Memorandum

To: Forme Planning Ltd

From: Tom Lemon

Date: 16/11/2022

Job No: 1712 – Cabra Developments Ltd

Subject: Whenuapai Development Infrastructure Servicing Proposal

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Background

Our client, Cabra Developments limited, own four properties in the Whenuapai area that they are proposing to develop under the COVID19 fast track consenting process. These properties are listed below, along with the development proposals:

- **15 Clarks Lane, Whenuapai** (Lot 2 DP 92753) – Residential Subdivision
- **10 Sinton Road, Whenuapai** (Allot 2 PSH of Waipareira) – Residential Subdivision
- **16 Sinton Road, Whenuapai** (Lot 9 DP 57408) – Residential Subdivision
- **1 Spedding Road/90 Trig Road, Whenuapai** (Lot 4 DP 55087) – Light Industrial Subdivision

The Clarks Lane and Sinton Road properties were part of the proposed Auckland Council Whenuapai Change Plan 5 (PC5) and as a result a significant amount of consultation regarding infrastructure servicing and capacity has previously been undertaken.

The purpose of this memo is to outline the three waters (wastewater, water and stormwater) servicing proposals and earthworks requirements in support of the developments on each property, as outlined below.

Wastewater Servicing

Multiple discussions were undertaken with Watercare Services Limited (WSL) regarding wastewater and water servicing for these properties during the Whenuapai Change Plan 5 (PC5) process and more recently in support of this proposal.

Development capacity assessments and servicing strategies have been lodged with WSL for approval, as outlined below. In response, WSL has requested that the new infrastructure (reticulation and pump stations) are designed to cater for the wider contributing catchment areas and not just the development sites. This is a common engineering requirement for public infrastructure as it minimises the amount of infrastructure requiring future maintenance.

A copy of the correspondence with WSL is enclosed in **Appendix A**.

15 Clarks Lane, Whenuapai

This site will be serviced via a new public wastewater pump station located in the northwestern corner. The pump station will discharge into the existing public gravity wastewater network on the corner of Ockleston Landing and Makete Crescent (GIS MH ID 4528504). The pump station is proposed in the lower part of the site and can service a wider catchment area of approximately 15.7 hectares. The individual development lots will be serviced via a new public gravity reticulation network connected to the pump station in accordance with WSL Code of Practice.

