF event
Inflow = 1.14 L/s @ 1.40 hrs, Volume= 8.1 m³
Primary = 1.14 L/s @ 1.40 hrs, Volume= 8.1 m³, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Link 16L: Post-Development

Hydrograph



130235

53F Shepherd Road 100-Year + CCF Duration=80 min, Inten=69.7 mm/hr

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Page 6

Time span=0.00-3.00 hrs, dt=0.01 hrs, 301 points

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 20S: Post-Development Runoff Area=150.2 m² 100.00% Impervious Runoff Depth=89 mm
Tc=10.0 min C=0.96 Runoff=2.79 L/s 13.4 m³

Pond 16P: 2 x 25,000L Rainwater Tanks Peak Elev=0.383 m Storage=7.8 m³ Inflow=2.79 L/s 13.4 m³
Outflow=1.71 L/s 11.7 m³

Link 16L: Post-Development Inflow=1.71 L/s 11.7 m³
Primary=1.71 L/s 11.7 m³

Summary for Subcatchment 20S: Post-Development Impermeable Area Exceeding 12.5%

Runoff = 2.79 L/s @ 0.17 hrs, Volume= 13.4 m³, Depth= 89 mm

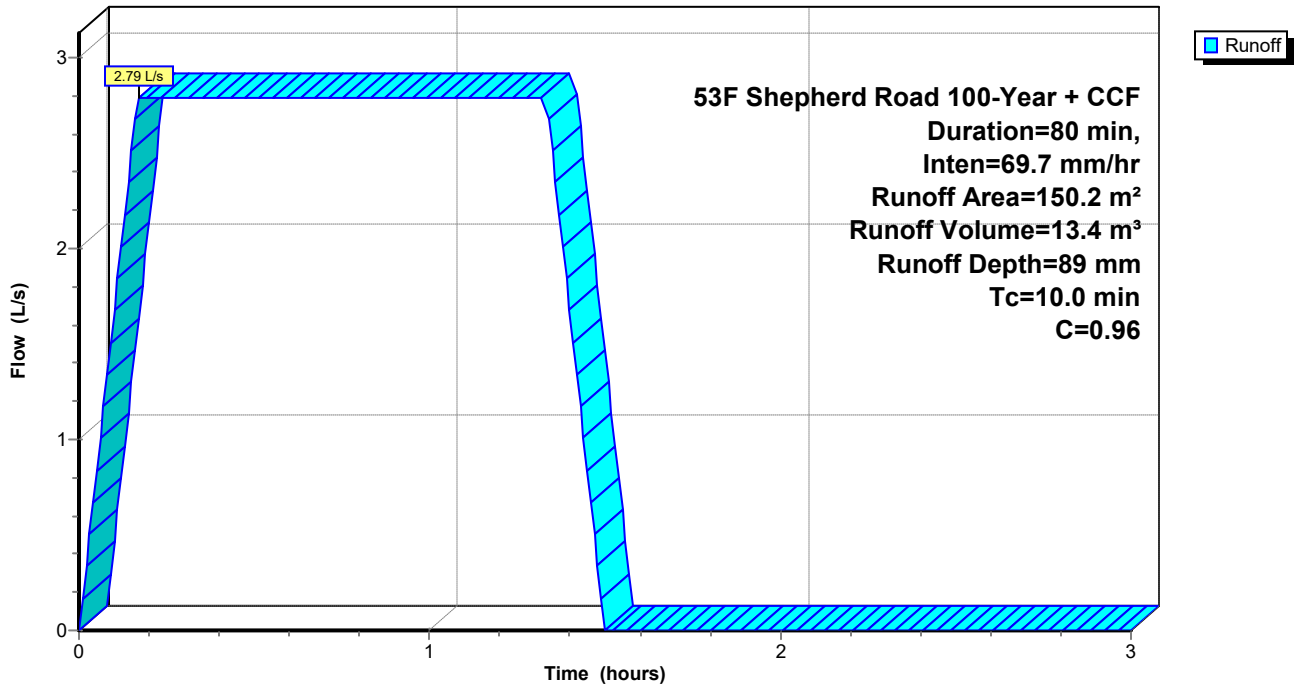
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
53F Shepherd Road 100-Year + CCF Duration=80 min, Inten=69.7 mm/hr

Area (m ²)	C	Description
150.2	0.96	Roof Areas
150.2		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m ³ /s)	Description
10.0					Direct Entry,

Subcatchment 20S: Post-Development Impermeable Area Exceeding 12.5%

Hydrograph



Summary for Pond 16P: 2 x 25,000L Rainwater Tanks

Inflow Area = 150.2 m², 100.00% Impervious, Inflow Depth = 89 mm for 100-Year + CCF event
 Inflow = 2.79 L/s @ 0.17 hrs, Volume= 13.4 m³
 Outflow = 1.71 L/s @ 1.40 hrs, Volume= 11.7 m³, Atten= 39%, Lag= 73.7 min
 Primary = 1.71 L/s @ 1.40 hrs, Volume= 11.7 m³

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 Peak Elev= 0.383 m @ 1.40 hrs Surf.Area= 20.4 m² Storage= 7.8 m³

Plug-Flow detention time= 51.9 min calculated for 11.6 m³ (87% of inflow)
 Center-of-Mass det. time= 46.9 min (91.9 - 45.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.000 m	52.9 m ³	3.60 mD x 2.60 mH Vertical Cone/Cylinder x 2

Device	Routing	Invert	Outlet Devices
#1	Primary	0.000 m	34 mm Vert. Orifice/Grate C= 0.600
#2	Primary	0.240 m	18 mm Vert. Orifice/Grate C= 0.600

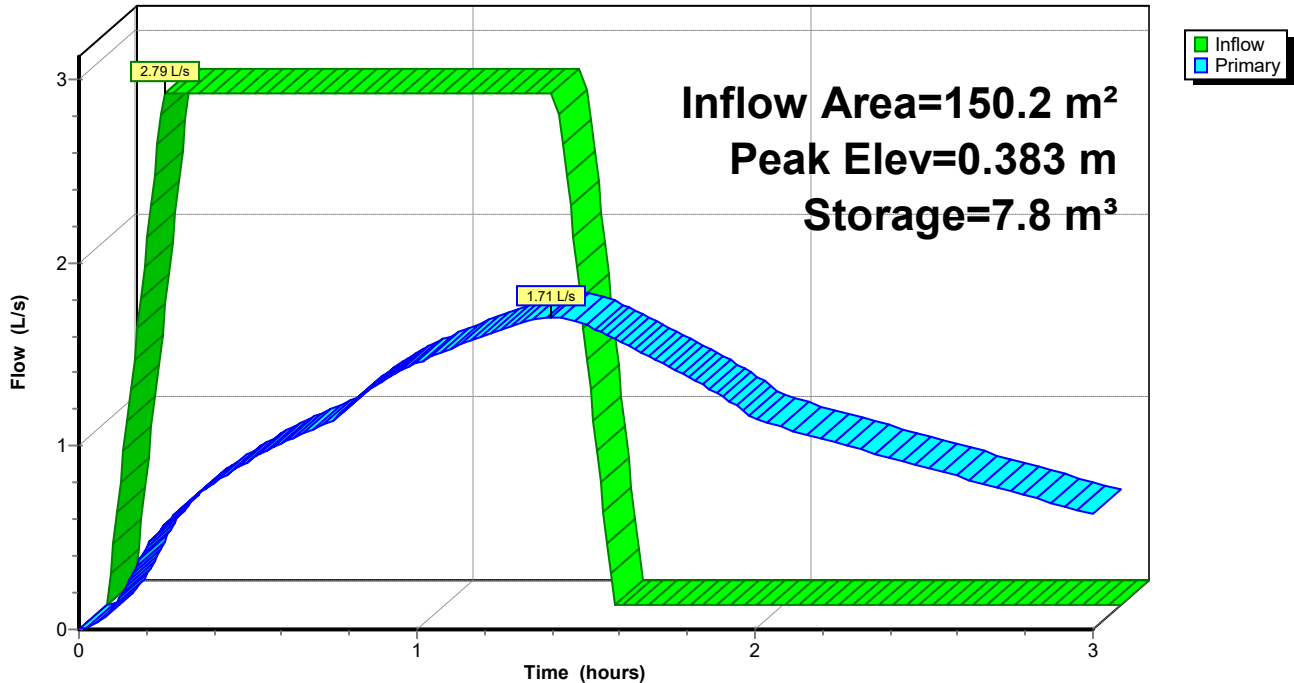
Primary OutFlow Max=1.71 L/s @ 1.40 hrs HW=0.383 m (Free Discharge)

1=Orifice/Grate (Orifice Controls 1.46 L/s @ 1.61 m/s)

2=Orifice/Grate (Orifice Controls 0.25 L/s @ 0.97 m/s)

Pond 16P: 2 x 25,000L Rainwater Tanks

Hydrograph



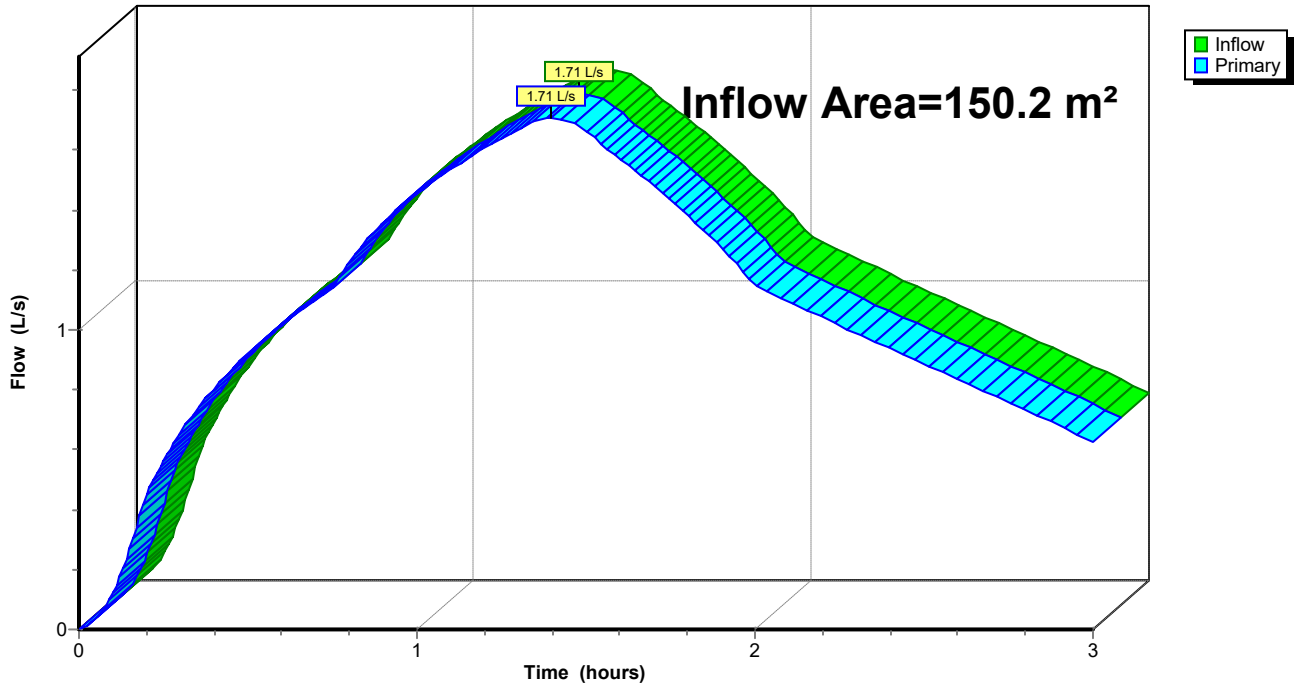
Summary for Link 16L: Post-Development

Inflow Area = 150.2 m², 100.00% Impervious, Inflow Depth > 78 mm for 100-Year + CCF event
Inflow = 1.71 L/s @ 1.40 hrs, Volume= 11.7 m³
Primary = 1.71 L/s @ 1.40 hrs, Volume= 11.7 m³, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Link 16L: Post-Development

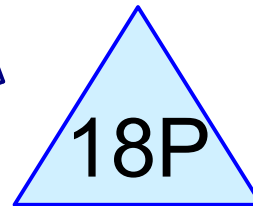
Hydrograph



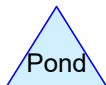
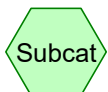
***Existing Level
Spreader***



Post-Development
Impermeable Roof
Areas



Existing 6m Spreader



Routing Diagram for 130235

Prepared by Wilton Joubert Limited, Printed 9/11/2023
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130235

53F Shepherd Road 10-Year + CCF Duration=80 min, Inten=46.2 mm/hr

Prepared by Wilton Joubert Limited

Printed 9/11/2023

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Page 2

Time span=0.00-3.00 hrs, dt=0.01 hrs, 301 points

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 17S: Post-Development Runoff Area=284.0 m² 100.00% Impervious Runoff Depth=59 mm
Tc=10.0 min C=0.96 Runoff=3.50 L/s 16.8 m³

Pond 18P: Existing 6m Spreader Peak Elev=0.022 m Storage=0.0 m³ Inflow=3.50 L/s 16.8 m³
Outflow=3.50 L/s 16.8 m³

Summary for Subcatchment 17S: Post-Development Impermeable Roof Areas

Runoff = 3.50 L/s @ 0.17 hrs, Volume= 16.8 m³, Depth= 59 mm

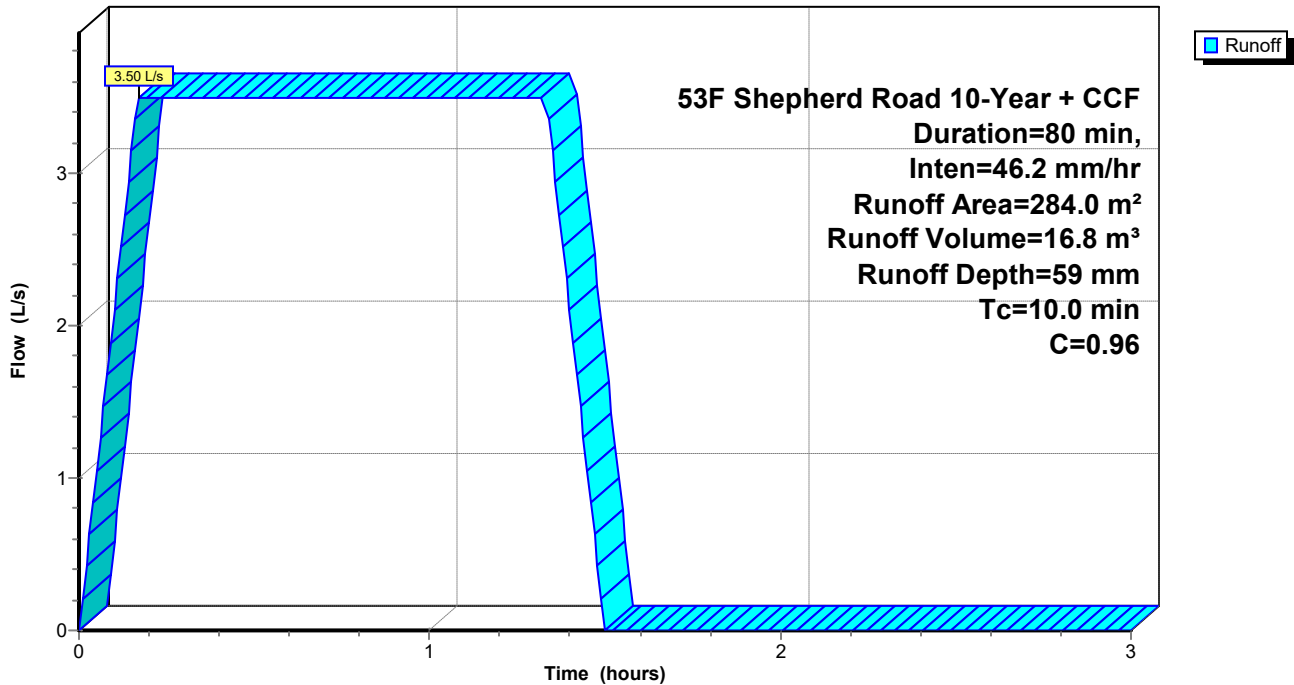
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
53F Shepherd Road 10-Year + CCF Duration=80 min, Inten=46.2 mm/hr

Area (m ²)	C	Description
284.0	0.96	Roof
284.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m ³ /s)	Description
10.0					Direct Entry,

Subcatchment 17S: Post-Development Impermeable Roof Areas

Hydrograph



Summary for Pond 18P: Existing 6m Spreader

Inflow Area = 284.0 m², 100.00% Impervious, Inflow Depth = 59 mm for 10-Year + CCF event
 Inflow = 3.50 L/s @ 0.17 hrs, Volume= 16.8 m³
 Outflow = 3.50 L/s @ 0.18 hrs, Volume= 16.8 m³, Atten= 0%, Lag= 0.6 min
 Primary = 3.50 L/s @ 0.18 hrs, Volume= 16.8 m³

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 Peak Elev= 0.022 m @ 0.18 hrs Surf.Area= 0.5 m² Storage= 0.0 m³

Plug-Flow detention time= 0.0 min calculated for 16.7 m³ (100% of inflow)
 Center-of-Mass det. time= 0.0 min (45.0 - 45.0)

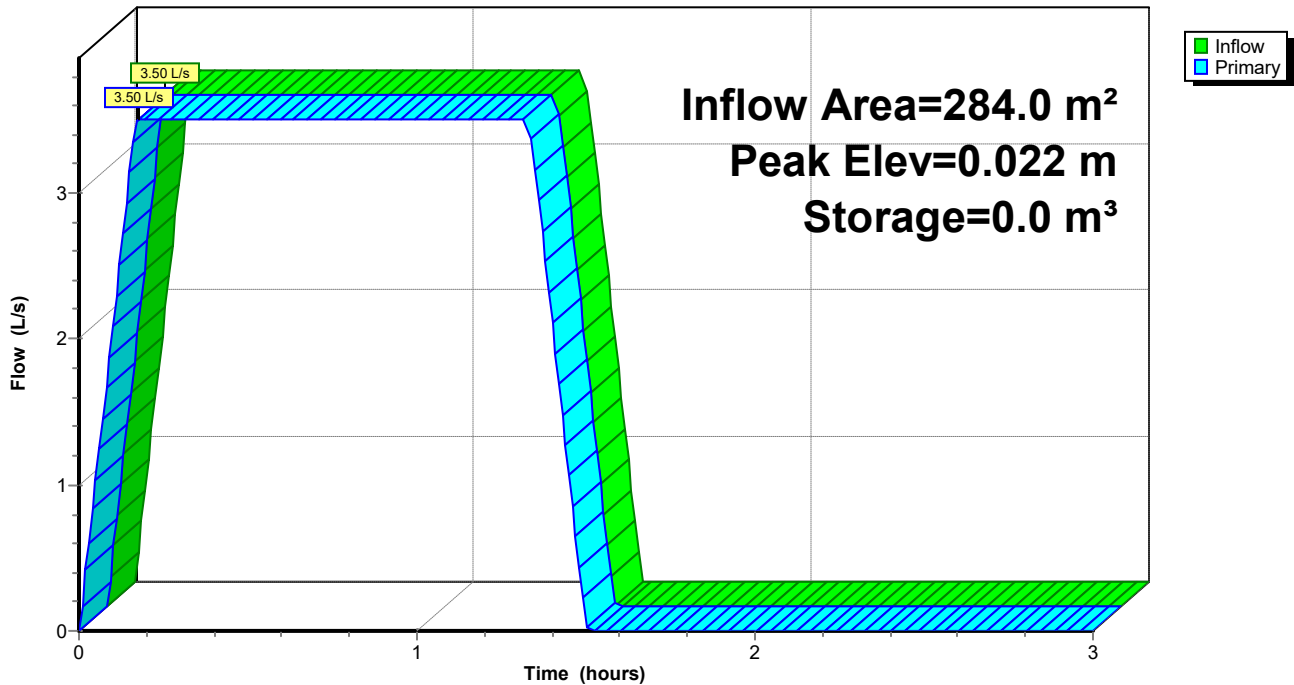
Volume	Invert	Avail.Storage	Storage Description
#1	0.000 m	0.0 m ³	100 mm Round Pipe Storage L= 6.00 m

Device	Routing	Invert	Outlet Devices
#1	Primary	0.000 m	40 mm Vert. Orifice/Grate X 18.00 C= 0.600

Primary OutFlow Max=3.50 L/s @ 0.18 hrs HW=0.022 m (Free Discharge)
 ←1=Orifice/Grate (Orifice Controls 3.50 L/s @ 0.28 m/s)

Pond 18P: Existing 6m Spreader

Hydrograph



130235

53F Shepherd Road 100-Year + CCF Duration=80 min, Inten=69.7 mm/hr

Prepared by Wilton Joubert Limited

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Page 5

Time span=0.00-3.00 hrs, dt=0.01 hrs, 301 points

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 17S: Post-Development Runoff Area=284.0 m² 100.00% Impervious Runoff Depth=89 mm
Tc=10.0 min C=0.96 Runoff=5.28 L/s 25.3 m³

Pond 18P: Existing 6m Spreader Peak Elev=0.028 m Storage=0.0 m³ Inflow=5.28 L/s 25.3 m³
Outflow=5.28 L/s 25.3 m³

Summary for Subcatchment 17S: Post-Development Impermeable Roof Areas

Runoff = 5.28 L/s @ 0.17 hrs, Volume= 25.3 m³, Depth= 89 mm

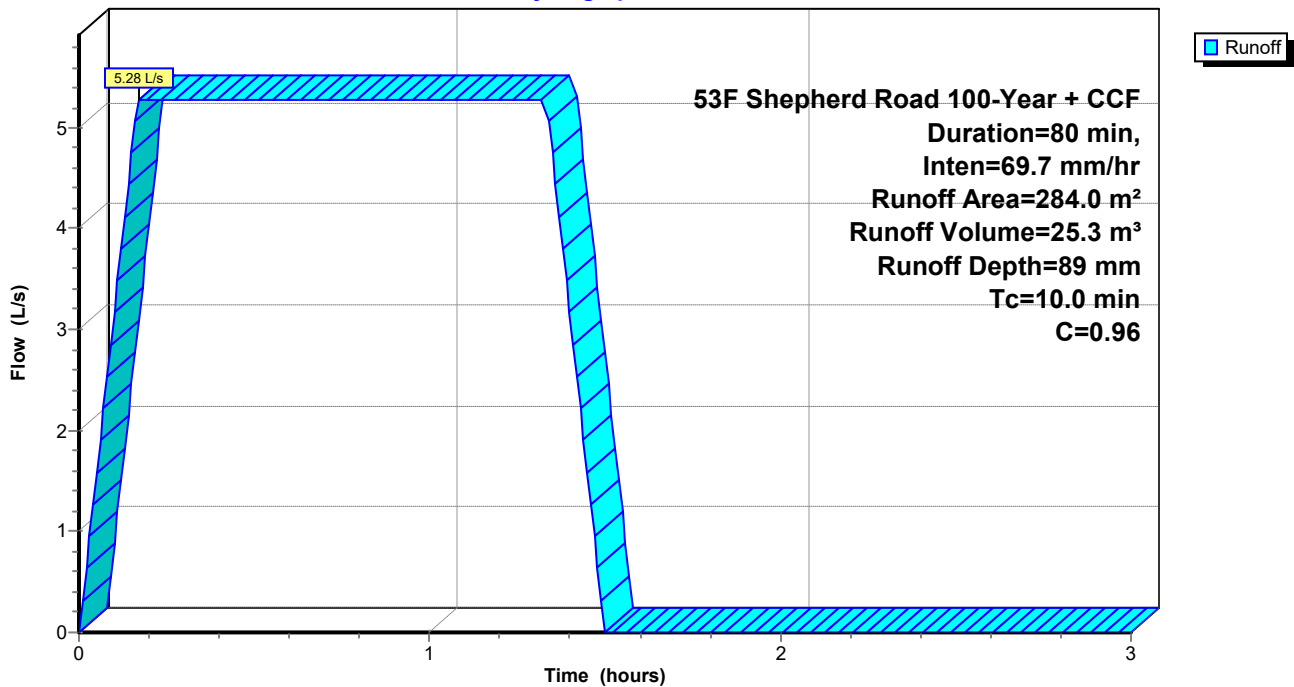
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
53F Shepherd Road 100-Year + CCF Duration=80 min, Inten=69.7 mm/hr

Area (m ²)	C	Description
284.0	0.96	Roof
284.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m ³ /s)	Description
10.0					Direct Entry,

Subcatchment 17S: Post-Development Impermeable Roof Areas

Hydrograph



Summary for Pond 18P: Existing 6m Spreader

Inflow Area = 284.0 m², 100.00% Impervious, Inflow Depth = 89 mm for 100-Year + CCF event
 Inflow = 5.28 L/s @ 0.17 hrs, Volume= 25.3 m³
 Outflow = 5.28 L/s @ 0.18 hrs, Volume= 25.3 m³, Atten= 0%, Lag= 0.6 min
 Primary = 5.28 L/s @ 0.18 hrs, Volume= 25.3 m³

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 Peak Elev= 0.028 m @ 0.18 hrs Surf.Area= 0.5 m² Storage= 0.0 m³

Plug-Flow detention time= 0.0 min calculated for 25.3 m³ (100% of inflow)
 Center-of-Mass det. time= 0.0 min (45.0 - 45.0)

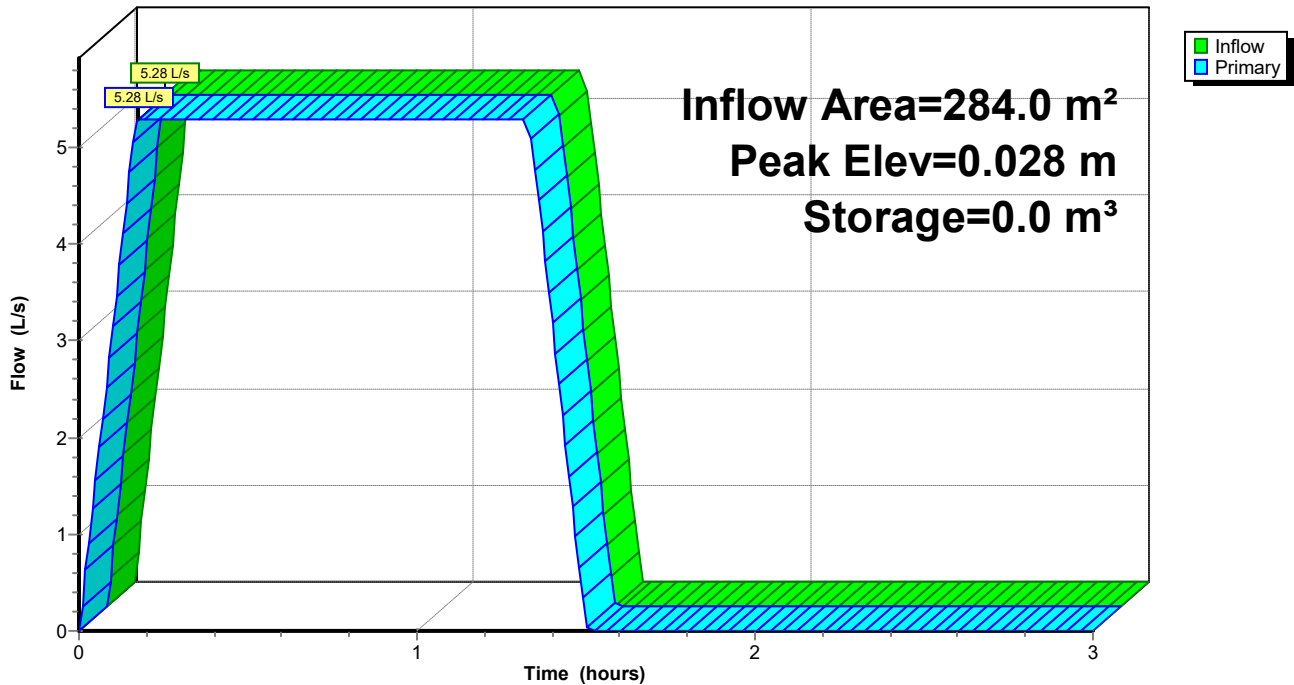
Volume	Invert	Avail.Storage	Storage Description
#1	0.000 m	0.0 m ³	100 mm Round Pipe Storage L= 6.00 m

Device	Routing	Invert	Outlet Devices
#1	Primary	0.000 m	40 mm Vert. Orifice/Grate X 18.00 C= 0.600

Primary OutFlow Max=5.28 L/s @ 0.18 hrs HW=0.028 m (Free Discharge)
 ←1=Orifice/Grate (Orifice Controls 5.28 L/s @ 0.31 m/s)

Pond 18P: Existing 6m Spreader

Hydrograph



Preliminary Site Investigation Report

Brenda Hannaford

53F Shepherds Road, Kerikeri

Lot 8 DP 373344

Far North District

FAR NORTH DISTRICT COUNCIL
Approved Documents

Rev: 0
Date: 28 November 2013
Job No: 5073

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1.0 Summary Contaminated Sites Report Checklist

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

This report has been prepared for Brenda Hannaford by Far North Envirolab Ltd. No liability is accepted by this company or any employee or sub-consultant of this company with respect to its use by any other parties.

