Application for Plan Change

Main South Road, Rolleston

September 2014

Selwyn District Council

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

REQUEST BY: Dreamtime Limited

C/- Aston Consultants Ltd

PO Box 1435

Christchurch 8140, Attn Fiona Aston

TO: The Selwyn District Council

INVOLVING THE: The Selwyn District Plan

The location to which this application relates is:

An area of approximately 20.59 ha located at the northern approach to Rolleston, bounded immediately to the south of SH1, east of Living Z zone and north of Levi Road.

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

Lot 4 DP 74253 Dreamtime Limited (20.59 ha)

The title is attached as **Annexure 1** to this Plan Change request.

The Proposed Plan Change seeks to rezone the subject land from Rural Inner Plains to Living 3 zone which includes the following changes to the District Plan and Maps:

- Amend Township Planning Map 013 sheets 1 and 2, Map 098 sheets 1 and 2, and Rural Map 13 sheets 1 and 2, to rezone the subject land Living 3.
- Amend the rules of the District Plan as set out in Section 2 of the attached report.
- Make any consequential changes to text where necessary, including but not limited to the renumbering of clauses as appropriate.

Signed: …… ……...

Fiona Aston, for and on behalf of Dreamtime Limited

Dated: Monday, September 08, 2014

TABLE OF CONTENTS

1. Overview 4
Purpose of the Plan Change Request 4
Reason for the Request 4
Description of the Site, Locality and land Use 5
Background and Strategic Considerations 5
Regional Policy Statement
Rural Residential Strategy
Rural Residential Background Report
Plan Change 17
Plan Change 32 and LURP Action (viii)
Approach and Key Features of the Plan Change 8
2. Proposed Amendments to the District Plan 10
3. Statutory Framework 15
Requests for Changes to Plans 15
Section 74 and 75 – Matters to be Considered
Assessment Against Selwyn District Plan 16
Regional Planning Documents 16
Other Planning Documents 17
The Greater Christchurch Urban Development Strategy
Christchurch, Rolleston and Environs Transport Strategy (CRETS)
Draft Rural Residential Strategy
Selwyn District Council Rural Residential Background Report
Plan Chang 32 – Rural Residential Activities
Rolleston Structure Plan
Selwyn District Council Walking and Cycling Strategy and The Greater Christchurch Travel Demand Strategy
Iwi Management Plan
Further RMA considerations 20
Section 31 – Consistency with RMA Functions
Integrated Management – Section 31(a)
Prevention or Mitigation on Contaminated Land – Section 31(b)(iia)
Emission of Noise – Section 31(d)
Section 32 Evaluation
Adverse Effects on the Environment
Part 2 – Purpose and Principles of the Act 22
Section 5(1)
Section 5 (2) (a) – (c)
Section 7 – Other Matters
Section 6 and 8 – Matters of National Importance/ Treaty of Waitangi
4. Assessment of Effects on the Environment 25
Neighbourhood and Wider Community Effects 25
Reverse Sensitivity
Physical Effects 26
Landscape Effects
Ecosystems
Natural and Physical Resources
Servicing 28
Stormwater

Waste Water
Water Supply
Discharge of Contaminants 28
Natural Hazards and Hazardous Substances 29
5. Section 32 Assessment 30
Key District Plan Objectives 30
Efficiency and Effectiveness 31
Alternative Options – Costs and Benefits and Efficiency and Effectiveness 33
Option One: Status Quo – Leave the Land Zoned Rural
Option Two: Rezone the Land for Rural Residential Purposes (Living 3)
Option Three: Rezone to a Medium to High Density Living Zone
Option Four: Apply for a Resource Consent for the Proposed Subdivision and Development
Preferred Option: Rezone to Living 3
Evaluation of Risk 43
6. Consultation 44
7. Conclusion 45

Annexures:

Annexure One: Certificates of Title
Annexure Two: Outline Development Plan
Annexure Three: Assessment Against Planning Provisions
Annexure Four: Landscape Report
Annexure Five: Transport Assessment
Annexure Six: Engineering and Servicing Report
Annexure Seven: Site Contamination Preliminary Site Assessment
Annexure Eight: Geotechnical Report
Annexure Nine: SDC Letter re Pre-Application Meeting
Annexure Ten: Matson & Allan Letter
Annexure Eleven: Assessment Against Rural Residential Background Report Preferred Rural Residential Criteria
Annexure Twelve: Section 32 Evaluation Report
Annexyre Thirteen: NZTA Approval

1. OVERVIEW

Purpose of the Plan Change Request

1.1. The purpose of the Plan Change is to allow for the rezoning of approximately 20.59ha of land on the eastern side of Rolleston from its current Rural (Inner Plains) zoning to Living 3 zoning. The rezoing of this land represents an appropriate and sustainable use of the land resources. The location is optimal with respect to integrating with a self-sustaining township and promotes connectivity via infrastructure services and transport networks. The proposal also provides opportunities for employment and access to social services for future residents. The proposal enables development while avoiding adverse effects on strategic infrastructure, including avoiding the airport noise contours, and by providing an appropriate setback from State Highway1.

1.2. The proposed rezoning is consistent with the objectives and policies of the District Plan and gives effect to the Regional Policy Statement (particularly Chapter 6). The Plan Change request provides for a sustainable and integrated provision of rural residential land with use of an Outline Development Plan to ensure coordinated and well planned outcomes.

Reason for Request

1.3. The reason for the request is that it is an appropriate location for rural residential development, as evidenced by the fact that is was identified as a 'preferred location' in the Council's Plan Change 17 (Rural Residential) which was subsequently withdrawn; and the proposal will assist in meeting the strong unmet demand for rural residential land (as discussed below). Further, rural residential zoning overcomes issues with the current Inner Plains zoning arising from residential development occurring to the west. The proposal represents a means to reduce the potential for reverse sensitivity effects between residential activities and the rural activities to the east (or activities which currently occur on the site and would continue to occur should development not be undertaken). The proposed larger lots to the east ensure larger setbacks and potentially residence with a higher tolerance to agricultural activities. As the landowner of the both the development to the west and the Site, it is considered that the most appropriate use of the Site for rural residential housing, with larger section sizes, and road access from the land to the west. This solves the access problem and with larger section sizes, this enables greater setbacks from adjoining rural activities, thus reducing any reverse sensitivity issues at the living/rural zone interface.

1.4. The existence of a strong demand for rural residential sections was the finding of the Ford Baker report, commissioned by the Council in July 2010 (prior to the earthquakes) as part of its Rural Residential Background Report (August 2010, 'RRBR'). The report found that the Greater Christchurch part of Selwyn District alone could sustain 120 rural residential households per year, which amounts to 1800 households until 2028.

1.5. A need for rural residential sections in the Greater Christchurch area has been accentuated by pressure from earthquake affected people from urban areas seeking to relocate to a more rural setting (see letter from Matson & Allan Real Estate attached as **Annexure 10**).

Description of Site, Locality and Land Use

1.6. The land to which the Plan Change relates ('the Site') is located on the eastern side of Rolleston. The land is currently zoned Rural Inner Plains and is approximately 1-2 kilometers from the main commercial hub of Rolleston.

1.7. The Site involves a total of 20.59 ha of land in a single allotment, being Lot 4 DP 74253.

1.8. Land to the immediate south which forms the southern boundary of the Site is currently zoned Rural Inner Plains and comprises two large rural residential lifestyle blocks of between 5 and 6ha respectively. The Site is screened from activity to the south by establish rural shelterbelts tall popular trees.

1.9. The land to the immediate west of the Site is owned by the applicant (Lot 3 DP 74253) the land is zoned for low density residential development (Living Z, average allotment size 750m^2) and is currently subject to a subdivision application for Greenfield development, as is the land beyond Lot 3 to the south, which is also zoned Living Z. This land currently has a harness racing track and is used for general rural grazing and rural lifestyle purposes.

1.10. SH1 is on the immediate northern boundary of the Site. State Highway 1 ('SH1') is classified as a strategic road, is a limited access road and the section of SH1 adjoining the Site contains a passing lane. Further to the north of the Site, beyond SH1, is rural land in pastoral activity and the New Zealand Railway Line (at its closest point from the northern boundary approximately 135m). To the east of the Site are large rural and rural lifestyle properties, including horse racing tracks. Immediately adjoining the Site along the eastern boundary adjoining SH1 there is a long narrow block with an area of approx. 0.8ha. This block does not extend for the full length of the Site, and is screened from the Site by shelter belts. Current access to the Site is from SH1 and an access strip to Levi Road to the south. The access to SH1 will cease after rezoning and implementation of the consent.

1.11. The Site and surrounding area has a generally flat contour comprising paddocks separated by shelter belts and shelterbelts bordering the Site. There are distant views to the Port Hills in some areas within the Coles block and from SH1. The Site is currently used for grazing stock and growing crops. SH1, while a busy arterial route, has an attractive avenue of trees adjoining the northern boundary. Currently the Site is generally open visually to SH1 and has one vehicle access to SH1 which is used for access to the existing farm dwelling only (sited 60m from the SH1 Site frontage). The only farm road access is via a 9.56m wide access leg which runs along the western boundary of the neighbouring property to the south, is not within the Rolleston Living Z Zone Outline Development Plan (ODP) Area 3. Exclusion from the Area 3 ODP is an error, as clearly the intention is for the land to be

developed as part of the adjoining residential development given its location within the Urban Limits.

1.12. The Site is part of a well-established farm contracting business and includes a dwelling and farm yard. The rural contracting operations include an intensive cropping regime involving the use of farm machinery at night time throughout the summer months for harvesting.

1.13. The owners have run this farm in association with a 20ha lot to the west (Lot 3 DP 7352). Lot 3 has now been rezoned Living Z zone and is within the urban limit at Rolleston. This severs the existing farm property and renders continued use of the balance farm (Lot 4) for farming purposes impractical and not viable. It will be without road access, substantially reduced in size, and therefore too small to support the farm contracting business. The current intensive cropping regime involves use of farm machinery at night-time throughout the summer months for harvesting. There is potential that such continued activity will result in complaints from residents once the land to the west is developed, creating reverse sensitivity issues.

Background and Strategic Considerations

Regional Policy Statement

1.14. The Regional Policy Statement (RPS) 2013 sets out the objective and policy framework for resource management issues in the Canterbury Region. Chapter 6 of the RPS provides the framework for development outside of urban areas in the Canterbury Region. The chapter was developed as part of the Land Use Recovery Plan (LURP) which provides for the future development of the Canterbury Region post the 2011 earthquakes. The LURP provisions are considered as part of the objectives and policies in relation to this plan change.

Rural Residential Strategy

1.15. The primary purpose of the Rural Residential Strategy is to provide guidance and policy direction on how best to manage rural residential development within the area of Selwyn District that is subject to the Land Use Recovery Plan/ Te Mahere Whakahaumanu Tāone (LURP). This includes establishing the optimal form, function and character of rural residential development and where it is best located.

1.16. Rural residential development in this context includes land holdings integrated into existing townships that range in size from between 0.3ha to 2ha in size at an average density of one to two households per hectare. This form of development is managed through the Living 3 zone of the Selwyn District Plan (SDP).

1.17. This Strategy identifies specific criteria to consider when identifying sites suitable for Rural Residential development, including landscape values, Cultural values, infrastructure limits and market demands. This strategy goes on to identify a number sites which are

suitable for consideration taking into consideration the criteria. One of the identified sites is the site subject to this proposed plan change.

Rural Residential Background Report

1.18. The Rural Residential Background Report (RRBR) was adopted by Council in February 2011. The RRBR investigated methods to manage rural residential development (development of land between 0.3ha and 2ha) in the eastern portion of Selwyn District, and identified criteria for determining preferred areas for rural residential growth. The purpose of the report was to provide the background context to inform Plan Change 17 (now withdrawn) to the District Plan. This report identifies a demand for rural residential development in the Selwyn District in the order of 120 households per year.

1.19. The Site was identified as a preferred location for rural residential development.

1.20. The Site meets all of the criteria for preferred locations for rural residential development in the RRBR (see assessment against criteria in **Annexure 11**). It is noted that the Site does contain versatile soils, but that maintenance of their life supporting capacity will not be precluded due to the low density of residential development with limited areas of hard surfaces. The continuation of the existing farming activity (cropping and farm contracting) is not feasible in any case, due to half of the farm being rezoned Living Z.

1.21. The proposal is for a relatively small rural residential 'node', which adjoins and will be integrated with the existing Rolleston township, and with a proposed ODP and rules which provide design solutions that achieve rural residential character and preserve the openness characteristic of the Plains landscape.

Plan Change 17

1.22. Plan Change 17 (PC17) was proposed and notified by Council to implement some of the findings of the RRBR. PC17 used the criteria set out in the RRBR to identify areas which were considered suitable for rural residential development, including the current proposed Site. This plan change was withdrawn after it became apparent there was significant contention as to which areas ought to be included or excluded. Instead Plan Change 32 was proposed (see below) which did not include identified locations

Plan Change 32 and LURP Action 18 (viii)

1.23. Plan Change 32 (PC32) was notified in March 2012 and proposed to incorporate more detailed and prescriptive Living 3 Zone objectives and policies into the Selwyn District Plan to inform the assessment of privately requested plan changes seeking a Living 3 Zone. Since notification, PC 32 has been withdrawn. The recently adopted Rural Residential Strategy is now proposed to be incorporated into the District Plan via the recommendations made by SDC to the Minister for Earthquake Recovery under Action 18 (viii) of the LURP. The Minister is yet to make a decision on these proposed amendments to the District Plan, and it is understood that they hold no legal weighting at this time. Nevertheless,

consideration of the proposed amendments as recommended to the Minister, have been made in **Annexure 3**.

Approach and Key Features of the Plan Change

1.24. The existing Living 3 rural residential zone for Rolleston is proposed to apply to the Site. This adopts the provisions of the existing Living 3 zone, but with site specific controls/rules.

1.25. Additional provisions are proposed to apply to the Site as follows:

- Requirement for development to be in general accordance with an outline development plan which applies good design principles and ensures development of the land is reflective of, and retains elements of, rural character expected for a rural residential zone and that the development will be serviced in a comprehensive and integrated manner, including:
    - A 20m setback from road boundaries.
    - A 15m setback from internal boundaries.
    - A 40m setback from boundaries with SH1.

1.26. Key design features of the Outline Development Plan include:

- A mix of lot sizes, with larger lots fronting onto SH1 (minimum 1 ha); smaller lots (minimum 2500m^2 adjoining LZ land to the west); and mid-size lots (4000 – 7500m^2) for the balance land.
- A potential yield of 36 lots, with an average size of 4962m² as calculated using the method below. It is noted that this is consistent with the requirements in the Rural Residential Strategy, which sets out a minimum 1-2 households per ha (based on gross area of allotments).

    total land area 205900 m^2 less –

    - sewer pump station 400 m^2
    - internal roading 21800 m^2
    - access to rear lots 1240 m^2
    - SH road provision 2796 m^2
    - reserve + linkage (vest in SDC) 1000 m^2 (approx)

    leaves a total of 178664 m^2 which when divided by 36 = 4962 m^2 average

    Note: if land along the SH frontage is taken as reserve, then the

average lot size will reduce to around 4700m$^{2.}$

- Vehicle access from the adjoining Living Z zone to the west of the Site.
- Internal roading to be semi-rural in character with informal groupings of trees, grass berms and swales.
- Comprehensive and integrated plan for reticulated water supply, reticulated sewer disposal, stormwater management system, and reticulated electricity and telecommunications connections
- A Local Purpose – Landscape Reserve between the SH1 frontage and the northernmost rural residential lots, to incorporate a walkway/cycleway which will be an extension of the equivalent landscape and reserve with walkway and cycleway area for the residential development to the west. The ODP includes a walkway/cycleway link from the L3 zone internal road to this landscape buffer area.
- An area of approximately 2796m² along the northern end of the site which will be set aside for acquisition by NZTA to provide for the widening of the State Highway.

1.27. Access to SH1 has been precluded to maintain the operational integrity and safety of SH1.

1.28. Subdivision is a Restricted Discretionary Activity. The existing provisions provide performance conditions relating to the issues identified above as well as a list of more general matters for discretion to ensure that development is designed to ensure a sensitive rural/ urban interface, integration with land to the west and good urban design and amenity.

2. PROPOSED AMENDMENTS TO THE DISTRICT PLAN

2.1. It is considered that the most appropriate means to achieve the proposed plan change is to largely adopt the existing provisions of the Living 3 zoning of the Selwyn District Plan. No new objectives or policies are proposed as part of this plan change request.

2.2. The following amendments to the District Plan provisions, appendices and planning maps are outlined below. Any text that is proposed to be added is shown as ***bold, underlined and in italics*** and any text to be deleted is shown as bold in italics and with a ~~***strikethrough***~~. Please note that only the proposed new and amended provisions to the District Plan are shown in this section and therefore should be read in conjunction with the full provisions of the District Plan. The following specific changes are sought to the District Plan to enable the rezoning to proceed:

Amendment 1:	Amend Planning maps 13 and 98 to identify the zoning of the site as Living 3.
Amendment 2:	Include the Outline Development Plan attached to this document as a new Appendix 42 to the District Plan.
Amendment 3:	Insert new rule after rule 4.9.31 as follows: **4.9.31(a) Any building in the Living 3 Zone at East Rolleston (as shown on the Outline Development Plan in Appendix 42) shall be set back at least:** • **20 metres from any road boundary except that on corner lots a minimum setback of 15m applies to one road boundary;** • **40 metres from any boundary with a state highway;** • **15 metres from any other boundary**
Amendment 4:	Amend rule 4.9.42 as follows; 4.9.42 Any activity which does not comply with Rule 4.9.3 **or Rule 4.9.31(a)** shall be a discretionary activity.
Amendment 5:	Amend Reasons for Rules – Building Position, 6th Paragraph on Page C4-027 as follows; Controls on side and front yard spaces apply to sites in the Living 3 Zone at Rolleston identified on the Outline Development Plan in Appendix 39, ~~and~~ 40 **and 42,** in order to retain views between residences and to assist in retaining elements of rural character and

	provide visual integration and visual attractiveness.
Amendment 6:	Amend Rule 5.1.1.6 as follows; 5.1.1.6 For the Living 3 Zone at Rolleston identified on the Outline Development Plan in Appendix 39 ~~**and**~~ 40 **and 42**, the road shall include the **relevant** cross sectional treatment as shown in Appendix 39 ~~**and**~~ 40 **and 42**.
Amendment 7:	Insert a new rule after rule 12.1.3.37 as follows: **12.1.3.37(a) Any subdivision of land within the area shown in Appendix 42 (Living 3 Zone at East Rolleston) complies with:** **(a) the establishment of discontinuous framework tree planting following some private lot boundaries and planting within the State Highway 1 Landscape Reserve , where the trees shall be comprised of the following species; existing species, or Tulip tree (Liriodendron tulipifera), Chinese poplar (Populus yunanensis), Aspen poplar (P. Tremula), Plane tree (Platanus orientalis), Algerian oak (Quercus caneriensis), Turkey oak (Q. Cerris), Pin oak (Q. Palustris), Sessile oak (Q. Petraea), Large-leafed lime (Tilia plataphyllos), Weeping silver lime (T. Petiolaris), Wych elm (Ulmus glabra) or similar species. A planting plan showing the detail of proposed framework planting shall be supplied and approved at the time of subdivision and the planting shall be undertaken by the developer. Planting shall be maintained at all times. Any dead, damaged or diseased trees shall be removed and replaced.** **The purpose of the framework planting is to provide shelter and amenity for private lots; maintain and/or create rural character elements; reduce the overall apparent scale of the development; and provide screening of glare and vehicle movement from the proposed southern motorway extension to the east. The planting will not be continuous and will retain vistas through the planting to the surrounding rural landscape.** **(b) The roading layout of the Outline Development Plan at Appendix 42;** **(c) where any conflict occurs with Rule E13.3.1 the cross sections in Appendix 42 shall take precedence;** **(d) No more than 36 lots shall be created.**

<table>
<tr><td>Amendment 8:</td><td>Amend Table C12.1 – Allotment sizes (page C12 – 014) to include the following;

<table><tr><td>Township</td><td>Zone</td><td>Average Allotment Size not less than</td></tr><tr><td>Rolleston</td><td><u>Living 3 (Appendix 42)</u></td><td><u>The land contained within the Outline Development Plan at Appendix 42 shall be developed with an average allotment size of no less than 4700m^2 with a minimum allotment size of 2500m^2</u>

<u>The maximum number of allotments within the area defined by the Outline Development Plan at Appendix 42 shall be 36</u></td></tr></table></td></tr>
<tr><td>Amendment 9:</td><td>Insert new clause after Clause 12.1.4. as follows:

In relation to the Living 3 <u>(East Rolleston)</u> Zones as shown on Appendix <u>42</u>:

Whether the pattern of development and subdivision is consistent with the Outline Development Plan <u>42</u>;

Whether local road, and trees and planting on roads and lots are proposed in general accordance with the Outline Development Plan, road cross sections and associated planting schedules and requirements shown in Appendix 42;

Whether the roading pattern and proposed hard and soft landscape treatments in the road reserve and on private lots will create a semi rural character to the development and distinguish it from conventional suburban development;

Whether suburban road patterns and details such as cul de sacs, arbitrary curves and kerb and channels are avoided;

Whether the provision of public walkways is consistent with the public walkways identified on the Outline Development Plans in appendix 42

Whether the proposed framework planting meets the purpose of the</td></tr>
</table>

<table>
<tr><td></td><td>planting as specified in Rule 12.1.3.37(a)</td></tr>
<tr><td>Amendment 10:</td><td>Amend Appendix 13 Transport Table E13.9 –Roading Standards as follows:

<table>
<tr><td>Type of Road</td><td>Legal Width (m)

Min
Max</td><td>Carriageway width (m)

Min Max</td><td>Kerb and

channel</td><td>Footpath(s)</td></tr>
<tr><td>Local Roads – Living 3 Zone<u>s</u> at Rolleston (as shown within Outline Development Plan<u>s</u> at Appendi~~x~~<u>ces</u> 37 <u>and 42</u>)</td><td>18m
20m</td><td>6m 6.5</td><td>Nil</td><td>One side only
<u>(Holmes)</u>

Nil, other than informal on both sides of road within berms (East Rolleston)</td></tr>
</table>
</td></tr>
<tr><td>Amendment 11:</td><td>Include any consequential amendments and renumbering of provisions as required to give effect to the plan change request.</td></tr>
</table>

3. STATUTORY FRAMEWORK

Requests for Changes to Plans

3.1. Section 73(1A) of the Resource Management Act 1991 ("the Act") gives a territorial authority the right to change its District Plan. In addition, section 73(2) enables any person to request a territorial authority to change a District Plan in the manner set out in the First Schedule of the Act. This Plan Change request has been prepared in accordance with Schedule 1, Clause 21 of the Act.

Under Clause 22 of the First Schedule, a plan change request must:

a) *Explain the purpose and reasons for the request;*
b) *Contain an evaluation under s32 of the objectives, policies, rules or other methods proposed.*
c) *Assess environment effects in such detail as correspond with the scale and significance of actual and potential effects anticipated from the implementation of the plan change;*

3.2. In making a determination on the request under Clause 25 (2) Council may adopt the request, or part of the request, as if it were a proposed plan by the territorial authority, or accept the request, in whole or part, and proceed to notify.

3.3. It is requested that the request is accepted and notified in accordance with Clause 25(2)(b). There is considered no reasons to reject the request in whole or part under Clause 25(4) of the 1st Schedule.

3.4. The process for dealing with a Plan Change once it has been publicly notified and submissions received is set out in the First Schedule of the Act. In the case of a private plan change request, the procedure in Part 1 of the First Schedule, with all necessary modifications, apply except as set out in sub-clauses (2) to (9) of Clause 29 of Part 2 of the Schedule. This means that in this case:

a) *There needs to be a hearing into submissions on the proposed Plan Change (Clause 8(b) Part I);*
b) *The person who made the request for the Plan Change has the right to appear at the hearing under Clause 8(b);*
c) *After considering the Plan Change the local authority may decline, approve, or approve with modifications the Plan Change and shall give reasons for its decision;*
d) *The decision to decline or approve shall be served on every person who made a submission and the person who made the request; and*
e) *Every person who made a submission on the Plan Change and the person who made the request may refer the decision to the Environment Court.*

Section 74 and 75 – Matters to be considered

3.5. The matters to be considered in respect of a Plan Change are set out in sections 74 and 75 of the Act. In summary, before a plan change can be incorporated into a District Plan, the key matters that need to be considered include:

(a) Consistency with other provisions of the district plan;
(b) Whether it gives effect to the regional policy statement and any relevant regional plans;
(c) The functions of a territorial authority at section 31;
(d) Whether the plan change will lead to the most appropriate outcome under s32;
(e) Actual and potential adverse effects anticipated from implementation of the Plan Change; and
(f) The purpose and principles within Part 2 of the Act.

3.6. Each of the above matters is addressed below.

Assessment against Selwyn District Plan

3.7. The purpose of the Plan Change is to provide for rural residential zoned land, at an appropriate density, that ensures a sensitive integration and interface with the urban and rural edge, adjoining partially developed, low density residential development; and addresses reverse sensitivity with SH1. There are no new specific objectives proposed for the Site. The existing objectives for townships, Rolleston, and the Living Zones, set the policy framework that Living 3 Zone 'sits under'. Specific rules are proposed to address the effects of reverse sensitivity with SH1 and the rural/urban interface and to ensure that development occurs in an integrated and efficient manner to maintain a compact township shape.

3.8. **Annexure 3** provides a detailed assessment of the plan change request against the relevant objectives and policies of the District Plan.

Regional Planning Documents

3.9. The Regional Policy Statement (RPS) 2013 provides an overview of the resource management issues of Canterbury. It sets out how natural and physical resources are to be managed in an integrated way, with the aim of sustainable management. Chapter 6 provides more specific direction for growth, development and enhancement of the urban and rural areas of Greater Christchurch. This Chapter has recently been added to the RPS through the Land Use Recovery Plan (LURP), and has been considered as part of this application. The relevant provisions of the RPS are considered in **Annexure 3**, Table 1 and 2.

3.10. In addition to the above, the Regional Land Transport Strategy (2008 – 2018) sets out the targets and vision for land transport within Greater Christchurch. The key components

of this strategy are identified and assessed in Table 3 of **Annexure 3** and further discussed in the Transportation Assessment at **Annexure 5**.

3.11. The Proposed Natural Resources Regional Plan (NRRP) addresses sustainable management of natural resources in the Canterbury Region. It may be that a discharge consent for stormwater will be required for future development on the Site, under the provisions of the NRRP. This assessment process will ensure consistency with the provisions of the NRRP.

Other Planning Documents

The Greater Christchurch Urban Development Strategy

3.12. The principal planning document for giving statutory effect to the UDS is LURP's proposed Chapter 6. The proposed plan change is generally consistent with these provisions as set out in Tables 2, **Annexure 3**

Christchurch Rolleston and Environs Transport Strategy (CRETS)

3.13. The intention of CRETS is to help reduce traffic congestion to the west and south of Christchurch over the next 10 to 15 years.

3.14. Key transportation improvements include:

- *Extending the Southern Motorway from Halswell Junction Road to south of Templeton,*
- *Improving road links between the growing townships of Rolleston, Linclon and Prebbleton, and*
- *Improving connections to Christchurch and between Rolleston and State Highway 1.*

3.15. Improvements/ proposals for improving the accessibility of Rolleston as a key activity hub within the district and regional transport network include:

- *Upgrading of the cross section of the inner and outer ring roads.*
- *Upgrading intersections along these routes.*
- *Modify most intersections to either limit the number of different turns that can be made or provide for all movements with less delays and improved safety.*

3.16. The proposed plan change will not affect or compromise in any way, any of the above improvements. Its proximity to Rolleston will mean its residents will be able to take full advantage of the above roading improvements.

Selwyn District Council, Rural Residential Strategy 2014

3.17. The Rural Residential Strategy, adopted in June 2014, outlines criteria for identifying sites suitable for Rural Residential Development. This Strategy was required to be prepared under the LURP. The Site which this Proposed Plan Change is subject to is specifically

identified as meeting the criteria outlined in the Draft Strategy and as being suitable for Rural Residential Development.

Selwyn District Council Rural Residential Background Report 2010 (RRBR)

3.18. The RRBR is a discussion document which outlines preferred criteria for rural residential sites in the Greater Christchurch area of the District and assesses the various townships in terms of their respective constraints and opportunities for rural residential development. It is a non-statutory document and was approved by Council in February 2011.

3.19. A number of criteria were identified as critical outcomes required to achieve the goals of the Urban Development Strategy, PC1 and PC17. Many of these criteria have been adopted into objectives and policies for rural residential land in LURP's Chapter 6 to the RPS. An assessment of these criteria has been made in **Annexure 11** and the proposal is in general accordance with them.

3.20. The RRBR also contains site specific issues that require detailed assessment and contextual analysis to determine how any identified potential adverse effects could be avoided, remedied or mitigated. An assessment of such issues has been made within the Assessment of Environmental Effects (section 4) of this report, and any mitigating factors considered.

Action18 (viii) Recommendations on the Implementation of the Rural Residential Strategy

3.21. SDC were required to provide recommendations to the Minister for Earthquake Recovery on how they intended to implement the Rural Residential Strategy. These recommendations have been provided to the Minister but as yet no determination from the Minister has been made.

3.22. Of particular note from these recommendations is the requirement by SDC that all sites identified in the Rural Residential Strategy are required to go through the plan change process to be rezoned Living 3. This plan change application is consistent with that requirement.

Rolleston Structure Plan

3.23. The Rolleston Structure Plan was adopted by Council in September 2009. The plan considers how existing and future development in Rolleston should be coordinated to ensure development occurs in a sustainable manner and makes best use of the available natural and physical resources. The structure plan identifies the importance of ensuring that a clear rural/urban interface is provided between the urban limit of the township and the rural surrounds. A 50m wide Green Belt/landscape buffer is proposed at the urban/rural boundary to provide a distinctive identity to Rolleston, and sense of arrival at the town within the rural plains landscape. This includes on the eastern boundary of the Site. However, it is understood the Council do not now wish to proceed with this concept. No provision has been made for a Green Belt as part of this plan change request, consistent

with the previous Plan Change 17 Outline Development Plan for the Site, which did not include a Green Belt.

3.24. The Rolleston Structure Plan also proposes that as part of the Greenbelt concept, the section of SH1 between Dunns Crossing Road and Weedons Ross Road (which includes land adjoining the northern Site boundary) is enhanced with amenity highway planting. The proposed 40m dwelling setback from SH1 will ensure a high amenity setting towards the proposed rural residential development as viewed from the SH1. There is an existing long line of oak trees spaced at 5m intervals within the road reserve which will ensure filtered views towards future rural residential dwellings along the SH1 Site frontage (three more in addition to the existing farm dwelling). In addition, it is proposed to that an approximately 20m wide strip be planted with poplar and oak trees to give a bucolic appearance to the subdivision for passing motorists.

Selwyn District Council Walking and Cycling Strategy & The Greater Christchurch Travel Demand Strategy

3.25. The broad intent of these documents is to increase the provision of sustainable transport modes including walking and cycling and reduce reliance on private motor vehicle transport. The location of several of the rural residential Existing Development Areas in the District some distance from the District townships means they are highly reliant on the private motor vehicle for access to services and facilities. In contrast, the Site adjoins Rolleston township. The site is within cycling distance of the services and facilities of the township, including the New World Supermarket on Rolleston Drive.

3.26. The Transport Assessment (**Annexure 5**) confirms that the Site proposed roading layout is suitable for an extension of public transport services if required in the future. The internal road design as shown in the ODP incorporates informal footpaths (mowed grass within the grass berm area) on either side of the road, in keeping with the rural residential character of the development. The low traffic volumes and lack of any heavy vehicles will ensure that the internal roads are suitable for cyclists as well as motorised vehicles.

3.27. There is a possible pedestrian and cycleway connection from the north east of the Site to a separate path along the northern end of the site adjoining SH1, should this be deemed appropriate by SDC. If required, the average lot size will be 4600m^2, as opposed to 5000m^2 without this walkway link,

3.28. In conclusion, the Site's location and design features, as shown on the ODP, will ensure a range of sustainable transportation options for the Site, consistent with the SDC Walking and Cycling Strategy and Greater Christchurch Travel Demand Strategy.

Iwi Management Plan

3.29. The Mahaanui Iwi Management Plan (IMP) 2013 represents the collective effort of the six Papatipu Rūnanga that represent the hapū who hold manawhenua rights over lands and waters within the takiwā from the Hurunui River to the Hakatere River and inland to Kā

Tiritiri o Te Moana. This document is considered to be relevant to policy and planning processes under the Resource Management Act (RMA) 1991.

3.30. This plan is broken into 6 sections, with a specific section relating to Regional issues and policies (section 5) and a specific section relating to catchment issues and policies (section 6). The plan identifies a collective statement of values of Papatipu Rūnanga. The plan covers the areas of Ranginui (air), Wai Māori (water quality and quantity and catchment mixing), Papatūānuku (land and how it is managed), Tāne Mahuta (biodiviersity and areas of mahinga kai), Ngā tūtohu whenua (significant sites), and the catchment of Te Waihora (Lake Ellersmere).

3.31. The objectives and policies of the IMP have been considered with respect to the development of this plan change. Of particular interest is the methods of stormwater disposal which are proposed to go to an on-site disposal system, ensuring that there is no mixing of waters from different catchments, and ensuring there is no adverse effect from the detention and treatment of stormwater.

3.32. Furthermore there are not any identified sites of significance on the proposal Site, nor are there any known areas of mahinga kai from the Site. The Site has a long history of use as a farm, with exotic species of trees on the site.

3.33. Overall it can be considered that the proposal is not contrary to the provisions of the IMP.

Further RMA Considerations

Section 31 – Consistency with RMA Functions

3.34. The functions of the Council are outlined in section 31 of the Act. The following functions are of particular relevance to the Plan Change:

> *(a) the establishment, implementation, and review of objectives, policies, and methods to achieve integrated management of the effects of the use, development, or protection of land and associated natural and physical resources of the district;*
> *(b) the control of any actual or potential effects of the use, development, or protection of land, including for the purpose of:*
> *(iia) the prevention or mitigation of any adverse effects of the development, subdivision or use of contaminated land*
> *(d) the control of the emission of noise and the mitigation of the effects of noise*

Integrated Management – section 31 (a)

3.35. Integrated management relates to both the management of effects at the site level and the integrated management of a district's natural and physical resources at a wider strategic level. The Site is at the urban/rural interface and adjoins SH1, a strategic transport network. Extensions to the urban boundary occur best when there is comprehensive

planning. Good planning process requires a top down approach where all the issues for a site are identified and appropriate design solutions are adopted.

3.36. Strategically the Site integrates with the wider vision for the District, in particular managed growth of the township of Rolleston, including the rural/urban interface. The proposed rezoning is consistent with the policy direction for rural residential development at the sub regional (Greater Christchurch) level as set out in PC1 and proposed Chapter 6 of the RPS in the LURP.

3.37. At a site level, the application seeks to integrate good urban design solutions and infrastructure extensions that manage the effects of the use, development, or protection of land and associated natural and physical resources. Additionally methods are proposed to be implemented that avoid and mitigate the effects of rural residential development in close proximity to SH1.

Prevention or Mitigation of Contaminated Land – section 31 (b) (iia)

3.38. The assessment of effects in section 4 of this document concludes that while a small isolated portion of the Site is likely to have soil contamination present (the area around the fuel tankers associated with the existing farming activities), the remainder of the Site as a whole is suitable for future rural residential development. Given that it is proposed to retain the dwelling on a site in its existing location, the report concludes that it is unlikely to pose a risk to future users of the Site.

Emission of Noise – section 31 (d)

3.39. Refer to the discussion on noise and reverse sensitivity in the assessment of effects in Section 4 of this request.

Section 32 Evaluation

3.40. Section 32 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 RMA, and if the proposed amendments are the most efficient and effective method of achieving the objective. The report is attached in **Annexure 12** and indicates that of the possible alternative methods of achieving rural residential development for this site, a plan change is the most efficient and effective method.

Adverse Effects on the Environment

3.41. The actual and potential adverse effects on the environment that are anticipated from the implementation of the plan change request are discussed in Section 4 of this application, with reference to the various assessments and reports attached as annexures.

Part 2 – Purpose and Principles of the Act

Section 5(1)

3.42. Under section 5(1) of the Act, the overall purpose of the Act is to promote the sustainable management of natural and physical resources. The proposed zone promotes the sustainable management of natural resources by providing for an appropriate use of the land given its proximity to the existing Rolleston township, planned urban growth to the immediate west of the Site, and ability to sustain efficiently the growing population of Rolleston.

3.43. The proposed zone also promotes the sustainable management of physical resources. The roading network is being planned with growth in mind for Rolleston. The effect of the development on the roading network is considered minor given the links through to existing road networks. Infrastructure can be provided for in a manner that efficiently utilises the systems already in place for the growth of Rolleston, negating the need for additional major new services.

3.44. With planned urban growth to the immediate west, retaining the existing rural zoning and resultant lot size of the Site would create an unsustainable use of the natural and physical land resource. It will result in a small parcel of rural land restricted in its potential and ability to carry out sustainable rural activities. It is considered that rural residential zoning of the Site will better achieve the purpose of the Act.

Section 5(2) (a) – (c)

3.45. Section 5(2) defines "sustainable management" as:

> *Managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while-*
>
> *(a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
> *(b) Safeguarding the life supporting capacity of air, water, soil and ecosystems; and*
> *(c) Avoiding, remedying, mitigating any adverse effects of activities on the environment.*

3.46. Utilising the site for rural residential purposes will provide housing choice and provide for rural residential land supply in a sustainable manner, in accordance with the provisions of the relevant planning documents. The Site is in close proximity to existing and proposed expanded Rolleston township services and facilities, and this minimises travel distances for future residents. The Plan Change proposes sensitive interfaces at the urban/rural residential and rural residential/rural boundaries. It carefully considers design and provides for a socially connected and high amenity rural residential living environment while avoiding and mitigating the effects of reverse sensitivity with SH1. The needs of future generations

are well served by urban and adjoining rural residential areas that provide integrated, well planned and sensitive designed living zones in regard to the surrounding environment, which in this case is achieved.

3.47. The potential adverse effects of rural residential development of the Site are outlined in Section 4 of this request, which establishes that all adverse effects can be appropriately avoided, remedied or mitigated.

Section 7 – Other Matters

3.48. Relevant "other matters" under section 7 include the following:

(b) The efficient use and development of natural and physical resources;
(c) The maintenance and enhancement of amenity values;
(f) Maintenance and enhancement of the quality of the environment;
(g) Any finite characteristics of natural and physical resources; and
(i) The effects of climate change

3.49. Under sections 7(c) and 7(f), particular regard must be had to the maintenance and enhancement of amenity values and the maintenance and enhancement of the quality of the environment. The amenity of the existing rural environment will be changed, but the plan change request provides for a sensitive change that mitigates the potential adverse effects thorough requirements for setbacks from SH1 and other road boundaries, appropriate lot sizes across the Site and street landscaping and road treatments. These requirements will ensure that the sense of openness is maintained and the quality of the environment is not diminished. Appropriate transport connections for all modes of transport to the urban area of Rolleston provides for the amenity of future residents. Methods to address the noise effects from SH1 to ensure an appropriate amenity for residential living are regulated as part of the proposed setback from SH1 and existing plan provisions relating to noise.

3.50. Under section 7(g) the Act requires particular regard of any finite characteristics of natural and physical resources. Rural land as a resource is finite, however in this case the subject land cannot be efficiently used as rural land due to the size of the lot, existing access provisions, and the reverse sensitivity restrictions that impending residential development to the west impose. Enabling the Site, due to constraints, to be utilised for rural residential development is a better use of the land resource and will enable finite rural land parcels that do not have such constraints to better meet the purpose of the Act in terms of sustainable development of natural and physical resources.

3.51. With respect to section 7(g) the proposal makes specific consideration of the SH1, which is a physical resource of significance to the national transport network. Appropriate setbacks from this highway to avoid reverse sensitivity effects have been included as part of this proposed plan change.

Section 6 and 8 – Matters of National Importance / Treaty of Waitangi

3.52. Overall the proposal is consistent with section 6 of the Act, however there are no specific matters set out in Section 6 which apply to this proposal.

3.53. The principals of the Treaty of Waitangi have been taken into consideration throughout the development of this plan change. An assessment of the Iwi Management Plan has been undertaken, and considered in earlier in this section.

4. ASSESSMENT OF EFFECTS ON THE ENVIRONMENT

4.1. An Assessment of the Effects on the Environment (AEE) is required to be carried out for any plan change request. Schedule 4, Part 2 (a) – (f) RMA sets out the matters which should be considered when undertaking an AEE. These matters have been considered below and also include consideration of the matters and issues identified in the relevant District and Regional planning documents.

Neighborhood & Wider Community Effects

Reverse Sensitivity

4.2. Consideration of the effects on the neighbourhood and wider community includes consideration of the potential 'reverse sensitivity' effects generated as a result of rezoning the Site. Reverse sensitivity effects occur where a new residential activity establishes and new residents have an issue with noise, odour, dust or other effects from existing activities on adjoining sites, creating conflict.

4.3. In the case of this plan change request there is potential for conflict between the Site and noise from SH1, and potential conflict between the Site and farming activities on adjoining rural land to the east and south.

4.4. The plan change request includes a 40m setback from SH1 and includes proposed landscaping along this boundary to reduce the visibility of vehicles using the highway. Existing District Plan rules require appropriate acoustic design for dwellings sited within 80m of a state highway. This will ensure that reverse sensitivity conflicts with SH1 are mitigated, and ensure that the physical resource of SH1 is protected.

4.5. The Site adjoins a proposed Living Z residential subdivision to the west which contains higher density residential activities than proposed under the proposed rural residential zoning for the Site. If development of the Site did no proceed, it is likely that it would continue to be used for farming and cropping purposes (although rather uneconomically due to the Site's size and access provisions). Farming and cropping activities usually have a high dust and noise component during harvesting seasons.

4.6. By enabling rural residential development, with much larger sections, larger building setbacks, and greater opportunity for garden plantings, there is an opportunity to reduce any potential reverse sensitivity conflict with neighboring rural zoned properties.

4.7. Furthermore it is intended to provide for a variety of section sizes across the Site, with larger sections to the north and moderate to larger sections to the east and south in order to reduce the potential for reverse sensitivity effects with the various adjoining activities. It is understood that there are no existing intensive farming activities such as poultry or pig farming in the locality.

4.8. Based on the above proposed measures, the adverse effects of noise and reverse sensitivity will be no more than minor.

Physical Effects

Landscape Effects

4.9. The Site is on the urban/rural fringe, therefore landscape and visual effects have been considered, with particular emphasis on ensuring a sensitive transition from the rural to urban interface. A Landscape Assessment for the Site has been undertaken by Chris Glasson Landscape Architects Ltd and is attached as **Annexure 4** to this report.

4.10. The surrounding landscape character is generally rural, with the exception of residential subdivision to the west. The surrounding land contour is flat with fields separated by shelterbelts, with crops and stock grazing. There are some panoramic views from the Site limited by existing shelter belts. There is an existing dwelling with associated sheds on the northwestern corner of the Site. Within the vicinity, the area consists of scattered farm buildings and single storied residential dwellings surrounding by specimen trees and some garden areas. Immediately to the west of the Site is a proposed new residential development. Views to the Site from SH 1 are limited by tall hedgerow and shelterbelt planting, 6 -10m in height.

4.11. The visual character will change from rural to rural residential subdivision. However the assessment concludes that potential visual effects can be reduced by adopting appropriate landscape controls, and as such there are no perceived adverse visual effects arising from rural residential subdivision that cannot be avoided, remedied or mitigated The large allotment sizes, site coverage requirements, road boundary setbacks, large wide roads with grass berms, and opportunities for garden plantings will enable a sense of openness and natural character to be maintained within the Site. Views from SH1 across open farmland will be reduced, however given existing shelter belts restrict views currently it is considered that there will not be a significant loss of views as a result of the change in use of the Site. There is an existing long line of oak trees spaced at 5m intervals within the road reserve which will ensure filtered views towards future rural residential dwellings along the SH1 Site frontage (three more in addition to the existing farm dwelling). In addition, it is proposed to that an approximately 20m wide strip be planted with poplar and oak trees to give a bucolic appearance to the subdivision for passing motorists.

4.12. The Landscape Assessment includes a landscape concept for the subdivision which includes discontinuous framework planting within private lots, including at the Site boundaries. An additional District Plan rule requires this planting to be undertaken by the developer at the time of subdivision, with the requirement for a planting plan to be submitted for approval. The purpose of the framework planting is to provide shelter and amenity for private lots; maintain and/or create rural character elements; reduce the overall apparent scale of the development; and provide major screening of glare and vehicle movement from the proposed southern motorway extension to the east. The planting will

not be continuous and will retain vistas through the planting to the surrounding rural landscape.

4.13. Overall it is acknowledged that there will be a landscape and visual change across the Site from a rural to a more built up landscape. However the effect of this change is mitigated by the nature of rural residential development and the effects are considered to be minor.

Ecosystems

4.14. The Site has a history of being used for farming activities as is common for the Canterbury Plains. The Site contains a number of shelter belts around the periphery and a row of poplar trees through the middle. Some of these trees will be removed as part of the subdivision of the Site, however given the nature of rural residential developments, there will be an increase in trees on the Site associated with gardens and street trees. These are likely to have the greatest impact once they are established (7-10 years). This will be a positive effect of the plan change request.

4.15. There are no known areas of significant indigenous vegetation or habitat for significant indigenous fauna within the Site.

Natural and Physical Resources

4.16. One of the most significant physical resources in this area is the transport network, both within the Site and the wider area. A detailed transportation assessment, is included in **Annexure 5.**The report concludes that the proposed development can be safely and efficiently accommodated within, and integrated into, the local transportation environment, with effects that are less than minor.

4.17. SH1 adjoins the northern end of the Site and provides a strategic link between Christchurch City to the east and Rolleston township. Currently traffic volumes on this road are around 19.900 vehicles per day (refer to the Transport Assessment attached in **Annexure 5**). It is anticipated that SH1 will be upgraded between Templeton and Rolleston to extend the current Christchurch Southern Motorway. The ODP proposed for the Site does not include connections to SH1, but rather shows connections to the local roads to the east of the Site, and a landscaped buffer zone between proposed residential sections and SH1. It is considered that given there is no direct link to SH1 from the Site, and given the low traffic volumes generated by the Site, the proposed plan change request will have a minor effect on the current and future, safe and efficient functioning of SH1.

4.18. Analysis of the traffic effects on the local roading network from the Site has set out that there would be an increase during peak traffic of approximately 36 vehicle movements and that this when considered in the context of the increase in vehicle movements from the development to the west of the Site (to which the Sites vehicle movements would be additional), the additional traffic from the Site is unlikely to be noticeable on the local road network.

4.19. The Transport Assessment concludes that: “The site is located along the eastern edge of the Rolleston township and can be serviced through existing and planned transport network which makes efficient use of transport infrastructure to accommodate the demand for rural residential growth”. Therefore the proposed plan change request has effects on the physical resource of the road network that are no more than minor.

Servicing

4.20. Infrastructure is a physical resource. Servicing has the potential to create adverse effects on the environment, particularly with respect to disposal of sewerage and stormwater, and water supply. **Annexure 6** includes an Engineering and Servicing Report which sets out the key methods for servicing the Site, the key points and issues are set out below.

Stormwater

4.21. In Rolleston there is no piped township stormwater reticulation. Given the free draining gravel soils under the township it is most practical to require future residents of the Site to install rapid soak holes for roof water and onsite hardstanding areas. This is a typical solution for dwellings in Rolleston. Stormwater for road and driveway runoff will be treated and discharged using a sump and soak pit system located in the road berms. The development of the Site will not significantly increase surface runoff from the Site.

4.22. Specific design solutions and devices can be the subject of the subdivision application. The site is well suited for onsite stormwater treatment and disposal and the adverse effects of the increase in stormwater discharge can be adequately mitigated.

Wastewater

4.23. Rolleston’s reticulated system has the capacity to receive the additional volumes from the Site. A gravity fed reticulation system to the southeast of the Site can then be pumped through a variety of means to connect to the reticulated system. A number of specific options are provided in the report in **Annexure 6**.

Water Supply

4.24. The Site can be adequately serviced Rolleston’s existing town water supply. Connections will be made to the west to provide reticulated services to the Site.

Discharge of Contaminants

4.25. The proposal has the potential to discharge contaminants from stormwater runoff from buildings and hardstand areas (including roads) during storm events. The discussion on servicing above indicates that stormwater can be managed in an appropriate manner to ensure that the actual and potential effects of the discharge of contaminants from the Site will be no more than minor.

Natural Hazards and Hazardous Substances

4.26. A preliminary site inspection was undertaken by Geoscience Consulting (NZ) to assess the potential for contaminants to have been deposited at the Site as a result of historic activities undertaken within, or in the immediate vicinity of, the property and report on the risk posed to future site users. A report on their findings is attached in **Annexure 7.** It concludes that there are two above ground fuel storage units on the part of the Site containing the existing dwelling which could pose a soil contamination threat. However given that it is intended to retain the existing dwelling, including the fuel tankers, on its own separate lot, the risk to future users of the remainder of the Site is considered to be low. There are no other hazardous substances identified on the Site.

4.27. A geotechnical report for the Site has been prepared by Riley Consultants and is attached in **Annexure 8**. The report concludes there no significant risk posed by liquefaction on the Site as concluded from test pit investigations and no observed effects from the 2011 earthquakes on the Site.

4.28. In terms of DBH guidelines, the Site is likely to be similar to those sites that fall into the technical category TC1.

4.29. Ground conditions in the test locations do not meet the requirements of NZS3604:2011 for standard shallow foundations and therefore house foundations require specific investigation and design. Indications based on investigations to date are that enhance slab TC2 foundations or other specific design is applicable.

4.30. Given the indications in the above reports it is considered that the effects of hazardous substances on the future users of the Site will be less than minor, and that the potential effects of natural hazards on the Site will be no more than minor.

5. CONSULTATION

5.1. Consultation has been carried out with Selwyn District Council planning and assets officers during the course of preparation of the plan change, including in relation to the ODP. Attached as **Annexure 9** is a copy of a letter from SDC summarizing matters discussed at a pre-application meeting and subsequent email correspondence with SDC.

5.2. Initial advice was that the preliminary ODP with smaller lots in a central position was supported, but on the basis of subsequent SDC expert landscape advice, this was changed to a preference for the reverse ie. smaller lots around the periphery and larger lots in the centre, in order to provide more of an open space character in the centre and greater degree of 'rural' character. The final ODP layout reflects this later advice. The email advice from the Council Planner commenting on the change in lot layout was provided without knowledge of the concurrent advice being provided by the Council's landscape advisor on this matter. The approach has now been confirmed as that recommended by the Council's landscape advisor.

5.3. The final draft plan change takes into account the matters raised in the above consultation with the Council.

5.4. The proposal for rural residential use of the Site has already been the subject to considerable consultation through other SDC processes, principally the RRBR and PC17 (withdrawn). The site was identified as a preferred rural residential site in PC17, and there were no submissions on PC17, including from neighbouring landowners, which opposed this.

5.5. There is a Notice of Requirement from the New Zealand Transport Agency for a small part of the land adjoining the State Highway, to provide for an extended southern motorway. The proposed plan change has been developed with this in mind. NZTA and in discussion with the applicant and their advisors regarding acquiring this land. There has also been discussion with NZTA planners regarding the plan change and a copy of the final draft has been forwarded to them. They have indicated that based on the ODP they received they have no objection to the Plan Change. In particular they note that the proposal removes the exiting access to SH1, provides for reverse sensitivity for dwellings located near SH1 and provides for future road widening SH1 as required under the Notice of Requirement. Correspondence with NZTA is attached in **Annexure 13**. T

5.6. Consultation has been undertaken with Local Runanga, through their consultancy Mahaanui Kurataiao Ltd via an email with a copy of the application sent to them on 19th June 2013. As yet there has been no response from this organization regarding the application.

6. CONCLUSION

6.1. The proposed plan change seeks to rezone 20.59ha of land, legally described as Lot 4 DP 74253, from Rural Inner Plains to a Living 3 Zone. The Site adjoins the current urban limits of Rolleston township to the east, and adjoins SH1. The site currently contains farming and cropping activities, however given recent development to the west, the Site will no longer have appropriate access from SH1, and, due to its size, will no longer continue to be an economically viable farming unit.

6.2. The proposed development of the Site to a Living 3 Zone with large setbacks from SH1 and setbacks from other roads and internal boundaries, will ensure that reverse sensitivity effects with traffic on SH1, and other rural activities to the east of the Site will be avoided. The proposed wide streets, with grass berms, and informal grouping of street trees, along with road boundary setbacks and a low yield across the Site will ensure retain the sense of openness associated with the rural surroundings is maintained or enhanced. The connections to the development to the west will ensure a high level of connectivity of the Site with the urban area of Rolleston township, and provides for good transport connections for all modes of transport. Overall the effects on the environment will be no more than minor.

6.3. The proposed plan change represents an efficient and effective use of land, and reduces the potential for reverse sensitivity effects at the rural/urban interface. The rezoning is consistent with the policies and objectives of the District Plan, and the Regional Policy Statement, including LURP's Chapter 6.