Refer Figure 1 and concept plan in **Appendix B.**

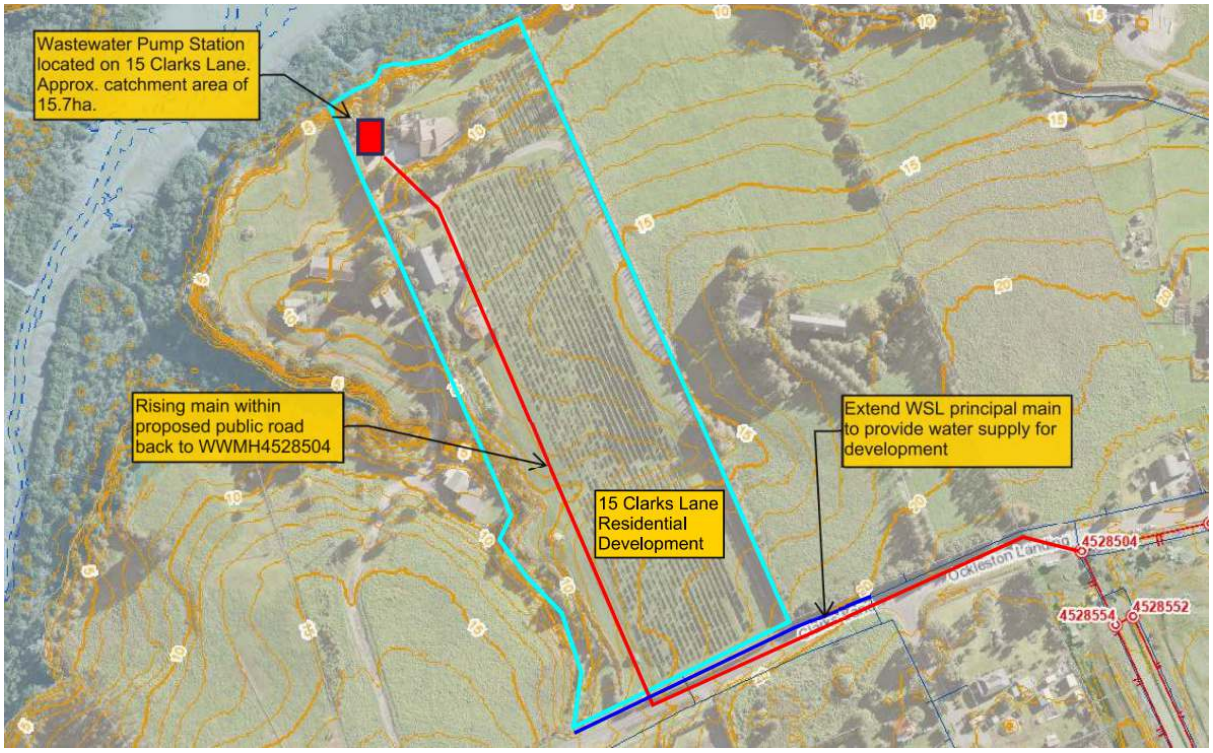


Figure 1: 15 Clarks Lane – wastewater & water service strategy

10 & 16 Sinton Road, Whenuapai

These sites will be serviced via a new public wastewater pump station located in the southwestern corner of 16 Sinton Road. The pump station will discharge into a new gravity wastewater network extended along Sinton Road from the existing public network in Brigham Creek Road (GIS MH ID 2570888).

A new gravity line will be extended from the pump station through the lower portion of 10, 12, 14 and 16 Sinton Road to enable connection to the new network. Properties 12 and 14 do not form part of this application, however Cabra Developments has obtained landowner approvals for the gravity wastewater line. Both 12 and 14 Sinton Rd will connect to the gravity line in the future when they develop, which is consistent with WSL request.

All individual development lots will be connected to the new wastewater reticulation network in accordance with WSL Code of Practice.

Refer Figure 2 and concept plan in **Appendix B.**

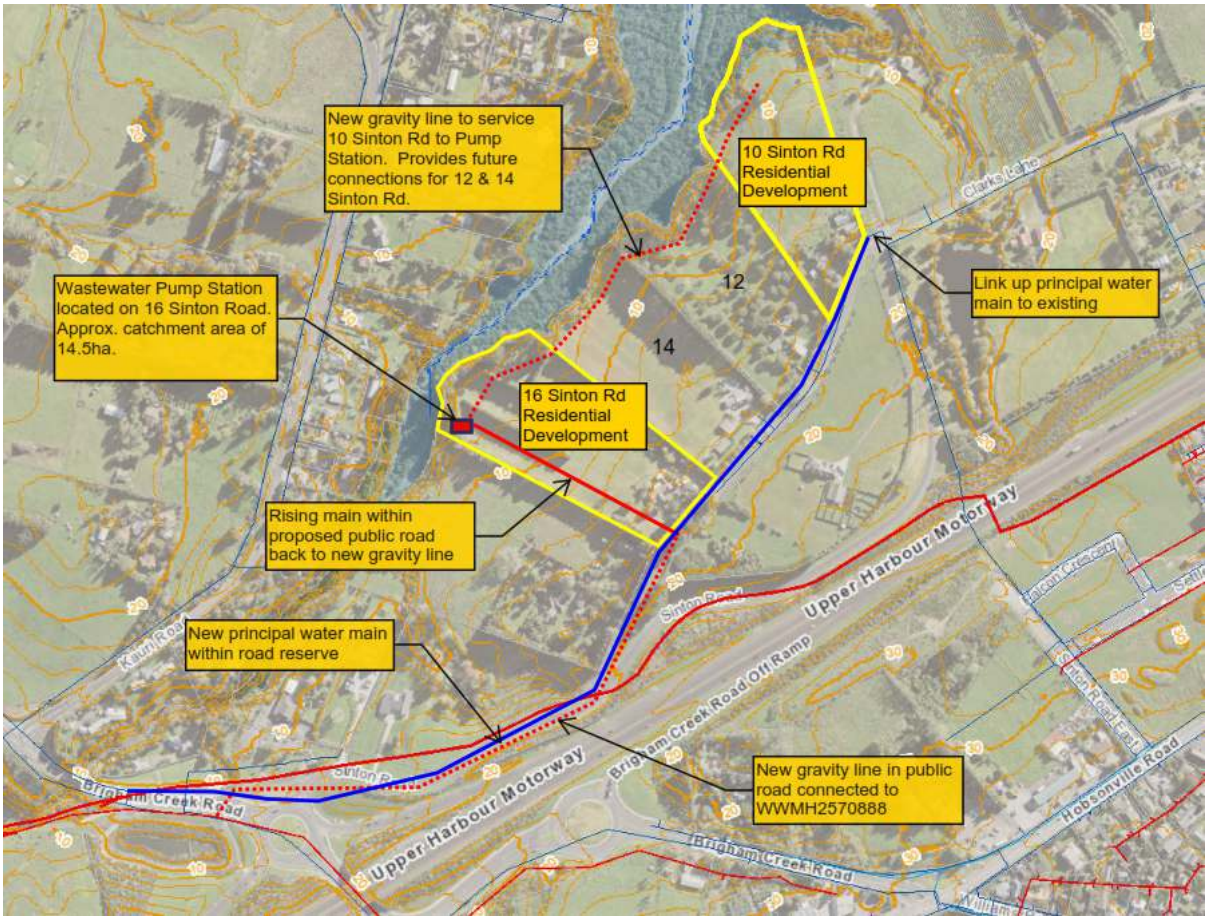


Figure 2: 10 & 16 Sinton Road – wastewater & water service strategy

1 Spedding Road/90 Trig Road, Whenuapai

The proposal for this site is to discharge into the existing wastewater manhole on the corner of Spedding Road and Trig Road via a new offline satellite manhole. The individual development lots will be serviced via a new public gravity network or low-pressure network if levels cannot facilitate a gravity network in accordance with WSL Code of Practice.

