Application for Private Plan Change

Four Stars Development Ltd and Gould Developments Ltd

Selwyn District Council

November 2020

REQUEST TO CHANGE THE SELWYN DISTRICT PLAN UNDER CLAUSE 21 OF THE FIRST SCHEDULE OF THE RESOURCE MANAGEMENT ACT 1991

Request by: Four Stars Development Ltd and Gould Developments Ltd

C/- Aston Consultants Ltd
PO Box 1435
Christchurch 8140, Attn Fiona Aston

To: The Selwyn District Council

Involving the: Operative Selwyn District Plan

The location to which this application relates is:

A 53.89 ha site located at Rolleston and bounded by Levi, Lincoln Rolleston Roads and Nobeline Lane.

The names of the owners and occupiers of the land to which this application relates are:

131 & 139 Levi Road	Lot 2 DP 322710	M Purdon and NC Rasmussen	28.0900ha
Rear of 139 Levi Road	Lot 2 DP 416195	M Purdon and NC Rasmussen	2.3400 ha
294 Lincoln Rolleston Road	Lot 1 DP 67190	S R Chapman & NM Chapman	4.0000 ha
274 Lincoln Rolleston Road	Lot 2 DP 67190	2 Degrees Real Estate Ltd	4.0000 ha
232 Lincoln-Rolleston Road	Lot 3 DP 67190	PW Scott and RJ Scott	3.2820 ha
5 Nobeline Drive	Lot 7 DP 483709	L File Smith & Partners Trustee	4.0805 ha
15 Nobeline Drive	Lot 8 DP 483709	JM & TL Whittaker Limited	4.0558 ha
25 Nobeline Drive	Lot 9 DP 483709	JM & TL Whittaker Limited	4.0393 ha
TOTAL			**53.88 HA**

The titles are attached as **Appendix 18** to this Plan Change request.

The Proposed Plan Change (the Proposal) seeks to amend the operative Selwyn District Plan (OSDP) to enable development of the 53 ha site ('the Site') for residential purposes, including some medium density lots, in a sustainable and integrated manner that will provide for the needs of the Rolleston and Selwyn community. The rezoning will enable Rolleston to fulfil its planned role as a key service centre (the District Centre) in the Selwyn District.

The Proposal includes the following changes to the Selwyn District Plan and associated Planning Maps:

a) Amend the District Planning Maps to rezone and identify the subject land Living Z and Living Z Deferred in the locations shown on the Rolleston Outline Development Plan attached in **Appendix 1.**

b) Add Rolleston Outline Development Plan Area 5 attached in **Appendix 1** for the Site to ensure a coordinated and consistent approach to land development;

c) Add an additional rule to the Operative Selwyn District Plan which states that the Deferred LZ status of land currently under the Christchurch International Airport (CIAL) 50 dBA Ldn noise contour as shown on Rolleston Outline Development Plan Area 5 in **Appendix 1** shall no longer apply if and when the CIAL airport noise contours are revised and become publicly available and no longer apply to this land.

d) Any consequential, further or alternative amendments to the Operative Selwyn District Plan to be consistent with and give effect to the intent of this plan change application and the interests of the applicant.

Signed: ……  ……

Fiona Aston, for and on behalf of Trices Road Rezoning Group

Dated: 10th November 2020

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Overview
Purpose of the Plan Change Request

1. The purpose of the proposed Plan Change is to enable the residential development of appx 53ha of land ('the Site') at Rolleston and bounded by Levi and Lincoln Rolleston Roads and Nobeline Lane. Land under the CIAL noise contour will adopt a deferred zoning reflecting that it is anticipated the contour will shift off the Site, or otherwise contract in the immediate future (by 2023).
2. Development will be in accordance with an Outline Development Plan (ODP) **(Appendix 1)** to ensure an integrated approach to residential development including provision of appropriate road linkages to the existing urban area and possible future urban areas to the east and south of the Site.

Reason for Request

3. The reasons for our submission are outlined below. In summary:-
    a) the proposed rezoning is both appropriate and necessary to achieve sustainable growth and development of Rolleston and meet the requirements of the NPS-UD 2020.
    b) the Site is an ideal and logical location for further urban growth of Rolleston and will achieve a compact, and efficient, urban form with excellent connectivity by multiple transport modes as well as bridging the existing urban area to the proposed Council reserve to the east.
    c) the rezoning will accommodate a further 660 dwellings which represents the equivalent of 15% of the 2018 housing stock at Rolleston; it will supply significant additional capacity and contribute to a well-functioning urban environment, meeting the NPS-UD Objective 6 c) and Policy 8 criteria for 'unanticipated' (in an RMA document) plan changes.
    d) any effects on the environment arising from the rezoning will be less than minor and able to be mitigated. A high amenity master planned development is proposed.
    e) there is no additional cost to the Council in re-zoning the Site as there is capacity in the public utilities and the existing road network, including planned upgrades.
    f) the rezoning is consistent with the Operative Selwyn District Plan (OSDP) and Proposed Selwyn District Plan (PSDP) objectives and policies, except those relating to the Canterbury Regional Policy Statement (CRPS) location of urban growth requirements which are already out of step with higher order RMA statutory documents because they do not give effect to the NPS-UD 2020.

g) the alternative of retaining Rural Inner Plains is not an efficient use of this block of land located as it is immediately adjoining the urban area of Rolleston, and in a location highly accessible to the town centre by active transport modes as well as car.

h) continued operation of the high value All Stars horse training establishment on the Purdon/Rasmussen land is becoming extremely difficult and in jeopardy due to serious reverse sensitivity effects as their site has been increasingly surrounded and impacted by adjoining urban activity.

i) the rezoning is consistent with and the most appropriate, efficient and effective means of achieving the purpose of the Resource Management Act 1991.

The Site

1. The Site is a 53.88 ha block of land ('the Site') bounded by Levi and Lincoln Rolleston Roads, and Nobeline Lane, Rolleston **(Figure 1).**

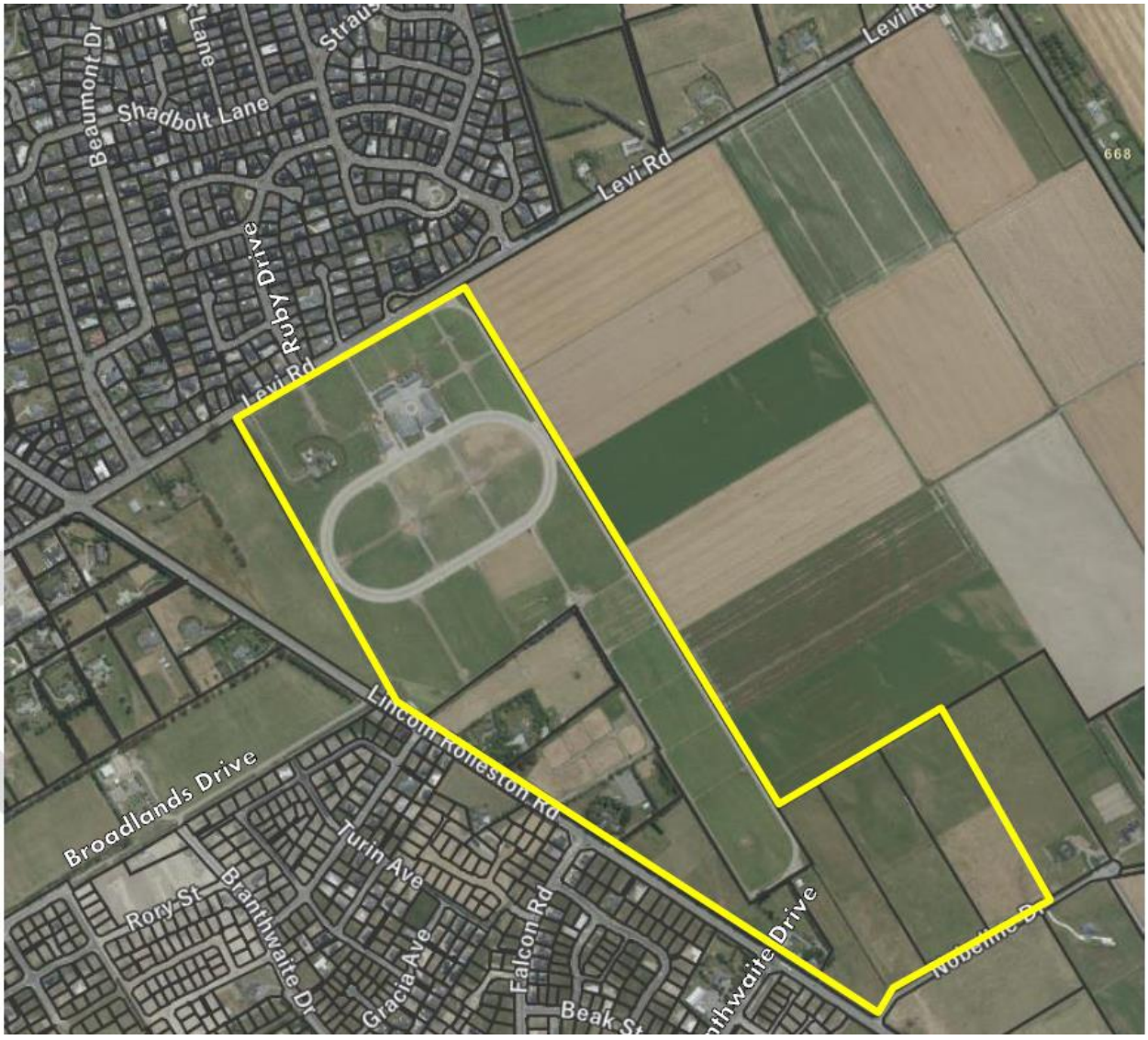


Figure 1: The site (outlined in yellow)

2. Potential access to the Site is available from all three roads.
3. Levi Road and Lincoln Rolleston Road are classified as Arterial Roads in the operative District Plan.
4. The Site boundaries are clearly defined by these roads and with the boundary it shares with the large bock of land to the east of the Site owned by the Council, and anticipated

to be developed as reserve.

5. Rolleston Town Centre is about 1km to the north-west.

6. The Site contains the All Stars standard bred horse training facility at 139 Levi Road, and a number of lifestyle blocks fronting Lincoln-Rolleston Road and Nobeline Lane.

7. The Site sits on the eastern edge of the rapidly growing Rolleston. The 2018 population was 17,499 (2018 Census).

2006 (count)	2013 (count)	2018 (count)
4959	9555	17,499

Statistics NZ: Rolleston Central/NE/NW/SE/SW

8. The Site has flat topography that falls in a NW-SE direction. There are no significant features on the Site other than some buildings with well planted curtilage, and shelterbelts. The Site has been farmed as dryland pastoral/cropping and so the pastoral ecosystem is highly modified.

9. The All Stars training facility is a significant enterprise supporting the most successful standard bred training partnership in New Zealand (11 premierships in the past 13 years). Since its establishment on the property in 2008/2009, there has been a significant capital investment on this property (in the order of $3.24m) to support three training tracks, stabling, water reticulation to all 26 paddocks, an owners viewing room/office and two residential units for the owners and workers.

10. Land adjoining on the north side of Levi Road is existing fully developed urban residential development. Adjoining to the west land is a triangular block ‘wedged’ between the Site and Lincoln Rolleston Road. This land is zoned Living Z, but remains undeveloped. The proposed ODP Area 5 for the Site makes provisions for roading links into this land.

11. Land on the west side of Lincoln Rolleston Road is zoned Living Z but not fully developed to residential densities. It is understood this is due to the existing pattern of small lifestyle blocks, access constraints and practical difficulties in amalgamating land for urban development. The Helpet waste treatment and disposal plant is located here.

12. To the south are the now nearly fully developed Branthwaite Drive and Falcons Landing residential subdivisions.

PLANNING STATUS OF THE SITE

Chapter 6 of the Canterbury Regional Policy Statement

13. The Site is not located within a Greenfield Priority Area – Residential as indicated on Map A Greenfield Priority Areas in Chapter 6 of the Canterbury Regional Policy Statement

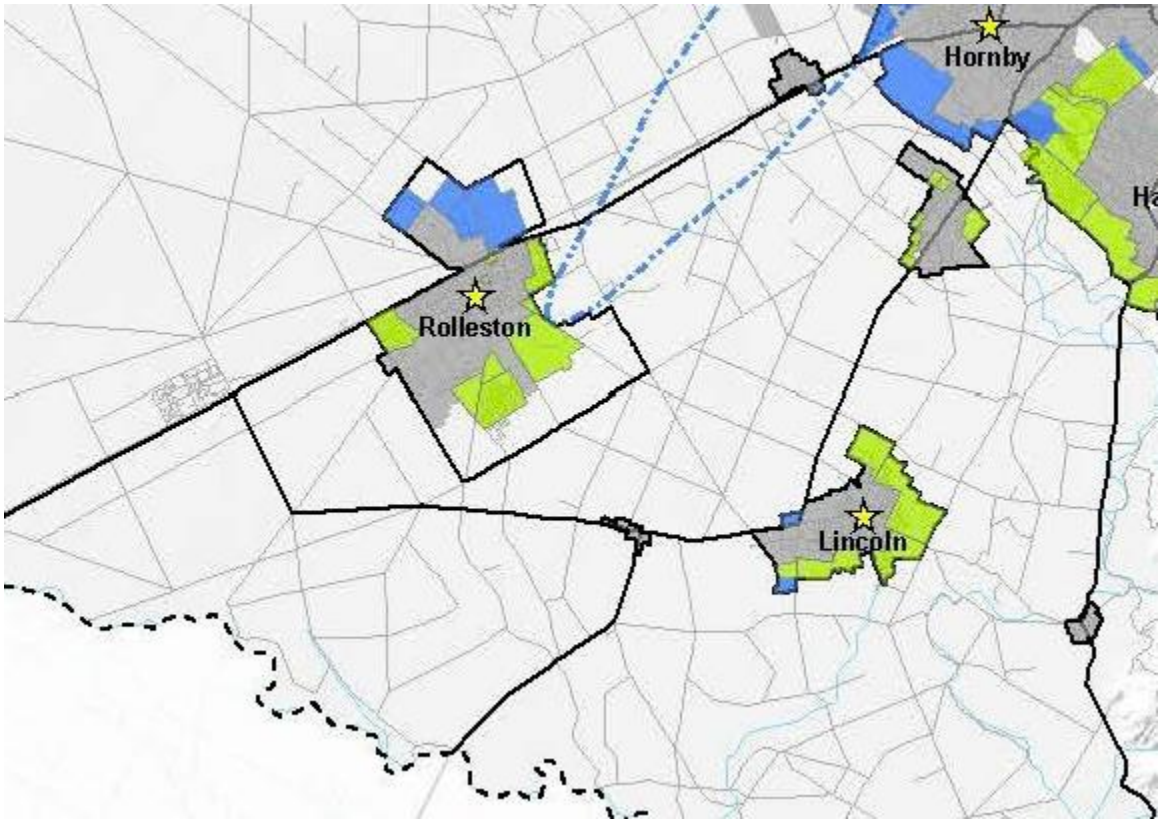


Figure 2: Map A Chapter 6 Regional Policy Statement - Greenfield Priority areas

14. Map A shows as a blue hatched line the outer southern (Rolleston) end of the Christchurch International Airport 50 dBA Ldn airport noise contour. No urban development land is shown under this contour; it affects approximately one third of the Purdon/Ramussen property and most of the Chapman and 2 Degrees Real Estate (previously Jones) properties.

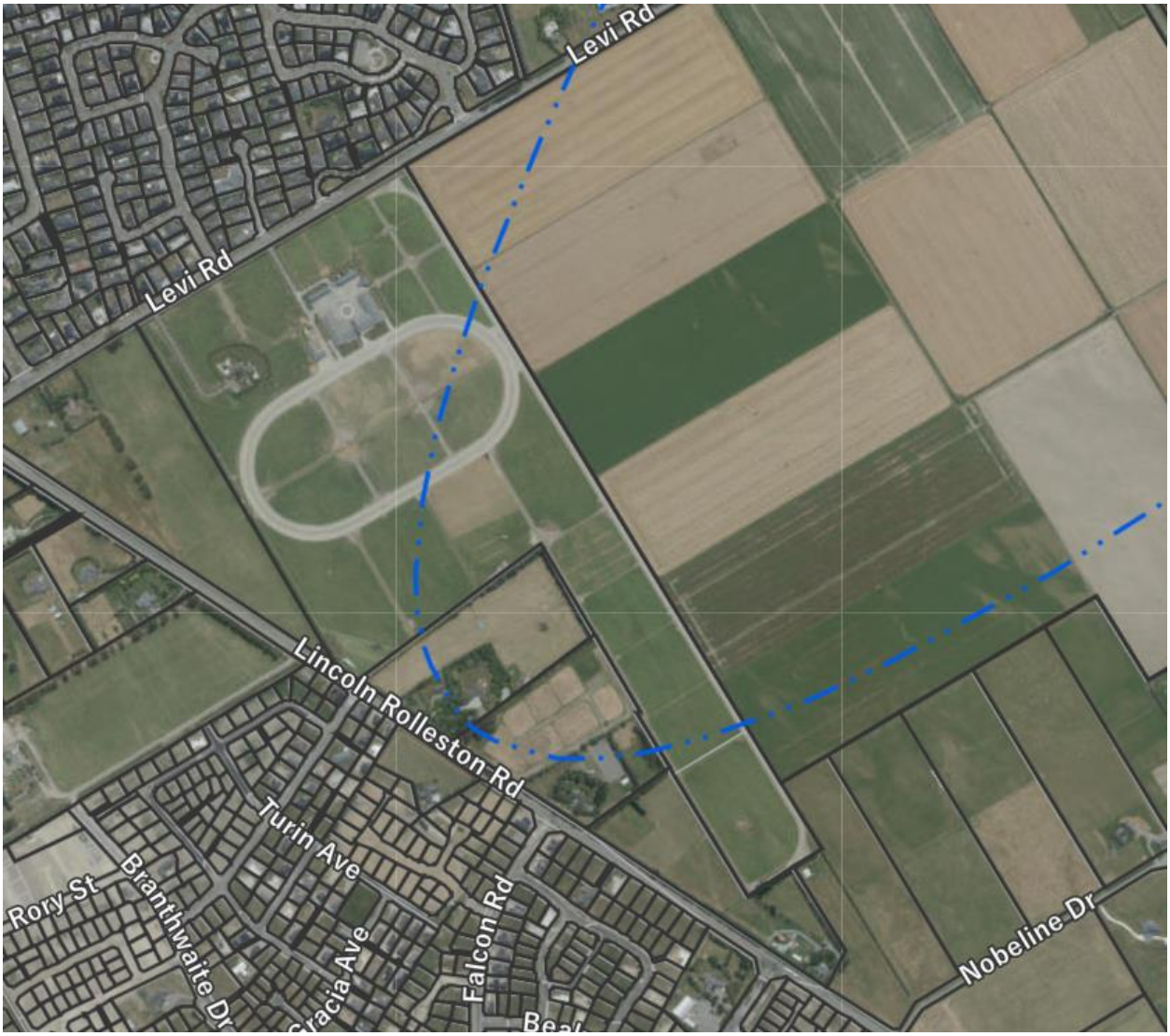


Figure 3: Aerial with CIAL noise contour (50 dBA Ldn)

15. The Our Space Greater Christchurch Settlement Update (2019) provided for additional Future Development Areas at Rolleston, Kaiapoi and Rangiora and was in response to new requirements set by the National Policy Statement – Urban Development Capacity 2016. The Future Development Areas incorporated areas within the existing Projected Infrastructure Boundary shown in the operative Canterbury Regional Policy Statement in Map A. The Future Development Areas are 'indicative only'.
16. Approximately two thirds of the Site northern block (Purdon Rasmussen northern block) is adjoining but outside the Rolleston Projected Infrastructure Boundary and is not within a Future Development Area. The Purdon and Rasmussen southern block, Scott, Smith Trustees and Whittaker blocks (the southern blocks) are a Future Development Area (see discussion under Canterbury Regional Policy Statement below).

17. A new National Policy Statement – Urban Development Capacity 2020 is now in place but work has yet to be completed to revisit the Our Space and RPS housing targets (due mid 2021) and to identify any new potential urban growth areas in the RPS.

Operative Selwyn District Plan Zoning

18. The Site is zoned Inner Plains in the Operative Plan. The minimum lot size for subdivision and a dwelling is 4 ha.

19. Part of the Site (appx. 11 ha) falls under the Christchurch International Airport 50 dBA Ldn airport noise contour. That restricts the development of noise sensitive activities.

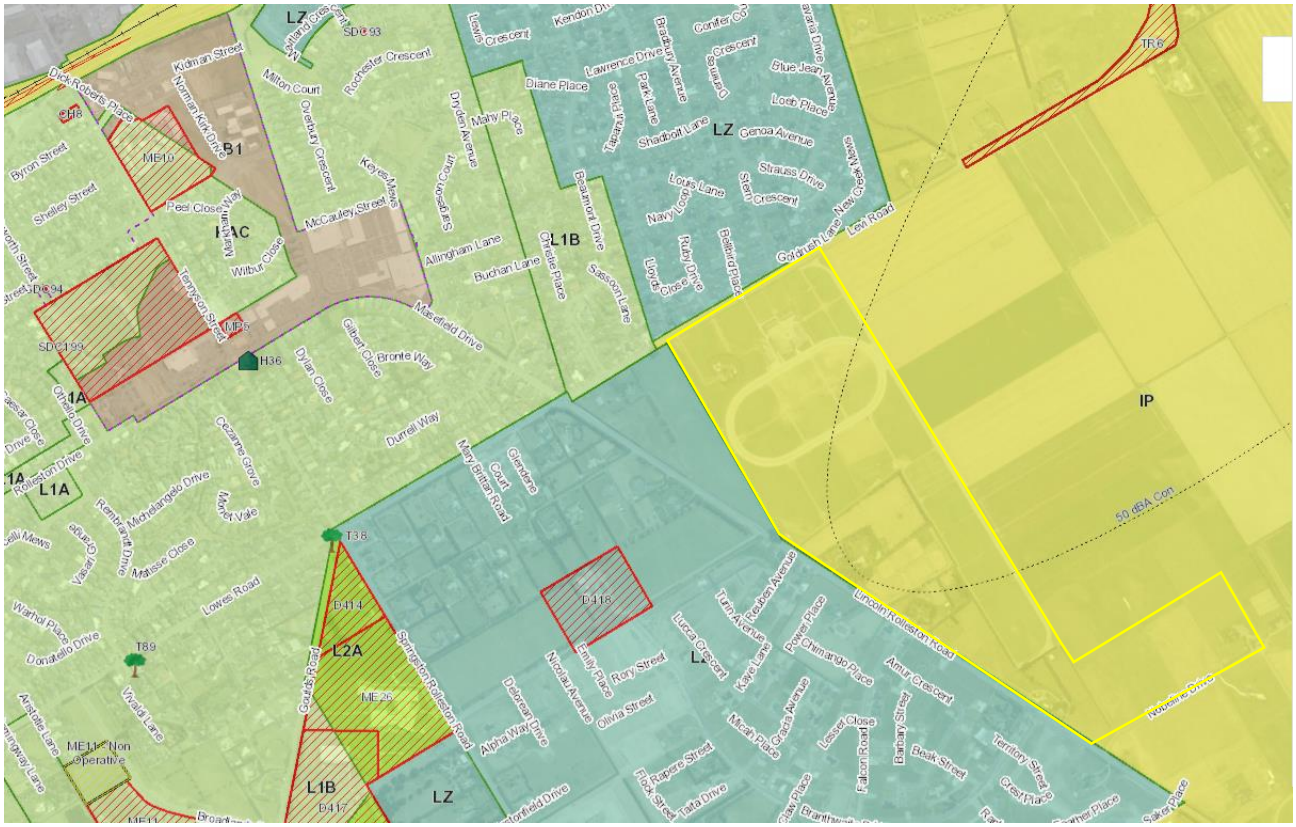


Figure 4: Operative District Plan Zoning

Site outlined in yellow, Yellow – Rural Inner Plains, Blue – Living Z, Light brown – Business 1

APPROACH AND KEY FEATURES OF THE PROPOSED PLAN CHANGE

20. The proposal is to rezone 53.88 ha of Rural Inner Plains land at east Rolleston to General Residential, of which approximately 17.3 ha will be deferred until and if the CIAL 50 dBA Ldn airport noise contour is moved off this land, and is shown as such in the Canterbury Regional Policy Statement. The proposed lots will be developed in accordance with the General

Residential Zone standards, with a minimum average lot size of 650m^2, and minimum lot size of 500m^2, except for small lot development where lots will be in the 400-500m^2 size range.

21. Medium density housing, including a potential retirement village, will be included as part of the development which will achieve a minimum density of 12 households per ha over the development area as a whole.

22. An Outline Development Plan (ODP) (**Appendix 1**)) is proposed. The ODP:

a) Continues the direct green link between Foster Park and the new district park/reserve through the extension of Broadlands Road. This east-west road through the DEV-RO 9 area will be primary route;

b) Provides for future connections to adjacent development in the future (to the District Park to the east, and the Future Development Area east of the Nobeline Drive blocks);

c) Delivers residential development at a minimum density of 12 households/hectare and provides for a variety of residential house types, lifestyles and price points;

d) Incorporates suitable locations for medium density housing, including

- around the southern and northern neighbourhood reserves
- adjacent to the future district park to the east
- in smaller clusters throughout the development often in midblock locations around shared access roads
- within quiet cul de sacs
- in areas where the geometry of the underlying land creates unique ‘left over pockets
- infill sites suitable for smaller lots.

e) Promotes social interaction and neighbourhood cohesion through the inclusion of two neighbourhood reserves, and strategically located local connections internal and external;

f) Proposes a reserve in the northern portion of the Site which forms a part of the green corridor linking Foster Park with the future District Park, the two primary reserves, largest green spaces and recreational destinations in Rolleston. This northern neighbourhood park has the opportunity to function as the green heart of the development and offers a ‘spatial break’ and ‘meeting place’ for the medium density development and potential aged care living environments in close proximity;

g) Proposes a reserve in the southern part of the Site to create a similar focal point, albeit much smaller in scale;

h) Encourages active transport modes through the provision of shared paths that provide both internal connectivity as well as links to the wider Rolleston area with a focus on walking and cycling;

i) Balances the constraints of site shape, geometry and the uncertainty of the noise contour line with the desire to provide a cohesive well connected residential environment ;

j) Responds sensitively to its interfaces with both existing and future adjacent development and the district park /reserve;

k) Is consistent with the design principles of the Rolleston Structure Plan.

23. An amendment to ODP Area 4 is also proposed, which adjoins the Site along the western boundary (as illustrated in **Appendix 1**). ODP Area 4 is not yet developed. The amendment is necessary to ensure connectivity between the two development areas, by way of two north east road connections to the Site.

ENVIRONMENTAL EFFECTS OF PROPOSED CHANGE

Township growth and urban form

24. The Site is very well positioned for urban growth, being far closer to the existing town centre, and I-zone and I-Port employment areas, than other new growth areas further south, towards Selwyn Road.

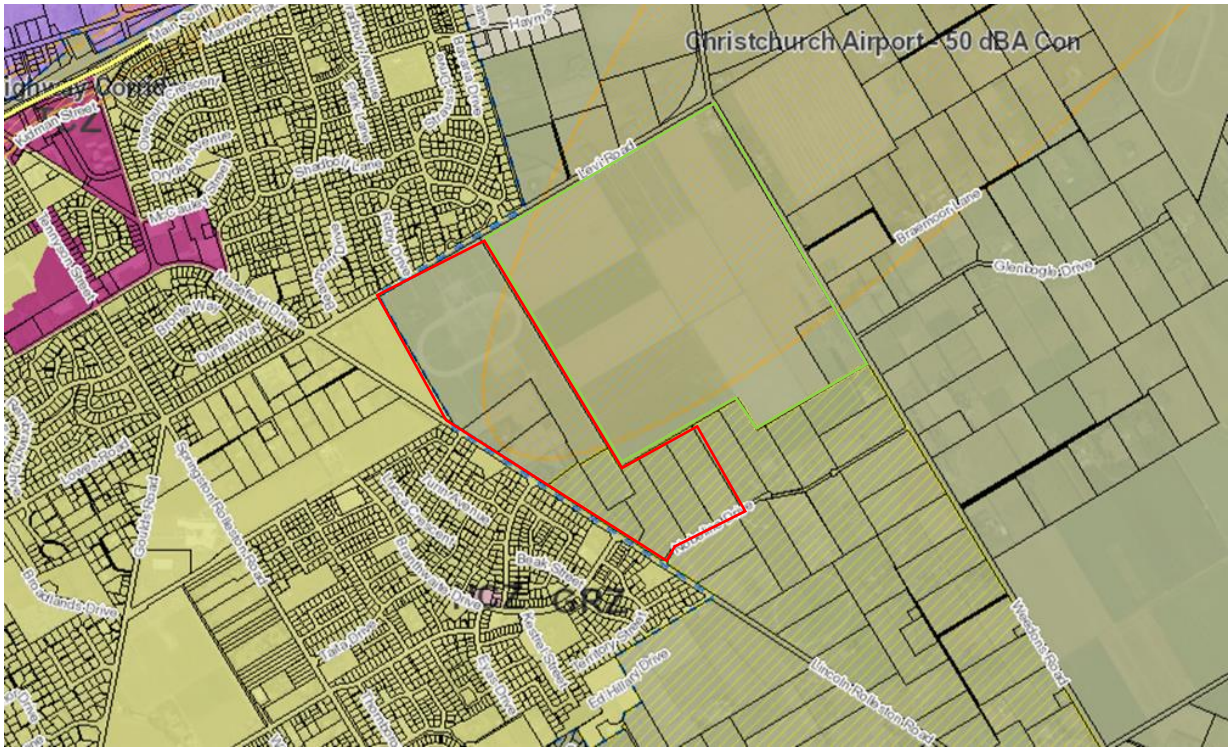


Figure 5: Proposed District Plan zoning: Rolleston
Pink – town centre; Yellow – residential ; Blue – Rural SCA Inner Plains; Site outlined in red; proposed District Park – green; Urban Growth Overlawy – hatched yellow

25. An Urban Design Statement **(Appendix 2)** sets out an assessment of how the ODP seeks to achieve an integrated development of what is an irregular shaped site that necessarily has to be developed in stages pending revision of the Airport Noise Contour land use restrictions planned for 2023. It outlines the key development features, which are summarized above at para 22.

Neighbourhood and wider community effects

26. The Site is well contained by the surrounding three roads, the immediately adjoining as yet undeveloped residentially zoned land to the west, residential development to the north of the Site, and the proposed reserve to the east of the Site. A key positive neighbourhood and community effect will arise from the position of the Site immediately adjacent to the proposed Council reserve. Homes within that part of the Site will be attractive for the significant amenity and quality of environment that that affords, in addition to the visual and amenity benefits of the significant reserve proposed within the Site.
27. The Site will support a variety of residential building typologies and this will contribute to a mix of households within the development and provide built form variety and interest in the streetscape.
28. Rolleston is well-positioned and is set up as a growth node to accommodate and service the needs of a fast-growing resident population that will in turn support more business activity, schools, community facilities and community organisations.
29. Staging the development of the Site to respect the present restrictions from Airport noise and not intensifying residential development within the contour boundaries will minimise the reverse sensitivity noise effects associated with overflying aircraft using the dominant east-west airport runway. That said, it is well-understood that in the immediate future (at the time of the review of the RPS in 2023) it is expected the contour will contract and shift the contour to the east and only over the proposed reserve.
30. No other reverse sensitivity issues will be in play as the extent of residential activity edge to rural land is minimised.
31. There is a present reverse sensitivity issue for the well-established permitted activity on the Rasmussen/Purdon land. The dominant rural activity on the Site is the All Stars horse training establishment. The owners have experienced increasing difficulties in operating a

high value operation as their site is increasingly surrounded and impacted by adjoining urban activity. The owners have identified the following issues:

Rubbish blowing onto our property, into the paddocks and onto fence lines surrounding the tracks. We have had numerous occasions where we have lost horses from a jog team of 3 when shying at rubbish or plastic bags. We have also had horses eat or chew rubbish, plastic bags. When working young horses (yearlings) we work up to 8 at one time all together and if the lead horse shy's (sic) at rubbish it causes a major ripple effect through the whole group.
This has become quite a health and safety issue. I have emailed letters and also photos of Some of the rubbish we have collected off our tracks and fences to the Council in the past.

With housing getting so close now it also poses a worry regarding kids on bikes appearing Beside tracks, dogs barking at our horses and appearing at fences. With the speed at which we work these horses up to 40kph and when going this fast we often have 3 or 4 horses working together. If the lead horse shied this is disastrous and causes serious accidents, not only risking the horses but the people driving them as well as the ground staff trying to catch them if they have dislodged their driver.

It is becoming a work safe hazard with so much housing going on around us. We will have to relocate if we wish to continue to operate the business as it currently is **(Appendix 19).**

Well-functioning urban environments

32. The proposed Site adjoins the existing built up urban area of Rolleston. Immediately to the west is ODP Area 4, not yet developed but which foreshadows a change to residential development.
33. The conversion of the Site from present rural and rural lifestyle uses to residential will continue a pattern of outward expansion of Rolleston that has been significantly shaped by the effect of the Airport Noise Contours encouraging expansion to the west and south of the existing urban area.
34. Rolleston is growing apace. It is attracting unprecedented interest from new home buyers as people respond to the significant investment in upgraded transport inks (Southern Motorway and public transport) and a growing economic base for employment from the town centre and I-Zone and I-Port.
35. The Site will provide a squaring off of the town and provide depth around the town centre. The Site is closer to the town centre than many of the development areas identified in the Operative and Proposed District Plans. There is ease of access in to the town centre and on several routes away from Rolleston itself.
36. The assessment of the criteria in the NPS-UD 2020 for determining a well-functioning urban environment at **Appendix 17** shows that the proposal will deliver urban, housing and

residential outcomes that meet those criteria. There will be a variety of homes enabled by three lot types from medium density to larger lots. The Site is well-positioned, building as it does on an existing township well-serviced by public transport and cycling options, to provide good accessibility to jobs, community services, and open spaces, as well as mitigating climate change impacts and future natural hazards by being not near the coast and well removed from major rivers.

Effects on tangata whenua values

37. The Proposed District Plan does not identify and resources or sites of significance to tangata whenua.
38. An assessment against the Mahaanui Iwi Management Plan is included below.

Landscape and visual effects

39. The proposal will lead to a change in the landscape of the Site from a lifestyle/intensive rural horse training enterprise with a mix of substantial houses and utilitarian rural buildings present with some plantings, to an urban environment dominated by residential building that will, in time, get the benefit of street tree and reserve plantings and landscape treatments around the houses.
40. The visual effects will arise from a change in the number of vegetative and built elements in the landscape and those effects are significant but unavoidable if the Site is to contribute to the on-going growth of Rolleston. It will be just a different amenity and quality of environment but one that will be entirely consistent with and supportive of the urban development that has proceeded to the west and north of the Site already.

Effects on ecosystems and habitats

41. The Site has previously either been farmed for cropping and dryland livestock purposes. More recently lifestyle blocks have been established, and the large All Stars standard bred horse training facility has created a specific rural environment. The All Stars site has been modified to support a particular land use including artificial surfaces for horse training and exercise. It contains several very large buildings.
42. The Site supports no significant ecosystems or habitats. None have been identified in the Proposed District Plan.

Effects on natural and physical resources

43. The ECan GIS describes the soils as a combination of Templeton deep silty loam, Templeton moderately deep silty loam and Eyre shallow silty loam. Wells in the area indicate that topsoils are underlain by sandy gravels and claybound gravels, and gravels. They are largely Class 2 in terms of Land Use Capability.

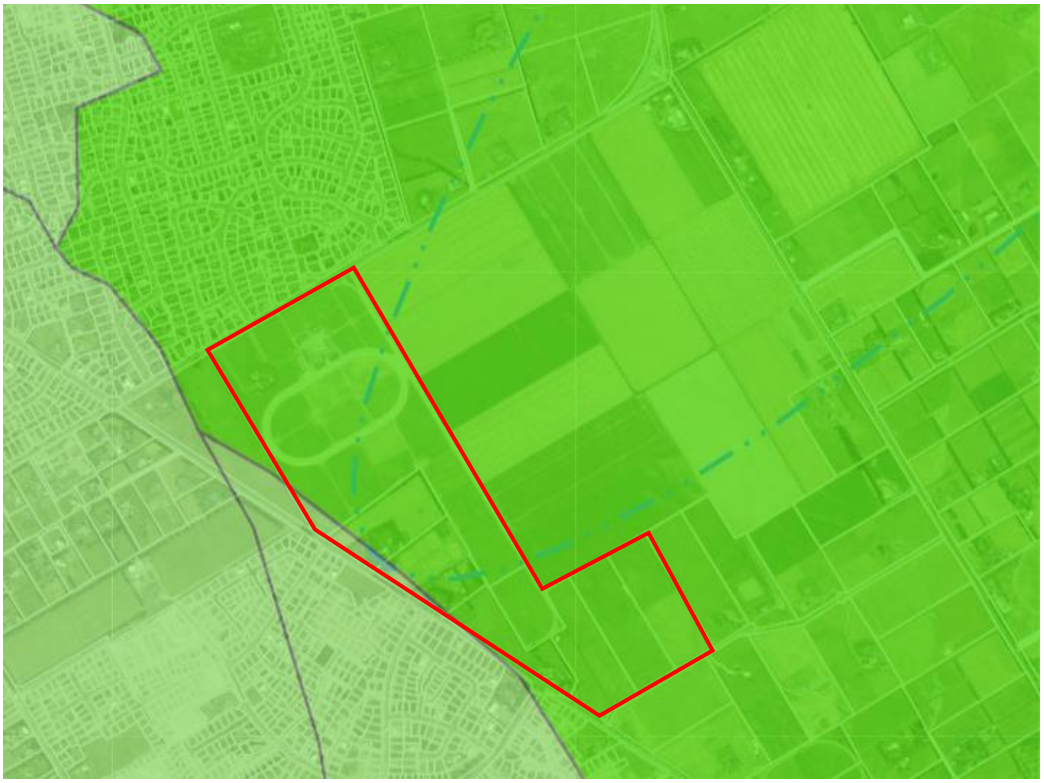


Figure 6: Soil quality.
Site outlined in red, Class 2 – bright green; Class 3 – grey/green.

44. There will be a degree of site disturbance as part of creating the roading network, and reserves, and as part of curtilage development on each lot.

45. The proposed use for residential activity inevitably leads to loss of rural productive potential as built forms and hard surfaces become dominant. The lifestyle blocks proposed within the Airport Noise Contour will enable the continued use of the lots for small scale or low level rural activities (2 x 4 ha blocks are possible here). Anything other than lifestyle use is no longer feasible due to the surrounding encroaching residential development and reverse sensitivity issues. These will also arise with development of the Council reserve to the east, which is understood to potentially include a dog park.

46. The Site contains soils that could qualify as high quality, but the need to retain those soils is to be seen in the context of enabling timely and efficient on-going growth and development

of a key growth node in Greater Christchurch in an ideal location very close to the existing town centre; and the reality that productive farming is no longer feasible here.

Discharges of contaminants into the environment

47. There will be no discharges of contaminants in to the environment.
48. Roof stormwater will discharge to the ground subject to conditions of any ECan discharge consent.

Risks from natural hazards or hazardous installations

49. The Site is not mapped in the Proposed District Plan as having any significant natural hazards, other than being located within the Flood Plains Management Area. Proposed Rule NHR2 requires a minimum building finished floor level 300mm above a 200 year Average Recurrence Interval (ARI) flood hazard event. All future dwellings will meet this requirement.
50. A flooding assessment by Paterson Pitts is attached as **Appendix 3**.
51. The Assessment notes that
    a) the site is not shown to be within the Waimakariri Flood Plain Map nor Coastal Hazards Map.
    b) The key patterns during the one-in-200-year and one-in-500-year events are:
        - generally the site will have some minor ponding, being less than 200mm. There is minimal ponding between 200-500mm and isolated spots with depths of 500-1000mm.
        - the site does not appear to be receiving flows from adjacent sites.
        - a flow develops through #15 Nobeline Drive in a SSE direction to Nobeline Drive, this is well aligned with a proposed indicative road to Nobeline Drive.
        - ponding adjacent to the Lincoln-Rolleston Road.
52. The Assessment concludes that flood and storm waters can be appropriately managed by
    a) Any future subdivision being designed to current SDC standards with the intention for stormwater to be discharged to ground.
    b) The roading network becoming the secondary flow path for flood waters to drain away from the site and re-join the natural overland flow paths.
53. There will be no hazardous installations.

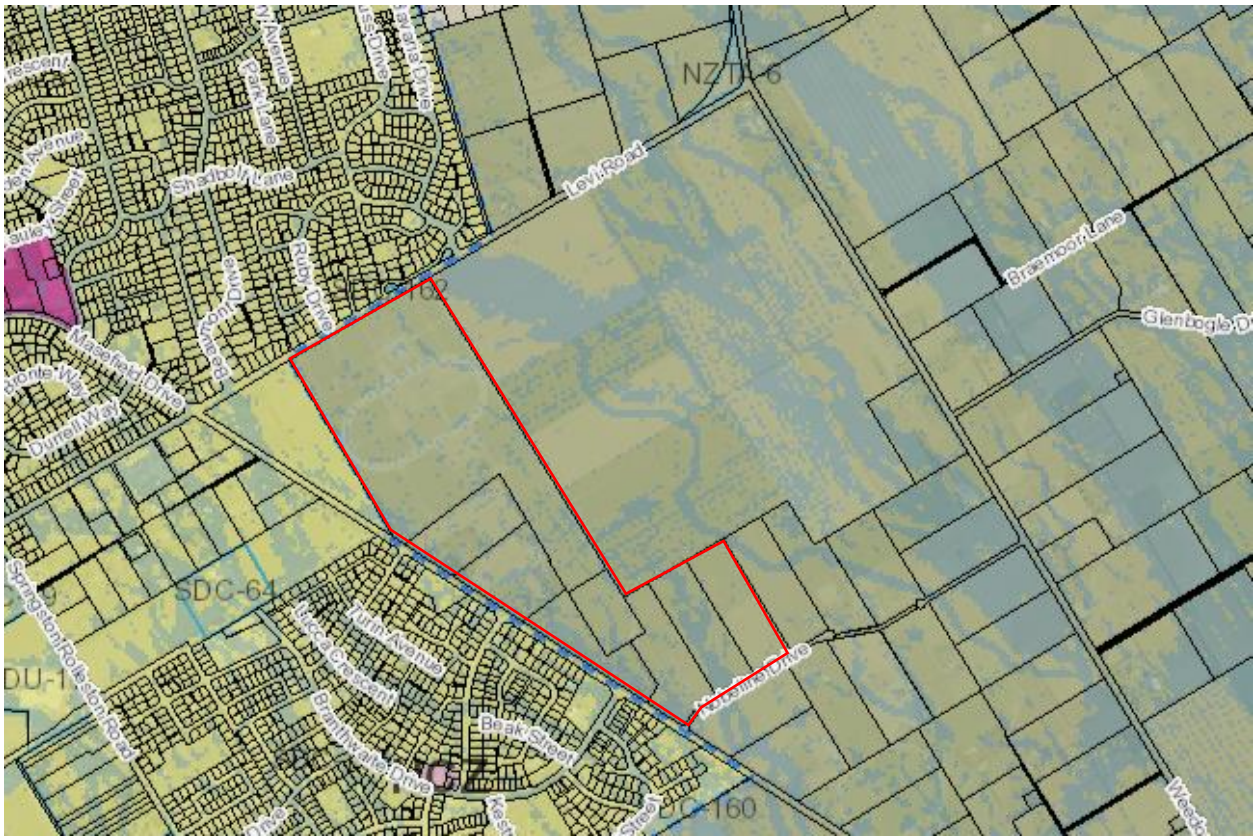


Figure 7: Flood Plain Management Overlay (shown in blue) Site outlined in red.

Geotechnical assessment

54. Separate geotechnical investigations of the south and north development blocks by Landtech **(Appendix 4 and 5)** concluded for both blocks that

the site has been classified as TC1; based on our desktop study, the underlying geology and qualitative liquefaction assessment. Following our assessment, we consider the site suitable land use change to residential zoning from a geotechnical perspective (para 90).

55. The Reports at para 9.1 also noted that

Due to the low risk of liquefaction at the subdivision we have classified the investigation site as TC1, and conclude the River Deposits beneath any surficial soils meet the criteria for "good ground" as defined by NZS3604:2011. Some areas of weak upper surficial soils may require foundations to be subject to specific engineering design due to low bearing capacities. Alternatively, earthworks during subdivision may compact any weak upper layers so standard foundations can be utilised without engineering design input. The extent of any weak upper soils can be determined with further shallow soil testing as part of the subdivision design/consenting stage.

Contaminated land

56. A Preliminary Site Investigation was carried out for 131-139 Levi Road, 274 & 294 Lincoln-Rolleston Road by Malloch Environmental Ltd **(Appendix 6).**

57. That investigation concluded that

There is no evidence of Hazardous Activities and Industries List (HAIL) activities or industries having occurred on the subject site, now or in the past. The subject site is considered suitable for residential use with no further investigations required.

In terms of planning status at the time of writing of this report, the NESCS does not apply to the site.

58. A Preliminary Site Investigation was carried out for 232 Lincoln Rolleston Road & 5-25 Nobeline Drive by Malloch Environmental Ltd **(Appendix 7).**

59. That investigation concluded that

The investigations undertaken have indicated a risk area within Lot 3 DP 67190 and Lot 7 DP 483709 of the subject site. There is a risk of contamination by heavy metals and petroleum hydrocarbons (TPH) from current and historical activities including:

- *Old buildings and a railway carriage potentially painted with lead-based paints*
- *Storage of treated timber*
- *An above ground diesel tank*
- *A waste/burn pile*

The location of the risk area is shown on the Risk Area Plan in Section 11 of this report. These are confirmed or likely Hazardous Activities and Industries List (HAIL) activities and there may be a risk to human health from potentially contaminated soils in this area. It is recommended that a Detailed Site Investigation, in terms of the Ministry for the Environments Contaminate Land Management Guidelines, be undertaken on the identified risk area prior to any change or use or development.

The rest of the subject site has been used for general pasture for its known history and this use is highly unlikely to have caused a risk to human health or the environment. There is no evidence of HAIL activities or industries having occurred on this area of the subject site, now or in the past. The rest of the subject site is considered suitable for residential use with no further investigations required.

In terms of planning status at the time of writing of this report, the NESCS does apply to the identified risk area and resource consent under the NESCS would be required for future subdivision and activities controlled by the NESCS.



Figure 8: Risk Area Plan, Nobeline Drive Sites

Economic effects

60. Initial subdivision concepts for the Site indicate that the overall yield will be approximately 660 lots, split equally between the northern block (220), airport noise contour land (220), and the southern block (220).

61. Plan Change 64 (Hughes Developments Ltd), proposes rezoning neighbouring land to Faringdon in south east Rolleston, and has recently been accepted for notification by SDC. It proposes 930 additional lots, estimated as being developed over a 6-8 year period. Market Economics calculates that the development will contribute $684 million in GDP and 12,400 job years over the development period, stabilizing at $12 million per annum and 340 jobs in the Canterbury region when completed.

62. The Gould Developments and Four Stars proposal is a little over two thirds of the size in terms of lots of the PC64 proposal (71%). It proposes the same zoning and so can be expected to have similar flow on economic effects for the local economy, ‘scaled down’ by around 30%. In very simplistic terms, this would equate to a contribution of around $485 million in GDP and 8800 jobs over the development period (which will be similar, assuming

the airport noise contours are removed within the next 2-3 years), stabilizing at $8.5 million per annum and 241 jobs in the Canterbury region once completed.

63. As noted by Market Economics, although the PC64 development (and therefore also this proposal) will generate local benefits to Rolleston, some of these benefits will merely be a transfer from other locations in the Region or Selwyn itself. At a regional level much of the economic value generated by the developments may not be net additional or new. This is because if the respective sites were not zoned for development that the demand for housing would presumably be satisfied in another location within the region.

Climate change effects

64. New urban development can contribute to reduced greenhouse gas emissions if it is situated close to and is well connected to existing urban facilities and services (shops, community and recreational facilities etc.) and employment areas, including by public transport and active transport modes (walking and cycling). The Site is particularly well placed in this regard. It is far closer to the existing town centre and I-zone and I-port employment areas than other new growth areas further south, towards Selwyn Road.

65. The nearest bus route is the 'Yellow' line with bus stops in Lowes Road and Masefield Drive. This connects Rolleston and Christchurch including Hornby, Riccarton, Christchurch Hospital and the Bus Exchange, Eastgate and New Brighton. There are typically two buses per hour and some express buses in the AM and PM peak periods.

66. The Site is 1.2km – 3.6km from the Park n Ride on the corner of Kidman Terrace and Rolleston Drive. This stop is serviced by the Yellow Line and the #820 bus route which provides connections to Burnham and Lincoln.

67. There a variety of landuse destinations within walking and cycling distance of the Site. This includes two primary schools, Rolleston High School, Foster Park and the future reserve adjoining to the east, the Domain and community centre and Masefield Drive shops.

Positive effects

68. The proposed rezoning will provide for the continued growth of Rolleston within a master planned DEV-RO 9 area. The area is closer to the existing town centre and employment areas than any of the other ODP areas, apart from the much smaller ODP Area 4, which is unlikely to be developed in the foreseeable future due to the current landowners' lack of interest in, or desire for development.

69. Gould Developments Limited has aggregated substantial areas of land (totalling 53.88ha) which enables a master planned approach to be employed to cater for future residential development. This will facilitate high levels of connectivity, creating communities with two recreation reserves as local focal points and the strategic allocation of medium density areas in the 'best' locations.
70. The provision of land for residential growth will continue to support the Council's investment in community infrastructure by virtue of maintaining and perpetuating growth rates, increasing the rating base and attracting development contributions.
71. Making provision for land to be rezoned by a variety of developers is imperative to ensuring a competitive land and housing market at Rolleston. To only rezone the PC64 land, would mean that just one development company would dominate the market.

SERVICING FOR THE PROPOSAL AND EFFECTS ARISING FROM SERVICING

Wastewater

72. The Servicing Report by Paterson Pitts **(Appendix 8).**

Roading and traffic effects

73. The Servicing Report by Paterson Pitts **(Appendix 8)** confirms that all forms of roading and footpaths will be designed to comply with SDC standards. Frontages to Levi, Lincoln Rolleston and Nobeline will be upgraded as required by the developer to meet these standards. This involves kerbing and widening but not extending to the opposite side of the roads.
74. An Integrated Traffic Assessment by Novo Group **(Appendix 9)** describes the existing road network, examines the crash history of those roads 2010-2020, identifies future road upgrades and assess the adequacy of passenger transport and other active transport modes.
75. The Assessment concludes that
    a) The ODP layout will provide an appropriate structure of primary and secondary roads and future local road connections to be consistent with, and integrate into, the existing road network and to provide for property access to future residential development. The proposed layout also provides for good connectivity for active modes towards existing

public transport routes and key landuse destinations. As such the layout is considered to be appropriate for the proposed location and future use.

b) Subject to appropriate detailed design at subdivision, traffic from the proposed DEV-RO 9 area can be safely and efficiently accommodated via the proposed connections to the existing roads.

c) The location of the development area is not likely to noticeably alter the commute period traffic flows to and from Christchurch beyond that anticipated from growth generally.

d) The remaining trip distribution is disbursed across a variety of road connections and is not likely to have any noticeable impact on the capacity of any one part of the road network.

Stormwater servicing

76. The Servicing Report by Paterson Pitts **(Appendix 8)** confirms that presently there is no existing reticulated stormwater network servicing the site. Water depth is on average 13.0m below existing ground level for the northern and southern blocks. Indicative percolation rates supports stormwater discharge to ground which is typical within Rolleston. Due to the depth of ground water it is likely that no additional treatment than sumps and the soakage itself through gravel media will be necessary.

77. The future roading network will be designed to provide secondary flow paths.

78. An ECan consent will be required for stormwater discharge to ground during construction and operational phases and for discharge of roof stormwater.

Water supply

79. The Servicing Report by Paterson Pitts **(Appendix 8)** notes that the Council has plans for a proposed trunk watermain upgrades along the frontage of Levi Road and Lincoln Rolleston Road. The upgrades are planned for 2021-2028. Additional wells are proposed at the Helpet facility and the NE end of Levi Road near the intersection with Weedons Road.

80. SDC engineering staff have confirmed that there is or will be sufficient capacity to supply the proposed site.

Electricity reticulation

81. The Servicing Report by Paterson Pitts **(Appendix 8)** confirms that Orion has capacity to service the development, as does Enable Networks Ltd for telecommunications

DEVELOPMENT CAPACITY

82. Under the NPS-UD it is mandatory for every tier 1 and tier 2 local authority to prepare and make publicly available a Housing and Business Capacity Assessment (HBA) for its tier 1 and 2 urban environments every 3 years, in time to form the relevant authority's next long term plan.

83. An HBA was undertaken for the Our Space Greater Christchurch Settlement Update (2019) and it is understood that a revised HBA for Greater Christchurch is due in July 2021. Selwyn District Council has prepared a revised Housing Capacity Assessment for Selwyn (to be publicly released late November) which it is understood confirms work undertaken for Plan Change 64 that there is a shortage of housing land at Rolleston for both medium and long term housing needs. PC64 proposes to rezone approximately 77 ha of land at south Rolleston (adjoining Faringdon) from Rural Inner Plains to Living Z, in response to this shortage.

84. PC64 also includes an assessment of housing land capacity. Key findings are:

a) The Selwyn District Council (SDC) existing (2018) capacity assessment over-estimates the capacity remaining in the existing Rolleston Outline Development Plans by 1710 households or over 50% i.e. 3082 hhs compared to the PC64 estimate of 1372 hhs. The overestimate is principally because the SDC assessment does not take account of existing development constraints, including the existing pattern of small holdings and dwelling and curtilage areas which limit the capacity for 'infill', existing unusual shaped (and sized) lots, difficulties in achieving site amalgamation given the fragmented land ownership and access constraints, including existing rights of ways serving multiple small large holdings; or land designated or required for future infrastructure (including the Helpet sewerage plan and treatment area and the CRETs Road).

b) The 2028 HBA is now out of date (by two years), and there has been very high growth in the last 2 years which has met, and likely exceeded anticipated levels. Since 2010 growth has accelerated at over 5.4% per annum in Selwyn. This means that shortages projected for Selwyn in the longer term, will now occur in the medium term.

c) HBAs need to recognise that there is a 'lag time' between land being zoned for residential sections, and the delivery of housing. Once zoned, this can be in the order of 3 – 8+ years, depending on the size of the greenfield development block. It includes time for

- Land development: the process required to subdivide land, which includes earthworks, roads, infrastructure, subdivision, etc (approx. 2 or more years),

- Building development: the process of building a house, which includes design, building consent, construction, code of compliance, etc (more than a year).
- Staging: developments are generally spread over a number of stages, which minimises the costs of development and ensures that supply is released according to market demands (5 or more years)

85. PC64 proposes rezoning enough land for a further 930 hhs at south Rolleston. This is stated as helping meet a shortfall of a further 1710 hhs over and above the projected shortfall of 5475 hhs in the long term or 2018-2048 (as stated in Our Space Table 3 shown below (under 'Canterbury Regional Policy Statement').

86. The shortage in housing capacity in Rolleston exists now, not in a few years' time. This is confirmed by advice from local agents and building companies active in the Rolleston housing market (**Appendix 10**). They note:

a) Ongoing high demand for sections and housing, which has accelerated and been unprecedented since the end of the NZ covid-19 lockdown;

b) Already accelerating section prices, which will soon hit the $200,000 mark for a 600m^2 section if land supply isn't increased;

c) The complexities of the Rolleston land and housing market, with the existing pattern of small fragmented holdings limiting the capacity and timing of infill;

d) Future development areas are controlled by two key developers, which will mean competition in the market will be an issue.

87. Objective 2 of the NPS-UD is

Planning decisions improve housing affordability by supporting competitive land and development markets.

It is imperative that land rezoned at Rolleston is held by a mix of developers. Otherwise Objective 2 will not be met. This proposal for rezoning land to be developed by one of the smaller existing Rolleston development companies (Gould Developments Ltd) will contribute to ensuring competition in the Rolleston market.

STATUTORY PLANNING ASSESSMENT

88. Submissions must be assessed under the provisions of the Resource Management Act 1991, including Part 2 and Section 32 (Requirements for Preparing Evaluation Reports).

Requests for Changes to Plans

89. Under Clause 22(1) of the First Schedule, a plan change request shall explain the purpose of, and reasons for, the change to a plan, and contain an evaluation report prepared in accordance with section 32 for the proposed change.
90. Under Clause 22(2) where environmental effects are anticipated, the request shall describe those effects, taking into account clauses 6 and 7 of Schedule 4, in such detail as corresponds with the scale and significance of the actual or potential environmental effects anticipated from the implementation of the change.
91. It is requested that the proposed Plan Change request be accepted in accordance with Clause 25(2)(b) of the First Schedule of the Act and that the Selwyn District Council proceed to publicly notify the request under Clause 26.
92. It is considered that there is no reason(s) to reject the request in whole or part under Clause 25(4) of the First Schedule:

a) the request or part of the request is not frivolous or vexatious; and

b) within the last 2 years, the substance of the request or part of the request—

(i) has not been considered and given effect to, or rejected by, the local authority or the Environment Court; and

(ii) has not been given effect to by regulations made under section 360A; and

c) the request or part of the request is in accordance with sound resource management practice; and

d) the request or part of the request would not make the policy statement or plan inconsistent with Part 5; and

e) the request is not to change a plan that has been operative for less than two years.

SECTIONS 74 AND 75 – MATTERS TO BE CONSIDERED

93. Sections 74 and 75 of the Act set out the matters to be considered by a territorial authority in deciding to change its plan, including changing its plan through a Plan Change request.

94. Before a plan change can be incorporated into a District Plan, the key matters that need to be considered include:

74 Matters to be considered by territorial authority

A territorial authority must prepare and change its district plan in accordance with—

a. its functions under section 31; and
b. the provisions of Part 2; and
c. a direction given under section 25A(2); and
d. its obligation (if any) to prepare an evaluation report in accordance with section 32; and
e. its obligation to have particular regard to an evaluation report prepared in accordance with section 32; and

(ea) *a national policy statement, a New Zealand coastal policy statement, and a national planning standard; and*
(f) *any regulations.*

75 Contents of district plans

(3) A district plan must give effect to—
f. any national policy statement; and
g. any New Zealand coastal policy statement; and
(ba) a national planning standard; and
(c) any regional policy statement.

95. An assessment of the proposed Plan Change in relation to each of the above matters is outlined below.

Functions under section 31

96. The proposal, if approved, will form part of the Selwyn District Plan and will enable the Council to give effect to its obligations under section 31 RMA:

The purpose of the preparation, implementation, and administration of district plans is to assist territorial authorities to carry out their functions in order to achieve the purpose of this Act. (section 72 RMA)

97. Those functions relevant for this plan change include:

(a) integrated management of the effects of the use, development, or protection of land and associated natural and physical resources of the district:

(aa) the establishment, implementation, and review of objectives, policies, and methods to ensure that there is sufficient development capacity in respect of housing and business land to meet the expected demands of the district:

(b) the control of any actual or potential effects of the use, development, or protection of land

98. The Plan Change includes provisions to address these matters and will ensure sufficient residential land of a form, location, urban design and development and subdivision standards to achieve a number of OSDP policies. It will help deliver the Council's strategic intentions for Rolleston.

99. The Council has the key function of maintaining a district plan as provided in section 73 RMA

(1) There must at all times be 1 district plan for each district, prepared in the manner set out in the relevant Part of Schedule 1.

(1A) A district plan may be changed in the manner set out in the relevant Part of Schedule 1.

(2) Any person may request a territorial authority to change a district plan, and the plan may be changed in the manner set out in Part 2 or 5 of Schedule 1.

Part 2 Resource Management Act 1991

100. The Plan Change will only be approved if the Council determines that the proposed plan change will achieve the purpose of the Act, this being the essence of Part 2. There are checks and balances in the plan change process to assist with that decision including public consultation, submissions and hearings, and the documentation requirements of the First Schedule and section 32 RMA.

101. The proposal has been based on expert advice, consulted on before notification, and has met all the requirements of the First Schedule to assist in setting out how the proposal will achieve Part 2 purposes.

Direction under Section 25A(2) RMA

102. The proposal does not arise from a direction from the Minister.

Evaluation under section 32 RMA

103. Section 32 of the Act requires that an evaluation report is prepared which identifies the objective of the proposal, determines if it is the most appropriate method of achieving the purpose of the Act, and if the proposed amendments to the District Plan are the most efficient and effective method of achieving the objective.

104. The Section 32 Evaluation (**Appendix 11)** concludes that, of the possible alternative methods for achieving residential development for this Site, and implementing the District Plan objectives and policies, the plan change is the most appropriate or efficient and effective method.

National Policy Statements

National Policy Statement on Urban Development Capacity (NPS-UD)

105. The NPS–UD 2020 does apply to this proposal as it is directed at Tier 1 urban environments, and Tier 1 local authorities which includes Selwyn District as part of the Christchurch urban environment. This is defined in Table 1 of the NPS, and additionally defined as

any area of land (regardless of size, and irrespective of local authority or statistical boundaries) that: is, or is intended to be, predominantly urban in character; and is, or is intended to be, part of a housing and labour market of at least 10,000 people.

106. The NPS-UD 2020 recognises the national significance of:

a) having well-functioning urban environments that enable all people and communities to provide for their social, economic, and cultural wellbeing, and for their health and safety, now and into the future
b) providing sufficient development capacity to meet the different needs of people and communities.

107. This outcome is to be achieved through these objectives

a) Planning decisions improving housing affordability by supporting competitive land and development markets
b) Regional policy statements and district plans enabling more people to live in areas of urban environments near centres or areas with employment opportunities, area well serviced by public transport or a high demand for housing in the area.
c) Urban environments developing and changing over time in response to diverse and changing needs of people, communities and future generations
d) Local authority decisions on urban development being integrated with infrastructure planning and are strategic over the medium term and long term
e) Local authority decisions on urban development are responsive particularly for proposals supplying significant development capacity.

108. The key method to achieve these objectives is by development of a Future Development Strategy (FDS). This will set out how the Councils will provide for sufficient development

capacity over the next 30 years to meet expected demand. There is no FDS for the greater Christchurch Urban Area that meets the requirements of the NPS-UD 2020.

109. However, there has been work on development capacity completed for the NPS -UDC 2016 by the Greater Christchurch Partnership. This took the form of an Update of the existing Urban Development Strategy (UDS) – Our Space. This work confirmed what feasible development capacity was available to support future housing and business growth for the medium (next 10 years) and long term (10 to 30 years) periods but is out do date as it does not address the requirements of the NPS-UD.

NPS-UD Policy 1	Assessment
(a) have or enable a variety of homes that: (i) meet the needs, in terms of type, price, and location, of different households; and (ii) enable Māori to express their cultural traditions and norms;	The proposal is to have medium, standard and large lots supporting three housing typologies. The Site adjoins a large district recreation reserve, and the lots adjoining will be premium sites borrowing on the amenity of that reserve; it will feature two internal reserves which can support medium density housing at their margins.
(b) N/A business sectors	
(c) have good accessibility for all people between housing, jobs, community services, natural spaces, and open spaces, including by way of public or active transport; and	The Site has frontage to Levi and Lincoln Rolleston Roads offering direct and easy access to the park and ride public transport facility. The site immediately adjoins the proposed Council reserve and is in walking distance (between 1.0 and 2.25 km) of the town centre.
(d) support, and limit as much as possible adverse impacts on, the competitive operation of land and development markets; and	The demand for housing and land in Rolleston is well ahead of the planning means to respond. This proposal will "top up" the land presently set aside in the PSDP and provide a necessary 660 lot buffer to demand. The Site is held in six ownerships and the owners will be active developers; there is no prospect of land banking over the 28ha.
(e) support reductions in greenhouse gas emissions; and	The Site has significant advantages in being within walking distance of the town centre and the two township reserves, community facilities and school. The Site is served by a public bus route. The proposal enables a consolidated form to Prebbleton with enhanced connectivity and linkages to

	community facilities, reserves and the town centre reducing the need for car travel.
(f) are resilient to the likely current and future effects of climate change	The Site is an inland site away from major rivers. It is not at risk from climate change induced extreme natural hazard events like sea level rise, or river flooding.

NPS-UD Policy	Assessment
Policy 2 - Sufficient development capacity Tier 1, 2, and 3 local authorities, at all times, provide at least sufficient development capacity to meet expected demand for housing and for business land over the short term, medium term, and long term.	The proposed rezoning is anticipated to provide for approximately 660lots/houses at fill development. This will mean sections will be available for the short term (up to 3 years) and into the medium term (3-10 years) if adopting a more conservative outlook. Plan Change 64 identified an immediate short term shortfall in lots in Rolleston and a projected high level housing demand based on historical demand. The advice from local real estate agents **(Appendix 11)** sets out some of the factors affecting current market demand, and an assessment of likely housing market scenarios for the future. The locational and amenity advantages of Rolleston also favour strong ongoing demand.
Policy 8 – Responsiveness to plan changes Local authority decisions affecting urban environments are responsive to plan changes that would add significantly to development capacity and contribute to well-functioning urban environments, even if the development capacity is: (a) unanticipated by RMA planning documents; or (b) out-of-sequence with planned land release	Proposed Change 6 to the RPS has not been notified and without an operative development capacity FDS and specific capacity bottom lines by areas this submission falls to be considered as "unanticipated" by RMA documents and "out of sequence' as the RPS does not currently provide for future urban growth consistent with NPS-UD 2020. The proposal adds significantly to development capacity in Rolleston: 2018 Census: 5304 dwellings[1] Levi Road proposal: 660 dwellings at 1 per lot The proposal represents 12% of the housing stock in Rolleston. The proposed development qualifies for consideration under this policy: • it provides significant development capacity to serve expected demand for housing in Rolleston, including considerable affordable housing which is currently undersupplied • it as an "out-of-sequence" release of land • contributes to a well-functioning urban area • is well-connected to public transport and alternative mode routes. *Census results for Rolleston Central, NE, SE, NW,SW*

110. This assessment confirms the re-zone proposal at Levi Road achieves those policy outcomes. The absence of operative criteria in the RPS for determining what constitutes "adding significantly to development capacity" is not a bar to considering this submission on its merits. The Council can and must apply Policy 8 as from the date the NPS-UD came into effect on the basis that the purpose of Policy 8 is to facilitate rezoning to meet known housing needs.
111. A development that has the potential at full development to contribute 12% additional dwellings is adding significant capacity to a town that is rapidly growing.
112. Accepting the submission to re-zone the land, and enable the proposed development, at ODP Area 5 will satisfy the objectives of the NPS-UD.

Proposed National Policy Statement for Highly Productive Land (NPS-HPL)

113. The Government proposed in 2019 a NPS-HPL to prevent the loss of productive land and promote its sustainable management. The overall purpose of the proposed NPS-HPL is to improve the way highly-productive land is managed under the Resource Management Act 1991 (RMA) to:

    a) recognise the full range of values and benefits associated with its use for primary production
    b) maintain its availability for primary production for future generations
    c) protect it from inappropriate subdivision, use, and development.

114. The NPS-HPL is still a proposal and not intended to take effect until after Gazettal anticipated mid-2021. At the time this Plan Change was lodged the NPS had no effect and no assessment of it is required for the purposes of this Proposal.
115. The Proposed NPS-HPL interim definition of HPL is land defined as Land Use Capability Class 1-3 soils. Most of the Site contains 2 soils (para 45-48 above). Highly productive use of these soils is no longer realistic given the small size of the individual titles other than the All Stars block, the existing land ownership pattern and urban edge location (with reverse sensitivity effects now severely comprising the ability to continue operating the existing All Stars horse training facility).
116. Importantly Objective 3 of the Proposed NPS-HPL specifically refers to highly productive soils being protected by avoiding *"uncoordinated urban expansion on highly productive land that has not been subject to a strategic planning process".* The southern portion of the Site that is

outside the CIAL noise contour has been identified through strategic planning processes (Rolleston Structure Plan, Our Space) for future urban development. Land currently under the airport contours was excluded for this reason only (and would not have been excluded but for the noise contour), and included all of the Purdon/ Rasmussen block, for the 'non planning reason' that the zoning followed property title boundaries.

117. Given this context, it is considered that the proposed rezoning is in accordance with the Proposed NPS-HPL.

National Planning Standards

118. The National Planning standards proscribe various matters under the RMA so that there is consistency among planning documents most relevantly here in terms of appellations for zones, and the standards applying to these zones.

119. The proposal here adopts the Operative Selwyn District Plan zones, in this Living Z. The land "frozen" under the airport noise contours is Deferred LZ and is managed under the Rural Inner Plains provisions until the airport noise restriction is removed from this land.

120. The Proposed Plan set out plan standards for minimum and average lot sizes for the respective zones. These can be adopted for this proposal.

Canterbury Regional Policy Statement 2013 (CRPS)

121. Chapter 6 of the RPS "*provides a resource management framework for the recovery of Greater Christchurch, to enable and support recovery and rebuilding, including restoration and enhancement, for the area through to 2028. Recovery in Greater Christchurch is also supported by the provisions in Chapter 5 notated as 'Entire Region'. The provisions in the remainder of the RPS also apply.*[1] "

122. Chapter 6 was amended in 2019 with the insertion of housing capacity targets for the period 2018-2048 (Table 6.1 below).

[1] RPS Introduction

6.2.1a Targets for sufficient, feasible development capacity for housing [Inserted in accordance with sections 55(2) and 55(A) of the Resource Management Act 1991, from the National Policy Statement on Urban Development Capacity 2016]

For the period 2018-2048, sufficient, feasible development capacity for housing is enabled in Greater Christchurch in accordance with Table 6.1.

Table 6.1 Targets for housing development capacity in Greater Christchurch, 2018-2048

	Development capacity to be enabled (number of dwellings)		
	Medium Term[1] (2018-2028)	Long Term[2] (2028-2048)	Total 30 Year Period (2018-2048)
Christchurch City	17,400	38,550	55,950
Selwyn	8,600	8,690	17,290
Waimakariri	6,300	7,060	13,360
Greater Christchurch	32,300	54,300	86,600

[1]NPS-UDC, Policy PA1: Development capacity must be feasible, zoned and either serviced with development infrastructure, or the funding for the development infrastructure required to service that development capacity must be identified in a Long Term Plan required under the Local Government Act 2002 (NPS-UDC, PA1).

[2]NPS-UDC, Policy PA1: Development capacity must be feasible, identified in relevant plans and strategies, and the development infrastructure required to service it must be identified in the relevant Infrastructure Strategy required under the Local Government Act 2002 (NPS-UDC, PA1).

123. The Table 6.1 targets were required under the National Policy Statement – Urban Development Capacity 2016 (NPS-UDC). Minimum targets for sufficient feasible development capacity for housing for the medium term (3-10 years) and long term (10-30 years) must be set by regional councils and included in their RPS (Policy PC5). Development capacity must be sufficient to meet housing demand which reflects needs for different types and locations of development and feasible ie commercially viable. It is based on the zoning and other applicable plan provisions, and there must be adequate infrastructure to support development.

124. The Table 6.1 targets were based on work undertaken for Our Space (see discussion above). Our Space identified existing housing development capacity in Selwyn District of 9725 households, and a shortage of capacity in the long term of 5475 households (see Table 3 below).

Table 3: Sufficiency of housing development capacity in Greater Christchurch against Housing Targets, 2018 - 2048

	Housing Development Capacity	Housing Target	Sufficiency of Housing Development Capacity	
			Medium Term (2018–2028)	Medium and Long Term (2018–2048)
Christchurch City	59,950*	55,950	+ 38,875	+ 4,000
Selwyn	9,725**	17,290	+ 1,825***	- 5,475***
Waimakariri	4,200**	13,360	- 1,600***	- 7,675***
Greater Christchurch	**73,875**	**86,600**	**+ 39,100*** **	**- 9,150*** **

Note: Capacity figures included in the table represent number of dwellings (numbers have been rounded to the nearest 25).

In the medium term, capacity for around 3,500 dwellings in Christchurch is constrained by the provision of necessary infrastructure.

Sufficiency of housing development capacity will be reviewed and published as further feasibility modelling and investigation is completed.

These housing targets include the additional capacity margins required by the NPS-UDC as shown in Table 1.

** Alternative modelled scenarios documented in the Capacity Assessment, which are based on less favourable assumptions, identified development capacity for approximately 52,675 or 36,400 dwellings.*

*** These capacity figures are derived from a qualitative assessment of greenfield land only. An alternative modelled scenario, including existing zoned land and incorporating changes in prices and costs over time, identified development capacity for the long term of approximately 9,200 dwellings in Selwyn and 6,100 dwellings in Waimakariri.*

**** These sufficiency figures have been adjusted to discount the demand over the medium and long term likely to be met through uptake of development in rural zoned areas (averaging 70 dwellings/year for Selwyn and 50 dwellings/year for Waimakariri). Demand met through capacity in rural areas will be reviewed following the review of rural zoning as part of respective District Plan Reviews in Selwyn and Waimakariri.*

125. The NPS-UDC targets were intended to be ‘minimums’ not ‘maximums’. They were added under s55 of the RMA without any opportunity for challenge through the normal RMA submissions, hearing and appeals process. The overall intent of the NPS-UDC was to ensure planning decisions actively enabled urban development in a way that maximized wellbeing now and in the future. This included by providing plenty of opportunities for development, and thus contributing to a competitive land and development market and lower house prices[2].

126. Our Space recognizes that the greenfield priority areas on RPS Map A are not adequate to supply housing capacity requirements in the long term for Selwyn District, (and medium and long term in Waimakariri District). It recommends Future Development Areas (marked orange in Figure 2 Our Space Fig 16 below). The only FDA in Selwyn District is at Rolleston. However, importantly, the FDAs are indicative only, and intended to *“provide some direction to future RMA processes.”*

[2] NPS-UDC Introduction

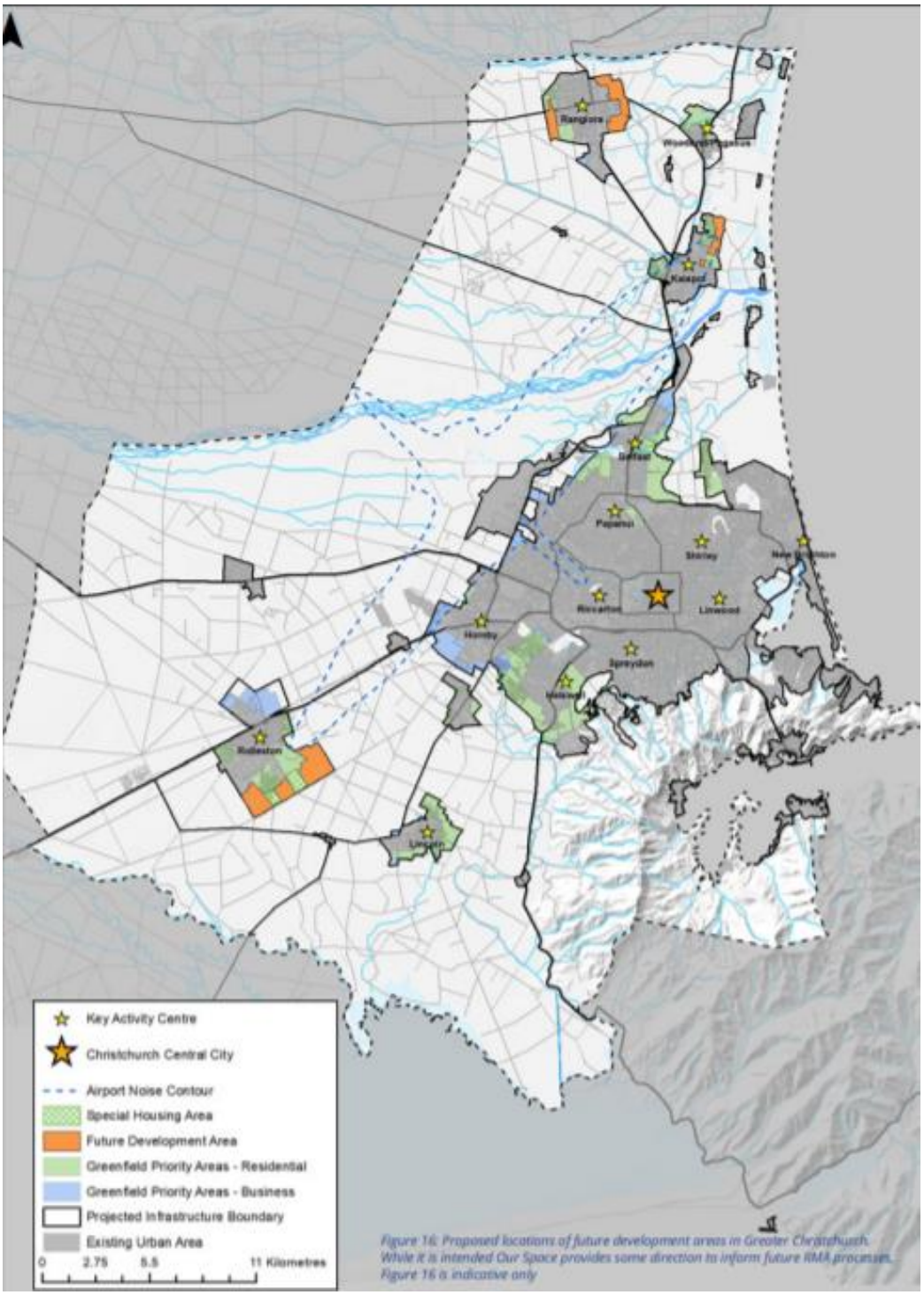


Figure 9: **Fig 16 Our Space 2018-2048 Greater Christchurch Settlement Pattern Update showing Future Development Areas (orange)**

127. Our Space anticipated a change to the RPS in 2019 which *"would ensure that land can be rezoned to meet medium term capacity needs, and the longer term will be considered as part*

of the comprehensive review of the CRPS scheduled for 2022."[3]

128. A draft RPS plan change was prepared but has not proceeded because the NPS-UDC has been replaced by the NPS-UD (Gazetted August 2020), and this changes the policy framework for any RPS change.

129. Given all of the above, the current CRPS is not consistent with the NPS-UDC, or its replacement, the NPS-UD. It retains a 'hard and fast' urban/rural boundary line which predates both NPSs and there is no ability to rezone land outside the Map A greenfield priority or existing urban areas.[4] Even if parts of the FDA areas are added to meet minimum targets for medium term needs, this does not enable Councils to consider proposals which contribute further capacity above those 'minimums'.

130. With respect to Selwyn, the FDA land is at Rolleston only. Highly desirable locations such as Rolleston, where there is very strong demand for further housing, is unable to contribute to meeting that demand due to the current restrictive provisions of the CRPS which have not been updated to incorporate the FDAs.

131. One of the key changes in the NPS-UD 2020 is that local authority decisions on urban development that affects urban environments are responsive, particularly to proposals that would supply significant additional capacity.[5] It also amends the required methodology for housing and business capacity assessments.

132. The current CRPS does not meet the new NPS-UD requirement in relation to proposals for significant additional capacity. Regional councils are required to include criteria in the CRPS to determine what plan changes will be treated for the purposes of Policy 8 as adding significantly to development capacity[6] as soon as practicable.[7] ECAN has yet to respond to this requirement.

133. The NPS-UD has immediate effect, so in the meantime, proposals (such as this submission) must interpret 'significant development capacity' in the context of the overall intent and purpose of the NPS-UD as articulated in the NPS-UD objectives and policies. This includes that NZ has well-functioning environments; provides sufficient development capacity to meet the different needs of people and communities; planning decisions improve housing affordability to contributing to competitive house and land markets; and RMA plans enable

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[3] CRPS, Chapter 6 Section 5.3

[4] CRPS Policy 6.3.1.4 is *"ensure urban activities only occur within existing urban areas or identified greenfield priority areas on Map A, unless they are otherwise expressly provided for in the CRPS.*

[5] NPS-UD Objective 6c) and Policy 8

[6] NPS-UD Clause 3.8(3)

[7] NPS-UD Clause 4.1(4)

more people to live near major employment areas, where there is existing or planned public transport, and where there is high demand for housing.

134. The NPS-UD is the higher order document and its requirements override those of lower order documents where there is a conflict, including regional and district RMA plans.

135. An assessment of this proposal against the relevant CRPS Objectives and Policies is set out in **Appendix 12**. This should be read in the context of the above assessment of the current 'weight' to be afforded to the RPS.

136. That assessment shows that

a) The development proposal achieves the objectives for the location, design and function of new developments

b) The traffic effects of the proposal do not give rise to adverse effects and so achieves CRPS objectives for the strategic land transport network

c) There is a fundamental inconsistency with Map of Chapter 6 but is consistent with the approach of the NPS-UD for providing for significant development capacity.

d) The environmental effects assessment included with the plan change application establish that the proposed development is consistent and will not give rise to any concerns with respect to all the matters listed in Policy 6.2.1 clauses 4. to 11.

e) The proposal achieves policies relating to

- Urban form and settlement patterns
- Sustainability
- Integration of transport infrastructure and land use
- Development within Greater Christchurch
- Urban design
- Residential location and yield
- Biodiversity, natural hazards, landscape, soils, contaminated land

Land and Water Regional Plan

137. An assessment of this proposal against the relevant Regional Plan Objectives and Policies is set out in **Appendix 15.**

138. That assessment shows that the proposal is consistent with the relevant objectives and policies.

139. The proposal achieves objectives relating to land uses responding to socio-economic and community demand (in this case for more housing), sustainability of ground water resources, minimising contamination of soils, and protecting the region's fresh water resources.

140. The proposal is consistent with policies seeking:
    a) No direct discharges to water other than stormwater which will be discharged to ground **(Appendix 8).** This is the standard servicing option in Rolleston, it has been recommended by Council utilities staff, and reflects the underlying free-draining geology that enables good ground soakage.
    b) Sewage will be collected and managed in a reticulated system built to Council specifications.
    d) The Site has no natural water bodies to receive stormwater but roads will be designed to act as secondary flow paths. There is no stormwater collection system so there is no requirement for peak flows to match pre-development levels and intensities.
    e) The site will be developed subject to subdivision consent(s) that will impose necessary conditions about earthworks during construction including sediment control plans.
    f) A geotechnical assessment **(Appendix 4 & 5)** concluded the Site is suitable for intended residential use.
141. The Policy requirement for a stormwater management plan can be addressed at subdivision stage.

Operative Selwyn District Plan (OSDP)

142. An assessment of this proposal against the relevant Operative District Plan Objectives and Policies is set out in **Appendix 13.**
143. That assessment shows that the proposal is entirely consistent with the relevant objectives and policies.
144. The proposal achieves policies relating to
    a) Compact and sustainable towns
    b) Integration of land use and infrastructure
    c) Consolidated and compact urban forms
    d) Sufficiency of feasible housing capacity
145. The exception to the above, is the requirement for new residential development to be within existing urban areas and priority greenfield areas identified in the CRPS. The Site is outside these areas. However, the CRPS has not been revised to give effect to the Our Space recommended FDAs or the NPS-UD 2020. The NPS-UD takes priority, and provides for unanticipated plan changes which supply significant additional development capacity, as is the case with the proposed rezoning.

Proposed Selwyn District Plan

146. An assessment of this proposal against the relevant Proposed District Plan Objectives and Policies is set out in **Appendix 13.**

147. That assessment shows that the proposal is consistent with the relevant objectives and policies. With respect to urban growth, UG-P3 is *"Avoid the zoning of land to establish any new urban areas or extensions to any township boundary in the Greater Christchurch area of the District outside the Urban Growth Overlay*". The southern portion of the Site is within the Urban Growth Overlay (shown yellow hatched on planning map, Figure 5). The northern and middle portions of the Site are outside the Urban Growth Overlay. However, this policy is inconsistent with the NPS-UD, the 'higher order' planning document, which requires Councils to plan changes which supply significant additional development capacity, including where unanticipated or out of sequence with what is provided for in existing RMA documents.

148. UG-P11 requires when extending any township boundary, avoiding reserve sensitivity on important infrastructure, including CIAL. The plan change proposal achieves this by deferring urban residential development until such time as the CIAL noise contour no longer applies to that part of the Site currently under the contour, the Rural Inner Plains zone provisions will continue to apply until this time.

149. The proposal achieves policies relating to

a) Strategic directions with respect to
   - Compact and sustainable towns
   - Urban growth and development
   - Integration of land use and infrastructure

b) Contaminated land and natural hazards

c) Subdivision outcomes

d) Urban growth with respect to
   - Achieving attractive, pleasant, high quality, and resilient urban environments
   - Consolidated and compact urban forms
   - Sufficiency of feasible housing capacity

e) Development being supported by a development plan/outline development plan

f) Urban form and scale outcomes

g) Integration with existing urban environments, and optimise the efficient and cost-effective provision of infrastructure.

h) The proposal includes some areas of high quality soils that will be removed from primary

production.

150. Importantly the proposal meets the objectives of UG-01 relating to the qualities and characteristics of urban growth identified in clauses 1 – 8.

151. The assessment concludes that with respect to development capacity (UG-P13) the current CRPS is not consistent with the NPS-UDC or its replacement, the NPS-UD. It retains a 'hard and fast' urban/rural boundary line which predates both NPSs. The NPS-UD has immediate effect, so proposals (such as this submission) must interpret 'significant development capacity' in the context of the overall intent and purpose of the NPS-UD as articulated in the NPS-UD objectives and policies rather than the out of step/out of date RPS provisions. That said, the proposed development is consistent with all the matters listed in RPS Policy 6.2.1 clauses 4. to 11.

ASSESSMENT AGAINST OTHER PLANNING DOCUMENTS

Our Space 2018-2048 Greater Christchurch Settlement Update (2019)

152. Our Space is a non-statutory document prepared under the Local Government Act. It "*responds to the new Government Policy Statement on Land Transport, which has increased funding for mass public transit schemes, and meets the requirement of the National Policy Statement on Urban Development Capacity (NPS-UDC) 2016 to prepare a future development strategy…. Specifically, it:*

- *sets out how targets for housing for the next 30 years will be met, accommodating an additional 150,000 people;*
- *identifies locations for housing growth, encouraging Central City and suburban centre living while providing for township growth in Rolleston, Rangiora and Kaiapoi;…*
- *promotes a compact urban form, which provides for efficient transport and locates development in a manner that takes into account climate change and sea level rise.*[8]*.*

..Underpinning this settlement pattern approach is the vision for a transformation of the transport network that fosters much greater public and active transport usage, and reduced reliance on the private vehicle.

153. Our Space acknowledges that this will require commitment from the Government to invest in the necessary improvements to our transport system, which could include investing in rapid transit services. To date, there has been no successful business case for improved public transportation, including not as a Covid 19 fast track infrastructure project.

154. The Our Space housing capacity targets (Table 3) and Future Development Areas are

[8] Our Space Executive Summary

reproduced above (under 'Canterbury Regional Policy Statement').

155. Our Space, like the RPS (and Operative District Plan) are now out of date, as they do not reflect or give effect to the new requirements of the NPS-UD 2020.

Rolleston Structure Plan 2009

https://www.selwyn.govt.nz/property-And-building/planning/strategies-and-plans/Rolleston-structure-plan



Figure 5.2: Rolleston Structure Plan

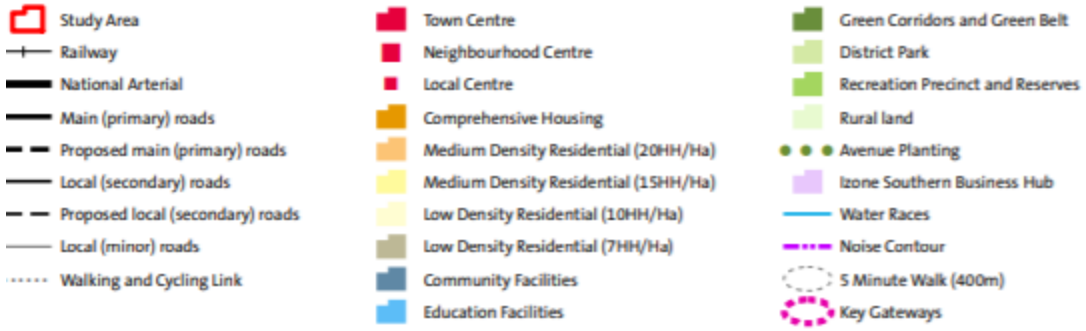


Figure 10: Rolleston Structure Plan

156 The Rolleston Structure Plan planned for growth over three time periods – 2009-2016 (short term); 2017-2041 (medium term) and 2042-2075 (long term), It considered that the long term urban boundary, extending to Selwyn Road to the south, as shown on Fig 9, "*has a potential long term land capacity of up to 50,000 should full intensification of existing areas and development of all greenfield areas (886 Ha) occur. This could be accomplished within 70 years".*

157 The Census data shows that Rolleston is almost doubling its population every five years.

2006 (count)	2013 (count)	2018 (count)
4959	9555	17,499

Statistics NZ: Rolleston Central/NE/NW/SE/SW

158 The Structure Plan was based on assumptions that its 7000 population in 2009 would grow to 20,000 over 35 years ie. by 2044 (Background). That 35 year assumption has largely been delivered by 2020, with growth rapidly accelerating in response to housing needs arising from the Greater Christchurch 2010 and 2011 earthquakes, and continuing since.

159. A little under half of the Rolleston Structure Plan long term urban boundary is zoned for urban purposes or comprises the Faringdon and Acland Park subdivisions which were developed as Special Housing Areas under former Housing Accord legislation. The rest of the land is still zoned Rural Inner Plains. As a consequence, there is now a significant shortage of urban development capacity as confirmed by Plan Change 64 and real estate advice (see **Appendix 10**). Rezoning has simply not kept up with demand.

160. The ODP site is extremely well placed to meet some of the supply shortfall given the urban edge location, and close proximity and ready accessibility to Rolleston town centre by multiple

transport modes.

161. The Rolleston Structure Plan reflects the CIAL airport noise contours as they applied in 2009. The contours have recently been remodelled, with new flight paths amongst other matters reflecting changing aircraft technologies and a drive for more ‘green’ fuel efficient routes. It is anticipated that they will be removed away from the plan change application site entirely. These more recent developments are reflected in the proposed deferred Living Z zone status for land excluded from the urban growth boundary. This has all happened since the Rolleston Structure Plan was produced in 2009.

162. The Rolleston Structure Plan includes an urban growth staging plan as below. The earlier stages are largely in the south east (SR5-6, SR9-11), apart from Branthwaite Drive and Falcons Landing (SR8). The south east land is substantially controlled by just one developer. It is critical to a competitive land and housing market that land available for development is held in multiple landownership and there are several developers active in the market. The plan change application will help facilitate this.

163. A strictly staged approach to future development is inconsistent with the NPS-UD which provides for out of sequence growth which supplies significant additional capacity.

164. In summary, Rolleston Structure Plan has provided a coordinated and integrated proposal for managing rapid growth, However, over a decade on, it needs to be updated to remain current and relevant and to be consistent with the NPS-UD. It should not be a hurdle for new private proposals where it does not deliver NPS-UD outcomes, and is the antithesis now of providing flexible planning responses to “out-of-sequence” proposals that add significant development capacity.

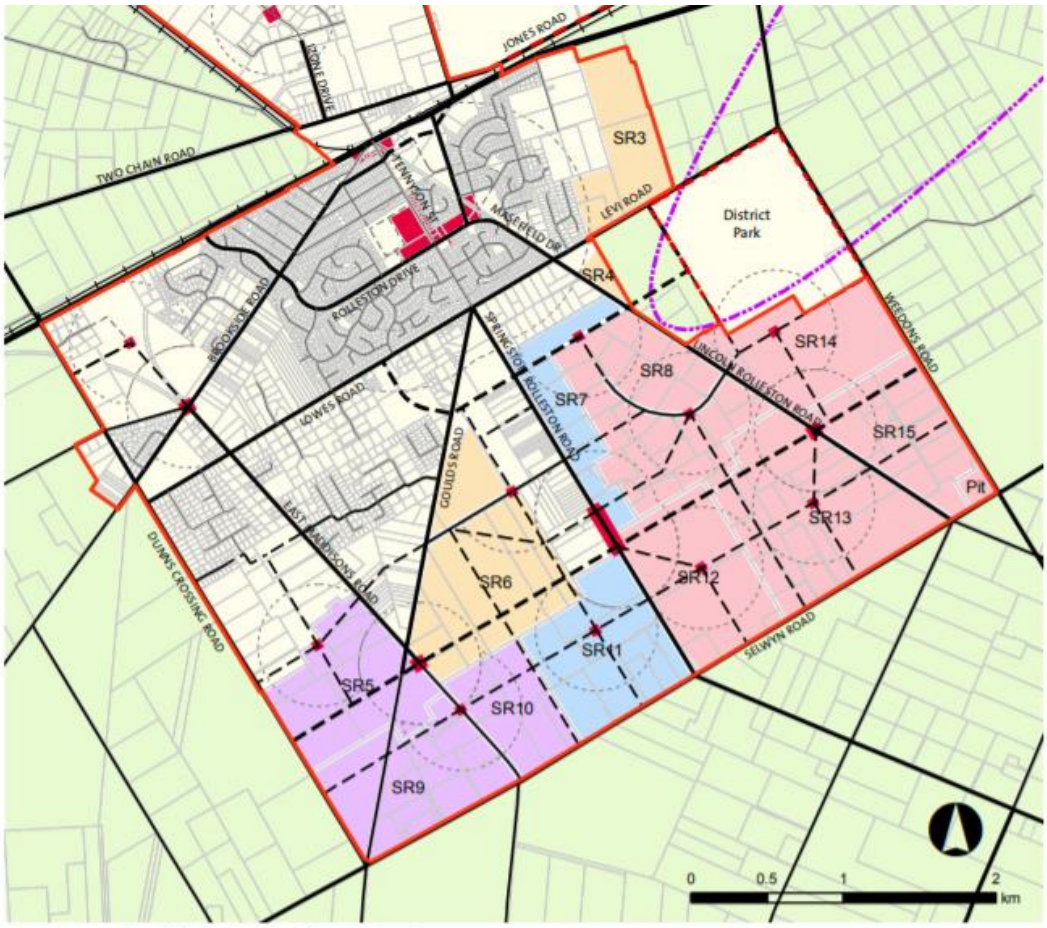


Figure 5.4: Staging of Greenfield Residential Development



Figure 11: Rolleston Structure Plan Staging

District Development Strategy 2031 (DDS) (2014)

https://www.selwyn.govt.nz/__data/assets/pdf_file/0008/147977/Selwyn-2031-Finalr.pdf

165. The DDS 2031 (2014) adopts the following key growth concepts

a) establishment of a township network, which provides a support framework for managing the scale, character and intensity of urban growth across the whole district;

b) establishment of an activity centre network, which provides a support framework for managing the scale and intensity of business areas throughout the district townships;

c) encouraging self-sufficiency at a district-wide level. (Executive Summary)

166. Rolleston is identified as the District Centre. It is described as having an estimated population range: 12,000 + and functioning as the primary population, commercial and industrial base of the district. The population now in 2020 is closer to 20,000. The Council and other agencies are investing in significant community facility upgrades and facilities which support the district centre role of Rolleston. Most recently this includes a town centre masterplan and new library and community centre, and a health hub. Further rezoning as proposed by this plan change will provide an added catchment base for these major new facilities.

Mahaanui Iwi Management Plan

167. The Mahaanui Iwi Management Plan (MIMP) 2013 was released on 1 March 2013. It was prepared by the six Papatipu Rūnanga of the takiwā that extends from the from the Hurunui River in the north, to the Hakatere/Ashburton River in the south, inland to Kā Tiritiri o Te Moana (the Southern Alps), and including Te Pātaka o Rākaihautū (Banks Peninsula), and the coast. These Rūnanga are:
- Ngāi Tūāhuriri Rūnanga
- Te Hapū o Ngāti Wheke (Rāpaki) Rūnanga
- Te Rūnanga o Koukourārata
- Ōnuku Rūnanga
- Wairewa Rūnanga
- Te Taumutu Rūnanga

168. The MIMP is a tool for tangata whenua to express their identity as manawhenua and their objectives as kaitiaki, to protect their taonga and resources, and their relationships with these. The MIMP seeks to ensure that these taonga and resources are recognised and protected in the decision-making of agencies with statutory responsibilities to tangata whenua. Importantly it is also a tool that assists Papatipu Rūnanga representatives to articulate their values, issues and policy into statutory processes.
169. The MIMP includes both general objectives and policies about the management of land, air, and water, and also includes region specific objectives and policies.
170. With respect to general objectives and policies the proposed plan change and application site will not affect landscapes, or sites of cultural heritage or significance (Chapter 5.8). The application site does not contain any areas of significant biodiversity, and the proposal

seeks to include landscaping within the reserves, and in road corridors adding to the overall biodiversity of the Canterbury Plains consistent with Chapter 5.5 of the MIMP.

171. The proposal provides for full urban reticulation of the three waters and is consistent with the objectives and policies contained in Chapters 5.3 and 5.4 of the MIMP. The proposal does not preclude individual land owners from installing rainwater collection and use from roof areas at the time of building development.

172. Chapter 6.11 is the area specific section for the Te Waihora area and has a key theme of Ki Uta Ki Tai (from the mountains to the sea) with respect to effects on Te Waihora/ Lake Ellesmere. The proposed plan change has been designed taking into consideration the potential effect of resultant subdivision and development on the rivers and streams that flow into Te Waihora/Lake Ellesmere.

173. There are no identified sites of significance within the Site, nor are there any known areas of mahinga kai. The Site has a long history of use for lifestyle, and grazing purposes.

CONSULTATION

174. A pre-submission meeting was held with SDC on 12th October 2020 (**Appendix 16**). There have also been ongoing informal discussions with SDC planning and assets staff. These have confirmed that there is adequate capacity to service the proposed development. SDC have agreed to the Broadland Drive road extension to be sited within the CIAL airport noise contour. However, they do not favour Deferred Residential status for land currently under the contour.

175. A consultation meeting was held with Christchurch International Airport (CIAL) planner on 12th February 2020 (**Appendix 16**). He confirmed that CIAL has been trialling Performance Based Navigation (PBN) flight paths (see Interim PBN Flight Trials Report in **Appendix 16**), and is investigating amendments to the CIAL noise contours resulting from this work (the latter is expected to be completed within three months i.e. by May 2020). The revised contours will be given the ECAN who intend to include them in the CRPS Review scheduled for 2023.

176. The PBN flight tracks have significant environmental benefits, including in terms of noise, safety and fuel efficiency. They involve shorter approaches and are likely to result in a contraction of the noise contours at the northern and southern ends, including at Rolleston and the application site. The airport planner emphasised that the interim report contours were yet to be confirmed, and are subject to change. (Note: The Final PBN Flight Trials report does not include a revised contours map).

CONCLUSION

177. The proposed Plan Change seeks to rezone 53.88 ha of land adjoining Rolleston from Inner Plains Zone to LZ.

178. The Site has a long history of rural lifestyle use and is not restricted by potential natural hazards, sites of significance to iwi, there are no water bodies or rivers. The Site has three road frontages, immediately adjoins the urban area of Rolleston, and is well located to join in to Council utility services. It is well suited for conversion to residential use.

179. The Site's potential has been constrained by the location of the CIAL noise contour which acts as a bar to noise sensitive activities. The tactical approach to not follow the contour boundaries, but follow legal property boundaries, has left the Purdon/Rasmussen site as an island of rural land that is increasingly pressured by urban activities and is no longer a tenable rural activity in that location. Yet it is in a location that achieves compact town growth offering ease of access to business services, community facilities, reserves and the primary road network.

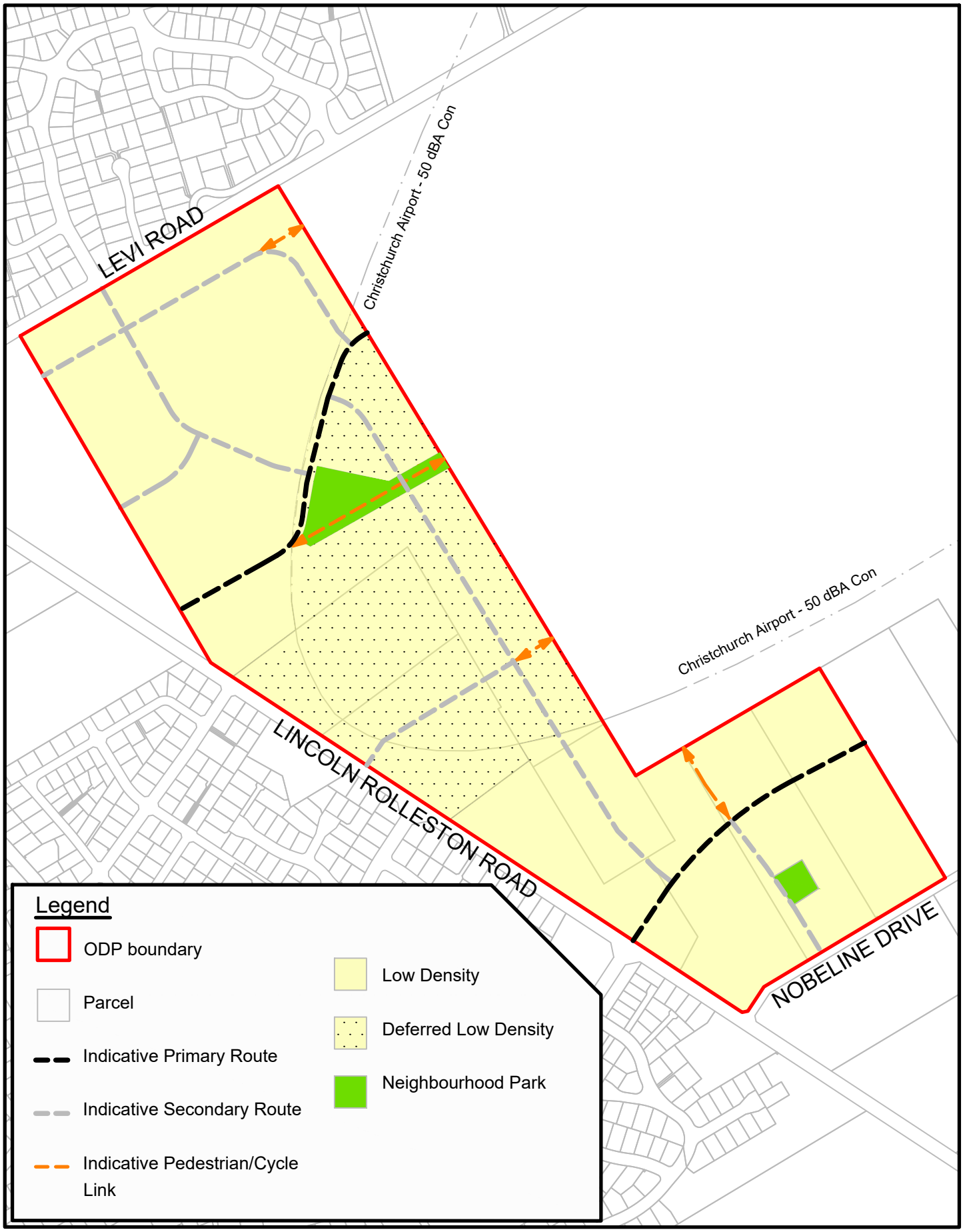
180. The proposal provides for a connected and high amenity residential living environment while avoiding and/or mitigating any potential adverse effects on the environment. It will provide for continuing demand for a variety of residential sections in an ideal location, within easy walking distance of the existing town centre services and facilities. It will broaden the range of housing available.

181. The use of this Site for residential purposes has been demonstrated through this Plan Change request to be a sustainable and efficient use of land and infrastructure. The re-zoning better provides for the social, economic, environmental well-being of the Rolleston community than continuation of the current low intensity lifestyle land use, or any form of large lot/low density residential use.

182. Rezoning of the site to LZ Zone is consistent with the policies and objectives of the OSDP and the CRPS.

183. As the proposed Plan Change helps achieve the purpose of the Act, and has been shown to be consistent with the relevant provisions of the NPS-UD, and the relevant regional and district policies and plans, it can be accepted by Selwyn District Council in accordance with Clause 25(2) of the First Schedule of the Act.

Appendix 1: Outline Development Plans



Note:
Up to 15% of the ODP may be developed as medium density to be determined at the time of subdivision. Suitable locations may include adjoining reserves, and in small clusters throughout the ODP area.