6.4. The plan change is consistent with the relevant provisions of the RMA and can be accepted by Council.

Annexure One – Certificate of Title

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**CB42D/791**
Land Registration District	**Canterbury**
Date Issued	11 October 1999

Prior References
CB40A/789

Estate	Fee Simple
Area	20.5900 hectares more or less
Legal Description	Lot 4 Deposited Plan 74253

Proprietors
Dreamtime Limited

Interests

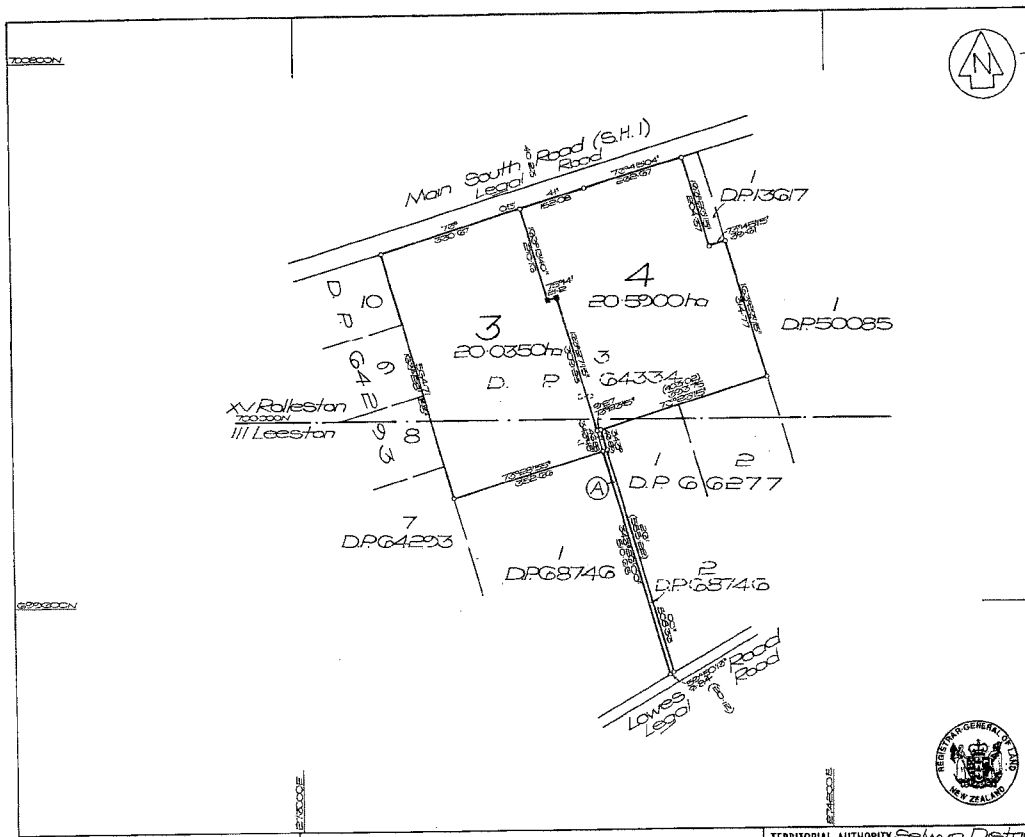
677874 Gazette Notice declaring No.1 State Highway (Awanui-Bluff) fronting the within land to be limited access road - 23.8.1966 at 3.00 pm

A428756.3 Easement Certificate specifying the following easements - 11.10.1999 at 1.50 pm

Type	Servient Tenement	Easement Area	Dominant Tenement	Statutory Restriction
Right of way	Lot 3 Deposited Plan 74253 - CT CB42D/790	A DP 74253	Lot 4 Deposited Plan 74253 - herein	

The above easements will be subject to Section 243 (a) Resource Management Act 1991 when created

9368195.3 Mortgage to ANZ Bank New Zealand Limited - 6.6.2013 at 8:17 am



Approvals: Approved

Registered Proprietor

Approved pursuant to Sections 23 of the Resource Management Act 1991 on the 31st day of October 1995 Subject to the granting or reserving of the easement set out in the memorandum hereon. The common seal of the Selwyn District Council is affixed hereto in the presence of

Mayor

General Manager

MEMORANDUM OF EASEMENTS

NATURE	EASEMENT TEN LOT NO SHOWN		DOM TEN
RIGHT OF WAY	3	A	4

There are no lots 1 & 2 on this plan

Total Area 40·6250ha

Comprised in CT 13C/769

I Peter Timothy McAuley

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 at CHRISTCHURCH this 22nd day of October 1996 Signature

Field Book ... p. ... Traverse Book ... p. ...

Reference Plans DP 13617, 50085, 66277, 68746, 64293, 64334, 50587, 68748

Examined ... Correct ...

Approved as to Survey

2/11/97

Chief Surveyor

Deposited this 11th day of October 1997

Registrar General of Land
for District Land Registrar

File

Received 22-10-96

Registrations

DP 74253

LAND DISTRICT Canterbury

Survey Blk. & Dist. III Leeston & XV Rolleston

NZMS 261 Sheet ... Record Map No. ...

LOTS 3 & 4 BEING SUBDIVISION OF LOT 3 DP 64334 & LOT 2 DP 68746

TERRITORIAL AUTHORITY Selwyn District

Surveyed by Davis Ogilvie & Partners Ltd

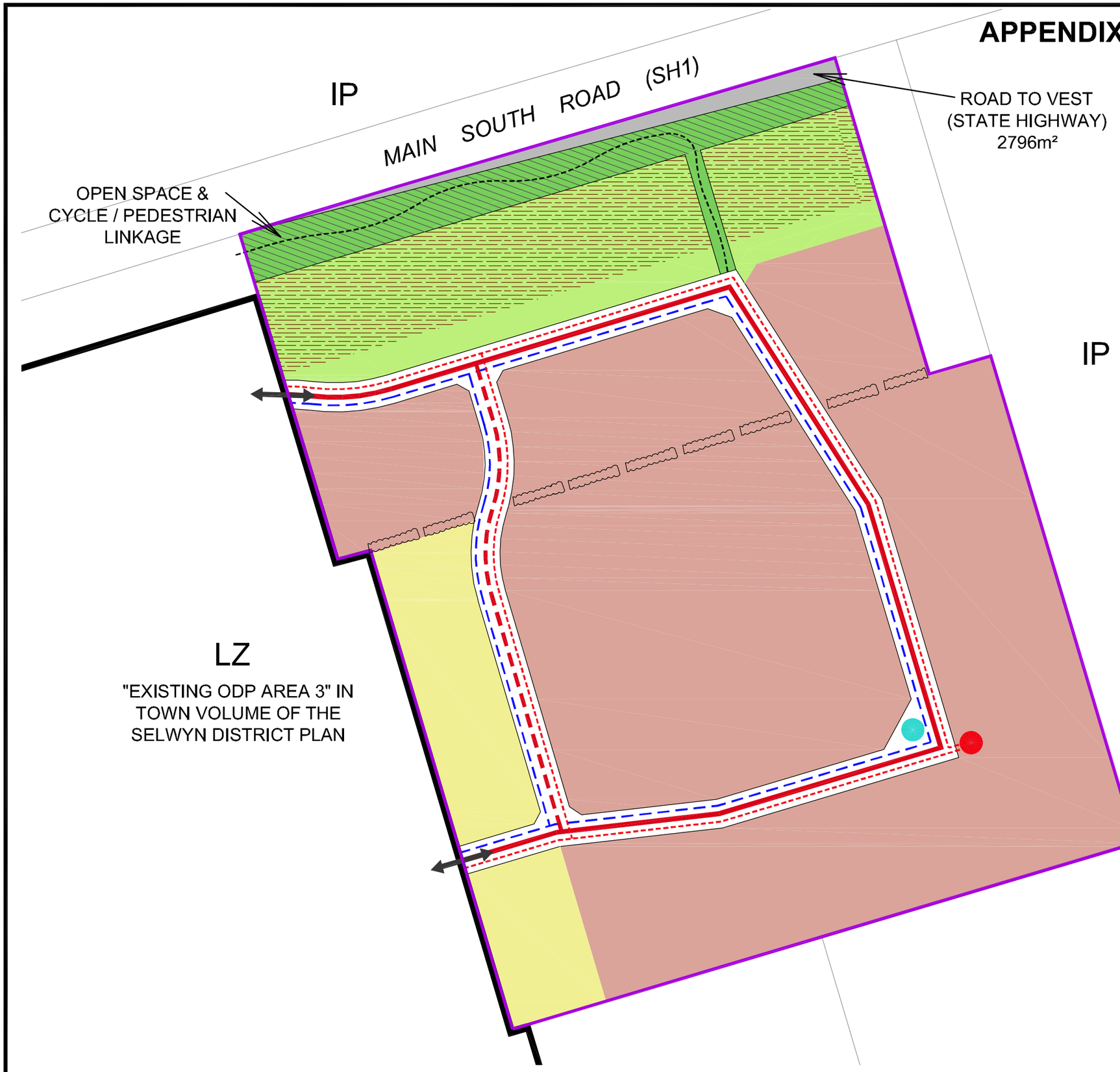
Scale 1:5000 Date Oct 1996

M A. ROBERTSON, DIRECTOR GENERAL/SURVEYOR GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND

DOSLI FORM 935

Annexure Two: Outline Development Plan

APPENDIX 42: OUTLINE DEVELOPMENT PLAN
LIVING 3 ZONE AT EAST ROLLESTON

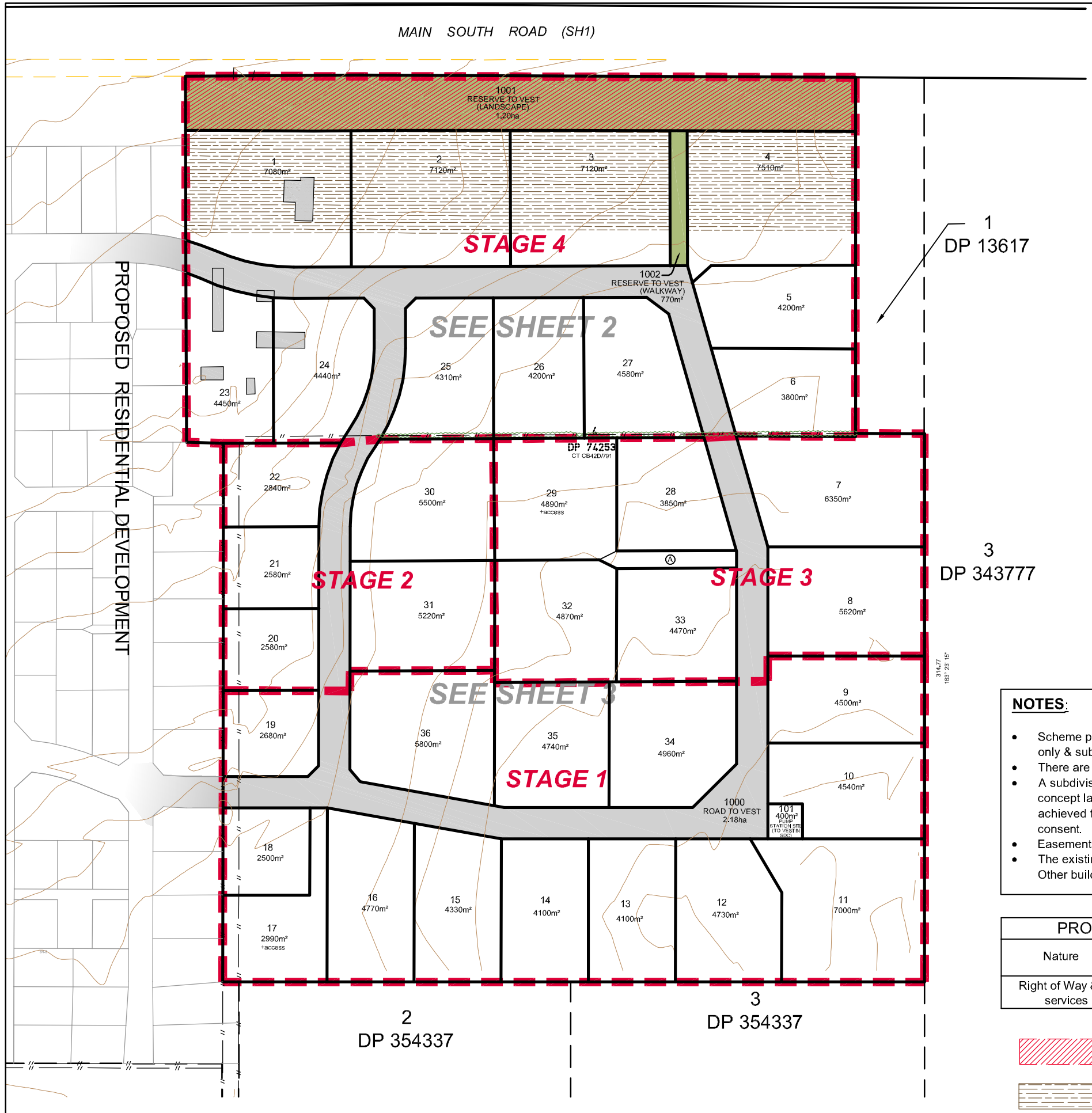


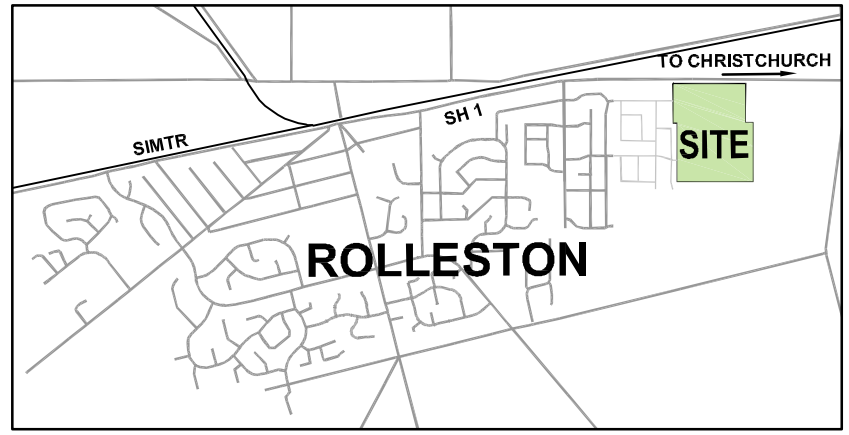
NORTH

KEY:

- ZONE BOUNDARY
- SITE BOUNDARY
- EXISTING SHELTER BELT RETAINED
- INDICATIVE LOCAL MAJOR ROAD
- INDICATIVE LOCAL INTERMEDIATE ROAD
- INDICATIVE GRAVITY SEWER MAIN ROUTES & LOCATION OF SEWER PUMP STATION
- INDICATIVE WATER MAIN ROUTES
- INDICATIVE STORMWATER SECONDARY FLOWPATH DISPOSAL AREA
- 40m (FROM SH1) NOISE ABATEMENT SETBACK AREA
- 60m (40-100m FROM SH1) ACOUSTIC DESIGN AREA
- INDICATIVE CYCLE & PEDESTRIAN ROUTE (EXCLUDING ROADS)
- ROAD CONNECTION
- LOT SIZES MINIMUM 7000m²
- LOT SIZES 3800m²-7000m²
- LOT SIZES MINIMUM 2500m²
- OPEN SPACE
- ROAD TO VEST (STATE HIGHWAY)

0 50 100 150 200 250m





LOCATION DIAGRAM
1:40 000

SCHEDULE OF ALLOTMENTS

Stage No.	Lot Numbers	No. of Lots	Total Area
i) Residential			
1	Lots 9-19 & 34-36	14	61810m²
2	Lots 20-22, 30 & 31	5	18710m²
3	Lots 7,8,28,29,32,33	6	30090m²
4	Lots 1-6 & 23-27	11	58900m²
Total Rural Residential		36	169510m² (16.951ha) (4709m² average)
			Note: Areas are net areas and exclude access
ii) Road to Vest	1000		2.18 ha
iii) Reserves to Vest	1001 (Landscape) 1002 (Walkway)		1.20ha 770m²
iv) Sewer Pump Station (to vest in SDC)	101		400m²

NOTES:

- Scheme plan only areas and dimensions are approximate only & subject to final survey.
- There are no Lots 37-100, 102-999 on this plan.
- A subdivision consent has not issued in respect of this concept layout. confirmation of the layout can only be achieved through the ultimate issue of a subdivision consent.
- Easements may be required to protect services.
- The existing house shown on proposed lot 1 is to remain. Other buildings are to be removed.

PROPOSED EASEMENTS

Nature	Servient Tenement		Dominant Tenement
	Lot No	Shown	
Right of Way & all services	29	A	Lot 32

DATA QUALITY STATEMENTS

PROPERTY DATA
The property data has been sourced from Land Information New Zealand (LINZ) and is current as at January 2009.

SURVEYED DATA
Surveyed data has been captured using survey equipment, to a relative accuracy within ±50mm (horizontal and vertical). This data has been provided by a third party.

DIGITAL TERRAIN MODEL (DTM)
The DTM is shown by contours at 0.25m intervals. The contours have been calculated from spot heights obtained by field survey. The accuracy of the Digital Terrain Model is estimated to be within ±0.1m.

SURVEY ORIGIN DATA
Vertical elevations are in terms of Mean Sea Level .
The origin of levels is MA 21 DP 403542 RL 50.345m.
Horizontal coordinates are in terms of NZ Geodetic Datum 2000, Mount Pleasant 2000 Circuit.

40m (FROM SH1) NOISE ABATEMENT SETBACK AREA

40-100m (FROM SH1) ACCOUSTIC DESIGN AREA

0 50 100 150 200m
SCALE 1:2500 A3

REG.D PROPRETOR: BC & MA Coles
COMPRISED IN : CT 42D/791
TOTAL AREA (CT): 20.5900 ha
PREPARED BY: C.H THOMPSON (LICENSED CADASTRAL SURVEYOR)
EMAIL - thompsonclan@xtra.co.nz

POSSIBLE SUBDIVISION LAYOUT
LOT 4 DP 74253
(RURAL RESIDENTIAL)

DESIGNED: CHT
DRAWN: RD
CHECKED: CHT
APPROVED: CHT
DATE: DEC 2012

SCALE	FILE	DRAWING
1:2500@A3	1007	10.1 REV C

REV	ISSUE	BY
A	COUNCIL COMMENT	CHT
C		CHT

MAIN SOUTH ROAD (SH1)

EDGE OF SH 1

1001
RESERVE TO VEST
(LANDSCAPE)
1.20ha

1
7080m²

2
7120m²

3
7120m²

4
7510m²

EXISTING DWELLING (APPROX) TO REMAIN

STAGE 4

1000
ROAD TO VEST
2.18ha

1002
RESERVE TO VEST
(WALKWAY)
770m²

5
4200m²

6
3800m²

7
6350m²

EXISTING BUILDINGS TO BE REMOVED

23
4450m²

24
4440m²

25
4310m²

26
4200m²

27
4580m²

22
2840m²

30

29

28

EXISTING TREE LINE & FENCE

DP 74253

STAGE 2

STAGE 3

PROPOSED RESIDENTIAL DEVELOPMENT

0 25 50 75 100 125m
SCALE 1:1250

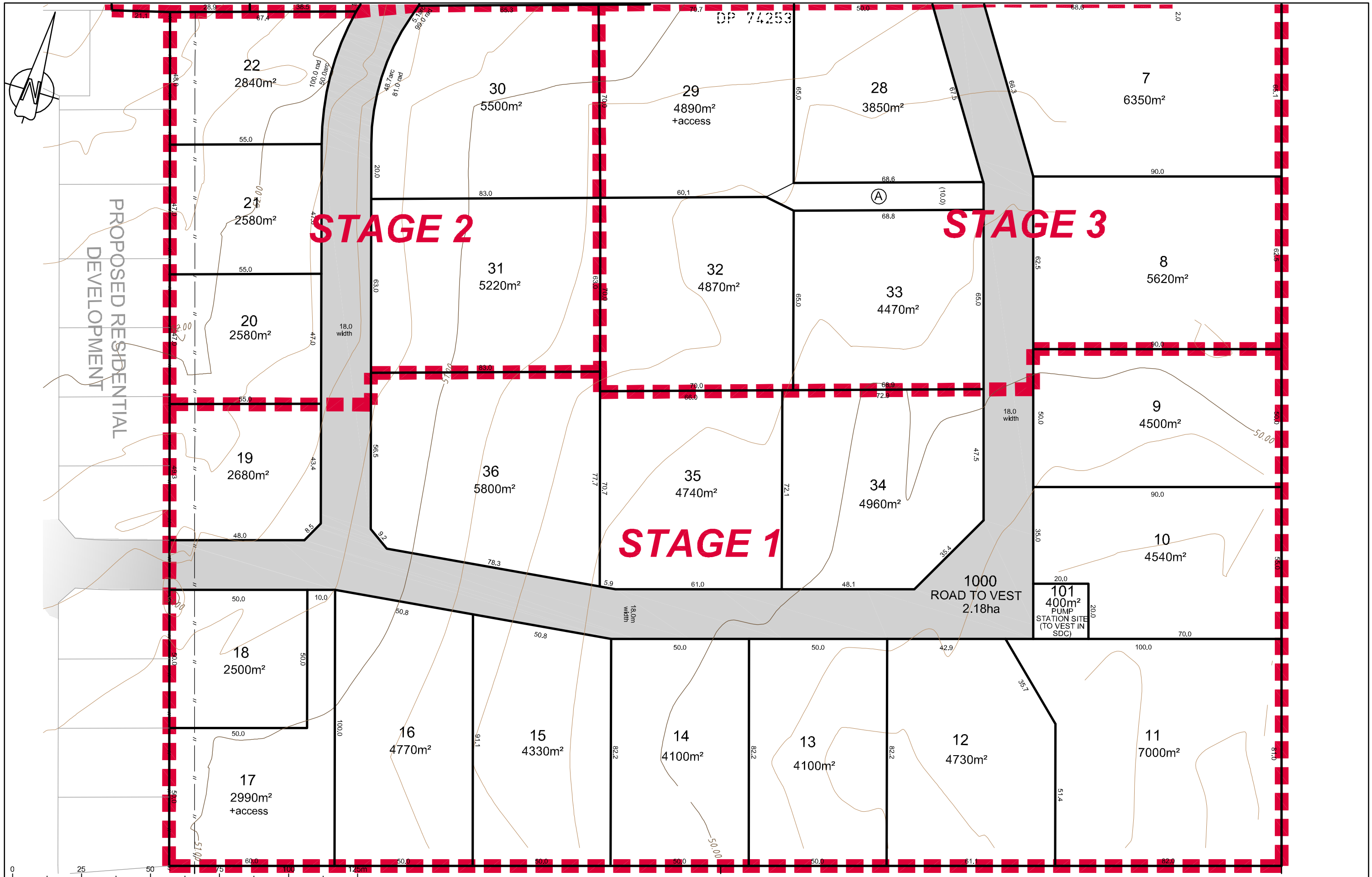
A3

REG.D PROPRETOR:	BC & MA Coles
COMPRISED IN :	CT 42D/791
TOTAL AREA (CT):	20.5900 ha
PREPARED BY:	C.H THOMPSON (LICENSED CADASTRAL SURVEYOR)
	EMAIL - thompsonclan@xtra.co.nz

SHEET 2

POSSIBLE SUBDIVISION LAYOUT
LOT 4 DP 74253 (RURAL RESIDENTIAL)

DESIGNED: CHT DRAWN: RD CHECKED: CHT APPROVED: CHT DATE: DEC 2012	SCALE	FILE	DRAWING
	1:1250@A3	1007	10.2 REV C
	C	COUNCIL COMMENT	CHT
	REV A	ISSUE	BY CHT



REG.D PROPRETOR:	BC & MA Coles
COMPRISED IN :	CT 42D/791
TOTAL AREA (CT):	20.5900 ha
PREPARED BY:	C.H THOMPSON (LICENSED CADASTRAL SURVEYOR)
	EMAIL - thompsonclan@xtra.co.nz

SHEET 3

POSSIBLE SUBDIVISION LAYOUT

LOT 4 DP 74253 (RURAL RESIDENTIAL)

DESIGNED: CHT	SCALE	FILE	DRAWING
DRAWN: RD	1:1250@A3	1007	10.3 REV C
CHECKED: CHT			
APPROVED: CHT	C	COUNCIL COMMENT	CHT
DATE: DEC 2012	REV A	ISSUE	BY CHT

Annexure Three: Assessment Against Planning Provisions

Canterbury Regional Policy Statement (Operative 2013)

The Regional Policy Statement (RPS) was made operative in January 2013. Chapter 6 of the RPS was not included.

The Land Use Recovery Plan (LURP) is a response to changes in land use patterns and needs since the 2010-11 earthquakes and includes the insertion of a new Chapter 6 to the RPS. Consideration of the provisions of Chapter 6 proposed as part of the LURP have been made in Table 2 below.

Table 1: Relevant Objectives and Policies of the Canterbury Regional Policy Statement

Canterbury Regional Policy Statement	Assessment
Objective 5.2.1: Location Design and Function of Development (Entire Region) Development is located and designed so that it functions in a way that: achieves consolidated, well designed and sustainable growth in and around existing urban areas as the primary focus for accommodating the region's growth; and enables people and communities, including future generations, to provide for their social, economic and cultural well-being and health and safety; and which: 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; provides sufficient housing choice to meet the region's housing needs; encourages sustainable economic development by enabling business activities in appropriate locations; minimises energy use and/or improves energy efficiency; enables rural activities that support the rural environment including primary production;	The proposed plan change will be designed using good urban design principles, and is adjoining an existing township. The proposed plan change provides housing choice which contributes towards meeting the region's housing needs. The proposed layout of the road network within the Site will ensure alternative forms of transport are available, which will help to minimise energy use. Through good infrastructure design, and subdivision design adverse effects on significant natural and physical resources can be avoided. The proposed plan change is in general accordance with Objective 5.2.1.

is compatible with, and will result in the continued safe, efficient and effective use of regionally significant infrastructure; 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; facilitates the establishment of papakāinga and marae; and avoids conflicts between incompatible activities. Policy 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: 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 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.	As has been discussed in the Transport Assessment attached in **Annexure 5**, the proposed road layout in the ODP provides for the safe and efficient functioning of the road network. The reliance on the use of local, neighborhood and arterial roads rather than SH1 for access ensure no adverse effects to this nationally important physical resource.
Objective 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.	

Policy 11.3.1 – Avoidance of inappropriate development in high hazard areas To avoid new subdivision, use and development (except as provided for in Policy 11.3.4) of land in high hazard areas, unless the subdivision, use or development: is not likely to result in loss of life or serious injuries in the event of a natural hazard occurrence; and is not likely to suffer significant damage or loss in the event of a natural hazard occurrence; and is not likely to require new or upgraded hazard mitigation works to mitigate or avoid the natural hazard; and is not likely to exacerbate the effects of the natural hazard; or is proposed to be located in an area zoned or identified in a district plan or Chapter 6 of the CRPS for urban residential, industrial or commercial use, at the date of notification of the CRPS, in which case the effects of the natural hazard must be mitigated. Policy 11.3.3 – Earthquake Hazards New subdivision, use and development of land on or close to an active earthquake fault trace, or in areas susceptible to liquefaction and lateral spreading, shall be managed in order to avoid or mitigate the adverse effects of fault rupture, liquefaction and lateral spreading.	The proposed rezoning of the Site from a rural zone to a rural residential zone will not increase the risks associated with natural hazards. The Geotechnical report provided in **Annexure 8** considers the land is suitable for approval under s106 of the Act (which considers natural hazard risks associated with slippage, subsidence, inundation, erosion or falling debris) and that there is no risk of lateral spread, and any potential liquefaction risk is at below 10m depth and not significant. Therefore the proposal is in general accordance with Objective 11.2.1 and Policy 11.3.1.

Table 2: Relevant Objectives and Policies, of the Land Use Recovery Plan, Chapter 6 to the RPS.

Definition: Rural Residential activities – means residential units outside the identified priority areas at an average density of	The proposal is outside the areas identified as priority areas and has an average density of 1.75 households per ha. The proposal is

between 1 and 2 households per hectare.	therefore considered as a rural residential activity.
Objective 6.2.1 – Recovery Framework Recovery, Rebuilding and development is enabled within Greater Christchurh through a land use and infrastructure framework that: … 7) Maintains the character and amenity to rural areas and settlements 9) Intergrates strategic and other infrastructure and services with land use development; 10) achieves development that does not adversely affect the efficient operation, use, development, and appropriate upgrade, and future planning of strategic infrastructure and freight hubs; 11) optimizes use of existing infrastructure; and	The proposal seeks to maintain and enhance the sense of rural space by providing large sections and wide streets containing trees. The proposal includes a separation from the strategic road network of the State Highway to ensure the development does not adversely affect the efficient operation of the current or proposed future use of this nationally significant infrastructure. The proposal makes use of existing water supply, and wastewater disposal systems for Rolleston township.
Objective 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: …6) Encourage sustainable and self-sufficient growth of the towns of Rangiora, Kaiapoi, Woodend, Lincoln, Rolleston Prebbleton and consolidation of the existing settlement of West Melton;	The proposed plan change provides for the growth of Rolleston in a manner that ensures residents have ease of access to the services in Rolleston, while providing an eastern extent to the township living zones, clearly defined by the adjoining proposed rural residential zone. The plan change is in general accordance with Objective 6.2.1. The proposed rural residential is planned, integrated and 'managed' development, with a design integrated with the adjoining urban area, and in accordance with an ODP.

7) Managing rural residential development outside of existing urban and priority areas: and…	
Objective 6.2.3 - Sustainability Recovery and rebuilding is undertaken in Greater Christchurch that: provides for quality living environments incorporating good urban design; retains identified areas of special amenity and heritage value; retains values of importance to tangata whenua; provides a range of densities and uses; and is healthy, environmentally sustainable, functionally efficient and prosperous	The ODP has been designed using good urban design principles to create a quality living environment and to ensure that the rural amenity of the area is maintained as discussed in the Landscape report in **Annexure 4**. The Site provides for a range of rural residential sized allotments and provides a healthy, environmentally sustainable environment.
Objective 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: managing network congestion; reducing dependency on private motor vehicles; reducing emission of contaminants to air and energy use; and promoting the use of active transport modes. Optimizing use of existing capacity within the network: and Enhancing transport safety.	The ODP for the Site outlines the proposed road network layout. This does not include a connection to SH1. The Site has been designed to promote walking and cycling into Rolleston and to ensure that infrastructure can be integrated with existing developments to the west. Provision has been made for the widening of the State Highway to provide for the needs of regional transport networks. The proposal is therefore in general accordance with Objective 6.2.4.
Policy 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, and those of the NZ Urban Design Protocol 2005, through the design, assessment and development process: 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 place. 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, historical and cultural markers and local stories. 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. 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 transport. Safety – recognition and incorporation of Crime Prevention Through Urban Design (CPTED) principles in the layout and design of developments, networks and spaces to ensure safe, comfortable and attractive places. Choice and diversity – ensuring developments provide choice and diversity in their layout, built from, land use housing type	The ODP has been designed using good urban design principles to ensure that the area has a sense of 'openness' in order to retain the rural nature of the surrounding area to the east and south, and a semi-rural character for the proposed subdivision. This is achieved through a low yield across the Site, large road and internal boundary setbacks, wide roads with berms and street trees and plenty of opportunity for garden plantings. A proposed pedestrian/cycle link from the internal road to and along the SH1 landscape buffer area will provide an attractive 'off road' link to the adjoining SH1 buffer area to the west. This will be an attractive 'unique' feature of this part of Rolleston, adding to 'sense of place'. The use of the proposed road network to link the Site to the existing development to the west will ensure that a sense of integration occurs between the Site and the urban area of Rolleston. The wide streets incorporating wide berms, swales and tree plantings, along with opportunities to provide for garden plantings will ensure integration with the surrounding rural area. Although the Site does not contain street lighting to provide additional security at night, wide streets and the sense of openness created by the road network will ensure that a sense of community is developed that will help to prevent crime. Limitations as to fencing style will also assist with this. The Site is located only 1 – 2 Km from the center of Rolleston which is a reasonable distance to facilitate walking and cycling modes of transport.

and density to adapt to the changing needs and circumstances of the population. Environmentally sustainable design – ensuring that the process of design and development minimizes water and resource use, restores ecosystems, safeguards mauri and maximizes passive solar gain. 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.	The use of the Site for rural residential activities will not adversely impact on the environmental quality of the area, given the large section sizes and the opportunity for garden spaces within sections. The proposed rural residential development will provide for a wider choice of housing environments in this part of Rolleston which does not include any existing low density rural residential style development.
Policy 6.3.3 – Development in accordance with outline development plans Development in greenfields areas, including 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 cannot proceed ahead of the incorporation of an outline development plan in a district plan. Outline development plans and associated rules will: 1) Be prepared as: a) a single plan for the whole of the priority area; or b) where an integrated plan adopted by the Territorial Authority exists for the whole of the priority area and the Outline Development Plan is consistent with the integrated plan, part of that integrated area; or C) as a single plan for the whole of a rural residential area; and 2) Be prepared in accordance with the matters set out in Policy 6.3.2; 3) Show proposed land uses including: Principal through roads, connections with surrounding road networks, relevant	An ODP is proposed which shows: the principal roads and connections to adjoining site to the west. Potential infrastructure connections with the adjoining site to the west. Swale areas within the road width for stormwater treatment and drainage. Land set aside to provide a landscaped setback from SH1 to protect the physical resource from reverse sensitivity. Potential pedestrian walkways and cycleways should they be deemed necessary by Council. Areas for a variety of densities, ensuring higher densities nearer to existing development and lower densities nearer the adjoining rural environment and State Highway. In combination with the information contained within the plan change application, it is considered that the ODP fulfills all of the relevant requirements of this policy.

infrastructure services and areas for possible future development; Land required for community facilities or schools; Parks and other land for recreation; Land to be used for business activities; The distribution of different residential densities, in accordance with Policy 6.3.7; Land required for stormwater treatment, retention and drainage paths Land reserved or otherwise set aside from development for environmental, historic heritage, or landscape protection or enhancement; Land reserved or otherwise set aside from development for any other reason, and the reasons for its protection from development; Pedestrian walkways, cycleways, bus routes both within and adjoining the area to be developed; 4) Demonstrate how Policy 6.3.7 will be achieved for residential areas within the area that is the subject of the outline development plan, including staging; 5) Identify significant cultural, natural or historic heritage features and values, and show how they are to be protected and/or enhanced; 6) Document the infrastructure required, when it will be required and how it will be funded; 7) Set out the staging and co-ordination of subdivision and development between landowners; 8) Demonstrate how effective provision is made for a range of transport options including public transport options and integration between transport modes, including pedestrian, cycling public transport , freight, and private motor vehicles; 9) 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; 10) Show how other potential adverse effects on the environment, including the protection and enhancement of surface and groundwater quality, are to be avoided, remedied or mitigated; 11) Show how the adverse effects associated with natural hazards are to be avoided, remedied or mitigated as appropriate and in accordance with chapter 11 and any relevant guidelines; and 12) Include any other information that is relevant to an understanding of the development and its proposed zoning.	
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 proposal includes road, and pedestrian linkages towards the west, rather than towards the state highway to the north. This will ensure that the development will not overload or compromise the strategic network at this point. The linkages proposed enable future residents to make use of the full range of transport modes, by providing pedestrian linkages as well as wide road to enable on street cycling in a safe manner.

Policy 6.3.5 – Integration of landuse and infrastructure Recovery of Greater Christchurch is to be assisted by the integration of land use development with infrastructure by: Identifying priority areas for development to enable reliable forward planning for infrastructure development and delivery; Ensuring that the nature, timing and sequencing of new development is co-ordinated with the development, funding, implementation and operation of transport and other infrastructure in order to; optimise the efficient and affordable provision of both the development and the infrastructure; maintain or enhance the operational effectiveness, viability and safety of existing and planned infrastructure; protect investment in existing infrastructure; and ensure new development does not occur until provision for appropriate infrastructure is in place; 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; Only providing for new development that does not affect the continued operation, use, development, appropriate upgrading and safety of existing strategic infrastructure, including by avoiding noise sensitive activities within the 50dBA Ldn noise contour for Christchurch International Airport, unless the activity is within an existing residentially zoned urban area, priority area identified for Kaiapoi, or greenfield residential area identified in Map A; and Management of the effects of land-use activities on infrastructure, including avoiding	The servicing report in **Annexure 6** identifies the existing infrastructure which can easily and cost effectively be extended to accommodate the proposed 36 allotments. The Transport Assessment in **Annexure 5** shows that the proposed roading layout provides an efficient use of transport infrastructure to accommodate demand for rural residential growth. The Site is not located within the 50dBA Ldn noise contour for Christchurch International Airport and therefore will not affect the continued function of this physical resource. The proposal makes specific provision for the proposed widening of the southern motorway by providing a reserve area adjoining the northern boundary of the site. Therefore the proposed plan change is in accordance with policy 6.3.5.

activities that have potential to limit the efficient and effective, provision, operation, maintenance or upgrade of strategic infrastructure and freight hubs.	
Policy 6.3.9 – Rural residential development In Greater Christchurch, rural residential development further to areas already zoned in district plans as at 1st January 2013 can only be provided for by territorial authorities in accordance with adopted rural residential development plans prepared in accordance with the Local Government Act 2002, subject to the following: In the case of Christchurch City, no further rural residential activity is to be provided for within the Christchurch City Plan area; The location must be outside the priority areas for development and existing urban areas; All subdivision and development must be located so that it can be economically provided with a reticulated sewer and water supply integrated with a publicly owned system, and appropriate stormwater treatment and disposal; Legal and physical access is provided to a sealed road, but not directly to a road defined in the relevant district plan as a Strategic or Arterial Road, or as a State highway under the Government Roading Powers Act; The location of any proposed rural residential development shall: avoid noise sensitive activities occurring within the 50 dBA Ldn air noise contour surrounding Christchurch International Airport so as not to compromise the future efficient operation of Christchurch International Airport or the health, well-being and amenity of people; avoid the groundwater recharge zone for	SDC adopted a Rural Residential Strategy in June 2014, which specificialy identified sites suitable for rural residential development. This strategy includes the site subject of this proposal. The East Rolleston PC meets all of Policy 6.3.8 criteria 1) to 6) for the reasons set out below: The Site is located outside the priority areas for development and existing urban areas. The Site can economically be provided with water supply and sewer connections to the publically owned system in the development to the west. Access will be made to the existing roads to the west of the Site and no access will be made to SH1. The proposal is not within the 50 dBA Lnd noise contour. The Site is not within the groundwater recharge zone for Christchurch City's drinking water. The Site is not between the primary and secondary stop banks south of the Waimakariri River. The Site does not contain land to protect the landscape character of the Port Hills. The Site is not located near any of the military training facilities. The Site provides for good access to

Christchurch City's drinking water; avoid land between the primary and secondary stop banks south of the Waimakariri River; avoid land required to protect the landscape character of the Port Hills; not compromise the operational capacity of the Burnham Military Camp, West Melton Military Training Area or Rangiora Airfield; support existing or upgraded community infrastructure and provide for good access to emergency services; avoid significant reverse sensitivity effects with adjacent rural activities, including quarrying and agricultural research farms, or strategic infrastructure; avoid significant natural hazard areas including steep or unstable land; avoid significant adverse ecological effects and support the protection and enhancement of ecological values; Support the protection and enhancement of ancestral land, water sites, wāhi tapu and wāhi taonga of Ngāi Tahu; where adjacent to or in close proximity to an existing urban or rural residential area, be able to be integrated into or consolidated with the existing settlement; and avoid adverse effects on existing surface water quality. 6) An outline development plan is prepared which sets out an integrated design for subdivision and land use, and provides for the long-term maintenance of rural residential character. 7) A rural residential development area shall not be regarded as in transition to full urban development.	emergency services and community infrastructure in Rolleston. The low yield of the Site will ensure reverse sensitivity effects are avoided. There are no known intensive farming activities in the immediate locality. The Site does not include any areas of potential natural hazard. The Site does not contain any ancestral land, water sites, wahi tapu or wahi taonga or Ngai Tahu. The Site development will integrate with proposed residential development to the west. The Site does not contain or affect existing surface water. An Outline Development Plan has been provided and the rural residential area is intended to provide for an appropriate interface with the rural land beyond, rather than become a transition to a full urban development. The proposal complies with this policy.

Regional Land Transport Strategy 2008 – 2018

The relevant targets and vision for Greater Christchurch are identified below. The Transport Assessment attached as **Annexure 5** also includes an assessment.

Table 3: Regional Land Transport Strategy 2008 - 2018

Regional Land Transport Strategy	Assessment
Providing Transport Options	The strategy has a target of increasing trips using a wider range of transport modes through cycling, walking, public passenger transport. The Site will cater for all transport modes, with good linkages from the Site to the existing Rolleston urban area. The site is within close proximity to bus services, and the road network layout can accommodate bus services.
Roads: Safety Public Health Environmental Sustainability and Infrastructure	All roads will be developed to appropriate Council standards. The Site provides for sustainable transport options, with access to public transport. Strategic roading infrastructure as part of CRETs is planned which supports the proposed site.
Land Use	The strategy seeks integration of land use with transport provision to contribute to improvements in the affordability, integration, safety, responsiveness and sustainability of the land transport system. Urban growth at the proposed Site has been considered in future upgrades of the wider Rolleston roading network.

Assessment against Selwyn District Plan Objectives and Policies

The Selwyn District plan policy framework sets the strategic scene for how Council will manage growth and the environmental outcomes sought. Under Action 18(viii) of the LURP, SDC are required to provide recommendations to the Minister for Earthquake Recovery as to how to implement the Rural Residential Strategy into the District Plan. SDC have prepared these recommended changes to the District Plan and they are currently being considered by the Minister. While it is thought that these provisions do not hold any weight with respect to making a determination on this plan change, the Plan Change has been considered in light of these recommended changes in Table 6 below.

The relevant current objectives and policies of the District Plan and an assessment of the proposal in light of the relevant provisions is outlined below in Table 5.

Table 5: Relevant Objectives and Policies, Selwyn District Plan

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. Policy B1.1.3 Avoid adverse effects on people's health or well-being from exposure to contaminated soil. Policy B1.1.8 Avoid rezoning land which contains versatile soils for new residential or business development if: The land is appropriate for other activities; and There are other areas adjoining the township which are appropriate for new residential or business development which do not contain versatile soils.	The Site does not have access to SH1 and is adjacent to existing residential zoned land creating the potential for reverse sensitivity effects with farming activities. It is most appropriate to rezone this land to enable rural residential activities. The Site has been assessed and the report provided in **Annexure 7.** No contaminated soils found in the areas where new development is to occur. Any contaminated soils in the vicinity of the existing farm fuel tanks can be removed in necessary. This can be dealt with the time of subdivision. The Site soils comprise Templeton silt loam and Templeton silt loam on sand which are versatile soils. Most of the area surrounding Rolleston (i.e other than land to the west, which already includes PC 8 & 9) contains soils which are considered to be versatile, therefore most new development adjoining Rolleston will contain versatile soils. However given that the Site is adjacent to existing urban development it is considered to be appropriate for rural residential development. It is also not appropriate for continued agricultural use as the existing farm is now partly within the Urban Limits, including the existing access from Levi Road. As a farm block, the Site will be uneconomic.

	The proposal site represents an appropriate location for rural residential development adjoining existing residential activities. The site provides for efficiencies with respect to transport connections, water and wastewater supply and the ability to integrate a development with existing township services. These factors outweigh the need to retain versatile soils in this area.
Objective B1.2.1 Expansion of townships in Selwyn District maintains and enhances the quality of ground or surface water resources. 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 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 Water Standards and to be reticulated in all, except for sites in the existing Living 1 Zone in Doyleston. Policy B1.2.5 Require any sewage treatment and disposal to be reticulated in the the townships of Castle Hill, Doyleston, Lake Coleridge Village, Leeston, Linclon, Prebbleton, Rolleston, Southbridge, Springston, Tai Tapu and West Melton.	As shown in the Engineering and Servicing Report, it is possible to efficiently provide water supply and effluent and stormwater disposal to the Site without adversely affecting waterbodies. Please refer to **Annexure 6** for further details. In accordance with Policy B1.2.3 it is possible to provide water supply to the allotments with the appropriate drinking standard. This is discussed in detail in the engineering and servicing report in **Annexure 6** In accordance with Policy B1.2.5, it is possible to provide sewage treatment and disposal to Rolleston's reticulated system, and further detail of this can be found in the engineering and servicing report in **Annexure 6**

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. 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. 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. Policy B2.1.5 Ensure the development of new roads is: a. Integrated with existing and future transport networks and landuses; and b. Is 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.	The Outline Development Plan indicates the proposed roading layout for the Site, which shows connections to the development occurring on the adjoining site to the west. This will provide connections into the urban area of Rolleston. There are no direct vehicle access points onto SH1. The Transport Assessment (attached in **Annexure 5**) indicates that the proposed growth can be accommodated in this area in an integrated manner and in accordance with the following objectives and policies: objectives B2.1.1, and B2.1.2, and Policies B2.1.2, B2.1.5 and B2.1.12.
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,	Proposed amendments to the District Plan as part of this Plan Change Request include a 20m setback from roads, which will ensure good visibility is maintained.

cyclists and pedestrians, and to allow safe access and egress and to mitigate reverse sensitivity effects on land adjoining the State Highway.	No access is provided onto SH1, with the Site being connected to the adjoining development to the west of the Site. This will avoid reverse sensitivity effects with SH1 in terms of traffic effects.
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 Site adjoins an existing development and makes transport connections to this development, thus promoting and efficient and consolidated land use pattern.
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 ODP includes an option for cycle and pedestrian links along the SH1 landscape buffer. The layout of the road network will enable a safe route for pedestrians and cyclists to access services in 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.	
Policy B2.1.22 Confine residential or business development in a township to one side of any Strategic Road or railway line where the township is already wholly or largely located on one side of the Strategic Road or railway line, unless that area is not suitable for further township expansion.	The Site is located on the same side of SH1 as the of Rolleston living areas, thus the proposal is consistent with this policy.

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 Engineering and Servicing Report attached in **Annexure 6** indicates that servicing of the Site is possible and appropriate. Connections for water supply and sewer disposal will be made to reticulated services located in the adjoining development to the west.
Policy B2.3.1 Encourage co-ordination between the provision of community facilities, and new residential and business development.	The Proposed Outline Development Plan provides for transport links into Rolleston where there are sufficient community facilities to accommodate future residents of the Site.
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.	Solid waste disposal services from the development to the west of the Site can be extended into to accommodate future residents. Please refer to the Engineering and Servicing Report attached in **Annexure 6**.

Table 5 continued

Chapter B3 Peoples Health Safety and Values	
Objective B3.4.1 The District's townships are pleasant places to live and work in.	The Site will be designed using good urban design principles and the existing controls for a Living 3 Zone in the District Plan. This will ensure Rolleston continues to be a pleasant place 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 proposed rezoning of the Site to a Living 3 zone will enable rural residential activities in the area. Rural residential activities, including a sense of openness due to larger allotment sizes will ensure the character and amenity values of the area are maintained.
Objective B3.4.3 "Reverse sensitivity" effects between activities are avoided.	Reverse sensitivity effects between rural residential activities on the site and SH1 are avoided through proposed building setbacks from SH1 and through proposed landscaping. The potential effects of rural residential and activities on adjoining rural zoned land, are mitigated by the large section sizes, retention of existing shelter belts and the internal boundary setback requirements.
Objective B3.4.4 Growth of existing townships has both 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 and Outline Development Plan.	The location of the Site provides a logical and compact extension to the eastern boundary of Rolleston while providing larger sections which make a barrier and defensible boundary against further development along SH1 to the east.
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	Provisions are made for connections from the Site to the center of Rolleston through the road network outline in the Outline

development for urban activities or public reserves) and will provide suitable access to a variety of forms of transport. Policy B3.4.25 Ensure buildings are setback an appropriate distance from road boundaries to maintain privacy and outlook for residents and to maintain the character of the area in which they are located. Policy B3.4.38 Avoid rezoning land for new residential development adjoining or near to existing activities which are likely to be incompatible with residential activities unless any potential 'reverse sensitivity' effects will be avoided remedied or mitigated	Development Plan (**Annexure 2**). The proposed plan change includes a 20m setback from roads and a 40m setback from SH1 which is sufficient to maintain privacy and outlook for residents. In this case the Proposal includes larger section sizes, associated with rural residential development to provide for larger dwelling setbacks from adjoining rural activities to the east, and avoids potential reverse sensitivity effects with activities currently undertake on the proposal site and the adjoining new residential development occurring to the west of the site.
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,…. Objective B4.1.2 New residential areas are pleasant places to live and add to the character and amenity values of townships. Policy B4.1.2 Maintain Living 2 and 3 Zones as areas with residential density which is considerably lower than that in Living 1 Zones.	The Living 3 Zone is designed to provide considerably lower densities than other living zones and therefore it is considered that the overall 'spacious character' of the living zones will be maintained. The Site can be developed to be a pleasant place to live and add to the character and amenity values of Rolleston. Average allotment sizes of 5000m² (4600m^2 if walkway access to the SH1 buffer is included as shown on the ODP), will ensure that residential density is

Policy B4.1.3 To allow, where appropriate, the development of low density living environments in locations in and around the edge of townships, where they will achieve the following: A compact township shape; Consistent with preferred growth options for townships; Maintains the distinction between rural areas and townships; Maintains a separation between townships and Christchurch City boundary; Avoid the coalescence of townships with each other; Reduce the exposure to reverse sensitivity effects; Maintain the sustainability of the land, soil and water resource; Efficient and cost-effective operation and provision of infrastructure. 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 B4.1.12 Discourage high and continuous fences or screening of sites in Living zones that have frontage but no access on to Strategic Roads or Arterial Roads	appropriate to the Living 3 Zone. The proposed ODP will ensure that development of the Site will lead to an eastern boundary to Rolleston, thus ensuring that a compact town shape is maintained, and a distinct boundary between rural areas and townships occurs. The use of larger sections on the eastern boundary of Rolleston Township, and the retention of shelter belts will ensure there are not any reverse sensitivity issues with adjoining rural land. Although on the eastern side of the Township, this development represents the eastern most possible development, due to airport noise contours, and the development not providing for future connections. The ability to provide reticulated services from the development to the west of the Site ensure efficient and cost-effective operation and provision of infrastructure. It is proposed to retain some of the shelter belts on the Site and some of the Poplar trees within the Site for amenity purposes. Additionally trees are proposed as a requirement in the streets within the Site and along the boundary with SH1. Framework planting on private lots will be undertaken by the developer at subdivision stage. Landscaping is proposed along the boundary with SH1 to ensure continuous fencing does not occur. The L3 zone rules requiring transparent boundary

	fences will apply.
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.	Refer above assessment. The amenity values of the township and rural area will be sensitively interfaced and maintained.
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 development approach.	Roading and infrastructure links to development to the west of this Site will ensure that objective B4.3.4 is achieved.
Objective B4.3.7 Ensure that any rural residential development occurs outside the urban limits identified in the Regional Policy Statement and such development occurs in general accordance with an operative Outline Development Plan, supports the timely, efficient and integrated provision of infrastructure, and provides for the long-term maintenance of rural residential character.	As discussed about the proposed rezoning of the Site will achieve Objective B4.3.7
Policy B4.3.1 Ensure new residential or business development either: Complies with the Plan policies for the Rural Zone; or The land is rezoned to an appropriate Living Zone that provides for rural-residential development (as defined within the Regional Policy Statement) in accordance with an Outline	It is proposed to rezone this land to Living 3 to accommodate rural residential development and therefore the plan change is in accordance with Policy B4.3.1

Development Plan incorporated into the District Plan; or The land is rezoned to an appropriate Living or Business zone and, where within the Greater Christchurch area, is contained within the Urban Limit identified in the Regional Policy Statement and developed in accordance with an Outline Development Plan incorporated into the District Plan. Policy B4.3.6 Encourage townships to expand in a compact shape where practical. Policy B4.3.8 Each Outline Development Plan shall include: Principal through roads, connection and integration with the surrounding road network and strategic infrastructure; 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; and land reserved or otherwise set aside from development for any other reason, and the reasons for its protection. Demonstrate generally how each ODP area will	The expansion of the town towards the east is considered an expansion in a compact shape. Please refer to the proposed ODP in **Annexure 2**, which provides the relevant information as set out by Policy B4.3.8. A minimum density of 10 households per ha is not applicable for the Living 3 zone.

achieve a minimum density of at least 10 lots or household units per hectare; Identify any cultural (including tangata whenua 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; 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; Include any other information which is relevant to an understanding of the development and its proposed zoning; Demonstrate that the design will minimise any reverse sensitivity effects.	

Table 6: SDC recommendations to amend District Plan in relation to Action 18(viii) of LURP as relevant to the Proposal

Recommended amendment	Proposal Assessment
Replace the Living 3 zone description in Table A4.4 - Description of Township Zones in Part A, to read as follows: **Living 3 As for Living 2 zone, but with specific controls and design elements incorporated to ensure development of the land is reflective of and retains elements of rural character expected of the Living 3 zone, which in essence is a rural residential zone, so as to**	

visually set the development apart from the neighbouring urban area. Similar to the Living 2 zone, larger sections (with a lower building density than Living 2), more space between dwellings, panoramic views and rural outlook and/or rural shelterbelts are characteristic of the Living 3 Zone. To achieve this anticipated character and amenity, the Living 3 Zone forms part of existing townships in the form of a peri-urban edge. This proximity promotes the integrated and cost effective provision of infrastructure and reduces adverse effects associated with energy consumption and transportation, while enabling residents to take advantage of nearby community facilities, employment opportunities, social interaction and public services. Strongly developed linkages are encouraged to facilitate connectivity and interaction between the Living 3 Zone and the adjoining urban area. The retention of typically rural features and views to adjoining rural areas are required in subdivision design, along with avoiding visually impermeable fencing. Where appropriate, the provision of kerb and channel, sealed footpaths, and street lighting does not have to be provided, in keeping with a rural-residential character. Subdivision plans should also include the protection, maintenance and enhancement of natural and historic features and Te Taumutu Rununga and Ngai Tahu values that achieve amenity benefits to residents, while securing ecological, cultural and conservation benefits. The land uses anticipated for the Living 3 Zone remain predominantly residential in nature and are integrated into Townships, with there being sufficient open space and land available to support large gardens, wood lots, orchards, small scale cropping and/or horticulture, the keeping of animals as pets and other semi-rural activities. The location of Living 3 Zone rural residential activities is restricted to the Greater Christchurch area of the District that is subject to Chapter 6 of the Canterbury Regional Policy Statement. Locations are limited to those that are identified in the adopted Rural Residential Strategy 2014, which facilitates some rural residential development where it does not undermine the consolidated	The proposal includes specific roading layouts with framework tree planting, larger sections typical of a rural residential development, and rural outlook where possible. The proposal is located on the peri-urban edge and can cost effectively be integrated into existing infrastructure. The site will only be linked to existing urban areas and will not make a connection to SH1. Fencing will be consistent with rural styles to retain rural amenity, and streets will not include kerb and channel, or street lighting. The site is identified in the rural residential strategy 2014 as a suitable site for rural residential development. Overall the proposal is consistent with the proposed Living 3 zone description.

growth of Townships or the sustainable management of the rural environment.	
Replace the 8th paragraph of the Use of Zones section of the Description of Township Zones in Part A and replace with the following: **As with higher density residential areas, rural residential development is provided for through the Rural Residential Strategy, the Living 3 Zone and Chapter 6 of the Canterbury Regional Policy Statement. Accordingly, the District Plan specifically provides for rural residential opportunities as has long been the case in Selwyn District. Rural residential activities are anticipated in locations identified in the adopted Rural Residential Strategy 2014 that adjoin established townships to encourage energy conservation, cost effective provision of infrastructure and convenient access to the amenity, services, employment and social opportunities provided in townships. The intensification of rural land to Living 3 Zone densities is expected to be through a comprehensive plan change process that includes the adopted Selwyn District Council Rural Residential Strategy's consultation process to manage rural residential development in a way that prevents inefficiencies in the provision of infrastructure and services, loss of rural character and adverse reverse sensitivity effects, ensures effective linkages to the adjoining township and protection of Te Taumutu Rununga and Ngai Tahu values, and ensures that any site specific constraints can be overcome.**	Identified as a site within the Rural Residential Strategy this proposed Plan Change provides the solutions to any potential constrains.
Add a 2nd and 3rd bullet points to the Quality of the Environment and Amenity Values section of the Strategy in Part B **The Living 3 Zone is distinctly different to the Living Z, 1 and 2 Zones as it must be located within the Greater Christchurch area of the District covered by Chapter 6 of the Canterbury Regional Policy Statement and in locations identified in the adopted Rural Residential Strategy 2014. Development within the Living 3**	The proposal generally achieves all of the outcomes identified in this section.