Refer to Figure 3 and concept plan in **Appendix B.**

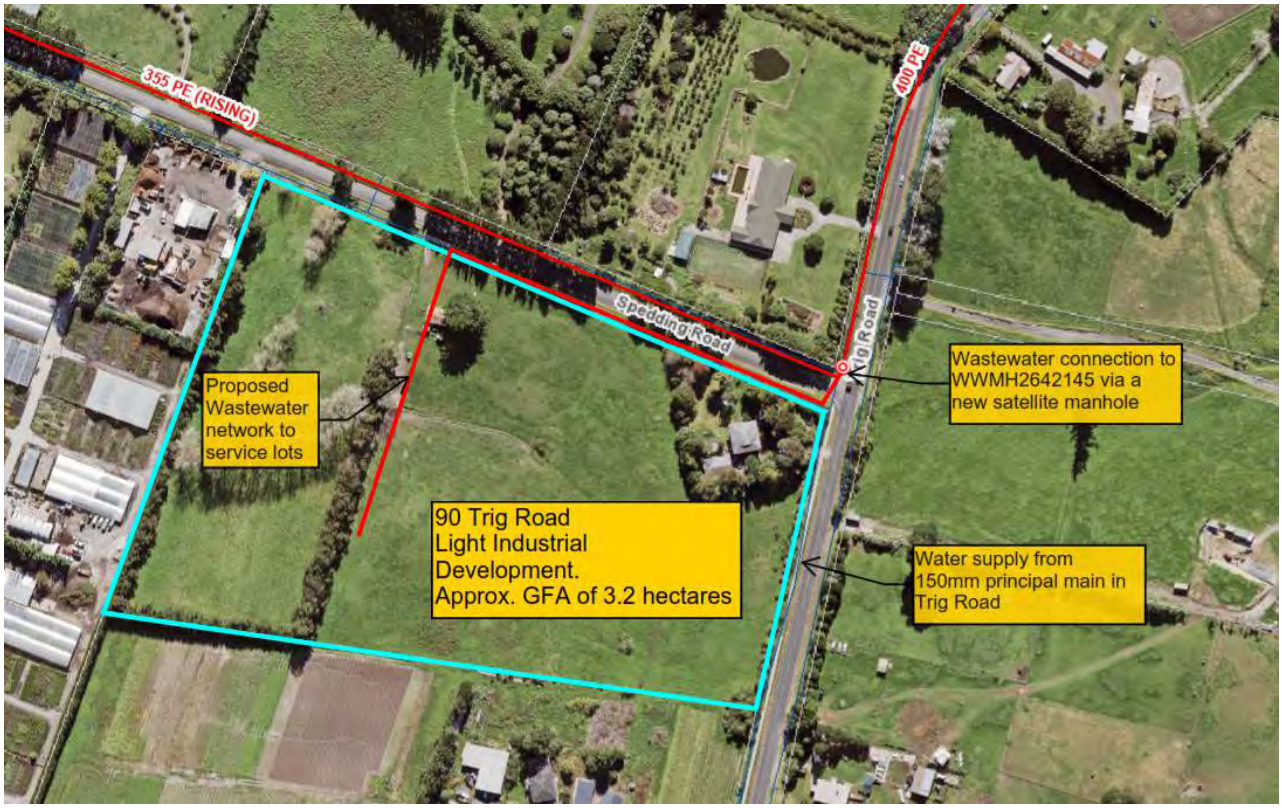


Figure 3: 90 Trig Road – wastewater & water service strategy

Water Supply

The developments will be serviced with potable water and firefighting supply by extensions to the existing public water networks. All new development lots will be provided with a water connection in accordance with WSL Code of Practice and fire hydrants will be positioned in accordance with SNZ PAS 4509:2008. The anticipated firefighting supply water classification for the residential developments is FW2 and the light industry development will be determined by floor area.

Water servicing strategies have been lodged and assessed by WSL, as outlined below. A copy of the correspondence with WSL is enclosed in **Appendix A**.

15 Clarks Lane, Whenuapai

The existing principal main in Ockleston Landing will be extended along Clark Lane into the development to service all new lots. All new public lines will be located within the road reserve in accordance with WSL Code of Practice.