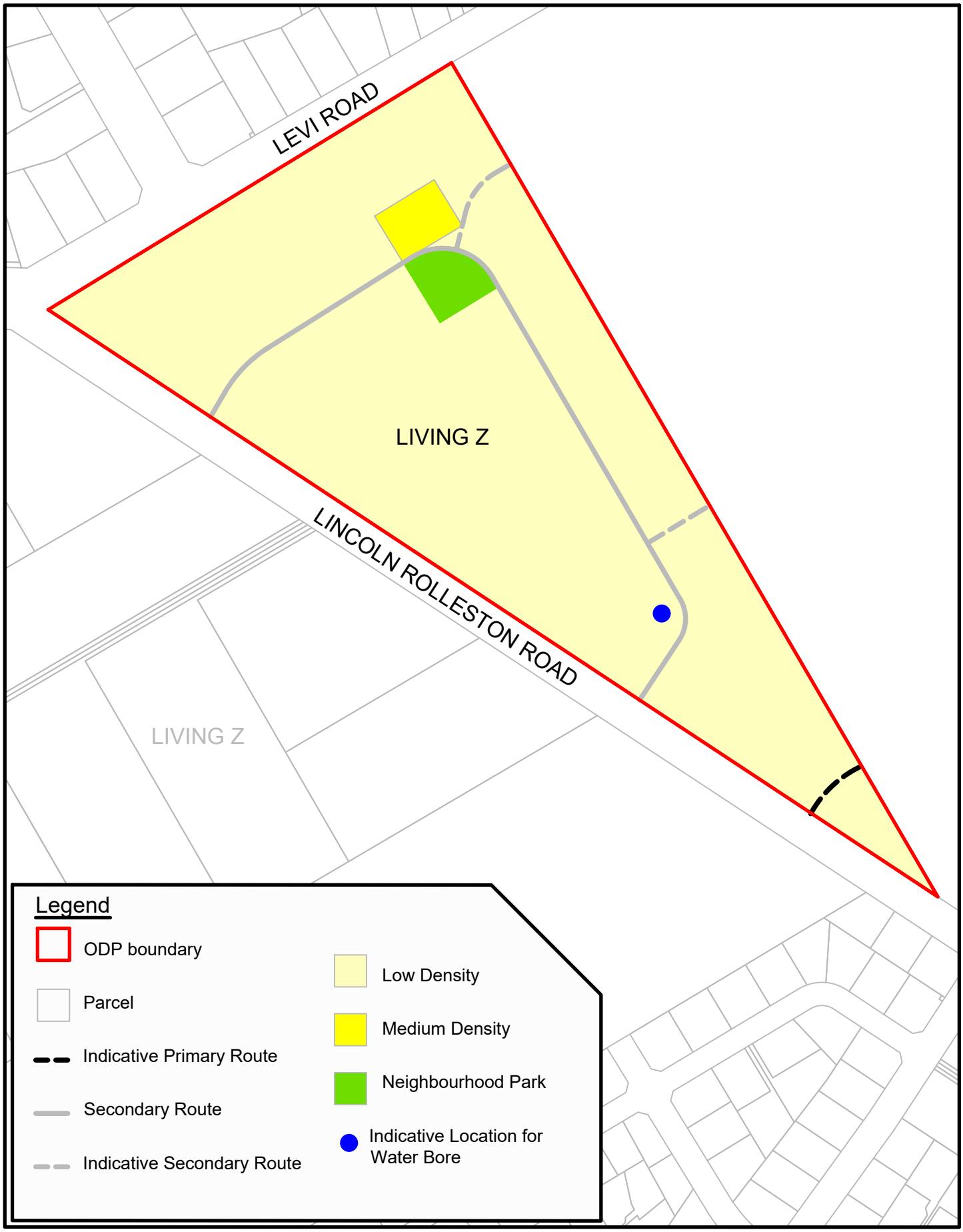
Outline Development Plan

OVERALL Plan

Area 5 - Rolleston

NTS

Cadastral Information derived from Land Information New Zealand's Digital Cadastral Database (DCDB)



Note:
Provisions for additional bores might be determined at the time of subdivision.

Outline Development Plan

OVERALL Plan

Area 4 - Rolleston

NTS

Cadastral Information derived from Land Information New Zealand's Digital Cadastral Database (DCDB)

Appendix 2: Urban Design Statement



R09 | AREA 5
RESIDENTIAL DEVELOPMENT PROPOSAL
URBAN DESIGN STATEMENT

9/11/ 2020 | Final

report by
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Author	Nicole Lauenstein Urban Design
Date	9 November 2020

Introduction

This Design Statement has been prepared for both the plan change application for Area 5 to the Operative Selwyn District Plan and DEV-RO 9 submission on the Selwyn Proposed District Plan. Hence zone references are to the zones in both plans and ODPs in both plans (known as Development Areas in the Proposed District Plan). Some sections relate to just the Proposed District Plan or the Operative Plan respectively.

Background

The ODP is based on a Design Concept with a focus on movement connectivity and residential amenity and has been tested by developing an Indicative Subdivision Layout to confirm that:

- a density of a minimum of 12hh/ha can be achieved
- the movement network offers appropriate connectivity into and through the site for a variety of modes
- the desired residential amenity and character under the proposed GRZ requirements will be achieved

Rolleston Structure Plan

The Rolleston Structure Plan (RSP) has guided development in Rolleston over the last decade providing a clear blueprint for growth of the Township. Residential growth has been directed towards key activity centres and new neighbourhood centres as well as existing and proposed green recreational spaces and community based destinations such as schools, pool, libraries and small commercial nodes.

Growth to the north is severely limited due to the strong boundary the state highway provides which directed most of the residential growth towards the south with some expansion to the west.
Expansion to the east has been limited due to the overlaying noise contour restrictions of the CHCH airport flight path.

When the Structure Plan was adopted the Noise Contour was still firmly in place and a large portion of land under the contour was identified as a future District Park for Rolleston and the wider district.

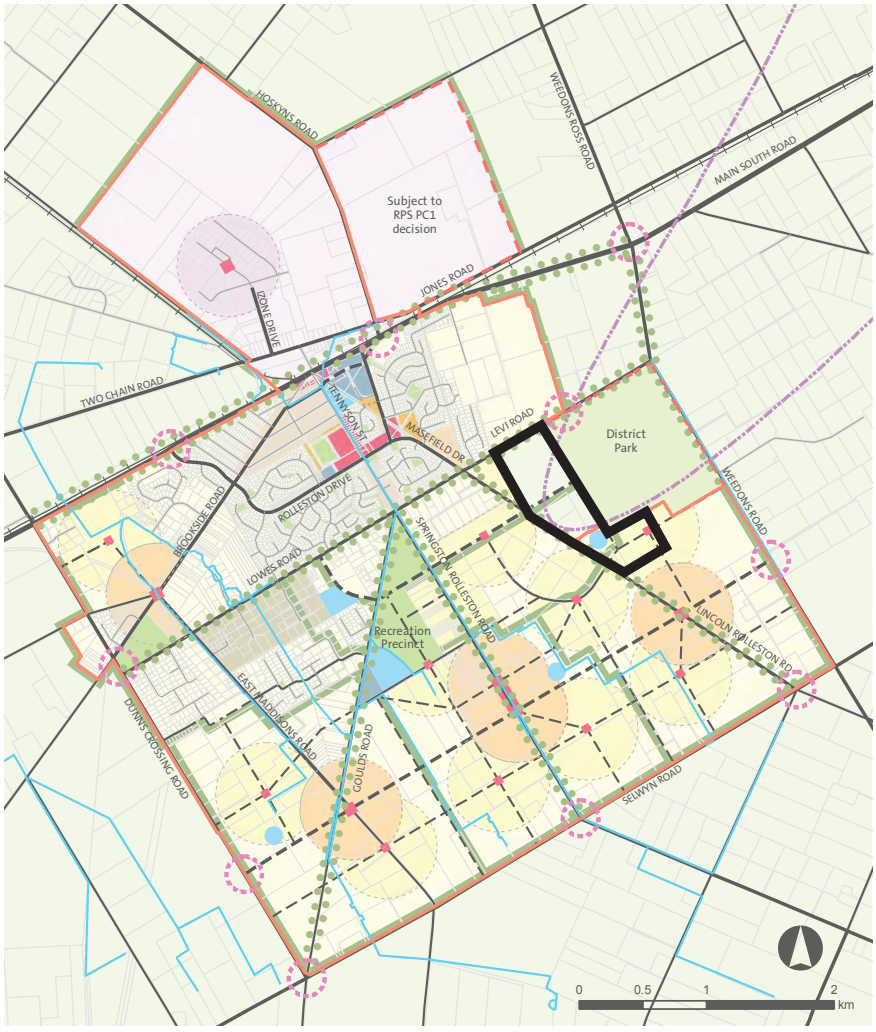


Figure 5.2: Rolleston Structure Plan

- Study Area
- Railway
- National Arterial
- Main (primary) roads
- Proposed main (primary) roads
- Local (secondary) roads
- Proposed local (secondary) roads
- Local (minor) roads
- Walking and Cycling Link
- Town Centre
- Neighbourhood Centre
- Local Centre
- Comprehensive Housing
- Medium Density Residential (20HH/Ha)
- Medium Density Residential (15HH/Ha)
- Low Density Residential (10HH/Ha)
- Low Density Residential (7HH/Ha)
- Community Facilities
- Education Facilities
- Green Corridors and Green Belt
- District Park
- Recreation Precinct and Reserves
- Rural land
- Avenue Planting
- Izone Southern Business Hub
- Water Races
- Noise Contour
- 5 Minute Walk (400m)
- Key Gateways

The Structure Plan also sets out key objectives and development principles to guide future growth and set achievable and desirable outcomes.
The following 6 development principles of the RSP have guided the Design Concept and Indicative Layout of the site.

Provide a public edge to public open space

- *Avoid new development 'turning its back' or privatising edges to major landscape features and recreational areas;*
- *Minimise access barriers to allow for a wide spectrum of the resident population and visitors to physically access or visually overlook these features*

Create a continuous network of open space

- *Establish an inter-connected network of open space centred on larger public open space reserves, including the Recreation Precinct and 100Ha District Park.*
- *Provide walking and cycling access and ecological links between larger reserves through the use of linear open spaces, such as green corridors, water races, avenue style street connections and smaller local parks.*

Integrate land use and movement

- *Provide a range of convenient and pleasant walking and cycling options for linking residents to key destinations;*

Higher density development at nodal points

- *Closely match the spread of population density to centres and/or key movement corridors, including public transport routes, which require the highest levels of activity and provide the higher quality amenities.*
- *Establish smaller block sizes within higher density areas to maximise the choice of routes and reduce travel distances.*

Overlapping mix of land uses

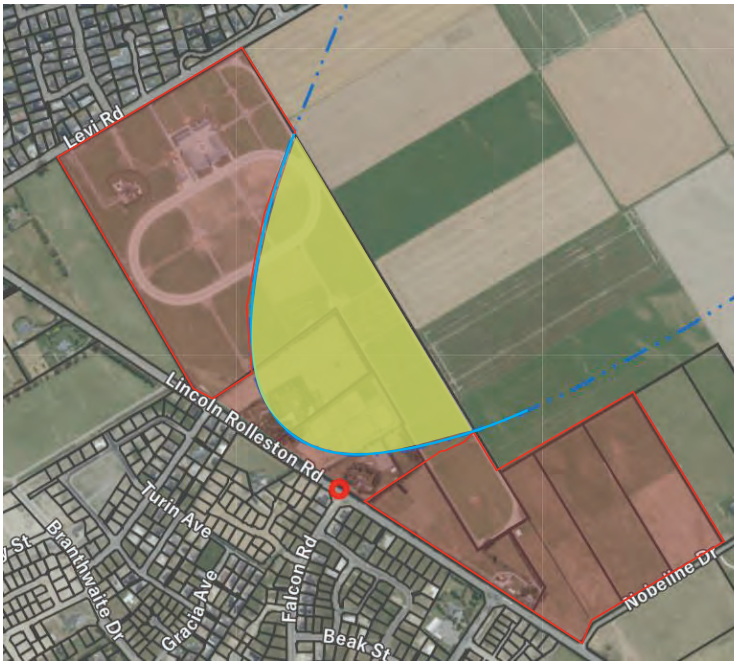
- *Provide a choice of housing typologies to cater for a range of different lifestyles.*

Consider climatic conditions

- *Street alignments should maximise the opportunity for properties to gain good sunlight and daylight access. The long end of blocks should be within 20° off north-south to offer the best prospect for buildings to be both energy efficient and address the street.*
- *Consider other climatic conditions, such as prevailing winds. Rolleston has a temperate climate that requires protection from cold easterlies, strong north-westerly winds and southerly storms.*

Future of the Noise Contour

The noise contour line is a result of the flight path of the CHCH airport and the requirements for protection of noise sensitive activities. The location of the contour line is currently under review and initial discussions with the Christchurch Airport indicate that there is a high likelihood that this contour line will retract due to changes in flight paths and technological advancements. The contour could potentially be fully removed from the application site over the short term. The design proposal has therefore treated the entire site as a potential residential development area that can respond to the current uncertainty around the retracting noise contour line.



Location and context

The L-shaped site is located approx. 750m to the south east of the town centre and bounded by Levi Road to the north, DEV-RO 9 Development Area and Lincoln Rolleston Road to the west, the future District Park to the east and Nobeline Drive to the south.

North - residential neighbourhood Levi Road
The northern neighbourhood across Levi Road has a typical LZ suburban residential character with mainly single storey detached residential dwellings. Levi Road itself displays a dual character of one residential side and a rural side with several driveways and local road providing access to the houses to the north and a typical rural boundary treatment of open style fencing and rural hedges to the south.





Although Rolleston is a fully established township in its own right with a fast-growing population supported by established commercial/ business and industrial areas and associated work places there is still a significant portion of Rolleston residents who commute to Christchurch on a daily basis making Levi Road an important and well used road connection linking to Weedons Road, Share and Ride facilities and the eastern access to the Motorway/ State Highway.

South - rural and lifestyle blocks

The southern neighbour is a cluster of rural residential dwellings on lifestyle blocks accessed via, Nobeline Drive, a shared narrow access road. These dwellings are fairly recent developments and the domestic curtilage and landscaped gardens are gradually establishing.

West - Ro1 Development Area and Lincoln Rolleston Road

Lincoln Rolleston Road is a key access road to the town centre and connects Rolleston to Lincoln and the rural land to the south east. It still has a strong rural character for most of the length along the boundary with a gradual increase in residential character the further you progress towards Rolleston centre.
The adjacent neighbourhood around Branthwaite Drive is a fairly recent infill development around some older rural residences and lifestyle blocks. It displays similar characteristics as other LZ neighbourhoods and once completed will present a more residential interface with Lincoln Rolleston Road which will continue the gradual change of the character of this road.

Lincoln Rolleston Road will be the main connecting movement corridor for the Site to the town centre, approx. 750m away and also provides an important viewshaft and tangible connection back to the rural environment and the Port Hills to the south





The other neighbour to the west is DEV-RO 1 Development Area – which proposes a General Residential Zone in the future. Until development starts it will however remain a rural corner akin to a large lifestyle block with a residential dwelling located at the Levi & Lincoln Rolleston Road intersection and the remaining land displaying a typical rural character.

East – rural interface and future District Park

The site shares a long continuous rural boundary with the neighbour to the east. The is zoned rural and used for grazing and other low key farming activities but has been identified as a future District Park to service all of Rolleston and the wider district. Although not yet fully resolved it is expected to provide the following recreational and community services and activities.

- recreational walking and biking,
- community sports fields,
- a larger entertainment area in the south-east corner of the reserve,
- native revegetation areas

Rolleston 1 Development Area



There is currently some uncertainty around the possible extent of retraction of the noise contour line and the impact this could have on the final size of the reserve. Some portions of the land set aside for the District Park along the eastern edge of the application Site could become available for residential development. Key aspects to consider along this boundary will therefore be flexibility in type, location of future connection as well as appropriate boundary treatment.



Site Description

The site measures approx. 53.89 ha across seven titles. It is used primarily as rural residential lifestyle blocks with common domestic curtilage around larger individual dwellings. Typical of the rural edge of Rolleston the site is flat with shelterbelts delineating individual properties or functioning as internal windbreaks. Road boundaries are either planted up with rural hedges including some mature trees or display open style rural fencing enabling views across the land.



Main access points are primarily driveways to individual properties of Levi and Lincoln Rolleston Road or gated entry points onto farm tracks,

The northern part of the site contains a large dwelling, a horse training facility with an oval race training track and associated stables and storage buildings.

Along the Lincoln Rolleston Road three existing rural residential dwellings are located with direct access off the road but with a generous setback from the road boundary. Dwellings and associated garages and sheds can be seen in parts screened by established boundary vegetation and larger landscaped gardens. Through intermittent gaps between the dwellings open farm land can be seen beyond the domestic curtilage.

The remaining site is used for low intensity grazing and some small-scale horticulture associated with the rural residential lifestyle.

Urban form – cohesion and connectivity

The site is currently zoned Rural Inner Plains or General Rural as a 'left over' pocket of land between the growing residential neighbours and the future District Park – although closer to the town centre and key community facilities and recreational destinations than other areas identified for residential development.

The northern and central portions of the Site have not been identified as a future urban development area in the Rolleston Structure Plan or recent Our Space Greater Christchurch Settlement Review due to the airport flightpath noise contour line crossing over the boundary of the site. The rural/urban boundary line follows title boundaries and therefore has excluded the northern part of the Site (all in one title, Four Stars horse racing facility), even though only appx one third is under the noise contour. This approach will further ingrain the distortion of an otherwise cohesive urban form of Rolleston.

Following boundary lines versus the actual noise contour line to guide development creates an anomaly in the development pattern which excludes parts of the site from development that are not under the noise contour line. This creates an "artificial gap" in the development pattern between the existing residential neighbourhood to the west and the future District Park.

The Rolleston Structure Plan clearly identifies a green corridor and a main road linking the Foster Park Recreation Precinct with the proposed District Park. This green link goes directly through the site as an extension of Broadland Drive. It is best urban design practice to flank such strategic movement corridors with compatible activities such active green spaces, public spaces, commercial activities and residential activities to ensure:

- safety and passive surveillance ('eyes on the street')
- high amenity for pedestrian and cyclist
- high level of activity occurs within the corridor

Leaving the site undeveloped as rural land will continue to block the connection between the recreational precinct and the district park and leave a 'no man's land' in between.
At the same time, the current rural activities will continue to be affected by the increased residential development surrounding it and become less sustainable.

In addition to the above reasons for developing the site as GRZ, the walkable distance between the Site and the Town Centre should be a key driver to include the Site as a development area. The Site is in closer proximity to the Town Centre than any of the identified growth/development areas around Rolleston and should therefore be considered a priority with regard to residential development. This is clearly supported by the key objectives and policies guiding urban growth in the Proposed District Plan and by best urban design practice.

The issue of the uncertainty around the retracting noise contour can be integrated into a design i.e. progressive staging of development. In the meantime, residential development on the land available outside the contour can create new connections to neighbourhoods and create the overarching green link between Foster Park and the District Park.

Design concept Key design drivers

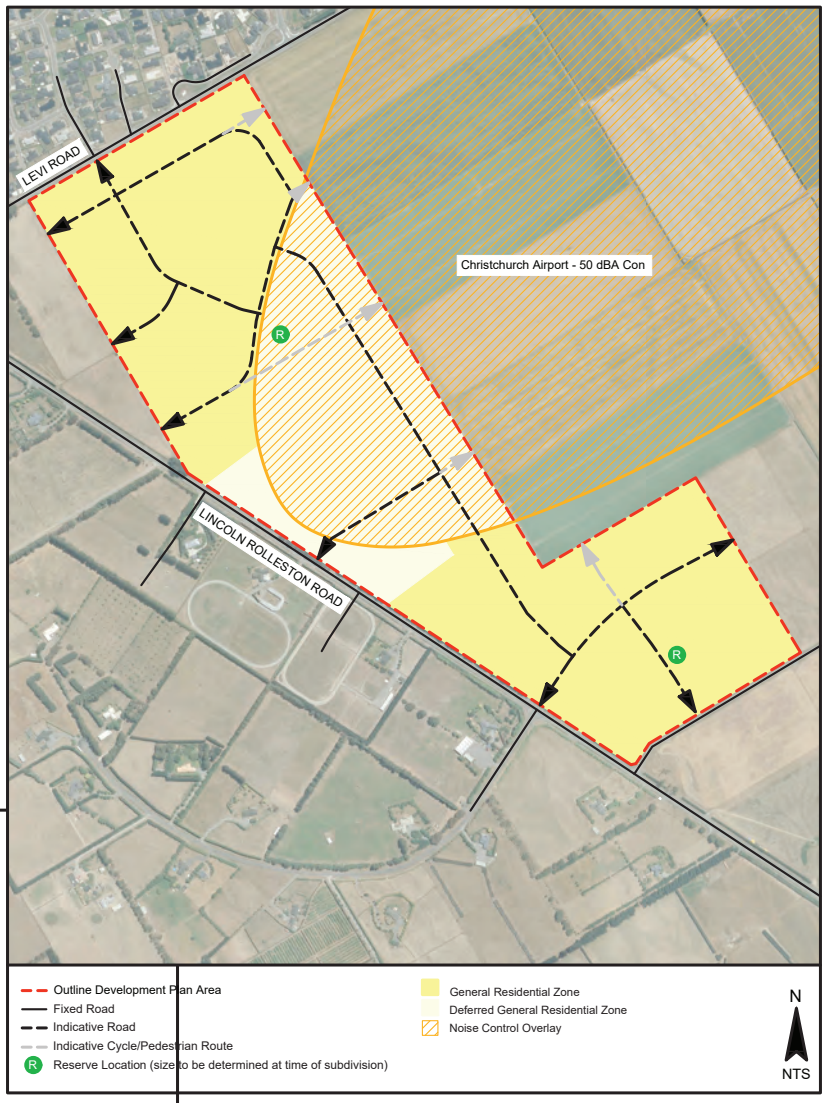
- extend Broadlands Drive across the site to create a green link between Foster Park and the District Park
- create diverse living environments supported by open green spaces
- provide a high amenity for all internal connections to support pedestrian and cycle movement
- create a strong interface and new connections with the immediate residential neighbourhood north and west
- creating active integration with the adjacent future District Park to the east
- building on the close walkable connection to the town centre

Three of these key design drivers, the east west green link, the green spaces and the key internal connections, create the underlying physical structure that guides the site layout.
From that a southern, central and a northern neighbourhood emerge that are interlinked but can also forge appropriate connections with their neighbouring activities.

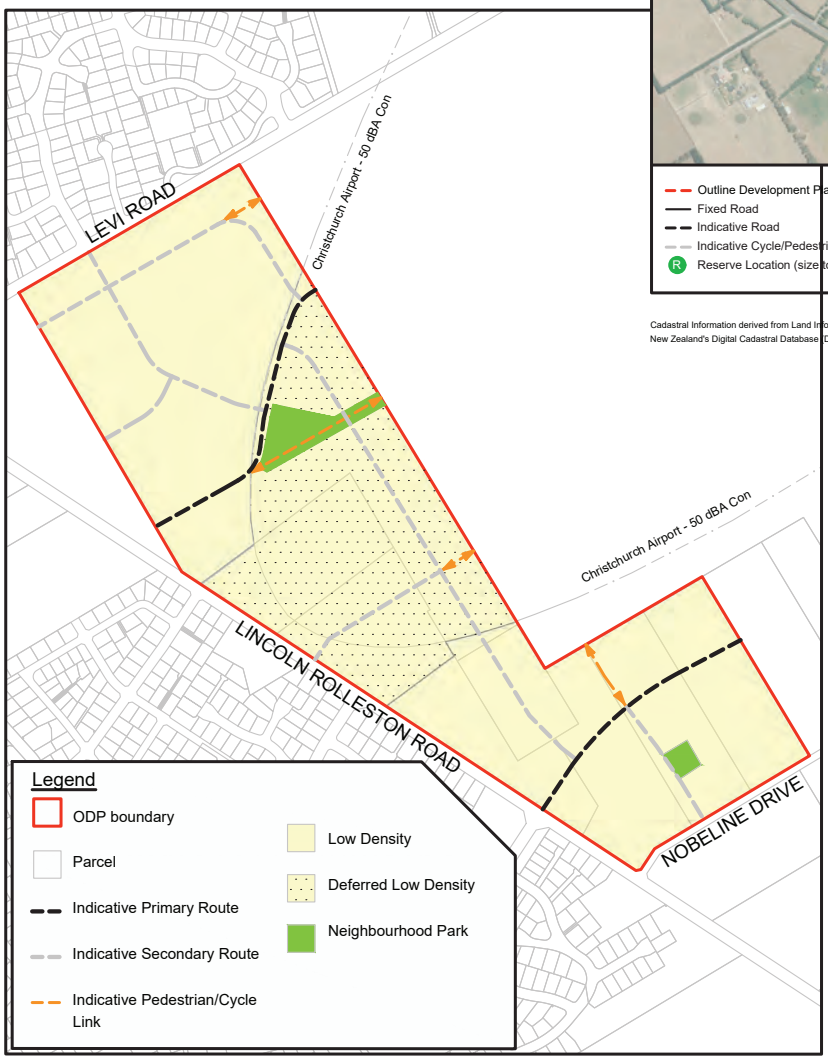
Long term the underlying design concept provides an integrated, cohesive precinct but at the same time has the ability and flexibility to create standalone smaller residential neighbourhoods around greenspaces that are directly connected to existing residential areas. These neighbourhoods will grow together via early dedicated links through the noise contour area and through logical staging as the noise contour gradually retracts.



ODP/ DEV



Cadastral Information derived from Land Information New Zealand's Digital Cadastral Database (DCDB)



Note:
Up to 15% of the ODP may be developed as medium density to be determined at the time of subdivision. Suitable locations may include adjoining reserves, and in small clusters throughout the ODP area.

Outline Development Plan
OVERALL Plan
Area 5 - Rolleston

NTS

Cadastral Information derived from Land Information New Zealand's Digital Cadastral Database (DCDB)

Movement and Connectivity

Lincoln Rolleston Road forms the most direct link to the town centre for all modes of transport
The distance to the key shopping area, schools and other community facilities in town is approx. 750 m for the northern part and 1.5km for the southern part of the development site, and well within a 10 to 20 minutes walking distance.

The Broadlands Road extension is the key link to the wider community. It will be the primary route into the site from the west and a key distributor for the ODP/DEV area. It provides a separate dedicated shared cycle and pedestrian path to allow a safe and enjoyable journey from the new residential areas to the educational, sporting and recreational facilities in Foster Park. At the same time, it will link directly to the future large reserve / park - a district wide destination for recreational activities, such as walking and cycling, sports, entertainment.

Connectivity within the ODP/DEV area is provided through secondary roads, additional local roads (to be confirmed at detail subdivision stage) and pedestrian and cycle paths, providing linkage to all desirable destinations.
The main north south internal roads will provide safe on street cycle ways and footpaths on either side whilst their non-alignment will discourage vehicular through traffic to Levi Road.

Several inks to the future reserve to the east are indicated on the ODP/DEV. These provide at a minimum a cycle and pedestrian connection but will be able to be converted into vehicular connections in response to the type of development on the adjacent land if required.

Prioritizing walking and cycling
All internal roads and non-vehicular links provide a safe environment and a high amenity to encourage the adoption of walking and cycling for the majority of trips both within the neighbourhood and further afield.
The benefits of high amenity cycle and walking infrastructure are well documented and with regard to better physical and mental health, reducing emissions and energy use and general improved community social integration. The following design principles have informed the pedestrian and cycling strategy for the ODP

- Create direct routes along desire lines to key destinations, to existing and future adjacent neighbourhoods and use local 'shortcuts' for pedestrian and cycle movement where possible
- Create Safe pedestrian and cycle routes in particular for school children and elderly with passive surveillance over public pathways from adjacent activities - 'eyes on the street'
- Avoid conflict between transport modes by catering for different users aand creating slow traffic environments where cycle routes are sharing the road
- Create visually interesting streetscapes to encourage walking and cycling

The ODP/DEV promotes active transport modes through the provision of a well-connected pedestrian and cycle network using the internal roading layout for general circulation and dedicated shared pathways along Broadlands Drive and Lincoln Rolleston Road to offering direct links the town centre, the new District Park and Foster Park.

The proposed internal roading pattern coupled with a minimum of 12hh/ha residential densities also encourages the provision of public transport on Lincoln Rolleston Road and a possible extension of this route along Broadlands and Levi Road to the new District Park.

Hierarchy of movement corridors

The proposed arrangement of movement corridors as defined by the ODP/DEV primarily ensure the proposed future development is

- integrated with the surrounding context
- anticipates future connection as required
- provides appropriate internal connectivity within the ODP area

The ODP/DEV includes the key roads that are vital to achieve the desired connectivity and has the opportunity to include a variety of additional local roads and accessways at the detailed subdivision design stage. A clear hierarchy of movement corridors assists with legibility in an area, particularly important in a flat terrain such as Rolleston where there are very little topographic or natural features to aid wayfinding.

The extension of Broadlands Road is indicated as the primary road traversing ODP/DEV in an east-west direction with the reserve as the end destination. This route will have a greater road reserve width than other roads to allow for additional tree planting and a greater sense of spaciousness.

Secondary north-south routes are also indicated on the ODP/DEV as well additional internal roads to provide for internal circulation and additional neighbourhood-to-neighbourhood connections.

The ODP/DEV retains flexibility with regard to additional local roads and has the opportunity to either locate local roads around the perimeter of larger reserves, have private lots directly adjoin reserves where suitable or use shared access ways with extensive opportunity for landscaping to create a high amenity and passive surveillance over these public spaces.

Block layout

The subdivision design which underpins the ODP/DEV adopts north-south blocks where practical. The north – south orientation is best urban design practice to maximize solar access for dwellings and minimize the number sections serviced via the north where private outdoor space and property access are in conflict.

This principle however, has to be balanced with other requirements and restrictions such as lot geometry, minimizing road intersections on collector roads, keeping blocks to an appropriate walkable size and making efficient use of the available land itself.

Placemaking,
community and neighbourhood identity around green spaces

Two public open spaces are included in the ODP/DEV in order to add amenity to the neighbourhood, relief for more compact residential clusters and provide residents with the opportunity for recreation.

The proposed reserve in the northern portion of the site forms a part of the green corridor linking Foster Park with the future District Park, the two primary reserves and the largest green spaces and recreational destinations in Rolleston. This northern neighbourhood park has the opportunity to function as the green heart of the development and offers a 'spatial break' and 'meeting place' for the medium density development and potential aged care living environments in close proximity. It promotes social interaction between a diverse range of residents and creates a hub for the local community.

The cycle and walk ways on the Broadlands Drive extension will be routed through this green space bringing the wider Rolleston community into this the heart of this new neighbourhood and allow further opportunities for engagement.

The green reserve in the southern part of the site creates a similar focal point, albeit much smaller in scale. Here the green space functions as a local park for the neighbourhood and a break in the built environment to balance out the more built up environment.

Whilst the exact and final size of these reserves will be determined at the time of subdivision, it is anticipated that the northern green space will be larger between 4500m2 and 6000m2 and the southern green space will be substantially smaller around 1500m2 to 2500m2. Both will be able to accommodate a variety of active and passive recreational opportunities along with landscaping.

The location of the reserves is such that all residents within the ODP/DEV area are able to access open space with a 400m walking radius. To provide easy access and adequate passive surveillance all reserves have minimum of two road frontages.

Lifestyle choice and density

The ODP/DEV aims at achieving a minimum of 12 hh/ha which for the site translates to an overall yield of 660 residential sites. The area north of the noise contour will provide approximately 220 sites, the area south a further 220 and the mid area a further 220.

The Selwyn District Plan promotes diversity with respect to residential development, thereby improving choice, variety and affordability.

A range of section sizes and housing typologies is required to provide future residents with choice and variety. It promotes a mixed community reflective of the varied NZ population with a varied demographic spread. This approach creates a stronger socio and economic diversity, along with a range of price points for future residents, including more affordable options.

General Residential Zone (Minimum min 500m^2 / average 600m^2)

The ODP/DEV is based on a GRZ/LZ zoning for the site as this zone provides the appropriate density coupled with bulk and location rules to achieve the desired 12hh/ha. This is the most appropriate density zoning to best integrate the new development into the surrounding existing and future residential environment. It will achieve a cohesive built environment.

The key elements that organise the site, the movement corridors, green links, open spaces and the underlying geometry of the Site, create a natural structure for the placement of lots. The result is a layout with a diversity in lot sizes from 400m2 to 800m2+, (including small lot medium housing) varying in orientation and location offering a wide range of options that will result in diverse architectural design responses throughout the development. In a new development of this size it is important to provide opportunities for such variety to encourage social, economic and cultural diversity reflective of the wider community.

All road-facing sites have enough width to allow for breaks between built form and space for landscaping to front and side yards to soften the visual impact of built environment including fences this will contribute to the residential street character and the amenity within the public realm. In addition, the proposed road design itself and the plan provisions in relation to road side fencing will create a welcoming residential street scape.

In preparation for the ODP/DEV the proposed suite of GRZ/LZ rules guiding subdivision design and dwelling design, bulk and location have been considered with as much care as possible at this conceptual stage. Apart from minor adjustments, the rules are working well and will guide development in achieving the desired residential character.

Rules to consider under the Proposed District Plan

Road side fencing - the Proposed District Plan proposes the following with regard to fencing along road boundaries.

The above rule for the road boundary is inconsistent with the Selwyn District fencing guide and a change to

GRZ-R6	Fencing	
GRZ (excluding SCA-AD2)	Activity Status: PER 1. Any fence or freestanding wall Where: within 4m of any road boundary, is a maximum height of 1m. a site shares a boundary with a reserve: there shall be no more than one fence or freestanding wall within 5m of the boundary of the reserve, and the fence or freestanding wall shall be a maximum of: 1m in height if solid; or 1.8m in height where no more than 50% of the length of the reserve boundary of the site has fencing that is less than 50% visually permeable. the site shares a boundary with a reserve: any other fence or freestanding wall, is a maximum height of 1.8m. For the purposes of calculating the maximum height under this rule requirement, where a fence is erected atop a retaining wall, the height shall be the combined distance measured vertically from the base of the retaining wall to the top of the fence.	Activity status when compliance not achieved: 2. When compliance any of with GRZ-R6.1. is not achieved: RDIS Matters for discretion: 3. The exercise of discretion in relation to GRZ-R6.2. is restricted to the following matters: RESZ-MAT7 Fencing

the current rules when applied to corner sites or sites with two road boundaries. It will be most difficult for north-west and north-east facing corner sites and may create unwanted side effects such as not being able to screen service areas from view. It also causes problems for sites with shared access /ROW if these are considered 'roads' and the rule applies.

The fencing to reserve boundary standard works in principle but the main fences to reserves are often built by developers to achieve a cohesive look on the actual boundary line and will often be 1m max. in height and visually permeable. This precludes the provision of additional fencing or screening for privacy for individual lots. Large lots may overcome this by having large setbacks from the reserve and the opportunity to erect a secondary screen. But this can be particularly difficult for small sites where there may not always be a setback of 5m from the boundary.

Rules to consider under the Operative District Plan

The fencing rules under the Operative Plan create some anomalies in particular for corner sites where 1.8m high road side fencing meets the 1m height restriction, or 'drop-down requirement', of the internal boundary fence within a 3m setback from the road. This creates visually awkward results and the actual reasons for the lowering of the fence:

- a high amenity street scape through cutting back fences
- increasing openness and passive surveillance over the street
- good visual splays for driveways

cannot be achieved with this combination of disparaging fencing rules.

A possible solution would be to exempt the affected corner sites from this 'drop-down requirement' and replace it with a requirement to achieve 30% visual permeability where currently 1.8m high road side fencing is permitted on corner sites and for this fencing not to extend past the front façade of the house where it faces the non-fenced road boundary. In addition this road side fencing could be set back so planting can be used to screen this visually prominent fence in parts and soften the impact it has on the street amenity.

Medium density housing

Medium density is a key housing typology to achieve such diversity and can be successfully integrated into the wider housing mix of a GR/LZ zone.

The Rolleston Structure Plan's Design Principle 4 promotes co-locating increased density with open green spaces as it is best urban design practice to locate "density around amenity" for the following reasons.

- the open space provides those residents with additional opportunity for outlook
- the public open space compensates for smaller sections and reduced recreation opportunity within the private environs
- higher numbers of dwellings around public open space increases levels of active and passive surveillance
- a more built up environment improves the spatial definition of the open space, better defining its edges
- neighbourhood parks provide additional opportunity for on-street parking to support adjacent medium density housing

Within the ODP area the most suitable locations for medium density housing are therefore around the southern

and northern neighbourhood reserves and adjacent to the future District Park to the east

Whilst "density around amenity" is a key rationale for the location of medium density residential typologies, it is not the only suitable location. Additional locations for medium density housing in smaller clusters occur throughout the development often in midblock locations around shared access roads and within quiet cul de sacs or in areas where the geometry of the underlying land creates unique 'left over pockets and infill site suitable for smaller lots
Varying density and lot sizes allows for a better use of the land resource, aides wayfinding, legibility of road hierarchy and adds visual interest to the streetscape.

In addition, the requirement to achieve a minimum net density of 12hh/ha requires the inclusion of a generous proportion of medium density housing which should be distributed throughout the ODP in several smaller clusters where they can naturally be integrated into attractive local street with low traffic volumes.

In general, medium density should not be located next to adjoining existing residential or rural parcels owned by others or along major roads with higher traffic volumes such as Lincoln Rolleston Road and Levi Road.

The ODP does not specifically highlight areas for small site/medium density residential as these are best identified through the subdivision design process when more accurate and detailed information is available to make better informed decision and assess the suitability of each location.

The land to the east currently presents a rural interface but will in the future be either changed into a recreational reserve or possibly be developed to a similar residential density. Properties along this boundary should therefore not be large residential lots but a mix of standard and medium density residential environments to maximise the high amenity and outlook.

Interfaces

Lincoln Rolleston Road
Lincoln Rolleston Road will gradually transform from a rural road to an urban road with direct access to residential driveways. Frontages alongside the development area will be upgraded to urban standard in line with the existing developed areas to the west. This will be undertaken as part of future subdivision.

Dwellings will address the street with front doors, habitable room windows etc. ensuring active frontage and promoting passive surveillance of the street space, increasing levels of real and perceived safety;

However, Lincoln Rolleston Road will remain a key traffic route and slightly larger lots may be required along this boundary. The GR/LZ Zone does allow for a range of lot sizes and this flexibility can be used placing slightly larger than lots along this boundary to allow for north west facing outdoor areas and associated fencing to be set back from the road boundary and to better accommodate on-site vehicle manoeuvring to reduce the need for vehicles to back out onto these roads creating potential traffic safety issues.

Levi Road
Driveways will come directly off Levi Road and dwellings need to address the street with front doors, habitable room windows etc. ensuring active frontage and promoting passive surveillance of the street space, increasing levels of real and perceived safety.

The road frontage alongside the development area will be upgraded to urban standard in line with the existing developed areas to the north, this will be undertaken as part of future subdivision. This will give Levi Road a more residential character.

Similar to Lincoln Rolleston Road slightly larger and wider lots should be placed along this boundary to allow for north facing outdoor areas and associated fencing to be set back from road boundary and to better accommodate on-site vehicle manoeuvring. This will reduce the need for vehicles to back out onto this road creating potential traffic safety issues.

ODP RO 1 (Operative District Plan ODP5)
To integrate the two ODP's the low-density zone on the eastern edge of RO1 should be removed. This will increase cohesion and provide consistency with regards to bulk and location rules.
Two road connections are proposed to create good connectivity between ODPs/ neighbourhoods.

Gateways and signature entries should be avoided at the threshold to strengthen cohesion.
To integrate the two ODP's the low-density zone on the eastern edge of RO1 should be removed. This will increase cohesion and provide consistency with regards to bulk and location rules.
Two road connections are proposed to create good connectivity between ODPs/ neighbourhoods
Gateways and signature entries should be avoided at the threshold to strengthen cohesion.

District Park/ Reserve
No perimeter road to the reserve is proposed by the Council therefore access to properties along the edge will have to be internal from the west and several public links will be created to allow access through to the District Park. Passive surveillance is required over perimeter pathways in the reserve and these public access links so dwellings should have active / habitable spaces facing the reserve and /or link.

The current fencing rules for fences along reserve boundaries will provide appropriate guidance for the reserve interface with maximum fencing height restrictions and the requirement to provide passive surveillance over public spaces. The fencing style should be consistent along the full boundary i.e. rural style open fencing to create a cohesive look.

In addition, layered landscaping on the reserve side and within properties will assist to transition the scale of the build-up form into the reserve landscape and allow privacy screening and screening of service areas.

Similar fencing requirements are proposed in the Proposed District Plan and will ensure that the reserve edge treatment is consistent and presents an activated and high amenity interface.

Nobeline Drive

Nobeline Drive may need to widened to accommodate increased traffic and to bring it in line with the required urban road standards.

Sections along these boundaries will be accessed directly from Nobeline Drive. The benefits of this include:

- Dwellings address the street with front doors, habitable room windows etc. ensuring active frontage and promoting passive surveillance of the street space
- Dwellings can locate their primary private outdoor spaces to the rear on the north side of the dwellings to maximize solar access for habitable rooms, ensure privacy and allow an open and spacious character without the need for privacy fencing along the road interface
- Dwellings along this boundary can enjoy a rural outlook and sense of address which offers a greater variety of living conditions and character;

Western boundary to rural (south of District Park)

The ODP/DEV needs to balance the current interface with the rural environment as well as anticipate that the urban area will extend on this land.

However, these lots are internally accessed from the east and a consistent fence style will act as property demarcation towards the rural neighbour to the west.

Combined with the more generous planting this will mitigate any potential reverse sensitivity towards the neighbouring rural activities. The rural neighbours are primarily new and established lifestyle blocks where the generous landscaping will create a visual buffer and transitional planting partially screening views form these lifestyle blocks into the new development thus maintaining/creating a high amenity outlook for all.

There is one proposed road connection to extend through to Weedons Road creating a connection should the urban development extent westwards in the future.

Existing dwellings

Integration of existing dwellings and their related curtilage into the denser residential development pattern is to be carefully undertaken using a variety of design techniques such as:

- Location of larger properties in proximity to existing dwellings to allow for more generous landscaping between dwellings and retention of established trees and gardens
- Creating a property overlay over the existing dwellings that allows for future further subdivision
- Providing a road layout that can support further subdivision of larger lots with existing dwellings with direct road access and avoiding rear lots

Summary and conclusion

The proposed Outline Development Plan/DEV-RO 9 captures the essential components of an underlying conceptual subdivision plan while retaining a measure of flexibility to respond to additional opportunities and constraints, as well as market changes.

In summary the ODP/DEV:

- continues the direct green link between Foster Park and the new district park/reserve through the extension of Broadlands Drive.
- provides for future connections to adjacent development in the future;
- delivers residential development at a minimum density of 12 households/hectare and provides for a variety of residential house types, lifestyles and price points;
- promotes social interaction and neighbourhood cohesion through the inclusion of neighbourhood reserves and strategically located local connections internal and external
- encourages active transport modes through the provision of shared paths that provide both internal connectivity as well as links to the wider Rolleston area with a focus on walking and cycling;
- balances the constraints of site shape, geometry and the uncertainty of the noise contour line with the desire to provide a cohesive well connected residential environment;
- responds sensitively to its interfaces with both existing and future adjacent development and the District Park
- is consistent with the development principles of the Rolleston Structure Plan.

Appendix 3: Flood Hazard Assessment

PATERSONPITTSGROUP

Surveying • Planning • Engineering

Gould Developments Limited

&

Four Stars Development Limited

FLOOD ASSESSMENT

ROLLESTON RESIDENTIAL RE-ZONING

139 Levi Road
294-232 Lincoln Rolleston Road
5-25 Nobeline Drive

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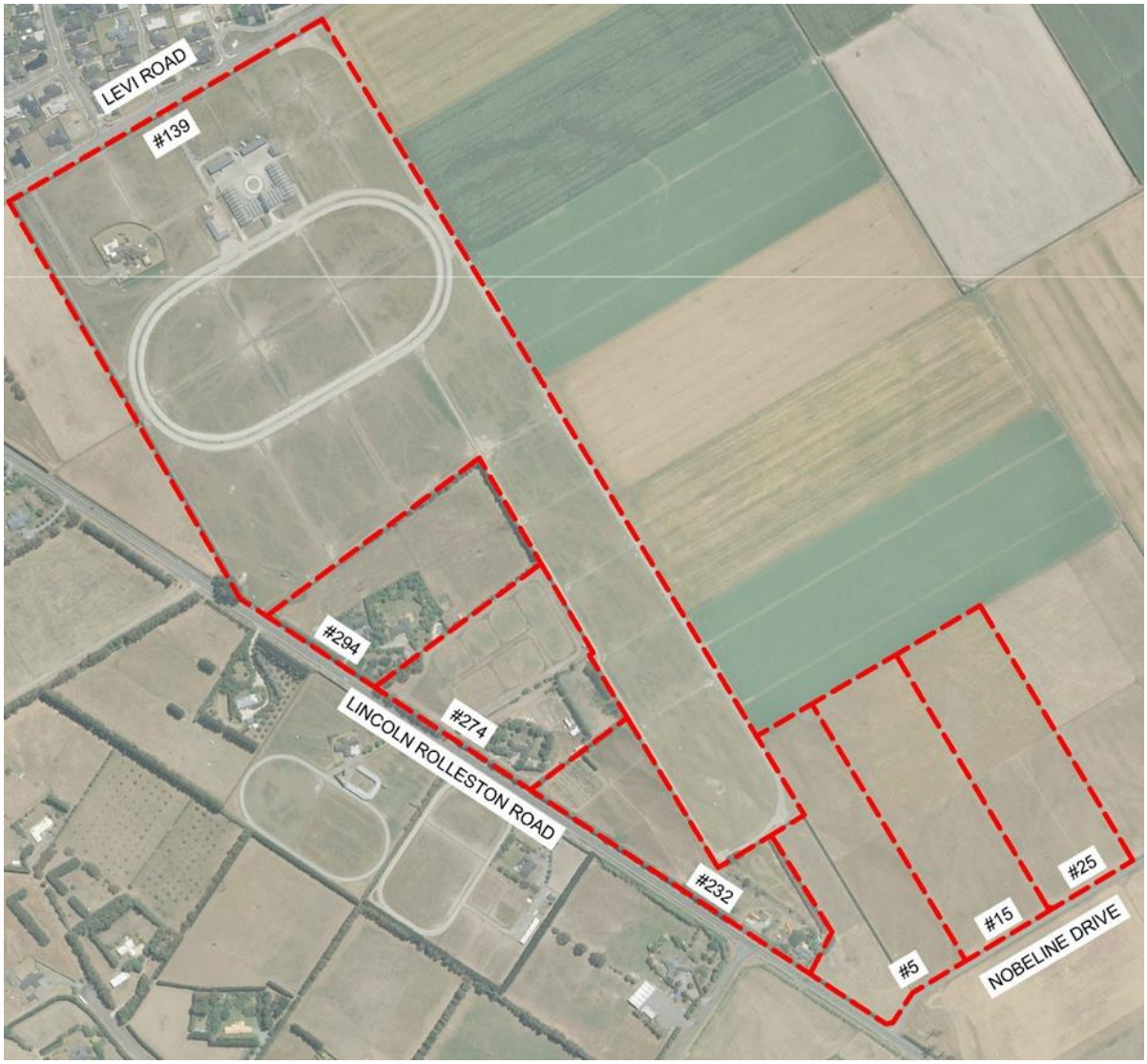
1 Introduction

Paterson Pitts Group have been commissioned by Gould Developments Limited & Four Stars Development Limited to provide a high-level flood assessment report for an application for residential rezoning of rural land as graphically shown below within Rolleston;



2 Site Location and Description

The site is generally bounded by Levi Road, Lincoln Rolleston Road and Nobeline Drive as illustrated below;



Please note that for the most part the opposite side of Lincoln Rolleston Road has been developed from rural lifestyle properties to residential use.

The site consists of 6 x separate titles as tabulated below.

ADDRESS	RT REF	LEGAL DESCRIPTION	LEGAL AREA
139 Levi Road	463353	Lot 2 DP 416195 & Lot 2 DP 322710	30.4300ha
232 Lincoln Rolleston Road	CB39B/871	Lot 3 DP 67190	3.2820ha
274 Lincoln Rolleston Road	CB39B/870	Lot 2 DP 67190	4.010ha
294 Lincoln Rolleston Road	CB39B/869	LOT 1 DP 67190	4.0000ha
5 Nobeline Drive	695247	Lot 7 DP 483709	4.0805ha
15 Nobeline Drive	695248	Lot 8 DP 483709	4.0558ha
25 Nobeline Drive	695249	Lot 9 DP 483709	4.0393ha

Three of the titles contain dwellings with a number of rural accessory buildings including large stables at 139 Levi Road.

The total area of all 7 x titles is 53.89ha. The site forms an irregular shape, it is 1.3km from Levi Road to Nobeline Drive. Each road has the following frontage length.

Levi Road : 428m

Lincoln Rolleston : 918m

Nobeline Drive : 350m

Topographically the site generally slopes from Levi Road in a SE direction towards the intersection of Lincoln Rolleston Road and Nobeline Drive. Overall, there is a height difference of 9.5m, this equates to a grade of 1:140 as depicted on the Preliminary Contour Plan and Canterbury Maps Lidar Contours located in Appendix A.

Levi Road and Lincoln Rolleston Road are both classified as Arterial roads and are double lane.

A private plan change is sought for the 53.89ha to be converted from Rural to residential zoning. As a guide for the overall yield will be in the order of 660 residential sites. The area north of the 50db contour will realize approximately 220 sites, the area south a further 220 and the mid area that is predominantly under the 50db contour a further 220.

3 Flood Assessment

Selwyn District Council (SDC) in conjunction with Environment Canterbury (ECan) developed computer flood modelling across the district to help determine areas sensitive to flooding and/or coastal hazards. The project was undertaken for SDC's District Plan Review. This information is publicly available via the following internet link.

https://apps.canterburymaps.govt.nz/SelwynNaturalHazards/

It is important to consider all forms of flooding when seeking a private plan change to confirm that such a change is appropriate. This flood assessment is an interpretation of the modelling completed by SDC and Ecan which is consistent with the purpose of the modelling.

For clarity, the site is not shown to be within the Waikariari Flood Plain Map nor Coastal Hazards Map.

The computer-based flood modelling maps located in Appendix **B** for the site, has predicted the extent and depth of flooding that could occur over the site during a one-in-200-year (0.5% AEP) - Sheets 1 & 2, and a one-in-500-year (0.2% AEP) - Sheets 3 & 4, rainfall event.

The key patterns during the one-in-200-year and one-in-500-year events are;

1/- generally the site will have some minor discrete ponding, being less than 200mm. There is isolated pockets of ponding between 200-500mm, and a single spot with a depth of 500-1000mm.

2/- the site does not appear to be receiving flows from adjacent sites and any ponding appears to be the result of runoff from the site itself.

3/- a concentrated flow develops through #15 Nobeline Drive in a SSE direction to Nobeline Drive, this is well aligned with a proposed indicative road to Nobeline Drive.

4/- ponding occurs adjacent to the Lincoln-Rolleston Road.

Any future subdivision will be designed to current SDC standards and the intention is for stormwater runoff to be discharged to ground via engineered soakage. At present, subdivisions should be designed with primary stormwater systems for one-in-10-year (10% AEP) events and secondary systems for one-in-50-year (2% AEP), with engineered soakage systems designed to cater for both the primary and secondary events. The intention is therefore to provide for stormwater soakage up to the one-in-50-year (2% AEP), however, it is noted that at SDC's discretion and where the downstream environment is suitable, the soakage system may be 'relaxed' to allow secondary event flows to overland follow paths.

As the primary and secondary events are less than the 0.5% and 0.2% AEP's, SDC's 5 Waters Services Activity Management Plan Volume 1, 2018 recognises associated overloading in Section 3.3 Stormwater Page 122 of 397 by the following excerpt ***"It is inevitable that the parts of the piped system will be overloaded to varying degrees whenever rainfall with a return period in excess of the design storm occurs."***

Typically the lots will be designed to be elevated above the roads, which will be achieved by either cutting roads in and grading them to have 1:500 minimum fall towards the roads, or if roads cannot be cut in, building up the lots to be above the roads. This will allow the roading network to become the flow path for flood waters in excess of the soakage system design capacity. Flood flows will ultimately drain away from the site via the road network and re-join the existing natural overland flow paths. Due to the surfaces of roads having a lower friction coefficient than a natural ground surface, the velocity of overland flow will increase. This increased velocity in conjunction with the primary and secondary controls will reduce the flood water depths presently modelled. Through detailed design the road network and if required road reserve will be designed with a suitable cross-sectional area to convey the design flood events and protect future dwellings.

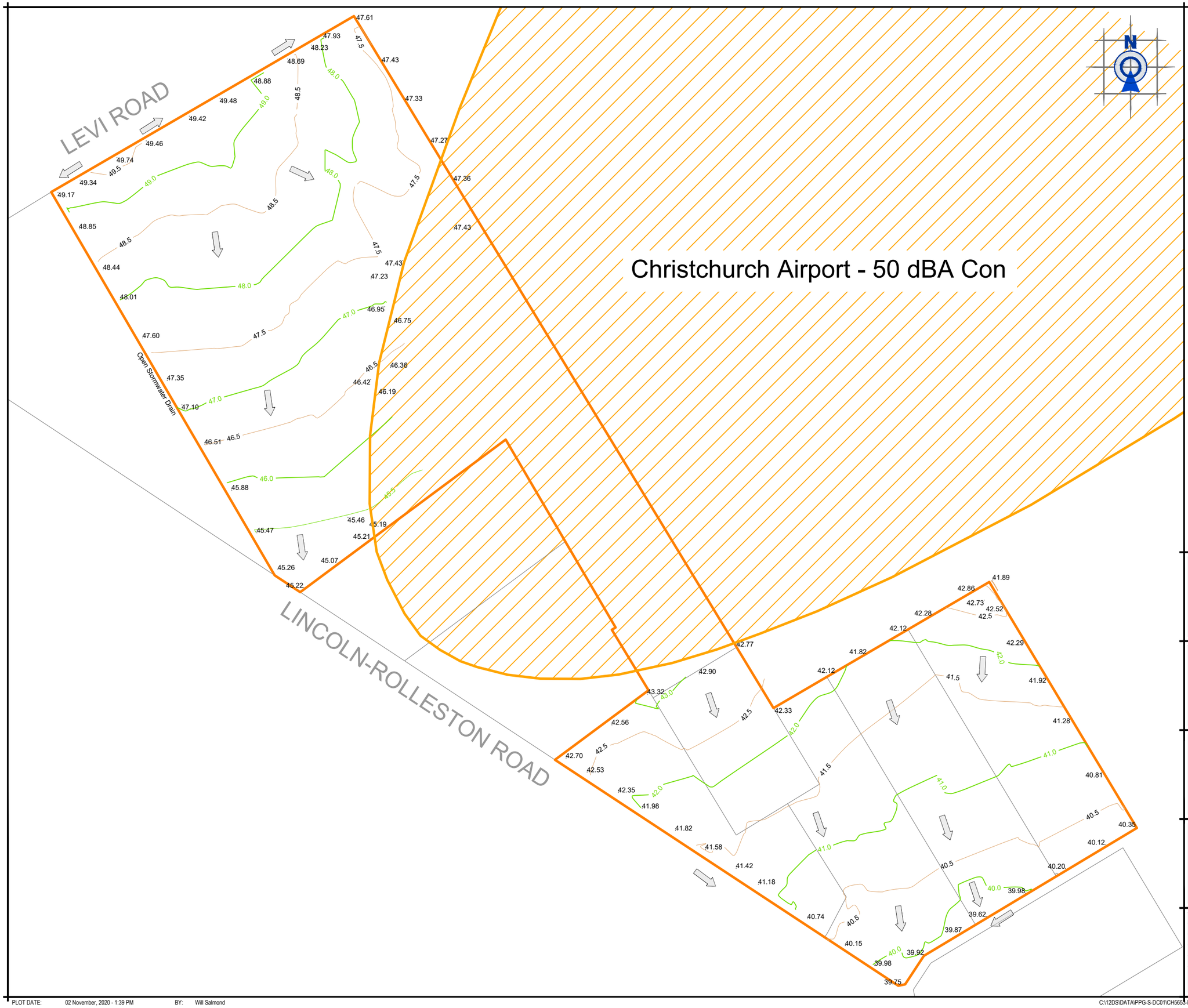
This design methodology, subject to detailed engineering design, will mitigate significant flood events for the site as currently modelled by SDC and Ecan.

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Appendix A

Preliminary Contour Plan

Canterbury Maps Lidar Contours



LEGEND:

- OVERLAND FLOW DIRECTION
- SITE BOUNDARY
- 10.00 SPOT LEVELS

NOTE:
1. FIELD WORK COMPLETED 08/09/2020
2. EQUIPMENT: TRIMBLE GPS RTK
3. ORIGIN OF LEVELS:
   LYTTELON VERTICAL DATUM 1937
   B882 (UG 32) - RL 55.908m
4. AREAS AND MEASUREMENTS ARE SUBJECT TO TITLE SURVEY
5. BOUNDARIES SHOWN ARE INDICATIVE ONLY

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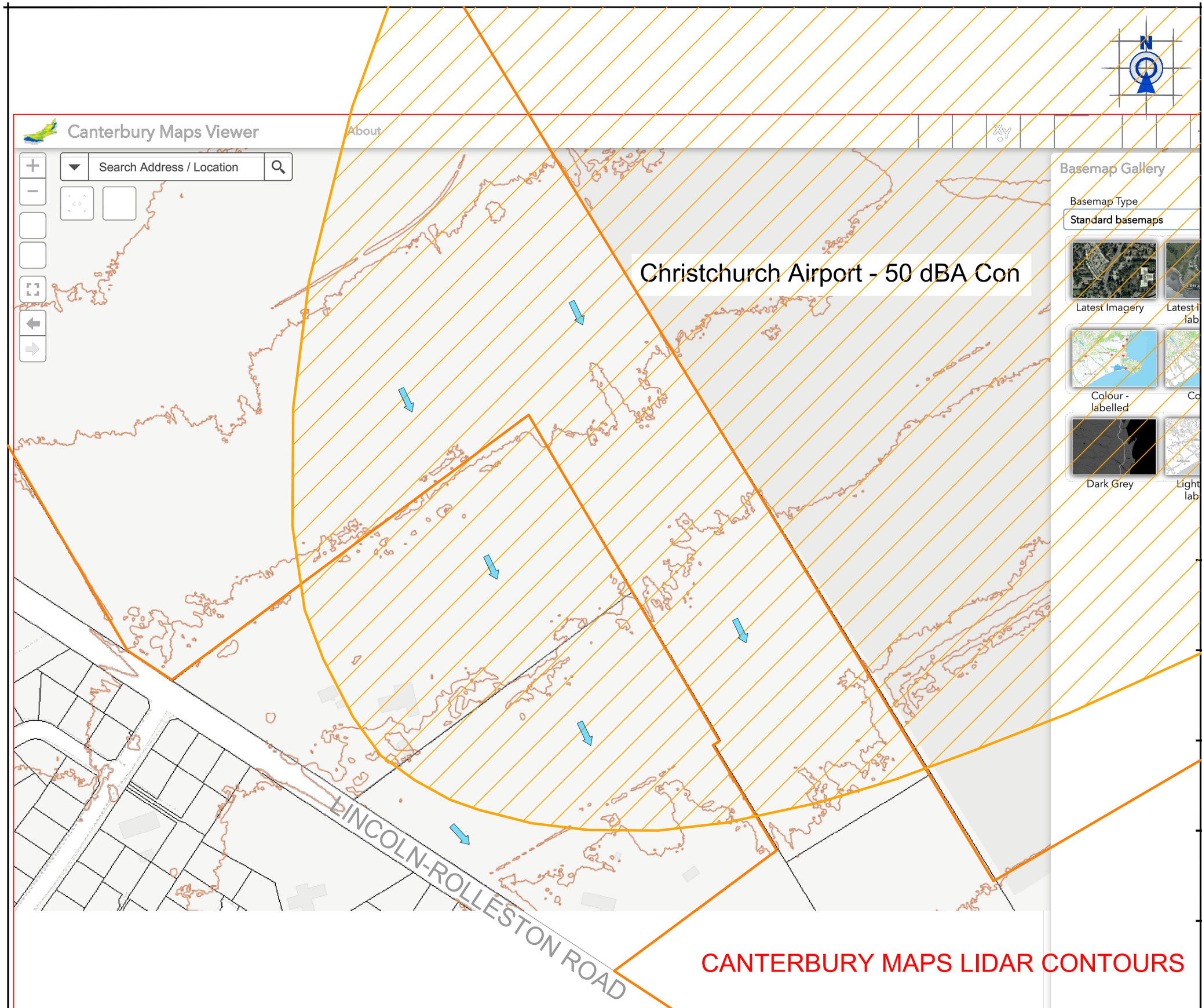
Client/Location:

Gould Developments Limited
&
Four Stars Development Limited

Purpose/Drawing Title:

Preliminary Contour Plan Levi Road / Lincoln-Rolleston Road

Surveyed by:	SS	Original Size:	Scale:		
Designed by:		A3	N.T.S		
Drawn by:	SS		DO NOT SCALE		
Checked by:					
Approved by:					
Job Ref: CH5653		Sheet No: 100	Revision No: A	Date Created: 24/09/2020	



LEGEND:

OVERLAND FLOW DIRECTION

SITE BOUNDARY

NOTE:
1. AREAS AND MEASUREMENTS ARE SUBJECT TO TITLE SURVEY
2. BOUNDARIES SHOWN ARE INDICATIVE ONLY

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Designed by:		A3	N.T.S		
Drawn by:	SS		DO NOT SCALE		
Checked by:					
Approved by:					
Job Ref: CH5653		Sheet No: 101	Revision No: A	Date Created: 24/09/2020	

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Appendix B

Flood Maps

Find address or place

Ruby Drive

Levi Road

Lincoln Rolleston Road

Lincoln Rolleston Road

Environment Canterbury Regional Coun

Layer List

Layers

Land Parcels

Current District Plan

Flood Zones

- Lake Ellesmere Flood Area
- Lower Plains Flood Area
- Waimakariri Flood Plain

200-year ARI rainfall flood depth (m)

- < 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- > 1.5

200-year ARI Selwyn River flood depth (m)

- < 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- > 1.5

500-year ARI rainfall flood depth (m)

- < 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- > 1.5

500-year ARI Selwyn River flood depth (m)

- < 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- > 1.5

200-YEAR ARI RAINFALL FLOOD DEPTH

100m

SHEET 1 OF 4

Find address or place

Lincoln Rolleston Road

Robertine Drive

Environment Canterbury Regional Coun

100m

Layer List

Layers

Land Parcels

Current District Plan

Flood Zones

- Lake Ellesmere Flood Area
- Lower Plains Flood Area
- Waimakariri Flood Plain

200-year ARI rainfall flood depth (m)

- < 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- > 1.5

200-year ARI Selwyn River flood depth (m)

- < 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- > 1.5

500-year ARI rainfall flood depth (m)

- < 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- > 1.5

500-year ARI Selwyn River flood depth (m)

- < 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- > 1.5

200-YEAR ARI RAINFALL FLOOD DEPTH

Find address or place

Ruby Drive

Levi Road

Lincoln Rolleston Road

Lincoln Rolleston Road

Environment Canterbury Regional Coun

Layer List

Layers

Land Parcels

Current District Plan

Flood Zones

- Lake Ellesmere Flood Area
- Lower Plains Flood Area
- Waimakariri Flood Plain

200-year ARI rainfall flood depth (m)

- < 0.2
- 0.2 - 0.5
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- 1.0 - 1.5
- > 1.5

200-year ARI Selwyn River flood depth (m)

- < 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- > 1.5

500-year ARI rainfall flood depth (m)

- < 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- > 1.5

500-year ARI Selwyn River flood depth (m)

- < 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- > 1.5

500-YEAR ARI RAINFALL FLOOD DEPTH

100m

SHEET 3 OF 4

Find address or place

Lincoln Rolleston Road

Robertson Drive

Environment Canterbury Regional Coun

100m

Layer List

Layers

Land Parcels

Current District Plan

Flood Zones

- Lake Ellesmere Flood Area
- Lower Plains Flood Area
- Waimakariri Flood Plain

200-year ARI rainfall flood depth (m)

- < 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- > 1.5

200-year ARI Selwyn River flood depth (m)

- < 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- > 1.5

500-year ARI rainfall flood depth (m)

- < 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- > 1.5

500-year ARI Selwyn River flood depth (m)

- < 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- > 1.5

500-YEAR ARI RAINFALL FLOOD DEPTH

SHEET 4 OF 4

Appendix 4: Geotech Investigation south block

GEOTECHNICAL INVESTIGATION REPORT

FOR PROPOSED LAND USE CHANGE

Lincoln Rolleston Road, Rolleston

Client: Goulds Development Limited

Project Reference:	LTC20265
Revision:	Revision A
Date:	12 October 2020

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Document Title:	**Geotechnical Report for Proposed Land Use Change**	
Address:	Lincoln Rolleston Road, Rolleston	
Revision:	Revision A	
Client:	Goulds Development Limited	
Project Reference:	LTC20265	
Author:		Luke Challies, Associate Geotechnical Engineer BEngTech (Civil), MEngNZ
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Recipient	**Release Date**	**Document Type**
Goulds Development Limited	12 October 2020	Rev A (PDF)
Paterson Pitts Group	12 October 2020	Rev A (PDF)

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APPENDIX B: Environment Canterbury Well Logs
APPENDIX C: Test Pit Logs
APPENDIX D: Soakage Test Results

1.0 Introduction

1.1 Project Brief

LandTech Consulting Ltd. (LandTech) were engaged by Goulds Development Limited (the Client) to carry out a geotechnical investigation at Lincoln Rolleston Road, Rolleston (the Site). The geotechnical investigation is in relation to the proposal to change the land use within the investigated area.

The geotechnical investigation has been carried out to determine a geological model of the site, qualitatively assess the future land performance (i.e. during seismic events) and provide preliminary recommendations for site development.

This geotechnical report summarises the findings of our investigation and assessment. It includes a preliminary geotechnical assessment of the site, and may be used to support the land use change application to the Selwyn District Council (SDC). This report is not intended to support the subdivision application, individual house design or corresponding Building Consents, and further testing will be needed to address these applications.

1.2 Scope of Works

The geotechnical investigation for the proposed development included the following:

- Review of the New Zealand Geotechnical Database (NZGD) and other relevant geological/ geotechnical data;
- Detailed walkover inspection;
- Intrusive field investigation (i.e. test pits and insitu strength testing);
- Collation of field data and drafting;
- Geotechnical assessment;
- Provision of preliminary recommendations for development; and
- Preparation of this geotechnical report, detailing all of the above.

2.0 Site & Project Description

The investigation site is located on the corner of Lincoln Rolleston Road and Nobeline Drive in Rolleston. The site is indicated in Figure 1 below, an is located approximately 1.7km to the south east of the Rolleston Township. The site comprised four existing lots and the southern end of a property accessed from Levi Road to the North. Legal Descriptions of properties within the investigation site are given below in Table 1.



Figure 1: Aerial photograph of investigation site (source: https://mapviewer.canterburymaps.govt.nz/, accessed 29 September 2020)

The five properties are generally flat and are currently used primarily for grazing and horse training. Some young and mature hedge rows are located along property boundaries. A dwelling and associated sheds are located within 232 Lincoln Rolleston Road. The land is essentially flat with some very minor changes in elevations and undulations indicative of historic river channels located near the northern corner.

Table 1: Summary of legal descriptions for the investigation site

Mapped Street Address	Legal Description	Survey Area (Ha)
232 Lincoln Rolleston Road	LOT 3 DP 67190 BLK III LEESTON SD	3.38
5 Nobeline Drive	Lot 7 DP 483709	4.08
15 Nobeline Drive	Lot 8 DP 483709	4.06
25 Nobeline Drive	Lot 9 DP 483709	4.04
***Portion of* 139 Levi Road**	LOT 2 DP 416195 LOT 5 DP 322710	apx. 2.43 of 30.43
		Total ≈18.00ha

Table Notes: Legal Descriptions and area's sourced from Canterbury Maps Viewer, weblink: https://mapviewer.canterburymaps.govt.nz/, accessed 30 September 2020

3.0 Area Geology

Reference has been made to the *New Zealand Geology Web Map*, GNS Science, http://data.gns.cri.nz/geology/, website accessed 30 September 2020. The reviewed sources indicate that the site is underlain by Holocene Aged River Deposits. These materials generally comprise rounded to subrounded gravel and cobble sized particles within a matrix of silt and sand, deposited via the lateral and vertical migration of the past and present river systems, from the Southern Alps, out toward the east coast. Due to the depositional environment, the geotechnical characteristics of this material can be variable.

The characteristics of the River Deposits can vary widely over small distances. These variances include vertical and horizontal differences in both soil particle size distribution and consolidation. It is discussed above that these materials generally comprise gravel and cobbles; however, interbedded horizons of fine to coarse grained sand, silt and clay can also exist. They can also be capped by loessal soils or finer grained silts and sands.

3.1 Faults in Canterbury

For the purpose of our investigation we have referred to a Selwyn District earthquake fault report compiled by GNS Science and Environment Canterbury (ECan). The referenced report is titled:

- *General distribution and characteristics of active faults and folds in the Selwyn District, North Canterbury*, GNS Science and Environment Canterbury, dated July 2013.

The reference report gives a general outline of the nature of geologically active areas within the Selwyn District. Figure 6 in the referenced report indicates that the investigation site is located within 10km of the mapped Greendale Fault, to the northwest.

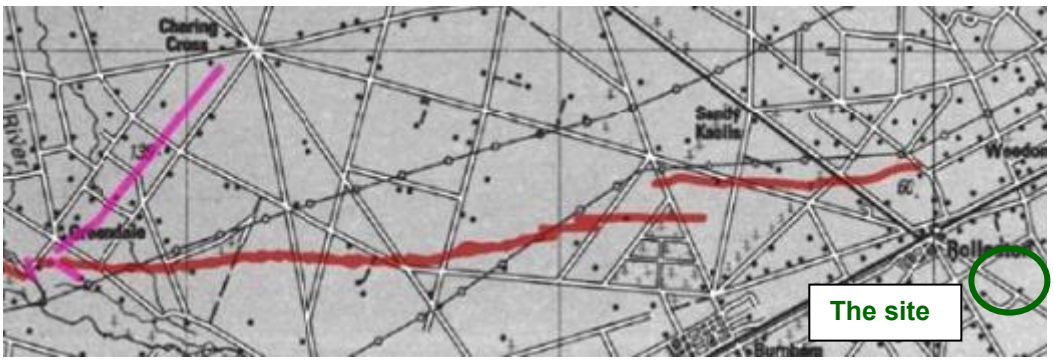


Figure 2: shows excerpt from figure A.1e of the referenced report (red line is a definite or likely fault).

The Greendale Fault and associated blind faults of the Darfield earthquake sequence have been defined by GNS Science via field inspection, aerial photograph interpretation and regional geologic mapping. The reference source indicates that these faults were unknown prior to 2010 and the ages of previous ruptures are also not known. This leave the potential for further unmapped faults to exist within the locality of the investigation site.

4.0 Geotechnical Data Review

Reference has been made to sources including the New Zealand Geotechnical Database (NZGD): http://www.nzgd.org.nz/ and Environment Canterbury (ECan): http://canterburymaps.govt.nz/ (accessed 21 September 2020). The following text summaries the findings of our data review:

- The MBIE *Residential Foundation Technical Category* Map indicates the site is located within an area designated as N/A - Rural and Unmapped. This indicates that normal consenting procedures apply.

- According to Canterbury Maps there are a series of Ecan wells within close proximity to the site. The associated bore logs for the following ECan wells have been reviewed and are attached with Appendix B:
  - M36/0328, drilled to 28.6m and located with 232 Lincoln Rolleston Rd site. The borelog for the well shows earth and clay to 1.2m depth underlain by claybound to rough sandy gravel to the drill depth. Water levels from 1989, indicate a groundwater level of between 13.5m and 14.3m below ground level.

  - MX23/0620, drilled to 48.0m and located at the eastern corner of the site. The borelog for the well shows topsoil to 0.3m depth underlain by light brown gravelly clay or sandy gravel to the drill depth. Ground water levels are indicated at 13.0m ground level.

  - M36/4894, drilled to 34.0m and located to the west of the site across Lincoln Rolleston Road. The borelog for the well shows topsoil and clay to 0.6m depth underlain by sandy gravel or claybound gravel to the drill depth. Initial groundwater levels are indicated at 12.0m ground level.

- According to the Environment Canterbury Soil Type map, the site is mapped as either comprising a *Typic Immature Plallic Soils* with a moderately deep silty loam or *Typic Immature Plallic Soils* with a deep silty loam. Both soil types are described as having *moderate over slow* permeability.

- Eastern Canterbury Liquefaction susceptibility (2012), shows the site is located within an area were *Liquefaction damage is unlikely.*

- A review of historical photograph of the site from between 1940 and 2004 has been carried out on Canterbury Maps. Imagery from 1940 to 1944 (shown overleaf in Figure 3), shows evidence of paleo river channels near the northern corner of the site, it is possible additional channels are present within the investigation site. Some historic infilling of these paleo channels could have taken place as part of farming activities. However, our investigation found limited evidence of filling having taken place across the general subdivision site.



Figure 3: Aerial photograph of investigation site (source: https://mapviewer.canterburymaps.govt.nz/, accessed 07 September 2020)

5.0 Field Investigation

Our field investigation took place on 21 September 2020 and comprised the following components:

- Detailed walkover inspection;
- Excavation of Six test pits (TP01 – TP06) and associated Scala penetrometer testing; and
- Soakage testing (ST01) within TP02.

Each test was positioned evenly across the site away from infrastructure and animals, test locations are shown on the LandTech *Site Test Plan*, Drawing No. LTC20265/ 1, (attached in Appendix A). The positions have been located via a hand-held GPS without survey control and are therefore approximate only.

The soil conditions encountered within the hand augerholes and test pits were logged by LandTech field staff in accordance with New Zealand Geotechnical Society *Guideline for the Description of Soil and Rock for Engineering Purposes* (2005). The test pit logs and corresponding photographs are attached in Appendix B, while the hand augerhole logs are within Appendix C.

The undrained shear strength of the fine-grained soils was recorded where applicable using a Geovane hand held shear vane in accordance with the NZGS *Guideline for Hand Held Shear Vane Test*, published August 2001. The peak and remoulded vane shear strength values have been factored in terms of BS1377.

Dynamic Cone (Scala) Penetrometer testing was carried out near the test pit locations to determine a soil density profile. Testing procedures were in accordance with NZS 4402:1988, Test 6.5.2, *Dynamic Cone Penetrometer*. The test results are shown on test pit logs.

Soakage testing was carried out in general accordance with the Auckland City Soakage Design Manual, worksheet W1: Falling-head Percolation Test. That being the change in water depth against time was recorded. A slight modification for the diameter of the holes has been made with a simple area conversion from a rectangle to a circle to give an equivalent diameter.

6.0 Subsurface Conditions

The sites subsurface conditions generally comprised a surficial layer of topsoil underlain by a sequence of Alluvial / Loess deposits followed by River Deposits. This is consistent with the geology described in Section 3.0 (Area Geology). A subsurface summary is given in Table 2 and detailed descriptions are given in the subsequent sections.

Table 2: Subsurface summary

Test pit ID	Test Pit Depth	Topsoil Depth	Soil Depth	Scala Depth
TP01	2.8	0.2	0.6	0.6
TP02	2.8	0.2	1.2	1.3
TP03	2.6	0.3	0.8	0.8
TP04	2.8	0.3	0.9	1.0
TP05	2.7	0.2	0.7	1.2
TP06	2.6	0.3	0.5	0.6

Table notes: Measurements are in metres (m) below present ground level
Scala penetrometer refusal considered when an excess of 20 blows /100mm penetration occurs

6.1 Topsoil

Topsoil was encountered from the surface at all test locations and ranged between the depths of 0.2m and 0.3m below present ground level (bpgl). This mostly comprised dark brown silt with minor fractions of fine to coarse grained sand. The topsoil is not considered suitable for the support of building foundations.

6.2 Alluvial / Loess Deposits

Soil deposits comprising either alluvial soils or loessal soils where present above the river deposits at depth. The depth of these soils ranged from between 0.5m (TP06) and 1.2m (TP02) below ground level, and typically comprised a moist fine sandy silt.

Scala penetrometer testing within the soils ranged from 1 and 20 Blows / 100mm penetration. Higher blow counts may be due to gravels within the soil at the test location. Typically the Scala blow counts ranged from between 1 and 6 Blows / 100mm of penetration indicating a loose to medium dense soil.

Where possible shear vane testing was carried out, peak shear vane testing ranged from between 107kPa and 187+kPa indicating a very stiff soil.

6.3 River Deposits

River Deposits were encountered below the surficial layer of sandy silts to the termination depth of all test locations (TP01 – TP06). The River Deposits generally comprised fine to coarse sandy, fine to coarse subrounded gravel. The gravel deposits where described as wet near the refusal depths in some of the tests, while larger cobbles were also encountered.

Scala penetrometer testing was unable to penetrate the gravels with refusal typically being achieved in contact with the underlying gravels.

6.4 Soakage

The soakage capacity of the gravel was tested within TP02; the location of the test pits are shown on the LandTech *Site Test Plan*, Drawing No. LTC20265/ 1 (attached in Appendix A). The results of the soakage testing are attached in Appendix C.

The results of the calculated average soakage rates are shown in Table 3 below:

Table 3: Average soakage rates

	SP01 / TP06
Average Soak Rate (mm/hour)	1836
Percolation Rate (L/m^2/min)	13

6.5 Site Seismicity

For the purpose of applying requirements of NZS 1170.5:2004 the site subsoil is Class D – Deep or Soft Soil Site. This classification is based on depths of soil exceeding the limits of Table 3.2 of the reference standard. seismic hazard factor (Z) for the site is 0.3 as per the standard.

7.0 Qualitative Liquefaction Analysis

The MBIE & New Zealand Geotechnical Society Inc. report titled *Earthquake geotechnical engineering practice, Module 3: Identification, assessment and mitigation of liquefaction hazards* (2016) explains that the evaluation of the geologic susceptibility of liquefaction is a key aspect in the evaluation of liquefaction potential at a given site.

Based on our desktop study and field investigation, we have established that the site is generally underlain by Holocene Age horizons of tightly packed gravel (i.e. River Deposits) with groundwater average ground water levels of around 13.0m. In addition to this ECan (2012) liquefaction susceptibility maps has indicated that the site is unlikely to be damaged via earthquake induced liquefaction.

The region comprises a rural/unmapped Residential Foundation Technical Category (based on MBIE); however, is considered an area that is not likely to be susceptible to liquefaction induced damage. This is based on the geology underlying the site (i.e. Holocene Aged River Deposits), the previously referenced reports and maps, and our qualitative liquefaction assessment.

Based on our assessment of the investigation site, we are categorising existing property as Technical Category 1 (TC1) with damaging liquefaction unlikely and consider the site suitable for residential development from a geotechnical perspective.

8.0 Geotechnical Hazard Evaluation

Section 106 of the Resource Management Act 1991 outlines hazards that must be assessed when a territorial authority considers subdivision of land. This section outlines our evaluation of possible geotechnical hazards associated with this site. Based on the results of our investigation and assessment, we consider this site suitable for land use change to residential zoning from a geotechnical perspective.

8.1 Erosion

The surface of the property is near level to undulating with no general contour/runoff direction. During our field investigation, we did not observe any obvious signs of erosion from concentrated surface runoff. Furthermore, we do not consider the proposed site development will increase the erosion potential provided stormwater is disposed of in a controlled manner subject to usual Council Consenting procedures.

8.2 Inundation

Assessment for inundation from flooding is not a part of the scope of this report and therefore has not been fully assessed. A basic review online mapping available from CanterburyMaps has been carried out and no information for the site was evident. If required an assessment should be carried out by suitably experienced consultant.

8.3 Subsidence

It is discussed in previous sections of this report, liquefaction is not likely to occur within the investigation site. This is due to the shallow depth to gravel and gravelly sand layers (between 0.5m and 1.2m below the site) and the ECan well logs indicating that groundwater in the area is at an average of around 13.0m below ground level.

This means that corresponding liquefaction induced subsidence is unlikely, as per the site performance through the CES. Foundation settlements are also considered unlikely due to the dense nature of the subsoils. This is provided in our recommendations given further herein are followed regarding further investigation, foundation design and construction.

8.4 Falling Debris

No tall standing slopes exist in the vicinity of the investigation site, therefore falling debris hazard is non-existent.

8.5 Slippage

Due to the site being near level to gently undulating, it's removed location from any major waterways, and inferred non-liquefiable nature of the underlying subsoils, slippage via liquefaction-induced lateral spreading is not considered to affect the subdivision site. No other geotechnical mechanism of slippage was noted during out field investigation or from our assessment.

8.6 Contamination

Whilst not a requirement of Section 106 of the RMA 1991, soil contamination is a potential geotechnical hazard that should be considered when making Consent applications to territorial authorities where ground disturbance works are proposed (i.e. foundation excavations etc.).

We have made reference to the ECan Listed Land Use Register (LLUR), that a Detailed Site Investigation has taken place with 5 Nobeline Drive. A copy this report is available upon request from https://llur.ecan.govt.nz/ .

The remaining sites have no recorded information registered against them. This indicates no HAIL activities are recorded to have taken place at the site, according to the register. This does not confirm the site has no soil contamination, but only indicates the Regional Council does not have records of potentially hazardous activities taking place the site that could lead to soil contamination.

9.0 Geotechnical Recommendations

It is stated in the previous sections that the site has been classified as TC1; based on our desktop study, the underlying geology and qualitative liquefaction assessment. Following our assessment, we consider the site suitable land use change to residential zoning from a geotechnical perspective. Our recommendations with regard to site development and preliminary foundation design follow subsequently.

9.1 Preliminary Foundation Recommendations

Due to the low risk of liquefaction at the subdivision we have classified the investigation site as TC1, and conclude the River Deposits beneath any surficial soils meet the criteria for “good ground” as defined by NZS3604:2011. Some areas of weak upper surficial soils may require foundations to be subject to specific engineering design due to low bearing capacities. Alternatively, earthworks during subdivision may compact any weak upper layers so standard foundations can be utilised without engineering design input. The extent of any weak upper soils can be determined with further shallow soil testing as part of the subdivision design/consenting stage.

9.2 Preliminary Earthwork Recommendations

All proposed earthworks will need to be carried out to the requirements of NZS 4431:1989, ‘Code of Practice for Earthfilling for Residential Development’. All unsuitable materials (vegetation, organic or detritus material, and organic rich topsoil etc.) should be stripped from any areas of earthworks and stockpiled well clear of operations or carted from the site.

10.0 Future Geotechnical Involvement

Should the land use change be approved and a subdivision plan be made, a more detailed geotechnical investigation will be required to more accurately identify areas of deep alluvial soils and provided further geotechnical recommendations for the subdivision development.

Dependent on the extent of earthworks during the subdivision stage and involvement from a geo-professional to observe areas of stripped ground and fill compaction, additional lot specific shallow soil testing may be required. The results of which may supersede our preliminary foundation recommendations if the test results differ to our area wide investigation. However, the risk of differing ground conditions is considered to be low, due to the relatively uniform presence of dense river gravels throughout the general Rolleston area. Potential variations could be from deeper areas of surficial alluvial soils or localised uncontrolled filling in the past.

11.0 Limitations

This geotechnical report has been prepared for our Client, Goulds Investment Limited, for the purposes of supporting a Land Use Change application to the Selwyn District Council. This report shall not be extrapolated for other nearby sites or used for any other purposes without the express approval of LandTech and their Client.

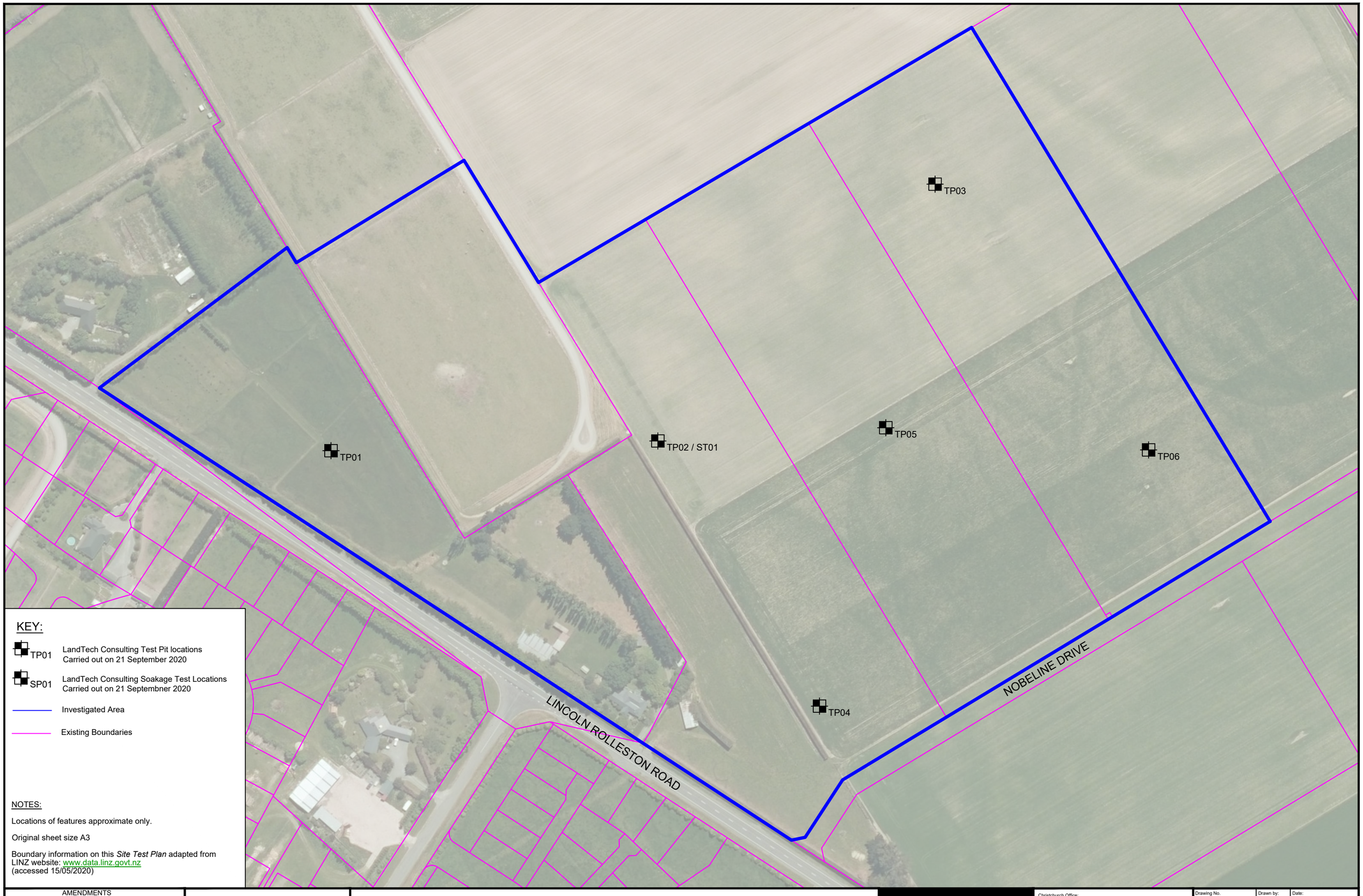
This report has been based on the results of tests at point locations; therefore, subsurface conditions could vary away from the assumed geotechnical model. Should exposed soil conditions vary from those described herein we request to be informed to determine the continued applicability of our recommendations. We have attempted to conduct a thorough investigation of soil types across the site, within the agreed scope of works. However, variations still may exist as soils can vary naturally and due to previous human activities, which LandTech have no control over and should not be held accountable for.

The geotechnical investigation was confined to geotechnical aspects of the site only and did not involve the assessment for environmental contaminants. In addition, our investigation and analyses have also not taken into account possible fault rupture that may cause deformations and displacements of the ground directly below the site. This type of assessment is outside of the scope of our geotechnical engagement.

END OF REPORT

APPENDIX A

LandTech Site Test Plan



KEY:

- TP01 — LandTech Consulting Test Pit locations Carried out on 21 September 2020
- SP01 — LandTech Consulting Soakage Test Locations Carried out on 21 Septembner 2020
- Investigated Area
- Existing Boundaries

NOTES:

Locations of features approximate only.

Original sheet size A3

Boundary information on this *Site Test Plan* adapted from LINZ website: www.data.linz.govt.nz (accessed 15/05/2020)

AMENDMENTS

DATE	REV	DESCRIPTION
30/09/2020	A	Test Plan

Check all dimensions and levels on site before commencing construction.

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Lincoln Rolleston Road

ROLLESTON

LandTech CONSULTING

Christchurch Office:
Unit 6, 31 Carlyle Street, Sydenham, Christchurch 8023

Auckland Office:
17 Nils Andersen Road, Whenuapai, Auckland 0618

Postal Address:
PO Box 119, Christchurch 8013

Website: www.landtech.nz Email: info@landtech.nz

Drawing No.	Drawn by:	Date:
LTC20265/1	L C	30 September 2020
Scale: 1: 2000 (A3)	Checked by: D W	Revision: A

Filename: LTC20264 - Drawings.dwg

APPENDIX B

Environment Canterbury Well Logs

canterbury maps

Canterbury Maps

Information has been derived from various organisations, including Environment Canterbury and the Canterbury Maps partners. Boundary information is derived under licence from LINZ Digital Cadastral Database (Crown Copyright Reserved). Environment Canterbury and the Canterbury Maps partners do not give and expressly disclaim any warranty as to the accuracy or completeness of the information or its fitness for any purpose.

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N

0 0.07 0.14 0.21 0.28 Kilometres

Scale: 1:5,000 @A3

Map Created by Canterbury Maps on 12/10/2020 at 12:49 PM

M36/4839
M36/4743
M36/8287
M36/4430
M36/0127
M36/4427
M36/3036
644
M36/7766
618
M36/8240
61
M36/0254
M36/8518
BX23/0827
BX23/0508
M36/5292
M36/4870
M36/4865
M36/0328
BX23/0528
BX23/0420
BX23/0571
BX23/0620
M36/5359
BX23/0648
BX23/0618
M36/4894
Levi Rd
Lincoln Rolleston Rd
Reuben Ave
Lunn Ave
Rory St
Branthwaite Dr
Falcon Rd
Gerda Ave
Nobelline Dr

Environment Canterbury, Land Information New Zealand, GNS Science, Te Rūnanga o Ngāi Tahu, Department of Conservation, New Zealand Archaeological Association, Environment Canterbury, Canterbury Maps Partners, Open Street Maps, Environment Canterbury

APPENDIX C

Test Pit Logs

LandTech CONSULTING	Client: Gould Developments Limited Project: Geotechnical Investigation for Proposed Land Use Change Address: Lincoln Rolleston Road, Rolleston	Test Pit No.	TP01
		Sheet No.	1 of 1

Drill Type:	6T Hydraulic Excavator	Project No:	LTC20265	Logged By:	L Challies
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1552067 N5172037	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (03-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T.SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS	0.5		Fine sandy SILT, yellowish light brown, very stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	1.0		Fine to coarse sandy, sub rounded GRAVEL, minor silt, brown, dense, moist [RIVER DEPOSITS]
	1.5		trace cobbles, very dense
	2.0		
	2.5		
	3.0		End of Test Pit 2.8m [TARGET DEPTH]
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m): Not Encountered (21-Sep-20)

In-situ Field Testing

Shear Strength (kPa) — Peak: / Remoulded: — 0

Dynamic Cone Penetrometer Depth (m)	Blow Count	Scala Blow Count / 100mm
-0.1	2	
-0.2	2	
-0.3	2	
-0.4	3	
-0.5	5	
-0.6	13	
-0.7	18	
-0.8	18	
-0.9	7	
-1.0	8	
-1.1	15	
-1.2	20 +	
-1.3		
-1.4		
-1.5		
-1.6		
-1.7		
-1.8		
-1.9		
-2.0		
-2.1		
-2.2		
-2.3		
-2.4		
-2.5		
-2.6		
-2.7		
-2.8		
-2.9		
-3.0		
-3.1		
-3.2		
-3.3		
-3.4		
-3.5		
-3.6		
-3.7		
-3.8		
-3.9		
-4.0		
-4.1		
-4.2		
-4.3		
-4.4		
-4.5		
-4.6		
-4.7		
-4.8		
-4.9		
-5.0		

In-situ field testing in accordance with the following Standards:

Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer

Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

LandTech Consulting Ltd. (Christchurch): Unit 6, 31 Carlyle Street, Sydenham
LandTech Consulting Ltd. (Auckland): 17 Nils Andersen Road, Whenuapai
Phone: (03) 390 1371
Phone: (09) 930 9334
Email: info@landtech.nz
Website: www.landtech.nz

LandTech CONSULTING

Client:	Gould Developments Limited	Test Pit No.	TP02
Project:	Geotechnical Investigation for Proposed Land Use Change		
Address:	Lincoln Rolleston Road, Rolleston	Sheet No.	1 of 1

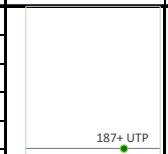
Drill Type:	6T Hydraulic Excavator	Project No:	LTC20265	Logged By:	L Challies
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1552266 N5172044	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (03-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T.SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS	0.5		Fine sandy SILT, yellowish light brown, very stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	1.0		
	1.5		Fine to coarse sandy, sub rounded GRAVEL, minor silt, brown, dense, moist [RIVER DEPOSITS]
	2.0		trace subrounded to round boulders, wet
	2.5		
	3.0		End of Test Pit 2.8m [TARGET DEPTH]
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m): Not Encountered (21-Sep-20)

In-situ Field Testing

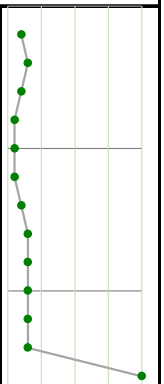
Shear Strength (kPa) — Peak: / Remoulded: — 150 200



Dynamic Cone Penetrometer

Depth (m)	Blow Count
-0.1	2
-0.2	3
-0.3	2
-0.4	1
-0.5	1
-0.6	1
-0.7	2
-0.8	3
-0.9	3
-1.0	3
-1.1	3
-1.2	3
-1.3	20 +

Scala Blow Count / 100mm — 0 5 10 15 20



In-situ field testing in accordance with the following Standards:

Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer

Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

LandTech Consulting Ltd. (Christchurch): Unit 6, 31 Carlyle Street, Sydenham — Phone: (03) 390 1371 — Email: info@landtech.nz

LandTech Consulting Ltd. (Auckland): 17 Nils Andersen Road, Whenuapai — Phone: (09) 930 9334 — Website: www.landtech.nz

LandTech CONSULTING	Client: Gould Developments Limited Project: Geotechnical Investigation for Proposed Land Use Change Address: Lincoln Rolleston Road, Rolleston	Test Pit No.	TP03
		Sheet No.	1 of 1

Drill Type:	6T Hydraulic Excavator	Project No:	LTC20265	Logged By:	L Challies
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1552434 N5172199	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (21-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T. SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS	0.5		Fine sandy SILT, yellowish light brown, very stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	1.0		Fine to coarse sandy, sub rounded GRAVEL, minor silt, brown, dense, moist [RIVER DEPOSITS]
	1.5		trace subrounded to round boulders, wet
	2.0		
	2.5		
	3.0		End of Test Pit 2.6m [TARGET DEPTH]
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m): Not Encountered (21-Sep-20)

In-situ Field Testing

Shear Strength (kPa)

Peak:

Remoulded:

150 200

187+ UTP

Dynamic Cone Penetrometer

Depth (m)	Blow Count
-0.1	2
-0.2	2
-0.3	3
-0.4	3
-0.5	3
-0.6	8
-0.7	21
-0.8	25+
-0.9	
-1.0	
-1.1	
-1.2	
-1.3	
-1.4	
-1.5	
-1.6	
-1.7	
-1.8	
-1.9	
-2.0	
-2.1	
-2.2	
-2.3	
-2.4	
-2.5	
-2.6	
-2.7	
-2.8	
-2.9	
-3.0	
-3.1	
-3.2	
-3.3	
-3.4	
-3.5	
-3.6	
-3.7	
-3.8	
-3.9	
-4.0	
-4.1	
-4.2	
-4.3	
-4.4	
-4.5	
-4.6	
-4.7	
-4.8	
-4.9	
-5.0	

Scala Blow Count / 100mm

0 5 10 15 20

In-situ field testing in accordance with the following Standards:

Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer

Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

LandTech Consulting Ltd. (Christchurch): Unit 6, 31 Carlyle Street, Sydenham
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Phone: (03) 390 1371
Phone: (09) 930 9334
Email: info@landtech.nz
Website: www.landtech.nz

LandTech CONSULTING

Client: Gould Developments Limited
Project: Geotechnical Investigation for Proposed Land Use Change
Address: Lincoln Rolleston Road, Rolleston

Test Pit No. TP04
Sheet No. 1 of 1

Drill Type:	6T Hydraulic Excavator	Project No:	LTC20265	Logged By:	L Challies
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1552364 N5171882	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (21-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T. SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS	0.5		Fine sandy SILT, yellowish light brown, stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	1.0		Fine to coarse sandy, sub rounded GRAVEL, minor silt, brown, dense, moist [RIVER DEPOSITS]
	1.5		trace subrounded to round boulders, wet
	2.0		
	2.5		
	3.0		End of Test Pit 2.8m [TARGET DEPTH]
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m): Not Encountered (21-Sep-20)

In-situ Field Testing

Shear Strength (kPa) — Peak: — Remoulded: ·

Dynamic Cone Penetrometer

Depth (m)	Blow Count
-0.1	2
-0.2	2
-0.3	4
-0.4	2
-0.5	4
-0.6	12
-0.7	20
-0.8	14
-0.9	14
-1.0	20+

Scala Blow Count / 100mm (0 5 10 15 20)

In-situ field testing in accordance with the following Standards:
Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer
Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

LandTech Consulting Ltd. (Christchurch): Unit 6, 31 Carlyle Street, Sydenham
LandTech Consulting Ltd. (Auckland): 17 Nils Andersen Road, Whenuapai
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Phone: (09) 930 9334
Email: info@landtech.nz
Website: www.landtech.nz

LandTech CONSULTING	Client: Gould Developments Limited Project: Geotechnical Investigation for Proposed Land Use Change Address: Lincoln Rolleston Road, Rolleston	Test Pit No.	TP05
		Sheet No.	1 of 1

Drill Type:	6T Hydraulic Excavator	Project No:	LTC20265	Logged By:	L Challies
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1552405 N5172052	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (21-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T. SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS	0.5		Fine sandy SILT, yellowish light brown, stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	1.0		Fine to coarse sandy, sub rounded GRAVEL, minor silt, brown, dense, moist [RIVER DEPOSITS]
	1.5		trace subrounded to round boulders
	2.0		
	2.5		wet
	3.0		End of Test Pit 2.7m [TARGET DEPTH]
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m): Not Encountered (21-Sep-20)

In-situ Field Testing

Shear Strength (kPa)

Peak:

Remoulded:

150 200

187+ UTP

Depth (m)	Blow Count
-0.1	2
-0.2	2
-0.3	3
-0.4	5
-0.5	6
-0.6	6
-0.7	6
-0.8	7
-0.9	7
-1.0	10
-1.1	18
-1.2	20+
-1.3	
-1.4	
-1.5	
-1.6	
-1.7	
-1.8	
-1.9	
-2.0	
-2.1	
-2.2	
-2.3	
-2.4	
-2.5	
-2.6	
-2.7	
-2.8	
-2.9	
-3.0	
-3.1	
-3.2	
-3.3	
-3.4	
-3.5	
-3.6	
-3.7	
-3.8	
-3.9	
-4.0	
-4.1	
-4.2	
-4.3	
-4.4	
-4.5	
-4.6	
-4.7	
-4.8	
-4.9	
-5.0	

Dynamic Cone Penetrometer

Scala Blow Count / 100mm

0 5 10 15 20

In-situ field testing in accordance with the following Standards:

Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer

Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

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Phone: (09) 930 9334
Email: info@landtech.nz
Website: www.landtech.nz

LandTech CONSULTING	Client: Gould Developments Limited Project: Geotechnical Investigation for Proposed Land Use Change Address: Lincoln Rolleston Road, Rolleston	Test Pit No.	TP06
		Sheet No.	1 of 1

Drill Type:	6T Hydraulic Excavator	Project No:	LTC20265	Logged By:	L Challies
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1552565 N5172038	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (21-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T. SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS	0.5		Fine sandy SILT, yellowish light brown, stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	1.0		Fine to coarse sandy, sub rounded GRAVEL, minor silt, brown, dense, moist [RIVER DEPOSITS]
	1.5		trace subrounded to round boulders
	2.0		
	2.5		
	3.0		End of Test Pit 2.6m [TARGET DEPTH]
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m): Not Encountered (21-Sep-20)

In-situ Field Testing

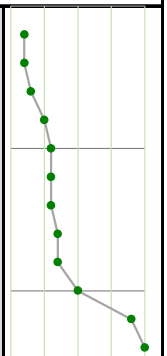
Shear Strength (kPa)



Dynamic Cone Penetrometer

Depth (m)	Blow Count
-0.1	2
-0.2	2
-0.3	3
-0.4	5
-0.5	6
-0.6	6
-0.7	6
-0.8	7
-0.9	7
-1.0	10
-1.1	18
-1.2	20+
-1.3	
-1.4	
-1.5	
-1.6	
-1.7	
-1.8	
-1.9	
-2.0	
-2.1	
-2.2	
-2.3	
-2.4	
-2.5	
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-3.1	
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-3.3	
-3.4	
-3.5	
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-3.8	
-3.9	
-4.0	
-4.1	
-4.2	
-4.3	
-4.4	
-4.5	
-4.6	
-4.7	
-4.8	
-4.9	
-5.0	

Scala Blow Count / 100mm



In-situ field testing in accordance with the following Standards:

Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer

Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

LandTech Consulting Ltd. (Christchurch): Unit 6, 31 Carlyle Street, Sydenham
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Phone: (03) 390 1371
Phone: (09) 930 9334
Email: info@landtech.nz
Website: www.landtech.nz

APPENDIX C

Soakage Test Results

	Client:	Goulds Development Limited	
	Project:	Proposed Land Use Change	
	Address:	Lincoln Rolleston Road, Rolleston	
Test Type:	On-site soakage test	Project No:	LTC20265
Tested By:	L Challies	Test Date:	21-Sep-20

Test ID:	TP02/SP01	Test ID:	
Coordinates:	NZTM2000 E1552266 N5172044	Coordinates:	
Groundwater level:	Not Encountered	Groundwater level:	
Method:	In accorandance with W1: Falling-head percolation Test of the Auckland soakage design manual	Method:	

Test Pit Dimensions

2	m	length
1	m	wide
1.60	m	equivalent diameter

1) Test Details

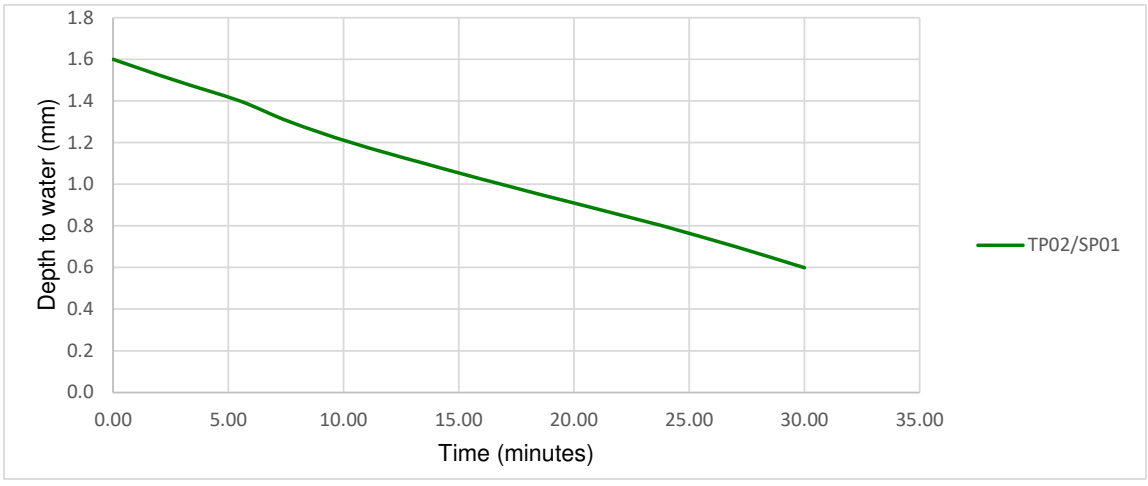
Time (Sec)	Time (min)	Depth (m)	Soak Rate (m/min)
0	0.00	1.6	-
160	2.67	1.5	0.038
330	5.50	1.4	0.035
460	7.67	1.3	0.046
620	10.33	1.2	0.038
810	13.50	1.1	0.032
1010	16.83	1.0	0.030
1220	20.33	0.9	0.029
1430	23.83	0.8	0.029
1620	27.00	0.7	0.032
1800	30.00	0.6	0.033

2) Calculate Minimum Gradient

0.03	m/min	1836	mm/h

3) Calculate percolation rate

13	L/m2/min
771	L/m2/hr



Appendix 5: Geotech Investigation north block

GEOTECHNICAL INVESTIGATION REPORT

FOR PROPOSED LAND USE CHANGE

139 Levi Road, Rolleston

Client: Four Stars Development Limited

Project Reference:	LTC20264
Revision:	Revision A
Date:	13 October 2020

Documentation Control:

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Document Title:	**Geotechnical Report for Proposed Land Use Change**	
Address:	139 Levi Road, Rolleston	
Revision:	Revision A	
Client:	Four Stars Development Limited	
Project Reference:	LTC20264	
Author:		Luke Challies, Associate Geotechnical Engineer BEngTech (Civil), MEngNZ
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Paterson Pitts Group	13 October 2020	Rev A (PDF)

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1.0 Introduction

1.1 Project Brief

LandTech Consulting Limited. (LandTech) were engaged by Four Stars Development Limited (the Client) to carry out a geotechnical investigation at 139 Levi Road, Rolleston (the Site). The geotechnical investigation is in relation to the proposal to change the land use within the investigated area.

The geotechnical investigation has been carried out to determine a geological model of the site, qualitatively assess the future land performance (i.e. during seismic events) and provide preliminary recommendations for site development.

This geotechnical report summarises the findings of our investigation and assessment. It includes a preliminary geotechnical assessment of the site, and may be used to support the land use change application to the Selwyn District Council (SDC). This report is not intended to support the subdivision application, individual house design or corresponding Building Consents, and further testing will be needed to address these applications.

1.2 Scope of Works

The geotechnical investigation for the proposed development included the following:

- Review of the New Zealand Geotechnical Database (NZGD) and other relevant geological/ geotechnical data;
- Detailed walkover inspection;
- Intrusive field investigation (i.e. test pits and insitu strength testing);
- Collation of field data and drafting;
- Geotechnical assessment;
- Provision of preliminary recommendations for development; and
- Preparation of this geotechnical report, detailing all of the above.

2.0 Site & Project Description

The investigation site is located near the corner of Levi Road and Lincoln Rolleston Road in Rolleston. The site is indicated in Figure 1 below, and is located approximately 1.1km to the south east of the Rolleston Township. The site comprises part of 139 Levi Road, legally described as Lot 2 DP416195 and Lot 2 DP 322710, and covers a total area of 30.43ha (sourced from https://mapviewer.canterburymaps.govt.nz/ on 11 October 2020).

Due the zoning of a decibel restriction associated with the Christchurch Airport extending into the eastern portion of the property, only the northern and western portion of the property has been investigated for the Land Use Change Application. The location of the investigated area and approximate location of the decibel restrictions is shown on the attached drawings LTC20264/1.



