

Appendix 9: Servicing Report



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Development Servicing Report

Trices Road Rezoning Group

(Author Carl Fox - 04 November 2020)

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Document History

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1. Introduction

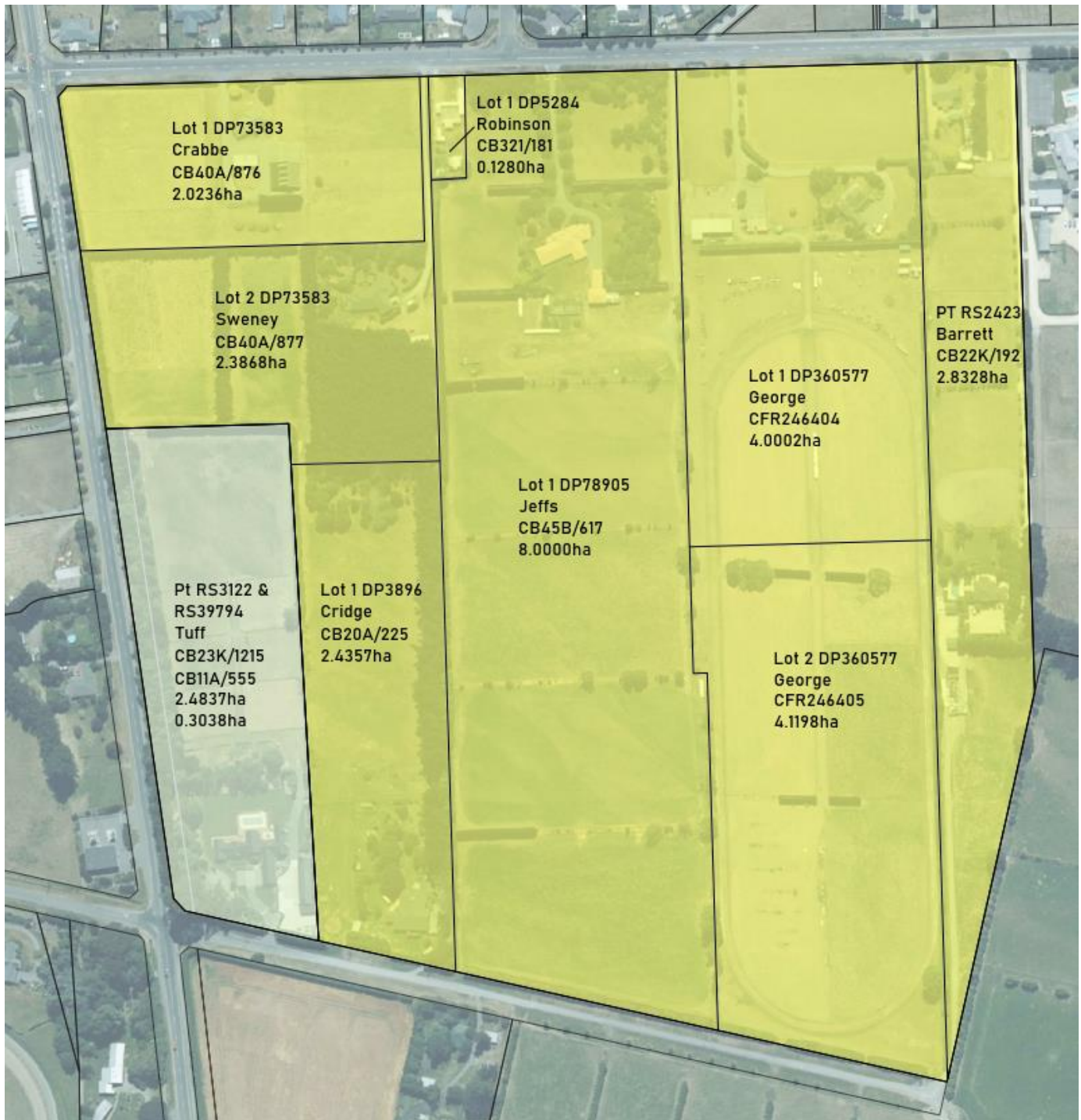
- 1.1. Fox and Associates were engaged initially by the landowners George and Jeffs', which later evolved to Trices Road Rezoning Group to provide land development consultancy advice and services for the group of six landowners:

