**IN THE MATTER** of the Resource Management Act 1991

**AND**

**IN THE MATTER** Submissions relating to Plan Change 11

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**EVIDENCE OF JEANETTE ALICE WARD**

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October 2009

## INTRODUCTION

1. My name is Jeanette Alice Ward and I am a Chartered Civil Engineer currently practicing in Christchurch. I am employed by ViaStrada as a Senior Engineer. ViaStrada is a specialist traffic engineering and planning consultancy that provides resource management related advice to local authorities and private clients. ViaStrada has offices in Christchurch, Dunedin, Nelson and Auckland and works on projects nationwide.

2. I hold the qualifications of NZ Certificate in Engineering and a Bachelors of Engineering (Civil). I am a member of the Institute of Professional Engineers of New Zealand (IPENZ) and a Chartered Engineer (CPEng).

3. My experience includes 15 years employment in the field of civil engineering and more specifically 12 years in the transportation field. I am currently studying part time for my Masters in Transportation Engineering.

4. I have read the Environment Court's Code of Conduct for Expert Witnesses, as contained in the Consolidated Practice Note 2006, and have prepared my evidence accordingly. The evidence is within my area of expertise, except where I state I am relying on what I have been told by another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

## SCOPE OF EVIDENCE

5. ViaStrada was commissioned by Selwyn District Council to provide an expert response to the submissions received for the proposed Plan Change 11 in the Rolleston Living 1B deferred zone. I have prepared that opinion in consultation with Axel Wilke, a traffic engineer and director of ViaStrada.

### Source Documents

6. I have reviewed the following documents when preparing this statement:

   (a) The section 42A Council Planning Officer Report prepared by Mr David Hattam.

   (b) The submissions received.

## SUMMARY

### The Proposal

7. The plan change and the submissions have already been described in the Council Planning Officer's report. I will therefore not repeat this in its entirety. In summary and from a traffic perspective the key issues that have been responded to in this evidence include (the order being consistent with the Council officers report):

   - Issue 1 - General comments on the new road and walkway/cycleway connections
   - Issue 2 - Design and operation of the proposed walkways/cycleways
   - Issue 3 - The design of the new roads off Fairhurst Place
   - Issue 4 - Future upgrades of Fairhurst Place and Jozecom Place
   - Issue 5 - The design of the proposed Jozecom Place extension
   - Issue 6 - The access arrangements to the Pineglades Naturist Club
   - Issue 7 - The need for the spine road through 161/165 Brookside Road

- Issue 8 - The pedestrian and cycle links between to the new school
- Issue 9 - The accessway from Waterbridge Way to the spine road

## RESPONSE TO SUBMISSIONS

**Issue 1 - General comments on the new road and walkway/cycleway layouts**

8. The current road network in the Living 1B deferred zone includes the three through routes (Brookside Road, East Maddisons Road and Lowees Road) and three cul de sacs off Lowes Road (Fairhurst Place, Jozecom Place and Waterbridge Way). This is the minimum level of roading required to provide property access and it also requires that right of ways are created for rear sections. However it is noted that the lack of **street connectivity** and lack of access for pedestrians and cyclists does not create an accessible neighbourhood in its current state.
9. **Street connectivity** is a measure of how well the roadway network connects what planners term origins and destinations. In other words, good street connectivity means providing a variety of ways to get from Point A to B. The traditional grid-style street layout of older towns provides excellent connectivity, this ensures streets are interlinked at numerous points, intersections are closely spaced, and there are few dead-ends. This not only provides a more direct route to any destination, but also helps to disperse traffic. The presence of a grid pattern and alternate parallel streets allows other major roads to serve their main purpose—moving vehicles over longer distances—while shorter trips can take place on local streets. Closely spaced intersections, slower vehicle speeds, and the footpath networks also help create more opportunities for walking. The way that many towns have developed since the mid 20th century has been very different, however. In particular isolated cul de sac developments often mean that almost every outing—even a short drive to school or to the local store—requires a separate car trip. This type of suburban development inhibits walking and cycling, and often results in parents driving their children to a school that would otherwise be within walking distance.

10. Connectivity can be quantified with the use of various measures, however limited guidance is currently provided on what the minimum value of any measure should be (at a national level anyway). Connectivity measures could include; a 'connectivity index' (which is a ratio of road links to intersections within a define area), an 'accessibility index' (ratio of direct travel distances to actual travel distances), or by defining maximum block sizes. The Selwyn District Council has adopted a measure known as a 'walkable residential block', this is based on blocks having a maximum perimeter of 800m. The perimeter is defined as the shortest distance which it is possible to walk entirely on publically accessible land. This approach is outlined in the SDC Subdivision Design Guide and ensures there is connectivity and a choice of routes through an area. I believe this is a valid measure and support the layout proposed by the Council resulting from the walkable block approach. The new network links are discussed below.
11. The rezoning proposal includes some new road connections. The 'spine road' which provides links between Brookside Road, East Maddisons Road, Lowes Road and Campion Place improves the network connectivity for all modes of transport. These new spine roads are also considered critical in relation to property access, in particular reducing the number of right of ways which would be otherwise required off Brookside Road to service the higher density land use. Hence the proposal will result in a reduced number of right of ways (and users of the right ways) and that will reduce the number of potential traffic conflicts on Brookside Road, enhancing overall safety, efficiency and amenity.
12. I understand that the Council has determined the alignment of the spine road, and its connections to the existing network, to reduce the impact on adjacent landowners. I see no issue with the general alignment and consider its nonlinear nature is likely to be effective in keeping speeds low as opposed to a potentially straight road that facilitates higher speeds which could also have resulted.
13. The design of the intersections along the spine road, and where it intersects with other roads, will require some further consideration at the time of implementation. In particular the intersection of the new link road onto Brookside Road (opposite Stonebrook Drive), which from my initial

assessment presents some concern. In this location, the two side roads are not aligned to create a cross intersection. The side roads in fact create a staggered intersection (with a 10 m offset); this type of arrangement requires an offset of 15 – 30 m to ensure conflict areas of each side road are sufficiently separated (Austroads guidance). There are a number of options to address this, firstly leave the road where is it proposed but create a mini roundabout (this is not an ideal situation as the main traffic flow on Brookside Road is interrupted), secondly increase the stagger by moving the new road say 5 m to the north or say 25 m to the south, and thirdly by aligning the new road with Stonebrook Drive to create a cross intersection. The effect of the third option is illustrated in Appendix 1, sheet 1 and will require some land from No.137 Brookside Road and the removal of an existing dwelling. Any of the options are considered acceptable from a traffic engineering point of view, the second and third options require moving the road from its current proposed location which affects the structure plan. For these options, the Council would need to obtain land additional land to that shown on the structure plan. The Council will need to assess which option they prefer.

