Land Information Memorandum

Application

Lee and Greg Bellam	No.	L230031
PO Box 7	Application date	1/02/2023
Mangawhai 0540	Issue date	7/02/2023
	Phone	
	Fax	

Please Note: This LIM report contains information for the entire legal description below.

Property

Valuation No.	0122009558
Location	27 Poplar Glade, Mangawhai
Legal Description	LOT 2 DP 501099 HAVING 1/18SH IN LOT 32 DP 211395
Owner	Bellam Gregory David: Bellam Leeann Dawn
Area (hectares)	1.6955

Rates

Government Valuation	
Land	$430,000
Capital Value	$1,110,000
Improvements	$680,000
Current Rates Year 2022 to 2023	
Annual Rates	$2,570.51
Current Instalment	$ 642.63
Current Year - Outstanding Rates	$ 281.37
Arrears for Previous Years	$ 0.00
Next Instalment Due	20/02/2023

Note: Rates are charged in four instalments for the period commencing 1 July and ending 30 June each year.

Please refer to the Kaipara District Council Long Term Plan 2021/2031 and to the Kaipara District Council Development Contribution Policy 2021 which can be found at the Council website www.kaipara.govt.nz.

Planning/Resource Management

Zoning: **Kaipara District Plan 2013:** Residential – Mangawhai Harbour Overlay. See attached information regarding the District Plan.

Full details of the zone requirements are found in the current District Plan. Relevant zone ordinance can be found at the Council website.

12/02/16 **RESOURCE CONSENT 150254**: Proposed 3 Lot Subdivision of Lot 10 DP 211395. **Created DP 501099**.: Section 224 Issued 10/02/17.

RM150254 Consent notice Lots 1, 2 and 3: i) Require that building foundations, stormwater and wastewater disposal to be the subject of specific design by an appropriately qualified Chartered Professional Engineer having regard to soil instability/saturation issues that may exist or arise as a result of the development. ii) Any discharge of treated wastewater shall meet the permitted activity criteria of Section 15 of the Regional Water and Soil Plan for Northland unless resource

	consent is gained for the discharge. iii) That at the time of residential development on the lot, or any associated replacement, and prior to any occupation of a residential dwelling, a water supply for fire-fighting purposes with a minimum volume of 10,000 litres (i.e. for tanks larger than 10,000 litres arrange a domestic draw off above the 10,000 litre level) shall be provided on the site with the correct NZFS couplings. iv) Driveway access width to each property is required to be 3.5m and right of way width to be 4m in order to allow access for fire appliances.
	RM150254 Consent notice Lots 1, 2 and 3 i) vegetation along Poplar Glade shall be maintained in accordance with the Landscape Management Plan to the satisfaction of Council and in perpetuity. ii) Poplar Glade will be monitored by Council for a period of five years from the date of issue of 224(c) certificate. There will be a Council charge for this monitoring payable by the lot owner. iii) 7. Telecommunication services to the Lots are via a wireless connection. It is noted that Telecommunication cables have not been provided to the boundary of the Lots.
	PLANNING NOTES Lot 32 DP211395, off the end of King Road, is a private shared access not maintained by Council.
2/03/00	**RESOURCE CONSENT 990120**: SUBDIVISION OF ALLOT 539 AND PART ALLOT 540 - **created** DP204990 and **DP211395**: Section 321 Notice (LGA) Issued 11/03/02.

No other planning information located.

Building

26/09/17	BUILDING CONSENT 170459: Single level 4-bedroom domestic dwelling, double garage, living, kitchen, dining, WC, laundry and so on: Code Compliance Certificate Issued 7/07/19. **Copy of Geotechnical Report attached.**

No other information located.

Sewer and Water

Sewer	Not available
Stormwater	No information located.
Water	Not available

Copy of As Built drainage plan attached.

Any on-site wastewater system for the property may need to comply with Council inspection and maintenance regime under the Councils Wastewater Drainage Bylaw 2016. This bylaw is located on KDC website.

Record on file indicates inspection and clean was undertaken on 28th January 2020.

No other information located.

Land and Building Classifications

No information located.

Refer to copy of map from District Plan for other classifications in the immediate vicinity.

Compliance with Swimming Pool Bylaw

No pool registered to this property.

Land Transport Requirements

No information located.

Special Land Features

River Flood Hazard Zone – **See map attached.**

This identification may affect any proposed building work on the property in relation to both resource consent and building consent. For further information you may want to visit the Natural Hazards website.

You may also wish to contact the Northland Regional Council on Freephone 0800 002 004 and ask to speak with the Natural Hazards Advisor.

No other information located.

Licences/Environmental Health

No information located.

Network Utility Operators

Information related to the availability of supply, authorisations etc (eg, electricity or gas) can be obtained from the relevant Network Utility Operator.

Other Information

No title search has been done on this property.

Notes

1. Final inspections on buildings were not mandatory prior to 1 January 1993. Should an evaluation of the building be required an independent qualified person should be consulted. In the interests of safety, an inspection of any fireplace within the dwelling may be requested of Council at any time, after paying the appropriate fee.
2. Every care has been taken to ensure that the information supplied by the Council on this form is accurate. The Council relies on information available to it and will not be held responsible for incomplete or inaccurate information provided, or for any errors or omissions made in good faith.
3. Please note that the property was neither inspected nor visited in the course of the preparation of this Land Information Memorandum.
4. Other information may be held by other authorities, for example the Northland Regional Council or Heritage New Zealand.
5. This Land Information Memorandum is a disclosure of information (which may be historical) held by the Council at the time of application and is subject to change.
6. Any enquiry not accompanied by a fee will be invoiced separately. (All prices are GST inclusive).
7. No Record of Title was supplied with this application for this Land Information Memorandum. The Council therefore does not warrant that the information supplied is related to the correct property.
8. Any Resource or Building consents run with the land; if the project is incomplete, there may be existing/additional charges to pay for which the new owner will be liable.
9. A Development Contribution and or Financial Contribution may be payable if development is carried out, the effect of which is to require new or additional assets or assets of increased capacity and as a consequence Council incurs capital expenditure to provide appropriately for those assets and that capital expenditure is not otherwise funded or provided for. Future rating policies are outlined in Council's Long Term Plan 2021-2031.

Name: _____ Date: 7/02/2023.

Performance Standards of the Kaipara District Plan 2013

To view the performance standards (rules) for each zone please refer to the relevant chapter of the Kaipara District Plan 2013:

Rural - Chapter 12

Residential - Chapter 13

Business: Commercial and Industrial - Chapter 14

Maori Purposes: Maori Land – Chapter 15A

Maori Purposes: Treaty Settlement Land – Chapter 15B

Estuary Estates – Chapter 16

All Zones - Chapter 10 Network Utilities and Chapter 11 Transport Network

How can I view the Kaipara District Plan 2013?

If you have access to the internet and want access to the most up to date information, visit the website **www.kaipara.govt.nz**

If you do not have access to a computer you can visit one of the following locations to view a hard copy of the Plan:

Venue	**Opening Hours**	
Kaipara District Council Office - Dargaville 42 Hokianga Road Dargaville Telephone (09) 439 7059	Monday - Tuesday Wednesday Thursday - Friday	8.00am to 4.30pm 9.00am to 4.30pm 8.00am to 4.30pm
Kaipara District Council Office - Mangawhai Unit 5, The Hub 6 Molesworth Drive Telephone (09) 431 3161	Monday - Tuesday Wednesday Thursday - Friday	8.30am to 4.30pm 9.00am to 4.30pm 8.00am to 4.30pm
Kaiwaka Library Corner State Highway 1 and Kaiwaka Mangawhai Road Kaiwaka Telephone: (09) 431 2539	Sunday -Tuesday Wednesday – Saturday	Closed 10:00am to 2:00pm
Maungaturoto Library Centennial Building Hurndall Street Maungaturoto Telephone: (09) 431 8811	Monday to Thursday Friday Saturday Sunday	10:30am to 12:00 noon 10:30am to 4:00 pm 10:00am to 1:00pm Closed
Paparoa Library Brook House State Highway 12 Paparoa Telephone: (09) 439 2216	Monday Wednesday Friday Tuesday / Thursday Saturday / Sunday	1:30pm to 4:30pm 10:00am to 12:00 noon 9:30am to 1:00pm Closed Closed
Ruawai Library Ruawai College State Highway 12 Ruawai Telephone: (09) 439 2216	Monday to Friday Saturday / Sunday	8:45am to 3:15pm Closed
Dargaville Library Corner Poto and Normanby Streets Dargaville Telephone: (09) 439 3150	Monday to Friday Saturday Sunday	9.30am to 5.30pm 9.30am to 12.30pm Closed

All Maps

- State Highway
- Railway
- Bridge or Causeway
- Unformed Road
- Sea, Lakes and Rivers
- Parcel Boundary

Map Series One - Land Use

- Estuary Estates
- Rural
- 8m Height Restriction
- Business: Commercial
- Business: Industrial
- Residential
- Maori Land
- Treaty Settlement
- Estuary Estates
- East Coast Overlay
- Harbour Overlay
- Kai Iwi Lakes Overlay
- West Coast Overlay

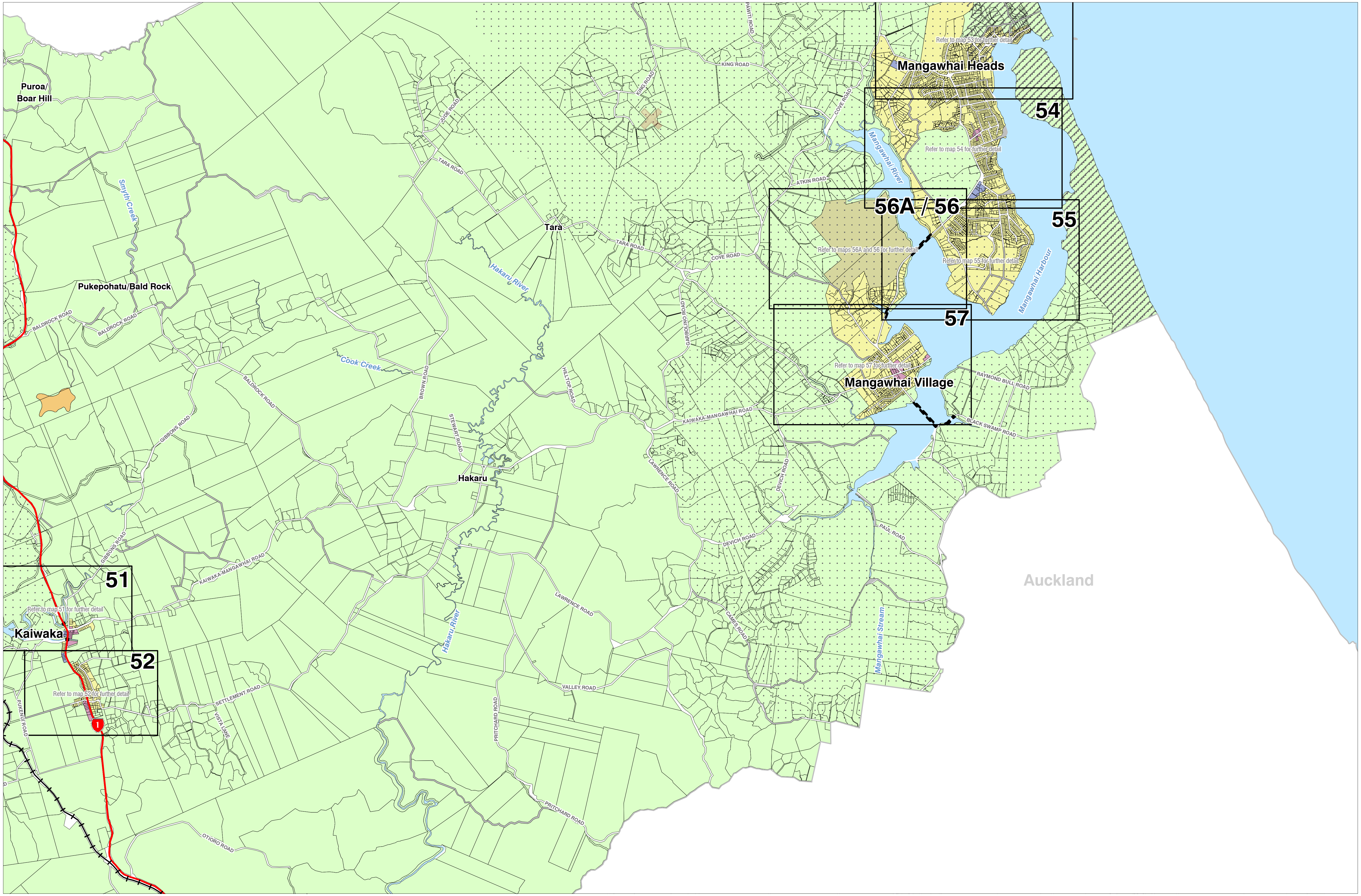
Map Series Two - Sites, Features and Units

- Heritage Resource
- Notable Tree
- Maungaturoto Dairy Factory Wastewater Pipeline
- 110-220 kV Electricity Transmission Line
- 50 kV Electricity Transmission Line
- Designation Areas
- Outstanding Natural Landscape
- Reserve Management Units
- Areas of Significance to Maori
- Maungaturoto Dairy Factory Noise Contour Boundary (45dBA leq)

KAIPARA DISTRICT

Map Legend

Date Updated:4/08/2021



Puroa/
Boar Hill
Mangawhai Heads
Refer to map 53 for further detail
54
Refer to map 54 for further detail
Mangawhai River
KING ROAD
COVE ROAD
TARA ROAD
ATKIN ROAD
Smyth Creek
Tara
56A / 56
55
Refer to maps 56A and 56 for further detail
Refer to map 55 for further detail
Mangawhai Harbour
Hakaru River
Pukepohatu/Bald Rock
BALDROCK ROAD
57
Cook Creek
Refer to map 57 for further detail
Mangawhai Village
RAYMOND BULL ROAD
BROWN ROAD
HILLTOP ROAD
KAIWAKA-MANGAWHAI ROAD
BLACK SWAMP ROAD
STEWART ROAD
GIBBONS ROAD
LAWRENCE ROAD
DEVICH ROAD
Hakaru
PAUL ROAD
51
Auckland
Refer to map 51 for further detail
Kaiwaka
CAMES ROAD
Mangawhai Stream
52
Refer to map 52 for further detail
SETTLEMENT ROAD
VALLEY ROAD
PRITCHARD ROAD
VISTA LANE
PUKENUI ROAD
OTIORO ROAD

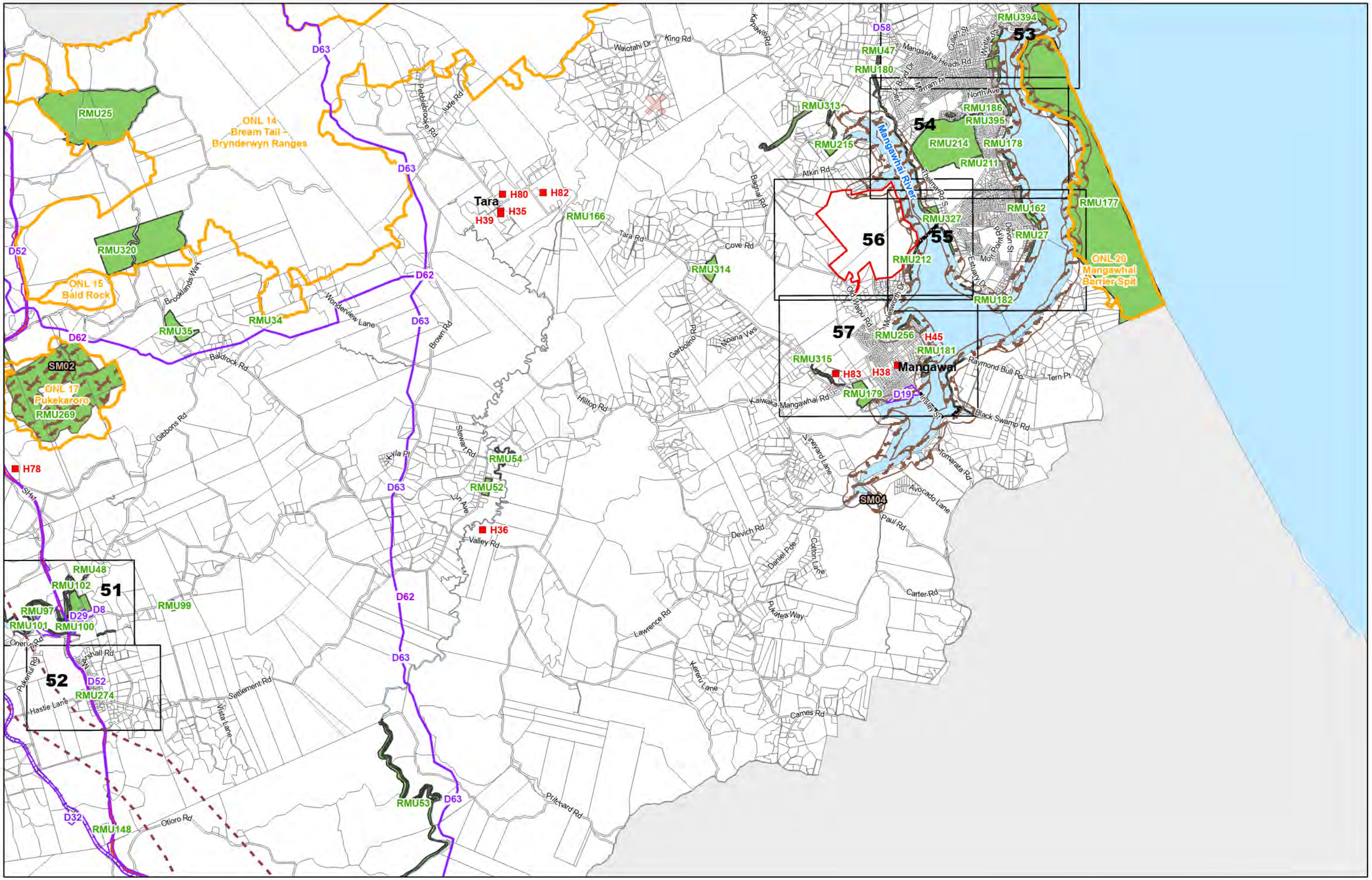
KAIPARA DISTRICT

Scale: 1:50,000 @ A3

Map Series One

Land Use

N



KAIPARA DISTRICT

Kaipara te Oranganui • Two Oceans Two Harbours

KAIPARA DISTRICT PLAN - OPERATIVE NOVEMBER 2013

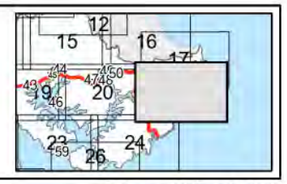
Map Series Two

Sites, Features and Units

N

0 10 20 Km

A3 Scale: 1:50,000



Date Updated:4/08/2021

Rates Information - 2022/23

Valuation ID	0122009558	Old Valuation ID	C:0122009510

Property Description

Location (GIS)	27 Poplar Glade, Mangawhai
	View in Google Maps
Legal Description	LOT 2 DP 501099 HAVING 1/18SH IN LOT 32 DP 211395
Certificate of Title	747806

Use	21 Lifestyle: Single Unit	Category	LI201
TORAS	111000	Category Group	Lifestyle Improved with Residential Accommodation
Tenure	Property is not leased. Owner is also occupier.	Ward	4
Ownership	Private: Individual	Region	1
Rateability	Rateable	Zone	1A
Apportionment	Std property - Not Applicable, Not apportionment		