	Legal Description	Address	Owner	Title	Total Area
1	Lot 1 DP73583	341 Trices Road	Mark and Rosemary Crabbe	CB40A/876	2.0236 ha
2	Lot 2 DP73583	329 Birchs Road	Mark and Anne Sweney	CB40A/877	2.3868 ha
3	Pt RS3122 RS39794	42 Hamptons Road	Lawrence and Helen Tuff	CB23K/1215 CB11A/555	2.4837 ha 0.3038 ha
4	Lot 1 DP78905	321 Trices Road	Evan and Bronwyn Jeffs	CB45B/617	8.0000 ha
5	Lot 1 DP360577 Lot 2 DP360577	311 Trices Road	Anthony and Barbara George	CFR246404 CFR246405	4.0002 ha 4.1198 ha
6	Pt RS2423	299 Trices Road	John and Tania Barrett	CB22K/192	2.8328 ha
Total					26.1507 ha

- 1.2. The Group decided that rather than create gaps in zoning in the District Plan it would make sense to include the other land surrounded by the landowners' land.

	Legal Description	Address	Owner	Title	Total Area
7	Lot 1 DP3896	32 Hamptons Road	Tim and Gina Cridge	CB20A/225	2.4357 ha
8	Lot 1 DP5284	327 Trices Road	Lee Robinson	CB321/181	0.1280 ha
Total					2.5637 ha

Diagram of Ownership



- 1.3. The total area of 28.7 hectares of land is bound by Trices Road to the north, Birchs Road to the west and Hamptons Road to the south.



- 1.4. Our Clients' are residents on the land and have a genuine interest seeing this land in Prebbleton being thoughtfully developed, enhancing the current township community feel.
- 1.5. Due to the size and location of the Trices Road Development being a link between the central township area and the future reserve land, Trices Road Rezoning Group believe they have a unique opportunity to enhance the neighbourhood and contribute to resolving potential servicing issues.
- 1.6. The land is currently zoned Rural Inner Plains (Operative District Plan) and General Rural Zone (Specific Control Area 1 Inner Plains) in the proposed Selwyn District Plan. Both Rural Zones require a minimum allotment size of 4ha which the landowners seek to change to two types of residential zone: Living Z and Living 3 (plan change request to Operative District Plan), and General Residential Zone and Large Lot Residential Zone (Proposed District Plan submission). This report is prepared to support both a private plan change request and a submission on the proposed Selwyn District Plan.
- 1.7. Based on the preliminary subdivision design the densities achieved for:
- 1.7.1. General Residential/Living Z zone will be approximately 12 lots per hectare (does not include stormwater management or landscape protection areas). This meets the Proposed District Plan minimum density standard under Policy UB-P13).
 - 1.7.2. Large Lot Residential/Living 3 zone will be approximately 2 lots per hectare (minimum average of 5000m²) which meets the density standards for the respective zones.
- 1.8. The urban design report from A+Urban will expand further on layout design considerations.

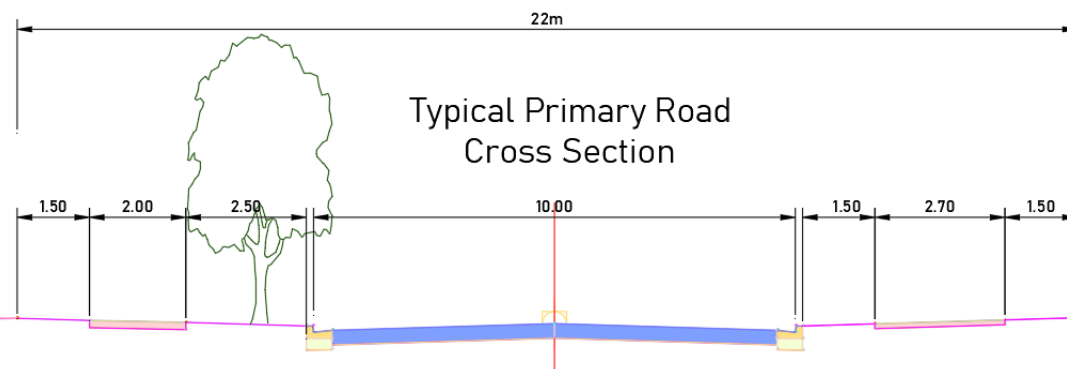
2. Roothing Network

- 2.1. A traffic network capacity assessment report has been prepared by NOVO Group however we make comment below regarding layout considerations and impact on urban form.
- 2.2. Consultation was undertaken with Council's Asset Manager, Transportation to discuss the proposed layout and connections to the existing external roads (specifically Birchs Road) and to make provision for future potential expansion to the east should Council or those landowners consider the expansion of the urban zone.
- 2.3. There are two Primary Roads proposed for the development (still classified as local roads) that provide the main linkages between Trices Road, Birchs Road and Hamptons Road.
- 2.4. These Primary Roads are supported by other local roads comprising loop or through roads and cul-de-sacs which provide access to the properties.