14. The current proposed alignment at No.141 Brookside Road creates a small triangle of land that is not required for road but I understand Council could utilise this for storm water purposes. A submission has been received that requests the alignment be altered to reduce the need for this land to be taken. Appendix 1, sheet 2 illustrates the spine road alignment if the road is parallel to the boundary of No.141, reducing the land requirement. This alignment has a number of benefits such as; the Pineglades access being located further away from the side road intersection, the sight distances from Pineglades access are increased and the intersection of the side road to the spine road is at a more appropriate angle.

15. Two further submissions in relation to the spine road design are discussed later in this evidence.

16. The new roads south of Lowes Road, being the extension of Jozecom Place and the two new roads off Fairhurst Place have been included in the Plan Change to facilitate property access and allow pedestrian and

cycle access to the proposed walkway/cycleways. This approach is considered logical.

17. There are seven new walkway/cycleway links proposed in the Plan Change. These types of facilities are a common network development tool to improve connectivity for pedestrians and cyclists in the local community. This is particularly relevant to those who live in cul de sacs and have destinations in the opposite direction to the exit/entry of the road. The proposed links appear to be well placed in the network and will ultimately enhance the level of community accessibility as discussed in paragraph9. The appropriate design and ultimate success (i.e. people wanting to use them) of these facilities is discussed in the next section.
18. Specific comment on the East Maddison Road - new school link and the Waterbridge Way link is provided later in this evidence.

**Issue 2 - Design and operation the of proposed walkways/cycleways**

19. Some submitters have asked what the walkways/cycleways will look like and how they will operate with pedestrians and cyclists sharing the one pathway (i.e. do any rules apply?).
20. A shared path means an area of road, separated from a roadway, that has been defined by the road controlling authority as a path to be shared by a specified range of road users which would typically, but not exclusively, include pedestrians, mobility devices, wheeled recreational devices and cycles.
21. Providing shared paths for pedestrians and cyclists is permitted under the NZ Traffic Control Devices Rule 2004 (Rule 11.4). The Road Controlling Authority is required to install appropriate signage to convey the nature of the path and may use painted symbols on the path surface to reinforce this (surface markings are only compulsory where users are to be allocated one side of the path – generally only applicable on high volume paths).
22. There is no current Road User Rule (RUR) with respect to pedestrians or cyclists on shared paths, these users generally co-exist with little problems. Potential conflict situations can be minimised by ensuring sight distances are sufficient at access/exit/intersection points along the path and also by providing sufficient width for the expected level of use.

23. However a RUR amendment is currently proposed for shared paths, this is to come into force on 1st November 2009, this rule clarifies the responsibilities of users of shared paths. The rule is being proposed due to the increasing availability of shared paths and the concern that users (cyclists, pedestrians, and riders of mobility devices and wheeled recreational devices) were not sure of their obligations. Even though some users may have 'priority', no one can unreasonably impede the movement of other users.
24. New penalties are proposed, which depend on whether the offence is one that can be committed by a pedestrian or not. It is proposed that existing penalties that apply to pedestrians will apply to use by a person of a shared path without care/inconsiderately/in hazardous manner and failure to give priority on a shared path. These are not infringement offences, and will be subject to a maximum fine of $35 on summary conviction. It is also proposed that there will be an infringement fee of $100 for a person who rides a cycle, mobility device or wheeled recreational device on a shared path at a hazardous speed will be $100.
25. There is limited guidance available regarding explicit shared path widths. Austroads Guide to Traffic Engineering Practice Part 14: Bicycles (Austroads Part 14) makes recommendations based on qualitative usage (for example, "frequent", "regular" or "low" use by commuter or recreational users) but does not provide any quantitative evidence-based design guidance. It is also noted that the NZ minimum shared path width of 2.2 m is based on funding considerations (this minimum was set to avoid the possibility of road controlling authorities designating all their footpaths as shared paths to take advantage of funding opportunities).
26. In lieu of any more rigorous guidance, the advice in Austroads Part 14 (specifically Figure 6-19) should be used. For these paths in Rolleston it is anticipated that the paths will be used for both commuting and recreation but because of the nature of these two activities they will generally not occur concurrently. Commuters on these paths are more likely to be cyclists accessing roads that lead to the town centre or Izone, although the proportions of pedestrians will increase closer to the town centre. The other commuter mode will be school children.

The volumes predicted are considered to equate to "regular" use under the Austroads classifications.

27. Considering the various scenarios in Austroads, I anticipate the shared path width will be between 2.5 or 3 m. A width of 2.5 m provides a reasonable level of comfort for pedestrians when overtaken by cyclists, who may approach them from behind almost without warning, but 3 m may also be considered appropriate. In any case that is a decision for the Council to make at the time of implementation. I note that the widths of the existing walking/cycling paths in Rolleston are less than this, generally 2 m.

28. There is limited guidance on the shared path 'corridor' widths but it is generally accepted that the width is related to length, i.e. as the link lengthens the width needs to increase, up to a maximum of course. The width of the Rolleston walkway/cycleway corridors has been determined by the Council to be a minimum of 6 m as part of the Structure Plan process. This is considered acceptable for the lengths of paths shown on the Structure Plan Map, however if lengths were increased significantly the width would need to be reviewed. For example I understand the Council are considering shortening the new southern cul de sac off Fairhurst Place, this will increase the length of proposed walkway/cycleway that links with Jozecom Place from 150 to 200 m, in this instance I would recommend the corridor be widened to 10 m. Likewise for the indicative proposed link off East Maddisons which creates a section of walkway/cycleway over 200 m long, a width of 10 m would be more appropriate.

