Utilities and Roading Committee

Agenda

Tuesday 17 April 2018

2.30pm

Waimakariri District Council Chambers
215 High Street
Rangiora

Members:
Cr Sandra Stewart (Chairperson)
Cr Robbie Brine
Deputy Mayor Kevin Felstead
Cr John Meyer
Cr Paul Williams
Mayor David Ayers (ex officio)
The Chairman and Members

WAIMAKARIRI DISTRICT COUNCIL

A Meeting of the UTILITIES AND ROADING COMMITTEE will be held in the COUNCIL CHAMBERS, 215 HIGH STREET, RANGIORA on TUESDAY 17 APRIL 2018 to commence at 2.30pm

Adrienne Smith
Committee Advisor

Recommendations in reports are not to be construed as Council policy until adopted by the Council

BUSINESS

1 APOLOGIES

2 CONFLICTS OF INTEREST

Conflicts of interest (if any) to be reported for minuting.

3 CONFIRMATION OF MINUTES

3.1 Minutes of a meeting of the Utilities and Roading Committee held on Tuesday 20 March 2018

RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) Confirms, as a true and correct record, the minutes of a meeting of the Utilities and Roading Committee held on Tuesday 20 March 2018.

4 MATTERS ARISING

5 PRESENTATION

5.1 Secondary Stopbank Gap Filling on Cones Road and Milton Ave, Rangiora

Shaun McCracken (ECan) and David Bridges (Good Earth Matters) will be present to discuss this project.
6 MATTERS REFERRED FROM THE WOODEND-SEFTON COMMUNITY BOAD
MEETING OF 9 APRIL 2018

6.1 Gladstone Road Cycleway – Kieran Straw (Civil Project Team Leader)

RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) Receives report No. 180306023458.

(b) Approves Option Two, 2.0m wide unsealed path.

6.2 Combining of Woodend and Pegasus Water Supplies – New Water Supply Main Concept Design – Alicia Klos (Project Engineer) and Colin Roxburgh (Water Asset Manager)

RECOMMENDATION

THAT the Utilities and Roading Committee:

(c) Receives report No. 180322031093.

(d) Notes that this project to install a new raw water pipe is part of the wider project to join the Woodend and Pegasus water schemes.

(e) Notes that design work is scheduled to be undertaken this financial year, 2017/18, and construction is scheduled to be completed next financial year, 2018/19.

(f) Endorses that the section of pipe immediately north of Gladstone Road be installed in the road reserve land, rather than through Gladstone Park.

(g) Approves the removal of the trees along the preferred route, in road reserve land.

(h) Notes that the recommended route is supported by the Gladstone Park Advisory Group.

(i) Recommends to Council that an additional capital works budget of $231,000 is included in the 2018/19 financial year, split 30% to growth and 70% to level of service, to give a revised total budget of $811,000 for the Gladstone Road to Pegasus WTP raw water main.

7 REPORTS FOR INFORMATION ONLY

8 PORTFOLIO UPDATES

8.1 Roading – Councillor John Meyer

8.2 Drainage and Stockwater – Councillor Sandra Stewart

8.3 Utilities (Water Supplies and Sewer) – Cr Paul Williams
8.4 **Solid Waste– Cr Robbie Brine**

9 **MATTERS TO BE CONSIDERED WITH THE PUBLIC EXCLUDED**

Section 48, Local Government Official Information and Meetings Act 1987

RECOMMENDATION

THAT the public be excluded from the following parts of the proceedings of this meeting.

The general subject of each matter to be considered while the public is excluded, the reason for passing this resolution in relation to each matter and the specific grounds under section 48(1) of the Local Government Official Information and Meetings Act 1987 for the passing of this resolution, are as follows:

<table>
<thead>
<tr>
<th>Item No</th>
<th>Minutes/Report of:</th>
<th>General subject of each matter to be considered</th>
<th>Reason for passing this resolution in relation to each matter</th>
<th>Ground(s) under section 48(1) for the passing of this resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1</td>
<td>Minutes of the public excluded portion of a meeting of the Utilities and Roading Ctte 20 March 2018</td>
<td>Confirmation of Minutes</td>
<td>Good reason to withhold exists under Section 7</td>
<td>Section 48(1)(a)</td>
</tr>
</tbody>
</table>

This resolution is made in reliance on section 48(1)(a) of the Local Government Official Information and Meetings Act 1987, and the particular interest or interests protected by Section 6 or Section 7 of that Act which would be prejudiced by the holding of the whole or relevant part of the proceedings of the meeting in public are as follows:

<table>
<thead>
<tr>
<th>Item No</th>
<th>Reason for protection of interests</th>
<th>Ref NZS 9202:2003 Appendix A</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1</td>
<td>Protection of privacy of natural persons To carry out commercial activities without prejudice</td>
<td>A2(a) A2(b)ii</td>
</tr>
</tbody>
</table>

10 **QUESTIONS**

11 **URGENT GENERAL BUSINESS**

**BRIEFING**

At the conclusion of the meeting, there will be a briefing for the committee, on the following matters:

- **Stormwater Network Discharge Consent**
- **Oxford Rural No. 1 Water Update**
- **Siena Place Drainage**
WAIMAKARIRI DISTRICT COUNCIL

MINUTES OF THE MEETING OF THE UTILITIES AND ROADING COMMITTEE HELD IN THE COUNCIL CHAMBERS, 215 HIGH STREET, RANGIORA ON TUESDAY 20 MARCH 2018 AT 4.00PM

PRESENT
Councillor S Stewart (Chairperson), Mayor D Ayers, Deputy Mayor K Felstead, Councillors R Brine, J Meyer and P Williams.

IN ATTENDANCE
Councillors K Barnett, D Gordon, W Doody, Messrs J Palmer, (Chief Executive), G Cleary (Manager Utilities and Roading), K Simpson (3 Waters Manager), C Roxburgh (Water Asset Manager), C Parton (Wastewater Asset Manager), O Davies (Drainage Asset Manager), C Roxburgh (Water Asset Manager), Mrs K Waghorn (Solid Waste Asset Manager), S Collin (Infrastructure Strategy Manager), and A Smith (Committee Advisor)

1 APOLOGIES
There were no apologies.

2 CONFLICTS OF INTEREST
There were no conflicts of interest.

3 CONFIRMATION OF MINUTES
3.1 Minutes of a meeting of the Utilities and Roading Committee held on Tuesday 12 December 2017

Moved Councillor Brine seconded Councillor Meyer
THAT the Utilities and Roading Committee:
(a) Confirms, as a true and correct record, the minutes of a meeting of the Utilities and Roading Committee held on Tuesday 12 December 2017.

CARRIED

4 MATTERS ARISING
The Chair thanked Councillor Brine for Chairing the December 12 2017 committee meeting in her absence.

5 PRESENTATION
There was no presentations.
6 REPORTS

6.1 Ohoka Road Sewer Upgrades – Chris Parton (Wastewater Asset Manager)

Mr Parton presented this report to update the committee on investigations toward improving the wastewater reticulation system in Kaiapoi. There have been seven different options considered to improve the system which has experienced overflows and blockages from rainfall events in July and August 2017. Since then there has been three other occasions for the need to use sucker trucks to remove the sewerage from the reticulation system.

Moved Councillor Williams seconded Councillor Meyer

THAT the Utilities and Roading Committee:

(a) Receives report No. 170928105216.

(b) Approves the adoption of Option 7 of diverting flow from the Kaikanui pump station into the Courtenay South and Courtenay North pump stations as the recommended solution.

(c) Notes that budget provision of $219,000 is included in the 2018/19 year of the draft Long Term Plan and that the works will be carried out in that year.

(d) Circulates the report to the Kaiapoi-Tuahiwi Community Board.

CARRIED

6.2 Update on the Management of Council Wastewater Treatment Plants – Chris Parton (Wastewater Asset Manager)

Mr Parton presented this report to update the committee on the management of wastewater treatment plants in the Council. The report dealt with five main topics.