Figure 1: Aerial photograph of investigation site (source: https://mapviewer.canterburymaps.govt.nz/, accessed 11 September 2020)

The property is generally flat and is currently used for horse training, and a stables and associate building are located in the northern portion of the site near Levi Road, along with a dwelling in the western corner. A training oval occupies the centre of the property, along with several tracks providing accesses to the paddocks. The land is essentially flat with no obvious changes in elevations and undulations.

3.0 Area Geology

Reference has been made to the *New Zealand Geology Web Map*, GNS Science, http://data.gns.cri.nz/geology/, website accessed 11 September 2020. The reviewed sources indicate that the site is underlain by Holocene Aged River Deposits. These materials generally comprise rounded to subrounded gravel and cobble sized particles within a matrix of silt and sand, deposited via the lateral and vertical migration of the past and present river systems, from the Southern Alps, out toward the east coast. Due to the depositional environment, the geotechnical characteristics of this material can be variable.

The characteristics of the River Deposits can vary widely over small distances. These variances include vertical and horizontal differences in both soil particle size distribution and consolidation. It is discussed above that these materials generally comprise gravel and cobbles; however, interbedded horizons of fine to coarse grained sand, silt and clay can also exist. They can also be capped by loessal soils or finer grained silts and sands.

3.1 Faults in Canterbury

For the purpose of our investigation we have referred to a Selwyn District earthquake fault report compiled by GNS Science and Environment Canterbury (ECan). The referenced report is titled:

- *General distribution and characteristics of active faults and folds in the Selwyn District, North Canterbury*, GNS Science and Environment Canterbury, dated July 2013.

The reference report gives a general outline of the nature of geologically active areas within the Selwyn District. Figure 6 in the referenced report indicates that the investigation site is located within 10km of the mapped Greendale Fault, to the northwest.

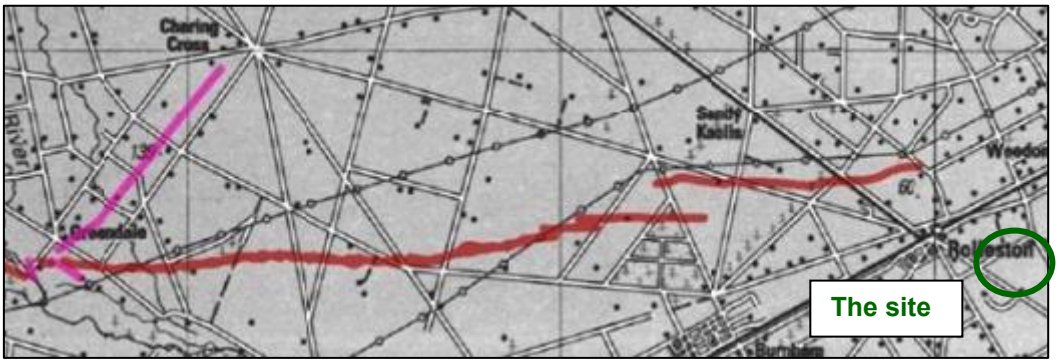


Figure 2: shows excerpt from figure A.1e of the referenced report (red line is a definite or likely fault).

The Greendale Fault and associated blind faults of the Darfield earthquake sequence have been defined by GNS Science via field inspection, aerial photograph interpretation and regional geologic mapping. The reference source indicates that these faults were unknown prior to 2010 and the ages of previous ruptures are also not known. This leave the potential for further unmapped faults to exist within the locality of the investigation site.

4.0 Geotechnical Data Review

Reference has been made to sources including the New Zealand Geotechnical Database (NZGD): http://www.nzgd.org.nz/ and Environment Canterbury (ECan): http://canterburymaps.govt.nz/ (accessed 11 September 2020). The following text summaries the findings of our data review:

- The MBIE *Residential Foundation Technical Category* Map indicates the site is located within an area designated as N/A - Rural and Unmapped. This indicates that normal consenting procedures apply.

- According to Canterbury Maps there are a series of Ecan wells within close proximity to the site. The associated bore logs for the following ECan wells have been reviewed, and are attached within Appendix B:

    - M36/0328, drilled to 28.6m and located with the neighbouring property to the south of the site at 232 Lincoln Rolleston Rd site. The borelog for the well shows earth and clay to 1.2m depth underlain by claybound to rough sandy gravel to the drill depth. Water levels from 1989, indicate a groundwater level of between 13.5m and 14.3m below ground level.

    - M36/8287, drilled to 46.1m and located at the northeastern corner of the site. The borelog for the well shows topsoil to 0.3m depth underlain by gravels to the drill depth. Ground water levels are indicated at 15.3m below ground level at the time of drilling.

    - M36/5292, drilled to 52.0m and located 80m to the south of the site near 294 Lincoln Rolleston Road. The borelog for the well shows topsoil and clay to 0.3m depth underlain by sandy gravel or claybound gravel to the drill depth. Initial groundwater levels are indicated at 12.2m below ground level at the time of drilling.

- According to the Environment Canterbury Soil Type map, the site is mapped as primarily *Typic Immature Plallic Soils* with a deep silty loam, while the northern corner of the site is mapped as a *Typic Immature Plallic Soils* having a moderately deep silty loam. Both soil types are described as having *moderate over slow* permeability.

- Eastern Canterbury Liquefaction susceptibility (2012), shows the site is located within an area were *Liquefaction damage is unlikely.*

- A review of historical photograph of the site from between 1940 and 2004 has been carried out on information available from Canterbury Maps. Imagery from 1940 to 1944 (shown overleaf in Figure 3), shows evidence of paleo river channels near the northern corner of the site. It is therefore possible additional channels are present within the investigation site. Some historic infilling of these paleo channels could have taken place as part of farming activities. However, our investigation found limited evidence of filling having taken place across the general subdivision site.



Figure 3: Aerial photograph of investigation site (source: https://mapviewer.canterburymaps.govt.nz/, accessed 11 September 2020)

5.0 Field Investigation

Our field investigation took place on 21 September 2020 and comprised the following components:

- Detailed walkover inspection; and
- Excavation of Six test pits (TP01 – TP06) and associated Scala penetrometer testing; and
- Soakage testing (ST01) within TP06.

Each test was positioned evenly across the site away from infrastructure and animals, and test locations are shown on the LandTech *Site Test Plan*, Drawing No. LTC20264/ 1 (attached in Appendix A). The positions have been located via a hand-held GPS without survey control and are therefore approximate only.

The soil conditions encountered within the hand augerholes and test pits were logged by LandTech field staff in accordance with New Zealand Geotechnical Society *Guideline for the Description of Soil and Rock for Engineering Purposes* (2005). The test pit logs and corresponding photographs are attached in Appendix B, while the hand augerhole logs are within Appendix C.

The undrained shear strength of the fine-grained soils was recorded where applicable using a Geovane hand held shear vane in accordance with the NZGS *Guideline for Hand Held Shear Vane Test*, published August 2001. The peak and remoulded vane shear strength values have been factored in terms of BS1377.

Dynamic Cone (Scala) Penetrometer testing was carried out near the test pit locations to determine a soil density profile. Testing procedures were in accordance with NZS 4402:1988, Test 6.5.2, *Dynamic Cone Penetrometer*. The test results are shown on test pit logs.

Soakage testing was carried out in general accordance with the Auckland City Soakage Design Manual, worksheet W1: Falling-head Percolation Test. That being the change in water depth against time was recorded. A slight modification for the diameter of the holes has been made with a simple area conversion from a rectangle to a circle to give an equivalent diameter.

6.0 Subsurface Conditions

The sites subsurface conditions generally comprised a surficial layer of topsoil underlain by a sequence of Alluvial / Loess deposits followed by River Deposits. This is consistent with the geology described in Section 3.0 (Area Geology). A subsurface summary is given in Table 2 and detailed descriptions are given in the subsequent sections.

Table 1: Subsurface summary

Test pit ID	Test Pit Depth	Topsoil Depth	Soil Depth	Scala Depth
TP01	3.2	0.3	2.8	2.4
TP02	3.2	0.3	2.9	2.5
TP03	2.8	0.3	1.2	1.3
TP04	2.6	0.3	1.5	1.6
TP05	3.0	0.3	1.4	1.4
TP06	2.8	0.2	1.4	1.4

Table notes: Measurements are in metres (m) below present ground level
Scala penetrometer refusal considered when an excess of 20 blows /100mm penetration occurs

6.1 Topsoil

Topsoil was encountered from the surface at all test locations and ranged between the depths of 0.2m and 0.3m below present ground level (bpgl). This mostly comprised dark brown silt with minor fractions of fine to coarse grained sand. The topsoil is not considered suitable for the support of building foundations.

6.2 Alluvial / Loess Deposits

Soil deposits comprising either alluvial soils or loessal soils where present above the river deposits at depth. The depth of these soils ranged from between 1.2m (TP03) and 2.9m (TP02) below ground level, and typically comprised a moist fine sandy silt. Typically, the deeper deposits of soil where encountered along the northern boundary towards the northwestern corner.

Scala penetrometer testing within the soils generally ranged from 2 and 5 Blows / 100mm penetration. Higher blow counts at depth are due to contact with the underlying gravels.

Where possible shear vane testing was carried out in the silt materials, peak shear vane testing ranged from between 107kPa and 187+kPa indicating a very stiff soil.

6.3 River Deposits

River Deposits were encountered below the surficial layer of sandy silts from between 1.2m (TP03) and 2.9m (TP02) to the termination depth of all test locations (TP01 – TP06). The River Deposits generally comprised fine to coarse sandy, fine to coarse subrounded gravel. The gravel deposits where described as moist, while larger cobbles were also encountered.

Scala penetrometer testing was unable to penetrate the gravels with refusal typically being achieved in contact with the underlying gravels, indicative of dense packing.

6.4 Soakage

The soakage capacity of the gravel was tested within TP05; the location of the test pits are shown on the LandTech *Site Test Plan*, Drawing No. LTC20264/ 1 (attached in Appendix A). The results of the soakage testing are attached in Appendix C.

The results of the calculated average soakage rates are shown in Table 3 below:

Table 2: Average soakage rates

	SP01 / TP06
Average Soak Rate (mm/hour)	368
Percolation Rate (L/m^2/min)	10

Following the testing silt was loaded in the base to a thickness of around 0.2m thick which likely impeded the flow. While the Test pit was being filled the maximum height the above the base the water level rose to was 0.5m, at a flow rate of 833L/min or 520L/m^2/min. This shows that infiltration from the side walls contributes a considerable amount to the drainage.

Based on the variable subsurface conditions throughout this site (i.e. depth of soil), we recommend additional soakage testing be carried out in the location of proposed soakage basins to determine more representative percolation rates to design from.

6.5 Site Seismicity

For the purpose of applying requirements of NZS 1170.5:2004 the site subsoil is Class D – Deep or Soft Soil Site. This classification is based on depths of soil exceeding the limits of Table 3.2 of the reference standard. seismic hazard factor (Z) for the site is 0.3 as per the standard.

7.0 Qualitative Liquefaction Analysis

The MBIE & New Zealand Geotechnical Society Inc. report titled *Earthquake geotechnical engineering practice, Module 3: Identification, assessment and mitigation of liquefaction hazards* (2016) explains that the evaluation of the geologic susceptibility of liquefaction is a key aspect in the evaluation of liquefaction potential at a given site.

Based on our desktop study and field investigation, we have established that the site is generally underlain by Holocene Age horizons of tightly packed gravel (i.e. River Deposits) with average ground water levels of around 13.0m. In addition to this ECan (2012) liquefaction susceptibility maps has indicated that the site is unlikely to be damaged via earthquake induced liquefaction.

The region comprises a rural/unmapped Residential Foundation Technical Category (based on MBIE); however, is considered an area that is not likely to be susceptible to liquefaction induced damage. This is based on the geology underlying the site (i.e. Holocene Aged River Deposits), the previously referenced reports and maps, and our qualitative liquefaction assessment.

Based on our assessment of the investigation site, we are categorising existing property as Technical Category 1 (TC1) with damaging liquefaction unlikely and consider the site suitable for residential development from a geotechnical perspective.

8.0 Geotechnical Hazard Evaluation

Section 106 of the Resource Management Act 1991 outlines hazards that must be assessed when a territorial authority considers subdivision of land. This section outlines our evaluation of possible geotechnical hazards associated with this site. Based on the results of our investigation and assessment, we consider this site suitable for land use change to residential zoning from a geotechnical perspective.

8.1 Erosion

The surface of the property is near level to undulating with no general contour/runoff direction. During our field investigation, we did not observe any obvious signs of erosion from concentrated surface runoff. Furthermore, we do not consider the proposed site development will increase the erosion potential provided stormwater is disposed of in a controlled manner subject to usual Council Consenting procedures.

8.2 Inundation

Assessment for inundation from flooding is not a part of the scope of this report and therefore has not been fully assessed. A basic review of online mapping available from CanterburyMaps has been carried out and no information for the site was evident. If required an assessment should be carried out by suitably experienced consultant.

8.3 Subsidence

It is discussed in previous sections of this report, liquefaction is not likely to occur within the investigation site. This is due to the shallow depth to gravel and gravelly sand layers (between 1.2m and 2.9m below the site) and the ECan well logs indicating that groundwater in the area is at an average of around 13.0m below ground level.

This means that corresponding liquefaction induced subsidence is unlikely, as per the site performance through the CES. Foundation settlements are also considered unlikely due to the dense nature of the subsoils. This is provided in our recommendations given further herein are followed regarding further investigation, foundation design and construction.

8.4 Falling Debris

No tall standing slopes exist in the vicinity of the investigation site, therefore falling debris hazard is non-existent.

8.5 Slippage

Due to the site being near level to gently undulating, it's removed location from any major waterways, and inferred non-liquefiable nature of the underlying subsoils, slippage via liquefaction-induced lateral spreading is not considered to affect the subdivision site. No other geotechnical mechanism of slippage was noted during out field investigation or from our assessment.

8.6 Contamination

Whilst not a requirement of Section 106 of the RMA 1991, soil contamination is a potential geotechnical hazard that should be considered when making Consent applications to territorial authorities where ground disturbance works are proposed (i.e. foundation excavations etc.). This indicates no HAIL activities are recorded to have taken place at the site, according to the register. This does not confirm the site has no soil contamination, but only indicates the Regional Council does not have records of potentially hazardous activities taking place the site that could lead to soil contamination.

9.0 Geotechnical Recommendations

It is stated in the previous sections that the site has been classified as TC1; based on our desktop study, the underlying geology and qualitative liquefaction assessment. Following our assessment, we consider the site suitable land use change to residential zoning from a geotechnical perspective. Our recommendations with regard to site development and preliminary foundation design follow subsequently.

9.1 Preliminary Foundation Recommendations

Due to the low risk of liquefaction at the subdivision we have classified the investigation site as TC1, and conclude the River Deposits beneath any surficial soils meet the criteria for “good ground” as defined by NZS3604:2011. Some areas of weak upper surficial soils may require foundations to be subject to specific engineering design due to low bearing capacities. Alternatively, earthworks during subdivision may compact any weak upper layers so standard foundations can be utilised without engineering design input. The extent of any weak upper soils can be determined with further shallow soil testing as part of the subdivision design/consenting stage.

9.2 Preliminary Earthwork Recommendations

All proposed earthworks will need to be carried out to the requirements of NZS 4431:1989, ‘Code of Practice for Earthfilling for Residential Development’. All unsuitable materials (vegetation, organic or detritus material, and organic rich topsoil etc.) should be stripped from any areas of earthworks and stockpiled well clear of operations or carted from the site.

10.0 Future Geotechnical Involvement

Should the land use change be approved and a subdivision plan be made, a more detailed geotechnical investigation will be required to more accurately identify areas of deep alluvial soils and provided further geotechnical recommendations for the subdivision development.

Dependent on the extent of earthworks during the subdivision stage and involvement from a geo-professional to observe areas of stripped ground and fill compaction, additional lot specific shallow soil testing may be required. The results of which may supersede our preliminary foundation recommendations if the test results differ to our area wide investigation. However, the risk of differing ground conditions is considered to be low, due to the relatively uniform presence of dense river gravels throughout the general Rolleston area. Potential variations could be from deeper areas of surficial alluvial soils or localised uncontrolled filling in the past.

11.0 Limitations

This geotechnical report has been prepared for our Client, Four Stars Investment Limited, for the purposes of supporting a Land Use Change application to the Selwyn District Council. This report shall not be extrapolated for other nearby sites or used for any other purposes without the express approval of LandTech and their Client.

This report has been based on the results of tests at point locations; therefore, subsurface conditions could vary away from the assumed geotechnical model. Should exposed soil conditions vary from those described herein we request to be informed to determine the continued applicability of our recommendations. We have attempted to conduct a thorough investigation of soil types across the site, within the agreed scope of works. However, variations still may exist as soils can vary naturally and due to previous human activities, which LandTech have no control over and should not be held accountable for.

The geotechnical investigation was confined to geotechnical aspects of the site only and did not involve the assessment for environmental contaminants. In addition, our investigation and analyses have also not taken into account possible fault rupture that may cause deformations and displacements of the ground directly below the site. This type of assessment is outside of the scope of our geotechnical engagement.

END OF REPORT

APPENDIX A

LandTech Site Test Plan



KEY:

- TP01 — LandTech Consulting Test Pit locations Carried out on 21 September 2020
- SP01 — LandTech Consulting Soakage Test Locations Carried out on 21 Septembner 2020
- Investigated Area
- Existing Boundaries
- 50 dBA contour

NOTES:

Locations of features approximate only.

Original sheet size A3

Boundary information on this *Site Test Plan* adapted from LINZ website: www.data.linz.govt.nz (accessed 04 September 2020)

AMENDMENTS

DATE	REV	DESCRIPTION
12/10/2020	A	Test Plan

Check all dimensions and levels on site before commencing construction.

This drawing and design remains the property of LandTech Consulting Ltd. and may not be reproduced without approval and permission from LandTech Consulting Ltd.

139 Levi Road

ROLLESTON

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Drawing No.	Drawn by:	Date:
LTC20264/1	L C	12 October 2020

Scale:	Checked by:	Revision:
1: 2000 (A3)	D W	A

Filename: LTC20264 - Drawings.dwg

APPENDIX B

Environment Canterbury Well logs

canterbury maps

Canterbury Maps

Information has been derived from various organisations, including Environment Canterbury and the Canterbury Maps partners. Boundary information is derived under licence from LINZ Digital Cadastral Database (Crown Copyright Reserved). Environment Canterbury and the Canterbury Maps partners do not give and expressly disclaim any warranty as to the accuracy or completeness of the information or its fitness for any purpose.

Information from this map may not be used for the purposes of any legal disputes. The user should independently verify the accuracy of any information before taking any action in reliance upon it.

N

0 0.07 0.14 0.21 0.28 Kilometres

Scale: 1:5,000 @A3

Map Created by Canterbury Maps on 12/10/2020 at 12:49 PM

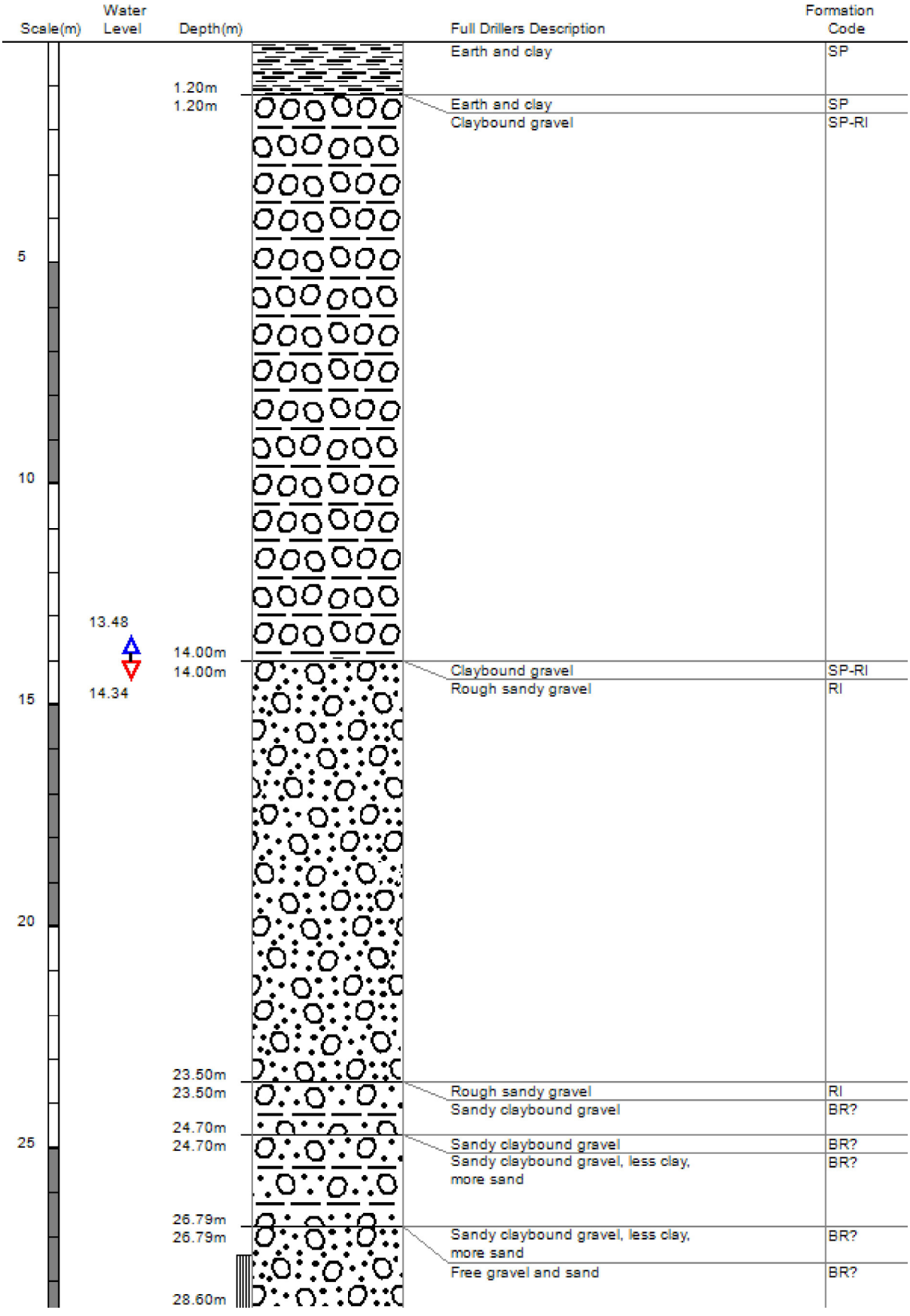
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M36/0254
M36/8518
BX23/0827
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M36/5292
M36/4870
M36/4865
M36/0328
BX23/0528
BX23/0420
BX23/0571
BX23/0620
M36/5359
BX23/0648
BX23/0618
M36/4894
Levi Rd
Lincoln Rolleston Rd
Reuben Ave
Turin Ave
Rory St
Branthwaite Dr
Falcon Rd
Gregra Ave
Nobeline Dr

Environment Canterbury, Land Information New Zealand, GNS Science, Te Rūnanga o Ngāi Tahu, Department of Conservation, New Zealand Archaeological Association, Environment Canterbury, Canterbury Maps Partners, Open Street Maps, Environment Canterbury

Borelog for well M36/0328

Grid Reference (NZTM): 1552007 mE, 5172190 mN
Location Accuracy: 50 - 300m
Ground Level Altitude: 42.6 m +MSD Accuracy: < 0.5 m
Driller: McMillan Drilling Ltd
Drill Method: Cable Tool
Borelog Depth: 28.6 m Drill Date: 20-Aug-1980

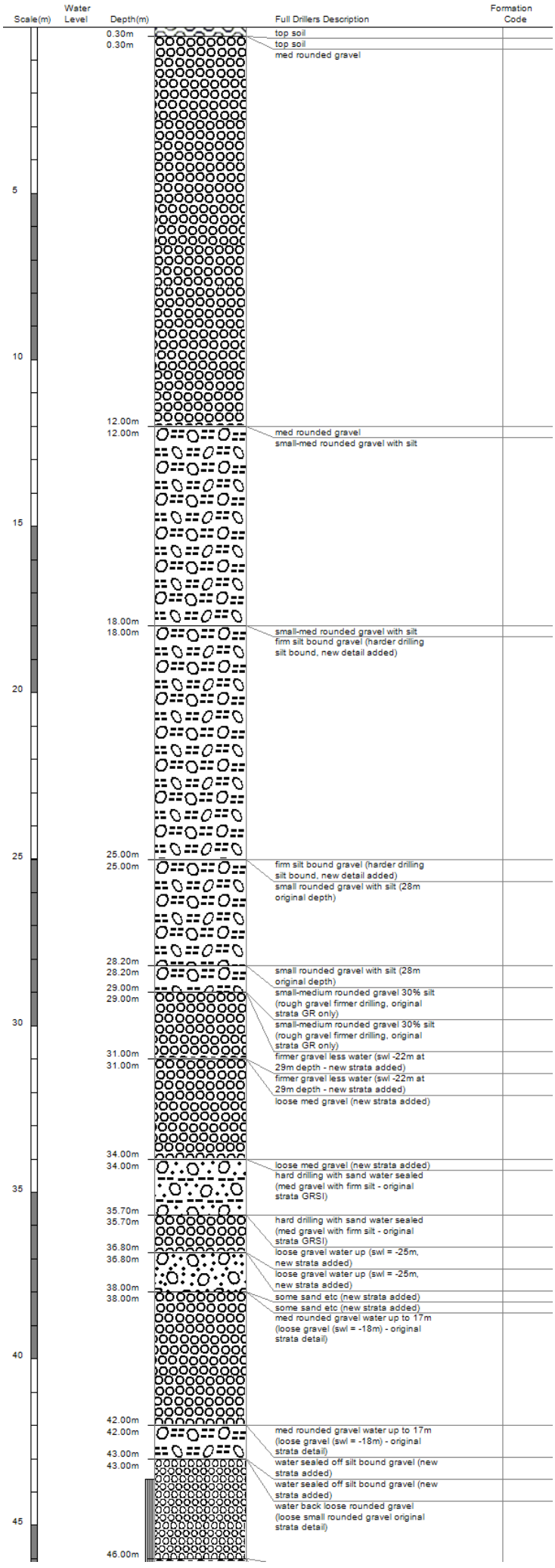
Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha



Borelog for well M36/8287

Grid Reference (NZTM): 1551585 mE, 5172834 mN
Location Accuracy: 2 - 15m
Ground Level Altitude: 45.9 m +MSD Accuracy: < 0.5 m
Driller: Dynes Road Drilling
Drill Method: Rotary/Percussion
Borelog Depth: 46.1 m Drill Date: 15-Jan-2007

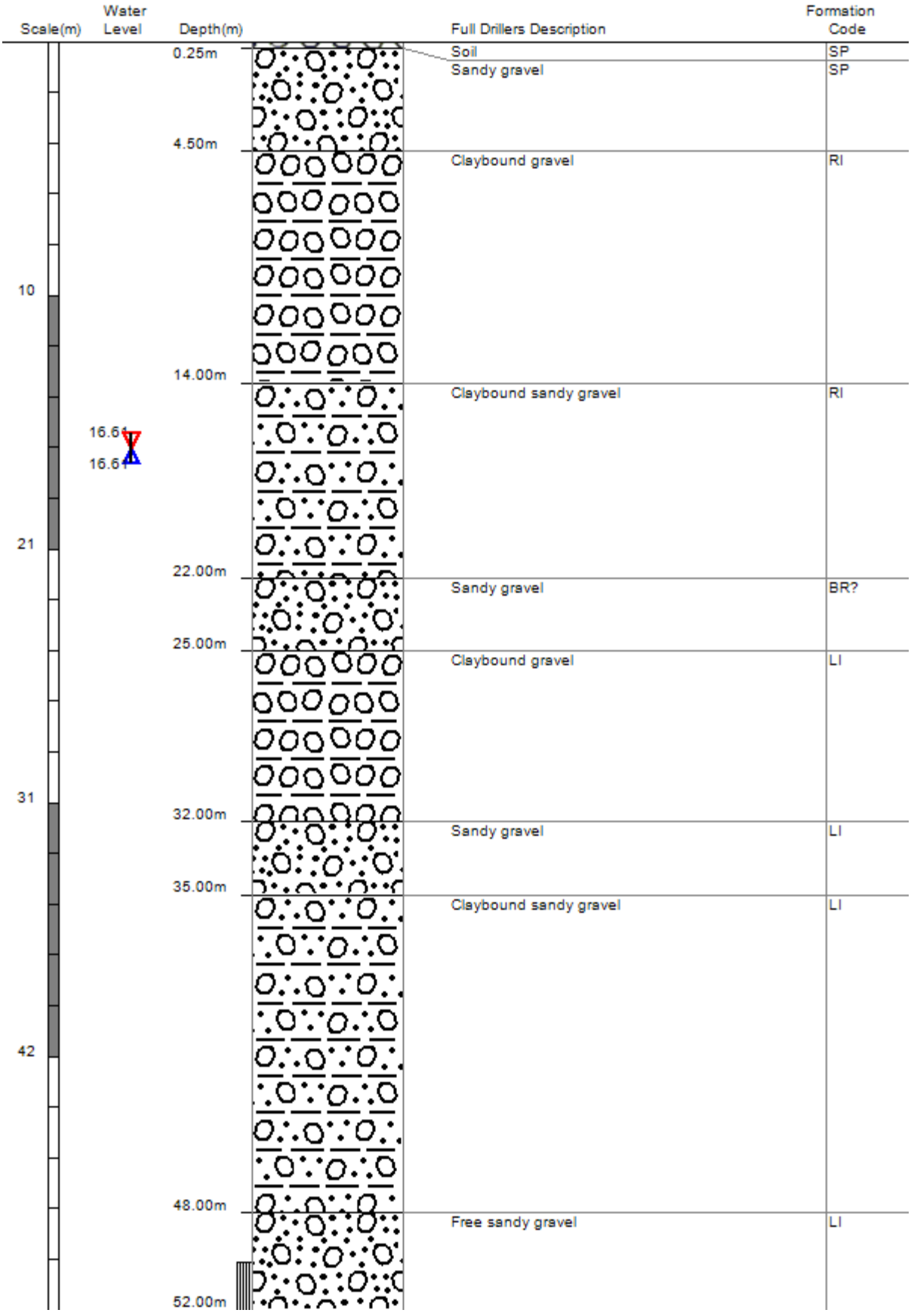
Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha



Borelog for well M36/5292

Grid Reference (NZTM): 1551672 mE, 5172222 mN
Location Accuracy: 2 - 15m
Ground Level Altitude: 44.4 m +MSD Accuracy: < 2.5 m
Driller: Smiths Welldrilling
Drill Method: Rotary Rig
Borelog Depth: 52.0 m Drill Date: 15-Sep-1997

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha



APPENDIX C

Test Pit Logs

LandTech CONSULTING

Client: Four Stars Development Ltd
Project: Geotechnical Investigation for Proposed Land Use Change
Address: 139 Levi Road, Rolleston

Test Pit No. TP01
Sheet No. 1 of 1

Drill Type:	6T Hydraulic Excavator	Project No:	LTC20264	Logged By:	M Gunn
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1551391 N5172741	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (21-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T.SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS / LOESS	0.5		SILT, some fine sand, brown, stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	1.5		Fine sandy, SILT, light brown, stiff, moist, non-plastic
RIVER DEPS.	3.0		Fine sandy fine to coarse sub-rounded GRAVEL, brown, dense, moist [RIVER DEPOSITS]
	4		End of Test Pit 2.8m [TARGET DEPTH]
	5.0		

Groundwater Level (m): Not Encountered (21-Sep-20)

In-situ Field Testing

Shear Strength (kPa)
Peak:
Remoulded:
0 50 100 150 200
160

Dynamic Cone Penetrometer
Scala Blow
0 5 10 15 20

Depth (m)	Blow Count
-0.1	2
-0.2	3
-0.3	4
-0.4	4
-0.5	5
-0.6	3
-0.7	3
-0.8	3
-0.9	4
-1.0	3
-1.1	2
-1.2	2
-1.3	3
-1.4	2
-1.5	1
-1.6	2
-1.7	2
-1.8	2
-1.9	2
-2.0	2
-2.1	2
-2.2	2
-2.3	3
-2.4	4
-2.5	5
-2.6	
-2.7	
-2.8	
-2.9	
-3.0	
-3.1	
-3.2	
-3.3	
-3.4	
-3.5	
-3.6	
-3.7	
-3.8	
-3.9	
-4.0	
-4.1	
-4.2	
-4.3	
-4.4	
-4.5	
-4.6	
-4.7	
-4.8	
-4.9	
-5.0	

In-situ field testing in Scala Penetrometer Shear Vane Testing:

LandTech CONSULTING

Client: Four Stars Development Ltd
Project: Geotechnical Investigation for Proposed Land Use Change
Address: 139 Levi Road, Rolleston

Test Pit No. TP02
Sheet No. 1 of 1

Drill Type:	6T Hydraulic Excavator	Project No:	LTC20264	Logged By:	M Gunn
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1551545 N5172856	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (21-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T.SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS	0.5		Fine sandy SILT, light brown, stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	2.5		SILT, minor fine sand, light brown, mottled orange, stiff, moist, non-plastic
RIVER D.	3.0		Fine sandy, fine to coarse, subrounded to round GRAVEL, brown, very dense, moist [RIVER DEPOSITS]
	3.2		End of Test Pit 3.2m [TARGET DEPTH]

Groundwater Level (m): Not Encountered (21-Sep-20)

In-situ Field Testing

Shear Strength (kPa)
Peak:
Remoulded:
0

Dynamic Cone Penetrometer

Depth (m)	Blow Count	Scala Blow Count / 100mm
-0.1	3	
-0.2	3	
-0.3	5	
-0.4	4	
-0.5	4	
-0.6	3	
-0.7	3	
-0.8	3	
-0.9	2	
-1.0	2	
-1.1	2	
-1.2	3	
-1.3	2	
-1.4	3	
-1.5	2	
-1.6	3	
-1.7	4	
-1.8	5	
-1.9	3	
-2.0	3	
-2.1	3	
-2.2	2	
-2.3	3	
-2.4	3	
-2.5	3	
-2.6		
-2.7		
-2.8		
-2.9		
-3.0		
-3.1		
-3.2		
-3.3		
-3.4		
-3.5		
-3.6		
-3.7		
-3.8		
-3.9		
-4.0		
-4.1		
-4.2		
-4.3		
-4.4		
-4.5		
-4.6		
-4.7		
-4.8		
-4.9		
-5.0		

Scala Blow Count / 100mm: 0 5 10 15 20

In-situ field testing in accordance with the following Standards:
Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer
Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

LandTech Consulting Ltd. (Christchurch): Unit 6, 31 Carlyle Street, Sydenham
LandTech Consulting Ltd. (Auckland): 17 Nils Andersen Road, Whenuapai
Phone: (03) 390 1371
Phone: (09) 930 9334
Email: info@landtech.nz
Website: www.landtech.nz

LandTech CONSULTING

Client: Four Stars Development Ltd
Project: Geotechnical Investigation for Proposed Land Use Change
Address: 139 Levi Road, Rolleston

Test Pit No. TP03
Sheet No. 1 of 1

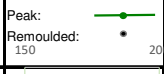
Drill Type:	6T Hydraulic Excavator	Project No:	LTC20264	Logged By:	M Gunn
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1551724 N5172860	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (21-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T. SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS / LOESS	0.5		Fine sandy SILT, yellowish light brown, very stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	1.0		
RIVER DEPOSITS	1.5		Fine to coarse sandy, sub rounded GRAVEL, minor silt, brown, dense, moist [RIVER DEPOSITS] trace subrounded to round boulders
	2.0		
	2.5		
	3.0		End of Test Pit 2.8m [TARGET DEPTH]
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m): Not Encountered (21-Sep-20)

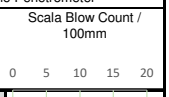
In-situ Field Testing

Shear Strength (kPa)



Dynamic Cone Penetrometer

Depth (m)	Blow Count
-0.1	3
-0.2	3
-0.3	3
-0.4	4
-0.5	3
-0.6	3
-0.7	3
-0.8	3
-0.9	4
-1.0	3
-1.1	9
-1.2	12
-1.3	25+
-1.4	
-1.5	
-1.6	
-1.7	
-1.8	
-1.9	
-2.0	
-2.1	
-2.2	
-2.3	
-2.4	
-2.5	
-2.6	
-2.7	
-2.8	
-2.9	
-3.0	
-3.1	
-3.2	
-3.3	
-3.4	
-3.5	
-3.6	
-3.7	
-3.8	
-3.9	
-4.0	
-4.1	
-4.2	
-4.3	
-4.4	
-4.5	
-4.6	
-4.7	
-4.8	
-4.9	
-5.0	



In-situ field testing in accordance with the following Standards:

Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer

Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

LandTech Consulting Ltd. (Christchurch): Unit 6, 31 Carlyle Street, Sydenham
LandTech Consulting Ltd. (Auckland): 17 Nils Andersen Road, Whenuapai
Phone: (03) 390 1371
Phone: (09) 930 9334
Email: info@landtech.nz
Website: www.landtech.nz

LandTech CONSULTING	Client: Four Stars Development Ltd Project: Geotechnical Investigation for Proposed Land Use Change Address: 139 Levi Road, Rolleston	Test Pit No.	TP04
		Sheet No.	1 of 1

Drill Type:	6T Hydraulic Excavator	Project No:	LTC20264	Logged By:	M Gunn
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1552364 N5171882	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (21-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T. SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS / LOESS	0.5		Fine sandy SILT, yellowish light brown, stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	1.0		
	1.5		
RIVER DEPOSITS	2.0		Fine to coarse sandy, sub rounded GRAVEL, minor silt, brown, dense, moist [RIVER DEPOSITS]
	2.5		trace subrounded to round bouders, wet
	3.0		End of Test Pit 2.6m [TARGET DEPTH]
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m): Not Encountered (21-Sep-20)

In-situ Field Testing

Shear Strength (kPa)

Peak:

Remoulded:

150 200

187+

Dynamic Cone Penetrometer

Depth (m)	Blow Count	Scala Blow Count / 100mm
-0.1	7	
-0.2	5	
-0.3	4	
-0.4	3	
-0.5	3	
-0.6	3	
-0.7	3	
-0.8	2	
-0.9	3	
-1.0	3	
-1.1	3	
-1.2	4	
-1.3	3	
-1.4	5	
-1.5	14	
-1.6	25+	
-1.7		
-1.8		
-1.9		
-2.0		
-2.1		
-2.2		
-2.3		
-2.4		
-2.5		
-2.6		
-2.7		
-2.8		
-2.9		
-3.0		
-3.1		
-3.2		
-3.3		
-3.4		
-3.5		
-3.6		
-3.7		
-3.8		
-3.9		
-4.0		
-4.1		
-4.2		
-4.3		
-4.4		
-4.5		
-4.6		
-4.7		
-4.8		
-4.9		
-5.0		

0 5 10 15 20

In-situ field testing in accordance with the following Standards:

Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer

Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

LandTech Consulting Ltd. (Christchurch): Unit 6, 31 Carlyle Street, Sydenham
LandTech Consulting Ltd. (Auckland): 17 Nils Andersen Road, Whenuapai
Phone: (03) 390 1371
Phone: (09) 930 9334
Email: info@landtech.nz
Website: www.landtech.nz

LandTech CONSULTING	Client: Four Stars Development Ltd Project: Geotechnical Investigation for Proposed Land Use Change Address: 139 Levi Road, Rolleston	Test Pit No.	TP05
		Sheet No.	1 of 1

Drill Type:	6T Hydraulic Excavator	Project No:	LTC20264	Logged By:	M Gunn
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1551650 N5172615	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (21-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T. SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS / LOESS	0.5		Fine sandy SILT, yellowish light brown, stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	1.0		
RIVER DEPOSITS	1.5		Fine to coarse sandy, sub rounded GRAVEL, minor silt, brown, dense, moist [RIVER DEPOSITS] trace to minor subrounded boulders
	2.0		
	2.5		
	3.0		End of Test Pit 3.0m [TARGET DEPTH]
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m): Not Encountered (21-Sep-20)

In-situ Field Testing

Shear Strength (kPa)

Peak:

Remoulded:

150 200

187+ UTP

Dynamic Cone Penetrometer

Depth (m)	Blow Count
-0.1	5
-0.2	7
-0.3	5
-0.4	5
-0.5	3
-0.6	3
-0.7	3
-0.8	3
-0.9	2
-1.0	3
-1.1	3
-1.2	6
-1.3	7
-1.4	25+
-1.5	
-1.6	
-1.7	
-1.8	
-1.9	
-2.0	
-2.1	
-2.2	
-2.3	
-2.4	
-2.5	
-2.6	
-2.7	
-2.8	
-2.9	
-3.0	
-3.1	
-3.2	
-3.3	
-3.4	
-3.5	
-3.6	
-3.7	
-3.8	
-3.9	
-4.0	
-4.1	
-4.2	
-4.3	
-4.4	
-4.5	
-4.6	
-4.7	
-4.8	
-4.9	
-5.0	

Scala Blow Count / 100mm

0 5 10 15 20

In-situ field testing in accordance with the following Standards:

Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer

Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

LandTech Consulting Ltd. (Christchurch): Unit 6, 31 Carlyle Street, Sydenham
LandTech Consulting Ltd. (Auckland): 17 Nils Andersen Road, Whenuapai
Phone: (03) 390 1371
Phone: (09) 930 9334
Email: info@landtech.nz
Website: www.landtech.nz

LandTech CONSULTING	Client: Four Stars Development Ltd Project: Geotechnical Investigation for Proposed Land Use Change Address: 139 Levi Road, Rolleston	Test Pit No.	TP06
		Sheet No.	1 of 1

Drill Type:	6T Hydraulic Excavator	Project No:	LTC20264	Logged By:	M Gunn
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1551614 N5172361	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (21-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T. SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS / LOESS	0.5		Fine sandy SILT, light brown, stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	1.0		
RIVER DEPOSITS	1.5		Fine to coarse sandy, sub rounded GRAVEL, minor silt, brown, dense, moist [RIVER DEPOSITS]
	2.0		
	2.5		
	3.0		End of Test Pit 2.8m [TARGET DEPTH]
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m): Not Encountered (21-Sep-20)

In-situ Field Testing

Shear Strength (kPa)

Peak:

Remoulded:

0 50 100 150 200

107

Dynamic Cone Penetrometer

Depth (m)	Blow Count	Scala Blow Count / 100mm (0 5 10 15 20)
-0.1	2	
-0.2	2	
-0.3	3	
-0.4	3	
-0.5	3	
-0.6	2	
-0.7	3	
-0.8	2	
-0.9	3	
-1.0	4	
-1.1	3	
-1.2	4	
-1.3	9	
-1.4	25+	
-1.5		
-1.6		
-1.7		
-1.8		
-1.9		
-2.0		
-2.1		
-2.2		
-2.3		
-2.4		
-2.5		
-2.6		
-2.7		
-2.8		
-2.9		
-3.0		
-3.1		
-3.2		
-3.3		
-3.4		
-3.5		
-3.6		
-3.7		
-3.8		
-3.9		
-4.0		
-4.1		
-4.2		
-4.3		
-4.4		
-4.5		
-4.6		
-4.7		
-4.8		
-4.9		
-5.0		

In-situ field testing in accordance with the following Standards:

Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer

Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

LandTech Consulting Ltd. (Christchurch): Unit 6, 31 Carlyle Street, Sydenham
LandTech Consulting Ltd. (Auckland): 17 Nils Andersen Road, Whenuapai
Phone: (03) 390 1371
Phone: (09) 930 9334
Email: info@landtech.nz
Website: www.landtech.nz

APPENDIX D

Soakage Test Results

	Client:	Four Stars Development Limited	
	Project:	Proposed Land Use Change	
	Address:	Lincoln Rolleston Road, Rolleston	
Test Type:	On-site soakage test	Project No:	LTC20264
Tested By:	L Challies	Test Date:	21-Sep-20

Test ID:	TP05/SP01	Test ID:	
Coordinates:	NZTM2000 E1551650 N5172615	Coordinates:	
Groundwater level:	Not Encountered	Groundwater level:	
Method:	In accorandance with W1: Falling-head percolation Test of the Auckland soakage design manual	Method:	

Test Pit Dimensions

2	m	length
1	m	wide
1.60	m	equivalent diameter

1) Test Details

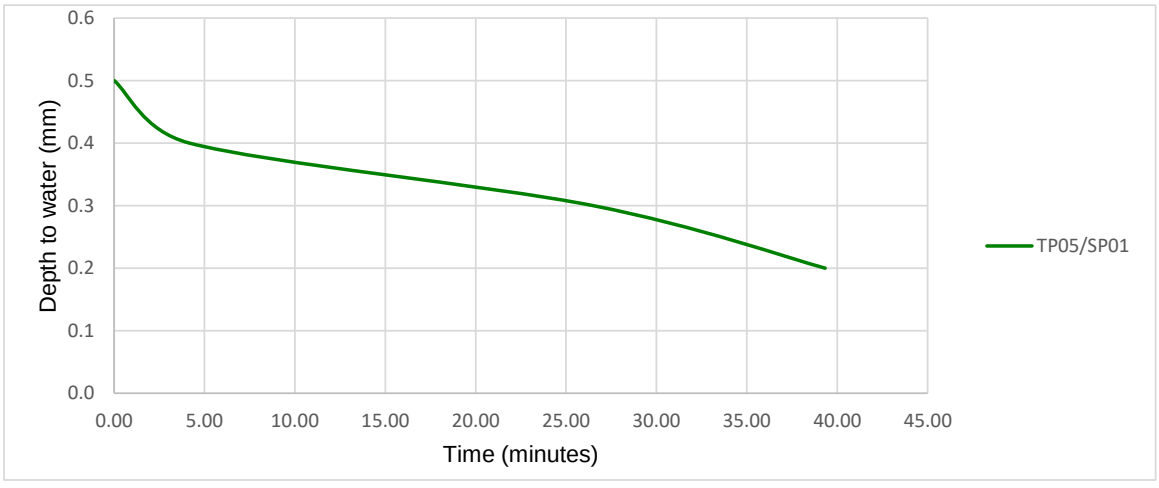
Time (Sec)	Time (min)	Depth (m)	Soak Rate (m/min)
0	0.00	0.5	-
250	4.17	0.4	0.024
1590	26.50	0.3	0.004
2360	39.33	0.2	0.008

2) Calculate Minimum Gradient

0.01	m/min	368	mm/h

3) Calculate percolation rate

10	L/m2/min
587	L/m2/hr



Appendix 6: Preliminary Site Investigation Levi Road

Soil Contamination Risk
Preliminary Site Investigation Report

131-139 Levi Road,
274 & 294 Lincoln Rolleston Road,
Rolleston

September 2020



Malloch Environmental Ltd

19 Robertsons Road, Kirwee
RD1, Christchurch 7671
021 132 0321
www.mallochenviro.co.nz

Soil Contamination Investigations • XRF Services • Environmental Planning

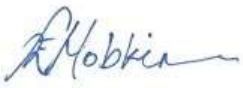
QUALITY CONTROL AND CERTIFICATION SHEET

Client: Four Stars Developments

Date of issue: 16 September 2020

Report written by:

Fran Hobkirk, Environmental Scientist, BSc
(3 years contaminated land experience)

Signed: 

Report reviewed and certified as a Suitably Qualified and Experienced Practitioner by:

Nicola Peacock, Principal Environmental Engineer, NZCE, CEnvP
(11 years contaminated land experience within 27 years environmental experience)

Signed: 



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1 Executive Summary 4
2 Objectives of the Investigation 4
3 Scope of Work Undertaken 4
4 Site Identification 5
5 Site Description and Surrounding Environment 6
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7 Site History 6
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7.3 Regional Council Records 7
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8 HAIL Uses and Possible Types of Contaminants Associated with Past Use 9
9 Basis for Soil Guideline Values (SGV) 9
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9.2 Zoning 10
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10 Site Characterisation and Conclusion 10
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12 Limitations 11

APPENDICES

A Historic Certificates of Title
B Historic Aerial Photographs
C LLUR Statement

1 Executive Summary

The subject site involves three lots between Levi Road and Lincoln Rolleston Road in Rolleston. It is proposed to rezone the site to allow residential use. This will involve a change in use, future subdivision and potential disturbance of soils in the future. The Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NESCS) do apply to the subject site and require an assessment of the likelihood of soil contamination being present. It is noted also that Malloch Environmental Ltd is obligated to consider the requirements of Section 10 of the Health and Safety at Work (Asbestos) Regulations 2016. This report details the work undertaken to assess the risks.

This investigation has determined the subject site has had a general pastoral use until 1994 when Lot 1 and Lot 2 DP 67190 were developed for rural residential use. Lot 2 DP 322710 was developed for use as a horse-racing stable and rural residential use from 2006. The normal use of fertilisers and pastoral weed controls associated with these uses is unlikely to have caused soil contamination that would pose a risk to human health. It is highly unlikely that persistent agrichemicals or fuels were used or stored on the site in any significant volume. There is no evidence of older buildings or previously demolished buildings that would give reasonable cause to suspect that asbestos or lead contaminated soil is present.

There is no evidence of Hazardous Activities and Industries List (HAIL) activities or industries having occurred on the subject site, now or in the past. The subject site is considered suitable for residential use with no further investigations required.

In terms of planning status at the time of writing of this report, the NESCS does not apply to the site.

2 Objectives of the Investigation

This report has been prepared in accordance with the Ministry for the Environment's "Contaminated Land Management Guidelines No 1: Reporting on Contaminated Sites in New Zealand". This report includes all requirements for a Stage 1 Preliminary Site Investigation report. This is one of the methods described in Section 6(3) of the NESCS to establish whether the regulations apply. The objective is to determine whether there is any risk of potential contamination that would warrant further investigation.

3 Scope of Work Undertaken

The scope of the work undertaken has included:

- Review of Selwyn District Council property files
- Obtaining ECan data from the Listed Land Use Register (LLUR)
- Search of LINZ NZ orchard database
- Review of historic aerial photos
- Review of historic titles
- Preparation of report in accordance with MfE guidelines

4 Site Identification

The site lies between Levi Road and Lincoln Rolleston Road in Rolleston as shown on the plan in **Figure 1** below. The site consists of three rural residential lots and has a total area of 36.0910Ha. The street addresses, legal descriptions and areas of the lots included in the site are:

Street Address	Legal Description	Area (Ha)
131 & 139 Levi Rd	Lot 2 DP 322710	28.0900
294 Lincoln Rolleston Rd	Lot 1 DP 67190	4.0000
274 Lincoln Rolleston Rd	Lot 2 DP 67190	4.0010
	Total Area	36.0910

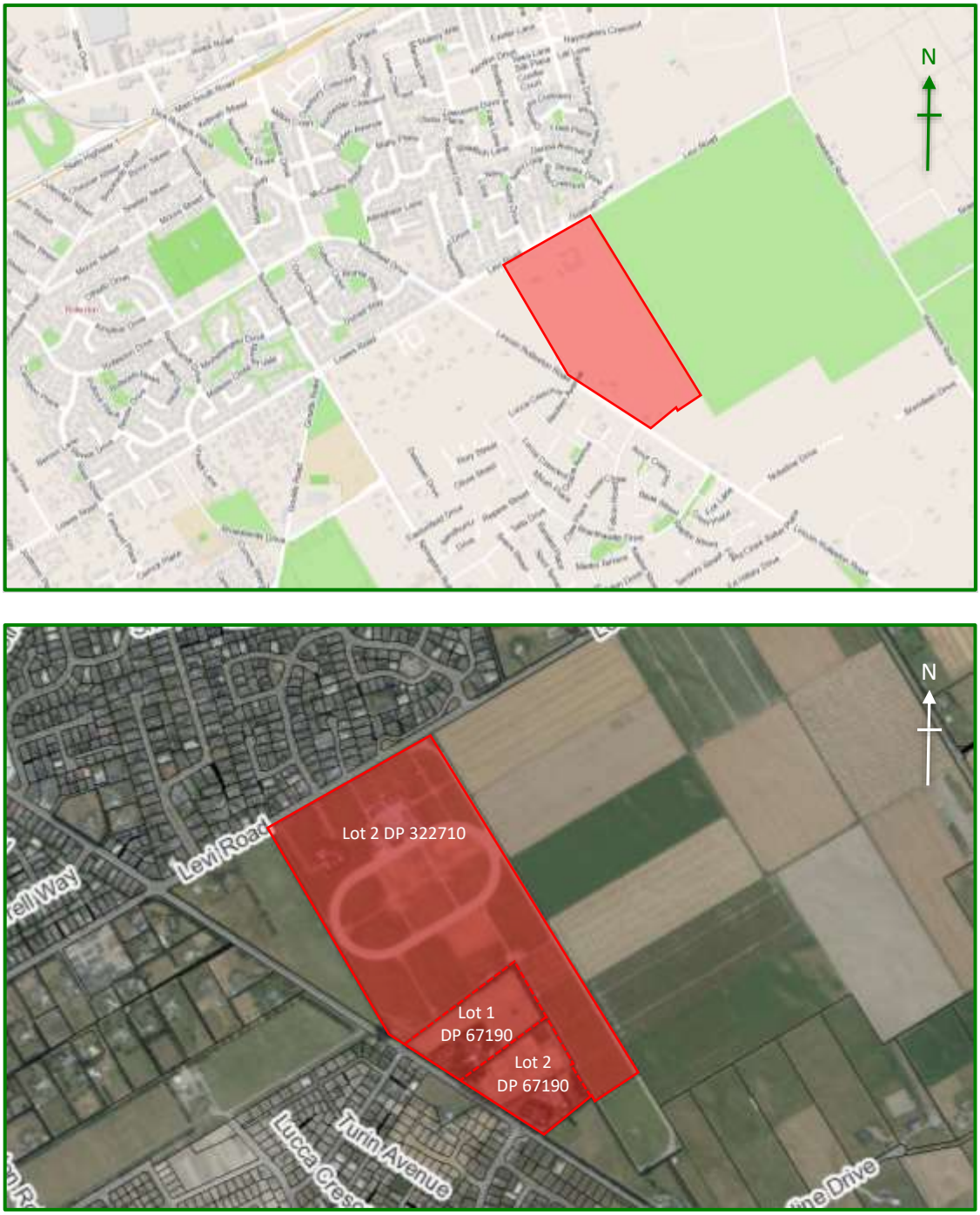


Figure 1 – Location Plan

5 Site Description and Surrounding Environment

The subject site is mainly flat rural and rural residential land. Lots 1 and 2 DP 67190 are typical rural residential lots with a dwelling, garage and associated sheds on each lot. Lot 2 DP 322710 has a homestead area with a dwelling at the 139 Levi Road corner of the lot. The rest of the lot is used by a horse-racing stable. There are stable buildings, a staff dwelling and other farm buildings along with paddocks and a training track. The subject site is defined by existing hedges and fences. It is bounded by residential lots to the north and south, to the west and south-east are rural residential lots, to the east is rural land. Rolleston town centre lies approximately 1km to the west.

6 Geology and Hydrology

The ECan GIS describes the soils as a combination of Templeton deep silty loam and Templeton moderately deep silty loam. Soil trace elements are 'Regional, Recent'. Wells in the area indicate that topsoils are underlain by layers of sandy gravels, claybound gravels and gravel.

The site lies over the unconfined/semi-confined gravel aquifer system. Ground water levels recorded on nearby bore logs are between 9.30m and 15.30m deep. The direction of ground water flow is generally in a south-easterly direction. The nearest downgradient well is an irrigation well approximately 24m south of the subject site.

According to Ecan's GIS there are no open water features on the subject site.

7 Site History

7.1 Previous Site Ownership and Use

Historic Certificates of Title were searched and the following relevant ownership information was obtained:

Combined ownership

Dec 1906 - James Wallace, farmer
Undated - Robert John Wallace, farmer and Charles Leslie McCrostie, farm salesman
Dec 1911 - George Kidd Askin, farmer
Oct 1917 - Joseph Lawton Ragg, farmer
Jul 1926 - Douglas Edward Taylor, farmer
Jan 1931 - George Taylor, farmer
Mar 1941 - William Albert Taylor, farmer
Jun 1957 - Reginald Henry Butterick, farmer
Dec 1960 - John Henry Butterick, farmer

Lot 2 DP 322710

Oct 1965 - Mary McGill Butterick, widow
Mar 1967 - Mark Thomas Butterick, farmer
Aug 1969 - Brendean Farm Ltd
Aug 1992 - Arthur Ross Bussell, farmer and Noeline Shirley Bussell, married woman
Apr 2002 - Mark Purdon and Vicki Lynnette Purdon
Dec 2011 - Mark Purdon
Jul 2014 - Mark Purdon and Natalie Clair Rasmussen

Lot 1 DP 67190

Oct 1963 - George Morris, horse trainer and Merie Emilie Morris, his wife

Sep 1994 - Alexander Graham Dunlop, farmer and Adrienne Elizabeth Dunlop, his wife
May 1995 - Stephen Roger Chapman, company manager and Nicola Mary Chapman, his wife

Lot 2 DP 67190
Oct 1963 - George Morris, horse trainer and Merie Emilie Morris, his wife
Sep 1994 - Alexander Graham Dunlop, farmer and Adrienne Elizabeth Dunlop, his wife
May 1995 - Kevin John Morland, clerk and Wilhemina Annechiena Gezenia Morland, married woman
Apr 2000 - Alexander James Cook and Pamela Cook
Jan 2008 - Sharon Linda Jones and Canterbury Trustees Ltd
Oct 2016 - Sharon Linda Jones and Emma Grace Louise Jones
Apr 2019 - 2 Degrees Real Estate Ltd

Note that some of the older information was of poor quality and difficult to follow, therefore the accuracy of the spelling of names and dates is not guaranteed. Copies of the Historic Titles are included in **Appendix A.**

7.2 District Council Records

Selwyn District Council provided the following list of building consents that apply to the subject site:

Lot 2 DP 322710
Jan 2013 - Earthquake Repairs
Mar 2008 - Erect a 9 Bay `L-shaped` Farm Building (Stables)
Oct 2007 - Relocated 2 Bedroom Domestic Dwelling
Jul 2007 - Erect a 4 Bedroom Domestic Dwelling
Mar 2007 - Erect a Horse Stable Building with wash down areas and tearoom, laundry with upstairs viewing room and office.
Nov 2006 - Erect a 6-bay Farm Building
Nov 2006 - Erect a Farm Building

Lot 1 DP 67190
Jul 2005 - Erect a 2 Bedroom Domestic Dwelling
Jul 2005 - Erect a Domestic Garage
Jul 2005 - Erect a Domestic Garage/Workshop
Dec 1994 - Erect a Dwelling

Lot 2 DP 67190
Jun 2002 - Erect a Greenhouse
Feb 2001 - Erect a Garage
Jun 2000 - Erect a Greenhouse
Nov 1994 - Erect a Dwelling

As all the consents are modern the full property files were not fully reviewed. The details of building consent 'BC071978 - Relocated 2-bedroom dwelling' were reviewed. This did not involve re-use of an older dwelling. The cottage was built off-site for the purpose of relocation onto the 139 Levi Road.

7.3 Regional Council Records

Part of the subject site is listed on the ECan Listed Land Use Register Statement, however, it is listed as 'Verified Non-HAIL'. The site was originally listed due to a greenhouse noted on aerial

photographs. However, information from the landowner who erected and operated the greenhouses showed persistent pesticides were not used at the site and the potential HAIL activity was removed and the site updated to 'Verified Non-HAIL'.

No nearby sites are listed.

Five nearby Preliminary Site Investigations are summarised in the LLUR statement. None of those investigations identified potential sources of contamination that could affect the current subject site.

See LLUR Statement in **Appendix C.**

Resource consent information was sourced from the GIS mapping system. There is an active resource consent for Lot 2 DP 322710 of the subject site to discharge domestic sewage tank effluent into ground. There are active resource consents for adjacent land to discharge stormwater and to take groundwater for irrigation.

7.4 LINZ Records

The LINZ Orchard layer does not show the subject site or any adjacent sites as having listed orchards.

7.5 Review of Historic Aerial Photographs

A total of nine aerial photos (see copies in **Appendix B**) have been used to assess the historic use of the site as detailed below:

- The earliest photo is from **1942** and has been sourced from ECan's GIS. The subject site is in pasture. There are no buildings or structures on the subject site. The surrounding area is mainly similar pasture farmland. There is a dwelling beyond the subject site to the north-west. There is a dwelling and farm sheds approximately 330m south-east of the subject site. A third dwelling is present approximately 390m south-west of the subject site.
- A photo from **1961** is sourced from ECan's GIS and shows no significant changes to the subject site or surrounding area.
- A photo from **1974** is sourced from ECan's GIS and shows a training track is present on one of the paddocks of the subject site. There are no significant changes to the surrounding area.
- A photo from **1982** is sourced from ECan's GIS and shows no significant changes to the subject site or surrounding area.
- A photo from **1995** is sourced from ECan's GIS and shows dwellings and sheds have been built on Lot 1 and Lot 2 DP 67190. Part of Lot 2 DP 322710 is divided into strips suggesting a possible horticultural use. Two dwellings have been added beyond the subject site to the west. Dwellings have also been built beyond the subject site to the south-west, across Lincoln Rolleston Road.
- A photo from **2000** is sourced from ECan's GIS and shows a greenhouse has been built on Lot 2 DP 67190. The training track that crossed Lot 1 and Lot 2 DP 67190 is now barely visible suggesting it is disused. The possible horticultural activities noted on the previous aerial have ceased and Lot 2 DP 322710 is now in pasture.

- A photo from **2004** is sourced from ECan's GIS and shows a second greenhouse has been built on Lot 2 DP 67190. Further rural residential development has occurred beyond the subject site to the north and west.
- A photo from **2012** is sourced from ECan's GIS and shows the greenhouses on Lot 2 DP 67190 have been removed. A dwelling, stables, associated buildings and a horse training track have been added to Lot 2 DP 322710. Residential development is occurring beyond the subject site to the north-west.
- The most recent aerial photo reviewed, dated **2019**, sourced from ECan's GIS shows no significant changes to the subject site. Significant residential development has occurred beyond the subject site to the north. More residential development is underway beyond the subject site to the south.

8 HAIL Uses and Possible Types of Contaminants Associated with Past Use

The Hazardous Activities and Industries List (HAIL) compiled by The Ministry for the Environment include the following categories (*in italics*) that could be associated with the historical uses of the site with a summary of the risk of these activities having been carried out on the site.

A - Chemical manufacture, application and bulk storage

10. Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds

The subject site has been used for pastoral activities until 1994 when parts of the site were developed for residential use. The normal use of fertilisers and pastoral weed controls associated with pastoral use is unlikely to have caused soil contamination that would pose a risk to human health. It is considered unlikely that persistent agrichemicals or fuels were used or stored on the site in any significant volume now or in the past.

Possible horticultural activities were noted on the 1995 aerial photograph but gone by the 2000 aerial. The surrounding area isn't known for market gardening activities therefore it is considered most likely that this was a fodder crop or similar rather than intensive horticultural activities. Also, given the modern era of the activity it is unlikely that any persistent pesticides of concern would have been used. Therefore, it is considered highly unlikely that this potential horticultural activity would pose a risk to human health and HAIL A10 is not considered to apply.

I - Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment

There is no evidence of any buildings or structures being present on the subject site prior to 1994. It is considered highly unlikely that soil contamination from lead-based paint products or asbestos containing materials exists on the subject site in sufficient quantities that would pose a risk to human health.

9 Basis for Soil Guideline Values (SGV)

9.1 Activity Description

This report has been written for the following potential activities:

- Proposed plan change to residential use,
- Future subdivision
- Future soil disturbance activities associated with the above use and development of the site

9.2 Zoning

The subject site is currently zoned Inner Plains.

9.3 Soil Guideline Values

Human health soil contaminant standards for a group of 12 priority contaminants were derived under a set of five land-use scenarios and are legally binding under The Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Health) Regulations 2011 (NESCS). These standards have been applied where applicable. The regulations describe these as Soil Contaminant Standards. For contaminants other than the 12 priority contaminants, the hierarchy as set out in the Ministry for the Environment Contaminated Land Management Guidelines No 2 has been followed. These are generally described as Soil Guideline Values. For simplicity, this report uses the terminology Soil Guideline Values (SGV) when referring to the appropriate soil contaminant standard or other derived value from the hierarchy. For soil, guideline values are predominantly risk based, in that they are typically derived using designated exposure scenarios that relate to different land uses. For each exposure scenario, selected pathways of exposure are used to derive guideline values. These pathways typically include soil ingestion, inhalation and dermal adsorption. The guideline values for the appropriate land use scenario relate to the most critical pathway.

The land-use scenarios applicable for the proposed use of this site and any associated earth disturbing activities include 'residential 10% produce', and 'commercial /industrial/outdoor workers' as a proxy value to protect the health of construction workers.

10 Site Characterisation and Conclusion

This investigation has determined the subject site has had a general pastoral use until 1994 when Lot 1 and Lot 2 DP 67190 were developed for rural residential use. Lot 2 DP 322710 was developed for use as a horse-racing stable and rural residential use from 2006. The normal use of fertilisers and pastoral weed controls associated with these uses is unlikely to have caused soil contamination that would pose a risk to human health. It is highly unlikely that persistent agrichemicals or fuels were used or stored on the site in any significant volume. There is no evidence of older buildings or previously demolished buildings that would give reasonable cause to suspect that asbestos or lead contaminated soil is present.

There is no evidence of HAIL activities or industries having occurred on the subject site, now or in the past. The subject site is considered suitable for residential use with no further investigations required.

11 Planning Status

In terms of the NESCS section 5 (7) states that the land is considered to be covered if an activity or industry described in the HAIL is being undertaken on it; or has been undertaken on it; or it is more likely than not that an activity is being or has been undertaken on it. Section 6 describes the methods for determining whether the land is as described in section 7. Method 6 (3) is to rely on a Preliminary Site Investigation.

This Preliminary Site Investigation has found that there is no evidence of an activity or industry described in the HAIL occurring on any part of the subject site now or in the past. In terms of planning status at the time of writing of this report, the NESCS does not apply to the site.

12 Limitations

Malloch Environmental Limited has performed services for this project in accordance with current professional standards for environmental site assessments, and in terms of the client's financial and technical brief for the work. Any reliance on this report by other parties shall be at such party's own risk. It does not purport to completely describe all the site characteristics and properties. Where data is supplied by the client or any third party, it has been assumed that the information is correct, unless otherwise stated. Malloch Environmental Limited accepts no responsibility for errors or omissions in the information provided. Should further information become available regarding the conditions at the site, Malloch Environmental Limited reserves the right to review the report in the context of the additional information.

Opinions and judgments expressed in this report are based on an understanding and interpretation of regulatory standards at the time of writing and should not be construed as legal opinions. As regulatory standards are constantly changing, conclusions and recommendations considered to be acceptable at the time of writing, may in the future become subject to different regulatory standards which cause them to become unacceptable. This may require further assessment and/or remediation of the site to be suitable for the existing or proposed land use activities. There is no investigation that is thorough enough to preclude the presence of materials at the site that presently or in the future may be considered hazardous.

No part of this report may be reproduced, distributed, publicly displayed, or made into a derivative work without the permission of Malloch Environmental Ltd, other than the distribution in its entirety for the purposes it is intended.

Appendix A – Historic Certificates of Title

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Historical Search Copy

R.W. Muir
Registrar-General
of Land

Identifier **90577**
Land Registration District **Canterbury**
Date Issued 09 May 2005

Cancelled

Prior References
CB3C/219

Estate	Fee Simple
Area	28.0900 hectares more or less
Legal Description	Lot 2 Deposited Plan 322710

Original Proprietors
Mark Purdon and Vicki Lynnette Purdon

Interests

5729095.2 Mortgage to Bank of New Zealand - 15.9.2003 at 9:00 am

7569723.1 Variation of Mortgage 5729095.2 - 9.10.2007 at 9:00 am

7884822.1 Transfer to Mark Purdon (1/2 share) and Vicki Lynnette Purdon (1/2 share) - 22.7.2008 at 11:29 am

8389252.1 Discharge of Mortgage 5729095.2 - 21.1.2010 at 12:26 pm

8389252.5 CT 463353 issued - 21.1.2010 at 12:26 pm.

CANCELLED

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Historical Search Copy

R.W. Muir
Registrar-General of Land

Constituted as a Record of Title pursuant to Sections 7 and 12 of the Land Transfer Act 2017 - 12 November 2018

Identifier **463353**
Land Registration District **Canterbury**
Date Issued 21 January 2010

Prior References
90576 90577

Estate	Fee Simple
Area	30.4300 hectares more or less
Legal Description	Lot 2 Deposited Plan 416195 and Lot 2 Deposited Plan 322710

Original Registered Owners
Mark Purdon as to a 1/2 share
Vicki Lynnette Purdon as to a 1/2 share

Interests

Subject to Section 241(2) Resource Management Act 1991 (affects DP 416195)
8389252.6 Mortgage to Bank of New Zealand - 21.1.2010 at 12:26 pm
8903911.1 Discharge of Mortgage 8389252.6 - 16.12.2011 at 5:34 pm
8903911.2 Transfer of the 1/2 share of Vicki Lynnette Purdon to Mark Purdon - 16.12.2011 at 5:34 pm
8903911.3 Mortgage to Bank of New Zealand - 16.12.2011 at 5:34 pm
8903911.4 Mortgage to James Scott Dalgety - 16.12.2011 at 5:34 pm
9776431.1 Discharge of Mortgage 8903911.4 - 24.7.2014 at 10:11 am
9776431.2 Transfer to Mark Purdon (1/2 share) and Natalie Clair Rasmussen (1/2 share) - 24.7.2014 at 10:11 am
9776431.3 Mortgage to James Scott Dalgety - 24.7.2014 at 10:11 am
10222310.1 Discharge of Mortgage 9776431.3 - 23.10.2015 at 11:40 am
10222310.2 Variation of Mortgage 8903911.3 - 23.10.2015 at 11:40 am

Reference:
Prior C/T. 232/94 and 93

Transfer No. 611962
N/C. Order No.

CANCELLED

CANCELLED Land and Deeds 69

REGISTER

3C/216

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 31st day of October one thousand nine hundred and sixty-three under the seal of the District Land Registrar of the Land Registration District of Canterbury

WITNESSETH that RAYMOND GEORGE MORRIS of West Melton Horse Trainer and MERIE EMILIE MORRIS his wife are

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 27 acres 3 roods 20 perches or thereabouts situated in Block III of the Leeston Survey District being Lot 1 on Deposited Plan No. 22841 part Rural Sections 5943 and 7437

DISTRICT LAND REGISTRAR CANTERBURY, N.Z.

Assistant Land Registrar

Mortgage 611963 to Mary Muriel Butterick - 31.10.1963 at 11.10a.m. DISCHARGED 12/11/1973 A.L.R.

Variation of Mortgage 611963 - 23/11/1966 at 12.5 p.m. DISCHARGED A.L.R.

Mortgage 951599 to The Auckland Co-operative Terminating Building Society - 25.3.1974 at 2.20 p.m. DISCHARGED 10/2/1978 A.L.R.

Transfer A124464/1 to Alexander Graham Dunlop of Springston, Farmer and Adrienne Elizabeth Dunlop, his wife - 20.7.1994 at 10.35am

for A.L.R.

Mortgage A124464/2 to ASB Bank Limited - 20.7.1994 at 10.35am

for A.L.R.

PLAN No. 67190 LODGED 11/8/94 AND DEPOSITED

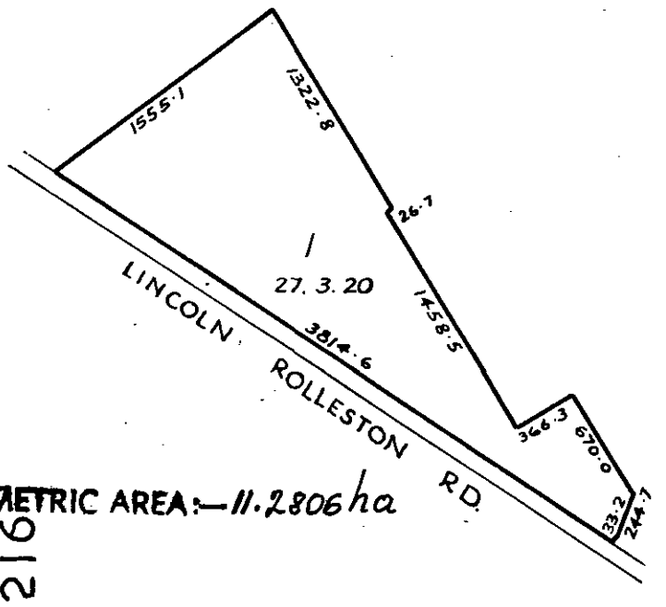
No.A136810/1 Certificate pursuant to Section 224(c) Resource Management Act 1991 - 29.9.1994 at 10.33am

A.L.R.

OCT A136810/2-4 - 29.9.1994 Cancelled and CsT 39B/869 871 issued for Lots 1-3 67190 respectively

A.L.R.

CANCELLED DUPLICATE DESTROYED



METRIC AREA:—11.2806 ha

Scale: 1 inch = 10 chains

3C/216

No.

Register copy for L. & D. 20,000/8/61—42629 W

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Historical Search Copy

R.W. Muir
Registrar-General
of Land

Identifier **CB3C/219**
Land Registration District **Canterbury**
Date Issued 31 October 1963

Cancelled

Prior References
CB232/93 CB232/94

Estate	Fee Simple
Area	32.1093 hectares more or less
Legal Description	Part Rural Section 5943 and Part Rural Section 7437

Original Proprietors
Arthur Ross Bussell as to a 1/2 share
Noeline Shirley Bussell as to a 1/2 share

Interests

5182545.1 Transfer to Mark Purdon and Vicki Lynette Purdon - 3.4.2002 at 10:57 am

5182545.2 Mortgage to Arthur Ross Bussell and to Noeline Shirley Bussell in shares - 3.4.2002 at 10:57 am

5194569.1 Department dealing correcting the name of one of the registered proprietors from Vicki Lynette Purdon to Vicki Lynnette Purdon - 18.4.2002 at 11:00 am

5729095.1 Discharge of Mortgage 5182545.2 - 15.9.2003 at 9:00 am

5729095.2 Mortgage to Bank of New Zealand - 15.9.2003 at 9:00 am

6411331.1 Certificate pursuant to Section 224(c) Resource Management Act 1991 (affects DP 322710) - 9.5.2005 at 9:00 am

6411331.2 CTs issued - 9.5.2005 at 9:00 am

Legal Description	**Title**
Lot 1 Deposited Plan 322710	90576
Lot 2 Deposited Plan 322710	90577

CANCELLED

Reference:
Prior C/T. 232/93,94

Transfer No.
N/C. Order No. 611964

Land and Deeds 69

REGISTER

3C /219

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 31st day of October one thousand nine hundred and sixty-three under the seal of the District Land Registrar of the Land Registration District of Canterbury

WITNESSETH that JOHN HENRY BUTTERICK of Weedons Farmer

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 79 acres 1 rood 15 perches or thereabouts situated in Block III of the Leeston Survey District being part of Rural Sections 5943 and 7437

DISTRICT LAND REGISTRAR CANTERBURY, N.Z.

Assistant Land Registrar

Mortgage 541859 to Reginald Henry Butterick - 21.12.1960 at 1.48p.m.

A.L.R.

Transmission 666866 to Mary McGill Butterick of Weedons Widow as Executrix Entered 29.10.1965 at 11.19 a.m.

A.L.R.

Transfer 666867 to the abovenamed Mary McGill Butterick - 29.10.1965 at 11.20 a.m.

A.L.R.

Transfer 706347 to Mark Thomas Butterick of Weedons Farmer - 15/3/1967 at 2.55p.m.

A.L.R.

Mortgage 706348 to Mary McGill Butterick - 15/3/1967 at 2.55p.m.

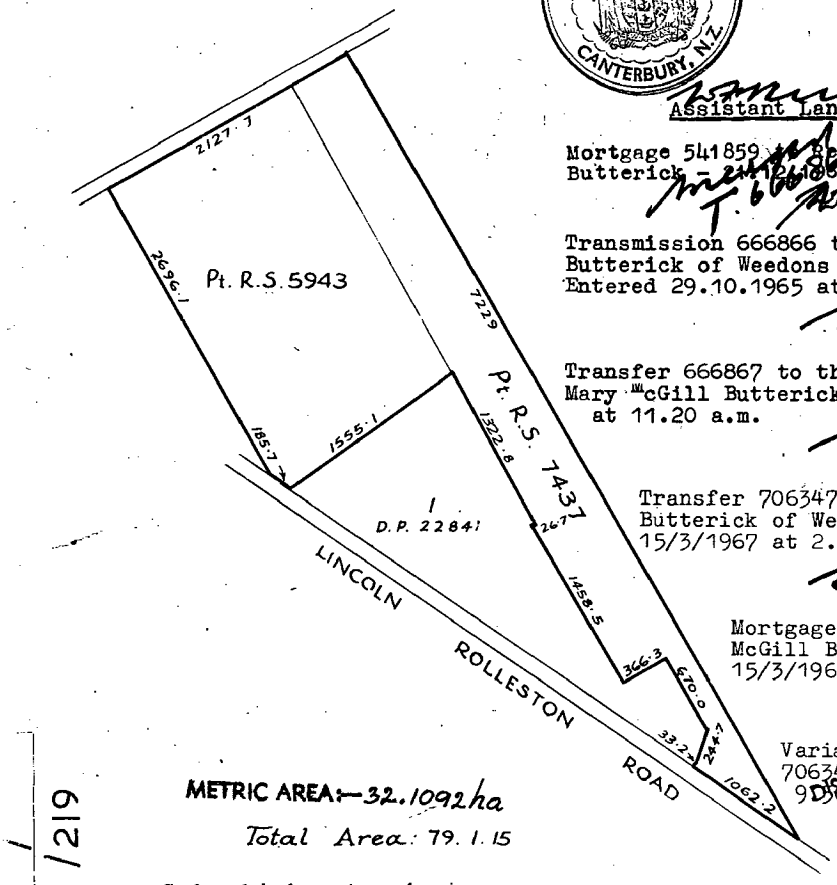
DISCHARGED 15-8-1967

A.L.R.

Variation of Mortgage 706348 - 12/7/1967 at 9.50 a.m.

DISCHARGED

A.L.R.



No. 3C /219

METRIC AREA:—32.1092ha

Total Area: 79. 1. 15

Scale: 1 inch = 10 chains

- over -

Register copy for L. & D. 69. 20,000/8/51—42629 W

3C/219

Transfer 773386 to Brendean Farm Limited at Christchurch - 15/8/1969 at 11.45 a.m.

A.L.R.

Mortgage 802975 to Canterbury Savings Bank - 17/7/1970 at 11.20 p.m.

A.L.R.

DISCHARGED 15 OCT 1985

Mortgage 819195 to State Advances Corporation - 15/12/1970 at 1.50 p.m.

A.L.R.

Transfer A7784/1 to Arthur Ross Bussell, Farmer and Noeline Shirley Bussell, Married Woman both of Christchurch as tenants in common in equal shares - 4.8.1992 at 11.28am

A.L.R.

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Historical Search Copy

R.W. Muir
Registrar-General
of Land

Constituted as a Record of Title pursuant to Sections 7 and 12 of the Land Transfer Act 2017 - 12 November 2018

Identifier	**CB39B/869**
Land Registration District	**Canterbury**
Date Issued	29 September 1994

Prior References
CB3C/216

Estate	Fee Simple
Area	4.0000 hectares more or less
Legal Description	Lot 1 Deposited Plan 67190

Original Registered Owners
Stephen Roger Chapman and Nicola Mary Chapman

Interests

Land Covenant in Transfer A172055.1 - 10.5.1995 at 10.05 am

A448281.2 Mortgage to Mortgage Holding Trust Company Limited - 2.3.2000 at 1.40 pm

7655529.1 Bond pursuant to Section 108(2)(b) Resource Management Act 1991 - 13.12.2007 at 9:00 am

8630923.1 Discharge of Mortgage A448281.2 - 9.11.2010 at 11:40 am

8630923.2 Mortgage to ANZ National Bank Limited - 9.11.2010 at 11:40 am

9024953.1 Transfer to Stephen Roger Chapman and Nicola Mary Chapman - 19.4.2012 at 9:30 am

9024953.2 Variation of Mortgage 8630923.2 - 19.4.2012 at 9:30 am

References
Prior C/T 3C/216

Transfer No.
N/C. Order No. A136810/ 2

Land and Deeds 69

REGISTER

No. 39B/869

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 29th day of September one thousand nine hundred and ninety-four under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that ALEXANDER GRAHAM DUNLOP of Springston, Farmer and ADRIENNE ELIZABETH DUNLOP, his wife are ---

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 4.0000 hectares or thereabouts being Lot 1 Deposited Plan 67190 ---

DISTRICT LAND REGISTRAR

ASSISTANT LAND REGISTRAR

CANTERBURY

Subject to:

Mortgage A124464/2 to [illegible] Bank Limited - 20.7.1994 at 10.35am

DISCHARGED 10/5/95 A.L.R.

A.L.R.

Transfer A172055/1 to Alexander Graham Dunlop of Springston, Farmer and Adrienne Elizabeth Dunlop his wife (Land Covenant) - 10.5.1995 at 10.05am

for A.L.R.

Transfer A172056/2 to Stephen Roger Chapman of Christchurch, Company Manager and Nicola Mary Chapman his wife - 10.5.1995 at 10.05am

for A.L.R.

Mortgage A172056/3 to Countrywide Banking Corporation Limited - 10.5.1995 at 10.05am

DISCHARGED 11/7/1996 A.L.R.

for A.L.R.

Mortgage A247420/2 to Trust Bank New Zealand Limited - 11.3.1998 at 1.57pm

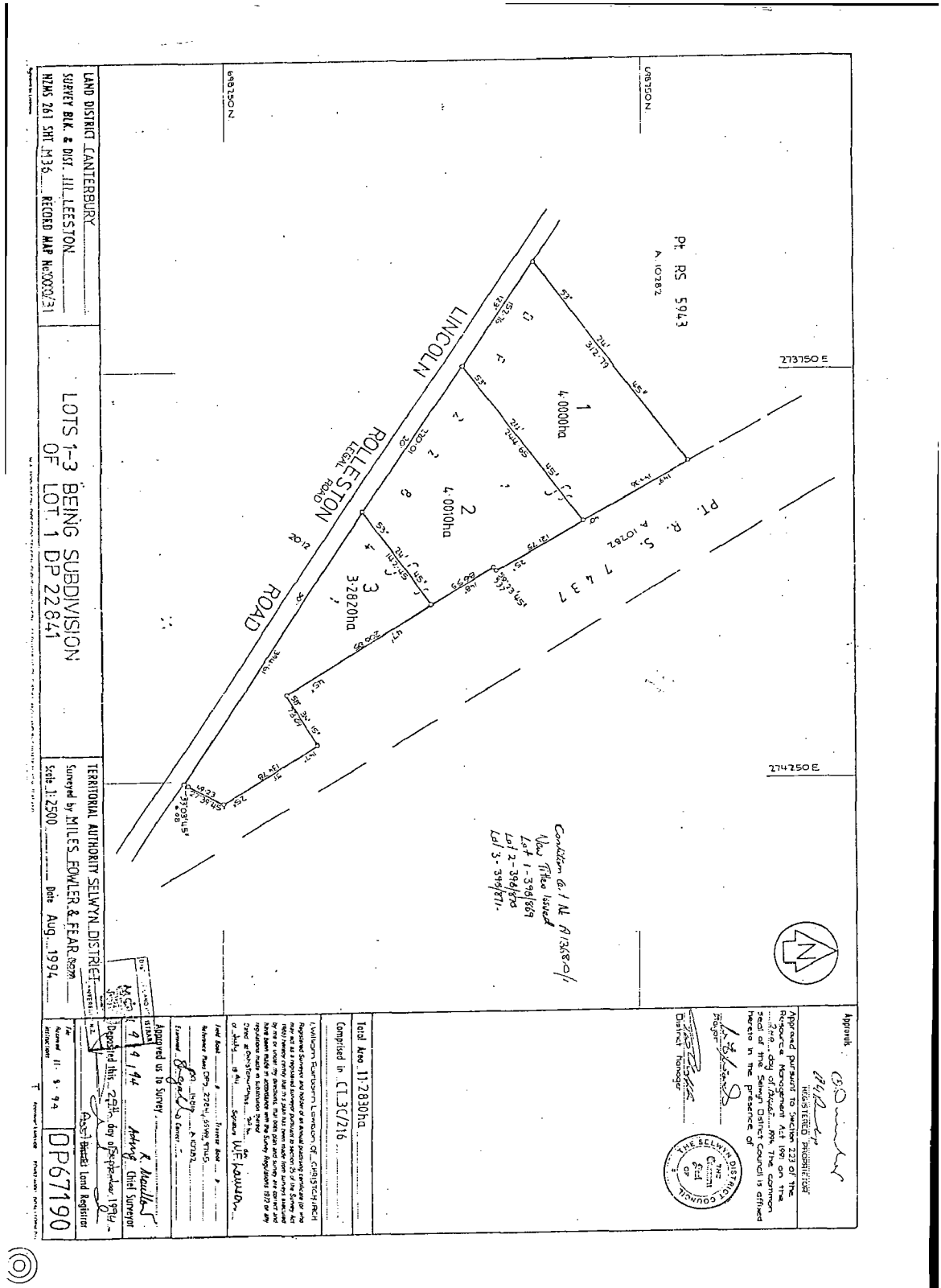
DISCHARGED 21/3/2000 A.L.R. MORTGAGE

for A.L.R.

A448281.2 Mortgage to Mortgage Holding Trust Company Limited - 2.3.2000 at 1.40

for RGL

No. 39B/869


LAND DISTRICT CANTERBURY
SURVEY BLK. & DIST. LEESTON
NZMS 261 SHT M36 RECORD MAP No.
LOTS 1-3 BEING SUBDIVISION OF LOT 1 DP 22841
TERRITORIAL AUTHORITY SELWYN DISTRICT
Surveyed by MILES FOWLER & FEAR
Scale 1:2500 Date Aug 1994
Total Area 11.2830ha
Comprised in CL 3C/216
Approved as to Survey
Deposited this 24th day of October 1994
DP 67190
Approved pursuant to Section 223 of the Resource Management Act 1991 on the 24th day of May 1994 by the Selwyn District Council is affixed hereto in the presence of
District Manager
THE SELWYN DISTRICT COUNCIL
Condition (b.) of NL A/1358-0/1
New Titles issued
Lot 1 - 398/269
Lot 2 - 398/270
Lot 3 - 398/271
Pt RS 5963
A 10282
Pt R.S. A 10282
7437
1
4.0000ha
2
4.0010ha
3
3.2820ha
LINCOLN ROLLESTON ROAD
2733150 E
2734250 E
6981500 N
6982500 N

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Historical Search Copy

R.W. Muir
Registrar-General
of Land

Constituted as a Record of Title pursuant to Sections 7 and 12 of the Land Transfer Act 2017 - 12 November 2018

Identifier **CB39B/870**
Land Registration District **Canterbury**
Date Issued 29 September 1994

Prior References
CB3C/216

Estate	Fee Simple
Area	4.0010 hectares more or less
Legal Description	Lot 2 Deposited Plan 67190

Original Registered Owners
Alexander James Cook and Pamela Cook

Interests

Land Covenant in Transfer A172055.1 - 10.5.1995 at 10.05 am

A456046.1 Mortgage to Westpac Banking Corporation - 1.5.2000 at 9.50 am

6365510.1 Variation of Mortgage A456046.1 - 4.4.2005 at 9:00 am

7095691.1 Application pursuant to Section 99A Land Transfer Act 1952 vesting Mortgage A456046.1 in Westpac New Zealand Limited - 2.11.2006 at 9:00 am

7688135.1 Discharge of Mortgage A456046.1 - 28.1.2008 at 10:45 am

7688135.2 Transfer to Sharon Linda Jones and Canterbury Trustees (2006) Limited - 28.1.2008 at 10:45 am

7688135.3 Mortgage to Bank of New Zealand - 28.1.2008 at 10:45 am

10583306.1 Transfer to Sharon Linda Jones and Emma Grace Louise Jones - 26.10.2016 at 11:29 am

11392588.1 Discharge of Mortgage 7688135.3 - 2.4.2019 at 9:28 am

11392588.2 Transfer to 2 Degrees Real Estate Limited - 2.4.2019 at 9:28 am

11392588.3 Mortgage to Bank of New Zealand - 2.4.2019 at 9:28 am

References
Prior C/T 3C/216

Transfer No.
N/C. Order No. A136810/3

Land and Deeds 69

REGISTER

No. 39B/870

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 29th day of September one thousand nine hundred and ninety-four under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that ALEXANDER GRAHAM DUNLOP of Springston, Farmer and ADRIENNE ELIZABETH DUNLOP, his wife are ---

is seized of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 4.0010 hectares or thereabouts being Lot 2 Deposited Plan 67190 ---

DISTRICT LAND REGISTRAR
ASSISTANT LAND REGISTRAR
CANTERBURY N.Z.

Subject to:

Mortgage A124464/2 to ASB Bank Limited - 20.7.1994 at 10.35am

DISCHARGED
A.L.R.

A.L.R.

Transfer A172055/1 to Alexander Graham Dunlop of Springston, Farmer and Adrienne Elizabeth Dunlop his wife (Land Covenant) - 10.5.1995 at 10.05am

for A.L.R.

Transfer A172055/3 to Kevin John Morland, Clerk and Wilhelmina Annechiena Geziena Morland, Married Woman, both of Christchurch - 10.5.1995 at 10.05am

for A.L.R.

Mortgage A172055/4 to Westpac Banking Corporation - 10.5.1995 at 10.05am

DISCHARGED
for RGL

for A.L.R.

Variation of Mortgage A172055/4 - 22.2.1996 at 9.30am

DISCHARGED

for A.L.R.

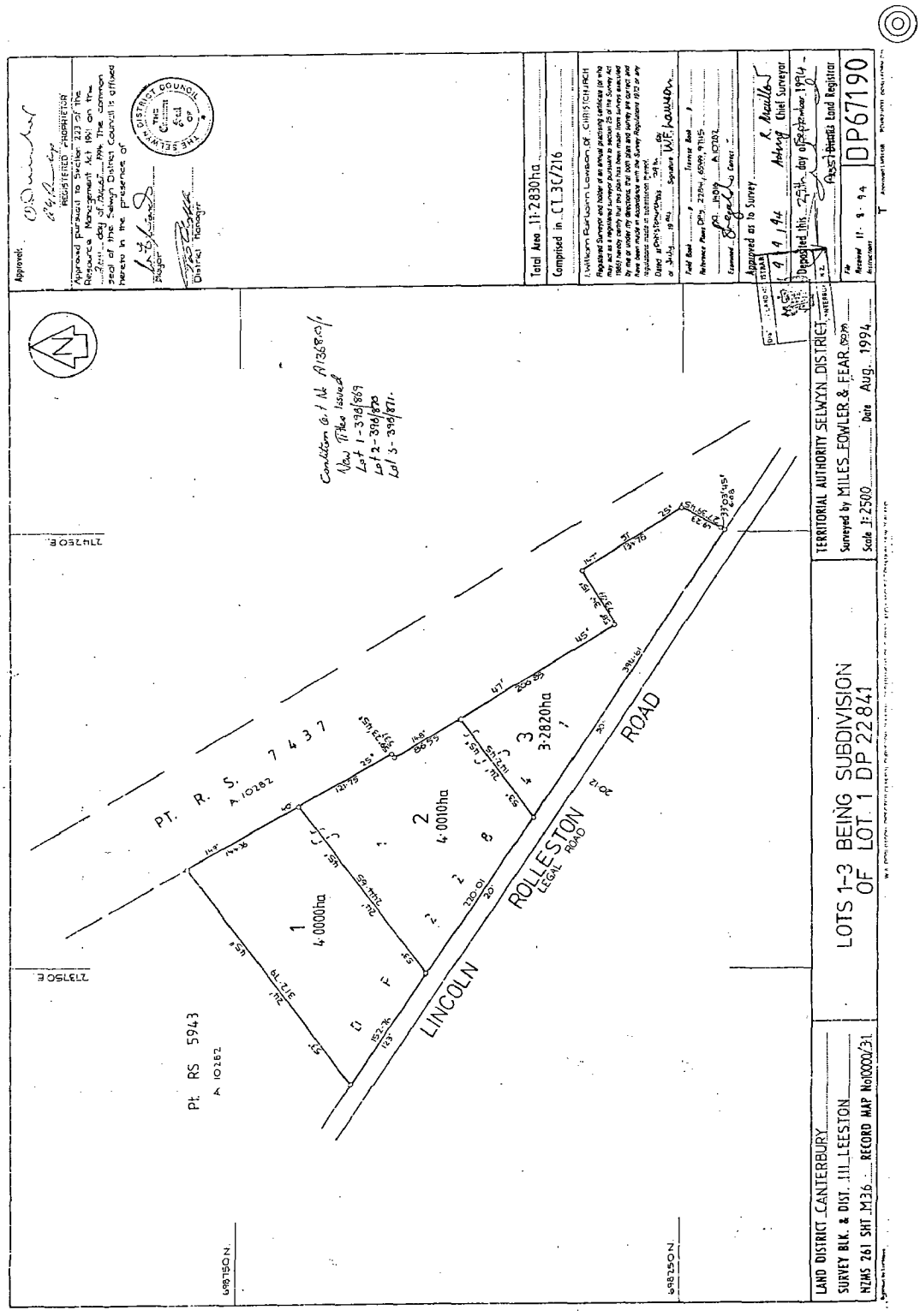
A452752.2 Transfer to Alexander James Cook and Pamela Cook - 4.4.2000 at 11.20

for RGL

A456046.1 Mortgage to Westpac Banking Corporation - 1.5.2000 at 9.50

for RGL

No. 39B/870


DP67190
LOTS 1-3 BEING SUBDIVISION OF LOT 1 DP 22841
ROLLESTON
LEGAL ROAD
LINCOLN
ROAD
PT. R. S. 7437
A 10282
Pt. RS 5943
A 10282
1 4.0000ha
2 4.0010ha
3 3.2820ha
Condition 6 of Lot A 13870/1
New Titles Issued
Lot 1 - 398/869
Lot 2 - 398/870
Lot 3 - 398/871.
Total Area 11.2830ha
Comprised in CT 3C/216
Approved pursuant to Section 226 of the Resource Management Act 1991 on the 4th day of August 1994. The common seal of the Selwyn District Council is affixed hereto in the presence of
DISTRICT COUNCIL THE COMMON SEAL OF THE SELWYN
Mayor
District Manager
Approved
REGISTERED PROPRIETOR
Registered Surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986) hereby certify that this plan has been made from surveys executed by me or under my directions, that such plans and surveys are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.
Dated at Christchurch this 5th day of July 1994
Signature W.F. Saunders
Field Book
Reference Plans
Easement
Approved as to Survey
4 August 1994
Chief Surveyor
Deposited this 24th day of October 1994
Assistant Land Registrar
File
Received 11 · 9 · 94
Instructions
TERRITORIAL AUTHORITY SELWYN DISTRICT
Surveyed by MILES FOWLER & FEAR
Scale 1:2500
Date Aug. 1994
LAND DISTRICT CANTERBURY
SURVEY BLK. & DIST. III LEESTON
NZMS 261 SHT M36
RECORD MAP No10000/31
1375DE
1376DE
6987500N
6987250N

232/93

[Form B.

NEW ZEALAND.

Reference: Vol. , folio. Application No 10282 Transfer No.

Register-book, Vol. 232, folio 93

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT.

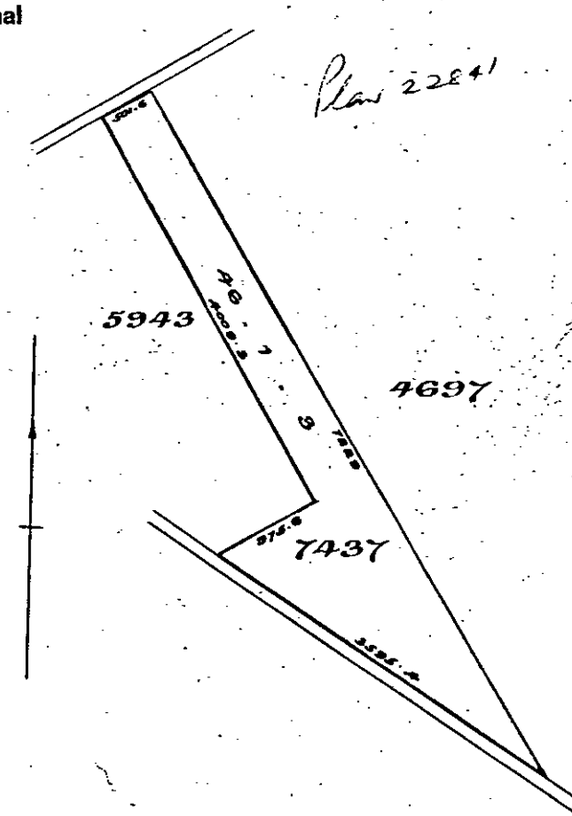
CANCELLED

This Certificate, dated the eighth day of November, one thousand nine hundred and nine, under the hand and seal of the District Land Registrar of the Land Registration District of Canterbury, witnesseth that

James Wallace of Rolleston Farmer

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or indorsed hereon; subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon, bordered green, be the several admeasurements a little more or less, that is to say: All that parcel of land containing Forty three Acres and two Roods and three Perches on Rhenerenda Deposited in Block III of the Selston Survey District being Rural Section 7437

Plan 2284



District Land Registrar

Transmission 6998 to Robert John Wallace of Lincoln Farmer and Charles Leslie McCrostie of Christchurch Farm Salesman

Transfer 92455 produced 6th December 1911 at 2.51 pm Robert John Wallace and Charles Leslie McCrostie to George Kidd Askin of Rolleston farmer

Mortgage 83704 produced 6th December 1911 at 2.51 pm George Kidd Askin to William Albert Paxton Clarkson

DISCHARGED 15/2/1926

Mortgage 83705 produced 6th December 1911 at 2.51 pm George Kidd Askin to William Thompson Wallace

DISCHARGED 15/2/1926

Transfer 115595 produced 11 October 1917 at 11.42 am George Kidd Askin to Joseph Lawton Ragg of Rolleston farmer

Transmission 11672 of Mortgage 83704 to Sarah Emily Blackson and Ernest Webster Waller Executors of the will of William Albert Paxton Clarkson deceased entered 19 August 1918 at 2.45 pm

DISCHARGED

Image Quality due to Condition of Original

2327/93

2327/93

232/93

Transfer 118403 of Mortgage 83704 produced 19 August 1918 at 2.45 pm, Sarah Emily Clarkson and Ernest Webster Walker to the said Sarah Emily Clarkson

DISCHARGED D.L.R. — A. Fraser A.L.R.

Variation of the terms of Mortgage 83705 produced 14 May 1923 at 11.25 am — DISCHARGED D.L.R. — J. Dalrymple G.L.R.

Mortgage 133087 produced 6 August 1923 at 3.15 pm Joseph Lawton Ragg to The New Zealand Farmers Co-operative Association of Canterbury Limited 16/8/1923 — DISCHARGED — J. Dalrymple G.L.R.

Extension of Mortgage 83705 produced 13th March 1924 at 2.20 pm — DISCHARGED — J. Dalrymple A.L.R.

Extension of Mortgage 83705 with the consent of the Mortgagee under Mortgage 133087 produced 27 February 1925 at 1.45 am — DISCHARGED D.L.R. — J. Dalrymple A.L.R.

Variation of the terms of Mortgage 83704 with consent of mortgagees under Mortgages 83705 and 133087 produced 20 May 1925 at 11.30 am — DISCHARGED D.L.R. — J. Dalrymple A.L.R.

Mortgage 148822 produced 16 February 1926 at 2.45 pm Joseph Lawton Ragg to The State Advances Superintendent — J. Dalrymple A.L.R.

Mortgage 148823 produced 16 February 1926 at 2.45 pm Joseph Lawton Ragg to William Thomas Wallage — DISCHARGED 22.7.1926 D.L.R. — J. Dalrymple A.L.R.

Mortgage 148824 produced 16 February 1926 at 2.45 pm Joseph Lawton Ragg to The New Zealand Farmers Co-operative Association of Canterbury Limited — DISCHARGED 22.7.1926 D.L.R. — J. Dalrymple A.L.R.

Transfer 172542 produced 22 July 1926 at 2.26 pm Joseph Lawton Ragg to Douglas Edward Taylor of Weedons farmer — J. Dalrymple A.L.R.

Transfer 187967 produced 28 January 1930 at 2.20 pm Douglas Edward Taylor to George Taylor of Weedons farmer — J. Dalrymple A.L.R.

Mortgage 190491 produced 18 December 1935 at 2.50 pm George Taylor to Edward Ross and Henry Coldbell — DISCHARGED 21-3-1941 D.L.R. — J. Dalrymple A.L.R.

Transmission of Mortgage 190491 to Henry Cotterill entered 6 July 1937 at 10 am — DISCHARGED D.L.R.

Transfer 219221 of Mortgage 190491 produced 6 July 1937 at 10 am Henry Cotterill to the above named Harry Godby and the said Henry Cotterill — Jno. Fraser A.L.R.

Transfer 238769 produced 21 March 1941 at 12.30 pm George Taylor to William Albert Taylor of Rolleston Farmer — Returned A.L.R.

Mortgage 208367 produced 21 March 1941 at 2.50 pm William Albert Taylor to George Taylor — DISCHARGED D.L.R. — Returned A.L.R.

459907 Transfer William Albert Taylor to Reginald Henry Butterick of Weedons Farmer produced 6 June 1957 at 2.08 p.m. — A.L.R.

459908 Mortgage Reginald Henry Butterick to Mary [illegible] produced 6 June 1957 at 2.08 p.m. — DISCHARGED D.L.R. — PRODUCED 21/12/1960 — A.L.R.

Transfer 541858 Reginald Henry Butterick to John Henry Butterick of Weedons Farmer produced 21/12/1960 at 1.46 p.m. — A.L.R.

Mortgage 541859 John Henry Butterick to Reginald Henry Butterick produced 21/12/1960 at 1.48 p.m. — A.L.R.

PLAN No. 22841 DEPOSITED 15/7/1963

Transmission 605607 of Mortgage 541859 to Mary McGill Butterick as Executrix Entered 30/7/1963 at 11.20 a.m. — CERTIFICATE OF TITLE,

Vol. , folio

Transfer 611961 of Mortgage 541859 to the above named Mary McGill Butterick 31.10.1963 at 10.59 a.m.

Discharge of Mortgage 541859 as to Lot 1 D.P. 22841 discharged as to Lot 1 31.10.1963 at 10.59 a.m.

Transfer 611962 of Lot 1 D.P. 22841 the part retained L.R. to Raymond George Morris and Marie Emilie Morris 31.10.1963 at 11.8 a.m.

Cancelled and new C.T. 30/219 issued See N.C.O 611964 - 31.10.1963

Cancelled

Duplicate Destroyed.

232/93

232/94

(Form B.

NEW ZEALAND.

Register-book,
Vol. 232, folio 94

Reference: { Vol. , folio
Application No. 10282
Transfer No.

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT.

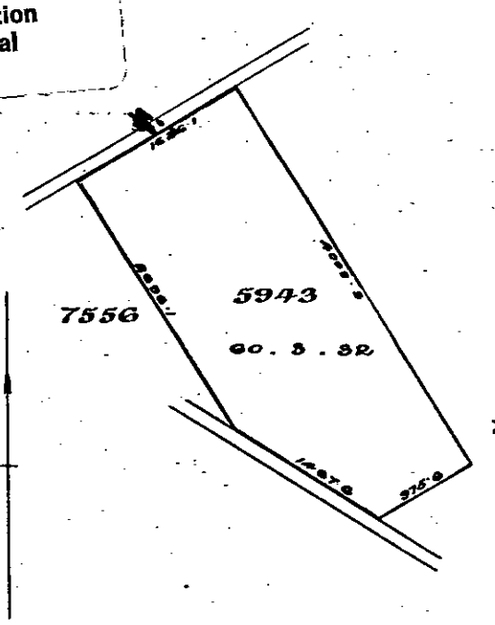
CANCELLED

This Certificate, dated the eighth day of November, one thousand nine hundred and one, under the hand and seal of the District Land Registrar of the Land Registration District of Canterbury, Witnesseth that

James Wallace of Rolleston Farmer

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or indorsed hereon; subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon, bordered green, be the several admeasurements a little more or less, that is to say: All that parcel of land containing Sixty Acres More or less and Ninety Four Perches more or less situated in Block VII of the Selwyn Survey District being Rural Section 5943

Plan 22641.



Scale, 10 Chains to an inch.

Image Quality due to Condition of Original

E. L. Price
District Land Registrar

Outstanding Mortgage Reg[d] No 100681
Borrowed by the within named and others to
Ethel Frances Hayland
DISCHARGED 21.12.1923 L.R.
Transmission 6928 to Robert John Wallace of Lincoln Farmer and Charles Leslie McCrostie of Christchurch Farm Salesman
2 Ann. & 2 S.R.
Transfer 92455 produced 6 December 1911 at 2.51 pm Robert John Wallace and Charles Leslie McCrostie to George Kidd Askin of Rolleston farmer
2 Ann. & 2 S.R.
Mortgage 83704 produced 6 December 1911 at 2.51 pm George Kidd Askin to William Albert Dayton Clarkson
DISCHARGED 15/2/1926 L.R.
2 Ann. & 2 S.R.
Mortgage 83705 produced 6 December 1911 at 2.51 pm George Kidd Askin to William Thomas Wallace
DISCHARGED 16/4/1926 L.R.
2 Ann. & 2 S.R.
Transfer 115595 produced 11th October 1917 at 11.45 am George Kidd Askin to Joseph Newton Ragg of Rolleston farmer
2 Ann. & 2 S.R.

232/94

232/94

232/94.

Transmission 115782 of Mortgage 83704 to Sarah Emily Clarkson and [DISCHARGED] Waller Executors of the will of William Albert Paston Clarkson deceased entered 19 August 1918 at 2.45 pm. J. H. Fraser A.R.

Transfer 115803 of Mortgage 83704 produced 19 August 1918 at 2.45 pm. [DISCHARGED] Sarah Emily Clarkson and Ernest Webster Waller to the said Sarah Emily Clarkson J. H. Fraser A.R.

