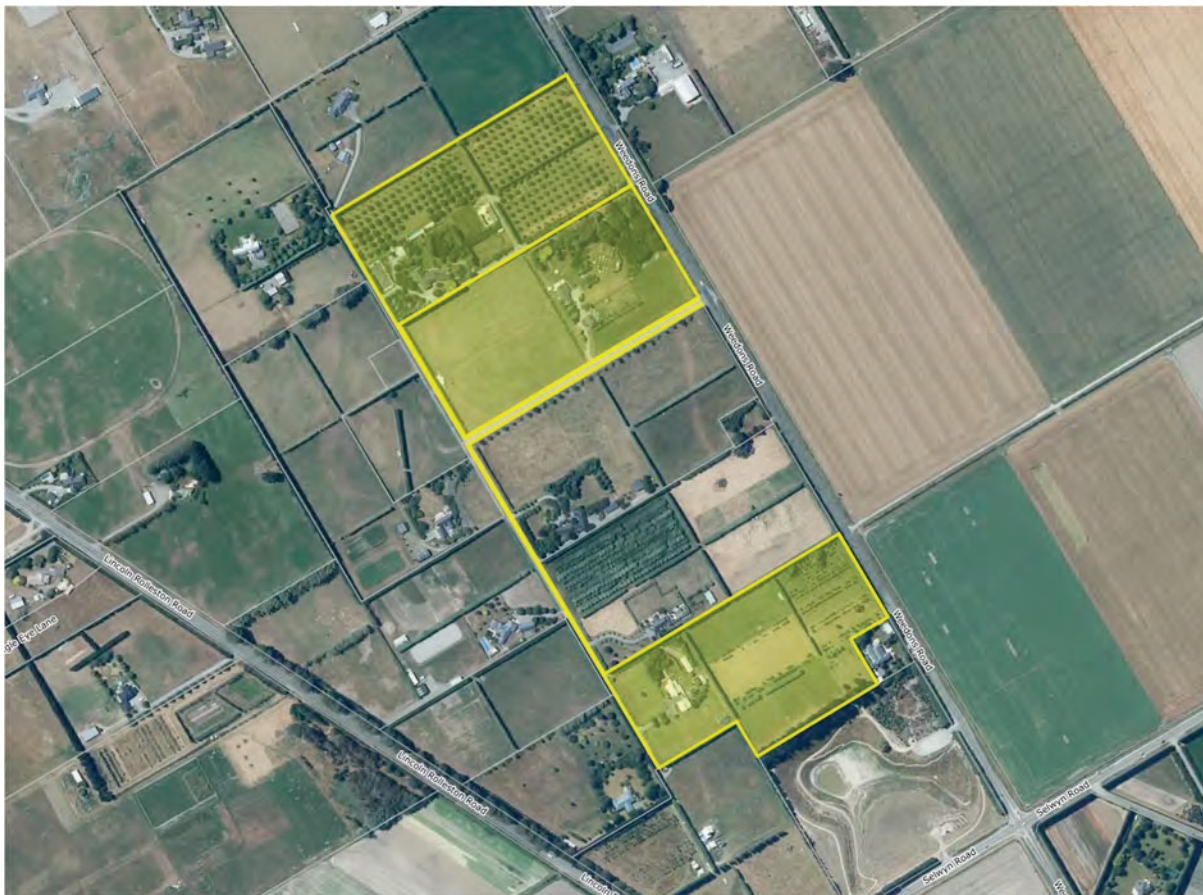




## **Appendix A**

### **Infrastructure Assessment**



# INFRASTRUCTURE REPORT

1/487, 2/487 and 10/487 LINCOLN ROLLESTON  
ROAD

To accompany application to Selwyn District Council for Private Plan Change

March 2025

# Contents

1	Executive Summary.....	3
2	Introduction.....	4
2.1	Scope.....	4
2.2	Legal Description.....	4
3	The Site and Receiving Environment.....	5
3.1	Site Description .....	5
3.2	The Proposal .....	6
3.3	Geotechnical Investigations .....	6
3.4	Groundwater.....	7
4	Bulk Earthworks.....	8
4.1	Earthworks Design .....	8
4.2	Secondary Flow Paths.....	8
5	Roading Transportation.....	10
5.1	Layout and Design.....	10
5.2	Roading Stormwater Drainage .....	12
6	Stormwater.....	13
6.1	Existing Stormwater Management .....	13
6.2	Proposed Stormwater Disposal.....	13
6.3	Soil Profile and Groundwater.....	14
6.4	Environment Canterbury Consents.....	14
7	Wastewater .....	15
7.1	Existing Infrastructure .....	15
7.2	Proposed Wastewater Design.....	16
8	Water Supply .....	17
8.1	Existing Infrastructure .....	17
8.2	Proposed Water Reticulation.....	17
8.3	Firefighting Requirements.....	18
9	Utilities and Streetlights.....	19
9.1	Power .....	19
9.2	Fibre .....	19
9.3	Streetlights .....	19