1. MidgeS around wastewater treatment plants. The Council currently has a level of service target of no complaints of midges or other nuisance insects related to its wastewater treatment plants. This target is not always met. Advice has been sought from Beca and options are being reviewed on how to best manage nuisance insects around the Council treatment plant sites, taking into account environmental effects.

2. Generating odours around treatment plants – the level of service target has been set for zero complaints from residents who live near the plants. There has been one complaint received from Kaiapoi, which was received during a period of hot weather. This warm and dry weather caused excessive evaporation in the wetlands at the plant site. The Council has since raised the water level in the wetland.

3. Sea foam – this has been an issue for a number of years. Investigations are ongoing to determine if this is coming from the ocean outfall system. Council staff have been visiting the beach five times a week since 8 January this year and since then there has only been one instance of sea foam witnessed. This was analysed and did not indicate any concerning levels. Members of the public who frequent the beach will continue to advise the Council of any presence of sea foam.

4. Efforts to minimise risk of avian botulism outbreak occurring in the future - This issue is something that the Council has been experiencing for the past five years in Kaiapoi, Rangiora, and Woodend wastewater treatment plants. This year the number of birds removed from Council plant sites is 1,400, which is considerably lower than that of 2015, when 5,500 birds...
were removed from treatment plant sites. Birds are being removed daily from the Kaiapoi site and every second day at Rangiora and Woodend sites as a best practice measure to minimize the impact of the disease. Council has sought advice from Keystone Ecology and the Department of Conservation and will continue to do so in future.

5. Efforts to determine the source of elevated enterococci levels in the Ocean Outfall – there has been some instances of elevated levels of enterococci recorded as part of the sampling undertaken to meet resource consent conditions for the ocean outfall. Council has commissioned a number of tests to determine the cause of these elevated levels. To date in the 2018 financial year Council has not breached its resource consent limit, but if levels remain elevated a consent breach is possible.

Councillor Williams asked if the levels of ecoli found in the sea foam tested were from the ocean outfall. Mr Parton suggested it was not likely that this had come from the ocean outfall, but there is a greater chance that it come from the Waimakariri River.

Councillor Barnett questioned the spending of $50,000 budget for midge and insect management at the Kaiapoi wastewater treatment plant. Mr Parton said this would have been included in the budget even if there had not been any complaints on this issue.

Councillor Meyer asked about the levels of birds that are dying at the Council treatment plants and Mr Parton considers the levels this year are still serious losses. The possible link between fewer numbers of birds at the ponds and the increase in midges was noted.

Councillor Stewart asked what insecticide was proposed for the midges and is there any guarantees that this won’t affect the bird life or other insects that are beneficial. Mr Parton noted that a pilot project has been recommended to control midges and the different methods proposed. Information on the particular types of insecticides that would be used was not known at this time, but this information will be sought and provided to Councillors.

Councillor Stewart questioned the term of “sludge becoming septic”. Mr Parton noted this referred to an occurrence during hot and dry weather this summer, when wetlands dried out and the sludge on the edge of the wetlands became exposed to the air and had an offensive odour.

Moved Councillor Brine seconded Mayor Ayers

THAT the Utilities and Roading Committee:

(a) Receives report No. 180301021693.

(b) Supports that Council staff will make a staff submission in the range of $50,000 to the draft Long Term Plan for midge and insect management at the Kaiapoi wastewater treatment plant.

(c) Notes that Council staff will continue to monitor for the presence of sea foam along the beach between the Waimakariri River mouth and 1 km north of Council’s ocean outfall.

(d) Notes that Council staff will compile information relative to avian botulism and develop a comprehensive management strategy to minimize the chances of future incidences of avian botulism occurring.

(e) Notes that Council staff will continue work to determine the cause of elevated levels of enterococci in Council’s ocean outfall pipeline.
Circulates the report to the Kaiapoi-Tuahiwi Community Board, the Rangiora-Ashley Community Board, and the Woodend-Sefton Community Board for information.

CARRIED

Councillor Brine believes this should be put to Council for consideration during the LTP process. Councillor Brine also noted that the local duck population has reduced numbers.

Councillor Atkinson suggested that if nutrients weren’t in the water, the birds wouldn’t be dying and believes the Council needs to find a way to correct this issue. Councillor Atkinson has photos available that he wishes to share with all Councillors.

Councillor Barnett noted that the Council needs to look at all the evidence on this issue, before making any ecological change. It is important that the Council tries to stay on top of the issue but it is also important that the whole picture needs to be looked at.

Councillor Stewart shares concerns with the wildlife on the ponds, and these sewerage treatment ponds include high level of chemicals and nutrients, a biological treatment system. It is unfortunate that these ponds attract the birdlife and other animals because of the water.

6.3 Poyntzs Road Source Upgrade Project – Consultation – Colin Roxburgh (Water Asset Manager)

Mr Roxburgh presented this report to provide an update on the progress with consultation for the Poyntzs Road source upgrade project and seek approval on the proposed way forward. The water scheme does not comply with the current drinking water standards and is deemed to present a health risk regarding protozoa. There is also a risk of nitrate levels becoming an issue in the future. This is a revised timeframe for this project and there are many different parties involved in consultation, including the West Eyreton Water Supply Advisory Group, Summerhill Water Supply Advisory Group, Oxford-Ohoka Community Board, Rangiora-Ashley Community Board and three respective water supply schemes (Poyntzs Road, West Eyreton and Summerhill water supply schemes).

Issues were raised on funding options that were presented at meetings with the water supply advisory groups. This has impacted on timing with the budget for the project already being included in the draft Long Term Plan while the required targeted consultation has not been able to be completed.

Mr Roxburgh noted that nitrate levels are below the maximum value, but over time it is likely that these will go up rather than go down. The testing has never exceed the value.

Moved Councillor Williams seconded Councillor Brine

THAT the Utilities and Roading Committee recommends:

THAT the Council:

(a) Receives report No. 180305022630.

(b) Notes that staff have not been able to complete the required community consultation with the Poyntzs Road, West Eyreton and Summerhill water supply schemes regarding the proposed Poyntzs Road source
upgrade prior to or to coincide with the draft 2018-28 Long Term Plan consultation.

(c) **Notes** that the budget allowance of $793,000 for the Poyntzs Road scheme source upgrade in the 2018/19 financial has been included for consultation as part of the draft 2018-28 Long Term Plan.

(d) **Resolves** that the physical works that this budget is intended for will not be implemented until Council has specifically approved this occurring, following consultation with the relevant advisory groups, community boards and communities.

(e) **Notes** that this strategy will give staff the required time to undertake the necessary consultation, without requiring that the project be delayed for an unnecessarily long period of time.

(f) **Notes** that the significant rating implication of the proposed expenditure does not eventuate until the 2019/20 financial year, by which time targeted consultation will have been completed.

(g) **Circulates** this report to the Oxford-Ohoka and Rangiora Ashley Community Boards for their information.

CARRIED

7 REPORTS/MEMOS FOR INFORMATION ONLY

7.1 **Pedestrian Refuges in the Ashgrove School environs – Kathy Graham (Journey Planner/Road Safety Co-ordinator)**

(refer to attached copy of report no. 171201130547 to the Rangiora-Ashley Community Board meeting of 13 December 2017)

7.2 **Request Authorization for Direct Engagement of Kauri Park Nurseries – Chris Parton (Wastewater Asset Manager)**

(refer to attached copy of report no. 180208013505 to the Management Team meeting of 26 February 2018)

7.3 **Drainage Maintenance Contract – Simon Collin (Infrastructure Strategy Manager)**

(refer to report no. 180213014265 to the Management Team meeting of 26 February 2018). This report has been circulated to members separately.

Item 7.3 was considered in the public excluded portion of the meeting.