Variation of [DISCHARGED] Mortgage 83705 produced 14 May 1923 at 11.25 am. [illegible] D.L.R. L. Dempster C.C.S.

Mortgage 133087 produced 6 August 1923 at 3.15 pm. Joseph Lawton Ragg to The New Zealand [illegible] Association of Canterbury [illegible] [DISCHARGED] 15/2/1926 [illegible] D.L.R. L. Dempster A.L.R.

Extension of Mortgage 83705 produced 13 March 1924 at 2.20 pm. [DISCHARGED] [illegible] D.L.R. L. Dempster A.L.R.

~~Extension of Mortgage 83706 produced 27 February 1925 at 9.45 am with consent~~ of Mortgagee under Mortgage 133087 [DISCHARGED] L. Dempster A.L.R.

Variation of the terms of Mortgage 83704 with consent of Mortgagees under Mortgages 83705 and 133087 produced 20 May 1925 at 10.30 am. [DISCHARGED] L. Dempster L.R.

Mortgage 148822 produced 15 February 1926 at 2.45 pm. Joseph Lawton Ragg to The State Advances Superintendent. L. Dempster A.L.R.

Mortgage 148823 produced 15 February 1926 at 2.45 pm. Joseph Lawton Ragg to William Thomas Wallace. [DISCHARGED] 22.7.1926 [illegible] D.L.R. L. Dempster A.L.R.

Mortgage 148824 produced 15 February 1926 at 2.45 pm. Joseph Lawton Ragg to The New Zealand Farmers Co-operative Association of Canterbury [illegible] [DISCHARGED] 22.7.1926 [illegible] D.L.R. L. Dempster A.L.R.

Transfer 172544 produced 22 July 1926 at 2.55 pm. Joseph Lawton Ragg to Douglas Edward Taylor of Weedons Farmer. L. Dempster A.L.R.

Transfer 197962 produced 25 January 1931 at 2.20 pm. Douglas Edward Taylor to George Taylor of Weedons Farmer. L. Dempster A.L.R.

Mortgage 190491 produced 18 December 1933 at 2.55 pm. George Taylor to Edward Cotterill [DISCHARGED] 21-3-1941 [illegible] D.L.R. and Henry Cotterill as J.T. A.L.R.

Transmission 238736 of Mortgage 190491 to Henry Cotterill entered 6 July 1937 at 12.40 pm. [illegible] D.L.R. A.L.R.

Transfer 192221 of Mortgage 190491 produced 6 July 1937 at 12.40 pm. Henry Cotterill [illegible] Henry Cotterill [illegible] A.L.R.

Transfer 238769 produced 21 March 1941 at 12.30 pm. George Taylor to William Albert Taylor of Rolleston Farmer. A.L.R.

Mortgage 208367 produced 21 March 1941 at 2.50 pm. William Albert Taylor to George Taylor. [DISCHARGED] A.L.R.

459907 Transfer William Albert Taylor to Reginald Henry Butterick of Weedons Farmer produced 6 June 1957 at 2.38 p.m. A.L.R.

459908 Mortgage Reginald Henry Butterick to Mary McGill Butterick produced 6 June 1957 at 2.38 p.m. [DISCHARGED] PRODUCED A.L.R.

Transfer 541858 Reginald Henry Butterick to John Henry Butterick of Weedons Farmer produced 21/12/1960 at 1.46 p.m. A.L.R.

~~CERTIFICATE OF TITLE~~, Mortgage 541859 John Henry Butterick to Reginald Henry Butterick produced 21/12/1960 at 1.48 p.m. A.L.R.
~~Fol~~ , folio

ITEM 10. 22841 DEPOSITED 15.7.1963.

Transmission 60560 of Mortgage 541859 to Mary McGill Butterick as Executrix Entered 30/7/1963 at 11.20 am.

Transfer 611961 of Mortgage 541859 to the above named Mary McGill Butterick - 31.10.1963 at 10.59 am.

Discharge of Mortgage 541859 as to the part hereof Lot 1 D.P. 22841 dated 31.10.1963 at 10.59 am. A.L.R.

Transfer 611962 of the part hereof Lot 1 D.P. 22841 to Raymond George Morris and Marie Emilie Morris 31.10.1963 at 10.59 am. 3C/218 A.L.R.

Cancelled and new C.T. 3C/219 issued See N.C.O. 611964 - 31.10.1963 at A.L.R.

Cancelled Duplicate Destroyed.

232/94

Appendix B – Historic Aerials

1942 Aerial

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Information from this map may not be used for the purposes of any legal disputes. The user should independently verify the accuracy of any information before taking any action in reliance upon it.

N

0 0.09 0.17 0.26 0.34 Kilometres

Scale: 1:6,000 @A4

Map Created by MEL on 2/09/2020 at 2:32 PM



1961 Aerial

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N

0 0.09 0.17 0.26 0.34 Kilometres

Scale: 1:6,000 @A4

Map Created by MEL on 2/09/2020 at 2:33 PM



1974 Aerial

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N

0 0.09 0.17 0.26 0.34 Kilometres

Scale: 1:6,000 @A4

Map Created by MEL on 2/09/2020 at 2:33 PM



1982 Aerial

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N

0 0.09 0.17 0.26 0.34 Kilometres

Scale: 1:6,000 @A4

Map Created by MEL on 2/09/2020 at 2:34 PM



1995 Aerial

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N

0 0.09 0.17 0.26 0.34 Kilometres

Scale: 1:6,000 @A4

Map Created by MEL on 2/09/2020 at 2:34 PM



2000 Aerial

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N

0 0.09 0.17 0.26 0.34 Kilometres

Scale: 1:6,000 @A4

Map Created by MEL on 2/09/2020 at 2:35 PM



2004 Aerial

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N

0 0.09 0.17 0.26 0.34 Kilometres

Scale: 1:6,000 @A4

Map Created by MEL on 2/09/2020 at 2:35 PM



2012 Aerial

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N

0 0.09 0.17 0.26 0.34 Kilometres

Scale: 1:6,000 @A4

Map Created by MEL on 2/09/2020 at 2:36 PM



2019 Aerial

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Information from this map may not be used for the purposes of any legal disputes. The user should independently verify the accuracy of any information before taking any action in reliance upon it.

N

0 0.09 0.17 0.26 0.34 Kilometres

Scale: 1:6,000 @A4

Map Created by MEL on 2/09/2020 at 2:36 PM



Environment Canterbury Regional Council; Hurunui District Council; Waimakariri District Council; Timaru District Council; Waimate District Council; Mackenzie District Council; Otago Regional Council; LINZ; NIWA, http://creativecommons.org/licenses/by/3.0/nz/

Appendix C – LLUR Statement

Property Statement
from the Listed Land Use Register

Visit www.ecan.govt.nz/HAIL for more information about land uses.

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

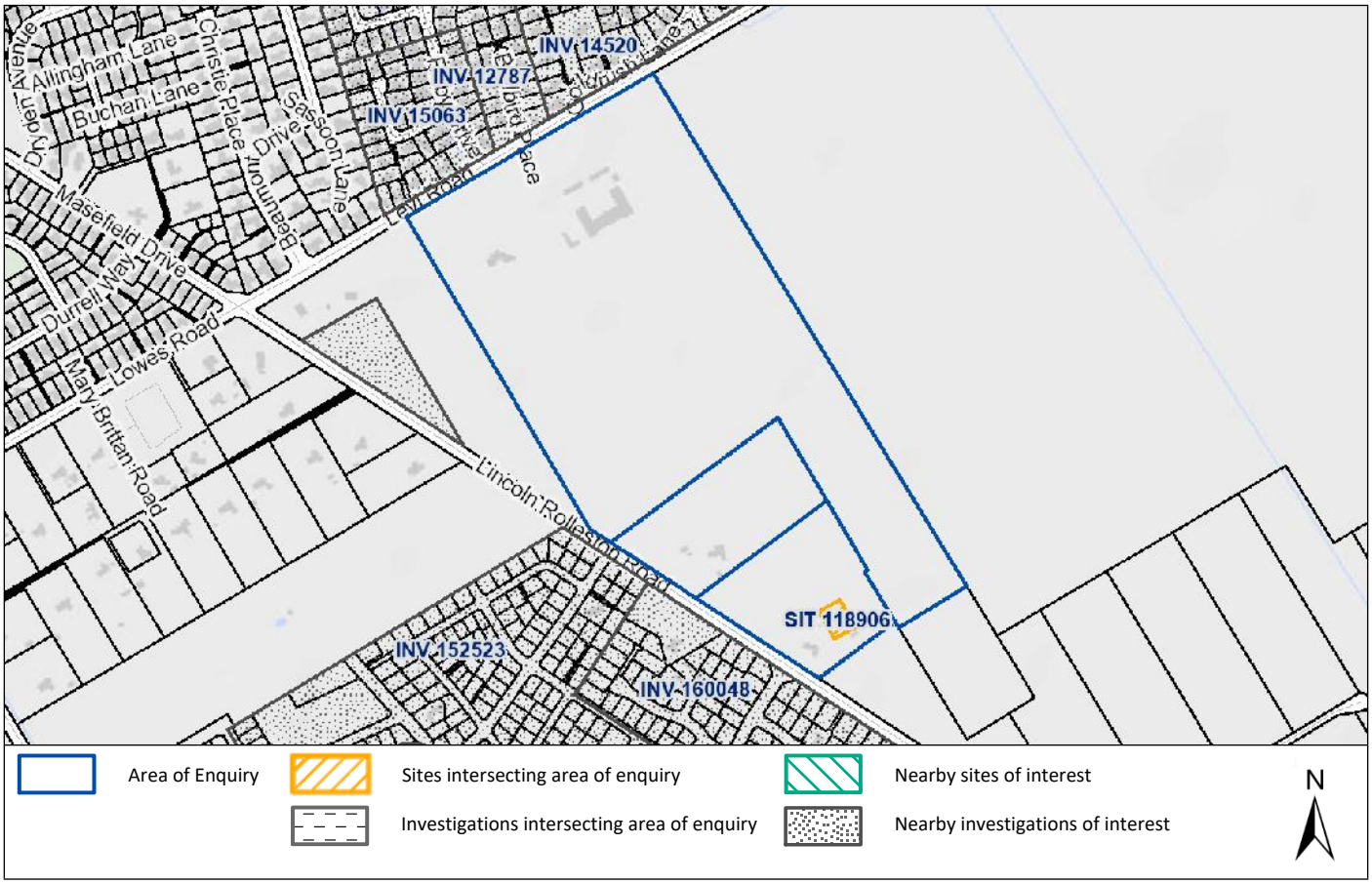
Customer Services
P. 03 353 9007 or 0800 324 636

PO Box 345
Christchurch 8140

P. 03 365 3828
F. 03 365 3194
E. ecinfo@ecan.govt.nz

www.ecan.govt.nz

Date:	02 September 2020	
Land Parcels:	Lot 1 DP 67190	Valuation No(s): 2405509800
	Lot 2 DP 67190	Valuation No(s): 2405509700
	Lot 2 DP 322710	Valuation No(s): 2405506501



The information presented in this map is specific to the area within a 100m radius of property you have selected. Information on properties outside the serach radius may not be shown on this map, even if the property is visible.

Summary of sites:

Site ID	Site Name	Location	HAIL Activity(s)	Category
118906	274 Lincoln Rolleston Rd	274 Lincoln Rolleston Rd		Verified Non-HAIL

Please note that the above table represents a summary of sites and HAILs intersecting the area of enquiry within a 100m buffer.

Information held about the sites on the Listed Land Use Register

Site 118906: 274 Lincoln Rolleston Rd (Intersects enquiry area.)

Site Address:	274 Lincoln Rolleston Rd

Legal Description(s):	Lot 2 DP 67190
Site Category:	Verified Non-HAIL
Definition:	Site entered on register based on information found to be incorrect.

Land Uses (from HAIL):	**Period From**	**Period To**	**HAIL land use**

Notes:

5 Nov 2014	This record was created as part of the Selwyn District Council 2015 HAIL identification project.
5 Nov 2014	Greenhouse
5 Nov 2014	Area defined from 2000 to 2005 aerial photographs. Horticultural activities (persistent pesticides) were noted in aerial photographs reviewed.
8 Nov 2018	Information from the landowner that developed and operated the greenhouses has shown that persistent pesticides were not used at the site. A list of products used was supplied to Environment Canterbury. The former onwers purchased the property in 1999 and erected the first greenhouse in 2000. Flowers were grown in trays on raised benches. The property was sold in 2008 and the greenhouses were dismantled in 2010 and 2011. The activity of 'persistent pesticide storage or use' has been removed and this record maintained for auditing purposes.

Investigations:

There are no investigations associated with this site.

Information held about other investigations on the Listed Land Use Register

1 Jan 2011 **INV 12787: Desk-Based Ground Contamination Assessment Plan Change 7 Area** (Preliminary Site Investigation)
Tonkin and Taylor Ltd

Summary of investigation(s):

Selwyn District Council requested a desk-based study of sites of potential contamination within the Plan Change 7 area. Plan Change 7 is located around the towns of Rolleston and Lincoln and proposed to rezone these areas for standard residential land use on 58 existing 'Living Z' and Deferred Living Z' land parcels in 2011. Environment Canterbury and Selwyn District Council records were reviewed along with historical aerial photographs and certificates of title. Site walkovers were also conducted. Potential sources of contamination were identified in several areas and these have been assigned a site number on the Listed Land Use Register. The majority of the areas investigated were found to be in pasture for most of their recent history.

23 Nov 2012 **INV 14520: GW Rolleston Ltd - Preliminary Site Investigation Report - 116 Levi Road, Rolleston** (Detailed Site Investigation)
Spiire

Summary of investigation(s):

A Preliminary Site Investigation was made at 116 Levi Road, Rolleston (Lot 1 DP 68746) to investigate potential sources of contamination. The property has subsequently been developed from agricultural land to a residential subdivision.

A review was made of Selwyn District Council records, Environment Canterbury records, historical aerial photographs, and certificates of title. A site inspection was also performed.

The property historically had been used for agriculture and no specific sources of contamination were identified. At the time of the investigation the site was predominantly used for raising and training race horses and contained an associated barn and training track.

The PSI was performed in accordance with Contaminated Land Management Guidelines. No Hazardous Activities and Industries List sites were identified.

18 Nov 2016 **INV 152523: Preliminary and Detailed Site Investigation, Branthwaite Drive, Rolleston** (Preliminary Site Investigation)

Unknown

Summary of investigation(s):

Environment Canterbury has received a Preliminary Site Investigation report that includes all or part of the property you have selected.

A Preliminary Site Investigation seeks to identify potential sources of contamination resulting from current and historical land uses.

The preliminary site investigation may not have found any potential sources of contamination on the property you have enquired about. Where potential sources of contamination have been identified, a site identification number (e.g. SIT 1234) and land uses from the Hazardous Activities and Industries List (HAIL) will be shown on your statement.

This investigation has not been summarised.

15 Oct 2016 **INV 160048: Soil Contamination Risk, Stage 1 - Preliminary Site Investigation Report, Branthwaite Drive, Rolleston** (Preliminary Site Investigation)
Malloch Environmental Ltd

Summary of investigation(s):

Site history: The site appears to have been used for grazing from at least the 1940's through to around the 1980's. A farm homestead is visible on the southern side of what is now Branthwaite Drive. In the 1990's the site appears to have been subdivided for rural residential use, and new dwellings can be seen being constructed alongside the newly constructed Branthwaite Drive. The original homestead and associated sheds appear to have been demolished at this point. In the 2000 aerial imagery a hazelnut orchard has been established on a lot in the southwestern part of the site, which remains to the present day.

INV160048 - Soil Contamination Risk, Stage 1 - Preliminary Site Investigation Report, Branthwaite Drive, Rolleston - Revision 2 (Malloch Environmental, 2017)

Investigation objective: The investigation was undertaken in preparation for soil disturbance and subdivision of the land into 700 residential lots. The site was investigated and soil contaminants assessed against the requirements of the National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health (MfE, 2011).

The majority of the site was not found to have been used for any HAIL activities. However the former homestead and farm sheds area was considered to have been potentially subject to fertiliser and chemical storage, and it was recommended that further investigation be undertaken in this area.

An interview was conducted with the owner of the hazelnut orchard (SN120675) in order to establish whether the trees had been sprayed with any persistent pesticides. The owner stated that the trees had only been sprayed with Roundup (glyphosate), Granstar (tribenuron-methyl) and Gestop (simazine). Glyphosate and tribenuron-methyl have half-lives of around three weeks in soil, and simazine has a half-life in soil of around 60 days. None of these chemicals are considered to be persistent in the soil. In addition, the owner only sprayed the trees annually, as hazelnut trees are not susceptible to disease or pests.

1 Feb 2013 **INV 15063: Soil Contamination Risk Stage 1 Preliminary Site Investigation - 132 Levi Road Prebbleton** (Detailed Site Investigation)
Davie Lovell Smith

Summary of investigation(s):

Report(s) have not yet been audited.

For further information from Environment Canterbury, contact Customer Services and refer to enquiry number ENQ262601.

Disclaimer: ***The enclosed information is derived from Environment Canterbury's Listed Land Use Register and is made available to you under the Local Government Official Information and Meetings Act 1987 and Environment Canterbury's Contaminated Land Information Management Strategy (ECan 2009).***

The information contained in this report reflects the current records held by Environment Canterbury regarding the activities undertaken on the site, its possible contamination and based on that information, the categorisation of the site. Environment Canterbury has not verified the accuracy or completeness of this information. It is released only as a copy of Environment Canterbury's records and is not intended to provide a full, complete or totally accurate assessment of the site. It is provided on the basis that Environment Canterbury makes no warranty or representation regarding the reliability, accuracy or completeness of the information provided or the level of contamination (if any) at the relevant site or that the site is suitable or otherwise for any particular purpose. Environment Canterbury accepts no responsibility for any loss, cost, damage or expense any person may incur as a result of the use, reference to or

reliance on the information contained in this report.

Any person receiving and using this information is bound by the provisions of the Privacy Act 1993.

Appendix 7: Preliminary Site Investigation Nobeline Drive

Soil Contamination Risk
Preliminary Site Investigation Report

232 Lincoln Rolleston Road &
5-25 Nobeline Drive,
Rolleston

September 2020



Malloch Environmental Ltd

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RD1, Christchurch 7671
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QUALITY CONTROL AND CERTIFICATION SHEET

Client: Gould Developments

Date of issue: 16 September 2020

Report written by:

Fran Hobkirk, Environmental Scientist, BSc
(3 years contaminated land experience)

Signed: 

Report reviewed and certified as a Suitably Qualified and Experienced Practitioner by:

Nicola Peacock, Principal Environmental Engineer, NZCE, CEnvP
(11 years contaminated land experience within 27 years environmental experience)

Signed: 



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APPENDICES

A Historic Certificates of Title
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1 Executive Summary

The subject site involves five lots on Lincoln Rolleston Road and Nobeline Drive in Rolleston. It is proposed to rezone the site to allow residential use. This will involve a change in use, future subdivision and potential disturbance of soils in the future. The Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NESCS) do apply to the subject site and require an assessment of the likelihood of soil contamination being present. It is noted also that Malloch Environmental Ltd is obligated to consider the requirements of Section 10 of the Health and Safety at Work (Asbestos) Regulations 2016. This report details the work undertaken to assess the risks.

The investigations undertaken have indicated a risk area within Lot 3 DP 67190 and Lot 7 DP 483709 of the subject site. There is a risk of contamination by heavy metals and petroleum hydrocarbons (TPH) from current and historical activities including:

- Old buildings and a railway carriage potentially painted with lead-based paints
- Storage of treated timber
- An above ground diesel tank
- A waste/burn pile

The location of the risk area is shown on the Risk Area Plan in Section 11 of this report. These are confirmed or likely Hazardous Activities and Industries List (HAIL) activities and there may be a risk to human health from potentially contaminated soils in this area. It is recommended that a Detailed Site Investigation, in terms of the Ministry for the Environments Contaminated Land Management Guidelines, be undertaken on the identified risk area prior to any change of use or development.

The rest of the subject site has been used for general pasture for its known history and this use is highly unlikely to have caused a risk to human health or the environment. There is no evidence of HAIL activities or industries having occurred on this area of the subject site, now or in the past. The rest of the subject site is considered suitable for residential use with no further investigations required.

In terms of planning status at the time of writing of this report, the NESCS does apply to the identified risk area and resource consent under the NESCS would be required for future subdivision and activities controlled by the NESCS.

2 Objectives of the Investigation

This report has been prepared in accordance with the Ministry for the Environment's "Contaminated Land Management Guidelines No 1: Reporting on Contaminated Sites in New Zealand". This report includes all requirements for a Stage 1 Preliminary Site Investigation report. This is one of the methods described in Section 6(3) of the NESCS to establish whether the regulations apply.

The objective is to determine whether there is any risk of potential contamination that would warrant further investigation.

3 Scope of Work Undertaken

The scope of the work undertaken has included:

- Review of Selwyn District Council property files

- Obtaining ECan data from the Listed Land Use Register (LLUR)
- Search of LINZ NZ orchard database
- Review of historic aerial photos
- Review of historic titles
- Site Inspection
- Preparation of report in accordance with MfE guidelines

4 Site Identification

The subject site is situated on Lincoln Rolleston Road and Nobeline Drive in Rolleston as shown on the plan in **Figure 1** below. The site consists of five rural residential lots and has a total area of 17.7956Ha. The street addresses, legal descriptions and areas of the lots included are:

Street Address	Legal Description	Area (Ha)
232 Lincoln Rolleston Rd	Lot 3 DP 67190	3.2800
Rear of 139 Levi Rd	Lot 2 DP 416195	2.3400
5 Nobeline Drive	Lot 7 DP 483709	4.0805
15 Nobeline Drive	Lot 8 DP 483709	4.0558
25 Nobeline Drive	Lot 9 DP 483709	4.0393
	Total Area	**17.7956**

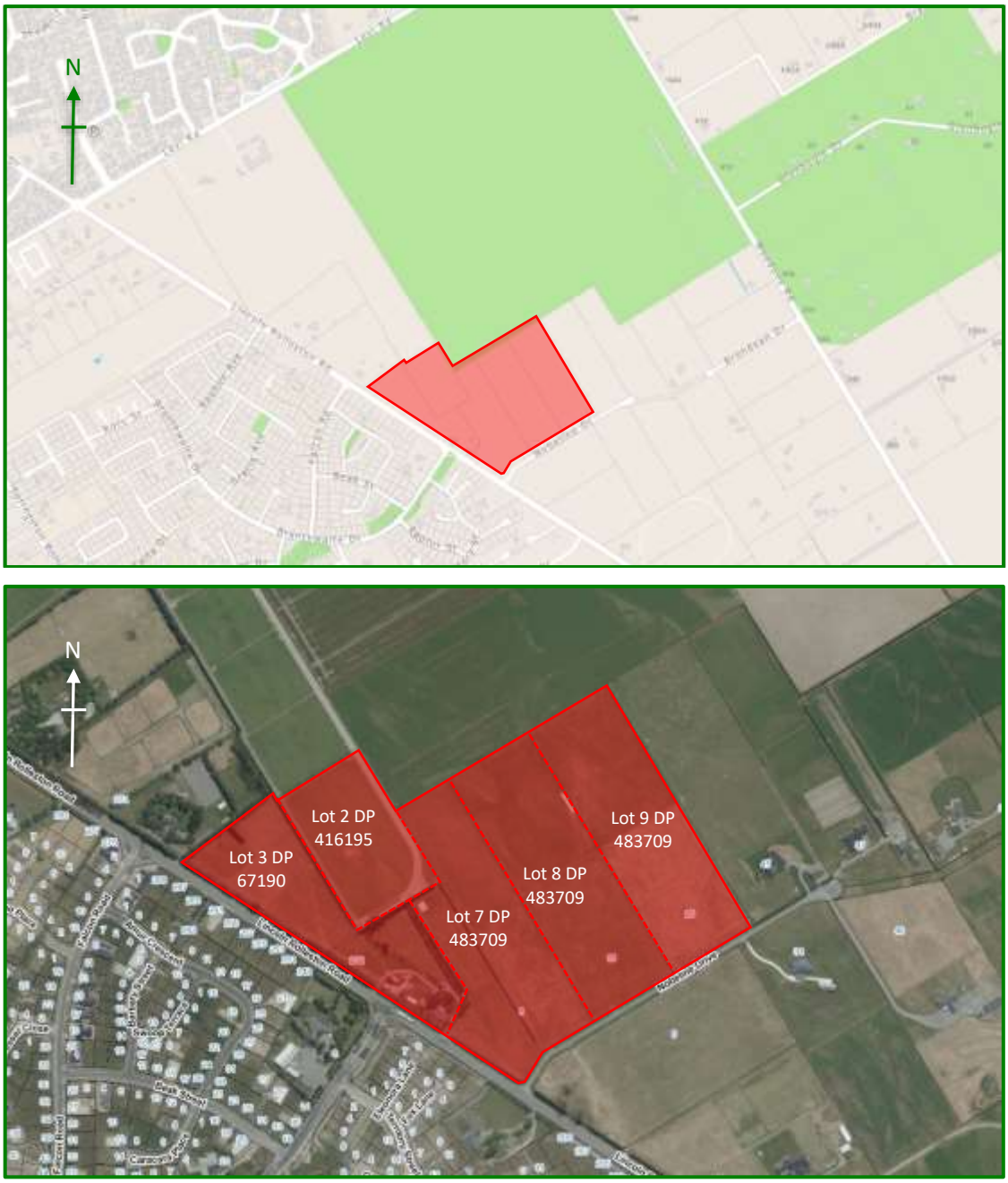


Figure 1 – Location Plan

5 Site Description and Surrounding Environment

The subject site is mainly flat rural and rural residential land. There is a dwelling, garage, sleepout, stables and sheds on Lot 3 DP 67190. The rest of the subject site is in pasture. The subject site is clearly defined by existing hedges and fences. It is bounded by rural and rural residential land except to the south-west where residential lots are being developed. Rolleston town centre lies approximately 1.8km to the north-west.

6 Geology and Hydrology

The ECan GIS describes the soils as a combination of Templeton deep silty loam, Templeton moderately deep silty loam and Eyre shallow silty loam as shown on the plan in **Figure 2**. Soil trace elements are 'Regional, Recent'. Wells in the area indicate that topsoils are underlain by sandy gravels and claybound gravels.

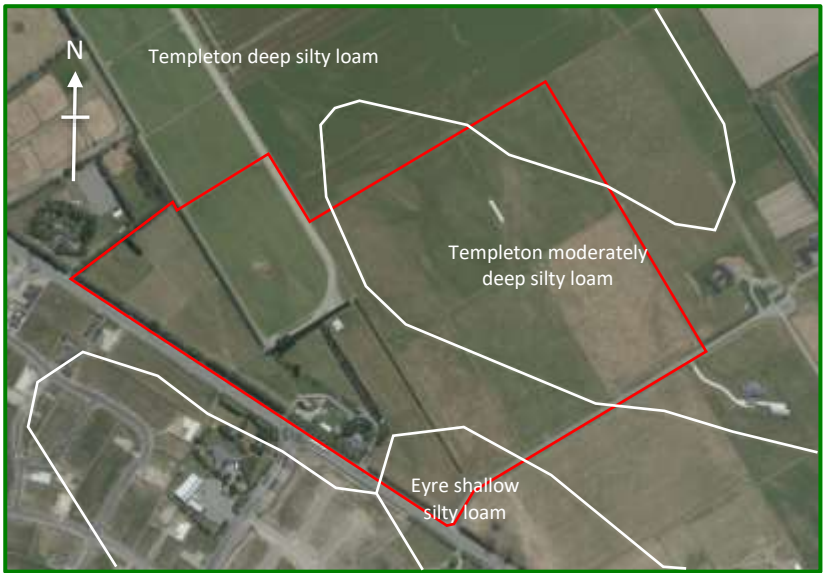


Figure 2 – Soil Type Plan

The site lies over the unconfined/semi-confined gravel aquifer system. Ground water levels recorded on nearby bore logs are between 9.30m and 13.00m deep. The direction of ground water flow is generally in a south-easterly direction. ECan's GIS shows an active well on the subject site. The nearest downgradient well is a domestic and stockwater well approximately 125m south-east of the subject site.

According to ECan's GIS there are no open water features on the subject site.

7 Site History

7.1 Previous Site Ownership and Use

Historic Certificates of Title were searched and the following relevant ownership information was obtained:

Lot 3 DP 67190

Dec 1906 - James Wallace, farmer
Undated - Robert John Wallace, farmer and Charles Leslie McCrostie, farm salesman
Dec 1911 - George Kidd Askin, farmer
Oct 1917 - Joseph Lawton Ragg, farmer
Jul 1926 - Douglas Edward Taylor, farmer

Jan 1931 - George Taylor, farmer
Mar 1941 - William Albert Taylor, farmer
Jun 1957 - Reginald Henry Butterick, farmer
Dec 1960 - John Henry Butterick, farmer
Oct 1963 - Raymond George Morris, horse trainer and Merie Emilie Morrise, his wife
Sep 1994 - Alexander Graham Dunlop, farmer and Adrienne Elizabeth Dunlop, his wife
May 1995 - Michael Herbert Pelvin, engineer and Denise Marguerite Pelvin, business manager
Nov 2012 - B & S Archer Property Ltd
Oct 2015 - Paul Wallace Scott and Rebecca Jane Scott

Lot 2 DP 416195

Dec 1906 - James Wallace, farmer
Undated - Robert John Wallace, farmer and Charles Leslie McCrostie, farm salesman
Dec 1911 - George Kidd Askin, farmer
Oct 1917 - Joseph Lawton Ragg, farmer
Jul 1926 - Douglas Edward Taylor, farmer
Jan 1931 - George Taylor, farmer
Mar 1941 - William Albert Taylor, farmer
Jun 1957 - Reginald Henry Butterick, farmer
Dec 1960 - John Henry Butterick, farmer
Oct 1965 - Mary McGill Butterick, widow
Mar 1967 - Mark Thomas Butterick, farmer
Aug 1969 - Brendean Farm Ltd
Aug 1992 - Arthur Ross Bussell and Noeline Shirley Bussell
Apr 2002 - Mark Purdon and Vicki Lynnette Purdon
Jun 2005 - Arthur Ross Bussell and Noeline Shirley Bussell
Jan 2008 - Noeline Shirley Bussell
Jan 2010 - Mark Purdon and Vicki Lynnette Purdon
Dec 2011 - Mark Purdon
Jul 2014 - Mark Purdon and Natalie Clair Rasmussen

Lot 7, 8 & 9 DP 483709

Mar 1864 - Robert Watson, farmer
Feb 1882 - Robert Watson the Younger, farmer
Dec 1883 - Ryman Marks, ? agent
Sep 1885 - Archibald Bisset, farmer
Mar 1888 - Robert Watson, farmer
Jun 1890 - Robert Geddis, farmer
Mar 1900 - William Richard Wright, farmer
Oct 1910 - Tom Wright Johnson, farmer
Jul 1925 - George Taylor, farmer
Mar 1941 - William Albert Taylor, farmer
Jun 1957 - Reginald Henry Butterick, farmer
Dec 1960 - John Henry Butterick, farmer
Oct 1965 - Mary McGill Butterick, widow
Mar 1967 - Mark Thomas Butterick, farmer
Aug 1969 - Brendean Farm Ltd
Aug 1992 - Arthur Ross Bussell, farmer and Noeline Shirley Bussell, married woman
Apr 2008 - Noeline Shirley Bussell, Denis John Bussell, Jan Michelle Riley and Peter Connal Champion
Feb 2012 - Denis John Bussell, Jan Michelle Riley and Peter Connal Champion

Feb 2013 - Bussell Family Properties Ltd
Oct 2013 - Brendean Estate Ltd
Sep 2015 - Neil Pilcher and Peter William Smith (Lot 7 DP 483709)
Sep 2015 - J M & T L Whittaker Ltd (Lot 8 & 9 DP 483709)
Oct 2017 - Neil Pilcher and Smith & Partners Trustee Co. Ltd (Lot 7 DP 483709)
Aug 2018 - Leanne File and Smith & Partners Trustee Co. Ltd (Lot 7 DP 483709)

Note that some of the older information was of poor quality and difficult to follow, therefore the accuracy of the spelling of names and dates is not guaranteed.

Copies of the Historic Titles are included in **Appendix A.**

7.2 District Council Records

The Selwyn District Council (CCC) property file was reviewed and did not include any building consents for Lot 2 DP 416195, Lot 7 DP 483709, Lot 8 DP 483709 or Lot 9 DP 483709. It did include consents for the following on Lot 3 DP 67190:

2015 - Installation of a solid fuel heater
2008 - Domestic dwelling alterations
2005 - Installation of a solid fuel heater
2000 - Dwelling addition
1987 - Erect horse stables
1985 - Installation of a solid fuel heater
1976 - Relocate a garage onto site from 17 Norfolk Street, Christchurch. A review of historical aerials suggests the garage was built on 17 Norfolk Street between 1962 and 1965.
1971 - Erect a grain storage shed
1971 - Relocate a railway freezer wagon onto site
1971 - Erect a haybarn
1967 - Erect a float shed. The plan indicates stables are already present on the site.

7.3 Regional Council Records

The ECan Listed Land Use Register Statement does not list the subject site.

One nearby site is listed but is listed as 'Verified non-HAIL'. The site was originally listed due to a greenhouse noted on aerial photographs. However, information from the landowner who erected and operated the greenhouses showed persistent pesticides were not used at the site and the potential HAIL activity was removed and the site updated to 'Verified Non-HAIL'.

The statement indicates part of the subject site was investigated by Land Development and Exploration Ltd (LDE Ltd) in 2013. A Preliminary Site Investigation identified an area on what is now Lot 7 DP 483709 to be at risk of contamination from sheep dip and spray race operations due to the current and historic presence of agricultural infrastructure. A Detailed Site Investigation determined arsenic and organochlorine pesticides (OCPs) including Aldrin, Dieldrin and DDT were well below rural residential guideline values.

One nearby Preliminary Site Investigation is summarised in the LLUR statement. It did not identify any potential sources of contamination that could affect the current subject site.

See LLUR Statement in **Appendix C.**

Resource consent information was sourced from the GIS mapping system. There are no active resource consents for the subject site or adjacent lots.

7.4 LINZ Records

The LINZ Orchard layer does not show the subject site or adjacent lots as having listed orchards.

7.5 Review of Historic Aerial Photographs

A total of nine aerial photos (see copies in **Appendix B**) have been used to assess the historic use of the site as detailed below:

- The earliest photo is from **1942** and has been sourced from ECan's GIS. The subject site is mainly in pasture. There is a dwelling and garage located on what is currently Lot 3 DP 67190. Adjacent to the curtilage area there are three farm sheds, on what is currently Lot 7 DP 483709. The surrounding area is similar pasture farmland. There is a dwelling and farm buildings beyond the subject site to the south-west.
- A photo from **1961** is sourced from ECan's GIS and shows one of the sheds has been removed from the subject site. One of the sheds seems to have been extended or replaced with a larger shed. A new shed has been constructed on the eastern corner of Lot 3 DP 67190. There are no significant changes to the rest of the subject site or the surrounding area.
- A photo from **1974** is sourced from ECan's GIS and shows four large sheds have been constructed to the north-west of the dwelling. There are also seven additional smaller sheds, probably animal shelters. Four new sheds are also present to the north of the dwelling. One of the sheds to the south-east of the dwelling has been removed, only one shed remains in this area. There are no significant changes to the rest of the subject site or the surrounding area.
- A photo from **1982** is sourced from ECan's GIS and shows no significant changes to the subject site or surrounding area.
- A photo from **1995** is sourced from ECan's GIS and shows most of the sheds to the north-west of the dwelling have been removed from the subject site. The stables to the north-west of the dwelling have been extended. Rural residential development has occurred beyond the subject site to the south-west and west.
- A photo from **2000** is sourced from ECan's GIS and shows no significant changes to the subject site. A greenhouse has been added beyond the subject site to the north-west. This is listed as 'Verified Non-HAIL' on the LLUR. Additional dwellings have been built beyond the subject site to the south.
- A photo from **2004** is sourced from ECan's GIS and shows the shed no significant changes to the subject site. A second greenhouse has been added beyond the subject site to the north-west.
- A photo from **2012** is sourced from ECan's GIS and shows a farm track has been constructed on Lot 2 DP 416195. There appears to be a stockpile in the middle of this lot, probably left over from construction of the track. The greenhouses beyond the subject site to the north-west have been removed.
- The most recent aerial photo reviewed, dated **2019**, is sourced from ECan's GIS. It shows the farm shed has been removed from Lot 7 DP 483709. Two shipping containers have been added to the north-west of the dwelling on Lot 3 DP 67190. Part of the roof on the stables has been removed. A possible burn pile is present to the north-west of these sheds

and shipping containers. Residential development is in progress beyond the subject site to the south-west.

8 Site Inspection

A site inspection was undertaken on the 7th September 2020 to assist with characterising 232 Lincoln Rolleston Road, focussing on the multiple sheds. A Site Inspection Plan detailing the structures and other potential sources of soil contamination is included in **Appendix D**. No bulk storage of agrichemicals was noted in any of the sheds. No evidence of potential asbestos containing materials was seen.

The first structure along the driveway when entering the property is a garage. This appears to be the garage relocated onto the site in 1976 and was probably originally built in the early to mid-1960s. It is constructed from iron and timber.



Photo 1: Garage

Next, on the right side of the driveway is another shed built from timber with an iron roof. It appears to have a concrete floor. From the aerial photographs this shed was built between 1942 and 1961.



Photo 2: Timber shed

There is a small timber shed on the left side of the driveway amongst bushes and trees. It is not possible to determine from the aerial photographs when this shed was constructed.



Photo 3: Small timber shed within bushes

On the right side of the driveway is a 2-bay shed built from timber and iron with an earth/shingle floor. The aerials indicate this was built between 1961 and 1974. It is currently used to store farm/garden machinery.



Photo 4: Iron and timber shed storing farm/garden machinery

Next, the driveway runs along the northern edge of a lawn area with a garden chess board, a hot tub and a modern sleepout.



Photo 5: Sleepout, chess and hot tub

After the lawn area, there is an area with a railway carriage, shipping containers, a farm shed and stables. The paint on the railway carriage is considered likely to be lead-based and is in a deteriorated state.



Photo 6: Railway carriage with flaking paint

To the rear of one of the shipping containers is a diesel above ground fuel tank (AST). There was no obvious visual or olfactory evidence of any leaks or spills but there were weeds under the tank obscuring the soils. As the tank is not sited on flat ground and the pump handle was coated with cobwebs it suggests use of the tank may have ceased and it may have been moved from its original location.



Photo 7: Diesel AST on sloping ground

The farm shed is an open front 3-bay shed. It is believed to the 1967 'float shed' described in the council property file. The shed is constructed from iron and timber with an earth floor. It is currently used to store a vehicle, trailer and a lawnmower.



Photo 8: 3-bay float shed

The final structure is the stables. The older stables, adjacent to Lincoln Rolleston Road, were built between 1961 and 1967 according to the aerial photographs and the property file. A second stable block was built parallel to the original in 1987. Between 2012 and 2019 the roof was removed from approximately half of the stables. The roofed area is currently used as a games room and has a concrete floor. The original stables appear to have been constructed from painted timber.



Photo 9: Remaining section of original stables

The newer stables were built from concrete block. The ground between the stables is concrete but the floor of the stalls appears to be earth. Some of the stalls are being used to store animal feed, timber and metal fence panels. There is also a shipping container on part of the old stable block.



Photo 10: View into unroofed stable area. Older stable and shipping container on right, concrete block stalls on left. Items stored on concrete floor in middle.



Photo 11: Storage of animal feed

Beyond the stables are paddocks. One paddock has some treated timber and bricks on pallets against the boundary.



Photo 12: Storage of timber and bricks

Another paddock is being used to store vehicles for a local before/after school childcare company. The vans appear to be in working condition and there was no visual evidence of oil or fuel leaks.

A waste or burn pile was noted on the site. At the time of the inspection the pile contained green waste, soil and some ash.



Photo 13: Waste/Burn Pile

North-west of the waste/burn pile was a stockpile of stony soil. No visual evidence of demolition debris was seen within the stockpiled material. Paul Scott, the vendor of the 232 Lincoln Rolleston Road, advised that the soil was topsoil removed from a building site within the Falcons Landing residential development on the opposite side of Lincoln Rolleston Road. Preliminary and Detailed Site Investigations were undertaken for the Falcons Landing development by Malloch Environmental Ltd in 2016 and 2017. Those investigations found no contamination exceeding residential guideline values. Therefore, it is considered highly unlikely that this soil poses a risk to human health in a residential use.



Photo 14: Soil stockpile

9 HAIL Uses and Possible Types of Contaminants Associated with Past Use

The Hazardous Activities and Industries List (HAIL) compiled by The Ministry for the Environment include the following categories (*in italics*) that could be associated with the historical uses of the site with a summary of the risk of these activities having been carried out on the site.

A - Chemical manufacture, application and bulk storage

10. Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds

The majority of the subject site has been used for pastoral activities for their known history. The normal uses of fertilisers and pastoral weed controls associated with pastoral use are unlikely to have caused soil contamination that would pose a risk to human health.

Farm buildings were located on Lot 7 DP 483709 since at least 1942 until sometime between 2012 and 2019. However, sampling in this area was undertaken by LDE Ltd in 2013. The samples were tested for arsenic and OCPs and found no results exceeding rural residential guideline values. Therefore, it is considered unlikely that persistent agrichemicals were used or stored in these older sheds in any significant volume.

Stables and sheds were constructed on Lot 3 DP 67190 in the 1960s and 1970s. However, given the owner from 1963 to 1994 was a horse trainer and the main buildings were stables and a float shed this indicates the primary use of the land was for horses rather than stock. It is considered unlikely that this use would require bulk storage of persistent pesticides.

17. Storage tanks or drums for fuel, chemicals or liquid waste

An above ground diesel tank is present on the site. Contaminants of concern include petroleum hydrocarbons (TPH).

18. Wood treatment or preservation including the commercial use of antisapstain chemicals during milling, or bulk storage of treated timber outside

Treated timber is being stored on site which can pose a risk of contamination on the site, however, the quantity is small. Contaminants of concern include heavy metals.

G – Cemeteries and waste recycling, treatment and disposal

5. Waste disposal to land

A waste/burn pile was noted during the site inspection with some ash present indicated burning had occurred. Although the current pile only included green waste if treated timber had been burnt here previously this could have contaminated the underlying soils. Contaminants of concern include heavy metals.

I - Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment

The earliest aerial photograph, dated 1942, shows a dwelling and garage on Lot 3 DP 67190 and farm sheds on Lot 7 DP 483709. These buildings pose a risk of contamination from the use of lead-based paints. Although some sampling around the farm sheds was undertaken in 2013 the samples were not tested for lead. A railway carriage, relocated onto the site in 1971, is also considered likely to be painted with lead-based paints. Any natural deterioration or intentional removal may have caused contamination of the soil. Contaminants of concern include lead.

10 Basis for Soil Guideline Values (SGV)

10.1 Activity Description

This report has been written for the following potential activities:

- Proposed plan change to residential use,
- Future subdivision
- Soil disturbance activities associated with the above use and development of the site

10.2 Zoning

The subject site is currently zoned Inner Plains.

10.3 Soil Guideline Values

Human health soil contaminant standards for a group of 12 priority contaminants were derived under a set of five land-use scenarios and are legally binding under The Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Health) Regulations 2011 (NESCS). These standards have been applied where applicable. The regulations describe these as Soil Contaminant Standards. For contaminants other than the 12 priority contaminants, the hierarchy as set out in the Ministry for the Environment Contaminated Land Management Guidelines No 2 has been followed. These are generally described as Soil Guideline Values. For simplicity, this report uses the terminology Soil Guideline Values (SGV) when referring to the appropriate soil contaminant standard or other derived value from the hierarchy. For soil, guideline values are predominantly risk based, in that they are typically derived using designated exposure scenarios that relate to different land uses. For

each exposure scenario, selected pathways of exposure are used to derive guideline values. These pathways typically include soil ingestion, inhalation and dermal adsorption. The guideline values for the appropriate land use scenario relate to the most critical pathway.

The land-use scenarios applicable for the proposed use of this site and any associated earth disturbing activities include 'residential 10% produce', and 'commercial/industrial/outdoor workers' as a proxy value to protect the health of construction workers

11 Site Characterisation and Conclusion

The investigations undertaken have indicated a risk area within Lot 3 DP 67190 and Lot 7 DP 483709 of the subject site. There is a risk of contamination by heavy metals and TPH from current and historical activities including:

- Old buildings and a railway carriage potentially painted with lead-based paints
- Storage of treated timber
- An above ground diesel tank
- A waste/burn pile

The location of the risk area is shown on the Risk Area Plan in **Figure 2** below. These are confirmed or likely HAIL activities and there may be a risk to human health from potentially contaminated soils in this area. It is recommended that a Detailed Site Investigation, in terms of the Ministry for the Environments Contaminated Land Management Guidelines, be undertaken on the identified risk area prior to any change of use or development.



Figure 3 – Risk Area Plan

The rest of the subject site has been used for general pasture for its known history and this use is highly unlikely to have caused a risk to human health or the environment. There is no evidence of HAIL activities or industries having occurred on this area of the subject site, now or in the past. The rest of the subject site is considered suitable for residential use with no further investigations required.

12 Planning Status

In terms of the NESCS section 5 (7) states that the land is considered to be covered if an activity or industry described in the HAIL is being undertaken on it; or has been undertaken on it; or it is more likely than not that an activity is being or has been undertaken on it. Section 6 describes the methods for determining whether the land is as described in section 7. Method 6 (3) is to rely on a Preliminary Site Investigation.

This Preliminary Site Investigation has found that there is evidence of an activity or industry described in the HAIL occurring on a part of the subject site now or in the past. In terms of planning status at the time of writing of this report, the NESCS does apply to the risk area identified on the site and resource consent would be required for future subdivision and activities controlled by the NESCS.

13 Limitations

Malloch Environmental Limited has performed services for this project in accordance with current professional standards for environmental site assessments, and in terms of the client's financial and technical brief for the work. Any reliance on this report by other parties shall be at such party's own risk. It does not purport to completely describe all the site characteristics and properties. Where data is supplied by the client or any third party, it has been assumed that the information is correct, unless otherwise stated. Malloch Environmental Limited accepts no responsibility for errors or omissions in the information provided. Should further information become available regarding the conditions at the site, Malloch Environmental Limited reserves the right to review the report in the context of the additional information.

Opinions and judgments expressed in this report are based on an understanding and interpretation of regulatory standards at the time of writing and should not be construed as legal opinions. As regulatory standards are constantly changing, conclusions and recommendations considered to be acceptable at the time of writing, may in the future become subject to different regulatory standards which cause them to become unacceptable. This may require further assessment and/or remediation of the site to be suitable for the existing or proposed land use activities. There is no investigation that is thorough enough to preclude the presence of materials at the site that presently or in the future may be considered hazardous.

No part of this report may be reproduced, distributed, publicly displayed, or made into a derivative work without the permission of Malloch Environmental Ltd, other than the distribution in its entirety for the purposes it is intended.

Appendix A – Historic Certificates of Title

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Historical Search Copy

R.W. Muir
Registrar-General of Land

Constituted as a Record of Title pursuant to Sections 7 and 12 of the Land Transfer Act 2017 - 12 November 2018

Identifier **695249**
Land Registration District **Canterbury**
Date Issued 17 August 2015

Prior References
656864

Estate	Fee Simple
Area	4.0393 hectares more or less
Legal Description	Lot 9 Deposited Plan 483709

Original Registered Owners
Brendean Estate Limited

Interests

Land Covenant in Easement Instrument 10043178.2 - 17.8.2015 at 10:49 am (Limited as to Duration)

Appurtenant hereto is a right to convey electricity created by Easement Instrument 10043178.9 - 17.8.2015 at 10:49 am

The easements created by Easement Instrument 10043178.9 are subject to Section 243 (a) Resource Management Act 1991

10043178.12 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 17.8.2015 at 10:49 am

10172341.1 Transfer to J M & T L Whittaker Limited - 3.9.2015 at 12:44 pm

Fencing Covenant in Transfer 10172341.1 - 3.9.2015 at 12:44 pm

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Historical Search Copy

R.W. Muir
Registrar-General
of Land

Identifier **463352**
Land Registration District **Canterbury**
Date Issued 21 January 2010

Cancelled

Prior References
90576 CB427/50

Estate	Fee Simple
Area	61.7348 hectares more or less
Legal Description	Lot 1 Deposited Plan 416195 and Lot 2 Deposited Plan 9745

Original Proprietors
Noeline Shirley Bussell as to a 1/2 share

Denis John Bussell, Jan Michelle Riley and Peter Connal Champion as to a 1/2 share as Executors

Interests

Subject to Section 241(2) Resource Management Act 1991 (affects DP 416195)

8982360.1 Transmission of a 1/2 share/interest Noeline Shirley Bussell to Denis John Bussell as Executor, Jan Michelle Riley as Executor and Peter Connal Champion as Executor - 27.2.2012 at 10:23 am

9241489.1 Transfer to Bussell Family Properties Limited - 20.2.2013 at 3:07 pm

9529255.1 Transfer to Brendean Estate Limited - 4.10.2013 at 3:53 pm

Lot 17 DP 475510 is vested in Selwyn District Council as road pursuant to Section 238 Resource Management Act 1991

9835966.1 CTs issued - 20.11.2014 at 11:57 am

Legal Description	Title
Lot 1 Deposited Plan 475510	656857
Lot 2 Deposited Plan 475510	656858
Lot 3 Deposited Plan 475510	656859
Lot 4 Deposited Plan 475510	656860
Lot 5 Deposited Plan 475510	656861
Lot 6 Deposited Plan 475510	656862
Lot 19 Deposited Plan 475510	656863
Lot 100 Deposited Plan 475510	656864

CANCELLED

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Historical Search Copy

R.W. Muir
Registrar-General
of Land

Identifier **CB3C/219**
Land Registration District **Canterbury**
Date Issued 31 October 1963

Cancelled

Prior References
CB232/93 CB232/94

Estate	Fee Simple
Area	32.1093 hectares more or less
Legal Description	Part Rural Section 5943 and Part Rural Section 7437

Original Proprietors
Arthur Ross Bussell as to a 1/2 share
Noeline Shirley Bussell as to a 1/2 share

Interests

5182545.1 Transfer to Mark Purdon and Vicki Lynette Purdon - 3.4.2002 at 10:57 am

5182545.2 Mortgage to Arthur Ross Bussell and to Noeline Shirley Bussell in shares - 3.4.2002 at 10:57 am

5194569.1 Department dealing correcting the name of one of the registered proprietors from Vicki Lynette Purdon to Vicki Lynnette Purdon - 18.4.2002 at 11:00 am

5729095.1 Discharge of Mortgage 5182545.2 - 15.9.2003 at 9:00 am

5729095.2 Mortgage to Bank of New Zealand - 15.9.2003 at 9:00 am

6411331.1 Certificate pursuant to Section 224(c) Resource Management Act 1991 (affects DP 322710) - 9.5.2005 at 9:00 am

6411331.2 CTs issued - 9.5.2005 at 9:00 am

Legal Description	**Title**
Lot 1 Deposited Plan 322710	90576
Lot 2 Deposited Plan 322710	90577

CANCELLED

Reference:
Prior C/T. 232/93,94

Transfer No.
N/C. Order No. 611964

Land and Deeds 69

REGISTER

3C /219

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 31st day of October one thousand nine hundred and sixty-three under the seal of the District Land Registrar of the Land Registration District of Canterbury

WITNESSETH that JOHN HENRY BUTTERICK of Weedons Farmer

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 79 acres 1 rood 15 perches or thereabouts situated in Block III of the Leeston Survey District being part of Rural Sections 5943 and 7437

DISTRICT LAND REGISTRAR CANTERBURY, N.Z.

Assistant Land Registrar

Mortgage 541859 to Reginald Henry Butterick - 21.12.1960 at 1.48p.m.

A.L.R.

Transmission 666866 to Mary McGill Butterick of Weedons Widow as Executrix Entered 29.10.1965 at 11.19 a.m.

A.L.R.

Transfer 666867 to the abovenamed Mary McGill Butterick - 29.10.1965 at 11.20 a.m.

A.L.R.

Transfer 706347 to Mark Thomas Butterick of Weedons Farmer - 15/3/1967 at 2.55p.m.

A.L.R.

Mortgage 706348 to Mary McGill Butterick - 15/3/1967 at 2.55p.m.

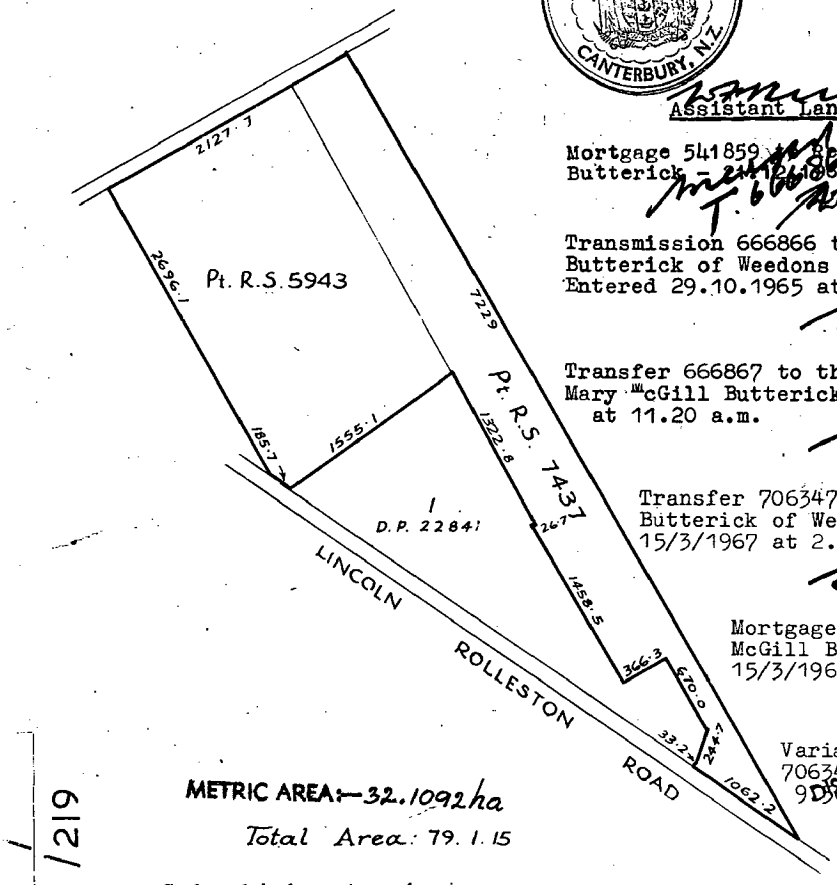
DISCHARGED 15-8-1967

A.L.R.

Variation of Mortgage 706348 - 12/7/1967 at 9.50 a.m.

DISCHARGED

A.L.R.



No. 3C /219

METRIC AREA:—32.1092ha

Total Area: 79. 1. 15

Scale: 1 inch = 10 chains

- over -

Register copy for L. & D. 69. 20,000/8/51—42629 W

3C/219

Transfer 773386 to Brendean Farm Limited at Christchurch - 15/8/1969 at 11.45 a.m.

A.L.R.

Mortgage 802975 to Canterbury Savings Bank - 17/7/1970 at 11.20 p.m.

A.L.R.

DISCHARGED 15 OCT 1985

Mortgage 819195 to State Advances Corporation - 15/12/1970 at 1.50 p.m.

A.L.R.

Transfer A7784/1 to Arthur Ross Bussell, Farmer and Noeline Shirley Bussell, Married Woman both of Christchurch as tenants in common in equal shares - 4.8.1992 at 11.28am

A.L.R.

Reference:
Prior C/T. 232/94 and 93

Transfer No. 611962
N/C. Order No.

CANCELLED

CANCELLED Land and Deeds 69

REGISTER

3C/216

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 31st day of October one thousand nine hundred and sixty-three under the seal of the District Land Registrar of the Land Registration District of Canterbury

WITNESSETH that RAYMOND GEORGE MORRIS of West Melton Horse Trainer and MERIE EMILIE MORRIS his wife are

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 27 acres 3 roods 20 perches or thereabouts situated in Block III of the Leeston Survey District being Lot 1 on Deposited Plan No. 22841 part Rural Sections 5943 and 7437

DISTRICT LAND REGISTRAR CANTERBURY, N.Z.

Assistant Land Registrar

Mortgage 611963 to Mary Muriel Butterick - 31.10.1963 at 11.10a.m. DISCHARGED 12/11/1973 A.L.R.

Variation of Mortgage 611963 - 23/11/1966 at 12.5 p.m. DISCHARGED A.L.R.

Mortgage 951599 to The Auckland Co-operative Terminating Building Society - 25.3.1974 at 2.20 p.m. DISCHARGED 10/2/1978 A.L.R.

Transfer A124464/1 to Alexander Graham Dunlop of Springston, Farmer and Adrienne Elizabeth Dunlop, his wife - 20.7.1994 at 10.35am

for A.L.R.

Mortgage A124464/2 to ASB Bank Limited - 20.7.1994 at 10.35am

for A.L.R.

PLAN No. 67190 LODGED 11/8/94 AND DEPOSITED

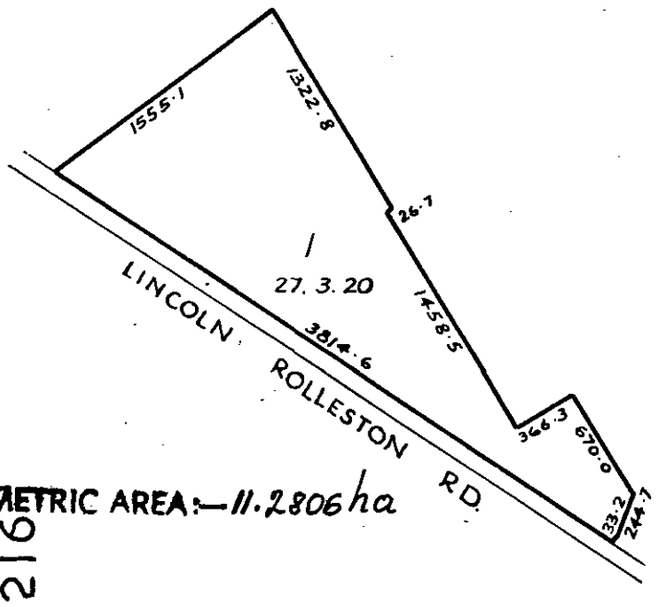
No.A136810/1 Certificate pursuant to Section 224(c) Resource Management Act 1991 - 29.9.1994 at 10.33am

A.L.R.

OCT A136810/2-4 - 29.9.1994 Cancelled and CsT 39B/869 871 issued for Lots 1-3 67190 respectively

A.L.R.

CANCELLED DUPLICATE DESTROYED



METRIC AREA:—11.2806 ha

Scale: 1 inch = 10 chains

3C/216

No.

Register copy for L. & D. 20,000/8/61—42629 W

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Historical Search Copy

R.W. Muir
Registrar-General of Land

Constituted as a Record of Title pursuant to Sections 7 and 12 of the Land Transfer Act 2017 - 12 November 2018

Identifier **463353**
Land Registration District **Canterbury**
Date Issued 21 January 2010

Prior References
90576 90577

Estate	Fee Simple
Area	30.4300 hectares more or less
Legal Description	Lot 2 Deposited Plan 416195 and Lot 2 Deposited Plan 322710

Original Registered Owners
Mark Purdon as to a 1/2 share
Vicki Lynnette Purdon as to a 1/2 share

Interests

Subject to Section 241(2) Resource Management Act 1991 (affects DP 416195)
8389252.6 Mortgage to Bank of New Zealand - 21.1.2010 at 12:26 pm
8903911.1 Discharge of Mortgage 8389252.6 - 16.12.2011 at 5:34 pm
8903911.2 Transfer of the 1/2 share of Vicki Lynnette Purdon to Mark Purdon - 16.12.2011 at 5:34 pm
8903911.3 Mortgage to Bank of New Zealand - 16.12.2011 at 5:34 pm
8903911.4 Mortgage to James Scott Dalgety - 16.12.2011 at 5:34 pm
9776431.1 Discharge of Mortgage 8903911.4 - 24.7.2014 at 10:11 am
9776431.2 Transfer to Mark Purdon (1/2 share) and Natalie Clair Rasmussen (1/2 share) - 24.7.2014 at 10:11 am
9776431.3 Mortgage to James Scott Dalgety - 24.7.2014 at 10:11 am
10222310.1 Discharge of Mortgage 9776431.3 - 23.10.2015 at 11:40 am
10222310.2 Variation of Mortgage 8903911.3 - 23.10.2015 at 11:40 am

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Historical Search Copy

R.W. Muir
Registrar-General
of Land

Identifier **656864**
Land Registration District **Canterbury**
Date Issued 20 November 2014

Cancelled

Prior References
463352

Estate	Fee Simple
Area	37.2960 hectares more or less
Legal Description	Lot 100 Deposited Plan 475510

Original Proprietors
Brendean Estate Limited

Interests

Subject to a right (in gross) to convey electricity over part marked A on DP 475510 in favour of Orion New Zealand Limited created by Easement Instrument 9835966.3 - 20.11.2014 at 11:57 am

The easements created by Easement Instrument 9835966.3 are subject to Section 243 (a) Resource Management Act 1991

Subject to a right to convey electricity over part marked A on DP 475510 created by Easement Instrument 9835966.4 - 20.11.2014 at 11:57 am

The easements created by Easement Instrument 9835966.4 are subject to Section 243 (a) Resource Management Act 1991

Land Covenant in Easement Instrument 9835966.7 - 20.11.2014 at 11:57 am

10081045.1 Variation of the Land Covenant created by Easement Instrument 9835966.7 - 2.6.2015 at 11:52 am

Lot 16 DP 483709 is vested in the Selwyn District Council as road pursuant to Section 238 Resource Management Act 1991

10043178.1 CTs issued - 17.8.2015 at 10:49 am

Legal Description	Title
Lot 7 Deposited Plan 483709	695247
Lot 8 Deposited Plan 483709	695248
Lot 9 Deposited Plan 483709	695249
Lot 10 Deposited Plan 483709	695250
Lot 11 Deposited Plan 483709	695251
Lot 12 Deposited Plan 483709	695252
Lot 13 Deposited Plan 483709	695253
Lot 14 Deposited Plan 483709	695254
Lot 15 Deposited Plan 483709	695255
Lot 18 Deposited Plan 483709	695256
Lot 20 Deposited Plan 483709	695257

CANCELLED

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Historical Search Copy

R.W. Muir
Registrar-General
of Land

Constituted as a Record of Title pursuant to Sections 7 and 12 of the Land Transfer Act 2017 - 12 November 2018

Identifier **CB39B/871**
Land Registration District **Canterbury**
Date Issued 29 September 1994

Prior References
CB3C/216

Estate	Fee Simple
Area	3.2820 hectares more or less
Legal Description	Lot 3 Deposited Plan 67190

Original Registered Owners
Michael Herbert Pelvin and Denise Marguerite Pelvin

Interests

A172487.3 Mortgage to Bank of New Zealand - 11.5.1995 at 2.00 pm

A172487.4 Mortgage to Dorothy May Donaldson - 11.5.1995 at 2.00 pm

8138055.1 Discharge of Mortgage A172487.4 - 7.5.2009 at 11:13 am

9252575.1 Discharge of Mortgage A172487.3 - 30.11.2012 at 2:54 pm

9252575.2 Transfer to B & S Archer Property Limited - 30.11.2012 at 2:54 pm

9252575.3 Mortgage to Westpac New Zealand Limited - 30.11.2012 at 2:54 pm

10215657.1 Discharge of Mortgage 9252575.3 - 12.10.2015 at 4:05 pm

10215657.2 Transfer to Paul Wallace Scott and Rebecca Jane Scott - 12.10.2015 at 4:05 pm

10215657.3 Mortgage to Westpac New Zealand Limited - 12.10.2015 at 4:05 pm

References
Prior C/T 3C/216

Transfer No.
N/C. Order No. A136810/ 4

Land and Deeds 69

REGISTER

No. 39B/871

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 29th day of September one thousand nine hundred and ninety-four under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that ALEXANDER GRAHAM DUNLOP of Springston, Farmer and ADRIENNE ELIZABETH DUNLOP, his wife are ---

is seized of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 3.2820 hectares or thereabouts being Lot 3 Deposited Plan 67190 ---

DISTRICT LAND REGISTRAR
ASSISTANT LAND REGISTRAR
CANTERBURY N.Z.

Subject to:

Mortgage A124464/3 to [illegible] Bank Limited - 20.7.1994 at [illegible]

A.L.R.

Transfer A172487/2 to Michael Herbert Pelvin, Engineer and Denise Marguerite Pelvin, Business Manager, both of Christchurch - 11.5.1995 at 2.00pm

for A.L.R.

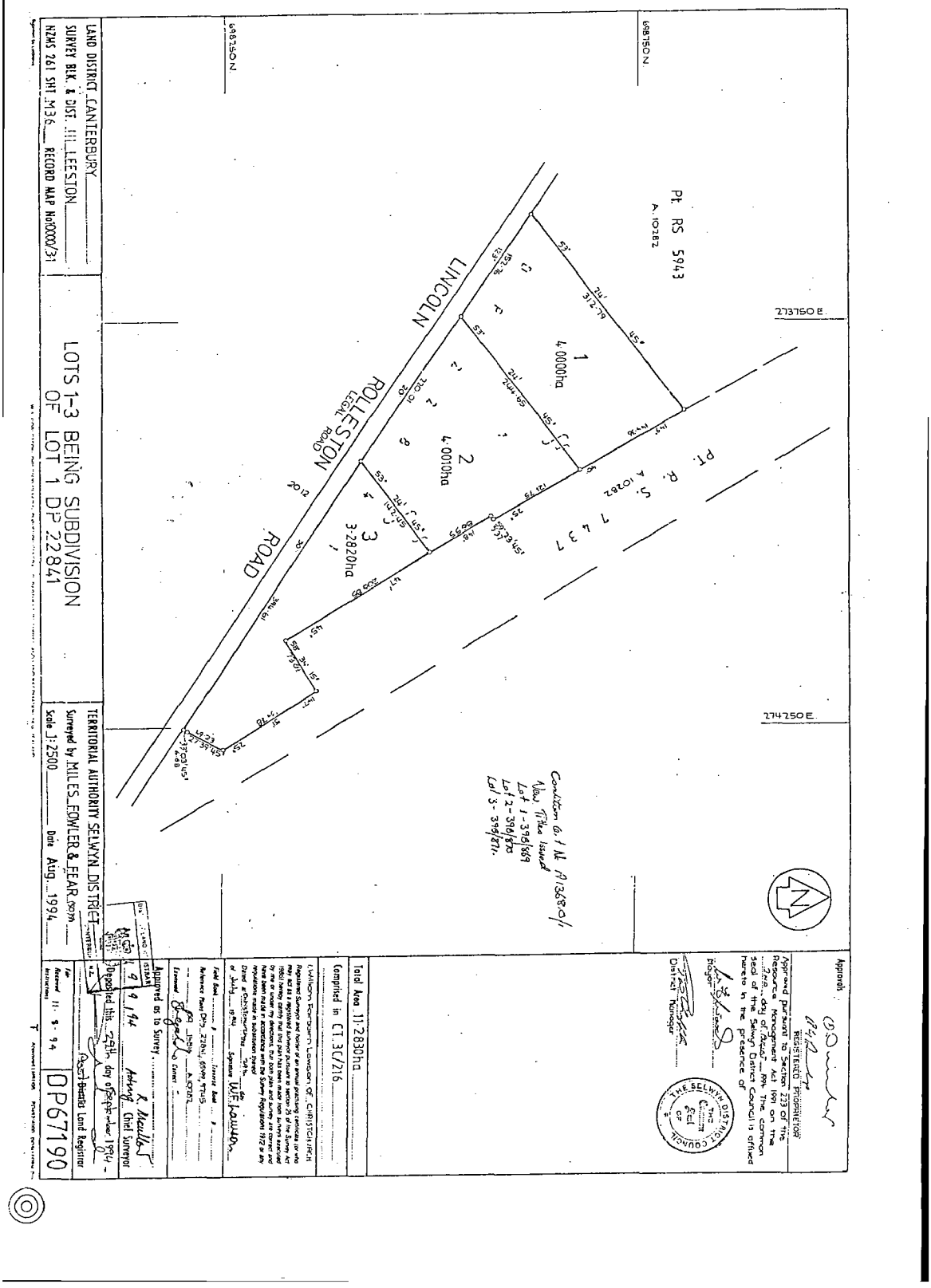
Mortgage A172487/3 to Bank of New Zealand - 11.5.1995 at 2.00pm

for A.L.R.

Mortgage A172487/4 to Dorothy May Donaldson - 11.5.1995 at 2.00pm

for A.L.R.

No. 39B/871


LAND DISTRICT CANTERBURY
SURVEY BLK. & DIST. HILLEESTON
NZMS 261 SHT M36 RECORD MAP No0000/31
LOTS 1-3 BEING SUBDIVISION OF LOT 1 DP 22841
TERRITORIAL AUTHORITY SELWYN DISTRICT
Surveyed by MILES FOWLER & FEAR
Scale 1:2500 Date Aug 1994
Total Area 11.2830ha
Comprised in CT 30/216
Approved as to Survey
Deposited this 29th day of September 1994
Approved
Accepted
Land Registrar
DP 67190
LINCOLN ROLLESTON ROAD
LEGAL ROAD
Pt RS 5943
A. 10282
1 4.0000ha
2 4.0000ha
3 3.2820ha
273750E.
274250E.
6987500N
Condition 6.1 NZ A1368041
New Titles Issued
Lot 1 - 396/869
Lot 2 - 396/870
Lot 3 - 396/871.
THE SELWYN DISTRICT COUNCIL

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Historical Search Copy

R.W. Muir
Registrar-General of Land

Constituted as a Record of Title pursuant to Sections 7 and 12 of the Land Transfer Act 2017 - 12 November 2018

Identifier **695257**
Land Registration District **Canterbury**
Date Issued 17 August 2015

Prior References
656864

Estate	Fee Simple
Area	9 square metres more or less
Legal Description	Lot 20 Deposited Plan 483709

Original Registered Owners
Brendean Estate Limited

Interests

10043178.8 Transfer to Orion New Zealand Limited - 17.8.2015 at 10:49 am

Subject to a right to convey electricity over part marked B on DP 483709 created by Easement Instrument 10043178.9 - 17.8.2015 at 10:49 am

The easements created by Easement Instrument 10043178.9 are subject to Section 243 (a) Resource Management Act 1991

10043178.11 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 17.8.2015 at 10:49 am

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Historical Search Copy

R.W. Muir
Registrar-General of Land

Constituted as a Record of Title pursuant to Sections 7 and 12 of the Land Transfer Act 2017 - 12 November 2018

Identifier **695247**
Land Registration District **Canterbury**
Date Issued 17 August 2015

Prior References
656864

Estate	Fee Simple
Area	4.0805 hectares more or less
Legal Description	Lot 7 Deposited Plan 483709

Original Registered Owners
Brendean Estate Limited

Interests

Land Covenant in Easement Instrument 10043178.2 - 17.8.2015 at 10:49 am (Limited as to Duration)

10043178.12 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 17.8.2015 at 10:49 am

10043178.13 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 17.8.2015 at 10:49 am

10173887.1 Transfer to Neil Pilcher and Peter William Smith - 3.9.2015 at 12:54 pm

Fencing Covenant in Transfer 10173887.1 - 3.9.2015 at 12:54 pm

10861076.1 Transfer to Neil Pilcher and Smith & Partners Trustee Co. Limited - 3.10.2017 at 12:35 pm

11146973.1 Transmission to Smith & Partners Trustee Co. Limited as survivor(s) - 3.8.2018 at 9:11 am

11146973.4 Transfer to Leanne File and Smith & Partners Trustee Co. Limited - 3.8.2018 at 9:11 am

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Historical Search Copy

R.W. Muir
Registrar-General of Land

Constituted as a Record of Title pursuant to Sections 7 and 12 of the Land Transfer Act 2017 - 12 November 2018

Identifier **695248**
Land Registration District **Canterbury**
Date Issued 17 August 2015

Prior References
656864

Estate	Fee Simple
Area	4.0558 hectares more or less
Legal Description	Lot 8 Deposited Plan 483709

Original Registered Owners
Brendean Estate Limited

Interests

Land Covenant in Easement Instrument 10043178.2 - 17.8.2015 at 10:49 am (Limited as to Duration)

10043178.12 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 17.8.2015 at 10:49 am

10172341.1 Transfer to J M & T L Whittaker Limited - 3.9.2015 at 12:44 pm

Fencing Covenant in Transfer 10172341.1 - 3.9.2015 at 12:44 pm

(C)
No 1610

NEW ZEALAND.

CANCELLED

[CERTIFICATE OF TITLE.

Register Book,
Vol. 8 *Folio.* 2

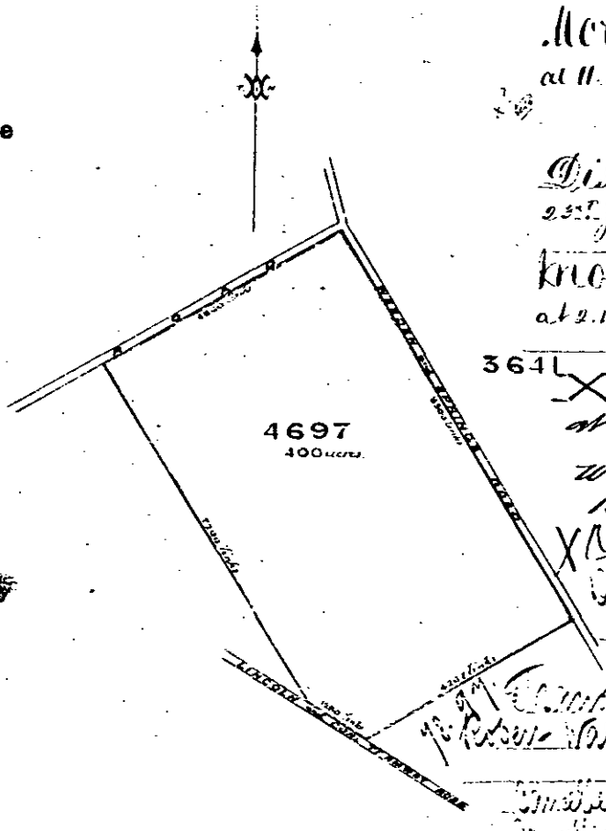
Robert Watson of Springston Farmer is now seised of an Estate in fee-simple, subject nevertheless to such encumbrances, liens, and interests as are notified by Memorial under-written or indorsed hereon, in that piece of land situated in the District of Lincoln containing by admeasurement Four hundred acres more or less, and being the Rural Section marked 4697 on the Lithographic Map of the said District deposited in the office of the Chief Surveyor as the same is described in the Crown Grant thereof under mentioned, and delineated in the plan drawn hereon, which said piece of land was originally granted the twenty first day of March, 1864 under the Seal of the Colony and hand of Sir George Grey then, Governor of New Zealand, to Henry John Tancred

In Witness whereof I have hereunto signed my name and affixed my seal this 1st day of June one thousand eight hundred and seventy four.

Signed in the presence of
J. J. Dixon
the 3rd day of June 1874.

838]

District Land Registrar
of the District of Canterbury



Mortgage No 4997 produced 16th June 1874 at 11.55 am Robert Watson to Henry John Tancred

Discharge of mortgage No 4997 produced 23rd January 1879 at 2 pm

Mortgage No 6986 produced 23rd January 1879 at 2.4 pm Robt Watson to Christopher Garcia

3641 Caveat No 385 entered 13th May 1880 at 2.56 pm

Withdrawal of Caveat 385 Produced 13th February 1882 at 2.30 pm

Image Quality due to Condition of Original

CANCELLED

78/97

NEW ZEALAND.

(C)
VIII. 2

[CERTIFICATE OF TITLE.

Register Book.

Vol. 78 Folio. 97.

Pursuant to a Memorandum of Transfer No. 17197 from Robert Watson, ROBERT WATSON Sheepowner of Templeton Farmer is now seized of an Estate in fee Simple subject nevertheless to such encumbrances liens and interests as are notified by Memorial under written or endorsed hereon in that piece of land situated in the District of Lincoln containing Two hundred and forty ACRES or thereabouts which said piece of land is colored green in the plan hereon and is part of the Rural Section marked 4697 delineated on the Public Map of the said District deposited in the office of the Chief Surveyor originally granted the twenty first day of March 1861 under the hand of Sir George Grey then Governor of New Zealand to Henry John Tancred.

IN WITNESS whereof I have hereunto signed my name and affixed my seal this fourteenth day of March one thousand eight hundred and eighty two.

Signed in the presence of

the 14th day of March 1882

District Land Registrar of the District of Canterbury

Mortgage No. 13387 produced 14th February 1882 at 3 o'clock p.m. Robert Watson the younger to Henry Tancred.

DISCHARGED 21/7/1885 P.L.R.

Mortgage No. 13689 produced 31st March 1882 at 11-30 a.m. Robert Watson the younger to Hyman Franks

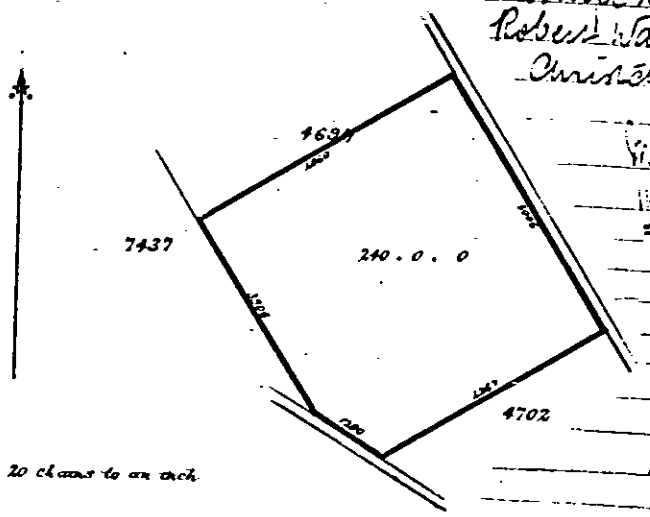
DISCHARGED 21/7/1885 P.L.R.

Transfer No. 19285 produced 20 December 1882 at 2-40 p.m. Robert Watson the younger to Hyman Franks of Christchurch Sharebroker Agent

DISCHARGED 21/7/1885 P.L.R.

Mortgage No. 20838 [illegible] DISCHARGED [illegible]

Image Quality due to Condition of Original



Scale 20 chains to an inch

78/97

78/97

78/91

Transfer 12493 produced 29 March 1910 at 2.25p. Robert Geddis to William Richard Wright of Weedons Farmer.

Mortgage 60213 produced 29 March 1910 at 2.25p. DISCHARGED William Richard Wright to The Church Property Trustees.

Mortgage 60214 produced 29 March 1910 at 2.27p. William Richard Wright to Robert Geddis. DISCHARGED 5.10.1910

Transfer 87655 produced 5 October 1910 at 12.10 pm William Richard Wright to Tom Wright Johnson of Dunsandel farmer.

Mortgage 78231 produced 5 October 1910 at 12.10 pm Tom Wright Johnson to Charles Christopher Bowen and John Mathias Barker and John Mathias Barker and Edward James Rossand Walter Empson and Arthur Edgar Gravenor Rhodes and Arthur Edgar Gravenor Rhodes.

Transfer of Mortgage 78231 produced 11 April 1911 at 11.20 a.m. Arthur Edgar Gravenor Rhodes to Robert Heaton Rhodes and Arthur Edgar Gravenor Rhodes and William Frederick McLean Buckley and Arthur Edgar Gravenor Rhodes of his interest in part principal

Transfer 101037 of Mortgage 78231 produced 27 November 1913 at 12.18pm Walter Empson and Arthur Edgar Gravenor Rhodes to Robert Heaton Rhodes and the said Arthur Edgar Gravenor Rhodes of their interest.

Extension of Mortgage 78231 and Increase of Rate of Interest produced 14 October 1915 at 2.45pm.

Transmission 11328 of Mortgage 78231 to the above named John Mathias Barker of the joint interest of the said Charles Christopher Bowen deceased and the said John Mathias Barker entered 27 March 1919 at 9.45am.

Extension of Mortgage 78231 and Increase of Rate of Interest produced 10 September 1920 at 2.5pm.

Transmission 15381 of Mortgage 78231 to the above named Robert Heaton Rhodes of the joint interests of the said Robert Heaton Rhodes and Arthur Edgar Gravenor Rhodes deceased Entered 26 January 1923 at 11 am

Transfer of Mortgage 35127 produced 27 November 1895 at 2.15pm Robert Geddis to The New Zealand Loan and Mercantile Agency Company Limited. DISCHARGED 26.4.1901 D.L.R.

Transmission 3697 of Mortgage 20337 Probate of the Will of George Palmer who died 9 September 1895 granted to Colbert Palmer and Henry Slater produced 15 January 1896 at 12.15 pm of their interest.

Mortgage 36259 produced 18 July 1896 at 10.35 am Robert Geddis to The New Zealand Loan Company Limited. DISCHARGED 26.4.1901 D.L.R.

Mortgage 45807 produced 26 April 1901 at 12.45 pm Robert Geddis to The Church Property Trustees. DISCHARGED 29 March 1910 at 11 am

Transmission 10432 of Mortgage 78231 to William Francis McLean Buckley of the joint interest of the said William Frederick McLean Buckley and Arthur Edgar Gravenor Rhodes entered 16 February 1923 at 2.20pm.

Cancelled and N.C. issued Vol. 345 Folio 228 (Lincoln No. 416)

CANCELLED

232/93

[Form B.

NEW ZEALAND.

Reference: Vol. , folio. Application No 10282 Transfer No.

Register-book, Vol. 232, folio 93

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT.

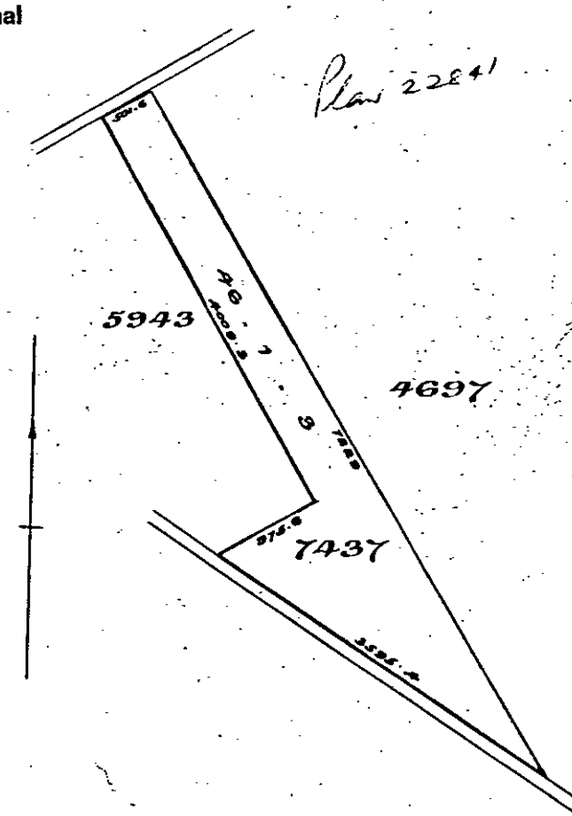
CANCELLED

This Certificate, dated the eighth day of November, one thousand nine hundred and nine, under the hand and seal of the District Land Registrar of the Land Registration District of Canterbury, witnesseth that

James Wallace of Rolleston Farmer

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or indorsed hereon; subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon, bordered green, be the several admeasurements a little more or less, that is to say: All that parcel of land containing Forty three Acres and two Roods and three Perches on Rhenerenda Deposited in Block III of the Selston Survey District being Rural Section 7437

Plan 2284



District Land Registrar

Transmission 6998 to Robert John Wallace of Lincoln Farmer and Charles Leslie McCrostie of Christchurch Farm Salesman

Transfer 92455 produced 6th December 1911 at 2.51 pm Robert John Wallace and Charles Leslie McCrostie to George Kidd Askin of Rolleston farmer

Mortgage 83704 produced 6th December 1911 at 2.51 pm George Kidd Askin to William Albert Paxton Clarkson

DISCHARGED 15/2/1926

Mortgage 83705 produced 6th December 1911 at 2.51 pm George Kidd Askin to William Thompson Wallace

DISCHARGED 15/2/1926

Transfer 115595 produced 11 October 1917 at 11.42 am George Kidd Askin to Joseph Lawton Ragg of Rolleston farmer

Transmission 11672 of Mortgage 83704 to Sarah Emily Blackson and Ernest Webster Waller Executors of the will of William Albert Paxton Clarkson deceased entered 19 August 1918 at 2.45 pm

DISCHARGED

Image Quality due to Condition of Original

2327/93

2327/93

232/93

Transfer 118403 of Mortgage 83704 produced 19 August 1918 at 2.45 pm, Sarah Emily Clarkson and Ernest Webster Walker to the said Sarah Emily Clarkson

DISCHARGED D.L.R. — A. Fraser A.L.R.

Variation of the terms of Mortgage 83705 produced 14 May 1923 at 11.25 am — DISCHARGED D.L.R. — J. Dalrymple G.L.R.

Mortgage 133087 produced 6 August 1923 at 3.15 pm Joseph Lawton Ragg to The New Zealand Farmers Co-operative Association of Canterbury Limited 16/8/1923 — DISCHARGED — J. Dalrymple G.L.R.

Extension of Mortgage 83705 produced 13th March 1924 at 2.20 pm — DISCHARGED — J. Dalrymple A.L.R.

Extension of Mortgage 83705 with the consent of the Mortgagee under Mortgage 133087 produced 27 February 1925 at 1.45 am — DISCHARGED D.L.R. — J. Dalrymple A.L.R.

Variation of the terms of Mortgage 83704 with consent of mortgagees under Mortgages 83705 and 133087 produced 20 May 1925 at 11.30 am — DISCHARGED D.L.R. — J. Dalrymple A.L.R.

Mortgage 148822 produced 16 February 1926 at 2.45 pm Joseph Lawton Ragg to The State Advances Superintendent — J. Dalrymple A.L.R.

Mortgage 148823 produced 16 February 1926 at 2.45 pm Joseph Lawton Ragg to William Thomas Wallage — DISCHARGED 22.7.1926 D.L.R. — J. Dalrymple A.L.R.

Mortgage 148824 produced 16 February 1926 at 2.45 pm Joseph Lawton Ragg to The New Zealand Farmers Co-operative Association of Canterbury Limited — DISCHARGED 22.7.1926 D.L.R. — J. Dalrymple A.L.R.

Transfer 172542 produced 22 July 1926 at 2.26 pm Joseph Lawton Ragg to Douglas Edward Taylor of Weedons farmer — J. Dalrymple A.L.R.

Transfer 187967 produced 28 January 1930 at 2.20 pm Douglas Edward Taylor to George Taylor of Weedons farmer — J. Dalrymple A.L.R.

Mortgage 190491 produced 18 December 1935 at 2.50 pm George Taylor to Edward Ross and Henry Coldbell — DISCHARGED 21-3-1941 D.L.R. — J. Dalrymple A.L.R.

Transmission of Mortgage 190491 to Henry Cotterill entered 6 July 1937 at 10 am — DISCHARGED D.L.R.

Transfer 219221 of Mortgage 190491 produced 6 July 1937 at 10 am Henry Cotterill to the above named Harry Godby and the said Henry Cotterill — Jno. Fraser A.L.R.

Transfer 238769 produced 21 March 1941 at 12.30 pm George Taylor to William Albert Taylor of Rolleston Farmer — Returned A.L.R.

Mortgage 208367 produced 21 March 1941 at 2.50 pm William Albert Taylor to George Taylor — DISCHARGED D.L.R. — Returned A.L.R.

459907 Transfer William Albert Taylor to Reginald Henry Butterick of Weedons Farmer produced 6 June 1957 at 2.08 p.m. — A.L.R.

459908 Mortgage Reginald Henry Butterick to Mary [illegible] produced 6 June 1957 at 2.08 p.m. — DISCHARGED D.L.R. — PRODUCED 21/12/1960 — A.L.R.

Transfer 541858 Reginald Henry Butterick to John Henry Butterick of Weedons Farmer produced 21/12/1960 at 1.46 p.m. — A.L.R.

Mortgage 541859 John Henry Butterick to Reginald Henry Butterick produced 21/12/1960 at 1.48 p.m. — A.L.R.

PLAN No. 22841 DEPOSITED 15/7/1963

Transmission 605607 of Mortgage 541859 to Mary McGill Butterick as Executrix Entered 30/7/1963 at 11.20 a.m. — CERTIFICATE OF TITLE,

Vol. , folio

Transfer 611961 of Mortgage 541859 to the above named Mary McGill Butterick 31.10.1963 at 10.59 a.m.

Discharge of Mortgage 541859 as to Lot 1 D.P. 22841 discharged as to Lot 1 31.10.1963 at 10.59 a.m.

Transfer 611962 of Lot 1 D.P. 22841 the part retained L.R. to Raymond George Morris and Marie Emilie Morris 31.10.1963 at 11.8 a.m.

Cancelled and new C.T. 30/219 issued See N.C.O 611964 - 31.10.1963

Cancelled

Duplicate Destroyed.

232/93

[Land and Deeds—4.

[Form B.

NEW ZEALAND.

Reference: Vol. 78, Folio 97 / Transfer No. / Application No. / Order for N/C No. 416

Register-book, Vol. 345 folio 228

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT.

CANCELLED

This Certificate, dated the twenty-eighth day of February, one thousand nine hundred and twenty-three under the hand and seal of the District Land Registrar of the Land Registration District of Canterbury **Witnesseth that**

TOM WRIGHT JOHNSON of Dunsandel Farmer

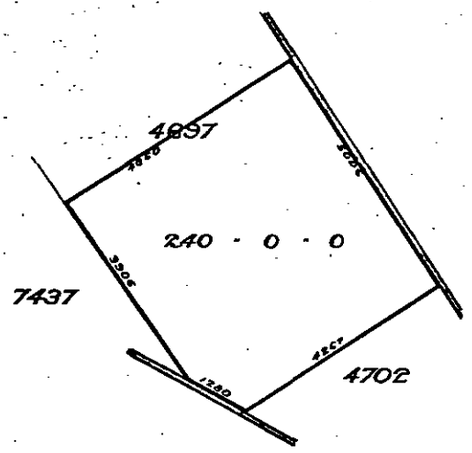
is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial under written or endorsed hereon, subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon bordered green, be the several admeasurements a little more or less, that is to say: All that parcel of land containing TWO HUNDRED AND FORTY ACRES or thereabouts situated in Blocks III and IV of the Leeston Survey District being part of Rural Section 4697

CANTERBURY DISTRICT LAND REGISTRY NEW ZEALAND

F.W. Broughton

District Land Registrar.

Image Quality due to Condition of Original



Scale: 20 Chains to an Inch

Mortgage 78231 produced 5 October 1910 at 12.10 p.m. Tom Wright Johnson to Charles Christopher Bowen and John Mathias Barker and John Mathias Barker and Edward James Ross and Walter Empson and Arthur Edgar Gravenor Rhodes and Arthur Edgar Gravenor Rhodes

DISCHARGED. 8/7/1925 D.L.R.

F.W. Broughton L.L.R.

Transfer of Mortgage 78231 produced 11 April 1911 at 11.20 a.m. Arthur Edgar Gravenor Rhodes to Robert Heaton Rhodes and Arthur Edgar Gravenor Rhodes and William Frederick McLean Buckley and Arthur Edgar Gravenor Rhodes of his interest in part principal

DISCHARGED. D.L.R.

F.W. Broughton D.L.R.

Transfer 101037 of Mortgage 78231 produced 27 November 1913 at 12.14 p.m. Walter Empson and Arthur Edgar Gravenor Rhodes to Robert Heaton Rhodes and Arthur Edgar Gravenor Rhodes of their interest

DISCHARGED. D.L.R.

F.W. Broughton D.L.R.

Extension of Mortgage 78231 and Increase of Rate of Interest produced 14 October 1915 at 2.45 p.m.

DISCHARGED. D.L.R.

F.W. Broughton D.L.R.

Transmission 11318 of Mortgage 78231 to John Mathias Barker of the joint interest of Charles Christopher Bowen and the said John Mathias Barker entered 27 March 1918 at 2.59 p.m.

DISCHARGED. D.L.R.

F.W. Broughton D.L.R.

Extension of Mortgage 78231 and Increase of Rate of Interest produced 10 September 1920 at 2.54 p.m.

F.W. Broughton D.L.R.

OVER.

345/228

Transmission 15381 of Mortgage 78231 to Robert Heaton Rhodes of the joint interest of the said Robert Heaton Rhodes and Arthur Edgar Gravenor Rhodes entered 26 January 1923 at 11 a.m. D.L.R.

Transmission 15433 of Mortgage 78231 to William Frederick McLean Buckley of the joint interest of the said William Frederick McLean Buckley and Arthur Edgar Gravenor Rhodes entered 16 February 1923 at 2.20 p.m. D.L.R.

Transfer 152488 of Mortgage produced 11 June 1923 at 2.46 pm of Leasehold on Mortgage 78231 William Frederick McLean Buckley to Archibald Harry Godby and the said William Frederick McLean Buckley LR

Transfer 164319 of Mortgage 78231 produced 27 April 1925 at 9.59 pm Robert Heaton Rhodes of his interest to John Heaton Rhodes and the said Robert Heaton Rhodes LR

Transfer 166897 produced 8 July 1925 at 10.30 am. Tom Wright Johnson to George Taylor of Weedons farmer Deceased AER

Mortgage 144731 produced 8 July 1925 George Taylor to Joseph David Murdoch and McLean Murdoch Deceased AER

DISCHARGED. David Murdoch 13-6-1930 E.L.L.

Transfer 188963 of Mortgage 144731 produced 14 May 1929 at 12.10 pm McLean Murdoch of his interest to the said Joseph David Murdoch Deceased AER

DISCHARGED. E.L.L.

Transfer 195362 Entered 1st August 1930 at 2.30 pm George Taylor to Fred Lincoln Schaffer of the part of Lot 1 plan 9745 known as 427/149 DLR

Part Cancelled

Cancelled as to balance and N.C issued Volume 1827 Folio 56 (N.C 04276) DLR

Cancelled

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Historical Search Copy

R.W. Muir
Registrar-General
of Land

Identifier **CB427/50**
Land Registration District **Canterbury**
Date Issued 01 August 1930

Cancelled

Prior References
CB345/228

Estate	Fee Simple
Area	60.0579 hectares more or less
Legal Description	Lot 2 Deposited Plan 9745

Original Proprietors
Arthur Ross Bussell as to a 1/2 share
Noeline Shirley Bussell as to a 1/2 share

Interests

7793496.1 Transmission of the share of Arthur Ross Bussell to Denis John Bussell, Jan Michelle Riley and Peter Connal Champion (1/2 share) as Executors - 23.4.2008 at 9:00 am

8389252.4 CT 463352 issued - 21.1.2010 at 12:26 pm.

CANCELLED

[Land and Deeds—1.

[FORM B.

NEW ZEALAND.

Reference: Vol. 345, Folio 228 / Transfer No. / Application No. / Order for N.C No. 4276

Register-book, Vol. 427, folio 50

427/050

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT.

This Certificate, dated the First day of August, one thousand nine hundred and Thirty under the hand and seal of the District Land Registrar of the Land Registration District of Canterbury Witnesseth that

GEORGE TAYLOR of Weedons Farmer

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial under written or endorsed hereon, subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon bordered green, be the several admeasurements a little more or less, that is to say: All that parcel of land containing ONE HUNDRED AND FORTY-EIGHT ACRES ONE ROOD AND TWENTY-FIVE PERCHES or thereabouts situated in Blocks III and IV of the Leeston Survey District being Lot 2 on plan deposited in the Land Registry Office at Christchurch as No. 9745 part of Rural Section 4697

Image Quality due to Condition of Original

CANTERBURY DISTRICT LAND REGISTRY

District Land Registrar.

mortgage 190491 produced 18 December 1935 at 2.50 pm George Taylor to Edward James Cass and Henry Cotterill DISCHARGED 21-3-1940 A.L.R.

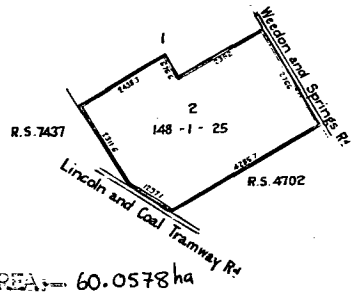
Transmission 38232 of the mortgage 190491 to Henry Cotterill registered 6 July 1937 at 12.40 pm A.L.R.

Transfer 219221 of the mortgage 190491 produced 6 July 1937 at 12.55 pm Henry Cotterill to Michael Henry Godby and Edward Henry Cotterill A.L.R.

Transfer 238709 produced 21 March 1941 at 12.30 pm. George Taylor to William Albert Taylor of Rolleston Farmer. A.L.R.

Mortgage 208367 produced 21 March 1941 at 2.50 pm William Albert Taylor to George Taylor DISCHARGED A.L.R.

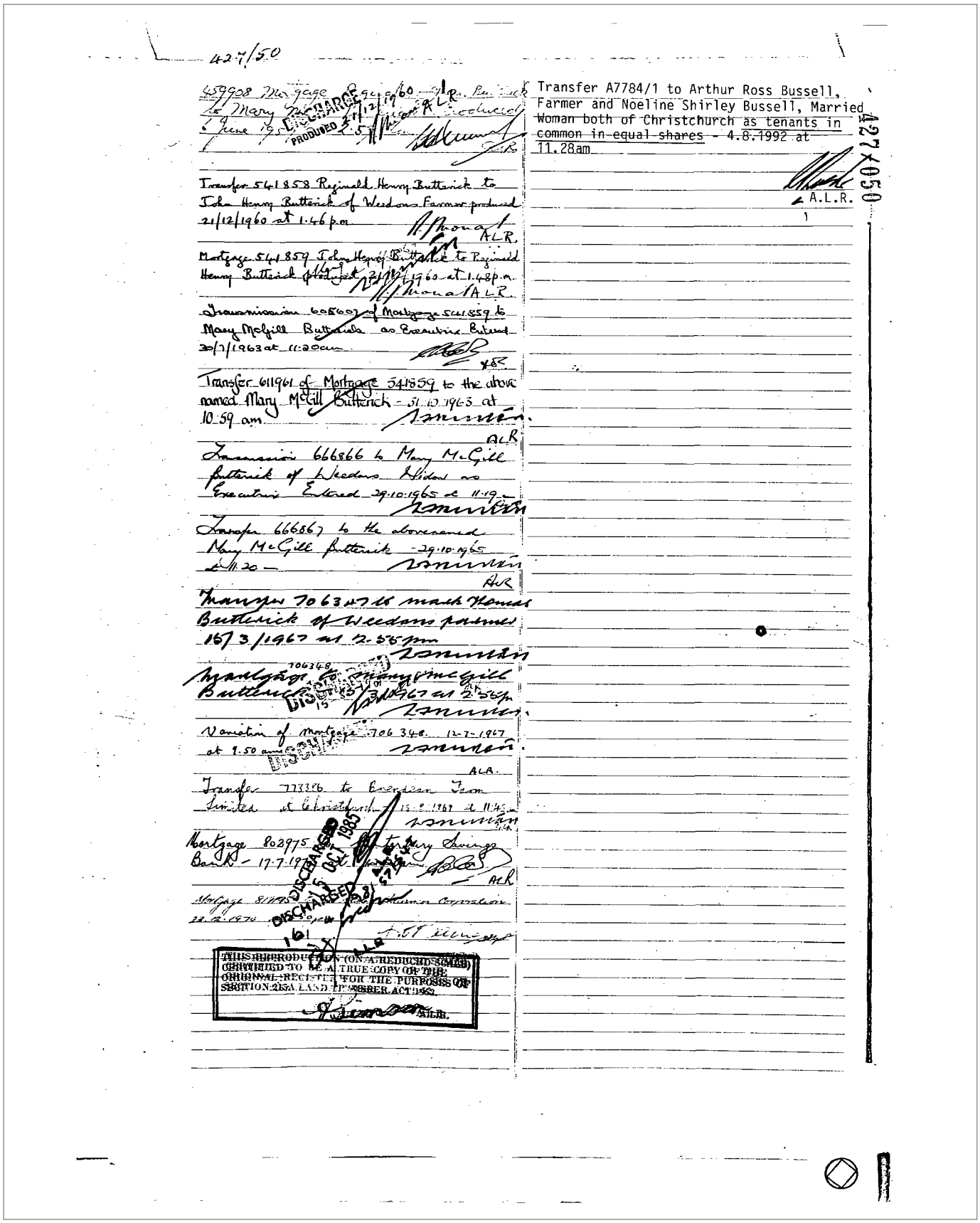
469907 Transfer William Albert Taylor to Reginald Henry Buttrick of Weedons Farmer produced 6 June 1957 at 2.55 p.m. A.L.R.



METRIC AREA = 60.0578 ha

Scale: 20 Chains to an Inch

427/050



427/50

459908 Mortgage 9c 21/12/1960 at 1.46 p.m. Reginald Henry Butterick to Mary McGill Butterick of Weedons Farmer produced 1 June 1961 DISCHARGED 5/11/63 A.L.R. PRODUCED 2.5

Transfer 541858 Reginald Henry Butterick to John Henry Butterick of Weedons Farmer produced 21/12/1960 at 1.46 p.m. A.L.R.

Mortgage 541859 John Henry Butterick to Reginald Henry Butterick produced 21/12/1960 at 1.48 p.m. A.L.R.

Transmission 606609 of Mortgage 541859 to Mary McGill Butterick as Executrix Entered 30/7/1963 at 11.20 am

Transfer 611961 of Mortgage 541859 to the above named Mary McGill Butterick - 31.10.1963 at 10.59 am

A.L.R.

Transmission 666866 to Mary McGill Butterick of Weedons Widow as Executrix Entered 29.10.1965 at 11.19 a.m.

Transfer 666867 to the above named Mary McGill Butterick - 29.10.1965 at 11.20 a.m.

A.L.R.

Transfer 706348 to Mary McGill Butterick of Weedons Farmer 16/3/1967 at 2.56 pm

Mortgage 706349 to Mary McGill Butterick DISCHARGED 15/5/67 16/3/1967 at 2.56 pm

Variation of Mortgage 706348 12-7-1967 at 9.50 am DISCHARGED

A.L.R.

Transfer 773386 to Evergreen Farm Limited at Christchurch 15.9.1967 at 11.45 a.m.

Mortgage 802975 to Mary Savings Bank - 17.7.1968 DISCHARGED 13 OCT 1983

A.L.R.

Mortgage 811795 to Countrywide Finance Corporation 22.2.1970 DISCHARGED 31/10/83

161

THIS REPRODUCTION (ON A REDUCED SCALE) CERTIFIED TO BE A TRUE COPY OF THE ORIGINAL RECEIVED FOR THE PURPOSES OF SECTION 257A LAND TRANSFER ACT 1952.

A.L.R.

Transfer A7784/1 to Arthur Ross Bussell, Farmer and Noeline Shirley Bussell, Married Woman both of Christchurch as tenants in common in equal shares - 4.8.1992 at 11.28am

A.L.R.

427/50

Appendix B – Historic Aerials

1942 Aerial

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Information from this map may not be used for the purposes of any legal disputes. The user should independently verify the accuracy of any information before taking any action in reliance upon it.

N

0 0.07 0.14 0.21 0.28 Kilometres

Scale: 1:5,000 @A4

Map Created by MEL on 2/09/2020 at 1:23 PM



1961 Aerial

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N

0 0.07 0.14 0.21 0.28 Kilometres

Scale: 1:5,000 @A4

Map Created by MEL on 2/09/2020 at 1:27 PM



1974 Aerial

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N

0 0.07 0.14 0.21 0.28 Kilometres

Scale: 1:5,000 @A4

Map Created by MEL on 2/09/2020 at 1:28 PM



Land Information New Zealand, Environment Canterbury, Land Information New Zealand

1982 Aerial

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N

0 0.07 0.14 0.21 0.28 Kilometres

Scale: 1:5,000 @A4

Map Created by MEL on 2/09/2020 at 1:29 PM



1995 Aerial

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N

0 0.07 0.14 0.21 0.28 Kilometres

Scale: 1:5,000 @A4

Map Created by MEL on 2/09/2020 at 1:30 PM



2000 Aerial

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N

0 0.07 0.14 0.21 0.28 Kilometres

Scale: 1:5,000 @A4

Map Created by MEL on 2/09/2020 at 1:32 PM



2004 Aerial

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N

0 0.07 0.14 0.21 0.28 Kilometres

Scale: 1:5,000 @A4

Map Created by MEL on 2/09/2020 at 1:32 PM



2012 Aerial

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N

0 0.07 0.14 0.21 0.28 Kilometres

Scale: 1:5,000 @A4

Map Created by MEL on 2/09/2020 at 1:33 PM



2019 Aerial

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N

0 0.07 0.14 0.21 0.28 Kilometres

Scale: 1:5,000 @A4

Map Created by MEL on 2/09/2020 at 1:33 PM



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Appendix C – LLUR Statement

Property Statement
from the Listed Land Use Register

Visit www.ecan.govt.nz/HAIL for more information about land uses.