Zone must integrate with adjoining Townships and display a distinctly rural residential character, form and function and protect and enhance the quality of the environment including the 'Critical Outcomes' Location Criteria in the adopted Selwyn District Council Rural Residential Strategy 2014. **The Objectives, Policies and Rules manage the establishment of rural residential activities in terms of their proximity to land used for primary production and other strategic and nationally important facilities operating within the eastern area of the District, such as agricultural research farms and tertiary education facilities associated with Crown Research Institutes and Lincoln University.**	
Add a new Objective B3.4.6 in the Quality of Environment section in Part B **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.**	The proposal is identified within the Rural Residential Strategy 2014 and so meets this objective.
Add a new Policy B3.4.4 to the Quality of Environment section in Part B **Policy B3.4.4 (a)** **To provide for rural residential living environments through the Living 3 Zone. Where new Living 3 Zone areas are proposed, these are to be in locations identified in the adopted Selwyn District Council Rural Residential Strategy 2014 and developed in a manner that:** **- Is in accordance with an Outline Development Plan contained within the District Plan that sets out the key features, household density, infrastructure servicing and methods to integrate the rural residential area with the adjoining Township;** **- Facilitates the provision of housing choice**	An outline development plan is proposed for this site, and includes house hold density (average of 1-2 households per ha), and infrastructure servicing methods. The proposal enables a variety of rural residential housing types within the ODP area, which is located outside of the greenfield residential priority areas.

and diverse living environments outside of the greenfield residential priority areas shown in the Canterbury Regional Policy Statement;	The site is located adjoining a township.
- Ensures that rural residential development only occurs where it is located adjacent to a township in order to achieve a consolidated pattern of urban growth;	Connections to Rolleston's reticulated systems are available.
- Ensure that rural residential development is able to effectively connect to reticulated wastewater and water services (including the provision of a fire fighting water supply to the standards set out in SNZ PAS 4509:2008; either as provided within the reticulated system, or as supplementary on-site storage);	Road and walkway connections ensure efficient linkages and provides for a choice in travel modes. The design of the streetscape and the framework planting, along with the large sections, large dwelling setbacks and fencing styles will ensure a clear distinction is made.
- Integrates with existing townships through the provision of efficient linkages and provides for a choice of travel modes;	
- Avoids significant adverse landscape and visual effects on rural character and amenity and retains the distinctiveness between rural and urban environments;	Natural hazards risk or ground contamination can be adequate managed in this case. The site is not identified of significance
- Avoids development in areas where natural hazard risk or ground contamination cannot be adequately managed;	
- Avoids adverse effects on sites of significance and values to Te Taumutu Rununga and Ngai Tahu;	By not providing access to SH1 and ensuring suitable dwelling setbacks are provided the proposal avoids adverse
- Avoids adverse effects on the safe and efficient functioning of the arterial road network;	
- Avoid significant reverse sensitivity effects with strategic infrastructure, including State Highways, quarrying activities, Christchurch International Airport, Transpower high voltage transmission lines and associated infrastructure, Burnham Military Camp and the operational capacity of the West Melton Military Training Area, Council's Rolleston Resource Recovery Park and wastewater treatments plants in Rolleston and Lincoln, education facilities, and tertiary education facilities and agricultural research farms associated with Crown Research Institutes and	effects on the safe and efficient functioning of the road network or reverse sensitivity with SH1.

Lincoln University. **Policy B3.4.4 (b)** **Rural residential living environments are to deliver the following amenity outcomes and levels of service:**	
- Appropriate subdivision layouts and household numbers that allow easy and safe movement through and between neighbourhoods, and which in terms of their scale, density and built form achieves a degree of openness and rural character;	The design of the road network provides for easy and safe movement and achieves a degree of openness and rural character.
- Avoids the provision of public reserves, parks and peripheral walkways unless required to secure access to significant open space opportunities that benefit the wider community, assist in integrating the development area with adjoining urban development, or where located in an urban growth path where future intensification is likely;	The design of the site provides for recreational areas which link into existing walkway reserve areas along SH1, hence providing for the wider community.
- Avoids suburban forms of services such as kerb and channel road treatments, paved footpaths, large entrance features, ornate street furniture and street lighting (unless at intersections);	Urban forms of services are avoided.
- Provides fencing that is reflective of a rural vernacular, in particular fencing that is transparent in construction or comprised of shelter belts and hedging (see Appendix 43 for examples of such fencing).	Fencing restrictions in accordance with Appendix 43 apply.
Policy B3.4.4 (c)	
Rural residential areas in the adopted Selwyn District Council Rural Residential Strategy 2014 that are located within a township urban growth path identified in an adopted structure plan shall only be rezoned and developed for rural residential activities where robust methods are established to ensure that future comprehensive intensification of these areas to urban densities can be achieved. This includes methods to deliver functional and efficient infrastructure services for both the initial rural residential development and future	The proposal is not located within township urban growth path.

urban intensification. Consideration shall be given to the methods referenced in Section 7 of the adopted Selwyn District Council Rural Residential Strategy 2014, including appropriate design techniques, servicing requirements and legal mechanisms developed in consultation with the Council.	
Add a new 6th sentence to the Residential Density – Issues Statement in Part B 4 Growth of Townships to read as follows: **There is an identified demand for rural residential sections, particularly within the commuter belt of the District with Christchurch City. There has also been an increase in the use of 4ha rural allotments provided for under the Rural (Inner Plains) Zone for rural residential lifestyle living rather than rural purposes. It is recognised that a managed amount of rural land should be rezoned to rural residential densities to provide diverse living environments and promote housing choice, but that this should only be provided through a comprehensive plan change process where all potential adverse effects can be assessed, along with the location's consistency with Chapter 6 of the Canterbury Regional Policy Statement and the adopted Selwyn District Council Rural Residential Strategy 2014.**	The proposal provides the required information for which to base the decision on in accordance with this issues statement.
Add a new Policy B4.2.13 in the Subdivision section of Part B 4 Growth of Townships to read as follows: to read as follows **Policy B4.2.13** **To manage rural residential development in the Greater Christchurch area covered by Chapter 6 to the Canterbury Regional Policy Statement through the Living 3 Zone and the adopted Selwyn District Council Rural Residential Strategy, whilst ensuring:** **- Development is in accordance with an Outline**	The proposed plan change includes an ODP for the whole area.

Development Plan included in the District Plan; **- Areas can be efficiently serviced with network infrastructure;** **- Efficient and effective linkages are provided to the adjoining township;** **- Where areas are sufficiently large such that lots do not directly adjoin a rural area, the subdivision plan is to have an appropriate mix of section sizes, orientation, and internal road layout to maintain a sense of openness and visual connection to rural areas;** **- The lot layout is consistent with the residential density required by Chapter 6 to the Canterbury Regional Policy Statement;** **- Any risks of natural hazards or soil contamination are effectively managed;** **- That there will be no adverse effects on ancestral land, water and the wahi tapu and wahi taonga of Te Taumutu Rununga. This includes the need to protect and enhance rivers, streams, groundwater, wetlands and springs within the catchment of Te Waihora/Lake Ellesmere and any associated mahinga kai sites;** **- That there will no significant adverse effects on the quality of ecosystems and indigenous biodiversity;** **- That where located in an urban growth path identified in an adopted township structure plan, the lot and road layout and infrastructure servicing is to be designed to readily facilitate intensification of the area to urban densities.**	The site can be efficiently serviced with infrastructure. Efficient linkages are provided to the township. The proposal has a variety of section sizes available to ensure a sense of openness and visual connection to rural areas can be achieved. The layout is consistent with Chapter 6 as addressed previously. Risks are effectively managed as discussed in the Geotechnical and Preliminary Site Investigation reports (**Annexures 7 and 8**) The site does not contain any rivers, streams, wetlands or springs and provides for appropriate stormwater management to ensure there are no adverse effects on groundwater. There will be no adverse effects on the quality of ecosystems or indigenous biodiversity given the site
Add new Rule 4.9.36 and consequential renumbering in the Buildings and Building Position – Permitted Activity Rules in Part C Living Zone Rules to read as follows **Living 3 Rural Residential densities located within an operative Outline Development Plan 4.9.36 Any building in the Living 3 Zone shall**	The potential section sizes are able to accommodate dwelling setbacks specified in this rule.

have: **(i) A setback from any road boundary of not less than 20m, except that for areas located within an urban growth path identified in an adopted Township Structure Plan and where the subdivision layout and associated methods have been established to facilitate future intensification to urban densities, a minimum setback from any road boundary of not less than 7m shall apply.** **(ii) A setback from any other boundary of not less than 15m.**	
Delete Rule 12.1.3.3 Subdivision – General Restricted Discretionary Rules in Part C Living Zone Rules – Subdivision and add new text to read as follows: **Effluent Disposal** **Rule 12.1.3.3 Any allotment created in: Castle Hill, Doyleston, Lake Coleridge Village, Leeston, Lincoln, Prebbleton, Rolleston, Southbridge, Springston, Tai Tapu, West Melton or is within a Living 3 Zone is supplied with reticulated effluent treatment and disposal facilities;…**	The site is supplied with reticulated effluent disposal through the Rolleston reticulated system.
Delete Rule 12.1.3.47 Subdivision – General Restricted Discretionary Rules in Part C Living Zone Rules – Subdivision and add new text to read as follows **Outline Development Plan** **12.1.3.47 Any subdivision within a Living Z or 3 Zone that is subject to an Operative Outline Development Plan within the District Plan shall be in general compliance with that Outline Development Plan and shall comply with any standards referred to in that Outline Development Plan.**	The Proposed Plan Change includes an Outline Development Plan.
Add new subdivision assessment matters Rule 12.1.4.85 to 12.1.4.91 in Subdivision – General Restricted Discretionary Rules – Assessment Matters in Part C Living Zone Rules – Subdivision	

to read as follows **Rural Residential Areas (Living 3 Zoning)** **Rule 12.1.4.85 Whether an appropriate net density of households has been achieved that is consistent with the densities specified in Chapter 6 to the Canterbury Regional Policy Statement and delivers the anticipated rural residential character, form and function. In particular, whether the subdivision plan covers the entire Outline Development Plan area so that new densities across the entire area encompassed within the Outline Development Plan can be calculated.** **Rule 12.1.4.86 The extent to which any identified ground contamination and natural hazards, including flood and liquefaction areas have been addressed.** **Rule 12.1.4.87 Ensure that connections to reticulated water and wastewater services are available at all property boundaries and appropriate measures are available to effectively treat and dispose of stormwater. Where a reticulated water supply cannot provide adequate quantities and pressure for firefighting as set out in SNZ PAS 4509:2008, an on-site firefighting water supply shall be provided in accordance with SNZ PAS 4509:2008.** **Rule 12.1.4.88 Principal through roads, connections and integration with the surrounding road network and adjoining Townships are provided, including the extent to which the proposal accords with the cross sections and typologies provided within Appendix 43 and reflect the semi-rural nature and level of service appropriate for rural residential areas.** **Rule 12.1.4.89 Whether fencing achieves a high level of transparency, with a preference for designs that express rural vernacular, accord with the typologies outlined in Appendix 43, and formulating mechanisms to ensure fencing remains on an ongoing basis (such as consent**	All of the matters listed in this section have been considered through the design of the Site, and will be able to be achieved through subsequent subdivision of the site.

notices). **Rule 12.1.4.90 The extent to which site analysis using a comprehensive design process and rationale has been undertaken to recognise, and where appropriate, protect, maintain or enhance the following elements:** **• Existing water courses, water bodies, wetlands, groundwater and springs;** **• Existing vegetation, such as shelter belts, hedgerows and habitats for indigenous fauna and flora;** **• Heritage values and any sites of archaeological significance;** **• Ancestral land, rivers, wetlands, groundwater, springs, Te Waihora/Lake Ellesmere and mahinga kai sites and the Wahi Tapu and Wahi Taonga of Te Rununga o Ngai Tahu and Te Taumutu Rununga;** **• View shafts to the Port Hills;** **• Provision of green linkages, ecological corridors and interface treatments on boundaries with rural or urban forms of development where appropriate;** **• Indicate how the form and layout of the subdivision fits into the wider setting and is able to be integrated into these surrounds, including in particular the provision of measures to retain rural landscape elements, including views to rural and landscape reference points;** **• Avoids urban elements, such as street lights (except at intersections), formed kerb and channel, sealed footpaths, or prominent entrance features;** **• Maintains rural residential character through the retention of a low ratio of built form to open space;** **• Reduces any potentially adverse visual effects with adjoining land use activities, in particular strategic infrastructure and**	

education and research facilities. **Rule 12.1.4.91 For areas located within an urban growth path identified in an adopted Township Structure Plan, whether the lot and road layout, and functional and efficient infrastructure servicing is designed to readily enable intensification of the area to urban densities to occur in the future.**	
Add the following definition of "Rural Residential Activity" in Part D Definitions to read as follows: **Rural Residential Activity: means residential units within the Living 3 Zone at an average density of between one and two households per hectare**	The proposal accords with this definition.
Add a new Appendix 43 – Living 3 zone Indicate Cross Section and fencing typologies	The proposal includes road type and fence types consistent with that proposed for Appendix 43
Add a new Policy B3.4.21 in Quality of Environment – Reverse Sensitivity Effects in Part B 3 People's Health, Safety and Values Section to read as follows **Policy B3.4.21** **Provide for the establishment of rural residential activities within the Greater Christchurch area covered by Chapter 6 of the Canterbury Regional Policy Statement only in locations identified in the adopted Selwyn District Council Rural Residential Strategy 2014 to reduce the risk of potentially adverse reverse sensitivity effects on the productive function of rural zoned land, strategic infrastructure and on established education and research facilities.**	The site is within one of the identified areas in the Rural Residential Strategy 2014.

Annexure Four: Landscape Report

PLAN CHANGE

COLES RURAL RESIDENTIAL SUBDIVISION, ROLLESTON

Landscape Assessment

Prepared by:
Chris Glasson Landscape Architects Ltd

17 April 2013

149 Victoria Street, P.O. BOX 13162, CHRISTCHURCH
PHONE: (03) 365 4599, FAX: (03) 377 7830, EMAIL: info@chrisglasson.co.nz
www.chrisglasson.com

Introduction

1. The Coles parcel of land at Rolleston requires a Plan Change to become rural-residential land. This land is located east of Park Lane subdivision and south of SH1.

2. This landscape assessment is required to determine the effects of rezoning Lot 4 to L3 (rural residential). The Selwyn District Council has not specified a lot size for the L3 zone, so the lot sizes will be determined by the Outline Development Plan. However, Proposed Change 1 to the Canterbury Regional Policy Statement and the Draft Land Use Recovery Plan specify that rural residential lots must average between 1-2 dwellings per hectare. A complete description of the proposal is set out in the Plan Change Request document.

Rural Character

3. The rural landscape character for the surrounding area of Rolleston is typical of the Canterbury Plains landscape. It is a simple composition of hedgerows and shelter belts (mainly conifers, eucalyptus and poplars), homesteads, farm dwellings and sheds surrounded by shelter belts and large trees, flat and open fields of pasture and crops. Roads are generally straight, linear and directional.

4. Common to the home block is a tree-lined driveway from which one enters a more gardenesque landscape in contrast to the landscape beyond the dwellings.

5. It is a very simple and uncluttered landscape yet utilitarian and well defined to meet the conditions of the plains. There is also little elaboration to the simplicity of the landscape and the geometry is based around fence alignments.

6. This is the landscape one encounters in the area between Park Lane and Weedons Road, and SH1 and Levi Road. It is therefore important that any relevant landscape elements be retained for the development, but more importantly that such elements as shelter belts, large trees, open fences and hedges be incorporated into the subdivision design, thereby reinforcing the landscape character of the existing rural environment.

Site Context and Character

7. As with most of the rural land surrounding Rolleston it is flat and open punctuated by the depressions of old river courses and shelter belts. Pastoral farming, cropping and isolated farm dwellings surrounded by shelter belts completes the picture of this typical plains landscape.

8. There are no unique features about the location other than this land and its activities contribute to the overall pattern of the Canterbury Plains.

9. This Coles site is on the perimeter of Rolleston township. The site is open pasture with a dwelling and farm sheds near to SH1. From the highway half the site is highly visible with panoramic views to adjacent land, where the land use activity is of a similar type.

10. Currently this rural land abuts the Coles residential site where smaller residential lots and reserves have been proposed.

Proposed Plan Change

11. The proposed rezoning and ODP will result in an alteration to the existing rural environment. The existing house adjacent to SH1 will

remain but everything else will be removed or change its use. The average lot size will be 5000m^2 and they range from 2500m² to 1.05ha.

12. Shelter trees do exist on the site. Macrocarpa trees perform this function adjacent to the existing house and farm buildings. However, these will be removed because they are considered to be inappropriate trees for the close proximity to the proposed location of houses. The only other shelter trees is a belt of poplars aligned in an east-west direction, located part way within the site. Many of these trees will be retained because they are located on new allotment boundaries.

13. Generally the larger lots are located within the centre of the subdivision, these being located within the internal roading structure. The outer allotments on the south and east sides of the subdivision will all have a rural outlook. To the north, trees along SH1 will screen the development from travellers, while on the west side the proposed residential development of the Coles block will be apparent.

14. The roading network consists of a ring road with two entrance and exit points. All road reserves are 18m in width within which will be a carriageway (8 to 10m), stormwater swale, grass berm and tree planting. Although there are no reserves the amenity component of the subdivision rests with each allotment having sufficient open space, trees and setback to create an impression of rural character, as well as some allotments having views over rural land.

15. Some large poplar trees will be retained around the existing house, but the existing shelter belts will be removed. Due to the large allotment size, there is potential for many trees within the allotments. Within the road environs the applicant will plant trees such as oak, plane, elm and poplar, all of which are hardy to the Rolleston conditions, of large dimension and assist to capture the rural

character within the subdivision. These trees, wide berms, plus the generous setbacks of houses will give a relaxed impression to the street scene.

16. Adjacent to SH1 a strip of approximately 20m wide will be planted with poplar and oak trees to give a bucolic appearance to the subdivision for passing motorists. This will augment the existing line of oak trees which currently screens views into the proposed subdivision. The appearance of the allotments will be controlled by numerous provisions for rural residential subdivision. These will include building height, site coverage and boundary setbacks, boundary fencing, and the road reserve appearance.

17. The allotment size in many ways determines the amenity of the development. The large sized allotments will allow residents to have amenities of open space, privacy and seclusion from neighbours, views of the rural environment to the east and south from the larger peripheral allotments and large vegetable and amenity gardens.

Southern Motorway

18. The proposed southern motorway will join SH1 at the northeast corner of this subdivision. In order to safeguard the rural landscape amenity and character of the subdivision large trees will be planted as a shelter belt along the east boundary. This will maintain the visual outlook for the occupants of the allotments on the east boundary, and reduce the appearance of potential car movements.

Landscape and Visual Effects

19. The landscape and visual effects of the subdivision on the rural character and amenity of the surroundings will now be assessed.

20. We are mainly concerned about….."*the appreciation of pleasantness, aesthetic coherence and cultural and recreational attributes*" (s 7c). For this site relevant elements are openness, unimpeded long distance views, and a planar and geometrical appearance of the landscape.

21. The site will change from an open and pastoral space to a modified one of built structures. This development will form an appropriate transition to the rural land beyond. Given the very low residential density and open space, the natural character will still be a dominant feature. Those who will be affected by this change will be travellers on SH1, neighbours in Park Lane Estate and Coles residential block subdivision and adjacent rural properties.

22. A summary of the landscape and visual effects of these changes due to the proposed Plan Change will include the following:

    - Loss of some long distance views of a pastoral landscape
    - Creation of a modified landscape with built structures and associated driveways and roading
    - Removal of some shelter belts and grassland
    - New appearance of a more diverse landscape with the addition of large trees, gardens and lawns and roading
    - Soft landscape frontage to SH1 creating a foreground landscape for travellers to appreciate, as well as the retention of oak trees

23. Rural residential developments generally create a high amenity environment. Further, given the advent of time, say 7 to 10 years, the growth of trees and shrubs will partially screen and soften this rural residential development.

Viewpoints

State Highway 1

24. The main view to the site is gained from the state highway from both northerly and southerly directions. It is a 100km/h zone, and for the subdivisions length, and beyond, the view is only a filtered one for much of the year due to a long line of oak trees, spaced at 5.0m centres. The dense foliage from September to May assists to create this effect. The travellers view therefore is focused in a forward direction either on the trees or the road ahead, rather than experiencing lateral views across pastoral farmland or a potential subdivision. With the loss of leaves from the oaks trees in winter time then the view over the site is more apparent. This is a good reason why views should be even more filtered by large trees planted within the subdivision.

Coles Residential

25. From the future streets and allotments of the adjoining Coles residential (LZ) subdivision (west side of the proposed site) views will be gained of the site. The only direct views will be from those 15 allotments on the eastern boundary of the residential subdivision. These views will be punctuated by lawn, trees and shrubs and open space between houses allowing a more appealing amenity than in a residential subdivision. Otherwise the views will be from the connecting streets between the two subdivisions.

Other locations

26. There are no other public viewpoints, although views from two other houses on the periphery will be experienced.

27. On the northeast boundary of the subdivision adjacent to SH1 is a private house and allotment. Although there are shelter trees on the house sites western boundary, from upstairs within the house, views

will be gained over the adjacent proposed subdivision. However, the view will be out to two large sections of 1.05ha and 0.8ha. This will allow views between houses where trees, shrubs and lawns will exist. It will be a changed view from the current one the residents experience, but there will be a lot of open space which will result in a rural amenity, albeit with the addition of a built pattern of development.

Internal Effects

28. The landscape and visual effects occuring from within the subdivision will be determined by the elements of the development, such as allotments size, roading, setback of houses, street amenity, road width and berm treatment. As well, over a period of time, the effects of a greater density of buildings to what currently exists will be softened by leafy trees and developing gardens.

29. The internal appearance will include a number of very large allotments ranging from 3000m² to over 1ha. Generally there are large allotments on the periphery or the subdivision, these relating to the wider rural landscape.

30. The allotments will manifest themselves with a large amount of open space, generous setbacks from the internal road, a diversity of large trees and shrubs so as to soften and partially screen buildings, as well as assisting to integrate the development into the rural environment.

31. The outlook from the peripheral allotments could be either introspective, (lawns, trees, shrubs) or outward (to the rural land beyond), while the outlook from the centrally located sites will be more introspective. Having said that, the latter type allotments are of a good size. The central lots (located ‘inside’ of the internal road) range

from 4100m^2 – 6000m^2 with just one at 3500m^{2}This allows for a reasonable amount of open space with lawn, trees and gardens and will create a pleasant amenity for the occupants.

32. The outlook from the 6 allotments adjacent to the residential subdivision (western boundary) is of a lesser quality, mainly because of the smaller allotment size (2530 to 2960m²) and outlook to the west being into small allotments resulting in the close proximity of neighbours and the road. However, the allotment size is sufficient for large gardens with trees, shrubs and lawn. With a 20m setback of the house from the road the appearance from the internal road will be one of grass berms extending into the private allotments, giving a spacious appearance from the road.

33. The overall appearance and amenity from within the subdivision will be a pleasant and spacious environment in which to live. The built structures will be offset by lawns, trees and gardens within the allotments as well as the streetscape of large trees at regular intervals and wide berms.

34. The specific rules of the Plan Change are concerned with maintaining the rural character and amenity. The best method of achieving this is with appropriate landscape treatment on each allotment. This will assist to make the built structures recessive elements in the natural environment. The proposed framework planting of large rural type trees will reinforce allotment boundaries and road alignments, act like shelterbelts throughout the subdivision, reduce the overall visual appearance of the built environment and create a more comfortable environment in which to live. Large trees such as those outlined in Appendix 1 will assist to maintain a rural-residential appearance and the retention of the internal shelterbelt will give a ready-made rural character. Other methods that will contribute to creating this effect will be:

- 20m front yard setbacks
- 15m side and backyard setbacks
- Rural style fencing

35. These provisions will assist to reduce the visual appearance of buildings from the roadway and allow vistas to hills and mountains beyond and provide vegetation between buildings so as to create a more informal rural character with high visual amenity. This will be different to the regimented pattern of residential subdivision development.

Statutory Requirements

36. Under the Selwyn District Plan, Plan Change 32, the objectives and policies are set out for Rural-Residential development. The following is an assessment that shows that this Plan Change is consistent with Plan Change 32's approach to Rural-residential development.

37. Policy 3.4.3 (b) sets out a number of amenity outcomes that should exist in rural residential living areas:
    - Easy and safe traffic movement
    - Openness and rural character
    - Avoid the collective effects of high densities of built form
    - Avoid reserves, walkways etc
    - Avoid kerb and channel, paved footpaths, large entrance features and ornate street furniture and lighting, but promote wide berms
    - Fencing and hedging styles to respond to a rural vernacular.

38. All of these policies have been met with the design of the subdivision. The informality of the details will reflect the rural character such as open grassed swales for stormwater collection, wide grassed berms and an avoidance of footpaths, street furniture, reserves, dense

housing and entrance ways. The overall appearance will be simple and bold and lacking in ornate detailing.

39. The same applies to Rule 12.14, which sets out more detail for proposed rural residential subdivisions. Specific rules apply to the following design components:

- Maintenance of open space which contributes to rural character. Large setbacks (20m), grassed berms, generous spaces between houses (min. of 30m), large trees such as poplars, oaks, limes and large allotments are all components that will assist to maintain the ruralness of the location.
- Transparent fencing – boundary and internal fences could be post and wire or post and rail. This will allow the openness to continue throughout the subdivision, without it being segmented.
- That the overall housing density reflects the rural environment. Low density housing with an average allotment of 5000m² will allow components of the rural environment to be incorporated into this subdivision.
- Appropriate roading cross sections and typologies will be applied. These will be of an informal and rural nature with wide grass berms in which to incorporate stormwater swales and large trees. No kerb and channel and foot paths have been included in the design.
- Maintain existing vegetation where appropriate. Parts of the central shelter belt of poplars will be maintained so as to reduce the visual appearance of the whole of the subdivision, and to retain an element typical of the rural scene.
- The form and layout of the subdivision requires integration into its surroundings so as to retain view shafts into the rural landscape. By including rural landscape components (wide berms, generous housing setbacks, large trees, shelterbelts) then the built structures will become integrated and partially

screened to become recessive to the rural landscape. View shafts will exist between buildings and out to the rural landscape such as to the Port Hills in an eastward direction and long distance views to the mountain foothills. These long distance views will be retained from many allotments.

- Urban elements of ornate lighting, kerb and channel and footpaths will be avoided so as to maintain the simple and bold rural landscape character.
- Maintenance of rural-residential character by low density housing with the proposed average density being 5000m^2.
- To reduce potentially adverse landscape and visual effects. The southern motorway could contribute to this effect so to avoid this occurring dense planting along the eastern boundary will assist to reduce movement and glare.

Conclusion

40. A change in landscape character and amenity will occur to this parcel of land. The modification will be from an open pastoral landscape to a more built up environment. However, there will be a considerable amount of open land to incorporate elements that are prevalent in the surrounding rural environment such as large amenity trees and gardens, wide berms, shelter trees, farm fences and grassed stormwater swales.

41. Within a timeframe of 7 to 10 years the new landscape will soften, screen, and integrate the built elements. The development will be a transition between the residential development of Park Lane and Coles, and others on Rolleston-Lincoln and Levi Roads to the open rural landscape beyond.

Appendix

Large rural type trees to be used as framework planting for road reserves and allotments:

Liriodendron tulipifera	tulip tree
Populus yunanensis	Chinese poplar
P. tremula	aspen poplar
Platanus orientalis	plane tree
Quercus caneriensis	Algerian oak
Q. cerris	Turkey oak
Q. palustris	pin oak
Q. petraea	sessile oak
Tilia plataphyllos	large leafed lime
T. petiolaris	weeping silver lime
Ulmus glabra	wych elm

Plan Change

Coles Rural-Residential Subdivision, Rolleston

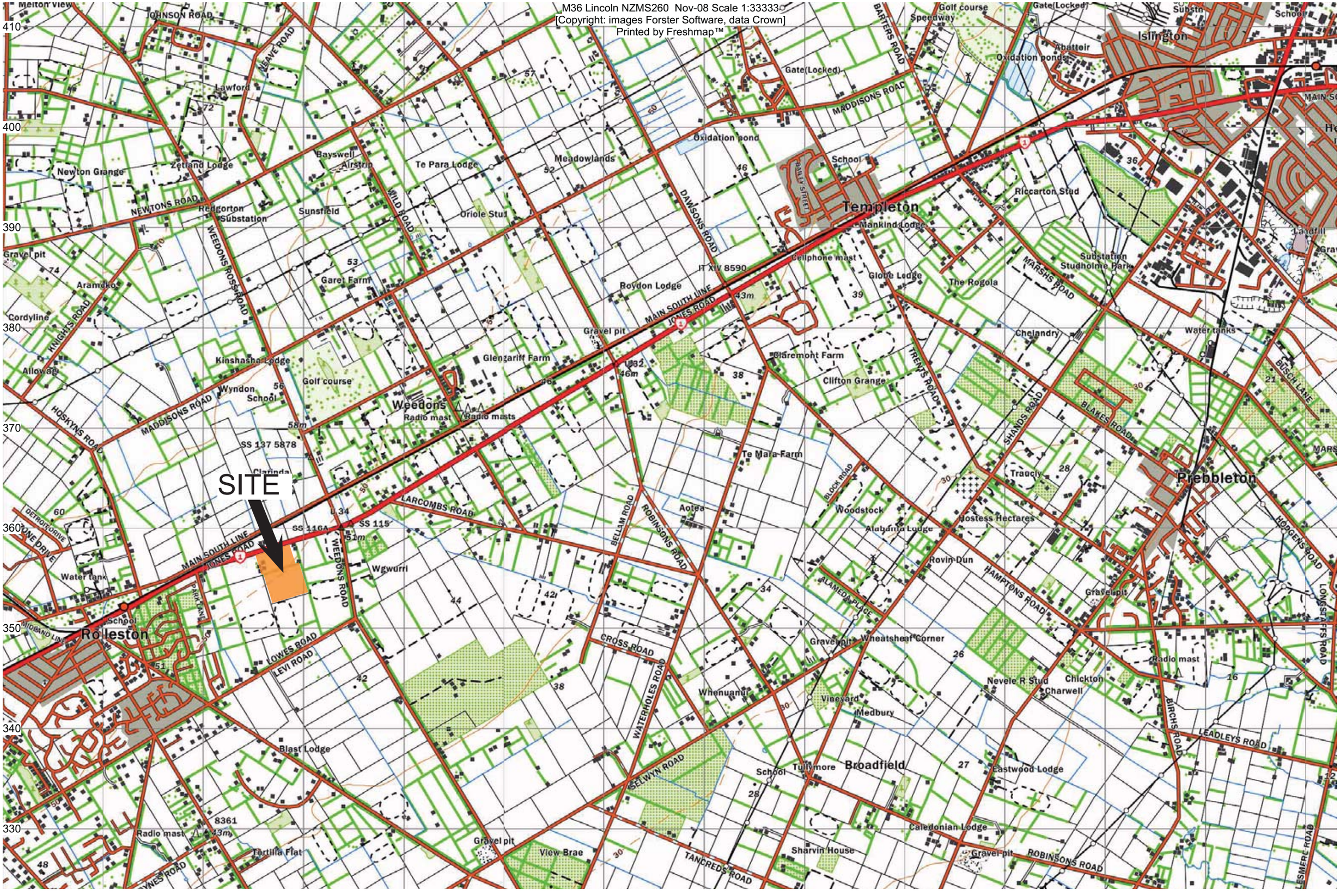
Landscape Assessment

Graphic Supplement

17 April 2013

Chris Glasson Landscape Architects Ltd
Christchurch 8141
P.O Box 13162
Ph. 03 3654599
www.chrisglasson.com

M36 Lincoln NZMS260 Nov-08 Scale 1:33333
[Copyright: images Forster Software, data Crown]
Printed by Freshmap™



CHRIS GLASSON
Landscape Architects Ltd

COLES SUBDIVISION, ROLLESTON
Rural-Residential Development

1.0 Location Map

Landscape Assessment
April 2013

Main South Rd
SH 1 S
Main South Rd
Main South Road
SH 1 S
Buffer Zone
Park Lane
Development
Rural Residential Zone
(separate consent)
SITE
Living Zone
0m
50m
100m
150m
200m

N
JONES ROAD
MAIN SOUTH ROAD (SH1)
Proposed NZTA motorway extension
SITE

buffer zone planting

approx. alignment of Southern Motorway extension

LEGEND:

existing shelter belt utilised

proposed framework planting (within lots)

proposed streetscape planting (within road reserve)

possible indicative cycle/walkway

0m 50m 100m

Scale 1:2000

Lot 1
1.06ha

existing dwelling to remain

Lot 2
1.03ha

Lot 3
1.02ha

Lot 4
1.05ha

Lot 5
5970m²

existing farm buildings to be removed

remove existing birch trees

Lot 23
4450m²

Lot 24
4350m²

Lot 25
4310m²

Lot 26
4200m²

Lot 27
4580m²

Lot 6
4000m²

strengthen planting along eastern boundary to screen proposed southern motorway extension

retain parts of poplar shelter trees

example of planting within meandering 6m wide carriageway

Lot 22
2960m²

Lot 30
5400m²

Lot 29
4870m²

Lot 28
3520m²

18m wide road reserve
(6m wide carriageway)

Lot 7
5200m²

Typical trees for framework planting to include Chinese poplar, oaks, plane trees and lime

Lot 21
2530m²

Lot 31
5200m²

Lot 32
4870m²

Lot 33
4150m²

Lot 8
4890m²

framework planting within lots to reinforce rural character

Lot 20
2530m²

Lot 36
5900m²

Lot 35
4380m²

Lot 34
4960m²

Lot 9
4440m²

Lot 19
2630m²

Lot 10
4580m²

pump station

Lot 18
2500m²

Lot 16
4720m²

Lot 15
4280m²

Lot 14
4050m²

Lot 13
4050m²

Lot 12
4220m²

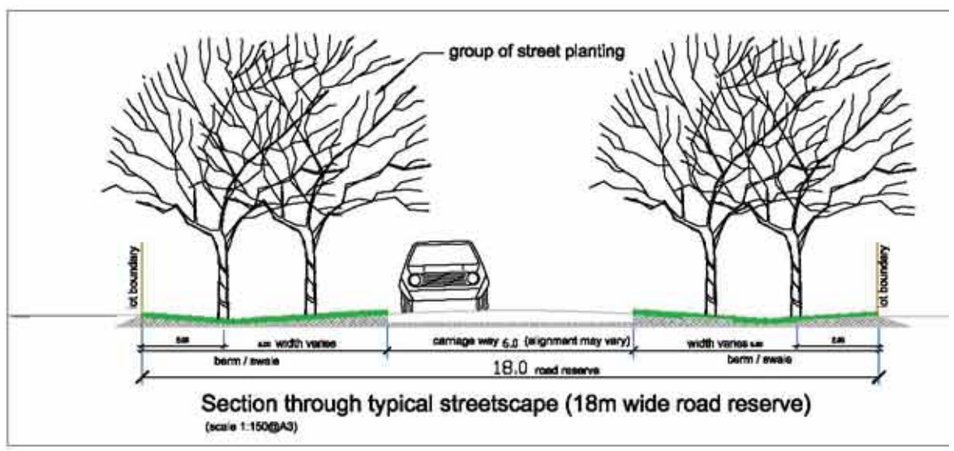
Lot 11
7380m²

Lot 17
2990m²

Proposed Living Zone
Residential Allotments

main internal road (18m wide)

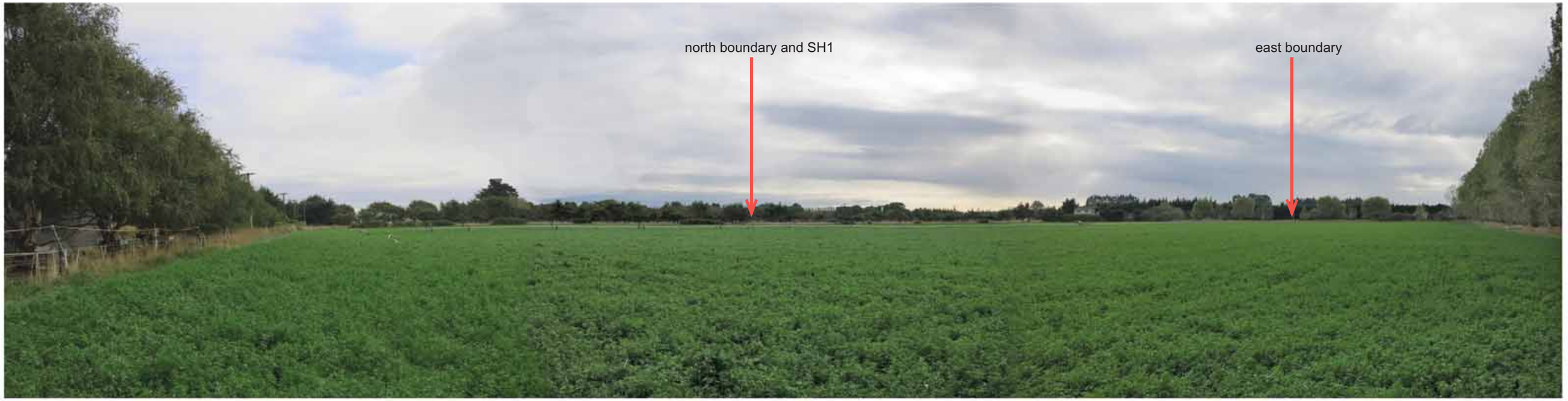
main internal road (18m wide)



Section through typical streetscape (18m wide road reserve)

(scale 1:150@A3)

5.1 Viewpoint 1, View from southwest corner of the site, looking in a northeast direction of the southern section of the site



5.2 Viewpoint 2, View from farm buildings looking in a northeast direction of the northern section of the site

6.1 Viewpoint 3, View from northeast corner of the site looking in a southwest direction of the northern section of the site

6.2 Viewpoint 4, View from northwest corner of the site looking to the southwest across the future residential site

7.1 Viewpoint 5, View from southwest of the site, looking to the northwest across the future residential site

8.1 Poplar trees, many of which will be retained as part of the middle shelterbelt

8.2 Existing house

8.3 Existing farm buildings

8.4 Existing farm buildings

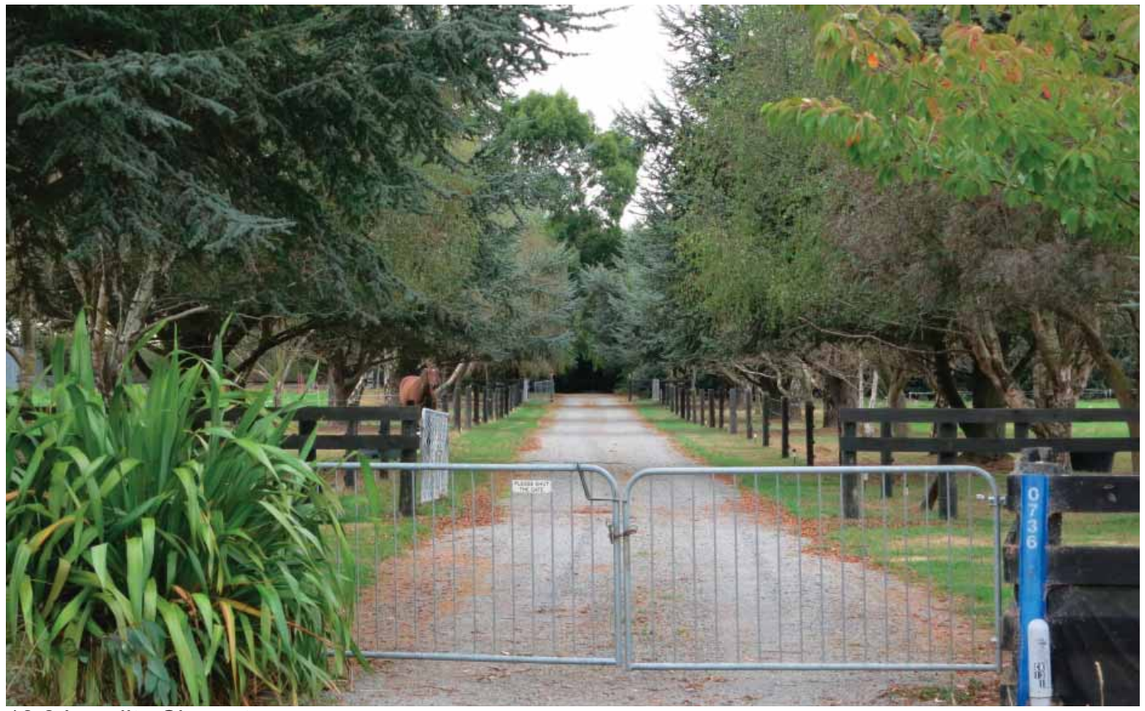
9.1 Existing oak trees screening the proposed rural-residential subdivision

9.2 Existing oak trees screening the proposed rural-residential subdivision

9.3 Existing oak trees screening the proposed rural-residential subdivision

10.1 Locality Character

10.2 Locality Character



10.3 Locality Character

10.4 Locality Character

tulip tree

Chinese poplar

large leafed lime

Turkey oak

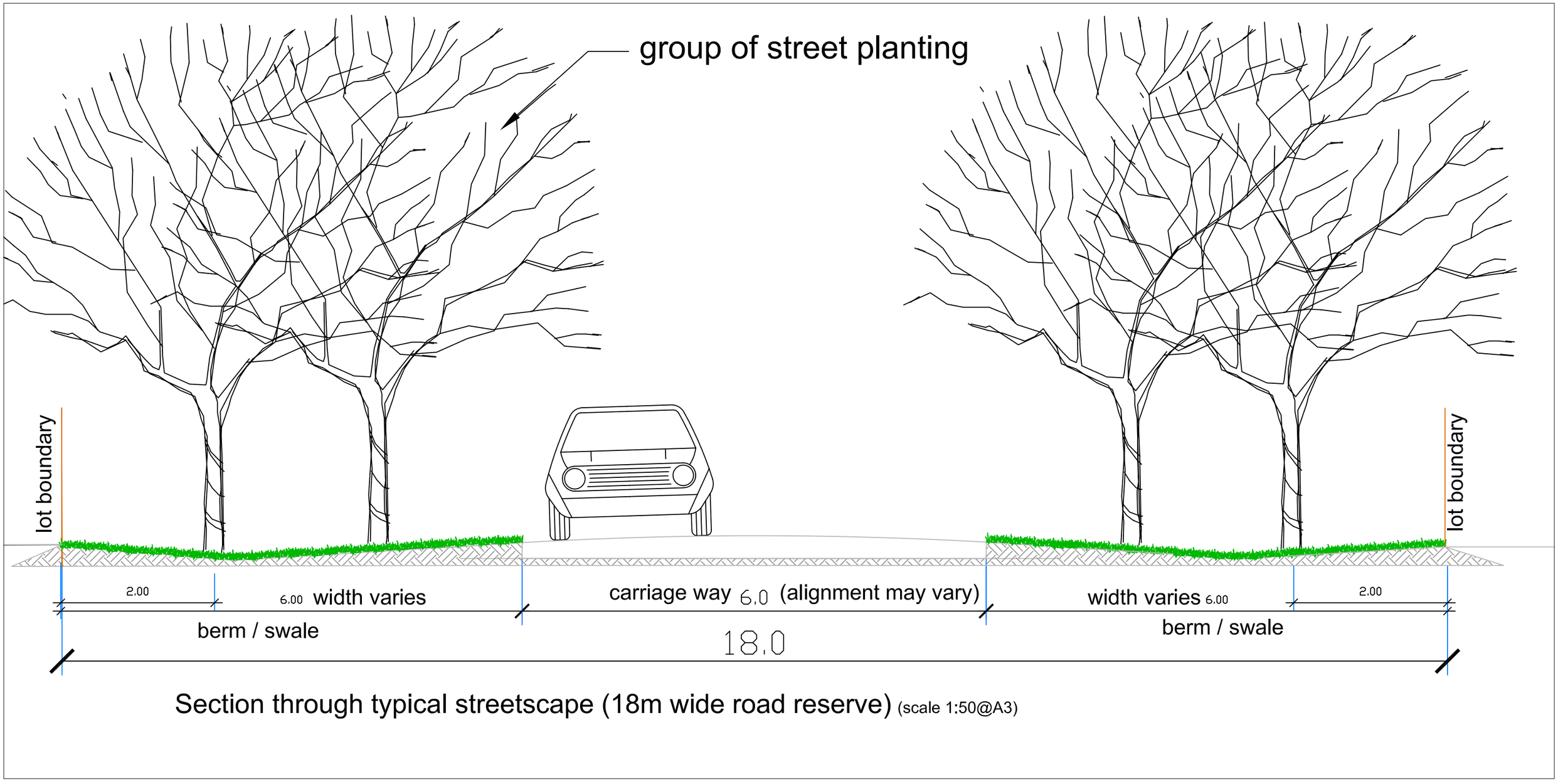
pin oak

wych elm

12.1 Post and rail fence

12.2 Post and rail fence

12.3 Post and wire horse fence



Section through typical streetscape (18m wide road reserve) (scale 1:50@A3)

Appendix 42: Outline Development Plan - Living 3 Zone, East Rolleston, Road Section

Annexure Five: Transport Assessment

Planning · Traffic · Development

Transportation Assessment prepared for

Park Lane Estates Ltd

1535 Main South Road, Rolleston

April 2013

Land Use Consent Application prepared for

Park Lane Estates Ltd

1535 Main South Road, Rolleston
April 2013

Novo Group Ltd
10 Bishop Street, St Albans
PO Box 38 123, Christchurch 8842
P: (03) 365 5570
E: info@novogroup.co.nz
W: www.novogroup.co.nz

Document Date:	22/04/2013
Document Version/Status:	Final
Project Reference:	035004
Project Manager:	LW
Prepared by:	LW
Reviewed by:	RC

Note- This document has been prepared for the benefit of Park Lane Estates Ltd. No liability is accepted by Novo Group Ltd, any of its employees or sub-consultants with respect to its use by any other person.

Table of Contents

INTRODUCTION 1
THE PROPOSAL 1
THE TRAFFIC ENVIRONMENT 1
Main South Road (SH1) 2
Planned Road Network 2
Public Transport 3
Relevant Statutory Documents 3
Regional Land Transport Strategy (RLTS) 2012-2042 3
Canterbury Regional Policy Statement (RPS) 3
Recovery Strategy for Greater Christchurch 4
Land Use Recovery Plan 5
Discussion 6
DISTRICT PLAN PROVISIONS 6
Objectives and Policies 6
ASSESSMENT OF EFFECTS 8
Daily Traffic Generation 8
Road Network 8
Design and Connection 9
CONCLUSIONS 10

Table of Figures

Figure 1: Location of site and surrounding road network [source: Google earth] 2
Figure 2: Outline development plans for adjoining residential development west of site 2

INTRODUCTION

1. Park Lane Estates Ltd has commissioned Novo Group to prepare a Transportation Assessment (TA) for the proposed rural residential development at 1535 Main South Road, Rolleston.

2. This report provides an assessment of the transportation aspects of the proposed development. It also describes the traffic environment in the vicinity of the site, describes the traffic related components of the proposal and identifies compliance issues with the traffic provisions in the City Plan. It has been prepared broadly in accordance with the Integrated Transportation Assessment Guidelines specified in New Zealand Transport Agency Research report 422, November 2010.

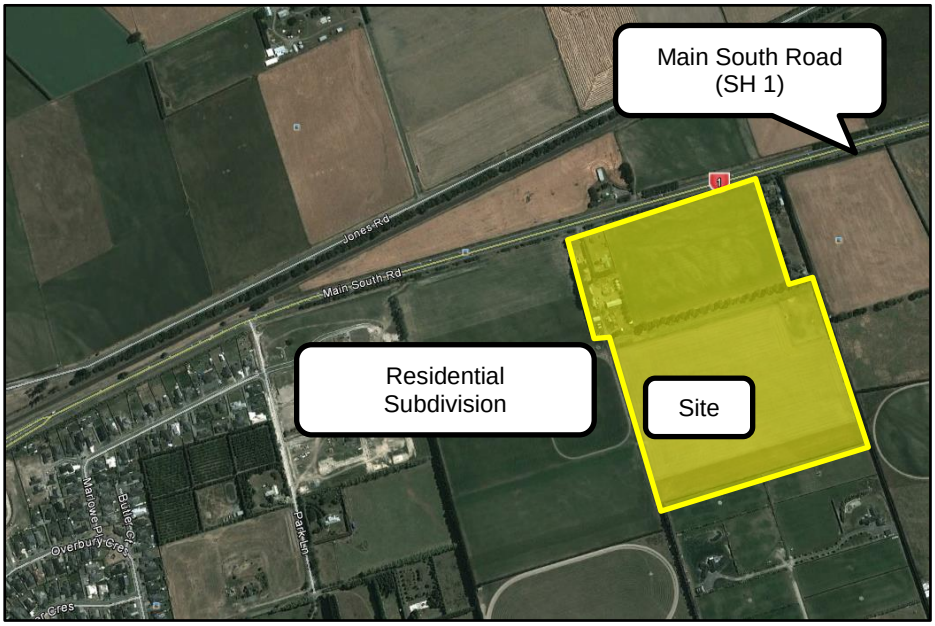
THE PROPOSAL

3. It is proposed to rezone the site at 1535 Main South Road for rural residential use. The site is currently zoned ***Rural Inner Plains*** and ***Living 2 zoning*** is sought. This is anticipated to enable development of approximately 36 rural residential allotments.

4. The proposed road network will connect to two new roads being created as part of the Park Lane Estates residential development[1] to the west of the site. These roads generally run east-west across the site. Two roads on a north-south alignment are also proposed as well as a short culs de sac to service around 6 properties located centrally within the site.

THE TRAFFIC ENVIRONMENT

5. The application site has frontage to State Highway 1, however vehicle access will be via the residential zoned area immediately to the west of the site. The location of the site and surrounding road layout is shown in Figure 1 below.



[1] For more detail on the development to the west of the site refer to the District Plan, Township Volume, Part E – Appendix 38 and Outline Development Plans of areas 3 and 8.

Figure 1: Location of site and surrounding road network [source: Google earth]

Main South Road (SH1)

6. The site has frontage (but no vehicle access) to Main South Road which forms part of the State Highway network (SH1). Main South Road generally has one traffic lane in each direction however near the application site two lanes are provided in each direction providing a passing area. NZTA traffic volume counts indicate that SH1 is carrying around 19,900 vehicles per day (2012 count south of intersection with Weedons Ross Road).

Planned Road Network

7. A residential subdivision is currently being developed on the land west of the site. This includes provision of new local roads. These roads primarily connect to the surrounding collector / arterial roads (for example Levi Road). The remainder of the planned roads will be *Local* area and *Neighbourhood* type streets. The *local* area streets are able to accommodate future bus routes. Cycle lanes are proposed for the avenues (main roads connecting with collectors / arterials) with provision for shared use on other roads. Pedestrian access is primarily provided by the road network (footpaths on at least one side of the road) and supported by off-road paths, for example, through open spaces.

8. The outline development plans for the area to the west of the site are included in Part E - Appendix 38 of the District Plan (Township Volume). Areas 3 and 8 are relevant to this application. Figure 2 below shows extracts of the proposed road network of area 3 and 8.

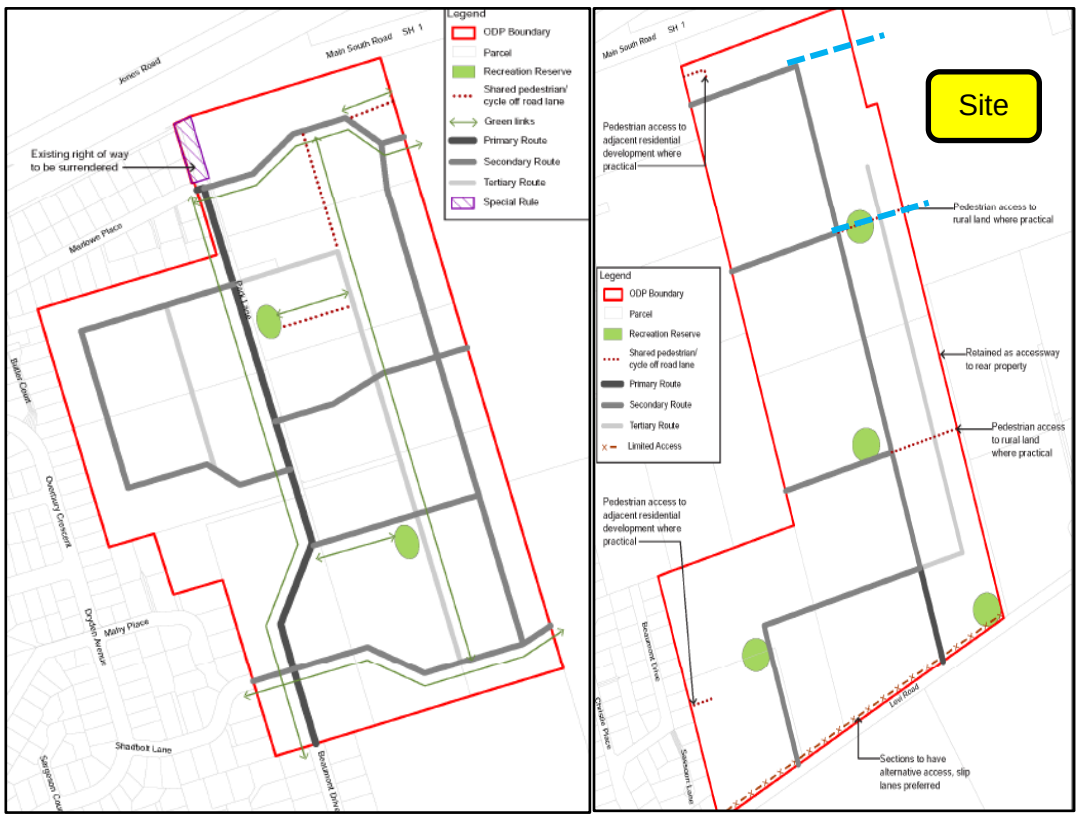


Figure 2: Outline development plans for adjoining residential development west of site

9. The northern end of this residential development is known as Park Lane Estates. The blue dashed lines on the top right corner of Figure 2 indicate the location of the two road connections to the proposed rural residential development (i.e., through Park Lane Estates).

10. Access for the proposed rural residential development will occur through this new residential development. Connections to the existing road network include Marlowe Place, Mahy Place, Shadbolt Lane, Beaumont Drive and Levi Road.

11. Access to the classified road network includes Levi Road (arterial road), Masefield Drive (collector), Rolleston Drive (collector), and Dryden Avenue (collector).

Public Transport

12. Two bus routes currently service Rolleston, including the 820 (Burnham / Lincoln) and the 88 (Rolleston). The closest bus stops are located on Rolleston Drive and Masefield Drive. Consideration has also been given to road design capable of accommodating future bus routes through the residential development west of the site. This will enable bus services to be provided closer to the site in the future.