Valuations

Area (Hectares)	1.6955	Land Value	430,000
Improvements	680,000	Capital Value	1,110,000
Nature of Improvements	DWG OI		
Valuation Date	1/09/20		

Rates for Current Year - 2022/23

Type	Description (Basis)	Factor	Amount $
002	Uniform Annual General Charge - Rating Unit	1.00	764.00
081	Mangawhai Harbour Restoration (MHR) - Rating Unit	1.00	80.00
233	General Rate Residential & Small Sized Lifestyle - (L)	430,000.00	1,197.03
	** Kaipara District Council Sub-Total		2,041.03
250	NRC Targeted Council Services Rate - (U)	1.00	169.14
253	NRC Pest Management Rate - (U)	1.00	86.69
254	NRC Targeted Flood Infrastructure Rate - (U)	1.00	33.24
255	NRC Targeted Emergency and Hazard Management Rate - (U)	1.00	48.50
256	NRC Targeted Emergency Services Rate - (U)	1.00	11.60
257	NRC Targeted Regional Sporting Facilities Rate - (U)	1.00	16.60
259	NRC Targeted Land and Freshwater Management Rate - (L)	430,000.00	153.30
260	NRC Targeted Regional Economic Development Rate - (L)	430,000.00	10.41
	** Regional Council Sub-Total		529.48
	Total Rates Levied 2022/23		2,570.51
	(GST on Rates Levied)		335.28
	Rates Last Year 2021/22		2,468.79
	Last Year's Final Instalment		617.19

Rates Last Year 2,468.79 Instalments YTD 1,927.89 Current Instalment 642.63

History

Year	Land Value	Capital Value	Annual Rates
2021/22	430,000	1,110,000	2,468.79
2020/21	370,000	940,000	2,278.16
2019/20	370,000	375,000	2,177.90
2018/19	370,000	375,000	2,046.14
2017/18	205,000	210,000	1,635.16
2016/17	285,000	290,000	

Title Plan - LT 501099

Survey Number	LT 501099
Surveyor Reference	CHINNERY - 1775
Surveyor	Adam Paul Stanley Booth
Survey Firm	Pacific Coast Surveys Limited (Mangawhai)
Surveyor Declaration	

Survey Details

Dataset Description	Lots 1 - 3 Being a Subdivision of Lot 10 DP 211395		
Status	Initiated		
Land District	North Auckland	**Survey Class**	Class B
Submitted Date		**Survey Approval Date**	
		Deposit Date	

Territorial Authorities

Kaipara District

Comprised In

CT NA 139B/835

Created Parcels

Parcels	Parcel Intent	Area	CT Reference
Lot 1 Deposited Plan 501099	Fee Simple Title	1.9161 Ha	747805
Lot 2 Deposited Plan 501099	Fee Simple Title	1.6923 Ha	747806
Lot 3 Deposited Plan 501099	Fee Simple Title	0.4570 Ha	747807
Area A Deposited Plan 501099	Easement		
Area B Deposited Plan 501099	Easement		
Total Area		4.0654 Ha	

Schedule / Memorandum

MEMORANDUM OF EASEMENTS DP 501099

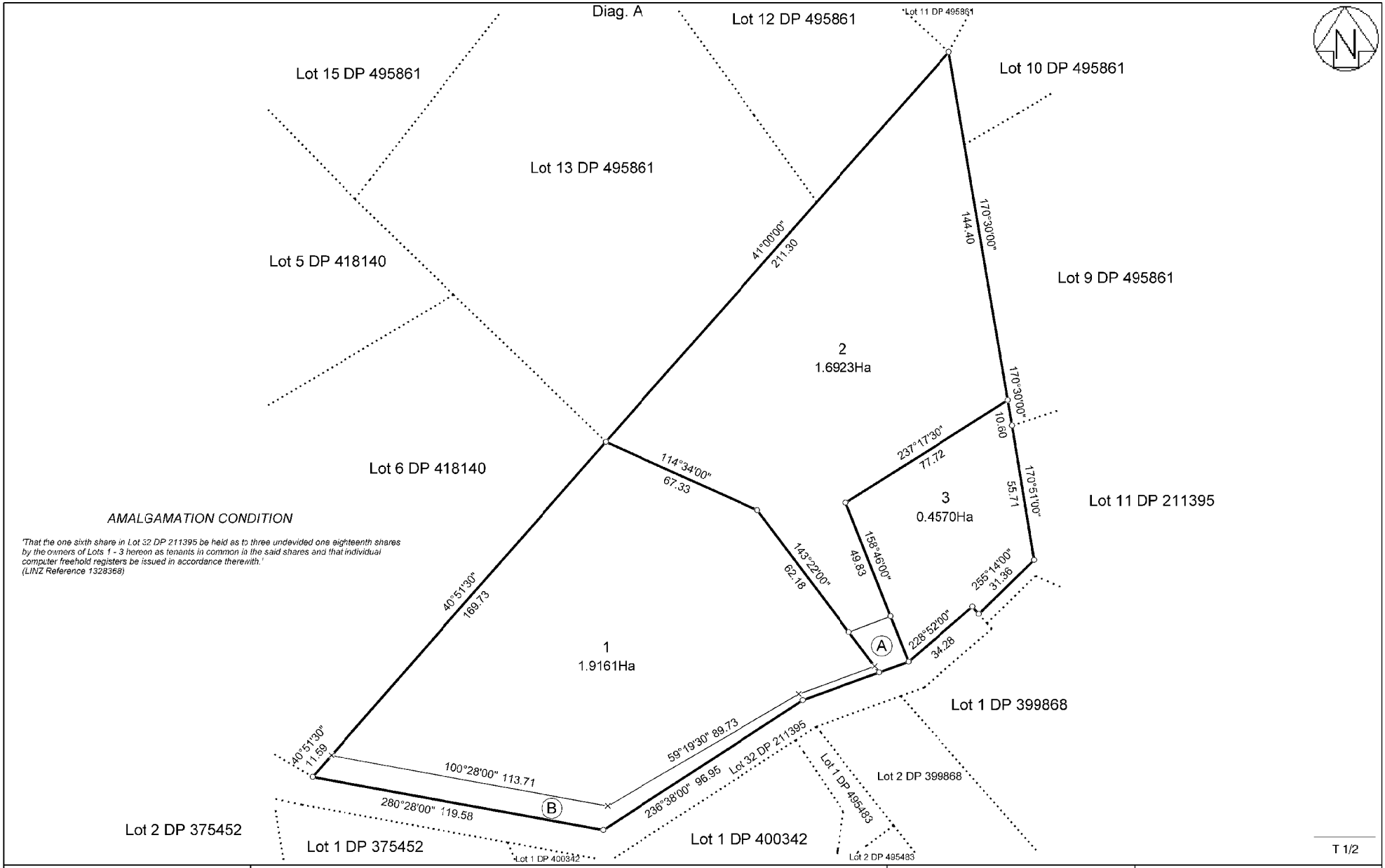
PURPOSE	SHOWN	SERVIENT TENEMENT	DOMINANT TENEMENTS
RIGHT TO TRANSMIT ELECTRICITY, TELECOMMUNICATIONS & COMPUTER MEDIA	B	LOT 1 DP 501099	LOTS 2 & 3 DP 501099
RIGHT OF WAY, RIGHT TO TRANSMIT ELECTRICITY, TELECOMMUNICATIONS & COMPUTER MEDIA	A	LOT 2 DP 501099	LOT 3 DP 501099

MEMORANDUM OF EASEMENTS IN GROSS DP 501099

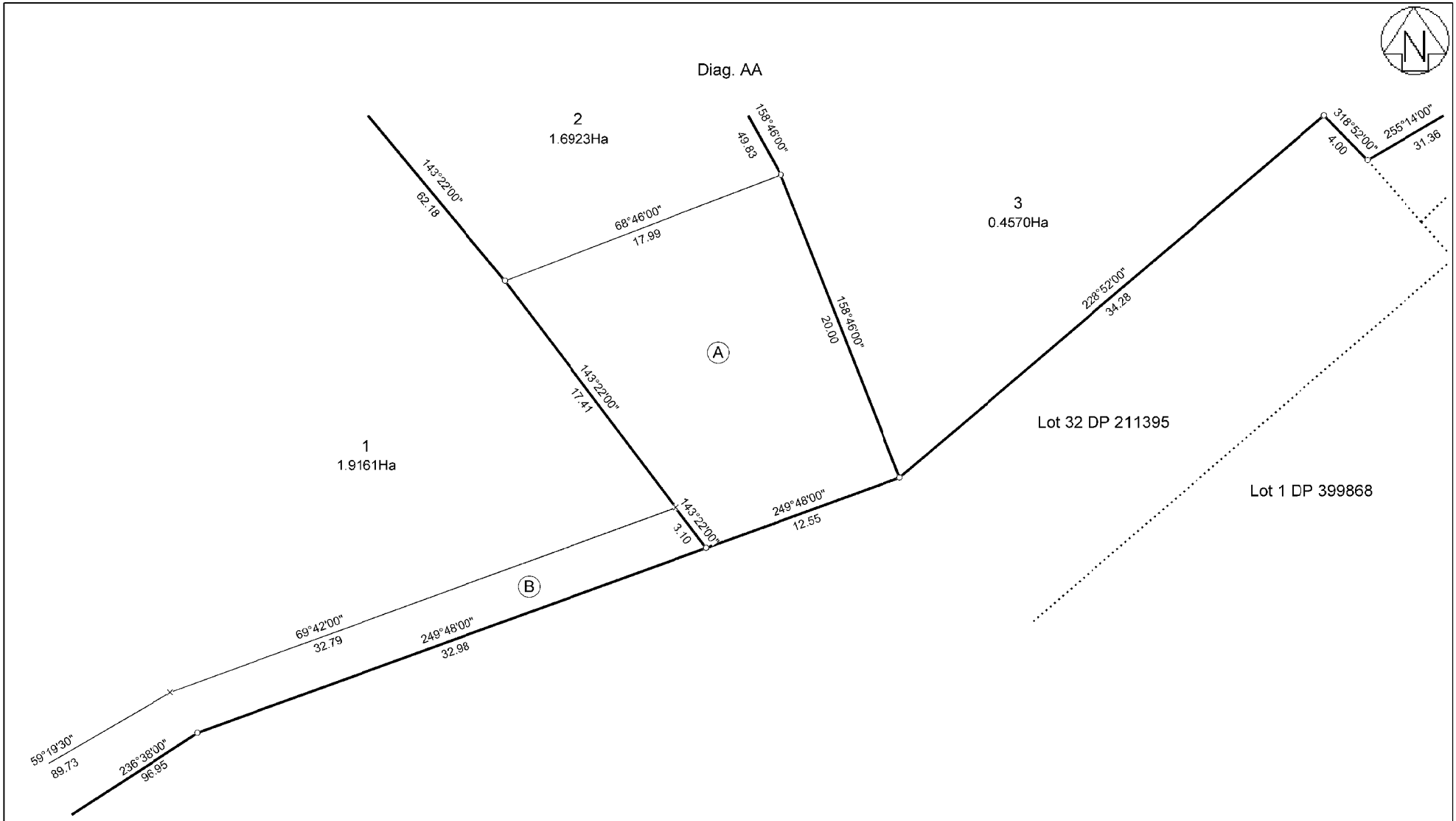
PURPOSE	SHOWN	SERVIENT TENEMENT	GRANTEE
RIGHT TO TRANSMIT ELECTRICITY, TELECOMMUNICATIONS & COMPUTER MEDIA	B	LOT 1 DP 501099	NORTHPOWER LIMITED
RIGHT TO TRANSMIT ELECTRICITY, TELECOMMUNICATIONS & COMPUTER MEDIA	A	LOT 2 DP 501099	NORTHPOWER LIMITED

AMALGAMATION CONDITION;

THAT LOT 32 DP 211395 (ACCESS LOT) BE HELD AS TO THREE UNDIVIDED ONE EIGHTEENTH SHARES BY THE OWNERS OF LOTS 1-3 HEREON AS TENANTS IN COMMON IN THE SAID SHARES AND THAT INDIVIDUAL COMPUTER FREEHOLD REGISTERS BE ISSUED IN ACCORDENCE THEREWITH.



Land District: North Auckland Digitally Generated Plan Generated on: 06/02/2017 11:37am Page 3 of 4	Lots 1 - 3 Being a Subdivision of Lot 10 DP 211395	Surveyor: Adam Paul Stanley Booth Firm: Pacific Coast Surveys Limited (Mang	Title Plan LT 501099 DRAFT



T 2/2

Land District: North Auckland Digitally Generated Plan Generated on: 08/02/2017 11:37am Page 4 of 4	Lots 1 - 3 Being a Subdivision of Lot 10 DP 211395	Surveyor: Adam Paul Stanley Booth Firm: Pacific Coast Surveys Limited (Mang	Title Plan LT 501099 DRAFT

Form 7
Code compliance certificate

Section 95, Building Act 2004

The building

Street address of building:	27 Poplar Glade , Mangawhai
Legal description of land where building is located:	LOT 2 DP 501099
Building name:	N/A
Location of building within site/block number:	27 Poplar Glade Mangawhai
Level/unit number:	N/A
Current, lawfully established, use:	2.0 Housing: 2.0.2 Detached Dwelling
Year first constructed:	2017

The owner

Name of owner:	Gregory David Bellam
Contact person:	Greg
Mailing address:	52A Bay Street , Red Beach Auckland
Street address/registered office:	N/A
Phone number:	Landline: 0211166247 Mobile: N/A
Daytime:	Landline: 0211166247 Mobile: N/A
After hours:	Landline: 0211166247 Mobile: N/A
Facsimile number:	No information provided
Email address:	leegregnz@yahoo.co.nz
Website:	No information provided

First point of contact for communications with the council/building consent authority:

Building work

Building consent number:	BC170459
Description:	4 bedroom domestic dwelling, double garage.
Issued by:	Kaipara District Council

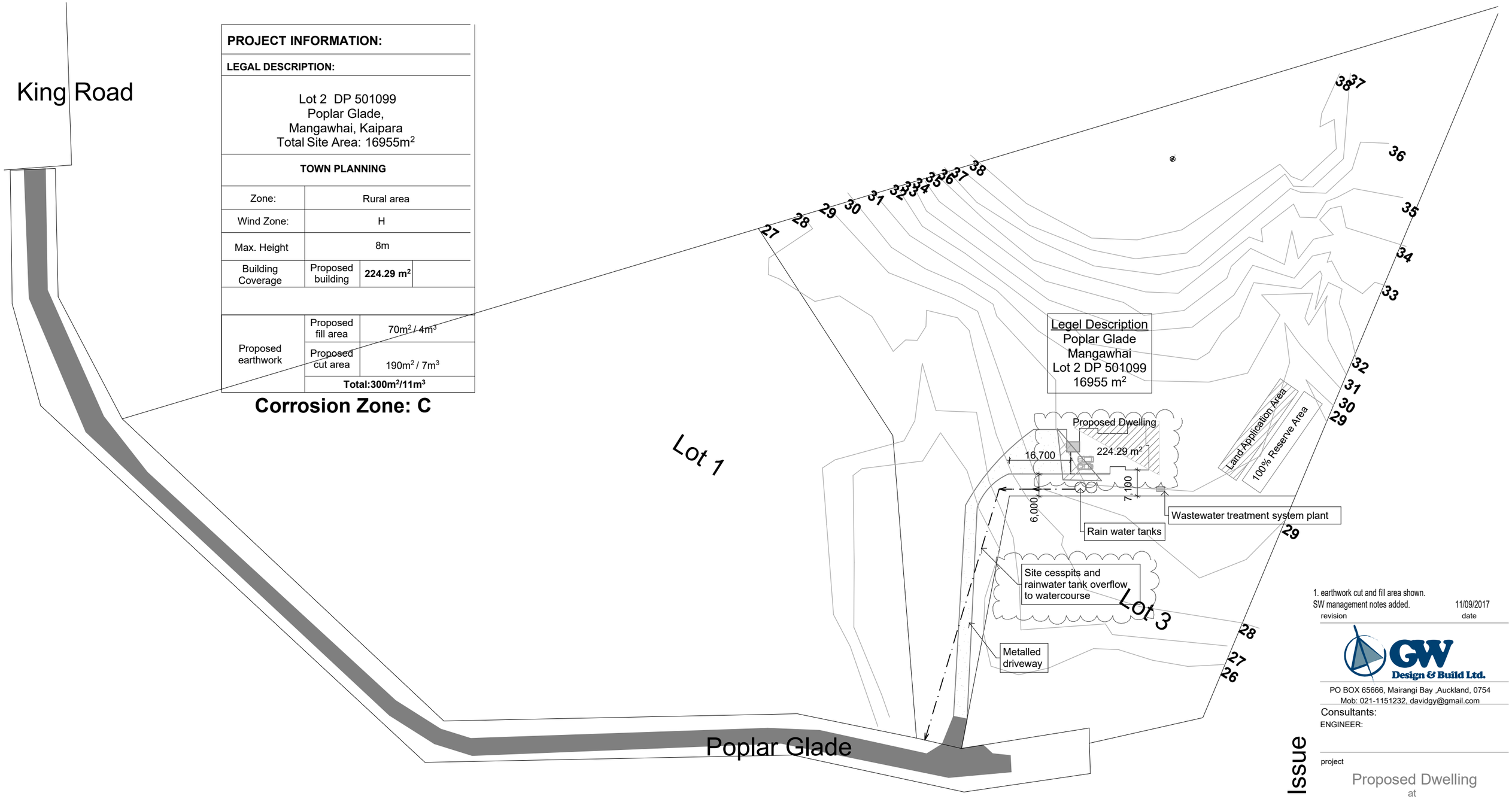
Code compliance

The building consent authority named below is satisfied, on reasonable grounds, that -
the building work complies with the building consent.

Signature: Matthew Williams
Position: BCO
On behalf of: Kaipara District Council
Date: 07 July 2019

PROJECT INFORMATION:			
LEGAL DESCRIPTION:			
Lot 2 DP 501099 Poplar Glade, Mangawhai, Kaipara Total Site Area: 16955m^2			
TOWN PLANNING			
Zone:	Rural area		
Wind Zone:	H		
Max. Height	8m		
Building Coverage	Proposed building	**224.29 m^2**	
Proposed earthwork	Proposed fill area	70m^2 / 4m^3	
	Proposed cut area	190m^2 / 7m^3	
	Total:300m^2/11m^3		

Corrosion Zone: C



01 Site Plan 1:1000

Clause F5 (NZBC 2004) Workman will take steps to prevent harm to persons on site or other property due to falling objects and other potential hazards created by this project with the use of appropriate barriers and prevention of fall mechanisms in place during and out of works hours.

