<u>338 RODNEY STREET,</u> <u>WELLSFORD</u>

PROPOSED PLAN CHANGE ENGINEERING ASSESSMENT



Wellsford Welding Club

Engineering Assessment

At 338 Rodney Street Wellsford

Prepared by	Matthew Hughes ENGINEER	Hutchins P O Box 154 Cent	on Consulting Engineers Ltd 150, Orewa 0946 treway Road, Orewa 0931
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Approved by	Ian Hutchinson MANAGING DIRECTOR	Date Status	29 May 2023 Version 1

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1.0 Introduction

Hutchinson Consulting Engineers have been engaged by Wellsford Welding Club Limited to complete an engineering assessment for a proposed structure plan and plan change in Wellsford. The proposed plan change assessment encompasses an area of around 56 Ha of currently future urban zoned land and includes the following property titles:

- 338 Rodney Street
- PT 117, State Highway One
- PT Lot 4, Monowai Street
- PT Lot 2, Monowai Street
- PT Sec 25, Monowai Street
- 26 Batten Street
- 11 Wi Apo Place

This engineering assessment provides civil engineering input for the infrastructure capacity, availability and requirements to service the proposed plan change development. This report has been based on providing 650 - 800 dwellings and a small neighbourhood centre as advised by Barker and Associates Limited.

The future urban zoned land located to the north of the subject development will also be included within the proposed plan change application. This land has not been included within the engineering assessment as the properties are not owned by the client. However, the engineering requirements are likely to be similar to the requirements detailed within the engineering assessment below. This additional land encompasses an area of around 15 Ha and includes the following property titles:

- 358 364 Rodney Street
- 374 Rodney Street
- 56 Bosher Road
- 10 State Highway 1

We have provided comment on the following engineering items that need to be addressed to assist with future resource consent applications for the proposed plan change:

- Stormwater management requirements
- Wastewater
- Water supply
- Power
- Telecommunications
- Earthworks
- Erosion and sediment control

This report should be read in conjunction with the appendices of this report and the drawings prepared by this office and attached to Appendix B.

2.0 Site Description

The properties which make up the plan change subject to this assessment are outlined within Table 1. Refer to Appendix A for the overall proposed plan change area.

Address	Site Area (Ha)
338 Rodney Street	24.75
PT 117, SO 22925, State Highway One	11.87
PT Lot 4, DP 9919	6.72
PT Lot 2, DP 26722	5.75
PT Sec 25, DP 9682 Monowai Street	2.09
26 Batten Street	0.92
11 Wi Apo Place	3.40
Total	55.5

Table 1: Property Details

The proposed development covers an area of around 56 Ha (as depicted in Table 1) and is located on the eastern side of the Rodney Street (State Highway One) carriageway and bound by a railway track along the southern boundaries, refer to Figure 1 for development extent. Existing dwellings are contained within 338 Rodney Street, 26 Batten Street and 11 Wi Apo Place. Existing metalled access tracks reticulate the properties and are utilised for farming activities.



Figure 1: Auckland Unitary Plan Viewer - Site Layout

The properties comprise of undulating pastural land of moderate to steep slopes that fall towards existing gullies that extend through the properties. The gullies typically flow in a south east to north west direction into the downstream receiving environment, refer to Figure 3 for Auckland Council GeoMap aerial view of development.

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The Auckland Council GeoMaps System indicates two predominant watercourses that convey through the properties existing gullies and have been referred to as Watercourses A and Watercourse B, refer to Figure 2 and plan referenced FP-01 depicting the watercourses through the properties.



Figure 2: Auckland Council GeoMap Aerial View Depicting Existing Streams

Watercourse A contains numerous tributaries that traverse through 338 Rodney Street, PT Lot 4 Monowai Street, PT Lot 2 Monowai Street, PT Sec 25 Monowai Street, 26 Batten Street and 11 Wai Apo Place. Watercourse B extends through PT 117 State Highway One and 338 Rodney Street and contains one tributary. Both watercourses are part of the same stormwater catchment, forming just upstream of the plan change extent.

The properties have several access points that are located on Rodney Street, Armitage Road, Batten Street, Wai Apo Place and Monowai Street. The existing sites comprise of pasture with bushed covered areas surrounding the gullies.

3.0 Proposal

The properties encompass an area of around 56 Ha and are currently zoned as future urban in accordance with the Auckland Unitary Plan. It is proposed to investigate the infrastructure serviceability of providing a residential subdivision at the subject sites and determine if there are any potential civil engineering design issues that could affect the development.