2.0 Executive Summary

2.1 Background

The objective of the Preliminary Site Investigation Report is to establish if the land is a risk to human health due to previous hazardous activities and industries therefore a permitted activity as stated in Section 8.4 of the Resource Management (National Environmental Standards for Assessment and Managing Contaminants in Soils to Protect Human Health) Regulations 2011.

The report investigates the site characteristics and goes on to assess soil samples collected at the time of the site investigation. The conclusion then states if the soils on the site are a risk to human health in accordance with National Environmental Standard.

It is the owner's intension to build a three bedroom dwelling on the site.

2.2 Scope of Work

The following work has been undertaken:

- Collection of soil samples
- Site inspection & related field work
- Desk study including site evaluation & historical CT search
- Soil analysis & results
- Conclusion & recommendations

2.3 Available Information

- Historical ownership of land from 1935 to present
- Aerial photography dated : 2003, 2009 & 2012

2.4 Summary of conclusions and recommendations

On review of the soil data collected, the preliminary site investigation has clearly shown that it is highly unlikely that there will be a risk to human health if the proposed activity takes place on this piece of land.

3.0 Site Identification

3.1 Appellation

Clients Name: Brenda Hannaford
Site Address: 53F Shepherds Road, Kerikeri
DP & Lot No.: Lot 8 DP 373344
District Plan: Rural Living
Coordinates: FNDC Maps Default 2193 - X: 1,686,915.54959819 Y: 6,099,884.29576227
Refer to Appendix I for site plan.

3.2 Site Description

The site is located to the southwest of Shepherds Road at the end of a sealed right of way on a previously undeveloped lot and is zoned as Rural Living in the Far North District Plan.

Access to the 3,000m² property was gained via a gated entrance. At the time of the site investigation the vegetation across the site consisted of a well maintained grassed paddock. The southwest boundary was lined with mature conifer trees. The southeast boundary had a line of orange trees, presumably the remains of the original orchard that used to be on the property. The northeast boundary was lined with mature hedgerow and the northwest boundary was open to the neighbouring lot due to gum trees being recently felled. The site now shared its boundaries with residential land.

The site had a slight cross fall to the southwest and showed no visual signs of instability.

4.0 Site History

4.1 Land Owners

Historic research of available titles showed the land was owned by Passion Fruit Plantation Ltd. suggesting the land had been used as orchard from this date. The land then changed hands numerous times, many owners during these years were either Orchardists or Farmers up until the land was subdivided in the early 2000s.

The attached Aerial photography dated 2003 clearly shows rows of trees across the whole area of lot 8. The present owner Brenda Hannaford purchased the land in 2006 and reports that no chemicals have been used on the property during this time.

Owners in chronological order:

1935 – 1940	Passion Fruit Plantation Ltd. (HAIL Code A10: Pesticide use in orchards)
1940 – 1944	John Leonard Haste, of Kerikeri (Farmer)
1944 – 1953	Lawrence Courteney Hall, of Kerikeri (Orchardist) Cedric Warner Wahren, of Tauranga (Market Gardner) (HAIL Code A10: Pesticide use in orchards)
1953 – 1976	James Oliver, of Kerikeri (Truck Driver)
1976 – 1998	Barry Neil Morris, of Kerikeri (Orchardist) (HAIL Code A10: Pesticide use in orchards)
1998 – 2006	Keith Lorford-Brown & Marilyn Gaynor Lorford-Brown (HAIL Code A10: Pesticide use in orchards)
2006 - Present	Phyllis Brenda Hannaford

As it was not possible to obtain historical information on the exact chemicals used on the site, we have decided to perform test sampling to determine the presence of any contamination.

4.2 Aerial Photography

The attached aerial photograph dated 2003 show orchards on the property.
Dates of available aerial photography: 2003, 2009 & 2012
Refer to Appendix I

5.0 Site Condition and Surrounding Environment

5.1 Site Characteristics

At the time of the site investigation the site had a covering of grass. The grass was well maintained and there were no bare patches. There were no signs of contamination or odours. There were no visible signs of contamination such as identifiable waste products, discoloration or staining of soil and no signs of plant stress on-site. No fire pits or any other suspect hot spot zones were identified.

5.3 Geology and Hydrology

Geological Map Reference Number: NZMS 290 Sheet O O4/O5 describes the soils as Kerikeri Friable Clay (KE) with well to moderately well drained soils of the rolling and hill land. There was no fill identified on the site. Refer to the attached bore hole log.

The lot did not benefit from a connection to town water supply and no sewage connection was available. It is proposed the stormwater and waste water be disposed of on site.

The area did not show any visible signs of erosion or ground movement. According to the Far North District Council maps the land is not prone to flooding.

6.0 Sampling Method & QA/QC

6.1 Field Methodology & QA/QC

The selection of the sample points and the number of sub-samples taken were based according to a thorough inspection of the site during our field investigation. We have studied land use and the site history which include the available aerial photos. The drainage of surface water as well as subsoil flow including the soil type and geology of the site were inspected all of which could have the possibilities of leaching from neighbouring sites.

Our conclusion was after considering all the above information, a sample regime based on a grid system over the whole site be adopted. Ten sub samples should be taken and combine them into two composite samples for analysing, this would give plenty of assurance to find any unlikely contaminants mentioned in the NES.

Each sample was collected using a 75mm long x 40mm wide core sampler and transported in clearly labelled individual plastic sample bags. The sample points are marked on the attached site plan.

6.2 Laboratory QA/QC

The soil samples preservation methods are applied to the recognised protocols of US EPA SW846 (1992) The remaining samples will be stored after reporting for a period of 6 month. After the storage period is completed the samples are discarded unless otherwise advised by the customer.

Far North Envirolab Ltd follows many of the Good Manufacturing Practises (GMP) as standard procedures and is capable of Good Laboratory Practices (GLP) full compliance for the regulated programs when necessary. Quality Control (QC) refers to the steps taken by the analyst to ensure and monitor precision and accuracy. Quality Assurance (QA) is a completely separate and independent monitor of the study and QC activities. Far North Envirolab Ltd provides separate and independent QC and QA functions according to the regulations. The quality assurance programmes are regularly audited by IANZ personnel as part of the accreditation process. Far North Envirolab Ltd does participate in the national proficiency testing regime governed by Global Science.

6.3 Laboratory Methodology

The method used for the National Environment Standards heavy metals and organic compounds in soil samples are:

Parameter	Method Description	Detection limit
Total recoverable Copper	Dried sample, sieved, Nitric acid/Hydrochloric acid digestion US EPA 200.2	2 mg/kg dry wt
Total recoverable Boron	Dried sample, sieved, Nitric acid/Hydrochloric acid digestion US EPA 200.2	20 mg/kg dry wt
Total recoverable Arsenic	Dried sample, sieved, Nitric acid/Hydrochloric acid digestion US EPA 200.2	2 mg/kg dry wt
Total recoverable Lead	Dried sample, sieved, Nitric acid/Hydrochloric acid digestion US EPA 200.2	0.4 mg/kg dry wt
Total recoverable Mercury	Dried sample, sieved, Nitric acid/Hydrochloric acid digestion US EPA 200.2	0.10 mg/kg dry wt
Total recoverable Cadmium	Dried sample, sieved, Nitric acid/Hydrochloric acid digestion US EPA 200.2	0.10 mg/kg dry wt
Trivalent Chromium Total recoverable Chromium	Calculation ; Total Chromium – Hexavalent Chromium Dried sample, sieved, Nitric acid/Hydrochloric acid digestion US EPA 200.2	0 mg/kg dry wt 2 mg/kg dry wt
Hexavalent Chromium in Environmental solids	Phosphate buffer extraction, colorimetric	0.4 mg/kg dry wt
Dieldrin	Sonication extraction, GPC cleanup GC FS analysis, US EPA 3540, 3550,3640 & 8270	0.10 mg/kg dry wt
Pentachlorophenol (PCP)	Sonication extraction, GPC cleanup GC FS analysis, US EPA 3540, 3550,3640 & 8277	6mg/kg dry wt
Benzo(a)pyrene potency Equivalency Factor (PEF) NES	BaP toxic Equivalence calculated from Benz(a)anthracene x 0.1 ... GLfor assessing contaminated gasworks sites in New Zealand	0.002 mg/kg dry wt
Total DDT isomers NES	Sonication extraction, Florisil cleanup, GC ECD analysis	0.03 mg/kg dry wt

7.0 Sample Analysis & Results

7.1 Basis for Guideline Values

All values used are consistent with the principles of the National Environmental Standard (NES) for Assessing and Managing Contaminants in Soil to Protect Human Health.

Refer to the results table for specific guideline values.

7.2 Results

Date sample received:

08/11/2013

Customer: *Brenda Hannaford*
Paradise Place
Kerikeri

Customer ID: 1462

Sample : DP 373344 Lot 8 Project No 5073
Subsample S01, S02, S03, S04 and S05

Sample ID : 2631/3

	units	NES Soil Standard mg/kg dry wt for Residential 10% produce	adjusted guideline value = guideline value	Your Value	Compliance Of Composite (5) With Adjusted Guideline Value
			No of subsample in composite (5)		
Soil density	g/ml			0.91	
Dry Weight	g/100g			77.2	
pH				5.73	
National Environmental Standards Heavy Metals					
Total recoverable Copper	mg/kg dry wt	<10000	<2000	2.5	yes
Total recoverable Boron	mg/kg dry wt	<10000	<2000	1.4	yes
Total recoverable Arsenic	mg/kg dry wt	20	4	1.9	yes
Total recoverable Cadmium	mg/kg dry wt	3	0.60	0.23	yes
Total recoverable Lead	mg/kg dry wt	210	42	9.5	yes
Total recoverable Mercury	mg/kg dry wt	310	62	28	yes
Trivalent Chromium	mg/kg dry wt	<10000	<2000	234	yes
Chromium hexavalent	mg/kg dry wt	460	92	23	yes
National Environment Standards Organic Compounds (Pesticide residue)					
Dieldrin	mg/kg dry wt	2.6	0.52	<0.2	yes
Pentachlorophenol (PCP)	mg/kg dry wt	55	11	<6	yes
Benzo(a)pyrene Toxic Equivalence	mg/kg dry wt	10	2	<0.5	yes
Total DDT Isomers NES	mg/kg dry wt	70	14	0.13	yes

Date sample received:

08/11/2013

Customer: *Brenda Hannaford
Paradise Place
Kerikeri*

Customer ID: 1462

Sample : DP 373344 Lot 8 Project No 5073
Subsample S06, S07, S08, S09 and S10

Sample ID : 2632/4

	units	NES Soil Standard mg/kg dry wt for Residential 10% produce	justed guideline value = guideline value	Your Value	<u>Compliance Of Composite (5) With Adjusted Guideline Value</u>
			No of subsample in composite (5)		
Soil density	g/ml			0.94	
Dry Weight	g/100g			79.3	
pH				5.88	
National Environmental Standards Heavy Metals					
Total recoverable Copper	mg/kg dry wt	<10000	<2000	2.4	yes
Total recoverable Boron	mg/kg dry wt	<10000	<2000	1.1	yes
Total recoverable Arsenic	mg/kg dry wt	20	4	1.8	yes
Total recoverable Cadmium	mg/kg dry wt	3	0.60	0.25	yes
Total recoverable Lead	mg/kg dry wt	210	42	4.5	yes
Total recoverable Mercury	mg/kg dry wt	310	62	11.4	yes
Trivalent Chromium	mg/kg dry wt	<10000	<2000	126	yes
Chromium hexavalent	mg/kg dry wt	460	92	4.8	yes
National Environment Standards Organic Compounds (Pesticide residue)					
Dieldrin	mg/kg dry wt	2.6	0.52	<0.2	yes
Pentachlorophenol (PCP)	mg/kg dry wt	55	11	<6	yes
Benzo(a)pyrene Toxic Equivalence	mg/kg dry wt	10	2	<0.5	yes
Total DDT Isomers NES	mg/kg dry wt	70	14	0.15	yes

7.3 Comments

In total we have taken 10 single samples (marked on the site plan) and combined them to two composite samples. We have left the half or the untested subsample in the original sample bags and could used them if the composite sample would have given as any indication of heavy metals present in the tested area. All the single samples are left in the individual sealed bags ready to be used for further reference if necessary.

8.0 Conclusion and Recommendations

The levels of both composite samples indicated for the tested heavy metals and the NES organic compounds a lower figure than the adjusted guideline value.



● Andreas Kurmann
Scientist M.Sc.
Far North Envirolab Ltd

APPENDIX I: Site Plan & Aerial Photography

S01



S02



S03



S04



S05



S06



S07



S08

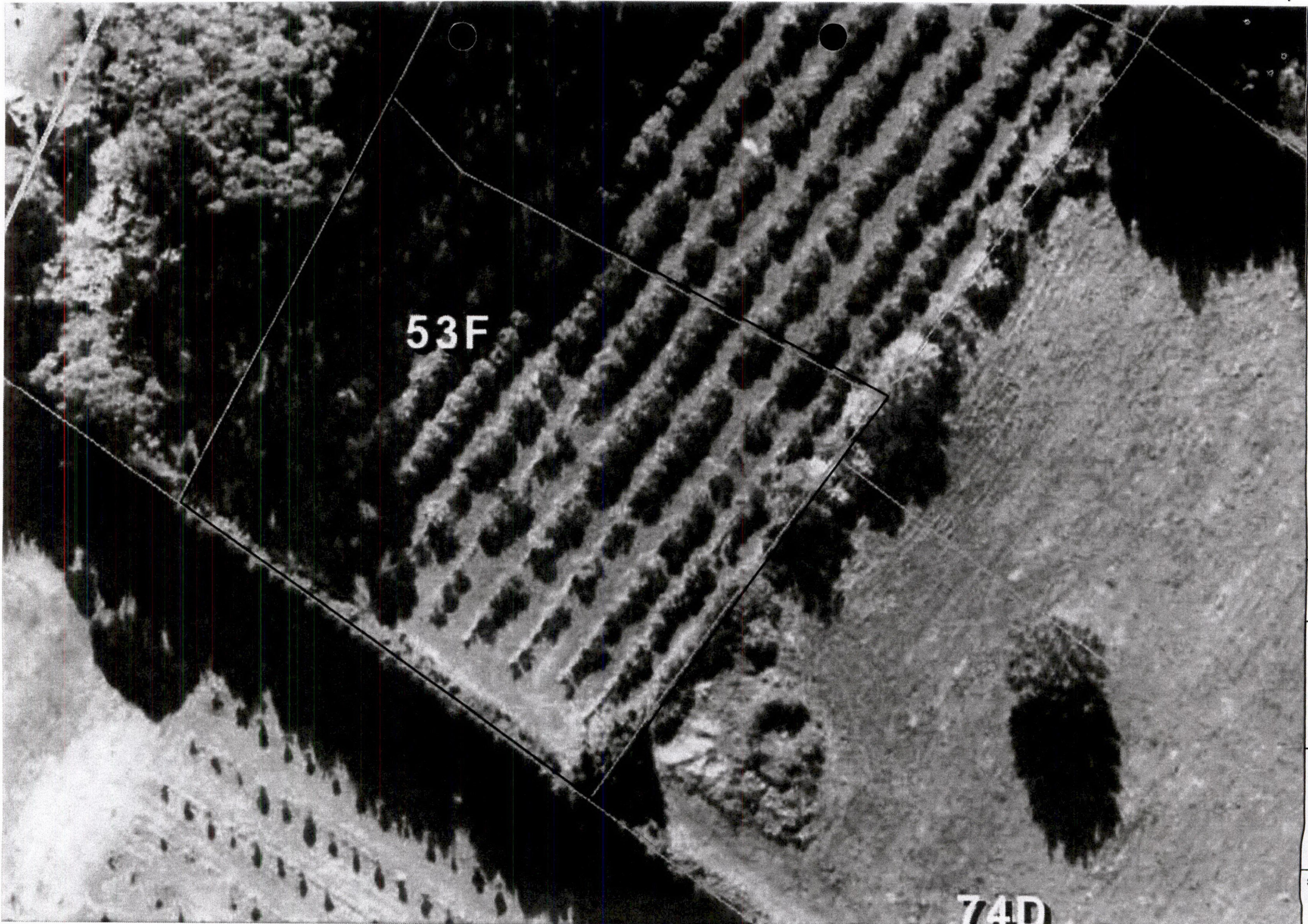


S09



S10





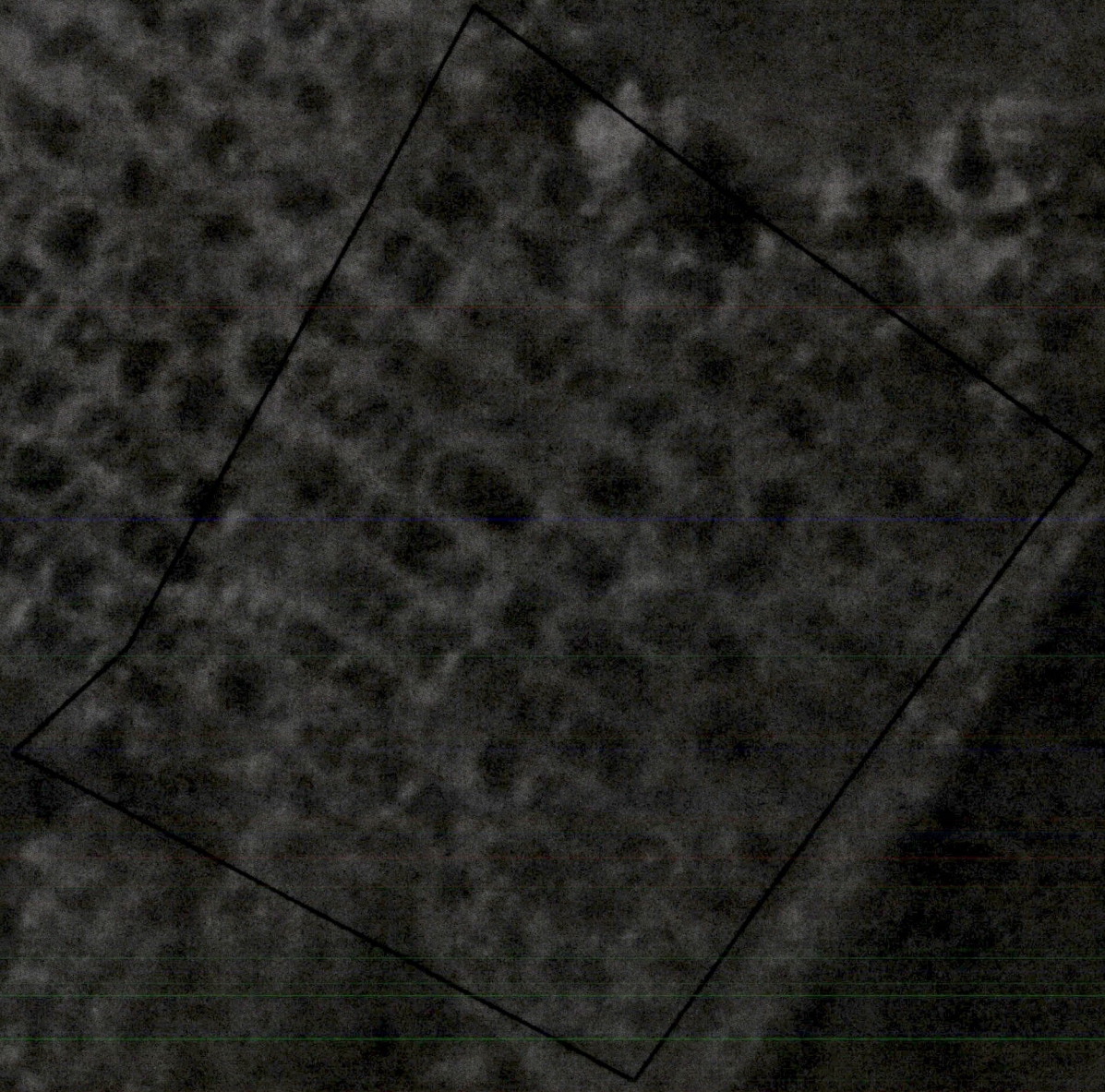
53F

74D

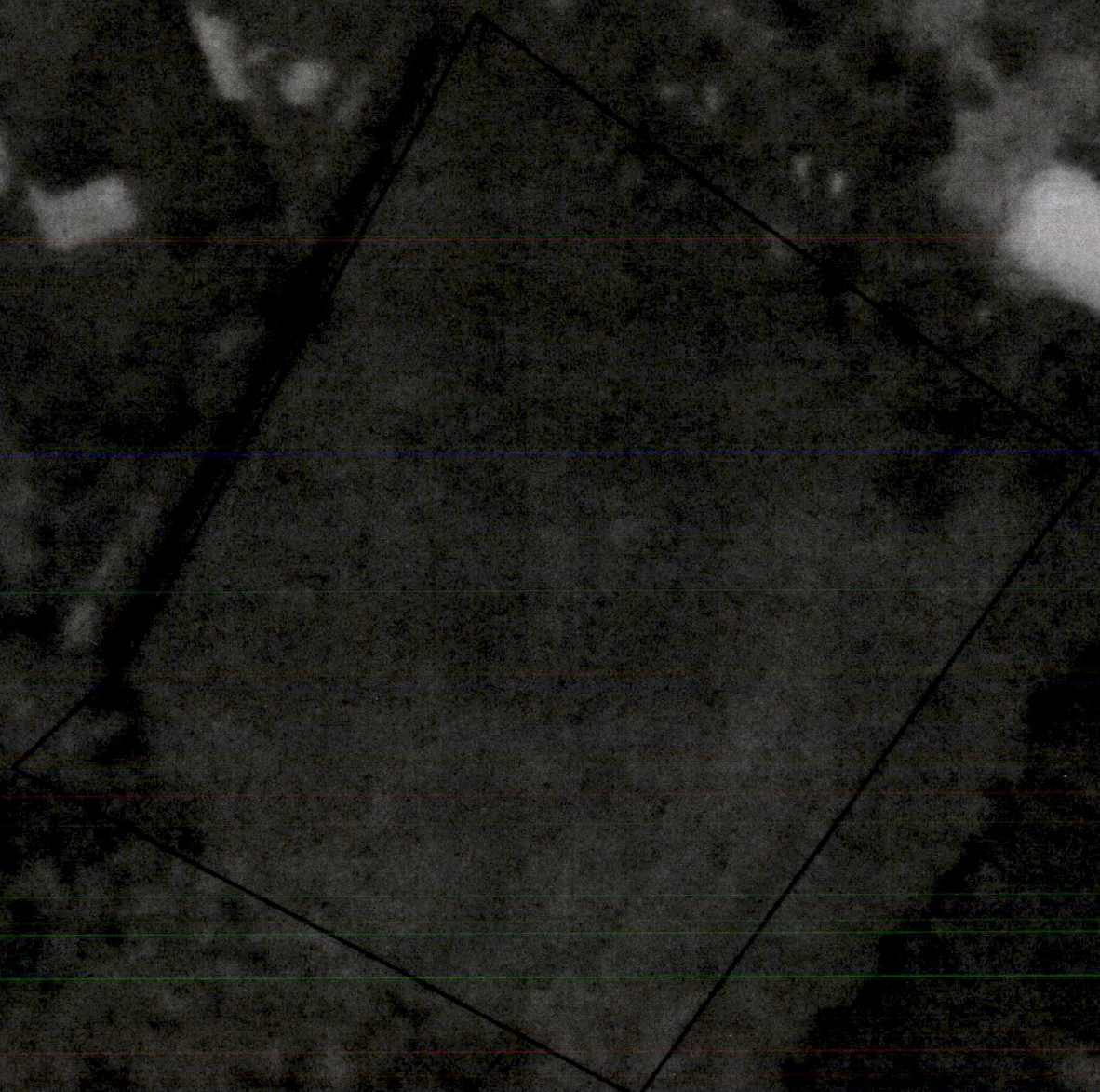
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APPENDIX II: Site Photos

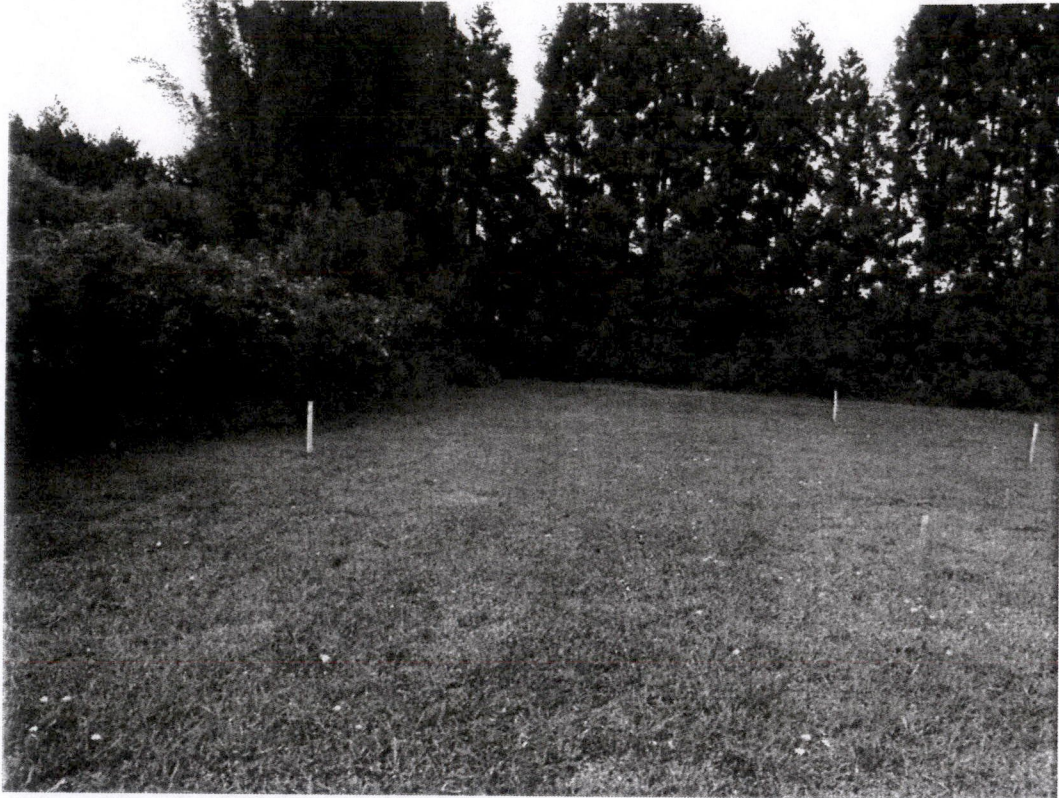


Photo 1: Lot 8, view to the south along eastern boundary lined with citrus trees.