Moved Councillor Stewart seconded Councillor Brine

THAT the Utilities and Roading Committee:

(a) Receive Items 7.1 to 7.2 for information.

CARRIED
8 PORTFOLIO UPDATES

8.1 Roading – Councillor John Meyer

Councillor Meyer noted the good progress with the new road in the Kaiapoi red zone.

8.2 Drainage and Stockwater – Councillor Sandra Stewart

Councillor Stewart noted there is a current round of the Rural Drainage Advisory Group meetings underway. It has been beneficial to be able to share with members of these groups the projected LTP drainage rates.

The Stormwater Drainage and Watercourse Protection Bylaw has been considered in two sessions by the Hearing Panel. This will be presented to Council for adoption.

Solution and emergency work is underway with the Springbrook subdivision flooding issue following the February 20 rain event. Councillor Gordon commended the Council staff for the response in this matter.

8.3 Utilities (Water Supplies and Sewer) – Cr Paul Williams

Councillor Williams has attended two meetings recently including one on the new well for Oxford Rural No 1.

There is a Public Meeting being held tonight to discuss the Garrymere Water Scheme, and any members who are able to attend to support staff at this meeting are encouraged to attend.

8.4 Solid Waste – Cr Robbie Brine

Matters to be discussed at the upcoming Briefing following this meeting.

9 MATTERS TO BE CONSIDERED WITH THE PUBLIC EXCLUDED

Section 48, Local Government Official Information and Meetings Act 1987

Moved Councillor Stewart Seconded Mayor Ayers

THAT the public be excluded from the following parts of the proceedings of this meeting.

The general subject of each matter to be considered while the public is excluded, the reason for passing this resolution in relation to each matter and the specific grounds under section 48(1) of the Local Government Official Information and Meetings Act 1987 for the passing of this resolution, are as follows:
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**CLOSED MEETING**

Moved Councillor Stewart seconded Mayor Ayers

**THAT** the open meeting resumes and that the resolution made with the public excluded remains public excluded.

**CARRIED**

10 **QUESTIONS**

There were no questions.

11 **URGENT GENERAL BUSINESS**

There was no urgent general business.

There being no further business, the meeting closed at 5.10pm.

**CONFIRMED**

__________________
Chairman

__________________
Date
BRIEFING

At the conclusion of the meeting, there was a briefing for the committee, on the following matters:

- 20 February 2018 Flood Event – 3 Waters Debrief
- Pond C Update
- Recycling and upcoming kerbside collection contract
WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR DECISION

FILE NO and TRIM NO: RDG-32-67 / 180306023458
REPORT TO: Woodend – Sefton Community Board
DATE OF MEETING: 9 April 2018
FROM: Kieran Straw – Civil Project Team Leader
SUBJECT: Gladstone Road Cycleway

1. SUMMARY

1.1 The purpose of this report is to update the community board with the progress of the project, and to provide options for discussion so that the community board can make a decision as to which option to proceed with.

Attachments:
   i. District Plan Map No. 129 (Trim 180328033535)
   ii. Site Location Map (Trim 180404035447)

2. RECOMMENDATION

THAT the Woodend – Sefton Community Board recommends:

THAT the Utilities and Roading Committee:

(a) Receives report No. 180308023458.
(b) Approves Option One, the high level of service path, 2.3m wide surfaced with asphalt.
(c) Notes that 750m of the 950m length of the path will become redundant at the time the future Woodend Bypass is constructed
(d) Notes that the Bypass is unlikely to be constructed for at least ten years.

3. BACKGROUND

3.1. Council has allocated a budget of $300,000 for the design and construction of a new shared path this current financial year.

The proposed path is approximately 950m in length, and is intended to be constructed at 2.3m wide, surfaced with asphalt.

To date, the project has been scoped and an initial issues / options report was written for the Client. This report highlighted two potential issues to overcome to progress the construction of the new cycleway. Those issues are discussed in the next section, and are as follows:
• Approximately 740m of the 950m length of the shared cycleway is within the NZTA designation for the Woodend Bypass Project.

• The preferred option requires a 5.0m strip of land to be purchased from No. 129 Gladstone Road.

3.2. Enabling works is due to commence at No. 145 Gladstone Road where the existing fence line and paddocks are occupying road reserve. To construct a cycle path in this vicinity, the existing Polar hedge, and boundary fencing will need to be removed, and relocated to the legal property boundary.

Quotations have been sought to carry out the following works associated with this property:

• Establish and mark the legal boundary

• Construct a new fence on the legal property boundary

• Remove the existing Poplar hedge

• Plant a new Poplar hedge on the legal property boundary

4. ISSUES AND OPTIONS

4.1. NZTA Designation

The proposed Woodend Bypass project crosses Gladstone Road through the eastern portion of No. 145 Gladstone Road, approximately 500m into the 950m site. In addition to this, NZTA are planning on constructing an over bridge on Gladstone Road, that crosses the proposed bypass. The earthworks for proposed overbridge extend from 160m beyond Petries Road to 900m beyond Petries Road (near Gladstone Park).

This means that 740m of the proposed shared path sits within the NZTA designation, and will become redundant with the construction of the proposed overbridge.

NZTA have indicated that there is no funding in the current 10 year LTP for the by-pass project, and it is unlikely to be accelerated.

Any shared path facility shall be constructed with the knowledge that the likely lifecycle of the asset is significantly less than what is expected due to the requirement to construct an overbridge in the future.

Please refer to Attachment i. District Plan Map No. 129 for a visual representation of the NZTA designation on Gladstone Road between Petries Road, and Gladstone Park.

4.1.1. Options

Given that the path is not likely to be a long term option, consideration should be given to the Level of Service that the shared path is to provide over the next 10 years. The following options have been provided for discussion, with the decision to be made by the Woodend – Sefton Community Board at their upcoming meeting on 10 April 2018

• Option One: High Level of Service

The project was initially to have a high level of service, achieved by constructing the path at 2.5m, with an asphalt surface.

Due to budget constraints, the path is now proposed to be constructed at 2.3m wide, the narrowest acceptable shared path width.
Note that some “pinch points” along the length of the path will remain due to the width of the path, and the high cost of removing the obstruction (e.g. overhead lines poles)

This option is the recommended option as the path is likely to be used for 10 years and provides a good level of service with minimal ongoing maintenance costs.

- Option Two: Reduced Level of Service

Public perception may be against the concept of constructing the shared path to a high level of service if there is a risk that it will become obsolete in 10 years. A reduced level of service that still provides an off-road link to pedestrians and cyclists can still be achieved by providing a 2.0m unsealed shared path. The reduction in width also minimises the severity, and the number of “pinch points” along the length of the path.

This option provides an adequate level of service, but is not desirable for members of the community who may be elderly, or disabled. The existing cycle path between Kaiapoi and Pines Beach is constructed to this level of service.

- Option Three: Defer the Project

There is an option to do nothing until after NZTA has constructed the proposed over bridge. NZTA plans show that the proposed overbridge includes provision for a 3.0m shared path on the bridge. The initial concept plans show this path on the northern side of the bridge, but this is not confirmed.

This option is not recommended as 10 years is a long time without any off-road links between Woodend and Pegasus.

4.2. Existing Road Corridor Width

The existing road reserve width east of Petries Road is just 10.0m wide for a distance of 160m. This width is not sufficient to install a shared off-road path without the need to carry out significant enabling works, such as undergrounding the existing overhead lines, and installing kerb and channel to provide vertical separation.

The road reserve remains at 10m wide across the frontage of No. 129 Gladstone Road, before widening to 15m at No. 145 Gladstone Road.

Council staff are proceeding with negotiations to purchase this land.

It is important to note that this section of road corridor falls outside the NZTA designation for the proposed by-pass and will not be affected by any future works.

4.3. The Management Team have reviewed this report and support the recommendations.
5. **COMMUNITY VIEWS**

5.1. **Groups and Organisations**

This project is supported by both the Pegasus Residents Group, and the Woodend Community Association. It benefits both groups by providing an off road walkway / cycle link between Gladstone Park, and Woodend (Petries Road).