Refer Figure 1 and concept plan in **Appendix B.**

10 & 16 Sinton Road, Whenuapai

These properties will be serviced via a new principal main installed along Sinton Road, which will provide a loop connection from the existing main in Brigham Creek Road to the existing main in Clarks

Lane. New water mains will be extended along the public road reserves in accordance with WSL Code of Practice to potable and firefighting supply to all new development lots created.

Refer Figure 2 and concept plan in **Appendix B.**

1 Spedding Road/90 Trig Road, Whenuapai

There is an existing principal main along the western side of Trig Road, which will be extended to service the development in accordance with WSL Code of Practice.

Hydrants will be placed in accordance with SNZ PAS 4509:2008 to service the industrial lots. The warehouse buildings may require additional firefighting storage, which can be provided by tanks onsite.

Refer to Figure 3 and concept plan in **Appendix B.**

Stormwater

The following stormwater principals are proposed for the development of the four sites.

- Low impact design approach to stormwater management
- Provide stormwater treatment and attenuation in accordance with Stormwater Management Area Control Flow 1 (SMAF) for new impervious areas discharging to a stream environment
- Stormwater quality treatment for impervious road surfaces
- Stormwater piped reticulation sized for capture of 10% AEP storm event
- Reticulation to discharge to coastal outlets where possible
- Minimise peak runoff flows by providing SMAF retention onsite for new lots
- Overland flow paths for conveyance of up to 1% AEP storm events
- No impact on downstream flooding

To achieve the stormwater principals above, a best practise mitigation approach is proposed for developments as outlined below.

Individual Lots & Road Areas

A water-sensitive design approach and SMAF treatment and attenuation in accordance with the Stormwater Management Devices in the Auckland Region Guidance Document 01 (GD01) using the following options.

- Pervious Pavements
- Bio Retention Devices
- Swales
- Living Roofs
- Rainwater Tanks
- Infiltration Devices
- Wetlands/Basins

Surface run-off from the sealed road surfaces will be treatment at source by approved GD01 methods, such as, bio retention devices, swales, or basins.

Primary Stormwater Network

Stormwater reticulation networks will be provided for each development site to cater for the disposal of stormwater by approved methods in accordance with the Auckland Council Stormwater Code of Practice. The reticulation network will be sized to cater for the 10% AEP storm event.

The primary reticulation for the residential development sites 10 and 16 Sinton Road and 15 Clarks Lane will discharge to the adjoining coastal marine area via stabilised outlets. All development flows will be treated in accordance GD01 prior to discharge.

The primary reticulation for 90 Trig Road will discharge to a private stormwater basin for treatment in accordance with GD01 and attenuation for storm events up to the 1% AEP. The estimated attenuation storage for the site is 3,200m^3. Based on a basin dimension of 80m by 25m the required footprint is 2,000m^2, assuming an average depth of 1.8m. The basin will be a dry attenuation device to temporary store peak runoff volumes, which will be discharged at pre-development rates into an existing open drain to the west.

Coastal Outlets

Due to the proximity to the coastal environment, 10 and 16 Sinton Road and 15 Clarks Lane will discharge to the adjoining coastal marine area via stabilised outlets. The location and design of the outlets will be in accordance with Auckland Council Technical Report 2013/018 - Hydraulic Energy Management: Inlet and Outlet Design for erosion and scour protection.

Overland Flow Paths

While the design of the primary stormwater reticulation will be for a 10% AEP (1 in 10 year) storm event, provision will be made within each development for stormwater overland flow paths to allow for the run-off of water from greater storm events. Overland flow paths will be typically confined to road and reserve areas.

Minimum floor levels at 500mm above the estimated flood level for the 1% AEP event will be established for areas adjacent to overland flow paths.

Earthworks

Earthworks are proposed over all four sites for the formation of roads, building platforms and installation of infrastructure. The earthworks will be undertaken in terms of NZS 4431:2022 "Engineering Fill Construction for Lightweight Structures" and Auckland Council Code of Practice for Land Development and Subdivision Chapter 2: Earthworks and Geotechnical.

The extent of earthworks proposed for each site will be determined at resource consent design stage, however due to the sites being relatively flat with varying average slopes between 4 to 7%, the scale of earthworks in relation to the development size is small.

The anticipated scale of earthworks required for each site are outlined in the table below.

Site	15 Clarks	10 Sinton	16 Sinton	90 Trig
Existing Slope (%)	6	7	5	4
Exposed Area (ha)	3.10	2.48	2.65	4.95
Cut Volume (m3)*	6,900	5,600	5,900	18,500
Fill Volume (m3)*	6,900	5,600	5,900	18,500

** Note:*
- Average cut and fill depths assumed at 450mm for Clarks Lane & Sinton Road sites
- Average cut and fill depths assumed at 750mm for Trig Road site
- Volumes assumes half the site is in cut and the other half in fill

Based on the earthwork figures above, both regional and district consents will be triggered for each respective development.