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

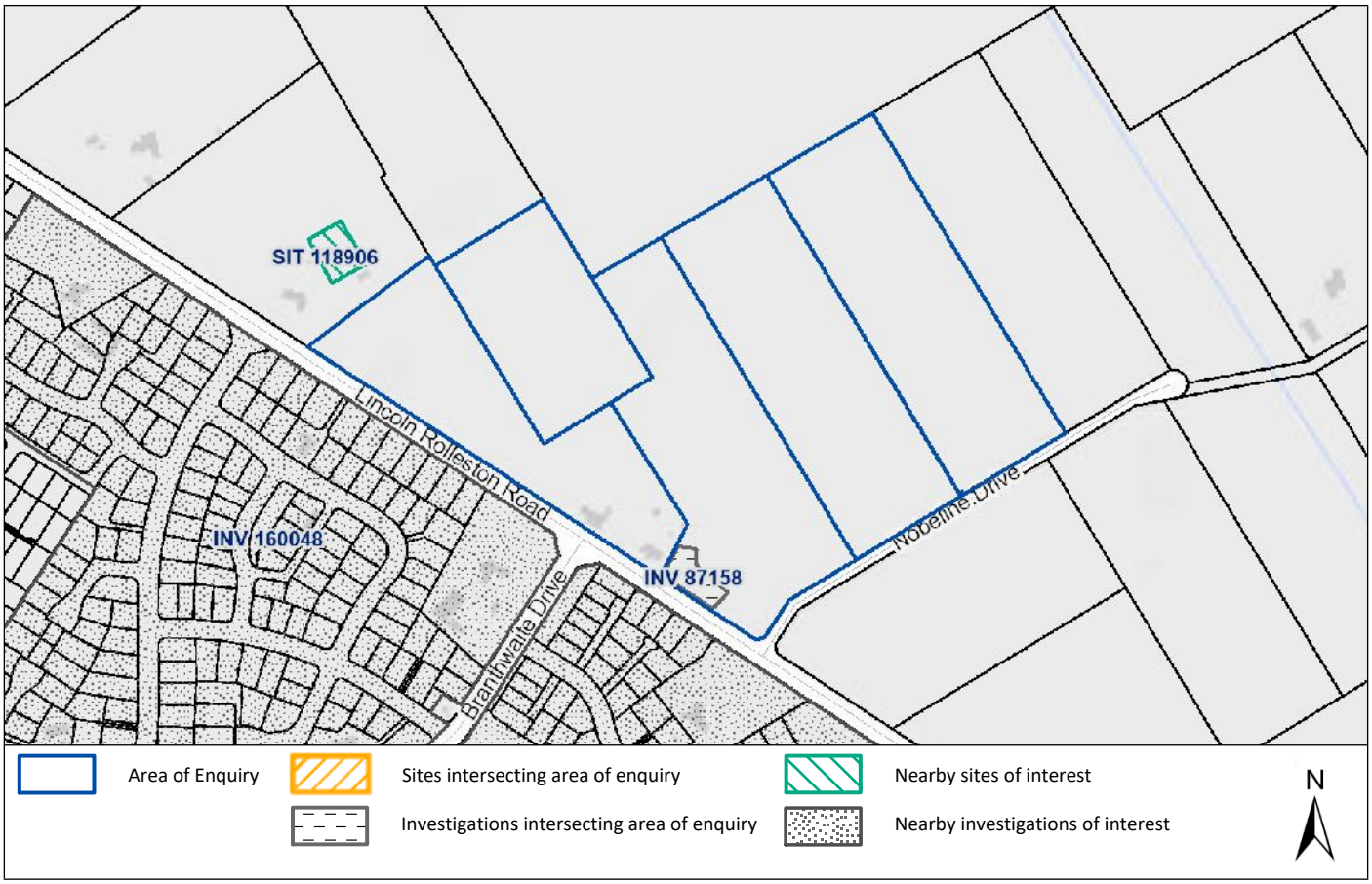
Customer Services
P. 03 353 9007 or 0800 324 636

PO Box 345
Christchurch 8140

P. 03 365 3828
F. 03 365 3194
E. ecinfo@ecan.govt.nz

www.ecan.govt.nz

Date:	02 September 2020	
Land Parcels:	Lot 3 DP 67190	Valuation No(s): 2405509600
	Lot 2 DP 416195	Valuation No(s): 2405506501
	Lot 7 DP 483709	Valuation No(s): 2405506509
	Lot 8 DP 483709	Valuation No(s): 2405506510
	Lot 9 DP 483709	Valuation No(s): 2405506511



The information presented in this map is specific to the area within a 100m radius of property you have selected. Information on properties outside the serach radius may not be shown on this map, even if the property is visible.

Summary of sites:

Site ID	Site Name	Location	HAIL Activity(s)	Category
118906	274 Lincoln Rolleston Rd	274 Lincoln Rolleston Rd		Verified Non-HAIL

Please note that the above table represents a summary of sites and HAILs intersecting the area of enquiry within a 100m buffer.

Information held about the sites on the Listed Land Use Register

Site 118906: 274 Lincoln Rolleston Rd (Within 100m of enquiry area.)

Site Address:	274 Lincoln Rolleston Rd
Legal Description(s):	Lot 2 DP 67190

Site Category:	Verified Non-HAIL
Definition:	Site entered on register based on information found to be incorrect.

Land Uses (from HAIL):

Period From	Period To	HAIL land use

Notes:

5 Nov 2014	This record was created as part of the Selwyn District Council 2015 HAIL identification project.
5 Nov 2014	Greenhouse
5 Nov 2014	Area defined from 2000 to 2005 aerial photographs. Horticultural activities (persistent pesticides) were noted in aerial photographs reviewed.
8 Nov 2018	Information from the landowner that developed and operated the greenhouses has shown that persistent pesticides were not used at the site. A list of products used was supplied to Environment Canterbury. The former onwers purchased the property in 1999 and erected the first greenhouse in 2000. Flowers were grown in trays on raised benches. The property was sold in 2008 and the greenhouses were dismantled in 2010 and 2011. The activity of 'persistent pesticide storage or use' has been removed and this record maintained for auditing purposes.

Investigations:

There are no investigations associated with this site.

Information held about other investigations on the Listed Land Use Register

15 Oct 2016 **INV 160048: Soil Contamination Risk, Stage 1 - Preliminary Site Investigation Report, Branthwaite Drive, Rolleston** (Preliminary Site Investigation)
Malloch Environmental Ltd

Summary of investigation(s):

Site history: The site appears to have been used for grazing from at least the 1940's through to around the 1980's. A farm homestead is visible on the southern side of what is now Branthwaite Drive. In the 1990's the site appears to have been subdivided for rural residential use, and new dwellings can be seen being constructed alongside the newly constructed Branthwaite Drive. The original homestead and associated sheds appear to have been demolished at this point. In the 2000 aerial imagery a hazelnut orchard has been established on a lot in the southwestern part of the site, which remains to the present day.

INV160048 - Soil Contamination Risk, Stage 1 - Preliminary Site Investigation Report, Branthwaite Drive, Rolleston - Revision 2 (Malloch Environmental, 2017)

Investigation objective: The investigation was undertaken in preparation for soil disturbance and subdivision of the land into 700 residential lots. The site was investigated and soil contaminants assessed against the requirements of the National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health (MfE, 2011).

The majority of the site was not found to have been used for any HAIL activities. However the former homestead and farm sheds area was considered to have been potentially subject to fertiliser and chemical storage, and it was recommended that further investigation be undertaken in this area.

An interview was conducted with the owner of the hazelnut orchard (SN120675) in order to establish whether the trees had been sprayed with any persistent pesticides. The owner stated that the trees had only been sprayed with Roundup (glyphosate), Granstar (tribenuron-methyl) and Gestop (simazine). Glyphosate and tribenuron-methyl have half-lives of around three weeks in soil, and simazine has a half-life in soil of around 60 days. None of these chemicals are considered to be persistent in the soil. In addition, the owner only sprayed the trees annually, as hazelnut trees are not susceptible to disease or pests.

6 Dec 2013 **INV 87158: Bussell Developments Limited, detailed contamination site investigation report for lot 1 DP 416195, Lincoln Rolleston Road, Rolleston** (Detailed Site Investigation)
Land Development and Exploration Ltd

Summary of investigation(s):

Report(s) have not yet been audited.

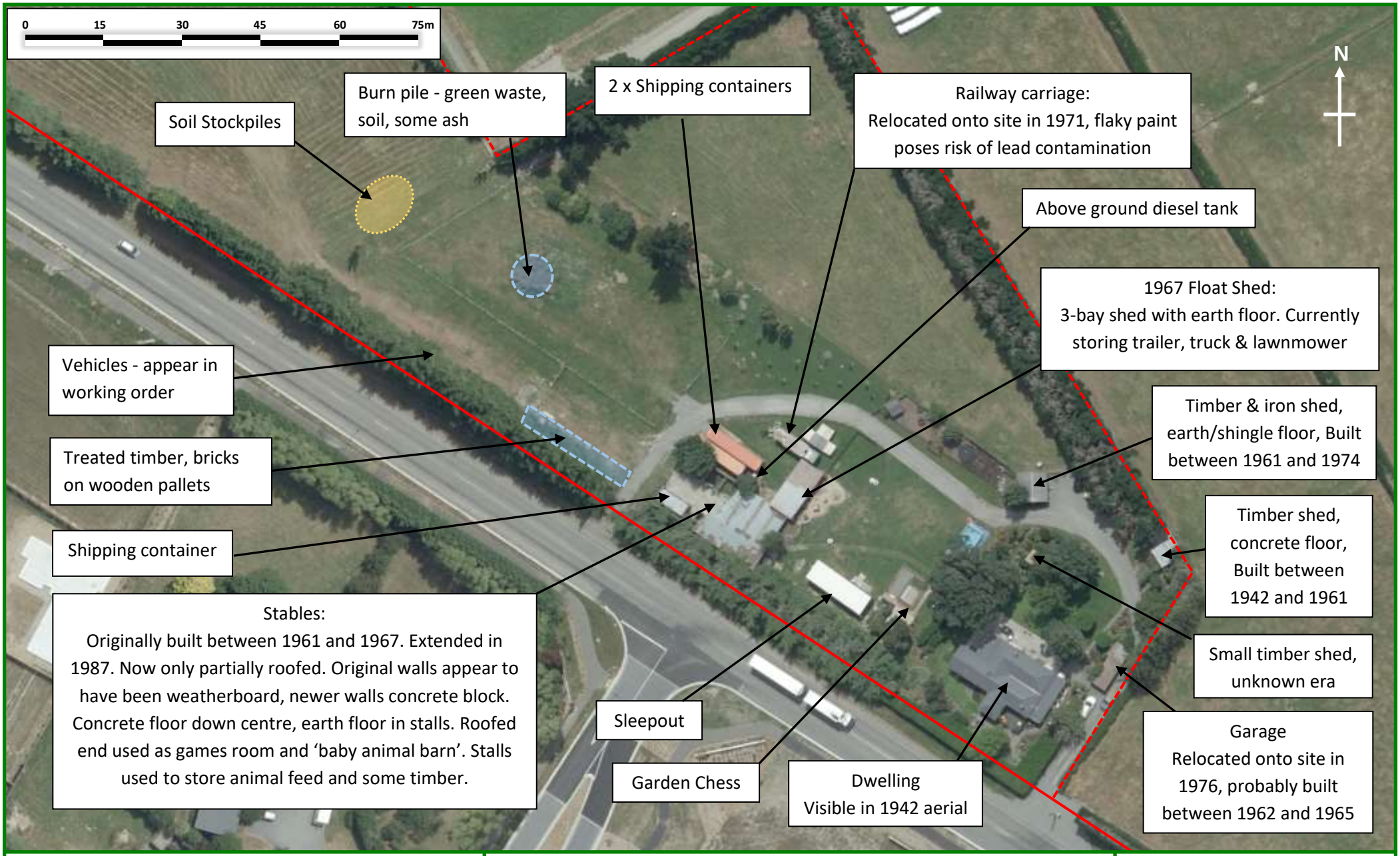
For further information from Environment Canterbury, contact Customer Services and refer to enquiry number ENQ262599.

Disclaimer: ***The enclosed information is derived from Environment Canterbury's Listed Land Use Register and is made available to you under the Local Government Official Information and Meetings Act 1987 and Environment Canterbury's Contaminated Land Information Management Strategy (ECan 2009).***

The information contained in this report reflects the current records held by Environment Canterbury regarding the activities undertaken on the site, its possible contamination and based on that information, the categorisation of the site. Environment Canterbury has not verified the accuracy or completeness of this information. It is released only as a copy of Environment Canterbury's records and is not intended to provide a full, complete or totally accurate assessment of the site. It is provided on the basis that Environment Canterbury makes no warranty or representation regarding the reliability, accuracy or completeness of the information provided or the level of contamination (if any) at the relevant site or that the site is suitable or otherwise for any particular purpose. Environment Canterbury accepts no responsibility for any loss, cost, damage or expense any person may incur as a result of the use, reference to or reliance on the information contained in this report.

Any person receiving and using this information is bound by the provisions of the Privacy Act 1993.

Appendix D – Site Inspection Plan



Malloch Environmental Ltd
19 Robertsons Road, Kirwee
RD1, Christchurch 7671
021 132 0321
www.mallochenviro.co.nz

Site Inspection Plan

232 Lincoln Rolleston Road, Christchurch

Scale: NTS

Date: 10 September 2020

Drawing No: 01488/1

Appendix 8: Servicing Report

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Gould Developments Limited

&

Four Stars Development Limited

SERVICING REPORT

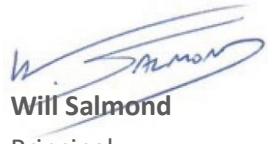
ROLLESTON RESIDENTIAL RE-ZONING

139 Levi Road
294-232 Lincoln Rolleston Road
5-25 Nobeline Drive

PATERSONPITTSGROUP
Surveying • Planning • Engineering

PREPARED BY

Prepared by:



Will Salmond
Principal

Reviewed by:



Tom Gourlay
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3 Earthworks & Clearing 5
4 Water Supply 6
5 Wastewater 6
6 Stormwater 7
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Appendix B Geotechnical Reports
Appendix C Figure 19-5 SDC's 5Waters
Appendix D Rolleston Stormwater Report
Appendix E Orion Capacity Letter
Appendix F Enable Capacity Letter

1 Introduction

Paterson Pitts Group have been commissioned by Gould Developments Limited & Four Stars Development Limited to provide a services report for an application for residential rezoning of rural land as graphically shown below within Rolleston;

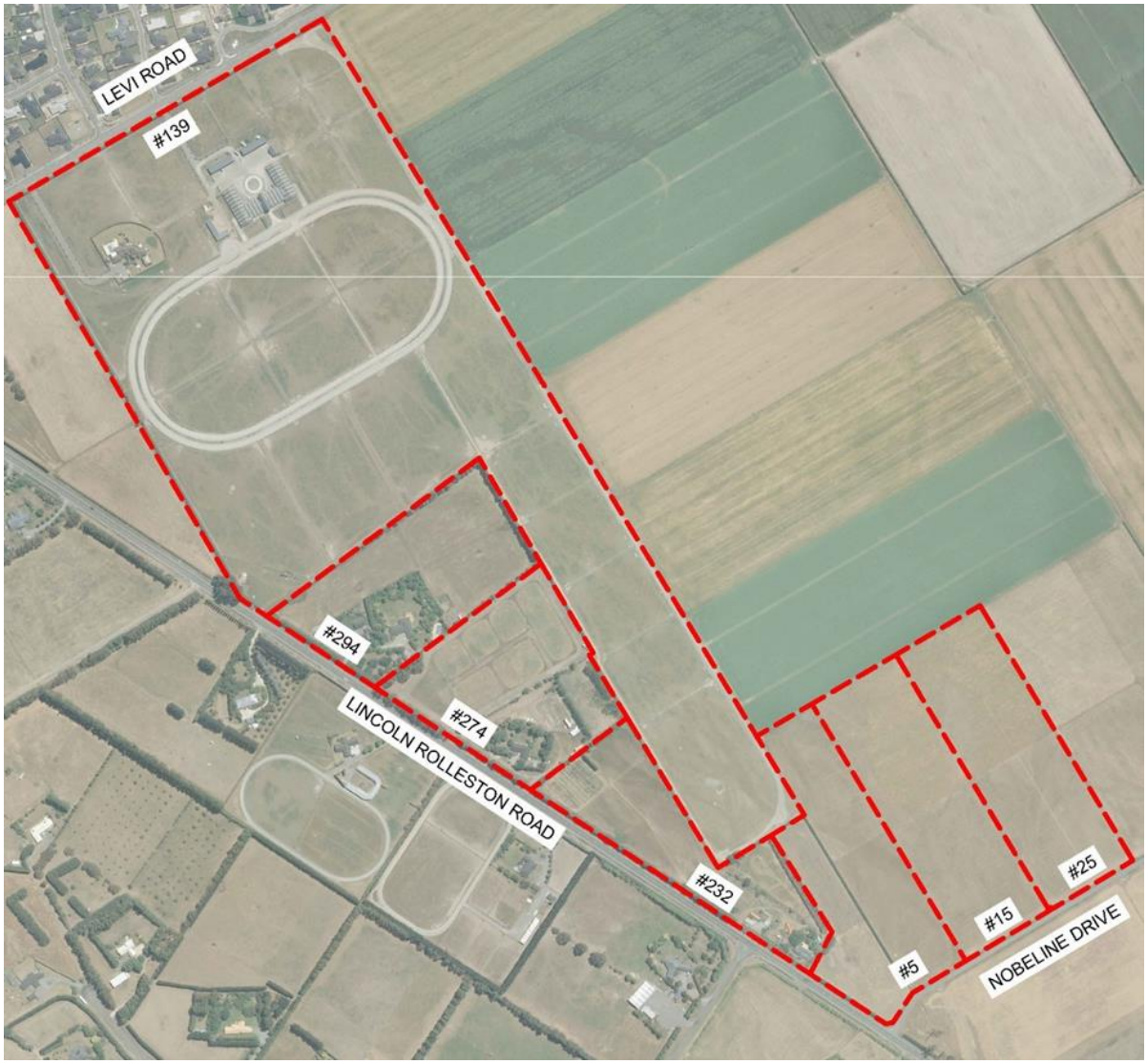


The report covers the following primary servicing:

- Earthworks
- Water supply
- Wastewater
- Stormwater
- Roading
- Utilities
    - Electricity including street lighting
    - Telecommunications

2 Site Location and Description

The site is generally bounded by Levi Road, Lincoln Rolleston Road and Nobeline Drive as illustrated below;



Please note that for the most part, the opposite side of Lincoln Rolleston Road has been developed from rural lifestyle properties to residential use.

The site consists of 6 x separate titles as tabulated below.

ADDRESS	RT REF	LEGAL DESCRIPTION	LEGAL AREA
139 Levi Road	463353	Lot 2 DP 416195 & Lot 2 DP 322710	30.4300ha
232 Lincoln Rolleston Road	CB39B/871	Lot 3 DP 67190	3.2820ha
274 Lincoln Rolleston Road	CB39B/870	Lot 2 DP 67190	4.010ha
294 Lincoln Rolleston Road	CB39B/869	Lot 1 DP 67190	4.0000ha
5 Nobeline Drive	695247	Lot 7 DP 483709	4.0805ha
15 Nobeline Drive	695248	Lot 8 DP 483709	4.0558ha
25 Nobeline Drive	695249	Lot 9 DP 483709	4.0393ha

Three of the titles contain dwellings with a number of rural accessory buildings including large stables at 139 Levi Road.

The total area of all 7 x titles is 53.89ha. The site forms an irregular shape, it is 1.3km from Levi Road to Nobeline Drive. Each road has the following frontage length.

Levi Road : 428m

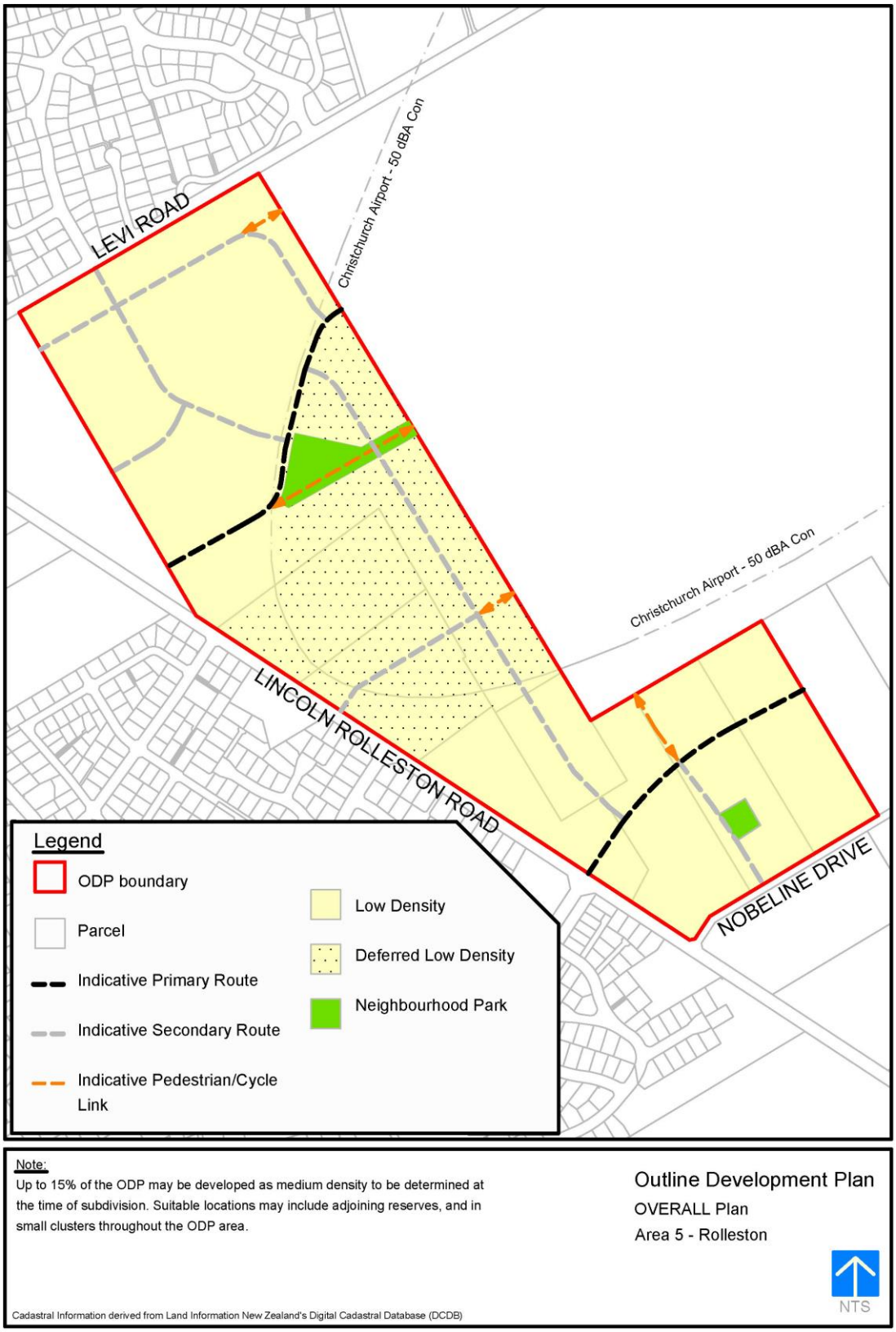
Lincoln Rolleston : 918m

Nobeline Drive : 350m

Topographically the site generally slopes from Levi Road in a SE direction towards the intersection of Lincoln Rolleston Road and Nobeline Drive. Overall, there is a height difference of 9.5m, this equates to a grade of 1:140.

Levi Road and Lincoln Rolleston Road are both classified as Arterial roads and are double lane.

A private plan change is sought for the 53.89ha to be converted from Rural to Residential zoning as per the following Outline Development Plan 5. As a guide, the overall yield will be in the order of 660 residential sites. The area north of the 50db contour will realize approximately 220 sites. The area south, a further 220. The mid area that is predominantly under the 50db contour a further 220 lots.


LEVI ROAD
Christchurch Airport - 50 dBA Con
Christchurch Airport - 50 dBA Con
LINCOLN ROLLESTON ROAD
NOBELINE DRIVE
Legend
ODP boundary
Parcel
Indicative Primary Route
Indicative Secondary Route
Indicative Pedestrian/Cycle Link
Low Density
Deferred Low Density
Neighbourhood Park
Note:
Up to 15% of the ODP may be developed as medium density to be determined at the time of subdivision. Suitable locations may include adjoining reserves, and in small clusters throughout the ODP area.
Outline Development Plan
OVERALL Plan
Area 5 - Rolleston
NTS
Cadastral Information derived from Land Information New Zealand's Digital Cadastral Database (DCDB)

3 Earthworks & Clearing

As described earlier the site has a typical grade of 1:140 from Levi Road to the intersection of Lincoln Rolleston Road and Nobeline Drive with an overall height difference of approximately 9.5m. Refer Appendix **A** for preliminary land contour plan.

Landtech Consulting Limited (Landtech), have completed investigations for both north and south areas as contained in Appendix **B**. On average the average topsoil nominal depth is 200-300mm. Their reports concluded that the sites meet Technical Category 1 (TC1) with damaging liquefaction unlikely and consider the site suitable for residential development from a geotechnical perspective. This being the case no remediation is likely to be required to improve land from a geotechnical perspective.

Preliminary Site Investigations (PSI) have been completed by Malloch Environmental Ltd (MEL). Areas on 232 Lincoln Rolleston Road and 5 Nobeline Drive have been identified requiring a Detailed Site Investigation (DSI), the areas are listed as

- Old buildings and a railway carriage potentially painted with lead-based paints
- Storage of treated timber
- An above ground diesel tank
- A waste/burn pile

Pending a DSI and remediation plan it is likely that material from these areas will have to be removed from site to meet National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health Regulations 2011 (NESCS).

Detailed engineering design will attempt to minimise earthworks and maintain a balance of cut and fill across the site. Engineered fill will be compacted in layers not exceeding 230mm thick when uncompacted. All bulk fill will be specified to be in accordance with the Code of Practice for Earthfill for Residential Purposes NZS4431:1989.

Earthworks across the site primarily consists of cutting in roads to the existing ground and shaping lots to slope towards the road. Residential sites will be designed with a minimum grade of 1:500. Turf stripping of the top 50mm will be undertaken across the site where earthworks will be done. All existing topsoil will be stripped prior to placing of fill on Lots and road pavement construction. The roads and ROW's are likely to be cut to subgrade to allow for a nominal 300mm pavement depth which will be determined at the time of detailed engineering. The sites peripheral boundaries will interface with existing ground levels. Shaping and grading will be used to direct overland flow away from adjacent neighbours. Where the site is receiving overland flow from adjacent sites, these flows will be accommodated to

ensure no nuisance flooding occurs for neighbours that is not pre-existing. Additionally, there will also be earthworks associated with trenching and reinstatement of services, and some minor temporary earthworks as part of the construction Erosion and Sediment Control Plan.

All earthworks will be undertaken in accordance with Environment Canterbury (Ecan) guidelines. It is likely that a resource consent from ECan will be required for construction and operational phase stormwater management.

4 Water Supply

Rolleston Master Planning 2017-2048 Figure 19-5 (see Appendix **C**, of SDC's 5Waters Activity Management Plan) shows proposed trunk watermain upgrades along the frontage of Levi Road and Lincoln Rolleston Road. The upgrades are planned for 2021-2028. Additional wells are proposed at Helpet facility and the NE end of Levi Road near the intersection with Weedons. SDC engineering staff have confirmed that there is or will be sufficient capacity to supply the proposed site.

Further mains and submains will be designed in accordance with SDC's Engineering Code of Practise to service the plan change area at the time of subdivision. Mains are likely to be in the order of 100-150mm to maintain the required pressure.

The reticulation will also be designed to comply with the New Zealand Fire Service Firefighting Water Supplies Code of Practise being SNZ PAS 4509:2008. As minimum any one dwelling will be within 135m of a single fire hydrant and within 270m of two hydrants. Hydrants will be modelled to ensure they provide a minimum flow of 12.5L/s while maintaining pressure of 100kPa being the minimum allowable residual pressure.

5 Wastewater

There are several opportunities to service the site with sewer as there are existing services located in both Levi Road and Lincoln Rolleston Road. Ultimately the capacity of the lines, their respective depths and costs are the determining factors. SDC Asset Manager - Water Services, Mr Murray England, has confirmed that the details of which will be able to worked through at the time of detailed engineering as it is likely that the site can be accommodated once factors are methodically evaluated . A summary of the options and considerations are;

- If all existing adjacent lines in Levi and Lincoln Rolleston Roads have sufficient capacity to accept flows, it will simply be a case convenience.

- If there is capacity for all Lots in the southern-most line to Flight Close PS, it may be the easiest option to install a central line effectively from Levi Road through the site and out Nobeline Drive then onto the Pump Station (PS).
- As the land falls north-south at approximately 1:140, to the southernmost point of the development. This southernmost point can readily access the existing sewer in Lincoln Rolleston Road draining to Flight Close with the installation of additional manholes in Lincoln Rolleston Road. The whole development could gravitate to this one outfall if capacity allows, with some Lots accessing other existing nearby mains where adjacent/appropriate.
- Flush tanks/pump station may be required to allow for larger diameter pipes/lesser gradients to service the whole development. This is based on existing invert levels in sewer mains and cover over the proposed mains throughout the development. The number & location of these is dependent on capacity of existing lines which will determine the overall sewer layout.
- For Lots adjacent to Levi Road, approximately 40-50 of these could be serviced by the existing sewer line along Levi Road if capacity allows. This could service more of the site, if the existing pump chamber in Goldrush Lane can be broken into to provide deeper mains. However, it would be running against the fall of the land, so may be very deep for only gaining a few additional Lots. The remainder of the "North Block" could be serviced either by running mains through the middle block into the south block to the southernmost end, or by gravitating to the southern point of the north block, near Reuben Ave. This would then outfall into existing sewer lines, capacity permitting.
- A further consideration is to install a new line along the future Broadlands Drive Road to SDC Helpet facility. This could possibly service the northern half of the site.

6 Stormwater

Presently there is no existing reticulated stormwater network servicing the site. Landtech's report for the northern area concluded an average ground water depth of 13.0m below existing ground based on desktop analysis. The same again for southern portion. Their indicative percolation rates of 10 and 13 L/m²/min supports stormwater discharge to ground which is typical within Rolleston. Furthermore, due to the depth of ground water it is likely that no additional treatment than sumps and the soakage itself through gravel media will be necessary. This is consistent with the 2011 SDC commissioned stormwater report

undertaken by Pattle Delamore Partners (PDP) that outlines the quality of stormwater discharged throughout the Rolleston area. A copy of this report is contained in Appendix **D**.

The site sits outside SDC's global stormwater consent. As a result, an Ecan consent will be required for stormwater discharge to ground during construction and operational phases. These consents will be confirmed by SDC engineers to ensure their suitability as many of the stormwater assets will transfer to Council.

The future roading network will be designed to provide secondary flow paths. As the site has a typical grade of 1:140 from Levi Road to the intersection of Lincoln Rolleston Road and Nobeline Drive, the majority of overland water will ultimately be directed towards Lincoln Rolleston Road/Noeline Drive.

Stormwater from the roads will be reticulated to soakpits at the time of contruction. Ecan conditions are likely to require for all stormwater runoff from up to and including a 2%, 24-hour event must enter the soakpits.

All individual lot roof stormwater is to be drained to individual soakpits installed on each lot under building consent at dwellings time of construction. A subdivision wide consent will be sought from ECan to allow future sites to establish pits in accordance with the New Zealand Building Code clause E1.

7 Roading

The roading layout will be developed from the proposed ODP with additional local roads to compliment. The hierarchy and function of ODP roads and upgrades of Levi and Lincoln Rolleston Road has been addressed by Novo Group Limited who prepared the traffic report.

Legal road widths will vary from 20m to 15m for through roads down to 13m for other roads. Right of way legal widths will vary from 4.5m to 7m depending on number of users and length.

All forms of roading and footpaths will be designed to comply with SDC standards. Frontages to Levi, Lincoln Rolleston and Nobeline will be upgraded as required by the developer to meet these standards. This involves kerbing and widening but not extending to the opposite side of the roads. All new internal roads and footpaths will be similar to modern Rolleston residential roads with the use of mountable kerbing, asphalt or concrete footpaths, asphalt road surfaces, with the introduction of other feature surfaces where appropriate.

In general, roads will be crowned in the centre with a 3% cross fall to SDC low-profile kerb and channel. These will direct stormwater to sumps with trapped/submerged outlets and reticulated to nearby soakpits. As mentioned earlier the roads will be designed to provide the secondary flow paths.

8 Utilities

All lots will be provided with the ability to connect to a telecommunications and electrical supply network.

Orion New Zealand Limited have confirmed that their electrical network has capacity to provide future residential subdivision of the site with electricity, refer Appendix **E.**

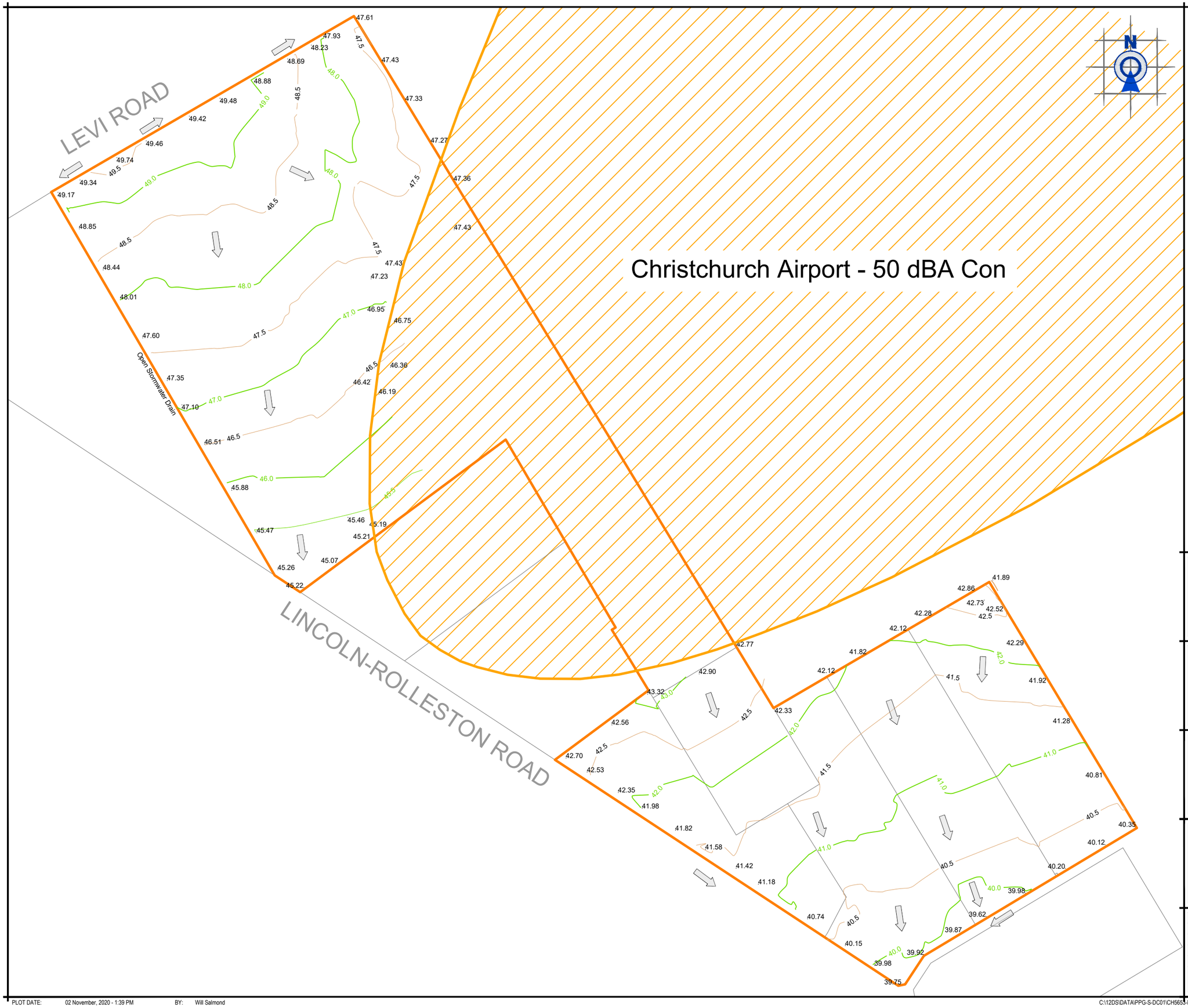
Enable Networks Limited have confirmed that their network has capacity to feed any future residential subdivision of the site with fibre providing telecommunications, refer Appendix **F**.

Street lighting will be designed and provided in accordance with SDC standards to any future roading networks and reserves for the site.

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Appendix A

Preliminary Contour Plan



LEGEND:

- OVERLAND FLOW DIRECTION
- SITE BOUNDARY
- 10.00 SPOT LEVELS

NOTE:
1. FIELD WORK COMPLETED 08/09/2020
2. EQUIPMENT: TRIMBLE GPS RTK
3. ORIGIN OF LEVELS:
   LYTTELON VERTICAL DATUM 1937
   B882 (UG 32) - RL 55.908m
4. AREAS AND MEASUREMENTS ARE SUBJECT TO TITLE SURVEY
5. BOUNDARIES SHOWN ARE INDICATIVE ONLY

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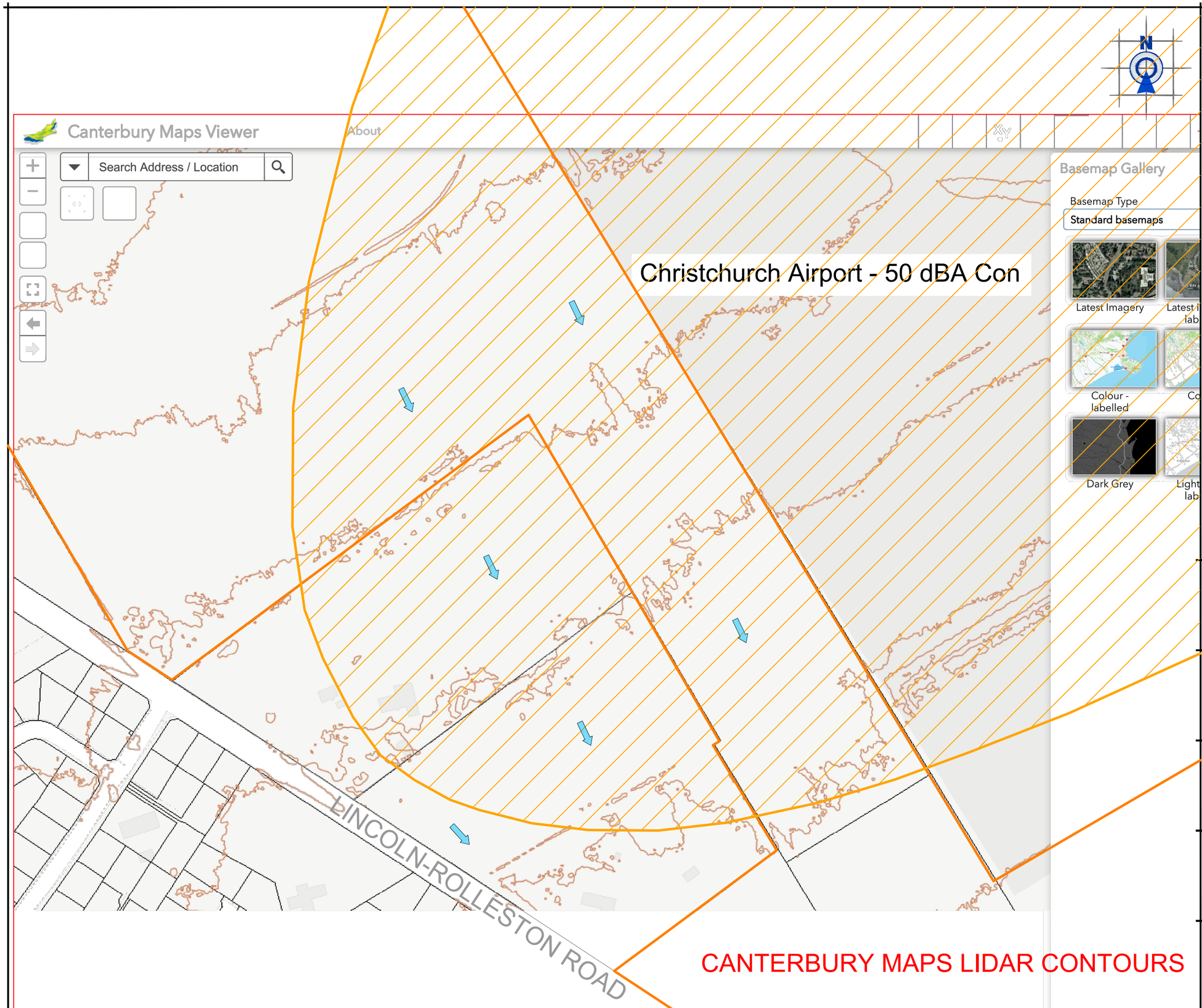
Client/Location:

Gould Developments Limited
&
Four Stars Development Limited

Purpose/Drawing Title:

Preliminary Contour Plan Levi Road / Lincoln-Rolleston Road

Surveyed by:	SS	Original Size:	Scale:		
Designed by:		A3	N.T.S		
Drawn by:	SS		DO NOT SCALE		
Checked by:					
Approved by:					
Job Ref: CH5653		Sheet No: 100	Revision No: A	Date Created: 24/09/2020	



LEGEND:

OVERLAND FLOW DIRECTION

SITE BOUNDARY

NOTE:
1. AREAS AND MEASUREMENTS ARE SUBJECT TO TITLE SURVEY
2. BOUNDARIES SHOWN ARE INDICATIVE ONLY

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Client/Location:

Gould Developments Limited
&
Four Stars Development Limited

Purpose/Drawing Title:

Preliminary Contour Plan Levi Road / Lincoln-Rolleston Road

Surveyed by:	SS	Original Size:	Scale:		
Designed by:		A3	N.T.S		
Drawn by:	SS		DO NOT SCALE		
Checked by:					
Approved by:					
Job Ref: CH5653		Sheet No: 101	Revision No: A	Date Created: 24/09/2020	

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Appendix B

Geotechnical Reports

GEOTECHNICAL INVESTIGATION REPORT

FOR PROPOSED LAND USE CHANGE

139 Levi Road, Rolleston

Client: Four Stars Development Limited

Project Reference:	LTC20264
Revision:	Revision A
Date:	13 October 2020

Documentation Control:

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Document Title:	**Geotechnical Report for Proposed Land Use Change**	
Address:	139 Levi Road, Rolleston	
Revision:	Revision A	
Client:	Four Stars Development Limited	
Project Reference:	LTC20264	
Author:		Luke Challies, Associate Geotechnical Engineer BEngTech (Civil), MEngNZ
Authorised:		Dwayne Wilson, Senior Geotechnical Engineer BEngTech (Civil), MEngSt (Geotechnical), CMEngNZ, CPEng, IntPE (NZ), Director

REPORT DISTRIBUTION:		
Recipient	**Release Date**	**Document Type**
Four Stars Development Limited	13 October 2020	Rev A (PDF)
Paterson Pitts Group	13 October 2020	Rev A (PDF)

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APPENDIX B: Environment Canterbury Well Logs
APPENDIX C: Test Pit Logs
APPENDIX D: Soakage Test Results

1.0 Introduction

1.1 Project Brief

LandTech Consulting Limited. (LandTech) were engaged by Four Stars Development Limited (the Client) to carry out a geotechnical investigation at 139 Levi Road, Rolleston (the Site). The geotechnical investigation is in relation to the proposal to change the land use within the investigated area.

The geotechnical investigation has been carried out to determine a geological model of the site, qualitatively assess the future land performance (i.e. during seismic events) and provide preliminary recommendations for site development.

This geotechnical report summarises the findings of our investigation and assessment. It includes a preliminary geotechnical assessment of the site, and may be used to support the land use change application to the Selwyn District Council (SDC). This report is not intended to support the subdivision application, individual house design or corresponding Building Consents, and further testing will be needed to address these applications.

1.2 Scope of Works

The geotechnical investigation for the proposed development included the following:

- Review of the New Zealand Geotechnical Database (NZGD) and other relevant geological/ geotechnical data;
- Detailed walkover inspection;
- Intrusive field investigation (i.e. test pits and insitu strength testing);
- Collation of field data and drafting;
- Geotechnical assessment;
- Provision of preliminary recommendations for development; and
- Preparation of this geotechnical report, detailing all of the above.

2.0 Site & Project Description

The investigation site is located near the corner of Levi Road and Lincoln Rolleston Road in Rolleston. The site is indicated in Figure 1 below, and is located approximately 1.1km to the south east of the Rolleston Township. The site comprises part of 139 Levi Road, legally described as Lot 2 DP416195 and Lot 2 DP 322710, and covers a total area of 30.43ha (sourced from https://mapviewer.canterburymaps.govt.nz/ on 11 October 2020).

Due the zoning of a decibel restriction associated with the Christchurch Airport extending into the eastern portion of the property, only the northern and western portion of the property has been investigated for the Land Use Change Application. The location of the investigated area and approximate location of the decibel restrictions is shown on the attached drawings LTC20264/1.



Figure 1: Aerial photograph of investigation site (source: https://mapviewer.canterburymaps.govt.nz/, accessed 11 September 2020)

The property is generally flat and is currently used for horse training, and a stables and associate building are located in the northern portion of the site near Levi Road, along with a dwelling in the western corner. A training oval occupies the centre of the property, along with several tracks providing accesses to the paddocks. The land is essentially flat with no obvious changes in elevations and undulations.

3.0 Area Geology

Reference has been made to the *New Zealand Geology Web Map*, GNS Science, http://data.gns.cri.nz/geology/, website accessed 11 September 2020. The reviewed sources indicate that the site is underlain by Holocene Aged River Deposits. These materials generally comprise rounded to subrounded gravel and cobble sized particles within a matrix of silt and sand, deposited via the lateral and vertical migration of the past and present river systems, from the Southern Alps, out toward the east coast. Due to the depositional environment, the geotechnical characteristics of this material can be variable.

The characteristics of the River Deposits can vary widely over small distances. These variances include vertical and horizontal differences in both soil particle size distribution and consolidation. It is discussed above that these materials generally comprise gravel and cobbles; however, interbedded horizons of fine to coarse grained sand, silt and clay can also exist. They can also be capped by loessal soils or finer grained silts and sands.

3.1 Faults in Canterbury

For the purpose of our investigation we have referred to a Selwyn District earthquake fault report compiled by GNS Science and Environment Canterbury (ECan). The referenced report is titled:

- *General distribution and characteristics of active faults and folds in the Selwyn District, North Canterbury*, GNS Science and Environment Canterbury, dated July 2013.

The reference report gives a general outline of the nature of geologically active areas within the Selwyn District. Figure 6 in the referenced report indicates that the investigation site is located within 10km of the mapped Greendale Fault, to the northwest.

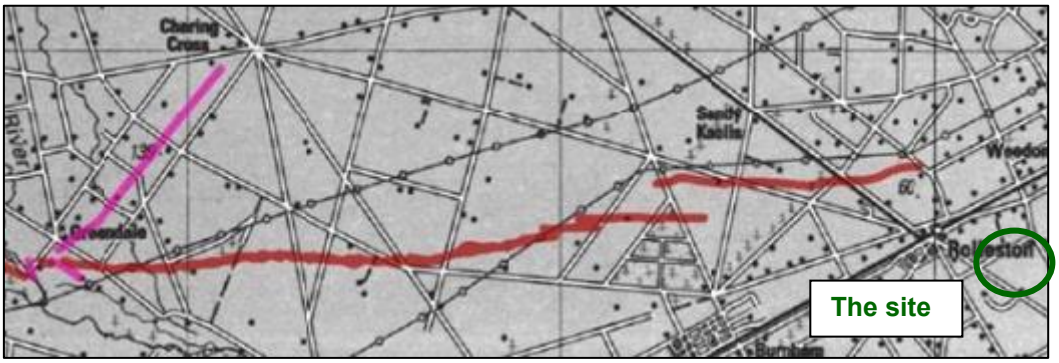


Figure 2: shows excerpt from figure A.1e of the referenced report (red line is a definite or likely fault).

The Greendale Fault and associated blind faults of the Darfield earthquake sequence have been defined by GNS Science via field inspection, aerial photograph interpretation and regional geologic mapping. The reference source indicates that these faults were unknown prior to 2010 and the ages of previous ruptures are also not known. This leave the potential for further unmapped faults to exist within the locality of the investigation site.

4.0 Geotechnical Data Review

Reference has been made to sources including the New Zealand Geotechnical Database (NZGD): http://www.nzgd.org.nz/ and Environment Canterbury (ECan): http://canterburymaps.govt.nz/ (accessed 11 September 2020). The following text summaries the findings of our data review:

- The MBIE *Residential Foundation Technical Category* Map indicates the site is located within an area designated as N/A - Rural and Unmapped. This indicates that normal consenting procedures apply.

- According to Canterbury Maps there are a series of Ecan wells within close proximity to the site. The associated bore logs for the following ECan wells have been reviewed, and are attached within Appendix B:

    - M36/0328, drilled to 28.6m and located with the neighbouring property to the south of the site at 232 Lincoln Rolleston Rd site. The borelog for the well shows earth and clay to 1.2m depth underlain by claybound to rough sandy gravel to the drill depth. Water levels from 1989, indicate a groundwater level of between 13.5m and 14.3m below ground level.

    - M36/8287, drilled to 46.1m and located at the northeastern corner of the site. The borelog for the well shows topsoil to 0.3m depth underlain by gravels to the drill depth. Ground water levels are indicated at 15.3m below ground level at the time of drilling.

    - M36/5292, drilled to 52.0m and located 80m to the south of the site near 294 Lincoln Rolleston Road. The borelog for the well shows topsoil and clay to 0.3m depth underlain by sandy gravel or claybound gravel to the drill depth. Initial groundwater levels are indicated at 12.2m below ground level at the time of drilling.

- According to the Environment Canterbury Soil Type map, the site is mapped as primarily *Typic Immature Plallic Soils* with a deep silty loam, while the northern corner of the site is mapped as a *Typic Immature Plallic Soils* having a moderately deep silty loam. Both soil types are described as having *moderate over slow* permeability.

- Eastern Canterbury Liquefaction susceptibility (2012), shows the site is located within an area were *Liquefaction damage is unlikely.*

- A review of historical photograph of the site from between 1940 and 2004 has been carried out on information available from Canterbury Maps. Imagery from 1940 to 1944 (shown overleaf in Figure 3), shows evidence of paleo river channels near the northern corner of the site. It is therefore possible additional channels are present within the investigation site. Some historic infilling of these paleo channels could have taken place as part of farming activities. However, our investigation found limited evidence of filling having taken place across the general subdivision site.



Figure 3: Aerial photograph of investigation site (source: https://mapviewer.canterburymaps.govt.nz/, accessed 11 September 2020)

5.0 Field Investigation

Our field investigation took place on 21 September 2020 and comprised the following components:

- Detailed walkover inspection; and
- Excavation of Six test pits (TP01 – TP06) and associated Scala penetrometer testing; and
- Soakage testing (ST01) within TP06.

Each test was positioned evenly across the site away from infrastructure and animals, and test locations are shown on the LandTech *Site Test Plan*, Drawing No. LTC20264/ 1 (attached in Appendix A). The positions have been located via a hand-held GPS without survey control and are therefore approximate only.

The soil conditions encountered within the hand augerholes and test pits were logged by LandTech field staff in accordance with New Zealand Geotechnical Society *Guideline for the Description of Soil and Rock for Engineering Purposes* (2005). The test pit logs and corresponding photographs are attached in Appendix B, while the hand augerhole logs are within Appendix C.

The undrained shear strength of the fine-grained soils was recorded where applicable using a Geovane hand held shear vane in accordance with the NZGS *Guideline for Hand Held Shear Vane Test*, published August 2001. The peak and remoulded vane shear strength values have been factored in terms of BS1377.

Dynamic Cone (Scala) Penetrometer testing was carried out near the test pit locations to determine a soil density profile. Testing procedures were in accordance with NZS 4402:1988, Test 6.5.2, *Dynamic Cone Penetrometer*. The test results are shown on test pit logs.

Soakage testing was carried out in general accordance with the Auckland City Soakage Design Manual, worksheet W1: Falling-head Percolation Test. That being the change in water depth against time was recorded. A slight modification for the diameter of the holes has been made with a simple area conversion from a rectangle to a circle to give an equivalent diameter.

6.0 Subsurface Conditions

The sites subsurface conditions generally comprised a surficial layer of topsoil underlain by a sequence of Alluvial / Loess deposits followed by River Deposits. This is consistent with the geology described in Section 3.0 (Area Geology). A subsurface summary is given in Table 2 and detailed descriptions are given in the subsequent sections.

Table 1: Subsurface summary

Test pit ID	Test Pit Depth	Topsoil Depth	Soil Depth	Scala Depth
TP01	3.2	0.3	2.8	2.4
TP02	3.2	0.3	2.9	2.5
TP03	2.8	0.3	1.2	1.3
TP04	2.6	0.3	1.5	1.6
TP05	3.0	0.3	1.4	1.4
TP06	2.8	0.2	1.4	1.4

Table notes: Measurements are in metres (m) below present ground level
Scala penetrometer refusal considered when an excess of 20 blows /100mm penetration occurs

6.1 Topsoil

Topsoil was encountered from the surface at all test locations and ranged between the depths of 0.2m and 0.3m below present ground level (bpgl). This mostly comprised dark brown silt with minor fractions of fine to coarse grained sand. The topsoil is not considered suitable for the support of building foundations.

6.2 Alluvial / Loess Deposits

Soil deposits comprising either alluvial soils or loessal soils where present above the river deposits at depth. The depth of these soils ranged from between 1.2m (TP03) and 2.9m (TP02) below ground level, and typically comprised a moist fine sandy silt. Typically, the deeper deposits of soil where encountered along the northern boundary towards the northwestern corner.

Scala penetrometer testing within the soils generally ranged from 2 and 5 Blows / 100mm penetration. Higher blow counts at depth are due to contact with the underlying gravels.

Where possible shear vane testing was carried out in the silt materials, peak shear vane testing ranged from between 107kPa and 187+kPa indicating a very stiff soil.

6.3 River Deposits

River Deposits were encountered below the surficial layer of sandy silts from between 1.2m (TP03) and 2.9m (TP02) to the termination depth of all test locations (TP01 – TP06). The River Deposits generally comprised fine to coarse sandy, fine to coarse subrounded gravel. The gravel deposits where described as moist, while larger cobbles were also encountered.

Scala penetrometer testing was unable to penetrate the gravels with refusal typically being achieved in contact with the underlying gravels, indicative of dense packing.

6.4 Soakage

The soakage capacity of the gravel was tested within TP05; the location of the test pits are shown on the LandTech *Site Test Plan*, Drawing No. LTC20264/ 1 (attached in Appendix A). The results of the soakage testing are attached in Appendix C.

The results of the calculated average soakage rates are shown in Table 3 below:

Table 2: Average soakage rates

	SP01 / TP06
Average Soak Rate (mm/hour)	368
Percolation Rate (L/m^2/min)	10

Following the testing silt was loaded in the base to a thickness of around 0.2m thick which likely impeded the flow. While the Test pit was being filled the maximum height the above the base the water level rose to was 0.5m, at a flow rate of 833L/min or 520L/m^2/min. This shows that infiltration from the side walls contributes a considerable amount to the drainage.

Based on the variable subsurface conditions throughout this site (i.e. depth of soil), we recommend additional soakage testing be carried out in the location of proposed soakage basins to determine more representative percolation rates to design from.

6.5 Site Seismicity

For the purpose of applying requirements of NZS 1170.5:2004 the site subsoil is Class D – Deep or Soft Soil Site. This classification is based on depths of soil exceeding the limits of Table 3.2 of the reference standard. seismic hazard factor (Z) for the site is 0.3 as per the standard.

7.0 Qualitative Liquefaction Analysis

The MBIE & New Zealand Geotechnical Society Inc. report titled *Earthquake geotechnical engineering practice, Module 3: Identification, assessment and mitigation of liquefaction hazards* (2016) explains that the evaluation of the geologic susceptibility of liquefaction is a key aspect in the evaluation of liquefaction potential at a given site.

Based on our desktop study and field investigation, we have established that the site is generally underlain by Holocene Age horizons of tightly packed gravel (i.e. River Deposits) with average ground water levels of around 13.0m. In addition to this ECan (2012) liquefaction susceptibility maps has indicated that the site is unlikely to be damaged via earthquake induced liquefaction.

The region comprises a rural/unmapped Residential Foundation Technical Category (based on MBIE); however, is considered an area that is not likely to be susceptible to liquefaction induced damage. This is based on the geology underlying the site (i.e. Holocene Aged River Deposits), the previously referenced reports and maps, and our qualitative liquefaction assessment.

Based on our assessment of the investigation site, we are categorising existing property as Technical Category 1 (TC1) with damaging liquefaction unlikely and consider the site suitable for residential development from a geotechnical perspective.

8.0 Geotechnical Hazard Evaluation

Section 106 of the Resource Management Act 1991 outlines hazards that must be assessed when a territorial authority considers subdivision of land. This section outlines our evaluation of possible geotechnical hazards associated with this site. Based on the results of our investigation and assessment, we consider this site suitable for land use change to residential zoning from a geotechnical perspective.

8.1 Erosion

The surface of the property is near level to undulating with no general contour/runoff direction. During our field investigation, we did not observe any obvious signs of erosion from concentrated surface runoff. Furthermore, we do not consider the proposed site development will increase the erosion potential provided stormwater is disposed of in a controlled manner subject to usual Council Consenting procedures.

8.2 Inundation

Assessment for inundation from flooding is not a part of the scope of this report and therefore has not been fully assessed. A basic review of online mapping available from CanterburyMaps has been carried out and no information for the site was evident. If required an assessment should be carried out by suitably experienced consultant.

8.3 Subsidence

It is discussed in previous sections of this report, liquefaction is not likely to occur within the investigation site. This is due to the shallow depth to gravel and gravelly sand layers (between 1.2m and 2.9m below the site) and the ECan well logs indicating that groundwater in the area is at an average of around 13.0m below ground level.

This means that corresponding liquefaction induced subsidence is unlikely, as per the site performance through the CES. Foundation settlements are also considered unlikely due to the dense nature of the subsoils. This is provided in our recommendations given further herein are followed regarding further investigation, foundation design and construction.

8.4 Falling Debris

No tall standing slopes exist in the vicinity of the investigation site, therefore falling debris hazard is non-existent.

8.5 Slippage

Due to the site being near level to gently undulating, it's removed location from any major waterways, and inferred non-liquefiable nature of the underlying subsoils, slippage via liquefaction-induced lateral spreading is not considered to affect the subdivision site. No other geotechnical mechanism of slippage was noted during out field investigation or from our assessment.

8.6 Contamination

Whilst not a requirement of Section 106 of the RMA 1991, soil contamination is a potential geotechnical hazard that should be considered when making Consent applications to territorial authorities where ground disturbance works are proposed (i.e. foundation excavations etc.). This indicates no HAIL activities are recorded to have taken place at the site, according to the register. This does not confirm the site has no soil contamination, but only indicates the Regional Council does not have records of potentially hazardous activities taking place the site that could lead to soil contamination.

9.0 Geotechnical Recommendations

It is stated in the previous sections that the site has been classified as TC1; based on our desktop study, the underlying geology and qualitative liquefaction assessment. Following our assessment, we consider the site suitable land use change to residential zoning from a geotechnical perspective. Our recommendations with regard to site development and preliminary foundation design follow subsequently.

9.1 Preliminary Foundation Recommendations

Due to the low risk of liquefaction at the subdivision we have classified the investigation site as TC1, and conclude the River Deposits beneath any surficial soils meet the criteria for “good ground” as defined by NZS3604:2011. Some areas of weak upper surficial soils may require foundations to be subject to specific engineering design due to low bearing capacities. Alternatively, earthworks during subdivision may compact any weak upper layers so standard foundations can be utilised without engineering design input. The extent of any weak upper soils can be determined with further shallow soil testing as part of the subdivision design/consenting stage.

9.2 Preliminary Earthwork Recommendations

All proposed earthworks will need to be carried out to the requirements of NZS 4431:1989, ‘Code of Practice for Earthfilling for Residential Development’. All unsuitable materials (vegetation, organic or detritus material, and organic rich topsoil etc.) should be stripped from any areas of earthworks and stockpiled well clear of operations or carted from the site.

10.0 Future Geotechnical Involvement

Should the land use change be approved and a subdivision plan be made, a more detailed geotechnical investigation will be required to more accurately identify areas of deep alluvial soils and provided further geotechnical recommendations for the subdivision development.

Dependent on the extent of earthworks during the subdivision stage and involvement from a geo-professional to observe areas of stripped ground and fill compaction, additional lot specific shallow soil testing may be required. The results of which may supersede our preliminary foundation recommendations if the test results differ to our area wide investigation. However, the risk of differing ground conditions is considered to be low, due to the relatively uniform presence of dense river gravels throughout the general Rolleston area. Potential variations could be from deeper areas of surficial alluvial soils or localised uncontrolled filling in the past.

11.0 Limitations

This geotechnical report has been prepared for our Client, Four Stars Investment Limited, for the purposes of supporting a Land Use Change application to the Selwyn District Council. This report shall not be extrapolated for other nearby sites or used for any other purposes without the express approval of LandTech and their Client.

This report has been based on the results of tests at point locations; therefore, subsurface conditions could vary away from the assumed geotechnical model. Should exposed soil conditions vary from those described herein we request to be informed to determine the continued applicability of our recommendations. We have attempted to conduct a thorough investigation of soil types across the site, within the agreed scope of works. However, variations still may exist as soils can vary naturally and due to previous human activities, which LandTech have no control over and should not be held accountable for.

The geotechnical investigation was confined to geotechnical aspects of the site only and did not involve the assessment for environmental contaminants. In addition, our investigation and analyses have also not taken into account possible fault rupture that may cause deformations and displacements of the ground directly below the site. This type of assessment is outside of the scope of our geotechnical engagement.

END OF REPORT

APPENDIX A

LandTech Site Test Plan



KEY:

- TP01 — LandTech Consulting Test Pit locations Carried out on 21 September 2020
- SP01 — LandTech Consulting Soakage Test Locations Carried out on 21 Septembner 2020
- Investigated Area
- Existing Boundaries
- 50 dBA contour

NOTES:

Locations of features approximate only.

Original sheet size A3

Boundary information on this *Site Test Plan* adapted from LINZ website: www.data.linz.govt.nz (accessed 04 September 2020)

AMENDMENTS

DATE	REV	DESCRIPTION
12/10/2020	A	Test Plan

Check all dimensions and levels on site before commencing construction.

This drawing and design remains the property of LandTech Consulting Ltd. and may not be reproduced without approval and permission from LandTech Consulting Ltd.

139 Levi Road

ROLLESTON

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Drawing No.	Drawn by:	Date:
LTC20264/1	L C	12 October 2020

Scale:	Checked by:	Revision:
1: 2000 (A3)	D W	A

Filename: LTC20264 - Drawings.dwg

APPENDIX B

Environment Canterbury Well logs

canterbury maps

Canterbury Maps

Information has been derived from various organisations, including Environment Canterbury and the Canterbury Maps partners. Boundary information is derived under licence from LINZ Digital Cadastral Database (Crown Copyright Reserved). Environment Canterbury and the Canterbury Maps partners do not give and expressly disclaim any warranty as to the accuracy or completeness of the information or its fitness for any purpose.

Information from this map may not be used for the purposes of any legal disputes. The user should independently verify the accuracy of any information before taking any action in reliance upon it.

N

0 0.07 0.14 0.21 0.28 Kilometres

Scale: 1:5,000 @A3

Map Created by Canterbury Maps on 12/10/2020 at 12:49 PM

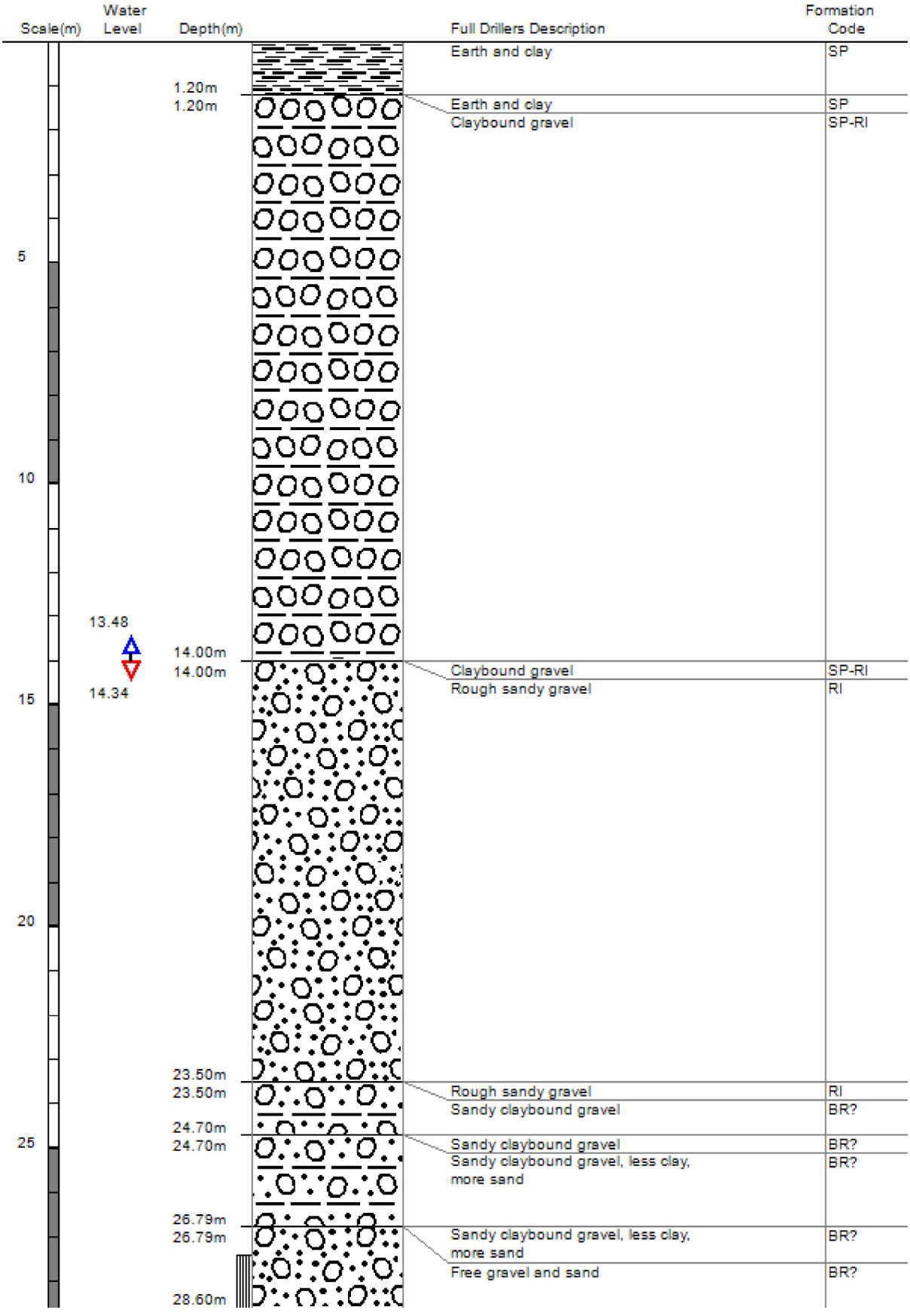
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61
M36/0254
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BX23/0827
BX23/0508
M36/5292
M36/4870
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M36/0328
BX23/0528
BX23/0420
BX23/0571
BX23/0620
M36/5359
BX23/0648
BX23/0618
M36/4894
Levi Rd
Lincoln Rolleston Rd
Reuben Ave
Turin Ave
Rory St
Branthwaite Dr
Falcon Rd
Gregra Ave
Nobeline Dr

Environment Canterbury, Land Information New Zealand, GNS Science, Te Rūnanga o Ngāi Tahu, Department of Conservation, New Zealand Archaeological Association, Environment Canterbury, Canterbury Maps Partners, Open Street Maps, Environment Canterbury

Borelog for well M36/0328

Grid Reference (NZTM): 1552007 mE, 5172190 mN
Location Accuracy: 50 - 300m
Ground Level Altitude: 42.6 m +MSD Accuracy: < 0.5 m
Driller: McMillan Drilling Ltd
Drill Method: Cable Tool
Borelog Depth: 28.6 m Drill Date: 20-Aug-1980

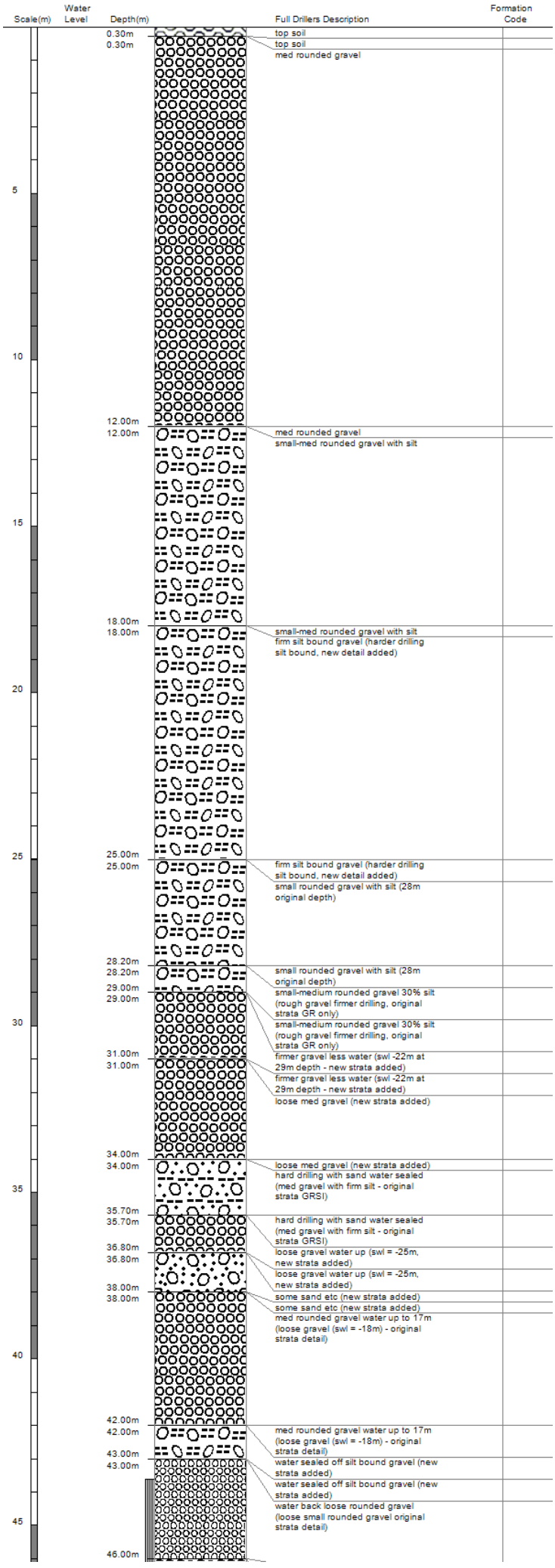
Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha



Borelog for well M36/8287

Grid Reference (NZTM): 1551585 mE, 5172834 mN
Location Accuracy: 2 - 15m
Ground Level Altitude: 45.9 m +MSD Accuracy: < 0.5 m
Driller: Dynes Road Drilling
Drill Method: Rotary/Percussion
Borelog Depth: 46.1 m Drill Date: 15-Jan-2007

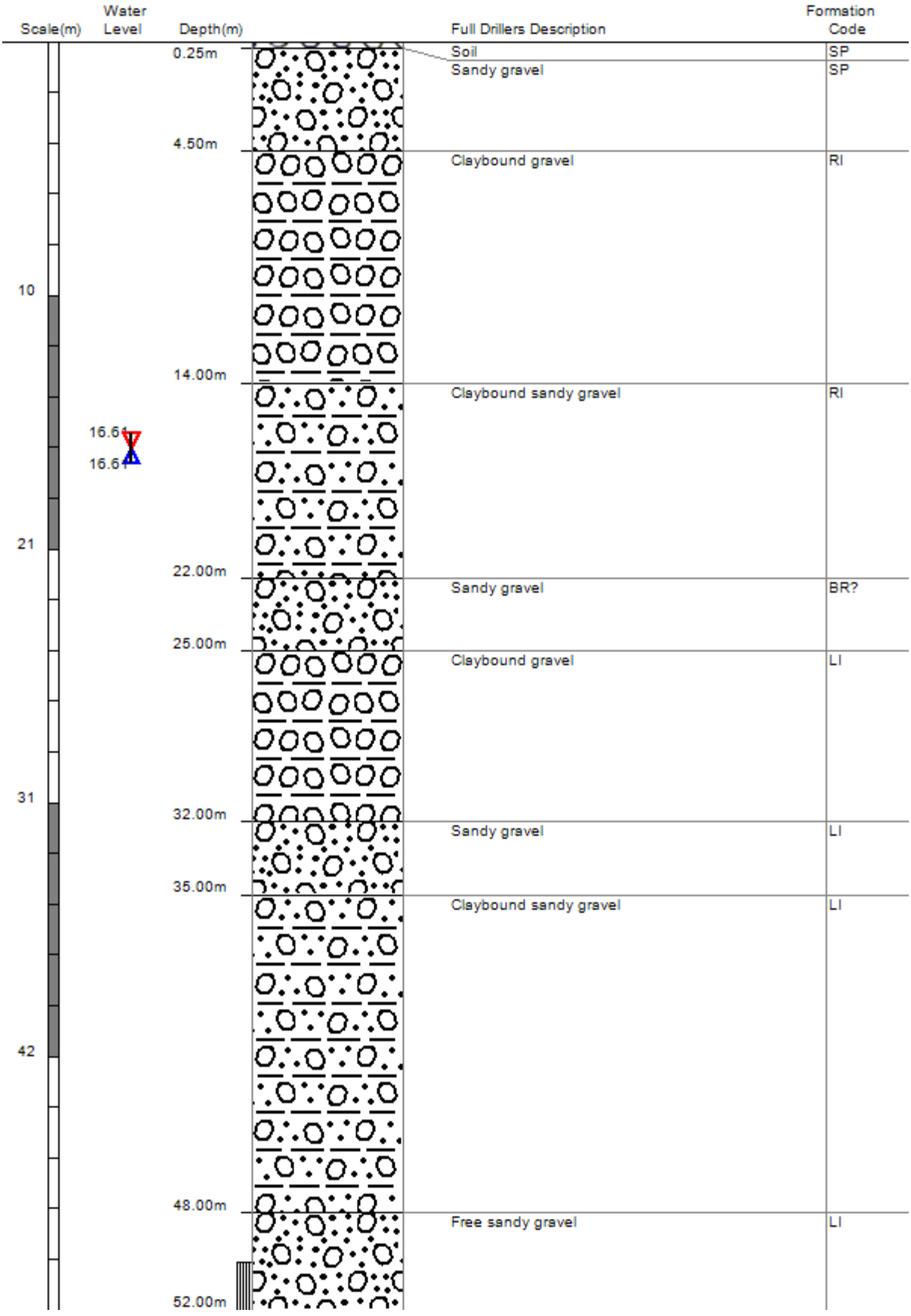
Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha



Borelog for well M36/5292

Grid Reference (NZTM): 1551672 mE, 5172222 mN
Location Accuracy: 2 - 15m
Ground Level Altitude: 44.4 m +MSD Accuracy: < 2.5 m
Driller: Smiths Welldrilling
Drill Method: Rotary Rig
Borelog Depth: 52.0 m Drill Date: 15-Sep-1997

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha



APPENDIX C

Test Pit Logs

LandTech CONSULTING

Client: Four Stars Development Ltd
Project: Geotechnical Investigation for Proposed Land Use Change
Address: 139 Levi Road, Rolleston

Test Pit No. TP01
Sheet No. 1 of 1

Drill Type:	6T Hydraulic Excavator	Project No:	LTC20264	Logged By:	M Gunn
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1551391 N5172741	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (21-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T.SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS / LOESS	0.5		SILT, some fine sand, brown, stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	1.5		Fine sandy, SILT, light brown, stiff, moist, non-plastic
RIVER DEPS.	3.0		Fine sandy fine to coarse sub-rounded GRAVEL, brown, dense, moist [RIVER DEPOSITS]
	4		End of Test Pit 2.8m [TARGET DEPTH]
	5.0		

Groundwater Level (m): Not Encountered (21-Sep-20)

In-situ Field Testing

Shear Strength (kPa)
Peak:
Remoulded:
0 50 100 150 200
160

Dynamic Cone Penetrometer
Scala Blow
0 5 10 15 20

Depth (m)	Blow Count
-0.1	2
-0.2	3
-0.3	4
-0.4	4
-0.5	5
-0.6	3
-0.7	3
-0.8	3
-0.9	4
-1.0	3
-1.1	2
-1.2	2
-1.3	3
-1.4	2
-1.5	1
-1.6	2
-1.7	2
-1.8	2
-1.9	2
-2.0	2
-2.1	2
-2.2	2
-2.3	3
-2.4	4
-2.5	5
-2.6	
-2.7	
-2.8	
-2.9	
-3.0	
-3.1	
-3.2	
-3.3	
-3.4	
-3.5	
-3.6	
-3.7	
-3.8	
-3.9	
-4.0	
-4.1	
-4.2	
-4.3	
-4.4	
-4.5	
-4.6	
-4.7	
-4.8	
-4.9	
-5.0	

In-situ field testing in Scala Penetrometer Shear Vane Testing:

LandTech CONSULTING

Client: Four Stars Development Ltd
Project: Geotechnical Investigation for Proposed Land Use Change
Address: 139 Levi Road, Rolleston

Test Pit No. TP02
Sheet No. 1 of 1

Drill Type:	6T Hydraulic Excavator	Project No:	LTC20264	Logged By:	M Gunn
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1551545 N5172856	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (21-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T.SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS	0.5		Fine sandy SILT, light brown, stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	2.5		SILT, minor fine sand, light brown, mottled orange, stiff, moist, non-plastic
RIVER D.	3.0		Fine sandy, fine to coarse, subrounded to round GRAVEL, brown, very dense, moist [RIVER DEPOSITS]
	3.2		End of Test Pit 3.2m [TARGET DEPTH]

Groundwater Level (m): Not Encountered (21-Sep-20)

In-situ Field Testing

Shear Strength (kPa)
Peak:
Remoulded:
0

Dynamic Cone Penetrometer

Depth (m)	Blow Count	Scala Blow Count / 100mm
-0.1	3	
-0.2	3	
-0.3	5	
-0.4	4	
-0.5	4	
-0.6	3	
-0.7	3	
-0.8	3	
-0.9	2	
-1.0	2	
-1.1	2	
-1.2	3	
-1.3	2	
-1.4	3	
-1.5	2	
-1.6	3	
-1.7	4	
-1.8	5	
-1.9	3	
-2.0	3	
-2.1	3	
-2.2	2	
-2.3	3	
-2.4	3	
-2.5	3	
-2.6		
-2.7		
-2.8		
-2.9		
-3.0		
-3.1		
-3.2		
-3.3		
-3.4		
-3.5		
-3.6		
-3.7		
-3.8		
-3.9		
-4.0		
-4.1		
-4.2		
-4.3		
-4.4		
-4.5		
-4.6		
-4.7		
-4.8		
-4.9		
-5.0		

Scala Blow Count / 100mm: 0 5 10 15 20

In-situ field testing in accordance with the following Standards:
Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer
Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

LandTech Consulting Ltd. (Christchurch): Unit 6, 31 Carlyle Street, Sydenham
LandTech Consulting Ltd. (Auckland): 17 Nils Andersen Road, Whenuapai
Phone: (03) 390 1371
Phone: (09) 930 9334
Email: info@landtech.nz
Website: www.landtech.nz

LandTech CONSULTING

Client: Four Stars Development Ltd
Project: Geotechnical Investigation for Proposed Land Use Change
Address: 139 Levi Road, Rolleston

Test Pit No. TP03
Sheet No. 1 of 1

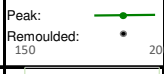
Drill Type:	6T Hydraulic Excavator	Project No:	LTC20264	Logged By:	M Gunn
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1551724 N5172860	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (21-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T. SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS / LOESS	0.5		Fine sandy SILT, yellowish light brown, very stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	1.0		
RIVER DEPOSITS	1.5		Fine to coarse sandy, sub rounded GRAVEL, minor silt, brown, dense, moist [RIVER DEPOSITS] trace subrounded to round boulders
	2.0		
	2.5		
	3.0		End of Test Pit 2.8m [TARGET DEPTH]
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m): Not Encountered (21-Sep-20)

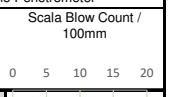
In-situ Field Testing

Shear Strength (kPa)



Dynamic Cone Penetrometer

Depth (m)	Blow Count
-0.1	3
-0.2	3
-0.3	3
-0.4	4
-0.5	3
-0.6	3
-0.7	3
-0.8	3
-0.9	4
-1.0	3
-1.1	9
-1.2	12
-1.3	25+
-1.4	
-1.5	
-1.6	
-1.7	
-1.8	
-1.9	
-2.0	
-2.1	
-2.2	
-2.3	
-2.4	
-2.5	
-2.6	
-2.7	
-2.8	
-2.9	
-3.0	
-3.1	
-3.2	
-3.3	
-3.4	
-3.5	
-3.6	
-3.7	
-3.8	
-3.9	
-4.0	
-4.1	
-4.2	
-4.3	
-4.4	
-4.5	
-4.6	
-4.7	
-4.8	
-4.9	
-5.0	



In-situ field testing in accordance with the following Standards:

Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer

Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

LandTech Consulting Ltd. (Christchurch): Unit 6, 31 Carlyle Street, Sydenham
LandTech Consulting Ltd. (Auckland): 17 Nils Andersen Road, Whenuapai
Phone: (03) 390 1371
Phone: (09) 930 9334
Email: info@landtech.nz
Website: www.landtech.nz

LandTech CONSULTING	Client: Four Stars Development Ltd Project: Geotechnical Investigation for Proposed Land Use Change Address: 139 Levi Road, Rolleston	Test Pit No.	TP04
		Sheet No.	1 of 1

Drill Type:	6T Hydraulic Excavator	Project No:	LTC20264	Logged By:	M Gunn
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1552364 N5171882	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (21-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T. SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS / LOESS	0.5		Fine sandy SILT, yellowish light brown, stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	1.0		
	1.5		
RIVER DEPOSITS	2.0		Fine to coarse sandy, sub rounded GRAVEL, minor silt, brown, dense, moist [RIVER DEPOSITS]
	2.5		trace subrounded to round bouders, wet
	3.0		End of Test Pit 2.6m [TARGET DEPTH]
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m): Not Encountered (21-Sep-20)

In-situ Field Testing

Shear Strength (kPa)

Peak:

Remoulded:

150 200

187+

Dynamic Cone Penetrometer

Depth (m)	Blow Count	Scala Blow Count / 100mm
-0.1	7	
-0.2	5	
-0.3	4	
-0.4	3	
-0.5	3	
-0.6	3	
-0.7	3	
-0.8	2	
-0.9	3	
-1.0	3	
-1.1	3	
-1.2	4	
-1.3	3	
-1.4	5	
-1.5	14	
-1.6	25+	
-1.7		
-1.8		
-1.9		
-2.0		
-2.1		
-2.2		
-2.3		
-2.4		
-2.5		
-2.6		
-2.7		
-2.8		
-2.9		
-3.0		
-3.1		
-3.2		
-3.3		
-3.4		
-3.5		
-3.6		
-3.7		
-3.8		
-3.9		
-4.0		
-4.1		
-4.2		
-4.3		
-4.4		
-4.5		
-4.6		
-4.7		
-4.8		
-4.9		
-5.0		

0 5 10 15 20

In-situ field testing in accordance with the following Standards:

Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer

Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

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Website: www.landtech.nz

LandTech CONSULTING	Client: Four Stars Development Ltd Project: Geotechnical Investigation for Proposed Land Use Change Address: 139 Levi Road, Rolleston	Test Pit No.	TP05
		Sheet No.	1 of 1

Drill Type:	6T Hydraulic Excavator	Project No:	LTC20264	Logged By:	M Gunn
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1551650 N5172615	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (21-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T. SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS / LOESS	0.5		Fine sandy SILT, yellowish light brown, stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	1.0		
RIVER DEPOSITS	1.5		Fine to coarse sandy, sub rounded GRAVEL, minor silt, brown, dense, moist [RIVER DEPOSITS] trace to minor subrounded boulders
	2.0		
	2.5		
	3.0		End of Test Pit 3.0m [TARGET DEPTH]
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m): Not Encountered (21-Sep-20)

In-situ Field Testing

Shear Strength (kPa)

Peak:

Remoulded:

150 200

187+ UTP

Dynamic Cone Penetrometer

Depth (m)	Blow Count
-0.1	5
-0.2	7
-0.3	5
-0.4	5
-0.5	3
-0.6	3
-0.7	3
-0.8	3
-0.9	2
-1.0	3
-1.1	3
-1.2	6
-1.3	7
-1.4	25+
-1.5	
-1.6	
-1.7	
-1.8	
-1.9	
-2.0	
-2.1	
-2.2	
-2.3	
-2.4	
-2.5	
-2.6	
-2.7	
-2.8	
-2.9	
-3.0	
-3.1	
-3.2	
-3.3	
-3.4	
-3.5	
-3.6	
-3.7	
-3.8	
-3.9	
-4.0	
-4.1	
-4.2	
-4.3	
-4.4	
-4.5	
-4.6	
-4.7	
-4.8	
-4.9	
-5.0	

Scala Blow Count / 100mm

0 5 10 15 20

In-situ field testing in accordance with the following Standards:

Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer

Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

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LandTech CONSULTING	Client: Four Stars Development Ltd Project: Geotechnical Investigation for Proposed Land Use Change Address: 139 Levi Road, Rolleston	Test Pit No.	TP06
		Sheet No.	1 of 1

Drill Type:	6T Hydraulic Excavator	Project No:	LTC20264	Logged By:	M Gunn
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1551614 N5172361	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (21-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T. SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS / LOESS	0.5		Fine sandy SILT, light brown, stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	1.0		
RIVER DEPOSITS	1.5		Fine to coarse sandy, sub rounded GRAVEL, minor silt, brown, dense, moist [RIVER DEPOSITS]
	2.0		
	2.5		
	3.0		End of Test Pit 2.8m [TARGET DEPTH]
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m): Not Encountered (21-Sep-20)

In-situ Field Testing

Shear Strength (kPa)

Peak:

Remoulded:

0 50 100 150 200

107

Dynamic Cone Penetrometer

Depth (m)	Blow Count	Scala Blow Count / 100mm (0 5 10 15 20)
-0.1	2	
-0.2	2	
-0.3	3	
-0.4	3	
-0.5	3	
-0.6	2	
-0.7	3	
-0.8	2	
-0.9	3	
-1.0	4	
-1.1	3	
-1.2	4	
-1.3	9	
-1.4	25+	
-1.5		
-1.6		
-1.7		
-1.8		
-1.9		
-2.0		
-2.1		
-2.2		
-2.3		
-2.4		
-2.5		
-2.6		
-2.7		
-2.8		
-2.9		
-3.0		
-3.1		
-3.2		
-3.3		
-3.4		
-3.5		
-3.6		
-3.7		
-3.8		
-3.9		
-4.0		
-4.1		
-4.2		
-4.3		
-4.4		
-4.5		
-4.6		
-4.7		
-4.8		
-4.9		
-5.0		

In-situ field testing in accordance with the following Standards:

Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer

Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

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APPENDIX D

Soakage Test Results

	Client:	Four Stars Development Limited	
	Project:	Proposed Land Use Change	
	Address:	Lincoln Rolleston Road, Rolleston	
Test Type:	On-site soakage test	Project No:	LTC20264
Tested By:	L Challies	Test Date:	21-Sep-20

Test ID:	TP05/SP01	Test ID:	
Coordinates:	NZTM2000 E1551650 N5172615	Coordinates:	
Groundwater level:	Not Encountered	Groundwater level:	
Method:	In accorandance with W1: Falling-head percolation Test of the Auckland soakage design manual	Method:	

Test Pit Dimensions

2	m	length
1	m	wide
1.60	m	equivalent diameter

1) Test Details

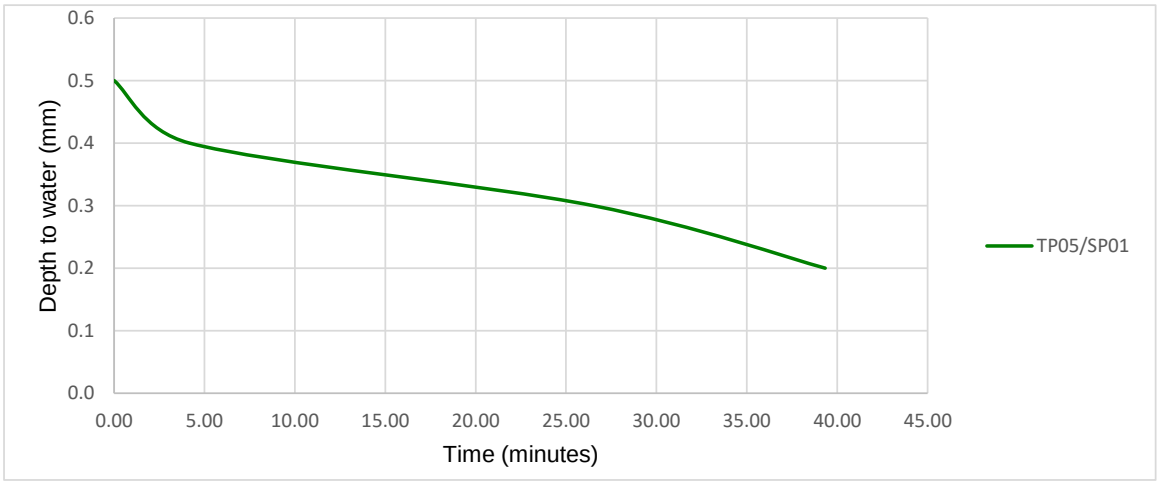
Time (Sec)	Time (min)	Depth (m)	Soak Rate (m/min)
0	0.00	0.5	-
250	4.17	0.4	0.024
1590	26.50	0.3	0.004
2360	39.33	0.2	0.008

2) Calculate Minimum Gradient

0.01	m/min	368	mm/h

3) Calculate percolation rate

10	L/m2/min
587	L/m2/hr



GEOTECHNICAL INVESTIGATION REPORT

FOR PROPOSED LAND USE CHANGE

Lincoln Rolleston Road, Rolleston

Client: Goulds Development Limited

Project Reference:	LTC20265
Revision:	Revision A
Date:	12 October 2020

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Document Title:	**Geotechnical Report for Proposed Land Use Change**	
Address:	Lincoln Rolleston Road, Rolleston	
Revision:	Revision A	
Client:	Goulds Development Limited	
Project Reference:	LTC20265	
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APPENDIX A: LandTech Site Test Plan
APPENDIX B: Environment Canterbury Well Logs
APPENDIX C: Test Pit Logs
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1.0 Introduction

1.1 Project Brief

LandTech Consulting Ltd. (LandTech) were engaged by Goulds Development Limited (the Client) to carry out a geotechnical investigation at Lincoln Rolleston Road, Rolleston (the Site). The geotechnical investigation is in relation to the proposal to change the land use within the investigated area.

The geotechnical investigation has been carried out to determine a geological model of the site, qualitatively assess the future land performance (i.e. during seismic events) and provide preliminary recommendations for site development.

This geotechnical report summarises the findings of our investigation and assessment. It includes a preliminary geotechnical assessment of the site, and may be used to support the land use change application to the Selwyn District Council (SDC). This report is not intended to support the subdivision application, individual house design or corresponding Building Consents, and further testing will be needed to address these applications.

1.2 Scope of Works

The geotechnical investigation for the proposed development included the following:

- Review of the New Zealand Geotechnical Database (NZGD) and other relevant geological/ geotechnical data;
- Detailed walkover inspection;
- Intrusive field investigation (i.e. test pits and insitu strength testing);
- Collation of field data and drafting;
- Geotechnical assessment;
- Provision of preliminary recommendations for development; and
- Preparation of this geotechnical report, detailing all of the above.

2.0 Site & Project Description

The investigation site is located on the corner of Lincoln Rolleston Road and Nobeline Drive in Rolleston. The site is indicated in Figure 1 below, an is located approximately 1.7km to the south east of the Rolleston Township. The site comprised four existing lots and the southern end of a property accessed from Levi Road to the North. Legal Descriptions of properties within the investigation site are given below in Table 1.



Figure 1: Aerial photograph of investigation site (source: https://mapviewer.canterburymaps.govt.nz/, accessed 29 September 2020)

The five properties are generally flat and are currently used primarily for grazing and horse training. Some young and mature hedge rows are located along property boundaries. A dwelling and associated sheds are located within 232 Lincoln Rolleston Road. The land is essentially flat with some very minor changes in elevations and undulations indicative of historic river channels located near the northern corner.

Table 1: Summary of legal descriptions for the investigation site

Mapped Street Address	Legal Description	Survey Area (Ha)
232 Lincoln Rolleston Road	LOT 3 DP 67190 BLK III LEESTON SD	3.38
5 Nobeline Drive	Lot 7 DP 483709	4.08
15 Nobeline Drive	Lot 8 DP 483709	4.06
25 Nobeline Drive	Lot 9 DP 483709	4.04
***Portion of* 139 Levi Road**	LOT 2 DP 416195 LOT 5 DP 322710	apx. 2.43 of 30.43
		Total ≈18.00ha

Table Notes: Legal Descriptions and area's sourced from Canterbury Maps Viewer, weblink: https://mapviewer.canterburymaps.govt.nz/, accessed 30 September 2020

3.0 Area Geology

Reference has been made to the *New Zealand Geology Web Map*, GNS Science, http://data.gns.cri.nz/geology/, website accessed 30 September 2020. The reviewed sources indicate that the site is underlain by Holocene Aged River Deposits. These materials generally comprise rounded to subrounded gravel and cobble sized particles within a matrix of silt and sand, deposited via the lateral and vertical migration of the past and present river systems, from the Southern Alps, out toward the east coast. Due to the depositional environment, the geotechnical characteristics of this material can be variable.

The characteristics of the River Deposits can vary widely over small distances. These variances include vertical and horizontal differences in both soil particle size distribution and consolidation. It is discussed above that these materials generally comprise gravel and cobbles; however, interbedded horizons of fine to coarse grained sand, silt and clay can also exist. They can also be capped by loessal soils or finer grained silts and sands.

3.1 Faults in Canterbury

For the purpose of our investigation we have referred to a Selwyn District earthquake fault report compiled by GNS Science and Environment Canterbury (ECan). The referenced report is titled:

- *General distribution and characteristics of active faults and folds in the Selwyn District, North Canterbury*, GNS Science and Environment Canterbury, dated July 2013.

The reference report gives a general outline of the nature of geologically active areas within the Selwyn District. Figure 6 in the referenced report indicates that the investigation site is located within 10km of the mapped Greendale Fault, to the northwest.

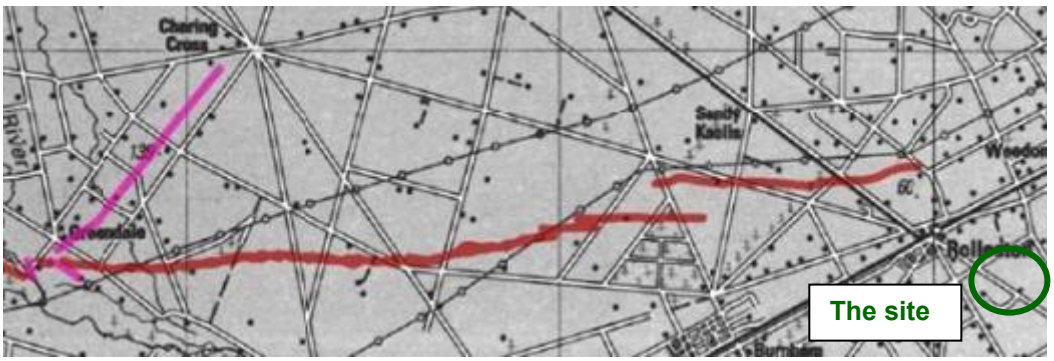


Figure 2: shows excerpt from figure A.1e of the referenced report (red line is a definite or likely fault).

The Greendale Fault and associated blind faults of the Darfield earthquake sequence have been defined by GNS Science via field inspection, aerial photograph interpretation and regional geologic mapping. The reference source indicates that these faults were unknown prior to 2010 and the ages of previous ruptures are also not known. This leave the potential for further unmapped faults to exist within the locality of the investigation site.

4.0 Geotechnical Data Review

Reference has been made to sources including the New Zealand Geotechnical Database (NZGD): http://www.nzgd.org.nz/ and Environment Canterbury (ECan): http://canterburymaps.govt.nz/ (accessed 21 September 2020). The following text summaries the findings of our data review:

- The MBIE *Residential Foundation Technical Category* Map indicates the site is located within an area designated as N/A - Rural and Unmapped. This indicates that normal consenting procedures apply.

- According to Canterbury Maps there are a series of Ecan wells within close proximity to the site. The associated bore logs for the following ECan wells have been reviewed and are attached with Appendix B:
  - M36/0328, drilled to 28.6m and located with 232 Lincoln Rolleston Rd site. The borelog for the well shows earth and clay to 1.2m depth underlain by claybound to rough sandy gravel to the drill depth. Water levels from 1989, indicate a groundwater level of between 13.5m and 14.3m below ground level.

  - MX23/0620, drilled to 48.0m and located at the eastern corner of the site. The borelog for the well shows topsoil to 0.3m depth underlain by light brown gravelly clay or sandy gravel to the drill depth. Ground water levels are indicated at 13.0m ground level.

  - M36/4894, drilled to 34.0m and located to the west of the site across Lincoln Rolleston Road. The borelog for the well shows topsoil and clay to 0.6m depth underlain by sandy gravel or claybound gravel to the drill depth. Initial groundwater levels are indicated at 12.0m ground level.

- According to the Environment Canterbury Soil Type map, the site is mapped as either comprising a *Typic Immature Plallic Soils* with a moderately deep silty loam or *Typic Immature Plallic Soils* with a deep silty loam. Both soil types are described as having *moderate over slow* permeability.

- Eastern Canterbury Liquefaction susceptibility (2012), shows the site is located within an area were *Liquefaction damage is unlikely.*

- A review of historical photograph of the site from between 1940 and 2004 has been carried out on Canterbury Maps. Imagery from 1940 to 1944 (shown overleaf in Figure 3), shows evidence of paleo river channels near the northern corner of the site, it is possible additional channels are present within the investigation site. Some historic infilling of these paleo channels could have taken place as part of farming activities. However, our investigation found limited evidence of filling having taken place across the general subdivision site.



Figure 3: Aerial photograph of investigation site (source: https://mapviewer.canterburymaps.govt.nz/, accessed 07 September 2020)

5.0 Field Investigation

Our field investigation took place on 21 September 2020 and comprised the following components:

- Detailed walkover inspection;
- Excavation of Six test pits (TP01 – TP06) and associated Scala penetrometer testing; and
- Soakage testing (ST01) within TP02.

Each test was positioned evenly across the site away from infrastructure and animals, test locations are shown on the LandTech *Site Test Plan*, Drawing No. LTC20265/ 1, (attached in Appendix A). The positions have been located via a hand-held GPS without survey control and are therefore approximate only.

The soil conditions encountered within the hand augerholes and test pits were logged by LandTech field staff in accordance with New Zealand Geotechnical Society *Guideline for the Description of Soil and Rock for Engineering Purposes* (2005). The test pit logs and corresponding photographs are attached in Appendix B, while the hand augerhole logs are within Appendix C.

The undrained shear strength of the fine-grained soils was recorded where applicable using a Geovane hand held shear vane in accordance with the NZGS *Guideline for Hand Held Shear Vane Test*, published August 2001. The peak and remoulded vane shear strength values have been factored in terms of BS1377.

Dynamic Cone (Scala) Penetrometer testing was carried out near the test pit locations to determine a soil density profile. Testing procedures were in accordance with NZS 4402:1988, Test 6.5.2, *Dynamic Cone Penetrometer*. The test results are shown on test pit logs.

Soakage testing was carried out in general accordance with the Auckland City Soakage Design Manual, worksheet W1: Falling-head Percolation Test. That being the change in water depth against time was recorded. A slight modification for the diameter of the holes has been made with a simple area conversion from a rectangle to a circle to give an equivalent diameter.

6.0 Subsurface Conditions

The sites subsurface conditions generally comprised a surficial layer of topsoil underlain by a sequence of Alluvial / Loess deposits followed by River Deposits. This is consistent with the geology described in Section 3.0 (Area Geology). A subsurface summary is given in Table 2 and detailed descriptions are given in the subsequent sections.

Table 2: Subsurface summary

Test pit ID	Test Pit Depth	Topsoil Depth	Soil Depth	Scala Depth
TP01	2.8	0.2	0.6	0.6
TP02	2.8	0.2	1.2	1.3
TP03	2.6	0.3	0.8	0.8
TP04	2.8	0.3	0.9	1.0
TP05	2.7	0.2	0.7	1.2
TP06	2.6	0.3	0.5	0.6

Table notes: Measurements are in metres (m) below present ground level
Scala penetrometer refusal considered when an excess of 20 blows /100mm penetration occurs

6.1 Topsoil

Topsoil was encountered from the surface at all test locations and ranged between the depths of 0.2m and 0.3m below present ground level (bpgl). This mostly comprised dark brown silt with minor fractions of fine to coarse grained sand. The topsoil is not considered suitable for the support of building foundations.

6.2 Alluvial / Loess Deposits

Soil deposits comprising either alluvial soils or loessal soils where present above the river deposits at depth. The depth of these soils ranged from between 0.5m (TP06) and 1.2m (TP02) below ground level, and typically comprised a moist fine sandy silt.

Scala penetrometer testing within the soils ranged from 1 and 20 Blows / 100mm penetration. Higher blow counts may be due to gravels within the soil at the test location. Typically the Scala blow counts ranged from between 1 and 6 Blows / 100mm of penetration indicating a loose to medium dense soil.

Where possible shear vane testing was carried out, peak shear vane testing ranged from between 107kPa and 187+kPa indicating a very stiff soil.

6.3 River Deposits

River Deposits were encountered below the surficial layer of sandy silts to the termination depth of all test locations (TP01 – TP06). The River Deposits generally comprised fine to coarse sandy, fine to coarse subrounded gravel. The gravel deposits where described as wet near the refusal depths in some of the tests, while larger cobbles were also encountered.

Scala penetrometer testing was unable to penetrate the gravels with refusal typically being achieved in contact with the underlying gravels.

6.4 Soakage

The soakage capacity of the gravel was tested within TP02; the location of the test pits are shown on the LandTech *Site Test Plan*, Drawing No. LTC20265/ 1 (attached in Appendix A). The results of the soakage testing are attached in Appendix C.

The results of the calculated average soakage rates are shown in Table 3 below:

Table 3: Average soakage rates

	SP01 / TP06
Average Soak Rate (mm/hour)	1836
Percolation Rate (L/m^2/min)	13

6.5 Site Seismicity

For the purpose of applying requirements of NZS 1170.5:2004 the site subsoil is Class D – Deep or Soft Soil Site. This classification is based on depths of soil exceeding the limits of Table 3.2 of the reference standard. seismic hazard factor (Z) for the site is 0.3 as per the standard.

7.0 Qualitative Liquefaction Analysis

The MBIE & New Zealand Geotechnical Society Inc. report titled *Earthquake geotechnical engineering practice, Module 3: Identification, assessment and mitigation of liquefaction hazards* (2016) explains that the evaluation of the geologic susceptibility of liquefaction is a key aspect in the evaluation of liquefaction potential at a given site.

Based on our desktop study and field investigation, we have established that the site is generally underlain by Holocene Age horizons of tightly packed gravel (i.e. River Deposits) with groundwater average ground water levels of around 13.0m. In addition to this ECan (2012) liquefaction susceptibility maps has indicated that the site is unlikely to be damaged via earthquake induced liquefaction.

The region comprises a rural/unmapped Residential Foundation Technical Category (based on MBIE); however, is considered an area that is not likely to be susceptible to liquefaction induced damage. This is based on the geology underlying the site (i.e. Holocene Aged River Deposits), the previously referenced reports and maps, and our qualitative liquefaction assessment.

Based on our assessment of the investigation site, we are categorising existing property as Technical Category 1 (TC1) with damaging liquefaction unlikely and consider the site suitable for residential development from a geotechnical perspective.

8.0 Geotechnical Hazard Evaluation

Section 106 of the Resource Management Act 1991 outlines hazards that must be assessed when a territorial authority considers subdivision of land. This section outlines our evaluation of possible geotechnical hazards associated with this site. Based on the results of our investigation and assessment, we consider this site suitable for land use change to residential zoning from a geotechnical perspective.

8.1 Erosion

The surface of the property is near level to undulating with no general contour/runoff direction. During our field investigation, we did not observe any obvious signs of erosion from concentrated surface runoff. Furthermore, we do not consider the proposed site development will increase the erosion potential provided stormwater is disposed of in a controlled manner subject to usual Council Consenting procedures.

8.2 Inundation

Assessment for inundation from flooding is not a part of the scope of this report and therefore has not been fully assessed. A basic review online mapping available from CanterburyMaps has been carried out and no information for the site was evident. If required an assessment should be carried out by suitably experienced consultant.

8.3 Subsidence

It is discussed in previous sections of this report, liquefaction is not likely to occur within the investigation site. This is due to the shallow depth to gravel and gravelly sand layers (between 0.5m and 1.2m below the site) and the ECan well logs indicating that groundwater in the area is at an average of around 13.0m below ground level.

This means that corresponding liquefaction induced subsidence is unlikely, as per the site performance through the CES. Foundation settlements are also considered unlikely due to the dense nature of the subsoils. This is provided in our recommendations given further herein are followed regarding further investigation, foundation design and construction.

8.4 Falling Debris

No tall standing slopes exist in the vicinity of the investigation site, therefore falling debris hazard is non-existent.

8.5 Slippage

Due to the site being near level to gently undulating, it's removed location from any major waterways, and inferred non-liquefiable nature of the underlying subsoils, slippage via liquefaction-induced lateral spreading is not considered to affect the subdivision site. No other geotechnical mechanism of slippage was noted during out field investigation or from our assessment.

8.6 Contamination

Whilst not a requirement of Section 106 of the RMA 1991, soil contamination is a potential geotechnical hazard that should be considered when making Consent applications to territorial authorities where ground disturbance works are proposed (i.e. foundation excavations etc.).

We have made reference to the ECan Listed Land Use Register (LLUR), that a Detailed Site Investigation has taken place with 5 Nobeline Drive. A copy this report is available upon request from https://llur.ecan.govt.nz/ .