Photo 2: Lot 8, view to the south

APPENDIX III: Bore Log

BORE HOLE LOG 1

Client	Brenda Hannaford	Job No.	5073
Project	Proposed Dwelling	Date Drilled	6\11\2013
Site Address	Lot 8 Shepherds Road, Kerikeri	Drilled By	M O'Brien
Legal Description	Lot 8 DP 373344		
Drill Method	40mm hand auger	Surface elevation	not measured
Borehole Location	Refer to site plan	Surface Condition	Grassed

Depth mm	GWL	Soil Map Reference	Graphic Log	Field Description
100	Ground water not intercepted	'Kerikeri Friable Clay (KE)'		Dry dark brown topsoil
200				
300				
400				
500				
600				
700				
800				
900				
1000				
1100				EOB
1200				
1300				
1400				
1500				
1600				
1700				
1800				
1900				
2000				
2100				

Graphic Log Legend



Fill



Topsoil



Sand



Clay



Silt

The subsurface data described below has been determined at this specific borehole location. Such data will not identify any variations away from this location.


APPENDIX IV: Historical Certificate of Titles



**COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952**



Search Copy


R. W. Muir
Registrar-General
of Land

Identifier 296612
Land Registration District North Auckland
Date Issued 17 November 2006

Prior References

NA116C/49

Estate Fee Simple
Area 3000 square metres more or less
Legal Description Lot 8 Deposited Plan 373344

Proprietors

Phyllis Brenda Hannaford

Interests

Fencing Covenant in Transfer 6145455.2 - 10.9.2004 at 9:00 am
Appurtenant hereto is a right to drain water easement created by Easement Instrument 6438064.5 - 27.5.2005 at 9:00 am
7118857.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 17.11.2006 at 9:00 am
Land Covenant in Easement Instrument 7185233.1 - 9.1.2007 at 9:00 am
Appurtenant hereto are rights of way and rights to convey water and telecommunications created by Easement Instrument 7185233.2 - 9.1.2007 at 9:00 am
The easements created by Easement Instrument 7185233.2 are subject to Section 243 (a) Resource Management Act 1991
Fencing Covenant in Transfer 8467743.2 - 13.5.2010 at 11:29 am



Non Primary

SHEPHERD ROAD

SHEPHERD ROAD



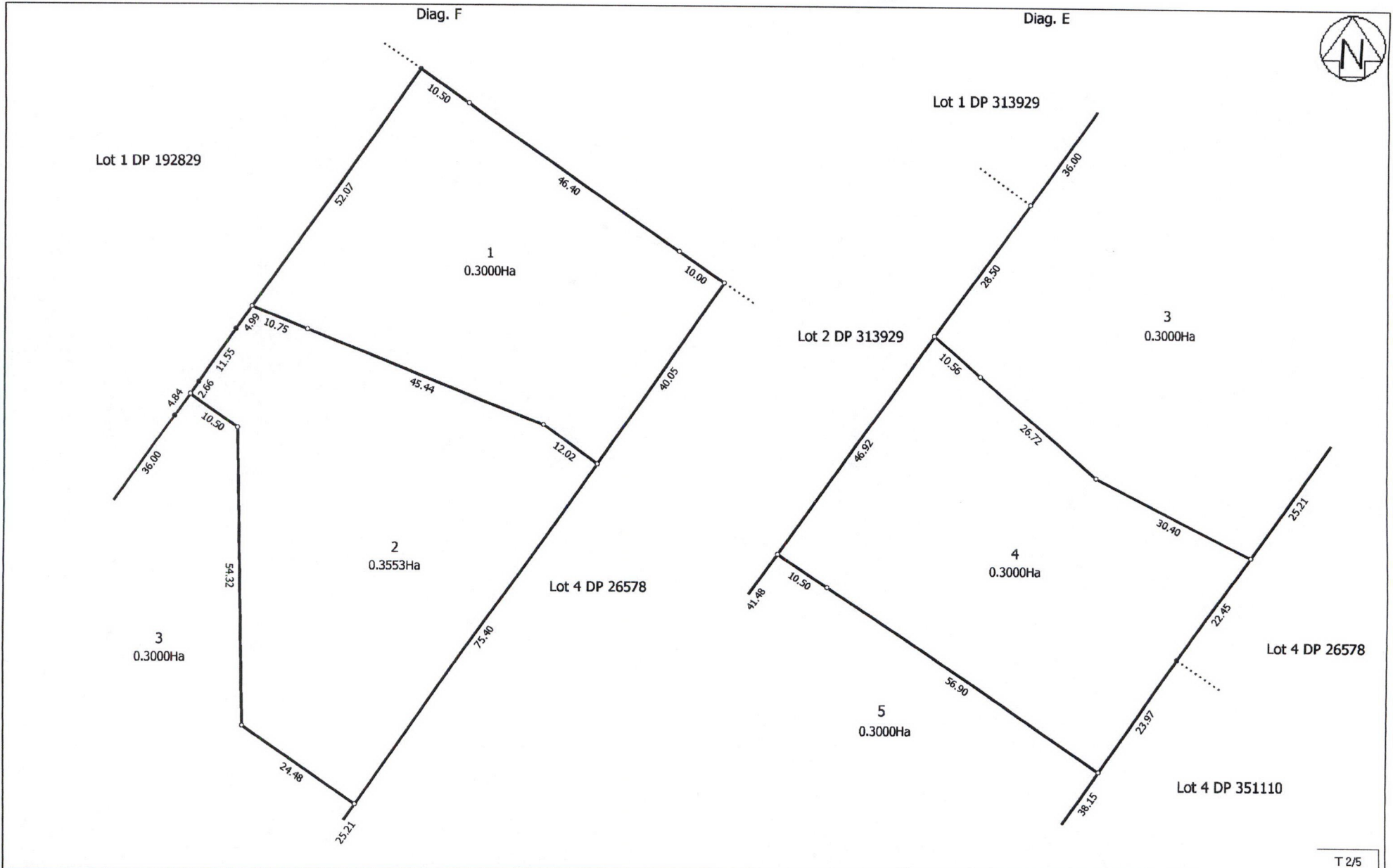
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Land District: North Auckland
 Digitally Generated Plan
 Generated on: 07/12/2006 10:32am Page 4 of 8

Lots 1 to 8 being a subdivision of Lot 2 DP 185851

Surveyor: Kerry Arthur Roqer
 Firm: Surveyors North

Digital Title Plan
 DP 373344
 Deposited on: 17/11/2006



Land District: North Auckland
 Digitally Generated Plan
 Generated on: 07/12/2006 10:32am Page 5 of 8

Lots 1 to 8 being a subdivision of Lot 2 DP 185851

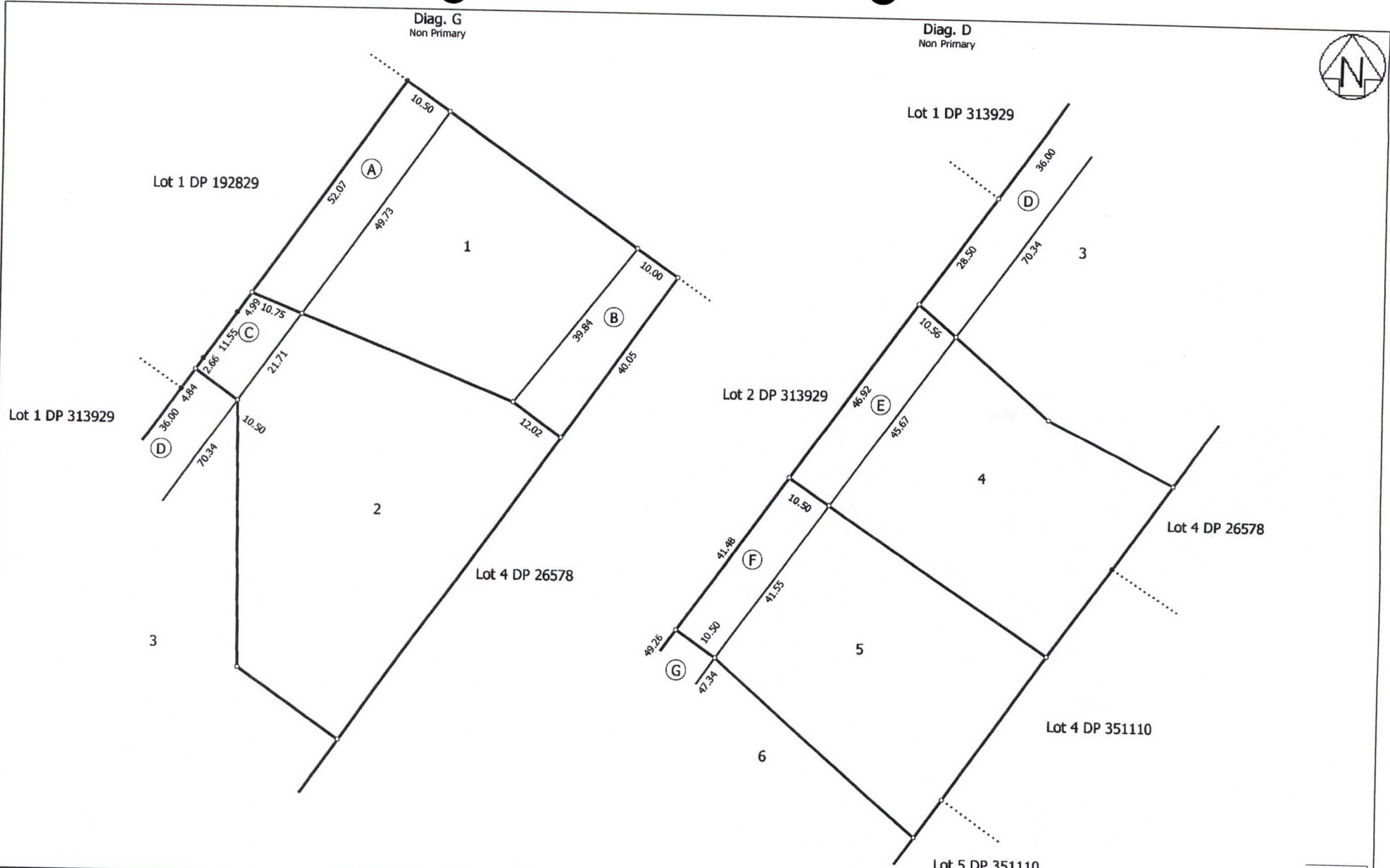
Surveyor: Kerry Arthur Rogier
 Firm: Surveyors North

Digital Title Plan
 DP 373344
 Deposited on: 17/11/2006



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Land District: North Auckland
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Generated on: 07/12/2006 10:32am Page 7 of 8

Lots 1 to 8 being a subdivision of Lot 2 DP 185851

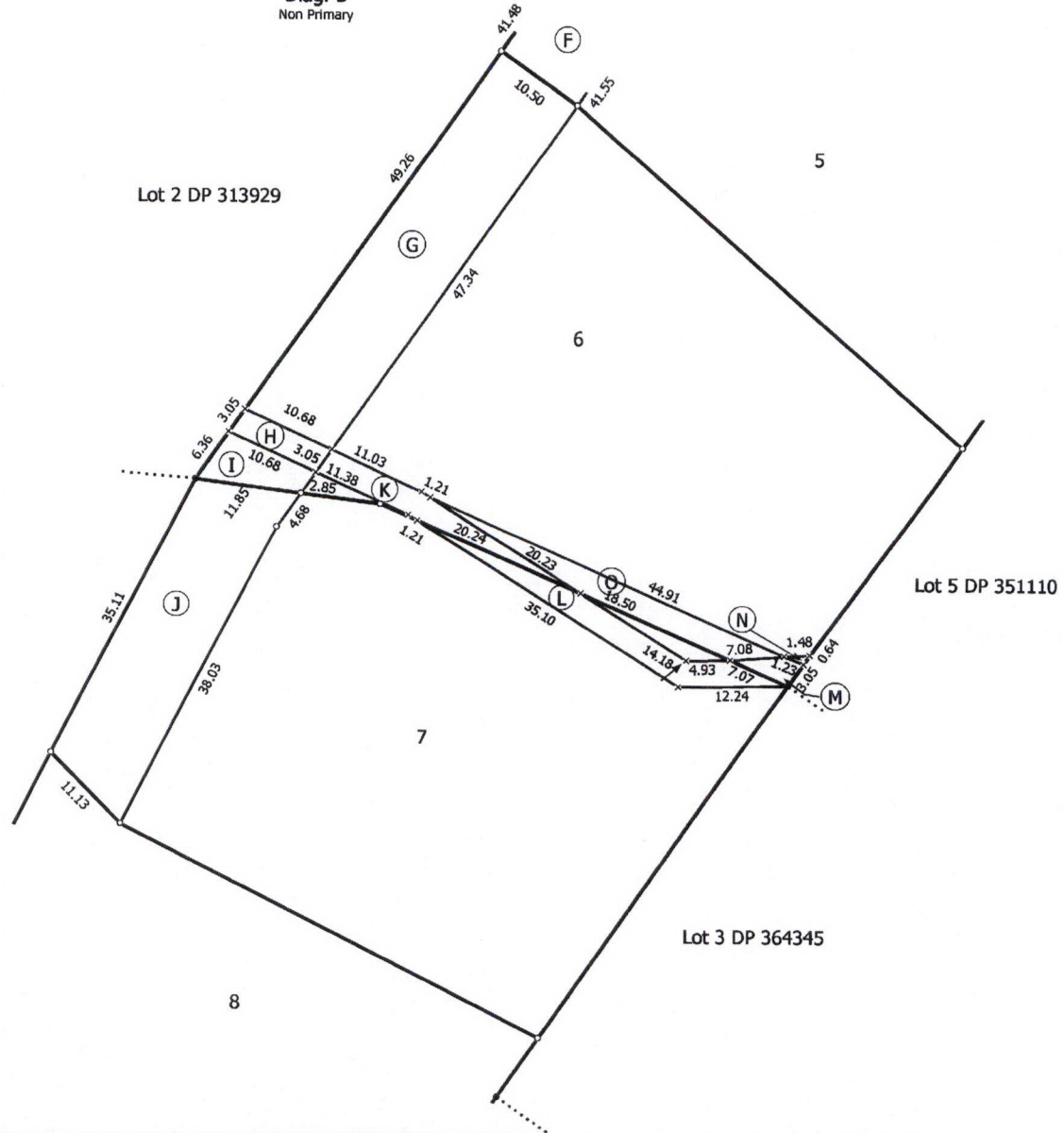
Surveyor: Kerry Arthur Roeger
Firm: Surveyors North

Digital Title Plan
DP 373344

Deposited on: 17/11/2006

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Land District: North Auckland
 Digitally Generated Plan
 Generated on: 07/12/2006 10:32am Page 8 of 8

Lots 1 to 8 being a subdivision of Lot 2 DP 185851

Surveyor: Kerry Arthur Roqer
 Firm: Surveyors North

Digital Title Plan
DP 373344
 Deposited on: 17/11/2006

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**COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952**



R. W. Muir
Registrar-General
of Land

Historical Search Copy

Cancelled

Identifier NA116C/49
Land Registration District North Auckland
Date Issued 29 July 1998

Prior References
NA35A/343

Estate Fee Simple
Area 2.4576 hectares more or less
Legal Description Lot 2 Deposited Plan 185851

Original Proprietors
Keith Lorford-Brown

Interests

Fencing Agreement in Transfer 376006
Fencing Agreement in Transfer 329446
Subject to a water pipeline right over part marked E on DP 185851 created by Transfer 815456.1 - 5.12.1979 at 9.10 am
D634330.3 Mortgage to TSB Bank Limited - 24.8.2001 at 3.34 pm
6145455.1 Discharge of Mortgage D634330.3 - 10.9.2004 at 9:00 am
6145455.2 Transfer to John Byatt and Anne-Marie Byatt - 10.9.2004 at 9:00 am
Fencing Covenant in Transfer 6145455.2 - 10.9.2004 at 9:00 am
Subject to a right to drain water easement over part marked F on DP 351110 created by Easement Instrument 6438064.4 - 27.5.2005 at 9:00 am
Appurtenant hereto is a right to drain water easement created by Easement Instrument 6438064.5 - 27.5.2005 at 9:00 am
489796.1 Mortgage to ASB Bank Limited - 8.7.2005 at 12:00 pm
7009581.1 CAVEAT BY JOHN CHRISTOPHER STOCK - 30.8.2006 at 9:00 am
7019323.1 Surrender of the water pipeline right created by Transfer 7019323.1 - 6.9.2006 at 9:18 am
7118857.1 Certificate pursuant to Section 223 Resource Management Act 1991(affects DP 373344)- 17.11.2006 at 9:00 am
7118857.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 17.11.2006 at 9:00 am
7118857.3 CTs issued - 17.11.2006 at 9:00 am

Legal Description	Title
Lot 1 Deposited Plan 373344	296605
Lot 2 Deposited Plan 373344	296606
Lot 3 Deposited Plan 373344	296607
Lot 4 Deposited Plan 373344	296608
Lot 5 Deposited Plan 373344	296609
Lot 6 Deposited Plan 373344	296610
Lot 7 Deposited Plan 373344	296611
Lot 8 Deposited Plan 373344	296612

CANCELLED

Reference:
Prior CT: 35A/343
Document No.: D296098.4



REGISTER

116C/49

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT 1952

This Certificate dated the 29th day of July One Thousand Nine Hundred and Ninety Eight under the seal of the District Land Registrar of the Land Registration District of NORTH AUCKLAND

WITNESSETH that **KEITH LORFORD-BROWN** and **MERRILYN GAYNOR LORFORD-BROWN**

are scised of an estate in **fee simple** (subject to such reservations, restrictions, encumbrances and interests as are notified by memorial endorsed hereon) in the land hereinafter described, delineated on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 2.4576 hectares, more or less being **LOT 2 DEPOSITED PLAN 185851**



Fencing agreement in Transfers 329446 and 376006

Subject to a water pipeline easement over part herein marked E DP 185851 appurtenant to Lot 4 DP 26578 CT 35A/341 created by Transfer 815456.1 - 5.12.1979 at 9.10

B089798.1 Notice pursuant to Section 25 Public Works

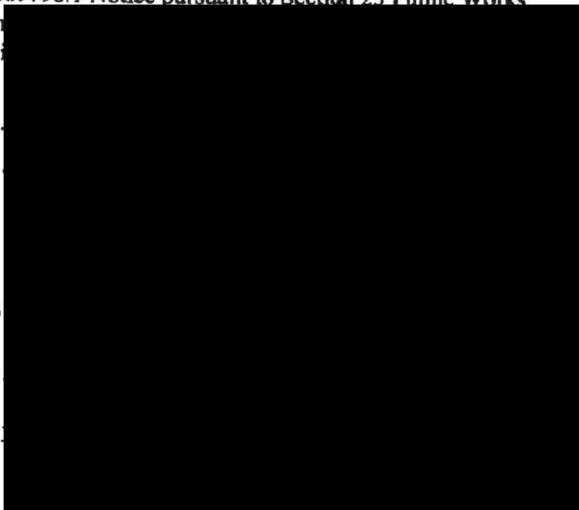
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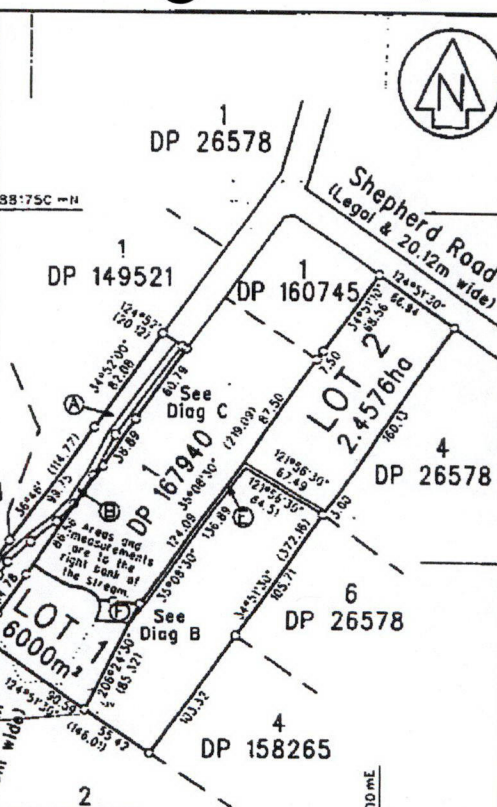
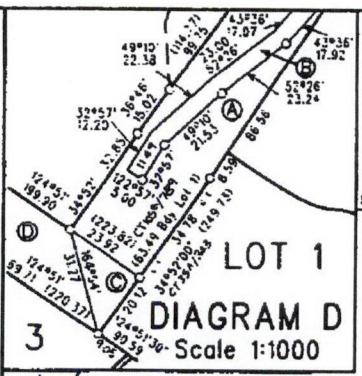
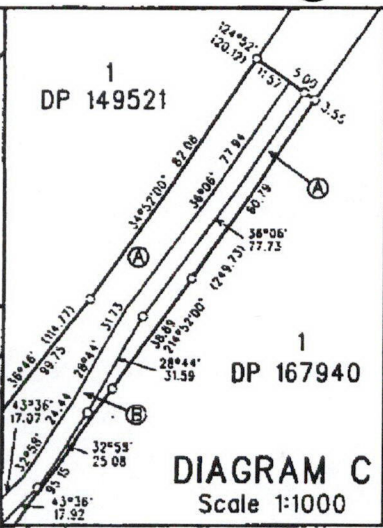
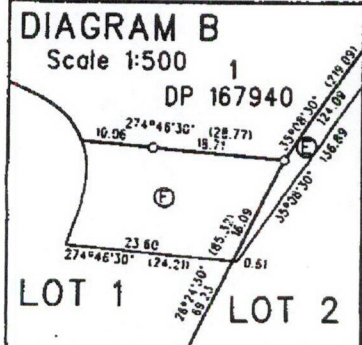
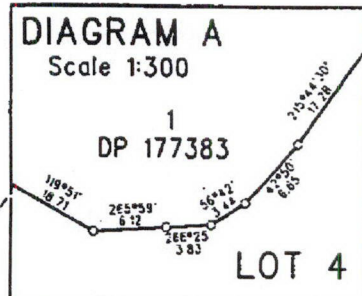
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116C/49

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Approves

Arthur Brockner Mignon Beren

Keith Lorfer-Brown Merrilyn Lorfer-Brown

Alan James McKeon Registered Owners

Approved pursuant to Section 223 of the Resource Management Act, 1991, on the 2nd day of July, 1997. Subject to the granting or reserving of the easements set out in the Memorandum hereon.

The common seal of the Far North District Council is affixed hereto in the presence of:



Under Delegated Authority

New CsT Allocated:

Lot 1: 116C/48 Lot 3: 116C/50

Lot 2: 116C/49 Lot 4: 116C/51

Total Area 15.3019 ha
Comprised in CT 35A/343 (All)
CT 105B/789 (All)

I, Denis McGrigor Thomson of Kerikeri Registered Surveyor and holder of an annual practicing certificate for one year as a registered surveyor pursuant to section 25 of the Survey Act 1981 hereby certify that this plan has been made from surveys conducted by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof dated at Kerikeri this 17th day of October 1997.

Field Book _____
Reference Plans _____
Examined by _____ Correct _____

Approved as to Survey _____
9, 4 98 _____
Chief Surveyor

Deposited this 28 day of July 1997
District Land Registrar

Fee Received 17 NOV 1997
Instructions DP 185851

Schedule of Existing Easements

Purpose	Shown	Easement certificate	Created by
Right of Way	(A) (B)		
Electricity	(C) (D)	D099993.4	D170012.2
Telephone	(E) (F)		
Right to convey water	(G) (H)		

Schedule of Existing Easements

Purpose	Shown	Created by
Right of Way	(A) (B)	A 51925B
Water Pipeline	(E) (F)	Tfr 815455.1

Memorandum of Easements

Purpose	Shown	Servient Tenement	Dominant Tenement
Right of Way	(A) (B)	Lot 4 Hereon	Lots 1 & 3 Hereon
Electricity	(C)	Lot 4 Hereon	Lot 3 Hereon
Right to convey water	(D)	Lot 4 Hereon	Lot 3 Hereon

Existing Easement in Gross

Purpose	Shown	Created by
Water Supply	(B)	B 291649.1

LAND DISTRICT: NORTH AUCKLAND
SURVEY BLK & DIST: Kerikeri XI
NZMS P05 SHEET No. 6.2

LOTS 1-4 BEING A SUBDIVISION OF
Pt LOT 3, DP 26578 AND
LOT 1, DP 180561.

LOCAL AUTHORITY: Far North District
Surveyed by: Thomson & King (Kerikeri)
Scale: 1:2500 Date: June 1997

References

Prior C/T 1093/158

Land and Deeds 69

Transfer No.

N/C. Order No. 624958.1



REGISTER

No. 35A / 343

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 16th day of September one thousand nine hundred and seventy-six under the seal of the District Land Registrar of the Land Registration District of NORTH AUCKLAND

WITNESSETH that BARRY NEIL MORRIS of Kerikeri orchardist and ROBYN PATRICIA MORRIS his wife are seised of an estate in fee simple as tenants in common in equal shares

is seised of an estate in fee simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 3.0503 hectares more or less being part Lot 3 Deposited Plan 26578



Assistant Land Registrar
North Auckland, N.Z.