No earthworks are anticipated within the 10m riparian yard or the Coastal Marine Area (CMA).

Only minor works are anticipated within the coastal esplanade 20m yard for installation of pedestrian paths and stormwater coastal outlet structures.

Construction Management

The following standard construction management procedures should be implemented to minimise potential effects from the earthwork construction.

- Seasonal restrictions on earthworks over winter
- Implementation, maintenance and monitoring of sediment and erosion control devices in accordance with Auckland Guidance documentation GD05
- Minimising exposed areas open at one time by staging of works and progressively stabilising completed areas
- Implementation, maintenance, and monitoring of dust control measures
- Construction noise to be in accordance with NZS 6803:1999 “Acoustics Construction Noise”
- Construction vibration to be in accordance with German Industrial Standard DIN 4150-3 (1999): Structural Vibration guidelines

Summary

Three waters (wastewater, water and stormwater) servicing can be provided in accordance with industry best practice and Council requirements to facilitate residential and light industrial development on the properties outlined above.

The existing public infrastructure will need to be extended through the proposed developments to provide three water connections for all new lots created. The new public infrastructure would vest to Auckland Council.

The development sites can be earthworked with appropriate controls to minimise effects on the receiving environments.

We trust that this memo clearing outlines the three water servicing strategy, earthworks and construction management requirements for the development of the four sites in Whenuapai.

If you require any further clarifications, please do not hesitate to contact the writer.

Attachments

- Attachment 1 – Watercare Correspondence
- Attachment 2 – Proposed Wastewater & Water Servicing Strategy

Attachment 1 – Watercare Correspondence

Watercare
An Auckland Council Organisation

Watercare Services Limited
Private Bag 94010
Auckland 2241
www.watercare.co.nz
Customer service line
Mon to Fri 7.30 to 6pm
09 442 2222
info@water.co.nz

Fault line
24 hours
09 442 2222
Free text 3130
faults@water.co.nz

23/11/2022

Will Stone
PO Box 197, Orewa 0946

Dear Will,

Re: Your request for an assessment of water and wastewater capacity
Address: **15 Clarks LN Hobsonville 0618, 10 & 16 Sinton Road and 90 Trig Road, Whenuapai**
Watercare application number: **CON-155536**

This assessment is independent of the Auckland Council consenting process. This letter does not constitute a pre-approval from Watercare and the assessment is valid for two years from the date of this letter.

Watercare has undertaken an initial high-level assessment of the proposal for this **development, 96 residential lots at 15 Clarks Lane Hobsonville 0618, 72 residential lots at 10 Sinton Road, 77 residential lots at 16 Sinton Road and light industrial development, approx. GFA of 3.2 Hectares at 90 Trig Road.** Based on the information provided at this stage, in particular **drawing title: Proposed Servicing plan (separate plan for each development provided)** we confirm the following.

Water supply:

- **For the proposed development @15 Clarks LN Hobsonville 0618**

The existing network (100 mm) has the capacity to provide the required demand as well as the fire flow of FW2.

- **For the proposed development @90 Trig Road**

The existing network (150 mm) has the capacity to provide the required demand as well as the fire flow of FW2.

- **For the proposed developments @10 &16 Sinton Road**

The rider main doesn't have the capacity to supply the developments

We will need the 50 mm rider main upgraded to a pipe with an internal diameter of 100mm, See snip below for the upgrade option

Wastewater:

- **15 Clarks Lane -** would require a pumping station which is not just for the proposed development but for the entire catchment (needs to meet the long term needs of the catchment), this pumping station will need to be constructed by the developer of the proposed development. Please note the current proposed connection to the 150mm may not end up being the connection point for the proposed development due to network capacity as this will depend on the final determined flow rate of the pumping station.
- **90 Trig** - need to make sure the proposed drainage design is sufficient for the wider catchment and not only the proposed development. Needs to be sized and positioned to reasonably convey flows from upstream sites.
- **10 and 16 Sinton** - the developer must co-ordinate with the developments happening around this site rather than having another pump station because it is not ideal to have too many pump stations as part of our network. Solution should be optimised to meet long term catchment needs.

Yours Sincerely

Charvee Angurala
Development Engineer (North/West) | Developer Services

Watercare
An Auckland Council Organisation

Tom Lemon

Subject: FW: Whenuapai Development Assessments for Cabra Developments Ltd

From: CAngurala (Charvee) s 9(2)(a)
Sent: Monday, 3 October 2022 11:36 am
To: Tom Lemon s 9(2)(a)
Cc: Lars Fog s 9(2)(a)
Subject: RE: Whenuapai Development Assessments for Cabra Developments Ltd

Hi Tom,

Thank you for your email.

Your consultation application is currently under assessment.

Will get back to you soon.