29. The design within the walkways/cycleway corridor is critical to its success, by this I mean that locals feel it is safe to use and that there is limited opportunity for anti-social behaviour and crime. There are a number of design tools that can be used to help achieve this and these are related to the major principle of 'Crime Prevention through Environmental Design' (CPTED) which is "Natural Surveillance – see and be seen". People are usually less likely to act antisocially or commit crime if they are (or think they are) being watched, conversely people are likely to feel safer if they think someone is looking out for them. However

all of this needs to be balanced against the adjacent property owners' desire for privacy and concern for their safety and security.

30. The following design tools could be applied to the walkways/cycleways in Rolleston:
    - The use of low or see through fences between public and private spaces (high fences create a feeling of entrapment and do not allow natural surveillance),
    - Being able to see from one end of the corridor to the other – i.e. no blind bends along the corridor,
    - Use of planting that does not grow to obscure the view or provide hiding places for offenders (choose tree species with clear limbs and shrubs with low maximum heights),
    - Lighting that does not conflict with planting or create large areas of shadow (and also does not cause a nuisance to neighbours),
    - Encourage use of the corridor for travel through directional signage and good maintenance to ensure the environment is pleasant and comfortable.
31. Where the walkway/cycleways commence it is suggested that 45 degree splays are provided to improve visibility and distinguish the entrance/exit of the walkway/cycleways. Bollards will also be necessary to prevent motor vehicles using the corridors; these will not physically prevent access to motor bikes.
32. Appendix 2, Sheet 1, illustrates the likely cross section of a walkway/cycleway corridor.

**Issue 3 - The design of the new roads off Fairhurst Place**

33. The structure plan includes two new cul de sacs off Fairhurst Place. As mentioned above I understand these roads are to provide access to properties and to the walkways/cycleways at the end of the roads. Currently there are radiata hedges and conifers in the 20 m corridor. Submitters have asked what form these new roads are likely to take and that the existing radiata hedges remain.
34. These roads could be a shared accessway as proposed in other locations however as there are a number of properties requiring access,

a road seems more appropriate, this is also supported by the desire to retain the radiata hedges.

35. The radiaia hedges are located centrally and the conifers off set. Some submitters have requested that the hedges remain in place. A concept design has been prepared that retains the radiate hedge but requires removal of the conifers. See Appendix 2 – Sheet 3.
36. The arrangement of the road requires a 4 m wide one way lane each side of the hedge, these are to be shared by vehicles, cyclists and pedestrians. Alternatively there is space for footpaths alongside the lanes if separation is required. The lanes do not require kerbs as a swale could be accommodated; this will help retain the semi- rural feel of the area. Northwood Boulevard in Christchurch, although a through road, has a similar design where trees from an existing poplar shelter belt have been retained.
37. At the end of the road the lanes will be linked by a 5 m wide turn which can accommodate the turning movements of vehicles up to a 90% two axle truck (about 8 m long). Larger vehicles would be required to make a three point turn, however most local streets do not provide for these situations given the low occurrence and focus on residential access.
38. Driveways are accessed from the new road in the direction of flow, i.e. in the new northern road a driveway on the east side of the hedge requires the driver to use the west lane and then turn at the end of the road into the east lane. Due to the short length of the road this is not seen as a major inconvenience.
39. The roads would need to be lit to a minimum for low volume local roads as the road could be used by pedestrians and cyclists in the hours of darkness. A lighting design at the time of implementation could address the issue of minimising light spill onto adjacent houses.
40. There is concern from submitters that parents could use Fairhurst Pace and the new northern road to drop off children at the start of the walkway/cycleway which leads directly to the new school. This is a possibility however if a parent has made the decision to drive a child to school it is more likely they will drive directly to the school where I understand there will be drop off car parking provided. Preventing drop off from the new road off Fairhurst Place is not possible as the roads are

intended to be public roads. However as no parking areas have been proposed at the end of the road, this will limit the ability for parents to park here and walk their children to the school.

**Issue 4 - Future upgrades of Fairhurst Place and Jozecom Place**

41. Fairhurst Place and Jozecom Place are currently built to a rural local road standard with seal widths of 6.7 and 6.3 m, respectively. There is no kerb and channel and no footpaths. Fairhurst Place has a standard road reserve width of 20 m which allows space for the street to be upgraded to a more urban standard in the future. Jozecom Place however has a road reserve width of 12 m and would require widening in the future to facilitate an upgrade, a width of between 15 m and 20 m would be required as per the 'neighbourhood street' concept in the SDC Subdivision Design Guide.
42. Submitters have asked what form these upgrades may take. Appendix 2, sheet 2 shows an indicative design cross section for each street. The upgraded streets would be 7m wide with either low profile kerb (as used elsewhere in Rolleston) or grass swales. A footpath on at least one side of the road would be required. The Fairhurst Place design incorporates the existing street trees which are feature of the street, and depending on the extent of the Jozecom Place widening, one side of the street could include street trees.

**Issue 5 - The design of the proposed Jozecom Place extension**

43. The extension of Jozecom Place commences from the northern corner of the existing cul de sac and extends approximately 150m to the east terminating with a 11 m radius cul de sac head. The alignment would create an interesting meander in the road. The south side of the exiting cul de sac provides the opportunity for the creation of landscaping areas if the Council retains this land as road reserve. Submitters have asked what the extension would look like, an indicative plan is shown in Appendix 2, sheet 4.
44. The cross section of the extension would be the same as that discussed in paragraph 42.
45. To facilitate access to properties in future if the land was subdivided an indicative plan show how each lot could be accessed. This scenario

requires the use of two short shared accessways so that the walkway/cycleways can be accessed. The general arrangement of these shared accessways would include a 5 m wide vehicle access lane and a shared path within a 10 m corridor. An indicative cross section of the shared accessway is shown in Appendix 2, sheet 1. The vehicle access part of the accessway would be private and the path area owned and maintained by Council. It is anticipated that the corridor would be open and spacious however a low fence could be used to separate the two areas.

