WASTEWATER AND WATER SUPPLY REPORT

On behalf of:

BUCKLAND ROAD PLAN CHANGE

301 & 303 Buckland Road
Pukekohe

10 NOVEMBER 2021
BSL REF: 5275
REVISION B

REPORT PREPARED BY	REPORT REVIEWED BY	REPORT AUTHORISED BY
		
KELLY BOSGRA REGISTERED PROFESSIONAL SURVEYOR	SIR WILLIAM BIRCH REGISTERED PROFESSIONAL SURVEYOR	SIR WILLIAM BIRCH DATE: 28 OCTOBER 2021

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APPENDICES

1 INTRODUCTION

1.1 PROJECT

The report comprises a Wastewater and Water Supply Assessment in support of the Buckland Road Road Plan Change.

1.2 LEGAL DESCRIPTION

The site is approximately 7.85ha of land located just south of Pukekohe comprised in 2 separate properties owned by Peterex Properties Ltd (Pt Lot 1 DP 3363 being the northern title) and Pukekohe Ltd (Lot 1 DP 64805 being the southern title).

1.3 SITE DESCRIPTION

The boundaries of the site are described as being the defined by Buckland Road to the east, the rural-urban boundary to the west and a gully system to the south.

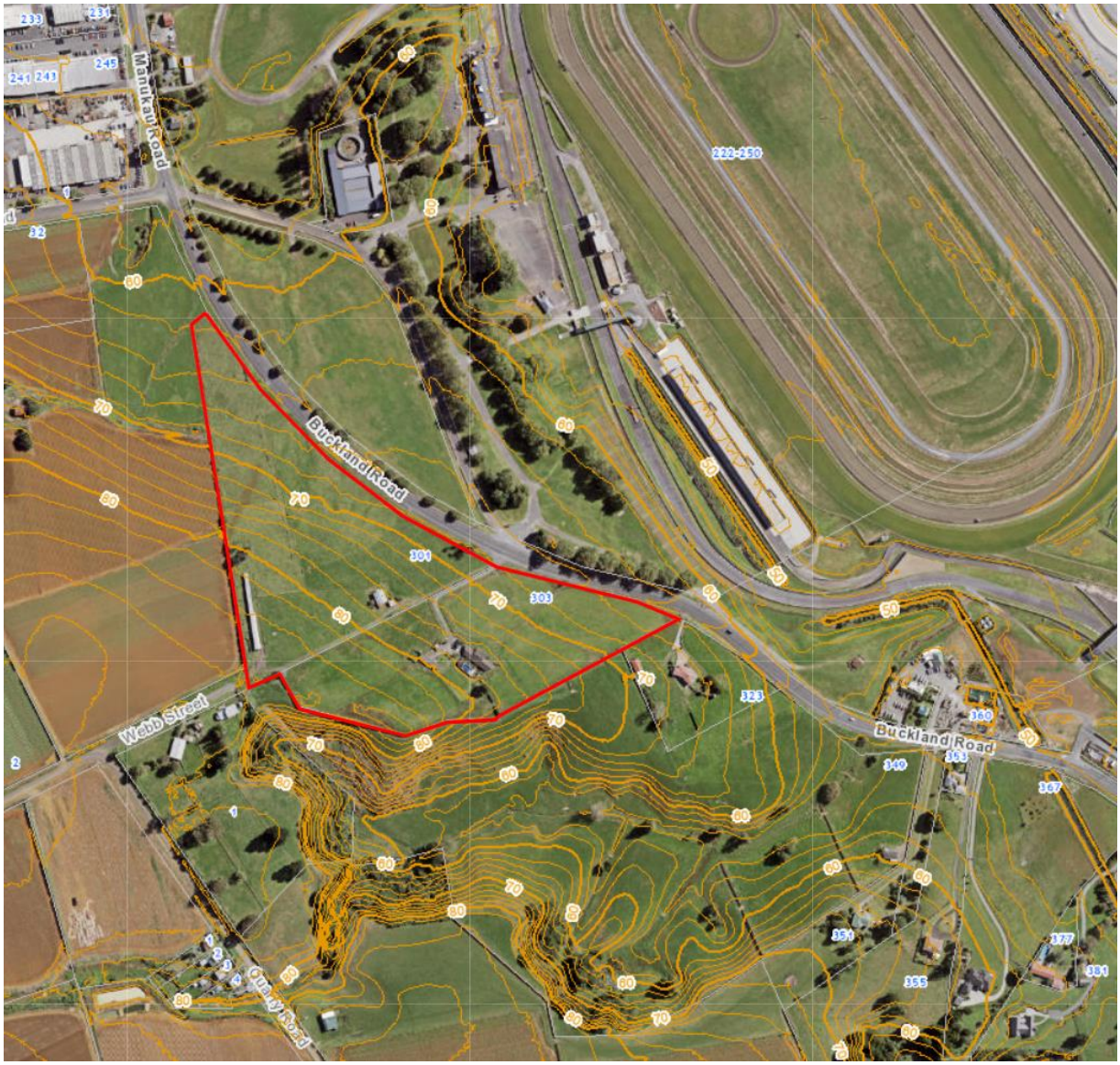


Figure 1: The plan change site in red. (Source: Birch Surveyors)

The site has a moderate contour, from south-west to north-east, sloping to Buckland Road.

2 WASTEWATER RETICULATION

2.1 EXISTING NETWORK

The existing wastewater reticulation network servicing the Pukekohe area is predominantly a series of gravity flow piped systems which carry wastewater to three pump stations within the area, as represented in Figure 2 below.

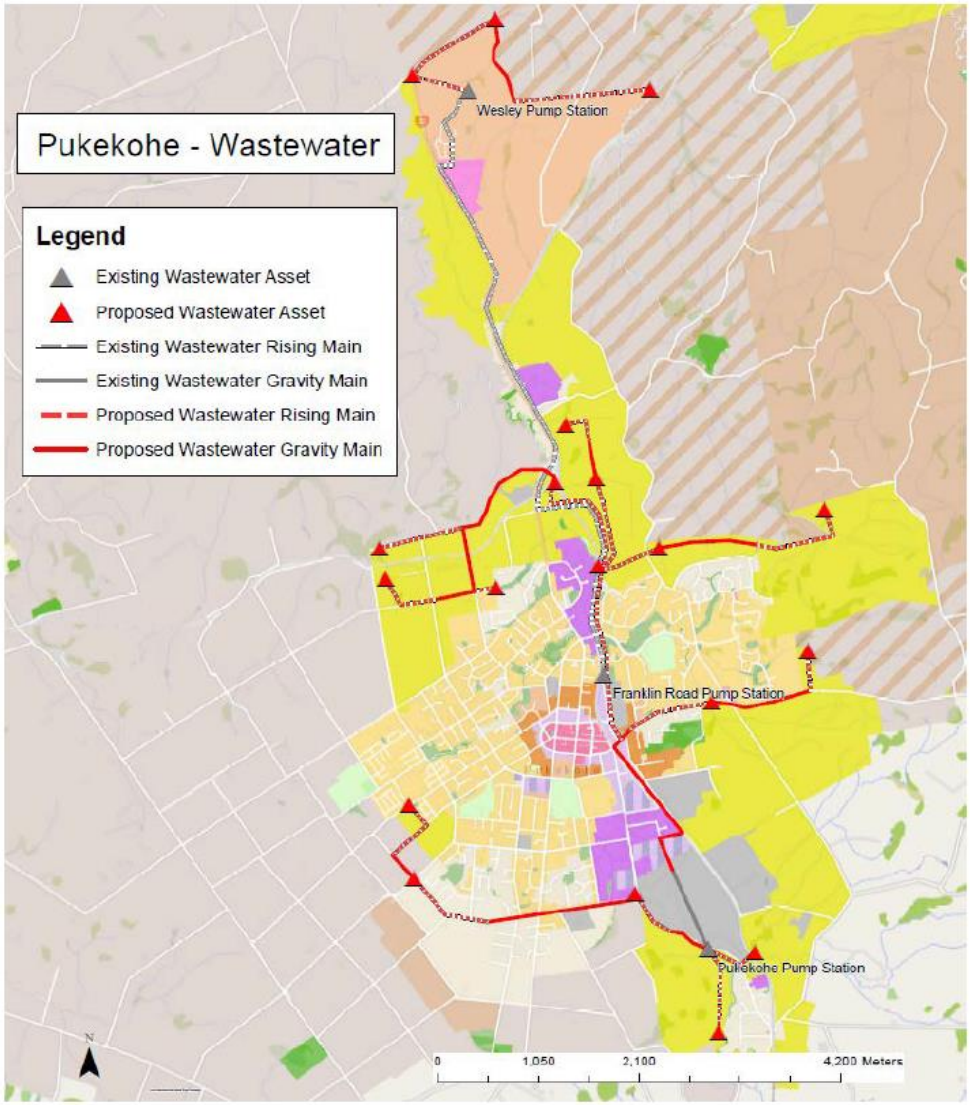


Figure 2: Indicative Pukekohe/Paerata Servicing Plan

Sewage collected via the Wesley Pump Station and Franklin stations are transferred to the Pukekohe Transmission Pump station, which is then conveyed via a 7km trunk main to the Pukekohe wastewater Treatment Plant located on Parker Lane where it is treated and ultimately discharges into the Waikato River.

2.2 EXISTING WASTEWATER NETWORK CAPACITY ASSESSMENT.

A Technical report prepared by Watercare, was submitted to council for the Pukekohe/Paerata Structure plan and included in Appendix C. Within the report Watercare has undertaken a wastewater network capacity assessment of Pukekohe's existing infrastructure and state that the

recently constructed Pukekohe Pump station can accommodate the ultimate future wet weather flows from Pukekohe/Paerata structure plan, which includes the area associated with this Private Plan Change, with the site being just west of the Pukekohe Pump station and within the Future Urban zone.

2.3 PROPOSED DEVELOPMENT.

The Private Plan Change for the proposed development relates to a 7.86ha area currently zoned Future Urban under the operative Auckland Unitary Plan with a proposed Business - Light Industry zone under the Pukekohe Paerata Structure Plan. The proposed development would involve changes to the current zoning to Business – General Business. Indicative layout and connectivity plans showing the proposed zone are included in Appendix A.

A network capacity assessment was undertaken for the proposed development, with the calculations included in Appendix B. and has been assessed in accordance with the Watercare Code of Practice for Land Development. The proposed Average Daily Weather Flow (ADWF), Peak Dry Weather Flows (PDWF) and Peak Wet Weather Flows (PWWF) calculation, have been tailored to accommodate for both the parameters and areas represented in Tables 3 and 4 below.

Dry industry activity type	***Routine Peak Daily Discharge*** *Litres per square metre per day ($L/m^2/d$)* *(See Note 5)*	***Design wastewater peaking factors***	
		Peaking factor: Self-Cleansing Design Flow *(Normal PDWF)*	***Peaking factor: Peak Design Flow*** *(PWWF or Exceptional PDWF)* *(See Note 6)*
Light water users, or up to 2 storeys (Note 1)	*4.5*	*5.0 x (Routine Instantaneous Peak Discharge)*	*6.7 x (Routine Peak Daily Discharge)*
Medium water users, or 2 to 5 storeys (Note 2)	*6.0*		
Heavy water users, or 5 to 10 storeys (Note 3)	*11.0*		
Very heavy water users (Note 4)	*> 11.0 Specific design required*	*Specific design required*	*Specific design required*
Unknown and site area >10ha, <100ha	*1 L/s/ha (complete land area)*	*2.0*	*6.7*
Site area >100ha	*Refer to transmission design standards*	-	-

Table 3: Design dry Industry wastewater flow allowance and peaking factors (Source: Watercare COP)

PLAN CHANGE ZONE	**AREA (ha)**
Business – General Business (Plan Change)	7.8600
Business Light Industrial (Downstream Catchment)	11.3900
Total	**19.2500**

Table 4: Proposed Plan Change wastewater catchment zone areas

The estimated ADWF, PDWF and PWWF for the plan change area is summarised in Table 5 and calculations have been included within Appendix B.

Flow Type	ADWF (l/s)	PDWF (l/s)	PWWF (l/s)
Business – General Business (Plan Change area)	5.5	27.5	36.9
Business – Light Industrial (Downstream catchment)	5.9	29.5	39.5
Ultimate Development Flows	11.4	57.0	76.4

Table 5: Estimated Wastewater Flows

2.4 WASTEWATER RETICULATION OPTIONS

Based on our analysis of Pukekohe's existing wastewater infrastructure and the scope of the proposed plan change area, a gravity connection can be made to the existing reticulation and is identified as the Best Practicable Option, as there is no additional maintenance requirements beyond the pipe reticulation. Please see also the indicative layout plan included within Appendix A.