# Document Control

REVISION	DATE	REVISION DETAILS	AUTHOR	APPROVER
A	21/03/25	FOR INFORMATION		CWH



# 1 Executive Summary

Yoursection Limited have instructed Capture Land Ltd to complete an infrastructure (servicing) report for a proposed Plan Change located on Weedons Road for three blocks. This report assesses the feasibility of providing the engineering services to rezone this land to residential zoning, in accordance with all relevant Council and industry standards and guidelines.

The site is gently sloping from northwest to southeast at a grade of approx. 1:200 (0.5%). Soils consist of topsoil overlying silty gravels. Groundwater levels typically sit around 10-13mbgl.

Access to the proposed subdivision would be from several points along Weedons Road. Numerous proposed connections to development areas to the north and west would also be made as part of the development if constructed at the time of subdivision.

Stormwater servicing is proposed to be a network which discharges to ground via soakpits. This methodology is standard for Rolleston and commonly used to very good effect given the underlying gravels and depth to groundwater.

Wastewater servicing is proposed to be provided by way of a gravity reticulation to a proposed lift/pump station on Weedons Road at the south end of the plan change block. It is proposed that the pump station would be best suited in the bottom block of the plan change (10/487 Weedons Road) due to this property being the lowest point of the general area. From this pump station a rising main will be installed to connect back to existing reticulation either on Lincoln Rolleston Road, or Selwyn Road.

Water Supply will be readily available in Lincoln Rolleston Road. As part of the current development works at Falcons View (on the opposite side of Lincoln Rolleston Road) there is a 375mm PVC watermain being installed along Lincoln Rolleston Road which will be the primary source of water for this area.

Given the information available and the investigations conducted to date we recommend that the development land can be effectively serviced.

## 2 Introduction

### 2.1 Scope

The following report will cover all main aspects of infrastructure supply required for the proposed development at 1/487, 2/487 and 10/487 Weedons Road.

These main aspects are as follows:

- Site Description
- Bulk Earthworks
- Roading/Transportation
- Stormwater drainage
- Wastewater reticulation
- Water reticulation
- Power, Telecommunications and Streetlights.

### 2.2 Legal Description

The proposed development blocks as proposed, comprises 3 separate parcels of land – these are described in the table below.

Site Address	Appellation	Area (ha)	Record of Title (RT)
1/487 Weedons Road	Lot 3 DP 47839	4.3230	CB47C/32
2/487 Weedons Road	Lot 2 DP 47839	4.3384	CB/47C/31
10/487 Weedons Road	Lot 6 DP 47839	4.3343	CB47C/35
Total Area:		12.9957ha	

The sites are currently zoned GRUZ (General Rural Zone) under the Selwyn District Council Partially Operative District Plan (Appeals Version).





## 3.2 The Proposal

The plan change is proposed to rezone the three blocks into MRZ zoning which will ultimately provide residential zoning.



Figure 2 – Proposed Plan Change ODP's

## 3.3 Geotechnical Investigations

A geotechnical report has been completed by Miyamoto, where they undertook machine excavated trial pits and dynamic core penetrometer (DCP) tests to investigate the existing ground conditions of the site. A summary of the subsurface profile can be found in the table below.

Depth below ground (m)	Material	State
0.0 – 0.3	Topsoil	
0.3 – 1.1	Silt	Firm to very stiff
1.1 –	Sandy/Silty Gravel	Dense to very dense

In general, the underlying ground conditions within the report area are very similar to that experienced in other developments in the general area. There are no particular concerns as to the suitability of the land for development.



### 3.4 Groundwater

Groundwater was not once encountered at any of the testing locations completed by Miyamoto for the Geotech report. There are several wells located on, or around, the subject site, the following table summaries the wells with recorded groundwater data.