This engineering assessment has been based on providing 650 - 800 residential dwellings and one small neighbourhood centre as advised by Barkers and Associates.

We have been in contact with the following organisations to provide comment about capacity, serviceability and design requirements of the plan change proposal:

- Chorus
- Vector
- Watercare

This report outlines the civil engineering aspects for the residential subdivision that would need to be addressed at resource consent stage. We have reviewed the relevant standards and guidelines to assist us with this engineering assessment.



Figure 3: Existing Site Plan

4.0 Stormwater

The site stormwater requirements will be addressed by Woods Civil Engineers.

5.0 Wastewater

The Auckland Council GeoMap System indicates an existing public wastewater network bisecting through the south western corner of 338 Rodney Street, refer to Figure 4 for locality details.



Figure 4: Auckland Council GeoMap Depicting Existing Wastewater Network

The ideal connection point for any future residential subdivision into the public wastewater network would be at 338 Rodney Street as it is readily available. As part of future subdivision civil works, the existing wastewater pipe that bisects through the south western corner of 338 Rodney Street should be redirected, so it does not traverse through a future residential site.

The internal wastewater network will be reticulated through the subdivision road reserve in preparation for the connection into the public network. The subdivisions internal wastewater network will most likely be a mixture of a low pressurised system and gravity fed networks.

A preliminary wastewater layout plan will be completed at resource consent stage to assist with the application at which time the development wastewater flows will be confirmed.

Watercare has been approached by this office to discuss the existing capacity within the public wastewater network as there are known capacity issues within Wellsford. It has been confirmed by Watercare that the current wastewater network does not provide sufficient capacity for the entire proposed development.

A new Wellsford wastewater treatment plant upgrade which construction timeframe is still to be confirmed should provide enough capacity to cater for the proposed plan change development. However, we are awaiting Watercares confirmation of this following internal meetings, refer to the Watercare correspondence attached to Appendix C of this report.

5.1 Stage 1

The first stage of the development will comprise of subdividing 338 Rodney Street and Lot 4 Monowai Street to form a total of 84 residential lots (to be known as 'Stage 1'). Lot 4 Monowai Street is to be subdivided into 19 residential sized lots and is to be located within the southwestern portion of the property title, at the end of Monowai Street, refer to the scheme plan prepared by Buckton Consulting Surveyors.

Watercare have confirmed that there is sufficient capacity within the existing wastewater network to service the 19-lot residential subdivision proposed under Stage 1.

6.0 Water Supply

The Auckland Council GeoMaps System indicates existing public water supply available within the road reserves of Rodney Street, Kelgary Place, Armitage Place, Batten Street and Monowai Street, refer to Figure 5.



Figure 5: Auckland Council GeoMap of Existing Water Supply Layout

There are several connection points into the public network that is readily available for the proposed plan change development.

Watercare has been approached by this office and Barker & Associates to discuss the capacity within the public water supply network. It has been confirmed by Watercare that water supply network can cater for the proposed subdivisional development.

The water supply pipework is to be installed within the subdivisions combined services trench that will be shared with the pressurised wastewater, power, and telecommunications. Water supply connections will be supplied to each residential lot where a single water meter will be installed at the connection end.

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For residential lots serviced from a right of way, Watercare does not allow a public water supply network in private land. As a result, meter banks would need to be installed within the road reserve and individual private connections extended from the meter bank to each residential lot. The meter banks can service a maximum of 6 residential properties at a time. The individual meter valves would be installed directly in the meter bank at the time of building consent for the individual lot, refer to for Watercares meter bank construction detail Figure 6.



Figure 6: Watercare Meter Bank Detail

The civil contractor that is nominated for the subdivision construction works will install the proposed water supply network and meter bank manifolds but are unable to complete the live connection into Watercares water supply network. The live connection into the public water supply network is completed by Watercare's nominated contractor.

A preliminary water supply design is to be completed at resource consent stage for review by Auckland Council and Watercare.

6.1 Firefighting Provisions

The plan change development will need to provide firefighting provisions in accordance with SNZ PAS 4509:2008 (NZ Fire Service Fighting Water Supplies Code of Practice).

The development water supply classification for firefighting is FW2 and the requirements are outlined in Table 2 below:

Fire Water Classification	Required Water Flow Within A Distance of 135m	Additional Water Flow Within A Distance of 270m	Maximum Number Fire Hydrants Provide Flow	Of To
FW2	750 L/min (12.5 L/s)	750 L/min (12.5 L/s)	2	

Table OF FIND	Doguiromonto	to Dotormina	Firefighting	Water Cumple
	Requirements	то регептте і	гненантна	waler Subbly

Hydrant(s) will need to be constructed within the development's road reserve to meet the FW2 requirements. The location of the proposed hydrants is to be confirmed at resource consent stage once a scheme plan has been prepared.