2.4.1 GRAVITY NETWORK TO EXISTING INFRASTRUCTURE

A new gravity network can service the Plan Change area. This can be accomplished by designing and constructing a traditional underground piped network from an appropriate point on the existing infrastructure. This option would be the most preferable as it provide a network connection and will not incur additional maintenance costs associated with Pump Stations etc.

2.5 WASTEWATER CONNECTION POINT

Further to the preferred scenario, this Plan Change can connect to Pukekohe's existing wastewater infrastructure via a gravity line to the existing 525mm Wastewater Line approaching the Pukekohe Pump Station (GIS ID 760539), as shown in Figure 7 below.

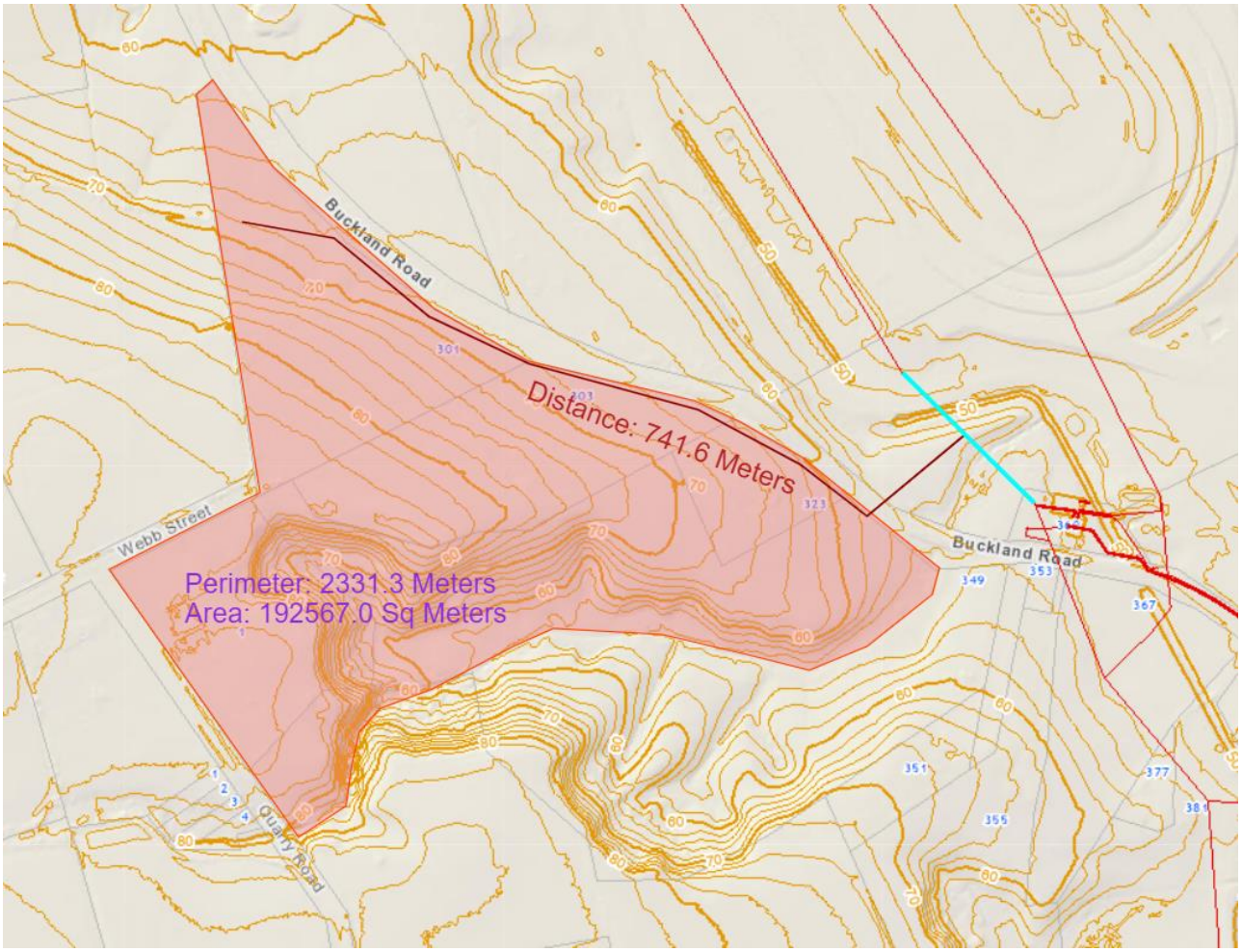


Figure 6: Wastewater connection manhole

This connection point is within the Pukekohe Park Raceway and immediately upstream of the Pukekohe Transmission Pump Station.

2.5.1 THE PUKEKOHE TRANSMISSION PUMP STATION

As per the findings of the Technical Report, prepared by Watercare (Appendix C), the Pukekohe Transmission Pump station, is located at 360 Buckland Road, which is located approximately 400m to the east of the proposed development. This has been designed and built to accommodate the ultimate future wet weather flows from the Future Urban Zone, including the Pukekohe/Paerata structure plan within which the Plan Change is located.

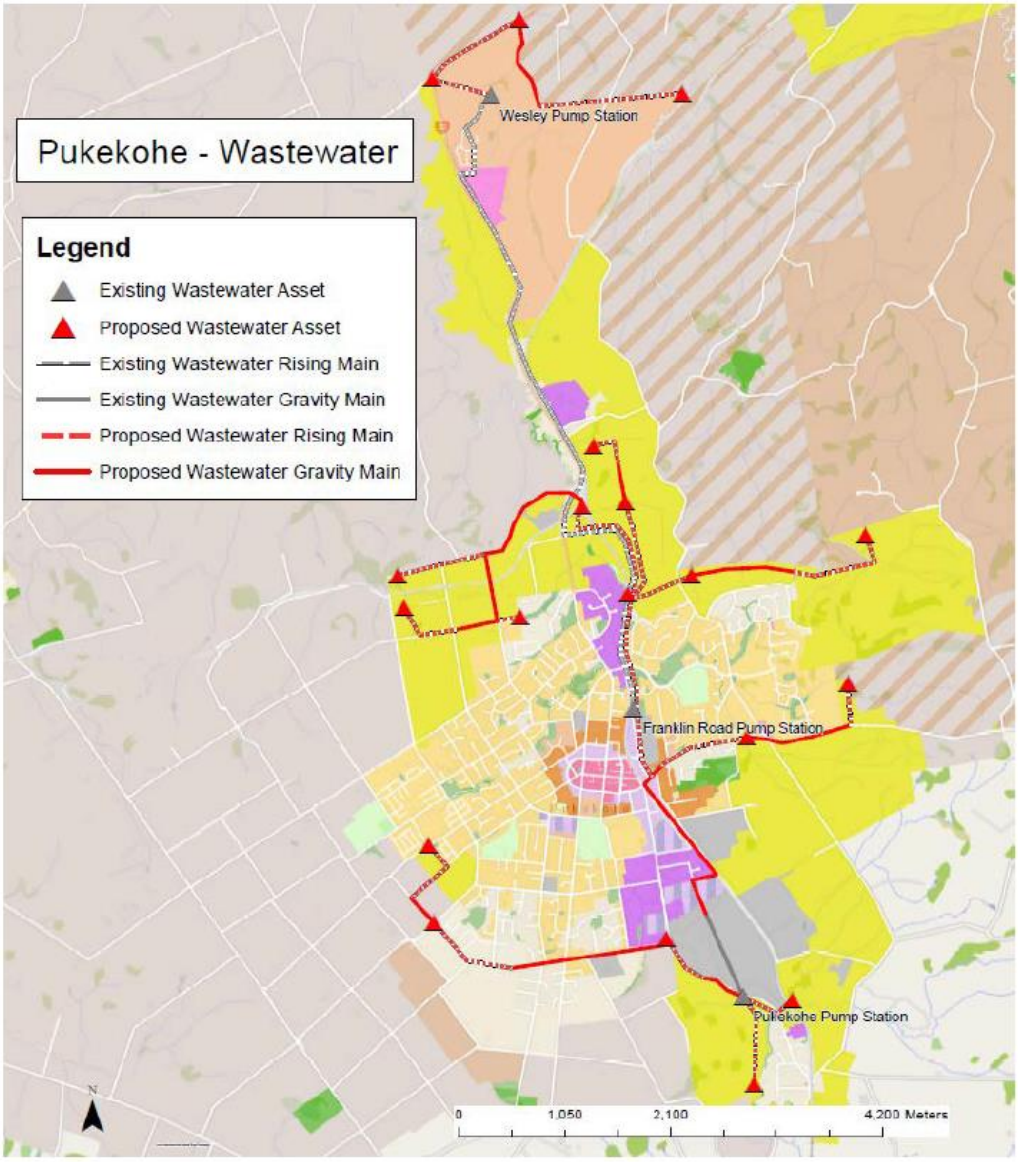


Figure 7 Pukekohe Paerata Structure Plan Wastewater Assets (Source Structure Plan)

The existing contours and levels indicate that a Gravity Connection can be made from the existing infrastructure to service the proposed plan change, and this is the preferred method.

Concept Wastewater reticulations Plan have been drafted and included in Appendix A of this Report. The design has been detailed below and should be read together with the Wastewater reticulation plans.

2.5.2 LAYOUT

An indicative layout for the wastewater reticulation is shown in Figure 9 and included in Appendix A

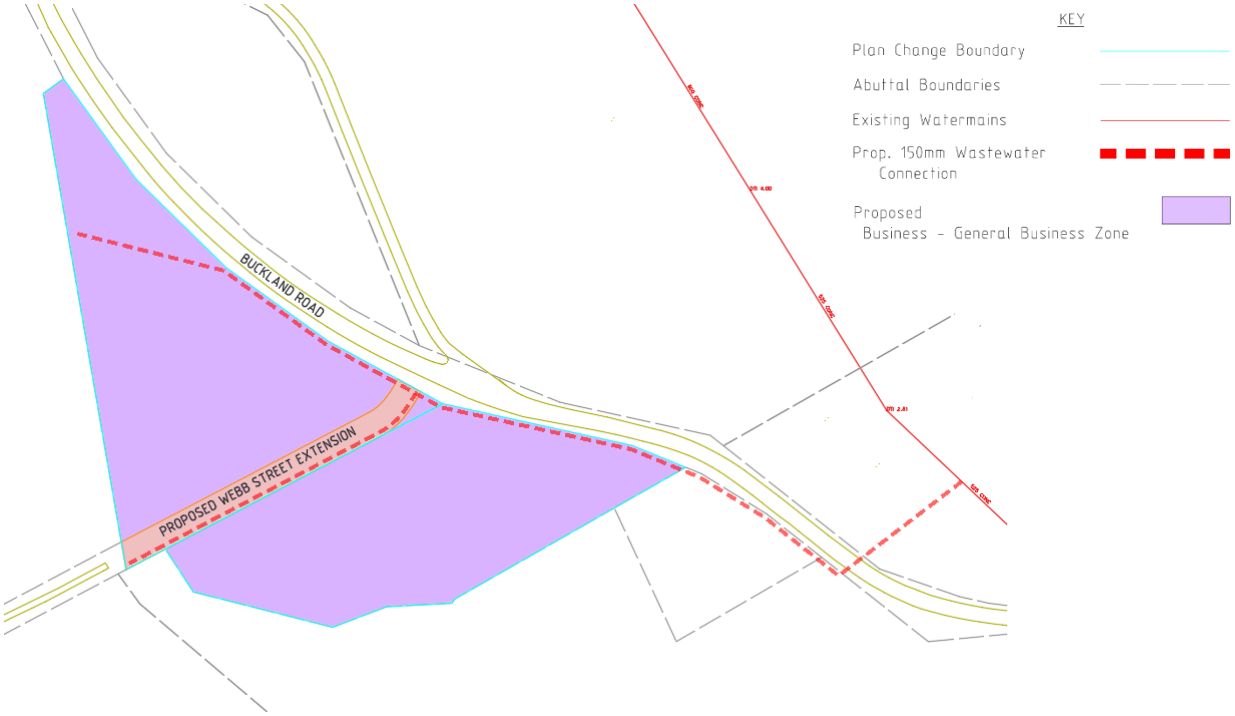


Figure 8 - Indicative Plan Change Wastewater Layout

The final layout and pipe sizes will be confirmed upon future subdivision and will be completed in compliance with the Watercare Code of Practice for Land Development. All new pipelines pipes collecting and conveying wastewater flows will need to consider the upstream and downstream catchments and be sized accordingly to meet the anticipated development yield.