Well number	Depth to groundwater (m)	Location
M36/4966	9.50	178 Lincoln Rolleston Road
M36/5918	12.70	4/487 Weedons Road
M36/1914	12.54	6/487 Weedons Road
BX23/0533	14.10	202 Lincoln Rolleston Road
M36/8346	10.30	8/487 Weedons Road

As can be seen in the table above, depth to groundwater for this site is indicated as 10-13m below ground level. This does not account for seasonal fluctuations, which may see those levels rise to ~8m. Overall, there should be no issues with groundwater for this proposed plan change.

## 4 Bulk Earthworks

### 4.1 Earthworks Design

The topography of the sites is generally sloping from northwest to southeast, with a continuous grade of approximately 1:200

Bulk earthwork design would be dictated by the need to have a 1:500 (absolute minimum) grade from the top of kerb to the rear of the sections fronting the road.

The design philosophy for the setting of earthwork levels will be determined by the following criteria:

- Road gradients not to exceed 1 in 20 and not to be less than 1:500,
- Cut/fill balance where applicable.

Where possible, existing levels will be met along external boundaries.

Any filling exceeding 300mm will be engineered fill and testing requirements will be met as per NZS 4431:2022 and will be supervised and signed off by a Chartered geotechnical engineer.

### 4.2 Secondary Flow Paths

Overland flow paths for the subdivision are to follow the roading layout following completion of the earthworks across the site. This will ensure that all dwellings are located well away from any overland flow paths.

As discussed below, the latest flood modelling data from ECAN shows potential flood ponding on the existing site. Please see following flooding map (based on ECAN modelling data) which shows the 1:200 ARI event.

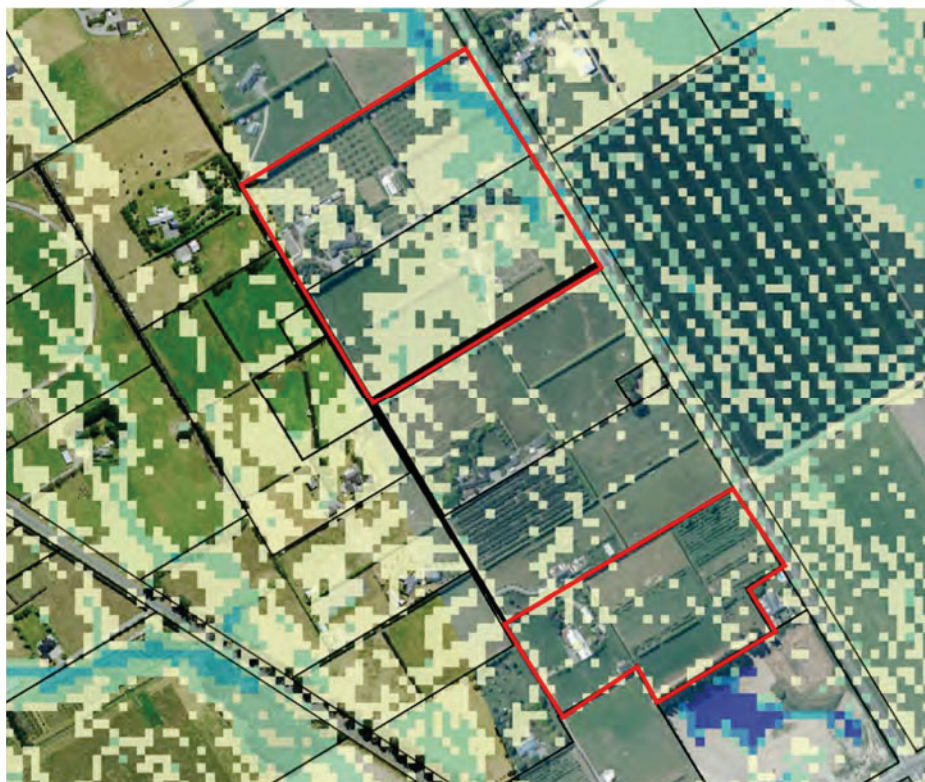


Figure 3 - SDC flooding map

It is noted that the flow of potential ponding area runs from north to south, and there are several small depressions running through the site which would possibly convey any flood water. It is envisaged that these depressions that are running through the site will be locally filled as part of the subdivision bulk earthworks and the overall site will be graded such that any flooding will be directed down the roading corridors and subsequently changing the modelling from what is shown above. New flood modelling for the site (post development) will be completed as part of the detailed design process and submitted to SDC for approval.