46. The footpath at the head of the cul de sac would be a 3 m wide shared path to facilitate access between the shared accessways. The path crosses in front of one of the shared accessways, any drivers entering or exiting the accessway must give way to path users (in accordance with general road rules). The open nature of the cul de sac head and the use of low fences provide good visibility for path users and drivers. The use of pavement markings on the shared path and the accessway would help reinforce this message. The use of bollards and/or cycle holding rails would signal to path users (cyclists in particular due to their higher travel speed), that they must slow down at the end of the shared accessway.

47. Where the walkway/cycleways commence at the end of shared accessways it is suggested that 45 degree splays are provided to improve visibility and distinguish the entrance/exit of the walkway/cycleways. Bollards will also be necessary to prevent motor vehicles using the corridors; these will not physically prevent access to motor bikes.

**Issue 6 - The access arrangements to the Pineglades Naturist Club**

48. The new spine road intersects with the access to the Pineglades Naturist Club and requires that access is now onto the spine road instead of Brookside Road. A submission has been received with respect to the safe layout of the new access point.

49. The provision of any access onto a public road requires compliance with a number of safety rules (sight distance and separation distance) outlined in the District Plan. In this situation where the access is to a local road with a speed limit of 50km/h, in a Living Zone, a sight distance of 45 m is

required by the Plan. The minimum required separation from an adjacent intersection is 10 m.

50. An indicative layout of the access, depending the final alignment of the spine road, is shown in Appendix 1, sheets 1 and 2. Both spine alignments indicate that the access can be built in such a way that meets the new road at right angles and can achieve the required sight distances and separation distances. The spine road option on sheet 2 improves sight distances and increases the separation distance.

51. The presence of the new road linking the spine road to Brookside Road does add another movement that users of the access will need to be aware of however this is not considered to be onerous on users of the access.

**Issue 7 - The need for the spine road through 161/165 Brookside Road**

52. To connect the new spine road to Brookside Road two new link roads are proposed. One of these is at 161/165 Brookside Road. Submissions have been received opposing this new link and suggesting that two cul de sacs are created on the spine road instead (to remove the need for the new link to Brookside Road).

53. In my opinion the new link between the spine road and Brookside Road is critical to achieve a connected network (as per the walkable blocks approach) and reduce the need for longer than necessary car trips. This link also provides a connection for the users of the proposed walkway/cycleway from Waterbridge Way to Brookside Road, if the road was not provided a walkway/cycleway would be required at the very least. As discussed in paragraph 9 connectivity is key to achieving a higher level of accessibly.

**Issue 8 - The pedestrian and cycle links to the new school**

54. The structure plan includes the long term goal of providing pedestrian and cycle links from Fairhurst Place, Jozecom Place, Frame Crescent and East Maddisons Road to the new school. Some submitters have raised concerns about the connections being unnecessary, that they would result in increased traffic on Fairhurst Place and generally cause anti-social behaviour in the vicinity.

55. With regard to the necessity for the connections. The proportion of children cycling and walking to school has dropped dramatically in the

last 10 years. A lot of this is due to social aspects such as working parents dropping off children on the way to work, however it can also be contributed to a lack of infrastructure that parents feel comfortable letting their children use. Intersections for example can be intimating for inexperienced road users. The national 'Cycle Network and Route Planning Guide (CNRPG) (2004)'[1] provides a good overview of the different types of cyclists, the variety of reasons as to why purposes which people cycle and how best to cater for their trips. The CNRPG guide identified three skill levels:

- Child or novice: these cyclists commonly ride to school or local facilities and for local recreation. They prefer full separation from other traffic and grade separation or traffic signals for crossing.
- Basic competence: these cyclists can ride on quiet two-lane roads, manoeuvre around parked cars and merge across lanes to turn right. On busier roads and intersections they prefer cycle lanes and are not equipped to interact with faster traffic and lack confidence to defend a lane in narrow situations.
- Experienced: these cyclists have usually learnt how best to interact assertively with traffic and generally do not require specific cycle facilities, just enough space.

56. The majority of users of these proposed connections are likely to be undertaking local trips and fall within the novice or basic competence categories however they may also provide a useful link to the road network for experienced commuter cyclists.
57. The CNRPG shows that slow mixed traffic and cycle paths (separated from roads) are the most beneficial options for novice and basic competence riders. These facilities are still of benefit to experienced cyclists. The benefit particularly of paths for experienced cyclists can be limited by the need to divert from the most efficient route to use the path or by delays due to other path users such as pedestrians.
58. Submitters have argued that the parallel Lowes Road provides an alternative route for children to access the school. I understand Council has intentions to provide a shared off road path adjacent to Lowes Road

[1] CNRPG – was released in 2004 by the then Land Transport NZ (now NZ Transport Agency).

which will allow another option in the future. However accessing the Lowes Road path still requires the crossing of roads depending on the location of the path users home. Once on the path the users are required to cross side road intersections and multiple driveways which increases the conflict areas.

59. If a child's journey commences from any of the connecting roads, the trip to school via Lowes Road is greatly increased, particularly if located in East Maddisons Road, Oak Tree Lane or Frame Crescent. The Council has undertaken a walkability assessment and shown that connections provide a greater catchment of properties within short distance (and travel times) from the school.

60. With regard to the potential for anti-social behaviour I understand the Council intends to create the paths in line with the design principles discussed earlier in paragraphs 29 and 30. The length of the corridor which is 6 m wide has been reduced by the creation of the new roads off Fairhurst Place and the shared accessways off the Jozecom Place extension. This means that the corridor will appear less like a tunnel than it would otherwise be if the 6 m width was consistent over the length between East Maddisons Road and the school. The width and design of the indicative walkway/cycleway link directly off East Maddisons Road would need to be reviewed to ensure that there is not a long section of walkway/cycleway as per the structure plan (also discussed under Issue 2).

61. There is concern from submitters that parents could use Fairhurst Place and the new northern road to drop off children at the start of the walkway/cycleway which leads directly to the new school. This is a possibility however if a parent has made the decision to drive a child to school it is more likely they will drive directly to the school where I understand there will be drop off car parking provided. Preventing drop off from the new road off Fairhurst Place is not possible as the roads are intended to be public roads. However as no parking areas have been proposed at the end of the road, this will limit the ability for parents to park here and walk their children to the school.