The wastewater connection to the existing infrastructure is proposed to terminate at a new Manhole over the existing 525mm wastewater line near the Pukekohe pump station, located at 360 Buckland Road. This is shown by the long section plan included in Appendix B. The line connecting the Plan Change to the existing Manhole is proposed to be a 225mm Pipe at a grade of 2%. The flow calculations anticipate that this pipe will flow at 75% flow depth during PWWF of 76 l/s.

2.5.3 CURRENT OWNERSHIP LAND

Where the proposed wastewater reticulation layout crosses adjoining properties, neighbour approval forms will be required to be obtained. This includes Auckland Transport and Pukekohe Park. We do not anticipate any issues with either party, and have undertaken preliminary discussions with Pukekohe Park and have positive responses from them regarding the proposed connection.

We understand that Pukekohe Park are currently contemplating a similar request to have some of its lane rezoned to Business – General Business Zone

2.6 SUMMARY

In summary,

The plan change area can be serviced by a gravity wastewater system.

The PWWF flow for the plan change area and upper catchment area is 76l/s.

The design can meet the standards required by Watercare's Code of Practice for Land Development.

The existing Pukekohe Transmission Pump Station can accommodate the additional flows created by this Plan Change.

2.7 FUNDING PROPOSAL

The extension of new wastewater infrastructure for the proposed development will be funded by the developers and the new infrastructure and assets will be vested to Auckland Council.

3 WATER SUPPLY RETICULATION

3.1 EXISTING WATER SUPPLY NETWORK

The current Water Supply system involves pumping Treated Water from the Waikato 1 Watermain to a number of Water Reservoirs in Pukekohe, these include Kitchener Road, Anzac Ave and Rooseville Park, the former being the closest reservoir or bulk supply. Kitchener Road has a supply elevation of RL 106m (Watercare), and with the other reservoirs, delivers water to Pukekohe Area.

The Plan Change Area contains two existing dwellings and both are connected to the public water supply via water meters. The existing Water Supply along Buckland Road is a 150mm fire main on one side of the road linking Pukekohe with Buckland, and a 100mm/80mm main on the other side, extending from Buckland to the southern boundary of the proposed plan change area.

There is also a low-pressure trickle feed along Webb Street west servicing the existing rural zoned land. We do not anticipate and alterations to this part of the network.

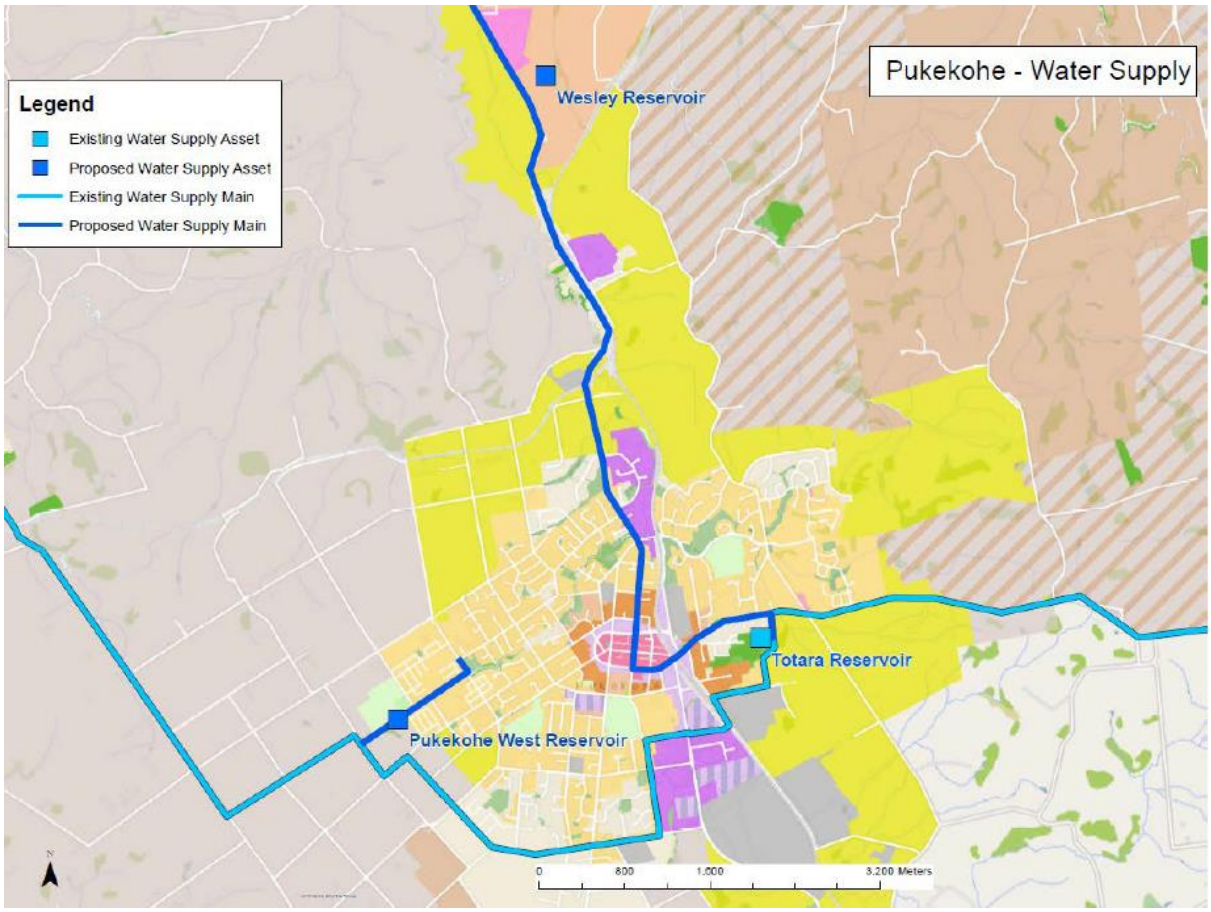


Figure 9 - Indicative Paerata/Pukekohe Servicing Plan (Source Auckland Council)

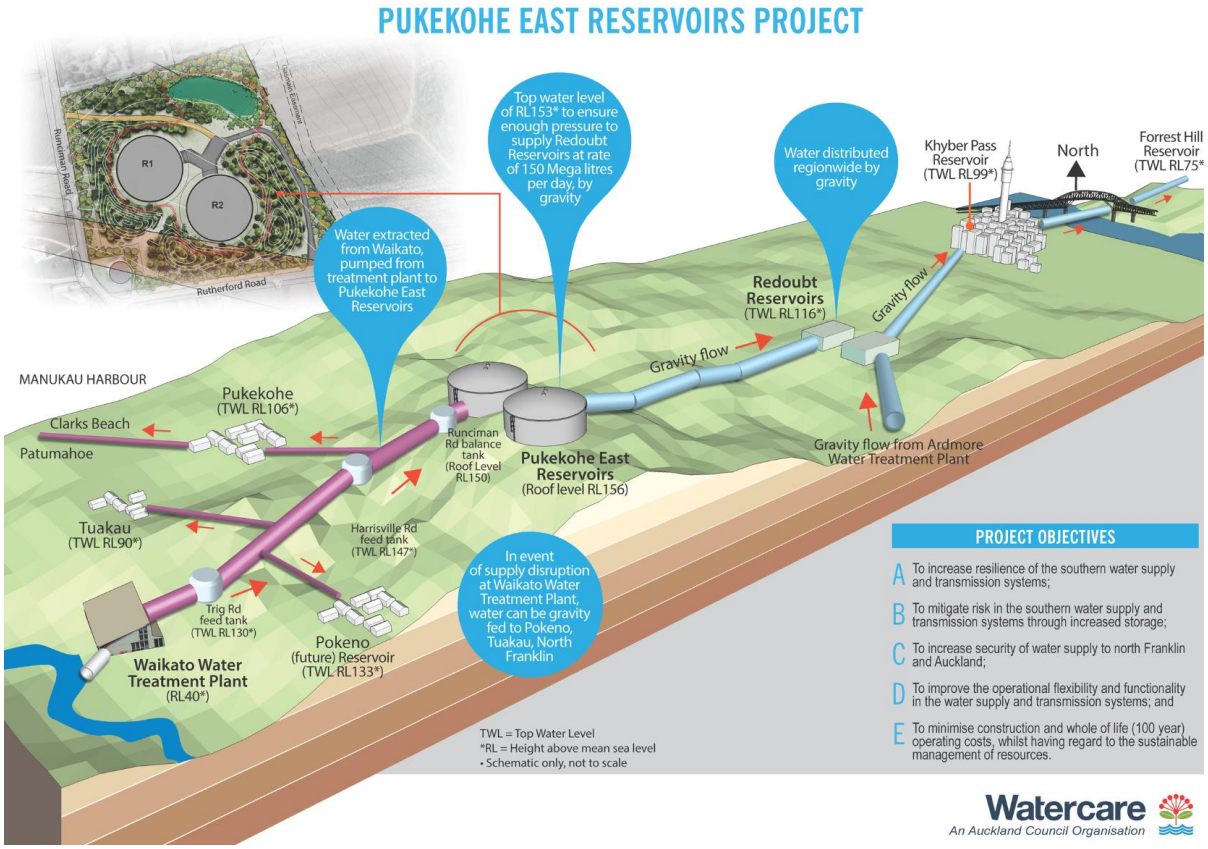
3.2 EXISTING INFRASTRUCTURE UPGRADE WORKS

WaterCare guidelines require a minimum level of service to every property, supply at least 25l/s flow at a minimum pressure of 250 kPa or 25m head.

Our understanding is the existing wider local water supply network has issues of varying pressures high head losses, high velocities, high water age estimates and general supply concerns. Watercare is currently undertaking water supply improvement works to increase security of water supply to cater for the growth of Pukekohe and Paerata including capacity to service the Future Urban Zone, within which this proposed Plan Change is located. Recently completed works include upgrades to the Kitchener Road Reservoir and current works being undertaken include the Pukekohe East Reservoirs Project.

Future water supply improvements and projects:

- New local reservoir to service the Paerata area, to be connected into the existing infrastructure.
- A new transmission service reservoir and boost pump station to service the growth in western Pukekohe, to be connected into the existing Pukekohe 1 transmission watermain.
- Pukekohe East Reservoirs (Runciman Road) is under the construction. Refer to the screenshot below:



- Longer term, a new transmission watermain will be constructed from Drury and connected into Totara Reservoir.

These improvements will improve the resilience and security of the Water Supply for the southern region, best described as being the historic Franklin District.

3.3 Proposed Development

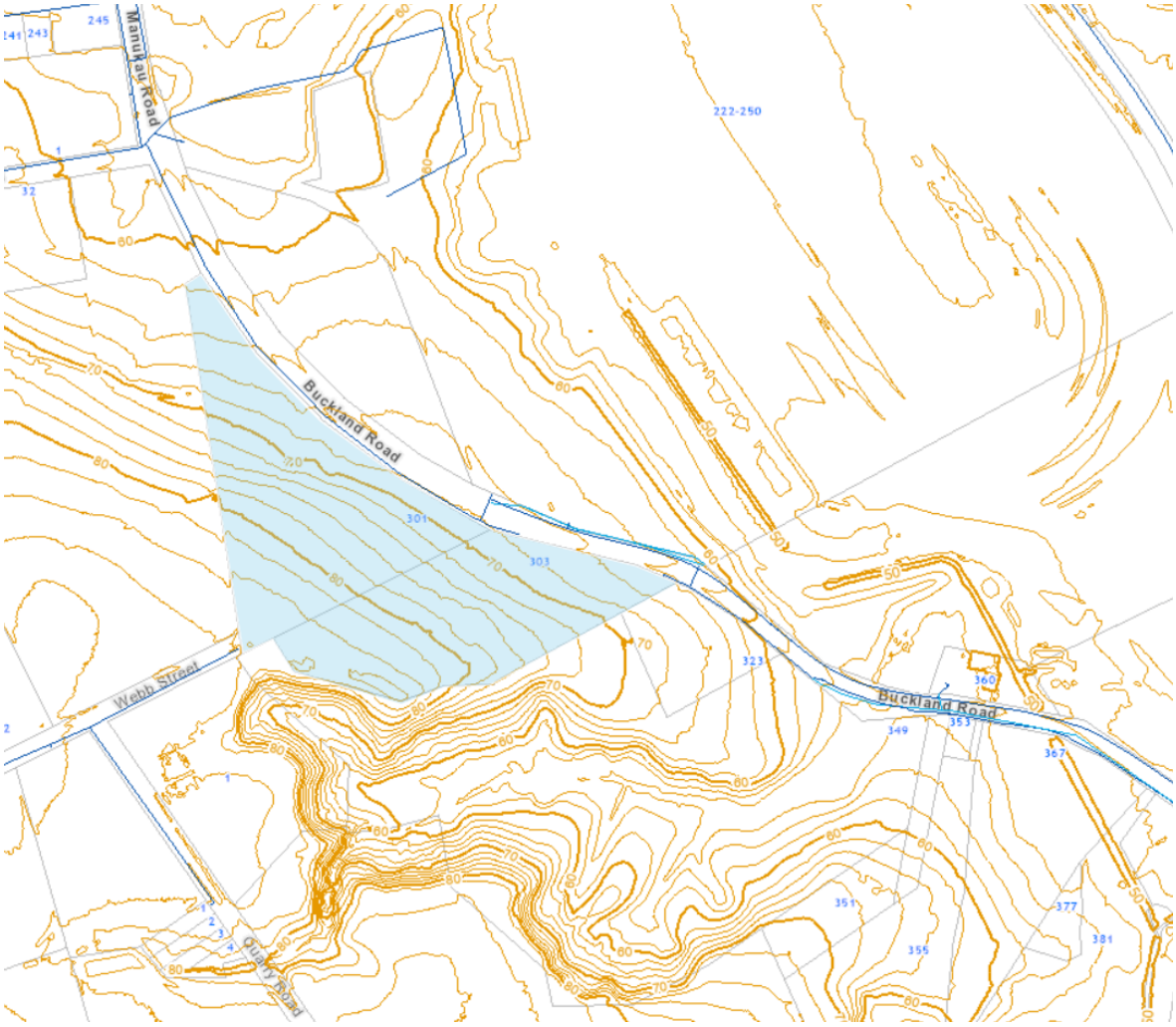
The proposed plan change area encompasses an area of 7.86ha which is currently zoned as Future Urban. The proposed development would involve the private zone change which will create a live zone of 7.86ha General Business Zone ready for development.