# 5 Rooding Transportation

## 5.1 Layout and Design

The three sites included within the plan change area are surrounded by several blocks of zoned land. These zoned blocks have been shown in Development Area Plans within the SDC Partially Operative Plan. These plans are shown below.

There will be numerous rooding connections to future development areas to the west and the north of the sites.

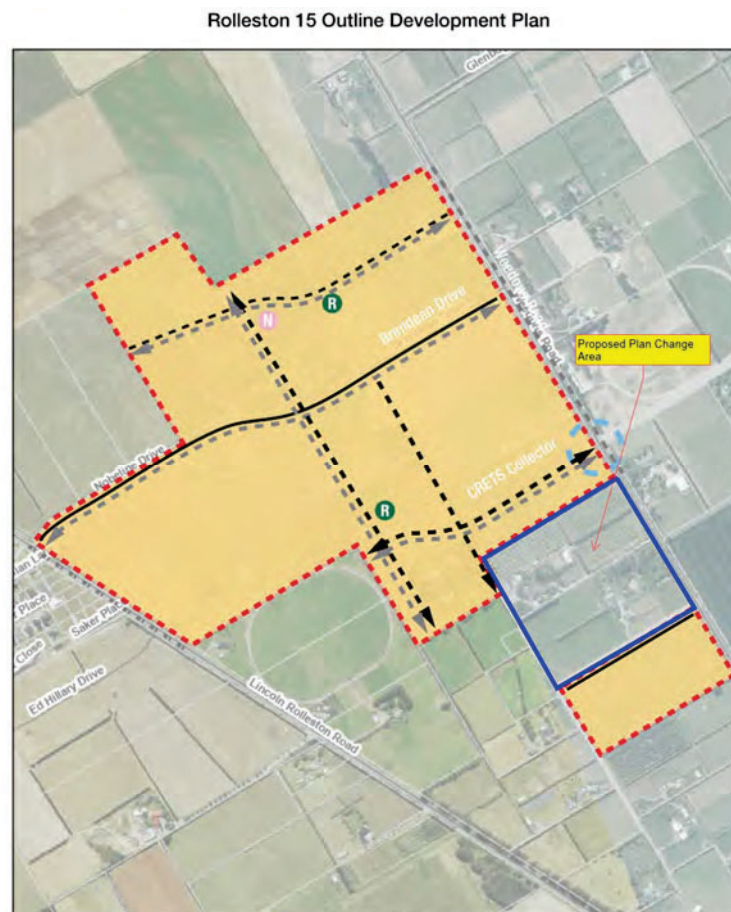


Figure 4 - Rolleston 15 Development Plan



Rolleston 16 Outline Development Plan

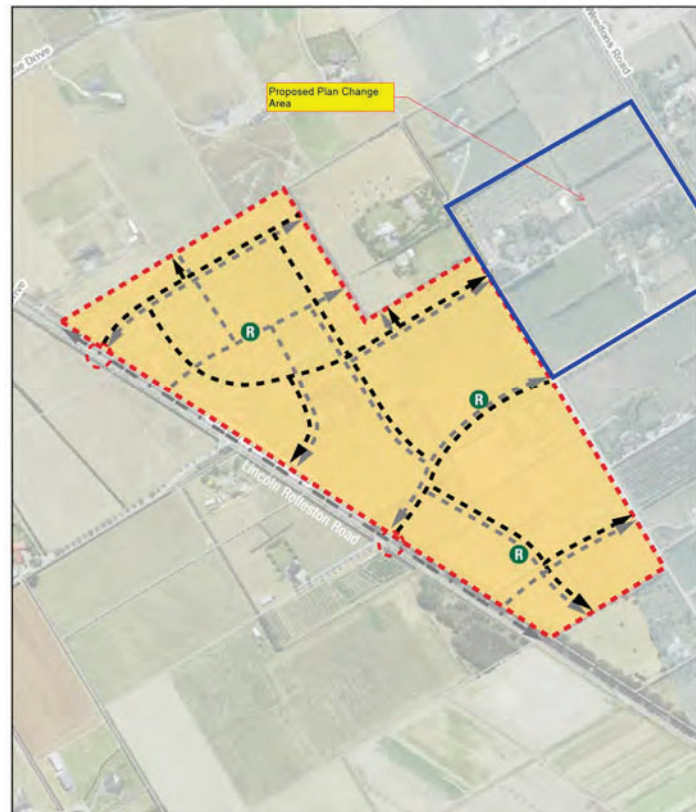


Figure 5 - Rolleston 16 Development Plan

Rolleston 17 Outline Development Plan

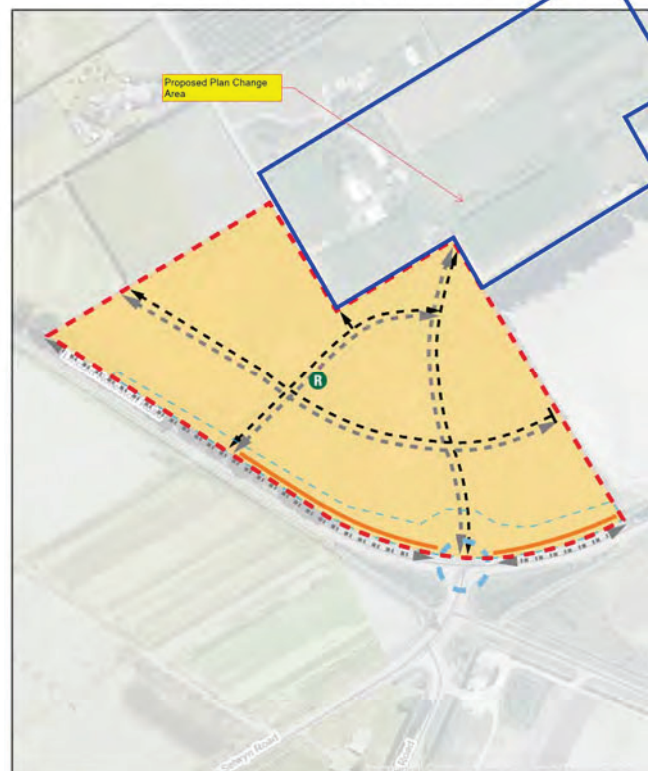


Figure 6- Rolleston 17 Development Plan



Figure 7- Proposed Plan Change Roding Links

All proposed new roads will be constructed to Selwyn District Council standards in conjunction with their engineering code of practice. Weedons Road will be resurfaced out to the existing centreline and a new kerb and channel and footpath will be installed for the length of the frontage.

All new internal roads will be constructed with kerb and channel and at least a single, 1.8m wide footpath on one side of the road. As per the above ODP, some roads will also have a shared, 2.5m wide footpath. Standard SDC low profile kerb and channel will be utilised throughout this development.

Upon reviewing the Geotech report, there should be no issues in achieving the required CBR for roads to be constructed to the necessary standards.