The remaining sites have no recorded information registered against them. This indicates no HAIL activities are recorded to have taken place at the site, according to the register. This does not confirm the site has no soil contamination, but only indicates the Regional Council does not have records of potentially hazardous activities taking place the site that could lead to soil contamination.

9.0 Geotechnical Recommendations

It is stated in the previous sections that the site has been classified as TC1; based on our desktop study, the underlying geology and qualitative liquefaction assessment. Following our assessment, we consider the site suitable land use change to residential zoning from a geotechnical perspective. Our recommendations with regard to site development and preliminary foundation design follow subsequently.

9.1 Preliminary Foundation Recommendations

Due to the low risk of liquefaction at the subdivision we have classified the investigation site as TC1, and conclude the River Deposits beneath any surficial soils meet the criteria for “good ground” as defined by NZS3604:2011. Some areas of weak upper surficial soils may require foundations to be subject to specific engineering design due to low bearing capacities. Alternatively, earthworks during subdivision may compact any weak upper layers so standard foundations can be utilised without engineering design input. The extent of any weak upper soils can be determined with further shallow soil testing as part of the subdivision design/consenting stage.

9.2 Preliminary Earthwork Recommendations

All proposed earthworks will need to be carried out to the requirements of NZS 4431:1989, ‘Code of Practice for Earthfilling for Residential Development’. All unsuitable materials (vegetation, organic or detritus material, and organic rich topsoil etc.) should be stripped from any areas of earthworks and stockpiled well clear of operations or carted from the site.

10.0 Future Geotechnical Involvement

Should the land use change be approved and a subdivision plan be made, a more detailed geotechnical investigation will be required to more accurately identify areas of deep alluvial soils and provided further geotechnical recommendations for the subdivision development.

Dependent on the extent of earthworks during the subdivision stage and involvement from a geo-professional to observe areas of stripped ground and fill compaction, additional lot specific shallow soil testing may be required. The results of which may supersede our preliminary foundation recommendations if the test results differ to our area wide investigation. However, the risk of differing ground conditions is considered to be low, due to the relatively uniform presence of dense river gravels throughout the general Rolleston area. Potential variations could be from deeper areas of surficial alluvial soils or localised uncontrolled filling in the past.

11.0 Limitations

This geotechnical report has been prepared for our Client, Goulds Investment Limited, for the purposes of supporting a Land Use Change application to the Selwyn District Council. This report shall not be extrapolated for other nearby sites or used for any other purposes without the express approval of LandTech and their Client.

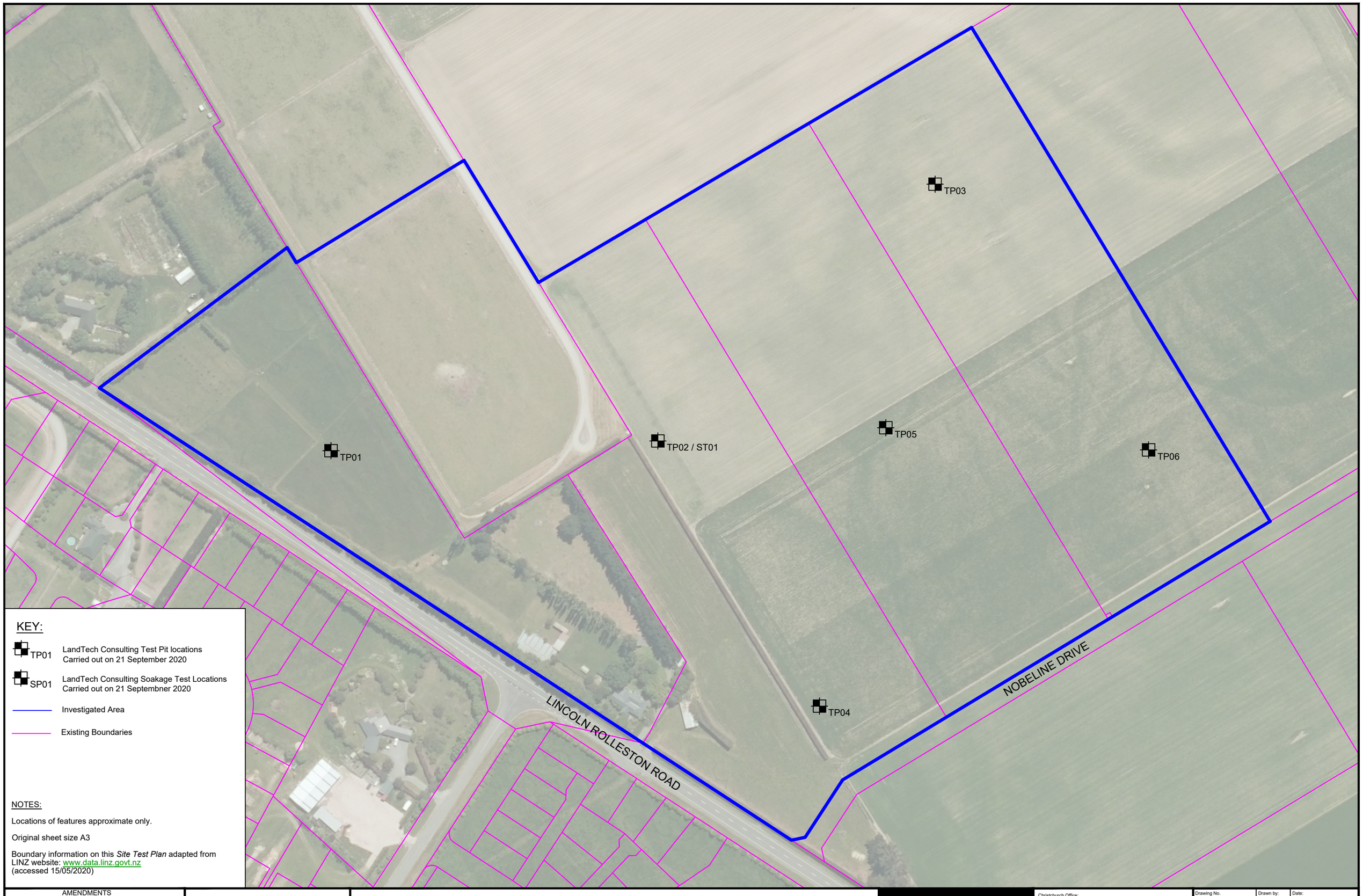
This report has been based on the results of tests at point locations; therefore, subsurface conditions could vary away from the assumed geotechnical model. Should exposed soil conditions vary from those described herein we request to be informed to determine the continued applicability of our recommendations. We have attempted to conduct a thorough investigation of soil types across the site, within the agreed scope of works. However, variations still may exist as soils can vary naturally and due to previous human activities, which LandTech have no control over and should not be held accountable for.

The geotechnical investigation was confined to geotechnical aspects of the site only and did not involve the assessment for environmental contaminants. In addition, our investigation and analyses have also not taken into account possible fault rupture that may cause deformations and displacements of the ground directly below the site. This type of assessment is outside of the scope of our geotechnical engagement.

END OF REPORT

APPENDIX A

LandTech Site Test Plan



KEY:

- TP01 — LandTech Consulting Test Pit locations Carried out on 21 September 2020
- SP01 — LandTech Consulting Soakage Test Locations Carried out on 21 Septembner 2020
- Investigated Area
- Existing Boundaries

NOTES:

Locations of features approximate only.

Original sheet size A3

Boundary information on this *Site Test Plan* adapted from LINZ website: www.data.linz.govt.nz (accessed 15/05/2020)

AMENDMENTS

DATE	REV	DESCRIPTION
30/09/2020	A	Test Plan

Check all dimensions and levels on site before commencing construction.

This drawing and design remains the property of LandTech Consulting Ltd. and may not be reproduced without approval and permission from LandTech Consulting Ltd.

Lincoln Rolleston Road

ROLLESTON

LandTech CONSULTING

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Unit 6, 31 Carlyle Street, Sydenham, Christchurch 8023

Auckland Office:
17 Nils Andersen Road, Whenuapai, Auckland 0618

Postal Address:
PO Box 119, Christchurch 8013

Website: www.landtech.nz Email: info@landtech.nz

Drawing No.	Drawn by:	Date:
LTC20265/1	L C	30 September 2020
Scale: 1: 2000 (A3)	Checked by: D W	Revision: A

Filename: LTC20264 - Drawings.dwg

APPENDIX B

Environment Canterbury Well Logs

canterbury maps

Canterbury Maps

Information has been derived from various organisations, including Environment Canterbury and the Canterbury Maps partners. Boundary information is derived under licence from LINZ Digital Cadastral Database (Crown Copyright Reserved). Environment Canterbury and the Canterbury Maps partners do not give and expressly disclaim any warranty as to the accuracy or completeness of the information or its fitness for any purpose.

Information from this map may not be used for the purposes of any legal disputes. The user should independently verify the accuracy of any information before taking any action in reliance upon it.

N

0 0.07 0.14 0.21 0.28 Kilometres

Scale: 1:5,000 @A3

Map Created by Canterbury Maps on 12/10/2020 at 12:49 PM

M36/4839
M36/4743
M36/8287
M36/4430
M36/0127
M36/4427
M36/3036
644
M36/7766
618
M36/8240
61
M36/0254
M36/8518
BX23/0827
BX23/0508
M36/5292
M36/4870
M36/4865
M36/0328
BX23/0528
BX23/0420
BX23/0571
BX23/0620
M36/5359
BX23/0648
BX23/0618
M36/4894
Levi Rd
Lincoln Rolleston Rd
Reuben Ave
Lunn Ave
Rory St
Branthwaite Dr
Falcon Rd
Gerda Ave
Nobelline Dr

Environment Canterbury, Land Information New Zealand, GNS Science, Te Rūnanga o Ngāi Tahu, Department of Conservation, New Zealand Archaeological Association, Environment Canterbury, Canterbury Maps Partners, Open Street Maps, Environment Canterbury

APPENDIX C

Test Pit Logs

LandTech CONSULTING	Client: Gould Developments Limited Project: Geotechnical Investigation for Proposed Land Use Change Address: Lincoln Rolleston Road, Rolleston	Test Pit No.	TP01
		Sheet No.	1 of 1

Drill Type:	6T Hydraulic Excavator	Project No:	LTC20265	Logged By:	L Challies
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1552067 N5172037	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (03-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T.SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS	0.5		Fine sandy SILT, yellowish light brown, very stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	1.0		Fine to coarse sandy, sub rounded GRAVEL, minor silt, brown, dense, moist [RIVER DEPOSITS]
	1.5		trace cobbles, very dense
	2.0		
	2.5		
	3.0		End of Test Pit 2.8m [TARGET DEPTH]
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m): Not Encountered (21-Sep-20)

In-situ Field Testing

Shear Strength (kPa) — Peak: / Remoulded: — 0

Dynamic Cone Penetrometer Depth (m)	Blow Count	Scala Blow Count / 100mm
-0.1	2	
-0.2	2	
-0.3	2	
-0.4	3	
-0.5	5	
-0.6	13	
-0.7	18	
-0.8	18	
-0.9	7	
-1.0	8	
-1.1	15	
-1.2	20 +	
-1.3		
-1.4		
-1.5		
-1.6		
-1.7		
-1.8		
-1.9		
-2.0		
-2.1		
-2.2		
-2.3		
-2.4		
-2.5		
-2.6		
-2.7		
-2.8		
-2.9		
-3.0		
-3.1		
-3.2		
-3.3		
-3.4		
-3.5		
-3.6		
-3.7		
-3.8		
-3.9		
-4.0		
-4.1		
-4.2		
-4.3		
-4.4		
-4.5		
-4.6		
-4.7		
-4.8		
-4.9		
-5.0		

In-situ field testing in accordance with the following Standards:

Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer

Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

LandTech Consulting Ltd. (Christchurch): Unit 6, 31 Carlyle Street, Sydenham
LandTech Consulting Ltd. (Auckland): 17 Nils Andersen Road, Whenuapai
Phone: (03) 390 1371
Phone: (09) 930 9334
Email: info@landtech.nz
Website: www.landtech.nz

LandTech CONSULTING

Client:	Gould Developments Limited	Test Pit No.	TP02
Project:	Geotechnical Investigation for Proposed Land Use Change		
Address:	Lincoln Rolleston Road, Rolleston	Sheet No.	1 of 1

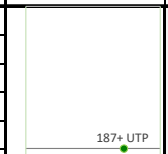
Drill Type:	6T Hydraulic Excavator	Project No:	LTC20265	Logged By:	L Challies
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1552266 N5172044	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (03-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T.SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS	0.5		Fine sandy SILT, yellowish light brown, very stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	1.0		
	1.5		Fine to coarse sandy, sub rounded GRAVEL, minor silt, brown, dense, moist [RIVER DEPOSITS]
	2.0		trace subrounded to round boulders, wet
	2.5		
	3.0		End of Test Pit 2.8m [TARGET DEPTH]
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m): Not Encountered (21-Sep-20)

In-situ Field Testing

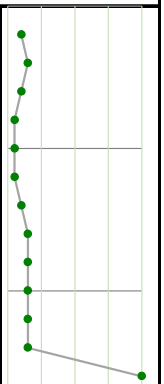
Shear Strength (kPa) — Peak: / Remoulded: — 150 200



Dynamic Cone Penetrometer

Depth (m)	Blow Count
-0.1	2
-0.2	3
-0.3	2
-0.4	1
-0.5	1
-0.6	1
-0.7	2
-0.8	3
-0.9	3
-1.0	3
-1.1	3
-1.2	3
-1.3	20 +

Scala Blow Count / 100mm — 0 5 10 15 20



In-situ field testing in accordance with the following Standards:

Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer

Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

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LandTech Consulting Ltd. (Auckland): 17 Nils Andersen Road, Whenuapai — Phone: (09) 930 9334 — Website: www.landtech.nz

LandTech CONSULTING	Client: Gould Developments Limited Project: Geotechnical Investigation for Proposed Land Use Change Address: Lincoln Rolleston Road, Rolleston	Test Pit No.	TP03
		Sheet No.	1 of 1

Drill Type:	6T Hydraulic Excavator	Project No:	LTC20265	Logged By:	L Challies
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1552434 N5172199	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (21-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T. SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS	0.5		Fine sandy SILT, yellowish light brown, very stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	1.0		Fine to coarse sandy, sub rounded GRAVEL, minor silt, brown, dense, moist [RIVER DEPOSITS]
	1.5		trace subrounded to round boulders, wet
	2.0		
	2.5		
	3.0		End of Test Pit 2.6m [TARGET DEPTH]
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m): Not Encountered (21-Sep-20)

In-situ Field Testing

Shear Strength (kPa)

Peak:

Remoulded:

150 200

187+ UTP

Dynamic Cone Penetrometer

Depth (m)	Blow Count
-0.1	2
-0.2	2
-0.3	3
-0.4	3
-0.5	3
-0.6	8
-0.7	21
-0.8	25+
-0.9	
-1.0	
-1.1	
-1.2	
-1.3	
-1.4	
-1.5	
-1.6	
-1.7	
-1.8	
-1.9	
-2.0	
-2.1	
-2.2	
-2.3	
-2.4	
-2.5	
-2.6	
-2.7	
-2.8	
-2.9	
-3.0	
-3.1	
-3.2	
-3.3	
-3.4	
-3.5	
-3.6	
-3.7	
-3.8	
-3.9	
-4.0	
-4.1	
-4.2	
-4.3	
-4.4	
-4.5	
-4.6	
-4.7	
-4.8	
-4.9	
-5.0	

Scala Blow Count / 100mm

0 5 10 15 20

In-situ field testing in accordance with the following Standards:

Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer

Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

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Phone: (03) 390 1371
Phone: (09) 930 9334
Email: info@landtech.nz
Website: www.landtech.nz

LandTech CONSULTING

Client: Gould Developments Limited
Project: Geotechnical Investigation for Proposed Land Use Change
Address: Lincoln Rolleston Road, Rolleston

Test Pit No. TP04
Sheet No. 1 of 1

Drill Type:	6T Hydraulic Excavator	Project No:	LTC20265	Logged By:	L Challies
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1552364 N5171882	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (21-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T. SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS	0.5		Fine sandy SILT, yellowish light brown, stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	1.0		Fine to coarse sandy, sub rounded GRAVEL, minor silt, brown, dense, moist [RIVER DEPOSITS]
	1.5		trace subrounded to round boulders, wet
	2.0		
	2.5		
	3.0		End of Test Pit 2.8m [TARGET DEPTH]
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m): Not Encountered (21-Sep-20)

In-situ Field Testing

Shear Strength (kPa) — Peak: — Remoulded: ·

Dynamic Cone Penetrometer

Depth (m)	Blow Count
-0.1	2
-0.2	2
-0.3	4
-0.4	2
-0.5	4
-0.6	12
-0.7	20
-0.8	14
-0.9	14
-1.0	20+

Scala Blow Count / 100mm (0 5 10 15 20)

In-situ field testing in accordance with the following Standards:
Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer
Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

LandTech Consulting Ltd. (Christchurch): Unit 6, 31 Carlyle Street, Sydenham
LandTech Consulting Ltd. (Auckland): 17 Nils Andersen Road, Whenuapai
Phone: (03) 390 1371
Phone: (09) 930 9334
Email: info@landtech.nz
Website: www.landtech.nz

LandTech CONSULTING	Client: Gould Developments Limited Project: Geotechnical Investigation for Proposed Land Use Change Address: Lincoln Rolleston Road, Rolleston	Test Pit No.	TP05
		Sheet No.	1 of 1

Drill Type:	6T Hydraulic Excavator	Project No:	LTC20265	Logged By:	L Challies
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1552405 N5172052	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (21-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T. SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS	0.5		Fine sandy SILT, yellowish light brown, stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	1.0		Fine to coarse sandy, sub rounded GRAVEL, minor silt, brown, dense, moist [RIVER DEPOSITS]
	1.5		trace subrounded to round boulders
	2.0		
	2.5		wet
	3.0		End of Test Pit 2.7m [TARGET DEPTH]
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m): Not Encountered (21-Sep-20)

In-situ Field Testing

Shear Strength (kPa)

Peak:

Remoulded:

150 200

187+ UTP

Depth (m)	Blow Count
-0.1	2
-0.2	2
-0.3	3
-0.4	5
-0.5	6
-0.6	6
-0.7	6
-0.8	7
-0.9	7
-1.0	10
-1.1	18
-1.2	20+
-1.3	
-1.4	
-1.5	
-1.6	
-1.7	
-1.8	
-1.9	
-2.0	
-2.1	
-2.2	
-2.3	
-2.4	
-2.5	
-2.6	
-2.7	
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-2.9	
-3.0	
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-3.2	
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-3.5	
-3.6	
-3.7	
-3.8	
-3.9	
-4.0	
-4.1	
-4.2	
-4.3	
-4.4	
-4.5	
-4.6	
-4.7	
-4.8	
-4.9	
-5.0	

Dynamic Cone Penetrometer

Scala Blow Count / 100mm

0 5 10 15 20

In-situ field testing in accordance with the following Standards:

Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer

Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

LandTech Consulting Ltd. (Christchurch): Unit 6, 31 Carlyle Street, Sydenham
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Phone: (03) 390 1371
Phone: (09) 930 9334
Email: info@landtech.nz
Website: www.landtech.nz

LandTech CONSULTING	Client: Gould Developments Limited Project: Geotechnical Investigation for Proposed Land Use Change Address: Lincoln Rolleston Road, Rolleston	Test Pit No.	TP06
		Sheet No.	1 of 1

Drill Type:	6T Hydraulic Excavator	Project No:	LTC20265	Logged By:	L Challies
Drilled By:	BM Contracting	Coordinates:	NZTM2000 E1552565 N5172038	Shear Vane No:	2255
Date Started:	21-Sep-20	Ground Conditions:	Near level, grass	Calibration Factor:	1.333
Date Finished:	21-Sep-20	Groundwater Level (m):	Not Encountered (21-Sep-30)	Calibration Date:	16-Mar-20

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
T. SOIL	0.0		SILT, some fine sand, dark brown, stiff, moist, non-plastic, trace organics and rootlets [TOPSOIL]
ALLUVIAL DEPOSITS	0.5		Fine sandy SILT, yellowish light brown, stiff, moist, non-plastic [ALLUVIAL DEPOSITS / LOESS]
	1.0		Fine to coarse sandy, sub rounded GRAVEL, minor silt, brown, dense, moist [RIVER DEPOSITS]
	1.5		trace subrounded to round boulders
	2.0		
	2.5		
	3.0		End of Test Pit 2.6m [TARGET DEPTH]
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m): Not Encountered (21-Sep-20)

In-situ Field Testing

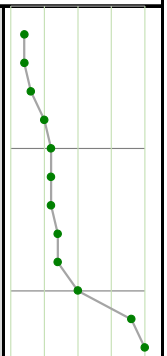
Shear Strength (kPa)



Dynamic Cone Penetrometer

Depth (m)	Blow Count
-0.1	2
-0.2	2
-0.3	3
-0.4	5
-0.5	6
-0.6	6
-0.7	6
-0.8	7
-0.9	7
-1.0	10
-1.1	18
-1.2	20+
-1.3	
-1.4	
-1.5	
-1.6	
-1.7	
-1.8	
-1.9	
-2.0	
-2.1	
-2.2	
-2.3	
-2.4	
-2.5	
-2.6	
-2.7	
-2.8	
-2.9	
-3.0	
-3.1	
-3.2	
-3.3	
-3.4	
-3.5	
-3.6	
-3.7	
-3.8	
-3.9	
-4.0	
-4.1	
-4.2	
-4.3	
-4.4	
-4.5	
-4.6	
-4.7	
-4.8	
-4.9	
-5.0	

Scala Blow Count / 100mm



In-situ field testing in accordance with the following Standards:

Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer

Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

LandTech Consulting Ltd. (Christchurch): Unit 6, 31 Carlyle Street, Sydenham
LandTech Consulting Ltd. (Auckland): 17 Nils Andersen Road, Whenuapai
Phone: (03) 390 1371
Phone: (09) 930 9334
Email: info@landtech.nz
Website: www.landtech.nz

APPENDIX C

Soakage Test Results

	Client:	Goulds Development Limited	
	Project:	Proposed Land Use Change	
	Address:	Lincoln Rolleston Road, Rolleston	
Test Type:	On-site soakage test	Project No:	LTC20265
Tested By:	L Challies	Test Date:	21-Sep-20

Test ID:	TP02/SP01	Test ID:	
Coordinates:	NZTM2000 E1552266 N5172044	Coordinates:	
Groundwater level:	Not Encountered	Groundwater level:	
Method:	In accorandance with W1: Falling-head percolation Test of the Auckland soakage design manual	Method:	

Test Pit Dimensions

2	m	length
1	m	wide
1.60	m	equivalent diameter

1) Test Details

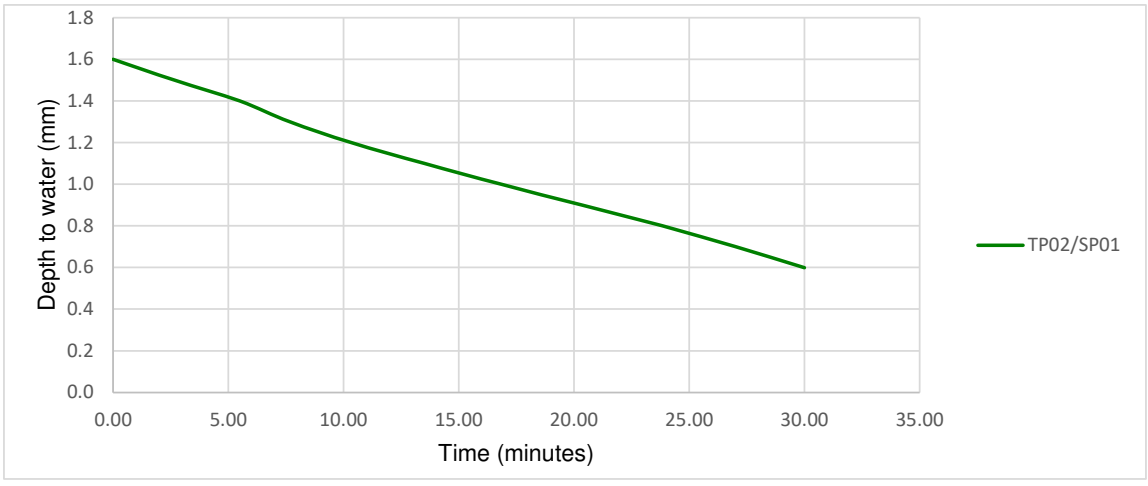
Time (Sec)	Time (min)	Depth (m)	Soak Rate (m/min)
0	0.00	1.6	-
160	2.67	1.5	0.038
330	5.50	1.4	0.035
460	7.67	1.3	0.046
620	10.33	1.2	0.038
810	13.50	1.1	0.032
1010	16.83	1.0	0.030
1220	20.33	0.9	0.029
1430	23.83	0.8	0.029
1620	27.00	0.7	0.032
1800	30.00	0.6	0.033

2) Calculate Minimum Gradient

0.03	m/min	1836	mm/h

3) Calculate percolation rate

13	L/m2/min
771	L/m2/hr



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Appendix C

Figure 19-5 SDC's 5Waters

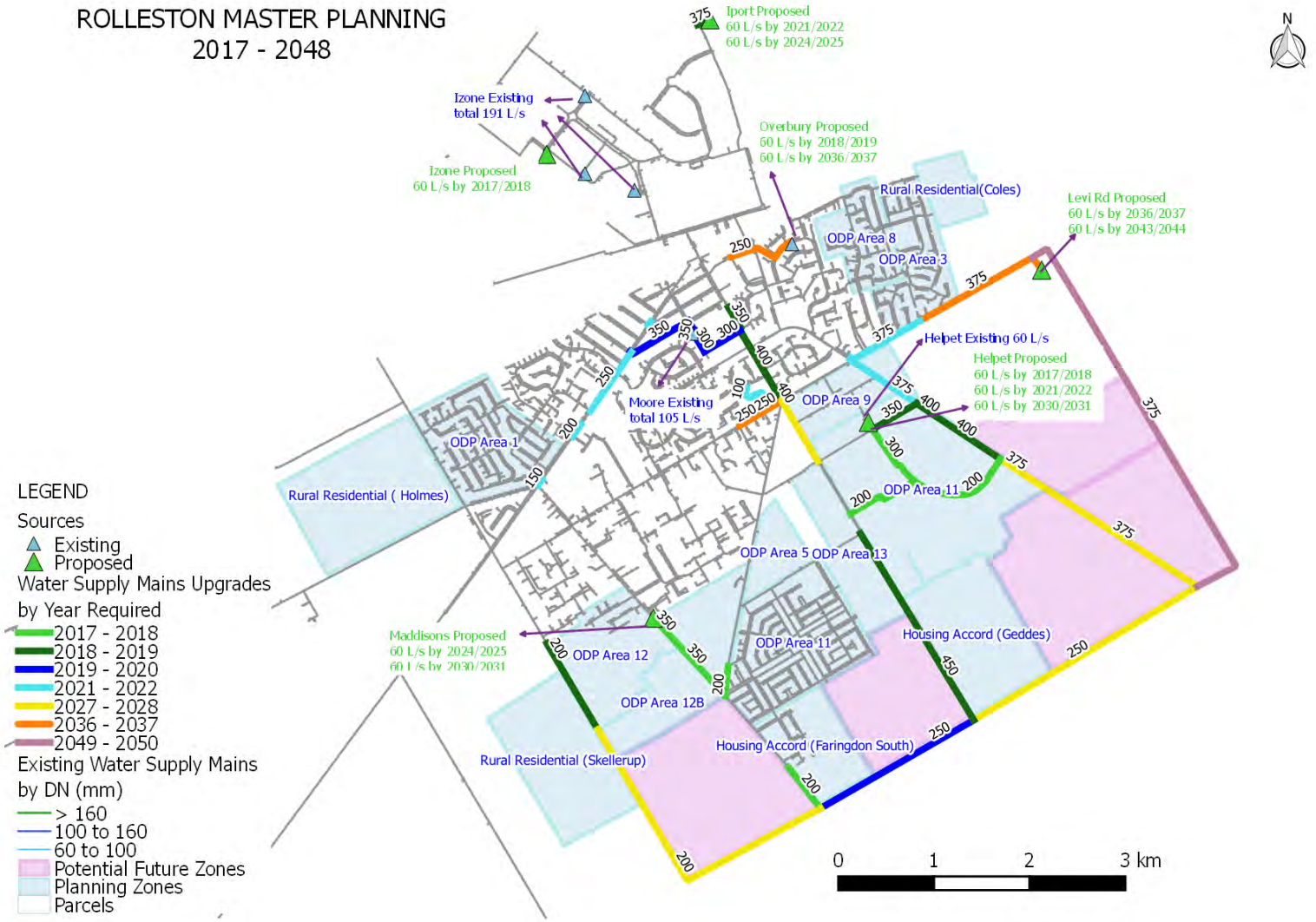


Figure 19-5 Rolleston Master Plan

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Appendix D

Rolleston Stormwater Report

Briefing Paper

Comparison of Rolleston Stormwater Runoff Quality with Other Data

Authors: Ingrid Cooper – Pattle Delamore Partners
Ben Throssell – Pattle Delamore Partners
Andrew Brough – Pattle Delamore Partners
Sampling/Review: Murray England – Selwyn District Council

Introduction

Pattle Delamore Partners Limited (PDP) has been commissioned by Selwyn District Council (SDC) to report on the monitoring carried out on the 18th January 2011 at Vasari Grange and Izone during a rainfall event. Four stormwater samples were collected at each site throughout the rainfall event, the samples were analysed at Hill Laboratories for suspended solids, heavy metals - total and dissolved, nitrogen, phosphorous, E. coli and total petroleum hydrocarbons (TPHs). The samples were collected at two hourly intervals after approximately, 0.6 mm, 3.5 mm, 8.0 mm and 16.0 mm of rainfall. SDC also required that the results be compared with generic stormwater data.

Vasari Grange

Vasari Grange is a 27 lot residential subdivision in Rolleston township. Grab samples of stormwater flow in a kerb and channel comprising road and driveway runoff was collected 4 times throughout a rainfall event. The area of the road catchment from which the samples were taken is approximately 1110 m^2. In addition there would have been some runoff from driveways and footpaths at the front of properties. The concentrations of determinands found in the samples are shown in Table 2 (attached) along with stormwater monitoring results from other sites to allow for comparison of values. Reported results for Vasari Grange and Izone are maximum concentrations from the four samples taken during the First Flush (FF). It should be noted that other results are Event Mean Concentrations (EMC) and it is likely that EMC will under estimate the FF concentration.

Figure 1 shows the normalised concentrations for determinands in the Vasari Grange samples. Normalised concentrations were obtained by dividing each of the four concentrations by the maximum respective concentration recorded. Figure 1 shows that the first sample (after 0.6 mm of rainfall) contained the highest concentrations for all determinands. The second highest concentrations were generally recorded in the third sample whilst the third highest concentrations are generally recorded in the second sample. This is slightly unusual, generally the concentration of a determinand would be expected to decrease as cumulative rainfall increases, i.e. the highest concentrations are found

at the start of the event and the lowest at the end of the event with concentrations taken during the event decreasing as the event goes on. One factor that may account for this trend is the intensity of the preceding rainfall. Intuitively, higher rainfall intensity may result in greater determinand concentrations. Figure 2 shows the cumulative rainfall profile and the time each sample was taken. The intensity of the rainfall event before each sample was taken was calculated. These results are shown in Table 1 below.

Table 1: Rainfall Intensity at Time of Each Sample

Sample Number	Intensity (mm/hr)
1	1.3
2	2.7
3	9.2
4	2.5

The higher rainfall intensity before sample 3 was taken may have resulted in a greater dislodgement of material from the impervious services which then resulted in a higher concentration of the determinands. The high concentration after the first sample can be attributed to the initial runoff generally containing higher determinand concentrations, also known as the first flush effect.

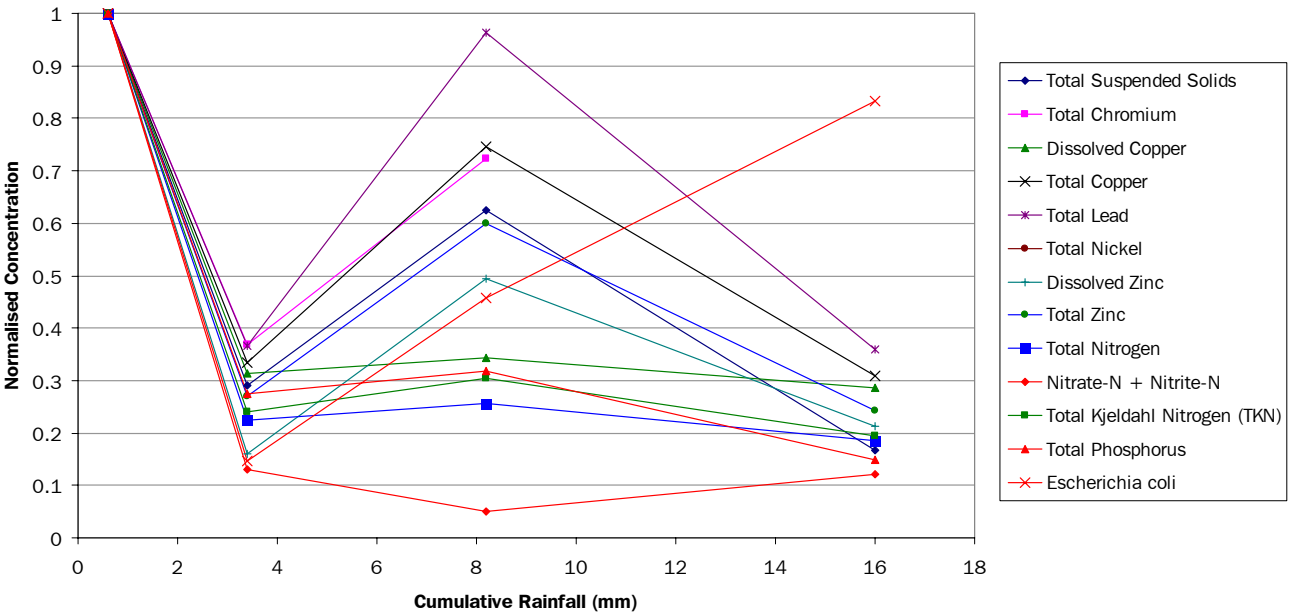


Figure 1: Plot of Normalised Determinand Concentrations for Vasari Grange

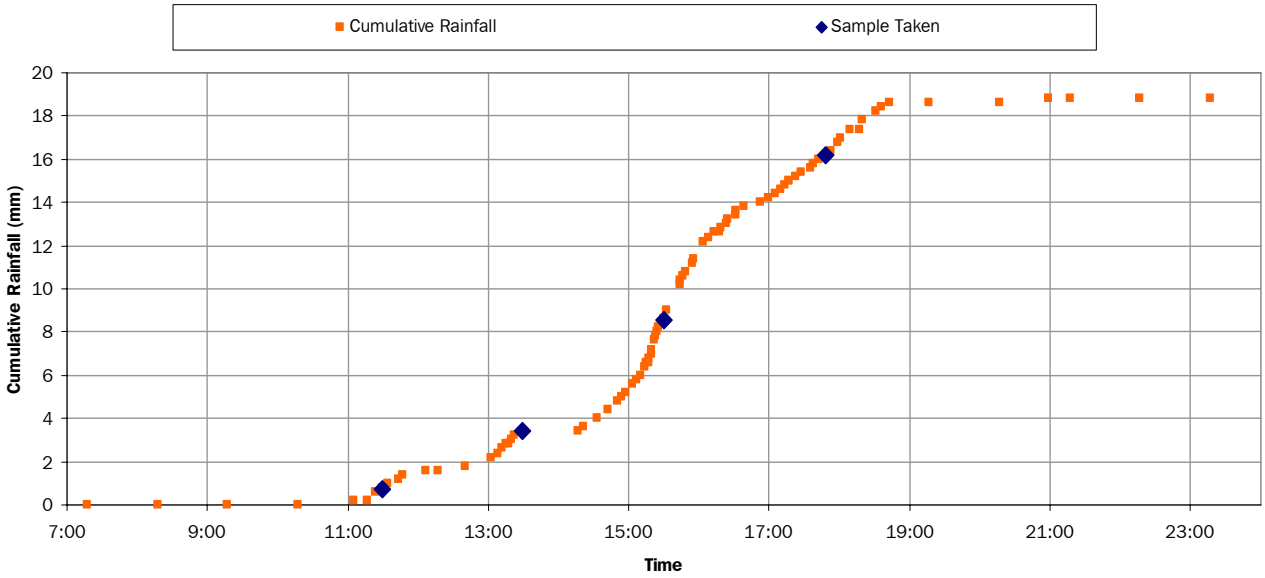


Figure 2: Plot of Cumulative Rainfall and Sampling Time

Note that in addition to the determinands plotted in Figure 1 the samples were also analysed for total petroleum hydrocarbons (TPH). All the TPH results were below the level of detection. The only determinand which has concentrations that exceed the Maximum Acceptable Value (MAV) or Guideline Value (GV) in the Drinking Water Standards for New Zealand (DWSNZ) is E. coli where the concentration of all samples was greater than the MAV of less than 1 per 100 mL sample. E. coli values did not follow the same trend as other determinands throughout the storm. From the data we have it appears E. coli values are random and do not follow any observable trend. High concentrations of E. coli are not unusual in stormwater.

Figure 3 shows the concentrations of the recent round of monitoring at Vasari Grange in comparison to historical monitoring carried out in other residential subdivisions. Data for the plot (with the exception of Vasari Grange) was obtained from the Christchurch City Council's (CCC's) Waterways Wetlands and Drainage Guide (WWDG) which provides EMC values not FF concentration values. Results from Vasari Grange are FF concentration values. Not all samples had recordings for all concentrations and therefore they are not displayed in Figure 3. Figure 3 shows that Vasari Grange has the lowest recorded concentrations of total copper and zinc. Figure 3 also shows a lower metal concentration for samples taken more recently. This may imply that stormwater is becoming "cleaner". This could be that more roofs use colour steel which is factory bonded paint on zinc-alum corrugated iron. Additionally modern vehicles do not leak as much as older vehicles, and lead has been removed from petrol. It should be noted that roofwater in the Vasari Grange subdivision is discharged directly to ground via separate sealed systems and does not contribute to the runoff sampled.

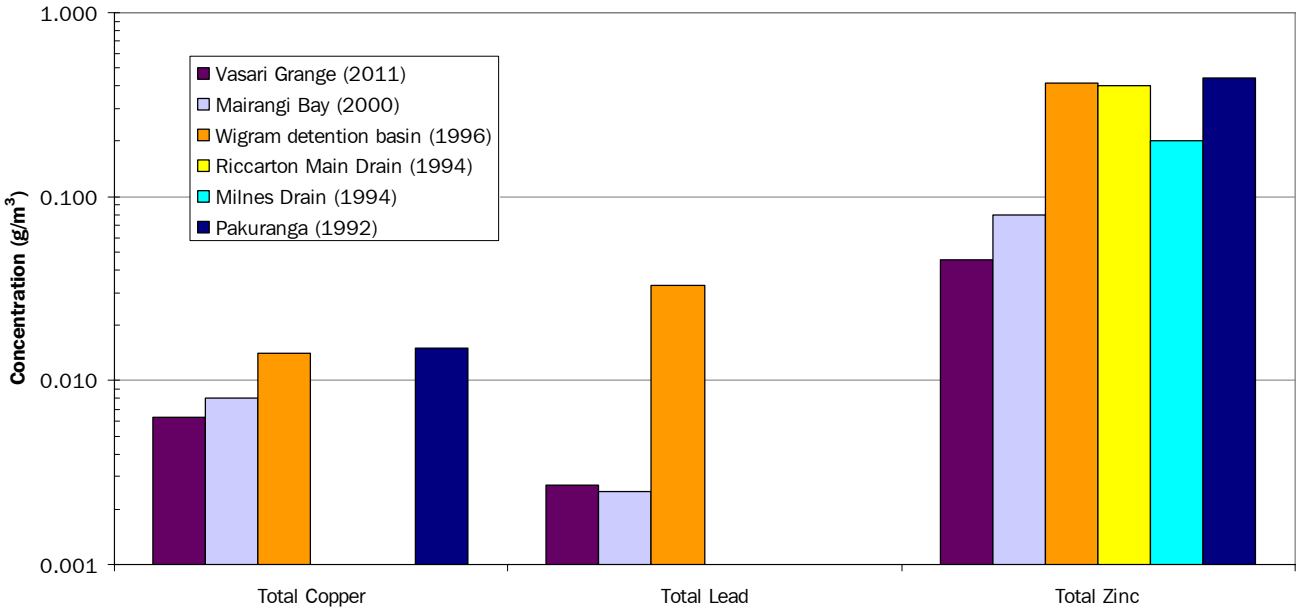


Figure 3: Recorded Determinand Concentrations of Stormwater for Various Residential Areas

Izone

Izone is a commercial/industrial subdivision adjacent to Rolleston township. Once again 4 grab samples were taken of kerb and channel flow. The contributing area of the road catchment was 1200 m^2. In addition there would have been some runoff from driveways and footpaths.

The concentrations of determinands found in the samples from Izone are shown in Table 2 (attached) along with other stormwater monitoring results to allow for comparison of values. Reported results for Izone and Vasari Grange are maximum concentrations from the four samples taken during the First Flush (FF). It should be noted that other results are Event Mean Concentrations (EMC). It is likely that EMC will under estimate the FF concentration.

Figure 4 shows the normalised concentrations for determinands in Izone. Normalised concentrations were obtained by dividing each of the four concentrations by the maximum respective concentration recorded. Figure 4 shows that the first sample (after 0.6 mm of rainfall) contained the highest concentrations for almost all determinands. Once again the second highest concentrations were generally recorded in the third sample whilst the third highest concentrations are generally recorded in the second sample. As discussed with the Vasari Grange site, one factor that may account for this trend is the intensity of the preceding rainfall. Intuitively, higher rainfall intensity may result in greater dislodgement of determinands and therefore higher determinand concentrations.

Note that in addition to the determinands plotted in Figure 4 the samples were also analysed for TPH. All the TPH results were below the level of detection. The only determinand which has concentrations which exceed the MAV or GV in the DWSNZ is E. coli. The concentrations of all samples were greater than the MAV of less than 1 per 100 mL sample. Once again E. coli results showed no observable trend. High concentrations of E. coli are not unusual in stormwater.

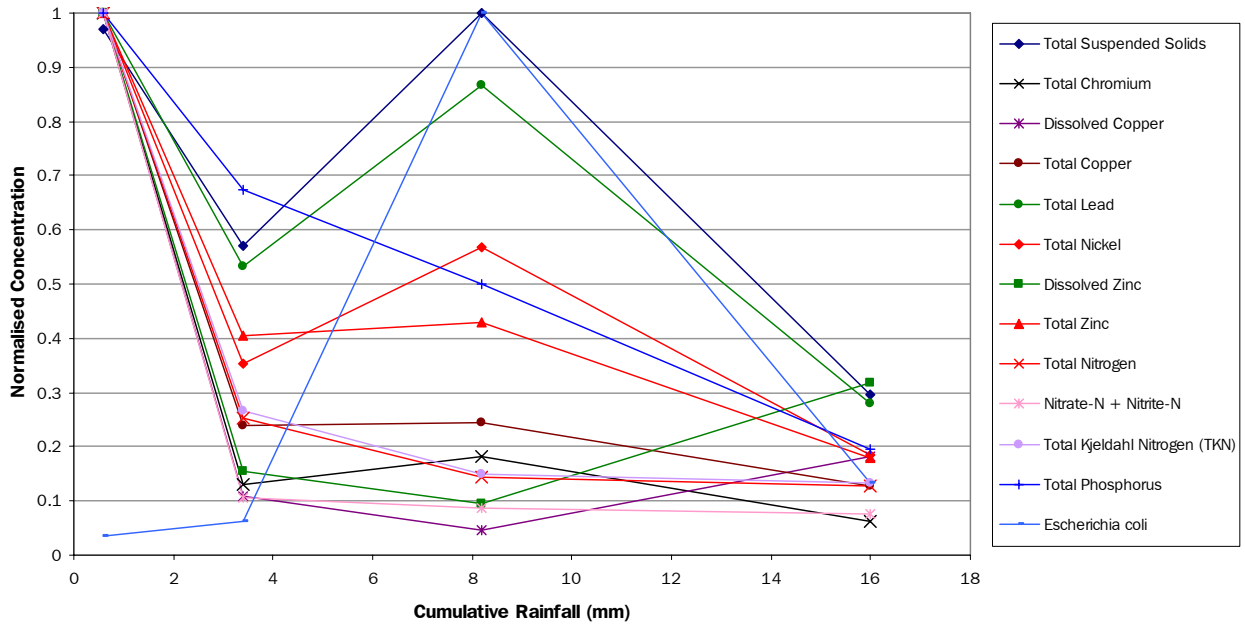


Figure 4: Plot of Normalised Determinand Concentrations for Izone

Figure 5 shows the concentrations of the recent round of monitoring at Izone in comparison to historical monitoring carried out in other commercial/industrial areas. Data for the plot (with the exception of Izone) was obtained from the CCC's WWDG which provides values for EMC not FF concentrations. Results from Izone are FF concentrations. Not all samples had recordings for all concentrations and therefore they are not displayed in Figure 5. Figure 5 shows that Izone has the lowest recorded concentrations of total lead and zinc.

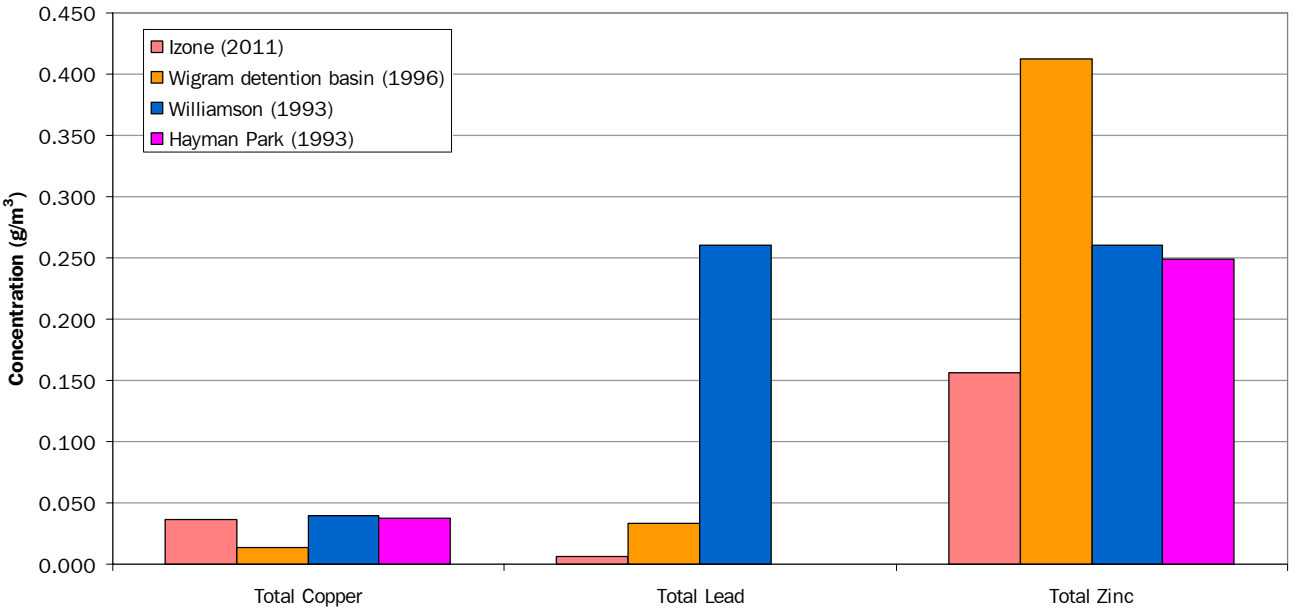


Figure 5: Recorded Determinand Concentrations of Stormwater for Various Commercial/industrial Areas

Discussion and Conclusion

In general, the concentrations of determinands were greater at the Izone site than Vasari Grange site. This is expected as generally concentrations of determinands in stormwater runoff from industrial areas are higher than stormwater runoff from residential areas. All values were well below the relevant DWSNZ MAV or GV, with the exception of E. coli. No TPHs were recorded, above the level of detection, at either site. Results from the first samples from both sites contained the highest concentrations for almost all determinands. The second highest concentrations were generally recorded in the third sample whilst the third highest concentrations were generally recorded in the second sample. A possibility for this trend is the intensity of the preceding rainfall since higher rainfall intensities may result in greater amounts of material being washed off the land surface.

Concentrations of determinands recorded at both Vasari Grange and Izone are similar to other samples taken from modern developments. These concentrations are generally lower than historic literature values. It is suggested that this is because of three main factors:

- Better roofing materials
- Less leakages from modern vehicles
- Removal of lead from petrol

The lower determinand concentrations observed in recent stormwater samples indicates that these should form the basis for environmental assessments from modern residential subdivisions rather than historic data which has been used to date. The data also indicates that different catchment types result in different concentrations of contaminants. Therefore the type and scale of treatment required for stormwater runoff should reflect the concentrations of contaminants in the stormwater and the receiving environment and there should not be a generic approach for all stormwater.

Table 2: Analyses of Stormwater Samples

Determinand	Units	Mairangi Bay[1] (2000)	Pakuranga[1] (1992)	Hayman Park[1] (1993)	Wigram Detention Basin[1] (1996)	Vasari Grange (2011)	Izone (2011)	Williamson[1] (1993)
		Residential	Residential	Commercial	Mixed	Residential	Commercial	Urban
Total Suspended Solids	g/m^3			30	101	48	97	170
Dissolved Copper	g/m^3					0.0035	0.022	
Total Copper	g/m^3	0.008	0.015	0.0380	0.0140	0.0063	0.036	0.04
Dissolved Lead	g/m^3					0.00005	0.00115	
Total Lead	g/m^3	0.0025			0.0330	0.0027	0.006	0.26
Dissolved Zinc	g/m^3					0.0075	0.066	
Total Zinc	g/m^3	0.08	0.444	0.2490	0.4120	0.045	0.156	0.26
Total Nitrogen	g/m^3					2.1	4.2	2.5
Nitrate-N + Nitrite-N	g/m^3					0.36	0.42	
Total Kjeldahl Nitrogen (TKN)	g/m^3					1.74	3.8	1.9
Escherichia coli	cfu / 100mL					240	4,100	
Total Petroleum Hydrocarbons in Water								
C7 – C9	g/m^3					< 0.10	< 0.10	
C10 – C14	g/m^3					< 0.2	< 0.2	
C15 – C36	g/m^3					< 0.4	< 0.4	
Total hydrocarbons (C7 – C36)	g/m^3					< 0.7	< 0.7	1 – 5

1 – Results are Event Mean Concentrations not First Flush concentrations which are likely to underestimate First Flush concentrations.

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Appendix E

Orion Capacity Letter

Direct: +64 3 363 9534
Email: Steve.Hancock@oriongroup.co.nz
Ref **ES: 421605**

11 September 2020

Paterson Pitts Group
PO Box 160094
Hornby
CHRISTCHURCH 8441

Attention: Will Salmond

Dear Will,

Proposed Sub-Division connection to the Orion network – R/No 510232 Lincoln Rolleston Road, Rolleston

The letter is not suitable for Section 224 Title Clearance.

I refer to your letter and the above-named property. I have investigated your request and comment as follows;

1. Orion has the capacity on the upper network to supply the proposed subdivision of the above lot(s).
2. To comply with Orion's network security conditions, an alternative feed from adjoining developments may also be required.
3. There are presently no specific connections available for this Sub-Division; however,
4. Connection(s) could be made available with alteration / addition to the Orion network.
5. There will be costs associated with providing the connection(s). These will be in line with our 'Extensions and Connections Policy'.
6. This type of work would be a typical design build project. If you proceed; please have your designer forward their proposal to Orion for approval.

The terms and conditions presented will encompass Orion's policies and practices current at the time.

Please don't hesitate to contact me on (*03*) *363 9534*, or email me at: *Steve.Hancock@oriongroup.co.nz*

Yours faithfully



Steve Hancock
Contract Manager Sub-Divisions

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Appendix F

Enable Capacity Letter

13th October 2020

Will Salmond

Paterson Pitts Group

Christchurch

Dear Will

UFB Fibre delivery to the Levi Lincoln Sites

- In response to your query on the 3rd September, requesting confirmation from Enable of fibre delivery into the subdivisions at

139 Levi Road

232 Lincoln Rolleston Road

274 Lincoln Rolleston Road

294 Lincoln Rolleston Road

5 Nobeline Drive

15 Nobeline Drive

25 Nobeline Drive

In the areas shown in red, yellow blue



, I am pleased to be able to confirm the following;

Enable has the service capacity/ capability to fee this parcel of land. Feed can be provided, at standard network extension fees and Greenfield Development fees, from the existing Enable chamber 2320

I trust that the above confirmation allows you to fulfill council requirements



Yours sincerely

Rob Armstrong

Business Development Manager

Enable Networks Ltd

Appendix 9: Integrated Traffic Assessment

novo group
Planning. Traffic. Development.

Integrated Transport Assessment

prepared for

GOULD DEVELOPMENTS LTD & FOUR STARS DEVELOPMENT LTD

Levi Road / Lincoln Rolleston Road

November 2020

Integrated Transport Assessment

prepared for

Gould Developments Ltd & Four Stars Development Ltd

Levi Road / Lincoln Rolleston Road

Novo Group Ltd
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Project Manager:	Nick Fuller, Senior Traffic Engineer
Prepared by:	Lisa Williams, Transport Engineer & Planner
Reviewed by	Nick Fuller, Senior Traffic Engineer

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Introduction

1. Gould Developments Limited and Four Stars Development Limited have commissioned Novo Group to prepare an Integrated Transport Assessment (ITA) for the proposed residential re-zoning of a block of land between Levi Road and Lincoln Rolleston Road.

2. This report provides an assessment of the transport aspects of the proposal. It also describes the transport environment in the vicinity of the site, describes the transport related components of the proposal. It has been prepared broadly in accordance with the Integrated Transportation Assessment Guidelines specified in New Zealand Transport Agency Research Report 422.

3. The proposal entails a change in zoning from Rural to Residential of a block of land to accommodate approximately 660 future residential dwellings. The location is shown in **Figure 1**.

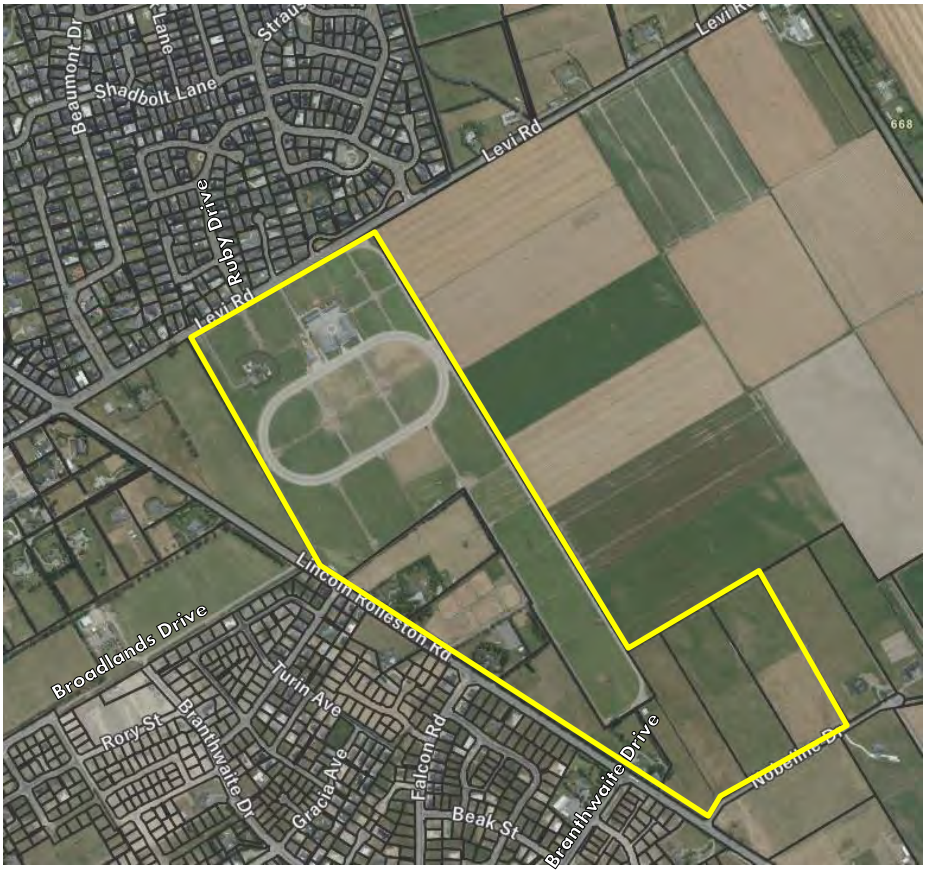


Figure 1: Site Location (source Canterbury Maps)

The Proposal

4. It is proposed to re-zone the site for residential use, this includes a deferred zone under the air noise contour. Overall, the proposal is for a total of 660 residential dwellings, of which approximately one third would be deferred.

5. The proposed road layout is shown in **Figure 2** and the key road connections are overlaid in blue.



Figure 2: Proposed Road Layout

6. The NZ Transport Agency Research Report 453 (*Trips and Parking Related to Land Use*) suggests an 85th percentile traffic generation rate of 0.9 vehicle movements per dwelling per hour in the peak hours. The ITE *Trip Generation* guidebook suggests a split of 63% arrivals and 37% departures in the weekday PM peak and 25% arrivals and 75% departures in the AM peak. This suggests **594 trips** in the **evening peak hour** of which 374 are arrivals and 220 are departures.

7. It is anticipated that the roads and intersections be generally laid out in accordance with the Transport Standards of the District Plan.

Transport Description

8. The following describes the key transport aspects of the proposal and surrounding road network:

9. Lincoln Rolleston Road forms part of the wider Arterial network linking toward the south of Christchurch and includes a cycleway between Rolleston and Lincoln. Council plans to upgrade the intersection of Lowes, Levi and Lincoln Rolleston Roads, and Masefield Drive.

10. A road connection is proposed as an extension to Broadlands Drive, providing a direct link to the future reserve to the east and schools and other destinations to the west. Another road connection is proposed as an extension of Brathwaite Drive extending east to cater for future development links. A road connection is provided between the Branthwaite Drive extension and Levi Road, although this will be designed to encourage through traffic flows to remain on the Lincoln-Rolleston Road and Levi Road Arterial route.

11. The remaining internal and local road layout will be formed to provide inter-connectivity, walkable blocks, and additional property access.

12. The transport network for the area shall integrate into the pedestrian and cycle network established in adjoining neighbourhoods and the wider township. A connection is proposed between the shared path on Lincoln Rolleston Road, through the Broadlands Drive extension connecting to the future reserve, a shared path is also proposed on the Branthwaite Drive extension. Cycling and walking will otherwise be contained within the road carriageway and incorporated in the design of any roads. Adequate space will be provided to accommodate cyclists and to facilitate safe and convenient pedestrian movements.

Other Transport Related Changes

13. Future development on the opposite side of Lincoln Rolleston Road (Referred to as “ODP Area 11” in the District Plan and “Rolleston 2 DEV” in the Proposed District Plan) includes the extension of Broadlands Drive through to Lincoln Rolleston Road near the south-eastern tip of “ODP Area 4” in the District Plan (“Rolleston 1 DEV” of the Proposed District Plan). It is therefore proposed to amend the ODP Area 4 / Rolleston 1 DEV to allow for the continuation of this road. This will provide a direct connection toward Clearview Primary School and Rolleston College.

14. It is also proposed to seek an amendment to allow for two future local road connections (as illustrated in **Figure 2)** as the Area 4 ODP / Rolleston 1 DEV does not currently include any road connections to its north-eastern boundary. This will provide for local road connections primarily for property access and walking and cycling connectivity. They are not anticipated to provide main through routes.

Transport Environment

Existing Road Network

16. The site fronts Lincoln Rolleston Road, Levi Road and Nobeline Drive and these roads are described in detail below along with a summary of other nearby transport infrastructure and future road networks.

Lincoln Rolleston Road

17. Lincoln Rolleston Road is classified as an Arterial Road near the site and a Collector Road south of the intersection with Selwyn Road. Lincoln Rolleston Road has a 60km/h speed limit, increasing to 100km/h south of the intersection with Nobeline Drive.

18. Near the site, Lincoln Rolleston Road typically has one, 3.5m wide traffic lane in each direction with variable sealed shoulders on the eastern side and a mixture of kerb and channel and sealed shoulders on the western side (relating to sections of developed vs. undeveloped land).

19. Along the western side of the road is a separated shared path providing a walking and cycling connection between Lincoln and Rolleston. There is no footpath on the eastern side.

20. The Councils RAMM database indicates a daily average volume of 6,038 vehicles per day on Lincoln Rolleston Road near the intersection with Levi Road and around 4,689 near the intersection with Nobeline Drive.

Levi Road

21. Levi Road is classified as an Arterial Road and has a 60km/h speed limit adjacent to the site, increasing to 80km/h east of the intersection with Bavaria Drive.

22. Near the site, Levi Road has one traffic lane in each direction with typically an 8m wide sealed carriageway. The north-western side of the carriageway has kerb and channel and a 1.6m wide footpath. The south-eastern side has grass berms adjacent to the existing rural zone.

23. The Councils RAMM database indicates a daily average volume of 5,483 vehicles per day on Levi Road near the site.

Nobeline Drive

24. Nobeline Drive has a 4.2m wide sealed carriageway with approximately 3.8m wide grass berms on either side. The Speed Limit Bylaw indicates Nobeline Drive has an 80km/h speed limit[1].

25. Nobeline Drive is currently formed as a cul de sac although there is an unformed / paper road connection to Brendean Drive to the east.

[1] However, no posted speed limit was found during the site visit (28/09/2020)

26. The Mobile Road website indicates an estimated daily traffic volume of 50 vehicles.

Other Roads

27. Levi Road forms a roundabout controlled intersection with Lincoln Rolleston Road, Lowes Road (south-west) and Masefield Drive (north-west). Masefield Drive provides the most direct connection to the Town Centre. Lowes Road currently provides the most direct link to Clearview Primary School and Rolleston College.

28. Opposite the site, Ruby Drive[2] forms a giveway controlled 'T' Intersection with Levi Road. The Councils RAMM database indicates a daily average volume of 757 vehicle movements per day on Ruby Drive.

29. Branthwaite Drive[3] forms a giveway controlled 'T' intersection with Lincoln Rolleston Road with a right turn lane provided on Lincoln Rolleston Road. The Councils RAMM database indicates a daily average volume of 105 vehicle movements per day on Branthwaite Drive, although this is anticipated to increase once the area west of Lincoln Rolleston Road is fully developed.

Peak Hour Traffic Volumes

30. Peak hour traffic volumes have been provided (as summarised in **Table 1**) from the Councils Paramics Model for 2018 and 2028; it is noted that this is an interim model although it is considered to be acceptable for the purposes of this assessment[4].

31. Additional detailed volumes (from the Model) for each link and for Broadlands Drive are provided in **Appendix 3**.

32. It is understood that the 2028 Model includes anticipated growth from development of existing planned residential areas (i.e., those zoned / within an existing ODP)[5].

[2] 50km/h speed limit
[3] 50km/h speed limit
[4] Possible changes to the model being considered by SDC would provide for additional connections that are anticipated to reduce traffic volumes on Levi Road and Lincoln Rolleston Road below that in Table 1.
[5] We are aware that other Plan Changes are being lodged in the vicinity of this site that will lead to additional traffic on the surrounding road network. That said, the status of those Plan Changes is not certain (i.e. they have not been approved / submissions on the proposed Plan have not closed, at the time of writing this report) and the adoption of the 2028 model forecasts is considered to be a reasonable basis for the future environment until such time as the status of other Plan Changes applications has been determined.

Table 1: 2018 and 2028 Peak Hour Traffic Volumes[6] [Source: SDC Paramics Model]

Location	2018 8am-9am	2028 8am-9am	2018 5pm-6pm	2028 5pm-6pm
Levi Rd Eastbound	80	896	47	382
Levi Rd Westbound	72	231	328	954
Ruby Rd Southbound	66	60	47	41
Ruby Rd Northbound	31	35	85	61
Lincoln Rolleston Rd Eastbound	294	278	261	470
Lincoln Rolleston Rd Westbound	181	442	370	472
Branthwaite Dr Southbound	17	271	6	122
Branthwaite Dr Northbound	5	100	15	269

Crash History

33. The NZ Transport Agency Crash Analysis System (CAS) has been reviewed to identify crashes that have been reported on the frontage roads between 2010 and 2020. The output from the CAS database is included in **Appendix 2** and summarised in **Table 2**.

Table 2: Summary of Reported Crashes 2010-2020

Crash Location	Crash Type	Crash Details
Intersection Masefield Drive, Levi Road, Lowes Road, Lincoln Rolleston Road	Vehicle SDB on Masefield Drive missed intersection	Alcohol suspected, cutting corner. 1 minor injury.
	Vehicle SDB on Levi Road hit cyclist	Driver failed to notice cyclist and giveway at roundabout
Levi Road 400m east Beaumont Drive	Vehicle EDB on Levi Road lost control, hit tree	Slippery road
Levi Road 40m east Beaumont Drive	Vehicle EDB on Levi Road hit parked vehicle	Driver attention diverted (inside car)
Lincoln Rolleston Road, 300m east of Branthwaite Drive	Vehicle WDB on Lincoln Rolleston Road lost control swerving to avoid an animal	Fatigued driver, swerved and hit roadside obstruction (e.g. tree / fence).
Lincoln Rolleston Road, 80m south of Branthwaite Drive	NDB vehicle hit stray animal	
Lincoln Rolleston Road, 340m west of Branthwaite Drive	Vehicle WDB on Lincoln Rolleston Road hit vehicle U-turning from same direction	Driver did not check correctly when U-turning. 1 serious injury.

[6] Link Node Averages, Refer to **Appendix 3** for individual link volumes in the 2028 PM peak hour.

Lincoln Rolleston Road, 390m west of Branthwaite Drive	Vehicle EDB on Lincoln Rolleston road hit rear end of truck turning right	Driver following too closely failed no notice truck turning at driveway.
Lincoln Rolleston Road, 112m west of Falcon Road	Vehicle WDB hit parked car	Attention diverted by phone.
Lincoln Rolleston Road, 2km north of Selwyn Road	Driver hit rear end of cyclist	Bright sun, driver too far left, 1 minor injury.
Lincoln Rolleston Road 380m east of Levi Road	Head-on collision on straight	Driver attention diverted by navigation device.
Weedons Road at or near intersection with Levi Road	load / trailer hit road and collided with another vehicle	30m south of Levi Road intersection.
	Vehicle EBD on Weedons Road missed intersection / end of road (stop controlled)	Driver failed to notice control, alcohol.
	Vehicles SDB on Weedons Road missed intersection / end of road (stop controlled)	Driver lost control under speed when turning, hit tree.
	Vehicle EDB on Levi Road missed intersection / end of road (Stop controlled)	Lost control breaking

34. The Weedons Road intersection with Levi Road is currently being upgraded which may address a number of the above crashes in that location. The intersection of Masefield Drive, Levi Road, Lowes Road and Lincoln Rolleston Road is also proposed to be upgraded (Long Term Plan 2018/2028). The other crashes suggested driver error, or relate to isolated events, and do not suggest any safety concerns with the road layout.

Future Road Networks

35. The Weedons Road intersection with Levi Road, and the Weedons Road / Weedons Ross Road interchange with SH1, are both under construction and will be completed prior to the development of this proposal.

36. Future development on the opposite side of Lincoln Rolleston Road includes the extension of Broadlands Drive through to Lincoln Rolleston Road.

37. The Councils Long Term Plan 2018/2028 includes funding for upgrading the intersection of Levi Road, Lincoln Rolleston Road, Lowes Road and Masefield Drive.

38. The Rolleston Structure plan also indicates a future road connecting between Lincoln Rolleston Road and Weedons Road which appears to transect the southern block of the proposal.

Passenger Transport

39. The nearest bus route is the “Yellow” line with bus stops on Lowes Road and Masefield Drive. The Yellow line connects Rolleston and Christchurch including Hornby, Riccarton,

Christchurch Hospital and Bus interchange Eastgate and New Brighton. There are typically two buses per hour and some express buses in the PM peak periods.

40. The site is also 1.2-3.6km from the Park 'n' Ride on the corner of Kidman Terrace and Rolleston Drive. This stop is serviced by the Yellow Line and by the #820 bus route which provides connections to Burnham and Lincoln.

Active Transport Modes

41. There are a variety of landuse destinations within walking and cycling distance of the site, as indicated in **Figure 3**.This includes schools, shops, and a future reserve.



Figure 3: Key landuse destinations [Aerial Source: Canterbury Maps]

42. The northern part of the site is approximately 750m walk to the shops on Masefield Drive (the eastern most extent of the town centre business zone) and an approximately 2.2km walk from the south-eastern end of the site.

43. There is a shared path along Lincoln Rolleston Road connecting Lincoln and Rolleston and along Lowes Road providing a connection to the schools. There is also a shared path on Branthwaite Drive.

Assessment of Effects

44. The following assessment considers both the proposed residential and deferred residential i.e., the total of 660 lots. Should only the residential be adopted (and not the deferred residential) any effects would be expected to be less because of the lower traffic volume associated with the lower number of dwellings. Should the deferred zone be excluded all three key intersections are still anticipated to be provided. This ensures sufficient capacity to service the north and south block separately.

Road Layout

45. The Broadlands Drive extension connects from the intersection with Lincoln-Rolleston Road through the southern corner of Area 4 ODP[7] / Rolleston 1 DEV[8] to the future reserve to the east of the site. The proposal includes a change to Area 4 ODP / Rolleston 1 DEV to ensure continuation of this road through to Lincoln Rolleston Road.

46. Branthwaite Drive is proposed to be extended through the southern end of the site to the eastern boundary which will ultimately allow for a future road connection to Weedons Road (subject to future development by others). This is consistent with the Rolleston Structure Plan.

47. A north-south connection is proposed between the extension of Branthwaite Drive to Levi Road, via a section of the Broadlands Drive extension. This connection has been designed as a less direct link, to avoid diverting traffic from the Arterial network (Lincoln-Rolleston Road and Levi Road).

48. Local road connections include an intersection with Nobeline Drive, two connections to the "Area 4 ODP" /"Rolleston 1 DEV" and future connections to the reserve. An additional Local Road connection is also anticipated to connect to Lincoln Rolleston Road. Other local road connections can be designed through the subsequent subdivision process to accommodate property access.

49. All roads are anticipated to be developed in accordance with the District Plan road layout requirements including provision of footpaths[9]. Additional pedestrian and cycle connections are proposed through to the reserve. A shared path is proposed along the Branthwaite Drive and Broadlands Drive extensions, providing a connection to the existing shared path on Lincoln Rolleston Road and Branthwaite Drive.

50. The proposed layout is considered to provide an appropriate structure of primary roads and local road connections to be consistent with and integrate into the existing road network and to provide for property access to future residential development. The proposed layout also provides for good connectivity for active modes towards existing public transport routes and key landuse destinations. As such the layout is considered to be appropriate for the proposed location and future use.

Connections to Existing Road Network

51. As outlined above, the proposal is anticipated to result in **594 trips peak hour** of which 374 are arrivals and 220 are departures in the evening peak and 149 are arrivals and 445 are departures in the morning peak.

52. In terms of distribution onto the road network it is assumed that 85% of the trips generated within the proposed area will occur via one of the three main intersections (505 trips) with the remaining 15% (89 trips) occurring via other future local road connections. Approximately 25% of trips are anticipated to use the Branthwaite Drive intersection (126

[7] Operative District Plan
[8] Proposed District Plan
[9] It is noted that these requirements are reasonably consistent between the Operative and Proposed Plan Transport Standards and either can be accommodated.

trips) with 45% using the Levi Road intersection (227 trips) and 30% the Broadlands Drive intersection (152 trips). This distribution reflects proximity of intersections to each part of the proposed development area and the existing traffic volumes on Lincoln Rolleston Drive and Levi Road.

53. The ITE Trip Generation guidebook suggests a split of 63% arrivals and 37% departures in the weekday PM peak and 25% arrivals and 75% departures in the AM peak. This has been applied to the three key, proposed, intersections to determine directional flow as shown in **Table 3**.

Table 3: Proposed Road Directional Flows

Location		AM Peak	PM Peak
Proposed connection to Levi Road	Arrival	57	143
	Departure	170	84
Proposed Broadlands Drive extension	Arrival	38	96
	Departure	114	56
Proposed Branthwaite Drive extension	Arrival	32	79
	Departure	95	47

54. An allowance has been made for 5% of north and south bound traffic as through traffic on at the Ruby Road[10] intersection, and 10% of Eastbound and Westbound traffic on Branthwaite Drive[11] and 20% on Broadlands Drive[12] intersections. The remaining departure trips and all arrival trips have then been allocated as turning movements proportionate to the directional traffic flows on Levi Road and Lincoln Rolleston Road[13]. The volumes on the existing roads (and future western arm of Broadlands Drive[14]) have been taken from the 2028 Paramics Model (refer to **Appendix 3**)

55. These three main intersections have been modelled using the SIDRA Intersection Software based on the 2028 AM and PM peak hours which illustrated that these intersections can operate within acceptable levels of service. The inputs and outputs are provided in **Appendix 4.** The proposed intersection layouts are summarised below:

- Broadlands Drive – Single Lane Roundabout

[10] A nominal amount assuming a small volume of trips to destinations within the residential area north of Levi Road and from that area to the future reserve.
[11] Assuming a small proportion use this to access the adjacent residential area and schools and for trips to the reserve from this area.
[12] Assuming a reasonable proportion use this for access between schools, reserve, residential areas and for travel within Rolleston towards the west.
[13] It is noted that for the non-dominate flow (i.e., out of the intersecting roads in the PM peak and into them in the AM peak this may vary, however this would likely balance between turning movements on either side of the intersection and is not anticipated to noticeably change the performance of the intersection. For this reason, proportional distribution has been assumed for consistency.
[14] Which the 2028 model assumes is completed.

- Branthwaite Drive - Giveway controlled intersection with right turn lanes on Lincoln Rolleston Drive.

- Ruby Drive – Giveway controlled intersection with a separate left turn lane on the proposed road.

56. It is noted that some of the turning movements at the Ruby Drive and Branthwaite Drive intersections are anticipated to operate at LOS[15] D or E, which is acceptable in the peak hours although this may encourage some re-distribution of movements to the Broadlands Drive intersection. Noting that the Broadlands Drive intersection is anticipated to be operating with good levels of service (A or B) any redistribution of trips would be readily accommodated within this intersection.

57. In terms of intersection locations, these meet the Proposed District Plan[16] intersection separation distances with the exception of Ruby Drive which is not 151m from the existing intersection with Bellbird Place and the extension of Broadlands Drive which is approximately 120m from the intersection of Lincoln Rolleston Road and Reuben Avenue.

58. Noting that there is already an existing "T" intersection for Ruby Drive in this location and that Bellbird Place is a cul-de sac servicing only 16 properties there is not likely to be any noticeable impact on the safe or efficient operation of Levi Road. There is also good intervisibility between these two intersections.

59. Reuben Avenue is a low volume local road and forms a "T" Intersection with Lincoln Rolleston Road. The exact location of the intersection of Broadlands Drive requires co-ordination between several development areas, the approximately 120m separation distance will be sufficient to avoid conflict between turning vehicles and there is good visibility between these intersections. As such the location is considered to be acceptable (and generally consistent with that indicated on "ODP Area 11" in the District Plan).

60. All roads are anticipated to be formed to standard designs consistent with the District Plan[17] layouts. This would include an upgrade of adjacent sections of Levi Road and Lincoln Rolleston Road to include kerb and channel and footpaths.

61. Nobeline Drive may require an upgrade to kerb and channel adjacent to the site. The proposed road layout is intended to be designed to avoid use of Nobeline Drive for through traffic, that is it would provide for property access to lots located at the southern end rather than cater for traffic from the remainder of the area. This can be further supported by road design at the time of subdivision. Noting this, any increase in traffic flows at this intersection are anticipated to remain within the capacity of the existing 'T' Intersection.

62. All other proposed local road connections are also proposed to be designed such that they are not attractive through routes and primarily service low traffic volumes which can be catered for with basic giveway controlled intersections. Some property access to frontage roads is also anticipated.

[15] Level of Service (A – best; F worst)
[16] These are generally consistent with the Operative District Plan requirements and use of either would not change the conclusion in respect of intersection locations.
[17] Proposed or Operative (note there is no major difference between these standards and either can be accommodated)

63. For the above reasons, subject to appropriate detailed design at subdivision, the anticipated traffic can be safely and efficiently accommodated via the proposed connections to the existing road network.

Wider Road Network

64. The proposed road layout is consistent with the future development of the wider road network including extensions of Broadlands Drive and Branthwaite Drive to the future reserve and to create the potential for a future link to Weedons Road[18].

65. The intersection of Levi Road, Lincoln Rolleston Road, Lowes Road and Masefield Drive is proposed to be upgraded[19]. The proposed District Plan identifies that this would be a dual lane roundabout. It is understood that this upgrade is to cater for the anticipated growth on the Arterial Road network associated with traffic growth on the southern side of Rolleston and to improve traffic flows accessing the State Highway via the future Weedons Road interchange. However, noting the potential flow of pedestrians and cyclists across both Lincoln Rolleston Road (between the future reserve and schools) and across Levi Road / Lowes Road, to and from the town centre, consideration should be given to a signalised intersection as an alternative to a dual lane roundabout. Subject to appropriate design, a signalised intersection could be safer and offer higher levels of service for pedestrians and cyclists than a dual lane roundabout. It would also provide more flexibility for future management of the traffic flows through this intersection associated with longer term changes in traffic. Regardless, either intersection upgrade is anticipated to be sufficient to cater for the traffic associated with the proposed rezoning.

66. Further trips onto the wider road network are likely to be dispersed relative to the destination. Analysis of the 2013 Census data[20] shows that commute to work trips outside of Rolleston were split broadly across the following destinations.

[18] The Rolleston Structure Plan[18] (Figure 8.2 and Table 8.1) indicates a future road connection between Weedons Road and Lincoln Rolleston Road (2041 timeframe).
[19] Upgrade prior to 2028 -Refer to page 274 of the Long Term Plan https://www.selwyn.govt.nz/__data/assets/pdf_file/0004/279832/LTP-2018-2028-FINAL-DOC_WEB.pdf
[20] http://archive.stats.govt.nz/datavisualisation/commuterview/index.html?_ga=2.208046549.614093748.1538512253-1731882158.1453166719#

Table 4: Directions of Commute For Work from Rolleston NE

Destination	Distribution
Springston	1%
Selwyn Lakes	2%
Lincoln	6%
Kirwee	1%
West Melton	11%
Christchurch	79%

67. The proposed roads connect directly to the Arterial Road network providing appropriate access to locations outside of Rolleston. This includes connection to State Highway 1 via the Weedons Road / Weedons Ross Road interchange. There is also access to Christchurch via Lincoln Rolleston Road to Selwyn Road and Shands Road. These wider Arterial Road connections are being /have been upgraded to cater for anticipated growth within Rolleston, and Selwyn District generally. The location site is not likely to noticeably alter the commute period traffic flows to and from Christchurch beyond that anticipated from growth in Rolleston generally.

68. The remaining trip distribution is dispersed across a variety of road connections and is not likely to have any noticeable impact on the capacity of any one part of the road network.

69. For these reasons, no further detailed analysis of the wider road network has been undertaken.

District Plan Objectives and Policies

70. The Operative and Proposed Plan Transport Related Objectives and Policies are considered in **Appendix 5** and the proposal is considered to be generally consistent with those provisions from a transport perspective.

Conclusion

71. The proposed rural to residential rezoning will provide for an estimated 660 future residential dwellings. The proposed road layout has been designed to integrate with the existing and based on the assessment above can be appropriately designed to operate within acceptable levels of service at the 2028 design year.

72. The proposal is consistent with the existing road hierarchy and future / planned roads and intersection upgrades. The timing of development appears to be able to be well co-ordinated both in terms of proposed roads and planned upgrades on the wider road network.

73. The proposal includes provision for shared paths connections to provide access to the existing shared paths and good pedestrian and cycle links to the reserve, public transport

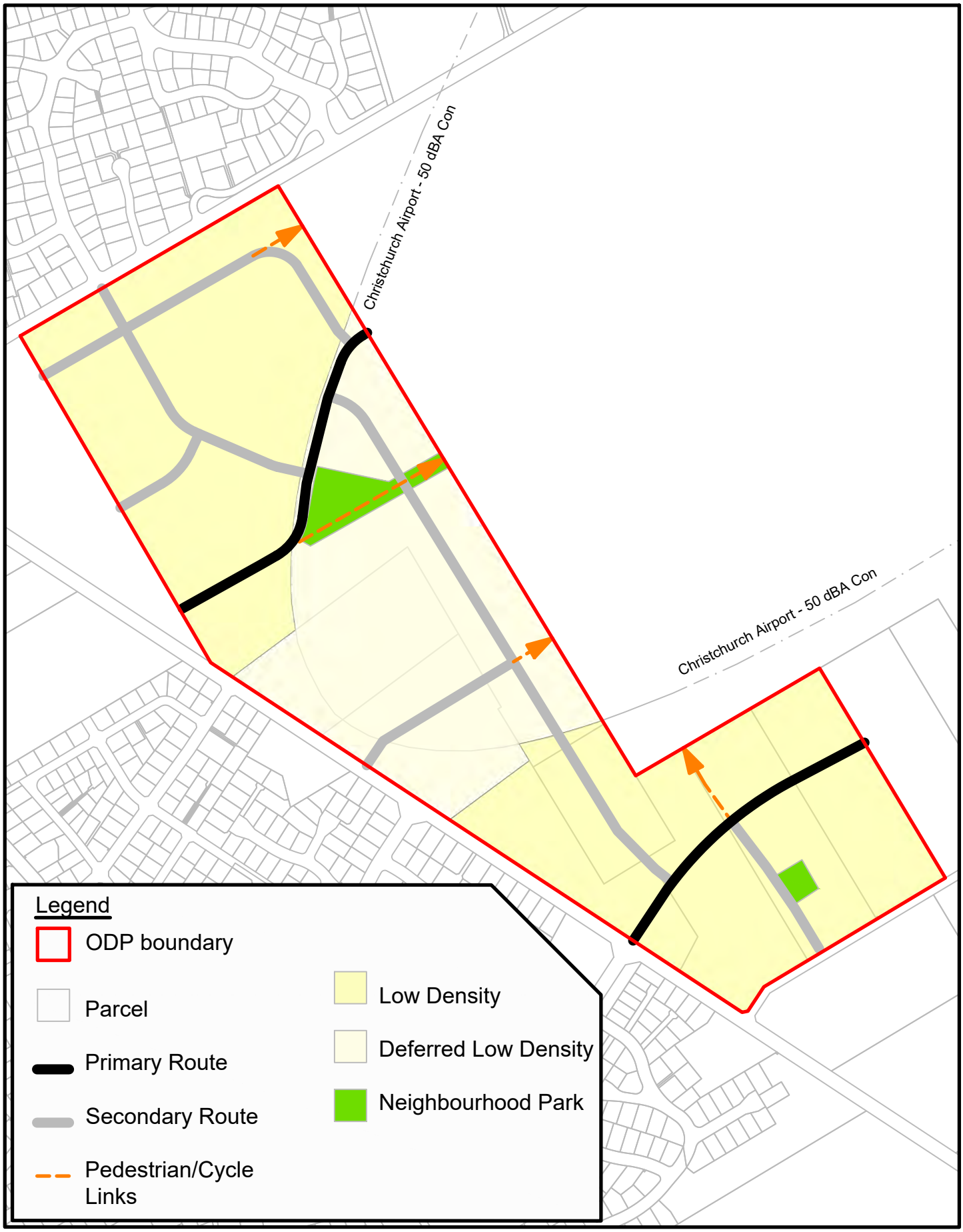
stops, schools, town centre and Rolleston. The site is well located to support travel by all modes.

74. For the avoidance of doubt, the above assessment considers both the proposed residential and deferred residential i.e., the total of 660 lots. Should only the residential be adopted (and not the deferred residential) any effects would be expected to be less because of the lower traffic volume associated with the lower number of dwellings. Should the deferred zone be excluded, all three key intersections are still anticipated to be provided. This ensures sufficient capacity to service the north and south block separately.

75. Overall, from a transport perspective there is no reason that the proposed development cannot be integrated into the transport network in a safe, efficient, and appropriate manner which provides for travel by all modes.

Appendix 1

Proposed Plan



Note:
Up to15% of the ODP may be developed as Medium Density to be determined at the time of subdivision.

Outline Development Plan

OVERALL Plan

Area 4 - Rolleston

N

NTS

Cadastral Information derived from Land Information New Zealand's Digital Cadastral Database (DCDB)

Appendix 2

NZTA CAS Data

Untitled query

Saved sites

Levi

Crash year

2010 — 2020

Plain English report

15 results from your query.

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Crash road	Distance	Direction	Reference station	Route position	Side road	Easting	Northing	Longitude	Latitude	ID	Date	Day of week	Time	Description of events	Crash factors	Surface condition	Natural light	Weather	Junction	Control	Crash count fatal	Crash count severe	Crash count minor	Social cost $(m)
LEVI RD		I			MASEFIELD DRIVE	1551068	5172636	172.393768	-43.597641	201898754	18/10/2018	Thu	19:15	Car/Wagon1 SDB on Levi Road hit Cyclist2 (Age 26) merging from the right	CAR/WAGON1, did not check/notice another party from other dirn, failed to give way at priority traffic control	Dry	Bright sun	Fine	Roundabout	Give way	0	0	0	0.02
LEVI ROAD	400m	E			BEAUMONT DRIVE	1551502	5172889	172.399155	-43.595394	201171746	05/07/2011	Tue	08:47	SUV1 EDB on LEVI ROAD lost control; went off road to left, SUV1 hit non specific fence, non specific tree, non specific other,	SUV1, lost control - road conditions, ENV: road slippery due to frost or ice	Ice or Snow	Bright sun	Fine	Nil (Default)	Unknown	0	0	0	0.04
LEVI ROAD	40m	E			BEAUMONT DRIVE	1551191	5172707	172.395294	-43.597012	201831261	18/01/2018	Thu	13:30	Van1 EDB on Levi road hit parked veh, Van1 hit non specific parked	VAN1, alcohol test below limit, attention diverted by food, cigarettes, beverages, too far left	Dry	Bright sun	Fine	Nil (Default)	Unknown	0	0	0	0.02
LEVI ROAD		I			WEEDONS ROAD	1552531	5173493	172.411957	-43.590023	201733122	19/02/2017	Sun	21:40	Van1 EDB on Levi Rd missed intersection or end of road	VAN1, failed to notice control, lost control under braking, speed approaching a traffic control	Dry	Dark	Fine	T Junction	Stop	0	0	0	0.02
LINCOLN ROLLESTON ROAD	300m	E			BRANTHWAITE DRIVE	1552433	5171734	172.410599	-43.605854	201831179	28/01/2018	Sun	05:00	Car/Wagon1 WDB on Lincoln Rolleston Road lost control; went off road to right, Car/Wagon1 hit non specific traffic sign, non specific fence, non specific pole,	CAR/WAGON1, other fatigue, swerved to avoid animal	Dry	Dark	Fine	Nil (Default)	Unknown	0	0	0	0.04
LINCOLN ROLLESTON ROAD	80m	S			BRANTHWAITE DRIVE	1552249	5171854	172.408325	-43.604759	201845874	04/08/2018	Sat	23:00	Car/Wagon1 NDB on Lincoln Tai Tapu Road hit obstruction, Car/Wagon1 hit non specific animal	CAR/WAGON1, alcohol test below limit, ENV: farm animal straying, other street lighting	Dry	Dark	Fine	Nil (Default)	Unknown	0	0	0	0.04
LINCOLN ROLLESTON ROAD	340m	W			BRANTHWAITE DRIVE	1551897	5172083	172.403976	-43.602676	201614217	23/06/2016	Thu	10:10	Car/Wagon1 WDB on LINCOLN ROLLESTON ROAD hit Van2 U-turning from same direction of travel	VAN2, did not check/notice another party from other dirn, other failed to give way	Dry	Bright sun	Fine	Nil (Default)	Unknown	0	1	0	1.11
LINCOLN ROLLESTON ROAD	390m	W			BRANTHWAITE DRIVE	1551855	5172110	172.403458	-43.602428	201753942	16/11/2017	Thu	13:30	Van1 EDB on Lincoln rolleston hit rear of Truck2 EDB on Lincoln rolleston turning right from centre line	VAN1, failed to notice indication of vehicle in front, following too closely	Dry	Bright sun	Fine	Driveway	Nil	0	0	0	0.04
LINCOLN ROLLESTON ROAD	112m	W			FALCON ROAD	1551783	5172156	172.402587	-43.602008	2020157112	03/07/2020	Fri	23:10	Car/Wagon1 WDB on LINCOLN ROLLESTON ROAD hit parked veh, Car/Wagon1 hit parked (unattended) vehicle	CAR/WAGON1, alcohol test below limit, attention diverted by cell phone, too far left	Wet	Dark	Fine	Nil (Default)	Nil	0	0	0	
LINCOLN ROLLESTON ROAD	380m	E			LEVI ROAD	1551383	5172417	172.397644	-43.599636	201747756	20/08/2017	Sun	15:14	Car/Wagon1 EDB on Lincoln rolleston road hit Car/Wagon2 headon on straight, Car/Wagon1 hit non specific fence	CAR/WAGON1, attention diverted by navigation device, too far right	Wet	Overcast	Light rain	Nil (Default)	Unknown	0	0	0	0.04
LINCOLN ROLLESTON ROAD		I			MASEFIELD DRIVE	1551071	5172619	172.393798	-43.597789	2020156928	16/06/2020	Tue	05:00	SUV1 SDB on MASEFIELD DRIVE missed inters or end of road	SUV1, alcohol suspected, cutting corner at intersection	Dry	Dark	Fine	Crossroads	Give way	0	0	1	

Crash road	Distance	Direction	Reference station	Route position	Side road	Easting	Northing	Longitude	Latitude	ID	Date	Day of week	Time	Description of events	Crash factors	Surface condition	Natural light	Weather	Junction	Control	Crash count fatal	Crash count severe	Crash count minor	Social cost $(m)
LINCOLN ROLLESTON ROAD	2000m	N			SELWYN ROAD	1551999	5172017	172.405243	-43.603275	201416718	04/08/2014	Mon	17:00	Car/Wagon1 NDB on LINCOLN ROLLESTON ROAD hit rear end of Cyclist2 (Age 17) stopped/moving slowly	CAR/WAGON1, too far left	Dry	Bright sun	Fine	Nil (Default)	Unknown	0	0	1	0.11
WEEDONS ROAD	30m	S			LEVI ROAD	1552544	5173466	172.412125	-43.590263	201534480	25/04/2015	Sat	13:35	load or trailer from Van1 NDB on WEEDONS ROAD hit VEHB	VAN1, load too heavy, other lost control	Dry	Bright sun	Fine	Nil (Default)	Unknown	0	0	0	0.04
WEEDONS ROAD		I			LEVI ROAD	1552531	5173493	172.411957	-43.590023	201273526	19/10/2012	Fri	00:02	Car/Wagon1 EDB on WEEDONS ROAD missed intersection or end of road	CAR/WAGON1, alcohol test above limit or test refused, failed to notice control	Dry	Dark	Fine	T Junction	Stop	0	0	0	0.04
WEEDONS ROAD		I			LEVI ROAD	1552531	5173493	172.411957	-43.590023	201370357	24/02/2013	Sun	21:15	SUV1 SDB on WEEDONS ROAD missed intersection or end of road, SUV1 hit non specific tree	SUV1, lost control when turning, speed entering corner/curve	Dry	Dark	Fine	T Junction	Stop	0	0	0	0.04

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Appendix 3

Traffic Flows from SDC Paramics Model 2028


2028 AM Link Counts
08:00 to 09:00
0.0 to 1100.0
08:00:00


2028 PM Link Counts
17:00 to 18:00
0.0 to 1100.0
17:00:00

Appendix 4

SIDRA Intersection Summaries

MOVEMENT SUMMARY

Site: 101 [Branthwaite Extension 2028 AM (Site Folder: General)]

Branthwaite Extension
Site Category: Future Conditions 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Lincoln Rolleston (North-West bound)														
1	L2	57	5.0	60	5.0	0.236	5.7	LOS A	0.0	0.0	0.00	0.08	0.00	57.3
2	T1	351	10.0	369	10.0	0.236	0.1	LOS A	0.0	0.0	0.00	0.08	0.00	59.1
3	R2	18	5.0	19	5.0	0.015	6.8	LOS A	0.1	0.5	0.41	0.57	0.41	48.8
Approach		426	9.1	448	9.1	0.236	1.1	NA	0.1	0.5	0.02	0.10	0.02	58.3
East: Branthwaite Extension														
4	L2	37	5.0	39	5.0	0.347	8.6	LOS A	1.4	10.6	0.72	0.90	0.92	41.4
5	T1	10	5.0	11	5.0	0.347	19.1	LOS C	1.4	10.6	0.72	0.90	0.92	39.5
6	R2	48	5.0	51	5.0	0.347	27.5	LOS D	1.4	10.6	0.72	0.90	0.92	41.5
Approach		95	5.0	100	5.0	0.347	19.2	LOS C	1.4	10.6	0.72	0.90	0.92	41.3
North: Lincoln Rolleston (south-east bound)														
7	L2	14	5.0	15	5.0	0.183	5.6	LOS A	0.0	0.0	0.00	0.03	0.00	57.8
8	T1	302	10.0	318	10.0	0.183	0.1	LOS A	0.0	0.0	0.00	0.03	0.00	59.6
9	R2	43	5.0	45	5.0	0.041	7.3	LOS A	0.2	1.2	0.48	0.64	0.48	48.6
Approach		359	9.2	378	9.2	0.183	1.1	NA	0.2	1.2	0.06	0.10	0.06	58.0
West: Branthwaite														
10	L2	138	5.0	145	5.0	0.764	19.0	LOS C	6.6	48.5	0.80	1.39	2.07	37.8
11	T1	27	5.0	28	5.0	0.764	31.1	LOS D	6.6	48.5	0.80	1.39	2.07	36.2
12	R2	106	5.0	112	5.0	0.764	37.8	LOS E	6.6	48.5	0.80	1.39	2.07	37.9
Approach		271	5.0	285	5.0	0.764	27.6	LOS D	6.6	48.5	0.80	1.39	2.07	37.7
All Vehicles		1151	7.8	1212	7.8	0.764	8.8	NA	6.6	48.5	0.27	0.47	0.59	50.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 101v [Broadlands Extension 2028- AM (Site Folder: General)]

Broadlands
Site Category: Future Conditions 1
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Lincoln Rolleston (North-west bound)														
1	L2	63	5.0	66	5.0	0.399	4.9	LOS A	3.2	24.1	0.45	0.50	0.45	49.7
2	T1	375	10.0	395	10.0	0.399	5.1	LOS A	3.2	24.1	0.45	0.50	0.45	54.4
3	R2	24	5.0	25	5.0	0.399	9.7	LOS A	3.2	24.1	0.45	0.50	0.45	51.0
Approach		462	9.1	486	9.1	0.399	5.3	LOS A	3.2	24.1	0.45	0.50	0.45	53.5
East: Broadlands Extension														
4	L2	33	5.0	35	5.0	0.125	5.0	LOS A	0.7	5.4	0.54	0.62	0.54	48.3
5	T1	23	5.0	24	5.0	0.125	4.9	LOS A	0.7	5.4	0.54	0.62	0.54	46.4
6	R2	58	5.0	61	5.0	0.125	9.4	LOS A	0.7	5.4	0.54	0.62	0.54	49.2
Approach		114	5.0	120	5.0	0.125	7.2	LOS A	0.7	5.4	0.54	0.62	0.54	48.4
North: Lincoln Rolleston (South-east bound)														
7	L2	14	5.0	15	5.0	0.232	4.6	LOS A	1.6	12.2	0.36	0.48	0.36	49.8
8	T1	220	10.0	232	10.0	0.232	4.8	LOS A	1.6	12.2	0.36	0.48	0.36	54.5
9	R2	35	5.0	37	5.0	0.232	9.4	LOS A	1.6	12.2	0.36	0.48	0.36	51.1
Approach		269	9.1	283	9.1	0.232	5.4	LOS A	1.6	12.2	0.36	0.48	0.36	53.8
West: Broadlands Road														
10	L2	73	5.0	77	5.0	0.187	6.4	LOS A	1.2	8.6	0.68	0.70	0.68	48.1
11	T1	29	5.0	31	5.0	0.187	6.3	LOS A	1.2	8.6	0.68	0.70	0.68	46.1
12	R2	42	5.0	44	5.0	0.187	10.9	LOS B	1.2	8.6	0.68	0.70	0.68	49.0
Approach		144	5.0	152	5.0	0.187	7.7	LOS A	1.2	8.6	0.68	0.70	0.68	47.9
All Vehicles		989	8.0	1041	8.0	0.399	5.9	LOS A	3.2	24.1	0.47	0.53	0.47	52.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 101 [Levi Ruby Rd Extension 2028 - AM (Site Folder: General)]

Levi Ruby Rd Extension 2028
Site Category: Future Conditions 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Proposed Road														
1	L2	34	5.0	36	5.0	0.027	5.3	LOS A	0.1	0.8	0.30	0.53	0.30	48.8
2	T1	9	5.0	9	5.0	0.792	40.2	LOS E	4.0	29.0	0.96	1.29	2.06	30.6
3	R2	128	5.0	135	5.0	0.792	46.2	LOS E	4.0	29.0	0.96	1.29	2.06	31.7
Approach		171	5.0	180	5.0	0.792	37.7	LOS E	4.0	29.0	0.83	1.14	1.71	34.0
East: Levi Road														
4	L2	12	5.0	13	5.0	0.132	10.2	LOS B	0.3	1.9	0.12	0.05	0.12	52.7
5	T1	202	10.0	213	10.0	0.132	0.6	LOS A	0.3	1.9	0.12	0.05	0.12	58.5
6	R2	7	5.0	7	5.0	0.132	12.7	LOS B	0.3	1.9	0.12	0.05	0.12	52.5
Approach		221	9.6	233	9.6	0.132	1.5	NA	0.3	1.9	0.12	0.05	0.12	58.0
North: Ruby Road														
7	L2	45	5.0	47	5.0	0.171	10.5	LOS B	0.5	4.0	0.77	0.89	0.77	44.3
8	T1	2	5.0	2	5.0	0.171	17.9	LOS C	0.5	4.0	0.77	0.89	0.77	41.9
9	R2	12	5.0	13	5.0	0.171	24.3	LOS C	0.5	4.0	0.77	0.89	0.77	44.1
Approach		59	5.0	62	5.0	0.171	13.5	LOS B	0.5	4.0	0.77	0.89	0.77	44.2
West: Levi Road														
10	L2	28	5.0	29	5.0	0.491	6.8	LOS A	0.8	6.4	0.08	0.05	0.09	53.3
11	T1	803	10.0	845	10.0	0.491	0.2	LOS A	0.8	6.4	0.08	0.05	0.09	59.2
12	R2	45	5.0	47	5.0	0.491	7.2	LOS A	0.8	6.4	0.08	0.05	0.09	53.2
Approach		876	9.6	922	9.6	0.491	0.7	NA	0.8	6.4	0.08	0.05	0.09	58.6
All Vehicles		1327	8.8	1397	8.8	0.792	6.2	NA	4.0	29.0	0.21	0.23	0.33	52.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 101 [Branthwaite Extension 2028 PM (Site Folder: General)]

Branthwaite Extension
Site Category: Future Conditions 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Lincoln Rolleston (North-West bound)														
1	L2	135	5.0	142	5.0	0.274	5.7	LOS A	0.0	0.0	0.00	0.17	0.00	56.5
2	T1	338	10.0	356	10.0	0.274	0.1	LOS A	0.0	0.0	0.00	0.17	0.00	58.3
3	R2	40	5.0	42	5.0	0.036	7.2	LOS A	0.2	1.1	0.46	0.62	0.46	48.7
Approach		513	8.3	540	8.3	0.274	2.1	NA	0.2	1.1	0.04	0.20	0.04	56.9
East: Branthwaite Extension														
4	L2	21	5.0	22	5.0	0.186	6.4	LOS A	0.6	4.5	0.71	0.81	0.71	42.3
5	T1	5	5.0	5	5.0	0.186	24.6	LOS C	0.6	4.5	0.71	0.81	0.71	40.3
6	R2	21	5.0	22	5.0	0.186	26.6	LOS D	0.6	4.5	0.71	0.81	0.71	42.4
Approach		47	5.0	49	5.0	0.186	17.3	LOS C	0.6	4.5	0.71	0.81	0.71	42.1
North: Lincoln Rolleston (south-east bound)														
7	L2	40	5.0	42	5.0	0.218	5.7	LOS A	0.0	0.0	0.00	0.06	0.00	57.5
8	T1	336	10.0	354	10.0	0.218	0.1	LOS A	0.0	0.0	0.00	0.06	0.00	59.3
9	R2	135	5.0	142	5.0	0.140	8.0	LOS A	0.6	4.4	0.54	0.72	0.54	48.4
Approach		511	8.3	538	8.3	0.218	2.6	NA	0.6	4.4	0.14	0.24	0.14	55.8
West: Branthwaite														
10	L2	55	5.0	58	5.0	0.484	11.9	LOS B	2.3	16.7	0.77	1.01	1.17	39.2
11	T1	12	5.0	13	5.0	0.484	29.2	LOS D	2.3	16.7	0.77	1.01	1.17	37.5
12	R2	55	5.0	58	5.0	0.484	35.2	LOS E	2.3	16.7	0.77	1.01	1.17	39.3
Approach		122	5.0	128	5.0	0.484	24.1	LOS C	2.3	16.7	0.77	1.01	1.17	39.1
All Vehicles		1193	7.8	1256	7.8	0.484	5.2	NA	2.3	16.7	0.18	0.33	0.22	53.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 101v [Broadlands Extension 2028 PM (Site Folder: General)]

Broadlands
Site Category: Future Conditions 1
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Lincoln Rolleston (North-west bound)														
1	L2	106	5.0	112	5.0	0.423	4.9	LOS A	3.4	25.8	0.45	0.51	0.45	49.7
2	T1	344	10.0	362	10.0	0.423	5.2	LOS A	3.4	25.8	0.45	0.51	0.45	54.4
3	R2	43	5.0	45	5.0	0.423	9.8	LOS A	3.4	25.8	0.45	0.51	0.45	51.0
Approach		493	8.5	519	8.5	0.423	5.5	LOS A	3.4	25.8	0.45	0.51	0.45	53.0
East: Broadlands Extension														
4	L2	25	5.0	26	5.0	0.081	7.1	LOS A	0.5	3.6	0.70	0.69	0.70	47.6
5	T1	11	5.0	12	5.0	0.081	7.0	LOS A	0.5	3.6	0.70	0.69	0.70	45.6
6	R2	20	5.0	21	5.0	0.081	11.5	LOS B	0.5	3.6	0.70	0.69	0.70	48.4
Approach		56	5.0	59	5.0	0.081	8.6	LOS A	0.5	3.6	0.70	0.69	0.70	47.5
North: Lincoln Rolleston (South-east bound)														
7	L2	53	5.0	56	5.0	0.474	4.7	LOS A	4.2	31.7	0.43	0.49	0.43	49.6
8	T1	443	10.0	466	10.0	0.474	5.0	LOS A	4.2	31.7	0.43	0.49	0.43	54.2
9	R2	86	5.0	91	5.0	0.474	9.6	LOS A	4.2	31.7	0.43	0.49	0.43	50.9
Approach		582	8.8	613	8.8	0.474	5.6	LOS A	4.2	31.7	0.43	0.49	0.43	53.3
West: Broadlands Road														
10	L2	37	5.0	39	5.0	0.105	5.8	LOS A	0.6	4.6	0.62	0.65	0.62	48.3
11	T1	17	5.0	18	5.0	0.105	5.7	LOS A	0.6	4.6	0.62	0.65	0.62	46.3
12	R2	30	5.0	32	5.0	0.105	10.2	LOS B	0.6	4.6	0.62	0.65	0.62	49.2
Approach		84	5.0	88	5.0	0.105	7.4	LOS A	0.6	4.6	0.62	0.65	0.62	48.2
All Vehicles		1215	8.2	1279	8.2	0.474	5.8	LOS A	4.2	31.7	0.46	0.52	0.46	52.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 101 [Levi Ruby Rd Extension 2028 PM (Site Folder: General)]

Levi Ruby Rd Extension 2028
Site Category: Future Conditions 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Proposed Road														
1	L2	54	5.0	57	5.0	0.315	11.4	LOS B	1.0	7.4	0.76	0.90	0.82	42.4
2	T1	4	5.0	4	5.0	0.315	31.8	LOS D	1.0	7.4	0.89	0.99	1.04	35.9
3	R2	26	5.0	27	5.0	0.315	39.6	LOS E	1.0	7.4	0.89	0.99	1.04	37.5
Approach		84	5.0	88	5.0	0.315	21.1	LOS C	1.0	7.4	0.81	0.94	0.90	40.4
East: Levi Road														
4	L2	96	5.0	101	5.0	0.526	7.2	LOS A	1.4	10.4	0.12	0.08	0.18	52.7
5	T1	788	10.0	829	10.0	0.526	0.5	LOS A	1.4	10.4	0.12	0.08	0.18	58.5
6	R2	41	5.0	43	5.0	0.526	9.6	LOS A	1.4	10.4	0.12	0.08	0.18	52.5
Approach		925	9.3	974	9.3	0.526	1.6	NA	1.4	10.4	0.12	0.08	0.18	57.5
North: Ruby Road														
7	L2	13	5.0	14	5.0	0.271	8.8	LOS A	0.8	6.1	0.84	0.93	0.95	37.5
8	T1	2	5.0	2	5.0	0.271	34.3	LOS D	0.8	6.1	0.84	0.93	0.95	35.8
9	R2	26	5.0	27	5.0	0.271	37.8	LOS E	0.8	6.1	0.84	0.93	0.95	37.4
Approach		41	5.0	43	5.0	0.271	28.4	LOS D	0.8	6.1	0.84	0.93	0.95	37.3
West: Levi Road														
10	L2	20	5.0	21	5.0	0.332	15.1	LOS C	2.1	15.6	0.38	0.10	0.50	50.2
11	T1	392	10.0	413	10.0	0.332	3.2	LOS A	2.1	15.6	0.38	0.10	0.50	55.4
12	R2	47	5.0	49	5.0	0.332	15.9	LOS C	2.1	15.6	0.38	0.10	0.50	50.2
Approach		459	9.3	483	9.3	0.332	5.0	NA	2.1	15.6	0.38	0.10	0.50	54.6
All Vehicles		1509	8.9	1588	8.9	0.526	4.4	NA	2.1	15.6	0.26	0.16	0.33	54.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

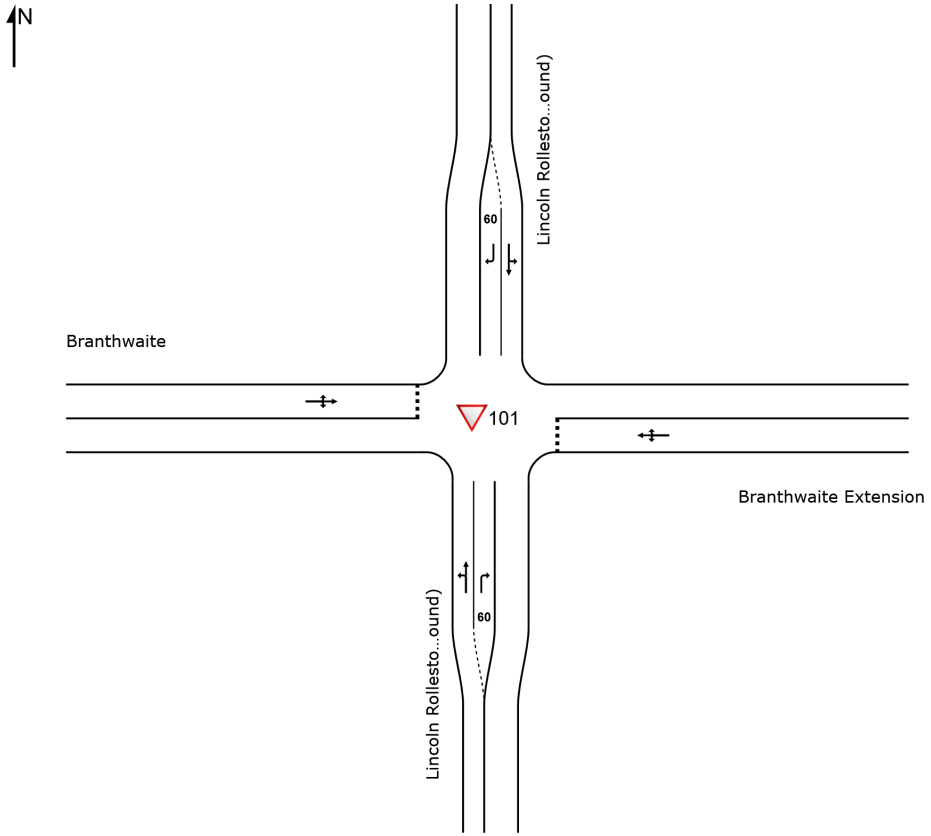
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SITE LAYOUT

Site: 101 [Branthwaite Extension 2028 AM (Site Folder: General)]

Branthwaite Extension
Site Category: Future Conditions 1
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.