Kaipara District Council
Approved Building Consent Document

BC 170459 PLANS - Pg 3 of 24

26/09/2017 kdef

Building Consent Issue

1. earthwork cut and fill area shown.
SW management notes added. 11/09/2017
revision date

GW Design & Build Ltd.
PO BOX 65666, Mairangi Bay ,Auckland, 0754
Mob: 021-1151232, davidgy@gmail.com
Consultants:
ENGINEER:

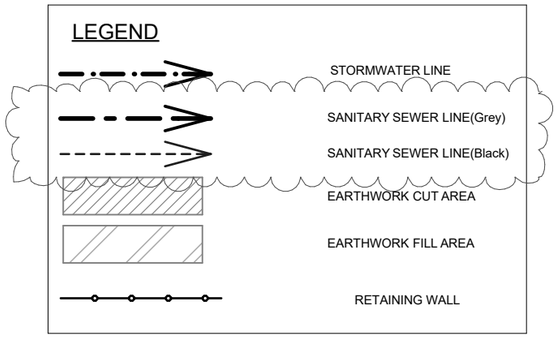
project
Proposed Dwelling
at
Lot 2 Poplar Glade, Mangawhai

client
Bellam

title
Site Plan

ref no. 16107 scale@A3
date 2017/9/11

sheet no. 01 revision A



Clause F5 (NZBC 2004) Workman will take steps to prevent harm to persons on site or other property due to falling objects and other potential hazards created by this project with the use of appropriate barriers and prevention of fall mechanisms in place during and out of works hours.

NOTE(Drainage and plumbing):

1. Plumb new W.C. 's S trap with 100 mm UPVC waste pipe with 80mm terenimal vent/Stack vent to meet the requirements of the NZ Building Codes.

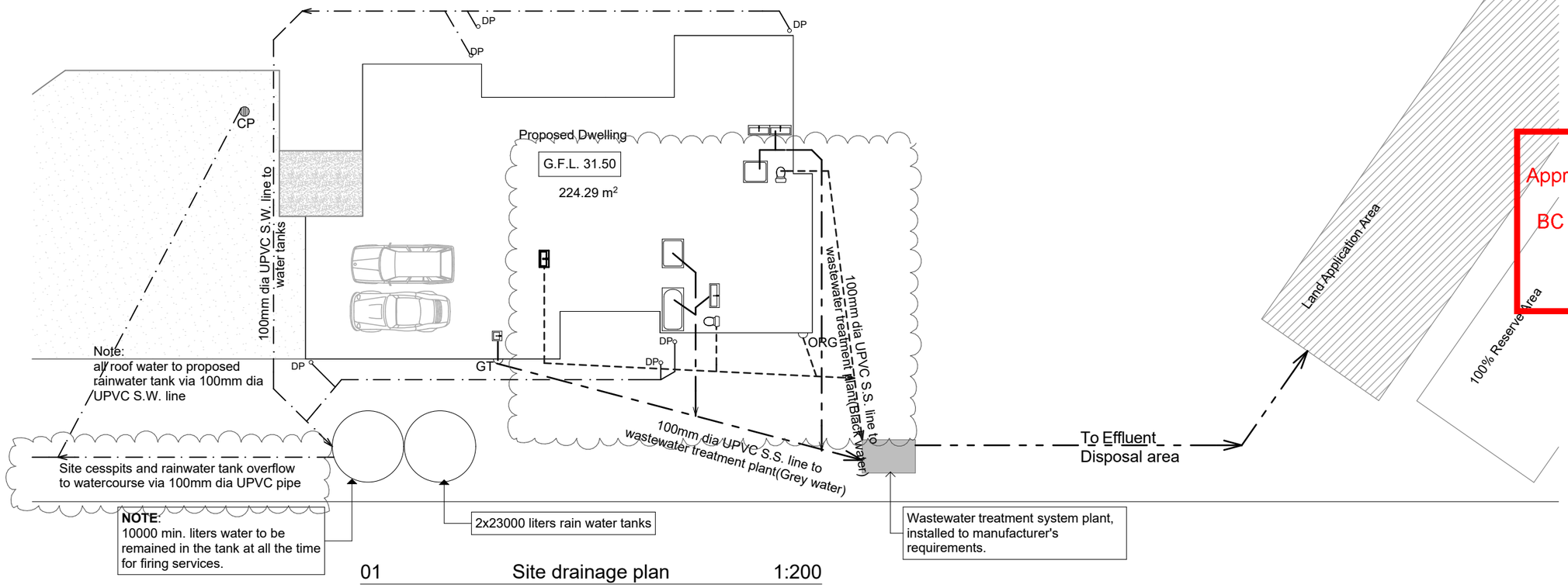
2. Plumb all other fixtures with S trap with 65mm UPVC waste pipe to connect into 100mm UPVC waste pipe to meet the requirements of the NZ Building Code.

3. All new discharge pipes to follow the most practicable route with the least number of bends with a gradient of min.1:60(for 80mm or larger pipes) or min.1:40 (for 65mm or smaller pipes), to meet the requirements of NZ Building Code.

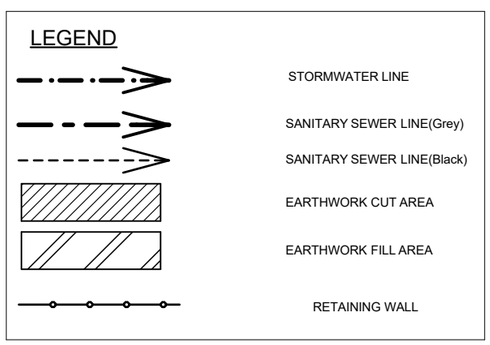
4.Plumbing & Drainage to AS/NZS 3500.2 or NZBC G13/AS1

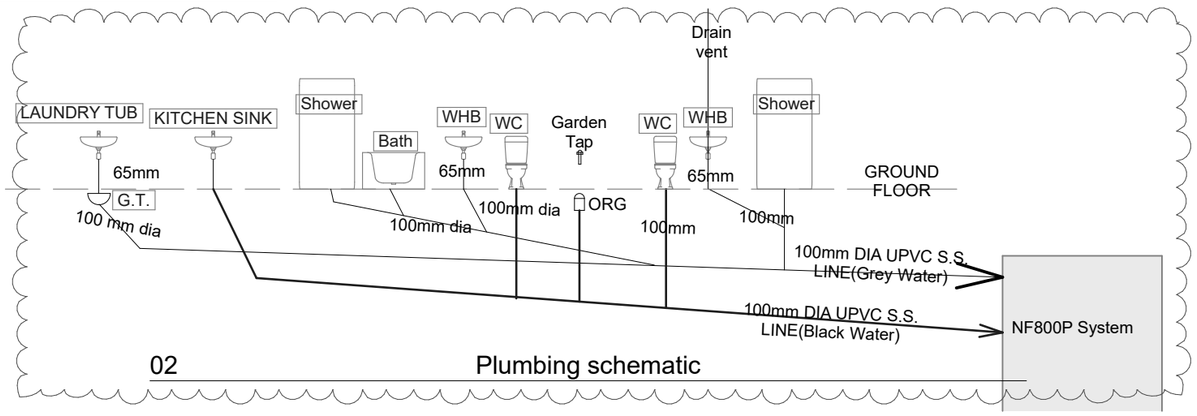
5.Position & number of cessipts are subject to possible amendment by supervisor, drainlayer or local building authority.

6.Position of downpipes & gully traps are subject to possible amendment by building authority.



01 Site drainage plan 1:200





02 Plumbing schematic

Kaipara District Council
Approved Building Consent Document

BC 170459 PLANS - Pg 4 of 24

26/09/2017 kdef

2. SW management notes added.
SS pipe revised.Plumbing schematic revised 11/09/2017
1. Water tank notes added. 28/08/2017
revision date

GW Design & Build Ltd.
PO BOX 65666, Mairangi Bay ,Auckland, 0754
Mob: 021-1151232, davidgy@gmail.com
Consultants:
ENGINEER:

Building Consent Issue

project
Proposed Dwelling
at
Lot 2 Poplar Glade, Mangawhai

client
Bellam

title
Site and Drainage Plan

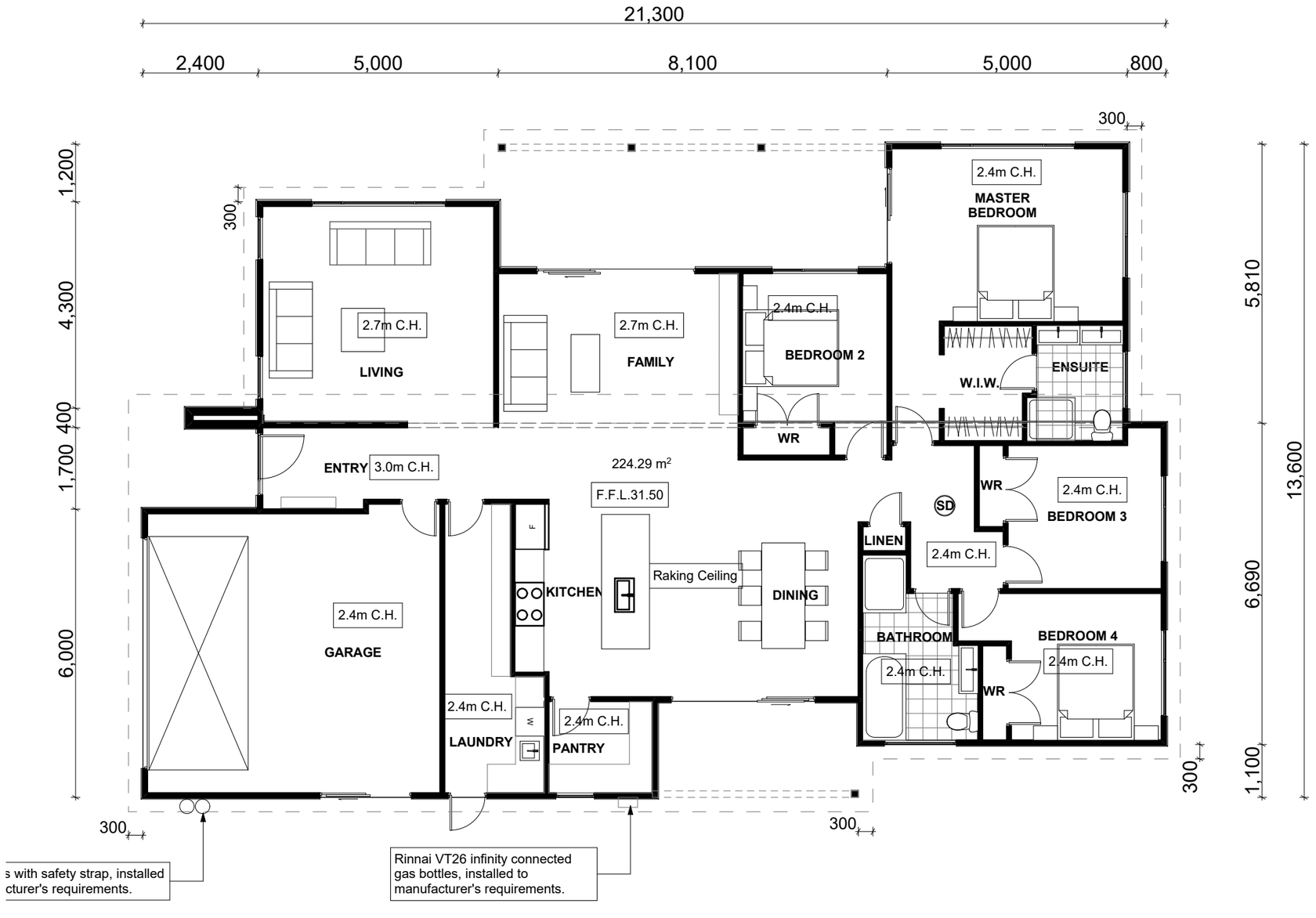
ref no. 16107 scale@A3
date 2017/9/11
sheet no. 02 revision A

NOTES:

1. Window manufacturer shall check on-site all window opening size prior to assembly. For fixings refer to element manufacturers instructions.

2. All glass to be as per NZS 4223 (parts 3 in particular)

3. Council approved Smoke Detectors (S.D) in all bedrooms, or within 3m of all bedroom doors, to comply with the NZ Building Code



01 Proposed Ground Floor 1:100

Kaipara District Council
Approved Building Consent Document

BC 170459 PLANS - Pg 7 of 24

26/09/2017 kdef

Building Consent Issue

revision date

GW Design & Build Ltd.

PO BOX 65666, Mairangi Bay ,Auckland, 0754
Mob: 021-1151232, davidgy@gmail.com

Consultants:
ENGINEER:

project
Proposed Dwelling
at
Lot 2 Poplar Glade, Mangawhai

client
Bellam

title
Proposed Floor Plan

ref no. 16107
scale@A3
date 2017/7/24

sheet no. 03
revision A

ELEVATION OR WALL: All	RISK SEVERITY								
Risk factor	**Low**		**Medium**		**High**		**Very high**		**Subtotals for each risk factor**
Wind zone	0		0		1	1	2		1
Number of storeys	0	0	1		2		4		0
Roof/wall intersection design	0		1		3	3	5		3
Eaves width	0		1		2	2	5		2
Envelope complexity	0		1	1	3		6		1
Deck design	0	0	2		4		6		0
								Total risk score:	7

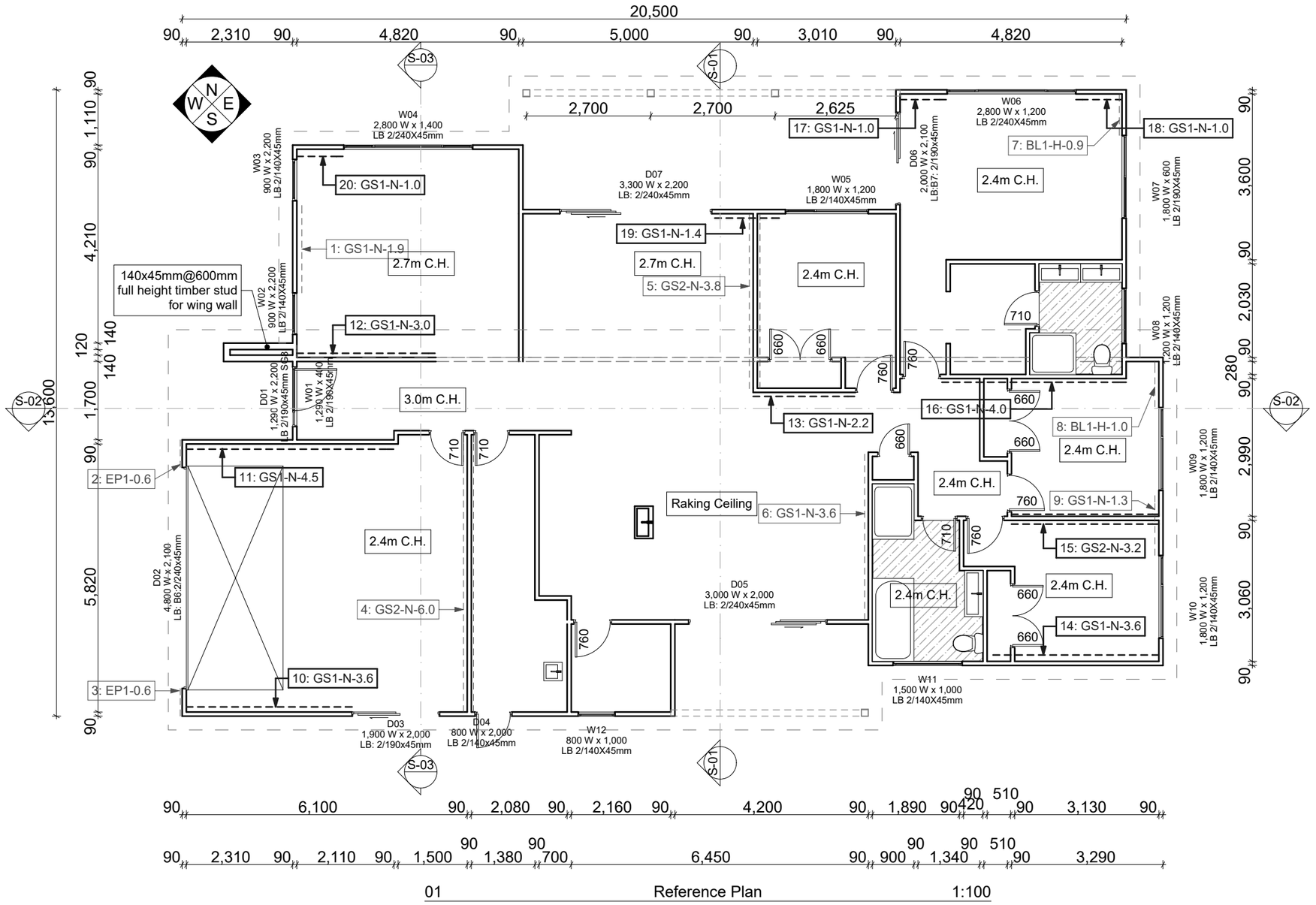
WET AREA NOTE: WET AREA

1. FLOOR JOISTS AND NOGS UNDER WET AREA @400mm MIN.

2. 10mm GIB AQUALINE TO BE USED FOR ALL WET AREA

3. WET TIMBER FLOORING TO BE 19mm H3.2 PLYWOOD or 19mm Secura Flooring

4. GRADE A SAFETY GLASS TO BE USED FOR ALL WINDOWS AT WET AREA



Building Consent Issue

revision date

GW Design & Build Ltd.