Interests at date of issue:

XI Kerikeri SD

Fencing agreements contained in Transfers 329446 and 376006

511038.2 Mortgage of the South British Guarantee Trust Company Limited - 2.6.1976 at 2.802 o/c

Handwritten notes:
903,690 + John
A.L.R.

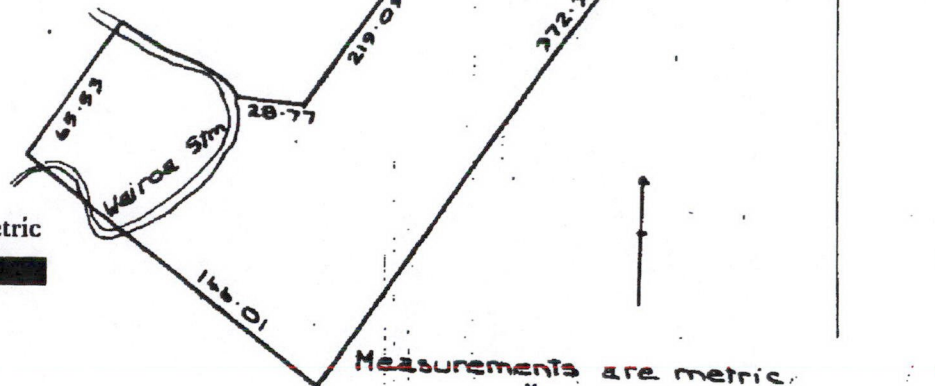
815456.1 Transfer to Frank Gordon Grover of Tauranga solicitor and Gillian Gardner Grover his wife but reserving a water pipeline easement over part marked A herein appurtenant to Lot 4 Plan 26578 (C.T. 35A/34) - 5.12.1979 at 9.10 o/c

Handwritten notes:
A.L.R.
815456.2 Mortgage of Grey Cross Securities Limited - 5.12.1979 at 12.10 o/c
A.L.R.

815456.2 Mortgage of Grey Cross Securities Limited - 5.12.1979 at 12.10 o/c

SEE OVER.....

Measurements are Metric



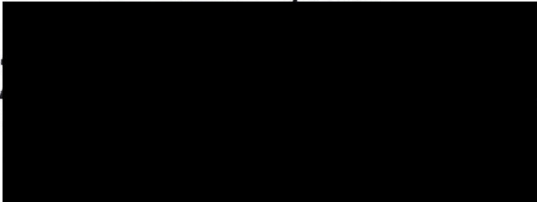
Measurements are metric
of 26578

No. 35A / 343

B006123.2 Transfer to Kevin Royce Ellicott of Kawaka, Farmer and Miriam Isabel Ellicott his wife (jointly) and Rodney Bernard Keith Aikin of Paihia, Farmer and Lynda Diane Aikin his wife (jointly) as tenants in common in equal shares - 20.11.1981 at 2.24 o'c



B.089798.1 Notice pursuant to Section 25 Public Works Amendment Act 1975 of the Constitution of the Kerikeri Irrigation District - 29.7.1982 at 11.34 o'c



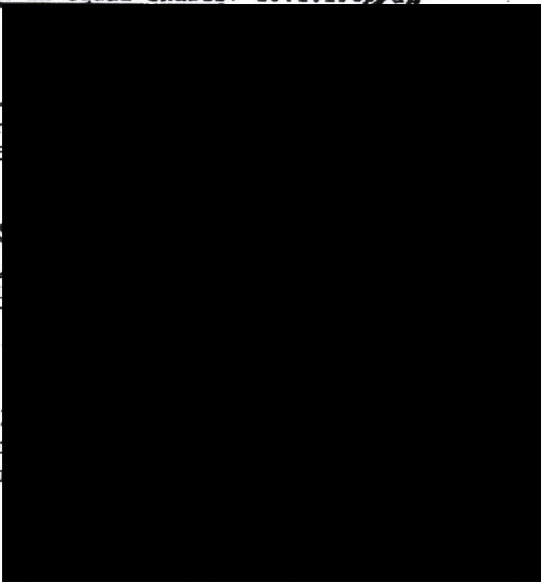
B.30 and at 9

B.369970.2 Transfer to Michael Clinton-Baker of Masterton, farmer and Anna Catherine Clinton-Baker his wife- 15.1.1985 at 1.40 o'c



A.L.R.I

B.369970.3 Transfer to Michael Clinton-Baker of Masterton, farmer and Anna Catherine Clinton-Baker his wife as tenants in common in equal shares- 15.1.1985 at 1.40 o'c



B.369970 and Final 15.1.1985

B999

B.411654 DEVELOPM

B.953210. of Warkwo Loxford-B 9.55 o'c

See over

35A/343

D296098.1 Certificate under Section 224(c) Resource
Management Act 1991 (affects DP 185851)

D296098.2 Consent Notice under Section 221(1) Resource
Management Act 1991 by Far North District Council

D296098.3 Resolution under Section 321 (3)(c) Local
Government Act 1974 (DP 185851)

D296098.4 CsT 116C/48-49 issued for Lots 1-2 DP 185851

all 29.7.1998 at 10.33

For

CANCELLED
DUPLICATE DESTROYED



CANCELLED
DUPLICATE DESTROYED

1093/158
(Land and Deeds - 6)
FORM B.

Register-book,
Vol. 1093, folio 158

Reference: 739
Vol. 819, Folio 269
Transfer No. 833478
Order for N/C No.



1093/158

1093/158

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate, dated the twenty-sixth day of November, one thousand nine hundred and fifty-three
under the hand and seal of the District Land Registrar of the Land Registration District of AUCKLAND Witnesseth that
JAMES OLIVER of Kerikeri, truck driver

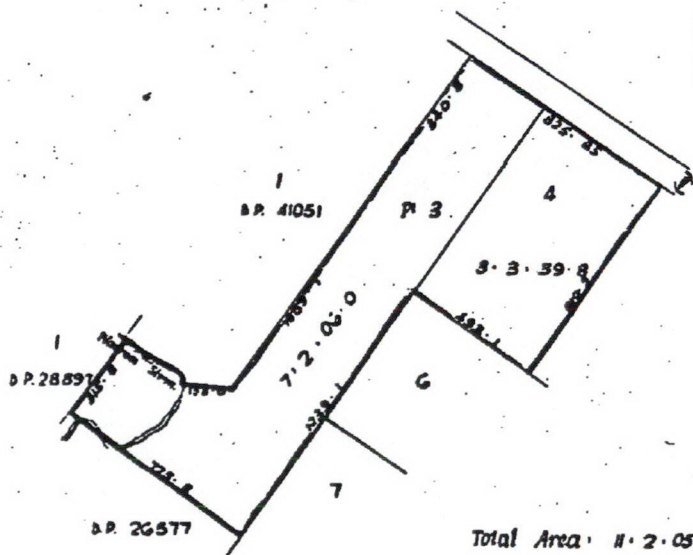
is seized of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial under written or endorsed hereon, subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon bordered green, be the several admeasurements a little more or less, that is to say: All that parcel of land containing eleven acres two roods five decimal eight perches more or less being Lot 4 and part Lot 3 on Deposited Plan 26578.



Assistant District Land Registrar.

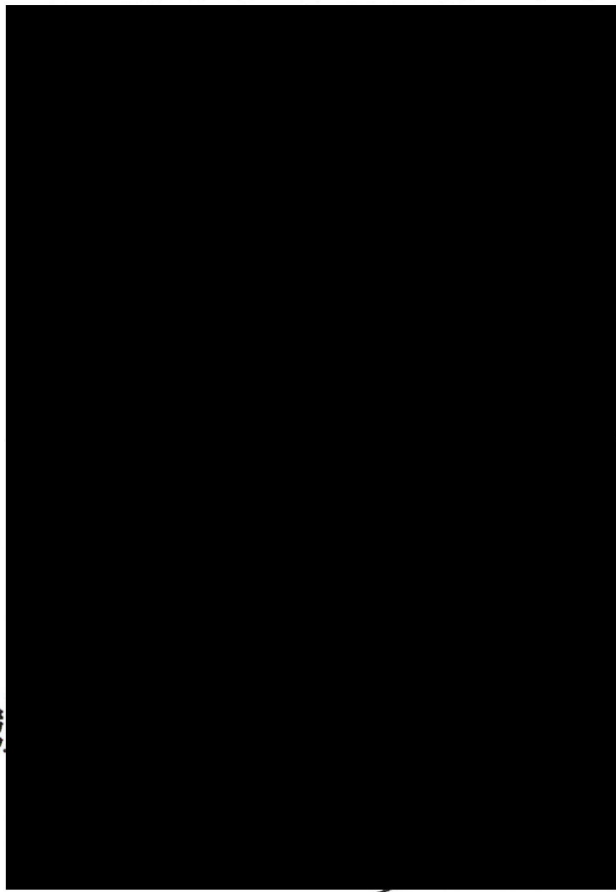
EQUIVALENT METRIC
AREA IS 4.6685 ha

4.6685 ha
XI Kerikeri S.D.



Total Area 11.2.05.8
Scale 4 chains to an inch.

Pub.



over...

NEW ZEALAND

Form B.

Reference: Vol. 670, Folio 149
Transfer No. 376006
Application No.
Order for N/C No.



Register-book,
Vol. 619, folio 269.

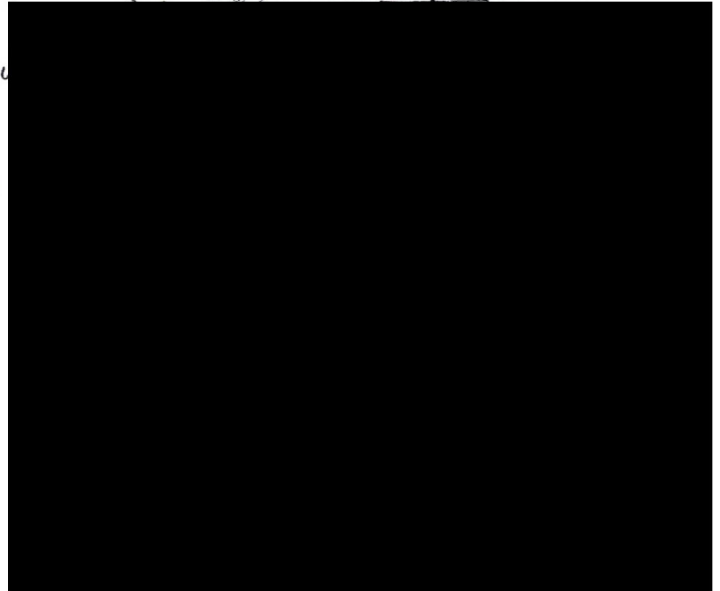
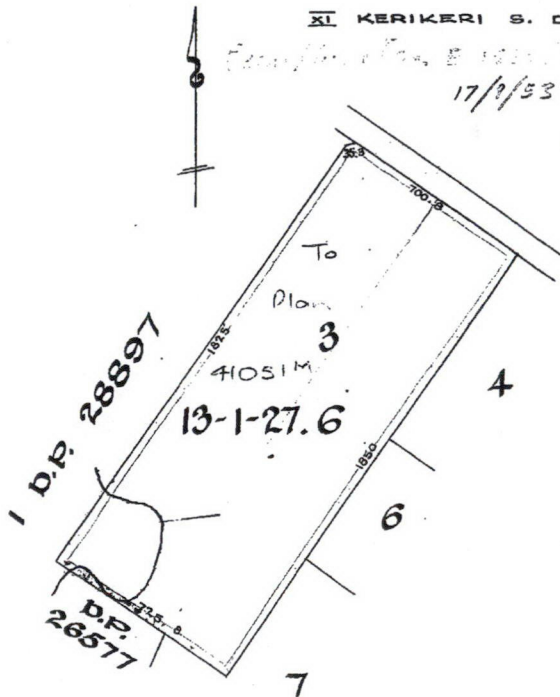
CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate, dated the fourteenth day of August, one thousand nine hundred and forty-four under the hand and seal of the District Land Registrar of the Land Registration District of AUCKLAND Witnesseth that LAWRENCE COURTENAY HALL of Keri Keri, Orchardist, and CEDRIC WARNER WAHREN of Tauranga, Market Gardener, are as tenants in common in equal shares

is-seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial under written or endorsed hereon; subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon bordered green, be the several admeasurements a little more or less, that is to say: All that parcel of land containing thirteen acres one rood twenty-seven and six tenths perches more or less situated in Block XI of the Kerikeri Survey District being Lot three (3) on a plan deposited in the Land Registry Office at Auckland as No.26578 and being portion of Old Land Claim No.3.



W. Wilson



Scale: 4 Chains to an Inch.

W. Delt



NEW ZEALAND.

Form B.

Reference: Vol. 670, Folio 149
Transfer No. 329446
Application No.
Order for N/C No.



Register-book,
Vol. 739, folio 61.

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT.

This Certificate, dated the nineteenth day of December, one thousand nine hundred and forty under the hand and seal of the District Land Registrar of the Land Registration District of AUCKLAND. Witnesseth that JOHN LEONARD HASTE of Kerikeri, Farmer.

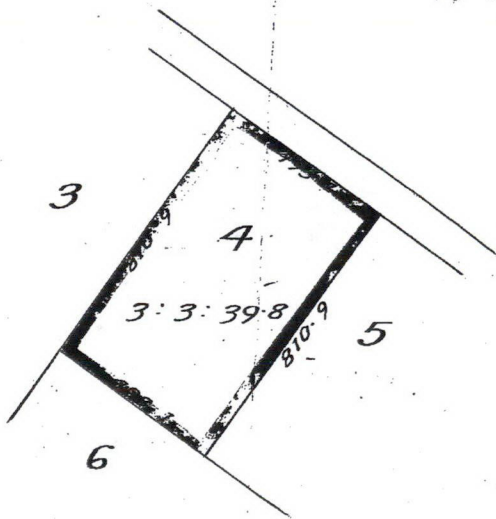
is seized of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial under written or endorsed hereon; subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon bordered green, be the several admeasurements a little more or less, that is to say: All that parcel of land containing three acres three roods thirty-nine and eight tenths perches more or less situated in Block XI of the Kerikeri Survey District being Lot four (4) on a plan deposited in the Land Registry Office at Auckland as No.26578 and being part of Old Land Claim No.3.



W. Williams

Assistant District Land Registrar.

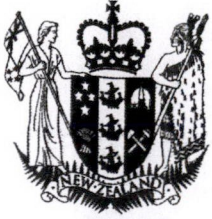
Agreement as to fencing contained in Transfer No.329446.



Scale: 3 Chains to an inch.

CANCELLED

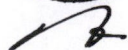




**COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952**



Historical Search Copy


R.W. Muir
Registrar-General
of Land

Identifier NA670/149
Land Registration District North Auckland
Date Issued 05 December 1935

Cancelled

Prior References

NA616/38

Estate	Fee Simple
Area	416.5813 hectares more or less
Legal Description	Lot 2-3, 9, 14-16, 21-22, 40-42, 45, 49-51, 53 Deposited Plan 24892 and Lot 1-2 Deposited Plan 25252 and Deposited Plan 25467 and Deposited Plan 25687 and Lot 1-4 Deposited Plan 25750 and Lot 2 Deposited Plan 25751 and Lot 1-2 Deposited Plan 25752 and Lot 4-12 Deposited Plan 25979 and Part Deposited Plan 23181

Original Proprietors

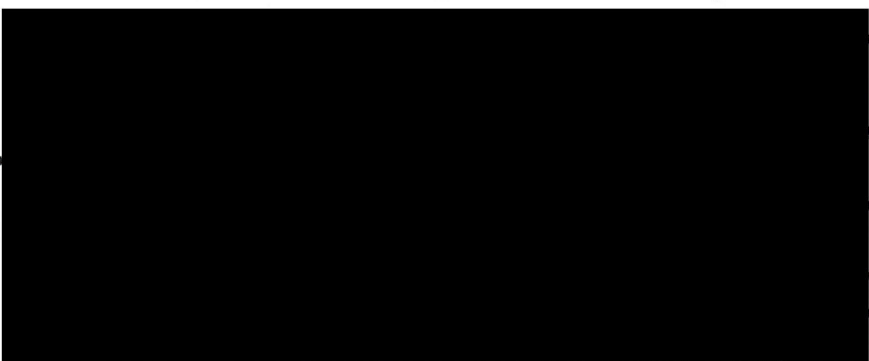
Passion Fruit Plantations Limited

Interests

For historic memorials see paper image of title. Cancelled.

8229535.1 Departmental dealing to convert and cancel the within title into Landonline - 17.7.2009 at 9:00 am

Reference { Vol. 616 Folio
 Order for M/C No
 (6)



670/1149

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT.

THIS CERTIFICATE, dated the fifth day of December, one thousand nine hundred and thirty five, under the hand and seal of the District Land Registrar of the Land Registration District of AUCKLAND, WITNESSETH that PASSION FRUIT PLANTATIONS LIMITED a company duly incorporated under "the Companies Act 1933" and having its registered office at Auckland is seized of an estate in fee simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the Land hereinafter described, as the same is delineated by the plan hereon bordered green, be the several admeasurements a little more or less, that is to say: All those parcels of land containing together one thousand and twenty nine acres one rood twenty three perches and two tenths of a perch more or less situated in Block XI of the Kerikeri Survey District and Block II of the Kawakawa Survey District being Lots 2, 3, 9, 14, 15, 16, 21, 22, 40, 41, 42, 45, 49, 50, 51 and 53 on a plan deposited in the Land Registry Office at Auckland as No. 24392, Lots 1 and 2 on a plan deposited as aforesaid as No. 25252, all the land on plans deposited as aforesaid as Nos 25467 and 25687, Lot 1, 2, 3 and 4 on a plan deposited as aforesaid as No. 25750, Lot 2 on a plan deposited as aforesaid as No. 25751, Lots 1 and 2 on a plan deposited as aforesaid as No. 25752, Lots 4, 5, 6, 7, 8, 9, 10, 11 and 12 on a plan deposited as No. 25979 and part of the land on a plan deposited as aforesaid as No. 23181 and being parts of Old Land Claim No. 3.

EQUIVALENT METRIC

AREA IS 416.5813 ha
416.5813 ha



W. Williams

Assistant Land Registrar.

The provisions of Sections 16 and 17 of the Land Act 1924 are applicable to those parts of the above described land contained in the Town of Kerikeri Extension No. 1 (Lots 49, 50, 51 and 53 Deposited Plan 24392).

W. Williams
 Asst. Land Regr.

Agreement as to fencing contained in Transfer No. 144098.

W. Williams
 Asst. Land Regr.

Mortgage No. 217035 Passion Fruit Plantations Limited to Harry Ernest Worsp and Sydney Gerald Worsp as tenants in common in equal shares Produced 9th January 1932 at 10.7 a.m.

W. Williams
 Asst. Land Regr.

Transfer No. 250911 of Mortgage No. 217035 Harry Ernest Worsp and Sydney Gerald Worsp to The Public Trustee Produced 9th January 1932 at 10.10 a.m.

W. Williams
 Asst. Land Regr.

Mortgage No. 221330 Passion Fruit Plantations Limited to Alfred Langham Foster Produced 20th February 1933 at 2.41 p.m.

W. Williams
 Asst. Land Regr.

Transfer No. 273727 of Lot 14 plan 24392 In Exercise of Power of Sale contained in Mortgage No. 217035 The Public Trustee to May Ethel Ainsworth Produced 5th December 1935 at 12.25 p.m.

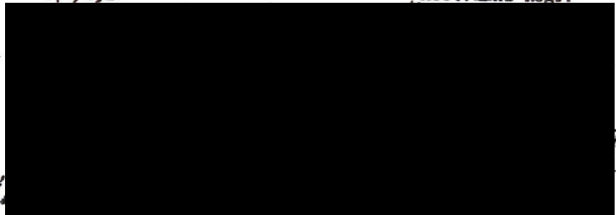
W. Williams
 Asst. Land Regr.

Transfer No. 273743 of Lots 6, 7, 10 and 12 plan 25979 In exercise of Power of Sale contained in Mortgage No. 217035 The Public Trustee to James Rankin Lyness Produced 6th December 1935 at 10.20 a.m.

W. Williams
 Asst. Land Regr.

Transfer No. 273743 of Lots 4, 5, 9, and 11 plan 25979 In Exercise of Power of Sale as contained in Mortgage No. 217035 The Public Trustee to Alfred Rae Emanuel Produced 6th December 1935 at 10.20 a.m.

W. Williams
 Asst. Land Regr.



OVER

REGISTER

Sketch Plan 3722 (1/10/74)

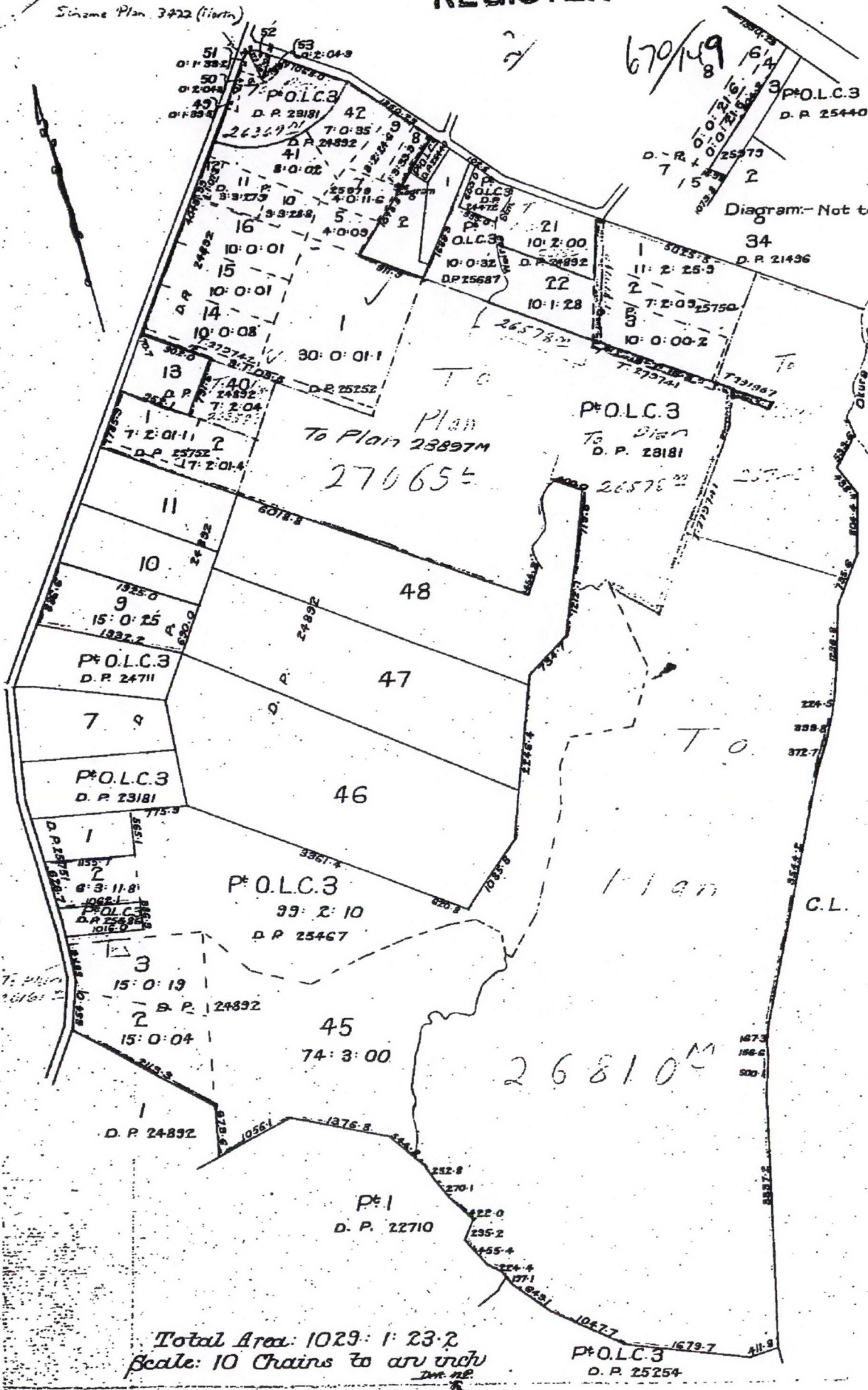


Diagram: Not to scale

To
Plan
27065

P.O.L.C.3
To Plan
D.P. 28181

To
Plan

26810

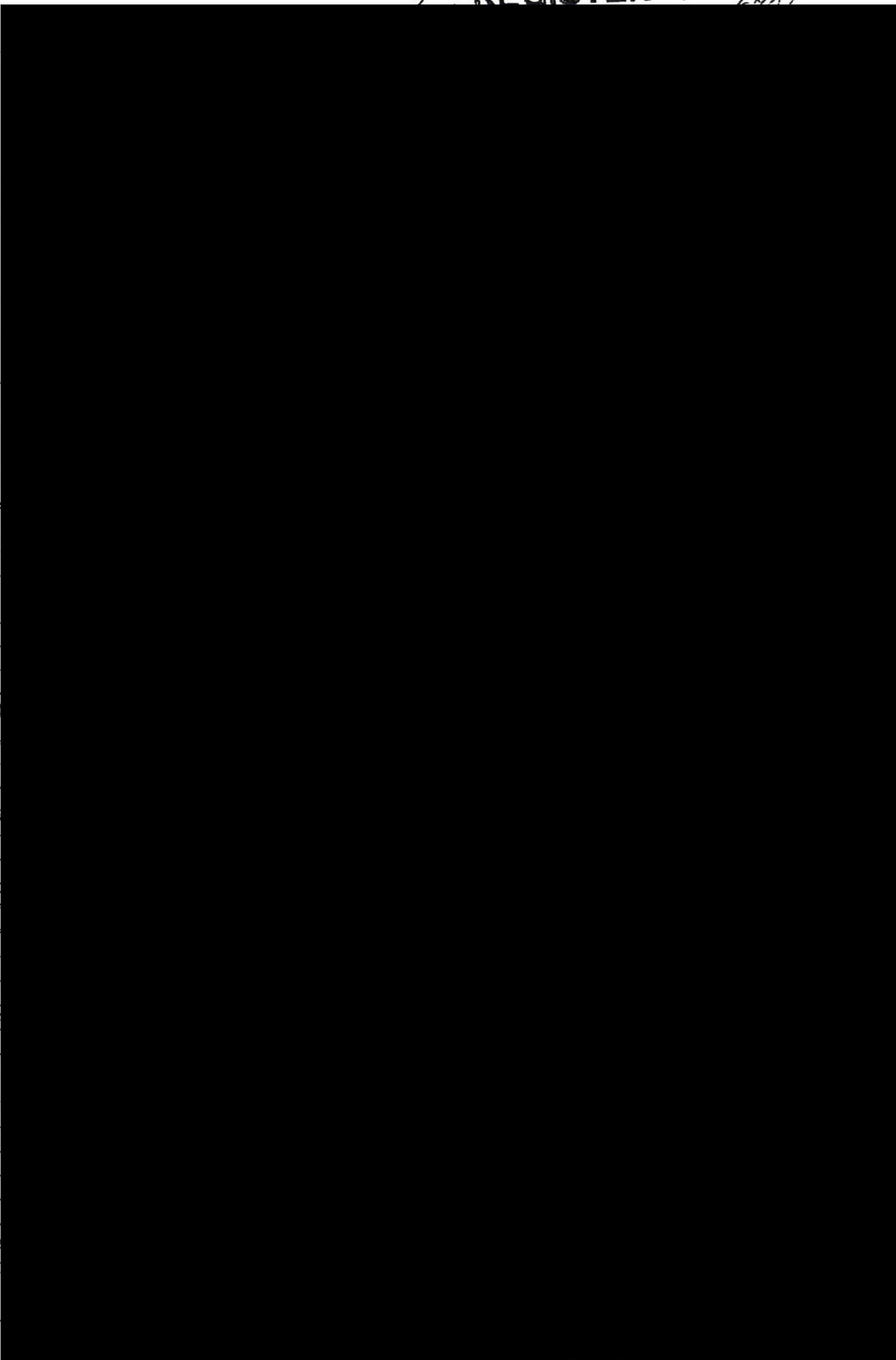
Total Area: 1029: 1: 23.2
Scale: 10 Chains to an inch

670/149

670/149

C.L.