**Issue 9 - The accessway from Waterbridge Way to the spine road**

62. As part of the Plan Change a pedestrian and cycle link is proposed from the end of Waterbridge Way to the new spine road. From a transport perspective some submitters are opposed to this connection as they believe it is not necessary given the two new parallel roads and also have concerns over social and safety issues (an influx of pedestrians and cyclists using Waterbridge Way).

63. With regard to necessity I use the connectivity argument once again. Waterbridge Way is a long cul de sac and residents who wish to walk or cycle into the town centre are required to travel a substantially longer distance. I therefore support the Council proposal that this connection makes a significant contribution to walkability (and of course a more coherent cycle route). Pedestrians and cyclists will also use the new parallel roads as suggested by the submitters but to impose that route on pedestrians and cyclists is not acceptable and goes against the philosophy of good network connectivity.

64. Despite the lack of footpaths in Waterbridge Way the road layout, landscape planting and overall character creates a low speed area and this is suitable for pedestrians and cyclists who may wish to access the proposed walkway/cycleway connection via Waterbridge Way. This is consistent with the 'resident street' shared space concept in the Council's subdivision design guide. I do not see any safety issues arising from the road layout or from the potentially increased numbers of pedestrians and cyclists using the street. However some pedestrians may feel vulnerable walking on the road as the shared space concept is reasonably new in New Zealand. If this is still the case at the time of implementing the walkway/cycleway link, the Council could consider the provision of a footpath for pedestrians, this would be more in line with the 'neighbourhood street' concept in the subdivision design guide.

65. The social aspects of the design are discussed in general terms under Issue 2.

## CONCLUSION

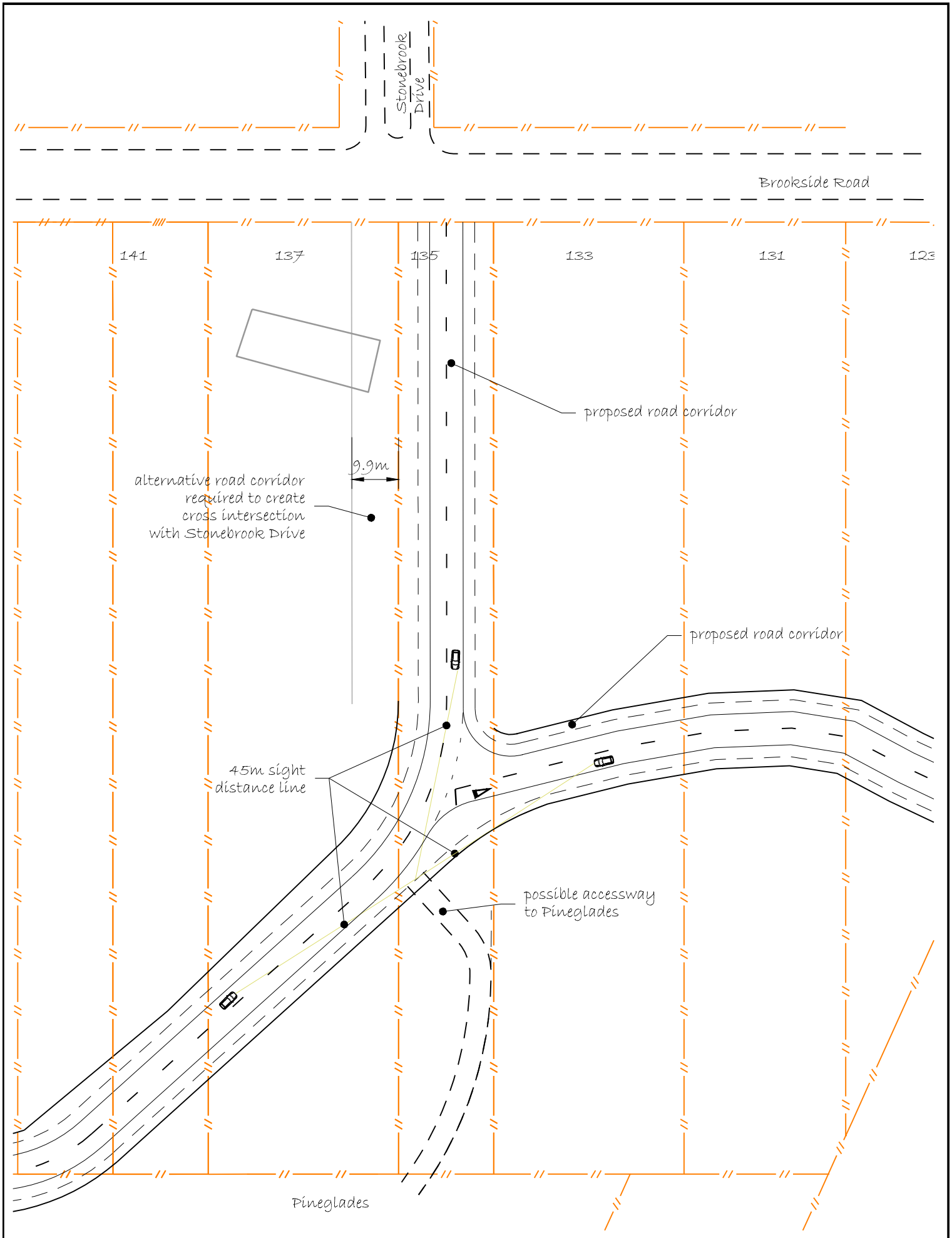
66. This evidence considers nine issues raised by submitters in the Plan Change 11 process. The conclusion of each are outlined below:

67. **Issue 1** - The new road and walkway/cycleway connections are supported from a traffic planning point of view.