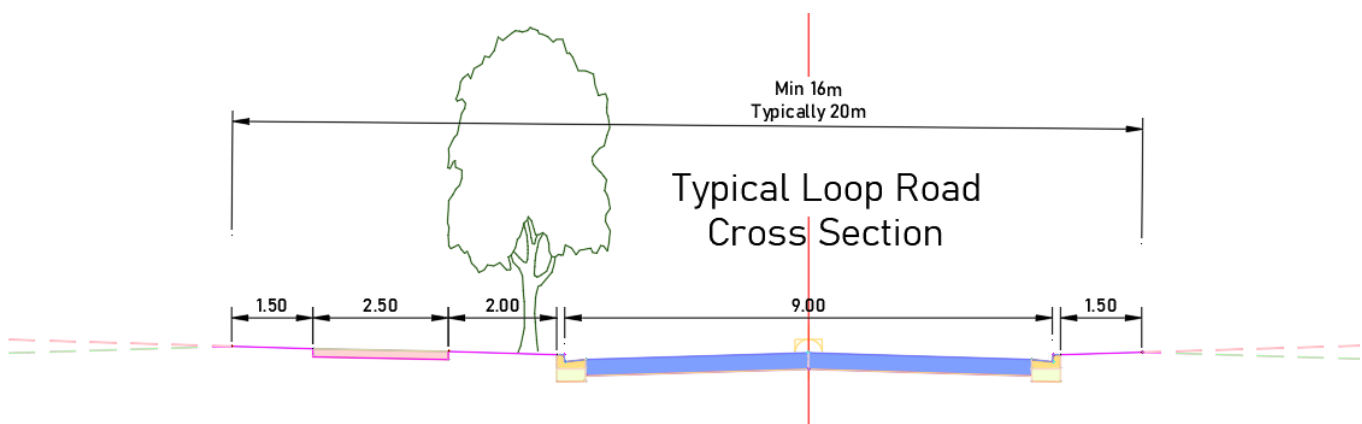


-  Indicative Primary Road
-  Indicative Local Roads
-  Potential future road connection
-  Indicative Shared Pedestrian / Cycle Lane (on road)
-  Indicative Shared Pedestrian / Cycle Lane (off road)
-  Landscaping strip (existing mature planting)
-  Stormwater management area (size to be determined at time of subdivision)
-  Reserve location (size to be determined at time of subdivision)

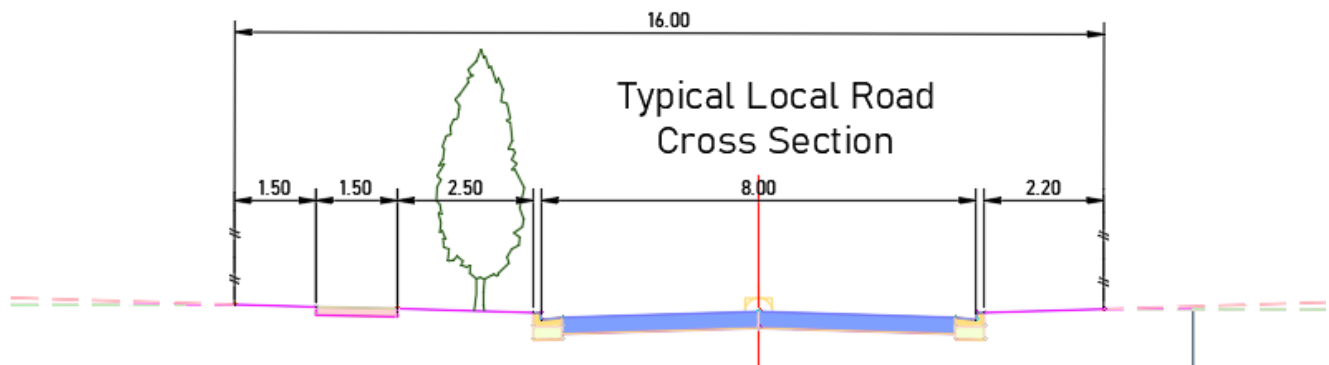
- 2.5. Walking and cycling is promoted through provision of a combination of on-road and off-road linkages.
- 2.6. On-road cycling is provided for to connect to the wider cycling network including the Christchurch to Little River Rail Trail.
- 2.7. Shared off-road cycling and pedestrian linkages have also been catered for allowing good permeability through the development including through the stormwater management area.
- 2.8. While it is our experience the majority of residents enjoy living in cul-de-sacs as it encourages a quieter and safer environment and more of a community feel it can however detrimentally affect connectivity. We have therefore minimised the use of cul-de-sacs but where they have been used we have ensured they are sufficiently well connected to through roads and not overly long.
- 2.9. The Primary Roads are proposed to be approximately 22m wide legal width with a carriageway of 10m and footpaths both sides.