3.4 Proposed Water Supply Services

The proposed water supply networks must be able to service both peak demand and firefighting scenarios. According to Watercare Water Code of Practice and SNZ PAS 4509, the minimum flow is 25L/s for residential area and the minimum residual pressures during fire flow is 100kPa.

WaterCare guidelines require a minimum level of service to every property, supply at least 25l/s flow at a minimum pressure of 250 kPa or 25m head.

The proposed plan change has direct road frontage onto Buckland Road, and can connect to the existing Public Water Supply along the frontage of the site. There is an existing 150mm Water Main along Buckland Road between Buckland and Pukekohe, with a secondary main of 80mm/100mm installed on the other side from Buckland to the southern end of the site.



Watercare Empirical pipe sizing tables identify that the existing 150mm Water Supply Pipe can service up to 160 Residential Lots or 23ha General / Light Industrial land. Our understanding is the existing local water supply network is adequate for the current level of development as there is approximately 110 Residential lots connected to the existing water supply from Pukekohe, not accounting for any supply from the existing bore within Buckland. This water supply capacity can be proportionally allocated to 110 Residential lots and 7.36ha General / Light Industrial land being the area of the site available for development less area required for on-site Stormwater Treatment.

Table 6.2 – Empirical guide for principal main sizing

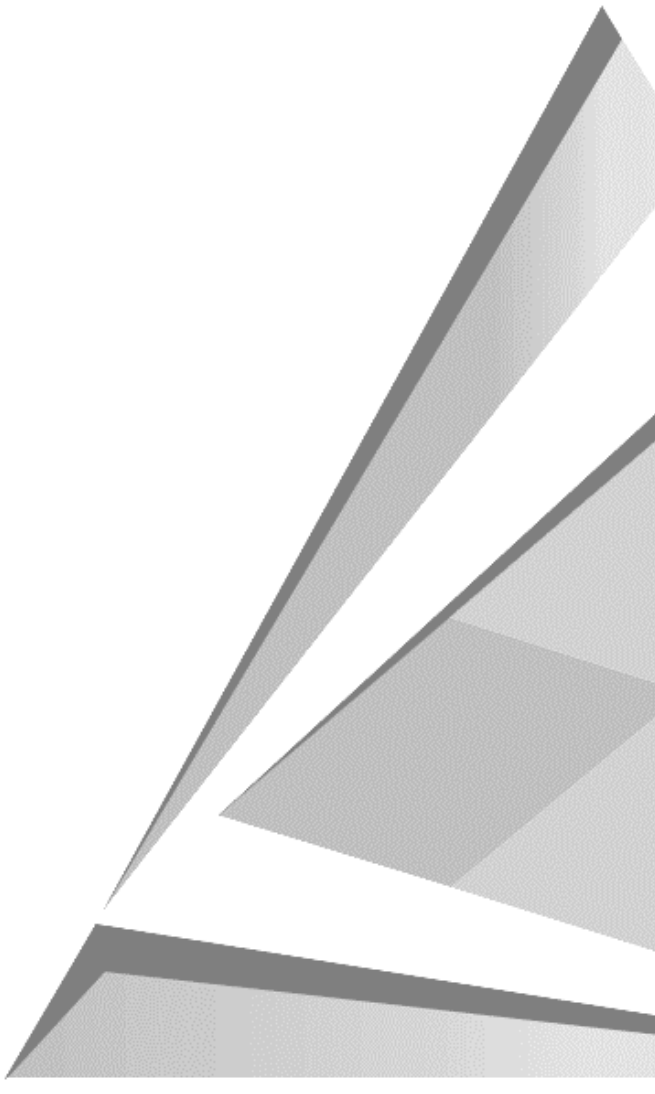
Nominal *Internal diameter*	**Capacity of main (single direction feed only)**			
	Residential (lots)	**Rural Residential** (lots)	**General/light industrial** (ha)	**High usage industrial** (ha)
100	40	10	–	–
150	160	125	23	–
200	400	290	52	10
225	550	370	66	18
250	650	470	84	24

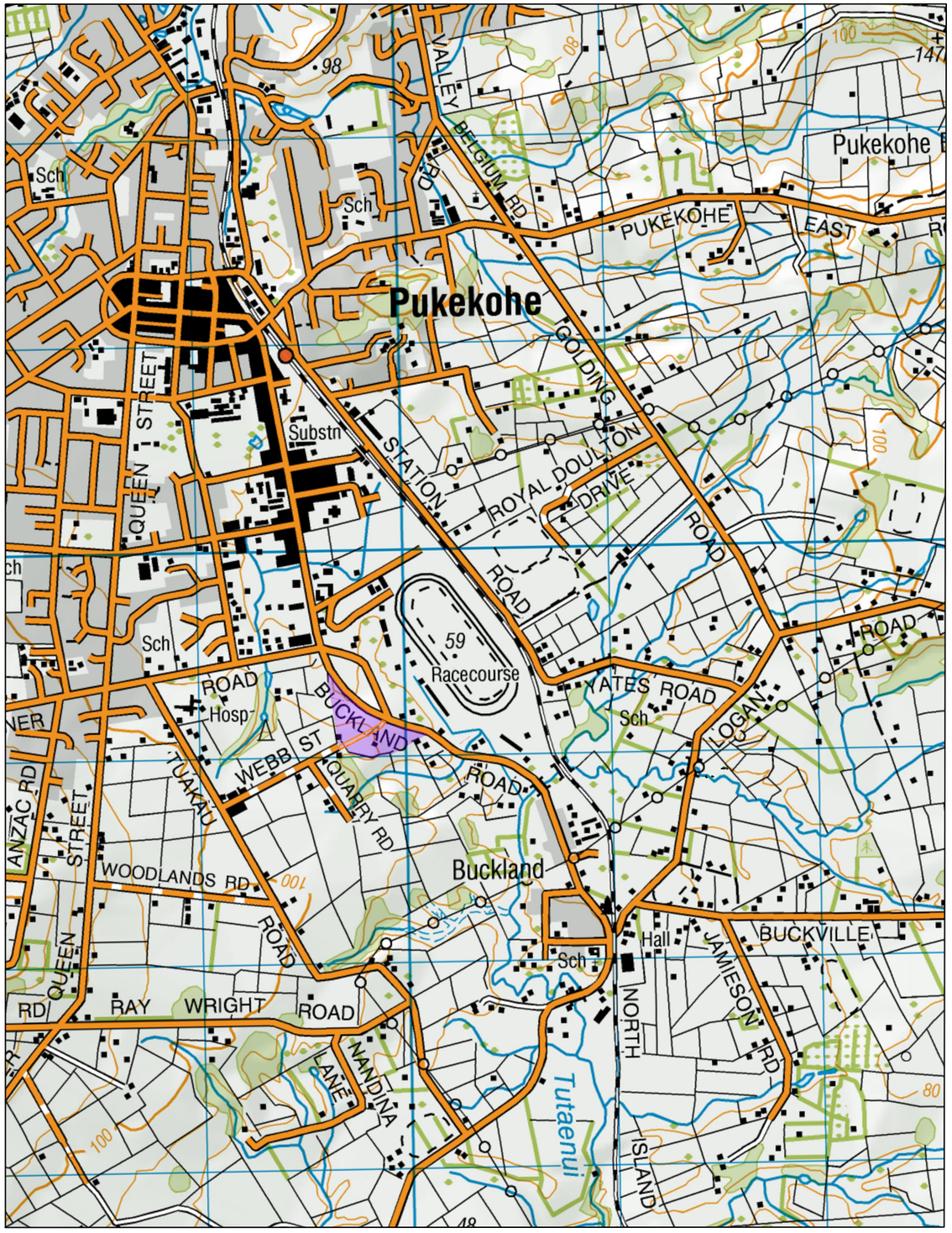
While this simple calculation indicates that there is likely to be water supply capacity, we recognise that upon site development, further water pressure test will be required and that localised network upgrades are anticipated, and are likely to consist of completing the secondary main across the site frontage to ensure adequate water supply for the peak demand as well as completing any internal reticulation along future roads.

3.5 FUNDING PROPOSAL

The extension of any required water supply infrastructure for the proposed development will be funded by developers and the new infrastructure and assets will be vested to Auckland Council. Opportunities also exist to work collaboratively with WaterCare to upsize the proposed mains, and Future Proofing the infrastructure with investment from WaterCare, allowing for ultimate development of the Pukekohe Paerata Structure Plan area.

APPENDIX A
WASTEWATER PLAN SET:
INDICATIVE WASTEWATER PLANS





original size A3

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www.birchsurveyors.co.nz

LOCAL AUTHORITY	AUCKLAND COUNCIL
PLANNING MAP	-
ZONING	FUTURE URBAN
ACTIVITY	-
COMPRISED IN	NA56A/559 & NA21A/288
TOTAL AREA	7.8677ha
REGISTERED OWNERS	Peterex Properties Ltd & Pukekohe Ltd