68. **Issue 2** – The design and operation of the proposed walkways/cycleways can theoretically be managed to address the concerns of submitters, through the use of suitable path widths and CPTED principles.
69. **Issue 3** - The design of the new roads off Fairhurst Place can accommodate the radiata pine hedges.
70. **Issue 4** – The future upgrades of Fairhurst Place and Jozecom Place are shown indicatively and answer the questions raised by submitters.
71. **Issue 5** - The design of the proposed Jozecom Place extension and the connections to the proposed walkway/cycleway links are illustrated and the safety concerns about the conflicts between road and path users are addressed through design.
72. **Issue 6** - The access arrangements to the Pineglades Naturist Club can be designed to comply with safe intersection sight distances.
73. **Issue 7** - The need for the spine road through 161/165 Brookside Road is discussed and considered key to the overall network connectivity.
74. **Issue 8** - The importance of the pedestrian and cycle links between to the new school are explained and it is considered that they are an appropriate form of access to the school.
75. **Issue 9** - The accessway from Waterbridge Way to the spine road is considered critical to achieving high network connectivity.

# APPENDIX 1 - Indicative plans for alignment of the spine road in the vicinity of Pineglades

# APPENDIX 2 - Indicative design plans for the shared paths, shared accessways, Fairhurst Place and Jozecom Place

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ROLLESTON LIVING 1B DEFERRED ZONE

ACCESS ARRANGEMENTS FOR PINEGLADES

Sheet No. 01

Job No. 578



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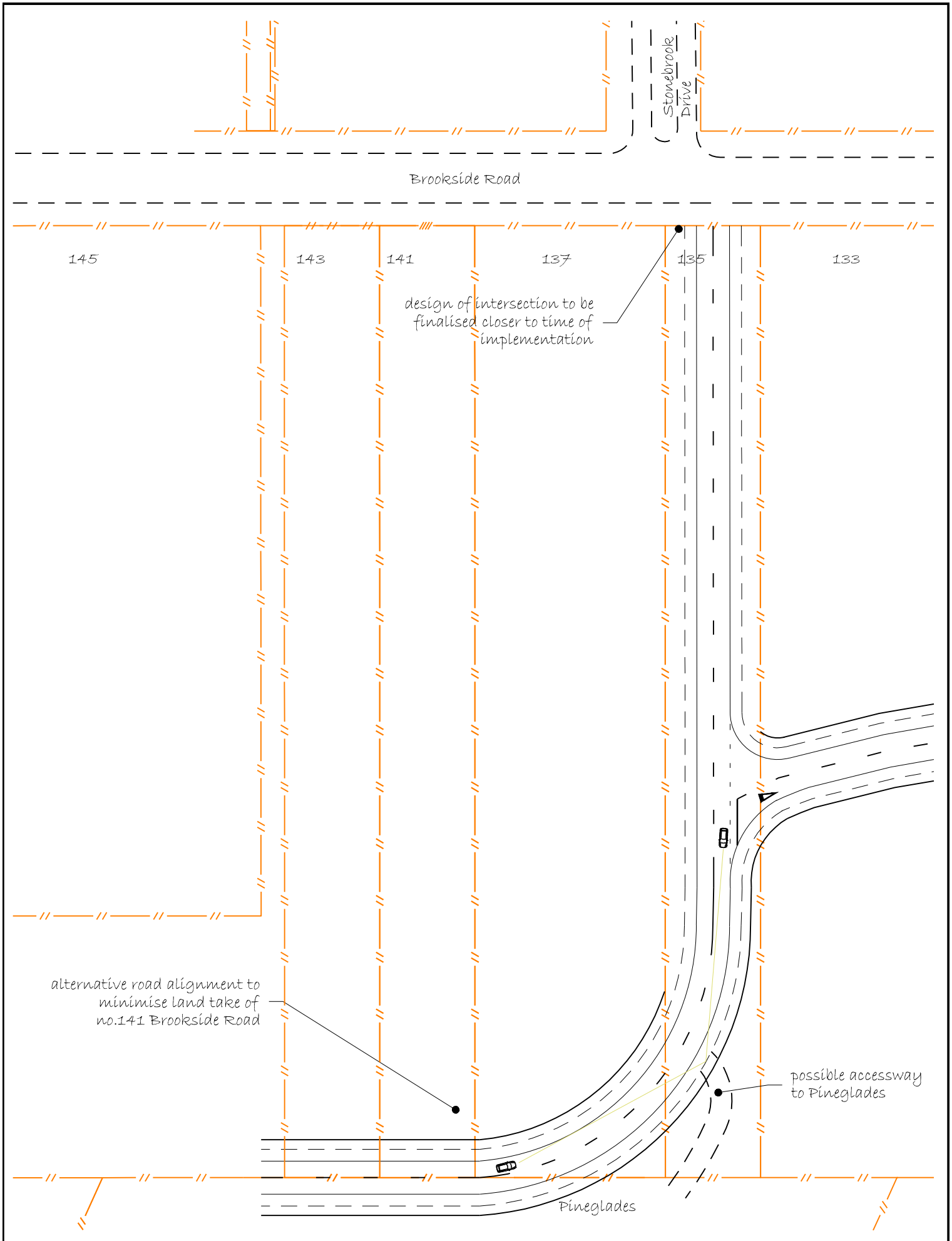


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# ROLLESTON LIVING 1B DEFERRED ZONE