Kind regards

Charvee Angurala | Development Engineer (North/West), Developer Services

Watercare Services Limited
Customer service line: +64 9 442 2222 ext 4
Postal address: Private Bag 92 521, Victoria Street West, Auckland 1142, New Zealand
Physical address: 73 Remuera Road, Remuera, Auckland 1050, New Zealand
Website: www.watercare.co.nz

From: Tom Lemon s 9(2)(a)
Sent: Tuesday, 6 September 2022 2:32 pm
To: Info mailbox <Info@water.co.nz>
Cc: Lars Fog s 9(2)(a)
Subject: FW: Whenuapai Development Assessments for Cabra Developments Ltd

Hi,

Our client, Cabra Developments Ltd, are proposing multiple developments within the Whenuapai area and request assessments for wastewater and water servicing by Watercare Services Ltd. The development sites are:

- **15 Clarks Lane, Whenuapai** – approx. 96 residential lot development
- **10 Sinton Road, Whenuapai** – approx. 72 residential lot development
- **16 Sinton Road, Whenuapai** – approx. 77 residential lot development
- **90 Trig Road, Whenuapai** – light industrial development with an approx. gross floor area (GFA) of 3.2 hectares

In support of the development assessments, please find attached the following:

- WSL Development Application form
- Development Consultation application
- Water supply demand calculations
- Wastewater discharge calculations
- Proposed servicing layouts for each site

The servicing proposals for 15 Clarks Lane, 10 and 16 Sinton Road are consistent with what was previously agreed with WSL during the Whenuapai Plan Change 5 consultation process.

If you require any further information, please let me know.

Regards,

Tom Lemon
ENGINEER

Aspire Consulting Engineers Limited
PO Box 581 | OREWA 0946 | AUCKLAND
9a, 30 Foundry Road, Silverdale
s 9(2)(a)
www.aspeng.co.nz

Watercare
An Auckland Council Organisation

Development consultation application

Apply for Watercare to assess the water and wastewater connections for a proposed development.

Please complete and return this form to
Post: Watercare, Private Bag 94010, Auckland 2241
Email: info@water.co.nz
Phone: (09) 442 2222 Website: www.watercare.co.nz

Important information

The fees for this application must be paid before the assessment can be released. Please make sure you attach all the documents required in your application.

1. Your details

First name | Last name

Company (if applicable) Aspire Consulting Engineers Ltd

Postal address:

Street number | Street name or PO Box PO Box 581

Suburb Orewa | Postcode 0946

s 9(2)(a)

Phone | s 9(2)(a) | Fax

2. Reason for assessment

I would like to apply for: (please tick one)

yes A development consultation

An infrastructure assessment and technical queries

Please give the reason for your request:

Please provide:

- The plans of the proposed works with this application

Please provide a brief description of the proposed work:

Please provide:

- The relevant drawings with the proposed location and size of the water and wastewater connections
- A completed General inquiry infrastructure form

continued >>>

3. Property details

Legal property/site address:

Lot number | Deposited plan (DP) number

Certificate of Title (CT) number | Ward

Note: These legal property description details can be found on property plans, building consents or legal documents

Auckland Council proposal number (if known):

4. Billing details – details of the person authorised to pay the fees associated with this application

☐ Same as section 1

First name | Last name

Company (if applicable) Cabra Development Ltd

Postal address:

Street number | Street name or PO Box PO Box 197

Suburb Orewa | Postcode

Email

Phone ( ) s 9(2)(a) | Fax ( )

5. Authorisation

I hereby declare that the information given on this application is true and correct.

Name | Signature

Date DD / MM / YYYY

Privacy

We may use this information to process your application, update our records or help improve our services. We will not disclose it unless required by law. You have the right to access your information, and you can ask us to correct any errors.

For office use only

Application number:

Lodgement date: DD / MM / YYYY

Development Application Form – Water Supply/Wastewater Planning Assessment		
Date of Application	**7/07/2022**	
Address of Development	**15 Clarks Lane, Whenuapai** **10 & 16 Sinton Road, Whenuapai** **90 Trig Road, Whenuapai**	
Layout Plan of Proposed Development clearly showing: • Aerial photograph • Road names • Boundary of development • Preferred point of connection to existing water supply and wastewater asset	Refer to attached sketches	
	Description	**Comment**
Current Land Use	Lifestyle blocks	**Residential** - 15 Clarks Lane, 10 & 16 Sinton Road **Light Industrial** - 90 Trig Road
Proposed Land Use	Residential & Light Industrial	
Total Development Area (Ha.)	*13.95 hectares*	
Number of Residential Households (Consent & Ultimate)	Residential Lots = 245 Light Industrial GFA = 32060m²	

Refer to Water and Wastewater Code of Practice for Land Development and Subdivision Section 6 Water Supply