5.2. **Wider Community**

This project is of benefit to the immediate communities rather than the wider community.

6. **IMPLICATIONS AND RISKS**

6.1. **Financial Implications**

There is a budget of $300,000 to complete the project this financial year. All going well, the project could be completed this financial year without need to carry funding over to the 2018/2019 financial year.

The current high-level estimates for each of the options described in section 3 is as follows:

Council staff will need to continue to engineer the design to ensure that the construction costs fit within the budget, as there is only a 7.5% contingency in the estimate below:

<table>
<thead>
<tr>
<th></th>
<th>Option One 2.3m Asphalt Path</th>
<th>Option Two 2.0m Unsealed Path</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Estimated Cost</strong></td>
<td>$299,493.69</td>
<td>$236,257.49</td>
</tr>
</tbody>
</table>

6.2. **Community Implications**

There is no negative implications on the community associated with this project.

6.3. **Risk Management**

The Woodend – Sefton Community Board is being asked to consider the options raised in section 4.1 of this report in regards to the level of service they wish to accept with the knowledge that this site is subject to a NZTA designation for the proposed Woodend Bypass project.

6.4. **Health and Safety**

This project is still in the design phase, and will be subject to a full safety audit, and safety in design review process.

In order to ensure the project sits within the existing budget, it is proposed that a single Safety Audit be carried out. This may be either during the design phase, or post construction, but not both.

7. **CONTEXT**

7.1. **Policy**

This matter is not a matter of significance in terms of the Council’s Significance and Engagement Policy.

7.2. **Community Outcomes**
• The accessibility of community and recreation facilities meets the changing needs of our community.

• There are wide-ranging opportunities for people of different ages, abilities and cultures to participate in community life and recreational activities.

• The centres of our towns are safe, convenient and attractive places to visit and do business.

• Our rural areas retain their amenity and character.
Refer To:
Outline Development Plan
Map 142
And Associated Rules

Subject to Concept Plan
Rule 32.1.1.1

NOTE:
Disclaimer - refer to map legend sheet.

Cadastral Data from LINZs DCDB. Crown Copyright Reserved.
1. NZTA DESIGNATION SHOWN IN ORANGE IS AN INDICATIVE REPLICATION ONLY. REFER TO DP MAP 129 FOR ACCURATE DESIGNATION AREA.

2. PROPOSED FOOTPATH ALIGNMENT SHOWN IN RED
1. SUMMARY

1.1. The purpose of this report is to seek the Woodend-Sefton Community Board’s endorsement of the recommended alignment of the new supply pipe from Gladstone Road to the Pegasus water treatment plant, particularly the section of pipe by Gladstone Park.

1.2. The new supply pipe is part of the project to join the Woodend and Pegasus water supplies and will deliver raw water from the wells on Gladstone Road to the Pegasus water treatment plant.

1.3. Following an options assessment there are two viable options for the Gladstone Park section of the project, these are as follows;

- Option 1 – alignment through the trees (within the road reserve)
- Option 2 – alignment through Gladstone Park (within greenspace reserve)

1.4. Key points to note for these options are as follows;

- Option 1 - constructing the pipe within the road reserve is generally the preferred long term option. However, for this option all of the large pine trees along the western side of Gladstone Park would need to be removed. This option is estimated to cost $61,000 more than Option 2.

- Option 2 - would run along the western side of the park through an easement, and work could be undertaken without affecting the playing surface of the rugby fields.

1.5. The Council’s Greenspace team has taken these two options to the Gladstone Park Advisory Group. The Advisory Group’s preferred option is Option 1, constructing the pipe through the trees (within the road reserve).

1.6. Council Staff support the Gladstone Park Advisory Group views, as in the medium to long term (10 – 15 years) this section of land will most likely be converted into a connector road.
once the planned Woodend Bypass is constructed and for maintenance reasons it is
preferred that any new 3 Waters infrastructure is constructed within a road reserve.

2. **RECOMMENDATION**

**THAT** the Woodend-Sefton Community Board recommends:

**THAT** the Utilities and Roading Committee:

(a) **Receives** report No. 180322031093.

(b) **Notes** that this project to install a new raw water pipe is part of the wider project to join the
Woodend and Pegasus water schemes.

(c) **Notes** that design work is scheduled to be undertaken this financial year, 2017/18, and
construction is scheduled to be completed next financial year, 2018/19.

(d) **Endorses** that the section of pipe immediately north of Gladstone Road be installed in the
road reserve land, rather than through Gladstone Park.

(e) **Approves** the removal of the trees along the preferred route, in road reserve land.

(f) **Notes** that the recommended route is supported by the Gladstone Park Advisory Group.

(g) **Recommends** to Council that an additional capital works budget of $231,000 is included
in the 2018/19 financial year, split 30% to growth and 70% to level of service, to give a
revised total budget of $811,000 for the Gladstone Road to Pegasus WTP raw water main.

3. **BACKGROUND**

3.1. In 2016, following public consultation, the Council resolved to join the Woodend and
Pegasus water supplies both physically and financially (TRIM reference No. 160927099778).

3.2. The planned joining of the Woodend and Pegasus water supplies generally involved the
following.

1. Conversion of the existing chemical filter at Pegasus to a biological filter for the
removal of manganese and iron (complete January 2018).

2. Divert all Woodend source wells to the new biological filter at Pegasus, via a new
water supply pipeline (in progress - this report is part of this project)

3. Cease chlorination of the Pegasus water supply (to be assessed following
Government decision on Havelock North Drinking Water Inquiry Stage 2 report).

4. Abandon the existing biological manganese removal filter at Chinnerys Road,
Woodend (future project, 2018/19 financial year).

5. Pump treated water from the new central treatment plant at Pegasus to the
Chinnerys Rd headworks by way of the existing Gladstone Road raw water main
(future project, 2018/19 financial year).

6. Join the Woodend and Pegasus networks by way of a link main between Infinity
Drive and the Ravenswood Development (future project, 2018/19 financial year).

**New water supply pipeline**
3.3. The next phase of the work is to construct a new raw water supply pipeline from Gladstone Road to the Pegasus WTP. The purpose of this new pipeline is to take both the Woodend (Gladstone Park wells) and Pegasus (Equestrian Park wells) raw water to the Pegasus water treatment plant for treatment.

3.1 This project has a budget of $80,000 for design and $500,000 to construct the new raw water pipeline. The construction budget is split $398,850 for level of service and $181,150 for growth.

3.2 Design work is scheduled to be undertaken this financial year, 2017/18, and construction is scheduled to be completed next financial year, 2018/19.

3.3 The existing Pegasus supply pipeline would be utilised to deliver water back to the existing Gladstone Road supply main (Woodend water supply’s supply main), which would deliver treated water to the Woodend headworks.

3.4. The following figure presents the concept plan for this work.

![Figure 1: concept plan for joining the treatment of the Pegasus and Woodend water sources](image)

3.4 Note that the existing Woodend filter is reaching the end of its useful life and will be decommissioned when this connection is made. The Pegasus water treatment plant will treat all Woodend and Pegasus water.
4. ISSUES AND OPTIONS

4.1. The new pipeline has been designed to be a 400mm diameter PN12.5 polyethylene (PE) main. This will connect into the existing (Gladstone Park and Equestrian Park) supply mains, from the wells, at Gladstone Road and take the supply water to the Pegasus water treatment plant for treatment.

4.2. Note that as part of this construction, connections will be made to utilise the existing 315mm diameter Pegasus supply pipeline to carry treated water from the Pegasus water treatment plant to the Gladstone Road Woodend supply pipeline.

4.3. This report discusses the findings from the conceptual design options assessment, refer to Appendix A for a summary of this assessment.