## 5.2 Roding Stormwater Drainage

Stormwater runoff within the road corridors will be captured and channelled, via kerb and channel, into appropriately spaced sumps – single and double – which will be connected to rapid soakage trenches/soakpits. All sumps will have trapped and/or inverted outlets.

Stormwater captured from within a private right of way (ROW) will generally be directed to the bottom of the ROW where there will be a sump connected to another sump in the main roding network. This sump to sump setup will act as a bubble up system to allow for flows from the ROW to continue down the roding network to the nearest sump and connected soakpit.

The road corridor will be used as overland flow paths to direct stormwater runoff when the piped system is at full capacity (larger than a 1% AEP storm).

Stormwater design is covered in more depth in section 6 of this report.

## 6 Stormwater

### 6.1 Existing Stormwater Management

There is no existing reticulated stormwater network located on or close to the subject site. There may be localised depressions and/or manmade drains located on individual sites to allow for overland flows – these will be dealt with through the detailed design process. It is noted that discharge consent CRC244339 (Falcons East) has been approved by ECAN based on no specific treatment provisions.

### 6.2 Proposed Stormwater Disposal

The stormwater disposal method for this proposed development will be the widely used and accepted method of soakage to ground via soakpits. Soakpits will be spaced throughout the site and connected to sumps in the kerb network to capture and dispose of all stormwater runoff created by rain events up to a 1% AEP storm.