- 2.10. It is proposed to have the 'loop' roads slightly smaller with a legal width of 16-20m, carriageway of 9m and footpath on one side only. The loop road around the stormwater management area would have the footpath on the inside of the loop so as to more easily link with the walkways within the stormwater management areas.



2.11. The remainder of the local roads (dotted lines on the diagram above) are intended to be quiet local roads for residents and are laid out to discourage use as main thoroughfares. It is intended the legal width will be 16m, carriageway of 8m and again a 1.5m footpath on one side only.

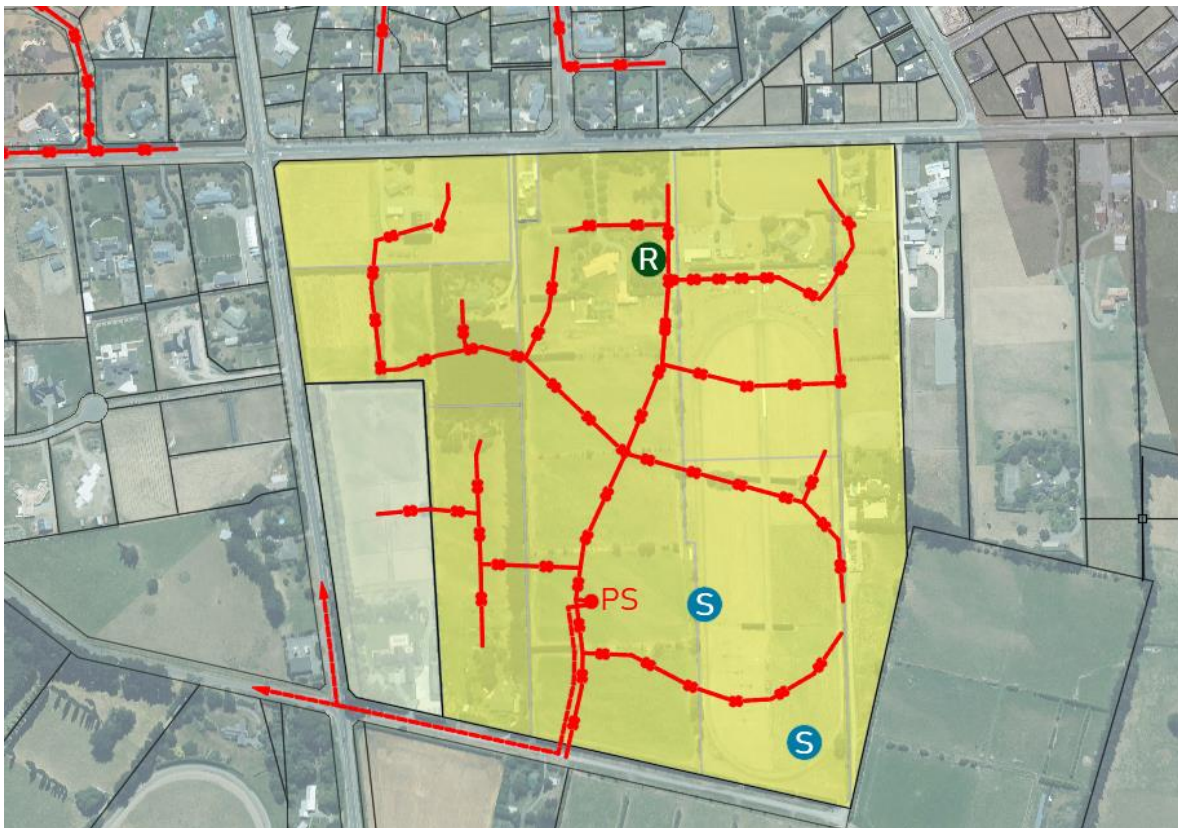


2.12. Roads have been designed with a minimum centreline grade of 1:350.

2.13. Footpath (reserve) linkages are shown to provide attractive and permeable routes for pedestrians in addition to the footpaths adjacent to the roads.