4.4. Several conceptual design options have been considered, and the majority of them have been dismissed for practicality and financial reasons. The concept design was split into two sections, the northern section and southern section. See Figure 2 for extents.

4.5. The northern section of the work, from the north side of Gladstone Park to the Pegasus water treatment plant, had one sensible pipe alignment. There are several options however for the southern section through Gladstone Park. Council staff are seeking the Woodend-Sefton Community Board’s endorsement of the recommended route for this section.

4.6. The reason for the Board’s involvement is that both options may be of some interest to the community that utilises the park. One option would involve excavation within the park, and the other would involve removal of the large pine tree wind break adjacent to the park.

4.7. The following figure shows the preferred pipe alignment options for the new pipeline from Gladstone Road to the Pegasus Water Treatment Plant.
Figure 2: The preferred pipe alignment options for the new pipeline from Gladstone Road to the Pegasus WTP

Northern Section

4.8. Following an options assessment, the preferred alignment was selected for the northern section of the work. It follows the alignment of the existing supply main. The pipe will be trenched along the berm on the western side of the existing water supply pipe along infinity drive. It will then take an alignment to the north of the existing water supply pipe and then cross into the Pegasus water treatment plant. Refer to Appendix A for the full options assessment on the northern section.

4.9. This northern alignment is the most sensible alignment as it has lower reinstatement costs and is the only practical alignment available along most of the northern section of the works. It does however require obtaining an easement from Te Kohaka O Tuhaitara Trust.
4.10. The northern section of the works is estimated to cost approximately $350,000 including contingency and professional fees.

Southern Gladstone Park Section

4.11. The Gladstone Park section had several matters to consider for the options assessment:

4.11.1. There are live (in service) power, water and sewer mains running north-south along the western side of the trees. Due to where these services are located there are no alignment options available west of the trees within the road reserve.

4.11.2. Drilling the new pipeline under the trees was considered but as it is a large diameter pipe it would mean the construction cost would be approximately double the cost of open trenching.

4.11.3. An alignment was considered west of the road reserve, however the land owner at 160 Gladstone Road does not want to sell land to the Council. Therefore an alignment along the west side of the road reserve is not viable.

4.11.4. In Gladstone Park, there is 8 metres between the newly planted trees and the rugby field. Therefore there would be enough space to install the new water pipe without damaging the rugby field. It is noted however there is still a risk the contractor may damage the field during construction.

4.11.5. The Council’s Greenspace team were consulted on the matter of removing the trees. They commissioned Treetech to undertake an assessment to see if it would be possible to remove only some of the large pine trees (TRIM reference 180314027354, Appendix B). Treetech recommended that all of the large pine trees be removed, as the inner trees are weaker than the outer trees and may collapse in high winds if just the outer trees were removed. Therefore the cost estimates have allowed for all of the trees to be removed.

4.11.6. Removing all of these trees would mean that the park would no longer have a wind break from the western side. It is noted however that the Greenspace team have planted some smaller trees within Gladstone Park which will act as a windbreak in the future.

4.11.7. Through the trees the pipe would be installed with a cover of approximately 1m. It is noted that both a water and sewer main have been installed along this utilities reserve in the past, these needed to have both scour points and air vales installed to account for the uneven ground.

4.11.8. If the trees are removed the stumps would be ground down to ground level so that a mower could pass over them. The exception to this would be stumps near the pipe alignment, these would be removed entirely. This area would be reinstated with grass.

4.11.9. The large trees may also have some aesthetic and recreational values to the community.

4.11.10. Gladstone Park has a Fee Simple title, meaning an easement should be sought if the pipe were to be constructed through the Park. This would restrict future development of this area of the land (e.g. no building or planting over the pipe alignment).

4.11.11. Constructing the pipe within the road reserve is generally the preferred option over installing the pipe within a park. This is so that maintenance and repairs can be carried out without involving external stakeholders. Undertaking maintenance of the pipeline in the park in the future could lead to conflicts between recreation users of the field and could lead to the field becoming unusable for short periods.
4.11.12. Construction would need to be undertaken in summer if the pipe is installed on the park land, when rugby is not being played. This timing would impact the joining Woodend and Pegasus water supplies project’s schedule.

Refer to Appendix A for the full options assessment.

4.12. Following the options assessment two viable options remain, these are as follows;

1. Option 1 – alignment through the trees (within the road reserve)

2. Option 2 – alignment through Gladstone Park (within Greenspace reserve)

4.13. The following figure shows a more detailed drawing of the Gladstone Park section pipe alignment options.
Figure 3: Detailed drawing of the Gladstone Park section pipe alignment options for the Southern Section.
4.14. The engineer’s estimate for the options are as follows:

Option 1 (alignment though the trees) - $461,000

Option 2 (alignment though Gladstone park) - $400,000

4.15. The costs above include a construction contingency and professional fees. Note that the cost to remove the trees has been sought by getting quotes from arborists/forestry companies known to Council staff.

4.16. It is noted that the alignment through the trees does not include the costs to level out the undulations, rather an allowance has been made to install air valves and scour points. When the connector road is constructed, this area would be releveled.

4.17. The Greenspace team took these two options to the Gladstone Park Advisory Group. The Group would prefer that Council proceed with Option 1, constructing the pipe through the trees. The following information, from the WDC greenspace team, explains the reasons for the Group’s decision.

“We showed the Gladstone Park Advisory Group the two proposed options along with the attached tree report and asked what their preferred option would be. The response from those present was that they would prefer option 1 with the removal of all of the large mature pines and the pipe within the road reserve. Option 2 was only favourable if there was insufficient funds to remove the mature pines. They did want to ensure that the juvenile pines and cypress were protected though as a wind break for the fields. I then emailed the rest of the group who were not at the meeting for additional comment and received a verbal response from the rugby club that they agree with the above preference of the group.”

4.18. Council Staff support the Gladstone Park Advisory Group views, as in the medium to long term this section of land will most likely be converted into a connector road once the planned Woodend Bypass is constructed and for maintenance reasons it is preferred that any new 3 Waters infrastructure is constructed within a road reserve (as opposed to greenspace reserve).

4.19. Although there is some additional cost to the recommended option, this is seen as preferential over the disruption that would be caused to the park in the long term, as well as due to the long term benefits of having the pipe installed within road reserve land.

4.20. The Management Team have reviewed this report and support the recommendations.

5. COMMUNITY VIEWS

5.1. Groups and Organisations

5.1.1. The Gladstone Park Advisory Group would prefer that Council proceed with Option 1, constructing the pipe through the trees. See section 4.16 for more detail on the Group’s decision.

5.2. Wider Community

5.2.1. The wider community has not been consulted specifically on the new water pipe alignment options assessment. The Gladstone Park Advisory Group however are seen as representing the views of the community who use this park.
6. IMPLICATIONS AND RISKS

6.1. Financial Implications

6.1.1. A shortfall in budget to complete this work has been identified. There is a budget of $580,000 allocated to this project and the engineers estimate is $811,000. The shortfall is $231,000.

6.1.2. The reason for this shortfall is mainly due to there being an alignment available at the time of creating the budget, however the Ravenswood rising main wastewater alignment was prioritised over this pipeline. This has meant that a new alignment needed to be sought for this supply pipeline.

6.1.3. Additional costs have come from gaining legal easements, removing trees and more complicated connection details.

6.1.4. It has been calculated that the additional budget of $231,000 will increase rates on the Woodend-Pegasus water supply scheme by approximately $6.40 per connection per year due to additional capital repayments.

6.1.5. It is recommended that an additional capital works budget of $231,000 is included in the 2018/19 financial year, split 30% to growth and 70% to level of service, to give a revised total budget of $811,000 for the Gladstone Road to Pegasus WTP raw water main.

6.2. Community Implications

6.2.1. Removing all of the large pine trees would mean that the Park would no longer have a wind break from the west side. It is noted however that greenspace have planted some smaller trees within Gladstone Park which will act as a windbreak in the future. Additionally it is noted that the large trees may have aesthetic and recreational values to the community.