## INDICATIVE SPINE ROAD DESIGN NEAR PINEGLADES

Sheet No. 02

Job No. 578



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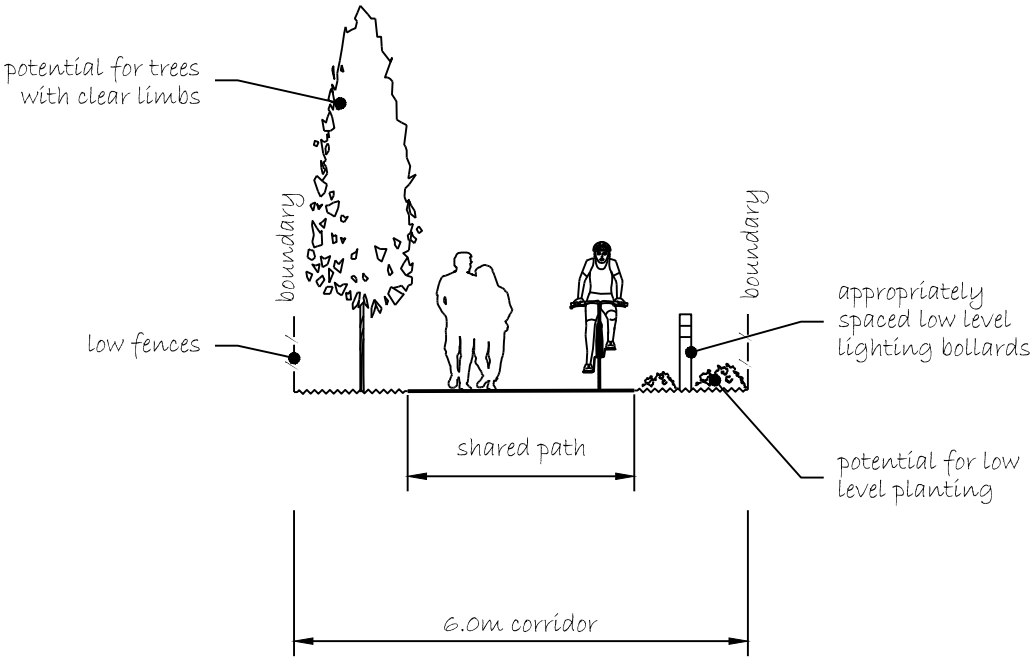
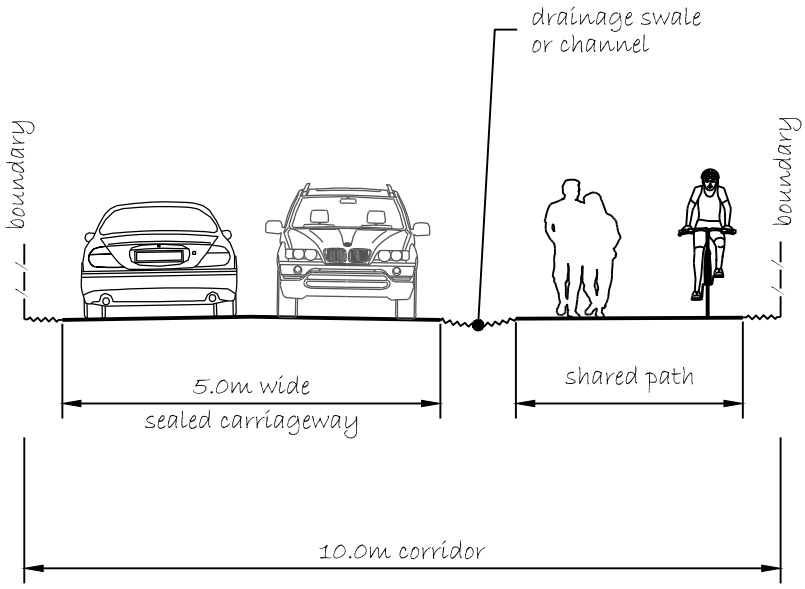



## Shared path concept




## Shared accessway concept

motor vehicles seperated from pedestrians and cyclists
no parking available

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ROLLESTON LIVING 1B DEFERRED ZONE

FUTURE DESIGN CONCEPTS

Sheet No. 01

Job No. 578



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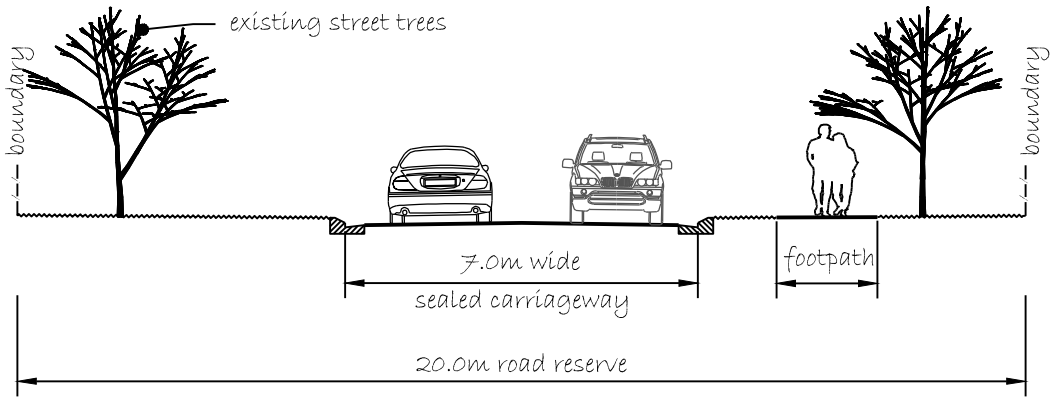
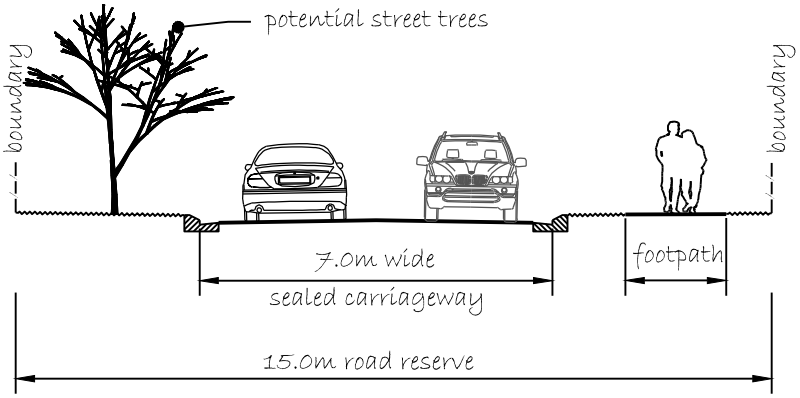



Indicative design of Fairhurst Place with low profile kerb

(alternatively a swale could be provided in the berm for stormwater management)

Note: street lighting upgrade required




Indicative design of Jozecom Place with low profile kerb

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ROLLESTON LIVING 1B DEFERRED ZONE