PO BOX 65666, Mairangi Bay ,Auckland, 0754
Mob: 021-1151232, davidgy@gmail.com

Consultants:
ENGINEER:

project
Proposed Dwelling
at
Lot 2 Poplar Glade, Mangawhai

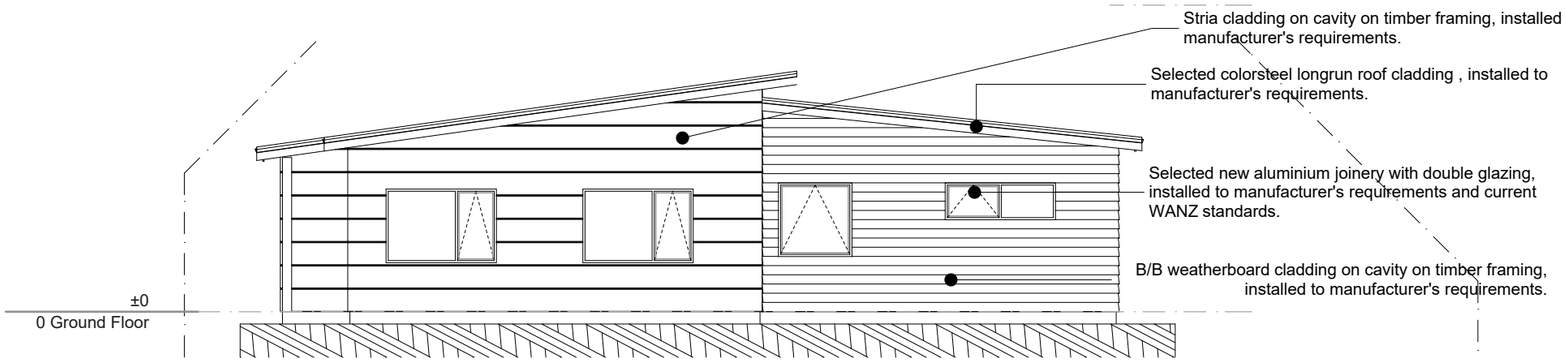
client
Bellam

title
Reference and Bracing Plan

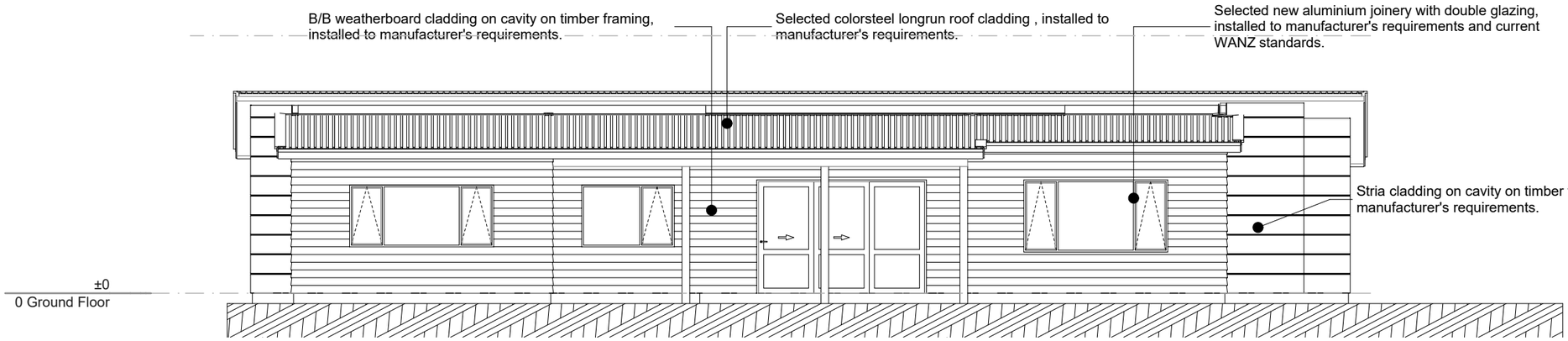
ref no. 16107 scale@A3

date 2017/7/24

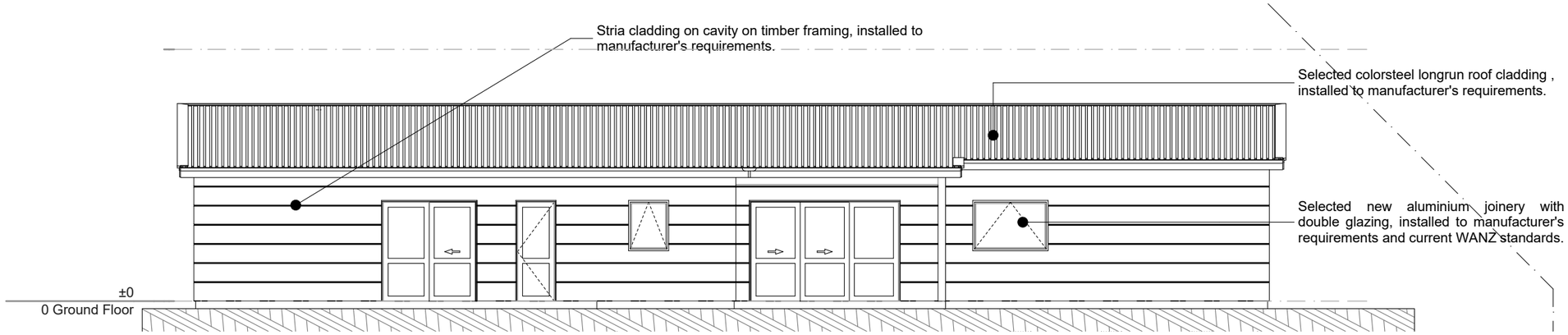
sheet no. 04 revision A



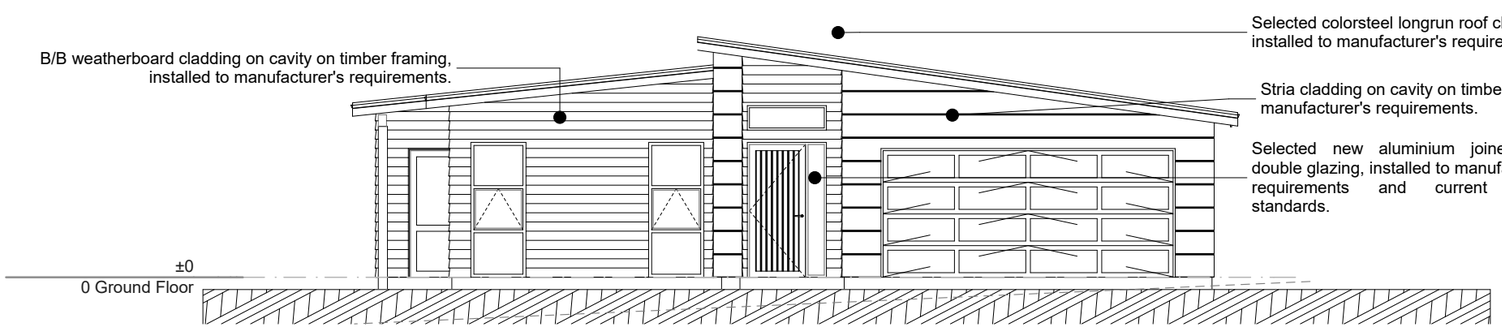
1 East Elevation 1:100



2 North Elevation 1:100



3 South Elevation 1:100



4 West Elevation 1:100

ENERGY EFFICIENCY:			NON-SOLID CONSTUCTION
CALCULATION			CLIMATE ZONE 1
	GLAZING AREA (m^2)	TOTAL WALL AREA (m^2)	GLAZING AREA/ TOTAL WALL AREA
SOUTH WALL	6 m^2	32 m^2	
WEST WALL	7.8 m^2	36 m^2	
EAST WALL	6.5 m^2	32 m^2	
TOTAL	20.3 m^2	100 m^2	20.3%<30%

R-VALUE SCHEDULE		
ROOF	R3.2	170MM R3.2 MIN. INSULATION
WALL	R2.2	R2.2 MIN. WALL INSULATION, 90mm THICK
FLOOR	R1.6	RIB RAFT SLAB
GLAZING (VERTICAL)	R0.26 OR MORE	DOUBLE GLAZING IN ALUMINIUM JOINERY

revision date

GW Design & Build Ltd.
PO BOX 65666, Mairangi Bay ,Auckland, 0754
Mob: 021-1151232, davidgy@gmail.com

Consultants:
ENGINEER:

project
Proposed Dwelling
at
Lot 2 Poplar Glade, Mangawhai

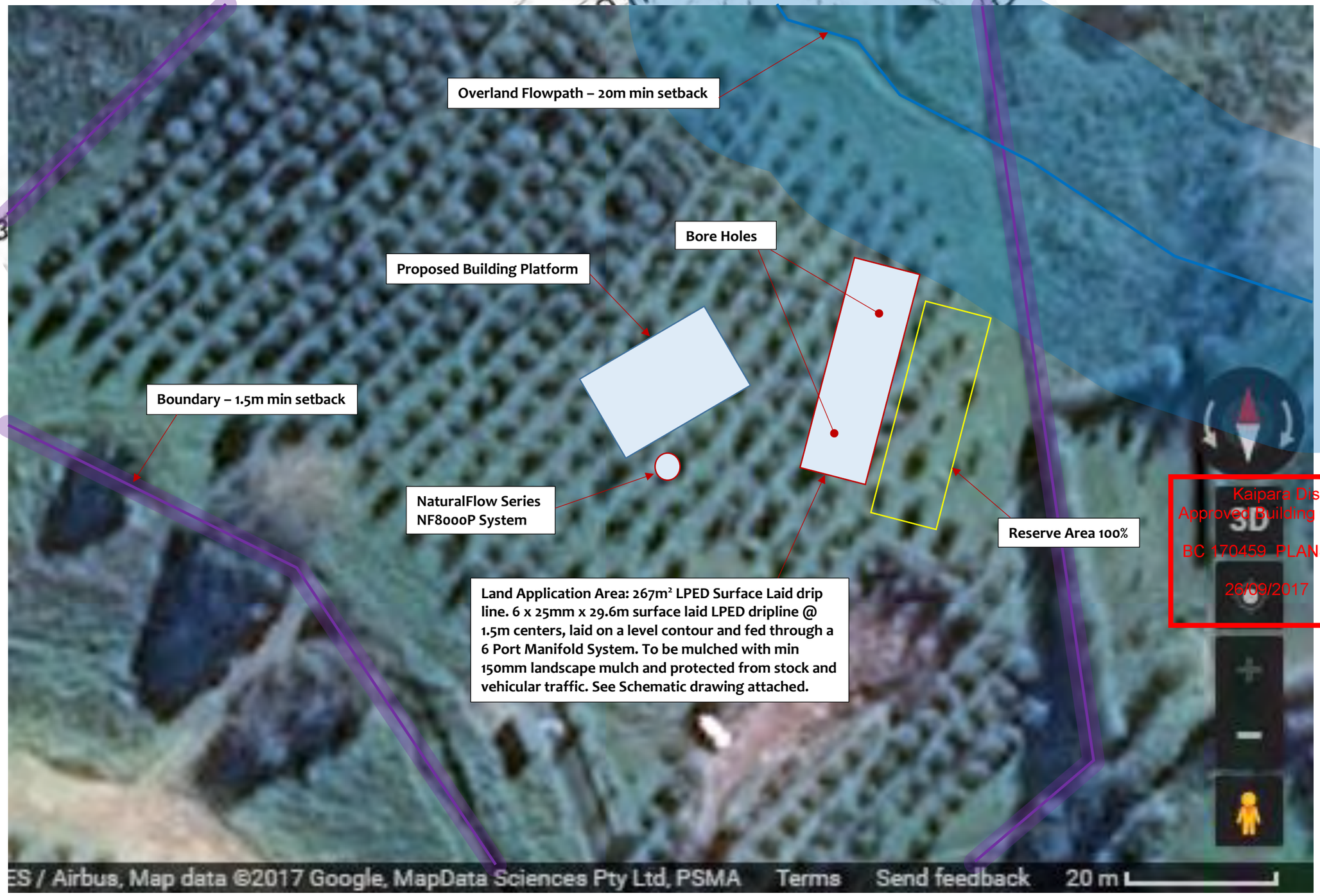
client
Bellam

title
Proposed Elevations

ref no. 16107 scale@A3
date 2017/7/24

sheet no. 05 revision A

Building Consent Issue



naturalflow
eco-wastewater & sewage systems
by Waterflow NZ Ltd

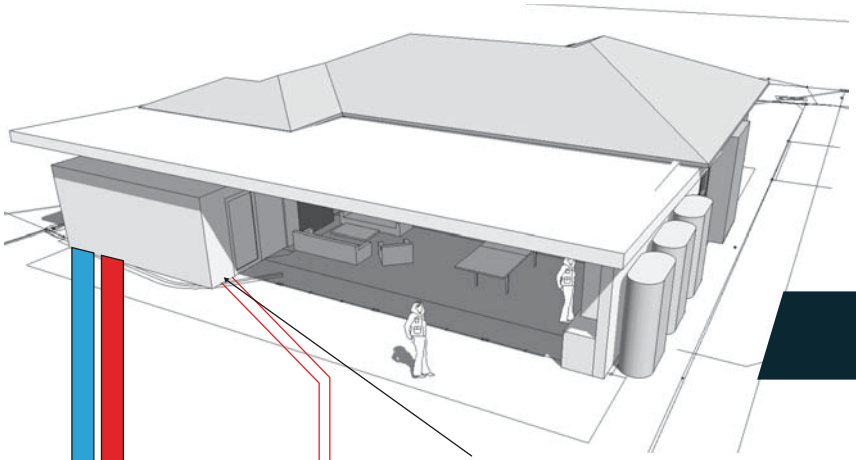
DATE DRAW:	07.07.2017
PREPARED BY:	Dean Hoyle
REVISED:	Ken Hoyle

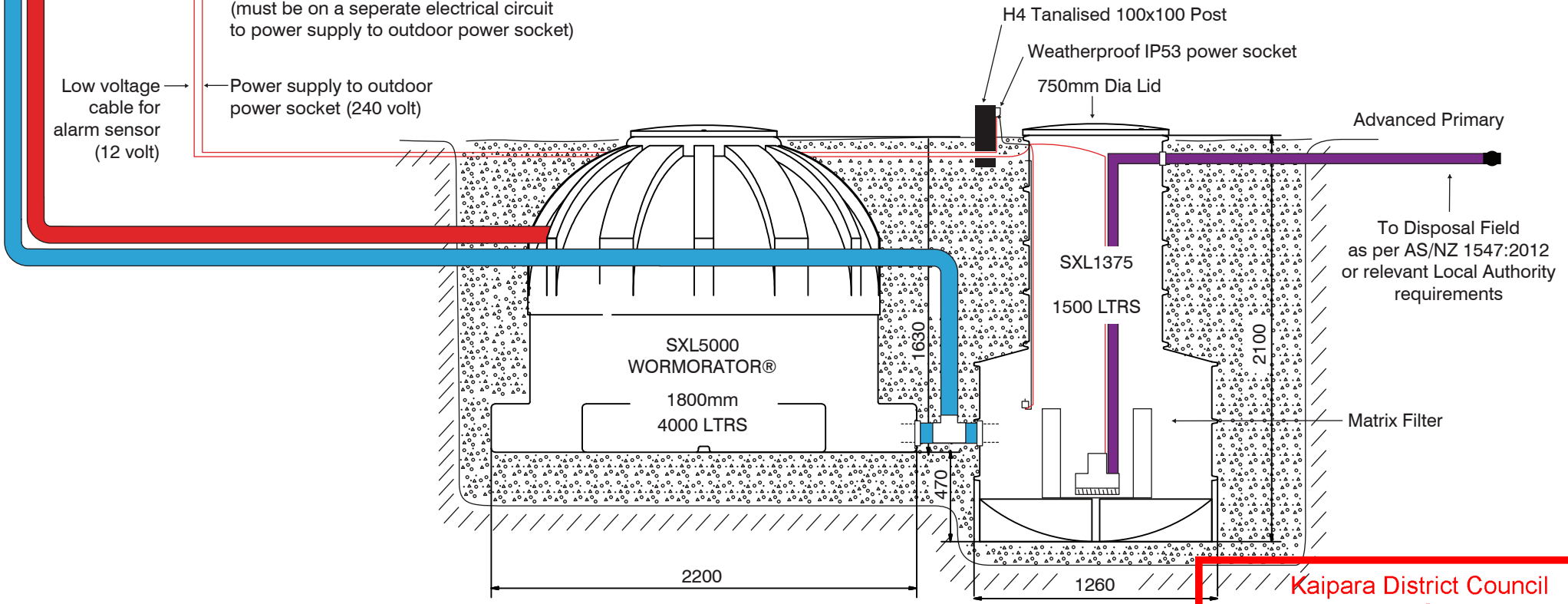
SITE LAYOUT PLAN:
Lee & Greg Bellam
Poplar Glade
Mangawhai
Lot 2, DP 501099
1.6955Ha

SCALE:
1 : 50
@A3

naturalflow
eco-wastewater & sewage systems

NaturalFlow Series NF8000 Pump Wiring Schematic





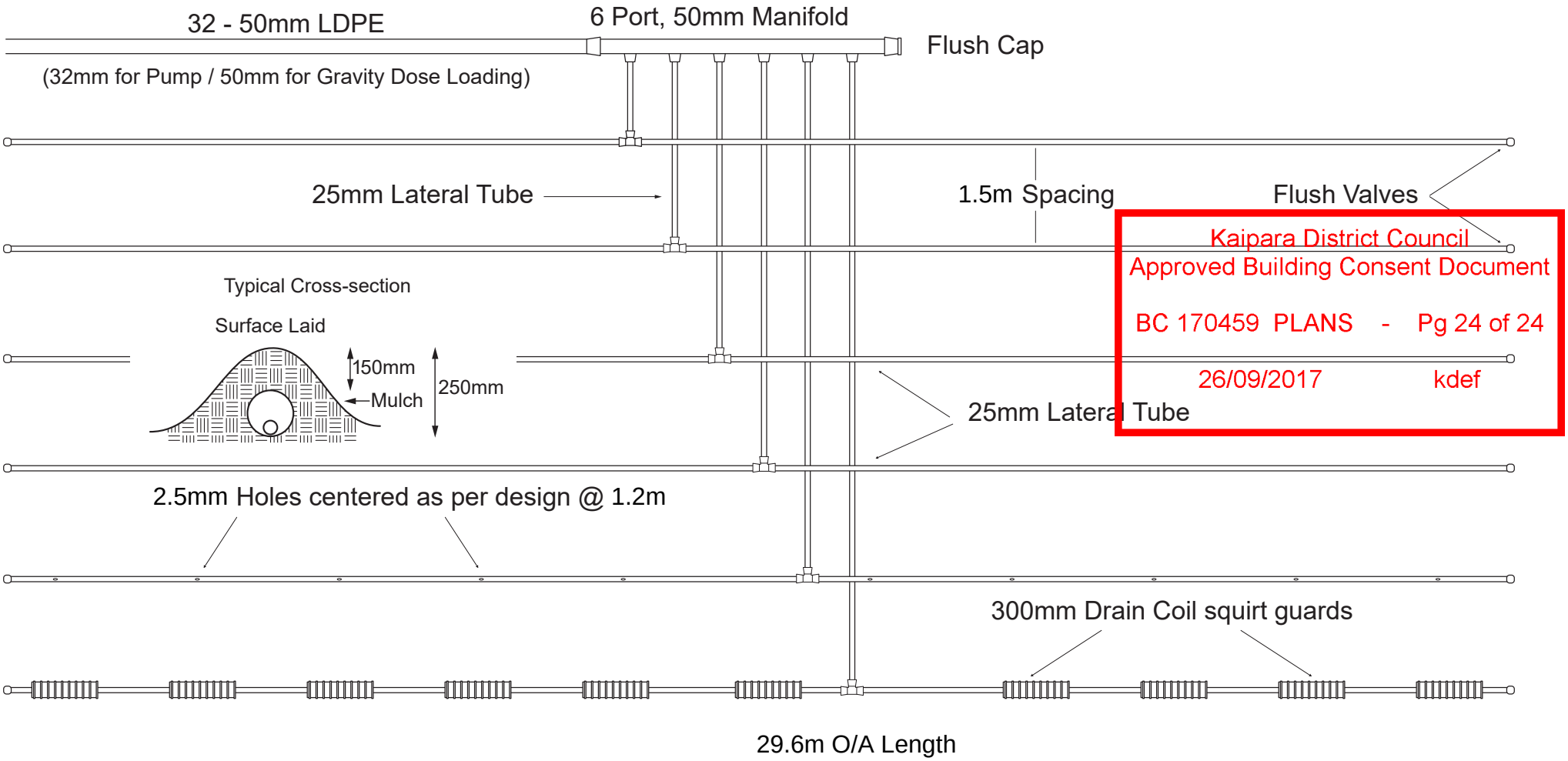
Kaipara District Council
Approved Building Consent Document

BC 170459 PLANS - Pg 23 of 24

26/09/2017 kdef

Surface Laid Standard LPED Field Layout

naturalflow
eco-wastewater & sewage systems



Kaipara District Council
Approved Building Consent Document

BC 170459 PLANS - Pg 24 of 24

26/09/2017 kdef

Note: Each individual line must be laid level (even if you are following a contour)

Note: With surface laid LPED lines the disposal field must be planted as per Waterflow NZ Ltd.'s recommendations, to maintain maximum performance.