6.2.2. Constructing the pipeline along the park would mean the formation of an easement (as this is a Fee Simple Title), which may restrict building in this area of the park in the future.

6.3. Risk Management

6.3.1. If the construction was to occur within Gladstone Park, the contractor would need to put measures in place to reduce the risk of the field getting damaged during construction.

6.3.2. A risk worth noting is that Te Kohaka O Tuhaitara Trust may not agree to us obtaining an easement from them for the northern section. If this easement cannot be obtained the pipe would need to be placed around the road reserve on Infinity Drive and Atkinsons Lane, which would be significantly more expensive. The Trust will be contacted in the next stage of the design work after a survey of the utilities in the area has been carried out.

6.3.3. There is another risk is that population growth may be more than Council staff have projected. This pipe has been designed to take all of the existing Equestrian Park and Gladstone Park supply water, and the future Equestrian Park 4 well water to the Pegasus water treatment plant. Council staff have undertaken future growth (50 year) water supply modelling which projected that another well would need to be constructed in approximately 35 years. It is uncertain where this well would be located, however this pipeline has capacity to take the additional flow if the well were to be constructed in this area.

6.3.4. The road reserve has several undulations though it, which will be relevled when the connector road is constructed. This releveling would mean that the water pipe
may be deeper than necessary in places. This will be considered as part of the
detailed design. However it is noted that it is unnecessary for the ground to be
releveled as part of this work and the pipeline would be constructed by welding
polyethylene (PE) pipe, which is a very resilient construction method (so it would
not need to be dug up often).

6.4. **Health and Safety**

6.4.1. Contractors would need to provide the a health and safety plan for constructing
the pipeline and the removal the trees. This would need to include elements of
protecting the public and workers from the hazards of the construction site.

6.4.2. Safety in design would be considered during the design phase, where
considerations will be made for the public's health, to ensure redundancy and
resilience with the pipework layout (valves, connections and pipe material).

7. **CONTEXT**

7.1. **Policy**

This matter is not a matter of significance in terms of the Council's Significance and Engagement
Policy.

7.2. **Legislation**

The following acts are relevant in this matter:

- The Local Government Act.
- The Health (Drinking Water) Amendment Act.

7.3. **Community Outcomes**

This report relates to the following community outcomes:

- There is a safe environment for all.
- Core utility services are provided in a timely, sustainable, and affordable manner.

7.4. **Delegations**

The Community Board, under deregulation 1041, has been kept informed on these matters so that
they can be responsible for;

1. Representing, and acting as an advocate for, the interests of its community.

2. Maintaining an overview of services provided by the Council such as road works, water
supply, sewerage, stormwater drainage, parks, recreational facilities, community
activities, and traffic management projects within the community.

3. Approving, on behalf of the Council as landowner, proposed developments or activities
on parks, reserves and waterways and within existing budgets; Approving consultation
plans for new developments on parks, reserves or waterways which may include
planting plans and play equipment.

4. Where referred to the Board, the authority to approve the removal of street and
recreation reserve trees; unless deemed an urgent Health and Safety matter.
Southern Gladstone Park Section Analysis

<table>
<thead>
<tr>
<th>Option Number</th>
<th>Option Title</th>
<th>Description</th>
<th>Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Trench East of Sewer and Water Pipes</td>
<td>- Clearance between the existing sewer and existing water pipes is 1.4m (1.7m to the pipe centres)</td>
<td>- Can use a similar design to the original raw water design. Pipe would range from 1.4 - 2m depth to invert (based on previous raw water design and ground undulations).</td>
</tr>
<tr>
<td>2</td>
<td>Trench in Gladstone Park, between the rugby field and tree line</td>
<td>- Approximately 8m between the tree line and the rugby field. And no driving on the field during construction</td>
<td>- All trees would need to be removed as recommended by Greenspace and Tree Tech.</td>
</tr>
<tr>
<td>3</td>
<td>Trench between the Sewer and Water Pipes</td>
<td>- Clearance between the existing sewer and existing water pipes is 1.4m (1.7m to the pipe centres)</td>
<td>- Approximtely 8m between the tree line and the rugby field.</td>
</tr>
<tr>
<td>4</td>
<td>Drill East of Sewer and Water Pipes</td>
<td>- Clearance between the existing sewer and existing water pipes is 1.4m (1.7m to the pipe centres)</td>
<td>- Tree root depth is approximately 0.6m deep.</td>
</tr>
<tr>
<td>5</td>
<td>Drill between the Sewer and Water Pipes</td>
<td>- Clearance between the existing sewer and existing water pipes is 1.4m (1.7m to the pipe centres)</td>
<td>- Tree root depth is approximately 0.6m deep.</td>
</tr>
<tr>
<td>6</td>
<td>Trench West of Sewer and Water Pipes - Farmers Land</td>
<td>- Clearance between the existing sewer and existing water pipes is 1.4m (1.7m to the pipe centres)</td>
<td>- Tree root depth is approximately 0.6m deep.</td>
</tr>
</tbody>
</table>

### Operational Cost

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<th>6</th>
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<tr>
<td>Description</td>
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<td>n/a</td>
<td>n/a</td>
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<tr>
<td>Construction Engineering Estimate</td>
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<td>$327,000.00</td>
<td>$351,000.00</td>
<td>$499,000.00</td>
<td>$846,000.00</td>
<td>$360,000.00</td>
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<tr>
<td>Construction Contingency 10%</td>
<td>$38,300.00</td>
<td>$32,700.00</td>
<td>$35,100.00</td>
<td>$89,900.00</td>
<td>$84,600.00</td>
<td>$36,000.00</td>
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<td>Construction Total</td>
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<td>$359,700.00</td>
<td>$436,100.00</td>
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<td>$930,600.00</td>
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<tr>
<td>Professional Fees (half of budget)</td>
<td>$40,000.00</td>
<td>$40,000.00</td>
<td>$40,000.00</td>
<td>$40,000.00</td>
<td>$40,000.00</td>
<td>$40,000.00</td>
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<tr>
<td>Total Capital Cost (including professional fees and contingency)</td>
<td>$461,300.00</td>
<td>$399,700.00</td>
<td>$476,100.00</td>
<td>$1,028,900.00</td>
<td>$970,600.00</td>
<td>$436,000.00</td>
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</tbody>
</table>

---

**Assumptions**

- Can use a similar design to the original raw water design. Pipe would range from 1.4 - 2m depth to invert (based on previous raw water design and ground undulations).
### Water Quality Considerations

- Rather than using a valve, remove a section of pipe so that a connection between the raw and treated cannot occur accidentally
- Scour point
- Clean out the raw line with a pig before commissioning, also flush and sterilise.

### Backup Capacity

Yes - There will be a connection at to take water from the wells to the Woodend WTP if needed. The Pegasus WTP has PW1 well for backup supply.