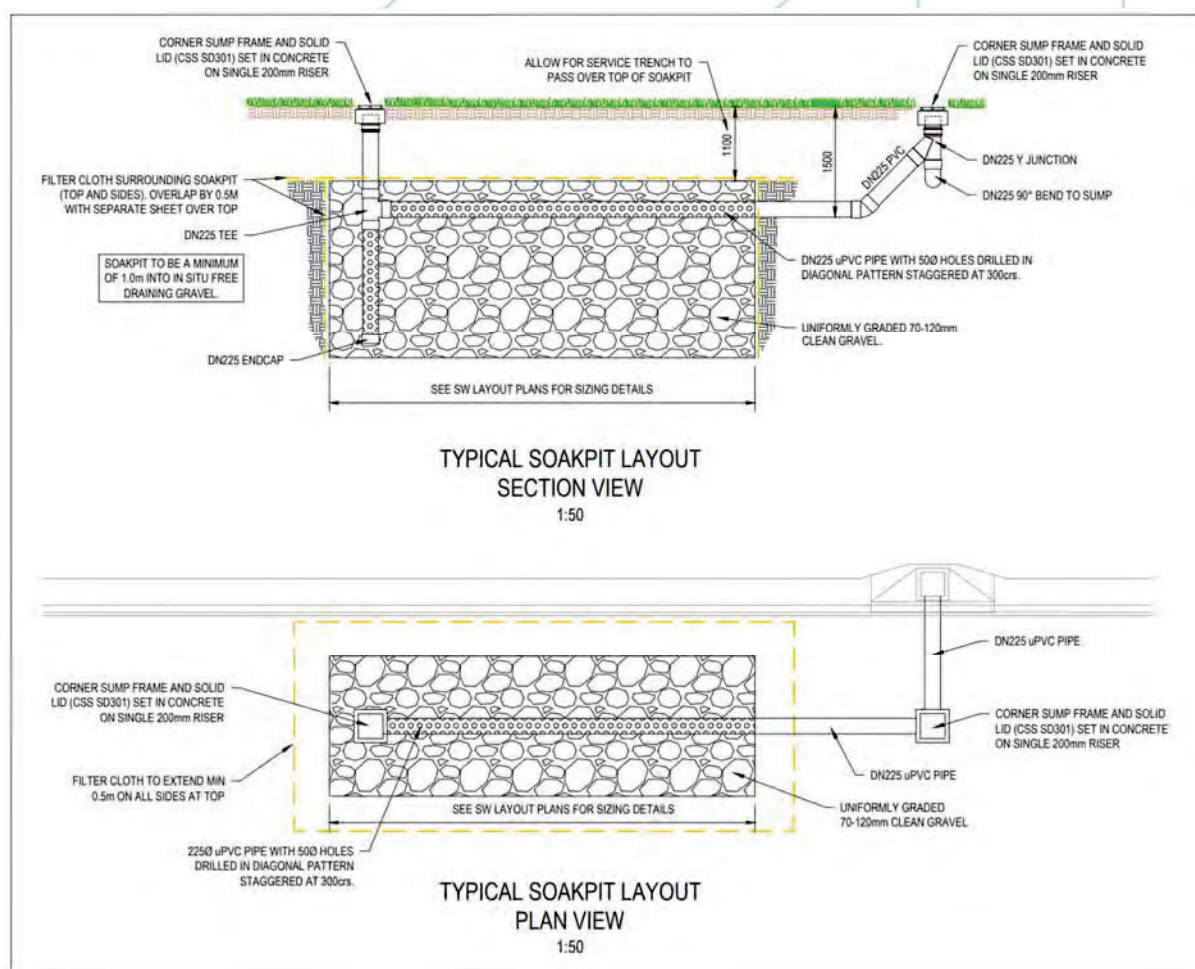


Figure 8 - stormwater soakpit general arrangement drawings

Individual lots will also discharge to ground via soakpits, which will be located within each lot. Given that roof and hardstand areas will be required to appropriately size these individual soakpits, the design and siting of these will be completed at building consent stage. We have allowed for a small area of hardstand (for example a vehicle crossing) in the design and sizing of each soakpit in the roading network.



## 6.3 Soil Profile and Groundwater

Ground conditions and groundwater are discussed in section 2 of this report. To summarise, the conditions reported through the geotechnical investigations are very consistent with Rolleston in general, and the surrounding developments therefore making it an ideal environment for stormwater disposal to ground.

## 6.4 Environment Canterbury Consents

Resource Consents will be applied for to Environment Canterbury to allow for stormwater disposal to ground for the proposed development. Given that consents have been granted recently for the same activities in close proximity to this site, we do not envisage any issues gaining these consents.