170459

As built underslab plumbing / drainage plan

Auckland Council

This as-built plan must be made available at time of inspection

☐ Underslab ☐ Drainage

Building consent number: Owner:

Street address:

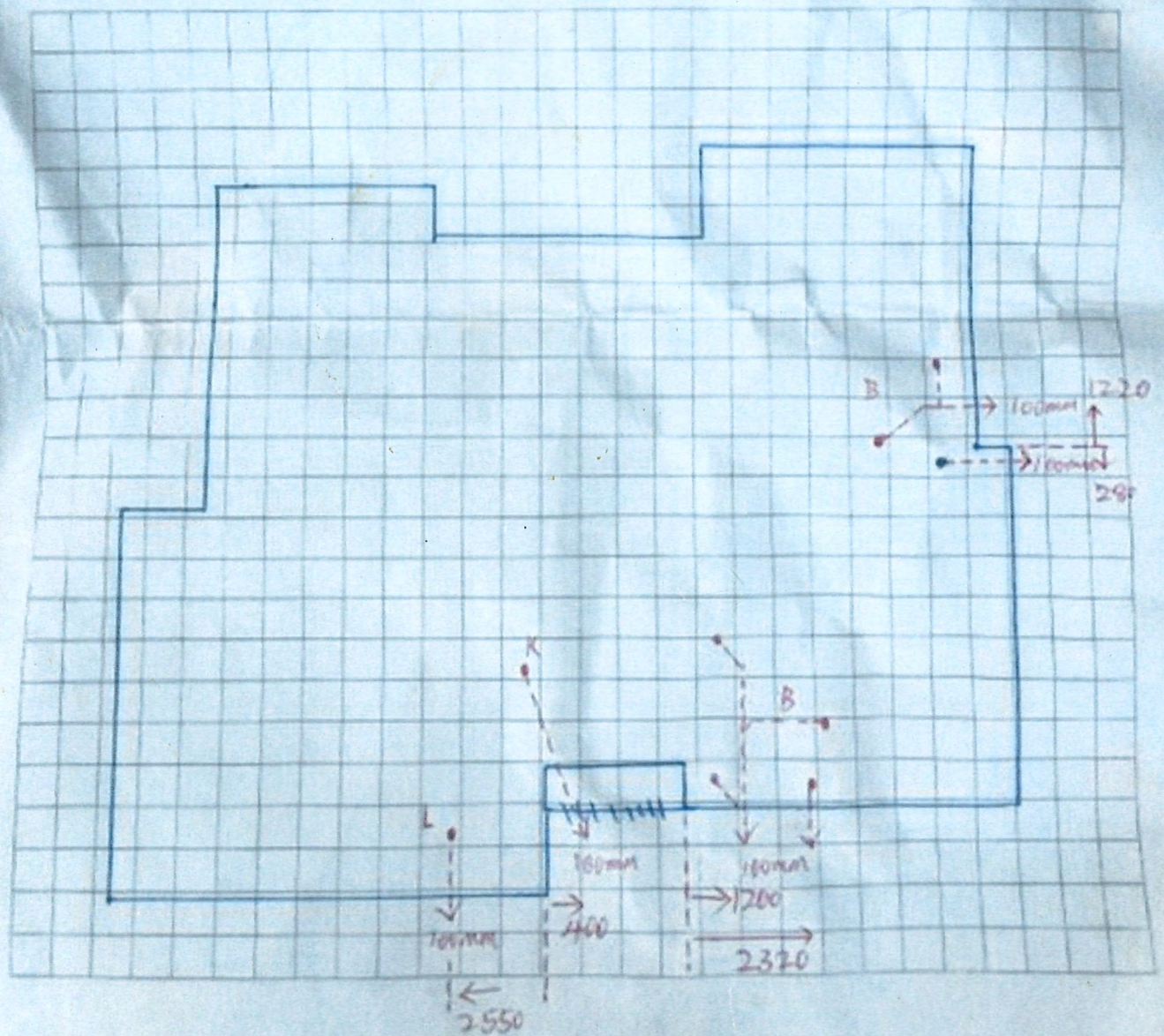
Lot number: DP number:

Drainlayer: Steven Xie Registration number: 19233

Note: Please provide figures/measurements from a defined point of reference.

Date submitted:

Note: Use black ink for building outline. Denote stormwater as ..... S/W ..... and sanitary sewer as ..... S/S .....



12459

17 of 59.

Consent Number: 170459 **Owner:** GREG BELLAM

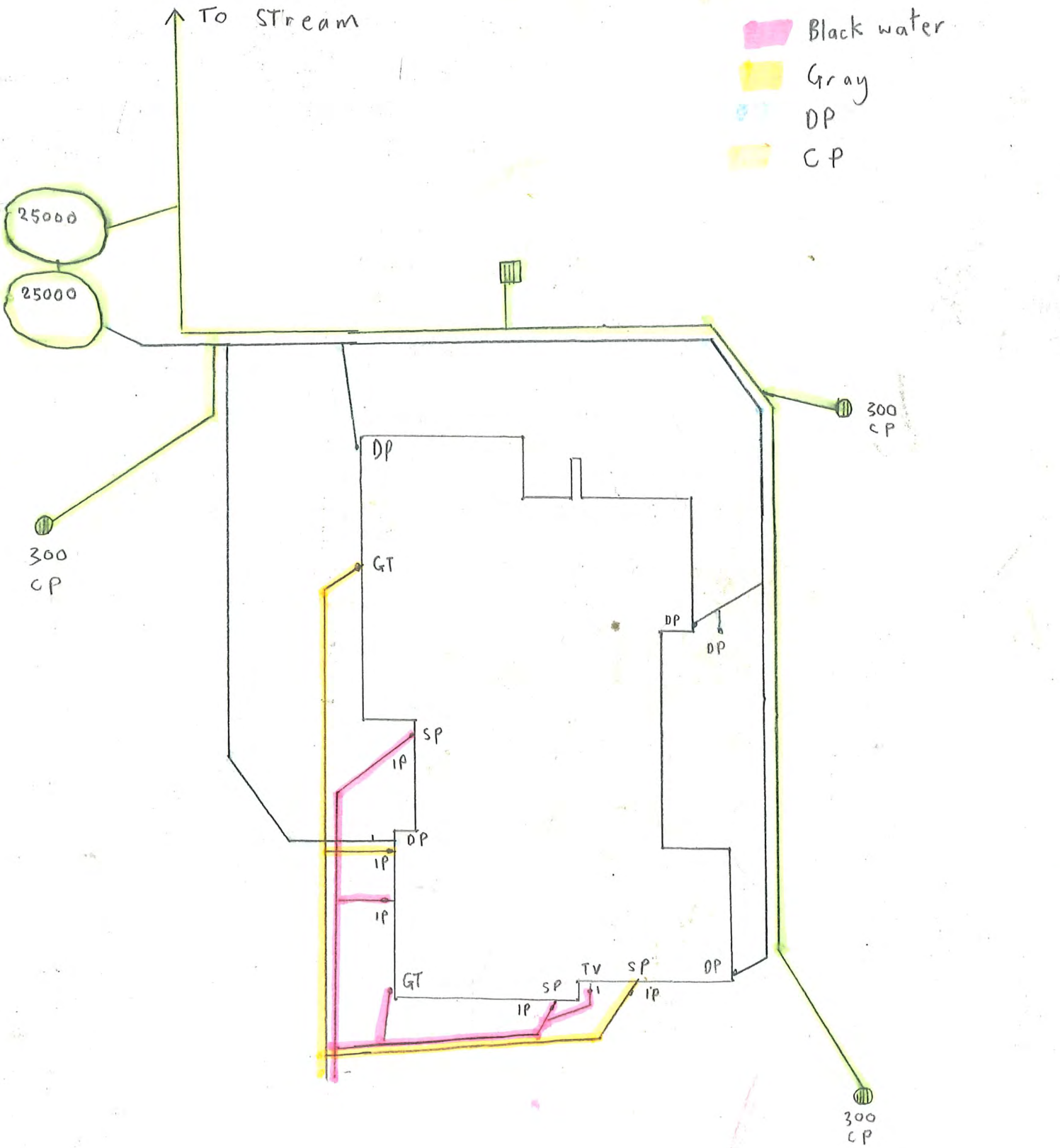
Site Address: POPLAR GLADE, MANGAWHAI

Drainlayer: C L Andrew **Registration No:** 08838

SCALE 1-200

Note: Please provide figures / measurements from a defined point of reference.

Date submitted:	



170459.

[illegible] ELECTRICAL LTD

ELECTRICAL CERTIFICATE OF COMPLIANCE & ELECTRICAL SAFETY CERTIFICATE

1207

Location Details: 27 Poplar Glade Mangawhai

Contact Details: 27 Poplar Glade Mangawhai

Name of Electrical worker: Erin Bellamy — E267440

Organisation/company: OLL Electrical

Phone & email: 021 051 9368

Description of work: Prewire and fit off new dwelling including lighting power and sub board

Date: 21.06.19

Certifier's name: Erin Bellamy — E267440

Certificate issue date: 21.06.19

Ashby
HAIGH WORKMAN LTD

BC 170459

File Note:
(For phone conversations, client liaison, site observations etc.)

File No: 8251

Re Client: Grey Bellam
Spoke To:
Contact Phone:
Contact Fax:

From Whom: Ashby Consultancy
Date: 31/10/2017
Time: 1pm
Taken By: Harry B

Subject: Re-inspection of waffle slab at Poplar Glade, Maungatūtū:

- Minimum 500mm edging around the slab.
- Sufficient compaction of metal around slab.
- Waffle slab constructed as per drawings and previous inspection

Action: All ok

HB

Phone: +64 9 425 9422 ▪ Fax: +64 9 425 9431 ▪ info@ashbyconsulting.co.nz ▪ www.ashbyconsulting.co.nz
3 Elizabeth Street ▪ PO Box 124 ▪ Warkworth 0941 ▪ New Zealand

Ashby
HAIGH WORKMAN LTD

BC 170459

File Note:
(For phone conversations, client liaison, site observations etc.)

File No: 8251

Re Client: Greg Bellan
Spoke To: Slabpro
Contact Phone:
Contact Fax:

From Whom: Ashby Consulting
Date: 25/10/2017
Time: 3pm
Taken By: Hamy B

Subject: Inspection of slab at Poplar Glade, Mangawhai:

- Fifth pour of slab design
- Steel and pods constructed as per Eden design.
- Designed to Class M as per AS2870:2011 and consistent with Ashby Geotechnical Report.
- Insufficient blinding around ~~slab~~ slab (500mm required), just loose metal

Action: Compact metal around slab as per design specifications.

HB

Phone: +64 9 425 9422 ▪ Fax: +64 9 425 9431 ▪ info@ashbyconsulting.co.nz ▪ www.ashbyconsulting.co.nz
3 Elizabeth Street ▪ PO Box 124 ▪ Warkworth 0941 ▪ New Zealand

Revision History

Revision №	Issued By	Description	Date
A	Harry Baxter	First Issue	2 March 2017

Prepared By

Harry Baxter

Geotechnical Engineer
BSc (Hons), ACSM
Member BGA

Reviewed By

Edward Collings

Geotechnical Engineer
BSc (Physical Geography)
Mphys (Physical Geography)
CEnvP, GIPENZ, FGS

Approved By

John Papesch

Director
BE (Civil), NZCE
Member GIPENZ

TABLE OF CONTENTS

TABLES

FIGURES

Executive Summary

Ashby Consulting was commissioned by Greg Bellam to undertake a ground investigation of Lot 2 DP 211395, Poplar Glade, Mangawhai. This report has been commissioned specifically to assess geotechnical site suitability for the proposed development. Proposed development plans are not available at this time for specific building assessment.

Scheme plans with the proposed location of the building platform have been provided by the client. The proposed building site with location of exploratory points is presented in Appendix A as Drawing No. 8251/02.

According to available geological plans and the Ashby Consulting walkover survey, the underlying soil geology across the site comprises imperfect to very poorly draining natural weathered soils comprising Mahurangi fine sandy loam and Warkworth clay and sandy clay loam derived from weathering processes acting upon underlying solid geology with the potential for alluvium in low lying areas and Kara silt loam in the extreme east and south-west. Weathered soils overlay solid geology described as interbedded sandstone and siltstone rocks of the Waitemata Group.

Fieldworks were undertaken by an Ashby Consulting Geotechnical Engineer on 14 February 2017 and comprised the formation of three hand augured boreholes (BH1 to BH3) over the proposed development platform to depths of between 1.20 to 2.10 m below ground level. Two hand augured boreholes (BH1 and BH2) were extended using Dynamic Cone Penetrometer techniques to final depths of 4.35 m and 4.65 m below ground level, respectively. One additional standalone Dynamic Cone Penetrometer probe hole designated SP1 was advanced to a final depth of 5.40 m below ground level to confirm the depth of strata across the building footprint.

Following interpretation of field data it is concluded and recommended that:

- Intrusive ground investigations indicate weathered natural cohesive soils with variable strength beneath the proposed development platforms ranging from 89 to 200 kPa indicative of stiff to very stiff materials. As anticipated from available geological mapping natural cohesive soils are underlain by solid geology weathered to a hard/dense soil.
- All foundations for structural loads are designed in accordance to relevant standards highlighted in Section 6.2.
- Construction monitoring of enabling/construction works is conducted by a suitably qualified professional engineer with producer statement submitted to the relevant local authority as follows:
    - Where the thickness of any imported fill exceeds 600 mm thickness or where hard fill is utilised as a bearing strata, and;
    - Upon completion of any pile boring operations prior to placement of concrete.
- Stormwater overflows should be discharged into the watercourse trending north to south in the south-west of the site.

It would be prudent to note that no LIM report has been provided to supplement this assessment.

1 Introduction

Ashby Consulting (T/A Haigh Workman Ltd) was commissioned by Greg Bellam (the client) to undertake a ground investigation of Lot 2 (DP 211395), Poplar Glade, Mangawhai (the "site"). This report presents the factual information available during the appraisal, interpretation of data obtained during fieldworks with site specific geotechnical recommendations relevant to the defined objectives.

The site currently comprises an olive orchard at the proposed building platform and immediately surrounding area, the fringes of the site are generally grassed and with trees in the north-east of the site, a metalled drive and stream in the south-west of the site. The northern site boundary is defined by a fence, all other site boundaries are not clearly defined. It is understood that the client is proposing to develop the site for a single residential dwelling. An existing plan with the location of exploratory points is included within Appendix A as Drawing No. 8251/02.

This appraisal has been designed to assess the ground and ground water conditions at the site and readily available GIS data, in particular across the proposed development platform to provide geotechnical recommendations and designs relating to the proposed development. Should the proposed development vary from the works described above and/or be relocated outside of the investigated area, further investigation and/or amendments to the recommendations made in this report may be required.

1.1 Objective and Scope

The objectives of this investigation were to:

- Establish the geological and environmental setting of the site;
- Visually assess the site and surrounding land;
- Investigate the near surface soil and groundwater conditions at the site;
- Provide geotechnical recommendations for the proposed development.

To achieve this, the scope of works conducted by Ashby Consulting included:

- Review of geotechnical databases, available geological and topographical mapping;
- Site mapping;
- Intrusive site investigation for evaluation of subsurface conditions;
- Preparation of this report with site specific geotechnical recommendations.

1.2 Applicability

This report has been prepared for the use of Greg Bellam with respect to the particular brief outlined to us. This report is to be used by our Client and their Consultants and may be relied upon when considering geotechnical advice. Furthermore this report may be utilised in the preparation of building and/or resource consent applications with local authorities. The information and opinions contained within this report shall not be used in other context for any other purpose without prior review and agreement by Haigh Workman Ltd.

2 Site Details and Description

Site Address:	Poplar Glade, Mangawhai
Legal Description:	Proposed Lot 2 of Lot 10 DP 211395
Proposed Site Area:	Approximately 16, 900 m^2

2.1 Site Description

The site comprises an irregular shaped parcel of predominantly olive orchard situated approximately 4.5 km west of Mangawhai Heads centre and 5 km north-west of Mangawhai centre. A site location plan is presented as Drawing No. 8251/01 within Appendix A of this report.

The site measures approximately 150 m in length by 90 m in width at its largest points; aligned roughly north-west to south-east along its length. Topographically the site slopes towards the south-east, south and south-west from the centre of the north-western boundary. The slope is steepest at the north-western site boundary at approximately 10-15° before decreasing to around 5°. The proposed building's footprint is in the south-east of the site on a gentle slope towards the south.

The site comprised an olive orchard surrounded by a grassed area, trees, a stream, shipping container and a recent metalled driveway. The trees, excluding those that make up the orchard were located in a dense area in the north of the site.

Field investigations took place during summer months and whilst no saturated/boggy ground was noted at the development platform it would be prudent to note that low-lying land adjacent to the watercourse may be prone to flooding/boggy ground conditions according to the seasons/rainfall.

From a visual inspection, it is considered the site and surrounding land comprises stable hill slopes. Geology of the site is further investigated within Section 3 of this report.

There are sparse residential properties to the west bordering Poplar Glade. Land adjacent to the site was a combination of agricultural land to the north, undeveloped land to the east and olive orchards to the south and west.

A site features plan of relevant features is included within Appendix A of this report as Drawing No. 8251/02. Relevant site photography is presented within Appendix C.

3 Geological Setting

3.1 Mapped Geology

Sources of Information:

- GNS Science Geological Memoir 2, 2009: "Geology of the Whangarei Area";
- GNS Sciences 1:250,000 scale map Sheet 2, 2009: "Whangarei" (Rocks);
- NZMS Sheet 290 Q08/09, 1:100,000 scale map, Edition 1, 1980: "Maungaturoto-Kaipara" (Soils);
- NZMS Sheet 290 Q08/09, 1:100,000 scale map, Edition 1, 1981: "Maungaturoto-Kaipara" (Rocks).

3.1.1 *Weathered and Superficial Geology (Soils)*

The site and the immediately surrounding area is shown to be directly underlain by soils of the 'Undulating lowlands and terraces' formation comprising Kara silt loam (KR) according to NZMS mapping; see Figure 1. Weathered soils at the site comprising KR are typically described and categorised as *'imperfect to very poorly drained'.* The west of the site is shown to be directly underlain by soils of the 'Rolling and hilly land' formation comprising a combination of Mahurangi fine sandy loam (MV) and Warkworth clay and sandy clay loam (WA) according to NZMS mapping; see Figure 1. Weathered soils comprising MV are typically described and categorised as 'imperfect to very poorly drained' whereas weathered soils comprising WA are typically described and categorised as *'well to moderately-well drained'*.

Weathered soil geology is derived from weathering processes such as groundwater acting upon underlying solid bedrock strata over the course of geological history.

Based on the setting of watercourse in the south-west of the site and a larger watercourse beyond the eastern boundary localised flooding may have occurred across low-lying areas. Superficial deposits including low-strength, highly compressible alluvium may be encountered however for the proposed development these soils are considered outside the development areas. Superficial soils are of the 'Soils of the floodplains' formation comprising Whakapara mottled clay loam (WFm) and categorised as *'well to moderately-well drained'* according to NZMS mapping; see Figure 1.

3.1.2 *Bedrock Geology*

The soil deposits are indicated to be underlain by solid geology comprising Interbedded, graded sandstone and siltstone or mudstone (eMi) of the Waitemata Group, early Miocene (c. 23 to 16 million years). eMi are described by the GNS map as *''Alternating, thick-bedded, volcanic-rich, graded sandstone and siltstone, with volcaniclastic grit beds'.*

Similarly, the NZMS 290 sheet R08/09 geology map identifies the site to be underlain by interbedded sandstone and siltstone ($SM5_1$), comprising *'grey quartz-feldspar sandstone; thinly to thickly interbedded with grey mudstone, moderately to widely fractured, with rare beds of medium to coarse gained volcanic breccia; moderately hard. Weathered to soft, yellowish brown silty clay to depths of 30 m'.*

Site specific geology is investigated further as part of the field investigations within Section 5 of this report.