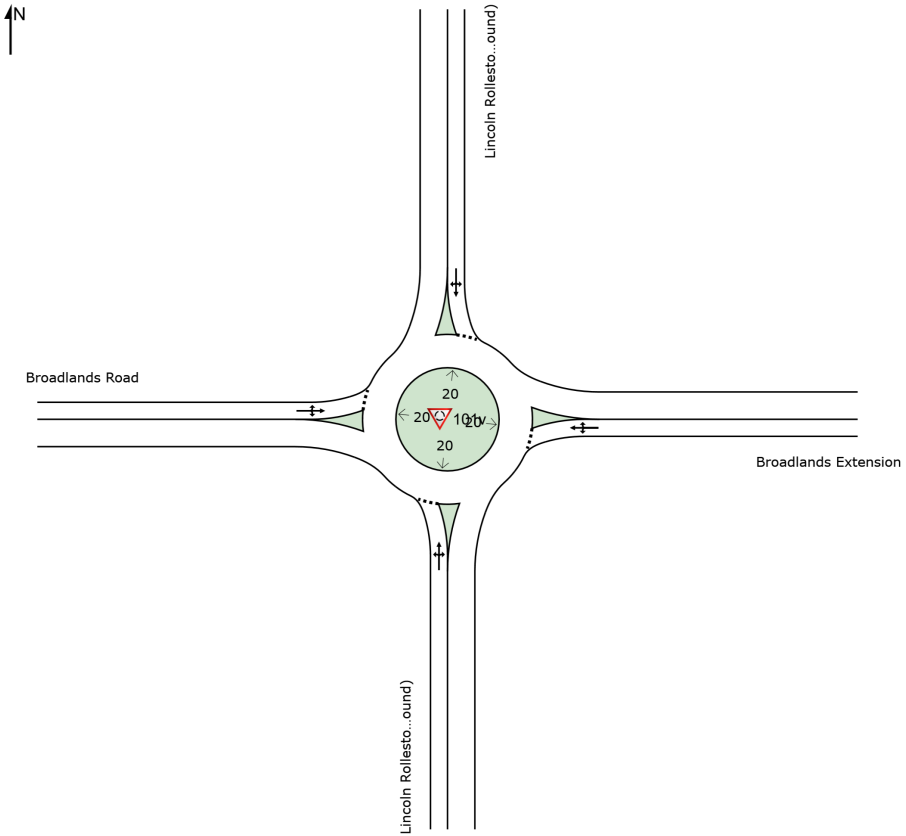


SITE LAYOUT

Site: 101v [Broadlands Extension 2028- AM (Site Folder: General)]

Broadlands
Site Category: Future Conditions 1
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.

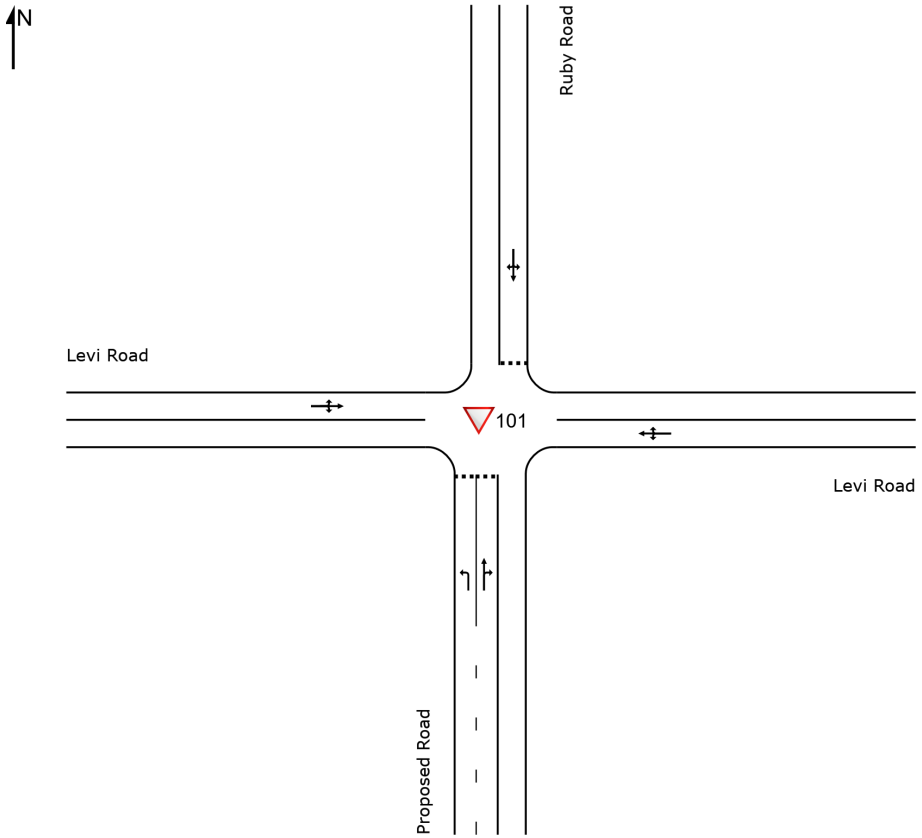


SITE LAYOUT

Site: 101 [Levi Ruby Rd Extension 2028 - AM (Site Folder: General)]

Levi Ruby Rd Extension 2028
Site Category: Future Conditions 1
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Appendix 5

District Plan Objectives and Policies

Operative District Plan Provision	Comment / Assessment
Objective B2.1.1 *An integrated approach to land use and transport planning to ensure the safe and efficient operation of the District's roads, pathways, railway lines and airfields is not compromised by adverse effects from activities on surrounding land or by residential growth.*	The assessment concludes the proposed road and shared paths will provide for safe and convenience connections and the proposed development can be appropriately integrated into the existing transport network
Objective B2.1.2 *An integrated approach to land use and transport planning to manage and minimise adverse effects of transport networks on adjoining land uses, and to avoid "reverse sensitivity" effects on the operation of transport networks.*	
Objective B2.1.3 *Future road networks and transport corridors are designed, located and protected, to promote transport choice and provide for: a range of sustainable transport modes; and alternatives to road movement of freight such as rail.*	The assessment above outlines that the site is well located for travel by private vehicle, public transport, walking and cycling.
Policy B2.1.2 *Manage effects of activities on the safe and efficient operation of the District's existing and planned road network, considering the classification and function of each road in the hierarchy.*	The proposed development and occupation of dwellings / generation of traffic, will be co-ordinated with the proposed upgrades through subdivision and CSM2 upgrades will be completed well before development occurs, additional local upgrades on the wider road network outlined in the assessment are scheduled prior to 2028 and will be available to provide sufficient capacity
Policy B2.1.4(a) *Ensure all sites, allotments or properties have legal access to a legal road which is formed to the standard necessary to meet the needs of the activity considering:* *the number and type of vehicle movements generated by the activity;* *the road classification and function; and* *any pedestrian, cycle, public transport or other access required by the activity.*	The assessment above does not identify any constraints in achieving this.
Policy B2.1.5 *Ensure the development of new roads is:* *integrated with existing and future transport networks and landuses; and* *is designed and located to maximise permeability and accessibility;* *through achieving a high level of connectivity within and through new developments to encourage use of public and active transport; whilst having regard to the road hierarchy.*	The assessment above concludes that the proposal can be well integrated with the existing and future transport network. The proposal includes direct links for active modes towards the Rolleston Town Centre, to the existing shared path on Lincoln Rolleston Road and to existing public transport routes and key landuse destinations (such as schools via the future Broadlands Drive connection). The site is in close proximity to existing public transport routes.
Policy B2.1.12 *Address the impact of new residential or business activities on both the local roads around the site and the District's road network, particularly Arterial Road links with Christchurch City.*	The assessment above concludes that the proposal can be readily accommodated in this respect.

Policy B2.1.13 *Minimise the effects of increasing transport demand associated with areas identified for urban growth by promoting efficient and consolidated land use patterns that will reduce the demand for transport.*	The assessment of effects above outlines that the site is well located in this respect.
Policy B2.1.14 *Encourage people to walk or cycle within and between townships by providing a choice of routes for active transport modes and ensuring there is supporting infrastructure such as parking for cycles, at destinations.*	As outlined above the site is close to the town centre and the existing shared path between Lincoln and Rolleston.
Policy B2.1.15 *Require pedestrian and cycle links in new and redeveloped residential or business areas, where such links are likely to provide a safe, attractive and accessible alternative route for pedestrians and cyclists, to surrounding residential areas, business or community facilities*	Shared Paths are proposed on the Branthwaite Drive and Broadlands Drive extensions connecting to the existing facilities.
Policy B4.2.10 *Ensure that new residential blocks are small in scale, easily navigable and convenient to public transport services and community infrastructure such as schools, shops, sports fields and medical facilities, particularly for pedestrians and cyclists.*	The primary roads provide an appropriate structure for a subdivision layout of the local roads and pedestrian connections to accommodate this.
Objective B4.3.4 *New areas for residential or business development support the timely, efficient and integrated provision of infrastructure, including appropriate transport and movement networks through a coordinated and phased development approach*	As outlined above the timing of future roads and development is and can be well co-ordinated.
Policy B4.3.8 *Each Outline Development Plan shall include:* *Principal through roads, connection and integration with the surrounding road networks, relevant infrastructure services and areas for possible future development;* *…..* *Indicate how required infrastructure will be provided and how it will be funded;* *……* *Demonstrate how effective provision is made for a range of transport options, including public transport systems, pedestrian walkways and cycleways, both within and adjoining the ODP area;* *Show how other potential adverse effects on and/or from nearby existing or designated strategic infrastructure (including requirements for designations, or planned infrastructure) will be avoided, remedied or appropriately mitigated;* *…..*	These matters are achieved and addressed in the assessment of effects above.

Proposed District Plan Provision	Comment / Assessment
TRAN-O1 People and places are connected through safe, efficient, and convenient land transport corridors and land transport infrastructure which is well integrated with land use activities and subdivision development.	The assessment concludes the proposed road and shared paths will provide for safe and convenience connections and the proposed development can be appropriately integrated into the existing transport network
TRAN-O2 Land transport corridors and land transport infrastructure are protected from incompatible land use activities and subdivision development.	The assessment above concluded the site is suitable for the proposed landuse and associated traffic generation
TRAN-O3 Land transport corridors and land transport infrastructure support the needs of people and freight, while ensuring adverse effects on the surrounding environment from their establishment and operation are managed.	The assessment above concludes this can be achieved.
TRAN-P1 The safety and efficiency of the District's land transport network and systems are enabled through integrated land use and subdivision development that: *Manages the levels of service, formation standards and the types of land transport corridors and land transport infrastructure, including through the network road classifications and compliance with the design and operational standards;* *Provides land transport infrastructure that is consistent with the form, function, and character of each zone;* *Ensures there is enough space within land transport corridors to support the efficient and effective operation of network utilities;* *Provides for the safe and efficient movement and operation of emergency services; and* *Recognises cross-boundary connections with adjoining districts.*	The assessment above outlines that appropriate priority has been given to road classifications and the proposed roads can be developed in accordance with the standard design. The proposed road structure is consistent with and specifically designed to cater for residential landuse. The proposed road layout will provide good access for emergency services. The proposed site is appropriately located to utilise existing Arterial and SH1 connections to Christchurch District.
TRAN-P2 Manage any extensions to the District's land transport network to ensure it occurs in an integrated way by: *Co-coordinating the timing of land use activities and subdivision development with the availability of capacity in land transport corridors;* *Providing a range of travel modes and ensuring these are integrated, including between walking, cycling, public transport, freight and private vehicle modes; and* *Ensuring land use activities and subdivision development do not foreclose on the opportunity for land transport corridors to meet future land transport needs.*	The proposed development and occupation of dwellings / generation of traffic, will be co-ordinated with the proposed upgrades through subdivision and CSM2 upgrades will be completed well before development occurs, additional local upgrades on the wider road network outlined in the assessment are scheduled prior to 2028 and will be available to provide sufficient capacity. The assessment above includes considerations of travel by all modes. The proposed road layout has been specifically designed for connection to future reserve land and a future road connection between Weedons Road and Lincoln Rolleston Road as indicated on the Rolleston Structure Plan.
TRAN-P5 Promote a range of transport options to reduce the number of trips and distances travelled in private motor vehicles by: *Encouraging land use activities and subdivision development to include connected walking and cycling networks and access to public transport and public transport facilities, including within and between townships; and* *Managing the design, layout and function of new land transport infrastructure to ensure they integrate with existing and future land transport corridors.*	The proposal includes direct links for active modes towards the Rolleston Town Centre, to the existing shared path on Lincoln Rolleston Road and to existing public transport routes and key landuse destinations (such as schools via the future Broadlands Drive connection).

	As outlined above the proposal has been specifically designed to integrate with existing and future transport connections.
TRAN-P6 Enable safe, multi-modal connections that support walking, cycling, and access to public transport and public transport facilities through land use activities and subdivision development that: *Establish levels of service and multi-modal transport options based on the network road classifications, including the provision of strategic level walking and cycling connections where they are identified in Development Plans or ODP;* *Encourage residential blocks to be small, navigable and convenient to move around through legible, convenient and attractive walking and cycling routes to public transport facilities and between residential areas, business centres, community facilities, recreation space and local services;* *Manage the number and design of cul de sacs, rear lots and accessways;* *Provide for the interaction between vehicle access and manoeuvring, loading and parking areas when determining on-site pedestrian and cycling routes; and* *Align street layouts to maximise views and landscape features to promote attractive streets.*	The assessment above concludes that the proposal appropriately provides for connections for all modes.
TRAN-P7 Recognise and protect the function of the District's land transport network and systems by managing land use activities and subdivision development to ensure the safe and efficient movement of people and goods by: *Managing adverse effects from activities on land transport corridors and land transport infrastructure, particularly where it may reduce safe and efficient traffic flows within the strategic transport network and links with Christchurch City;* *Ensuring land transport corridors and land transport infrastructure can support the volume and type of transport movements based on the network road classifications; and* *Requiring the design, positioning, and maintenance of accessways, corner splays, vehicle crossings, intersections, footpaths, plantings, and signs to ensure appropriate sightline visibility is provided to road users to support safe and efficient vehicle, pedestrian, and cycle movements.*	The assessment above concludes that the site is appropriately location in respect of road connections to Chch, the volume of traffic anticipated, and road function.

Appendix 10: Letters from real estate agents and building company

P I Kennard
36 Hyndhope Rd
ChCh 8025

Fiona Aston
Aston Consultants
fiona@astonconsultants.co.nz

Dear Fiona

Re Selwyn District Plan review Levi/Lincoln Rolleston Road Rezoning

In support of the submission that is being prepared by Team I would like to make the following comments

1) Land Zoned Residential for Rolleston's growth in the past has always been insufficient.
   History shows that Residential zoned land has struggled to keep up with demand.
   Issue's creating some of this is Rezoned land being held by 2 or 3 Developers.
   This hasn't helped true price competition either.

2) I have also supplied a letter with some examples from a Builder & Local Real Estate Agent with their thoughts on what's happening within the Rolleston section market.

3) Having personally worked in the Rolleston section market since 1996 I would also make a few comments particularly in relation to the land included in our submission for rezoning of the land noted above.

   The land at Levi/Lincoln Rolleston rd's location to the hub makes it ideal for rezoning.
   If rezoned the land to the south being
   232 Lincoln Rolleston Rd
   Nobeline Dr
   Purdon/Rassmussen land
   This is the land noted in the current plan as a future development area could have development started on it within 6 to 12 months of being rezoned.
   The Levi Rd end & if the Airport noise attenuation line moves could be started to be developed within 2 years of rezoning.

   It also increases the linkage to the Towns future reserve that borders most of the land in our submission.

   Rolleston's long term growth & affordability will be dictated by the land that is rezoned in this district plan review. It needs to give some flexibility & not be controlled by just 1 or 2 developers.
   The complexity of land ownership within Rolleston's current residential land often complicates & severely slows its development.

The economics of some of the small blocks doesn't work unless a developer can amalgamate a number of sites.
This must be considered in this District Plan review process.

I look forward to a positive outcome to our rezoning application.

I have attached the comments from Cole Askew Builder & Brendon Shefford Real Estate Agent.

Yours Faithfully

P I Kennard
Philipkennard1@gmail.co

14th October 2020

To Whom it may concern

Re Residential Sections for Sale, Price & Demand

Recently I have been asked by several developers regarding;

1. Section demand
2. Section prices
3. Future developments coming to the market

Section Demand

- Please note the demand & sales results for Olivefields below
- The same have occurred with every other development in Rolleston

Section Prices

- The simple supply demand equation is starting to take effect. It is highly likely that if supply doesn't increase in the coming months / years we could see 600m sections in Rolleston breaking $200,000.

Future Developments

- The challenge for Rolleston is the complexity of Land ownership in Rolleston that is zoned for residential development today.
- Multiple ownership of 2ha – 4ha Blocks that have been purchased as lifestyle blocks over the last 20 plus years and the owners are happy to just live there. This won't change until the owners are ready to move on.
- The other issue is some of these stand alone blocks are uneconomic to develop at the value the lifestyle owners place on them. Amalgamation of a number of these lifestyle blocks does assist with the economics but takes time.

Olivefields Sections

We listed stage 1 and 2 of Olivefields and we went live to the market on Friday 29th November 2019. Heading into Covid19 lockdown, we had seven properties under contract when lockdown hit, during level 4, four of those sales collapsed and we went back to only having three sold out of the first stage of 22 sections.

When we came out of lockdown, between then and the end of June, we worked away to make enough sales to warrant the development of stage 2 of the subdivision which was lots 23 to 53.

We went to the market with stage 2 at the start of July 2020 and inquiry picked up significantly over July and the early stages of August which meant most of the sections were under contract.

rolleston.nz@raywhite.com
03 347 9988
lincoln.nz@raywhite.com
03 325 7299
westmelton.nz@raywhite.com
03 347 9933

On Monday 31st August we released stage 3 Olivefields with the vision of releasing stage 4 in January 2021. The demand was that great for stage 3 that on the 16th September we released stage 4 and between the 16th September and 10th October, we had agreements drafted on all sections.

Below is an overview of the time frames.

	No Of Lots	Release Date	Sold	Days on Market
Stage 1	22	29/11/19	15/7/20	= 230
Stage 2	26	1/7/20	15/9/20	= 77
Stage 3	21	31/8/20	23/9/20	= 24
Stage 4	21	16/9/20	14/10/20	= 29

277/281 Lincoln Rolleston Road

- Demand for sections have been that hot lately, even sections shaded by big trees at 277, 279 and 281 Lincoln Rolleston Road that have been for sale for 12 – 18 months and had title issued since early 2020, have now sold.

The most recent section sale we have just had is at 3 Marlice Crescent, I have listed below all the inquiry we have had on it.

3 Marlice Crescent – 6 week Listing

- 36 Enquiries / Inspections

If we were to wind back the clock twelve months ago and compare the same situation to 12 Joy Place that we had sold, this is the below inquiry for its duration while it was on the market;

12 Joy Place – 12 Month Listing

- 12 Enquiries / Inspections

The section a Joy Place was on the market for a considerable amount of time and it was a cheap section and sold for $165,000. The listing period for this section was from 18th October 2018 up until it sold on the 22nd August 2019.

Final Comments

As a real estate Licencee, it is of grave concern to watch whats happening with Land Development in Rolleston & note the key issues;

- Multiple land ownership of Residential Zone Land of owner occupiers, not developers means the Growth of Rolleston Township will be restricted. In the last 13 years since I have been in real estate it has taken to long for the infill areas to be developed. Examples of this are – The Goulds Road Triangle & Russell Lilley Drive / Waterbridge Way / Tiny Hill Drive.
- Real shortage today of sections for sale.
- Future development area land being controlled by 2 key developers. Future Competition within the market will be an issue
- Council must take the district plan reviews as a real opportunity to open up Land Looking at a 20 year window even considering progressive rezoning that would allow land to be easily developed moving forward.

Yours sincerely,

Brendan 'Big Red' Shefford
brendan.shefford@raywhite.com
027 2244 733
Licensee Agent
Business Owner

Dear Philip,

Re: Rolleston Section

Being a builder in the Rolleston market for over 8 years I have never seen demand at such a high level.

As discussed with you recently section availability for clients of Freedom Built has become a major issue. We are seeing demand outstrip current supply.

Going forward with almost no land available with titles or that will have titles in the next 12 months this is a real issue for our business and clients.

We have seen sections already increase in the recent months (Please see attached example) with these all selling fast at the new levels.

Rolleston's development has been astonishing over the past 20 years and in years to come council must make more land available for development.

The problem is being created by two main things:
1. Land availability for development
2. The large amount of land that is controlled by a small number of developers.

We need council to assist with this under their district plans review.

Regards,

Cole Askew

Cole Askew
Development Manager
0275324547
cole@freedombuilt.co.nz







Registered Master Builder

Showhome Location: 1031 Goulds Road, Rolleston www.freedombuilt.co.nz

Annexure 11: Section 32 RMA Assessment for Operative District Plan Application

Four Stars Ltd & Gould Developments Ltd

Introduction and RMA requirements

1. Four Stars Development Ltd & Gould Developments Ltd (the submitter) is lodging a plan change application to the Operative Selwyn District Pan to change the zoning of the 53.89 ha application site from Rural Inner Plains Zone Living Z Zone.
2. The application has outlined the background to and reasons for the requested plan change.
3. The amendments to the Operative Plan are outlined in the application. No adverse environmental effects are anticipated by the change of zoning, however the potential environmental effects of implementation of the application have been described in the relevant sections of the application.
4. Any change to a plan needs to be evaluated in accordance with section 32 of the Resource Management Act. Selwyn District Council has also required submitters for re-zoning applications to prepare a section 32 assessment in support of the application.
5. Section 32 states:

Requirements for preparing and publishing evaluation reports

(1) An evaluation report required under this Act must—

(a) examine the extent to which the objectives of the proposal being evaluated are the most appropriate way to achieve the purpose of this Act; and

(b) examine whether the provisions in the proposal are the most appropriate way to achieve the objectives by—

(i) identifying other reasonably practicable options for achieving the objectives; and

(ii) assessing the efficiency and effectiveness of the provisions in achieving the objectives; and

(iii) summarising the reasons for deciding on the provisions; and

(c) contain a level of detail that corresponds to the scale and significance of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the proposal.

(2) An assessment under subsection (1)(b)(ii) must—

(a) identify and assess the benefits and costs of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions, including the opportunities for—

(i) economic growth that are anticipated to be provided or reduced; and

(ii) employment that are anticipated to be provided or reduced; and

(b) if practicable, quantify the benefits and costs referred to in paragraph (a); and (c) assess the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the provisions.

(3) If the proposal (an amending proposal) will amend a standard, statement, national planning standard, regulation, plan, or change that is already proposed or that already exists (an existing proposal), the examination under subsection (1)(b) must relate to—

(a) the provisions and objectives of the amending proposal; and

(b) the objectives of the existing proposal to the extent that those objectives—

(i) are relevant to the objectives of the amending proposal; and

(ii) would remain if the amending proposal were to take effect.

5. The Guidance Note on section 32 analysis on the Quality Planning website makes the following statement:

Appropriateness - means the suitability of any particular option in achieving the purpose of the RMA. To assist in determining whether the option (whether a policy, rule or other method) is appropriate the effectiveness and efficiency of the option should be considered:

• Effectiveness - means how successful a particular option is in addressing the issues in terms of achieving the desired environmental outcome.

• Efficiency - means the measuring by comparison of the benefits to costs (environmental benefits minus environmental costs compared to social and economic costs minus their benefits).

6. In this case it is the appropriateness of rezoning rural land for residential general with a small area of residential large lot use (2.8ha) that needs to be examined.

Objective of the Plan Change Application to the Operative District Plan

7. The objective of the application is to change the zoning of the application site in the Operative District Plan from Rural Inner Plains Zone to Living Z Zone in a controlled and managed way through an Outline Development Plan (Area 5) and by adopting, as far as possible, planning zones and subdivision, activity and development standards of the operative plan.
8. Accepting the application will:
   a) Provide for short term additional housing and residential land choice in Rolleston at Living Z standards and that achieve a target of 12 households/ha. Such densities will complement the immediately adjoining residential land without compromising the character or amenity of that land;
   b) Provide for urban development that will bridge between the existing township and the future District Park to the east of the Site in a manner that enables efficient use of existing and future infrastructure and current land resources.

Environmental Outcomes – District Plan Objectives and Policies

9. The Operative Selwyn District Plan (OSDP) objectives give effect to the purpose of the Resource Management Act, and the OSDP policies in turn give effect to the OSDP objectives. The objectives are the end goals or end states (including environmental outcomes) to be strived for and the policies are the broad strategies to achieve the objectives.[1]
10. The proposed residential rezoning has been assessed against the relevant District Plan objectives and policies. It concludes that the requested rezoning is entirely consistent with and meets the outcomes sought by the objectives and policies, including for urban/township growth and new residential areas, except for the restriction of urban development to RPS Map A greenfield areas (which are the OSDP Outline Development Plan areas). However, these requirements are out of step with the NPS-UD. The Site is not identified on the OSDP planning maps as future growth areas. In part that reflects the dominance of the CIAL noise contour, and the adoption of title boundaries and not the contour as defining affected land, as the most restrictive planning control over noise sensitive activities. Only the land off Nobeline Lane is identified as a possible future growth option in the Rolleston Structure Plan and as part of squaring up the town; and as a Future Development Area in Our Space Greater Christchurch Settlement Review Update (2019). This land is also within the RPS Projected Infrastructure Boundary.
11. However, a more efficient use of the Site as a whole, and more efficient development, is for full urban development over al 53 ha, given the high demand but impending shortfall in land for housing at Rolleston, and the Site's location within a logical urban growth path for Rolleston.

Identification of options

12. In determining the most appropriate means to achieve the objectives of the application, a number of alternative planning options are assessed below.
13. These options are:
    a) Option 1: status quo/do nothing: Do not rezone the Site.
    b) Option 2: application to rezone the whole site for urban residential use zoned Lining Z.
    c) Option 3: application to rezone only the southern block identified in the Rolleston Structure Plan as Living Z.

[1] [1] See PSDP Part 1, HPW Plan Structure

d) Option 4: resource consent: ad hoc land use and subdivision consent for subdivision through non-complying subdivision and land use consents for residential use.

S32 Matter	Option 1: Do nothing: Rural Inner Plains Zone	Option 2: Residential: Living Z (53ha)	Option 3: Southern Block Living Z/Balance Rural Inner Plains	Option 4: Consents
Cost	None forapplicants. On-going costs for landowners with rural activities managing effects of adjoining residential land uses.	Time and money cost to applicant for application processes and technical reports. Servicing costs. Development contributions for Council services. Contributes some potential commuter traffic to Greater Christchurch from a portion of the anticipated appx. 660 additional households. (but site is very accessible to public transport services)	Time and money cost to applicantr for application processes and technical reports. Less efficient use of the scarce resource of land so close to an existing, growing urban centre i.e. this is now a key urban growth path for Rolleston. Less efficient development proposal affecting price of sections. Additional consenting and servicing cost for any future relevant densities, if further zoning approved (development can be 'future proofed' for future urban densities). Contributes some traffic potential commuter traffic to Greater Christchurch from a portion of the anticipated appx 220 households (but site is readily accessible to public transport services)	Time and money cost to submitters to seek one-off noncomplying land use and subdivision consents. Consents unlikely to be approved as exceed the permitted Rural zone dwelling density standards & policy requires higher densities to be 'avoided'. Community cost and uncertainty in responding to ad hoc applications and not seeing the full scale of possible development at any time.
S32 Matter	**Option 1: Do nothing: Rural Inner Plains Zone**	**Option 2: Residential: Living Z (53ha)**	**Option 3: Southern Block Living Z/Balance Rural Inner Plains**	**Option 4: Consents**
Benefit	Ongoing low output rural production on some of the Site.	Additional housing stock with greater choice in typology than currently	Lesser volume of housing stock	No rezoning required.

	Retains existing rural/lifestyle character and amenity.	available, contributing to the growth of Rolleston. Contributes significant additional supply of 660 lots to market where there is very strong demand and diminishing remaining supply. ODP Area 5 provides overall plan of integrated land development. Implements NPS-UD. Provides more households to support township services/amenities and facilities.	contributing to the growth of Rolleston. Consistent with PSDP Urban Growth Overlay for southern block which is consistent with the Future Development Area status under Our Space Greater Christchurch Settlement Update but not the current RPS (but the RPS is not consistent with the NPS-UD in that it doesn't meet housing demand at Rolleston). ODP Area 5 provides overall plan of integrated land development for smaller site. Can be future proofed for urban rezoning Provides more households to support township services/amenities and facilities.	Benefit to applicant ifsucceeds (but successful applications unlikely)
S32 Matter	**Option 1: Do nothing: Rural Inner Plains Zone**	**Option 2: Residential: Living Z (53ha)**	**Option 3: Southern Block Living Z/Balance Rural Inner Plains**	**Option 4: Consents**
Efficiency/ Effectiveness	Application site remains low productivity rural land bounded by urban land use and a reserve. Creates on-going management issues for All Stars operation leading to inefficiencies in land use. Rolleston's housing needs are not met. An undersupply of	Utility services can be efficiently provided by the Council, and stormwater can be managed on-site. Effective as it utilises low productivity rural land in a location undergoing rapid urbanisation. Effective in providing for the needs and well-being of landowners according to respective aspirations.	Utility services can be efficiently provided by the Council, and stormwater can be managed on-site. Less effective and efficient than Option 2 because cannot achieve the same residential yield to meet Rolleston's housing needs, to provide development scale and efficiencies, and if 'future proofed' for future	Least effective and efficient as outcomes from consent processes are uncertain, and potentially un-coordinated and lack proper planned integration with the township utilities.

	residential land capacity. Consistent in part with Rolleston Structure Plan 2010 and RPS Map A (which are not consistent with the NPS-UD).	Comprehensively provides for extension of the township as planned for. Effective in meeting Rolleston housing needs in an appropriate location, and implements the NPS-UD	urban development, the yield will be less because there will be more 'interim' larger lots containing dwellings approved under the Rural Inner Plains zoning.	

Risks of Acting or Not Acting

The Council's strategic intentions for Rolleston are contained in the Rolleston Structure Plan 2010. However, this document is now out of date (the projected housing land supply demand for the period up to 2035 has already been reached), and does not reflect the reality of a current impending shortage of housing at Rolleston in the face of continuing very strong demand.

Zoning under the Operative District Plan has to be robust enough to last the statutory life of the Plan (10 years), and the NPS-UD also requires that at the end of 10 years the Council is assured that there will be a sufficient supply of appropriately zoned land beyond that point. The risk of not acting in 2020 to re-zone sufficient urban zoned land, and to provide security of land supply over that timeframe, is that, Rolleston will continue to experience the present day issues of uncatered for demand, undersupply of serviced land and a lurch in land and house prices. The Proposed Selwyn District Plan does not zone any more land at Rolleston so will not resolve the problem. A plan change application will progress more quickly that a District Plan submission so will be able to respond more quickly to the housing supply shortage.

The risk is that if necessary decisions are not taken today then the sustainable growth and development of Rolleston over the foreseeable planning period is uncertain. Not re-zoning sufficient land that can support appropriate housing typologies to meet the needs of a range of household needs is not meeting the purpose of the Act, nor meeting the Council's obligations to sustainably manage the natural and physical resources of the Selwyn District for present and future generations, or the requirements of the NPS-UD.

The applicants have commissioned a range of reports: soil contamination, urban design, integrated transport assessment, geotechnical, and servicing reports to inform and shape the development proposal. Relevant parties have been consulted so their advice and views have been taken in to account in the proposal.

There is no risk that a decision will be made in an absence of expert advice and appropriate technical solutions for servicing and design.

All these inputs to the proposal mean there is little, if any, uncertain or missing information in relation to this proposal.

It is therefore considered that there are no significant risks of acting to adopt the Plan Change or accept the application.

Summary of s32 evaluation

S32 Matter	Option 1: Do nothing: Rural Inner Plains Zone	Option 2: Residential: Living Z (53ha)	Option 3: Southern Block Living Z/Balance Rural Inner Plains	Option 4: Consents
Objectives of the proposal being evaluated are the most appropriate way to achieve the purpose of this Act	±	+	±	×
Whether the provisions in the proposal are the most appropriate way to achieve the objectives	×	+	±	×
Benefits	+	+	+	×
Costs	×	++	++	±
Risks	+	×	×	++

Overall Assessment

14. Based on the above assessment, it is concluded that the application to re-zone the Site from Rural Inner Plains Zone to Living Z Zone is the most appropriate method for achieving the objectives of the proposal, than the other alternatives also considered above.
15. Option 2 is consistent with a range of District Plan policies notwithstanding that it does not sit square with the timing of release of land in Rolleston Structure Plan 2010 (which is now out of date, and does not take account of the new NPS-UD and the significant shortage of housing land at Rolleston in the face of very strong demand) nor the intentions of the Rolleston Structure Plan with respect to the northern and central blocks of the Site.
16. Option 2 to re-zone the whole site Living Z is the most appropriate given:
    a) the proposals adopt an Operative District Plan zone, and development and activity standards. This ensures continuity of District Plan anticipated environmental outcomes and urban amenity for Rolleston and adjoining residential areas;
    b) will be consistent with and give effect to the relevant Operative District Plan objectives and policies;
    c) it is a logical extension to the developed and developing residential land adjoining the Site while achieving a compact, efficient urban form that removes pressure on isolated rural land elsewhere in the Rural Inner Plains Zone;

d) there is no additional cost to the Council in re-zoning the Site as proposed as there is capacity in the public utilities and the existing road network, including planned upgrades, will accommodate the traffic effects of about 660 households;
e) the proposal will bridge the existing urban area to the proposed District Park ; and
f) the proposed ODP Area 5 provides certainty of the final form and disposition of the re-zoned area including its proposals for reserves, roading, future linkages for pedestrian and vehicular traffic.

17. The adoption of the Living Z Zone in the proposal is considered to be appropriate to achieve the long term sustainable growth and development of Rolleston.
18. The economic, social and environmental benefits of the proposal outweigh the potential costs.
19. The overall efficiency and effectiveness of the proposal is high, in comparison the alternative options which are low (Options One and Four) or low to moderate (Option Three).
20. The proposal is considered to be the most appropriate, efficient and effective means of achieving the purpose of the Resource Management Act 1991.

Appendix 12: Levi Road Re-zone Plan Change: Assessment of Regional Policy Statement Objectives and Policies

Four Stars Development Ltd & Gould Developments Ltd

Note: Chapters not relevant

Chapter 7 - Fresh Water

Chapter 8 - The Coastal Environment

Chapter 10 - Beds of Rivers and Lakes and their Riparian Zones

Chapter 13 - Historic Heritage

Chapter 14 - Air Quality

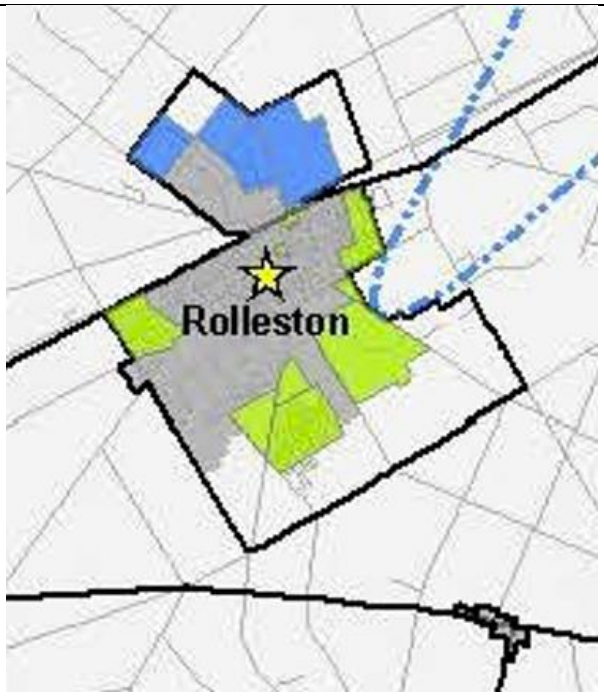
Chapter 16 - Energy

Chapter 18 - Hazardous Substances

Chapter 19 - Waste Minimisation and Management

Objective/Policy	Assessment
CHAPTER 5- LAND-USE AND INFRASTRUCTURE **5.2 OBJECTIVES** **5.2.1 Location, design and function of development (Entire Region)** Development is located and designed so that it functions in a way that: 1. achieves consolidated, well designed and sustainable growth in and around existing urban areas as the primary focus for accommodating the region's growth; and 2. enables people and communities, including future generations, to provide for their social, economic and cultural well-being and health and safety; and which: a. maintains, and where appropriate, enhances the overall quality of the natural environment of the Canterbury region, including its coastal environment, outstanding natural features and landscapes, and natural values; b. provides sufficient housing choice to meet the region's housing needs; c. encourages sustainable economic development by enabling business activities in appropriate locations; d. minimises energy use and/or improves energy efficiency; e. enables rural activities that support the rural environment including primary production; f. is compatible with, and will result in the continued safe, efficient and effective use of regionally significant infrastructure;	The Site is on the south eastern edge of Rolleston, and adjoining the proposed District Park. It will achieve consolidated, well designed and sustainable growth in and around the existing Rolleston urban area. It is a logical extension of a well-established township that has undergone significant planned and managed recent growth in terms of the Rolleston Structure Plan that is well designed and connected with the existing urban areas creating sustainable suburban communities. This proposed rezoning and associated provisions including ODP Area 5 will continue that approach. The proposal will enable the Greater Christchurch community to provide for their social, economic and cultural wellbeing through provision of additional housing as part of an established town. The development will serve a current demand and need, i.e. a short to medium term need that, once established, will form part of the housing stock and supply for the benefit of future generations. With respect to clause 2: 1. There are no areas within the land to be rezoned which have particular or significant natural values, nor is there any significant regional infrastructure. 2. The area being rezoned has as its primary purpose the provision of housing choice for people and communities. 3. The rezoned land adjoins the proposed District Park and is conveniently located to the centre of Rolleston and local facilities and amenities.

g. avoids adverse effects on significant natural and physical resources including regionally significant infrastructure, and where avoidance is impracticable, remedies or mitigates those effects on those resources and infrastructure; h. facilitates the establishment of papakāinga and marae; and i. avoids conflicts between incompatible activities	4. The land being rezoned is currently used for limited primary production purposes other than for the All Stars horse training enterprise. 5. There is no prospect of conflicts between incompatible uses as the Site adjoins urban land used residentially and the District Park. Land within the Site currently under the Christchurch International Airport noise contour remain subject to the Rural Inner Plains rules (proposed zoning Deferred Living Z) if and until such time as the noise contours move off this land.
5.3.7 Strategic land transport network and arterial roads (Entire Region) In relation to strategic land transport network and arterial roads, the avoidance of development which: 1. adversely affects the safe efficient and effective functioning of this network and these roads, including the ability of this infrastructure to support freight and passenger transport services; and 2. in relation to the strategic land transport network and arterial roads, to avoid development which forecloses the opportunity for the development of this network and these roads to meet future strategic transport requirements	The Integrated Traffic Assessment evaluates the effects of the proposed residential development on the existing roading network. That assessment concludes that the additional traffic arising from the 12 households/ha density can be managed within the existing capacities of the existing road network. The proposal gives rise to no traffic safety issues. The traffic effect of the proposed development is considered to be less than minor and is not of a scale with regional significance. The rezoning will be consistent with Objective 5.3.7.
RECOVERY AND REBUILDING OF GREATER CHRISTCHURCH ***6.2 OBJECTIVES*** ***6.2.1 Recovery framework*** *Recovery, rebuilding and development are enabled within Greater Christchurch through a land use and infrastructure framework that:* *1. identifies priority areas for urban development within Greater Christchurch;* *2. identifies Key Activity Centres which provide a focus for high quality, and, where appropriate, mixed-use development that incorporates the principles of good urban design;* *3. avoids urban development outside of existing urban areas or greenfield priority areas for development, unless expressly provided for in the CRPS;* *4. protects outstanding natural features and landscapes including those within the Port Hills from inappropriate subdivision, use and development;* *5. protects and enhances indigenous biodiversity and public space;* *6. maintains or improves the quantity and quality of water in groundwater aquifers and surface waterbodies, and quality of ambient air;*	This Objective is largely given effect to by Map A (reproduced below) of Chapter 6 RPS and Policy 6.3.1. However this Objective is focussed on setting up a recovery framework after the Christchurch earthquakes on the basis of the anticipated demand primarily created by the recovery and rebuilding process immediately following the Canterbury earthquakes. That process is largely complete and the planning issue now is on creating the opportunity to reconsider future needs associated with natural growth in the population and their housing needs. While the proposed rezoning is for a site not consistent with this policy in regard to Map A, being outside the greenfield priority areas, it remains a tenable proposition for re-zoning when the NPS-UD 2020 is addressed (Objective 6c) and Policy 8) and the RPS is reviewed to reflect the new urban growth planning drivers of the NPS-UD.

7. *maintains the character and amenity of rural areas and settlements;* 8. *protects people from unacceptable risk from natural hazards and the effects of sea-level rise;* 9. *integrates strategic and other infrastructure and services with land use development;* 10. *achieves development that does not adversely affect the efficient operation, use, development, appropriate upgrade, and future planning of strategic infrastructure and freight hubs;* 11. *optimises use of existing infrastructure; and* 12. *N/A*	 The environmental effects assessment in the application establish that the proposed development is consistent and will not give rise to any concerns with respect to all the matters listed in 4. to 11.
6.2.2 Urban form and settlement pattern *The urban form and settlement pattern in Greater Christchurch is managed to provide sufficient land for rebuilding and recovery needs and set a foundation for future growth, with an urban form that achieves consolidation and intensification of urban areas, and avoids unplanned expansion of urban areas, by:* 1. *aiming to achieve the following targets for intensification as a proportion of overall growth through the period of recovery:* a. *35% averaged over the period between 2013 and 2016* b. *45% averaged over the period between 2016 to 2021* c. *55% averaged over the period between 2022 and 2028;* 2. *providing higher density living environments including mixed use developments and a greater range of housing types, particularly in and around the Central City, in and around Key Activity Centres, and larger neighbourhood centres, and in greenfield priority areas and brownfield sites;* 3. *reinforcing the role of the Christchurch central business district within the Greater Christchurch area as identified in the Christchurch Central Recovery Plan;*	The Site forms a logical extension to Rolleston and will provide a compact and consolidated urban form for the town, linking the existing urban area with the District Park. The Proposed Selwyn District Plan identifies eight development areas to cater for known and future urban growth (these are existing Map A greenfield priority areas) so to that extent the Site is unplanned but is consistent with the Policy intent of the NPS-UD Policy 8 where Councils are expected to be responsive to plan change requests that would contribute to well-functioning urban environments and supply significant additional capacity (the proposed rezoning will contribute an additional appx. 12% of lots over and above the feasible yield of existing zoned areas at Rolleston). Additional capacity to match the needs for housing over the 10 year life of the District Plan will provide a necessary foundation to enable future growth. The Levi Road proposal will better enable the intent of subclause 5 of the Policy in encouraging sustainable and self-sufficient growth of Rolleston. The Site will meet a minimum density or 12 households per ha which is higher than the existing dwelling density at Rolleston (10 hh/ha for LZ areas and less for other existing urban areas). The development will include medium density housing and potentially a

4. *providing for the development of greenfield priority areas on the periphery of Christchurch's urban area, and surrounding towns at a rate and in locations that meet anticipated demand and enables the efficient provision and use of network infrastructure;* 5. *encouraging sustainable and self-sufficient growth of the towns of Rangiora, Kaiapoi, Woodend, Lincoln, Rolleston and Rolleston and consolidation of the existing settlement of West Melton;* 6. *N/A Rural Residential* 7. *N/A Maori Reserves*	retirement village and will contribute to a greater range of housing types at Rolleston. An interim measure pending resolution of the CIAL noise contour is a deferred residential zone for the land affected which retains its Inner Plains Rural zoning standards in the interim. The Council has confirmed that there is infrastructure capacity to service the proposal at urban residential standards.
6.2.3 Sustainability *Recovery and rebuilding is undertaken in Greater Christchurch that:* 1. *provides for quality living environments incorporating good urban design;* 2. *retains identified areas of special amenity and historic heritage value;* 3. *retains values of importance to Tāngata Whenua;* 4. *provides a range of densities and uses; and* 5. *is healthy, environmentally sustainable, functionally efficient, and prosperous.*	The Assessment of Environmental Effects addresses the matters of good urban design, densities and uses and the adoption of sustainable infrastructure services consistent with this objective. The proposal is underpinned by good urban design reflected in and managed by ODP Area 5 to create quality living environments that will be functionally efficient with linkage and road access in to the existing urban fabric of Rolleston. Areas of existing special amenity to be retained are existing established dwellings and their well landscaped curtilages along Lincoln Rolleston Road. Two proposed reserves in the northern and southern blocks create open space and amenity for nearby residents.
6.2.4 Integration of transport infrastructure and land use *Prioritise the planning of transport infrastructure so that it maximises integration with the priority areas and new settlement patterns and facilitates the movement of people and goods and provision of services in Greater Christchurch, while:* 1. *managing network congestion;* 2. *reducing dependency on private motor vehicles;* 3. *reducing emission of contaminants to air and energy use;* 4. *promoting the use of active and public transport modes;* 5. *optimising use of existing capacity within the network; and* 6. *enhancing transport safety.*	The Integrated Traffic Assessment demonstrates that the Site will be designed to satisfy the requirements of this Policy and this is confirmed by the urban structural elements on the ODP Area 5.

6.3 POLICIES ***6.3.1 Development within the Greater Christchurch area*** *In relation to recovery and rebuilding for Greater Christchurch:* 1. *give effect to the urban form identified in Map A, which identifies the location and extent of urban development that will support recovery, rebuilding and planning for future growth and infrastructure delivery;* 2. *give effect to the urban form identified in Map A (page 6-27) by identifying the location and extent of the indicated Key Activity Centres;* 3. *enable development of existing urban areas and greenfield priority areas, including intensification in appropriate locations, where it supports the recovery of Greater Christchurch;* 4. *ensure new urban activities only occur within existing urban areas or identified greenfield priority areas as shown on Map A, unless they are otherwise expressly provided for in the CRPS;* 5. *N/A educational facilities in rural areas* 6. *N/A metropolitan recreation facility and* 7. *avoid development that adversely affects the function and viability of, or public investment in, the Central City and Key Activity Centres.*	Map A was prepared to provide a focus for priority development as part of the earthquake recovery phase. That is now past. The lack of consistency of the re-zone submission with the current version of Map A is a function of timing. It is quite moot as to the priority areas needed to meet present and foreseeable future housing demand in general in Greater Christchurch, and in Rolleston. A Change to the RPS is anticipated to include Future Development Areas (indicative only, but only providing for additional growth at Rolleston) as proposed in Our Space, but also to address the new NPS-UD which may require a revisit of the FDAs. A full review is scheduled for 2023. However, decisions are required now and should not be fettered by a planning control that has served its purpose but is not addressing the urban growth needs of Greater Christchurch for the period 2020-2030 (the statutory life of the District Plan). Whilst the RPS greenfield priority areas are for the period up to 2028, and the housing targets for the period 2018-2048, they are clearly woefully inadequate to meet housing demand at Rolleston. The letters from real estate agents indicate an imminent issue with on-going supply of developable land at Rolleston given the very fast uptake of zoned land. Plan Change 64 is the latest proposal to try and provide a bridge across the lead-in years required to provide an adequate supply of zoned and serviceable land; this re-zone submission for 660 lots provides an important option to ensure there is the necessary development capacity of suitable land going forward (as required by the NPS-UD) to help avoid an anticipated knock-on effect on availability and price of sections. It is critical that the extra development capacity is controlled by several not just one developer, to ensure a competitive land and housing market as required by the NPS-UD. This would be not achieved if just the PC64 land was rezoned. The Site is not in a random, remote greenfields location that would challenge the integrity and consistency of the present RPS policy of favouring outward growth around existing urban areas where that growth contributes to compact and consolidated urban forms, and where appropriate connectivity to existing areas can be developed. The proposal can be seen as implementing Policy 8 NPS-UD and is a live proposition to avoid a delay in meeting housing demand at Rolleston. Not moving now in to the statutory re-zone process will create a delay of a minimum of two years from when the District Plan is

	made operative. If that happens then there will be a severe shortage of development land at Rolleston, which will in turn exacerbate housing pressure including on price of land and houses.
6.3.2 Development form and urban design *Business development, residential development (including rural residential development) and the establishment of public space is to give effect to the principles of good urban design below, and those of the NZ Urban Design Protocol 2005, to the extent appropriate to the context:* 1. *Tūrangawaewae – the sense of place and belonging – recognition and incorporation of the identity of the place, the context and the core elements that comprise the Through context and site analysis, the following elements should be used to reflect the appropriateness of the development to its location: landmarks and features, historic heritage, the character and quality of the existing built and natural environment, historic and cultural markers and local stories.* 2. *Integration – recognition of the need for well-integrated places, infrastructure, movement routes and networks, spaces, land uses and the natural and built environment. These elements should be overlaid to provide an appropriate form and pattern of use and development.* 3. *Connectivity – the provision of efficient and safe high quality, barrier free, multimodal connections within a development, to surrounding areas, and to local facilities and services, with emphasis at a local level placed on walking, cycling and public transport as more sustainable forms of* 4. *Safety – recognition and incorporation of Crime Prevention Through Environmental Design (CPTED) principles in the layout and design of developments, networks and spaces to ensure safe, comfortable and attractive places.* 5. *Choice and diversity – ensuring developments provide choice and diversity in their layout, built form, land use housing type and density, to adapt to the changing needs and circumstances of the population.* 6. *Environmentally sustainable design – ensuring that the process of design and development minimises water and resource use, restores ecosystems, safeguards mauri and maximises passive solar gain.*	The Urban Design statement for the proposal demonstrates how good urban design underpins the development concept in ODP Area 5. The assessment of environmental effects concludes that the Site to be rezoned will achieve a high level of amenity and efficiency for residents and for the neighbourhood. The submission is consistent with, and will give effect to, the outcomes sought by this Policy.

7. Creativity and innovation – supporting opportunities for exemplar approaches to infrastructure and urban form to lift the benchmark in the development of new urban areas in the Christchurch region.	
6.3.3 Development in accordance with Outline Development Plans *Development in greenfield priority areas and rural residential development is to occur in accordance with the provisions set out in an outline development plan or other rules for the area. Subdivision must not proceed ahead of the incorporation of an outline development plan in a district plan. Outline development plans and associated rules will: (list of specific matters)*	The development will be managed through a development plan. The proposal is consistent with, and will give effect to, the outcomes sought by this Policy.
6.3.4 Transport effectiveness *Ensure that an efficient and effective transport network that supports business and residential recovery is restored, protected and enhanced so that it maintains and improves movement of people and goods around Greater Christchurch by:* *1. avoiding development that will overload strategic freight routes;* *2. providing patterns of development that optimise use of existing network capacity and ensuring that, where possible, new building projects support increased uptake of active and public transport, and provide opportunities for modal choice;* *3. providing opportunities for travel demand management;* *4. requiring integrated transport assessment for substantial developments; and* 5. *improving road user safety.*	The Integrated Traffic Assessment confirms how the Site will knit in to the existing arterial and local roading network and the effects of those connections. Lincoln Rolleston and Levi Roads provide direct connection to the town centre where connections to the public bus services are possible at the Park and Ride facility, and to the State Highway/Southern Motorway. The extension to Broadlands Drive and Branthwaite Drive give primary access west to key education and community facilities. The proposed rezoning is consistent with, and will give effect to, the outcomes sought by this Policy.
6.3.5 Integration of land use and infrastructure *Recovery of Greater Christchurch is to be assisted by the integration of land use development with infrastructure by:* *1. Identifying priority areas for development to enable reliable forward planning for infrastructure development and delivery;* *2. Ensuring that the nature, timing and sequencing of new development are co-ordinated with the development, funding, implementation and operation of transport and other infrastructure in order to:* *a. optimise the efficient and affordable provision of both the development and the infrastructure;*	The factors and outcomes sought in Policy 6.3.5 have formed the basis for identification of growth areas with Greater Christchurch as reflected in Map A and the setting of the infrastructure boundary. The servicing of the proposed development area is addressed in the Servicing Report. It concludes that the proposed areas will make efficient use of existing infrastructure and confirms discussions held with Council Services staff. The proposal gives effect to this Policy.

b. *maintain or enhance the operational effectiveness, viability and safety of existing and planned infrastructure;* c. *protect investment in existing and planned infrastructure; and* d. *ensure new development does not occur until provision for appropriate infrastructure is in place;* 3. *Providing that the efficient and effective functioning of infrastructure, including transport corridors, is maintained, and the ability to maintain and upgrade that infrastructure is retained;* 4. *Only providing for new development that does not affect the efficient operation, use, development, appropriate upgrading and safety of existing strategic infrastructure, including by avoiding noise sensitive activities within the 50dBA Ldn airport noise contour for Christchurch International Airport, unless the activity is within an existing residentially zoned urban area, residential greenfield area identified for Kaiapoi, or residential greenfield priority area identified in Map A (page 6-28); and* 5. *Managing the effects of land use activities on infrastructure, including avoiding activities that have the potential to limit the efficient and effective, provision, operation, maintenance or upgrade of strategic infrastructure and freight hubs.*	
6.3.7 Residential location, yield and intensification 1. *In relation to residential development opportunities in Greater Christchurch:* 2. *Subject to Policy 5.3.4, residential greenfield priority area development shall occur in accordance with Map A. These areas are sufficient for both growth and residential relocation through to 2028.* 3. *Intensification in urban areas of Greater Christchurch is to be focused around the Central City, Key Activity Centres and neighbourhood centres commensurate with their scale and function, core public transport routes, mixed-use areas, and on suitable brownfield land.* 4. *Intensification developments and development in greenfield priority areas shall achieve at least the following residential net densities averaged over the whole of an ODP area (except where subject to an existing*	See assessment for Policy 6.3.1. Greenfield areas identified on Map A were developed on the primary basis of anticipated demand created by the recovery and rebuilding process following the Canterbury earthquakes. While these were stated to apply through to 2028, recent analysis of population growth and take-up of land for new housing has shown that the growth requirements were underestimated and land availability overestimated. This has been addressed in the update to the Urban Development Strategy which is contained in the report "Our Space 2018-2018 – Greater Christchurch Settlement Pattern Update". The Update provides for residential development out to the Projected Infrastructure Boundary identified in Map A contained in Chapter 6 of the CRPS. Even that update has not kept pace with recent housing and urban land demand. The objectives and policies of Chapter 6 RPS do not recognise that housing needs of Greater Christchurch have moved on from responding to the impacts of the

operative ODP with specific density provisions): 5. *10 household units per hectare in greenfield areas in Selwyn and Waimakariri District;* 6. *15 household units per hectare in greenfield areas in Christchurch City;* 7. *Intensification development within Christchurch City to achieve an average of:* 8. *50 household units per hectare for intensification development within the Central City;* 9. *30 household units per hectare for intensification development elsewhere.* 10. *Provision will be made in district plans for comprehensive development across multiple or amalgamated sites.* 11. *Housing affordability is to be addressed by providing sufficient intensification and greenfield priority area land to meet housing demand during the recovery period, enabling brownfield development and providing for a range of lot sizes, densities and appropriate development controls that support more intensive developments such as mixed use developments, apartments, townhouses and terraced housing.*	earthquakes. In particular there is a demand for residential land for housing created primarily now by natural growth in the population, particularly for those people buying their first home or seeking to re-settle in Greater Christchurch generally. Planning instruments have not responded in a timely way to this demand in an efficient manner and there is evidence that that situation is causing the price of land and new housing to increase beyond historical levels. Planning for this demand can be by way of changes to, and review of, the RPS and District Plans or legitimately by way of Private Plan changes and submissions on the Proposed District Plan. Private initiatives provide opportunities for planning responses to provide timely planning interventions to help meet the changed circumstances driving demand for urban and housing. Private requests are generally a much faster and therefore more responsive process. The PSDP does not add any additional housing areas to those provided on Map A, so seriously 'underzones' for what is required to meet housing needs over the life of the SPDP. The approach appears to be to rely on submissions to address the shortfall. The yield of a minimum of 12hh/ha satisfies the criteria of Policy 6.3.7.
CHAPTER 9- ECOSYSTEMS AND INDIGENOUS BIODIVERSITY **9.2 Objectives** **9.2.1 Halting the decline of Canterbury's ecosystems and indigenous biodiversity** The decline in the quality and quantity of Canterbury's ecosystems and indigenous biodiversity is halted and their life supporting capacity and mauri safeguarded	There is no indigenous biodiversity of any particular value on the Site proposed to be rezoned.
CHAPTER 11- NATURAL HAZARDS **1.2 Objectives** **11.2.1 Avoid new subdivision, use and development of land that increases risks associated with natural hazards** New subdivision, use and development of land which increases the risk of natural hazards to people, property and infrastructure is avoided or, where avoidance is not possible, mitigation measures minimise such risks.	The Plan Change adopts the identification of parts of the Site (potential flood channels) within the PSDP Plains Flood Management Area. All dwellings will have an appropriate floor level above the 200 year Average Return Interval (ARI) design flood level, as required by the SPRDP rules. The geotechnical assessment shows no issues with liquefaction. It concluded that *Due to the low risk of liquefaction at the subdivision we have classified the investigation site as TC1…Following our assessment, we consider the site suitable land use change to residential zoning from a geotechnical perspective (para 90).*
CHAPTER 12- LANDSCAPE **2.2 OBJECTIVES** **12.2.1 Identification and protection of outstanding natural features and landscapes**	There are no outstanding natural landscapes or features or other amenity landscapes that could be impacted by development of the Site.

Outstanding natural features and landscapes within the Canterbury region are identified and their values are specifically recognised and protected from inappropriate subdivision, use, and development. **12.2.2 Identification and management of other landscapes** The identification and management of other important landscapes that are not outstanding natural landscapes. Other important landscapes may include: 1. natural character 2. amenity 3. historic and cultural heritage	
CHAPTER 15- **SOILS 15.2** **OBJECTIVES 15.2.1 Maintenance of soil quality** Maintenance and improvement of the quality of Canterbury's soil to safeguard their mauri, their life supporting capacity, their health and their productive capacity**.** **15.3 POLICIES** **15.3.1 Avoid remedy or mitigate soil degradation** In relation to soil: 1. to ensure that land-uses and land management practices avoid significant long-term adverse effects on soil quality, and to remedy or mitigate significant soil degradation where it has occurred, or is occurring; and 2. to promote land-use practices that maintain and improve soil quality. **15.3.2 Avoid and remedy significant induced soil erosion** To avoid significant new induced soil erosion resulting from the use of land and as far as practicable remedy or mitigate significant induced soil erosion where it has occurred. Particular focus is to be given to the desirability of maintaining vegetative cover on non-arable land.	This objective and its policies relate to the quality of soil and potential impacts on this quality by land management practices associated with activities such as intensive farming. It is not therefore relevant to the proposed rezoning for urban and residential purposes.
CHAPTER 17- CONTAMINATED LAND **17.2 OBJECTIVES** **17.2.1 Protection from adverse effects of contaminated land** Protection of people and the environment from both on-site and off-site adverse effects of contaminated land. **7.3 POLICIES** **17.3.1 Identify potentially contaminated land** To seek to identify all land in the region that was historically, or is presently, being used for an activity that has, or could have, resulted in the contamination of that land, and where appropriate, verify the existence and nature of contamination.	The Preliminary Site Investigation drew on site histories and walkovers of the site. The findings were that, generally, historical activities on the Site have resulted in no soil contamination with only localised small burn sites and waste sites, chemicals stored in farm buildings and the potential for asbestos associated with cladding of existing buildings within an identified risk area. A DSI is recommended for that risk area. For the balance of the Site, the minor level of contamination can be simply managed and removed at the time of development.

17.3.2 Development of, or discharge from contaminated land In relation to actually or potentially contaminated land, where new subdivision, use or development is proposed on that land, or where there is a discharge of the contaminant from that land: 1. a site investigation is to be undertaken to determine the nature and extent of any contamination; and 2. if it is found that the land is contaminated, except as provided for in Policy 17.3.3, the actual or potential adverse effects of that contamination, or discharges from the contaminated land shall be avoided, remedied or mitigated in a manner that does not lead to further significant adverse effects.	The proposal therefore satisfies this objective and policies.

Appendix 13:

Assessment against Operative and Proposed Selwyn District Plan Objectives and Policies

The following assessment of the proposed Plan Change focuses on those objectives and policies of most relevance to the plan change.

Table 1: Relevant Objectives and Policies in the Operative Selwyn District Plan

Selwyn District Plan – Townships Volume	
Chapter B1 – Natural Resources	**Assessment**
Objective B1.1.2 New residential or business activities do not create shortages of land or soil resources for other activities in the future.	The proposed Plan Change will enable the conversion of approximately 53 ha of rural land that primarily contains rural lifestyle blocks (2-8 ha size range) with a common domestic curtilage around larger individual dwellings including auxiliary buildings such as stand-alone garages, sheds and other structures associated with rural living. The Site also features a major horse training enterprise and, several bare paddocks used for grazing. This is marginal loss of rural productive land for a future residential land use signalled in the Rolleston Structure Plan for part of the Site. The majority of the Site is LUC (Land Use Capability) 2.
Policy B1.1.3 Avoid adverse effects on people's health or well-being from exposure to contaminated soil.	Two PSI Reports by Malloch Environmental confirmed that for the northern portion of the Site *There is no evidence of Hazardous Activities and Industries List (HAIL) activities or industries having occurred on the subject site, now or in the past. The subject site is considered suitable for residential use with no further investigations required.* It identified on the southern block near Nobeline Lane *a risk area within Lot 3 DP 67190 and Lot 7 DP 483709 of the subject site. There is a risk of contamination by heavy metals and petroleum hydrocarbons…* but it was uncertain what effects, if any, there have been on the Site's soils. It recommended a targeted site Investigation (DSI) to assess site soils to determine environmental effects, or otherwise.

Policy B1.1.8 Avoid rezoning land which contains versatile soils for new residential or business development if: 1) The land is appropriate for other activities; and 2) There are other areas adjoining the township which are appropriate for new residential or business development which do not contain versatile soils.	The southern block is shown in the Rolleston Structure Plan as an area for future urban development. Consideration of the Policy would have occurred as part of Plan preparation. The majority of the Site has versatile soils (classed as LUC 2 soils) but that is spread across a number of lots in different ownerships. As such the area of versatile soils fragmented and the individual parcels are not in themselves a significant resource for highly productive land uses. Continued farming use of the blocks is compromised by reverse sensitivity issues with surrounding encroaching residential development. This has become a very serious issue for the All Stars horse training establishment which means its continued operation here is no longer viable.
Objective B1.2.1 Expansion of townships in Selwyn District maintains and enhances the quality of ground or surface water resources.	There will not be an adverse impact on the quality of ground or surface water. There are no waterways within the Site. A Servicing Report by Paterson Pitts sets out the soil and geology characteristics of the Site and the feasibility of stormwater management options. The use of disposal to ground has been confirmed as appropriate by the Council Assets staff. An ECan discharge consent will be required.
Policy B1.2.2 Ensure land rezoned to a Living or Business zone can be serviced with a water supply and effluent and stormwater disposal without adversely affecting ground water or surface waterbodies.	A Servicing Report by Paterson Pitts confirms servicing proposals for roads, wastewater, water supply, and stormwater. These have been determined through discussions with Council Assets staff. A detailed ITA assessment for traffic (Novus Group) supports the Servicing Report. Full urban reticulation of sewage and water will manage effects on ground and off-site surface waterbodies.
Policy B1.2.3 Require the water supply to any allotments or building in any township and the Living 3 Zone to comply with the current New Zealand Drinking	The Servicing Report confirms water is available by connecting in to the Council's water main

Water Standards and to be reticulated in all, except for sites in the existing Living 1 Zone in Doyleston.	supply network with upgrades proposed for Levi and Lincoln Rolleston Roads mains.
Chapter B2 – Physical Resources	
Objective B2.1.1 An integrated approach to land use and transport planning to ensure the safe and efficient operation of the District's roads, pathways, railway lines and airfields is not compromised by adverse effects from activities on surrounding land or by residential growth.	An Integrated Transport Assessment by Novus Group shows how the development of the Site will not undermine the safe and efficient operation of the District's roads and pathways. The proposed ODP shows a preferred roading layout including linkages, points of connection to the existing roads, and indicative internal access and roading. Internal access and roading within the Site will be developed in accordance with relevant traffic standards, as will local traffic-related upgrades (and be confirmed through the subdivision consent process). This will ensure good connectivity to Rolleston by Broadlands and Brathwaite Drives, and to the proposed District Park. Specific recommendations are made about the intersection upgrade for Levi/Lincoln Rolleston/Lowes/Masefield's.
Objective B2.1.2 An integrated approach to land use and transport planning to manage and minimise adverse effects of transport networks on adjoining land uses and to avoid "reverse sensitivity" effects on the operation of transport networks.	The Urban Design Statement and ITA discuss how integration of the development in to the existing road network will be achieved, and the effects of doing so. There are two primary access points from Lincoln Rolleston Road, and further access points off the three surrounding roads into the 53 ha site shown on the ODP. Future connections are provided to the proposed District Park, and eastwards through the southern block. SDC staff have been consulted on the draft Plan Change including ODP, and have not raised any concerns regarding traffic effects of the proposal on the local transport network.
Policy B2.1.1 Apply a road hierarchy classification in Selwyn District to recognise the different functions and roles of the District's roads.	The Site adjoins existing urban development to the west and north, and makes transport connections to these developments, and to the proposed District Park to the east thus promoting an efficient and consolidated land use pattern. The internal roads are consistent with the existing road hierarchy.

	The ODP identifies several indicative access points to/from the Site, which will provide a direct and safe pedestrian and cycle route into Rolleston and the cycleway on Lincoln Rolleston Road. The ODP shows primary and secondary roads within the proposed development area, including potential linkages to the east to futureproof for further urban development.
Policy B2.1.2 Manage effects of activities on the safe and efficient operation of the District's existing and planned road network, considering the classification and function of each road in the hierarchy.	See above assessment
Policy B2.1.4(a) Ensure all sites, allotments or properties have legal access to a legal road which is formed to the standard necessary to meet the needs of the activity considering: • the number and type of vehicle movements generated by the activity; • the road classification and function; and • any pedestrian, cycle, public transport or other access required by the activity.	All sites, allotments or properties have legal access to a legal road which will be formed to the standard necessary to meet the needs of the activity at the subdivision stage.
Policy B2.1.5 Ensure the development of new roads is: a) integrated with existing and future transport networks and landuses; and b) designed and located to maximize permeability and accessibility; through achieving a high level of connectivity within and through new developments to encourage use of public and active transport; whilst having regard to the road hierarchy.	For the reasons outlined above, the proposed Plan Change is in accordance with Objectives B2.1.1 and B2.1.2 and Policies B2.1.2, B2.1.5, B2.1.9, B2.1.12, B2.1.13, B2.1.15.
Policy B2.1.9 Ensure buildings are set back a sufficient distance from road boundaries to maintain good visibility for all road users including motorist, cyclists and pedestrians, and to allow safe access and egress and to mitigate reverse sensitivity effects on land adjoining the State Highway.	For the reasons outlined above, the proposed Plan Change is in accordance with Objectives B2.1.1 and B2.1.2 and Policies B2.1.2, B2.1.5, B2.1.9, B2.1.12, B2.1.13, B2.1.15.
Policy B2.1.11 Ensure roads are designed, constructed, maintained and upgraded to an appropriate standard to carry the volume and types of traffic safely and efficiently.	For the reasons outlined above, the proposed Plan Change is in accordance with Objectives B2.1.1 and B2.1.2 and Policies B2.1.2, B2.1.5, B2.1.9, B2.1.12, B2.1.13, B2.1.15.
Policy B2.1.12	For the reasons outlined above, the proposed Plan Change is in accordance with Objectives

Address the impact of new residential or business activities on both the local roads around the site and the District's road network, particularly Arterial Road links with Christchurch City.	B2.1.1 and B2.1.2 and Policies B2.1.2, B2.1.5, B2.1.9, B2.1.12, B2.1.13, B2.1.15.
Policy B2.1.13 Minimise the effects of increasing transport demand associated with areas identified for urban growth by promoting efficient and consolidated land use patterns that will reduce the demand for transport.	For the reasons outlined above, the proposed Plan Change is in accordance with Objectives B2.1.1 and B2.1.2 and Policies B2.1.2, B2.1.5, B2.1.9, B2.1.12, B2.1.13, B2.1.15.
Policy B2.1.15 Require pedestrian and cycle links in new and redeveloped residential or business areas where such links are likely to provide a safe, attractive and accessible alternative route for pedestrians and cyclists, to surrounding residential areas, business or community facilities.	For the reasons outlined above, the proposed Plan Change is in accordance with Objectives B2.1.1 and B2.1.2 and Policies B2.1.2, B2.1.5, B2.1.9, B2.1.12, B2.1.13, B2.1.15. The Urban Design Statement explains the importance of, and provision for, connecting the Site to existing roads and is conveniently located to the town centre, being easily accessed on foot or by cyclists. The ODP makes provision for linkages to land adjoining to the east in the event that future urban development happens in that direction.
Policy B2.2.1 Require that the need to supply utilities and the feasibility of undertaking, is identified at the time a plan change request is made to rezone land for residential or business development.	The proposed Plan Change is in accordance with Policy B.2.2.1 as the Servicing Report confirms that the development can be serviced by utilities: sewerage, water, power, telecoms, streetlighting, stormwater.
Policy B2.2.2 Ensure activities have access to the utilities they require at the boundary prior to any new allotment being sold; or prior to any new activity taking place on an existing allotment.	This will be ensured through the subdivision consent process.
Policy B2.2.3 Encourage the "market" to determine the efficient use of utilities.	The proposal is to connect to Council utilities.
Objective B2.3.1 Residents have access to adequate community facilities.	The Site is conveniently position to "square up" the town and provide ease of access to community facilities including the Rolleston community facility hub and schools to the west, the town centre to the north west, and theproposed District Park to the east. The town centre is about 750m from the Site at Levi Road, and about 2 km from Nobeline Lane.
Objective B2.3.2	There are no community facilities proposed within the Site.

Community facilities do not adversely affect residential amenity values or other parts of the environment.	
Policy B2.3.8 Ensure residents in Selwyn District have access to sufficient reserve areas to meet their needs for space for active and passive recreation.	The Council has proposals to develop a District Park on the eastern boundary of the Site. The ODP shows provision for two reserves within the Site. The Main access roads will be configured to provide a wide road to support cycling/walking options.
Policy B2.4.4 Ensure land rezoned for new residential or business development has a regular solid waste collection and disposal service available to residents.	The Council kerbside rubbish collection presently is provided to all urban areas adjoining the Site.
Chapter B3 – People's Health, Safety and Values.	
Natural Hazards **Objective B3.1.1** Ensure activities do not lead to or intensify the effects of natural hazards. **Policy B3.1.2** Avoid allowing new residential or business development in areas known to be vulnerable to a natural hazard, unless any potential risk of loss of life or damage to property is adequately mitigated.	The Site is not identified in the SDP as being at risk from natural hazards. The Selwyn District Plan flood maps show channelised flow through parts of the Site in a 1 in 200 year return flood event. All dwelling floor levels will be raised above this level. The Flooding Assessment concludes that *…flood and storm waters can be appropriately managed by* *a) Any future subdivision being designed to current SDC standards with the intention for stormwater to be discharged to ground.* b) *The roading network becoming the secondary flow path for flood waters to drain away from the site and re-join the natural overland flow paths*. The Landtech Geotechnical Investigation Report concludes that: *Due to the low risk of liquefaction at the subdivision we have classified the investigation site as TC1.* This achieves the direction of Policy B3.1.2.
Quality of the Environment **Objective B3.4.**1 The District's townships are pleasant places to live and work in. **Objective B3.4.2** A variety of activities are provided for in townships, while maintaining the character and amenity values of each zone.	The proposal is seeking to provide a high quality urban environment that, by adopting existing SDP standards and zones will • minimise reverse sensitivity effects, • provide a compact form to Rolleston • provide a choice of living environments on the 53 ha site (standard residential, some medium density lots and

Objective B3.4.3 "Reverse sensitivity" effects between activities are avoided. **Objective B3.4.4** Growth of existing townships has a compact urban form and provides a variety of living environments and housing choices for residents, including medium density housing typologies located within areas identified in an Outline Development Plan. **Objective B3.4.5** Urban growth within and adjoining townships will provide a high level of connectivity both within the development and with adjoining land areas (where these have been or are likely to be developed for urban activities or public reserves) and will provide suitable access to a variety of forms of transport. Objective B3.4.6 Within the Greater Christchurch area covered by Chapter 6 to the Canterbury Regional Policy Statement, to provide for rural residential development only in the locations identified in the adopted Selwyn District Council Rural Residential Strategy 2014. **Policy B3.4.1** To provide zones in townships based on the existing quality of the environment, character and amenity values, except within Outline Development Plan areas in the Greater Christchurch area where provision is made for high quality medium density housing. **Policy B3.4.2** To provide for any activity to locate in a zone provided it has effects which are compatible with the character, quality of the environment and amenity values of that zone. **Policy B3.4.3** To provide Living zones which: • are pleasant places to live in and provide for the health and safety of people and their communities; • are less busy and more spacious than residential areas in metropolitan centres; • have safe and easy access for residents to associated services and facilities; • provide for a variety of living environments and housing choices for residents, including	retirement village) and potentially rural lots under the CIAL noise contour until that planning control is removed. • ensure that in an amenity sense the distinct character and quality of environment of Rolleston will be continued through proposals to retain the established, significant landscaping around established dwellings on the Site • provide high levels of connectivity to existing roads and town centre • meet the policy intent of Policy B3.4.3 The medium density areas will be spread through the Site according to urban design criteria in the Urban Design Statement such as near to reserves, which provide an open space setting for the higher density development. The LZ standards for the Site combined with the Operative District Plan provisions for medium density development, will enable a minimum of 12 households per ha. This reflects the need to facilitate a development with more opportunity for more affordable smaller sites, and 'foreshadows' the requirement of the Proposed SDP, for a minimum density of 12 hh/ha. The design intentions are well set out in the Urban Design Statement and the fundamental development framework is set by the ODP. A possible subdivision concept has been prepared based on the ODP. There will be less than 20% rear lots. The subdivision layout meets the SDP standard for walkable residential blocks with a maximum perimeter of 800m and maximum of 1000m.

medium density areas identified in Outline Development Plans; • ensure medium density residential areas identified in Outline Development Plans are located within close proximity to open spaces and/or community facilities and • ensure that new medium density residential developments identified in Outline Development Plans are designed in accordance with the following design principles: • access and connections to surrounding residential areas and community facilities and neighbourhood centres are provided for through a range of transport modes; • block proportions are small, easily navigable and convenient to encourage cycle and pedestrian movement; • streets are aligned to take advantage of views and landscape elements; • section proportions are designed to allow for private open space and sunlight admission; • a subdivision layout that minimises the number of rear lots; • layout and design of dwellings encourage high levels of interface with roads, reserves and other dwellings; • a diversity of living environments and housing types are provided to reflect different lifestyle choices and needs of the community; • a balance between built form and open spaces complements the existing character and amenity of the surrounding environment and; • any existing natural, cultural, historical and other unique features of the area are incorporated where possible to provide a sense of place, identity and community	
Chapter B4 – Growth of Townships	

Objective B4.1.1 A range of living environments is provided for in townships, while maintaining the overall 'spacious' character of Living zones, except within Medium Density areas identified in an Outline Development Plan where a high quality, medium density of development is anticipated. **Objective B4.1.2** New residential areas are pleasant places to live and add to the character and amenity values of townships Policy B4.1.1 (a)Provide for a variety of allotment sizes for erecting dwellings in Living 1 Zones, while maintaining average section size similar to that for existing residential areas in townships, except within the Living Z Zone, including any Medium Density area identified in an Outline Development Plan where a higher density of development is anticipated. **Policy B4.1.11** Encourage new residential areas to be designed to maintain or enhance the aesthetic values of the township, including (but not limited to): • Retaining existing trees, bush, or other natural features on sites; and • Landscaping public places. **Policy B4.1.13** To ensure that development in Medium Density areas identified in an Outline Development Plan provides a high quality living environment and achieves a good level of urban design, appearance and amenity. Relevant urban design considerations include: • That the design of medium density developments is of a high quality, with a good balance of consistency and variety in form, alignment, materials and colour and a sufficient level of architectural detailing; • That residential units provide an open and attractive streetscene through being oriented towards the street or other adjacent public spaces, have low or no front fencing, front facades that are not dominated by garaging but instead have clearly visible pedestrian front entrances and a balanced ratio of glazing to solid walls;	See above assessment and the Urban Design Statement. For Policy B4.1.11 the new residential areas will be designed to maintain or enhance the aesthetic values of the township noting that to the extent possible, and subject to final subdivision/servicing design, existing trees and plantings on the Site are intended to be retained. The two reserves will be vested in the Council. Policy B4.1.13 will be achieved through the subdivision process and compliance with SDP development and activity standards.

• That opportunities for landscaping and tree planting is provided, commensurate with a medium density living environment; • That opportunity for comprehensive developments are provided, including the ability to erect short terraces or share internal side boundary walls; • That medium density developments make provision for adequate, well located and well designed private outdoor living areas; • That internal amenity is provided for occupants through levels of privacy and access to sunlight appropriate to a medium density living environment; • That the appearance of cramped development is avoided by limiting site coverage and ensuring there is open space between houses, duplexes or blocks of terraces, particularly at first floor level.	
Policy B4.2.11 Encourage subdivision designs within Outline Development Plan areas to provide for a variety of section sizes that are designed to cater for different housing types.	The Explanation and Reasons states: *A range of housing types are required to cater to different living requirements and different age groups within Outline Development Plan areas. It is likely that a person's housing needs will change throughout their life and it should be possible for them to meet their needs within the District. Policy B4.2.11 therefore seeks to ensure that new residential areas are designed to provide for housing diversity by creating variety in section sizes and subsequent housing types.* The proposed rezoning and ODP recognises how the Site can provide for a range of housing typologies to provide for local housing needs, including a range of lot sizes.
Objective B4.3.1 The expansion of townships does not adversely affect: • Natural or physical resources; • Other activities; • Amenity values of the township or the rural area; or Sites with special ecological, cultural, heritage or landscape values.	The Site is currently in mature lifestyle blocks. It has no sites of special ecological, cultural, heritage or landscape values. The proposal is seeking to provide a high quality urban environment that, by adopting existing SDP standards and zones, will • Contribute to a compact township shape • Support the timely, efficient and integrated provision of infrastructure • Ensure a coordinated and phased development approach through the ODP

Objective B4.3.3 For townships within the Greater Christchurch area, new residential or business development is to be provided within existing zoned land or priority areas identified in the Regional Policy Statement and such development is to occur in general accordance with an operative Outline Development Plan. **Objective B4.3.4** New areas for residential or business development support the timely, efficient and integrated provision of infrastructure, including appropriate transport and movement networks through a coordinated and phased development approach. **Objective B4.3.5** Ensure that sufficient land is made available in the District Plan to accommodate additional households in the Selwyn District portion of the Greater Christchurch area between 2013 and 2028 through both Greenfield growth areas and consolidation within existing townships. **Objective B4.3.6** Ensure that subdivision and development in Living Z zoned areas achieves an average net density over an Outline Development Plan area of at least ten household units per hectare. **Objective B4.3.7** Ensure that any rural residential development occurs in general accordance with an operative Outline Development Plan, supports the timely, efficient and integrated provision of infrastructure, provides for the long-term maintenance of rural residential character, and where located in the Greater Christchurch area covered by Chapter 6 to the Canterbury Regional Policy Statement occurs only in the Living 3 Zone and in locations shown in the adopted Selwyn District Council Rural Residential Strategy 2014. **Objective B4.3.9** Targets for sufficient, feasible development capacity for housing within Greater Christchurch [Inserted in accordance with sections 55(2) and 55(2A) of the Resource Management Act 1991, from the National Policy Statement on Urban Development Capacity 2016] For the period 2018-2048, sufficient, feasible development capacity for housing is enabled in the urban areas of Selwyn District within Greater	and providing linkages to the east for future urban development and the District Park • Avoid a zoning pattern that leaves the Site as a barrier to efficient linkages to the proposed District Park • Be controlled through an ODP to provide overall Site co-ordination and integration of development that meets the requirements of Policies B4.3.7 and B4.3.8 The Site is not identified as a greenfield priority area on Map A of Chapter 6 of the RPS. However, the existing residential zoned and greenfield priority areas at Rolleston are inadequate to meet future demand. This Site is ideally located and suited to help meet that shortfall, which must be met under the requirements of the new NPS-UD. The ODP is based on a subdivision concept which achieves a minimum of 12 hh/ha for the LZ zoned area. The existing zoned areas in the Our Space housing capacity assessment (HCA) considered that the Selwyn District Plan existing urban areas and greenfield priority areas (LZ zones) were adequate to meet medium term targets, but extra land was required to meet long term targets, However, it acknowledged the uncertainties with the HCA methodologies and data. They were undertaken in 2018 and are now 2 years out of date. The targets in Table B4.3.9 are in response to the requirements of the NPS-UDC (now replaced by the NPS-UD) which specifies them as minimum targets not maximums. Councils can zone additional land over and above these minimums. This is generally beneficial, with the release of more land creating more competition, and contributing to reduced section and house prices.

Christchurch in accordance with the CRPS Policy 6.2.1a. Table B4.3.9 - Targets for housing development capacity in the urban areas of Selwyn District within Greater Christchurch, 2018-2048 Development capacity to be enabled (number of dwellings): Medium term (2018-2028) 8600 Long term (2028-2040) 8690 Total 30 year period (2018-2040) 17 290 **Policy B4.3.1** Ensure new residential, rural residential or business development either: • Complies with the Plan policies for the Rural Zone; or… • The land is rezoned to an appropriate Living or Business zone and, where within the Greater Christchurch area, is contained within existing zoned land and greenfield priority areas identified in the Regional Policy Statement and developed in accordance with an Outline Development Plan incorporated into the District Plan. **Policy B4.3.3** Avoid zoning patterns that leave land zoned Rural surrounded on three or more boundaries with land zoned Living or Business. **Policy B4.3.6** Encourage townships to expand in a compact shape where practical. **Policy B4.3.7** Living Z urban growth areas identified in the District Plan shall not be developed for urban purposes until an operative Outline Development Plan for that area has been included within the District Plan. Each Outline Development Plan shall: • Be prepared as a single plan for any identified Outline Development Plan area identified on the Planning Maps and Appendices; • Be prepared in accordance with the matters set out in Policy B4.3.8; • Take account of the Medium Density and Subdivision Design Guides. **Policy B4.3.8** Each Outline Development Plan shall include: • Principal through roads, connection and integration with the surrounding road	

networks, relevant infrastructure services and areas for possible future development; • Any land to be set aside for community facilities or schools; parks and land required for recreation or reserves; • any land to be set aside for business activities; • the distribution of different residential densities; • land required for the integrated management of water systems, including stormwater treatment, secondary flow paths, retention and drainage paths; • land reserved or otherwise set aside from development for environmental or landscape protection or enhancement; and • land reserved or otherwise set aside from development for any other reason, and the reasons for its protection. • Demonstrate how each ODP area will achieve a minimum net density of at least 10 lots or household units per hectare ; • Identify any cultural (including Te Taumutu Rūnanga values), natural, and historic or heritage features and values and show how they are to be enhanced or maintained; • Indicate how required infrastructure will be provided and how it will be funded; • Set out the phasing and co-ordination of subdivision and development in line with the phasing shown on the Planning Maps and Appendices; • Demonstrate how effective provision is made for a range of transport options, including public transport systems, pedestrian walkways and cycleways, both within and adjoining the ODP area; • Show how other potential adverse effects on and/or from nearby existing or designated strategic infrastructure (including requirements for designations, or planned infrastructure) will be avoided, remedied or appropriately mitigated;	

• Show how other potential adverse effects on the environment, the protection and enhancement of surface and groundwater quality, are to be avoided, remedied or mitigated; • Include any other information which is relevant to an understanding of the development and its proposed zoning; and • Demonstrate that the design will minimise any reverse sensitivity effects.	
ROLLESTON **Policy B4.3.64** Encourage land located to the east and west of the existing Living and Business zones, being those Living and Business zones that adjoin Springs Road, which is located as close as possible to the existing township centre as the first preferred areas to be rezoned for new residential development at Rolleston, provided sites are available and appropriate for the proposed activity. Policy B4.3.65 Discourage further expansion of Rolleston township north or south of the existing Living zone boundaries adjoining Springs Road.	The Site is opposite the existing LZ zones on the north side of Levi Road and west of Lincoln Rolleston Road. It's location is consistent with the preferred growth direction in Policies B4.3.64 -65.

Summary of assessment against the Operative Selwyn District Plan

1. Overall the proposal to change the Selwyn District Plan from Rural Inner Plains to LZ is consistent with the SDP objectives and policies, and will help achieve the purpose of the RMA.
2. The proposal:
   a) Is for a 53 ha block and that does not create shortages of land or soil resources for other primary production activities in the future.
   b) Has taken up an area, only part of which is identified for future urban growth in the strategic growth document Rolleston Structure Plan (2009) due the restrictions imposed by the CIAL airport noise which applied to title boundaries rather than the contour line itself. However, now (in 2020), it is more efficient and appropriate for the land to be used for full urban residential for the full site. It is ideally located and suited to help meet the substantial shortfall in land for housing at Rolleston and provide additional development capacity.
   c) Has identified the need to supply utilities and to assess the feasibility of such through a servicing assessment.

d) Can be serviced with a reticulated public water supply, sewerage, telecoms, solid waste, and stormwater management within the Site.

e) Provides an integrated approach to land use and transport planning to ensure the safe and efficient operation of the District's roads through the proposed ODP and adoption of existing road hierarchies for roads within the Site.

f) Achieves a high level of connectivity within the Site to encourage use of public and active transport recognizing the public bus and cycleway routes on Lincoln Rolleston Road, and provision for cycling/walking within Rolleston; whilst having regard to the road hierarchy.

g) Will ensure residents in the development area and Rolleston have access to Council reserve areas to meet their needs for space for active and passive recreation including provision of two new reserves within the Site.

h) Is on a Site with no risk from liquefaction, and with some flooding risk which can be readily mitigated, and contains no sites with special ecological, cultural, heritage or landscape values, nor any existing trees, bush, or other natural features that should be retained (but some existing mature planting is proposed to be retained as it has local amenity value). There are no water courses or bodies that need to be incorporated into the new development.

i) Will require a DSI for land contamination on the southern block before subdivision consent can be determined.

j) Will contribute to Rolleston township being a pleasant place to live and work in.

k) Will contribute to the growth of Rolleston township in a compact urban form and provide a variety of living environments and housing choices for residents, including medium density housing typologies together with standard residential.

l) Will provide a development area that is based on the existing quality of the Rolleston environment, character and amenity values set through adopting existing zoning and its development and activity SDP standards.

m) Achieves the policy intent of Policy B4.3.8 that each Outline Development Plan should contain a range of measures for the co-ordination and integration of development that will create quality living environments.

Assessment of Proposed District Plan Objectives and Policies

Objective/Policy	Assessment
Strategic Directions ***Compact and Sustainable Township Network*** **SD-UFD-O1** Urban growth is located only in or around existing townships and in a compact and Sustainable form that aligns with its anticipated role in the Township Network, while responding to the community's needs, natural landforms, cultural values, and physical features.	The Site is on the eastern edge of Rolleston, and provides an urban link to the proposed new Council reserve. It will provide a compact form to the town and responds to the on-going demand for houses and building lots in Rolleston. Rolleston's role will continue as a key activity centre & District Centre for the District. The proposal is consistent with the Objective.
Urban Growth and Development **SD-UFD-O2** There is sufficient feasible development capacity to meet anticipated demands for housing and business activities.	The local real estate agents have identified an issue with the on-going supply of housing land at Rolleston and the effect of that on land and house prices. Plan Change 64 also identifies a shortage of land for housing at Rolleston. The development is essential to provide about 660 lots at full development or 12% of Rolleston's housing stock. The proposal helps achieve the Objective.
Integration of Land Use and Infrastructure **SD-UFD-O3** Urban growth and development: 1. is well-integrated with the efficient provision, including the timing and funding, of infrastructure; and 2. has the ability to manage or respond to the effects of climate change.	Meetings with Council staff have confirmed servicing proposals for the Site that will draw on available Council utilities. On-site stormwater management will be by disposal to ground as enabled by the prevailing sub-surface geology. This inland site is free of sea level rise and is remote from major river systems from a flooding perspective. The design of the development and its location within walking/cycling distance of the town centre, the park and ride facility, and being on the Lincoln Rolleston Road public bus route provide the basis for minimising effects of climate change (Urban Design Statement) The proposal achieves the Objective.
Energy and Infrastructure **EI-O1** Important infrastructure is: 1. efficient, effective, and resilient, and 2. provides and distributes essential and secure services as part of local, regional, or national networks, including in emergencies; and	*IMPORTANT INFRASTRUCTURE:* *Those necessary facilities, services, and installations which are critical or of significance to either New Zealand, Canterbury, or Selwyn.*

3. integrates with urban development and land uses throughout the district; and 4. enables people and communities to provide for their wellbeing. **EI-P6** Avoid incompatible activities that may affect the efficient operation, maintenance, repair, upgrading, renewal, or development of important infrastructure and renewable electricity generation unless the activity is located: 1. at a distance or in a position that does not adversely affect the important infrastructure or renewable electricity generation activity; and 2. in a position that does not obstruct access to important infrastructure as required for maintenance, upgrading, or emergency purposes	The Site will be developed, in time, to full urban density serviced by Council reticulated water and sewerage services. Meetings with Council have confirmed that the development can connect in to, and be supported by, those services so they are an integrated part of the development. This enables the Prebbleton community to continue to provide for its well-being. The deferred residential zoning for land currently under the airport noise contours protects the ongoing operations of Christchurch International Airport if and until such time as the contour no longer affects this land.
Transport	These are assessed as part of the ITA
Contaminated land **CL-O1** Human health and the environment are not compromised by the use of contaminated land. **CL-P1** Require any proposal for subdivision, development, or use of contaminated land or potentially contaminated land to apply a best practice approach to investigate the risks, and either remediate the contamination or manage activities on contaminated land to protect people and the environment. **CL-P2** Use and development of remediated contaminated land does not damage or destroy any containment works, unless comparable or better containment is provided.	Two PSI Investigations confirm that there are isolated and small pockets of potential contamination only in the southern block off Nobeline Lane. It recommends a DSI (targeted site investigation) to assess the environmental effects of those hot spots. This will ensure that human health and the environment are protected from harm. The proposal is consistent with the Policy.
Natural Hazards **NH-O1** New subdivision, use, and development, other than new important infrastructure and land transport infrastructure: 1. is avoided in areas where the risks from natural hazards to people, property and infrastructure are assessed as being unacceptable; and 2. in all other areas, is undertaken in a manner that ensures that the risks of natural hazards to people, property and infrastructure are appropriately mitigated. **NH-O3** Methods to mitigate natural hazards do not create or exacerbate adverse effects on other people, property, infrastructure, or the environment. **NH-O4** The effects of climate change, and its influence on sea levels and the frequency and severity of natural hazards, are recognised and provided for.	A flood assessment confirms that the Site has no areas of high flood hazard in the Site. It recommends constructing preferential flood flow paths through the Site based on the road network with detailed design at the subdivision stage. The risks of natural hazards to people, property and infrastructure are appropriately mitigated. Climate Change effects are unlikely at an inland site that is remote from the coast and major rivers. The proposal is consistent with the Policy.

NH-P1 Avoid new subdivision, use, or development of land in high hazard areas… **NH-P2** Avoid the development or use of land, buildings or structures in high hazard areas for any important infrastructure or land transport infrastructure… **NH-P3** Restrict new subdivision, use or development of land in areas outside high hazard areas but known to be vulnerable to a natural hazard, unless any potential risk of loss of life or damage to property is adequately mitigated.	
Flood Hazards **NH-P10** In areas within the Plains Flood Management Overlay that are not a high hazard area, provide for any new subdivision, use, and development (other than important infrastructure and land transport infrastructure) only where every new residential unit or principal building has an appropriate floor level above the 200 year Average Return Interval (ARI) design flood level. **NH-P12** Manage earthworks undertaken in the Waimakariri Flood Management Overlay and the Plains Flood Management Overlay to ensure that they do not exacerbate flooding on any other property by displacing or diverting floodwater on surrounding land.	The Site is not mapped in the Proposed District Plan as having any significant natural hazards, other than being located within the Flood Plains Management Area. Proposed Rule NHR2 requires a minimum building finished floor level 300mm above a 200 year Average Recurrence Interval (ARI) flood hazard event. All future dwellings will meet this requirement. The proposal is consistent with the Policy.
Geotechnical Hazards **NH-P13** Provide for subdivision on flat land where the liquefaction risk has been appropriately identified and assessed, and can be adequately remedied or mitigated.	Geotechnical investigations confirmed the Site is suitable for its intended use. *Due to the low risk of liquefaction at the subdivision we have classified the investigation site as TC1,*
Ecosystems and Indigenous biodiversity **EIB-O1** Indigenous biodiversity within the district is managed through the exercise of kaitiakitanga and stewardship,	There are no ecosystems or indigenous biodiversity mapped in the PSDP, nor evident on the Site.
Natural Features and Landscapes **NFL-O1** The outstanding natural features and landscapes of Selwyn are protected from inappropriate subdivision, use, and development. **NFL-O2** The values of the visual amenity landscapes of Selwyn are maintained and, where possible, enhanced.	There are no natural features or landscapes mapped in the PSDP, nor evident on the Site.
Subdivision **SUB-O1** Subdivision design and layout maintains or enhances the amenity values of the zone.	The Urban Design Statement sets out the design concepts underpinning the design and features of the development and as reflected in DEV-RO 9/ODP Area 5.

SUB-O2 Every site created by subdivision has the characteristics, infrastructure, and facilities appropriate for the intended use of the land. **SUB-O3** Site sizes reflect the anticipated development outcomes of the zone. **SUB-P1** Avoid the creation of any site that cannot contain a residential unit as a permitted or controlled activity… **SUB-P2** Ensure that every site created by subdivision has safe and efficient access for motorists, pedestrians, and cyclists, consistent with that required for the intended use of the site. **SUB-P3** Other than infrastructure sites or reserve sites, ensure that every site created by subdivision on which a building may be erected has all of the following features… **SUB-P4** Provide for a variety of site sizes within a subdivision, while achieving an average net site size no smaller than that specified for the zone. **SUB-P6** Require the subdivision layout to respond to and follow natural and physical features such as the underlying landscape, topography, and established vegetation. **SUB-P7** Manage the form of land to be taken for reserves, including having regard to the…	The proposal is to create a high amenity residential area with amenity within streets, and in the reserves within the development, building on the amenity and landscape character of residential land nearby. A range of lots sizes are enabled to create visual variety, housing choice and different price points avoiding a standardised urban form and outlook. Provision for a possible retirement village on the main access road as an extension of Broadlands Drive will add housing and built form variety. A design check confirms all lots can be built on to PSDP standards. Considerable thought is reflected in the DEV plan of the needs for safe and efficient access for motorists, pedestrians, and cyclists and linkages to the town centre, the school and Foster Park and proposed District Reserve adjoining to the east. The ITA confirms that the 660 lots will connect well in to the existing road network and enable walking and cycling. The sites have been checked and will deliver the policy outcomes of SUB-P3. The proposal is consistent with the Policy.
NOISE-O1 The health and wellbeing of people and communities and their amenity values are protected from significant levels of noise. **NOISE-O2** Important infrastructure which generates noise is protected from reverse sensitivity effects.	The proposal is for a General Residential development which has no noise generating activities within the Site, nor close by. There is no important infrastructure nearby that requires protection.
NOISE-P3 Protect Christchurch International Airport….	The presence of the CIAL noise contour provides a severe constraint on the logical and orderly development of the Site. DEV-RO 9/ODP Area 5 has been shaped by the contour line with staged design proposals and a deferred residential zone as devices to provide a logic to urban development in the Site pending decisions on the future of the contour.

	Even if the contour does not shift, the development can be built to protect the operations of the airport.
District Wide Matter: Urban Growth **UG-O1** Urban growth is provided for in a strategic manner that: 1. Achieves attractive, pleasant, high quality, and resilient urban environments; 2. Maintains and enhances the amenity values and character anticipated within each residential, kainga nohoanga, or business area; 3. Recognises and protect identified Heritage Sites, Heritage Settings, and Notable Trees; 4. Protects the health and well-being of water bodies, freshwater ecosystems, and receiving environments; 5. Provides for the intensification and redevelopment of existing urban sites; 6. Integrates with existing residential neighbourhoods, commercial centres, industrial hubs, inland ports, or knowledge areas; 7. Is coordinated with available infrastructure and utilities, including land transport infrastructure; and 8. Enables people and communities, now and future, to provide for their wellbeing, and their health and safety.	The development is controlled by DEV-RO 9/ODP Area 5 plan which is drawn from the Urban Design Statement that identifies the core concepts to achieve attractive, pleasant, high quality, and resilient urban environments that maintain and enhance the amenity values and character anticipated. Two reserves within the Site and providing linkages to the future Council reserve to the east contribute to the intended character and amenity of the development. There are no on-site water bodies. The ITA and Urban Design Statement show how the development will integrate into the existing built up area of Rolleston to the north and west and reflect off and protect lifestyle blocks to the south of the site. The ITA confirms how the DEV-RO 9/ODP Area 5 plan achieves good linkage with and integrates with land transport infrastructure (Bus, walk, cycle). The Site has a public bus route on Lincoln Rolleston Road. The Site is near to the Park and Ride facility near the town centre. The proposal will provide a future pathway to ensure that the Rolleston community can provide for its wellbeing, and their health and safety for housing choice, transport movement, and recreation needs. The proposal is consistent with the Policy.
UG-O2 Townships maintain a consolidated and compact urban form to support: 1. Accessible, sustainable and resilient residential neighbourhoods, commercial centres, industrial hubs, inland ports, or knowledge areas; 2. The role and function of each urban area within the District's Township Network and the economic and social prosperity of the District's commercial centres; and 3. The efficient servicing of townships and integration with existing and planned infrastructure. **UG-O3** There is sufficient feasible housing and sufficient business development capacity within Greater Christchurch to ensure: 1. The housing bottom lines are met; 2. A wide range of housing types, sizes, and densities are available to satisfy social and	The Site is on the eastern boundary of Rolleston adjoining existing residential development. Filling the gap to the proposed new Council reserve, it ensures a consolidated and compact urban form. The ITA and Urban Design Statement explain how the development within itself, and in its linkages to existing and future urban areas, provides an accessible, sustainable and resilient residential neighbourhood that seamlessly knits in to the exiting township supporting its role as a Key Activity Centre and the District Centre in the District's Township Network. Providing an additional 660 General Residential lots (potentially more if a possible retirement village proceeds) will help ensure there is sufficient feasible housing capacity at Rolleston held and to be

affordability needs and respond to demographic change; and 3. Commercial and industrial growth is supported by a range of working environments and places to locate and operate businesses consistent with the District's Activity Centre Network.	developed by a variety of landowners/developers, thus helping ensure a competitive land and housing market. Provision for medium density housing at locations with a good urban design rationale, "density around amenity", and near reserves enables a wide range of housing types, sizes, and densities to be available to satisfy social and affordability needs and respond to demographic change. The proposal is consistent with the Policy.
Urban Growth **UG-P1** Spatially identify new urban growth areas supported by a Development Plan. **UG-P3** Avoid the zoning of land to establish any new urban areas or extensions to any township boundary in the Greater Christchurch area of the District outside the Urban Growth Overlay. **Urban Form** **UG-P7** Any new urban areas shall deliver the following urban form and scale outcomes: 1. Township boundaries maintain a consolidated and compact urban form; 2. The form and scale of new urban areas support the settlements role and function within the District's Township Network; 3. The natural features, physical forms, opportunities, and constraints that characterise the context of individual locations are identified and addressed to achieve appropriate land use and subdivision outcomes, including where these considerations are identified in any relevant Development Plans; and 4. The extension of township boundaries along any strategic transport network is discouraged where there are more appropriate alternative locations available.	The proposal identifies a new urban growth area part of which has not been identified for residential use in the Rolleston Structure Plan and Our Space. The proposal is supported by DEV-RO 9/ODP Area 5. The proposal does not sit square with UG-P3 but only because the northern block was excluded in structure planning for Rolleston because of the noise contour and zoning boundaries following title boundaries (infact only appx 1/3rd of the northern block is under the contour, but is in one ownership), and because the higher order planning documents have not been updated in line with NPS-UD 2020. The submission/plan change application makes the point that the speed of growth has overtaken planning and urban growth strategies. Rolleston presently has almost met the 2035 strategic goals for Rolleston in terms of population (20,000 target cf 17,499 at 2018 Census). The real estate letters suggest a bleak housing outlook in terms of supply and cost: currently the NPS-UD requirements for housing supply are not met for Rolleston. It is untenable to implement an "avoid" policy in a planning/strategy vacuum or at least in a situation where the strategy/policy framework is out of date and fails to provide sufficient future urban development capacity. The proposal is consistent with Policy UG-P7 on all fronts as set out in the Urban Design Statement
UG-P8 Avoid the following locations and areas when zoning land to extend township boundaries to establish new urban areas: 1. Sites and Areas of Significance to Māori; 2. Significant Natural Areas; 3. Outstanding Natural Landscapes and Visual Amenity Landscapes; and 4. High Hazard Areas.	None of the Matters in UG-P8 apply to the Site.
UG-P9 Recognise and provide for the finite nature of the versatile soil resource when zoning land to extend township boundaries to establish new urban areas.	Almost all of the Site is subject to this Policy but the issue is what is the best use of these versatile soils; presently the low intensity land uses do not profit from the Class 2 soils in part because of lot size, in part because of landowner choices as to land use

	and in part because the Site's location hard up against an urban/residential area has the potential for conflicts in land use effects. The significant standard bred horse training enterprise (the main real rural use of the Site) does not rely on Class 2 soils for its outputs. Its ongoing operation is now seriously compromised by reverse sensitivity effects of encroaching surrounding urban residential development. Good quality soils will provide a sound base for better residential quality and amenity from the landscaping and lot development.
UG-P10 Ensure the establishment of high-quality urban environments by requiring that new urban areas: 1. Maintain the amenity values and character anticipated within each township and the outcomes identified in any relevant Development Plan; 2. Recognise and protect identified Heritage Sites, Heritage Settings, and Notable Trees; and 3. Preserving the rural outlook that characterises the General Rural Zone through appropriate landscape mitigation, densities, or development controls at the interface between rural and urban environments.	The proposal is consistent with UG-P10. The Urban Design Statement confirms the relevant design factors and concepts underpinning DEV-RO 9 such that the development respects and builds on the amenity values and character of Rolleston. It proposes two reserves within the development and appropriately links in to, and respects the interface with, the Council reserve. It pays specific regard to the urban/rural and urban/ rural residential interface.
UG-P11 When zoning land to establish any new urban area or to extend any township boundary, avoid reverse sensitivity effects on: any adjoining rural, industrial, inland port, or knowledge zone; and on the safe, efficient and cost-effective operation of important infrastructure, land transport infrastructure, and the strategic transport network.	The proposal will give rise to no reverse sensitivity effects. Conversely, it will resolve a current serious reverse sensitivity issue for the All Stars horse training operation by offering an alternative viable use for this site. The ITA confirms the development will not create issues on the safe, efficient and cost-effective operation of the land transport infrastructure, and the strategic transport network. The proposal is consistent with the policy.
UG-P12 Ensure the zoning of land to extend township boundaries to establish new urban areas demonstrates how it will integrate with existing urban environments, optimise the efficient and cost-effective provision of infrastructure, and protect natural and physical resources, by:	The proposal is consistent with this policy as set out in the Urban Design Statement and the ITA and the servicing report
Development Capacity **UG-P13 Residential growth – Greater Christchurch area** Any new residential growth area within the Greater Christchurch area shall only occur where: 1. Extensions assist in meeting the housing bottom lines (minimum housing targets) of 8,600 households over the medium-term period through to 2028. 2. A HDCA and FDS identify a need for additional feasible development capacity for the township and the additional residential land supports the rebuild and recovery of Greater Christchurch;	The submission/plan change application has an extensive discussion in relation to Chapter 6 RPS on the issues around future development capacity, the status of the various District Council strategy documents, and Our Space which represents the Greater Christchurch Councils' goals (now out of step and out of date) for providing future development capacity. That discussion notes *the current CRPS is not consistent with the NPS-UDC or its replacement, the NPS-UD. It retains a 'hard and fast' urban/rural boundary line which predates both NPSs and there is*

3. The land is subject to an Urban Growth Overlay and the area is either: a. a 'greenfield priority area', or any subsequent urban growth areas or urban containment boundaries, in the CRPS where it is a residential activity; or b. identified in an adopted Rural Residential Strategy and in accordance with CRPS Policy 6.3.9 where it is a rural residential activity. c. The minimum net densities of 12hh/ha for residential activities or 1 to 2hh/ha for rural residential activities are met; 4. A diversity in housing types, sizes and densities is demonstrated to respond to the demographic changes and social and affordability needs identified in a HDCA, FDS or outcomes identified in any relevant Development Plan; and 5. An ODP is prepared that addresses the matters listed in UG-ODP Criteria and incorporated into this Plan before any subdivision proceeds.	*no ability to rezone land outside the Map A greenfield priority or existing urban areas.* The point is made that the *NPS-UD has immediate effect, so in the meantime, proposals (such as this submission) must interpret 'significant development capacity' in the context of the overall intent and purpose of the NPS-UD as articulated in the NPS-UD objectives and policies.* There is an assessment of the proposal against the NPS-UD. Importantly it concludes that the DEV-RO 9/ODP Area 5 proposal is *inconsistent with Map A of Chapter 6 but is consistent with the approach of the NPS-UD for significant development capacity.* The submission concludes, too, that *the proposed development is consistent with and will not give rise to any concerns with respect to all the matters listed in CRPS Policy 6.2.1 clauses 4. to 11.*

Appendix 14: Record of meeting with Selwyn District Council

Meeting Minutes: Selwyn District Plan Review - Levi Rd/Lincoln Rolleston Road Rezoning Submission

Location: SDC Rolleston

Date: 12/10/20

Time: 10am

Attendees:

For landowners:

Phil Kennard (PK, landowners' agent)	Richard Johnson (RJ, Aston – planner)
Will Salmon (WS, Paterson Pitts – surveyor)	Fiona Aston (FA, Aston – planner)
Nicole Lauenstein (NL, a+urban – urban design)	Lisa Williams (LW, Novo – traffic engineer)

For SDC:

Robert Love (RL, planning)	Mark Rykers (MR, Greenspace)
Murray England (ME, Assets – servicing)	Andrew Mazey (AM, Assets – traffic)

1. PK introduced the site, land owners, background to the proposal and overall intentions. Purdon/Rasumssen horse training facility is $3million investment above land value but no longer fit for purpose due to reverse sensitivity effects with encroaching neighbouring residential development. Serious issues especially regarding health and safety (rubbish, plastic bags consumed by horses, dogs).