Relevant Statutory Documents

13. A summary of the relevant statutory documents as they relate to this Plan Change is outlined below.

Regional Land Transport Strategy (RLTS) 2012-2042

14. The RLTS sets the direction for land transport in the Canterbury Region over the next 10 years. The RLTS is prepared under the requirements of the *Land Transport Act* 1998, as amended by the *Land Transport Management Act* 2003. The RLTS seeks the following outcomes:

- *Reduced greenhouse gas emissions from use of the domestic transport system.*
- *Improved land use and transport integration*
- *Reduction in fatal and serious injuries for all modes*
- *Improved health from increase in time spent travelling by active means*
- *Reduced community exposure to vehicle pollutants, noise and vibration.*
- *Increased proportion of the population travelling by active means.*
- *Increased energy efficiency per trip.*
- *Connectedness is enhanced.*
- *Increased travel choices for households to access urban and suburban centres*

Canterbury Regional Policy Statement (RPS)

15. The RPS provides an overview of significant regional resource management issues and the identification of policies and methods to achieve integrated, sustainable management of natural and physical resources within the region. The following objectives are of particular relevance:

Objective 5.2.3 – Transport network (Wider Region)

A safe, efficient and effective transport system to meet local regional, inter-regional and national needs for transport, which:

(1) supports a consolidated and sustainable urban form;

(2) avoids, remedies or mitigates the adverse effects of transport use and its provision;

(3) provides an acceptable level of accessibility; and

(4) is consistent with the regional roading hierarchy identified in the Regional Land Transport Strategy.

Policy 5.3.1 – Regional growth (Wider Region)

To provide, as the primary focus for meeting the wider region's growth needs, sustainable development patterns that:

(1) ensure that any (a) urban growth; and (b) limited rural residential development occur in a form that concentrates, or is attached to, existing urban areas and promotes a coordinated pattern of development;

(3) promote energy efficiency in urban forms, transport patterns, site location and subdivision layout;

Policy 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.

Policy 5.3.8 –Land use and transport Integration (Wider Region)

Integrate land use and transport planning in a way:

(1) that promotes:

(a) the use of transport modes which have low adverse effects;

(b) the safe, efficient and effective use of transport infrastructure, and reduces where appropriate the demand for transport;

Recovery Strategy for Greater Christchurch

16. The Recovery Strategy for Greater Christchurch (the Recovery Strategy) prepared by CERA under the Canterbury Earthquake Recovery Act became operative on 1 June 2012. It is a statutory document that must be "read together with, and forms part of" other relevant legislation within the greater Christchurch area. The City and District Plans (and a number of other statutory documents) must not be interpreted or applied in a way that is inconsistent with the Recovery Strategy. Only Sections 3-8 of the Strategy have statutory effect.

17. The Recovery Strategy sets out the vision, supporting goals, and priorities for the recovery of Greater Christchurch. The following goals are of particular relevance:

5. Develop resilient, cost effective, accessible and integrated infrastructure, buildings, housing and transport networks - by:

5.4 developing a transport system that meets the changed needs of people and businesses and enables accessible, sustainable, affordable and safe travel choices;

5.5 zoning sufficient land for recovery needs within settlement patterns consistent with an urban form that provides for the future development of greater Christchurch;

5.6 having a range of affordable housing options connected to community and strategic infrastructure that provides for residents participation in social, cultural and economic activities; and

Land Use Recovery Plan

18. The land use recovery plan contains several provisions relating to rural residential development including the following which are of relevance to transport.

Issue 6.1.6 - Rural residential impacts

Rural-residential development, if unconstrained, has the potential to change the character of rural areas and to create adverse effects on established rural, farming (including agricultural research farms) and quarrying activities through reverse sensitivity. It also can result in dispersed settlement patterns and the inefficient provision of services.

Explanation:

Many of the rural western areas of Greater Christchurch remained undamaged during the earthquakes and are also located out of the area identified as being prone to liquefaction, making them more desirable locations to live. However, rural residential development is associated with reverse sensitivity effects and can also give rise to requests for the extension of urban services and exacerbates dispersed settlement patterns, leading to inefficient use of infrastructure and impacts on rural production. This can lead to pressures for future urbanisation, which is difficult to achieve in an effective manner given that the land use pattern has been established for a different purpose.

Objective 6.2.4 – Integration of transport infrastructure and land use

Ensure that the planning of transport infrastructure is prioritised so that it maximises integration with the priority development areas and new settlement patterns and facilitates the movement of 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; and (4) promoting the use of active transport modes.

Principal reasons and explanation:

Land use patterns that are integrated with transport infrastructure minimise energy use through network optimisation, operation and maintenance, and provide for the social and economic wellbeing of the community, and peoples' health and safety. Recovery development that is not well integrated with transport infrastructure can result in increased car dependency, higher energy use, greater traffic volumes, and inefficient freight movement.

Discussion

19. The site is located along the eastern edge of the Rolleston township and can be serviced through existing and new roads within the urban area. This makes efficient use of transport infrastructure to accommodate the demand for rural residential growth.

20. The development of rural residential growth on the outskirts of the township will enable future residents easy access (by car and active modes) to the economic goods and services, and social / cultural activities within the Rolleston township. The site represents consolidation of rural residential growth around the urban limit, reducing the amount of travel between rural residential areas and destinations within townships. Residents will be within 2-3 km of the Rolleston town centre which makes travel by cycle and other active transport modes feasible. It will also enable reasonable access (closest existing route within approximately 2km) to public transport services for travel within the region (including to and from Christchurch City). As shown in Figure 2 the location of the site is such that the proposed road network is well integrated with the existing and planned road network servicing the Township.

21. The location of rural residential growth around the township also avoids the need for new connections to the State Highway (or any rural arterial roads) enabling optimisation of and efficient planning for expansion of the strategic road network. This site also consolidates rural residential growth on the same side of the State Highway (and main south rail line) as the existing township.

22. Overall the proposed plan change is therefore considered to be generally consistent with the above aspects of the relevant statutory documents.

DISTRICT PLAN PROVISIONS

23. The site is currently located in the ***Inner Plains zone*** as specified on Planning Map 13 in the District Plan. It is proposed to rezone the site for rural-residential purposes.

24. It is noted that any residential development on the proposed allotments could comply with all the relevant transport related requirements of the District Plan. This includes adequate parking, access and manoeuvring for each new property. Failure to comply with any of these standards would result in the requirement for additional resource consent approval to be considered separately to the Plan Change application that is the subject of this report.

Objectives and Policies

25. Section 32 of the Resource Management Act requires an assessment of whether the proposed methods are the most appropriate way in which to efficiently and effectively achieve the objectives of the Plan. The objectives and policies relating to transportation aim to provide for a more sustainable land transport system, better urban form and to cater for future transport networks. They place a strong emphasis on integration between transport and land use; promotion of multiple transport modes, including active transport (cycling and walking) and public transport; and ensuring good connectivity between existing and proposed development areas.

26. Key relevant objectives and supporting policies are outlined below.

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…is not compromised by adverse effects from activities on surrounding land or by residential growth.

Objective B2.1.2
An integrated approach to land use and transport planning to manage and minimise adverse effects on the transport networks on adjoining land use, and to avoid "reverse sensitivity" effects on the operation of transport networks.

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.

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.

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.

27. The site is located along the eastern edge of the Rolleston township and can be serviced through existing and planned transport network which makes efficient use of transport infrastructure to accommodate the demand for rural residential growth. This will ensure good access to the goods, services and facilities within the Rolleston township. No access is proposed to Main North Road (SH1) which will protect the safety and efficiency of the State Highway.

28. The objectives and policies outlined above form the basis for the following assessment of effects.

ASSESSMENT OF EFFECTS

29. An application for a zone change enables all potential effects to be considered. In terms of traffic related issues, these effects relate to issues such as the geometric layout of the site and the effects of site generated traffic on the capacity of the surrounding road network.

30. On this basis the following assessment of effects will consider:

- The daily and peak hour volume of traffic estimated to be generated by the proposal and its distribution onto the surrounding road network; and
- The ability of the surrounding road network to cater for increased traffic flow.
- Design and layout of the ODP and connection with the adjoining transport network.

Daily Traffic Generation

31. It is understood that rural residential development of the site would result in approximately 36 allotments.

32. There is a substantial library of research on the traffic generation of residential developments. This data reveals a range of 6-14 trips per day per dwelling unit.

33. The traffic generation research indicates that the trip generation per dwelling unit is influenced by proximity to non-residential activities (shopping, schools, work places and general entertainment and other amenities), and the separation distance from the primary commercial district for the wider area (research indicates that increased separation distance from a major CBD results in more trip linking and a lower overall generation rate per dwelling unit). The location of the site on the edge of the Rolleston Township suggests that the bulk of dwellings will encompass a range of residential travel patterns (including some commuting to and from Christchurch), and therefore a generation rate of 8 (or less) trips per day per unit is considered appropriate.

34. It therefore follows that the site with say 36 rural residential allotments could generate around 288 vehicle trips per day (36 allotments x 8 trips each per day = 288). Peak hour traffic generation is typically around 10 percent of the daily traffic, in order to be conservative a peak hour traffic generation rate of 1 trip per allotment is adopted. This suggests around 36 trips in the peak hour.

35. This peak hour generation is likely to be tidal in nature where most of the peak hour traffic would be exiting the subdivision during the morning peak hour and then returning during the evening peak hour.

Road Network

36. All vehicle access is through the residential development to the west of the site as shown in Figure 2 above. This avoids the creation of any new road intersections with Main South road (SH1).

37. Connections to the existing road network include Marlowe Place, Mahy Place, Shadbolt Lane, Beaumont Drive and Levi Road (all connected via new roads to be created as part of the residential development of the land to the west of the site).

38. Access to the classified road network includes Levi Road (arterial road), Masefield Drive (collector), Rolleston Drive (collector), and Dryden Avenue (collector).

39. Given the location of the site relative to the town centre and the closest intersection with SH1 it is likely that most trips will occur through Marlowe Place, Dryden Avenue and Rolleston Drive. Given the collector road status of both Dryden Avenue and Rolleston Drive, this is considered to be an appropriate route.

40. It is likely that this route will also be used by future residents in Areas 3 and 8, particularly those located towards the northern end of the development. It is difficult to estimate future traffic volumes on these roads however for the purposes of this assessment it is conservatively estimated that these areas could accommodate around 720 households (assuming around 72ha and 10 households per ha). This would equate to some 720 trips in the peak hour (using the assumption above that peak hour traffic will equate to one trip per household). If it is assumed that around one third to one half of trips occur via the Dryden Avenue route (240-360 trips) then it is clear that the 38 trips in the peak hour associated with the proposed rural residential development are unlikely to be noticeable above that of the residential traffic from Areas 3 and 8.

41. Even when existing traffic volumes on these roads are allowed for (CAS estimate of 1,600vpd (assumingly 160 vph) on Dryden Avenue near intersection with Rolleston Drive) it is noted that traffic volumes would remain relatively low (160 vph existing + 360 vph Areas 3 and 8 + 38 proposed = 558 vph) and well below the physical capacity for a two lane road (around 1,800 vehicles per hour).

42. This level of traffic is not significant in the context of anticipated traffic volumes on collector roads.

43. The intersection of Dryden Avenue and Rolleston Drive is a T intersection and is stop controlled on Dryden Avenue. Dedicated right and left turn lanes are provided on Rolleston Drive. This is considered to be an appropriate design and layout for the intersection of two collector roads.

Design and Connection

44. The proposed road layout includes two road connections to the west which connect to the Area 3 and 8 developments. These are linked by two north-south roads. This provides good access to all future allotments. The provision of two road connections to the adjoining road network provides a degree of resilience in terms of enabling access in the event that one of the road connections is temporarily damaged or blocked.

45. The two roads provide a continuation of roads within the northern part of the adjoining Area 3 development (Park Lane Estates). This avoids the need for new intersections onto the adjoining roads. Two ‘T’ intersections will be created within the rural residential development. These will be able to meet the sight distance and separation requirements of the District Plan (assuming a future speed limit of 80 km/h or less).

46. The internal roads will be designed and formed in accordance with the District Plan standards for rural residential roads (Living 2 zone) as specified in Table E13.8 including a legal width of 18-20 metres, and a carriageway width of 6.0-6.5 metres. This legal and formed width will be sufficient to cater for the likely traffic volumes and site access and will be sufficient to accommodate the more detailed design aspects which are determined at subdivision stage.

CONCLUSIONS

47. The proposal to rezone the site at 1535 Main South Road for rural residential use would result in around 36 allotments equating to around 288 vehicle trips per day and around 36 trips in the peak hour. The proposed road layout is sufficient to cater for all likely traffic generation and provide efficient property access. The site has two road connections to residential development located west of the site. This provides suitable access to the wider road network and particularly to existing collector roads such as Dryden Avenue and Rolleston Drive.

48. The site is located along the eastern edge of the Rolleston township and can be serviced through existing and planned transport network which makes efficient use of transport infrastructure to accommodate the demand for rural residential growth.

49. The development of rural residential growth on the outskirts of the township will enable future residents easy access (by car and active modes) to the economic goods and services, and social / cultural activities within the Rolleston township. It will also enable reasonable access to public transport services for travel within the region (including to and from Christchurch City). The location of the site is such that the road network is well integrated with the existing and planned road network servicing the Township.

50. For the reasons outlined above any transport related adverse effects are considered to be less than minor and as such the proposal can be supported from a traffic perspective.

Annexure 6 – Servicing and Infrastructure Report

DREAMTIME LTD

19 June 2013

ENGINEERING AND SERVICING REPORT
Private Plan Change Application

e2 environmental
CONSULTING ENGINEERS

DREAMTIME LTD

19 June 2013

ENGINEERING AND SERVICING REPORT
Private Plan Change Application

Quality Control			
Author	*M Pollock & P Harte*	Client	*Dreamtime Ltd*
Reviewed by	*A Tisch*	Date Issued	*19 June 2013*
Approved by	*A Tisch*	Revision No.	-
Doc Name/Location	*S:\Projects\11034 Park Lane Subdivision\03 Coles Block\Deliverables\Block2 PC App Servicing Rpt\rep130115 DreamtimeRurResPC_FINAL.doc*		

Disclaimer
This report has been prepared solely for the benefit of Dreamtime Ltd. No liability is accepted by e2Environmental or Dreamtime Ltd if information contained in this report is used by any third party.

© Copyright e2environmental Ltd
All rights are reserved. This publication may not be copied or reproduced in any form without the permission of e2Environmental Ltd. Permission will only be given within the terms and conditions of the contract with e2Environmental Ltd and Dreamtime Ltd. This copyright extends to all forms of storage including any sort of storage retrieval system.

© E2 Environmental Ltd 2013

Table of Contents

1 Introduction 4
1.1 Background 4
1.2 Site Description 4
2 Access 5
3 Water Supply 6
3.1 Background and Design 6
3.2 Distribution Network Modelling 6
4 Wastewater 7
4.1 Background and Design 7
4.2 Capacity of the Levi Road Network and Treatment Plant 7
5 Stormwater 8
5.1 Existing Site Stormwater Management 8
5.2 Hydrogeology 8
5.3 Stormwater Design 8
5.4 Stormwater Discharge Authorisation 9
6 Power and Telecommunications 11

Appendix A – Drawings – concept and servicing option plans
Appendix B – Reports – water modelling and preliminary site investigation
Appendix C – Communications – Enable and Orion

1 Introduction

The Coles propose to subdivide 20.59ha of land (the block) into approximately 36 rural residential lots. This report describes the servicing requirements.

1.1 Background

The block is zoned Rural Inner Plains. This plan change application seeks to re-zone the block to Living Zone 3.

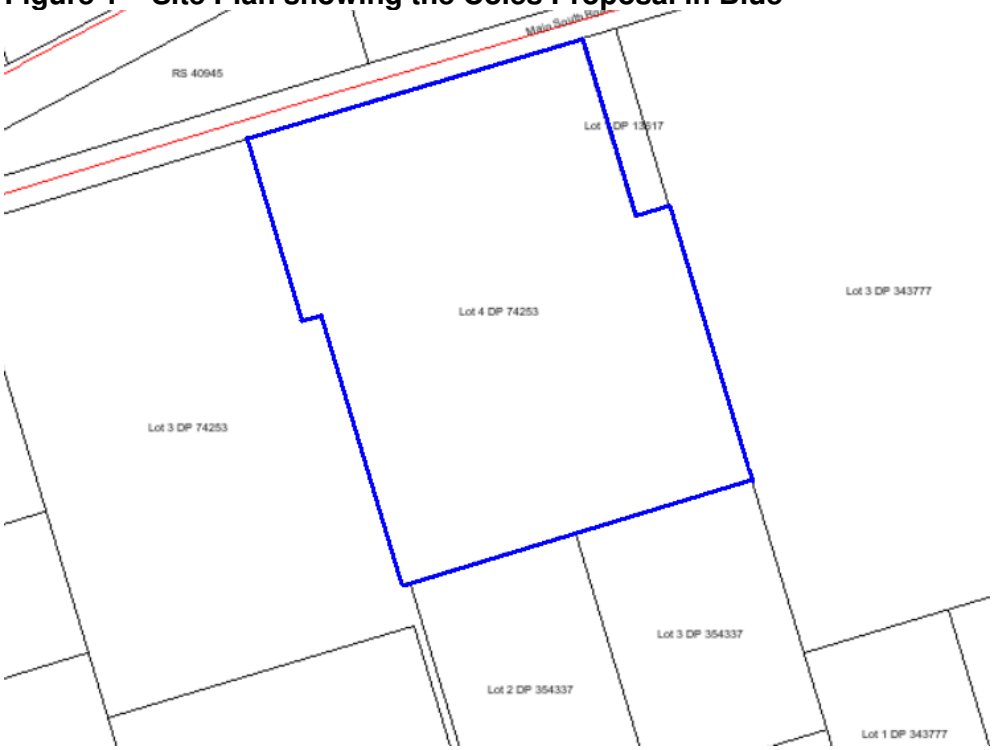
If the application is successful the development will be constructed over 1 land parcel owned by the Coles. The site will be developed for rural residential purposes, into 36 lots ranging from 2,500m^2 to 10,000m^2.

1.2 Site Description

The block (Lot 4 DP74253) is located on the north east edge of Rolleston's residential area, immediately south of SH1 (see Figure 1).

The block is currently used for farming, predominately in pasture and crops. It slopes from NW to SE with a fall of 4m, at a grade of around 0.5% (1:200).

Figure 1 – Site Plan showing the Coles Proposal in Blue



2 Access

Existing access to the site is currently off Main South Road (SH1). However, once complete, access will be only available through Park Lane Stage 1 and Dreamtime residential block immediately adjacent. Two access points will be constructed connecting Seymour Drive (northern access) and Kendo Drive (southern access).

Internal roading comprises a network of local minor, local intermediate and local major roads. The roads will eventually be vested to Council. Private right-of-ways (ROWs) will serve lots without direct access to public roads.

Cycleways or pedestrian accessways may be included in the Dreamtime proposed plan change, according to the Outline Development Plan Options in Appendix A.

3 Water Supply

3.1 Background and Design

The Rolleston water reticulation is supplied by several bores throughout the town, currently concentrated in the north. The bores are fed from a secure aquifer, and the water requires no treatment. There are currently four operational bores, with a total maximum flow rate of approximately 200 L/s (17,280 m^3/d). The current consented maximum take is 427.4 L/s (36,927 m^3/d)[1], which allows for over three times the current maximum recorded demand of 123 L/s[2]. Therefore capacity exists for the proposed subdivision.

3.2 Distribution Network Modelling

Opus International Consultants Ltd (Opus) were commissioned to complete a water distribution model for the proposed adjacent subdivision and private plan change block, as attached in Appendix B.

In summary, they recommend:

1. A trunk main upgrade and new wells to service the increased water demand from the block.

2. The existing uPVC DN200 on Jones Road is extended to connect into the uPVC DN200 on Park Lane.

3. Discussions between the SDC and the Coles on cost sharing options for new and upsized infrastructure as part of the plan change.

The trunk infrastructure is shown on the plan in Appendix A.

[1] SDC 5 Waters Activity Plan Part 3 January 2012, Table 3-63 Rolleston Water Supply Resource Consent
[2] SDC 5 Waters Activity Plan Part3 January 2012, Section 3.1.12.1 Overview table

4 Wastewater

4.1 Background and Design

The applicant proposes to reticulate all 36 lots (approximately) by gravity to a new pump station at the southeast corner of the site, as shown in Appendix A. The effluent will then be pumped to the existing MH in Levi Road by one of the following options (refer to Overall Sewer Proposal for Coles Options 1, 2 and 3, Appendix A):

1. Option 1: A pump station will connect Dreamtime plan change block to Dreamtime subdivision, to then gravity reticulate to Levi Park subdivision's pump station, connecting into a manhole at Levi Road, or;

2. Option 2: A pump station on the Dreamtime plan change block will connect to the Park Lane Estates gravity system via Lot 50. The Dreamtime subdivision and Levi Park subdivision will be gravity reticulated to a pump station at Levi Road. The pump station in the Dreamtime subdivision block will be abandoned.

4.2 Capacity of the Levi Road Network and Treatment Plant

Design flows from SDC Engineering Code of Practice for Wastewater Drainage are:

- daily average sewer flow (ASF) of 220L per person,
- 3.1 persons per household[3],
- a peak flow coefficient of 2.5,
- wet weather flow coefficient of 2.0.

The design maximum flow (MF) for 36 lots is 1.42 L/s.

SDC's GIS records and discussions with the SDC wastewater assets team[4] confirm that the receiving network has available capacity to service the block[5]. The Strategic Asset Manager Utilities also advised that the treatment plant has capacity to treat the additional wastewater.

[3] Statistics New Zealand 2006 Census Data Quick Stats about Rolleston, Households.
[4] Meeting between A Tisch (e2), R Schulz (Park Lane Estates Ltd), Murray England (SDC Strategic Asset Manager Utilities) & Graham Wild (SDC Clerk of Works / Inspector) at SDC Rolleston June 2012
[5] Daily Operating Capacity (8860m³/day) , Peak Demand (1,988m³/day) - SDC 5 Waters Activity Plan Part 3 January 2012, Section 3.2.4.1 Overview table, Table 3-99 Rolleston Sewerage Scheme

5 Stormwater

5.1 Existing Site Stormwater Management

Existing stormwater management on site is typical of rural land in that all runoff either soaks to ground or runs overland to the nearest available drainage channel. Soils in the area are generally free draining.

The site is bounded by roads which effectively cut off surface runoff from the north and west entering the site.

5.2 Hydrogeology

The soil profile at this site is typically 0.2 to 0.3m of brown topsoil over 1.5 to 2.5m of sandy-silt over well graded gravel in a sandy matrix that extends to an undetermined depth. The infiltration rate was measured[6] at 7,000mm/hr.

A desktop study of well information from ECan GIS indicates that the site is located over an unconfined or semi-confined aquifer. The depth to groundwater is greater than 6m, with wells M36/0155 and M36/0259 located on site indicating a minimum recorded groundwater level of 19m below ground[7].

Infiltration systems are therefore the most appropriate means of stormwater disposal in this type of terrain.

5.3 Stormwater Design

All roofs are proposed to discharge to individual on-site rapid soak holes constructed by future land owners at the Building Consent stage. This is consistent with the rest of the town, where free draining gravels make this the most practical solution. Hardstand areas on lots will also drain to the rapid soak holes, with the remainder draining directly to the road reserve.

As per rule WQL6 of the Natural Resources Regional Plan (NRRP) the system will be designed to ensure that the discharge:

- does not cause stormwater from up to and including a 24 hour duration 2% annual exceedence probability (AEP) rainfall event to enter the living areas of any property;
- does not cause nuisance flooding of any property in a 10% AEP event; does not result in the ponding of stormwater on the ground for more than 48 hours;

[6] Appendix B: e2environmental - Rpt 130214 11034 03 prelim site investigation
[7] Appendix B: ECan Well bore data for M36/0155 and M36/2495

Table 1- Stormwater Treatment Summary

Area	Catchment Type	Drainage System	Disposal Detail
Roofs	Almost completely impervious	Spouting/down pipes	On-site soak pit
Paving on private property	Impervious	Surface runoff	Ground or on site soak pits
Roads, ROWs and driveways	Almost completely impervious	Surface runoff, sumps, pipes	Swales linked to soak pits in road reserve to be vested to SDC

Swales rather than kerb and channel will convey stormwater to road-side sumps. This is to meet SDC rural-residential road requirements[8]. The road-side sumps will be connected to rapid soak holes located in the road reserve, sized based on the contributing area. A stormwater concept plan is included in Appendix A.

The road rapid soak holes are designed according to SDC guidance with allowance for a 66% reduction in infiltration capacity over time. The rapid soak holes have been checked for the 10% AEP 10 minute and 2% AEP 24 hour events. This is to ensure the primary (10% AEP) events can be disposed of without ponding, and that longer duration 2% AEP events do not cause flooding beyond the subdivision boundaries (though there will be some ponding for shorter duration 2% AEP events). A calculation spreadsheet is included in Appendix C.

The rapid soak holes will extend at least 1m into the free-draining gravel layer, which means they will typically be 4m deep. There will be a minimum of 2m depth between the base of the stormwater treatment system and the groundwater.

5.4 Stormwater Discharge Authorisation

National Environmental Standards (NES) Phase 1 Investigation

Geoscience Consulting (NZ) Ltd.'s preliminary environmental site inspection of 7 February 2013 (NES Phase 1) noted two steel above-ground storage tanks (ASTs) on the block[9]. Their combined amount is expected to be less than 4,000L. The ASTs have contained diesel and petrol, and are therefore a potential HAIL activity; A17 – Storage tanks or drums for fuel, chemicals or liquid waste. ECan is currently reviewing the site's category on the Listed Land Use Register (LLUR), with a site audit by the Contaminated Sites Team planned for a later date. ECan also indicated that when/if the tanks are removed or if the land is to be developed, an environmental investigation will be required as per the NES Phase 2 (MfE, 2012)[10].

NRRP

Note that stormwater discharge post development meets rule WQL6 of the NRRP, because it is not actually listed on the LLUR and the volume of petrol / diesel stored or handled does not exceed the 5,000L threshold in Schedule WQL9. Also, as per

[8] Appendix C: Selwyn District Council Plan Change 32 road cross section for Living Zone 3 (rural residential).
[9] Appendix B: Geoscience Preliminary Environmental Site Inspection Report, 7 February 2013.
[10] Appendix B: ECan Site Statement from the LLUR, ENQ15917, 2 April 2013.

rule WQL6 of the NRRP, no treatment of post construction stormwater is required when the depth to groundwater exceeds 6m[11].

Land and Water Regional Plan (LWRP)
The conditions set out in section 5.72 of the proposed Land Water Regional Plan (LWRP) cannot be met since the discharge may be from or onto *potentially contaminated*[12] land.

Consent Requirements
Therefore, according to the relevant rules in the LWRP the *post construction* discharge is not permitted until further site investigations have occurred. If an NES Phase 2 study shows hydrocarbons in the soils are at or below background concentrations, the post construction discharge can become a permitted activity. Otherwise discharge consent is required and some sort of mitigation of the affected soil is required.

All consents will be obtained prior to works commencing onsite.

An erosion and sediment control plan will be prepared in accordance with ECan guidance documents[13] at the time of Engineering Approval for subdivision. This will outline the types of controls to be put in place to minimise the discharge of contaminants to the environment during construction.

[11] There are exceptions based on the type of activity planned and whether the land is contaminated
[12] *Potentially contaminated* means that part of a site where an activity or industry described in the list in Schedule 3 of the LWRP ("A17 - Storage tanks or drums for fuel, chemicals or liquid waste" is listed) is being or has been undertaken on it; this excludes any site where a detailed site investigation has been completed and reported which demonstrates that any contaminants in or on the site are at, or below, background concentrations.
[13] Environment Canterbury Erosion and Sediment Control Guidelines 2007, with updates 2008

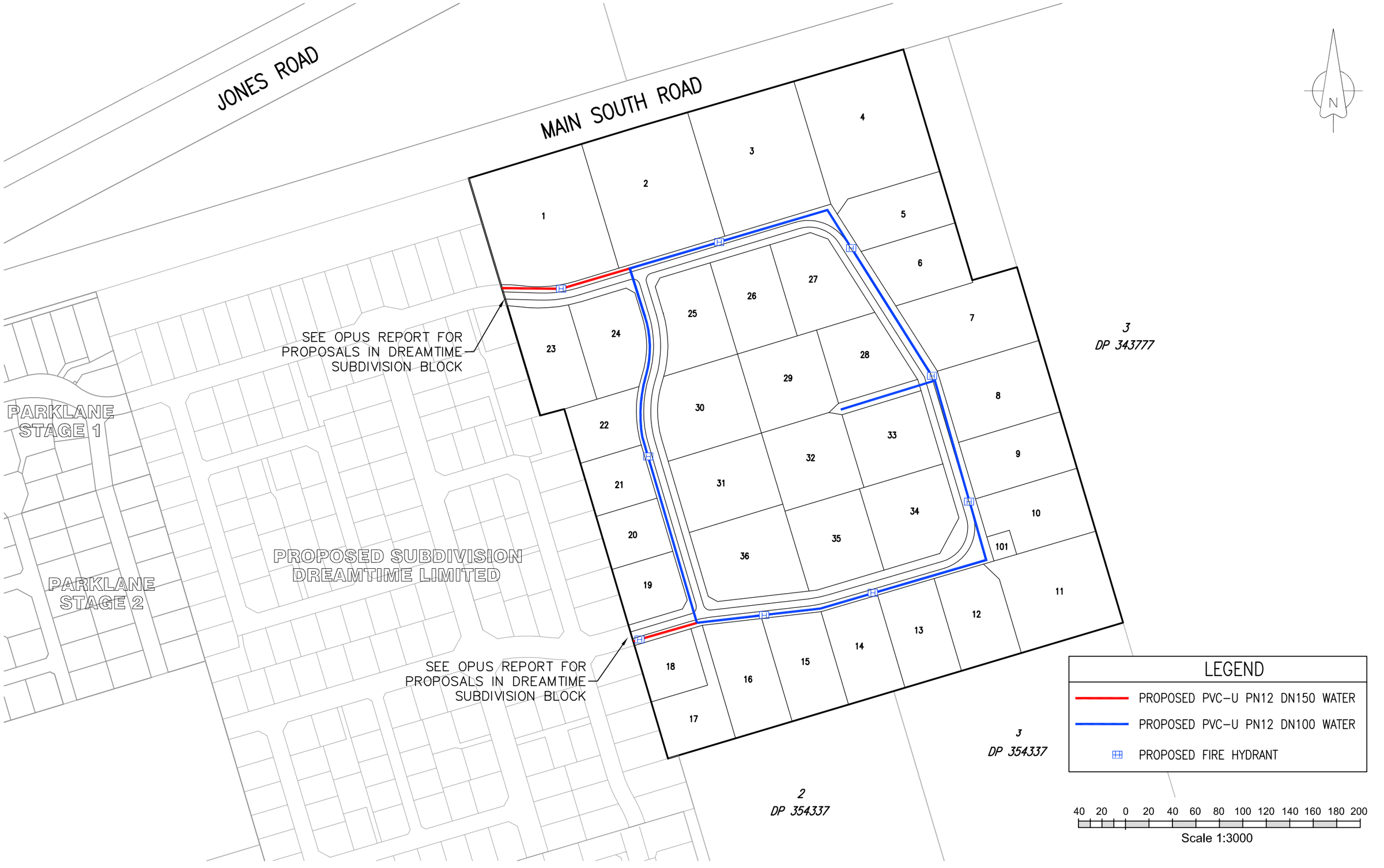
6 Power and Telecommunications

There are existing services in SH1 and from the links in Seymour Place and Kendo Drive (under construction). Orion (electricity) have confirmed that it will be possible for the proposed subdivision to be serviced from the existing reticulation. See correspondence in Appendix D. Enable Ltd (Fibre optic provider) are currently being contacted regarding their servicing; correspondence will be provided once confirmation of reticulation is received.

Appendix A

Drawings

- **Water Proposal**
- **Sewer Proposal and Sewer Options**
- **Stormwater Proposal**



e2environmental CONSULTING ENGINEERS
Level 2,Unit 2/29 Acheron Drive PO Box 31159, Christchurch
P 64 3 358 4955 www.e2environmental.com

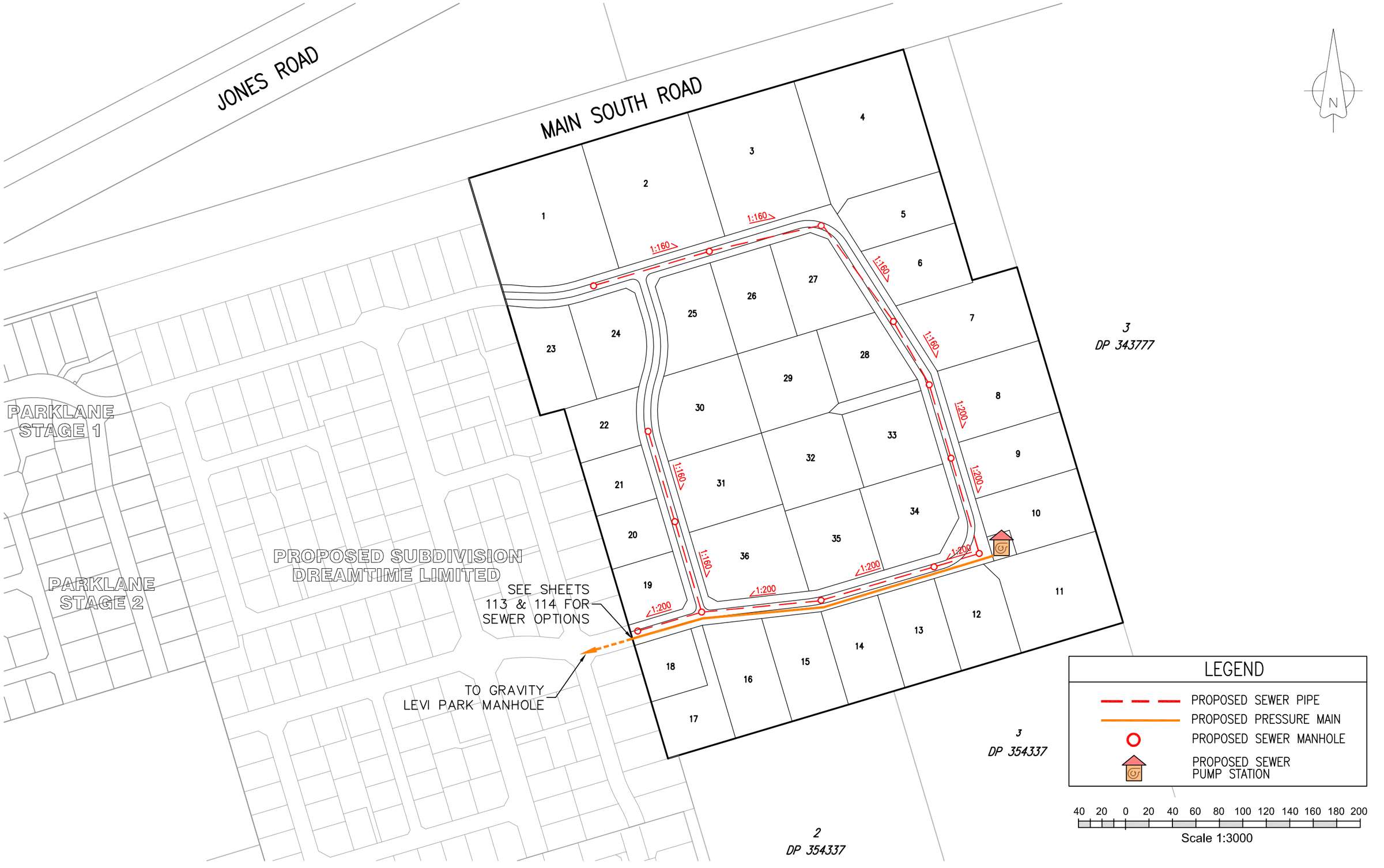
Client
DREAMTIME LIMITED

Project
PLAN CHANGE APPLICATION

Title
WATER CONCEPT

Designed	AJT				
Drawn	ADF		A	FOR APPROVAL	19.6.13 AJT
Checked	AJT		REV	COMMENTS	DATE APR
Approved	AJT		Scale	1:3000 (A3)	Drawing No 11034-03-110 Revision A
Date	JUNE 2013		Sheet	1 of 1	

THIS DESIGN AND DRAWING IS COPYRIGHT OF E2ENVIRONMENTAL LTD AND SHALL NOT BE USED OR REPRODUCED WITHOUT WRITTEN AUTHORITY



e2environmental
CONSULTING ENGINEERS
Level 2,Unit 2/29 Acheron Drive PO Box 31159, Christchurch
P 64 3 358 4955 www.e2environmental.com

Client
DREAMTIME LIMITED

Project
PLAN CHANGE APPLICATION

Title
WASTEWATER CONCEPT

Designed	AJT				
Drawn	ADF		A	FOR APPROVAL	19.6.13 AJT
Checked	AJT		REV	COMMENTS	DATE APR
Approved	AJT		Scale	1:3000 (A3)	Drawing No 11034-03-103 Revision A
Date	JUNE 2013		Sheet	1 of 1	

THIS DESIGN AND DRAWING IS COPYRIGHT OF E2ENVIRONMENTAL LTD AND SHALL NOT BE USED OR REPRODUCED WITHOUT WRITTEN AUTHORITY

EX. STAGE 1a & 9 SEWER TO PUMPSTATION
WILL BE DIVERTED TO EXISTING SEWER
IN PARK LANE ONCE GRAVITY SEWER
IN MAYFAIR STAGE 2 IS COMPLETE

MAIN SOUTH ROAD

JONES ROAD

JONES ROAD

MAIN SOUTH ROAD

MARLOWE PLACE

COLES PLAN
CHANGE BLOCK

DREAMTIME
LIMITED PROPOSED
SUBDIVISION

PARKLANE
PROPOSED
SUBDIVISION

CONNECTION OF DREAMTIME SUBDIVISION
GRAVITY & LEVI PARK GRAVITY
AT MANHOLE IN LEVI PARK

OVERBURY CRES

ROCHESTER CRES

DRYDEN AVE

MAHY PL

DRYDEN AVE

DRYDEN AVE

SHADBOLT LANE

McCAULEY STREET

PROPOSED
MAYFAIR
STAGE 2
SUBDIVISION

LEVI PARK
PROPOSED
SUBDIVISION

CONNECT INTO
EXISTING MANHOLE

BEAUMONT DR

LEVI ROAD

LEVI PARK
PUMPSTATION

CONNECT INTO
EXISTING
MANHOLE

N

LEGEND

- PROPOSED GRAVITY SEWER
- POSSIBLE PUMPSTATION
- PRESSURE MAIN

*GRAVITY LAYOUT IS CONCEPTUAL ONLY IN ALL
BUT PARK LANE STAGES 1,2,3,7 & 9

100 80 60 40 20 0m 100 200 300 400 500

Scale 1:6000

e2environmental CONSULTING ENGINEERS
Level 2,Unit 2/29 Acheron Drive PO Box 31159, Christchurch
P 64 3 358 4955 www.e2environmental.com

Client
DREAMTIME
LIMITED

Project
PLAN CHANGE APPLICATION

Title
SEWER PROPOSAL - OPTION 1
GRAVITY CONNECTION TO LEVI PARK NETWORK

THIS DESIGN AND DRAWING IS COPYRIGHT OF E2ENVIRONMENTAL LTD AND SHALL NOT BE USED OR REPRODUCED WITHOUT WRITTEN AUTHORITY

Designed	AJT				
Drawn	ADF	A	FOR APPROVAL	19.6.13	AJT
Checked	AJT	REV	COMMENTS	DATE	APR
Approved	AJT	Scale 1:6000 (A3)	Drawing No 11034-03-116		Revision A
Date	JUNE 2013	Sheet 1 of 1			

EX. STAGE 1a & 9 SEWER TO PUMPSTATION WILL BE DIVERTED TO EXISTING SEWER IN PARK LANE ONCE GRAVITY SEWER IN MAYFAIR STAGE 2 IS COMPLETE

MAIN SOUTH ROAD

NEW Ø150 GRAVITY SEWER

JONES ROAD

JONES ROAD

MAIN SOUTH ROAD

MARLOWE PLACE

COLES PLAN CHANGE BLOCK

710m PRESSURE MAIN

FUTURE GRAVITY SEWER

DREAMTIME LIMITED PROPOSED SUBDIVISION

GRAVITATE DREAMTIME WASTEWATER TO PUMPSTATION

CONNECT INTO Ø150 VIA LOT 50 PARK LANE ESTATES

PARKLANE PROPOSED SUBDIVISION

OVERBURY CRES

ROCHESTER CRES

DRYDEN AVE

MAHY PL

DRYDEN AVE

DRYDEN AVE

SHADBOLT LANE

PROPOSED MAYFAIR STAGE 2 SUBDIVISION

LEVI PARK PROPOSED SUBDIVISION

McCAULEY STREET

CONNECT INTO EXISTING MANHOLE

BEAUMONT DR

LEVI ROAD

LEVI PARK PUMPSTATION

CONNECT INTO EXISTING MANHOLE

N

LEGEND

- PROPOSED GRAVITY SEWER*
- POSSIBLE PUMPSTATION
- PRESSURE MAIN

*GRAVITY LAYOUT IS CONCEPTUAL ONLY IN ALL BUT PARK LANE STAGES 1,2,3,7 & 9

100 80 60 40 20 0m 100 200 300 400 500

Scale 1:6000

e2environmental CONSULTING ENGINEERS
Level 2,Unit 2/29 Acheron Drive PO Box 31159, Christchurch
P 64 3 358 4955 www.e2environmental.com

Client: DREAMTIME LIMITED

Project: PLAN CHANGE APPLICATION

Title: SEWER PROPOSAL - OPTION 2
PUMPSTATION IN DREAMTIME PLAN CHANGE BLOCK

THIS DESIGN AND DRAWING IS COPYRIGHT OF E2ENVIRONMENTAL LTD AND SHALL NOT BE USED OR REPRODUCED WITHOUT WRITTEN AUTHORITY

Designed	AJT
Drawn	ADF
Checked	AJT
Approved	AJT
Date	JUNE 2013

REV	COMMENTS	DATE	APR
A	FOR APPROVAL	19.6.13	AJT

Scale 1:6000 (A3)

Sheet 1 of 1

Drawing No 11034-03-117

Revision A

e2environmental CONSULTING ENGINEERS
Level 2,Unit 2/29 Acheron Drive PO Box 31159, Christchurch
P 64 3 358 4955 www.e2environmental.com

Client
DREAMTIME LIMITED

Project
PLAN CHANGE APPLICATION

Title
STORMWATER CONCEPT

Designed	AJT					
Drawn	ADF		A	FOR APPROVAL	19.6.13	AJT
Checked	AJT		REV	COMMENTS	DATE	APR
Approved	AJT		Scale	1:3000 (A3)	Drawing No	Revision
Date	JUNE 2013		Sheet	1 of 1	11034-03-108	A

THIS DESIGN AND DRAWING IS COPYRIGHT OF E2ENVIRONMENTAL LTD AND SHALL NOT BE USED OR REPRODUCED WITHOUT WRITTEN AUTHORITY

Appendix B

Reports

- **Opus Subdivision Water Report**
- **Geoscience Preliminary Environmental Site Inspection**
- **ECan Well Bore Logs**

Opus International Consultants Ltd
Christchurch Environmental Office
20 Moorhouse Avenue
PO Box 1482, Christchurch Mail Centre, Christchurch 8140
New Zealand

t: +64 3 363 5400
f: +64 3 365 7858
w: www.opus.co.nz

TO	Peter Harte, Robin Schulz, Murray England
FROM	Dan Johnson
REVIEWED	
DATE	9 Match 2013
FILE	Coles Subdivision Assessment Memo_070313
SUBJECT	Coles Block, Rolleston – Subdivision Assessment

Opus was engaged by E2 Environmental to confirm the potable water main sizes required to service the Coles subdivision and to meet Selwyn District Council's (SDC) levels of service (LOS) and the New Zealand Fire Service (NZFS) firefighting water supplies Code of Practice. The analysis has been carried out in conjunction with SDC to ensure the proposed development is in accordance with SDC's infrastructure planning.

The water main layout for the Coles Block based on the proposed road layout is presented in Figure 1, highlighting the two development types.

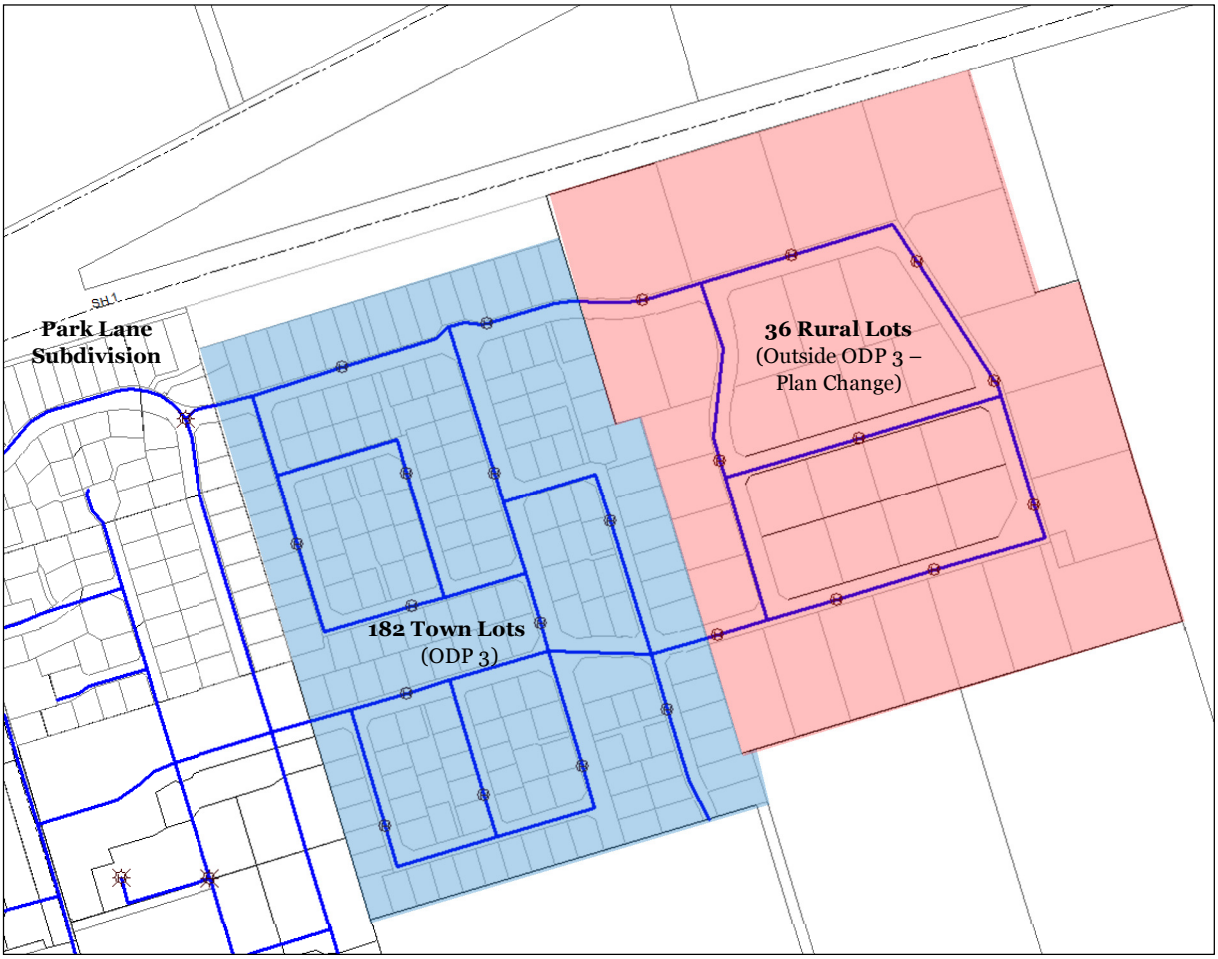


Figure 1: Coles Block Subdivision

Coles Subdivision

The Coles subdivision is located to the east of Rolleston, between Main South Road (SH1) and Levi Road. The development allows for 182 lots within the 20ha western site, positioned east of the new Park Lane subdivision and 36 rural lifestyle blocks ranging from 2,500 to 10,000m^2 situated directly adjacent to the 20ha site. The rural lifestyle block is not part of the current Rolleston Structure Plan (RSP) and not one of the identified outline development plan areas or growth areas, therefore this block will be subject to a plan change.

Demand and leakage values have been assumed to be equivalent to current Rolleston domestic use and losses, as taken from the Rolleston 'Average Day Peak Week' (ADPW) calibrated hydraulic model. For the rural lifestyle block water demand has been factored using land size and Rolleston ADPW demand, and verified against the Aberdeen Road subdivision in Prebbleton which has similar size sections and uses approximately 25m^3 per customer/property.

A breakdown of the water demands applied to the Coles subdivision are summarised in Table 1, a leakage rate of 311 Litres/property/day (L/p/d) has been allowed for each property.

Table 1: Coles Subdivision Water Demand

Section	ADPW Demand (m^3)	No. of lots
Town	3	182
2,500	10	16
4,000	15	5
5,000	22	6
7,500	25	5
10,000	30	4

SDC Levels of Service

Pipework for the Coles subdivision has been sized to ensure SDC LOS and fire flow demands can be achieved. The development was assessed to ensure pressure was maintained above 310 kPa during peak hour demand, and fire flows of 25L/s were available at 60% of peak demand.

The proposed pipe sizes to meet the LOS are displayed in Figure 2 and assumed that the pipes are PVC-U PN12 DN100 or DN150.

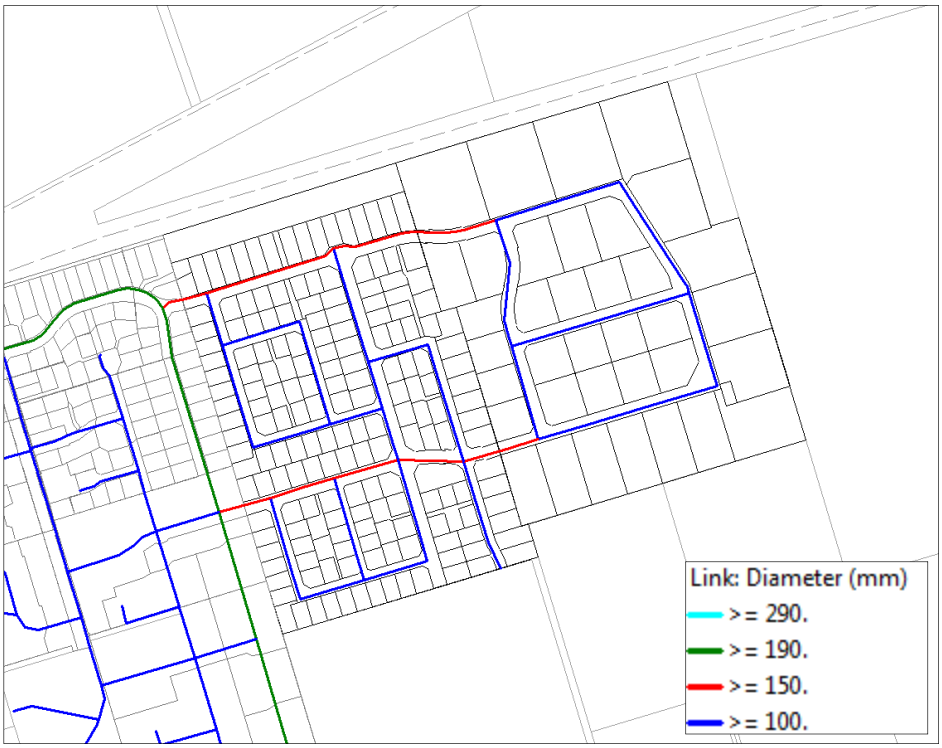


Figure 2: Proposed Pipe sizes and Layout

The minimum pressure experienced during peak hour of the ADPW day is shown in Figure 3. It highlights that across the entire Coles Block the pressure falls below 310kpa during peak demand to approximately 250kpa. The available pressure at the connection point to the Coles Block, off the new DN200 main from Park Lane is <310kpa at peak hour as shown in Figure 4.

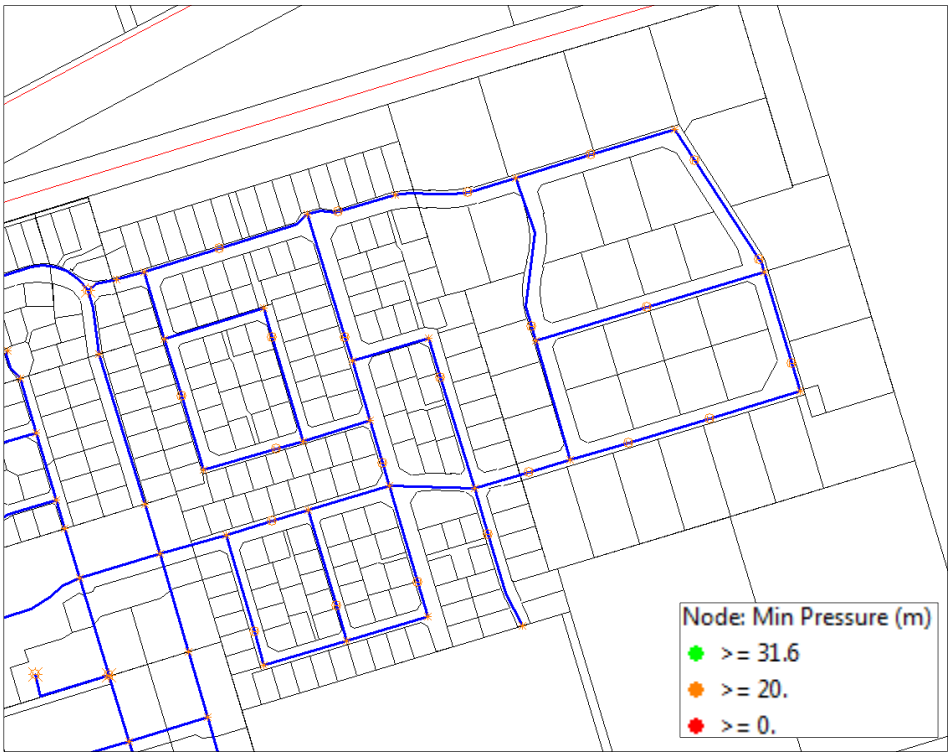


Figure 3: Coles Block Minimum Pressure

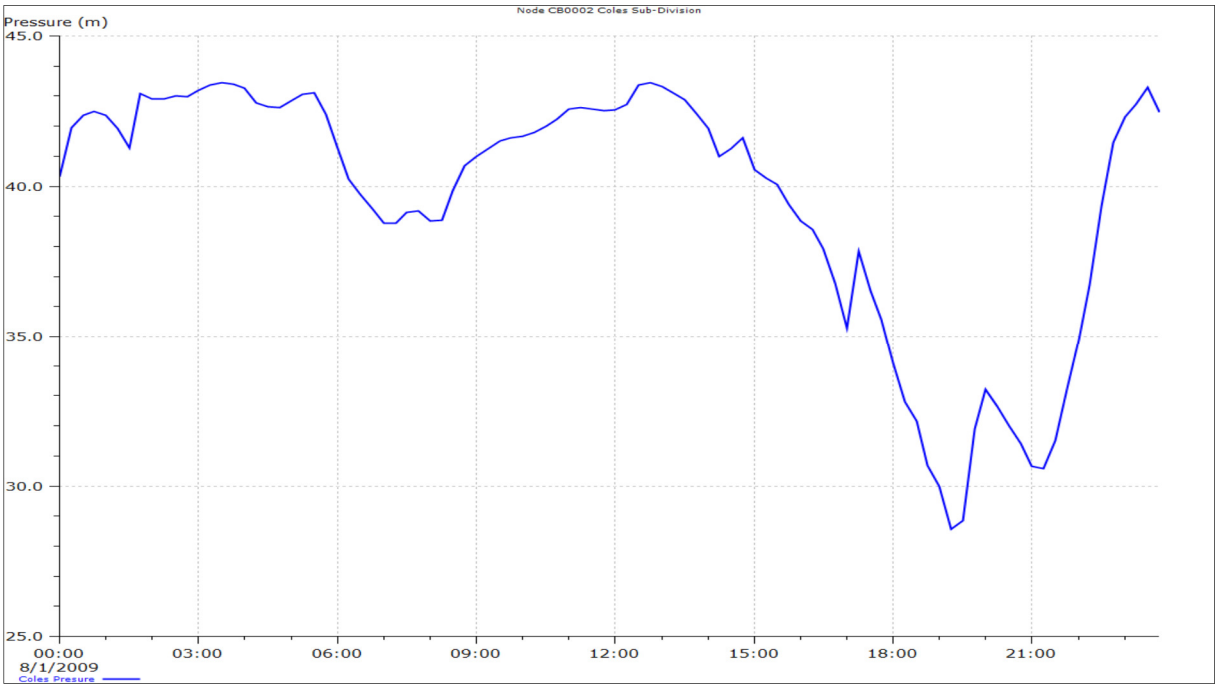


Figure 4: Coles Block Connection Diurnal Pressure

Hydrants were added to the model at 135m spacing and at critical points. The fireflow has been assessed against FW2 (25 L/s) at 60% of peak hour demand (15:30 and 16:30) in accordance with SNZ PAS 4509:2008.