It is likely that two consents will be required, these are:

- Consent to discharge construction phase stormwater to land,
- Consent to discharge operational phase stormwater to land.

It is anticipated that earthworks activities will be deemed as a Permitted Activity and therefore no full consent will be required from Environment Canterbury for this purpose.



## 7 Wastewater

### 7.1 Existing Infrastructure

There is currently no existing connection for this proposed plan change area. The existing properties involved in the proposed development have on-site wastewater disposal systems which will be decommissioned appropriately as part of the civil works.

SDC have previously circulated a proposed wastewater catchment plan which shows the proposed plan change sites in Orange (see figure 9 below). This plan also shows the installed reticulation to date (to a Manhole on Lincoln Rolleston Road).

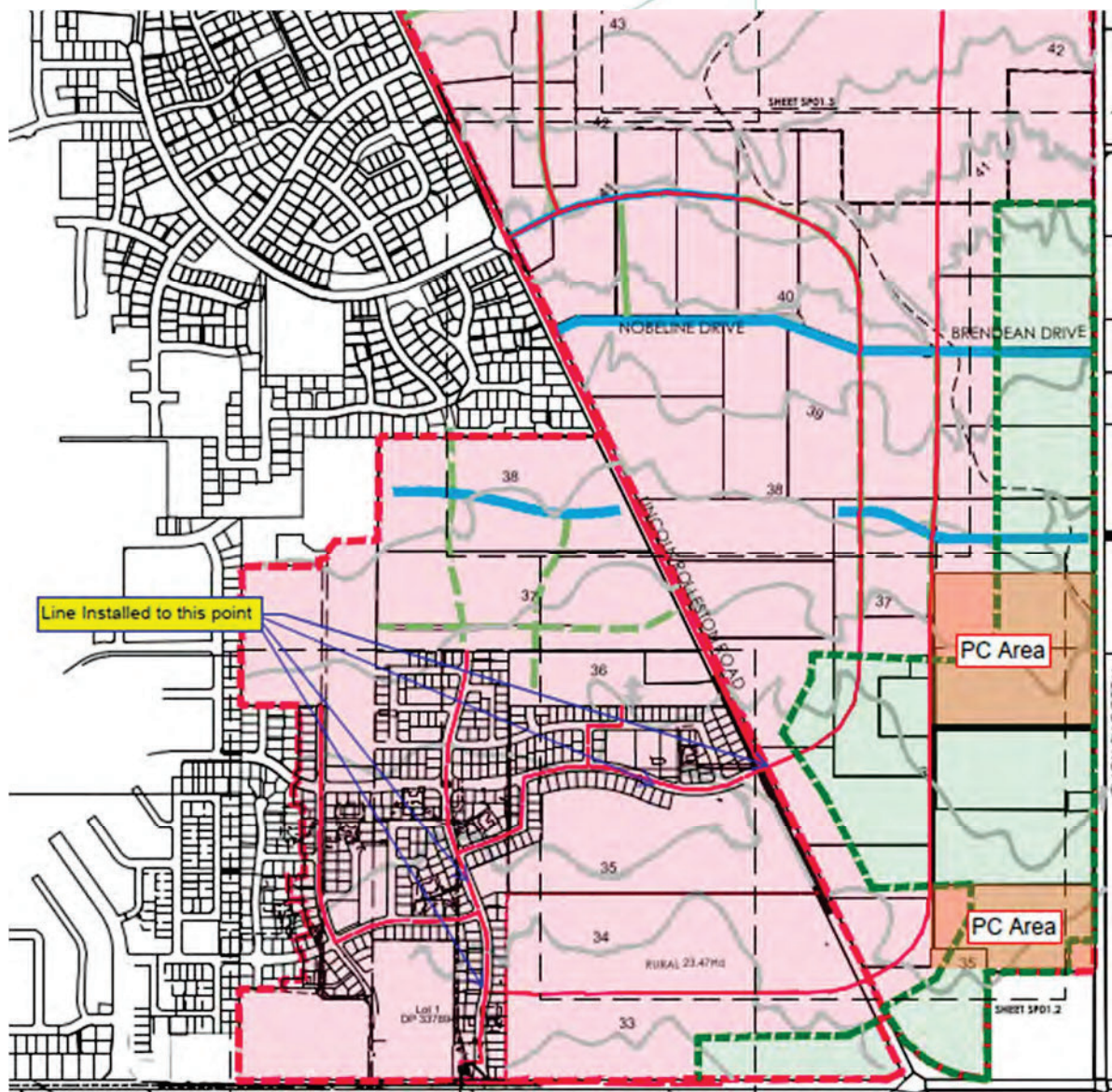


Figure 9 – Overall Catchment Plan for proposed new SE Pump Station

It is noted that the New SE Pump Station is being currently installed, which will be the terminal point for any wastewater from the proposed Plan Change Area.