3. Wastewater Reticulation

- 3.1. Discussion regarding sewer reticulation has been held with Selwyn District Council Officers who have already indicated that the Council's preference is to service General Residential/ Living Z zoned allotments by a gravity network which in turn will necessitate the installation of a new pump station.
- 3.2. We anticipate that there will be additional discussions to confirm the desired extent of the catchment this new pump station is to serve which will alter the final design parameters of the structure including location, ingress pipe sizes and depth.
- 3.3. Council has also advised that low pressure sewer is an option for Large Lot Residential/Living 3 zoned land but on the understanding that should it later become General Residential/Living Z then the low pressure sewer network would need to be replaced with a gravity network solution.
- 3.4. The preliminary design below centralises the location of a pump station near the stormwater management area on the main north south Primary Road and the red lines show the intended layout of the sewer network within the site.



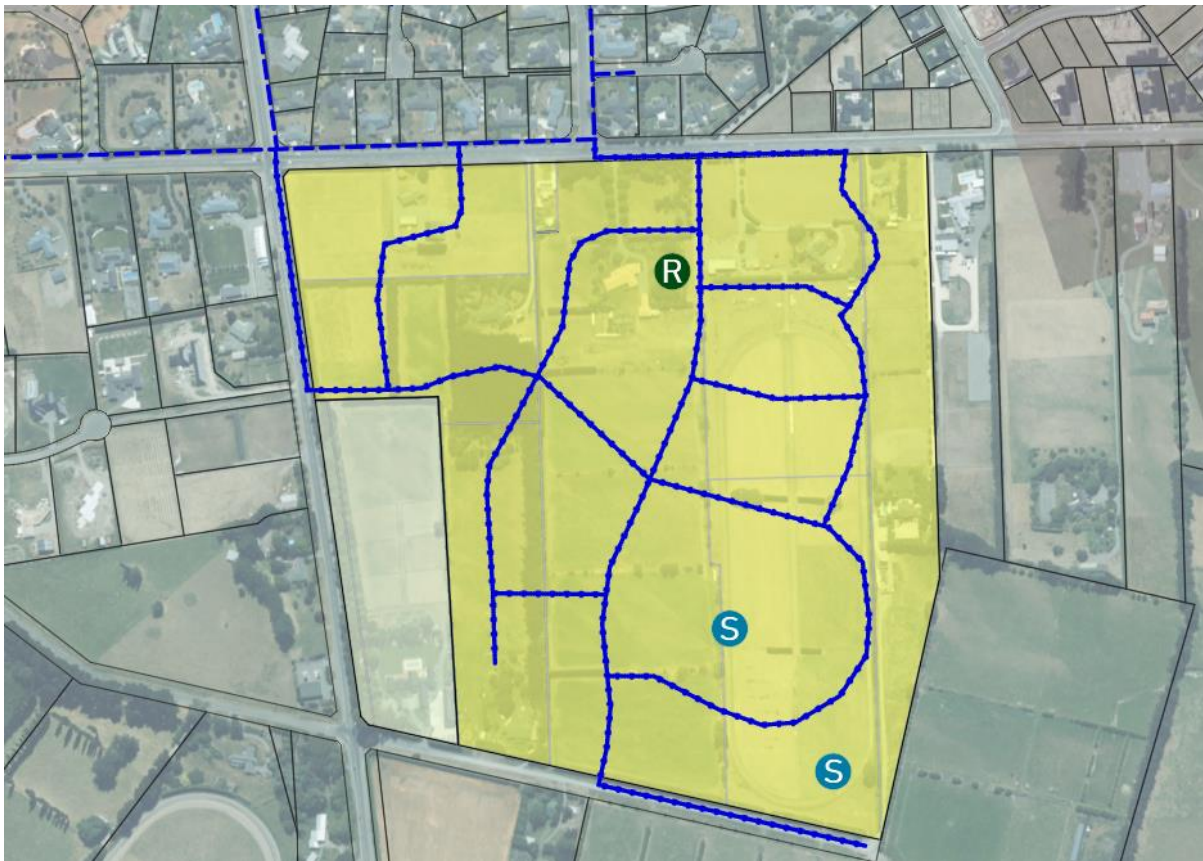
- 3.5. Typically, the gravity pipes would be 150mm $\varnothing$ uPVC pipes laid at 1:150. There will however likely need to be a portion of pipe north of the pump station that may need to be larger like a 200mm $\varnothing$ uPVC pipe.

- 3.6. The depth of these pipes leading into the pump station would be up to 5m deep. Note that there will also need to be a wet well component below the depth of these pipes in the pump station.
- 3.7. The desired outfall for the outgoing rising main from the pump station is still to be finalised and once this happens the final pipe size can be determined but will likely be between 110mm – 180mm PE.
- 3.8. The Council have advised they are also keen to extend the sewer network to service the future Prebbleton Reserve land south of Hamptons Road and would look to enter into a cost share arrangement.