The pressure was located at the critical point (highest elevation/ furthest point), and the available pressure and flow at hydrant CB0042 as shown in Figure 5. The hydrant can provide the 25L/s and 10m residual pressure required.

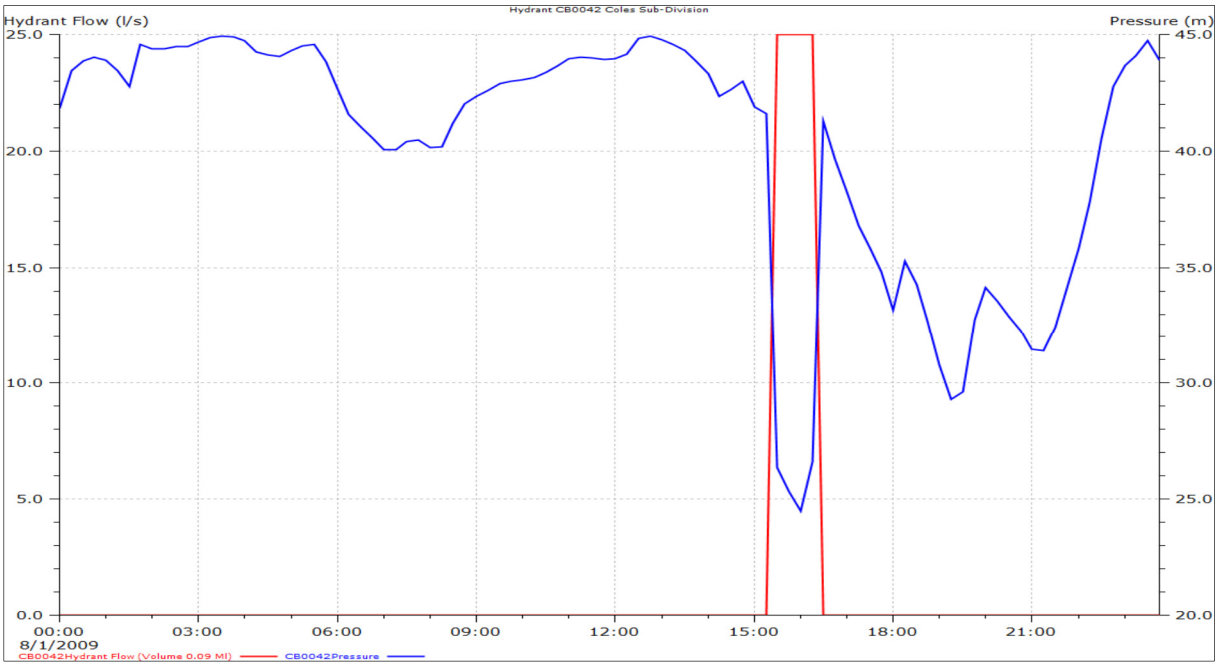


Figure 5: Critical Hydrant Available Flow and Pressure

Growth and Infrastructure Planning

Rolleston is experiencing significant growth which has been further heightened by the Canterbury earthquakes, and the urgent need for residential land to build new homes in the Christchurch region.

Master planning carried out for SDC in 2011 allowed for the full development of the ODPs and known developments that were in the planning process. The Park Lane subdivision was not allowed for in the original master planning, however the development of 332 properties has since been approved. The Coles Block and the remaining undeveloped areas of ODP3 will stress the network to a point where LOS cannot be achieved, as indicated by the available pressure to the Coles Block shown in Figure 4.

To improve LOS to the eastern frame of Rolleston it is recommended that the existing PVC-U DN200 on Jones Road is extended (670m) across the railway line and SH1 to connect into PVC-U DN200 on Park Lane. This will provide further resilience to the Rolleston network, by increasing the number of mains crossing under the railway/SH1. Cost sharing options should be discussed with SDC to agree the appropriate developer contributions to ensure future growth can proceed.

Figure 6 shows the ODP areas and the proposed upgrade to provide additional capacity to ODP 3 and surround area to meet LOS.

Figure 6: Rolleston Development Stages

Recommendations

Further development of Rolleston east to allow the Coles subdivision plus the remaining 302 properties from ODP3 will require trunk main upgrades and new wells to service the increased water demand. It is recommended that the Coles Block discuss with SDC the appropriate cost sharing options for new/upsizing infrastructure to service the subdivision, particularly in support of any plan change.

It is recommended that SDC revisit the current master planning to include recent subdivisions (incl. Coles Block)/growth areas to determine the infrastructure required to service these developments as well as meet future growth projections. The timing of new wells and trunk mains will need to be identified to ensure that growth can proceed at the current rate.

The Coles rural block will be subject to a plan change, however it is recommended that this be allowed for in the master planning and a better understanding of water demand rates be determined. As Rolleston has universal metering and are billed on use above a fixed rate, it is unlikely that water usage will be to the high levels to that experienced in the Aberdeen Road subdivision. In the early stages of development, it is possible that there will be high water usage as gardens/properties are established.

Preliminary Environmental Site Inspection

1535 MAIN SOUTH ROAD
ROLLESTON, CHRISTCHURCH

SUBMITTED TO:

NIMBUS GROUP

22 FOSTER ST

PO BOX 8394

RICCARTON

Christchurch

7 February 2013

DISTRIBUTION

1 Copy	–	Nimbus Group
1 Copy	–	Geoscience Consulting (NZ) Ltd

Geoscience Consulting (NZ) Limited
5 Norwich Quay, Lyttelton 8082, New Zealand
PO Box 110, Lyttelton 8841, New Zealand
T (+64) (3) 328 9012 F (+64) (3) 328 9013
www.nzgeoscience.co.nz

CONTENTS

1	INTRODUCTION	3
1.1	Objectives of the Assessment	3
1.2	Approach	3
1.2.1	Review of Site Information	3
1.2.2	Site Inspection	3
2	SITE DESCRIPTION	3
2.1	Site Setting	4
3	SITE HISTORY	4
4	CURRENT SITE CONDITIONS	6
5	POTENTIAL HAIL LIST ACTIVITIES	6
6	CONCEPTUAL SITE MODEL	6
7	CONCLUSIONS	7
8	RECOMMENDATIONS	7
9	REFERENCES	7
10	LIMITATIONS	7

FIGURES

Figure 1: Site Location Plan

Figure 2: 1942 Aerial Photograph

Figure 3: 1974 Aerial Photograph

APPENDICES

Appendix 1: CRC LLUR Statement

Appendix 2: Site Photographs

1 INTRODUCTION

Geoscience Consulting (NZ) Ltd (Geoscience) was requested by Nimbus Group to undertake a preliminary environmental site inspection (PSI) at 1535 Main South Road, Rolleston, Christchurch.

Figure 1 indicates the location of the property. Geoscience understands that the 40.6 ha site is to be subdivided and requires a preliminary site inspection to satisfy Selwyn District Council requirements

This PSI was undertaken in accordance with Ministry for the Environment (MfE) 2001, Guidelines for Reporting on Contaminated Sites[1].

1.1 Objectives of the Assessment

The objective of this PSI was to assess the potential for contaminants to have been deposited at the site as a result of historic activities undertaken within or in the immediate vicinity of the property and report on the potential risk posed to future site users.

1.2 Approach

To satisfy the objectives, Geoscience undertook the following scope of work:

1.2.1 Review of Site Information

A number of sources were contacted for information relating to the site regarding its past and present uses and to identify any other environmental issues which may be on record. This included contacting Canterbury Regional Council (CRC) to determine if there were any records on the Listed Land Use Register (LLUR) and reviewing records held by Selwyn District Council including the property file and dangerous goods file. A review of a number of historic and current aerial photographs was also undertaken using images from NZ Aerial Mapping and Google Earth.

1.2.2 Site Inspection

A brief site walkover was undertaken on 24th January 2013 by Hazel Atkins of Geoscience Consulting Ltd. Objective evidence was collected through discussions with the site owner, Bruce and Michelle Coles, as well as observations of activities and conditions present at the site.

2 SITE DESCRIPTION

A summary of the site identification information is given in Table 1 below:

Table 1: Summary of Site Description

Item	Description
Location:	1535 Main South Road, Rolleston
Legal Description:	Lot 3 and Lot 4 DP74253
Current Owner:	Bruce and Michelle Coles
Current Site Use:	Agricultural and residential
Proposed Site Use:	Living Z on Lot 3 and Rural Residential on Lot 4. The site is to be subdivided into 36 sections.
Site Area:	40.6 ha
Building Construction:	Residential building and attached double garage: weatherboard; iron roof;

Item	Description
	concrete perimeter footings. Four farm buildings/hay barns: corrugated iron. Grain stores. Old school building (used for storage): weatherboard, light iron. Feed/animal shelters: light iron.
Local Authority:	Selwyn District Council
Zoning:	Lot 3 is Living Z. Lot 4 is Inner Plains

2.1 Site Setting

A summary of the site's setting is given in Table 2 below:

Table 2: Site Setting

Item	Description
Topography	Site is flat
Local Setting	The surrounding is agricultural with a residential subdivision to the south west.
Surface Water Receptors	Unnamed land drains to the north of the site
Geology[2]	Alluvial gravel
Hydrogeology[3]	Groundwater flow is predominantly to the south east. The site is over an unconfined or semi-confined aquifer.
Groundwater Abstractions[3]	There is one current groundwater abstraction located on the site: M36/0259: Coles; Main South Road; irrigation and water level observation. CRC011085: Coles; Main South Road; to take and use groundwater. There are a number of groundwater abstractions located within 150m of the site: M36/4040: N Welbeloved; Main South Road; domestic supply. M36/7763: Lowes Road Holdings Ltd; Lowes Road; domestic and stockwater irrigation.
Discharge Consents[3]	There are no current discharge consents located on the site. There are a number of discharge consents located within 150 m of the site. These are for the Park Lane Estate subdivision, which is located east of the site, and are for the discharge of stormwater to land.

3 SITE HISTORY

A number of sources were used to investigate the past uses of the site. The findings of these information searches have been summarised in this section.

Table 3: Site History

Item	Description
Discussion with site owner	A letter received from the Coles states that they have been on the property since 1990. They originally farmed pigs but changed to sheep grazing when they realised the land was better suited to them. They occasionally grow peas, for their own consumption, and oats. Horses are

Item	Description
	also grazed on the site. The main use of the site is for hay making. The site historically has been used for sheep grazing.

Table 4: Review of Selwyn District Council Property File

Date	Description
10/12/1984	Building consent to install a tractor/equipment shed
16/09/1993	Application for a septic tank effluent disposal system
12/10/1994	Application for a solid fuel heater

Table 5: Summary of Canterbury Regional Council Listed Land Use Register (CRC LLUR)

Period From	Period To	HAIL Activity (s)	LLUR Category
-	-	None	None
Additional Information		There is one report associated with the site, as it has not yet been audited; the site has not been awarded a LLUR category. The report is by Tonkin and Taylor and is dated January 2011. The report is a desk-based ground contamination assessment for Selwyn District Council regarding planned land zone changes. The report investigated 6 sites around the Rolleston area and identified possible contaminants. No specific contaminants were listed for the site.	

Aerial photographs dating from 1942 to 2011 have been reviewed (refer to Figures 2 and 3). In summary the aerial photographs show:

Table 6: Aerial Photographs

Date	Figure No.	Description
1942	2	The site is being used for both agricultural and residential purposes. The residential and farm buildings are located in the north-eastern corner of the site. The remainder of the site is used for grazing and cropping purposes. There are a number of feeding areas which can be seen in the paddocks. The surrounding area is predominantly agricultural with associated residential buildings.
1974	3	The site is being used for both agricultural and residential purposes. The residential and farm buildings remain in the north-eastern corner. The remainder of the site is still used for grazing and cropping purposes. The feeding areas can no longer be seen. The surrounding area is predominantly agricultural with associated residential buildings.
2012	Google Earth	The site is predominantly agricultural with the residential property and farm buildings situated in the north-eastern corner. The surrounding area is mainly residential to the west of the site and agricultural to the north, south and east.

4 CURRENT SITE CONDITIONS

A site inspection was undertaken on the 24th January 2013 by Hazel Atkins of Geoscience Consulting Ltd. The information gathered is summarised below:

Table 7: Current Site Conditions

Site Condition	Comments
Visible signs of contamination	No visible signs of contamination were noted at the site.
Surface water appearance	No surface water observed at the site.
Current surrounding land use	Surrounding land use is a mix of agricultural and residential with the land to the west of the site being redeveloped as a residential subdivision.
Condition of buildings and roadways	Buildings and roadways in good condition.
Local sensitive environments	There are no sensitive environments.
Visible signs of plant stress	No visible signs of plant stress were noted at the site.
Conditions at site boundary	Stable with no signs of erosion.
Additional Observations (if any)	Two above ground storage tanks (ASTs) were observed on the site with the pumps located directly beneath them. The location of the tanks can be seen in Figure 1. No staining was observed around the tanks. The site also has a horse trotting track of approximately 1 year old. The track comprised mainly sand with some gravel.

5 POTENTIAL HAIL LIST ACTIVITIES

Activities included on the Hazardous Activities and Industries List (HAIL)[4] trigger the requirement for a contaminated land investigation prior to development. The two above ground storage tanks represent a HAIL activity; A17 – Storage tanks or drums for fuel, chemical or liquid waste.

6 CONCEPTUAL SITE MODEL

A contamination conceptual site model consists of three primary components to allow the potential for risk to be determined, these are:

- Source of contamination;
- Pathway to allow the contamination to mobilise; and
- Sensitive receptors which may be impacted by the contamination.

Table 8: Conceptual Site Model

Source	Pathway	Receptor
Above-ground Storage Tanks - hydrocarbons	Surface/groundwater Direct contact, inhalation, and ingestion.	Current/Future residents, future site workers and development contractors.
Risk of Contamination	Low - Medium – The above-ground storage tanks located on the site are a potential source of contamination. The tanks were in good condition with only slight rusting visible. There is no information on the LLUR of their existence.	

The above ground storage tanks are located south of the residential buildings on the site. After discussions with the client, Geoscience understands that this area is to remain as residential/agricultural land. Therefore, the area to be subdivided into residential land is considered to have a low risk of contamination due to the distance and lack of pathways which could transport the contamination onto the development site.

7 CONCLUSIONS

The information collected and the historic aerial photographs indicate an agricultural grazing and residential past. There is no reported evidence which suggests the presence of sheep dips, large scale pesticide application or waste disposal operations at the site.

The information reviewed indicates that the surrounding area is a mix of residential and agricultural.

The CRC LLUR found no specific listed land uses on the site. The Selwyn District Council property file has no records indicating that any potentially contaminative activity has occurred on the property.

During the site inspection, two above-ground storage tanks were observed south of the residential property. The tanks contained diesel and petrol and are used for farm machinery. The ASTs are listed on the HAIL as category A17 – Storage tanks or drums for fuel, chemicals or liquid waste. Discussions with the client about the subdivision revealed that this area is to remain agricultural/residential. Therefore, the risk to the future subdivision of the land to residential land use is considered low due to the distance and lack of pathways which could transport the contamination onto the development site.

Based on the information gathered, we conclude that the potential for soil and water contamination at the site, in its existing state, is low and is suitable for the intended residential land use.

The area that is remaining agricultural/residential will need further investigation if its land use is to be changed in the future.

8 RECOMMENDATIONS

No further environmental work is required on the land to be subdivided for residential end use at 1535 Main South Road, Rolleston.

Information about the ASTs should be added to the CRC LLUR, the locations are shown in Figure 1.

9 REFERENCES

1 MfE 2011: Contaminated Land Management Guidelines No.1 : Reporting on Contaminated Sites in New Zealand;
2 Forsyth, P.J.; Barrell, D.J.A; Jongens, R. 2008: Sheet 16 - Geology of the Christchurch Area 1:250,000. Institute of Geological and Nuclear Sciences, Lower Hutt.
3 ECan 2012: Environment Canterbury on-line GIS Database. http://ecan.govt.nz/services/online-services/gis-mapping/Pages/enter-gis.aspx
4 MfE Oct 2011: Ministry for the Environment Hazardous Activities and Industries List.

10 LIMITATIONS

i. We have prepared this report in accordance with the brief as provided. This report has been prepared for the use of our client, Nimbus Group, their professional advisers and the relevant Territorial Authorities in relation to the specified project brief described in this report. No liability is

accepted for the use of any part of the report for any other purpose or by any other person or entity.

ii. The recommendations in this report are based on the ground conditions indicated from published sources, site inspections and subsurface investigations described in this report based on accepted normal methods of site investigations. Only a limited amount of information has been collected to meet the specific financial and technical requirements of the Client's brief and this report does not purport to completely describe all the site characteristics and properties. The nature and continuity of the ground between test locations has been inferred using experience and judgement and it must be appreciated that actual conditions could vary from the assumed model.

iii. Subsurface conditions relevant to construction works should be assessed by contractors who can make their own interpretation of the factual data provided. They should perform any additional tests as necessary for their own purposes.

iv. This Limitation should be read in conjunction with the IPENZ/ACENZ Standard Terms of Engagement.

v. This report is not to be reproduced either wholly or in part without our prior written permission.

We trust that this information meets your current requirements. Please do not hesitate to contact the undersigned on 03 328 9012 if you require any further information.

For and on behalf of Geoscience Consulting (NZ) Ltd,

Hazel Atkins

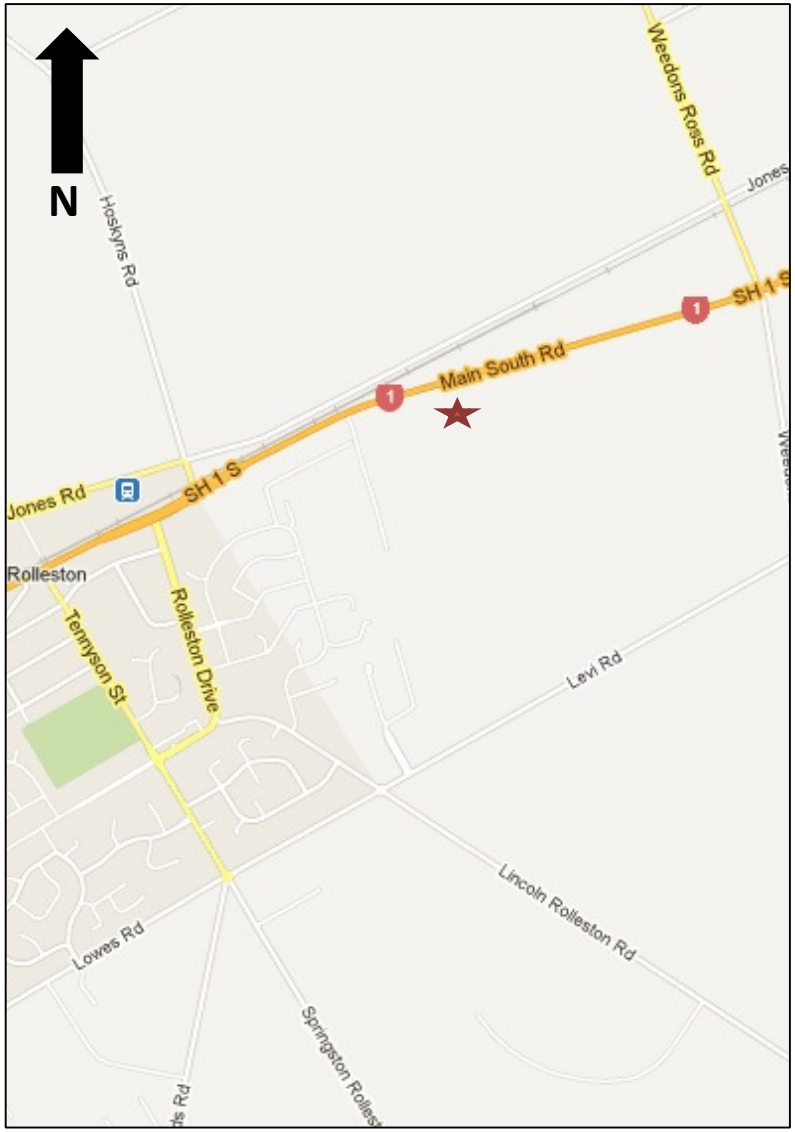
Engineering/Environmental Geologist

Dave Robotham

Senior Environmental Consultant

FIGURES

Geoscience Consulting (NZ) Limited
5 Norwich Quay, Lyttelton 8062, New Zealand
PO Box 110, Lyttelton 8841, New Zealand
T (+64) (3) 328 9012 F (+64) (3) 328 9013
www.nzgeoscience.co.nz



Note: Location map sourced from Google
Aerial Photograph sourced from Koordinates

GEOSCIENCE
A proud member of ENGEO

Date	Jan-13	**Client**	**K & J Adcock**		
Drawn by	HA	**Project**	**1535 Main South Road, Rolleston**		
Approved by	DR	**Description**	**Site Location Plan**		
Scale	NTS	**Figure Number**	1	**Project Number**	09954_1

Note: Aerial photographs sourced from NZ Aerial Mapping

GEOSCIENCE
A proud member of ENGEO

Date	Jan-13	**Client**	**K & J Adcock**		
Drawn by	HA	**Project**	**1535 Main South Road, Rolleston**		
Approved by	DR	**Description**	**1942 Aerial Photograph**		
Scale	NTS	**Figure Number**	2	**Project Number**	09954_1

Note: Aerial photographs sourced from V C Browne

GEOSCIENCE
A proud member of ENGEO

Date	Jan-13	**Client**	**K & J Adcock**		
Drawn by	HA	**Project**	**1535 Main South Road, Rolleston**		
Approved by	DR	**Description**	**1973 Aerial Photograph**		
Scale	NTS	**Figure Number**	3	**Project Number**	09954_1

APPENDIX 1

CRC LLUR Statement

Geoscience Consulting (NZ) Limited
5 Norwich Quay, Lyttelton 8062, New Zealand
PO Box 110, Lyttelton 8841, New Zealand
T (+64) (3) 328 9012 F (+64) (3) 328 9013
www.nzgeoscience.co.nz

Statement from the Listed Land Use Register

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

58 Kilmore Street, PO Box 345, Christchurch
General enquiries: 03 365 3828 Customer services: 03 353 9007
Fax: 03 365 3194 or: 0800 EC INFO (0800 324 636)
Email: ecinfo@ecan.govt.nz Website: www.ecan.govt.nz

Date:	14 January 2013
Land Parcels:	• Lot 4 DP 74253 Valuation No(s): 2405500700

Summary of sites:

There are no sites associated with the area of enquiry.

Please note that the above table represents a summary of sites intersecting the area of enquiry within a 100m buffer.

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** Tonkin and Taylor Ltd
23 Nov 2012	**INV 14520: GW Rolleston Ltd - Preliminary Site Investigation Report - 116 Levi Road, Rolleston** Spiire

Summary of above Investigations

Report(s) have not yet been audited.

For further information from Environment Canterbury, contact the Contaminated Sites Officer and refer to enquiry number 14639.

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).

This information reflects Environment Canterbury's current understanding of this site, which is based only on the information thus far obtained by it and held on record concerning this site. It is released only as a copy of those records and is not intended to provide a full, complete or totally accurate assessment of the site. As a result, Environment Canterbury is not in a position to warrant that the information is complete or without error and accepts no liability for any inaccuracy in, or omission from, this information.

Any person receiving and using this information is bound by the provisions of the Privacy Act 1993.

APPENDIX 2

Site Photographs

Geoscience Consulting (NZ) Limited
5 Norwich Quay, Lyttelton 8062, New Zealand
PO Box 110, Lyttelton 8841, New Zealand
T (+64) (3) 328 9012 F (+64) (3) 328 9013
www.nzgeoscience.co.nz

Photo 1: Old school house used for storage

Photo 2: Above ground diesel tank

Photo 3: Above ground petrol tank

Photo 4: Site looking south-west

Photo 5: Horse trotting track

Photo 6: Agricultural farm area

GEOSCIENCE
A proud member of ENGEO

Date taken	Jan-12	**Client**	**Nimbus Group Limited**		
Taken by	HA	**Project**	**1535 Main South Road, Rolleston**		
Approved by	DR	**Description**	**Site Photographs**		
Scale	N/A	**Photo No.**	1 to 6	**Project Number**	9954

Bore or Well No: M36/0155
Well Name:
Owner: WATSON .D.

Environment Canterbury
Your regional council

Street of Well: MAIN SOUTH RD
Locality: WEEDONS
NZGM Grid Reference: M36:618-354 QAR 4
NZGM X-Y: 2461800 - 5735400
Location Description: BESIDE PUMP SHED
ECan Monitoring:
Well Status: Casing Retrieved / Abandoned

File No:
Allocation Zone: Selwyn-Waimakariri
Uses:

Drill Date: 18 Aug 1969
Well Depth: 52.10m -GL
Initial Water Depth: -17.60m -MP
Diameter: 203mm

Water Level Count: 0
Strata Layers: 8
Aquifer Tests: 0
Isotope Data: 0
Yield/Drawdown Tests: 1

Measuring Point Ait: 49.21m MSD QAR 4
GL Around Well: 0.00m -MP
MP Description:

Highest GW Level:
Lowest GW Level:
First Reading:
Last Reading:

Driller: A M Bisley & Co
Drilling Method: Cable Tool
Casing Material: NOT LINED
Pump Type: Unknown
Yield: 4 l/s
Drawdown: 13 m
Specific Capacity: 0.29 l/s/m

Calc. Min. GWL: -19.50m -MP
Last Updated: 24 Aug 1995
Last Field Check:

Screens:
Screen Type: Galvanised (Nold)
Top GL: 43.10m
Bottom GL: 52.10m

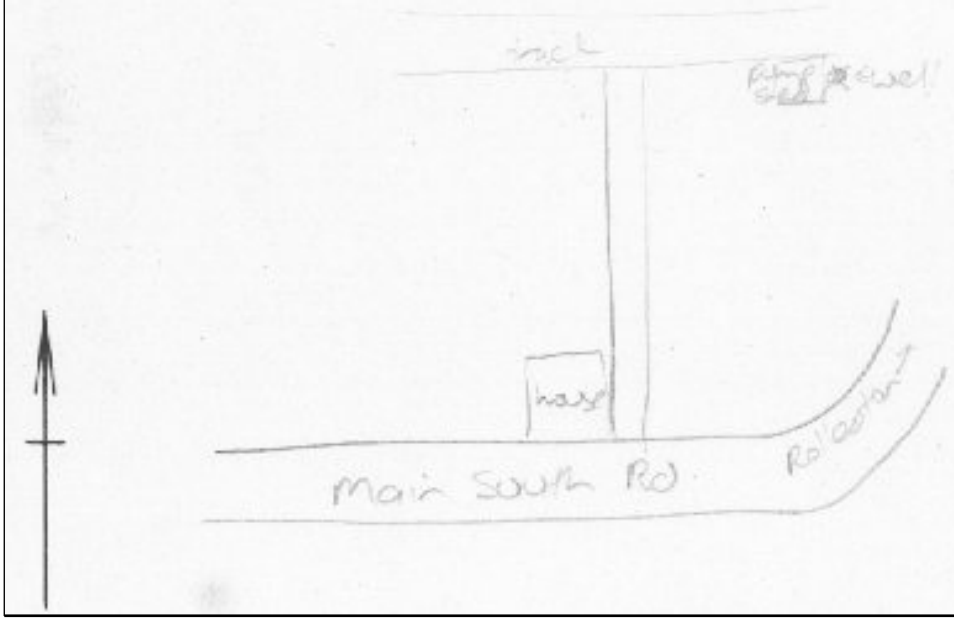
Aquifer Type: Unknown
Aquifer Name:

Date	Comments
	CASING PULLED OUT

LOCATION SKETCH

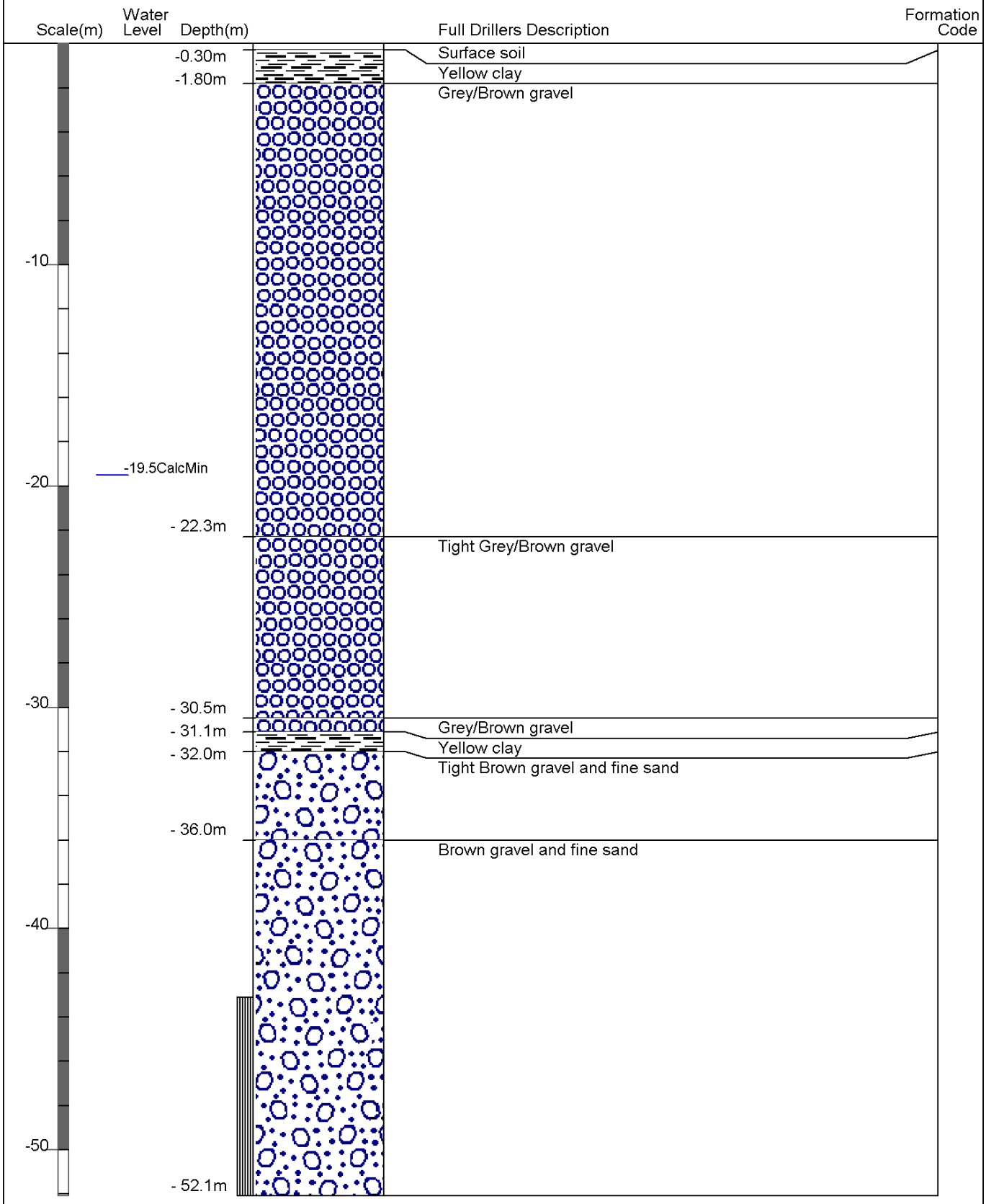
see M36/2495

M36/0155



Borelog for well M36/0155

Gridref: M36:618-354 Accuracy : 4 (1=best, 4=worst)
Ground Level Altitude : 51 +MSD
Driller : A M Bisley & Co
Drill Method : Cable Tool
Drill Depth : -52.09m Drill Date : 18/08/1969



Bore or Well No: M36/4040
Well Name:
Owner: WELBELOVED .N.

Environment Canterbury
Your regional council

Street of Well: MAIN SOUTH RD
Locality: WEEDONS
NZGM Grid Reference: M36:6191-3575 QAR 4
NZGM X-Y: 2461910 - 5735750
Location Description:
ECan Monitoring:
Well Status: Active (exist, present)

File No:
Allocation Zone: Selwyn-Waimakariri
Uses: Domestic Supply

Drill Date: 22 May 1989
Well Depth: 54.00m -GL
Initial Water Depth: -19.20m -MP
Diameter: 150mm

Water Level Count: 0
Strata Layers: 7
Aquifer Tests: 0
Isotope Data: 0
Yield/Drawdown Tests: 0

Measuring Point Ait: 50.61m MSD QAR 3
GL Around Well: 0.00m -MP
MP Description:

Highest GW Level:
Lowest GW Level:
First Reading:
Last Reading:

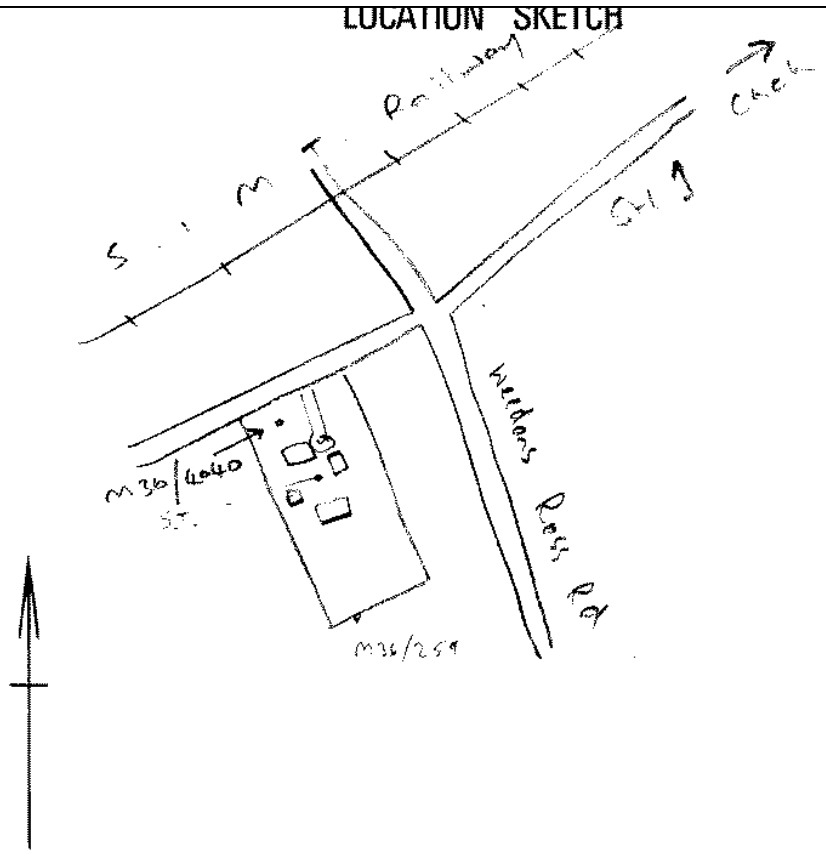
Driller: McMillan Water Wells Ltd
Drilling Method: Rotary/Percussion
Casing Material: STEEL
Pump Type: Submersible
Yield: 0 l/s
Drawdown: 0 m
Specific Capacity:

Calc. Min. GWL: -20.20m -MP
Last Updated: 14 Sep 1995
Last Field Check:

Screens:
Screen Type: Stainless steel
Top GL: 52.00m
Bottom GL: 54.00m

Aquifer Type: Unknown
Aquifer Name:

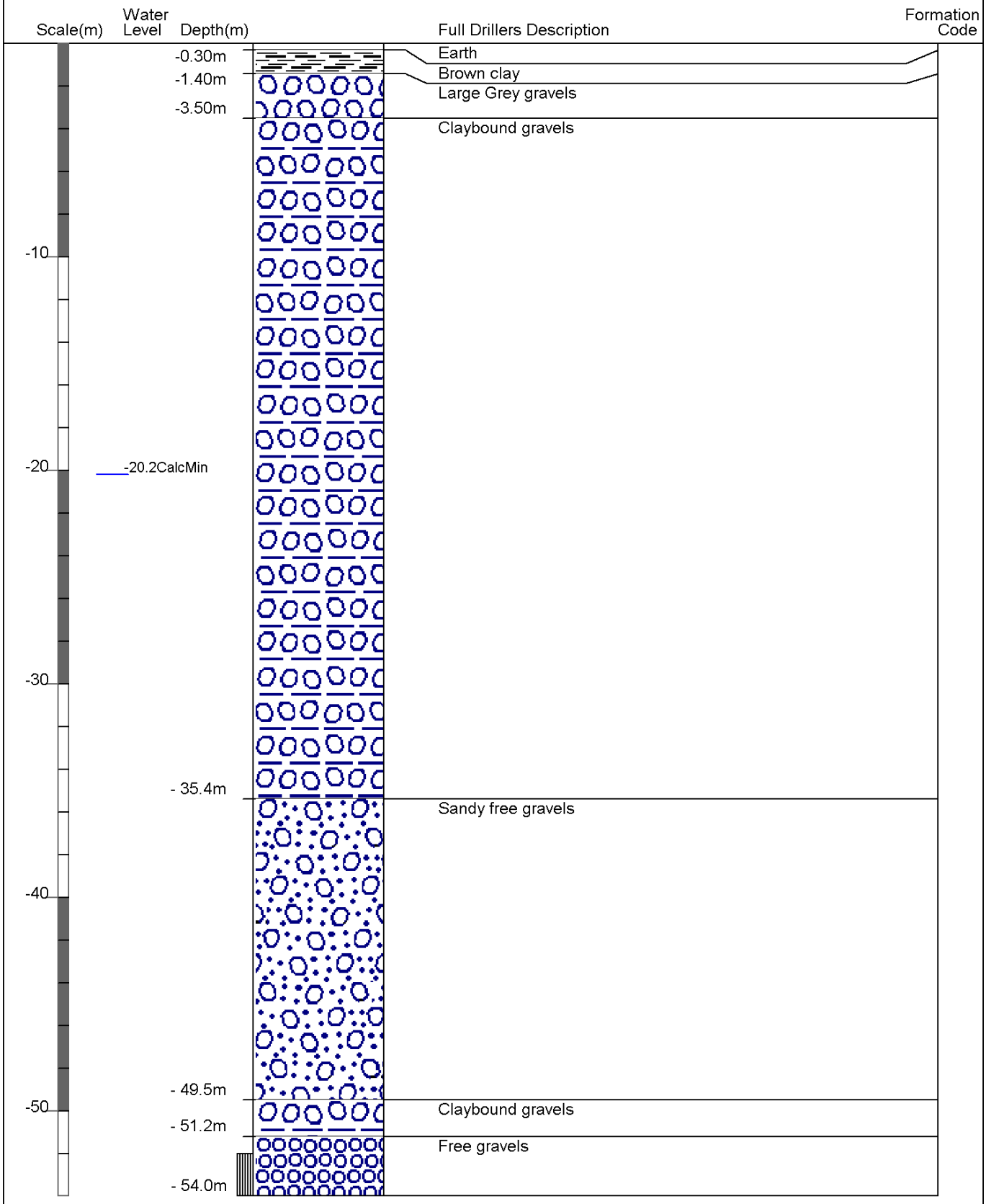
LOCATION SKETCH



OTHER DATA

Borelog for well M36/4040

Gridref: M36:6191-3575 Accuracy : 4 (1=best, 4=worst)
Ground Level Altitude : 50.61 +MSD
Driller : McMillan Water Wells Ltd
Drill Method : Rotary/Percussion
Drill Depth : -54m Drill Date : 22/05/1989



Bore or Well No: M36/0259
Well Name:
Owner: Mr & Mrs B C & M A Coles

Environment Canterbury
Your regional council

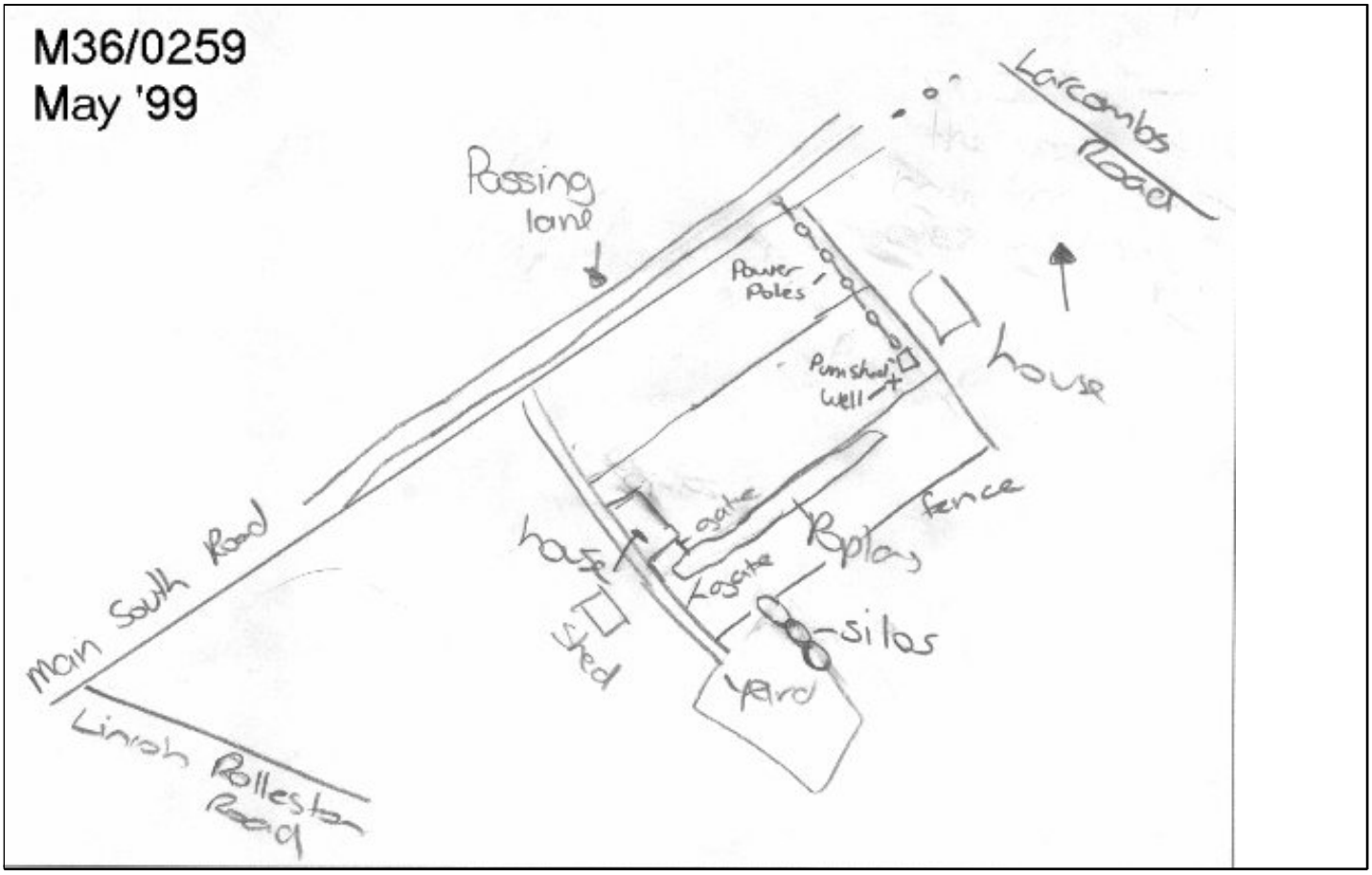
Street of Well: MAIN SOUTH RD
File No: CO6C/00415
Locality: ROLLESTON
Allocation Zone: Selwyn-Waimakariri
NZGM Grid Reference: M36:61915-35646 QAR 2
NZGM X-Y: 2461915 - 5735646
Location Description: SEE M36/2495
Uses: Irrigation
ECan Monitoring: Water Level Observation
Well Status: Active (exist, present)

Drill Date: 09 May 1973
Water Level Count: 130
Well Depth: 61.60m -GL
Strata Layers: 16
Initial Water Depth: -15.65m -MP
Aquifer Tests: 0
Diameter: 200mm
Isotope Data: 0
Yield/Drawdown Tests: 1

Measuring Point Ait: 51.06m MSD QAR 2
Highest GW Level: 9.90m below MP
GL Around Well: -0.20m -MP
Lowest GW Level: 19.80m below MP
MP Description: ToC
First Reading: 23 Sep 1974
Last Reading: 12 May 2008
Driller: McMillan Water Wells Ltd
Calc. Min. GWL: -19.52m -MP
Drilling Method: Cable Tool
Last Updated: 12 May 2008
Casing Material: STEEL
Last Field Check: 12 May 2008
Pump Type: Unknown
Yield: 13 l/s
Screens:
Drawdown: 20 m
Screen Type: Slotted Casing
Specific Capacity: 0.65 l/s/m
Top GL: 51.60m
Bottom GL: 56.10m
Aquifer Type: Unknown
Screen Type: Galvanised (Nold)
Aquifer Name: Linwood Gravel
Top GL: 58.60m
Bottom GL: 61.60m

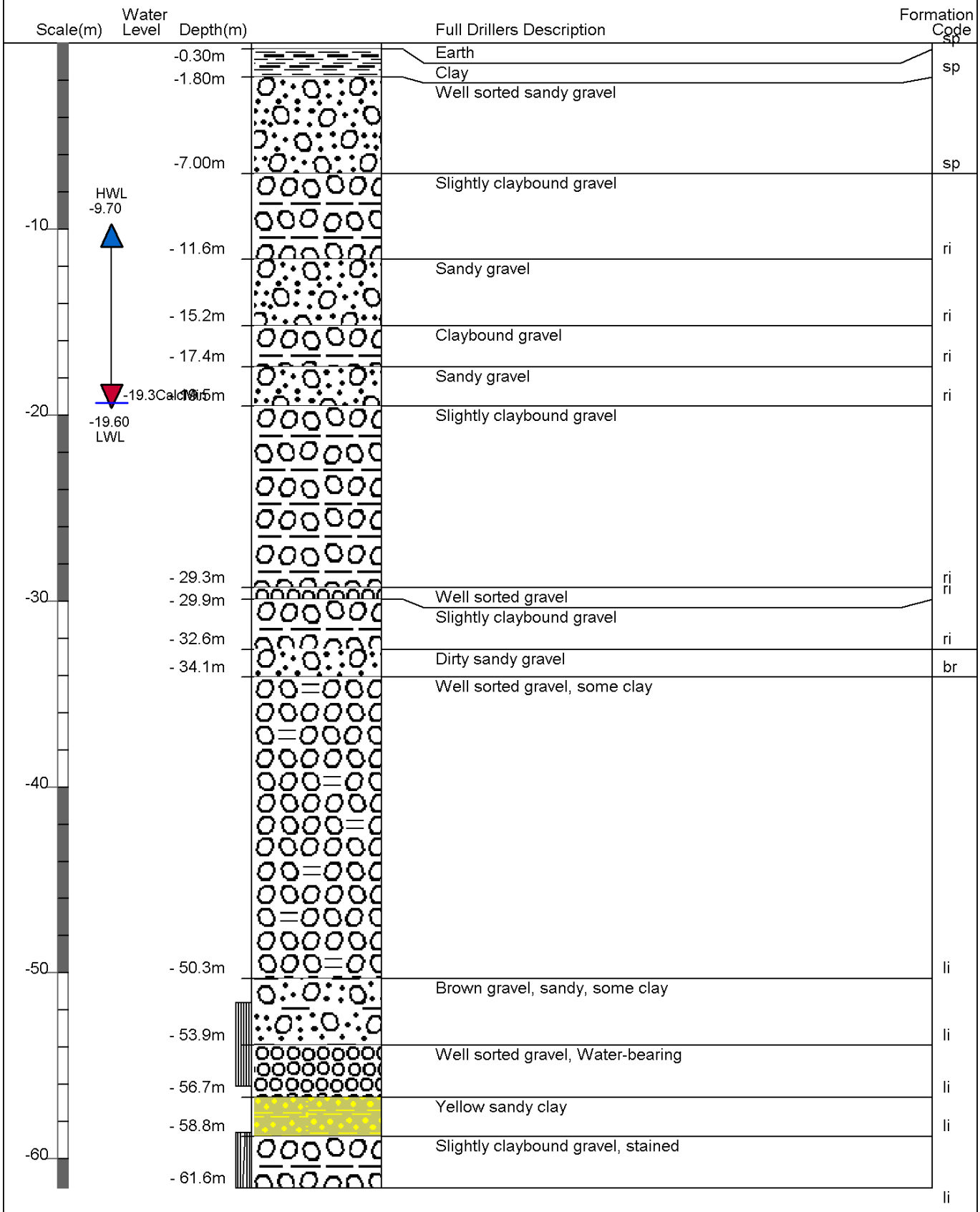
Date	Comments
	NCCB 218/S83A 23. M36W 155/6.
10 May 2011	First WL reading set as ISWL

M36/0259
May '99



Borelog for well M36/0259

Gridref: M36:61915-35646 Accuracy : 2 (1=high, 5=low)
Ground Level Altitude : 50 +MSD
Driller : McMillan Water Wells Ltd
Drill Method : Cable Tool
Drill Depth : -61.59m Drill Date : 9/05/1973



Appendix C

Communications

- Enable and Orion confirmation letters

05 February 2013.

SDM.12/4B

e2 Environmental Ltd.,
PO Box 31159,
CHRISTCHURCH 8444.

Attention: Mr Peter Harte.

Dear Peter,

POSSIBLE SUBDIVISION: COLES SUBDIVISION, ROLLESTON.

In reply to your email of 30 January 2013, we confirm that our electrical network in the area has sufficient capacity available at present to supply the proposed load to the lots shown on your Preliminary Drawing No. 11034-03-103 Revision P1.

The electrical reticulation for the subdivision would be in terms of Orion's Connections and Extensions policy applicable at the time of subdivision. The proposed subdivision would need to provide a cable easement in gross to Orion from the NE corner of the development to SH1.

Yours sincerely,

Shaun McConnell.
Project Manager - Property.
DDI: (03) 363 9747.
Email: shaun.mcconnell@oriongroup.co.nz.

14th January 2013

Robin Schulz
Nimbus Group
P O Box 8394
Christchurch 8440

Dear Robin,

UFB Fibre delivery to Coles Fields, Rolleston

In response to your email of the 24th December requesting confirmation from Enable of fibre delivery in to the Coles fields subdivision in Rolleston, I am pleased to be able to confirm the following.

Enable is committed to the delivery of an Enable fibre network into the above subdivision subject to agreement of:

1. The Northwestern part of the subdivision (via Park Lane) is the feeder route therefore this would be the area of the Coles fields requiring development and servicing first.
2. Pricing from Enable is included in the attached proposal

I trust that the above confirmation allows you to continue the planning and consenting of this area of Rolleston. Please let me know if you require any other information

I look forward to working with you on this project.

Yours sincerely

Rob Armstrong

Business Development Manager

Annexure Seven: Site Contamination Preliminary Site Assessment

Preliminary Environmental Site Inspection

1535 MAIN SOUTH ROAD
ROLLESTON, CHRISTCHURCH

SUBMITTED TO:

NIMBUS GROUP

22 FOSTER ST

PO BOX 8394

RICCARTON

Christchurch

7 February 2013

DISTRIBUTION

1 Copy	–	Nimbus Group
1 Copy	–	Geoscience Consulting (NZ) Ltd

Geoscience Consulting (NZ) Limited
5 Norwich Quay, Lyttelton 8082, New Zealand
PO Box 110, Lyttelton 8841, New Zealand
T (+64) (3) 328 9012 F (+64) (3) 328 9013
www.nzgeoscience.co.nz

CONTENTS

1	INTRODUCTION	3
1.1	Objectives of the Assessment	3
1.2	Approach	3
1.2.1	Review of Site Information	3
1.2.2	Site Inspection	3
2	SITE DESCRIPTION	3
2.1	Site Setting	4
3	SITE HISTORY	4
4	CURRENT SITE CONDITIONS	6
5	POTENTIAL HAIL LIST ACTIVITIES	6
6	CONCEPTUAL SITE MODEL	6
7	CONCLUSIONS	7
8	RECOMMENDATIONS	7
9	REFERENCES	7
10	LIMITATIONS	7

FIGURES

Figure 1: Site Location Plan

Figure 2: 1942 Aerial Photograph

Figure 3: 1974 Aerial Photograph

APPENDICES

Appendix 1: CRC LLUR Statement

Appendix 2: Site Photographs

1 INTRODUCTION

Geoscience Consulting (NZ) Ltd (Geoscience) was requested by Nimbus Group to undertake a preliminary environmental site inspection (PSI) at 1535 Main South Road, Rolleston, Christchurch.

Figure 1 indicates the location of the property. Geoscience understands that the 40.6 ha site is to be subdivided and requires a preliminary site inspection to satisfy Selwyn District Council requirements

This PSI was undertaken in accordance with Ministry for the Environment (MfE) 2001, Guidelines for Reporting on Contaminated Sites[1].