## 7.2 Proposed Wastewater Design

As identified on the above Figure 9, the proposed plan change area is shown in a “lift station” catchment and as such is not able to be serviced by gravity back to the existing (or proposed) gravity network installed in Lincoln Rolleston Road.

A lift/pump station will be required to enable wastewater from the plan change areas to be pumped to the existing reticulation to the west. It is proposed that the pump station would be best suited in the bottom block of the plan change (10/487 Weedons Road) due to this property being the lowest point of the general area.

Once the lift/pump station is installed, the proposed development can be fully serviced with a gravity wastewater network.

Each lot within the development will be provided with a separate 100mm PVC connection to this network.

All internal gravity mains reticulation is proposed to be laid at 1:200 (minimum grade) - wastewater flow calculations will be provided at detailed design stage to confirm pipe sizes and grades.

Applicable wastewater design standards are shown in the table below.

Minimum pipe grades and maximum manhole spacing:

Pipe Diameter	Ownership	Minimum Grade	MH Spacing
300mm uPVC SN8	Public	1:300	120m
225mm uPVC SN8	Public	1:200	100m
150mm uPVC SN16	Public	1:200 (1:160 unflushed)	100m
100mm uPVC	Private	1:80	N/A

Minimum fall through manholes:

Deviation Angle	Minimum Fall
0 - 30°	0.010m
31 - 60°	0.025m
61 - 90°	0.050m



## 8 Water Supply

### 8.1 Existing Infrastructure

There is currently no infrastructure available to connect onto for this proposed plan change area.

There is an existing 375mm pipeline that has been installed as part of the Falcons View development on Lincoln Rolleston Road. This water main will be extended to the south, down Lincon Rolleston Road, once Broadfield grange complete the required upgrades to their frontage. The intention, as per below Figure 10, is that the 375mm will connect onto the previously installed pipeline in Selwyn Road, near the SE Pump Station, forming a loop.



Figure 10 – SDC 5 waters plan – with proposed connection for Plan Change area

### 8.2 Proposed Water Reticulation

Water reticulation for the proposed plan change area will be taken from the new 375mm watermain in Lincoln Rolleston Road. This will be run through the Falcons East development (owned by Yoursection) to the northern extent of the plan change blocks. It is then proposed that a new water main will be installed down Weedons Road (or possibly internally down the existing ROW), to the southern Plan Change Block, and eventually run back onto the 375mm watermain on Lincoln Rolleston Road.

Likely, a series of 200, 150 and 100mm mains will be extended throughout the development to provide sufficient supply to each new lot. Hydraulic modelling will be completed at detailed design stage to ensure SDC requirements are met. Connections will also be allowed for to land surrounding this site, for future development.

## 8.3 Firefighting Requirements

All reticulated supply would be unrestricted, and as such would be subject to the provisions of FW2 from SNZ PAS 4509:2008.

This standard requires at least one fire hydrant to be located within 135m of any dwelling, and two hydrants located within 270m of any dwelling. Each hydrant must have the capacity to provide a minimum of 12.5 L/s with a minimum residual pressure of 100 kPa.

It is anticipated that there would be sufficient pressure in the current system to comply with the above requirements.

All new mains will have hydrants spaced to satisfy SNZ PAS 4509:2008.





## 9 Utilities and Streetlights

### 9.1 Power

There is an existing overhead HV line on the western side of Weedons Road. It is envisaged that this would be undergrounded and that the subject site will be reticulated from this line, with kiosks installed as per industry requirements.

Power plans will be designed by an experienced contractor, in line with Orion standards.

### 9.2 Fibre

The subject site is within an Enable and Chorus fibre supply area. Each lot will be provided with a fibre connection to the net area of the lot. Enable will be engaged to complete fibre design plans and installation for the development.

### 9.3 Streetlights

All streetlighting will be designed and installed as per industry regulations. A lighting design will be completed by an experienced contractor and will be submitted to Selwyn District Council for approval.