Figure 1 – NZMS 290 Sheet Q08/09 Soil Map

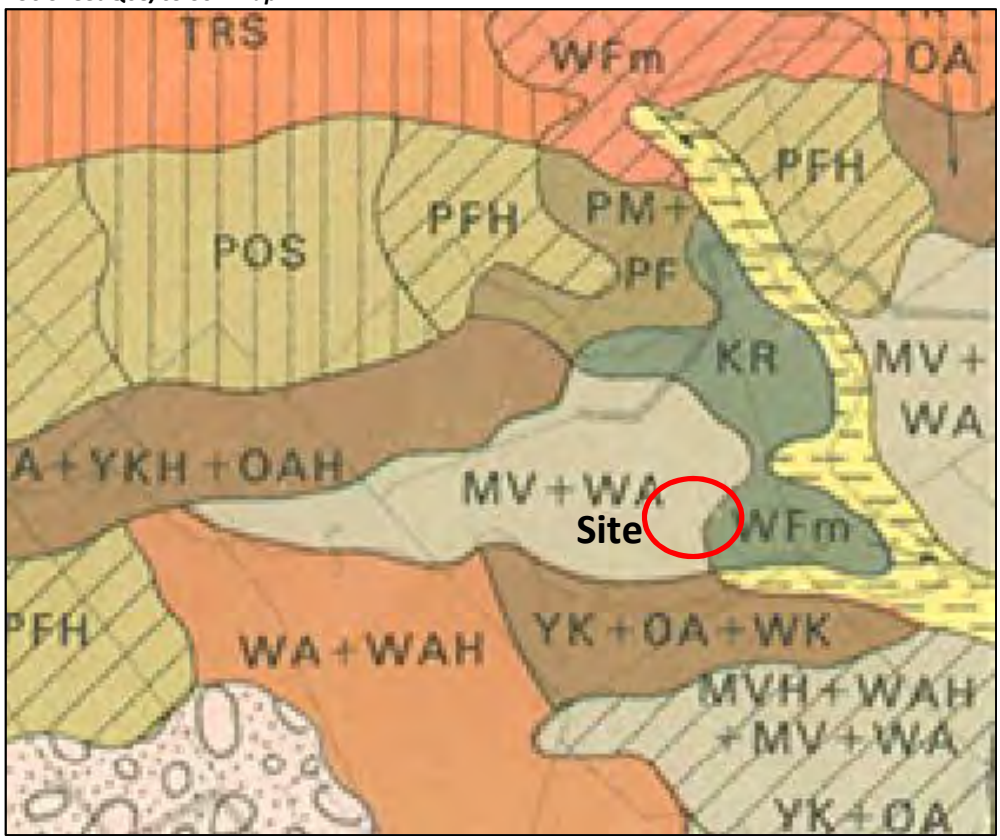
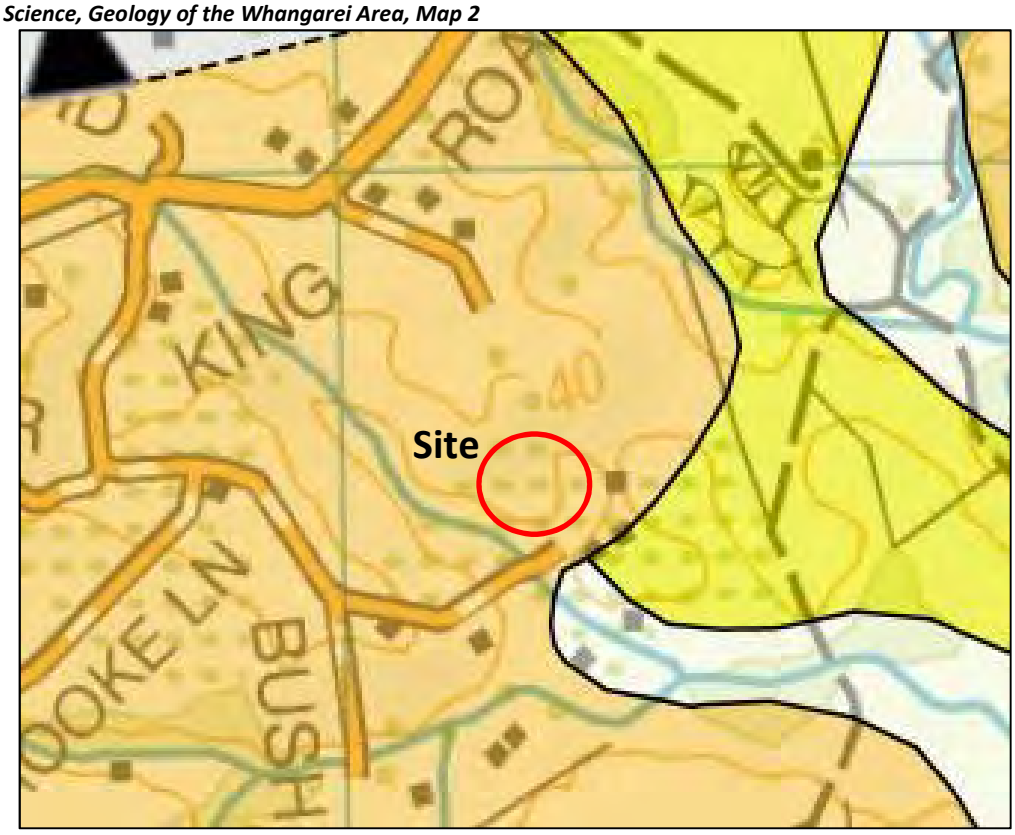


Figure 2 – GNS Science, Geology of the Whangarei Area, Map 2



4 Environmental Setting

Published environmental data relating to the site has been reviewed. A summary of relevant information is provided below.

4.1 Hydrology and Flooding

A summary of available information pertaining to hydrology and hydrogeology is presented in Table 4.1. It should be noted that detailed flood hazard reporting is outside the scope of this investigation; an examination of Ashby Consulting records and Auckland Council GIS database is included below.

Table 4.1 - Surface Water Features & Flooding

	Presence/Location	**Comments**
Surface Water Features (Ponds, Lakes etc).	Stream in the south-west of the site. There is also an overland flow path in the east of the site.	The water flow channel was 3-4 m wide but water levels were noted to be low at the time of investigation.
Watercourses (within 500 m)	Stream approximately 250 m south of site boundary with Poplar Glade.	The stream flows approximately west to east and forms a confluence with the stream on site
Flood Risk Status	Low	Northland Regional Council GIS database identifies the site as outside an area of flood hazard modelling.
Flood Susceptibility	Low – at the proposed development platform.	Flood susceptible land is mapped according to geological mapping and the presence of alluvial, fluvial deposited soils indicating historic inundation by flood waters. From available geological mapping it is considered superficial soils are present in the south-west of the site but not at the proposed development platform.

5 Fieldworks

5.1 Visual Inspection

Based upon a site walkover inspection conducted by Ashby Consulting and information contained on geological plans, it is considered that the soils directly underlying the site typically comprise natural cohesive soils formed through weathering processes acting on the underlying solid geology. Soils are likely to include imperfect to very poorly draining properties when influenced with large volumes of water according to geological mapping; surplus water volumes not absorbed by the ground are anticipated to flow to the south, entering the stream in the east of the site.

At the time of the walkover survey areas of waterlogged and/or saturated soils were not identified however localised areas of saturated/boggy ground conditions may periodically occur according to the seasons/rainfall and be confined to low-lying areas of the site in the west.

Visually the site was generally noted to be stable; no evidence of hummocky and/or terraced land was recorded during the walkover suggesting the site represents a generally stable land feature with a low-risk of soil creep under natural conditions. It would be prudent to note, however, that where any structural and/or live (vehicle traffic) loading of existing slopes occurs, due care and consideration must be given so as not to exacerbate or enhance the risk of ground movement.

A review of historical aerial photography suggests that the property has not been subject to development previously and as such it is considered made ground deposits will be minimal within the site boundary.

A Land Information Memorandum (LIM) report has not been included within the scope of works and is not subject to this review. It would be prudent to obtain for any further information about the area that may be recorded on the local authority GIS database which could otherwise cause restrictions or highlight land hazards that may be raised at the time of building development.

5.2 Subsurface Investigations

Fieldworks were undertaken by an Ashby Consulting Geotechnical Engineer on 14 February 2017 and comprised the formation of three hand augured boreholes (BH1 to BH3) over the proposed development platform to depths of between 1.20 to 2.10 m below ground level. Two hand augured boreholes (BH1 and BH2) were extended using Dynamic Cone Penetrometer techniques to final depths of 4.35 m and 4.65 m below ground level, respectively. One additional standalone Dynamic Cone Penetrometer probe hole designated SP1 was advanced to a final depth of 5.40 m below ground level to confirm the depth of strata across the building footprint. Exploratory hole locations following the intrusive investigation have been mapped and are included as Drawing 8251/02; included within Appendix A. Relevant site photography is presented in Appendix C.

Detailed descriptions of strata and groundwater observations made during the intrusive investigation works are presented on the Engineers exploratory hole records included as Appendix B. Strata descriptions included on the exploratory hole records are compliant with New Zealand Geotechnical Society (NZGS) publication 'Field Description of Soil and Rock', 2005. The depths of strata and groundwater on the Engineer logs are recorded from ground levels at each exploratory hole.

5.2.1 *Ground conditions*

A summary of ground conditions encountered during the intrusive investigation is included in Table 5.1.

Table 5.1 – Summary of Ground Conditions

Strata	**Depth to Top of Strata (m bgl) (Thickness)**	**Details**
Surface Coverings	Ground Level (0.2 m)	Across the site surface coverings were noted to comprise grassed topsoil with olive trees at and immediately surrounding the proposed building platform. In BH1 and BH3 topsoil was described as brown sandy silty with trace of clay, dry and non- plastic. In BH2 topsoil was described as brown silty sand with minor clay, dry and non- plastic Topsoil is considered to indicate moderately good to good draining properties in contrast with available geological mapping.
Natural Cohesive Soils (KR)	0.2 (4.1 m to 4.9 m)	Natural cohesive soils were identified to directly underlay topsoil from shallow depth. Natural cohesive soils within all the boreholes were described as orange-brown mottled grey silt with minor sand and clay. The soils became highly plasticity with depth. The soils became moist between 0.7 m and 0.8 m. There was evidence for wet soils in SP1 from a depth of 3.6 m.
Completely weathered Bedrock	4.30 to 5.10 (NE)	Completely weathered bedrock was identified at depth within DCP probe holes only where blow counts equalled or exceeded 5 per 50 mm penetration. A physical sample is not retrieved from a DCP probe however based on confirmed soil geology and available mapping it is considered weathered bedrock at the site comprises Waitemata Group weathered to a hard cohesive soil.

NE - Not Encountered.

5.2.2 *Material Properties*

The eighteen in-situ hand shear vane tests were performed within the natural cohesive layer and recorded corrected undrained shear strength readings ranging between 85 kPa and 200 kPa, indicative of stiff to hard natural cohesive soils from depths ranging from 0.15 m to 2.1 m bgl. Mean and median corrected undrained shear strengths for the natural cohesive soils recorded values of 111 kPa and 99 kPa, respectively, indicative of generally stiff and very stiff soils.

Undrained shear strength results <100 kPa preclude parts of the site to have 'good ground*' for bearing capacity for shallow foundations in accordance to the NZS 3604:2011 publication, Section 3.13, 'Building Code for Standard Foundations'. Soils generally reduce with increasing depth until 0.9 m before generally remaining constantly <100 kPa until 2.5 m and 3.5 m where shear strength increases until completely weathered bedrock is encountered.

In reference to Auckland Council (AC) publication *'Code of Practice for Land Development and Subdivision'* Schedule 2E an effective undrained shear strength can be inferred based on the sum of DCP blow counts per 150 mm penetration. Based on the results of BH1, BH2 and SP1, mean and median blow counts per 150 mm penetration recorded values of greater than 5 from 2.1 m, 2.4 m and 2.4 m, indicative of very stiff soils and values greater than 10 from 3.4 m and 4.0 m, indicative of generally hard soils with a generalised corrected undrained shear strength in excess of 200 kPa.

Based on the results of SP1 which was the only Dynamic Cone Penetrometer probe hole from surface, mean and median blow counts of soils between 0.40 m to 2.40 m bgl effective undrained shear strength can be inferred based on the sum of DCP blow counts as below 100 kPa.

5.2.3 *Groundwater*

Groundwater inflows/strikes were recorded within the intrusive ground investigation. A summary of increased soil moisture content (above 'dry') encountered as part of intrusive investigation works is presented within Table 5.2. Soil moisture details are included on the exploratory hole records included within Appendix B.

Table 5.2 – Summary of Groundwater Inflows and/or Soil Moisture Content

Exploratory Hole	Depth Encountered (m bgl)	Description	Stratum
BH1	0.75	Moist	Natural Cohesive Soils – Silt with minor sand and clay
BH2	0.7	Moist	Natural Cohesive Soils – Silt with minor sand and clay

* Good Ground – Any soil or rock capable of permanently withstanding an ultimate bearing capacity of 300 kPa (i.e. an allowable bearing capacity of 100 kPa using a factor of safety of 3.0), but excludes:

a) Potentially compressible ground such as topsoil, soft soils such as a clay which can be moulded easily in the fingers, and un-compacted loose gravel which contains obvious voids;
b) Expansive soils being those that have a liquid limit of more than 50 % when tested in accordance with NZS 4402 Test 2.2, and a linear shrinkage of more than 15 % when tested from the liquid limit in accordance with NZS 4402 Test 2.6, and;
c) Any ground which could foreseeable experience movement of 25 mm or greater for any reason including one or a combination of land instability, ground creep, subsidence, seasonal swelling and shrinkage, frost heavy, changing groundwater level, erosion, dissolution of soil in water and effects of tree roots.

BH3	0.8	Moist	Natural Cohesive Soils – Silt with minor sand and clay
SP1	3.6	Wet (inferred)	Natural Cohesive Soils

It should be noted that the water levels are likely to fluctuate with the seasons/rainfall and therefore may be substantially higher/lower at wetter or dryer periods of the year compared to those recorded during this investigation. More specifically, 'moist' areas of soil may represent perched groundwater during winter months.

Exploratory hole locations are shown on Drawing No. 8251/02 within Appendix A of this report. All depths are recorded from existing ground levels at each location.

6 Conclusions and Recommendations

Recommendations and opinions contained in this report are based on the field results at exploratory positions as defined on Drawing No. 8251/02 included within Appendix A, information from available geological maps and geotechnical/local authority databases. The nature and continuity of subsurface soil and groundwater conditions away from the test locations is inferred, it must be appreciated that the actual ground conditions may vary from the assumed model between exploratory positions.

The site currently comprises an open, undeveloped parcel of greenfield agricultural land and bush south of Poplar Glade, Mangawhai. Following subdivision it is understood the client is proposing to construct a single dwelling at the location indicated by a scheme plan provided by the client.

6.1 Vertical and Lateral Movement Potential

6.1.1 *Settlement Analysis*

Based on information available at this stage and a conceptual loading scenario, a settlement analysis was conducted within the scope of this investigation to determine whether anticipated total/differential settlement characteristics are within acceptable limits set by the New Zealand Building Code (<25 mm).

Standard shallow foundations overdeepened to a depth of 0.6 m could result in excessive settlement beyond the defined limits therefore specifically designed shallow foundations would be required to reduce settlement to acceptable limits. By using either a raft foundation or a deep piled foundation embedded into hard cohesive soils then total/differential settlement characteristics will be within the limits set by the New Zealand Building Code.

At the anticipated foundation depths and for preliminary foundation design, based on a characteristic corrected undrained shear strength of 75 kPa, a conservative angle of shearing resistance (Φ') of 30° and cohesion (C') of 5 kPa can be assumed. The conservative values are to allow for any potential unidentified instabilities which may occur at the site of proposed development and a potentially higher groundwater level in winter months which is known to reduce undrained shear strength values further.

Advice Note: The above calculations for the proposed development are based on theoretical foundations. Settlement of foundations are dependent of foundation loadings and dimensions. Actual settlements are expected to vary from that calculated and the results of this analysis are considered conservative. Settlement analysis is one of the hardest geotechnical analysis to have real confidence in the accuracy of results and actual conditions regularly vary from the conceptual model.

6.1.2 *Shrink/Swell Potential*

Characteristic surface movement of the site due to the moisture profile would need to be considered for foundation design. In lieu of laboratory analysis it is recommended that a moderately reactive soil class (M as per AS2870) is assigned to the underlying natural cohesive soils which does not meet the requirement of 'good ground' in accordance with NZS3604:2011. Recommendations regarding appropriate foundations is included in Section 6.2.

6.1.3 *Ground/Slope Stability*

Topography at the proposed development platforms is gently sloping towards the south-east, south and south-west; the existing slopes do not show signs of ground instability/soil creep during the walkover survey.

Based upon the aforementioned it is considered that at present the proposed development platform is, and will remain stable.

The existing driveway did not show signs of ground instability during the walkover survey.

6.1.4 *Liquefaction Potential*

Potentially liquefiable materials are identified by:

- Non-cohesive (granular) content – increasingly cohesive materials are less susceptible to liquefaction;
- Plasticity Index;
- Groundwater levels;
- Thickness of potentially liquefiable soils, and;
- Amplitude, frequency content and duration of shaking expected during seismic events.

It is considered the effect of liquefaction at the proposed building platform will be **low/negligible** during seismic events of up to 0.1 g Peak Ground Acceleration (PGA) as anticipated for Northland Region by NZS1170 and within tolerable settlement limits set by the NZBC.

6.1.5 *Effects of Tree Roots*

In reference to NZS3604:2011 Section 3.7, Clause 3.7.1 states *'trees remove moisture from the soil for a radius equal to the height of the tree. This causes expansive soils to shrink to varying degrees, and when near houses leads to differential settlement occurring under foundations. The mature height of the tree must be considered in the location of trees near houses. Movement of the foundations may lead to cracks in the building and door jamming'.*

Based on the findings of the walkover survey there were trees identified within 5 m of the proposed development platform which could have the potential for consolidation due to the uptake of water from the tree roots or ground heave from tree root growth in accordance with NZS 3604:2011.

6.2 Foundations

Three options for foundations are feasibile for this site. Foundation solutions are indicated by the following sections.

6.2.1 *Shallow Foundations – Strip Footings*

It is recommended that structural loads of the proposed development be taken from the finished ground level to bear across the underlying natural, undisturbed cohesive soils. Based upon the proven ground conditions natural cohesive soils are anticipated to comprise stiff to very stiff silt with minor sand and clay which indicates most of the ground as not meeting the shear strength requirements for 'good ground' requirements for standard foundations as defined in NZS 3604:2011; for this option foundations will therefore require specific design to accommodate the design parameters in Table 6.1 and overdeepening to accommodate potential shrink/swell effects of the natural cohesive soils.

All shallow foundations should be designed for moderately expansive (class M) soils in accordance with AS2870. For strip footings this will require final depth of 0.6 m below ground level. Natural cohesive soils are anticipated at

founding depth across the building footprint; settlement analysis indicates >25 mm settlement taking into account localised weaker areas of soil <100 kPa therefore specific design is required to reduce settlement to acceptable limits. Further overdeepening will be required when encountering localised weaker areas of soil <100 kPa and in close proximity to trees. It is recommended the design parameters outlined in Table 6.1 are followed for any shallow foundations.