REGISTER



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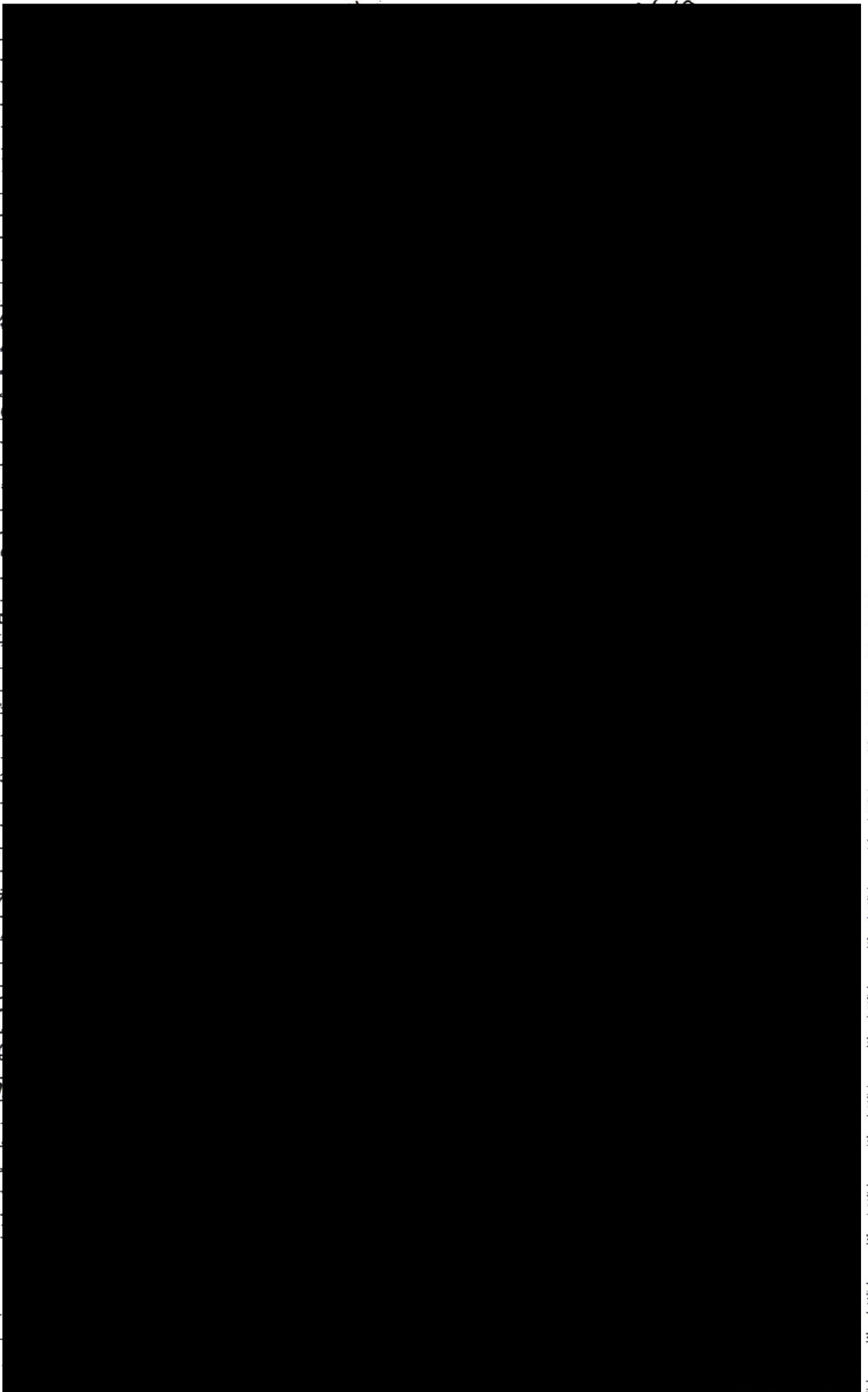
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REGISTER



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FAR NORTH DISTRICT COUNCIL

Planning Zone: RURAL LIVING ZONE / RURAL RESIDENTIAL


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W04	Downpipe & Gutter Plan	1	26/09/23
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2	Elevations	1	25/07/23
3	Section & Risk Factor	1	25/07/23
4	Footing Details	1	25/07/23
5	Member Schedule / Details	1	25/07/23
6	Flashing Details	1	25/07/23
7	Eaves Flashing Application	1	25/07/23
8	Exterior Elevations	1	25/07/23
9	Interior Bracing	1	25/07/23

PROPOSED SHED

AT
53F SHEPHERD ROAD, KERIKERI, 0230



PERSPECTIVE VIEW

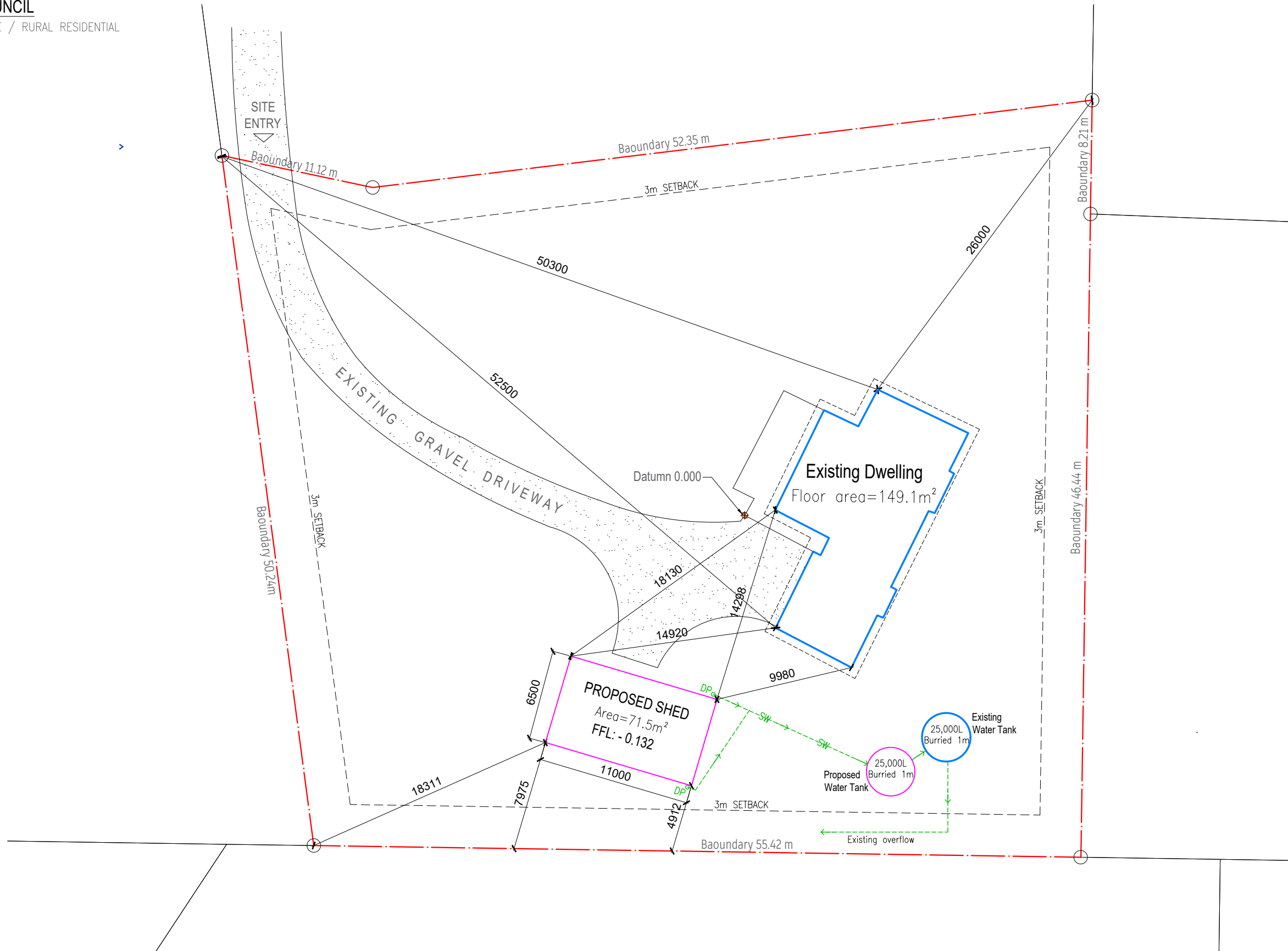
 <p>WAIKATO SHED COMPANY great sheds, done right!</p> <p>Waikato Shed Company 218 Hunter Road, Eureka R D 7, Hamilton 07 824 1045 buildingconsents@waikatosheds.co.nz</p>	<p>Site Notes:</p> <p>Safety compliance is required with NZBC F5.3.3 to prevent unauthorised entry of children to hazards on the site.</p> <p>Sediment control to be applied and maintained throughout the construction process, refer to Temporary Works & Services section of the Specification.</p>	<p>Contractor to check & verify all levels & dimensions on site prior to commencing work.</p> <p>Do not scale from drawings.</p> <p>All work to be carried out in accordance with NZS 3601 building code & local council by laws.</p>	<p>DATE OF ISSUE: 26/09/23</p> <p>AMENDMENT: N/A</p> <p>VERSION: 1</p>	<p>DRAWING:</p> <p>Title: COVER PAGE</p> <p>Scale:</p> <p>Sheet: W01</p> <p>Drawn by: Rodel</p>	<p>JOB DETAILS:</p> <p>Client: Scott Randell</p> <p>Project: Gable Shed</p> <p>Address: 53F Shepherd Road Kerikeri, 0230</p> <p>Legal Des: Lot 8 DP 373344</p> <p>Job Number: 310735K</p>
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FAR NORTH DISTRICT COUNCIL

Planning Zone: RURAL LIVING ZONE / RURAL RESIDENTIAL

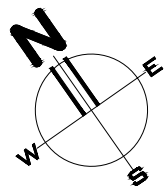
Site Information

Site Area:	2,998.34 sqm
Climate Zone:	Zone 1
Earthquake Zone:	Zone 1
Exposure Zone:	Zone C
Wind Zone:	High



LEGEND:

—	EXISTING
—	PROPOSED
- - -	STORMWATER
- - -	SET BACK
- - -	BOUNDARY



SITE PLAN

SCALE 1 : 300

<p>WAIKATO SHED COMPANY great sheds, done right!</p>	<p>Waikato Shed Company 218 Hunter Road, Eureka R D 7, Hamilton</p>
	<p>07 824 1045 buildingconsents@waikatosheds.co.nz</p>

Site Notes:

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DATE OF ISSUE:
26/09/23

AMENDMENT:
N/A

VERSION:
1

DRAWING:

Title: **SITE PLAN**

Scale: 1:300

Sheet: **W02**

Drawn by: Rodel

JOB DETAILS:

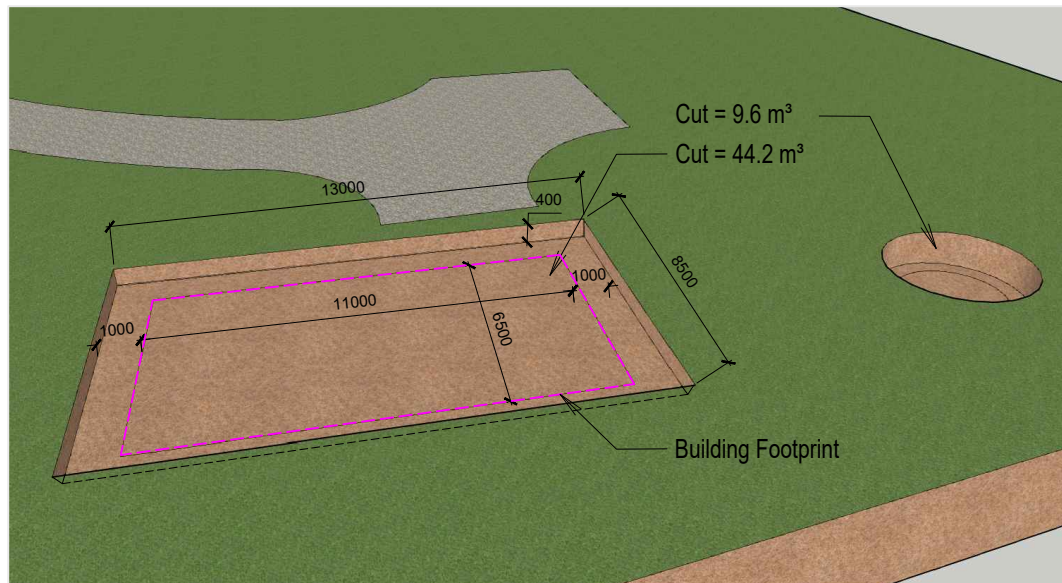
Client: Scott Randell

Project: Gable Shed

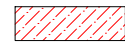
Address: 53F Shepherd Road Kerikeri, 0230

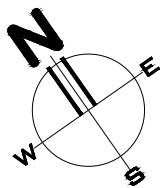
Legal Des: Lot 8 DP 373344

Job Number: 310735K



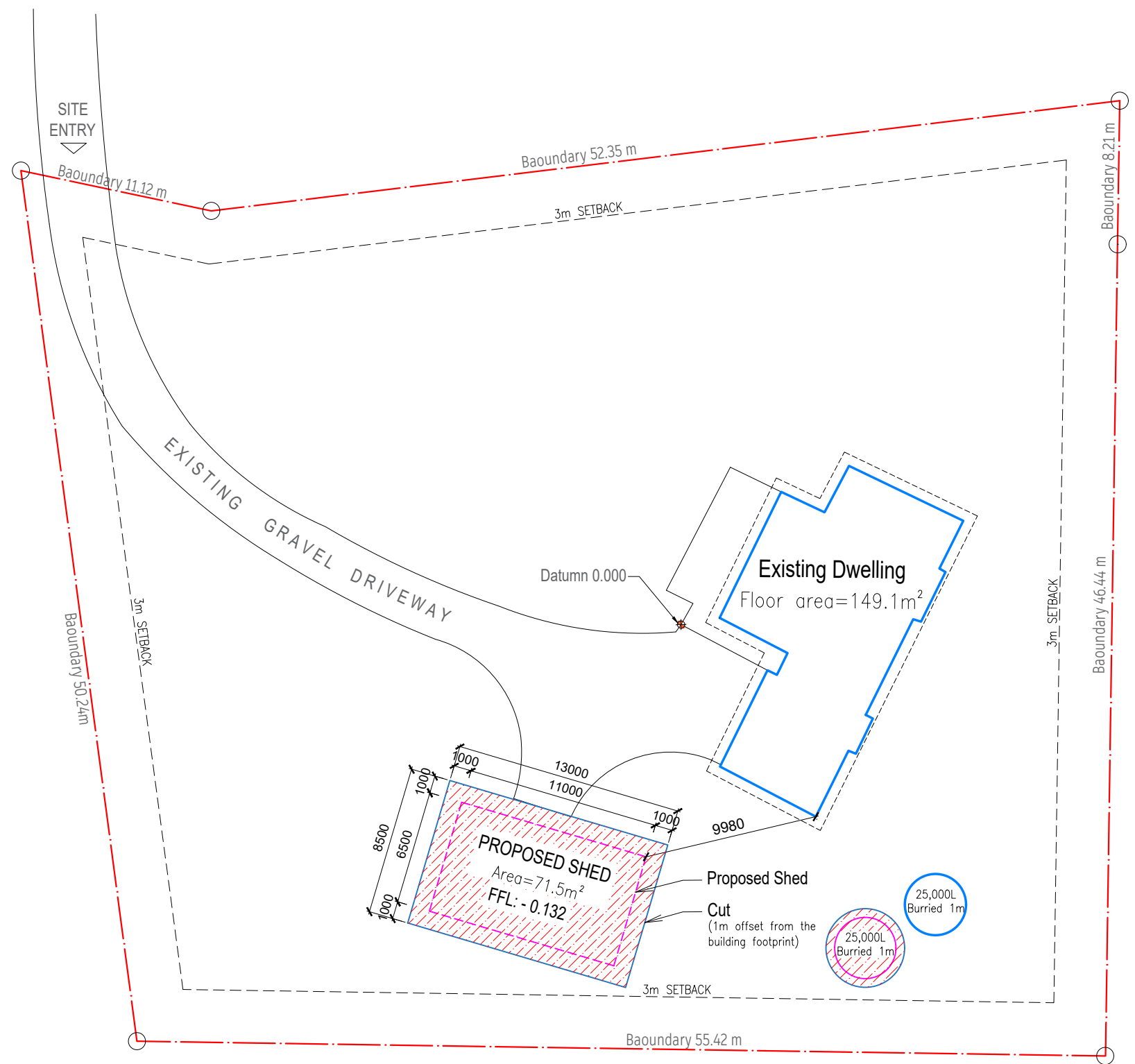
EARTHWORKS:

	CUT =	Area	Volume
	SHED	110.5 m ²	44.2 m ³
	WATER TANK	9.6 m ²	9.6 m ³
	Total =	120.1 m ²	53.8 m ³



EARTHWORKS PLAN

SCALE 1 : 300



WAIKATO SHED COMPANY
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NO BULL SHEDS
Waikato Shed Company
218 Hunter Road, Eureka R D 7, Hamilton
07 824 1045
buildingconsents@waikatosheds.co.nz

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DATE OF ISSUE:
26/09/23

AMENDMENT:
N/A

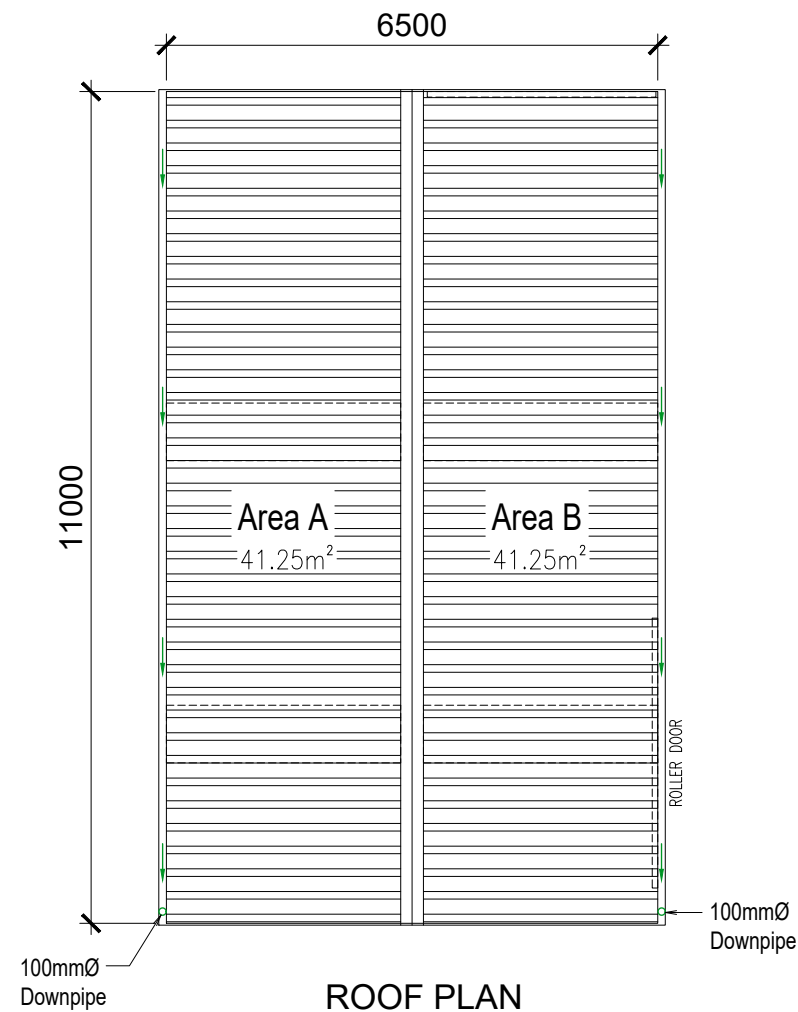
VERSION:
1

DRAWING:

Title: EARTHWORKS PLAN
Scale: 1:300
Sheet: W03
Drawn by: Rodel

JOB DETAILS:

Client: Scott Randell
Project: Gable Shed
Address: 53F Shepherd Road Kerikeri, 0230
Legal Des: Lot 8 DP 373344
Job Number: 310735K



ROOF PLAN
SCALE 1 : 100

ROOF PLAN AREA

Area A	3.75 x 11 =	41.25
Area B	3.75 x 11 =	41.25
Total =		82.50 m ²

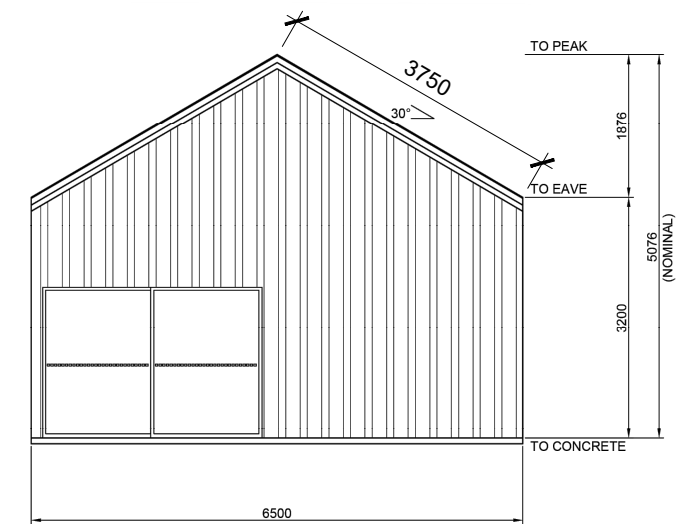
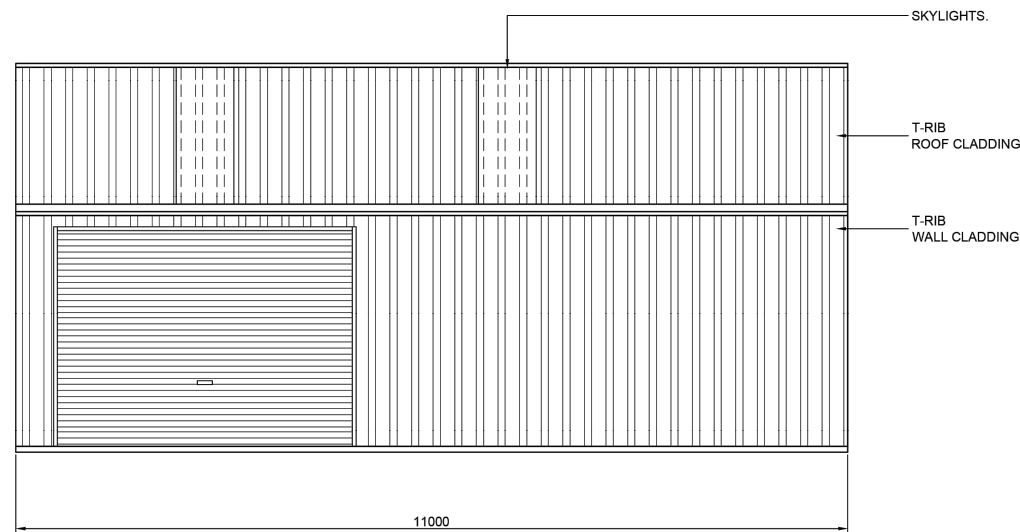


Figure 15:

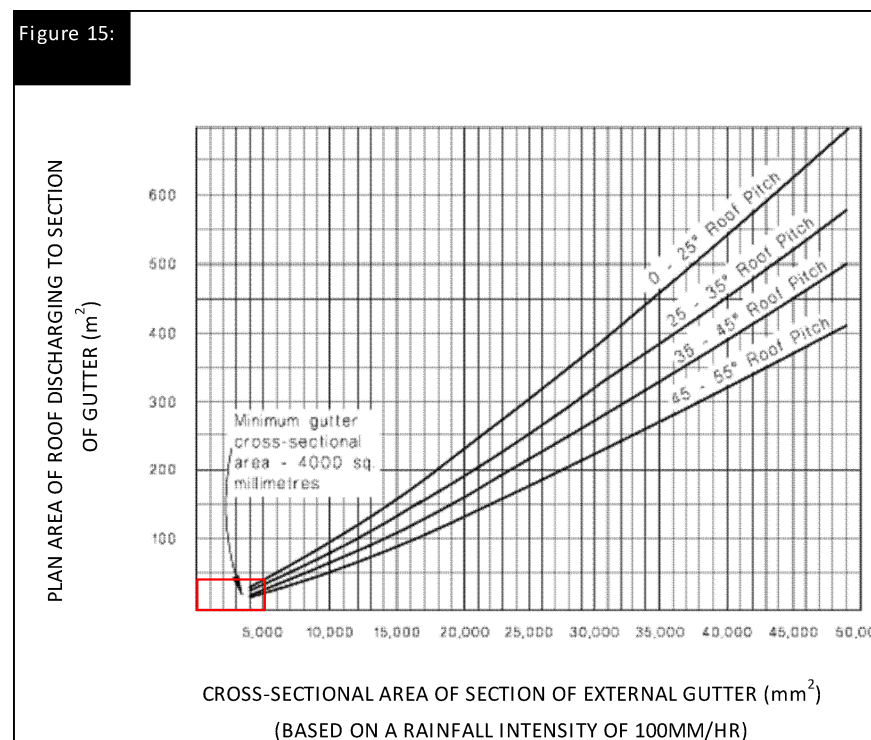


Table 5:

Downpipe size (mm) (min. internal sizes)	Roof pitch			
	0-25°	25-35°	35-45°	45-55°
	Plan area of roof to be served by the downpipe (m ²)			
Required	63 mm diameter	60	50	40
	74 mm diameter	85	70	60
1 on each side (to be use)	100 mm diameter	155	130	110
	150 mm diameter	350	290	250

Stormwater Pipe Size: 100mmØ

Pipework Gradient: 1% Minimum

Metalcraft Roofing Gutters

Quarter Round	4,880 mm ²
Half Round	5,650 mm ²
Box Gutter 125 mm	8,435 mm ²
Box Gutter 175 mm	19,250 mm ²
Box Gutter 300 mm	27,000 mm ²

Stormwater to comply with NZBC E1/AS1.