4. High Pressure Water Supply

- 4.1. The water main supply network would be required to be extended south from Trices Road through the development in accordance with the New Zealand Fire Service Firefighting Water Supplies Code of Practice SNZ PAS 4509:2008 and Council Engineering Design standards.
- 4.2. Below is a diagram showing the intended extension of the water supply main network however we understand this may be expanded further depending on Council's final requirements for the Prebbleton Reserve land to the south of Hamptons Road and plans for Birchs Road.



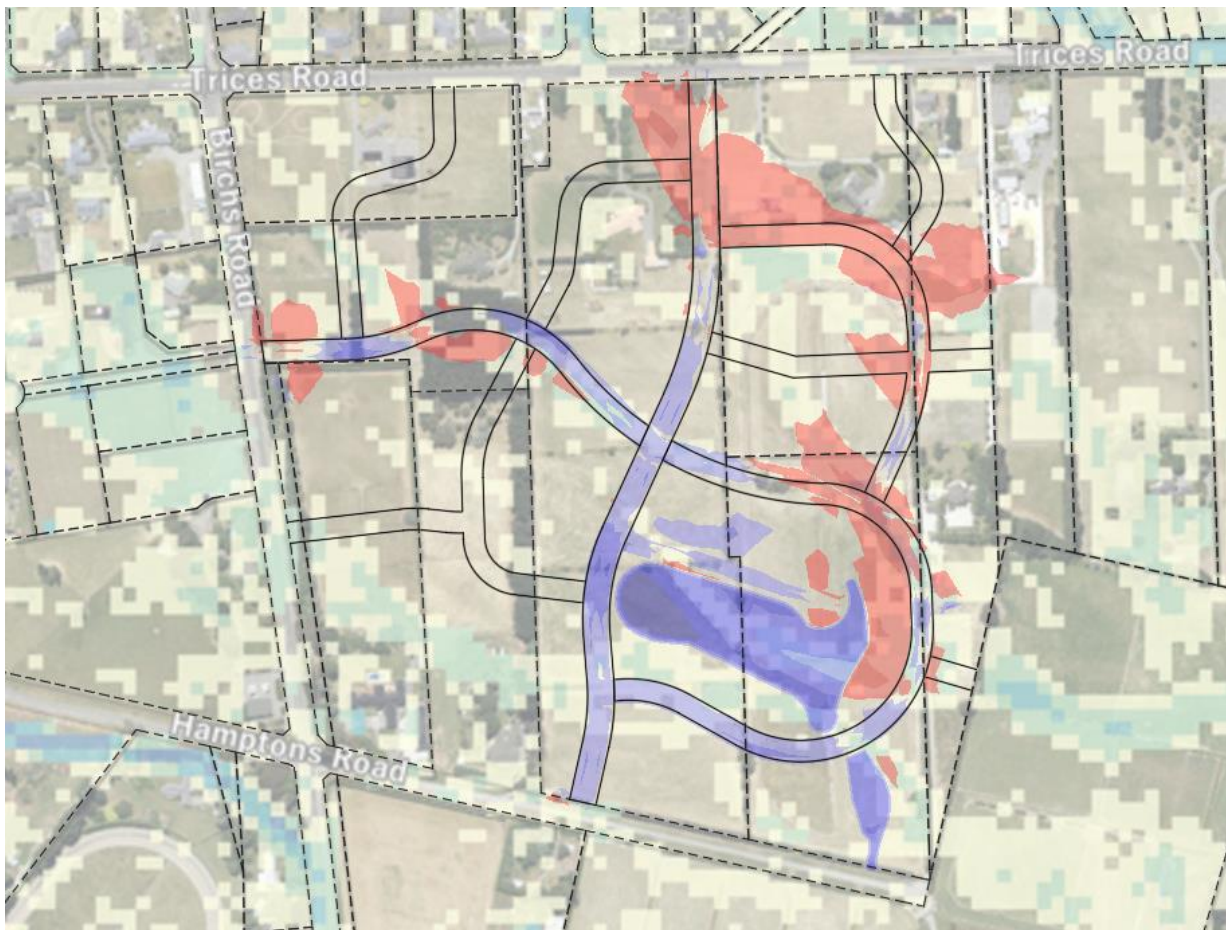
- 4.3. The final design will be subject to engineering approval, but we anticipate that the water supply network mains will be a combination of 200mm and 150mm (ID) pipes
- 4.4. This will be supported by a network of 63mm mDPE submain pipes providing connection to the individual allotments.
- 4.5. Based on discussions to date with Council we understand that there will be sufficient water supply to service this development.