Table 6.1 – Recommended Shallow Foundation Design Parameters

Ultimate Bearing Strength	210kPa
Factored Bearing Strength	105kPa
Allowable Bearing Strength	70kPa

Any foundations located outside of the investigation area included within the scope of this investigation should be subject to further specific geotechnical investigation and foundation design.

6.2.2 *Shallow Foundations – Reinforced Raft*

An alternative includes raft foundations, founded into reinforced hard fill which has been sorted, classified and compacted in accordance with a relevant hard fill specification such as NZS 4404.

Due to the presence of ground not indicative of 'good ground' in accordance to NZS3604:2011 within the initial 2.50 m bgl it is recommended that raft foundations are designed to accommodate an allowable bearing capacity of 70 kPa and a soil expansivity class M by a suitably qualified engineer

6.2.3 *Deep Piled Foundations*

Accounting for the variability and expansiveness of the soil, all structural loads may be founded upon deep piles taken down through the stiff soils, embedded into the hard soils at a depth of between 2.20 m to 2.50 m according to the exploratory holes.

The length of piles should accommodate the finished floor level of the proposed structure.

It is recommended the design parameters outlined in Table 6.1 are followed for any deep piled foundations embedded into hard clay at a sufficient depth where the undrained shear strength exceeds 200kPa. Minimum pile embedment should be determined by specific engineering design to withstand all imposed loads.

Table 6.2 – Recommended Deep Pile Foundation Design Parameters

Ultimate Bearing Strength	300kPa
Factored Bearing Strength	200kPa
Allowable Bearing Strength	100kPa

Any foundations located outside of the investigation area included within the scope of this investigation should be subject to further specific geotechnical investigation and foundation design.

6.3 Floors

Either timber or concrete floors can be utilised.

6.4 Earthworks

Potential areas of earthworks have been identified across the development platform in regard to constructing a suitable development platform through slight slope re-profiling.

6.4.1 *Excavations*

It is understood that there is the potential for earthworks including the cutting of soil and slope re-profiling to create the development platform. Retaining walls are also included in the proposed development along the boundary of the lawn.

6.4.2 *Filling*

At this stage, there are areas of potential earth fill identified for the lawn and extension of the metalled driveway.

Where the placement of imported hard fill material is required (i.e. for driveways and areas of car parking), the material should be sorted, classified and compacted in a controlled manner in accordance to an approved earthworks specification, such as NZS 4404 Section 2.3.6 *'Compaction Standards for Fill Material'* or NZS 4431:1999. Where imported hard fill materials are placed in excess of 600 mm thickness and/or where hard fill is proposed to be utilised as a bearing strata it is recommended that compaction is confirmed by in-situ testing conducted by a suitably qualified and experienced engineer.

6.5 Construction Monitoring

Areas of the proposed development have been identified as requiring construction monitoring. Verification of construction methods and compliance with design specification should be undertaken by a suitably qualified, professional engineer during and/or upon completion of the following processes:

- Where the thickness of any imported hard fill exceeds 600 mm thickness or hard fill is utilised as a bearing strata. The compaction of hard fill should be confirmed by a professional engineer in lifts of 600 mm;
- Upon completion of any pile boring operations (including retaining walls) prior to placement of concrete.

A producer statement should be submitted to the relevant local authority by a professional engineer upon completion of all monitoring listed above.

6.6 Storm Water Management

It is imperative that all storm water be piped well away from the proposed development platforms. All storm water concentrations from the following sources should be piped/channelled away from the building platform.

- All roof water/storm water tank overflows;
- Retaining wall drainage, and;

- Hardstanding drains.

It is recommended that all aforementioned storm water sources are routed to the existing surface water channel trending north to south and located to the south of the proposed development platform discharging to the watercourse at the south-eastern site boundary.

The long-term sustainability of the site will rely on the regular maintenance of the storm water features installed as part of the proposed development.

6.7 Flood Hazard

It is considered that whilst low-lying areas of the site immediately adjacent to the existing watercourse may periodically flood the proposed development platform and structures are situated well above any anticipated flood waters.

There is considered a **negligible** risk of flooding at the proposed development platform.

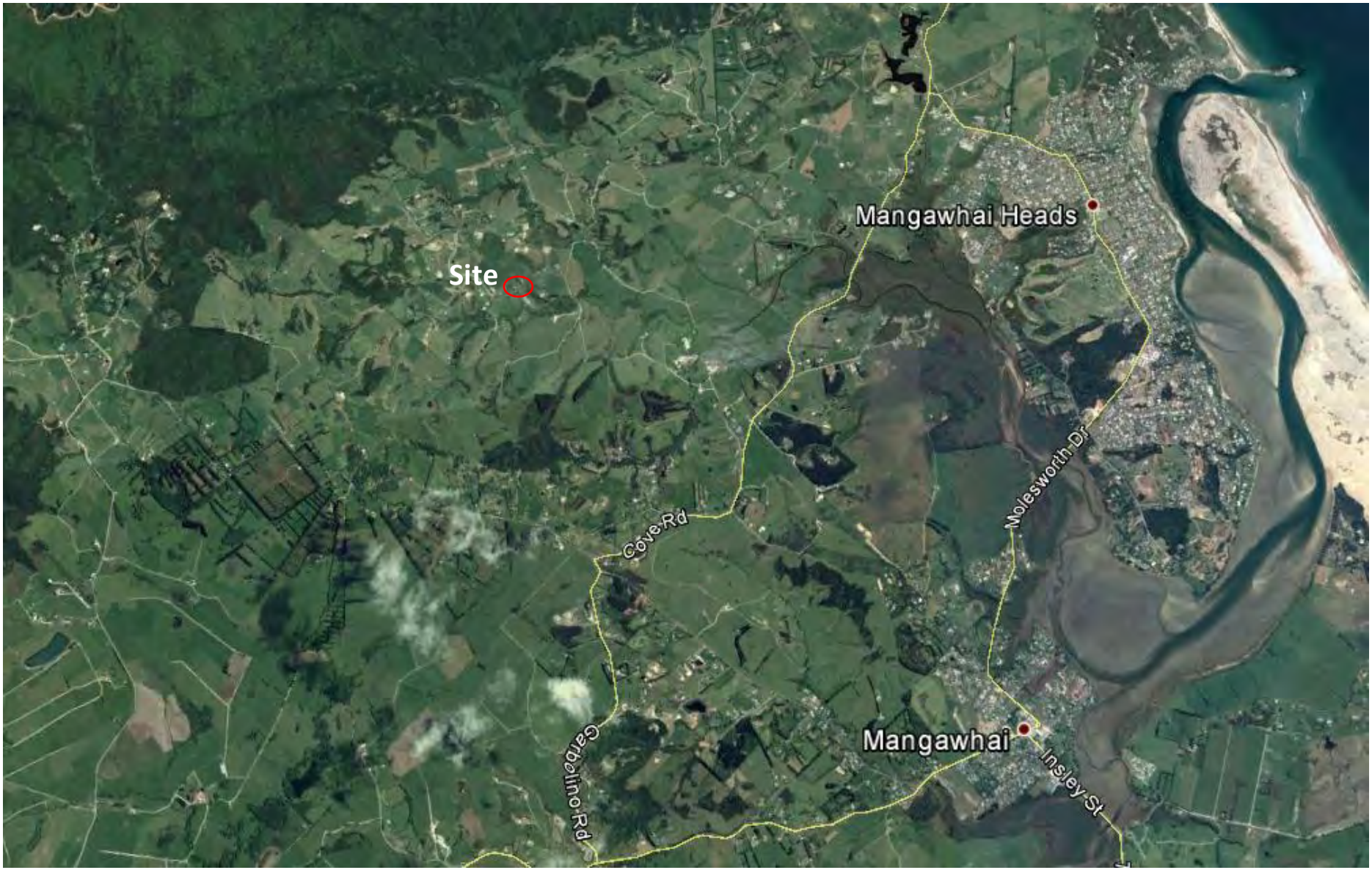
6.8 Further Works

Structural design of foundation once building plans have been finalised.

Appendix A – Drawings

Drawing No.	Title	Scale
8251/01	Site Location Plan	Not to Scale
8251/02	Exploratory Hole Location Plan	Not to Scale

8251/01 – Site Location Plan



8251/02 –Exploratory Hole Location Plan

Appendix B – Exploratory Hole Records

Ashby
HAIGH WORKMAN LTD
P O Box 124
3 Elizabeth Street
Warkworth, New Zealand
Phone 09 425 9422
Fax 09 425 9431
http://ashbyconsulting.co.nz/
info@ashbyconsulting.co.nz

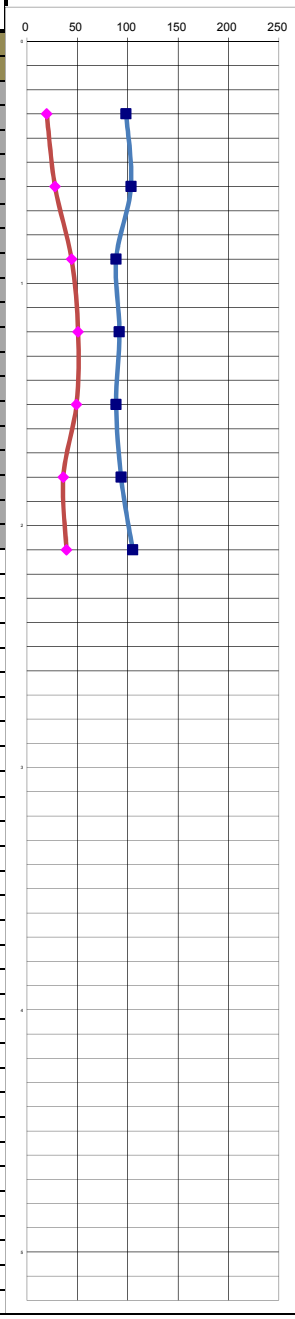
Borehole Log

Job Ref.: 8251

Borehole no. BH1

Client	Craig Bellam	Date	14-Feb-17
Location	Poplar Glade, Mangawhai		
Drilling Method: Hand Auger	Diameter: 50mm	Logged: HB	Checked: EC

Soil Description	Depth	Legend	Moisture	Sample, Other Tests, Remarks.
0.0-0.2m: Sandy SILT with trace of clay; brown, non-plastic (Topsoil).	0.0	wwwwww	Dry	
		wwwwww		
0.2-2.1m: Clayey SILT with some sand; orange-brown mottled grey, low plasticity.		xxxxxxxxx		
		xxxxxxxxx		98/20
		xxxxxxxxx		
	0.5	xxxxxxxxx		
		xxxxxxxxx		103/28
		xxxxxxxxx	Moist	
		xxxxxxxxx		
		xxxxxxxxx		89/44
	1.0	xxxxxxxxx		
		xxxxxxxxx		
		xxxxxxxxx		92/51
1.3m: High plasticity.		xxxxxxxxx		
		xxxxxxxxx		
	1.5	xxxxxxxxx		89/40
		xxxxxxxxx		
		xxxxxxxxx		
		xxxxxxxxx		93/36
		xxxxxxxxx		
	2.0	xxxxxxxxx		
Termination of borehole: 2.1 m bgl. Unable to auger further.				105/39
	2.5			
	3.0			
	3.5			
	4.0			
	4.5			
	5.0			



Soils Legend

Topsoil	wwwwww	Fill	//////////////	Clay	----------	Silt	xxxxxxxxx
Sand	.o.o.o.o.o.o.o.o.o.	Peat	:v:v:v:v:v:v	Gravel	OOOOOO	Rock	

Ashby
HAIGH WORKMAN LTD
P O Box 124
3 Elizabeth Street
Warkworth, New Zealand
Phone 09 425 9422
Fax 09 425 9431
http://ashbyconsulting.co.nz/
info@ashbyconsulting.co.nz

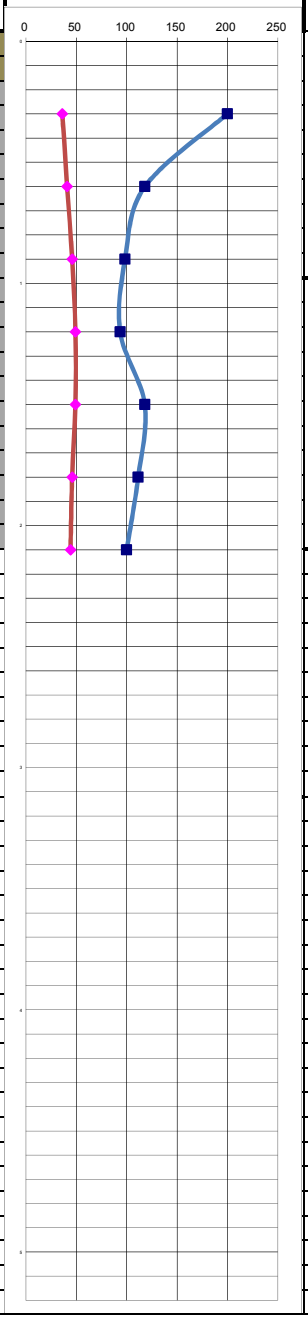
Borehole Log

Job Ref.: 8251

Borehole no. BH3

Client	Craig Bellam	Date	14-Feb-17
Location	Poplar Glade, Mangawhai		
Drilling Method: Hand Auger	Diameter: 50mm	Logged: HB	Checked: EC

Soil Description	Depth	Legend	Moisture	Sample, Other Tests, Remarks.
0.0-0.2m: Silty SAND with minor clay; brown, non-plastic (Topsoil).	0.0	wwwwww	Dry	
0.2-2.1m: Clayey SILT with some sand; orange-brown mottled grey, low plasticity.	0.5	xxxxxxxxx		200/36
	1.0	xxxxxxxxx		118/41
1.4m: High plasticity.	1.5	xxxxxxxxx	Moist	98/46
	2.0	xxxxxxxxx		93/49
Termination of borehole: 2.1 m bgl. Unable to auger further.	2.5			118/49
	3.0			111/46
	3.5			100/44
	4.0			
	4.5			
	5.0			



Shear Strength (kPa)

Soils Legend

Topsoil	wwwwww	Fill	//////////////	Clay	----------	Silt	xxxxxxxxx	Silty Clay	‹›‹›‹›‹›‹›
Sand	.o.o.o.o.o.o.o.o.o.	Peat	:v:v:v:v:v:v	Gravel	OOOOOO	Rock			

Ashby
HAIGH WORKMAN LTD
P O Box 124
3 Elizabeth Street
Warkworth, New Zealand
Phone 09 425 9422
Fax 09 425 9431
http://ashbyconsulting.co.nz/
info@ashbyconsulting.co.nz

Borehole Log

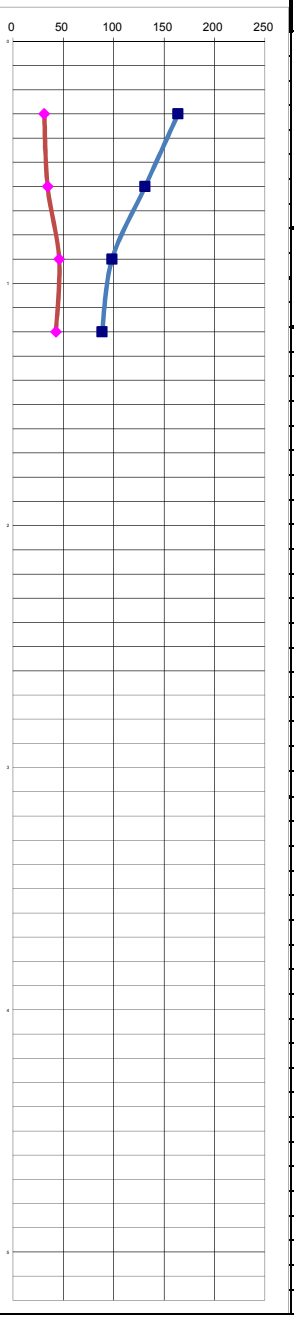
Job Ref.: 8251

Borehole no. BH4

Client	Craig Bellam	Date	14-Feb-17
Location	Poplar Glade, Mangawhai		
Drilling Method: Hand Auger	Diameter: 50mm	Logged: HB	Checked: EC

Soil Description	Depth	Legend	Moisture	Sample, Other Tests, Remarks.
0.0-0.2m: Sandy SILT with trace of clay; brown, non-plastic (Topsoil).	0.0	wwwwww	Dry	
0.2-1.2m: Clayey SILT with some sand; orange-brown mottled grey, low plasticity.	0.5	xxxxxxxxx		164/31
	1.0	xxxxxxxxx		131/34
			Moist	98/46
Termination of borehole: 1.2 m bgl. Target depth achieved.				89/43
	1.5			
	2.0			
	2.5			
	3.0			
	3.5			
	4.0			
	4.5			
	5.0			

Shear Strength (kPa)



Soils Legend

Topsoil	wwwwww	Fill	//////////////	Clay	----------	Silt	xxxxxxxxx	Silty Clay	‹›‹›‹›‹›‹›
Sand	.o.o.o.o.o.o.o.o.o.	Peat	:v:v:v:v:v:v	Gravel	OOOOOO	Rock			

PENETROMETER TEST LOG

Ashby HAIGH WORKMAN LTD

Project No: 8251
Project: Greg Bellam
Location: Poplar Glade, Mangawhai
RL:

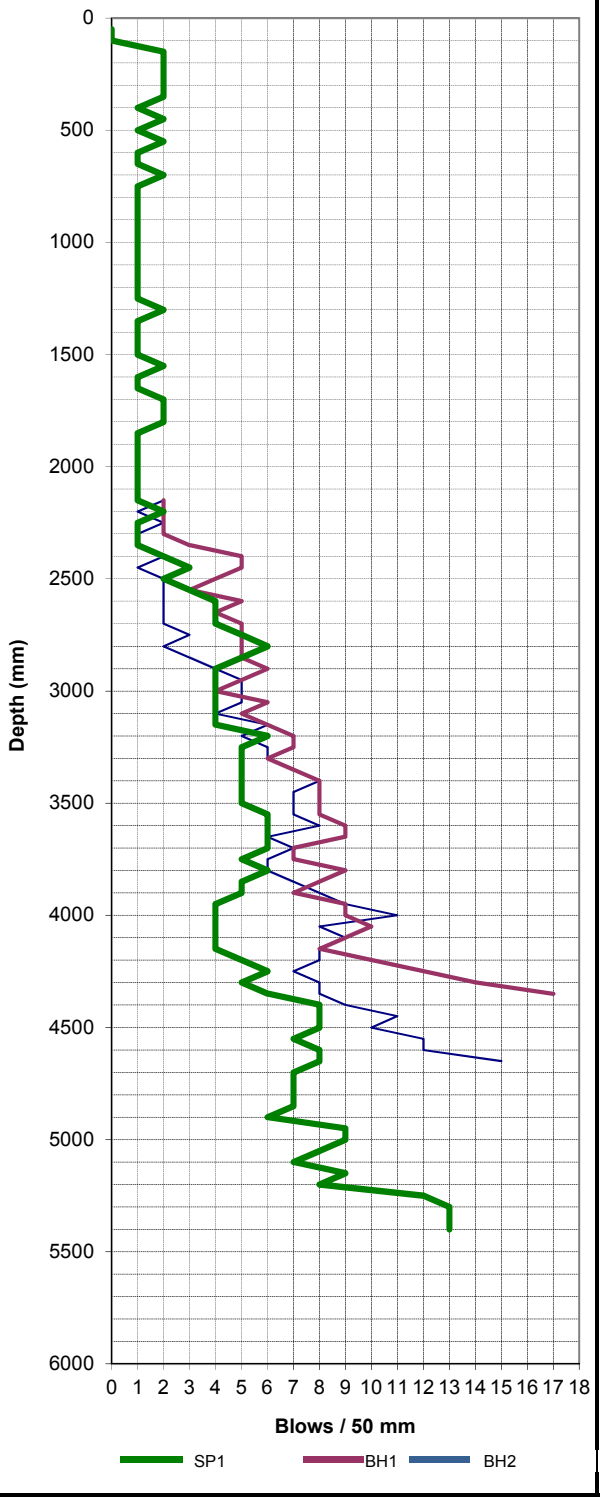
Date: *14/02/2017*
Operated by: *HB*
Logged by: *HB*
Checked by: *EC*