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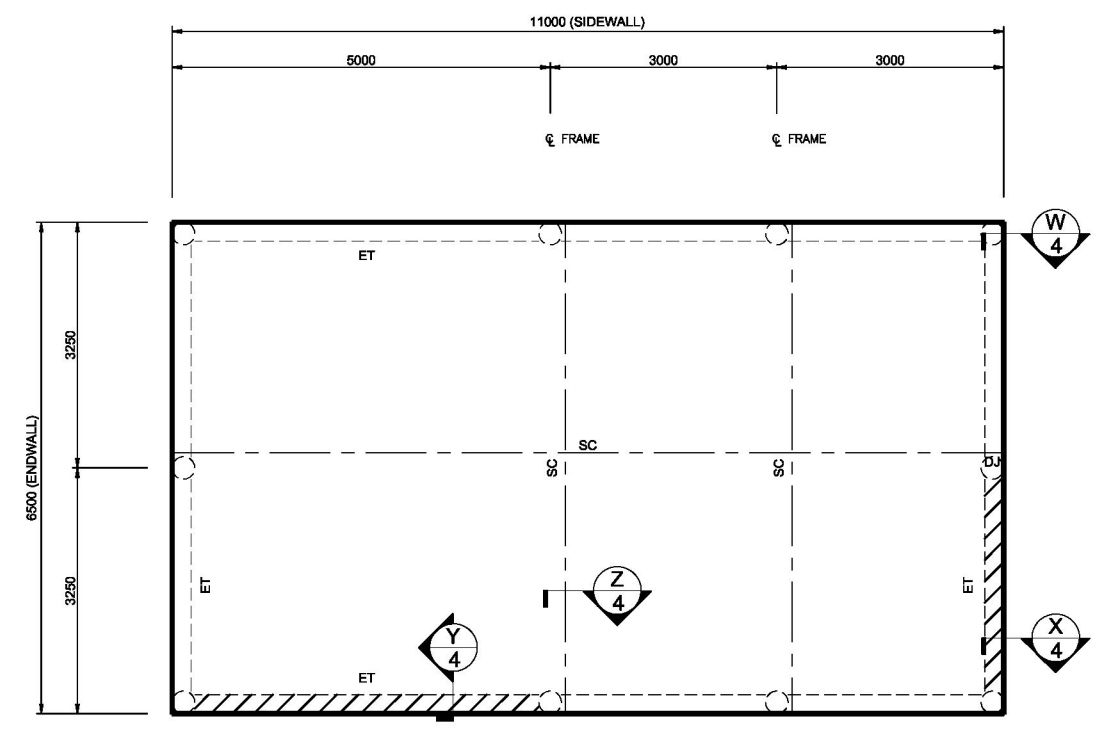
DATE OF ISSUE:
26/09/23
AMENDMENT:
N/A
VERSION:
1

DRAWING:
Title: EARTHWORKS PLAN
Scale: 1:100
Sheet: W04
Drawn by: Rodel

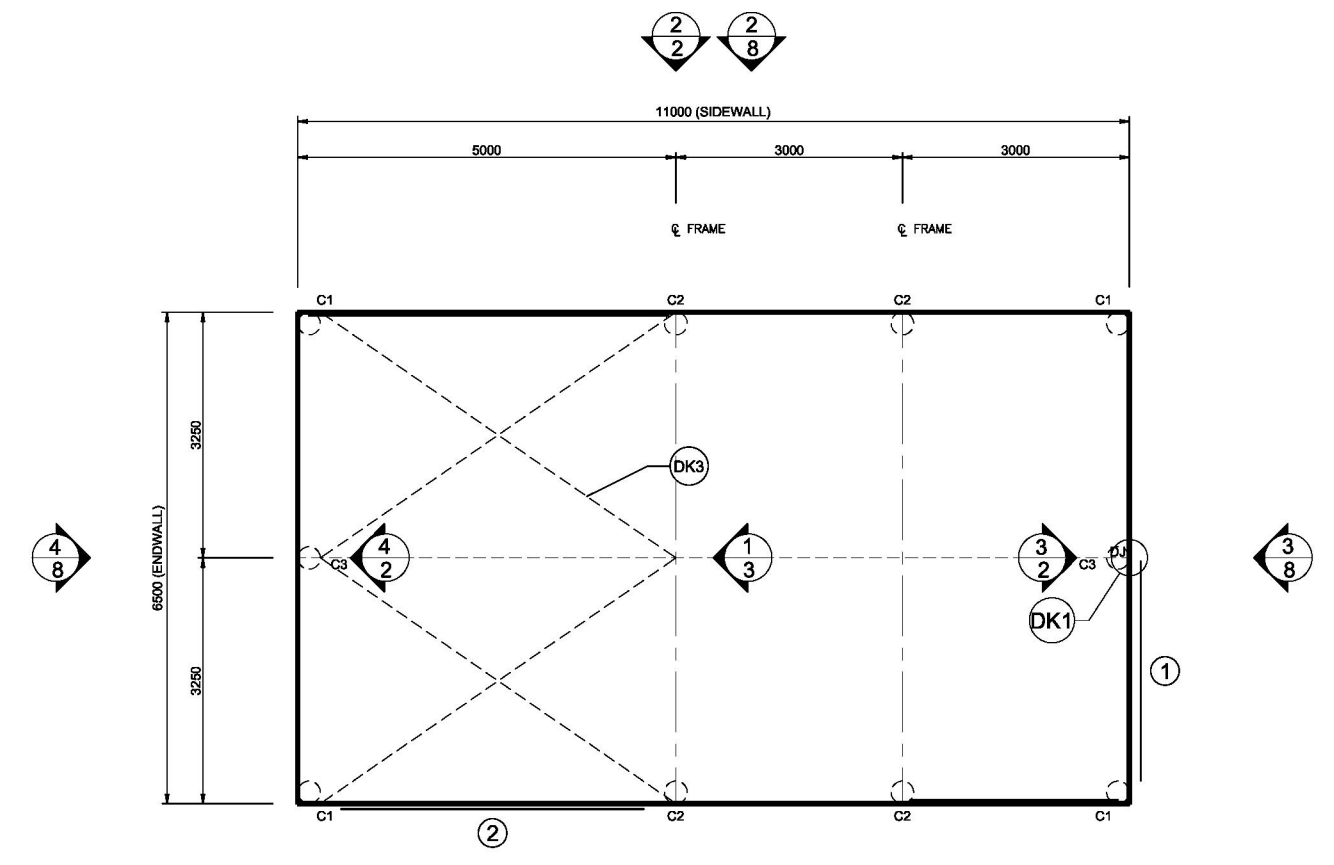
JOB DETAILS:
Client: Scott Randell
Project: Gable Shed
Address: 53F Shepherd Road Kerikeri, 0230
Legal Des: Lot 8 DP 373344
Job Number: 310735K

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IF IN DOUBT, ASK.



1 SLAB PLAN
SCALE: 1 = 100



2 MEMBER LAYOUT
SCALE: 1 = 100

ROOF STRAP BRACING TO BE CONNECTED TO THE PURLIN CLOSEST TO THE LINE OF THE END WALL MULLION
 ROOF STRAP BRACING CAN BE PLACED FROM EITHER END OF THE BUILDING PROVIDING THE STRAP PATTERN REMAINS AS PER PLANS
 SC - DENOTES SAW CUT OFFSET FROM COLUMN 200mm MIN
 ET - DENOTES EDGE THICKENING
 //// - DENOTES DOOR REBATE
 DJ - INDICATES DOOR JAMBS AT THESE LOCATIONS. REFER TO SHEET #4 ON THE DOOR SCHEDULE FOR SIZES

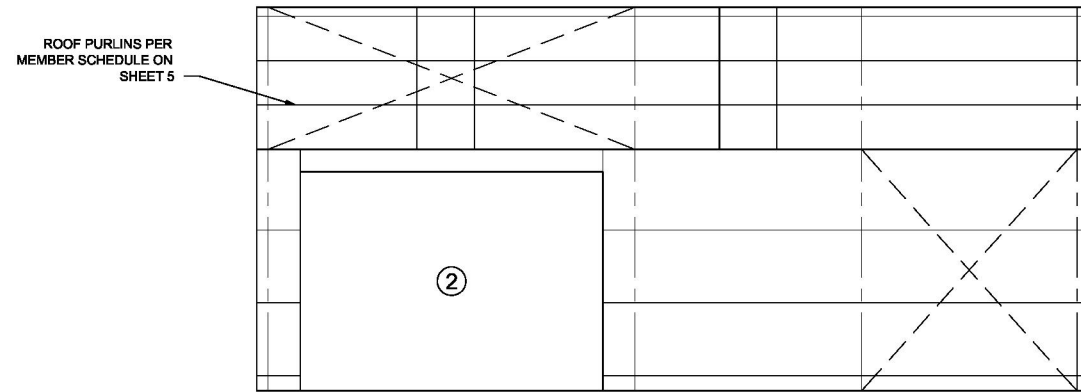
MEMBER LEGEND

C1	C20019
C2	2C20019
C3	C15019

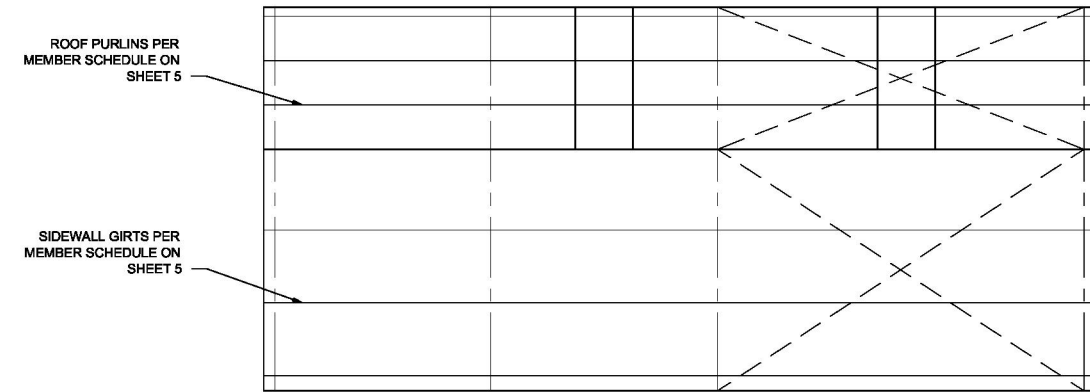
SHEET 1 OF 6	JOB NO. ZNBS310735	DATE 25/7/2023	CHECKED TM	DRAWN FDS	STEEL BUILDING BY (CONTACT) NO BULL SHEDS 07-8241045 SCOTT RANDELL 53F SHEPHERD ROAD KERIKERI		 Civil & Structural Engineers 50 Punari Street Currajong, Qld 4812 Email: DesignNZ@nceng.com.au Registered Chartered Professional Engineer Registered Professional Engineer (Civil & Structural) QLD	Mr Timothy Roy Messer BE MIEAust RPEQ IPENZ 10290 Signature _____ Date 25/7/2023
	Registered Professional Engineer (Civil & Structural) QLD Regn. No. 1029039 Regn. No. 9985							

DO NOT SCALE THIS DRAWING. USE FIGURED DIMENSIONS ONLY. ALL DIMENSIONS TO BE VERIFIED ON SITE.

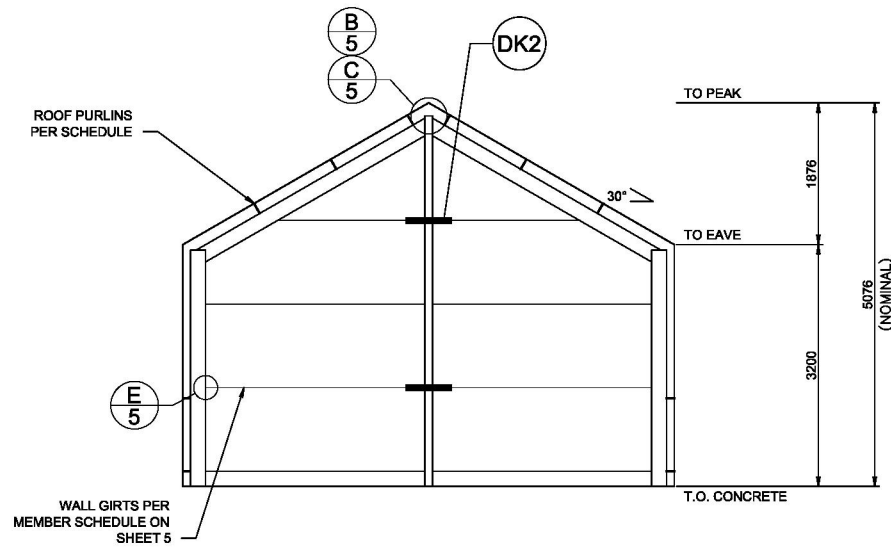
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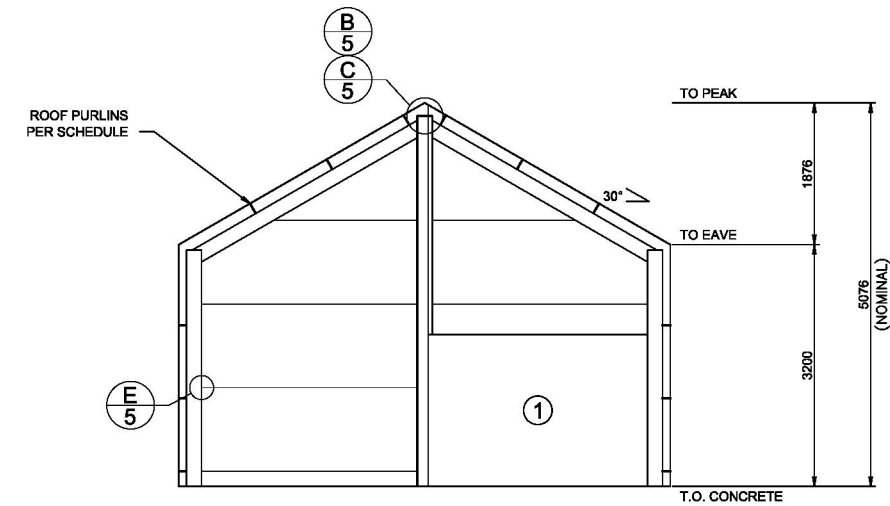
① **SIDEWALL EXTERIOR ELEVATION**
 ②
 SCALE: 1 = 100
 RISK MATRIX ANALYSIS = 1+0+1+5+0+0 = 7



② **SIDEWALL EXTERIOR ELEVATION**
 ②
 SCALE: 1 = 100
 RISK MATRIX ANALYSIS = 1+0+1+5+0+0 = 7



④ **ENDWALL INTERIOR ELEVATION**
 ②
 SCALE: 1 = 100
 RISK MATRIX ANALYSIS = 1+0+1+5+0+0 = 7



③ **ENDWALL INTERIOR ELEVATION**
 ②
 SCALE: 1 = 100
 RISK MATRIX ANALYSIS = 1+0+1+5+0+0 = 7

X BRACING IS REQUIRED IN 2 SIDE BAYS, 2 ROOF BAYS.

SEE LAYOUT OR PLANS FOR PLACEMENT. FLY BRACING IS INCLUDED TO BE PLACED ON EVERY SECOND PURLIN AND GIRT ON ENDWALL MULLIONS, INTERNAL COLUMNS AND INTERNAL RAFTERS.

2 OF 9	SHEET	JOB NO. ZNBS310735	DATE 25/7/2023	CHECKED TM	DRAWN FDS
	STEEL BUILDING BY				

(CONTACT)
NO BULL SHEDS
 07-8241045
SCOTT RANDELL
 53F SHEPHERD ROAD
 KERIKERI



NORTHERN CONSULTING
 engineers
 Email: DesignNZ@nceng.com.au

Registered Chartered Professional Engineer
 Registered Professional Engineer (Civil & Structural) QLD

Civil & Structural Engineers
 50 Punari Street
 Currajong, Qld 4812
 Regn. No. 1029039
 Regn. No. 9985

Mr Timothy Roy Messer BE MIEAust RPEQ
 IPENZ 1029039

Signature _____
 Date 25/7/2023

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RISK FACTOR

CATEGORY 1. (WIND ZONE)		
RISK CATEGORY	FEATURE DESCRIPTION	SCORE
LOW RISK	NZS3604 LOW WIND ZONE	0
MEDIUM RISK	NZS3604 MEDIUM WIND ZONE	0
HIGH RISK	NZS3604 HIGH WIND ZONE	1
VERY HIGH RISK	NZS3604 VERY HIGH WIND ZONE	2

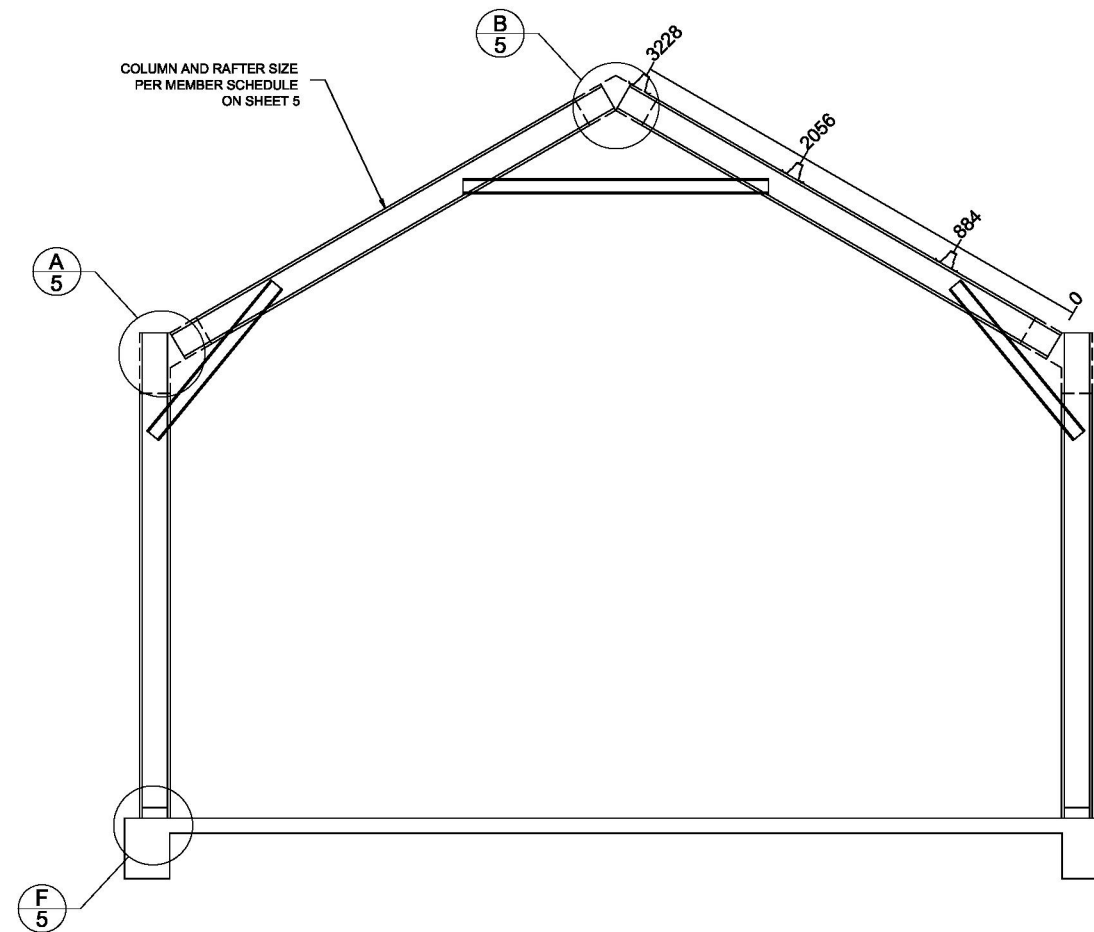
CATEGORY 2. (BUILDING HEIGHT)		
RISK CATEGORY	FEATURE DESCRIPTION	SCORE
LOW RISK	ONE STOREY	0
MEDIUM RISK	TWO STOREYS IN PART	1
HIGH RISK	TWO STOREYS	2
VERY HIGH RISK	MORE THAN TWO STOREYS	4

CATEGORY 3. (ROOF/WALL INTERSECTIONS)		
RISK CATEGORY	FEATURE DESCRIPTION	SCORE
LOW RISK	ROOF/WALL INTERSECTION FULLY PROTECTED, EG. HIP AND GABLE ROOF WITH EAVES	0
MEDIUM RISK	ROOF/WALL INTERSECTION PARTLY EXPOSED, EG. HIP AND GABLE ROOF WITH NO EAVES(FASICA ONLY)	1
HIGH RISK	ROOF/WALL INTERSECTION FULLY EXPOSED, EG. PARAPET WALL OR REVERSE SLOPES EAVES	3
VERY HIGH RISK	ROOF ELEMENTS FINISHING WITHIN ALL CLADDINGS (LOWER ENDS OF APRONS, CHIMNEYS ETC.)	5

CATEGORY 4. (EAVES WIDTH)		
RISK CATEGORY	FEATURE DESCRIPTION	SCORE
LOW RISK	GREATER THAN 600mm AT 1ST FLOOR LEVEL	0
MEDIUM RISK	450mm – 600mm AT 1ST FLOOR LEVEL, OR GREATER THAN 600mm AT 2ND FLOOR LEVEL	1
HIGH RISK	100–450mm AT 1ST FLOOR LEVEL, OR 450–600mm AT 2ND FLOOR LEVEL	2
VERY HIGH RISK	0–100mm AT 1ST FLOOR LEVEL OR 100–450mm AT 2ND FLOOR LEVEL OR 450–600mm AT 3RD LEVEL	5

CATEGORY 5. (ENVELOPE COMPLEXITY)		
RISK CATEGORY	FEATURE DESCRIPTION	SCORE
LOW RISK	SIMPLE RECTANGULAR, L,T OR BOOMERANG SHAPE, SINGLE CLADDING TYPE	0
MEDIUM RISK	COMPLEX,ANGULAR, OR CURVED BUILDING SHAPES (Y OR ARROW HEAD) SINGLE WALL CLADDING TYPE	1
HIGH RISK	COMPLEX,ANGULAR, OR CURVED BUILDING SHAPES (Y OR ARROW HEAD) MULTIPLE WALL CLADDING TYPE	3
VERY HIGH RISK	AS FOR RISK BUT WITH JUNCTIONS NOT COVERED IN TABLE 1C OR 1F (EG. BOX WINDOWS PERGOLAS, MULTI STOREY RE-ENTRANT SHAPES ETC.)	6

CATEGORY 6. (DECKS & BALCONIES)		
RISK CATEGORY	FEATURE DESCRIPTION	SCORE
LOW RISK	NONE OR TIMBER SLATTED DECK OR PORCH AT GROUND LEVEL	0
MEDIUM RISK	FULLY ROOFED WATERPROOF DECK, OR TIMBER SLATTED DECK AT 1ST OR 2ND FLOOR LEVEL	2
HIGH RISK	1ST LEVEL WATERPROOF DECK OR 1ST LEVEL CANTILEVERED SLATTED DECK	4
VERY HIGH RISK	2ND LEVEL WATERPROOF DECK, OR 2ND LEVEL CANTILEVERED SLATTED DECK	6



1 INTERNAL FRAME SECTION
3 SCALE: 1 = 50

Refer to Sheet #4 for concrete specification.