FUTURE DESIGN CONCEPTS

Sheet No. 02

Job No. 578



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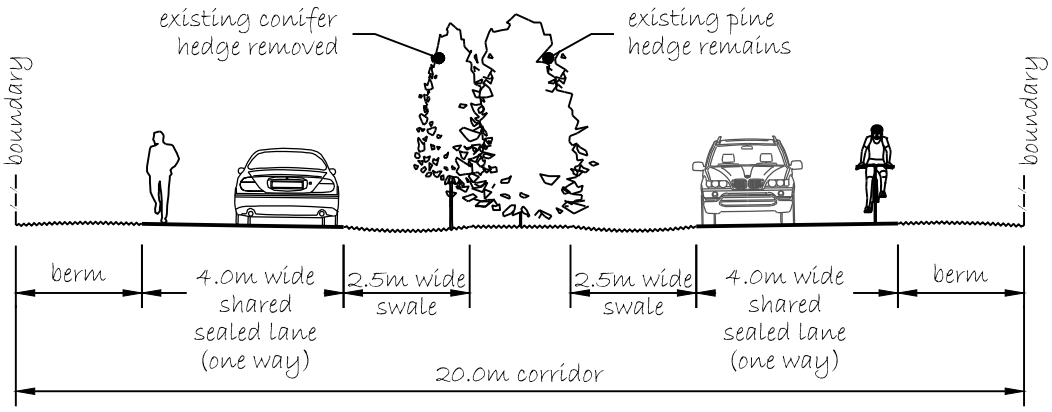
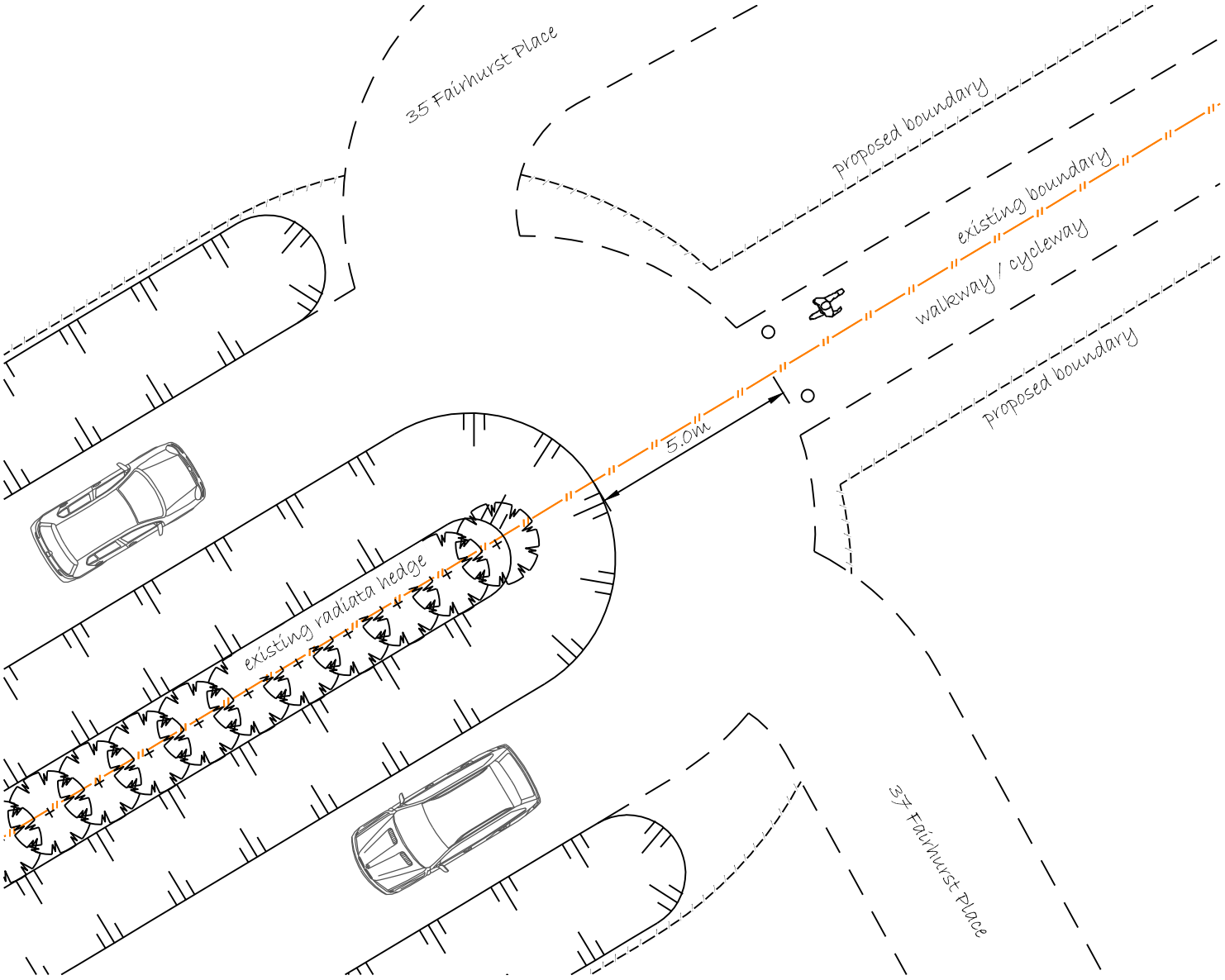



# Indicative design of new roads off Fairhurst Place

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ROLLESTON LIVING 1B DEFERRED ZONE

FUTURE DESIGN CONCEPTS

Sheet No. 03

Job No. 578



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NORTH

24 Jozecom Place

25 Jozecom Place

potential landscape areas with seating

29 Jozecom Place

26 Jozecom Place [Lot 1] (option)

28 Jozecom Place

27 Jozecom Place (option)

26 Jozecom Place [Lot 2]

proposed shared path (as sheet 03)

proposed shared accessway (as sheet 03)

proposed shared accessway (as sheet 03)

proposed shared foopath

proposed shared path (as sheet 03)

proposed shared path (as sheet 03)

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Selwyn DISTRICT COUNCIL

ROLLESTON LIVING 1B DEFERRED ZONE

JOZECOM PLACE EXTENSION

Sheet No. 04

SCALE (A3) 1:750

Job No. 578

Date 10/09

Drawn by. R Houghton



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