1.1 Objectives of the Assessment

The objective of this PSI was to assess the potential for contaminants to have been deposited at the site as a result of historic activities undertaken within or in the immediate vicinity of the property and report on the potential risk posed to future site users.

1.2 Approach

To satisfy the objectives, Geoscience undertook the following scope of work:

1.2.1 Review of Site Information

A number of sources were contacted for information relating to the site regarding its past and present uses and to identify any other environmental issues which may be on record. This included contacting Canterbury Regional Council (CRC) to determine if there were any records on the Listed Land Use Register (LLUR) and reviewing records held by Selwyn District Council including the property file and dangerous goods file. A review of a number of historic and current aerial photographs was also undertaken using images from NZ Aerial Mapping and Google Earth.

1.2.2 Site Inspection

A brief site walkover was undertaken on 24th January 2013 by Hazel Atkins of Geoscience Consulting Ltd. Objective evidence was collected through discussions with the site owner, Bruce and Michelle Coles, as well as observations of activities and conditions present at the site.

2 SITE DESCRIPTION

A summary of the site identification information is given in Table 1 below:

Table 1: Summary of Site Description

Item	Description
Location:	1535 Main South Road, Rolleston
Legal Description:	Lot 3 and Lot 4 DP74253
Current Owner:	Bruce and Michelle Coles
Current Site Use:	Agricultural and residential
Proposed Site Use:	Living Z on Lot 3 and Rural Residential on Lot 4. The site is to be subdivided into 36 sections.
Site Area:	40.6 ha
Building Construction:	Residential building and attached double garage: weatherboard; iron roof;

Item	Description
	concrete perimeter footings. Four farm buildings/hay barns: corrugated iron. Grain stores. Old school building (used for storage): weatherboard, light iron. Feed/animal shelters: light iron.
Local Authority:	Selwyn District Council
Zoning:	Lot 3 is Living Z. Lot 4 is Inner Plains

2.1 Site Setting

A summary of the site's setting is given in Table 2 below:

Table 2: Site Setting

Item	Description
Topography	Site is flat
Local Setting	The surrounding is agricultural with a residential subdivision to the south west.
Surface Water Receptors	Unnamed land drains to the north of the site
Geology[2]	Alluvial gravel
Hydrogeology[3]	Groundwater flow is predominantly to the south east. The site is over an unconfined or semi-confined aquifer.
Groundwater Abstractions[3]	There is one current groundwater abstraction located on the site: M36/0259: Coles; Main South Road; irrigation and water level observation. CRC011085: Coles; Main South Road; to take and use groundwater. There are a number of groundwater abstractions located within 150m of the site: M36/4040: N Welbeloved; Main South Road; domestic supply. M36/7763: Lowes Road Holdings Ltd; Lowes Road; domestic and stockwater irrigation.
Discharge Consents[3]	There are no current discharge consents located on the site. There are a number of discharge consents located within 150 m of the site. These are for the Park Lane Estate subdivision, which is located east of the site, and are for the discharge of stormwater to land.

3 SITE HISTORY

A number of sources were used to investigate the past uses of the site. The findings of these information searches have been summarised in this section.

Table 3: Site History

Item	Description
Discussion with site owner	A letter received from the Coles states that they have been on the property since 1990. They originally farmed pigs but changed to sheep grazing when they realised the land was better suited to them. They occasionally grow peas, for their own consumption, and oats. Horses are

Item	Description
	also grazed on the site. The main use of the site is for hay making. The site historically has been used for sheep grazing.

Table 4: Review of Selwyn District Council Property File

Date	Description
10/12/1984	Building consent to install a tractor/equipment shed
16/09/1993	Application for a septic tank effluent disposal system
12/10/1994	Application for a solid fuel heater

Table 5: Summary of Canterbury Regional Council Listed Land Use Register (CRC LLUR)

Period From	Period To	HAIL Activity (s)	LLUR Category
-	-	None	None
Additional Information		There is one report associated with the site, as it has not yet been audited; the site has not been awarded a LLUR category. The report is by Tonkin and Taylor and is dated January 2011. The report is a desk-based ground contamination assessment for Selwyn District Council regarding planned land zone changes. The report investigated 6 sites around the Rolleston area and identified possible contaminants. No specific contaminants were listed for the site.	

Aerial photographs dating from 1942 to 2011 have been reviewed (refer to Figures 2 and 3). In summary the aerial photographs show:

Table 6: Aerial Photographs

Date	Figure No.	Description
1942	2	The site is being used for both agricultural and residential purposes. The residential and farm buildings are located in the north-eastern corner of the site. The remainder of the site is used for grazing and cropping purposes. There are a number of feeding areas which can be seen in the paddocks. The surrounding area is predominantly agricultural with associated residential buildings.
1974	3	The site is being used for both agricultural and residential purposes. The residential and farm buildings remain in the north-eastern corner. The remainder of the site is still used for grazing and cropping purposes. The feeding areas can no longer be seen. The surrounding area is predominantly agricultural with associated residential buildings.
2012	Google Earth	The site is predominantly agricultural with the residential property and farm buildings situated in the north-eastern corner. The surrounding area is mainly residential to the west of the site and agricultural to the north, south and east.

4 CURRENT SITE CONDITIONS

A site inspection was undertaken on the 24th January 2013 by Hazel Atkins of Geoscience Consulting Ltd. The information gathered is summarised below:

Table 7: Current Site Conditions

Site Condition	Comments
Visible signs of contamination	No visible signs of contamination were noted at the site.
Surface water appearance	No surface water observed at the site.
Current surrounding land use	Surrounding land use is a mix of agricultural and residential with the land to the west of the site being redeveloped as a residential subdivision.
Condition of buildings and roadways	Buildings and roadways in good condition.
Local sensitive environments	There are no sensitive environments.
Visible signs of plant stress	No visible signs of plant stress were noted at the site.
Conditions at site boundary	Stable with no signs of erosion.
Additional Observations (if any)	Two above ground storage tanks (ASTs) were observed on the site with the pumps located directly beneath them. The location of the tanks can be seen in Figure 1. No staining was observed around the tanks. The site also has a horse trotting track of approximately 1 year old. The track comprised mainly sand with some gravel.

5 POTENTIAL HAIL LIST ACTIVITIES

Activities included on the Hazardous Activities and Industries List (HAIL)[4] trigger the requirement for a contaminated land investigation prior to development. The two above ground storage tanks represent a HAIL activity; A17 – Storage tanks or drums for fuel, chemical or liquid waste.

6 CONCEPTUAL SITE MODEL

A contamination conceptual site model consists of three primary components to allow the potential for risk to be determined, these are:

- Source of contamination;
- Pathway to allow the contamination to mobilise; and
- Sensitive receptors which may be impacted by the contamination.

Table 8: Conceptual Site Model

Source	Pathway	Receptor
Above-ground Storage Tanks - hydrocarbons	Surface/groundwater Direct contact, inhalation, and ingestion.	Current/Future residents, future site workers and development contractors.
Risk of Contamination	Low - Medium – The above-ground storage tanks located on the site are a potential source of contamination. The tanks were in good condition with only slight rusting visible. There is no information on the LLUR of their existence.	

The above ground storage tanks are located south of the residential buildings on the site. After discussions with the client, Geoscience understands that this area is to remain as residential/agricultural land. Therefore, the area to be subdivided into residential land is considered to have a low risk of contamination due to the distance and lack of pathways which could transport the contamination onto the development site.

7 CONCLUSIONS

The information collected and the historic aerial photographs indicate an agricultural grazing and residential past. There is no reported evidence which suggests the presence of sheep dips, large scale pesticide application or waste disposal operations at the site.

The information reviewed indicates that the surrounding area is a mix of residential and agricultural.

The CRC LLUR found no specific listed land uses on the site. The Selwyn District Council property file has no records indicating that any potentially contaminative activity has occurred on the property.

During the site inspection, two above-ground storage tanks were observed south of the residential property. The tanks contained diesel and petrol and are used for farm machinery. The ASTs are listed on the HAIL as category A17 – Storage tanks or drums for fuel, chemicals or liquid waste. Discussions with the client about the subdivision revealed that this area is to remain agricultural/residential. Therefore, the risk to the future subdivision of the land to residential land use is considered low due to the distance and lack of pathways which could transport the contamination onto the development site.

Based on the information gathered, we conclude that the potential for soil and water contamination at the site, in its existing state, is low and is suitable for the intended residential land use.

The area that is remaining agricultural/residential will need further investigation if its land use is to be changed in the future.

8 RECOMMENDATIONS

No further environmental work is required on the land to be subdivided for residential end use at 1535 Main South Road, Rolleston.

Information about the ASTs should be added to the CRC LLUR, the locations are shown in Figure 1.

9 REFERENCES

1 MfE 2011: Contaminated Land Management Guidelines No.1 : Reporting on Contaminated Sites in New Zealand;
2 Forsyth, P.J.; Barrell, D.J.A; Jongens, R. 2008: Sheet 16 - Geology of the Christchurch Area 1:250,000. Institute of Geological and Nuclear Sciences, Lower Hutt.
3 ECan 2012: Environment Canterbury on-line GIS Database. http://ecan.govt.nz/services/online-services/gis-mapping/Pages/enter-gis.aspx
4 MfE Oct 2011: Ministry for the Environment Hazardous Activities and Industries List.

10 LIMITATIONS

i. We have prepared this report in accordance with the brief as provided. This report has been prepared for the use of our client, Nimbus Group, their professional advisers and the relevant Territorial Authorities in relation to the specified project brief described in this report. No liability is

accepted for the use of any part of the report for any other purpose or by any other person or entity.

ii. The recommendations in this report are based on the ground conditions indicated from published sources, site inspections and subsurface investigations described in this report based on accepted normal methods of site investigations. Only a limited amount of information has been collected to meet the specific financial and technical requirements of the Client's brief and this report does not purport to completely describe all the site characteristics and properties. The nature and continuity of the ground between test locations has been inferred using experience and judgement and it must be appreciated that actual conditions could vary from the assumed model.

iii. Subsurface conditions relevant to construction works should be assessed by contractors who can make their own interpretation of the factual data provided. They should perform any additional tests as necessary for their own purposes.

iv. This Limitation should be read in conjunction with the IPENZ/ACENZ Standard Terms of Engagement.

v. This report is not to be reproduced either wholly or in part without our prior written permission.

We trust that this information meets your current requirements. Please do not hesitate to contact the undersigned on 03 328 9012 if you require any further information.

For and on behalf of Geoscience Consulting (NZ) Ltd,

Hazel Atkins

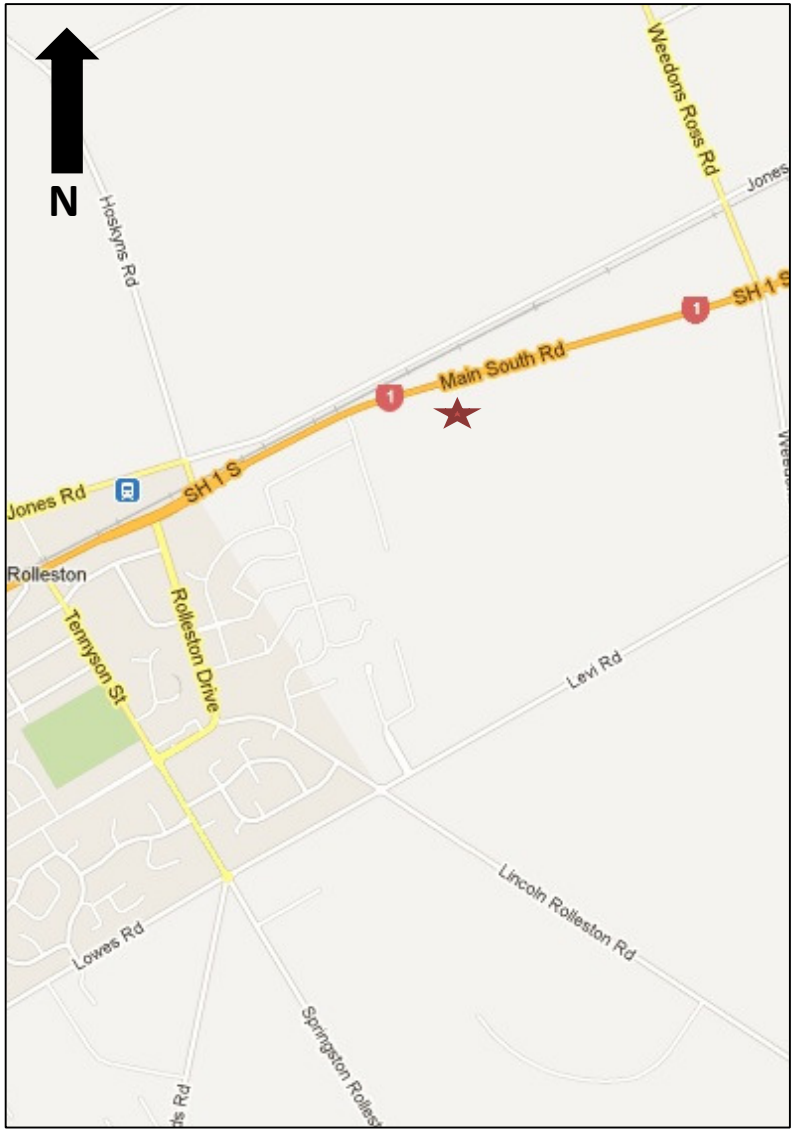
Engineering/Environmental Geologist

Dave Robotham

Senior Environmental Consultant

FIGURES

Geoscience Consulting (NZ) Limited
5 Norwich Quay, Lyttelton 8062, New Zealand
PO Box 110, Lyttelton 8841, New Zealand
T (+64) (3) 328 9012 F (+64) (3) 328 9013
www.nzgeoscience.co.nz



Note: Location map sourced from Google
Aerial Photograph sourced from Koordinates

GEOSCIENCE
A proud member of ENGEO

Date	Jan-13	**Client**	**K & J Adcock**		
Drawn by	HA	**Project**	**1535 Main South Road, Rolleston**		
Approved by	DR	**Description**	**Site Location Plan**		
Scale	NTS	**Figure Number**	1	**Project Number**	09954_1

Note: Aerial photographs sourced from NZ Aerial Mapping

GEOSCIENCE
A proud member of ENGEO

Date	Jan-13	**Client**	**K & J Adcock**		
Drawn by	HA	**Project**	**1535 Main South Road, Rolleston**		
Approved by	DR	**Description**	**1942 Aerial Photograph**		
Scale	NTS	**Figure Number**	2	**Project Number**	09954_1

Note: Aerial photographs sourced from V C Browne

GEOSCIENCE
A proud member of ENGEO

Date	Jan-13	**Client**	**K & J Adcock**		
Drawn by	HA	**Project**	**1535 Main South Road, Rolleston**		
Approved by	DR	**Description**	**1973 Aerial Photograph**		
Scale	NTS	**Figure Number**	3	**Project Number**	09954_1

APPENDIX 1

CRC LLUR Statement

Geoscience Consulting (NZ) Limited
5 Norwich Quay, Lyttelton 8062, New Zealand
PO Box 110, Lyttelton 8841, New Zealand
T (+64) (3) 328 9012 F (+64) (3) 328 9013
www.nzgeoscience.co.nz

Statement from the Listed Land Use Register

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

58 Kilmore Street, PO Box 345, Christchurch
General enquiries: 03 365 3828 Customer services: 03 353 9007
Fax: 03 365 3194 or: 0800 EC INFO (0800 324 636)
Email: ecinfo@ecan.govt.nz Website: www.ecan.govt.nz

Date:	14 January 2013
Land Parcels:	• Lot 4 DP 74253 Valuation No(s): 2405500700

Summary of sites:

There are no sites associated with the area of enquiry.

Please note that the above table represents a summary of sites intersecting the area of enquiry within a 100m buffer.

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** Tonkin and Taylor Ltd
23 Nov 2012	**INV 14520: GW Rolleston Ltd - Preliminary Site Investigation Report - 116 Levi Road, Rolleston** Spiire

Summary of above Investigations

Report(s) have not yet been audited.

For further information from Environment Canterbury, contact the Contaminated Sites Officer and refer to enquiry number 14639.

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).

This information reflects Environment Canterbury's current understanding of this site, which is based only on the information thus far obtained by it and held on record concerning this site. It is released only as a copy of those records and is not intended to provide a full, complete or totally accurate assessment of the site. As a result, Environment Canterbury is not in a position to warrant that the information is complete or without error and accepts no liability for any inaccuracy in, or omission from, this information.

Any person receiving and using this information is bound by the provisions of the Privacy Act 1993.

APPENDIX 2

Site Photographs

Geoscience Consulting (NZ) Limited
5 Norwich Quay, Lyttelton 8062, New Zealand
PO Box 110, Lyttelton 8841, New Zealand
T (+64) (3) 328 9012 F (+64) (3) 328 9013
www.nzgeoscience.co.nz

Photo 1: Old school house used for storage

Photo 2: Above ground diesel tank

Photo 3: Above ground petrol tank

Photo 4: Site looking south-west

Photo 5: Horse trotting track

Photo 6: Agricultural farm area

GEOSCIENCE
A proud member of ENGEO

Date taken	Jan-12	**Client**	**Nimbus Group Limited**		
Taken by	HA	**Project**	**1535 Main South Road, Rolleston**		
Approved by	DR	**Description**	**Site Photographs**		
Scale	N/A	**Photo No.**	1 to 6	**Project Number**	9954

Annexure Eight: Geotechnical Report

RILEY CONSULTANTS

COLES PROPERTY PARK LANE: ROLLESTON

GEOTECHNICAL ASSESSMENT FOR SUBDIVISION PLAN CHANGE AND RESOURCE CONSENT

Engineers and Geologists

COLES PROPERTY PARK LANE: ROLLESTON GEOTECHNICAL ASSESSMENT FOR SUBDIVISION RESOURCE CONSENT AND PLAN CHANGE

Report prepared for: Nimbus Group

Report prepared by: Emma Turner, Civil Engineer

E.Turner

Report reviewed by: Don Tate, Director, CPEng

P.P.

Report Reference: 12891-A

Date: 18 December 2012

Copies to:

Client	2 copies
Riley Consultants Ltd	1 copy

Revision:	Details:	Date:
1.0	Geotechnical Assessment	18 December 2012

Riley Consultants Limited, Ground Floor, 395 Madras Street
PO Box 4355, Christchurch 8140, New Zealand
Telephone 64 3 379 4402, Facsimile 64 3 379 4403
rileychch@riley.co.nz www.riley.co.nz

Contents

1.0 Introduction 1
2.0 Regional Geology 1
3.0 Site Seismicity 2
3.1 Recorded Peak Ground Accelerations (2010/2011) 2
3.2 Seismic Design Parameters 2
4.0 Council Requirements 2
5.0 Subsurface Investigations 3
6.0 Suitability of Ground for Development 4
6.1 Bearing Capacity 4
6.2 Ground Movement/Liquefaction 4
7.0 Foundation Development Options 5
7.1 Further Development Considerations 6
8.0 RMA Considerations 6
9.0 Conclusions 7
10.0 Limitation 7
11.0 References 7

Appendices

Appendix A Site Plan
Appendix B Test Pit Logs
Appendix C Scala Penetrometer Logs

COLES PROPERTY LAKE PARK: ROLLESTON GEOTECHNICAL ASSESSMENT FOR SUBDIVISION PLAN CHANGE AND RESOURCE CONSENT

1.0 Introduction

Riley Consultants Ltd (RILEY) has been engaged to undertake a geotechnical investigation at Coles Subdivision, Rolleston, Lots 3 and 4 of DP74253, as outlined in the initial desktop study and proposal dated 2 November 2012 (RILEY ref: R18468-A).

This report details our geotechnical investigations and outlines the level of geotechnical hazard at the site in accordance with "Guidelines for the Geotechnical Investigation and Assessment of Subdivisions in the Canterbury Region" released by the Ministry of Business, Innovation and Employment (MoBIE) September 2012.

This report will be used in support of application for a Resource Consent for Lot 3 and a plan change and subsequent Resource Consent for Lot 4 by the Selwyn District Council (SDC). We understand Lot 3 is to be divided into approximately 170 residential lots and Lot 4 is to be changed to rural residential with 36 lots of approximately 5,000 m^2.

2.0 Regional Geology

The published geological map of the area, (Geology of the Christchurch Area 1:250,000, Brown and Weeber, 1992) indicates that the site is underlain by grey river alluvium.

A review of the Environmental Canterbury (ECan) Wells database showed multiple wells located within 1 km of the proposed subdivision. Material logs available for two of these wells located with the two lots indicates that subsurface materials comprise layers of surficial topsoil and clay to 1.8 m depth underlain by gravel dominated material to at least 30 m depth.

Groundwater information provided in the well logs indicates that groundwater level in the area varies between 10 m and 85 m depth.

A Preliminary Site Investigation Report for the adjacent Park Lane Subdivision (west) was undertaken by E2 Environmental in December 2011. The purpose of this report was to estimate the ground soakage potential of the soils underlying the site. In order to undertake the soakage testing E2 Environmental dug four test pits on the site, two towards the north and two towards the south. The depth of these test pits ranged from 2.2 m to 4.75 m depth, the logs of which were included in the appendices. In summary these test pits encountered 0.2 – 0.4 m of topsoil overlying sandy silt to 1.9 to 2.0 m depth. Sandy gravel was then present to 2.3 to 2.4 m depth overlying gravel and cobbles to the maximum depth of the test pits.

The recommendation that soil characterisation be carried out to 15 m depth recognises that generally liquefaction will not occur below this depth, or if it does is unlikely to be observable at the ground surface. The soil investigation therefore seeks to quantify the liquefaction hazard of the upper 15 m of the soil profile. For this site, this quantification is made largely on the basis of site geology and available borehole data in the area and confirmatory investigations of soil composition via test pits. Available borehole logs in the area indicate dense granular alluvial soils to at least 15 m depth.

5.0 Subsurface Investigations

Subsurface geotechnical investigations were undertaken by RILEY staff (with the assistance of an excavator provided by the Nimbus Group) on 20 November 2012 and comprised:

- Nine test pits (TP1 to TP9) to a maximum depth of 5.2 m
- 15 Scala Penetrometer tests undertaken adjacent to the testpits and at consistent spacing over Lots 3 and 4

The testpits were logged in accordance with the NZGS guidelines (December 2005) and the location of the geotechnical investigations is shown in Appendix A.

The material encountered in the test pit investigations comprised between 200 and 600 mm organic sands (topsoil) underlain by sandy silts and silty sands to a depth of between 0.75 to 2.2 m. Gravels were located below the sand and silt layers to the extent of testing (a maximum of 5.2 m in TP5).

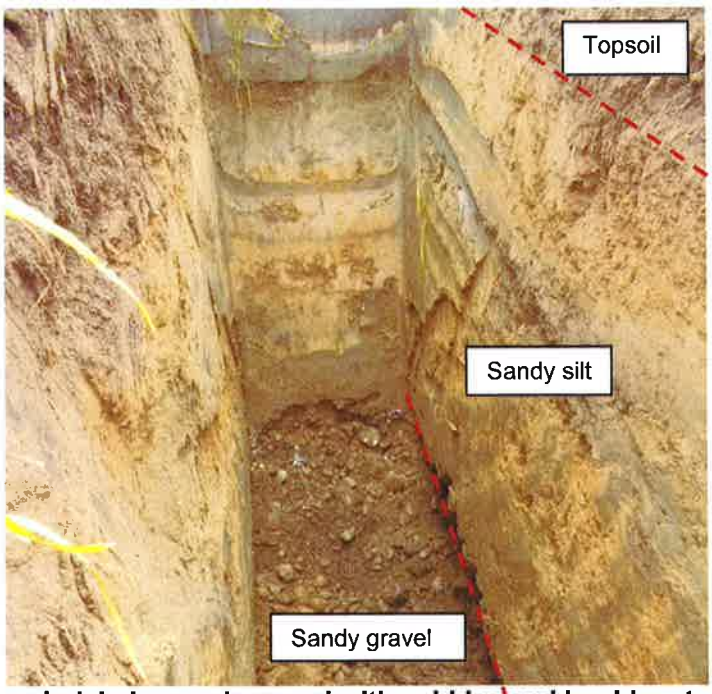


Photo 1: Sandy silt underlain by sandy gravel with cobbles and boulders to 2.0 m depth (TP3)

Groundwater was not encountered in any of the test pits during our investigations. Based on ECAN well logs, groundwater varies between 10 and 85 m depth.

A total of nine Scala penetrometer tests were undertaken at or near existing ground level adjacent to each of the testpits, with an additional six Scala tests undertaken at varied locations across site, to confirm consistency of soil strength.

Soft to firm soils were encountered in the natural soils over the site to approximately 1.8 m depth. Dense to very dense gravels were encountered below this depth to the extent of testing.

The presence of silts and sands in the upper 2.2 m of soil strata underlain by dense gravels is consistent with the geological data for this area and confirmed the expected ground conditions. Regional geological maps indicate the presence of predominantly gravelly soils such as those encountered in the test pits to at least 30 m depth.

6.0 Suitability of Ground for Development

It is desirable for new subdivisions on flat or gently sloping ground to provide building platforms that meet the NZS3604:2011 definition of "good ground", as such building platforms do not require specific engineering design of foundations for residential development. NZS3604:2011 defines the criteria for "good ground" as that which has an ultimate bearing capacity of 300 kPa, and excludes:

- Potentially compressible ground
- Expansive soils
- Ground which could foreseeably experience movement of 25 mm or greater for any reason.

In recent months the Department of Building and Housing (DBH) have included liquefiable soils in the ground conditions for which NZS3604 is not applicable.

On the basis of regional geology, and testpit investigations, the soils on site are considered unlikely to be expansive or compressible. The other criteria for good ground are considered in the following paragraphs.

6.1 Bearing Capacity

NZS3604:2011 provides a Scala penetrometer test criteria whereby if a certain blow count over a measured depth is met, an ultimate bearing capacity of 300 kPa may be assumed (5 blows per 100 mm).

Scala penetrometer (SP) results indicate that moderate to high strength soils exist beneath the topsoil to the extent of testing. The materials have a geotechnical ultimate bearing capacity of above 200 kPa immediately below the topsoil. A geotechnical ultimate bearing capacity of 300 kPa is available at and below approximately 1.8 m consistently across site.

The sands and silts above 1.8 m across site do not meet the bearing capacity criteria for "good ground" according to NZS3604:2011.

6.2 Ground Movement/Liquefaction

The key consideration for ground movement is the potential for seismically induced liquefaction resulting in settlement or lateral movement. Liquefaction may occur in loose silts and sands beneath groundwater level. The susceptibility of such soils to liquefy depends on their density and particle size distribution.

Dense granular soils are not liquefiable (Youd et al, 1996 & 1998), and the density of the granular soils (below the sandy silt layer) within the test pits has been confirmed to be high via Scala penetrometer testing. Similar soils in Canterbury have generally performed well under recent seismic loading. No land damage is observable, and no ejected sands or lateral spreading was reported across the site as a result of the recent Christchurch earthquakes.

A deeper groundwater profile of 10 to 85 m was indicated by the regional well logs, therefore at least a 10 m thick non-liquefiable cap exists over any potentially liquefiable sand or silt strata, and therefore these shallow layers are not considered a significant risk to the development. Furthermore, if liquefiable lenses exist below this depth, it is unlikely that any evidence of liquefaction induced densification of the lenses would be observed at ground surface.

The Department of Building and Housing (DBH) has provided a guidance document whereby land is placed into one of three technical categories with the following liquefaction deformation limits. These limits are reproduced in Table 2.

Table 2: Liquefaction Deformation Limits and House Foundation Implications

Technical Category	Liquefaction Deformation Limits				Likely Implications for House Foundations (subject to individual assessment)
	Vertical		Lateral Spread		
	SLS	ULS	SLS	ULS	
TC1	15 mm	25 mm	Nil	Nil	Standard 3604-like foundations[1] with tied slabs[2]
TC2	50 mm	100 mm	50 mm	100 mm	DBH enhanced foundation solutions (Section 5.2)
TC3	>50 mm	>100 mm	>50 mm	>100 mm	Site specific measures – piles or ground improvement

1. Provided the shallow investigation determines the site is 'good ground' (As defined by NZS 3604:2011)
2. Note that certain foundation details included in NZS 3604 are precluded from use in Canterbury (refer to: http://www.dbh.govt.nz/information-sheet-seismicity-changes)

Based on the 1.0 m non-liquefiable cap, site geology and past ECAN boreholes in the area the risk of surface manifestation of liquefaction in a SLS event is considered to be low.

In terms of the DBH guidelines, we consider that the subject site is likely to be similar to those sites that fall into the technical category TC1.

7.0 Foundation Development Options

The subsurface data obtained at the site to date indicates that the subsoils do not meet the bearing capacity requirements for 'good ground', (as defined by NZS 3604:2011).Therefore any proposed houses developed at this site will require specifically designed foundations as part of the building consent, once the subdivision is formed.

In terms of the DBH guidelines, where the ultimate bearing capacity meets the 200 kPa requirement either enhanced slab TC2 solutions or other specific engineering design is applicable. At a conceptual level, enhanced house foundation solutions could comprise the following:

- A concrete slab foundation built over a compacted granular fill raft;
- Shallow driven timber piles;
- A thickened slab foundation over the existing site soils.

Further investigations will be required at the time of individual building development as outlined in the DBH guidelines. It is noted that test pits create weaker areas in the ground and foundations should be located clear of test zones or should take this into consideration during design.

Alternatively, wide scale soil improvement of the upper soil profile (subject to design) could be undertaken to allow for the construction of standard foundations in accordance with NZS 3604:2011, (with the modifications outlined in Building Code Acceptable Solutions B1/VM1, B1/AS1 and B1/AS3).

7.1 Further Development Considerations

Roads

Roads are not subject to the same design criteria as foundations; however subgrade layers are required to provide appropriate strength and stiffness for pavement design. Following removal of the topsoil (200 - 600 mm), the representative CBR value for the silty soils encountered on site (derived from Scala penetrometer testing) is 2.0.

Earthworks

During development of the site, RILEY recommends that appropriate stormwater and erosion controls be implemented. These are likely to involve the use of silt fences, hay bales and similar devices to intercept soil runoff and improve the quality of the stormwater discharged. Any exposed surfaces shall be topsoiled and grassed as soon as practicable to limit soil erosion.

8.0 RMA Considerations

Section 106 of the RMA states that a "consent authority may refuse to grant subdivision consent, or may grant a subdivision consent subject to conditions, if it considers that:

a) *the land in respect of which a consent is sought, or any structure on the land, is or is likely to be subject to material damage by erosion, falling debris, subsidence, slippage, or inundation from any source; or*

b) *any subsequent use that is likely to be made of the land is likely to accelerate, worsen, or result in material damage to the land, other land, or structure by erosion, falling debris, subsidence, slippage, or inundation from any source; or*

c) *sufficient provision has not been made for legal and physical access to each allotment to be created by the subdivision.*

No evidence of erosion, falling debris, or slippage was observed during our site visit walkover for this site based on its relatively flat topography. Due to the uniform nature of the soils encountered in our testpit excavations, and the absence of any noticeable surface expressions, subsidence is not considered to be a geotechnical risk. Based on the topographical setting, the lack of evidence of overland flows and the dry soils encountered, the site is unlikely to be subject to inundation.

Any future development of this site will likely involve the removal of the surface vegetation and topsoil for extended periods of time. Exposure of the stripped ground surface to rainfall will potentially cause erosion and rilling of the site soils. Damage can be minimised by staging the earthworks (to retain vegetated areas) and the use of appropriate mitigation measures as described in section 7.1.

Access to the site is presently off Main South Road (SH 1) and is likely to be enhanced with the development of adjacent subdivisions.

9.0 Conclusions

1. Geotechnical investigations have been completed and a typical soil profile for the site identified, which corresponds well to the regional geological setting from published data.
2. Ground conditions in the test locations do not meet the minimum requirements of NZS3604:2011 for standard shallow foundations and therefore house foundations require specific investigation and design. Indications based on investigations to date are that enhanced slab TC2 solutions or other specific design is applicable.
3. The potential for seismically induced liquefaction has been assessed from the test pit investigations.
   - Liquefaction is a negligible risk in soils to 10.0 m depth above the water table.
   - Liquefaction in soils below 10 m depth may potentially occur within saturated sand or silt lenses that may be present over this depth. However, it is unlikely that liquefaction of these lenses will cause any surface disruption or observable settlement and therefore they are not considered a significant risk to the development.
4. In terms of the DBH guidelines, we consider that the subject site is likely to be similar to those sites that fall into the technical category, TC1.
5. The proposed development will generally comply with the intent of section 106 of the RMA provided that appropriate engineering measures are undertaken to protect the existing site soils during subdivision development.
6. Inspections of ground conditions during the construction phase should be undertaken in accordance with accepted practice. RILEY shall be informed if there are any changes from the conditions described in this report.

10.0 Limitation

This report has been prepared solely for the benefit of the Nimbus Group as our client with respect to the brief, and the Selwyn District Council in processing the subdivision consent for the land area. The reliance by other parties on the information or opinions contained in the report shall, without our prior review and agreement in writing, be at such parties' sole risk.

Recommendations and opinions in this report are based on data from limited test positions. The nature and continuity of subsoil conditions away from the test positions are inferred, and it must be appreciated that actual conditions could vary considerably from the assumed model.

11.0 References

Youd, T.L. et al, 1996 and 1998, *Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER/NSF Workshops on Evaluation of Liquefaction resistance of soils*. Journal of Geotechnical and Geoenvironmental Engineering, October 2001.

APPENDIX A

Site Plan

LEGEND

SP1 — SCALA PENETROMETER TEST LOCATION

TP1 — TEST PIT LOCATION

SCALE 1: 5000

0 50 100 150 200 300 (m)

NOTES:-

1. PHOTO SOURCED FROM GOOGLE EARTH (7th FEB 2011),
2. ORIGINAL SCALE A3

REV	DESCRIPTION	BY	DATE
1	CPT ADDED	HN	17.12.12
0	FIRST ISSUE		

DESIGN: ET | CHECKED:
DRAWN: HN | CHECKED:
DATE DRAWN: 18 DEC 2012

APPROVED FOR ISSUE:
DATE: / /

RILEY CONSULTANTS
P.O.BOX 4355 CHRISTCHURCH
TEL. 03-3794402
FAX. 03-3794403

TITLE

NIMBUS GROUP

COLES PROPERTY, PARK LANE

GEOTECHNICAL INVESTIGATION SITE LOCATION PLAN

CADFILE: 12891-01
SCALES (A3): AS SHOWN
DRAWING No.: 12891-01
REV.: 1
ACENZ

APPENDIX B

Test Pit Logs

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

TEST PIT LOG

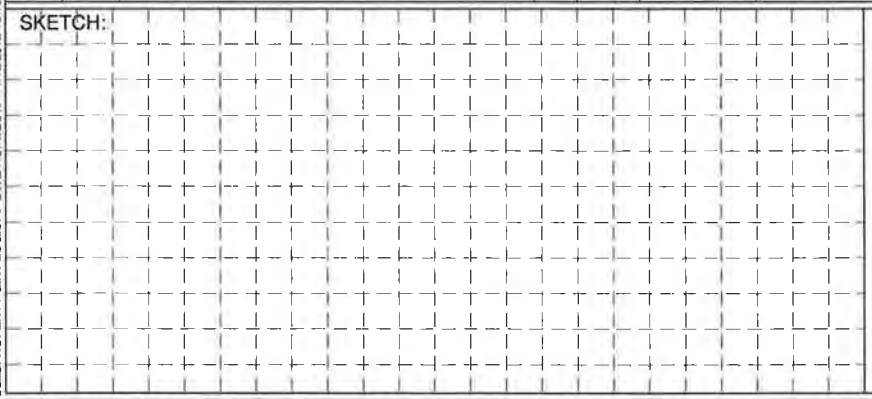
Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	TP1

Job No.:	Start Date: 20-11-12 Finish Date: 20-11-12	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891		50.00	

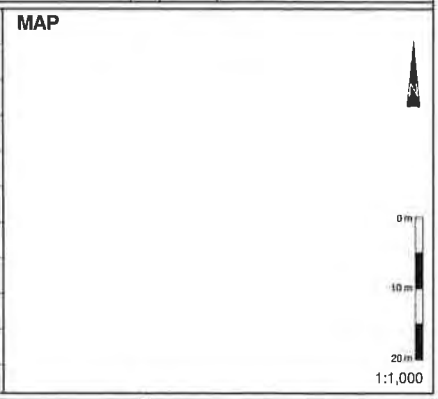
Client:	Hole Depth:	Sheet:
Nimbus Group	4.20 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength (Soil / Rock)	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+50.00									
+49.75	0.25	Fine to medium SAND with some silt, dark brown with trace rootlets. Loose; moist. (TOPSOIL)							
	1	Fine to medium SAND with trace to minor silt, grading to greyish brown SILT with some sand at 0.6 m., trace roots and local clay-rich lenses, light yellowish brown. Loose to medium dense; moist; clay rich lenses light greyish brown with pale orange spotting. (Q1a ALLUVIUM)							No. 1 1, 1, 2, 1, 1, 1, 2, 1, 1, 1, 1, 1, 2, 2, 1, 1, 1, 1, 1, 1, 1, 1, 2, 1, 2, 1, 1, 1, 1, 2, 2, 2, 1, 2, 1, 1, 2, 14, 15
+48.15	1.85								
	2	Fine to coarse GRAVEL with minor sand and silt and trace cobbles and boulders at depth, brown. Very dense; moist. Gravel, subangular to subrounded, strong, slightly weathered greywacke sandstone. (Q1a ALLUVIUM)							
	3								
	4								
+45.80	4.20								
	5	EOH @ 4.20 m							

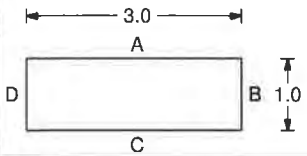
SKETCH:



MAP



Shoring/Support: None
Stability:



- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Permeability Test
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO:
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:50	Contractor:	Rig/Plant Used: Machine Excavator (14 tonne)	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY TP COLESPROPERTY GINT LOG.GPJ DWG41574.GDW 11/12/2012 13:16 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

TEST PIT LOG

Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	TP2

Job No.:	Start Date: 20-11-12 Finish Date: 20-11-12	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891		50.00	

Client:	Hole Depth:	Sheet:
Nimbus Group	2.20 m	1 of 1

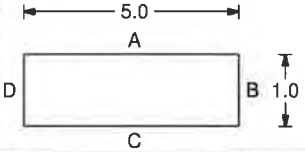
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength Soil | Rock	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+50.00									
+49.70	0.30	Fine to medium silty SAND, dark brown with trace rootlets and roots. Loose; moist. (TOPSOIL)							No. 1 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 2, 2, 2, 1, 1, 1, 1, 1, 2, 2, 2, 1, 1, 3, 4, 2, 2, 1, 1, 1, 2, 4, 7, 15
	1	Fine to medium silty SAND and sandy SILT thinly bedded with trace roots, light yellowish brown. Loose to medium dense; moist. (Q1a ALLUVIUM)							
+48.45	1.55								
	2	Fine to coarse sandy GRAVEL with minor cobbles and boulders at depth, brown. Very dense; moist; gravel, subangular to subrounded, strong, slightly weathered greywacke sandstone. (Q1a ALLUVIUM)							
+47.80	2.20								
		EOH @ 2.20 m							
	3								
	4								
	5								

SKETCH:

MAP

1:1,000

Shoring/Support: None
Stability:



- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Permeability Test
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO:
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:50	Contractor:	Rig/Plant Used: Machine Excavator (14 tonne)	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY TP COLESPROPERTY GINT LOG.GPJ DWG41574.GDW 11/12/2012 13:16 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists

Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

TEST PIT LOG

Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	TP3

Job No.:	Start Date: / Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891	20-11-12 / 20-11-12	50.00	

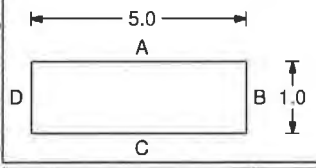
Client:	Hole Depth:	Sheet:
Nimbus Group	2.00 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength (Soil / Rock)	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+50.00									
+49.80	0.20	Fine to medium silty SAND, dark brown with trace rootlets. Loose; moist. (TOPSOIL)							No. 1 1, 1, 1, 2, 1, 1, 1, 2, 2, 3, 2, 3, 2, 1, 1, 2, 2, 3, 1, 1, 2, 1, 1, 1, 1, 1, 1, 2, 2, 2, 2, 2, 3, 5, 15
	1	Fine to medium sandy SILT thinly bedded with trace roots and local clay-rich lenses, light yellowish brown. Loose to medium dense; moist. (Q1a ALLUVIUM)							
+48.35	1.65								
+48.00	2.00	Fine to coarse sandy GRAVEL with trace cobbles and boulders at depth, brown. Gravel, subangular to subrounded, strong, slightly weathered greywacke sandstone. (Q1a ALLUVIUM)							
		EOH @ 2.00 m							
	3								
	4								
	5								

SKETCH:

MAP

Shoring/Support: None
Stability:



- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Permeability Test
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO:
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:50	Contractor:	Rig/Plant Used: Machine Excavator (14 tonne)	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY TP COLESPROPERTY GINT LOG.GPJ DWG41574.GDW 11/22/2012 13:10 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

TEST PIT LOG

Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	TP4

Job No.:	Start Date: 20-11-12 Finish Date: 20-11-12	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891		50.00	

Client:	Hole Depth:	Sheet:
Nimbus Group	5.00 m	1 of 1

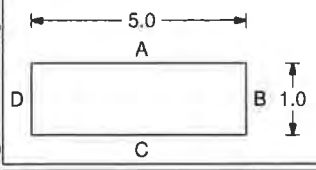
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength Soil / Rock	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+50.00									
+49.80	0.20	Fine to medium silty SAND, dark brown with trace rootlets. Loose; moist. (TOPSOIL)							No. 1 1, 2, 1, 2, 1, 2, 1, 1, 1, 2, 2, 4, 3, 3, 2, 2, 3, 3, 3, 2, 2, 1, 1, 1, 1, 2, 2, 2, 3, 2, 1, 1, 1, 1, 2, 2, 3, 3, 6, 15
	1	Fine to medium sandy SILT thinly bedded with trace roots and local clay-rich lenses, light yellowish brown. Loose to medium dense; moist. (Q1a ALLUVIUM)							
+48.35	1.65								
+48.00	2.00	Fine to coarse sandy GRAVEL with trace cobbles and boulders at depth, brown. Gravel, subangular to subrounded, strong, slightly weathered greywacke sandstone. (Q1a ALLUVIUM)							
	3								
	4								
	5	EOH @ 5.00 m							

SKETCH:

MAP

0 m
10 m
20 m
1:1,000

Shoring/Support: None
Stability:



- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Permeability Test
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO:
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:50	Contractor:	Rig/Plant Used: Machine Excavator (14 tonne)	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY TP COLESPROPERTY GINT LOG.GPJ DWG41574.GDW 11/12/2012 13:10 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

TEST PIT LOG

Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	TP5

Job No.:	Start Date: 20-11-12 Finish Date: 20-11-12	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891		50.00	

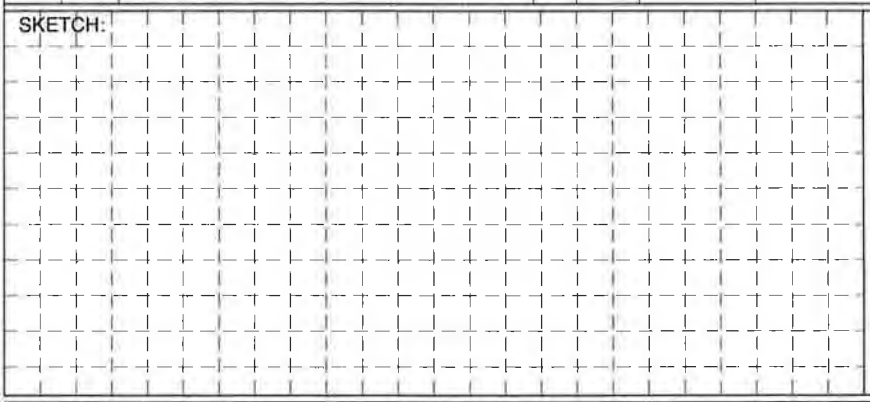
Client:	Hole Depth:	Sheet:
Nimbus Group	1.45 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength Soil / Rock	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+50.00									
+49.60	0.40	Fine to medium silty SAND, dark brown with trace rootlets. Loose; moist. (TOPSOIL)							
+49.25	0.75	Fine to medium sandy SILT thinly bedded with trace roots and local clay-rich lenses, light yellowish brown. CClay rich lenses light greyish brown with pale orange spotting. Loose to medium dense; moist. (Q1a ALLUVIUM)							
	1	0.45 m Grades to contain no roots.							
		Fine to coarse GRAVEL with minor sand and silt and trace cobbles and boulders at depth, brown. Gravel, subangular to subrounded, strong, slightly weathered greywacke sandstone. (Q1a ALLUVIUM)							
	2								
	3								
	4								
	5								
+44.80	5.20								
		EOH @ 1.45 m							

Tests

No. 1
1, 1, 2,
2, 2, 3,
2, 2, 2,
3, 2, 3,
3, 5, 3,
2, 2, 2,
2, 1, 2,
2, 4, 3,
3, 3, 2,
1, 3, 15

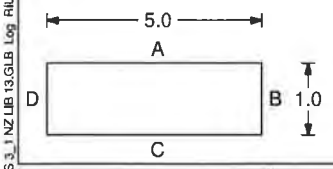
SKETCH:



MAP

1:1,000

Shoring/Support: None
Stability:



- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Permeability Test
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO:
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:50	Contractor:	Rig/Plant Used: Machine Excavator (14 tonne)	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZ LIB 13.GLB Log: RILEY TP COLESPROPERTY GINT LOG.GPJ DWG41574.GDW 11/12/2012 13:10 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists

Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

TEST PIT LOG

Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	TP6

Job No.:	Start Date: 20-11-12 Finish Date: 20-11-12	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891		50.00	

Client:	Hole Depth:	Sheet:
Nimbus Group	5.00 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength (Soil | Rock)	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+50.00									
+49.70	0.30	Fine to medium SAND with some silt, dark brown with trace rootlets. Loose; moist. (TOPSOIL)							
	1	Fine to medium silty SAND with local clay-rich lenses, light yellowish brown. Clay rich lenses light greyish brown with pale orange spotting. Loose to medium dense; moist. (Q1a ALLUVIUM)							
+47.80	2.20								
	3	Fine to coarse GRAVEL with minor sand and silt and trace cobbles and boulders at depth, brown. Gravel, subangular to subrounded, strong, slightly weathered greywacke sandstone. (Q1a ALLUVIUM)							
	4								
+45.00	5.00								
	5	EOH @ 5.00 m							

No. 1
1, 1, 2,
1, 2, 1,
1, 1, 1,
1, 1, 1,
1, 1, 1,
1, 1, 1,
1, 1, 1,
1, 2, 1,
2, 2, 1,
1, 2, 2,
1, 2, 2,
2, 2, 2, 3

SKETCH:

MAP

0 m
10 m
20 m
1:1,000

Shoring/Support: None
Stability:

5.0
A
D
B 1.0
C

- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Permeability Test
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO:
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:50	Contractor:	Rig/Plant Used: Machine Excavator (14 tonne)	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZLIB 13.GLB Log RILEY TP COLESPROPERTY GINT LOG.GPJ DWG41574.GDW 11/12/2012 13:10 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

TEST PIT LOG

Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	TP7

Job No.:	Start Date: 20-11-12 Finish Date: 20-11-12	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891		50.00	

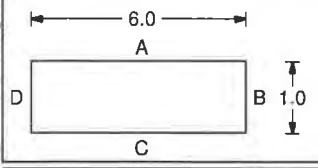
Client:	Hole Depth:	Sheet:
Nimbus Group	4.50 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength Soil / Rock	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+50.00									
+49.40	0.60	Fine to medium silty SAND, dark brown with trace medium subrounded gravel, rootlets and roots. Loose; moist. (TOPSOIL)							No. 1 1, 2, 1, 1, 1, 1, 1, 1, 2, 2, 1, 2, 2, 3, 1, 2, 2, 2, 2, 2, 3, 6, 3, 7, 12, 5, 7, 15
	1	Fine to medium SAND with minor silt and trace roots, light brown. Deeper at North end of pit, local gravel lens at 1.1 m. Loose to medium dense; moist. (Q1a ALLUVIUM)							
+47.90	2.10								
	3	Fine to coarse sandy GRAVEL with minor cobbles, brown. Gravel, subangular to subrounded, strong, slightly weathered greywacke sandstone. Contains obvious layering and local gravelly sand lenses. (Q1a ALLUVIUM)							
	4								
+45.00	5.00								
		EOH @ 4.50 m							

SKETCH:

MAP

Shoring/Support: None
Stability:



- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Permeability Test
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO:
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:50	Contractor:	Rig/Plant Used: Machine Excavator (14 tonne)	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY TP COLESPROPERTY GINT LOG.GPJ DWG41574.GDW 11/12/2012 13:10 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists

Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

TEST PIT LOG

Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	TP8

Job No.:	Start Date: 20-11-12 Finish Date: 20-11-12	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891		50.00	

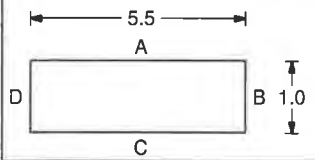
Client:	Hole Depth:	Sheet:
Nimbus Group	5.00 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength (Soil / Rock)	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+50.00									
+49.75	0.25	Fine to medium silty SAND, dark brown with trace rootlets and roots. Loose; moist. (TOPSOIL)							
+49.00	1.00	Fine to medium SAND with minor silt and trace roots, light brown. Loose to medium dense; moist. (Q1a ALLUVIUM)							
		Fine to coarse sandy GRAVEL with minor cobbles, brown. Gravel, subangular to subrounded, strong, slightly weathered greywacke sandstone. Contains obvoius layering and some sand lenses. Loose; moist. (Q1a ALLUVIUM)							No. 1 2, 2, 3, 3, 2, 2, 1, 4, 6, 8, 7, 5, 4, 5, 6, 5, 4, 3, 2, 4, 6, 5, 4, 5, 16
+45.00	5.00	EOH @ 5.00 m							

SKETCH:

MAP

Shoring/Support: None
Stability:



- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Permeability Test
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO:
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:50	Contractor:	Rig/Plant Used: Machine Excavator (14 tonne)	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZLIB 13.GLB Log RILEY TP COLESPROPERTY GINT LOG.GPJ DWG41574.GDW 11/12/2012 13:10 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

TEST PIT LOG

Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	TP9

Job No.:	Start Date: 20-11-12 Finish Date: 20-11-12	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891		50.00	

Client:	Hole Depth:	Sheet:
Nimbus Group	1.70 m	1 of 1

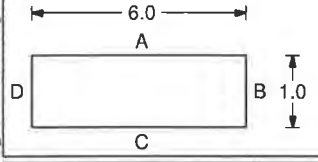
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength (Soil | Rock)	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+50.00									
+49.80	0.20	Fine to medium silty SAND, dark brown with trace roollets and roots. Loose; moist. (TOPSOIL)							No. 1 2, 2, 3, 2, 2, 3, 2, 2, 3, 2, 2, 2, 2, 1, 1, 2, 2, 2, 2, 2, 1, 2, 2, 1, 2, 3, 1, 2, 2, 2, 3, 2, 10, 15
	1	Fine to medium silty SAND silt and trace roots, light brown. Loose to medium dense; moist. (Q1a ALLUVIUM)							
+48.40	1.60								
+48.20	1.80	Fine to coarse sandy GRAVEL with minor cobbles, brown. Gravel, subangular to subrounded, strong, slightly weathered greywacke sandstone. Loose to medium dense; moist. (Q1a ALLUVIUM)							
	2	EOH @ 1.70 m							
	3								
	4								
	5								

SKETCH:

MAP

1:1,000

Shoring/Support: None
Stability:



- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Permeability Test
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO:
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:50	Contractor:	Rig/Plant Used: Machine Excavator (14 tonne)	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY TP COLESPROPERTY GINT LOG.GPJ DWG41574.GDW 11/12/2012 13:10 Produced by gINT Professional

APPENDIX C

Scala Penetrometer Logs

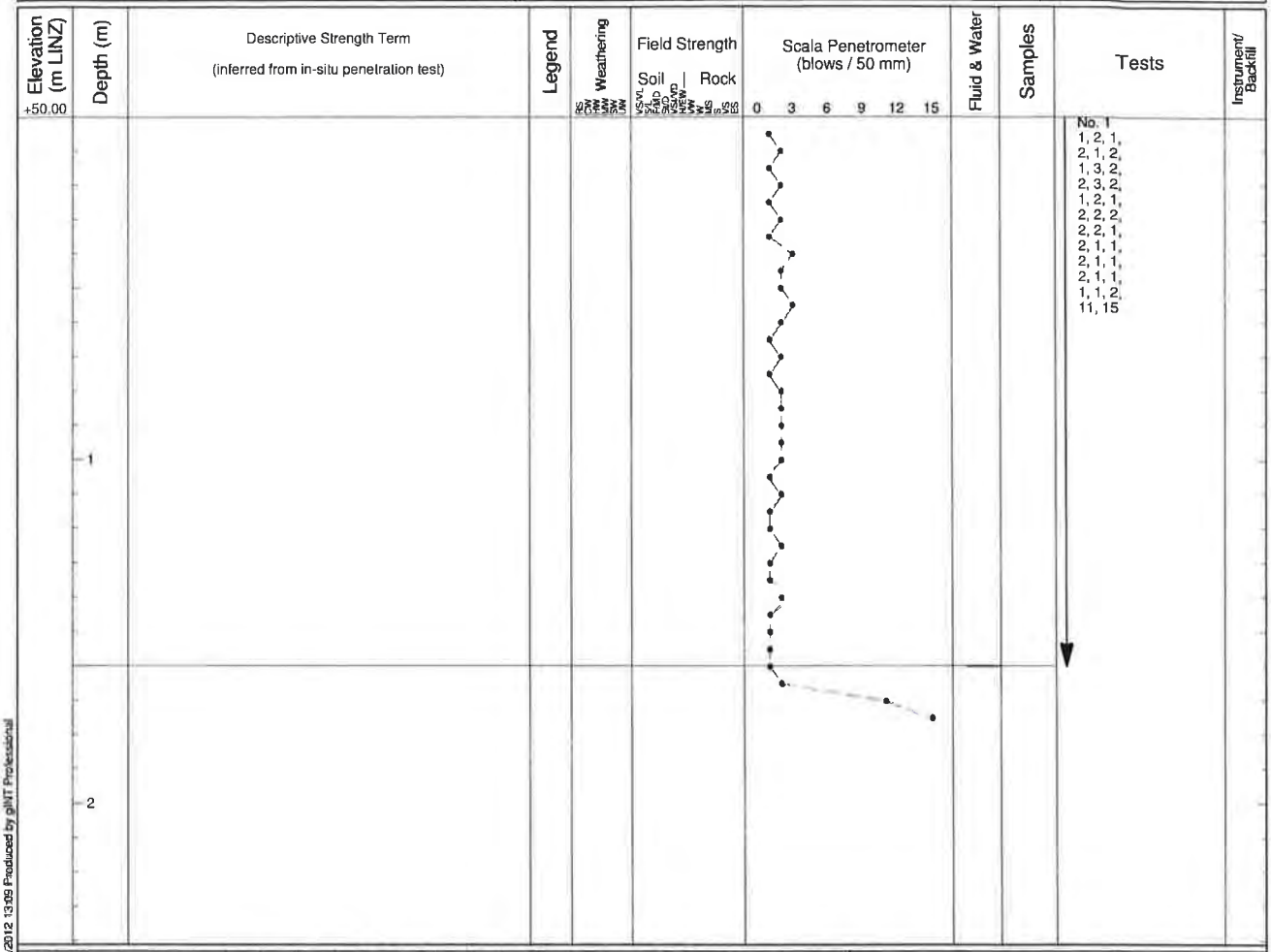
RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

SCALA LOG

Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	SP1

Job No.:	Start Date: 20-11-12 Finish Date: 20-11-12	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891		50.00	

Client:	Test Depth:	Sheet:
Nimbus Group	1.60 m	1 of 1



SKETCH:

MAP

Explanations:

Rock Mass Weathering - unweathered, slightly weathered, moderately weathered, highly weathered, completely weathered, residually weathered

Relative soil Strength - very soft/very loose, soft/loose, firm/medium dense, stiff/dense, very stiff/very dense

- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample

- Scala Penetrometer: blows/50mm
- Permeability Test
- Clegg Hammer: impact value (test repetitions)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) & Rise Time (min's.)