### Resilience

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within Road Reserve</td>
<td>Pipe material is PE, which is best in liquefaction prone soil. The pipe alignment would comply with the ECOP 1m clearance from sewer. The pipes would not be in the utilities reserve.</td>
<td>Good - Pipe material is PE, which is best in liquefaction prone soil. The pipe alignment would comply with the ECOP 1m clearance from sewer. The pipe would not be in a utilities reserve.</td>
</tr>
</tbody>
</table>

### Risks

<table>
<thead>
<tr>
<th>Risk</th>
<th>Description</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site issue</td>
<td>The pipes are critical trunk mains and the clearance is less than optimal, the risk of damaging these pipes is too high.</td>
<td>This option was double the price of the other options.</td>
</tr>
</tbody>
</table>

### Advantages (additional to those stated above)

<table>
<thead>
<tr>
<th>Advantage</th>
<th>Description</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Easier to construct after the trees are removed</td>
<td>- Lower total capital cost</td>
<td>Good - Pipe material is PE, which is best in liquefaction prone soil.</td>
</tr>
</tbody>
</table>

### Disadvantages (additional to those stated above)

<table>
<thead>
<tr>
<th>Disadvantage</th>
<th>Description</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Construction would be best in summer when rugby is not being played</td>
<td>- High Total Capital Cost</td>
<td>Good - Pipe material is PE, which is best in liquefaction prone soil.</td>
</tr>
</tbody>
</table>

### Reason for dismissing

The pipes either side of this pipe are critical trunk mains and the clearance is less than optimal, the risk of damaging these pipes is too high. Therefore this option was dismissed. This option was double the price of the other options. The pipes either side of this pipe are critical trunk mains and the clearance is less than optimal, the risk of damaging these pipes is too high. Therefore this option was dismissed. Additionally, this option was double the price of the other options. The landowner was contacted by council staff and offered generous compensation for their land. They did not want to sell their land to the WDC, as they were concerned that their property would be left in a messy state.
Northern Section Options Assessment

The northern section had several matters to consider:

- The existing Pegasus water supply pipe runs through easements on Te Kohaka O Tuhaitara Trust and Pegasus Golf Limited land. Unfortunately some of these easements are full with services and easement extensions would be required to get the new pipe to the WTP.
- The land owner at 160 Gladstone Road does not want to sell land to the council. Therefore the alignment along the west side of the Te Kohaka O Tuhaitara Trust reserve (135 Infinity Drive) is not attainable.
- WDC owns the section of land at 7 Atkinsons Lane (two properties north of the WTP). As it is not possible to acquire land from 160 Gladstone Road and the easement through Pegasus Golf Course land is full, the pipe would need to be constructed though the WDC land to the north (7 Atkinsons Lane).
- The reinstatement cost to construct the pipeline in the road is more than constructing the pipe in the berm. Additionally there appears to be an alignment available in the Te Kohaka O Tuhaitara Trust reserve which the new pipe could be constructed in.

<table>
<thead>
<tr>
<th>Option Number</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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</thead>
<tbody>
<tr>
<td><strong>Option Title</strong></td>
<td>Road Reserve and WDC land</td>
<td>Berm Easement and WDC land</td>
<td>Berm Easement and Farmers land</td>
<td>Farmers land</td>
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<tr>
<td><strong>Description</strong></td>
<td>A new 400mm diameter PE pipe to supply water to the Pegasus WTP. - Pipe would range from 1 - 1.8m depth to invert (based on previous raw water design and ground undulations).</td>
<td>- Alignment along the Road Reserve, extend easement in Todds Properties land to the North of the existing easement, get an easement in WDC reserve land to the north, use easement across 11 Atkinsons Drive into the WTP - Road Reinstatement and Traffic Management</td>
<td>- Alignment along the Berm Easement parallel to Infinity Drive, extend easement in Todds Properties land to the North of the existing easement, get an easement in WDC reserve land to the North, use easement across 11 Atkinsons Drive into the WTP</td>
<td>- Alignment along the Berm Easement parallel to Infinity Drive, extend easement in Todds Properties land to the South of the existing easement, buy a strip of 160 Gladstone Roads land, use easement across 11 Atkinsons Drive into the WTP</td>
</tr>
<tr>
<td><strong>Construction technique</strong></td>
<td>Trenching</td>
<td>Trenching</td>
<td>Trenching</td>
<td>Trenching</td>
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<tr>
<td><strong>Construction Engineers Estimate</strong></td>
<td>$297,940.00</td>
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<td>$269,170.00</td>
<td>$285,500.00</td>
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<td><strong>Construction Contingency 10%</strong></td>
<td>$29,794.00</td>
<td>$28,472.40</td>
<td>$26,917.00</td>
<td>$28,550.00</td>
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<tr>
<td><strong>Construction Total</strong></td>
<td>$327,734.00</td>
<td>$313,196.40</td>
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<td>$314,050.00</td>
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<tr>
<td><strong>Professional Fees (half of budget)</strong></td>
<td>$40,000.00</td>
<td>$40,000.00</td>
<td>$40,000.00</td>
<td>$40,000.00</td>
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<tr>
<td><strong>Total Capital Cost (including professional fees and contingency)</strong></td>
<td>$368,000.00</td>
<td>$353,000.00</td>
<td>$336,000.00</td>
<td>$354,000.00</td>
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<tr>
<td><strong>Operational Cost ($/annum)</strong></td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Assumptions</strong></td>
<td>- The existing tee connection and stacker pipe at the WTP could be reused for this design.</td>
<td>- We could get easements</td>
<td>- We could get an easement and buy some land from the farmer</td>
<td>- We could buy some land from the farmer</td>
</tr>
<tr>
<td><strong>Water Quality Considerations</strong></td>
<td>- Clean out the raw line with a pig before commissioning, also flush and sterilise.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Backup Capacity</strong></td>
<td>Yes - There will be a connection at to take water from the wells to the Woodend WTP if needed. The Pegasus WTP has PW1 well for backup supply</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Resilience</strong></td>
<td>Good - Pipe material is PE, which is best in liquefaction prone soil. Pipe would be within an easement or in WDC Utilities land.</td>
<td>Good - Pipe material is PE, which is best in liquefaction prone soil. Pipe would be within an existing easement or in WDC Utilities land (once purchased from farmer).</td>
<td>Best - Pipe material is PE, which is best in liquefaction prone soil. Pipe would be within WDC utilities land (once purchased from farmer).</td>
<td></td>
</tr>
</tbody>
</table>
### Risks
- Three service crossings (Gas, HV, LV, Sewer and Chorus)
  - Need to apply for two easements which need to be agreed by WDC and Todds Property Group
  - Soil moisture content is low (according to ECAN soil moisture) and soil is Deep Sandy Loam therefore shielding will likely be required
- Need to apply for an easement which need to be agreed by Todds Property Group
- Farmer may not want to sell the land for a reasonable price
- Could take a long time to negotiate, which would mean a delay in the works
  - Soil moisture content is low (according to ECAN soil moisture) and soil is Deep Sandy Loam therefore shielding will likely be required
- Farmer may not want to sell the land for a reasonable price
- Could take a long time to negotiate, which would mean a delay in the works

### Advantages
Additional to those stated above:
- Within Road Reserve
- Trenching in Berm
- No Services would need to be crossed
- Lowest Total Capital Cost
- Trenching in Berm
- No Services would need to be crossed
- Within a utilities reserve (once the land is purchased)

### Disadvantages
Additional to those stated above:
- Trench along the road, reinstatement of road surface and increased Traffic Management Costs
- Pipe Construction in an easement which would need liaison for Maintenance and Construction
- Acquiring an easement may impact the time of construction
- Pipe Construction in an easement which would need liaison for Maintenance and Construction
- Acquiring an easement may impact the time of construction

### Reason for dismissing Option
The reinstatement cost would be slightly more in this option as the reinstatement is along the road, rather than the berm.
The landowner was contacted by council staff and offered generous compensation for their land. They did not want to sell their land to the WDC, as they were concerned that their property would be left in a messy state.
The landowner was contacted by council staff and offered generous compensation for their land. They did not want to sell their land to the WDC, as they were concerned that their property would be left in a messy state.
Appendix B - TreeTech Development Site Impact Assessment Tree Report Gladstone Park – TRIM
Reference 180314027354

Development Site Impact Assessment

Client: Grant Stephens, Waimakariri District Council
Site Address: Gladstone Park
Gladstone Road, Woodend
Date & Time of Visit: 15th February, 2.00 pm
Attendees: Alan Parker
Report Author: Alan Parker
Version: Final
Since 1996
Leading the way in urban forest management
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1.0 SCOPE OF REPORT

1.1 Survey Brief

To carry out a survey of trees located at the western aspect of Gladstone Park in context with the proposed Woodend – Pegasus Raw Water Main installation, see Appendix 1, details as provided by WDC.