7.0 Telecommunications

This office has been in discussion with Chorus to confirm if their telecommunications network has sufficient capacity to service the potential residential subdivision development. The telecommunications network will provide both a phone and broadband connection for the development.

We have received email correspondence from Chorus that confirms there is sufficient capacity within their network to service the proposed plan change area. The cost to provide the Chorus network to the subdivision would be a minimum of the standard fee of \$1,200.00 per lot. Based on 650 lots and 1 neighbourhood centre, this amounts to around \$780,000.00. To confirm these costs, a finalised scheme plan can be provided to Chorus once the subdivision is ready to proceed.

Refer to Appendix D for Chorus correspondence.

The chorus ducting is to be installed within the subdivisions combined services trench that will be shared with the pressurised wastewater, power, and water supply. The proposed combined services trench alignment will be excavated both sides of the developments carriageway to allow individual connections to be provided to each residential lot.

Fibre broadband is not available yet for the Wellsford area. However, the chorus website indicates that fibre should be available to the Wellsford area by 2022.

8.0 Power

This office has been in discussions with Vector to confirm if their network has sufficient capacity to service the potential residential subdivision.

Vector have responded to say that there is enough capacity to service the development without significant upgrades to their network. However, the current capacity may not be available for the future if another customer formally requests it. To secure the capacity a HV Network connection would need to be applied for.

The indicative costs for Vector to provide power for the subdivision would be confirmed once the capacity has been applied for and the scheme plan is finalised.

The nominated contractor for the subdivision's construction works will install the ducting for the power on behalf of Vector. The ducting will be installed within the combined services trench that will be shared with the pressurised wastewater, power, and water supply. The proposed combined services trench alignment will be excavated both sides of the developments carriageway to allow individual connections to be provided to each subdivisional lot.

The cabling will be carried out by a Vector that will liven the connection at the boundary. At the time of dwelling construction, the lot owners registered electrician can make the connection into the Vector supply located at each residential front boundary.

Refer to Appendix E for Vector correspondence.

9.0 Earthworks

An earthworks operation will be required to form the subdivisional development to subgrade levels and minimise the earthworks where possible.

The earthworks will ideally comprise of a cut to fill operation and include the following construction methodology:

- Installation of erosion and sediment control devices
- Excavation and stockpiling topsoil
- Excavation of cut material
- Placement of cut material to raise low lying areas
- Stabilising and forming subdivision roads
- Top soiling landscape areas

A combination of retaining walls and engineered batters is likely required to form near level building platforms and maximise building development potential or alternatively through integrated building design. An earthworks model should be competed at resource consent stage to design finished levels and calculate earthworks areas and volumes to assist with the subdivisions resource consent.

10.0 Erosion and Sediment Control

Erosion and sediment control devices will be designed and constructed to treat sediment laden water generated from the earthworks operation in accordance with *Auckland Councils Guideline Document 2016/05 - Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD05).*

The exposed earthworks areas would need to be divided into sub-stage catchments so that the earthworks treatment areas do not exceed 5 Ha. The sub staged earthwork catchments can be operated simultaneously.

Proposed sediment retention ponds will be installed within each sub-stage catchment to treat sediment laden water for a maximum earthworks catchment area of 5 Ha. Chemical treatment will be utilised to increase the treatment performance of the sediment retention ponds.



Figure 7: Typical Sediment Retention Pond Detail

A combination of diversion bunds and contour drains will be installed along the boundaries of each sub staged catchment to contain and convey the dirty flows downstream to a sediment retention pond for treatment purposes.

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Clean water diversion bunds will be installed along the upper end of the sub staged catchments to divert clean water flows away from the earthworks areas to avoid sediment contamination within the downstream environment.



Figure 8: Photograph of Clean Water Diversion Bund

An erosion and sediment control design will be completed at resource consent stage to assist with the subdivision consent. Following approval of the resource consent, the sediment and erosion control plans will be finalised with input from the Contractor and sent to Auckland Council's Resource Consent Monitoring Team for approval, prior to establishment onsite.

11.0 Roading

The proposed plan change requires internal public roads to be provided within the development to enable vehicular access to each residential lot.