Groundwater:

- [X] None
- [ ] Rods wet below

HOLE TERMINATED DUE TO:

- [ ] Target depth
- [X] Refusal

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:20	Contractor:	Rig/Plant Used: Scala Penetrometer	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY SCALA LOG COLESPROPERTY GINT LOGS.GPJ DWG36164.GDW 11/12/2012 13:09 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

SCALA LOG

Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	SP2

Job No.:	Start Date: 20-11-12 Finish Date: 20-11-12	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891		50.00	

Client:	Test Depth:	Sheet:
Nimbus Group	1.70 m	1 of 1

Elevation (m LINZ) +50.00 | Depth (m) | Descriptive Strength Term (inferred from in-situ penetration test) | Legend | Weathering | Field Strength Soil | Rock | Scala Penetrometer (blows / 50 mm) 0 3 6 9 12 15 | Fluid & Water | Samples | Tests | Instrument/ Backfill

Tests — No. 1
1, 1, 1,
2, 2, 1,
1, 1, 2,
1, 1, 2,
1, 2, 1,
1, 1, 1,
2, 3, 3,
1, 1, 2,
2, 1, 1,
2, 1, 2,
2, 6,
11, 15

SKETCH:

MAP

0 m
1 km
2 km
1:1,000

Explanations:

Rock Mass Weathering - unweathered, slightly weathered, moderately weathered, highly weathered, completely weathered, residually weathered

Relative soil Strength - very soft/very loose, soft/loose, firm/medium dense, stiff/dense, very stiff/very dense

- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Scala Penetrometer: blows/50mm
- Permeability Test
- Clegg Hammer: impact value (test repetitions)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Water Strike (1st, 2nd ..)
- Water Rise (1st, 2nd ..) & Rise Time (min's.)

Groundwater:

[X] None
[ ] Rods wet below

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:20	Contractor:	Rig/Plant Used: Scala Penetrometer	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY SCALA LOG COLESPROPERTY GINT LOG.GPJ DWG261164.GDW 11/12/2012 13:09 Produced by gINT Professional

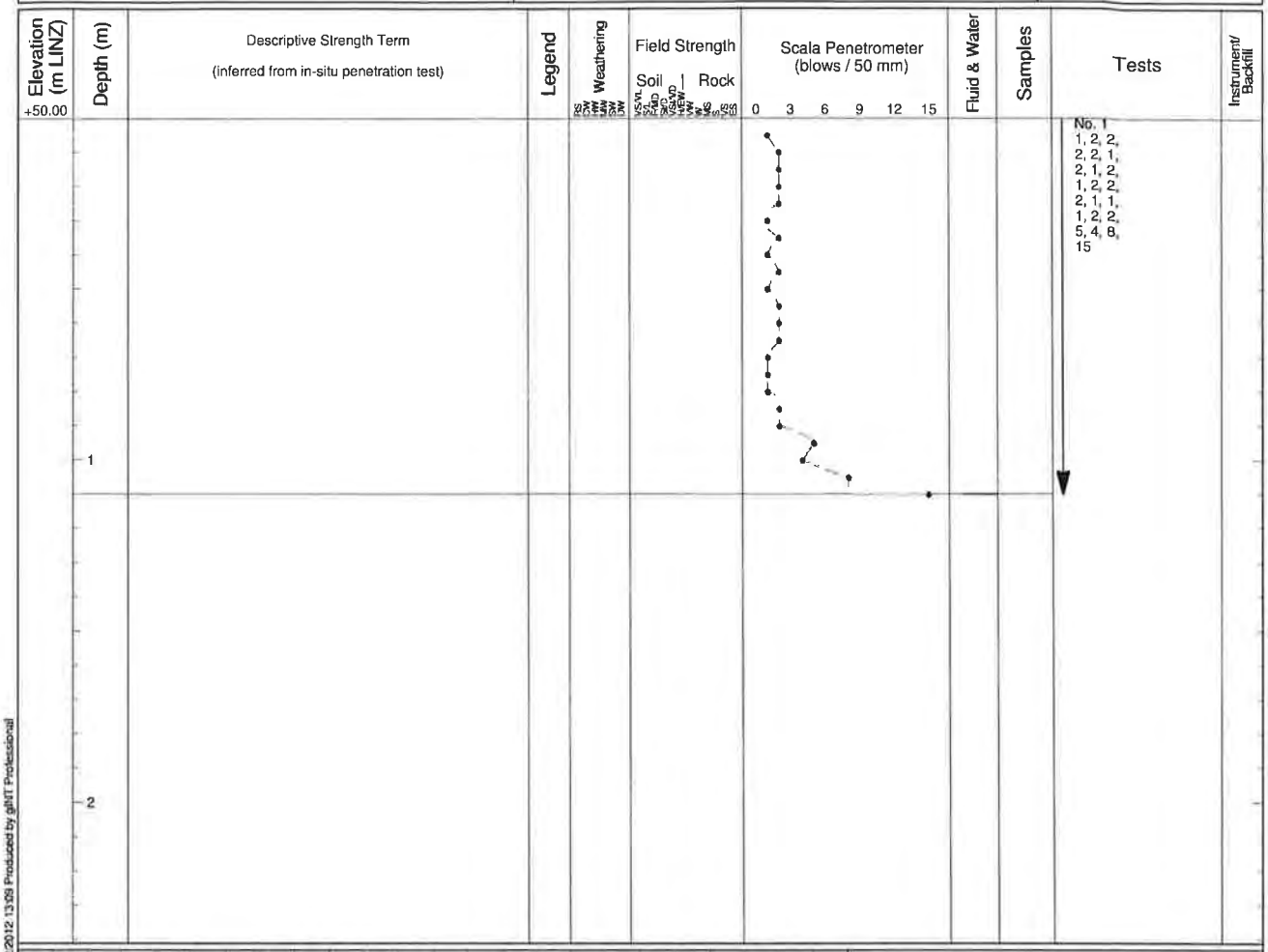
RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

SCALA LOG

Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	SP3

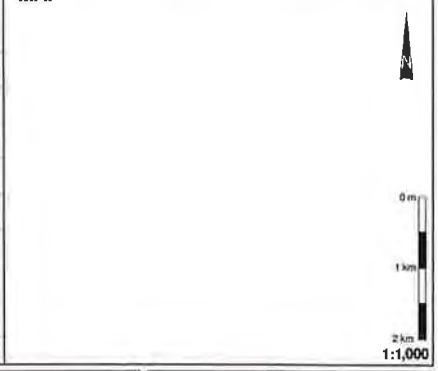
Job No.:	Start Date: 20-11-12 Finish Date: 20-11-12	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891		50.00	

Client:	Test Depth:	Sheet:
Nimbus Group	1.10 m	1 of 1



SKETCH:

MAP



Explanations:

Rock Mass Weathering - unweathered, slightly weathered, moderately weathered, highly weathered, completely weathered, residually weathered

Relative soil Strength - very soft/very loose, soft/loose, firm/medium dense, stiff/dense, very stiff/very dense

- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Scala Penetrometer: blows/50mm
- Permeability Test
- Clegg Hammer: impact value (test repetitions)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) & Rise Time (min's.)

Groundwater:

- [X] None
- [ ] Rods wet below

HOLE TERMINATED DUE TO:

- [ ] Target depth
- [X] Refusal

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:20	Contractor:	Rig/Plant Used: Scala Penetrometer	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY SCALA LOG COLESPROPERTY GINT LOG.GPJ DWG35164.GDW 11/12/2012 13:09 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists

Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

SCALA LOG

Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	SP4

Job No.:	Start Date: 20-11-12 Finish Date: 20-11-12	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891		50.00	

Client:	Test Depth:	Sheet:
Nimbus Group	1.25 m	1 of 1

Elevation (m LINZ)	Depth (m)	Descriptive Strength Term (inferred from in-situ penetration test)	Legend	Weathering	Field Strength Soil | Rock	Scala Penetrometer (blows / 50 mm)	Fluid & Water	Samples	Tests	Instrument/ Backfill
+50.00						0 3 6 9 12 15				
	1								No. 1 1, 1, 1, 1, 1, 2, 1, 2, 2, 2, 2, 2, 2, 1, 1, 1, 1, 2, 1, 1, 1, 1, 2, 12, 5	
	2									

SKETCH:

MAP

1:1,000

Explanations:

Rock Mass Weathering - unweathered, slightly weathered, moderately weathered, highly weathered, completely weathered, residually weathered

Relative soil Strength - very soft/very loose, soft/loose, firm/medium dense, stiff/dense, very stiff/very dense

- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Scala Penetrometer: blows/50mm
- Permeability Test
- Clegg Hammer: impact value (test repetitions)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) & Rise Time (min's.)

Groundwater:

[X] None

[ ] Rods wet below

HOLE TERMINATED DUE TO:

[ ] Target depth [X] Refusal

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:20	Contractor:	Rig/Plant Used: Scala Penetrometer	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY SCALA LOG COLESPROPERTY GINT LOG.GPJ DWG36164.GDW 11/12/2012 13:09 Produced by gINT Professional

RILEY CONSULTANTS
Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

SCALA LOG

Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	SP5

Job No.:	Start Date: 20-11-12 Finish Date: 20-11-12	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891		50.00	

Client:	Test Depth:	Sheet:
Nimbus Group	1.50 m	1 of 1

Elevation (m LINZ): +50.00

Depth (m): 1, 2

Descriptive Strength Term (inferred from in-situ penetration test)

Legend

Weathering: XW, EW, HW, MW, SW

Field Strength: Soil | Rock — VSOIL, SOFT, FIRM, STIFF, VSTIF, HARD, VLOW, LOW, MED, HIGH, VHIGH, EHIGH, XW, HW, MW, SW, FR

Scala Penetrometer (blows / 50 mm): 0 3 6 9 12 15

Fluid & Water

Samples

Tests

Instrument/ Backfill

No. 1
1, 2, 1,
2, 2, 3,
2, 2, 2,
3, 2, 2,
1, 1, 1,
1, 1, 1,
1, 1, 1,
2, 2, 2,
3, 3, 2,
3, 12,
15

SKETCH:

MAP

N

0 m
1 km
2 km
1:1,000

Explanations:

Rock Mass Weathering - unweathered, slightly weathered, moderately weathered, highly weathered, completely weathered, residually weathered

Relative soil Strength - very soft/very loose, soft/loose, firm/medium dense, stiff/dense, very stiff/very dense

- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Scala Penetrometer: blows/50mm
- Permeability Test
- Clegg Hammer: impact value (test repetitions)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ..) & Rise Time (min's.)

Groundwater:

- [X] None
- [ ] Rods wet below

HOLE TERMINATED DUE TO:

- [ ] Target depth
- [X] Refusal

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:20	Contractor:	Rig/Plant Used: Scala Penetrometer	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZ LIB 13.GLB Log: RILEY SCALA LOG COLESPROPERTY GINT LOG.GPJ DWG361E4.GDW 11/12/2012 13:09 Produced by gINT Professional

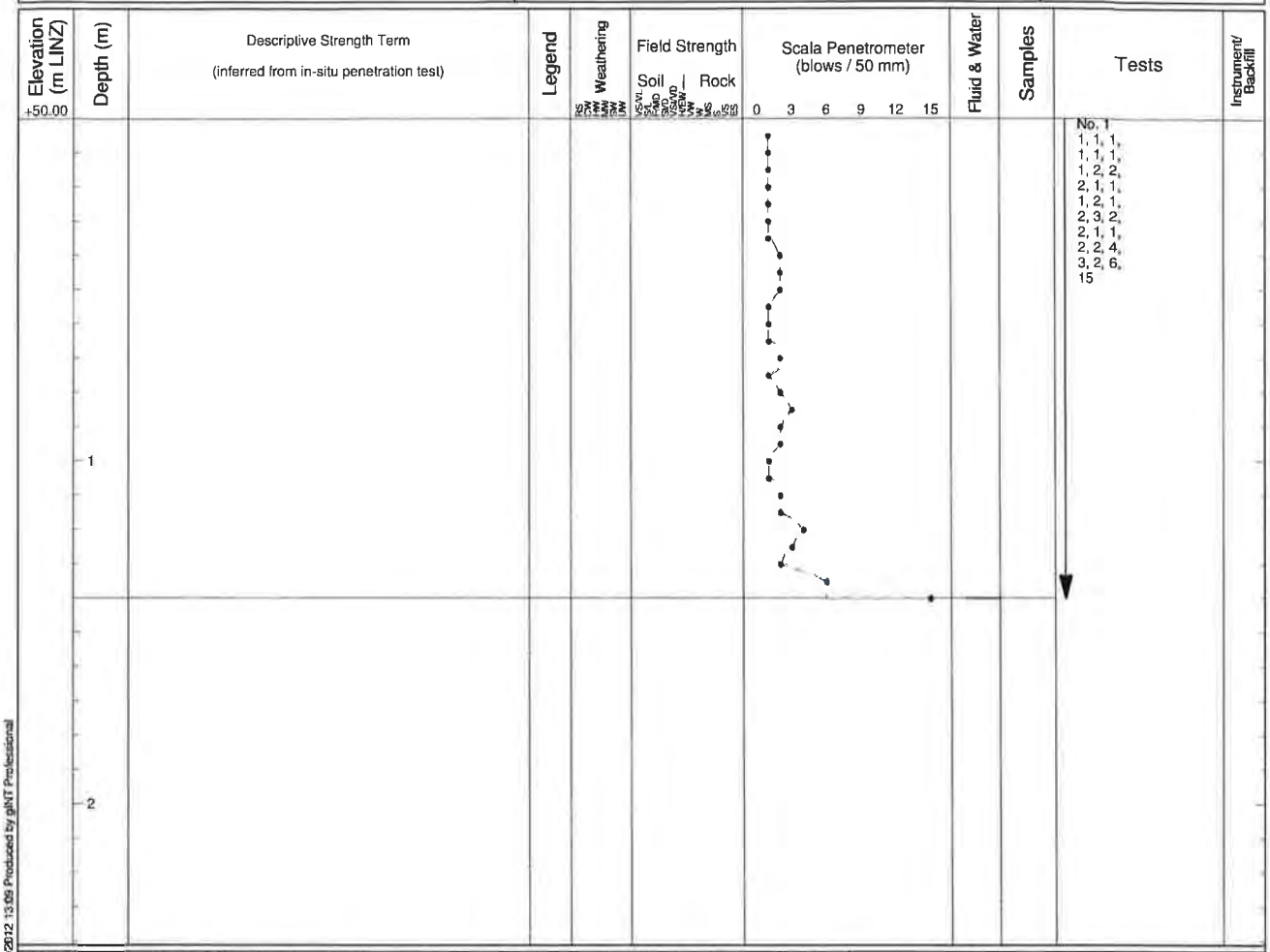
RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

SCALA LOG

Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	SP6

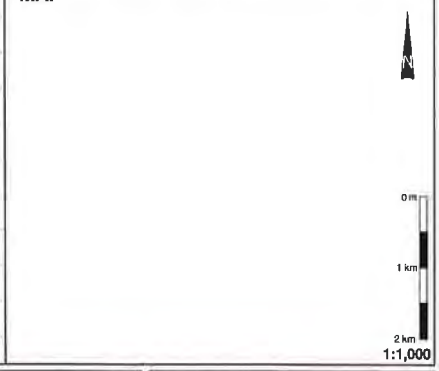
Job No.:	Start Date: / Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891	20-11-12 / 20-11-12	50.00	

Client:	Test Depth:	Sheet:
Nimbus Group	1.40 m	1 of 1



SKETCH:

MAP



Explanations:

Rock Mass Weathering - unweathered, slightly weathered, moderately weathered, highly weathered, completely weathered, residually weathered

Relative soil Strength - very soft/very loose, soft/loose, firm/medium dense, stiff/dense, very stiff/very dense

- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Scala Penetrometer: blows/50mm
- Permeability Test
- Clegg Hammer: impact value (test repetitions)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) & Rise Time (min's.)

Groundwater:

- [X] None
- [ ] Rods wet below

HOLE TERMINATED DUE TO:

- [ ] Target depth
- [X] Refusal

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:20	Contractor:	Rig/Plant Used: Scala Penetrometer	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY SCALA LOG COLESPROPERTY GINT LOG.GPJ DWG36164.GDW 11/12/2012 13:09 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists

Riley Consultants Limited
395 Madras Street
Christhcurch 8013
Tel: +643 3794402
Fax: +643 3794403

SCALA LOG

Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	SP7

Job No.:	Start Date: 20-11-12 Finish Date: 20-11-12	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891		50.00	

Client:	Test Depth:	Sheet:
Nimbus Group	1.55 m	1 of 1

Elevation (m LINZ)	Depth (m)	Descriptive Strength Term (inferred from in-situ penetration test)	Legend	Weathering	Field Strength (Soil | Rock)	Scala Penetrometer (blows / 50 mm)	Fluid & Water	Samples	Tests	Instrument/ Backfill
+50.00						0 3 6 9 12 15				
	1								No. 1 1, 1, 1, 2, 2, 2, 2, 3, 3, 2, 3, 3, 2, 2, 1, 2, 2, 2, 1, 1, 1, 1, 1, 2, 1, 1, 1, 1, 3, 6, 15	
	2									

SKETCH:

MAP

0 m
1 km
2 km
1:1,000

Explanations:

Rock Mass Weathering - unweathered, slightly weathered, moderately weathered, highly weathered, completely weathered, residually weathered

Relative soil Strength - very soft/very loose, soft/loose, firm/medium dense, stiff/dense, very stiff/very dense

- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Scala Penetrometer: blows/50mm
- Permeability Test
- Clegg Hammer: impact value (test repetitions)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) & Rise Time (min's.)

Groundwater:

[X] None
[ ] Rods wet below

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:20	Contractor:	Rig/Plant Used: Scala Penetrometer	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY SCALA LOG COLESPROPERTY GINT LOG.GPJ DWG3616#4.GDW 11/12/2012 13:09 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

SCALA LOG

Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	SP8

Job No.:	Start Date:	Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891	20-11-12	20-11-12	50.00	

Client:	Test Depth:	Sheet:
Nimbus Group	1.60 m	1 of 1

Elevation (m LINZ): +50.00

Depth (m): 1, 2

Descriptive Strength Term (inferred from in-situ penetration test)

Legend

Weathering: XW, HW, MW, SW, DW

Field Strength: Soil | Rock — VS/VL, S/MD, F/D, St/VD, HW, MW, SW, DW, XW, EW, S, MS, HS, ES

Scala Penetrometer (blows / 50 mm): 0 3 6 9 12 15

Fluid & Water

Samples

Tests

Instrument/ Backfill

No. 1
1, 0, 1,
1, 1, 1,
1, 2, 2,
1, 1, 1,
1, 1, 1,
2, 1, 2,
1, 1, 2,
1, 1, 1,
1, 1, 1,
1, 2, 2,
4, 15

SKETCH:

MAP

N

0 m
1 km
2 km
1:1,000

Explanations:

Rock Mass Weathering - unweathered, slightly weathered, moderately weathered, highly weathered, completely weathered, residually weathered

Relative soil Strength - very soft/very loose, soft/loose, firm/medium dense, stiff/dense, very stiff/very dense

- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Scala Penetrometer: blows/50mm
- Permeability Test
- Clegg Hammer: impact value (test repetitions)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ..) & Rise Time (min's.)

Groundwater:

[X] None

[ ] Rods wet below

HOLE TERMINATED DUE TO:

[ ] Target depth [X] Refusal

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:20	Contractor:	Rig/Plant Used: Scala Penetrometer	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZ LIB 13 GLB Log RILEY SCALA LOG COLESPROPERTY GINT LOG.GPJ DWG3616A.GDW 11/12/2012 13:09 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

SCALA LOG

Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	SP9

Job No.:	Start Date: 20-11-12 Finish Date: 20-11-12	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891		50.00	

Client:	Test Depth:	Sheet:
Nimbus Group	2.00 m	1 of 1

Elevation (m LINZ) +50.00 | Depth (m) | Descriptive Strength Term (inferred from in-situ penetration test) | Legend | Weathering | Field Strength (Soil | Rock) | Scala Penetrometer (blows / 50 mm) 0 3 6 9 12 15 | Fluid & Water | Samples | Tests | Instrument/ Backfill

Tests: No. 1
1, 1, 0,
1, 2, 1,
2, 11,
1, 1, 1,
1, 1, 1,
1, 2, 2,
1, 1, 1,
1, 2, 1,
2, 2, 2,
1, 2, 2,
2, 2, 2,
3, 5, 4,
4, 3, 3,
4, 5

SKETCH:

MAP

1:1,000

Explanations:
Rock Mass Weathering - unweathered, slightly weathered, moderately weathered, highly weathered, completely weathered, residually weathered
Relative soil Strength - very soft/very loose, soft/loose, firm/medium dense, stiff/dense, very stiff/very dense

- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Scala Penetrometer: blows/50mm
- Permeability Test
- Clegg Hammer: impact value (test repetitions)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) & Rise Time (min's.)

Groundwater:
[X] None
[ ] Rods wet below

HOLE TERMINATED DUE TO:
[X] Target depth [ ] Refusal

Remarks
1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:20	Contractor:	Rig/Plant Used: Scala Penetrometer	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY SCALA LOG COLESPROPERTY GINT LOG.GPJ DWG36164.GDW 11/12/2012 13:09 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

SCALA LOG

Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	SP10

Job No.:	Start Date: 20-11-12 Finish Date: 20-11-12	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891		50.00	

Client:	Test Depth:	Sheet:
Nimbus Group	0.55 m	1 of 1

Elevation (m LINZ)	Depth (m)	Descriptive Strength Term (inferred from in-situ penetration test)	Legend	Weathering	Field Strength (Soil | Rock)	Scala Penetrometer (blows / 50 mm)	Fluid & Water	Samples	Tests	Instrument/ Backfill
+50.00						0 3 6 9 12 15			No. 1 1, 0, 1, 2, 2, 2, 2, 2, 3, 7, 15	
	1									
	2									

SKETCH:

MAP

1:1,000

Explanations:

Rock Mass Weathering - unweathered, slightly weathered, moderately weathered, highly weathered, completely weathered, residually weathered

Relative soil Strength - very soft/very loose, soft/loose, firm/medium dense, stiff/dense, very stiff/very dense

- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Scala Penetrometer: blows/50mm
- Permeability Test
- Clegg Hammer: impact value (test repetitions)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ..) & Rise Time (min's.)

Groundwater:

[X] None

[ ] Rods wet below

HOLE TERMINATED DUE TO:

[ ] Target depth [X] Refusal

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:20	Contractor:	Rig/Plant Used: Scala Penetrometer	Logged by: 39	Checked by: AvD

RILEY AGS_3_1 NZ LIB 13.GLB Log RILEY SCALA LOG COLESPROPERTY GINT LOG.GPJ DWG36164.GDW 11/12/2012 13:09 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

SCALA LOG

Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	SP11

Job No.:	Start Date: 20-11-12 Finish Date: 20-11-12	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891		50.00	

Client:	Test Depth:	Sheet:
Nimbus Group	2.00 m	1 of 1

Elevation (m LINZ) +50.00 | Depth (m) | Descriptive Strength Term (inferred from in-situ penetration test) | Legend | Weathering | Field Strength Soil / Rock | Scala Penetrometer (blows / 50 mm) 0 3 6 9 12 15 | Fluid & Water | Samples | Tests | Instrument/ Backfill

Tests:
No. 1
1, 0, 1,
1, 2, 2,
1, 1, 2,
1, 1, 1,
2, 2, 2,
2, 1, 1,
1, 1, 1,
2, 2, 1,
1, 2, 1,
2, 1, 2,
2, 2, 2,
2, 2, 4,
3, 4,
10, 15

SKETCH:

MAP

1:1,000

Explanations:

Rock Mass Weathering - unweathered, slightly weathered, moderately weathered, highly weathered, completely weathered, residually weathered

Relative soil Strength - very soft/very loose, soft/loose, firm/medium dense, stiff/dense, very stiff/very dense

- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample

- Scala Penetrometer: blows/50mm
- Permeability Test
- Clegg Hammer: impact value (test repetitions)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ..) & Rise Time (min's.)

Groundwater:

- [X] None
- [ ] Rods wet below

HOLE TERMINATED DUE TO:
- [X] Target depth
- [ ] Refusal

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:20	Contractor:	Rig/Plant Used: Scala Penetrometer	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY SCALA LOG COLESPROPERTY GINT LOG.GPJ DWG36:6A.GDW 1/12/2012 13:09 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists

Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

SCALA LOG

Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	SP12

Job No.:	Start Date: 20-11-12 Finish Date: 20-11-12	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891		50.00	

Client:	Test Depth:	Sheet:
Nimbus Group	1.45 m	1 of 1

Elevation (m LINZ)	Depth (m)	Descriptive Strength Term (inferred from in-situ penetration test)	Legend	Weathering (RS CW HW MW SW DW)	Field Strength Soil (VS VL S F St VSt H) — Rock (EW VW W MS S VS EB)	Scala Penetrometer (blows / 50 mm) 0 3 6 9 12 15	Fluid & Water	Samples	Tests	Instrument/ Backfill
+50.00	1								No. 1 1, 2, 1, 2, 2, 2, 2, 2, 2, 2, 1, 2, 1, 1, 2, 2, 1, 2, 1, 1, 1, 2, 2, 1, 3, 2, 2, 1, 2, 10, 15	
	2									

SKETCH:

MAP

Explanations:

Rock Mass Weathering - unweathered, slightly weathered, moderately weathered, highly weathered, completely weathered, residually weathered

Relative soil Strength - very soft/very loose, soft/loose, firm/medium dense, stiff/dense, very stiff/very dense

- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Scala Penetrometer: blows/50mm
- Permeability Test
- Clegg Hammer: impact value (test repetitions)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) & Rise Time (min's.)

Groundwater:

- [X] None
- [ ] Rods wet below

HOLE TERMINATED DUE TO:

- [ ] Target depth
- [X] Refusal

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:20	Contractor:	Rig/Plant Used: Scala Penetrometer	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY SCALA LOG COLESPROPERTY GINT LOG.GPJ DWG36164.GDW 11/12/2012 13:09 Produced by gINT Professional

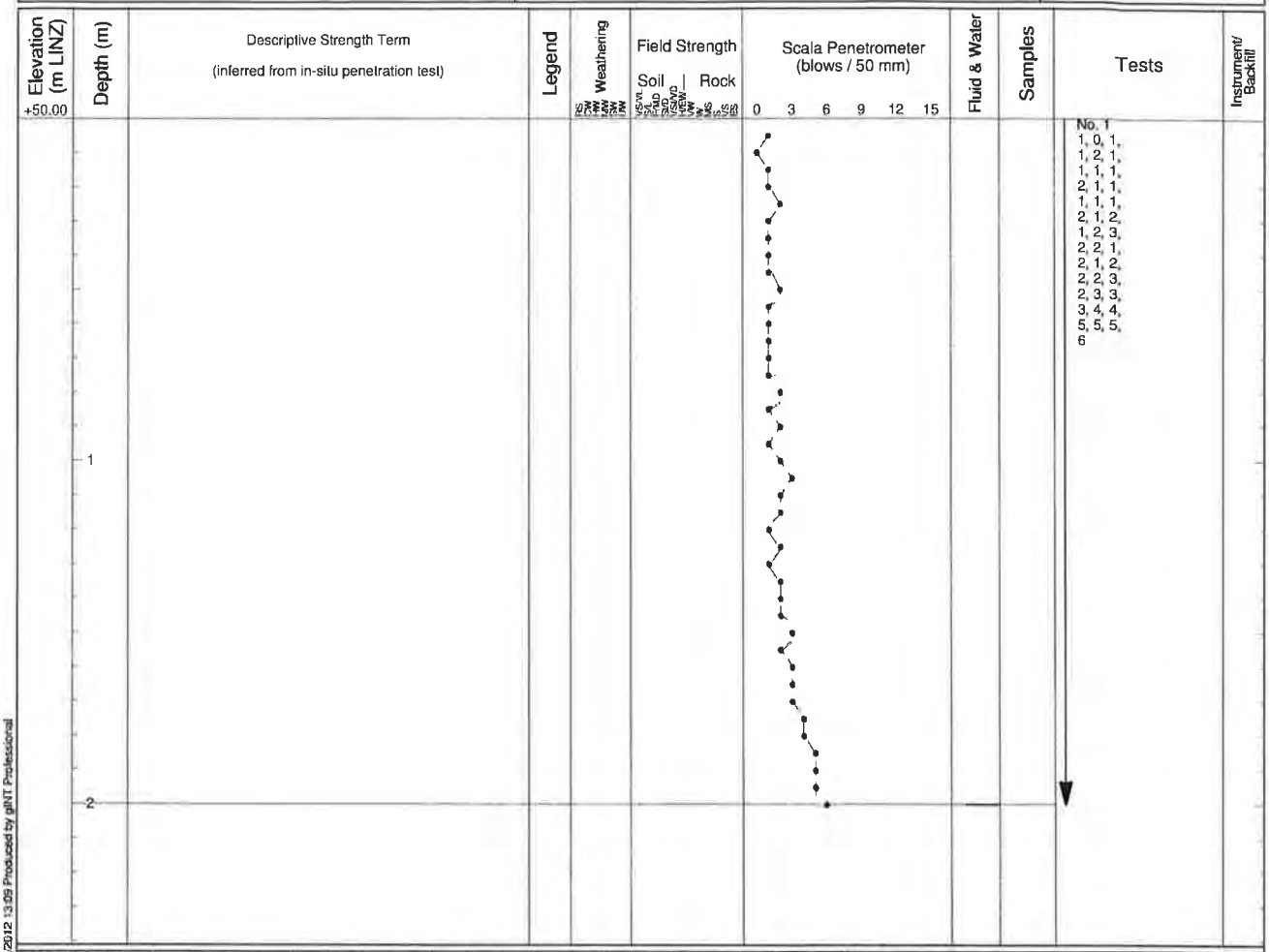
RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

SCALA LOG

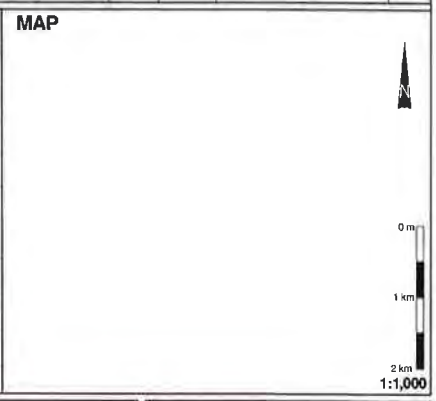
Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	SP13

Job No.:	Start Date: / Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891	20-11-12 / 20-11-12	50.00	

Client:	Test Depth:	Sheet:
Nimbus Group	2.00 m	1 of 1



SKETCH:



Explanations:

Rock Mass Weathering - unweathered, slightly weathered, moderately weathered, highly weathered, completely weathered, residually weathered

Relative soil Strength - very soft/very loose, soft/loose, firm/medium dense, stiff/dense, very stiff/very dense

- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample

- Scala Penetrometer: blows/50mm
- Permeability Test
- Clegg Hammer: impact value (test repetitions)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) & Rise Time (min's.)

Groundwater:

- [X] None
- [ ] Rods wet below

HOLE TERMINATED DUE TO:

- [X] Target depth
- [ ] Refusal

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:20	Contractor:	Rig/Plant Used: Scala Penetrometer	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY SCALA LOG COLESPROPERTY GINT LOG.GPJ DWG36164.GDW 11/12/2012 13:09 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists

Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

SCALA LOG

Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	SP14

Job No.:	Start Date: 20-11-12 Finish Date: 20-11-12	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891		50.00	

Client:	Test Depth:	Sheet:
Nimbus Group	1.95 m	1 of 1

Elevation (m LINZ)	Depth (m)	Descriptive Strength Term (inferred from in-situ penetration test)	Legend	Weathering	Field Strength (Soil | Rock)	Scala Penetrometer (blows / 50 mm)	Fluid & Water	Samples	Tests	Instrument/ Backfill
+50.00						0 3 6 9 12 15			No. 1 1, 0, 1, 1, 1, 2, 2, 1, 2, 1, 1, 1, 1, 2, 2, 2, 1, 1, 1, 1, 1, 2, 1, 2, 2, 1, 2, 1, 2, 2, 3, 2, 1, 1, 1, 2, 4, 5, 15	
	1									
	2									

SKETCH:

MAP

0 m
1 km
2 km
1:1,000

Explanations:

Rock Mass Weathering - unweathered, slightly weathered, moderately weathered, highly weathered, completely weathered, residually weathered

Relative soil Strength - very soft/very loose, soft/loose, firm/medium dense, stiff/dense, very stiff/very dense

- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Scala Penetrometer: blows/50mm
- Permeability Test
- Clegg Hammer: impact value (test repetitions)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) & Rise Time (min's.)

Groundwater:

- [X] None
- [ ] Rods wet below

HOLE TERMINATED DUE TO:
- [ ] Target depth
- [X] Refusal

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:20	Contractor:	Rig/Plant Used: Scala Penetrometer	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY SCALA LOG COLESPROPERTY GINT LOG.GPJ DWG36164.GDW 11/12/2012 13:09 Produced by gINT Professional

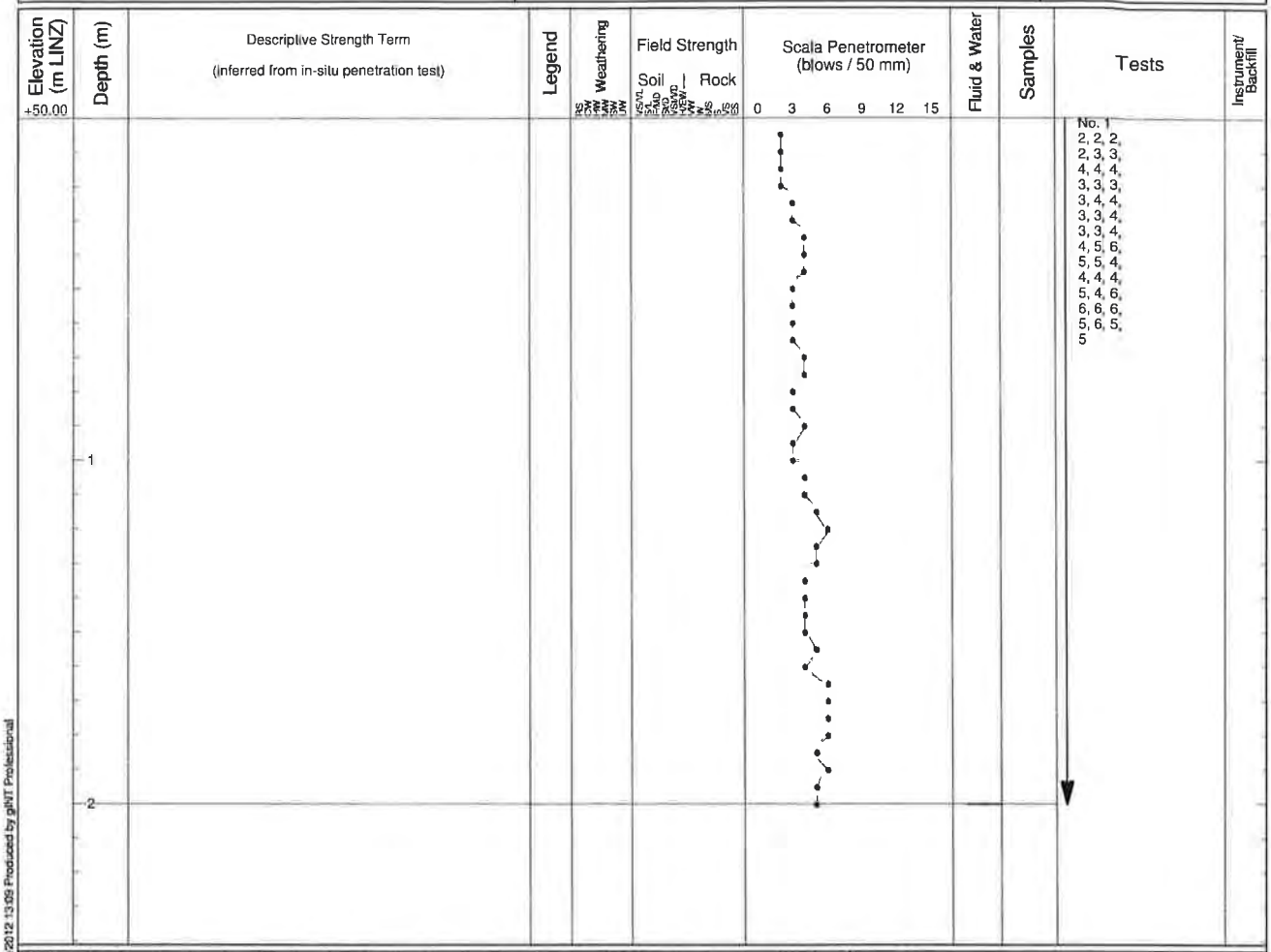
Riley Consultants Limited
395 Madras Street
Christchurch 8013
Tel: +643 3794402
Fax: +643 3794403

SCALA LOG

Project:	Location:	Hole position:	No.:
Coles Property - Park Lane	Rolleston, Canterbury	Refer to site plan	SP15

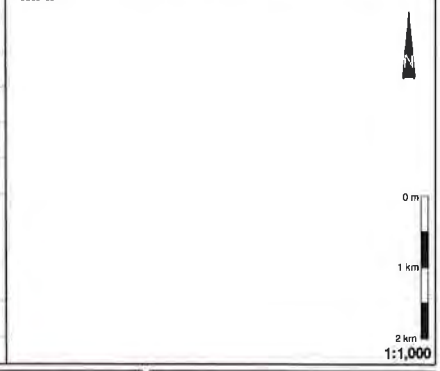
Job No.:	Start Date: 20-11-12 Finish Date: 20-11-12	Ground Level (m LINZ):	Co-Ordinates (NZTM2000):
12891		50.00	

Client:	Test Depth:	Sheet:
Nimbus Group	2.00 m	1 of 1



SKETCH:

MAP



Explanations:

Rock Mass Weathering - unweathered, slightly weathered, moderately weathered, highly weathered, completely weathered, residually weathered

Relative soil Strength - very soft/very loose, soft/loose, firm/medium dense, stiff/dense, very stiff/very dense

- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Scala Penetrometer: blows/50mm
- Permeability Test
- Clegg Hammer: impact value (test repetitions)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ..) & Rise Time (min's.)

Groundwater:

- [X] None
- [ ] Rods wet below

HOLE TERMINATED DUE TO:

- [X] Target depth
- [ ] Refusal

Remarks

1. Ground level and coordinates are approximate and subject to survey confirmation.

All dimensions in metres Scale 1:20	Contractor:	Rig/Plant Used: Scala Penetrometer	Logged by: 39	Checked by: AvD

RILEY AGS 3_1 NZ UB 13 GLB Log RILEY SCALA LOG COLESPROPERTY GINT LOG.GPJ DWG3516f4.GDW 11/12/2012 13:09 Produced by gINT Professional

AUCKLAND
Riley Consultants Limited
4 Fred Thomas Drive, Takapuna
PO Box 100 253, NSMC, Auckland, New Zealand
Telephone 64 9 489 7872, Facsimile 64 9 489 7873
riley@riley.co.nz

www.riley.co.nz

CHRISTCHURCH
Riley Consultants Limited
Ground Floor, 395 Madras Street
PO Box 4355, Christchurch, New Zealand
Telephone 64 3 379 4402, Facsimile 64 3 379 4403
rileychch@riley.co.nz

www.riley.co.nz

ACENZ

ISO 9001 CERTIFIED GCS

Annexure Nine: SDC Letter re Pre-Application Meeting

Selwyn DISTRICT COUNCIL

24 October 2012

Coles Family Trust
c/- Robin Schulz, Director
Nimbus Group
P O Box 8394
CHRISTCHURCH 8440

Dear Sir/Madam,

RURAL RESIDENTIAL PLAN CHANGE: PRE-APPLICATION MEETING

The following letter summarises the general points that were discussed at the meeting held on Thursday 18th October 2012. This letter also aims to outline the matters Council would expect to be contained within any request seeking a rezoning of the subject site from its existing Rural (Inner Plains) zone to a Living 3 zone to support rural residential development. I have not summarised any of the points discussed at the same meeting with respect to the adjoining balance of your clients that is zoned Living Z, which my colleague Cameron Wood will respond to in due course.

Strategic management of rural residential development

As you will be aware, rural residential development has been managed in the District historically, with the basis of the recent proposed changes to the District Plan (Plan Changes 17 and 32[1]) being driven by amendments to the Regional Policy Statement (RPS) through Change 1. There have been a number of process issues associated with the formalisation of the RPS with respect to managing development within Greater Christchurch that has meant that a definitive framework at the Regional level has yet to be finalised. As you will be aware, Chapter 12A has recently been withdrawn from the Operative RPS in response to a successful judicial review process, with all appeals on the Change 1 decision having been returned to the Environment Court for consideration. However, the judicial review decision is subject to an appeal to the Court of Appeal, so there remains a possibility that Chapter 12A may be reinstated into the Operative RPS. Despite the above, it is important that any private plan change request demonstrate the extent to which any given proposal will deliver the prescribed household allocations (Policy 6) and development criteria (Policy 14) espoused in Change 1.

The Rural Residential Background Report (RRBR) and the District Plan Growth of Township provisions have strongly influenced Council's Plan Change 32 (32), which promotes rural residential typologies in peri-urban locations adjoining Townships. This is to achieve infrastructure efficiencies, preserve rural productivity and amenity and achieve sustainable rural residential nodes.

Council would expect any request to address the 'preferred location criteria' contained within the RRBR, which have been prepared to assist in determining the appropriateness of any given site for accommodating rural residential densities. The following matters should also be addressed in the request:

- Methods to deliver an appropriate rural residential character, form and function
- the preparation of an Outline Development Plan (ODP) to identify how the site is proposed to be integrated with adjoining land use activities, reference any historic,

[1] PC 17 has been withdrawn and replaced by PC 32, which has been publicly notified and submissions/further submissions received

cultural or ecological values within the site, confirm the road network, stormwater treatment and disposal areas, walking and cycling connections and network utilities

- determine densities through in-depth contextual analysis to ensure all constraints and opportunities associated with the site have been identified and responded to

I will forward through a copy of the withdrawn PC 17, which supported the subject block for rezoning to Living 3 densities and contains assessments as requested. However, it is important to note that PC 17 has been formally withdrawn so cannot be given any statutory weight in considering the merits of any future private plan change request.

I take this opportunity to emphasise that the number of rural residential households are managed tightly to reflect the Council's current position that rural residential forms of development are a less sustainable typology when compared to consolidated residential patterns of growth. The first in first served regime currently in place is contingent upon private land owners pursuing District Plan zone changes. Therefore, it is important that promulgators of private plan change requests consider the risks and economic viability of pursuing a rezoning proposal under the current circumstances, where there are limited households Council is able to allocate and no surety that a rezoning will be successful.

Plan Change 32

Council has publicly notified Plan Change 32 (PC 32) to the Selwyn District Plan to incorporate additional objectives, policies and rules into the Living 3 Zone (Rural Residential), the preparation of which was informed by the RRBR and Change 1.

Several proposed objectives and policies within PC 32 are directly relevant to the substantive consideration of a plan change request seeking a Living 3 zone, including the following:

- *Zone description* – Identifies the anticipated form, function and character of the Living 3 Zone;
- *Objective B3.4.6* – Reinforces the preference for peri-urban consolidated growth, the need to achieve efficiencies in the provision of infrastructure servicing and to identify methods to achieve sustainable outcomes through in-depth analysis of the sites context;
- *Policy B3.4.3 (b)* – Sets out the various requirements for any given development proposal, including ODP's, servicing, amenity outcomes, density, layout and connectivity;
- *Policy B4.3.68 and Policy B4.3.69* – Incorporates the Living 3 Zone into the Preferred Growth Option for Rolleston, including specifically the need to avoid conflict with the South Island Main Trunk Line (SIMTL), State Highway One (SH1), I-Zone Business Park and the Christchurch International Airport Noise Contour.
- *Subdivision assessment matters* – Identifies the various assessment matters required to be addressed at subdivision stage.

Development site

The following summary outlines the context of the site in respect to the District Plan Growth of Township provisions and other strategic planning documents prepared by the Council to assist in determining the appropriateness of locations to support rural residential development.

The urban form of Rolleston, as established through the Rolleston Structure Plan process, is now reflected in the Growth of Township policies and the relating Living Z zone. As you are aware, the subject site is not within the Metropolitan Urban Limit for Rolleston, but does directly adjoin an area zoned Living Z. The site also avoids the identified airport noise contour and is some distance from the I-Zone business park. However, methods will need to be developed to avoid any potentially adverse reverse sensitivity effects associated with the adjoining SH1 and SIMTL.

Once again, specific reference should be made in any plan change request to the Township Study Area Assessments, 'preferred location criteria' and the Study Area Assessment Plans

contained within Appendix 6 of the RRBR, which contain useful information that is directly relevant to the planning context of the proposed development area.

The stability of the ground to support rural residential densities and its susceptibility to liquefaction during large earthquake events will need to be investigated if a rezoning proposal is pursued. This is a mandatory requirement under the Recovery Strategy for Greater Christchurch[2].

Development proposal

The general development area is bound by the Rural (Inner Plains) Zone to the north and west, undeveloped Living Z zone to the south and State Highway 1 to the west. A plan identifying an initial scheme for the development block was tabled at the meeting for discussion, which identified a yield of 36 households sections at an average density of 2hh/ha. This scheme plan differs slightly from the proposal that was tabled during the PC 17 process, with the amendments supported because they better respond to the surrounding context of the site, such as the provision of larger lots adjoining the State Highway and adjoining rural blocks. The range of lot sizes and the containment of the smaller parcels within the centre of the site to internalise any related effects is also supported from an urban design perspective.

Several points of clarification were raised and responded to, including the following:

- The road cross sections for the Living 3 zone have been confirmed through the PC 12 process, which provide wide berms, reduced sealed widths and street lights, encourage swales as opposed to kerb and channelling to achieve an overall rural residential appearance and function
- A concern was raised around the reduced buildable area associated with the 0.3ha parcels where the PC 32 setbacks rules are applied – these setbacks are a more generic development control to achieve a rural residential form, function and character, which contrasts to specific development controls that may be promulgated for specific development proposals to avoid, remedy or mitigate potentially adverse effects associated with small parcels within the Living Z zone
- It was confirmed that any future setback and building restrictions from the State Highway are likely to be consistent with what has been established for the adjoining Living Z zone, with Cameron Wood to respond accordingly
- Confirmation was provided that Council did not necessarily support additional open space reserves or a peripheral walkway, as confirmed in previous meeting notes provided on the proposed development of the land
- Consideration was given to deferring some of the household numbers already allocated to the District under Change 1, but are contained within the undeveloped Living 3 zone in Rolleston. Any deferral would require the buy-in from the land owner and would need to be formalised into the District Plan or through some other legally binding instrument

Plan change request

At this point in time, all private plan change requests must demonstrate that the District Plan would continue to 'give effect' to the RPS should it be formalised, including specifically the prescribed household allocations and development criteria identified previously.

Any inconsistency with the objectives and policies of the District Plan, or any amendments to it proposed through PC 32, would not be grounds for Council to reject the request[3]. Rather, I consider that these matters would need to be weighed up in a substantive assessment of the overall appropriateness of any proposed zoning for consideration at any subsequent hearing.

---

[2] www.cera.govt.nz

[3] Clause 25 (4) of the 1st Schedule of the Resource Management Act 1991

The following technical reports are anticipated to accompany any private plan change request to rezone rural land to Living 3 Zone densities, although this would ultimately be determined by the scale of the final proposal and characteristics of the site:

- Urban design/ landscape analysis
- Infrastructure servicing (water, wastewater, stormwater and utilities)
- Transportation
- Contaminated land assessment[4]
- Geotechnical analysis
- Environmental health and environmental effects assessments

Council also recommends that the applicant consult with Te Taumutu Rununga through Mahaanui Kurataiao Limited (MKT) to identify any cultural values and to establish options to protect and enhance ecosystems and indigenous biodiversity. The contact at MKT is Frania Zygadlo – Environmental Advisor (03 377 4374 - frania.zygadlo@ngaitahu.iwi.nz).

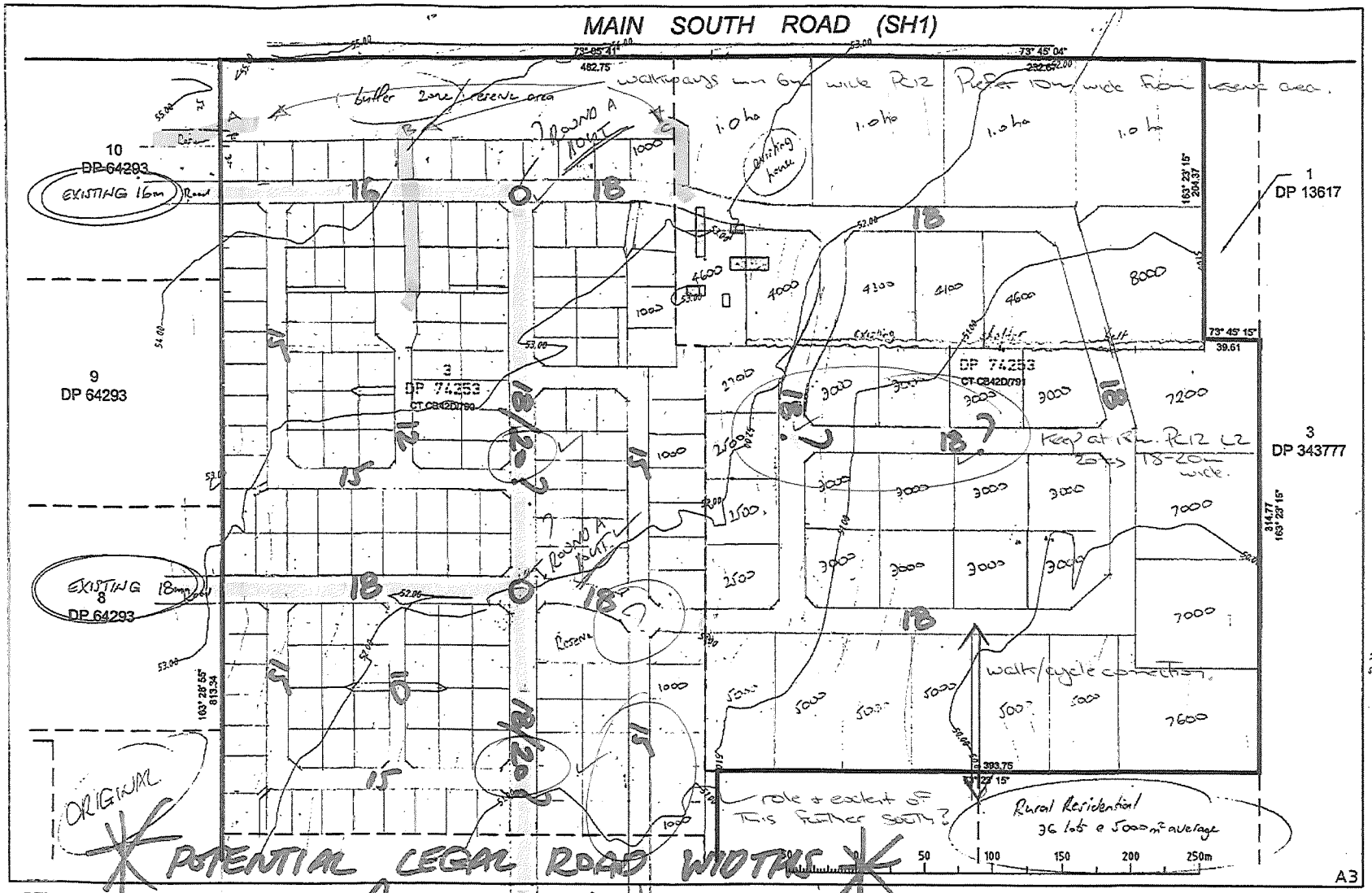
I would also strongly encourage you to lodge a draft plan change request if you choose to proceed so that it can be circulated to all relevant staff within Council for comment.

Please feel free to contact me should you have any further queries.

Yours faithfully

Craig Friedel
Policy Planner

[4] A desktop based contaminated land assessment is required to determine the appropriateness of the land for intensification based on the new requirements of National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health



10-12m wide Local Minor
13-15m Local Intermediate

main primary route as per ODP 3. Keep North/South @ 20m wide.

From Craig Friedel
To Anna Mackenzie
Date 29/08/2013

Anna,

Thank you for the opportunity to review and provide comments on the pre-application draft of the Coles private plan change request in East Rolleston. It is noted that the plan change reference of PC27 has already been registered on Council's system, so can be used for the purposes of finalising the request.

A more comprehensive review including feedback from Assets Manager's and other experts was not able to be undertaken based on availability and time constraints. The following comments are therefore limited to the planning aspects of the plan change and are provided on a without prejudice basis.

Pre-application draft

The matters raised in Council's pre-application letter dated 24 October 2012 for the most part remain relevant. A significant change of circumstance relates to how Council is required to manage rural residential development under the Land Use Recovery Plan (LURP) and Chapter 6 of the Canterbury Regional Policy Statement, which I note is addressed within the draft plan change document. I propose to send through a separate email to provide a more detailed update on the LURP, Chapter 6 and progress with Council's Rural Residential Strategy (which is effectively required to enable any rural residential development within the UDS area of the District once the Minister makes the LURP operative).