PROJECT NAME

BUCKLAND ROAD PLAN CHANGE

301 & 303 BUCKLAND ROAD
PUKEKOHE

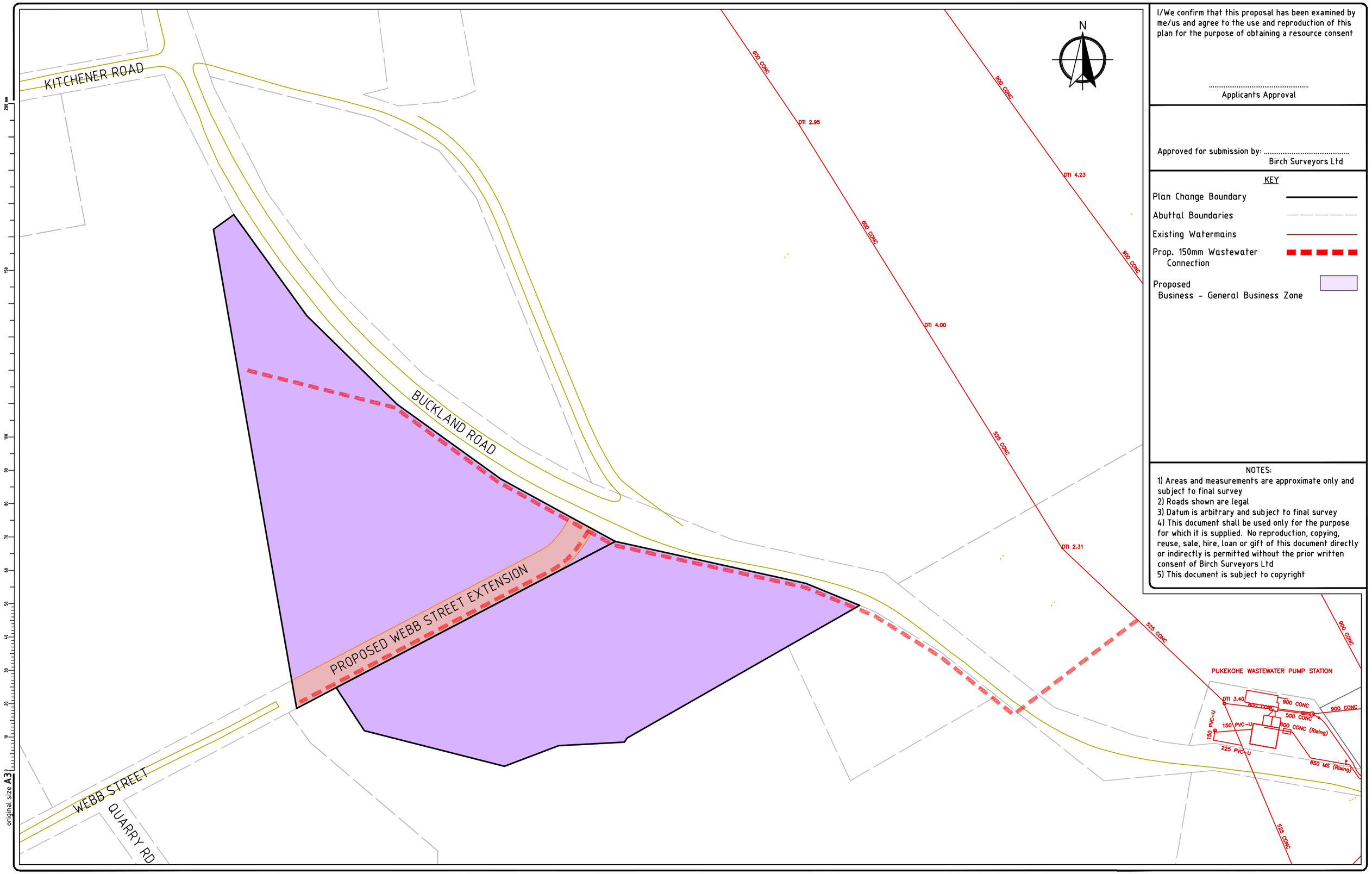
Surveyed -	Date -	Project No.	5275
Designed KDB	Date 10/2021	Scale	Hz: 1:2500 @ A3
Drawn KDB	Date 10/2021		
Approved PROJECT MANAGER	Date		

REV.	BY	DATE	COMMENT
A	KDB	10/21	For Release

TITLE

LOCATION PLAN

Drawing Name	F:\..CAD\CP 5275 B.dwg /Locality Plan	Rev.	B



I/We confirm that this proposal has been examined by me/us and agree to the use and reproduction of this plan for the purpose of obtaining a resource consent

.....
Applicants Approval

Approved for submission by: .....
Birch Surveyors Ltd

KEY

- Plan Change Boundary
- Abuttal Boundaries
- Existing Watermains
- Prop. 150mm Wastewater Connection
- Proposed Business - General Business Zone

NOTES:

1) Areas and measurements are approximate only and subject to final survey
2) Roads shown are legal
3) Datum is arbitrary and subject to final survey
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Approved PROJECT MANAGER	Date	

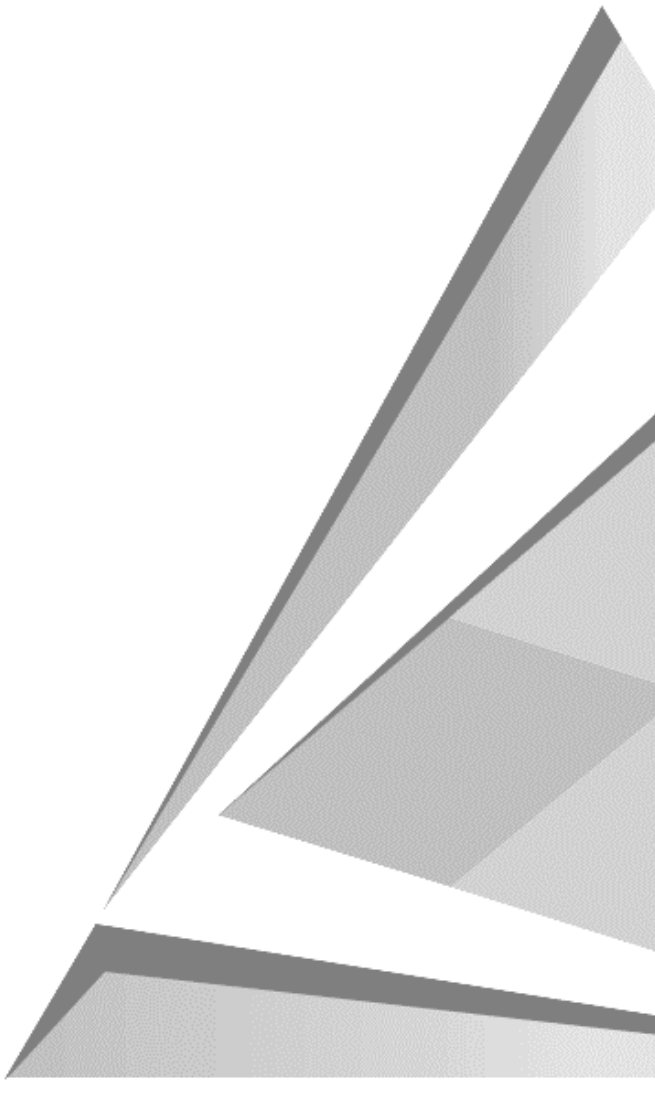
REV.	BY	DATE	COMMENT
A	KDB	10/21	For Release

TITLE

PROPOSED WASTEWATER SUPPLY

Drawing Name	F:\..CAD\CP 5275 B.dwg /Wastewater Supply	Rev.	B

APPENDIX B
WASTEWATER CALCULATIONS



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WASTEWATER CALCULATIONS

Business Zone - Mixed Use

	Plan Change	Future Development
A=	78600 m²	0 m²
Jobs =	291	0

Business Zone - Light Industrial

	Plan Change	Future Development
A=	0 m²	113900 m²
Jobs =	0	421

Business Zone - Plan Change

Mixed Use Business (m²)	78600	RPDD (l/m²/d)=	6
		ADWF (l/s) =	5.46
PDWF=	5		
PWWF=	6.7		
Peak Dry Weather Design Flow (l/s) =			27.29
Peak Wet Weather Design Flow (l/s)=			36.57

Business Zone - Ultimate Development

Mixed Use Business (m²)	78600	RPDD (l/m²/d)=	6
		ADWF (l/s) =	5.46
Light Industrial (m²)	113900	RPDD (l/m²/d)=	4.5
		ADWF (l/s) =	5.93
PDWF=	5		
PWWF=	6.7		
Peak Dry Weather Design Flow (l/s) =			56.95
Peak Wet Weather Design Flow (l/s)=			76.32

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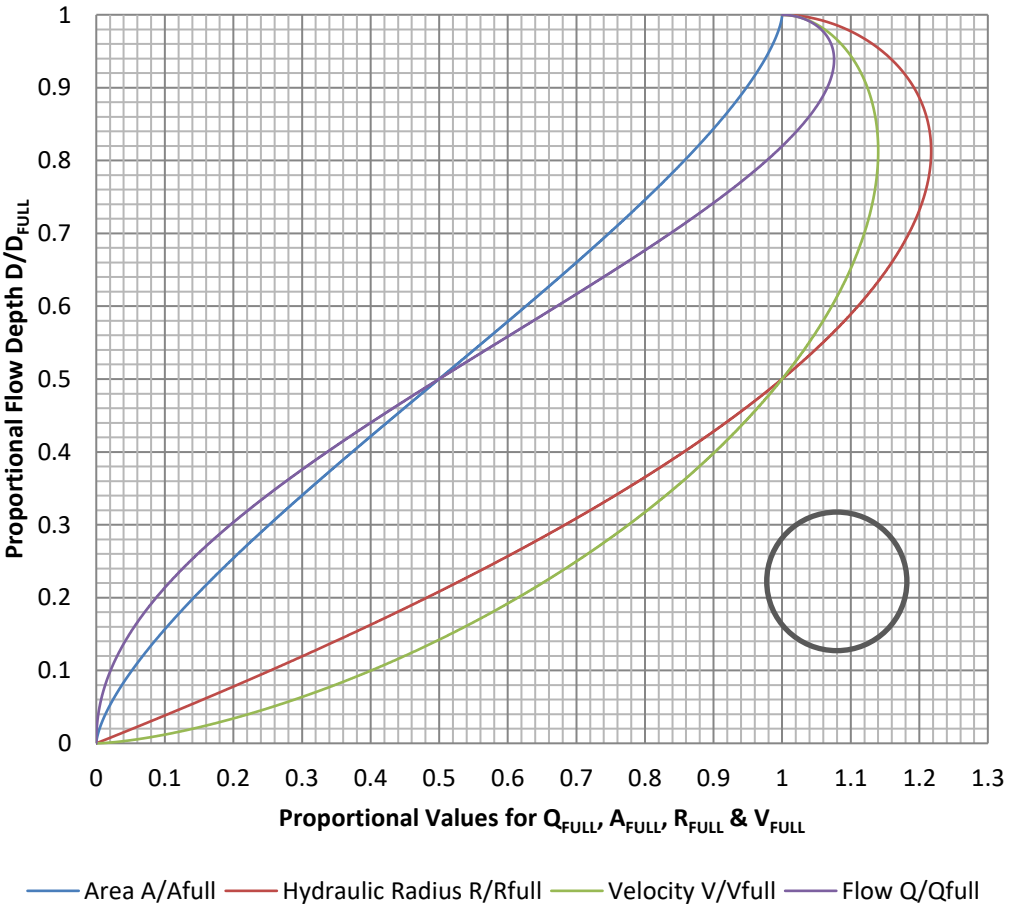
Pukekohe 2340

ph: 09 237 1111
fax 09 238 0033

Buckland Road to Ex. Wastewater Line - Minimum Gradient

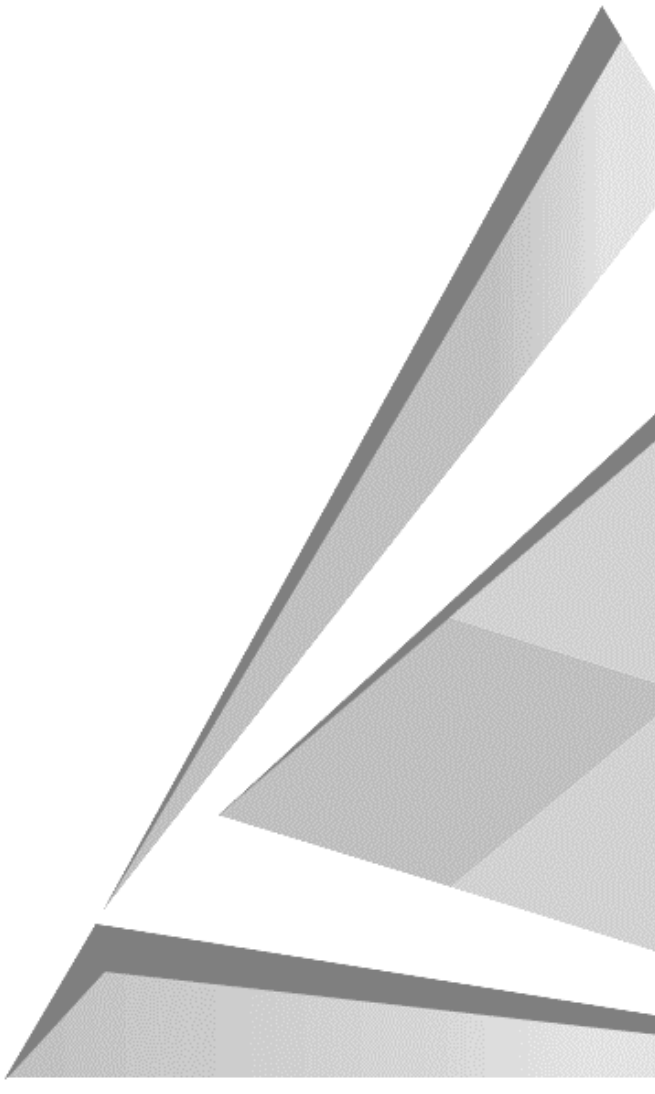
Enter Pipe Diameter:	250	mm
Enter Pipe Grade:	1 : 80	
Select Pipe Material:	MDPE	n = 0.013
Maximum Flow in Pipe:	84.52	l/s
Full Flow in Pipe:	78.58	l/s
Velocity at Full Flow in Pipe:	1.60	m/s
Enter Catchment Flowrate:	78	l/s
Depth of Flow in Pipe:	203	mm
Velocity of Flow in Pipe:	1.82	m/s

Hydraulic Elements of Circular Pipes



The flow depth and velocities are calculated to the maximum flow, not full pipe flow. This will calculate the maximum flow velocity for any flow rate, giving a small margin of error for flow depths greater than 91%.