SHEET 3 OF 9	JOB NO. ZNBS310735	DATE 25/7/2023	CHECKED TM	DRAWN FDS	STEEL BUILDING BY NO BULL SHEDS (CONTACT) 07-8241045 SCOTT RANDELL 53F SHEPHERD ROAD KERIKERI			Civil & Structural Engineers 50 Punari Street Currajong, Qld 4812 Email: DesignNZ@nceng.com.au Registered Chartered Professional Engineer Registered Professional Engineer (Civil & Structural) QLD	Mr Timothy Roy Messer BE MIEAust RPEQ IPENZ 102903 Signature Date 25/7/2023 Regn. No. 1029039 Regn. No. 9985
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STRUCTURAL GENERAL NOTES

- GOVERNING CODE** : THE NEW ZEALAND BUILDING ACT 2004 AND BUILDING CODE AS CONTAINED IN SCHEDULE 1 OF BUILDING REGULATIONS 1992. LOADING TO AS/NZS1170 - ALL SECTIONS.
- DRAWING OWNERSHIP** : THESE DRAWINGS REMAIN THE PROPERTY OF DELCON HOLDINGS (NO11) LIMITED. ENGINEERING SIGNATURE AND CERTIFICATION IS ONLY VALID WHEN BUILDING IS SUPPLIED BY A DISTRIBUTOR OF DELCON HOLDINGS. DRAWINGS ARE PROVIDED FOR THE DUAL PURPOSE OF OBTAINING BUILDING PERMITS AND AIDING CONSTRUCTION. ANY OTHER USE OR REPRODUCTION IS PROHIBITED WITHOUT WRITTEN APPROVAL FROM DELCON HOLDINGS.
- DRAWING SIGNATURE REQUIREMENTS** : THESE DRAWINGS ARE NOT VALID UNLESS SIGNED BY THE ENGINEER. THE ENGINEER ACCEPTS NO LIABILITY OR RESPONSIBILITY FOR DRAWINGS WITHOUT A SIGNATURE. EACH TITLE BLOCK CONTAINS A WATER MARK UNDER THE CUSTOMERS NAME CONTAINING THE DATE OF PRODUCTION OF THE DRAWINGS; THE DRAWINGS ARE TO BE SUBMITTED TO COUNCIL WITHIN 21 DAYS OF THIS DATE. THIS IS TO ENSURE THAT ONLY CURRENT DRAWINGS ARE IN CIRCULATION.
- CONTRACTOR RESPONSIBILITIES** : CERTIFIER AND / OR CONTRACTOR TO CONFIRM (ON SITE) THAT THE WIND LOADINGS APPLIED TO THIS DESIGN ARE TRUE AND CORRECT FOR THE ADDRESS. CONTRACTOR SHALL VERIFY AND CONFIRM ALL EXISTING CONDITIONS AND DIMENSIONS. ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES BETWEEN DRAWINGS AND EXISTING CONDITIONS PRIOR TO START OF WORK. CONTRACTOR MUST NOT MAKE ANY DEVIATION FROM THE PROVIDED PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM ONE OF THE UNDERSIGNING ENGINEERS. THE ENGINEER / DELCON HOLDINGS TAKE NO RESPONSIBILITY FOR CHANGES MADE WITHOUT WRITTEN APPROVAL. CONTRACTOR IS RESPONSIBLE FOR ENSURING NO PART OF THE STRUCTURE BECOMES OVERSTRESSED DURING CONSTRUCTION. BUILDING IS NOT STRUCTURALLY ADEQUATE UNTIL THE INSTALLATION OF ALL COMPONENTS AND DETAILS SHOWN IS COMPLETED IN ACCORDANCE WITH THESE DRAWINGS. THE INDICATED DRAWING SCALES ARE APPROXIMATE. DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES. FOR FURTHER DIRECTIONS ON CONSTRUCTION THE CONTRACTOR SHOULD CONSULT THE APPROPRIATE INSTRUCTION MANUAL.
- ENGINEERING** : THE ENGINEER / DELCON HOLDINGS ARE NOT ACTING AS PROJECT MANAGERS FOR THIS DEVELOPMENT, AND WILL NOT BE PRESENT DURING CONSTRUCTION. THE UNDERSIGNING ENGINEERS HAVE REVIEWED THIS BUILDING FOR CONFORMITY ONLY TO THE STRUCTURAL DESIGN PORTIONS OF THE GOVERNING CODE. THE PROJECT MANAGER IS RESPONSIBLE FOR ADDRESSING ANY OTHER CODE REQUIREMENTS APPLICABLE TO THIS DEVELOPMENT. THESE DOCUMENTS ARE STAMPED ONLY AS TO THE COMPONENTS SUPPLIED BY DELCON HOLDINGS. IT IS THE RESPONSIBILITY OF THE PURCHASER TO COORDINATE DRAWINGS PROVIDED BY DELCON HOLDINGS WITH OTHER PLANS AND/OR OTHER COMPONENTS THAT ARE PART OF THE OVERALL PROJECT. IN CASES OF DISCREPANCIES, THE LATEST DRAWINGS PROVIDED BY DELCON HOLDINGS SHALL GOVERN.
- INSPECTIONS** : NO SPECIAL INSPECTIONS ARE REQUIRED BY THE GOVERNING CODE ON THIS JOB. ANY OTHER INSPECTIONS REQUESTED BY THE LOCAL BUILDING DEPARTMENT SHALL BE CONDUCTED AT THE OWNER'S EXPENSE.
- SOIL REQUIREMENTS** : SOIL SAFE BEARING CAPACITY VALUE INDICATED ON DRAWING SHEET 4 OCCURS AT 100mm BELOW FINISH GRADE, EXISTING NATURAL GRADE, OR AT FROST DEPTH SPECIFIED BY LOCAL BUILDING DEPARTMENT, WHICHEVER IS THE LOWEST ELEVATION, REGARDLESS OF DETAIL Y ON SHEET 4 THE MINIMUM FOUNDATION DEPTH SHOULD BE 100MM INTO NATURAL GROUND OR BELOW FROST DEPTH SPECIFIED BY LOCAL COUNCIL. ROLLED OR COMPACTED FILL MAY BE USED UNDER SLAB, COMPACTED IN 150mm LAYERS TO A MAXIMUM DEPTH OF 900mm. CONCRETE FOUNDATION EMBEDMENT DEPTHS DO NOT APPLY TO LOCATIONS WHERE ANY UNCOMPACTED FILL OR DISTURBED GROUND EXISTS OR WHERE WALLS OF THE EXCAVATION WILL NOT STAND WITHOUT SUPPLEMENTAL SUPPORT, IN THIS CASE SEEK FURTHER ENGINEERING ADVICE. OTHER SITE CONDITIONS INCLUDING THOSE SUBJECT TO HIGH GROUND MOVEMENT DUE TO MOISTURE CHANGES, TO BE REFERRED TO A REGISTERED STRUCTURAL ENGINEER.
- SOILS CLASS** : FOR A RESIDENTIAL AND NON-HABITABLE USE BUILDING DESIGNS. THE FOUNDATIONS DOCUMENTED IS APPROPRIATE FOR A RESIDENTIAL AND NON-HABITABLE USE BUILDINGS ON STABLE AND MODERATELY EXPANSIVE CLASS SOIL AS DEFINED IN AS2870 AS CLASS A,S AND M SOILS.
- CONCRETE REQUIREMENTS** : ALL CONCRETE DETAILS AND PLACEMENT SHALL BE PERFORMED IN ACCORDANCE WITH NZS3101.1&2. CEMENT TO BE TYPE A. MAX AGGREGATE SIZE OF 20mm. SLUMP TO BE 80mm +/- 15mm. SLABS TO BE CURED FOR 7 DAYS BY WATERING OR COVERING WITH A PLASTIC MEMBRANE, AFTER WHICH CONSTRUCTION CAN BEGIN, DUE CARE TO BE GIVEN NOT TO OVERTIGHTEN HOLD DOWN BOLTS. GIVEN ALLOWABLE SOIL TYPES, 1 LAYER OF 665 REINFORCING MESH OR FOR RESIDENTIAL HABITABLE BUILDINGS FLETCHER SUPER DUCTILE MESH GRADE 500E (OR EQUIVALENT). MESH LAPS TO BE AS PER MANUFACTURERS RECOMMENDATIONS. FOR POLISHED OR EXPOSED AGGREGATE FINISHES, PLEASE SEEK FURTHER ADVICE FROM THE ENGINEER. FOR RELEVANT DURABILITY REQUIREMENTS REFER TO THE FOLLOWING TABLE:

EXPOSURE CLASSIFICATION	DESCRIPTION	MIN. 28 DAY STRENGTH	MIN. REQ. COV. DEPTH
A1 & A2	RELATIVELY BENIGN ENVIRONMENTS (INTERIOR OR INLAND LOCATIONS)	20 MPa	A1=25mm, A2=40mm
B1	MODERATELY AGGRESSIVE ENVIRONMENTS (COMMONLY COASTAL PERIMETER)	20 MPa	50mm
B2	AGGRESSIVE ENVIRONMENTS (COMMONLY 100m TO 500m FROM OPEN SEA)	30 MPa	45mm
C	EXTREME AGGRESSIVE CHLORIDE ENVIRONMENTS	40 MPa	60mm
- STRUCTURAL STEEL REQUIREMENTS** : ALL STRUCTURAL STEEL, INCLUDING SHEETING THROUGH EXCLUDING CONCRETE REINFORCING, SHALL CONFORM TO AS 1397 (GAUGE <= 1mm Fy = 550MPa, GAUGE > 1mm < 1.5mm Fy = 500MPa, GAUGE >= 1.5mm Fy = 450MPa). NO WELDING IS TO BE PERFORMED ON THIS BUILDING. ALL STRUCTURAL MEMBERS AND CONNECTIONS DESIGNED TO NZ4600. ALL BOLT HOLE DIAMETERS TO METALCRAFT GENERAL FINCHINGS.

PROJECT DESIGN CRITERIA

ROOF LIVE LOAD: 0.25 kPa
 BASIC WIND SPEED: VR 45 m/s
 SITE WIND SPEED: V_{sitB} 39.8 m/s
 WIND REGION: Reg A6
 TOPOGRAPHY FACTOR, Mt: 1
 SHIELDING FACTOR, Ms: 1
 MAX GROUND SNOW LOAD: N/A
 MAX ROOF SNOW LOAD: N/A
 SITE ALTITUDE: N/A
 TERRAIN CATEGORY: TCat 2.31
 SOIL SAFE BEARING CAPACITY: 100 kPa
 RETURN PERIOD: 1:500
 LIMITING CPI 1: -0.5
 LIMITING CPI 2: 0.5
 IMPORTANCE LEVEL: 2

DETAIL KEYS

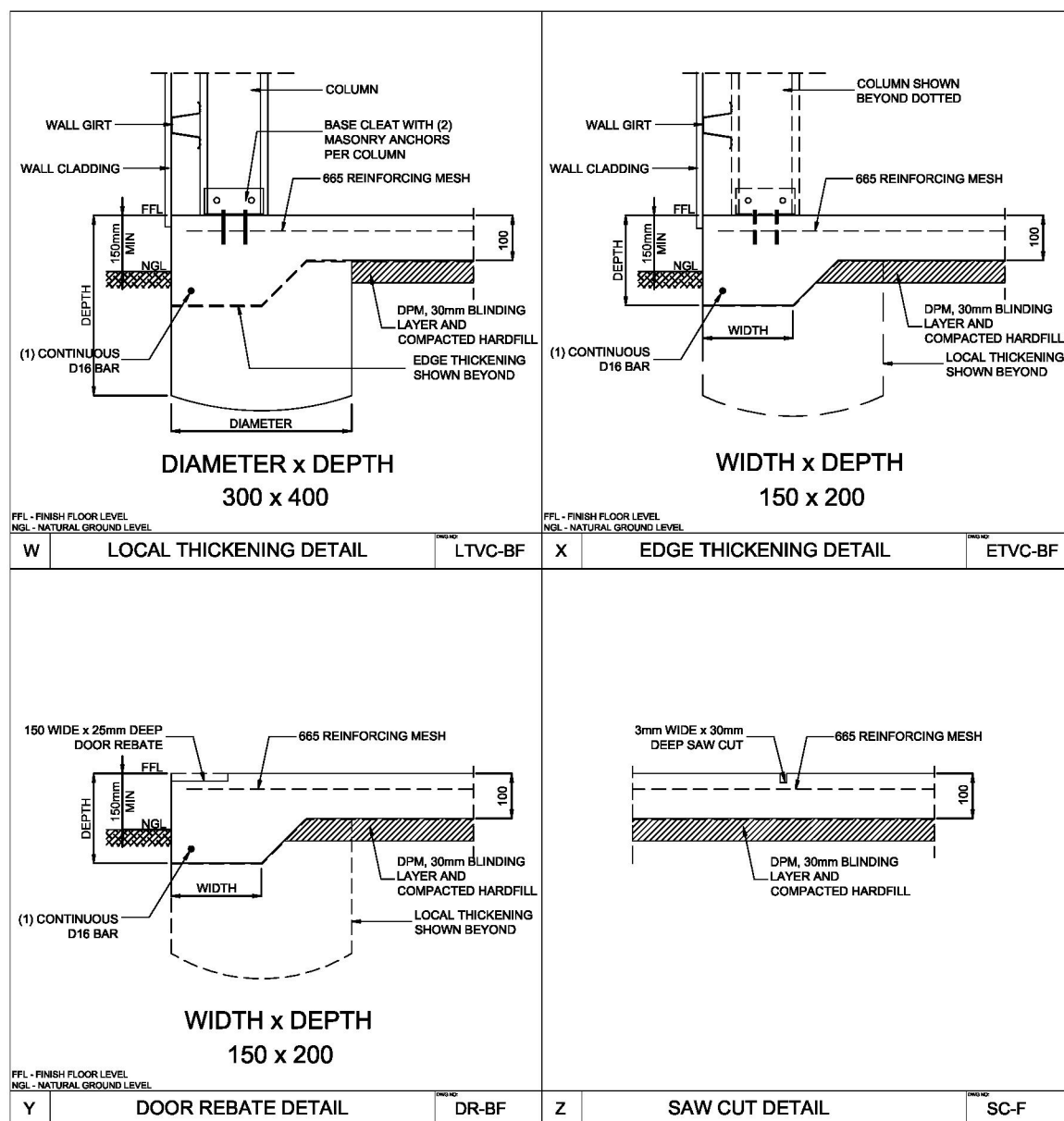
- DK1 ENDWALL VERTICAL MULLION (SEE DETAIL C/5 FOR TOP CONN. AND F/5 FOR BASE CONN.)
- DK2 FLYBRACING PER DETAIL L/5
- DK3 X-BRACING IN ROOF ABOVE (SEE DETAIL M/5)

SCHEDULE OF OPENINGS

DOOR	OPENING SIZE MAX WIDTH	MAX HEIGHT	OPENING TYPE	HEADER GIRT	OPENING JAMBS	WIND RATED
①	2900	2009	2.010H X 2.803/0FS SLIDING GLASS DOOR	SINGLE	PURBP200/19	YES
②	4000	2900*	2.904 X 4.10 TCW GS S2 INDUSTRIAL DOOR DD CHAIN DRIVE	SINGL&UCRD	JTS10036 NO	NO

NOTES: 1) SEE SHEET 5 FOR DOOR OPENING FRAMING INFORMATION.
 2) ALL DOOR SCHEDULE MEASUREMENTS ARE ACTUAL DOOR/WINDOW SIZE NOT OPENING SIZE.

* ROLLER DOOR OPENING HEIGHT DEPENDENT ON FINAL BUILD LOCATION.



EDGE BEAM IS PROVIDED FOR STRENGTHENING OF THE SLAB UNDER WHEEL LOADS AND IS NOT SITE SPECIFICALLY DESIGNED FOR LIQUEFACTION TYPE, EXPANSIVE OR PROBLEM SOILS, SPECIFICALLY TC3 AND PEAT SOILS

4 OF 9 SHEET

JOB NO. ZNBSS310735

DATE 25/7/2023

CHECKED TM

DRAWN FDS

STEEL BUILDING BY (CONTACT)

NO BULL SHEDS

07-8241045

SCOTT RANDELL

53F SHEPHERD ROAD

KERIKERI

fairdinkum SHEDS

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Regn. No. 1029039

Regn. No. 9985

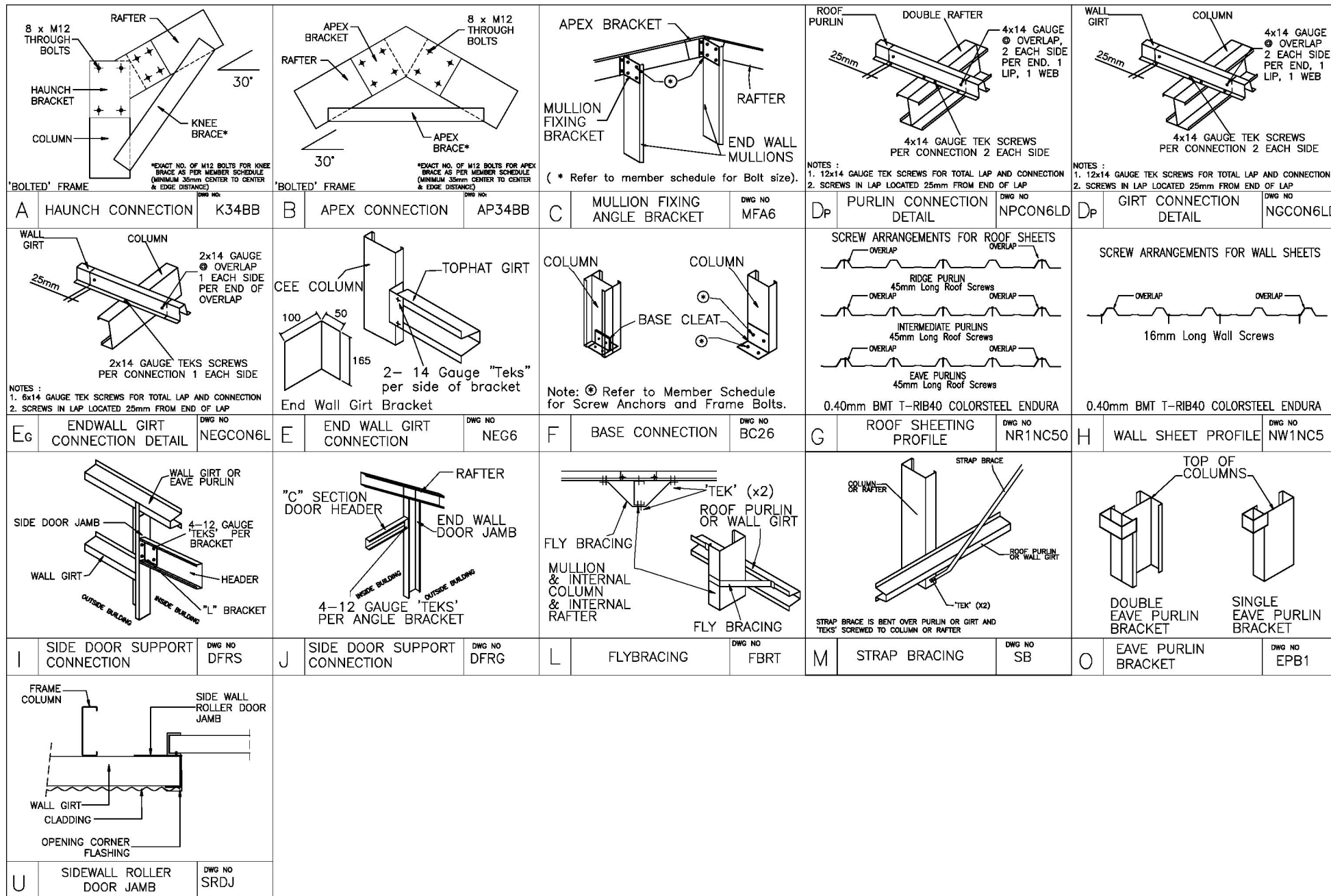
Mr Timothy Roy Messer BE MIEAust RPEQ

IPENZ 1029039

Signature [Redacted]

Date 25/7/2023

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MEMBER AND MATERIAL SCHEDULE

1	END WALL RAFTER	Single C20019
2	C.S. FRAME RAFTER	Double C20015
3	END FRAME COLUMN (C1)	Single C20019
4	C.S. FRAME COLUMN (C2)	Double C20019
5	MULLION (C3)	Single C15019
6	C.S. FRAME KNEE BRACE	Single C10019 @ 1.49 LONG 4 bolts each end
7	KNEE BRACE HEIGHT UP COLUMN	2.50m
8	KNEE BRACE LENGTH UP RAFTER	0.90m
9	C.S. FRAME APEX BRACE	Single C10019 @ 2.02 LONG 2 bolts each end
10	APEX POSITION FROM RAFTER END	1.16m
11	ANCHOR BOLTS (# PER DETS.)	Screw Anchor 12mm x 100 Galv
12	EAVE PURLIN	C10010 (Eave Purlin Bracket 27mm down from top of column)
13	TYP. ROOF PURLIN SIZE	Roof Batten 100 x 1.0
14	MAIN BLDG. PURLIN SPACING	1.172 m. (3 rows) (Max Allow. 1.250m)
15	TYP. SIDEWALL GIRT SIZE	Roof Batten 100 x 1.0
16	MAIN BLDG. SIDEWALL GIRT SPACING	0.966 m. (3 rows) (Max Allow. 1.200m)
17	TYP. ENDWALL GIRT SIZE	Roof Batten 100 x 1.0
18	MAIN BLDG. ENDWALL GIRT SPACING	1.106 m. (4 rows) (Max Allow. 1.200m)
19	FRAME SCREW FASTENERS	Heavy Duty Structural Screw 5/16 drive
20	FRAME BOLT FASTENERS	12 x 30mm Bolt Ass High Tensile
21	X-BRACING STRAP AND FASTENERS	Single 50 x 0.95mm Strap with 5 x 14g Tek Screws Each End
22	WALL COLOUR	EBONY
23	ROOF COLOUR	EBONY
24	ROLLER DOOR COLOUR	COLOURSTEEL
25	GLASS SLIDING DOOR COLOUR	COLOURSTEEL
26	DOWNPIPE COLOUR	COLOURSTEEL
27	GUTTER COLOUR	COLOURSTEEL
28	CORNER FLASHING COLOUR	COLOURSTEEL
29	BARGE FLASHING COLOUR	COLOURSTEEL
30	OPENING FLASHING COLOUR	COLOURSTEEL
31	OPEN BAY HEADER HEIGHT	0.5

C.S. = CLEARSPAN "L." = LEFT "R." = RIGHT

PURLIN AND GIRT LENGTHS

BAY	WIDTH	PURLIN LENGTH	GIRT LENGTH
1	5m	5.23 m. (0.23m Lap)	5.23 m. (0.23m Lap)
2	3m	3.6 m. (0.6m Lap)	3.6 m. (0.6m Lap)
3	3m	3.23 m. (0.23m Lap)	3.23 m. (0.23m Lap)

5 OF 9
SHEET
JOB NO. ZNBSS310735
DATE 25/7/2023
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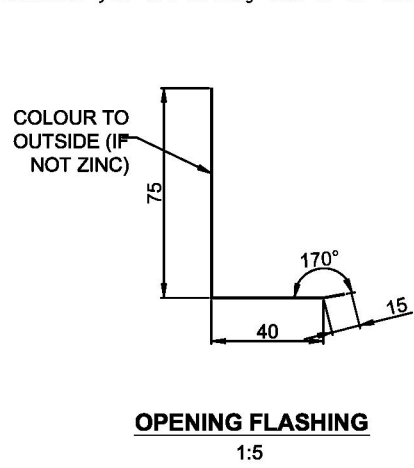
STEEL BUILDING BY (CONTACT)
NO BULL SHEDS
07-8241045
SCOTT RANDELL
53F SHEPHERD ROAD
KERIKERI



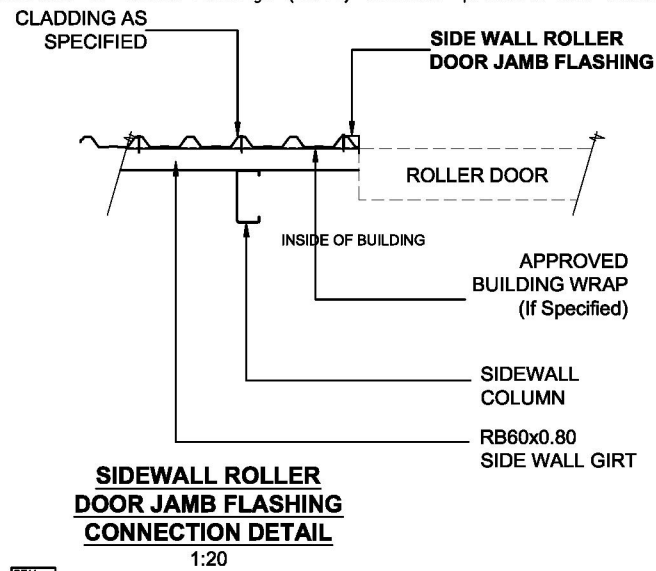
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Date 25/7/2023

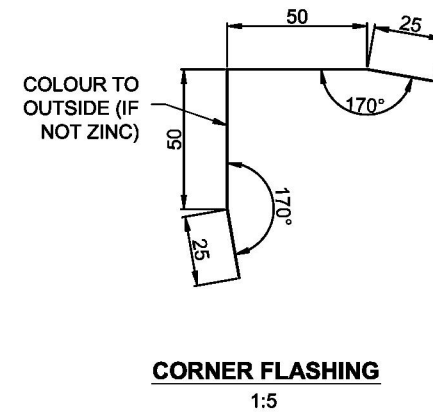
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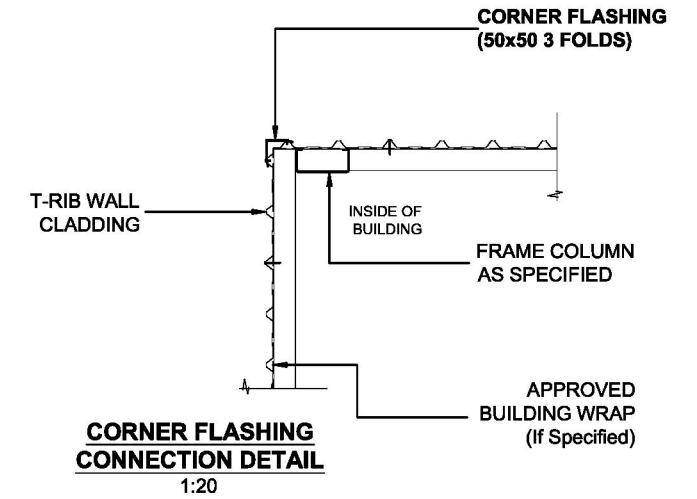
OPENING FLASHING
1:5



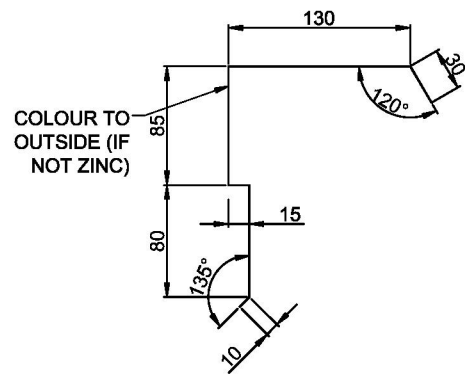
SIDEWALL ROLLER DOOR JAMB FLASHING CONNECTION DETAIL
1:20



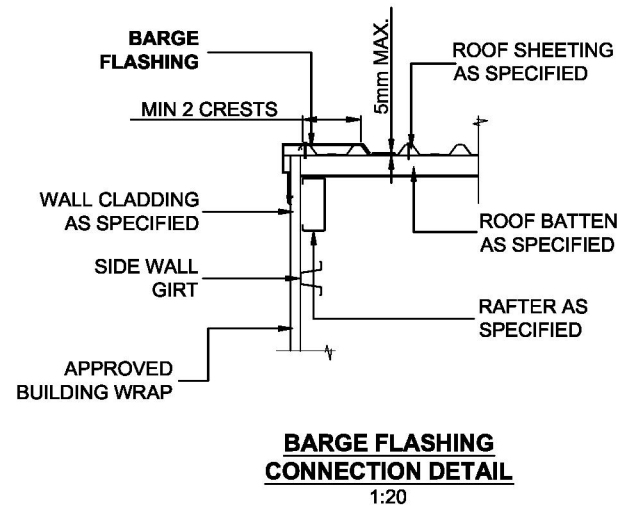
CORNER FLASHING
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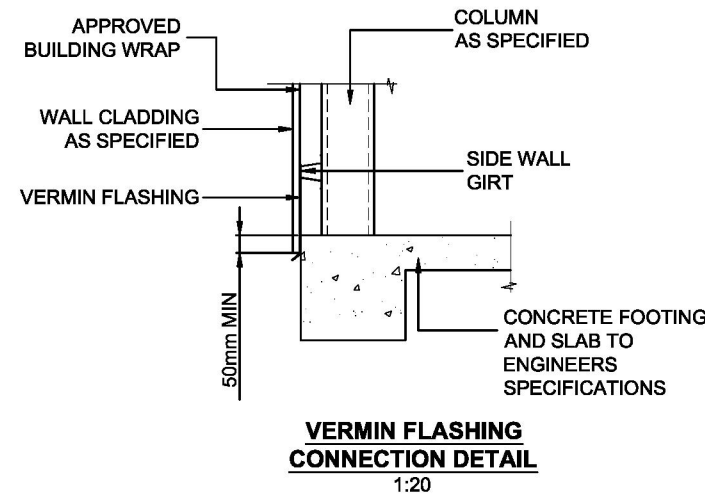
CORNER FLASHING CONNECTION DETAIL
1:20