2. NL gave an overview of the proposed ODP noting that despite its elongated shape and the effect of the CIAL noise contour, the ODP had a clear logic to it. Medium density housing will be 'scattered' in small clusters throughout the development including along the reserve edges and around cul de sacs.
   In discussion SDC staff noted
   a) No perimeter road around the Council reserve
   b) Use of walkaways/cycleways for internal reserve circulation
   c) ODP needs to emphasise linkages into the reserve and the form to be determined later

3. CIAL Noise Contour discussion
   a) Location of Broadlands Drive extension: inside noise contour or clearly within the subdivision
   b) FA advised CIAL was relaxed about roads/reserves inside contour
   c) Restriction is for "noise sensitive activities"

d) RL noted Proposed Plan controls on roads/reserves in Rural Zone (permitted/discretionary subject to conditions?)
e) RL advised would oppose deferred zoning under contour
f) NL raised prospect of land swap reserve for land outside contour in south development block. Proposal not rejected; further discussions needed

4. WS described the subdivision layout
   a) Preliminary yields well above NPS-UD at 13.8 lots/has north block, and 14 lots/ha southern block
   b) Any retirement village needs to be identified in ODP and justify location
      - Proximity to town centre (< 1km)
      - On main access road
      - Site adjoins lifestyle blocks
      - Capacity to extend village
      - Close to ODP reserve and easily accessible to Council reserve

5. Neighbourhood centre within the development?
   a) There are existing/proposed neighbourhood centres nearby
   b) Only 750m to town centre form northern block so why duplicate
   c) Retirement village would be self-sufficient for most services
   d) Levi Road is to become main access in to town centre. AM – have there been any discussions with other parties about a service station on Levi Road frontage?

6. Reserves: MR
   a) No firm plans for use of the reserve
   b) Change in contour may free up other uses to help fund reserve development (2023)
   c) SDC doing preliminary needs assessment noting
      - 22ha sports park near Prebbleton
      - Mixed use park incl indigenous revegetation and making use of Class 2 soils inc community gardens
   d) Land swap dependent on noise contour decision
   e) ODP reserves are ok with good relationship to development
   f) Connectivity to reserves good
   g) Finalise nature of accesses later; indicative access points only on ODP

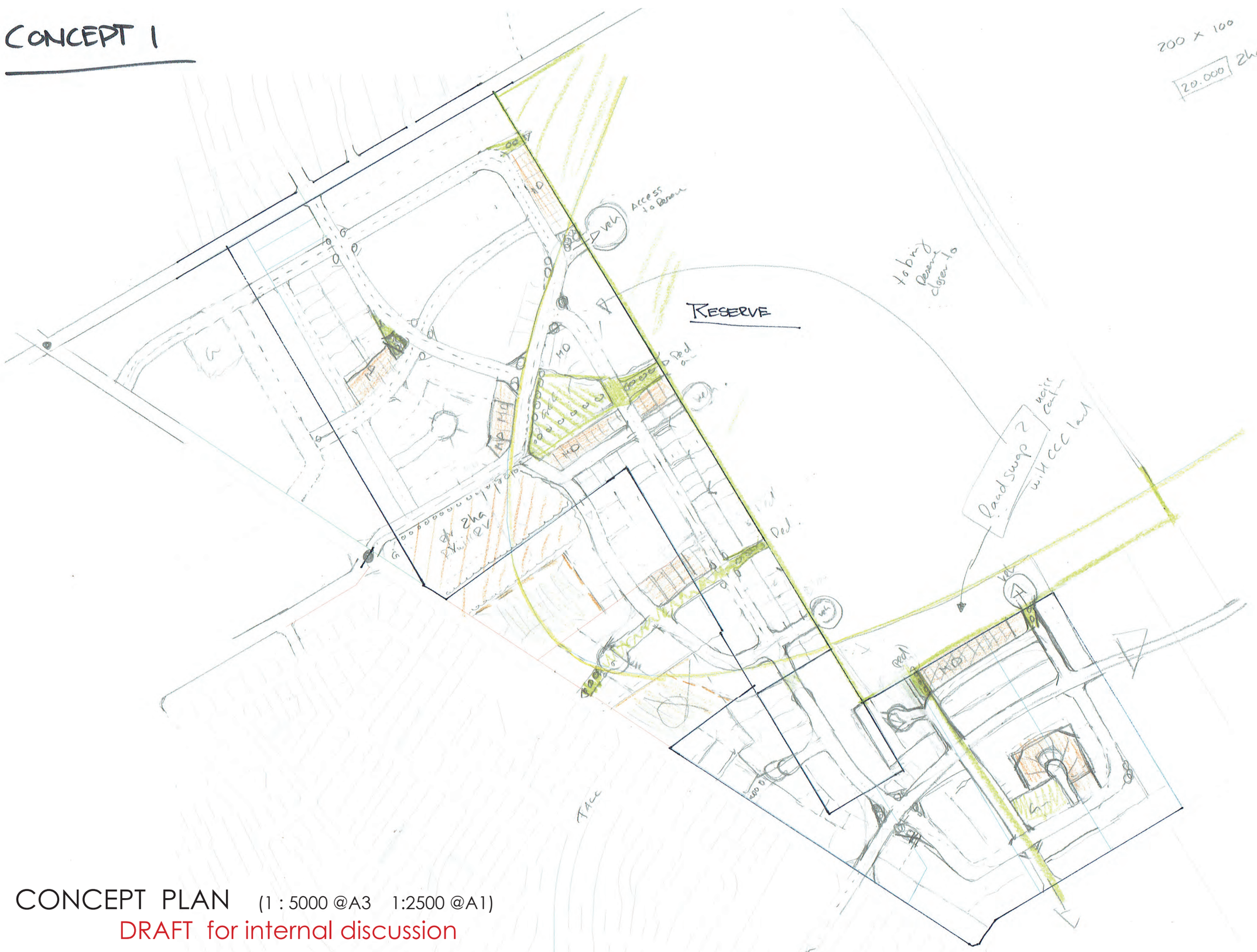
7. Services: ME
   a) Stormwater to ground
   b) Water OK with capacity
   c) Wastewater has some issues
      - main lines near to the development area at three points at depth
      - need to model to assess pump station performance
      - WSP has Council model
      - Need to show from modelling that servicing is feasible in submission.
   d) Roading – AM: generally ok and connects well to rest of Rolleston
      - Levi Road/Lincoln-Rolleston Rod intersection upgrade planned
      - Double lane roundabout or lights
      - Submission to indicate thinking
      - No widening of Levi needed
      - Remove the cul de sacs facing onto Lincoln Rolleston Rd. A third vehicle access point onto Lincoln Rolleston Rd is ok.

8. DEV-RO1 (was ODP 4)
   a) PK noted reluctance of landowners to develop
   b) Agreed that ODP needs amending to show linkages, remove large lot Res against Levi block
   c) Needs two connections in to Levi
   d) Broadlands extension to be shown and can be facilitated by Pubic Works Act acquisition

9. Proposed District Plan Policies
   a) Climate change: what detail needed in submission? RL – consider:
      - Walkability
      - Park n ride
      - Public transport
      - Not a satellite development
   b) High quality land – RL:
      - Justify taking land out of production
      - Proposed District Plan versatile soil policy - only has a "recognise and provide for" policy
      - Needs to be addressed in evidence given timing of enactment of NPS HPL (mid 2021)
   c) Economic assessment - RL
      - RPS data not updated yet
      - What is significant capacity – no RPS advice on this as yet
      - RD Hughes PC has advice from Market Economics on this
      - Review that Plan Change
      - There is a report going to SDC in the next 2 weeks noting a significant shortfall in zoned land at Rolleston in medium term. This shortage is being addressed by Hughes development. FA – has SDC considered the appropriateness of this being rectified by just one landowner. Risk of monopoly situation and landowner controlling land supply
      - Arguments needed on best economic use of the site
   d) "Avoid" urban growth policy (UG-Pol 3)
      RL noted that the Policy reflects RPS (now dated) and so avoid is to be read in terms of what the policy position is now with NPS-UD trumping both RPS and Proposed Plan (you could ask why SDC seem unwilling to fix this issue by its own submission!). King Salmon case law does not apply as there is an 'uncertain' policy framework.

Appendix: Preliminary plans, including ODP

CONCEPT 1



CONCEPT PLAN (1 : 5000 @A3 1:2500 @A1)

DRAFT for internal discussion

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LEVI ROAD
Residential Development

scale 1 to 5000 @ A3
date: 14 Sept. 2020
designed /drawn : NL

sheet 01

CONCEPT 1

RESERVE

Access to Reserve

200 x 100

20.000 2ha

Road swap ? more cost w.H CCC land

north

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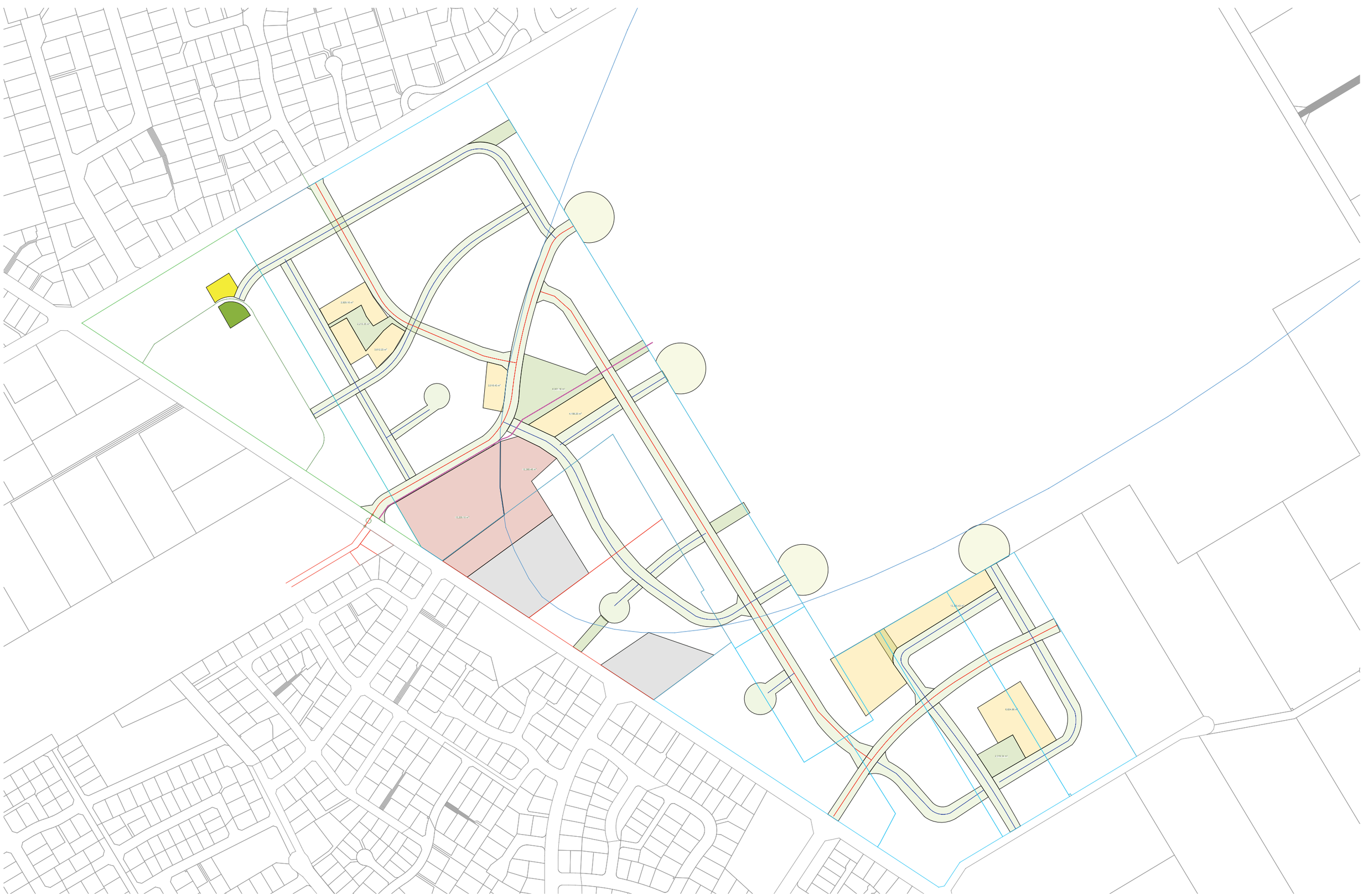
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sheet 02



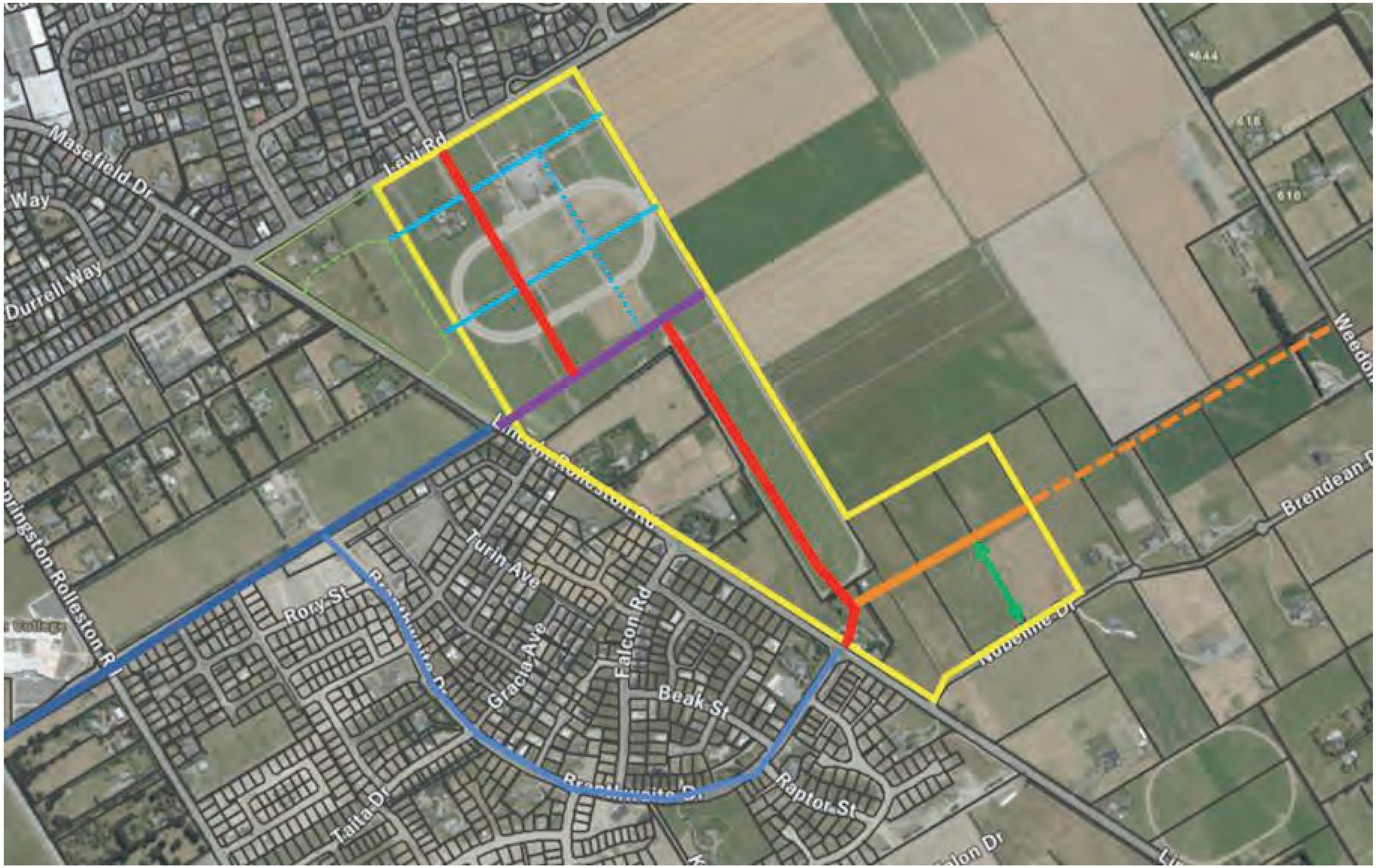
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sheet 03



AD HIERARCHY (SDC /NOVO)

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scale 1 to 5000 @ A3
date: 14 Sept. 2020
designed /drawn : NL

sheet 04

ODP +



ooo▷ Ped./cycle connections to reserve (SDC)

Primary vehicular connection EAST-WEST to Reserve

" " " NORTH SOUT

ROAD LINKS TO Immediate Neighbouring properties

Vehicular connection to Weedons Road

PRELIMINARY ODP (1 : 5000 @A3)

north

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date: 14 Sept. 2020
designed /drawn : NL

sheet 05



Note:

All sections adjacent to Inner Plains zoned land will have a notice on their LIM referring to any potential reverse sensitivity issues between Residential and Rural landuses.

Interface treatment includes having larger residential sections as perimeter blocks along the boundary with Inner Plains.

Provisions for additional bores might be determined at the time of subdivision.

Outline Development Plan

OVERALL Plan

Area 4- Rolleston

Scale 1:1000 @A1

north

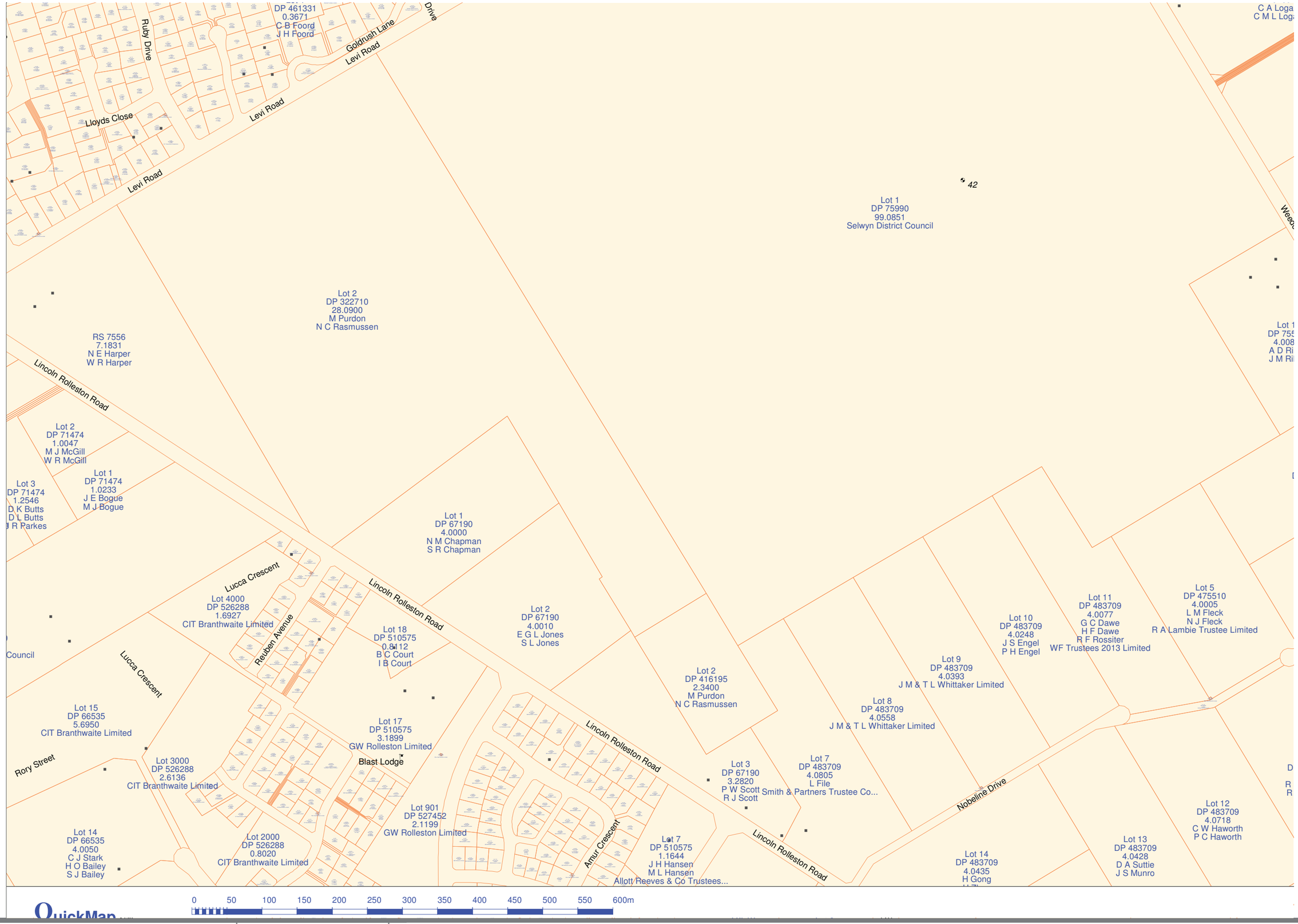
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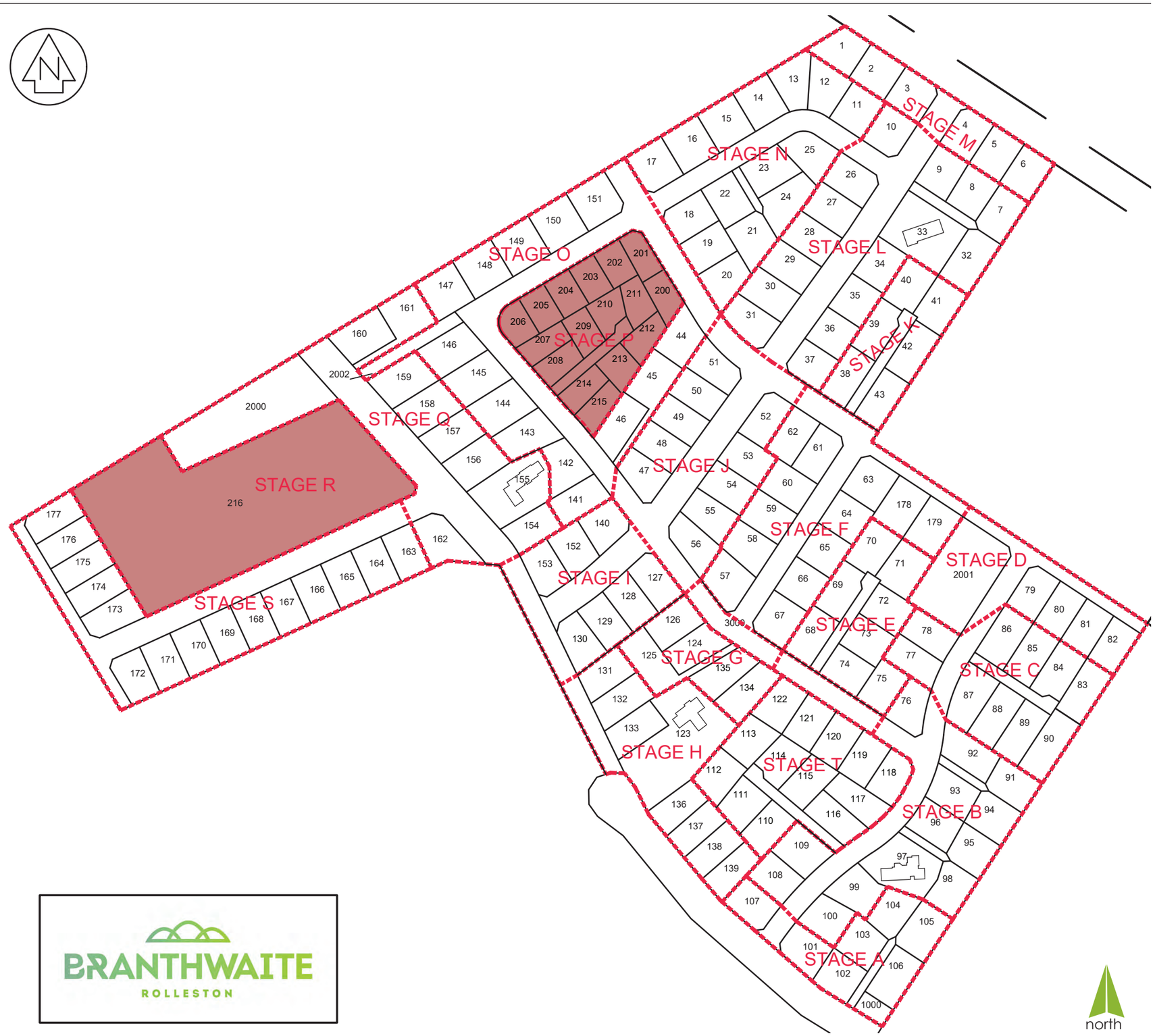
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date: 14 Sept. 2020
designed /drawn : NL

sheet 07



Figure 5.2: Rolleston Structure Plan





BRANTHWAITE
ROLLESTON

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sheet 08



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LEVI ROAD
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scale @ A3
date: 14 Sept. 2020
designed /drawn : NL

sheet 09


RESERVE
Access to Reserve
Rd
Rd
Rd

Appendix 15: Plan Change Application - Assessment of Canterbury Land and Water Regional Plan

Objectives	Assessment
3.1 Land and water are managed as integrated natural resources to recognise and enable Ngāi Tahu culture, traditions, customary uses and relationships with land and water.	The Site has no natural water bodies. Stormwater will be managed by discharge to ground. The Operative District Plan identifies no sites of significance or resources to Ngai Tahu. The Mahaanui Iwi Management Plan is assessed in the application.
3.5 Land uses continue to develop and change in response to socio-economic and community demand.	The Plan Change seeks re-zoning of 53 ha immediately adjoining Rolleston to provide significant additional housing capacity for a fast-growing town.
3.13 Groundwater resources remain a sustainable source of high quality water which is available for abstraction while supporting base flows or levels in surface water bodies, springs and wetlands and avoiding salt-water intrusion.	The proposal is for full urban development for 53 ha providing appx. 660 lots. Full urban reticulation for sewage will protect groundwater. Discharge to ground of stormwater is enabled by the subsurface geology of free-draining gravels.
3.23 Soils are healthy and productive, and human-induced erosion and contamination are minimised.	Much of the Site presently is not used for primary production notwithstanding the quality soils on site. A large standard bred horse training enterprise does not obtain significant benefit from the high quality soils on site. The Plan Change proposes a fundamental shift in land use from low intensity lifestyle activities, to full urban development supplemented by some reserves. The soil resources will be lost to primary production, but the land conversion involves no major sources of contamination. A PSI study highlighted small and isolated spots of contamination to be remediated.
3.24 All activities operate at good environmental practice or better to optimise efficient resource use and protect the region's fresh water resources from quality and quantity degradation.	The development will be subject to subdivision and land use resource consents. The above and below ground built utility assets will meet Council standards.
Policies	
4.12 There are no direct discharges to surface water bodies or groundwater of: a. untreated sewage, wastewater (except as a result of extreme weather related overflows or system failures) or bio-solids;	There are no surface water bodies on the Site. All sewage discharges will be to a reticulated system, and stormwater will discharge to ground. A Servicing Report and a stormwater assessment sets out the system design.

b. solid or hazardous waste or solid animal waste; c. animal effluent from an effluent storage facility or a stock holding area; d. organic waste or leachate from storage of organic material; and e. untreated industrial or trade waste.	
4.15 In urban areas, the adverse effects on water quality, aquatic ecosystems, existing uses and values of water and public health from the cumulative effects of sewage, wastewater, industrial or trade waste or stormwater discharges are avoided by: a. all sewage, industrial or trade waste being discharged into a reticulated system, where available; ab. all stormwater being discharged to land or into reticulated system, where a reticulated system is available; c. all stormwater being discharged in accordance with a stormwater management plan, where one has been consented; d. the implementation of contingency measures to minimise the risk of a discharge from a wastewater reticulation system to surface water in the event of a system failure or overloading of the system beyond its design capacity; and e. any reticulated stormwater or wastewater system installed after 11 August 2012 is designed and managed to avoid sewage discharge into surface water.	This is a full urban development • sewage will be in a reticulated system built to Council specifications. • Stormwater is discharged to ground. Both elements will be subject to ECan consents as required, and have been assessed in a Servicing Report, and in a Stormwater Assessment. No adverse effects on water quality and values are expected.
4.16 Any reticulated stormwater system for any urban area is managed in accordance with a stormwater management plan that addresses the following matters: a. the management of all discharges of stormwater into the stormwater system; and b. for any reticulated stormwater system established after 11 August 2012, including any extension to any existing reticulated stormwater system, the discharge of stormwater being subject to a land-based or designed treatment system, or wetland treatment prior to any discharge to a lake or river; and c. how any discharge of stormwater, treated or untreated, into water or onto land where it may enter water meets or will meet, the water quality outcomes and standards and limits for that waterbody set out in Table	The management of stormwater has been assessed in a Servicing Report and a specific Stormwater Assessment**.** There is no reticulated stormwater system other than collection of stormwater from roads. There are no hazardous installations on site, nor any hazardous substances being used on site.

1, Schedules 5 and 8 and Sections 6 to 15,(whichever applies); and d. The management of the discharge of stormwater from sites involving the use, storage or disposal of hazardous substances, and e. Where the discharge is from an existing local authority network, demonstration of a commitment to progressively improve the quality of the discharge to meet condition (c) as soon as practicable but no later than 2025.	
4.17 Stormwater run-off volumes and peak flows are managed so that they do not cause or exacerbate the risk of inundation, erosion or damage to property or infrastructure downstream or risks to human safety.	The stormwater assessment confirms that the proposed management of stormwater will meet the policy direction.
4.19 The discharge of contaminants to groundwater from earthworks, excavation, waste collection or disposal sites and contaminated land is avoided or minimised by ensuring that: a. activities are sited, designed and managed to avoid the contamination of groundwater; b. existing or closed landfills and contaminated land are managed and monitored where appropriate to minimise any contamination of groundwater; and c. there is sufficient thickness of undisturbed sediment in the confining layer over the Coastal Confined Aquifer System to prevent the entry of contaminants into the aquifer or an upward hydraulic gradient is present which would prevent aquifer contamination.	The site will be developed subject to subdivision consent(s) that will impose necessary conditions about earthworks during construction including sediment control plans.
4.96 The consequential effects of seismic activity are recognised and timely and appropriate responses to such activity are facilitated.	A geotechnical assessment assessed the Site as not being at risk form seismic activity and liquefaction.

Land and Water Regional Plan definition

Reticulated stormwater system means a network of pipes, swales, drains, kerbs and channels owned or operated by a network utility operator that collects stormwater within areas used or proposed to be used for urban-residential, commercial or industrial purposes and conveys that stormwater to any device, wetland, retention or detention pond or infiltration basin for the treatment of stormwater, prior to a discharge to land, groundwater or surface water. It excludes any drainage system that has been constructed for the primary purpose of collection, conveyance or discharge of drainage water**.**

Appendix 16: Record of meeting with Christchurch International Airport

Meeting Minutes: Levi Rd/Lincoln Rolleston Road Rezoning Proposal

Location: Christchurch International Airport offices, Christchurch Airport

Date: 12/2/20

Time: 11am

Attendees:

Phil Kennard, agent for landowners
Fiona Aston, planner, Aston Consultants Ltd
Rhys Boswell, CIAL planner

Introduction & background

1. PK introduced the site, land owners, background to the proposal and overall intentions. Purdon/Rasumssen have owned horse training facility for 17 years but it'sfligh no longer fit for purpose due to reverse sensitivity effects with encroaching neighbouring residential development. Appx. one third of the land is under the noise contours but the whole block is zoned Rural Inner Plains.
2. RB explained planning history to the current CIAL noise contours which were included in the current Canterbury Regional Policy Statement(CRPS) by way of a variation in 2009.

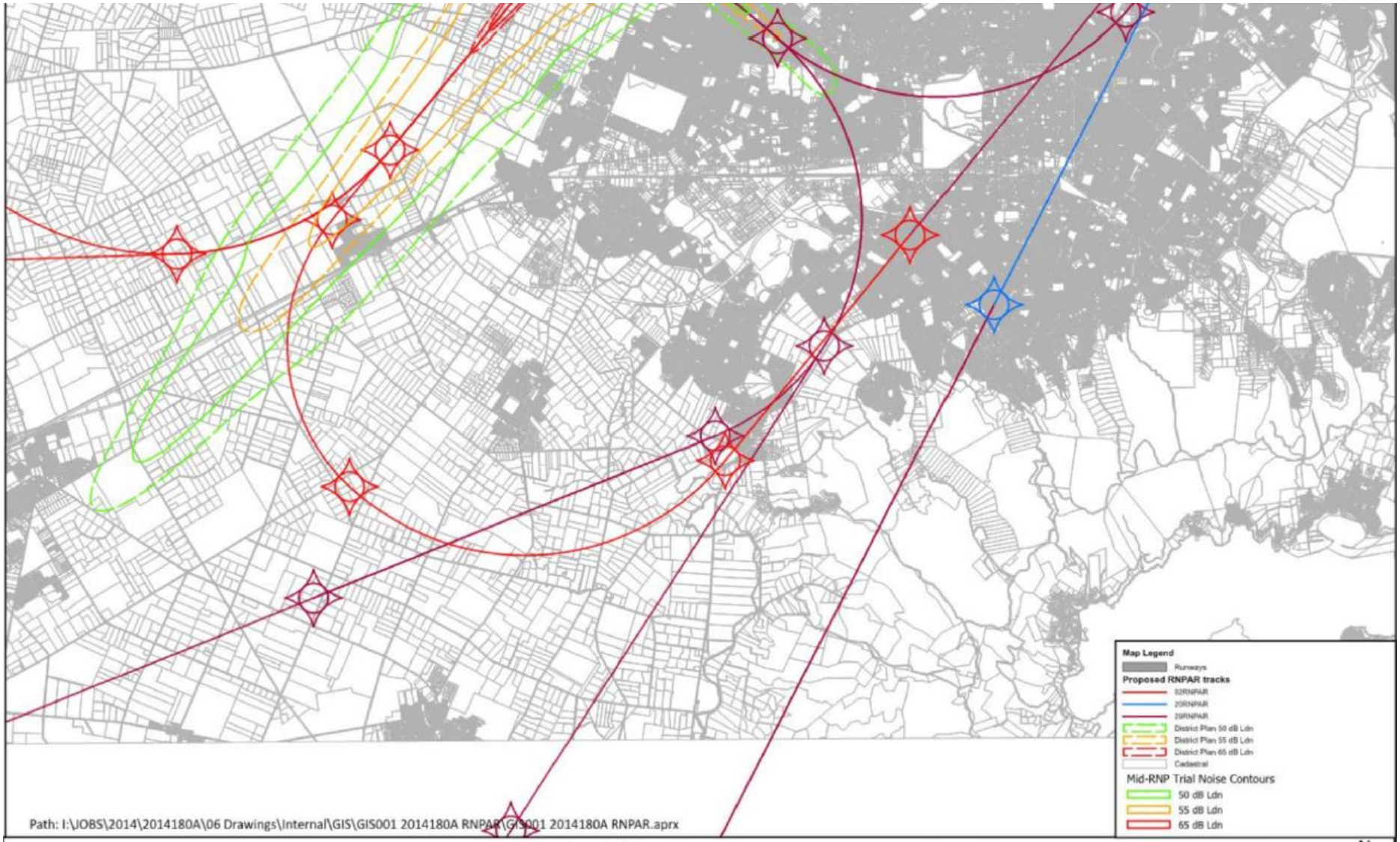
CIAL PBN flight trials & revision to current airport noise contours

3. RB explained the current CIAL PBN flight trials and noise contour revision processes. CIAL has been trialling Performance Based Navigation (PBN) flight paths and is investigating amendments to the CIAL noise contours resulting from this work (the latter is expected to be completed within three months i.e. by May 2020). The work is being undertaken by Marshall Day Acoustics and Airbiz who have international experience.
4. The revised contours will be given the ECAN who intend to include them in the CRPS Review scheduled for 2023. CIAL will not be making the draft revised contours public.
5. The PBN flight tracks have significant environmental benefits, including in terms of noise, safety and fuel efficiency. They involve shorter approaches and are likely to result in a contraction of the noise contours at the northern and southern ends, including at Rolleston and the application site. There will no longer be a need to travel further south and line up with the beacon south of Rolleston.
6. The PBN flight path review interim report contours (as attached) are yet to be confirmed, and are subject to change. The current contours only relate to commercial (passenger) flights. The revised contours may include freight traffic, which is anticipated to grow over time with 'just in time' delivery and more online ordering. Auckland, Palmerston North and Christchurch have the principal NZ air freight depots. If these include more night flights this could disproportionately affect the contours as there is a 10x noise penalty for night flights (10pm – 6am).

7. The revised contours will include the same assumptions as previous models, including modelling CIAL airport operating at capacity. Full capacity has previously been assumed at 2040. This is more likely to be 2050-2060.

Land use under the contours

8. RB advised that no complaint covenants on titles would not be considered as adequate noise mitigation of airport noise effects. WHO's position is that people can't sign away their rights to complain about an adverse health effect. The amenity outdoor living spaces also need to protected.
9. In principle, urban roads under the contours should be acceptable as this is not a noise sensitivity activity.


Map Legend
Runways
Proposed RNPAR tracks
District Plan 50 dB Ldn
District Plan 55 dB Ldn
District Plan 65 dB Ldn
Cadastral
Mid-RNP Trial Noise Contours
50 dB Ldn
55 dB Ldn
65 dB Ldn
Path: I:\JOBS\2014\2014180A\06 Drawings\Internal\GIS\GIS001 2014180A RNPAR\GIS001 2014180A RNPAR.aprx
MARSHALL DAY Acoustics
Christchurch Airport
Mid-RNP Trial Assessment contours (December 2017-February 2018)
Prepared By:
Date: 4/05/2018
Time: 12:16 PM
Scale at A3 1:100,000
0 1,000 2,000 4,000
m
N

Appendix 17: Assessment of NPS-UD 2020 Objectives and Policies

Acronyms

CIAL: Christchurch International Airport Limited

FDS: Future development Strategy

NPS-UD: National Policy Statement-Urban Development 2020

PSDP: Proposed Selwyn District Plan

RPS: Canterbury Regional Policy Statement

NPS-UD Objectives	Assessment
Objective 1: New Zealand has well-functioning urban environments that enable all people and communities to provide for their social, economic, and cultural wellbeing, and for their health and safety, now and into the future.	The proposed development will enable Rolleston to sustain itself as a well-functioning urban environment by consolidating the residential area close to the town centre, and provide residential development close to public transport links and the proposed District Council reserve.
Objective 2: Planning decisions improve housing affordability by supporting competitive land and development markets.	The proposal provides choices in the Rolleston housing market and in doing so supports housing affordability. The applicant, Gould Developments is nearing completion of a 102 lot subdivision & housing development at Goulds Road Rolleston (all lots sold, 15-20 houses remaining to be constructed). The director of the development company has had a long term involvement in sales and marketing of Rolleston subdivisions since the mid 1990s so has an indepth knowledge of the market. The company wish to remain active in the local market but there is no remaining zoned land available for development. Plan Change 64 proposes rezoning to enable development of another 930 sections over the next 6-8 years. However, it is critical that development opportunities are made available to other landowners to ensure a competitive land and housing market rather than a 'monopoly situation'. After the Canterbury earthquakes in 2010 and 2011 Greater Chrischurch, including Rolleston benefitted from the release of significant amounts of greenfield land for development, which ensured competition between landowners and developers and competitive land and house prices. Greater Christchurch house and land prices are still far more competitive than other major centres including Wellington, Auckland and Queenstown but a competitive market will not

	continue if there is a shortage of development land.
Objective 3: Regional policy statements and district plans enable more people to live in, and more businesses and community services to be located in, areas of an urban environment in which one or more of the following apply: the area is in or near a centre zone or other area with many employment opportunities the area; is well-serviced by existing or planned public transport; and there is high demand for housing or for business land in the area, relative to other areas within the urban environment.	The RPS is due for review in 2023 and a more immediate change is required to achieve consistency with the NPS-UD. The current priority greenfield development areas at Rolleston shown on RPS Map A (which are the PSDP eight Rolleston development areas/Operative District Plan ODPs) do not meet short, medium or long term housing demand at Rolleston. Further greenfield land is required. This proposal is outside but adjoins the existing development areas (Development RO1/ODP Area 4). It is the closer to the town centre than any of the existing development areas, except RO1/ODP Area 2 and R02/ODP Area 9 (which are at a similar distance but remain undeveloped due to land ownership, fragmentation and access issues). The Siteoccupies a block of rural land that will square up the town in its urban form, and will connect the existing built up area of Rolleston with the proposed District Council reserve to the east of the development area. The restriction imposed by the CIAL noise contour effectively creates three development areas. The two areas outside the contour can yield around 450 lots. That alone will assist in meeting the high demand for housing in Rolleston. There is potentially a further 220 lots affected by the contour which is likely to move off this land in the future (at the time of the RPS review). The land meets all the Objective 3 locational criteria for more land for housing – the Site is close to the Rolleston town centre and Izone and Iport business areas which are a major employment area; Rolleston is well serviced by public transport, including to Christchurch City and Lincoln with a park n' ride scheme in central Rolleston; and there is an ongoing high demand for housing, with Rolleston's principal attractions including its affordable housing, employment opportunities and the continually expanding wide range of local services and facilities.
Objective 4: New Zealand's urban environments, including their amenity values, develop and change over time in response to the diverse and changing needs of people, communities, and future generations.	The proposal provides for a General Residential /Living Z zone within which provision is made for medium density housing and potentially a retirement village with local amenity reserves to cater for the diverse and changing needs of

	people and the Rolleston community. The Site has a Council District Reserve on its eastern boundary providing immense potential amenity and quality of environment benefits.
Objective 5: Planning decisions relating to urban environments, and FDSs, take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).	Matter for statutory decision-makers.
Objective 6: Local authority decisions on urban development that affect urban environments are: integrated with infrastructure planning and funding decisions; and strategic over the medium term and long term; and responsive, particularly in relation to proposals that would supply significant development capacity.	The proponents have met with Council asset staff who have confirmed that the proposal can be properly serviced and is within the capacity of existing and planned public infrastructure. See Policy 8 below re comments on proposals that would supply significant development capacity.
Objective 7: Local authorities have robust and frequently updated information about their urban environments and use it to inform planning decisions.	Matter for statutory decision-makers.
Objective 8: New Zealand's urban environments: support reductions in greenhouse gas emissions; and are resilient to the current and future effects of climate change.	The proposal adjoins the existing built up area of Rolleston, close to public transport links and adjoins the proposed Council Reserve. Its excellent accessibility and the self sufficiency of Rolleston reduces the need for private vehicle trips, reducing potential for greenhouse gas emissions. The land is inland and not subject to natural hazard risks associated with sea level rise arising from climate change.
NPS-UD Policies	**Assessment**
Policy 1: Planning decisions contribute to well-functioning urban environments, which are urban environments that, as a minimum: (a) have or enable a variety of homes that: (i) meet the needs, in terms of type, price, and location, of different households; and (ii) enable Māori to express their cultural traditions and norms; and (b) N/A business sectors; and (c) have good accessibility for all people between housing, jobs, community services, natural spaces, and open spaces, including by way of public or active transport; and (d) support, and limit as much as possible adverse impacts on, the competitive operation of land and development markets; and (e) support reductions in greenhouse gas emissions; and	The proposal is for General ResidentialLZ zoning and includes some medium density blocks and a possible retirement village which will enable a variety of homes that will help meet the needs of different households. The site location provides good accessibility to workplaces, community facilities and open spaces in the in-development reserve and the adjoining Council Reserve. The proposal will enable another developer to remain active in the Rolleston market which will provide choice and competition to the local land and housing market. The location of the Site is within walking distance of the town centre (750m at its nearest point) and the ODP/development plan shows access points and linkages in to the rest of Rolleston including to public transport routes, access to the Southern Motorway from Levi Road, and to the park and ride facility.

(f) are resilient to the likely current and future effects of climate change.	
Policy 2: Tier 1, 2, and 3 local authorities, at all times, provide at least sufficient development capacity to meet expected demand for housing and for business land over the short term, medium term, and long term.	The PSDP/Operative District Plan provide eight development areas/ODP areas for Rolleston, some of which are well advanced in development. Those which are not are subject to land ownership, access, existing dwelling development and land aggregation issues which limit their effective ability to supply additional development capacity. The Levi Road proposal provides additional capacity to ensure that there is, actually, sufficient development capacity for a town that is growing apace and will continue to do so for the 10 year planning life of the District Plan. Evidence from real estate agents shows the surge in lot uptake and interest in Rolleston in recent years.
Policy 3: In relation to tier 1 urban environments, regional policy statements and district plans enable: (a) N/A in city centre zones,; and (b) N/A in metropolitan centre zones, and (c) N/A building heights of least 6 storeys within at least a walkable catchment… (d) in all other locations in the tier 1 urban environment, building heights and density of urban form commensurate with the greater of: (i) the level of accessibility by existing or planned active or public transport to a range of commercial activities and community services; or (ii) relative demand for housing and business use in that location.	The proposal adopts Zones and zone development and activity standards set in the PSDP/Operative District Plan respectively. These make provision for suburban-type housing typologies and medium density housing. The maximum height limit is 8m which limits development to two storeys.
Policy 4: Regional policy statements and district plans applying to tier 1 urban environments modify the relevant building height or density requirements under Policy 3 only to the extent necessary (as specified in subpart 6) to accommodate a qualifying matter in that area.	The proposal adopts Zones and zone development and activity standards set in the PSDP/Operative District Plan respectively.
Policy 5: N/A Regional policy statements and district plans applying to tier 2 and 3 urban environments	N/A Rolleston is within Greater Christchurch and is defined as part of a Tier 1 urban area.
Policy 6: When making planning decisions that affect urban environments, decision-makers have particular regard to the following matters: (a) the planned urban built form anticipated by those RMA planning documents that have given effect to this National Policy Statement	The District Council in preparing the Rolleston Structure Plan (2009) engaged with the Rolleston community over possible urban futures for the town. The Rolleston Structure Plan is now over 10 years old and overdue for review.

(b) that the planned urban built form in those RMA planning documents may involve significant changes to an area, and those changes: (i) may detract from amenity values appreciated by some people but improve amenity values appreciated by other people, communities, and future generations, including by providing increased and varied housing densities and types; and (ii) are not, of themselves, an adverse effect (c) the benefits of urban development that are consistent with well-functioning urban environments (as described in Policy 1) (d) any relevant contribution that will be made to meeting the requirements of this National Policy Statement to provide or realise development capacity (e) the likely current and future effects of climate change.	The northern and central portions of the Site were not preferred as a future urban option because of the dominant and uncertain long term effect of the CIAL noise contour. Whilst the greater part of the northern site is outside the noise contour, the future growth areas followed legal title boundaries. As this land is held in the same title as land under the contour, it was all excluded . The Council retained Inner Plains Rural despite the factors of location, future urban form and ease of servicing that are features of the Site. The proposal will significantly contribute to the housing market in Rolleston offering 660+ lots at full development and in a location much more favourable for achieving great urban design outcomes than most of the identified development areas. It will supply significant additional capacity (an additional 12%) to the existing Rolleston land and housing supply. The proposal to re-zone the Site as General Residential/LZ is not out of step with the proposals in the PSDP/Operative District Plan. The proposal will result in a form of development consistent with that which dominates Rolleston and the ODP/Development Plan for the Site provides control over the key structural elements of the development. That ensures there is good integration to adjoining residential land and appropriate access points are locked in to provide for ease of movement and not just by car. The amenity values are set by the PSDP/Operative District Plan subdivision, development and activity standards so the Site will comfortably relate to, and form part of, the rest of Rolleston as it develops. Additionally the Site benefits for its co-location adjoining the future Council Reserve.
Policy 7: Tier 1 and 2 local authorities set housing bottom lines for the short-medium term and the long term in their regional policy statements and district plans.	This requires a change to the RPS. The RPS contains housing targets (Table 6.1) which were inserted to meet the requirements of the NPS-UDC. They are now out of date as the NPS-UDC has been replaced by the NPS-UD. It is understood revised housing capacity assessments must be completed by July 2021.
Policy 8: Local authority decisions affecting urban environments are responsive to plan changes that would add significantly to development capacity and contribute to well	This Policy can be read to apply to submissions to the PSDP and plan changes. This proposal will potentially at full development add 660 + lots (an additional 12% over and above existing zoned supply) to the

functioning urban environments, even if the development capacity is: (a) unanticipated by RMA planning documents; or (b) out-of-sequence with planned land release.	housing supply for Rolleston and its location in the "gap" between the existing urban area and the proposed Council Reserve to the south will assist in delivering a compact, linked up well-functioning urban environment.
Policy 9: Local authorities, in taking account of the principles of the Treaty of Waitangi (Te Tiriti o Waitangi) in relation to urban environments, must: (a) involve hapū and iwi in the preparation of RMA planning documents and any FDSs by undertaking effective consultation that is early, meaningful and, as far as practicable, in accordance with tikanga Māori; and (b) when preparing RMA planning documents and FDSs, take into account the values and aspirations of hapū and iwi for urban development; and (c) provide opportunities in appropriate circumstances for Māori involvement in decision-making on resource consents, designations, heritage orders, and water conservation orders, including in relation to sites of significance to Māori and issues of cultural significance; and (d) operate in a way that is consistent with iwi participation legislation.	Matter for statutory decision-makers.
Policy 10: Tier 1, 2, and 3 local authorities: (a) that share jurisdiction over urban environments work together when implementing this National Policy Statement; and (b) engage with providers of development infrastructure and additional infrastructure to achieve integrated land use and infrastructure planning; and (c) engage with the development sector to identify significant opportunities for urban development.	There is a present planning hiatus in greater Christchurch awaiting engagement on the foreshadowed change to the RPS (date unknown) followed by a full review in 2023. This submission/plan change application enables the Greater Christchurch Councils to engage in the proposal ahead of the change to the RPS.
Policy 11: In relation to car parking: (a) the district plans of tier 1, 2, and 3 territorial authorities do not set minimum car parking rate requirements, other than for accessible car parks; and (b) tier 1, 2, and 3 local authorities are strongly encouraged to manage effects associated with the supply and demand of car parking through comprehensive parking management plans.	The proposal adopts Zones and zone development and activity standards set in the PSDP/Operative District Plan.

Appendix 18: Certificates of Title

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**463353**
Land Registration District	**Canterbury**
Date Issued	21 January 2010

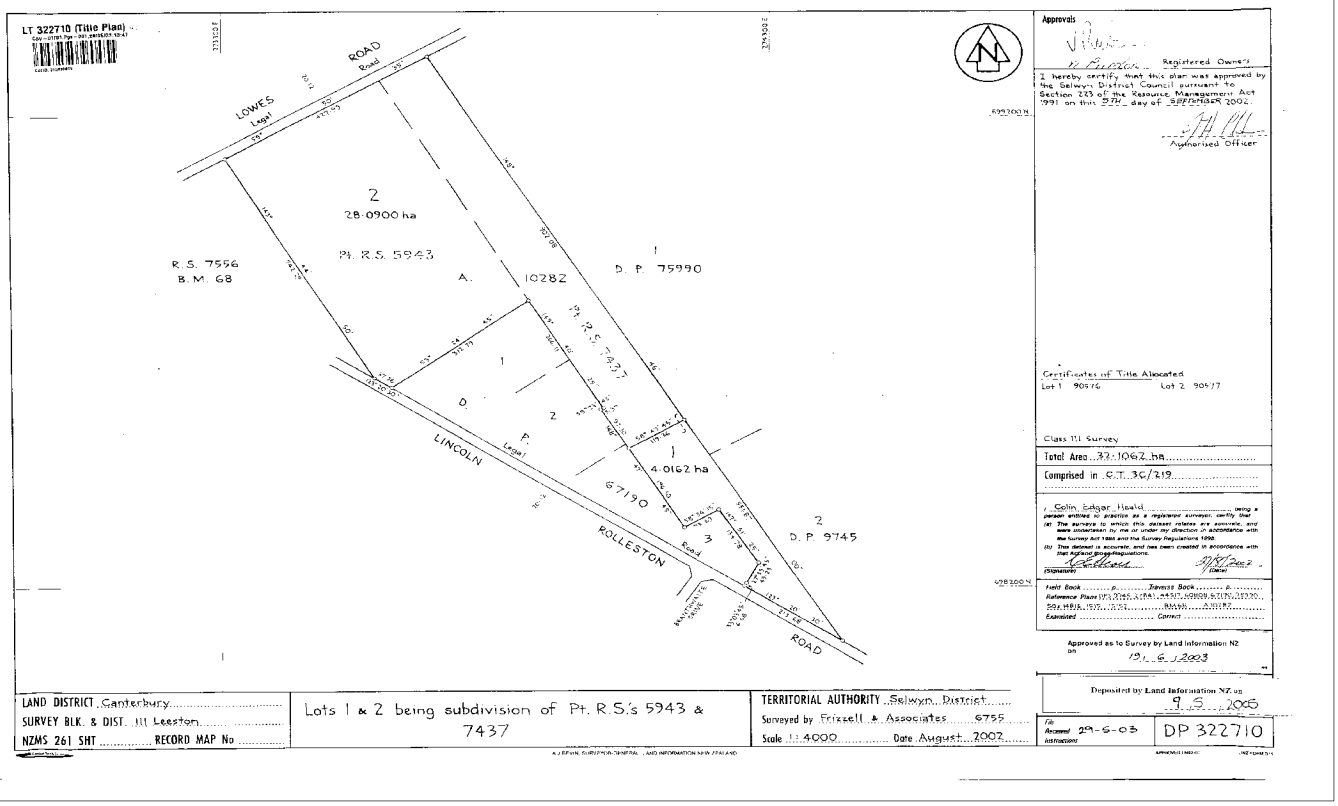
Prior References
90576 90577

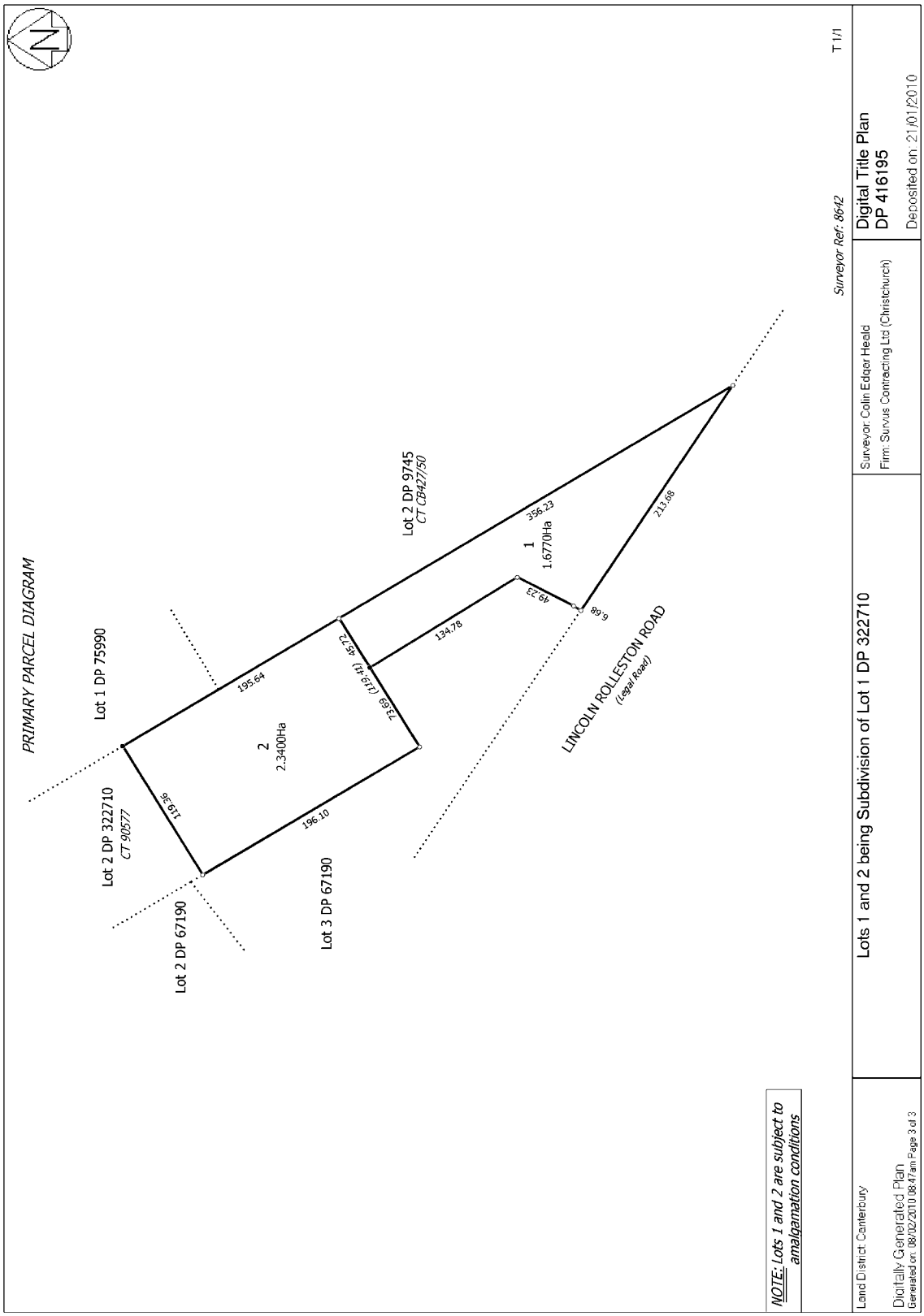
Estate	Fee Simple
Area	30.4300 hectares more or less
Legal Description	Lot 2 Deposited Plan 416195 and Lot 2 Deposited Plan 322710

Registered Owners
Mark Purdon as to a 1/2 share
Natalie Clair Rasmussen as to a 1/2 share

Interests

Subject to Section 241(2) Resource Management Act 1991 (affects DP 416195)
8903911.3 Mortgage to Bank of New Zealand - 16.12.2011 at 5:34 pm
10222310.2 Variation of Mortgage 8903911.3 - 23.10.2015 at 11:40 am


LT 322710 (Title Plan)
LOWES ROAD
Legal
Road
2
28.0900 ha
Pt. R.S. 5943
R.S. 7556
B.M. 68
A. 10282
1
D. P. 75990
Pt. R.S. 7437
1
D. P. 67190
LINCOLN ROLLESTON ROAD
2
4.0162 ha
3
2
D. P. 9745
Approvals
Registered Owners
I hereby certify that this plan was approved by the Selwyn District Council pursuant to Section 223 of the Resource Management Act 1991 on this 27th day of SEPTEMBER 2002.
Authorised Officer
Certificates of Title Allocated
Lot 1 90576
Lot 2 90577
Class III Survey
Total Area 32.1062 ha
Comprised in C.T. 3C/219
Colin Edgar Heald
Approved as to Survey by Land Information NZ on 19.6.2003
Deposited by Land Information NZ on 9.5.2005
LAND DISTRICT Canterbury
SURVEY BLK. & DIST. III Leeston
NZMS 261 SHT RECORD MAP No
Lots 1 & 2 being subdivision of Pt. R.S.'s 5943 & 7437
TERRITORIAL AUTHORITY Selwyn District
Surveyed by Frizzell & Associates 6755
Scale 1:4000 Date August 2002
29-6-03
DP 322710


PRIMARY PARCEL DIAGRAM
Lot 1 DP 75990
Lot 2 DP 322710
CT 90577
Lot 2 DP 67190
Lot 3 DP 67190
Lot 2 DP 9745
CT CB427/50
LINCOLN ROLLESTON ROAD
(Legal Road)
2
2.3400Ha
1
1.6770Ha
195.64
119.36
196.10
45.72
(119.41)
73.69
134.78
49.23
6.68
356.23
213.68
NOTE: Lots 1 and 2 are subject to amalgamation conditions
Land District Canterbury
Digitally Generated Plan
Generated on: 08/02/2010 08:47 am Page 3 of 3
Lots 1 and 2 being Subdivision of Lot 1 DP 322710
Surveyor Ref: 8642
T 1/1
Surveyor: Colin Edgar Heald
Firm: Survus Contracting Ltd (Christchurch)
Digital Title Plan
DP 416195
Deposited on: 21/01/2010

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**695247**
Land Registration District	**Canterbury**
Date Issued	17 August 2015

Prior References
656864

Estate	Fee Simple
Area	4.0805 hectares more or less
Legal Description	Lot 7 Deposited Plan 483709

Registered Owners
Leanne File and Smith & Partners Trustee Co. Limited

Interests

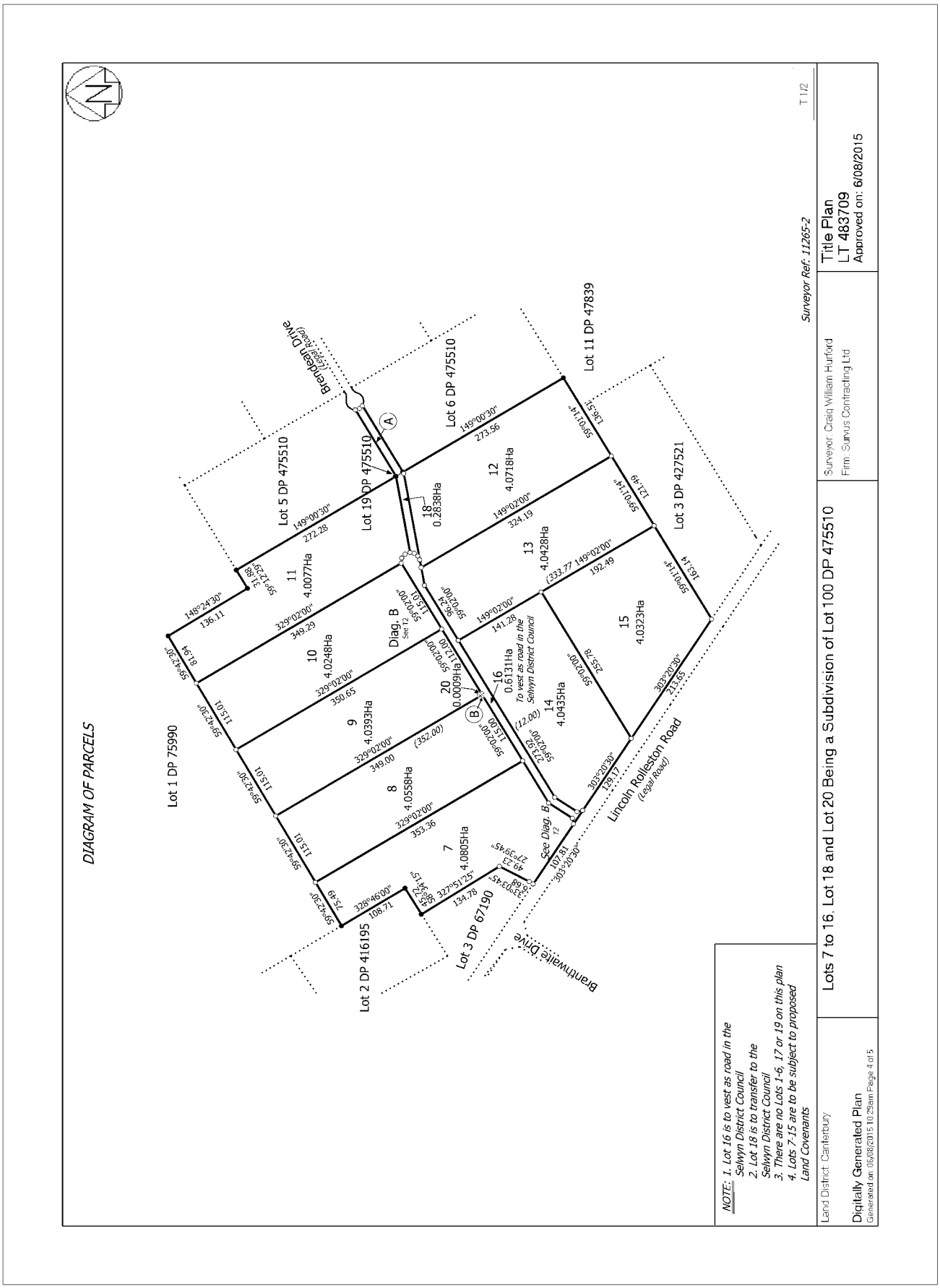
Land Covenant in Easement Instrument 10043178.2 - 17.8.2015 at 10:49 am (Limited as to Duration)

10043178.12 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 17.8.2015 at 10:49 am

10043178.13 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 17.8.2015 at 10:49 am

Fencing Covenant in Transfer 10173887.1 - 3.9.2015 at 12:54 pm

11877835.1 CAVEAT BY GOULD DEVELOPMENTS LIMITED - 29.9.2020 at 1:55 pm


DIAGRAM OF PARCELS
Lot 1 DP 75990
Lot 2 DP 416195
Lot 3 DP 67190
Lot 5 DP 475510
Lot 19 DP 475510
Lot 6 DP 475510
Lot 11 DP 47839
Lot 3 DP 427521
Brendean Drive
(Legal Road)
Brantwaite Drive
Lincoln Rolleston Road
(Legal Road)
See Diag. B
T2
Diag. B
See T2
To vest as road in the Selwyn District Council
(12.00)
(352.00)
(333.77)
7 4.0805Ha
8 4.0558Ha
9 4.0393Ha
10 4.0248Ha
11 4.0077Ha
12 4.0718Ha
13 4.0428Ha
14 4.0435Ha
15 4.0323Ha
16 0.6131Ha
18 0.2838Ha
20 0.0009Ha
NOTE: 1. Lot 16 is to vest as road in the Selwyn District Council
2. Lot 18 is to transfer to the Selwyn District Council
3. There are no Lots 1-6, 17 or 19 on this plan
4. Lots 7-15 are to be subject to proposed Land Covenants
Land District Canterbury
Digitally Generated Plan
Generated on: 06/08/2015 10:29am Page 4 of 5
Lots 7 to 16, Lot 18 and Lot 20 Being a Subdivision of Lot 100 DP 475510
Surveyor Ref: 11265-2
T 1/2
Surveyor: Craig William Hurford
Firm: Survus Contracting Ltd
Title Plan
LT 483709
Approved on: 6/08/2015

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**695249**
Land Registration District	**Canterbury**
Date Issued	17 August 2015

Prior References
656864

Estate	Fee Simple
Area	4.0393 hectares more or less
Legal Description	Lot 9 Deposited Plan 483709

Registered Owners
J M & T L Whittaker Limited

Interests

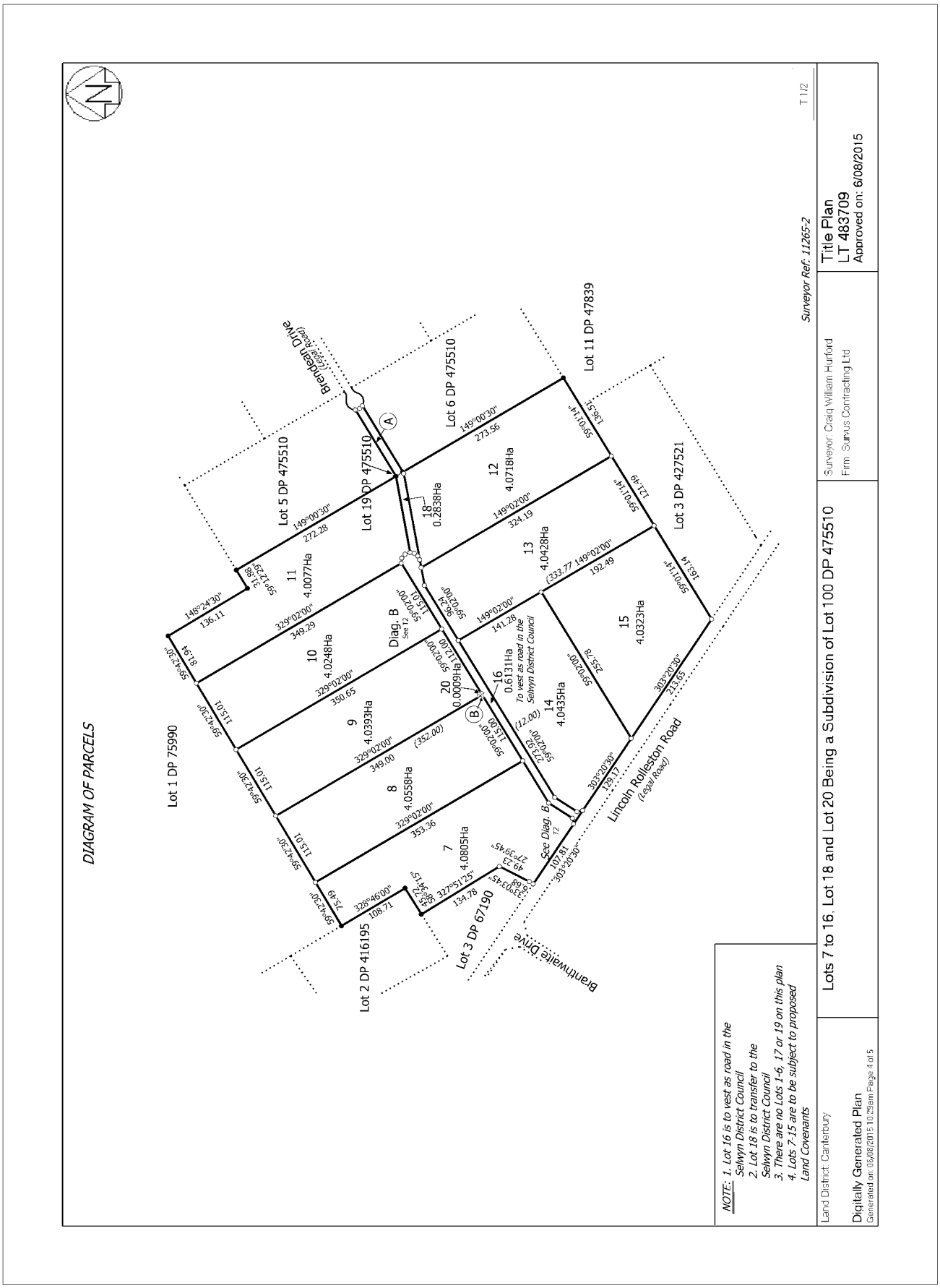
Land Covenant in Easement Instrument 10043178.2 - 17.8.2015 at 10:49 am (Limited as to Duration)

Appurtenant hereto is a right to convey electricity created by Easement Instrument 10043178.9 - 17.8.2015 at 10:49 am

The easements created by Easement Instrument 10043178.9 are subject to Section 243 (a) Resource Management Act 1991

10043178.12 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 17.8.2015 at 10:49 am

Fencing Covenant in Transfer 10172341.1 - 3.9.2015 at 12:44 pm


DIAGRAM OF PARCELS
Lot 1 DP 75990
Lot 2 DP 416195
Lot 3 DP 67190
Lot 5 DP 475510
Lot 19 DP 475510
Lot 6 DP 475510
Lot 11 DP 47839
Lot 3 DP 427521
Brendean Drive
(Legal Road)
Brantwaite Drive
Lincoln Rolleston Road
(Legal Road)
See Diag. B
T2
Diag. B
See T2
To vest as road in the Selwyn District Council
(12.00)
(352.00)
(333.77)
7 4.0805Ha
8 4.0558Ha
9 4.0393Ha
10 4.0248Ha
11 4.0077Ha
12 4.0718Ha
13 4.0428Ha
14 4.0435Ha
15 4.0323Ha
16 0.6131Ha
18 0.2838Ha
20 0.0009Ha
NOTE: 1. Lot 16 is to vest as road in the Selwyn District Council
2. Lot 18 is to transfer to the Selwyn District Council
3. There are no Lots 1-6, 17 or 19 on this plan
4. Lots 7-15 are to be subject to proposed Land Covenants
Land District Canterbury
Digitally Generated Plan
Generated on: 06/08/2015 10:29am Page 4 of 5
Lots 7 to 16, Lot 18 and Lot 20 Being a Subdivision of Lot 100 DP 475510
Surveyor Ref: 11265-2
T 1/2
Surveyor: Craig William Hurford
Firm: Survus Contracting Ltd
Title Plan
LT 483709
Approved on: 6/08/2015

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**695248**
Land Registration District	**Canterbury**
Date Issued	17 August 2015

Prior References
656864

Estate	Fee Simple
Area	4.0558 hectares more or less
Legal Description	Lot 8 Deposited Plan 483709

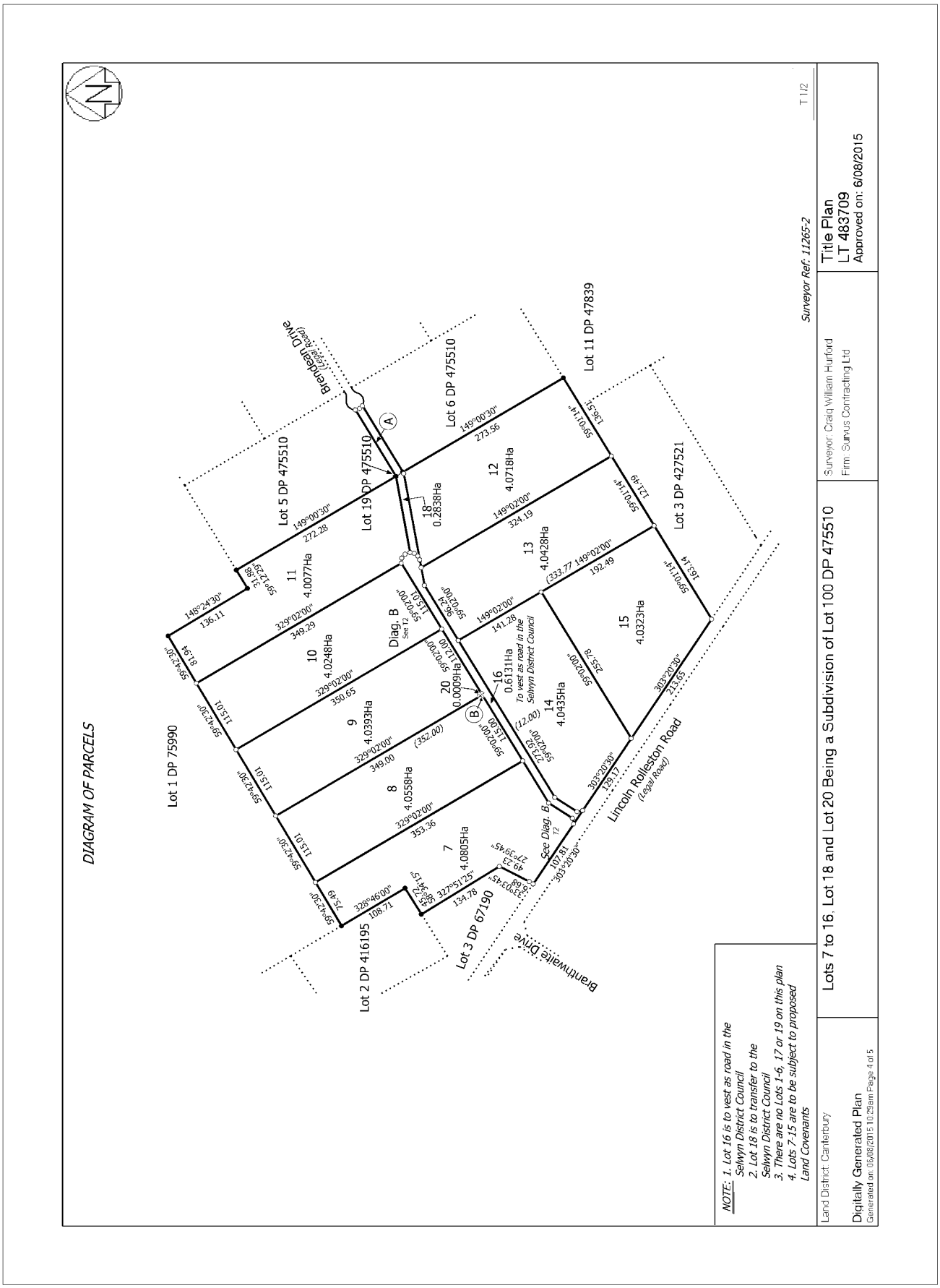
Registered Owners
J M & T L Whittaker Limited

Interests

Land Covenant in Easement Instrument 10043178.2 - 17.8.2015 at 10:49 am (Limited as to Duration)

10043178.12 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 17.8.2015 at 10:49 am

Fencing Covenant in Transfer 10172341.1 - 3.9.2015 at 12:44 pm


DIAGRAM OF PARCELS
Lot 1 DP 75990
Lot 2 DP 416195
Lot 3 DP 67190
Lot 5 DP 475510
Lot 19 DP 475510
Lot 6 DP 475510
Lot 11 DP 47839
Lot 3 DP 427521
Brendean Drive
(Legal Road)
Brantwaite Drive
Lincoln Rolleston Road
(Legal Road)
Diag. B
See T2
See Diag. B
T2
To vest as road in the Selwyn District Council
Surveyor Ref: 11265-2
T 1/2
Title Plan
LT 483709
Approved on: 6/08/2015
Surveyor: Craig William Hurford
Firm: Surveyus Contracting Ltd
Lots 7 to 16, Lot 18 and Lot 20 Being a Subdivision of Lot 100 DP 475510
Land District: Canterbury
Digitally Generated Plan
Generated on: 06/08/2015 10:29am Page 4 of 5
NOTE: 1. Lot 16 is to vest as road in the Selwyn District Council
2. Lot 18 is to transfer to the Selwyn District Council
3. There are no Lots 1-6, 17 or 19 on this plan
4. Lots 7-15 are to be subject to proposed Land Covenants

r D

Instrument Type	Transfer
Instrument No	10172341.1
Status	Registered
Date & Time Lodged	03/09/2015 12:44:51
Lodged By	Chloe Rose Fountain

Affected Computer Registers	**Land District**
695248	Canterbury
695249	Canterbury

Transferors

Brendean Estate Limited

Transferees

J M & T L Whittaker Limited

Clauses, Conditions or Intent

The transferee shall be bound by a fencing covenant as defined in Section 2 of the Fencing Act 1978 in favour of the transferor

Transferor Certifications

I certify that I have the authority to act for the Transferor and that the party has the legal capacity to authorise me to lodge this instrument ☑

I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☑

I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☑

I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☑

Signature

Signed by John Roger Parkes as Transferor Representative on 03/09/2015 10:30 AM

Transferee Certifications

I certify that I have the authority to act for the Transferee and that the party has the legal capacity to authorise me to lodge this instrument ☑

I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☑

I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☑

I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☑

Signature

Signed by George Charles Andrew Forbes as Transferee Representative on 02/09/2015 12:33 PM

***** End of Report *****

r D

Instrument Type	Caveat against dealings with land under Section 138 Land Transfer Act 2017
Instrument No	11860913.1
Status	Registered
Date & Time Lodged	17/09/2020 10:57:41
Lodged By	Sandra Faye Simpson

Affected Records of Title	**Land District**
CB39B/871	Canterbury

Registered Owner

Rebecca Jane Scott
Paul Wallace Scott

Caveator

Gould Developments Limited

Estate or Interest claimed

Agreement for Sale and Purchase dated 1/08/2020 between the Registered Owners Paul Wallace Scott and Rebecca Jane Scott as vendor and the Caveator Gould Developments Limited as purchaser

Notice

Take notice that the Caveator forbids the registration of any instrument, or the recording of any matter in the register that transfers, charges, or prejudicially affects the estate or interest protected by this caveat until this caveat is withdrawn by the Caveator, removed by order of the High Court, or until the same has lapsed under the provisions of section 143 of the Land Transfer Act 2017.

Address for Service of Caveator

Harmans Lawyers
C/- Alan Prescott
PO Box 5496
Christchurch
New Zealand
8542

Address for Registered Owner

Paul Wallace Scott, Rebecca Jane Scott
C/- Canterbury Legal, Jim Eddy
PO Box 22 115
Christchurch
New Zealand
8140

Caveator Certifications

I certify that I have the authority to act for the Caveator and that the party has the legal capacity to authorise me to lodge this instrument ☑

I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☑

I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☑

r D

Caveator Certifications

I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☑

Signature

Signed by Alan William Prescott as Caveator Representative on 16/09/2020 02:33 PM

***** End of Report *****

r D

Instrument Type	Caveat against dealings with land under Section 138 Land Transfer Act 2017
Instrument No	11877835.1
Status	Registered
Date & Time Lodged	29/09/2020 13:55:15
Lodged By	Alan William Prescott

Affected Records of Title	**Land District**
695247	Canterbury

Registered Owner

Leanne File
Smith & Partners Trustee Co. Limited

Caveator

Gould Developments Limited

Estate or Interest claimed

Agreement for Sale and Purchase dated 10/08/2020 between the Registered Owners Smith & Partners Trustee Co. Limited and Leanne File as vendor and the Caveator Gould Developments Limited as purchaser

Notice

Take notice that the Caveator forbids the registration of any instrument, or the recording of any matter in the register that transfers, charges, or prejudicially affects the estate or interest protected by this caveat until this caveat is withdrawn by the Caveator, removed by order of the High Court, or until the same has lapsed under the provisions of section 143 of the Land Transfer Act 2017. The exceptions are:

Address for Service of Caveator

Gould Developments Limited
C/- Harmans Lawyers, Alan Prescott
PO Box 5496
Christchurch
New Zealand
8542

Address for Registered Owner

Smith & Partners Trustee Co. Limited, Leanne File
C/- Smith & Partners, Peter Smith
104-065
Auckland
New Zealand
0654

Caveator Certifications

I certify that I have the authority to act for the Caveator and that the party has the legal capacity to authorise me to lodge this instrument ☑

I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☑

I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☑

r D

Caveator Certifications

I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☑

Signature

Signed by Alan William Prescott as Caveator Representative on 29/09/2020 01:54 PM

***** End of Report *****

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**CB39B/869**
Land Registration District	**Canterbury**
Date Issued	29 September 1994

Prior References
CB3C/216

Estate	Fee Simple
Area	4.0000 hectares more or less
Legal Description	Lot 1 Deposited Plan 67190

Registered Owners
Stephen Roger Chapman and Nicola Mary Chapman

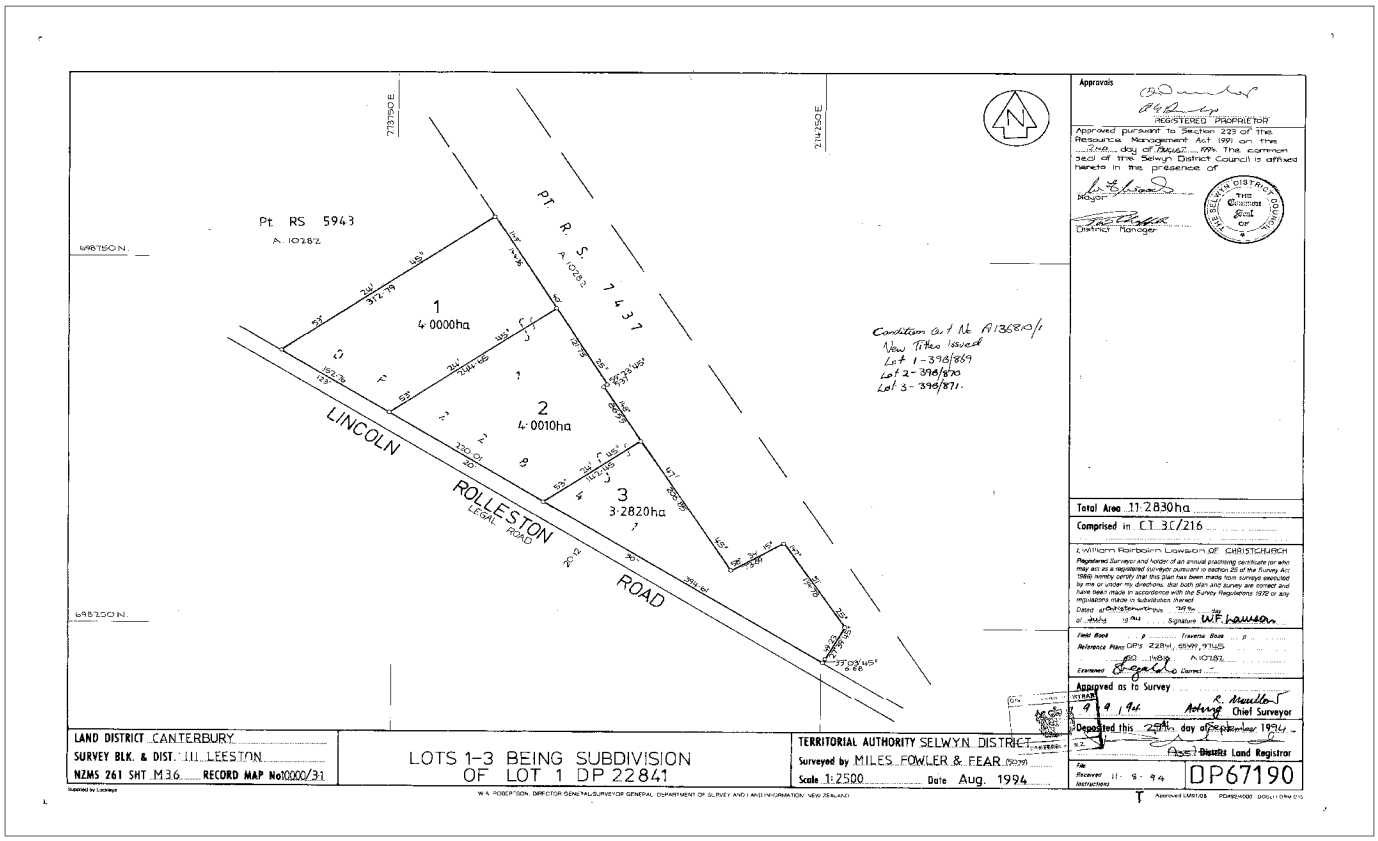
Interests

Land Covenant in Transfer A172055.1 - 10.5.1995 at 10.05 am

7655529.1 Bond pursuant to Section 108(2)(b) Resource Management Act 1991 - 13.12.2007 at 9:00 am

8630923.2 Mortgage to ANZ National Bank Limited - 9.11.2010 at 11:40 am

9024953.2 Variation of Mortgage 8630923.2 - 19.4.2012 at 9:30 am


Pt RS 5943
A. 10282
PT. R.S. 7437
A. 10282
1
4·0000ha
2
4·0010ha
3
3·2820ha
LINCOLN
ROLLESTON
ROAD
LEGAL ROAD
Condition of Nt A136819/1
New Titles Issued
Lot 1 - 396/869
Lot 2 - 396/870
Lot 3 - 396/871.
Approvals
REGISTERED PROPRIETOR
Approved pursuant to Section 223 of the Resource Management Act 1991 on the 2nd day of August 1994. The common seal of the Selwyn District Council is affixed hereto in the presence of
Mayor
District Manager
THE SELWYN DISTRICT COUNCIL
Total Area 11·2830ha
Comprised in C.T. 3C/216
I, William Fairbairn Lawson of CHRISTCHURCH
Registered Surveyor and holder of an annual practising certificate for who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986 hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof
Dated 9th September 1994 Signature W.F. Lawson
Approved as to Survey
9 9 1994
Acting Chief Surveyor
Deposited this 29th day of September 1994
Asst District Land Registrar
Received 11-9-94
DP67190
LAND DISTRICT CANTERBURY
SURVEY BLK. & DIST. III. LEESTON
NZMS 261 SHT M36 RECORD MAP No10000/31
LOTS 1-3 BEING SUBDIVISION OF LOT 1 DP 22841
TERRITORIAL AUTHORITY SELWYN DISTRICT
Surveyed by MILES FOWLER & FEAR (5079)
Scale 1:2500 Date Aug. 1994
W.A. ROBERTSON, DIRECTOR GENERAL/SURVEYOR GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**CB39B/870**
Land Registration District	**Canterbury**
Date Issued	29 September 1994

Prior References
CB3C/216

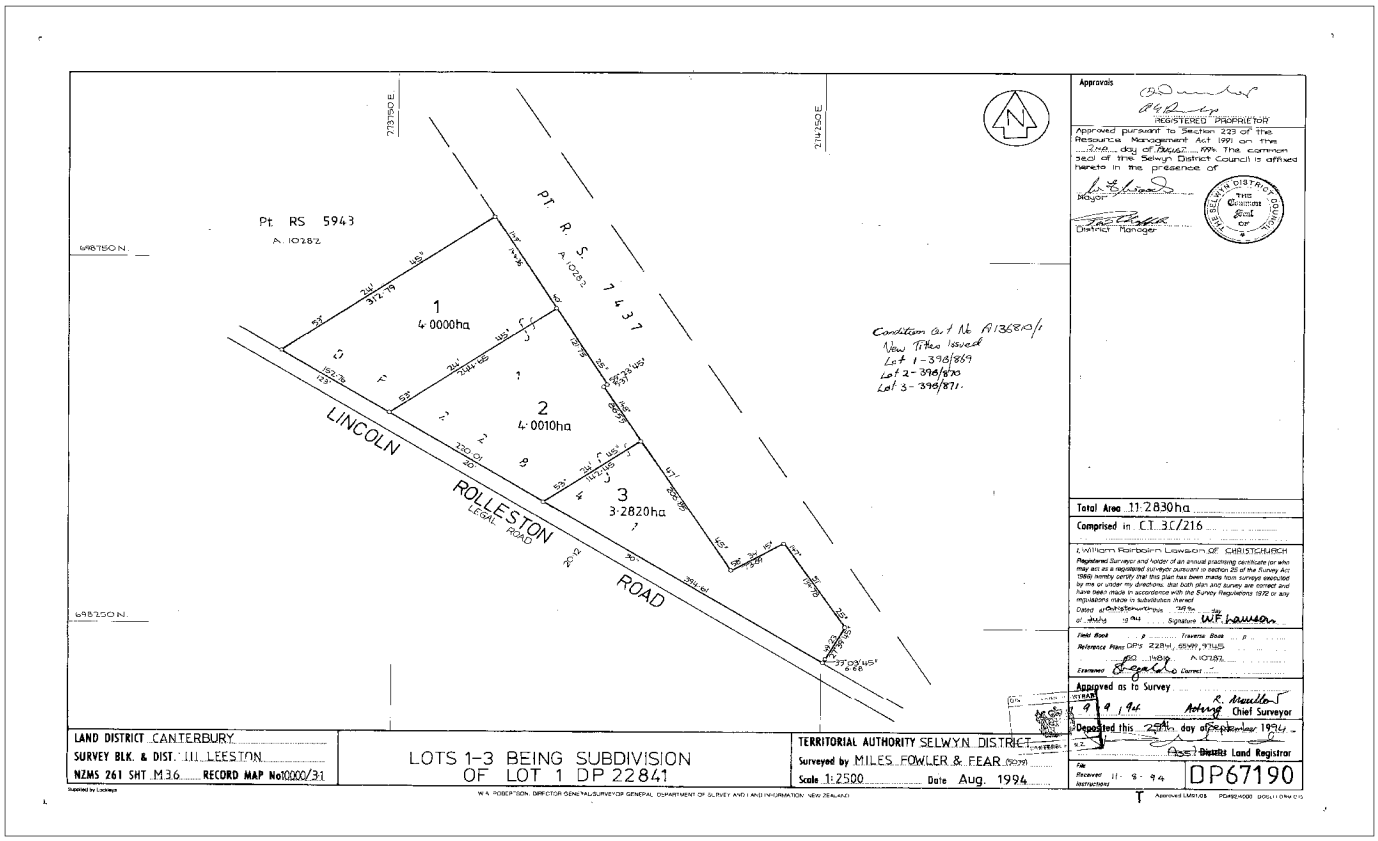
Estate	Fee Simple
Area	4.0010 hectares more or less
Legal Description	Lot 2 Deposited Plan 67190

Registered Owners
2 Degrees Real Estate Limited

Interests

Land Covenant in Transfer A172055.1 - 10.5.1995 at 10.05 am

11392588.3 Mortgage to Bank of New Zealand - 2.4.2019 at 9:28 am


Pt RS 5943
A. 10282
PT. R.S. 7437
A. 10282
1
4·0000ha
2
4·0010ha
3
3·2820ha
LINCOLN
ROLLESTON
ROAD
LEGAL ROAD
Condition of Nt A136819/1
New Titles Issued
Lot 1 - 398/869
Lot 2 - 398/870
Lot 3 - 398/871.
Approvals
REGISTERED PROPRIETOR
Approved pursuant to Section 223 of the Resource Management Act 1991 on the 2nd day of August 1994. The common seal of the Selwyn District Council is affixed hereto in the presence of
Mayor
District Manager
THE SELWYN DISTRICT COUNCIL
Total Area 11·2830ha
Comprised in C.T. 3C/216
I, William Fairbairn Lawson of CHRISTCHURCH
Registered Surveyor and holder of an annual practising certificate for who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986 hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.
Dated 29th September 1994 at Christchurch
Signature W.F. Lawson
Approved as to Survey
9 9 1994
Acting Chief Surveyor
Deposited this 29th day of September 1994
Assistant Land Registrar
Received 11-9-94
DP67190
LAND DISTRICT CANTERBURY
SURVEY BLK. & DIST. III. LEESTON
NZMS 261 SHT M36 RECORD MAP No10000/31
LOTS 1-3 BEING SUBDIVISION OF LOT 1 DP 22841
TERRITORIAL AUTHORITY SELWYN DISTRICT
Surveyed by MILES FOWLER & FEAR (5079)
Scale 1:2500 Date Aug. 1994
W.A. ROBERTSON, DIRECTOR GENERAL/SURVEYOR GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND
6982500N
6982500N
2731250E
2741250E

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**CB39B/871**
Land Registration District	**Canterbury**
Date Issued	29 September 1994

Prior References
CB3C/216

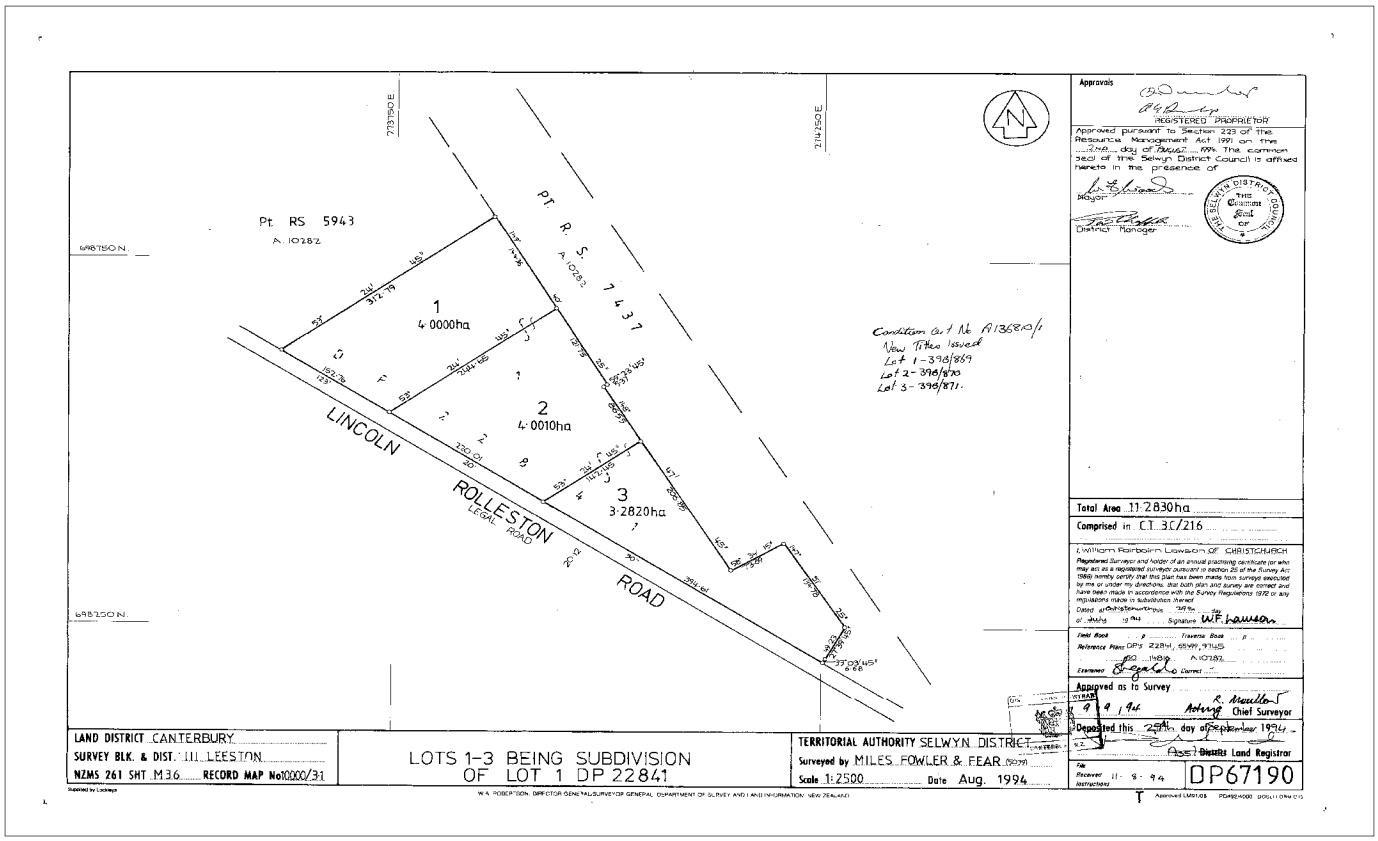
Estate	Fee Simple
Area	3.2820 hectares more or less
Legal Description	Lot 3 Deposited Plan 67190

Registered Owners
Paul Wallace Scott and Rebecca Jane Scott

Interests

10215657.3 Mortgage to Westpac New Zealand Limited - 12.10.2015 at 4:05 pm

11860913.1 CAVEAT BY GOULD DEVELOPMENTS LIMITED - 17.9.2020 at 10:57 am


Pt RS 5943
A 10282
PT. R.S. 7437
A 10283
1
4·0000ha
2
4·0010ha
3
3·2820ha
LINCOLN ROLLESTON ROAD
LEGAL ROAD
Condition of Nt A136819/1
New Titles Issued
Lot 1 - 398/869
Lot 2 - 398/870
Lot 3 - 398/871.
Approvals
REGISTERED PROPRIETOR
Approved pursuant to Section 223 of the Resource Management Act 1991 on the 2nd day of August 1994. The common seal of the Selwyn District Council is affixed hereto in the presence of
Mayor
District Manager
THE SELWYN DISTRICT COUNCIL
Total Area 11·2830ha
Comprised in C.T. 3C/216
I, William Fairbairn Lawson of CHRISTCHURCH
Registered Surveyor and holder of an annual practising certificate for who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986 hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.
Dated this 19th day of July 1994 Signature W.F. Lawson
Field Book Traverse Book
Reference Plans DP's 22841, 65499, 9145
SO 11808 A 10282
Examined Correct
Approved as to Survey
9 9 1994 Acting Chief Surveyor
Deposited this 25th day of September 1994
Assistant Land Registrar
Title Received 11-9-94
DP67190
LAND DISTRICT CANTERBURY
SURVEY BLK. & DIST. III. LEESTON
NZMS 261 SHT M36 RECORD MAP No10000/31
LOTS 1-3 BEING SUBDIVISION OF LOT 1 DP 22841
TERRITORIAL AUTHORITY SELWYN DISTRICT
Surveyed by MILES FOWLER & FEAR (5079)
Scale 1:2500 Date Aug. 1994
W A ROBERTSON, DIRECTOR GENERAL/SURVEYOR GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND

Appendix 19: All Stars Reverse Sensitivity Advice

Information on Levi Road Land Use
Rasmussen/Purdon

Ownership by the partnership; what attracted them to the site originally?

The land was flat, bare and good quality and the surrounding land was all rural. The land area and shape catered for a round track of 1000m and a jog track inside of that of 900m. It also allowed for a 1000m straight track and plenty of room for a large barn and stable complex.

State of the property at purchase?

Bare land.

What has been developed on site?

House 417m2
Stables 40 in total
Barn 2222m2
Upstairs Office/Owners viewing room 76.5m2
Outside Stables 185m2
3 x Training Tracks
2 Storage/Hay Sheds 234m2 each
Tar Sealed Forecourt 5000m2
Cottage 2 Bedroom 83m2
26 Large paddocks

The barn includes 4 gear rooms, 4 double wash bays which cater for 8 horses at one Time, 13 gear up bays and a farrier area. The forecourt is used by horse trucks, feed trucks, car parking and machinery. The 26 paddocks all have underground pipes run to water troughs. The paddocks are all fenced with post and rail or strand wire and electric stand outs top and bottom.

The approximate cost of set up is $3,240,000.

How often have they been NZ leading Standardbred trainers off this site?

11 times from 13 years. Started training at this site 2008/2009 Season.

Any alternative uses of the site considered and why they may not have been developed?

No, it's a waste being so close to the town centre to divide it into the current allowed lots. Its current use is getting more difficult and high risk with all the urban development around us.

Identification of any issues as the site is surrounded by urban uses?

Rubbish blowing onto our property, into the paddocks and onto fence lines surrounding the tracks. We have had numerous occasions where we have lost horses from a jog team of 3 when shying at rubbish or plastic bags. We have also had horses eat or chew rubbish, plastic bags. When working young horses (yearlings) we work up to 8 at one time all together and if the lead horse shy's at rubbish it causes a major ripple effect through the whole group. This has become quite a health and safety issue. I have emailed letters and also photos of Some of the rubbish we have collected off our tracks and fences to the Council in the past.

With housing getting so close now it also poses a worry regarding kids on bikes appearing Beside tracks, dogs barking at our horses and appearing at fences. With the speed at which we work these horses up to 40kph and when going this fast we often have 3 or 4 horses working together. If the lead horse shied this is disastrous and causes serious accidents, not only risking the horses but the people driving them as well as the ground staff trying to catch them if they have dislodged their driver.

What, if any, proposals does the partnership have in terms of long-term use of the site if they stay and urban uses surround it eg, reserve/housing.

We don't. It is becoming a work safe hazard with so much housing going on around us. We will have to relocate if we wish to continue to operate the business as it currently is.

Mark Purdon and Natalie Rasmussen