APPENDIX C
WATERCARE TECHNICAL REPORT FOR PUKEKOHE/PAERATA STRUCTURE PLAN



Water and Wastewater Servicing Plan

Draft Pukekohe/Paerata Structure Plan

Prepared by Chris Allen, Watercare Services Limited

Auckland Council
Te Kaunihera o Tāmaki Makaurau

Table of Contents

1 Executive Summary

This report confirms that the anticipated development yield from the draft structure plan can be serviced for water and wastewater. This report sets out the water and wastewater plan for servicing the structure plan area. It is based on an anticipated yield from the structure plan area of around 12,500 dwellings, in addition to the existing live zoned residential land in Paerata and any intensification of the existing urban area. Watercare is investing in trunk water and wastewater networks to service the existing live zoned developments underway, allowing to bring forward the structure planning of the future urban zoned land.

1.1.1 Water

Watercare provides both bulk and local water and wastewater services to the Pukekohe/Paerata area. Some of these assets are reaching the limits of their ability to provide water services to a growing community.

There are existing issues within the Pukekohe water network, which expected growth within the structure plan area will exacerbate.

Trunk and local network pipelines providing water to the draft structure plan area are being designed to meet the proposed yield. Watercare will undertake trunk upgrades and work with developers to upgrade water assets to service the structure plan area as required. Water pipelines will follow roading alignments and be constructed in conjunction with the roads, as part of individual development proposals. All new pipelines will consider the future development potential when being designed and constructed.

Trunk and local network pipelines providing water to the draft structure plan area will be designed to meet the anticipated yield. All new pipelines will consider the upstream and downstream development potential when being designed and constructed.

1.1.2 Wastewater

The existing network has limited capacity to accommodate additional flows. Watercare will undertake upgrades in the existing wastewater network to accommodate the anticipated yield. The Pukekohe transmission pump station and the pipe between Pukekohe and the wastewater treatment plant have capacity for the expected growth, and will be upgraded as required to meet additional growth expectations.

Trunk and local network pipelines collecting and conveying wastewater from the structure plan areas are being sized to meet the anticipated development yield. Watercare will undertake trunk upgrades and work with developers to upgrade wastewater assets to service the structure plan area as required. Local wastewater pipes will be constructed in alignment with individual development proposals. All new pipelines will consider the upstream and downstream development potential when being designed and constructed.

2 Introduction

2.1 Purpose and scope of the report

This report sets out the water and wastewater servicing plan for the Pukekohe/Paerata Structure Plan Area. It is a supporting document that forms part of the draft structure plan information.

2.2 Study Area

The study area for the draft Pukekohe/Paerata Structure Plan is the Future Urban zone around Pukekohe/Paerata and the live zoned land in northern Paerata. It comprises around 1,300ha of land. The study area is shown coloured yellow Figure 1 below. The anticipated dwelling yield for the structure plan area is around 12,500 dwellings. The live zoned land at Paerata adds another 4,500 dwellings, the live zoned land at Belmont adds 720 dwellings and there will likely be intensification of the existing urban area.

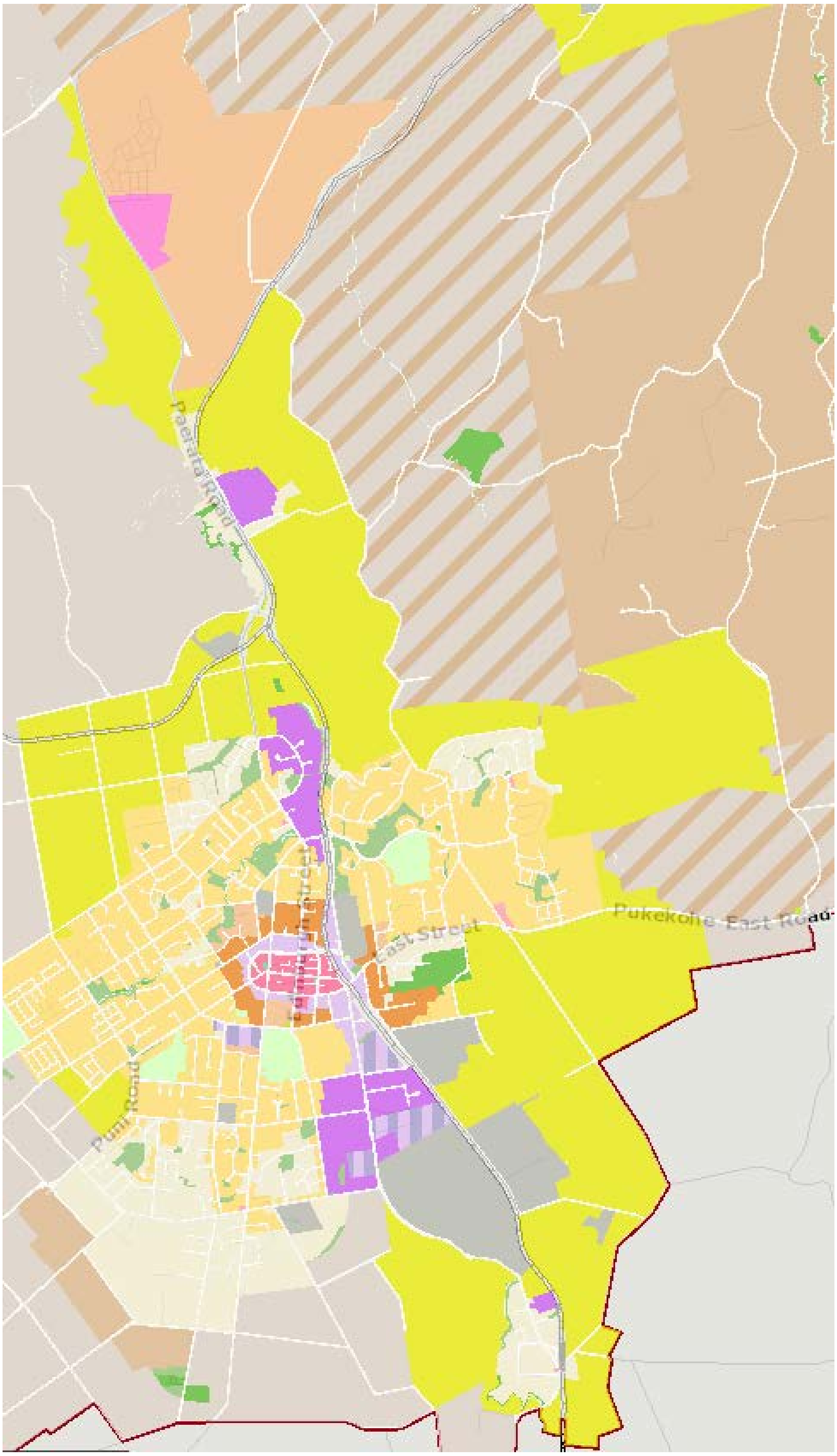


Figure 1: Pukekohe/Paerata structure plan study area (coloured yellow)

3 Existing environment

3.1 Description of study area

There is existing network infrastructure in place to provide both water and wastewater services to the existing urban area in Pukekohe/Paerata. There are currently no constructed assets in the draft structure plan area, although services are being constructed by developers as development occurs. The existing Paerata development has constructed both water and wastewater services, connected to the urban Pukekohe network, to provide these services.

3.1.1 Water

Water is abstracted from the Waikato River and treated at the Waikato water treatment plant. Treated water is then transferred through the Waikato 1 watermain to the Redoubt Road reservoir complex servicing wider Auckland. Pukekohe 1 watermain connected from the Waikato 1 runs along Pukekohe East Road into Pukekohe. This watermain feeds storage reservoirs at Totara Avenue and Kitchener Road reservoirs. The Kitchener Road pump station supplies the Anzac reservoir. The Anzac Road pump station then supplies the Hill Reservoir also on Anzac Road. These reservoirs supply the local networks servicing the individual customers.

In addition to the transmission mains, there are also hundreds of kilometres of smaller diameter pipes in each street, servicing individual customers.

3.1.2 Wastewater

The existing Pukekohe/Paerata wastewater network is predominantly a gravity system, but also includes a number of pump stations, and has limited capacity for population growth. The wastewater network collects wastewater from Pukekohe/Paerata, transferring it to the Pukekohe wastewater treatment plant via the recently constructed Pukekohe transmission pump station at the Pukekohe Raceway. The Pukekohe plant also collects and treats flows from Pokeno and Tuakau as well. Highly treated wastewater is then discharged back into the Waikato River. The treatment plant has recently been granted a 35 year discharge consent by the Waikato Regional Council.

The length of trunk main to the plant is around 7km overall, the majority of which is in the Waikato region. There are also hundreds of kilometres of smaller diameter pipes in each suburb and street, servicing individual customers.

The existing network has capacity during dry weather, but is significantly influenced by wet weather events as rain enters the wastewater network eroding capacity. There is limited capacity to accept additional growth in the existing network. The recently constructed Pukekohe transmission pump station has been constructed to accommodate ultimate future flows from Pukekohe/Paerata, and has capacity for the flows from the structure plan

area, as well as the lived zoned undeveloped land and forecast intensification within the existing urban area.

4 Draft Pukekohe/Paerata Structure Plan

4.1 Overview of draft Pukekohe/Paerata Structure Plan

The draft Pukekohe/Paerata Structure Plan 2019 shows the arrangement of various land uses (residential, business, and parks) and infrastructure. It also shows how these areas connect to adjacent urban areas and wider infrastructure networks. Important cultural values, natural features and heritage values are also addressed.

With the development of the residential zonings shown on the draft Pukekohe/Paerata - Structure Plan 2019, the population of Pukekohe-Paerata could roughly double to a total population of approximately 65,750. The proposed residential zonings will add capacity for around 12,500 new dwellings in the structure plan area. Live zoned land at Paerata adds a further 4,500 dwellings, the live zoned land at Belmont adds 720 dwellings and there will be some intensification within the existing urban area. The draft Pukekohe/Paerata Structure Plan 2019 is also estimated to provide for 5,000 new jobs. These estimates are based on current development feasibility and exclude areas that may not be developable because of constraints.

4.2 Assessment of the Draft Pukekohe/Paerata Structure Plan

4.2.1 Draft Structure Plan Development Yield

The development yield anticipated by the draft structure plan can be serviced for water and wastewater. The above ground assets are generally minimal. Land requirements for these assets vary depending on the population connected to them, and can range from approximately one standard lot size up to four or five standard lots sizes. These lots are created as part of development proposals as required, or located on publicly owned land where appropriate. The land is transferred to Watercare as part of the development, but is not normally designated.

4.2.2 Water

The existing water services to Pukekohe/Paerata will remain operational. There is some capacity to accept additional growth, however these assets are reaching the limits of their ability to provide a water service to a growing community.

There are existing issues within the Pukekohe water network, including low pressure areas, high pressure areas, high headlosses, high velocities, high water age estimates and security of supply concerns. Watercare has recently completed an investigation of the issues and has started an improvement programme. Expected growth within the structure plan area will exacerbate these issues, however infrastructure required to service the expected growth will also offer opportunities for solutions.

To service the full development of the Paerata area a new local service reservoir will be required. It will connect into the existing infrastructure. To service the growth in western Pukekohe a new transmission service reservoir and boost pump station are required. These will be connected to the existing Pukekohe 1 transmission watermain.

Longer term, to give security of supply to Pukekohe a new transmission watermain will be constructed from Drury also connected to the Totara Road reservoir. This main is not required to facilitate growth. It provides source resilience to the community, and will be constructed as necessary to minimise outage risks.

The Runciman Reservoirs are under construction currently. Generally these balancing tanks do not service the structure plan area. The reservoir does however provide resilience to the Pukekohe and Paerata water supply. Under emergency conditions water can be fed to the reservoir from the Drury pump station to the north, and service can be maintained for Pukekohe and Paerata through these reservoirs.

Trunk and local network pipelines providing water to the draft structure plan area are being designed to meet the anticipated yield. Watercare will undertake trunk upgrades and work with developers to upgrade water assets to service the structure plan area as required. As much as practical, water pipelines will follow roading alignments as this is preferred for consenting and access during construction, maintenance and renewal. All new pipelines will consider the future development potential when being designed and constructed. The

majority of these assets will be constructed by developers in conjunction with their development proposals.

The map that shows an indicative servicing plan for transmission water infrastructure in the draft structure plan area is below. As noted above, the majority of the water assets will be constructed by developers as part of their development proposals.