Water Supply Development Assessment		
Average and Peak Residential Demand (L/s)	ADD = 1.87l/s PHD = 9.4l/s	*Show calculations based on Watercare CoP*
Average and Peak Non-Residential Demand (L/s)	PHD = 1.7l/s	*Show calculations based on Watercare CoP*
Non Residential Demand Typical Daily Consumption Profile / Trend	10 hours operation – 7am – 5pm	*E.g. 24 hr operation / 10 hr (9am – 5pm) / Filling on-site storage at certain frequency)*
Fire- fighting Classification required by the proposed site	FW2	*Refer to New Zealand Standard SNZ PAS 4509:2008*
Hydrant Flow Test Results	☐ Yes ☒ No	*Attach hydrant flow test layout plan and*

		results showing test date & time; location of hydrants tested and pressure logged; static pressure; flow; residual pressure
Sprinkler System in building?	☐ Yes ☒ No	*Sprinkler design should consider Watercare Level of Service: minimum pressure at 200kPa and minimum flow at 25 l/min. The building owner shall conduct periodic review of sprinkler design.*
Further Water Supply comments		

Refer to Water and Wastewater Code of Practice for Land Development and Subdivision Section 5 Wastewater

Wastewater Development Assessment		
Peak DWF and WWF Residential Design Flows (L/s)	Consent PDWF = Consent PWWF= Ultimate PDWF = 1.53 Ultimate PWWF = 10.25	*Show calculations based on Watercare CoP.* *If relevant for ultimate development scenario include No. of Potential Units/ lots for calculations.*
Peak DWF and WWF Non-Residential Design Flows (L/s)	Consent PDWF = 1.67 Consent PWWF = 11.2	*Show calculations based on Watercare CoP.*
Non-Residential Discharge Profile / Trend (i.e. Operations)	10 hours operation – 7am – 5pm	*E.g. 24 hr operation / 10 hr (9am – 5pm) / Other*
New Assets Required for Development	Pump Stations x 2	*If applicable please provide supporting calculations and indicative design parameters (ie. Pump Station and rising main or storage)*
Sewer Capacity Check		*Capacity assessment at proposed connection point and impact on network*
Further Wastewater comments:		

For internal Watercare use only

Date Application Received	
Application Ref No.	
Assigned Connections Engineer	
Prior Developer Correspondence with Watercare	

Aspire Consulting Engineers
Water Capacity

Job Number: **1712**
Client: **Cabra Developments**
Site Details: **Whenuapai Developments (15 Clarks Lane, 10 & 16 Sinton Road, 90 Trig Road)**

1. Use WSL Code of Practice for Subdivision and Development - Part 5 Water

2. Flow Rates from WSL CoP

Residential Dwellings (Res)

Daily Demand (DD)	220	L/P/DAY
Peak Day Demand (PDD)	2	
Peak Hourly Demand (PHD)	2.5	

Dry Industrial (DI)

Light water users	4.5	L/m2/DAY

3. Calculate ADWF and PWWF for catchment

Zone/Site	CATCHMENT (Ha)	Gross Floor Area (GFA) (m^2)	NO. OF DWELLINGS	CATCHMENT POPULATION (assumes 3 persons/dwelling)	ADD (L / DAY)	PDD (L / DAY)	PHD (L/h)	PHD (L/S)
15 Clarks Lane (Res)			96	288	63360	126720	13200	3.7
10 Sinton Road (Res)			72	216	47520	95040	9900	2.8
16 Sinton Road (Res)			77	231	50820	101640	10588	2.9
90 Trig Road (DI)		32060				144270	6011	1.7
						467670	**39699**	**11.03**

Aspire Consulting Engineers
Wastewater Flow

Job Number: **1712**
Client: **Cabra Development Ltd**
Site Details: **Whenuapai Developments (15 Clarks Lane, 10 & 16 Sinton Road, 90 Trig Road)**