The public roads would be situated within a road reserve which would also contain the public infrastructure services (i.e stormwater, power etc.), pedestrian footpaths and vehicle crossings to each residential lot. The road reserve widths are typically 20m and contain two 3.5m lanes with 1.8m footpaths on each side of the road.

There are existing public road linkages available at Batten Street, Monowai Street and Armitage Road which can be extended into the subdivision, refer to plan FP-02 for locality details. Further input from a Traffic engineer would be required to provide comment on the roading network.

The public roads and vehicle crossings are to be designed in accordance with the Auckland Transport Code of Practice (ATCOP).

12.0 Summary

Hutchinson Consulting Engineers have been engaged by Wellsford Welding Club Limited to complete an engineering assessment for a proposed plan change comprising a potential 650 – 800 lot residential subdivision development in Wellsford.

The proposed plan change is considered feasible from a civil engineering perspective but will require further civil engineering design input at resource consent stage to provide a suitable compliant solution. Further input from geotechnical, traffic, ecology and other specialists will be required.

A summary of the engineering assessment is outlined below:

- The site stormwater requirements will be addressed by Woods Civil Engineers.
- The existing wastewater network in Wellsford is currently under capacity and cannot cater for the entire plan change area however discussions are underway with Watercare who have confirmed that a new wastewater treatment plant is going to be constructed in Wellsford that should provide additional capacity to cater for the future subdivision. Watercare are still discussing this aspect internally and awaiting confirmation.
- Water have confirmed that the existing water supply network can cater for the proposed plan change area.
- Firefighting provisions will need to be provided for the mixed residential development in accordance with SNZ PAS 4509:2008 (NZ Fire Service Fighting Water Supplies Code of Practice).
- Vector have confirmed that there is currently capacity within their network to reticulate the future subdivisional development, but an application would need to be made to secure the capacity for the subdivision.
- Chorus have confirmed that there is capacity within their network to reticulate the future subdivisional development with telecommunications.
- Earthworks and appropriate erosion and sediment control will be required to form the future subdivisional development to proposed design levels. An earthworks model is to be completed at resource consent stage.

Should you wish to discuss any aspects of the above information, please contact this office.

We trust this meets with your approval.

Yours faithfully, HUTCHINSON CONSULTING ENGINEERS LTD

Matthew Hughes

Prepared by

ENGINEER

Reviewed by

Paige Farlev

CIVIL MANAGER

Approved by

Ian Hutchinson MANAGING DIRECTOR

Appendix A Proposed Plan Change Area



Structure Plan

Legend

Structure plan extent		
Property Boundary		
Indicative Lifestyle Living		
Indicative Lower Density Residential		
Indicative Medium Density Residential		
Indicative Village Centre		
Ecological Areas / Open Spaces		

	Main Collector Road
	Local Streets
	Greenway Cycleway
	10m Landscape Buffer
	Indicative Playground
Q	Indicative Village Centre Public Space
	Existing Schools





Scale @ A3

1:5,000







Appendix C Watercare Correspondence

Harley Norton

From: Sent: Ta:	IGotelli (Ilze) <ilze.gotelli@water.co.nz> Friday, 14 May 2021 8:24 am</ilze.gotelli@water.co.nz>
Cc:	Paige Farley
Subject:	RE: 338 Rodney Street, Wellsford
Follow Up Flag:	Follow up
Flag Status:	Flagged

Hi Harley

The decision on a way forward on the Wellford WWTP is with our executives and new Chief Executive. I believe a meeting is schedule something in the next couple of weeks.

Regards

Ilze

Ilze Gotelli | Head of Major Developments





From: Harley Norton <Harley@hc.co.nz> Sent: Friday, 14 May 2021 8:22 am To: IGotelli (Ilze) <ilze.gotelli@water.co.nz> Cc: Paige Farley <Paige@hc.co.nz> Subject: RE: 338 Rodney Street, Wellsford

CAUTION:External Email! Hi Ilze,

Thanks for your response.

Have you had any further discussions with your planning team since your response below? Thanks.

Regards,

Harley Norton | Engineer | <u>www.hc.co.nz</u> Bus 09 426 5702 | Mob 021 191 7092



From: IGotelli (Ilze) <<u>ilze.gotelli@water.co.nz</u>> Sent: Wednesday, 28 April 2021 7:31 pm To: Harley Norton <<u>Harley@hc.co.nz</u>> Cc: Paige Farley <<u>Paige@hc.co.nz</u>> Subject: RE: 338 Rodney Street, Wellsford

Hi Harley

I see this is FUZ land. I am catching up with the planning team on Wellsford and this links to one of my questions. I don't have a time in the calendar yet with them but I will come back to you after I meet with them.