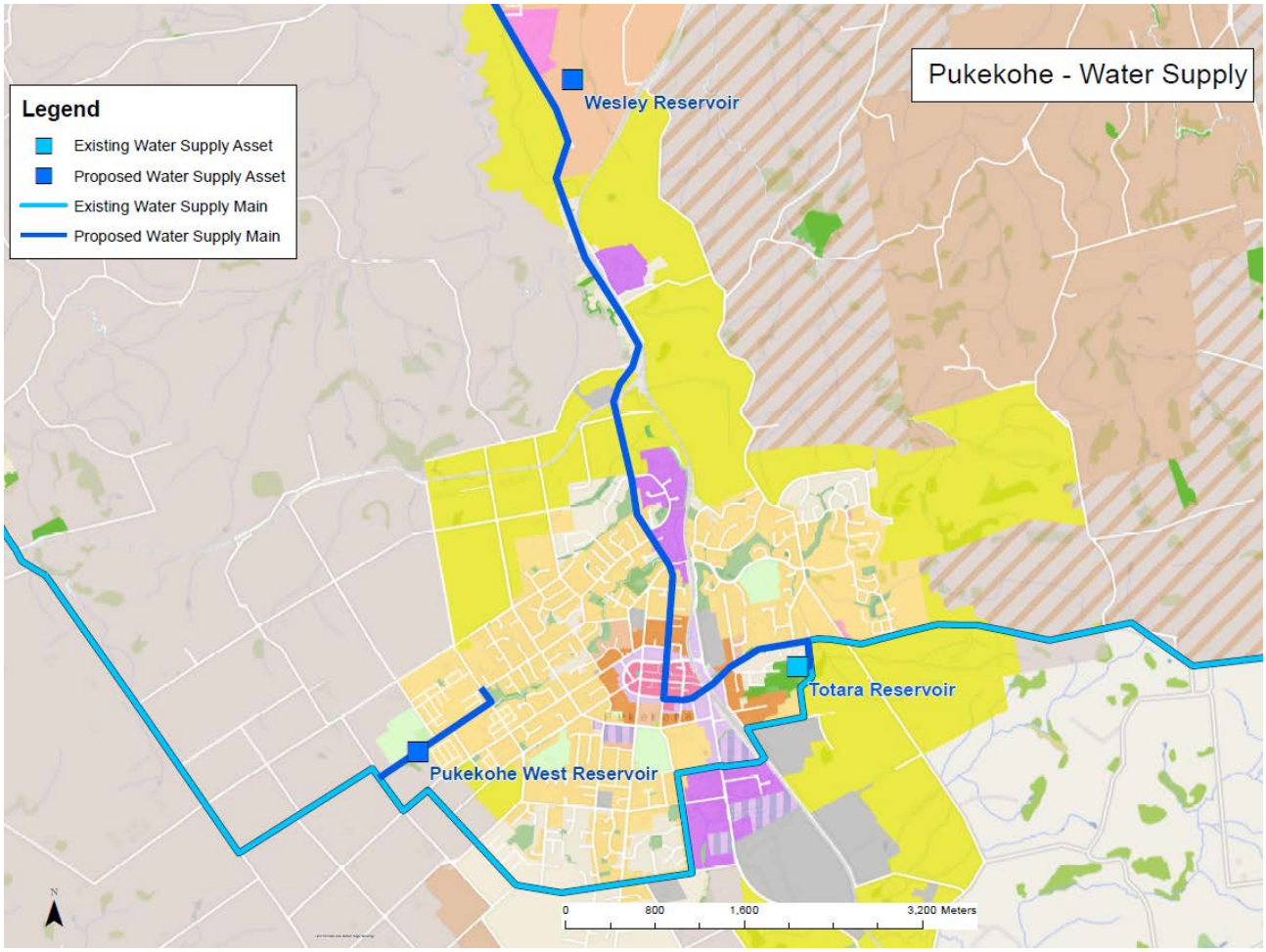


Figure 2: Indicative Pukekohe/Paerata Water Servicing Plan

4.2.3 Wastewater

The northern, north western and north eastern portion of the Pukekohe/Paerata draft structure plan population will connect to the existing wastewater network immediately to the north of the Raceway. A transmission new pump station will be required in the area around Isabella Drive. This new pump station will collect the flows from the northern portion of the structure plan area and transfer the flows to new networks connecting back into the existing network immediately upstream of the Raceway, and then into the existing Pukekohe transmission pump station. The pump station itself and the pipe to the treatment plant have capacity for the expected growth, and will be upgraded as required into the future to accommodate growth outside of the 30 year structure plan timeframes. The

required infrastructure will be staged to meet development, starting with the new transmission pump station near Isobella Drive.

The existing network has limited capacity to accommodate additional flows. A study of the wastewater network is currently underway, to identify the operational and asset options at a more detailed level. Options to provide additional capacity will include operational measures including inflow and infiltration programmes and real time control of the existing pump stations, as well as capital measures upgrading and augmenting the existing network with new infrastructure.

The south eastern portion of the area will connect more directly to the Pukekohe transmission pump station, with most of the wastewater infrastructure constructed by developers, working with Watercare around servicing, as part of their development proposals.

The south western area is likely to require new assets augmenting the existing network. These assets will be constructed by developers and connect into the Pukekohe transmission pump station.

The draft structure plan area will have gravity collector sewers in all catchments, supported by a number of pump stations where required. These assets will be constructed by developers in conjunction with their development proposals.

Trunk and local network pipelines collecting and conveying wastewater from the structure plan areas are being sized to meet the anticipated development yield. While gravity wastewater networks are heavily influenced by local topography, as much as practical pipelines will follow roading alignments as this is preferred for consenting and access during construction, maintenance and renewal. All new pipelines will consider the upstream and downstream development potential when being designed and constructed. Watercare will undertake trunk upgrades and work with developers to upgrade wastewater assets to service the structure plan area as required.

The map that shows an indicative servicing plan for wastewater infrastructure in the draft structure plan area is below. This includes assets expected to be constructed by Watercare, as well as assets servicing the local catchments, expected to be constructed by developers.

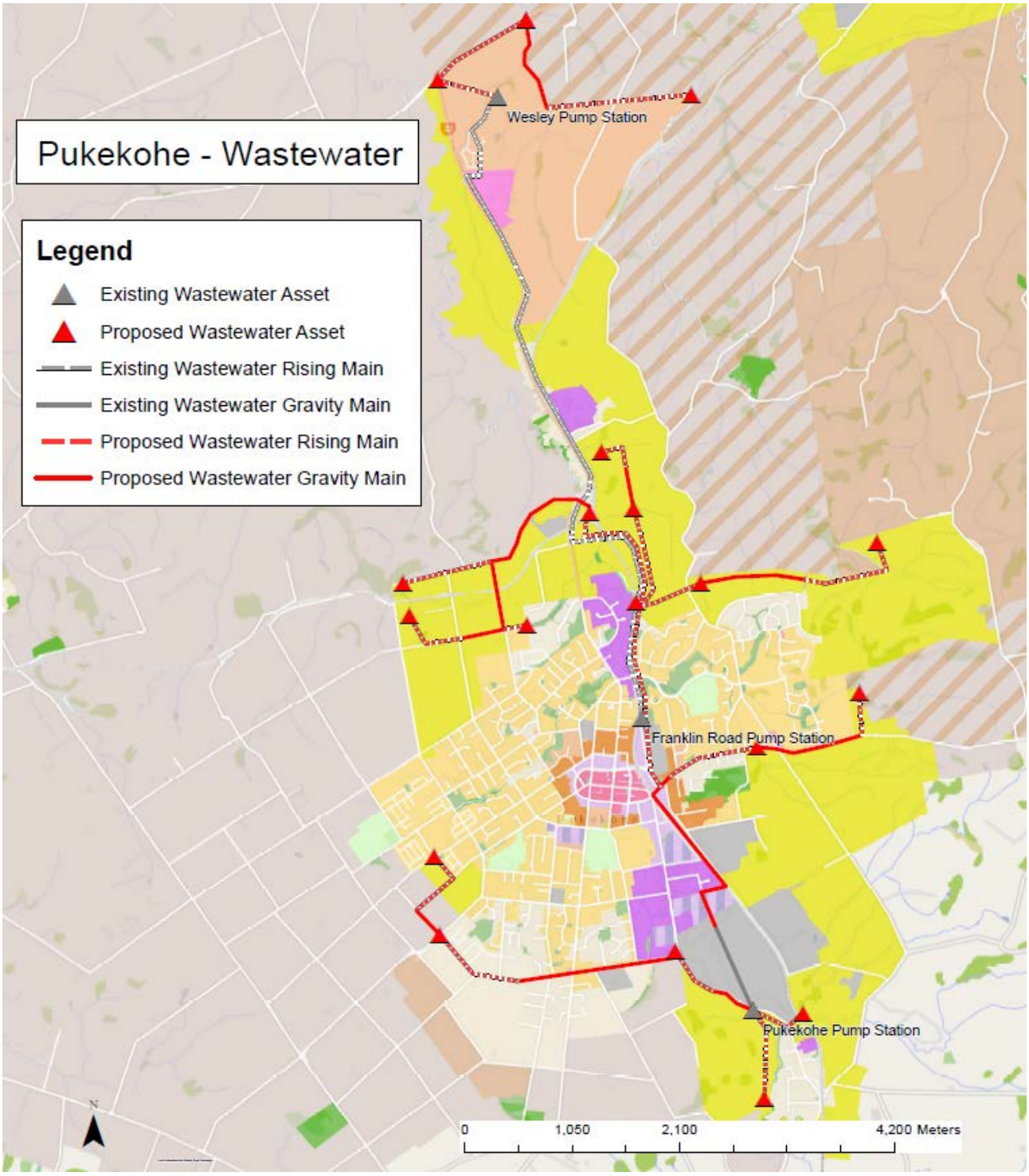


Figure 3: Indicative Pukekohe/Paerata Wastewater Servicing Plan

4.2.4 National Policy Statement/s

4.2.4.1 National Policy Statement on Urban Development Capacity 2016 (NPS-UDC)

Auckland is defined as high growth area (by MFE guidance), and accordingly there are a number of objectives which must be implemented to give effect to the NPS-UDC. In particular, Objective OD1 of the NPS-UDC requires the integration of urban growth and

infrastructure. Objective D1 is delivered in part by Policy A3 which applies to any urban environment that is expected to experience growth.

> *Policy A3: When making planning decisions that affect the way and the rate at which development capacity is provided, decision-makers shall provide for the social, economic, cultural and environmental wellbeing of people and communities and future generations, whilst having particular regard to:*
>
> *a) Providing for choices that will meet the needs of people and communities and future generations for a range of dwelling types and locations, working environments and places to locate businesses;*
>
> *b) Promoting the efficient use of urban land and development infrastructure and other infrastructure; and*
>
> *c) Limiting as much as possible adverse impacts on the competitive operation of land and development markets.*

The key messages from the NPS-UDC is to provide a range of housing choice, efficient use of land and infrastructure and provide for current and future people and communities.

4.2.4.2 National Policy Statement for Freshwater Management 2014

The National Policy Statement for Freshwater Management (Freshwater NPS) provides direction for the council on the management of freshwater. The council must give effect to the Freshwater NPS through the provisions of AUPOP – notably through RPS B7.4 and the Auckland-wide provisions. Some of these provisions are relevant to structure planning.

Wastewater

> (10) Manage the adverse effects of wastewater discharges to freshwater and coastal water by all of the following:
>
> > (a) ensuring that new development is supported by wastewater infrastructure with sufficient capacity to serve the development;
> >
> > (b) progressively reducing existing network overflows and associated adverse effects by all of the following:
> >
> > > (i) making receiving environments that are sensitive to the adverse effects of wastewater discharges a priority;
> > >
> > > (ii) adopting the best practicable option for preventing or minimising the adverse effects of discharges from wastewater networks including works to reduce overflow frequencies and volumes;
> > >
> > > (iii) ensuring plans are in place for the effective operation and maintenance of the wastewater network and to minimise dry weather overflow discharges;

(iv) ensuring processes are in place to mitigate the adverse effects of overflows on public health and safety and the environment where the overflows occur;

(c) adopting the best practicable option for minimising the adverse effects of discharges from wastewater treatment plants; and

(d) ensuring on-site wastewater systems avoid significant adverse effects on freshwater and coastal water.

Freshwater and geothermal water quantity, allocation and use

(11) Promote the efficient allocation of freshwater and geothermal water by all of the following:

(a) establishing clear limits for water allocation;

(b) avoiding over-allocation of water, including phasing out any existing overallocation;

(c) safeguarding spring flows, surface waterbody base flows, ecosystem processes, life-supporting capacity, the recharge of adjacent aquifers, and geothermal temperature and amenity; and

(d) providing for the reasonable requirements of domestic and municipal water supplies.