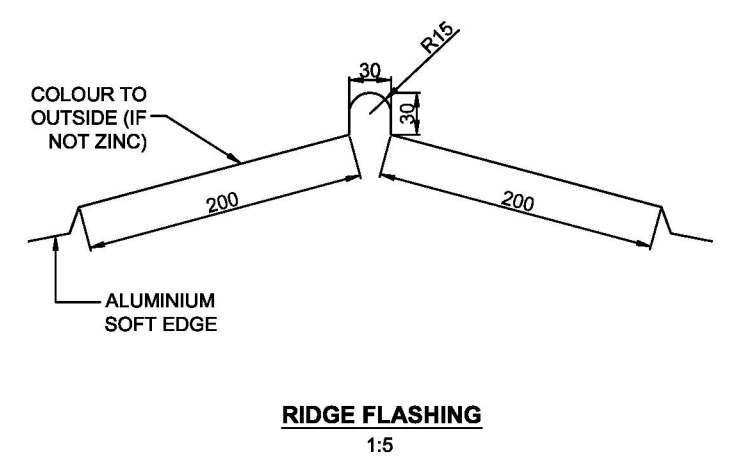
BARGE FLASHING
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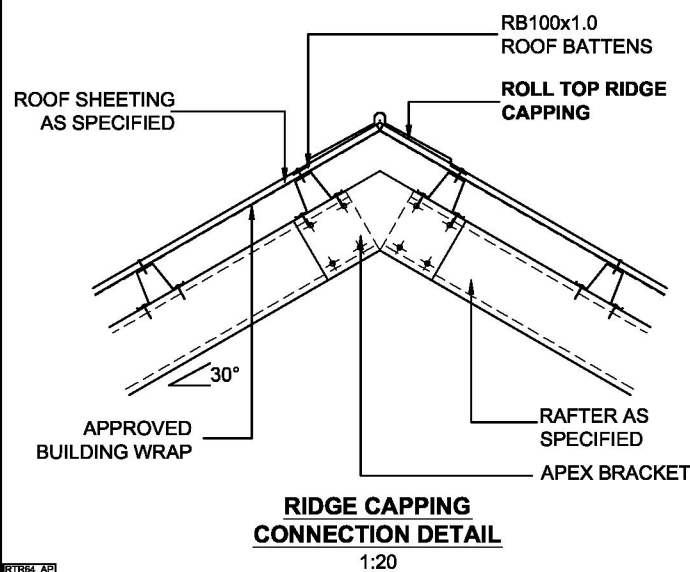
BARGE FLASHING CONNECTION DETAIL
1:20



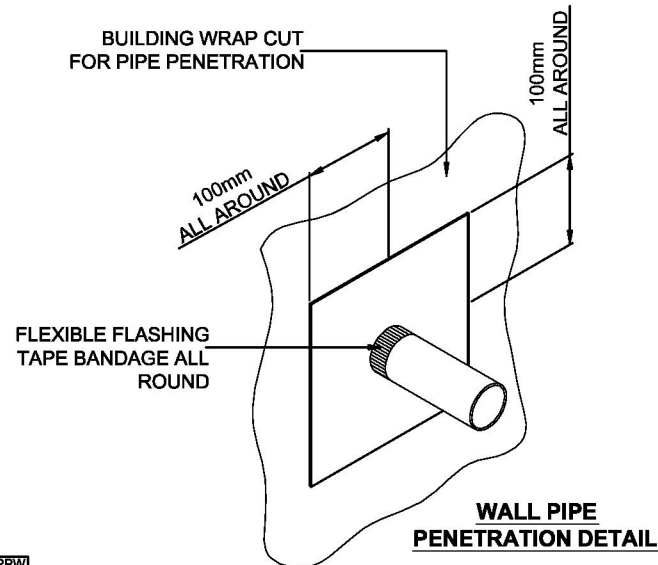
VERMIN FLASHING CONNECTION DETAIL
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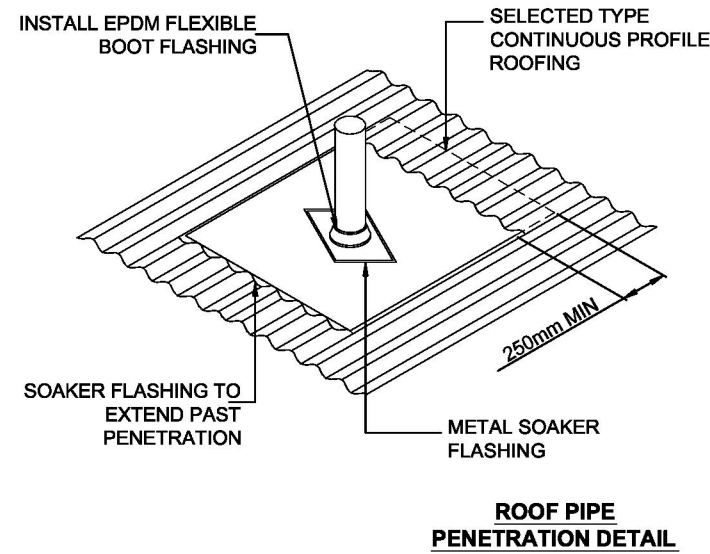
RIDGE FLASHING
1:5



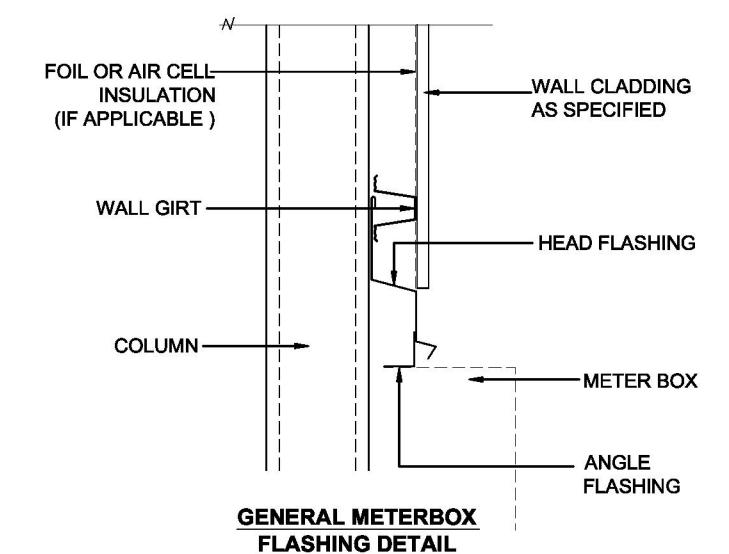
RIDGE CAPPING CONNECTION DETAIL
1:20



WALL PIPE PENETRATION DETAIL



ROOF PIPE PENETRATION DETAIL



GENERAL METERBOX FLASHING DETAIL

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6	ZNBSS310735	25/7/2023	TM	FDS	AT

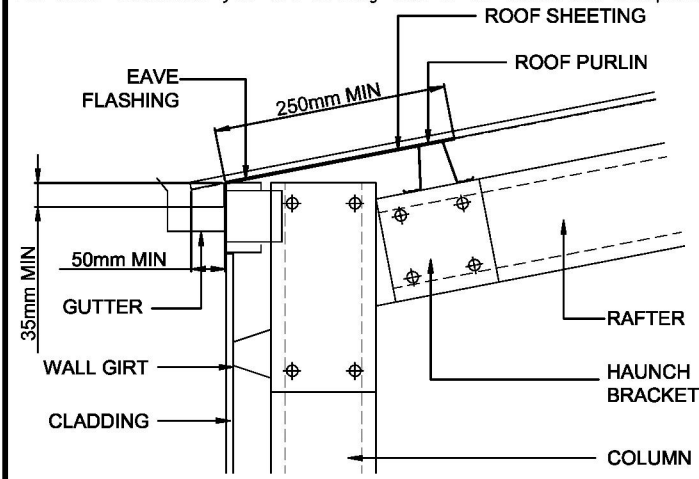
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 KERIKERI

fairdinkum
SHEDS

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 Date 25/7/2023

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EAVES FLASHING APPLICATION

EF1

6	OF	7	SHEET
			ZNBS310735
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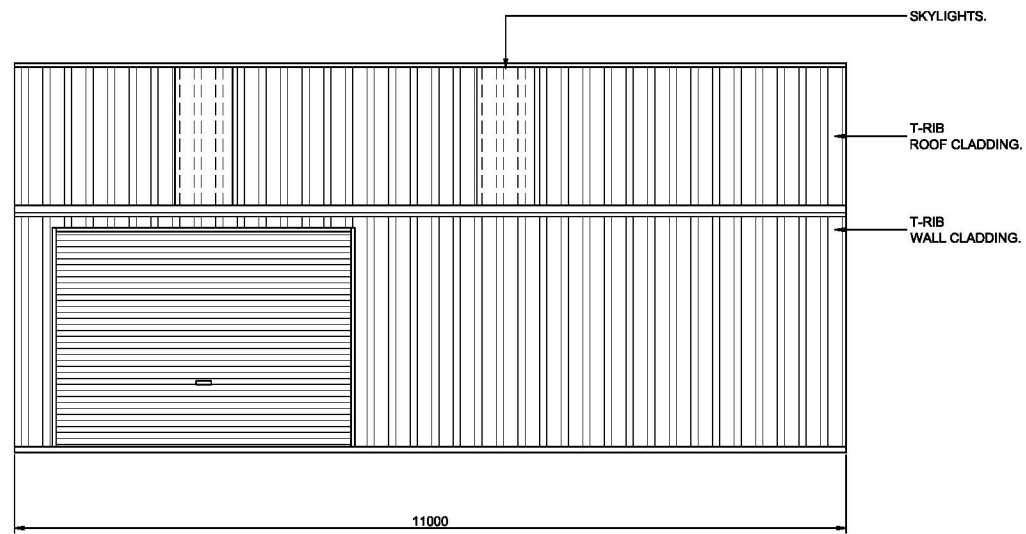
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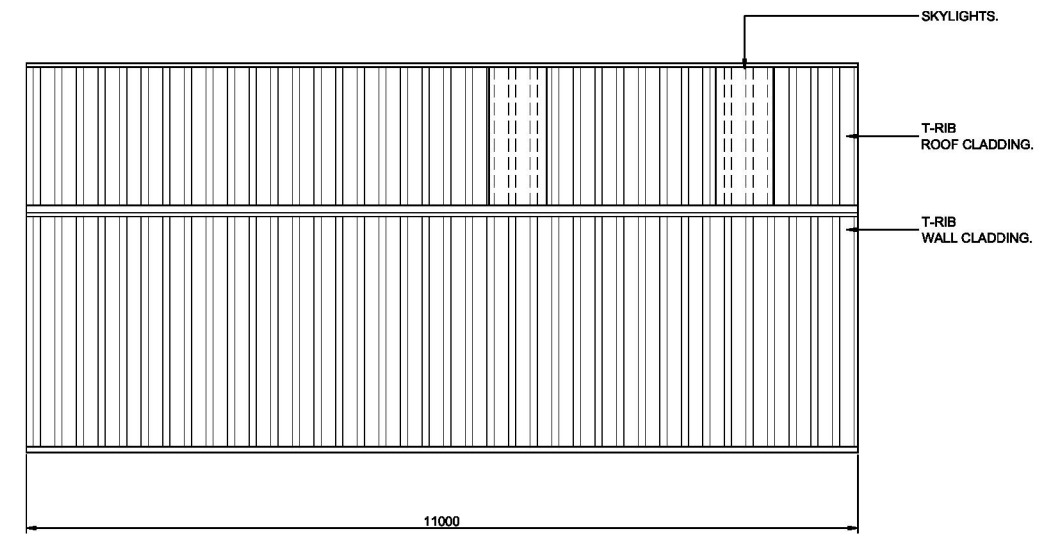
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 Date 25/7/2023

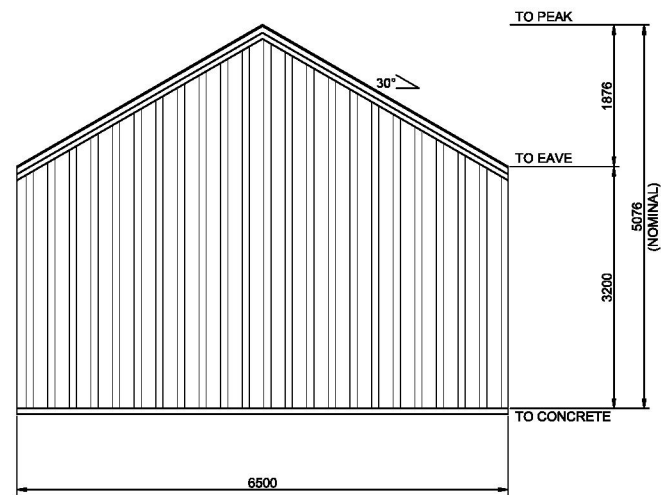
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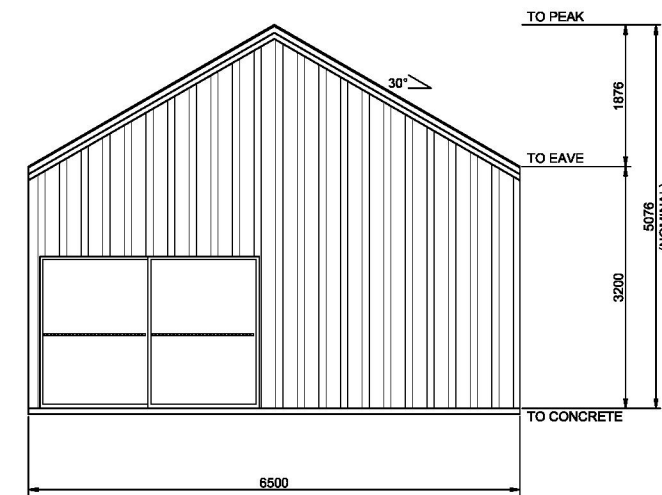
1
8 SIDEWALL EXTERIOR ELEVATION
SCALE: 1 = 100



2
8 SIDEWALL EXTERIOR ELEVATION
SCALE: 1 = 100



4
8 ENDWALL EXTERIOR ELEVATION
SCALE: 1 = 100



3
8 ENDWALL EXTERIOR ELEVATION
SCALE: 1 = 100

BUILDING COLOURS

WALL	EBONY
ROOF	EBONY
ROLLER DOOR	COLOURSTEEL
GLASS SLIDING DOOR	COLOURSTEEL
DOWNPIPE	COLOURSTEEL
GUTTER	COLOURSTEEL
CORNER FLASHING	COLOURSTEEL
BARGE FLASHING	COLOURSTEEL
OPENING FLASHING	COLOURSTEEL

8 OF 9 SHEET
JOB NO. ZNBS310735
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STEEL BUILDING BY (CONTACT)
NO BULL SHEDS
07-8241045
FOR **SCOTT RANDELL**
AT 53F SHEPHERD ROAD KERIKERI

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GUIDE TO THE INSTALLATION OF TEMPORARY BRACING

(REFER TO INSTALLATION GUIDE MANUAL FOR THE TWO METHODS OF CONSTRUCTION)

NOTES:

BRACING MATERIALS - THE SHED ERECTOR TO SUPPLY SPECIFIC BRACING. SUITABLE RIGID MEMBERS CAPABLE OF TENSION AND COMPRESSION OR OPPOSING CHAINS OR OPPOSING LOAD RATED RATCHET STRAPS TO BE USED. (RIGID BRACING AS SHOWN ON DIAGRAM) ROPE BRACING SUITABLE ONLY FOR SMALLER STRUCTURES IN IDEAL CONDITIONS.

BRACING LOCATION - TEMPORARY BRACING TO BE ERECTED AS CLOSE TO 45 DEGREE ANGLE AND FIXED TO THE TOP OF THE COLUMN OR MULLION TO ACHIEVE THE OPTIMUM EFFECTIVENESS. IF THERE IS NOT ENOUGH SPACE FOR A 45 DEGREE ANGLE, THEN 20 DEGREE ANGLE IS TO BE THE MINIMUM ANGLE ALLOWED (REFER TO DIAGRAM). RIGID TEMPORARY BRACING MEMBER TO BE BOLTED TO HEAVY ANGLE PEGS HAMMERED INTO THE GROUND OR TO A BRACKET, MASONRY ANCHORED TO THE SLAB.

BRACING REMOVAL - TEMPORARY BRACING TO REMAIN IN PLACE UNTIL CLADDING IS FULLY INSTALLED WHERE POSSIBLE. IN NO CASE SHOULD TEMPORARY BRACING BE REMOVED UNTIL ALL PURLINS, GIRTS (AND PERMANENT CROSS BRACING WHERE USED) ARE FIXED.

SITE SAFETY - DUE CONSIDERATION TO BE GIVEN TO SITE SAFETY IN REGARD TO LOCATIONS OF BRACING AND PEGS.

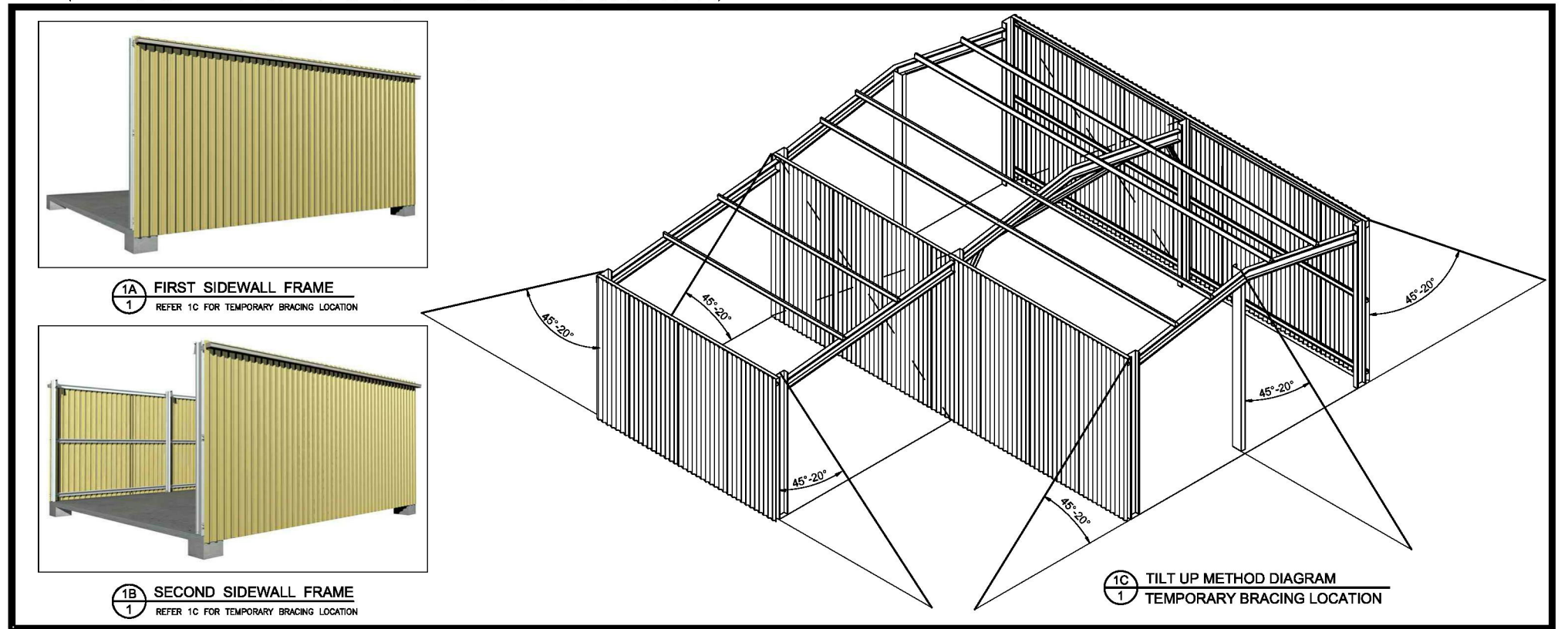
GUIDE APPLICATION - TEMPORARY BRACING AS DESCRIBED IS A MINIMUM REQUIREMENT FOR AN AVERAGE, STANDARD SITE CONDITION. PROVIDE ADDITIONAL BRACING FOR MORE SEVERE AND/OR HIGH EXPOSURE SITE CONDITIONS. ADDITIONAL BRACING TO BE USED AS AND WHERE NECESSARY TO ENSURE THAT ENTIRE FRAME IS RIGID THROUGHOUT CONSTRUCTION. RESPONSIBILITY FOR ENSURING STABILITY OF STRUCTURE REMAINS WITH THE BUILDER.

TILT UP METHOD
FOR STRUCTURES UNDER 9M SPAN, LESS THAN 3M HIGH AND LESS THAN 12M LONG

- A. ASSEMBLE THE FIRST SIDEWALL FRAME (COMPLETE WITH WALL SHEETING, BRACING AND GUTTER) ON THE GROUND AND LIFT ASSEMBLED SIDEWALL FRAME INTO POSITION. FIX OFF TEMPORARY SIDE BRACING TO EACH END (REFER TO DIAGRAM). FIX BASE CLEATS.
- B. ASSEMBLE THE SECOND SIDEWALL FRAME AS PER FIRST SIDEWALL FRAME. LIFT INTO POSITION. FIX OFF TEMPORARY WALL BRACING TO EACH END (REFER TO DIAGRAM) FIX BASE CLEATS.
- C. FIX GABLE END RAFTERS TO COLUMNS TO TIE WALLS. PROP APEX UNTIL ENDWALL MULLION AND APEX TEMPORARY BRACE ARE FIXED OFF. IF NO MULLION IS REQUIRED THEN PROP AND BRACE APEX UNTIL CLADDING IS COMPLETE.
- D. INSTALL REMAINING RAFTERS. AS EACH RAFTER PAIR IS INSTALLED, AT LEAST ONE PURLIN PER 3M OF RAFTER LENGTH IS TO BE INSTALLED TO SECURE RAFTERS.
- E. INSTALL REMAINING PURLINS
- F. INSTALL KNEE AND APEX BRACES IF AND WHERE APPLICABLE.
- G. REPEAT FOR LEANTO'S.

FRAME FIRST METHOD
FOR STRUCTURES OVER 9M SPAN, GREATER THAN 3M HIGH AND GREATER THAN 12M LONG

- A. ASSEMBLE PORTAL FRAMES ON THE GROUND (WITH KNEE AND APEX BRACES IF AND WHERE APPLICABLE). LIFT THE FIRST PORTAL FRAME ASSEMBLY INTO POSITION. FIX OFF TEMPORARY END BRACING (REFER TO DIAGRAM). FIX BASE CLEATS.
- B. PROP APEX UNTIL ENDWALL MULLION AND APEX TEMPORARY BRACE ARE FIXED OFF. IF NO MULLION IS REQUIRED THEN PROP AND BRACE APEX UNTIL CLADDING IS COMPLETE.
- C. THE SECOND PORTAL FRAME ASSEMBLY TO BE LIFTED INTO POSITION. FIX EAVE PURLINS AND AT LEAST ONE PURLIN PER 3M OF RAFTER TO SECURE FRAME ASSEMBLY. FIX BASE CLEATS. FIX TEMPORARY SIDEWALL BRACING.
- D. STAND REMAINING PORTAL FRAME ASSEMBLY AS PER STEP C, FIXING TEMPORARY SIDE WALL BRACING TO EVERY SECOND BAY. BRACE OTHER END PORTAL FRAME AS PER FIRST PORTAL FRAME.
- E. INSTALL REMAINING PURLINS AND GIRTS.
- F. REPEAT FOR LEANTO'S.

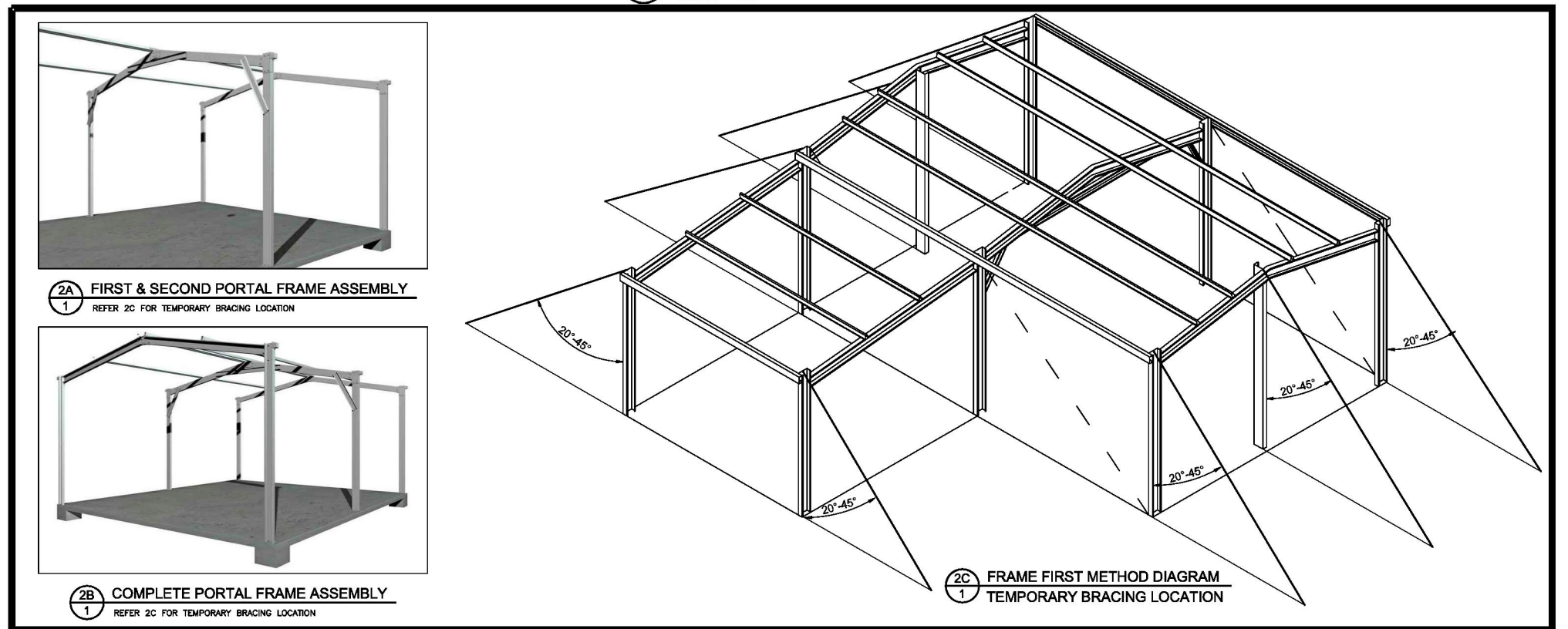


1A FIRST SIDEWALL FRAME
1 REFER 1C FOR TEMPORARY BRACING LOCATION

1B SECOND SIDEWALL FRAME
1 REFER 1C FOR TEMPORARY BRACING LOCATION

1C TILT UP METHOD DIAGRAM
1 TEMPORARY BRACING LOCATION

1 TILT UP METHOD DIAGRAM
1 SCALE: NTS



2A FIRST & SECOND PORTAL FRAME ASSEMBLY
1 REFER 2C FOR TEMPORARY BRACING LOCATION

2B COMPLETE PORTAL FRAME ASSEMBLY
1 REFER 2C FOR TEMPORARY BRACING LOCATION

2C FRAME FIRST METHOD DIAGRAM
1 TEMPORARY BRACING LOCATION

2 FRAME FIRST METHOD DIAGRAM
1 SCALE: NTS

SHEET	JOB NO.	DATE	CHECKED	DRAWN	STEEL BUILDING BY
					FOR
OF	ZNBSS310735	25/7/2023	TM	FDS	AT
9					

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