1. Use WSL Code of Practice for Subdivision and Development - Part 5 Wastewater

2. Flow Rates from WSL CoP Table 5.1.1 and 5.1.4

ADWF

Urban (Res)	180	L/p/day
Dry Industry (DI)	4.5	L/m²/day

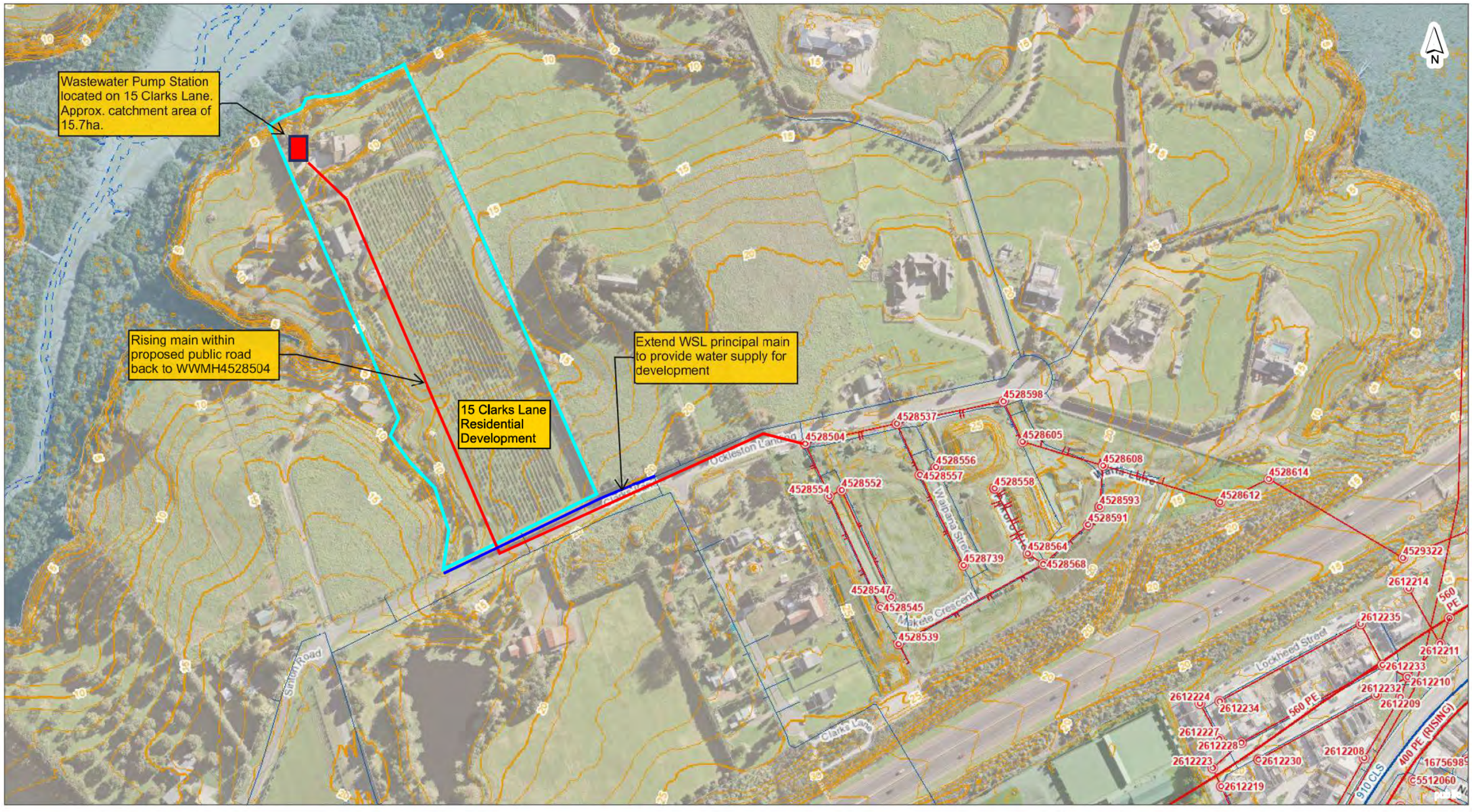
Table 5.1.1
Table 5.1.4 Light water users, or up to 2 storeys
Note: m² only relates to GFA, assume 70% of total area

Peaking Factor	6.7

3. Calculate ADWF and PWWF for catchment

Zone/Site	WSL Connection Point (WSL GIS ID)	CATCHMENT (m²)	Gross Floor Area (GFA) (m²)	NO OF DWELLINGS (30/ha)	CATCHMENT POPULATION (assumes 3 persons/dwelling)	ADWF (L/day)	PWWF (L/day)	ADWF (L/sec)	PWWF (L/sec)
15 Clarks Lane (Res)	**WWMH ID 4528504**	32000		96	288	51840	347328	0.60	4.0
10 Sinton Road (Res)	**WWMH ID 2570888**	23900		72	215	38718	259410.6	0.45	3.0
16 Sinton Road (Res)	**WWMH ID 2570888**	25700		77	231	41634	278947.8	0.48	3.2
90 Trig Road (DI)	**WWMH ID 2642145**		32060			144270	966609	1.67	11.2
TOTAL						**276462**	**1852295.4**	**3.20**	**21.4**

Attachment 2 - Proposed Wastewater & Water Servicing Strategy



15 Clarks Lane, Whenuapai
Proposed WW & Water Servicing Plan

0 25 50 75
Meters

Scale @ A3
= 1:2,500

Date Printed:
8/07/2022

Auckland Council
Te Kaunihera o Tāmaki Makaurau

0 50 100 150
Meters

Scale @ A3
= 1:5,000

Date Printed:
8/07/2022

Auckland Council
Te Kaunihera o Tāmaki Makaurau

0 25 50 75
Meters

Scale @ A3
= 1:2,500

Date Printed:
11/07/2022

Auckland Council
Te Kaunihera o Tāmaki Makaurau