The following comments are referenced against the PC27 paragraph numbering:

- Paragraph 1.1 – As identified below, personally I'm not confident that rural residential development will 'promote urban consolidation'. Rather, the location is the most optimal in respect to integrating with a self-sustaining Township, promoting connectivity and proximity to employment, services, social services, being able to achieve efficiencies in the provision of infrastructure (able to economically connect to reticulated services, alternative transport options to private motor vehicles…) and avoiding rural productive farmland and strategic infrastructure (i.e. avoids I-Zone and Airport noise contour, but is affected by the SH1 four-laning notice of requirement).
- Paragraphs 1.3/1.14 – As identified below, I do not agree that the balance of the Coles land holding beyond the MUL has become unviable for rural production given. This is because it is 20ha in size, while the minimum lot size under the Rural Inner Plains zone is 4ha. In addition, I can't see how the parcel would become land locked as this would not be able to occur through the subdivision process.
- Paragraphs 1.5/1.6 – I do not support the position that rural residential development needs to be provided simply to respond to market demand. It is clear in the post-earthquake analysis on household availability in the LURP that Selwyn District has more than enough residential zoned land to respond to growth, particularly in Rolleston, Lincoln and Prebbleton. In contrast, Chapter 6 identifies a number of issues with providing this form of development and provides clear parameters under which it needs to be managed. There is a very general discussion in the draft LURP that rural residential development offers some housing choice, but that it is a less efficient use of land and infrastructure, undermines rural character and conflicts with farming and quarrying (LURP – Section 4.2 P44).
- Paragraphs 1.16-1.19 – The RRBR is effectively going to be superseded by the Rural residential Strategy, but until it is accepted by Council for notification the Background Report reflects Council's adopted policy position.
- Paragraph 1.24 – The request appears to be seeking approval for a development proposal that contains an average lot size of 4,700m^2, which technically fails to accord with the definition currently provided in Chapter 6 to the Regional Policy Statement. A more detailed explanation as to how this was calculated is needed, including whether the walking link is exempt from the density calculations under Chapter 6. My understanding was that access

strips can only be exempt where they *"…form part of a larger regional or sub-regional reserve network"*. I'm not so sure this access link would qualify as being of regional or sub-regional importance.

- Paragraph 3.11 – As identified below, I do not believe a lot of weight can be given to Change 1, given the Environment Courts discussion on the relevance of the framework when placing the appeals on indefinite hold. The LURP however has been through two consultation processes and now only requires the Minister to make a decision, at which point it will be operative pursuant to the CER Act.
- Paragraphs 3.32 to 3.34 – These are strong arguments to support the location, with these principals being reflected in the PC32 policy directions and the RRBR/Rural Residential Strategy. Also a note that the numbering appears to have gone awry at the end of paragraph 3.34.
- Paragraph 3.24 [P24] – personally I believe the summary provided in this paragraph presents a stronger argument for the land being appropriate for a Living 3 zone than the discussion provided in Paragraph 1.1 and 1.3/1.4.
- Paragraph 3.30 [P22] – This assessment seems a bit slim given the current set of circumstances where: (a) the CER Act is managing development in Greater Christchurch; (b) the SH1 four-laning/CSM2 is a Road of National Significance and has been heard by a Board of Inquiry; and (c) we now have an Iwi Management Plan that has been endorsed by all Rununga in the Canterbury Takiwa.
- Section 6 – Consultation; The draft does not appear to include an assessment against Mahaanui: Iwi Management Plan 2013. An assessment against this Iwi Management Plan, and confirmation of discussions with MKT, should be included to ensure any sites of significance are not overlooked and any effects on Rununga values are addressed. I would also strongly recommend that NZTA is consulted given that a portion of the land is identified in the Notice of Requirement for the SH1 four-laning (see the 500m NoR buffer contained in the attached GIS print out).
- Paragraph 6.2 – The site wasn't specifically subject to consultation under the RRBR or PC 32 processes as these initiatives were determining the higher level policy framework for managing rural residential development, as opposed to selecting preferred locations (which was undertaken as part of PC17, but cannot be relied upon as it has been withdrawn). The Rural Residential Strategy supports the site on a preliminary basis, but has yet to be adopted. It may be more appropriate to reference that the applicant has participated in these processes by lodging comments and submissions, but no definitive outcome has been reached.

Outline Development Plan – Annexure 2

- I note that the ODP appears to have been amended since Council's last advice, with a number of the eastern peripheral lots having been reduced from 7,000m^2 down to below 5,000m^2 and northern peripheral lots from 1ha down to 7,500m^2. It is also noted that the central connector road has been replaced with a RoW.
- It is noted that the smaller parcels are below 3,000m^2 in size (see RRBR re: rural residential = lots ranging between 0.3 to 2ha in size, with the landscape assessment identifying a preference for 1ha lots as a minimum from a visual perspective), with there being a real concern that this sized parcel will struggle to deliver the anticipated rural residential form, function and character. These reduced lot sizes, coupled with the potential that the average may not satisfy the minimum prescribed in Chapter 6, will need to be addressed in more detail in the request.
- In a general sense there appears to be a reduced range of lot sizes, but the overall yield has not increased. It is not clear what the purpose of the changes were, or what outcomes/effects are likely to arise as a consequence. In any event, a more comprehensive assessment of the ODP from an urban design and visual perspective will be undertaken once the request is formally lodged. I am able to forward the ODP onto Council's Landscape Architect, Mr Andrew Craig, for comment should you require more detailed advice to inform the final application.

Annexure 3 – Table 1: Assessment against planning provisions

- The second paragraph in the introduction identifies that the LURP is being prepared by ECan. However, the LURP was completed by ECan and lodged with the Minister in July, who then released it for public comment that closed on the 2nd August. The LURP is now with the Minister to consider amendments and adoption, although the legislation does not prescribe a timeframe for when this is required to occur by. A subsequent email with provide a further update on the LURP, Chapter 6 and Council's Rural Residential Strategy.

Annexure 3 – Table 2: Assessment against relevant objectives and policies and proposed Change 1

- I am not so sure Change 1 has a lot of weight any longer and it is marginal whether it needs to be considered in any great detail. This is because the Environment Court has placed the appeal on indefinite hold pending the LURP. I also believe the UDS partners identified in the same proceeding that the Change 1 would be withdrawn once the LURP is made operative. Where it is more relevant is identifying that ECan has moved from an allocative approach under Change 1 i.e. maximum number of 600hh in the Selwyn District to a more devolved approach where the numbers and locations are to be established through an LGA Rural Residential Strategy.
- I note that some emphasis has been placed on the location being supported as it promotes the consolidated urban form of Rolleston. Personally I believe rural residential development by its very nature is the opposite of urban consolidation principles. So rather than saying it promotes consolidation, it may be more appropriate to mention that the location has the least impacts on strategic infrastructure and rural productive land in peri-urban locations and achieves efficiencies in infrastructure servicing when compared to more isolated rural residential typologies. This argument aligns with Council's policy direction in the RRBR, PC 32 and Rural Residential Strategy.
- One of the primary considerations under Change 1 and Policy 6.3.9 (g) of Chapter 6 is to avoid locations that may give rise to significant adverse reverse sensitivity effects with adjacent strategic infrastructure. The notice of requirement for the four-laning of SH1 adjoins the site, so if consultation has not occurred to date with NZTA, I would recommend it be initiated as a priority.

Annexure 3 – Table 3: Assessment against relevant objectives and policies of the LURP and proposed Chapter 6

- Refer to separate email

Annexure 3 – Table 5: Assessment against relevant objectives and policies of the SDP

- The draft provides a brief assessment on whether the rezoning impacts on versatile soils, identifying that this is not a matter of consideration under the LURP or Chapter 6. However, s 5 (2)(b), Policy 1.1.8 of the SDP and the RRBR criteria do identify this issue specifically. I would recommend a more detailed assessment of this aspect of the proposal.
- I do not agree that the balance of the Coles land holding that is outside the MUL has become unviable for rural production given that it is 20ha in size and the minimum lot size under the Plan is 4ha. In addition, I can't see how the parcel would become land locked as this would not be able to occur through the subdivision process.
- The Council's Rural Residential Strategy – Consultation Draft contains some preliminary assessments supporting the sites location for accommodating a Living 3 zone, with some of these reasons being set out in the pre-application letter from Council dated 24 October 2012.

Schedule of amendments

One matter I would like to discuss is how best to align the schedule of amendments proposed in PC27 with what are being proposed through PC 32 and other private plan changes lodged with Council for consideration. To that end, I have prepared a schedule of amendments that sets out the various operative Living 3 zone provisions and the changes being proposed under PC 27, with comments suggesting amendments or additions to better align with the Living 3 zone framework. There are a couple of options to consider, the first is we work collaboratively to discuss any possible changes before notification, while the second is that Council lodges a submission on PC

36 to ensure there is sufficient scope for a Commissioner to consider changes to the proposed schedule of amendments. This is certainly not identifying a weakness or lack of information in the request, but rather a consequence of there being several processes occurring at once that deal with the same resource management issue i.e. LURP, Chapter 6, RRBR, PC 32 and private plan changes (PC28, PC36, PC 41 & PC 27).

I hope the above comments are of use. I am happy to provide further clarification on the feedback provided.

Regards

Craig Friedel
Strategy & Policy Planner
Strategy & Policy Team
Environmental Services
DDI: (03) 347 2827

Annexure Ten: Matson & Allan Letter

MATSON & ALLAN
REAL ESTATE LIMITED

19 April 2013

Chief Executive
Environment Canterbury
P O Box 345
CHRISTCHURCH 8140

Dear Sir/Madam

RE: SUBMISSION – SELWYN DISTRICT RURAL RESIDENTIAL LAND

1. Matson & Allan have been involved in the Rural Residential market in Canterbury for in excess of 50 years.

2. This company has an active involvement in the Selwyn District and has its main office in Rolleston in the Central Business District specialising in Rural, Rural Residential and Residential sales and marketing.

3. We have been asked to comment on the demand/availability of small Rural Residential lots which we confirm are in the area of between $3000m^3$ and 1ha in area, and in particular as to the effect of the recent Christchurch earthquakes on this particular market.

4. Over the last 14 years since Selwyn District has shown rapid expansion, there has always been a steady and strong demand for Rural Residential lots as opposed to larger 4ha lots, of which the latter are really the only option available for a person looking for a semi rural lifestyle property.

5. Our experience is that of the 4ha lots that have sold on the current market, over 60-65% of those purchasers would have preferred smaller lots, but have been unable to purchase them as they are not available.

6. Our view is that the 4ha lots are uneconomic and a totally unproductive means of providing a rural option with most buyers generally looking for a small area for extra land for grazing a horse, sheep, or a building for rural storage type purposes.

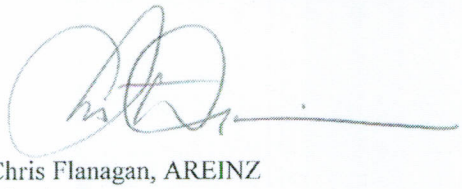
7. Our experience has been since the Christchurch earthquakes that a large number of people affected by the earthquakes are seeking a rural option at a market value level equal to what they had invested in their house affected by the earthquakes. Our knowledge is that there are minimal and limited options, which is putting pressure on other markets and the ripple down effect of not having small rural residential options is compressing that end of the market.

8. It is our experience and view that the properties in the middle to higher priced bracket would come from the second and third home buyers who want to move up the property ladder and make available their present home, but there are not the options available given the limited availability of land.

9. In the red zone resultant from the earthquake there have been a significant number of higher valued and quality homes destroyed. We have experienced a number of these parties looking for a Rural Residential option, but due to the lack of supply they are not able to be satisfied.

10. It is our view that the availability of Rural Residential lots in the Selwyn District would be in strong demand.

Yours faithfully
MATSON & ALLAN REAL ESTATE LTD



Chris Flanagan, AREINZ
Director

Annexure Eleven: Assessment Against Rural Residential Background Report Preferred Rural Residential Criteria

Table 8: Criteria to guide the selection of 'preferred locations' and policy formulation

Coles 43 PC

Criteria	Rolleston	Lincoln	Prebbleton	West Melton	Tai Tapu	Templeton	Springston
UDS and C1							
✓ Located outside the Urban Limits;	★	★	★	★	★	★	★
✓ Able to be economically provided with reticulated sewer and water connections, and appropriate provision is made for the treatment and disposal of stormwater;	★	★	★	★	★	★	★
✓ Access provided to a sealed road but not directly to Strategic and Arterial Roads (as identified in the District Plan), and State Highways;	△	△	△	△	△	△	△
✓ Not compromise the operation of the Christchurch International Airport & the health and well-being of people is not compromised by aircraft noise (50dBA noise contour);	△	●	●	●	●	△	●
✓ Avoid adversely affecting the groundwater recharge zone for Christchurch City's drinking water;	●	●	●	★	●	●	●
✓ Support existing or upgraded community infrastructure and provide for good access to emergency services;	★	★	★	★	★	★	★
✓ Not compromise the operational capacity of the West Melton Military Training Area and Burnham Military Camp;	★	●	●	★	●	●	●
✓ Avoid significant natural hazard areas, including steep & unstable land;	●	●	●	●	△	●	●
✓ Not adversely affect ancestral land, water, sites, Waahi Tapu and Waahi Taonga to Ngai Tahu;	△	△	△	△	△	△	△
✓ Avoid significant adverse ecological effects;	△	△	△	△	△	△	△
✓ Able to be integrated into, or consolidated with, existing settlements where adjacent to, or in close proximity to, existing urban or rural residential areas;	★	★	★	★	★	★	★

Gde L3 PC

Criteria	Rolleston	Lincoln	Prebbleton	West Melton	Tai Tapu	Templeton	Springston
UDS and C1							
✓ Avoid adverse effects on existing surface water quality.	●	△	△	△	△	●	△
✓ Developed in accordance with an approved ODP and is not seen as a transition to full residential forms of development;	★	★	★	★	★	★	★
Rural residential form, function and character							
✓ Provide measures to reduce the impacts of peri-urban development on the compact urban form of existing townships and Urban Limits identified in C1 or the amenity, character and productivity of surrounding rural land holdings;	★	★	★	★	★	★	★
✓ Avoid, remedy or mitigate adverse effects associated with 'ribbon' development along primary roads entering townships and the alignment of reticulated water and wastewater services;	★	★	★	★	★	△	★
✓ Preserve residential growth paths and retain an appropriate urban/rural edge on the boundaries of settlements;	★	★	★	★	△	△	△
✓ Avoid, remedy or mitigate significant reverse sensitivity effects with adjacent established rural and residential activities where located in peri-urban areas;	★	★	★	★	★	★	★
✓ Aligns with Council's demand and asset management process;	★	★	★	★	★	★	★
✓ Provide sufficient rural residential households to meet the market demand and to provide for the economic wellbeing of land owners;	●	●	●	●	●	●	●
✓ Preclude rural residential areas that are isolated from urban areas unless: (i) Along Council's 'Active Road Network'; (ii) In areas that display high amenity or natural values; and (iii) That are able to be preserved and/or created for the benefit of the wider community;	△	△	△	△	△	△	△

GRSL3 PC

Criteria	Rolleston	Lincoln	Prebbleton	West Melton	Tai Tapu	Templeton	Springston
Rural residential form, function and character							
✓ Located in relatively close proximity to urban areas (i.e. within 1-2km from the C1 Urban Limits) to enable coordinated and economically viable infrastructure and to promote social cohesion, connectivity, recreational opportunities and interaction between urban areas and the rural hinterland;	★	★	★	★	★	★	★
✓ Utilise road layouts and physical features as buffers between urban and rural residential activities to limit peri-urban sprawl;	△	△	△	△	△	△	△
✓ Provide for a mixture of housing densities ranging from 0.3ha to 2ha in size whilst achieving an overall density of one to two households per hectare. Rural residential nodes need to ensure the demand for 4ha land holdings for living purposes is reduced whilst ensuring a clear distinction is provided between residential and rural residential forms of development. The specific layout should be based upon comprehensive contextual analysis of the site and wider geographic location;	△	△	△	△	△	△	△
✓ Distribute a large proportion of the rural residential households to the rural land on the periphery of the C1 Key Activity Centre's that will have the necessary services and infrastructure to support the anticipated population growth. Large numbers of rural residential households should be precluded from the periphery of the smaller towns in the UDS area as they are not anticipated to have the services and infrastructure to support a larger population base. Rural residential activities could also undermine the existing amenity and character of these smaller towns and discrete villages.	★	★	★	★	★	★	★
✓ Protect, enhance and maintain ecological ecosystems and indigenous biodiversity and ensure that rural residential activities do not adversely affect ancestral land, water, and the Wāhi Tapu and Wāhi Taonga of Te Rūnunga o Ngāi Tahu and Te Taumutu Rūnunga. These include the protection, enhancement and maintenance of rivers, streams, groundwater, wetlands, Te Waihora, springs and mahinga kai sites.	△	△	△	△	△	△	△
Landscape values							
✓ Discernibly logical boundaries determined by strong natural or physical features;	△	△	△	△	△	△	△

Rolleston is Key Activity Centre

Criteria	Rolleston	Lincoln	Prebbleton	West Melton	Tai Tapu	Templeton	Springston
Landscape values							
Protection of natural features, significant trees and vegetation;	★	★	★	★	★	★	★
Limit the amount of households within single locations to avoid the collective visual effects of intensified land use;	△	△	△	△	△	△	△
Address the constraints to development identified in the Landscape Constraints Map prepared by Andrew Craig Landscape Architect (see Appendix 4);	△	△	△	△	△	△	△
Maintenance of the visual attributes that are representative of rural residential character that could be utilised in future layouts and built forms; and	△	△	△	△	△	△	△
Provide design solutions and mitigation measures that achieve rural residential character and preserve the openness that is characteristic of the Plains landscape.	★	★	★	★	★	★	★
Selwyn District Plan							
Minimise the loss of the character and amenity anticipated in the Rural Zones of the District and provide measures to reduce potential effects associated with adverse 'reverse sensitivity' effects;	★	★	★	★	★	★	★
Does not preclude the residential growth paths, ensures residential expansion beyond 2041 is not compromised and compact urban forms are promoted where possible;	★	★	★	★	★	★	★
Provide measures to maintain the distinction between rural areas and townships and avoids the coalescence of townships with each other;	★	★	★	★	★	★	★

Golesh3 PC

Criteria	Rolleston	Lincoln	Prebbleton	West Melton	Tai Tapu	Templeton	Springston
Selwyn District Plan							
✓ N/R Protect and enhance 'Significant Natural Areas' of indigenous biodiversity and other areas of indigenous biodiversity;	△	△	△	△	△	△	△
✓ N/R Avoid, remedy or mitigate any potentially adverse reverse sensitivity effects with the Intensive Farming Activities identified in Appendix 6;	△	△	△	△	△	△	△
✓ N/R Avoid, remedy or mitigate adverse effects associated with activities that may compromise sites registered in the Appendices of the District Plan and identified utility services, such as electricity transmission lines;	△	△	△	△	△	△	△
✓ Preclude rural residential locations that may restrict activities either currently being undertaken or may take place in the future on land that is either Designated in the Appendices of the District Plan or subject to Notices of Requirement.	△	△	△	△	△	△	△

Springston Study Area Criteria	Priority
Specific Development Constraints	
Avoid residential forms of development from expanding east and west along Ellesmere Junction Road;	★
Preclude rural residential locations that may exacerbate stormwater ponding and identified flood hazard unless effects can be avoided, remedied or mitigated ;	△
Promote the maintenance of the life supporting capacity of Class I and II LUC Versatile Soils on the periphery of Springston;	△
Preserve the open space rural character of the Rural Outer Plains Zone to the south of the township and the rural amenity contrast with Christchurch City to the north;	△
Avoid the coalescence of the township with Rolleston to the north west and Lincoln to the east;	△
Preclude intensive development within close proximity to Transpower's national grid located to the north.	△

Gds 43 PC

Rolleston Study Area Criteria	Priority
PC7 & Rolleston Structure Plan	
✓ Development aligns with the timing and availability of wastewater and water infrastructure services, as determined by the staging and the order and timing of residential activities within the Urban Limit of Rolleston;	★
✓ SDC no longer want 50m buffer — Able to provide a 50m greenbelt buffer and link into the green space corridors and reserves links outlined in the Rolleston Structure Plan;	△
Ensure rural residential development is located south-east of SH1 to avoid conflict with I-Zone, SH1 and SIMTL and to promote connectivity and the coordinated provision of infrastructure services with Rolleston.	★
Specific Development Constraints	
✓ Promote the maintenance of the life supporting capacity of Class I and II LUC Versatile Soils on the periphery of Rolleston; *	△
✓ Preserve the open space rural character of the Rural Outer Plains Zone on the south-western boundary of the township and the rural amenity contrast with Christchurch City to the north;	△
✓ Preclude intensive development within close proximity to Transpower's national grid located to the north and south.	△

Tai Tapu Study Area Criteria	Priority
Specific Development Constraints	
Preclude rural residential locations that may exacerbate flood and stormwater hazards associated with the Halswell River Catchment unless effects can be avoided, remedied or mitigated;	★
Promote the maintenance of the life supporting capacity of Class I and II LUC Versatile Soils on the periphery of Tai Tapu.	●
The inability for future rural residential activities to connect to the reticulated sewer network servicing the Pines and the proposed East Selwyn Sewer Scheme precludes development in this area;	★
Avoid, remedy or mitigate any potentially adverse effects associated with land that may be potentially susceptible to liquefaction resulting from significant earthquake events	△

* Soils are versatile but low density of rural residential development will preserve life supporting capacity. The continuation of the existing farming activity is not feasible due to half of existing farm being re-zoned Living 2.

Annexure Twelve – Section 32 Assessment

aston CONSULTANTS

resource management & planning

Section 32 Assessment

Main South Road, Rolleston

September 2014

Selwyn District Council

Table of Contents

1 Introduction 2

1.1 Proposal Objective 2

1.2 Issues 2

1.3 Consultation 3

2 Scale and significance 3

2.1 Context 4

2.2 Assessment of scale and significance 4

3 Evaluation of the Objective 4

3.1 Expected outcomes 4

4 Options for Achieving the Objective 6

5 Identification of Environmental, Economic, Social and Cultural Effects 6

5.1 Environmental 7

5.2 Economic 7

5.3 Social 8

5.4 Cultural 8

6 Efficiency of the Provisions 8

6.1 Option One: Status Quo: Leave the land zoned Rural Inner Plains 8

6.2 Option Two: Rezone for Rural Residential Purposes (Living 3) 10

6.3 Option Three: Rezone to a higher density Living Zone (Living Z) 12

6.4 Option Four: Apply for a resource consent for the proposed subdivision and development 14

6.5 Preferred Option: Rezone to Living 3 16

7 Effectiveness of the Provisions 18

7.1 Key District Plan Objectives 18

8 Risks of acting or not acting 19

9 National Environmental Standards 20

10 Conclusion - Appropriateness of the Provisions 20

1 Introduction

This section 32 evaluation has been prepared in accordance with Section 32 of the RMA as amended in December 2013. It assesses the appropriateness of the proposal to rezone a Rural Inner Plains zoned site on the eastern edge of Rolleston township for rural residential purposes (Living 3 zone).

The proposed plan change seeks to amend the District Plan to enable the rezoning of this site, and is therefore considered to be an Amending Proposal (hereafter referred to as 'the Proposal') under Section 32 of the RMA. As such this evaluation demonstrates that the proposed new provisions including the rezoning to Living 3, will assist in achieving, and will not undermine, the relevant objectives, and policies already contained in the District Plan. The Proposal does not seek to amend any of the objectives or policies of the District Plan, but rather seeks minor changes and/or addition rules, and to amend the district planning maps.

1.1 Proposal Objective

In accordance with s32 6b), the Proposal objective is the purpose of the Proposal. In this case, this is to provide for the rezoning of approximately 20.59ha of land on the eastern side of Rolleston for rural residential use in appropriate, sustainable and integrated manner, including by avoiding reverse sensitivity effects and promoting high amenity outcomes and social cohesion.

1.2 Issues

The Proposal has arisen in response to the demand for rural residential development in the Selwyn District, created in part as a result of residents from Christchurch City displaced by the recent earthquakes, including former 'hill dwellers' who enjoyed an open outlook, seeking similar or improved quality of life as prior to the earthquakes in 2011 in areas perceived as less at risk from earthquake related damage (such as Rolleston, with its gravel based ground conditions). This is achieved by seeking larger, more open sections, with rural outlook and a strong sense of rural character, while being in close proximity to existing township services. Matson and Allen Real Estate are a Rolleston based company who have noticed a strong demand for Rural Residential sized sections prior to the 2011 earthquakes but more recently as a result of the earthquakes. A letter from this company outlining their observations is attached as appendix 10 to the Plan Change Application.

Additionally and prior to the 2011 earthquakes, there was already a strong demand for rural residential sections in Selwyn District, and limited supply, that is for sections that were smaller than the 4ha Inner Plains limits, but larger than typical urban densities (ie a rural residential sized section typically between 2500m² and 2ha).[1]

The Proposal site is ideally located adjoining the edge of Rolleston township and also adjoining Inner Plains zoned rural land providing the opportunity for rural outlook and character.

Additionally with the expansion of Rolleston towards this property there was a potential issue of reverse sensitivity associated with the current farming practices on the property. The change to rural residential zoning reduces this potential issue, as there will be larger

[1] Refer Section 1.4 of AEE

sections along rural boundaries, providing for greater setbacks, and rural activities are more likely to be anticipated adjoining the proposed type of development.

Under Plan Change 1 to the Regional Policy Statement, the Coles family submitted that their entire 40ha farm should be included into the Urban Limits for Rolleston, given its location adjoining the township and their acknowledgement of the potential for reverse sensitivity to occur given the extensive cropping activities and associated overnight harvesting of crops by machinery in the summer months. Half of the farm was included in the Urban Limits and is now in the process of being subdivided as developed as Living Z zoned land. The effect of including only part of the farm is that the remaining 20ha is no longer of sufficient size to accommodate an economic cropping business. The Coles also run a contracting business from this site, and note that extensive traffic movements by heavy vehicle's (ie tractors towing balers etc) in close proximity to urban activities is not a suitable activity. Therefore it is considered that the rezoning of this site to provide for Rural Residential activities is the most appropriate and sustainable use for this balance area (ie the 20ha excluded from the urban limits).

1.3 Consultation

The Proposal provisions including ODP and associated rules have been developed by a multi-disciplinary team of acknowledged experts including landscape architect, surveyors, infrastructure engineers, traffic engineer, property developer and project manager, real estate agent and planners.

During the course of preparing this plan change request, there has been extensive consultation with potentially affected parties, including NZTA, iwi; and Council planning and asset officers. In addition, the Proposal has been extensively consulted on as part of other SDC planning processes, principally PC17 and PC32 (both withdrawn), the Rural Residential Background Report and the recently adopted Rural Residential Strategy. The Proposal Site is identified as a rural residential site in both the RRBR and the RRS.

Further details on the Consultation to date are set out in Section 6 of the AEE.

2 Scale and significance

Section 32 sets out that an evaluation report must *"…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*" (section 32(1)(c)).

In order to ensure the most appropriate level of detail is included into this evaluation, an assessment of the scale and significance of the anticipated effects must first be established. Anticipated effects are discussed in greater detail elsewhere in this evaluation, and within the plan change request. Overall effects are considered to be minor and relate to the following:

- Reverse sensitivity – including mitigation measures to avoid reverse sensitivity from regionally important infrastructure (SH1) and adjoining rural land to the east.
- Landscape - change in landscape and the rural/urban fringe

- Traffic impacts – increased traffic and its effects on and connectivity with existing roading infrastructure
- Servicing effects - ability to provide reticulated services

2.1 Context

Rolleston is Selwyn's largest town, originally providing a rural service centre function, it is now considered to be one of the Key Activity Centres for the region identified in the Canterbury Regional Policy Statement[2]

The Selwyn District is one of the fastest growing districts in New Zealand and was the fastest growing in 2010, 2011 and 2009 indicating that continued growth is likely[3]

2.2 Assessment of scale and significance

The Proposal site is a relatively small 20 ha site on the edge of Rolleston township, and given its proposed rural residential nature, its rezoning is likely to have a localised impact on the immediate surrounding area (eg. in terms of reverse sensitivity, traffic and landscape), with diminishing impacts further from the geographical location of the site.

Additionally the Proposal seeks to make amendments to planning maps and some rules specific to the Proposal site, only in order to ensure the future rural residential activity achieves appropriate rural residential character and amenity, having regard to adjoining land uses including SH1. The plan change does not seek to change the existing baseline for rural residential development, but rather seeks that this baseline also applies to the proposal site. Therefore the proposed development will be in keeping with anticipated development elsewhere in the District, and therefore substantial amendments to planning provisions are not necessary.

Because of the small size of the site, the predominantly localised effects of the development and the small amount and generally minor nature of amendments sought to the District Plan, it is considered that the Proposal is of a relatively small scale and has small and somewhat limited significance in the context of the wider community.

3 Evaluation of the Objective

Section 32 sets out that an evaluation must "*… examine the extent to which the objectives of the proposal being evaluated are the most appropriate way to achieve the purpose of this Act*" (section 32(1)(a)).

3.1 Expected outcomes

The Objective set out in section 1.1 above will generate the following anticipated outcomes:

- Provide for rural residential development adjoining and in a manner integrated with Rolleston Township while avoiding reverse sensitivity effects with the adjoining area
- Providing for housing choice in a manner indicated as desirable by the housing market.
- Provide for an integrated development in terms of physical and social connections
- Provide for a culturally sensitive development

[2] Canterbury Regional Policy Statement, chapter 6.
[3] Selwyn District Council - Rural Residential Strategy 2014 (page 11).

- Provide for a development which maintains or enhances amenity values
- Provide for the efficient use of the land resource

The purpose and principles of the RMA have specifically been considered in the design and formulation of the outline development plan (ODP) for the Site and proposed rules. A discussion of the Proposal in terms of the provisions of the RMA is provided within the application for the plan change. The main features of the Proposal which achieve the relevant matters set out in Part 2 of the Act are as follows:

Relevant RMA Part 2 Provisions	Proposal Features to achieve this
5(1) The purpose of this Act is to promote the sustainable management of natural and physical resources	The location of the site adjoining Rolleston township and on the rural/urban fringe Provision of housing choice including variation in section sizes within the development
5 (2) (a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and	Provide for a variety of rural residential sized sections to meet the ongoing market demand, including arising as a result of households displaced by the recent Canterbury earthquakes.
5 (2) (b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and	Appropriate reticulated services for water supply, wastewater disposal and sewer disposal to avoid future contamination. Remediation of any on-site historical contamination as required to protect human health.
5 (2) (c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.	Mitigation of noise effects on future residents through SH1 setbacks, avoiding reverse sensitivity effects with rural land through large setbacks and appropriate site layout. Framework planting will ensure the development integrates well with the rural setting to the east and south.
7 (b) The efficient use and development of natural and physical resources;	Provides for quality housing choice in close proximity to existing services and facilities, on a rural property that has 'split' zoning, (partly Living Z and partly Rural Inner Plains) and where the current farming activity is no longer viable taking into the change in zoning.
7 (c) The maintenance and enhancement of amenity values;	Rural outlook and character maintained through appropriate design (wide streets, large building setbacks, rural style framework planting etc)
7 (f) Maintenance and enhancement of the quality of the environment;	Maintain trees and rural character across the site and require additional appropriate framework planting
7 (g) Any finite characteristics of natural and physical resources; and	Some loss of good quality rural land (versatile Templeton silt loam soils), but noting that this area would be likely to be subject to reverse sensitivity effects with adjoining Rolleston township and that the split zoning of the existing farm property (Living Z and Rural Inner Plains for balance,

	sought to be rezoned Living 3 by this plan change) means the current farming and farm contracting business operated from the property will no longer be economic once the Living Z land is developed for residential purposes (an application for residential subdivision of this land has recently been approved).
8 In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).	Consideration of Iwi Management Plan has been made in preparing the plan change application (refer to section 3 of the plan change application), and the proposals includes features such as appropriate stormwater provisions (not mixing water from catchments) as a result.

Based on the above features of the Proposal, it is considered that the Objective meets the purpose of the RMA and is appropriate.

The Objective is relevant as the Plan Change provisions will ensure that the rural residential development occurs in a manner which avoids the potential for effects on the surrounding residential and rural environments, including reverse sensitivity effects, and will result in high amenity outcomes to occur through appropriate design features including larger section sizes, increased boundary setbacks, wide streets with tree plantings and a general sense of rural character.

4 Options for Achieving the Objective

A Section 32 evaluation report must *"…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"* (section 32(1)(b)(i)).

There are a number of other options to consider when aiming to achieve the Objective of providing for rural residential sized sections on this Site. They include the following:

- Status quo – Ie the site continues to be used for agricultural purposes and no development occurs
- Rezone for Rural Residential Purposes (Living 3)
- Rezone to a higher density Living Zone (Living Z)
- Apply for a resource consent for the proposed subdivision and development

Each of these options including their policy implications are further discussed in the subsequent sections of this report. The efficiency and effectiveness of each of these options will determine which option will best achieve the Objective and expected outcomes.

5 Identification of Environmental, Economic, Social and Cultural Effects

Under Section 32 an evaluation report must *"…assess the efficiency and effectiveness of the provisions in achieving the objectives"* (section 32(1)(b)(ii)).

An assessment under section 32(1)(b)(ii)) must *"…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" (section 32(2)(a)).

Development of the Site to residential densities more intensive than Rural Inner Plains rules currently permits (one dwelling per 4ha) is likely to have the following positive or negative effects:-

5.1 Environmental

Positive effects:

- Avoiding reverse sensitivity effects through appropriate section sizes, particularly along the rural boundary and the boundary with SH1, appropriate building setbacks to reduce noise effects from the SH1 and any potential noise with rural activities on adjoining rural sites.
- Maintaining elements of rural character through appropriate boundary treatments, building setbacks, trees within streets, wide streets, reserve provision and setbacks form SH1.
- Groundwater conditions will be maintained through the use of reticulated service provision for wastewater and water supply, and through appropriate controls on stormwater disposal.
- Plan changes provisions which will ensure the creation of a high amenity rural residential environment.

Negative effects:

- Some loss of rural productive land for rural purposes. In this case the Proposal site cannot be efficiently used as rural land due to its size, existing access provisions off SH1, and the reverse sensitivity restrictions that impending residential development to the west imposes.

5.2 Economic

Positive effects:

- Creates employment opportunities for development related consultants including planners, engineers, surveyors, real estate sales and project managers; and construction companies and house building companies during the consenting, design and construction phases.
- Creates wealth for Council through plan change and consent processing fees, and development contributions, and additional rateable properties.
- Development contributions reduce interest burden on Council infrastructure investment by enabling faster payback on this investment.
- Provides for new dwellings in this area bringing more people to live, work and shop within Rolleston, boosting the local economy.

Negative effects:

- Ongoing maintenance costs for additional roads and reserve areas within the Selwyn District.

5.3 Social

Positive Effects:

- Social cohesion through an integrated design which promotes the use of Rolleston township for service provision, by providing convenient direct access rather than reliance on external links to Christchurch City (ie transport routes through the township rather than onto SH1).
- Helps meet unmet demand for rural residential sections at Rolleston, providing for a greater range of living opportunities and greater 'social mix' and more balanced community.

Negative Effects

- None

5.4 Cultural

No specific positive or negative cultural effects.

6 Efficiency of the Provisions

An evaluation report must *"…assess the efficiency and effectiveness of the provisions in achieving the objectives"* (section 32(1)(b)(ii)). The most efficient policy or method will achieve the stated objective (the benefit) at the least cost[4]

An assessment under section 32(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 (section 32(2)(a)).

(b) if practicable, quantify the benefits and costs referred to in paragraph (a)".

Each of the 4 options identified in section 4 above are considered below in terms of their benefits and costs. These are separated into which entities are affected by the benefits or costs and an assessment of the efficiencies of the provisions proposed under each option is considered in light of the costs and benefits.

6.1 Option One: Status Quo: Leave the land zoned Rural Inner Plains

This option involves retaining the Rural Inner Plains zoning. Under this zoning the Site will continue to be available for agricultural use and will most likely continue to be used for cropping activities. Table 6.1 sets out the costs and benefits of this option.

[4] Task 7: Assessing the efficiency of the provision (page 48 of the MFE's Interim guide to section 32 of the RMA)

Table 6.1: Costs and Benefits for Option One, Keep the Status Quo.

Entity affected	Costs	Benefits	Efficiency
Council	Potential for increased complaints through increased reverse sensitivity with adjoining landowners to the west. This represents a social and an economic cost to Council to manage complaints. There is a potential for traffic resources to be disturbed and/or damaged through farm machinery making access through residential area or directly from a new access onto SH1. Loss of opportunity to provide an integrated development on this site with potential for future ad-hoc development Lack of provision for suitable rural residential land will: result in prospective rural residential landowners purchasing 4 ha blocks for rural residential purposes, which is a less efficient use of the land resource. encourage development in areas less appropriate	There is no time required for Council to assess a plan change. Retention of existing rural amenity including open rural outlook from adjoining areas and relatively 'benign' farming activity (notwithstanding that some more intensive farming activity could occur as a permitted activity, subject to meeting provisions of relevant plans, including discharge provisions of Canterbury Natural Resources Regional Plan)	Low – Moderate Not effective in meeting the provisions in the RPS or SDC's objectives and policies relating to rural residential development or growth of townships. Inefficient as it does not provide for the outcomes sought in the RPS or SDC's Plan when compared with Option Two

Land developer	There is an economic cost as the land will not sustain a reasonable economic return as a small farming unit for cropping and/or grazing purposes. Potential reverse sensitivity complaints can cause disruption to/restraints on normal farming operations.	There is no time or monetary expense for the land developer to undertake a plan change.	As above
Neighbor's and wider community	There is a likely disturbance to the amenity of neighbors adjoining the Site to the west through reverse sensitivity with existing farming activities. The existing demand for rural residential development is not met, thus potentially increasing rural residential section prices due to the limited supply; and result in prospective rural residential landowners purchasing larger 4 ha blocks for essentially rural residential purposes, a less efficient use of the land resource.	There is not any increased traffic from the site using the local roads (a very minor effect of future rural residential zoning given the small number of proposed lots).	As above

6.2 Option Two: Rezone for Rural Residential Purposes (Living 3)

A private plan change request to rezone the Site to Living 3 to provide for rural residential allotments would provide an open spacious 'buffer' zone between the full urban areas to the west of the Site and the ongoing rural activities to the east. Consideration of the costs and benefits of this option have been considered in Table 6.2 below.

Table 6.2: Costs and Benefits of Rezoning the Site to Living 3.

Entity affected	costs	benefits	Efficiency

Council	There will be a time cost of assessing a plan change. The council will be responsible for a longer network of infrastructure and roading.	There will not be the reverse sensitivity effects of other options, which reduces the economic and amenity costs. Development will occur in an integrated manner ensuring cost effective infrastructure development. Change of site character from a largely open, intensive agricultural character to a rural residential environment with a substantial vegetated component. Levels of amenity and rural character will be maintained in short term, and enhanced in longer term. There will be an 'urban limit' to the east of Rolleston ensuring a compact township shape. The developer will bear the costs of extending and installing infrastructure. The plan change amendments ensure that the integrity of the District Plan is maintained, including the security of having an ODP for the area included into the District Plan.	High – meets the provisions for rural residential in Policy 6.3.8 (LURP) Chapter 6 of the RPS including location adjoining existing urban limits. Provides for the outcomes sought by SDC's District Plan provisions, by providing an integrated development, with efficient infrastructure provision, a high level of semi-rural amenity and the avoidance of adverse effects on existing transport networks or adjoining land uses.

Land Developers	There will be a monetary cost of undertaking a plan change.	The land developer has an economic gain from the development of the site. Resolves issues with the Site being an uneconomic farming unit as a result of part of the existing farm (the western portion) being rezoned LZ, and a planned new greenfield residential area; and potential reverse sensitivity issues with this new residential area.	High - as above
Neighborhood and wider community	There will be some loss of rural land. There will be some disturbance during construction works.	The rural residential land will provide an appropriate interface between rural and urban activities, thus reducing reverse sensitivity issues. The development will compliment and add to the amenity values within Rolleston township. The community is clear about the future growth of the township to the east. Will assist in meeting the market demand for rural residential allotments	High - as above

6.3 Option Three: Rezone to a higher density Living Zone (Living Z)

This option involves applying the Rolleston Living Z zone to the site. This zone will provide for residential subdivision as a Restricted Discretionary Activity with a reasonably small allotment size (650m² minimum average as set out in Chapter 12: Subdivision, Townships Volume, Selwyn District Plan). Residential activities would be adjoining a site with rural activities creating a sharp rural/urban interface. The development would not be consistent with the objectives and policies of the District Plan, PC1 or the LURP Chapter 6 to the RPS, as it is located outside urban limits. The costs and benefits of this option are considered in Table 6.3 below.

Table 6.3: Costs and Benefits of Option Three, to Rezone to a Medium or High Density Zone

Entity affected	Costs	Benefits	Efficiency
Council	There will be a monetary cost of undertaking a plan change. The council will be responsible for a longer network of infrastructure and roading, even greater than under option two. There is potential for reverse sensitivity effects at the rural urban interface, which increases the economic and social costs to Council of managing complaints. There will be potential for additional growth beyond the Site to the east as an 'add on' to the proposed development, thus creating a sprawling township shape. The rezoned area would be outside the urban limits established in LURP's Chapter 6 to the RPS, therefore the plan change would make the District Plan inconsistent with regional planning documents.	The developer will bear the costs of extending and installing infrastructure.	Low – inconsistency with Regional and District Planning Documents is contrary to the provisions of the RMA.
Land developer	There will be a monetary cost of undertaking a plan change. Given that this type of development is	The land developer has an economic gain from the development of the site.	As above

	contrary to the objectives and policies of the District Plan and the RPS include Chapter 6 (LURP), it is likely the plan change would be declined.		
Neighborhood and wider community	There will be some loss of rural land. There will be some disturbance during construction works. There will be significantly more traffic using the local roading network. This has the potential to reduce the amenity and safety of the area for existing and future residents. There is potential for reverse sensitivity effects at the rural / urban interface, creating social and amenity costs.	The community is clear about the future growth of the township to the east.	As above

6.4 Option Four: Apply for a resource consent for the proposed subdivision and development

Subdivision of the site for Greenfield development would be a Non-Complying Activity under the rules of the District Plan Rural Volume. It would not be consistent with Chapter 6 of the LURP which seeks to ensure new urban activities only occur within existing urban areas or identified greenfield priority areas (Policy 6.3.1).

The District Plan specifically seeks to avoid the subdivision of lots lower than 4ha in the Inner Plains to avoid adverse effects of on-site effluent treatment and disposal on groundwater, and potential 'reverse sensitivity' effects on rural activities; and maintain a rural character that is distinct from townships. An application for subdivision and subsequent development is unlikely to be approved given the objectives and policies in the Plan under the current zoning. Also subdivision would only enable a 'narrow' assessment of the Site. A resource consent process does not allow a wider strategic approach. The specific costs and benefits of this option have been considered in Table 6.4 below.

Table 6.3: Costs and Benefits for Option Four, Apply for a Resource Consent

Entity affected	Costs	Benefits	Efficiency
Council	There will be a monetary cost of undertaking the processing of a large resource consent application. Given the application would be contrary to the objectives and policies for a Rural Inner Plains Site it is likely the application would be declined and would then need to be appealed. Environment court action, is costly for all parties. The application would also be contrary to regional planning documents (RPS, Chapter 6) which require all urban subdivisions to be in accordance with an Outline Development Plan included in the District Plan (there would be no ODP in the District Plan for the Site). The Council has less control over the size of allotments, the style of the development or the environmental outcomes sought from the development. A resource consent application, if granted,	There may not be the reverse sensitivity effects of other options, which reduces the economic and amenity costs. There will be an 'urban limit' to the east of Rolleston ensuring a compact township shape, although council will have less control of what is proposed.	Low - inconsistency with the statutory plan provisions means that an application would most likely be declined and then be appealed to the Environment Court.

	may challenge the integrity of the District Plan. Council would not have an ODP included in the District Plan for the site and may have to bear the costs of undertaking a plan change to include one.		
Land developer	There will be a monetary cost of undertaking a resource consent application. These costs will be particularly high if the application is declined and appealed to the Environment Court. It is unlikely that the application would be successful.	The land developer has an economic gain from the development of the Site.	As above
Neighourhood and wider community	There will be some loss of rural land. There will be some disturbance during construction works.	The rural residential land may provide an appropriate interface between rural and urban activities, thus reducing reverse sensitivity issues. The development may compliment and add to the amenity values within Rolleston township.	As above

6.5 Preferred Option: Rezone to Living 3

The preferred approach is option two; to rezone the Site from Rural Inner Plains to the Living 3 zone. This option provides the greatest benefits and the least costs of the three options. Rezoning the Site is considered most efficient and effective for the following reasons:

- Rezoning the Site enables a more strategic approach with specific environmental outcomes for the Site embedded within the District Plan in an appropriate regulatory framework.
- Provides for an integrated development which avoids, mitigates or remedies adverse effects on the environment.
- Can be incorporated within the District Plan with minimal drafting and avoids onerous site specific provisions for administering the District Plan
- Is immediately adjacent to an area identified for urban growth which is currently being consented for such development, consistent with Council's stated preference for future rural residential areas (in the RRBR) to be adjoining and integrated with urban residential areas
- Is a more 'efficient' use of the land given the restrictions of access to SH1 and planned residential growth to the immediate west of the Site which includes part of the existing farm property owned by the landowners, and leaves an uneconomic balance farm property (the Site).

7 Effectiveness of the Provisions

An evaluation report must *"…assess the efficiency and effectiveness of the provisions in achieving the objectives"* (section 32(1)(b)(ii)). With respect to effectiveness this generally refers to the ability of a provision to produce the desired outcome or result[5].

Under Section 32 (3)…*"if the proposal (an* **amending proposal***) will amend a standard, statement, 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."*

In this case the preferred option is to proceed with a plan change, without amending the objectives or policies of the District Plan. Consideration of the effectiveness of the proposed amendments are discussed in table 7.1 below.

7.1 Key District Plan Objectives

There are no proposed objectives as part of this plan change request. The Living 3 Zoning proposed for the Site relies on the existing overarching objective and policy framework of the District Plan and the RPS. An assessment of the proposed plan change against the relevant objectives and policies is made in Annexure 3 to the plan change request.

An existing objective in the District Plan (Growth of Townships) is of particular relevance to rural residential development as follows:

> *Objective B4.3.7*
>
> *Ensure that any rural residential development occurs outside the urban limits identified in the Regional Policy Statement and such development occurs in general accordance with an operative Outline Development Plan, supports the timely, efficient and integrated provision of infrastructure, and provides for the long term maintenance of rural residential character.*

Table 7.1: assessment of effectiveness of proposed amendments.

Rule to be added or amended	Effectiveness
Townships Volume Proposed Rule 4.9.31(a)	This new rule seeks to restrict the location of buildings on potential new allotments on the site to be set 40m back from SH1, 20m back from all other roads and 15m back from internal boundaries. The outcome sought is to maintain a sense of open space within the Site, provide opportunities for garden

[5] Task 8: Assess the effectiveness of the provision (page 56 of MFE's interim guide to Section 32 of the RMA)

	plantings, improve the amenity of the Site for future users and avoid any reverse sensitivity effects created with SH1. The proposed rule is effective in achieving a sense of open space and managing potential reverse sensitivity, and does not unreasonably restrict future landowners.
Townships Volume Proposed Rules 12.1.3.37(a) & 12.1.4.77	Rule 12.1.3.37(a) sets out that development will occur in accordance with the ODP roading layout, that there will be a yield of not more than 36 allotments and that there will be a requirement for street tree and framework planting at the time of subdivision. Amendments to Rule 12.1.4.77 set out subdivision assessment matters specific to the Rolleston Living 3 zones, and East Rolleston Living 3 zone. The outcome sought by these rules is to ensure that development occurs in the manner sought by this propose plan change, thus ensuring appropriate management of environmental effects including traffic effects, infrastructure effects, landscape and visual amenity effects, and reverse sensitivity effects. This rule ensures development occurs in the specified manner and is therefore effective in achieving the outcomes sought.
Townships Volume Amended Table C12.1	This amended table specifies the minimum and average allotment sizes. The outcome sought by this change is to provide for section sizes anticipated for the Living 3 Zone. This amendment is the most effective way of achieving this outcome.

8 Risks of acting or not acting

Under Section 32 an evaluation report must *"…assess the efficiency and effectiveness of the provisions in achieving the objectives"* (section 32(1)(b)(ii)).

An assessment under (section 32(1)(b)(ii)), must *"…assess the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the provisions."*

Risk arises when authorities are required to make decisions where there is insufficient information, particularly where this information is of a scientific or technical nature.

In this case there has been extensive information provided in reports accompanying the plan change request, which relate to the following areas:

- Geotechnical matters
- Site contamination matters
- Traffic matters
- Landscape matters
- Servicing matters (water supply, waste water disposal and stormwater disposal)
- Planning matters including consideration of the Rural Residential Strategy 2014

It is considered that these reports contain sufficient information for Council to make a fully informed decision, and to ensure there is very little risk involved in making any such decision.

9 National Environmental Standards

Section 32 (4) sets out the following:

"If the proposal will impose a greater prohibition or restriction on an activity to which a national environmental standard applies than the existing prohibitions or restrictions in that standard, the evaluation report must examine whether the prohibition or restriction is justified in the circumstances of each region or district in which the prohibition or restriction would have effect"

In this case the Proposal will not impose a greater prohibition or restriction than any National Environmental Standard, and therefore this section is not relevant.

10 Conclusion - Appropriateness of the Provisions

Under section 32 an evaluation report must *"…examine whether the provisions in the proposal are the most appropriate way to achieve the objectives by…(iii) summarising the reasons for deciding on the provisions"…(*section 32(1)(b)(iii)).

Taking into consideration that the Objective of this Proposal is to rezone the Proposal Site for rural residential purposes (section 1 above), and that this has been identified as achieving the purpose of the Act (section 2 above), and considering that the option of a privately imitated plan change to rezone the Site to Living 3 for rural residential purposes is the considered to be the most efficient and effective method of achieving the objective, it is clear that the proposed amended provisions are appropriate in this case.

Annexure Thirteen: NZTA approval

Gmail by Google

Anna MacKenzie <anna@fionaaston.co.nz>

FW: DEVON PARK - RURAL RESIDENTIAL STRATEGY

1 message

Fiona Aston <fiona@fionaaston.co.nz> 15 July 2014 15:09
To: anna@fionaaston.co.nz

NZTA consultation to include in Coles RR PC application

Kind regards

Fiona Aston

Principal

Fiona Aston Consultancy Ltd

Resource Management & Planning

PO Box 1435 Christchurch 8140 P 03 3322618 M 0275 332213 E fiona@fionaaston.co.nz

---

From: Shifani Sood [mailto:Shifani.Sood@nzta.govt.nz]
Sent: Wednesday, 28 May 2014 3:53 p.m.
To: Robin Schulz
Cc: Fiona Aston; Anna MacKenzie; Jon Richards
Subject: RE: DEVON PARK - RURAL RESIDENTIAL STRATEGY

Hi Robin,

Thank you for the opportunity to provide comment on the attached Outline Development Plan in respect of a property located on Main South Road at Rolleston owned by the Coles' Family Trust (as shown in your attachment also attached to this email). We are aware of the Outline Development Plan for this area as part of the LURP process.

It is noted that this land is in the process of being zoned Rural Residential. As there will be no direct access to the State Highway, we have no safety or efficiency concerns. Furthermore, we are in support of the actions to deal with reverse sensitivity issues including the setback for noise attenuation and the corresponding consent notices.

As outlined in your email, we note that the proposal provides for the following:

- Removing the existing access on to SH1 to the existing house.
- Provides a setback for a no building zone which has become a reserve.
- Provides for consent notices to be registered over four lots fronting the State Highway to have a consent notice to require the appropriate noise attenuation.
- Provides a cycle and pedestrian linkage having no effect on the State Highway.
- Provides for future road widening required by NZTA to facilitate the Southern Motorway extension.

Based on the above, the NZ Transport Agency does not have any objections to the Devon Park Proposal outlined in your email below.

Kind regards,

Shifani

Shifani Sood

Resource Planning Advisor

DDI 64 3 964 2807

T 64 3 964 2800

F 64 3 964 2793

E Shifani.Sood@nzta.govt.nz

NZ Transport Agency
Airport Business Park

Unit C, 92 Russley Road

PO Box 1479
Christchurch
New Zealand

http://www.nzta.govt.nz/

Please consider the environment before printing this email

From: Robin Schulz [mailto:Robin@nimbusgroup.co.nz]
Sent: Wednesday, 28 May 2014 3:05 p.m.
To: Shifani Sood
Cc: Fiona Aston; Anna MacKenzie
Subject: DEVON PARK - RURAL RESIDENTIAL STRATEGY
Importance: High

Hi Shifani

1. I write with reference to seeking NZTA's consent to the attached Outline Development Plan in respect of a property located on the Main South Road at Rolleston owned by the Coles' Family Trust. This land is in the process of being rezoned Rural Residential and is included in the LURP, which the Council have recommended approval following the Hearing before Commissioners of the proposal.

2. NZTA are fully aware of this proposal given your property agents are negotiating for the road to vest as shown on the attached plans fronting the State Highway.

3. You will note that the proposal closes the existing access on to the State Highway to the existing house which when fully developed, will be accessed through the new roading network internally, the main access being gained from Levi Road.

4. You will also note the Set Back for noise attenuation shown as Lot 1001 where there will be no building activity and a further noise attenuation in respect of Lots 1, 2, 3 & 4 which is 100m from the edge of the seal. A consent notice will be registered on those titles requiring the appropriate noise attenuation to be undertaken.

5. You will also note there is a pedestrian cycleway within the Set Back landscaped area which forms part of the network in and around this part of Rolleston.

6. In short, the proposal provides for:

- Removing the existing access on to SH1 to the existing house.
- Provides a Set Back for a no building zone which has become a reserve.
- Provides for consent notices to be registered over four lots fronting the State Highway to have a consent notice to require the appropriate noise attenuation.
- Provides a cycle and pedestrian linkage having no effect on the State Highway.
- Provides for future road widening required by NZTA to facilitate the Southern Motorway extension.

7. Fiona Aston Consultancy Ltd have prepared the ODP and appropriate documentation and I should be

pleased if you could provide NZTA's consent to this proposal and forward the same to the writer and to Anna McKenzie at anna@fionaaston.co.nz.

8. The SDC are anxious to process this application and ***would it be possible to have NZTA's consent urgently as they would like to have it included in their submission to the Minister by Wednesday, 5 June***?

9. If you require any further clarification, please advise.

Regards.

Robin Schulz

Nimbus Group

22 Foster St

P O Box 8394

Riccarton

Christchurch

New Zealand

Fax: 03 343 3006

Phone: 03 348 2194

Mobile: 0274 321 844

Email: robin@nimbusgroup.co.nz

Find the latest transport news, information, and advice on our website:

www.nzta.govt.nz

This email is only intended to be read by the named recipient. It may contain information which is confidential, proprietary or the subject of legal privilege. If you are not the intended recipient you must delete this email and may not use any information contained in it. Legal privilege is not waived because you have read this email.

140212.am.annexure two.pdf
895K