(12) Promote the efficient use of freshwater and geothermal water.

(13) Promote the taking of groundwater rather than the taking of water from rivers and streams in areas where groundwater is available for allocation.

(14) Enable the harvesting and storage of freshwater and rainwater to meet increasing demand for water and to manage water scarcity conditions, including those made worse by climate change.

4.2.5 Auckland Plan 2050 (2018)

The Auckland Plan 2050 (“Auckland Plan”) is a long-term spatial plan to ensure Auckland grows in a way that will meet the opportunities and challenges of the future.

The Development Strategy in this plan and 30-year Infrastructure Strategy address the prioritisation, sequencing and funding of essential infrastructure. This includes requirements under the National Policy Statement on Urban Development Capacity to provide sufficient feasible development capacity in the medium and long term.

Within the Auckland Plan, Pukekohe/Paerata structure plan area is defined as a satellite town functioning as the major rural node in the south of Auckland. It provides a range of services to the surrounding rural areas. Significant future employment growth is anticipated alongside residential growth.

The Auckland Plan is a critical document in future Resource Management Act 1991 processes in Auckland. It will be a key driver of future plan changes to Unitary Plan, including Council-initiated and private plan changes to "live zone" future urban areas. It will also be relevant for the assessment of future resource consent applications. The Auckland Plan has close links with the Future Urban Land Supply Strategy. The strategy informs the greenfield element of the Auckland Plan Development Strategy which makes up a portion of the overall growth anticipated over the next 30 years. The FULSS sets out sequencing for the release of development ready land (large future urban areas).

4.2.6 Future Urban Land Supply Strategy

The purpose of the Future Urban Land Supply Strategy (FULSS 2017) is to identify the sequencing and timing of future urban land for development over a 30-year timeframe. This is to integrate supply of greenfield land for development and provision of infrastructure. The proposed sequencing of development ready future urban zoned land in Pukekohe/Paerata is as follows:

- Paerata (Wesley) (live zoned now)
- Paerata (remainder) (Decade One 1st half 2018-2022)
- Pukekohe (Decade One 2nd half 2023-2027)

This strategy also addresses the council's obligations under The NPS-UDC which requires the council to ensure there is greater focus on enabling urban development and that there is sufficient capacity for housing and businesses. As noted in section 4.1.1, NPS-UDC requires the integration of urban growth and infrastructure.

4.2.7 The Auckland Unitary Plan (Operative in Part) (2016)

Regional Policy Statement

The Regional Policy Statement (RPS) is part of the AUPOP. It sets out the overall strategic framework for Auckland. Sections B1 to B10 of the RPS all have varying degrees of relevance to structure planning.

Of particular relevance is Section B3 – Infrastructure, which sets outs objectives and policies relating to infrastructure. Policy 5 for example, requires that Infrastructure planning and land use planning are integrated to service growth efficiently. Policy 6 requires that Infrastructure is protected from reverse sensitivity effects caused by incompatible subdivision, use and development.

B3. - Infrastructure, transport and energy

B3.2.1. Objectives

(1) Infrastructure is resilient, efficient and effective.

(2) The benefits of infrastructure are recognised, including:

(a) providing essential services for the functioning of communities, businesses and industries within and beyond Auckland;

(b) enabling economic growth;

(c) contributing to the economy of Auckland and New Zealand;

(d) providing for public health, safety and the well-being of people and communities;

(e) protecting the quality of the natural environment; and

(f) enabling interaction and communication, including national and international links for trade and tourism.

(3) Development, operation, maintenance, and upgrading of infrastructure is enabled, while managing adverse effects on:

(a) the quality of the environment and, in particular, natural and physical resources that have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal environment, historic heritage and special character;

(b) the health and safety of communities and amenity values.

(4) The functional and operational needs of infrastructure are recognised.

(5) Infrastructure planning and land use planning are integrated to service growth efficiently.

(6) Infrastructure is protected from reverse sensitivity effects caused by incompatible subdivision, use and development.

(7) The national significance of the National Grid is recognised and provided for and it's effective development, operation, maintenance and upgrading are enabled.

(8) The adverse effects of infrastructure are avoided, remedied or mitigated

In terms of RPS relevant objectives, it is noted that:

- The proposed Water and Wastewater Servicing plan generally integrates land use and infrastructure to service future growth of the Pukekohe/Paerata Structure Plan area efficiently
- The Plan will provide essential services for the functioning of communities, businesses and industries within and beyond Pukekohe/Paerata;
- Proposed water and wastewater infrastructure is protected from reverse sensitivity effects caused by incompatible future subdivision, use and development.

District Plan

Chapter E26 of the Auckland-Wide provisions sets out District Level objectives, policies and rules relating to infrastructure. These provisions provide a framework for the development, operation, use, maintenance, repair, upgrading and removal of infrastructure.

The plan recognises that Infrastructure is critical to the social, economic, and cultural well-being of people and communities and the quality of the environment. This means that in some circumstances other activities and development need to be managed in a way that does not impede the operation of infrastructure.

The plan also acknowledges that as well as benefits infrastructure can have a range of adverse effects on the environment, visual amenity of an area, and public health and safety. The sensitivity of adjacent activities, particularly residential, to these effects can lead to complaints and ultimately constraints on the operation of infrastructure. Managing these reverse sensitivity effects is essential.

E26. Infrastructure

E26.2.1. Objectives [rp/dp]

(1) The benefits of infrastructure are recognised.

(2) The value of investment in infrastructure is recognised.

(3) Safe, efficient and secure infrastructure is enabled, to service the needs of existing and authorised proposed subdivision, use and development.

(4) Development, operation, maintenance, repair, replacement, renewal, upgrading and removal of infrastructure is enabled.

(5) The resilience of infrastructure is improved and continuity of service is enabled.

(6) Infrastructure is appropriately protected from incompatible subdivision, use and development, and reverse sensitivity effects.

(9) The adverse effects of infrastructure are avoided, remedied or mitigated

In relation to the relevant District level Infrastructure provisions,:

- The proposed water and wastewater plan will enable the safe, efficient and secure infrastructure to service the needs of existing and authorised proposed subdivision, use and development in Pukekohe/Paerata
- The proposed water and wastewater plan will provide for resilient infrastructure in the Structure Plan area as improved and continuity of service is enabled.

5 Conclusion

Overall it is considered that the yield from the draft structure plan, as well as the live zoned undeveloped land and intensification in the existing urban area, can be serviced for water and wastewater.

Future water connections to existing transmission networks are required to service this structure plan area. Watercare is engaging with the current developers to consider the shorter term infrastructure needs. A water servicing blue print has been developed to support longer term growth aspirations. Trunk and local network pipelines providing water to the draft structure plan area will be designed to meet the anticipated development yield.

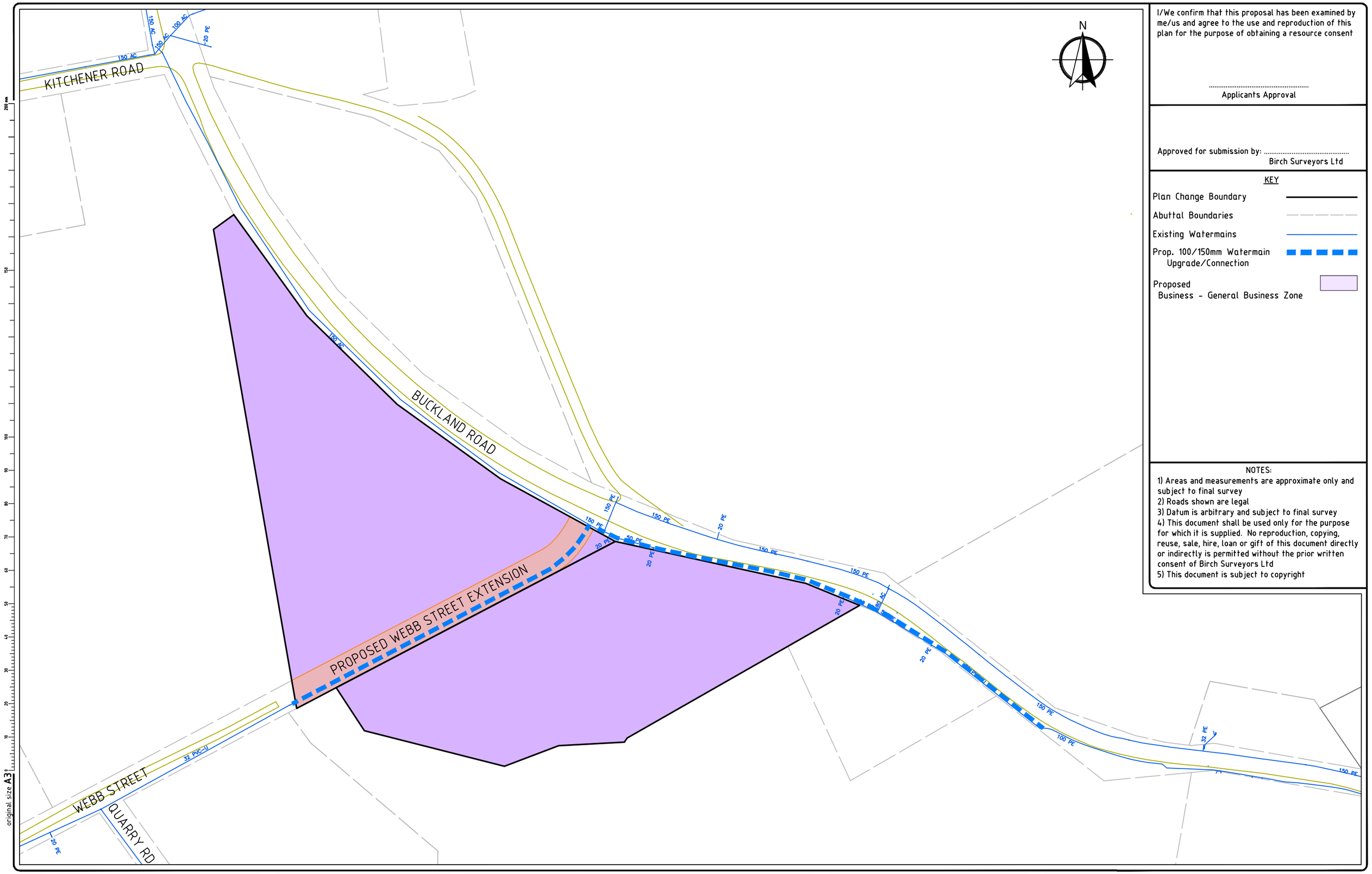
Wastewater will be connected to the existing Pukekohe transmission pump station, and conveyed to the Pukekohe wastewater treatment plant. The Pukekohe transmission pump station and associated downstream infrastructure has recently been constructed, sized to service expected ultimate growth. The Pukekohe wastewater treatment plant has recently had a new discharge consent granted and the upgrade process is underway to meet required growth and consent requirements. Trunk and local network pipelines collecting and conveying wastewater from the draft structure plan area will be sized to meet the anticipated development yield.

The majority of the water and wastewater assets for the structure plan area will be constructed by developers, in discussion with Watercare, to service their developments.

APPENDIX D

WATER SUPPLY PLAN SET

INDICATIVE WATER SUPPLY PLAN



I/We confirm that this proposal has been examined by me/us and agree to the use and reproduction of this plan for the purpose of obtaining a resource consent

.....
Applicants Approval

Approved for submission by: .....
Birch Surveyors Ltd

KEY

Plan Change Boundary

Abuttal Boundaries

Existing Watermains

Prop. 100/150mm Watermain Upgrade/Connection

Proposed Business - General Business Zone

NOTES:

1) Areas and measurements are approximate only and subject to final survey
2) Roads shown are legal
3) Datum is arbitrary and subject to final survey
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LOCAL AUTHORITY	AUCKLAND COUNCIL
PLANNING MAP	-
ZONING	FUTURE URBAN
ACTIVITY	-
COMPRISED IN	NA56A/559 & NA21A/288
TOTAL AREA	7.8677ha
REGISTERED OWNERS	Peterex Properties Ltd & Pukekohe Ltd

PROJECT NAME

BUCKLAND ROAD PLAN CHANGE

301 & 303 BUCKLAND ROAD
PUKEKOHE

Surveyed -	Date -	Project No.	5275
Designed KDB	Date 10/2021	Scale	Hz: 1:2500 @ A3
Drawn KDB	Date 10/2021		
Approved PROJECT MANAGER	Date		

REV.	BY	DATE	COMMENT
A	KDB	10/21	For Release

TITLE

PROPOSED WATER SUPPLY

Drawing Name	F:\..CAD\CP 5275 B.dwg /Water Supply	Rev.	B