Test No. ***SP1,BH1+BH2***

Sheet *1*
of *1*

mm Driven	SP1 No. of Blows	BH1 No. of Blows	BH2 No. of Blows
50	0		
100	0		
150	2		
200	2		
250	2		
300	2		
350	2		
400	1		
450	2		
500	1		
550	2		
600	1		
650	1		
700	2		
750	1		
800	1		
850	1		
900	1		
950	1		
1000	1		
1050	1		
1100	1		
1150	1		
1200	1		
1250	1		
1300	2		
1350	1		
1400	1		
1450	1		
1500	1		
1550	2		
1600	1		
1650	1		
1700	2		
1750	2		
1800	2		
1850	1		
1900	1		
1950	1		
2000	1		
2050	1		
2100	1		
2150	1	2	2
2200	2	2	1
2250	1	2	2
2300	1	2	1
2350	1	3	1
2400	2	5	2
2450	3	5	1
2500	2	4	2
2550	3	3	2
2600	4	5	2
2650	4	4	2
2700	4	5	2
2750	5	5	3
2800	6	5	2
2850	5	5	3
2900	4	6	4
2950	4	5	5
3000	4	4	5

mm Driven	SP1 No. of Blows	BH1 No. of Blows	BH2 No. of Blows
3050	4	6	5
3100	4	5	4
3150	4	6	6
3200	6	7	5
3250	5	7	6
3300	5	6	6
3350	5	7	7
3400	5	8	8
3450	5	8	7
3500	5	8	7
3550	6	8	7
3600	6	9	8
3650	6	9	6
3700	6	7	7
3750	5	7	6
3800	6	9	6
3850	5	8	7
3900	5	7	8
3950	4	9	9
4000	4	9	11
4050	4	10	8
4100	4	9	9
4150	4	8	8
4200	5	10	8
4250	6	12	7
4300	5	14	8
4350	6	17	8
4400	8		9
4450	8		11
4500	8		10
4550	7		12
4600	8		12
4650	8		15
4700	7		
4750	7		
4800	7		
4850	7		
4900	6		
4950	9		
5000	9		
5050	8		
5100	7		
5150	9		
5200	8		
5250	12		
5300	13		
5350	13		
5400	13		
5450			
5500			
5550			
5600			
5650			
5700			
5750			
5800			
5850			
5900			
5950			
6000			



Appendix C – Site Photography

Figure 3 – Photograph from Poplar Glade looking north across the west of the site, shipping container and cut batters of the metalled driveway are visible

Figure 4 – Photograph looking north-east across the proposed building platform showing the rows of olive trees

Figure 5 – Photograph looking south-west along the fenced north-western boundary towards the highest point of the site

Figure 6 – Photograph looking from the north across the east of the site

Disclaimer

Flood maps

Northland Regional Council's flood maps have been compiled using an assessment of best available information.

The maps indicate the outer extent of the flooding from analysis of information only and do not necessarily reflect the greatest extent of flooding suffered in the past, or likely to be suffered in the future.

The design storms used to generate flood plain maps are based on HIRDS v3 datasets, provided by NIWA. It should not be assumed without further investigation that land outside of the boundary is not susceptible to flooding.

The flood maps reflect flooding originating from the river, and as such may not represent flooding caused by ponding or runoff of local water or overflow of stormwater networks.

The flood plain mapping within each catchment extends to only those areas covered by LIDAR survey; areas outside of the LIDAR survey may, or may not be, at risk from river flooding. Within the areas of LIDAR coverage, the emphasis has been on capturing the extent and level of flood overflow from the main stream and river channels. Flooding from surface run off, and storm water networks, is not always reflected in the flood maps.

When using these flood maps, users shall clearly identify that the results may be subject to change at the discretion of the Northland Regional Council.

While the maps have been quality controlled, their accuracy can not be guaranteed. Accordingly, these maps should not be relied upon as the sole basis for the making of any decision in relation to potential flood risk. Further, the maps should be interpreted only by an expert duly qualified to interpret these maps and when so interpreted, should not be utilised without reference to other source information and data.

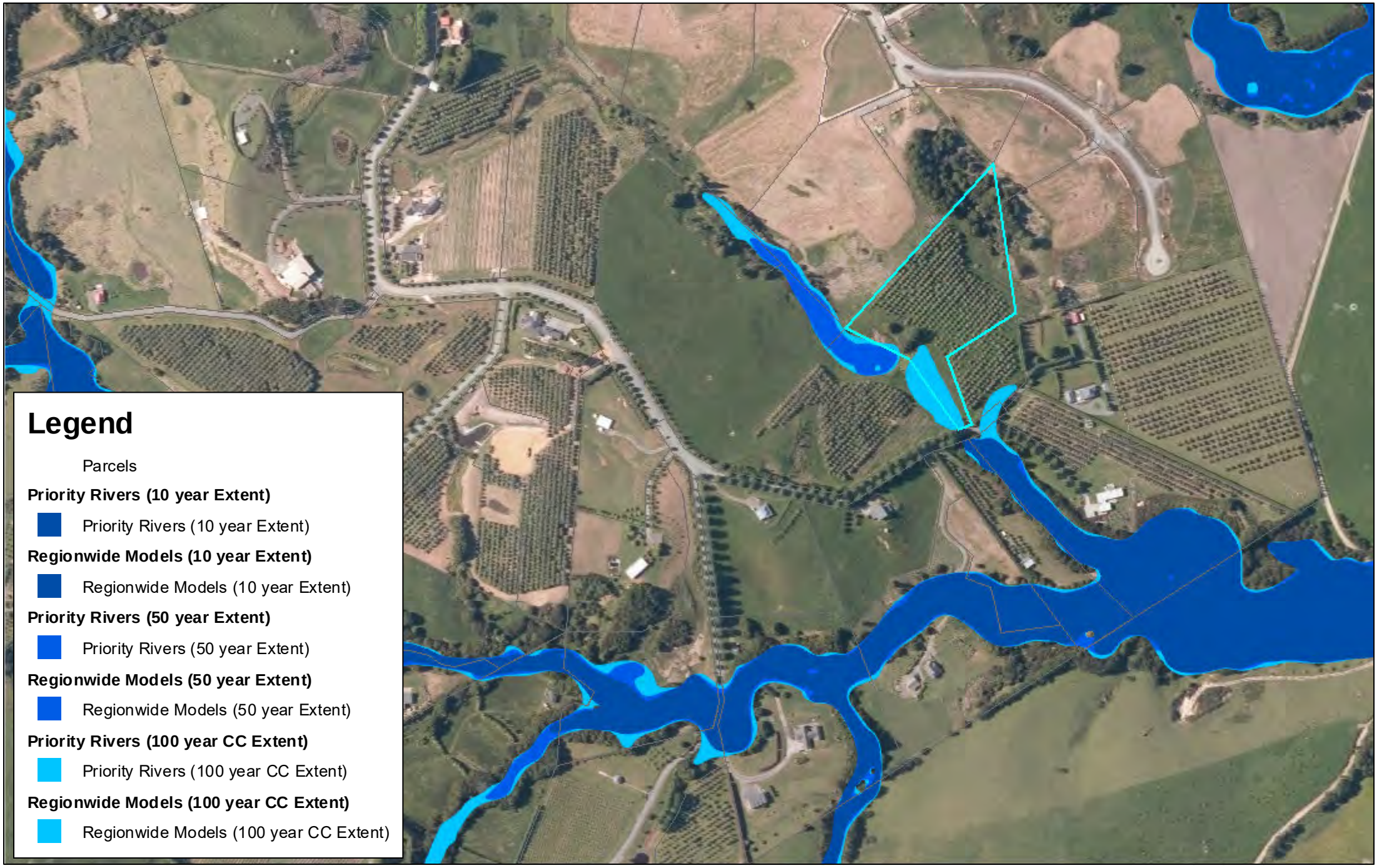
The information contained in these flood maps is provided for general information purposes only. While the authors have done their best to provide accurate information, users are requested to inform Northland Regional Council of any suspected errors in the maps and/or electronic files.

Northland Regional Council makes no representations, warranties or undertakings about any of the information in these maps and/or electronic files including, without limitation, their accuracy, their completeness or their quality or fitness for any particular purpose.

To the fullest extent permitted by applicable law, neither Northland Regional Council nor any of its members, officers, associates, consultants, employees, affiliates, servants, agents or other representatives shall be liable for loss or damage arising out of, or in connection with, the use of, or the inability to use, the information contained in these maps and/or electronic files including, but not limited to, indirect or consequential loss or damages, loss of data, income, profit, or opportunity, loss of, or damage to, property and claims of third parties, even if Northland Regional Council has been advised of the possibility of such loss or damages, or such loss or damages were reasonably foreseeable.

Northland Regional Council reserves the right to change the content and/or presentation of any of the information contained in these maps at its sole discretion, including these notes and disclaimer. Use of these maps is subject to these disclaimers and exclusions and by using these maps the user is signifying his or her agreement to be bound by these exclusions and disclaimers.

These disclaimers and exclusions shall be governed by, and construed in accordance with, the laws of New Zealand. If any provision of these disclaimers and exclusions shall be unlawful, void or for any reason unenforceable, that provision shall be deemed severable and shall not affect the validity and enforceability of the remaining provisions.



Northland REGIONAL COUNCIL

Natural Hazards

Projection NZTM. Datum NZTM2000.
DISCLAIMER:
The Northland Regional Council cannot guarantee that the information shown is accurate and should not be reused in any manner without proper consultation with its owner.

N

0 0.025 0.05 0.1 0.15 0.2 0.25 km

2/7/2023, 2:48:06

Print Date: 2/1/2023
Print Time: 1:42:18 PM

Asset Map 0122009558

KAIPARA DISTRICT
Kaipara ki Oruawharo • Two Oceans Two Harbours

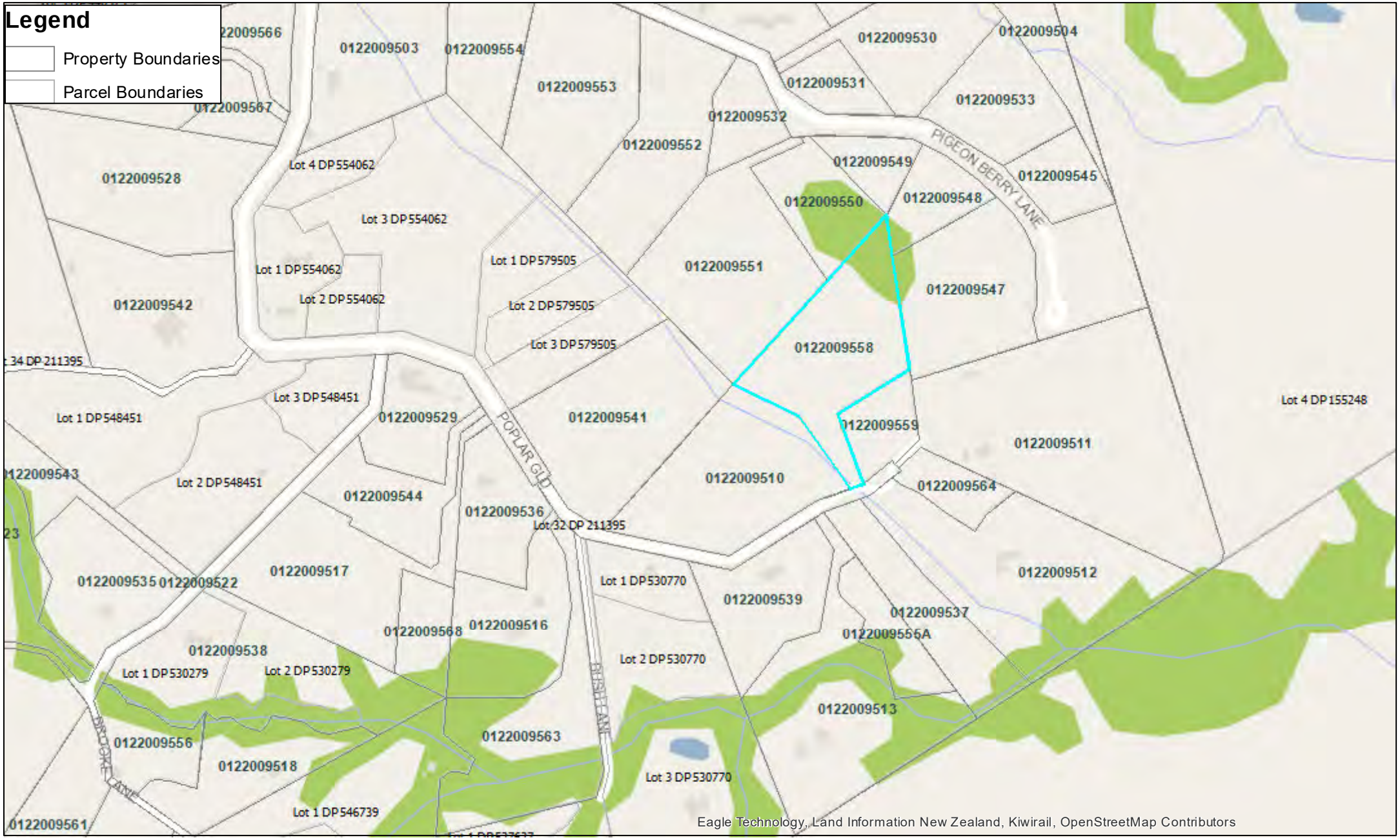
Scale: 1:4,514
Original Sheet Size: A4

Projection: NZGD 2000 New Zealand Transverse Mercator
Bounds: 1,737,458.1002 6,004,936.3245
1,738,745.9322 6,004,165.4480

Print Date: 2/1/2023
Print Time: 1:41:47 PM

Asset Map 0122009558

KAIPARA DISTRICT
Kaipara ki Oruawharo • Two Oceans Two Harbours



Scale: 1:4,514
Original Sheet Size: A4

Projection: NZGD 2000 New Zealand Transverse Mercator
Bounds: 1,737,458.1002 6,004,936.3245
1,738,745.9322 6,004,165.4480

Roads and driveways

District councils are responsible for local roads and Transit New Zealand is responsible for state highways. Private driveways are the responsibility of private landowners.

Check whether the access driveway from the public road is part of the property or crosses other land.

Make sure any right of way is recorded on the title.

Check that any right of way shown on paper matches up with the formed access.

Check the location of any dwelling in relation to other people's or shared driveways – vehicles using driveways can cause dust.

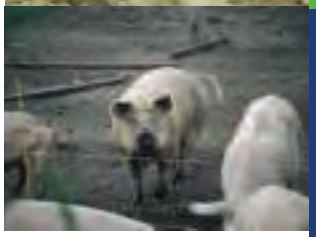
Will my green rural outlook change?

The rural landscape is constantly changing. Change is a necessary and inevitable part of living in the country -

- farming methods change
- new types of rural production will occur
- crops (including trees) will be harvested
- land may be subdivided
- new people and new ideas will come

The council's rules are not intended to preserve things as they are now but to manage the environmental effects of ongoing changes.

Ask the council about its rules for rural subdivision and the location of buildings on adjoining land.



Other things to check:

- Requirements for controlling serious weeds
- Responsibilities to control dogs and livestock
- The use of chemical sprays
- The location of emergency services (doctor, rural fire service)
- Power connection to the property

How can I find out about all of that?

Visit your district council – they will be able to answer many of your questions.

The district council can give you a Land Information Memorandum (a 'LIM') which describes important details about any property. There will usually be a small fee – but it is a small price to pay for accurate information.

You might also like to talk to the regional council.

Published by the
Ministry for the Environment
Manatū Mō Te Taiao
PO Box 10362, Wellington
Tel: (04) 917 7400, www.mfe.govt.nz

Ministry for the Environment
Manatū Mō Te Taiao

Ministry for the Environment
Manatū Mō Te Taiao

Thinking about living in the country?

Some things to check

This brochure answers some of the frequently asked questions about living in the country

REAL ESTATE INSTITUTE OF NEW ZEALAND

NEW ZEALAND PLANNING INSTITUTE

it's paradise – right?

It can be but remember - the rural environment is where people live and work. That means it's both a beautiful landscape and a place of production.

Some production activities create effects that are noticeable on adjoining properties. Many of these effects are a necessary and legitimate part of rural production. Maybe not all day or all year – but sometimes, depending on the season, there might be:

Noise	Dogs barking, farm machinery operating, planting or harvesting activities, stock being moved, bird scaring devices, truck movements in the early or late hours, stock noise at weaning time, helicopters
Smell	Animal enclosures, silage, effluent disposal
Smoke	Stubble burn-off or other fires
Dust	Cultivation, planting and harvesting, vehicles on unsealed roads and driveways
Spray	Agrichemical spraying of crops and paddocks

Look around the rural neighbourhood and see what's there. Think about how established activities might affect you.

Ask around – find out what day-to-day life is like in that rural area in all seasons.

Spend some time there – check it out in good weather and bad weather days and all wind directions.

Can I do anything I want on my land?

It might pay to check. Usually you can – provided your activities don't cause adverse environmental effects.

Councils are responsible for managing the effects of activities and may have rules and bylaws controlling things like:

- house location and number of houses
- location of farm buildings and stock yards
- disposal of household sewage and stock effluent
- taking water from the ground or rivers
- discharges to ground and water
- burning of open fires
- distance of shelter belts and plantation forestry from boundaries
- noise
- removal of scrub or trees
- earthworks to build access tracks

There may be particular or additional controls in areas that have special landscape or ecological importance.

Ask the council for a copy of the rules applying to your property and rural neighbourhood.

Just as in town, it's important to get on with neighbours. The council can set basic guidelines or standards but, when it comes to managing minor matters, it's up to you and your neighbours.

Make sure you can get hold of your neighbours if anything happens on their property that might affect you.

Why not tell your neighbours about anything you plan to do that might affect them?

Water and sewerage

Most rural properties have to provide for their own water supply and sewage disposal.

This usually means rain water has to be collected in tanks or water has to be pumped from waterways or an underground bore. If water is already piped onto the property from elsewhere, find out where it comes from and check that there is an easement or permission that allows this to continue – even in summer dry periods.

Sewage disposal is often to a septic tank. Septic tanks need to be emptied periodically.

It may be that you will need to install a new water supply or sewage disposal system – especially if the property is bare land.

water supply and sewage disposal systems meet required standards and actually work.

Rural landowners are responsible for the ongoing maintenance of water supply and sewage disposal systems – you'll need to know how to maintain pumps and clear blocked drains.