5. Stormwater Discharge

- 5.1. A servicing report has been prepared by e2 Environmental with respect to stormwater treatment and disposal network so this report only comments on factors affecting design considerations.
- 5.2. Consideration was given to various options including constructing an outfall to the waterway flowing through the future Prebbleton Reserve land south of Hamptons Road or discharging to ground. Neither option was deemed suitably effective or practical due to ground levels and preliminary soakage tests.
- 5.3. However, following further testing, and where practicable, soak holes on the house sites may be able to manage storm events up to a 10%AEP 1 hr event. This would reduce the load on the proposed Stormwater Management Area and downstream waterways.
- 5.4. The Selwyn District Council has with the help of Environment Canterbury (ECan) identified land across the Selwyn District which may be susceptible to flooding and this modelling has been made available on the Canterbury Maps Website and is the source of the diagram below.
- 5.5. The land generally falls from the north and west out to the east as can be seen on the attached 1:200-year ARI rainfall flood depth and channelized flows can be seen flowing through and around the site.



- 5.6. As part of the proposed development works there will need to be some modification to the ground levels to ensure sufficient freeboard for allotments relative to the roads and the basins in SMA.
- 5.7. Preliminary calculations estimate the cut and fill will be roughly balanced with approximately 20,000m³ of cut and 20,000m³ of fill. The cut areas are shown in blue and fill areas in red in the diagram below. The maximum cut depth will be approximately 1.9m while the maximum fill will be approximately 0.8m.



- 5.8. The roads will effectively provide secondary flow paths for the SMA but may also provide some additional storage for events such as 1:200 -year and 1:500-year events.
- 5.9. The key is to ensure that the roads provide for flood waters to enter the site and then drain on a downwards grade through the site to the existing natural flow paths on the rural land to the east of the site.
- 5.10. As waters flow through the site the velocity should increase as a result of being conveyed by smoother surfaces of the road (asphalt and kerbs) thereby reducing the water depths and allowing for the safe and efficient transfer of flood waters through the site.
- 5.11. The objectives of SMA design is to treat the first flush and to achieve hydrologic neutrality, i.e. peak flows post development do not exceed pre-development peak flows.

5.12. The design of the SMA (location, basin sizes and configuration) is based on the catchment area and the proposed number of allotments (in this case the practical yield).

5.13. Further testing and the detailed design will be required as part of the subdivision process will confirm the final stormwater basin parameters, but the shape and area shown on the proposed ODP is indicative of the expected final form of the SMA.



5.14. The design incorporates connectivity via walkways and planting into the SMA while at the same time providing amenity to the adjacent allotments.

6. Power and Telecommunications

- 6.1. Power and Telecommunications will be provided to all sites to utility and Council standards.
- 6.2. All cables will be placed underground, and all kiosks will be constructed on their own individual allotments/titles.
- 6.3. Streetlights will be provided throughout the roading and walkway network including through the SMA to SDC standards. The final selection of streetlight and specification will be forwarded to the Council at the time of detailed design and engineering approval sought.

7. Reserves

- 7.1. There is a substantial recreation reserve to the north and another significant recreation reserve / sports facility planned south of the site. It is our understanding that Council is seeking minimise / rationalise the creation of further recreation reserve space within the District.
- 7.2. There is however one proposed recreation reserve (marked R on the diagram below) that would potentially be suitable as a local community reserve area. This area has an existing stand of trees and would provide relief in what otherwise would be a continuous row of residential housing. It is envisaged that the footpath would deviate slightly from the road alignment and partially wind through the stand of trees.