The survey has identified the condition of tree assets within the Park boundary, in order to provide the client with details of tree condition and potential impacts of the proposed Raw Water installation.

1.2 Background

Mr Grant Stephens commissioned Treecare Specialist Treecare Ltd™ to undertake a tree survey in accordance with the guiding principles of a Level 2* Basic Assessment upon the linear group of Pines (Pinus radiata) and Macrocarpa (Cupressus macrocarpa), located along the western aspect of Gladstone Park.

1.3 Report References

As a progressive company, we keep abreast of research data relating to Arboriculture. All observations, recommendations and works are based on current industry standard reference material and extensive FA Bartlett research findings, derived from the company’s facilities at the University of Reading in England as well as in Charlotte, North Carolina, in the USA. Specific tree survey methodologies and references applied by Treecare Specialist Treecare Ltd for this project include:

1.0 SCOPE OF REPORT (Continued)

1.4 Report Methodology and Limitations

This report is restricted to those trees shown on Appendix 1. Tree Location Plan attached to this report. The statements, findings and recommendations made within the report do not take into account any effects of extreme climate and weather incidences, vandalism, changes in the natural and built environment around the trees after the date of this report nor any damage whether physical, chemical or otherwise.

Treetech Specialist Treetcare Ltd cannot accept any liability in connection with the above factors nor where recommended tree management is not carried out in accordance with modern tree health care techniques, within the timelines proposed.

The trees were not climbed at the time of the tree survey.

All tree information and dimensions are accurate as captured on the day.

* Levels of Tree Assessment

Level 1 Limited Visual Assessment:
A visual assessment of an individual tree or a population of trees near a specified target, conducted from a specific perspective, in order to identify certain obvious defects or specified conditions. Observations are made from ground level and the tree is not climbed.

Level 2 Basic Assessment:
A detailed visual inspection and assessment of a tree and the surrounding site, found to possess a hazard. The basic assessment requires the tree risk assessor to walk completely around the tree. Tree dimensions are recorded using hand tools such as a diameter tape, laser range finder and a measuring tape.

Level 3 Advanced Assessment:
An advanced assessment is performed to provide detailed information about specific tree parts, defects, targets or site conditions. Methods of advanced assessment can include climbing inspections, decay detection, root excavations, lean monitoring and pull tests.

It is important to understand that as trees are living and dynamic organisms, it is not possible to maintain them totally free of risk. Some level of risk must be accepted in order to experience the full range of benefits that trees provide. As such, we reference the recently published document by the National Tree Safety Group (NTSG): Common Sense Risk Management of trees (Forestry Commission 2011). This document provides guidance on trees and public safety in the UK for owners, managers and advisors.
2.0 TREE PROTECTION STATUS

The Resource Management Act (RMA) 1991 promotes the sustainable management of natural and physical resources such as land, air and water in New Zealand. The RMA – in particular the purpose and principles in Part 2, which emphasise the requirement to sustainably manage the use, development and protection of the natural and physical resources for current and future generations, taking into account the 'four well beings' (social, economic, cultural and environmental).

The Local Government Act 2002 - in particular section 14, Principles relating to local authorities. Sub-sections 14(c), (g) and (h) emphasise a strong intergenerational approach, considering not only current environments, communities and residents but also those of the future. They demand a future focussed policy approach, balanced with considering current needs and interests. Like the RMA, the provisions also emphasise the need to take into account social, economic and cultural matters in addition to environmental ones.

2.1 Protected Trees

No information has been provided relevant to Tree Protection for the subject assets, apart from ownership of the reserve area by WDC.
3.0 GENERAL SITE DETAILS

3.1 Weather Conditions at Time of Survey

At the time of the tree inspection, the weather was fine and dry, with a gusty north-westerly wind, providing optimal surveying conditions.

3.2 Site Location

Gladstone park is located north-east of Woodend, bordering Pegasus, within Waimakariri District Council. The subject site is rugby sports fields, with private property to the north and west, Gladstone Road along the southern boundary and reserve area to the east.

3.3 Local Landscape Evaluation

The site features a predominance of Pine and Macrocarpa, trees and maintained hedge. Adjacent properties contain a diverse mix of trees including deciduous and evergreen species.

3.4 Slopes and Boundaries

The site is predominantly level, with the southern sports field elevated approximately 1.5 metres above the northern sports field.

Pine and Macrocarpa planting along the western aspect is on a raised mound which descends to the western property boundary.
3.5 Underlying Soils

(Ref: S-map Soil Report, Landcare Research New Zealand Limited 2011-2015, Manaaki Whenua, dated: 14th August 2017). Using the S-mapOnline, ‘soil map viewer’ (http://smap.landcareresearch.co.nz) it has been determined that the underlying soils are:

- Kairakif – deep, well drained, sandy loam

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<th>Description</th>
<th>Confidence</th>
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Rading/Number: 107/0503 E203482
4.0 TREE DETAILS, Photographic overview

Figure 1:
Root plate failure, tree supported by neighbours.

Figure 2:
Apical stem failure, upward growth maintained by secondary lateral branch, with decay at point of attachment.
Figure 3: Entire tree failure, only stump remaining.

Figure 4: (above left) shows new Macrocarpa planting, eastern aspect of line of trees, middle of northern field.

Above right shows Macrocarpa-Pine-Macrocarpa, eastern aspect of line of trees, middle of southern field.
4.0 TREE DETAILS (Continued)

The tree line, oriented north-south along the western edge of the park is predominantly mature Pine, height up to 32.0 metres, DBH up to 700mm, – canopy spread is difficult to quantify as the group of trees has a unified canopy, with individual trees suppressed by those adjacent.

Along the eastern edge of the group Macrocarpa have been planted, (see figure 4). Considering their size, I can only assume that this planting may have been an attempt at establishing replacement shelter, as currently afforded by the larger Pines.

The Pines vary considerably in:

- Height and DBH, considerable variation in individual trees due to the close proximity planting which has suppressed many of the inner trees

- Health, generally consistently fair health throughout the group, exception being smaller trees that have failed to establish and are now dead, standing

- Structure, considerable variation in structure from well-established single leader trees, to root plate failure, (see figure 1), failed leader above ground level (see figure 2) and total tree failure (see figure 3) The failures to date provide an indication of the potential failures from hereon.

The Macrocarpa are generally in good health and structure, with the onset of phototropic suppression along the western aspect due to the close proximity of the Pines. The size of the Macrocarpa varies between 1.0 – 6.0 metres in height, and it is possible that the planting has taken place on separate occasions, with several years between planting.
5.0 DISCUSSION and CONCLUSION

The proposed Raw Water installation per WDC information provides 2 options, see Appendix 1:

- Option 1 – this will require the removal of many of the western Pines from the group – a consequence to this will be that the remaining trees will be susceptible to wind throw, as the wind dynamics within the group will have been altered by removal of some of the trees.

- Option 2 – Trenching at 2.0 metres east of the Macrocarpa trees will not affect the root plate of the group, and is the preferable option from a tree perspective.

- Option 3 – This option would include removal of the Pines, with the Raw Water installation per Option 1. The benefit of this option is that the Pines, which are close to becoming over-mature, with increased failure potential, would no longer be an issue, allowing the newly planted Macrocarpa to spread and become the primary wind break. The Macrocarpa have established well generally, and the removal of the Pines would stimulate both calliper (secondary trunk thickening) and root spread into the hospitable soil type, to provide a line of trees that could be managed as a hedge. In the future, Pine removal would also allow for the planting of a second line of suitable species, west of the existing Macrocarpa, to provide a long-term rotation with screening.

The above options have considered only the arboricultural factors for this site, and have not included any comment or preference from a costing aspect.

Report Status: Final

Report completed by: Alan Parker, Cert Arb. Advanced
Senior Consultant Arborist
TreeTech Specialist Treecare Ltd

Signature: 

Date: Monday 19th February, 2018
Appendix 1 – Installation options provided by WDC