Just to be clear, there is no capacity to cater for the FUZ land now. There is a WWTP planned and I need more information about the capacity that is planned.

Regards Ilze

Ilze Gotelli | Head of Major Developments

Watercare Services Limited DDI: +64 9 539 7806 Mobile: +64 21 831 470 Customer service line: +64 9 442 2222 Postal address: Private Bag 92 521, Wellesley Street, Auckland 1141, New Zealand Physical address: 73 Remuera Road, Remuera, Auckland 1050, New Zealand Website: www.watercare.co.nz



From: Harley Norton <<u>Harley@hc.co.nz</u>> Sent: Wednesday, 28 April 2021 12:57 pm To: IGotelli (Ilze) <<u>ilze.gotelli@water.co.nz</u>> Cc: Paige Farley <<u>Paige@hc.co.nz</u>> Subject: 338 Rodney Street, Wellsford

CAUTION:External Email!

Hi Ilize,

We are carrying out a feasibility assessment for a 600-lot residential subdivision that will also include a small neighbourhood centre in Wellsford.

The subdivision is located across several property titles, refer to attached plan which depicts the subdivision extent.

Are you able to confirm if there will be capacity within the Water Supply and Wastewater networks (now or in the future) to service this residential subdivision? Thanks

Regards,

Harley Norton | Engineer | <u>www.hc.co.nz</u> Bus 09 426 5702 | Mob 021 191 7092



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Appendix D Chorus Correspondence

Harley Norton

From: Sent: To: Subject:	Chorus Property Developments <develop@chorus.co.nz> Thursday, 27 May 2021 8:46 am Harley Norton Chorus Simple Estimate WFD64759 WFD: 338 Rodney Street, Wellsford, Auckland. 600 Lots. High Level Estimate</develop@chorus.co.nz>
Follow Up Flag:	Follow up
Flag Status:	Flagged

Hello Harley,

Thank you for providing an indication of your development plans in this area. I can confirm that we have infrastructure in the general land area that you are proposing to develop. Chorus will be able to extend our network to provide connection availability. However, please note that this undertaking would of course be subject to Chorus understanding the final total property connections that we would be providing, roll-out of property releases/dates and what investment may or may not be required from yourselves and Chorus to deliver the infrastructure to and throughout the site in as seamless and practical way as possible.

The cost involved would be a minimum of our current standard fee of \$1200 per lot excluding GST. This cost can only be finalised at the time that you are ready to proceed.

Chorus is happy to work with you on this project as the network infrastructure provider of choice. What this ultimately means is that the end customers (business and home owners) will have their choice of any retail service providers to take their end use services from once we work with you to provide the physical infrastructure.

Please reapply with a detailed site plan when you are ready to proceed.

Thanks, Maia Luxford Sullivan Property Development Coordinator

T 0800 782 386 (opt. 1) **E** <u>Develop@chorus.co.nz</u>

PO Box 9405 Hamilton www.chorus.co.nz



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Appendix E Vector Correspondence

Harley Norton

From: Sent:	Maria Ah Colt <maria.ahcolt@vector.co.nz> Thursday, 20 May 2021 11:57 am</maria.ahcolt@vector.co.nz>
То:	Harley Norton
Subject:	1-4607434812 ASSET RODNEY ROAD
Follow Up Flag:	Follow up
Flag Status:	Flagged

Good morning Harley

Thank you for contacting Vector with regard to your feasibility assessment you are undertaking for a subdivision in Wellsford.

Our planning team have provided the following feedback for you:

- A residential subdivision of 600 lots will require about 1.5 MVA.
- The Wellsford K07 Te Hana feeder runs along State Highway one that can be used to provide the required 1.5 MVA.
- There is also Wellsford K08 feeder with enough capacity about 200m North of the subdivision.
- There is capacity on the network right now without need for significant upgrades, however this can change if a customer formally requests the capacity.
- It is important for you to know that while there is spare capacity available at present, it might not still be available in the future.
- To secure capacity you would need to go through the process and request a HV Network Connection Approval form.
- You will need to cover the cost of providing the supply to the dwelling from the HV.

Please let me know if you require any further information.

Kind regards

Maria Ah Colt | Senior Customer Resolutions Specialist Vector Limited | PO Box 99882, Newmarket 1149 | Auckland 1023 DDI: 09 213 5177 | Maria.AhColt@vector.co.nz | www.vector.co.nz