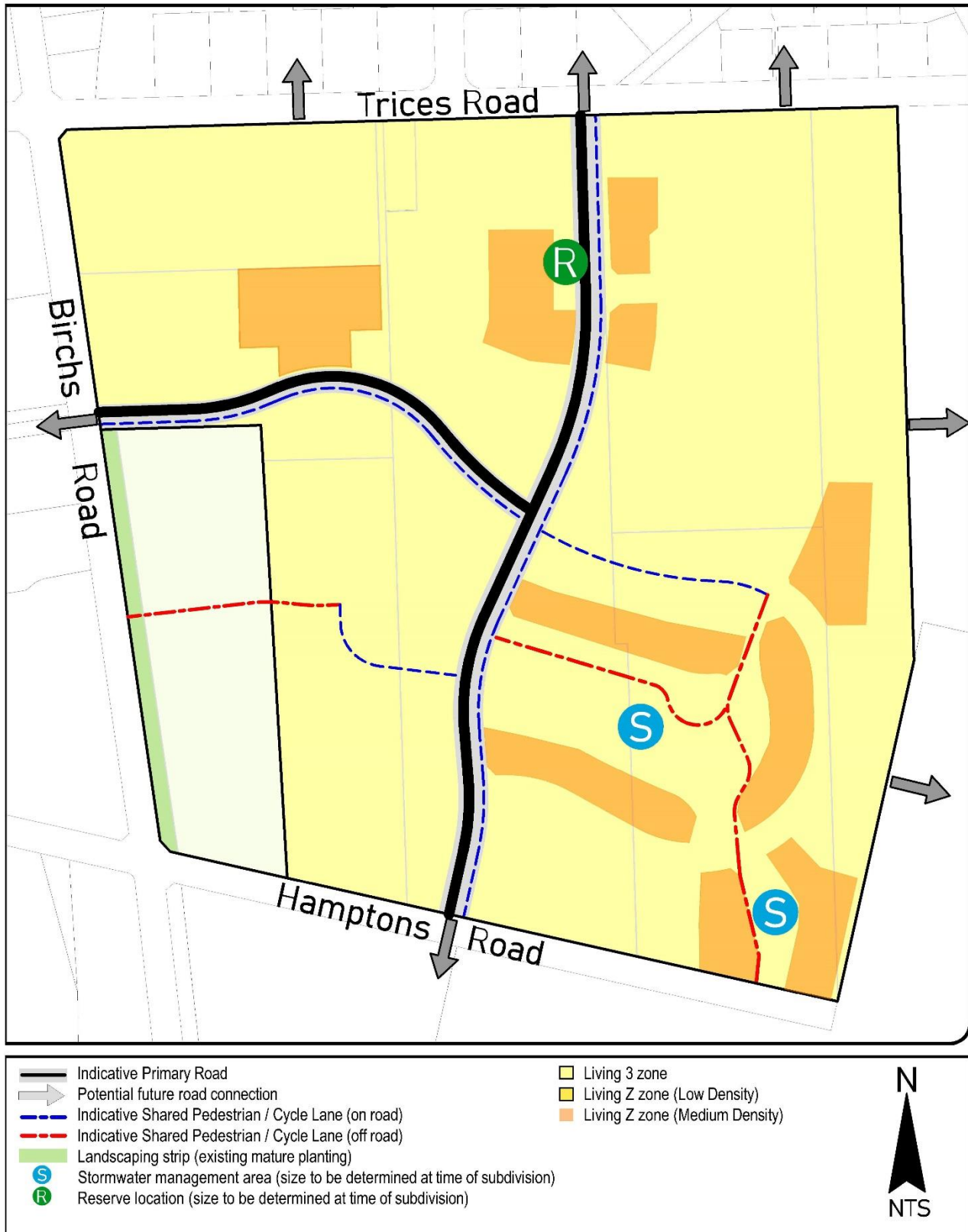
- 7.3. As mentioned above the proposed SMA will also be a shared open space with a series of linking walkways thus providing a useful and desirable dual use outcome. It also serves to provide a key pedestrian and cycle linkage through to the future Prebbleton Reserve land to the south of Hamptons Road.

8. Landscaping and topography

- 8.1. Trices Road Rezoning Group intend to undertake landscaping as part of the subdivision construction works and it is likely to be a mix of indigenous and exotic trees each fulfilling a different purpose.
- 8.2. Much of Prebbleton is planted with exotic trees particularly as specimen trees. Trices Road Rezoning Group however is mindful that there is benefit in using indigenous species where appropriate as they are often better suited to the local environment or for specific uses like wetlands.
- 8.3. Indigenous trees are typically not suitable as specimen trees but are good for bulk planting areas such as entranceways, in and around waterbodies or woodland areas.
- 8.4. It is common for the Council to impose as a condition at subdivision consent stage for the planting of street trees. Typically, conditions detail the minimum height when planted (minimum 1.5m) and spacing (usually maximum 50m).
- 8.5. Council frequently imposes as a condition of subdivision consent the requirement for approval of a landscaping plan as part of the engineering consent approval process.
- 8.6. Where possible the topography of the site would not be altered however there will be some areas that will require excavation (roads or land requiring remediation for land use reasons) or filling (lower lying land which wouldn't drain or extending building areas adjacent to waterways). The intent is to work with and enhance the existing character of the land.

Appendix A – Proposed Outline Development Plan Area 5 (Operative District Plan)

DEV-PR5 – Prebbleton 5 Development Area Operative District Plan



Appendix B – Proposed Outline Development Plan (Proposed District Plan)

DEV-PR3 – Prebbleton 3 Development Area Proposed Selwyn District Plan

